24/16 Giga+4*100/1000Mbps SFP Ports Smart Managed Switch

User Manual

FCC Certifications

This Equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received; including interference that may cause undesired operation.

CE Mark Warning

This equipment complies with the requirements relating to the EMC Directive 2004/108/EC and 2014/30/EU, the Low Voltage Directive 2006/95/EC and 2014/35/EU, and the RoHS Directive 2011/65/EU.

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Table of Contents

Chapter 1 Introduction 6
1.1 General Description 6
1.2 Key Features 6
1.3 The Front Panel 7
LEDs Definition 7
The Reset Button 7
Console Port 7
1.4 The Rear Panel 8
Power Receptacle 8
1.5 Installation 8
Unpacking Information 8
Rack-mount Installation 8
Installing Network Cables 9
Chapter 2 Getting Started 10
2.1 Web-based Management Interface (Web UI) 10
2.2 Connect to switch Web Pages 10
2.3 Graphic User Interface Overview 11
Chapter 3 Status 13
3.1 System Information 13
3.2 Logging Message 14
3.3 Port 15
3.3.1 Statistics 15
3.3.2 Bandwidth Utilization 17
3.4 Link Aggregation 18
3.5 MAC Address Table 19
Chapter 4 Network 20
4.1 IP Address 20
4.2 System Time 22
Chapter 5 Port 24
5.1 Port Setting 24
5.2 Link Aggregation 25
5.2.1 Trunk Group Setting 25
5.2.2 Port Setting 27
5.2.3 LACP 28
5.3 EEE 30
5.3 Jumbo Frame 31
Chapter 6 VLAN 31
6.1 VLAN 31

6.1.1 Create VLAN 32
6.1.2 VLAN Configuration 33
6.1.3 Membership 34
6.1.4 Port Setting 35
6.2 Voice VLAN 36
6.2.1 Property 36
6.2.2 Voice OUI 38
Chapter 7 MAC Address Table 39
7.1 Dynamic Address 39
7.2 Static Address 39
Chapter 8 Spanning Tree Protocol (STP) 40
8.1 Property 40
8.2 Port Setting 41
8.3 Statistics 43
Chapter 9 Discovery 44
9.1 LLDP 44
9.1.1 Property 44
9.1.2 Port Setting 45
9.1.3 Packet View 47
9.1.4 Local Information 48
9.1.5 Neighbor 49
9.1.6 Statistics 50
Chapter 10 Multicast 52
10.1 General 52
10.1.1 Property 52
10.1.2 Group Address 53
10.1.3 Router Port 54
10.2 IGMP Snooping 55
10.2.1 Property 55
10.2.2 Querier 57
10.2.3 Statistics 58
Chapter 11 Security 60
11.1 Management Access 60
11.1.1 Management VLAN 60
11.1.2 Management Service 61
11.2 Protected Port 62
11.3 Storm Control 63
11.4 DoS 64
11.4.1 Property 64
11.4.2 Port Setting 66

Chapter 12 QoS 67
12.1 General 67
12.1.1 Property 67
12.1.2 Queue Scheduling 69
12.1.3 CoS Mapping 70
12.1.4 DSCP Mapping 71
12.1.5 IP Precedence Mapping 72
12.2 Rate Limit 74
12.2.1 Ingress/Egress Port 74
12.2.2 Egress Queue 75
Chapter 13 Diagnostics 77
13.1 Logging 77
13.1.1 Property 77
13.1.2 Remove Server 78
13.2 Mirroring 79
13.2 Ping 80
13.3 Copper Test 81
Chapter 14 Management 82
14.1 User Account 82
14.2 Firmware 83
14.2.1 Upgrade/Backup 83
14.3 Configuration 84
14.3.1 Upgrade/Backup 84
14.3.2 Save Configuration 87
14.4 SNMP 88
14.4.1 Community 88
14.4.2 Trap Event 88
14.4.3 Notification 89
Product Specifications 90

Chapter 1 Introduction

1.1 General Description

The Gigabit Smart Managed Switch is equipped with 24/16 gigabit RJ45 ports and 4 SFP slots. The switch supports high performance, enterprise-level security control & QoS Layer 2 management features. It is a cost-effective product solution for the small and medium business.

The switch supports the WebGUI to control each port status and bandwidth control by port rate limiting. The Storm Control feature protects against Broadcast, Multicast and Unicast Storm. The rich Quality of Service (QoS) & VLAN provides enhanced traffic management capabilities to move your data smoother and faster. The device supports a complete lineup of layer 2 features, including 802.1Q tag VLAN, Port Isolation, Port Mirroring, STP/RSTP, Link Aggregation Group and 802.3x Flow Control function. It also supports SNMP management functions.

The switch complies with IEEE802.3az Energy Efficient Ethernet to save power consumption, Support IGMP Snooping function to improve traffic performance. Moreover, the rich diagnostic LEDs on the front-panel provide the operating status of individual port and whole system.

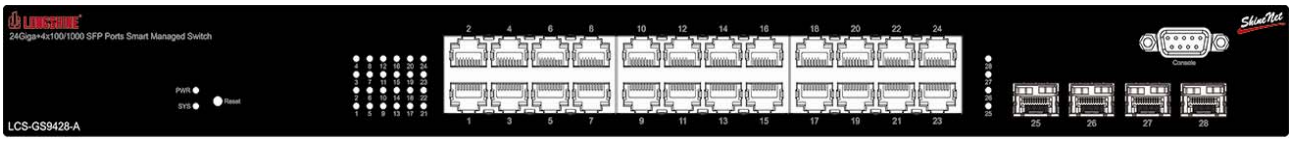
1.2 Key Features

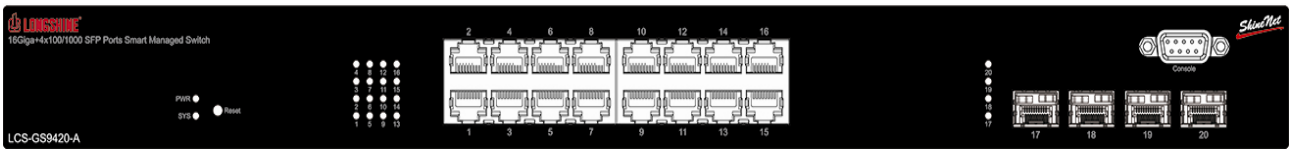
- 24/16 * RJ-45 ports for 10/100/1000Mbps connectivity
- 4* SFP ports for 100/1000Mbps Fiber connectivity
- Supports MDI/MDI-X auto crossover
- Supports NWay protocol and auto-detection
- Complies with IEEE802.3, 802.3u, 802.3ab Ethernet standards
- Supports IEEE802.3x Flow Control and Back-Pressure control
- Supports STP & RSTP
- Supports LLDP Discovery
- Supports VLAN : Static, Port Based, Tag Based, Voice OUI mode
- Supports QoS : CoS, DSCP, CoS-DSCP, IP Precedence
- Supports Security : Management Service (Telnet, HTTP, HTTPS, SNMP), Protected Port, Storm Control, DoS attack prevention
- Supports Storm Filter (Broadcast, Unknown Multicast, Unknown Unicast)
- Supports port based Ingress/Egress rate limit
- Supports 8 queues is handled SP and WRR
- Supports Jumbo Frame : 1518~10K Bytes
- Supports 8 Link Aggregation Groups with Static & LACP types
- Support port mirroring, Ping Testing, Copper Testing
- Supports SNMP access control & trap event
- Supports IGMP Snooping v2/v3
- Supports IEEE802.3az EEE enable and disable
- Supports Firmware upgrade and backup

- Supports Configuration upgrade and backup
- Full Range of Internal universal switching power supply
- Supports Reset to factory default button

1.3 The Front Panel

The following figure shows the front panel of the switch.





LEDs Definition

This device provides extensive LEDs to show the activities on power, system and ports.
See the following description for your reference:

LED	Status	Operation
POWER	Steady Green	The switch is powered on.
	Off	The switch is powered off.
SYSTEM	Steady Green	The switch is on and functioning properly
	Blinking Green	The switch is rebooting and performing self-diagnostic tests.
	Off	The power is off or the system is not ready/malfunctioning.
Link/ACT	Steady Green	Valid port connection;.
	Blinking Green	Valid port connection and there is data transmitting/receiving
	Off	Port disconnected.

The Reset Button

Reset the switch to its factory default configuration via the RESET button. Press the RESET button for five seconds more and release. The switch automatically reboots and reloads its factory configuration file. Press the RESET button for two seconds and release, the switch will warm boot for hardware reset. The RESET button is on the front panel of the switch.

Console Port

This port is reserved for command-line interface (CLI) and RS232 firmware upgrade to use.

1.4 The Rear Panel

The following figure shows the rear panel of the switch:

Power Receptacle

To be compatible with the electric service standards around the world, the switch is designed to afford the power supply in the range from 100 to 240 VAC, 50/60 Hz. Please make sure that your outlet standard to be within this range.

To power on the switch, please plug the female end of the power cord firmly into the receptacle of the switch, the other end into an electric service outlet. After the switch powered on, please check if the power LED is lit for a normal power status.

1.5 Installation

Unpacking Information

The product package should include the following:

- One 24G/16G+4SFP Gigabit Ethernet Smart Managed Switch
- One power cord
- Rubber foot and screws
- Rack-mount brackets
- One CD-ROM for user manual

Rack-mount Installation

Rack Mounting the Switch in the 19-inch rack:

- Disconnect all cables from the switch before continuing.
- Place the unit the right way up on a hard, flat surface with the front facing toward you.
- Locate a mounting bracket over the mounting holes on one side of the unit.
- Insert the screws and fully tighten with a suitable screwdriver.
- Repeat the two previous steps for the other side of the unit.
- Insert the unit into the 19" rack and secure with suitable screws (not provided).
- Reconnect all cables.

Installing Network Cables

To make a valid connection and obtain the optimal performance, an appropriate cable that corresponds to different transmitting/receiving speed is required. To choose a suitable cable, please refer to the following table.

Media	Speed	Wiring
Network Media(Cable)	10 Mbps	10Base-T: UTP category 3, 4, 5 cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m)
	100 Mbps	100Base-TX: UTP category 5, 5e cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m)
	1000 Mbps	1000Base-T: UTP category 5e, 6 cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m)

Chapter 2 Getting Started

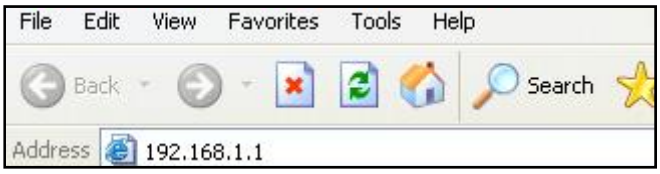
2.1 Web-based Management Interface (Web UI)

The Web UI supports all frequently used web browsers listed below:

- Internet Explorer 8 and above
- Firefox 20.0 and above
- Chrome 23.0 and above
- Safari 5.1.7 and above

2.2 Connect to switch Web Pages

1. To connect to the web server, input the IP of switch in the URL field of the browser.
2. The default IP is 192.168.1.1 and default Subnet mask is 255.255.255.0
3. Type “http://”and the IP address of the switch (for example, the default management IP address is 192.168.1.1) in the Location or Address field. Press **Enter.**

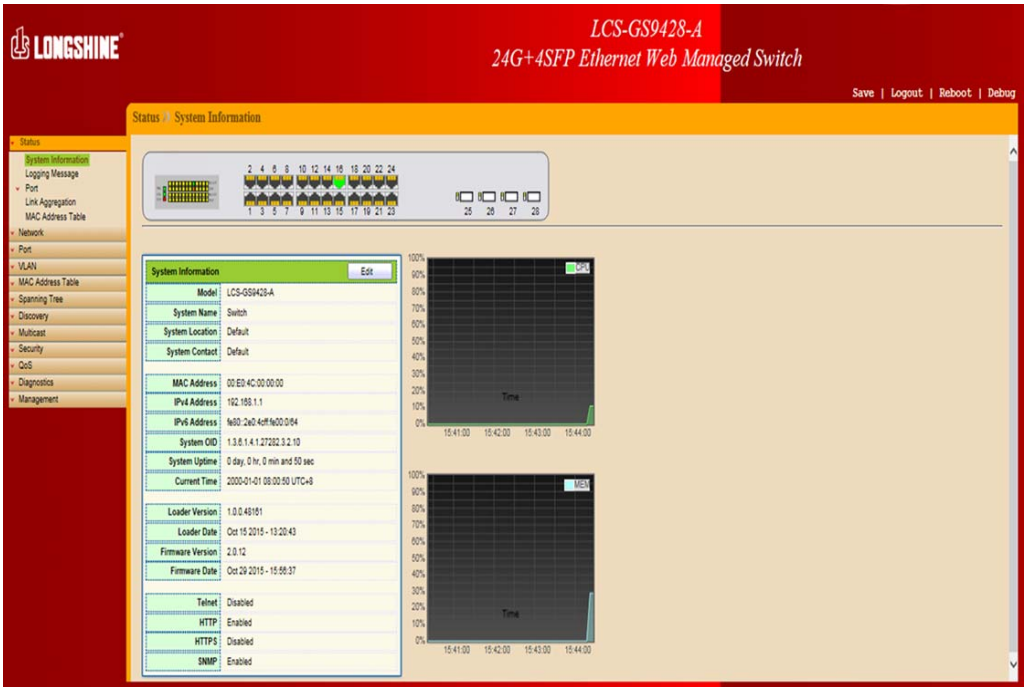


4. The login screen appears. Enter the User Name and Password to login the configuration interface. They are both **admin** by default. You can select **Remember my password** to remember the User Name and Password.

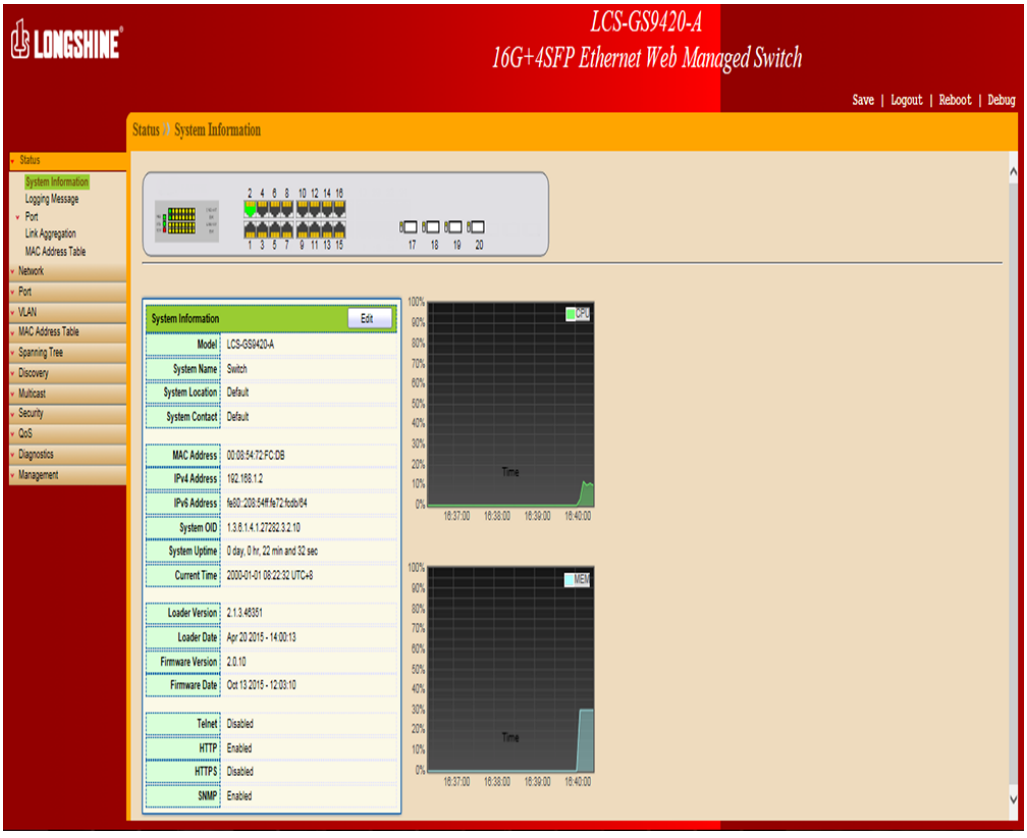
2.3 Graphic User Interface Overview

After the password authorization, the information page shows up. You may click on each folder on the left column of each page to get access to each configuration page. The Graphic User Interface is as follows:

24G+4SFP



16G+4SFP



In the navigation panel, click a main link to reveal a list of submenu links shown as the following:

The following table describes the links in the navigation panel.

LINKS	Submenu
Status	System Information. Logging Message Port – Statistics, Bandwidth Utilization Link Aggregation MAC Address Table
Network	IP Address System Time
Port	Port Setting Link Aggregation – Group, Port Setting, LACP EEE Jumbo Frame
VLAN	VLAN - Create VLAN, VLAN Configuration, Membership, Port Setting Voice VLAN - Property, Voice OUI
MAC Address Table	Dynamic Address Static Address
Spanning Tree	Property Port Setting Statistics
Discovery (LLDP)	Property Port Setting Packet View Local Information Neighbor Statistics
Multicast	General – Property, Group Address, Router Port IGMP Snooping – Property, Querier, Statistics
Security	Management Access – Management VLAN, Management Service Protected Port Storm Control DoS – Property, Port Setting
QoS	General – Property, Queue Scheduling, CoS Mapping, DSCP Mapping, IP Precedence Mapping Rate Limit – Ingress/Egress Port, Egress Queue
Diagnostics	Logging – Property, Remove Server Mirroring Ping Copper Test
Management	User Account Firmware – Upgrade/Backup Active Image Configuration – Upgrade/Backup, Save Configuration, Notification

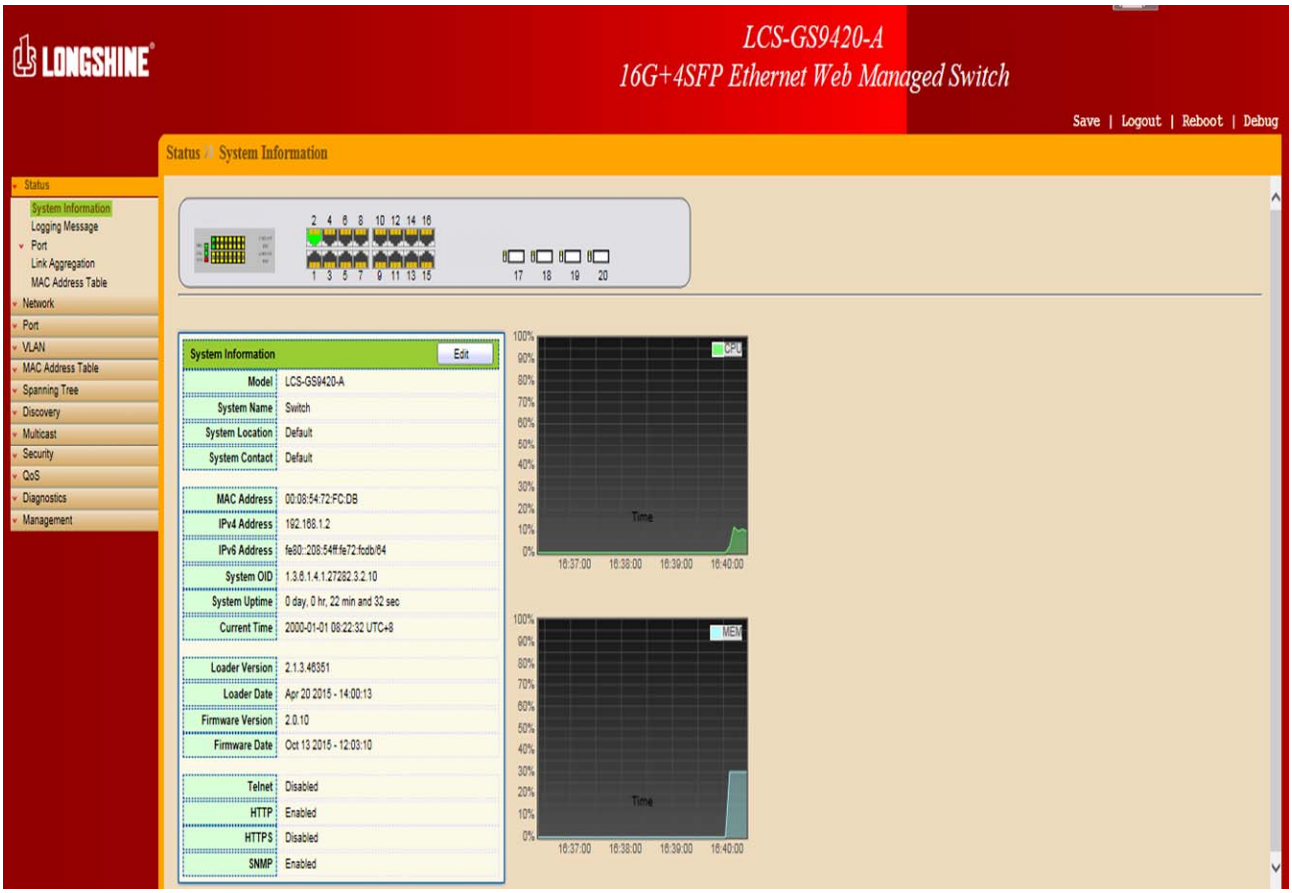
Chapter 3 Status

Use the Status pages to view system information and status.

3.1 System Information

Click **Status** > **System Information**

This page shows switch panel, CPU utilization, Memory utilization and other system current information. It also allows user to edit some system information.



Field	Description
Model	Model name of the switch
System Name	System name of the switch. This name will also use as CLI prefix of each line
System Location	Location information of the switch
System Contact	Contact information of the switch
MAC Address	Base MAC address of the switch
IPv4 Address	Current system IPv4 address
IPv6 Address	Current system IPv6 address
System OID	SNMP system object ID

System Uptime	Total elapsed time from booting
Current Time	Current system time
Loader Version	Boot loader image version
Loader Date	Boot loader image build date
Firmware Version	Current running firmware image version
Firmware Date	Current running firmware image build date
Telnet	Current Telnet service enable/disable state
HTTP	Current HTTP service enable/disable state
HTTPS	Current HTTPS service enable/disable state
SNMP	Current SNMP service enable/disable state

Click “Edit” button on the table title to edit following system information.

Field	Description
System Name	System name of the switch. This name will also use as CLI prefix of each line.
System Location	Location information of the switch.
System Contact	Contact information of the switch.

3.2 Logging Message

Click **Status** > **Logging Message**

This page shows logging messages stored on the RAM and Flash.

Field	Description
Viewing	The logging view including : **RAM** : Show the logging messages stored on the RAM **Flash** : Show the logging messages stored on the Flash.
Clear	Clear the logging messages.
Refresh	Refresh the logging messages.
Log ID	The log identifier.
Time	The time stamp for the logging message.
Severity	The severity for the logging message.
Description	The description of logging message.

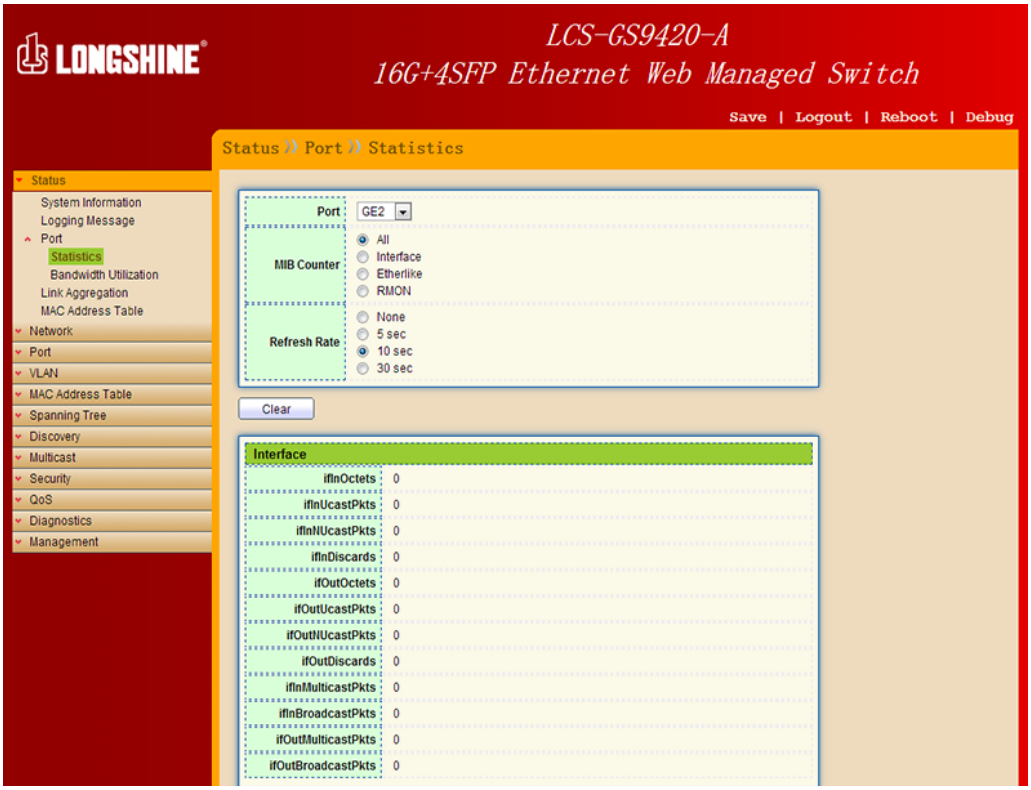
3.3 Port

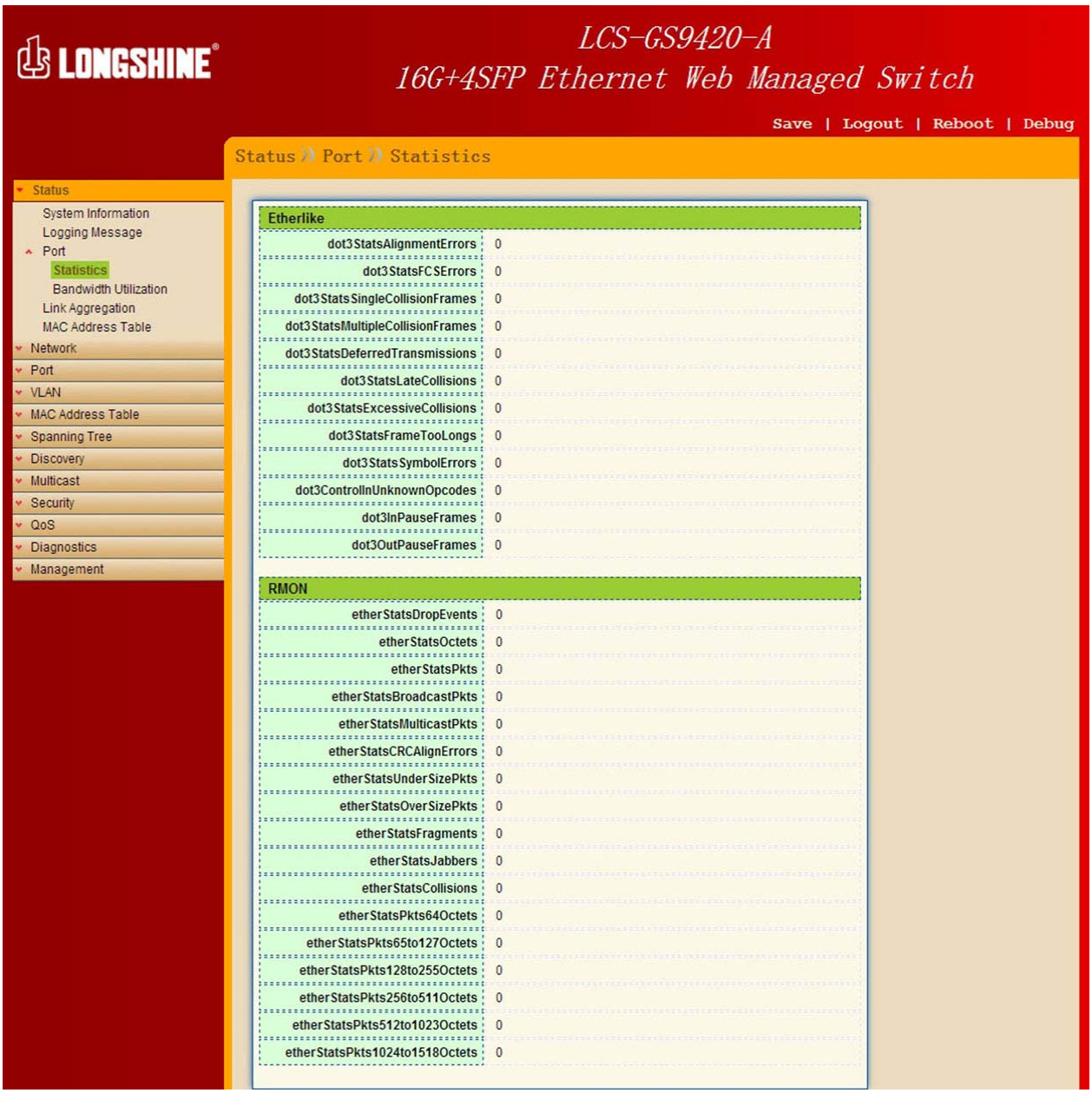
The port configuration page displays port summary and status information.

3.3.1 Statistics

Click **Status** > **Port** > **Statistics**

On this page user can get standard counters on network traffic from the interfaces, Ethernet-like and RMON MIB. Interfaces and Ethernet-like counters display errors on the traffic passing through each port. RMON counters provide a total count of different frame types and sizes passing through each port.





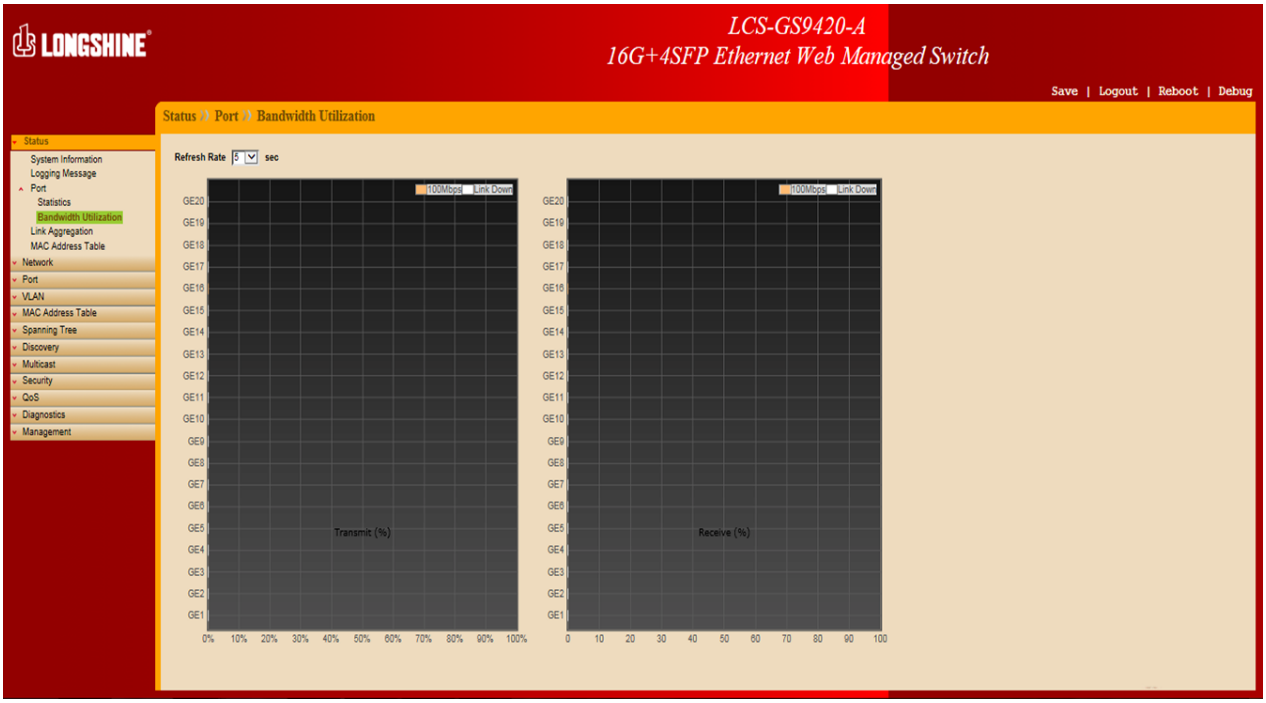
The “Clear” button will clear MIB counter of current selected port.

Field	Description
Port	Select one port to show counter statistics.
MIB Counter	Select the MIB counter to show different count type **All** : All counters. **Interface** : Interface related MIB counters **Etherlike** : Ethernet-like related MIB counters **RMON** : RMON related MIB counters
Refresh Rate	Refresh the web page every period of seconds to get new counter of specified port.

3.3.2 Bandwidth Utilization

Click **Status** > **Port** > **Bandwidth Utilization**

This page allow user to browse ports' bandwidth utilization in real time. This page will refresh automatically in every refresh period.

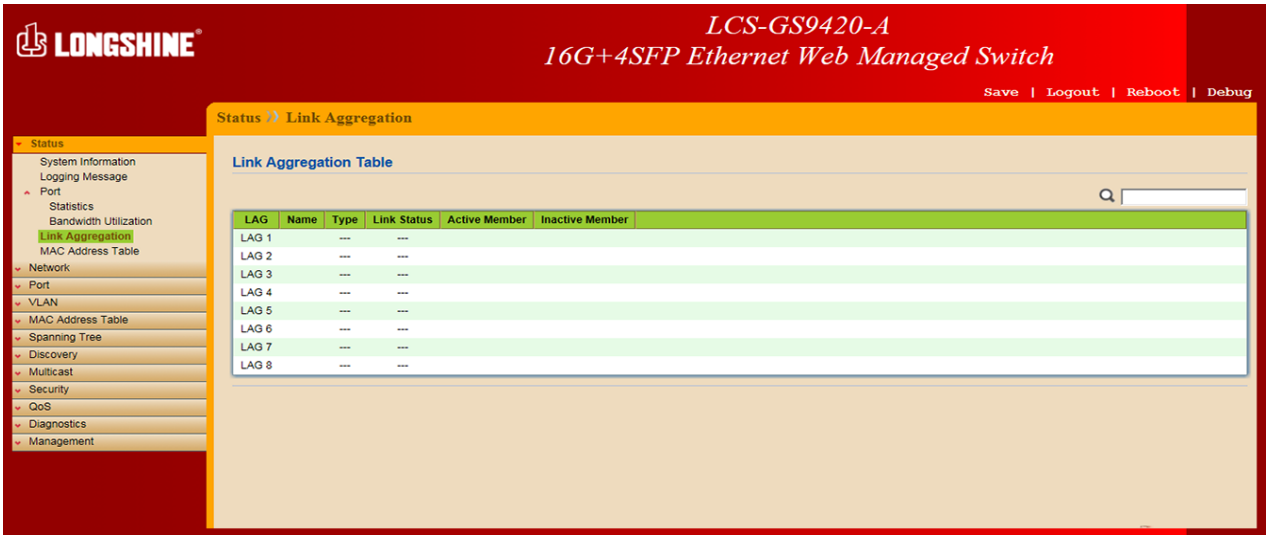


Field	Description
Refresh Rate	Refresh the web page every period of second to get new bandwidth utilization data.

3.4 Link Aggregation

Click **Status** > **Link Aggregation**

Display the Link Aggregation status of web page.

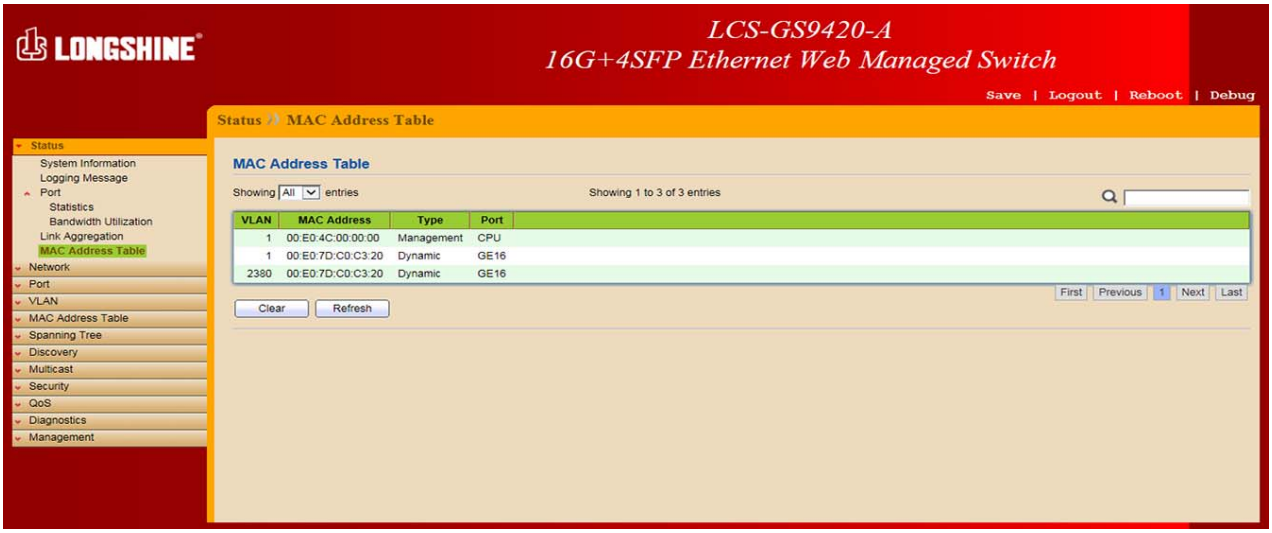


Field	Description
Lag	LAG Name.
Name	LAG port description
Type	The type of the LAG **Static** : The group of ports assigned to a static LAG are always active members. **LACP** : The group of ports assigned to dynamic LAG are candidate ports. LACP determines which candidate ports are active member ports.
Link Status	LAG port link status
Active Member	Active member ports of the LAG
Inactive Member	Inactive member ports of the LAG

3.5 MAC Address Table

Click **Status** > **MAC Address Table**

The MAC address table page displays all MAC address entries on the switch including static MAC address created by administrator or auto learned from hardware.



The “Clear” button will clear all dynamic entries and “Refresh” button will retrieve latest MAC address entries and show them on page.

Field	Description
VLAN	VLAN ID of the MAC address.
MAC Address	MAC address
Type	The type of MAC address **Management** : DUT’s base MAC address for management purpose. **Static** : Manually configured by administrator. **Dynamic** : Auto learned by hardware.
Port	The type of port **CPU** : DUT’s CPU port for management purpose **Other** : Normal switch port

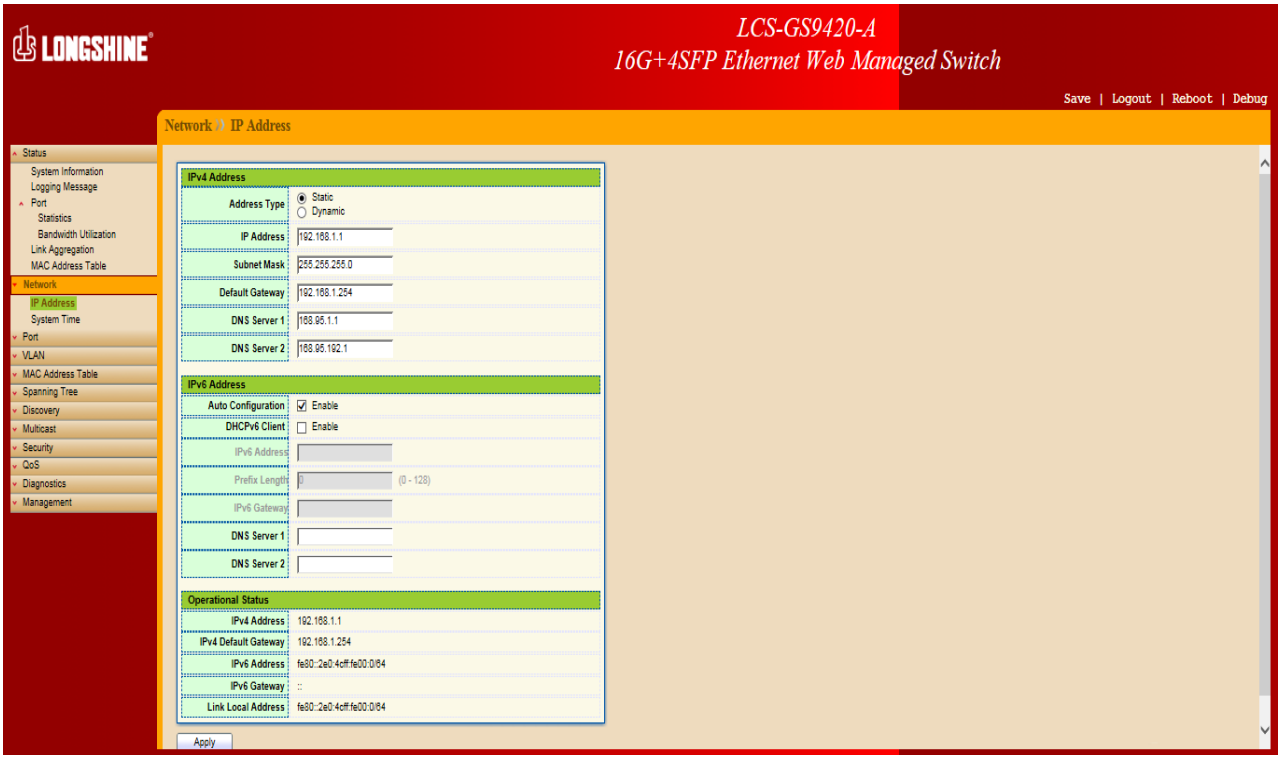
Chapter 4 Network

Use the Network pages to configure settings for the switch network interface and how the switch connects to a remote server to get services.

4.1 IP Address

Click **Network** > **IP Address**

Use the IP Setting screen to configure the switch IP address and the default gateway device. The gateway field specifies the IP address of the gateway (next hop) for outgoing traffic.
The switch needs an IP address for it to be managed over the network. The factory default IP address is 192.168.1.1. The subnet mask specifies the network number portion of an IP address. The factory default subnet mask is 255.255.255.0.



Field	Description
IPv4 Address Field	
Address Type	Select the address type of IP configuration ■ **Static**: Static IP configured by users will be used. ■ **Dynamic**: Enable DHCP to obtain IP information from a DHCP server on the network.
IP Address	Enter the IP address of your switch in dotted decimal notation for example 192.168.1.1. If static mode is enabled, enter IP address in this field.
Subnet Mask	Enter the IP subnet mask of your switch in dotted decimal notation for example 255.255.255.0. If static mode is enabled, enter subnet mask in this field.
Default Gateway	Specify the default gateway on the static configuration. The default gateway must be in the same subnet with switch IP address configuration
DNS Server 1	If static mode is enabled, enter primary DNS server address in this field.
DNS Server 2	If static mode is enabled, enter secondary DNS server address in this field.
IPv6 Address Field	
Auto Configuration	Select **Enable** or **Disable** the IPv6 auto configuration..
DHCPv6 Client	DHCPv6 client state. ■ **Enable**: Enable DHCPv6 client function. ■ **Disable**: Disable DHCPv6 client function
IPv6 Address	Specify the IPv6 address, when the IPv6 auto configuration and DHCPv6 client are disabled.
IPv6 Prefix	Specify the prefix for the IPv6 address, when the IPv6 auto configuration and DHCPv6 client are disabled.
Gateway	Specify the IPv6 default gateway, when the IPv6 auto configuration and DHCPv6 client are disabled.
DNS Server 1	Specify the primary user-defined IPv6 DNS server configuration.
DNS Server 2	Specify the secondary user-defined IPv6 DNS server configuration.
Operational Status	
IPv4 Address	The operational IPv4 address of the switch.
IPv4 Gateway	The operational IPv4 gateway of the switch.
IPv6 Address	The operational IPv6 address of the switch.
IPv6 Gateway	The operational IPv6 gateway of the switch.
Link Local Address	The operational IPv6 link local address for the switch.

4.2 System Time

Click **Network** > **System Time**

This page allow user to set time source, static time, time zone and daylight saving settings. Time zone and daylight saving takes effect both static time or time from SNTP server.

Field	Description
Source	Select the time source ■ **SNTP**: Time sync from NTP server. ■ **From Computer**: Time set from browser host. ■ **Manual Time**: Time set by manually configure.
Time Zone	Select a time zone difference from listing district..
SNTP	
Address Type	Select the address type of NTP server. This is enabled when time source is SNTP.
Server Address	Input IPv4 address or hostname for NTP server. This is enabled when time source is SNTP.
Server Port	Input NTP port for NTP server. Default is 123. This is enabled when time source is SNTP.

Manual Time	
Date	Input manual date. This is enabled when time source is manual.
Time	Input manual time. This is enabled when time source is manual.
Daylight Saving Time	
Type	Select the mode of daylight saving time. **Disable** : Disable daylight saving time. **Recurring** : Using recurring mode of daylight saving time. **Non-Recurring** : Using non-recurring mode of daylight saving time. **USA** : Using daylight saving time in the United States that starts on the second Sunday of March and ends on the first Sunday of November **European** : Using daylight saving time in the Europe that starts on the last Sunday in March and ending on the last Sunday in October.
Offset	Specify the adjust offset of daylight saving time.
Recurring From	Specify the starting time of recurring daylight saving time. This field available when selecting “Recurring” mode.
Recurring To	Specify the ending time of recurring daylight saving time. This field available when selecting “Recurring” mode.
Non-recurring From	Specify the starting time of non-recurring daylight saving time. This field available when selecting “Non-Recurring” mode.
Non-recurrin To	Specify the ending time of non-recurring daylight saving time. This field available when selecting “Non-Recurring” mode.

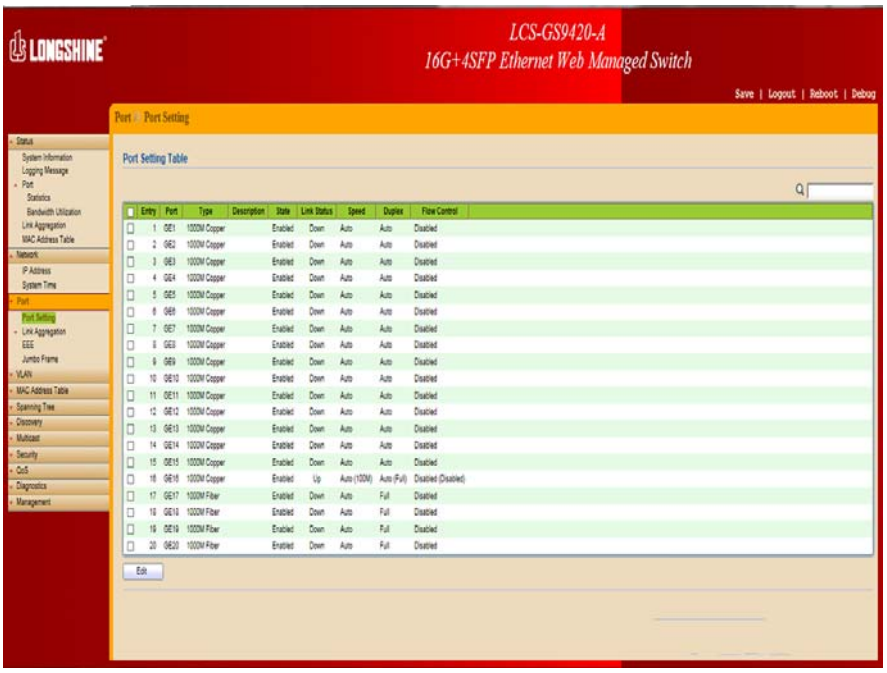
Chapter 5 Port

Use the Port pages to configure settings for the switch port related features.

5.1 Port Setting

Click **Port** > **Port Setting**

This page shows port current status, and allow user to edit port configurations. Select port entry and click “Edit” button to edit port configurations.



Field	Description
Port	Port Name.
Type	Allows you to Enable/Disable the port. When Enable is selected, the port can forward the packets normally.
Description	Port description
State	Port admin state. **Enabled** : Enable the port. **Disabled** : Disable the port.
Link Status	Current port link status **Up** : Port is link up. **Down** : Port is link down.
Speed	Current port speed configuration and link speed status.
Duplex	Current port duplex configuration and link duplex status.
Flow Control	Current port flow control configuration and link flow control status.

Note:

1. The switch can’t be managed through the disable port.
2. The switch might lose connection temporarily for the specific port (which connect to the management PC) setting. If it happens, refresh WEB GUI can recover the connection.

Edit Port Setting

Field	Description
Port	Selected Port list.
Description	Port description
State	Port admin state. Enabled : Enable the port. Disabled : Disable the port.
Link Status	Current port link status Up : Port is link up. Down : Port is link down.
Speed	Select the Port speed/duplex capabilities for the ports you need: ● **Auto:** Auto-negotiation speed/ duplex with all capabilities. ● **Auto-10M:** Auto speed with 10M ability only. ● **Auto-100M:** Auto speed with 100M ability only. ● **Auto-1000M:** Auto speed with 1000M ability only. ● **Auto-10M/100M:** Auto speed with 10M/100M abilities. ● **10M:** Force speed with 10M ability. ● **100M:** Force speed with 100M ability. ● **1000M:** Force speed with 1000M ability
Duplex	Port duplex capabilities ● **Auto:** Auto flow control ability. ● **Enabled:** Enable flow control ability. ● **Disabled:** Disable flow control ability.

5.2 Link Aggregation

Click **Port** > **Link Aggregation**

The Link Aggregation is used to combine a number of ports together to make a single high-bandwidth data path, which can highly extend the bandwidth.

5.2.1 Trunk Group Setting

Click Port >Link Aggregation>Group

This page allow user to configure link aggregation group load balance algorithm and group member.

Field	Description
Load Balance Algorithm	LAG load balance distribution algorithm. Src-dst-mac : Based on MAC address Src-dst-mac-ip : Based on MAC address and IP address
LAG	LAG (Link Aggregation Group) Name.
Name	LAG port description
Type	The type of the LAG. **Static** : The group of ports assigned to a static LAG are always active members. **LACP** : The group of ports assigned to dynamic LAG are candidate ports. LACP determines which candidate ports are active member ports.
Link Status	LAG port link status.
Active Member	Active member ports of the LAG.
Inactive Member	Inactive member ports of the LAG.
Flow Control	Current port flow control configuration and link flow control status.

Select Link Aggregation Table and click “Edit” button to edit LAG setting.

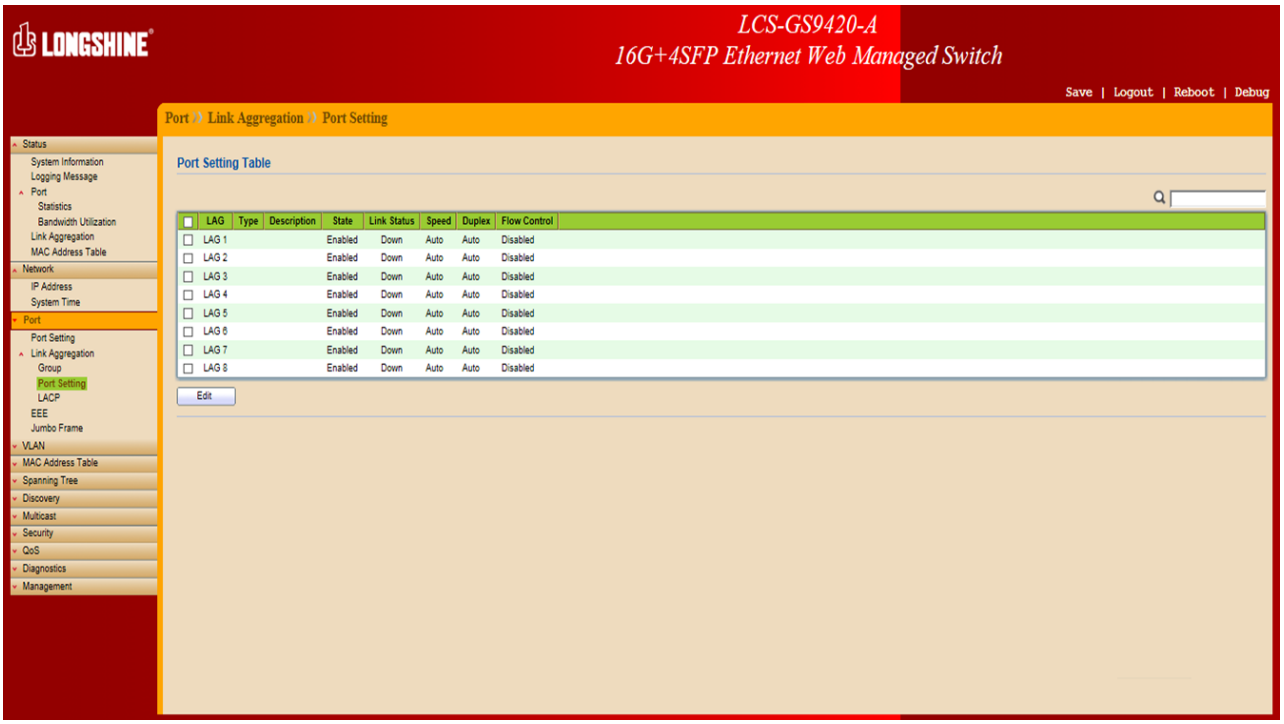
Edit LAG Group Setting

Field	Description
LAG	Selected LAG Group ID
Name	LAG port description
Type	The type of the LAG. **Static** : The group of ports assigned to a static LAG are always active members. **LACP** : The group of ports assigned to dynamic LAG are candidate ports. LACP determines which candidate ports are active member ports.
Member	Select available port to be LAG group member port.

5.2.2 Port Setting

Click Port >Link Aggregation>Port Setting

This page shows LAG port current status and allows user to edit LAG port configurations.



Field	Description
LAG	LAG Port Name
Type	LAG Port media type
Description	LAG port description
State	LAG Port admin state. **Enable** : Enable the port **Disable** : Disable the port
Link Status	Current LAG port link status. **Up** : Port is link up **Down** : Port is link down
Speed	Current LAG port speed configuration and link speed status.
Duplex	Current LAG port duplex configuration and link duplex status.
Flow Control	Current LAG port flow control configuration and link flow control status.

Select Port Setting Table and click “Edit” button to edit port setting.

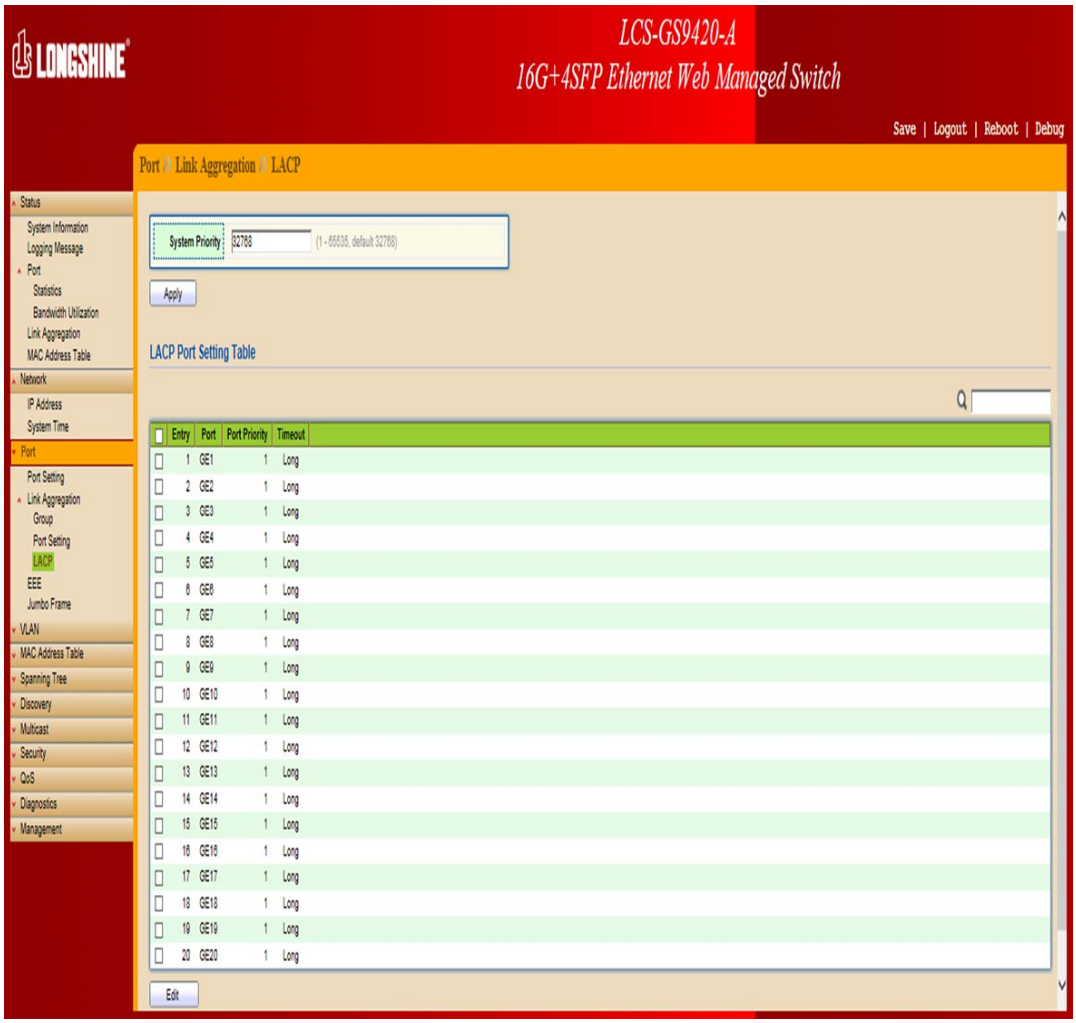
Edit LAG Port Setting

Field	Description
Port	Selected port list
Description	Port description
State	Port admin state **Enable** : Enable the port **Disable** : Disable the port
Speed	Port speed capabilities. ● **Auto:** Auto-negotiation speed/ duplex with all capabilities. ● **Auto-10M:** Auto speed with 10M ability only. ● **Auto-100M:** Auto speed with 100M ability only. ● **Auto-1000M:** Auto speed with 1000M ability only. ● **Auto-10M/100M:** Auto speed with 10M/100M abilities. ● **10M:** Force speed with 10M ability. ● **100M:** Force speed with 100M ability. ● **1000M:** Force speed with 1000M ability
Flow Control	Port flow control. ● **Auto:** Auto flow control by negotiation. ● **Enabled:** Enable flow control ability. ● **Disabled:** Disable flow control ability.

5.2.3 LACP

Click Port >Link Aggregation>LACP

This page allow user to configure LACP global and port configurations.



Field	Description
System Priority	Configure the system priority of LACP. This decides the system priority field in LACP PDU.
Port	Port Name.
Port Priority	LACP priority value of the port.
Timeout	The periodic transmissions type of LACP PDUs. **Long** : Transmit LACP PDU with slow periodic (30s). **Short** : Transmit LACP PDU with fast periodic (1s).

Select ports and click “Edit” button to edit port configuration.

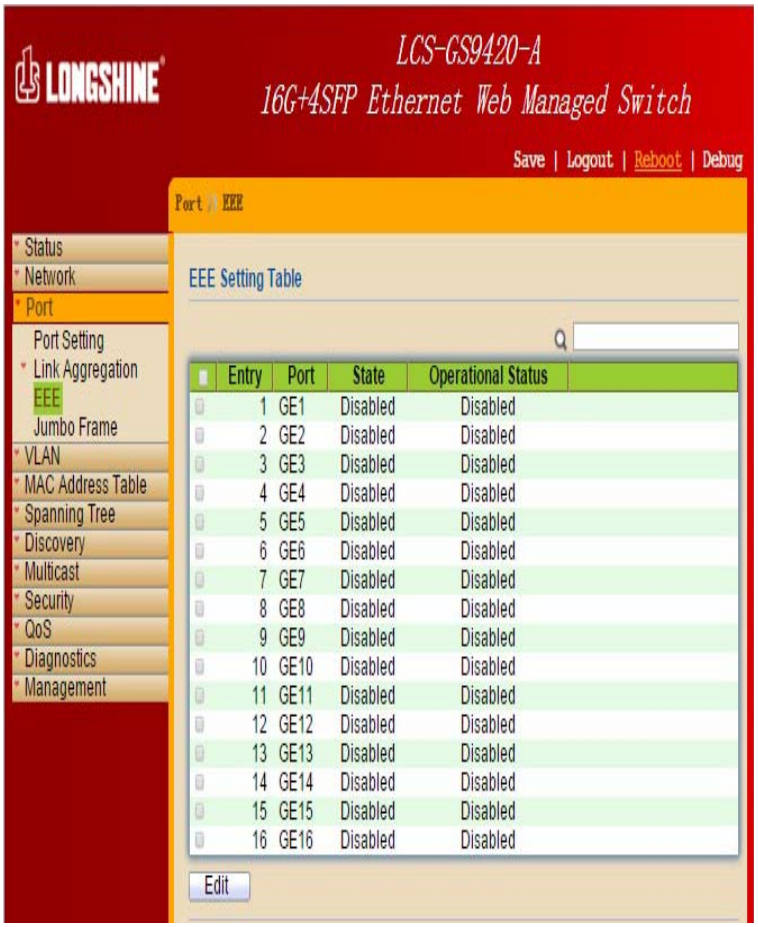
Edit LACP Port Setting

Field	Description
Port	Selected port list.
Port Priority	Enter the LACP priority value of the port.
Timeout	The periodic transmissions type of LACP PDUs. **Long** : Transmit LACP PDU with slow periodic (30s). **Short** : Transmit LACP PDU with fast periodic (1s).

5.3 EEE

Click **Port** > **EEE**

This page allows user to enable or disable EEE (Energy Efficient Ethernet) function.



Field	Description
Port	Port Name.
State	Port EEE admin state. **Enable** : EEE is enabled **Disable** : EEE is disabled.
Operational Status	Port EEE operational status. **Enable** : EEE is operating **Disable** : EEE is no operating

Select EEE and click “Edit” button to edit EEE configuration.

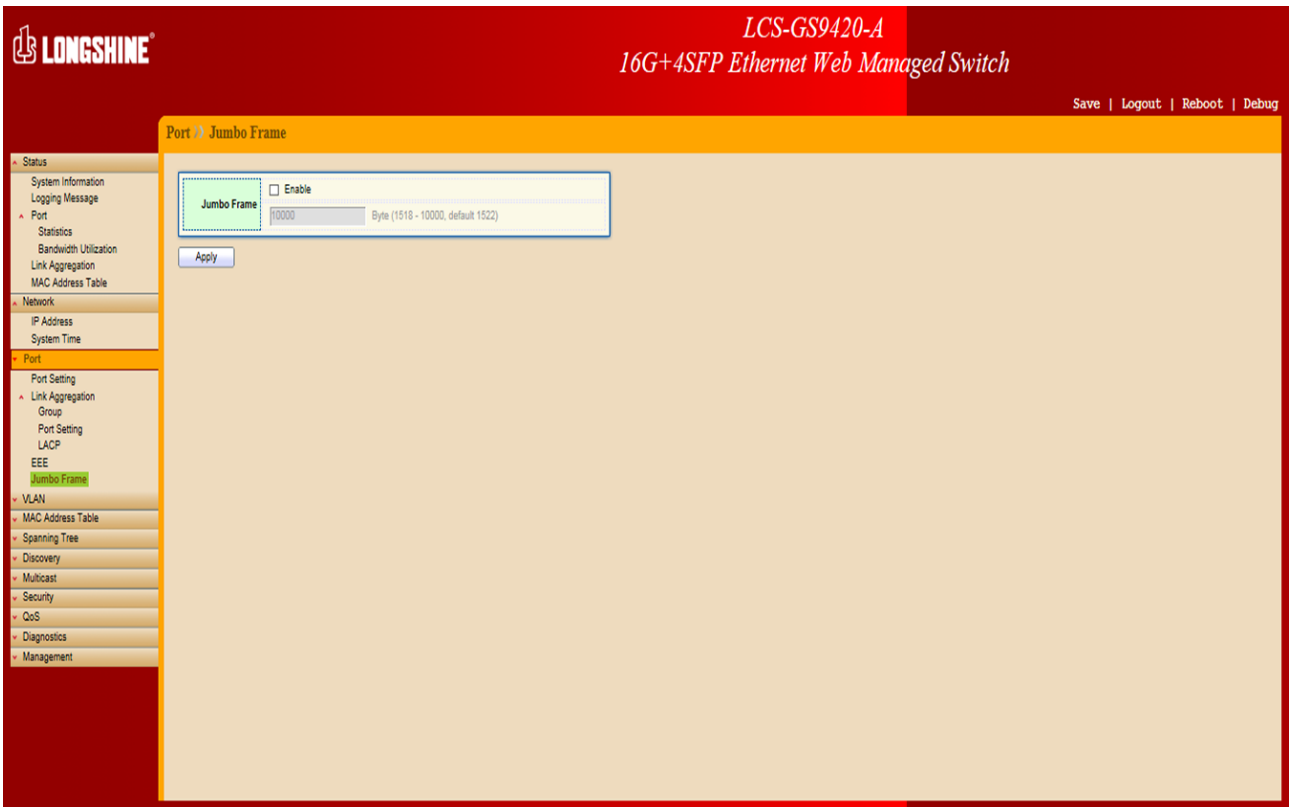
Edit EEE Setting

Field	Description
Port	Selected port list.
State	Port EEE admin state. **Enable** : Enable EEE **Disable** : Disabled EEE.

5.3 Jumbo Frame

Click **Port** > **Jumbo Frame**

This page allows user to configure switch jumbo frame size.



Field	Description
Jumbo Frame	Enable or Disable jumbo frame. When jumbo frame is enabled, switch max frame size is allowed to configure. (from 1518 to 10000) When jumbo frame is disabled, default frame size 1522 will be used.

Chapter 6 VLAN

A virtual local area network (VLAN) is a group of hosts with a common set of requirements that communicate as if they were attached to the same broadcast domain, regardless of their physical location. A VLAN has the same attributes as a physical local area network (LAN), but it allows for end stations to be grouped together even if they are not located on the same network switch. VLAN membership can configured through software instead of physically relocating devices or connections.

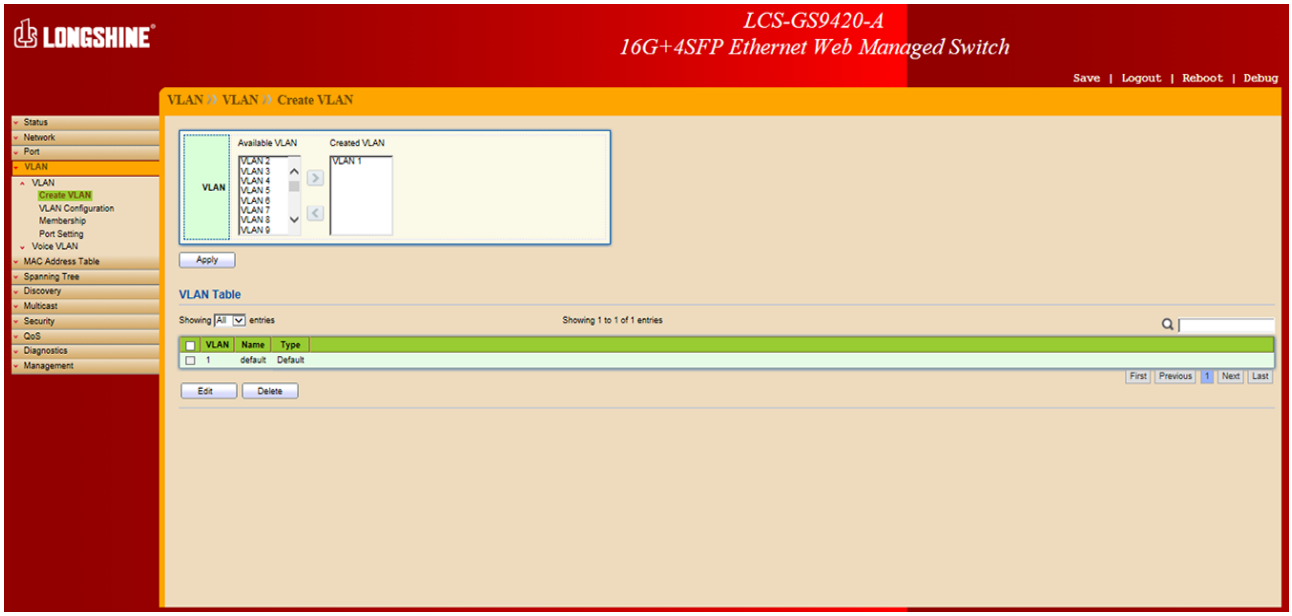
6.1 VLAN

Use the VLAN pages to configure settings of VLAN and all VLAN-related protocol.

6.1.1 Create VLAN

Click **VLAN** > **VLAN** > **Create VLAN**

This page allows user to add or delete VLAN ID entries and browser all VLAN entries that add statically or dynamic learned by GVRP. Each VLAN entry has a unique name, user can edit VLAN name in edit page.



Field	Description
Available VLAN	VLAN has not created yet. Select available VLANs from left box then move to right box to add.
Created VLAN	VLAN had been created. Select created VLANs from right box then move to left box to delete.

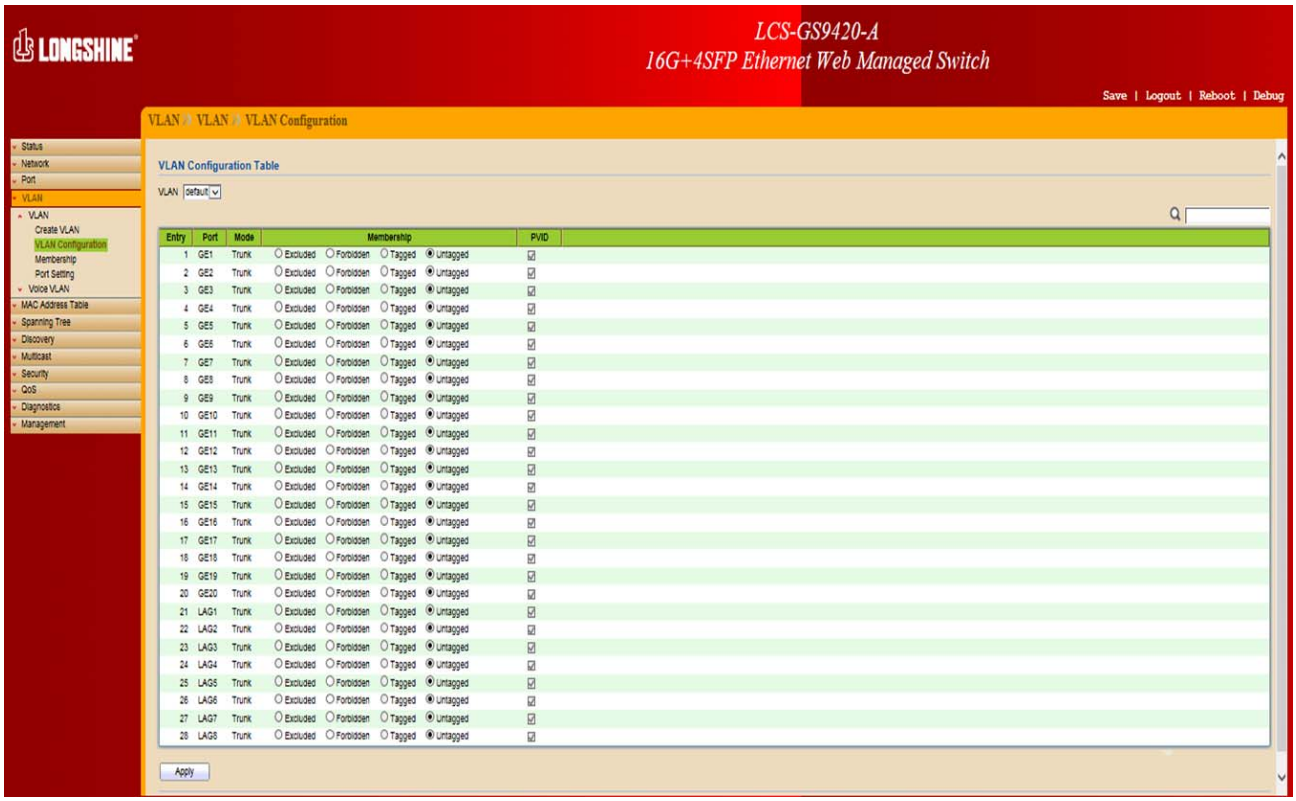
Click “Edit” button to edit VLAN name

Field	Description
Name	Input VLAN name.

6.1.2 VLAN Configuration

Click **VLAN** > **VLAN** > **VLAN Configuration**

This page allow user to configure the membership for each port of selected VLAN.

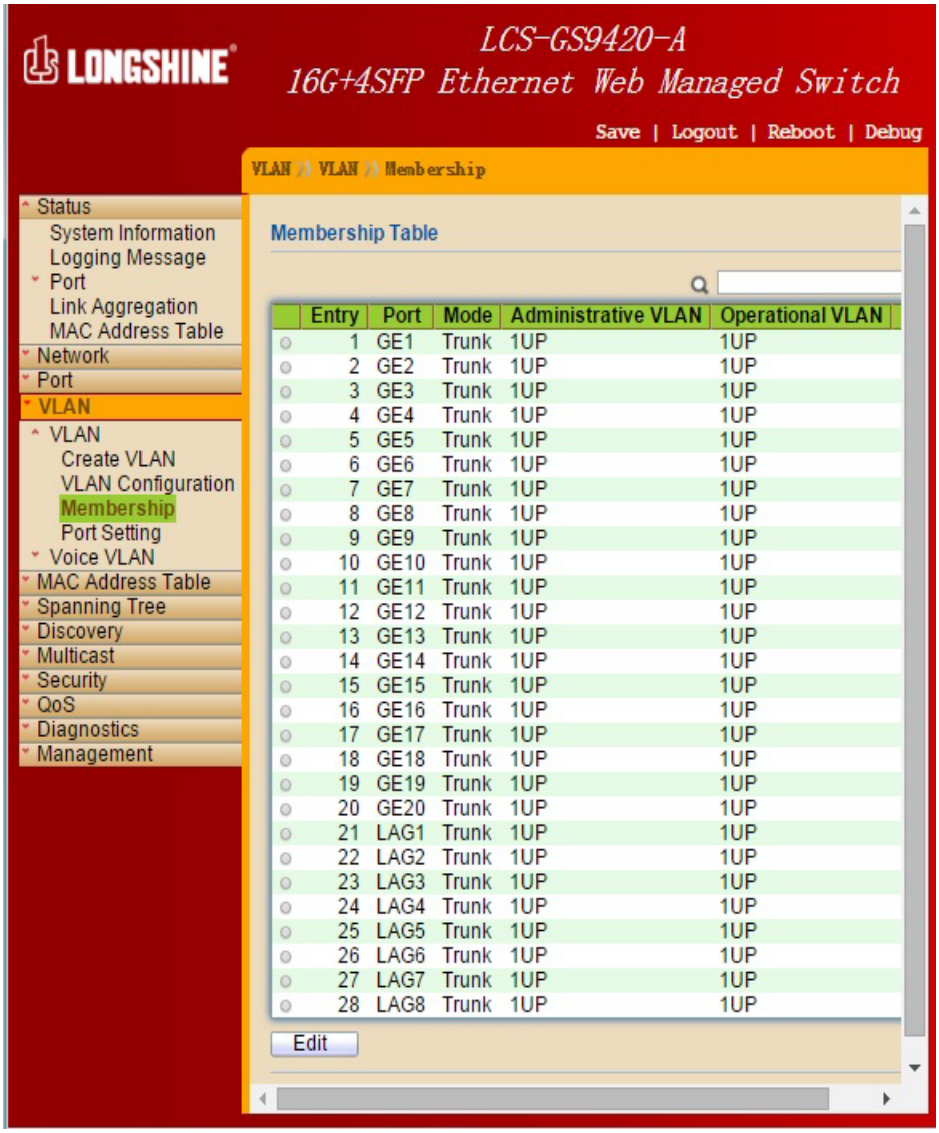


Field	Description
VLAN	Select specified VLAN ID to configure VLAN configuration.
Port	Display the interface of port entry.
Mode	Display the interface VLAN mode of port.
Membership	Select the membership for this port of the specified VLAN ID. **Forbidden** : Specify the port is forbidden in the VLAN. **Excluded** : Specify the port is excluded in the VLAN. **Tagged** : Specify the port is tagged member in the VLAN. **Untagged** : Specify the port is untagged member in the VLAN.
PVID	Display if it is PVID of interface.

6.1.3 Membership

Click **VLAN** > **VLAN** > **Membership**

This page allow user to view membership information for each port and edit membership for specified interface.



Field	Description
Port	Display the interface of port entry.
Mode	Display the interface VLAN mode of port.
Administrative VLAN	Display the administrative VLAN list of this port.
Operational VLAN	Display the operational VLAN list of this port. Operational VLAN means the VLAN status that really runs in device. It may different to administrative VLAN.

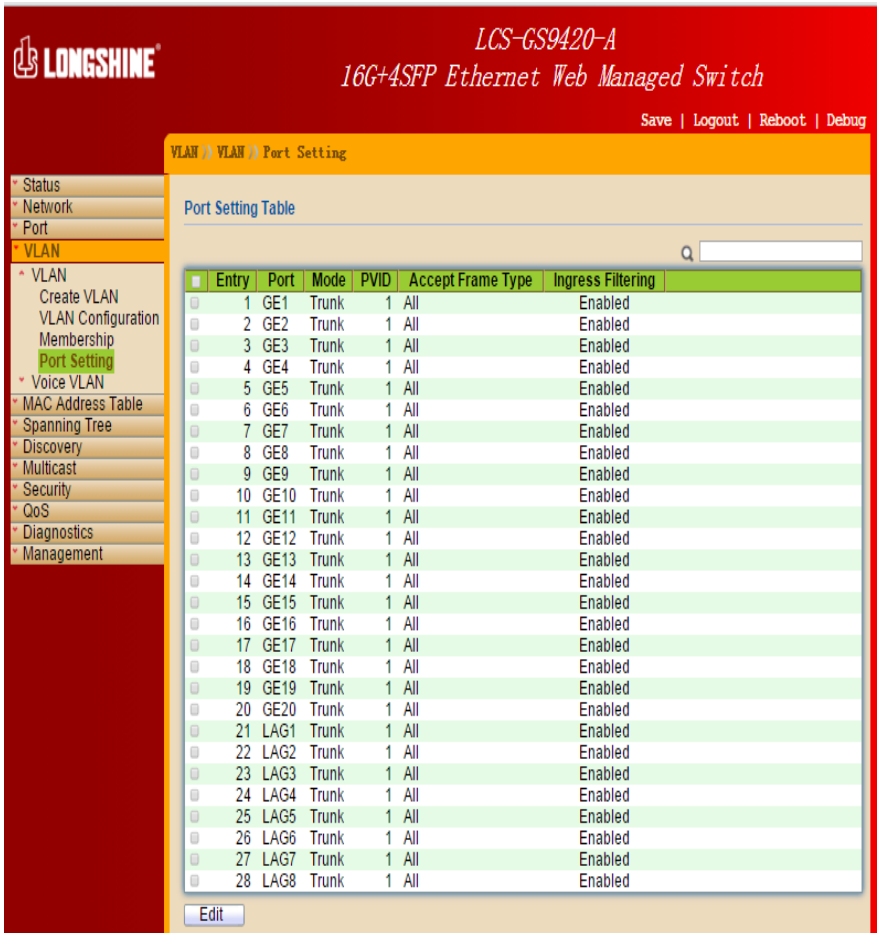
Click “Edit” button to edit VLAN membership.

Field	Description
Port	Display the interface of port entry.
Mode	Display the VLAN mode of interface.
Membership	Select VLANs of left box and select one of following membership then move to right box to add membership. Select VLANs of right box then move to left box to remove membership. Tagging membership may not choose in differ VLAN port mode. **Forbidden** : Set VLAN as forbidden VLAN. **Excluded** : Set option is always disabled. **Tagged** : Set VLAN as tagged VLAN. **Untagged** : Set VLAN as untagged VLAN. **PVID** : Check this checkbox to select the VLAN ID to be the port-based VLAN ID for this port. PVID may auto select or can’t select in differ settings.

6.1.4 Port Setting

Click **VLAN** > **VLAN** > **Port Setting**

This page allow user to configure port VLAN settings such as VLAN port mode, PVID etc… The attributes depend on different VLAN port mode.



Field	Description
Port	Display the interface.
Mode	Display the VLAN mode of port.
PVID	Display the Port-based VLAN ID of port.
Accept Frame Type	Display accepted frame type of port.
Ingress Filtering	Display ingress filter status of port

Click “Edit” button to edit VLAN port setting.

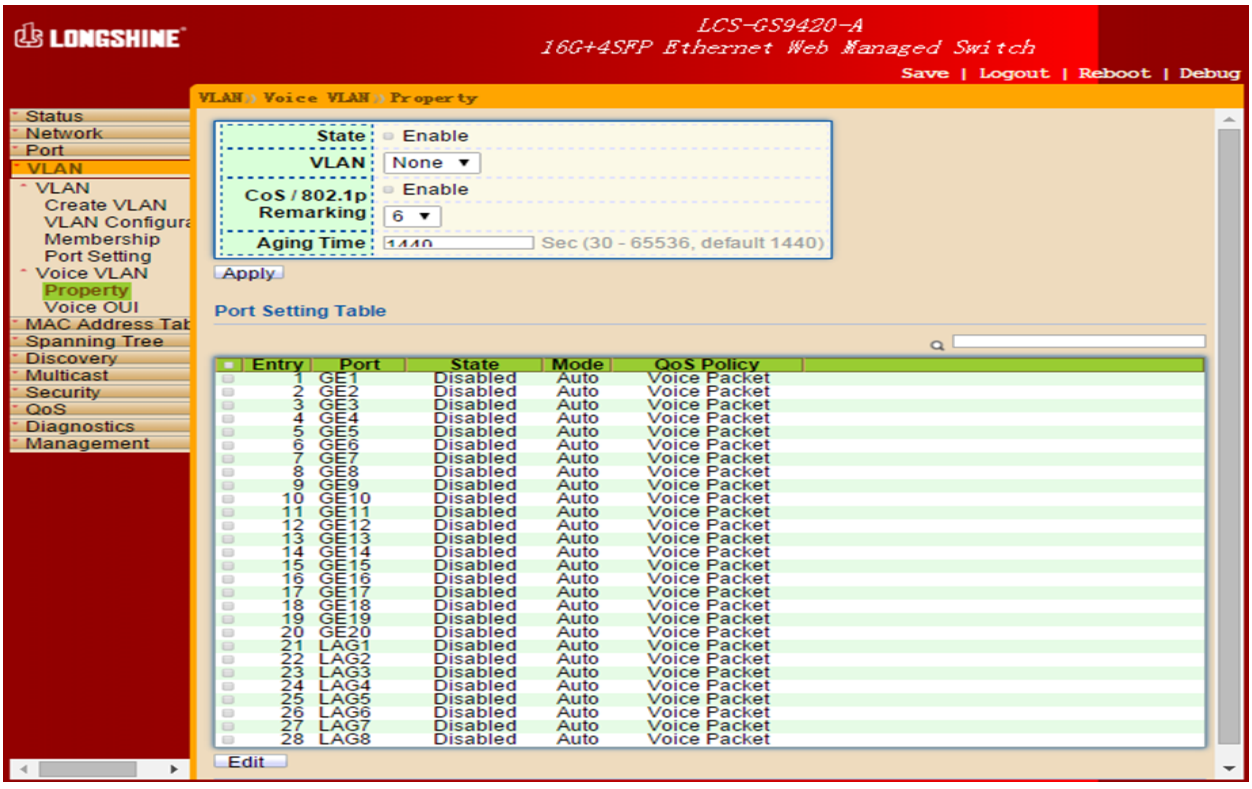
Field	Description
Port	Display the interface of port entry.
Mode	Select the VLAN mode of the interface. **Hybrid** : Support all functions as defined in IEEE802.1Q specification. **Access** : Accepts only untagged frames and join an untagged VLAN. **Trunk** : An untagged member of one VLAN at most, and is a tagged member of zero or more VLANs.
PVID	Specify the port-based VLAN ID (1~4094). It’s only available with hybrid and Trunk mode.
Accept Frame Type	Specify the acceptable-frame-type of the specified interfaces. It’s only available with Hybrid mode.
Ingress Filtering	Specify the status of ingress filtering. It’s only available with Hybrid mode.

6.2 Voice VLAN

6.2.1 Property

Click **VLAN** > **Voice VLAN** > **Property**

This page allow user to configure global and per interface setting of voice VLAN.



Field	Description
State	Set checkbox to enable or disable voice VLAN function.
VLAN	Select Voice VLAN ID. Voice VLAN ID cannot be default VLAN.
Cos/802.1p	Select a value of VPT. Qualified packets will use this VPT value as inner priority.
Remarking	Set checkbox to enable or disable 1p remarking. If enabled, qualified packets will be remark by this value.
Aging Time	Input value of aging time. Default is 1440 minutes. A voice VLAN entry will be age out after this time if without any packet pass through.

Field	Description
Port	Display port entry
State	Display enable/disable status of interface.
Mode	Display voice VLAN mode.
QoS Policy	Display voice VLAN remark will effect which kind of packet

Click “Edit” button to edit Property Port.

Field	Description
Port	Display selected port to be edited.
State	Set checkbox to enable/disable voice VLAN function of interface.
Mode	Select port voice VLAN mode. **Auto** : Voice VLAN auto detect packets that match OUI table and add received port into voice VLAN ID tagged member. **Manual** : User need add interface to VLAN ID tagged member manually.
QoS Policy	Select port QoS Policy mode **Voice** Packet : QoS attributes are applied to packets with OUIs in the source MAC address. **All** : QoS attributes are applied to packets that are classified to the Voice VLAN.

6.2.2 Voice OUI

Click **VLAN** > **Voice VLAN** > **Voice OUI**

This page allow user to add, edit or delete OUI MAC addresses. Default has 8 pre-defined OUI MAC.

Field	Description
OUI	Display OUI MAC address.
Description	Display description of OUI entry.

Click “Add” or “Edit” buttons to edit Voice OUI.

Field	Description
OUI	Input OUI MAC address, Can’t be edited in edit dialog.
Description	Input description of the specified MAC address to the voice VLAN OUI table..

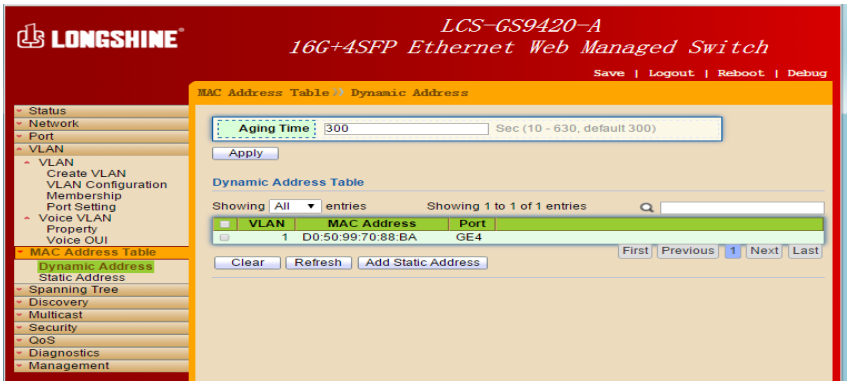
Chapter 7 MAC Address Table

Use the MAC Address Table pages to show dynamic MAC table and configure settings for static MAC entries.

7.1 Dynamic Address

Click **MAC Address Table** > **Dynamic Address**

Configure the aging time of the dynamic address.

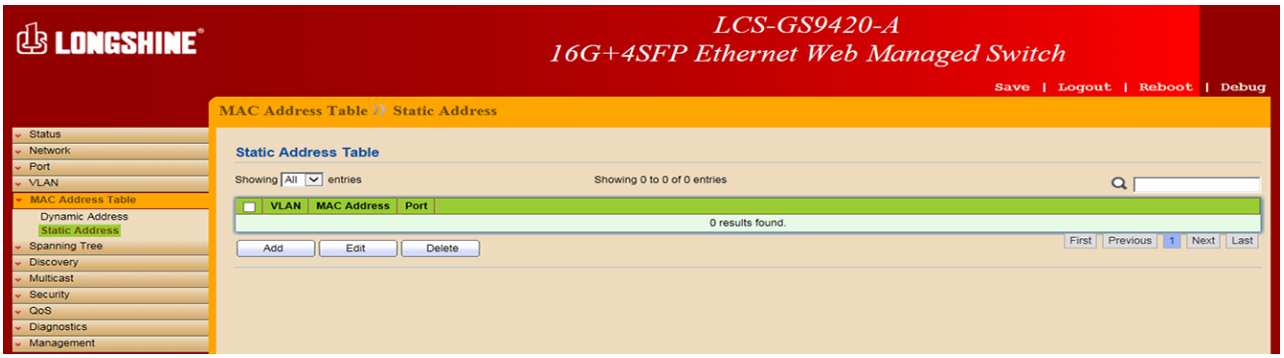


Field	Description
Aging Time	The time in seconds that an entry remains in the MAC address table. Its valid range is from 10 to 630 seconds, and the default value is 300 seconds.

7.2 Static Address

Click **MAC Address Table** > **Static Address**

To display the static MAC address.



Field	Description
MAC Address	The MAC address to which packets will be statically fowarded.
VLAN	Specify the VLAN to show or clear MAC entries.
Port	Interface or port number.

Chapter 8 Spanning Tree Protocol (STP)

The Spanning Tree Protocol (STP) is a network protocol that ensures a loop-free topology for any bridged Ethernet local area network.

8.1 Property

Click **STP** > **Property**

Configure and display STP property configuration.

Field	Description
State	Enable/Disable the STP on the switch.
Operation Mode	Specify the STP operation mode. **STP** : Enable the Spanning Tree (STP) operation. **RSTP** : Enable the Rapid Spanning Tree (RSTP) operation.
Path Cost	Specify the path cost method. **Long** : Specifies that the default port path costs are within the range : 1~200,000,000. **Short** : Specifies that the default port path costs are within the range : 1~65,535.

BPDU Handling	Specify the BPDU forward method when the STP is disabled. **Filtering** : Filter the BPDU when STP is disabled. **Flooding** : Flood the BPDU when STP is disabled.
Priority	Specify the bridge priority. The valid range is from 0 to 61440, and the value should be the multiple of 4096. It ensures the probability that the switch is selected as the root bridge, and the lower value has the higher priority for the switch to be selected as the root bridge of the topology.
Hello Time	Specify the STP hello time in second to broadcast its hello message to other bridge by Designated Ports. Its valid range is from 1 to 10 seconds.
Max Age	Specify the time interval in seconds for a switch to wait the configuration messages, without attempting to redefine its own configuration.
Forward Delay	Specify the STP forward delay time, which is the amount of time that a port remains in the Listening and Learning states before it enters the Forwarding state. Its valid range is from 4 to 10 seconds.
TX Hold Count	Specify the tx-hold-count used to limit the maximum numbers of packets transmission per second. The valid range is from 1 to 10.

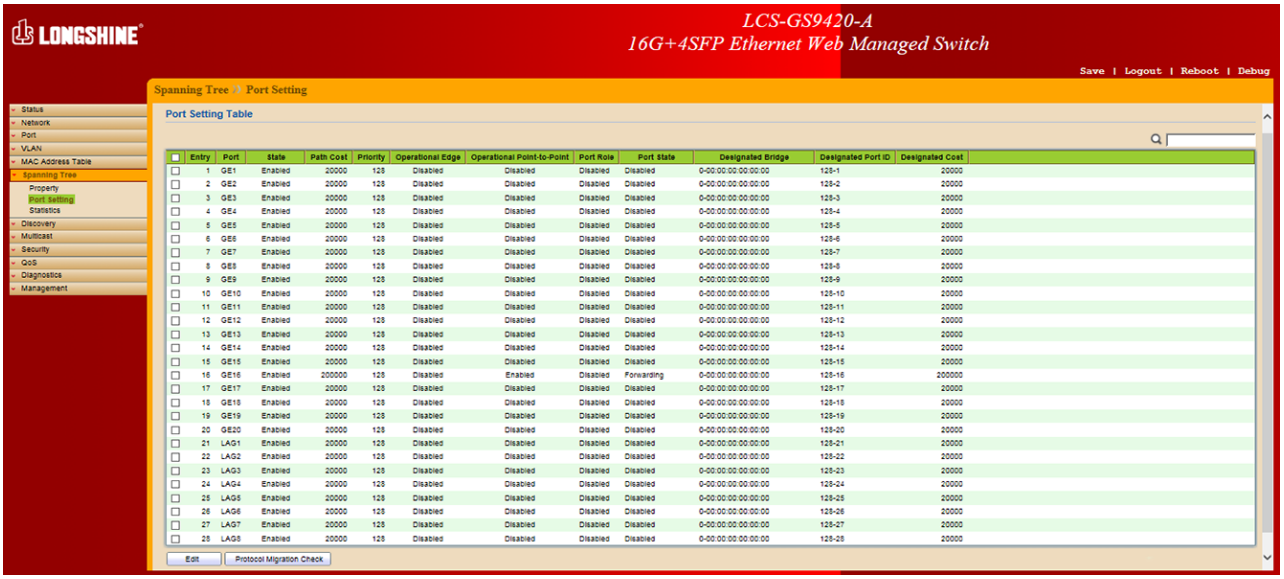
STP operational status

Field	Description
Bridge Identifier	Bridge identifier of the switch.
Designated Root Identifier	Bridge identifier of the designated root bridge.
Root Port	Operational root port of the switch.
Root Path Cost	Operational root path cost.
Topology Change Count	Numbers of the topology changes.
Last Topology Change	The last time for the topology change.

8.2 Port Setting

Click **STP** > **Port Setting**

Configure and display STP port settings.



Field	Description
Port	Specify the interface ID or the list of interface IDs.
State	The operational state on the specified port.
Path Cost	STP path cost on the specified port.
Priority	STP priority on the specified port.
Operation Edge	The operational edge port on the specified port.
Operational Point-to-Point	The operational edge point-to-point status on the specified port.
Port Role	The current port role on the specified port. The possible values are: “Disabled”, “Master”, “Root”, “Designated”, “Alternative”, and “Backup”
Port State	The current port state on the specified port. The possible values are: “Disabled”, “Discarding”, “Learning”, and “Forwarding”.
Designated Bridge	The bridge ID of the designated bridge.
Designated Port ID	The designated port ID on the switch.
Designated Cost	The path cost of the designated port on the switch.

STP port setting buttons

Field	Description
Protocol Migration Check	Restart the Spanning Tree Protocol (STP) migration process (re-negotiate with its neighborhood) on the specific interface.

Edit STP port setting

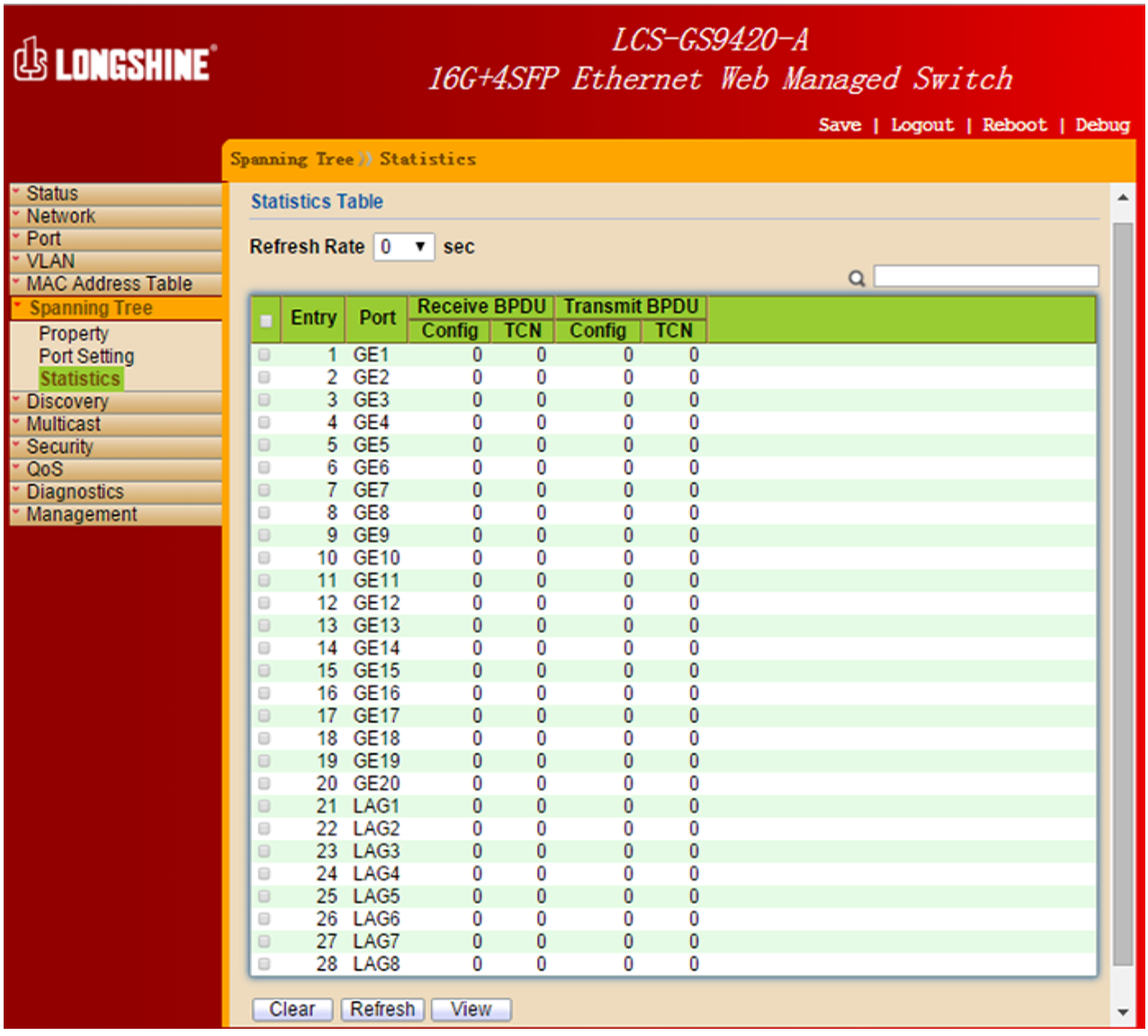
Field	Description
State	Enable/Disable the STP on the specified port
Path Cost	Specify the STP path cost on the specified port.
Priority	Specify the STP priority on the specified port.
Edge Port	Specify the edge mode. **Enable** : Force to true state (as link to a host) **Disable** : Force to false state (as link to a bridge) In the edge mode, the interface would be put into the Forwarding state immediately upon link up. If the edge mode is enabled for the interface and there are BPDUs received on the interface, the loop might be occurred in the short time before the STP state change.
Point-to-Point	Specify the Point-to-Point port configuration: **Auto** : The state is depended on the duplex setting of the port. **Enable** : Force to true state. **Disable** : Force to false state.

8.3 Statistics

Click **STP** > **Statistics**

To display STP statistics

Bridge Protocol Data Units (BPDUs) are frames that contain information about the **Spanning tree protocol** (STP). Switches send BPDUs using a unique MAC address from its origin port and a multicast address as destination MAC (01:80:C2:00:00:00, or 01:00:0C:CC:CC:CD for Per VLAN Spanning Tree). For STP algorithms to function, the switches need to share information about themselves and their connections. What they share are bridge protocol data units (BPDUs). BPDUs are sent out as multicast frames to which only other layer 2 switches or bridges are listening. If any loops (multiple possible paths between switches) are found in the network topology, the switches will co-operate to disable a port or ports to ensure that there are no loops; that is, from one device to any other device in the layer 2 network, only one path can be taken.



Field	Description
Refresh Rate	The option to refresh the statistics automatically.
Receive BPDU (Config)	The counts of the received CONFIG BPDU.
Receive BPDU (TCN)	The counts of the received TCN BPDU.
Transmit BPDU (Config)	The counts of the transmitted CONFIG BPDU.
Transmit BPDU (TCN)	The counts of the transmitted TCN BPDU.

Field	Description
Clear	Clear the statistics for the selected interfaces.
View	View the statistics for the interface.

View STP Port Statistics.

Field	Description
Refresh Rate	The option to refresh the statistics automatically.
Clear	Clear the statistics for the selected interfaces.

Chapter 9 Discovery

9.1 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. The LLDP is a one-way protocol; there are no request/response sequences. Information is advertised by stations implementing the transmit function, and is received and processed by stations implementing the receive function. The LLDP category contains LLDP and LLDP-MED pages.

9.1.1 Property

Click **Discovery** > **LLDP** > **Property**

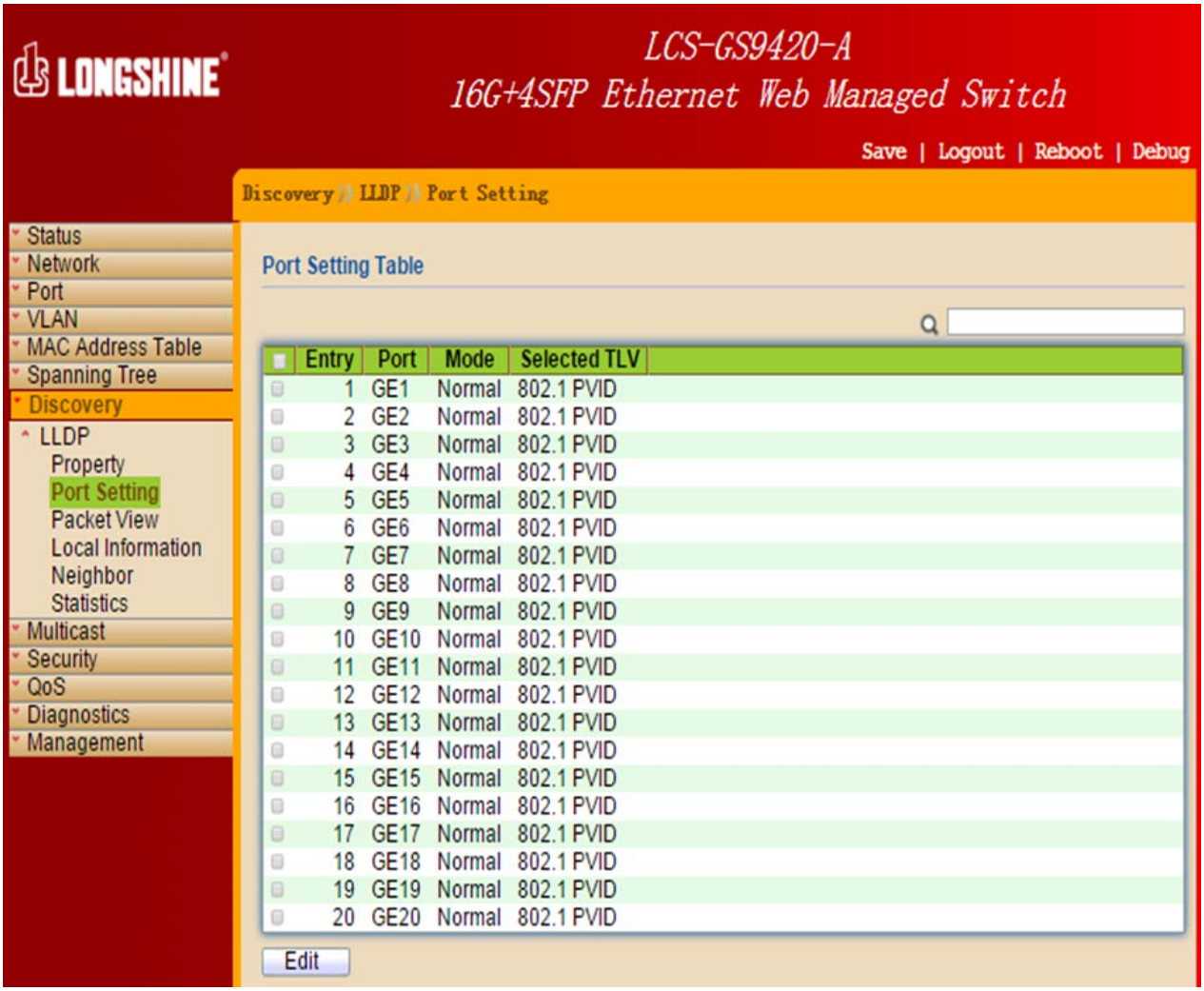
To display LLDP Property Setting web page.

Field	Description
State	Enable/Disable LLDP protocol on this switch
LLDP Handling	Select LLDP PDU handling action to be filtered, bridging or flooded when LLDP is globally disabled. **Filtering** : Deletes the packet. **Bridging** : (VLAN-aware flooding) Forwards the packet to all VLAN members. **Flooding** : Forwards the packet to all ports.
TLV Advertise Interval	Select the interval at which frames are transmitted. The default is 30 seconds, and the valid range is 5~32767 seconds.
Holdtime Multiplier	Select the multiplier on the transmit interval to assign to TTL (range 2~10, default=4).
Reinitialization Delay	Select the delay before a re-initialization (range 1~10 seconds, default=2).
Transmit Delay	Select the delay after an LLDP frame is sent (range 1~8191 seconds, default=3).

9.1.2 Port Setting

Click **Discovery** > **LLDP** > **Port Setting**

To display LLDP Port Setting.



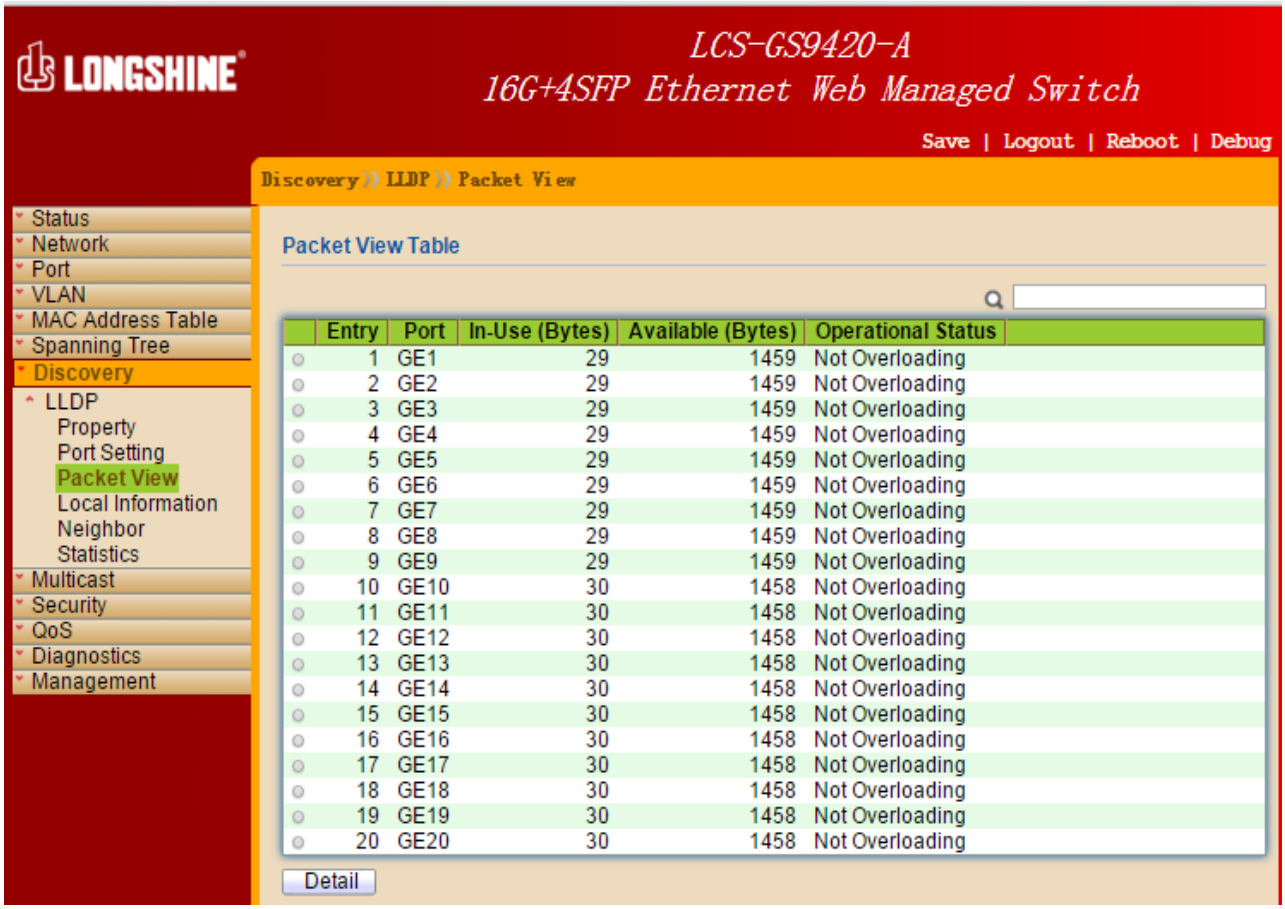
To Edit LLDP port setting web page, select the port which to set, click button Edit.

Field	Description
Port	*Select specified port or all ports to configure LLDP state.*
Mode	Select the transmission state of LLDP port interface. **Disable** : Disable the transmission of LLDP PDUs. **RX Only** : Receive LLDP PDUs only. **TX Only** : Transmit LLDP PDUs only. **Normal** : Transmit and receive LLDP PDUs both.
Optional TLV	Select the LLDP optional TLVs to be carried (multiple selection is allowed). System Name Port Description System Description System Capability 802.3 MAC-PHY 802.3 Link Aggregation 802.3 Maximum Frame Size Management Address 802.1 PVID
802.1 VLAN Name	Select the VLAN Name ID to be carried (multiple selection is allowed).

9.1.3 Packet View

Click **Discovery** > **LLDP** > **Packet View**

To display LLDP Overloading.



Field	Description
Port	Port Name
In-Use (Bytes)	Total number of bytes of LLDP information in each packet.
Available (Bytes)	Total number of available bytes left for additional LLDP information in each packet.
Operational Status	Overloading or not

If need detail information, select the port, then click **detail**.

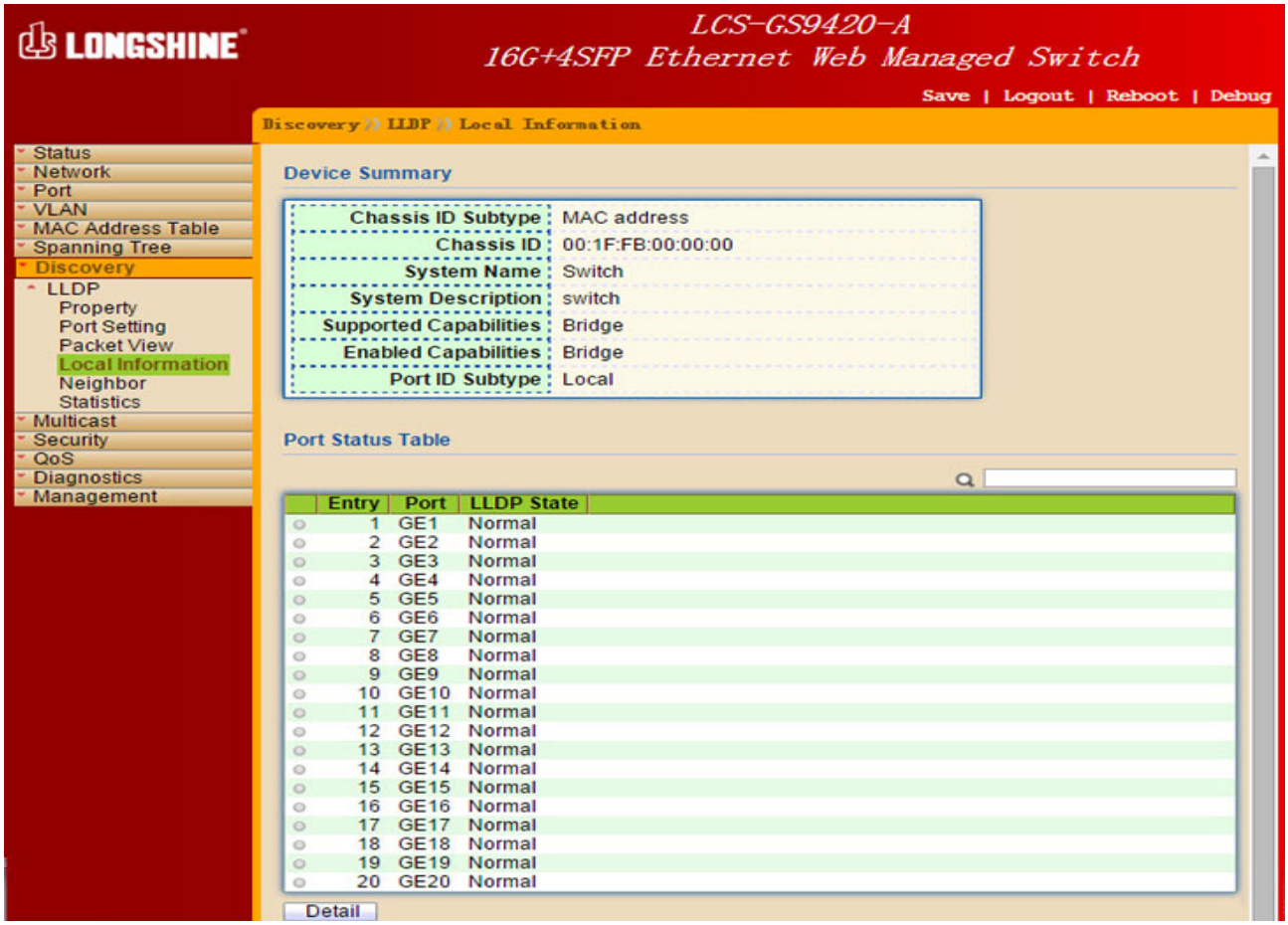
Field	Description
Port	Port Name
Mandatory TLVs	Total mandatory TLV byte size. Status is sent or overloading.
802.3 TLVs	Total 802.3 TLVs byte size. Status is sent or overloading.
Optional TLVs	Total Optional TLV byte size. Status is sent or overloading.
802.1 TLVs	Total 802.1 TLVs byte size. Status is sent or overloading.
Total	Total number of bytes of LLDP information in each packet.

9.1.4 Local Information

Click **Discovery** > **LLDP** > **Local Information**

To display LLDP Local Device.

Use the LLDP Local Information to view LLDP local device information.



Field	Description
Chassis ID Subtype	Type of chassis ID, such as the MAC address.
Chassis ID	Identifier of chassis. Where the chassis ID subtype is a MAC address, the MAC address of the switch is displayed.
System Name	Name of switch
System Description	Description of the switch.
Capabilities Supported	Primary functions of the device, such as Bridge, WLAN AP, or Router.
Capabilities Enabled	Primary enabled functions of the device.
Port ID Subtype	Type of the port identifier that is shown.
LLDP Status	LLDP Tx and Rx abilities.

Click “detail” button on the page to view detail information of the selected port.

9.1.5 Neighbor

Click **Discovery** > **LLDP** > **Neighbor**

To display LLDP Remote Device.

Use the LLDP Neighbor page to view LLDP neighbors information.

Field	Description
Local Port	Number of the local port to which the neighbor is connected.
Chassis ID Subtype	Type of chassis ID (for example, MAC address)
Chassis ID	Identifier of the 802 LAN neighboring device's chassis.
Port ID Subtype	Type of the port identifier that is shown.
Port ID	Identifier of port.
System Name	Published name of the switch.
Time to Live	Time interval in seconds after which the information for this neighbor is deleted.

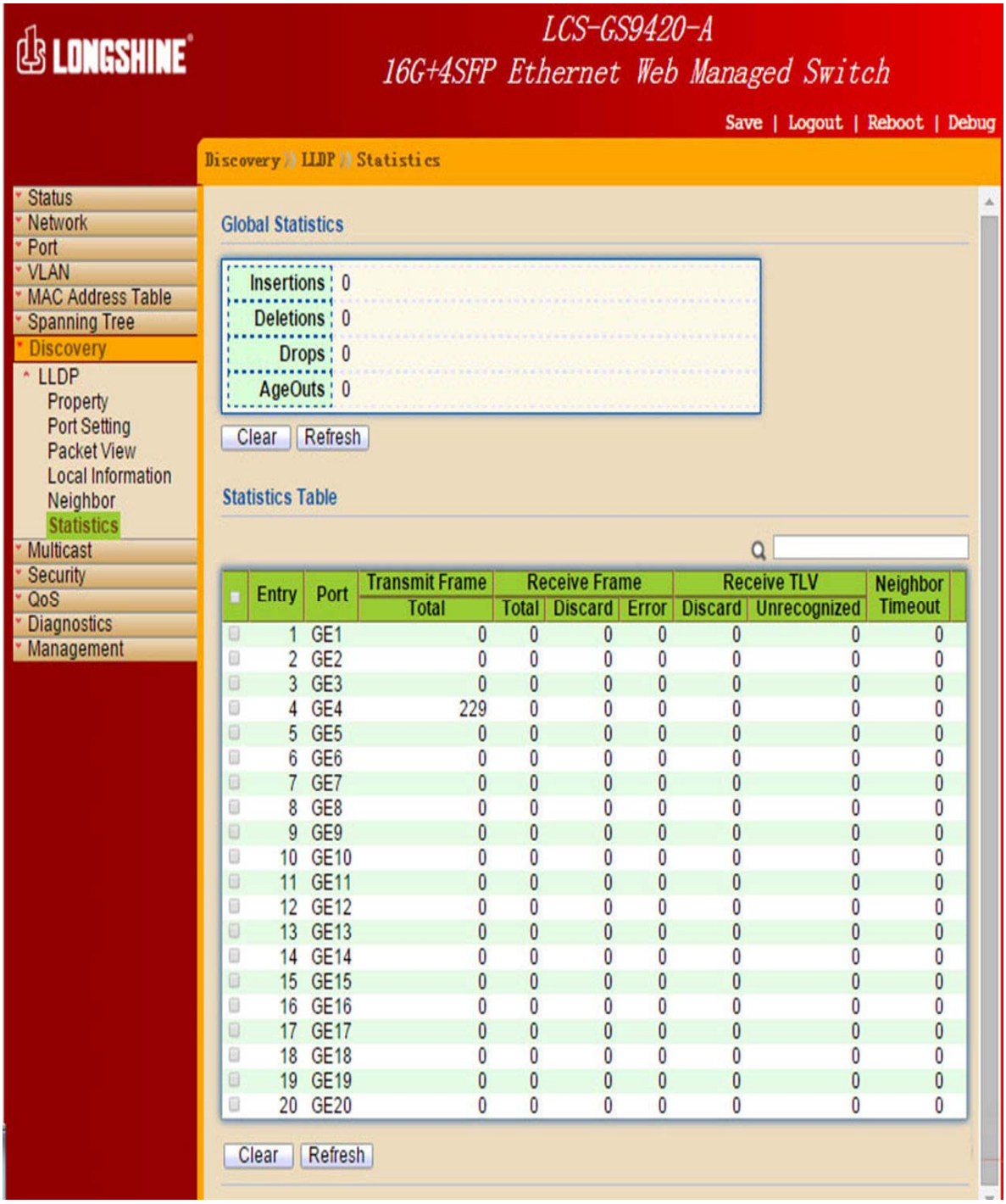
Click "detail" to view selected neighbor detail information.

9.1.6 Statistics

Click **Discovery** > **LLDP** > **Statistics**

To display LLDP Statistics status.

The Link Layer Discovery Protocol (LLDP) Statistics page displays summary and per-port information for LLDP frames transmitted and received on the switch.



Field	Description
Insertions	The number of times the complete set of information advertised by a particular MAC Service Access Point (MSAP) has been inserted into tables associated with the remote systems.
Deletions	The number of times the complete set of information advertised by MSAP has been deleted from tables associated with the remote systems.
Drops	The number of times the complete set of information advertised by MSAP could not be entered into tables associated with the remote systems because of insufficient resources.
Age Outs	The number of times the complete set of information advertised by MSAP has been deleted from tables associated with the remote system because the information timeliness interval has expired.
Port	Interface or port number.
Transmit Frame Total	Number of LLDP frames transmitted on the corresponding port/
Receive Frame Total	Number of LLDP frames received by this LLDP agent on the corresponding port, while the LLDP agent is enabled.
Receive Frame Discard	Number of LLDP frames discarded for any reason by the LLDP agent on the corresponding port.
Receive Frame Error	Number of invalid LLDP frames received by the LLDP agent on the corresponding port, while the LLDP agent is enabled.
Receive TLV Discard	Number of TLVs of LLDP frames discarded for any reason by the LLDP agent on the corresponding port.
Receive TLV Unrecognized	Number of TLVs of LLDP frames that are unrecognized while the LLDP agent is enabled.
Neighbor Timeout	Number of age out LLDP frames.

Chapter 10 Multicast

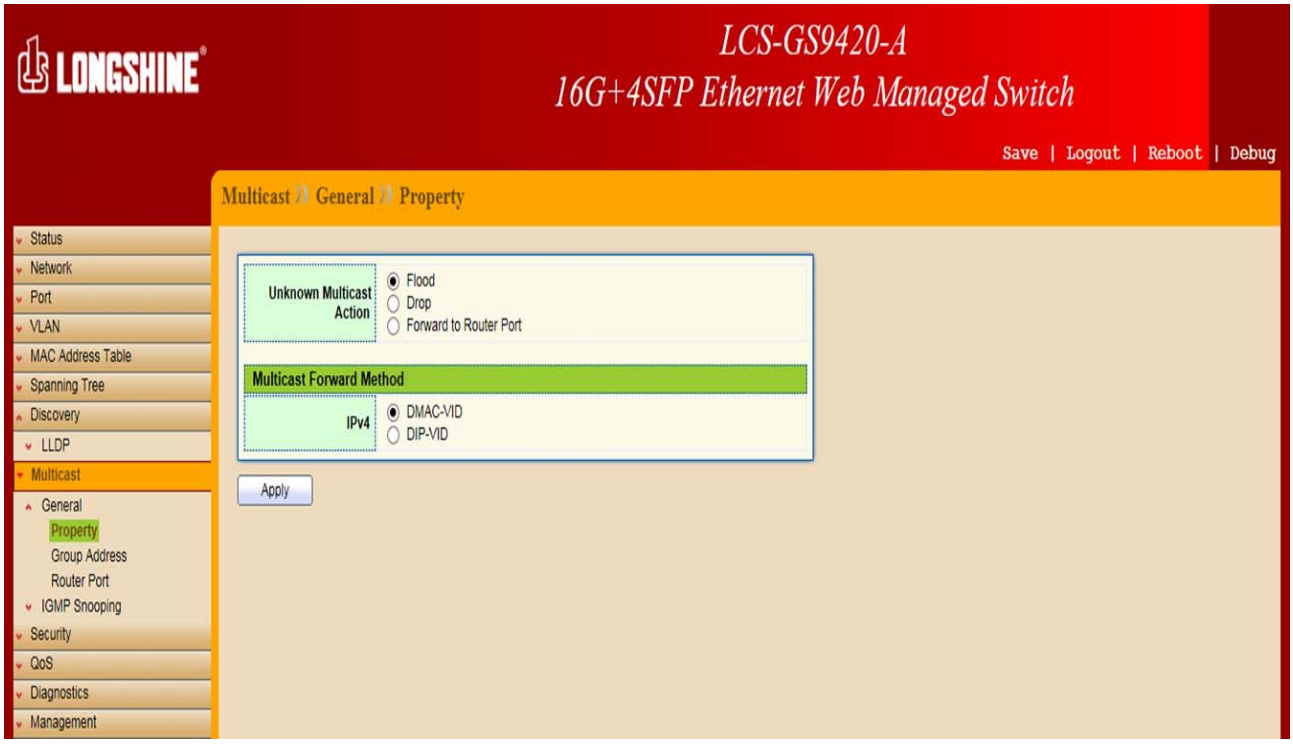
10.1 General

Use the General pages to configure setting of IGMP snooping property and group and router setting function.

10.1.1 Property

Click **Multicast** > **General** > **Property**

This page allow user to set multicast forwarding method and unknown multicast action.



Field	Description
Unknown Multicast Action	Set the unknown multicast action **Drop** : drop the unknown multicast data. **Flood** : flood the unknown multicast data. **Router port** : forward the unknown multicast data to router port.
IPv4	Set the IPv4 multicast forward method. **MAC-VID** : forward method dmac+vid. **DIP-VID** : forward method dip+vid.

10.1.2 Group Address

Click **Multicast** > **General** > **Group Address**

To display Multicast General Group web page.

This page allow user to browse all multicast groups that dynamic learned or statically added.

Field	Description
VLAN	The VLAN ID of group.
Group Address	The group IP address.
Member	The member ports of group.
Type	The type of group. Static or Dynamic.
Life(Sec)	The life time of this dynamic group.

Click “Add” to add Group Address.

Field	Description
VLAN	The VLAN ID of group.
Group Address	The group IP address.
Member	The member ports of group. **Available Port** : Optional port member **Selected Port** : Selected port member

Click “Edit” to edit Group Address.

Field	Description
VLAN	The VLAN ID of group.
Group Address	The group IP address.
Member	The member ports of group. **Available Port** : Optional port member **Selected Port** : Selected port member

10.1.3 Router Port

Click **Multicast** > **General** > **Router Port**

To display Multicast router port table web page.

This page browse all router port information.

Field	Description
VLAN	The VLAN ID router entry.
Member	Router Port member.
Life (Sec)	The expiry time of the router entry.

10.2 IGMP Snooping

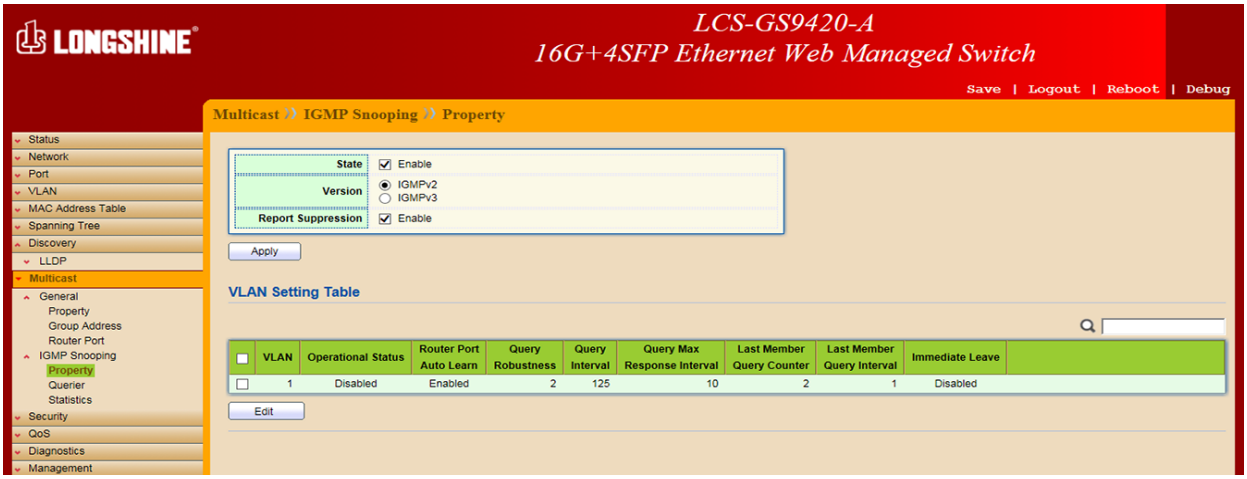
Use the IGMP Snooping pages to configure setting of IGMP snooping function.

10.2.1 Property

Click **Multicast** > **IGMP Snooping** > **Property**

To display IGMP Snooping global setting and VLAN setting web page.

This page allow user to configure global settings of IGMP snooping and configure specific VLAN settings of IGMP Snooping.



Field	Description
State	Set the enabling status of IGMP Snooping functionality **Enable** : If Checked Enable IGMP Snooping, else is Disabled IGMP Snooping.
Version	Set the IGMP Snooping version **IGMPv2** : Only support process IGMP v2 packet. **IGMPv3** : Support v3 basic and v2.
Report Suppression	Set the enabling status of IGMP v2 report suppression. **Enable** : If Checked Enable IGMP Snooping v2 report suppression, else Disable the report suppression function.
VLAN	The IGMP entry VLAN ID.
Operation Status	The enable status of IGMP Snooping VLAN functionality.
Router Port Auto Learn	The enabling status of IGMP Snooping router port auto learning
Query Robustness	The Query Robustness allows tuning for the expected packet lose on a subnet.
Query Interval	The interval of query to send general query.
Query Max Response Interval	In Membership Query Messages, it specifies the maximum allowed time before sending a responding report in units of 1/10 second.
Last Member Query count	The count that Querier-switch sends Group-Specific Queries when it receives a Leave Group message for a group.
Last Member Query Interval	The interval that Querier-switch sends Group-Specific Queries when it receives a Leave Group message for a group.
Immediate Leave	The immediate leave status of the group will immediate leave when receive IGMP Leave message.

Click “Edit” to edit VLAN Setting.

Field	Description
VLAN	The selected VLAN List
State	Set the enabling status of IGMP Snooping VLAN functionality **Enable** : If Checked Enable IGMP Snooping router VLAN, else is Disabled IGMP Snooping VLAN.
Router Port Auto Learn	Set the enabling status of IGMP Snooping router port learning. **Enable** : If Checked Enable learning router port by query and PIM, DVRMP, else Disable the learning router port.
Immediate Leave	Immediate Leave the group when receive IGMP Leave message. **Enable** : If Checked Enable immediate leave, else Disable immediate leave.
Query Robustness	The Admin Query Robustness allows tuning for the expected packet loss on a subnet.
Query Interval	The Admin interval of querier to send general query.
Query Max Response Interval	The Admin query max response interval, In Membership Query Messages, it specifies the maximum allowed time before sending a responding report in units of 1/10 second.
Last Member Query Counter	The Admin last member query count that Querier-switch sends Group-Specific Queries when it receives a Leave Group message for a group.
Last Member Query Interval	The Admin last member query interval that Querier-switch sends Group-Specific Queries when it receives a Leave Group message for a group.

Operational Status.

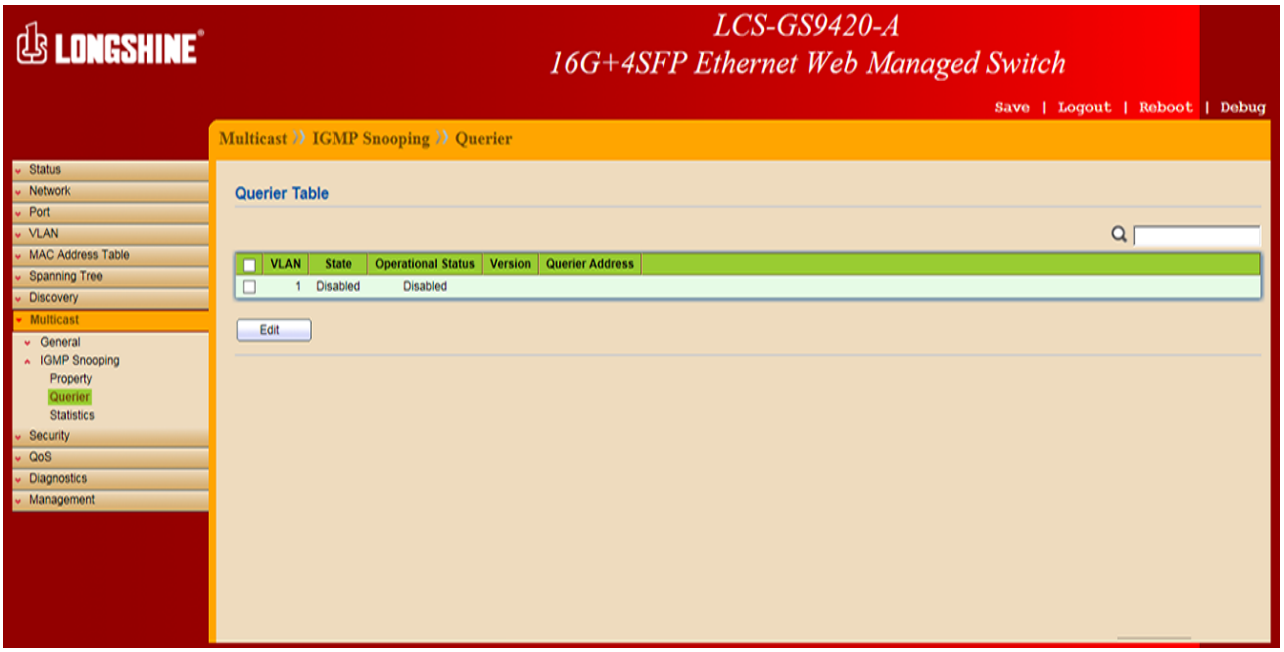
Field	Description
Status	Operational IGMP Snooping status, must both IGMP Snooping global and IGMP Snooping enable the status will be enable.
Query Robustness	Operational Query Robustness.
Query Interval	Operational Query Interval.
Query Max Response Interval	Operational Query Max Response Interval.
Last Member Query Counter	Operational Last Member Query Count.
Last Member Query Interval	Operational Last Member Query Interval.

10.2.2 Querier

Click **Multicast** > **IGMP Snooping** > **Querier**

To display IGMP Snooping Querier setting web page.

This page allow user to configure querier setting on specific VLAN of IGMP Snooping.



Field	Description
VLAN	IGMP Snooping querier entry VLAN ID.
State	The IGMP Snooping querier Admin State.
Operational Status	The IGMP Snooping querier operational status.
Querier Version	The IGMP Snooping querier operational version.
Querier IP	The operational querier IP address on the VLAN.

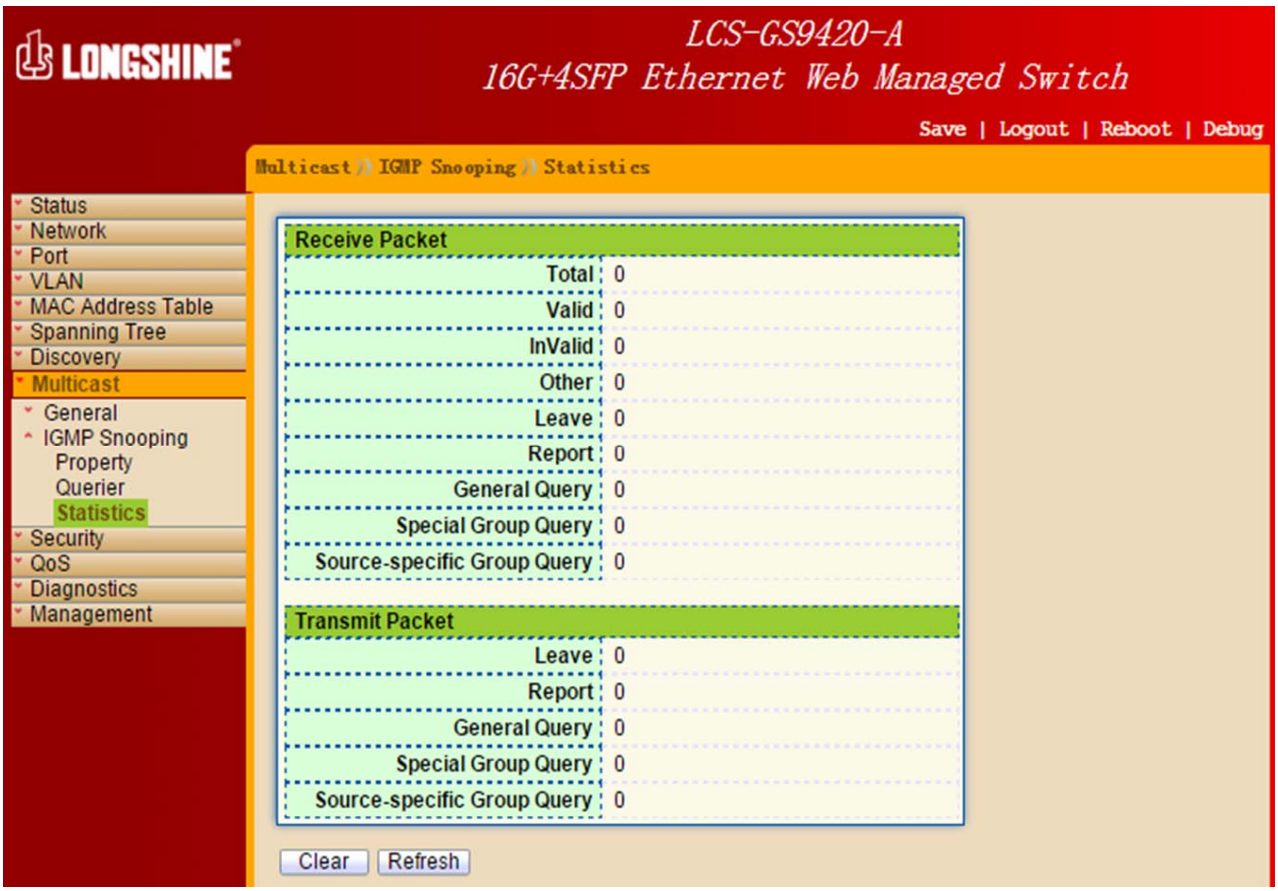
Click “Edit” to edit IGMP Snooping Querier.

Field	Description
VLAN	The selected Edit IGMP Snooping querier VLAN list.
State	Set the enabling status of IGMP Querier Election on the chose VLANs. **Enabled** : If checked Enable IGMP Querier, else Disable IGMP Querier.
Version	Set the query version of IGMP Querier Election on the chose VLANs. **IGMPv2** : Querier version 2 **IGMPv3** : Querier version 3. (IGMP Snooping version should be IGMPv3)

10.2.3 Statistics

Click **Multicast** > **IGMP Snooping** > **Statistics**

This page allow user to display IGMP Snooping Statistics and clear IGMP Snooping statistics.



Receive Packet

Field	Description
Total	Total RX IGMP packet, include IPv4 multicast data to CPU.
Valid	The valid IGMP Snooping process packet.
InValid	The invalid IGMP Snooping process packet.
Other	The ICMP protocol is not 2, and is not IPv4 multicast data packet.
Leave	IGMP leave packet.
Report	IGMP join and report packet.
General Query	IGMP general query packet
Special Group Query	IGMP special group general query packet
Source-specific Group Query	IGMP special source and group general query packet

Transmit Packet

Field	Description
Leave	IGMP leave packet
Report	IGMP join and report packet
General Query	IGMP general query packet includes querier transmit general query packet.
Special Group Query	IGMP special group query packet include querier transmit special group query packet.
Source-specific Group Query	IGMP special source and group general query packet.

Chapter 11 Security

Use the security pages to configure setting for the switch security features.

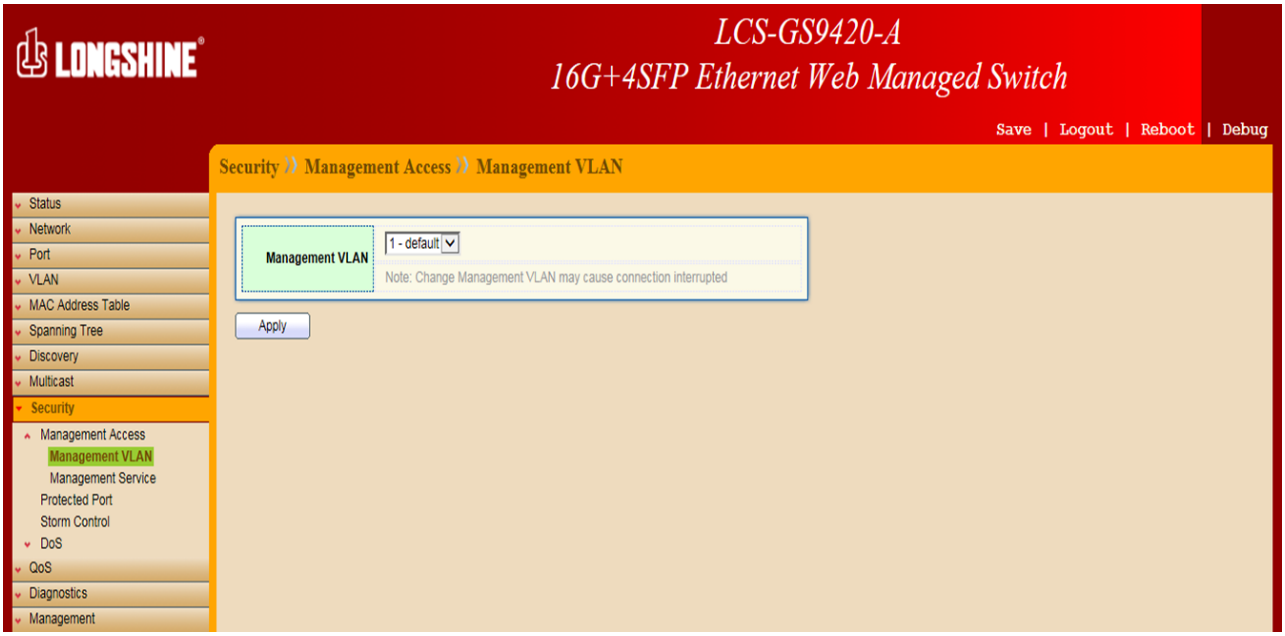
11.1 Management Access

Use the Management Access pages to configure setting of management access..

11.1.1 Management VLAN

Click **Security** > **Management Access** > **Management VLAN**

This page allow user to change Management VLAN connection.

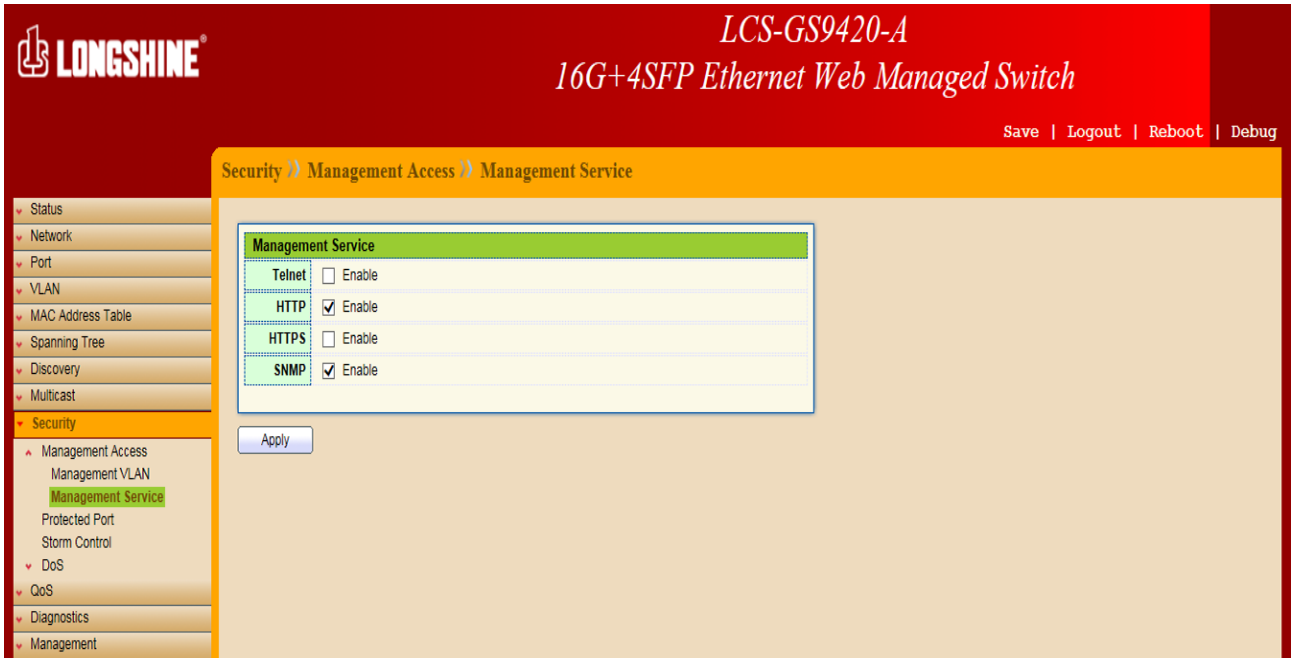


Field	Description
Management VLAN	Select management VLAN in option list. Management connection, such as http, https, SNMP etc.., has the same VLAN of management VLAN are allow connecting to device. Others will be dropped.

11.1.2 Management Service

Click **Security** > **Management Access** > **Management Service**

This page allow user to change management services related configurations.

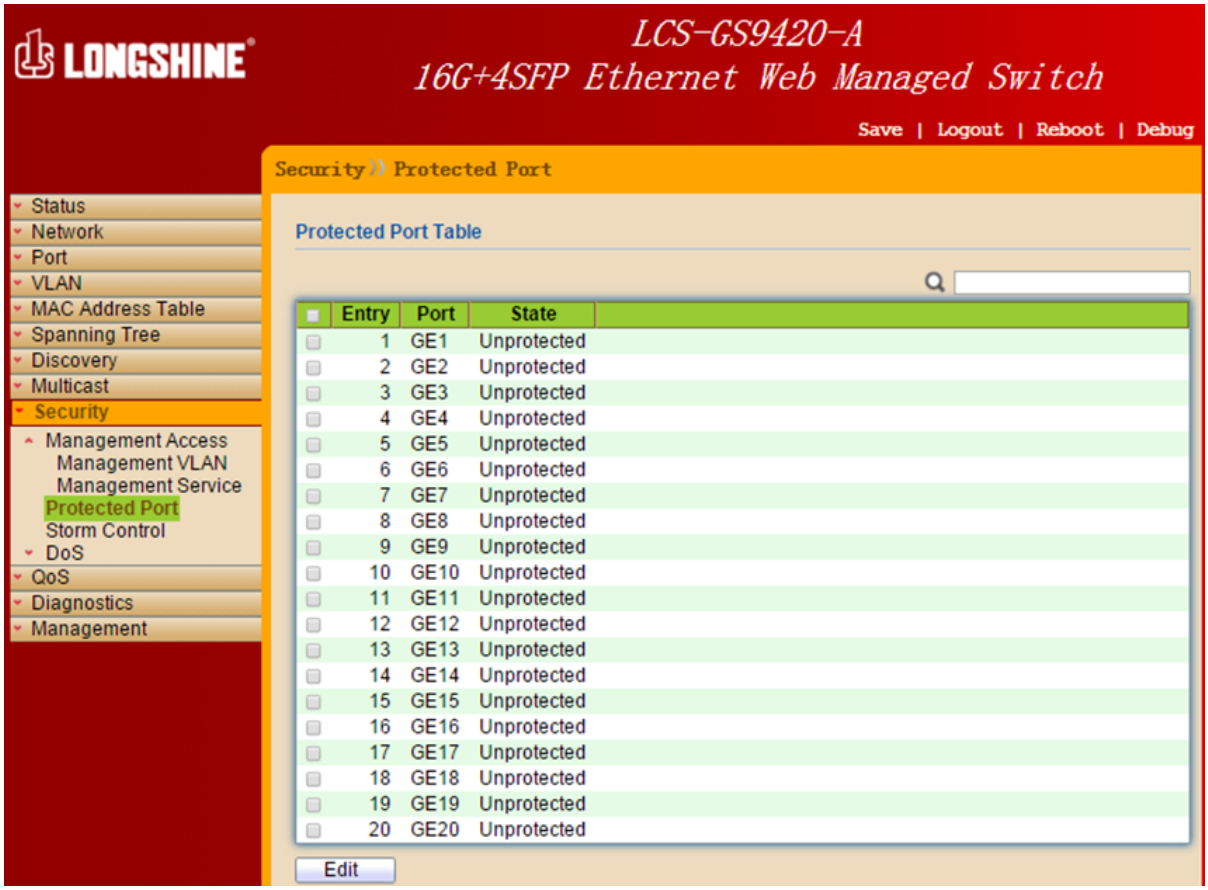


Field	Description
Management Service	Management Service admin state. **Telnet** : Connect CLI through Telnet. **HTTP** : Connect Web UI through HTTP. **HTTPS** : Connect Web UI through HTTPS. **SNMP** : Manage switch through SNMP.
Session Timeout	Set session timeout minutes for user access to user interface. O minute means never timeout.

11.2 Protected Port

Click **Security** > **Protected Port**

This page allow user to configure protected port setting to prevent the selected ports from communication with each other. Protected port is only allowed to communicate with unprotected port. In other words, protected port is not allowed to communicate with another protected port.



Field	Description
Port	Port Name
State	Port protected admin state. **Protected** : Port is protected. **Unprotected** : Port is unprotected.

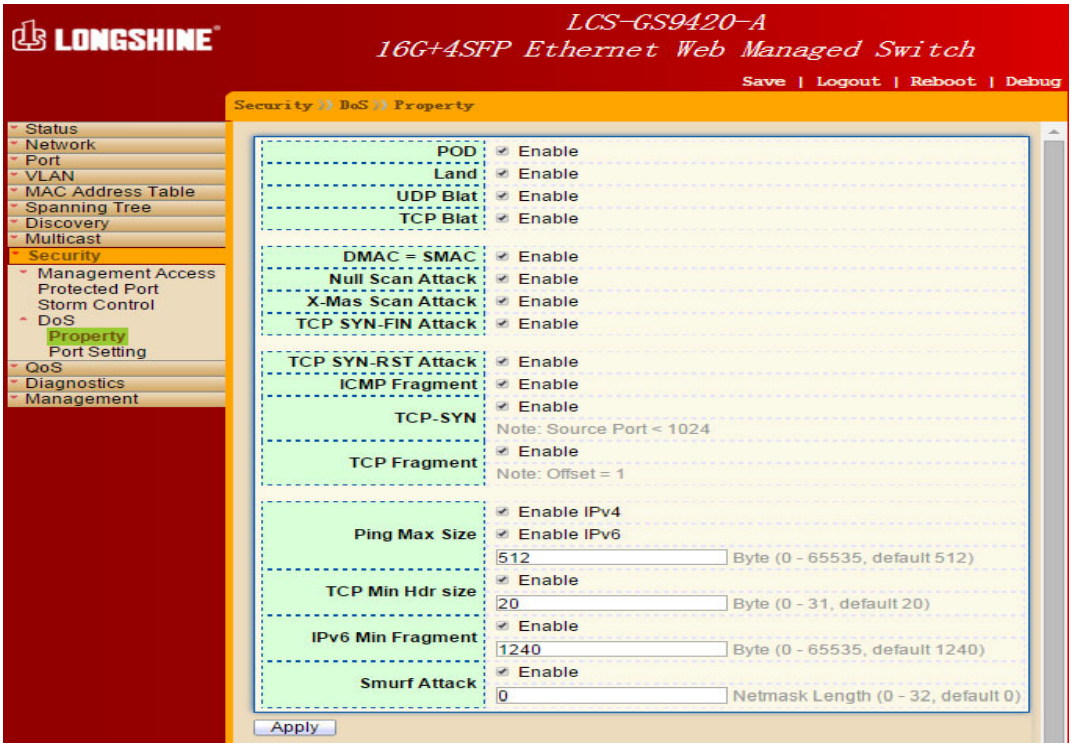
Click “Edit” to edit the protected port.

Field	Description
Port	Selected port list
State	Port protected admin state. **Protected** : Enable protecting function. **Unprotected** : Disable protecting function.

11.3 Storm Control

Click **Security** > **Storm Control**

To display Storm Control global setting web page.



Field	Description
Unit	Select the unit of storm control **Packet/Sec** : storm control rate calculates by packet-based **Kbits/Sec** : storm control rate calculates by octet-based
IFG	Select the rate calculates w/o preamble & IFG (20 bytes) **Excluded** : exclude preamble & IFG (20 bytes) when count ingress storm control rate. **Included** : include preamble & IFG (20 bytes) when count ingress storm control rate.

Click “Edit” to edit the storm control port setting web page.

Field	Description
Port	Select the setting ports
State	Select the state of setting. **Enable** : Enable the storm control function.
Broadcast	**Enable** : Enable the storm control function of broadcast packet. Value of storm control rate, Unit: pps (packet per-second, range 1~262143) or Kbps (Kbits per-second, range16~1000000) depends on global mode setting.
Unknown Multicast	**Enable** : Enable the storm control function of unknown multicast packet. Value of storm control rate, Unit: pps (packet per-second, range 1~262143) or Kbps (Kbits per-second, range16~1000000) depends on global mode setting.

Unknown Unicast	**Enable** : Enable the storm control function of unknown unicast packet. Value of storm control rate, Unit: pps (packet per-second, range 1~262143) or Kbps (Kbits per-second, range16~1000000) depends on global mode setting.
Action	Select the state of setting. **Drop** : Packets exceed storm control rate will be dropped. **Shutdown** : Port will be shutdown when packets exceed storm control rate.

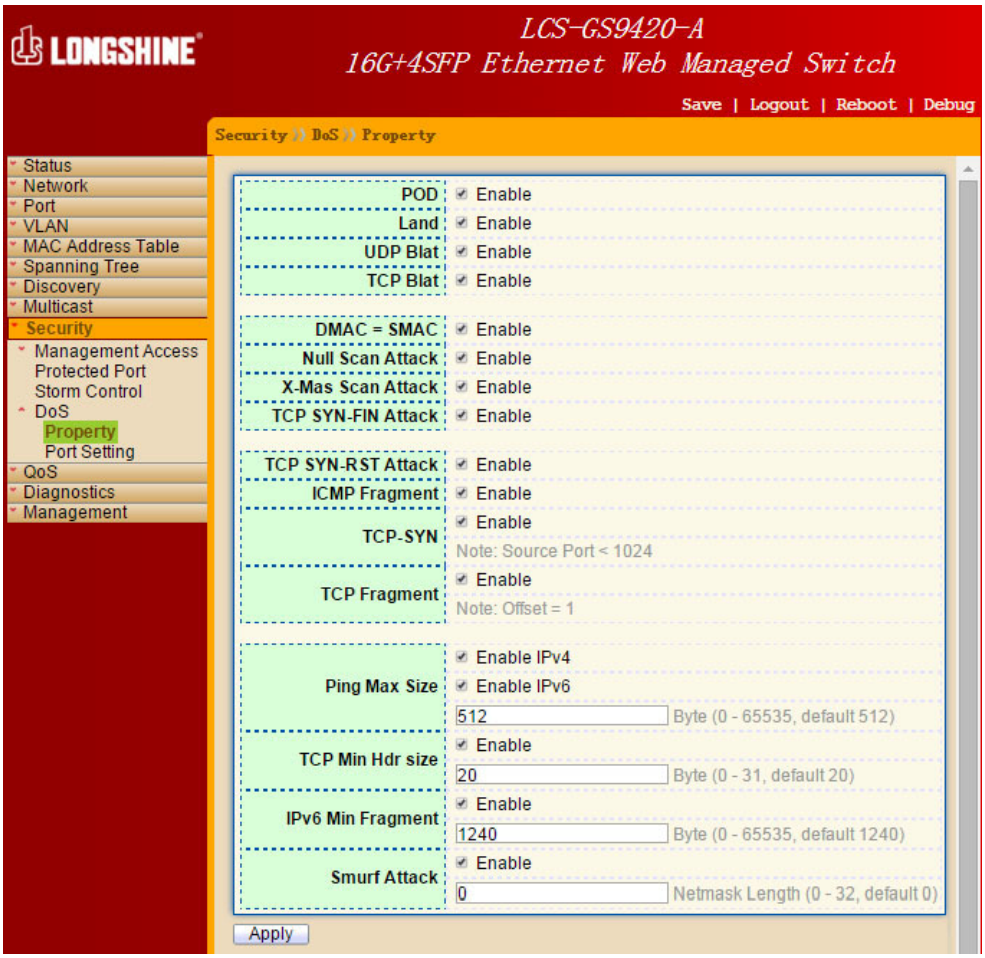
11.4 DoS

A Denial of Service (DoS) attack is a hacker attempt to make a device unavailable to its users. DoS attacks saturate the device with external communication requests, so that it cannot respond to legitimate traffic. These attacks usually lead to a device CPU overload.

The DoS protection feature is a set of predefined rules that protect the network from malicious attacks. The DoS Security Suite Setting enables activating the security suite.

11.4.1 Property

Click **Security** > **DoS** > **Property**
To display DoS Global Setting web page.



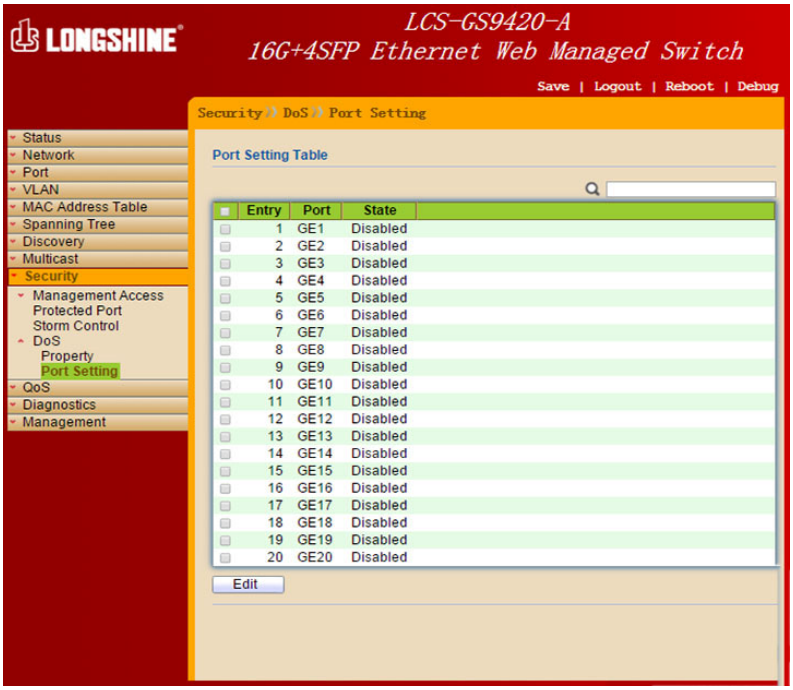
Field	Description
POD	Avoids ping of death attack.
Land	Drops the packets if the source IP address is equal to the destination IP address.
UDP Blat	Drops the packets if the UDP source port equals to the UDP destination port.
TCP Blat	Drops the packages if the TCP source port is equal to the TCP destination port.
DMAC=SMAC	Drops the packets if the destination MAC address is equal to the source MAC address.
Null Scan Attack	Drops the packets with NULL scan.
X-Mas Scan Attack	Drops the packets if the sequence number is zero, and the FIN, URG and PSH bits are set.
TCP SYN-FIN Attack	Drops the packets with SYN and FIN bits set.
TCP SYN-RST Attack	Drops the packets with SYN and RST bits set.
ICMP Flagment	Drops the fragmented ICMP packets.
TCP-SYN(SPORT<1024)	Drops SYN packets with sport less than 1024.
TCP Fragment (Offset=1)	Drops the TCP fragment packets with offset equals to one.
Ping Max Size	Specify the maximum size of the ICMPv4/ICMPv6 ping packets. The valid range is from 0 to 65535 bytes, and the default value is 512 bytes.
IPv4 Ping Max Size	Checks the maximum size of ICMP ping packets, and drops the packets larger than the maximum packet size.
IPv6 Ping Max Size	Checks the maximum size of ICMPv6 ping packets, and drops the packets larger than the maximum packet size

TCP Min Hdr Size	Checks the minimum TCP header and drops the TCP packets with the header smaller than the minimum size. The length range is from 0 to 31 bytes, and default length is 20 bytes.
IPv6 Min Flagment	Checks the minimum size of IPv6 fragments, and drops the packets smaller than the minimum size. The valid range is from 0 to 65535 bytes, and default value is 1240 bytes.
Smurf Attack	Avoid smurf attack. The length range of the netmask is from 0 to 323 bytes, and default length is 0 bytes.

11.4.2 Port Setting

Click **Security** > **DoS** > **Port Setting**

To configure and display the state of DoS protection for interfaces.



Field	Description
Port	Interface or port number.
State	Enable/Disable the DoS protection on the interface.

Chapter 12 QoS

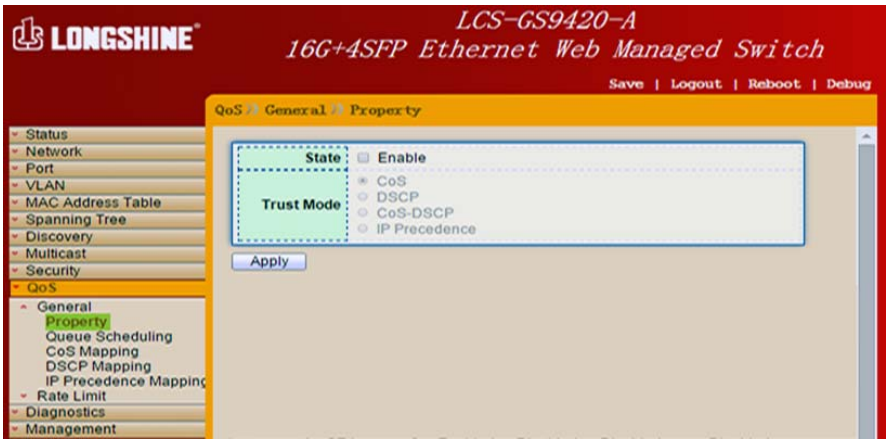
QoS (Quality of Service) functions to provide different quality of service for various network applications and requirements and optimize the bandwidth resource distribution so as to provide a network service experience of a better quality.

12.1 General

Use the QoS general pages to configure setting for general purpose.

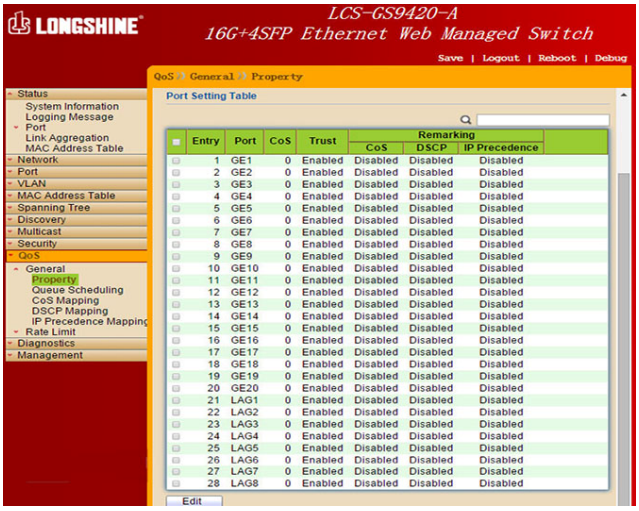
12.1.1 Property

Click **QoS** > **General** > **Property**
To display QoS property web page.



Field	Description
State	Set checkbox to enable/disable QoS.
Trust Mode	Select QoS trust mode. **CoS** : Traffic is mapped to queues based on the CoS field in the VLAN tag, or based on the per-port default CoS value (if there is no VLAN tag on the incoming packet), the actual mapping of the CoS to queue can be configured on port setting dialog. **DSCP** : All IP traffic is mapped to queues based on the DSCP field in the IP header. The actual mapping of the DSCP to queue can be configured on the DSCP mapping page. If traffic is not IP traffic, it is mapped to the best effort queue. **CoS-DSCP** : Uses the trust CoS mode for non-IP traffic and trust DSCP mode for IP traffic. **IP Precedence** : Traffic is mapped to queues based on the IP precedence. The actual mapping of the IP precedence to queue can be configured on the IP Precedence mapping page.

Port Setting Table



Field	Description
Port	Port name
CoS	Port default CoS priority value for the selected ports.
Trust	Port trust state **Enable** : Traffic will follow trust mode in global setting. **Disable** : Traffic will always use best efforts.
Remarking (CoS)	Port CoS remarking admin state. **Enable** : CoS remarking is enabled **Disable** : CoS remarking is disabled
Remarking (DSCP)	Port DSCP remarking admin state. **Enable** : DSCP remarking is enabled **Disable** : DSCP remarking is disabled
Remarking (IP Precedence)	Port IP Precedence remarking admin state. **Enable** : IP Precedence remarking is enabled **Disable** : IP Precedence remarking is disabled

Click “Edit” to edit the QoS port setting.

Field	Description
Port	Select port list
CoS	Set default CoS priority value for the selected ports.
Trust	Set checkbox to enable/disable port trust state.
Remarking (CoS)	Set checkbox to enable/disable port CoS remarking.
Remarking (DSCP)	Set checkbox to enable/disable port DSCP remarking.
Remarking (IP Precedence)	Set checkbox to enable/disable port IP Precedence remarking.

12.1.2 Queue Scheduling

Click **QoS** > **General** > **Queue Scheduling**
To display Queue Scheduling web page.

The switch supports eight queues for each interface. Queue number 8 is the highest priority queue. Queue number 1 is the lowest priority queue. There are two ways of determining how traffic in queues is handled, **Strict Priority (SP)** and **Weighted Round Robin (WRR)**.
Strict Priority (SP) : Egress traffic from the highest priority queue is transmitted first. Traffic from the lower queues is processed only after the highest queue has been transmitted, which provide the highest level of priority of traffic to the highest numbered queue.
Weighted Round Robin (WRR) : In WRR mode the number of packets sent from the queue is proportional to the weight of the queue (the higher the weight, the more frames are sent).

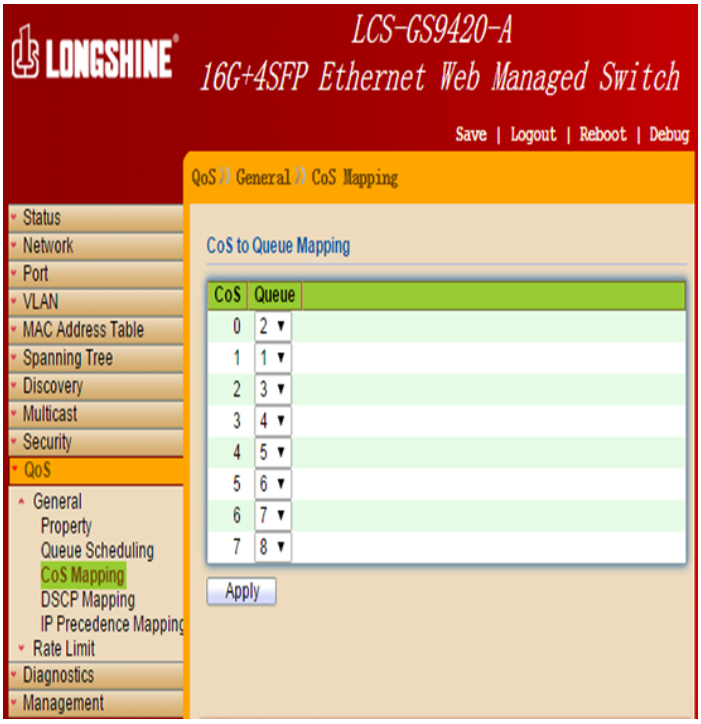
The queuing mode can be selected on the Queue page. When the queuing mode is by Strict Priority, the priority sets the order in which queues are serviced, starting with queue_8 (the highest priority queue) and going to the next lower queue when each queue is completed.
When the queuing mode is Weighted Round Robin, queues are serviced until their quota has been used up and then another queue is serviced. It is also possible to assign some of the lower queues to WRR, while keeping some of the higher queues in Strict Priority. In this case traffic for the SP queues is always sent before traffic from the WRR queues. After the SP queues has been emptied, traffic from the WRR queues is forwarded. (The relative portion from each WRR queue depends on its weight).

Field	Description
Queue	Queue ID to configure
Strict Priority	Set queue to strict priority type
WRR	Set queue to Weight Round Robin type.
Weight	If the queue type is WRR, set the queue weight for the queue.
WRR Bandwidth	Percentage of WRR queue bandwidth.

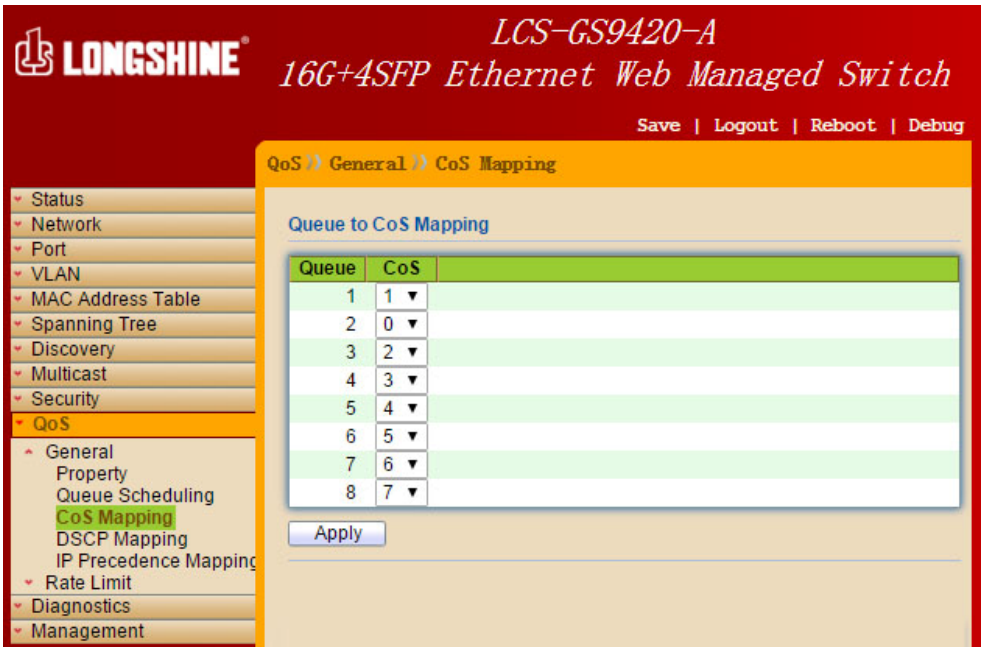
12.1.3 CoS Mapping

Click **QoS** > **General** > **CoS Mapping**
To display CoS Mapping web page.

The CoS to Queue table determines the egress queues of the incoming packets based on the 802.1p priority in their VLAN tags. For incoming untagged packets, the 802.1p priority will be the default CoS/802.1p priority assigned to the ingress ports.
Use the Queues to CoS table to remark the CoS/802.1p priority for egress traffic from each queue.



Field	Description
CoS	CoS value
Queue	Select queue ID for the CoS value



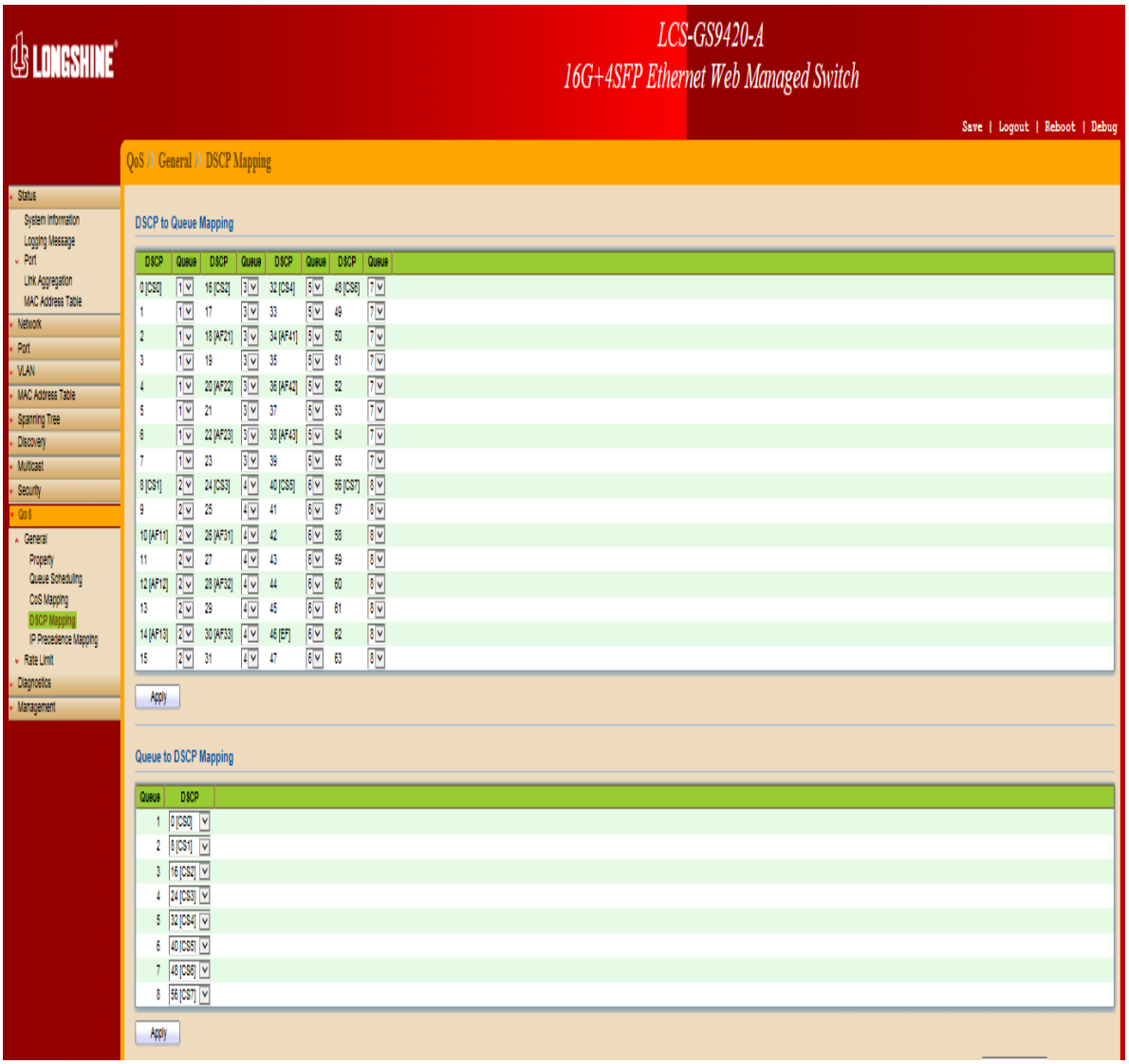
Field	Description
Queue	Queue ID
CoS	Select CoS value for the queue ID.

12.1.4 DSCP Mapping

Click **QoS** > **General** > **DSCP Mapping**
To display DSCP Mapping web page.

The DSCP to Queue table determines the egress queues of the incoming IP packets based on their DSCP values. The original VLAN Priority Tag (VPT) of the packet is unchanged.

Use the Queues to DSCP page to remark DSCP value for egress traffic from each queue.



Field	Description
DSCP	DSCP value
Queue	Select Queue ID for DSCP value.

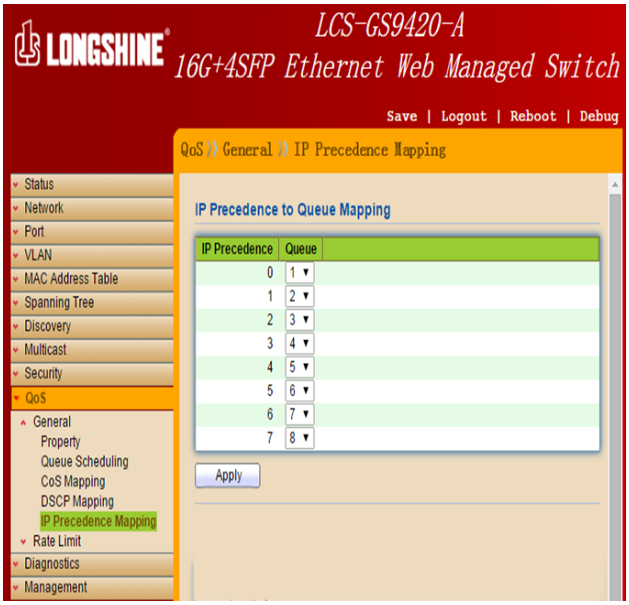
Queue to DSCP Mapping

Field	Description
Queue	Queue ID
DSCP	Select DSCP value for Queue ID.

12.1.5 IP Precedence Mapping

Click **QoS** > **General** > **IP Precedence Mapping**
To display IP Precedence Mapping web page.

This page allow user to configure IP Precedence to Queue Mapping and Queue to IP Precedence Mapping.



Field	Description
IP Precedence	IP Precedence value
Queue	Queue value which IP Precedence is mapped.

Queue to IP Precedence Mapping

Field	Description
Queue	Queue ID
IP Precedence	IP Precedence value which queue is mapped.

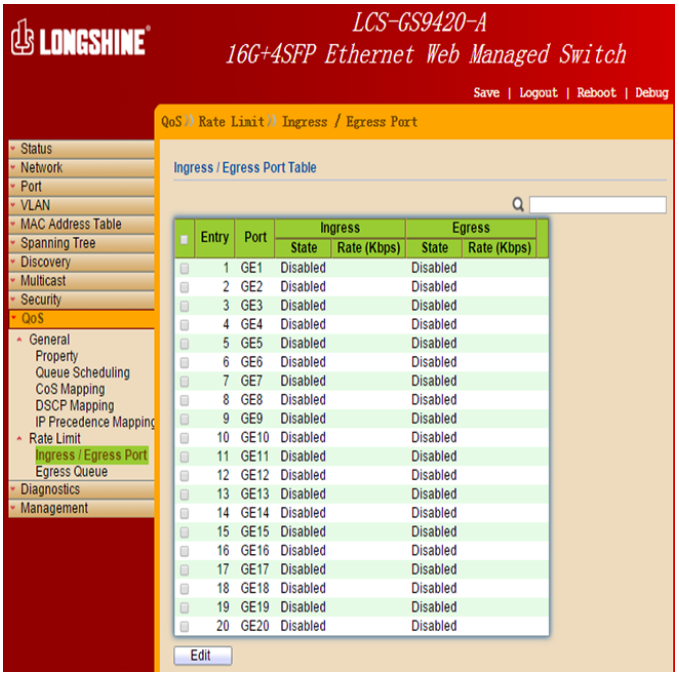
12.2 Rate Limit

Use the Rate Limit pages to define values that determine how much traffic the switch can receive and send on specific port or queue.

12.2.1 Ingress/Egress Port

Click **QoS** > **Rate Limit** > **Ingress/Egress**
To display Ingress/Egress Port web page.

This page allow user to configure ingress port rate limit and egress port rate limit. The ingress rate limit is the number of bits per second that can be received from the ingress interface. Excess bandwidth above this limit is discarded.



Field	Description
Port	Port name
Ingress (State)	Port ingress rate limit state **Enable** : Ingress rate limit is enabled. **Disable** : Ingress rate limit is disabled.
Ingress (Rate)	Port ingress rate limit value if ingress rate state is enabled.
Egress (State)	Port egress rate limit state **Enable** : Egress rate limit is enabled. **Disable** : Egress rate limit is disabled.
Egress (Rate)	Port egress rate limit value if egress rate state is enabled.

Click “Edit” to edit Ingress/Egress Port.

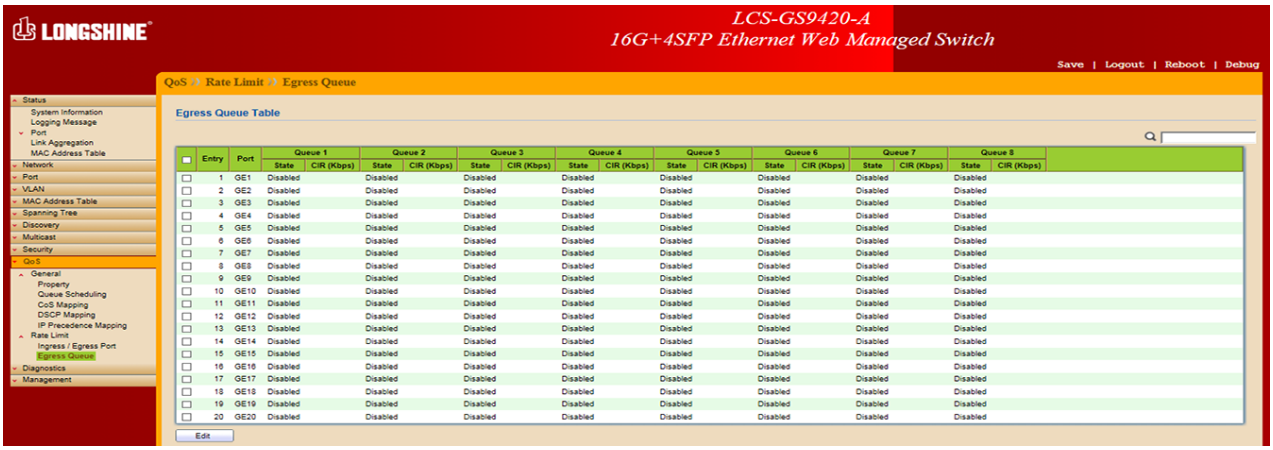
Field	Description
Port	Select Port list
Ingress	Set checkbox to enable/disable ingress rate limit. If ingress rate limit is enabled, rate limit value need to be assigned.
Egress	Set checkbox to enable/disable egress rate limit. If egress rate limit is enabled, rate limit value need to be assigned.

12.2.2 Egress Queue

Click **QoS** > **Rate Limit** > **Egress Queue**

To display Egress Queue web page.

Egress rate limiting is performed by shaping the output load.



Field	Description
Port	Port name
Queue 1 (State)	Port egress queue 1 rate limit state. **Enable** : Egress queue rate limit is enable. **Disable** : Egress queue rate limit is disable.
Queue 1 (CIR)	Queue 1 egress committed information rate.
Queue 2 (State)	Port egress queue 2 rate limit state. **Enable** : Egress queue rate limit is enable. **Disable** : Egress queue rate limit is disable.
Queue 2 (CIR)	Queue 2 egress committed information rate.
Queue 3 (State)	Port egress queue 3 rate limit state. **Enable** : Egress queue rate limit is enable. **Disable** : Egress queue rate limit is disable.
Queue 3 (CIR)	Queue 3 egress committed information rate.
Queue 4 (State)	Port egress queue 4 rate limit state. **Enable** : Egress queue rate limit is enable. **Disable** : Egress queue rate limit is disable.
Queue 4 (CIR)	Queue 4 egress committed information rate.
Queue 5 (State)	Port egress queue 5 rate limit state. **Enable** : Egress queue rate limit is enable. **Disable** : Egress queue rate limit is disable.

Queue 5 (CIR)	Queue 5 egress committed information rate.
Queue 6 (State)	Port egress queue 6 rate limit state. **Enable** : Egress queue rate limit is enable. **Disable** : Egress queue rate limit is disable.
Queue 6 (CIR)	Queue 6 egress committed information rate.
Queue 7 (State)	Port egress queue 7 rate limit state. **Enable** : Egress queue rate limit is enable. **Disable** : Egress queue rate limit is disable.
Queue 7 (CIR)	Queue 7 egress committed information rate.
Queue 8 (State)	Port egress queue 8 rate limit state. **Enable** : Egress queue rate limit is enable. **Disable** : Egress queue rate limit is disable.
Queue 8 (CIR)	Queue 8 egress committed information rate.

Click “Edit” to edit Egress Queue

Field	**Description**
Port	Select port list
Queue 1	Set checkbox to enable/disable egress queue 1 rate limit. If egress rate limit is enabled, rate limit value need to be assigned.
Queue 2	Set checkbox to enable/disable egress queue 2 rate limit. If egress rate limit is enabled, rate limit value need to be assigned.
Queue 3	Set checkbox to enable/disable egress queue 3 rate limit. If egress rate limit is enabled, rate limit value need to be assigned.
Queue 4	Set checkbox to enable/disable egress queue 4 rate limit. If egress rate limit is enabled, rate limit value need to be assigned.
Queue 5	Set checkbox to enable/disable egress queue 5 rate limit. If egress rate limit is enabled, rate limit value need to be assigned.
Queue 6	Set checkbox to enable/disable egress queue 6 rate limit. If egress rate limit is enabled, rate limit value need to be assigned.
Queue 7	Set checkbox to enable/disable egress queue 7 rate limit. If egress rate limit is enabled, rate limit value need to be assigned.
Queue 8	Set checkbox to enable/disable egress queue 8 rate limit. If egress rate limit is enabled, rate limit value need to be assigned.

Chapter 13 Diagnostics

Use the Diagnostic pages to configure settings for the switch diagnostics feature or operating diagnostic utilities.

13.1 Logging

13.1.1 Property

Click **Diagnostics** > **Logging** > **Property**
To display the Logging Service web page.

Field	Description
State	Enable/Disable the global logging services. When the logging service is enabled, logging configuration of each destination rule can be individually configured. If the logging service is disabled, no messages will be sent to these destinations.

Console Logging

Field	Description
State	Enable/Disable the console logging service.
Minimum Severity	The minimum severity for the console logging.

RAM Logging

Field	Description
State	Enable/Disable the RAM logging service.
Minimum Severity	The minimum severity for the RAM logging.

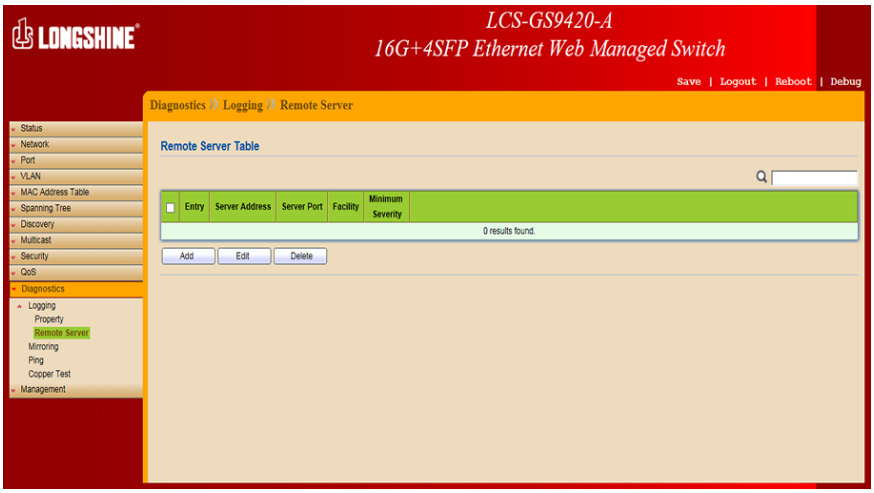
Flash Logging

Field	Description
State	Enable/Disable the Flash logging service.
Minimum Severity	The minimum severity for the Flash logging.

13.1.2 Remote Server

Click **Diagnostics** > **Logging** > **Remote Server**

To display the Remote Logging Server web page.

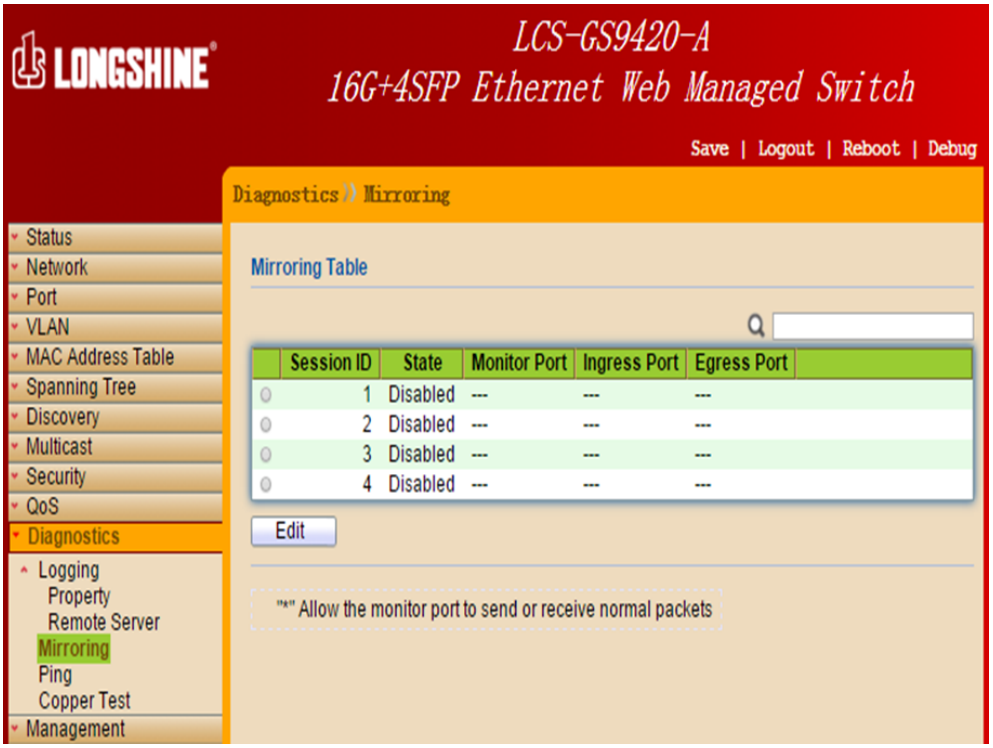


Field	Description
Server Address	The IP address of the remote logging server.
Server Ports	The port number of the remote logging server.
Facility	The facility of the logging messages. It can be one of the following values: local0, local1, local2, local3, local4, local5, local6, and local7.
Severity	The minimum severity **Emergence** : System is not usable. **Alert** : Immediate action is needed. **Critical** : System is in the critical condition. **Error** : System is in error condition. **Warning** : System warning has occurred. **Notice** : System is functioning properly, but a system notice has occurred. **Informational** : Device information. **Debug** : Provides detailed information about an event.

13.2 Mirroring

Click **Diagnostics** > **Mirroring**

To display the Port Mirroring web page.

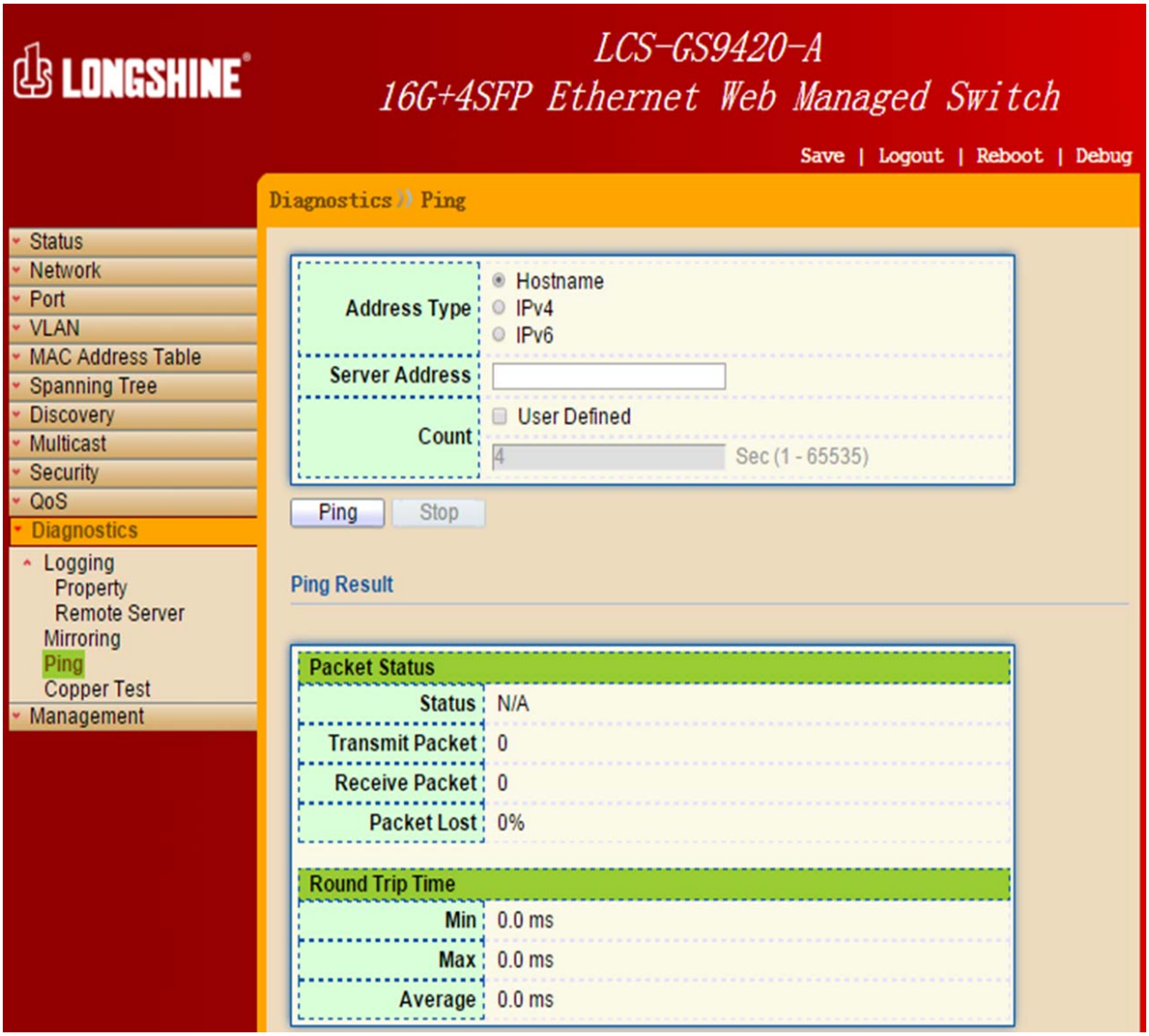


Field	Description
Session ID	Select mirror session ID
State	Select mirror session state : port-base mirror or disable Enabled : Enable port based mirror Disabled : Disable mirror
Monitor Port	Select mirror session monitor port, and select. Whether normal packet could be sent or received by monitor port.
Ingress Port	Select mirror session source RX ports.
Egress Port	Select mirror session source TX ports.

13.2 Ping

Click **Diagnostics** > **Ping**

To display the Diagnostic Ping functionality web page.

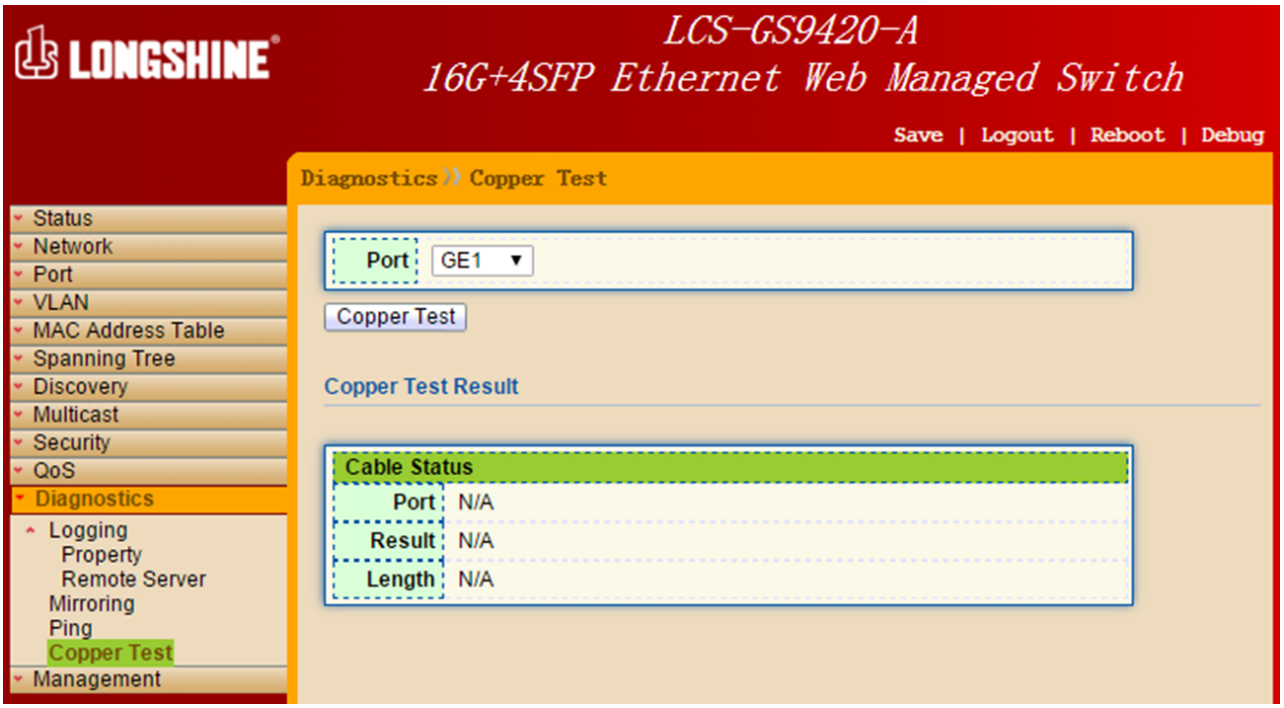


Field	Description
Address Type	Specify the address type to “Hostname”, “IPv6”, or “IPv4”.
Server Address	Specify the Hostname/IPv6/IPv4 address for the remote logging server.
Count	Specify the numbers of each ICMP ping request.

13.3 Copper Test

Click **Diagnostics** > **Copper Test**

To test the copper length diagnostic.



Field	Description
Port	Specify the interface for the copper test.

Copper Test Result

Field	Description
Port	The interface for the copper test.
Result	The status of copper test. It include: **OK** : Correctly terminated pair. **Short Cable** : Shorted pair. **Open Cable** : Open pair, no link partner. **Impedance Mismatch** : Terminating impedance is not in the reference range. **Line Drive** :
Length	Distance in meter from the port to the location on the cable where the fault was discovered.

Chapter 14 Management

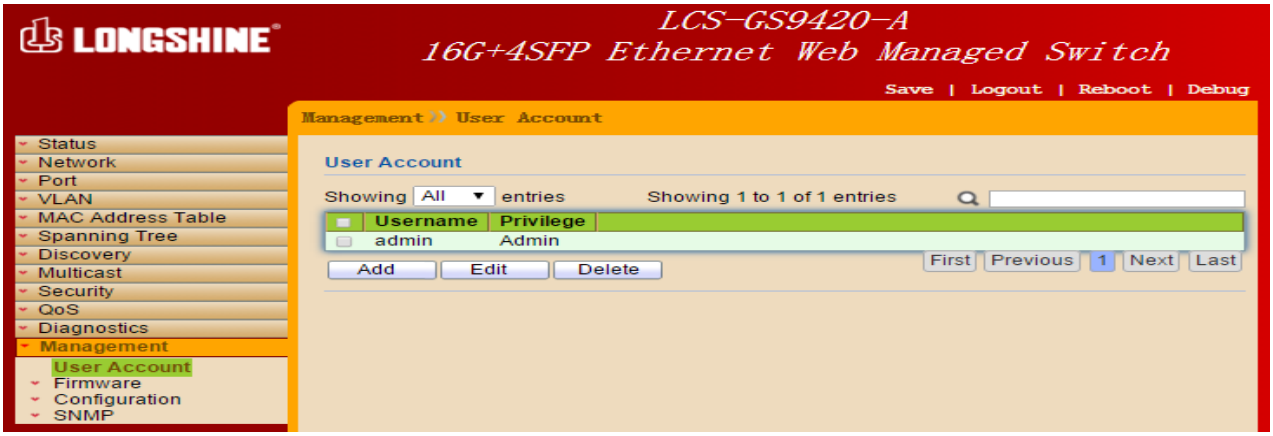
Use the Management pages to configure setting for the switch management features.

14.1 User Account

Click **Management** > **User Account**
To display User Account web page.

The default username/password is admin/admin. And default account is not able to be deleted.

Use this page to add additional users that are permitted to manage the switch or to change the passwords of existing users.



Field	Description
Username	User name of the account.
Privilege	Select privilege level for new account. **Admin** : Allow to change switch settings. Privilege value equals to 15. **User** : See switch settings only. Not allow to change it. Privilege level equals to 1.

Click “Add” or “Edit” to add/edit User Account.

Field	Description
Username	User name of the account.
Password	Set password of the account.
Confirm Password	Set the same password of the account as in “Password” field
Privilege	Select privilege level for new account. **Admin** : Allow to change switch settings. Privilege value equals to 15. **User** : See switch settings only. Not allow to change it. Privilege level equals to 1.

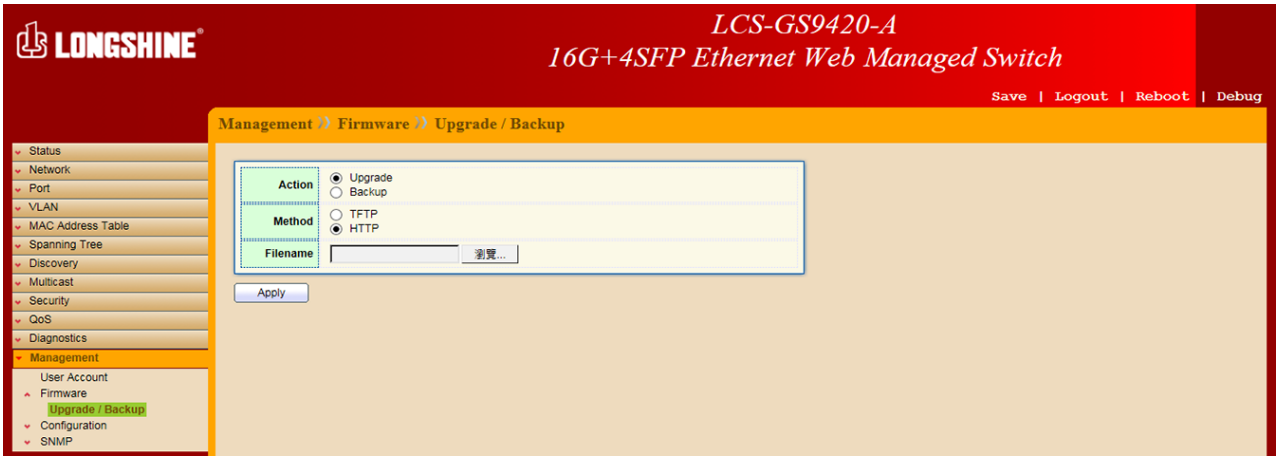
14.2 Firmware

14.2.1 Upgrade/Backup

Click **Management** > **Firmware** > **Upgrade/Backup**

To display the Firmware Upgrade or Backup web page.

This page allow user to upgrade or backup firmware image through HTTP or TFTP server.



Upgrade Firmware through HTTP.

Field	Description
Action	Firmware operations **Upgrade** : Upgrade firmware from remote host to DUT. **Backup** : Backup firmware image from DUT to remote host.
Method	Firmware upgrade/backup method **TFTP** : Using TFTP to upgrade/backup firmware. **HTTP** : Using WEB browser to upgrade/backup firmware.
Filename	Use browser to upgrade firmware, you should select firmware image file on your host PC.

Upgrade Firmware through TFTP.

Field	Description
Action	Firmware operations **Upgrade** : Upgrade firmware from remote host to DUT. **Backup** : Backup firmware image from DUT to remote host.
Method	Firmware upgrade/backup method **TFTP** : Using TFTP to upgrade/backup firmware. **HTTP** : Using WEB browser to upgrade/backup firmware.
Address Type	Specify TFTP server address type **Hostname** : Use domain name as server address. **IPv4** : Use IPv4 as server address **IPv6** : Use IPv6 as server address
Server Address	Specify TFTP server address.
Filename	Firmware image file name on remote TFTP server

Backup Firmware through HTTP.

Field	Description
Action	Firmware operations **Upgrade** : Upgrade firmware from remote host to DUT. **Backup** : Backup firmware image from DUT to remote host.
Method	Firmware upgrade/backup method **TFTP** : Using TFTP to upgrade/backup firmware. **HTTP** : Using WEB browser to upgrade/backup firmware.

Backup Firmware through TFTP.

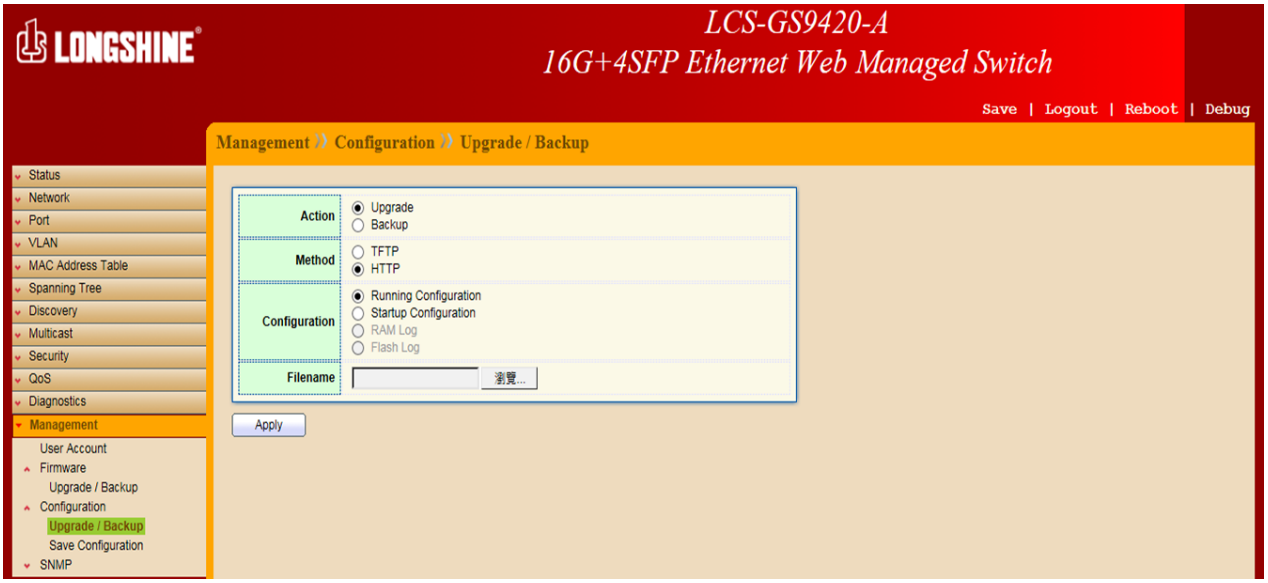
Field	Description
Action	Firmware operations **Upgrade** : Upgrade firmware from remote host to DUT. **Backup** : Backup firmware image from DUT to remote host.
Method	Firmware upgrade/backup method **TFTP** : Using TFTP to upgrade/backup firmware. **HTTP** : Using WEB browser to upgrade/backup firmware.
Address Type	Specify TFTP server address type Hostname : Use domain name as server address **IPv4** : Use IPv4 as server address **IPv6** : Use IPv6 as server address
Server Address	Specify TFPT server address
Firmware	File name saved on remote TFTP server

14.3 Configuration

14.3.1 Upgrade/Backup

Click **Management** > **Configuration** > **Upgrade/Backup**
To display the Firmware Upgrade or Backup web page.

This page allow user to upgrade or backup configuration file through HTTP or TFPT server.



Upgrade Configuration through HTTP.

Field	Description
Action	Configuration operations **Upgrade** : Upgrade Configuration from remote host to DUT. **Backup** : Backup Configuration image from DUT to remote host.
Method	Configuration upgrade/backup method **TFTP** : Using TFTP to upgrade/backup Configuration. **HTTP** : Using WEB browser to upgrade/backup Configuration..
Configuration	Configuration types **Running Configuration** : Merge to current running configuration file. **Startup Configuration** : Replace startup configuration file.
Filename	Use browser to upgrade Configuration, you should select Configuration image file on your host PC.

Upgrade Configuration through TFTP.

Field	Description
Action	Configuration operations **Upgrade** : Upgrade Configuration from remote host to DUT. **Backup** : Backup Configuration image from DUT to remote host.
Method	Configuration upgrade/backup method **TFTP** : Using TFTP to upgrade/backup Configuration. **HTTP** : Using WEB browser to upgrade/backup Configuration.
Configuration	Configuration types **Running Configuration** : Merge to current running configuration file. **Startup Configuration** : Replace startup configuration file.
Address Type	Specify TFTP server address type **Hostname** : Use domain name as server address. **IPv4** : Use IPv4 as server address **IPv6** : Use IPv6 as server address
Server Address	Specify TFTP server address.
Filename	Configuration image file name on remote TFTP server

Backup Configuration through HTTP.

Field	Description
Action	Configuration operations **Upgrade** : Upgrade Configuration from remote host to DUT. **Backup** : Backup Configuration image from DUT to remote host.
Method	Configuration upgrade/backup method **TFTP** : Using TFTP to upgrade/backup Configuration. **HTTP** : Using WEB browser to upgrade/backup Configuration..
Configuration	Configuration types **Running Configuration** : Merge to current running configuration file. **Startup Configuration** : Replace startup configuration file. **RAM Log** : Backup log file stored in RAM **Flash Log** : Backup log files store in Flash.

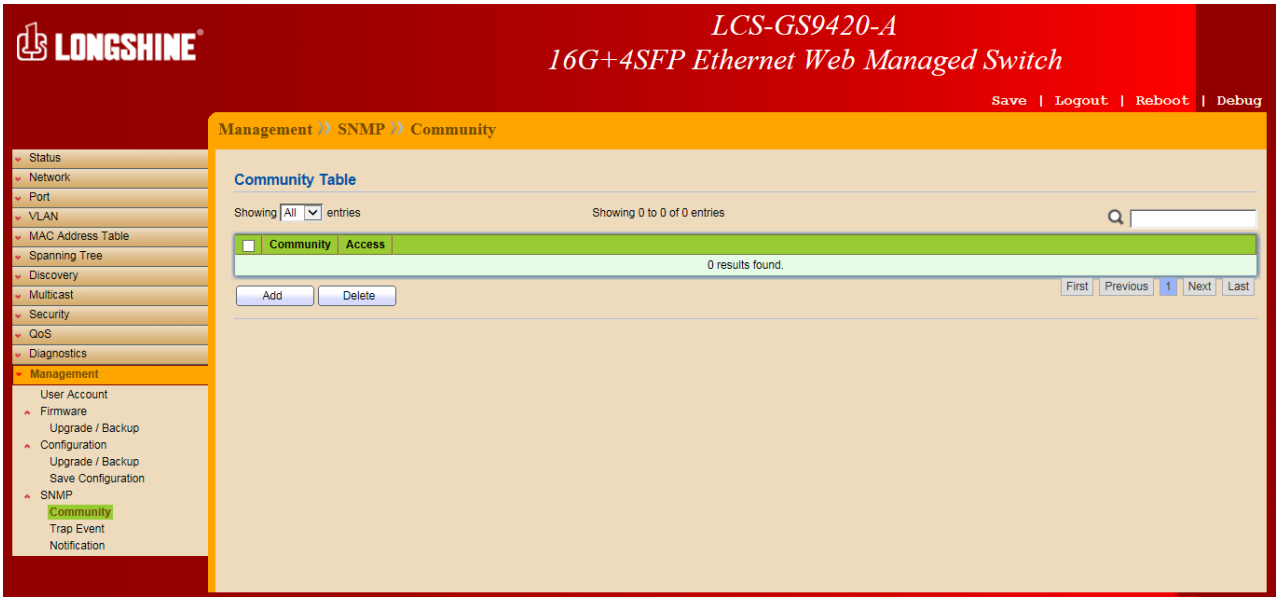
Backup Configuration through TFTP.

Field	Description
Action	Configuration operations **Upgrade** : Upgrade Configuration from remote host to DUT. **Backup** : Backup Configuration image from DUT to remote host.
Method	Configuration upgrade/backup method **TFTP** : Using TFTP to upgrade/backup Configuration. **HTTP** : Using WEB browser to upgrade/backup Configuration.
Configuration	Configuration types **Running Configuration** : Merge to current running configuration file. **Startup Configuration** : Replace startup configuration file. **RAM Log** : Backup log file stored in RAM **Flash Log** : Backup log files store in Flash.
Address Type	Specify TFTP server address type **Hostname** : Use domain name as server address. **IPv4** : Use IPv4 as server address **IPv6** : Use IPv6 as server address
Server Address	Specify TFTP server address.
Filename	Configuration image file name on remote TFTP server

14.3.2 Save Configuration

Click **Management** > **Configuration** > **Save Configuration**
To display the Save Configuration web page.

This page allow user to manage configuration file saved on DUT and click “Restore Factory Default” button to restore factory defaults.



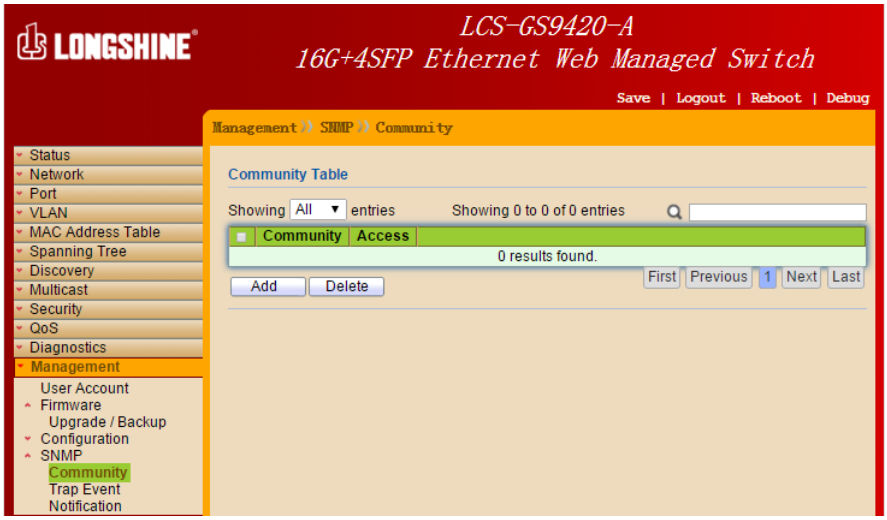
Field	Description
Source File	Source file types **Running Configuration** : Copy running configuration file to destination. **Startup Configuration** : Copy startup configuration file to destination.
Destination File	Destination file **Startup Configuration** : Save file as startup configuration.

14.4 SNMP

14.4.1 Community

Click **Management** > **SNMP** > **Community**

To display and configure the SNMP community settings.

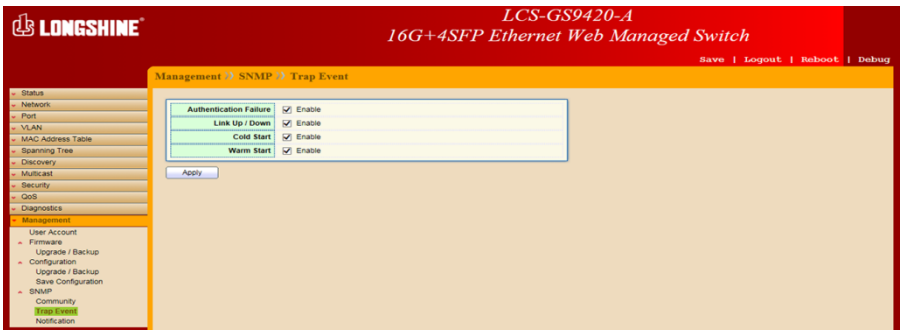


Field	Description
Community	The SNMP community name. Its maximum length is 20 characters.
Access Right	SNMP access mode **Read-Only** : Read only **Read-Write** : Read and Write.

14.4.2 Trap Event

Click **Management** > **SNMP** > **Trap Event**

To display and configure the SNMP trap event.



Field	Description
Authentication Failure	SNMP authentication failure trap, when community not match or user authentication password not match.
Link Up/Down	Port link up or down trap.
Cold Start	Device reboot configure by user trap.
Warm Start	Device reboot by power down trap

14.4.3 Notification

Click **Management** > **SNMP** > **Notification**

To configure the hosts to receive SNMP v1/v2 notification

Field	Description
Server Address	IP address or the hostname of the SNMP trap recipients.
Version	Specify SNMP notification version **SNMPv1** : SNMP Version 1 notification **SNMPv2** : SNMP Version 2 notification.
Type	Notification Type **Trap**: Send SNMP traps to the host. **Inform** : Send SNMP informs to the host.
Community	SNMP community name for notification.

Product Specifications

Standard	IEEE802.3, IEEE802.3u, and IEEE802.3ab IEEE 802.3x flow control IEEE 802.1p class of service, priority protocols IEEE 802.3az Energy Efficient Ethernet(EEE)
Interface	24/16* 10/100/1000Mbps ports RJ-45 NWay ports 4* SFP 100/1000Mbps ports 1* DB9 Console Port 1* Reset button
Transmission Mode	10/100Mbps: Full-duplex, Half-duplex 1000Mbps: Full-duplex
MAC Address Table	8K
Jumbo Frame	10K Bytes
Buffer Memory	524.8K Bytes
Temperature	Operating: 0°C ~ 50°C (32°F ~122°F)
Humidity	Operating: 5% ~ 90% RH, non-condensing
LED Indications	1*Power LED(Green) 1*System LED(Green) 24/16*Gigabit port LEDs(Link/Act: Green) 4*SFP port LEDs(Link/Act: Green)
Power Supply	Internal Switching Power Supply, 100~240VAC, 50~60Hz
Dimensions	441*131*44 mm
Certification	FCC, CE Class A; LVD

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DECLARATION OF CONFORMITY

In accordance to

EUROPEAN COUNCIL DIRECTIVE
2004/108/EC;2014/30/EU & 2006/95/EC;2014/35/eu & 2011/65/EU

CE = European Community Conformity Mark

We, Manufacturer/Importer

Longshine Technologie (Europe) GmbH
An der Strusbek 9
22926 Ahrensburg
Germany

Declare That The Product

LCS-GS9420-A
16 Port 10/100/1000Mbps managed Ethernet Switch with 4 SFP ports

Is In Conformity With:

Standards	Results
EN 55022:2010 / AC:2011	Pass
EN 61000-3-2:2014	Pass
EN 61000-3-3:2013	Pass
EN 55024:2010	Pass
IEC 61000-4-2:2008	Pass
IEC 61000-4-3:2010	Pass
IEC 61000-4-4:2012	Pass
IEC 61000-4-5:2005	Pass
IEC 61000-4-6:2008	Pass
IEC 61000-4-8:2009	Pass
IEC 61000-4-11:2004	Pass
EN 60950-1:2006+A1:2010+A12:2011	Pass

Identification of signatory empowered to bind the manufacturer or his authorized representative.
Signature
Manufacturer/Importer

Date: 11.11.2015

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CE = European Community Conformity Mark

We, Manufacturer/Importer

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Germany

Declare That The Product

LCS-GS9428-A
24 Port 10/100/1000Mbps managed Ethernet Switch with 4 SFP ports

Is In Conformity With:

Standards	Results
EN 55022:2010 / AC:2011	Pass
EN 61000-3-2:2014	Pass
EN 61000-3-3:2013	Pass
EN 55024:2010	Pass
IEC 61000-4-2:2008	Pass
IEC 61000-4-3:2010	Pass
IEC 61000-4-4:2012	Pass
IEC 61000-4-5:2005	Pass
IEC 61000-4-6:2008	Pass
IEC 61000-4-8:2009	Pass
IEC 61000-4-11:2004	Pass
EN 60950-1:2006+A1:2010+A12:2011	Pass

Identification of signatory empowered to bind the manufacturer or his authorized representative.
Signature
Manufacturer/Importer

Date: 11.11.2015