



User's Guide

**TEG-2248WS**

H/W: B1

## FCC Warning

This equipment has been tested and found to comply with the regulations for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

## 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.

## VCCI Warning

This is a product of VCCI Class A Compliance.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

## UL Warning

a) Elevated Operating Ambient Temperature- If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

b) Reduced Air Flow- Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

c) Mechanical Loading- mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

d) Circuit Overloading- Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

e) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).



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## ***ABOUT THIS GUIDE***

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Congratulations on your purchase of the TEG-2248WS 52-Port 10/100/1000Mbps Gigabit Web Smart Switch. This device integrates 1000Mbps Gigabit Ethernet, 100Mbps Fast Ethernet and 10Mbps Ethernet network capabilities in a highly flexible package.

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### **Purpose**

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This guide shows you how to install your TEG-2248WS 52-Port 10/100/1000Mbps Gigabit Web Smart Switch.

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### **Terms/Usage**

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In this guide, the term “Switch” (first letter upper case) refers to your TEG-2248WS 52-Port 10/100/1000Mbps Gigabit Web Smart Switch, and “switch” (first letter lower case) refers to other Ethernet switches.

## ***INTRODUCTION***

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This chapter describes the features of the TEG-2248WS 52-Port 10/100/1000Mbps Gigabit Web Smart Switch and some background information about Ethernet/Fast Ethernet/Gigabit Ethernet switching technology.

### **Gigabit Ethernet Technology**

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Gigabit Ethernet is an extension of IEEE 802.3 Ethernet utilizing the same packet structure, format, and support for CSMA/CD protocol, full duplex, flow control, and management objects, but with a tenfold increase in theoretical throughput over 100-Mbps Fast Ethernet and a hundredfold increase over 10-Mbps Ethernet. Since it is compatible with all 10-Mbps and 100-Mbps Ethernet environments, Gigabit Ethernet provides a straightforward upgrade without wasting a company's existing investment in hardware, software, and trained personnel.

The increased speed and extra bandwidth offered by Gigabit Ethernet is essential to coping with the network bottlenecks that frequently develop as computers and their busses get faster and more users use applications that generate more traffic. Upgrading key components, such as your backbone and servers to Gigabit Ethernet can greatly improve network response times as well as significantly speed up the traffic between your subnets.

Gigabit Ethernet enables fast optical fiber connections to support video conferencing, complex imaging, and similar data-intensive applications. Likewise, since data transfers occur 10 times faster than Fast Ethernet, servers outfitted with Gigabit Ethernet NIC's are able to perform 10 times the number of operations in the same amount of time.

In addition, the phenomenal bandwidth delivered by Gigabit Ethernet is the most cost-effective method to take advantage of today and tomorrow's rapidly improving switching and routing internetworking technologies. And with expected advances in the coming years in silicon technology and digital signal processing that will enable Gigabit Ethernet to eventually operate over unshielded twisted-pair (UTP) cabling, outfitting your network with a powerful 1000-Mbps-capable backbone/server connection creates a flexible foundation for the next generation of network technology products.

### **Fast Ethernet Technology**

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The growing importance of LANs and the increasing complexity of desktop computing applications are fueling the need for high performance networks. A number of high-speed LAN technologies have been proposed to provide greater bandwidth and improve client/server response times. Among them, 100BASE-T (Fast Ethernet) provides a non-disruptive, smooth evolution from the current 10BASE-T technology. The non-disruptive and smooth evolution nature, and the dominating potential market base, virtually guarantees cost-effective and high performance Fast Ethernet solutions.

100Mbps Fast Ethernet is a standard specified by the IEEE 802.3 LAN committee. It is an extension of the 10Mbps Ethernet standard with the ability to transmit and receive data at 100Mbps, while maintaining the CSMA/CD Ethernet protocol. Since the 100Mbps Fast Ethernet is compatible with all other 10Mbps Ethernet environments, it provides a straightforward upgrade and takes advantage of the existing investment in hardware, software, and personnel training.

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## Switching Technology

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Another approach to pushing beyond the limits of Ethernet technology is the development of switching technology. A switch bridges Ethernet packets at the MAC address level of the Ethernet protocol transmitting among connected Ethernet or Fast Ethernet LAN segments.

Switching is a cost-effective way of increasing the total network capacity available to users on a local area network. A switch increases capacity and decreases network loading by dividing a local area network into different segments, which don't compete with each other for network transmission capacity.

The switch acts as a high-speed selective bridge between the individual segments. The switch, without interfering with any other segments, automatically forwards traffic that needs to go from one segment to another. By doing this the total network capacity is multiplied, while still maintaining the same network cabling and adapter cards.

Switching LAN technology is a marked improvement over the previous generation of network bridges, which were characterized by higher latencies. Routers have also been used to segment local area networks, but the cost of a router, the setup and maintenance required make routers relatively impractical. Today switches are an ideal solution to most kinds of local area network congestion problems.

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## VLAN (Virtual Local Area Network)

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A VLAN is a group of end-stations that are not constrained by their physical location and can communicate as if a common broadcast domain, a LAN. The primary utility of using VLAN is to reduce latency and need for routers, using faster switching instead. Other VLAN utility includes:

Security, Security is increased with the reduction of opportunity in eavesdropping on a broadcast network because data will be switched to only those confidential users within the VLAN.

Cost Reduction, VLANs can be used to create multiple broadcast domains, thus eliminating the need of expensive routers.

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### Features

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- ◆ 48 x 10/100BASE-TX Auto-negotiation Fast Ethernet ports
- ◆ 4 x 10/100/1000BASE-T Auto-negotiation Gigabit Ethernet ports
- ◆ 2 x 1000BASE-T Combo mini-GBIC (Auto-Sense) Gigabit Ethernet for optional mini-GBIC transceiver to extend distance, share with 2 1000BASE-T Gigabit ports
- ◆ All ports support auto MDI/MDIX, so there is no need to use cross-over cables or an up-link port
- ◆ Half duplex transfer mode for connection speed 10Mbps and 100Mbps
- ◆ Full duplex transfer mode for connection speed of 10Mbps, 100Mbps and 1000Mbps
- ◆ Store-and-Forward switching scheme capability to support rate adaptation and ensure data integrity
- ◆ Up to 8K unicast addresses entities per device, self-learning, and

table aging

- ◆ 128 KBytes packet buffer
- ◆ Supports IEEE 802.1Q VLAN
- ◆ Supports IEEE 802.1p Priority Queues
- ◆ Supports IGMP Snooping
- ◆ Supports Static Port Trunk
- ◆ Supports Broadcast Storm Control
- ◆ Supports Port Mirroring
- ◆ Supports Port Setting for Speed
- ◆ Easy configuration via WEB Browser
- ◆ Easy setting via Web Management Utility
- ◆ Standard 19" (1U) Rack-mount size

## ***UNPACKING AND INSTALLATION***

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This chapter provides unpacking and installation information for the Switch.

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### **Unpacking**

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Open the shipping cartons of the Switch and carefully unpacks its contents. The carton should contain the following items:

- ◆ TEG-2248WS 52-Port 10/100/1000Mbps Gigabit Web Smart Switch
- ◆ Quick Installation Guide
- ◆ CD-ROM (Utility & User's Guide)
- ◆ Power Cord
- ◆ Rack Mount Kit (Rubber Feet, Screws and Mounting Brackets)

***If any item is found missing or damaged, please contact your local reseller for replacement***

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### **Installation**

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

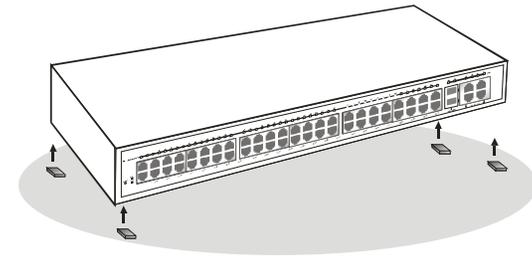
Install the Switch in a fairly cool and dry place. See *Technical Specifications* for the acceptable temperature and humidity operating ranges.

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.



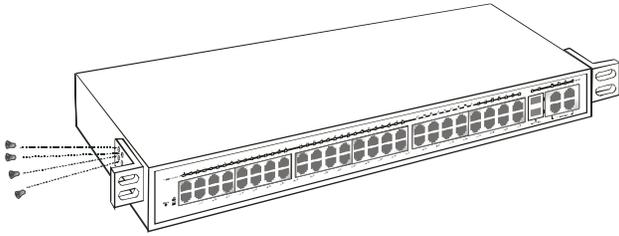
**Figure 1. Attach the adhesive rubber pads to the bottom**

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## Rack Mounting

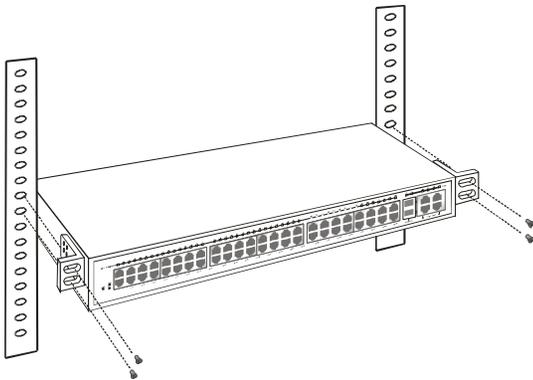
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The switch can be mounted in an EIA standard-size, 19-inch rack, which can be placed in a wiring closet with other equipment. Attach the mounting brackets at the switch's front panel (one on each side), and secure them with the provided screws.



**Figure 2. Combine the Switch with the provided screws**

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



**Figure 3. Mount the Switch in the rack**

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## Connecting Network Cable

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The Switch supports 48-port 10Mbps Ethernet or 100Mbps Fast Ethernet and it runs both in half and full duplex mode using two pair of Category 5 cable.

The Switch also supports 4-port 1000Mbps Gigabit Ethernet that runs in Auto-negotiation mode and 10Mbps Ethernet or 100Mbps Fast Ethernet that runs both in half and full duplex mode and 1000Mbps Gigabit Ethernet runs in full duplex mode using four pair of Category 5 Cable.

These RJ45 ports are Auto-MDI type port. The Switch can auto transform to MDI-II or MDI-X type, so you can just make an easy connection that without worrying if you are using a standard or crossover RJ45 cable.

There are additional 2 ports mini-GBIC slot for optional mini-GBIC module.

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## AC Power

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The Switch used the AC power supply 100-240V AC, 50-60 Hz. The power switch is located at the rear of the unit adjacent to the AC power connector and the system fan. The switch's power supply will adjust to the local power source automatically and may be turned on without having any or all LAN segment cables connected.

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## IDENTIFYING EXTERNAL COMPONENTS

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This chapter describes the front panel, rear panel, and LED indicators of the Switch.

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### Front Panel

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The figure below shows the front panels of the Switch.

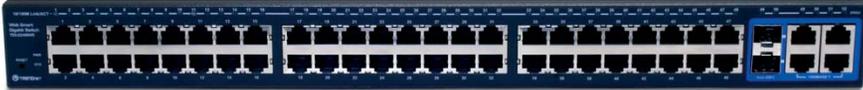


Figure 4. Front panel

#### LED Indicators:

Comprehensive LED indicators display the status of the switch and the network (see the LED Indicators chapter below).

#### 100BASE-TX Fast Ethernet Ports (Port 1~48):

These ports support network speeds of either 10Mbps or 100Mbps, and can operate in half- and full- duplex transfer modes. These ports also supports automatic MDI/MDIX crossover detection function gives true “plug and play” capability, just need to plug-in the network cable to the hub directly and don’t care if the end node is NIC (Network Interface Card) or switch and hub.

#### 1000BASE-T Gigabit Ethernet Ports (Port 49~52):

The Switch four Gigabit twisted pair ports, supported auto negotiable 10/100/1000Mbps and auto MDI/MDIX crossover detection function, this function gives true “plug and play” capability, just need to plug-in the network cable to the hub directly and don’t care if the end node is NIC (Network Interface Card) or switch and hub. These ports can operate in half-duplex mode for 10/100Mbps and full- duplex mode for 10/100/1000Mbps.

*Note: When the port was set to “Forced Mode”, the Auto MDI/MDIX*

*will be disabled.*

#### Combo mini-GBIC Ports (Port 49~50)

The Switch is equipped with two combo mini-GBIC ports, supported optional 1000BASE-SX/LX mini-GBIC module.

The 1000BASE-T port 49 and 50 are the same ports with the mini-GBIC port 49 and 50, when plug in the mini-GBIC module, the device will activate mini-GBIC, and the RJ45 port will be disabled.

#### Reset:

The Reset button is to reset all the setting back to the factory default.

*Note: Be sure that you recorded the setting of your device, else all the setting will be erased when pressing the “Reset” button.*

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### Rear Panel

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The rear panel of the Switch consists of an AC power connector and Reset button. The following shows the rear panel of the Switch.



Figure 5. Rear panel

#### AC Power Connector:

This is a three-pronged connector that supports the power cord. Plug in the female connector of the provided power cord into this connector, and the male into a power outlet. Supported input voltages range from 100-240V AC at 50-60Hz.

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## UNDERSTANDING LED INDICATORS

The front panel LEDs provides instant status feedback, and, helps monitor and troubleshoot when needed.

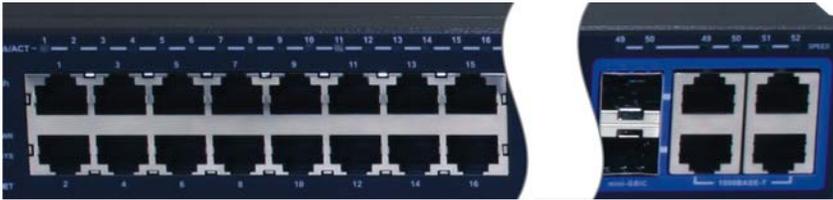


Figure 6. LED indicators

### Power and System LEDs

#### PWR: Power Indicator

On	:	When the Power LED lights on, the Switch is receiving power.
Off	:	When the Power turns off or the power cord has improper connection.

#### SYS: Management Indicator

Blinking	:	When the CPU is working, the System LED is blinking.
On/Off	:	The CPU is not working.

### 100BASE-TX Port 1~48 Status LEDs

#### Link/ACT: Link/Activity

On	:	When the Link/ACT LED lights on, the respective port is successfully connected to an Ethernet/Fast Ethernet network.
Blinking	:	When the Link/ACT LED is blinking, the port is transmitting or receiving data on the Ethernet network.
Off	:	No link.

### mini-GBIC Port 49~50 Status LEDs

#### Link/ACT: Link/Activity

On	:	When the Link/ACT LED lights on, the respective port is successfully connected to a Gigabit Ethernet network.
Blinking	:	When the Link/ACT LED is blinking, the port is transmitting or receiving data on the Gigabit Ethernet network.
Off	:	No link.

### 1000BASE-T Port 49~52 Status LEDs

#### Link/ACT: Link/Activity

Green	:	When the Link/ACT LED lights green, the respective port is successfully connected to a 1000Mbps Gigabit Ethernet network.
Amber	:	When the Link/ACT LED lights amber, the respective port is successfully connected to a 10Mbps Ethernet or 100Mbps Fast Ethernet network.
Blinking	:	When the Link/ACT LED is blinking, the port is transmitting or receiving data on the Ethernet network.
Off	:	No link.

## CONFIGURATION

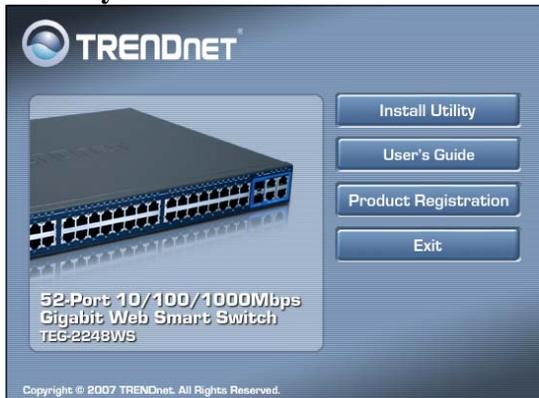
Through the Web Browser you can configure the Switch such as VLAN, Port Trunking, and Broadcast Storm ... etc.

With the attached Web Management Utility, you can easily discover all the Web Management Switch, assign the IP Address, changing the password and upgrading the new firmware.

### Installing the Web Management Utility

The following are step-by-step instructions for installing the Web Management utility.

1. Insert the Utility CD in the CD-ROM Drive.
2. Click **Install Utility** icon to start



3. Follow the on-screen instructions to install the utility.
4. Upon completion, go to **Program Files** → **TRENDnet** → **Web Smart Switch Management Utility** and open the Web Smart Management utility.

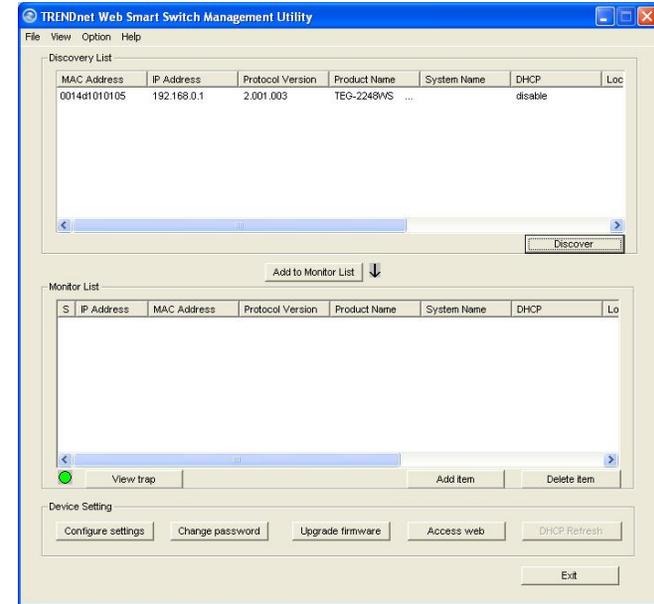


Figure 7. Web Smart Switch Management Utility

The Web Management Utility is divided into four sections, **Discovery List**, **Monitor List**, **Device Setting** and **Toolbar function**, for details instruction, follow the below section.

### Discovery List

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

By pressing the **“Discovery”** button, you can list all the Web Management devices in the discovery list.

Double click or press the **“Add to monitor list”** button to select a

device from the Discovery List to the Monitor List.

### System word definitions in the 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.
- **DHCP:** Shows the DHCP status of the device.
- **Location:** Shows where the device is located.
- **Trap IP:** Shows the IP where the Trap to be sent.
- **Subnet Mask:** Shows the Subnet Mask set of the device.
- **Gateway:** Shows the Gateway set of the device.

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## Monitor List

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All the Web Smart Device in the Monitor List can be monitored; you can also receive the trap and show the status of the device.

### System word definitions in the 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.
- **Product Name:** Shows the device product name.
- **System Name:** Shows the appointed device system name.
- **DHCP:** Shows the DHCP status of the device.
- **Location:** Shows where the device is located.
- **Trap IP:** Shows the IP where the Trap to be sent.
- **Subnet Mask:** Shows the Subnet Mask set of the device.

- **Gateway:** Shows the Gateway set of the device.

**View Trap:** The Trap function can receive the events that happen from the Web Management Switch in the Monitor List.

There is a light indicator behind the “**View Trap**” button, when the light indicates in green, it means that there is no trap transmitted, and else when it indicates in red, it means that there is new trap transmitted, this is to remind us to view the trap. (Figure 8)

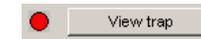


Figure 8. View Trap button

When the “**View Trap**” button is clicked, a Trap Information window will pop out, it will show the trap information including the Symbol, Time, Device IP and the Event occurred. (Figure 9)

The symbol “” represents the trap signal arise, this symbol will disappear after you review and click on the event record.

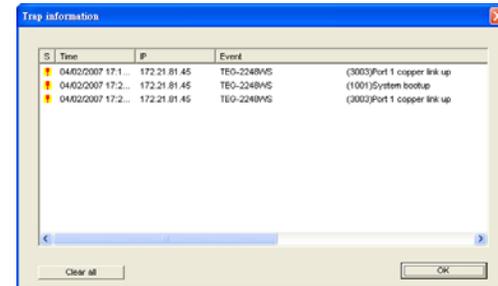


Figure 9. Trap Information

*Note: In order to receive Trap information, switch has to be configured with Trap IP and Trap Events in Web browser, which are available in the Trap Setting Menu (see Page 53 for detail).*

**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.

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## Device Setting

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You can set the device by using the function key in the Device Setting Dialog box.

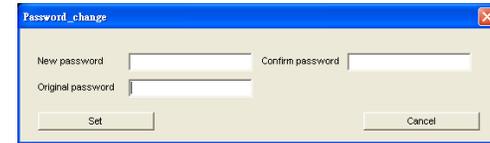
**Configuration Setting:** In this Configuration Setting, you can set the IP Address, Subnet Mask, Gateway, Set Trap to (Trap IP Address), System name, Location and DHCP function.

Select the device in the Discovery list or Monitor List and press this button, then the Configuration Setting window will pop out as Figure 10, after filling up the data that you want to change, you must fill up the password and press the “Set” to process the data changed immediately. The default password of this TEG-2248WS 52-Port 10/100/1000Mbps Gigabit Ethernet Web Smart Switch configuration is “*admin*”.



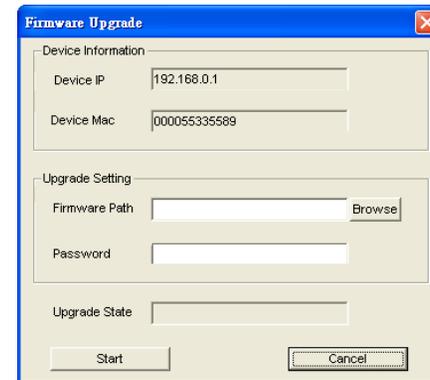
**Figure 10. Configuration Setting**

**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 press “Set” button to proceed the password change immediately.



**Figure 11. Password Change**

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



**Figure 12. Firmware Upgrade**

**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:** Press this “*DHCP Refresh*” button to refresh IP address of selected device form DHCP server.

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## Toolbar

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The toolbar in the Web Management Utility have four main tabs, File, View, Options and Help.

In the “**File TAB**”, there are Monitor Save, Monitor Save As, Monitor Load and Exit.

- **Monitor Save:** To record the setting of the Monitor List to the default, when you open the Web 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 Web Management Utility.

In the “**View TAB**”, there are view log and clear log function, this function will help you to show trap setting.

- **View Log:** To show the event of the Web Management Utility and the device.
- **Clear Log:** to clear the log.

In the “**Option TAB**”, there are Refresh Time function, 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.

In the “**Help TAB**”, there is About function, it will show out the version of the Web Management Utility.

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## Configuring the Switch

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The TEG-2248WS 52-Port 10/100/1000Mbps Gigabit Web Smart Switch has a Web GUI interface for smart switch configuration. The Switch can be configured through the Web Browser. A network administrator can manage, control and monitor the switch from the local LAN. This section indicates how to configure the Switch to enable its smart functions

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### Login

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Before you configure this device, note that when the Web Smart Switch is configured through an Ethernet connection, make sure the manager PC must be set on same the **IP network**. For example, when the default network address of the default IP address of the Web Smart Switch is **192.168.0.1**, then the manager PC should be set at 192.168.0.x (where x is a number between 2 and 253), and the default subnet mask is 255.255.255.0.

Open Internet Explorer 5.0 or above Web browser.

Enter IP address <http://192.168.0.1> (the factory-default IP address setting) to the address location.



Figure 13.

Or through the Web Management Utility, you do not need to remember the IP Address, select the device shown in the Monitor List of the Web Management Utility to settle the device on the Web Browser. When the following dialog page appears, remain enter the default password "**admin**" and press Login to enter the main configuration window.



Figure 14. Login

After entering the password, the main page comes up, the screen will display the device status.

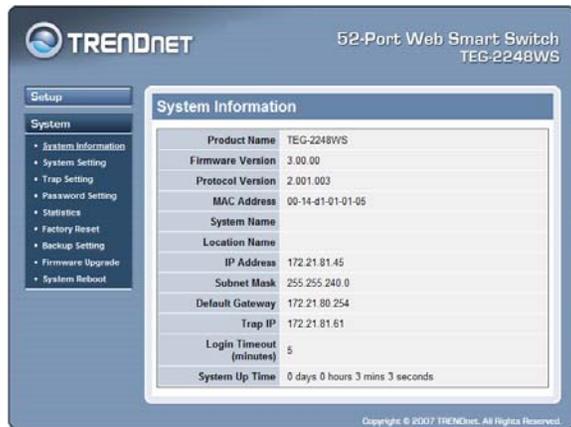


Figure 15. System Information

## Setup Setting

Find that there are six items, including *Port Setting*, *IEEE 802.1Q VLAN Settings*, *Trunk Setting*, *Mirror Setting*, *IEEE 802.1p Default Priority*, *Broadcast Storm Control Setting* in Setup menu.

## Port Settings

In Port Settings menu (Figure 16), this page will show each port's status, selected drop down menu to set each port's *Speed*, and *QoS* priority then press "*Apply*" button to activate changes. To refresh the information table to view the latest port setting and Link Status, press the Refresh button.

The *Link Status* in the screen will show the connection speed and duplex mode; else this dialog box will show **Down** when the port is disconnected.

Port ID	Speed	QoS	Link Status
01	Auto	HdDp	Down
02	Auto	HdDp	Down
03	Auto	HdDp	Down
04	Auto	HdDp	Down
05	Auto	HdDp	Down
06	Auto	HdDp	Down
07	Auto	HdDp	Down
08	Auto	HdDp	Down
09	Auto	HdDp	Down
10	Auto	HdDp	Down
11	Auto	HdDp	Down
12	Auto	HdDp	Down
13	Auto	HdDp	Down
14	Auto	HdDp	Down
15	Auto	HdDp	Down
16	Auto	HdDp	Down
17	Auto	HdDp	Down
18	Auto	HdDp	Down
19	Auto	HdDp	Down
20	Auto	HdDp	Down
21	Auto	HdDp	Down
22	Auto	HdDp	Down
23	Auto	HdDp	Down
24	Auto	HdDp	Down
25	Auto	HdDp	Down

Figure 16. Port Setting

*Note: The priority of Gigabit Fiber port is higher than Copper.*

## Speed:

The 1~48100BASE-TX port connections can operate in Forced Mode settings (100M Full, 100M Half, 10M Full, 10M Half), Auto, or Disable. The default setting for all ports are Auto.

The 49~52 1000BASE-T port connections can operate in Forced Mode settings (1000M Full, 100M Full, 100M Half, 10M Full, 10M Half), Auto, or Disable. The default setting for all ports are Auto.

The 49~50 mini-GBIC (Gigabit Fiber) connections can operate in Forced Mode settings (1000M Full), Auto, or Disable

## QoS:

Display each port's 802.1p QoS priority level for received data packet handling. Default setting for all ports is Middle. You can change the priority settings in *802.1p Default Priority*.

---

## IEEE 802.1Q VLAN

---

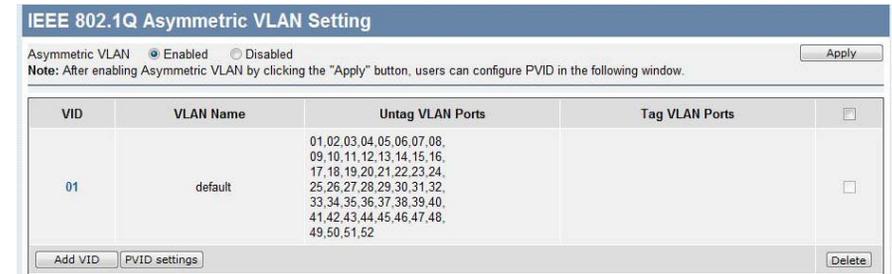
A VLAN is a group of ports that can be anywhere in the network, but communicate as though they were in the same area.

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.

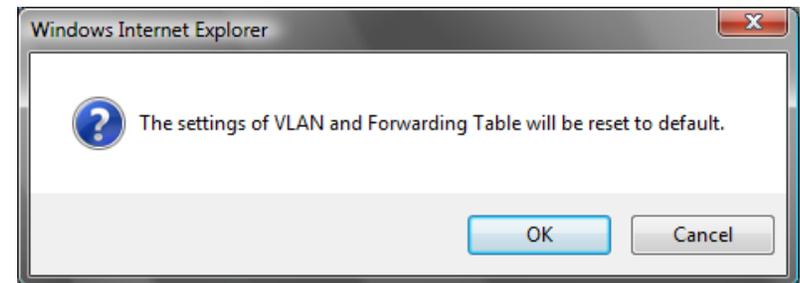
*IEEE802.1Q VLAN* function base on VID and PVID to distributes different VLAN groups. But *IEEE802.1Q VLAN* doesn't support multi-need server application via Untag port (Untag Port cannot overlap in different VLAN groups). For multi-need server application via Untag Port that the device support *IEEE802.1Q Asymmetric VLAN* function can be covered it.

## Asymmetric VLAN

IEEE 802.1Q Asymmetric VLAN default setting is "Disabled", you can press "Enabled" radio button and **Apply** it to submit the Asymmetric VLAN function.



802.1Q VLAN Setting



*Note: The settings of VLAN, IGMP Snooping and Forwarding Table will be reset to default once Asymmetric VLAN is changed.*

## Untag Asymmetric VLAN Settings:

The IEEE 802.1Q VLAN configuration page provides powerful VID management functions. The original default VLAN setting has the VID as 01, named “default”, and contains all ports as “Untagged”.

**Add VID:** Click to create a new VID group, assigning ports from 01 to 52 as Untag, Tag, or Not Member. A port can be “Untagged” in only one VID. To save the VID group, press Apply.

**Add New VID**

**VID:** A unique VLAN ID.

**VLAN Name:** A VLAN name can be setting as user wish.

**Port:** The switch port number.

**Untag:** Outgoing frames without VLAN tag.

**Tag:** Outgoing frames with VLAN tag.

**Not Member:** The port number which not to be grouped.

**Select All:** Select all ports to be VLAN members or not VLAN members.

**Cancel:** To call the modifications off.

**Apply:** To activate and save the modifications.

**Delete:** Click to delete selected VID.

**Delete VID**

To change exist IEEE 802.1Q VLAN setting, press the VID to modify that IEEE 802.1Q VLAN setting.

**Modify VID**

**VID Setting**

VID: 02  
 VLAN Name: Sales (Name should be less than 20 characters)

Port	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Select All
Untag	<input type="radio"/>	<input type="button" value="All"/>																									
Tag	<input checked="" type="radio"/>	<input type="button" value="All"/>																									
Not Member	<input type="radio"/>	<input type="button" value="All"/>																									

Port	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Select All
Untag	<input type="radio"/>	<input type="button" value="All"/>																									
Tag	<input type="radio"/>	<input type="button" value="All"/>																									
Not Member	<input type="radio"/>	<input type="button" value="All"/>																									

Modify VID

**PVID settings:**

While receiving an untagged frame from the port, the switch will assign a tag to the frame, using the PVID of the port as its VID.

**PVID Setting**

Port	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
PVID	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Port	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
PVID	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Here is an example of two VLAN groups with several ports on each group and VLAN 1 (VID 01) does not have communication with VLAN 2 (VID 02).

**Example1:**

Step 1: set VLAN1 port 27~52 to “Not Member” ports, then apply settings.

**VID Setting**

VID: 01  
 VLAN Name: default (Name should be less than 20 characters)

Port	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Select All
Untag	<input checked="" type="radio"/>	<input type="button" value="All"/>																									
Tag	<input type="radio"/>	<input type="button" value="All"/>																									
Not Member	<input type="radio"/>	<input type="button" value="All"/>																									

Port	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Select All
Untag	<input type="radio"/>	<input type="button" value="All"/>																									
Tag	<input type="radio"/>	<input type="button" value="All"/>																									
Not Member	<input checked="" type="radio"/>	<input type="button" value="All"/>																									

Step 2: Create VID 02 and set port 27~52 to “Untag” ports, then apply settings.

**Add VID**

VID: 02  
 VLAN Name: VLAN2 (Name should be less than 20 characters)

Port	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Select All
Untag	<input type="radio"/>	<input type="button" value="All"/>																									
Tag	<input type="radio"/>	<input type="button" value="All"/>																									
Not Member	<input checked="" type="radio"/>	<input type="button" value="All"/>																									

Port	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Select All
Untag	<input checked="" type="radio"/>	<input type="button" value="All"/>																									
Tag	<input type="radio"/>	<input type="button" value="All"/>																									
Not Member	<input type="radio"/>	<input type="button" value="All"/>																									

**Example2:**

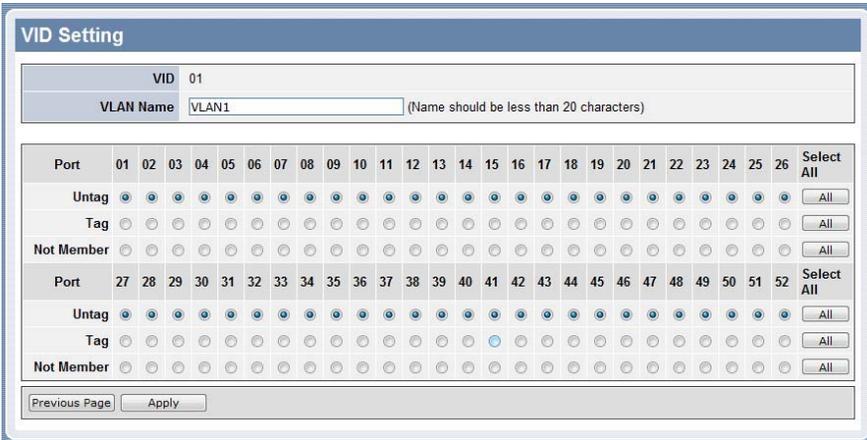
802.1Q Asymmetric VLAN settings example: Port 1~52 in VLAN 1, port1~5 in VLAN 2, port1, 6~9 in VLAN 3. All VLAN1~3 have access to Internet via port 1.

*Note: The multi-need server must be support IEEE 802.1Q VLAN*

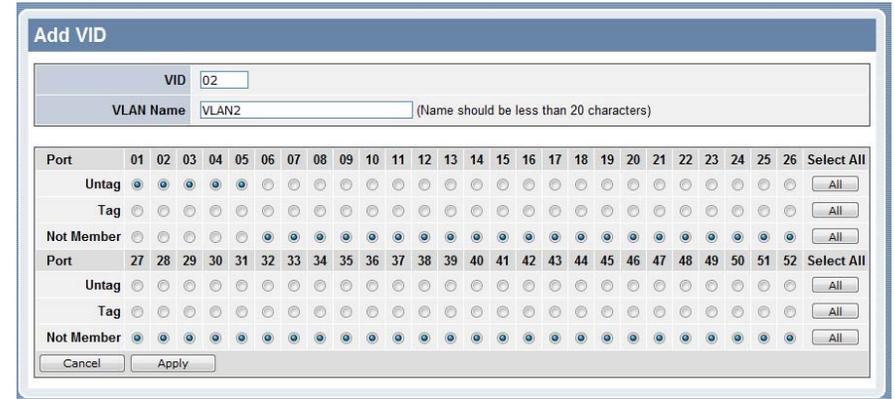
Step1: Enable Asymmetric VLAN function.



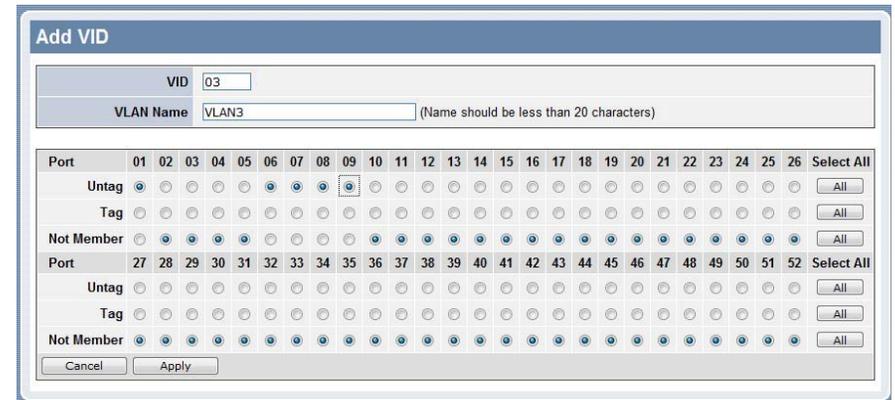
Step 2: set VLAN1 port 1~52 to “Untag” ports, then apply settings.



Step 3: Create VID 02 and set port 1~5 to “Untag” ports and port 6~52 to “Not Member” ports, then apply settings.



Step4: Add VID 03 and set port 1 and port 6~9 to “Untag” ports, then apply setting.



**Note:**

1. Untag port VLAN member can exist in different VLAN groups simultaneously when Asymmetric VLAN function enabled.
2. You must create VLAN and add VLAN member first that just can set PVID setting.
3. You must change Untag Port PVID to another existent VLAN ID that just can

remove Untag port member from VLAN group.

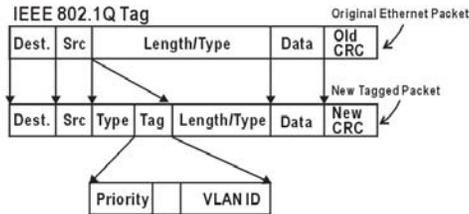
Step5: Set PVID Port 2~9 PVID value to below list:

Port	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
PVID	1	1	2	2	2	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Port	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
PVID	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

### Tag VLAN Setting

The IEEE802.1Q protocol defines a new format of the frame; it adds a tag header in the original Ethernet frame, as follows:

IEEE802.1Q Tag VLAN is divided by VLAN ID (VID). On receiving a frame, the switch checks the VID in the tag header of the frame to decide which VLAN it belongs to. If the receiving frame doesn't contain the tag header, the switch will assign a tag to the frame, using the PVID of the port as its VID.



### Example 3:

Create two VLAN groups for Tag ports multi-need server application setting and two VLAN clients cannot negotiate to each other. (Asymmetric VLAN function disabled)

VID	VLAN Name	Untag VLAN Ports	Tag VLAN Ports	<input type="checkbox"/>
01	VLAN1	02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26	01	<input type="checkbox"/>
02	VLAN2	27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52	01	<input type="checkbox"/>

Step 1: set VLAN1 port 1 to “Tag” port, port 2~26 to “Untag” ports and port 27~52” to “Not Member” ports, then apply settings.

Port	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Select All
Untag	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	All
Tag	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	All
Not Member	<input type="radio"/>	All																									

Step 2: Create VID 02 and set port 1 to “Tag” port, port 2~26 to “Not Member” and port 27~52 to “Untag” ports, then apply settings.

*Note: The multi-need server must be support IEEE 802.1Q VLAN, the sever uplink port is port1. The Tag port can exist in the different VLAN group simultaneously even Asymmetric VLAN function is disabled.*

#### Example 4:

Setting tag VLAN with two switches. Switch 1's VLAN 1 (2 ~ 3 ports) have access to the Switch 2's VLAN. The settings of VLAN group for two devices are same.

Step 1: Set Switch1's VLAN1 port 1 and 4~15,17~52 to "Not Member", then apply setting.

Step 2: Set Switch2's VLAN1 member as Switch1.

Step 3: Uplink two switches via Port 16

## Trunk Setting

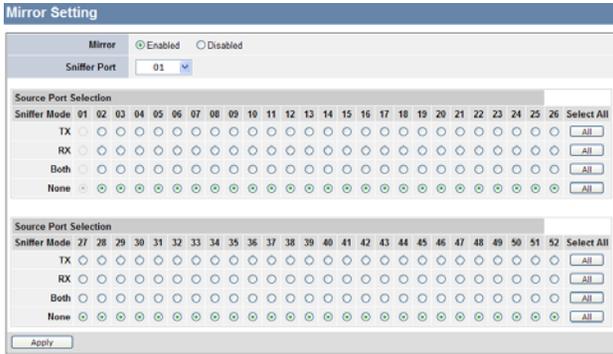
The Trunking function enables the cascading of two or more ports for a combined larger bandwidth. Up to six Trunk groups may be created, each supporting up to 8 ports. Add a Trunking Name and select the ports to be trunked together, and click Apply to activate the selected Trunking groups.

### Trunk Configuration

Be sure that the selected trunk setting port must connect to the device with a same VLAN group.

## Mirror Setting

Port Mirroring is a method of monitoring network traffic that forwards a copy of each incoming and/or outgoing packet from one port of the Switch to another port where the packet can be studied. This enables network managers to better monitor network performances.



Mirror Setting

Selection of the Sniffer mode is as follow:

**TX (transmit) mode:** this mode will duplicate the data transmit from the source port and forward to the Sniffer port.

**RX (receive) mode:** this mode will duplicate the data that send to the source and forward to the Sniffer port.

**Both (transmit and receive) mode:** this mode will duplicate both the data transmit from and data that send to the source port, then it will forward to the Sniffer port.

**None mode:** this mode will not duplicate data to the Sniffer port.

## IEEE 802.1p Default Priority

This feature displays the status Quality of Service priority levels of each port, and for packets that are untagged, the switch will assign the priority in the tag depending on your configuration.

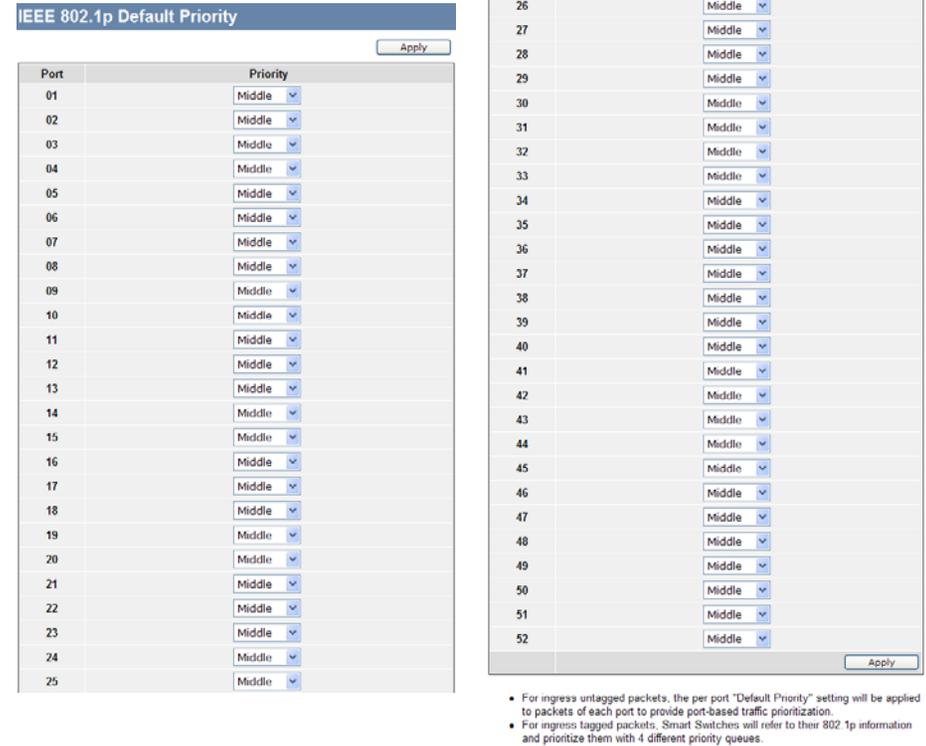


Figure 17. IEEE 802.1p Default Priority Setting

---

## Broadcast Storm Control Setting

---

The Broadcast Storm Control feature provides the ability to control the receive rate of broadcasted packets. If Enabled (default is Disabled), threshold settings of 8,000 ~ 4,096,000 bytes per second can be assigned. Press Apply for the settings to take effect.

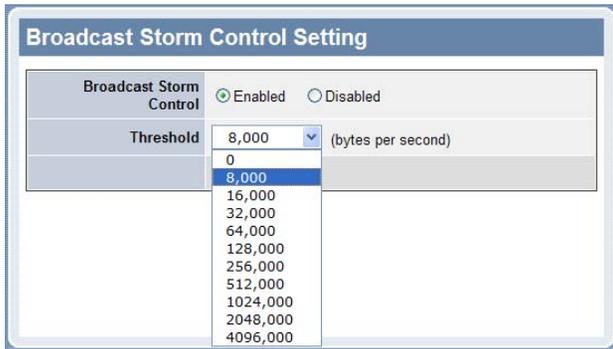


Figure 18. Broadcast Storm Control Setting

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## IGMP Snooping Setting

---

Find that there are two items, including *IGMP Global Setting* and *IGMP VLAN Setting* in Advanced menu.

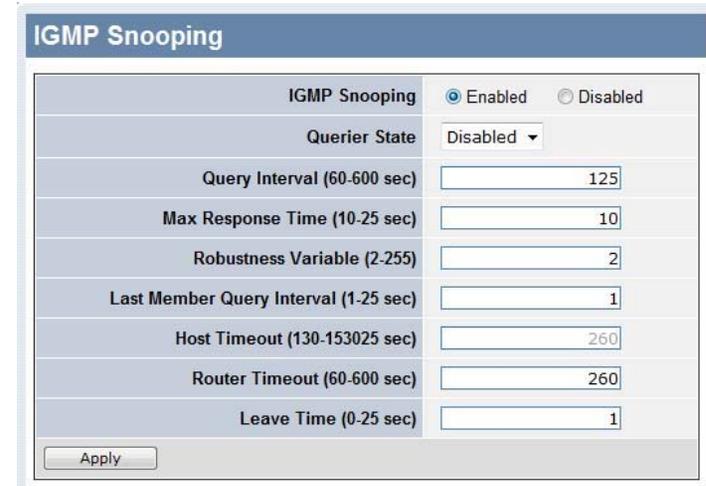
---

### IGMP Global Setting

---

With Internet Group Management Protocol (IGMP) snooping, the Web-Smart Switch can make intelligent multicast forwarding decisions by examining the contents of each frame's Layer 2 MAC header. IGMP snooping can help reduce cluttered traffic on the LAN.

With IGMP snooping enabled globally, the Web-Smart Switch will forward IP multicast traffic only to connections that have group members attached.



### IGMP Global Setting

**IGMP Snooping:** Enable or Disable the IGMP Snooping function on the Web Smart Switch.

**Querier State:** Enable or Disable the Querier State of IGMP Snooping.

**Query Interval (60-600 sec):** The Query Interval is the interval between General Queries sent. By adjusting the Query Interval, the number of IGMP messages can increase or decrease; larger values cause IGMP Queries to be sent less often. Default is 125 seconds.

**Max Response Time (10-25 sec):** The Max Response Time specifies the maximum allowed time before sending a responding report. Adjusting this setting effects the "leave latency", or the time between the moment the last host leaves a group and when the routing protocol is notified that there are no more members. It also allows adjustments for controlling the frequency of IGMP traffic on a subnet. Default is 10 seconds.



---

## System Setting

---

Find that there are nine items, including *System Information*, *System Setting*, *Trap Setting*, *Password Setting*, *Statistics*, *Factory Reset*, *Backup Setting*, *Firmware Upload* and *System Reboot* in System menu.

---

### System Information

---

Press on the “**System Information**” to present the system information status on this screen, it will show the Product Name, Firmware Version, Protocol Version, MAC Address, System Name, Location Name, IP Address, Subnet Mask, Default Gateway, Trap IP, Login Timeout and System Up Time.

System Information	
Product Name	TEG-2248WS
Firmware Version	3.00.00
Protocol Version	2.001.003
MAC Address	00-14-d1-01-01-05
System Name	
Location Name	
IP Address	172.21.81.45
Subnet Mask	255.255.240.0
Default Gateway	172.21.80.254
Trap IP	172.21.81.61
Login Timeout (minutes)	5
System Up Time	0 days 0 hours 4 mins 13 seconds

System Information

---

## System Setting

---

The System Setting includes IP Information and System information. There are two ways for the switch to attain IP: Static and DHCP (Dynamic Host Configuration Protocol).

When using static mode, the IP Address, Subnet Mask and Gateway can be manually configured. When using DHCP mode, the Switch will first look for a DHCP server to provide it with an IP address, network mask, and default gateway before using the default or previously entered settings. By default the IP setting is static mode.

By entering a System Name and System Location, the device can more easily be recognized through the Web Management Utility and in other Web-Smart devices on the LAN. The Login Timeout controls the idle time-out for security purposes, when there is no action in the Web-based Utility. When the Login Timeout expires, the Web based Utility requires a re-login before using the Utility again.

System Setting	
<b>IP Information</b>	
IP Setting	<input type="radio"/> Static <input checked="" type="radio"/> DHCP
IP Address	<input type="text" value="172"/> <input type="text" value="21"/> <input type="text" value="81"/> <input type="text" value="84"/>
Subnet Mask	<input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="240"/> <input type="text" value="0"/>
Gateway	<input type="text" value="172"/> <input type="text" value="21"/> <input type="text" value="80"/> <input type="text" value="254"/>
<input type="button" value="Apply"/>	
<b>System Information</b>	
System Name	<input type="text"/>
Location Name	<input type="text"/>
Login Timeout	<input type="text" value="5"/> (3-30 minutes)
<input type="button" value="Apply"/>	

System Setting

---

## Trap Setting

---

By configuring the Trap Setting, it allows Web Management Utility to monitor specified events on this Web-Smart Switch. By default, Trap Setting is Disabled. When the Trap Setting is Enabled, enter the Destination IP address of the managing PC that will receive trap information.

Trap Setting	
Trap Setting	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Trap IP	192 168 0 50
System Events	<input checked="" type="checkbox"/> Device Bootup <input checked="" type="checkbox"/> Illegal Login
Fiber Port Event	<input checked="" type="checkbox"/> Link Up/ Link Down
Twisted Pair Port Event	<input checked="" type="checkbox"/> Link Up/ Link Down
<input type="button" value="Apply"/>	

**Trap Setting**

**System Events:** Monitoring the system's trap.

**Device Bootup:** a trap when booting up the system.

**Illegal Login:** a trap when there is using a wrong password login, and it will record from where the IP to be login.

**Fiber Port Event:** Monitoring the Fiber port status.

**Link Up/Link Down:** a trap when there is linking status happens in mini-GBIC connection.

**Twisted Pair Port Event:** Monitoring the twisted pair port status.

**Link Up/Link Down:** a trap when there is linking status happens in 1000BASE-T connection.

---

## Password Setting

---

Setting a password is a invaluable tool for managers to secure the Web Smart Switch. After entering the old password and the new password two times, press Apply for the changes to take effect.

If you forget the password, press the “**Reset**” button in the front panel of the Switch, the current setting includes VLAN, Port Setting... etc. will be lost and the Switch will restore to the default setting.

Password Setting	
Old Password	<input type="text"/>
New Password	<input type="text"/> <small>Maximum password length is 20 characters and is case-sensitive</small>
Re-type New Password	<input type="text"/>
<input type="button" value="Apply"/>	

**Password Setting**

---

## Statistic

---

The Statistic Menu screen will show the status of each port packet count.

Statistics				
Port ID	TxOK	RxOK	TxError	RxError
01	0	0	0	0
02	554	2919	0	0
03	0	0	0	0
04	0	0	0	0
05	0	0	0	0
06	0	0	0	0
07	0	0	0	0
08	0	0	0	0
09	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0

Statistics

**Refresh:** To renew the details collected and displayed.

**Clear Counter:** To reset the details displayed.

To view the statistics of individual ports, click one of the Port ID as **Error! Reference source not found.**

Port Statistics	
Port ID : 2	<a href="#">Previous Page</a> <a href="#">Refresh</a> <a href="#">Clear Counter</a>
<b>TX</b>	
OutOctets	1099578
OutUcastPkts	1874
OutNUcastPkts	33
OutErrors	0
LateCollisions	0
ExcessiveCollisions	0
InternalMac TransmitErrors	0
<b>RX</b>	
InOctets	1955651
InUcastPkts	3524
InNUcastPkts	13770
InDiscards	0
InErrors	0
FCSerrors	0
FrameTooLongs	0
InternalMac ReceiveErrors	0

Port Statistics

---

## Factory Reset

---

The Factory Reset helps you to reset the device back to the default setting from the factory. All of the configuration will be reset, the IP address of the device will be set to default setting 192.168.0.1.

Factory Reset
Please be aware that all configuration will reset to default value.
<a href="#">Factory Reset</a>

Factory Reset

---

## Backup Setting

---

The backup setting help you to backup the current setting of the Switch. Once you need to backup the setting, press the “**Backup**” button to save the setting.

To restore a current setting file to the device, you must specify the backup file and press “**Restore**” button to proceed the setting of the recorded file.

The screenshot shows a web interface titled "Backup Setting". Below the title is a blue header bar. Underneath, a message states: "Please note that the device will reboot after a successful configuration restore." The interface contains two main sections. The first section, "Backup current setting to file", has a "Backup" button. The second section, "Restore saved setting from file", includes a text input field with a "Browse..." button and a "Restore" button.

**Backup Setting**

*Note: when restoring a recorded file, the current password will not be erased.*

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## Firmware Upload

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The Firmware Upload helps you to backup or upload firmware from/to the Switch. Once you need to backup the current firmware of the Switch, press the “**Backup**” button to save the current firmware of the Switch; To restore or upgrade firmware to the Switch, you must specify the firmware file and press “**Upload**” button to proceed the firmware upload.

The screenshot shows a web interface titled "Firmware Upgrade". Below the title is a blue header bar. Underneath, there are two main sections. The first section, "Backup Firmware to File", has a "Backup" button. The second section, "Upload Firmware from File", includes a text input field with a "Browse..." button and an "Upload" button.

**Firmware Upload**

---

## System Reboot

---

Provides to a safe way to reboot the system. Ensure the configuration has been saved, or all the changes you just made may be lost after system reboot.

The screenshot shows a web interface titled "System Reboot". Below the title is a blue header bar. Underneath, a message states: "Verify that you have saved all your configurations. All changes you have made may be lost after system reboot!". Below the message is a "System Reboot" button.

**System Reboot**

---

## Logout

---

When press this function, the web configuration will go back to first Login page.

## TECHNICAL SPECIFICATIONS

General	
Standards	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab 1000BASE-T Gigabit Ethernet IEEE 802.3z 1000BASE-SX/LX Gigabit Ethernet
Protocol	CSMA/CD
Data Transfer Rate	Ethernet: 10Mbps/100Mbps (half/full -duplex) Fast Ethernet: 100Mbps/200Mbps (half/full -duplex) Gigabit Ethernet: 2000Mbps (full-duplex)
Topology	Star
Network Cables	10BASE-T: 2-pair UTP Cat. 3, 4, 5; up to 100m 100BASE-TX: 2-pair UTP Cat. 5; up to 100m 1000BASE-T: 4-pair UTP Cat. 5; up to 100m Fiber module: mini-GBIC Fiber module
Number of Ports	48 x 10/100Mbps 100BASE-TX Auto-MDIX RJ-45 ports 4 x 10/100/1000Mbps 1000BASE-T Auto-MDIX RJ-45 ports 2 x Combo mini-GBIC slots
Physical and Environmental	
AC inputs	100-240V AC, 50-60 Hz internal universal power supply
Power Consumption	25 Watts (Max)
Temperature	Operating: 0~ 40 °C, Storage: -10 ~ 70 °C
Humidity	Operating: 10% ~ 90%, Storage: 5% ~ 90%
Dimensions	440 x 310 x 44 mm (W x H x D)
Certification	FCC Class A, CE Mark Class A

Performance	
Transmits Method:	Store-and-forward
RAM Buffer:	128KBytes per device
Filtering Address Table:	8K entries per device
MAC Address Learning:	Automatic update
Packet Filtering / Forwarding Rate:	10Mbps Ethernet: 14,880/pps 100Mbps Fast Ethernet: 148,800/pps 1000Mbps Gigabit Ethernet: 1,488,000/pps

# Limited Warranty

TRENDnet warrants its products against defects in material and workmanship, under normal use and service, for the following lengths of time from the date of purchase.

## TEG-2248WS – 5 Years Limited Warranty

If a product does not operate as warranted above during the applicable warranty period, TRENDnet shall, at its option and expense, repair the defective product or deliver to customer an equivalent product to replace the defective item. All products that are replaced will become the property of TRENDnet. Replacement products may be new or reconditioned.

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 through 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 office within the applicable warranty period for a Return Material Authorization (RMA) number,

accompanied by a copy of the dated proof of the purchase. Products returned to TRENDnet must be pre-authorized by TRENDnet with RMA number marked on the outside of the package, and sent prepaid, insured and packaged appropriately for safe shipment.

WARRANTIES EXCLUSIVE: IF THE TRENDNET PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, THE CUSTOMER'S SOLE REMEDY SHALL BE, AT TRENDNET'S OPTION, REPAIR OR REPLACEMENT. THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. TRENDNET NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE OR USE OF TRENDNET'S PRODUCTS.

TRENDNET SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLIGENCE, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO REPAIR OR MODIFY, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING, OR OTHER HAZARD.

LIMITATION OF LIABILITY: TO THE FULL EXTENT ALLOWED BY LAW TRENDNET ALSO EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT,

SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATE, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT TRENDNET'S OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.

Governing Law: This Limited Warranty shall be governed by the laws of the state of California.

Note: AC/DC Power Adapter, Cooling Fan, Cables, and Power Supply carry 1-Year Warranty



## Product Warranty Registration

Please take a moment to register your product online.  
Go to TRENDnet's website at <http://www.trendnet.com/register>

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