



LNP-2804GN-SFP-T

**28-Port Industrial Gigabit PoE+ Managed Ethernet Switches,
with 24*10/100/1000Tx, and 4* Gigabit Combo Ports
(4*10/100/1000Tx RJ45, 4*100/1000 SFP Slots); EOT: -40°C to 75°C**



Version 1.0

User Manual



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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 in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. It may cause harmful interference to radio communications if the equipment is not installed and used in accordance with the instructions. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

CE Mark Warning

This is a Class-A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Industrial Ethernet Switches

Industrial Grade Gigabit PoE Managed Ethernet Switches

User Manual

Version 1.0 (September 2017)

This manual supports the following models:

- LNP-2804GN-SFP-T

This document is the current official release manual. Please check our website (www.antaira.com) for any updated manual or contact us by e-mail (support@antaira.com).

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1. Introduction

All Antaira industrial managed switches come with a pre-installed “user-friendly” web console interface, which allows users to easily configure and manage the units, whether one is using a serial console and command line interface (CLI) commands like Telnet, SSH, HTTP (Web GUI) or simple network management protocols (SNMP).

1.1 Product Overview

Antaira Technologies’ LNP-2804GN-SFP-T is a 28-port industrial Gigabit PoE+ managed Ethernet switch embedded with 24*10/100/1000Tx Ethernet ports that support IEEE802.3at/af for a maximum of 30W/port and 4*100/1000 SFP slots for combo RJ45/Fiber connections. The LNP-2804GN-SFP-T is a fully manageable Layer 2 Ethernet switch that is pre-loaded with a user-friendly web management console design. It supports the ring network redundancy function using X-Ring (ultra-high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D), MSTP. The advanced network filtering and security functions, such as IGMP, VLAN, QoS, SNMP, port lock, RMON, and 802.1X/HTTPS/SSH/SSL increase determinism and improve network management for remote SCADA systems or control networks.

The LNP-2804GN-SFP-T is IP30 rated and rack mount design with extended temperature range (EOT: -40°C to 75°C). It also provides high EFT and ESD protection for industrial networking applications, such as power/utility, water wastewater, oil/gas/mining, factory automation, security surveillance, ITS and any other outdoor or harsh environment applications.

1.2 Product Software Features

- Network Redundancy
 - X-Ring (ultra-high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D), MSTP for network redundancy
- Network Management
 - Web UI based management, SNMP v1/v2/v3, serial console
 - QoS, traffic classification QoS, COS, bandwidth control for Ingress and Egress, broadcast storm control, DiffServ
 - IEEE802.1q VLAN tagging, port-based VLAN support
 - IGMP snooping v1/v2
 - Supports IPv4/IPv6, RMON, MIB II, port mirroring, event syslog, DNS, NTP/SNTP, HTTPS, SSH/SSL, TFTP
- Port Configuration
 - Status, statistics, mirroring, rate limiting, event syslog
- Event Handling
 - Fault Alarm Relay Output
- Software Upgrade via TFTP and HTTP

1.3 Product Hardware Features

- System Interface and Performance
 - Embedded 24*10/100/1000Tx (PSE 30W/Port) RJ45 Ports and 4*100/1000 SFP slots for combo RJ45/Fiber
 - Store-and-forward switching architecture

- 8k MAC address table
- Power Input
 - DC 46~57V redundant with a 4-pin terminal block
 - 2 alarm relay output
- Operating Temperature
 - Extended operating temperature models: -40°C to 75°C
- Case/Installation
 - IP30 protection metal housing
 - Rack mount design

1.4 Package Contents

- 1 - LNP-2804GN-SFP-T
- 1 - Quick installation guide
- 1 - Rack Mount Kit
- 1 - RJ45 to DB9 Serial Console cable

1.5 Safety Precaution

Attention: If the DC voltage is supplied by an external circuit, please use a protection device on the power supply input. The industrial Ethernet switch's hardware specs, ports, cabling information, and wiring installation will be described within this user manual.

2. Hardware Description

2.1 Physical Dimensions

Figure 2.1, below, shows the physical dimensions of Antaira's LNP-2804GN-SFP-T series: 28-Port Industrial Gigabit PoE+ Managed Ethernet Switches with 24*10/100/1000Tx, and 4* Gigabit Combo Ports (4*10/100/1000Tx RJ45, 4*100/1000 SFP Slots).

(W x D x H) is **438mm x 259.2mm x 43.6mm**

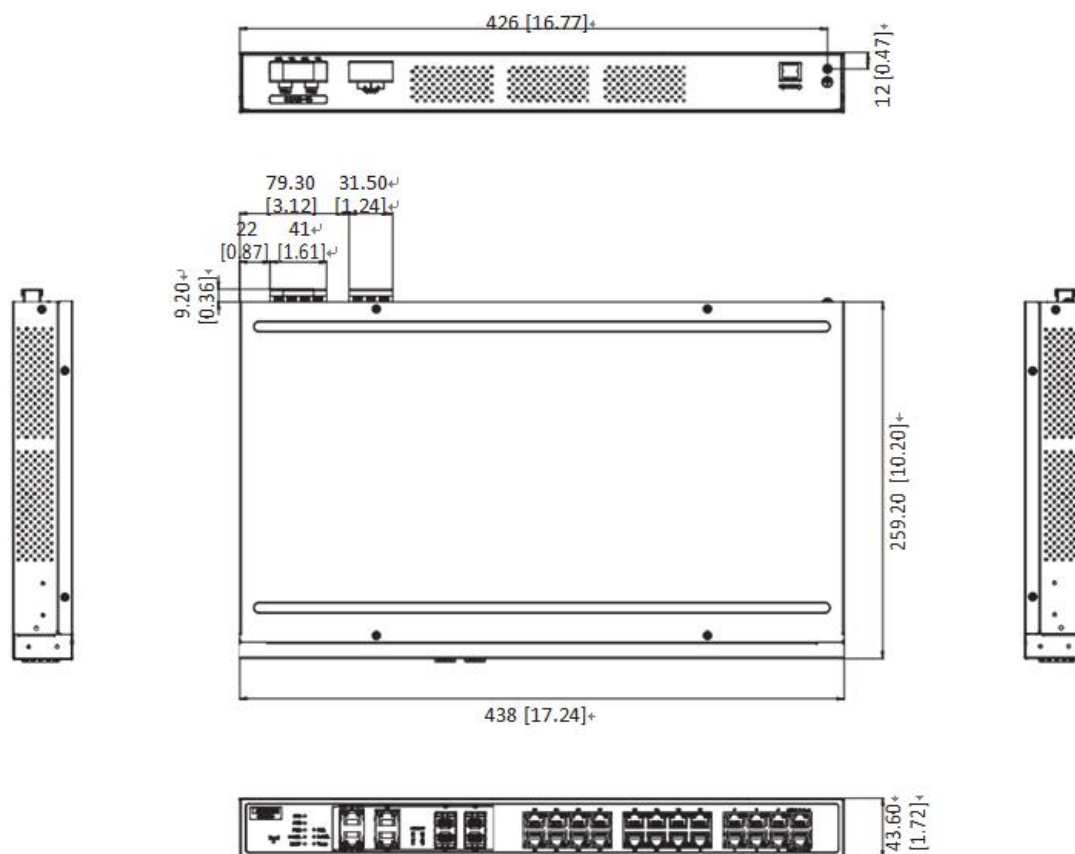


Figure 2.1

2.2 Front Panel

The front panel of the LNP-2804GN-SFP-T series industrial gigabit PoE+ managed Ethernet switch is

shown below in *Figure 2.2*.

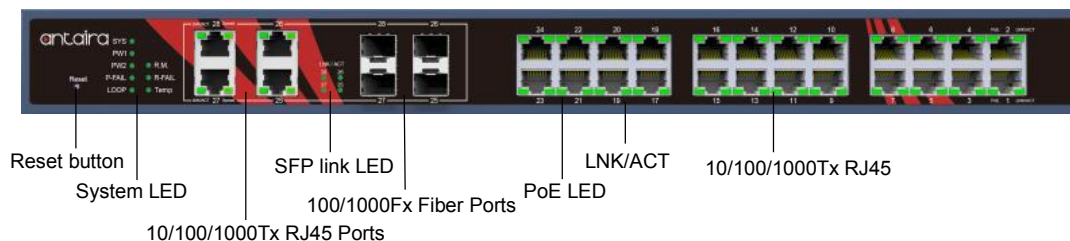


Figure 2.2

2.3 Back Panel

Figure 2.3, below, shows the back panel of the LNP-2804GN-SFP-T switch that is equipped with one 4-pin terminal block connector for dual DC power inputs 46~57VDC.

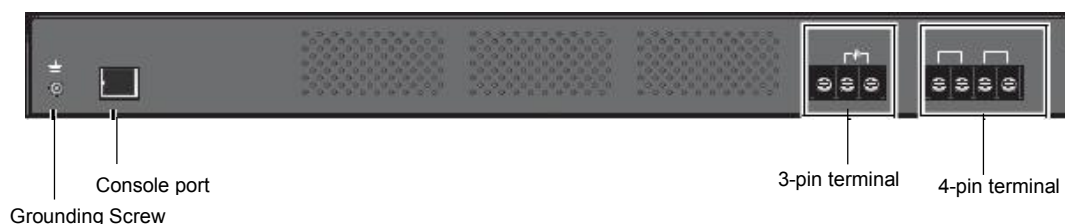


Figure 2.3

2.4 LED Indicators

There are LED light indicators located on the front panel of the industrial Ethernet switch that display the power status and network status. Each LED indicator has a different color and has its own specific meaning, see below in *Table 2.1*.

| LED | Color | Description | |
|--------|-------|-------------|--|
| SYS | Green | On | System is operating normally |
| | | Off | System is powered down / system crash / operation initiating |
| PWR1 | Green | On | Power input 1 is active |
| | | Off | Power input 1 is inactive |
| PWR2 | Green | On | Power input 2 is active |
| | | Off | Power input 2 is inactive |
| P-FAIL | Red | On | When PW1 or PW2 is disconnected, the LED is on. |
| | | Off | When PW1 and PW2 is connected, the LED is off. |

| | | | |
|---|-------|-------|--|
| LOOP Detection | Red | On | When loop detected, the LED is on. |
| | | Off | No loop detected |
| R. M. (Ring Master) | Green | On | An active switch within the ring is a designated ring master |
| | | Off | No ring master determined in current ring |
| Ring Fail | Red | On | A ring port within the ring loop is identified as having a ring ID within a second ring loop |
| | | Off | No ring ports having a ring ID within a secondary ring loop are detected |
| Temp | Red | On | IC sensor detects a temperature range exceeding set temperature range |
| | | Off | IC sensor detects normal operating temperature |
| SFP LED | Green | On | SFP or GBIC plug-in and link up |
| | | Blink | Packet transmit and receive |
| | | Off | SFP or GBIC plug-out or link down |
| PoE (Left LED) (PoE Ports) | Green | On | Connect to PD and supply power |
| | | Blink | Not applicable |
| | | Off | Disconnect from PD |
| LNK/ACT (Right LED) (PoE Ports) | Green | On | Current link speed is 1000M |
| | | Blink | Packet transmit and receive |
| | | Off | No link |
| | Amber | On | Current link speed is 100/10M |
| | | Blink | Packet transmit and receive |
| | | Off | No link |
| LNK/ACT (Left LED) (Combo Ports) | Green | On | Link |
| | | Off | No link |
| LNK/ACT (Right LED) (Combo Ports) | Green | On | Current link speed is 1000M |
| | | Blink | Packet transmit and receive |
| | | Off | No link |
| | Amber | On | Current link speed is 100/10M |
| | | Blink | Packet transmit and receive |
| | | Off | No link |

Table 2.1

2.5 Reset Button

There is a 'Reset' button located on the front panel of the industrial Ethernet switch that helps users to reboot or restore default by pressing the button for different seconds. Please refer to *Table 2.2* for the timing and function.

| Seconds | Function |
|---------|--|
| 3 | System reboot |
| 5 | Reset configuration to factory default |

Table 2.2

2.6 Ethernet Ports

■ RJ-45 Ports

RJ-45 Ports (Auto MDI/MDIX): The RJ-45 ports are auto-sensing for 10Base-T, 100Base-TX, or 1000Base-T connections. Auto MDI means that the switch can connect to another switch or workstation without changing the straight-through or crossover cabling. See the figures below for straight-through and crossover cabling schematics.

■ RJ-45 Pin Assignment

The following figures show the cabling schematics for straight-through and crossover cables:

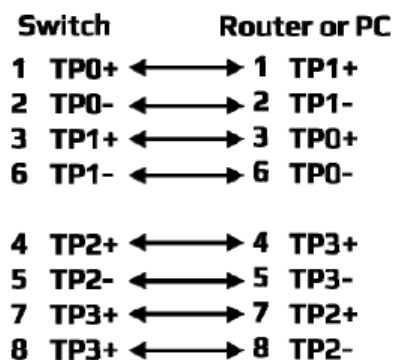


Figure 2.4
Straight-Through Cables Schematic

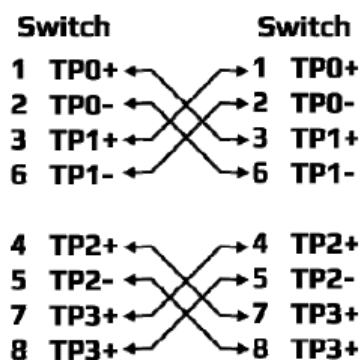
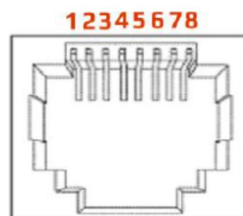


Figure 2.5
Crossover Cables Schematic

The following figures show the 10,100, and 1000 Ethernet RJ45 pin outs.

| Pin | Label |
|-----|-------|
| 1 | TP0+ |
| 2 | TP0- |
| 3 | TP1+ |
| 4 | TP2+ |
| 5 | TP2- |
| 6 | TP1- |
| 7 | TP3+ |
| 8 | TP3- |



2.7 Cabling

Use the four twisted-pair, category 5e, or the above cabling for the RJ-45 port connections. The cable

between the switch and the link partner (switch, hub, workstation, etc.) must be less than 100 meters (328 ft.) in length.

2.8 Wiring the Power Inputs

There are two power inputs for normal and redundant power configurations. The power input 2 is used for wiring a redundant power configuration. See the following for terminal block connector views.

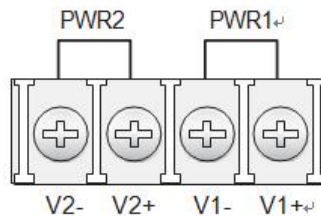


Figure 2.6 Terminal Receptor: Power Input Contacts

To wire the power inputs:

1. Make sure the power is not connected to the switch or the power converter before proceeding.
2. Insert a small flat-bladed screwdriver in the V1+/V1- wire-clamp screws, and loosen the screws.
3. Insert the negative/positive DC wires into the V+/V- terminals of PW1. If setting up power redundancy, connect PW2 in the same manner.
4. Tighten the wire-clamp screws to secure the DC wires in place.

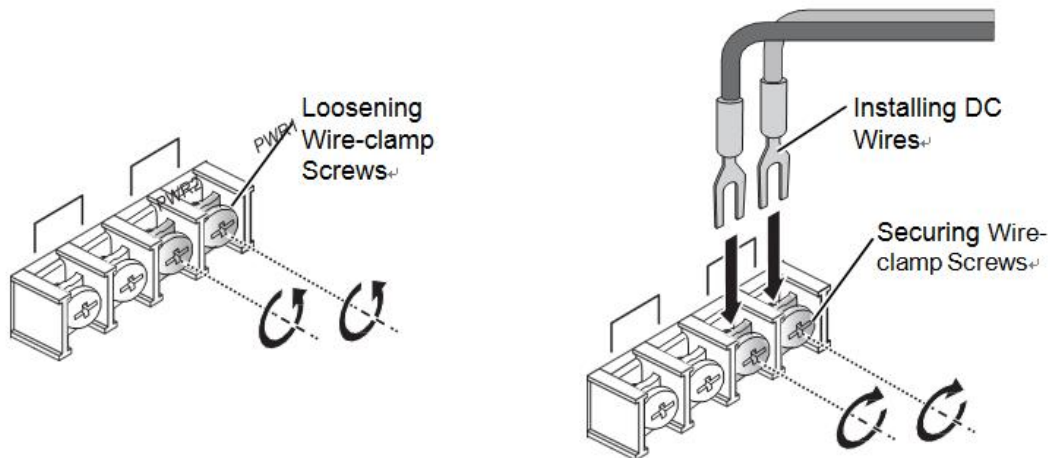


Figure 2.7 Installing DC Wires in a Terminal Block

2.9 Wiring a Relay Contact

The following section details the wiring of the relay output. The wires are installed onto the fixed terminal block located on the back of the switch.

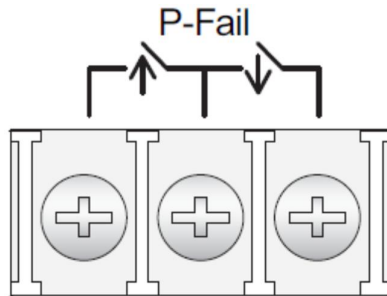


Figure 2.8 - Wiring the Fault Alarm Contact

The fixed terminal block includes a total of six pins: two for PWR1, two for PWR2 and two for a fault circuit.

Note

- The wire gauge for the terminal block should range between 12 ~ 24AWG
-

3. Mounting Installation

3.1 Rack-Mounting

1. Align the rack mount brackets with the holes on the switch.
2. Secure the rack mount brackets with the provided screws.
3. Align the switch with the posts on the rack cabinet.
4. Secure the switch with the provided screws.



Figure 2.9 Installing the Switch

4. Web Management

4.1 Log In

To access the login window, connect the device to the network; see “Connecting the Switch to Ethernet Ports”. Once the switch is installed and connected, power on the switch; see the following procedures in Figure 4.1 to log into your switch. When the switch is first installed, the default network configuration is set to DHCP enabled. You will need to make sure your network environment supports the switch setup before connecting it to the network.

1. Launch your web browser on a computer.
2. In the browser’s address bar, type in the switch’s default IP address (192.168.1.254). The login screen displays.
3. Enter the default user name and password (admin/admin) to log into the management interface. You can change the default password after you have successfully logged in.
4. Click **Login** to enter the management interface.

The image shows a web login form with a light yellow background. It contains two text input fields: the first is labeled "Username" and the second is labeled "Password". Below these fields is a blue button with the word "Login" in white text.

Figure 4.1

4.2 Recommended Practices

Antaira recommends creating a best practices policy for securing your network. This type of policy could be as simple as verifying that secure passwords have been used in place of default passwords but may also include other measures to maintain the security of the network.

4.3 Changing Default Password

In keeping with good management and security practices, it is recommended that you change the default password as soon as the device is functioning and setup correctly. The following details the necessary steps to change the default password.

To change the password:

1. Navigate to **Tools > User Account**.
2. From the User drop-down menu, select the Admin (default) account.
3. In the **User Name** field, enter admin for this account. It is not necessary to change the user name, however, a change in the default settings increases the security settings.

4. In the **Password** field, type in the new password. Re-type the same password in the **Retype Password** field.
5. Click **Apply** to change the current account settings.

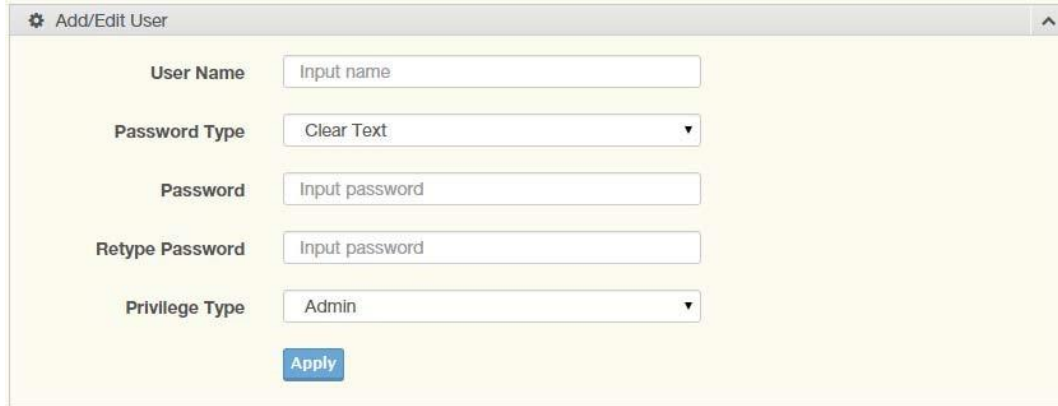
The image shows a web-based configuration window titled "Add/Edit User". It contains several input fields and dropdown menus. The "User Name" field has the placeholder text "Input name". The "Password Type" dropdown menu is set to "Clear Text". The "Password" field has the placeholder text "Input password". The "Retype Password" field also has the placeholder text "Input password". The "Privilege Type" dropdown menu is set to "Admin". At the bottom of the form is a blue "Apply" button.

Figure 4.2

After saving all the desired settings, perform a system save (**Tools > Save Configuration**). The changes are saved.

4.4 Monitoring

4.5 Device Information

The Device Information menu lists information pertaining to the system, such as System Name, System Location, MAC Address, Firmware Version, and more. The information is for review only. To modify the device information, see the respective item within the user interface.

To access this page, click **Monitoring > Device Information**.

| Device Information | |
|--------------------|----------------------------------|
| Information Name | Information Value |
| System Name | Switch |
| System Location | Default |
| System Contact | Default |
| MAC Address | 7C:CB:0D:01:FF:DB |
| IP Address | 192.168.1.254 |
| Subnet Mask | 255.255.255.0 |
| Gateway | 192.168.1.1 |
| Loader Version | 1.0.0.48895 |
| Loader Date | Sep 21 2016 - 14:16:09 |
| Firmware Version | 1.00.00 |
| Firmware Date | Jul 25 2017 - 16:26:09 |
| Build Version | D060626S03535 |
| System OID | 1.3.6.1.4.1.38477.311.1.81 |
| System Up Time | 0 days, 0 hours, 3 mins, 10 secs |

Figure 4.3

The following table describes the items in Figure 4.3.

| Item | Description |
|------------------|---|
| System Name | Click Switch to enter the system name: up to 128 alphanumeric characters (default is Switch). |
| System Location | Click Default to enter the location: up to 256 alphanumeric characters (default is Default). |
| System Contact | Click Default to enter the contact person: up to 128 alphanumeric characters (default is Default). |
| MAC Address | Displays the MAC address of the switch. |
| IP Address | Displays the assigned IP address of the switch. |
| Subnet Mask | Displays the assigned subnet mask of the switch. |
| Gateway | Displays the assigned gateway of the switch. |
| Loader Version | Displays the current loader version of the switch. |
| Loader Date | Displays the current loader build date of the switch. |
| Firmware Version | Displays the current firmware version of the switch. |
| Firmware Date | Displays the current firmware build date of the switch. |
| Build Version | Displays the current firmware build version of the switch |
| System Object ID | Displays the base object ID of the switch. |
| System Up Time | Displays the time since the last switch reboot. |

4.6 Logging Message

The Logging Message Filter page allows you to enable the display of the logging message filter. To access this page, click **Monitoring > Logging Message**.

Figure 4.4

The following table describes the functions in Figure 4.4.

| Function | Description |
|---|--|
| Target | Click the drop-down menu to select a target to store the log messages. Buffered: Store log messages in RAM. All log messages are cleared after system reboot. File: Store log messages in a file. |
| Severity | The setting allows you to designate a severity level for the Logging Message Filter function. Click the drop-down menu to select the severity level target setting. The level options are: <ul style="list-style-type: none"> • emerg: Indicates system is unusable. It is the highest level of severity. • alert: Indicates action must be taken immediately. • crit: Indicates critical conditions. • error: Indicates error conditions. • warning: Indicates warning conditions. • notice: Indicates normal but significant conditions. • info: Indicates informational messages. • debug: Indicates debug-level messages. |
| Category | Click the drop-down menu to select the category level target setting. |
| View | Click View to display all Logging Information and Logging Message Information. |
| Refresh | Click Refresh to update the screen. |
| Clear buffered messages | Click Clear buffered messages to clear the logging buffer history list. |
| <p>The ensuing table for Logging Information table settings are informational only: Target, Severity and Category.</p> <p>The ensuing table for Logging Message table settings are informational only: No., Time Stamp, Category, Severity and Message.</p> | |

4.7 Port Monitoring

Port Network Monitor is a bandwidth and network monitoring tool for the purpose of capturing network traffic and measuring of network throughput. The monitoring functionality includes listing of port statistics as well as port utilization.

Port Statistics

To access this page, click **Monitoring > Port Monitoring > Port Statistics**.



Figure 4.5 Monitoring > Port Monitoring > Port Statistics

The following table describes the functions in Figure 4.5.

| Function | Description |
|----------|--|
| Port | Click the drop-down menu to select a port and its captured statistical setting values. |
| Clear | Click Clear to clear the counter selections. |

The ensuing list for **IF MIB Counters** settings are informational only: ifInOctets, ifInUcastPkts, ifInNUcastPkts, ifInDiscards, ifOutOctets, ifOutUcastPkts, ifOutNUcastPkts, ifOutDiscards, ifInMulticastPkts, ifInBroadcastPkts, ifOutMulticastPkts, and ifOutBroadcastPkts.

The ensuing list for **Ether-Like MIB Counters** settings are informational only: dot3StatsAlignmentErrors, dot3StatsFCSErrors, dot3StatsSingleCollisionFrames, dot3StatsMultipleCollisionFrames, dot3StatsDeferredTransmissions, dot3StatsLateCollisions, dot3StatsExcessiveCollisions, dot3StatsFrameTooLongs, dot3StatsSymbolErrors, dot3ControlInUnknownOpCodes, dot3InPauseFrames, and dot3OutPauseFrames.

The ensuing list for **Rmon MIB Counters** settings are informational only: etherStatsDropEvents, etherStatsOctets, etherStatsPkts, etherStatsBroadcastPkts, etherStatsMulticastPkts, etherStatsCRCAlignErrors, etherStatsUnderSizePkts, etherStatsOverSizePkts, etherStatsFragments, etherStatsJabbers, etherStatsCollisions, etherStatsPkts64Octets, etherStatsPkts65to127Octets, etherStatsPkts128to255Octets, etherStatsPkts256to511Octets, etherStatsPkts512to1023Octets, and etherStatsPkts1024to1518Octets.

Port Utilization

To access this page, click **Monitoring > Port Monitoring > Port Utilization**.

Figure 4.6

The following table describes the functions in the previous figure.

| Function | Description |
|----------------|---|
| Refresh period | Click the drop-down menu to select and designate a period (second intervals) to refresh the information (TX and RX) listings. |
| IFG | Click the drop-down menu to enable or disable the Interframe Gap (IFG) statistic |

4.8 Link Aggregation

The Link Aggregation function provides LAG information for each trunk. It displays membership status, link state, and membership type for each port.

To access this page, click **Monitoring > Link Aggregation**.

The ensuing table for **Link Aggregation Group Status** settings are informational only: LAG, Name, Type, Link State, Active Member, and Standby Member.

The ensuing table for **LACP Information** settings are informational only: LAG, Port, PartnerSysId, PnKey, AtKey, Sel, Mux, Receiv, PrdTx, AtState, and PnState.

4.9 LLDP Statistics

The LLDP Statistics page displays the LLDP statistics.

To access this page, click **Monitoring > LLDP Statistics**.

| Information Name | Information Value |
|------------------|-------------------|
| Insertions | 0 |
| Deletions | 0 |
| Drops | 0 |
| Age Outs | 0 |

Figure 4.7

The ensuing table for **LLDP Global Statistics** settings are informational only: Insertions, Deletions, Drops, and Age Outs.

| Function | Description |
|----------|---|
| Clear | Click Clear to reset LLDP Statistics of all the interfaces. |
| Refresh | Click Refresh to update the data on the screen with the present state of the data in the switch. |

The ensuing table for **LLDP Port Statistics** settings are informational only: Port, TX Frames (Total), RX Frames (Total, Discarded and Errors), RX TLVs (Discarded and Unrecognized) and RX Ageouts (Total).

| LLDP Port Statistics | | | | | | | |
|----------------------|-----------|-----------|-----------|--------|-----------|--------------|------------|
| Port | TX Frames | RX Frames | | | RX TLVs | | RX Ageouts |
| | Total | Total | Discarded | Errors | Discarded | Unrecognized | Total |
| GE1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GE2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GE3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GE4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

4.10 IGMP/MLD Statistics

The IGMP Statistics function displays statistical package information for IP multicasting. To access this page, click **Monitoring > IGMP Statistics**.

| <div> <div>Clear</div> <div>Refresh</div> </div> | |
|--|---------|
| <div> <div>IGMP Statistics</div> <div>^</div> </div> | |
| Statistics Packets | Counter |
| Total RX | 0 |
| Valid RX | 0 |
| Invalid RX | 0 |
| Other RX | 0 |
| Leave RX | 0 |
| Report RX | 0 |
| General Query RX | 0 |
| Special Group Query RX | 0 |
| Special Group & Source Query RX | 0 |
| Leave TX | 0 |
| Report TX | 0 |
| General Query TX | 0 |
| Special Group Query TX | 0 |
| Special Group & Source Query TX | 0 |

Figure 4.8 Monitoring > IGMP Statistics

The following table describes the function in Figure 4.8.

| Function | Description |
|----------|---|
| Clear | Click Clear to refresh IGMP Statistics of all the interfaces. |
| Refresh | Click Refresh to update the data on the screen with the present state of the data in the switch. |

The MLD Statistics function displays statistical package information for IP multicasting. To access this page, click **Monitoring > MLD Statistics**.

| <div> <div>Clear</div> <div>Refresh</div> </div> | |
|---|---------|
| <div> <div>MLD Statistics</div> <div>^</div> </div> | |
| Statistics Packets | Counter |
| Total RX | 0 |
| Valid RX | 0 |
| Invalid RX | 0 |
| Other RX | 0 |
| Leave RX | 0 |
| Report RX | 0 |
| General Query RX | 0 |
| Special Group Query RX | 0 |
| Special Group & Source Query RX | 0 |
| Leave TX | 0 |
| Report TX | 0 |
| General Query TX | 0 |
| Special Group Query TX | 0 |
| Special Group & Source Query TX | 0 |

The following table describes the items in the previous figure.

| Item | Description |
|---------|---|
| Clear | Click Clear to refresh MLD Statistics of all the interfaces. |
| Refresh | Click Refresh to update the data on the screen with the present state of the data in the switch. |

4.11 System

4.12 IP Settings

The IP Settings menu allows you to select a static or DHCP network configuration. The Static displays the configurable settings for the static option. To access this page, click **System > IP Settings**.

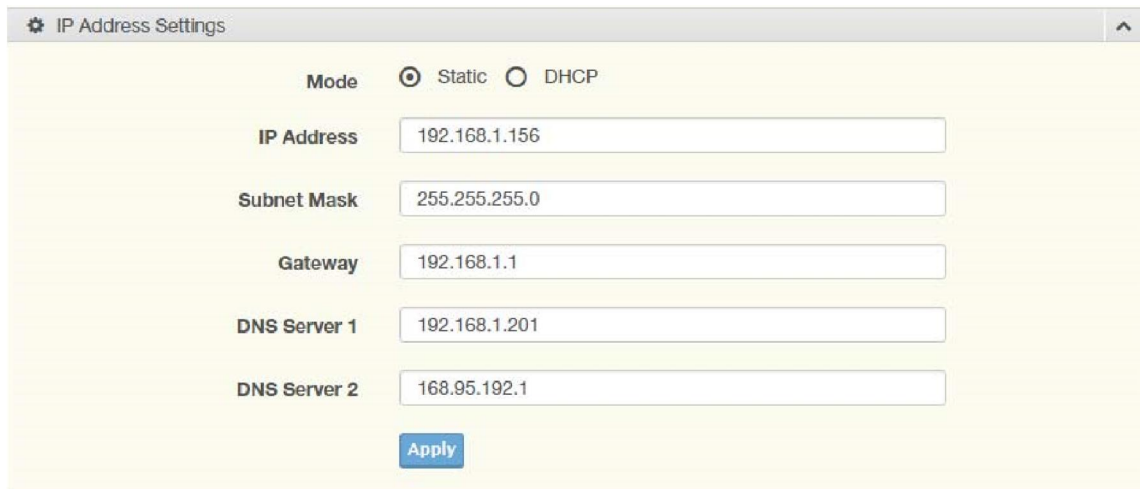


Figure 4.9 System > IP Settings

The following table describes the items in the previous figure.

| Item | Description |
|--------------|--|
| Mode | Click the radio button to select the IP Address Setting mode: Static or DHCP. |
| IP Address | Enter a value to specify the IP address of the interface. The default is 192.168.1.254. |
| Subnet Mask | Enter a value to specify the IP subnet mask for the interface. The default is 255.255.255.0. |
| Gateway | Enter a value to specify the default gateway for the interface. The default is 192.168.1.1. |
| DNS Server 1 | Enter a value to specify the DNS server 1 for the interface. The default is 168.95.1.1. |
| DNS Server 2 | Enter a value to specify the DNS server 2 for the interface. The default is 168.95.192.1. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **IP Address Information** settings are informational only: DHCP State, Static IP Address, Static Subnet Mask, Static Gateway, Static DNS Server 1 and Static DNS Server 2.

| IP Address Information | |
|------------------------|-------------------|
| Information Name | Information Value |
| DHCP State | Disabled |
| Static IP Address | 192.168.1.230 |
| Static Subnet Mask | 255.255.255.0 |
| Static Gateway | 192.168.1.254 |
| Static DNS Server 1 | 168.95.1.1 |
| Static DNS Server 2 | 168.95.192.1 |

4.13 IPv6 Settings

To access this page, click **System > IPv6 Settings**.

Figure 4.10 System > IPv6 Settings

The following table describes the items in the previous figure.

| Item | Description |
|--------------------|--|
| Auto Configuration | Select the radio button to enable or disable the IPv6. |
| IPv6 Address | Enter the IPv6 address for the system. |
| Gateway | Enter the gateway address for the system. |
| DHCPv6 Client | Enter the DHCPv6 address for the system. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **IPv6 Information** settings are informational only: Auto Configuration, IPv6 In Use Address, IPv6 In Use Router, IPv6 Static Address, IPv6 Static Router and DHCPv6 Client.

| IPv6 Information | |
|-------------------------|----------------------------|
| Information Name | Information Value |
| Auto Configuration | Enabled |
| IPv6 Link Local Address | fe80::2e0:4cff:fe00:0 / 64 |
| IPv6 In Use Address | fe80::2e0:4cff:fe00:0 / 64 |
| IPv6 In Use Router | :: |
| IPv6 Static Address | :: / 0 |
| IPv6 Static Router | :: |
| DHCPv6 Client | Disabled |

4.14 DHCP Client Option 82

The DHCP Client Option 82 configurable Circuit ID and Remote ID feature enhances validation security by allowing you to select naming choices sub-options. You can select a switch configured hostname or specify an ASCII test string for the remote ID. You can also configure an ASCII text string to override the circuit ID.

To access this page, click **System > DHCP Client Option 82**.

DHCP Client Option 82 Settings

Mode: ☐ Enabled ☒ Disabled

Circuit ID

Format: String

String: Input string

Input string: Input string

Input HEX string: Input HEX string

Input user-defined string: Input user-defined string

Remote ID

Format: String

String: Input string

Input string: Input string

Input HEX string: Input HEX string

Input user-defined string: Input user-defined string

Apply

Figure 4.11 System > DHCP Client Option 82

The following table describes the items in the previous figure.

| Item | Description |
|------------------------|---|
| Mode | Click the radio button to enable or disable the DHCP Client Option 82 mode. |
| Circuit ID Format | Click the drop-down menu to set the ID format: String, Hex, User Definition. |
| Circuit ID String | Enter the string ID of the corresponding class. |
| Circuit ID Hex | Enter the hex string of the corresponding class. |
| Circuit ID User-Define | Enter the user definition of the corresponding class. |
| Remote ID Format | Click the drop-down menu to set the Remote ID format: String, Hex, User Definition. |
| Remote ID String | Enter the remote string ID of the corresponding class. |
| Remote ID Hex | Enter the remote hex string of the corresponding class. |
| Remote ID UserDefine | Enter the remote user definition of the corresponding class. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **DHCP Client Option 82 Information** table settings are informational only:

Status, Circuit ID Format, Circuit ID String, Circuit ID Hex, Circuit ID User-Define, Remote ID Format, Remote ID String, Remote ID Hex, and Remote ID User-Define.

| DHCP Client Option 82 Information | |
|-----------------------------------|-------------------|
| Information Name | Information Value |
| Status | Disabled |
| Circuit ID Format | String |
| Circuit ID String | |
| Circuit ID Hex | |
| Circuit ID User-Define | |
| Remote ID Format | String |
| Remote ID String | |
| Remote ID Hex | |
| Remote ID User-Define | |

4.15 DHCP Auto Provision

The DHCP Auto Provision feature allows you to load configurations using a server with DHCP options. Through the remote connection, the switch obtains information from a configuration file available through the TFTP server.

To access this page, click **System > DHCP Auto Provision**.



⚙️ DHCP Auto Provision Settings

Status ☐ Enabled ☒ Disabled

Apply

Figure 4.12 System > DHCP Auto Provision

The following table describes the items in the previous figure.

| Item | Description |
|--------|--|
| Status | Select the radio button to enable or disable the DHCP Auto Provisioning Setting. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **DHCP Auto Provision Information** settings are informational only: Status.

| DHCP Auto Provision Information | |
|---------------------------------|-------------------|
| Information Name | Information Value |
| Status | Disabled |

4.16 Management VLAN

By default, the VLAN is the management VLAN providing communication with the switch management interface.

To access this page, click **System > Management VLAN**.

The screenshot shows a web interface titled "Management VLAN Settings". It features a label "Management VLAN" followed by a dropdown menu currently displaying "default(1)". Below the dropdown is a blue button labeled "Apply".

| Management VLAN |
|-----------------|
| default(1) |

Apply

Figure 4.13 System > Management VLAN

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|--|
| Management VLAN | Click the drop-down menu to select a defined VLAN. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Management VLAN State** are informational only: Management VLAN.

The screenshot shows a table titled "Management VLAN State". It has two columns: "Config Name" and "Config Value". The first row shows "Management VLAN" in the "Config Name" column and "1" in the "Config Value" column.

| Management VLAN State | |
|-----------------------|--------------|
| Config Name | Config Value |
| Management VLAN | 1 |

4.17 System Time

To access this page, click **System > System Time**.

The screenshot shows the 'System Time Settings' page. At the top, there's a header 'System Time Settings' with a gear icon and an upward arrow. Below this, the 'Enable SNTP' section has two radio buttons: 'Disabled' (selected) and 'Enabled'. The 'SNTP/NTP Server Address' field contains 'Input sntp server' with a hint '(X.X.X.X or Hostname)'. The 'SNTP Port' field contains '123' with a hint '(1 - 65535 | Default : 123)'. The 'Manual Time' section has dropdowns for Year (2000), Month (Jan), Day (1), Hour (0), Minute (0), and Second (0). The 'Time Zone' dropdown is set to 'None'. The 'Daylight Saving Time' dropdown is set to 'Disable'. The 'Daylight Saving Time Offset' field contains '60' with a hint '(1 - 1440) Minutes'. The 'Recurring From' section has dropdowns for Weekday (Sun), Week (1), Month (Jan), Hour (0), and Minute (0). The 'Recurring To' section has dropdowns for Weekday (Sun), Week (1), Month (Jan), Hour (0), and Minute (0). The 'Non-Recurring From' section has dropdowns for Year (2000), Month (Jan), Date (1), Hour (Hour), and Minute (0). The 'Non-Recurring To' section has dropdowns for Year (2000), Month (Jan), Date (1), Hour (0), and Minute (0). At the bottom, there is a blue 'Apply' button.

Figure 4.14 System > System Time

The following table describes the items in the previous figure.

| Item | Description |
|-----------------------------|--|
| Enable SNTP | Click the radio button to enable or disable the SNTP. |
| SNTP/NTP Server Address | Enter the address of the SNTP server. This is a text string of up to 64 characters containing the encoded unicast IP address or hostname of a SNTP server. Unicast SNTP requests will be sent to this address. If this address is a DNS hostname, then that hostname should be resolved into an IP address each time a SNTP request is sent to it. |
| SNTP Port | Enter the port on the server to which SNTP requests are to be sent. Allowed range is 1 to 65535 (default: 123). |
| Manual Time | Click the drop-down menus to set local date and time of the system. |
| Time Zone | Click the drop-down menu to select a system time zone. |
| Daylight Saving Time | Click the drop-down menu to enable or disable the daylight-saving time settings. |
| Daylight Saving Time Offset | Enter the offsetting variable in seconds to adjust for daylight saving time. |
| Recurring From | Click the drop-down menu to designate the start date and time for daylight saving time. |
| Recurring To | Click the drop-down menu to designate the end date and time for daylight saving time. |
| Non-Recurring From | Click the drop-down menu to designate a start date and time for a non-recurring daylight-saving time event. |
| Non-Recurring To | Click the drop-down menu to designate the end date and time for a non-recurring daylight-saving time event. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **System Time Information** settings are informational only: Current Date/Time, SNTP, SNTP Server Address, SNTP Server Port, Time zone, Daylight Saving Time, Daylight Saving Time Offset, From, and To.

| System Time Information | |
|-----------------------------|---------------------------------|
| Information Name | Information Value |
| Current Date/Time | 08:31:08 DFL(GMT+8) Jan 01 2000 |
| SNTP | Disabled |
| SNTP Server Address | |
| SNTP Server Port | 123 |
| Time zone | GMT+8 |
| Daylight Saving Time | Disabled |
| Daylight Saving Time Offset | |
| From | |
| To | |

4.18 L2 Switching

4.19 Port Configuration

Port Configuration describes how to use the user interface to configure LAN ports on the switch.

To access this page, click **L2 Switching > Port Configuration**.

The screenshot shows the 'Port Settings' window. It contains the following elements:

- Port:** A drop-down menu labeled 'Select Port'.
- Enabled:** Two radio buttons, 'Enabled' and 'Disabled', with 'Disabled' selected.
- Speed:** A drop-down menu currently set to 'Auto'.
- Duplex:** A drop-down menu currently set to 'Auto'.
- Flow Control:** Two radio buttons, 'Enabled' and 'Disabled', with 'Disabled' selected.
- Apply:** A blue button at the bottom center.

Figure 4.15 L2 Switching > Port Configuration

The following table describes the items in the previous figure.

| Item | Description |
|--------------|---|
| Port | Click the drop-down menu to select the port for the L2 Switch setting. |
| Enabled | Click the radio-button to enable or disable the Port Setting function. |
| Speed | Click the drop-down menu to select the port speed: Auto, Auto-10M, Auto100M, Auto-1000M, Auto-10/100M, 10M, 100M, or 1000M. |
| Duplex | Click the drop-down menu to select the duplex setting: Half or Full. |
| Flow Control | Click the radio button to enable or disable the flow control function. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Port Status** settings are informational only: Port, **Edit** (click to enter description), Enable State, Link Status, Speed, Duplex, FlowCtrl Config, and FlowCtrl Status.

The screenshot shows the 'Port Status' table with the following data:

| Port | Description | Enable State | Link Status | Speed | Duplex | FlowCtrl Config | FlowCtrl Status |
|------|----------------------|--------------|-------------|-------|--------|-----------------|-----------------|
| GE1 | Edit | Enabled | DOWN | Auto | Auto | Disabled | Disabled |
| GE2 | Edit | Enabled | DOWN | Auto | Auto | Disabled | Disabled |
| GE3 | Edit | Enabled | DOWN | Auto | Auto | Disabled | Disabled |
| GE4 | Edit | Enabled | DOWN | Auto | Auto | Disabled | Disabled |
| GE5 | Edit | Enabled | DOWN | Auto | Auto | Disabled | Disabled |
| GE6 | Edit | Enabled | DOWN | Auto | Auto | Disabled | Disabled |
| GE7 | Edit | Enabled | DOWN | Auto | Auto | Disabled | Disabled |
| GE8 | Edit | Enabled | DOWN | Auto | Auto | Disabled | Disabled |

4.20 Port Mirror

Port mirroring function allows the sending of a copy of network packets seen on one switch port to a network monitoring connection on another switch port. Port mirroring can be used to analyze and debug data, diagnose errors on a network, or to mirror either inbound or outbound traffic (or both).

There are no preset values in the Port Mirror. The displayed values do not represent the actual setting values.

To access this page, click **L2 Switching > Port Mirror**.

Figure 4.16 L2 Switching > Port Mirror

The following table describes the items in the previous figure.

| Item | Description |
|-----------------------|---|
| Session ID | Click the drop-down menu to select a port mirroring session from the list. The number of sessions allowed is platform specific. |
| Monitor session state | Click the drop-down menu to enable or disable the session mode for a selected session ID. |
| Destination Port | Click the drop-down menu to select the destination port and receive all the traffic from configured mirrored port(s). |
| Allow-ingress | Click the drop-down menu to enable or disable the Allow-ingress function. |
| Sniffer RX Ports | Enter the variable to define the RX port. |
| Sniffer TX Ports | Enter the variable to define the TX port. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Mirror Status** settings are informational only: Session ID, Destination Port, Ingress State, Source TX Port and Source RX Port.

| Mirror Status | | | | |
|---------------|------------------|---------------|----------------|----------------|
| Session ID | Destination Port | Ingress State | Source TX Port | Source RX Port |
| 1 | N/A | N/A | N/A | N/A |
| 2 | N/A | N/A | N/A | N/A |
| 3 | N/A | N/A | N/A | N/A |
| 4 | N/A | N/A | N/A | N/A |

4.21 Link Aggregation

Link Aggregation is a method for combining multiple network connections in parallel in order to increase throughput beyond the capability of a single connection, and to provide redundancy in case one of the links should fail.

Load Balance

The Load Balancing page allows you to select between a MAC Address or IP/MAC Address algorithm for the even distribution of IP traffic across two or more links.

To access this page, click **L2 Switching > Link Aggregation > Load Balance**.

Figure 4.17 L2 Switching > Link Aggregation > Load Balance

The following table describes the items in the previous figure.

| Item | Description |
|------------------------|--|
| Load Balance Algorithm | Select the radio button to select the Load Balance Setting: MAC Address or IP/MAC Address. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Load Balance Information** settings are informational only: Load Balance Algorithm.

| Load Balance Information | |
|--------------------------|-------------------|
| Information Name | Information Value |
| Load Balance Algorithm | src-dst-mac |

LAG Management

Link aggregation is also known as trunking. It is a feature available on the Ethernet gateway and is used with Layer 2 Bridging. Link aggregation allows for the logical merging of multiple ports into a single link.

To access this page, click **L2 Switching > Link Aggregation > LAG Management**.

LAG Management

LAG: Trunk1

Name: Input name

Type: ☒ Static ☐ LACP

Ports: Select Ports

Apply

Figure 4.18 L2 Switching > Link Aggregation > LAG Management

The following table describes the items in the previous figure.

| Item | Description |
|-------|---|
| LAG | Click the drop-down menu to select the designated trunk group: Trunk 1 ~ 8. |
| Name | Enter an entry to specify the LAG name. |
| Type | Click the radio button to specify the type mode: Static or LACP. |
| Ports | Click the drop-down menu to select designated ports: GE1-28. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **LAG Management Information** settings are informational only: LAG, Name, Type, Link State, Active Member, Standby Member, **Edit** (click to modify the settings) and **Clear** (click to load default settings).

| LAG Management Information | | | | | | |
|----------------------------|------|------|-------------|---------------|----------------|------------|
| LAG | Name | Type | Link State | Active Member | Standby Member | Modify |
| Trunk1 | | --- | Not Present | - | - | Edit Clear |
| Trunk2 | | --- | Not Present | - | - | Edit Clear |
| Trunk3 | | --- | Not Present | - | - | Edit Clear |
| Trunk4 | | --- | Not Present | - | - | Edit Clear |
| Trunk5 | | --- | Not Present | - | - | Edit Clear |
| Trunk6 | | --- | Not Present | - | - | Edit Clear |
| Trunk7 | | --- | Not Present | - | - | Edit Clear |
| Trunk8 | | --- | Not Present | - | - | Edit Clear |

LAG Port Settings

The LAG Port Settings page allows you to enable or disable, set LAG status, speed and flow control functions.

In this example, we will configure a LAG between the following switches:

To access this page, click **L2 Switching > Link Aggregation > LAG Port Settings**.

Figure 4.19 L2 Switching > Link Aggregation > LAG Port Settings

The following table describes the items in the previous figure.

| Item | Description |
|--------------|---|
| LAG Select | Click the drop-down menu to select a predefined LAG trunk definition: LAG 1-8. |
| Enabled | Click the radio button to enable or disable the LAG Port. |
| Speed | Click the drop-down menu to select the port speed: Auto, Auto-10M, Auto100M, Auto-1000M, Auto-10/100M, 10M, 100M, or 1000M. |
| Flow Control | Click the radio button to enable or disable the Flow Control for the LAG Port. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **LAG Port Status** settings are informational only: LAG, Description, Port Type, Enable State, Link Status, Speed, Duplex, FlowCtrl Config, and FlowCtrl Status.

| LAG Port Status | | | | | | | | |
|-----------------|-------------|-----------|--------------|-------------|-------|--------|-----------------|-----------------|
| LAG | Description | Port Type | Enable State | Link Status | Speed | Duplex | FlowCtrl Config | FlowCtrl Status |
| Trunk1 | | | Enabled | | Auto | Auto | Disabled | Disabled |
| Trunk2 | | | Enabled | | Auto | Auto | Disabled | Disabled |
| Trunk3 | | | Enabled | | Auto | Auto | Disabled | Disabled |
| Trunk4 | | | Enabled | | Auto | Auto | Disabled | Disabled |
| Trunk5 | | | Enabled | | Auto | Auto | Disabled | Disabled |
| Trunk6 | | | Enabled | | Auto | Auto | Disabled | Disabled |
| Trunk7 | | | Enabled | | Auto | Auto | Disabled | Disabled |
| Trunk8 | | | Enabled | | Auto | Auto | Disabled | Disabled |

LACP Priority Settings

The LACP Priority Settings page allows you to configure the system priority for LACP.

To access this page, click **L2 Switching > Link Aggregation > LACP Priority Settings**.

Figure 4.20 L2 Switching > Link Aggregation > LACP Priority Settings

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|--|
| System Priority | Enter the value (1-65535) to designate the LACP system priority. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **LACP Information** settings are informational only: System Priority.

| LACP Priority Information | |
|---------------------------|-------------------|
| Information Name | Information Value |
| System Priority | 32768 |

LACP Port Settings

Link Aggregation Control Protocol (LACP) provides a method to control the bundling of several physical ports together to form a single logical channel. By configuring the LACP function, the switch can negotiate an automatic bundling of links by sending LACP packets to the peer device (also implementing LACP).

To access this page, click **L2 Switching > Link Aggregation > LACP Port Settings**.

Figure 4.21 L2 Switching > Link Aggregation > LACP Port Settings

The following table describes the items in the previous figure.

| Item | Description |
|-------------|--|
| Port Select | Select a port for the LACP Port Settings. The listed available settings are: GE1-GE28. However, the available settings are dependent on the connected LACP device and may not be listed as displayed in the current figure. |
| Priority | Enter a variable (1 to 65535) to assign a priority to the defined port selection. |
| Timeout | Click the radio button to select a long or short timeout period. |
| Mode | Click the radio button to select the setting mode: Active or Passive. <ul style="list-style-type: none"> Active: Enables LACP unconditionally. Passive: Enables LACP only when an LACP device is detected (default state). |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **LACP Port Information** settings are informational only: Port Name, Priority, Timeout, and Mode.

| LACP Port Information | | | |
|-----------------------|----------|---------|---------|
| Port Name | Priority | Timeout | Mode |
| GE1 | 1 | Long | Passive |
| GE2 | 1 | Long | Passive |
| GE3 | 1 | Long | Passive |
| GE4 | 1 | Long | Passive |
| GE5 | 1 | Long | Passive |
| GE6 | 1 | Long | Passive |

4.22 802.1Q VLAN

The 802.1Q VLAN feature allows for a single VLAN to support multiple VLANs. With the 802.1Q feature you can preserve VLAN IDs and segregate different VLAN traffic.

The 802.1Q VLAN tag feature encapsulates the 802.1Q VLAN tagging within another 802.1Q VLAN tag. The outer tag is assigned following the AP group, while the inner VLAN ID is assigned dynamically by the AAA server.

VLAN Management

The management of VLANs is available through the VLAN Settings page. Through this page you can add or delete VLAN listings and add a prefix name to an added entry.

802.1Q VLAN > VLAN Management.

The screenshot shows the 'VLAN Settings' window. Under the 'VLAN Action' header, there are two radio buttons: 'Add' (selected) and 'Delete'. Below this, there are two text input fields. The first is labeled 'VLAN ID / VLAN List' and the second is labeled 'VLAN Name / VLAN Prefix'. At the bottom of the form is a blue 'Apply' button.

Figure 4.22 L2 Switching > 802.1Q VLAN > VLAN Management

The following table describes the items in the previous figure.

| Item | Description |
|------------------|---|
| VLAN Action | Click the radio button to add or delete the VLAN entry shown in the previous field. |
| VLAN List | Enter the name of the VLAN entry to setup. |
| VLAN Name Prefix | Enter the prefix to be used by the VLAN list entry in the previous field. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **VLAN Table** settings are informational only: VLAN ID, VLAN Name, VLAN Type, and **Edit** (click to enter VLAN name).

| VLAN Table | | | |
|---------------------------|-----------|-----------|----------------------|
| VLAN ID | VLAN Name | VLAN Type | Modify |
| 1 | default | Default | Edit |
| Showing 1 to 1 of 1 VLANs | | | |
| | | | Previous 1 Next |

PVID Settings

The PVID Settings page allows you to designate a PVID for a selected port, define the accepted type, and enable/disable the ingress filtering.

To access this page, click **L2 Switching > 802.1Q VLAN > PVID Settings**.

Figure 4.23 L2 Switching > 802.1Q VLAN > PVID Settings

The following table describes the items in the previous figure.

| Item | Description |
|-------------------|--|
| Port Select | Click the drop-down menu to select a port and edit its settings: GE1-GE28, or Trunk1 - Trunk8. |
| PVID | Enter the VLAN ID you want assigned to untagged or priority tagged frames received on this port. The value ranges 1 to 4094. The default is 1. |
| Accepted Type | Click the radio button to specify which frames to forward. Tag Only: discards any untagged or priority tagged frames. Untag Only: discards any tagged frames. All: accepts all untagged and tagged frames. Whichever you select, VLAN tagged frames are forwarded in accordance with the IEEE 802.1Q VLAN standard. The default is All. |
| Ingress Filtering | Click the radio button to specify how you want the port to handle tagged frames. If you enable Ingress Filtering, a tagged frame will be discarded if this port is not a member of the VLAN identified by the VLAN ID in the tag. If you select Disabled, all tagged frames will be accepted. The default is Disabled. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Port VLAN Status** settings are informational only: Port, Interface VLAN Mode, PVID, Accept Frame Type, and Ingress Filtering.

| Port VLAN Status | | | | |
|------------------|---------------------|------|-------------------|-------------------|
| Port | Interface VLAN Mode | PVID | Accept Frame Type | Ingress Filtering |
| GE1 | Hybrid | 1 | ALL | Enabled |
| GE2 | Hybrid | 1 | ALL | Enabled |
| GE3 | Hybrid | 1 | ALL | Enabled |
| GE4 | Hybrid | 1 | ALL | Enabled |

Port to VLAN

The Port to VLAN page allows you to add a port to a VLAN and select the related parameters.

802.1Q VLAN > Port to VLAN.

VLAN ID :

| Port to VLAN Table | | | | | | |
|--------------------|---------------------|---------------------------------|--------------------------------|------------------------------|---|-----|
| Port | Interface VLAN Mode | Membership | | | PVID | |
| GE1 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| GE2 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| GE3 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| GE4 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| GE5 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| GE6 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| GE7 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| GE8 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| GE9 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| GE10 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| Trunk1 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| Trunk2 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| Trunk3 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| Trunk4 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| Trunk5 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| Trunk6 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| Trunk7 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |
| Trunk8 | Hybrid | <input type="radio"/> Forbidden | <input type="radio"/> Excluded | <input type="radio"/> Tagged | <input checked="" type="radio"/> Untagged | YES |

Figure 4.24 L2 Switching > 802.1Q VLAN > Port to VLAN

The following table describes the items in the previous figure.

| Item | Description |
|---------------------|--|
| Port | Displays the assigned port to the entry. |
| Interface VLAN Mode | Displays the assigned mode to the listed VLAN port. Hybrid: Port hybrid model. Access: Port hybrid model. Trunk: Port hybrid model. Tunnel: Port hybrid model. |
| Membership | Displays the assigned membership status of the port entry. Options include Forbidden, Excluded Tagged, or Untagged. |
| Apply | Click Apply to save the values and update the screen. |

Port-VLAN Mapping

To access this page, click **L2 Switching > 802.1Q VLAN > Port-VLAN Mapping**.

The ensuing table for **Port-VLAN Mapping Table** settings are informational only: Port, Mode, Administrative VLANs and Operational VLANs.

| Port-VLAN Mapping Table | | | |
|-------------------------|--------|----------------------|-------------------|
| Port | Mode | Administrative VLANs | Operational VLANs |
| GE1 | Hybrid | 1UP | 1UP |
| GE2 | Hybrid | 1UP | 1UP |
| GE3 | Hybrid | 1UP | 1UP |
| GE4 | Hybrid | 1UP | 1UP |

4.23 Q-in-Q

Q-in-Q is commonly referred as VLAN stacking in which VLANs are nested by adding two tags to each frame instead of one. Network service provider and users both can use VLANs and make it possible to have more than the 4,094 separate VLANs allowed by 802.1Q.

There are three ways in which a machine can be connected to a network carrying double tagged 802.1ad traffic:

- via an untagged port, where both inner and outer VLANs are handled by the switch or switches (so the attached machine sees ordinary Ethernet frames);
- via a single-tagged (tunnel) port, where the outer VLAN only is handled by the switch (so the attached machine sees single-tagged 802.1Q VLAN frames); or
- via a double-tagged (trunk) port, where both inner and outer VLANs are handled by the attached machine (which sees double-tagged 802.1ad VLAN frames).

Global Settings

The Global Settings page allows you to set the outer VLAN Ethertype setting. To access this page, click **L2 Switching > Q-in-Q > Global Settings**.

Global Settings

Outer VLAN Ethertype (0x0000-0xFFFF)

Figure 4.25 L2 Switching > Q-in-Q > Global Settings

The following table describes the items in the previous figure.

| Item | Description |
|----------------------|---|
| Outer VLAN Ethertype | Enter the outer VLAN handled by the switch giving the attached machine a single-tagged 802.1Q VLAN frame. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **QinQ Global Information** settings are informational only: Outer VLAN Ethtype.

| QinQ Global Information | |
|-------------------------|-------------------|
| Information Name | Information Value |
| Outer VLAN Ethtype | 0x9100 |

Port Settings

The Port Settings page allows you to define the outer PVID and outer mode for a selected port.

Q-in-Q > Port Settings.

Port Settings

Port Select

Outer PVID

Outer Mode

Figure 4.26 L2 Switching > Q-in-Q > Port Settings

The following table describes the items in the previous figure.

| Item | Description |
|-------------|---|
| Port Select | Enter the switch port (part of VLAN configuration) to configure the selection as a tunnel port. |
| Outer PVID | Enter the Port VLAN ID (PVID) to assign the native VLAN ID. All untagged traffic coming in or out of the 802.1Q port is forwarded based on the PVID value |

| | |
|------------|---|
| Outer Mode | <p>Click the drop-down menu to select between UNI or NNI role.</p> <ul style="list-style-type: none"> UNI: Selects a user-network interface which specifies communication between the specified user and a specified network. NNI: Selects a network-to-network interface which specifies communication between two specified networks. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **QinQ Port Information** settings are informational only: Port, Outer PVID, and Outer Mode.

| QinQ Port Information | | |
|-----------------------|------------|------------|
| Port | Outer PVID | Outer Mode |
| GE1 | 1 | UNI |
| GE2 | 1 | UNI |
| GE3 | 1 | UNI |
| GE4 | 1 | UNI |
| GE5 | 1 | UNI |

4.24 GARP

The Generic Attribute Registration Protocol (GARP) is a local area network (LAN) protocol. The protocol defines procedures for the registration and de-registration of attributes (network identifiers or addresses) by end stations and switches with each other.

GARP Settings

To access this page, click **L2 Switching > GARP > GARP Settings**.

GARP Settings

Join Time: Sec. (6-600)

Leave Time: Sec. (12-3000)

Leave All Time: Sec. (12-12000)

Note: Join Time * 2 < Leave Time < Leave All Time

Apply

Figure 4.27 L2 Switching > GARP > GARP Settings

The following table describes the items in the previous figure.

| Item | Description |
|----------------|--|
| Join Time | Enter a value to specify the time between the transmission of GARP PDUs registering (or re-registering) membership for a VLAN or multicast group in centiseconds. Enter a number between 6 and 600. An instance of this timer exists for each GARP participant for each port. |
| Leave Time | Enter a value to specify the time to wait after receiving an unregister request for a VLAN or multicast group before deleting the associated entry in centiseconds. This allows time for another station to assert registration for the same attribute in order to maintain uninterrupted service. Enter a number between 12 and 3,000. An instance of this timer exists for each GARP participant for each port. |
| Leave All Time | Enter a value to specify the Leave All Time controls how frequently Leave All PDUs are generated. A Leave All PDU indicates that all registrations will shortly be deregistered. Participants will need to rejoin in order to maintain registration. The Leave All Period Timer is set to a random value in the range of Leave All Time to 1.5*Leave All Time. The timer is specified in centiseconds. Enter a number between 12 and 12,000. An instance of this timer exists for each GARP participant for each port. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **GARP Information** settings are informational only: Join Time, Leave Time and Leave All Time.

| GARP Information | |
|------------------|-------------------|
| Information Name | Information Value |
| Join Time | 10 |
| Leave Time | 30 |
| Leave All Time | 240 |

GVRP Settings

The GVRP Settings page allows you to enable or disable the GVRP (GARP VLAN Registration Protocol or Generic VLAN Registration Protocol) Protocol which facilitates control of virtual local area networks (VLANs) within a larger network.

To access this page, click **L2 Switching > GARP > GVRP Settings**.

GVRP Settings

Status ☐ Enabled ☒ Disabled

Apply

Figure 4.28 L2 Switching > GARP > GVRP Settings

The following table describes the items in the previous figure.

| Item | Description |
|--------|--|
| Status | Click to enable or disable the GARP VLAN Registration Protocol administrative mode for the switch. The factory default is Disable. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **GVRP Information** settings are informational only: GVRP.

4.25 802.3az EEE

The 802.3az Energy Efficient Ethernet (EEE) innovative green feature reduces energy consumption through intelligent functionality:

- Traffic detection — Energy Efficient Ethernet (EEE) compliance
- Inactive link detection — Inactive link detection function automatically reduces power usage when inactive links or devices are detected.

To access this page, click **L2 Switching > 802.3az EEE**.

Figure 4.29 L2 Switching > 802.3az EEE

The following table describes the items in the previous figure.

| Item | Description |
|-------------|---|
| Port Select | Enter the port to setup the EEE function. |
| State | Click Enabled or Disabled to set the state mode of the port select setting. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **EEE Enable Status** settings are informational only: Port and EEE State.

| EEE Port Status | |
|-----------------|-----------|
| Port | EEE State |
| GE1 | Disabled |
| GE2 | Disabled |
| GE3 | Disabled |

4.26 Multicast

Multicast forwarding allows a single packet to be forwarded to multiple destinations. The service is based on an L2 switch receiving a single packet addressed to a specific Multicast address. Multicast forwarding creates copies of the packet, and transmits the packets to the relevant ports.

Multicast Filtering

The Multicast Filtering page allows for the definition of action settings when an unknown multicast request is received. The options include: Drop, Flood, or Router Port.

To access this page, click **L2 Switching > Multicast > Multicast Filtering**.

Figure 4.30 L2 Switching > Multicast > Multicast Filtering

The following table describes the items in the previous figure.

| Item | Description |
|--------------------------|---|
| Unknown Multicast Action | Select the configuration protocol: Drop, Flood, or Router Port, to apply for any unknown multicast event. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Properties Information** settings are informational only: Unknown Multicast Action.

| Properties Information | |
|--------------------------|-------------------|
| Information Name | Information Value |
| Unknown Multicast Action | Flood |

IGMP Snooping

IGMP Snooping is defined as the process of listening to Internet Group Management Protocol (IGMP) network traffic. IGMP Snooping allows a network switch to listen in on the IGMP conversation between hosts and routers, and maintain a map of which links need which IP multicast streams. Multicasts can be filtered from the links, which do not need them in turn controlling which ports receive specific multicast traffic.

IGMP Settings

To access this page, click **L2 Switching > Multicast > IGMP Snooping > IGMP Settings**.

Figure 4.31 L2 Switching > Multicast > IGMP Snooping > IGMP Settings

The following table describes the items in the previous figure.

| Item | Description |
|----------------------------------|---|
| IGMP Snooping State | Select Enable or Disable to designate the IGMP Snooping State. |
| IGMP Snooping Version | Select designated IGMP Snooping Version: V2 or V3. |
| IGMP Snooping Report Suppression | Select Enable or Disable to setup the report suppression for IGMP Snooping. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **IGMP Snooping Information** settings are informational only: IGMP Snooping State, IGMP Snooping Version, and IGMP Snooping V2 Report Suppression.

| IGMP Snooping Information | |
|-------------------------------------|-------------------|
| Information Name | Information Value |
| IGMP Snooping State | Enable |
| IGMP Snooping Version | v2 |
| IGMP Snooping V2 Report Suppression | Enable |

The ensuing table for **IGMP Snooping Table** settings are informational only: Entry No., VLAN ID, IGMP Snooping Operation State, Router Ports Auto Learn, Query Robustness, Query Interval (sec.), Query Max Response Interval (sec.), Last Member Query count, Last Member Query Interval (sec), Immediate Leave, and **Edit** (click to modify the settings).

| IGMP Snooping Table | | | | | | | | | | |
|---------------------|---------|-------------------------------|-------------------------|------------------|----------------------|-----------------------------------|-------------------------|---------------------------------|-----------------|--------|
| Entry No. | VLAN ID | IGMP Snooping Operation State | Router Ports Auto Learn | Query Robustness | Query Interval(sec.) | Query Max Response Interval(sec.) | Last Member Query count | Last Member Query Interval(sec) | Immediate Leave | Modify |
| 1 | 1 | disabled | enabled | 2 | 125 | 10 | 2 | 1 | disabled | Edit |

IGMP Querier

IGMP Querier allows snooping to function by creating the tables for snooping. General queries must be unconditionally forwarded by all switches involved in IGMP snooping.

To access this page, click **L2 Switching > Multicast > IGMP Snooping > IGMP Querier**.

Figure 4.32 L2 Switching > Multicast > IGMP Snooping > IGMP Querier

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|---|
| VLAN ID | Select the VLAN ID to define the local IGMP querier. |
| Querier State | Select Disable or Enable to configure the VLAN ID (IGMP Querier). |
| Querier Version | Select the querier version (V2 or V3) designated to the selected VLAN ID. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **IGMP Querier Status** settings are informational only: VLAN ID, Querier State, Querier Status, Querier Version, and Querier IP.

| IGMP Querier Status | | | | |
|---------------------|---------------|----------------|-----------------|------------|
| VLAN ID | Querier State | Querier Status | Querier Version | Querier IP |
| 1 | disabled | Non-Querier | --- | --- |

IGMP Static Groups

To access this page, click **L2 Switching > Multicast > IGMP Snooping > IGMP Static Groups**.

Figure 4.33 L2 Switching > Multicast > IGMP Snooping > IGMP Static Groups

The following table describes the items in the previous figure.

| Item | Description |
|------------------|--|
| VLAN ID | Select the VLAN ID to define IGMP static group. |
| Group IP Address | Enter the IP address assigned to the VLAN ID. |
| Member Ports | Enter the port numbers to associate with the static group. |
| Add | Click Add to add an IGMP group. |

The ensuing table for **IGMP Static Groups Status** settings are informational only: VLAN ID, Group IP Address, Member Ports, and Modify.

| IGMP Static Groups Status | | | |
|---------------------------|------------------|--------------|--------|
| VLAN ID | Group IP Address | Member Ports | Modify |

Multicast Groups

To access this page, click **L2 Switching > Multicast > IGMP Snooping > Multicast Groups**.

The ensuing table for **Multicast Groups** settings are informational only: VLAN ID, Group IP Address, Member Ports, Type, and Life (Sec).

| Multicast Groups | | | | |
|------------------|------------------|--------------|------|-----------|
| VLAN ID | Group IP Address | Member Ports | Type | Life(Sec) |

Router Ports

To access this page, click **L2 Switching > Multicast > IGMP Snooping > Router Ports**.

The ensuing table for **Router Ports** settings are informational only: VLAN ID, Port, and Expiry Time (Sec).

| Router Ports | | |
|--------------|------|-------------------|
| VLAN ID | Port | Expiry Time (Sec) |

MLD Snooping

The MLD Snooping page allows you to select the snooping status (enable or disable), the version (V1 or V2), and the enabling/disabling of the report suppression for the MLD querier, which sends out periodic general MLD queries and are forwarded through all ports in the VLAN.

MLD Settings

To access this page, click **L2 Switching > Multicast > MLD Snooping > MLD Settings**.

| MLD Snooping Settings | | |
|--------------------------------------|---|--|
| MLD Snooping State | <input type="radio"/> Enable | <input checked="" type="radio"/> Disable |
| MLD Snooping Version | <input checked="" type="radio"/> v1 | <input type="radio"/> v2 |
| MLD Snooping Report Suppression | <input checked="" type="radio"/> Enable | <input type="radio"/> Disable |
| <input type="button" value="Apply"/> | | |

Figure 4.34 L2 Switching > Multicast > MLD Snooping > MLD Settings

The following table describes the items in the previous figure.

| Item | Description |
|---------------------------------|--|
| MLD Snooping State | Select Enable or Disable to setup the MLD Snooping State. |
| MLD Snooping Version | Select the querier version (V1 or V2) designated to the MLD Snooping |
| MLD Snooping Report Suppression | Select Enable or Disable to designate the status of the report suppression |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **MLD Snooping Information** settings are informational only: MLD Snooping State, MLD Snooping Version, and MLD Snooping V2 Report Suppression.

| MLD Snooping Information | |
|------------------------------------|-------------------|
| Information Name | Information Value |
| MLD Snooping State | Disable |
| MLD Snooping Version | v1 |
| MLD Snooping V2 Report Suppression | Enable |

The ensuing table for **MLD Snooping Table** settings are informational only: Entry No., VLAN ID, MLD Snooping Operation State, Router Ports Auto Learn, Query Robustness, Query Interval (sec.), Query Max Response Interval (sec.), Last Member Query Count, Last Member Query Interval (sec), Immediate Leave, and **Edit** (click to modify the settings).

| MLD Snooping Table | | | | | | | | | | |
|--------------------|---------|------------------------------|-------------------------|------------------|----------------------|-----------------------------------|-------------------------|---------------------------------|-----------------|--------|
| Entry No. | VLAN ID | MLD Snooping Operation State | Router Ports Auto Learn | Query Robustness | Query Interval(sec.) | Query Max Response Interval(sec.) | Last Member Query count | Last Member Query Interval(sec) | Immediate Leave | Modify |
| 1 | 1 | disabled | enabled | 2 | 125 | 10 | 2 | 1 | disabled | Edit |

MLD Querier

The MLD Querier page allows you to select and enable/disable the MLD querier and define the version (IGMPv1 or IGMPv2) when enabled.

To access this page, click **L2 Switching > Multicast > MLD Snooping > MLD Querier**.

Figure 4.35 L2 Switching > Multicast > MLD Snooping > MLD Querier

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|---|
| VLAN ID | Enter the VLAN ID to configure. |
| Querier State | Select Enable or Disable status on the selected VLAN. Enable: Enable IGMP Querier Election. Disable: Disable IGMP Querier Election. |
| Querier Version | Select the querier version (IGMPV1 or IGMPV2) designated to the MLD Querier function. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **MLD Querier Status** settings are informational only: VLAN ID, Querier State, Querier Status, Querier Version, and Querier IP.

| MLD Querier Status | | | | |
|--------------------|---------------|----------------|-----------------|------------|
| VLAN ID | Querier State | Querier Status | Querier Version | Querier IP |
| 1 | disabled | Non-Querier | --- | --- |

MLD Static Group

The MLD Static Group page allows you to configure specified ports as static member ports.

To access this page, click **L2 Switching > Multicast > MLD Snooping > MLD Static Group**.

Figure 4.36 L2 Switching > Multicast > MLD Snooping > MLD Static Group

The following table describes the items in the previous figure.

| Item | Description |
|------------------|---|
| VLAN ID | Enter the VLAN ID to define the local MLD Static Group. |
| Group IP Address | Enter the IP address associated with the static group. |
| Member Ports | Enter the ports designated with the static group. |
| Add | Click Add to add a MLD static group. |

The ensuing table for **MLD Static Groups Status** settings are informational only: VLAN ID, Group IP Address, Member Ports, and Modify.

| MLD Static Groups Status | | | |
|--------------------------|------------------|--------------|--------|
| VLAN ID | Group IP Address | Member Ports | Modify |

Multicast Groups

To access this page, click **L2 Switching > Multicast > MLD Snooping > Multicast Groups**.

The ensuing table for **Multicast Groups** settings are informational only: ID, Group IP Address, Member Ports, Type, and Life (Sec).

| Multicast Groups | | | | |
|------------------|------------------|--------------|------|-----------|
| VLAN ID | Group IP Address | Member Ports | Type | Life(Sec) |

Router Ports

To access this page, click **L2 Switching > Multicast > MLD Snooping > Router Ports**. The ensuing table for **Router Ports** settings are informational only: VLAN ID, Port, and Expiry Time (Sec).

| Router Ports | | |
|--------------|------|-------------------|
| VLAN ID | Port | Expiry Time (Sec) |

4.27 Jumbo Frame

Jumbo frames are frames larger than the standard Ethernet frame size of 1518 bytes. The Jumbo Frame function allows the configuration of Ethernet frame size. To access this page, click **L2 Switching > Jumbo Frame**.

Figure 4.37 L2 Switching > Jumbo Frame

The following table describes the items in the previous figure.

| Item | Description |
|---------------------|--|
| Jumbo Frame (Bytes) | Enter the variable in bytes (1518 to 9216) to define the jumbo frame size. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Jumbo Frame Config** settings are informational only: Jumbo Frame (Bytes).

| Jumbo Frame Config | |
|---------------------|-------------------|
| Information Name | Information Value |
| Jumbo Frame (Bytes) | 1522 |

4.28 Spanning Tree

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

STP Global Settings

The STP Global Settings page allows you to set the STP status, select the configuration for a BPDU packet, choose the path overhead, force version, and set the configuration revision range.

To access this page, click **L2 Switching > Spanning Tree > STP Global Settings**.

Figure 4.38 L2 Switching > Spanning Tree > STP Global Settings

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|--|
| Enabled | Click the radio-button to enable or disable the STP status. |
| BPDU Forward | Select flooding or filtering to designate the type of BPDU packet. |
| PathCost Method | Select short or long to define the method used for path cost calculations. |
| Force Version | Click the drop-down menu to select the operating mode for STP. <ul style="list-style-type: none"> STP-Compatible: 802.1D STP operation. RSTP-Operation: 802.1w operation. MSTP-Operation: 802.1s operation. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **STP Information** settings are informational only: STP, BPDU Forward, PathCost Method, and Force Version.

| STP Information | |
|------------------|-------------------|
| Information Name | Information Value |
| STP | Disabled |
| BPDU Forward | flooding |
| PathCost Method | long |
| Force Version | RSTP-Operation |

STP Port Settings

The STP Port Settings page allows you to configure the ports for the setting, port's contribution, configured edge port, and set the status of the BPDU filter.

To access this page, click **L2 Switching > Spanning Tree > STP Port Settings**.

Figure 4.39 L2 Switching > Spanning Tree > STP Port Settings

The following table describes the items in the previous figure.

| Item | Description |
|----------------------|--|
| Port Select | Select the port list to specify the ports that apply to this setting. |
| Admin Enable | Select Enabled or Disabled to setup the admin profile for the STP port. |
| Path Cost (0 = Auto) | Set the port's cost contribution. For a root port, the root path cost for the bridge. (0 means Auto). |
| Edge Port | Click the drop-down menu to set the edge port configuration. <ul style="list-style-type: none"> No: Force to false state (as link to a bridge). Yes: Force to true state (as link to a host). |
| P2P MAC | Click the drop-down menu to set the Point-to-Point port configuration. <ul style="list-style-type: none"> No: Force to false state Yes: Force to true state |
| Migrate | Click the check box to enable the migrate function. Forces the port to use the new MST/RST BPDUs, requiring the switch to test on the LAN segment for the presence of legacy devices, which are not able to understand the new BPDU formats. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **STP Port Status** settings are informational only: Port, Admin Enable, Path Cost, Edge Port, and P2P MAC.

| STP Port Status | | | | |
|-----------------|--------------|-----------|-----------|---------|
| Port | Admin Enable | Path Cost | Edge Port | P2P MAC |
| GE1 | Enable | 0 | No | No |
| GE2 | Enable | 0 | No | No |
| GE3 | Enable | 0 | No | No |
| GE4 | Enable | 0 | No | No |

STP Bridge Settings

The STP Bridge Settings page allows you to configure the priority, forward delay, maximum age, Tx hold count, and the hello time for the bridge.

To access this page, click **L2 Switching > Spanning Tree > STP Bridge Settings**.

Figure 4.40 L2 Switching > Spanning Tree > STP Bridge Settings

The following table describes the items in the previous figure.

| Item | Description |
|---------------|--|
| Priority | Click the drop-down menu to select the STP bridge priority. |
| Forward Delay | Enter the variable (4 to 30) to set the forward delay for STP bridge settings. |
| Max Age | Enter the variable (6 to 40) to set the Max Age for STP bridge settings. |
| Tx Hold Count | Enter the variable (1 to 10) to designate the TX hold count for STP bridge settings. |
| Hello Time | Enter the variable (1 to 10) to designate the Hello Time for STP bridge settings. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **STP Bridge Information** settings are informational only: Priority, Forward Delay, Max Age, Tx Hold Count, and Hello Time.

| STP Bridge Information | |
|------------------------|-------------------|
| Information Name | Information Value |
| Priority | 32768 |
| Forward Delay | 15 |
| Max Age | 20 |
| Tx Hold Count | 6 |
| Hello Time | 2 |

The ensuing table for **STP Bridge Status** settings are informational only: Bridge Identifier, Designated Root Bridge, Root Path Cost, Designated Bridge, Root Port, and Last Topology Change.

| STP Bridge Status | |
|------------------------|----------------------------|
| Information Name | Information Value |
| Bridge Identifier | 32768/ 0/00:E0:4C:00:00:00 |
| Designated Root Bridge | 0/ 0/00:00:00:00:00:00 |
| Root Path Cost | 0 |
| Designated Bridge | 0/ 0/00:00:00:00:00:00 |
| Root Port | 0 / 0 |
| Last Topology Change | 0 |

STP Port Advanced Settings

The STP Port Advanced Settings page allows you to select the port list to apply this setting.

To access this page, click **L2 Switching > Spanning Tree > STP Port Advanced Settings**.

Figure 4.41 L2 Switching > Spanning Tree > STP Port Advanced Settings

The following table describes the items in the previous figure.

| Item | Description |
|-------------|--|
| Port Select | Select the port to designate the STP settings. |
| Priority | Click the drop-down menu to designate a priority. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **STP Port Status** settings are informational only: Port, Identifier (Priority / Port Id), Path Cost Conf/Oper, Designated Root Bridge, Root Path Cost, Designated Bridge, Edge Port Conf/Oper, P2P MAC Conf/Oper, Port Role, and Port State.

| Port | Identifier (Priority / Port Id) | Path Cost Conf/Oper | Designated Root Bridge | Root Path Cost | Designated Bridge | Edge Port Conf/Oper | P2P MAC Conf/Oper | Port Role | Port State |
|------|---------------------------------|---------------------|------------------------|----------------|-----------------------|---------------------|-------------------|-----------|------------|
| GE1 | 128 / 1 | 0 / 20000 | 0 / 00:00:00:00:00:00 | 0 | 0 / 00:00:00:00:00:00 | No / No | No / No | Disabled | Disabled |
| GE2 | 128 / 2 | 0 / 20000 | 0 / 00:00:00:00:00:00 | 0 | 0 / 00:00:00:00:00:00 | No / No | No / No | Disabled | Disabled |
| GE3 | 128 / 3 | 0 / 20000 | 0 / 00:00:00:00:00:00 | 0 | 0 / 00:00:00:00:00:00 | No / No | No / No | Disabled | Disabled |

MST Config Identification

The MST Config Identification page allows you to configure the identification setting name and the identification range.

To access this page, click **L2 Switching > Spanning Tree > MST Config Identification**.

Figure 4.42 L2 Switching > Spanning Tree > MST Config Identification

The following table describes the items in the previous figure.

| Item | Description |
|--------------------|--|
| Configuration Name | Enter the identifier used to identify the configuration currently being used. It may be up to 32 characters. |
| Revision Level | Enter the identifier for the Revision Configuration, range: 0 to 65535 (default: 0). |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **MST Configuration Identification Information** settings are informational only: Configuration Name and Revision Level.

| MST Configuration Identification Information | |
|--|-------------------|
| Information Name | Information Value |
| Configuration Name | |
| Revision Level | 0 |

MST Instance ID Settings

The MST Instance ID Settings page allows you to edit the MSTI ID and VID List settings. To access this page, click **L2 Switching > Spanning Tree > MST Instance ID Settings**.

Figure 4.43 L2 Switching > Spanning Tree > MST Instance ID Settings

The following table describes the items in the previous figure.

| Item | Description |
|----------|---|
| MSTI ID | Enter the MST instance ID (0-15). |
| VID List | Enter the pre-configured VID list. |
| Move | Click Move to save the values and update the screen. |

The ensuing table for **MST Instance ID Information** settings are informational only: MSTI ID and VID List.

| MST Instance ID Information | |
|-----------------------------|----------|
| MSTI ID | VID List |
| 0 | 1-4094 |

MST Instance Priority Settings

The MST Instance Priority Settings allows you to specify the MST instance and the bridge priority in that instance.

To access this page, click **L2 Switching > Spanning Tree > MST Instance Priority Settings**.

Figure 4.44 L2 Switching > Spanning Tree > MST Instance Priority Settings

The following table describes the items in the previous figure.

| Item | Description |
|----------|---|
| MSTI ID | Click the drop-down menu to specify the MST instance. |
| Priority | Click the drop-down menu to set the bridge priority in the specified MST instance |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **MST Instance Priority Information** settings are informational only: MSTI ID, Priority, and Action.

| MST Instance Priority Information | | |
|-----------------------------------|----------|--------|
| MSTI ID | Priority | Action |

MST Instance Info

To access this page, click **L2 Switching > Spanning Tree > MST Instance Info**.

The ensuing table for **STP Bridge Status** settings are informational only: Bridge Identifier, Designated Root Bridge, Root Path Cost, Designated Bridge, Root Port, and TCNLast Topology Change.

| STP Bridge Status | |
|------------------------|----------------------------|
| Information Name | Information Value |
| Bridge Identifier | 32768/ 0/00:E0:4C:00:00:00 |
| Designated Root Bridge | 0/ 0/00:00:00:00:00:00 |
| Root Path Cost | 0 |
| Designated Bridge | 0/ 0/00:00:00:00:00:00 |
| Root Port | 0 / 0 |
| Last Topology Change | 0 |

The ensuing table for **STP Port Status** settings are informational only: Port, Identifier (Priority / Port Id), Path Cost Conf/Oper, Designated Root Bridge, Root Path Cost, Designated Bridge, Edge Port Conf/Oper, P2P MAC Conf/Oper, Port Role, and Port State.

| STP Port Status | | | | | | | | | |
|-----------------|---------------------------------|---------------------|------------------------|----------------|-----------------------|---------------------|-------------------|-----------|------------|
| Port | Identifier (Priority / Port Id) | Path Cost Conf/Oper | Designated Root Bridge | Root Path Cost | Designated Bridge | Edge Port Conf/Oper | P2P MAC Conf/Oper | Port Role | Port State |
| GE1 | 128 / 1 | 0 / 20000 | 0 / 00:00:00:00:00:00 | 0 | 0 / 00:00:00:00:00:00 | No / No | No / No | Disabled | Disabled |
| GE2 | 128 / 2 | 0 / 20000 | 0 / 00:00:00:00:00:00 | 0 | 0 / 00:00:00:00:00:00 | No / No | No / No | Disabled | Disabled |
| GE3 | 128 / 3 | 0 / 20000 | 0 / 00:00:00:00:00:00 | 0 | 0 / 00:00:00:00:00:00 | No / No | No / No | Disabled | Disabled |

STP Statistics

To access this page, click **L2 Switching > Spanning Tree > STP Statistics**.

The ensuing table for **STP Statistics** settings are informational only: Port, Configuration BPDUs Received, TCN BPDUs Received, Configuration BPDUs Transmitted, and TCN BPDUs Transmitted.

| STP Statistics | | | | |
|----------------|------------------------------|--------------------|---------------------------------|-----------------------|
| Port | Configuration BPDUs Received | TCN BPDUs Received | Configuration BPDUs Transmitted | TCN BPDUs Transmitted |
| GE1 | 0 | 0 | 0 | 0 |
| GE2 | 0 | 0 | 0 | 0 |
| GE3 | 0 | 0 | 0 | 0 |

4.29 X-Ring

The X-Ring function provides an improvement over Spanning Tree and Rapid Spanning Tree and a rapid auto recovery in the event that the network suffers a corrupt or broken link and prevents network loops.

X-Ring Settings

The X-Ring Settings allows you to enable or disable the state of the X-Ring settings. To access this page, click **L2 Switching > X-Ring > X-Ring Settings**.

Figure 4.45 L2 Switching > X-Ring > X-Ring Settings

The following table describes the items in the previous figure.

| Item | Description |
|-------|--|
| State | Select Enabled or Disabled to setup the X-Ring mode. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Information** settings are informational only: X-Ring State.

| Information | |
|------------------|-------------------|
| Information Name | Information Value |
| X-Ring State | Enabled |

X-Ring Groups

The X-Ring Groups page allows you to select the function and role for each device and the connected ports.

To access this page, click **L2 Switching > X-Ring > X-Ring Groups**.

Figure 4.46 L2 Switching > X-Ring > X-Ring Groups

The following table describes the items in the previous figure.

| Item | Description |
|---------|---|
| Ring ID | Enter a number within the range of 1 to 255 to identify a given X-Ring group. |
| Role | Click the drop-down menu to select the ring role. |
| Port 1 | Click the drop-down menu to define the port designation. |
| Port 2 | Click the drop-down menu to define the port designation. |
| Add | Click Add to save the values and update the screen. |

The ensuing table for **Information** settings are informational only: Ring ID, Role, Port 1, Port 2, and **Delete** (click to delete the desired Ring ID).

| Information | | | | |
|-------------|------|--------|--------|--------|
| Ring ID | Role | Port 1 | Port 2 | Delete |

4.31 Loopback Detection

The Loopback Detection function is used to detect looped links. By sending detection frames and then checking to see if the frames returned to any port on the device, the function is used to detect loops.

Global Settings

The Global Settings page allows you to configure the state (enabled or disabled) of the function, select the interval at which frames are transmitted and the delay before recovery. To access this page, click **L2 Switching > Loopback Detection > Global Settings**.

Figure 4.50 L2 Switching > Loopback Detection > Global Settings

The following table describes the items in the previous figure.

| Item | Description |
|--------------|---|
| State | Select Enabled or Disabled to setup the loopback mode. |
| Interval | Enter the variable in seconds (1 to 32767) to set the interval at which frames are transmitted. |
| Recover Time | Enter the variable in seconds (60 to 1000000) to define the delay before recovery. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Loopback Detection Global Information** settings are informational only: State, Interval, and Recover Time.

| Loopback Detection Global Information | |
|---------------------------------------|-------------------|
| Information Name | Information Value |
| State | Disabled |
| Interval | 1 |
| Recover Time | 60 |

Port Settings

The Port Settings page allows you to select ports that are detected by the loopback detection function and configure their status (enabled or disabled).

To access this page, click **L2 Switching > Loopback Detection > Port Settings**.

Figure 4.51 L2 Switching > Loopback Detection > Port Settings

The following table describes the items in the previous figure.

Table 4-1. L2 Switching > Loopback Detection > Port Settings

| Item | Description |
|-------------|--|
| Port Select | Enter the port to define the local loopback detection setting. |
| Enabled | Select Enabled or Disabled to setup the Loopback Detection function. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Loopback Detection Port Information** settings are informational only: Port, Enable State, and Loop Status.

| Loopback Detection Port Information | | |
|-------------------------------------|----------|-------------|
| Port | State | Loop Status |
| GE1 | Disabled | Normal |
| GE2 | Disabled | Normal |
| GE3 | Disabled | Normal |
| GE4 | Disabled | Normal |

4.32 MAC Address Table

The MAC Address Table provides access to the Static MAC Settings, MAC Aging Time, and Dynamic Forwarding.

4.33 Static MAC

The Static MAC page allows you to configure the address for forwarding of packets, the VLAN ID of the listed MAC address and the designated Port.

To access this page, click **MAC Address Table -> Static Mac**



The image shows a web interface for 'Static MAC Settings'. It contains three input fields: 'MAC Address' with the value '00:00:00:00:00:00', 'VLAN' with a dropdown menu showing 'default', and 'Port' with a dropdown menu showing 'GE1'. Below these fields is a blue 'Apply' button.

Figure 4.52 MAC Address Table > Static MAC

The following table describes the items in the previous figure.

Table 4-2. MAC Address Table > Static MAC

| Item | Description |
|-------------|--|
| MAC Address | Enter the MAC address to which packets are statically forwarded. |
| VLAN | Click the drop-down menu to select the VLAN ID number of the VLAN for which the MAC address is residing. |
| Port | Click the drop-down menu to select the port number. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for Static MAC Status settings are informational only: No., MAC Address, VLAN, Port, and **Delete** (click to delete the desired MAC address).

| Static MAC Status | | | | |
|-------------------|-------------------|------------|------|--------|
| No. | MAC Address | VLAN | Port | Delete |
| 1 | 00:E0:4C:00:00:00 | default(1) | CPU | |

4.34 MAC Aging Time

The MAC Aging Time page allows you to set the MAC address of the aging time to study. To access this page, click **MAC Address Table > MAC Aging Time**.



Dynamic Address Settings

Aging Time (Range: 10 - 630)

Apply

Figure 4.53 MAC Address Table > MAC Aging Time

The following table describes the items in the previous figure.

| Item | Description |
|------------|---|
| Aging Time | Enter the variable (10 to 630) to define the time required for aging. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Dynamic Address Status** settings are informational only: Aging time.

| Dynamic Address Status | |
|------------------------|-------------------|
| Information Name | Information Value |
| Aging Time | 300 |

4.35 Dynamic Forwarding Table

The Dynamic Forwarding function allows you to configure an address table, which contain the following:

- The port each hardware address is associated with
- The VLAN to show or clear dynamic MAC entries
- The MAC address selection

To access this page, click **MAC Address Table > Dynamic Forwarding Table**.

Dynamic Forwarding Table

☐ Port GE1

☐ VLAN default

☐ MAC Address 00:00:00:00:00:00

[View](#) [Clear](#)

Figure 4.54 MAC Address Table > Dynamic Forwarding Table

The following table describes the items in the previous figure.

| Item | Description |
|-------------|---|
| Port | Click the drop-down menu to select the port number to show or clear dynamic MAC entries. If a port, VLAN or MAC address is not selected, the whole dynamic MAC table is displayed or cleared. |
| VLAN | Click the drop-down menu to select the VLAN to show or clear dynamic MAC entries. |
| MAC Address | Enter the MAC address to show or clear dynamic MAC entries. If a port, VLAN or MAC address is not selected, the whole dynamic MAC table is displayed or cleared. |
| View | Click View to display the MAC address information. |
| Clear | Click Clear to clear the MAC Address Information table. |

The ensuing table for **MAC Address Information** settings are informational only: MAC Address, VLAN, Type, Port and **Add to Static MAC** (click to add the MAC address to static MAC address list).

| MAC Address Information (36) | | | | |
|------------------------------|------------|---------|------|-----------------------------------|
| MAC Address | VLAN | Type | Port | |
| 00:13:20:67:D5:D8 | default(1) | Dynamic | GE26 | Add to Static MAC |
| 08:74:02:2B:BE:29 | default(1) | Dynamic | GE26 | Add to Static MAC |
| 10:6F:3F:E7:B0:2A | default(1) | Dynamic | GE26 | Add to Static MAC |
| 14:AB:C5:68:96:6A | default(1) | Dvnamic | GE26 | Add to Static MAC |

4.36 Security

The Security function allows for the configuration of Storm Control, Port Security, Protected Ports, DoS Prevention, Applications, 802.1x, and IP Security.

4.37 Storm Control

The Storm Control page allows you to setup the units and Preamble/IFG to manage the occurrence of packet flooding on the LAN and consequent traffic to prevent the degrading of network performance.

Global Settings

To access this page, click **Security > Storm Control > Global Settings**.

Figure 4.55 Security > Storm Control > Global Settings

The following table describes the items in the previous figure.

| Item | Description |
|----------------|--|
| Unit | Select pps or bps control units for the Storm Control function. |
| Preamble & IFG | Select Excluded or Included to setup the Storm Control Global settings. Excluded: exclude preamble & IFG (20 bytes) when count ingress storm control rate. Included: include preamble & IFG (20 bytes) when count ingress storm control rate. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Storm Control Global Information** settings are informational only: Unit and Preamble & IFG.

| Storm Control Global Information | |
|----------------------------------|-------------------|
| Information Name | Information Value |
| Unit | bps |
| Preamble & IFG | Excluded |

Port Settings

The Port Settings page allows you to configure the port and the type of storm control association along with the value of the storm rate for the selected port.

To access this page, click **Security > Storm Control > Port Settings**.

Figure 4.56 Security > Storm Control > Port Settings

The following table describes the items in the previous figure.

| Item | Description |
|-------------|---|
| Port | Enter the port number to designate the local port for the Storm Control function. |
| Port State | Select Disabled or Enabled to define the port state |
| Action | Click the drop-down menu to select the type of action to designate for the selected port during a Storm Control incident. The options are Drop and Shutdown. |
| Type Enable | <p>Click the radio button to enable Broadcast, Unknown Multicast, or Unknown Unicast.</p> <ul style="list-style-type: none"> • Broadcast: Select the variable in Kbps to define the broadcast bandwidth. • Unknown Multicast: Select the variable in Kbps to define the multicast setting. • Broadcast: Select the variable in Kbps to define the unknown unicast setting. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Storm Control Port Information** settings are informational only: Port, Port State, Broadcast (Kbps), Unknown Multicast (Kbps), Unknown Unicast (Kbps) and Action.

| Storm Control Port Information | | | | | |
|--------------------------------|------------|------------------|--------------------------|------------------------|--------|
| Port | Port State | Broadcast (Kbps) | Unknown Multicast (Kbps) | Unknown Unicast (Kbps) | Action |
| GE1 | Disabled | Off (10000) | Off (10000) | Off (10000) | Drop |
| GE2 | Disabled | Off (10000) | Off (10000) | Off (10000) | Drop |
| GE3 | Disabled | Off (10000) | Off (10000) | Off (10000) | Drop |
| GE4 | Disabled | Off (10000) | Off (10000) | Off (10000) | Drop |

4.38 Port Security

The Port Security page allows you to configure port isolation behavior. To access this page, click **Security > Port Security**.

Figure 4.57 Security > Port Security

The following table describes the items in the previous figure.

| Item | Description |
|----------------------------|--|
| Port Select | Enter a single port or multiple port numbers to configure. |
| Enabled | Select Enabled or Disabled to define the selected Port. |
| FDB Learn Limit (0-64) | Enter the variable (0 to 64) to set the learn limit for the FDB setting. |
| Violation MAC Notification | Select Enabled or Disabled to define the selected Port. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Port Security Information** settings are informational only: Port, Enabled, FDB Learn Limit, and Violation MAC Notification.

| Port Security Information | | | |
|---------------------------|----------|-----------------|----------------------------|
| Port | Enabled | FDB Learn Limit | Violation MAC Notification |
| GE1 | Disabled | 0 | Disabled |
| GE2 | Disabled | 0 | Disabled |
| GE3 | Disabled | 0 | Disabled |
| GE4 | Disabled | 0 | Disabled |
| GE5 | Disabled | 0 | Disabled |
| GE6 | Disabled | 0 | Disabled |
| GE7 | Disabled | 0 | Disabled |

4.39 Protected Ports

The Protected Port page allows you to configure a single port or multiple ports as a protected or unprotected type.

To access this page, click **Security > Protected Ports**.

Figure 4.58 Security > Protected Ports

The following table describes the items in the previous figure.

| Item | Description |
|-----------|--|
| Port List | Enter the port number to designate for the Protected Port setting. |
| Port Type | Select Unprotected or Protected to define the port type. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Protected Ports Status** settings are informational only: Protected Ports and Unprotected Ports.

| Protected Ports Status | |
|------------------------|-----------|
| Protected Type | Port List |
| Protected Ports | |
| Unprotected Ports | all |

4.40 DoS Prevention

The DoS Prevention page allows you to setup (enabled or disabled) the denial of service.

DoS Global Settings

The DoS Global Settings page allows you to configure (enabled or disabled) the setting for each function.

To access this page, click **Security > DoS Prevention > DoS Global Settings**.

DoS Global Settings

| | | |
|---------------------------|--|--------------------------------|
| DMAC = SMAC | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| LAND | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| UDP Blat | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| TCP Blat | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| POD | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| IPv6 Min Fragment | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| | Bytes 1240 | (0-65535) |
| ICMP Fragments | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| IPv4 Ping Max Size | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| IPv6 Ping Max Size | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| Ping Max Size Setting | Bytes 512 | (0-65535) |
| Smurf Attack | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| | Netmask Length 0 | (0-32) |
| TCP Min Hdr Size | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| | Byte 20 | (0-31) |
| TCP-SYN(SPORT<1024) | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| Null Scan Attack | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| X-Mas Scan Attack | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| TCP SYN-FIN Attack | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| TCP SYN-RST Attack | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |
| TCP Fragment (Offset = 1) | <input checked="" type="radio"/> Enabled | <input type="radio"/> Disabled |

Apply

Figure 4.59 Security > DoS Prevention > DoS Global Settings

The following table describes the items in the previous figure.

| Item | Description |
|------------------------|---|
| DMAC = SMAC | Click Enabled or Disabled to define DMAC-SMAC for the DoS Global settings. |
| LAND | Click Enabled or Disabled to define LAND for the DoS Global settings. |
| UDP Blat | Click Enabled or Disabled to define UDP Blat for the DoS Global settings. |
| TCP Blat | Click Enabled or Disabled to define TCP Blat for the DoS Global settings. |
| POD | Click Enabled or Disabled to define POD for the DoS Global settings. |
| IPv6 Min Fragment | Click Enabled or Disabled to define minimum fragment size for the IPv6 protocol. Enter the variable in bytes (0 to 65535) to set the minimum fragment size when the function is enabled. |
| ICMP Fragments | Click Enabled or Disabled to define the ICMP Fragments function. |
| IPv4 Ping Max Size | Click Enabled or Disabled to set the maximum ping size for the IPv4 protocol. |
| IPv6 Ping Max Size | Click Enabled or Disabled to set a maximum ping size for the IPv6 protocol. |
| Ping Max Size Setting | Enter the variable in bytes (0 to 65535) to set the maximum ping size. |
| Smurf Attack | Click Enabled or Disabled to set the Smurf Attack function. |
| TCP Min Hdr Size | Click Enabled or Disabled to set the minimum header size. Enter the variable in bytes (0 to 31) to set the minimum header size. |
| TCP-SYN (SPORT < 1024) | Click Enabled or Disabled to set the TCP synchronization function (sport < 1021). |
| Null Scan Attack | Click Enabled or Disabled to set the Null Scan Attack function. |
| X-Mas Scan Attack | Click Enabled or Disabled to set the X-Mas Scan function. |
| TCP SYN-FIN Attack | Click Enabled or Disabled to set the TCP synchronization termination attack function. |
| TCP SYN-RST Attack | Click Enabled or Disabled to set the TCP synchronization reset attack function. |
| TCP Fragment | (Offset Click Enabled or Disabled to set the TCP fragment function (offset =1). |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **DoS Global Information** settings are informational only: DMAC = SMAC, Land Attack, UDP Blat, TCP Blat, POD (Ping of Death), IPv6 Min Fragment Size, ICMP Fragment Packets, IPv4 Ping Max Packet Size, IPv6 Ping Max Packet Size, Smurf Attack, TCP Min Header Length, TCP Syn (SPORT < 1024), Null Scan Attack, X-Mas Scan Attack, TCP SYN-FIN Attack, TCP SYN-RST Attack, and TCP Fragment (Offset = 1).

| DoS Global Information | |
|---------------------------|-----------------------------|
| Information Name | Information Value |
| DMAC = SMAC | Enabled |
| Land Attack | Enabled |
| UDP Blat | Enabled |
| TCP Blat | Enabled |
| POD (Ping of Death) | Enabled |
| IPv6 Min Fragment Size | Enabled (1240 Bytes) |
| ICMP Fragment Packets | Enabled |
| IPv4 Ping Max Packet Size | Enabled (512 Bytes) |
| IPv6 Ping Max Packet Size | Enabled (512 Bytes) |
| Smurf Attack | Enabled (Netmask Length: 0) |
| TCP Min Header Length | Enabled (20 Bytes) |
| TCP Syn (SPORT < 1024) | Enabled |
| Null Scan Attack | Enabled |
| X-Mas Scan Attack | Enabled |
| TCP SYN-FIN Attack | Enabled |
| TCP SYN-RST Attack | Enabled |
| TCP Fragment (Offset = 1) | Enabled |

DoS Port Settings

The DoS Port Settings page allow you to configure DoS security (enabled or disabled) for the selected port.

To access this page, click **Security > DoS Prevention > DoS Port Settings**.

Figure 4.60 Security > DoS Prevention > DoS Port Settings

The following table describes the items in the previous figure.

| Item | Description |
|----------------|--|
| Port | Select the port to configure for the DoS prevention function. |
| DoS Protection | Click Enabled or Disabled to set the DoS Port security function state. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **DoS Port Status** settings are informational only: Port and DoS Protection.

| DoS Port Status | |
|-----------------|----------------|
| Port | DoS Protection |
| GE1 | Disabled |
| GE2 | Disabled |
| GE3 | Disabled |
| GE4 | Disabled |
| GE5 | Disabled |

4.41 Applications

The Applications function allows you to configure various types of AAA lists.

TELNET

The TELNET page allows you to combine all kinds of AAA lists with the Telnet line. To access this page, click **Security > Applications > TELNET**.

Figure 4.61 Security > Applications > TELNET

The following table describes the items in the previous figure.

| Item | Description |
|----------------|---|
| Telnet Service | Click Enabled or Disabled to set remote access through the Telnet Service function. |
| Apply | Click Apply to save the values and update the screen. |
| Disconnect | Click Disconnect to disable the current Telnet service. |

The ensuing table for **Telnet Information** settings are informational only: Telnet Service and Current Telnet Sessions Count.

| Telnet Information | |
|-------------------------------|-------------------|
| Information Name | Information Value |
| Telnet Service | Enabled |
| Current Telnet Sessions Count | 0 |

SSH

Secure Shell (SSH) is a protocol providing secure (encrypted) management connection to a remote device.

To access this page, click **Security > Applications > SSH**.

Figure 4.62 Security > Applications > SSH

The following table describes the items in the previous figure.

| Item | Description |
|-------------|---|
| SSH Service | Click Enabled or Disabled to set up Ethernet encapsulation (remote access) through the Secure Shell (SSH) function. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **SSH Information** settings are informational only: SSH.

| SSH Information | |
|------------------|-------------------|
| Information Name | Information Value |
| SSH | Disabled |

HTTP

The HTTP page allows you to combine all kinds of AAA lists to the HTTP line. Attempts to access the switch's Web UI from HTTP are first authenticated.

To access this page, click **Security > Applications > HTTP**.

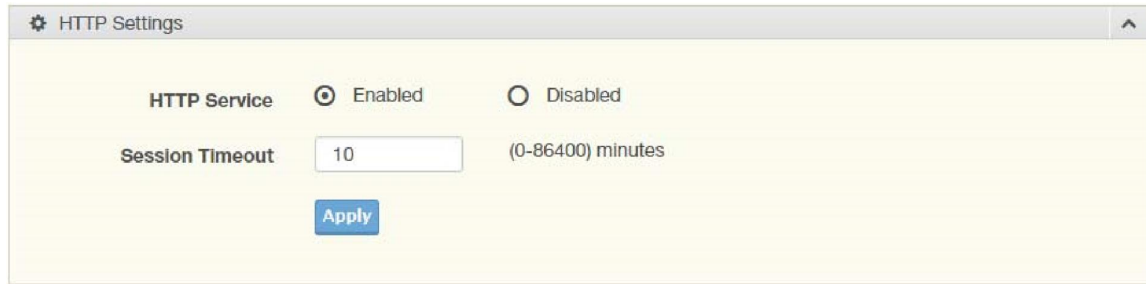
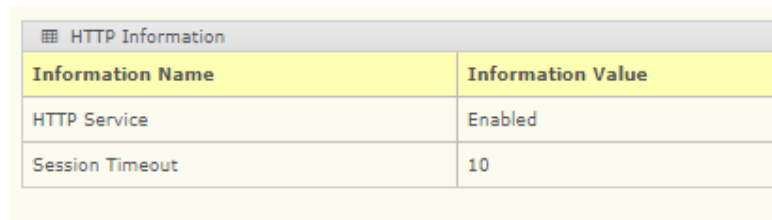


Figure 4.63 Security > Applications > HTTP

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|---|
| HTTP Service | Click Enabled or Disabled to set up Ethernet encapsulation (remote access) through HTTP function. |
| Session Timeout | Enter the variable in minutes (0 to 86400) to define the timeout period for the HTTP session. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **HTTP Information** settings are informational only: HTTP Service and Session Timeout.



| Information Name | Information Value |
|------------------|-------------------|
| HTTP Service | Enabled |
| Session Timeout | 10 |

HTTPS

The HTTPS page allows you to combine all kinds of AAA lists on the HTTPS line. Attempts to access the switch's Web UI from HTTPS are first authenticated. To access this page, click **Security > Applications > HTTPS**.

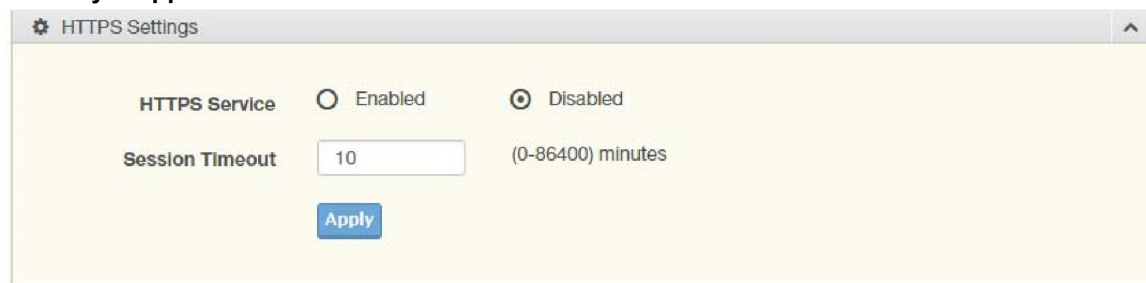


Figure 4.64 Security > Applications > HTTPS

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|---|
| HTTPS Service | Click Enabled or Disabled to set up Ethernet encapsulation over HTTPS. |
| Session Timeout | Enter the variable in minutes (0 to 86400) to define the timeout period for the HTTP session. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **HTTPS Information** settings are informational only: HTTPS Service and Session Timeout.

| HTTPS Information | |
|-------------------|-------------------|
| Information Name | Information Value |
| HTTPS Service | Disabled |
| Session Timeout | 10 |

4.42 802.1x

The 802.1x function provides port-based authentication to prevent unauthorized devices (clients) from gaining access to the network.

802.1x Settings

The 802.1x Settings page allows you to set the state (enabled or disabled) for the selected IP server address, port, accounting port, and associated password including a reauthentication period.

To access this page, click **Security > 802.1x > 802.1x Settings**.

802.1x Global Settings

State ☒ Disabled ☐ Enabled

Server IP

Server Port (1 - 65535)

Accounting Port (1 - 65535)

Security Key

Reauth Period (1 - 65535)

Figure 4.65 Security > 802.1x > 802.1x Settings

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|--|
| State | Click Enabled or Disabled to set up 802.1x Setting function. |
| Server IP | Enter the IP address of the local server providing authentication function. |
| Server Port | Enter the port number (1 to 65535) assigned to the listed Server IP. |
| Accounting Port | Enter the port number (1 to 65535) assigned to the listed server IP configured to provide authorization and authentication for network access. |
| Security Key | Enter the variable to define the network security key used in authentication. |
| Reauth Period | Enter the variable in seconds to define the period of time between authentication attempts. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **802.1x Information** settings are informational only: 802.1x State, Server IP, Server Port, Accounting Port, Security Key and Reauth Period.

| 802.1x Information | |
|--------------------|-------------------|
| Information Name | Information Value |
| 802.1xState | Disabled |
| Server IP | 192.168.1.100 |
| Server Port | 1812 |
| Accounting Port | 1813 |
| Security Key | password |
| Reauth Period | 3600 |

802.1x Port Configuration

The 802.1x Port Configuration page allows you to identify the authorization state for a port by using a MAC or Port authentication base.

To access this page, click **Security > 802.1x > 802.1x Port Configuration**.

Figure 4.66 Security > 802.1x > 802.1x Port Configuration

The following table describes the items in the previous figure.

| Item | Description |
|----------------------|---|
| Authentication based | Click Port or Mac to designate the type of configuration for the 802.1x Port setting. |
| Port Select | Enter the port number associated with the configuration setting. |
| State | Click Authorize or Disabled to define the listed port's state mode. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **802.1x Port Authorization** settings are informational only: Port and Port State.

| 802.1x Port Authorization | |
|---------------------------|---------------------------|
| Port | 802.1x Port Authorization |
| GE1 | Disabled |
| GE2 | Disabled |
| GE3 | Disabled |
| GE4 | Disabled |
| GE5 | Disabled |

4.43 IP Security

This section provides a means to configure the IP Security settings.

Global Settings

The Global Settings page allows you to set the IP Security status (enabled or disabled). To access this page, click **Security > IP Security > Global Settings**.

Figure 4.67 Security > IP Security > Global Settings

The following table describes the items in the previous figure.

| Item | Description |
|--------|--|
| Status | Click Enabled or Disabled to define the global setting for the IP security function. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **IP Security Status** settings are informational only: IP Security.

| IP Security Status | |
|--------------------|-------------------|
| Information Name | Information Value |
| IP Security | Disabled |

Entry Settings

Once the Global Setting is enabled, use the Entry Settings to define an IP Security entry.

Security > IP Security > Entry Settings.

Figure 4.68 Security > IP Security > Entry Settings

The following table describes the items in the previous figure.

| Item | Description |
|------------|--|
| IP Address | Enter the source IP address to apply the IP Security function. |
| IP Mask | Enter the IP address for use in masking the previous IP Address. |
| Services | Enter the type of services to associate with the entry setting. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **IP Security Entry Information** settings are informational only: IP Address, IP Mask, Services and Action.

| IP Security Entry Information | | | |
|-------------------------------|---------|---------|--------|
| IP Address | IP Mask | Service | Action |

4.44 QoS

The QoS function allows you to configure settings for the switch QoS interface and how the switch connects to a remote server to get services.

4.45 General

Traditionally, networks operate on a best-effort delivery basis, all traffic has equal priority and an

equal chance of being delivered in a timely manner. When there is congestion, all traffic has an equal chance of being dropped.

The QoS feature can be configured for congestion-management and congestion-avoidance to specifically manage the priority of the traffic delivery. Implementing QoS in the network makes performance predictable and bandwidth utilization much more effective.

The QoS implementation is based on the prioritization values in Layer 2 frames.

QoS Properties

The QoS Properties allows you to set the QoS mode.

To access this page, click **QoS > General > QoS Properties**.



Figure 4.69 QoS > General > QoS Properties

The following table describes the items in the previous figure.

| Item | Description |
|----------|---|
| QoS Mode | Select Disabled or Basic to setup the QoS function. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **QoS Global Information** settings are informational only: QoS Mode.

| QoS Global Information | |
|------------------------|-------------------|
| Information Name | Information Value |
| QoS Mode | Disabled |

QoS Settings

Once the QoS function is enabled, you can configure the available settings. To access this page, click **QoS > General > QoS Settings**.

Figure 4.70 QoS > General > QoS Settings

The following table describes the items in the previous figure.

| Item | Description |
|----------------------|---|
| Port | Enter the port number to associate with the QoS setting. |
| CoS Value | Click the drop-down menu to designate the Class of Service (CoS) value (0 to 7) for the Port entry. |
| Remark CoS | Click Disabled or Enabled to setup the Remark CoS function. When enabled the LAN (preassigned priority values) is marked at Layer 2 boundary to CoS values. |
| Remark DSCP | Click Disabled or Enabled to setup the DSCP remark option for the QoS function. |
| Remark IP Precedence | Click Disabled or Enabled to setup the Remark IP Precedence for the QoS function. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **QoS Status** settings are informational only: Port, CoS value, Remark CoS, Remark DSCP and Remark IP Precedence.

| QoS Status | | | | |
|------------|-----------|------------|-------------|----------------------|
| Port | CoS Value | Remark CoS | Remark DSCP | Remark IP Precedence |
| GE1 | 0 | Disabled | Disabled | Disabled |
| GE2 | 0 | Disabled | Disabled | Disabled |
| GE3 | 0 | Disabled | Disabled | Disabled |
| GE4 | 0 | Disabled | Disabled | Disabled |

Queue Scheduling

The switch supports eight CoS queues for each egress port. For each of the eight queues, two types of scheduling can be configured: Strict Priority and Weighted Round Robin (WRR).

Strict Priority scheduling is based on the priority of queues. Packets in a high-priority queue are always sent first and packets in a low-priority queue are only sent after all the high priority queues are empty.

Weighted Round Robin (WRR) scheduling is based on the user priority specification to indicate

the importance (weight) of the queue relative to the other CoS queues. WRR scheduling prevents low-priority queues from being completely ignored during periods of high priority traffic. The WRR scheduler sends some packets from each queue in turn.

QoS > General > QoS Scheduling.

| Queue | Strict | WRR | Weight | % of WRR Bandwidth |
|-------|----------------------------------|-----------------------|--------|--------------------|
| 1 | <input checked="" type="radio"/> | <input type="radio"/> | 1 | |
| 2 | <input checked="" type="radio"/> | <input type="radio"/> | 2 | |
| 3 | <input checked="" type="radio"/> | <input type="radio"/> | 3 | |
| 4 | <input checked="" type="radio"/> | <input type="radio"/> | 4 | |
| 5 | <input checked="" type="radio"/> | <input type="radio"/> | 5 | |
| 6 | <input checked="" type="radio"/> | <input type="radio"/> | 9 | |
| 7 | <input checked="" type="radio"/> | <input type="radio"/> | 13 | |
| 8 | <input checked="" type="radio"/> | <input type="radio"/> | 15 | |

Apply

Figure 4.71 QoS > General > QoS Scheduling

The following table describes the items in the previous figure.

| Item | Description |
|--------------------|---|
| Queue | Queue entry for egress port. |
| Strict | Select Strict to assign the scheduling designation to the selected queue. |
| WRR | Select WRR to assign the scheduling designation to the selected queue. |
| Weight | Enter a queue priority (weight) relative to the defined entries (WRR only). |
| % of WRR Bandwidth | Displays the allotted bandwidth for the queue entry in percentage values. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Queue Information** settings are informational only: Strict Priority Queue Number.

| Queue Information | |
|------------------------------|-------------------|
| Information Name | Information Value |
| Strict Priority Queue Number | 8 |

CoS Mapping

The CoS Mapping allows you to apply CoS mapping.

To access this page, click **QoS > General > CoS Mapping**.

CoS Mapping

CoS to Queue Mapping

| Class of Service | Queue | Class of Service | Queue |
|------------------|-------|------------------|-------|
| 0 | 2 | 1 | 1 |
| 2 | 3 | 3 | 4 |
| 4 | 5 | 5 | 6 |
| 6 | 7 | 7 | 8 |

Queue to CoS Mapping

| Queue | Class of Service | Queue | Class of Service |
|-------|------------------|-------|------------------|
| 1 | 1 | 2 | 0 |
| 3 | 2 | 4 | 3 |
| 5 | 4 | 6 | 5 |
| 7 | 6 | 8 | 7 |

Apply

Figure 4.72 QoS > General > CoS Mapping

The following table describes the items in the previous figure.

| Item | Description |
|----------------------|--|
| CoS to Queue Mapping | |
| Class of Service | Displays the CoS for the queue entry |
| Queue | Click the drop-down menu to select the queue priority for selected CoS |
| Queue to CoS Mapping | |
| Queue | Displays the queue entry for CoS mapping. |
| Class of Service | Click the drop-down menu to select the CoS type |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **CoS Mapping Information** settings are informational only: CoS and Mapping to Queue.

| CoS Mapping Information | |
|-------------------------|------------------|
| CoS | Mapping to Queue |
| 0 | 2 |
| 1 | 1 |
| 2 | 3 |
| 3 | 4 |
| 4 | 5 |

The ensuing table for **Queue Mapping Information** settings are informational only: Queue and Mapping to CoS.

| Queue Mapping Information | |
|---------------------------|----------------|
| Queue | Mapping to CoS |
| 1 | 1 |
| 2 | 0 |
| 3 | 2 |
| 4 | 3 |

DSCP Mapping

The DSCP to Queue mapping function maps queue values in incoming packets to a DSCP value that QoS uses internally to represent the priority of the traffic. The following table shows the DSCP to Queue map.

If these values are not appropriate for your network, you need to modify them.

QoS > General > DSCP Mapping.

Figure 4.73 QoS > General > DSCP Mapping

The following table describes the items in the previous figure.

| Item | Description |
|-----------------------|--|
| DSCP to Queue Mapping | |
| DSCP | Enter the DSCP entry to define the precedence values. |
| Queue | Click the drop-down menu to select the queue designation for the DSCP value. |
| Queue to DSCP Mapping | |
| Queue | Displays the queue value for the DSCP map. |
| DSCP | Enter the DSCP entry to define the precedence values. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **DSCP Mapping Information** settings are informational only: DSCP and Mapping to Queue.

| DSCP Mapping Information | |
|--------------------------|------------------|
| DSCP | Mapping to Queue |
| 0 | 1 |
| 1 | 1 |
| 2 | 1 |
| 3 | 1 |
| 4 | 1 |

The ensuing table for **Queue Mapping Information** settings are informational only: Queue and Mapping to DSCP.

| Queue Mapping Information | |
|---------------------------|-----------------|
| Queue | Mapping to DSCP |
| 1 | 0 |
| 2 | 8 |
| 3 | 16 |

IP Precedence Mapping

The IP Precedence Mapping allows you to set IP Precedence mapping.

To access this page, click **QoS > General > IP Precedence Mapping**.

IP Precedence Mapping

IP Precedence to Queue Mapping

| IP Precedence | Queue | IP Precedence | Queue |
|---------------|-------|---------------|-------|
| 0 | 1 | 1 | 2 |
| 2 | 3 | 3 | 4 |
| 4 | 5 | 5 | 6 |
| 6 | 7 | 7 | 8 |

Queue to IP Precedence Mapping

| Queue | IP Precedence | Queue | IP Precedence |
|-------|---------------|-------|---------------|
| 1 | 0 | 2 | 1 |
| 3 | 2 | 4 | 3 |
| 5 | 4 | 6 | 5 |
| 7 | 6 | 8 | 7 |

Apply

Figure 4.74 QoS > General > IP Precedence Mapping

The following table describes the items in the previous figure.

| Item | Description |
|--------------------------------|---|
| IP Precedence to Queue Mapping | |
| IP Precedence | Displays the IP precedence value for the queue map. |
| Queue | Click the drop-down menu to map a queue value to the selected IP precedence. |
| Queue to IP Precedence Mapping | |
| Queue | Displays the queue entry for mapping IP precedence values. |
| IP Precedence | Click the drop-down menu to map an IP precedence value to the selected queue. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **IP Precedence Mapping Information** settings are informational only: IP Precedence and Mapping to Queue.

| IP Precedence Mapping Information | |
|-----------------------------------|------------------|
| IP Precedence | Mapping to Queue |
| 0 | 1 |
| 1 | 2 |
| 2 | 3 |

The ensuing table for **Queue Mapping Information** settings are informational only: Queue and Mapping to IP Precedence.

| Queue Mapping Information | |
|---------------------------|--------------------------|
| Queue | Mapping to IP Precedence |
| 1 | 0 |
| 2 | 1 |
| 3 | 2 |
| 4 | 3 |

4.46 QoS Basic Mode

Quality of Service (QoS) allows giving preferential treatment to certain types of traffic at the expense of others. Without QoS, the switch offers best-effort service to each packet, regardless of the packet contents or size sending the packets without any assurance of reliability, delay bounds, or throughput.

QoS mode supports two modes: 802.1p and DSCP.

Global Settings

The Global Settings page allows you to configure the trust mode to a port selection.

To access this page, click **QoS > QoS Basic Mode > Global Settings**. The function is only available when **QoS Properties** is set to **Basic**.

The screenshot shows a web interface titled 'Basic Mode Global Settings'. It contains a 'Trust Mode' label followed by a dropdown menu currently displaying 'CoS/802.1p'. Below the dropdown is a blue 'Apply' button.

Figure 4.75 QoS > QoS Basic Mode > Global Settings

The following table describes the items in the previous figure.

| Item | Description |
|------------|---|
| Trust Mode | Click the drop-down menu to select the trust state of the QoS basic mode. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **QoS Information** settings are informational only: Trust Mode.

The screenshot shows a table titled 'QoS Global Information'. It has two columns: 'Information Name' and 'Information Value'. The first row shows 'QoS Mode' with a value of 'Disabled'.

| QoS Global Information | |
|------------------------|-------------------|
| Information Name | Information Value |
| QoS Mode | Disabled |

Port Settings

The Port Settings page allows you to define a trust state (enabled or disabled) to a listed port.

To access this page, click **QoS > QoS Basic Mode > Port Settings**.

The screenshot shows a web interface titled 'Basic Mode Port Settings'. It features a 'Port' label with a dropdown menu showing 'Select Port'. Below this is the 'Trust State' section with two radio buttons: 'Enabled' (which is selected) and 'Disabled'. A blue 'Apply' button is located at the bottom.

Figure 4.76 QoS > QoS Basic Mode > Port Settings

The following table describes the items in the previous figure.

| Item | Description |
|-------------|--|
| Port | Enter the port number for the QoS basic mode setting. |
| Trust State | Select Enabled or Disabled to set the port's trust state status. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **QoS Port Status** settings are informational only: Port and Trust State.

| QoS Global Information | |
|------------------------|-------------------|
| Information Name | Information Value |
| QoS Mode | Disabled |

4.47 Rate Limit

Rate Limit features control on a per port basis. Bandwidth control is supported for the following: Ingress Bandwidth Control, Egress Bandwidth Control, and Egress Queue.

Ingress Bandwidth Control

The Ingress Bandwidth Control page allows you to configure the bandwidth control for a listed port.

To access this page, click **QoS > Rate Limit > Ingress Bandwidth Control**.

Figure 4.77 QoS > Rate Limit > Ingress Bandwidth Control

The following table describes the items in the previous figure.

| Item | Description |
|-------------|---|
| Port | Enter the port number for the rate limit setup. |
| State | Select Disabled or Enabled to set the port's state status. |
| Rate (Kbps) | Enter the value in Kbps (16 to 1000000) to set as the bandwidth rate for the selected port. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Ingress Bandwidth Control Status** settings are informational only: Port and Ingress Rate Limit (Kbps).

| QoS Global Information | |
|------------------------|-------------------|
| Information Name | Information Value |
| QoS Mode | Disabled |

Egress Bandwidth Control

The Egress Bandwidth Control page allows you to set the egress bandwidth control for a listed port.

To access this page, click **QoS > Rate Limit > Egress Bandwidth Control**.

Figure 4.78 QoS > Rate Limit > Egress Bandwidth Control

The following table describes the items in the previous figure.

| Item | Description |
|-------------|---|
| Port | Enter the port number to set the Egress Bandwidth Control. |
| State | Select Disabled or Enabled to set the Egress Bandwidth Control state. |
| Rate (Kbps) | Enter the value in Kbps (16 to 1000000) to set the Egress Bandwidth rate. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Egress Bandwidth Control Status** settings are informational only: Port and Egress Rate Limit (Kbps).

| QoS Global Information | |
|------------------------|-------------------|
| Information Name | Information Value |
| QoS Mode | Disabled |

Egress Queue

The Egress Queue page allows you to set the egress bandwidth parameters. To access this page, click **QoS > Rate Limit > Egress Queue**.

Figure 4.79 QoS > Rate Limit > Egress Queue

The following table describes the items in the previous figure.

| Item | Description |
|------------|---|
| Port | Click the drop-down menu to select the port to define the Egress queue. |
| Queue | Click the drop-down menu to set the queue order for the Egress setting. |
| State | Click Disabled or Enabled to set the Egress queue state. |
| CIR (Kbps) | Enter the value in Kbps (16 to 1000000) to set the CIR rate for the Egress queue. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **GE1 Egress Per Queue Status** settings are informational only: Queue Id and Egress Rate Limit (Kbps).

| QoS Global Information | |
|------------------------|-------------------|
| Information Name | Information Value |
| QoS Mode | Disabled |

4.48 Management

4.49 LLDP

LLDP is a one-way protocol without request/response sequences. Information is advertised by stations implementing the transmit function, and is received and processed by stations implementing the receive function.

LLDP System Settings

The LLDP System Settings allows you to configure the status (enabled or disabled) for the protocol, set the interval for frame transmission, set the hold time multiplier, and the re-initialization delay.

To access this page, click **Management > LLDP > LLDP System Settings**.

Figure 4.80 Management > LLDP > LLDP System Settings

The following table describes the items in the previous figure.

| Item | Description |
|-------------------------|--|
| Enabled | Click Enabled or Disabled to set the Global Settings state. |
| LLDP PDU Disable Action | Click to select the LLDP PDU handling action when LLDP is globally disabled. Options include: Filtered, Bridged, or Flooded. |
| Transmission Interval | Select the interval at which frames are transmitted. The default is 30 seconds, and the valid range is 5 to 32767 seconds. |
| Holdtime Multiplier | Select the multiplier on the transmit interval to assign to TTL. |
| Reinitialization Delay | Select the delay length before re-initialization. |
| Transmit Delay | Select the delay after an LLDP frame is sent. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **LLDP Global Config** settings are informational only: LLDP Enabled, LLDP PDU Disable Action, Transmission Interval, Holdtime Multiplier, Reinitialization Delay and Transmit Delay.

| LLDP Global Config | |
|-------------------------|--------------|
| Config Name | Config Value |
| LLDP Enabled | Disabled |
| LLDP PDU Disable Action | Flooding |
| Transmission Interval | 30 Secs |
| Holdtime Multiplier | 4 |
| Reinitialization Delay | 2 Secs |
| Transmit Delay | 2 Secs |

LLDP Port Settings

The LLDP Port Settings page allows you to configure the state (enabled or disabled) of the selected port.

To access this page, click **Management > LLDP > LLDP Port Settings**.

Figure 4.81 Management > LLDP > LLDP Port Settings > LLDP Port Configuration

The following table describes the items in the previous figure.

| Item | Description |
|-------------|--|
| Port Select | Enter the port number associated with the LLDP setting. |
| State | Click the drop-down menu to select the LLDP port state. |
| Apply | Click Apply to save the values and update the screen. |

Figure 4.82 Management > LLDP > LLDP Port Settings > Optional TLVs Selection

The following table describes the items in the previous figure.

| Item | Description |
|---------------------|--|
| Port Select | Enter the port number associated with the TLV (optional) selection. |
| Optional TLV Select | <p>Click the drop-down menu to select the LLDP optional TLVs to be carried (multiple selections are allowed).</p> <ul style="list-style-type: none"> • System Name: To include system name TLV in LLDP frames. • Port Description: To include port description TLV in LLDP frames. • System Description: To include system description TLV in LLDP frames. • System Capability: To include system capability TLV in LLDP frames. • 802.3 MAC-PHY: To include MAC/PHY TLV in LLDP frames. • 802.3 Link Aggregation: To include link aggregation TLV in LLDP frames. |

| | |
|-------|---|
| | <ul style="list-style-type: none"> 802.3 Maximum Frame Size: To include maximum frame size TLV in LLDP frames. Management Address: To include management address TLV in LLDP frames. 802.1 PVID: To include port VLAN ID TLV in LLDP frames. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **LLDP Port Status** settings are informational only: Port, State and Selected Optional TLVs.

| LLDP Port Status | | |
|------------------|-------|------------------------|
| Port | State | Selected Optional TLVs |
| GE1 | TX&RX | 802.1 PVID |
| GE2 | TX&RX | 802.1 PVID |
| GE3 | TX&RX | 802.1 PVID |
| GE4 | TX&RX | 802.1 PVID |

VLAN Name TLV VLAN Selection

Port Select

VLAN Select

Figure 4.83 Management > LLDP > LLDP Port Settings > VLAN Name TLV VLAN Selection

The following table describes the items in the previous figure.

| Item | Description |
|-------------|--|
| Port Select | Enter the port number to associated with the TLV selection. |
| VLAN Select | Select the VLAN Name ID to be carried out (multiple selection is allowed). |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **LLDP Port VLAN TLV Status** settings are informational only: Port and Selected VLAN.

| LLDP Port VLAN TLV Status | |
|---------------------------|---------------|
| Port | Selected VLAN |
| GE1 | |
| GE2 | |
| GE3 | |

LLDP Local Device Info

The LLDP Local Device Info page allows you to view information regarding network devices, providing that the switch has already obtained LLDP information on the devices.

To access this page, click **Management > LLDP > LLDP Local Device Info**.

The ensuing table for **Local Device Summary** settings are informational only: Chassis ID Subtype, Chassis ID, System Name, System Description, Capabilities Supported, Capabilities Enabled, and Port ID Subtype.

| Local Device Summary | |
|------------------------|-------------------|
| Information Name | Information Value |
| Chassis ID Subtype | MAC Address |
| Chassis ID | 00:E0:4C:00:00:00 |
| System Name | Switch |
| System Description | switch |
| Capabilities Supported | Bridge |
| Capabilities Enabled | Bridge |
| Port ID Subtype | Interface name |

The ensuing table for **Port Status** settings are informational only: Port, Selected VLAN, and **Detail** (click the radio box and click **Detail** to displays the details).

| Port Status | | |
|-----------------------|------|---------------|
| Detail | Port | Selected VLAN |
| <input type="radio"/> | GE1 | TX & RX |
| <input type="radio"/> | GE2 | TX & RX |
| <input type="radio"/> | GE3 | TX & RX |
| <input type="radio"/> | GE4 | TX & RX |

LLDP Remote Device Info

The LLDP Remote Device Info page allows you to view information about remote devices, LLDP information must be available on the switch.

To access this page, click **Management > LLDP > LLDP Remote Device Info**.

| Remote Device Info | | | | | | | |
|--|------------|--------------------|------------|-----------------|---------|-------------|--------------|
| <input type="button" value="Detail"/> <input type="button" value="Delete"/> <input type="button" value="Refresh"/> | | | | | | | |
| Sel | Local Port | Chassis ID Subtype | Chassis ID | Port ID Subtype | Port ID | System Name | Time to Live |

Figure 4.84 Management > LLDP > LLDP Remote Device Info

The following table describes the items in the previous figure.

| Item | Description |
|---------|--|
| Detail | Click to display the device details. |
| Delete | Click to delete the selected devices. |
| Refresh | Click to refresh the remote device information list. |

LLDP Overloading

To access this page, click **Management > LLDP > LLDP Overloading**.

The ensuing table for **LLDP Overloading** settings are informational only: Port, Total (Bytes), Left to Send (Bytes), Status, and Status (Mandatory TLVs, 802.3 TLVs, Optional TLVs and 802.1 TLVs).

| LLDP Overloading | | | | | | | |
|------------------|---------------|----------------------|-----------------|-----------------|------------|---------------|----------------|
| Port | Total (Bytes) | Left to Send (Bytes) | Status | Status | | | |
| | | | | Mandatory TLVs | 802.3 TLVs | Optional TLVs | 802.1 TLVs |
| GE1 | 29 | 1459 | Not Overloading | 21(Transmitted) | | | 8(Transmitted) |
| GE2 | 29 | 1459 | Not Overloading | 21(Transmitted) | | | 8(Transmitted) |
| GE3 | 29 | 1459 | Not Overloading | 21(Transmitted) | | | 8(Transmitted) |

4.50 SNMP

Simple Network Management Protocol (SNMP) is a protocol to facilitate the monitoring and exchange of management information between network devices. Through SNMP, the health of the network or status of a particular device can be determined.

SNMP Settings

The SNMP Settings page allows you to set the SNMP daemon state (enabled or disabled). To access this page, click **Management > SNMP > SNMP Settings**.

The image shows the 'SNMP Global Settings' page. It has a title bar with a gear icon and the text 'SNMP Global Settings'. Below the title bar, there is a 'State' label followed by two radio buttons: 'Enabled' (which is unselected) and 'Disabled' (which is selected). Below the radio buttons is a blue 'Apply' button.

Figure 4.85 Management > SNMP > SNMP Settings

The following table describes the items in the previous figure.

| Item | Description |
|-------|--|
| State | Click Enabled or Disabled to define the SNMP daemon. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **SNMP Information** settings are informational only: SNMP.

| SNMP Information | |
|------------------|-------------------|
| Information Name | Information Value |
| SNMP | Enabled |

SNMP Community

The SNMP Community page provides configuration options for the community.

SNMP v1 and SNMP v2c use the group name (Community Name) certification. Its role is similar to the password function. If SNMP v1 and SNMP v2c are used, you can go directly from the configuration settings to this page to configure the SNMP community.

To access this page, click **Management > SNMP > SNMP Community**.

Figure 4.86 Management > SNMP > SNMP Community

The following table describes the items in the previous figure.

| Item | Description |
|----------------|--|
| Community Name | Enter a community name (up to 20 characters). |
| Access Right | Click the radio box to specify the access level (read only or read write). |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Community Status** settings are informational only: No., Community Name, Access Right, and **Delete** (click to delete the desired community name).

| Community Status | | | |
|------------------|----------------|--------------|--------|
| No. | Community Name | Access Right | Action |
| 1 | public | read-only | Delete |
| 2 | private | read-write | Delete |

SNMP User Settings

The SNMP User Settings page allows you to create SNMP groups. The users have the same level of security and access control permissions as defined by the group settings.

To access this page, click **Management > SNMP > SNMP User Settings**.

The image shows a web-based configuration interface titled "User Settings". It contains several input fields and controls for creating an SNMP user profile:

- User Name:** A text input field with the placeholder "Input user name".
- Access Right:** Two radio buttons labeled "read-only" (selected) and "read-write".
- Encrypted:** An unchecked checkbox.
- Auth-Protocol:** A dropdown menu currently showing "None".
- Password:** A text input field with the placeholder "Input password" for authentication.
- Priv-Protocol:** A dropdown menu currently showing "None".
- Password:** A text input field with the placeholder "Input password" for authorization.
- Add:** A blue button at the bottom to save the configuration.

Figure 4.87 Management > SNMP > SNMP User Settings

The following table describes the items in the previous figure.

| Item | Description |
|---------------|---|
| User Name | Enter a user name (up to 32 characters) to create an SNMP profile. |
| Access Right | Click read-only or read-write to define the access right for the profile. |
| Encrypted | Click the option to set the encrypted option for the user setting. |
| Auth-Protocol | Click the drop-down menu to select the authentication level: MD5 or SHA. The field requires a user password. <ul style="list-style-type: none"> MD5: specify HMAC-MD5-96 authentication level SHA: specify HMAC-SHA authentication protocol |
| Password | Enter the characters to define the password associated with the authentication protocol. |
| Priv-Protocol | Click the drop-down menu to select an authorization protocol: none or DES. The field requires a user password. <ul style="list-style-type: none"> None: no authorization protocol in use DES: specify 56-bit encryption in use |
| Password | Enter the characters to define the password associated with the authorization protocol. |
| Add | Click Add to save the values and update the screen. |

The ensuing table for **User Status** settings are informational only: User Name, Access Right, Auth-Protocol, Priv-Protocol and **Delete** (click to delete the desired user name).

| User Status | | | | |
|-------------|--------------|---------------|---------------|--------|
| User Name | Access Right | Auth-Protocol | Priv-Protocol | Action |

SNMP Trap

The SNMP Trap page allows you to set the IP address of the node and the SNMP credentials corresponding to the version that is included in the trap message.

To access this page, click **Management > SNMP > SNMP Trap**.

Figure 4.88 Management > SNMP > SNMP Trap

The following table describes the items in the previous figure.

| Item | Description |
|----------------|---|
| IP Address | Enter the IP address to designate the SNMP trap host. |
| Community Name | Click the drop-down menu to select a defined community name. |
| Version | Click the drop-down menu to designate the SNMP version credentials (v1 or v2c). |
| Add | Click Add to save the values and update the screen. |

The ensuing table for **Trap Host Status** settings are informational only: No., IP Address, Community Name, Version and **Delete** (click to delete the desired IP address).

| Trap Host Status | | | | |
|------------------|------------|----------------|---------|--------|
| No. | IP Address | Community Name | Version | Action |

4.51 Power Over Ethernet

Power Over Ethernet is the function supplying power to Powered Devices (PD) through the switch in the event that AC power is not readily available. Power over Ethernet can be used for the following areas:

- Surveillance devices
- I/O sensors for security requirements
- Wireless access points

PoE System Settings

The PoE System Settings page allows you to configure the overload disconnect and the

maximum available wattage.

To access this page, click **Management > Power Over Ethernet > PoE System Settings**.

Figure 4.89 Management > Power Over Ethernet > PoE System Settings

The following table describes the items in the previous figure.

| Item | Description |
|--------------------------|--|
| Maximum Power Available | Select the value in Watts to set the maximum available power. |
| OverLoad Disconnect Mode | Click the drop-down menu to designate the overload mode: Overload Port First Port-Based Priority |
| Apply | Click Apply to save the values and update the screen |

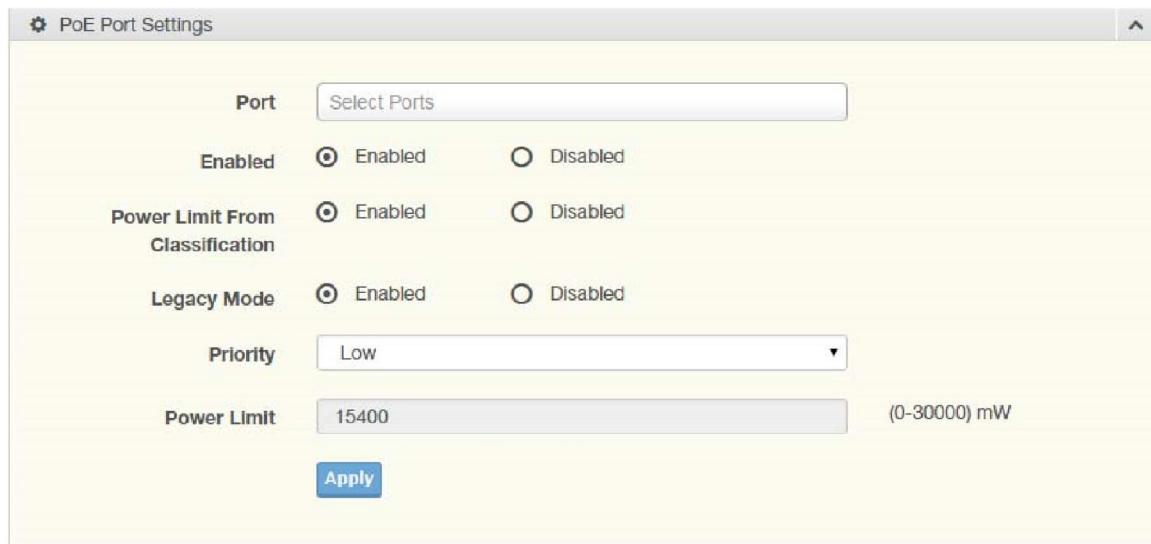
The ensuing table for **PoE System Information** settings are informational only: Firmware Version, Maximum Power Available, Actual Power Consumption, and Overload Disconnect Type.

| PoE System Information | |
|--------------------------|---------------------|
| Information Name | Information Value |
| Firmware Version | 1607 |
| Maximum Power Available | 740.0 W |
| Actual Power Consumption | 1.9 W |
| OverLoad Disconnect TYPE | Port-Based Priority |

PoE Port Settings

The PoE Port Settings page allows you to configure the port status, its power limitations, legacy mode status, and power limit settings.

To access this page, click **Management > Power Over Ethernet > PoE Port Settings**.



The image shows a 'PoE Port Settings' configuration window. It contains the following fields and options:

- Port:** A dropdown menu labeled 'Select Ports'.
- Enabled:** Two radio buttons, 'Enabled' (selected) and 'Disabled'.
- Power Limit From Classification:** Two radio buttons, 'Enabled' (selected) and 'Disabled'.
- Legacy Mode:** Two radio buttons, 'Enabled' (selected) and 'Disabled'.
- Priority:** A dropdown menu currently set to 'Low'.
- Power Limit:** A text input field containing '15400', with '(0-30000) mW' displayed to its right.
- Apply:** A blue button at the bottom.

Figure 4.90 Management > Power Over Ethernet > PoE Port Settings

The following table describes the items in the previous figure.

| Item | Description |
|---------------------------------|--|
| Port | Click the drop-down menu to select a PoE port. |
| Enabled | Select Enabled or Disabled to designate the PoE port function by ports. |
| Power Limit From Classification | Select Enabled or Disabled to designate the power limit classification. |
| Legacy Mode | Select Enabled or Disabled to designate the legacy mode option for the port. |
| Priority | Click the drop-down menu to configure the power supply priority: Critical, Low, Medium, or High . Default is Low . |
| Power Limit | Enter a number to set the port power current limitation to be given to the Powered Device (PD) |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **PoE Information** settings are informational only: Port, Enable State, Power Limit From Classification, Priority, Legacy and Power Limit (W).

| PoE Port Config Information | | | | | |
|-----------------------------|--------------|---------------------------------|----------|-------------|----------------|
| Port | Switch State | Power Limit From Classification | Priority | Legacy Mode | Power Limit(W) |
| GE1 | Enabled | Disabled | Low | Disabled | 30.000 |
| GE2 | Enabled | Disabled | Low | Disabled | 30.000 |
| GE3 | Enabled | Disabled | Low | Disabled | 30.000 |

PoE Port Status

To access this page, click **Management > Power Over Ethernet > PoE Port Status**. The ensuing table for **PoE Port Status** settings are informational only: Port, Current (mA), Voltage (V), Power (W), and Temp. (°C).

| PoE Port Status | | | | |
|-----------------|--------------|-------------|-----------|------------|
| Port | Current (mA) | Voltage (V) | Power (W) | Temp. °C |
| GE23 | 39 | 50.013(V) | 1.900(W) | 35.000(°C) |

4.53 DHCP Server

The Dynamic Host Configuration Protocol (DHCP) is a network protocol enabling a server to automatically assign an IP address to a computer from a defined range of numbers configured for a given network.

Status Settings

The Status Settings page allows you to configure the DHCP server mode (enabled or disabled).

To access this page, click **Management > DHCP Server > Status Settings**.

The screenshot shows the 'Status Settings' page for the DHCP Server. At the top, there is a gear icon and the text 'Status Settings'. Below this, the 'DHCP Server' section has two radio buttons: 'Enabled' and 'Disabled'. The 'Disabled' radio button is selected. Below the radio buttons are two buttons: 'Apply' and 'Restart'.

Figure 4.92 Management > DHCP Server > Status Settings

The following table describes the items in the previous figure.

| Item | Description |
|-------------|---|
| DHCP Server | Select Enable or Disable to designate the DHCP server function type. When a new DHCP server mode is selected, the switch requires a system restart for the new mode to take effect. |
| Apply | Click Apply to save the values and update the screen. |
| Restart | Click Restart to have the switch perform a system restart function. In the event that the IP settings are changed, the DHCP server must be restarted for the IP settings to take effect. |

The ensuing table for **Status Information** settings are informational only: DHCP Server Service.

| Status Information | |
|---------------------|-------------------|
| Information Name | Information Value |
| DHCP Server Service | Disabled |

Global Settings

The Global Settings page allows you to configure the global settings for the DHCP function. To access this page, click **Management > DHCP Server > Global Settings**.

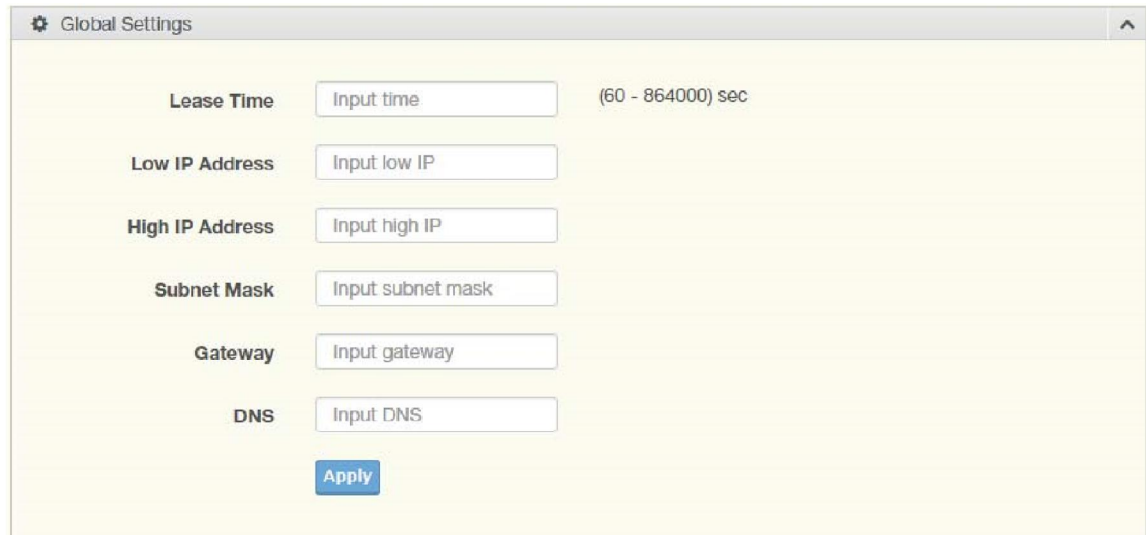


Figure 4.93 Management > DHCP Server > Global Settings

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|---|
| Lease Time | Type in the value designating the lease time (60 - 864000) in seconds for each setting lease. |
| Low IP Address | Type in the value designating the lowest range in the IP address pool. |
| High IP Address | Type in the value designating the highest range in the IP address pool. |
| Subnet Mask | Type in the value designating the subnet mask for the IP address pool. |
| Gateway | Type in the value designating the gateway for the IP address pool. |
| DNS | Type in the value designating the DNS for the IP address pool. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Global Information** settings are informational only: Lease Time, Low IP Address, High IP Address, Subnet Mask, Gateway, DNS, and **Clear** (click to clear IP pool).

| Global Information | |
|--------------------|--------------------------------------|
| Information Name | Information Value |
| Lease time | 86400 sec |
| Low IP Address | 0.0.0.0 |
| High IP Address | 0.0.0.0 |
| Subnet Mask | 0.0.0.0 |
| Gateway | 0.0.0.0 |
| DNS | 0.0.0.0 |
| Clear IP Pool | <input type="button" value="Clear"/> |

Port Settings

The Port Settings page allows you to configure selected ports for the DHCP function.

To access this page, click **Management > DHCP Server > Port Settings**.

Port Settings

Port Select

GE1

Low IP Address

Input low IP

High IP Address

Input high IP

Subnet Mask

Input subnet mask

Gateway

Input gateway

DNS

Input DNS

Apply

Figure 4.94 Management > DHCP Server > Port Settings

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|---|
| Port Select | Click the drop-down menu to select a pre-defined port to configure. The sub options are designated for the selected port. |
| Low IP Address | Type in the value designating the lowest range in the IP address pool. |
| High IP Address | Type in the value designating the highest range in the IP address pool. |
| Subnet Mask | Type in the value designating the subnet mask for the IP address pool. |
| Gateway | Type in the value designating the gateway for the IP address pool. |
| DNS | Type in the value designating the DNS for the IP address pool. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Port Information** settings are informational only: Port, Low IP Address, High IP Address, Subnet Mask, Gateway, DNS, **Edit** (click to modify the settings), and **Clear** (click to clear the settings).

| Port Information | | | | | | |
|------------------|----------------|-----------------|-------------|---------|---------|------------|
| Port | Low IP Address | High IP Address | Subnet Mask | Gateway | DNS | Modify |
| GE1 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | Edit Clear |
| GE2 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | Edit Clear |
| GE3 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | Edit Clear |

VLAN Settings

The VLAN Settings page allows you to configure VLAN function.

To access this page, click **Management > DHCP Server > VLAN Settings**.

VLAN Settings

Entry
1

VLAN ID
Input VLAN ID
(1-4094)

Low IP Address
Input low IP

High IP Address
Input high IP

Subnet Mask
Input subnet mask

Gateway
Input gateway

DNS
Input DNS

Apply

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|---|
| Entry | Click the drop-down menu to select a pre-defined entry to configure. |
| VLAN ID | Type in the value designating the ID (1 - 4094) |
| Low IP Address | Type in the value designating the highest range in the IP address pool. |
| High IP Address | Type in the value designating the lowest range in the IP address pool. |
| Subnet Mask | Type in the value designating the subnet mask for the IP address pool. |
| Gateway | Type in the value designating the gateway for the IP address pool. |
| DNS | Type in the value designating the DNS for the IP address pool. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Port Information** settings are informational only: Entry, VLAN ID, Low IP Address, High IP Address, Subnet Mask, Gateway, DNS, **Edit** (click to modify the settings), and **Clear** (click to clear the settings).

| Entry Information | |
|-------------------|--|
| Information Name | Information Value |
| Entry ID | 1 |
| VLAN ID | 0 |
| Low IP Address | 0.0.0.0 |
| High IP Address | 0.0.0.0 |
| Subnet Mask | 0.0.0.0 |
| Gateway | 0.0.0.0 |
| DNS | 0.0.0.0 |
| Modify | <input type="button" value="Edit"/> <input type="button" value="Clear"/> |

Option 82 Settings

The Option 82 Settings, also known as the DHCP relay agent information option, provides information about the network location of a DHCP client. In turn, the DHCP server uses the information to implement IP addresses or other parameters for the client.

To access this page, click **Management > DHCP Server > Option 82 Settings**.

Figure 4.95 Management > DHCP Server > Option 82 Settings

The following table describes the items in the previous figure.

| Item | Description |
|--------------------|---|
| Entry | Click the drop-down menu to select an entry for the Option 82 setting. |
| Circuit ID Format | Click the drop-down menu to select the format of the circuit ID: string or hex. |
| Circuit ID Content | Enter the circuit ID string on the switch on which the request was received. |
| Remote ID Format | Click the drop-down menu to select the format of the remote ID: string or hex. |
| Remote ID Content | Enter the remote ID string of the host. |
| Low IP Address | Type in the value designating the lowest range in the IP address pool. |
| High IP Address | Type in the value designating the highest range in the IP address pool. |
| Subnet Mask | Type in the value designating the subnet mask for the IP address pool. |
| Gateway | Type in the value designating the gateway for the IP address pool. |
| DNS | Type in the value designating the DNS for the IP address pool. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Entry Information** settings are informational only: **Entry** (click the dropdown menu to select an entry), Entry ID, Circuit ID Format, Circuit ID Content, Remote ID Format, Remote ID Content, Low IP Address, High IP Address, Subnet Mask, Gateway, DNS, **Edit** (click to modify the settings), and **Clear** (click to clear the settings).

Entry :

| Entry Information | |
|--------------------|--|
| Information Name | Information Value |
| Entry ID | 1 |
| Circuit ID Format | String |
| Circuit ID Content | |
| Remote ID Format | String |
| Remote ID Content | |
| Low IP Address | 0.0.0.0 |
| High IP Address | 0.0.0.0 |
| Subnet Mask | 0.0.0.0 |
| Gateway | 0.0.0.0 |
| DNS | 0.0.0.0 |
| Modify | <input type="button" value="Edit"/> <input type="button" value="Clear"/> |

Lease Entry

To access this page, click **Management > DHCP Server > Lease Entry**.

The ensuing table for **Lease entry Table** settings are informational only: IP Address, Client Mac, Start Time, End Time, and Type.

| Lease entry Table | | | | |
|-------------------|------------|------------|----------|------|
| IP Address | Client Mac | Start Time | End Time | Type |
| No Message | | | | |

4.54 SMTP Client

Simple Mail Transfer Protocol (SMTP) is a protocol to send e-mail messages between servers. SMTP is used to send messages from a mail client to a mail server. SMTP by default uses TCP Port 25.

Global Settings

The Global Settings page allows you to set the active profile for the SMTP client. To access this page, click **Management > SMTP Client > Global Settings**.

Global Settings

Active Profile: None

Apply

Figure 4.96 Management > SMTP Client > Global Settings

The following table describes the items in the previous figure.

| Item | Description |
|----------------|---|
| Active Profile | Click the drop-down menu to select the profile status (None, 1 or 2). |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **SMTP Information** settings are informational only: Active Profile Id.

| SMTP Information | |
|-------------------|-------------------|
| Information Name | Information Value |
| Active Profile Id | None |

Profile Settings

The Profile Settings page allows you to select the server IP, the server port, and sender mail for the listed profile.

To access this page, click **Management > SMTP Client > Profile Settings**.

Profile Settings

Profile ID: 1

Server IP: Input server IP

Server Port: 25

Sender Mail: Input mail address

Apply

Figure 4.97 Management > SMTP Client > Profile Settings > Profile Settings

The following table describes the items in the previous figure.

| Item | Description |
|-------------|--|
| Profile ID | Click the drop-down menu to select the identification type for the profile (1 or 2). |
| Server IP | Enter the IP address to designate the server host. |
| Server Port | Enter the port number to designate the port associated with the server IP address. |

| | |
|-------------|--|
| Sender Mail | Enter the email address of the sender client. |
| Apply | Click Apply to save the values and update the screen. |

Figure 4.98 Management > SMTP Client > Profile Settings > Profile Target Mail Settings

The following table describes the items in the previous figure.

| Item | Description |
|-------------|--|
| Profile ID | Click the drop-down menu to select the identification type for the profile (1 or 2). |
| Target Mail | Enter the email address of the target client. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Profile Information** settings are informational only: **Profile ID** (click the drop-down menu to select a profile ID), Server IP, Server Port, and Sender Mail Address.

| Profile ID : <input type="text" value="1"/> | | |
|---|-------------------|--------|
| Profile Information | | |
| Information Name | Information Value | Delete |
| Profile ID | 1 | |
| Server IP | 0.0.0.0 | |
| Server Port | 25 | |
| Sender Mail Address | | |

Sending Message

The Sending Message page allows you to setup the log message for use with the SMTP client.

To access this page, click **Management > SMTP Client > Sending Message**.

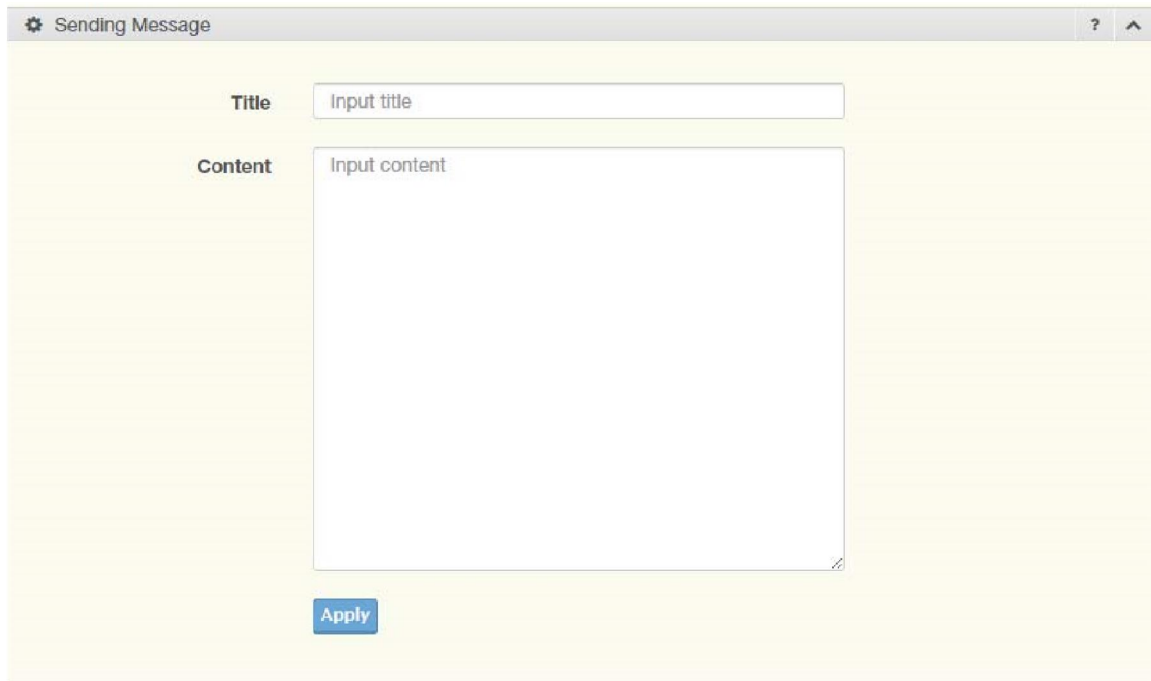


Figure 4.99 Management > SMTP Client > Sending Message

The following table describes the items in the previous figure.

| Item | Description |
|---------|---|
| Title | Assign the title of the email. The maximum length is 20 characters (alphanumeric, symbols, dots, underlines, dashes, and spaces). |
| Content | Assign the content of the email. The maximum length is 64 characters (alphanumeric, symbols, dots, underlines, dashes, and spaces). |
| Apply | Click Apply to save the values and update the screen. |

4.55 RMON

Remote monitoring (RMON) uses a client-server model to monitor/manage remote devices on a network.

RMON Statistics

The RMON Statistics page allows you to view information regarding packet sizes and information for physical layer errors. The information displayed is according to the RMON standard. To access this page, click **Management > RMON > RMON Statistics**.

Figure 4.100 Management > RMON > Rmon Statistics

The following table describes the items in the previous figure.

| Item | Description |
|-------|---|
| Index | Enter an entry selection (1 to 65535) to display its statistical information. |
| Port | Enter the respective port number for the selected entry. |
| Owner | Enter the name of the owner of the RMON group. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Statistics Information** settings are informational only: Index, Port, Drop Events, Octets, Packets, Broadcast, Multicast, Owner, and **Delete** (click to delete the desired index).

| Index | Port | Drop Events | Octets | Packets | Broadcast | Multicast | Owner | Action |
|-------|------|-------------|--------|---------|-----------|-----------|-------|--------|
|-------|------|-------------|--------|---------|-----------|-----------|-------|--------|

RMON History

The RMON History page allows you to configure the display of history entries.

To access this page, click **Management > RMON > RMON History**.

Figure 4.101 Management > RMON > RMON History

The following table describes the items in the previous figure.

| Item | Description |
|-------------------|---|
| Index | Enter the index entry (1 to 65535) to select the number of new history table entries. |
| Port | Select the specific port switch. |
| Buckets Requested | Enter the specific (1-50) number of samples to store. |
| Interval | Enter value in seconds (1 to 3600) to designate a specific interval time for the collection of samples. |
| Owner | Enter the name of the owner of the RMON history group. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **History Information** settings are informational only: Index, Port, Buckets Requested, Interval, Owner, and **Delete** (click to delete the desired index).

| History Information | | | | | |
|---------------------|------|-------------------|----------|-------|--------|
| Index | Port | Buckets Requested | Interval | Owner | Action |

RMON Alarm

The RMON Alarm page allows you to configure RMON statistics group and alarm groups.

To access this page, click **Management > RMON > RMON Alarm**.

⚙️ RMON Alarm Control Settings
⬆

Index

(1-65535)

Interval

(1-2147483647)

Variable

Sample Type

Absolute ▾

Rising Threshold

(1-2147483647)

Falling Threshold

(1-2147483647)

Rising Event Index

(1-65535)

Falling Event Index

(1-65535)

Owner

Figure 4.102 Management > RMON > Rmon Alarm

The following table describes the items in the previous figure.

| Item | Description |
|---------------------|--|
| Index | Enter the index entry (1 to 65535) to define a specific Alarm Collection history entry. |
| Interval | Enter a value (1 to 2147483647) to define the interval value for the Alarm Collection history. |
| Variable | Enter the alarm variables to define the monitoring triggers. |
| Sample Type | Enter the variable sample type. |
| Rising Threshold | Enter the rising alarm threshold trigger. |
| Falling Threshold | Enter the falling alarm threshold trigger. |
| Rising Event Index | Enter the rising event index (1-65535) to define the alarm group. |
| Falling Event Index | Enter the falling event index (1-65535) to define the alarm group. |
| Owner | Enter the name of the owner of the RMON alarm group. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Alarm Information** settings are informational only: Index, Interval, Variable, Sample Type, Rising Threshold, Falling Threshold, Rising Event Index, Falling Event Index, Owner and **Delete** (click to delete the desired index).

| Alarm Information | | | | | | | | | |
|-------------------|----------|----------|-------------|------------------|-------------------|--------------------|---------------------|-------|--------|
| Index | Interval | Variable | Sample Type | Rising Threshold | Falling Threshold | Rising Event Index | Falling Event Index | Owner | Action |

RMON Event

The RMON Event page is used to configure RMON event groups.

To access this page, click **Management > RMON > RMON Event**.

Figure 4.103 Management > RMON > RMON Event

The following table describes the items in the previous figure.

| Item | Description |
|-------------|--|
| Index | Enter the index entry (1 to 65535) to define a specific RMON event. |
| Description | Enter a value (1 to 2147483647) to define the interval value for the Alarm Collection history. |
| Type | Click the drop-down menu to define the event type: None, Log, SNMP Trap, Log, and Trap. |
| Community | Enter the community string to be passed for the specified event. |
| Owner | Enter the name of the owner of the RMON event. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Event Information** settings are informational only: Index, Description, Type, Community, Owner, and **Delete** (click to delete the desired index).

| Event Information | | | | | |
|-------------------|-------------|------|-----------|-------|--------|
| Index | Description | Type | Community | Owner | Action |

4.56 Diagnostics

Through the Diagnostics function, configuration of settings for the switch diagnostics is available.

4.57 Cable Diagnostics

The Cable Diagnostics page allows you to select the port for applying a copper test. To access this page, click **Diagnostics > Cable Diagnostics**.

Figure 4.104 Diagnostics > Cable Diagnostics

| Item | Description |
|-------------|--|
| Port | Click the drop-down menu to select a pre-defined port for diagnostic testing. Gigabit ports are displayed with a channel A to D designation. |
| Copper Test | Click Copper Test to display the test result for the selected port. |

The ensuing table for **Test Result** settings are informational only: Port, Channel A, Cable Length A, Channel B, Cable Length B, Channel C, Cable Length C, Channel D and Cable Length D.

| Test Results | | | | | | | | |
|--------------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| Port | Channel A | Cable Length A | Channel B | Cable Length B | Channel C | Cable Length C | Channel D | Cable Length D |
| GE1 | [Open] | 1.75 (m) | [Open] | 1.80 (m) | [Open] | 1.76 (m) | [Open] | 1.75 (m) |

4.58 Ping Test

The Ping Test page allows you to configure the test log page.

To access this page, click **Diagnostics > Ping Test**.

Ping Test

IP Address or hostname
(x.x.x.x or hostname)

Count
(1 - 5 | Default : 4)

Interval (in sec)
(1 - 5 | Default : 1)

Size (in bytes)
(8 - 5120 | Default : 56)

Ping Results

Apply

Figure 4.105 Diagnostics > Ping Test

The following table describes the items in the previous figure.

| Item | Description |
|-------------------|--|
| IP Address | Enter the IP address or host name of the station to ping. The initial value is blank. The IP Address or host name you enter is not retained across a power cycle. Host names are composed of series of labels concatenated with periods. Each label must be between 1 and 63 characters long, maximum of 64 characters. |
| Count | Enter the number of echo requests to send. The default value is 4. The value ranges from 1 to 5. The count entered is not retained across a power cycle. |
| Interval (in sec) | Enter the interval between ping packets in seconds. The default value is 1. The value ranges from 1 to 5. The interval entered is not retained across a power cycle. |
| Size (in bytes) | Enter the size of ping packet. The default value is 56. The value ranges from 8 to 5120. The size entered is not retained across a power cycle. |
| Ping Results | <p>Display the reply format of ping.</p> <p>PING 172.17.8.254 (172.17.8.254): 56 data bytes</p> <p>--- 172.17.8.254 ping statistics ---</p> <p>4 packets transmitted, 0 packets received, 100% packet loss</p> <p>Or</p> <p>PING 172.17.8.93 (172.17.8.93): 56 data bytes</p> <p>64 bytes from 172.17.8.93: icmp_seq=0 ttl=128 time=0.0ms</p> <p>64 bytes from 172.17.8.93: icmp_seq=1 ttl=128 time=0.0ms</p> <p>64 bytes from 172.17.8.93: icmp_seq=2 ttl=128 time=0.ms</p> <p>64 bytes from 172.17.8.93: icmp_seq=3 ttl=128 time=0.0ms</p> <p>--- 172.17.8.93 ping statistics ---</p> <p>4 packets transmitted, 4 packets received, 0% packet loss</p> <p>round-trip min/avg/max = 0.0/0.0/0.0ms</p> |
| Apply | Click Apply to display ping result for the IP address. |

4.59 IPv6 Ping Test

The IPv6 Ping Test page allows you to configure the Ping Test for IPv6. To access this page, click **Diagnostics > IPv6 Ping Test**.

IPv6 Ping Test

IPv6 Address (XX:XX::XX:XX)

Count (1 - 5 | Default : 4)

Interval (in sec) (1 - 5 | Default : 1)

Size (in bytes) (8 - 5120 | Default : 56)

Ping Results

Figure 4.106 Diagnostics > IPv6 Ping Test

| Item | Description |
|-------------------|--|
| IPv6 Address | Enter the IP address or host name of the station you want the switch to ping. The initial value is blank. The IP Address or host name you enter is not retained across a power cycle. Host names are composed of a series of labels concatenated with dots. Each label must be between 1 and 63 characters long, and the entire hostname has a maximum of 64 characters. |
| Count | Enter the number of echo requests you want to send. The default value is 4. The value ranges from 1 to 5. The count you enter is not retained across a power cycle. |
| Interval (in sec) | Enter the interval between ping packets in seconds. The default value is 1. The value ranges from 1 to 5. The interval you enter is not retained across a power cycle. |
| Size (in bytes) | Enter the size of ping packet. The default value is 56. The value ranges from 8 to 5120. The size you enter is not retained across a power cycle. |
| Ping Results | <p>Display the reply format of ping. PING 2222::777 (2222::777): 56 data bytes</p> <p>--- 2222::777 ping statistics --- 4 packets transmitted, 0 packets received, 100% packet loss Or PING 2222::717 (2222::717): 56 data bytes 64 bytes from 2222::717: icmp6_seq=0 ttl=128 time=10.0ms 64 bytes from 2222::717: icmp6_seq=1 ttl=128 time=0.0ms 64 bytes from 2222::717: icmp6_seq=2 ttl=128 time=0.0ms 64 bytes from 2222::717: icmp6_seq=3 ttl=128 time=0.0ms</p> <p>--- 2222::717 ping statistics --- 4 packets transmitted, 4 packets received, 0% packet loss round-trip min/avg/max = 0.0/2.5/10.0ms</p> |
| Apply | Click Apply to display ping result for the IP address. |

4.60 System Log

Logging Service

The Logging Service page allows you to setup the logging services feature for the system log.

To access this page, click **Diagnostics > System Log > Logging Service**.

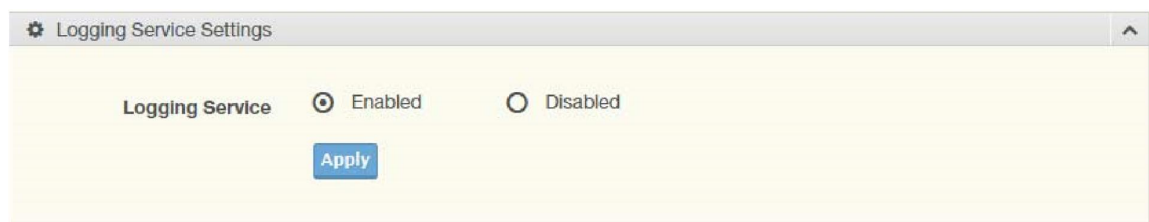


Figure 4.107 Diagnostics > System Log > Logging Service

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|--|
| Logging Service | Click Enabled or Disabled to set the Logging Service status. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Logging Information** settings are informational only: Logging Service.

| Logging Information | |
|---------------------|-------------------|
| Information Name | Information Value |
| Logging Service | enabled |

Local Logging

The Local Logging page allows you to designate a local target when the severity criteria is reached.

To access this page, click **Diagnostics > System Log > Local Logging**.

Figure 4.108 Diagnostics > System Log > Local Logging

The following table describes the items in the previous figure.

| Item | Description |
|----------|--|
| Target | Enter the local logging target. |
| Severity | <p>Click the drop-down menu to select the severity level for local log messages. The level options are:</p> <ul style="list-style-type: none"> ● emerg: Indicates system is unusable. It is the highest level of severity ● alert: Indicates action must be taken immediately ● crit: Indicates critical conditions ● error: Indicates error conditions ● warning: Indicates warning conditions ● notice: Indicates normal but significant conditions ● info: Indicates informational messages ● debug: Indicates debug-level messages |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Local Logging Settings Status** settings are informational only: Status, Target, Severity, and **Delete** (click to delete the desired target).

| Local Logging Setting Status | | | |
|------------------------------|----------|--|--------|
| Status | Target | Severity | Action |
| enabled | buffered | emerg, alert, crit, error, warning, notice | Delete |
| enabled | console | emerg, alert, crit, error, warning, notice | Delete |

System Log Server

The System Log Server page allows you to configure the log server.

To access this page, click **Diagnostics > System Log > System Log Server**.

Figure 4.109 Diagnostics > System Log > System Log Server

| Item | Description |
|----------------|--|
| Server Address | Enter the IP address of the log server. |
| Server Port | Enter the Udp port number of the log server. |
| Severity | <p>Click the drop-down menu to select the severity level for local log messages. The default is emerg. The level options are:</p> <ul style="list-style-type: none"> ● emerg: Indicates system is unusable. It is the highest level of severity ● alert: Indicates action must be taken immediately ● crit: Indicates critical conditions ● error: Indicates error conditions ● warning: Indicates warning conditions ● notice: Indicates normal but significant conditions ● info: Indicates informational messages ● debug: Indicates debug-level messages |
| Facility | Click the drop-down menu to select facility to which the message refers. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Remote Logging Setting Status** settings are informational only: Status, Server Info, Severity, Facility and **Delete** (click to delete the desired server address).

| Remote Logging Setting Status | | | | |
|-------------------------------|-------------|----------|----------|--------|
| Status | Server Info | Severity | Facility | Action |

4.61 DDM

The DDM page allows you to setup the diagnostic alarm status.

To access this page, click **Diagnostics > DDM**.

Figure 4.110 Diagnostics > DDM

The following table describes the items in the previous figure.

| Item | Description |
|------------------|---|
| Diagnostic Alarm | Click the drop-down menu to designate the announcement method: Disabled, SysLog, E-mail, or SNMP. |
| Apply | Click Apply to save the values and update the screen. |

The ensuing table for **Diagnostic Alarm Information** settings are informational only: Diagnostic Alarm.

| Diagnostic Alarm Information | |
|------------------------------|------------------------------|
| Diagnostic Alarm Information | Diagnostic Alarm Information |
| Diagnostic Alarm | Disabled |

| GE9 | High Alarm | High Warning | Low Alarm | Low Warning |
|-------------|---|---|--|--|
| Temperature | 95.000 °C <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | 90.000 °C <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | -50.000 °C <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | -45.000 °C <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled |
| Voltage | 3.500 V <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | 3.450 V <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | 3.100 V <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | 3.150 V <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled |
| TX Basis | 100.000 mA <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | 90.000 mA <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | 6.000 mA <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | 7.000 mA <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled |
| TX Power | -1.000 dbm <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | -5.000 dbm <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | -35.000 dbm <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | -30.000 dbm <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled |
| RX Power | -1.000 dbm <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | -5.000 dbm <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | -35.000 dbm <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled | -30.000 dbm <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled |

[Apply](#)

Figure 4.111 Diagnostics > DDM

The following table describes the items in the previous figure.

| Item | Description |
|--------------|---|
| High Alarm | Click Enabled or Disabled to set the alarm state. |
| High Warning | Click Enabled or Disabled to set the alarm state. |
| Low Alarm | Click Enabled or Disabled to set the alarm state. |
| Low Warning | Click Enabled or Disabled to set the alarm state. |
| Apply | Click Apply to save the values and update the screen. |

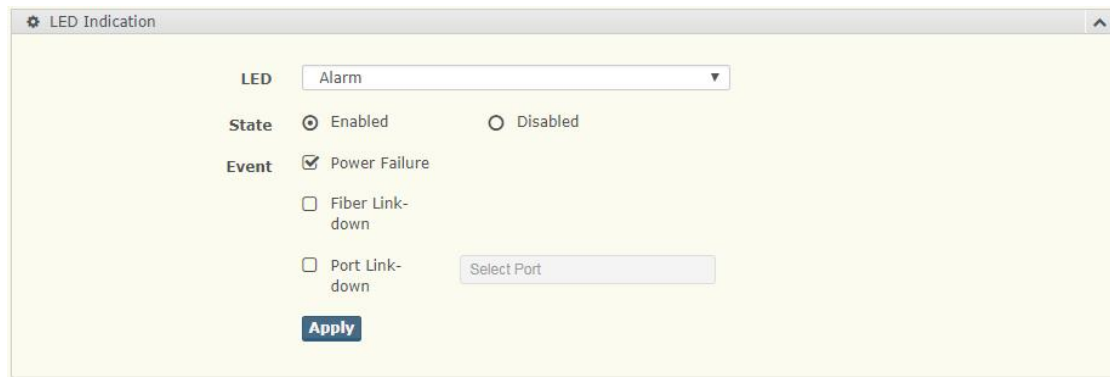
The ensuing table for **Vendor Info** settings are informational only: **Refresh** (click to reload the vendor information), Port, Connector, Speed, VendorName, VendorPn, VendorRev, VendorSn, and DateCode.

| Vendor Info | | | | | | | |
|-------------|-----------|-------|------------|----------|-----------|----------|----------|
| Port | Connector | Speed | VendorName | VendorPn | VendorRev | VendorSn | DateCode |
| | | | | | | | |

4.62 LED Indication

The LED Indication page allows you to setup the LED indication.

To access this page, click **Diagnostics > LED Indication**.

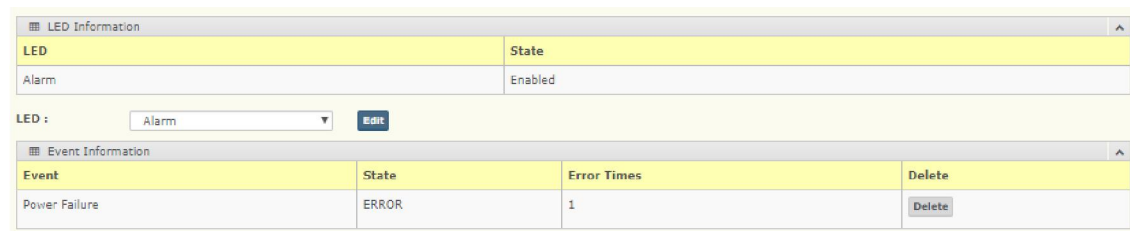


The image shows a web-based configuration window titled "LED Indication". It contains the following elements:

- LED:** A dropdown menu with "Alarm" selected.
- State:** Two radio buttons: "Enabled" (selected) and "Disabled".
- Event:** Three checkboxes: "Power Failure" (checked), "Fiber Link-down" (unchecked), and "Port Link-down" (unchecked). Next to "Port Link-down" is a "Select Port" button.
- Apply:** A blue button at the bottom.

The following table describes the items in the previous figure.

| Item | Description |
|-------|--|
| LED | Alarm is selected by default. |
| State | Click Enabled or Disabled to set the alarm state. |
| Event | Click Power Failure , Fiber Link down , or Port Link down to set the alarm event. |
| Apply | Click Apply to save the values and update the screen. |



The image shows two sections of a web interface:

LED Information

| LED | State |
|-------|---------|
| Alarm | Enabled |

LED : Alarm Edit

Event Information

| Event | State | Error Times | Delete |
|---------------|-------|-------------|---------------------|
| Power Failure | ERROR | 1 | Delete |

4.63 Tools

4.64 Backup Manager

The Backup Manager page allows you to configure a remote TFTP sever or host file system in order to back up the firmware image or configuration file. To access this page, click **Tools > Backup Manager**.

Figure 4.113 Tools > Backup Manager

The following table describes the items in the previous figure.

| Item | Description |
|---------------|--|
| Backup Method | Click the drop-down menu to select the backup method: TFTP or HTTP. |
| Server IP | Enter the IP address of the backup server. |
| Backup Type | Click a type to define the backup method: image, running configuration, startup configuration, flash log, or buffered log. |
| Image | Click the format for the image type: LNP-2804GN-SFP-T-x-xx-xx.hex (Active) or LNP-2804GN-SFP-T-x-xx-xx.hex (backup). |
| Backup | Click Backup to back up the settings. |

4.65 Upgrade Manager

The Upgrade Manager page allows you to configure a remote TFTP sever or host file system in order to upload firmware upgrade images or configuration files. To access this page, click **Tools > Upgrade Manager**.

Figure 4.114 Tools > Upgrade Manager

The following table describes the items in the previous figure.

| Item | Description |
|----------------|--|
| Upgrade Method | Click the drop-down menu to select the upgrade method: TFTP or HTTP. |
| Server IP | Enter the IP address of the upgrade server. |
| File Name | Enter the file name of the new firmware version. |
| Upgrade Type | Click a type to define the upgrade method: image, startup configuration, or running configuration. |
| Image | Click the format for the image type: LNP-2804GN-SFP-T-x-xx-xx.hex (Active) or LNP-2804GN-SFP-T-x-xx-xx.hex (backup). |
| Upgrade | Click Upgrade to upgrade to the current version. |

4.66 Dual Image

The Dual Image page allows you to setup an active and backup partitions for firmware image redundancy.

To access this page, click **Tools > Dual Image**.

Figure 4.115 Tools > Dual Image

| Item | Description |
|--------------|--|
| Active Image | Click the format for the image type: LNP-2804GN-SFP-T-x-xx-xx.hex (Active) or LNP-2804GN-SFP-T-x-xx-xx.hex (backup). |
| Save | Click Save to save and keep the new settings. |

The ensuing table for **Image Information 0/1** settings are informational only: Flash Partition, Image Name, Image Size and Created Time.

| | |
|-------------------------------------|------------------------------|
| Images Information 0 | |
| LNP-2804GN-SFP-T-1-00-02.hex | Active |
| Flash Partition | 0 |
| Image Name | LNP-2804GN-SFP-T-1-00-02.hex |
| Image Version | 1.00.02 |
| Image Size | 9139311 Bytes |
| Created Time | 2017-06-21 10:31:24 UTC |
| Images Information 1 | |
| Partition1 | Backup |
| Flash Partition | 1 |
| Image Name | |
| Image Version | 1.00.85_1220 |
| Image Size | 9757869 Bytes |
| Created Time | 2016-12-20 14:49:14 UTC |

4.67 Save Configuration

To access this page, click **Tools > Save Configuration**.

Click **Save Configuration to FLASH** to have configuration changes you have made to be saved across a system reboot. All changes submitted since the previous save or system reboot will be retained by the switch.

4.68 User Account

The User Account page allows you to setup a user and the related parameters. To access this page, click **Tools > User Account**.

Figure 4.116 Tools > User Account

The following table describes the items in the previous figure.

| Item | Description |
|-----------------|---|
| User Name | Enter the name of the new user entry. |
| Password Type | Click the drop-down menu to define the type of password: Clear Text , Encrypted , or No Password . |
| Password | Enter the character set for the define password type. |
| Retype Password | Retype the password entry to confirm the profile password. |
| Privilege Type | Click the drop-down menu to designate privilege authority for the user entry: Admin or User . |
| Apply | Click Apply to create a new user account. |

The ensuing table for **Local Users** settings are informational only: User Name, Password Type, Privilege Type and **Delete** (click to delete the desired user account).

| User Name | Password Type | Privilege Type | Modify |
|-----------|---------------|----------------|--------|
| superuser | Encrypted | | |
| root | Encrypted | Admin | Delete |
| test | Clear Text | User | Delete |

4.69 Reset System

To access this page, click **Tools > Reset System**.

Click **Restore** to have all configuration parameters reset to their factory default values. All changes that have been made will be lost, even if you have issued a save. Reset settings take effect after a system reboot.

4.71 Reboot Device

To access this page, click **Tools > Reboot Device**.

Click **Reboot** to reboot the switch. Any configuration changes you have made since the last time you issued a save will be lost.

5. Command Line Interface Management

5.1 About CLI Management

Besides WEB-based management, LMP-1204G-SFP series also supports CLI management.

Users can use console or telnet to management switch by CLI.

CLI Management by RS-232 Serial Console (115200, 8, none, 1, none)

Before configuring by an RS-232 serial console, use an RJ45 to DB9-F cable to connect the switches' RS-232 Console port to the PC's COM port.

Suggested product to connect via serial cable:

Hyperterminal – on older windows machines

Putty – Free download on the internet

A successful connection via the serial cable will look like this: (default username and password is {admin/admin})



```
User Access Verification
Username: admin
Password:
SWES> en
SWES# configure terminal
```

CLI Management by Telnet

Users can use “TELNET” to configure the switches.

The default value is as below:

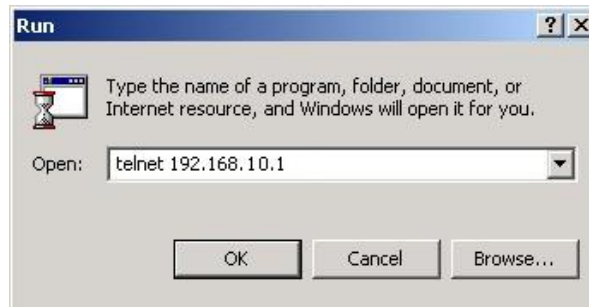
- IP Address: **192.168.1.254**
- Subnet Mask: **255.255.255.0**

- Default Gateway: none
- User Name: **admin**
- Password: **admin**

Follow the steps below to access the console via Telnet.

Step 1:

Telnet to the IP address of the switch from the Windows “**Run**” command as below.



Note: Telnet may not be installed by default on some windows systems.

Step 2:

The Login screen will appear. Use the keyboard to enter the Username and Password, and then press “**Enter**”

```
User Access Verification
Username: admin
Password:
SWES> en
SWES# configure terminal
```

Commander Groups

| Group | Command | Mode |
|--------|------------------------|-----------|
| System | hostname [Switch] | configure |
| | no hostname | configure |
| | system location [none] | configure |
| | system contact [none] | configure |
| | no system location | configure |
| | no system contact | configure |
| | show system uptime | configure |

| | | |
|------|---|-----------|
| | show system mac | configure |
| | show system version firmware | configure |
| | show system version loader | configure |
| | admin username admin | configure |
| | admin password admin | configure |
| IP | boot host dhcp | configure |
| | ip address [ip_addr] [ip_mask] | configure |
| | ip default-gateway [ip_router] | configure |
| | ip name-server [ip_addr_string] | configure |
| | no boot host dhcp | configure |
| | no ip default-gateway | configure |
| | no ip name-server | configure |
| | show boot host dhcp | configure |
| | show ip address | configure |
| | show ip default-gateway | configure |
| | show ip name-server | configure |
| | show ip mode | configure |
| | | |
| Time | ntp time update | configure |
| | ntp client timeserver [ip_addr_string] | configure |
| | clock set [hh:mm:ss] [day] [month] [year] | configure |
| | clock timezone [area] [city] | configure |
| | ntp client sync[minute hour day month year] [NUMBER] | configure |
| | no ntp client timeserver | configure |
| | no clock timezone | configure |
| Time | no ntp client sync[minute hour day month year] [NUMBER] | configure |
| | show ntp client timeserver | configure |
| | show clock timezone | configure |
| | show ntp client sync[minute hour day month year] [NUMBER] | configure |
| Port | speed [auto 10 100 1000] [full half] | interface |
| | Duplex [auto full half] | interface |
| | flowcontrol <receive> [on off desired] | interface |
| | name [string] | interface |
| | shutdown | interface |
| | no speed | interface |
| | no duplex | interface |
| | no flowcontrol | interface |

| | | |
|------|---|-----------|
| | no name | interface |
| | no shutdown | interface |
| | show speed | interface |
| | show duplex | interface |
| | show flow control | interface |
| | show name | interface |
| | show link rx | interface |
| | show link tx | interface |
| | show link summary | interface |
| VLAN | management vlan [vlan_id] | configure |
| | name [vlan_name] | vlan |
| | member [member_portlist] [<untag_portlist>] | vlan |
| | switchport pvid [vlan_id] | interface |
| | switchport filter [tagged untagged] | interface |
| | no name | vlan |
| | no member | vlan |
| | no switchport pvid | interface |
| | no switchport filter | interface |
| | show name | vlan |
| | show member | vlan |
| | show switchport pvid | interface |
| | show switchport filter | interface |
| PoE | power inline never | interface |
| | keepalive ip [IP_Address] | interface |
| | keepalive time [Seconds] | interface |
| | schedule [monday~sunday] enable | interface |
| | schedule [monday~sunday] start time [Hour] | interface |
| | schedule [monday~sunday] end time [Hour] | interface |
| | no power inline never | interface |
| | no keepalive ip | interface |
| | no keepalive time | interface |
| | no schedule [monday~sunday] enable | interface |
| | no schedule [monday~sunday] start time | interface |
| | no schedule [monday~sunday] end time | interface |
| | show power inline status | interface |
| | show keepalive ip | interface |

| | | |
|-----|--|-----------|
| | show keepalive time | interface |
| | show schedule [monday~sunday] enable | interface |
| | show schedule [monday~sunday] start time | interface |
| | show schedule [monday~sunday] end time | interface |
| STP | spanning-tree mode [rstp mst] | configure |
| | spanning-tree priority [priority_value] | configure |
| | spanning-tree forward-time [forward time] | configure |
| | spanning-tree hello-time [hello_time] | configure |
| | spanning-tree max-age [max_age] | configure |
| | spanning-tree cost [link_cost_value] | interface |
| | spanning-tree port-priority [port_priority] | interface |
| | spanning-tree link-type [point-to-point point-to-multiple] | interface |
| | spanning-tree auto-edge off | interface |
| | spanning-tree admin-edge on | interface |
| | spanning-tree stp disable | interface |
| | no spanning-tree mode | configure |
| | no spanning-tree priority | configure |
| | no spanning-tree forward-time | configure |
| | no spanning-tree hello-time | configure |
| | no spanning-tree max-age | configure |
| | no spanning-tree mst [instance_ID] priority | configure |
| | no spanning-tree cost | interface |
| | no spanning-tree port-priority | interface |
| | no spanning-tree link-type | interface |
| | no spanning-tree auto-edge | interface |
| | no spanning-tree admin-edge | interface |
| | no spanning-tree stp | interface |
| STP | show spanning-tree mode | configure |
| | show spanning-tree priority | configure |
| | show spanning-tree forward-time | configure |
| | show spanning-tree hello-time | configure |
| | show spanning-tree max-age | configure |
| | show spanning-tree cost | interface |
| | show spanning-tree port-priority | interface |
| | show spanning-tree link-type | interface |
| | show spanning-tree auto-edge | interface |

| | | |
|--------------|--|-----------|
| | show spanning-tree admin-edge | interface |
| | show spanning-tree stp | interface |
| | spanning-tree mst [instance_ID] priority [priority] | configure |
| | spanning-tree mst name [NAME] | configure |
| | spanning-tree mst revision [REVISION] | configure |
| | spanning-tree mst instance [instance_ID] vlan [vlan_grp] | configure |
| | spanning-tree mst [instance_ID] cost [cost_value] | interface |
| | spanning-tree mst [instance_ID] port-priority [priority] | interface |
| | no spanning-tree mst name | configure |
| | no spanning-tree mst revision | configure |
| | no spanning-tree mst instance [instance_ID] vlan | configure |
| | no spanning-tree mst [instance_ID] cost | interface |
| | no spanning-tree mst [instance_ID] port-priority | interface |
| | show spanning-tree mst name | configure |
| | show spanning-tree mst revision | configure |
| | show spanning-tree mst instance [instance_ID] vlan | configure |
| | show spanning-tree mst [instance_ID] priority | configure |
| | show spanning-tree mst [instance_ID] cost | interface |
| | show spanning-tree mst [instance_ID] port-priority | interface |
| Event | event smtp power1 enable | configure |
| | event smtp power2 enable | configure |
| | event smtp cold-start enable | configure |
| | event smtp warm-start enable | configure |
| | event smtp authentication-failure enable | configure |
| | event smtp interface [INTERFACE_NAME] up | configure |
| | event smtp interface [INTERFACE_NAME] down | configure |
| | no event smtp power1 | configure |
| | no event smtp power2 | configure |
| | no event smtp cold-start | configure |
| | no event smtp warm-start | configure |
| | no event smtp authentication-failure | configure |
| | no event smtp interface [INTERFACE_NAME] up | configure |
| | no event smtp interface [INTERFACE_NAME] down | configure |
| | show event smtp power1 | configure |
| | show event smtp power2 | configure |
| | show event smtp cold-start | configure |

| | | |
|---------------|---|-----------|
| | show event smtp warm-start | configure |
| | show event smtp authentication-failure | configure |
| | show event smtp interface [INTERFACE_NAME] up | configure |
| | show event smtp interface [INTERFACE_NAME] down | configure |
| | event syslog power1 enable | configure |
| | event syslog power2 enable | configure |
| | event syslog cold-start enable | configure |
| | event syslog warm-start enable | configure |
| | event syslog authentication-failure enable | configure |
| | event syslog interface [INTERFACE_NAME] up | configure |
| | event syslog interface [INTERFACE_NAME] down | configure |
| | no event syslog power1 | configure |
| | no event syslog power2 | configure |
| | no event syslog cold-start | configure |
| | no event syslog warm-start | configure |
| | no event syslog authentication-failure | configure |
| | no event syslog interface [INTERFACE_NAME] up | configure |
| | no event syslog interface [INTERFACE_NAME] down | configure |
| | show event syslog power1 | configure |
| | show event syslog power2 | configure |
| | show event syslog cold-start | configure |
| | show event syslog warm-start | configure |
| | show event syslog authentication-failure | configure |
| | show event syslog interface [INTERFACE_NAME] up | configure |
| | show event syslog interface [INTERFACE_NAME] down | configure |
| | event alarm power1 enable | configure |
| | event alarm power2 enable | configure |
| | event alarm interface [INTERFACE_NAME] down | configure |
| | no event alarm power1 | configure |
| | no event alarm power2 | configure |
| | no event alarm interface [INTERFACE_NAME] down | configure |
| | show event alarm power1 | configure |
| | show event alarm power2 | configure |
| | show event alarm interface [INTERFACE_NAME] down | configure |
| | event apply | configure |
| SYSLOG | syslog server [IP_address] | configure |

| | | |
|-------------|---|-----------|
| | syslog mode [all remote local usb] | configure |
| | no syslog server | configure |
| | no syslog mode | configure |
| | show syslog server | configure |
| | show syslog mode | configure |
| | show syslog log | configure |
| SMTP | smtp enable | configure |
| | smtp sender [E-MAIL_ADDR] | configure |
| | smtp subject [subject_text] | configure |
| | smtp server address [GMAIL_SMPT_SERVER] | configure |
| | smtp server port [GMAIL_SMPT_SERVER] | configure |
| | smtp authentication enable | configure |
| | smtp authentication username [GMAIL_ACCOUNT] | configure |
| | smtp authentication password [GMAIL_PASS] | configure |
| | smtp receive [1 2 3 4] [e-mail_address] | configure |
| | no smtp enable | configure |
| | no smtp sender | configure |
| | no smtp subject | configure |
| | no smtp server address | configure |
| | no smtp server port | configure |
| | no smtp authentication enable | configure |
| | no smtp authentication username | configure |
| | no smtp authentication password | configure |
| | no smtp receive [1 2 3 4] | configure |
| | show smtp state | configure |
| | show smtp sender | configure |
| | show smtp subject | configure |
| | show smtp server address | configure |
| | show smtp server port | configure |
| | show smtp authentication enable | configure |
| | show smtp authentication username | configure |
| | show smtp receive [1 2 3 4] | configure |
| SNMP | snmp server enable [<v1-v2c-only v3-only>] | configure |
| | snmp server community [ro rw] [community_name] | configure |
| | snmp server v3 level [admin user] [auth noauth priv] | configure |
| | snmp server v3 auth [admin user] [md5 sha] [PWD] | configure |

| | | |
|------|--|-----------|
| | snmp server v3 encryption [admin user] [des aes] [PWD] | configure |
| | no snmp server enable | configure |
| | no snmp server community [ro rw] | configure |
| | no snmp server v3 level [admin user] | configure |
| | no snmp server v3 auth [admin user] | configure |
| | no snmp server v3 encryption [admin user] | configure |
| | show snmp server enable | configure |
| | show snmp server community [ro rw] | configure |
| | show snmp server v3 level [admin user] | configure |
| | show snmp server v3 auth [admin user] | configure |
| | show snmp server v3 encryption [admin user] | configure |
| | snmp trap enable | configure |
| | snmp trap host [DESTINATION_IP] | configure |
| | snmp trap version [1 2c 3] [traps inform] | configure |
| | snmp trap community [trap_community_name] | configure |
| | snmp trap inform retry [retry_time] | configure |
| | snmp trap inform timeout [retry_interval] | configure |
| | snmp trap v3 user [user_ID] | configure |
| | snmp trap v3 level [auth noauth priv] | configure |
| | snmp trap v3 engine-ID [engineID] | configure |
| | snmp trap v3 auth [md5 sha] [PASSWORD] | configure |
| | snmp trap v3 encryption [des aes] [PASSWORD] | configure |
| SNMP | no snmp trap enable | configure |
| | no snmp trap host | configure |
| | no snmp trap version | configure |
| | no snmp trap community | configure |
| | no snmp trap inform retry | configure |
| | no snmp trap inform timeout | configure |
| | no snmp trap v3 user | configure |
| | no snmp trap v3 level | configure |
| | no snmp trap v3 engine-ID | configure |
| | no snmp trap v3 auth | configure |
| | no snmp trap v3 encryption | configure |
| | show snmp trap enable | configure |
| | show snmp trap host | configure |
| | show snmp trap version | configure |

| | | |
|--------------------|--|-----------|
| | show snmp trap community | configure |
| | show snmp trap inform retry | configure |
| | show snmp trap inform timeout | configure |
| | show snmp trap v3 user | configure |
| | show snmp trap v3 level | configure |
| | show snmp trap v3 engine-ID | configure |
| | show snmp trap v3 auth | configure |
| | show snmp trap v3 encryption | configure |
| FILE | copy running-config startup-config | configure |
| | copy startup-config running-config | configure |
| PORT MIRROR | monitor enable | configure |
| | monitor source [rx tx both] [port_list] | configure |
| | monitor destination [dest_port_number] | configure |
| | no monitor enable | configure |
| | no monitor source | configure |
| | no monitor destination | configure |
| | show monitor enable | configure |
| | show monitor source | configure |
| | show monitor destination | configure |
| QoS | qos queue-schedule [strict wrr] | configure |
| | qos map cos [priority_type] to tx-queue [queue] | configure |
| | qos map dscp [[priority_type] to tx-queue [[queue] | configure |
| | qos trust [cos dscp] | interface |
| | qos default cos [cos_default_value] | interface |
| | no qos queue-schedule | configure |
| | no qos map cos [priority_type] | configure |
| | no qos map dscp [priority_type] | configure |
| | no qos trust | interface |
| | no qos default cos | interface |
| | show qos queue-schedule | configure |
| | show qos map cos [priority_type] | configure |
| | show qos map dscp [priority_type] | configure |
| | show qos trust | interface |
| | show qos default cos | interface |
| IGMP | igmp snooping enable | configure |
| | igmp snooping query max-respond-time [1...12] | configure |

| | | |
|------------------------------|---|-----------|
| | igmp snooping query interval [1...3600] | configure |
| | igmp snooping last-member count [2...10] | configure |
| | igmp snooping last-member interval [60...300] | configure |
| | igmp snooping querier enable | configure |
| | igmp snooping fast-leave enable | interface |
| | no igmp snooping enable | configure |
| | no igmp snooping query max-respond-time | configure |
| | no igmp snooping query interval | configure |
| | no igmp snooping last-member count | configure |
| | no igmp snooping last-member interval | configure |
| | no igmp snooping querier | configure |
| | no igmp snooping fast-leave | interface |
| | show igmp snooping mdb | configure |
| | show igmp snooping all | configure |
| | show igmp snooping fast-leave | interface |
| Trunk | trunk group [group] [static lacp] [interface_list] | configure |
| DHCP Server/Relay | dhcp service server | configure |
| | dhcp server included-address [IP_START] [IP_END] | configure |
| | dhcp server default-gateway [router_ip] | configure |
| | dhcp server name-server [dns_ip] | configure |
| | dhcp server lease [dhcp_lease_time] | configure |
| | dhcp server binding [bind_num][MAC] [bind_IP] | configure |
| | dhcp server port-binding [Port] [bind_IP] | configure |
| | dhcp service relay | configure |
| | dhcp relay server [server_number] [IP] | configure |
| | dhcp relay information option | configure |
| | dhcp relay information policy [replace keep drop] | configure |
| | dhcp relay untrust | interface |
| | no dhcp service server | configure |
| | no dhcp server included-address | configure |
| | no dhcp server default-gateway | configure |
| | no dhcp server name-server | configure |
| | no dhcp server lease | configure |
| | no dhcp server binding [bind_num] | configure |
| | no dhcp service relay | configure |
| | no dhcp relay server [server_number] | configure |

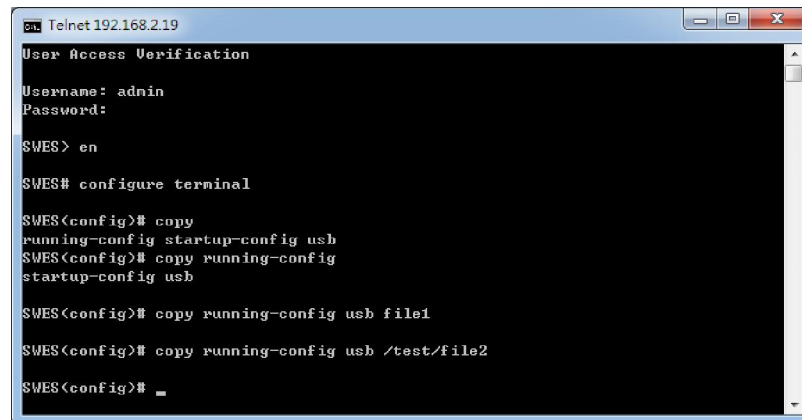
| | | |
|---------------|--|-----------|
| | no dhcp relay information option | configure |
| | no dhcp relay information policy [replace keep drop] | configure |
| | no dhcp relay untrust | configure |
| | show dhcp service | interface |
| | show dhcp server status | configure |
| | show dhcp server included-address | configure |
| | show dhcp server default-gateway | configure |
| | show dhcp server name-server | configure |
| | show dhcp server lease | configure |
| | show dhcp server binding [bind_num] [MAC] [bind_IP] | configure |
| | show dhcp relay enable | configure |
| | show dhcp relay server [server_number] | configure |
| | show dhcp relay information option | configure |
| | show dhcp relay information policy [replace keep drop] | configure |
| | show dhcp relay untrust | interface |
| UPnP | upnp enable | configure |
| | upnp advertisement interval [SEC] | configure |
| | no upnp enable | configure |
| | no upnp advertisement interval | configure |
| | show upnp enable | configure |
| | show upnp advertisement interval | configure |
| 802.1X | dot1x enable | configure |
| | dot1x authentication server type [local radius] | configure |
| | dot1x authentication server 1 ip [IP] | configure |
| | dot1x authentication server 1 port [PORT] | configure |
| | dot1x authentication server 1 share-key [KEY] | configure |
| | dot1x authentication server 2 ip [IP] | configure |
| | dot1x authentication server 2 port [PORT] | configure |
| | dot1x authentication server 2 share-key [KEY] | configure |
| | dot1x local-db [USER] [PASSWORD] | configure |
| | dot1x authenticator enable | interface |
| | dot1x reauthentication enable | interface |
| | dot1x reauthentication period [SEC] | interface |
| | no dot1x enable | configure |
| | no dot1x authentication server type | configure |
| | no dot1x authentication server 1 ip | configure |

| | | |
|-------------|---|-----------|
| | no dot1x authentication server 1 port | configure |
| | no dot1x authentication server 1 share-key | configure |
| | no dot1x authentication server 2 ip | configure |
| | no dot1x authentication server 2 port | configure |
| | no dot1x authentication server 2 share-key | configure |
| | no dot1x local-db [USER] [PASSWORD] | configure |
| | no dot1x authenticator enable | interface |
| | no dot1x reauthentication enable | interface |
| | no dot1x reauthentication period | interface |
| | show dot1x enable | configure |
| | show dot1x authentication server type | configure |
| | show dot1x authentication server 1 ip | configure |
| | show dot1x authentication server 1 port | configure |
| | show dot1x authentication server 1 share-key | configure |
| | show dot1x authentication server 2 ip | configure |
| | show dot1x authentication server 2 port | configure |
| | show dot1x authentication server 2 share-key | configure |
| | show dot1x local-db [USER] [PASSWORD] | configure |
| | show dot1x brief | configure |
| | show dot1x server brief | configure |
| | show dot1x brief | interface |
| | show dot1x server brief | interface |
| | show dot1x authenticator enable | interface |
| | show dot1x reauthentication enable | interface |
| | show dot1x reauthentication period | interface |
| IPv6 | ipv6 enable | configure |
| | ipv6 address add [IPV6_ADDR</PREFIX_LEN>] | configure |
| | ipv6 neighbor flush | configure |
| | ipv6 ping [IPV6_ADDR] [<size PKG_SIZ> <repeat PKG_CNT>] | configure |
| | no ipv6 enable | configure |
| | no ipv6 address [IPV6_ADDR/PREFIX_LEN] | configure |
| | show ipv6 enable | configure |
| | show ipv6 address | configure |
| | show ipv6 neighbor | configure |
| TFTP | tftp upgrade | configure |
| | tftp server ip [IP_ADDRESS] | configure |

| | | |
|--|------------------------------------|-----------|
| | tftp file name [UPGRADE_FILE_NAME] | configure |
|--|------------------------------------|-----------|

Save and Load Configuration File to/from USB

1. CLI: enable → configure terminal → copy running-config usb (path)

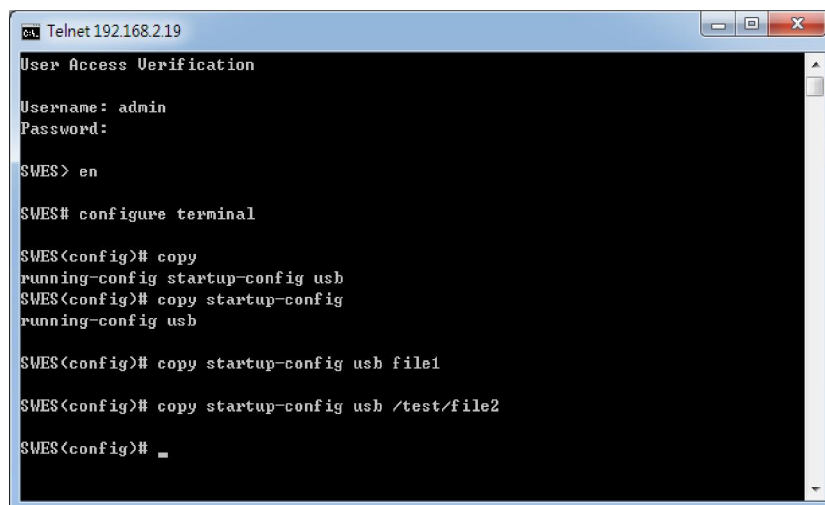


```
Telnet 192.168.2.19
User Access Verification
Username: admin
Password:
SWES> en
SWES# configure terminal
SWES(config)# copy
running-config startup-config usb
SWES(config)# copy running-config
startup-config usb
SWES(config)# copy running-config usb file1
SWES(config)# copy running-config usb /test/file2
SWES(config)# _
```

Fill in the folder and filename behind the “copy running-config usb” command.

Ex: file1, / folder /file2.

2. CLI: enable → configure terminal → copy startup-config usb (path)

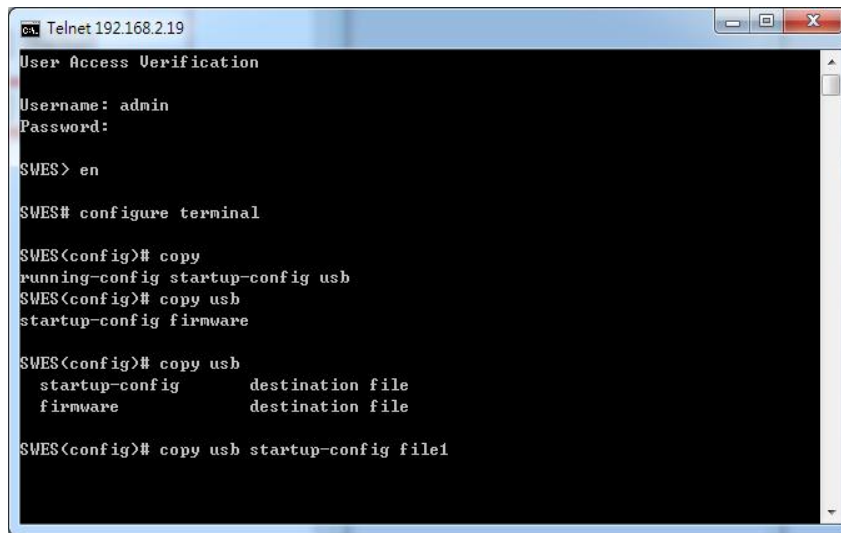


```
Telnet 192.168.2.19
User Access Verification
Username: admin
Password:
SWES> en
SWES# configure terminal
SWES(config)# copy
running-config startup-config usb
SWES(config)# copy startup-config
running-config usb
SWES(config)# copy startup-config usb file1
SWES(config)# copy startup-config usb /test/file2
SWES(config)# _
```

Fill in the folder and filename behind the “copy startup-config usb” command.

Ex: file1, / folder /file2.

3. CLI: enable → configure terminal → copy usb startup-config (path)



```

Telnet 192.168.2.19
User Access Verification
Username: admin
Password:

SWES> en

SWES# configure terminal

SWES(config)# copy
running-config startup-config usb
SWES(config)# copy usb
startup-config firmware

SWES(config)# copy usb
startup-config destination file
firmware destination file

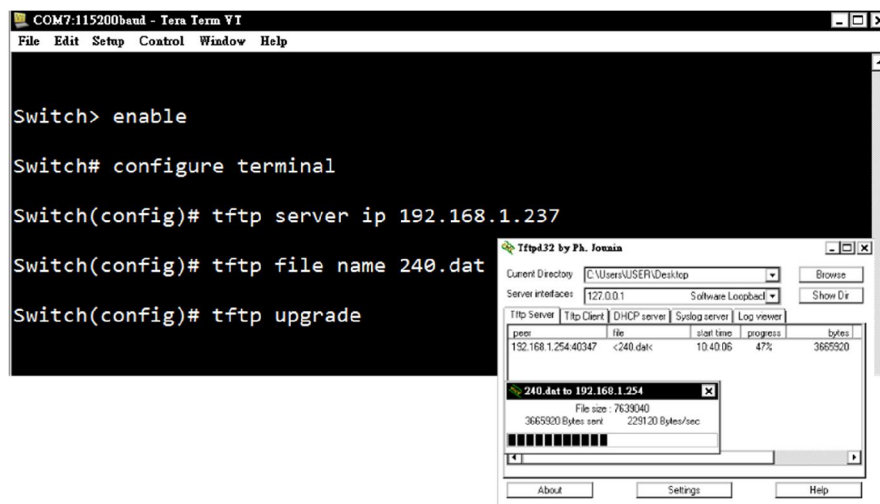
SWES(config)# copy usb startup-config file1
  
```

Fill in the folder and filename behind the “copy usb startup-config” command.

Ex: file1, / folder /file2.

Upgrade via TFTP

CLI: enable → configure terminal → tftp server ip [IP_ADDRESS] → tftp file name [UPGRADE_FILE_NAME] → tftp upgrade



```

COM7:115200baud - Tera Term V1
File Edit Setup Control Window Help

Switch> enable

Switch# configure terminal

Switch(config)# tftp server ip 192.168.1.237

Switch(config)# tftp file name 240.dat

Switch(config)# tftp upgrade
  
```

Tftp32 by Ph. Jonnia

| peer | file | size | time | progress | bytes |
|---------------------|-----------|----------|------|----------|-------|
| 192.168.1.254:40347 | <240.dat> | 10.40.06 | 47% | 3665920 | |

240.dat to 192.168.1.254

File size: 7639040
3665920 Bytes sent 2291.20 Bytes/sec

Fill in the TFTP server IP and upgrade file name behind the “tftp server ip [IP_ADDRESS]” and “tftp file name [UPGRADE_FILE_NAME]”

6. Technical Specifications

Table 6.1 has the technical specifications.

| | | |
|-----------------------------------|----------------------|---|
| Standards | IEEE 802.3 | 10Base-T 10Mbit/s Ethernet |
| | IEEE 802.3u | 100Base-Tx, 100Base-Fx, Fast Ethernet |
| | IEEE 802.3ab | 1000Base-Tx Gigabit Ethernet |
| | IEEE 802.3z | Gigabit Fiber |
| | IEEE 802.3x | Flow Control for Full Duplex |
| | IEEE 802.3af | Power-over-Ethernet |
| | IEEE 802.3at | Power-over-Ethernet Plus (Enhanced) |
| | IEEE 802.3ad | Port Trunking with LACP |
| | IEEE 802.1d | STP (Spanning Tree Protocol) |
| | IEEE 802.1w | RSTP (Rapid Spanning Tree Protocol) |
| | IEEE 802.1s | MTP (Multiple Spanning Tree Protocol) |
| | IEEE 802.1q | Virtual LANs (VLAN) |
| | IEEE 802.1x | Port based Network Control, Authentication |
| | IEEE 802.1ad | Stacked VLAN, Q-in-Q |
| | IEEE 802.1p | QoS/CoS Protocol for Traffic Prioritization |
| Switch | Protocol | Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6, IEEE 802.1Q, GVRP, Port-based VLAN, X-Ring, 802.1w/D RSTP/STP, IP Access security, port security, DHCP client, Port and IP Binding, 802.1X Port Access Control |
| | Data Process | Store-and-Forward |
| | Packet Buffer | 4.1 Mbits |
| | MAC Table | 8k |
| | Jumbo Frame | 9216bytes |
| | Flow Control | IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/ DSCP priority queuing, IEEE 802.3x flow control |
| | VLAN Groups | 1 ~ 4094 |
| Port Interface | Ethernet (RJ45) Port | 24*10/100/1000BaseTx (PSE: 30W/Port, Max. total PoE budget: 685W) auto negotiation speed, Full/Half duplex mode, and auto MDI connection |
| | Fiber Connections | 4*100/1000 Dual rate SFP fiber slots |
| | Serial Console Port | 1*RS232 in RJ45 connector with console cable |
| Mechanical Characteristics | LED Indicator | Power Unit: P1 (Green), P2 (Green), fault(Green/Red) Ethernet port: Link/active(Green), 1000Mbps |
| | Housing | Metal IP30 protection |

| | | |
|-----------------------------|---------------------------|--|
| | Dimension | 438 x 43.6 x 259.2 mm (W x H x D) |
| | Weight | Unit Weight: 8.37 lbs. |
| | Mounting | 1U 19" Rack mount |
| Power Requirements | Input Voltage | 46~57VDC Redundant Input |
| | Power Connection | 4-pin terminal block |
| | Power Consumption | 20 Watts for system |
| | Max. PoE Power Budget | 685 Watts |
| Environmental Limits | Operating Temperature | EOT: -40°C to 75°C (-40°F to 167°F) |
| | Storage Temperature | -40°C ~ 85°C (-40°F ~ 185°F) |
| | Ambient Relative Humidity | 10% to 95%, (non-condensing) |
| Regulatory Approvals | EMI | CE FCC EN55022 Class A |
| | EMS | IEC61000-4-2/3/4/5/6/8; IEC61000-6-2; IEC61000-6-4 |
| | Stability Testing | IEC60068-2-32 (Free fall) |
| | | IEC60068-2-27 (Shock) |
| | | IEC60068-2-6 (Vibration) |
| | Safety | UL61010-1, UL61010-2-201 |
| | Compliance | EN50121-4 |

*Table 6.1 - Technical Specifications***Antaira Customer Service and Support**

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