

**L3 Managed Switch**

**Web-based Configuration Guide**

## About This Document

This product includes three documents as the table below.

| Documents                     | Description   | How to get it                              |
|-------------------------------|---|--|
| Quick Guide                   | Including product introductions and installation steps.             | In the packing box or contact your dealer. |
| Web-based Configuration Guide | Including Web network management system configuration instructions. | Please contact your dealer.                |
| CLI-based Configuration Guide | Including CLI-based configuration instructions                      | Please contact your dealer.                |

This document is [Web-based Configuration Guide](#), including Web network management system (short for Web system) configuration instructions. It is intended for engineers or anyone who needs to configure the device by Web system.

The configuration instructions here take industrial 8-Port Gigabit PoE + 4-Port 10G SFP+ L3 Managed Ethernet Switch as example. If there is inconsistency between the instruction (eg. port number, PoE function, etc.) and the actual product, please refer to the actual product.

## Announcement




The information in this document is subject to change without notice.

The document is only used as operation guide, except for other promises. No warranties of any kind, either express or implied are made in relation to the description, information or suggestion or any other contents of the manual.

The images shown here are indicative only. If there is inconsistency between the image and the actual product, the actual product shall govern.

## Symbol Conventions

The symbols that may be found in this document are defined as follows.

| Symbol   | Description   |
|--|---|
|  <b>DANGER</b>  | Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.   |
|  <b>WARNING</b> | Indicates a hazard with a medium or low level of risk, which if not avoided, could result in minor or moderate injury.  |
|  <b>CAUTION</b> | Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results. |
| <b>NOTE</b>  | Provides additional information to emphasize or supplement important points in the main text.   |

## Change History

Updates between document issues are cumulative. Therefore, the latest document issue contains all updates made in previous issues.

| <b>Version</b> | <b>State</b> | <b>Release Date</b> | <b>Descriptions</b>   |
|----------------|--------------|---------------------|---|
| V1.0           | Released     | 2018-12-04          | Initial commercial release.   |
| V2.0           | Released     | 2020-04-27          | Make the section of “3 Function Configuration Guide” a document to introduce the Web system configuration steps completely.       |
| V3.0           | Released     | 2020-08-05          | Add new chapters of “12.4 ERPS Ring”, “12.5 ERPS Instance” and “13 Alarm Management” to introduce the new features of Web System. |
| V3.1           | Released     | 2020-12-07          | Correct the version of browser in “2.2 Software Requirements”.  |

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# 1 Configuration Instruction

To facilitate configuration and the maintenance of the device, the Web system is provided to users. You can log in to the Web system to configure and maintain devices through the graphic user interface (GUI).

The Web-based configuration guide describes the configuration and maintenance of the device through the Web system. It is intended for engineers or anyone who needs to configure the device through the Web system.

## [Web System Overview](#)

The Web system provides the functions as below.

- System State
- Port Configuration
- Ethernet Switch
- IP Service
- IP Routing
- IP Multicast
- Security Configuration
- Reliability
- Alarm Management
- System Management

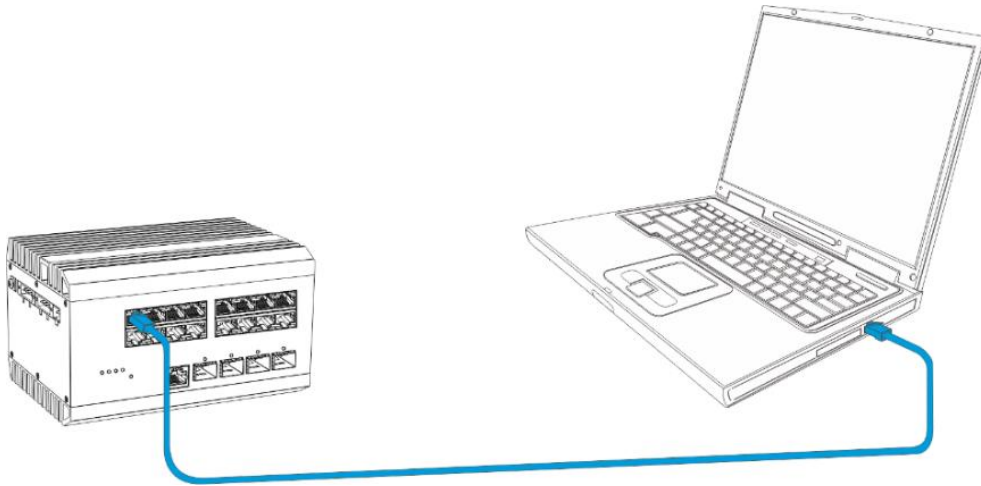
Please follow the instructions below to configure the Web system.

## 2 Environments Requirements

### 2.1 Hardware Requirements

The management PC recommended as below.

- Make sure the management PC has already been with Ethernet port.
- Use a network cable to connect the Ethernet port of PC and the Ethernet port of the switch.



### 2.2 Software Requirements

The browser version recommend as below.

- IE10 or higher
- Firefox browser
- Chrome

### 3 Set Up Network Connection

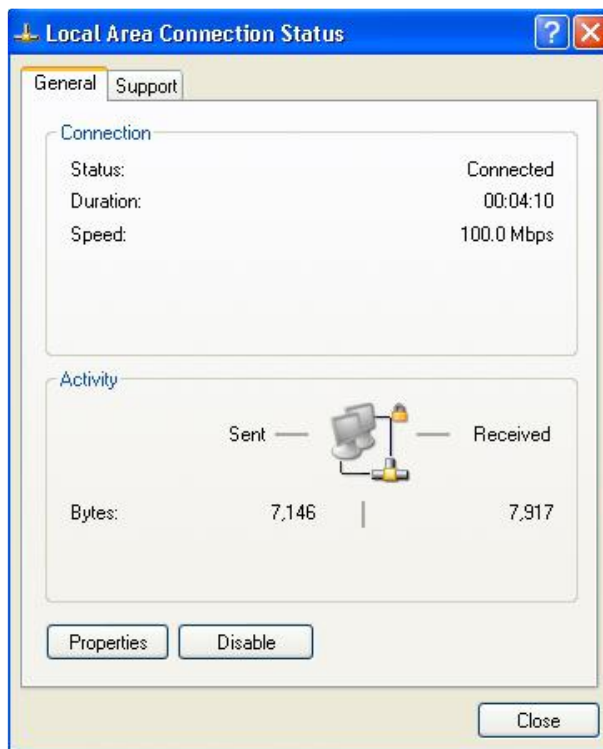
Before login the Web system to start configuration, users need to set up the network connection as follow steps.

- Set the IP of the PC and the switch in the same network segment. The default IP address of the switch is 192.168.1.200, network gate is 255.255.255.0.
- The port to connect management PC for Web setting must be management VLAN. By default, management VLAN is VLAN 1, and each port of the switch is VLAN1.
- If you need to connect the remote network, please make sure the management PC and the router can do the jobs above.
- This product can't assign the IP address for the management PC, please configure the management static IP manually before web configuration.

#### 3.1 Set Static IP for the Management Computer

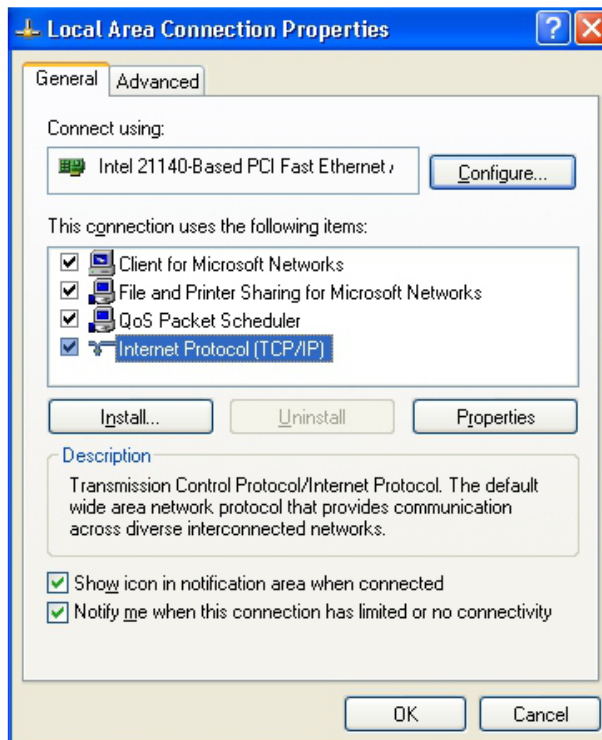
Operation steps (take Windows 7 as sample):

- Click <start> to enter the <start> menu, select “control panel”. Double click “network connection” icon, then double click the “local connection” icon, “local Area Connection Status” window pops out.

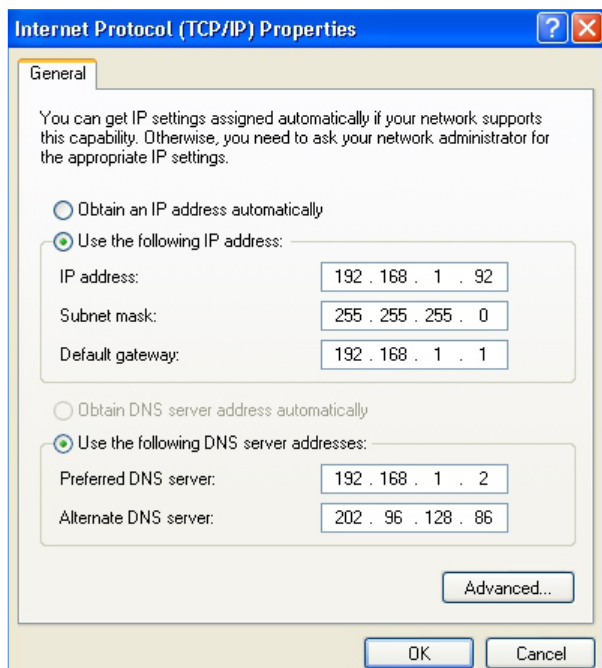




- Click <property> button, enter "Local Area Connection Properties" window.



- Select "Internet protocol (TCP/IP), click <property> button, enter "Internet Protocol (TCP/IP) Properties" window. Select the option "Use the following IP address", input IP address (use arbitrary value between 192.168.1.1~ 192.168.1.254, besides 192.168.1.200) and the subnet mask(255.255.255.0).
- Click "OK" to finish the configuration.



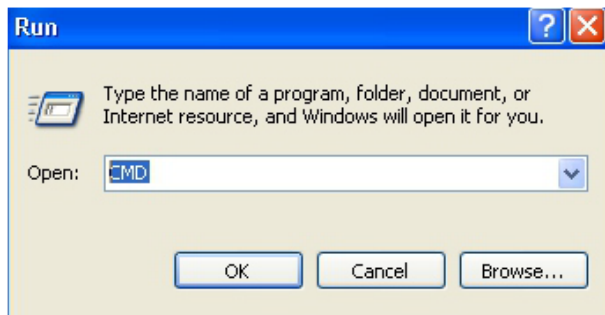
**Note:**

- DNS server address can be empty or be filled in with the real server address.

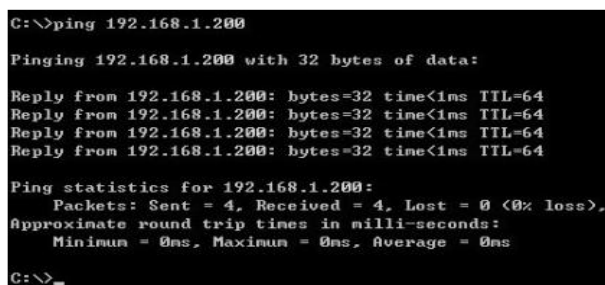
### 3.2 Confirm the Network Connection by Ping Command

Operation Steps as below:

- Click <Start> button to enter <Start> menu, select <Run>, popping out the dialog.



- Input "ping 192.168.1.200", and press enter. If there is equipment response displaying in the pop out dialog, that means network connection succeed, otherwise please check if the network connection is correct.



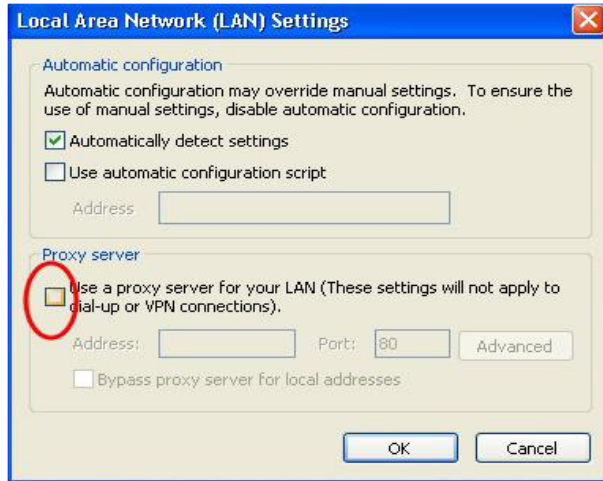
### 3.3 Cancel the Proxy Server

If this management PC uses proxy server to visit the internet, then the proxy service must be prohibited as follows:

- In browser, select <Tool/Internet Option> to enter <Internet Options> window.



- Select “Connections” tab in <Internet Options> window, and click <LAN Setting> button.



- Check if the “Use a proxy server for your LAN” option is selected. If selected, please deselect the option. Then click <OK> button.

**Note:**

- Please follow the steps to check if the switch is installed correctly:
- Whether the physical connection of the equipment is correct?
- Use network cable to connect the product’s Ethernet port (except the console port) with managed computer network card, and ensure the link LED of the port is on.
- Whether the computer TCP/IP agreement setting is correct?
- Management PC's IP address must be 192.168.1.x (x range is 1~254 and x can't be 200, otherwise it will conflict with the product IP address 192.168.1.200), subnet mask: 255.255.255.0.
- Whether the computer's port VLAN ID is 1?
- By default, the management VLAN is VLAN 1, same as each port of switch.

Now the setting up tasks are finished.

Users can login the Web system and start configuration as following.

## 4 Login the Web system

### 4.1 Login and Start

Open the browser, input the switch default address.

Press Enter, the user login page will show in front of you as follows.

| Items                    | Default value |
|--------------------------|---------------|
| Switch default address   | 192.168.1.200 |
| Subnet mask              | 255.255.255.0 |
| Administrator's account  | admin         |
| Administrator's password | admin         |

Input Administrator's account and password, press Enter, and click <Login in>, the Web system page will be shown as below:

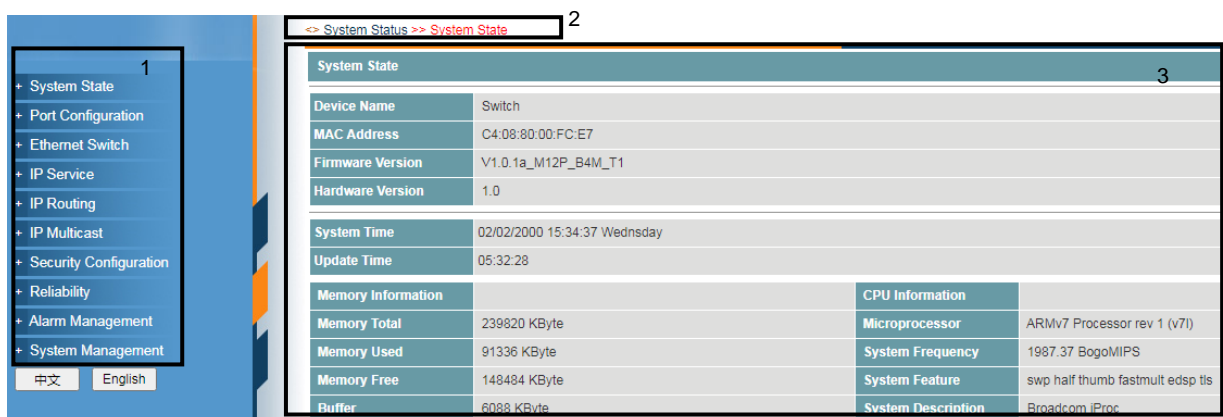
The screenshot displays the Web system interface. On the left is a navigation menu with options: System State, Port Configuration, Ethernet Switch, IP Service, IP Routing, IP Multicast, Security Configuration, Reliability, Alarm Management, and System Management. At the bottom of the menu are buttons for '中文' and 'English'. The main content area shows the 'System Status' page, with a breadcrumb trail '<- System Status >> System State'. The 'System State' section contains the following information:

| System State       |                                  |
|--------------------|----------------------------------|
| Device Name        | Switch                           |
| MAC Address        | C4:08:80:00:FC:E7                |
| Firmware Version   | V1.0.1a_M12P_B4M_T1              |
| Hardware Version   | 1.0                              |
| System Time        |                                  |
| System Time        | 02/02/2000 15:34:37 Wednesday    |
| Update Time        | 05:32:28                         |
| Memory Information |                                  |
| Memory Total       | 239820 KByte                     |
| Memory Used        | 91336 KByte                      |
| Memory Free        | 148484 KByte                     |
| Buffer             | 6088 KByte                       |
| CPU Information    |                                  |
| Microprocessor     | ARMv7 Processor rev 1 (v7I)      |
| System Frequency   | 1987.37 BogoMIPS                 |
| System Feature     | swp half thumb fastmult edsp tls |
| System Description | Broadcom IProc                   |

## 4.2 Web System User Interface

### Interface Layout

The layout and style of the Web system client GUI are described as follows.



| Items | Descriptions       |
|-------|--------------------|
| 1     | Navigation tree    |
| 2     | Your Position      |
| 3     | Configuration area |

### Operation Field and Buttons

The elements that users usually use on the Web system GUI are described as follows.

| Items   | Descriptions  |
|---|---|
| <input type="text"/>  | Input box.<br>Please input the value as required.                               |
| <input type="text" value="Automatical"/>                              | Drop down list box.<br>Please choose the value as required.                     |
| <input checked="" type="radio"/> Enable <input type="radio"/> Disable | Enable/ disable option.<br>Please choose as required.                           |
| <input type="button" value="Modify"/>                                 | Modify button.<br>Click to change the configured parameter.                     |
| <input type="button" value="Add"/>                                    | Add button.<br>Click to add the parameter into the system.                      |
| <input type="button" value="Delete"/>                                 | Delete button.<br>Click to delete the parameter from the system.                |
| <input type="button" value="Edit"/>                                   | Edit button.<br>The same as <Modify>, click to change the configured parameter. |
| <input type="button" value="Save"/>                                   | Save button.<br>Click to the save the configurations.                           |
| <input type="button" value="Refresh"/>                                | Refresh button.<br>Click to reload the page.                                    |

### 4.3 Saving Configuration

After performing configuration, users need to save the configuration data. If you do not save the configuration data, the configuration that you made will be lost after reboot.

To save configurations, please click the <Save> button at the bottom of the page to save the configuration data to memory.

### 4.4 Viewing Configuration

Finished configuration, click <Refresh> button on the page, users can view the saved configuration.

### 4.5 User Timeout

If users do not perform any operations on the Web system GUI for a long time, your account will be logged out and the login page is displayed.


The auto-log out interval time is 5 minutes by default.

If you need to continue operations, please log in again.

### 4.6 Logging-out Web System

To protect security of user accounts and switches, please log out of the Web system immediately after finishing the configurations.

Users can log out of the Web system in either of the following ways:

- Click  on the top right corner of the page to close the browser.
- Click **Exit** on the top right corner of the page of Web system.

## 5 System State

### 5.1 System Status

Users can query the main information of the device, including device name, MAC address, firmware version, hardware version, system time, update time, memory information and CPU information.

| System State       |                               |                    |                                  |
|--------------------|-------------------------------|--------------------|----------------------------------|
| Device Name        | switch                        |                    |                                  |
| MAC Address        | C4:08:80:01:5C:23             |                    |                                  |
| Firmware Version   | V1.1.3d_M28P_B4M_T12          |                    |                                  |
| Hardware Version   | 1.0                           |                    |                                  |
| System Time        | 04/15/2020 17:55:00 Wednesday |                    |                                  |
| Update Time        | 07:54:23                      |                    |                                  |
| Memory Information |                               | CPU Information    |                                  |
| Memory Total       | 239820 KByte                  | Microprocessor     | ARMv7 Processor rev 1 (v7I)      |
| Memory Used        | 95404 KByte                   | System Frequency   | 1987.37 BogoMIPS                 |
| Memory Free        | 144416 KByte                  | System Feature     | swp half thumb fastmult edsp tls |
| Buffer             | 5572 KByte                    | System Description | Broadcom iProc                   |

### 5.2 Traffic Statistics

Users can view traffic statistics on interfaces and update the statistics.

| Port No | Sent Frame Statistics |           |           |       | Received Frame Statistics |           |           |       |
|---------|-----------------------|-----------|-----------|-------|---------------------------|-----------|-----------|-------|
|         | Unicast               | Multicast | Broadcast | Error | Unicast                   | Multicast | Broadcast | Error |
| 1       | 0                     | 0         | 0         | 0     | 0                         | 0         | 0         | 0     |
| 2       | 0                     | 0         | 0         | 0     | 0                         | 0         | 0         | 0     |
| 3       | 0                     | 0         | 0         | 0     | 0                         | 0         | 0         | 0     |
| 4       | 0                     | 0         | 0         | 0     | 0                         | 0         | 0         | 0     |
| 5       | 0                     | 0         | 0         | 0     | 0                         | 0         | 0         | 0     |
| 6       | 0                     | 0         | 0         | 0     | 0                         | 0         | 0         | 0     |
| 7       | 0                     | 0         | 0         | 0     | 0                         | 0         | 0         | 0     |
| 8       | 0                     | 0         | 0         | 0     | 0                         | 0         | 0         | 0     |

### Procedure

Click <Refresh> button to reload the page.

### 5.3 MAC Address Table

Users can view the MAC table of the interfaces.

| MAC Address Table |                   |         |    |             |         |      |              |
|-------------------|-------------------|---------|----|-------------|---------|------|--------------|
| Sort Type         | Automatic         | Refresh | No | MAC Address | VLAN ID | Port | Address Type |
| 1                 | 00:08:82:C4:C3:22 | 1       | 11 | dynamic     |         |      |              |
| 2                 | 50:46:5D:A9:2D:29 | 1       | 11 | dynamic     |         |      |              |
| 3                 | 18:31:BF:0B:C4:12 | 1       | 11 | dynamic     |         |      |              |
| 4                 | 98:45:62:1A:F7:11 | 1       | 11 | dynamic     |         |      |              |
| 5                 | 50:46:5D:A9:2D:32 | 1       | 11 | dynamic     |         |      |              |
| 6                 | 00:22:A2:00:03:01 | 1       | 11 | dynamic     |         |      |              |
| 7                 | 54:AB:3A:2F:09:6E | 1       | 11 | dynamic     |         |      |              |
| 8                 | 98:45:62:1A:F7:1F | 1       | 11 | dynamic     |         |      |              |
| 9                 | 88:D7:F6:E0:A2:DB | 1       | 11 | dynamic     |         |      |              |
| 10                | 40:8D:5C:3F:4D:BA | 1       | 11 | dynamic     |         |      |              |
| 11                | 8C:89:A5:FD:DF:30 | 1       | 11 | dynamic     |         |      |              |
| 12                | FC:AA:14:8C:F9:BA | 1       | 11 | dynamic     |         |      |              |
| 13                | 00:00:00:00:04:29 | 1       | 11 | dynamic     |         |      |              |
| 14                | 00:22:A2:00:0E:01 | 1       | 11 | dynamic     |         |      |              |
| 15                | 00:ED:66:70:67:0B | 1       | 11 | dynamic     |         |      |              |
| 16                | 00:08:82:C0:07:A7 | 1       | 11 | dynamic     |         |      |              |

## Procedure

- 1) Click the drop down list to select the sort type, including
  - Automatic
  - By MAC Address
  - By VLAN
  - By port
- 2) Click <Refresh> button to reload the page.



## 6 Port Configuration

### 6.1 Port Setting

Users can view the basic attributes of Ethernet interfaces, and configure the Ethernet interfaces as required.

| Port Setting             |  |           |                              |                         |                 |            |  |
|--------------------------|--|-----------|------------------------------|-------------------------|-----------------|------------|--|
| Port State               | Enable ▼   |           |                              |                         |                 |            |  |
| Port Speed               | Auto Negotiation ▼   |           | Duplex Mode Auto ▼           |                         |                 |            |  |
| Traffic Control          | Disable ▼  |           |                              |                         |                 |            |  |
| Port Range               | <input type="text"/> <input type="button" value="Modify"/> |           |                              |                         |                 |            |  |
| ■                        | Port   | Port Mark | Current Status(speed/duplex) | Port Enable             |                 |            |  |
|                          |  |           |                              | Port Rate(speed/duplex) | Traffic Control | Port State |  |
| <input type="checkbox"/> | 1  | port1     | disconnected                 | Auto/Auto               | Disable         | Enable     |  |
| <input type="checkbox"/> | 2  | port2     | disconnected                 | Auto/Auto               | Disable         | Enable     |  |
| <input type="checkbox"/> | 3  | port3     | disconnected                 | Auto/Auto               | Disable         | Enable     |  |
| <input type="checkbox"/> | 4  | port4     | disconnected                 | Auto/Auto               | Disable         | Enable     |  |
| <input type="checkbox"/> | 5  | port5     | disconnected                 | Auto/Auto               | Disable         | Enable     |  |
| <input type="checkbox"/> | 6  | port6     | disconnected                 | Auto/Auto               | Disable         | Enable     |  |

### Procedure

Choose <Port Configuration> <Port Setting> in the navigation tree to open the page.

1) Configure the interfaces.

| Port Setting    |  |
|-----------------|--|
| Port State      | Enable ▼   |
| Port Speed      | Auto Negotiation ▼ Duplex Mode Auto ▼                      |
| Traffic Control | Disable ▼  |
| Port Range      | <input type="text"/> <input type="button" value="Modify"/> |

- Set the parameters as required.

| Items       | Descriptions   | Default value    |
|-------------|--|------------------|
| Port State  | Choose <Enable> to enable the function.  | Enable           |
| Port Speed  | Indicates the interface speed, including <ul style="list-style-type: none"> <li>Auto Negotiation</li> <li>10 Mbits/s</li> <li>100 Mbits/s</li> <li>1000 Mbits/s.</li> </ul> By default the SFP port is 10Gbits/s, it supports to be set to 1000Mbits/s.  | Auto Negotiation |
| Duplex Mode | Indicates the duplex mode of the interface, including <ul style="list-style-type: none"> <li>Auto</li> <li>Full duplex</li> <li>Half duplex</li> </ul> To enable an interface to send and receive packets at the same time, enable the full duplex mode on the interface.<br>To disable an interface from sending and receiving packets at the same time, enable the half duplex mode on | Auto             |

|                 |   |         |
|-----------------|---|---------|
|                 | the interface.  |         |
| Traffic Control | Enable or disable the traffic control function.   | Disable |
| Port Range      | Input the ports numbers that need to be set. Multiple interfaces can be selected. The value ranges from 1~28. Format as "2" or "1-5" or "3, 1-5". | Null    |

- Click <Modify> to change the configuration.
  - Click <Save>.
- 2) View the basic attributes.
- Click the <Refresh> button to reload the page.
  - View the information.

## 6.2 Rate Limit

This function is used to limit the rate of outgoing traffic or incoming traffic on a physical interface.

Users can view detailed information about interface-based rate limiting. Before sending traffic from an interface, users can configure rate limit on the interface in the outbound direction to control all outgoing packets, and configure rate limit on the interface inbound direction to control all incoming packets.

| Speed Limit              |                      | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |             |              |  |
|--------------------------|----------------------|---|-------------|--------------|--|
| Port Range               | <input type="text"/> |   |             |              |  |
| Input Speed              | <input type="text"/> |   |             |              | Kbps                                       |
| Output Speed             | <input type="text"/> |   |             |              | Kbps <input type="button" value="Modify"/> |
| <input type="checkbox"/> | Port                 | Port Mark   | Input Speed | Output Speed |  |
| <input type="checkbox"/> | 1                    | port1   | nolimit     | nolimit      |  |
| <input type="checkbox"/> | 2                    | port2   | nolimit     | nolimit      |  |
| <input type="checkbox"/> | 3                    | port3   | nolimit     | nolimit      |  |
| <input type="checkbox"/> | 4                    | port4   | nolimit     | nolimit      |  |
| <input type="checkbox"/> | 5                    | port5   | nolimit     | nolimit      |  |
| <input type="checkbox"/> | 6                    | port6   | nolimit     | nolimit      |  |

### Procedure

Choose <Port Configuration> <Rate Limit> in the navigation tree to open the page.

- 1) Configure the interfaces.

| Speed Limit  | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |
|--------------|---|
| Port Range   | <input type="text"/>  |
| Input Speed  | <input type="text"/> Kbps   |
| Output Speed | <input type="text"/> Kbps <input type="button" value="Modify"/>       |

- Set the parameters as required.

| Items        | Descriptions  | Default value |
|--------------|---|---------------|
| Speed Limit  | Choose <Enable> to enable the function.   | Disable       |
| Port Range   | Input the ports numbers that need to be set. Multiple interfaces can be selected. The value ranges from 1~28. Format as "2" or "1-5" or "3, 1-5". | Null          |
| Input Speed  | Input the speed limit in the inbound direction. The value ranges 64 Kbps ~1000000 Kbps.   | Null          |
| Output Speed | Input the speed limit in the outbound direction. The value ranges 64 Kbps ~1000000 Kbps.  | Null          |

- Click <Modify> to change the configuration.
  - Click <Save>.
- 2) View the input and output speed.
- Click the <Refresh> button to reload the page.
  - View the information.

### 6.3 Storm Control

Storm control prevents broadcast storms and ensures device forwarding performance.

To limit the rate of incoming broadcast packets, multicast packets, and unknown unicast packets and prevent heavy traffic on a device, users can configure storm control on an interface.

| Storm Control            |   |                 |                 |                       |
|--------------------------|---|-----------------|-----------------|-----------------------|
| Port Range               | <input type="text"/>  |                 |                 |                       |
| Broadcast Storm          | <input type="text"/> <0-1000>*64 Kbps                                       |                 |                 |                       |
| Multicast Storm          | <input type="text"/> <0-1000>*64 Kbps                                       |                 |                 |                       |
| Unknown Unicast Storm    | <input type="text"/> <0-1000>*64 Kbps <input type="button" value="Modify"/> |                 |                 |                       |
|                          | port  | Broadcast Storm | Multicast Storm | Unknown Unicast Storm |
| <input type="checkbox"/> | 1   | No Limited      | No Limited      | No Limited            |
| <input type="checkbox"/> | 2   | No Limited      | No Limited      | No Limited            |
| <input type="checkbox"/> | 3   | No Limited      | No Limited      | No Limited            |
| <input type="checkbox"/> | 4   | No Limited      | No Limited      | No Limited            |
| <input type="checkbox"/> | 5   | No Limited      | No Limited      | No Limited            |
| <input type="checkbox"/> | 6   | No Limited      | No Limited      | No Limited            |

#### Procedure

Choose <Port Configuration> <Storm Control> in the navigation tree to open the page.

- 1) Configure the interfaces.

| Storm Control         |   |
|-----------------------|---|
| Port Range            | <input type="text"/>  |
| Broadcast Storm       | <input type="text"/> <0-1000>*64 Kbps                                       |
| Multicast Storm       | <input type="text"/> <0-1000>*64 Kbps                                       |
| Unknown Unicast Storm | <input type="text"/> <0-1000>*64 Kbps <input type="button" value="Modify"/> |

- Set the parameters as required.

| Items           | Descriptions  | Default value |
|-----------------|---|---------------|
| Port Range      | Input the ports numbers that need to be set. Multiple interfaces can be selected. The value ranges from 1~28. Format as "2" or "1-5" or "3, 1-5". | Null          |
| Broadcast Storm | Configure the broadcast storm control. The value ranges from 1~1000.  | Null          |
| Multicast Storm | Configure the multicast storm control. The value ranges from 1~1000.  | Null          |
| Unicast Storm   | Configure the unicast storm control. The value ranges from 1~1000.  | Null          |

- Click <Modify> to change the configuration.
  - Click <Save>.
- 2) View the storm control state of the interfaces.

- Click the <Refresh> button to reload the page.
- View the information.

## 6.4 Port Isolation

Interfaces in a port isolation group are isolated from each other, but interfaces in different port isolation groups can communicate.

The switch supports one isolation group. Users can add or delete the ports from the group as required, and view the isolation mode of the ports.

| Port Isolation           |      |  |        |                          |      |        |        |
|--------------------------|------|--|--------|--------------------------|------|--------|--------|
| Port Isolation           |      | Normal   |        |                          |      |        |        |
| Port Range               |      | <input type="text"/> <input type="button" value="Modify"/> |        |                          |      |        |        |
|                          | Port | Name   | Type   |                          | Port | Name   | Type   |
| <input type="checkbox"/> | 1    | port1  | Normal | <input type="checkbox"/> | 2    | port2  | Normal |
| <input type="checkbox"/> | 3    | port3  | Normal | <input type="checkbox"/> | 4    | port4  | Normal |
| <input type="checkbox"/> | 5    | port5  | Normal | <input type="checkbox"/> | 6    | port6  | Normal |
| <input type="checkbox"/> | 7    | port7  | Normal | <input type="checkbox"/> | 8    | port8  | Normal |
| <input type="checkbox"/> | 9    | port9  | Normal | <input type="checkbox"/> | 10   | port10 | Normal |
| <input type="checkbox"/> | 11   | port11   | Normal | <input type="checkbox"/> | 12   | port12 | Normal |

### Procedure

Choose <Port Configuration> <Port Isolation> in the navigation tree to open the page.

- 1) Configure the isolation modes of the ports.

| Port Isolation |  |
|----------------|--|
| Port Isolation | Isolation ▼  |
| Port Range     | <input type="text"/> <input type="button" value="Modify"/> |

- Select the ports that need to be set in <Port Range>.

| Items          | Descriptions  | Default value |
|----------------|---|---------------|
| Port isolation | Choose <Isolation> to enable the function.<br>Choose <Normal> to disable the function.  | Isolation     |
| Port Range     | Input the ports numbers that need to be set. Multiple interfaces can be selected. The value ranges from 1~28. Format as "2" or "1-5" or "3, 1-5". | Null          |

The ports can communicate at both Layer 2 and Layer 3 by default, after the isolation mode is selected, all is the isolation at both Layer 2 and Layer 3.

- Click <Modify> to change the configuration.
  - Click <Save>.
- 2) View the isolation modes of the ports.
    - Click the <Refresh> button to reload the page.
    - View the information.

## 6.5 PoE Setting

Currently, the network devices are deployed flexibly; therefore, the cabling of power supply is complicated. To simplify cabling, users can configure the PoE function on the switch.

Users can set global PoE parameters and the PoE parameters on an interface, and view the PoE status of the device and ports.

PoE

Power setting (Be careful for modification)

Power provided 390 W Overload limit 5 % Reserved rate 0 % Edit

Power status

Consumed 0 W Remaining 390 W Reserved 0 W Provided 390 W

Port status and control

Port range [ ] Priority Low Power limit [ ] W (0-30W) ON OFF Edit

| Port                     | Port mark | Consumed (W) | Setting         |          |             |
|--------------------------|-----------|--------------|-----------------|----------|-------------|
|                          |           |              | Power limit (W) | Priority | Port status |
| <input type="checkbox"/> | 1         | 0            | 30              | Low      | open        |
| <input type="checkbox"/> | 2         | 0            | 30              | Low      | open        |
| <input type="checkbox"/> | 3         | 0            | 30              | Low      | open        |
| <input type="checkbox"/> | 4         | 0            | 30              | Low      | open        |
| <input type="checkbox"/> | 5         | 0            | 30              | Low      | open        |
| <input type="checkbox"/> | 6         | 0            | 30              | Low      | open        |

## Procedure

Choose <Port Configuration> <PoE Setting> in the navigation tree to open the page.

1) Set global PoE parameters.

Power setting (Be careful for modification)

Power provided 390 W Overload limit 5 % Reserved rate 0 % Edit

- Set the parameters as required.

| Items          | Descriptions   | Default value |
|----------------|--|---------------|
| Power Provided | Input the maximum provided power of the device.<br>The value is less than 400W.  | 390W          |
| Overload Limit | The limit percentage that allows over the preset <Power Provided> value.<br>The value is less than 10%.<br>This parameter is optional.   | 5%            |
| Reserved Rate  | Input the reserved rate from the preset <Power Provided> value.<br>The value ranges from 0 to 100%.<br>The device supports reserved power function for reliability.<br>The actual value of input power the device divides to the interfaces (named as V) is equal to the value of <Power Provided> minus the value of <Power Provided> multiplies <Reserved Rate>.<br>If the required input power of the devices over the value of real input power, the reserved power will be divided to each port as further demand.<br>This parameter is optional. | 0%            |

- Click <Edit> to change the configuration.
- Click <Save>.

2) Set the PoE parameters on an interface

Power status

Consumed 0 W Remaining 390 W Reserved 0 W Provided 390 W

Port status and control

Port range [ ] Priority Low Power limit [ ] W (0-30W) ON OFF Edit

- The current power status will be displayed in the items of <Power status> as below.

| Items        | Descriptions |
|--------------|--------------|
| Power Status |              |

|           |  |
|-----------|--|
| Consumed  | The total actual output power of all the interfaces.   |
| Remaining | The actual remained input power of the device, not including the reserved power.                                   |
| Reserved  | The actual reserved power of the device.<br>The value is equal to the value of <Power Provided> minus <Remaining>. |
| Provided  | The preset input power. The value is equal to <Power Provided>.  |

- Set the parameters as required.

| Items                              | Descriptions  | Default value |
|------------------------------------|---|---------------|
| Port Status and Control            |   |               |
| Port Range                         | Input the ports numbers that need to be set. Multiple interfaces can be selected. The value ranges from 1~28. Format as "2" or "1-5" or "3, 1-5".   | Null          |
| Priority                           | Indicates the power priority of an interface, including <ul style="list-style-type: none"> <li>· Low</li> <li>· Middle</li> <li>· High</li> </ul> In the same priority, the interfaces with larger port number will be shut off first when the power is not enough. | Low           |
| Power Limit                        | Input the maximum output power of the interfaces. The value ranges from 0 to 30W.   | Null          |
| <input type="button" value="ON"/>  | Click to enable the PoE function of the interfaces.   | Enable        |
| <input type="button" value="OFF"/> | Click to disable the PoE function of the interfaces.  |               |

- Click <Edit> to change the configuration.
- Click <Save>.

# 7 Ethernet Switch

## 7.1 Link Aggregation

Link aggregation is a technology that bundles multiple Ethernet links into a logical link to increase bandwidth, improve reliability, and load balance traffic.

The Switch supports the manual load balancing mode and Link Aggregation Control Protocol (LACP) mode. The Switch also supports inter-device link aggregation.

Users can create link aggregation group, configure load pattern mode, working mode and members of link aggregation group, and delete the group.

### Procedure

Choose <Ethernet Switch> <Link Aggregation> in the navigation tree to open the page.

1) Create link aggregation group and configuration.

- Set the parameters as required.

| Items                   | Descriptions   | Default value          |
|-------------------------|--|------------------------|
| Aggregated Load Pattern | Choose the aggregation load pattern, including <ul style="list-style-type: none"> <li>· Source MAC</li> <li>· Destination MAC</li> <li>· Source MAC and Dst MAC</li> <li>· Destination IP Address</li> <li>· Source IP and Dst IP Address</li> </ul>   | Source MAC and Dst MAC |
| Trunk Name              | Indicates the trunk number.<br>The value ranges from 1 to 8.   | Null                   |
| Aggregation Pattern     | Choose the aggregation pattern, including <ul style="list-style-type: none"> <li>· Manual Aggregation: not under LACP protocol, by setting register to make aggregation.</li> <li>· Static LACP Aggregation: under LACP protocol, manually configured by the user, and the system is not allowed to automatically add or delete ports in the aggregation group.</li> </ul> | Manual Aggregation     |

|            |   |      |
|------------|---|------|
| Port Range | Input the ports numbers that need to be set. Multiple interfaces can be selected. The value ranges from 1~28. Format as “2” or “1-5” or “3, 1-5”. | Null |
|------------|---|------|

- Click <Add>.
- Click <Save>.

2) Delete trunk.

|                                     |    |                      |                                    |                                       |
|-------------------------------------|----|----------------------|------------------------------------|---------------------------------------|
|                                     |    | <input type="text"/> | <input type="button" value="Add"/> | <input type="button" value="Delete"/> |
| <input type="checkbox"/>            | No | Trunk Name           | Aggregation Pattern                |                                       |
| <input checked="" type="checkbox"/> | 1  | Trunk-8              | Manual Aggregation                 |                                       |

- Choose the trunk that need to be deleted.
- Click <Delete>.
- Click <Save>.

## 7.2 802.1Q VLAN

User can configure the link-type of the interfaces and view the configuration.

| 802.1Q VLAN Setting      |  |           |           |      |              |               |
|--------------------------|--|-----------|-----------|------|--------------|---------------|
| Port Range               | <input type="text"/>   |           |           |      |              |               |
| Link Type                | Trunk  |           |           |      |              |               |
| PVID                     | 9999   |           |           |      |              |               |
| vlan-allowed             | <input type="text"/>   |           |           |      |              |               |
| vlan-untagged            | <input type="text"/> <input type="button" value="Add"/> ( Warning :VLAN property of all ports aggregated are same! ) |           |           |      |              |               |
| <input type="checkbox"/> | Port   | Port Mark | Link Type | PVID | vlan-allowed | vlan-untagged |
| <input type="checkbox"/> | 1  | port1     | Access    | 1    |              |               |
| <input type="checkbox"/> | 2  | port2     | Access    | 1    |              |               |
| <input type="checkbox"/> | 3  | port3     | Access    | 1    |              |               |
| <input type="checkbox"/> | 4  | port4     | Access    | 1    |              |               |
| <input type="checkbox"/> | 5  | port5     | Access    | 1    |              |               |
| <input type="checkbox"/> | 6  | port6     | Access    | 1    |              |               |

### Procedure

Choose <Ethernet Switch> <802.1Q VLAN> in the navigation tree to open the page.

| 802.1Q VLAN Setting |   |
|---------------------|---|
| Port Range          | <input type="text"/>                                    |
| Link Type           | Trunk   |
| PVID                | 9999  |
| vlan-allowed        | <input type="text"/>                                    |
| vlan-untagged       | <input type="text"/> <input type="button" value="Add"/> |

1) Configure the link-type of interfaces.

- Set the parameters as required.

| Items      | Descriptions  | Default value |
|------------|---|---------------|
| Port Range | Input the ports numbers that need to be set. Multiple interfaces can be selected. The value ranges from 1~28. | Null          |



|               |  |        |
|---------------|--|--------|
|               | Format as “2” or “1-5” or “3, 1-5”.  |        |
| Link Type     | Link type of the interfaces, including <ul style="list-style-type: none"> <li>· Access</li> <li>· Trunk</li> </ul> | Access |
| PVID          | Input the VLAN ID of the interface.<br>The value ranges from 1 to 4094.  | Null   |
| VLAN-allowed  | Input ID of VLAN that allowed to access in Trunk.<br>The value ranges from 1 to 4094.                              | Null   |
| VLAN-untagged | Input ID of untagged VLAN in Trunk.<br>The value ranges from 1 to 4094.  | Null   |

- Click <Add>.
  - Click <Save>.
- 2) View the link-type of the interfaces.
- Click the <Refresh> button to reload the page.
  - View the information.

### 7.3 802.1P QoS

Users can configure the QoS of the device and view the configuration.

The screenshot shows the configuration page for QoS. It includes sections for QoS Setting (with radio buttons for Enable and Disable), QoS Priority (with radio buttons for Absolute Priority and Relative Priority), and 802.1p QoS Setting (with radio buttons for Enable and Disable). Below these is a table with 8 columns for 802.1p Mark and Priority. The table contains the following data:

| 802.1pMark | Priority    | 802.1pMark | Priority    | 802.1pMark | Priority    | 802.1pMark | Priority    |
|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
| 0          | first queue | 1          | first queue | 2          | first queue | 3          | first queue |
| 4          | first queue | 5          | first queue | 6          | first queue | 7          | first queue |

At the bottom of the table, there are 'Save' and 'Refresh' buttons.

### Procedure

Choose <Ethernet Switch> <802.1P QoS> in the navigation tree to open the page.

The screenshot shows the configuration page for QoS. It includes sections for QoS Setting (with radio buttons for Enable and Disable), QoS Priority (with radio buttons for Absolute Priority and Relative Priority), and 802.1p QoS Setting (with radio buttons for Enable and Disable). Below these is a text input field for 802.1p Mark Range and a dropdown menu for Priority with an 'Add' button.

- 1) Configure the QoS of the device.
- Set the parameters as required.

| Items        | Descriptions                                | Default value     |
|--------------|---|-------------------|
| QoS Setting  | Choose <Enable> to enable the QoS function. | Disable           |
| QoS Priority | Choose the mode of QoS priority, including  | Relative Priority |

|                    |  |             |
|--------------------|--|-------------|
|                    | <ul style="list-style-type: none"> <li>· Absolute Priority</li> <li>· Relative Priority</li> </ul>   |             |
| 802.1p QoS Setting | Choose <Enable> to enable the 802.1p QoS function.   | Disable     |
| 802.1p Mark Range  | Input the priority of CoS for VLAN. The value ranges from 0~7. Format as "2" or "1-5" or "3, 1-5".   | Null        |
| Priority           | Configuring mapping of 802.1p COS priority.<br>The device supports setting 8 priorities, and the option is from <first queue> to <Fastest queue> | First queue |

- Click <Add>.
  - Click <Save>.
- 2) View the configuration.
- Click <Refresh> to reload the page.
  - View the information.

## 8 IP Service

### 8.1 Interface IP

Users can add, modify delete the IP address of the VLANs, including IPv4 and IPv6, and view the IP address of VLAN for the device.

| Index | Interface Name | IP Type   | IPv4 Address/Mark | IPv6 Address/Prefix |
|-------|----------------|-----------|-------------------|---------------------|
| 1     | vlan1          | Static IP | 192.168.1.25/24   |                     |

### Procedure

Choose <IP Service> <Interface IP> in the navigation tree to open the page.

#### 1) Add the IP address

- Set the parameters as required.

| Items                   | Descriptions  | Default value |
|-------------------------|---|---------------|
| Network Interface (VID) | VLAN ID of the interface.<br>This parameter is not able to be set.                                  | VLAN 1        |
| Access                  | The access mode of the IP.<br>This parameter is not able to be set.                                 | Static IP     |
| IPv4 Address            | The IPv4 Address of the IP address of the Ethernet interface and the subnet mask of the IP address. | Null          |
| IPv6 Address            | The IPv6 Address of the IP address of the Ethernet interface and the subnet mask of the IP address. | Null          |

- Click <Add> to add the IP address.
- Click <Save>.

#### 2) Modify the IP address

- Select the IP Address that need to be modified.

| Index | Interface Name | IP Type   | IPv4 Address/Mark |
|-------|----------------|-----------|-------------------|
| 1     | vlan1          | Static IP | 192.168.1.25/24   |

- Set the parameters as required.
- Click <Modify>.
- Click <Save>.

3) Delete the IP address

- Select the IP Address that need to be deleted.

| <input type="checkbox"/>            | Index | Interface Name | IP Type   | IPv4 Address/Mark |
|-------------------------------------|-------|----------------|-----------|-------------------|
| <input checked="" type="checkbox"/> | 1     | vlan1          | Static IP | 192.168.1.25/24   |

- Click <Delete>.
- Click <Save>.

## 8.2 DHCP Server

DHCP is a technology used to dynamically manage and configure clients in a concentrated manner.

The client applies to the server for configurations such as the IP address, subnet mask, and default gateway, and the server replies with corresponding configurations according to policies.

Users need to configure a DHCP server based on the global address pool to enable computers to obtain IP addresses from the global address pool dynamically.

Users can configure an address pool on a VLAN when a device supports switched Ethernet interfaces. IP addresses cannot be configured on switched Ethernet interfaces directly; therefore, you need to create a VLAN and configure a DHCP address pool on the VLAN.

| DHCP Server Global Setting   |  |                                       |                                      |            |     |      |
|--|--|---------------------------------------|--------------------------------------|------------|-----|------|
| Client Lease Time  | <input type="text" value="86400"/>       | s (Range : 3600-86400)                |                                      |            |     |      |
| Preferred DNS Address  | <input type="text" value="192.168.1.1"/> |                                       |                                      |            |     |      |
| Backup DNS Address   | <input type="text" value="3.3.3.3"/>     |                                       |                                      |            |     |      |
| WINS Server  | <input type="text" value="2.2.2.2"/>     |                                       |                                      |            |     |      |
| Network Interface(VID)   | <input type="text" value="1"/>           |                                       |                                      |            |     |      |
| Default Gateway  | <input type="text"/>                     |                                       |                                      |            |     |      |
| Start IP Address   | <input type="text"/>                     |                                       |                                      |            |     |      |
| Max Client Number  | <input type="text"/>                     | <input type="button" value="Modify"/> | <input type="button" value="Clear"/> |            |     |      |
| <input type="checkbox"/>   | Interface Name                           | gateway                               | Address Range                        | Lease Time | DNS | WINS |
| <input type="checkbox"/>   | 1  | 192.168.1.25/24                       |                                      |            |     |      |
| <input type="button" value="Save"/> <input type="button" value="Refresh"/> |  |                                       |                                      |            |     |      |

### Procedure

Choose <IP Service> <DHCP Server> in the navigation tree to open the page.

| DHCP Server Global Setting |   |
|----------------------------|---|
| Client Lease Time          | <input type="text" value="86400"/> s (Range : 3600-86400)                                       |
| Preferred DNS Address      | <input type="text" value="192.168.1.1"/>  |
| Backup DNS Address         | <input type="text" value="3.3.3.3"/>  |
| WINS Server                | <input type="text" value="2.2.2.2"/>  |
| Network Interface(VID)     | <input type="text" value="1"/>  |
| Default Gateway            | <input type="text"/>  |
| Start IP Address           | <input type="text"/>  |
| Max Client Number          | <input type="text"/> <input type="button" value="Modify"/> <input type="button" value="Clear"/> |

1) Set the global the DHCP server parameter.

- Set the parameters as required.

| Items             | Descriptions   | Default value |
|-------------------|--|---------------|
| Client Lease Time | Indicates the lease of dynamic IP addresses. The default lease is one day (86400s). The value ranges from 3600 to 86400 s. | 86400         |
| Preferred         | Indicates the main IP address of a DNS server.   | 192.168.1.1   |

|                    |  |      |
|--------------------|--|------|
| DNS Address        |  |      |
| Backup DNS Address | Indicates the backup IP address of a DNS server. | Null |
| WINS Server        | Indicates the IP address of a WINS server.       | Null |

- Click <Modify>.
- Click <Save>.

### 2) Set an address pool on a VLAN.

|                        |                 |        |       |
|------------------------|-----------------|--------|-------|
| Network Interface(VID) | 1               |        |       |
| Default Gateway        | 192.168.1.25/24 |        |       |
| Start IP Address       |                 |        |       |
| Max Client Number      |                 | Modify | Clear |

| <input type="checkbox"/>            | Interface Name | gateway         | Address Range |
|-------------------------------------|----------------|-----------------|---------------|
| <input checked="" type="checkbox"/> | 1              | 192.168.1.25/24 |               |
| <input type="checkbox"/>            | 1000           | 192.168.10.5/24 |               |

Save Refresh

- Set the parameters as required.

| Items                   | Descriptions   | Default value |
|-------------------------|--|---------------|
| Network Interface (VID) | Select a record in the table to indicate the name of a VLNAIF interface.<br>The VLANs in the table are created in the <Ethernet Switch> <802.1Q VLAN> and <IP Service> <Interface IP> modules. | 1             |
| Default Gateway         | Indicates the default IP address and subnet mask of the selected VLAN. The value is displayed automatically after you select the <Network Interface (VID)>.                                    | Null          |
| Start IP Address        | Indicate the start IP address of the interface.  | Null          |
| Max Client Number       | Input the max client number.<br>The value ranges from 2 to 255.  | 50            |

- Click <Modify>.
- Click <Save>.

### 3) Clear the record

User can clear the DHCP configuration of the selected VLAN.

|                   |   |        |       |
|-------------------|---|--------|-------|
| Max Client Number | 3 | Modify | Clear |
|-------------------|---|--------|-------|

| <input type="checkbox"/>            | Interface Name | gateway         | Address Range             |
|-------------------------------------|----------------|-----------------|---------------------------|
| <input checked="" type="checkbox"/> | 1              | 192.168.1.25/24 | 192.168.1.50-192.168.1.52 |
| <input type="checkbox"/>            | 1000           | 192.168.10.5/24 | 192.168.2.2-192.168.2.3   |

Save Refresh

- Choose the record that need to be cleared, multiple records can be selected.
- Click <Clear>.
- Click <Save>.

## 9 IP Routing

### 9.1 RIP

RIP is a simple Interior Gateway Protocol (IGP) used in small-scale networks, such as campus networks and regional networks with simple structure.

Users can configure RIP, delete the network segment as required and view the configuration.

| RIP Configuration        |       |   |                   |  |
|--------------------------|-------|---|-------------------|--|
| RIP Setting              |       | <input checked="" type="radio"/> Enable <input type="radio"/> Disable                       |                   |  |
| Protocol Type            |       | RIP-V2  |                   |  |
| Network Interface        |       | vlan1:192.168.1.25/24 <input type="button" value="ADD"/> <input type="button" value="DEL"/> |                   |  |
| <input type="checkbox"/> | Index | Protocol Type   | Network Interface |  |
| <input type="checkbox"/> | 1     | RIP-V2  | 192.168.3.4/24    |  |
| <input type="checkbox"/> | 2     | RIP-V2  | 1.1.1.1/24        |  |
| <input type="checkbox"/> | 3     | RIP-V2  | 2.2.2.2/24        |  |

### Procedure

Choose <IP Routing> <RIP> in the navigation tree to open the page.

| RIP Configuration |  |   |  |  |
|-------------------|--|---|--|--|
| RIP Setting       |  | <input checked="" type="radio"/> Enable <input type="radio"/> Disable                       |  |  |
| Protocol Type     |  | RIP-V2  |  |  |
| Network Interface |  | vlan1:192.168.1.25/24 <input type="button" value="ADD"/> <input type="button" value="DEL"/> |  |  |

#### 1) Create the RIP routing

- Set the parameters as required.

| Items             | Descriptions   | Default value         |
|-------------------|--|-----------------------|
| RIP Setting       | Choose <Enable> to enable the function.  | Disable               |
| Protocol Type     | Choose the protocol type of RIP routing, including <ul style="list-style-type: none"> <li>RIP-V2</li> <li>RIP-V1</li> </ul>                                | RIP-V2                |
| Network Interface | Choose the network segment in the drop down list box. The value is created in the <Ethernet Switch> <802.1Q VLAN> and <IP Service> <Interface IP> modules. | VLAN1:192.168.1.200/8 |

- Click <Add>.
- Click <Save>.

#### 2) Delete the network segment

| Network Interface                   |       | <input type="text"/> | <input type="button" value="ADD"/> | <input type="button" value="DEL"/> |
|-------------------------------------|-------|----------------------|------------------------------------|------------------------------------|
| <input type="checkbox"/>            | Index | Protocol Type        |                                    |                                    |
| <input checked="" type="checkbox"/> | 1     | RIP-V2               |                                    |                                    |
| <input type="checkbox"/>            | 2     | RIP-V2               |                                    |                                    |

- Choose the record that need to be cleared.
- Click <DEL>.

- Click <Save>.
  - Click <Refresh>.
- 3) View the RIP configuration.
- Click <Refresh>.
  - View the configuration.

## 9.2 OSPF

By building OSPF networks, users can enable OSPF to discover and calculate routes in Autonomous Systems. OSPF is applicable to a large-scale network that consists of hundreds of devices.

Users can configure the OSPF network, delete the network segment as required and view the configuration.

| OSPF Configuration |   |                                    |                                       |
|--------------------|---|------------------------------------|---------------------------------------|
| OSPF Setting       | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |                                    |                                       |
| OSPF Host ID       | <input type="text"/>  | (Pattern 172.16.100.1)             |                                       |
| Region ID          | <input type="text"/>  | (0 - 65535)                        |                                       |
| Region Type        | Normal  |                                    |                                       |
| Network Interface  | <input type="text" value="vlan1:192.168.1.25/24"/>                    | <input type="button" value="Add"/> | <input type="button" value="Delete"/> |
|                    | Index   | Region ID                          | Region Type                           |
|                    |   |                                    | Network Interface                     |

### Procedure

Choose <IP Routing> <OSPF> in the navigation tree to open the page.

- 1) Configure OSPF network.

| OSPF Configuration |   |                                    |                                       |
|--------------------|---|------------------------------------|---------------------------------------|
| OSPF Setting       | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |                                    |                                       |
| OSPF Host ID       | <input type="text"/>  | (Pattern 172.16.100.1)             |                                       |
| Region ID          | <input type="text"/>  | (0 - 65535)                        |                                       |
| Region Type        | Normal  |                                    |                                       |
| Network Interface  | <input type="text" value="vlan1:192.168.1.25/24"/>                    | <input type="button" value="Add"/> | <input type="button" value="Delete"/> |

- Set the parameters as required.

| Items             | Descriptions  | Default value         |
|-------------------|---|-----------------------|
| OSPF Setting      | Choose <Enable> to enable the function.   | Disable               |
| OSPF Host ID      | Input IP address of OSPF host.  | Null                  |
| Region ID         | Input the range of OSPF network.<br>The value ranges from 0 to 65535.   | Null                  |
| Region Type       | Choose the region type, including <ul style="list-style-type: none"> <li>· Normal</li> <li>· Stub</li> <li>· NSSA</li> </ul>                                  | Normal                |
| Network Interface | Choose the network segment in the drop down list box.<br>The value is created in the <Ethernet Switch> <802.1Q VLAN> and <IP Service> <Interface IP> modules. | VLAN1:192.168.1.200/8 |

- Click <Add>.
  - Click <Save>.
- 2) Delete the network segment.

| Network Interface                   |       | vlan1:192.168.1.25/24 ▼ | Add | Delete |
|-------------------------------------|-------|-------------------------|-----|--------|
| <input type="checkbox"/>            | Index | Region ID               |     |        |
| <input checked="" type="checkbox"/> | 1     | area 6000               |     |        |

- Choose the record that need to be deleted.
- Click <Delete>.
- Click <Save>.
- Click <Refresh>.

### 9.3 Routing Table

A router forwards packets by using a routing table. Each router saves a routing table. Each entry in the routing table contains a physical interface of the router, and the router sends packets to the physical interfaces.

Users can configure the static routing tables and view the information of the routing table.

| Routing Table Setting    |                      |                         |                  |                  |                   |           |
|--------------------------|----------------------|-------------------------|------------------|------------------|-------------------|-----------|
| Target Network           | <input type="text"/> | (Default IP: 0.0.0.0/0) |                  |                  |                   |           |
| Next Hop Address         | <input type="text"/> |                         |                  |                  |                   |           |
| Path Consumption         | <input type="text"/> | Add Delete              |                  |                  |                   |           |
| <input type="checkbox"/> | Index                | Target Network          | Next Hop Address | Path Consumption | Network Interface | Type      |
| <input type="checkbox"/> | 1                    | 192.168.1.0/24          | 0.0.0.0          | 0                | vlan1             | interface |
| Save Refresh             |                      |                         |                  |                  |                   |           |

### Procedure

Choose <IP Routing> <Routing Table> in the navigation tree to open the page.

- 1) Create an IPv4 routing table.

| Routing Table Setting |                      |                         |        |
|-----------------------|----------------------|-------------------------|--------|
| Target Network        | <input type="text"/> | (Default IP: 0.0.0.0/0) |        |
| Next Hop Address      | <input type="text"/> |                         |        |
| Path Consumption      | <input type="text"/> | Add                     | Delete |

- Set the parameters as required.

| Items            | Descriptions   | Default value |
|------------------|--|---------------|
| Target Network   | Indicates the destination IP address and subnet mask of an IP packet.        | Null          |
| Next Hop Address | Indicates the next-hop router address that IP packets pass through.          | Null          |
| Path Consumption | Indicate the length of static route path.<br>The value ranges from 1 to 255. | Null          |

- Click <Add>.
- Click <Save>.



2) Delete an IPv4 routing table.

| Path Consumption                    |       | 0              | Add | Delete |
|-------------------------------------|-------|----------------|-----|--------|
| <input type="checkbox"/>            | Index | Target Network |     |        |
| <input checked="" type="checkbox"/> | 1     | 192.168.1.0/24 |     |        |

- Choose the record that need to be deleted.
- Click <Delete>.
- Click <Save>.

3) View the routing table.

- Click <Refresh>.
- View the configuration.

# 10 IP Multicast

## 10.1 IGMP Snooping

Internet Group Management Protocol Snooping (IGMP-Snooping) is a Layer 2 IPv4 multicast protocol. The IGMP-Snooping protocol maintains information about the outgoing interfaces of multicast packets by snooping multicast protocol packets exchanged between the Layer 3 multicast device and user hosts. The IGMP-Snooping protocol manages and controls the forwarding of multicast packets at the data link layer.

Users could turn on/off the IGMP-Snooping function and configure the IGMP-Snooping Timer.

| IGMP Configuration   |   |                   |            |
|--|---|-------------------|------------|
| IGMP Interception Setting  | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |                   |            |
| IGMP Query   | <input type="radio"/> Enable <input checked="" type="radio"/> Disable |                   |            |
| IGMP Query Interval  | 60 s (Effective time 60-1000)   |                   |            |
| Group Member Alive Time  | 120 s (Effective value 120-5000)                                      |                   |            |
| Index  | Network Interface   | MAC Address       | Port Range |
| 1  | vlan1   | 01:00:5e:00:01:3c | 11         |
| 2  | vlan1   | 01:00:5e:7f:ff:fa | 11         |
| 3  | vlan1   | 01:00:5e:7f:ff:fd | 11         |
| <input type="button" value="Save"/> <input type="button" value="Refresh"/> |   |                   |            |

### Procedure

Choose <IP Multicast> <IGMP Snooping> in the navigation tree to open the page.

| IGMP Configuration        |   |
|---------------------------|---|
| IGMP Interception Setting | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |
| IGMP Query                | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |
| IGMP Query Interval       | 60 s (Effective time 60-1000)   |
| Group Member Alive Time   | 120 s (Effective value 120-5000)                                      |

1) Configure the IGMP-Snooping function.

- Set the parameters as required.

| Items                     | Descriptions   | Default value |
|---------------------------|--|---------------|
| IGMP Interception Setting | Choose <Enable> to enable the IGMP-Snooping function.                          | Disable       |
| IGMP Query                | Choose <Enable> to enable the IGMP-Snooping query function.                    | Disable       |
| IGMP Query Interval       | Indicate the query interval time.<br>The value ranges from 60~1000 s.          | 60s           |
| Group Member Alive Time   | Indicate the group members survival time.<br>The value ranges from 120~5000 s. | 150s          |

- Click <Save>.

2) View the IGMP Snooping configuration.

- Click <Refresh> to reload the page.
- View the information.

# 11 Security Configuration

## 11.1 Static Address Lock

User can create, delete the static MAC table and view the configuration information.

### Procedure

Choose <Security Configuration> <Static Address Lock> in the navigation tree to open the page.

- 1) Configure the static MAC table.
  - Set the parameters as required.

| Items               | Descriptions  | Default value |
|---------------------|---|---------------|
| Static Address Lock | Choose <Enable> to enable the function.   | Disable       |
| MAC Address         | Input the 48 bit mac address.   | Null          |
| VLAN ID             | Input the VLAN ID.<br>The value ranges from 1~4094.   | Null          |
| Port                | Input the ports numbers that need to be set. Multiple interfaces can be selected. The value ranges from 1~28. Format as "2" or "1-5" or "3, 1-5". | Null          |

- Click <Add>.
  - Click <Save>.
- 2) Delete the static MAC table.
    - Choose the record that need to be deleted.
    - Click <Delete>.
    - Click <Save>.
  - 3) View the static MAC table.
    - Click <Refresh> to reload the page.
    - View the information.

# 12 Reliability

## 12.1 Rapid Spanning Tree

RSTP is the abbreviation of Rapid Spanning Tree Protocol.

This protocol provides the same function as STP, and is completely backward compatible with 802.1D STP. Relative to the STP, the most important feature is "fast", if a LAN within the bridge are supported RSTP protocol, and the administrator configured properly, once the network topology changes, and to regenerate the topology tree only need not more than 1 second time (traditional STP takes about 50 seconds).

Users can configure global parameter and ports parameters of Rapid Spanning Tree.

|                             |                   |   |               |
|-----------------------------|-------------------|---|---------------|
| Spanning Tree Setting       |                   | <input checked="" type="radio"/> Enable <input type="radio"/> Disable                                       |               |
| Device Priority             | 32768             |   |               |
| Message Sending Period      | 2 s (Range 1-10)  |   |               |
| Message Maximum Lifetime    | 20 s (Range 6-40) |   |               |
| Port State Transition Delay | 15 s (Range 4-30) |   |               |
| This Bridge Update Message  |                   | RSTP Info ( Warning: Be careful of using spanning tree in link aggregation port , suggest close STP state ) |               |
| Modify Configuration        |                   | Path Cost   | Port Priority |
|                             |                   | 0   | 128           |
| Port Range                  |                   | Point-to-point Port   | Edge Port     |
|                             |                   | No  | No            |
|                             | Port No           | Port Mark   | Path Cost     |
| <input type="checkbox"/>    | 1                 | port1   | Autodetect    |
| <input type="checkbox"/>    | 2                 | port2   | Autodetect    |
| <input type="checkbox"/>    | 3                 | port3   | Autodetect    |
| <input type="checkbox"/>    | 4                 | port4   | Autodetect    |
| <input type="checkbox"/>    | 5                 | port5   | Autodetect    |
| <input type="checkbox"/>    | 6                 | port6   | Autodetect    |

### Procedure

Choose <Reliability> <Rapid Spanning Tree> in the navigation tree to open the page.

|                             |                   |   |  |
|-----------------------------|-------------------|---|--|
| Spanning Tree Setting       |                   | <input checked="" type="radio"/> Enable <input type="radio"/> Disable                                       |  |
| Device Priority             | 32768             |   |  |
| Message Sending Period      | 2 s (Range 1-10)  |   |  |
| Message Maximum Lifetime    | 20 s (Range 6-40) |   |  |
| Port State Transition Delay | 15 s (Range 4-30) |   |  |
| This Bridge Update Message  |                   | RSTP Info ( Warning: Be careful of using spanning tree in link aggregation port , suggest close STP state ) |  |

- 1) Configure global parameters.
  - Set the parameters as required.

| Items                       | Descriptions   | Default value |
|-----------------------------|--|---------------|
| Spanning Tree Setting       | Choose <Enable> to enable the function.  | Disable       |
| Device Priority             | Choose the priority of the device. The lager number takes lower priority.<br>Step length: 4096.    | 32768         |
| Message Sending Period      | Input the interval time to send message.<br>The value ranges from 1 to 10.                         | 2s            |
| Message Maximum Lifetime    | Input the maximum lifetime of the message.<br>The value ranges from 6 to 40.                       | 20s           |
| Port State Transition Delay | Input the interval time of state transition delay for the ports.<br>The value ranges from 4 to 30. | 15s           |

- Click <RSTP Info>, view the current RSTP information for the bridge. Click <Close> to exit.

Spanning Tree>>RSTP Information

| RSTP Information    |  | Root Bridge Information |  |  |  |  |  |
|---------------------|--|-------------------------|--|--|--|--|--|
| Device ID           |  |                         |  |  |  |  |  |
| Root Bridge ID      |  |                         |  |  |  |  |  |
| Root Port No        |  |                         |  |  |  |  |  |
| Root Port Path Cost |  |                         |  |  |  |  |  |

| Port Information                     |          |           |     |      |                 |           |            |
|--------------------------------------|----------|-----------|-----|------|-----------------|-----------|------------|
| Port No                              | Priority | Path Cost | P2P | Edge | Neighbor Bridge | Port Role | Port State |
| <input type="button" value="Close"/> |          |           |     |      |                 |           |            |

- Click <Modify>.
- Click <Save>.

2) Configure ports parameters.

| Modify Configuration | Path Cost                      | Port Priority                    | Point-to-point Port                   | Edge Port                       |
|----------------------|--------------------------------|----------------------------------|---------------------------------------|---------------------------------|
|                      | <input type="text" value="0"/> | <input type="text" value="128"/> | <input type="text" value="No"/>       | <input type="text" value="No"/> |
| Port Range           | <input type="text"/>           |                                  | <input type="button" value="Modify"/> |                                 |

- Set the parameters as required.

| Items               | Descriptions  | Default value |
|---------------------|---|---------------|
| Path Cost           | Indicates the path cost of local port and target port. The value ranges from 0 to 200,000,000. 0 means auto detect.<br>On an STP/RSTP network, the accumulated cost of path from a port to the root bridge consists of all path costs of ports on the passed bridges. This cost is called root path cost, which determines root port selection. | 0             |
| Port Priority       | Choose the priority of the port. The larger number takes lower priority.<br>Step length: 16.  | 128           |
| Point-to-point Port | Choose the state of point-to-point, including <ul style="list-style-type: none"> <li>· No.</li> <li>· Yes.</li> <li>· Auto Detect</li> </ul>  | No            |
| Edge Port           | Choose <Yes> to enable the edge port.<br>Choose <No> to disable the edge port.  | No            |
| Port Range          | Input the ports numbers that need to be set. Multiple interfaces can be selected. The value ranges from 1~28. Format as "2" or "1-5" or "3, 1-5".   | Null          |

- Click <Modify>.
- Click <Save>.

- 3) View the configuration.
  - Click <Refresh> to reload the page.
  - View the information.

## 12.2 Fast-Ring Protect

Users can configure the Fast-Ring protect function of the device. Fast Ring is a private protocol applied on Ethernet loop protection to provide fast recovery switching for Ethernet traffic in ring topology.

Fast Ring provides a faster redundant recovery than spanning tree topology. The action is similar to STP or RSTP, but the algorithms between them are not the same. In the ring topology, every switch should support fast ring and be enabled with Fast Ring and two ports should be assigned as the member ports in the fast ring group. When the failure of network connection occurs, the traffic will go through via the backup link.

| Fast Ring Network         | <input checked="" type="radio"/> Enable <input type="radio"/> Disable                      |   |
|---------------------------|--|---|
| Fast Ring Network Group 1 | Ring Network No: <input type="text" value="0"/>  | Current State: <input type="text" value="Not Enabled"/> |
|                           | Ring Port 1: <input type="text" value="26"/>   | Ring Port 1: <input type="text" value="Unknown"/>       |
|                           | Ring Port 2: <input type="text" value="28"/>   | Ring Port 2: <input type="text" value="Unknown"/>       |
| Fast Ring Network Group 2 | Network Type: <input type="text" value="Disable"/> Ring No: <input type="text" value="0"/> | Current State: <input type="text" value="Not Enabled"/> |
|                           | Ring Port 1: <input type="text" value="25"/>   | Ring Port 1: <input type="text" value="Unknown"/>       |
|                           | Ring Port 2: <input type="text" value="27"/>   | Ring Port 2: <input type="text" value="Unknown"/>       |

### Procedure

Choose <Reliability> <Fast-Ring Protect> in the navigation tree to open the page.

| Fast Ring Network         | <input type="radio"/> Enable <input checked="" type="radio"/> Disable                     |   |
|---------------------------|---|---|
| Fast Ring Network Group 1 | Ring Network No: <input type="text" value="0"/>   | Current State: <input type="text" value="Not Enabled"/>   |
|                           | Ring Port 1: <input type="text" value="26"/>  | Ring Port 1: <input type="text" value="Unknown"/>         |
|                           | Ring Port 2: <input type="text" value="28"/>  | Ring Port 2: <input type="text" value="Unknown"/>         |
| Fast Ring Network Group 2 | Network Type: <input type="text" value="Double"/> Ring No: <input type="text" value="0"/> | Current State: <input type="text" value="Unknown State"/> |
|                           | Ring Port 1: <input type="text" value="25"/>  | Ring Port 1: <input type="text" value="Unknown"/>         |
|                           | Ring Port 2: <input type="text" value="27"/>  | Ring Port 2: <input type="text" value="Unknown"/>         |

- 1) Configure the Fast-Ring protect.
  - Set the parameters as required.

| Items                     | Descriptions  | Default value |
|---------------------------|---|---------------|
| Fast-Ring Network         | Choose <Enable> to enable the function.   | Disable       |
| Fast-Ring Network Group 1 |   |               |
| Ring Network No:          | Indicates the number of main ring network the device accesses.<br>The value ranges from 0 to 255.   | 0             |
| Ring Port 1:              | Indicates the port number that access the ring network.<br>The value ranges from 1 to 28.   | 26            |
| Ring Port 2:              | Indicates the port number that access the ring network.<br>The port number can't be the same if it is used in other ring network.<br>The value ranges from 1 to 28. | 28            |
| Current State:            | Actual status of the ring network group 1.  | Not Enabled   |

|                                  |   |             |
|----------------------------------|---|-------------|
|                                  | This parameter is not able to be set.   |             |
| Ring Port 1:                     | Actual port number that being accessing the network.<br>This parameter is not able to be set.   | Unknown     |
| Ring Port 2:                     | Actual port number that being accessing the network.<br>This parameter is not able to be set.   | Unknown     |
| <b>Fast-Ring Network Group 2</b> |   |             |
| Network Type:                    | Choose the network type of the sub ring network, including<br><ul style="list-style-type: none"> <li>· Double</li> <li>· Coupling</li> </ul> Click <Disable>, the function of sub ring network is disabled. | Disable     |
| Ring No:                         | Indicates the number of sub ring network the device accesses.<br>The value ranges from 0 to 255.  | 0           |
| Ring Port 1:                     | Indicates the port number that access the ring network.<br>The value ranges from 1 to 28.   | 25          |
| Ring Port 2:                     | Indicates the port number that access the ring network.<br>The port number can't be the same if it is used in other ring network.<br>The value ranges from 1 to 28.   | 27          |
| Current State:                   | Actual status of the ring network group 2.<br>This parameter is not able to be set.   | Not Enabled |
| Ring Port 1:                     | Actual port number that being accessing the network.<br>This parameter is not able to be set.   | Unknown     |
| Ring Port 2:                     | Actual port number that being accessing the network.<br>This parameter is not able to be set.   | Unknown     |

- Click <Save>.
- 2) View the current status of Fast-Ring protection.
  - Click <Refresh> to reload the page.
  - View the current state information.

### 12.3 Loopback Protect

The device supports loopback protection function.

While the function is turned on, users can check if there is a Loopback for the device under this port. If there is Loopback, the port will be shutdown.

| Loop Detection             |         | <input checked="" type="radio"/> Enable <input type="radio"/> Disable  |                |                      |
|----------------------------|---------|--|----------------|----------------------|
| Protect Automatic Recovery |         | Disable  |                |                      |
| Disable Loop Port Time     |         | 300 s (Effective value : 20-300)   |                |                      |
| Port Range                 |         | <input type="text"/> Port Loop Detection <input type="text"/> Enable <input type="text"/> Modify (Warning: Be careful of port in link aggregation) |                |                      |
| <input type="checkbox"/>   | Port No | Port Mark  | Loop Detection | Loop Detection State |
| <input type="checkbox"/>   | 1       | port1  | Disable        | Forward              |
| <input type="checkbox"/>   | 2       | port2  | Disable        | Forward              |
| <input type="checkbox"/>   | 3       | port3  | Disable        | Forward              |
| <input type="checkbox"/>   | 4       | port4  | Disable        | Forward              |
| <input type="checkbox"/>   | 5       | port5  | Disable        | Forward              |
| <input type="checkbox"/>   | 6       | port6  | Disable        | Forward              |

## Procedure

Choose <Reliability> <Loopback Protect> in the navigation tree to open the page.

|                            |   |
|----------------------------|---|
| Loop Detection             | <input checked="" type="radio"/> Enable <input type="radio"/> Disable                   |
| Protect Automatic Recovery | Disable ▾   |
| Disable Loop Port Time     | 300 s (Effective value : 20-300)  |
| Port Range                 | <input type="text"/> Port Loop Detection Enable ▾ <input type="button" value="Modify"/> |

1) Configure the loopback function.

- Set the parameters as required.

| Items                      | Descriptions   | Default value |
|----------------------------|--|---------------|
| Loop Direction             | Choose <Enable> to enable the loopback detection function for the device.  | Enable        |
| Protect Automatic Recovery | Choose <Enable> to enable the protection automatic recovery function.<br>The ports will be recovered automatically.  | Disable       |
| Disable Loop Port Time     | Indicate the disable loop protect time.<br>The port will be recovered automatically, if the port detection no loopback packet after the time range, when <Protect Automatic Recovery> is enable.<br>The port will keep shutdown, if the port detection no loopback packet after the time range, when <Protect Automatic Recovery> is disable.<br>The value ranges from 20 to 300s. | 20s           |
| Port Range                 | Input the ports numbers that need to be set. Multiple interfaces can be selected. The value ranges from 1~28. Format as "2" or "1-5" or "3, 1-5".  | Null          |
| Port Loop Detection        | The device supports to enable or disable the loopback function of each port.<br>Choose <Enable> to enable the function of the ports needed to be set.  | Enable        |

- Click <Modify>.
- Click <Save>.

2) View the loopback protect information.

- Click <Refresh> to reload the page.
- View the information.

## 12.4 ERPS Ring

Ethernet Ring Protection Switching (ERPS) is defined in ITU-T G.8032 Recommendation. It prevents logical loops on a ring network by blocking redundant links.

ERPSv1 supports only the single-ring topology. When there is no faulty link on a ring network, ERPS can eliminate loops on the network. When a link fails on the ring network, ERPS can immediately restore the communication between the nodes on the network. Compared with other ring network protocols, ERPS has the following advantages:

- The network converges fast.
- ERPS is a standard protocol published by the ITU-T; therefore devices from different vendors can communicate with each other when they run ERPS.



ERPS works for ERPS rings. An ERPS ring consists of interconnected Layer 2 switching devices configured with the same control VLAN and data VLAN. Logically, an ERPS ring is a necessity before you configure other related functions.

<> Reliability >> ERPS Ring

| ERPS Ring Configuration  |                      |                |                |
|--|----------------------|----------------|----------------|
| Ring Number  | <input type="text"/> |                |                |
| East Interface   | eth0/1               |                |                |
| West Interface   | eth0/1               |                |                |
| <input type="button" value="Apply"/> <input type="button" value="Delete"/>                                     |                      |                |                |
| ERPS Ring configuration Display  |                      |                |                |
| Select   | Ring Number          | East Interface | West Interface |
| <input type="button" value="Refresh"/> <input type="button" value="Save"/> <input type="button" value="Help"/> |                      |                |                |

## Procedure

Choose <Reliability> <ERPS Ring> in the navigation tree to open the page.

- 1) Create an ERPS Ring.

| Items          | Descriptions   | Default value |
|----------------|--|---------------|
| Ring Number    | Input the number of ERPS Ring.<br>The value ranges from 1 to 16. | Null          |
| East Interface | Select the interface that in the ERPS Ring.                      | Null          |
| West Interface | Select the interface that in the ERPS Ring.                      | Null          |

- 2) Click <Save>.

## 12.5 ERPS Instance

The VLAN in which ERPS PDUs and data packets are transmitted must be mapped to a protected instance so that ERPS forwards or blocks the packets based on rules. If the mapping is not performed, the preceding packets may cause broadcast storms on the ring network, leading to the network failure.

<> Reliability >> ERPS Instance

| ERPS Instance Configuration  |   |    |             |       |           |                 |                  |                     |
|--|---|----|-------------|-------|-----------|-----------------|------------------|---------------------|
| ERPS protocol  | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |    |             |       |           |                 |                  |                     |
| Name   | <input type="text"/>  |    |             |       |           |                 |                  |                     |
| ID   | <input type="text"/> (0-15)   |    |             |       |           |                 |                  |                     |
| Ring Number  | <input type="text"/>  |    |             |       |           |                 |                  |                     |
| Level  | <input type="text"/> Optional   |    |             |       |           |                 |                  |                     |
| RAPS Vlan  | <input type="text"/> Only one vlan can be configured                  |    |             |       |           |                 |                  |                     |
| Owner Interface  | none  |    |             |       |           |                 |                  |                     |
| Subring Blocking   | none  |    |             |       |           |                 |                  |                     |
| Associated Instance  | <input type="text"/> Optional(0-15)                                   |    |             |       |           |                 |                  |                     |
| <input type="button" value="Apply"/> <input type="button" value="Delete"/>                                     |   |    |             |       |           |                 |                  |                     |
| ERPS Instance Configuration Display  |   |    |             |       |           |                 |                  |                     |
| Select   | Name  | ID | Ring Number | Grade | RAPS Vlan | Owner interface | Subring Blocking | Associated instance |
| <input type="button" value="Refresh"/> <input type="button" value="Save"/> <input type="button" value="Help"/> |   |    |             |       |           |                 |                  |                     |

## Procedure

Choose <Reliability> <ERPS Instance> in the navigation tree to open the page.

- 1) Configure the ERPS instance as required.

| Items         | Descriptions  | Default value |
|---------------|---|---------------|
| ERPS Protocol | Choose <Enable> to enable the loopback detection function for the device. | Null          |
| Name          | Name the ERPS instance.   | Null          |
| ID            | Input the ID of the ERPS instance.  | Null          |
| Ring Number   | Choose the number of the ERPS Ring that the instance linking with.        | Null          |

|                      |   |      |
|----------------------|---|------|
| Level                | Define the ERPS Ring level. This parameter is optional.   | Null |
| RAPS VLAN            | Configure the control VLAN of the ERPS Ring.<br>The RAPS VLAN specified here must be a VLAN that has not been created or used.  | Null |
| Owner Interface      | Choose the owner interface of the ERPS Ring.<br>The link where the RPL Owner port resides is a ring protection link.<br>An ERPS ring has only one RPL Owner interface.<br>Blocking the RPL Owner interface prevents loops in the ERPS ring. | None |
| Subring Blocking     | Select the subring of the ERPS Ring.<br>The protecting instance of the subring is 0 in default.   | None |
| Associating Instance | Define the associating ERPS interface of subring. This parameter is optional.   | Null |

2) Click <Save>.

## 12.6 VRRP Setting

The Virtual Router Redundancy Protocol (VRRP) groups multiple routing devices into a virtual router. One device functions as the master, and the others as the backup devices. When the next hop device of the master device fails, VRRP switches services to a backup device. This implementation ensures nonstop service transmission and reliability.

### Procedure

Choose <Reliability> <VRRP Setting> in the navigation tree to open the page.

1) Configure VRRP

- Set the parameters as required.

| Items | Descriptions  | Default value |
|-------|---|---------------|
| VRID  | Input the virtual router ID.<br>The value ranges from 1 to 255. | Null          |
| VLAN  | Choose the primary IP address.                                  | VLAN1         |

|                       |   |          |
|-----------------------|---|----------|
| Interface             | It is selected from one of actual IP addresses of interfaces. Usually, it is the first configured IP address. The primary IP address is often used as the source IP address for VRRP broadcast packets. |          |
| Priority              | Input the priority of a VRRP router. The virtual router selects the master and backup devices based on the priority.<br>The value ranges from 1 to 254.   | 100      |
| Preemption Mode       | Choose the preemption mode, including <ul style="list-style-type: none"> <li>· Election</li> <li>· No Election</li> </ul>   | Election |
| Preemption Delay      | Input the time of preemption delay.   | 0        |
| Authentication Method | Choose the type of authentication method, including <ul style="list-style-type: none"> <li>· Plaintext Key</li> <li>· MD5 Key</li> </ul> Choose <No Auth> to disable the authentication function.       | No Auth  |
| Authentication Word   | Input the authentication key.   | Null     |
| Virtual IP            | Input the IP address of virtual router.<br>A virtual router can be assigned one or more virtual IP addresses. Virtual IP addresses are configurable.  | Null     |

- Click <Save>.
- 2) View the VRRP configuration.
- Click <Refresh> to reload the page.
  - View the information.

# 13 Alarm Management

## 13.1 Alarm Host

The switch supports relay alarm function. After setting, the Web system will alarm in the following three cases:

- Power supply off
- Port network disconnected
- Port PoE off

[<> Alarm Management >> Alarm Host](#)

|  |   |
|--|---|
| <b>Alarm Host</b>  | <input type="radio"/> Enable <input checked="" type="radio"/> Disable   |
| <b>Alarm Type</b>  | <input type="radio"/> Normal Open <input checked="" type="radio"/> Normal Close   |
| <input checked="" type="checkbox"/> Power Supply<br>Triggering Condition: Either power supply is powered down      |   |
| <input checked="" type="checkbox"/> Port Network<br>Triggering Condition: Network of ports get from ON to OFF      | All <input checked="" type="checkbox"/> T1 <input checked="" type="checkbox"/> T2 <input checked="" type="checkbox"/> T3 <input checked="" type="checkbox"/> T4 <input checked="" type="checkbox"/> T5 <input checked="" type="checkbox"/> T6 <input checked="" type="checkbox"/> T7 <input checked="" type="checkbox"/> T8 <input checked="" type="checkbox"/> X1 <input checked="" type="checkbox"/> X2 <input checked="" type="checkbox"/> X3 <input checked="" type="checkbox"/> X4 <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> Port PoE<br>Triggering Condition: PoE power supply of ports get from ON to OFF | All <input checked="" type="checkbox"/> T1 <input checked="" type="checkbox"/> T2 <input checked="" type="checkbox"/> T3 <input checked="" type="checkbox"/> T4 <input checked="" type="checkbox"/> T5 <input checked="" type="checkbox"/> T6 <input checked="" type="checkbox"/> T7 <input checked="" type="checkbox"/> T8 <input checked="" type="checkbox"/>   |

### Procedure

Choose <Alarm Management > <Alarm Host> in the navigation tree to open the page.

- 1) Enable the Alarm host function.
- 2) Configure the function as required.

| Items        | Descriptions   | Default value |
|--------------|--|---------------|
| Alarm Type   | Select "Normal Open".  | Normal Close  |
| Power Supply | Select to enable the power supply alarm function.<br>When the main power supply or backup power supply is off, the "Power Supply" area will turn red, please check the power supply.   |               |
| Port Network | Select to enable the port network alarm function. Select the ports as required.<br>When the linking port is disconnected, "Port Network" area and the link down ports will turn red, and the please check the network cable. | All           |
| Port PoE     | Select to enable the Port PoE alarm function. Select the ports as required.<br>When the port stops supplying PoE power, the "Port PoE" area and the PoE off ports will turn red, please check the PoE function.              | All           |

# 14 System Management

## 14.1 Port mirroring

Packet mirroring copies the packets on a mirrored port (source port) to an observing port (destination port).

During network maintenance, maintenance personnel need to capture and analyze packets (for example, when there are suspicious attack packets). However, these operations always affect packet forwarding.

Packet mirroring copies packets on a mirrored port to an observing port so that users can analyze packets copied to the destination port by a monitoring device to monitor the network and rectify faults.

Users can configure the source interface and target interface of mirror. The function supports 1 to 1 and many to 1 modes.

### Procedure

Choose <System Management> <Port mirroring> in the navigation tree to open the page.

1) Configure the port mirroring function.

- Set the parameters as required.

| Items             | Descriptions  | Default value |
|-------------------|---|---------------|
| Port mirror       | Choose <Enable> to enable the function.   | Disable       |
| Monitor Port      | Indicate the monitor port number.<br>The value ranges from 1 to 28.   | Null          |
| Mirror Port Range | The port number range of mirror ports, Multiple ports can be selected. The value ranges from 1~28. Format as “2” or “1-5” or “3, 1-5”.  | Null          |
| Collect Data      | The packets that the need to be copied and monitored on the mirrored ports, including <ul style="list-style-type: none"> <li>• All data</li> <li>• Input data</li> <li>• Output data</li> </ul> | All data      |

- Click <Modify>.
- Click <Save>.

2) View the port mirroring configuration.

- Click <Refresh> to reload the page.
- View the information.

## 14.2 SNMP

As a network management standard protocol used on TCP/IP networks, SNMP uses a central computer (NMS) that runs network management software to manage network elements.

In a large network, it is very difficult for network administrator to detect, locate and rectify the fault as the devices does not report the fault. This affects maintenance efficiency and increases maintenance workload. To solve this problem, equipment vendors have provided network management functions in some products. The NMS then can query the status of remote devices, and devices can send traps to the NMS in the case of particular events.

Users can configure the function of the SNMP community permission and SNMP V3.

### Procedure

Choose <System Management> <SNMP> in the navigation tree to open the page.

1) Configure SNMP community permission.

- Set the parameters as required.

| Items              | Descriptions  | Default value |
|--------------------|---|---------------|
| SNMP Configuration | Choose <Enable> to enable the function.   | Disable       |
| SNMP Gateway       | Input the IP address of the server.   | Null          |
| SNMP Version       | Choose the SNMP version, including <ul style="list-style-type: none"> <li>· SNMP V1</li> <li>· SNMP V2</li> </ul> | SNMP V2       |
| Read-only          | Indicate the name of SNMP community for read-only   | public        |

|                           |   |         |
|---------------------------|---|---------|
| Group Name                | permission.<br>The value supports strings.  |         |
| Read and Write Group Name | Indicate the name of SNMP community for read and write permission.<br>The value supports strings. | private |

- Click <Save>.

## 2) Configure SNMP V3

- Set the parameters as required.

| Items                   | Descriptions  | Default value |
|-------------------------|---|---------------|
| User name               | Indicates the user name.<br>The value supports 31 stings  | Null          |
| Read and Write Mode     | Choose the read and write mode, including <ul style="list-style-type: none"> <li>· Read-only</li> <li>· Read and Write</li> </ul> | Read-only     |
| Identity Authentication | Choose the identity authentication, including <ul style="list-style-type: none"> <li>· MD5</li> <li>· SHA</li> </ul>              | MD5           |
| Verify Password         | Indicates the Authentication password, supporting 8-32 digits strings.  | Null          |
| Encryption Protocol     | Choose the Encryption Protocol, including <ul style="list-style-type: none"> <li>· DES</li> <li>· AES</li> <li>· 3DES</li> </ul>  | DES           |
| Encryption Password     | Indicates the Encryption password, supporting 8-32 digits strings.  | Null          |

- Click <Save>.

## 3) View SNMP configuration.

- Click <Refresh> to reload the page.
- View the information.

## 14.3 Time

Users can set time of the device by choosing local time or NTP server.

By default the device supports local time setting.

Time Setting

Local Time  Using NTP

World Time Zone: (GMT+08:00) China, Hong Kong, Australia Western ▼

Automatically adjust daylight saving time

NTP Sever: 192.168.1.16 (Optional)

System Time: 04/17/2020 14:42:41

PC Time: 04/17/2020 14:27:22 Friday

Save Refresh

### Procedure

Choose <System Management> <Time> in the navigation tree to open the page.

1) Local time.

Time Setting

Local Time  Using NTP

World Time Zone: (GMT+08:00) China, Hong Kong, Australia Western ▼

Automatically adjust daylight saving time

NTP Sever: (Optional)

System Time: 04/24/2020 12:05:12

PC Time: 04/24/2020 11:48:53 Friday Update Time

· Set the parameters as required.

| Items           | Descriptions   | Default value |
|-----------------|--|---------------|
| World Time Zone | Choose time zone in drop down list.                                  |               |
| System Time     | Display the current time of the system.                              | -             |
| PC Time         | Display the current time of management PC.                           | -             |
| Update Time     | Click to update the <System Time> to synchronize with the <PC Time>. | -             |

· Click <Save>.

2) Using NTP.



**Time Setting**

Local Time
  Using NTP

**World Time Zone** (GMT+08:00) China, Hong Kong, Australia Western ▼

Automatically adjust daylight saving time

**NTP Sever**  ( Optional )

- Choose <Using NTP>.
- Set the parameters as required.

| Items      | Descriptions                        | Default value |
|------------|-------------------------------------|---------------|
| NTP Server | Input the IP address of NTP server. | Null          |

- Click <Save>.

## 14.4 Syslog

Users can view, download and clear the system log, including

- Operation information
- Network link
- Warning information

Log Information

Log  Enable  Disable

Show Type Network Link ▼

Information Processing

| Index | Type | Time | Event |
|-------|------|------|-------|
|-------|------|------|-------|

## Procedure

Choose <System Management> <Syslog> in the navigation tree to open the page.

**Log Information**

Log  Enable  Disable

Show Type Network Link ▼

Information Processing

- 1) Configure system log function.
- Set the parameters as required.

| Items     | Descriptions  | Default value   |
|-----------|---|-----------------|
| Log       | Choose <Enable> to enable the function.   | Disable         |
| Show type | Choose the contents of the system log, including <ul style="list-style-type: none"> <li>· All Information</li> <li>· Operation information</li> <li>· Network link</li> </ul> | All Information |

|  |                       |  |
|--|-----------------------|--|
|  | · Warning information |  |
|--|-----------------------|--|

- Click <Refresh>.
- 2) Clear the system log records.
- Click <Clear All> to delete the displayed log.
  - Click <Refresh>.
- 3) Download the system log records.
- Click <Download All> to download the displayed log.

**Note:**

- The system log can't be recovered after clear operation.

## 14.5 Management

Users can restore the factory value, reboot the system, download the actual configuration file, upload configuration file, and upgrade the software version.

### Restore Factory Value

Restore Factory Value:

### System Reboot

System Reboot:

### Configuration File

Download Configuration File:

Upload Configuration File:  No file chosen

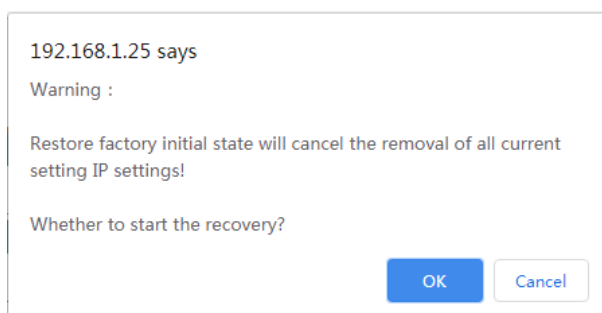
### System Upgrade (Recommend using uplink to upgrade)

Choose upgrade file:  No file chosen

## Procedure

Choose <System Management> <Management> in the navigation tree to open the page.

- 1) Restore factory value.
- Click <Start> under <Restore Factory Value>.



- Click <OK>.
- 2) Reboot the system.
- Click <Start> under <System Reboot>.



- Click <OK>.
- 3) Manage the configuration file.
- Click <Download> under <Configuration File>.
  - The configuration file will be downloaded.
- 4) Upload configuration file.
- Click <Choose File> under <Configuration File>.
  - Click <Upload>.

**Note:**

- The actual configuration will be covered after uploading configuration file operation. Please download your configuration file before uploading, or the latest configuration can't be recovered.

- 5) Upgrade the software version.
- Click <Choose File> under <System Upgrade>.
  - Click <Start>.

**Note:**

- To upgrade the software version, please contact the seller for the software package.
- After software upgrade, please press the <Init> key on the front panel for 5s, to make sure the new version software will work normally.

## 14.6 User Setting

The Web system manages users at levels.

User levels are marked by numbers from 1 to 15, in ascending order.

The access privilege of user is determined by the level of this user.

| User Setting  |                          |          |  |
|---|--------------------------|----------|--|
| Access Privilege  | 15                       |          |  |
| Username  | <input type="text"/>     |          |  |
| Input password  | <input type="password"/> |          |  |
| Confirm password  | <input type="password"/> |          |  |
| <input type="button" value="Add"/> <input type="button" value="Edit"/> <input type="button" value="Del"/> |                          |          |  |
| Index   | Access Privilege         | Username |  |
| 1   | 15                       | admin    |  |
| <input type="button" value="Refresh"/> <input type="button" value="Save"/>                                |                          |          |  |

## Procedure

Choose <System Management> <User Setting> in the navigation tree to open the page.

1) Create username.

| User Setting     |                          |
|------------------|--------------------------|
| Access Privilege | 15 ▼                     |
| Username         | <input type="text"/>     |
| Input password   | <input type="password"/> |
| Confirm password | <input type="password"/> |

· Set the parameters as required.

| Items            | Descriptions   | Default value |
|------------------|--|---------------|
| Access Privilege | Choose the user level, from 1 ~ 15.<br>· With lower than 3 level, the users are only allowed the read permission.<br>· With 3 and higher than 3 lever, the users are allowed the read, create and delete permission. | 15            |
| User name        | Input the username, supporting 32 digits of letters or numbers.  | Null          |
| Input password   | Input the password, support 16 digits of letters or numbers.   | Null          |
| Confirm password | Confirm the password.<br>The value must be the same as <Input password>.   | Null          |

· Click <Add>.

· Click <Save>.

2) Delete username.

· Choose the username that need to be deleted.

· Click <Del>.

· Click <Save>.

3) View the usernames.

· Click <Refresh>.

· View the information.

### 14.7 Manage IP Address

Users can configure the outband IP address of loopback interfaces.

The device supports 4 IP addresses.

| Manage IP Address |  |
|-------------------|--|
| Master IP Addr.   | <input type="text" value="192.168.2.200/24"/> (Such as: 1.1.1.1/24)            |
| 2nd IP Addr.      | <input type="text"/>   |
| 3rd IP Addr.      | <input type="text"/>   |
| 4th IP Addr.      | <input type="text"/>   |
| Manage type       | Outband ▾ <a href="#">Inband IP setting please refer &gt;&gt; Interface IP</a> |

## Procedure

Choose <System Management> <User Setting> in the navigation tree to open the page.

| Manage IP Address |  |
|-------------------|--|
| Master IP Addr.   | <input type="text" value="192.168.2.200/24"/> (Such as : 1.1.1.1/24)           |
| 2nd IP Addr.      | <input type="text"/>   |
| 3rd IP Addr.      | <input type="text"/>   |
| 4th IP Addr.      | <input type="text"/>   |
| Manage type       | Outband ▾ <a href="#">Inband IP setting please refer &gt;&gt; Interface IP</a> |

1) Configure the IP addresses of loopback interfaces.

- Set the parameters as required.

| Items           | Descriptions                                 | Default value   |
|-----------------|--|-----------------|
| Master IP Addr. | Input the master IP address and subnet mask. | 192.168.2.200/8 |
| 2nd IP Addr.    | Input the 2nd IP address and subnet mask.    | Null            |
| 3rd IP Addr.    | Input the 3rd IP address and subnet mask.    | Null            |
| 4th IP Addr.    | Input the 4th IP address and subnet mask.    | Null            |

- Click <Add>.
- Click <Save>.