PoE Network Switch

User Manual

EN-SW10m-001

Contents

1 Introduction

Power-over-Ethernet (PoE) eliminates the need to run DC power to other devices on a wired LAN. Using a Power-over-Ethernet system, installers need to run only a single Category 5 Ethernet cable that carries both power and data to each device. This allows greater flexibility in the locating of network devices and, in many cases, significantly decreases installation costs.

There are two system components in PoE - the PSE (Power Sourcing Equipment) and the PD (Powered Device). The IEEE 802.3af/at specification defines PSE as a device that inserts power onto an Ethernet cable. The PSE may be located at the switch (End-span configuration). or it may be a separate device located between the switch and the PD (Mid-span configuration). The PD is the natural termination of this link, receiving the power, and could be an IP phone, a WLAN access point, or any other IP device that requires power. The current is transmitted over two of the four twisted pairs of wires in a Category-5 cable.

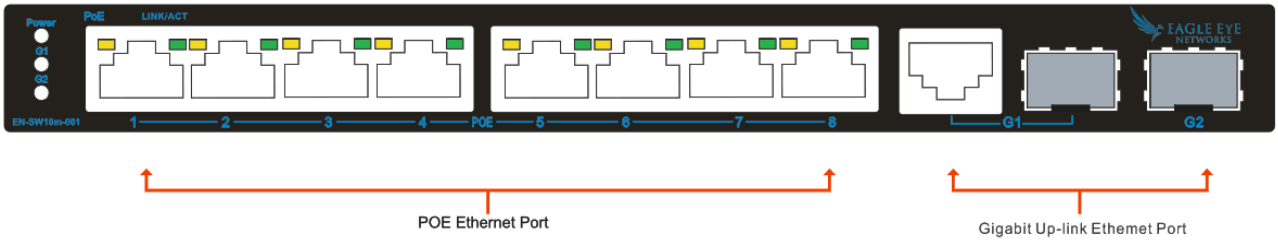
Power-over-Ethernet follows the IEEE 802.3af/at specification and is completely compatible with existing Ethernet switches and networked devices. Because the Power Sourcing Equipment (PSE) tests whether a networked device is PoE-capable, power is never transmitted unless a Powered Device is at the other end of the cable. It also continues to monitor the channel. If the Powered Device does not draw a minimum current, because it has been unplugged or physically turned off, the PSE shuts down the power to that port. Optionally, the standard permits Powered Devices to signal t0 the PSEs exactly how much power they need.

The PoE switch is a multi-port fast Ethernet switch that can be used to build high-performance switched workgroup networks. This switch is a store-and-forward device that offers low latency for high-speed networking. It also features a ‘store-and-forward switching’ scheme that allows the switch to auto-learn and store source addresses in a 8K-entry MAC address table. The switch is targeted at workgroup, department or backbone computing environments.

2 Hardware Description

2.1 Front Panel

The front panel consists of LED indications, reset button and 8x10/100 PoE ports + TX+1 Gigabit Combo+1Gigabit SFP with 8 PoE Ethernet Switch



2.2 LED Indicators

Power LED: The Power LED lights up when the switch is connected to a power source.

Link/Act LED:

Green (for megabit ports): Indicates that the port is running at 100M.

Green (for gigabit ports): Indicates that the port is running at 100M.

Blinking: Indicates that the switch is either sending or receiving data to the port.

Light off: No link.

PoE LED:

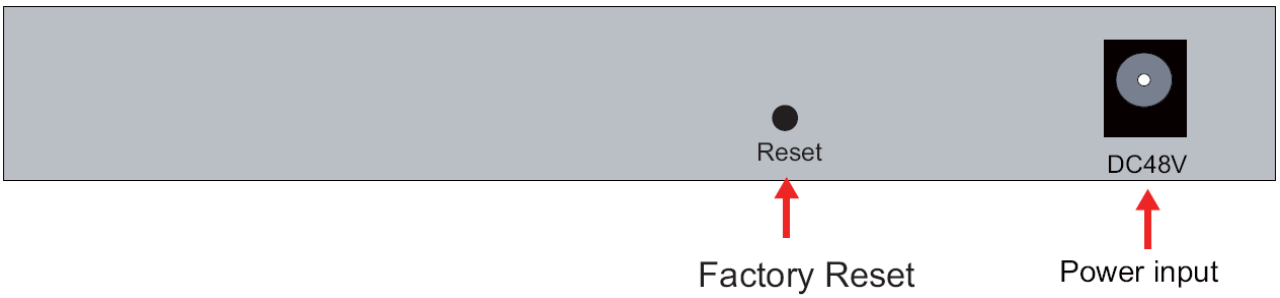
Green: Indicates the PoE powered device (PD) is connected and the port supplies power successfully.

Light off: Indicates no powered device (PD) connected.

Reset: By pressing the Reset button for 5 seconds the switch will change back to the default configuration and all changes will be lost.

2.3 Rear Panel

The rear panel view of the switch consists of Reset button and DC input plug.



2.4 Specification

	Item	Description
Power	Power Supply	External Power Adaptor
	Voltage Range	DC48V~52V
	Consumption	＜6W
Ethernet	Speed	1-8 Port:10/100Mbps Uplink: G1:Gigabit Combo(RJ-45 10/100/1000Mbps SFP supports optical module rates:1.25Gbps) G2:SFP supports optical module rates:1.25Gbps
	Transmission Distance	100Meter (328ft) for RJ 45 Transmission distance optional for SFP Port The optical module is optional
Network Switch	Ethernet Standard	IEEE 802.3 802.3u 802. 3af /at
	Switching capacity	5.6G
	Transfer Rate	14,880 pps for 10Mbps 148,800 pps for 100Mbps
	MAC Address	4K MAC address table
Working Environment	Working Temperature	0℃ ~ 40℃
	Storage Temperature	-40℃ ~ 70℃
	Humidity Non Condensing	0~85%
Mechanical	Dimension L*W*H	218*107*29mm
	Color	Gray

3 Getting Started

This chapter introduces the management interface of the switch.

3.1 Management Options

The Switch can be managed through any port on the device by using the Web-based Management
Each switch must be assigned its own IP Address, which is used for communication with Web-Based Management. The PC's IP address should be in the same range as the switch. Each switch can allow only one user to access the Web-Based Management at a time.
Please refer to the following installation instructions for the Web-based Management.

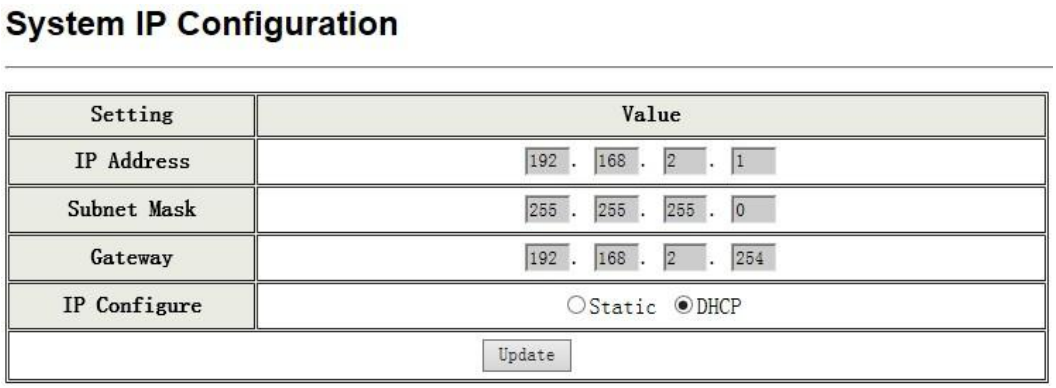
3.2 Using Web-based Management

After a successful physical installation, you can configure the switch, monitor the network status, and display statistics using a web browser.

Connecting to the Switch
You will need the following equipment to begin the web configuration of your device:

- A PC with a RJ-45 Ethernet connection
- A standard Ethernet cable

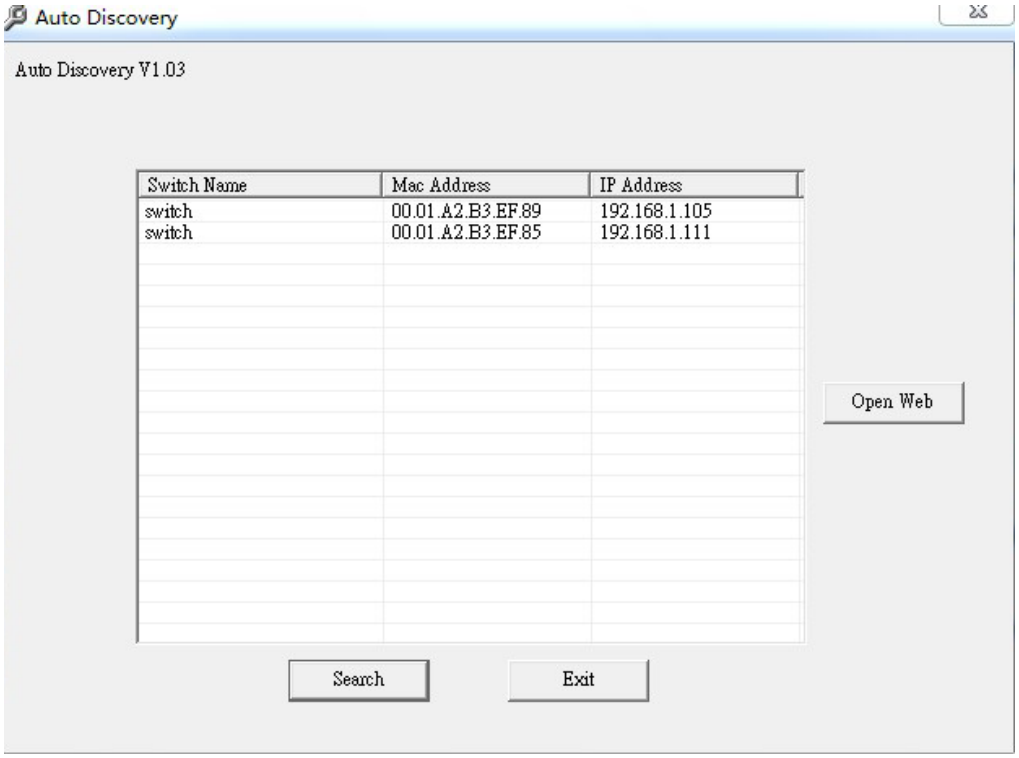
Connect the Ethernet cable to any of the ports on the front panel of the switch and to the Ethernet port on the PC.
Login Web-based Management
If DHCP is not enabled on the local LAN, the switch will be able to log in to the web page with 192.168.2.1 after 2 minutes. If DHCP is enabled, the DHCP server (router) will assign the address to the switch, and use DHCP to log in to the switch. Login to the switch web page.



In case no DHCP server, In order to login and configure the switch via an Ethernet connection, the PC must have an IP address in the same subnet as the switch. For example, if the switch has an IP address of **192.168.2.1**, the PC should have an IP address of **192.168.2.x** (where x is a number between 2 ~ 254), and a subnet mask of 255.255.255.0. Open the web browser and enter **192.168.2.1** (the factory-default IP address) in the address bar. Then press <Enter>.

When the following logon dialog box appears, enter the username and password then click **OK**. The default username is **admin** and password is **system**.

Note: If the DHCP server (routing) to the switch assigned address, you can use the Auto Discovery tool to query the switch ip

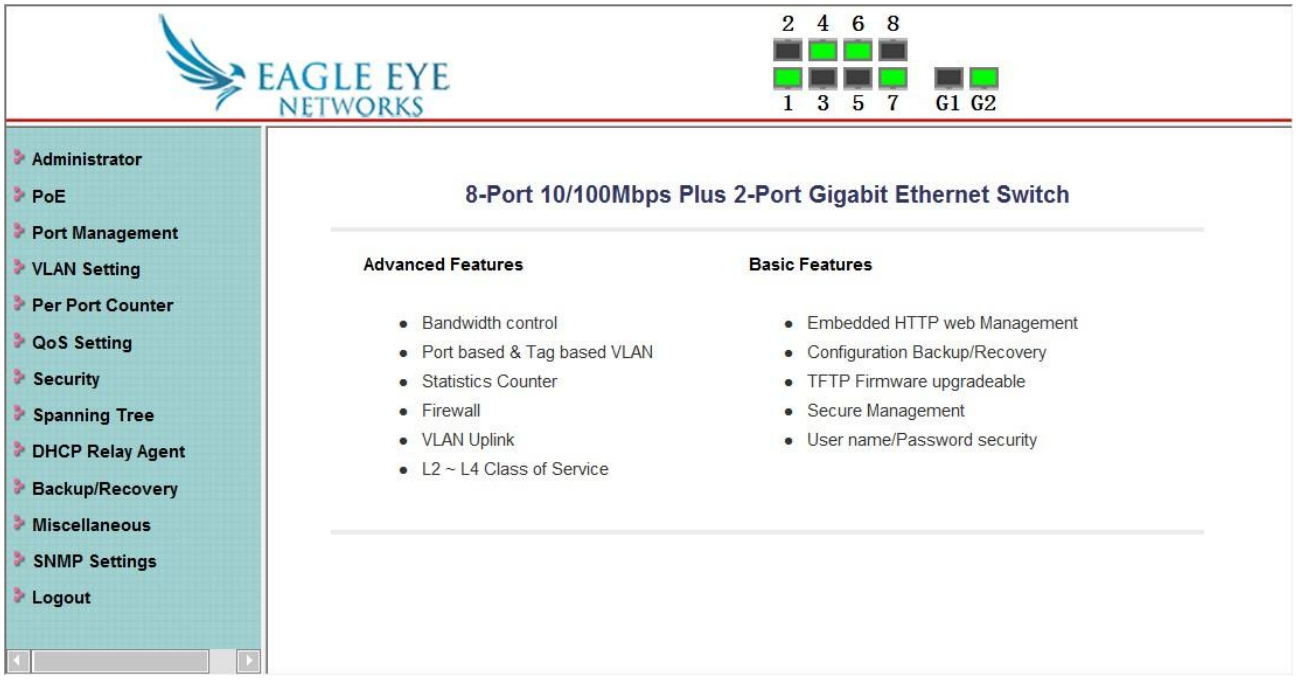


4. Configuration

The features and functions of the switch can be configured for optimum use through the Web-based Management.

4.1 Welcome

After a successful login you will see the screen bellows:



4.2 Administrator

Administrator -> Authentication Configuration

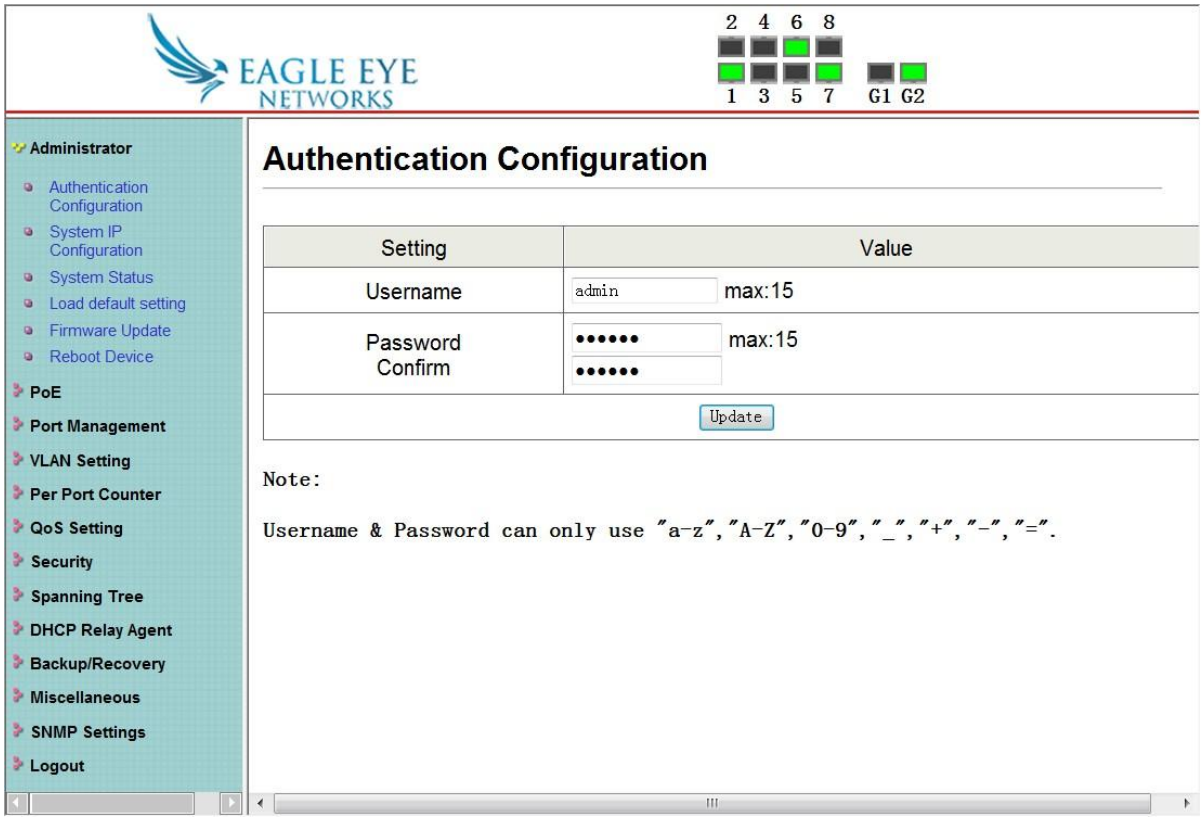
Here you can enter a new **Username/Password** and confirm it.

The factory default

IP address: 192.168.2.1

Username: admin

Password: system

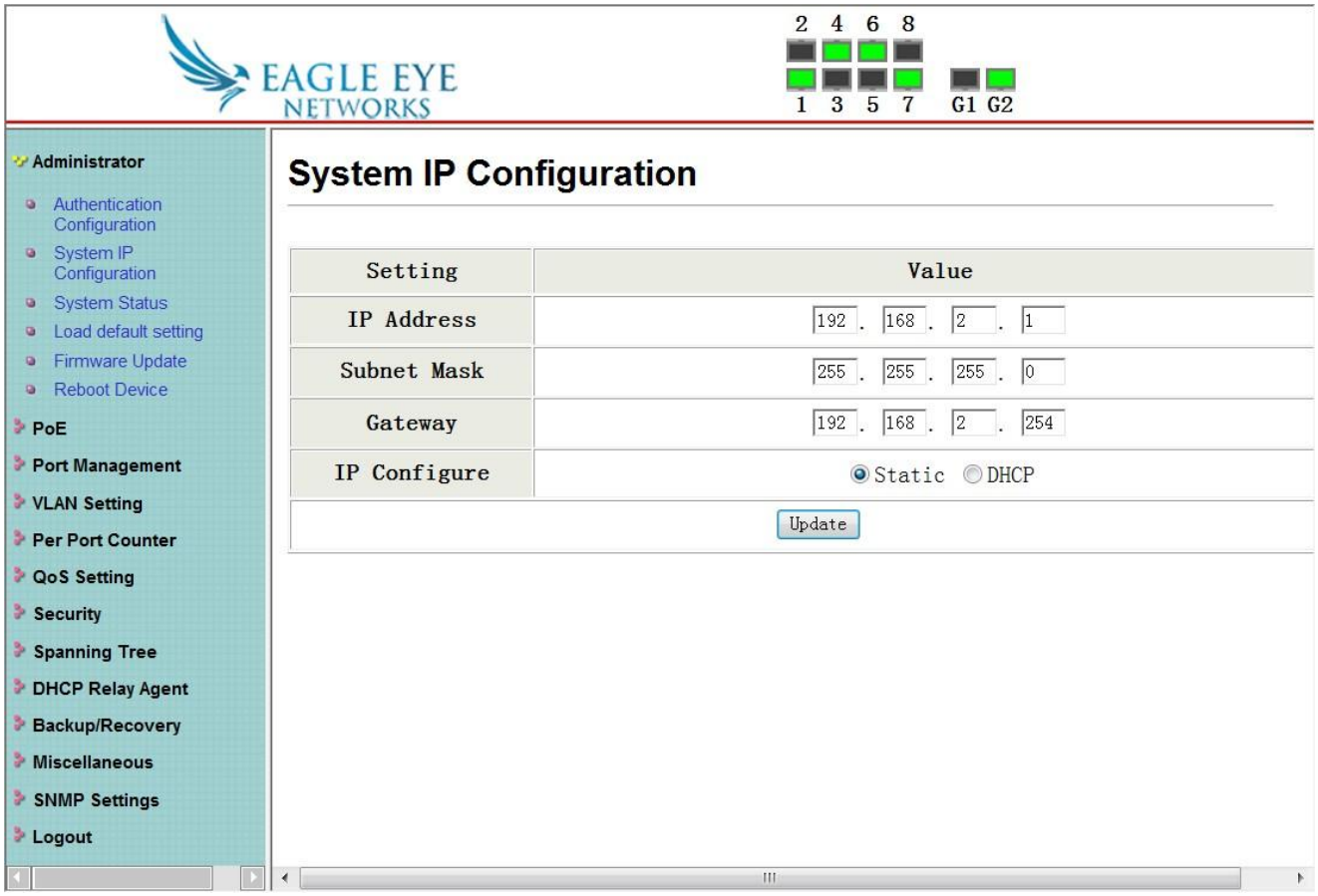


Administrator -> System IP Configuration

There are two ways for the switch to obtain an IP address: Static and DHCP (Dynamic Host Configuration Protocol).

If the switch is used to open the DHCP environment, the switch will automatically obtain an IP address from a DHCP server, the switch for the landing web page, As shown below:

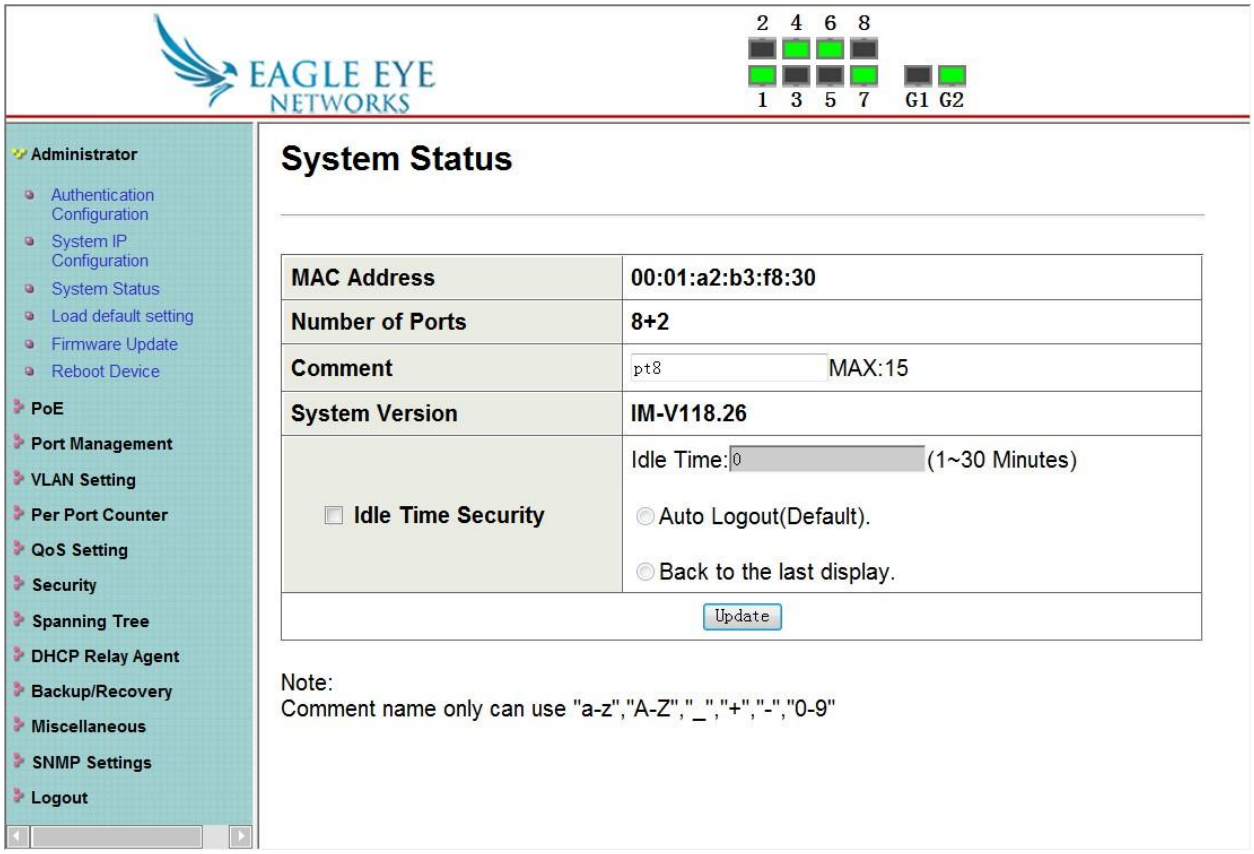
When using static mode, the **IP address**, **Subnet Mask** and **Gateway** can be manually configured. When using DHCP mode, the Switch will first look for a DHCP server to provide it with an IP address (including network mask and default gateway) before using the default or previously entered settings. By default the IP setting is static mode with IP address is **192.168.2.1** and subnet mask is **255.255.255.0**



Administrator -> System Status

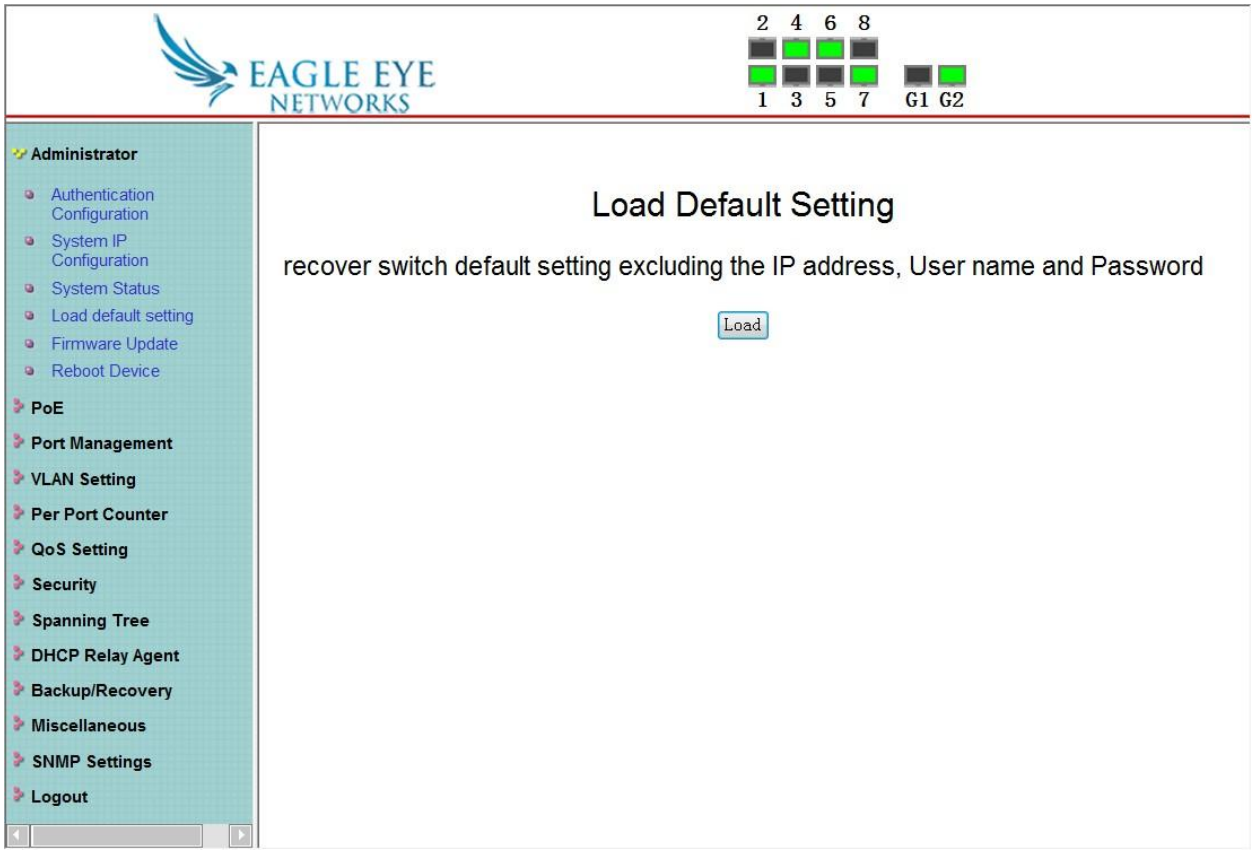
Comment: By entering a Comment, the device can more easily be recognized on the LAN.

Idle Time Security: It controls the idle time-out period for security purposes, when there is no action for a specific time span in the Web-based Management. If the current session times out (expires), the user is required a re-login before using the Web-based Management again. Selective range is from 3 to 30 minute, and the default setting is 5 minutes.



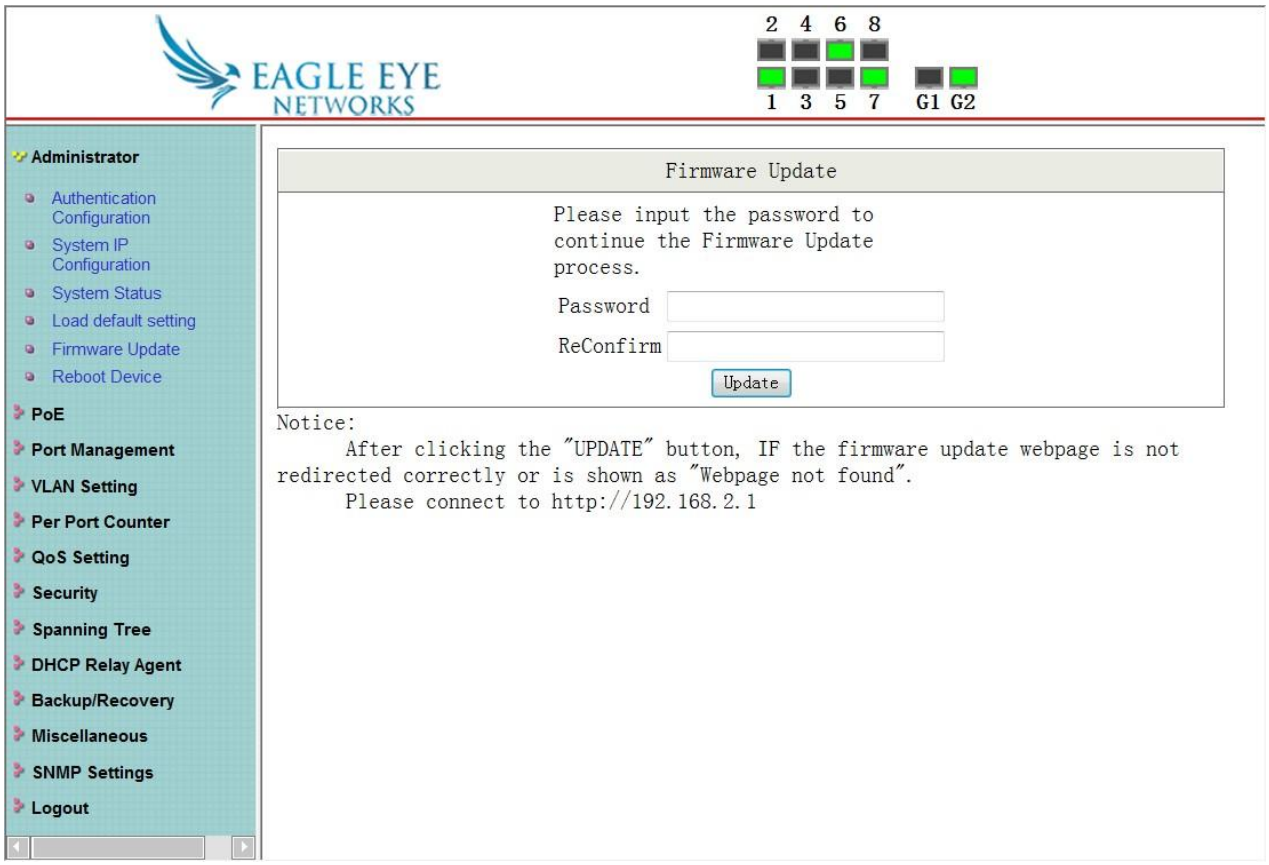
Administrator -> Load default setting

Provide a safe reset option for the switch. All configuration settings in non-volatile RAM will be reset to factory default and then the switch will reboot.



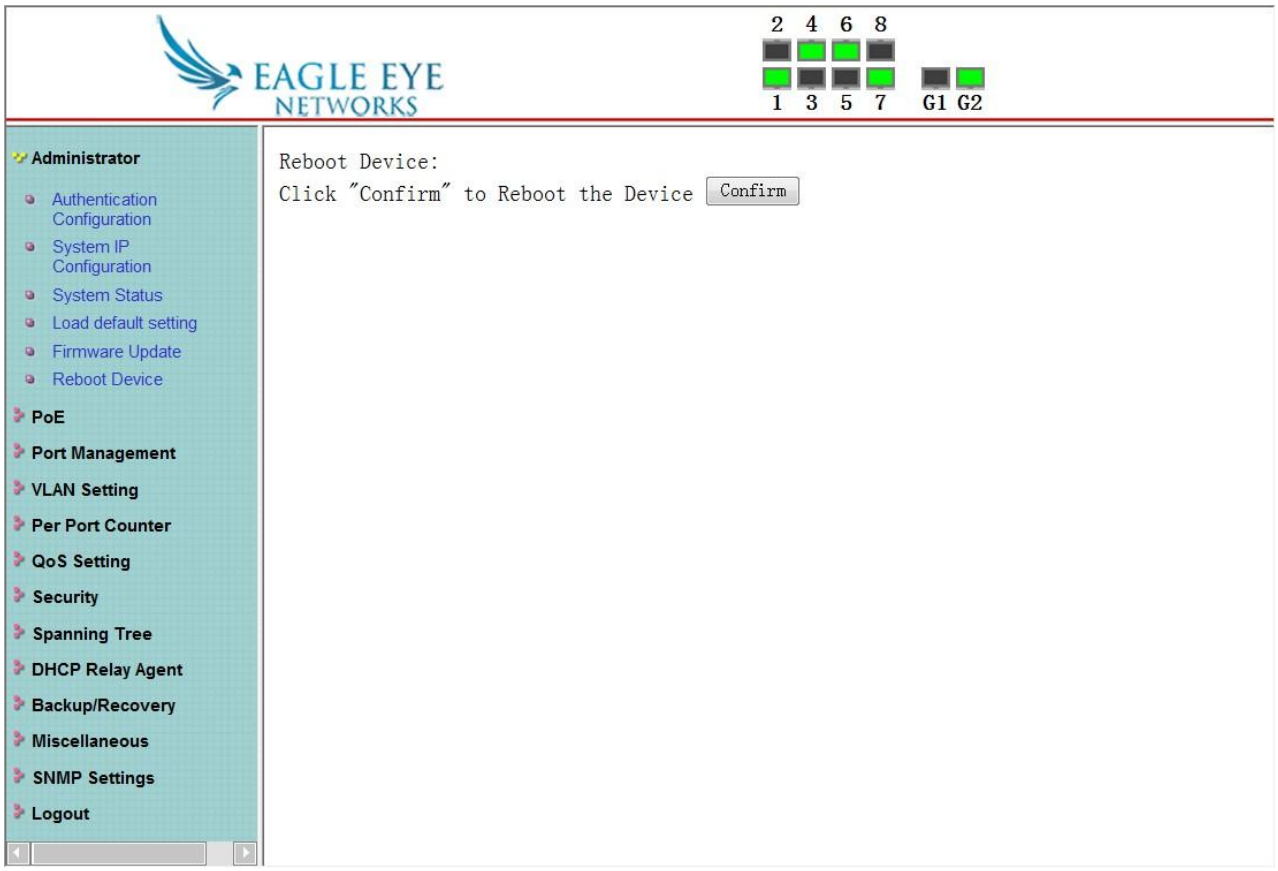
Administrator -> Firmware Update

You must enter the password of device in order to determine the firmware needs to be updated.
After a correct password the switch will erase the old firmware first.
After completing the erase you will see the screen bellows. Specify the Firmware Path (or Browse for one) that you are going to use, and then click **Update**. The state will show ‘OK’ after completion and ‘Fail’ is firmware upgrade fails or cannot be completed for any reason.



Administrator -> Reboot Device

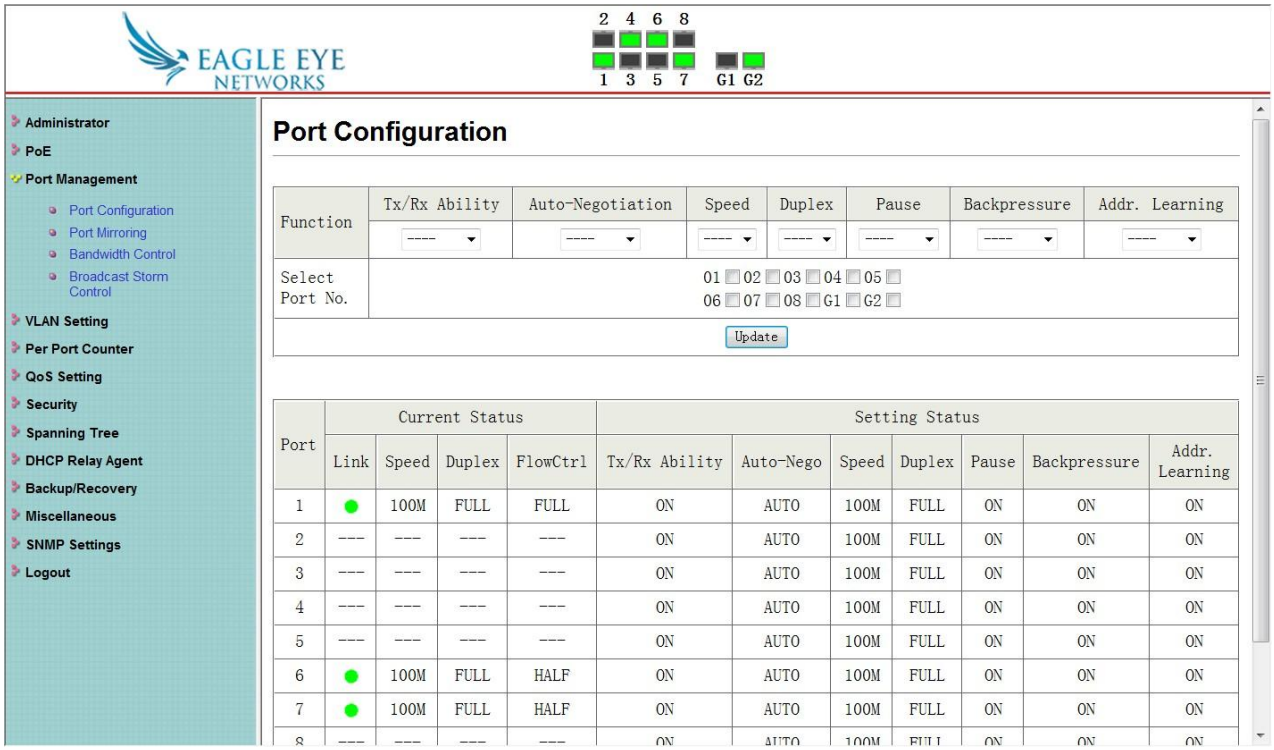
Provide a safe way to reboot the system. Click **Reboot** to restart the switch.



4.3 Port Management

Port Management -> Port Configuration

In this page, the status of all ports can be monitored and adjusted for optimum configuration.



Enable: Enable or disable the port's connection

Auto-Nege: Enable or disable port auto-NDI/MDIX

Speed: Copper connections can operate in Forced Mode settings (1000M Full, 100M Full, 100M Halt, 10M Full,

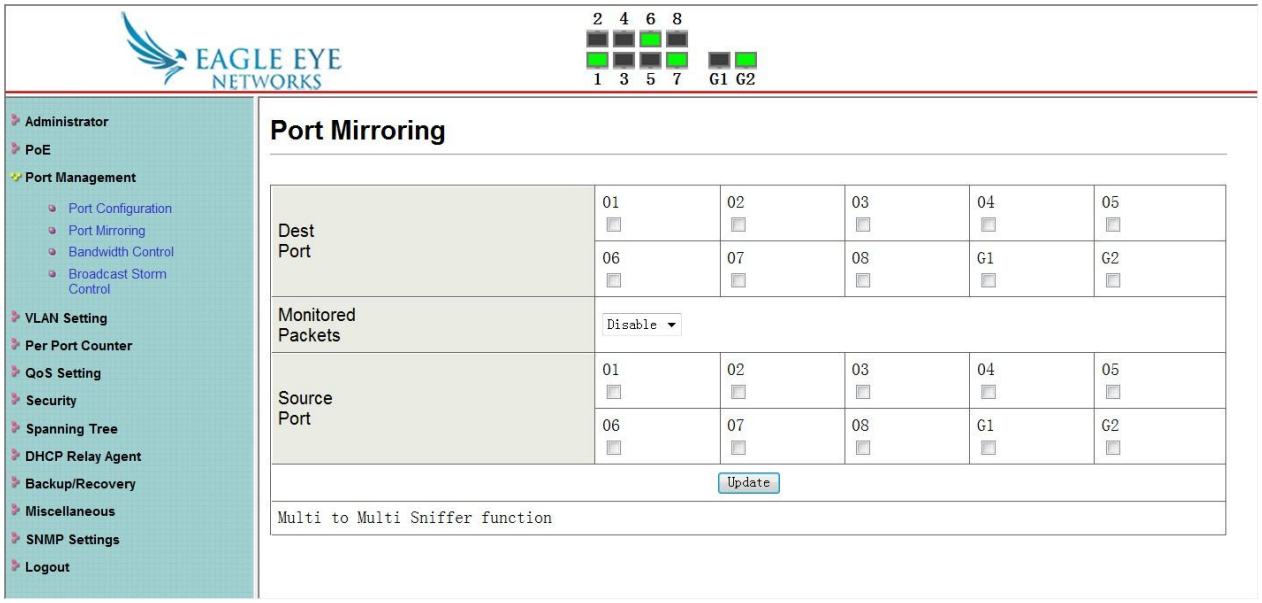
10M Half), Auto, or Disabled. The default setting for all ports is **Auto.**

Duplex: Copper connections can operate in Full-Duplex or Half-Duplex Mode

Addr. Learning: Enable or disable port learning MAC address.

Port Management -> Port Mirroring

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



TX (transmit) mode: Duplicates the data transmitted from the source port and forwards it to the Target Port. Click “all” to include all ports into port mirroring.

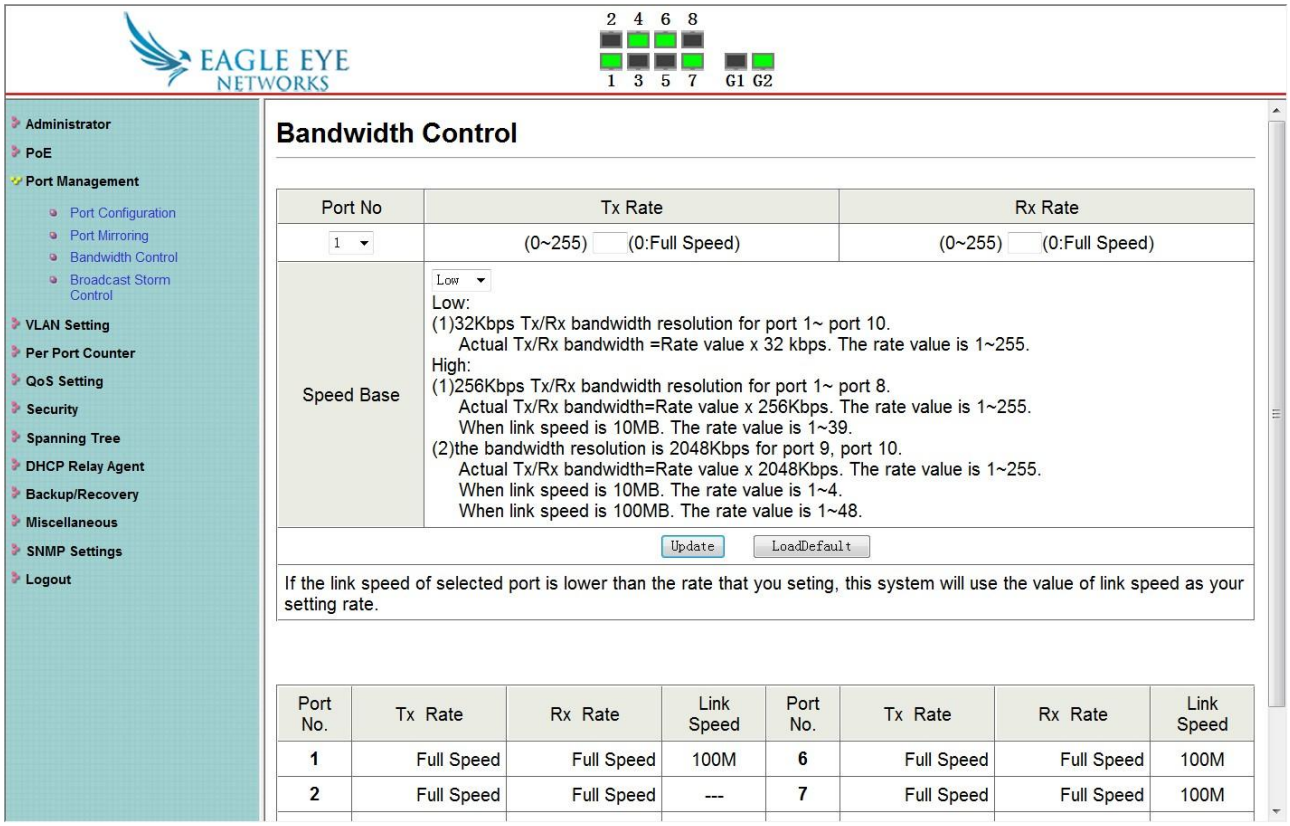
RX (receive) mode: Duplicates the data that received from the source port and forwards it to the Target Port. Click “all” to include all ports into port mirroring.

Both (transmit and receive) mode: Duplicate both the data transmitted from and data sent to the source port, and forwards all the data to the assigned Target Port. Click “all” to include all ports into port mirroring.

Note. The target ports will stop mirroring packets if there are unknown tags or destination packets sent out by source ports.

Port Management -> Bandwidth Control

The Bandwidth Control page allows network managers to define the bandwidth settings for a specified port’s transmitting and receiving data rates.



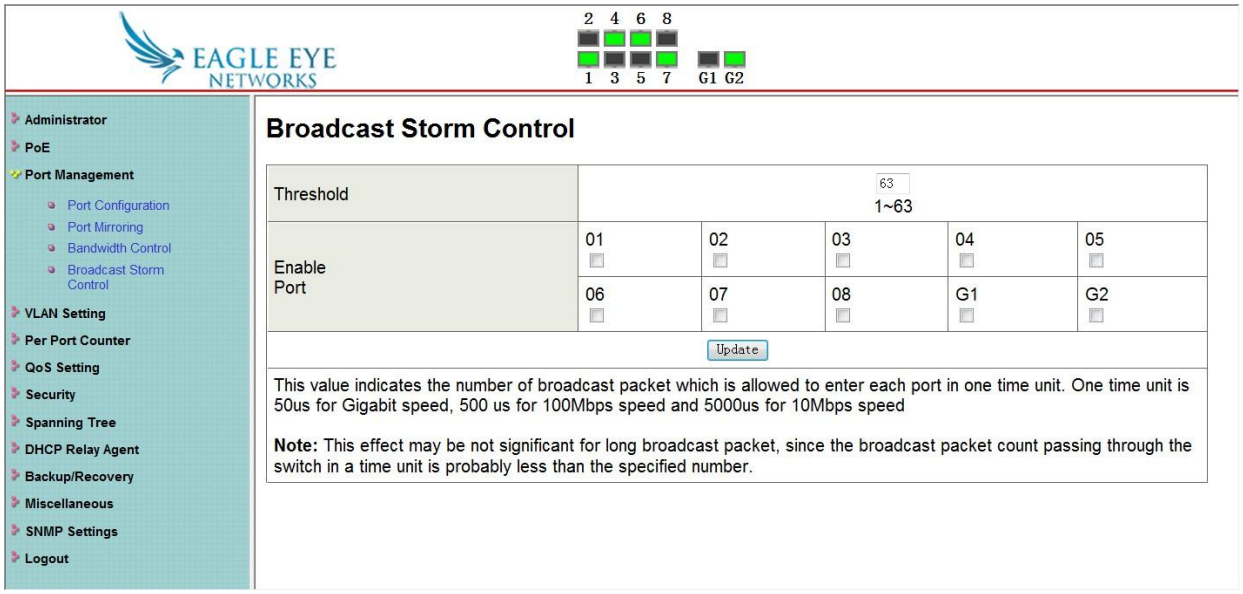
TX Rate: This allows you to enter data receive rate from 0 to 255 (base on speed base), 0 for full speed.

RX Rate: This allows you to enter data transmit rate from 0 to 255 (base on speed base), 0 for full speed.

Speed Base:

Port Management -> Broadcast Storm Control

The Broadcast Storm Control feature provides the ability to control the receive rate of broadcast packets. Once a packet storm has been detected, the Switch will drop packets coming into the Switch until the storm has subsided.

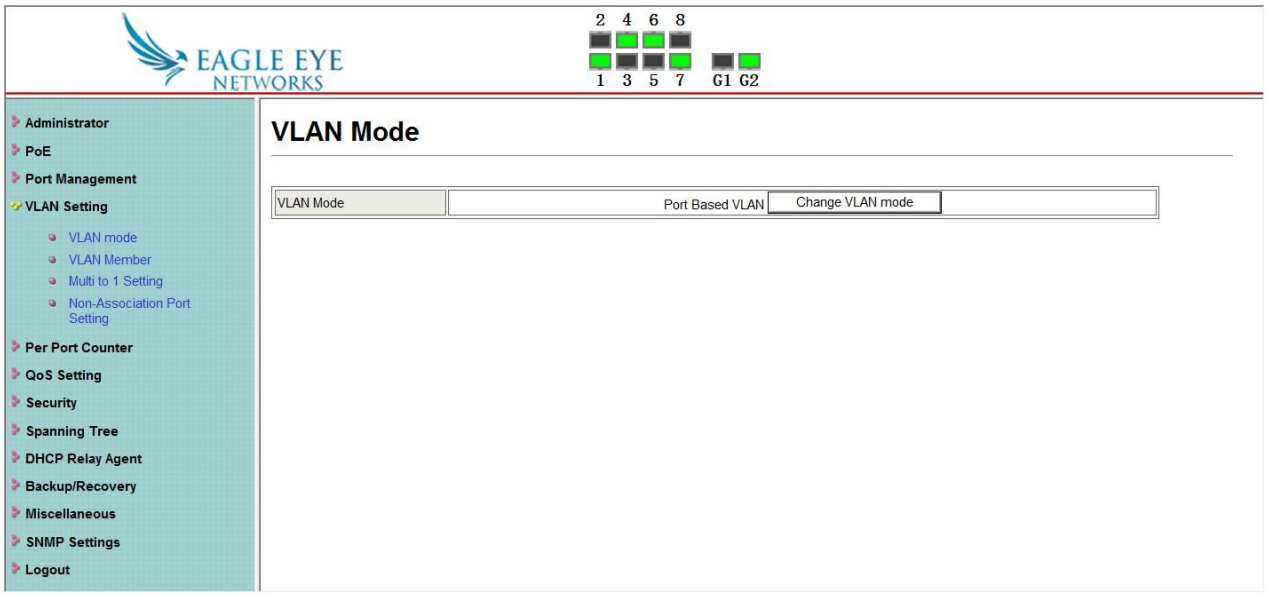


4.4 VLAN Setting

VLAN Setting -> VLAN Mode

A VLAN is a group of ports that can be anywhere in the network, but communicate as though they were in the same area. VLANs can be easily organized to reflect department groups (such as R&D, Marketing), usage groups (such as e-mail), or multicast groups (multimedia applications such as video conferencing), and

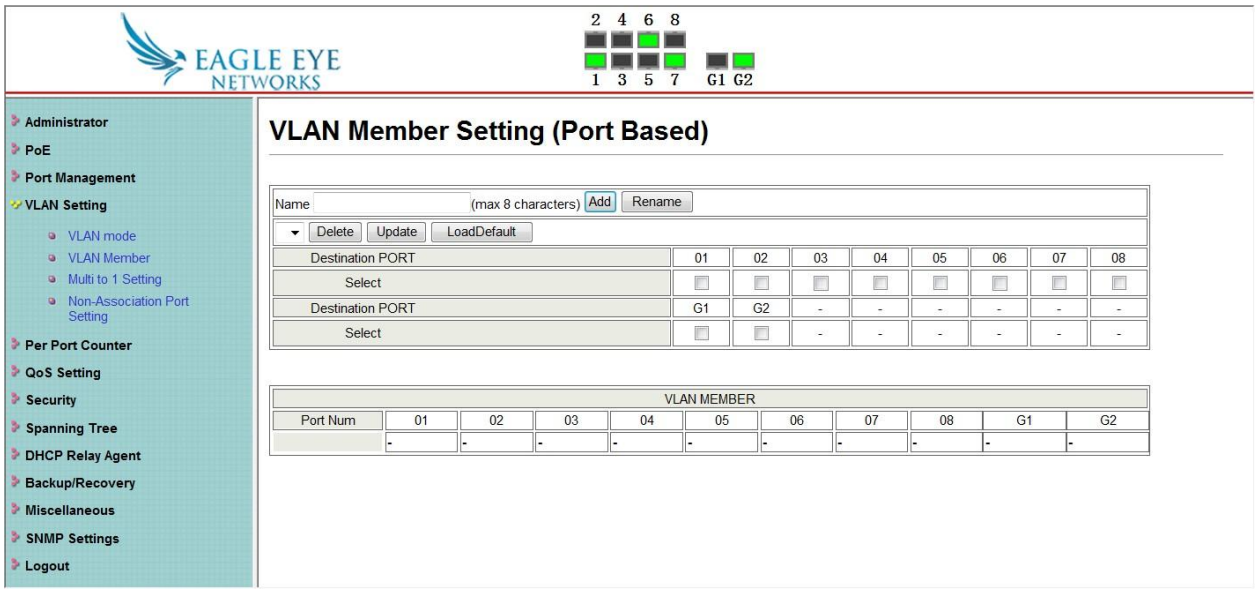
therefore help to simplify network management by allowing users to move devices to a new VLAN without having to change any physical connections.



Prot Based VLAN: Port-Based VLANs are the simplest and most common form of VLAN. It assigns the appliance LAN ports to VLANs, effectively transforming the appliances. You can assign multiple ports to the same VLAN, or each port to a separate VLAN.

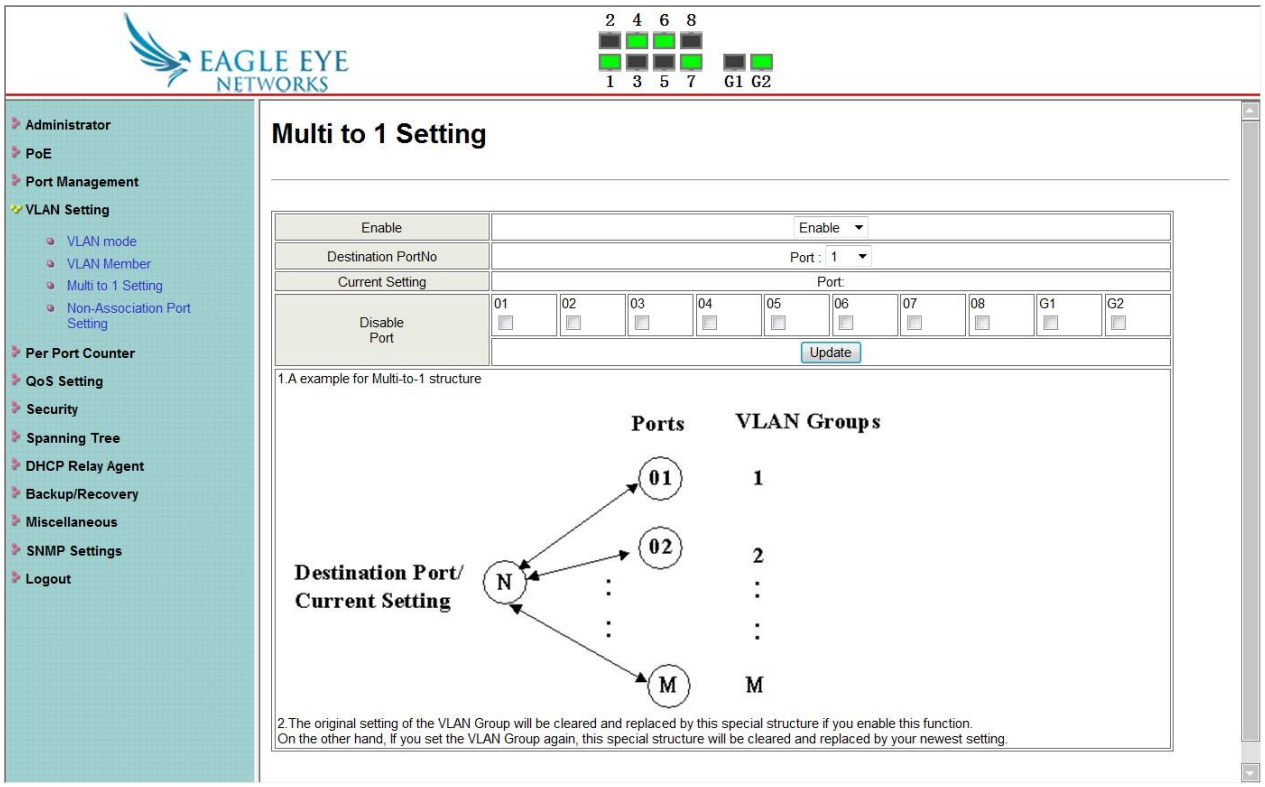
802.1Q VLAN: By default, 802.1Q VLAN is disabled. With 802.1Q VLAN enabled, the VLAN VID 1 is created by default with an empty VLAN name field and all ports are configured as “Untagged” members.

VLAN Setting

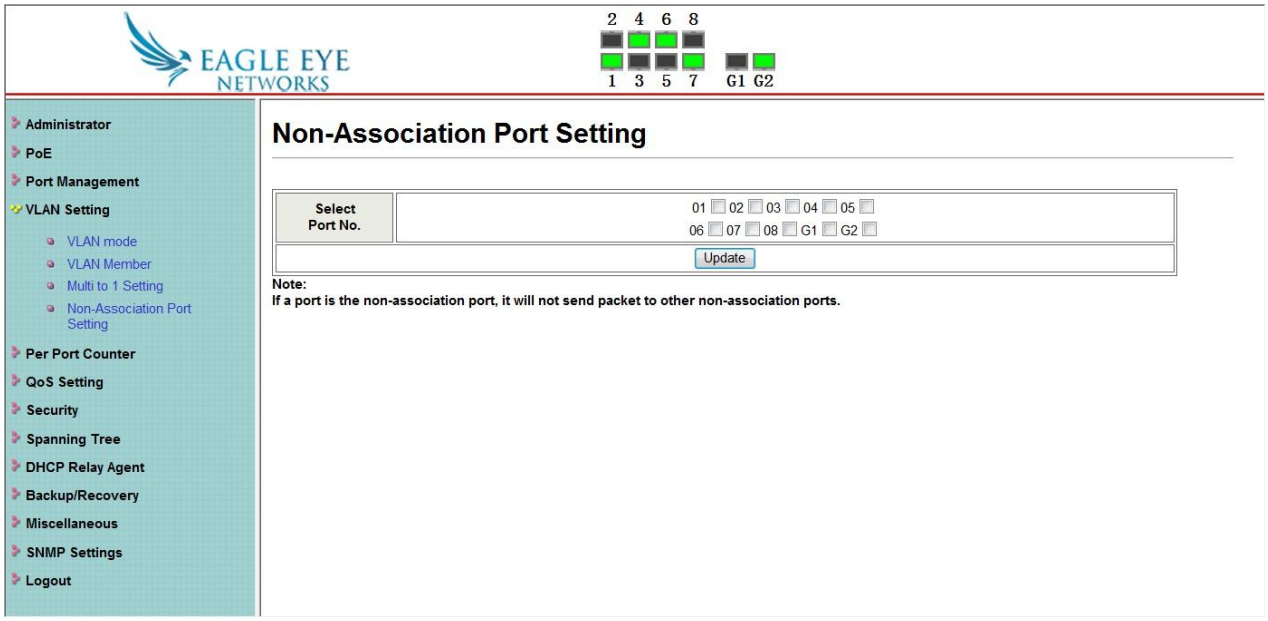


Add VLAN: Click to create a new VLAN name and to select VLAN ports. The VLAN name should be less than 10 characters. To save the members in a group, click **Add.**

VLAN Setting ->



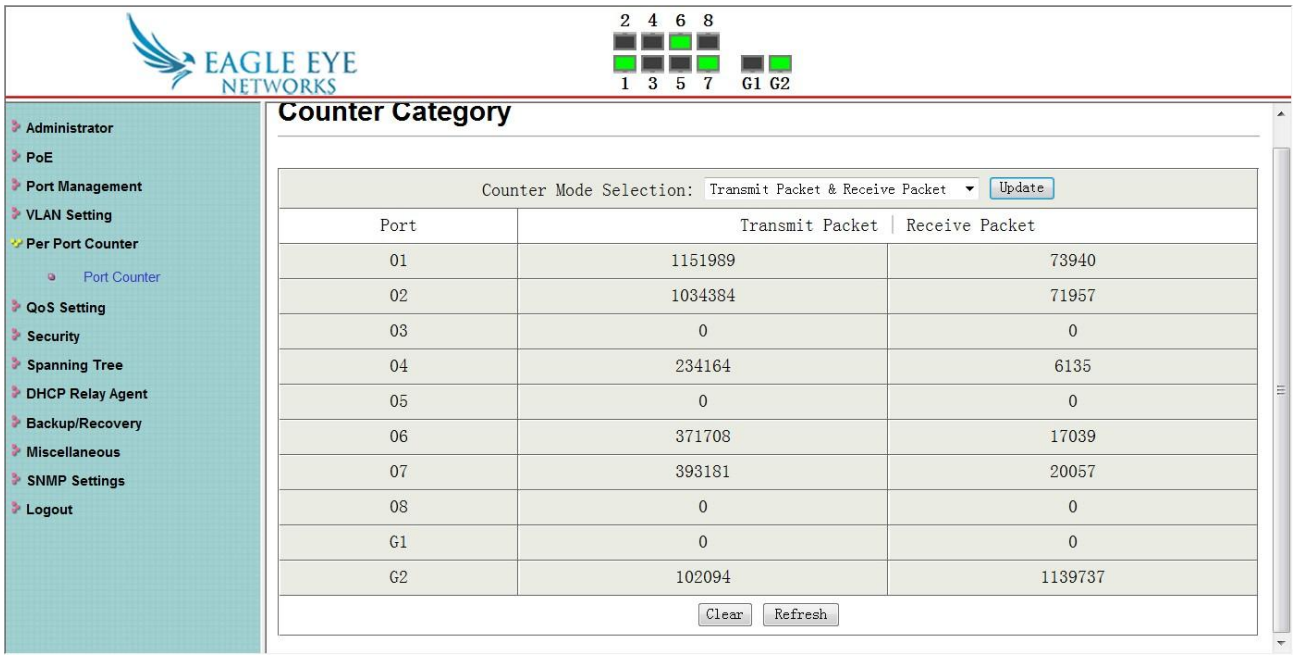
VLAN Setting ->



4.5 Per Port Counter

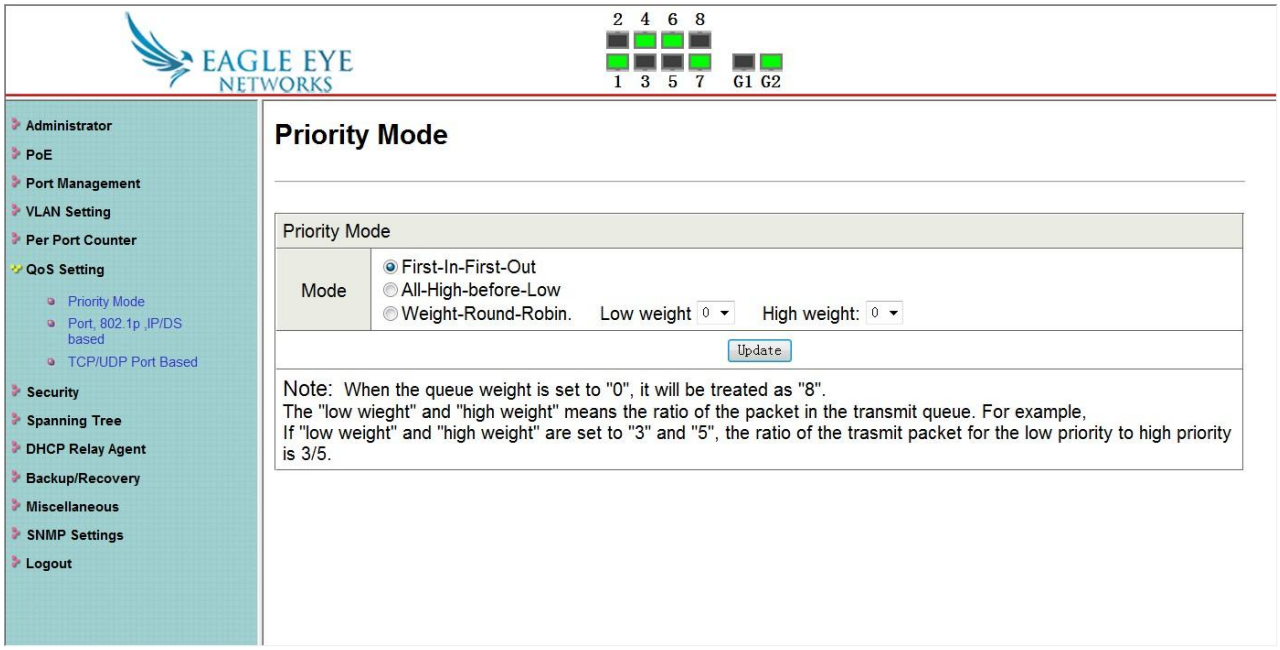
Per Port Counter -> Port Counter

The Statistics screen displays the status of each port packet count.

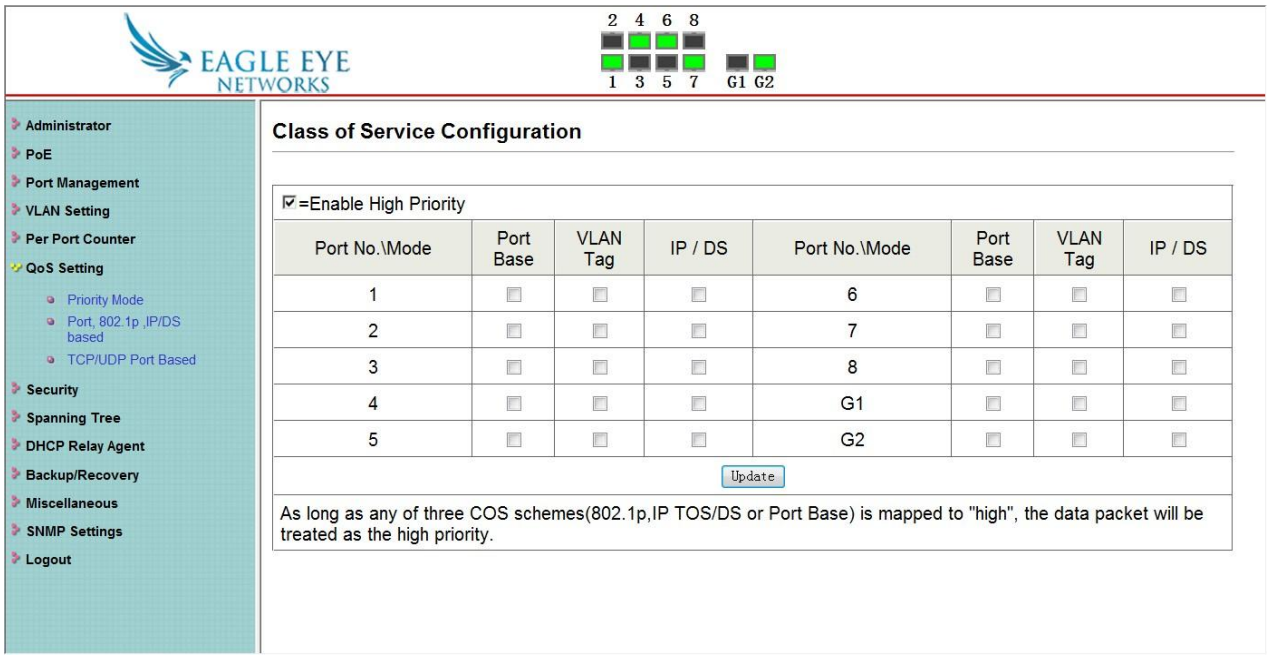


4.6 QoS Setting

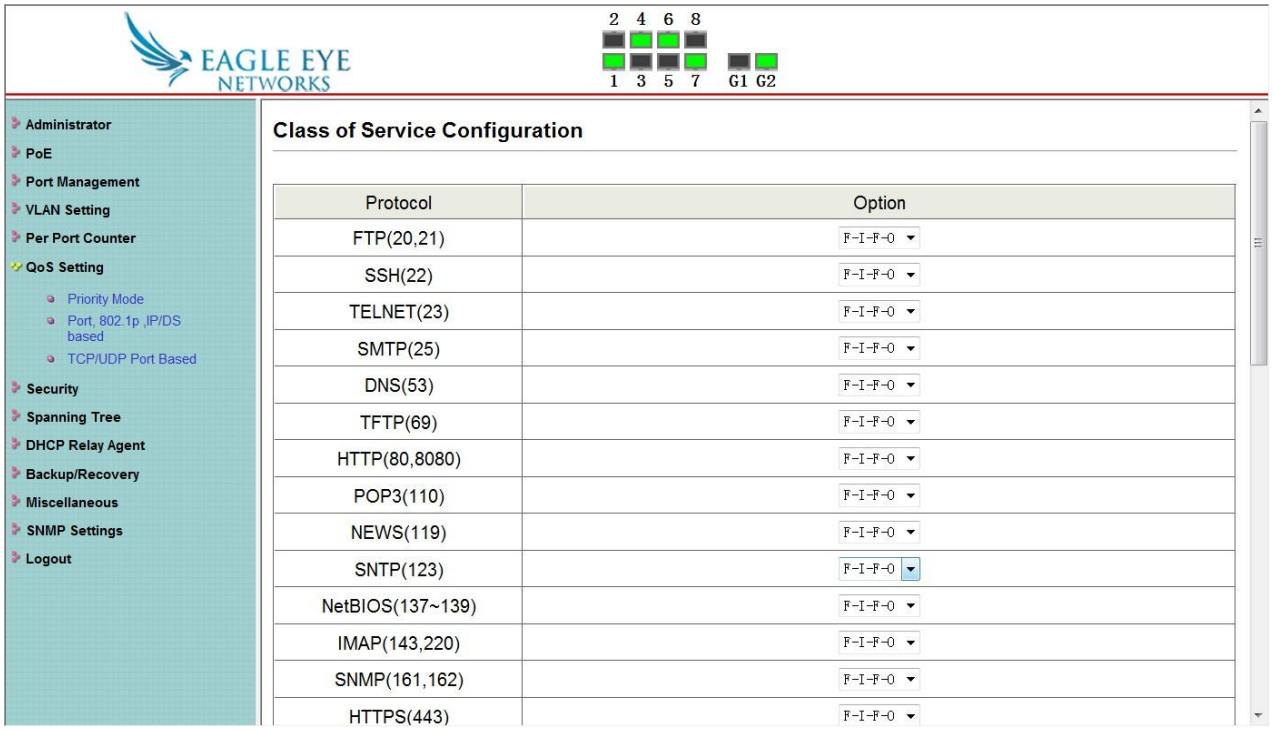
QoS Setting -> Priority Mode



QoS Setting -> Port, 802.1p ,IP/DS based

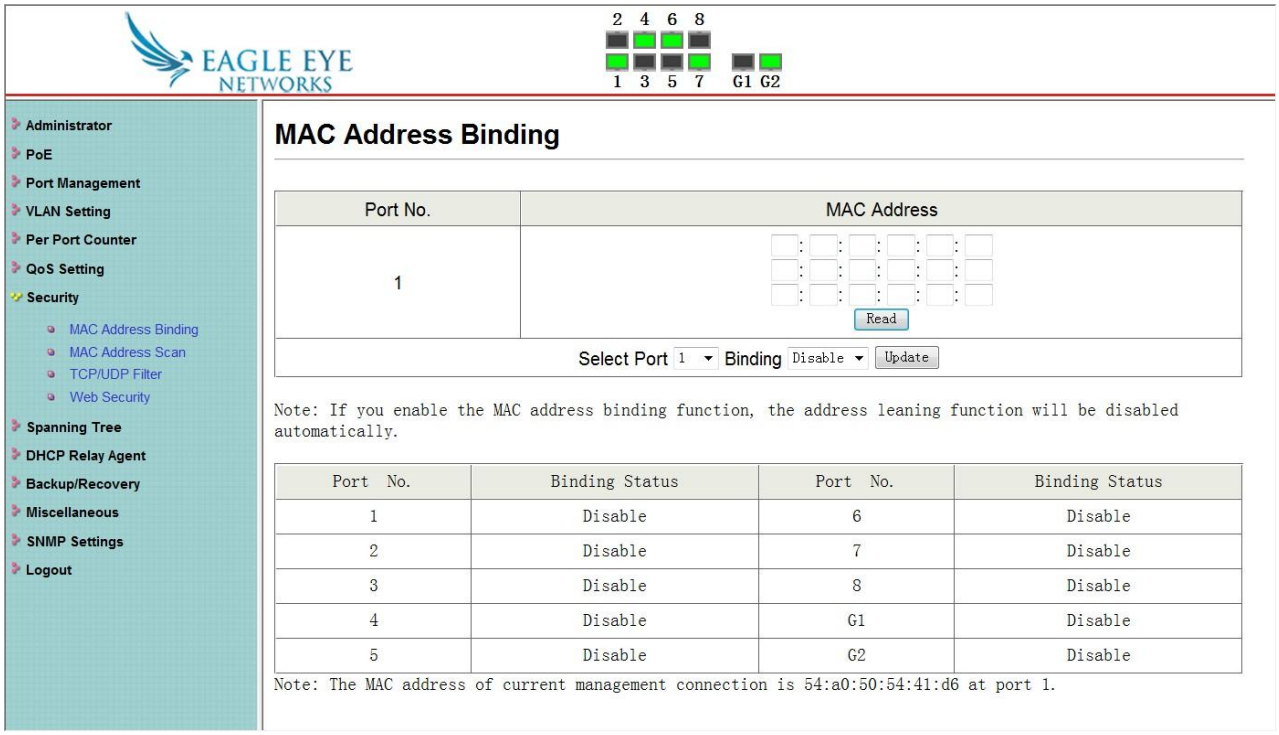


QoS Setting -> TCP/UDP Port Based

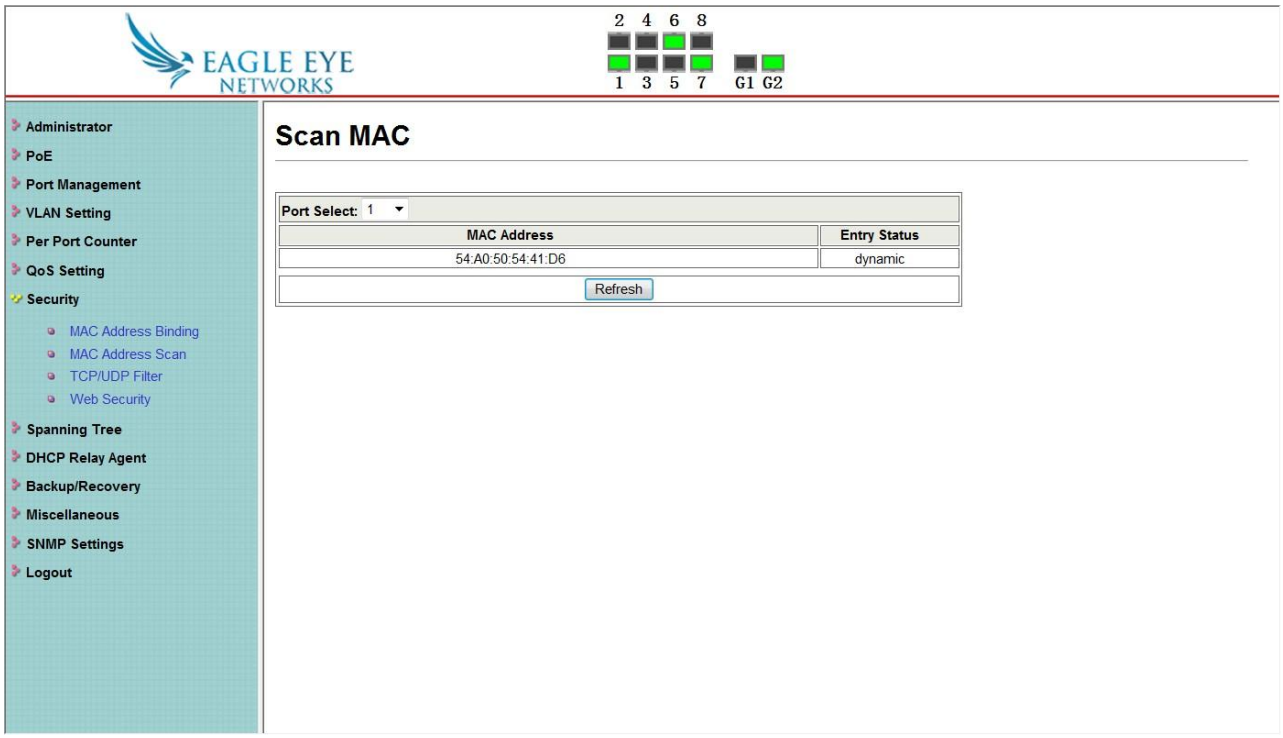


4.7 Security

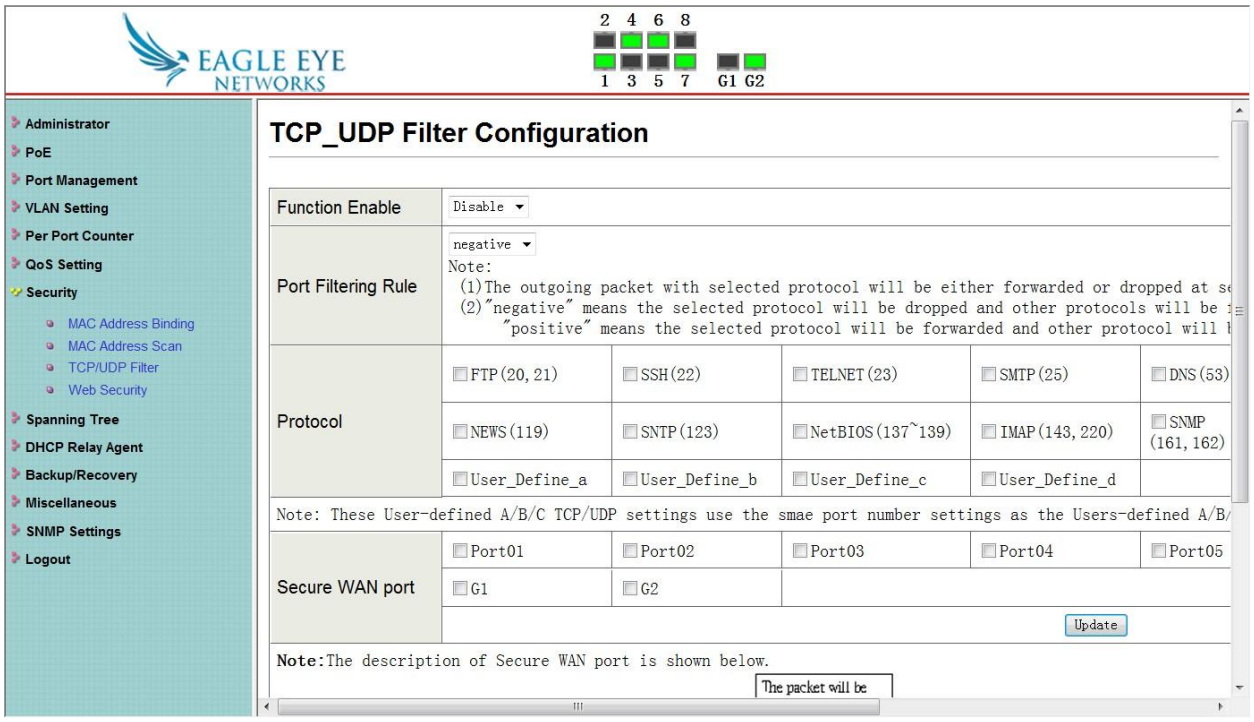
Security -> MAC Address Binding



Security -> Scan MAC



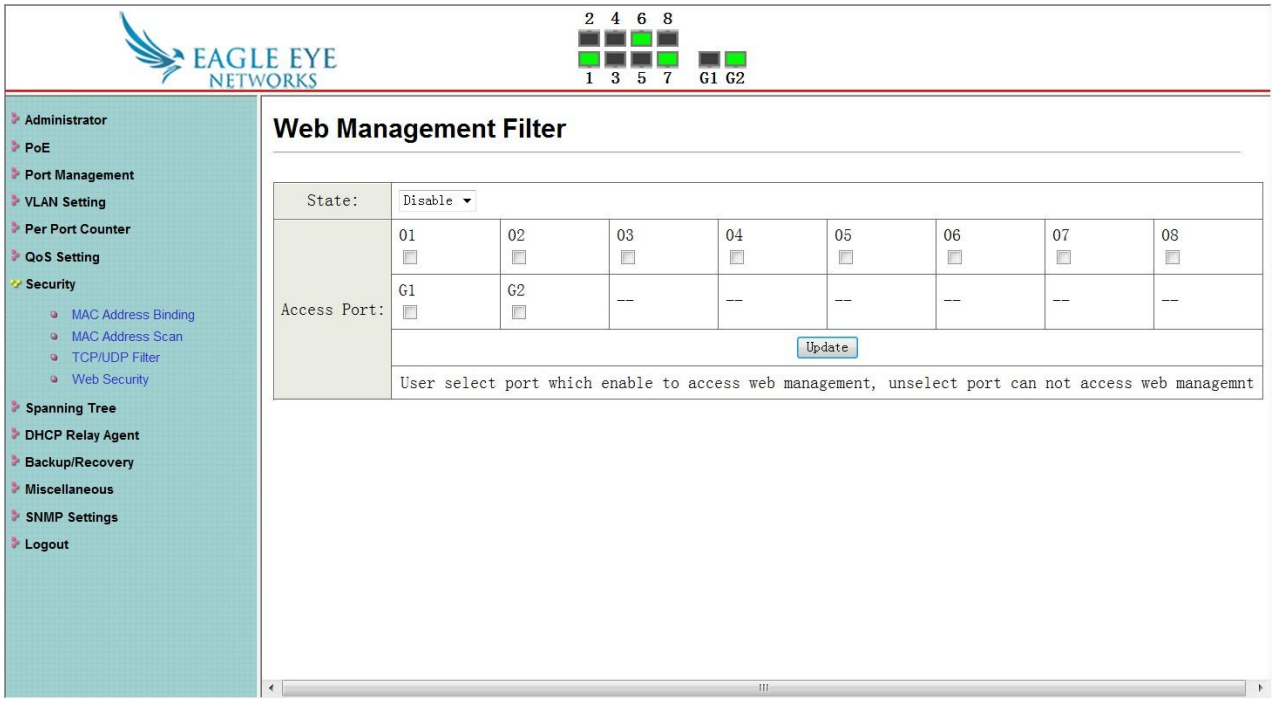
Security -> TCP/UDP Filter



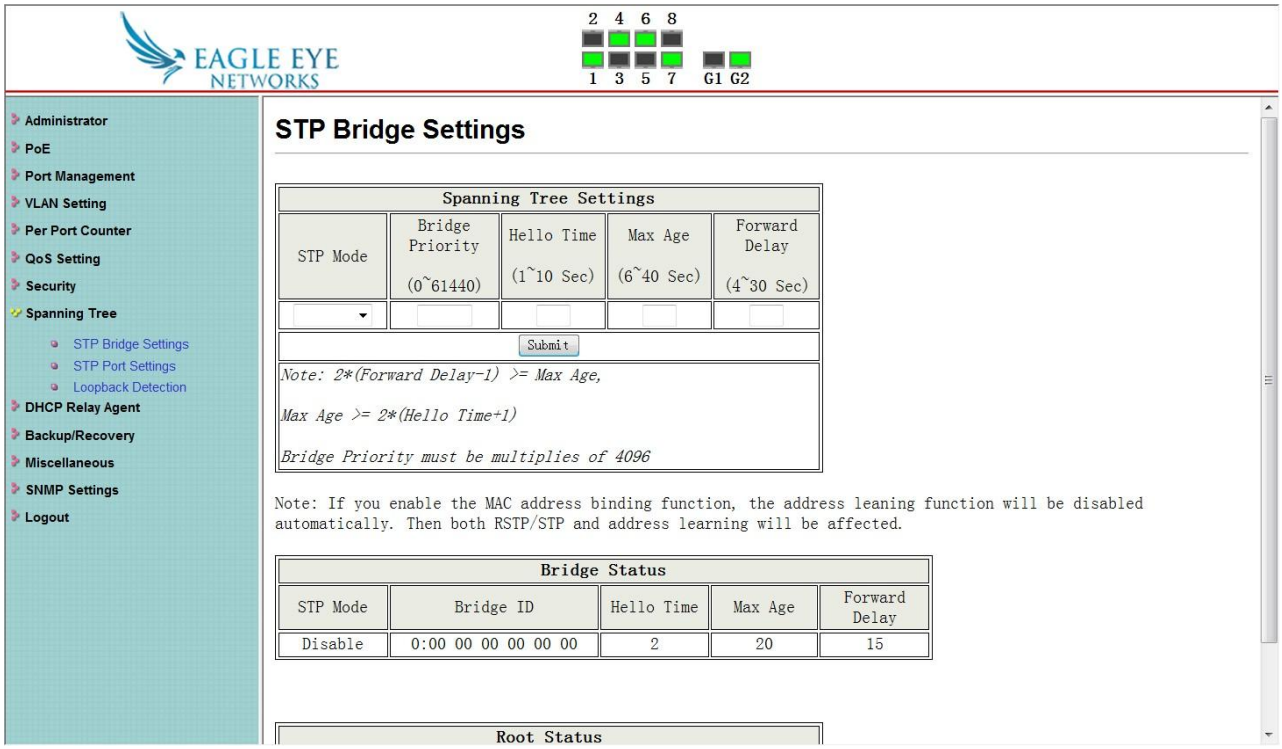
Security -> Web Management Filter

4.8 Spanning Tree

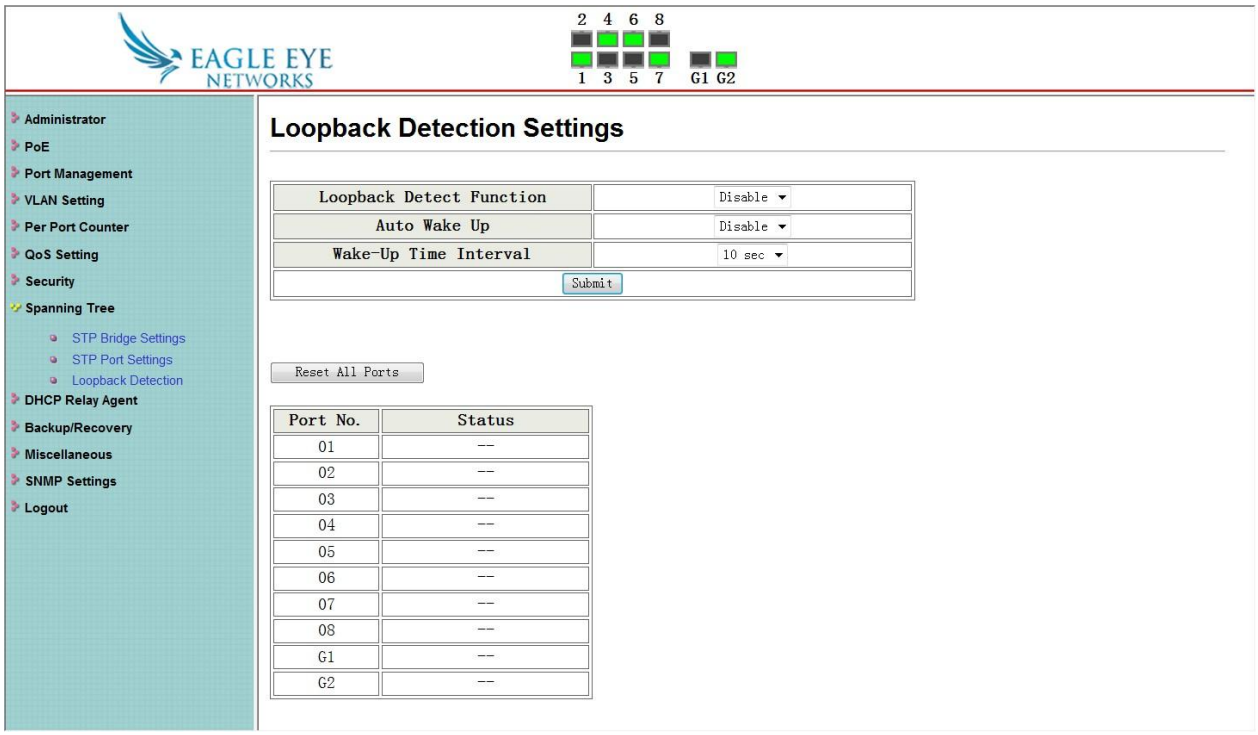
Spanning Tree -> STP Bridge Settings



Spanning Tree -> STP Port Settings

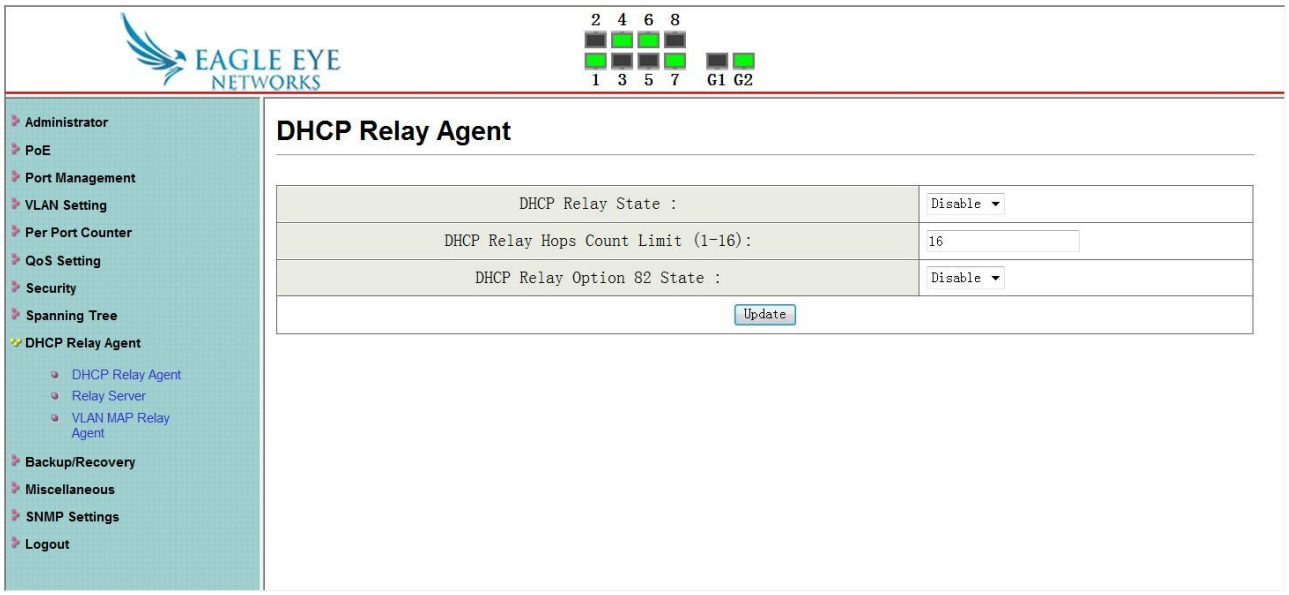


Spanning Tree -> Loopback Detection

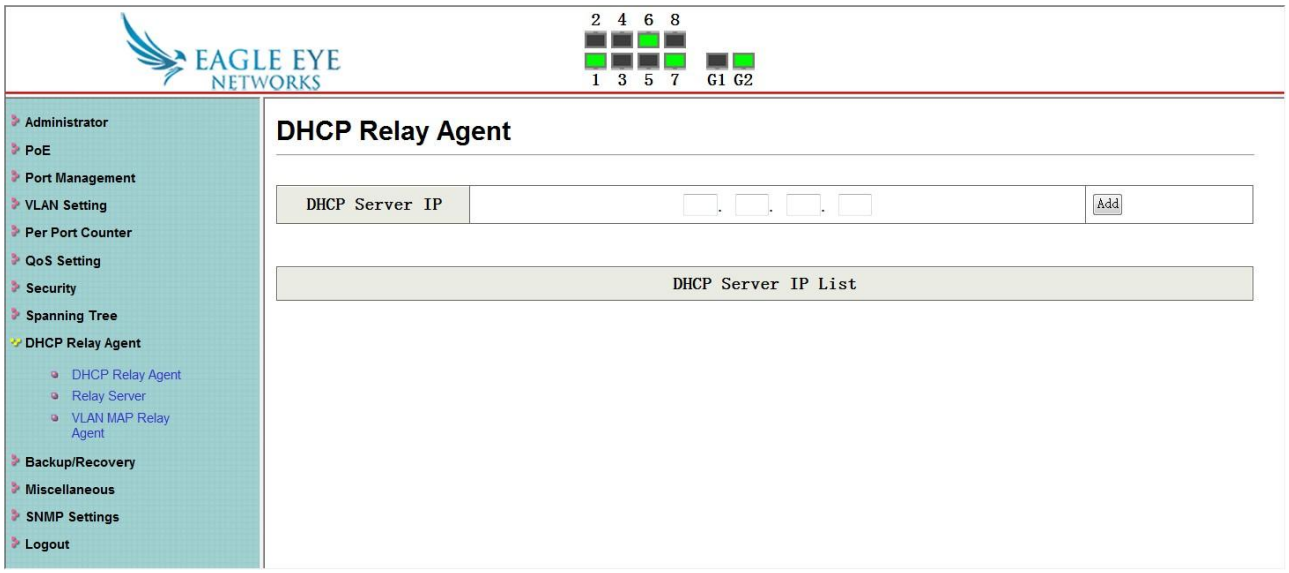


4.9 DHCP Relay Agent

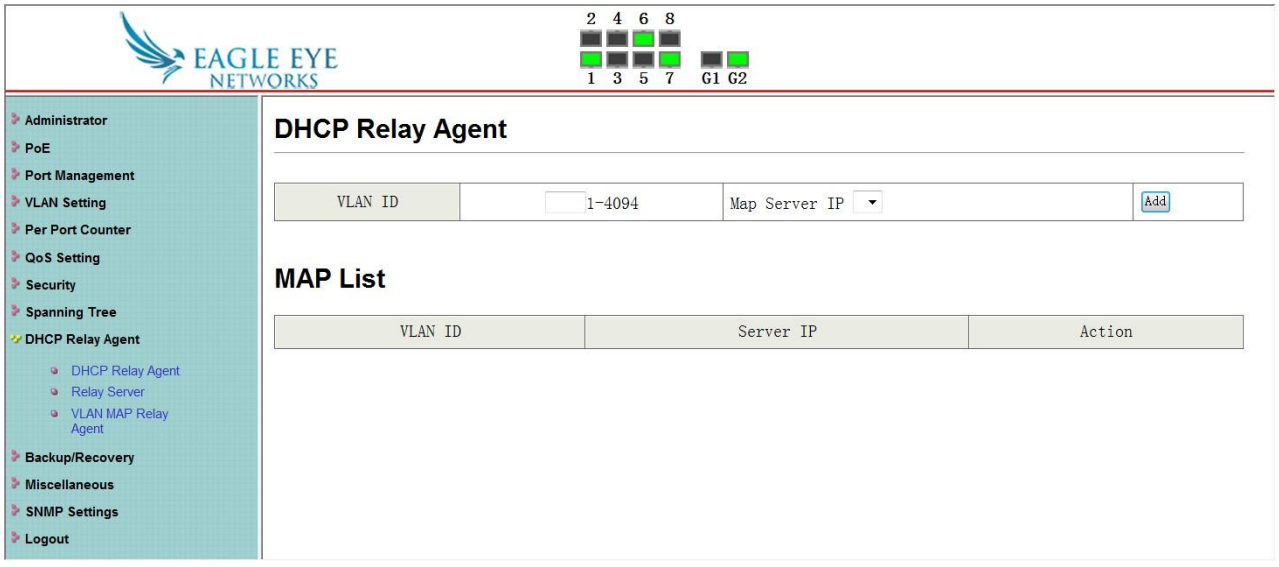
DHCP Relay Agent -> DHCP Relay Agent



DHCP Relay Agent -> Relay Server

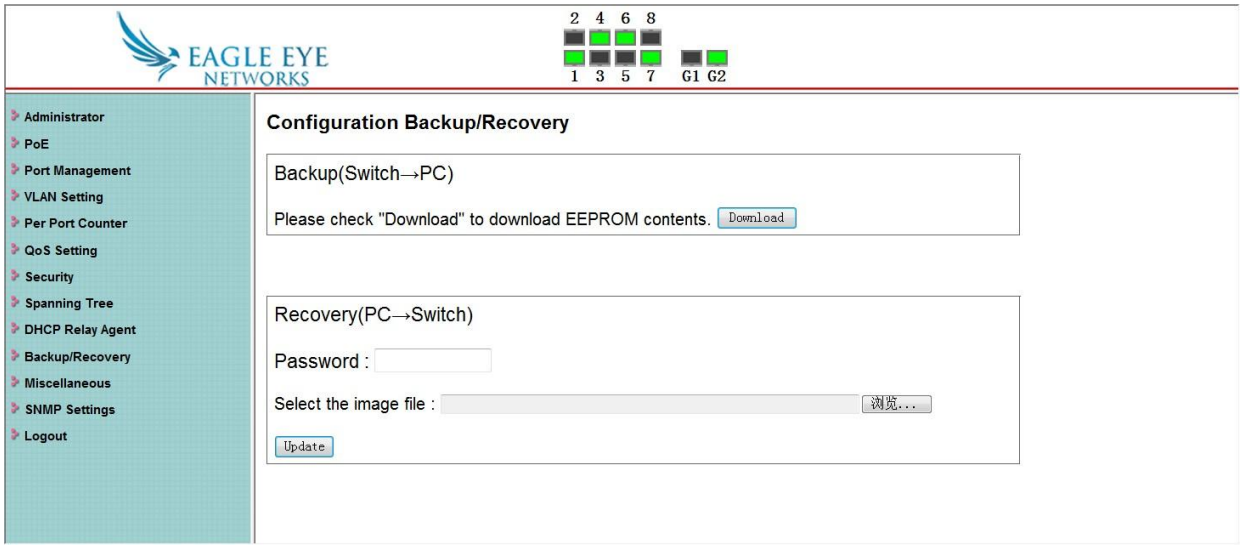


DHCP Relay Agent -> VLAN MAP Relay Agent



4.10 Backup/Recovery

Allow the current configuration settings to be saved to a file (not including the password), and if necessary, you can restore configuration settings from the file.



Backup or restore the configuration file to or from your local drive.

Click **Download** to save the current settings to your disk.

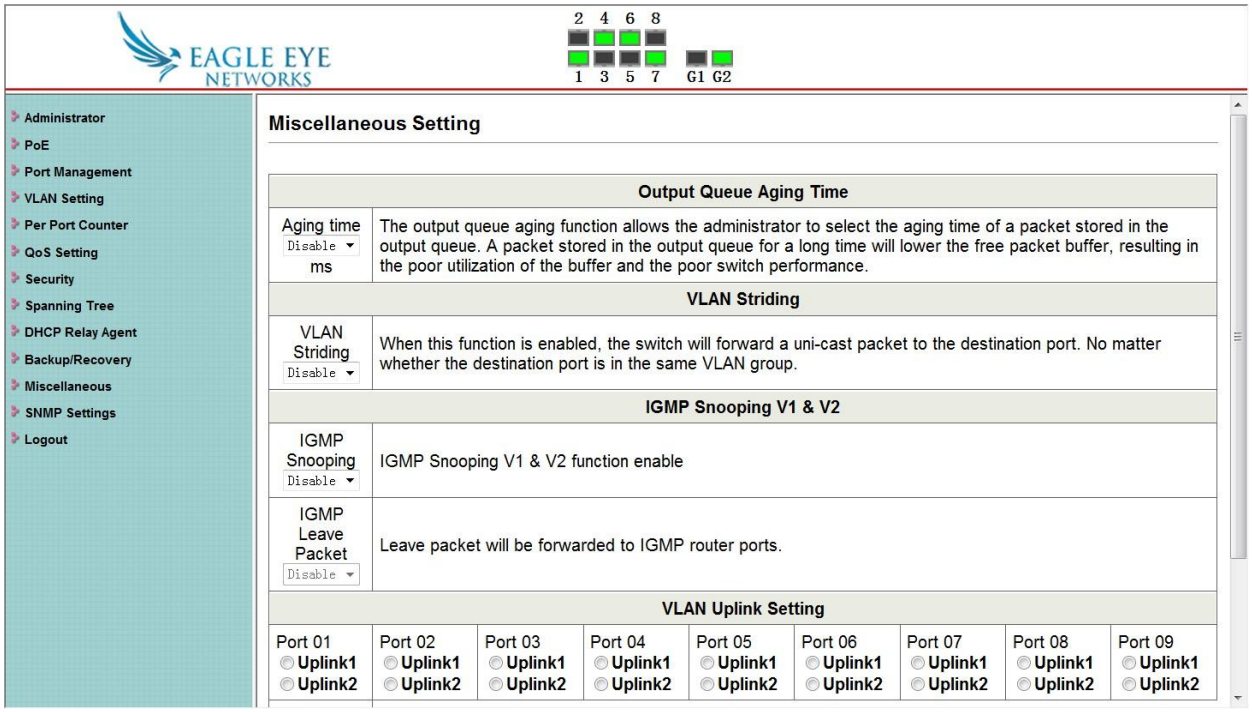
Click **Browse** to browse your inventories for a saved backup settings file.

Click **Update** after selecting the backup settings file you want to restore.

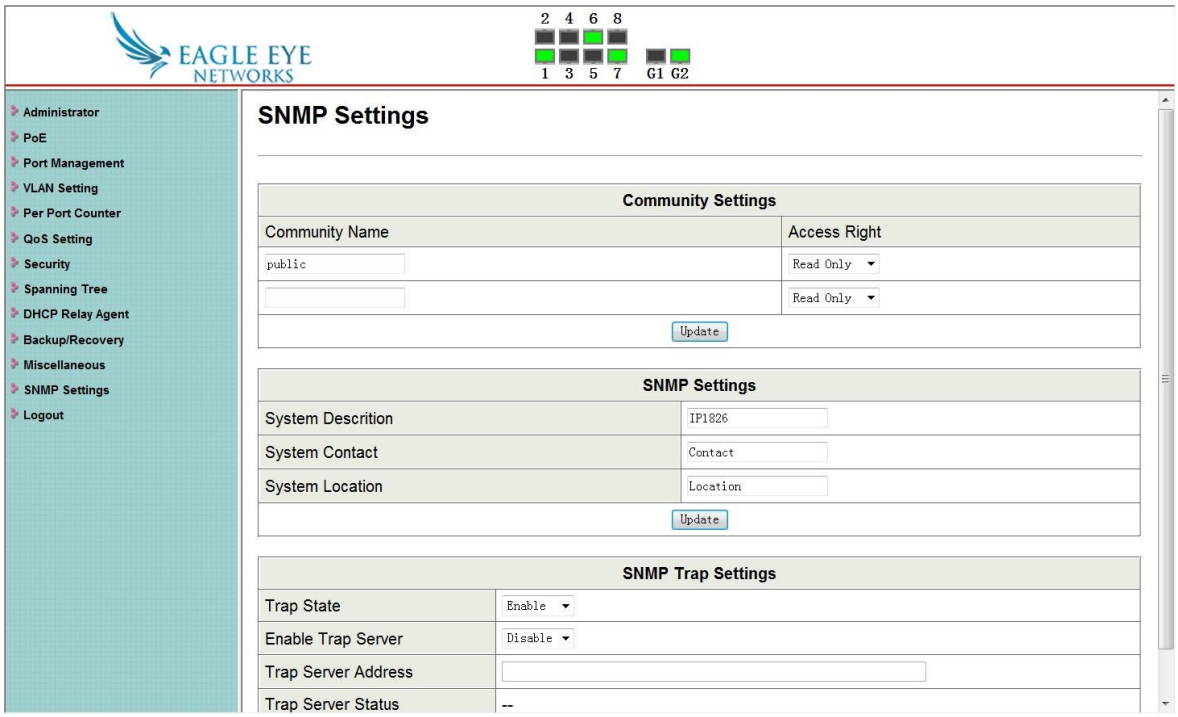
Note: Switch will reboot after restore and all current configurations will be lost

4.11 Miscellaneous

Miscellaneous -> Miscellaneous Settings

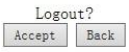


4.12 SNMP Settings



4.13 Logout

Click this to end this session

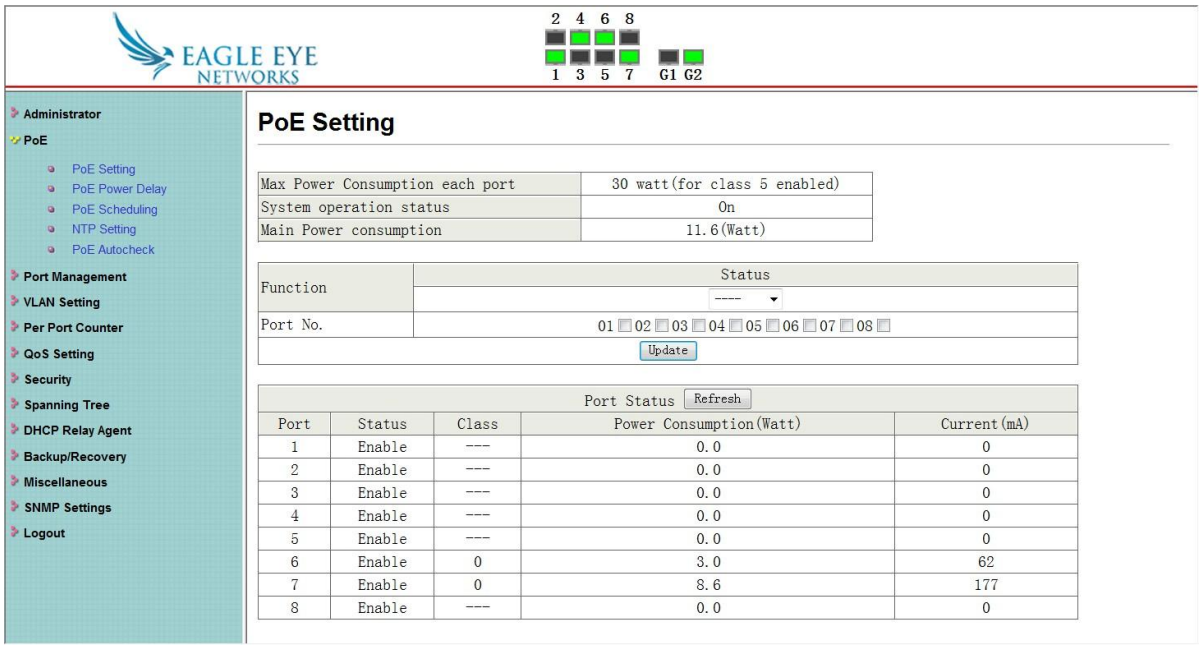


Note: If you close the web browser without clicking the **Logout** button, it will be seen as an abnormal exit and the login session will still be occupied.

4.14 PoE

PoE -> PoE Setting

This section provides PoE (Power over Ethernet) Configuration and PoE output status of PoE Switch.



Main Power consumption: The Statistics screen displays the total Watts usage of PoE Switch.

Status: Can enable or disable the PoE function.

Class: Class 0 is the default for PDs. However, to improve power management at the PSE, the PD may opt to provide a signature for Class 1 to 4.

The PD is classified based on power. The classification of the PD is the maximum power that the PD will draw across all input voltages and operational modes. A PD shall return Class 0 to 4 in accordance with the maximum power draw as specified by following Table.

Class	Usage	Range of maximum power used by the PD
0	Default	0.44 to 12.95 Watts
1	Optional	0.44 to 3.84 Watts
2	Optional	3.84 to 6.49 Watts
3	Optional	6.49 to 12.95 Watts
4	Optional	12.95 to 25.5 Watts

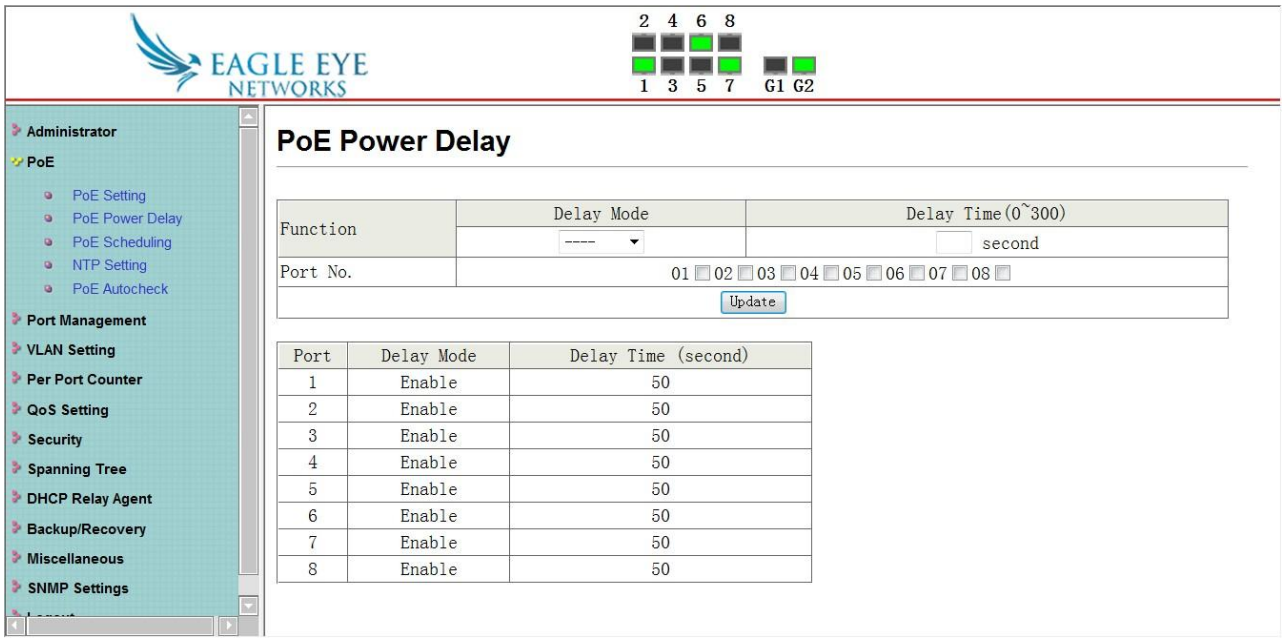
Power Consumption (Watt): It shows the PoE supply Watts.

Current (mA): It shows the PoE device current Amp.

Current-Limit (mA): It can limit the port PoE supply Amp. Per port maximum value must less **600**. Once power overload detected, the port will auto shut down and we should manually enable the PoE port.

PoE -> PoE Power Delay

This section provides PoE Power Delay Configuration.

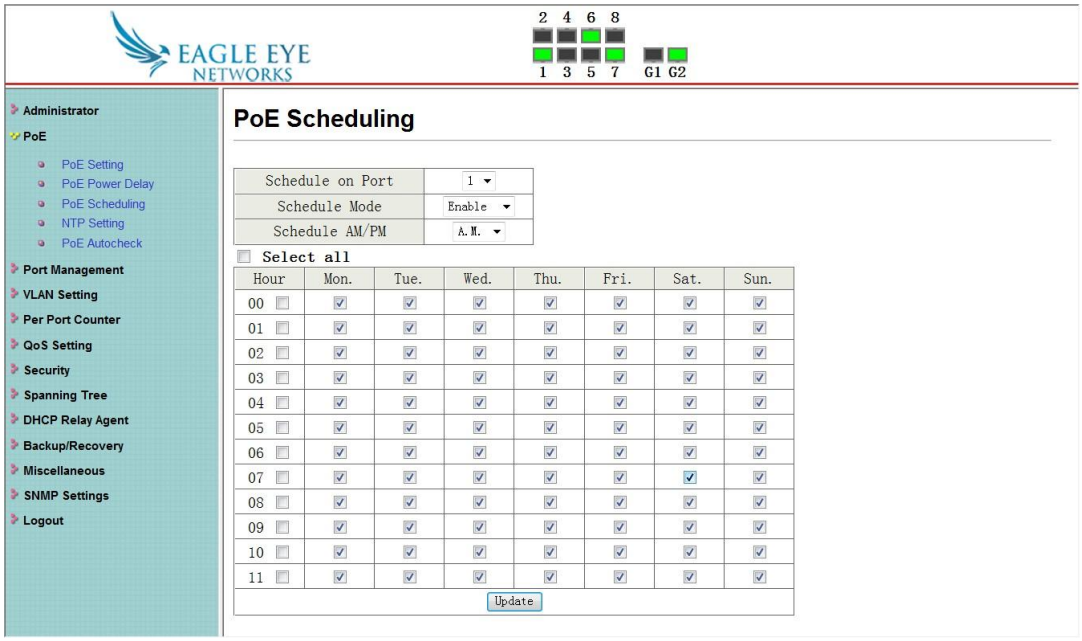


Delay Mode: Enable or disable the port's PoE Power Delay function.

Delay Time: Set PoE power delay time (0~300).

PoE -> PoE Scheduling

PoE Schedule user can configure a duration time for PoE port as default value does not provide power.



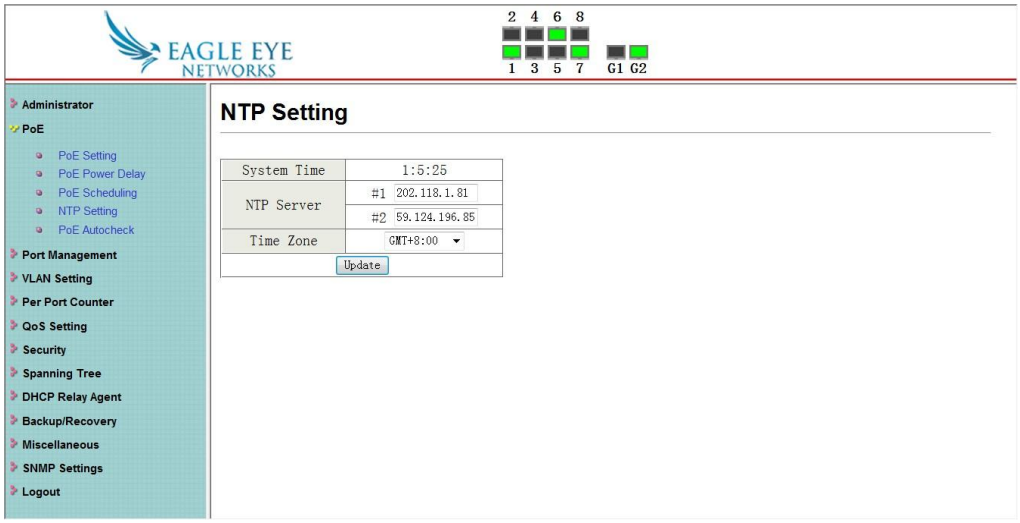
Note Please enable NTP and correct the System Time first.

As default value, all PoE Schedule Profile functions are disabled

Please use mouse to click on the block about what time you want to supply power for PoE port.

PoE -> NTP Setting

This section provide the NTP Configuration of PoE Switch



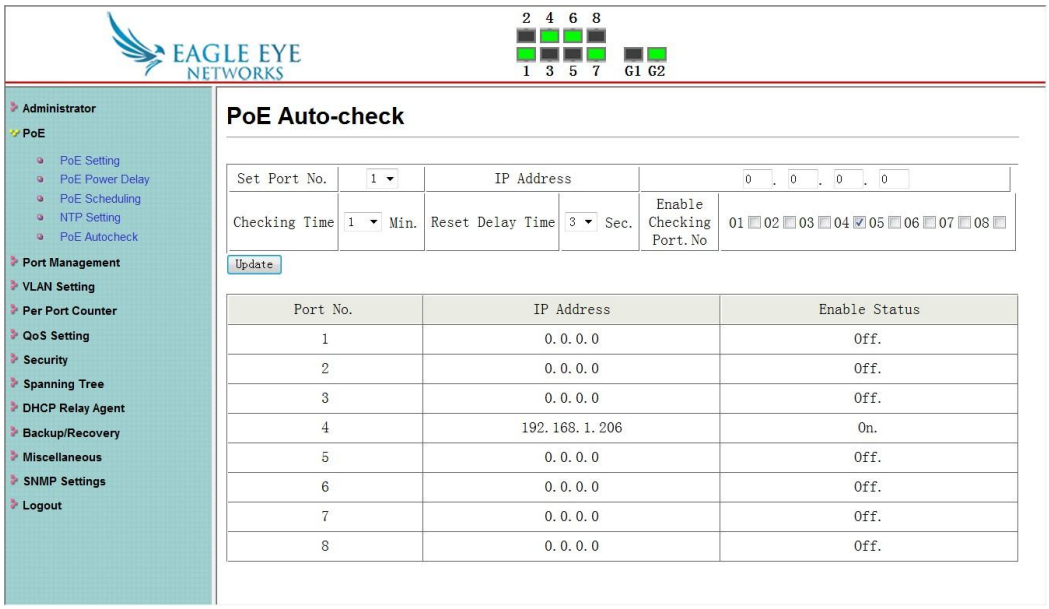
System Time: Display current time information

NTP Server: Allow assign #1 or #2 NTP server IP address manually

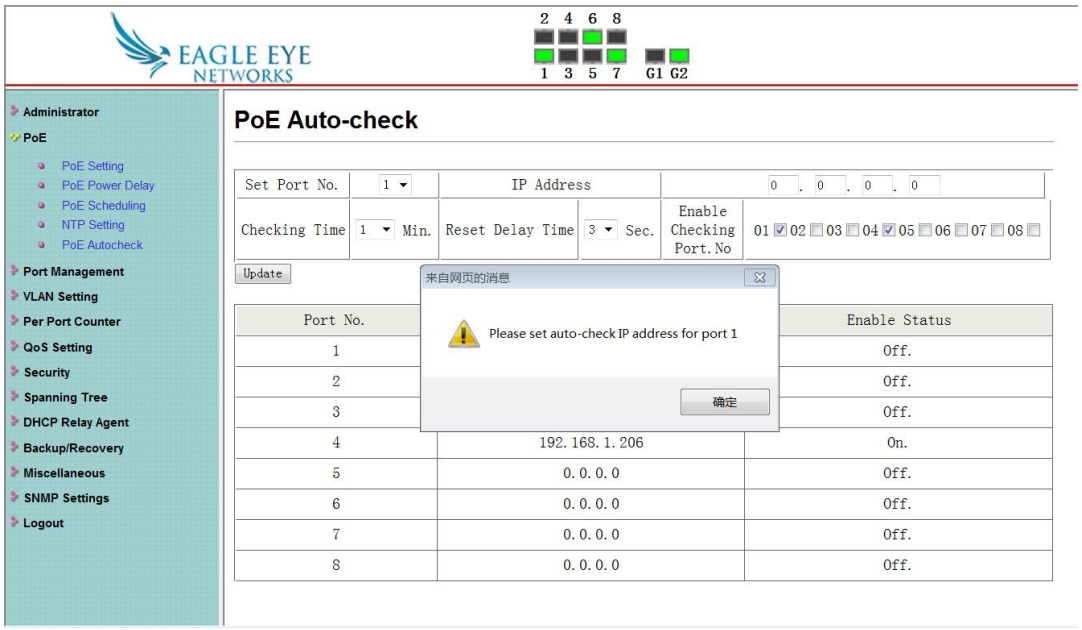
Time Zone: Allow select the time zone according to current location

PoE -> PoE Auto-check

The PoE Switch can be configured to monitor connected PD's status in real-time via ping action. Once the PD stops working and without response, the PoE Switch is going to restart PoE port power, and bring the PD back to work. It will greatly enhance the reliability and reduces administrator management burden.If you do not fill in autoping address, will have the following tips.



If the address is not filled, there will be web tips



Set Port No.: Select the port wich you want to set IP Address

IP Address: Allow assign IP address which you want to monitor

Checking Time: Select checking time ping action (1-10Min)

Reset Delay Time: Select PD Reset time (1-3Seconds)

Enable Checking Port. No: Select the port which you want to enable PoE Auto-check

----------The end----------

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