

**ES5008G Series Full Gigabit Managed POE Switches
User manual**

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www.3onedata.com

ES5008G Series user manual

Statement

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Revision History

Version No.	Date	Reason
V1.0.0	2014-9	Creating Documents

Notes

In reading this manual, please pay attention to the following symbols,



Information necessary to explain



Special attention

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CHAPTER 1 SUMMARIZE

1.1 Introduction

ES5008G Series are Full gigabit , managed , 4/8-port Gigabit high power (IEEE 802.3at) PoE Switches,utilizing a compact factor which can be mounted in a 19-inch rack with rack-mounting kits or placed on desktop.

With data and power supported by one unit, the E5008G series shall reduce cables and eliminate the need for dedicated electrical outlets on the wall,ceiling or any unreachable place. Auto PoE detection and Plug and play installation makes E5008G series Gigabit PoE Switch easy to use and with clear LED indicators to tell the working condition.

1.2 Features

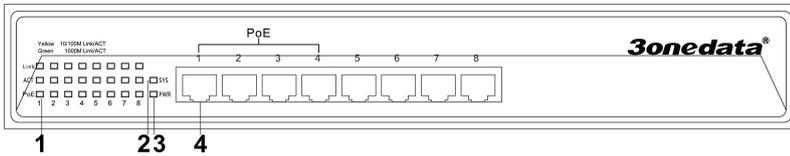
- Compatible with both IEEE802.3at(30W) and IEEE802.3af(15.4W), can supply power to PDs under these two standards
- Automatically detect and supply power to IEEE802.3at and IEEE 802.3af compliant powered devices(PDs)
- Advanced SAFC function, only supply power to IEEE 802.3af/at compliant PDs, no worry about damaging other private standard POE devices or devices without POE function
- Support port power supply prioritization, guarantee the continuous power supply of key nodes
- Up to 100m network cable transmitting distance
- Built-in PSE power supply module, plug-and play design, easy to install
- High security performance defending against power surge
- Support short-circuit protection function
- Energy-saving green design, support auto-switch to standby mode and auto-detect cable length.
- Support simple WEB management, easy to configure the functions of switches

CHAPTER 2 HARDWARE DESCRIPTION

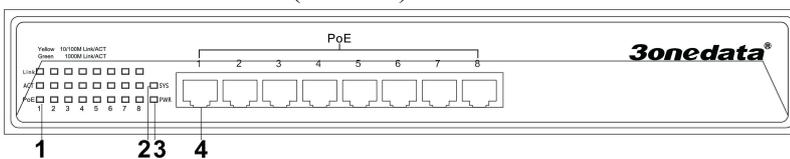
2.1 Panel design

Front panel

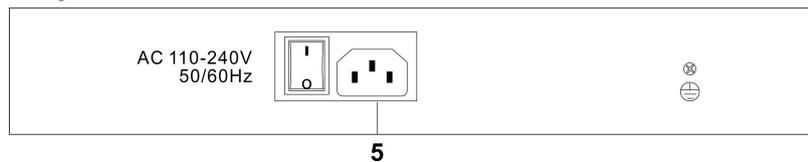
ES5008G-4POE-65W-P(220VAC)



ES5008G-8POE-150W-P(220VAC)

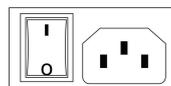


Back panel



1. The corresponding interface LED indicator
2. System Indicator
3. Power Indicator
4. 10Base-T /100Base-T/1000Base-TX port
5. Power input socket and switch

2.2 Power supply input

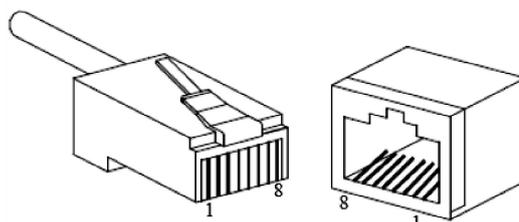


ES5008G series provides three power socket rear panel Used in the AC power input (220 VAC)

2.3 Communication port

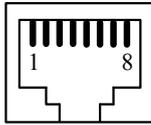
10Base-T /100Base-T/1000Base-TX Ethernet port

10Base-T/100Base-TX/1000 Base-TX Ethernet port use in front panel, It is RJ45 port, the PIN define of RJ45 is as follows: connection adopt UTP or STP, the distance is no more than 100m, 1000Mbps use cat5e, 100Mbps use cat5, 10Mbps use cat3,4, 5.



RJ45 port support MDI/MDI-X self-adaption. In (MDI), PIN1, 2, 3, 4, 5, 6, 7, 8 connect corresponding, in (MDI-X) PIN1→3, 2→6, 3→1, 6→2, 4→7, 5→8, 7→4, 8→5. In MDI/MDI-X, 1000 Base-TX PIN define is as follows:

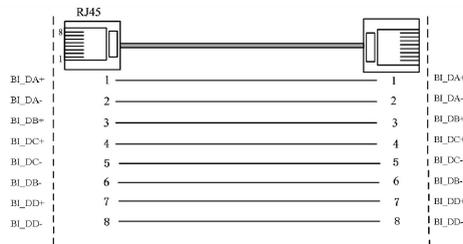
PIN	MDI	MDI-X
1	BI_DA+/TX+	BI_DB+/RX+
2	BI_DA-/TX-	BI_DB-/RX-
3	BI_DB+/RX+	BI_DA+/TX+
4	BI_DC+/-	BI_DD+/-
5	BI_DC-/-	BI_DD-/-
6	BI_DB-/RX-	BI_DA-/TX-
7	BI_DD+/-	BI_DC+/-
8	BI_DD-/-	BI_DC-/-



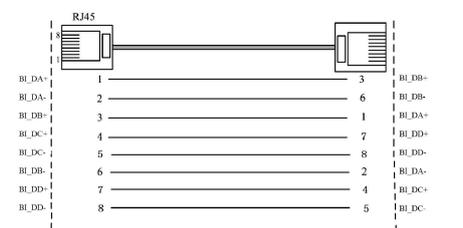
Information necessary to explain:

Note: “TX±”Transmitting data±, “RX±”receiving data±, “—”no use

MDI (straight-through cable) :



MDI-X (Cross over cable) :



2.4 LED Indicator

ES5008G series LED indicator light on the front panel .the function of each LED is described in the table as below:

LED	Indicator	Description
PWR	ON	Power connection regularly
	OFF	Power supply have no connection or unwonted
Sys	Blinking	Software running in the CPU
	Destroy/normally on	The software runs abnormally in the CPU
Link/ACT	ON	Established effective network connection
	Flashing	Network in activity statues
	OFF	Did not established effective network connection
	Yellow	The 10/100M ports auto-negotiate connected

	Green	The 1000Mbps ports auto-negotiate connected
POE	ON	The PoE function works
	Flashing	The PoE ports failed to work or the PDs are overloaded

2.5 Installation

Precautions

Please read the following precautions carefully before operation, to avoid damaging the device or causing body injuries.

- 1). Please remove the power socket before cleaning the switch. Don't wipe the switch with wet cloth or wash the switch with liquid.
- 2). Don't stock the device in damp environment or near water, to avoid water or moisture penetrating into the inner device.
- 3). Don't put the device on a unstable box or desk, the device will get damaged from falling.
- 4). Please keep good ventilation indoor, and make sure the heat dissipation function of switch works well.
- 5). The switch only works normally in suitable voltage. Please check the working voltage first.
- 6). Please don't open the switch enclosure randomly, especially when the switch is powered on, there is risk of electric shock.
- 7). Please wear anti-static wrist strap when change the interface board, to avoid the static electricity damage the board.

Check Installation Environment

The switch is for indoor use only, please pay attention to the following problems when install the switch in a cabinet or put the device directly on the desktop.

- 1) The air vents of switch must have enough space to dissipate the heat inside enclosure.
- 2) A good heat dissipation system in the cabinet or on the desktop.
- 3) The cabinet or desktop strong enough to support the weight of switch and installation accessories.
- 4) Safe ground connection for the cabinet or desktop.

Installation Tools

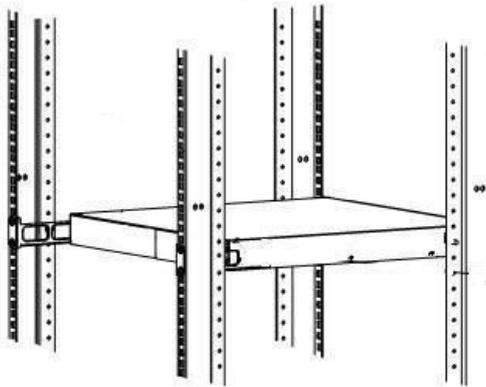
- 1) Flathead screw driver
- 2) Cross screw driver
- 3) Anti-static wrist strap

Installation

1. Install the Switch

1.1 Install the switch on a 19 inch standard cabinet

- 1) First fix the provided two L-shaped brackets on the two sides of switch.
- 2) Fix the switch on the rack with screws(screws are not provided).



1.2 Install the switch on the desktop

When there is no 19 inch standard cabinet, the switch is usually put on clean desktop. The operation is easier,

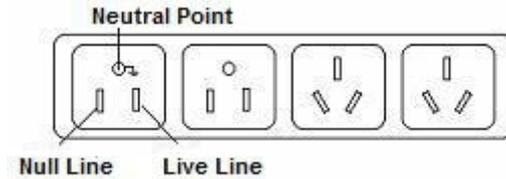
please follow the below instructions:

- 1) Keep the desktop stable and safely grounded.
- 2) Set aside 10cm space around switch for heat dissipation.
- 3) Don't put any heavy device on the switch.

2. Connect the power cord and grounded cord

2.1 Select of AC Power Socket

The neutral one-phase 3-wire power socket is advised to adopt, or the multifunctional PC power socket. The neutral point of power supply must be well grounded, please check the grounded power supply before operation.



2.2 Connection of AC power cord

Step one: please connect one end of power cord to the power jack on the switch rear panel, Connect the other end to the AC power socket.

Step two: check the power indicator(PWR) on the front panel, if the LED is on, connection is Successful.

3. Test after Installation

Make sure the working voltage is the same with the rated voltage of switch.

Check the connection of grounded cord.

Check the connection of configuration cable and power input cord.

If the interface cable is partly deployed outdoor, please check the connection of anti-thunder AC power strip and interface anti-thunder device.

Chapter 3 Appearance and Dimension

3.1 Appearance

ES5008G-4POE-65W-P(220VAC)

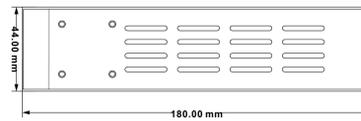
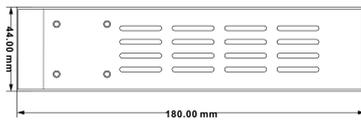
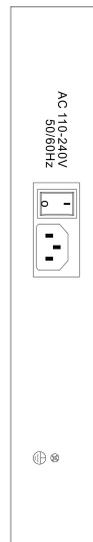
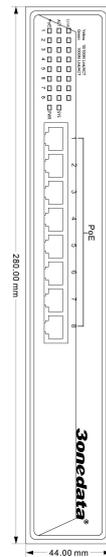
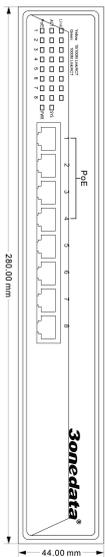
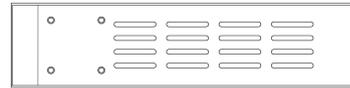
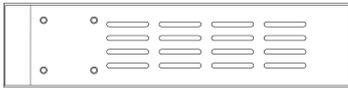
ES5008G-8POE-150W-P(220VAC)



3.2 Dimension

ES5008G-4POE-65W-P(220VAC)

ES5008G-8POE-150W-P(220VAC)



CHAPTER 4 PACKLING LIST

Please check the packaging and accessories by your first using. Please inform us or our distributor if your equipments have been damaged or lost any accessories, we will try our best to satisfy you.

Description	Quantity
POE switch	1
Power Cord	1
User manual	1
CD	1
Warranty card	1
Product Qualified Card	1

CHAPTER 5 Configure POE switch

5.1 User Login

Switch adopt Web-based interface management, the default IP is 192.168.255.1. Please make sure the IP address of PC is in the same network segment with that of switch, or the PC can't access to manage the switch. After the setting of IP address, please input 192.168.255.1 in the browser to access the configuration interface of switch. The Web management interface consists of five parts, which are switch status, basic configuration, advanced configuration, network security, system maintenance.



Picture5.1.1 Login Page

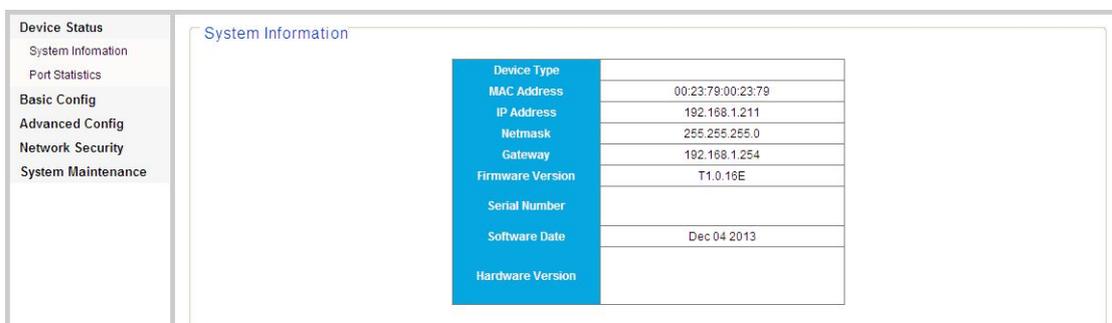
Enter user password in the above login page, the default password is admin. The system only support single user login, other logins will be refused until the user logs out.

If IP address conflict occurs, it suggests the latest user didn't log out successfully. Please reboot the device or try to log in again 180s later.

It is advised to reset the IP address and password in first login, and make sure the switch is not configured in the same network segment with DHCP server or Internet Gateway device.

5.2 Device Status

5.2.1 System Information



Picture 5.2.1.1 System Information

You can find Device model number, Serial number, MAC Address, IP Address, Netmask, Gateway, Firmware Version, Hardware Version etc, from the WEB INTERFACE.

5.2.2 Port Statistics

Port	State	Link Status	TxGoodPkt	RxGoodPkt
Port 1	Enabled	Link Up	10585	61318
Port 2	Enabled	Link Up	41507	7
Port 3	Enabled	Link Up	40054	9
Port 4	Enabled	Link Down	422	0
Port 5	Enabled	Link Down	22420	5
Port 6	Enabled	Link Up	20946	1703
Port 7	Enabled	Link Up	39466	41
Port 8	Enabled	Link Up	58112	9749

Picture 5.2.2.1 Port Statistics

This page allows you to check the port state, link state, quantity of forwarded/received correct packets and quantity of forwarded/received wrong packets. If there are too many wrong packets, it suggests the port has a poor working performance, users need to examine the connection network cable or the network card. There is data reset button, you can clear the old data and start to get new data. This software version doesn't support real-time data refresh, to get new data please click the "refresh" button.

5.3 Basic Configuration

5.3.1 IP Config

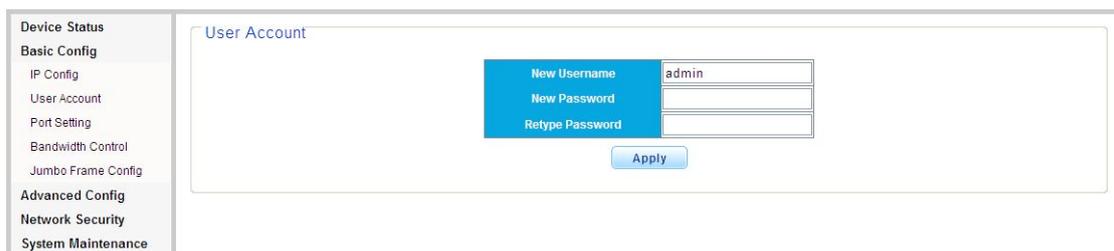
Picture 5.3.1.1 IP Config

This page allows you to change the IP addressing basic setting, e.g. IP address, Net mask, Gateway, DHCP/Static IP, The default setting is "Static IP"

Picture 5.3.1.2 DHCP Configuration

NOTE: Please don't change value of the Netmask to avoid failing to log in Web interface, And It is better not to get the IP address via DHCP, to avoid failing to log in after rebooting.

5.3.2 Management Account

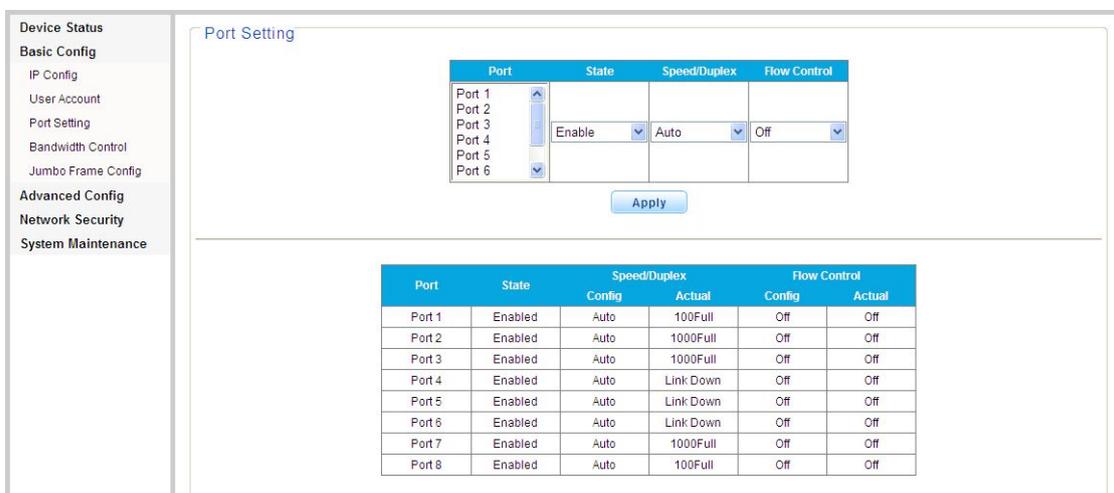


Picture 5.3.2.1 Account Management

This page allows you to modify a user’s username and password. It will automatically return back to log in interface. Please log in with modified User name and password.

NOTE: Please carefully remember the new User name and password.

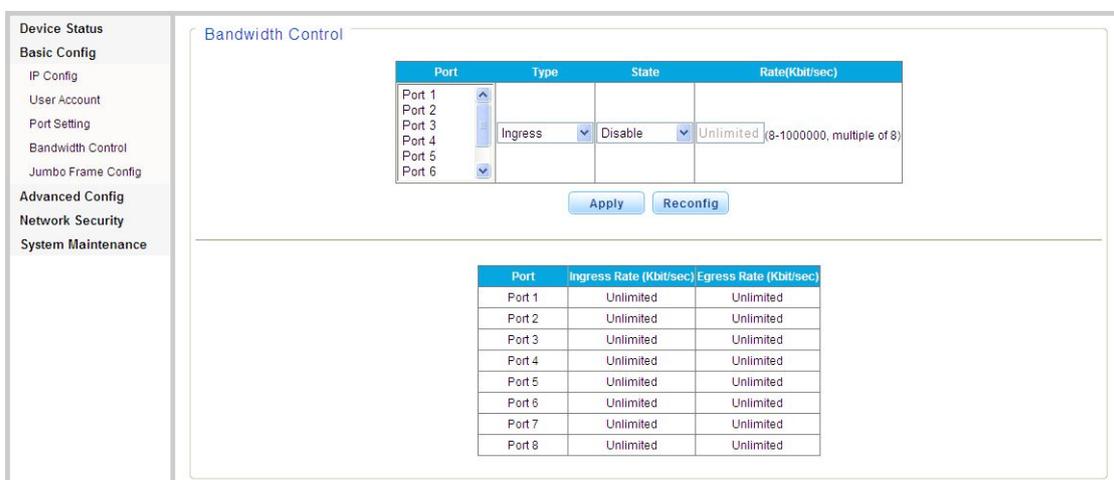
5.3.3 Port Config



Picture 5.3.3.1 Port Config

It can be set Enable&Disable for Port Configuration, the default setting is “Enable”. You can choose any of the 5 types as per your requirement, Auto-negotiation, 10 Half, 10Full, 100Half, 100Full. The default setting is “Auto-negotiation” and Network Flow Control “Off”.

5.3.4 Bandwidth Allocation



Picture 5.3.4.1 Bandwidth Allocation

The Bandwidth Page allows network managers to define the bandwidth settings for specified egress and ingress interfaces.

Rate Limits and Shaping are defined per interface:

- Rate Limit sets the maximum bandwidth allowed on ingress interfaces.
- Shaping Rate sets the maximum bandwidth allowed on egress interfaces. On GE ports, traffic shape for burst traffic (CbS) can also be defined. (0Kbit/sec -1000000Kbit/sec) requests are any multiple of 8.

5.3.5 Jumbo Frame Config



Picture 5.3.4.1 Jumbo Frame Config

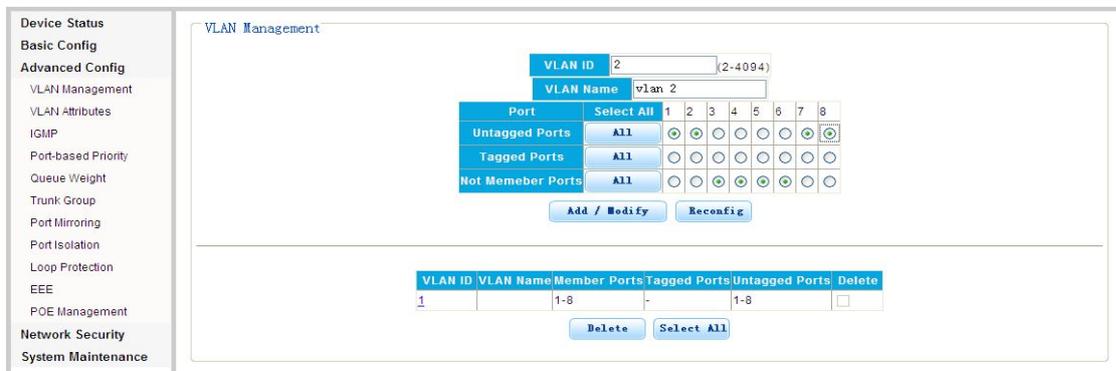
The Max. Data packet is usually 1512Bytes. It will be divided to several packet in unit of 1512Bytes. It is for Frame Larger than 1512Bytes transmission to set Jumbo Frame here. It can be transmitted without division for Frames lower than the frame configured.

5.4 Advanced Config

5.4.1 VLAN Config

The System VLAN function consist of two parts: one is VLAN configuration, which mainly include creating VLAN, add VLAN membership; the other is VLAN property, the user can define PVID for every ports.

5.4.1.1 VLAN Configuration

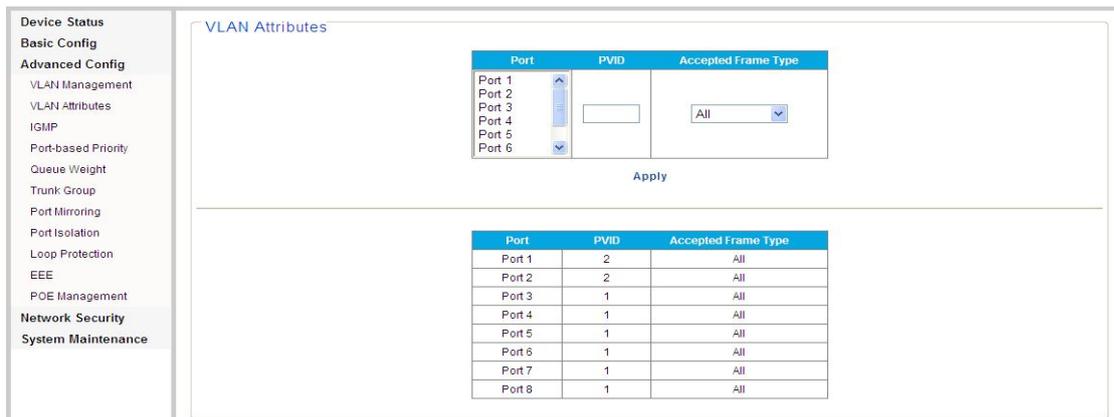


Picture 5.4.1.1 Vlan Configuration

The Switch allows you to create/delete VLAN, Select a port to associate with the membership. The default VLAN is “VLAN 1”, and associate port 1,2,7,8, with the membership of VLAN2, Choose a port to display the tagged and untagged VLAN memberships it is associated with.

5.4.1.2 VLAN Attributes

Please configure default VLAN ID(PVID). PVID can be renamed according to Port VLAN ID when connect PDs to the switch, but the PVID will be defaulted as “1” when the port is used to uplink or downlink to another switch. Please refer to the below picture.



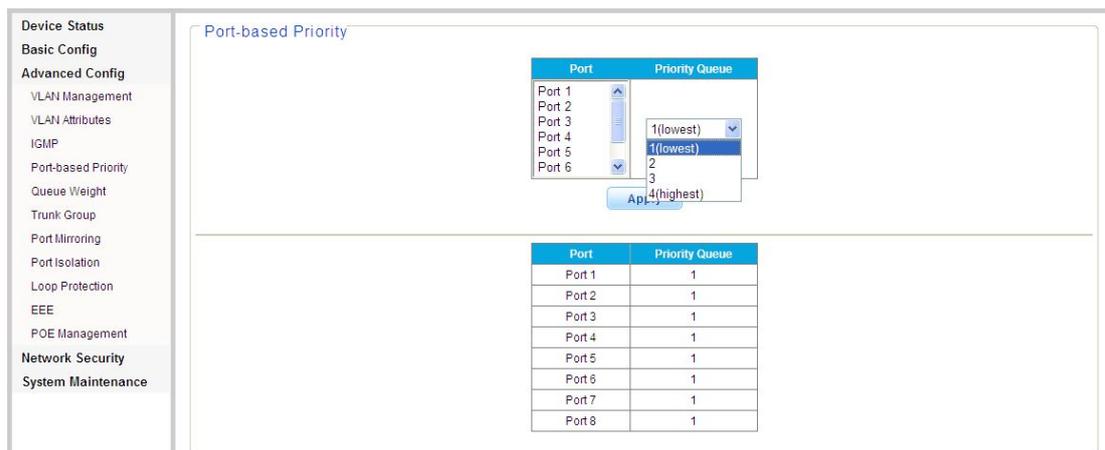
Picture 5.4.1.2 VLAN Attributes

5.4.2 QoS Configuration

QoS (Quality of Service) includes bandwidth, delay, jitter, and packet loss.

To improve QoS, we have to ensure enough Bandwidth for transmission, reduce delay time, reduce chance of packet loss, packet delay variation

5.4.2.1 Port-based Priority

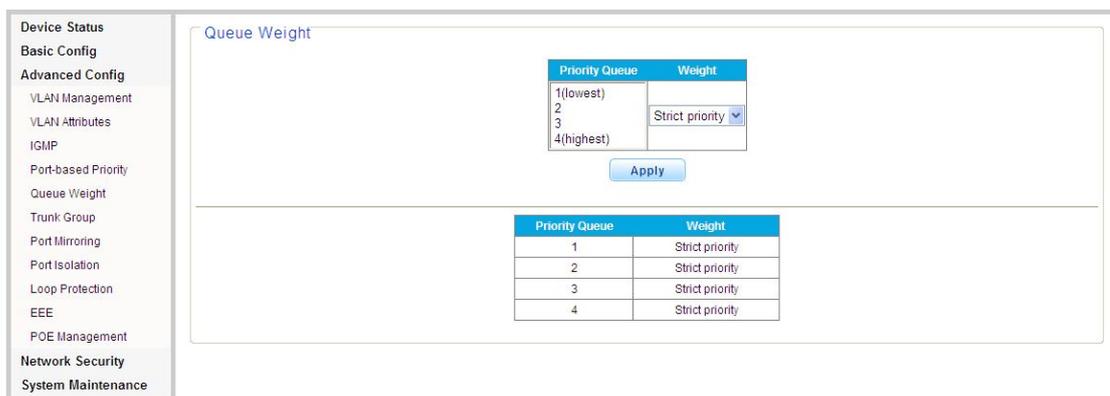


Picture 5.4.2.1 Port-based Priority

From the left Menu, Click Advanced Config, QoS, then Port based priority, Enter into interface of QoS configuration. Choose priority grade for each port.

Default setting is Grade 1 meaning the lowest priority, and Grade 4 means the highest priority

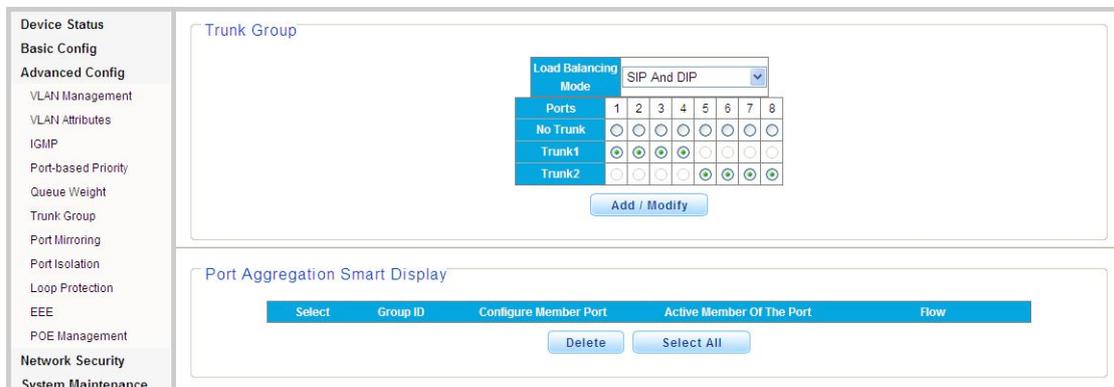
5.4.2.2 Queue Weight Setting



Picture 5.4.2.2 Queue Weight Setting

Click “Advanced config” from left Menu,then,”QoS”,click “Queue Weight”Enter into the interface as 4.2.2. You can set Priority Queue1,2,3,4. Queue 1 is the lowest,when Queue 4 is the highest priority Queue.

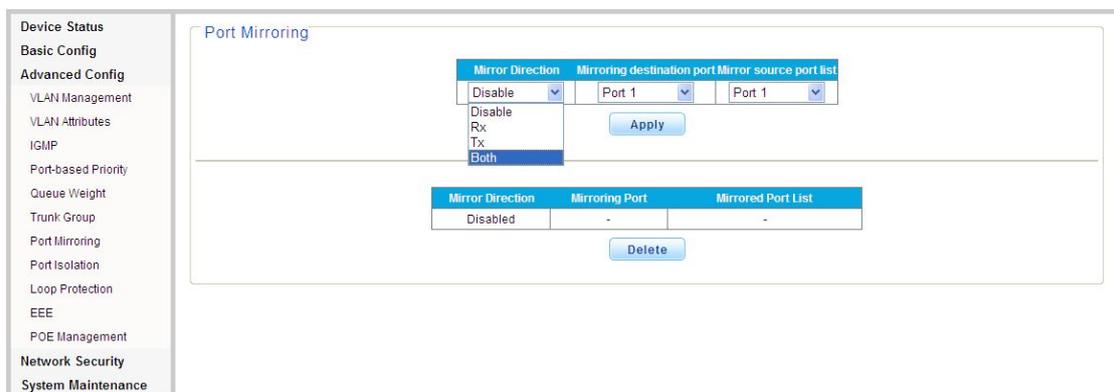
5.4.3 Trunk Group



Picture 5.4.3.1 Trunk Group

Enter into the interface of Port Aggregation,There has 2 Groups of Aggregation, each group support 4 ports. Aggregation group1 allows to aggregate port 1-4,Aggregation group2 allows to aggregate port 5-8.

5.4.4 Port Mirroring



Picture 5.4.4.1 Port Mirroring

The Switch allows you to monitor traffic going in and out of a particular port. For traffic monitoring to work,you need to attach a network analyzer to one port and use it to monitor the traffic of other ports on the Switch.To set up traffic monitoring, you need to set a monitor port.(the port that is connected to the analyzer), and a mirror port(the port that is to be monitored). Once the pair is defined, and you enable traffic monitoring, the Switch takes all the traffic going in or out of the mirror port and copies it to the monitor port.



NOTE: The monitor port should have a higher,bandwidth than the mirror port. Otherwise, the Switch may not be able to copy all traffic effectively during periods of high traffic.Two tabs are available on the Port Mirroring page:

- Setup
- Remove

5.4.5 Port Isolation

One of the routine method to isolate L2 Messages is associating different ports to different VLANs and the isolation between VLANs works, which cause the waste of VLAN resources.With the port isolation function, messages of different ports can be isolated even in the same VLAN.

a specific multicast service.

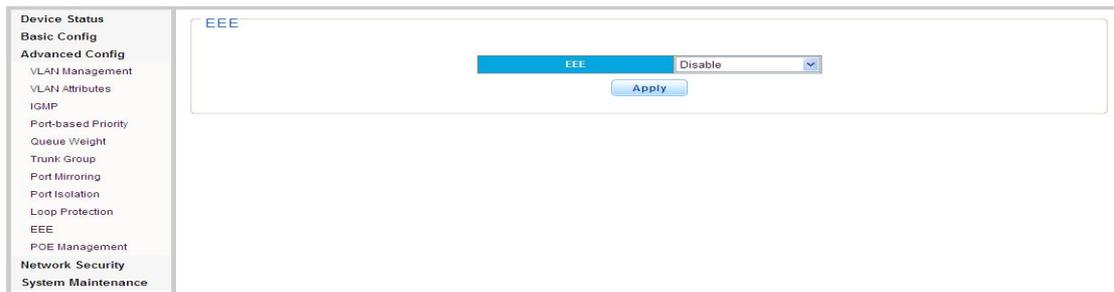
It identifies the ports containing hosts requesting to join the service and sends data out to those ports only. It then propagates the service request up to any neighboring multicast switch/router to ensure that it will continue to receive the multicast service. This procedure is called multicast filtering.

The purpose of IP multicast filtering is to optimize a switched network’s performance,so multicast packets will only be forwarded to those ports containing multicast group hosts or multicast routers/switches, instead of flooding traffic to all ports in the subnet (VLAN).

Choose Enabled or Disabled from the IGMP Snooping Mode drop down menu.

Figure 43 IGMP Snooping & Query Setup

5.4.8 EEE



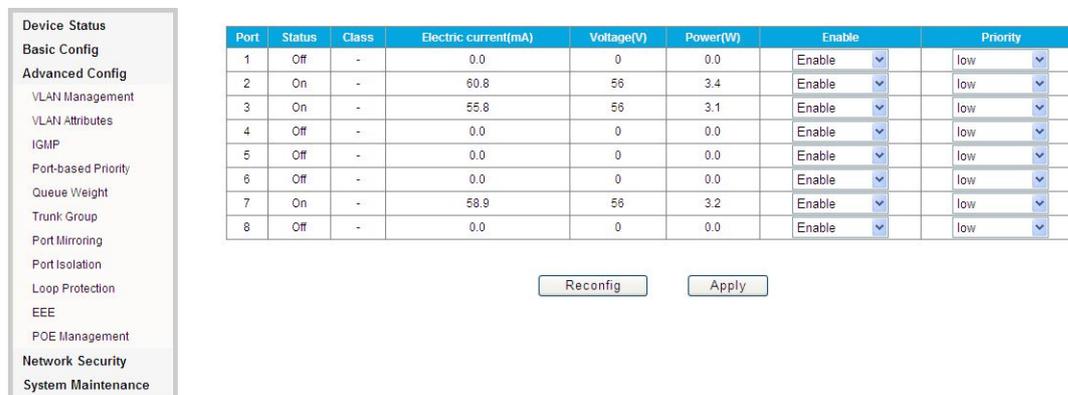
Picture 5.4.8.1 EEE

IEEE 802.3az(Energy Efficient Ethernet)

Energy-Efficient Ethernet is a set of enhancements to reduce the power required for Ethernet before the standard was ratified, using the name Green Ethernet.

It allows for less power consumption during periods of low data activity. The intention was to reduce power consumption by 50% or more, while retaining full compatibility with existing equipment.

5.4.9 PoE Management



Picture 5.4.9.1 PoE Management

From above interface 4.9.1,you can find “Enable/disable”to enable or disable PoE supply power to powered device.

From the Priority,you can find Low,Middle and High to ensure power output of the port with the highest priority.

You can check current currency from column“(mA)”,Voltage from column“(V) ”

and power from column“(W)” and PoE output grade from column“(Class)”

The default setting is “0”for 0-13W PD, ”1” for less than 4W PD, “2” for 4-7W PD.

“3”for 7-13W PD,”4” for IEEE802.3at PD, “5,6” kept as potential grade.

You can find PoE supply power normally or not from “Status” column or LED indicators status from Front panel of the Switch.

5.5 Network Security

5.5.1 MAC Addresses

Users can check MAC address list or clear the list here. The MAC addresses can be dynamically learned or statically configured, users can configure the MAC address mode. And the dynamical learning of MAC addresses can be limited, users can configure the quantity of port learning MAC addresses.

5.5.1.1 MAC Dynamic Learning

No	MAC Address	VLAN ID	Type	Port	Select
1	00:1E:67:31:07:B6	1	Dynamic	5	<input type="checkbox"/>
2	D4:22:3F:A4:CE:73	1	Dynamic	5	<input type="checkbox"/>
3	AC:31:9D:00:00:52	1	Dynamic	5	<input type="checkbox"/>
4	00:B0:C6:09:FA:40	1	Dynamic	5	<input type="checkbox"/>
5	D4:3D:7E:E5:7B:30	1	Dynamic	5	<input type="checkbox"/>
6	6C:62:6D:D8:E4:1E	1	Dynamic	5	<input type="checkbox"/>
7	48:A2:2D:C7:44:89	1	Dynamic	5	<input type="checkbox"/>
8	00:E0:66:31:AF:75	1	Dynamic	5	<input type="checkbox"/>
9	00:E0:66:31:AF:71	1	Dynamic	5	<input type="checkbox"/>
10	00:01:02:03:04:80	1	Dynamic	5	<input type="checkbox"/>
11	00:03:7F:01:05:28	1	Dynamic	3	<input type="checkbox"/>
12	F4:6D:04:77:60:3E	1	Dynamic	5	<input type="checkbox"/>
13	00:26:82:52:59:61	1	Dynamic	5	<input type="checkbox"/>
14	28:D2:44:15:8E:82	1	Dynamic	5	<input type="checkbox"/>
15	00:40:48:B3:DE:36	1	Dynamic	5	<input type="checkbox"/>
16	6C:62:6D:25:F2:52	1	Dynamic	5	<input type="checkbox"/>
17	D4:3D:7E:E5:82:D8	1	Dynamic	5	<input type="checkbox"/>
18	D4:3D:7E:E5:82:DF	1	Dynamic	5	<input type="checkbox"/>
19	90:2B:34:CB:14:0A	1	Dynamic	5	<input type="checkbox"/>

Picture5. 5.1.1 MAC Dynamic Learning

This page enables to check MAC address information(dynamic MAC address list), users can clear the list as needed. The fixed MAC address items can also be configured as static MAC addresses.

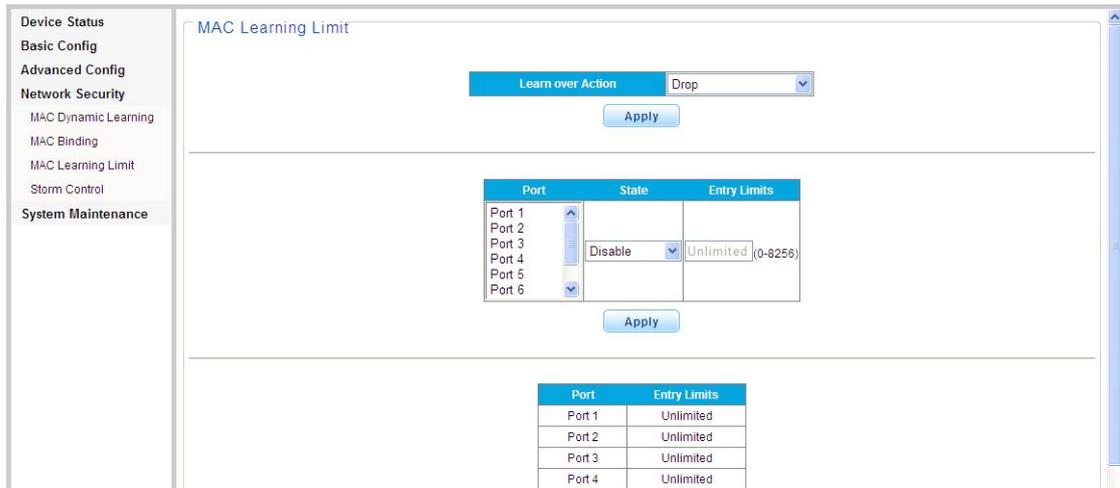
5.5.1.2 MAC Binding

No.	MAC Address	VLAN ID	Port	Source MAC Blocking	Select

Picture 5.5.1.2 MAC Binding

The fixed MAC address items can be manually configured as static MAC addresses, please select VLAN number and related Port number, if entered wrong number, there will be error prompt box displayed.

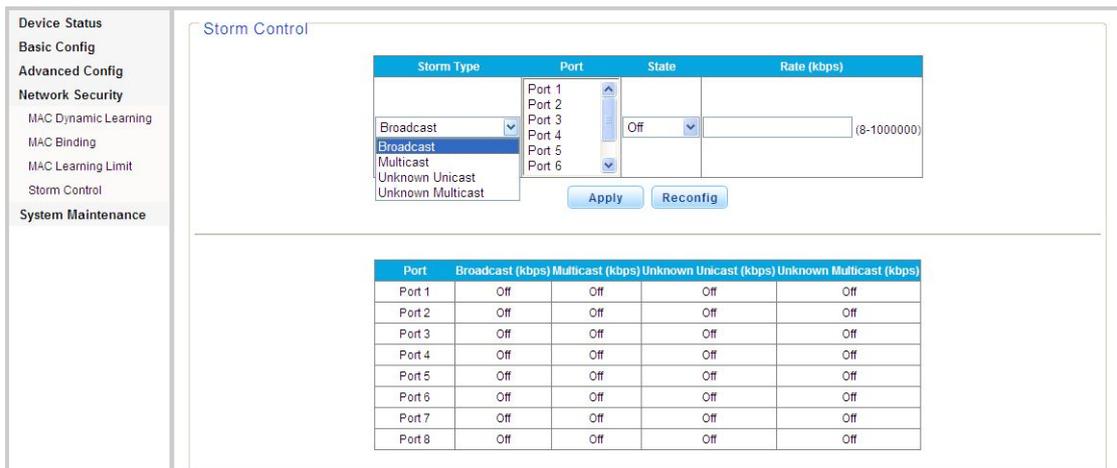
5.5.1.3 MAC Learning Limit



Picture 5.5.1.3 MAC Learning Limit

The switch support port-based MAC learning limitation, users can defined the MAC learning quantity limitation of specific ports.

5.5.2 Storm Control

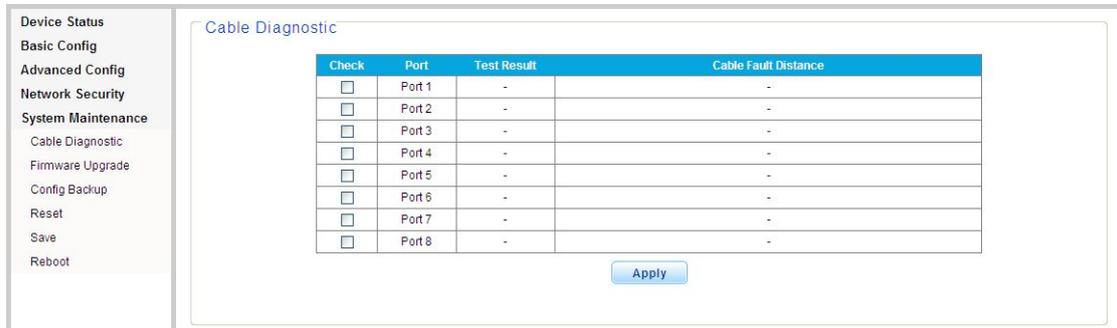


Picture 5.5.2.1 Storm Control

The switch supports multiple storm control modes: broadcast flow control, multicast flow control, unknown unicast flow control and unknown multicast flow control. The will be impact on network system if there are too many packets, the storm control function will help to suppress the storm problem.

5.6 System Maintenance

5.6.1 Cable Diagnostics



Picture 5.6.1.1 Cable Diagnostics

The Switch provides a cable diagnostic utility, which helps you detect and resolve issues with the attached cables.

5.6.2 Firmware upgrade



Picture 5.6.2.1 Firmware upgrade

Firmware files are downloaded as required for upgrading the firmware version or for backing up the system configuration from <http://www.tg-net.cn>

It is requested enter into “Upgrade mode” before upgrading firmware.



Picture 5.6.2.2 Firmware upgrade

5.6.3 Config Backup



Picture 5.6.3.1 Config Backup

This management page enables configure the saving, uploading and downloading of data. users can backup and recover the system configuration in this page.

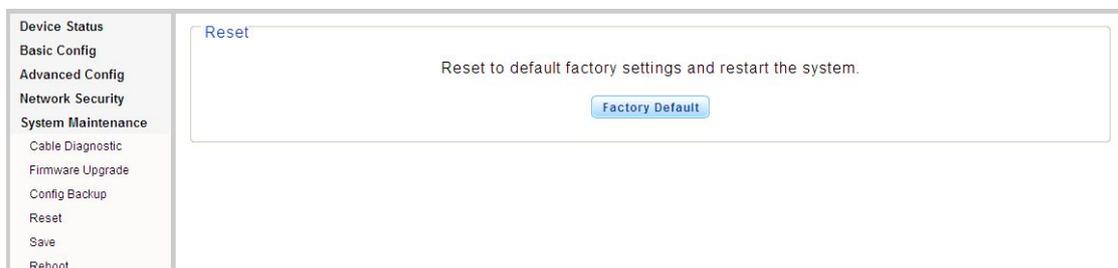
Notes:

1. Please save the configurations, or the data will be lost after rebooting the switch.
2. All the modifications operated on configuration pages need to be saved here, or the modification will be ineffective after system rebooting.

It can configure,upload,download,system configuring files,backup,and resetting factory defaults.

⚠️NOTE: Do please click storage,or the configuration setting will be lost after rebooting.

5.6.4 Reset



Picture 5.6.4.1 Reset

Users can factory reset the configurations, IP addresses and user’s passwords.

If the IP address or password is forgotten, please factory reset by connecting Port 1 and Port 8. Please follow the instruction:

Step one: Connect Port 1 and Port 8 with a RJ45 cable, the switch will reboot and factory reset.

Step Two: Several seconds after the connection, LED lights of all ports will flash for twice and finish the factory reset. After the lights flash, please disconnect the two ports.

After factory reset, please login the management system again. The login process is the same with first login.

5.6.5 Reboot



Picture 5.6.5.1 Reboot

The software upgrading and some configurations can only work after rebooting the switch system, please reboot the switch.

Appendix Troubleshooting

Problems	Reasons	Solutions
All LEDs are off when power on the switch	Power cord connection error or power supply failure	Check power cord connection and the power socket.
The LINK LED is unlit.	1. Network cable is damaged or the connection is not firm. 2. Wrong network cable type or the cable is longer than 100m.	Change the network cable.
Slower data transmitting and packets loss.	The communication pattern of switch and PDs are not matched.	Changed to matched pattern or configure to auto-negotiation pattern.
The network cable works in one port ,doesn't work in another new port.	There is no data transmitting from PD and the switch can't learn a new address to do communication.	Waiting for 120s, the switch will get auto-updated address or transmitting data from the PD, the switch will get address then.
All the "ACT" LEDs flash and the network rate slow down	Caused by broadcast storm.	1. Check if there is a loop problem, reasonably configure the network. 2. Check if there are large numbers of broadcast packets from specific sites.
Stop to work after working for a while.	1. Abnormal power supply. 2. Overheating.	1. Check power connection and the working voltage; 2. Check the working environment,including air hole and switch fan.
"PoE" LED indicators flash	1. PoE port doesn't work 2. PD is overloaded 3.The network cable is damaged.	Check the network cable, port connection or reduce the load of PDs.