CERIO Corporation

CS-2424G-24P

PoE CS-2000 Series - 24 Port 10/100/1000M Gigabit Web Managed PoE+ Switch with 4 SFP Ports (400Watt Power)

User Manual

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FCC Warning

This device has been tested and found to comply with limits for a Class A digital device, pursuant to Part 2 and 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 radiates radio frequency energy and, if not installed and used in accordance with the user's manual, may cause interference in which case user will be required to correct the interference at his 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 many be required to take adequate measures.

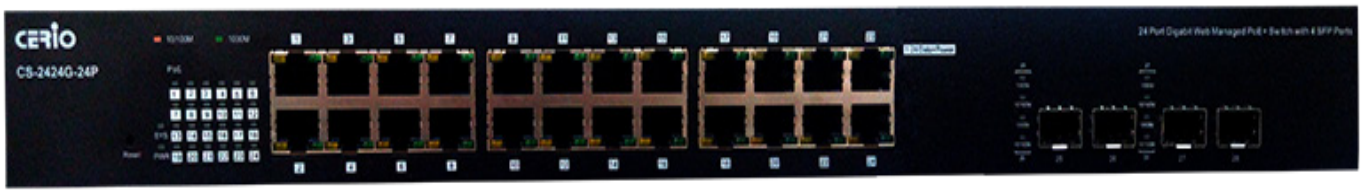
1.Introduction

CERIO CS-2000 Series Model: **CS-2424G-24P** is a powerful high-performance 24 port Gigabit PoE switch, **supporting 4 SFP** uplink ports, and is compliant with POE+ **IEEE 802.3at and 802.3af** standards. This layer 2 Web Management switch includes a 400watt internal power supply, providing a 350watt PoE power budget, and supports Remote on/off control of PoE power ports. CS-2424G-24P layer 2 functions include Spanning Tree and Rapid Spanning Tree Protocol, IEEE802.1Q Tag/Port Based VLAN functions, IEEE802.1p-based/Port-based QoS bandwidth control, IGMP Snooping, Link Aggregation Control Protocol (LACP), and much more. This device can solve the limitation of the power outlet locations and offer the system relocation convenience

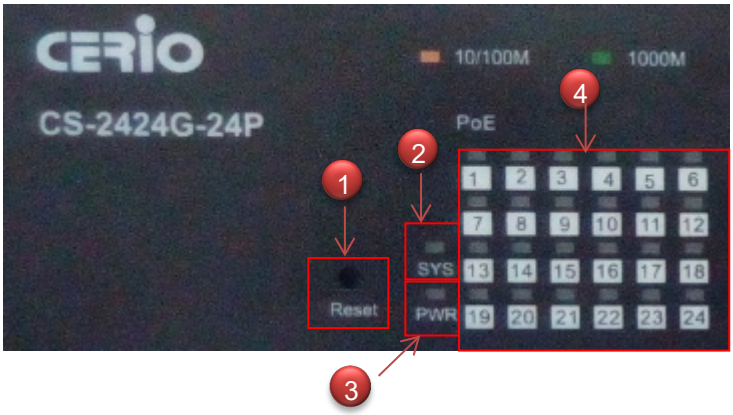
CERIO's **CS-2424G-24P** PoE+ Switch is designed for office deployment and can be upgraded to 1U" chassis for server room installation. CS-2424G-24P is ideal for micro-segmenting large network into smaller networks, connecting subnets for improved performance, and enabling the bandwidth demanded for multimedia and imaging applications. Administrators using CS-2424G-24P can meet the increasing management requirements when deploying **Wireless AP or VoIP phone or IP Camera**. Cerio's web-managed switches offer convenient configuration which ultimately provides premium performance, easy installation, and is sure to meet the increasing demands of growing networks.

1.1 Front Panel

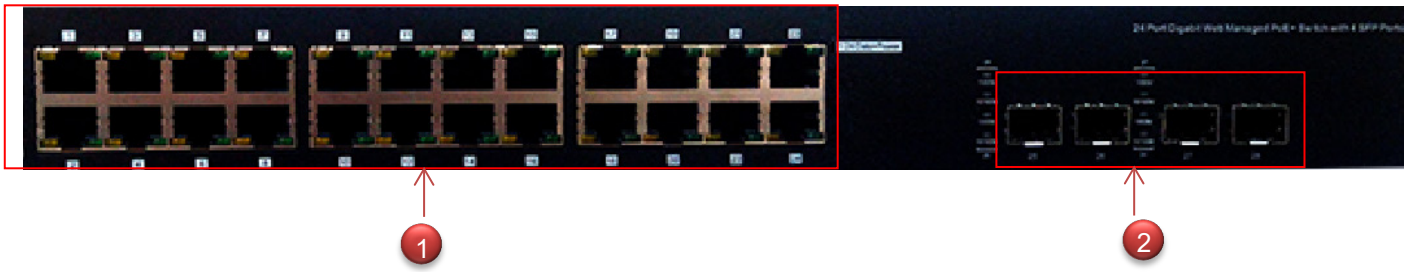
Status LED lights for 24 Port 10/100/1000Mps with 4 SFP Port



Status Explanation

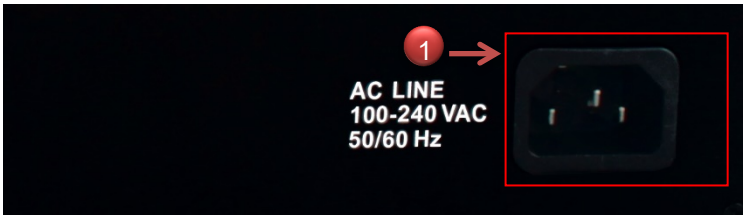


1) Hardware Reset button, press and hold for approximately 10 seconds. Once all the LED lights begin to flash, release the button to reset to default
2) System operational LED light
3) Power LED light.
4) 24 Port PoE LED status light.



1) 24 10/100/1000Mbps Ethernet Ports, 10/100Mbps is Orange and 1000Mbps is Green lights
2) 4 Fiber Ports

1.2 Rear Panel Layout



1) AC input (100-240V/AC, 50-60Hz) UL Safety

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2. Software Configuration

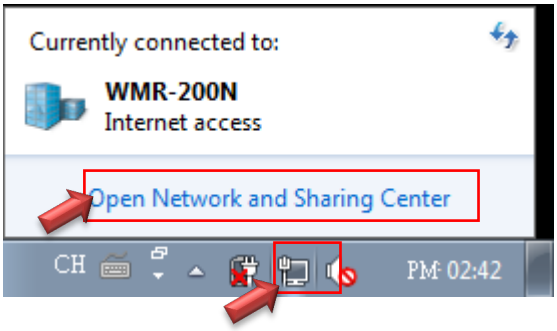
CS-2424G-24P supports web-based configuration. Upon the completion of hardware installation, **CS-2424G-24P** can be configured through a PC/NB by using its web browser such as Internet Explorer 6.0 or later.

Set the IP segment of the administrator's computer to be in the same range as **CS-2424G-24P** for accessing the system. Do not duplicate the IP Address used here with IP Address of **CS-2424G-24P** or any other device within the network. ***Please refer to the following steps***

2.1 Example of Segment: (Windows 7)

Step 1 :

Please click on the computer icon in the bottom right window, and click **"Open Network and Sharing Center"**



Step 2 :

In the Network and Sharing Center page, click on the left side of **"Change adapter setting"** button

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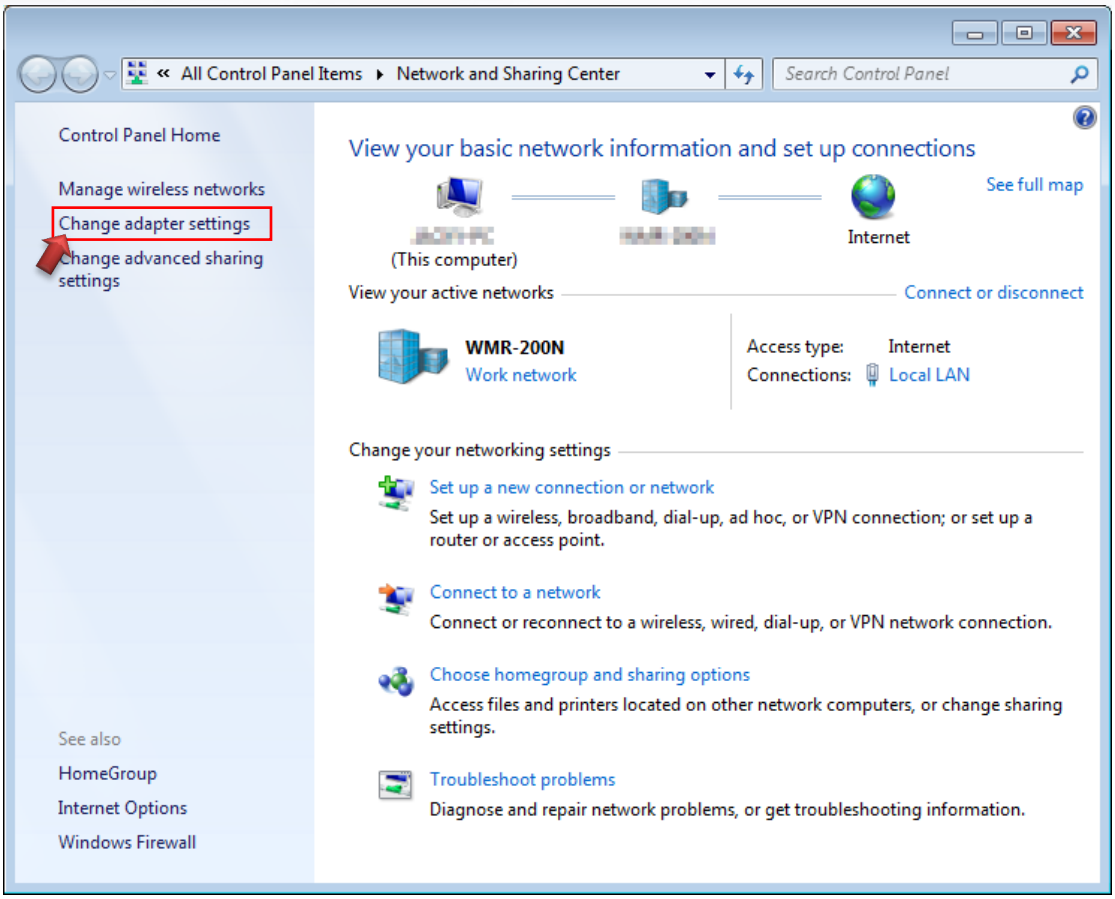
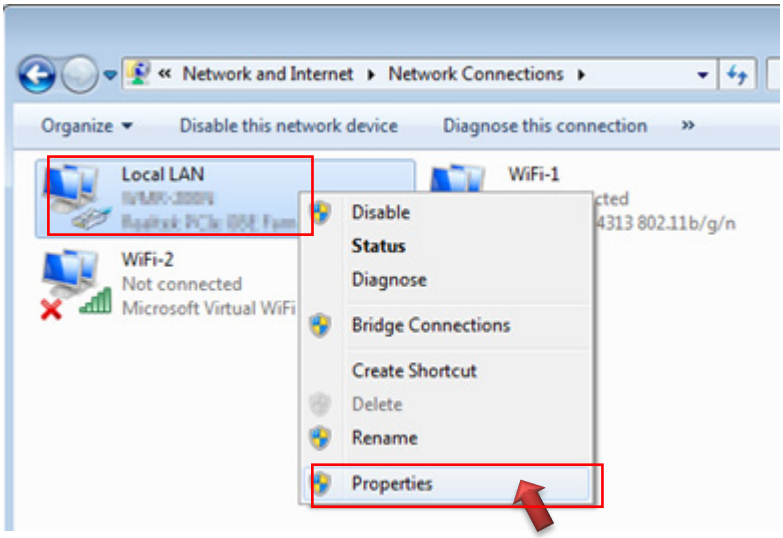


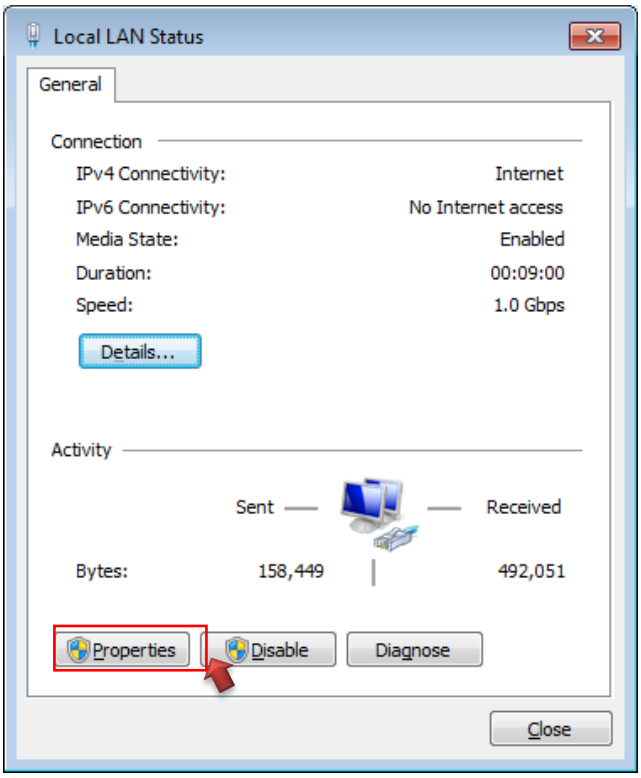
Step 3 :

In **"Change adapter setting"** Page, right click on Local LAN then select **"Properties"**



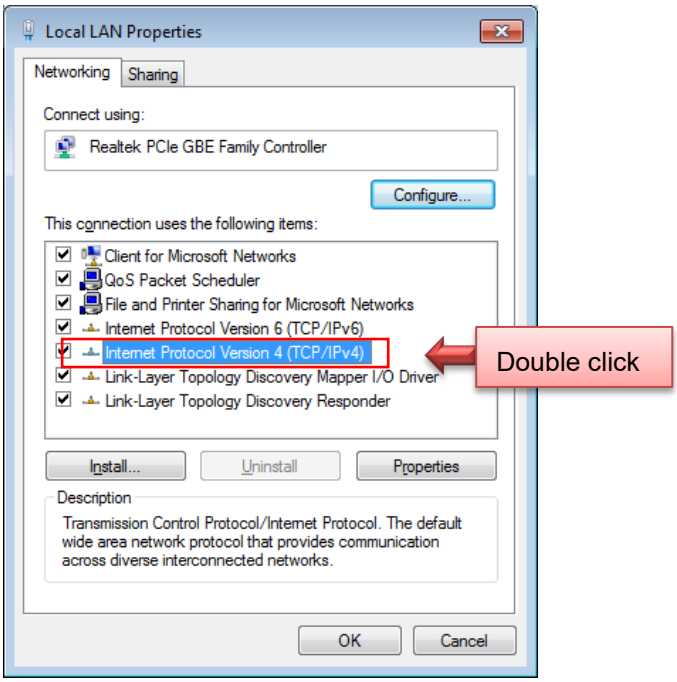
Step 4 :

In the **"Properties"** page, click the **"Properties"** button to open TCP/IP setting



Step 5 :

In Properties page for setting IP addresses, find **"Internet Protocol Version 4 (TCP/IPv4)"** and double click to open TCP/IPv4 Properties window



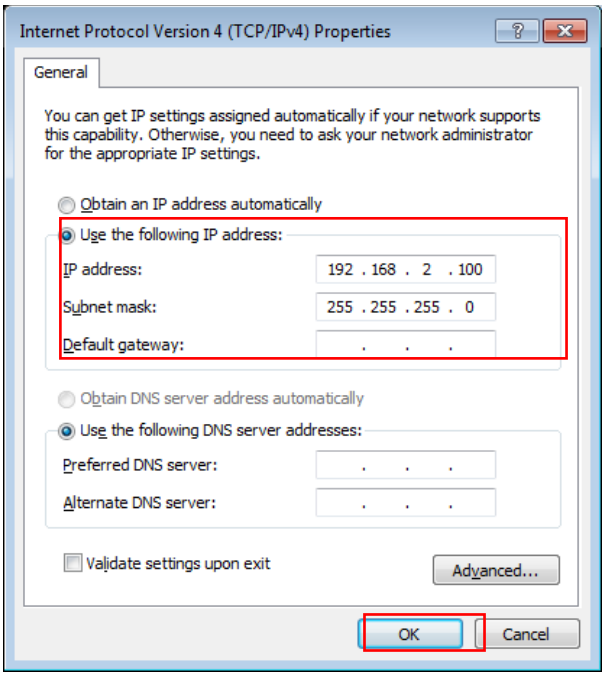
Step 6 :

Select **"Use the following IP address"**, and fix in IP Address to: 192.168.2.X

ex. The X is any number from 1 to 253

Subnet mask : 255.255.255.0

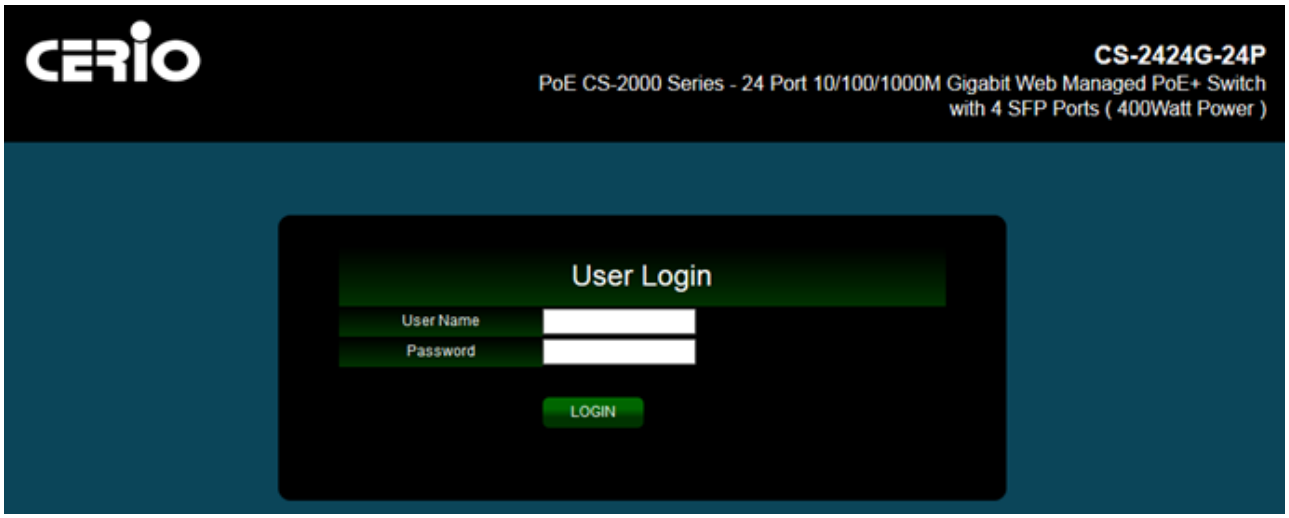
And Click **"OK"** to complete fixing the computer IP settings



Step 7 :

Open Web Browser

Without a valid certificate, users may encounter the following problem in IE7 when they try to access system's WMI (https://192.168.2.200). There will be a "Certificate Error", because the browser treats system as an illegal website.



System login Overview page will appear after successful login.

2.2 System login username and password information

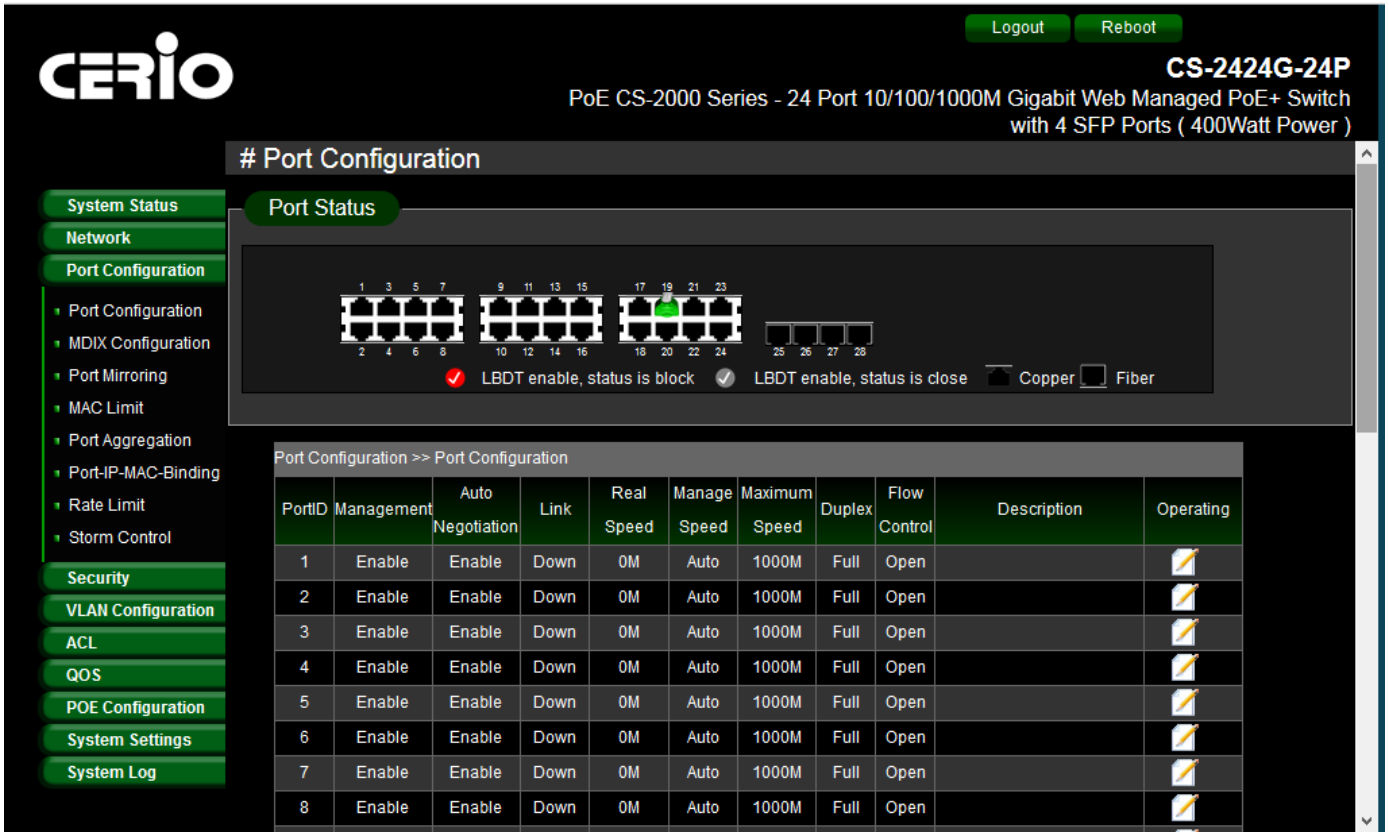
The **CS-2424G-24P** web switch default IP is 192.168.2.200

Into the management page as follows, please enter Username and password

- **Default IP Address**: 192.168.2.200
- **Default Username and Password**

Management Account	Root Account
Username	root
Password	default

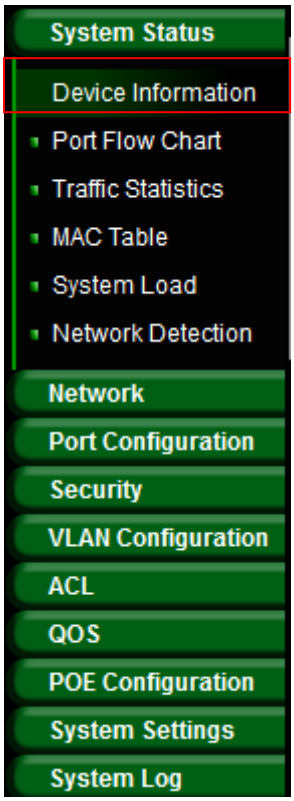
After the authentication procedure, the home page will shows up. Select one of the configurations by clicking the icon.

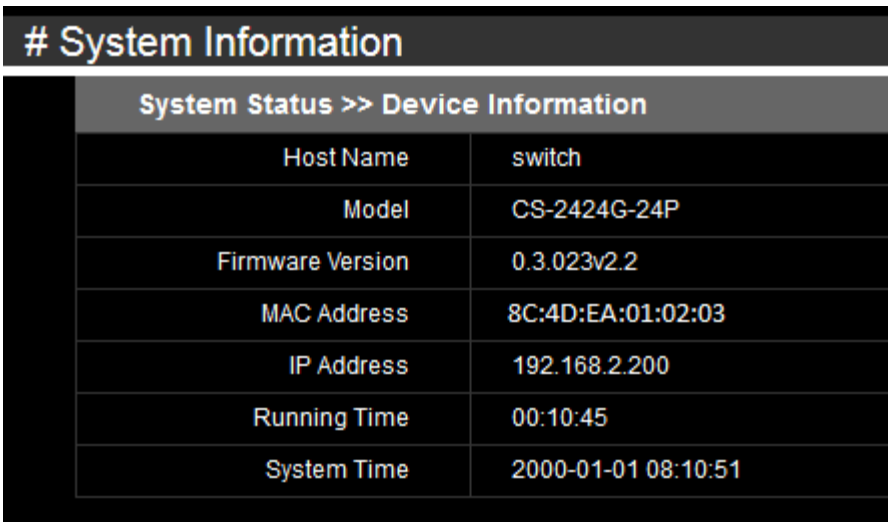


3. System Status

3.1 Device Information

This administrator can check device system information in the “Device Information” tab

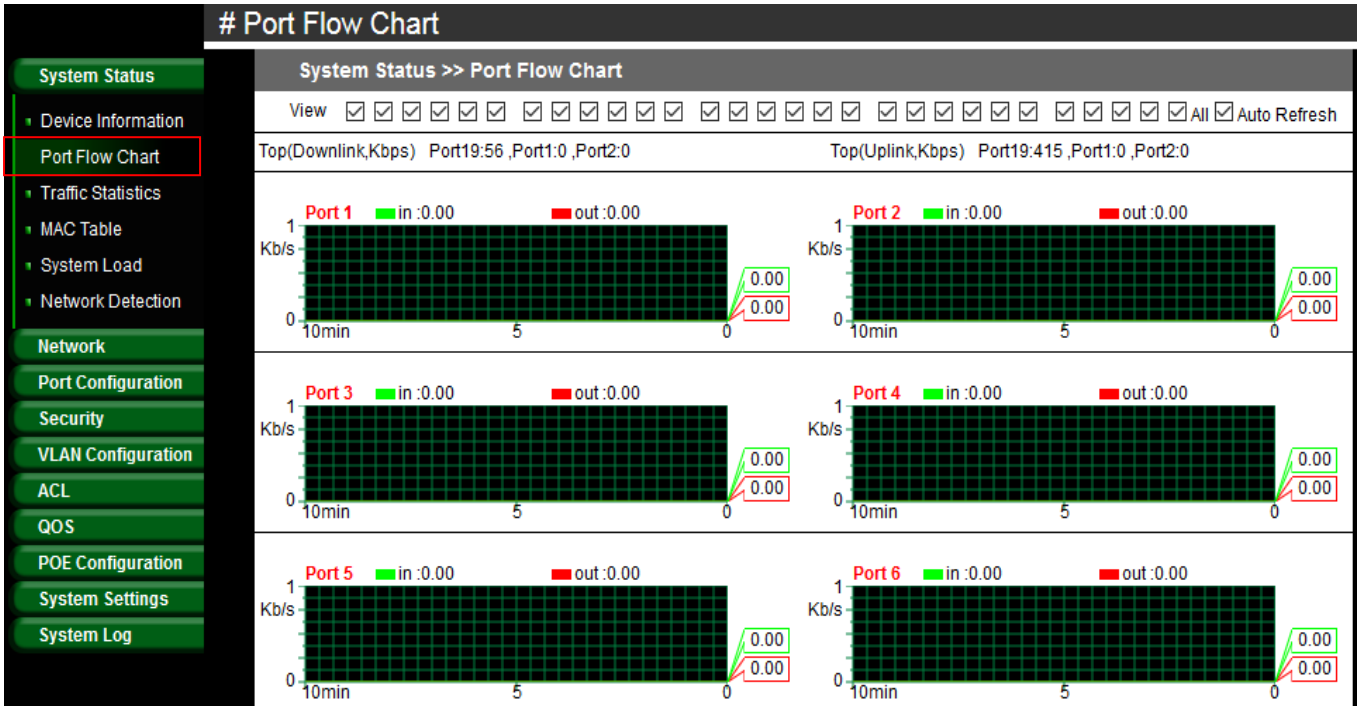




- **Host Name:** Display host name of the device.
- **Model:** Display switch model name.
- **Firmware Version:** Display system firmware version.
- **MAC Address:** Display MAC address for the device.
- **IP Address:** Display system login IP address.
- **Running Time:** Display system working time.
- **System Time:** Display system time.

3.2 Port Flow Chart

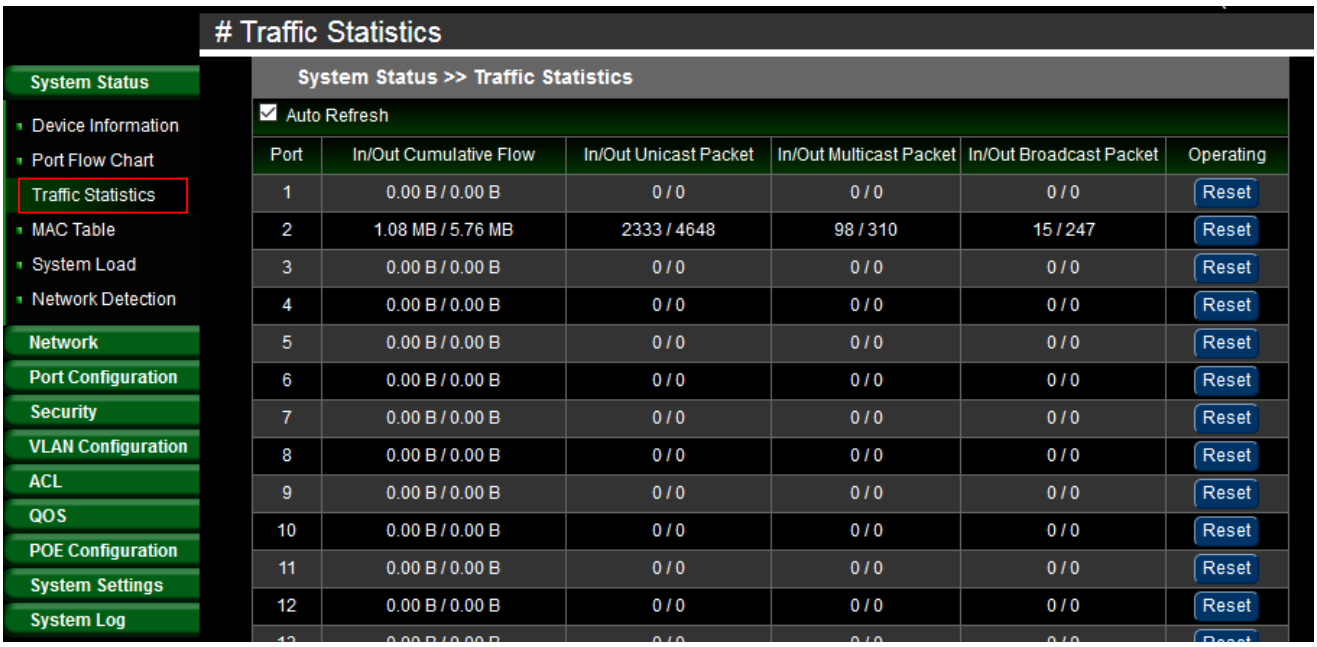
Administrator can monitor ports through graphical flow charts.



➢ **View:** Administrator can select all or one port to monitor.

3.3 Traffic Statistics

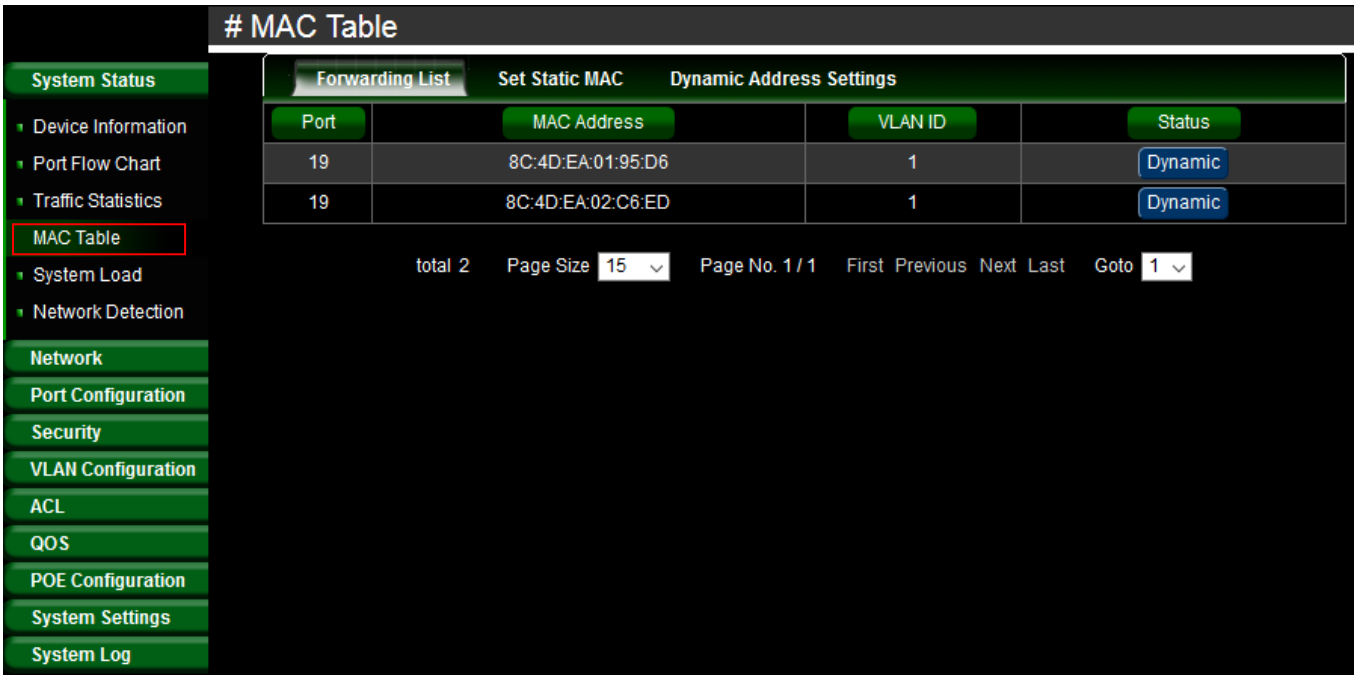
Administrator can check the cumulative flow of each port.



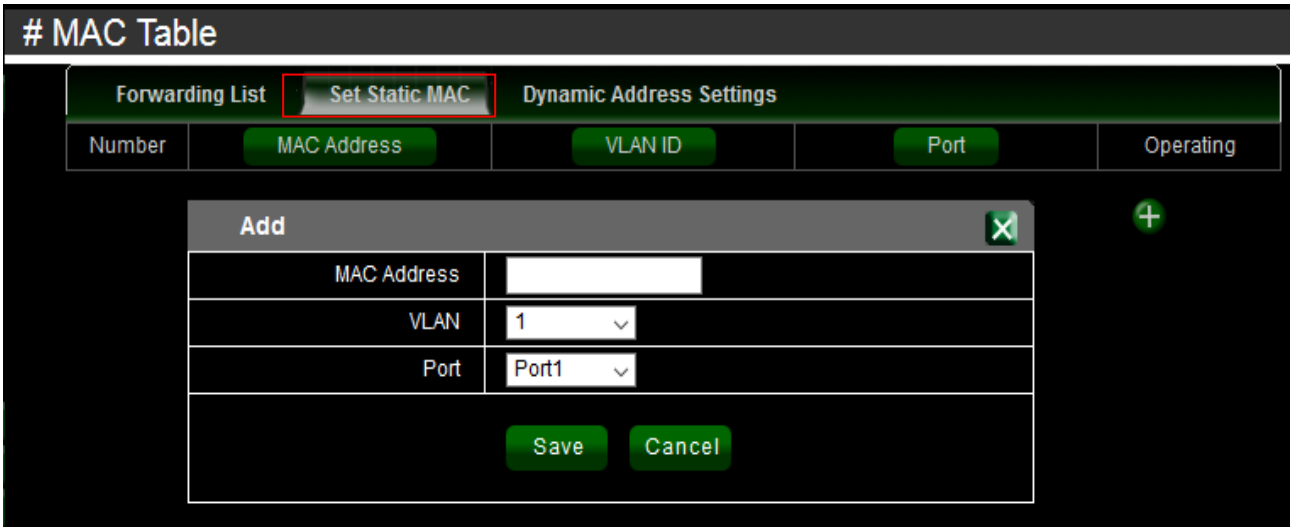
Port	In/Out Cumulative Flow	In/Out Unicast Packet	In/Out Multicast Packet	In/Out Broadcast Packet	Operating
1	0.00 B / 0.00 B	0 / 0	0 / 0	0 / 0	Reset
2	1.08 MB / 5.76 MB	2333 / 4648	98 / 310	15 / 247	Reset
3	0.00 B / 0.00 B	0 / 0	0 / 0	0 / 0	Reset
4	0.00 B / 0.00 B	0 / 0	0 / 0	0 / 0	Reset
5	0.00 B / 0.00 B	0 / 0	0 / 0	0 / 0	Reset
6	0.00 B / 0.00 B	0 / 0	0 / 0	0 / 0	Reset
7	0.00 B / 0.00 B	0 / 0	0 / 0	0 / 0	Reset
8	0.00 B / 0.00 B	0 / 0	0 / 0	0 / 0	Reset
9	0.00 B / 0.00 B	0 / 0	0 / 0	0 / 0	Reset
10	0.00 B / 0.00 B	0 / 0	0 / 0	0 / 0	Reset
11	0.00 B / 0.00 B	0 / 0	0 / 0	0 / 0	Reset
12	0.00 B / 0.00 B	0 / 0	0 / 0	0 / 0	Reset

3.4 MAC Table

The MAC Table page can monitor device MAC information based on the connected port. Administrators can set individual ports to static or dynamic MAC addresses. If dynamic MAC Address is selected, administrators can then set dynamic aging time.



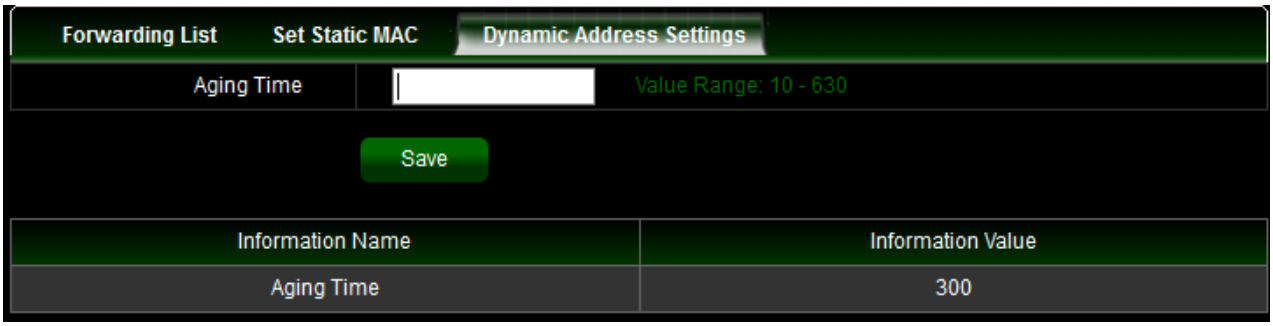
- **Forwarding List:** Display MAC address of the devices.
  - **Status:** Administrator can click the status button to change from static to dynamic MAC address.
- **Set Static MAC:** When using a port for a fixed device (e.g. server), administrators can set static MAC address of the port.



- **MAC Address:** Administrator can set the MAC address of the device.
- **VLAN:** Administrator can select for the device network VLAN ID.

- **Port:** Select linked port for the device.

➢ **Dynamic Address settings:** Administrator can set aging Time for Dynamic MAC address.

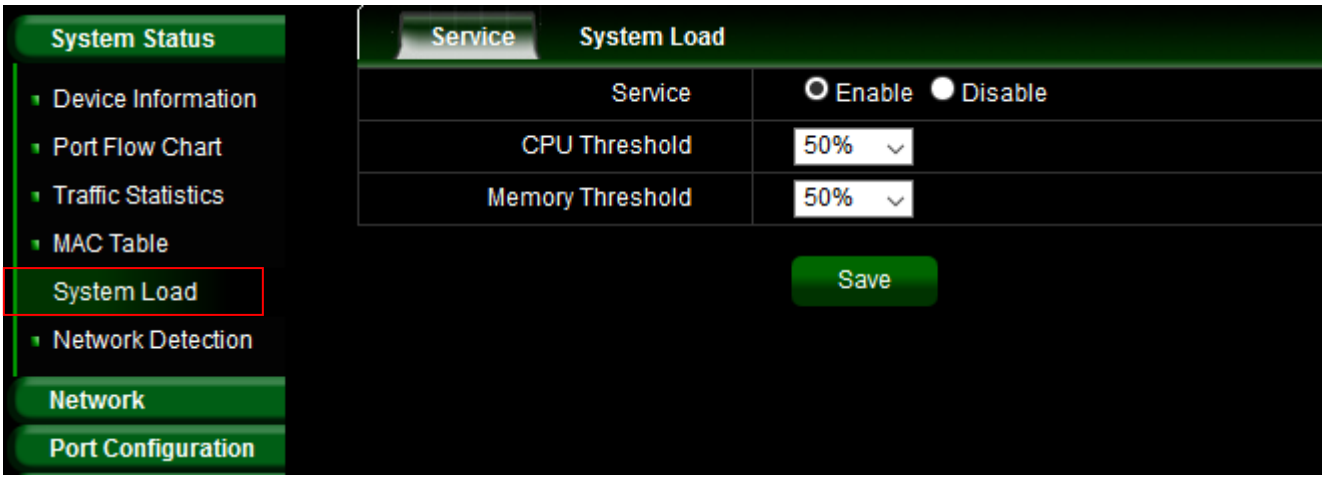


- **Aging Time:** Administrator can set a time for aging time. (Range 10~630 min)

3.5 System Load

System Load function to display the usage status of the memory and the CPU/ Memory of switch via the data graph. If the CPU or Memory usage rate increases sharply, please check to see if you network is secure from hackers or unknown users.

The System Load function is designed with a SNMP Trap function. Administrators can set CPU or Memory Threshold to monitor Switch usage amount. If CPU or Memory Thresholds are surpassed, the system will use SNMP Trap to notify the system administrator.

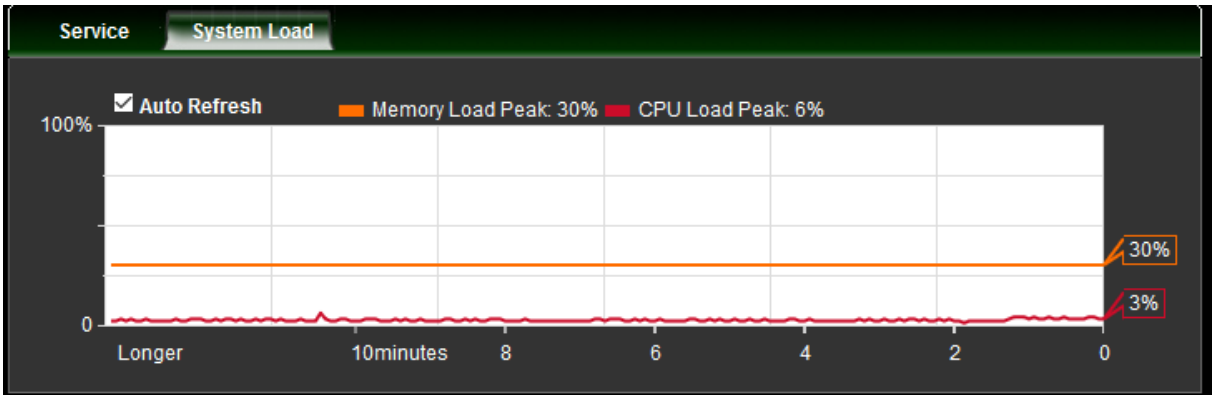


➢ **Service:** Administrator can select Enable or disable for the service.

➢ **CPU/Memory Threshold:** Administrator can set CPU or Memory Threshold for the usage warning.

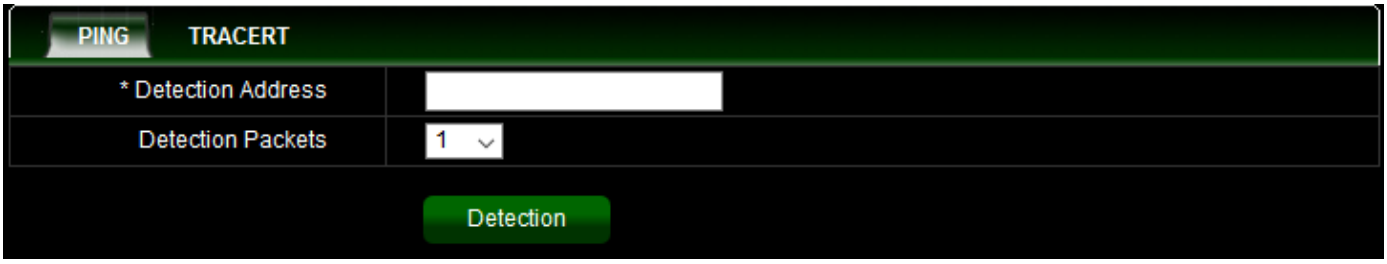
System Load

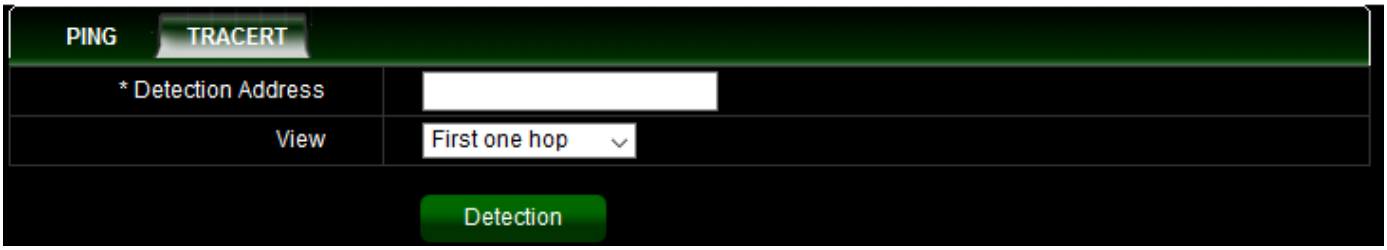
The Page can display the usage status of the memory and the CPU/ Memory of switch via the data graph.



3.6 Network Detection

Administrators can diagnose network connectivity via the PING or TRACERT





- **Detection Address:** Enter detection IP address.
- **Detection Packets:** Select ping packets frequency.
- **View:** Check device to destination will through hoe many gateway.

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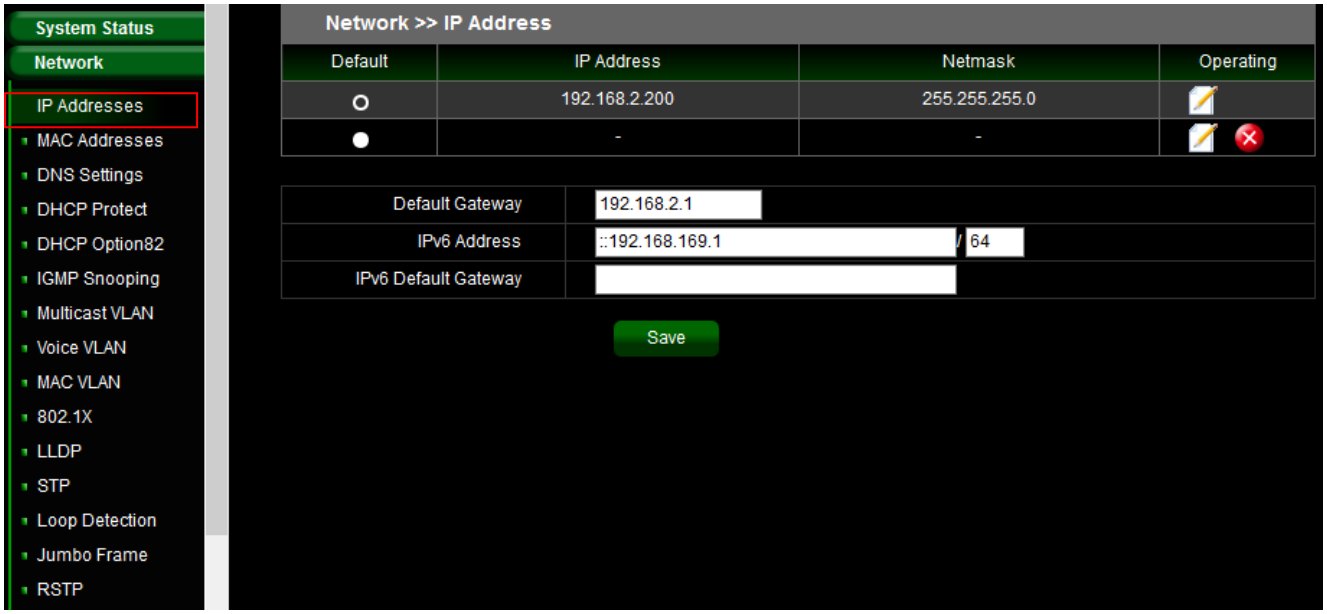
4. Network

4.1 IP Address

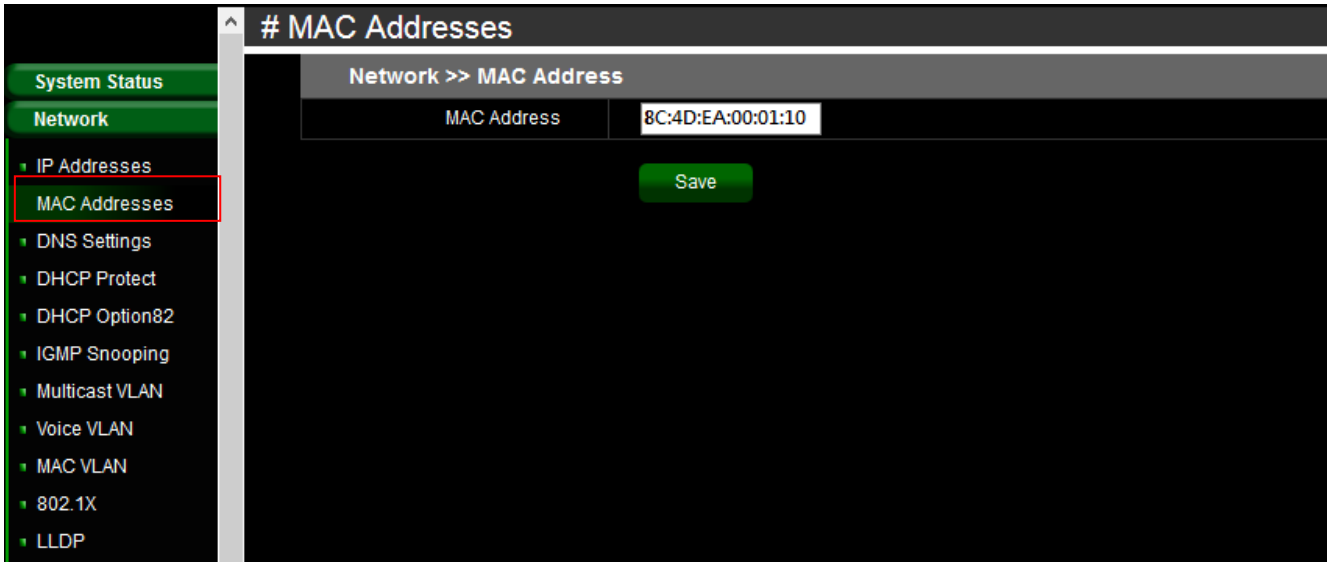
Administrator can set IP address for the system. The IP address support IPv4 & IPv6 protocol, if switch device must want to internet, administrator can set gateway IP address in the page.



- **List of the Default:** Administrator can select default used IP address.
- **List of the IP address:** Display system IP address.
- **List of the Netmask:** Display Netmask.
- **List of the Operating:** Administrator can click edit to modify system IP address or delete system IP address.
- **Default Gateway:** Administrator can set network gateway.
- **IPv6 Address:** Administrator can set IPv6 address.
- **IPv6 default gateway:** Administrator can set network gateway for IPv6 address.

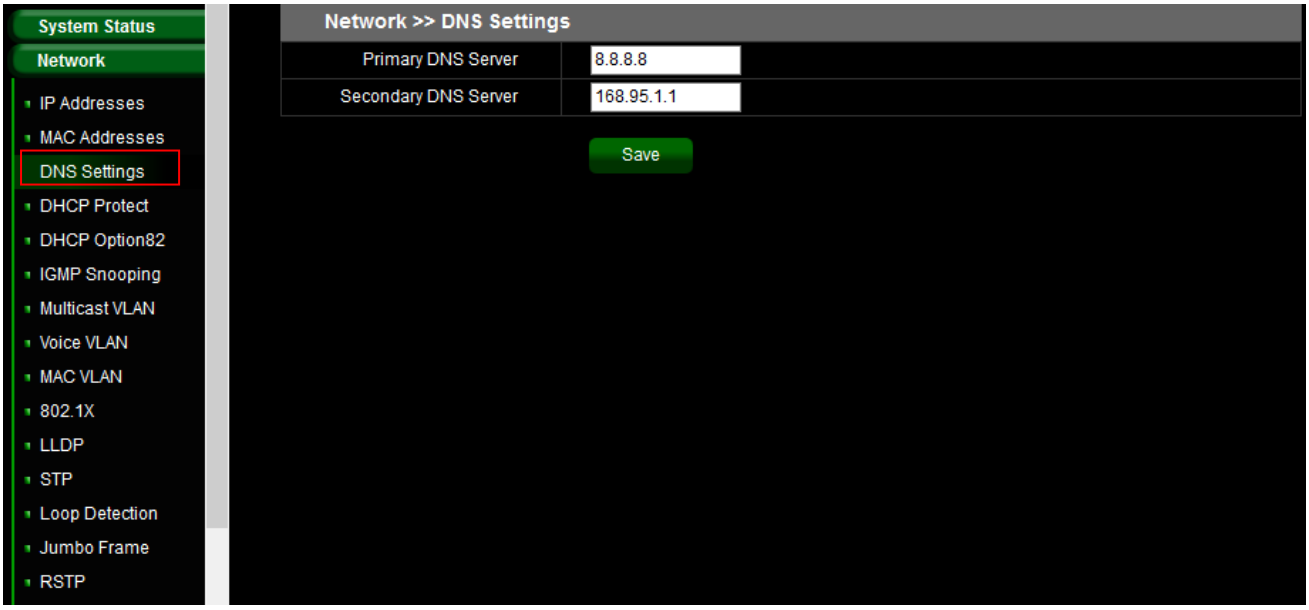
4.2 MAC Address

Administrator can view and modify the MAC address in the system.



4.3 DNS Settings

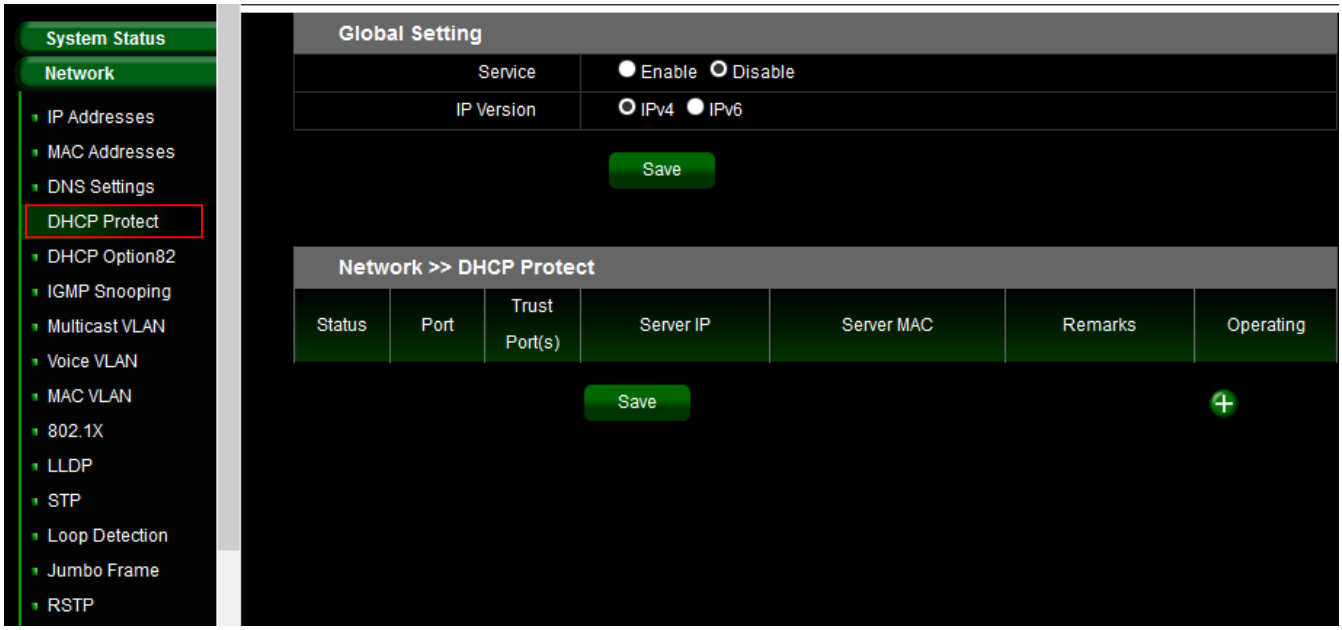
Administrator can set IP Address for the DNS Server.



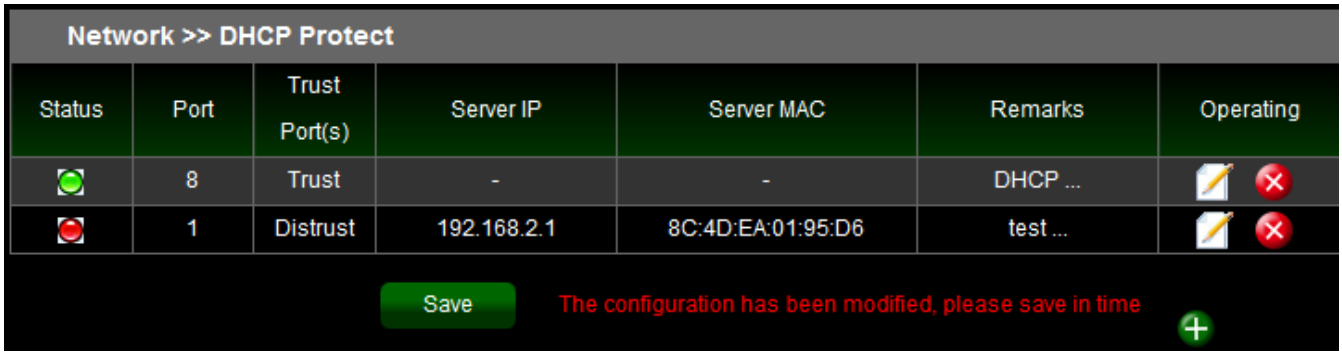
- Primary DNS Server: Enter IP address for Primary DNS Server.
- Secondary DNS server: Enter IP address for Secondary DNS server.

4.4 DHCP Protect (snooping)

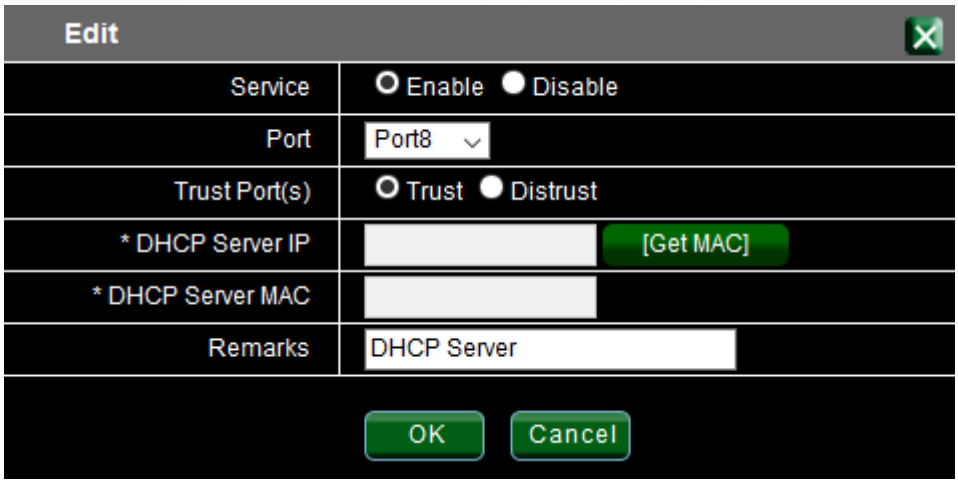
Administrator can set Dynamic Host Configuration Protocol (DHCP) snooping, preventing interference from other DHCP server.



- Service: Administrator can select Enable or Disable for the DHCP Protect function.
- IP Version: Administrator must select IP protocol of the Version 4 or 6.

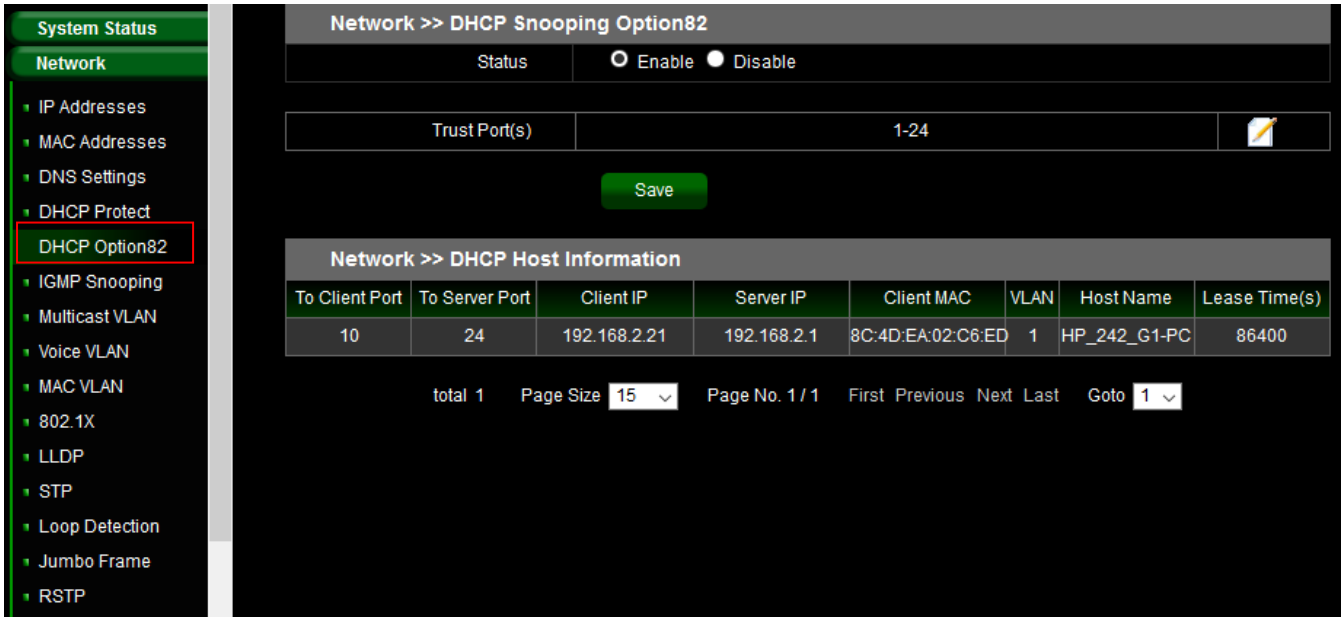


- **Status:** Display the service is on/off.
- **Port:** Display the service used Port.
- **Trust Ports:** Display the service link Port is set trust or Distrust.
- **Service IP / MAC:** If port is set to Distrust, administrator must set IP / MAC address for the DHCP Server.
- **Remarks:** Administrator can set description in the remarks field.
- **Operating:** Administrator can click button to create, modify, or delete the service.



4.5 DHCP Option82

The DHCP Relay Agent Information Option passes along port and agent information to a central DHCP server. It is useful in statistical analysis, as well as, indicating where an assigned IP address physically connects to the network. It may also be used to make DHCP decisions based on where the request is coming from or even which user is making the request.



- **Status:** Administrator can select Enable or Disable the function.
- **Trist Ports:** Administrator can select Ports for the Trust port.

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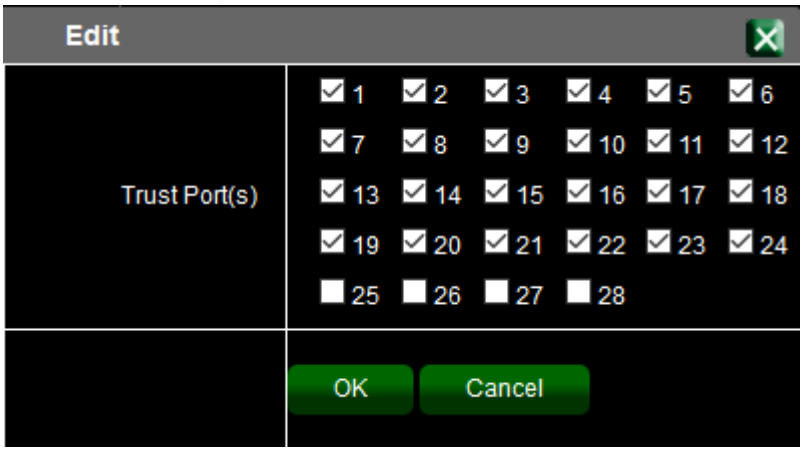
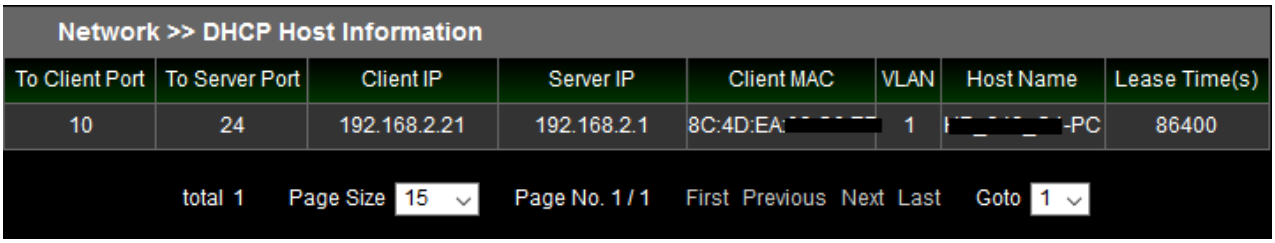


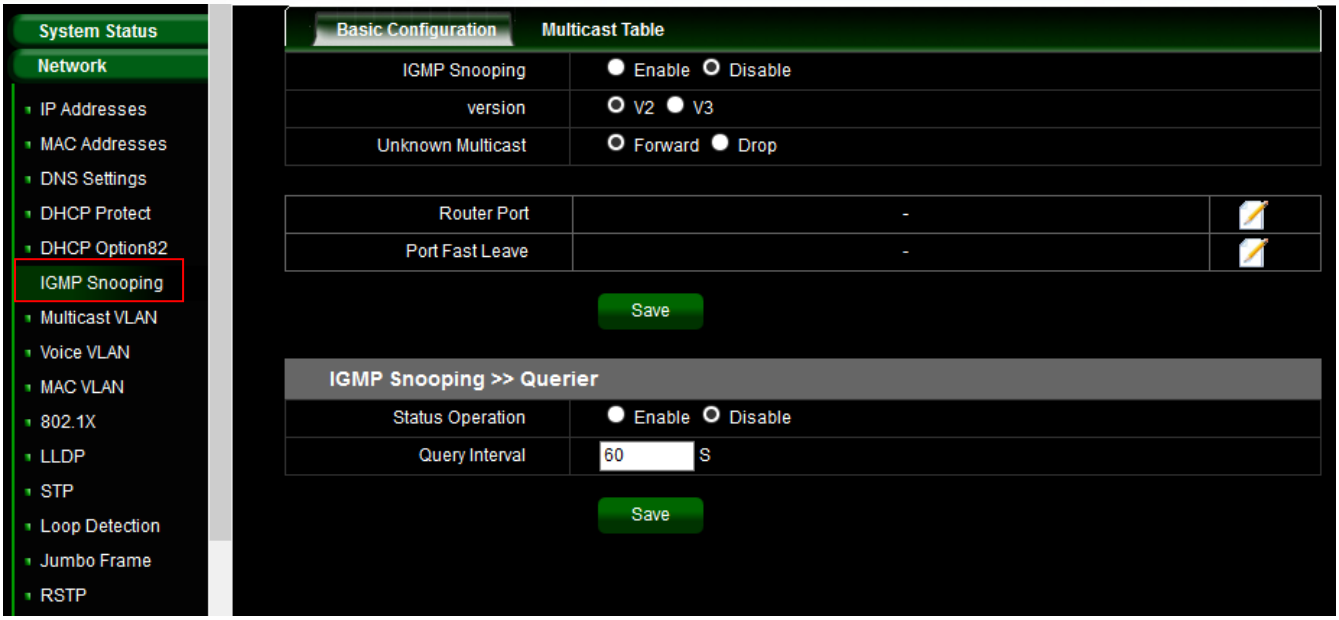
➢ **DHCP Host Information:**



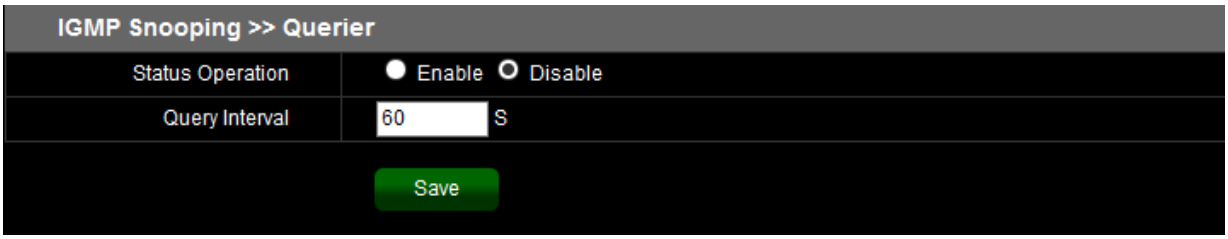
- **To Client Port:** Display port number of the client send request.
- **To Server Port:** Display port number for the DHCP server response.
- **Client IP:** Display IP address for client.
- **Server IP:** Display IP address for DHCP Server.
- **Client MAC:** Display MAC address for client.
- **VLAN:** Display VLAN ID for client.
- **Host Name:** Display client device name.
- **Lease Time:** Display IP address use lease Time.

4.6 IGMP Snooping

IGMP snooping is the process of listening to Internet Group Management Protocol (IGMP) network traffic. The feature allows a network switch to listen in on the IGMP conversation between hosts and routers. By listening to these conversations the switch maintains a map of which links need which IP multicast streams. Multicasts may be filtered from the links which do not need them and thus controls which ports receive specific multicast traffic. The IGMP snooping support v2 & v3, administrator can forward or drop Unknown Multicast.

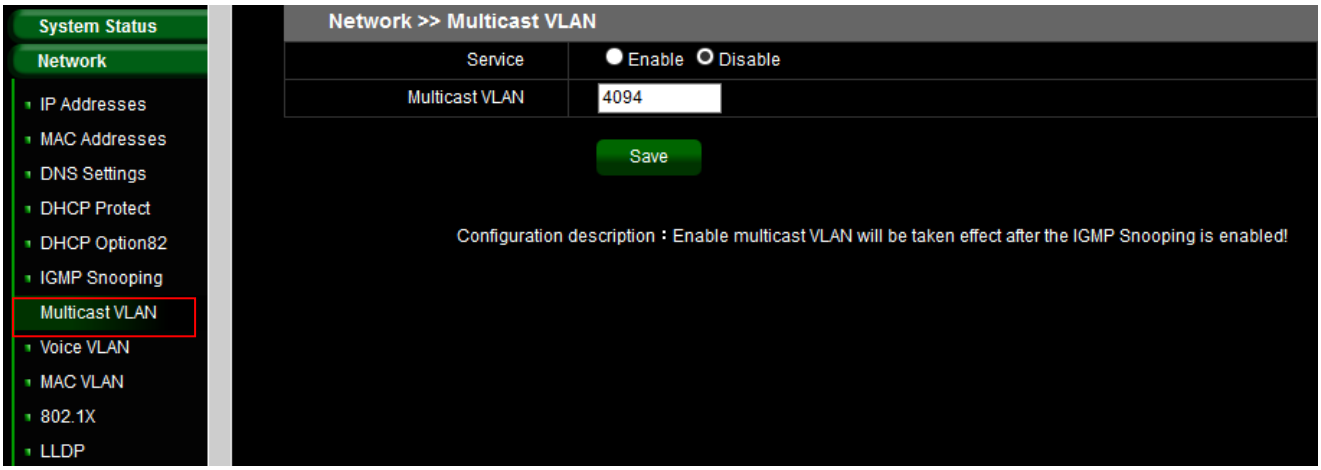


- **IGMP Snooping:** Administrator can select enable or disable for the service.
- **Version:** Administrator can select v2 or v3 for the IGMP version.
- **Unknown Multicast:** Administrator can forward or drop Unknown Multicast.
- **Router Port:** Set router port.
- **Port Fast Leave:** In Port Fast Leave mode, when the switch receives IGMP leave packets, the switch will close the multicast stream immediate without any further action. In fast leave mode, the switch will further generate a group specific query packet to all the receivers. This feature could prevent the traffic being cut if some receivers still want to receive the multicast stream.
- **Status Operation:** Administrator can enable or disable the service.
- **Query Interval:** This switch query can send packets to the corresponding port, administrator can set query Interval.



4.7 Multicast VLAN

In multicast VLAN networks, subscribers to a multicast group can exist in VLAN. Administrator can set multicast VLAN ID, multicast VLAN by its VLAN ID in the range of 1 to 4094.



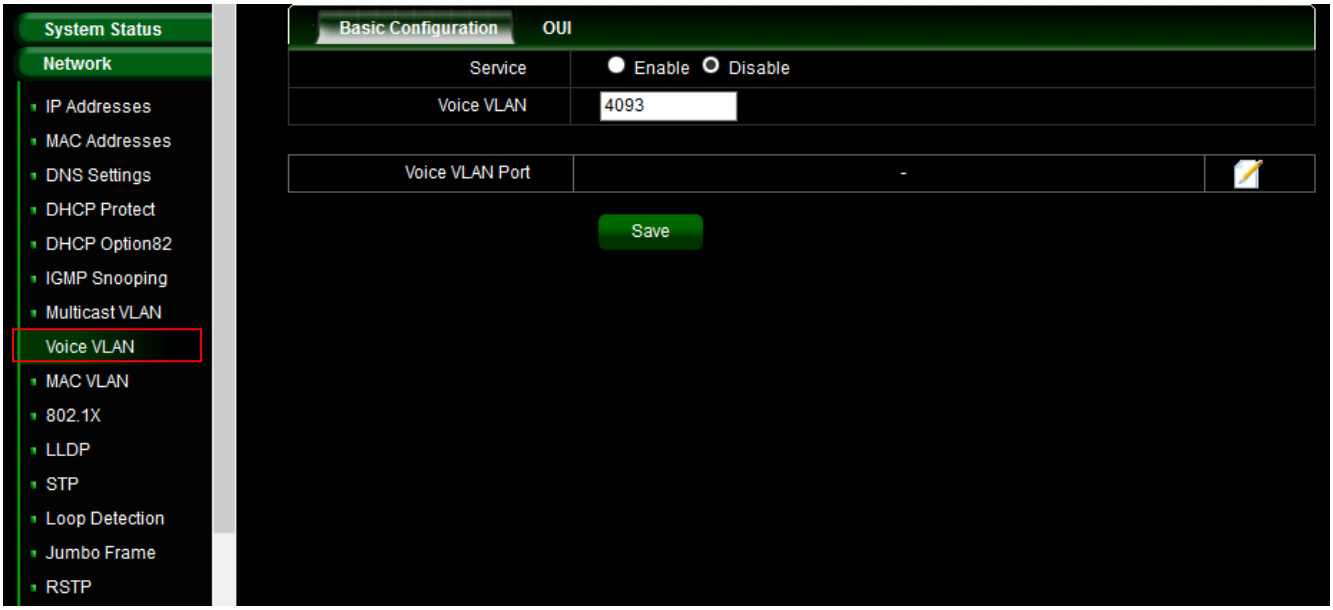
- **Service:** Administrator can select enable or disable the Service
- **Multicast VLAN:** Administrator can set VLAN ID in the range of 1 to 4094.

Notice

Configuration description : Enable multicast VLAN will be taken effect after the IGMP Snooping is enabled!

4.8 Voice VLAN

Voice VLAN allows you to enhance VoIP service by configuring ports to carry IP Voice traffic from IP phones on a specific VLAN. VoIP traffic has a preconfigured OUI prefix in the source MAC address. Administrator can set VLAN ID in the range of 1 to 4094.



- **Service:** Administrator can select enable or disable the Service
- **Voice VLAN:** Administrator can set VLAN ID in the range of 1 to 4094.
- **Voice VLAN Port:** Administrator can select ports for the voice VLAN.

OUI

Organizationally Unique Identifiers (OUI) is the first three bytes of a MAC Address, while the last three bytes contain a unique station ID. Administrator can add a specific manufacturer with the OUI. Once the OUI is added, all traffic received on voice VLAN ports from the specific IP phone with a listed OUI is forwarded on the voice VLAN. Unlike the telephony OUI mode that detects voice devices based on telephony OUI, Auto Voice VLAN mode depends on auto smart port to dynamically add the ports to the voice VLAN. The default has set 5 companies for the voice phone.

Number	OUI	Company	Operating
1	00:03:6B:00:00:00	Cisco phone	
2	00:0F:E2:00:00:00	H3C Aolynk phone	
3	00:D0:1E:00:00:00	Pingtel phone	
4	00:E0:75:00:00:00	Polycom phone	
5	00:E0:BB:00:00:00	3Com phone	

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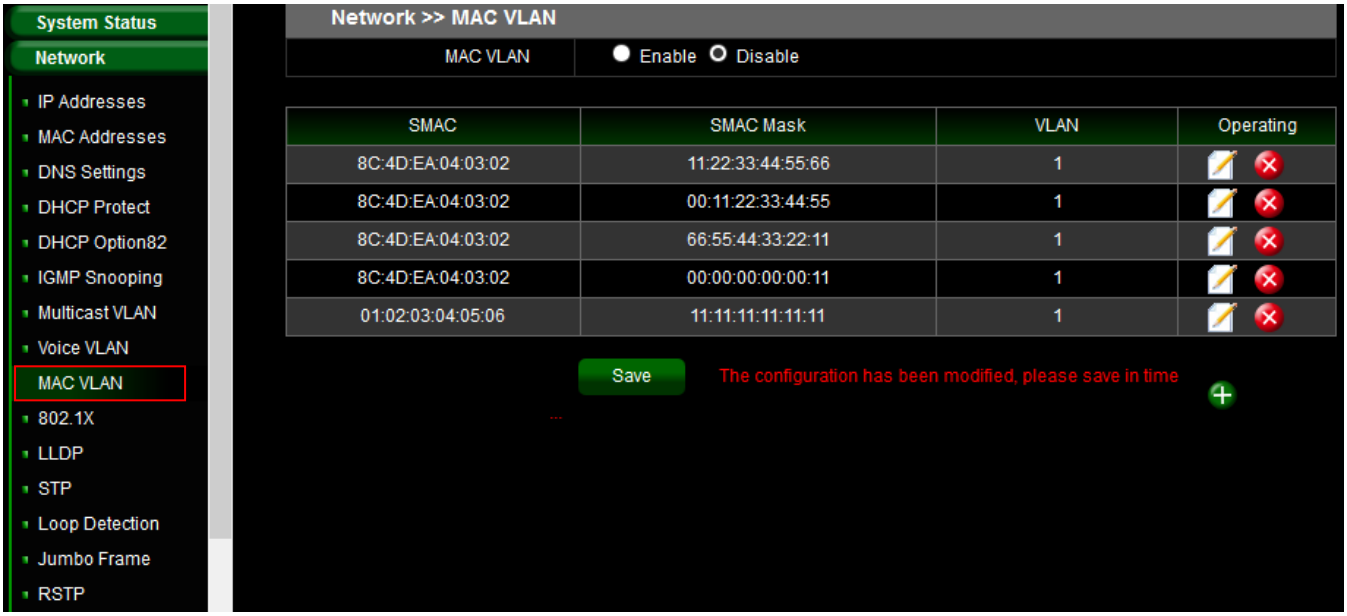
4.9 MAC VLAN

A MAC VLAN takes a single Network interface and creates multiple virtual ones with different MAC addresses (many to one).

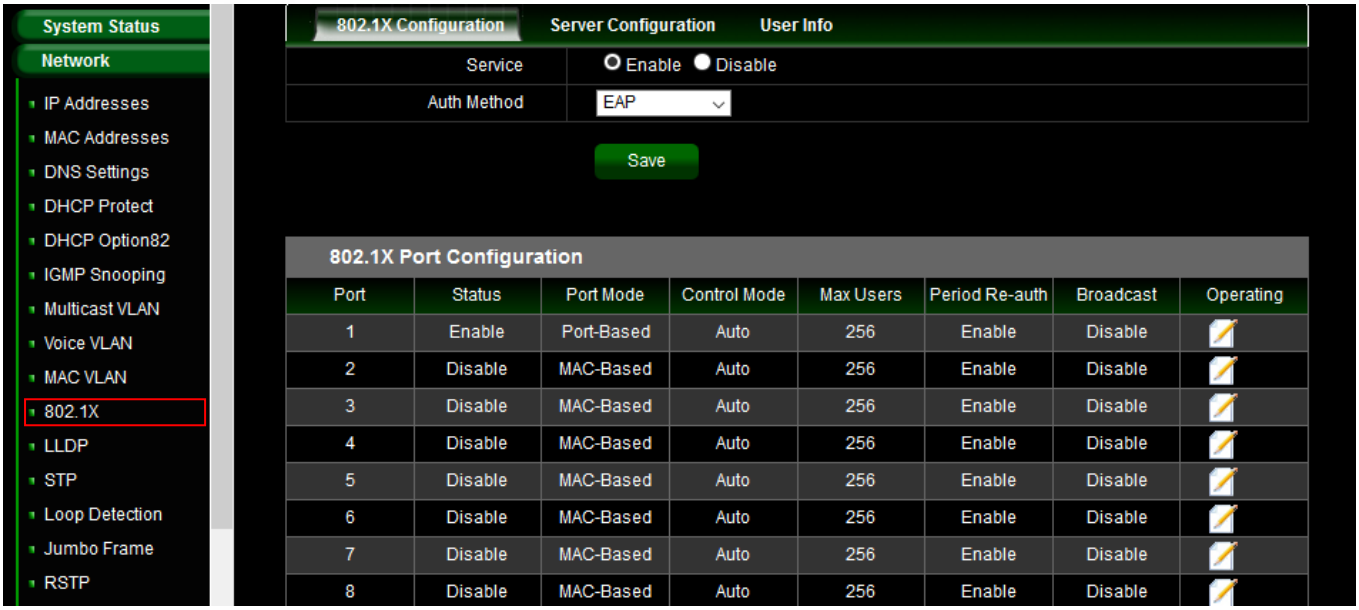


➢ **MAC VLAN:** Administrator can enable or disable the service.

Notice Administrator can click button to create MAC VLAN.

4.10 802.1x

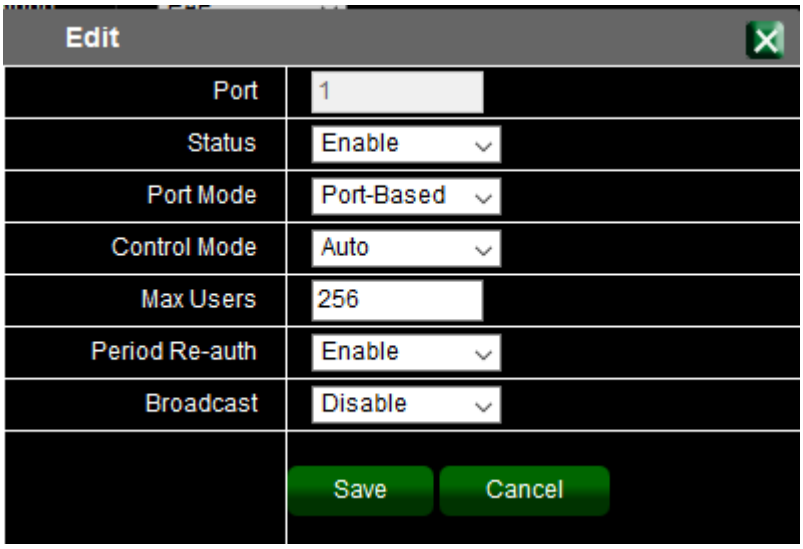
When client uses a RJ-45 link to switch port, the switch port will request 802.1x authentication of the client. If authentication fails, the switch port will stop using packet flow.



802.1x Configuration

- Service: Administrator can enable or disable the 802.1x authentication service.
- Auth Method: Administrator can select authentication method for 802.1x.

Administrator can click button in the Operating list to modify authentication function.



- **Port:** Display Port number.
- **Status:** Administrator can select enable or disable the service.
- **Port Mode:** Administrator can select used Port/MAC-Based type.
- Max Users: Administrator can set 1-256.
- Period Re-auth: Administrator can select enable or disable for the Period Re-auth.
- Broadcast: Administrator can select enable or disable the broadcast mode.

Server Configuration

802.1X Configuration | Server Configuration | User Info

Auth Key	[redacted] The characters length of auth key can't be greater than 32!
Num Of Retry	3

Save

The Primary(Backup) Server

Name	IP Address	Port Number	Status	Operating
Primary Server	192.168.[redacted]	1812	Active	
Backup Server	0.0.0.0	1812	Active	

Advanced Configuration:

- **Auth Key:** Enter RADIUS Server Key.
- **Num Of Retry:** Enter re-check frequency.
- **Primary Server:** Administrator can set RADIUS Server information for Primary.
- **Backup Server:** Administrator can set RADIUS Server information for Backup.

User Info: Administrator can monitor user authentication information.

802.1X Configuration | Server Configuration | User Info

Port	Status	Sum Of Users	Operating
1	Enable	0	View Details
2	Disable	0	View Details
3	Disable	0	View Details
4	Disable	0	View Details
5	Disable	0	View Details
6	Disable	0	View Details
7	Disable	0	View Details
8	Disable	0	View Details
9	Disable	0	View Details
10	Disable	0	View Details

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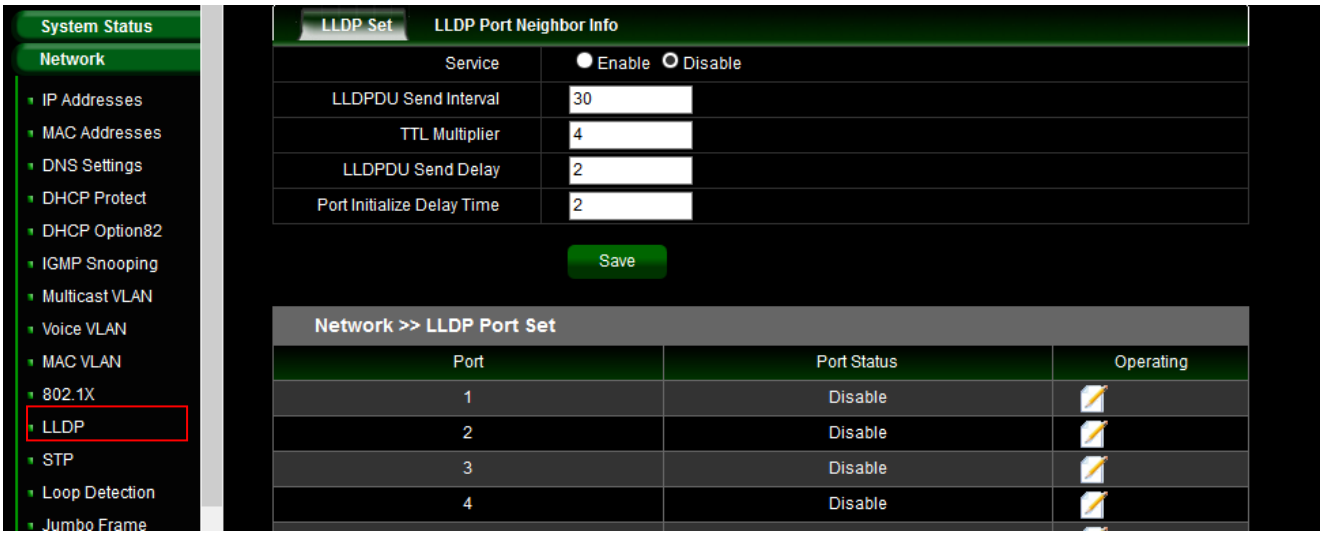
4.11 LLDP

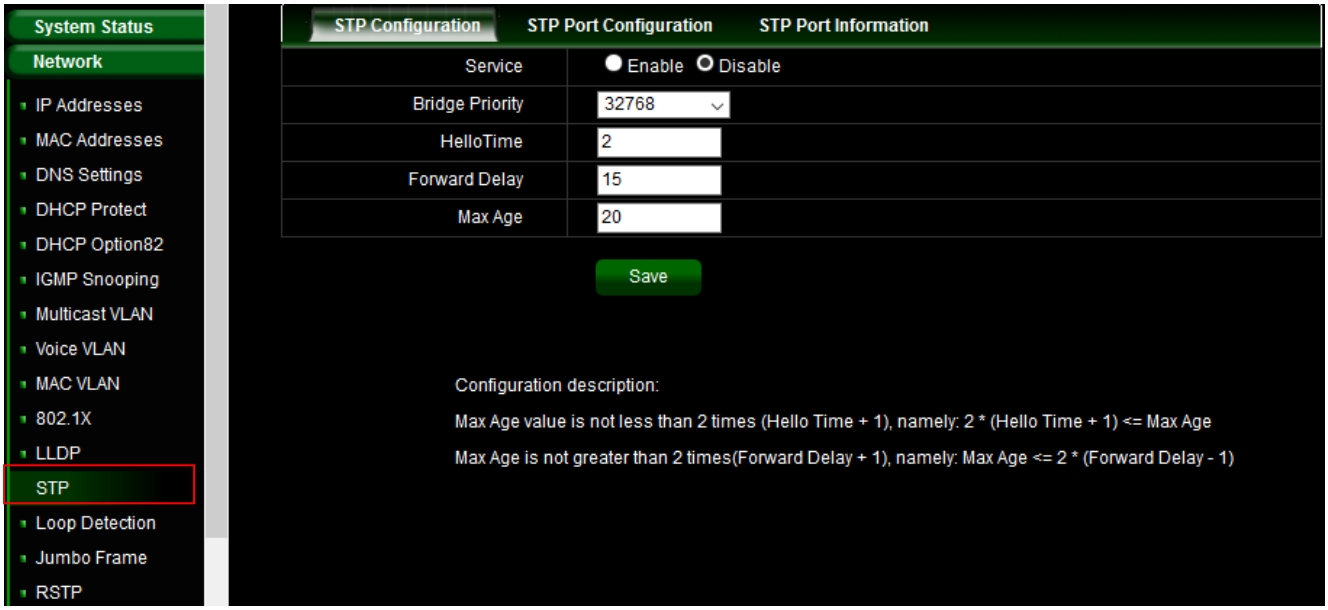
The Link Layer Discovery Protocol (LLDP) is a vendor-neutral link layer protocol in the Internet Protocol Suite used by network devices for advertising their identity, capabilities, and neighbors on an IEEE 802 local area network, principally wired Ethernet.
LLDP information is sent by devices from each of their interfaces at a fixed interval, in the form of an Ethernet frame. Each frame contains one LLDP Data Unit (LLDPDU). Each LLDPDU is a sequence of type-length-value (TLV) structures.



- **LLDPDU Send Interval:** Set LLDPDU Send Interval(value range 5-32760) for LLDP
- **TTL Multiplier:** Set TTL Multiplier (value range 2-10) for LLDP.
- **LLDPDU Send Delay:** Set LLDPDU Send Delay (value range 1-8192) for LLDP.
- **Port Initialize Delay Time:** Set Port Initialize Delay Time (value range 1-10) for LLDP.

4.12 STP

The Spanning Tree Protocol (STP) is a network protocol that builds a logical loop-free topology for Ethernet networks. The basic function of STP is to prevent bridge loops and the broadcast radiation that results from them. Spanning tree also allows a network design to include spare (redundant) links to provide automatic backup paths if an active link fails, without the danger of bridge loops, or the need for manual enabling or disabling of these backup links.



- **Service:** Administrator can select enable or disable the STP service.
- **Bridge Priority:** The default Bridge Priority (Switch Priority) value of 32,768. Bridge Priority (Switch Priority) value decides which Switch can become Root Bridge (Root Switch).
- **HelloTime: Set HelloTime** (value range 1-10) for STP.
- **Forward Delay:** Set Forward Delay (value range 4-30) for STP.
- **Max Age:** Set Max Age (value range 6-40) for STP.

Notice

Max Age value is not less than 2 times (Hello Time + 1), namely: 2 * (Hello Time + 1) <= Max Age
Max Age is not greater than 2 times(Forward Delay + 1), namely: Max Age <= 2 * (Forward Delay - 1)

STP Port Configuration

STP Configuration | STP Port Configuration | STP Port Information

Port	Status	Priority	Path Cost	Loopback Protect	Operating
1	Disable	128	100	Disable	
2	Disable	128	100	Disable	
3	Disable	128	100	Disable	
4	Disable	128	100	Disable	
5	Disable	128	100	Disable	
6	Disable	128	100	Disable	
7	Disable	128	100	Disable	
8	Disable	128	100	Disable	
9	Disable	128	100	Disable	
10	Disable	128	100	Disable	
11	Disable	128	100	Disable	
12	Disable	128	100	Disable	
13	Disable	128	100	Disable	

Administrator can click Operating list button to set STP service.

Edit

Port	1
Status	Disable
Priority	128
Path Cost	100
Loopback Protect	Disable
	Save Cancel

STP Port Information

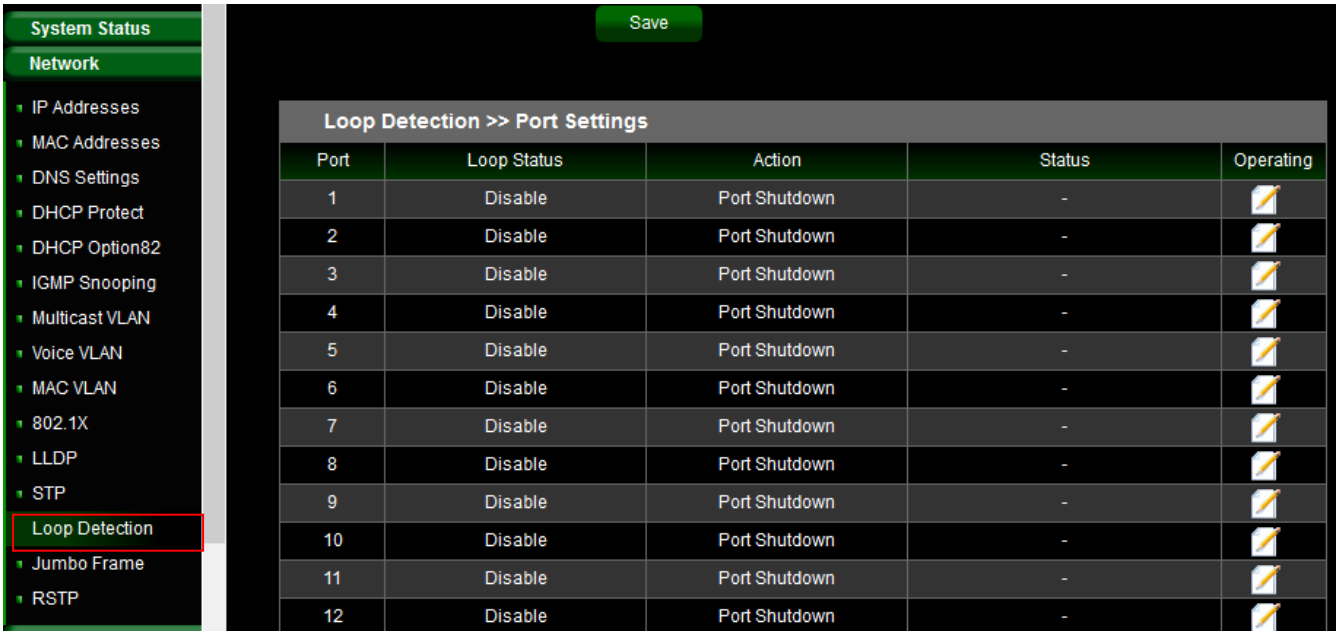
Display STP information for all Port

STP Configuration | STP Port Configuration | STP Port Information

Port	Status	Destination Root MAC	Destination Bridge MAC
1	Disabled	00:00:00:00:00:00	00:00:00:00:00:00
2	Disabled	00:00:00:00:00:00	00:00:00:00:00:00
3	Disabled	00:00:00:00:00:00	00:00:00:00:00:00
4	Disabled	00:00:00:00:00:00	00:00:00:00:00:00
5	Disabled	00:00:00:00:00:00	00:00:00:00:00:00
6	Disabled	00:00:00:00:00:00	00:00:00:00:00:00
7	Disabled	00:00:00:00:00:00	00:00:00:00:00:00
8	Disabled	00:00:00:00:00:00	00:00:00:00:00:00
9	Disabled	00:00:00:00:00:00	00:00:00:00:00:00
10	Disabled	00:00:00:00:00:00	00:00:00:00:00:00
11	Disabled	00:00:00:00:00:00	00:00:00:00:00:00

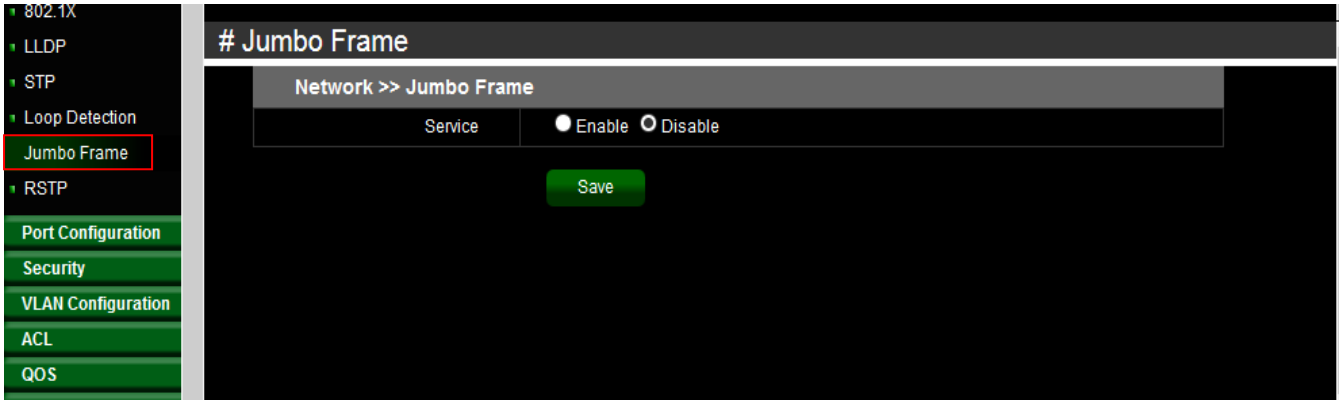
4.13 Loop Detection

Loop detection can be used in an MCT topology to detect Layer 2 loops that occur due to misconfigurations, for example, on the client side when MCT links are not configured as trunk links on the MCT-unaware client. Administrator can click Operating list button to set Action for Port shutdown or Port Blocking.



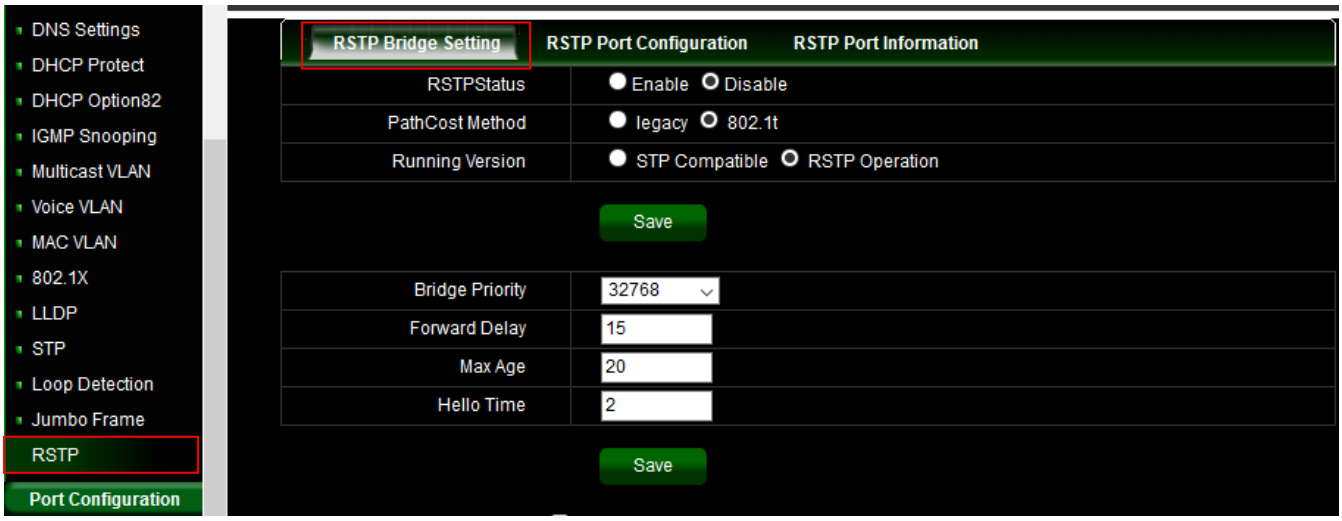
4.14 Jumbo Frame

A jumbo frame is an Ethernet frame with a payload greater than the standard maximum transmission unit (MTU) of 1,500 bytes. Jumbo frames are used on local area networks that support at least 1 Gbps and can be as large as 9,000 bytes. Administrator can select enable or disable the service.



4.15 RSTP

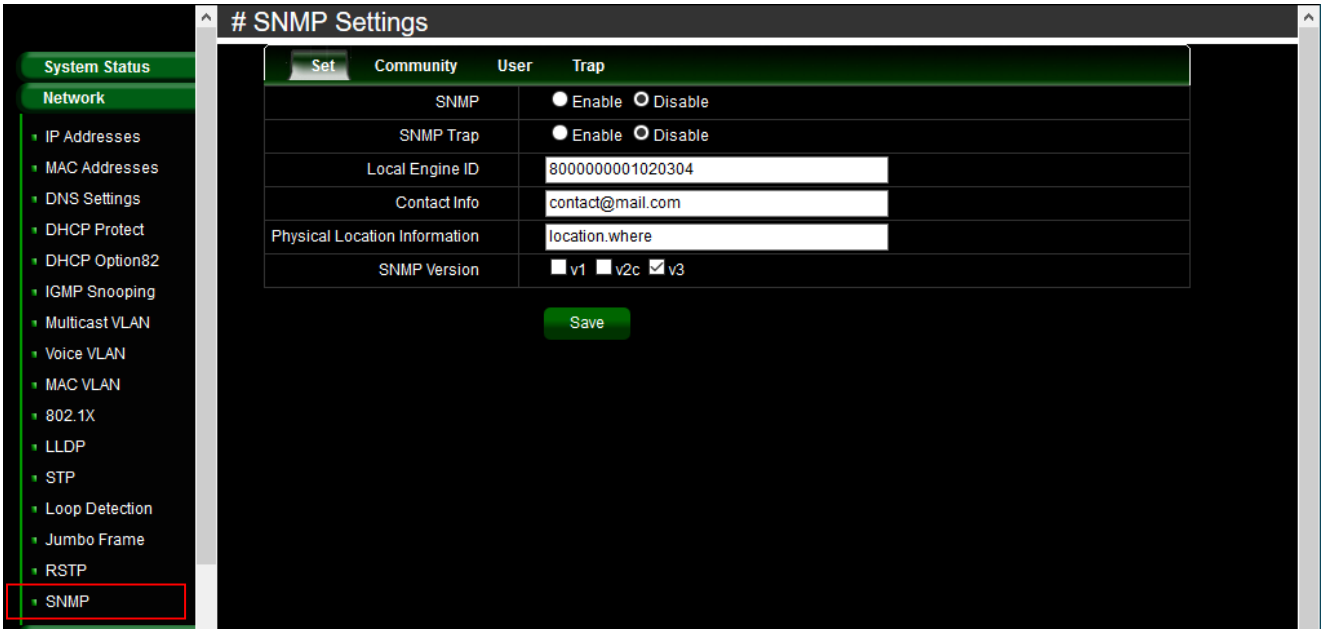
Rapid Spanning Tree Protocol (RSTP; IEEE 802.1w) can be seen as an evolution of the 802.1D standard more than a revolution. The 802.1D terminology remains primarily the same. Most parameters have been left unchanged so users familiar with 802.1D can rapidly configure the new protocol comfortably.



4.16 SNMP

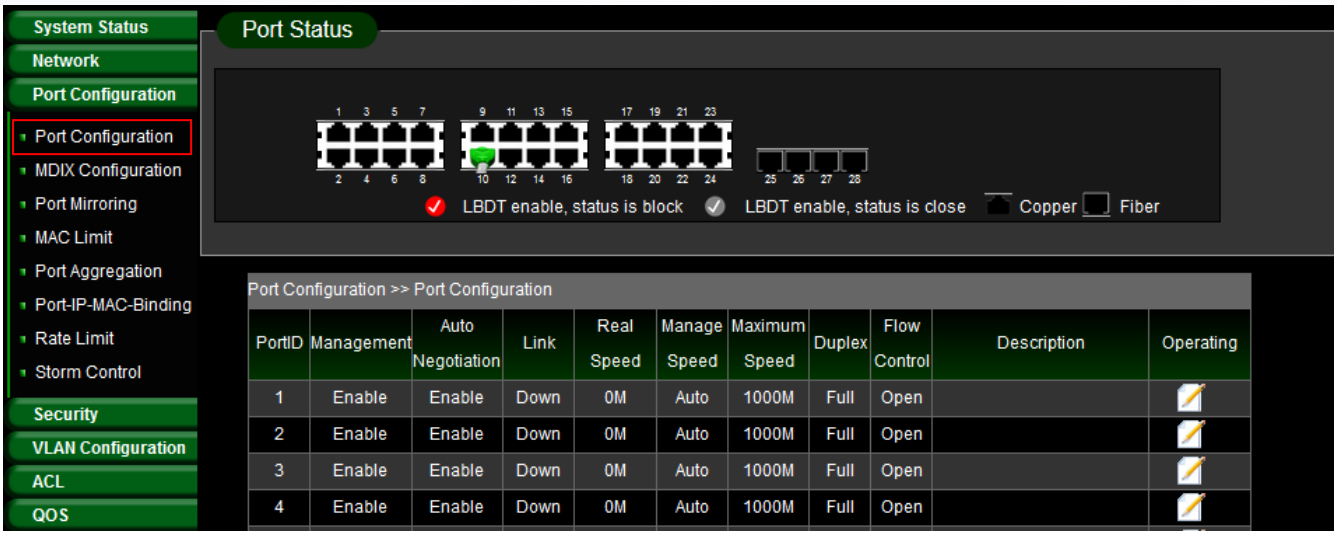
Using SNMP, you can monitor network performance, audit network usage, detect network faults or inappropriate access, and in some cases configure remote devices. SNMP is designed to be deployed on the largest possible number of network devices, to have minimal impact on the managed nodes, to have minimal transport requirements, and to continue working when most other network applications fail.

This system support v1 / v2 / v3 and Trap for the SNMP. Administrator can choose version of the SNMP function.

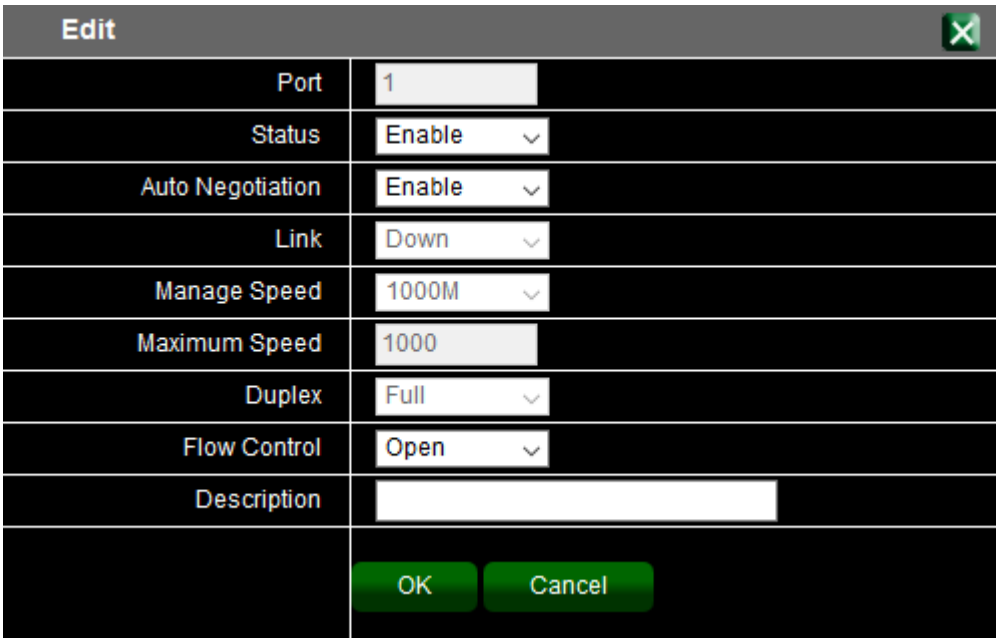


5. Port Configuration

5.1 Port Configuration



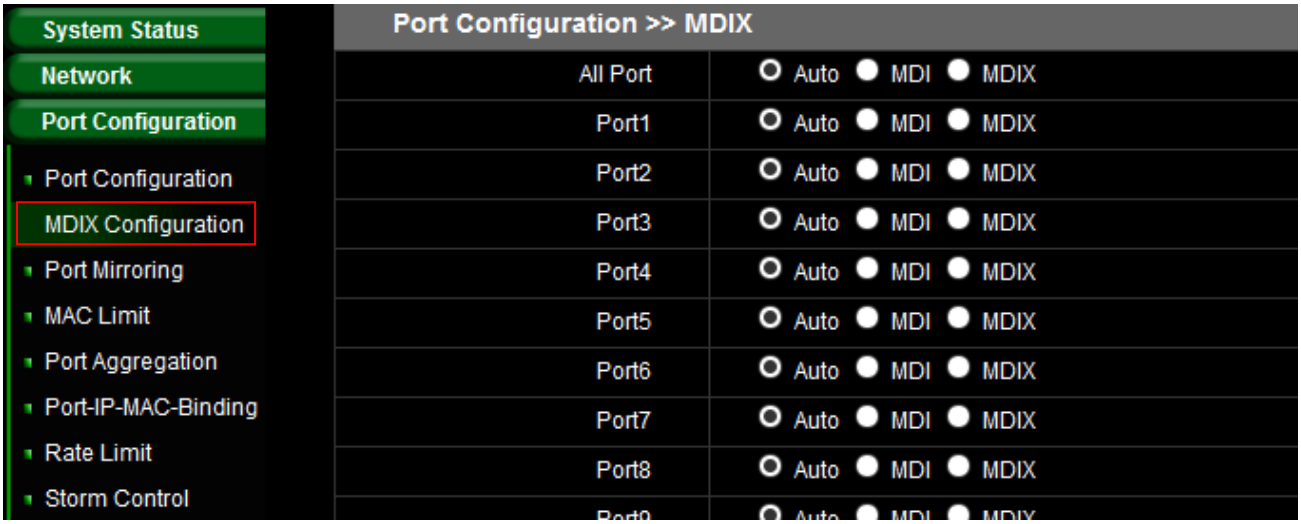
Administrator can click Operating list button to modify port Operation.



5.2 MDIX Configuration

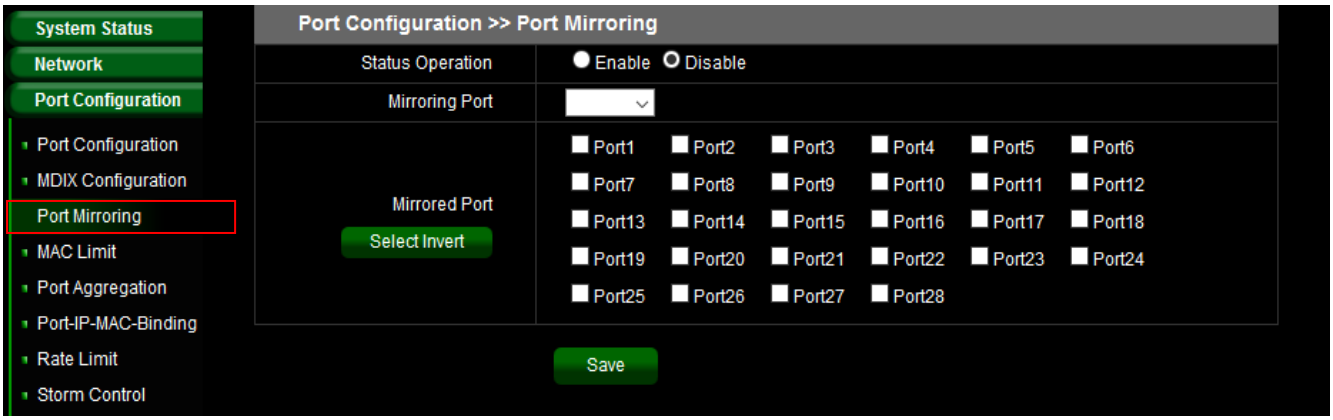
A medium dependent interface (MDI) describes the interface (both physical and electrical) in a computer network from a physical layer implementation to the physical medium used to

carry the transmission. Ethernet over twisted pair also defines a medium dependent interface crossover (MDI-X) interface. Auto MDI-X ports on newer network interfaces detect if the connection would require a crossover, and automatically chooses the MDI or MDI-X configuration to properly match the other end of the link.



5.3 Port Mirroring

Port mirroring function can mirror Rx/Tx traffic, Packet can mirror to Destination port and for analysis.

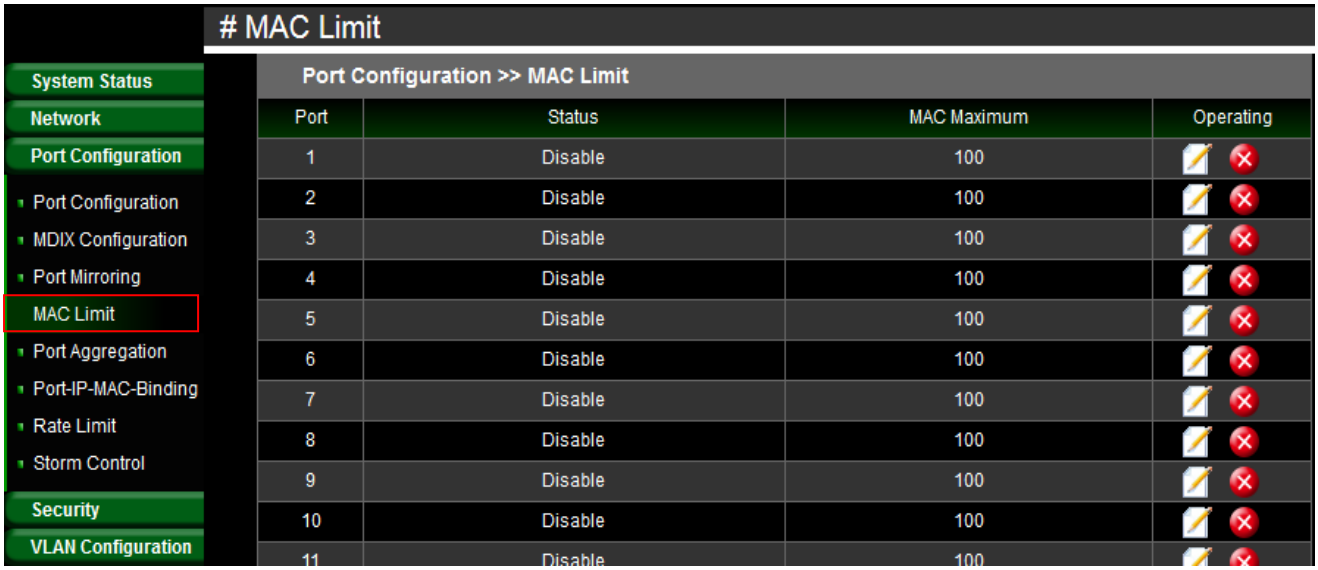


- **Status Operation:** Administrator can select enable or disable the function.
- **Mirroring Port:** Administrator can select a mirroring Port.
- **Mirrored Port:** Administrator can select plurality for mirrored port.

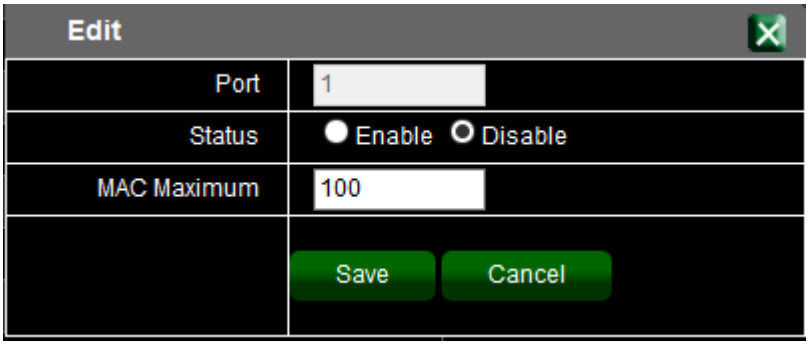
5.4 MAC Limit

MAC limiting protects against flooding of the Ethernet switching table (also known as the MAC forwarding table or Layer 2 forwarding table). MAC limiting sets a limit on the number of MAC

addresses that can be learned on a single Layer 2 access interface or on all the Layer 2 access interfaces on the switch, or on a specific VLAN.



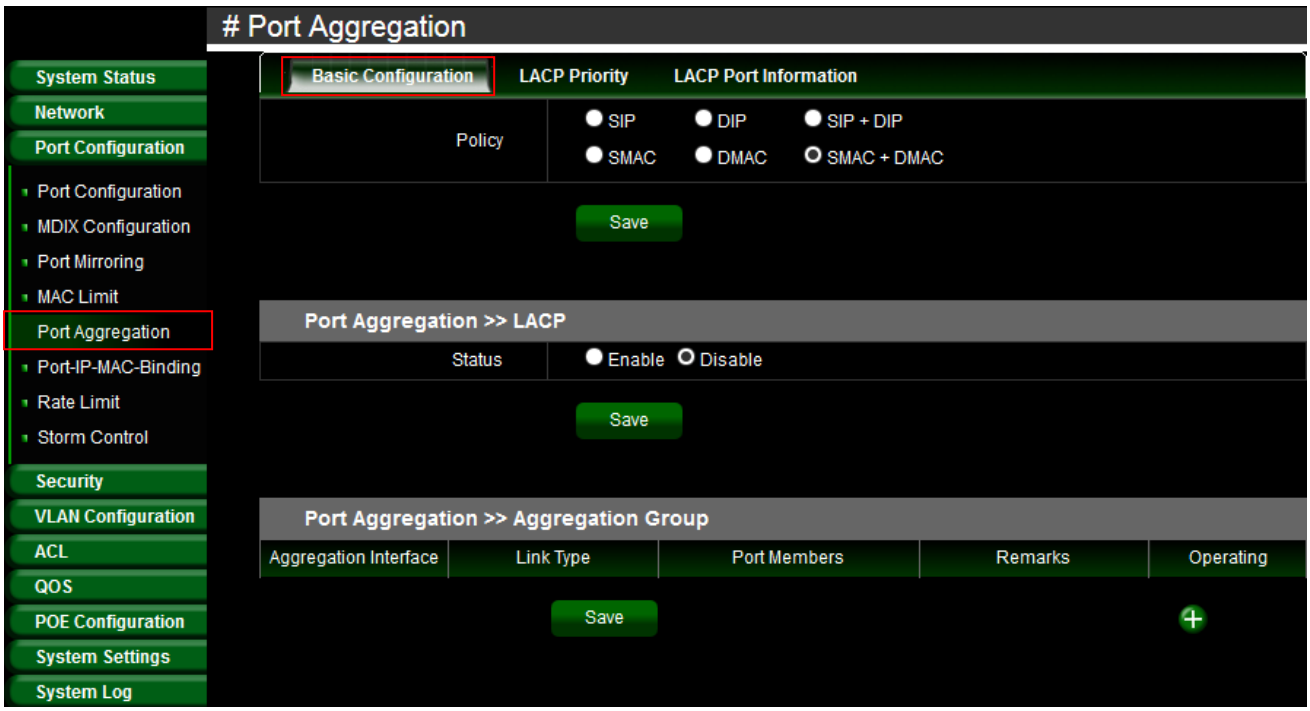
Administrator can click Operating list button to set MAC Limit.



5.5 Port Aggregation

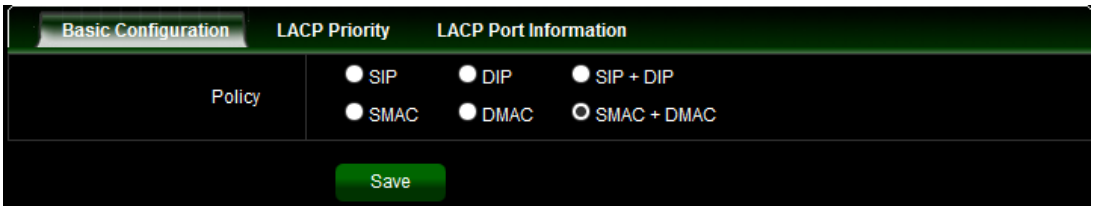
Port Aggregation is also referred to as link aggregation, teaming port, and port trunking for 802.3ad (LACP, Link Aggregation Control Protocol), The Port Aggregation can aggregate

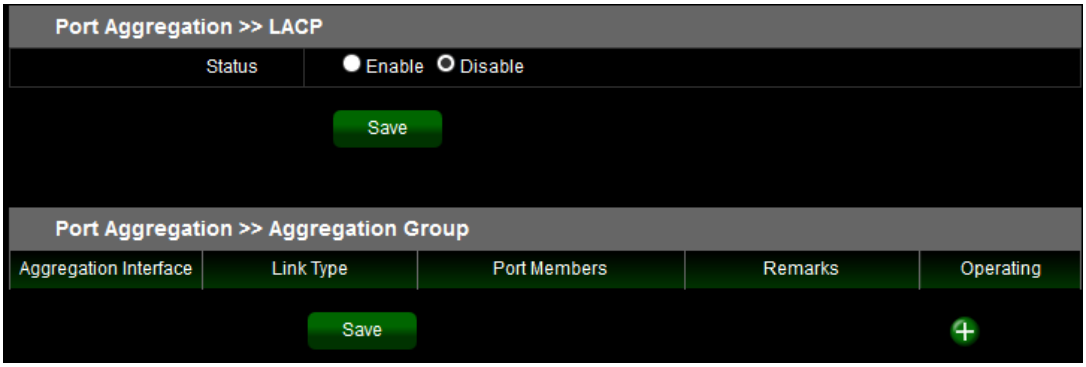
multiple Ethernet ports together to form a logical aggregation group. To upper layer entities, all the physical links in an aggregation group are a single logical link.



Basic Configuration

Administrator can set Source IP/MAC or Destination IP/ MAC for the policy. The LACP service can select enable or disable and also set Aggregation group.

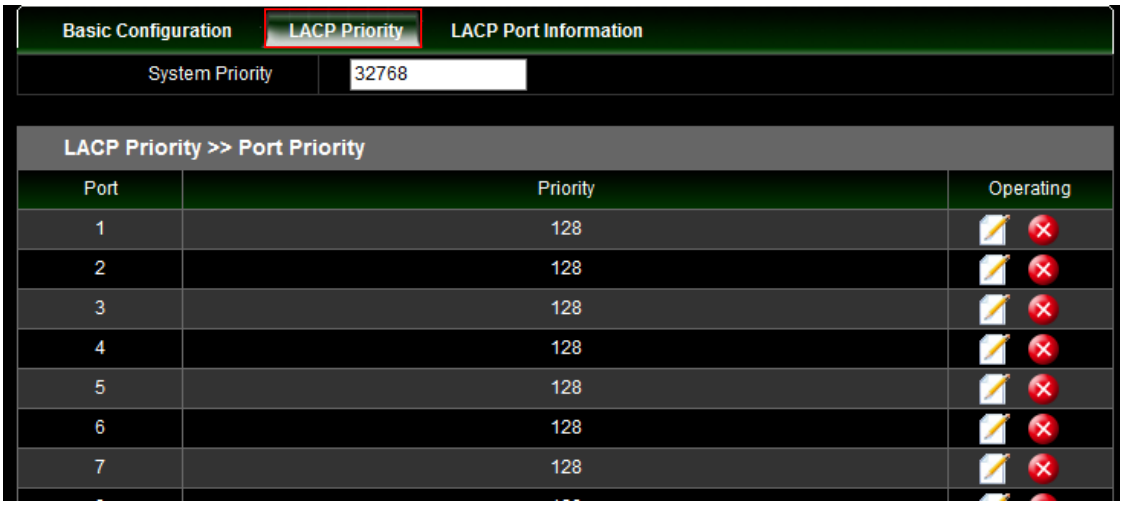




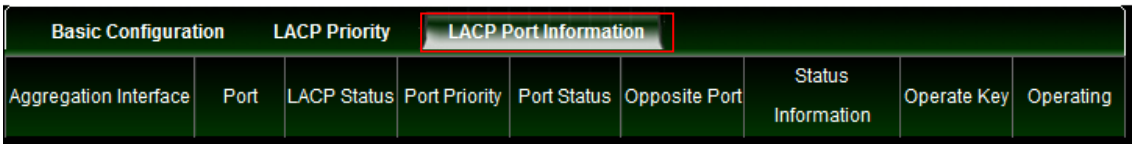
LACP Priority

Administrator configures the LACP system priority on each switch running LACP. LACP uses the system priority with the switch MAC address to form the system ID and also during negotiation with other switches.

The function with the lower system priority value determines which links between LACP partner devices are active and which are in standby for each LACP group. The device on the controlling end of the link uses port priorities to determine which ports are bundled into the aggregated bundle and which ports are put in standby mode. Port priorities on the other device (the no controlling end of the link) are ignored. In priority comparisons, numerically lower values have higher priority. Therefore, the system with the numerically lower value (higher priority value) for LACP system priority becomes the controlling system. If both devices have the same LACP system priority (for example, they are both configured with the default setting of 128), the device MAC address determines which switch is in control.



LACP Information



Tips: Click view details to show information and Status information: will show A~H

A: LACP Activity

B: LACP Timeout

C: Aggregation

D: synchronization

E: Collecting

F: Distributing

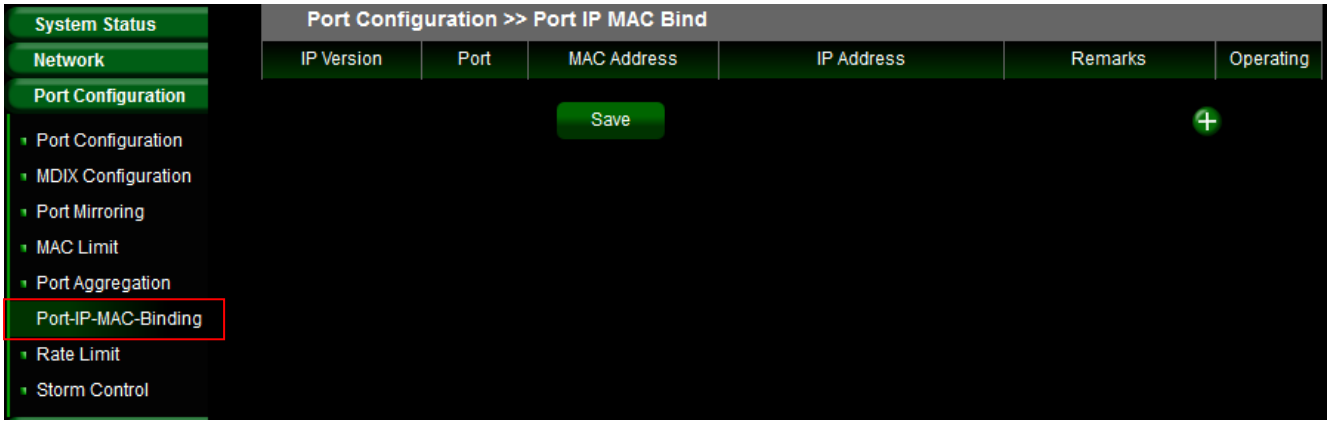
G: Defaulted

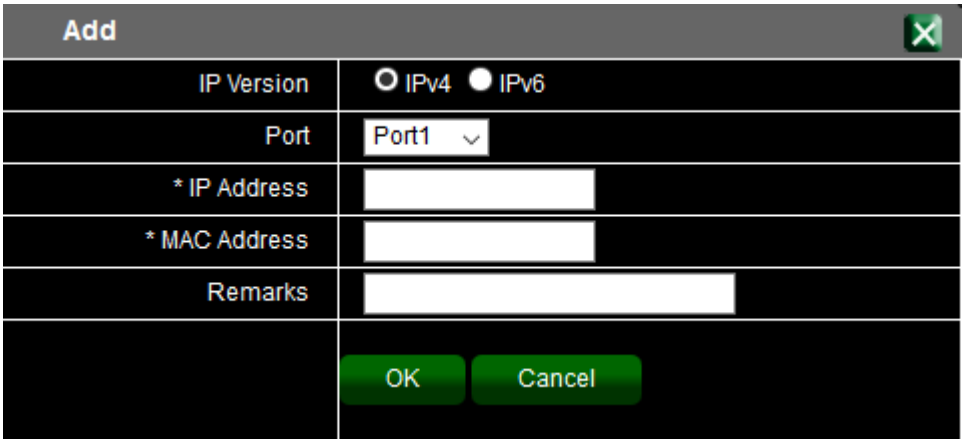
H: Expired

5.6 Port-IP-MAC-Binding

Port-IP-MAC-Binding is a powerful, integrated authentication function that ensures the correctness of MAC address, IP address, and connected port for devices connected to the

network. It monitors the information among the ARP, DHCP or IPv4/v6 ARP ND packets to make sure they are all from legal sources help to quarantine illegal device or hackers intend to fake the IP or MAC address on legal devices at the edge of network.





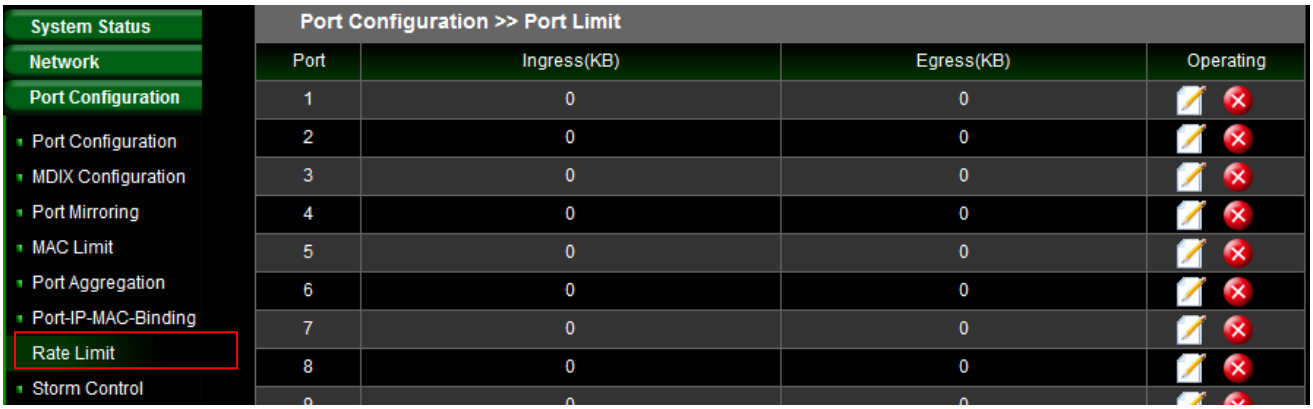
- **IP Version:** The function support IPv4/v6, administrator can select IP address by v4/v6
- **Port:** Administrator can select Port number for client.
- **IP Address:** Enter IP address for Client
- **MAC Address:** Enter MAC Address for client.
- **Remark:** Enter the information in the remark.

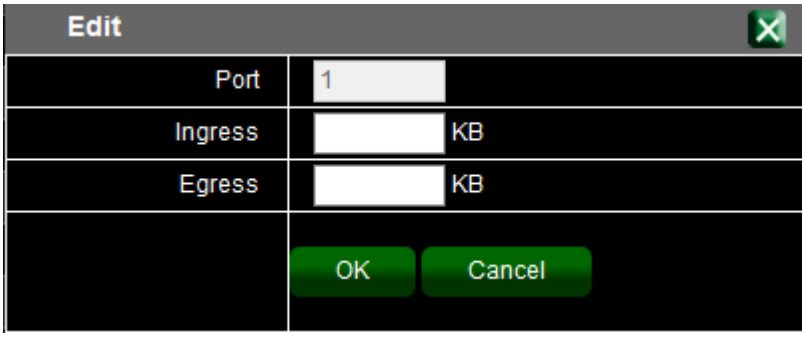
5.7 Rate Limit

The rate limiting function can be configured to limit of Ingress/Egress traffic on a particular

interface.

Administrator can click button in Operating list.





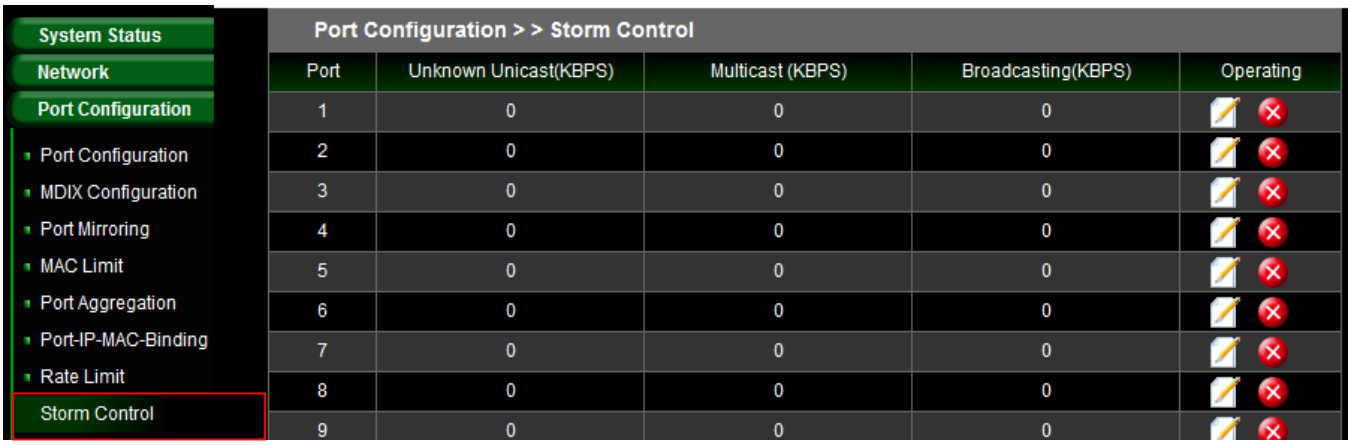
5.8 Storm Control

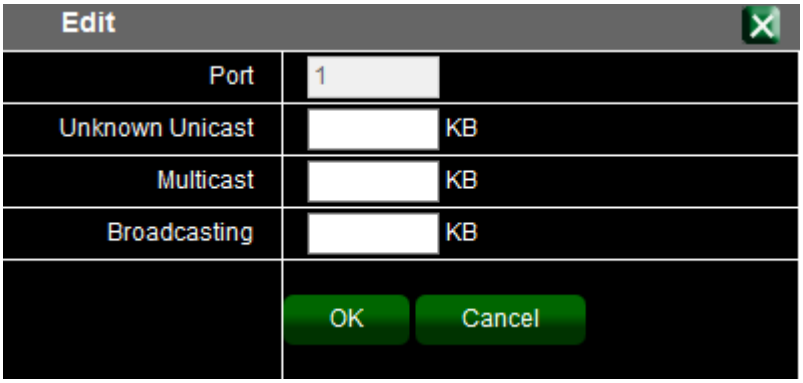
Traffic storm control (also called traffic suppression) allows you to monitor the levels of the

incoming broadcast, multicast, and unicast traffic over a 1-second interval. During this interval, the traffic level, which is a percentage of the total available bandwidth of the port, is compared with the traffic storm control level that you configured. When the ingress traffic reaches the traffic storm control level that is configured on the port, traffic storm control drops the traffic until the interval ends.

A traffic storm occurs when packets flood the LAN, creating excessive traffic and degrading network performance. Administrator can use the traffic storm control feature to prevent disruptions on Layer 2 ports by a broadcast, multicast, or unicast traffic storm on physical interfaces.

Administrator can click button to set storm control in the Operating list.



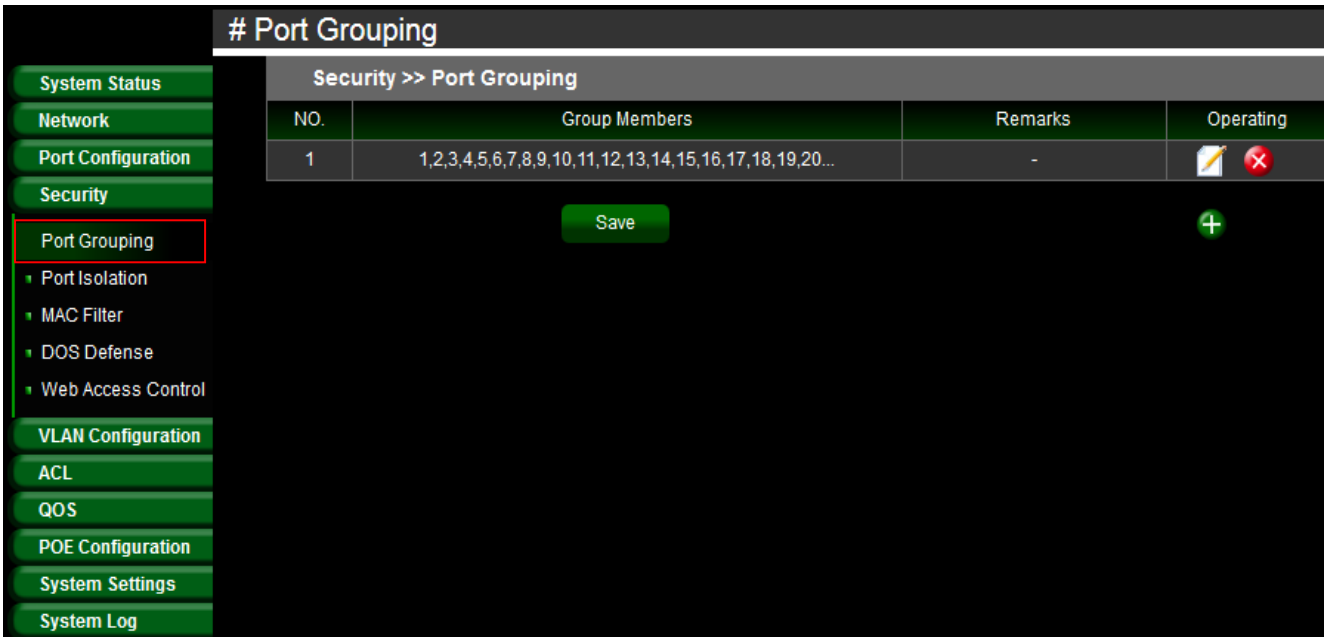


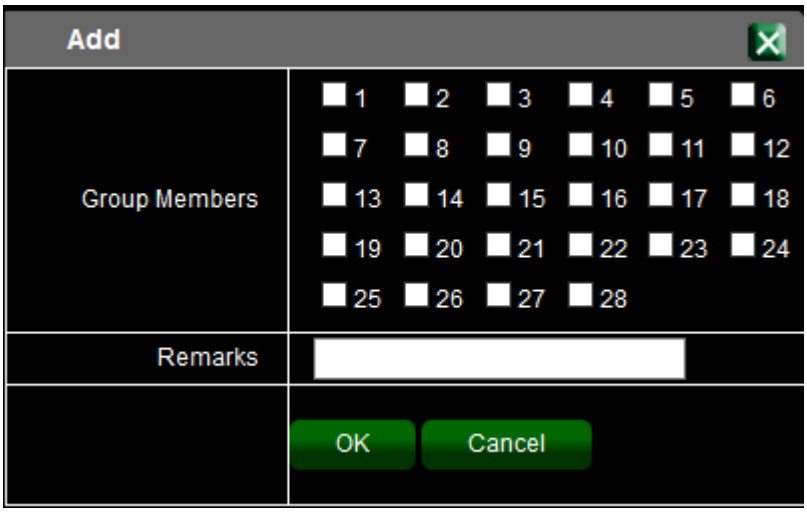
6. Security

6.1 Port Grouping

Administrator can create own grouping of devices and ports to efficiently update and manage devices.

Administrator can click button to modify or create Port Grouping in the Operating list.





6.2 Port Isolation

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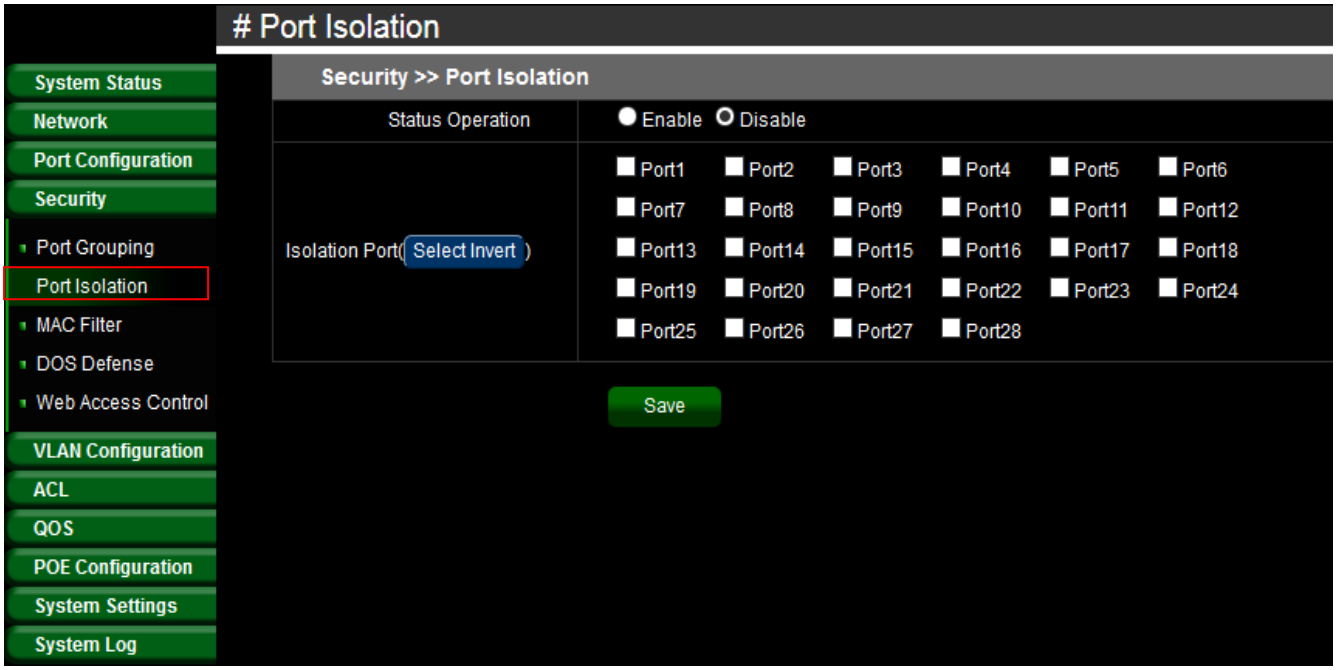
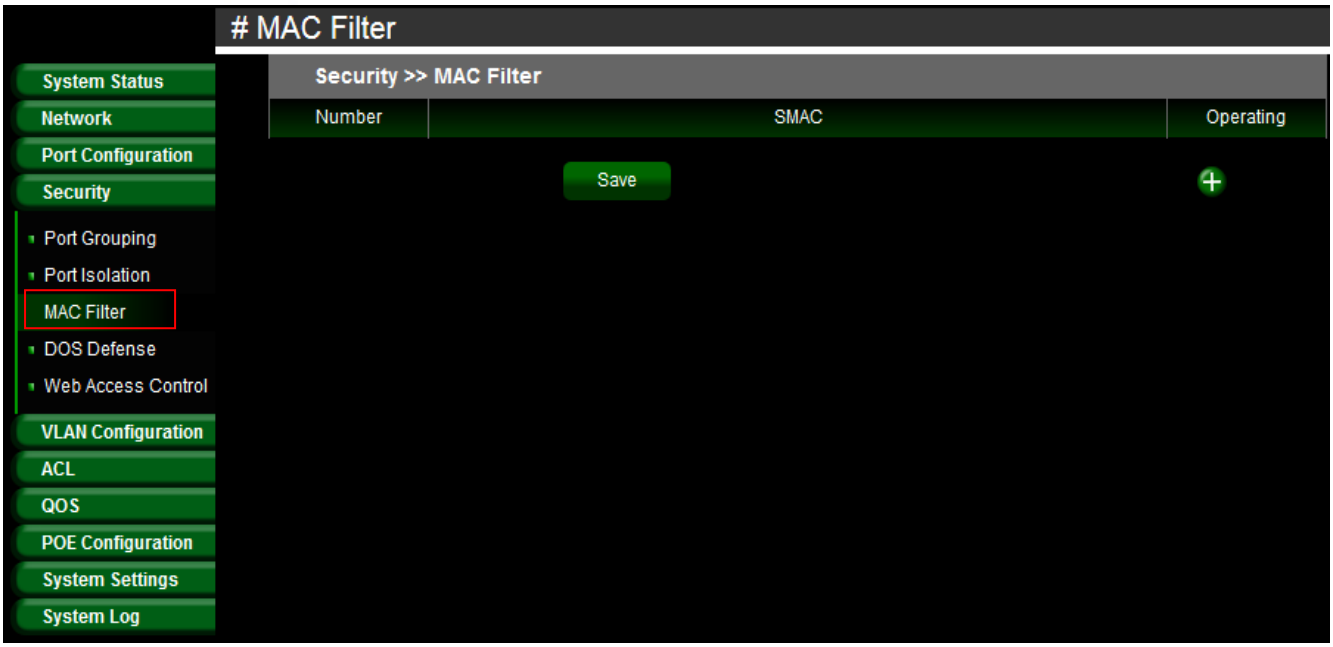
When administrators use the port isolation feature, the selected ports will no longer be able to communicate with each other.



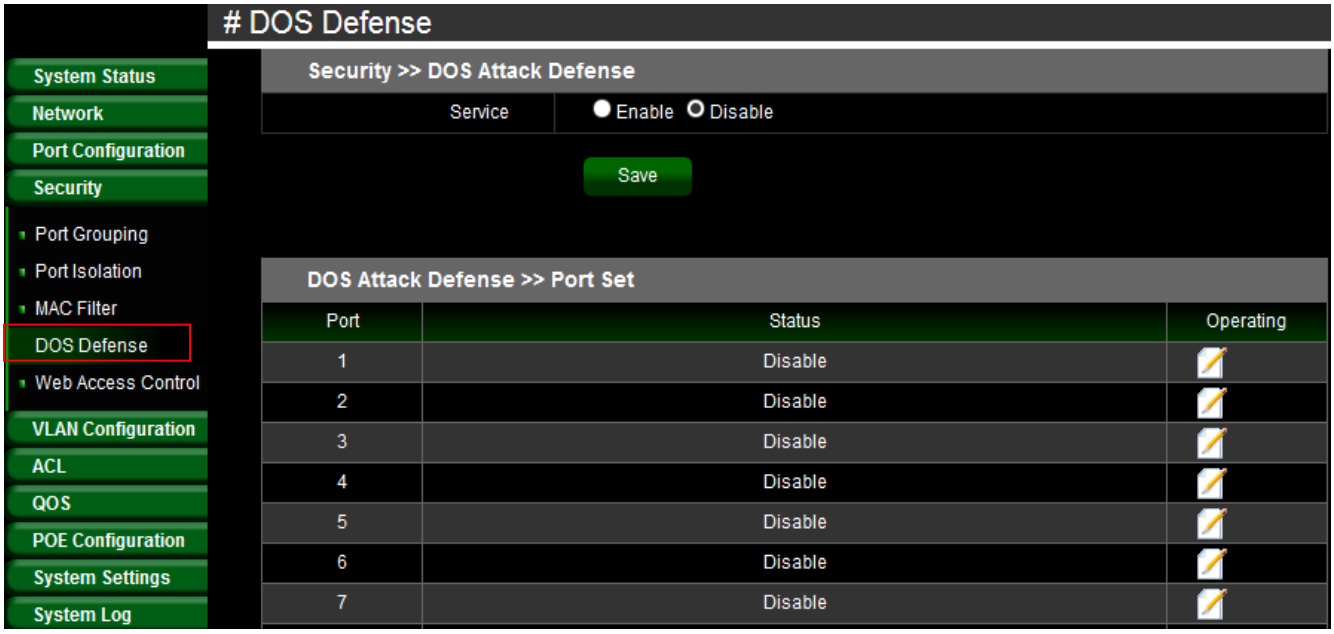
6.3 MAC filter

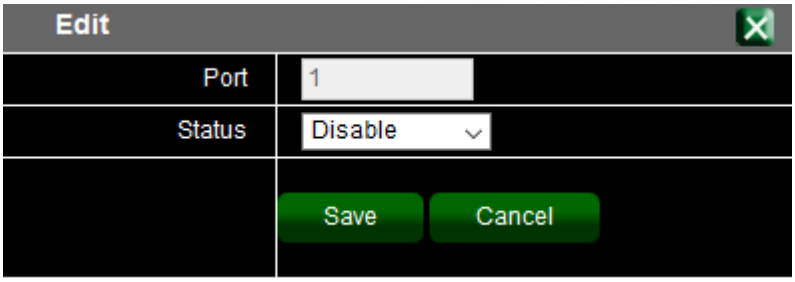
MAC Filtering refers to a security access control method whereby the 48-bit address assigned to each network card is used to determine access to the network. MAC addresses are uniquely assigned to each card, so using MAC filtering on the list will denies network access to specific devices the use for the blacklists. Administrator can enter source MAC address.



6.4 DOS Defense

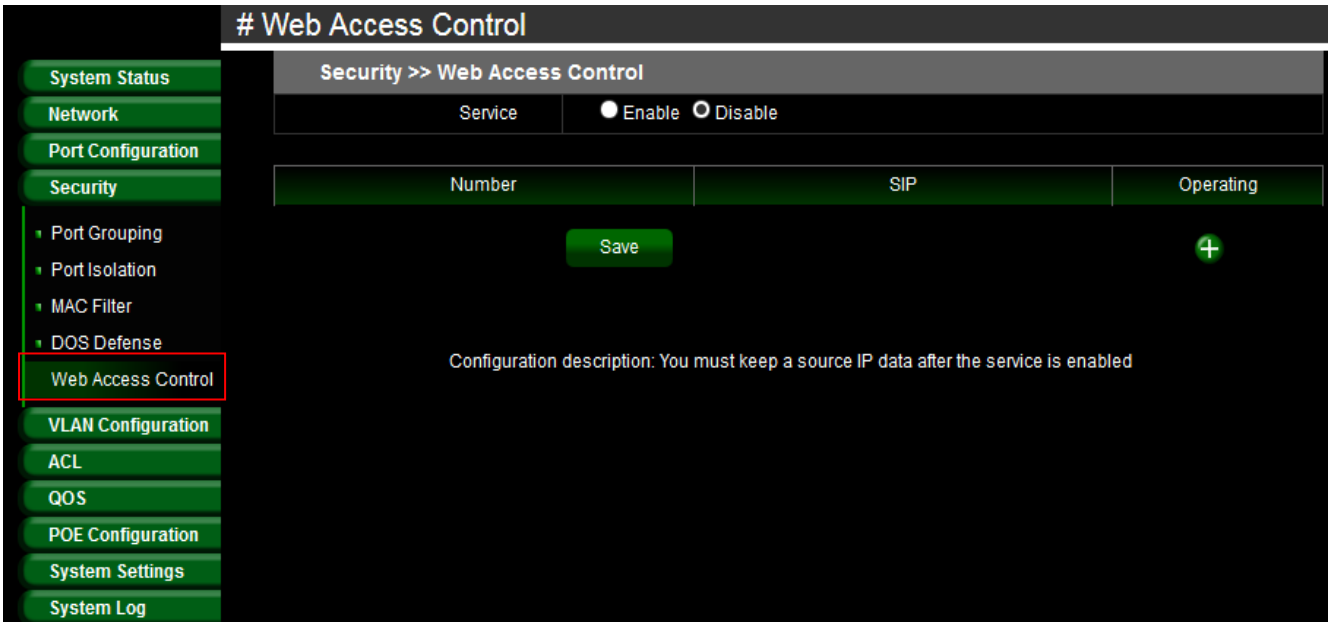
The Switch function support DoS(denial-of-service) defense. Denial-of-service (DoS) is an attempt to make a machine or network resource unavailable to its intended users, such as to temporarily or indefinitely interrupt or suspend services of a host connected to the Internet. Administrator can click button to enable the security in Operating list.

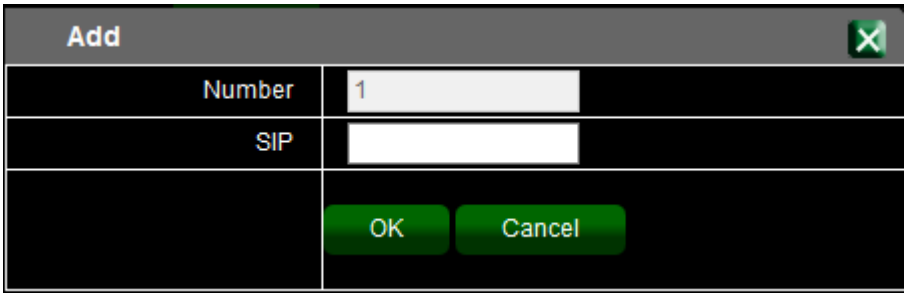




6.5 Web Access Control

Administrator can set source IP address in list. When this function is enabled, the source IP address can be used to login to the management page of the switch. Other IP addresses can no longer be used to login.





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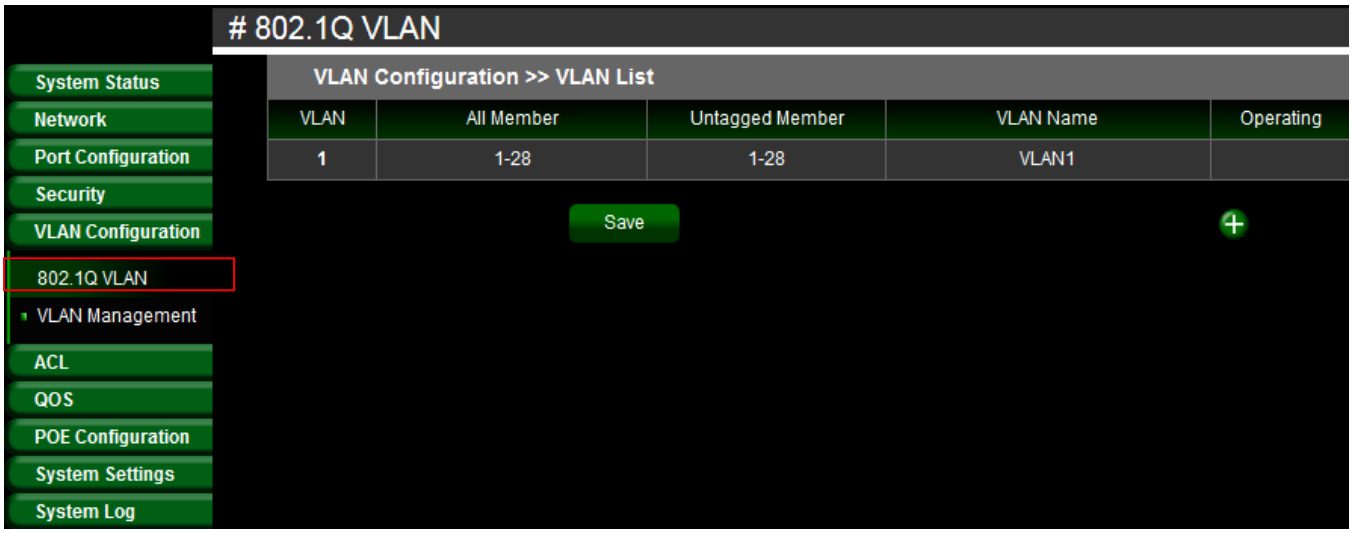
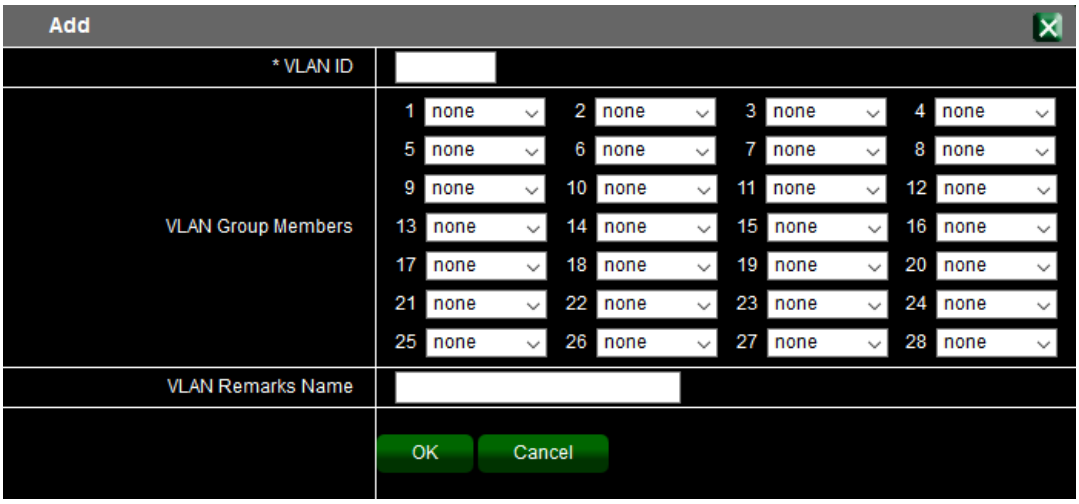
7.VLAN Configuration

7.1 802.1Q VLAN

The VLAN function can set Tag Based VLAN.

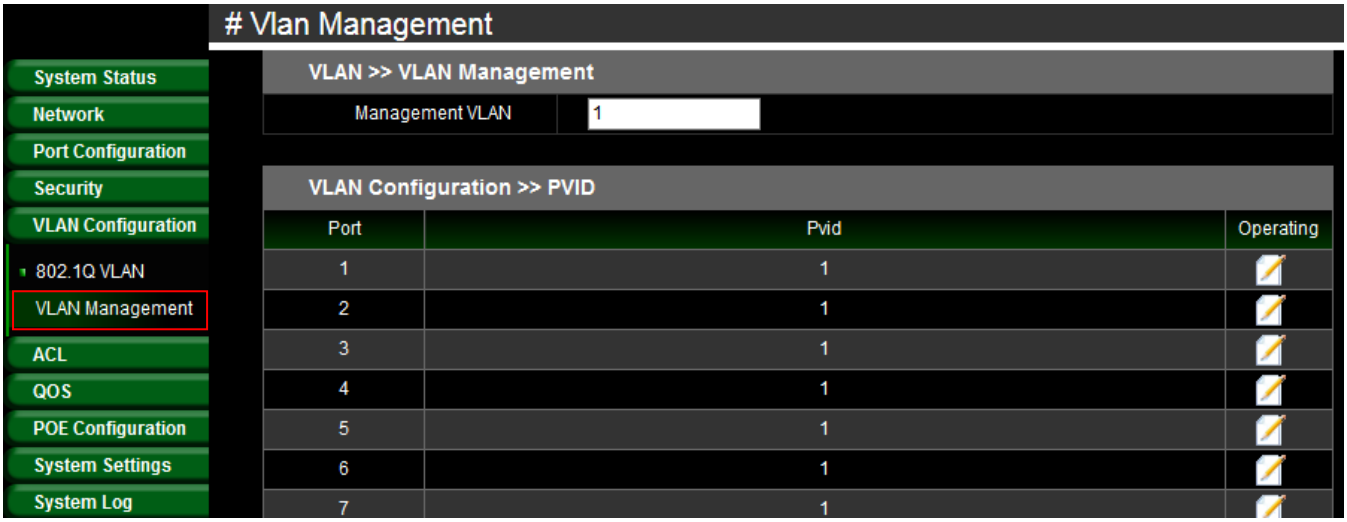


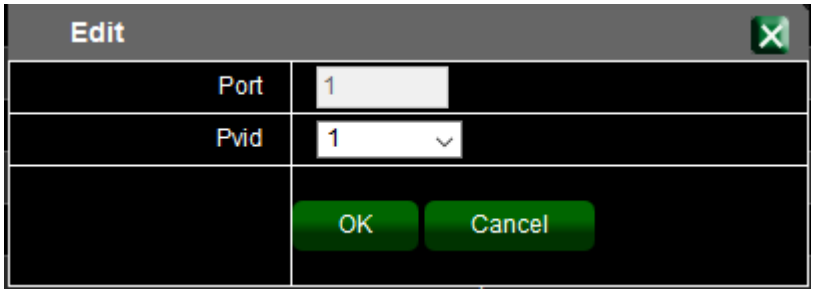


- **None:** No changes to egress packets.
- **Tagged:** Insert port's tag for egress packets.
- **UnTagged:** Remove tag ID.

7.2 VLAN Management

The Page administrator can set PVID protocol.

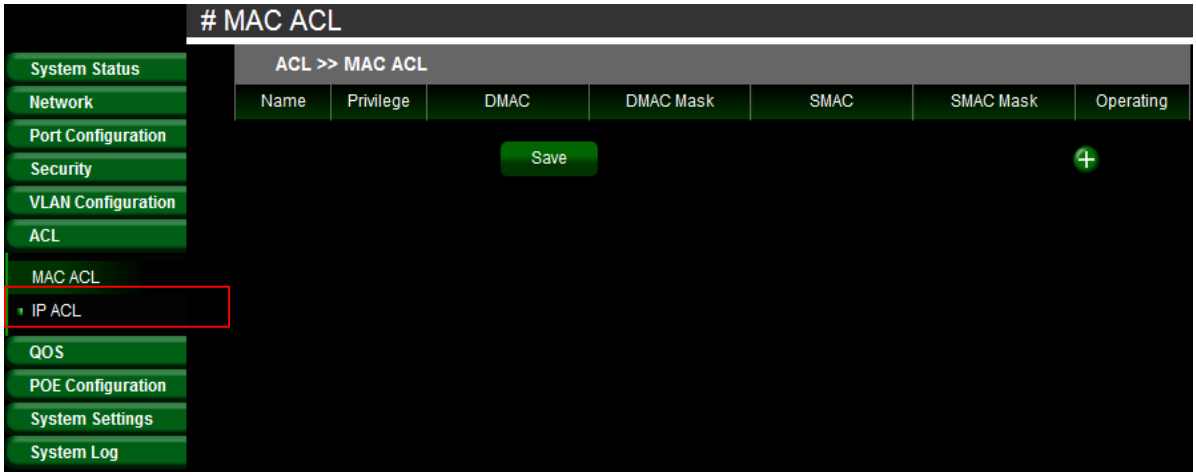


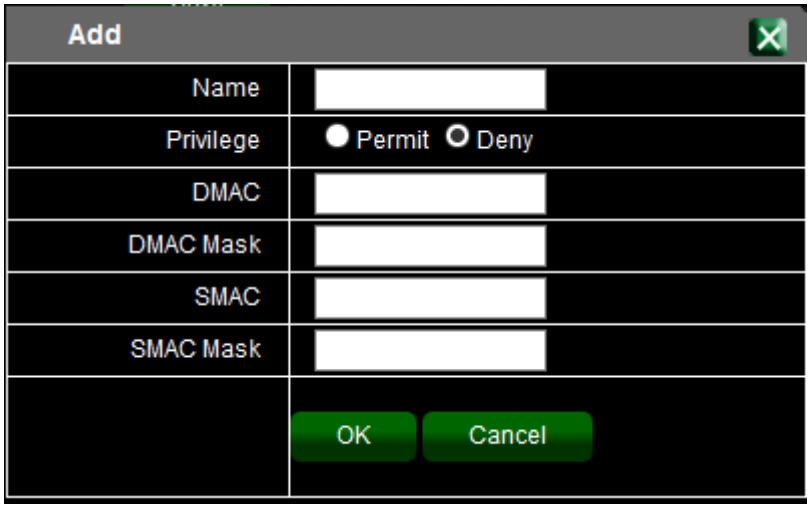


8. ACL

8.1 MAC ACL

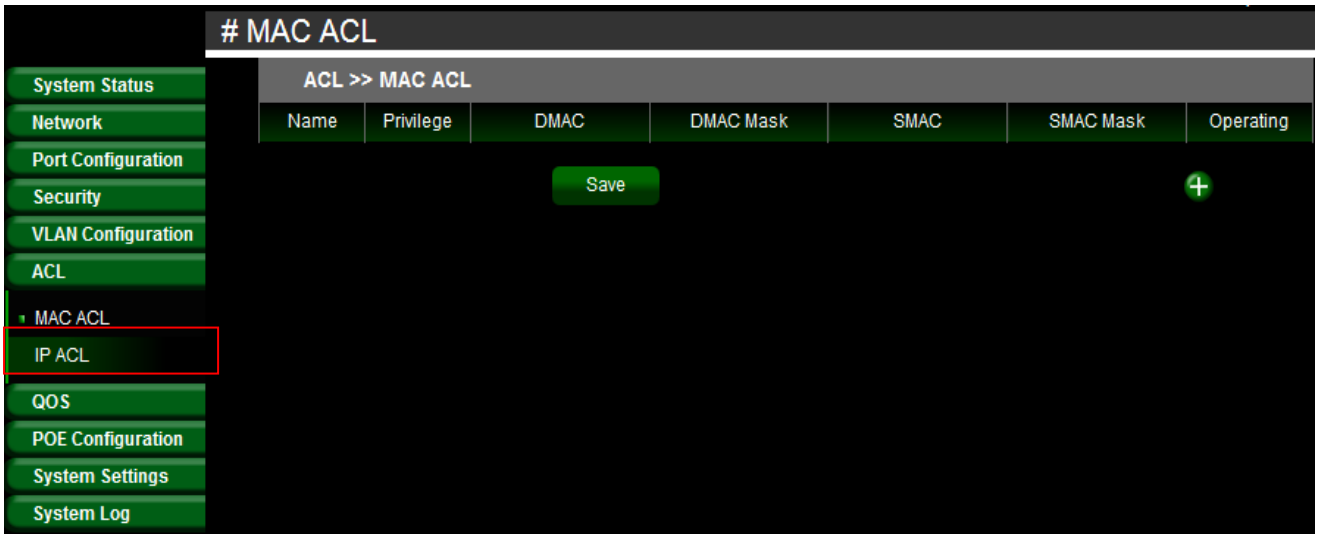
ACL is Access Control List, MAC ACLs are Layer 2 ACLs. Administrator can configure the Source/Destination MAC address and MAC mask rules to Permit or deny for the packet.

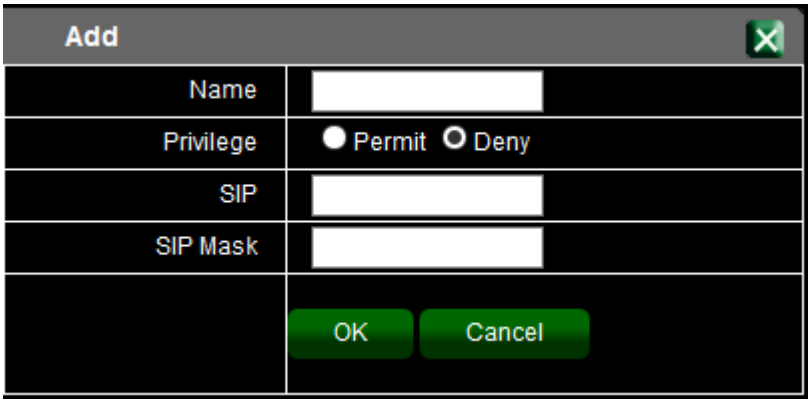




8.2 IP ACL

Administrator can configure the Source IP address and IP mask rules to Permit or deny for the packet.





- **Name**：Administrator can enter the rule name.
- **Privilege**：Administrator can select Permit or Deny for the rule.
- **SIP:** If administrator want to deny an IP address, administrator can setting source IP address for deny.
- **SIP Mask**：Administrator must to enter source IP Mask. example: block a IP address, the Mask enter 0.0.0.0

Basic Configuration | Expert Configuration

Name	Privilege	SIP	SIP Mask	Operating
Danny	Deny	192.168.2.20	0.0.0.0	

Expert Configuration

If want to set protocol details of the ACL, administrator can click "Expert Configuration" to set detail functions.

Basic Configuration | Expert Configuration

Name	Privilege	SIP	SIP Mask	DIP	DIP Mask	Protocol	Operating
Danny	Deny	192.168.2.20	0.0.0.0	192.168.2.200	0.0.0.0	ICMP	

Example: If want to block ping protocol for source to destination, administrator can refer to the following example.

Edit

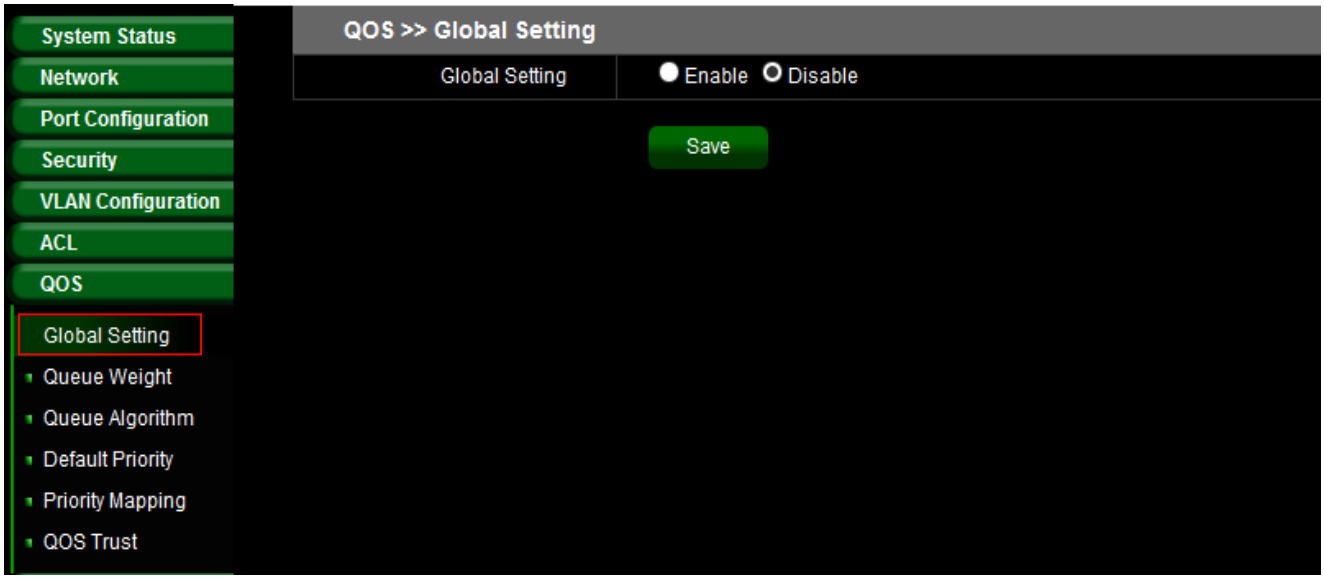
*Name	Danny
*Privilege	Permit Deny
*SIP	192.168.2.20
*SIP Mask	0.0.0.0
*DIP	192.168.2.200
*DIP Mask	0.0.0.0
Protocol(Optional)	ICMP
*Type	8
*Code	0
	OK Cancel

9. QoS

Quality of Service (QoS) prioritizes network traffic and manages available bandwidth so that the most important traffic goes first. QoS is implemented as rules or policies that prioritize packets, optionally change information in the packet header, and assign them to outbound port queues based on their priority.

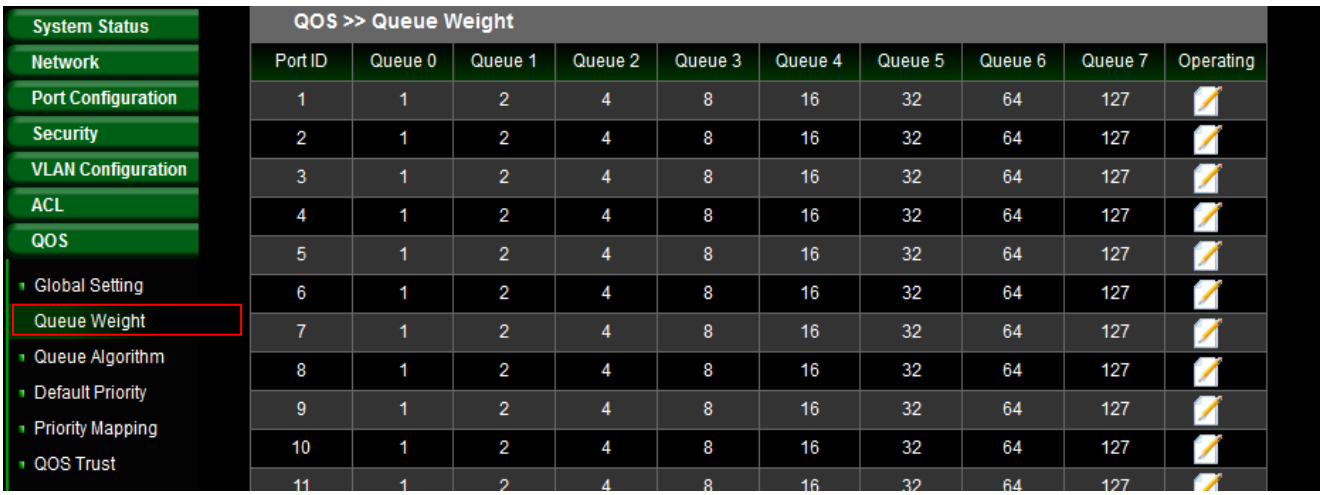
9.1 Global Setting

Administrator can enable or disable the quality of service (QoS) functionality globally.

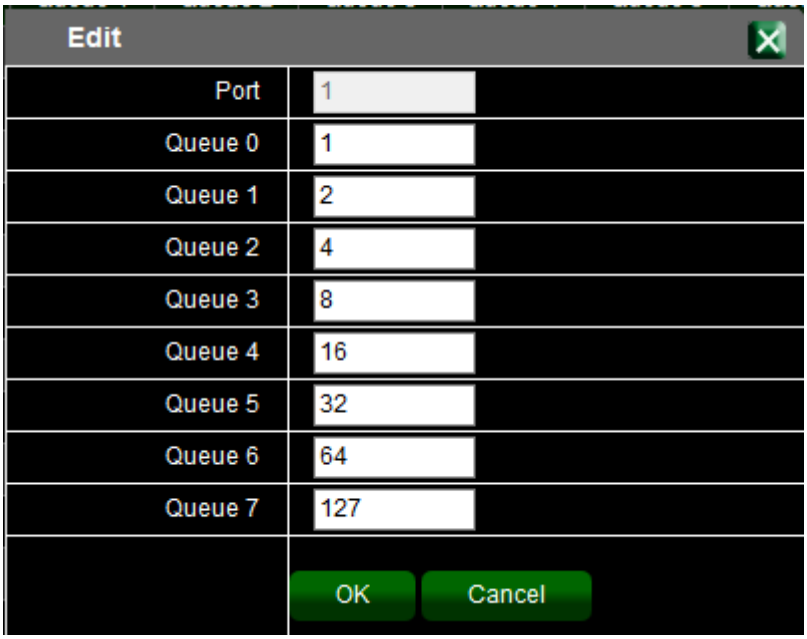


9.2 Queue Weight

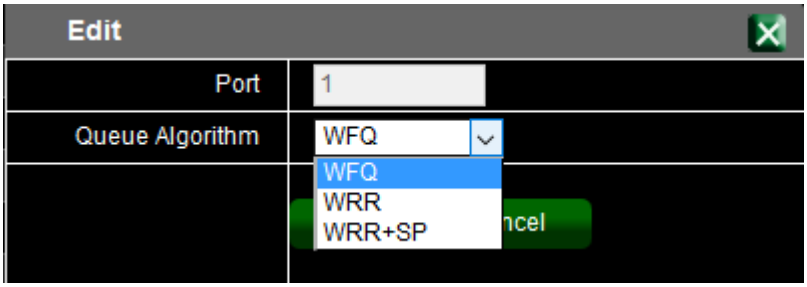
Administrator can input the queue weight of the Q0~Q7. The weight values of "Queue Weight" can be customized and their default values are 1:2:4:8:16:32:64:127 respectively.



Port ID	Queue 0	Queue 1	Queue 2	Queue 3	Queue 4	Queue 5	Queue 6	Queue 7	Operating
1	1	2	4	8	16	32	64	127	
2	1	2	4	8	16	32	64	127	
3	1	2	4	8	16	32	64	127	
4	1	2	4	8	16	32	64	127	
5	1	2	4	8	16	32	64	127	
6	1	2	4	8	16	32	64	127	
7	1	2	4	8	16	32	64	127	
8	1	2	4	8	16	32	64	127	
9	1	2	4	8	16	32	64	127	
10	1	2	4	8	16	32	64	127	
11	1	2	4	8	16	32	64	127	



9.3 Queue Algorithm



➢ **WFQ:** Each Queue can set a weight by QoS. The QoS function will be based on weights to allocate bandwidth to ensure basic.

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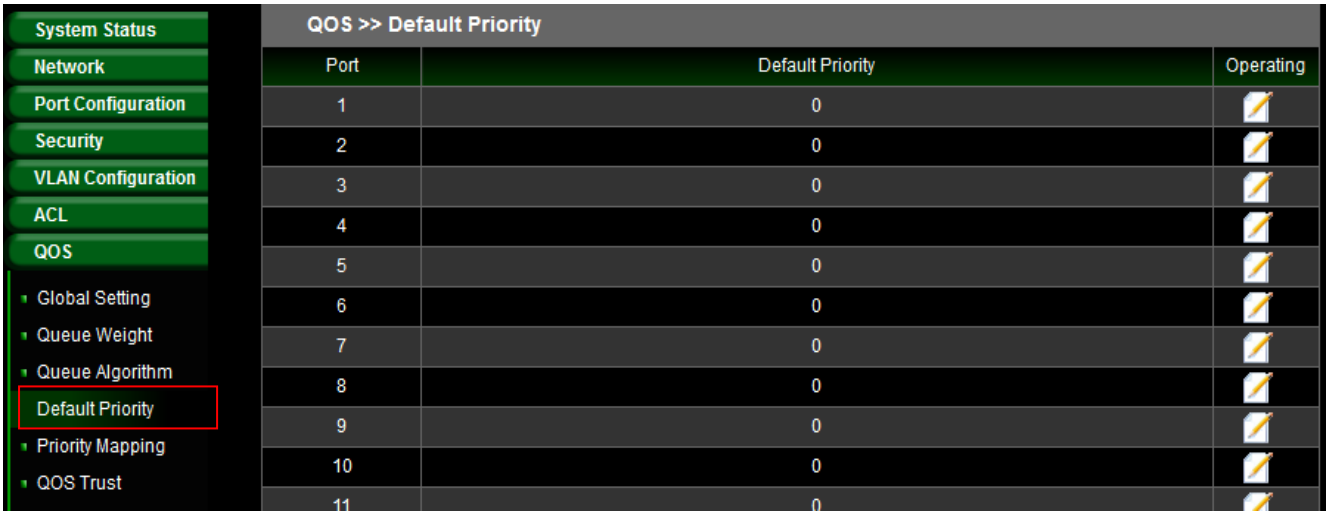
- **WRR:** Weight Round Robin Scheduling is like waiting in line, Packets in all the queues are sent in order based on the weight value for each queue.
- **WRR+SP:** Weight Round Robin + Strict Priority, Queues in SP are scheduled strictly based on SP function while the queues inside WRR follow the WRR mode.

9.4 Default Priority

Administrator can set default priority of the Queue Weight.

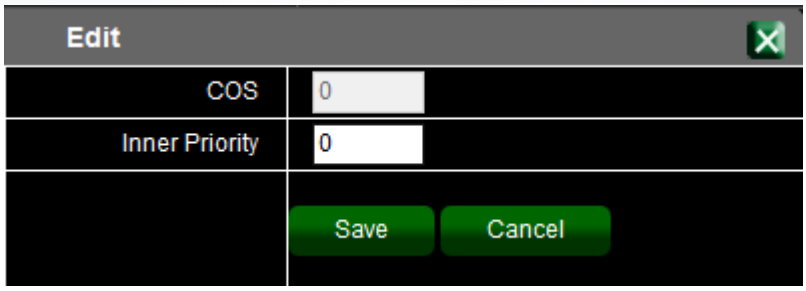


Port	Default Priority	Operating
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	
10	0	
11	0	

9.5 Priority Mapping

This switch implements two priority modes based on port, on COS and on DSCP. The port priorities are labeled as CoS0~7.

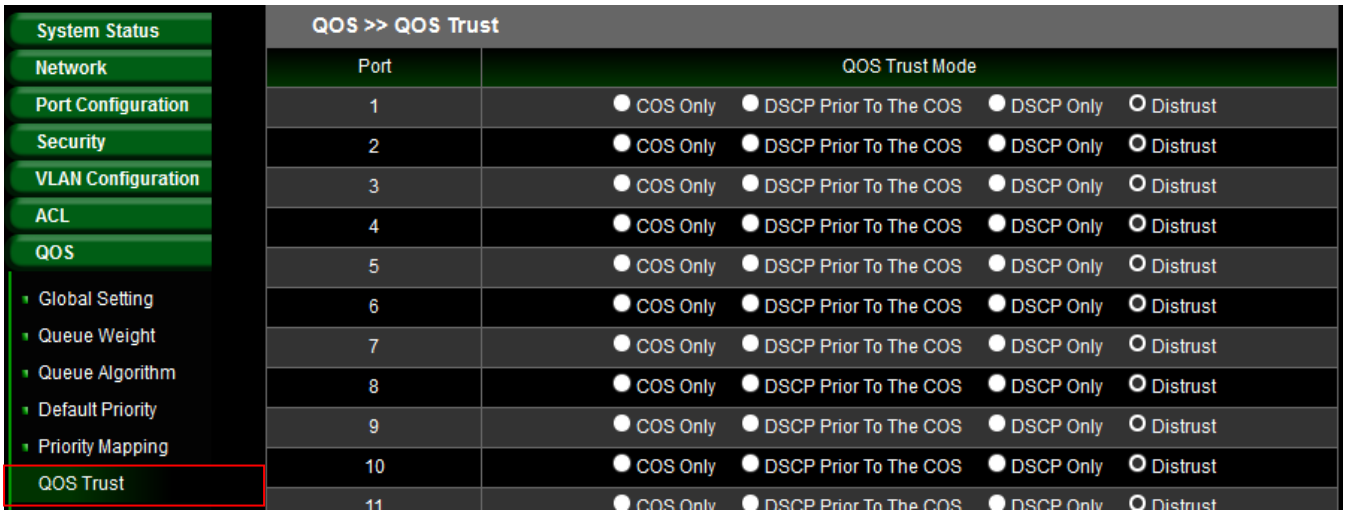
COS	Inner Priority	Operating
0	0	
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	



- **CoS:** Class of Service is data frame in the level 2. When the port priority is specified, the data will be classified into the egress queue based on the CoS value of the ingress port and the mapping relation between the CoS in cos mapping.
-

9.6 QOS Trust

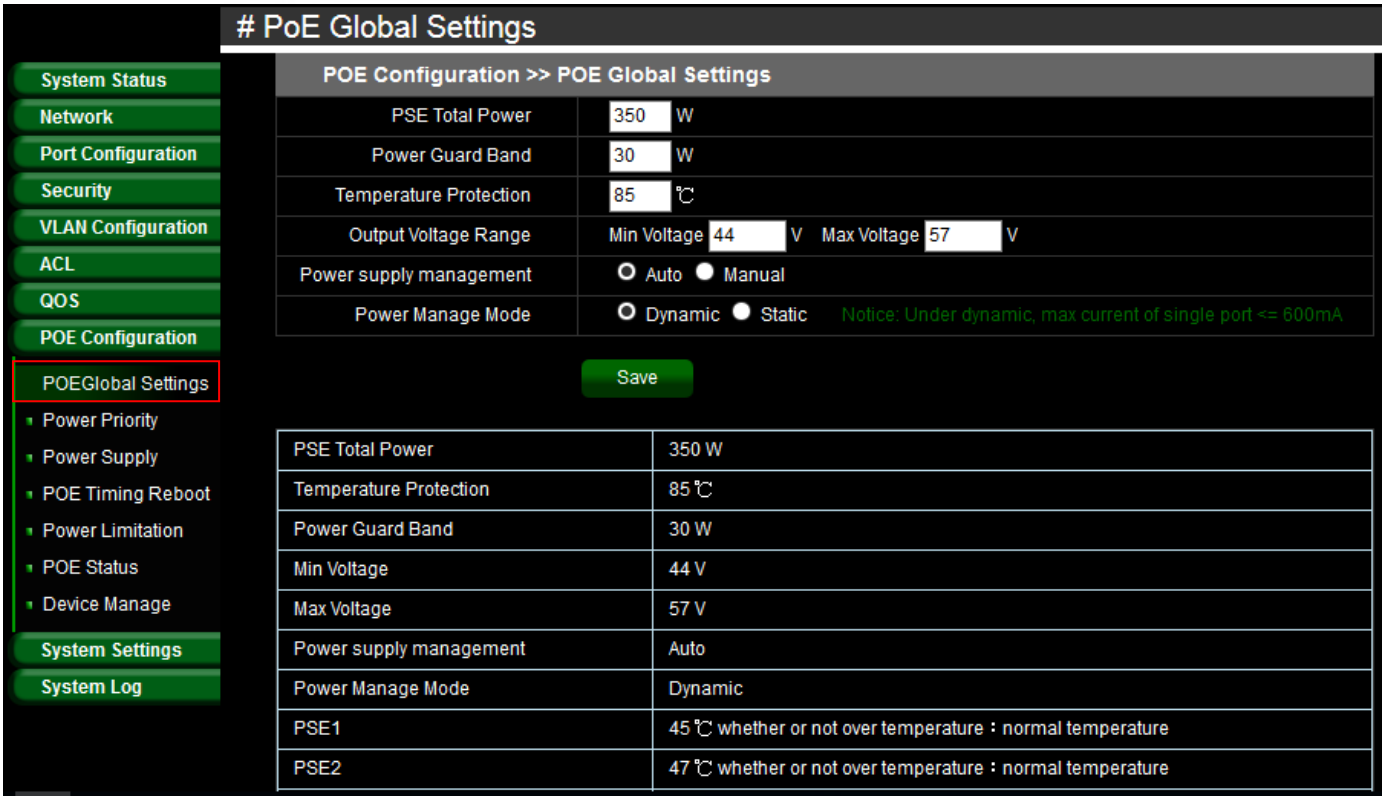
Administrator can select QoS trust mode.



10. POE Configuration

10.1 POE Global Settings

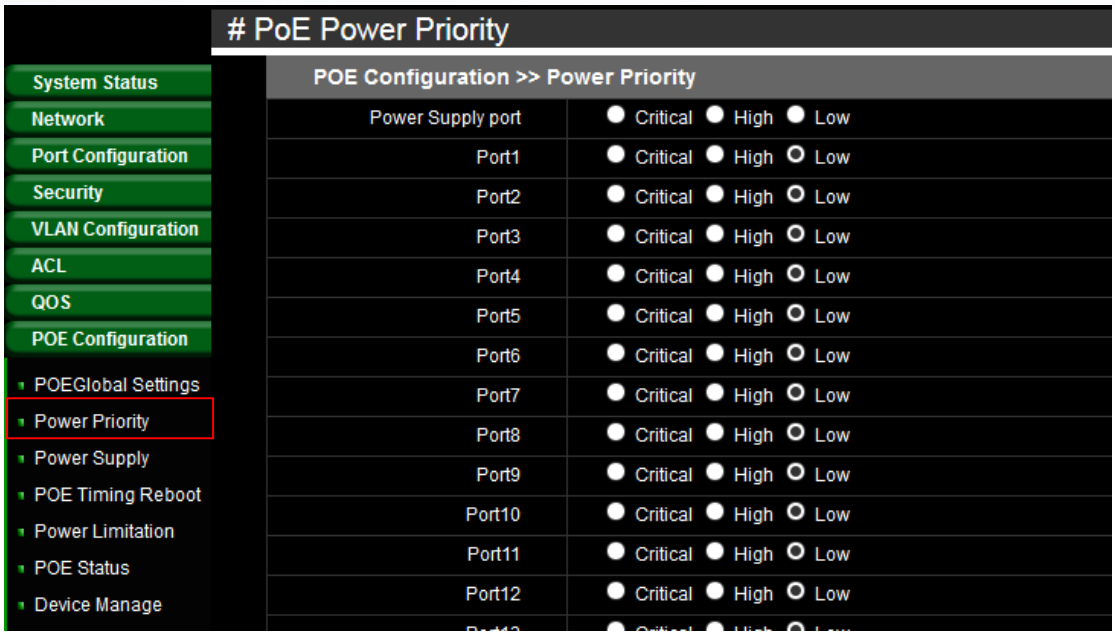
This page will display PoE status and administrator can set Total Power, Power Guard Band, Temperature Protection, Output Voltage Range and The ratio of system power supply.



- **PSE Total Power:** Administrator can set PSE total Power total limit.
- **Power Guard Band:** The power guard band can provide protection when there is a sudden spike in the consumed power of PDs that could potentially impact other PoE enabled ports.
- **Temperature Protection:** Administrator can setting between 60 and 85 Temperature. If the system temperature higher than the set temperature, the system will appear warning messenger and through SNMP to notice manager.
- **Output Voltage Range:** Administrator can set Output Voltage Range.
- **Power supply management:** Administrator can select use Auto or manual.
- **Power Manage Mode:** Administrator can select dynamic or Static for one port PoE output power.

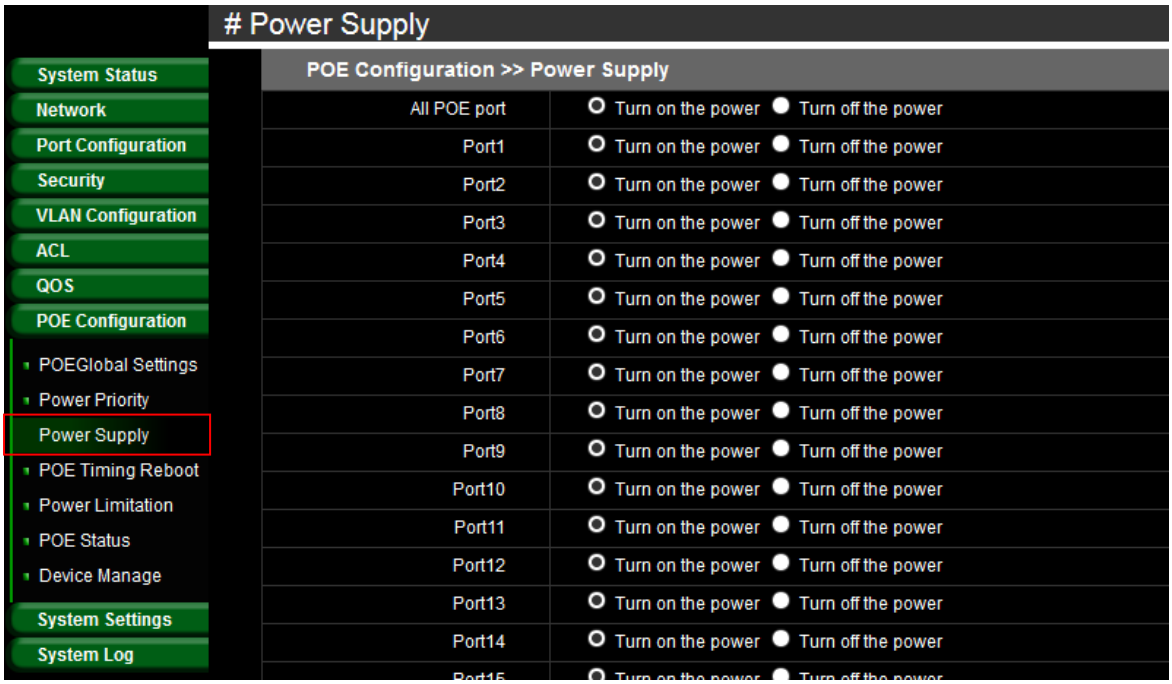
10.2 Power Priority

The PoE priority default is priority 3, administrator can set priority 1-3 for the Critical/High/Low. If the function setting prioritizes the power allocation to the ports that present a PD power demand. This system will remove power from one or more lower-priority ports to meet the power demand on other, higher-priority ports.



10.3 Power Supply

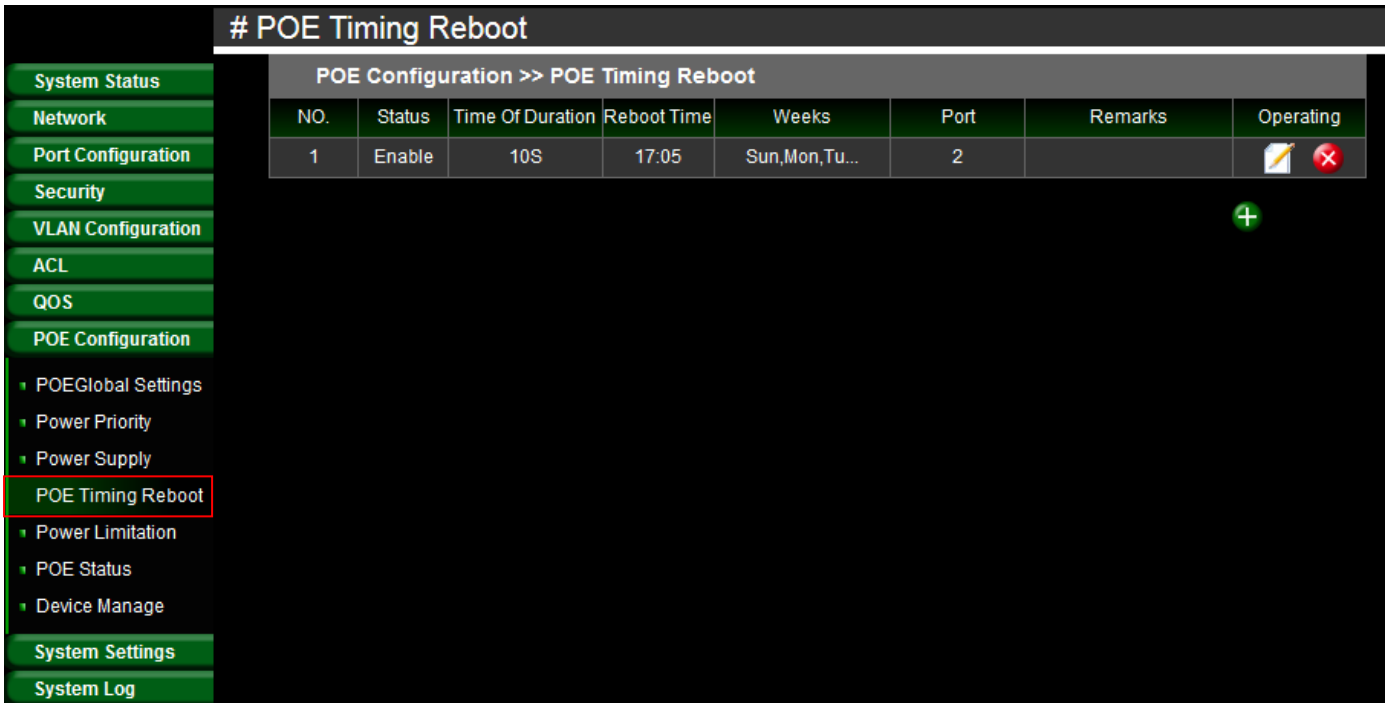
In the Power Supply function, administrator can manually control PoE Power on / off by port

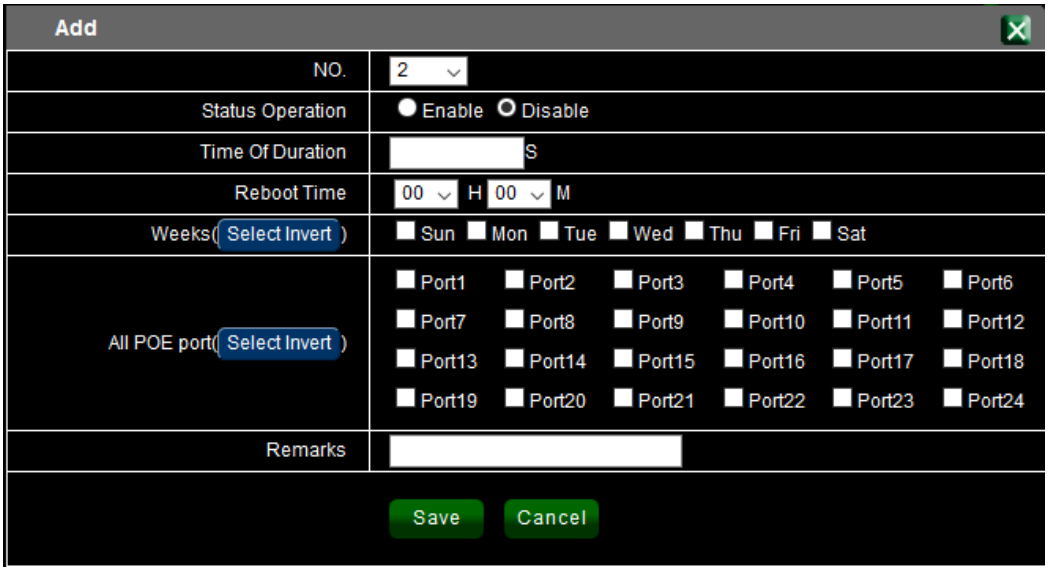


10.4 PoE Timing Reboot

Administrator can control PoE output power on/off by schedule in the page.

Please click **"PoE Timing Reboot"** and click button to create new schedule.



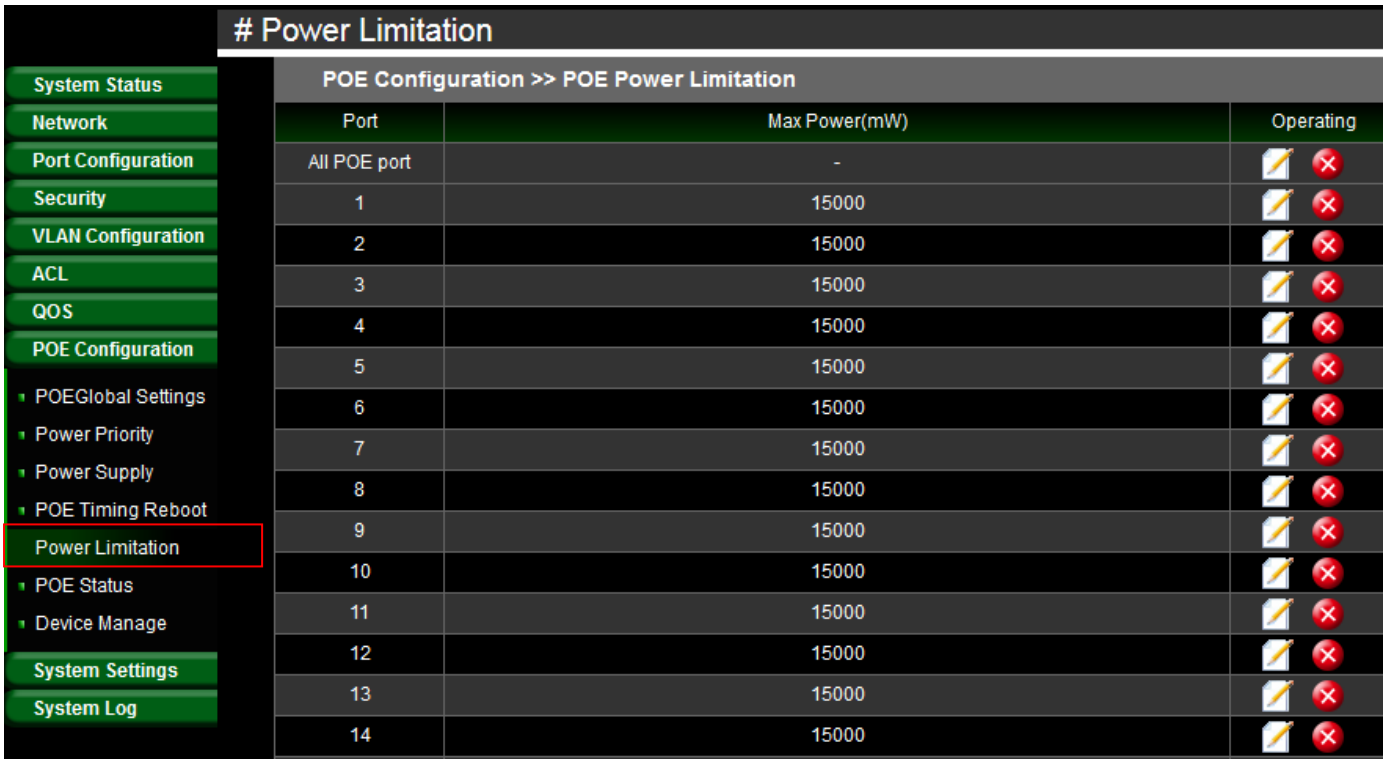


- **No.:** Administrator can select number 1-24 for identifiable item.
- **Status Operation:** Administrator can select Enable or Disable the schedule.
- **Time Of Duration:** After the system auto disable PoE, administrator can set waiting 10-1000 second to restart PoE.
- **Reboot Time/Weeks:** Administrator can set PoE disable in the schedule time.
- **Select Ports:** Administrator can select ports for the PoE reboot.

10.5 Power Limitation

If “Power Manage Mode” is set to “Static” in the POE Global setting page, the Power limitation function will be able to set output power for single PoE ports

Please click **“PoE Configuration” ➔ “Power Limitation”** to set single PoE Max output Power.



Port	Max Power(mW)	Operating
All POE port	-	
1	15000	
2	15000	
3	15000	
4	15000	
5	15000	
6	15000	
7	15000	
8	15000	
9	15000	
10	15000	
11	15000	
12	15000	
13	15000	
14	15000	

10.6 PoE Status

Administrators can monitor all PoE usage (total watts) and powered information of each port. PoE status include **PoE on/off status**, **Used voltage status**, **Used current (mA) status, Used power(mW) status** for single port and Total Power (Watts) status.

Please click **“PoE Configuration” ➔ “PoE Status”** to monitor all PoE status.

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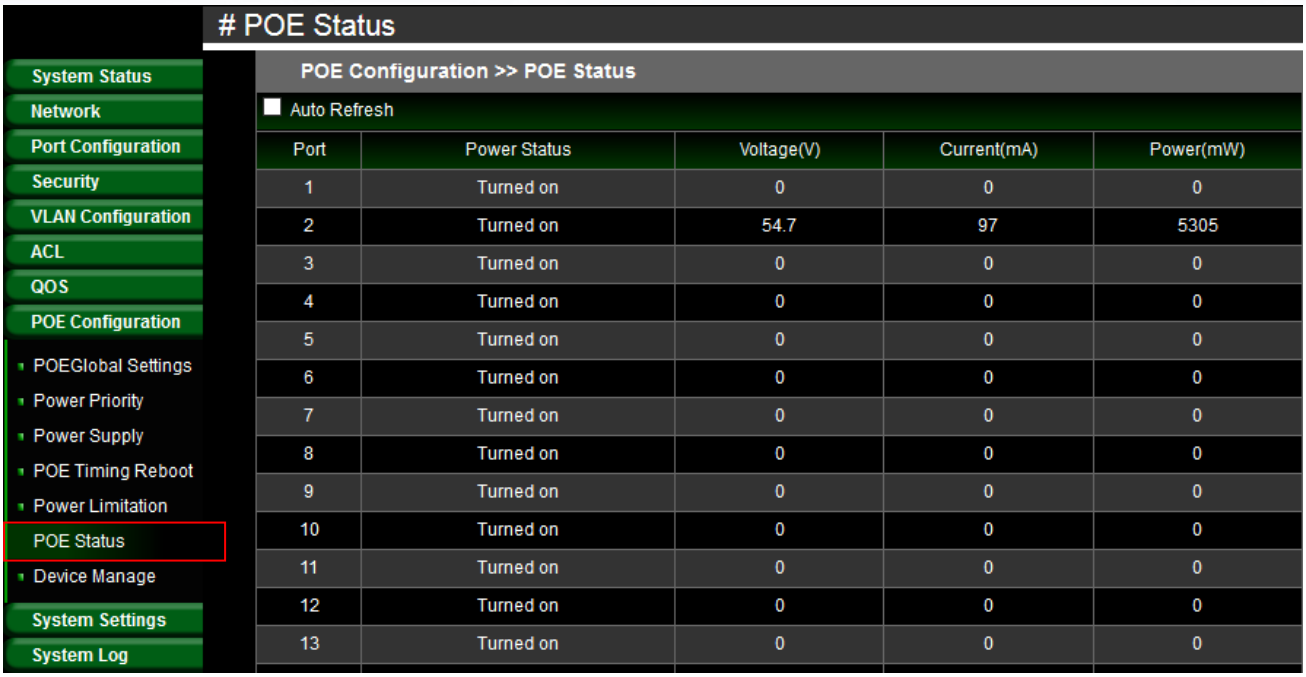


Port	Power Status	Voltage(V)	Current(mA)	Power(mW)
1	Turned on	0	0	0
2	Turned on	54.7	97	5305
3	Turned on	0	0	0
4	Turned on	0	0	0
5	Turned on	0	0	0
6	Turned on	0	0	0
7	Turned on	0	0	0
8	Turned on	0	0	0
9	Turned on	0	0	0
10	Turned on	0	0	0
11	Turned on	0	0	0
12	Turned on	0	0	0
13	Turned on	0	0	0

Notice

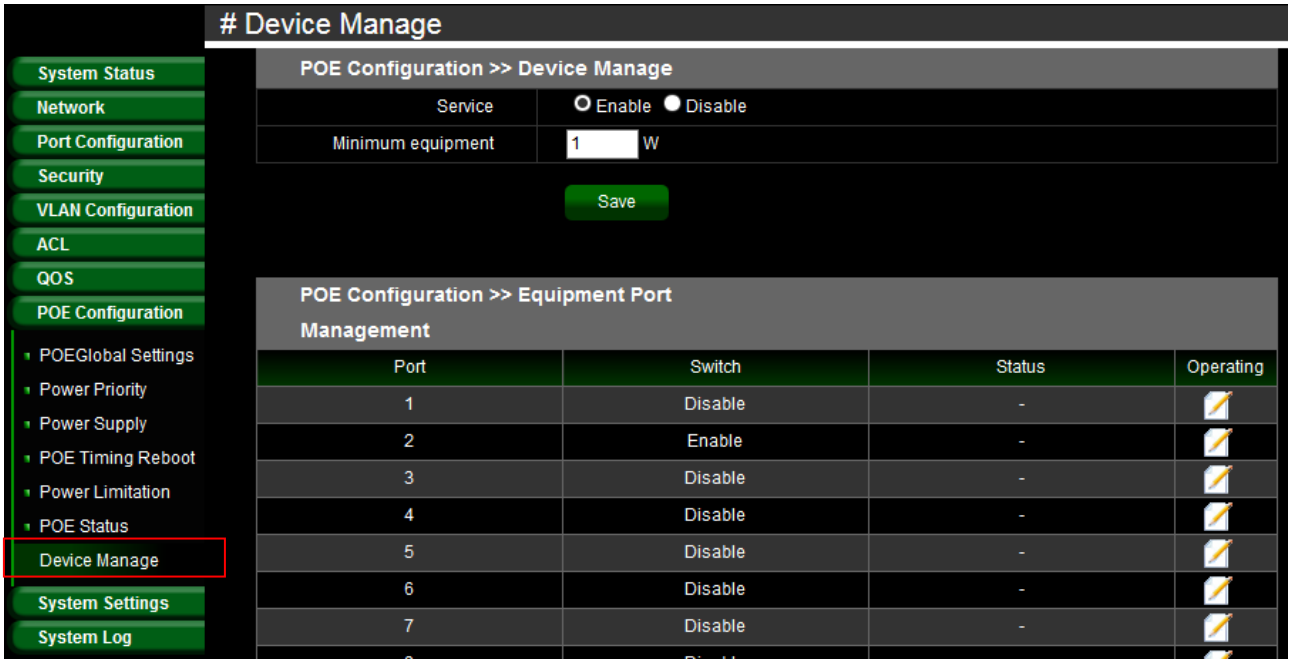
V * mA = mW

mW * 0.001 = W

10.7 Device Manager

Administrators can set a minimum PoE power output. The PoE output for each port cannot fall below the set minimum PoE wattage.

Please click **"PoE Configuration"** ➔ "**Device Manage"** to set minimum manager



Port	Switch	Status	Operating
1	Disable	-	
2	Enable	-	
3	Disable	-	
4	Disable	-	
5	Disable	-	
6	Disable	-	
7	Disable	-	

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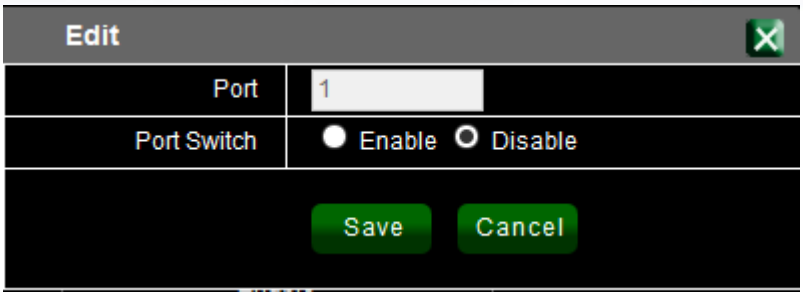
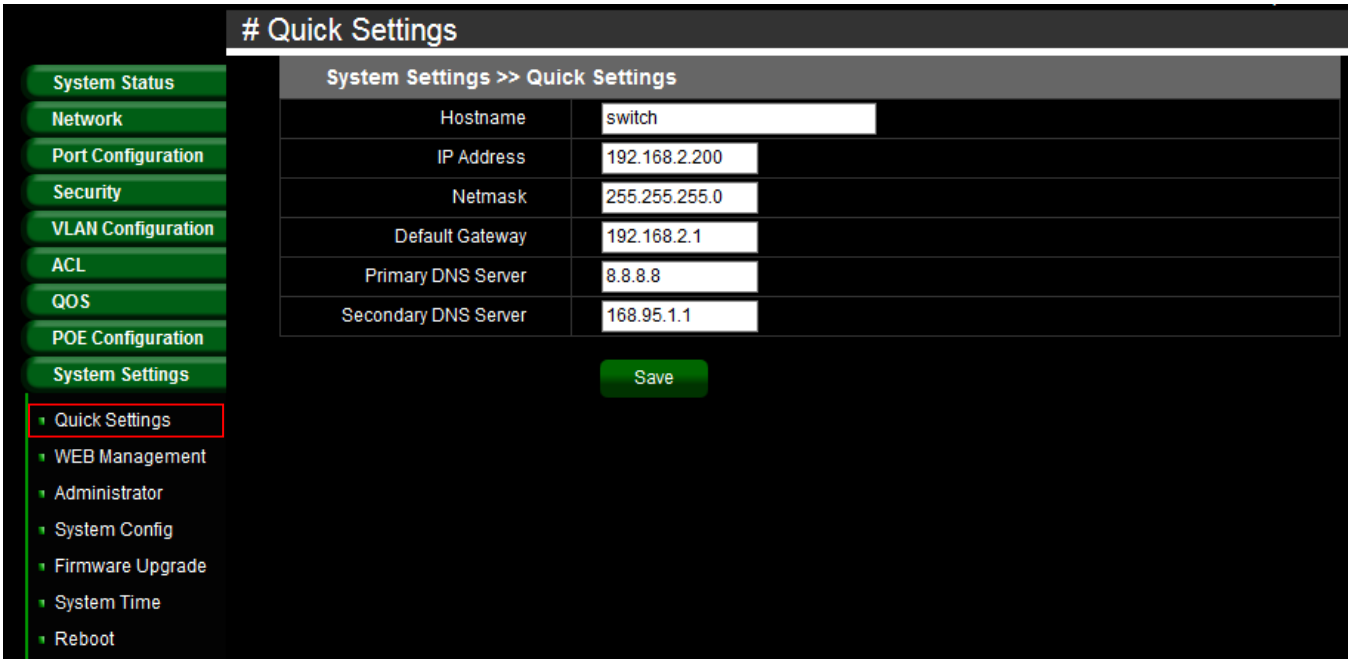


Administrator can select enable or disable for the service.

11. System Setting

11.1 Quick Settings

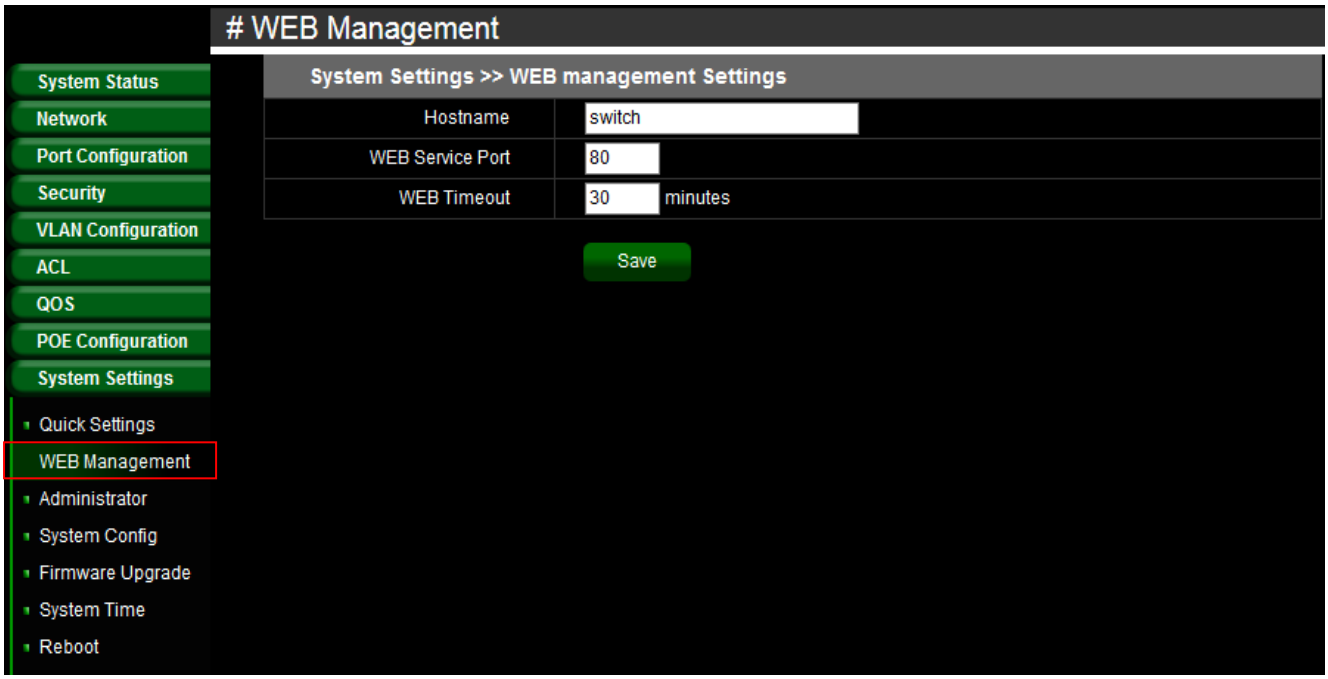
This function allows administrator to quickly make setting changes to hostname, IP address, Netmask, DNS and gateway.



- **Host Name:** Administrator can set system name for the switch.
- **IP Address/Netmask:** Administrator can set IP address and Netmask for the switch
- **Default Gateway:** Administrator can set gateway IP address.
- **DNS:** Specify DNS server IP address can be able to resolve the domain name.

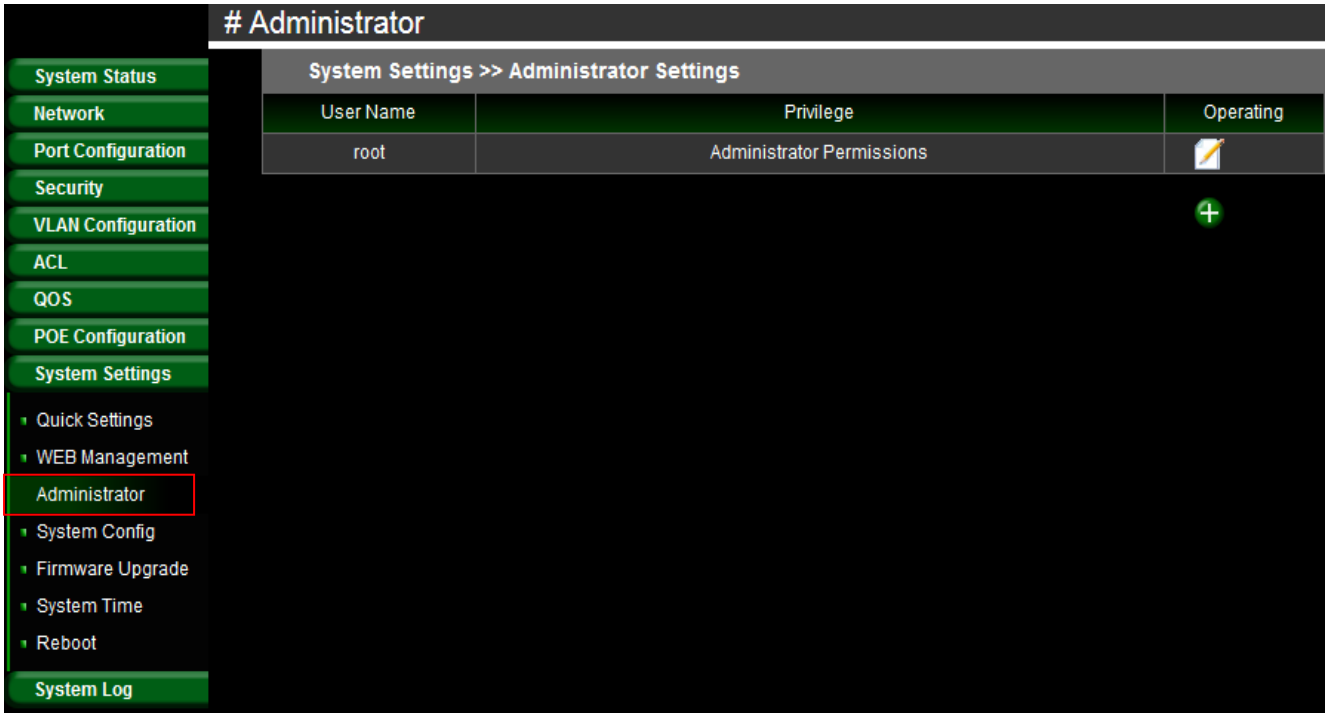
11.2 Web Management

The page administrator can change login service and login timeout time.



11.3 Administrator

Administrator can change login password or create new account / password for the system login, the account can be set to Ordinary or Administrator Permissions.

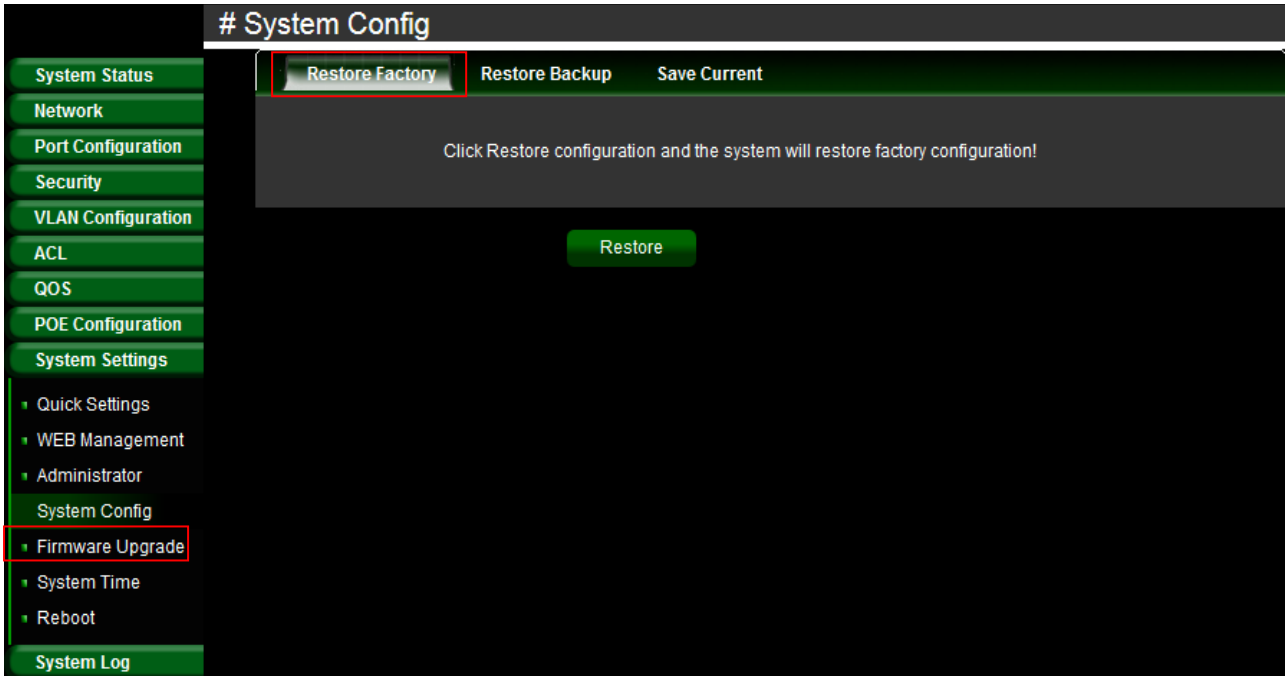


11.4 System Config

This function can restore the system to default settings, and also backup or restore the device using preconfigured profile settings.

Restore Factory:

Administrator can click the **"Restore"** button to reset back to default settings. This will restore factory configuration and all user configurations will be deleted.

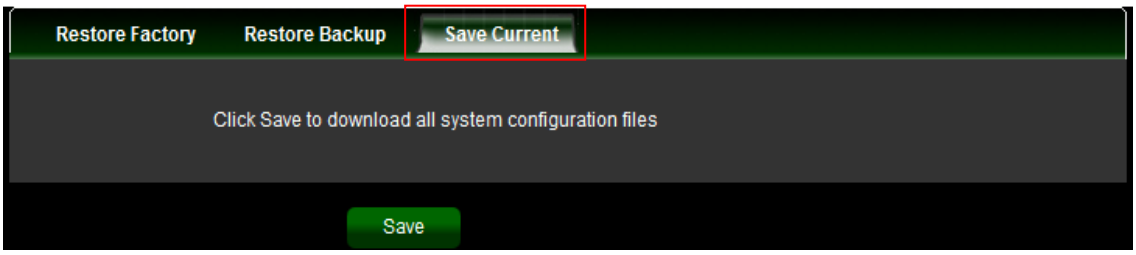


Restore Backup:

Administrator can click **"Browse"** to choose saved system configuration file.

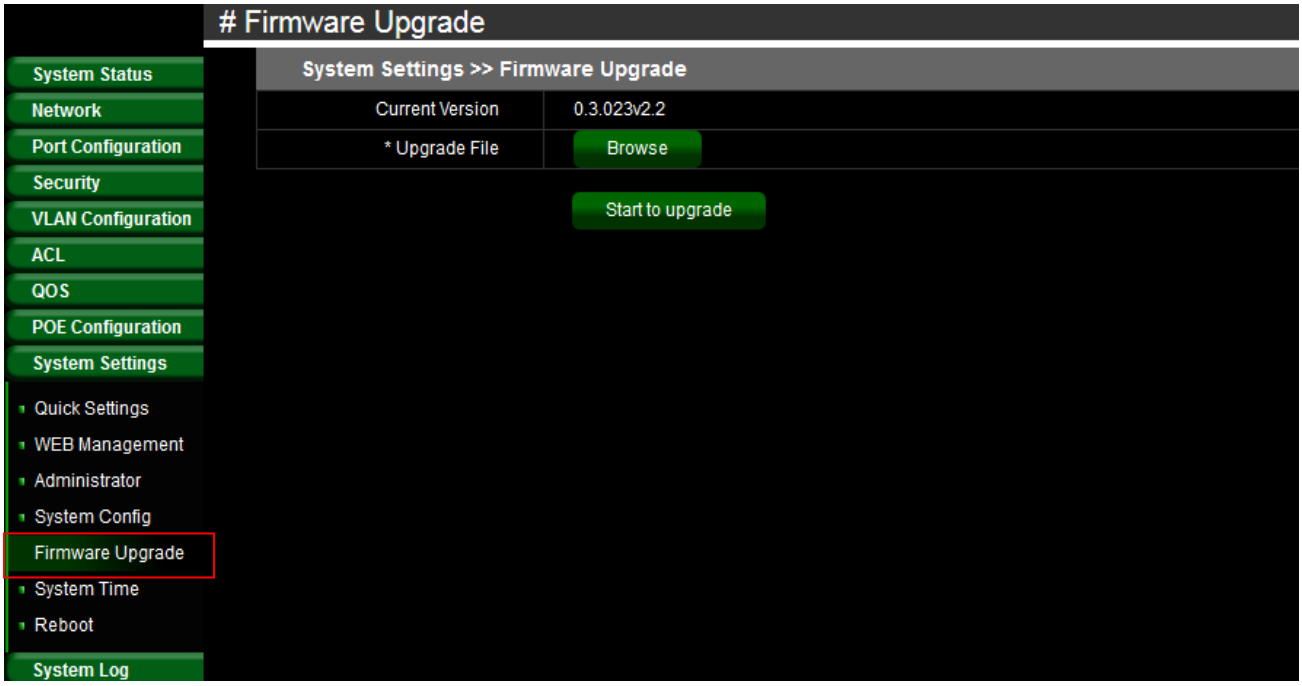
Save Current:

Administrator can click **"Save"** button to download all system configuration files.



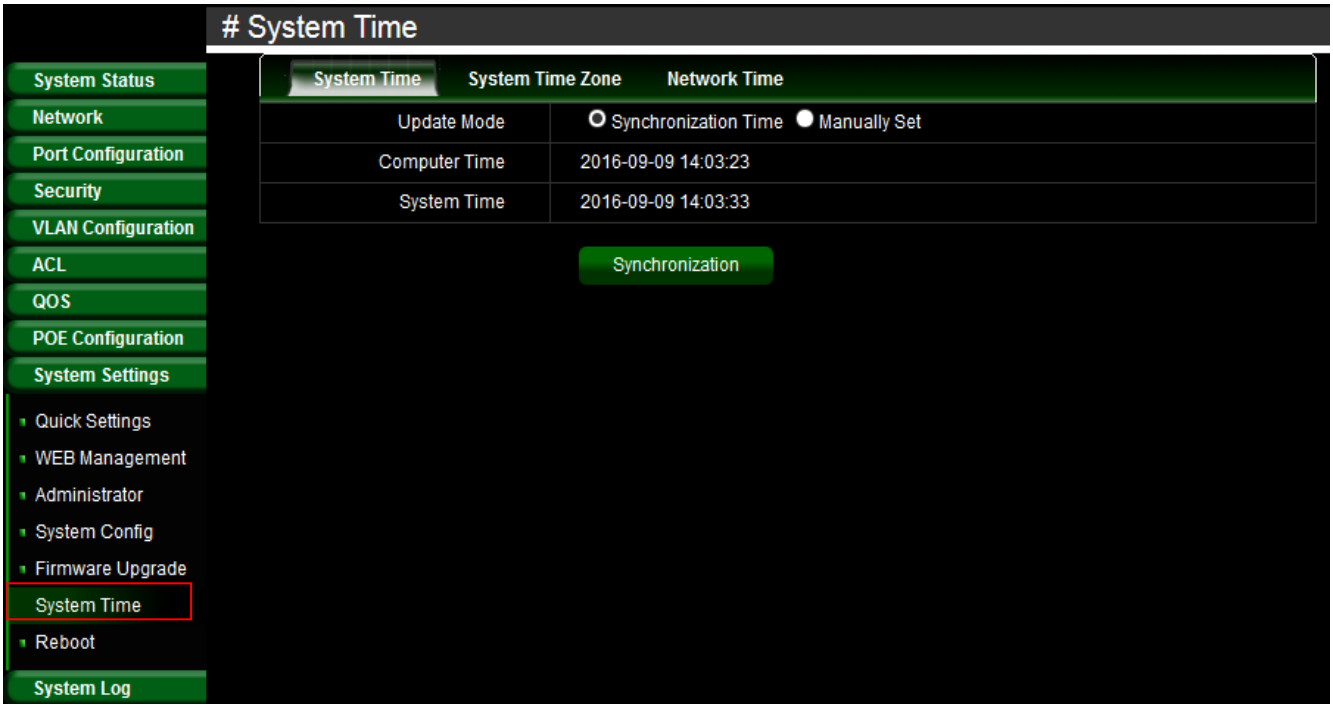
11.5 Firmware Upgrade

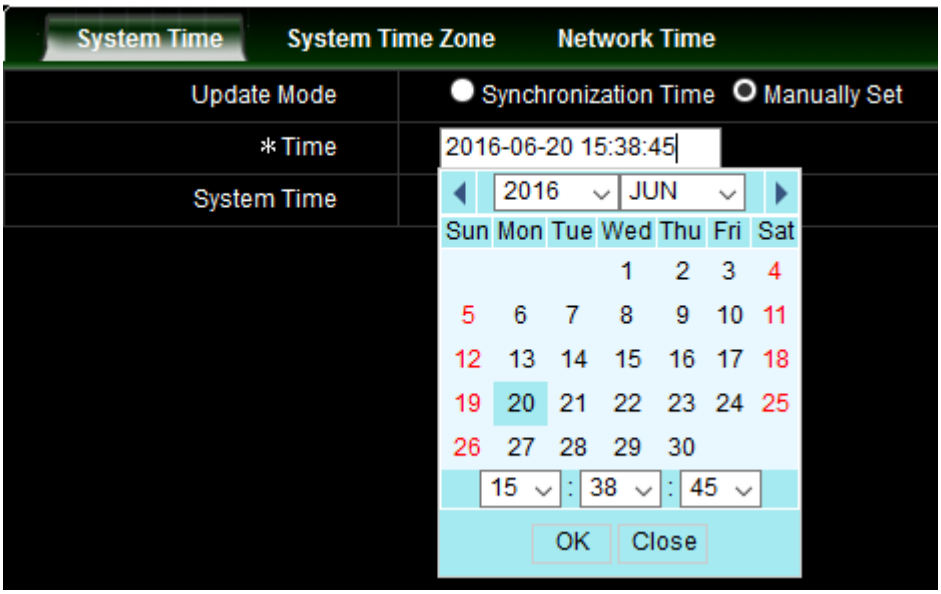
Firmware is the main software image that system needs to respond to requests and to manage real time operations. Firmware upgrades are sometimes required to include new features or bugs fix. It takes around 2 minutes to upgrade due to complexity of firmware. To upgrade system firmware, click Browse button to locate the new firmware, and then click Upgrade button to upgrade.



11.6 System Time

System time can be configured via this page. Administrator can select Manual or Synchronization to update the system time. If select Synchronization mode, administrator can click “system time zone” to set time zone and go to “network time” function set a time server.

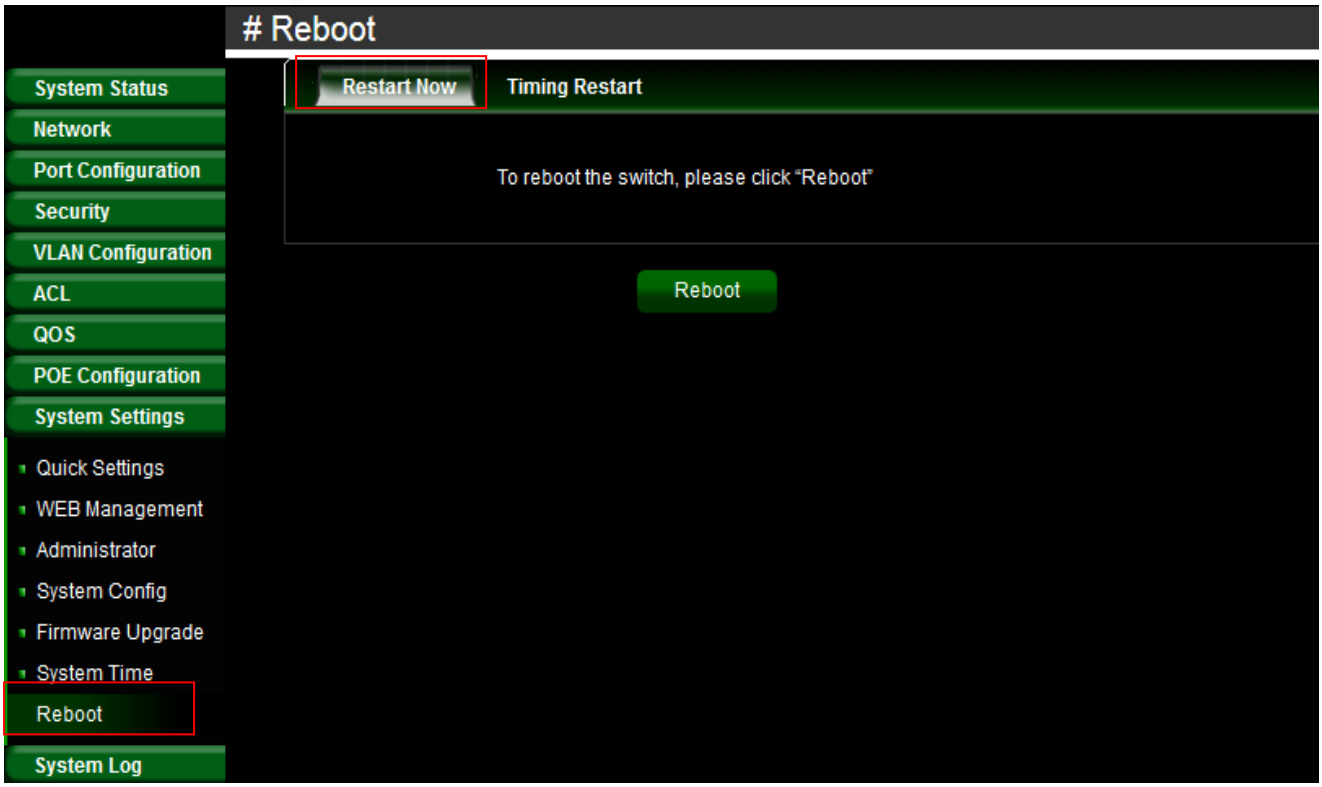




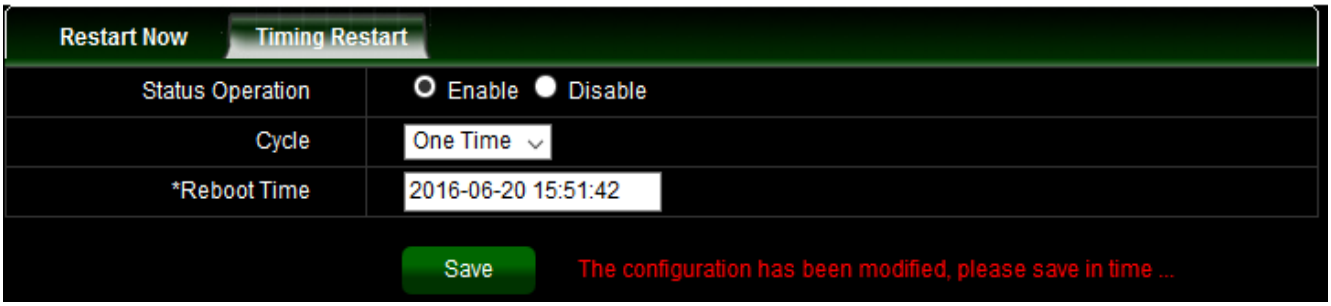
11.7 Reboot

This function allows administrator to reboot system or click “Timing Restart” function set auto reboot for the time schedule.

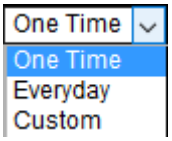
Click **Reboot** button to proceed and take around one minute to complete.



Timing Restart



- **Status Operation:** Administrator can choose Enable or Disable for the service.
- **Cycle:** Administrator can choose auto reboot by One Time or Every day or Custom.

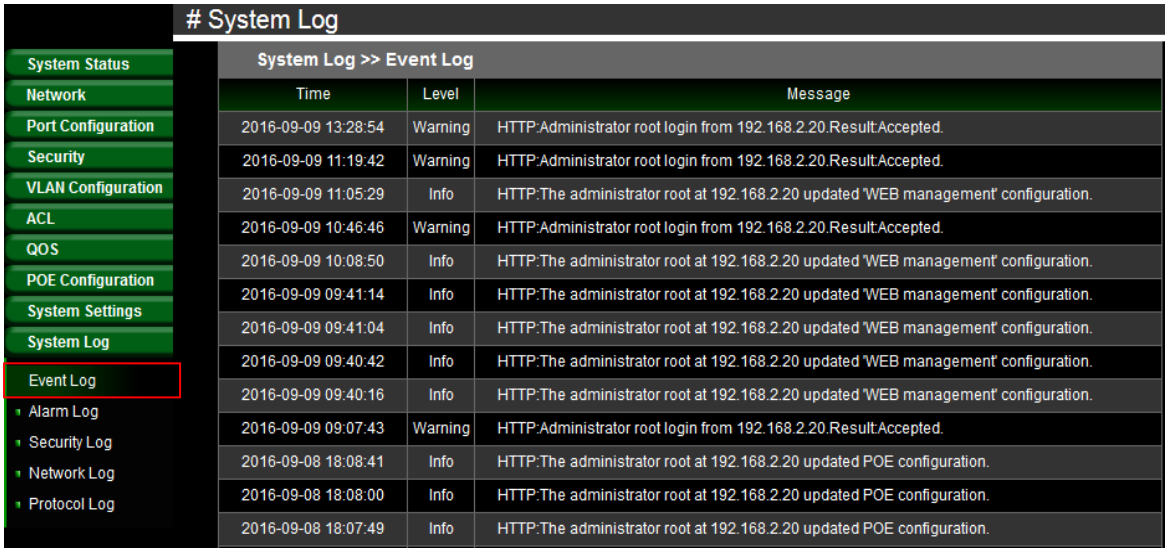


  - **One Time:** Administrator can specify a time to reboot system.
  - **Everyday:** Administrator can set every day to reboot system.
  - **Custom:** Administrator can set auto reboot by time schedule.

12. System Log

12.1 Event Log

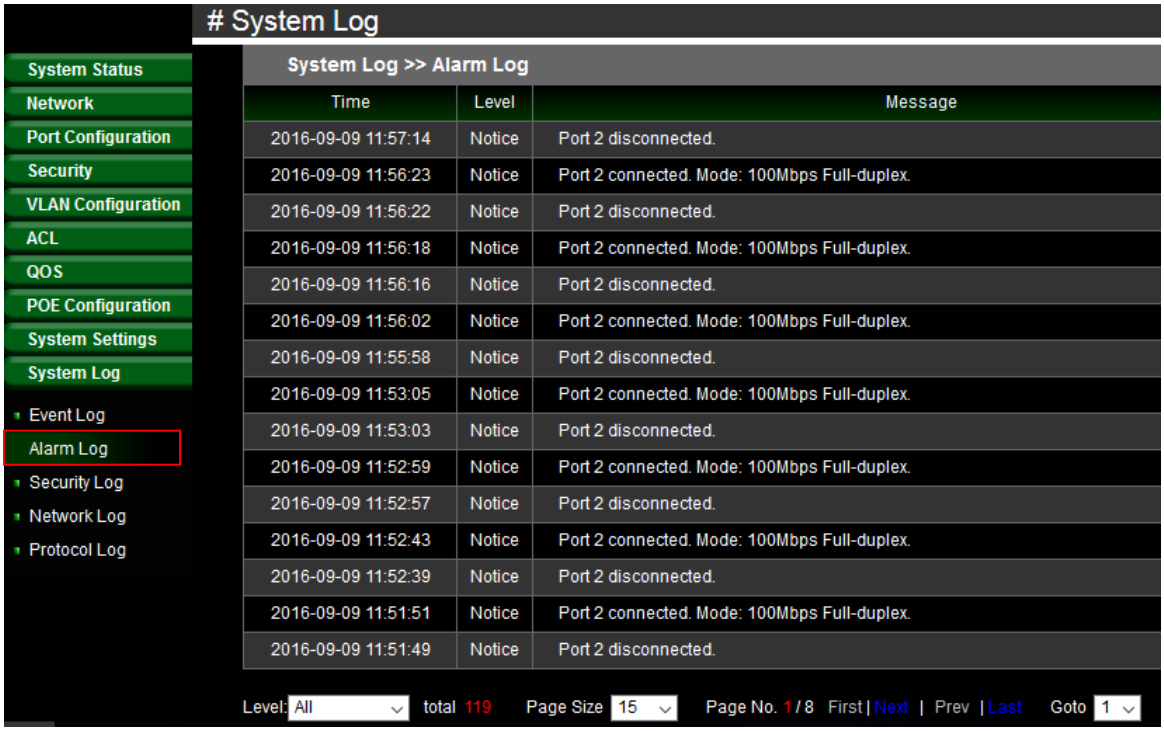
The Event log displays system events when system is up and running. Also, it becomes very useful as a troubleshooting tool when issues are experienced in system.



Time	Level	Message
2016-09-09 13:28:54	Warning	HTTP:Administrator root login from 192.168.2.20.Result:Accepted.
2016-09-09 11:19:42	Warning	HTTP:Administrator root login from 192.168.2.20.Result:Accepted.
2016-09-09 11:05:29	Info	HTTP:The administrator root at 192.168.2.20 updated 'WEB management' configuration.
2016-09-09 10:46:46	Warning	HTTP:Administrator root login from 192.168.2.20.Result:Accepted.
2016-09-09 10:08:50	Info	HTTP:The administrator root at 192.168.2.20 updated 'WEB management' configuration.
2016-09-09 09:41:14	Info	HTTP:The administrator root at 192.168.2.20 updated 'WEB management' configuration.
2016-09-09 09:41:04	Info	HTTP:The administrator root at 192.168.2.20 updated 'WEB management' configuration.
2016-09-09 09:40:42	Info	HTTP:The administrator root at 192.168.2.20 updated 'WEB management' configuration.
2016-09-09 09:40:16	Info	HTTP:The administrator root at 192.168.2.20 updated 'WEB management' configuration.
2016-09-09 09:07:43	Warning	HTTP:Administrator root login from 192.168.2.20.Result:Accepted.
2016-09-08 18:08:41	Info	HTTP:The administrator root at 192.168.2.20 updated POE configuration.
2016-09-08 18:08:00	Info	HTTP:The administrator root at 192.168.2.20 updated POE configuration.
2016-09-08 18:07:49	Info	HTTP:The administrator root at 192.168.2.20 updated POE configuration.

12.2 Alarm Log

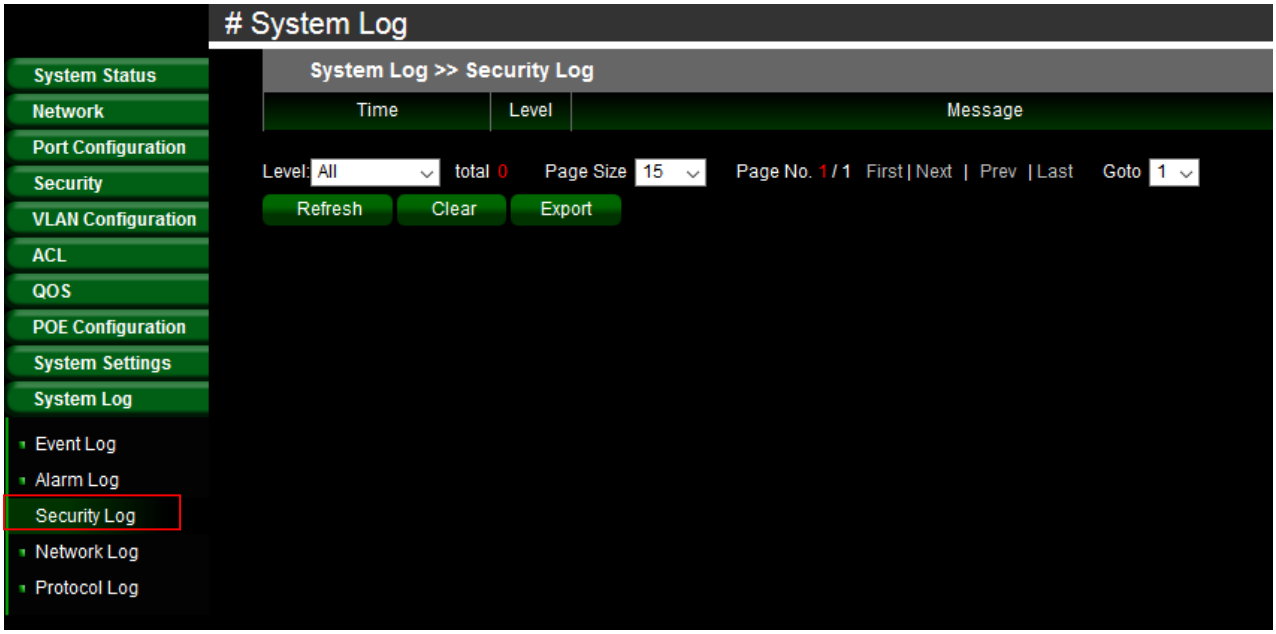
When system is up and running, the Alarm Log page can display system Alarm information.



Time	Level	Message
2016-09-09 11:57:14	Notice	Port 2 disconnected.
2016-09-09 11:56:23	Notice	Port 2 connected. Mode: 100Mbps Full-duplex.
2016-09-09 11:56:22	Notice	Port 2 disconnected.
2016-09-09 11:56:18	Notice	Port 2 connected. Mode: 100Mbps Full-duplex.
2016-09-09 11:56:16	Notice	Port 2 disconnected.
2016-09-09 11:56:02	Notice	Port 2 connected. Mode: 100Mbps Full-duplex.
2016-09-09 11:55:58	Notice	Port 2 disconnected.
2016-09-09 11:53:05	Notice	Port 2 connected. Mode: 100Mbps Full-duplex.
2016-09-09 11:53:03	Notice	Port 2 disconnected.
2016-09-09 11:52:59	Notice	Port 2 connected. Mode: 100Mbps Full-duplex.
2016-09-09 11:52:57	Notice	Port 2 disconnected.
2016-09-09 11:52:43	Notice	Port 2 connected. Mode: 100Mbps Full-duplex.
2016-09-09 11:52:39	Notice	Port 2 disconnected.
2016-09-09 11:51:51	Notice	Port 2 connected. Mode: 100Mbps Full-duplex.
2016-09-09 11:51:49	Notice	Port 2 disconnected.

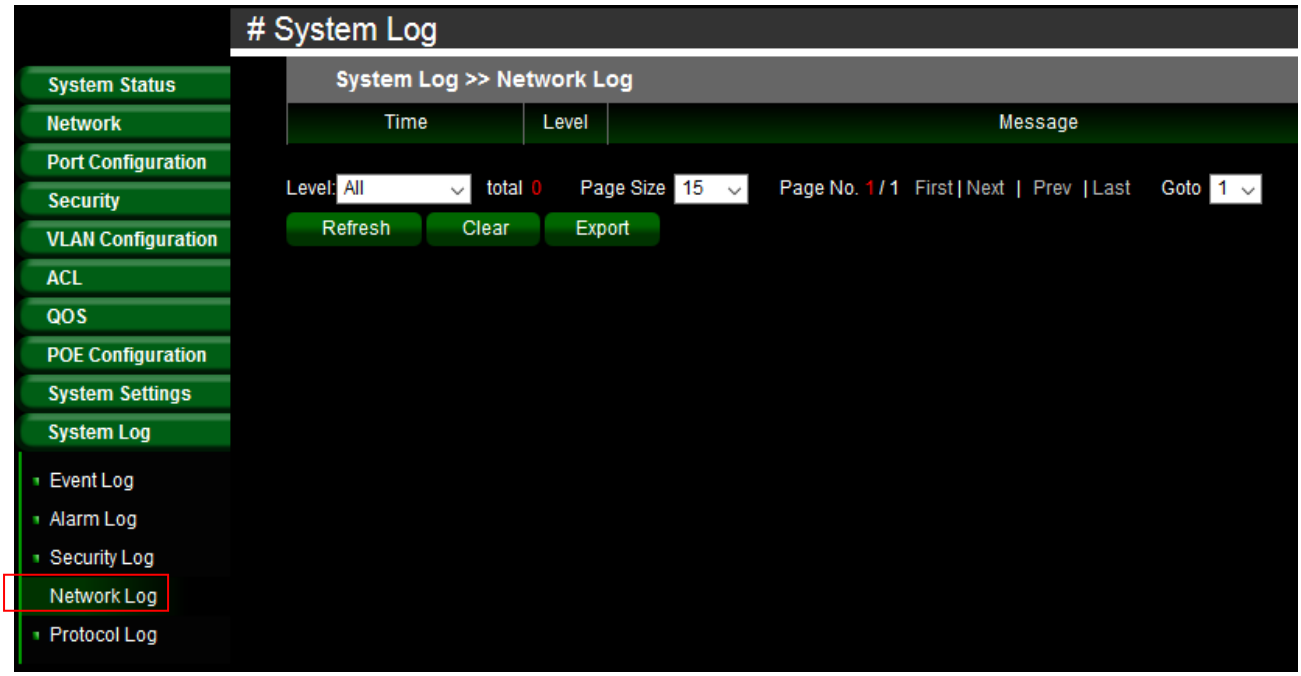
12.3 Security Log

When system is up and running, the security Log page can display system security information.



12.4 Network Log

When system is up and running, the Network Log page can display system Network information.



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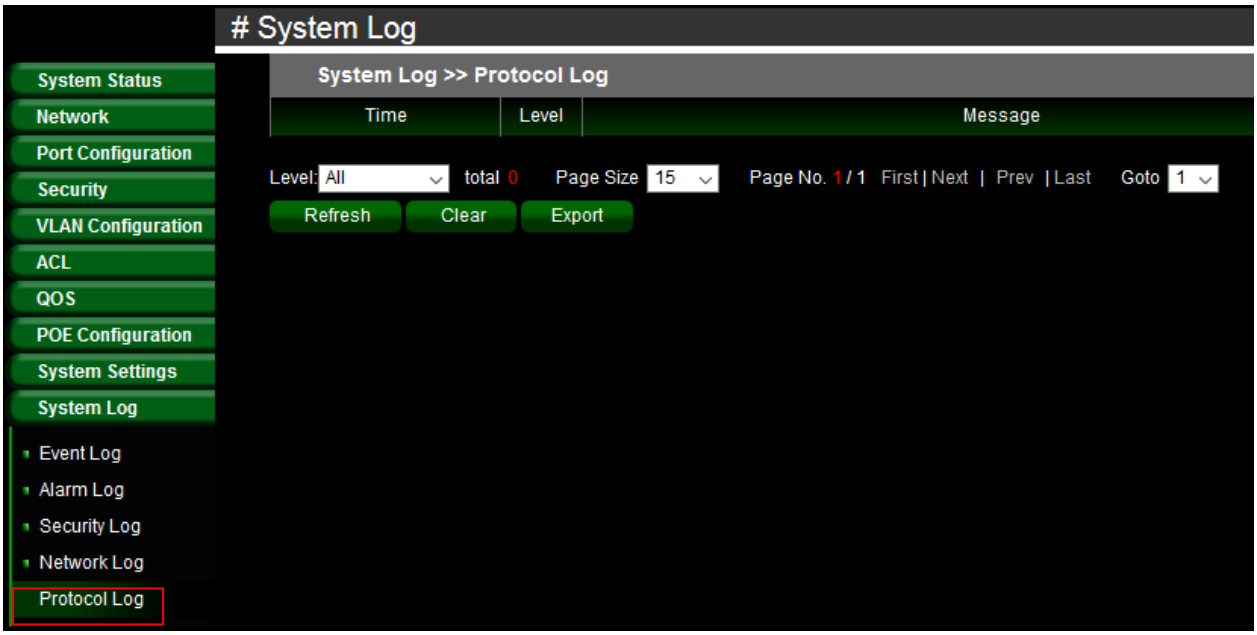
12.5 Protocol Log

When system is up and running, the Protocol Log page can display Protocol information.



Specifications

	Standards & Hardware Specifications
Standards Conformance	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX, IEEE 802.3ab 1000Base-T, IEEE 802.3z 1000Base-SX/LX IEEE 802.3x Flow Control IEEE 802.1p QoS IEEE 802.1Q VLAN Tag IEEE 802.3ad Link Aggregation IEEE 802.3af Power over Ethernet (15.4 Watt PoE+) IEEE 802.3at Power over Ethernet Plus (30 Watt PoE+)
Port Configuration	24 ports RJ-45 connectors for 10/100/1000 BASE-T and PSE/ PoE function 4 SFP Uplink Ports
Hardware Reset	Reset Button for returning to original factory settings
Media Access Protocol	CSMA / CD
Network Media	10BASE –T: UTP Cat. 3 or up, 100BASE-TX: UTP Cat. 5 or up, 1000BASE-T: UTP Cat. 5 or up
Transmission Method	Store and Forward
MAC Address Table	8K
Built-in Buffer	4Mb
Data Transfer Rate	10/100Mbps (Half-duplex), 20/200Mbps (Full-duplex) 1000Mbps (Half-duplex), 2000Mbps (Full-Duplex)
Auto MDI/MDIX	Yes
LED Indicators	Per Port: Link Status*24 Per Port: Activity Status*24 Per Port: (PoE) : Status *24 SFP Port: Connection Status * 8 Per Unit: (PWR)r *1 Per Unit: (SYS) *1
Internal Bus Speed	56Gbps

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Switch Specifications

Link Aggregation	IEEE802.3ad LACP Link Aggregation Supported
Port Mirror	Supported
Quality of Service (QoS)	Supports IEEE 802.1p QoS, Port-based QoS
Bandwidth Control	Supported
Spanning Tree(STP)	Supported
Rapid Spanning Tree(RSTP)	Supported
IGMP Snooping	v1, v2, v3
MAC Filter	Supported
DHCP Snooping	Supported
VLAN	IEEE802.1Q Tagging VLAN , Port-Based ,Tag based VLAN
SNMP	Supports SNMP v1/v2c

Environmental & Mechanical Characteristics

PoE Power Budget	54V/6.7A for 350 Watt (shared) for all PoE ports
Power Consumption	12V/3A for 26.5 Watt (max. with no PoE Device connected)
Power Type	Power cord: Internal Power supply
Power Requirement	AC 100~240VAC, 50-60Hz Auto-sensing
Operating Temperature	0° to 40° C
Storage Temperature	-40° to 70° C
Operating Humidity	10% to 90% non-condensing
Storage Humidity	10% to 90% non-condensing
Dimension (W x D x H)	441 x 310 x 44 mm
Weight	4.18kg
Certification	FCC, CE, RoHS-compliant

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