KY-3120DM

Industrial Ethernet Switch

User Guide

DYMEC
AMERICAN INDUSTRIAL

Dec 2, 2012
Version: 3.2

Table of Contents

Reversion History

Version	Date	Description
1.00	Sep 9, 2009	Initial release
2.00	Feb 9, 2010	Add new features
2.01	Jun 11, 2010	Update 2.11, add 2.14.3, 2.14.4, 2.14.5
2.02	Oct 22, 2010	1. Add kernel version item at system information page 2. Modify IGMP snooping MISC page 3. Add FRP Ring statistics at statistics tab
3.00	Jun 28, 2011	Add Command Line Interface(CLI)
3.1	Mar 22,2012	Software upgraded
3.2	Dec 3,2012	1. Added Product Photo 2. Modified Port Configuration 3. Modified Power Supply Option 4. Modified Physical and Environmental Parameters 5. Modified Ordering Information 6. Added Appendix Compatible SFP Module Information

1 Introduction

KY-3120DM Industrial Ethernet Switches are designed to meet various industrial application needs and provide customer with a high-end industrial Ethernet network communication solution. KY-3120DM high availability and reliability, as well as the rich security features make it ideal for data transmission securely. KY-3120DM provides powerful management capabilities, and can be managed through Web. It is designed to apply dual power supplies for redundancy with wide DC input range and support DIN rail and panel mounting for installation in industrial environments.

“Fast Ring Protection” (FRP) is designed especially for industrial applications, providing fast Ethernet ring protection and recovery within 30ms. From the management interface, users can choose either port from normal Ethernet port or trunk port to form an Ethernet ring for faster recovering and wider bandwidth.

1.1 Features

- Fast Ring Protection (FRP), Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP) for Ethernet ring protection and quick recovery.
- Supports 8K MAC addresses with MAC address auto learning and upgrade function
- Supports 4K VLAN, supports 802.1Q, port based, protocol based VLAN; supports Generic Attribute Registration Protocol (GARP) and GARP VLAN Registration Protocol (GVRP) for flexible network planning and management
- Dual power input for high reliability
- Static and dynamic port aggregation for bandwidth management
- Port rate limit, broadcast storm control, port mirroring, rich Quality of Service (QoS) features for data traffic control and management
- Storm control for any combination of multicast, broadcast and DLF traffic
- Supports Blackhole MAC address filtering, static and dynamic MAC address management for network security
- Supports Access Control List (ACL)
- Supports 802.1x, IGMP snooping, SNTP and SMTP
- Web management interface and CLI for network management
- SNMP V1, V2c, V3; supports RMON statistics, history, alarm and event
- On line firmware upgrade
- Two privilege level accounts
- Syslog
- DIN rail or panel mounting for easy installation

1.2 Product Photo

KY-3120DM – IP 40, Class 1, Division 2 Hazardous Area

1.3 Port Configuration

Model	Port Configuration
KY-3120DM	16x10/100BaseTX ports + 4x1000BaseX (SFP slots) + 1 x Console port

1.4 Power Supply Options

- Input Voltage: 24VDC (12 ~ 36VDC), with redundant dual inputs
- Input current:<0.55A@24VDC
- Overload Current Protection: Present
- Reverse Polarity Protection: Present
- Connector: 6-contact terminal blocks

1.5 Physical and Environmental

- Dimension: 60.2 x 115.5 x 138.5 mm
- Weight: 760g
- Housing: Metal, IP30 protection
- Operating Temperature: -40°C ~ +85°C (-40 ~ 185°F)
- Storage Temperature: -40°C ~ +85°C (-40 ~ 185°F)
- Relative Humidity: 10% ~ 95%, non-condensing
- Installation: DIN-Rail mounting, wall mounting

1.6 Default Configuration

(1) Administration

IP:

IP Address: 192.168.0.253
IP Sub network: 255.255.255.0
IP Gateway: 192.168.0.201

Accounts:

User Level:	User	Administrator
User Name:	manager	superuser
Password:	123	123

(2) Port

State: enabled
Flow Control: disabled
Learning: enabled
Rate limit: disabled
Negotiation: disabled (fiber port)
enabled (copper port)

(3) VLAN

VLAN mode: None
Static VLAN: 1, including all ports
Port VID: 1
Port link type: hybrid
Frame type: admit all

(4) Protocols

Spanning tree: disabled
802.1x: disabled
LACP: disabled
GARP/GVRP: disabled
IGMP Snooping: disabled
FRP disabled

(5) SNMP

Community Name: public
Privilege: RO

1.7 Management Software Specification

The following table summarizes the protocols supported by the Industrial Ethernet switch in the current released software.

TCP/IP	ARP, ICMP, IP, TCP and UDP
Web management server	Http Server. Supports goahead-2.1.8. Java scripts, Java Applet and CGI
Spanning Tree Protocol	IEEE 802.1d/1w
Four-level priority queuing	IEEE 802.1p
Port-based VLAN	SVL
Tag-based VLAN	IEEE 802.1q (IVL and SVL), GVRP
Protocol-based VLAN	IEEE 802.1v
Trunking	IEEE 802.3ad, LACP

Authentication	IEEE 802.1x
RMON	RFC1757
SMTP	RFC2821
SNTP	RFC2030
IGMP Snooping	RFC2236

2 Web Management Function

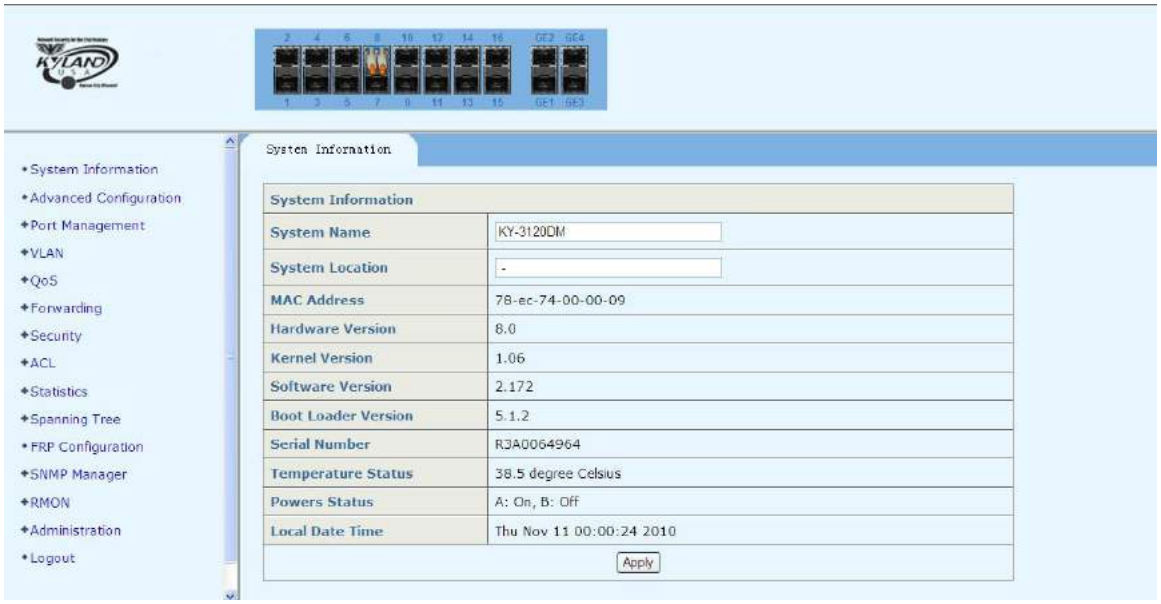
The switch can be managed and monitored via a Web browser. The default login user name and password are given in Section 1.5 of this manual. Go to http://192.168.0.253 , type user name and password as shown in Section 1.5 to log in to the switch.

2.1 Conventions

Convention	Description
Boldface	Keywords are in **Boldface**.
italic	Tab page names are in *italic.*
<>	Button names are in <>.

2.2 System Information

After login, the System Information page is shown, displaying the basic information of the switch as below.



2.3 Advanced Configuration

This page is to configure the following functions and protocols globally enabled or disabled:

- IGMP Snooping
- IGMP Flood
- GVRP
- STP
- LACP
- IEEE 802.1x
- FRP

2.4 Port Management

This page configures port related management functions:

1. Port Configuration
2. Port Aggregation
3. Port Bandwidth
4. Port Mirroring

2.4.1 Port Configuration

This page is used to configure the ports. Click <Apply> to activate the settings.

A list of port status is at the bottom of the page as shown follows.

Port: Specify the port to configure.

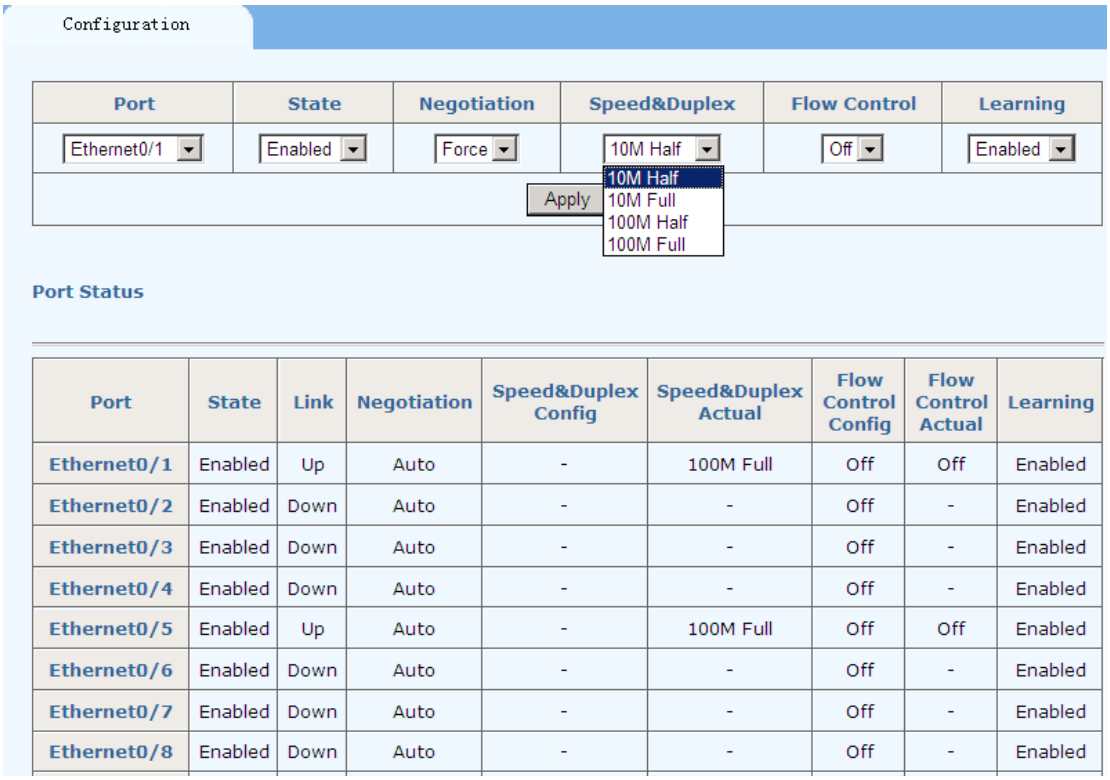
State: Enable/disable the state function. Only when it is enabled, can **Negotiation**, **Speed & Duplex**, **Flow Control** and **Learning** be configured.

Negotiation: There are two selections: Force and Auto. “Auto” provides a mechanism for exchanging configuration information between two ends of a link segment, and automatically selecting the highest performance mode of operation supported by both devices if it is enabled, and “Force” makes the possibility to manually configure **Speed & Duplex**, **Flow Control** and **Learning**.

Speed & Duplex: There are four selections: 10M Half, 10M Full, 100M Half and 100MFull.

Flow Control: Flow control can eliminate frame loss by “blocking” traffic from end station or segment connected directly to KY-3120DM. The parameter allows flow control to be enabled or disabled. If it is disabled, the port operates at full speed.

Learning: Enable/disable port MAC learning function.



2.4.2 Port Aggregation

KY-3120DM supports up to 13 link aggregation groups, and each group can have up to 8 ports.

This page sets link aggregation. There are two types of aggregation: manual and static.

Manual aggregation: A manual trunk can only be manually set or deleted; any port in a manual trunk shall have this port's Link Aggregation Control Protocol (LACP) disabled, while the global LACP can be either enabled or disabled.

Static LACP aggregation: A static LACP trunk can only be manually set or deleted; any port in a static LACP trunk shall have this port's Link LACP enabled. When a static LACP trunk is (manually) deleted, all ports of this trunk with "up" status will generate one or more dynamic LACP trunk(s) automatically.

A trunk may be configured as a mirror port, but it is not allowed to configure a trunk as a monitoring port.

There are four tabs on this page to configure various parameters:

(1)*Aggregate Groups* – Create and configure a trunk.

The switch can have up to 13 trunks.

Trunk ID: 13 trunk IDs in the drop-down list of (from T1 to T13).

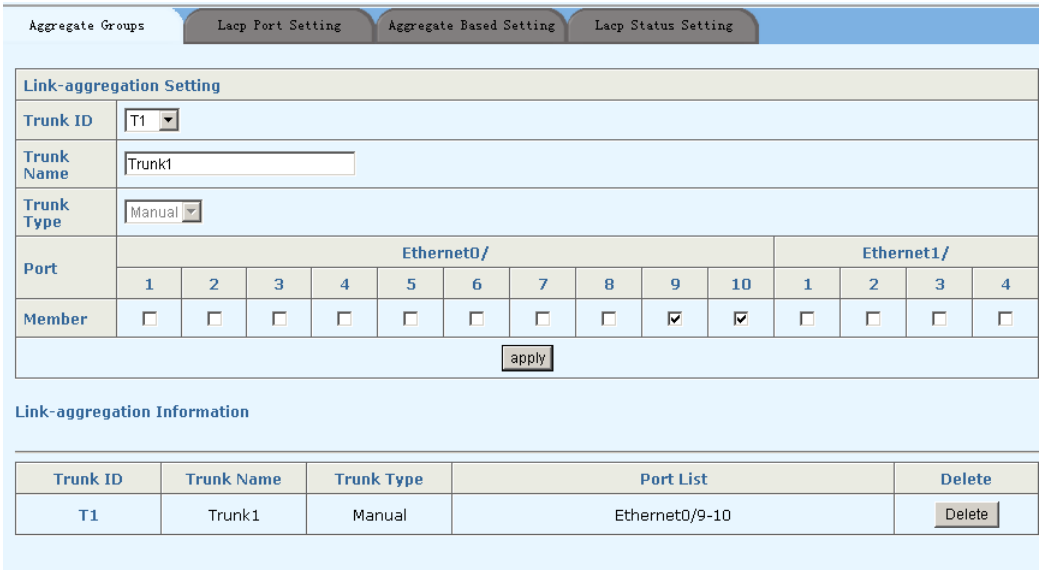
Trunk Name: To give a name for the selected trunk.

Trunk Type: This drop-down list includes manual trunk and static LACP trunk.

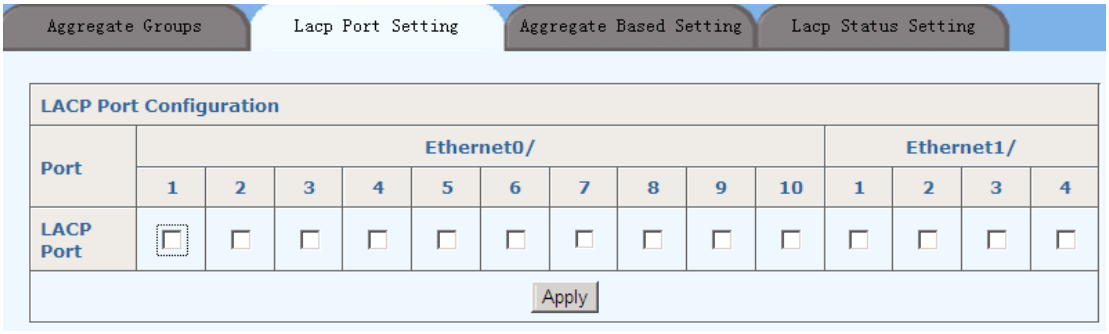
Port: To choose up to 8 ports to form the trunk.

The bottom part of this tab page lists all existing trunks.

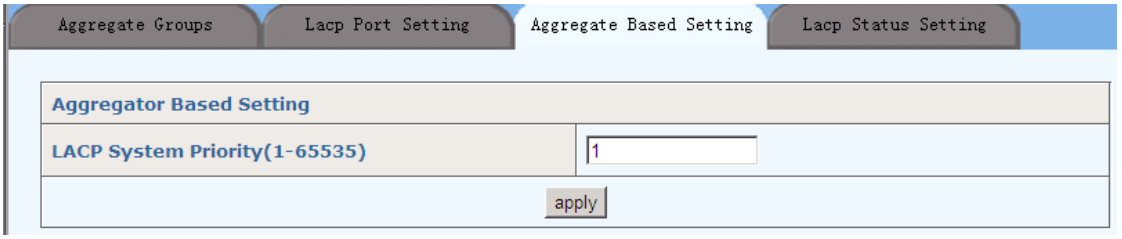
Note: Only when **LACP** in **Advanced Configuration** page is enabled, can **Trunk Type** be selected; otherwise, the **Trunk Type** is **Manual** by default.



Lacp Port Setting – Configure LACP port



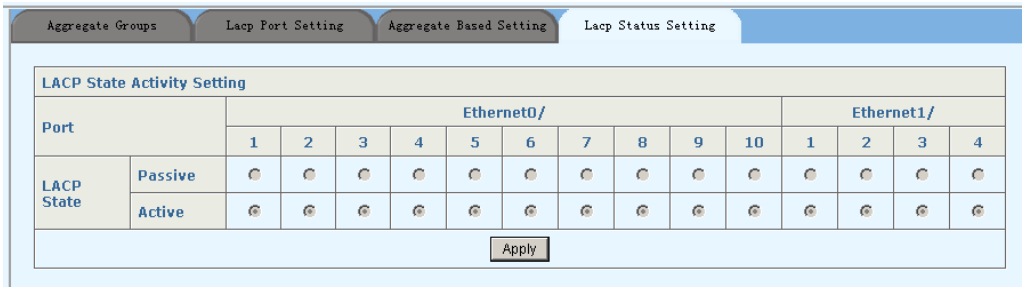
Aggregate Based Setting – Set LACP system priority (1 to 65535).



Lacp Status Setting – Set LACP status for each port (Active or Passive).

Active: The port automatically sends LACP protocol packets.
Passive: The port does not automatically send LACP protocol packets. It only responds when it receives an LACP protocol packet from the opposite device.

A link having one or two active LACP ports can perform dynamic LACP Trunking. A link having two passive LACP ports will not perform dynamic LACP Trunking, as both ports are waiting for LACP protocol packets from the opposite device.



2.4.3 Port Bandwidth

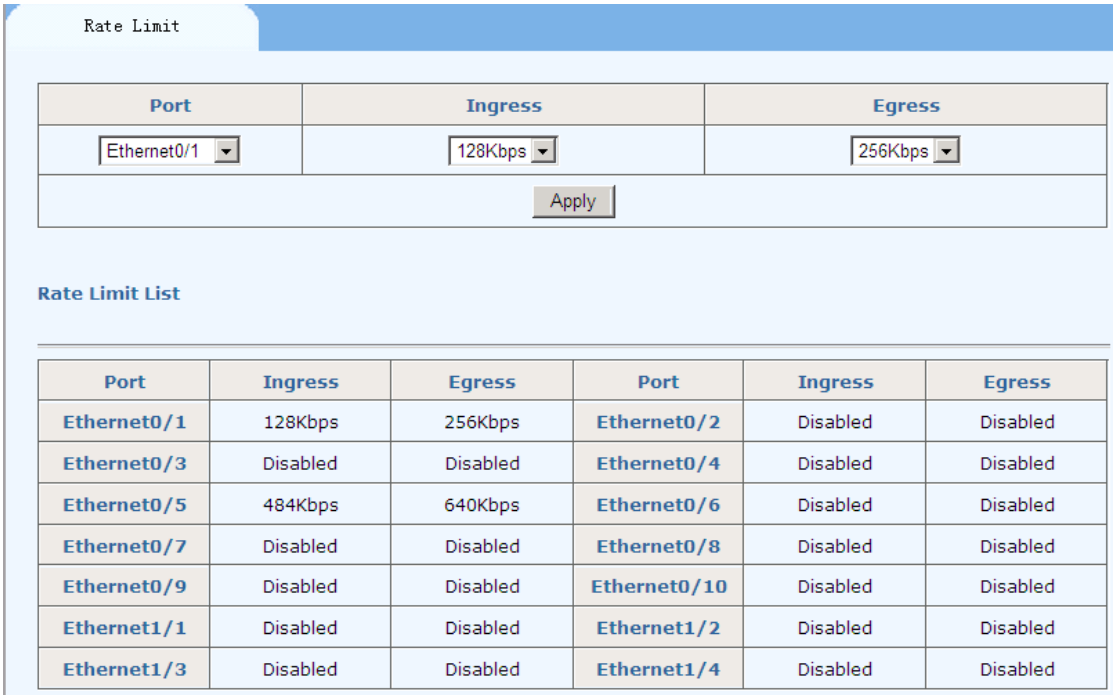
This page sets ingress and/or egress rate limit for each port.

Port: The port for which rate limit is configured.

Ingress: The desired ingress rate limit, select “disable” to disable ingress rate limit, which means the port will run in full speed for ingress traffic.

Egress: The desired egress rate limit, select “disable” to disable egress rate limit, which means the port will run in full speed for egress traffic.

Click <apply> to activate the configurations. The bottom part of this page shows a list of rate limits for each port.



Port	Ingress	Egress	Port	Ingress	Egress
Ethernet0/1	128Kbps	256Kbps	Ethernet0/2	Disabled	Disabled
Ethernet0/3	Disabled	Disabled	Ethernet0/4	Disabled	Disabled
Ethernet0/5	484Kbps	640Kbps	Ethernet0/6	Disabled	Disabled
Ethernet0/7	Disabled	Disabled	Ethernet0/8	Disabled	Disabled
Ethernet0/9	Disabled	Disabled	Ethernet0/10	Disabled	Disabled
Ethernet1/1	Disabled	Disabled	Ethernet1/2	Disabled	Disabled
Ethernet1/3	Disabled	Disabled	Ethernet1/4	Disabled	Disabled

2.4.4 Port Mirroring

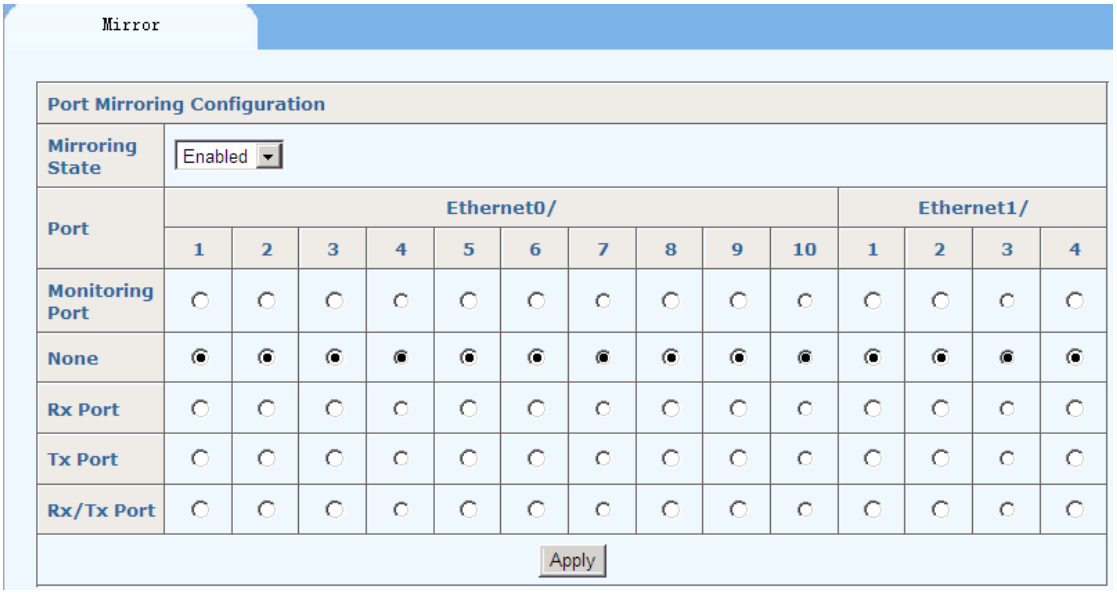
This page configures port mirroring function. **Mirroring Status** can be set to “Disabled” or “Enabled”.

Monitoring Port: The monitoring port(s), the traffic is mirrored to it (them).

Rx Port: All ingress traffic of this port will be mirrored to each of the Monitoring Port.

Tx Port: All egress traffic of this port will be mirrored to each of the Monitoring Port.

Rx/Tx Port: All ingress and egress traffic of this port will be mirrored to each of the Monitoring Port



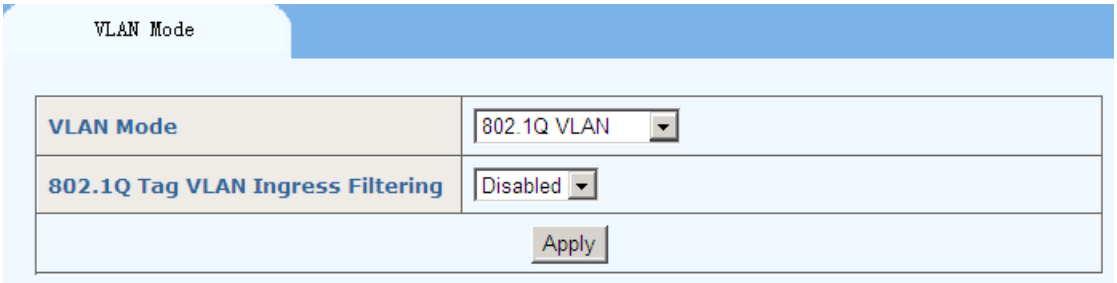
2.5 VLAN

The switch supports **802.1Q**, **port-based**, and **protocol-based VLAN**. 802.1Q VLAN is the default VLAN configuration.

2.5.1 Advanced

This page globally sets the VLAN mode to be **NO VLAN**, **802.1Q VLAN**, or **Port-based VLAN**.

802.1Q Tag VLAN Ingress Filtering may be enabled or disabled (by default). When enabled, an Ethernet package is discarded if this port is not a member of the VLAN with which this package is associated. When being disabled, all packages are forwarded in accordance with the 802.1Q VLAN bridge specification.

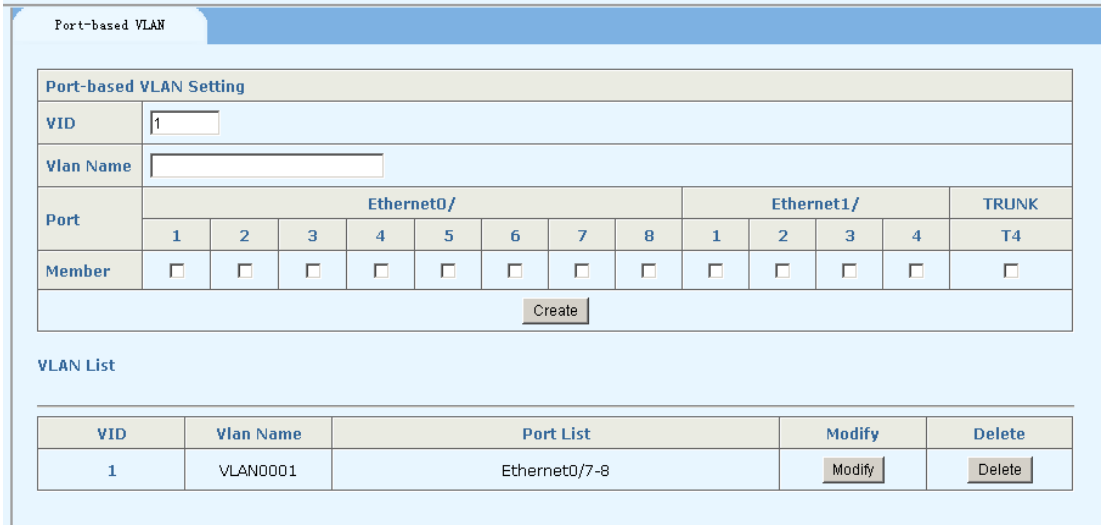


2.5.2 Port-based VLAN

In this page, user can create a new VLAN group with specific VID and VLAN group name. Up to 256 VLAN groups can be created; each VLAN group can have an ID number from 1 to 4094.

Member: Check to indicate the port is a member of the VLAN group.

The bottom part of this page lists all port-based VLAN groups that have been configured.



2.5.3 802.1Q VLAN

There is a default VLAN group with VLAN identifier (VID) of 1, each port is a member of this group by default, and remains as a member before it is removed from the group.

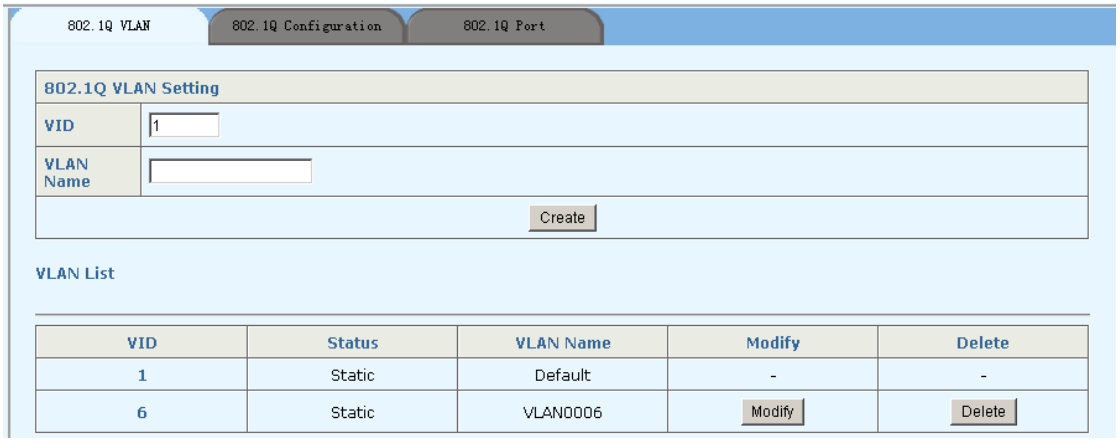
There are three tabs on this page for VLAN configuration.

(1)*802.1Q VLAN*

On this tab page, the user can create a new VLAN group with specific VID and VLAN group name. Up to 256 VLAN groups can be created; each VLAN group can have an ID number from 1 to 4094.

The bottom part of this page lists all existing VLAN groups, as well as the information of each VLAN group. Users can also modify or delete an existing VLAN group.

Note: It is not allowed to delete VLAN group 1.

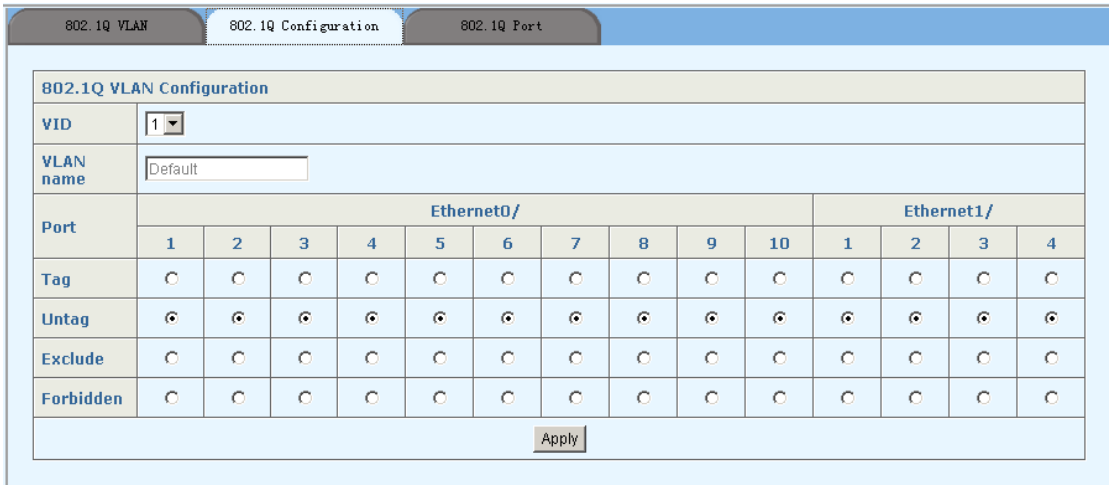


(2) 802.1Q Configuration

This tab page configures a VLAN group; each port can be configured as a specific state for this VLAN group:

Tag: Indicates the port is a tagged member of the VLAN group. All packets forwarded by the port are tagged. The packets contain VLAN information.

Untag: Indicates the port is an untagged VLAN member of the VLAN group. Packets forwarded by the port are untagged.
Exclude*:* Indicates the port is excluded from the VLAN group. However, the port can be added to the VLAN group through GARP.
Forbidden: Indicates the port is not allowed to be added to the VLAN group, even if GARP indicates so.



(3)*802.1Q Port*

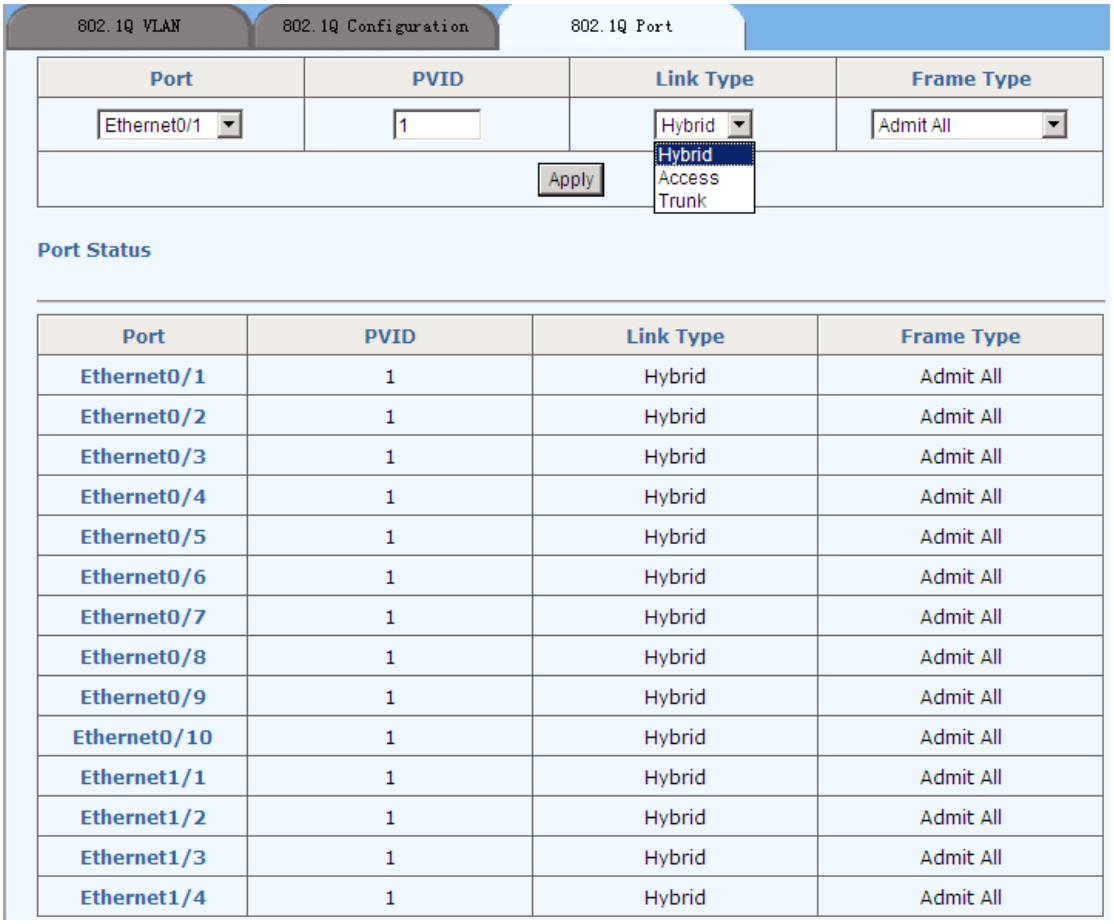
This tab page configures 802.1Q VLAN port parameters:

PVID: Each port can have only one Port VLAN ID (PVID), an untagged Ethernet package will be tagged a VID of PVID when arriving at the port. The default PVID is 1 for each port.

Link Type: The drop-down list contains **Access**, **Trunk** and **Hybrid** (by default). An **Access** port has only one VLAN and the tag is removed when it is sending data (i.e. Untagged); a **Trunk** port can have multiple VLANs, and all packages are tagged, except when an egress package is in a VLAN group with VID the same as PVID; a **Hybrid** port is similar as a **Trunk** port, except that it leaves the user more flexibility to configure each port as Tagged or Untagged.

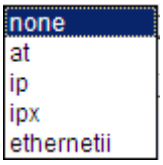
Frame Type: Specifies how the port accepts Ethernet package. When **Admit All** is selected, the port accepts all ingress packages; while **Admit Only Tagged** accepts tagged packages, and discards untagged ones.

The bottom part of this tab page lists the status of all ports.

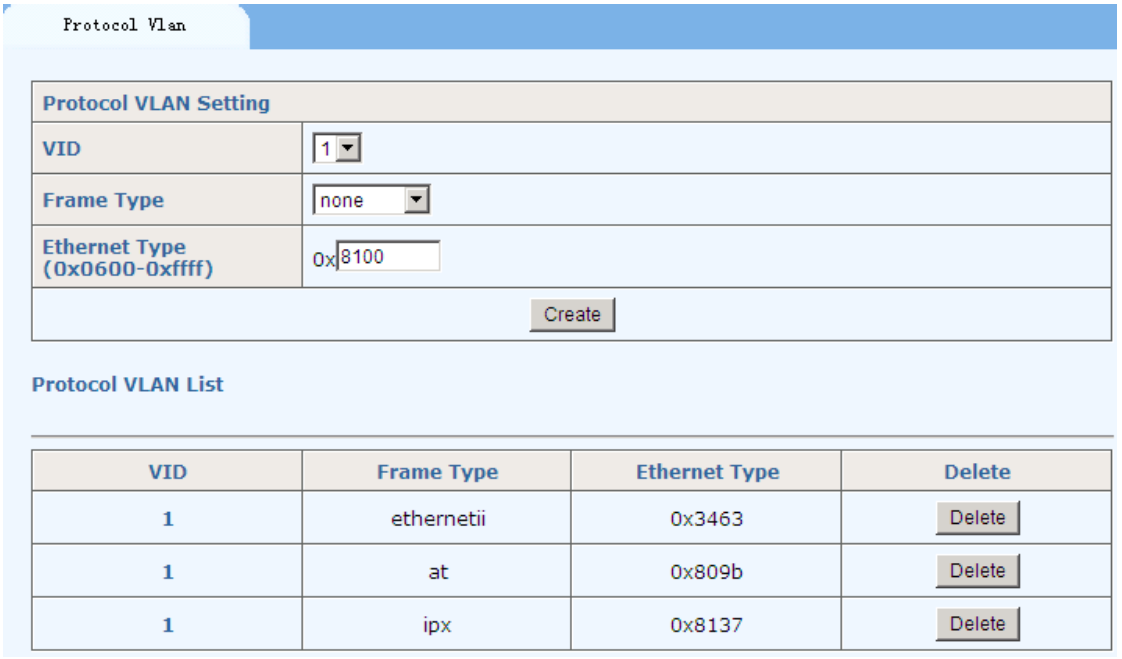


2.5.4 Protocol VLAN

This page configures protocol VLAN. Select an existing VLAN group from the drop-down list of VID. For this VLAN group, select the frame type. Ethernet Type is associated with the frame type selected, except for Ethernet II, for which the user can type in an Ethernet Type. There are five types frame types: none, at, ip, ipx and Ethernet.



The bottom part of this page lists all protocol VLAN groups configured.

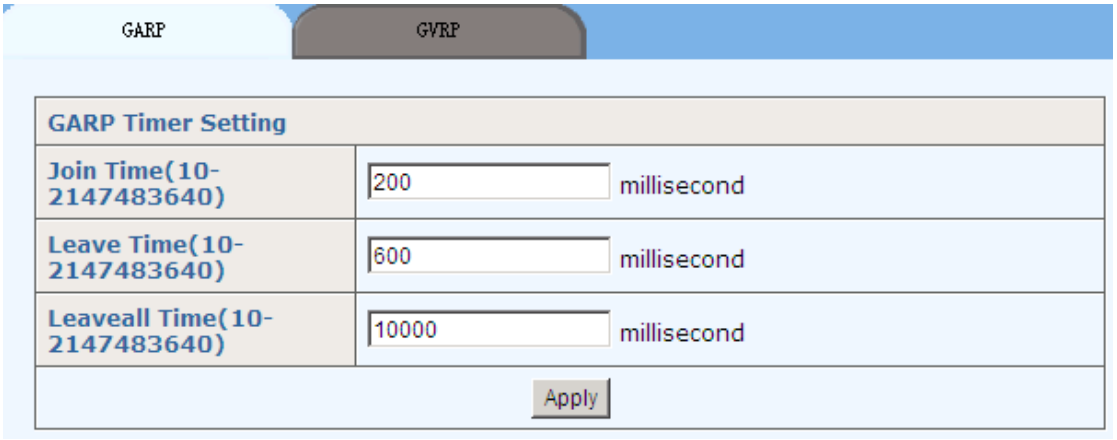


2.5.5 GARP

GARP VLAN Registration Protocol (GVRP) is based on Generic Attribute Registration Protocol (GARP). They are standard protocols described in IEEE 802.1D.

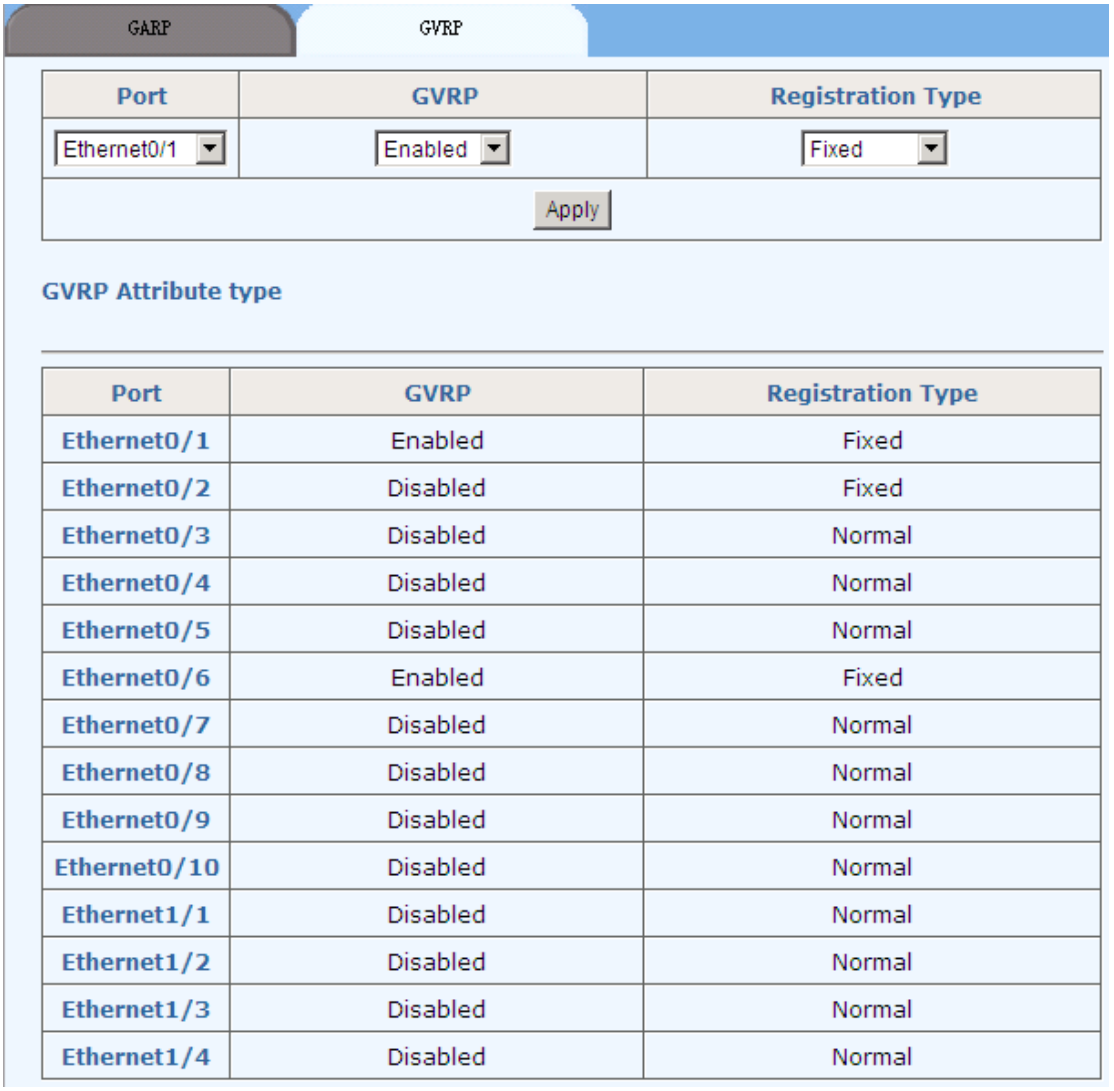
Before configuring GARP, make sure GVRP is enabled (see Section 2.3 of this manual for details). There are two tab pages:

GARP: This tab page sets GARP **Join Time**, **Leave Time**, and **Leaveall Time**. **Leaveall Time** must be greater than **Leave Time**, and **Leave Time** must be twice greater than **Join Time**.



GVRP: This tab page sets the GVRP parameters for each port. For a selected **Port**, if **GVRP** is enabled, the **Registration Type** can be set to **Normal** (default), **Fixed**, or **Forbidden**. **Normal** registration allows dynamic passing, registration, and de-registration of both dynamic and static VLANs; **Fixed** registration allows passing static VLANs, as well as manual registration and de-registration of VLANs; while **Forbidden** prohibits the port from passing, registration or de-registration of VLANs.

The bottom part of GVRP tab page lists the GVRP attribute of all ports.



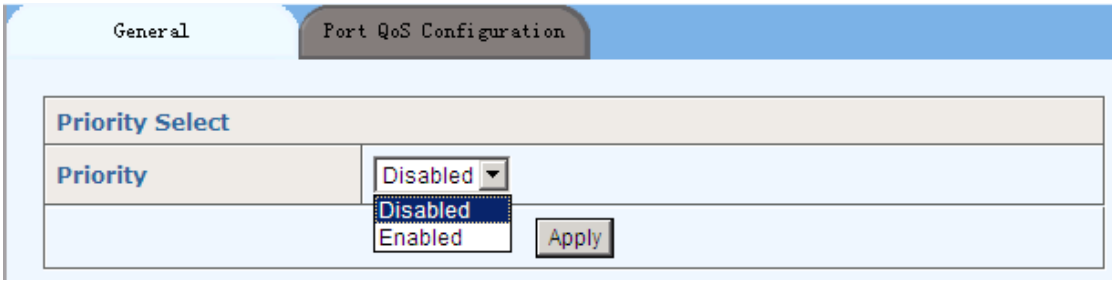
2.6 QoS

This managed switch supports Quality of Service (QoS). QoS priority is disabled by default.

2.6.1 QoS Configuration

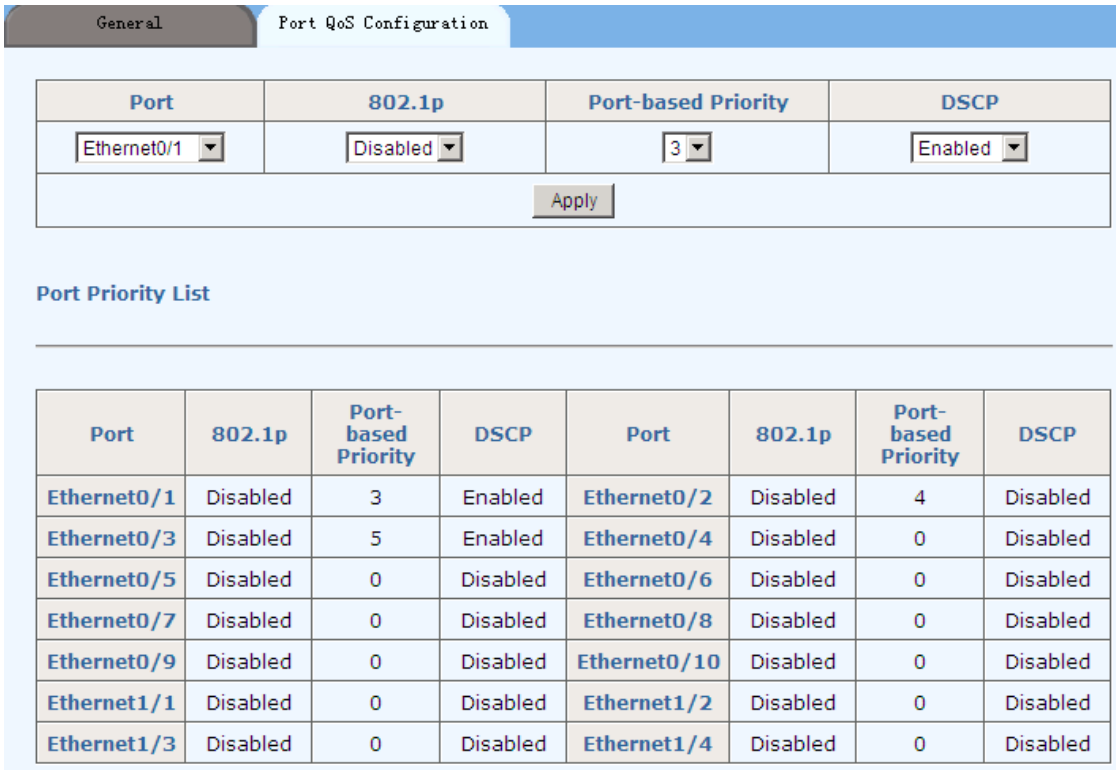
There are two tab pages:

General: This page globally sets priority to be “Disabled” or “Enabled”. By default, the priority is disabled.



Port QoS Configuration: This tab page sets QoS parameters for each port. For a

selected **Port**, if **802.1p** and **DSCP** is set to be enabled, the **Port-based Priority** can be set to 0 to 7.



Port	802.1p	Port-based Priority	DSCP	Port	802.1p	Port-based Priority	DSCP
Ethernet0/1	Disabled	3	Enabled	Ethernet0/2	Disabled	4	Disabled
Ethernet0/3	Disabled	5	Enabled	Ethernet0/4	Disabled	0	Disabled
Ethernet0/5	Disabled	0	Disabled	Ethernet0/6	Disabled	0	Disabled
Ethernet0/7	Disabled	0	Disabled	Ethernet0/8	Disabled	0	Disabled
Ethernet0/9	Disabled	0	Disabled	Ethernet0/10	Disabled	0	Disabled
Ethernet1/1	Disabled	0	Disabled	Ethernet1/2	Disabled	0	Disabled
Ethernet1/3	Disabled	0	Disabled	Ethernet1/4	Disabled	0	Disabled

2.6.2 Scheduling Mechanism

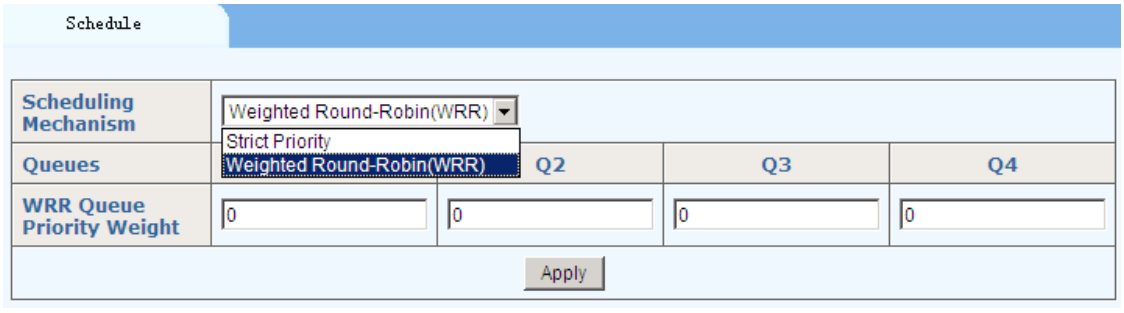
This page sets the queue scheduling algorithm and the related parameters.

Scheduling Mechanism includes **Strict Priority** and **Weighted Round-Robin (WRR)**.

Strict Priority: To use the strict priority (SP) algorithm for queue scheduling. Packets in a higher priority queue are processed before those in the lower priority queues.

Weighted Round-Robin (WRR): To use the weighted round robin (WRR) algorithm for queue scheduling.

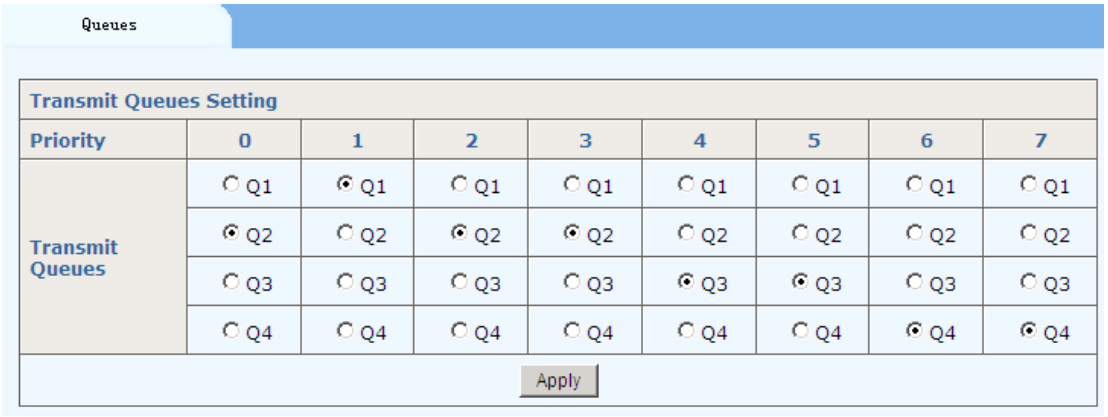
WRR Queue Priority Weight: To specify the weights to be assigned to queues 1 through 4. The value ranges from 1 to 55.



2.6.3 Transmit Queues

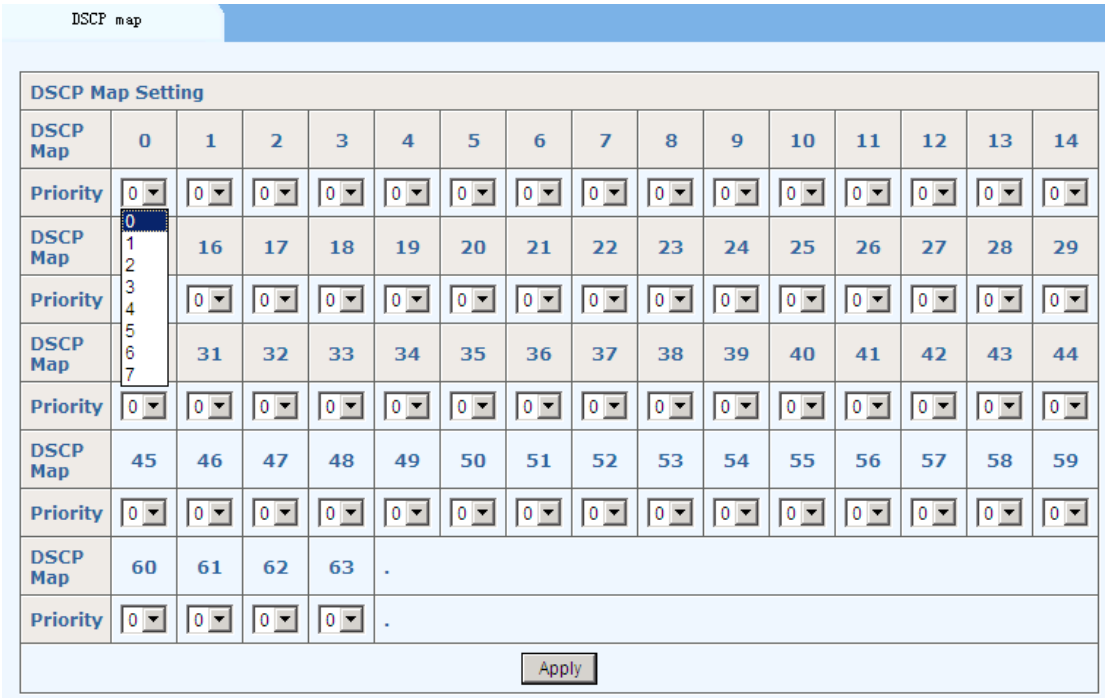
This page sets the 802.1p priority to local precedence mapping. The following table lists default 802.1p priority to local precedence mapping:

802.1p priority	Local precedence
0	Q1
1	Q1
2	Q2
3	Q2
4	Q3
5	Q3
6	Q4
7	Q4



2.6.4 DSCP Map

This page sets the DSCP value for each of the 802.1p priorities.



2.7 Forwarding

2.7.1 Unicast MAC Address

There are two tab pages: *MAC Address Configuration* and *Dynamic Unicast MAC.*

MAC Address Configuration: On this page, an entry can be added or modified in MAC

table. MAC address entries can also be deleted.

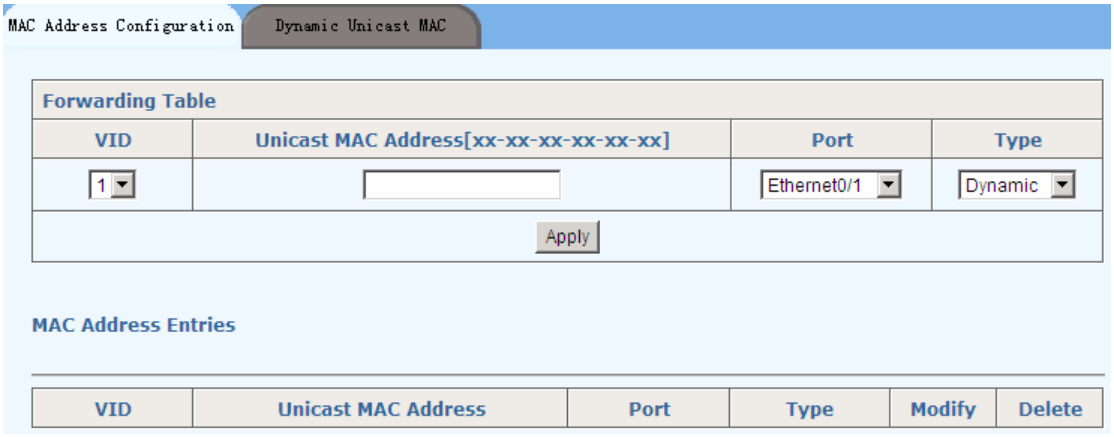
VID: The ID of the VLAN that contains the device with the specified MAC address.

Unicast MAC Address: The destination MAC address.

Port: The outbound port.

Type: Select from **Dynamic**, **Static** and **Blackhole**. **Dynamic** indicates a dynamic MAC address entry; **Static** indicates a static MAC address entry; and **Blackhole** indicates a Blackhole MAC address entry.

The bottom part of the page lists all existing unicast MAC addresses, as well as the information of each unicast MAC address. The user can also modify or delete an existing unicast MAC address.



Dynamic Unicast MAC: This page shows a list of all dynamic unicast MAC addresses. An entry in the MAC table can be deleted by clicking <Delete>.

VID	Unicast MAC Address	Port	Type	Delete
1	16-58-52-01-48-21	Ethernet0/7	Learned	Delete
1	00-0f-ea-4f-36-e5	Ethernet0/7	Learned	Delete
1	00-26-6c-5b-68-a4	Ethernet0/7	Learned	Delete
1	1c-6f-65-98-a8-6e	Ethernet0/7	Learned	Delete
1	00-1e-6e-00-86-af	Ethernet0/7	Learned	Delete
1	00-0a-eb-51-be-b2	Ethernet0/7	Learned	Delete
1	00-1d-7d-3f-63-ad	Ethernet0/7	Learned	Delete
1	6c-f0-49-82-be-cf	Ethernet0/7	Dynamic	Delete
1	00-1e-68-6a-ae-3d	Ethernet0/7	Dynamic	Delete
1	00-1d-7d-76-1a-46	Ethernet0/7	Dynamic	Delete
1	00-0e-b4-06-c9-08	Ethernet0/7	Learned	Delete
1	00-1d-0f-7f-62-18	Ethernet0/7	Learned	Delete
1	00-80-77-94-dd-92	Ethernet0/7	Learned	Delete
1	00-26-6c-5a-fc-cb	Ethernet0/7	Dynamic	Delete
1	00-1d-7d-44-a8-c4	Ethernet0/7	Learned	Delete

2.7.2 Multicast MAC Address

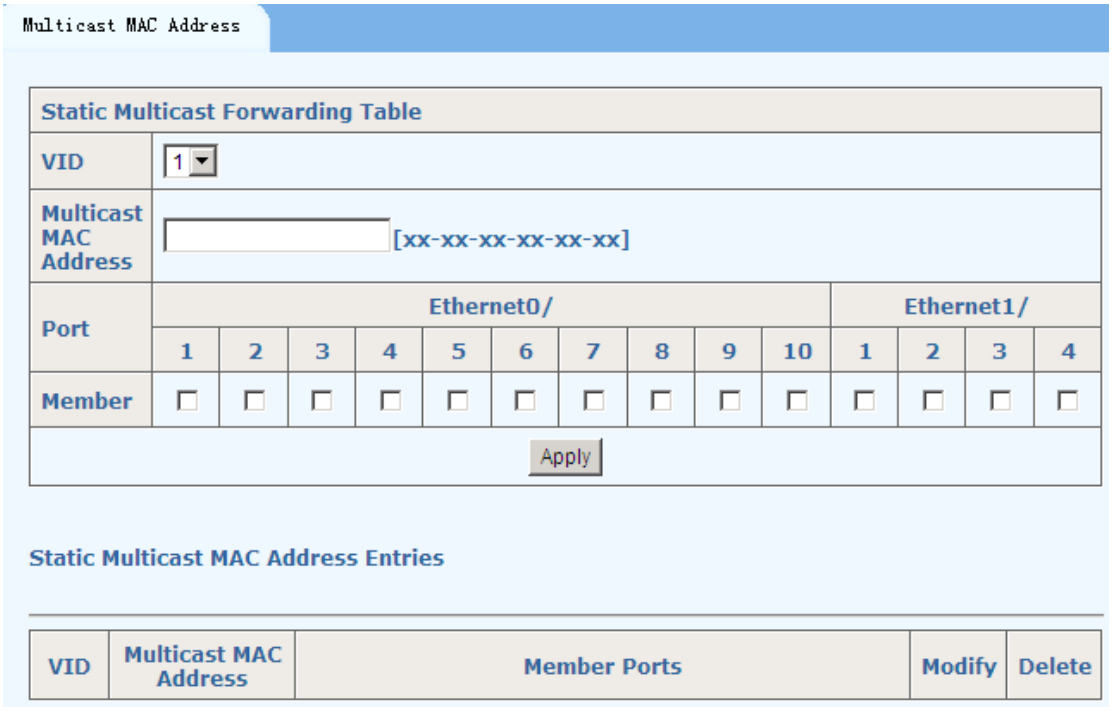
This page sets a multicast MAC address entry, and each multicast MAC address entry contains VLAN ID, multicast address and forward ports.

VID: The VLAN that contains the forwarding ports.

Multicast MAC Address: Multicast MAC address, in the form of H-H-H-H-H-H.

Member: The forwarding ports for the specified multicast MAC group address. One or more individual ports can be defined.

The bottom part of this page lists all existing multicast MAC addresses, as well as the information of each multicast MAC address. The user can also modify or delete an existing multicast MAC address.



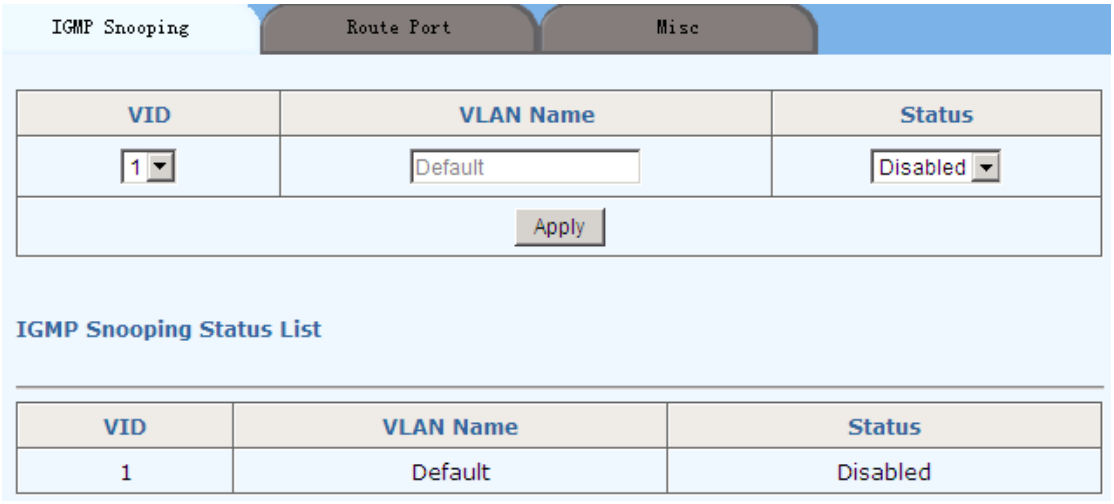
2.7.3 IGMP Snooping

There are three tab pages on this webpage for a user to configure various parameters:

(1) *IGMP Snooping*

On this page, a user can enable IGMP Snooping feature of each VLAN. By default, the IGMP Snooping feature is disabled.

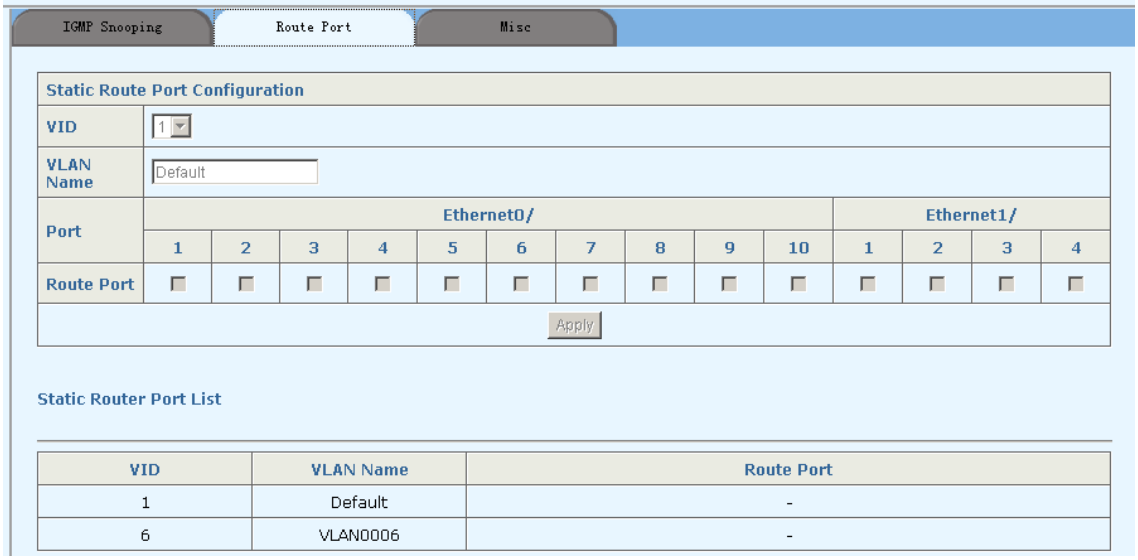
The bottom part of this page lists all VLAN IGMP Snooping feature status.



(1) *Route Port*

On this page, the user can configure a port in the specified VLAN as a static router port. By default, a port is not a static router port.

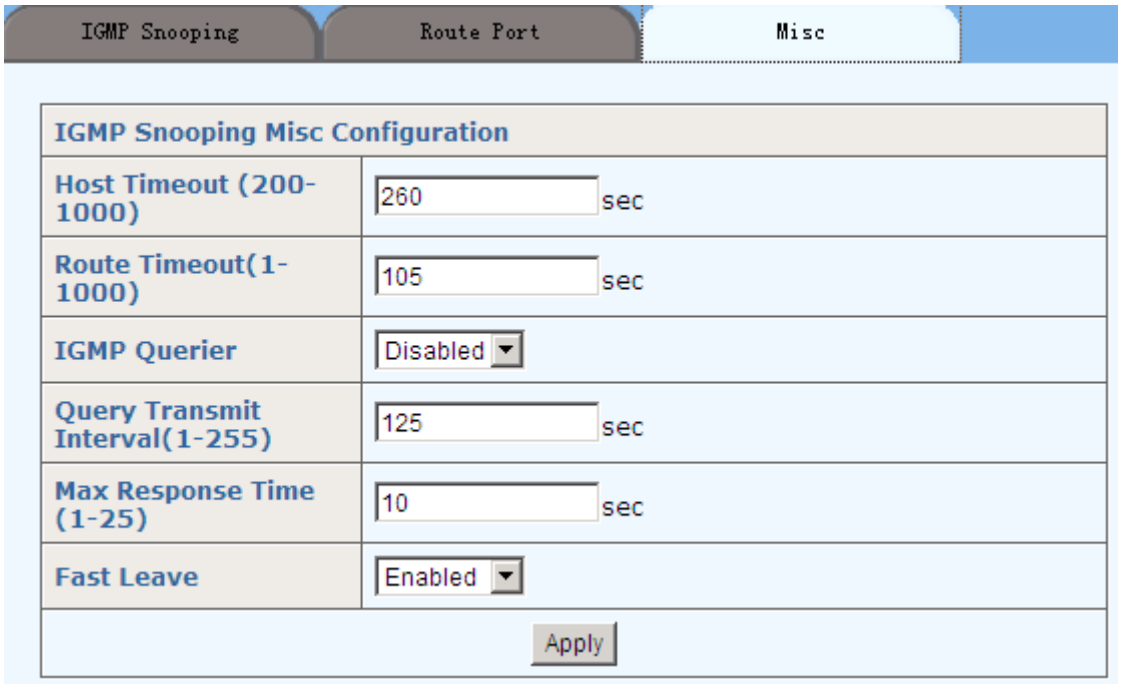
The bottom part of this page lists static router ports of all VLANs.



(3) *Misc.*

This tab page configures IGMP Snooping Misc. configuration parameters: Host Timeout, Route Timeout, IGMP Querier, Query Transmit Interval, Max Response Time, and Last Member Query Interval.

Host Timeout: It is in the range of 200 to 1000; by default, the value is 260 seconds.
Route Timeout: It is in the range of 1 to 1000; by default, the value is 105 seconds.
IGMP Querier: Enable/disable IGMP Querier function.
Query Transmit Interval: It is in the range of 1 to 255; by default, the value is 125 seconds.
Max Response Time: It is in the range of 1 to 25; by default, the value is 10 seconds.
Fast Leave: Enable/disable Fast Leave function.



2.8 Security

2.8.1 Management Security

This page configures 802.1x system configuration: Authentication RADIUS Server IP, Authentication Port, Authentication Shared Key, Accounting RADIUS Server IP, Accounting Port and Accounting Shared Key.

Authentication RADIUS Server IP: IP address of the radius server to be used, a valid unicast address in dotted decimal notation; the default value is 192.168.0.234.

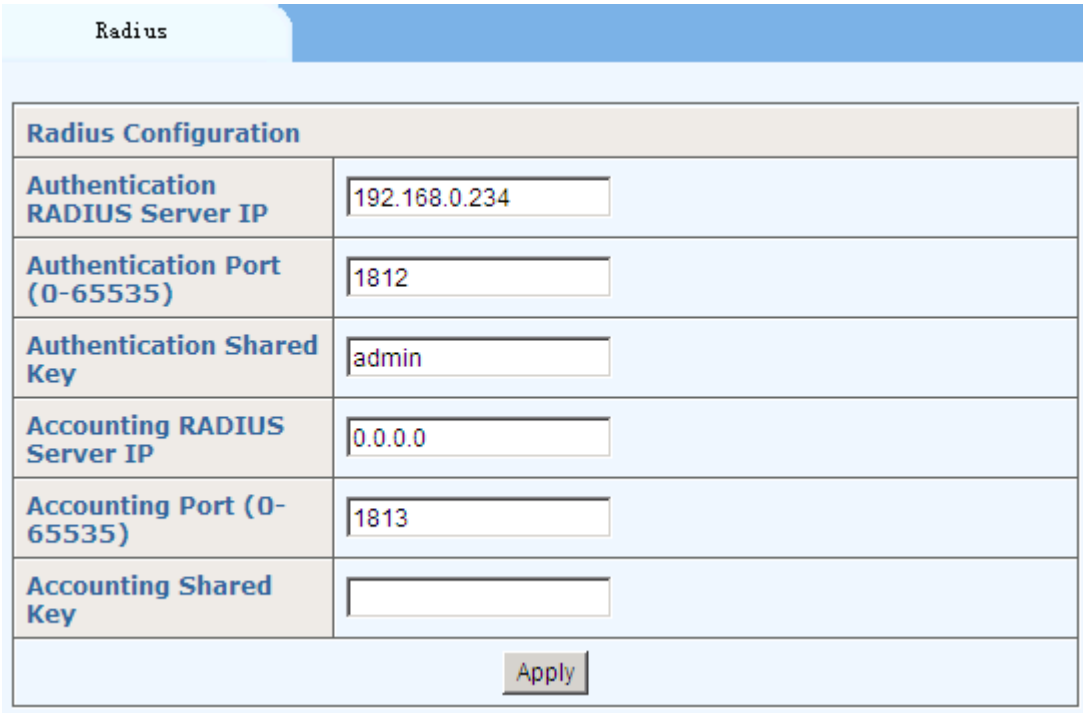
Authentication Port: UDP port number of the radius server, ranging from 1 to 65535, the default value is 1812.

Authentication Shared Key: The authentication shared key offered by NSP.

Accounting RADIUS Server IP: The IP address of the accounting RADIUS Server.

Accounting Port: UDP port number of the radius server, ranging from 1 to 65535, the default value is 1813.

Accounting Shared Key: a shared key for radius messages, a string of 1 to 15 characters.



2.8.2 Port Authentication

There are two tabs on this page for the user to configure various parameters of 802.1x.

(1)*802.1x Port*

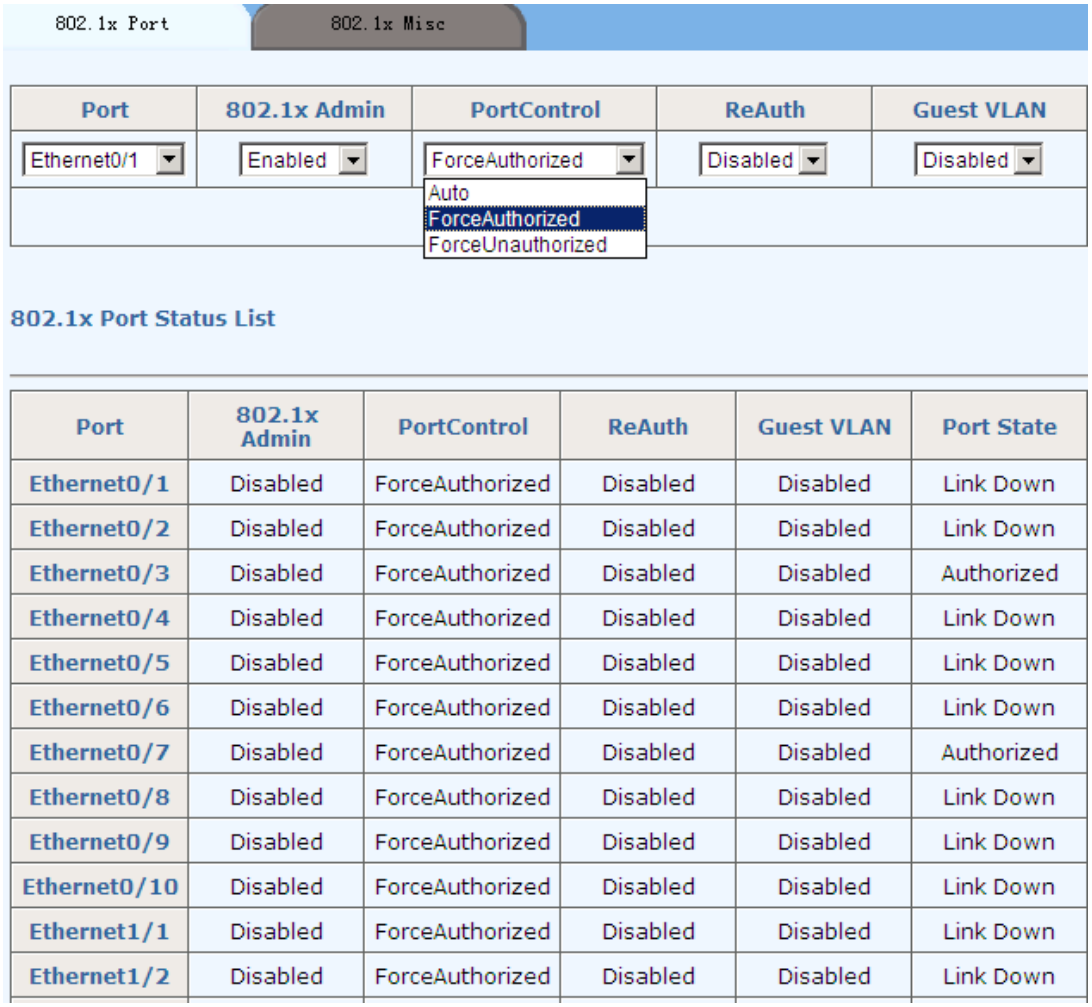
On this tab page, 802.1x Admin, Re-authentication as well as Guest VLAN can be enabled for a specified Ethernet port, and a specific **Port Control** mode can also be selected. The **Port Control** can be selected among Auto, ForceAuthorized and ForceUnauthorized.

Auto: The auto access control mode. When a port operates in this mode, all the unauthenticated hosts connected to it are unauthorized, and only EAPoL packets can be exchanged between the switch and the hosts. And the authenticated hosts connected to the port are authorized to access the network resources.

ForceAuthorized: The force-authorized access control mode. When a port operates in this mode, all the hosts connected to it can access the network resources without authentication.

ForceUnauthorized: The force-unauthorized access control mode. When a port operates in this mode, the hosts connected to it cannot access the network resources.

The bottom part of this page lists all 802.1x port status.



Port	802.1x Admin	PortControl	ReAuth	Guest VLAN	Port State
Ethernet0/1	Disabled	ForceAuthorized	Disabled	Disabled	Link Down
Ethernet0/2	Disabled	ForceAuthorized	Disabled	Disabled	Link Down
Ethernet0/3	Disabled	ForceAuthorized	Disabled	Disabled	Authorized
Ethernet0/4	Disabled	ForceAuthorized	Disabled	Disabled	Link Down
Ethernet0/5	Disabled	ForceAuthorized	Disabled	Disabled	Link Down
Ethernet0/6	Disabled	ForceAuthorized	Disabled	Disabled	Link Down
Ethernet0/7	Disabled	ForceAuthorized	Disabled	Disabled	Authorized
Ethernet0/8	Disabled	ForceAuthorized	Disabled	Disabled	Link Down
Ethernet0/9	Disabled	ForceAuthorized	Disabled	Disabled	Link Down
Ethernet0/10	Disabled	ForceAuthorized	Disabled	Disabled	Link Down
Ethernet1/1	Disabled	ForceAuthorized	Disabled	Disabled	Link Down
Ethernet1/2	Disabled	ForceAuthorized	Disabled	Disabled	Link Down

(2)*802.1x Misc.*

This tab page configures 802.1x configurations such as Quiet Period, Tx Period, Supplicant Timeout, Server Timeout, Max Request Count, Reauth Period and Guest VLAN.

Quiet Period: This timer sets the quiet-period. When a supplicant system fails to pass the authentication, the switch quiets for the set period before it processes another authentication request re-initiated by the supplicant system. During this quiet period, the switch does not perform any 802.1x authentication-related actions for the supplicant system. The value is in the range of 1 to 65535, and the default setting is 60 seconds.

Tx Period: Sets the transmission timer. This timer sets the tx-period and is triggered in two cases. One is when the client requests authentication, the switch sends a unicast request/identity packet to a supplicant system and then triggers the transmission timer. The switch sends another request/identity packet to the supplicant system if it does not receive the reply packet from the supplicant system when this timer times out. The other is that when the switch authenticates the 802.1x client that cannot request authentication actively, the switch sends multicast request/identity packets periodically through the port with 802.1x function enabled, in this case, this timer sets the interval to send the multicast request/identity packets. It is in the range of 1 to 65535, the default setting is 30 seconds.

Supplicant Timeout: This timer sets the Supp-timeout period and is triggered by the switch after the switch sends a request/challenge packet to a supplicant system. The switch sends another request/challenge packet to the supplicant system if the switch

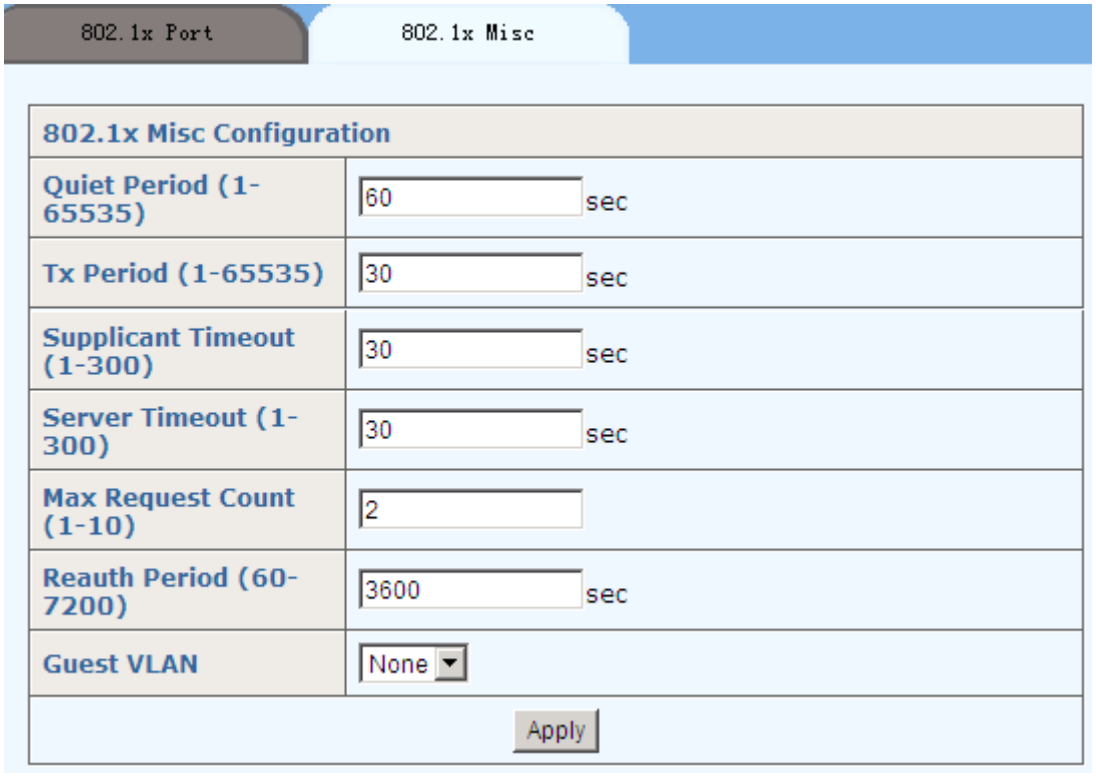
does not receive response from the supplicant system when this timer times out. It is in the range of 1 to 300, the default setting is 30 seconds.

Server Timeout: This timer sets the server-timeout period. After sending an authentication request packet to the radius server, a switch sends another authentication request packet if it does not receive response from the radius server when this timer times out. It is in the range of 1 to 300, the default setting is 30 seconds.

Max Request Count: Sets the maximum number of times that a switch sends authentication request packets to a user. It is in the range of 1 to 10, and the default setting is 2.

Reauth Period: Sets re-authentication interval in seconds. After this timer expires, the switch reminds 802.1x re-authentication. It is in the range of 60 to 7200, and the default setting is 3600 seconds.

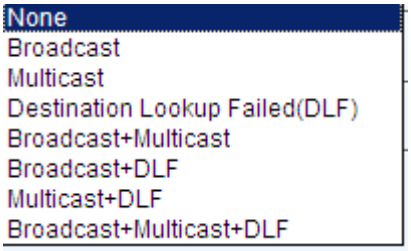
Guest VLAN: Select a guest VLAN to provide limited services to clients.



2.8.3 Storm Control

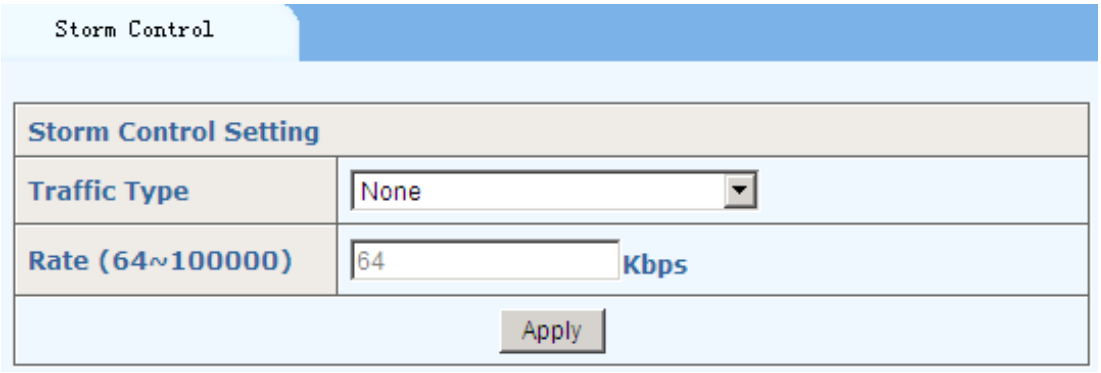
This page sets the thresholds of the specified traffic type.

The **traffic type** can be chosen from None, Broadcast, Multicast, Destination Lookup Failed (DLF), Broadcast+Multicast, Broadcast+DLF, Multicast+DLF, and Broadcast+Multicast+DLF.



The Rate is in the range of 64 to 1000000.

By default, the traffic type is “**None**”.



2.9 ACL

ACL (Access Control List) is used to achieve the packet filtering function by the configuration of matching rules and processing operation(s). An ACL is a sequential collection of permit and deny conditions that apply to packets. When a packet is received on a port, the switch compares the fields in the packet with any applied ACLs to verify that the packet has the required permissions to be forwarded, based on the criteria specified in the access lists.

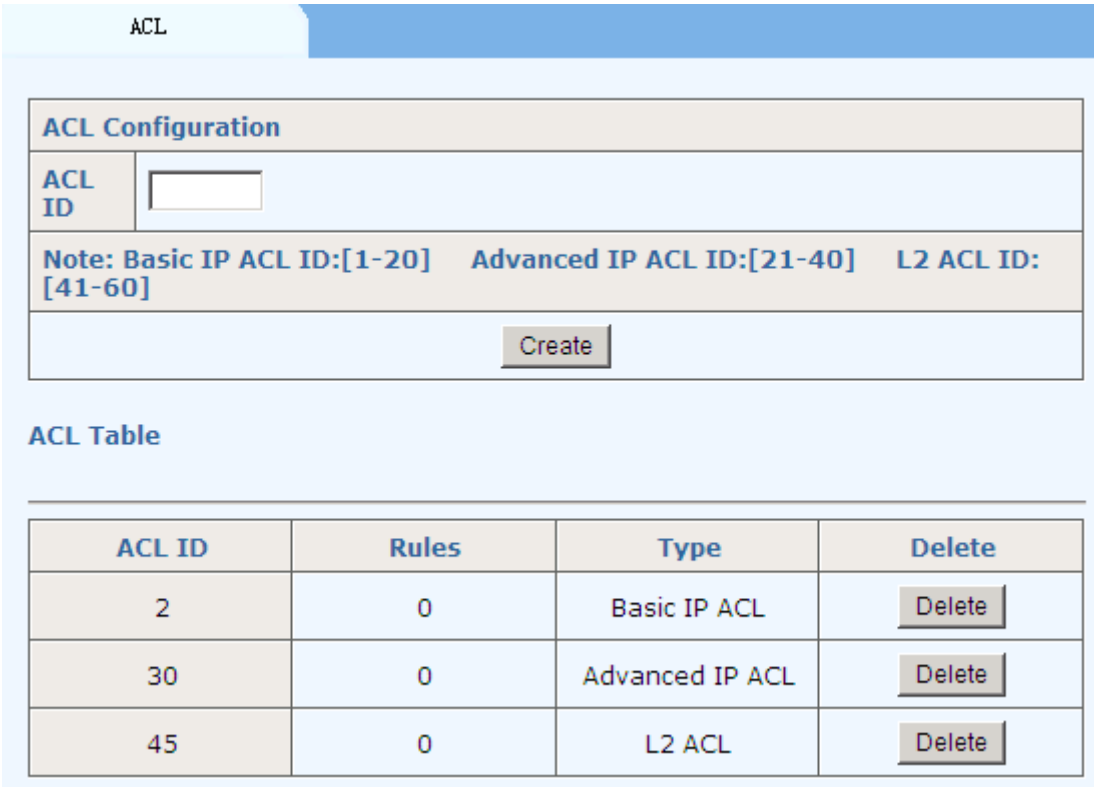
There are three following types of ACL:

Basic IP ACL: Packets filtering only based on source IP address.
Advance IP ACL: Packets filtering based on source IP address, destination IP address and some IP protocol types mentioned following.
L2 ACL: Packets filtering based on source MAC address, destination MAC addresses, 802.1p priority and L2 protocol type.

2.9.1 Management ACL

In order to flexibly configure ACL rule, the ACL ID is divided into three segments: 1-20 for Basic IP ACL, 21-40 for Advanced IP ACL and 41-60 for L2 ACL. **ACL Rule** page sets different ACL rules based on the range of ACL ID.

The bottom part of this page lists all configured ACL IDs. Parameter **Rules** shows the number of rules that has already been configured for this ACL ID.



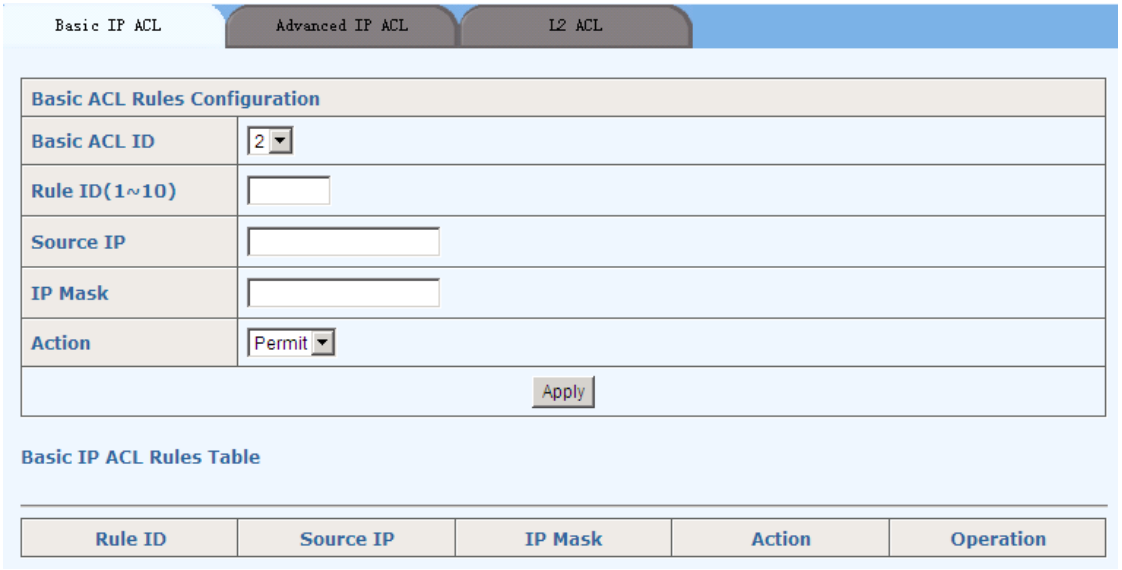
2.9.2 ACL Rule

(*a*1*s*) *ACL*

This page configures Basic IP ACL rules. Up to 10 rules per ACL ID can be set; each rule ID can only be used once. All parameters, including **Rule ACL ID**, **Source IP** and **IP Mask** must be set, and the **Action** can be set to **Permit** or **Deny.**

Permit: Permit the access of IP matched with rule.
Deny: Deny the access of IP matched with rule.

The bottom part of this page lists all configured Basic IP ACL rules.



(2) Advanced IP ACL

This page configures ACL rules based on packet Src IP Address, Dst IP Address, IP

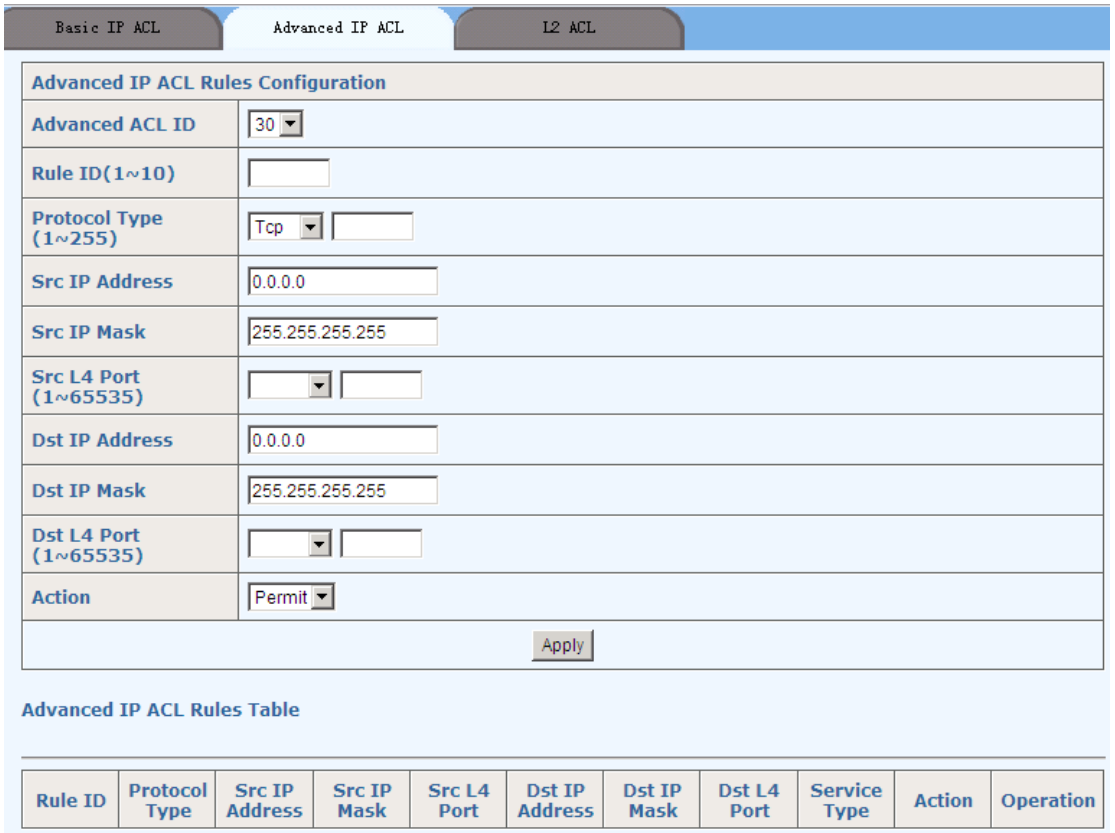
Protocol type and other protocol features, such as TCP or UDP source port, destination port and ICMP protocol message types etc.

Rule ID: Identification of the ACL rule, its value is in the range of 1 to 10.
Protocol Type: An existing protocol type such as Icmp, Igmp, Tcp, Udp, Ospf or an integer between 1 and 255.
Src IP Address: Source host IP address.
Src IP Mask: Source host IP subnet mask.
Src L4 Port: TCP/UDP source port. Echo, Ftp, Telnet, Smtp
, Www only for protocol type TCP; Dns, Echo, Ntp, tftp, Snmp, Snmp trap and Syslog only for protocol Udp, or an integer from 1 to 65535.

Note: IETF IANA defines three groups of ports: Well Known Ports (0-1023), Registered Ports (1024-49151) and Dynamic and/or Private Ports (49152-65535).

Dst IP Address: Destination host IP address, in the range of 1 to 10.
Dst IP Mask: Destination host IP subnet mask.
Dst L4 Port: TCP/UDP destination port, Echo, Ftp, Telnet, Smtp, Www only for protocol type TCP; Dns, Echo, Ntp, tftp, Snmp, Snmp trap and Syslog only for protocol Udp, or an integer from 1 to 65535.
Action: Permit or deny access of the package matched with rules**.**

The bottom part of this page lists all configured Advanced IP ACL rules.



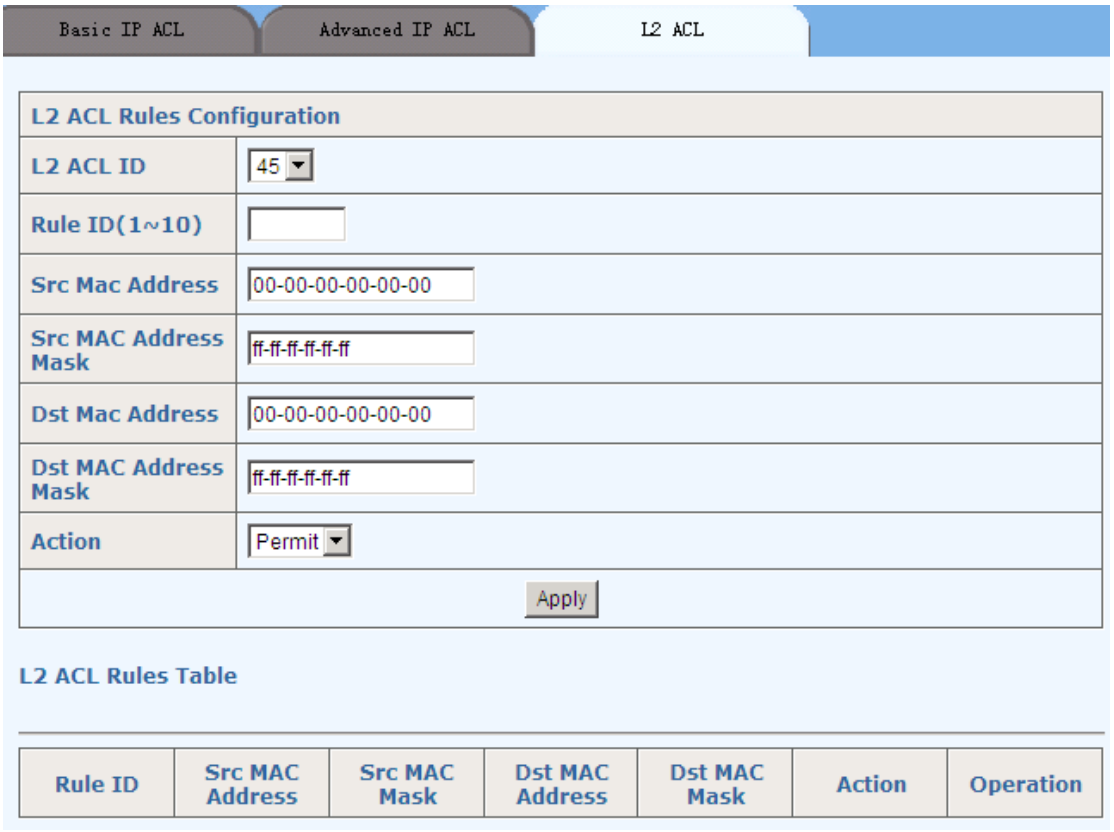
(3) L2 ACL

This page configures Src MAC Address, Src MAC Address Mask, Dst Mac Address, Dst MAC address Mask, and Action that can be selected as Permit or Deny.

Rule ID: Identification the ACL rule, in the range of 1 to 10.
Src MAC Address: Source host MAC address.

Src MAC Address Mask: Source host MAC address mask.
Dst MAC Address: Destination host MAC address.
Dst MAC address Mask: Destination host MAC address mask.
Action: Permit or deny the access for the package matched with rules**.**

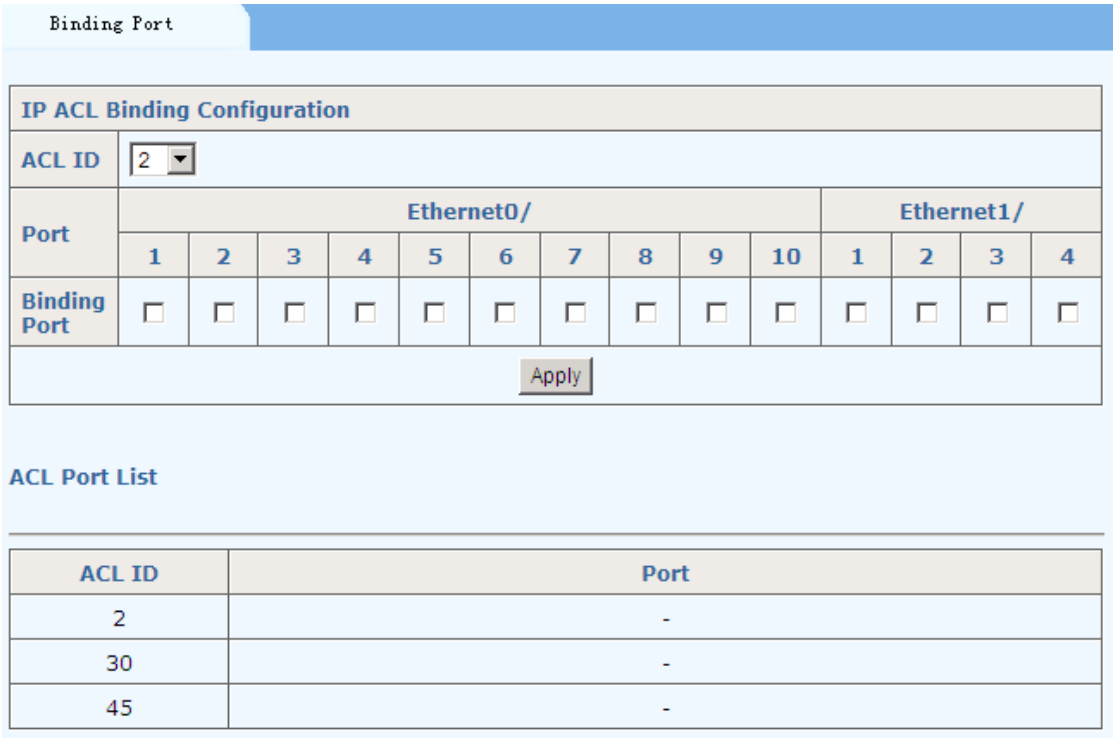
The bottom part of this page lists all configured L2 ACL rules.



2.9.3 Port Binding

This page configures the binding of an Ethernet port to a specified ACL ID. If a port is bound, it will take effect on all the rules associated to this ACL ID.

The bottom part of this page lists all ACL binding Ports.



2.10 Statistics

Statistics includes Port Status, Port Statistics, VLAN List, MAC Address Table, Link Aggregation and FRP Ring Status.

2.10.1 Port Information

This page shows the State, Link, Negotiation, Speed & Duplex, Flow Control, and Learning of each Ethernet port.

Status | SFP

Port	State	Link	Negotiation	Speed&Duplex	Flow Control	Learning
Ethernet0/1	Enabled	Down	Auto	-	-	Enabled
Ethernet0/2	Enabled	Down	Auto	-	-	Enabled
Ethernet0/3	Enabled	Down	Auto	-	-	Enabled
Ethernet0/4	Enabled	Down	Auto	-	-	Enabled
Ethernet0/5	Enabled	Down	Auto	-	-	Enabled
Ethernet0/6	Enabled	Down	Auto	-	-	Enabled
Ethernet0/7	Enabled	Down	Auto	-	-	Enabled
Ethernet0/8	Enabled	Up	Auto	100M Full	Off	Enabled
Ethernet0/9	Enabled	Down	Auto	-	-	Enabled
Ethernet0/10	Enabled	Down	Auto	-	-	Enabled
Ethernet0/11	Enabled	Down	Auto	-	-	Enabled
Ethernet0/12	Enabled	Down	Auto	-	-	Enabled
Ethernet0/13	Enabled	Down	Auto	-	-	Enabled
Ethernet0/14	Enabled	Down	Auto	-	-	Enabled
Ethernet0/15	Enabled	Down	Auto			Enabled

This page shows the Port, Type Link, SFP Vendor and Wavelength & Distance.

SFP DDM Alarm: Enable or disable to trigger an e-mail alarm when over temperature or out the range of TX/RX power.

Status | SFP

Port SFP Information

Port	Type	Link	SFP Vendor	Wavelength&Distance
Ethernet1/1	1000BASE-LX	Down	-	-
Ethernet1/2	1000BASE-LX	Down	-	-
Ethernet1/3	1000BASE-LX	Down	-	-
Ethernet1/4	1000BASE-LX	Down	-	-

SFP DDM

Port	Temperature (℃)		Tx Power (dBm)		Rx Power (dBm)	
	current	Range	Current	Range	Current	Range

2.10.2 Port Statistics

This page shows the TxGoodPkts, TxBadPkts, RxGoodPkts, RxBadPkts, TxAbort, Collision and DropPkt of each Ethernet port.

TxGoodPkts: The total number of outgoing normal packets on the port, including outgoing normal packets and normal pause frames.
TxBadPkts: The total number of outgoing error frames.
RxGoodPkts: The total number of incoming normal packets on the port, including incoming normal packets and normal pause frames.
RxBadPkts: The total number of incoming error frames.
TxAbort: The number of transmission failures due to various reasons, such as collisions.
Collision: The number of detected collisions.
DropPkt: The number of packets dropped for various reasons.

Port Statistics

Port	TxGoodPkts	TxBadPkts	RxGoodPkts	RxBadPkts	TxAbort	Collision	DropPkt
Ethernet0/1	55590	0	1198017	0	0	0	0
Ethernet0/2	0	0	0	0	0	0	0
Ethernet0/3	1138639	0	82515	0	0	0	0
Ethernet0/4	0	0	0	0	0	0	0
Ethernet0/5	203045	0	79510	0	0	0	0
Ethernet0/6	0	0	0	0	0	0	0
Ethernet0/7	45867	0	1089214	0	0	0	0
Ethernet0/8	0	0	0	0	0	0	0
Ethernet0/9	0	0	0	0	0	0	0
Ethernet0/10	0	0	0	0	0	0	0
Ethernet1/1	0	0	0	0	0	0	0
Ethernet1/2	0	0	0	0	0	0	0
Ethernet1/3	0	0	0	0	0	0	0
Ethernet1/4	0	0	0	0	0	0	0

2.10.3 VLAN List

This page shows all VLAN lists, including **VID**, **Name**, **Type**, **Tagged**, **Untagged** and **Forbidden**. **Type** is either **Static** or **Dynamic**. **Tagged** includes all ports out of which packets are sent tagged; **Untagged** includes all ports out of which packets are sent untagged; and **Forbidden** includes all ports that cannot be added to the VLAN group.

VLAN List

VID	Name	Type	Tagged	Untagged	Forbidden
1	Default	Static	-	Ethernet0/1-10,Ethernet1/1-4	-
6	VLAN0006	Static	-	-	-
4091	Control vlan	Static	Ethernet0/5-6	-	-
4093	Sub Control vlan	Static	Ethernet0/5-6	-	-
4094	Sub Control vlan	Static	Ethernet0/7	-	-

2.10.4 MAC Address Table

This page shows information about unicast MAC Address in the Unicast MAC address table, including **VID**, **Unicast MAC Address**, **Port**, and **Type**. **Type** is **Dynamic**, **Static**, **Blackhole** or **Learned**.

Unicast MAC Address

VID	Unicast MAC Address	Port	Type
1	00-26-6c-5b-68-a4	Ethernet0/7	Learned
1	1c-6f-65-98-a8-6e	Ethernet0/7	Learned
1	00-1e-6e-00-86-af	Ethernet0/7	Learned
1	00-0a-eb-51-be-b2	Ethernet0/7	Learned
1	00-1d-7d-3f-63-ad	Ethernet0/7	Learned
1	00-0a-e4-43-8f-2a	Ethernet0/7	Learned
1	6c-f0-49-88-74-ea	Ethernet0/7	Learned
1	00-1e-68-6a-ae-3d	Ethernet0/7	Dynamic
1	00-1d-7d-76-1a-46	Ethernet0/7	Learned
1	00-1d-0f-7f-62-18	Ethernet0/7	Learned
1	00-1e-6e-00-83-68	Ethernet0/7	Dynamic
1	00-80-77-94-dd-92	Ethernet0/7	Learned
1	00-26-6c-5a-fc-cb	Ethernet0/7	Dynamic
1	00-1d-7d-44-a8-c4	Ethernet0/7	Learned
1	6c-f0-49-89-31-cb	Ethernet0/7	Dynamic
1	d8-5d-4c-29-d6-36	Ethernet0/7	Learned
1	00-0e-1f-01-80-74	Ethernet0/7	Learned
1	00-1f-d0-6a-df-59	Ethernet0/7	Dynamic

2.10.5 IGMP Snooping Group

This page shows the IGMP Snooping multicast group information, including **VID**, **Multicast Group**, **MAC Address** and **Member Ports**. **Multicast Group** is the IP address of a multicast group, **MAC Address** is the address of a MAC multicast group, and **Member Ports** include all ports belonging to this IGMP Snooping group.

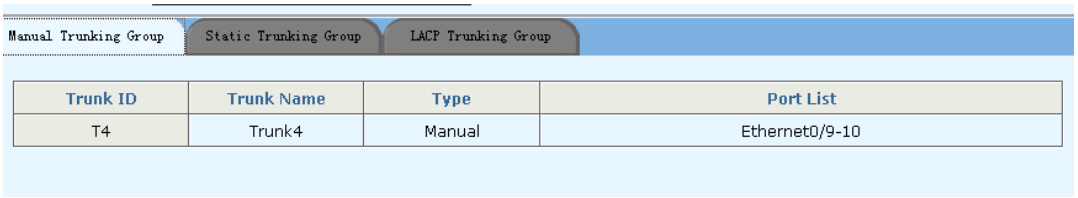
Group

VID	Multicast Group	MAC Address	Member Ports

2.10.6 Link Aggregation

There are three tab pages for Link Aggregation:

(1) *Manual Trunking Group*: Displays the manual trunk information, including **Trunk ID**, **Trunk Name**, **Type** and **Port List**. **Type** is fixed to **Manual**.



(2) *Static Trunking Group*: Displays the static trunk information, including **Trunk ID**, **Trunk Name**, **Type** and **Port List**. **Type** is fixed to **Static**.

(3) *LACP Trunking Group*: Displays the LACP trunk information, including **Priority**, **MAC** of Actor and Partner. It also shows the **Key**, **priority** and **Active** state of member ports.

2.10.7 FRP Ring status

This page shows the FRP Ring status information, including Ring ID, Ring Status, Ring Node, Link Status, Primary Port Status, Secondary Port Status, Coupling Node, Coupling Link Status, Control Port Status and Backup Port Status.

Ring ID: Shows the ring ID to identify which ring this switch belongs to In FRP protocol.
Ring Status: Shows the status of the FRP ring.
Ring Node: Shows the type of the ring node on a FRP ring. There are two types of node: **Master** and **Transit**.
Link Status: Shows the link status of the ring.
Primary port Status: Shows the status of Primary port.
Secondary port Status: Shows the status of Secondary port.
Coupling Node: Shows the switch port coupling mode, including four types of nodes: **Dual homing**, **Coupling Primary**, **Coupling Backup** and **Peer Coupling**.
Coupling Link Status: Shows the ring status of switch coupling link mode.
Control Port Status: Shows the status of the port connected to the other ring as the primary connect between rings.
Backup Port Status: Shows the status of the port that is connected to the other ring as backup.

FRP Ring Status

Ring ID	Ring Status	Ring Node	Link Status	Primary Port Status	Secondary Port Status	Coupling Node	Coupling Link Status	Control Port Status	Backup Port Status
Ring 1	Disabled	Master	None	-	-	Dual homing	None	-	-
Ring 2	Disabled	Master	None	-	-	Dual homing	None	-	-

2.11 Spanning Tree

Spanning Tree Protocol (STP) is a standard protocol described in IEEE 802.1D. And Rapid Spanning Tree Protocol (RSTP, IEEE 802.1w) is an evolution of the 802.1D.

2.11.1 STP

Before configuring STP, make sure STP is enabled (see section 2.3 of this manual for details). There are three tab pages:

(1) Basic STP

This page sets bridge configurations: Priority, Hello Time, Max Age, Forward Delay Time and Fast Detection.

Priority: Sets the priority of the switch, it is in the range of 0 to 65535, the default value is 32768.

Hello Time: Sets the hello time of the switch, it is in the range of 1 to 10 seconds, the default value is 2 seconds.

A root bridge regularly sends out configuration BPDUs to maintain the stability of the existing spanning tree. If the switch does not receive a BPDU packet in a specified period, the spanning tree will be recalculated because BPDU packet times out. When a switch becomes a root bridge, it regularly sends BPDUs at the interval specified by the hello time configured. The other none-root-bridge switches adopt the interval specified by the hello time.

Max Age: Sets the max age of the switch, it is in the range of 6 to 40 seconds, the default value is 20 seconds.

STP is capable of detecting link failures and automatically restoring redundant links to the forwarding state. In CIST, switches use max age parameter to judge whether a received configuration BPDU times out. Spanning trees will be recalculated if a configuration BPDU received by a port times out.

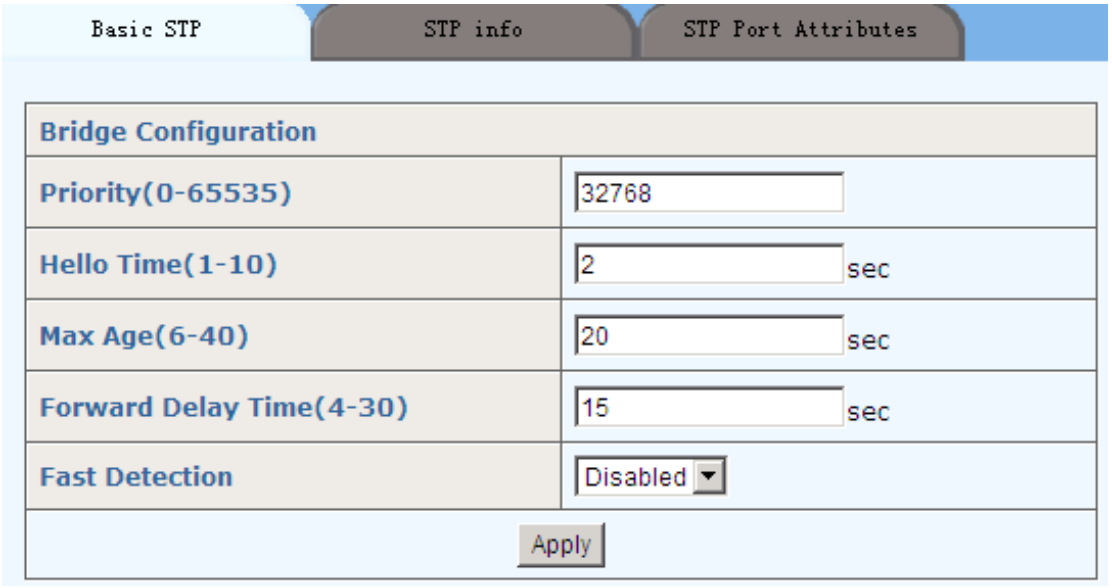
Forward Delay Time: Sets the forward delay of the switch, it is in the range of 4 to 30 seconds, and the default value is 15 seconds.

Fast Detection: To enable/disable the fast detection function. It is disabled by default.

To prevent the occurrence of a temporary loop, when a port changes its state from discarding to forwarding, it undergoes an intermediate state and waits for a specific period to synchronize with the state transition of the remote switches. This state transition period is determined by the forward delay configured on the root bridge. The forward delay setting configured on a root bridge applies to all non-root bridges.

As for the configuration of the three time-related parameters (namely, the hello time, forward delay and max age parameters), the following formulas must be met to prevent frequent network jitter:

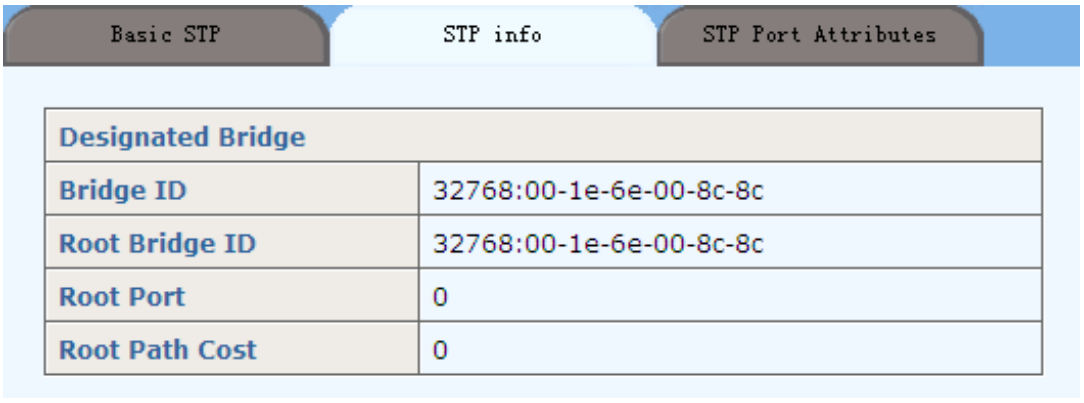
2 × (forward delay – 1 second) >= max age
max age >= 2 × (hello time + 1 second)



(2) STP info

This page shows the basic information of Designated Bridge, including Bridge ID, Root Bridge ID, Root Port and Root Path Cost.

Bridge ID: ID of this switch bridge.
Root Bridge ID: ID of the root bridge.
Root Path Cost: Cost of the path from the switch to the root bridge.



(3) STP Port Attributes

On this page, the user can enable **STP**, **Port Fast**, **Root protection** for each port, and also can set **Path Cost** and **Priority**.

Port Fast: In order to allow the port to transit to forwarding state quickly, enable the STP **Port Fast** feature, which can immediately transit the port into STP forwarding state upon linkup. This port still participates in STP. In case that the port forms a loop, it will transit into STP blocking state.

Root protection: By default, the root protection function is disabled.

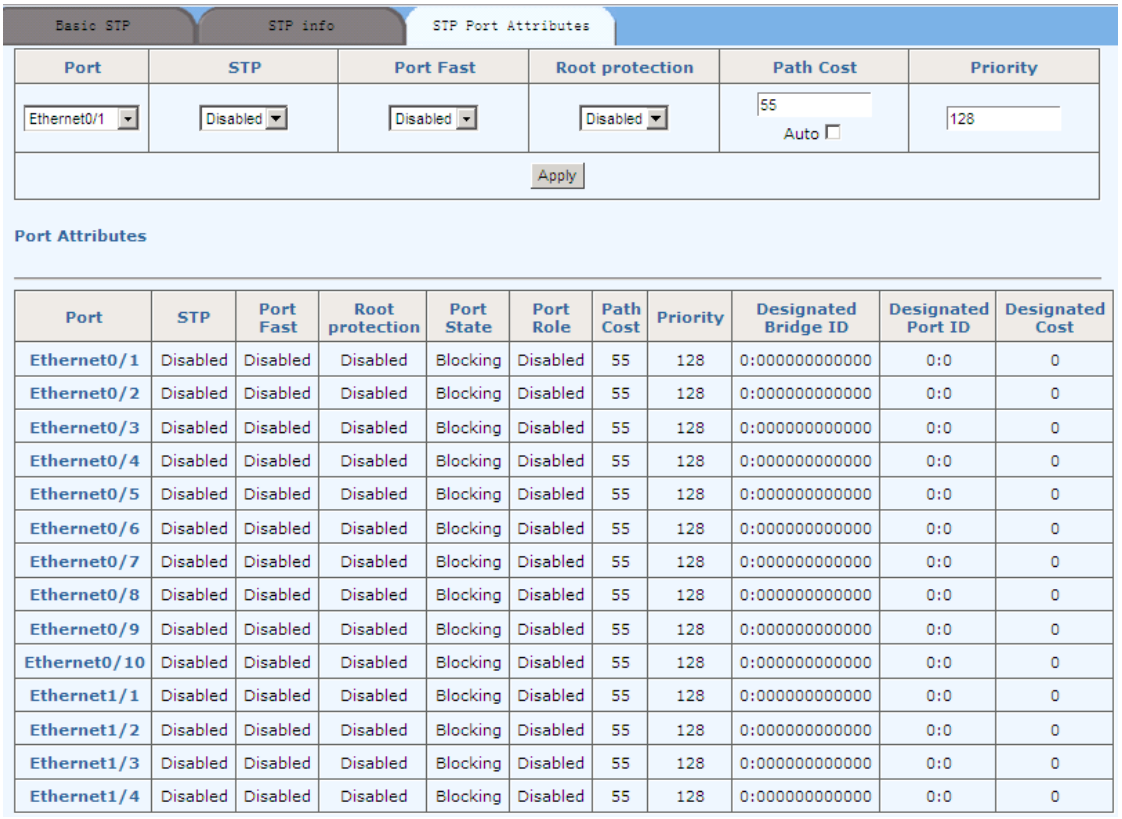
Due to configuration error or malicious attack, the root bridge in a network may receive configuration BPDUs with priorities higher than that of a root bridge, which causes new root bridge to be elected and network topology jitter. In this case, data flows that should have been transmitted along a high-speed link are led to a low-speed link. This problem can be resolved by enabling root protection function.

Root-protection-enabled ports can only be kept as designated ports. When a port of this type receives configuration BPDUs with higher priorities, more precisely, when it becomes a non-designated port, it turns to discarding state and stops forwarding packets (as if it is disconnected from the link).

Path Cost: Sets the path cost of a specified por. It is in the range of 1 to 200000000, the default value is 55. You can also make it auto-configured.

Priority: Sets a port priority for a specified port. It is in the range of 0 to 255, the default value is 128.

The bottom part of *STP Port Attributes* tab page lists the STP attributes of all ports.



Port	STP	Port Fast	Root protection	Port State	Port Role	Path Cost	Priority	Designated Bridge ID	Designated Port ID	Designated Cost
Ethernet0/1	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet0/2	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet0/3	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet0/4	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet0/5	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet0/6	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet0/7	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet0/8	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet0/9	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet0/10	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet1/1	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet1/2	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet1/3	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0
Ethernet1/4	Disabled	Disabled	Disabled	Blocking	Disabled	55	128	0:000000000000	0:0	0

2.11.2 RSTP

Before configuring RSTP, make sure RSTP is enabled (see section 2.2 of this manual for details). The STP parameters are also in effect.

In this page, you can set port **Point to Point** and **Protocol Migration**, and set **Edge Port** to “No” or “Yes”.

Point to Point: Indicates the link connected to the current Ethernet port is a point-to-point link.

Protocol Migration: For backward compatibility with 802.1D switches, RSTP selectively sends 802.1D configuration BPDUs or TCN BPDUs on a per-port basis.

When a port is initialized, the migration-delay timer is started (specifies the minimum time during which RSTP BPDUs are sent), and RSTP BPDUs are sent. While this timer is active, the switch processes all BPDUs received on that port and ignores the protocol type.

If the switch receives an 802.1D BPDU after the port's migration-delay timer has expired, it assumes that it is connected to an 802.1D switch and starts using only

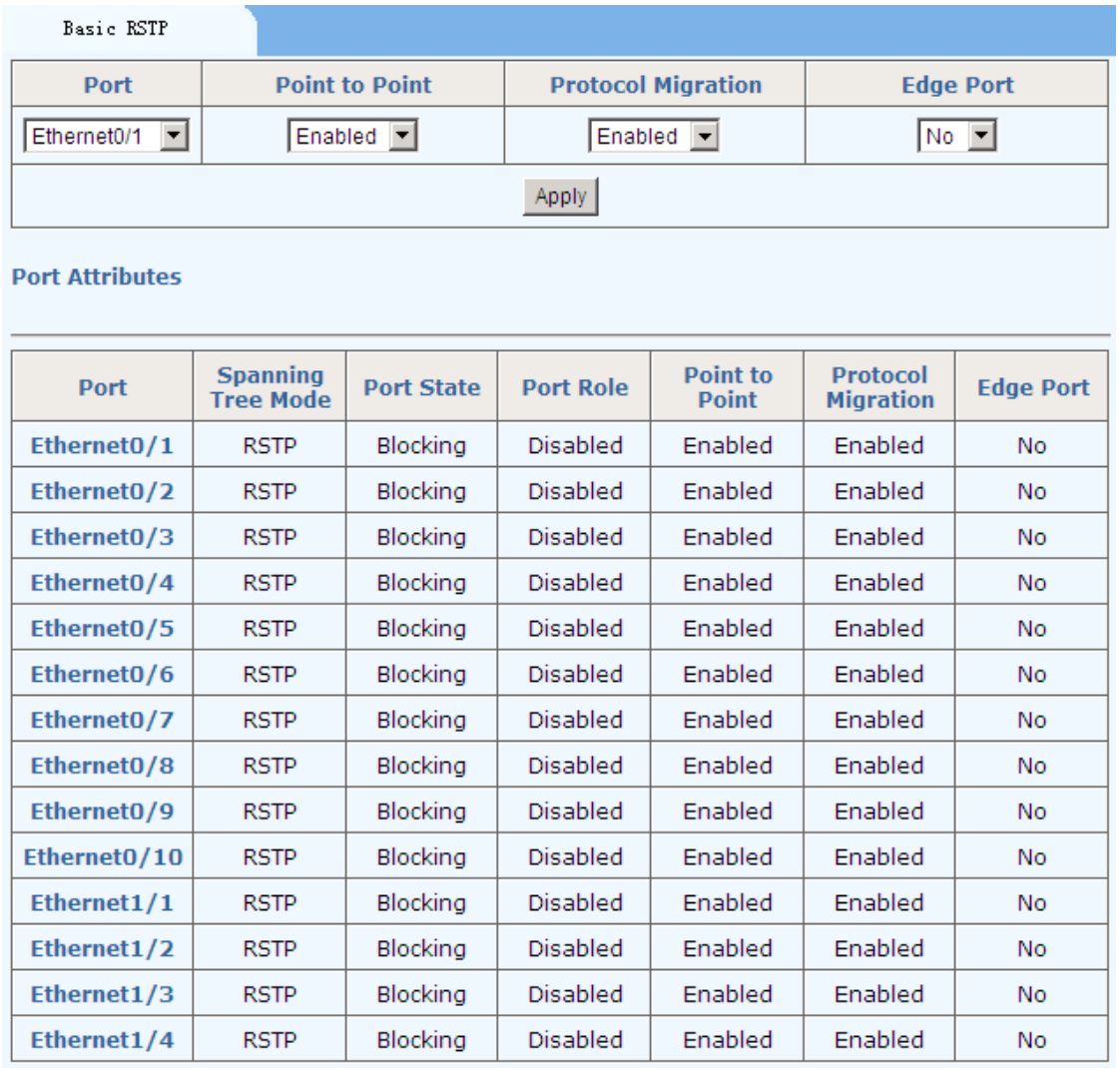
802.1D BPDUs. However, if the RSTP switch is using 802.1D BPDUs on a port and receives an RSTP BPDU after the timer has expired, it restarts the timer and starts using RSTP BPDUs on that port.

Edge Port: Select “Yes” to configure the specified Ethernet port as edge port. By default, all Ethernet ports of a switch are non-edge ports.

An edge port is a port that is directly connected to a user terminal instead of another switch or a network segment. Rapid transition to the forwarding state is applied to edge ports, because no loop can be incurred by network topology change on those ports. Setting a port to be an edge port can make it to turn into forwarding state rapidly. And it is advised to configure an Ethernet port directly connected to a user terminal as an edge port.

Normally, configuration BPDUs cannot reach an edge port because the port is not connected to another switch. But when the BPDU guard function is disabled on an edge port, configuration BPDUs sent deliberately by a malicious user may reach the port. It changes itself to a non-edge port if an edge port receives a BPDU.

The bottom part of *Basic RSTP* tab page lists the RSTP attributes of all ports.



Port	Spanning Tree Mode	Port State	Port Role	Point to Point	Protocol Migration	Edge Port
Ethernet0/1	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet0/2	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet0/3	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet0/4	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet0/5	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet0/6	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet0/7	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet0/8	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet0/9	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet0/10	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet1/1	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet1/2	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet1/3	RSTP	Blocking	Disabled	Enabled	Enabled	No
Ethernet1/4	RSTP	Blocking	Disabled	Enabled	Enabled	No

2.12 FRP configuration

Before configuring FRP, make sure FRP is enabled (see section 2.3 Advanced

Configuration of this manual for details).

In FRP protocol, up to 2 levels of rings are allowed; each level has a **Ring ID**. A switch can be a node of a ring.

2.12.1 FRP Ring

This page sets FRP ring configuration: Ring ID, Ring Status, Control VLAN, Protect VLAN, Fast detection status, Node mode, Primary port and Secondary port.

Ring ID: The ring ID identifies which ring this switch belongs to. In FRP protocol, there are two levels of rings: Ring 1 and Ring 2.

Ring Status: To enable/disable the ring for the specified switch. Note that a switch can only be enabled in one ring.

Control VLAN: This is the VLAN used for transferring FRP protocol packets within the FRP ring.

Protect VLAN: It is used for transferring data packets. When a VLAN is created in a ring, this VLAN must be configured as a **Protect VLAN** or **Control VLAN**.

Fast detection status: When enabled, the FRP will use the **FastHelloTime** and **FastFailTime** instead of **HelloTime** and **FailTime** to send packets periodically to detect ring connect status.

Node mode: Each switch on a FRP ring is called a node. There are two types of nodes: **Master** and **Transit**. The master node sends HELLO (healthy detect) packet periodically from its primary port. This packet is transmitted on the ring by the transit nodes in turn. If the secondary port of the master receives the HELLO packet sent by itself, this indicates the ring is completed. Otherwise, the HELLO packet cannot reach itself, and the master node will consider a link failure has occurred in the ring.

The transit nodes are responsible for monitoring the states of the FRP links they are directly connected to, and notify the master node of the link changes.

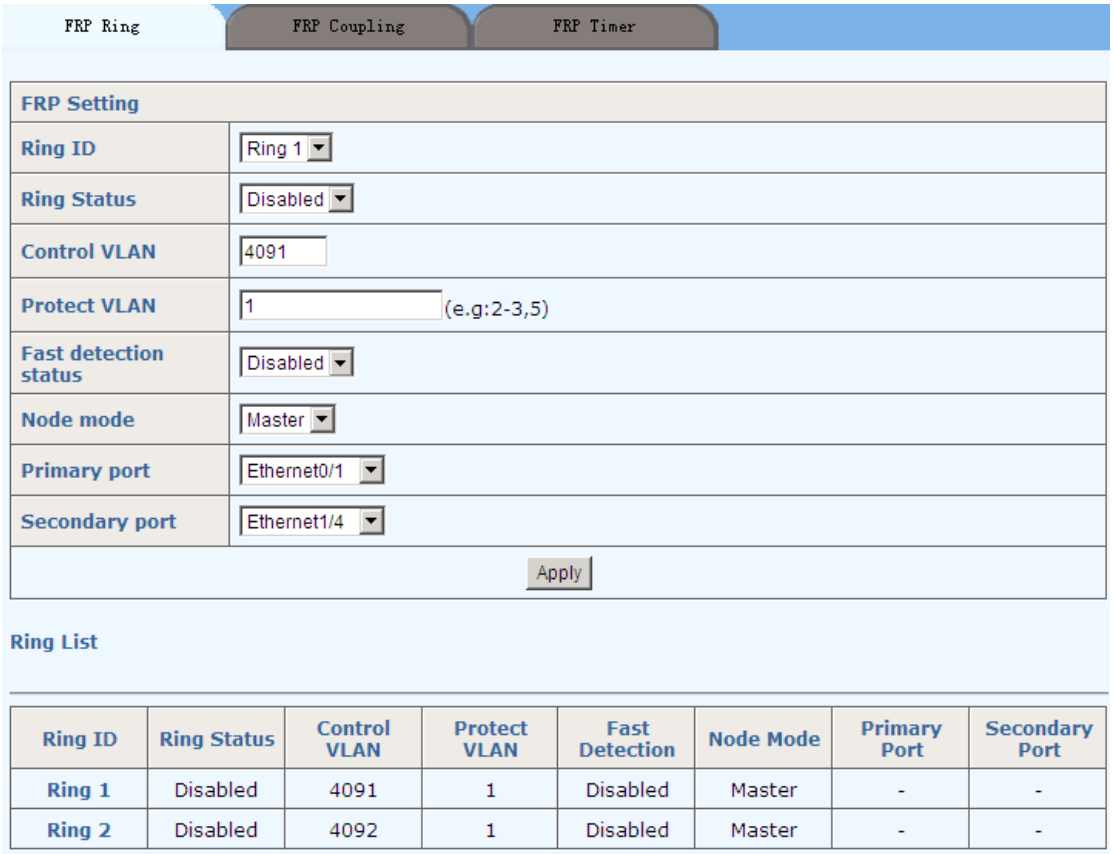
Note: A ring should have, and can only have one **Master** node.

Primary port: The master node sends FRP packets via its primary port.

Secondary port: The master node uses it to receive FRP packets. Block it to prevent flooding, while unblock it when a link failure has occurred.

The primary and secondary ports of a transit node have the same functions.

The bottom part of this page lists the configuration of each of the two rings.

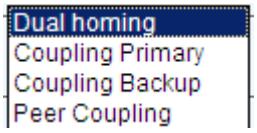


2.12.2 FRP Coupling

This page sets FRP coupling configuration: Ring, Coupling Status, Coupling Mode, Coupling Control Port and Coupling Backup Port.

Ring: The ring ID associated with coupling functions.

Coupling Status: To enable/disable the coupling function of the selected ring. To enable this function, the associated ring must be enabled first.



Coupling Mode: There are four coupling modes: Dual homing, Coupling Primary, Coupling Backup, and Peer Coupling. Coupling Control Port and Coupling Backup Port play different roles in different modes. There is a coupling control port and a coupling backup port in Dual homing mode; there is only a coupling control port in Coupling Primary and Peer Coupling modes; there is only a coupling backup port in Coupling Backup mode.

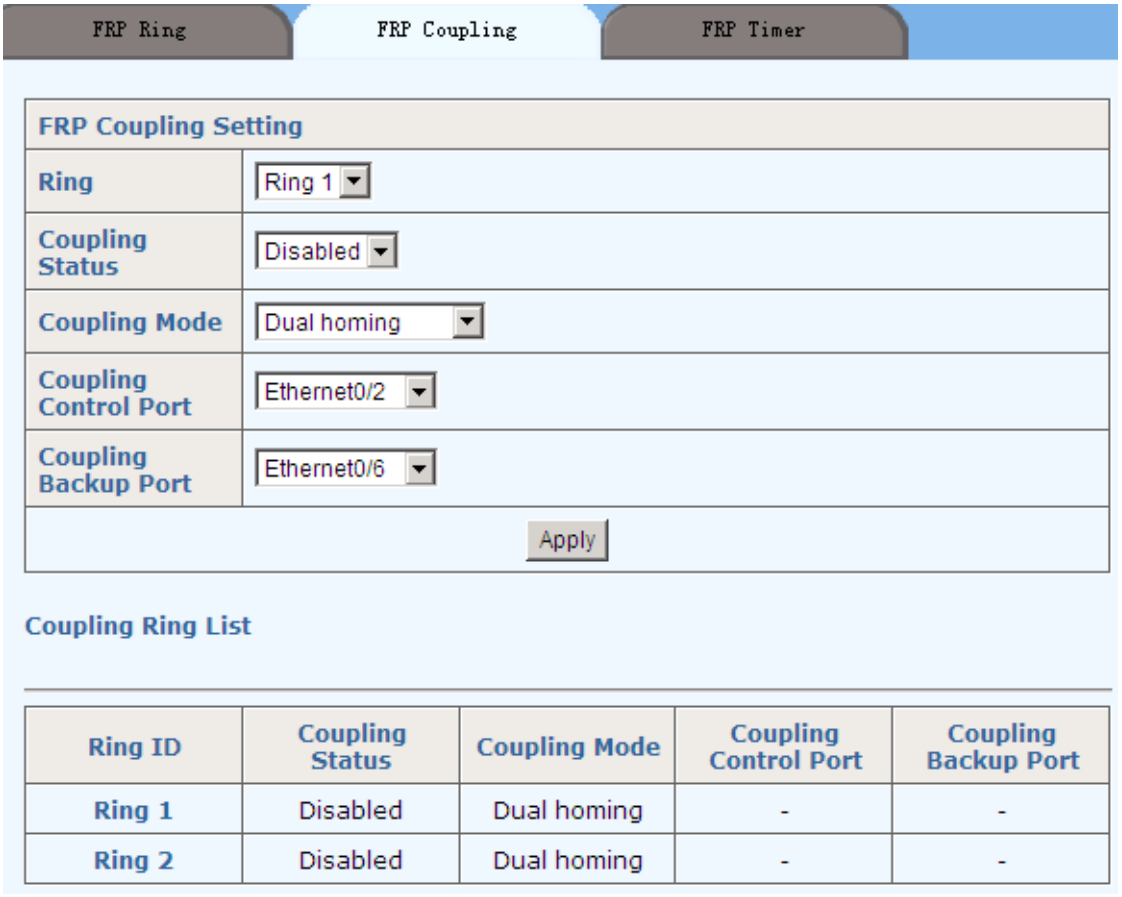
Coupling Control Port: Assign the port that is connected to the other ring as primary connection between rings. The status of this port is generally set to forwarding.

Coupling Backup Port: Assign the port that is connected to the other ring for backup. In case that the **Coupling Control Port** is broken, this port is unblocked.

Coupling Mode configuration rules:

1. Two directly connected rings cannot have the same **Ring ID**.
2. Within a ring, only one switch can be set as **Coupling Primary**, and the other one as **Coupling Backup**.
3. Within the same level ring, more than one switch can be set as **Dual homing**.

The bottom part of this page lists the configuration of two coupling rings.



2.12.3 FRP Timer

This page sets FRP timer configurations: HelloTime, FailTime, FastHelloTme and FastFailTime.

HelloTime: Sets hello time of the switch. It is in the range of 1 to 10 seconds. The default value is 1 second.

FailTime: Sets fail time of the switch. It is in the range of 3 to 30 seconds, and the default value is 3 seconds.

FastHelloTime: Sets fast hello time of the switch. It is in the range of 10 to 500 milliseconds, and the default value is 10 milliseconds.

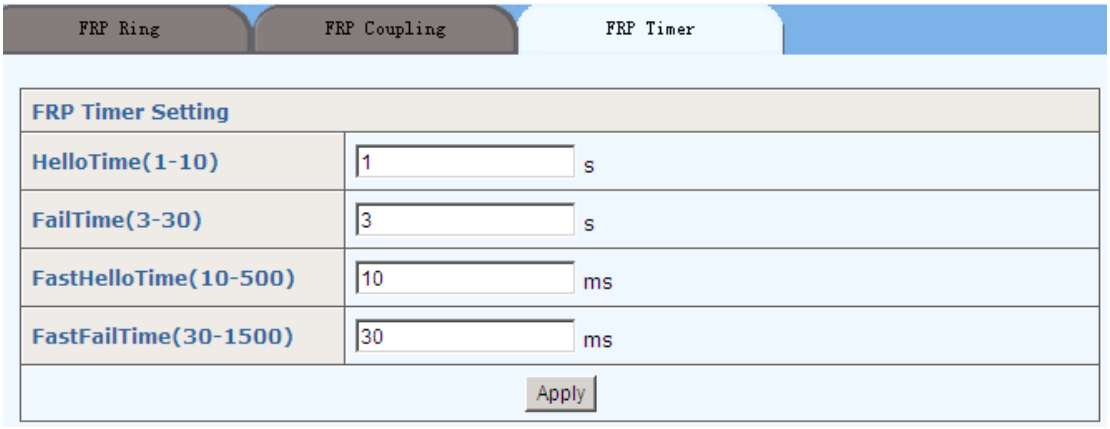
FastFailTime: Sets fast fail time of the switch. It is in the range of 30 to 1500 milliseconds. The default value is 30 milliseconds.

These timer values are used in master node. When the hello timer times out, the master node will send out a hello packet. If the fail timer times out, it indicates that a link failure has occurred in the ring.

If **Fast detection status** in FRP Ring tab page is enabled, the master node will use the **FastHelloTime** and **FastFailTime** instead of **HelloTime** and **FailTime** to set the hello timer and fail timer.

To set those parameters, the following rules shall be met:

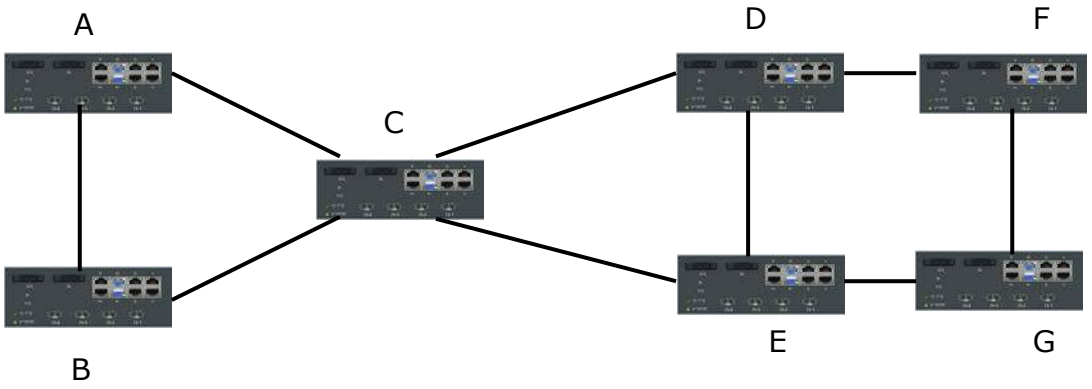
3* HelloTime < =**FailTime** and **3* FastHelloTime** <= **FastFailTime.**



2.12.4 Multi-ring Configuration Examples

(1) Dual homing

Switch A, B and C are in Ring 1, A is the master node of Ring 1; while D, E, F, G are in Ring 2, and F is the master node of Ring 2.



Configure each switch as follows; all unmentioned configurations may have been set by default.

Switch A:
Ring ID: Ring 1 Ring
Status: Enabled
Control VLAN:4091
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Master
Primary port: Ethernet1/1
Secondary port Ethernet1/2

Switch B:
Ring ID: Ring 1 Ring
Status: Enabled
Control VLAN:4091
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Transit

Primary port: Ethernet1/1
Secondary port Ethernet1/2

Switch C:
Ring ID: Ring 1 Ring
Status: Enabled
Control VLAN:4091
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Transit
Primary port: Ethernet1/1
Secondary port Ethernet1/2

Ring: Ring 1
Coupling Status: Enabled
Coupling Mode: Dual homing
Coupling Control Port: Ethernet1/3
Coupling Backup Port: Ethernet1/4

Switch D, **E**:
Ring ID: Ring 2
Ring Status: Enabled
Control VLAN:4092
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Transit
Primary port: Ethernet1/1
Secondary port Ethernet1/2

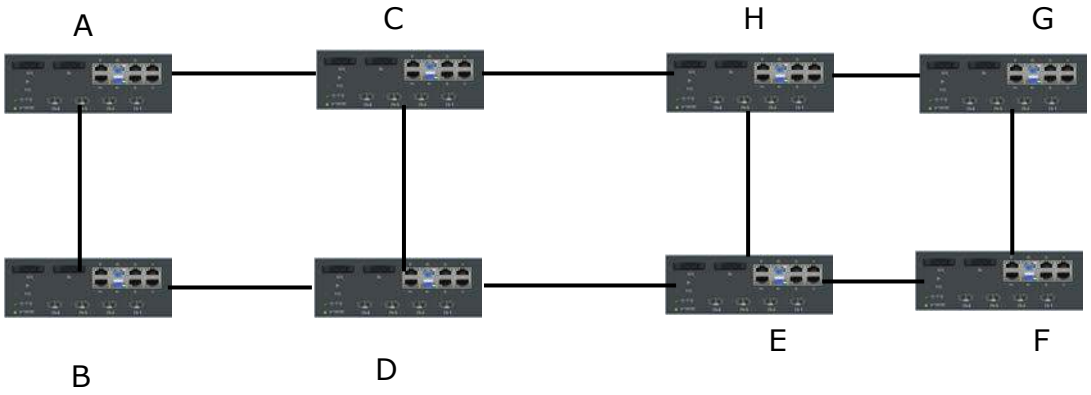
Ring: Ring 2
Coupling Status: Enabled
Coupling Mode: Peer Coupling
Coupling Control Port: Ethernet1/3
Coupling Backup Port: none

Switch F:
Ring ID: Ring 2 Ring
Status: Enabled
Control VLAN:4092
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Master
Primary port: Ethernet1/1
Secondary port Ethernet1/2

Switch G:
Ring ID: Ring 2 Ring
Status: Enabled
Control VLAN:4092
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Transit
Primary port: Ethernet1/1
Secondary port Ethernet1/2

(2) Coupling

Switch A, B, C, D are in Ring 1, A is the master node of Ring1; while E, F, G, H are in Ring 2, and G is master node of Ring2.



Configure each switch as follows; all unmentioned configurations may have been set by default.

Switch A:
Ring ID: Ring 1 Ring
Status: Enabled
Control VLAN:4091
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Master
Primary port: Ethernet1/1
Secondary port:
Ethernet1/2

Switch B: Ring
ID: Ring 1
Ring Status: Enabled
Control VLAN:4091
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Transit
Primary port: Ethernet1/1
Secondary port Ethernet1/2

Switch C:
Ring ID: Ring 1 Ring
Status: Enabled
Control VLAN:4091
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Transit
Primary port: Ethernet1/1
Secondary port Ethernet1/2

Ring: Ring 1
Coupling Status: Enabled
Coupling Mode: Coupling Primary
Coupling Control Port: Ethernet1/3
Coupling Backup Port: none

Switch D:

Ring ID: Ring 1 Ring
Status: Enabled
Control VLAN:4091
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Transit
Primary port: Ethernet1/1
Secondary port Ethernet1/2

Ring: Ring 1
Coupling Status: Enabled
Coupling Mode: Coupling Backup
Coupling Control Port: none
Coupling Backup Port: Ethernet1/3

Switch E, H:
Ring ID: Ring 2 Ring
Status: Enabled
Control VLAN:4092
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Transit
Primary port: Ethernet1/1
Secondary port Ethernet1/2

Ring: Ring 2
Coupling Status: Enabled
Coupling Mode: Peer Coupling
Coupling Control Port: Ethernet1/3
Coupling Backup Port: none

Switch F:
Ring ID: Ring 2 Ring
Status: Enabled
Control VLAN:4092
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Transit
Primary port: Ethernet1/1
Secondary port Ethernet1/2

Switch G:
Ring ID: Ring 2 Ring
Status: Enabled
Control VLAN:4092
Protect VLAN: 1
Fast detection status:
Enabled Node mode: Master
Primary port: Ethernet1/1
Secondary port Ethernet1/2

2.13 SNMP Manager

2.13.1 SNMP Account

There are two tab pages: *SNMP Community* and *SNMP User*.

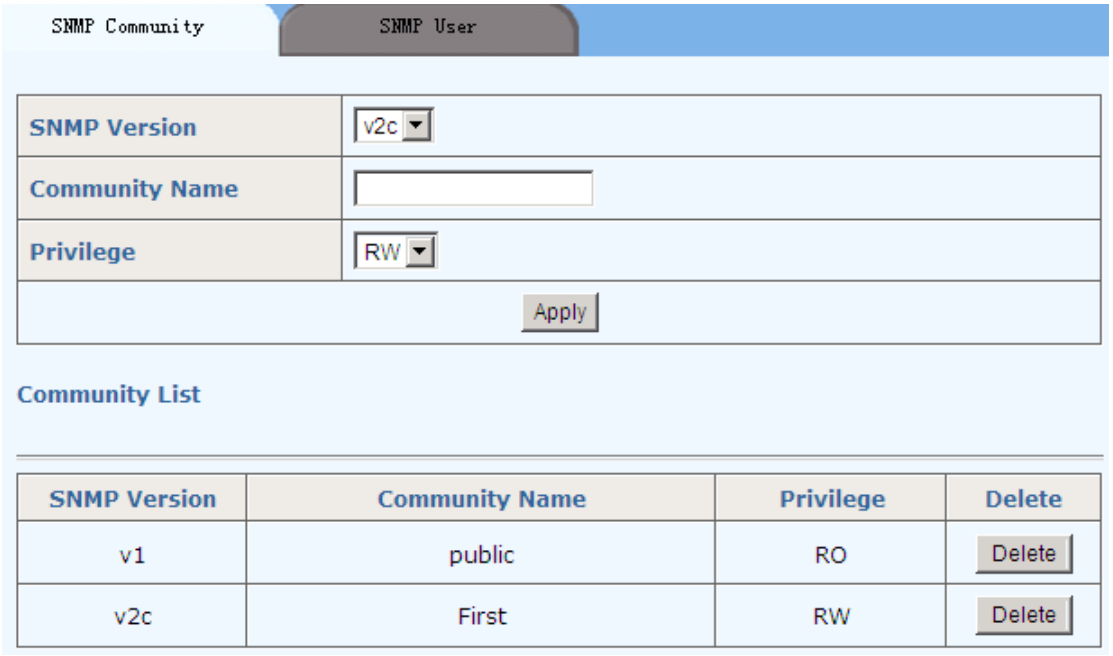
(1) SNMP Community

This page sets SNMP **Version (**between v**1 and** v**2c)**, Community **Name and Privilege** (between **RO** and **RW)**.
v1: Creates a SNMPv1 user. **v2c**:
Creates a SNMPv2c user.

Community Name: Name of the community to be created, it is a string of 3 to 16 characters.

Privilege: Specifies the privilege type: RO and RW.
RO: Specifies that the community to be created has read-only permission to MIB objects. Communities of this type can only query MIBs for device information.
RW: Specifies that the community to be created has read-write permission to MIB objects. Communities of this type are capable of configuring devices.

The bottom part of this page lists all existing SNMP v1 and v2c communities. A community can be deleted.



(2) SNMP User

This page creates an SNMP v3 user, setting USM User, Privilege, SNMP V3 Encryption, Auth Algorithm, Auth Password, Privacy Algorithm and Privacy Password.

USM User: Username, a string of 3 to 16 characters.

Privilege: Specifies the privilege type: RO and RW.

Auth Algorithm: Specifies the security mode as required by authentication. If **SNMP V3 Encryption** is not selected, neither authentication nor encryption will be performed.

MD5: Uses HMAC MD5 algorithm for authentication.
SHA: Uses HMAC SHA algorithm for authentication, which is more secure than MD5.

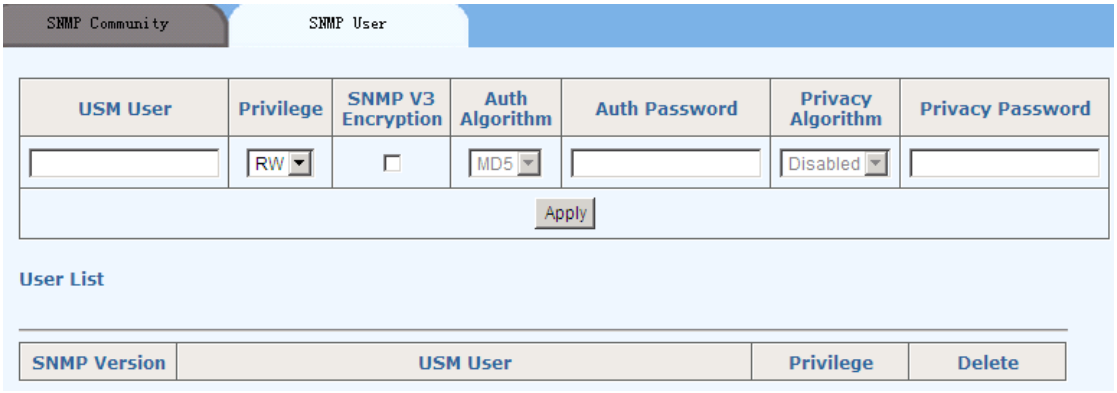
Auth Password: Authentication password, a string of 9 to 15 characters in plain text, a 32-bit hexadecimal number in cipher text if MD5 algorithm is used, and a 40-bit hexadecimal number in cipher text if SHA algorithm is used.

Privacy Algorithm: Specifies the security mode as encrypted. If you choose to enable it, you will have two selections: DES and AES.

DES: Specifies the encryption protocol as Data Encryption Standard (DES).
AES: Specifies the encryption protocol as Advanced Encryption Standard (AES), which is more secure than DES.

Privacy Password: Encryption password, a string of 9 to 15 characters in plain text, a 32-bit hexadecimal number in cipher text if MD5 algorithm is used, and a 40-bit hexadecimal number in cipher text if SHA algorithm is used.

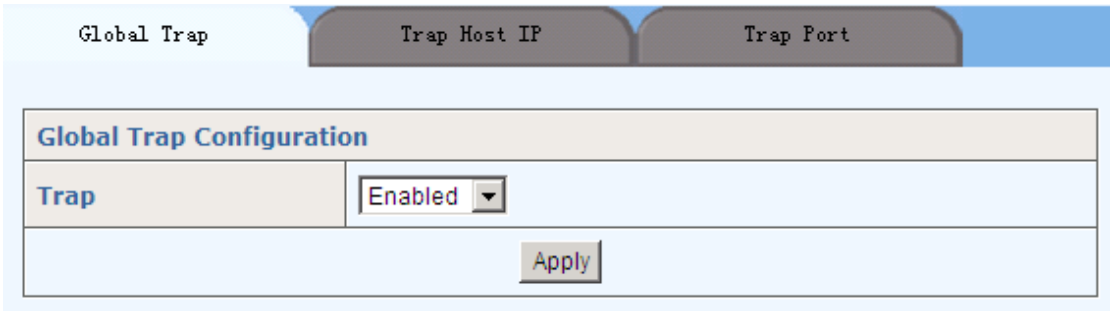
The bottom part of this page lists all existing SNMP v3 USM User, including **SNMP Version**, **USM User**, and **Privilege**; any USM User can be deleted.



2.13.2 SNMP Trap

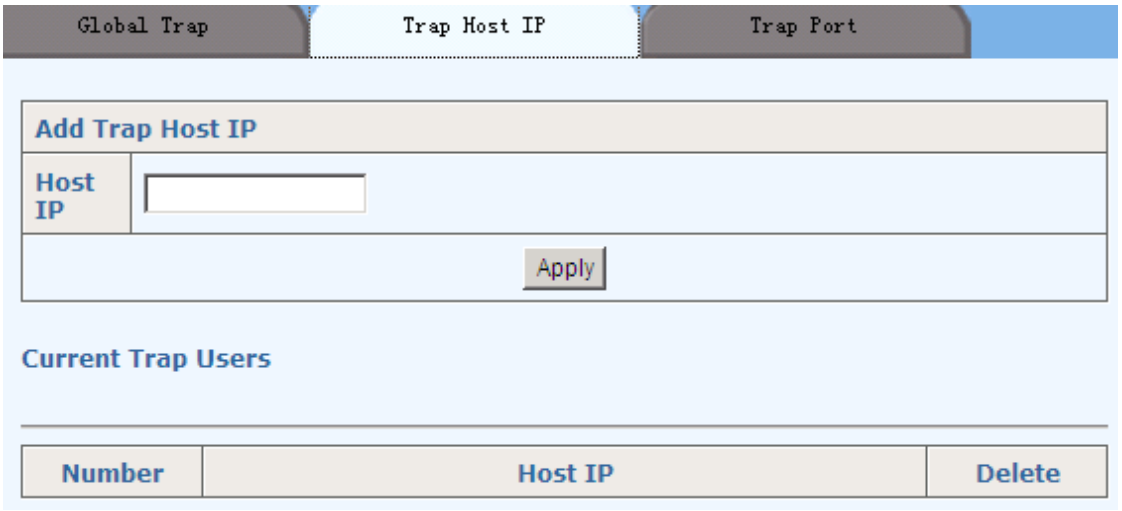
There are three tab pages: *Glob Trap*, *Trap Host IP* and *Trap Port*.

Global Trap: Globally enable/disables the trap function. By default, the trap function is enabled.



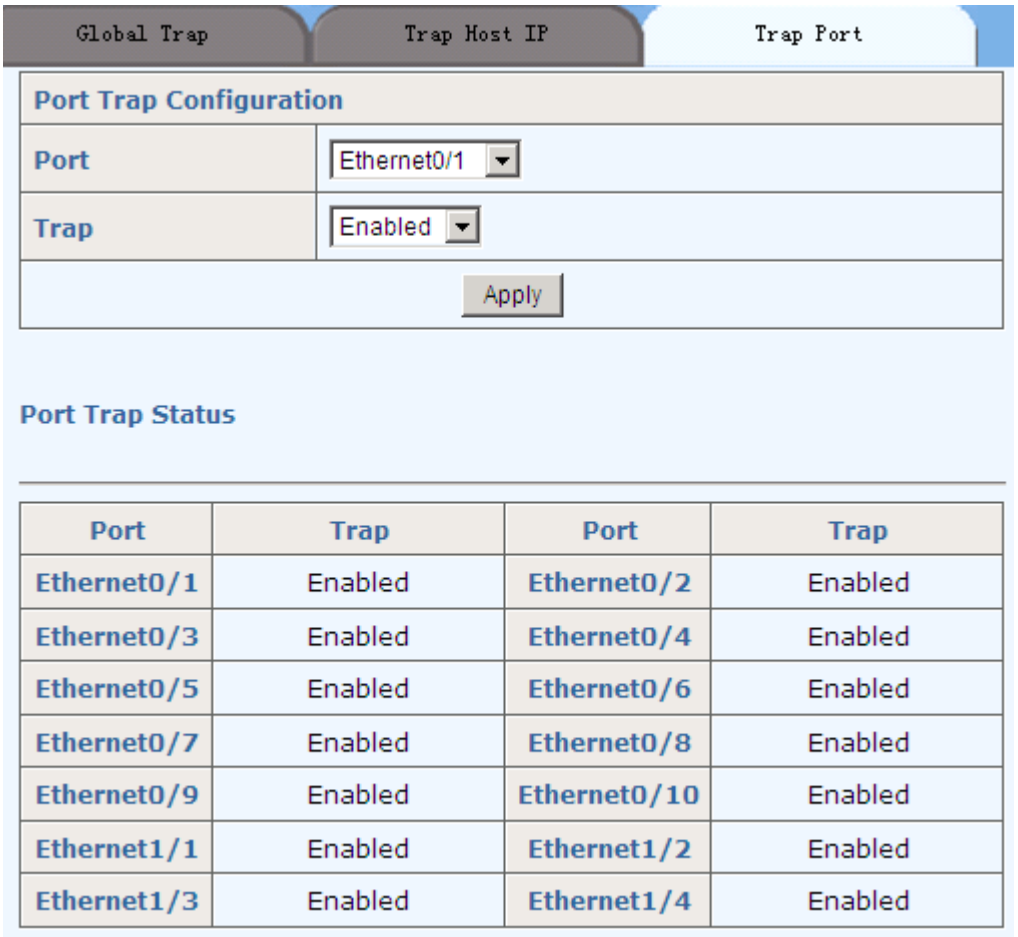
Trap Host IP: Specifies SNMP trap Host IP. Host IP is the IPv4 address of the host to receive the traps.

The bottom part of this page lists all existing hosts' IP addresses. Any trap host IP address can be deleted.



Trap Port: Enables/disables or the trap function for each port.

The bottom part of this page lists the trap status of all ports.



Port	Trap	Port	Trap
Ethernet0/1	Enabled	Ethernet0/2	Enabled
Ethernet0/3	Enabled	Ethernet0/4	Enabled
Ethernet0/5	Enabled	Ethernet0/6	Enabled
Ethernet0/7	Enabled	Ethernet0/8	Enabled
Ethernet0/9	Enabled	Ethernet0/10	Enabled
Ethernet1/1	Enabled	Ethernet1/2	Enabled
Ethernet1/3	Enabled	Ethernet1/4	Enabled

2.14 RMON

2.14.1 Statistics

This page shows the statistics of Stats Octets, Stats Pkts, BroadcastPkts, MulticastPkts, CRC Align Errors, Under size Pkts, Over size Pkts, Fragments, Jabbers, Collisions, Pkts 64 Octets, Pkts 64 to 127 Octets, Pkts 128 to 255 Octets, Pkts 256 to 511 Octets,

Pkts512 to 1023 Octets, Pkts1024 to 1518 Octets, and Drop Events of each Ethernet port.

Stats Octets: The total number of octets of received and sent data, including bad packets, received from network; it excludes framing bits but includes Frame Check Sequence (FCS) octets.

Stats Pkts: The total number of packets received and sent, including bad packets, broadcast packets and multicast packets.

BroadcastPkts: The total number of the received good packets that are directed to the broadcast address, except the multicast packets.

MulticastPkts: The total number of the received good packets that are directed to a multicast address, except the packets directed to the broadcast address.

CRC Align Errors: The total number of the received packets that has a length (excluding framing bits, but including FCS octets) of between 64 and 1518 octets (both inclusive), and has either a bad FCS with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).

Under size Pkts: The total number of the received packets that are less than 64 octets long (excluding framing bits, but including FCS octets).

Over size Pkts: The total number of the received packets that are longer than 1518 octets (excluding framing bits, but including FCS octets).

Fragments: The total number of the received packets that are less than 64 octets in length (excluding framing bits, but including FCS octets), and has either a bad FCS with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).

Jabbers: The total number of the received packets that are longer than 1518 octets (excluding framing bits, but including FCS octets), and has either a bad FCS with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).

Collisions: The best estimate of the total number of collisions on this Ethernet segment.

Pkts 64 Octets: The total number of received packets, that are 64 octets in length (excluding framing bits, but including FCS octets), including bad packets.

Pkts65 to 127 Octets: The total number of received packets, that are between 65 and 127 octets in length inclusive (excluding framing bits, but including FCS octets), including bad packets.

Pkts 128 to255 Octets: The total number of received packets, that are between 128 and 255 octets in length inclusive (excluding framing bits, but including FCS octets), including bad packets.

Pkts256 to 511 Octets: The total number of packets, including bad packets, received that are between 256 and 511 octets in length inclusive (excluding framing bits, but including FCS octets).

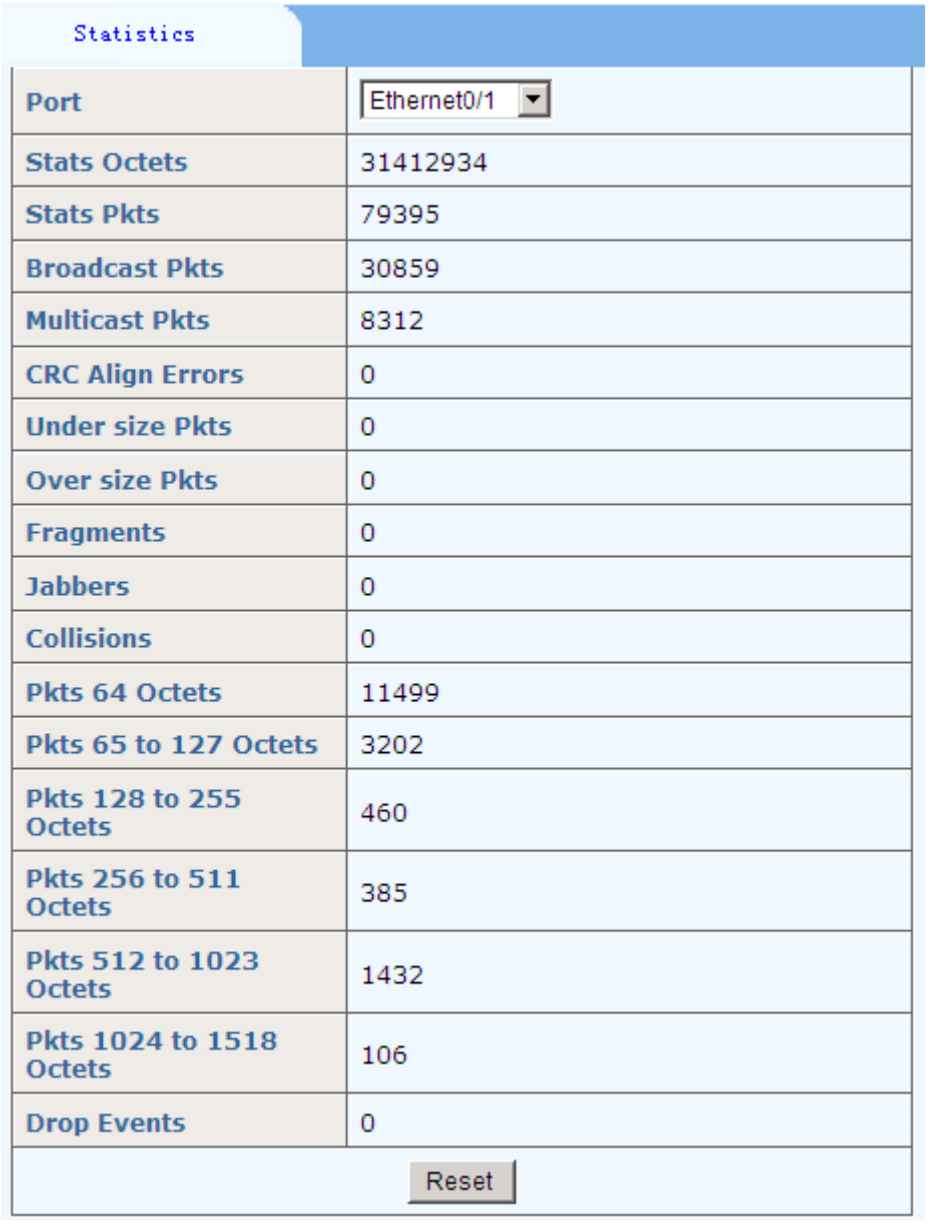
Pkts512 to 1023 Octets: The total number of received packets, that are between 512 and 1023 octets in length inclusive (excluding framing bits, but including FCS octets), including bad packets.

Pkts1024 to 1518 Octets: The total number of received packets, that are between 102 4and 1518 octets in length inclusive (excluding framing bits, but including FCS octets), including bad packets.

Drop Events: The total number of events in which packets are dropped by the probe

due to lack of resources.

All of the statistics for each Ethernet port can be reset.



2.14.2 History

(1) History control

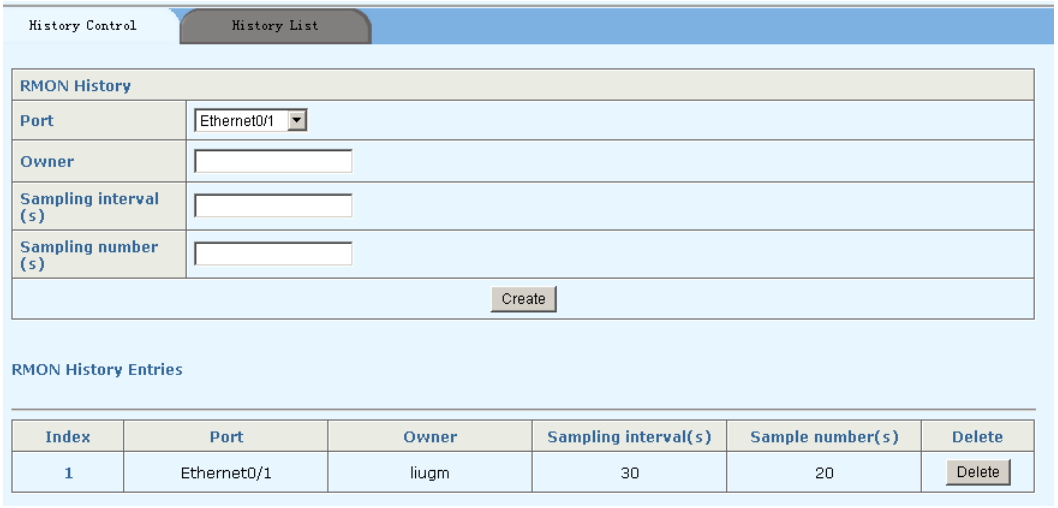
This page sets a history control entry.

Port: The Ethernet port for collecting statistics.

Owner: The entity that configured this entry and is therefore using the resources assigned to it.

Sampling interval(s): The data sample time interval of each group. The interval range is from 1 and 3600(1 hour).

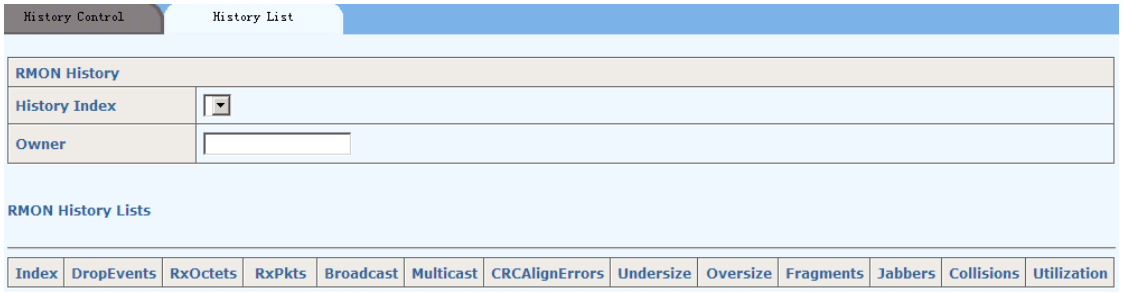
Sampling number: The number of discrete sampling intervals over which data shall be saved in the part of the media-specific table associated with this history control entry.



(2) History List

On this page, one of the history can be selected to show the relate statistics.

The bottom part of this page shows the related statistics information: DropEvents RxOctets, RxPkts, Broadcast, Multicast, CRC AlignErrors, Undersize, Oversize, Fragments, Jabbers, Collisions and Utilization.



2.14.3 Alarm

This page sets an alarm entry.

Port: The Ethernet port to collect statistics of **Variable**.

Variable: The drop-down list includes InOctets, In Ucast Pkts, In None Unicast Pkts,

In Discarded Pkts, In Error Pkts, In Unknown Protocol Pkts, Out Octets, Out Unicast Pkts, Out None Unicast Pkts, Out Discarded Pkts, Out Error Pkts, RMON Drop Events, RMON Received Octets, RMON Received Pkts, RMON Broadcast Pkts, RMON Multicast Pkts, RMON CRC Align Pkts, RMON Undersize Pkts, RMON Oversize Pkts, RMON Fragments, RMON Jabbers, RMON Collisions, 64 Octets Pkts, 65 to 127 Octets Pkts, 128 to 255 Octets Pkts, 256 to 511 Octets Pkts, 512 to 1023 Octets Pkts, 1024 to 1518 Octets Pkts, In Dot1d Topology Port Frames, Out Dot1d Topology Port Frames and In Dot1d Topology Discards.

Sample Type: Sets the type of sampling, the method of sampling the selected variable and calculating the value to be compared against the thresholds is as follows, If the value of this object is absoluteValue (1), the value of the selected variable will be compared directly with the thresholds at the end of the sampling interval. If the value of this object is deltaValue (2), the value of the selected variable at the last sample will be subtracted from the current value, and the difference will be compared with the thresholds.

Rising Threshold: The rising threshold of the sampled statistic. When the current sampled value is greater than or equal to this threshold, and the last sample value is less than this threshold, a single event will be generated. A single event will also be generated if the first sample, after this entry becomes valid, is greater than or equal to this threshold and the associated StartupAlarm is equal to RisingAlarm (1) or RisingOrFallingAlarm (3). After a rising event is generated, another such event will not be generated until the sampled value reaches the Falling Threshold or falls below this threshold.

Rising Event Index: The index of the event Entry that is used when a rising threshold is crossed. The eventEntry identified by a particular value of this index is the same as identified by the same value of the eventIndex object.

Falling Threshold: A threshold for the sampled statistic. When the current sampled value is less than or equal to this threshold, and the last sample value was greater than this threshold, a single event will be generated. A single event will also be generated if the first sample, after this entry becomes valid, is less than or equal to this threshold and the associated StartupAlarm is equal to FallingAlarm (2) or RisingOrFallingAlarm (3). After a falling event is generated, another such event will not be generated until the sampled value rises above this threshold and reaches the Rising_threshold.

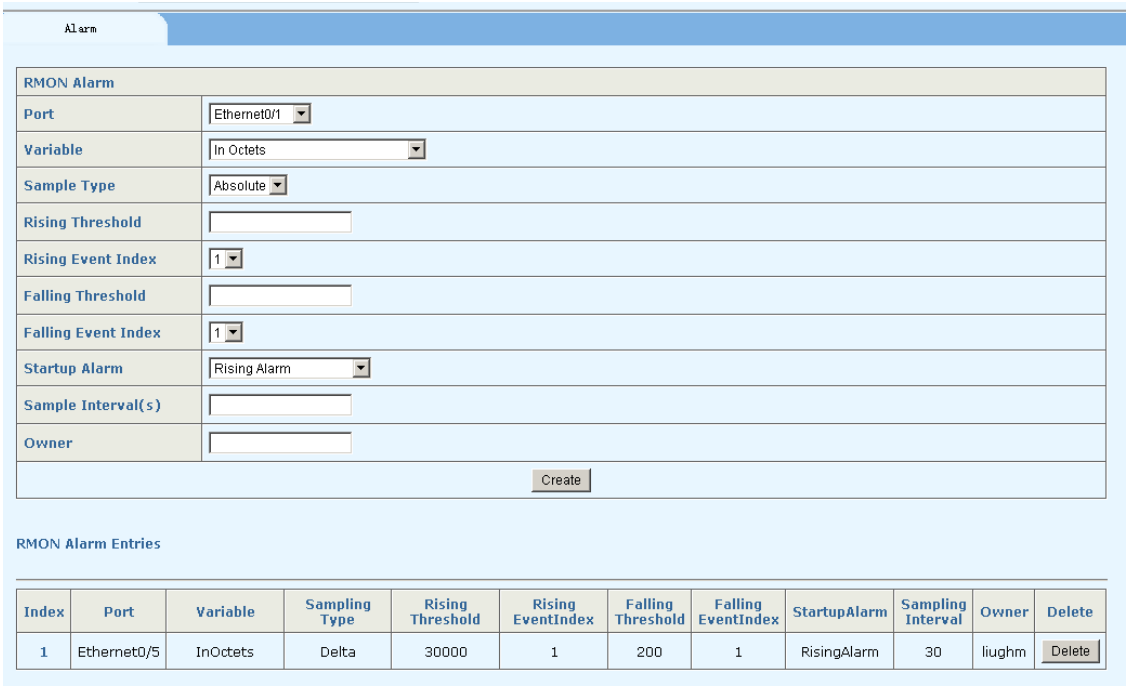
Falling Event Index: The index of the eventEntry that is used when a falling threshold is crossed. The eventEntry identified by a particular value of this index is the same as identified by the same value of the eventIndex object.

Startup Alarm: The alarm that is sent when this entry is set to be valid for the first time. If the first sample, after this entry becomes valid, is greater than or equal to the risingThreshold and alarmStartupAlarm is equal to risingAlarm (1) or RisingOrFallingAlarm (3), then a single rising alarm will be generated. If the first sample, after this entry becomes valid, is less than or equal to the falling_threshold and alarmStartupAlarm is equal to FallingAlarm (2) or RisingOrFallingAlarm (3), then a single falling alarm will be generated.

Sample Interval: The interval over which the data is sampled and compared with the rising and falling thresholds (in seconds).

Owner: The entity that configured this entry and is therefore using the resources assigned to it.

The bottom part of this tab page lists all existing alarm entries.



2.14.4 Event

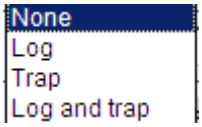
(1) *Event*

This page sets an event entry for an alarm.

Community: If an SNMP trap is to be sent, it will be sent to the SNMP community specified by this octet string.

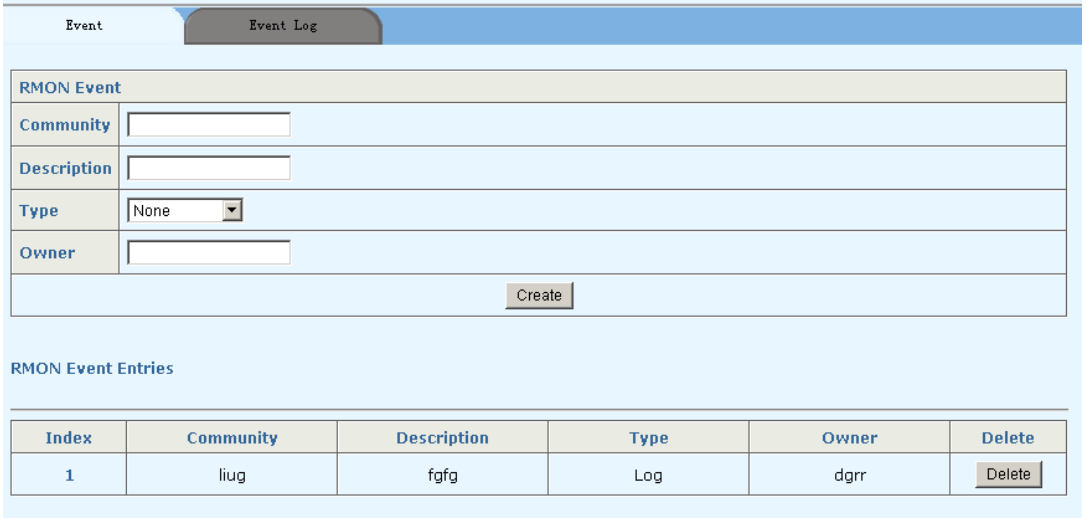
Description: A comment to describe this event entry.

Type: The type of notification that the probe makes about this event, in the case of log, an entry is made in the log table for each event; in the case of SNMP-trap, an SNMP trap is sent to one or more management.



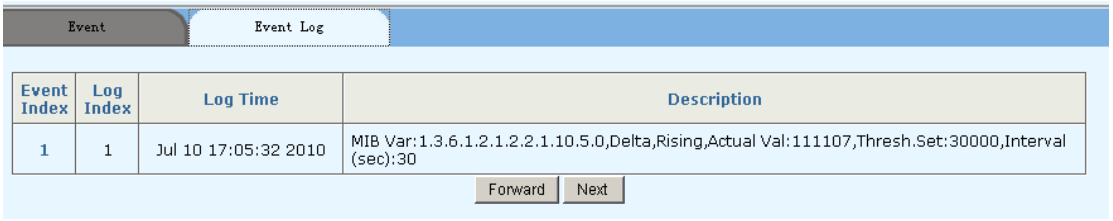
Owner: The entity that configured this entry and is therefore using the resources assigned to it.

The bottom part of this tab page lists all existing event entries.



(2) Event Log

This page shows information about event log entries, including **Event Index**, **Log Index**, **Log Time** and **Description**.

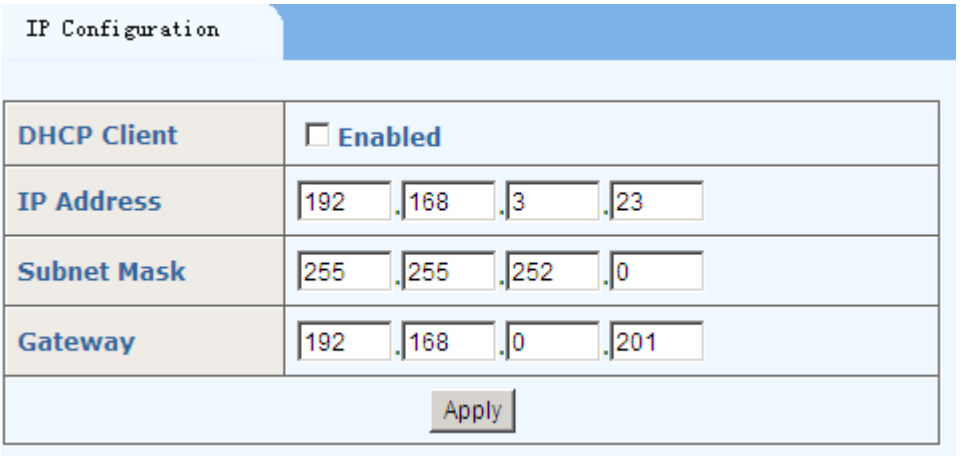


2.15 Administration

This part covers switch management and maintenance functions, including exactly the following items:

2.15.1 IP Configuration

The switch supports DHCP and Static IP. **DHCP Client** can be enabled by checking the **Enabled** checkbox. To use static IP, the **IP Address**, **Subnet Mask**, and **Gateway** can be specified.



2.15.2 SNTP

This page sets SNTP configuration.

SNTP Mode: A service mode or a client mode can be selected. In client mode, an SNTP server sets the switch time, while the switch acts as SNTP server in service mode.

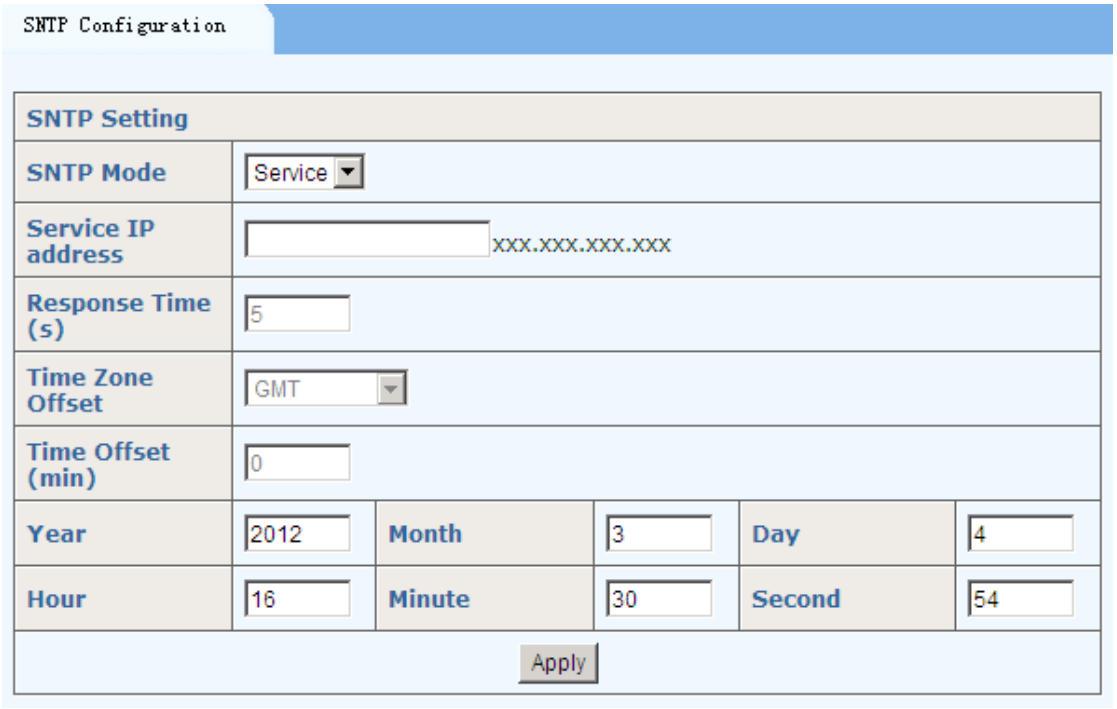
Service IP address: The IP address of the SNTP server

Response Time: A timer for this switch to get a response from the SNTP server.

Time Zone offset: The time difference in hours between Greenwich Mean Time (GMT) and local time.

Time offset: The minute offset between Greenwich Mean Time (GMT) and local time.

In service mode, **Year**, **Month**, **Day, Hour**, **Minute** and **Second** can be set for the switch system time.

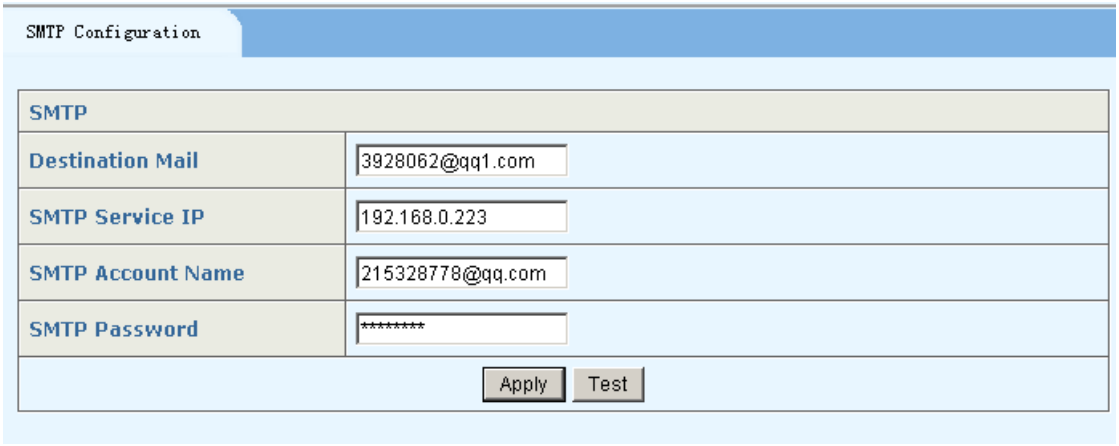


2.15.3 SMTP

This page sets SMTP configuration. When a pre-defined event occurs, an e-mail will be sent to the following destination mail address.

Destination Mail: The e-mail address to receive the event information.
SMTP Service IP: The IP address of SMTP server.
Source Account Name: Source e-mail account on SMTP server.
SMTP Password: The password for source e-mail account.

Note: click <Test> to check whether the configuration is correct. If it is correct, the destination mail will receive an e-mail.



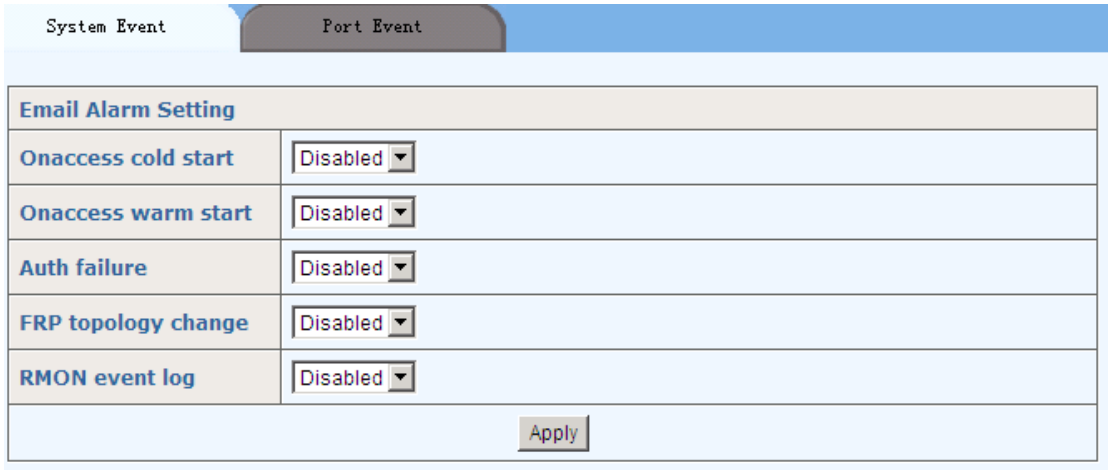
2.15.4 E-mail Alarm

This page sets the events that will trigger an e-mail described in Section 2.15.3 SMTP, including system events and port events.

(1) System Event

This page sets the following system events. Select <Apply> for an event to trigger e-mail sending when this event occurs.

cold start: The switch is booted up by turning on the power.
warm start: The switch is restarted without turning off power.
Auth failure: Fails to login to the switch due to incorrect username or password.
Frp topology change: The FRP link status has been changed, for example, the FRP port is down.
RMON event log: see Section 2.14 of this manual for details.



(2) Port Event

This page sets the following port events. Select **Enable** for an event to trigger e-mail sending when this event occurs.

Port: The port selected for event configuration

Alarm Type: If it is enabled, there are three alarm types for the event: **Link Up**, **Link Down**, and **Up & Down**.

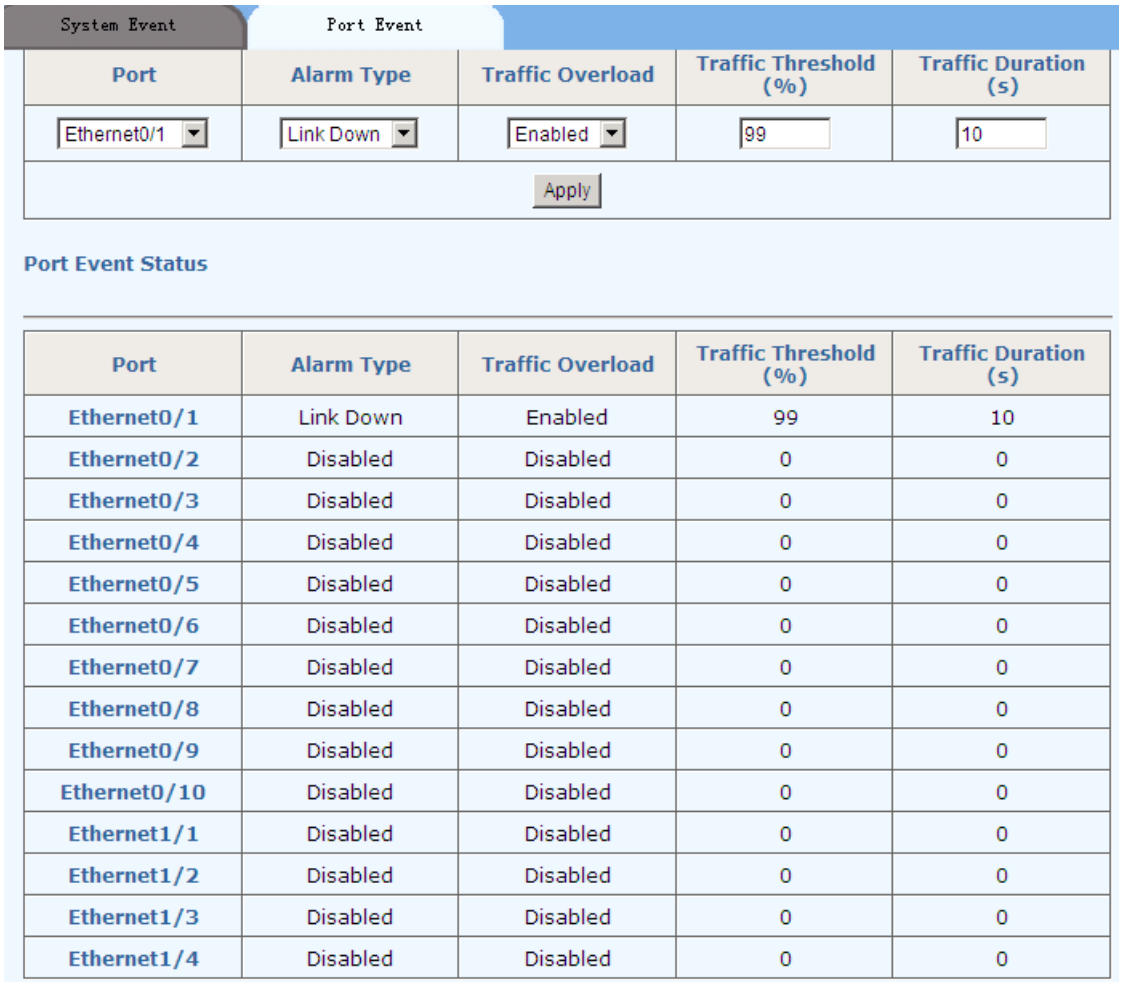
Traffic Overload: It means that the port traffic exceeds **Traffic Threshold** during a statistics time of **Traffic Duration**.

Traffic Threshold: The threshold for port traffic (in percentage of the port speed).

Traffic Duration: The statistics duration time for calculating port traffic.

Note: **Traffic Overload**, **Traffic Threshold** and **Traffic Duration** are interrelated. When **Traffic Overload** is enabled, **Traffic Threshold** shall be set with a number between 1% and 99%, and **Traffic Duration** shall be no less than 10 seconds.

The bottom part of this page lists all port events.



Port	Alarm Type	Traffic Overload	Traffic Threshold (%)	Traffic Duration (s)
Ethernet0/1	Link Down	Enabled	99	10
Ethernet0/2	Disabled	Disabled	0	0
Ethernet0/3	Disabled	Disabled	0	0
Ethernet0/4	Disabled	Disabled	0	0
Ethernet0/5	Disabled	Disabled	0	0
Ethernet0/6	Disabled	Disabled	0	0
Ethernet0/7	Disabled	Disabled	0	0
Ethernet0/8	Disabled	Disabled	0	0
Ethernet0/9	Disabled	Disabled	0	0
Ethernet0/10	Disabled	Disabled	0	0
Ethernet1/1	Disabled	Disabled	0	0
Ethernet1/2	Disabled	Disabled	0	0
Ethernet1/3	Disabled	Disabled	0	0
Ethernet1/4	Disabled	Disabled	0	0

2.15.5 Relay Alarm

This page sets **Relay Alarm** event, including *System Event* and *Port Event*. When an event occurs, the relay output will be closed for external devices and an alarm indicator, for example, takes action.

(1) System Event

This page sets system event alarm configuration, including **Power A Failure**, **Power B Failure** and **Frp Ring Broken**.
Power A Failure: Power A is off.
Power B Failure: Power B is off.
Frp Ring Broken: The FRP link status is broken.

(2) Port Event

This page sets port event alarm configuration, including **Port**, **Alarm Type**, **Traffic Overload**, **Traffic Threshold** and **Traffic Duration**.

Port: the port selected for port event configuration

Alarm Type: If it is enabled, there are three alarm types for the event: **Link Up**, **Link Down**, and **Up & Down**.

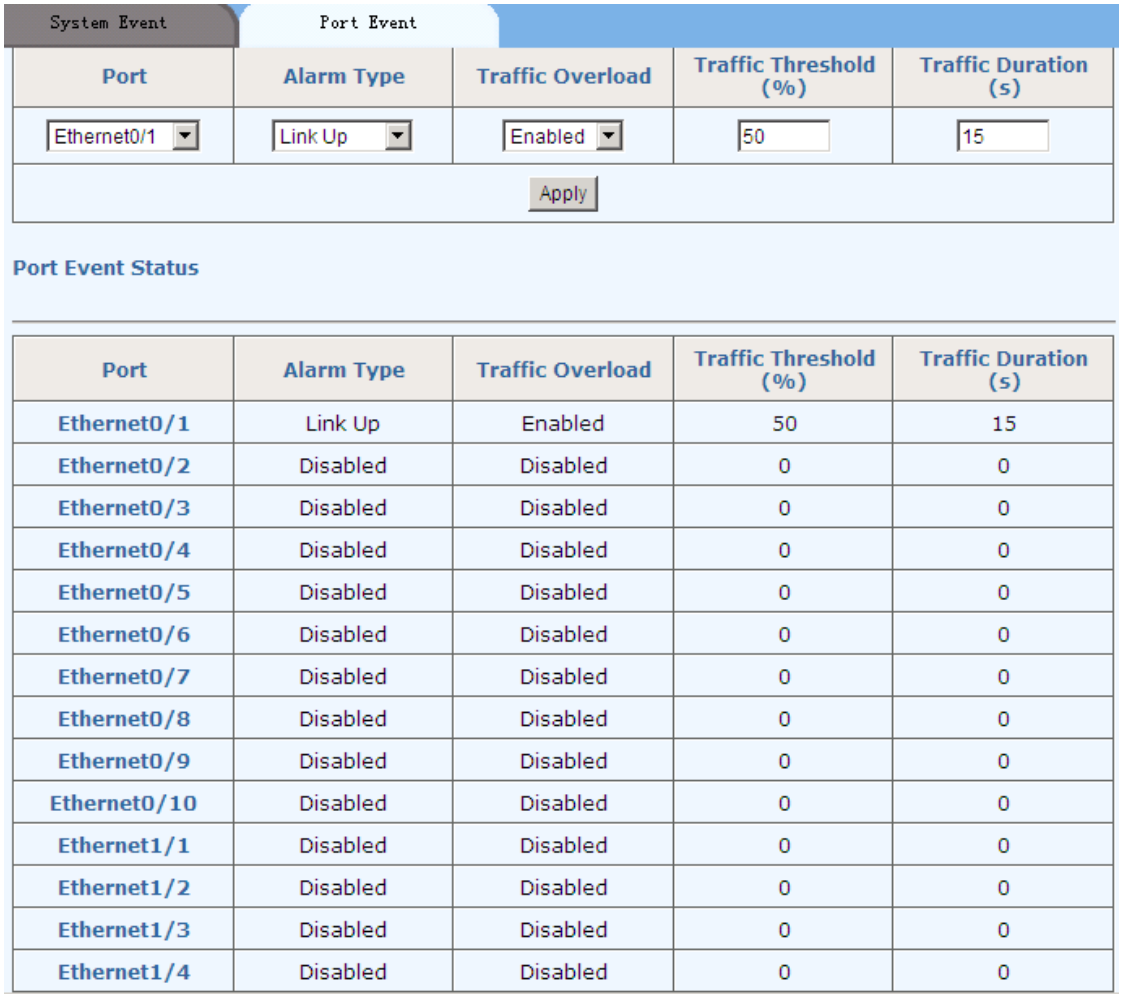
Traffic Overload: It means that the port traffic exceeds **Traffic Threshold** during a statistics time of **Traffic Duration**.

Traffic Threshold: The threshold for port traffic (in percentage of the port speed).

Traffic Duration: The statistics duration time for calculating port traffic.

Note: **Traffic Overload**, **Traffic Threshold** and **Traffic Duration** are interrelated. When **Traffic Overload** is enabled, **Traffic Threshold** shall be set with a number between 1 and 99, and **Traffic Duration** shall be no less than 10 seconds.

The bottom part of this tab page lists all port events.



2.15.6 System Log

This page shows the system logs. Only 50 logs can be shown on one page. Click <Forward> or <Next> to show more logs. All system logs can be cleared.

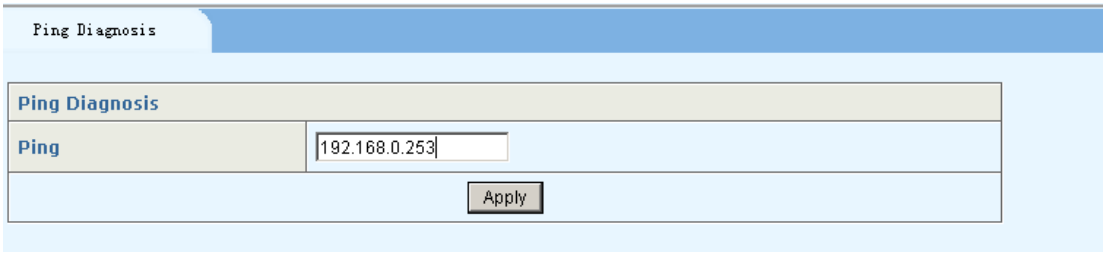
Log Information

30	1970/1/1 00:00:21 Starting system!
31	2010/11/15 19:34:56 192.168.1.103 has logout the systerm via WEB UI!
32	2010/11/15 19:31:41 192.168.1.103 logins the systerm via WEB UI!
33	2010/11/13 03:56:15 192.168.0.248 has logout the systerm via WEB UI!
34	2010/11/13 03:55:32 192.168.0.248 logins the systerm via WEB UI!
35	2010/11/13 03:53:30 192.168.0.248 has logout the systerm via WEB UI!
36	2010/11/13 03:47:53 192.168.0.248 logins the systerm via WEB UI!
37	2010/11/13 03:46:21 192.168.0.248 has logout the systerm via WEB UI!
38	2010/11/13 03:00:56 192.168.0.248 logins the systerm via WEB UI!
39	2010/11/13 02:55:12 192.168.0.37 has logout the systerm via WEB UI!
40	2010/11/13 02:51:26 192.168.0.37 logins the systerm via WEB UI!
41	2010/11/13 02:51:21 192.168.0.37 has logout the systerm via WEB UI!
42	2010/11/13 02:33:27 192.168.0.37 logins the systerm via WEB UI!
43	2010/11/13 02:30:31 192.168.0.248 has logout the systerm via WEB UI!
44	2010/11/13 02:29:16 192.168.0.248 logins the systerm via WEB UI!
45	2010/11/13 02:20:04 192.168.0.248 has logout the systerm via WEB UI!
46	2010/11/13 02:13:11 192.168.0.248 logins the systerm via WEB UI!
47	2010/11/13 02:04:40 192.168.0.37 has logout the systerm via WEB UI!
48	2010/11/13 02:03:58 192.168.0.37 logins the systerm via WEB UI!
49	2010/11/13 02:03:01 192.168.0.248 has logout the systerm via WEB UI!
50	2010/11/13 02:02:28 192.168.0.37 has logout the systerm via WEB UI!

Forward | Reset | Next

2.15.7 Ping Diagnosis

On this page, an IP address can be pinged to check the connectivity between this switch and the IP.

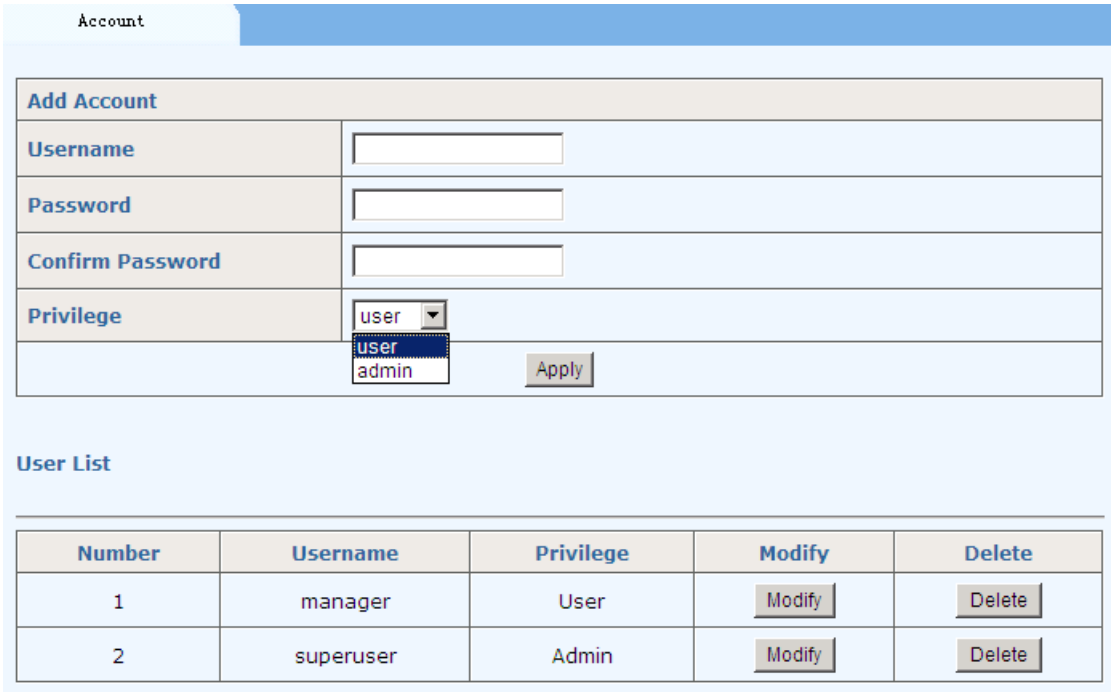


2.15.8 Account

On this page, Add **Account is** used to add a new account. A set of specified **Username**, **Password** and **Privilege** for the new account shall be assigned.

Username: Username, a string of 3 to 16 characters.
Password: Password, a string of 1 to 16 characters.
Privilege: Includes **user** and **admin**.

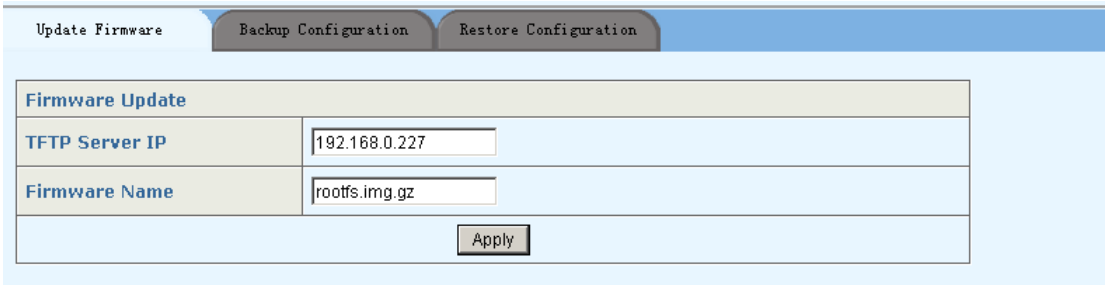
The bottom part of this page lists all account entries, including Username and **Privilege.** An account can be modified and deleted.



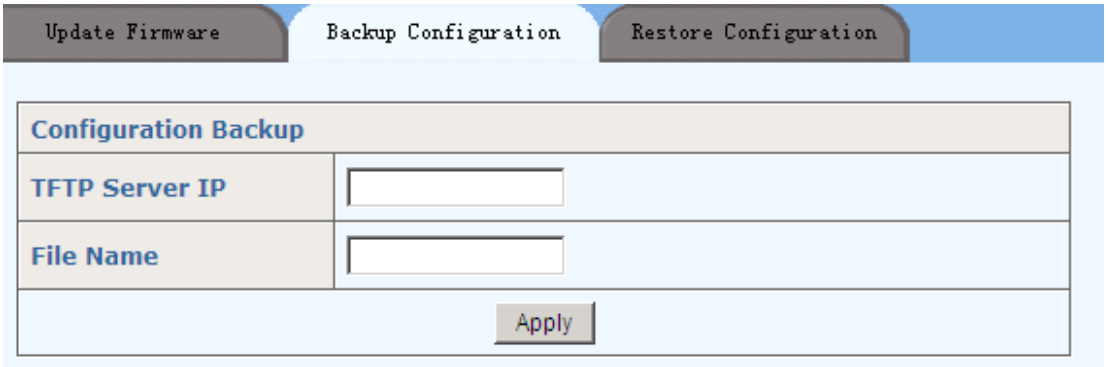
2.15.9 TFTP Services

There are three tab pages:

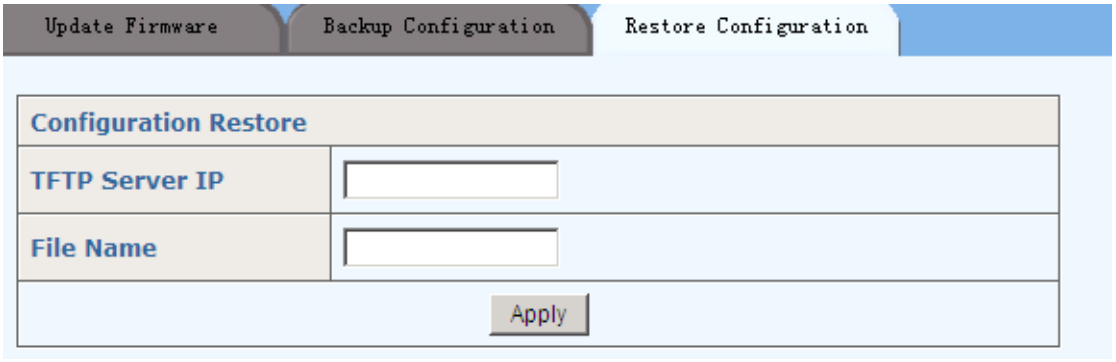
(1) *Update Firmware*: This page sets **TFTP Server IP** and **Firmware Name**. Make sure the switch is connected to the TFTP server before clicking <Apply> to update the switch firmware.



(2) *Backup Configuration*: This page sets **TFTP Server IP** and **File Name**. Make sure the switch is connected to the TFTP server before clicking <Apply> to upload the switch configuration file specified in "**File Name**" to TFTP server.



(3) *Restore Configuration*: This page sets **TFTP Server IP** and **File Name**. Make sure the switch is connected to the TFTP server, and next click <Apply> to download the file specified in "**File Name**" from the TFTP server and use it as the configuration file for the switch.



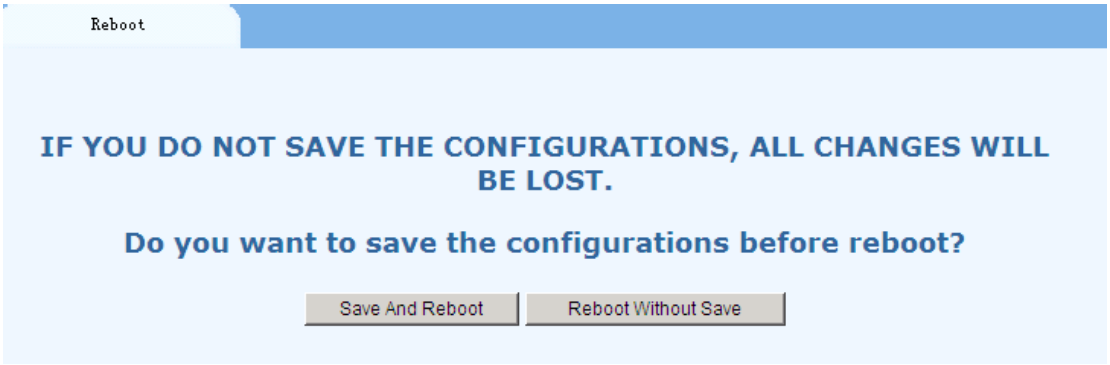
Note: Do not turn off when it is updating firmware or uploading/downloading a configuration file.

2.15.10 Reboot

There are two buttons on this page: <Save And Reboot>and <Reboot Without Save>.

Save And Reboot: To save current configuration and then reboot.

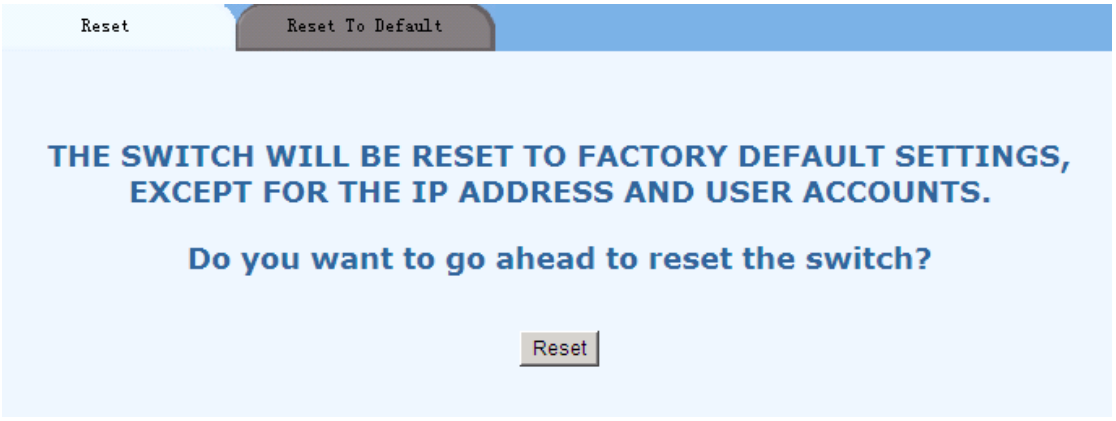
Reboot Without Save: To directly reboot without saving current configuration -- all changes may be lost.



2.15.11 Reset

There are two tab pages: *Reset* and *Reset To Default*.

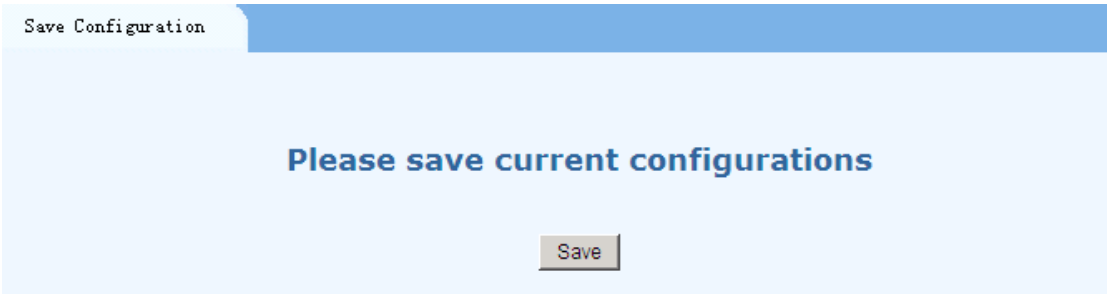
Reset: The switch will be reset to factory default setting, except for IP address and user accounts.



Reset To Default: The switch will be reset to factory default setting.

2.15.12 Save Configuration

This page saves current configurations.



2.16 Logout

Click <Logout> in the left menu to log out of the switch and close the browser.

3 Command Line Interface (CLI)

3.1 ERROR Message

If an incorrect parameter is entered, or the command cannot be executed, one of the following error messages will be displayed on screen.

- Incomplete command
- Wrong type parameter
- Wrong parameter value
- Ambiguous command
- Too many parameters or wrong parameters
- Invalid parameter
- Missing parameter
- Bad command

3.2 CLI Conventions

Convention	Description
Boldface	The keywords of a command line are in **Boldface.**
Italic	Command arguments are in *italic.*
[]	Items (keywords or arguments) in square brackets [] are optional.
{x | y | ...}	Alternative items are grouped in braces and separated by vertical bars. Only one item is selected.
[x | y | ...]	Optional alternative items are grouped in square brackets and separated by vertical bars. One item or none is selected.
#	A line starting with the # sign is comments.

3.3 Shortcuts Introduction

Line shortcuts list:

Shortcuts	Explanation
【Delete】	Delete the character on the cursor, for telnet only.
【←Backspace 】 or 【Ctrl】+【h】	Delete the left character from the cursor.
【↑】or【Ctrl】+【p】	Execute the last command if the history list has it.
【↓】or【Ctrl】+【n】	Execute the next command if the history list has it.
【←】or【Ctrl】+【b】	Move the cursor one position left.
【→】or【Ctrl】+【f】	Move the cursor one position right.
【Tab】	Auto completion
【Ctrl】+【z】	Exit current view except in System view.
【Ctrl】+【w】	Delete characters on the left of the cursor until it meets a space.
【Ctrl】+【a】	Move the cursor to the beginning of the line.
【Ctrl】+【e】	Move the cursor to the end of the line.
【Ctrl】+【u】	Delete everything from the beginning of the line to the cursor.
【Ctrl】+【d】	Delete one character on the cursor.
【Ctrl】+【k】	Delete everything from the cursor to the end of the line.
【Ctrl】+【c】	Skip the current command and go to a new line.

Page shortcuts list:

Shortcuts	Explanation
Any key except【Enter】and【q】	Show the next page.
【q】	Stop the displaying.
【Enter】	Show the next line.

3.4 CLI Command Modes

These are the following view modes for the switch:

- User view
- System view
- Ethernet port view
- Port-based VLAN view
- VLAN view

The “Any view” in the below table refers to any one of the following: System view, Ethernet port view, Port-based VLAN view, or VLAN view.

Command Mode	Access Method	Prompt	Exit Method
User view	From System view, enter the **disable** command.	>	To back to System view, enter the **Enable** command.
System view	This is the top level of access.	#	To enter into User view, enter the **disable** command.
Ethernet port view	From System view, specify an interface by entering the **interface Ethernet** command followed by interface identification.	(Ethernet/x) #	To exit to System view, enter the **end** command, or press **Ctrl-Z**
Port-based VLAN view	From System view, specify a vlan id by entering the **port-based-vlan** command followed by a vlan id.	(port-based-vlan-x) #	To exit to System view, enter the **end** command, or press **Ctrl-Z**
VLAN view	From System view, specify a vlan id by entering the **vlan** command followed by a vlan id.	(vlan)#	To exit to System view, enter the **end** command, or press **Ctrl-Z**
ACL view	From System view, enter the **acl number** command, there are three prompts.	(ACL-basic-x) # (ACL-advanced-x)# (ACL-L2-x) #	To exit to System view, enter the **end** command, or press **Ctrl-Z**
Ip-binding view	From system view, enter the **ip-binding** view command	(ip-binding) #	To exit to System view, enter the **end** command, or press **Ctrl-Z**

3.5 Global Commands

The “Any view” in the below table refers to any one of the following: System view, Ethernet port view, Port-based VLAN view, or VLAN view.

Command list:

View	Command	Explanation
Any view	**help**	Shows all available commands on current view.
	clear	Clears screen display.
	save	Saves current configuration.
	reboot	Reboots the switch.
	exit	Logs out and disconnects from the switch.

3.6 User Level

There are three user levels: Visitor, User, and Admin. The default users are listed in the following table:

Username	Password	User level
guest		Visitor
manager	123	User
superuser	123	Admin

The three levels of users have different access privileges as shown on the following table:

User level	Explanation
Visitor	CAN access the following commands: clear disable enable exit help ping ----- show (note) note: CAN NOT access the following commands: show user show snmp community show snmp traps-host show snmp user
User	CAN NOT access the following commands: **user** **no user** *user-name* **reset configuration** **tftp** *server-ip* **{get** *source-file* **| put** *dest-file}* **update firmware** *file-name* **tftp-server** *server-ip*
Admin	CAN access all commands

3.7 System Management Commands

The “Any view” in the below table refers to any one of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show ipconfig**
Any view	**show user**
Any view	**show history**
Any view	**show system-information**
Any view	**show management**
Any view	**show temperature**
Any view	**show fan-status**
Any view	**show power-status**
Any view	**show local-time**
System view	**local-time date** *date* **month** *month* **year** *year* **local-time hour** *hour* **minute** *minute* **second** *second*
Any view	**show running-config**
System view	**disable**
System view	**enable**
System view	**management mode { disable | port-based ethernet** *interface* | **vlan** *vlan-id* }
System view	**ipconfig** { **auto** | **ip** *ip-address* [**netmask** *netmask*] [**gateway** *gateway*] } **no ipconfig**
System view	**ping** *ip-address*
System view	**user** **no user** *user-name*
System view	**reset configuration**
System view	**reset counters** [**Ethernet** *interface*]
System view	**tftp** *server-ip* { **get** *source-file* | **put** *dest-file* }
System view	**update firmware** *file-name* **tftp-server** *server-ip*

Show ipconfig

Syntax

show ipconfig

View

Any view.

Parameters

None.

Description

Use **show ipconfig** command to display the IP address of the switch, including IP address, IP netmask, and IP gateway.

Examples

```
# show ipconfig
Operation Mode: Manual Setting
IP address:    192.168.0.253
IP netmask:    255.255.255.0
```

IP gateway: 192.168.0.201

Show user

Syntax

show user

View

Any view.

Parameters

None.

Description

Use **show user** command to list all user information, including user name, user password, and user level.

Examples

show user

user	password	level
guest		Visitor
manager	xxx	User
superuser	xxx	Admin

Show history

Syntax

show history

View

Any view.

Parameters

None.

Description

Use **show history** command to list history commands of the current user. History commands are those commands that were successfully executed previously and saved in the history command buffer. When the history command buffer is full, the earlier commands will be overwritten by the new ones.
By default, the CLI can save 30 history commands for each user.

Examples

show history
246 show snmp community
247 show snmp traps-host
248 show snmp traps-status
249 show snmp user
250 interface Ethernet
0/6 251 snmp-traps
252 no snmp-traps
253 show snmp
254 end
255 show snmp community

256 show snmp user
257 show snmp user
258 show snmp traps-host
259 show snmp traps-status
260 show snmp
261 snmp-server name KY-3120DM
262 show snmp
263 snmp-server nameKY-3120DM
264 show snmp
265 snmp-server community
266 snmp-server user
267 snmp-server user
268 snmp-server user
269 snmp-server traps
270 ping 64.233.189.104
271 snmp-server traps-host
272 snmp-server traps-host 192.168.0.111
273 show log
274 no log
275 show history

Show system-information

Syntax

show system-information

View

Any view.

Parameters

None.

Description

Use **show system-information** command to display the basic information of the switch, including system name, system description, system location, system contact, hardware version, firmware version, boot loader version, MAC address, and System ID.

Examples

show system-information

System Name : KY-3120DM
System Description : Optical Industrial Ethernet
Switch System Location : -
System Contact : -
Hardware Version : 8.0
Firmware Version :2.172
Boot Loader Version : 5.1.2
MAC Address : 78-ec-74-00-00-52
System ID : R3A0065037

Show management

Syntax

show management

View

Any view.

Parameters

None.

Description

Use **show management** command to display the management mode. It can be disabled, port-based, vlan and other related information.

Examples

show management
Management mode is port-based.
Management port is Ethernet0/2

Show temperature

Syntax

Show temperature

View

Any view

Parameters

None

Description

Use **show temperature** command to display the current environmental temperature of switch.

Example

show temperature

Current temperature: 37.0 degree Celsius

Show fan-status

Syntax

Show fan-status

View

Any view

Parameters

None

Description

Use **show fan-status** command to display the current status of the fans in the switch.

Example

show fan-status
Fan status: Warning

Show power-status

Syntax

show power-status

View

Any view

Parameters

None

Description

Use **show power-status** command to display the current status of power supply. There are two power supplies in the switch.

Example

show power-status
Power A status: Off
Power B status: On

Show local-time

Syntax

Show local-time

View

Any view

Parameters

None

Description

Use **show local-time** command to display the current and local time.

Example

show local-time

Local Time:

Thu Nov 13 00:14:58 2010

Local-time

Syntax

local-time date *date* **month** *month* **year** *year*
local-time hour *hour* **minute** *minute* **second** *second*

View

System view

Parameters

d*ate*: Required, between 1 to 31.
month: Required, between 1 to 12.
year: Required, between 2009 to 3000
hour: Required, between 0 to 23.
minute: Required, between 0 to 59.
second: Required, between 0 to 59.

Description

Use **local-time date** *date* **month** *month* **year** *year* command to set the date.
Use **local-time hour** *hour* **minute** *minute* **second** *second* command to set the time.

Example

local-time hour 14 minute 23 second 21
Set successfully!

Show running-config

Syntax

show running-config

View

Any view

Parameters

None

Description

Use **show running-config** command to display which configuration you have set.

Example

show running-config

Current Running Configuration:

ACL configuration
Valid ACL Num: 2, 23, 48,

VLAN configuration
VLAN Mode : 802.1Q VLAN
802.1Q Tag VLAN Ingress Filtering: Disable
Vlan 1(VID)
Vlan Name: Default
Untag Members:
Ethernet0/1
Ethernet0/2
Ethernet0/3
Ethernet0/4
Ethernet0/5
Ethernet0/6
Ethernet0/7
Ethernet0/8
Ethernet0/9
Ethernet0/10
Ethernet0/11
Ethernet0/12
Ethernet0/13
Ethernet0/14
Ethernet0/15
Ethernet0/16
Press any key to continue (Q to quit)

Disable

Syntax

disable

View

System view.

Parameters

None.

Description

Use **disable** command to log out from the current user.

Examples

disable
Exited the current level successfully.

Enable

Syntax

enable

View

System view.

Parameters

None.

Description

Use **enable** command to log in as another user.

Examples

> **enable**
user : *superuser*
password: ***
Entry level 3 (admin) successfully!

Management mode

Syntax

management mode {disable | port-based Ethernet *interface* **| vlan** *vlan-id* **}**

View

System view.

Parameters

port-based Ethernet *interface*: uses the port based management mode and sets a management interface.
Vlan *vlan-id*: uses vlan management mode and sets a management vlan.

Description

Use the **management mode** command to set the management mode and related parameters.

Examples

management mode vlan *2*
Management mode is vlan.
Management vlan is 2

Ipconfig

Syntax

ipconfig {auto | ip *ip-address* **[netmask** *netmask]* **[gateway** *gateway]* **}**
no ipconfig

View

System view.

Parameters

auto: configures IP address automatically (DHCP-client)
ip: configures IP address manually

Description

Use **ipconfig auto** command to configure IP address automatically.
Use **ipconfig ip** command to configure IP address manually.
Use **no ipconfig** to restore the default IP configuration.
The default IP configuration is in the static mode, the IP address is 192.168.0.253, the netmask is 255.255.255.0, and the gateway is 192.168.0.201.

Examples

ipconfig auto
Do you want to configure IP automatically (DHCP-client)? (y/n): y
show ipconfig
Operation Mode: Auto (DHCP-Client)
IP address: 192.168.0.11
IP netmask: 255.255.255.0
IP gateway: 192.168.0.201

Ping

Syntax

ping *ip-address*

View

System view.

Parameters

ip-address: specifies the destination IP address to send ICMP ECHO-REQUEST packet.

Description

Use **ping** command to check the reachability of a host.
The executing procedure of **ping** command is: First, the source host sends an ICMP ECHO-REQUEST packet to the destination host. Then, if the connection to the destination network is normal, the destination host receives this packet and responds with an ICMP ECHO-REPLY packet.
You can use **ping** command to check the network connectivity.

Examples

ping *192.168.0.234*
This IP is alive!

User

Syntax

user
no user *user-name*

View

System view.

Parameters

user-name: specifies the user name to be deleted.

Description

Use **user** command to add a user. To add the user, you should specify user name, user password, and user level.
Use **no user** command to delete a specified user.

Examples

#add a user named test1, password is test1, user level is admin
user
user name : test1
password : *****
password(again): *****
level (2-User, 3-Admin): 3
Add user successfully!
#delete user named test1
no user *test1*
Deleting user successfully!

Reset configuration

Syntax

reset configuration

View

System view.

Parameters

None.

Description

Use **reset configuration** command to make all of the factory default settings to be restored on the switch. When asked “Do you want to reset all the configurations except IP address and user account? (y/n)”, if you choose “y”, the switch will be reset to factory default settings, except for the IP address and user account; if you choose “n”, the switch will be reset to factory default settings including IP address and user account. The switch will reboot to take the configuration into effect.

Examples

reset configuration
Do you want to reset all the configurations except IP address and user account? (y/n): *n*
Resetting configuration, please wait...
Resetting default configuration successfully!

Reset counters

Syntax

reset counters [Ethernet *interface]*

View

System view

Parameters

interface : Ethernet port, in the form of interface = {interface-type/interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = {1 | 2 | … | 16}, when interface-type is 1, interface-number = {1 | 2 | 3 | 4}.

Description

Use **reset counters** command to reset the statistics counters in one or all ports.

Examples

reset counters Ethernet *0/1*
Clear the statistics of port Ethernet 0/1

Tftp

Syntax

tftp *server-ip* **{get** *source-file* **| put** *dest-file}*

View

System view.

Parameters

server-ip: IP address or host name of the TFTP server connected; the IP address is in X.X.X.X format.
get: specified to download a file from the TFTP server.
source-file: name of the file to be downloaded.
put: specified to upload a file to the TFTP server.
dest-file: file name used when a file is uploaded and saved to a TFTP server.

Description

Use **tftp** *tftp-server* command to connect to a TFTP server and perform download or upload operations. Upload operation will back up the configuration in a file on tftp server, and download operation will restore the configuration from a file on tftp server.

Examples

tftp *192.168.0.234* **put** *configtest*
Backing up the configuration, please wait...
Backup the configuration successfully!

Update firmware

Syntax

update firmware *file-name* **tftp-server** *server-ip*

View

System view.

Parameters

server-ip: IP address or host name of the TFTP server connected, the IP address is in X.X.X.X format.

file-name: filename of firmware.

Description

Use **update firmware** command to download new firmware from tftp server and update the new firmware to the switch.

Examples

update firmware *rootfs.img.gz* **tftp-server** *192.168.0.234*

Update the firmware, please wait...

3.8 Port Basic Configuration Commands

The “Any view” in the below table refers to any one of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show interface [Ethernet** *interface* **]**
Any view	**show interface statistics [Ethernet** *interface* **]**
Any view	**show interface Switchport Ethernet** *interface*
Any view	**show storm-control**
System view	**interface Ethernet** *interface*
Ethernet port view	**end**
Ethernet port view	**shutdown** **no shutdown**
Ethernet port view	**speed { 10 | 100 | 1000 | auto }** **no speed**
Ethernet port view	**duplex { auto | full | half }** **no duplex**
Ethernet port view	**flow-control** **no flow-control**
Ethernet port view	**learning** **no learning**
Ethernet port view	**line-rate { egress | ingress } rate** *rate-value* **no line-rate { egress | ingress }**
System view	**storm-control type** *type* **rate** *rate* **no storm-control**

Show interface

Syntax

show interface [Ethernet *interface* **]**

View

Any view.

Parameters

interface : Ethernet port, in the form of interface = {interface-type/interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = {1 | 2 | … | 16}, when interface-type is 1, interface-number

= {1 | 2 | 3 | 4}.

Description

Use **show interface** command to display the brief configuration information of one or all interfaces, including: interface type, link state, link nego, speed, duplex attribute, flow control, ingress rate and egress rate.

Examples

(Ethernet0/1) # **show interface**

PORT	STATE	LINK	NEGO	SPEED	DUPLEX	FLOW-CONTROL	LEARN	INGRESS	EGRESS
Ethernet0/1	enabled	down	auto	-	-	-	Enable	Disabled	Disabled
Ethernet0/2	enabled	down	force	-	-	-	Enable	Disabled	Disabled
Ethernet0/3	enabled	down	auto	-	-	-	Enable	Disabled	Disabled
Ethernet0/4	enabled	down	force	-	-	-	Enable	Disabled	Disabled
Ethernet0/5	enabled	down	auto	-	-	-	Enable	Disabled	Disabled
Ethernet0/6	enabled	down	force	-	-	-	Enable	Disabled	Disabled
Ethernet0/7	enabled	down	auto	-	-	-	Enable	Disabled	Disabled
Ethernet0/8	enabled	down	force	-	-	-	Enable	Disabled	Disabled
Ethernet0/9	enabled	up	auto	100M	full	off	Enable	Disabled	Disabled
Ethernet0/10	enabled	down	force	-	-	-	Enable	Disabled	Disabled
Ethernet0/11	enabled	down	force	-	-	-	Enable	Disabled	Disabled
Ethernet0/12	enabled	down	force	-	-	-	Enable	Disabled	Disabled
Ethernet0/13	enabled	down	force	-	-	-	Enable	Disabled	Disabled
Ethernet0/14	enabled	down	force	-	-	-	Enable	Disabled	Disabled
Ethernet0/15	enabled	down	force	-	-	-	Enable	Disabled	Disabled
Ethernet0/16	enabled	down	force	-	-	-	Enable	Disabled	Disabled
Ethernet1/1	enabled	down	auto	-	-	-	Enable	Disabled	Disabled
Ethernet1/2	enabled	down	auto	-	-	-	Enable	Disabled	Disabled
Ethernet1/3	enabled	down	auto	-	-	-	Enable	Disabled	Disabled
Ethernet1/4	enabled	down	auto	-	-	-	Enable	Disabled	Disabled

Show interface statistics

Syntax

show interface statistics [Ethernet *interface]*

View

Any view.

Parameters

interface : Ethernet port, in the form of interface = {interface-type/interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = {1 | 2 | … | 16}, when interface-type is 1, interface-number = {1 | 2 | 3 | 4}.

Description

Use **show interface statistics** command to display the statistics information of one or all interfaces, including: transmitted good packets, transmitted bad packets, received good packets, transmitted abort packets, collision packets, dropped packets.

Examples

show interface statistics Ethernet *0/1*

```
PORT                : Ethernet0/1
TXGOODPKTS
  H32bits           : 0
  L32bits           : 144630
TXBADPKTS           : 0
RXGOODPKTS
  H32bits           : 0
  L32bits           : 74702
RXBADPKTS           : 0
TXABORT             : 0
COLLISION           : 0
DROPPKT             : 0
```

Show interface Switchport

Syntax

show interface Switchport Ethernet *interface*

View

Any view.

Parameters

interface: Ethernet port, in the form of interface = {interface-type/interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = {1 | 2 | … | 16}, when interface-type is 1, interface-number = {1 | 2 | 3 | 4}.

Description

Use **show interface Switchport** command to display the information of the interface, including: vlan vid, egress rule, port membership type, pvid, link type, and frame type.

Examples

show interface Switchport Ethernet *0/1*

```
 Vlan vid: 1
```

Egress rule: untagged
Port membership type: static
Pvid: 1
Link type: Hybrid
Frame type: Admit all

Show storm-control

Syntax

show storm-control

View

Any view.

Parameters

None.

Description

Use **show storm-control** command to display the storm control configurations.

Examples

(vlan2) # **show storm-control** Show storm-control information Type: Broadcast
Rate :1000Kbps

Interface Ethernet

Syntax

interface Ethernet *interface*

View

System view.

Parameters

interface : Ethernet port, in the form of interface = {interface-type/interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = {1 | 2 | … | 16}, when interface-type is 1, interface-number = {1 | 2 | 3 | 4}.

Description

Use **interface Ethernet** command to enter a specific port view. Before configuring an Ethernet port, you need to enter an Ethernet port view.

Examples

interface Ethernet *0/2*
(Ethernet0/2) #

End

Syntax

end

View

Ethernet port view.

Parameters

None.

Description

Use **end** command to exit from the Ethernet port configuration environment.

Examples

(Ethernet0/9) # **end**
#

Shutdown

Syntax

shutdown
no shutdown

View

Ethernet port view.

Parameters

None.

Description

Use **shutdown** command to close the Ethernet port.
Use **no shutdown** command to bring up the Ethernet port.
By default, an Ethernet port is in the up state.

Examples

(Ethernet0/5) # **shutdown**
Port ethernet0/5 shut down.

Speed

Syntax

speed {10 | 100 | 1000 | auto}
no speed

View

Ethernet port view.

Parameters

10: specifies the port speed to 10 Mbps.
100: specifies the port speed to 100 Mbps.
1000: specifies the port speed to 1,000 Mbps (only available on Gigabit Ethernet ports).
auto: specifies the port speed to the auto-negotiation mode.

Description

Use **speed** command to set the port speed.
Use **no speed** command to restore the port speed to the default setting.
By default, the port speed is in the auto-negotiation mode.
Note that you can only specify the **1000** and **auto** keyword for Gigabit Ethernet ports.

Examples

(Ethernet0/8) # **speed 10**
speed configured at 10Mbps on ethernet0/8

Duplex

Syntax

duplex {auto | full | half}
no duplex

View

Ethernet port view.

Parameters

auto: sets the port to auto-negotiation mode.
full: sets the port to full duplex mode.
half: sets the port to half duplex mode.

Description

Use **duplex** command to set the duplex mode of the port.
Use **no duplex** command to restore the default duplex mode, that is, auto-negotiation.
By default, the port is in auto-negotiation mode.

Examples

(Ethernet0/8) # **duplex half**
duplex configured half on ethernet0/8

Flow-control

Syntax

flow-control
no flow-control

View

Ethernet port view.

Parameters

None.

Description

Use **flow-control** command to enable flow control on the Ethernet port.
Use **no flow-control** command to disable flow control on the port.
In the case that flow control is enabled on both the local and peer switches, when congestion occurs on the local switch, the local switch sends a message to notify the peer switch to stop sending packets to itself or reduce the sending rate temporarily. The peer switch will stop sending packets to the local switch or reduce the sending rate temporarily when it receives the message; and vice versa. In this way, packet loss is avoided to make the network operation normal.
By default, flow control is disabled on a port.

Examples

(Ethernet0/8) # **flow-control**
flow-control is enabled on ethernet0/8.

Learning

Syntax

learning no
learning

View

Ethernet port view.

Parameters

None.

Description

Use **learning** command to enable learning MAC address on the Ethernet port.
Use **no learning** command to disable learning MAC address on the port.
By default, learning MAC address is enabled on a port.

Examples

(Ethernet0/1) # **no learning**
Learning is disabled on ethernet0/1.

Line-rate

Syntax

line-rate {egress | ingress} rate *rate-value*
no line-rate {egress | ingress}

View

Ethernet port view.

Parameters

rate *rate-value*: the upper rate threshold of the port. The *rate-value* is one of 64k,128k,192k,256k,320k,484k,512k,640k,768k,896k,1m,2m,4m,8m,10m,15m,20m,30m,40m, 50m,60m,70m,80m,90m

Description

Use **line-rate** command to configure the upper threshold of the traffic rate in Ethernet port view.
Use **no line-rate** command to cancel the upper threshold of the traffic rate in Ethernet port view.

Examples

(Ethernet0/1) # **line-rate egress rate** *64k*
Egress rate is 64kbps on ethernet0/1

(Ethernet0/1) # **no line-rate egress**
Turn off egress rate-limit on port ethernet0/1.

Storm-control

Syntax

storm-control type *type* **rate** *rate*
no storm-control

View

System view.

Parameters

type *type*: type is in the range from 1 to 7.
1: Broadcast
2: Multicast
3: Destination LookupFailed(DLF)
4: Broadcast+Multicast
5: Broadcast+DLF
6: Multicast+DLF
7:Broadcast+Multicast+DLF
rate *rate*: rate is in the range from 64 to 104812.

Description

Use **storm-control** command to set the upper threshold of the broadcast/multicast/DLF (Destination Lookup Failed) traffic received on the port.
Use **no storm-control** command to remove the threshold configuration.
With the traffic upper threshold specified on a port, the system periodically collects statistics of the broadcast/multicast/DLF traffic on the port. Once a type of traffic exceeds the specified upper threshold, it blocks this type of traffic on the port.

Examples

storm-control type *2* **rate** *2000*
The configuration succeeds.

3.9 Link Aggregation Commands

The “Any view” in the below table refers to any one of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show lacp system-id**
Any view	**show lacp mode**
Any view	**show link-aggregation interface ethernet** *interface* **[to Ethernet** *interface* **]**
Any view	**show link-aggregation summary**
Any view	**show link-aggregation verbose** *agg-id*
System view Ethernet port view	**lacp** **no lacp**
System view	**lacp system-priority** *system-priority* **no lacp system-priority**
System view	**link-aggregation group** *agg-id* **description** *agg-name* **no link-aggregation group** *agg-id* **description**
System view	**link-aggregation group** *agg-id* **mode { manual | static }** **no link-aggregation group** *agg-id*
Ethernet port view	**lacp port-priority** *port-priority* **no lacp port-priority**
Ethernet port view	**lacp mode { active | passive }**
Ethernet port view	**link-aggregation group** *agg-id* **no link-aggregation group**

Show lacp system-id

Syntax

show lacp system-id

View

Any view.

Parameters

None.

Description

Use **show lacp system-id** command to display the device ID of the local system, including system priority and MAC address.

Examples

(Ethernet0/1) # show lacp system-id
LACP System ID: 1:00-1e-6e-12-31-23

Show lacp mode

Syntax

show lacp mode

View

Any view.

Parameters

None.

Description

Use **show lacp mode** command to list the lacp mode on each port.

Examples

(Ethernet0/1) # **show lacp mode**

PORT	ACTIVE-STATE
Ethernet0/1	active
Ethernet0/2	-
Ethernet0/3	-
Ethernet0/4	-
Ethernet0/5	-
Ethernet0/6	-
Ethernet0/7	-
Ethernet0/8	-
Ethernet0/9	-
Ethernet0/10	-
Ethernet0/11	-
Ethernet0/12	-
Ethernet0/13	-
Ethernet0/14	-
Ethernet0/15	-
Ethernet0/16	-
Ethernet1/1	-
Ethernet1/2	-
Ethernet1/3	-
Ethernet1/4	-

Show link-aggregation interface

Syntax

show link-aggregation interface Ethernet *interface 1* **[to Ethernet** *interface 2]*

View

Any view.

Parameters

Interface 1: port number.
Interface 2: in conjunction with *interface 1,* defines a range of port numbers whose link aggregation details are to be displayed. The value of *interface 2* must not be less than that of *interface 1.*

Description

Use **show link-aggregation interface** command to display the link aggregation details of a specified port or a range of ports.

Examples

show link-aggregation interface Ethernet *0/7*

```
link-aggregation ID              5
  Actor:
          Port Priority          1
          System ID            : 0-a-b-c-e-9
          Oper key               5
```

Show link-aggregation summary

Syntax

show link-aggregation summary

View

Any view.

Parameters

None.

Description

Use **show link-aggregation summary** command to display summary information of all aggregation groups.

Examples

show link-aggregation summary

```
1:00-0a-0b-0c-0e-09
LA        LA        Partner                    Selected
ID        Type      ID                         Ports
--------------------------------------------------------------------
1         Manual                               Ethernet0/1,3
2         Manual                               Ethernet0/6,8
5         Static                               Ethernet0/5,7
```

Show link-aggregation verbose

Syntax

show link-aggregation verbose *agg-id*

View

Any view.

Parameters

agg-id: aggregation group ID, which is in a range from 1 to 13 and must be the ID of an existing aggregation group.

Description

Use **show link-aggregation verbose** command to display the details of a specified aggregation group or all aggregation groups.

Examples

show link-aggregation verbose *5*
Link-aggregation ID: 5
Link-aggregation Type: Static
Link-aggregation Description: test5
System ID: 1, 0-a-b-c-e-9
Local:

Port No	Status	Priority	key
Ethernet0/5	Selected	1	5
Ethernet0/7	Selected	1	5

Lacp

Syntax

lacp
no lacp

View

System view, Ethernet port view.

Parameters

None.

Description

Use **lacp** command to enable LACP globally in system view or enable LACP on the port in Ethernet port view.
Use **no lacp** command to disable LACP globally in system view or disable LACP on the port in Ethernet port view.
By default, LACP is disabled on a port.

Examples

#enable LACP globally
lacp
LACP is enabled now!

#enable LACP on Ethernet port
0/2 (Ethernet0/2) # **lacp**
The port is enabled!

Lacp system-priority

Syntax

lacp system-priority *system-priority*

no lacp system-priority

View

System view.

Parameters

system-priority: System priority, ranging from 1 to 65,535.

Description

Use **lacp system-priority** command to set the system priority.
Use **no lacp system-priority** command to restore the default system priority.
By default, the system priority is 1.

Examples

lacp system-priority *20*
System priority is 20 now.

Link-aggregation group description

Syntax

link-aggregation group *agg-id* **description** *agg-name*
no link-aggregation group *agg-id* **description**

View

System view.

Parameters

agg-id: aggregation group ID, in a range from 1 to 13.
agg-name: aggregation group name, a string of 1 to 32 characters.

Description

Use **link-aggregation group description** command to set a description for an aggregation group.
Use **no link-aggregation group description** command to remove the description of an aggregation group.

Examples

link-aggregation group *3* **description** *test3*
The configuration is successful.

Link-aggregation group mode

Syntax

link-aggregation group *agg-id* **mode {manual | static}**
no link-aggregation group *agg-id*

View

System view.

Parameters

agg-id: aggregation group ID, in a range from 1 to 13.
manual: creates a manual aggregation group.
static: creates a static aggregation group.

Description

Use link-**aggregation group mode command** to create a manual or static

aggregation group.
Use **no link-aggregation group** command to remove the specified aggregation group.

Examples

link-aggregation group *3* **mode static**
The link-aggregation group is in the Static Mode now.
The configuration is successful.

Lacp port-priority

Syntax

lacp port-priority *port-priority*
no lacp port-priority

View

Ethernet port view.

Parameters

port-priority: port priority, ranging from 1 to 65,535.

Description

Use **lacp port-priority** command to set priority of the port.
Use **undo lacp port-priority** command to restore the default port priority.
By default, the port priority is 1.

Examples

(Ethernet0/2) # **lacp port-priority** *50*
The port priority is 50 now.

Lacp mode

Syntax

lacp mode {active | passive}

View

Ethernet port view.

Parameters

active: the port automatically sends LACP protocol packets.
passive: the port does not automatically send LACP protocol packets, and responds only if it receives LACP protocol packets from the opposite port.

Description

Use **lacp mode** command to set the mode of the port.
By default, the port mode is active.

Examples

(Ethernet0/1) # **lacp mode passive**
The port lacp is enabled!

lacp status configured as passive on Ethernet 0/1

Link-aggregation group

Syntax

link-aggregation group *agg-id*
no link-aggregation group

View

Ethernet port view.

Parameters

agg-id: aggregation group ID, in a range from 1 to 13.

Description

Use **link-aggregation group** command to add the Ethernet port to a manual or static aggregation group.
Use **no link-aggregation group** command to remove the Ethernet port from the aggregation group.

Examples

(Ethernet0/1) # **no link-aggregation group**
The port is deleted from the link-aggregation group!

(Ethernet0/1) # **link-aggregation group** *1*
The port is added into the link-aggregation group!

3.10 Mirroring Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show mirror**
System view	**monitor-port ethernet** *interface* [**to ethernet** *interface*] **no monitor-port** [**ethernet** *interface*]
System view	**mirroring-port ethernet** *interface* [**to ethernet** *interface*] { **both** | **egress** | **ingress** } **no mirroring-port** [**ethernet** *interface*]
Ethernet port view	**monitor-port** **no monitor–port**
Ethernet port view	**mirroring-port { both | egress | ingress }** **no mirroring-port**

Show mirror

Syntax

show mirror

View

Any view.

Parameters

None.

Description

Use **show mirror** command to display the port mirroring configurations.

Examples

(Ethernet0/1) # **show mirror**
Monitor-port:
Ethernet0/1
Mirroring-port:
Ethernet0/2 ingress
Ethernet0/3 ingress
Ethernet0/4 egress
Ethernet0/5 egress
Ethernet0/6 both
Ethernet0/7 both

Monitor-port

Syntax

monitor-port ethernet *interface* [**to ethernet** *interface*]
no monitor-port [**ethernet** *interface*]

View

System view.

Parameters

interface : ethernet port, in the form of interface = {interface-type/interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = {1 | 2 | … | 16}, when interface-type is 1, interface-number = {1 | 2 | 3 | 4}.

Description

Use **monitor-port** command to configure the destination port. You can use **to ethernet** *interface* to configure a range of continuous destination ports.
Use **no monitor-port** command to remove the configuration from the destination port or ports. If no Ethernet interface is specified, the mirroring function is disabled.

Examples

monitor-port ethernet *0/8* **to ethernet** *0/10*
Configuration completed successfully.

no monitor-port ethernet *0/1*
The monitor port has been deleted successfully.

Mirroring-port

Syntax

mirroring-port ethernet interface *[* to **ethernet interface***]* {**both |** egress | **ingress**}
no mirroring-port [**ethernet** *interface]*

View

System view.

Parameters

interface : ethernet port, in the form of interface = {interface-type/interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = {1 | 2 | … | 16}, when interface-type is 1, interface-number = {1 | 2 | 3 | 4}.

both: specified to mirror all packets received on and sent from the port.
ingress: specified to mirror the packets received on the port.
egress: specified to mirror the packets sent from the port.

Description

Use **mirroring-port** command to configure the source port. You can use **to ethernet** *interface* to configure a range of continuous source ports.
Use **no mirroring-port** command to remove the configuration from the source port(s). If no Ethernet interface is specified, all configured mirror ports are removed.

Examples

mirroring-port ethernet *0/2* **both**
Configuration completed successfully.

mirroring-port ethernet *0/2* **to ethernet** *0/5* **both**
Configuration completed successfully.

Monitor-port

Syntax

monitor-port
no monitor–port

View

Ethernet port view.

Parameters

None.

Description

Use **monitor-port** command to configure the destination port in Ethernet port view.
Use **no monitor-port** command to remove the configuration from the destination port in Ethernet port view.

Examples

(Ethernet0/1) # monitor-port
Configuration completed successfully.

Mirroring-port

Syntax

mirroring-port {both | egress | ingress}
no mirroring-port

View

Ethernet port view.

Parameters

both: specified to mirror all packets received on and sent from the port.
ingress: specified to mirror the packets received on the port.
egress: specified to mirror the packets sent from the port.

Description

Use **mirroring-port** command to configure the source port in Ethernet port view.
Use **no mirroring-port** command to remove the configuration from the source port in Ethernet port view.

Examples

mirroring-port ethernet 0/3 egress
Configuration completed successfully.

3.11 VLAN Commands

3.11.1 VLAN Configuration Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show vlan-mode**
Any view	**show vlan { all | dynamic | static |** *vlan-id1* **[to** *vlan-id2* **] }**
Any view	**show ingress-filtering**
System view	**vlan-mode { none | port-based | 8021Q }**
System view	**ingress-filtering** **no ingress-filtering**
System view	**vlan** *vlan-id* **no vlan { all |** *vlan-id1* **[to** *vlan-id2* **] }**
VLAN view	**end**
VLAN view	**description** *name*
VLAN view	**switchport { forbidden | tagged | untagged } ethernet** *interface* **[to ethernet** *interface* **]** **no switchport { forbidden | tagged | untagged } ethernet** *interface* **[to ethernet** *interface* **]**
VLAN view	**protocol-vlan { at | ip | ipx | mode Ethernet** *etype-id* **} no protocol-vlan { at | ip | ipx | mode Ethernet** *etype-id* **}**
Ethernet port view	**switchport pvid** *vlan-id* **no switchport pvid**
Ethernet port view	**switchport link-type { access | hybrid | trunk }** **no switchport link-type**
Ethernet port view	**switchport admit-frame { all | only-tag }** **no switchport admit-frame**

Show vlan-mode

Syntax

show vlan-mode

View

Any view.

Parameters

None.

Description

Use **show vlan-mode** to display the current setting of vlan mode.
By default, vlan mode is No VLAN.

Examples

show vlan-mode
Current vlan mode is 8021Q vlan.

show vlan

Syntax

show vlan {all | dynamic | static | *vlan-id1* **[to** *vlan-id2]* **}**

View

Any view.

Parameters

vlan-id1: specifies the ID of a VLAN the information of which is to be displayed, in the range of 1 to 4094.
to *vlan-id2*: in conjunction with *vlan-id1*, defines a VLAN range to display information of all existing VLANs in the range. The *vlan-id2* argument takes a value in the range of 1 to 4094, and must not be less than that of *vlan-id1*.
all: displays information of all the VLANs.
dynamic: displays the number of dynamic VLANs and the ID of each dynamic VLAN. Dynamic VLANs refer to VLANs that are generated through GVRP.
static: displays the number of static VLANs and the ID of each static VLAN. Static VLANs refer to VLANs manually created.

Description

Use **show vlan** command to display information of VLANs, including ID, type, VLAN interface state and member ports of a VLAN.

Examples

show vlan static
VLAN ID: 1
VLAN Type: static
Description: default
Tag Ports:
UnTag Ports:

Ethernet0/1	Ethernet0/2	Ethernet0/3
Ethernet0/4	Ethernet0/5	Ethernet0/6
Ethernet0/7	Ethernet0/8	Ethernet0/9
Ethernet0/10	Ethernet0/11	Ethernet0/12
Ethernet0/13	Ethernet0/14	Ethernet0/15
Ethernet0/16	Ethernet1/1	Ethernet1/2
Ethernet1/3	Ethernet1/4	

Forbidden Ports: Protocol
vlan information: VLAN
ID: 2
VLAN Type: static
Description: test2
Tag Ports:
UnTag Ports:
Forbidden Ports:
Protocol vlan information:
VLAN ID: 3
VLAN Type: static
Description: test3

Tag Ports: Untag

Ports: Forbidden

Ports:

Protocol vlan information:

Show ingress-filtering

Syntax

show ingress-filtering

View

Any view.

Parameters

None.

Description

Use **show ingress-filtering** to show the ingress filtering status.

Examples

show ingress-filtering
Ingress filtering status: Enabled

Vlan-mode

Syntax

vlan-mode {none | port-based | 8021Q }

View

System view.

Parameters

none: disabled VLAN function.
port-based: allows port based VLAN.
8021Q: allows 802.1q VLAN.

Description

Use **vlan-mode** to set a vlan mode.
By default, vlan mode is No VLAN.

Examples

vlan-mode port-based
Config port based vlan successfully!

Ingress-filtering

Syntax

ingress-filtering no
ingress-filtering

View

System view.

Parameters

None.

Description

Use **ingress-filtering** to discard an Ethernet package if this port is not a member of the VLAN with which this package is associated.
Use **no ingress-filtering** to forward all packages in accordance with the 802.1Q VLAN bridge specification.
By default, the ingress filtering function is disabled.

Examples

ingress-filtering
Ingress-filtering has been enabled successfully.

Vlan

Syntax

vlan *vlan-id*
no vlan {all | *vlan-id1* **[to** *vlan-id2]* **}**

View

System view.

Parameters

vlan-id: specifies the ID of a VLAN the information of which is to be created, in a range from 1 to 4094.
vlan-id1: specifies the ID of a VLAN the information of which is to be deleted, in the range of 1 to 4094.
to *vlan-id2*: in conjunction with *vlan-id1*, defines a VLAN range to delete information of all existing VLANs in the range. The *vlan-id2* argument takes a value in the range of 1 to 4094, and must not be less than that of *vlan-id1*.
all: deletes all VLANs.

Description

Use **vlan** command to enter into vlan configuration environment.
Use **no vlan** command to delete all VLANs or specified VLAN(s).

Examples

vlan *2*
(vlan2)

End

Syntax

end

View

VLAN view.

Parameters

None.

Description

Use **end** command to exit from the vlan configuration environment.

Examples

(vlan2)# **end**
#

Description

Syntax

description *name*

View

VLAN view.

Parameters

name: VLAN name, a description of 1 to 255 characters. It can contain special characters, but cannot be spaces.

Description

Use **description** command to assign a name to the VLAN.
By default, the name of a VLAN is its VLAN ID, **VLAN0001** for example.

Examples

(vlan1) # description 01vlan1
Vlan description has been created successfully.

Switchport

Syntax

switchport {forbidden | tagged | untagged} ethernet *interface* [**to ethernet** *interface]*
no switchport {forbidden | tagged | untagged} ethernet *interface* [**to ethernet** *interface]*

View

VLAN view.

Parameters

forbidden: does not allow the port to be added to the VLAN group, even if GARP indicates so.
tagged: indicates the port is a tagged member of the VLAN group. All packets forwarded by the port are tagged. The packets contain VLAN information.
untagged: indicates the port is an untagged VLAN member of the VLAN group. Packets forwarded by the port are untagged.
interface: port number. Ethernet ports to be added to or removed from the current VLAN.
to: specifies the last port number of the range.

Description

Use **switchport** command to add forbidden, tagged or untagged port to the VLAN.
Use **no switchport** command to delete forbidden, tagged or untagged port from the VLAN.

Examples

(vlan3) # switchport tagged ethernet 0/5 to ethernet 0/8 Tagged ports have been added successfully!
(vlan3) # no switchport tagged ethernet 0/5 to ethernet 0/8 The tagged ports have been deleted successfully.

Protocol-vlan

Syntax

protocol-vlan {at | ip | ipx | mode ethernetii *etype-id* **} no**
protocol-vlan { at | ip | ipx | mode ethernetii *etype-id* **}**

View

VLAN view.

Parameters

at: creates the AppleTalk-based protocol template.
ip: creates the IP-based protocol template.
ipx: creates the IPX-based protocol template.
mode: configures a user-defined protocol template.
Ethernet *etype-id*: creates the protocol template that matches the Ethernet II encapsulation format and the corresponding protocol type value of the packet. The *etype-id* argument indicates the protocol type value and ranges from 0x0600 to 0xFFFF (excluding 0x0800, 0x8137, and 0x809b).

Description

Use **protocol-vlan** command to configure the protocol template used for classifying protocol-based VLANs.
Use **no protocol-vlan** command to disable the configuration.
By default, no protocol template is configured.

Examples

(vlan5) # **protocol-vlan mode Ethernet** *0x8899*
Settings are updated successfully!
(vlan5) # **no protocol-vlan mode Ethernet** *0x8899*
Delete successfully

Switchport pvid

Syntax

switchport pvid *vlan-id*
no switchport pvid

View

Ethernet port view

Parameters

vlan-id: specifies the default VLAN ID of the port, in a range from 1 to 4094.

Description

Use **switchport pvid** command to set the default VLAN ID for the port. A trunk port sends packets of the default VLAN untagged.
Use **no switchport pvid** command to restore the default.
By default, the default VLAN ID of a port is VLAN 1.

Examples

(Ethernet0/1) # switchport pvid 3
Settings are updated successfully!

Switchport link-type

Syntax

switchport link-type {access | hybrid | trunk}

no switchport link-type

View

Ethernet port view

Parameters

access: sets the port link type to access.
hybrid: sets the port link type to hybrid.
trunk: sets the port link type to trunk.

Description

Use **switchport link-type** command to set link type of the Ethernet port.
Use **no switchport link-type** command to restore the default link type.
The default link type of an Ethernet port is **hybrid**.

Examples

(Ethernet0/9) # **switchport link-type trunk**
Settings are updated successfully!

Switchport admit-frame

Syntax

switchport admit-frame {all | only-tag}
no switchport admit-frame

View

Ethernet port view

Parameters

all: the port accepts all ingress packages
only-tag: the port accepts tagged packages, and discards untagged ones.

Description

Use **switchport admit-frame** command to configure how the port accepts ingress packages.
Use **no switchport admit-frame** command to restore the default admit-frame type on a port.
By default, the admit-frame type is **all**.

Examples

(Ethernet0/9) # **switchport admit-frame only-tag**
Settings are updated successfully!

3.11.2 Port-Based VLAN Configuration Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show port-based-vlan { all | *vlan-id1* [to *vlan-id2*] }**
System view	**port-based-vlan** *vlan-id* **no port-based-vlan { all | *vlan-id1* [to *vlan-id2*] }**
Port-based VLAN view	**end**
Port-based VLAN view	**description** *name*

Port-based VLAN view	**interface ethernet** *interface* **[to ethernet** *interface* **]** **no interface ethernet** *interface* **[to ethernet** *interface* **]**

Show port-based-vlan

Syntax

show port-based-vlan {all | *vlan-id1* **[to** *vlan-id2]* **}**

View

Any view.

Parameters

vlan-id1: specifies the ID of a VLAN the information of which is to be displayed, in the range of 1 to 255.
to *vlan-id2*: in conjunction with *vlan-id1*, defines a VLAN range to display information of all existing VLANs in the range. The *vlan-id2* argument takes a value in the range of 1 to 255, and must not be less than that of *vlan-id1*.
all: displays information of all the VLANs.

Description

Use **show port-based-vlan** command to display information of port based VLANs, including ID, description and member ports of a VLAN.

Examples

show port-based-vlan *1* **to** *2*
VLAN ID: 1
Description:
vlan1 Member
Ports:
Ethernet0/9 Ethernet0/10

VLAN ID: 2
Description: vlan2
Member Ports:
Ethernet0/2 Ethernet0/3 Ethernet0/4

Port-based-vlan

Syntax

port-based-vlan *vlan-id*
no port-based-vlan {all | *vlan-id1* **[to** *vlan-id2]* **}**

View

System view.

Parameters

vlan-id: specifies the ID of a VLAN the information of which is to be created, in the range of 1 to 255.
vlan-id1: specifies the ID of a VLAN the information of which is to be deleted, in the range of 1 to 255.
to *vlan-id2*: in conjunction with *vlan-id1*, defines a VLAN range to delete information of all existing VLANs in the range. The *vlan-id2* argument takes a value in the range of 1 to 255, and must not be less than that of *vlan-id1*.
all: deletes all port based VLANs.

Description

Use **port-based-vlan** command to enter into the port-based vlan configuration environment.
Use **no port-based-vlan** command to delete all port-based VLANs or specified VLAN(s).

Examples

port-based-vlan *3*
(port-based-vlan-3) #

End

Syntax

end

View

Port-based VLAN view.

Parameters

None.

Description

Use **end** command to exit from the port-based vlan configuration environment.

Examples

(port-based-vlan-3) # **end**
#

Description

Syntax

description *name*

View

Port-based VLAN view.

Parameters

name: VLAN name, a description of 1 to 255 characters. It can contain special characters, but cannot be spaces.

Description

Use **description** command to assign a name to the VLAN.
By default, the name of a VLAN is its VLAN ID, **VLAN0001** for example.

Examples

(port-based-vlan-3) # **description** *vlan*8*3*
(port-based-vlan-3)

Interface ethernet

Syntax

interface ethernet *interface* **[to ethernet** *interface]*
no interface ethernet *interface* **[to ethernet** *interface]*

View

Port-based VLAN view.

Parameters

interface: port number, Ethernet port to be added to or removed from the VLAN.
to: in conjunction with the other parameter to define a range of ports to add to or remove from the VLAN.

Description

Use **interface** command to assign one or multiple ports to the VLAN.
Use **no interface** command to remove the specified port(s) from the VLAN.

Examples

(port-based-vlan-2) # interface ethernet 0/2 to ethernet
0/8 Add ports successfully.
(port-based-vlan-2) # no interface ethernet 0/3 to ethernet
0/6 Delete ports successfully.

3.12 GVRP Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show garp timer**
Any view	**show gvrp status**
System view	**garp timeout {hold | join | leave | leaveall }** *timer-value* **no garp timeout {hold | join | leave | leaveall }** *timer-value*
System view Ethernet port view	**gvrp** **no gvrp**
Ethernet port view	**gvrp registration { fixed | forbidden | normal }** **no gvrp registration**

Show garp timer

Syntax

show garp timer

View

Any view.

Parameters

None.

Description

Use **show garp timer** command to display the settings of the GARP timer of all ports.
This command displays the settings of the following timers:

- Join timer
- Leave timer
- LeaveAll timer
- Hold timer

Examples

show garp timer

Join Leave Leave-all Hold

200	600	10000	10

Show gvrp status

Syntax

show gvrp status

View

VLAN view.

Parameters

None.

Description

Use **show gvrp status** command to display the GVRP settings of all ports.

Examples

```
# show gvrp status
Gvrp feature is currently enabled on this switch!
```

Ports	Gvrp-status	Registration
Ethernet0/1	Enabled	Normal
Ethernet0/2	Enabled	Normal
Ethernet0/3	Disabled	Normal
Ethernet0/4	Disabled	Normal
Ethernet0/5	Disabled	Normal
Ethernet0/6	Disabled	Normal
Ethernet0/7	Disabled	Normal
Ethernet0/8	Disabled	Normal
Ethernet0/9	Disabled	Normal
Ethernet0/10	Disabled	Normal
Ethernet0/11	Disabled	Normal
Ethernet0/12	Disabled	Normal
Ethernet0/13	Disabled	Normal
Ethernet0/14	Disabled	Normal
Ethernet0/15	Disabled	Normal
Ethernet0/16	Disabled	Normal
Ethernet1/1	Disabled	Normal
Ethernet1/2	Disabled	Normal
Ethernet1/3	Disabled	Normal
Ethernet1/4	Disabled	Normall

Garp timeout

Syntax

garp timeout {hold | join | leave | leaveall} *timer-value*
no garp timeout {hold | join | leave | leaveall} *timer-value*

View

System view.

Parameters

hold: sets the GARP Hold timer. The argument ranges from 10 to 2147483640.
join: sets the GARP Join timer. The argument ranges from 10 to 2147483640,

and the default value is 200 milliseconds.
leave: sets the GARP Leave timer. The argument ranges from 10 to 2147483640, and the default value is 600 milliseconds.
leaveall: sets the GARP Leaveall timer. The argument ranges from 10 to 2147483640, the default value is 10000 milliseconds.
timer-value: timeout time (in milliseconds) of the GARP timer (Hold, Join, Leave or Leaveall) to be set.

Description

Use **garp timeout** command to set a GARP timer.
Use **no garp timeout** command to restore to the default setting of a GARP timer.

Examples

garp timeout hold 50
Configuration was successful.

Gvrp

Syntax

gvrp
no gvrp

View

System view.
Ethernet port view.

Parameters

None.

Description

Use **gvrp** command to enable GVRP globally (in System view) or for a port (in Ethernet port view).
Use **no gvrp** command to disable GVRP globally (in System view) or for a port (in Ethernet port view).
By default, GVRP is disabled both globally and on a port.

Examples

gvrp

Global gvrp has been enabled successfully.

Gvrp registration

Syntax

gvrp registration {fixed | forbidden | normal}
no gvrp registration

View

Ethernet port view

Parameters

fixed: specifies the fixed GVRP registration mode. A port operating in this mode cannot register or deregister VLAN information dynamically. It only propagates static VLAN information. Besides, the port permits only static VLANs, that is, it propagates only static VLAN information to the other GARP members.

forbidden: specifies the forbidden GVRP registration mode. A port operating in this mode cannot register or deregister VLAN information dynamically. It permits only VLAN 1, that is, it propagates only the information of VLAN 1 to the other GARP members.

normal: specifies the normal mode. A port operating in this mode can

register or deregister VLAN information dynamically, and can propagate both dynamic and static VLAN information.

Description

Use **gvrp registration** command to configure the GVRP registration mode on a port.
Use **no gvrp registration** command to restore to the default GVRP registration mode on a port.
By default, the GVRP registration mode is **normal**.

Examples

(Ethernet0/5) # gvrp registration fixed
Cannot register or leave a vlan dynamically, can only transmit static vlan information.

3.13 QoS Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show QoS status**
Any view	**show qos queue-scheduler**
Any view	**show qos cos-local-precedence-map**
Any view	**show qos map dscp cos**
Any view	**show qos interface [ethernet** *interface*]
System view	**qos** **no qos**
System view	**qos queue-scheduler {strict-priority | wrr** *queue0-weight queue1-weight queue2-weight queue3-weight* **}** **no qos queue-scheduler**
System view	**qos cos-local-precedence-map** *cos0-map-local-prec cos1-map-local-prec cos2-map-local-prec cos3-map-local-prec cos4-map-local-prec cos5-map-local-prec cos6-map-local-prec cos7-map-local-prec* **no qos cos-local-precedence-map**
System view	**qos map dscp** *dscp* **to cos** *cos* **no qos map dscp** *dscp*
Ethernet port View	**qos-mode dot1p** **no qos-mode dot1p**
Ethernet port View	**qos-mode dscp** **no qos-mode dscp**
Ethernet port View	**priority** *priority-level* **no priority**

Show qos status

Syntax

show qos status

View

Any view.

Parameters

None.

Description

Use **show qos status** command to display QoS configuration information.

Examples

show qos status
Qos is enabled.

Show qos queue-scheduler

Syntax

show qos queue-scheduler

View

Any view.

Parameters

None.

Description

Use **show qos queue-scheduler** command to display the global queue scheduling configuration.

Examples

show qos queue-scheduler
Queue scheduling mode: weighted round robin
weight of queue 0: 2
weight of queue 1: 5
weight of queue 2: 7
weight of queue 3: 8

Show qos cos-local-precedence-map

Syntax

show qos cos-local-precedence-map

View

Any view.

Parameters

None.

Description

Use **show qos cos-local-precedence-map** command to display the 802.1p priority-to-local precedence mapping, illustrated by an 802.1p priority to local

precedence mapping table as shown in the following example.

After a packet enters a switch, the switch sets the 802.1p priority and local precedence for the packet according to its own capability and the corresponding rules. The local precedence is locally significant precedence that the switch assigns to the packet. It corresponds to an output queue. Packets with higher local precedence values take precedence over those with lower precedence values and will be processed preferentially.

Examples

```
# show qos cos-local-precedence-map
cos-local-precedence-map:
cos(802.1p) :0    1    2    3    4    5    6      7
queue       :0    0    1    1    2    2    3      3
```

Show qos map dscp cos

Syntax

show qos map dscp cos

View

Any view.

Parameters

None.

Description

Use **show qos map dscp cos** command to display the mapping of DSCP priority to 802.1p priority, illustrated by a DSCP priority to 802.1p priority mapping table as shown in the following example.

Examples

```
# show qos map dscp cos
Dscp-cos map:
d1 :  d2 0    1    2    3    4    5    6    7    8    9
0  :     0    0    0    0    0    0    0    0    1    1
1  :     1    1    1    1    1    1    2    2    2    2
2  :     2    2    2    2    3    3    3    3    3    3
3  :     3    3    4    4    4    4    4    4    4    4
4  :     5    5    5    5    5    5    5    5    6    6
5  :     6    6    6    6    6    6    7    7    7    7
6  :     7    7    7    7
```

Show qos interface

Syntax

show qos interface [ethernet *interface]*

View

Any view.

Parameters

ethernet *interface*: displays the qos information of a specified port.
interface : ethernet port, in the form of *interface* = {interface-*type*/*interface-number*}, *interface-type* = {0 | 1}, when *interface-type* is 0, *interface-number* = {1 | 2 | … | 16}, when *interface-type* is 1, *interface-number*

= {1 | 2 | 3 | 4 }..

Description

Use **show qos interface** command to display the QoS information of all Ethernet ports or a specified port.

Examples

#display the qos information of all ports
show qos interface

PORT	802.1P	PORT-BASED PRIORITY	DSCP
Ethernet0/1	disabled	0	disabled
Ethernet0/2	disabled	0	disabled
Ethernet0/3	disabled	0	disabled
Ethernet0/4	disabled	0	disabled
Ethernet0/5	disabled	0	disabled
Ethernet0/6	disabled	0	disabled
Ethernet0/7	disabled	0	disabled
Ethernet0/8	disabled	0	disabled
Ethernet0/9	disabled	0	disabled
Ethernet0/10	disabled	0	disabled
Ethernet0/11	disabled	0	disabled
Ethernet0/12	disabled	0	disabled
Ethernet0/13	disabled	0	disabled
Ethernet0/14	disabled	0	disabled
Ethernet0/15	disabled	0	disabled
Ethernet0/16	disabled	0	disabled
Ethernet1/1	disabled	0	disabled
Ethernet1/2	disabled	0	disabled
Ethernet1/3	disabled	0	disabled
Ethernet1/4	disabled	0	disabled

#display the qos information of Ethernet port 0/1
show qos interface ethernet *0/1*

PORT	802.1P	PORT-BASED PRIORITY	DSCP
Ethernet0/1	disabled	0	disabled

Qos

Syntax

qos

no qos

View

System view.

Parameters

None.

Description

Use **qos** to enable QoS function.

Use **no qos** command to disable QoS function.
By default, QoS function is disabled.

Examples

qos
QoS has been enabled.
no qos
Qos is disabled.

Qos queue-scheduler

Syntax

qos queue-scheduler {strict-priority | wrr *queue0-weight queue1-weight queue2-weight queue3-weight***}**
no qos queue-scheduler

View

System view.

Parameters

strict-priority: uses the Strict Priority (SP) algorithm for queue scheduling.
wrr: uses the Weighted Round Robin (WRR) algorithm for queue scheduling.
queue0-weight queue1-weight queue2-weight queue3-weight: customizes the weights to be assigned to queues 0 through 3. The value ranges from 0 to 55. A value of 0 means the corresponding queue adopts the SP algorithm for queue scheduling.

Description

Use **qos queue-scheduler** command to configure the queue scheduling algorithm and the related parameters.
Use **no qos queue-scheduler** command to restore to the default setting.
By default, the SP algorithm is used for all output queues of a port.

Examples

qos queue-scheduler wrr 1 2 3 4
Configuration completed successfully.

Qos cos-local-precedence-map

Syntax

qos cos-local-precedence-map *cos0-map-local-prec cos1-map-local-prec cos2-map-local-prec cos3-map-local-prec cos4-map-local-prec cos5-map-local-prec cos6-map-local-prec cos7-map-local-prec*
no qos cos-local-precedence-map

View

System view.

Parameters

cos0-map-local-prec: Local precedence to which 802.1p 0 is to be mapped, in the range 0 to 3.
cos1-map-local-prec: Local precedence to which 802.1p 1 is to be mapped, in the range 0 to 3.
cos2-map-local-prec: Local precedence to which 802.1p 2 is to be mapped, in the range 0 to 3.

cos3-map-local-prec: Local precedence to which 802.1p 3 is to be mapped, in the range 0 to 3.
cos4-map-local-prec: Local precedence to which 802.1p 4 is to be mapped, in the range 0 to 3.
cos5-map-local-prec: Local precedence to which 802.1p 5 is to be mapped, in the range 0 to 3.
cos6-map-local-prec: Local precedence to which 802.1p 6 is to be mapped, in the range 0 to 3.
cos7-map-local-prec: Local precedence to which 802.1p 7 is to be mapped, in the range 0 to 3.

Description

Use **qos cos-local-precedence-map** command to configure the mapping between 802.1p priority and local precedence.
Use **no qos cos-local-precedence-map** command to restore to default settings.
The following table lists the default 802.1p priority-to-local precedence mapping.

802.1p priority	Local precedence
0	0
1	0
2	1
3	1
4	2
5	2
6	3
7	3

Examples

qos cos-local-precedence-map 2 1 2 3 0 2 1 3
Configuration completed successfully.

Qos map

Syntax

qos map dscp *dscp* **to cos** *cos*
no qos map dscp *dscp*

View

System view.

Parameters

dscp *dscp*: the DSCP priority, this argument ranges from 0 to 63.
cos *cos*: the 802.1p priority, this argument ranges from 0 to 7.

Description

Use **qos map** command to map a DSCP priority to an 802.1p priority.
Use **no qos map** command to restore to default settings.
The default DSCP priority to 802.1p priority mapping is 0.

Examples

qos map dscp *0* **to cos** *7*
The configuration succeeds.

Qos-mode dot1p

Syntax

qos-mode dot1p

no qos-mode dot1p

View

Ethernet port view

Parameters

None.

Description

Use **qos-mode dot1p** command to enable 802.1p priority.
Use **no qos-mode dot1p** command to disable 802.1p priority.
By default, the 802.1p priority is disabled.

Examples

(Ethernet0/1) # **qos-mode dot1p**
802.1p has been enabled on port ethernet0/1

Qos-mode dscp

Syntax

qos-mode dscp

no qos-mode dscp

View

Ethernet port view

Parameters

None.

Description

Use **qos-mode dscp** command to enable DSCP priority.
Use **no qos-mode dscp** command to disable DSCP priority.
By default, the DSCP priority is disabled.

Examples

(Ethernet0/1) # **qos-mode dscp**
Dscp has been enabled on port ethernet0/1

Priority

Syntax

priority *priority-level*

no priority

View

Ethernet port view

Parameters

priority-level: port priority, ranging from 0 to 7.

Description

Use **priority** command to set the priority of a port.

Use **no priority** command to restore to the default.
By default, the priority of an Ethernet port is 0.

After executing **priority** command on a port, the port priority will be used to identify the matching local precedence for the packet (in the 802.1p-priority-to-local-precedence mapping table) regardless of what is the 802.1p priority of each inbound 802.1q-tagged packet. The packet is then assigned to an output queue corresponding to the local precedence.

Examples

(Ethernet0/1) # priority 2
Port-based priority has been set 2 on port ethernet0/1
(Ethernet0/1) # no priority
802.1p priority has restored to default 0 on port ethernet0/1

3.14 MAC Address Table Management Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show mac-address-table**
Any view	**show mac-address aging-time**
Any view	**show mac-address { static | dynamic | blackhole } [interface ethernet** *interface-number* **] [vlan** *vlan-id* **]** **show mac-address address** *mac-address* **[vlan** *vlan-id* **] [count]** **show mac-address interface ethernet** *interface-number* **[vlan** *vlan-id* **]** **show mac-address vlan** *vlan-id* **[count]** **show mac-address count**
System view	**mac-address { static | dynamic | blackhole }** *mac-address* **interface ethernet** *interface-number* **vlan** *vlan-id* **no mac-address { static | dynamic | blackhole }** *mac-address* **vlan** *vlan-id* **no mac-address interface ethernet** *interface-number* **no mac-address vlan** *vlan-id* **no mac-address vlan** *vlan-id mac-address*
Ethernet port view	**mac-address { static | dynamic | blackhole }** *mac-address* **vlan** *vlan-id* **no mac-address { static | dynamic | blackhole }** *mac-address* **vlan** *vlan-id*
System view	**mac-address timer aging** *age* **mac-address timer no-aging** **no mac-address timer**

Show mac-address-table

Syntax

show mac-address-table

View

Any view.

Parameters

None.

Description

Use **show mac-address-table** command to display information of all MAC address entries in MAC address table, including: MAC address, VLAN and port corresponding to the MAC address, the type (static learned or dynamic) of a MAC address entry, whether a MAC address is within the aging time, and so on.

Examples

show mac-address-table
show the mac address table

MAC ADDRESS	VLAN ID	STATE	PORT	AGING
00-1d-0f-7f-62-18	3	Learned	Ethernet0/7	Yes
00-1d-7d-76-1a-46	3	Learned	Ethernet0/7	Yes
00-80-77-94-dd-92	3	Dynamic	Ethernet0/7	Yes
00-0d-61-45-71-d3	3	Dynamic	Ethernet0/7	Yes
00-1d-7d-74-fa-71	3	Dynamic	Ethernet0/7	Yes
00-1f-d0-6a-df-59	3	Dynamic	Ethernet0/7	Yes
00-0e-1f-01-80-74	3	Learned	Ethernet0/7	Yes
00-1d-7d-44-a8-f7	3	Learned	Ethernet0/7	Yes
00-1d-7d-44-a9-23	3	Learned	Ethernet0/7	Yes
00-1f-d0-6a-de-f0	3	Dynamic	Ethernet0/7	Yes
00-0c-6e-c6-54-85	3	Learned	Ethernet0/7	Yes
00-1d-7d-44-a9-37	3	Learned	Ethernet0/7	Yes
00-0f-ea-4f-36-e5	3	Learned	Ethernet0/7	Yes
00-30-e3-fd-12-98	3	Dynamic	Ethernet0/7	Yes
00-40-63-ca-5b-79	3	Learned	Ethernet0/7	Yes
00-1d-7d-4c-f7-4e	3	Learned	Ethernet0/7	Yes
00-1d-7d-3f-63-ad	3	Learned	Ethernet0/7	Yes
00-1e-68-6a-ae-3d	3	Learned	Ethernet0/7	Yes
00-21-70-b9-62-4f	3	Learned	Ethernet0/7	Yes
00-1d-7d-41-46-09	3	Dynamic	Ethernet0/7	Yes
00-0a-0b-0c-0e-09	3	Learned	CPU	Yes
00-1a-4d-23-32-0a	3	Learned	Ethernet0/7	Yes
00-16-ec-5a-b6-fe	3	Dynamic	Ethernet0/7	Yes
00-1a-4d-3a-2a-d8	3	Learned	Ethernet0/7	Yes
00-1d-72-09-fa-b4	3	Learned	Ethernet0/7	Yes
00-1a-4d-6a-8b-64	3	Learned	Ethernet0/7	Yes
00-1e-68-6a-b5-3f	3	Learned	Ethernet0/7	Yes
00-1a-4d-38-9f-a6	3	Learned	Ethernet0/7	Yes
00-1a-4d-6a-8a-de	3	Learned	Ethernet0/7	Yes
00-0a-0b-0c-0e-09	1	Static	CPU	No
00-0d-61-4e-f5-e4	3	Dynamic	Ethernet0/7	Yes
02-10-18-58-36-11	3	Learned	Ethernet0/7	Yes
00-0d-61-97-b6-cc	3	Dynamic	Ethernet0/7	Yes
00-0d-61-97-a6-b4	3	Dynamic	Ethernet0/7	Yes

34 mac addresses found

Show mac-address aging-time

Syntax

show mac-address aging-time

View

Any view.

Parameters

None.

Description

Use **show mac-address aging-time** command to display the aging time of the dynamic MAC address entries in MAC address table.

Examples

show mac-address aging-time
The aging time of mac address is 300s.

Show mac-address

Syntax

show mac-address {static | dynamic | Blackhole} [interface ethernet *interface-number]* **[vlan** *vlan-id]*
show mac-address address *mac-address* **[vlan** *vlan-id]*
show mac-address interface ethernet *interface-number* **[vlan** *vlan-id]*
show mac-address vlan *vlan-id* **[count]**
show mac-address count

View

Any view.

Parameters

static: displays static MAC address entries.
dynamic: displays dynamic MAC address entries.
Blackhole: displays blackhole MAC address entries.
interface ethernet *interface-number*: specifies a port by its interface type and number, of which the MAC address entries are displayed.
vlan *vlan-id*: specifies a VLAN by its ID in a range from 1 to 4094, for which the MAC address entries are displayed.
address *mac-address*: specifies a MAC address, in the form of H-H-H-H-H-H.
count: displays the total number of MAC address entries.

Description

Use **show mac-address** command to display information of certain MAC address entries in MAC address table, including: MAC address, VLAN and port corresponding to the MAC address, the type (static or dynamic) of a MAC address entry, whether a MAC address is within the aging time, and so on.

Examples

#display the static MAC address entries for the vlan 1
show mac-address static vlan *1*

MAC ADDRESS	VLAN ID	STATE	PORT	AGING
00-1d-72-23-ed-8f	1	Static	2	No
00-1d-72-23-ed-8e	1	Static	1	No

2 static mac addresses found in 1 vlan

#display the MAC address entries for the port Ethernet 0/1

show mac-address interface ethernet *0/1*

MAC A D D R E S S	VLAN I D	STATE	PORT	AGING
00-1d-72-23-ed-8d	1	Blackhole	Ethernet0/1	No
00-1d-72-23-ed-8e	1	Static	Ethernet0/1	No

2 mac addresses found on port Ethernet0/1

Mac-address

Syntax

In System view:
mac-address {static | dynamic | Blackhole} *mac-address* **interface ethernet** *interface-number* **vlan** *vlan-id*
no mac-address {static | dynamic | Blackhole} *mac-address* **vlan** *vlan-id*
no mac-address interface ethernet *interface-number*
no mac-address vlan *vlan-id*
no mac-address vlan *vlan-id mac-address*

In Ethernet port view:
mac-address {static | dynamic | Blackhole} *mac-address* **vlan** *vlan-id*
no mac-address {static | dynamic | Blackhole} *mac-address* **vlan** *vlan-id*

View

System view, Ethernet port view

Parameters

static: specifies a static MAC address entry.
dynamic: specifies a dynamic MAC address entry.
blackhole: specifies a blackhole MAC address entry.
mac-address: specifies a MAC address, in the form of H-H-H-H-H-H.
interface ethernet *interface-number*: specifies the outgoing port by its type and number for the MAC address. All traffic destined for the MAC address will be sent out from the port.
vlan *vlan-id*: specifies a VLAN ID, in a range from 1 to 4094. The VLAN must exist.

Description

Use **mac-address** command to add or modify a MAC address entry.
Use **no mac-address** command to remove one or more MAC address entries.

In Ethernet port view, the MAC address entry configured by **mac-address** command takes the Ethernet port as an outgoing port. If the MAC address you input in the **mac-address** command already exists in the MAC address table, the system will modify the attributes of the corresponding MAC address entry according to your settings in the command.

You can remove all unicast MAC address entries on a port, or remove a specific type of MAC address entries, such as the addresses learnt by the system, dynamic or static MAC address entries configured, or blackhole addresses.

Examples

mac-address dynamic *00-1d-72-23-ed-70* **interface ethernet** *0/1* **vlan** 1
Configuration completed successfully.

no mac-address vlan *1*

Delete mac address successfully.

Mac-address timer

Syntax

mac-address timer aging *age*
mac-address timer no-aging
no mac-address timer

View

System view

Parameters

aging *age*: specifies the aging time (in seconds) for dynamic MAC address entries. The *age* argument ranges from 10 to 1000000.
no-aging: specifies not-to-age dynamic MAC address entries.

Description

Use **mac-address timer** command to set MAC address aging timer.
Use **no mac-address timer** command to restore to the default.
The default MAC address aging timer is 300 seconds.

The timer applies only to dynamic address entries, including both entries learned and configured.

Setting an appropriate MAC address aging timer is important for the switch to run efficiently.

- If the aging timer is set too short, the MAC address entries that are still valid may be removed due to aging. Upon receiving a packet destined for a MAC address that is already removed, the switch broadcasts the packet to all ports within the VLAN to which the packet belongs. This decreases the operating performance.
- If the aging timer is set too long, MAC address entries may still exist even if they turn into invalid. This causes the switch to be unable to update its MAC address table in time. In this case, the MAC address table cannot reflect the change of network devices in time.

Examples

mac-address timer aging *500*
Aging time of dynamic MAC address is 500 seconds.

3.15 Multicast Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show mac-address multicast [count | static { all | count |** *mac-address* **vlan** *vlan-id* **}]**
System view	**mac-address multicast** *mac-address* **interface ethernet** *interface* **[to ethernet** *interface* **] vlan** *vlan-id* **no mac-address multicast** { **all | interface ethernet** *interface* [**to ethernet** *interface*] **vlan** *vlan-id* | *mac-address* **vlan** *vlan-id* }

Ethernet port view	**mac-address multicast** *mac-address* **vlan** *vlan-id* **no mac-address multicast** *mac-address* **vlan** *vlan-id*

Show mac-address multicast

Syntax

show mac-address multicast [count | static {all | count | *mac-address* **vlan** *vlan-id* **}]**

View

Any view

Parameters

mac-address: displays the static multicast MAC entry information for the specified MAC address.
vlan *vlan-id*: displays the static multicast MAC entry information in the specified VLAN.
count: displays the number of static multicast MAC entries.

Description

Use **show mac-address multicast** command to display the information of the multicast MAC address entry or entries manually configured on the switch.

Examples

show mac-address multicast
show all of the multicast mac-address

Vlan ID 1
MAC address :01-00-5e-00-00-e1
Port Member : Ethernet0/2, Ethernet0/4, Ethernet0/6, Ethernet0/8,

Vlan ID 1
MAC address :01-00-5e-00-00-e0
Port
Member : Ethernet0/1, Ethernet0/2, Ethernet0/3, Ethernet0/4, Ethernet0/5,

Total Entries 2

Mac-address multicast

Syntax

In System view:
mac-address multicast *mac-address* **interface ethernet** *interface* **[to ethernet** *interface]* **vlan** *vlan-id*
no mac-address multicast {all | interface ethernet *interface* [to ..... ethernet *interface]* vlan *vlan-id* | *mac-address* vlan *vlan-id}*

In Ethernet port view:
mac-address multicast *mac-address* **vlan** *vlan-id*
no mac-address multicast *mac-address* **vlan** *vlan-id*

View

System view, Ethernet port view

Parameters

mac-address: multicast MAC address, in the form of H-H-H-H-H-H.
vlan *vlan-id*: specifies the VLAN to which the forwarding ports belong. The effective range for *vlan-id* is from 1 to 4094.
interface : ethernet port, in the form of *interface* = {interface-*type*/*interface-number*}, *interface-type* = {0 | 1}, when *interface-type* is 0, *interface-number* = {1 | 2 | … | 16 }, when *interface-type* is 1, *interface-number* = { 1 | 2 | 3 | 4 }.

Description

Use **mac-address multicast interface** command to create a multicast MAC address entry.
Use **no mac-address multicast interface** command to remove the specified multicast MAC address entry or all multicast MAC address entries.
Use **mac-address multicast vlan** command to create a multicast MAC address entry on the port.
Use **no mac-address multicast vlan** command to remove the specified multicast MAC address entry or all multicast MAC address entries on the port.
Each multicast MAC address entry contains multicast address, forward port, VLAN ID, and so on.

Examples

mac-address multicast *01-00-5e-00-00-e8* **interface ethernet** *0/7* **to ethernet** *0/8* **vlan** *2*
Configuration completed successfully.
(Ethernet0/8)# no mac-address multicast 01-00-5e-00-00-e8 vlan 2
Delete successfully.

3.16 IGMP Snooping Configuration Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show igmp-snooping configuration**
Any view	**show igmp-snooping group [vlan** *vlan-id* **]**
System view VLAN view	**igmp-snooping** **no igmp-snooping**
System view	**igmp-flood** **no igmp-flood**
System view	**igmp-snooping querier** **no igmp-snooping querier**
System view	**igmp-snooping query-interval** *seconds* **no igmp-snooping query-interval**
System view	**igmp-snooping max-response-time** *seconds* **no igmp-snooping max-response-time**
System view	**igmp-snooping last-member-query-time** *seconds* **no igmp-snooping last-member-query-time**
System view	**igmp-snooping host-aging-time** *seconds* **no igmp-snooping host-aging-time**
System view	**igmp-snooping router-aging-time** *seconds* **no igmp-snooping router-aging-time**
VLAN view	**multicast static-router-port ethernet** *interface* **no multicast static-router-port ethernet** *interface*

Show igmp-snooping configuration

Syntax

show igmp-snooping configuration

View

Any view.

Parameters

None.

Description

Use **show igmp-snooping configuration** command to display IGMP Snooping configuration information.
If IGMP Snooping is disabled, this command displays a message showing that IGMP Snooping is not enabled.
With IGMP Snooping enabled, this command displays the following information:

- IGMP Snooping global state
- IGMP flood
- Host Timeout
- Route Timeout
- IGMP Querier
- Query Transmit Interval
- Max Response Time
- Last Member Query Interval

Examples

(vlan3)# show igmp-snooping configuration
show igmp-snooping configuration

Igmp-snooping global state	:Enabled
IGMP flood	:Enabled
Host Timeout	260
Route Timeout	105
IGMP Querier	:Disabled
Query Transmit Interval	125
Max Response Time	10
Last Member Query Interval	1

Show igmp-snooping group

Syntax

show igmp-snooping group [vlan *vlan-id]*

View

Any view.

Parameters

vlan *vlan-id*: specifies the VLAN in which the multicast group information is to be displayed, where *vlan-id* ranges from 1 to 4094. If you do not specify a VLAN, this command displays the multicast group information of all VLANs.

Description

Use **show igmp-snooping group** command to display the IGMP Snooping multicast group information.

Examples

#display the information about the multicast groups of all VLANs.
show igmp-snooping group
show igmp-snooping group information

Vlan ID 1
Multicast group :239.0.0.10
MAC address :01-00-5e-00-00-0a
Port Member : Ethernet0/4,
Total Entries 1

Igmp-snooping

Syntax

igmp-snooping
no igmp-snooping

View

System view, VLAN view.

Parameters

None.

Description

Use **igmp-snooping** command to enable the IGMP Snooping feature.
Use **no igmp-snooping** command to disable the IGMP Snooping feature.
By default, the IGMP Snooping feature is disabled.

Examples

igmp-snooping
Igmp-snooping has been enabled.

(vlan3) # igmp-snooping
Igmp-snooping has been enabled. on vlan 3.

Igmp-flood

Syntax

igmp-flood
no igmp-flood

View

System view

Parameters

None

Description

Use **igmp-flood** command to enable the function of IGMP-flood globally.
Use **no igmp-flood** command to disable the function of IGMP-flood globally.
By default, the IGMP flood function is disabled.

Examples

igmp-flood
Igmp flood is enabled.
no igmp-flood

Igmp flood is disabled.

Igmp-snooping querier

Syntax

igmp-snooping querier
no igmp-snooping querier

View

System view

Parameters

None

Description

Use **igmp-snooping querier** command to enable the function of IGMP querier.
Use **no igmp-snooping querier** command to disable the function of IGMP querier,
By default, the IGMP querier function is disabled.

Examples

igmp-snooping querier
IGMP querier has been enabled.
no igmp-snooping querier
IGMP querier has been disabled.

Igmp-snooping query-interval

Syntax

igmp-snooping query-interval *seconds*
no igmp-snooping query-interval

View

System view

Parameters

seconds: IGMP query transmit interval; it is in the range of 1 to 300 seconds.

Description

Use **igmp-snooping query-interval** command to configure the IGMP query interval, i.e. the interval at which the switch sends IGMP general queries.
Use **no igmp-snooping query-interval** command to restore to the default.
By default, the query transmit interval is 125 seconds.

Examples

igmp-snooping query-interval 200
Query-interval of igmp-snooping has been set to 200 seconds
no igmp-snooping query-interval
The query transmit interval has been restored to default 125 seconds.

Igmp-snooping max-response-time

Syntax

igmp-snooping max-response-time *seconds*
no igmp-snooping max-response-time

View

System view

Parameters

seconds: maximum response time in IGMP general queries, in a range from 1 to 25 in seconds.

Description

Use **igmp-snooping max-response-time** command to configure the maximum response time in IGMP general queries.
Use **no igmp-snooping max-response-time** command to restore to the default.
By default, the maximum response time in IGMP general queries is 10 seconds.

An appropriate setting of the maximum response time in IGMP queries allows hosts to respond to queries quickly and thus the querier can learn the existence of multicast members quickly.

Examples

igmp-snooping max-response-time 15
Max_response_time of igmp-snooping has been set to 15 seconds
no igmp-snooping max-response-time
The igmp max-response-time has been restored to default 10 seconds.

Igmp-snooping last-member-query-time

Syntax

igmp-snooping last-member-query-time *seconds*
no igmp-snooping last-member-query-time

View

System view

Parameters

seconds: the interval in IGMP special queries, in a range from 1 to 25 in seconds.

Description

Use **igmp-snooping last-member-query-time** command to configure the interval in IGMP special queries.
Use **no igmp-snooping last-member-query-time** command to restore to the default.
By default, the query time in IGMP general queries is 1 second.

Examples

igmp-snooping last-member-query-time 15
Last-member-query-time of igmp-snooping has been set to 15 seconds
no igmp-snooping last-member-query-time
The igmp last member query interval has been restored to default 1 second

Igmp-snooping host-aging-time

Syntax

igmp-snooping host-aging-time *seconds*
no igmp-snooping host-aging-time

View

System view.

Parameters

seconds: aging time (in seconds) of multicast member ports, in a range from 200 to 1,000.

Description

Use **igmp-snooping host-aging-time** command to configure the aging time of multicast member ports.
Use **no igmp-snooping host-aging-time** command to restore to the default aging time.
By default, the aging time of multicast member ports is 260 seconds.
The aging time of multicast member ports determines the refresh frequency of multicast group members. In an environment where multicast group members change frequently, a relatively shorter aging time is required.

Examples

igmp-snooping host-aging-time *300*
Host-aging-time of igmp-snooping has been set to 300 seconds
no igmp-snooping host-aging-time
The host aging-time has been restored to the default value of 260 seconds.

Igmp-snooping router-aging-time

Syntax

igmp-snooping router-aging-time *seconds*
no igmp-snooping router-aging-time

View

System view.

Parameters

seconds: aging time of router ports, in a range from 1 to 1,000, in seconds.

Description

Use **igmp-snooping router-aging-time** command to configure the aging time of router ports.
Use **no igmp-snooping router-aging-time** command to restore to the default aging time.
By default, the aging time of router ports is 105 seconds.

Examples

igmp-snooping router-aging-time *200*
Router-aging-time of igmp-snooping has been set to 200 seconds
no igmp-snooping router-aging-time
The router aging-time has been restored to default 105 seconds.

Multicast static-router-port

Syntax

multicast static-router-port ethernet *interface*
no multicast static-router-port ethernet *interface*

View

VLAN view.

Parameters

interface : ethernet port, in the form of interface = {interface-type/interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = {1 | 2 | … | 16}, when interface-type is 1, interface-number = {1 | 2 | 3 | 4}.

Description

Use **multicast static-router-port** command to configure the specified port in the VLAN as a static router port.
Use **no multicast static-router-port** command to remove the specified port from the VLAN as a static router port.
By default, a port is not a static router port.

Examples

(vlan1) # multicast static-router-port ethernet

0/2 Set port successfully.

3.17 802.1x Configuration Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show dot1x** { **status** | **interface** [**ethernet** *interface*] }
System view	**dot1x**
dot1x view	**end**
dot1x view	**max-req**
dot1x view	**timeout** { **quiet-period** *quiet-period-value* | **reauth-period** *reauth-period-value* | **server** *server-timeout-value* | **supplicant** *supp-timeout-value* | **tx-period** *tx-period-value* } **no timeout** { **quiet-period** *quiet-period-value* | **reauth-period** *reauth-period-value* | **server** *server-timeout-value* | **supplicant** *supp-timeout-value* | **tx-period** *tx-period-value* }
dot1x view	**system-auth-control** **no system-auth-control**
dot1x view	**radius-server host** *host-ip-address* **auth-port** *auth-port-number* [**acct-port** *acct-port-number*] **key** *key-string*
Ethernet port view	**dot1x** **no dot1x**
Ethernet port view	**dot1x re-authentication** **no dot1x re-authentication**
Ethernet port view	**dot1x port-control** { **auto** | **forceauthorized** | **forceunauthorized** }

Show dot1x

Syntax

show dot1x {status | **interface** [**ethernet** *interface*] }

View

Any view.

Parameters

status: displays the information of 802.1x.
interface: displays the 802.1x-related information of all ports.
ethernet *interface*: displays the 802.1x-related information of a specified port.
interface : ethernet port, in the form of *interface* = {interface-*type*/*interface-number*}, *interface-type* = {0 | 1}, when *interface-type* is 0, *interface-number* = {1 | 2 | … | 16}, when *interface-type* is 1, *interface-number* = {1 | 2 | 3 | 4}.

Description

Use **show dot1x** command to display 802.1x related information.

Examples

#display 802.1x-related information.
show dot1x status
802.1x is enabled.

Radius server configuration:
IP address :192.168.0.234
Auth port :1812
account port :1813
key :admin

misc. configuration:
quiet period 60
server timeout 30
supplicant timeout 30
tx period 30
Reauth max count 2
Reauth period :3600

display the 802.1x-related information of all ports
show dot1x interface

PORT	802.1X ADMIN	PORTCONTROL	REAUTH	STATU
Ethernet0/1	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/2	Enabled	ForceAuthorized	Disabled	Authorized
Ethernet0/3	Disabled	ForceAuthorized	Disabled	Authorized
Ethernet0/4	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/5	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/6	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/7	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/8	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/9	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/10	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/11	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/12	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/13	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/14	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/15	Disabled	ForceAuthorized	Disabled	Link down
Ethernet0/16	Disabled	ForceAuthorized	Disabled	Link down
Ethernet1/1	Disabled	ForceAuthorized	Disabled	Link down
Ethernet1/2	Disabled	ForceAuthorized	Disabled	Link down
Ethernet1/3	Disabled	ForceAuthorized	Disabled	Link down
Ethernet1/4	Disabled	ForceAuthorized	Disabled	Link down

display the 802.1x-related information of a specified port
show dot1x interface ethernet *0/1*

PORT	802.1X ADMIN	PORTCONTROL	REAUTH	STATUS
Ethernet0/1	Disabled	ForceAuthorized	Disabled	Link down

Dot1x

Syntax

dot1x

View

System view.

Parameters

None.

Description

Enter into 802.1x configuration environment.

Examples

dot1x
(dot1x)

End

Syntax

end

View

dot1x view

Parameters

None.

Description

Exit from 802.1x configuration environment.

Examples

(dot1x)# **end**
#

Max-req

Syntax

max-req *max-retry-value*

View

dot1x view

Parameters

max-retry-value: Maximum number of times that a switch sends authentication request packets to a user. This argument ranges from 1 to 10.

Description

By default, a switch sends authentication request packets to a user for up to 2 times.
After a switch sends an authentication request packet to a user, it will send another authentication request packet if it has not received response from the

user after a specific period of time. If the switch still receives no response when the configured maximum number of authentication request transmission attempts is reached, it stops sending requests to the user. This command applies to all ports.

Examples

(dot1x) # **max-req** *5*
Max request count has been set 5.

Timeout

Syntax

timeout { quiet-period *quiet-period-value* | **reauth-period** *reauth-period-value* | **server** *server-timeout-value* | **supplicant** *supp-timeout-value* | **tx-period** *tx-period-value* }

no timeout {quiet-period *quiet-period-value* | **reauth-period** *reauth-period-value* | **server** *server-timeout-value* | **supplicant** *supp-timeout-value* | **tx-period** *tx-period-value}*

View

dot1x view

Parameters

quiet-period *quiet-period-value*: sets the quiet-period timer. This timer sets the quiet-period. When a supplicant system fails to pass the authentication, the switch quiets for the set period (set by the quiet-period timer) before it processes another authentication request re-initiated by the supplicant system. During this quiet period, the switch does not perform any 802.1x authentication-related actions for the supplicant system.

The *quiet-period-value* argument ranges from 1 to 65535 (in seconds). By default, the quiet-period timer is set to 60 seconds.

reauth-period *reauth-period-value*: specifies re-authentication interval, in seconds. After this timer expires, the switch initiates 802.1x re-authentication. The value of the *reauth-period-value* argument ranges from 60 to 7200. By default, the reauth-period timer is set to 3600 seconds.

server *server-timeout-value*: sets the RADIUS server timer. This timer sets the server-timeout period. After sending an authentication request packet to the RADIUS server, a switch will send another authentication request packet if it has not received the response from the RADIUS server when this timer times out.

The *server-timeout-value* argument ranges from 1 to 300 (in seconds). By default, the RADIUS server timer is set to 30 seconds.

supplicant *supp-timeout-value*: sets the supplicant system timer. This timer sets the supp-timeout period and is triggered by the switch after the switch sends a request/challenge packet to a supplicant system (The packet is used to request the supplicant system for the MD5 encrypted string). The switch will send another request/challenge packet to the supplicant system if the switch does not receive the response from the supplicant system when this timer times out.

The *supp-timeout-value* argument ranges from 1 to 300 (in seconds). By default, the supplicant system timer is set to 30 seconds.

tx-period *tx-period-value*: sets the transmission timer. This timer sets the tx-period and is triggered in two cases. The first case is when the client requests

for an authentication. The switch sends a unicast request/identity packet to a supplicant system and then triggers the transmission timer. The switch will send another request/identity packet to the supplicant system if it has not received the reply packet from the supplicant system when this timer times out. The second case is when the switch authenticates the 802.1x client who cannot request for authentication actively. The switch sends multicast request/identity packets periodically through the port with 802.1x function enabled. In this case, this timer sets the interval of sending the multicast request/identity packets.

The *tx-period-value* argument ranges from 1 to 65535 (in seconds). By default, the transmission timer is set to 30 seconds.

Description

Use **timeout** command to set a specified 802.1x timer.
Use **no timeout** command to restore a specified 802.1x timer to the default setting.

Examples

(dot1x) # timeout quiet-period 120
Timeout of quiet period has been set 120 seconds
(dot1x) # no timeout quiet-period
Timeout setting for quiet period has been restored to the default 60 seconds.

System-auth-control

Syntax

system-auth-control
no system-auth-control

View

dot1x view

Parameters

None.

Description

Use **system-auth-control** command to enable 802.1x globally.
Use **no system-auth-control** command to disable 802.1x globally.

Examples

(dot1x) # system-auth-
control 802.1x has been
enabled
Configuration completed successfully.

(dot1x) # no system-auth-
control 802.1x is disabled.
Configuration completed successfully

Radius-server

Syntax

radius-server host *host-ip-address* **auth-port** *auth-port-number* **[acct-port** *acct-port-number* **] key** *key-string*

View

dot1x view

Parameters

host *host-ip-address*: IP address of the radius server to be used, a valid unicast address in dotted decimal notation, the default value is 192.168.0.234.
auth-port *auth-port-number*: UDP port number of the radius server, ranging from 1 to 65535, the default value is 1812.
acct-port *acct-port-number*: UDP port number of the radius server, ranging from 1 to 65535, the default value is 1813.
key *key-string*: sets a shared key for radius messages. String length is from 1 to 15 characters.

Description

Use radius-server command to set radius server related configurations.

Examples

(dot1x) # **radius-server host** *192.168.0.222* **Auth-port** *1855* **acct-port** *1856 key admin*
Configuration completed successfully.

Dot1x

Syntax

dot1x
no dot1x

View

Ethernet port view

Parameters

None

Description

Use **dot1x** command to enable 802.1x for the specified Ethernet port.
Use **no dot1x** command to disable 802.1x for the specified Ethernet port.

Examples

(Ethernet0/1) # **dot1x**
802.1x has been enabled on port ethernet0/1

Dot1x re-authentication

Syntax

dot1x re-authentication no
dot1x re-authentication

View

Ethernet port view

Parameters

None.

Description

Use **dot1x re-authentication** command to enable 802.1x re-authentication for the specified Ethernet port.

Use **no dot1x** command to disable 802.1x re-authentication for the specified Ethernet port.

Examples

(Ethernet0/1) # **dot1x re-authentication**
Configuration completed successfully.

Dot1x port-control

Syntax

dot1x port-control {auto | forceauthorized | forceunauthorized }

View

Ethernet port view

Parameters

auto: specified to operate in **auto** access control mode. When a port operates in this mode, all the unauthenticated hosts connected to it are unauthorized. In this case, only EAPoL packets can be exchanged between the switch and the hosts. After passing the authentication, the hosts connected to the port are authorized to access the network resources. Normally, a port operates in this mode.

forceauthorized: specified to operate in **forceauthorized** access control mode. When a port operates in this mode, all the hosts connected to it can access the network resources without the need of authentication.

forceunauthorized: specified to operate in **forceunauthorized** access control mode. When a port operates in this mode, the hosts connected to it cannot access the network resources.

Description

Use **dot1x port-control** command to specify the access control mode for the specified Ethernet port.

Examples

(Ethernet0/1) # **dot1x port-control auto**
Configuration completed successfully.

3.18 STP Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show spanning-tree [ethernet** *interface* **]**
System view Ethernet port view	**spanning-tree** **no spanning-tree**
System view	**spanning-tree fast-detection** **no spanning-tree fast-detection**
System view	**spanning-tree forward-time** *timer-value* **no spanning-tree forward-time**
System view	**spanning-tree hello-time** *timer-value* **no spanning-tree hello-time**
System view	**spanning-tree max-age** *timer-value* **no spanning-tree max-age**
System view	**spanning-tree priority** *priority* **no spanning-tree priority**

System view	**spanning-tree mode {stp | rstp }**
Ethernet port view	**spanning-tree root-protection** **no spanning-tree root-protection**
Ethernet port view	**spanning-tree path-cost** *pcost* **no spanning-tree path-cost**
Ethernet port view	**spanning-tree priority** *priority* **no spanning-tree priority**
Ethernet port view	**spanning-tree point-to-point** **no spanning-tree point-to-point**
Ethernet port view	**spanning-tree protocol-migration** **no spanning-tree protocol-migration**
Ethernet port view	**spanning-tree edge** **no spanning-tree edge**

Show spanning-tree

Syntax

show spanning-tree [ethernet *interface* **]**

View

Any view.

Parameters

interface : ethernet port, in the form of interface = {interface-type/interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = {1 | 2 | … | 16}, when interface-type is 1, interface-number = {1 | 2 | 3 | 4}.

Description

Use **show spanning-tree** command to display the settings of STP. If an Ethernet interface is specified, the STP information of this interface will be displayed.

Examples

#display the STP information of all ports

```
# show spanning-tree
The spanning tree is enabled on this switch!
The spanning tree mode is stp!

Bridge Priority:32768
Switch MAC Addr: 00:1e:6e:
12:31:23 Hello time:2
Max age time:20
Forward delay time:15

Interfaces
        Port            StpState        Priority        PathCost        PortRole        PortState
PortFast

-------------- ---------- ---------- ---------- ---------- ---------- --------
Ethernet0/1     Enabled     128         55          Disabled    Blocking    False
Ethernet0/2     Disabled    128         55          Disabled    Blocking    False
Ethernet0/3     Disabled    128         55          Disabled    Blocking    False
Ethernet0/4     Disabled    128         55          Disabled    Blocking    False
Ethernet0/5     Disabled    128         55          Disabled    Blocking    False
```

Ethernet0/6	Disabled	128	55	Disabled	Blocking	False
Ethernet0/7	Disabled	128	55	Disabled	Blocking	False
Ethernet0/8	Disabled	128	55	Disabled	Blocking	False
Ethernet0/9	Disabled	128	55	Disabled	Blocking	False
Ethernet0/10	Disabled	128	55	Disabled	Blocking	False
Ethernet0/11	Disabled	128	55	Disabled	Blocking	False
Ethernet0/12	Disabled	128	55	Disabled	Blocking	False
Ethernet0/13	Disabled	128	55	Disabled	Blocking	False
Ethernet0/14	Disabled	128	55	Disabled	Blocking	False
Ethernet0/15	Disabled	128	55	Disabled	Blocking	False
Ethernet0/16	Disabled	128	55	Disabled	Blocking	False

Press any key to continue (Q to quit)

#display the STP information of ethernet 0/1 interface
show spanning-tree ethernet 0/1

Port: Ethernet0/1
Stp is enabled
StpState: Blocking
Role: Disabled
Port Fast: Disabled
Guard root:
Disabled Edge Port:
Disabled Port id:
128:20
Designated Port id:
128:20
Designated Path Cost:0
Designated Bridge id:32768-00:1e:6e: 12:31:23

Spanning-tree

Syntax

spanning-tree
no spanning-tree

View

System view, Ethernet port view

Parameters

None.

Description

Use **spanning-tree** command to enable STP globally (in System view) or for a port (in Ethernet port view).
Use **no spanning-tree** command to disable STP globally (in System view) or for a port (in Ethernet port view).
By default, STP is disabled both globally and on ports.

Examples

spanning-tree
Spanning tree is already enabled
(Ethernet0/1)# **spanning-tree**
Enable ethernet0/1 spanning tree successfully.

Spanning-tree fast-detection

Syntax

spanning-tree fast-detection
no spanning-tree fast-detection

View

System view

Parameters

None.

Description

Use **spanning-tree fast-detection** command to enable the stp fast detection function.
Use **no spanning-tree fast-detection** command to disable the stp fast detection function.
By default, fast detection is disabled.

Examples

spanning-tree fast-detection
Configuration completed successfully.
no spanning-tree fast-detection
Disable stp fast detection
successfully.

Spanning-tree forward-time

Syntax

spanning-tree forward-time *timer-value*
no spanning-tree forward-time

View

System view

Parameters

timer-value: forward delay in seconds to be set. This argument ranges from 4 to 30. The default value is 15 seconds.

Description

Use **spanning-tree forward-time** command to set the forward delay of the switch.

Use **no spanning-tree forward-time** command to restore the forward delay to the default value.

By default, the forward delay of the switch is 15 seconds.

To prevent the occurrence of temporary loops, when a port changes its state from discarding to forwarding, it undergoes an intermediate state and waits for a specific period of time to synchronize with the state transition of the remote switches. This state transition period is determined by the forward delay configured on the root bridge.

The forward delay setting configured on a root bridge applies to all non-root bridges. As for the configuration of the three time-related parameters (hello time, forward delay, and max age), the following formulas must be met to prevent network jitter.

- 2 x (forward delay – 1 second) >= max age
- Max age >= 2 x (hello time + 1 second)

Examples

spanning-tree forward-time 17
Config successfully
#no spanning-tree forward-time
Set the time to default value successfully.

Spanning-tree hello-time

Syntax

spanning-tree hello-time *timer-value*
no spanning-tree hello-time

View

System view

Parameters

timer-value: hello time in seconds to be set. This argument ranges from 1 to 10. The default value is 2 seconds.

Description

Use **spanning-tree hello-time** command to set the hello time.

Use **no spanning-tree hello-time** command to restore the hello time to the default value.

By default, the hello time is 2 seconds.

A root bridge regularly sends out configuration BPDUs to maintain the stability of existing spanning trees. If the switch does not receive a BPDU packet in a specified period, spanning trees will be recalculated when BPDU packet times out. When a switch becomes a root bridge, it regularly sends BPDUs at the interval specified by the hello time you have configured on it. The other none-root-bridge switches adopt the interval specified by the hello time.

As for the configuration of the three time-related parameters (hello time, forward delay, and max age), the following formula must be met to prevent network jitter.

- 2 × (forward delay – 1 second) >= max age
- Max age >= 2 × (hello time + 1 second)

Examples

spanning-tree hello-time 3
Configuration was successful.
no spanning-tree hello-time
Set the time to default value successfully.

Spanning-tree max-age

Syntax

spanning-tree max-age *timer-value*
no spanning-tree max-age

View

System view

Parameters

timer-value: max age to be set, in a range from 6 to 40 (seconds). The default value is 20 seconds.

Description

Use **spanning-tree max-age** command to set the max age.
Use **no spanning-tree max-age** command to restore to the default max age.

By default, the max age of a switch is 20 seconds.
To set the three time-related parameters (hello time, forward delay, and max age), the following formulas must be met to prevent network jitter.

- 2 × (forward delay – 1 second) >= max age
- Max age >= 2 × (hello time + 1 second)

Examples

spanning-tree max-age *25*
Configuration was successful.
no spanning-treemax-age
Set the time to default value successfully.

Spanning-tree priority

Syntax

spanning-tree priority *priority*
no spanning-tree priority

View

System view

Parameters

priority: switch priority to be set. This argument ranges from 0 to 65535. The default value is 32768. Note that the value of priority must be a multiple of 4096.

Description

Use **spanning-tree priority** command to set the priority.
Use **no spanning-tree priority** command to restore the priority to default priority.
The default priority is 32768.
The priorities of switches are used for spanning tree calculation.

Examples

spanning-tree priority 8192
configure stp priority successfully!
no spanning-tree priority
Set the stp priority to default value successfully.

Spanning-tree mode

Syntax

spanning-tree mode {stp | rstp }

View

System view

Parameters

stp: specifies the STP mode.
rstp: specifies the RSTP mode.

Description

Use **stp mode** command to set the operating mode of the switch.

To make the switch compatible with STP/RSTP/MSTP, the following three operating modes are provided.

stp: in this mode, the ports of the switch send STP BPDUs to neighbor devices.

In the case that there is a neighbor switch working in RSTP or MSTP mode, the port between them will work in STP mode.

rstp: in this mode, the ports of a switch send RSTP BPDUs to neighbor devices.

Examples

spanning-tree mode stp
Settings are updated successfully!

Spanning-tree root-protection

Syntax

spanning-tree root-protection no
spanning-tree root-protection

View

Ethernet port view

Parameters

None.

Description

Use **spanning-tree root-protection** command to enable the root protection function
for a specified port on the switch.
Use **no spanning-tree root-protection** command to disable the root protection for a specified port on the switch.

Examples

(Ethernet0/1) # spanning-tree root-protection
Settings are updated successfully!
(Ethernet0/1) # no spanning-tree root-
protection
Root protection on this port has been disabled successfully.

Spanning-tree path-cost

Syntax

spanning-tree path-cost *pcost*
no spanning-tree path-cost

View

Ethernet port view

Parameters

pcost: path cost to be set for the port. With IEEE 802.1D-2005 standard, the path cost of an Ethernet port range is from 1 to 200000000, and the default value is auto（0）.

Description

Use **spanning-tree path-cost** command to set the path cost(s) of the specified port(s).
Use **no spanning-tree path-cost** command to restore to the default value of the

path cost(s) of the specified port(s).

Examples

(Ethernet0/1) # spanning-tree path-cost 300 Setting successfully
(Ethernet0/1) # no spanning-tree path-cost Set default value of auto successfully.

spanning-tree priority

Syntax

spanning-tree priority *priority*
no spanning-tree priority

View

Ethernet port view

Parameters

priority: port priority to be set. This argument ranges from 0 to 255, and the default value is 128. Note that the value of priority must be a multiple of 16.

Description

Use **spanning-tree priority** command to set a port priority for the specified ports. Use **no spanning-tree priority** command to restore to the default priority of the specified ports.

Examples

(Ethernet0/1) # spanning-tree priority 160 Setting successfully
(Ethernet0/1) # no spanning-tree priority Set default value of 128 successfully.

Spanning-tree point-to-point

Syntax

spanning-tree point-to-point no spanning-tree point-to-point

View

Ethernet port view

Parameters

None.

Description

Use **spanning-tree point-to-point** command to specify that the links connected to the specified Ethernet ports as point-to-point.

Use **no spanning-tree point-to-point** command to specify that the links connected to the specified Ethernet ports be not point-to-point.

By default, the Ethernet ports are point-to-point links.

The rapid transition feature is not applicable to ports connected to non-point-to-point links.

If an Ethernet port is the master port among aggregated ports or operates in full-duplex mode, the link connected to the port is a point-to-point link.

Examples

(Ethernet0/1) # spanning-tree point-to-
point Setting successfully
(Ethernet0/1) # no spanning-tree
STP has been disabled on ethernet 0/1 successfully!

Spanning-tree protocol-migration

Syntax

spanning-tree protocol-migration
no spanning-tree protocol-migration

View

Ethernet port view

Parameters

None.

Description

Use **spanning-tree protocol-migration** command to enable the protocol migration feature.

Use **no spanning-tree protocol-migration** command to disable the protocol migration feature.

By default, the protocol migration feature is enabled.

Examples

(Ethernet0/1) # **no spanning-tree protocol-migration**

Settings are updated successfully!

Spanning-tree edge

Syntax

spanning-tree edge no

spanning-tree edge

View

Ethernet port view

Parameters

None.

Description

Use **spanning-tree edge** command to configure the specified Ethernet ports as edge ports.

Use **no spanning-tree edge** command to configure the specified Ethernet ports as non-edge ports.

By default, all Ethernet ports of a switch are non-edge ports.

An edge port is directly connected to a user terminal instead of through another switch or a network segment. Rapid transition to the forwarding state is applied to edge ports because no loops can be incurred by network topology changes on these ports. You can enable a port to turn to the forwarding state rapidly by setting it to an edge port. And it is recommended to configure the Ethernet p o r t s

directly connected to user terminals as edge ports.

Normally, configuration BPDUs cannot reach an edge port because the port is not connected to another switch. But when the BPDU protection function is disabled on an edge port, configuration BPDUs sent deliberately by a malicious user may reach the port. If an edge port receives a BPDU, it turns into a non-edge port.

Examples

(Ethernet0/1) # **spanning-tree edge**
Setting successfully
(Ethernet0/1) # no spanning-tree edge
Set to default value of disabled successfully.

3.19 SNMP Configuration Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Any view	**show snmp**
Any view	**show snmp community**
Any view	**show snmp user**
Any view	**show snmp traps-host**
Any view	**show snmp traps-status**
System view	**snmp-server { name | description | contact | location }** *text*
System view	**snmp-server community** **no snmp-server community** *community-name*
System view	**snmp-server user** **no snmp-server user** *username*
System view	**snmp-server traps** **no snmp-server**
System view	**snmp-server traps-host** *host-ip* **no snmp-server traps-host** *host-ip*
Ethernet port view	**snmp-traps** **no snmp-traps**

Show snmp

Syntax

show snmp

View

Any view.

Parameters

None.

Description

Use **show snmp** command to display the system SNMP information, including system name, system description, contact information, and geographical location. The system description is “Optical Industrial Ethernet Switch”.

Examples

```
# show snmp
SNMP System Name          : KY-3120DM
SNMP System Description   : Optical Industrial Ethernet Switch
SNMP System Contact       : -
SNMP System Location      : -
```

Show snmp community

Syntax

show snmp community

View

Any view.

Parameters

None.

Description

Use **show snmp community** command to display the information of SNMPv1/SNMPv2c communities.

SNMPv1 and SNMPv2c use community name authentication. Therefore, the SNMPv1 and SNMPv2c messages carry community names; if the carried community names are not permitted by the NMS/agent, the messages will be discarded.

You need to create a read community name and a write community name separately, and these two community names on the NMS and on the device should be consistent.

To display the current configuration username information of SNMPv3, use **show snmp user** command.

Examples

```
# show snmp community
      Version          Community          Status
-------------  ---------------  -------------
         v1             public             RO
         v2c            com2               RW
```

Show snmp user

Syntax

show snmp user

View

Any view.

Parameters

None.

Description

Use **show snmp user** command to display the information of SNMPv3 users, including username, auth type, auth password, privacy type, and privacy password.

SNMPv3 introduces the concepts of username and group. You can set the

authentication and privacy functions. The former is used to authenticate the validity of sending packets, preventing the access of illegal users; the latter is used to encrypt packets between the NMS and agent, preventing the packets from being intercepted. A more secure communication between SNMP NMS and SNMP agent can be ensured by configuring whether to perform authentication and encryption or not.

You can configure whether to perform authentication and encryption when you create a SNMPv3 group, and configure the specific algorithms and passwords for authentication and encryption when a user is created.

Examples

show snmp user

Ver	User	AuthType: AuthPwd	PrivType: PrivPwd	Privilege
v3	user1	:	:	RW
v3	user2	MD5:useruser2222	:	RW
v3	user3	MD5:agewhrjykkl	DES:sageriutu6ui	RW

Show snmp traps-host

Syntax

show snmp traps-host

View

Any view

Parameters

None

Description

Use **show snmp traps-host** command to list destination hosts that receive SNMP traps generated by the local device.

Examples

show snmp traps-host
SNMP traps-host IP:
192.168.0.234
192.168.0.235

Show snmp traps-status

Syntax

show snmp traps-status

View

Any view.

Parameters

None.

Description

Use **show snmp traps-status** command to display global trap configurations and per port trap configurations.

Examples

show snmp traps-status

Global trap is enabled.

interface	status
ethernet 0/1	enable
ethernet 0/2	enable
ethernet 0/3	enable
ethernet 0/4	enable
ethernet 0/5	enable
ethernet 0/6	enable
ethernet 0/7	enable
ethernet 0/8	enable
ethernet 0/9	enable
ethernet 0/10	enable
ethernet 0/11	enable
ethernet 0/12	enable
ethernet 0/13	enable
ethernet 0/14	enable
ethernet 0/15	enable
ethernet 0/16	enable
ethernet 1/1	enable
ethernet 1/2	enable
ethernet 1/3	enable
ethernet 1/4	enable

Snmp-server

Syntax

snmp-server {name | description | contact | location} *text*

View

System view.

Parameters

text: a string of 1 to 256 characters
name: SNMP System Name, the default value is “KY-3120DM”
description: SNMP System Description, the default value is “Optical Ethernet Switch”
contact: SNMP System Contact, the default value is “- “
location: SNMP System Location, the default value is “-”

Description

Use **snmp-server** command to set the system information, including system name, system description, contact information, and location.

Examples

snmp-server name dev-KY-3120DM
Configure system name successfully!

Snmp-server community

Syntax

snmp-server community
no snmp-server community *community-name*

View

System view.

Parameters

community-name: name of the community to be created; it is a string of 3 to 16 characters.

Description

Use **snmp-server community** command to create a SNMP community. SNMPv1 and SNMPv2c use a community name to restrict access rights. You can use this command to configure a community name and configure read or write access rights.

Use **no snmp-server community** command to remove an SNMP community. Typically, “public” is used as a read community name, and “private” is used as a write community name. For security reason, it is recommended to use a community name other than these two.

Examples

snmp-server community
Version (v1 or v2c): *v2c*
Community (3-16chars): *com3*
Privilege (ro or rw): *ro*
Add snmp agent user successfully!

Snmp-server user

Syntax

snmp-server user
no snmp-server user *username*

View

System view.

Parameters

username: username, a string of 3 to 16 characters.
Auth-Algorithm: specifies the security mode for authentication. If this is not specified, neither authentication nor encryption is performed.
MD5: uses HMAC MD5 algorithm for authentication.
SHA: uses HMAC SHA algorithm for authentication, which is more secure than MD5.
auth-password: authentication password, a string of 9 to 15 characters in plain text, a 32-bit hexadecimal number in cipher text if MD5 algorithm is used, and a 40-bit hexadecimal number in cipher text if SHA algorithm is used.
Priv-Algorithm: specifies the security mode as encrypted.
DES: specifies the encryption protocol as Data Encryption Standard (DES).
AES: specifies the encryption protocol as Advanced Encryption Standard (AES), which is more secure than DES.
priv-password: encryption password, a string of 1 to 64 characters in plain text, a 32-bit hexadecimal number in cipher text if MD5 algorithm is used, and a 40-bit hexadecimal number in cipher text if SHA algorithm is used.

Description

Use **snmp-server user** command to add a user.
Use **no snmp-server user** command to remove a user.

This command is applicable to SNMPv3. If the agent and the NMS communicate using SNMPv3 messages, a SNMPv3 user needs to be created first. Whether to perform authentication or encryption can be configured at the creation of a user, the algorithm and password for authentication or encryption can be set as well.

Examples

snmp-server user
UserName (3-16chars): *user3*
Popedom (ro or rw): *ro*
Auth-Algorithm (MD5 or SHA or NULL): *SHA*
auth-password (9-15chars): *galhgowegqgq*
Priv-Algorithm (DES or AES or NULL): *NULL*
Add snmp agent user successfully!

Snmp-server traps

Syntax

snmp-server traps

no snmp-server traps

View

System view.

Parameters

None.

Description

Use **snmp-server traps** command to enable a device to send SNMP traps.
Use **no snmp-server traps** command to disable a device from sending SNMP traps.
By default, a device sends SNMP traps.

snmp-server traps command needs to be used together with **snmp-server traps-host** command. The **snmp-server traps-host** command specifies the destination hosts of SNMP traps. At least one destination host is required for SNMP traps.

Examples

snmp-server traps
Enable global traps successfully!

Snmp-server traps-host

Syntax

snmp-server traps-host *host-ip*
no snmp-server traps-host *host-ip*

View

System view.

Parameters

host-ip: specifies SNMP trap Host IP.

Description

Use **snmp-server traps-host** command to set a destination host to receive the

SNMP traps generated.
Use **no snmp-server traps-host** command to cancel the current setting.
Multiple destination hosts can be set to receive traps.

Examples

snmp-server traps-host *192.168.0.111*
Add traps-host successfully!

Snmp-traps

Syntax

snmp-traps
no snmp-traps

View

Ethernet port view

Parameters

None.

Description

Use **snmp-traps** command to enable the sending of port linkup/linkdown traps.
Use **no snmp-traps** command to disable the sending of linkup/linkdown traps.
By default, sending port linkup/linkdown traps is enabled.

Note that you need to enable the generation of port linkup/linkdown traps on both port and global to make it effective. To enable this function on a port, use **snmp-traps** command; to enable this function globally, use **snmp-server traps** command.
By default, both are enabled.

Examples

(Ethernet0/1) # snmp-traps
Enable this interface snmp trap (Sending link-up or link-down) successfully!

3.20 System Log Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command lists:

View	command
Any view	**show log**
System view	**no log**

show log

Syntax

show log

View

Any view.

Parameters

None

Description

Show all the system logs, including when the system was started, who had logged in the system and how, and so on.

Examples

```
# show log
2011/1/31 13:07:13 192.168.0.121 has logout the systerm via WEB UI!
2011/1/31 12:57:32 192.168.0.121 logins the systerm via WEB UI!
2011/1/31 12:50:43 192.168.0.121 has logout the systerm via WEB UI!
2011/1/31 12:39:56 192.168.0.121 logins the systerm via WEB UI!
2011/1/31 12:16:04 192.168.0.121 has logout the systerm via WEB UI!
2011/1/31 12:07:03 192.168.0.121 logins the systerm via WEB UI!
2011/1/31 12:04:31 192.168.0.121 has logout the systerm via WEB UI!
2011/1/31 11:52:00 192.168.0.121 logins the systerm via WEB UI!
2011/1/31 11:33:43 192.168.0.121 has logout the systerm via WEB UI!
2011/1/31 11:24:19 192.168.0.121 logins the systerm via WEB UI!
2011/1/31 11:16:58 Someone logins the system via Serial Port, level 3.
2011/1/1 00:00:22 Starting system!
2011/1/31 13:33:37 192.168.0.121 has logout the systerm via WEB UI!
```

No log

Syntax

no log

View

System view

Parameters

None

Description

Clear all the logs that were saved in the system.

Examples

```
# no log
All logs have been cleared successfully!
```

3.21 ACL Configuration Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	command
System view	**acl number** *acl-number* **no acl number {** *acl-number*| **all}**
ACL view	**rule** *rule-id* **{permit| deny}** *rule-string* **no rule {***rule-id* **| all}**
Ethernet port view	**packet-filter acl-number** *acl-number* **no packet-filter acl-number {***acl-number*| **all}**
Any view	**show acl number [***acl-number***]**

Acl number

Syntax

acl number *acl-number*
no acl number {*acl-number* **| all}**

View

System view

Parameters

acl-number: Required, between 1 to 60.
all: All the ACL number.

Description

Use **acl number** *acl-number* command to create an ACL and enter the ACL view.
Use **no acl number** command to delete an ACL number or all.

Note that the number between 1 to 20 is for basic ACL, the number between 21 to 40 is for advanced ACL, and the number between 41 to 60 is for L2 ACL.

Examples

acl number 3
(ACL-basic-3)
#

Rule

Syntax

rule *rule-id* **{permit| deny}** *rule-string*
no rule {*rule-id***| all}**

View

ACL view

Parameters

rule-id: Required, between 1 to 10.
permit, **deny**: specifies whether the rule is to permit or deny access.
rule-string: ACL rule string. The string format varies with the type of ACL. For example, for basic IP ACL, the valid rule string is "**source-ip** *ip-address netmask";* for advanced IP ACL, the valid rule string is "**source-ip** *ip-address netmask* **[source-port** *port-number]* **destination** *ip-address netmask* **[destination-port** *port-number]*"; for L2 IP ACL, the valid rule string is "**source-mac** *mac-address mac-address-mask* **destination** *mac-address mac-address-mask*".
all: the command is applied to all the rule IDs.

Description

Use **rule** command to define an ACL rule.
Use **no rule** command to delete a specific rule or all rules of this ACL.

Examples

(ACL-basic-2) # rule 1 permit source-ip 192.168.0.111 255.255.255.0
Configuration has been completed successfully!

Packet-filter acl-number

Syntax

packet-filter acl-number *acl-number*
no packet-filter acl-number {*acl-number***| all}**

View

Ethernet port view

Parameters

acl-number: Required, between 1 to 60.
all: the command is applied to all the ACLs.

Description

Use **packet-filter acl-number** command to apply an ACL to a specific port.
Use **no packet-filter acl-number** command to unbind an ACL from a specific port.

Examples

(Ethernet0/1) # packet-filter acl-number 2
Configuration has been completed successfully!

Show acl number

Syntax

show acl number [*acl-number***]**

View

Any view

Parameters

acl-number: Optional, between 1 to 60

Description

Use **show acl number** command to display valid ACL number;
Use **show acl number** *acl-number* to display the rules associated to this ACL number.

Examples

show acl number 2
Basic IP ACL 2:
rule 01 permit source 192.168.0.111 255.255.255.0

3.22 FRP Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
frp view	**frp** **no frp**
frp view	**frp ring** *ringid*
ring view	**control-vlan** *vlan-id* **no control-vlan** *vlan-id*
ring view	**fast-detection** **no fast-detection**
ring view	**node-mode {master transit}** **no node-mode**
ring view	**protect-vlan {***vlan-id1* **[to** *vlan-id2***]}**

	no protect-vlan {*vlan-id1* **[to** *vlan-id2***]}**
ring view	**primary-port ethernet** ethernet-port1 **secondary ethernet** ethernet-port2 **no primary-port secondary-port**
ring view	**enable**
ring view	**disable**
ring view	**coupling mode backup backup-port ethernet** *interface* **coupling mode dual-homing control-port ethernet** *interface* **backup-port ethernet** *interface* **coupling mode peer control-port ethernet** *interface* **coupling mode primary control-port ethernet** *interface* **no coupling mode**
ring view	**coupling** **no coupling**
ring view	**timeout hello***timer-value* **fail** *timer-value* **timeout fasthello** *timer-value* **fastfail***timer-value* **no timeout**
Any view	**show frp** **show frp ring** *ring-id*

Frp

Syntax

frp

no frp

View

frp view.

Parameters

None.

Description

Use **frp** command to enable the FRP protocol.
Use **no frp** command to disable the FRP protocol.
By default, no frp is configured.

Examples

frp
Enable FRP successfully.
no frp
Disable FRP successfully.

Frp ring

Syntax

frp ring *ringid*

View

frp view.

Parameters

ringid: The ring ID identifies this switch is a member of which ring in FRP protocol, there are two levels of rings.

Description

Use **frp ring** command to enter the FRP ring configuration mode.

Examples

frp ring 1
(ring1) #

Control-vlan

Syntax

control-vlan *vlan-id*
no control-vlan

View

ring view.

Parameters

vlan-id: specifies the ID of a VLAN the information of which is to be displayed, in the range of 2 to 4092.

Description

Use **control-vlan** command to configure the FRP control vlan for transferring FRP protocol packets within the FRP ring.
Use **no control-vlan** command to delete the FRP control vlan.
By default, the control vlan id of FRP Ring 1 is 4091, the control vlan id of FRP Ring 2 is 4092.

Examples

(ring1) # control-vlan 5
Configuration completed successfully
(ring1) # no control-vlan
The control vlan was restored to default value successfully.

Fast-detection

Syntax

fast-detection
no fast-detection

View

ring view.

Parameters

None.

Description

Use **fast-detection** command to enable the FRP fast sending packets periodically to detect ring connect.
Use **no fast-detection** command to disable the FRP fast sending packets.
By default, the fast detection setting is disabled.

Examples

(ring1) # fast-detection
Configuration completed successfully.
(ring1) # no fast-detection

The fast detection was restored to disabled successfully.

Node-mode

Syntax

node-mode {master|transit}
no node-mode

View

ring view.

Parameters

Master: specified to send HELLO packet periodically from its primary port.
Transit: specified to transmit this HELLO packet on the ring in turn.

Description

Use **node-mode** command to configure the node mode of FRP link.
Use **no node-mode** to restore the node mode of FRP link to default setting.
By default, node-mode master is configured.

Examples

(ring1) # node-mode master
Configuration completed successfully.
(ring1) # node-mode transit
Configuration completed successfully.
(ring1) # no node-mode
The node mode was restored to master successfully.

Protect-vlan

Syntax

protect-vlan {*vlan-id1* **[to** *vlan-id***]}**
no protect-vlan {*vlan-id1* **[to** *vlan-id***]}**

View

ring view.

Parameters

vlan-id1: specifies the ID of a VLAN the information of which is to be displayed, in the range of 1 to 4092.
to *vlan-id2*: in conjunction with *vlan-id1*, defines a VLAN range to display information of all existing VLANs in the range. The *vlan-id2* argument takes a value in the range of 1 to 4092, and must not be less than that of *vlan-id1*.

Description

Use **protect-vlan** command to configure FRP protect vlan(s) for transferring data packets.
Use **no protect-vlan** command to delete the FRP protect vlan(s).
By default, the protect vlan id of FRP Ring is set as 1.

Examples

(ring1) # protect-vlan 1 to 4
Configuration completed successfully.
(ring1) # no protect-vlan 1 to 4
Remove protect vlan successfully.

Primary-port secondary-port

Syntax

primary-port ethernet *ethernet-port* **secondary ethernet** *ethernet-port*
no primary-port secondary-port

View

ring view.

Parameters

ethernet-port：in the form {interface-type/interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = {1 | 2 | … | 16}, when interface-type is 1, interface-number = {1 | 2 | 3 | 4}.

Description

Use **primary-port secondary-port** command to configure primary-port and secondary-port for the specified FRP ring.
Use **no primary-port secondary-port** command to delete the FRP port.
By default, neither primary-port nor secondary-port is configured.
Note that the primary port cannot be set as the same as secondary port.

Examples

(ring1) # primary-port ethernet 0/1 secondary-port ethernet 0/2 Configuration completed successfully.
(ring1) # no primary-port secondary-port Delete FRP ports successfully.

Enable

Syntax

enable

View

Ring view.

Parameters

None.

Description

Use **enable** command to enable corresponding functions on the FRP ring. Please configure the primary and secondary port first before use this command.

Examples

(ring1) # primary-port ethernet 0/1 secondary-port ethernet 0/2
Configuration completed successfully.
(ring1) # enable
Configuration completed successfully.

Disable

Syntax

disable

View

Ring view.

Parameters

None.

Description

Use **disable** command to disable the FRP ring.

Examples

(ring1) # disable
Disable FRP successfully.

Coupling mode

Syntax

coupling mode backup backup-port ethernet *ethernet-port*
coupling mode dual-homing control-port ethernet *ethernet-port* **backup-port ethernet** *ethernet-port*
coupling mode peer control-port ethernet *ethernet-port*
coupling mode primary control-port ethernet *ethernet-port*
no coupling mode

View

Ring view.

Parameters

ethernet-port：*in the form of {interface-type/interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = {1 | 2 | … | 16}, when interface-type is 1, interface-number = {1 | 2 | 3 | 4}.*

Description

Use **coupling mode** command to configure coupling mode for the specified FRP ring. Use **no coupling mode** command to allow the coupling mode restoring to the default mode, that is, dual homing mode.

Examples

(ring1) # coupling mode backup backup-port ethernet
0/5 Configuration completed successfully.
(ring1) #coupling mode dual-homing control-port ethernet 0/6 backup-port ethernet 0/7
Configuration completed successfully.
(ring1) # coupling mode peer control-port ethernet
0/8 Configuration completed successfully.
(ring1) # coupling mode primary control-port ethernet
0/9 Configuration completed successfully.
(ring1) # no coupling mode
The coupling was restored to dual homing successfully.

Coupling

Syntax

coupling
no coupling

View

Ring view.

Parameters

None.

Description

Use **coupling** command to enable the FRP coupling function.
Use **no coupling** command to disable the FRP coupling function.

Examples

(ring1) # coupling
Enable coupling function successfully.
(ring1) # no coupling
Disable coupling function successfully.

Time-out

Syntax

time-out hello *time-value1* **fail** *time-value2*
time-out fast-hello *time-value3* **fast-fail** *time-value4*
no timeout

View

Ring view.

Parameters

time-value1: HelloTime，it is in the range of 1 to 10 seconds. The default value is 1 second.
time-value2: FailTime，it is in the range of 3 to 30 seconds. The default value is 3 seconds.
time-value3: FastHelloTime it is in the range of 10 to 500 Milliseconds. The default value is 10 milliseconds.
time-value4: FastFailTime it is in the range of 30 to 1500 milliseconds. The default value is 30 milliseconds.
To set those parameters, the following rules shall be met:
3* time-value1 < = time-value2, and 3* time-value3 <= time-value4.

Description

Use **time-out** command to set the value of the hello time, fail time, fast hello time and fast fail time for the specified FRP ring.
Use **no time-out** command to restore the timeout timer value to the default value.

Examples

(ring1) # time-out hello 3 fail 10
Configuration completed successfully.
(ring1) # time-out fast-hello 10 fast-fail
30 Configuration completed
successfully.

(ring1) # no time-out
Timeout timer was restored to default value successfully.

Show frp

Syntax

show frp

show frp ring *ring-id*

View

Any view.

Parameters

ringid: The ring ID identifies this switch is a member of which ring in FRP protocol, there are two levels of rings.

Description

Use **show frp** command to display the information of all or sepcified FRP ring(s).

Examples

```
# show frp ring 1
FRP ring information
  Ring ID                  1
  Ring Status             :Disabled
  link Status             :None
  Control VLAN             :4091
  Protect VLAN(s)          1
  Fast detection status    :Disabled
  Node mode               :Master
  Primary port             : None
  Primary port state      :None
  Secondary port           :None
  Secondary port state    :None

  Coupling state          :Disabled
  Coupling Link Status    :None
  Coupling Mode            :Dual homing
  Coupling control port    :None
  Control port state       :None
  Coupling backup port     :None
  Backup port state       :None
```

3.23 RMON Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
Rmon view	**rmon**
Rmon view	**history index** *index* **internal** *time-interval* **buckets** *number* **ethernet** *ethernet-port* **owner** *text* **no history index** *index*
Rmon view	**event index** *index* **type** *event-type* **community** *text* **description** *text* **owner** *text* **no event index** *index*
Rmon view	**alarm index** *index* **variable** *oid* **sample-type** *type* **startup** *alarm-type* **risingsing** *thershold event-index* **falling** *threshold event-index* **interval** *time-interval* **owner** *text* **no alarm index** *index*
Any view	**show rmon history control**
Any view	**show rmon history table [index** *index***]**
Any view	**show rmon event**
Any view	**show rmon alarm [index** *index***]**
Any view	**show rmon log**

Rmon

Syntax

rmon

View

Rmon view.

Parameters

None.

Description

Use **rmon** command to enter into the rmon mode.

Examples

rmon
(rmon)#

History

Syntax

history index *index* **interval** *time-interval* **buckets** *number* **ethernet** *ethernet-port* **owner** *text*
no history index *index*

View

Rmon view.

Parameters

index: sets the history index, it is in the range of 1 to 65535.
time-interval: this interval can be set to any number of seconds between 1 and 3600(1 hour).
number: specifies the max number of historical record over which data shall be saved in the history control entry.
ethernet-port: in the form of {interface-type**/**interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = { 1 | 2 | … | 16 }, when interface-type is 1, interface-number = { 1 | 2 | 3 | 4 }.
text: sets the owner plaintext. Its string length is up to 32 characters.

Description

Use **history** command to configure the RMON history statistics options.
Use **no history** command to remove the RMON history record control table.

Examples

(rmon)# history index 2 interval 10 buckets 1 ethernet 0/2 owner aa
Configuration completed successfully.
(rmon)# no history index 2
Removed the RMON history control table successfully.

Event

Syntax

event index *index* **type** *event-type* **community** *text* **description** *text* **owner** *t*ext
no event index *index*

View

Rmon view.

Parameters

*index:*sets the event index, it is in the range of 1 to 65535.
*event-type:*sets the event type, which includes none,log,trap and log-trap.
text: sets the contents of plaintext for the corresponding parameters. Its string length is up to 32 characters.

Description

Use **event** command to create and set the RMON event for an alarm.
Use **no event** command to remove the specified RMON event.

Examples

(rmon) # event index 3 type log community xx description yy owner zz
Configuration completed successfully.
(rmon) # no event index 3
Removed the RMON event successfully.

Alarm

Syntax

alarm index *index* **variable** *oid* **sample-type** *type* **startup** *alarm-type* **ringsing** *thershold1 event-index1* **falling** *threshold2 event-index2* **interval** *time-interval* **owner** *text*
no alarm index *index*

View

Rmon view.

Parameters

*index:*sets the alarm index, it is in the range of 1 to 65535.
*oid:*specifies the MIB OBJECT ID, it is in the form of ".1.3.6.1.2.1.*.*.*", there are three types of this form,which includes ".1.3.6.1.2.1.2.2.1.x.y", " .1.3.6.1.2.1.16.1.1.1.x.y" and ".1.3.6.1.2.1.17.4.4.1.x.y" separately.

At above three types of oid,"y" is the switch port number,
if the type of switch is KY-3120DM, the rang of "y" is 1 to 20;

".1.3.6.1.2.1.2.2.1.x.y": in this mode "x" is in the range of 10 to 20.
".1.3.6.1.2.1.16.1.1.1.x.y: in this mode, "x" is in the range of 3 to 19.
".1.3.6.1.2.1.17.4.4.1.x.y": in this mode， "x" is in the range of 10 to 20.

*type:*sets the the type of sampling, which includes absolute and delta.
alarm-type: specifies the value of the startup alarm type,it is in the range of 1 to 3. "1" is on half of "rising alarm", "2" is on half of "falling alarm" and "3" is on half of "rising-falling alarm".
thershold1: the rising threshold for the sampled statistic, it is in the range of 1 to 65535.
event-index1: the index of the eventEntry that is used when a rising threshold is crossed. it is in the range of 1 to 65535. The rising event index does not exist, please create it first.
thershold2: the falling threshold for the sampled statistic, it is in the range of 1 to 65535.
event-index2: the index of the eventEntry that is used when a falling threshold is crossed. it is in the range of 1 to 65535.

time-interval: this interval can be set to any number of seconds between 1 and 65535.
text: sets the owner plaintext. Its string length is up to 32 characters.

Description

Use **alarm** command to create the RMON alarm option.
Use **no alarm** command to remove the specified RMON alarm event.

Examples

(rmon)# alarm index 1 variable .1.3.6.1.2.1.2.2.1.12.7 sample-type delta startup 1 rising 40 1 falling 30 3 intervals 100 owner aa
Configuration completed successfully.
(rmon)# no alarm index 1
Removed the RMON alarm successfully.

Show rmon history control

Syntax

show rmon history control

View

Any view.

Parameters

None.

Description

Use **show rmon history control** command to display the history control entry.

Examples

(rmon)# show rmon history control

Index	Port	Sample-interval	Sample-number	Owner
1	Ethernet0/1	20	10	bb
2	Ethernet0/2	10	1	aa

Show rmon history table

Syntax

show rmon history table [index *index***]**

View

Any view.

Parameters

index: rmon history table index, it is in the range of 1 to 65535.

Description

Use **show rmon history table** command to display the historical information about the specified or all the history tables.

Examples

(rmon)# show rmon history table
History Index 1
Index 34

```
------------------
Drop Events          0
RxOctets             0
RxPkts               0
Broadcast            0
Multicast            0
CRC AlignErrors      0
Undersize            0
Oversize             0
Fragments            0
Jabbers              0
Collisions           0
Utilization          0

Index                35
------------------
Drop Events          0
RxOctets             0
RxPkts               0
Broadcast            0
Multicast            0
CRC AlignErrors      0
Undersize            0
Press any key to continue (Q to quit)

 (rmon)# show rmon history table index 2
 History Index 2
 Index               130
------------------
 Drop Events         0
 RxOctets            0
 RxPkts              0
 Broadcast           0
 Multicast           0
 CRC AlignErrors     0
 Undersize           0
 Oversize            0
 Fragments           0
 Jabbers             0
 Collisions          0
 Utilization         0
```

Show rmon event

Syntax

Show rmon event

View

Any view.

Parameters

None.

Description

Use **show rmon event** command to display all the rmon events.

Examples

(rmon)# show rmon event

Index	Community	Description	Type	Owner
1	aa	bb	none	cc
2	xx	yy	Log	zz
3	pp	qq	Log-trap	rr

Show rmon alarm

Syntax

Show rmom alarm [index *index***]**

View

Any view.

Parameters

index: rmon alarm index, it is in the rang of 1 to 65535.

Description

Use **show rmon alarm** command to display the specified or all rmon alarms

Examples

(rmon)# show rmon alarm index 1
Alarm 1

OID	:.1.3.6.1.2.1.2.2.1.12.10.0
Sample Type	:absolute
Startup Alarm	:rising
Rising Threshold	40
Rising Event	1
Falling Threshold	30
Falling Event	2
Interval	100
Owner	:tt

Show rmon log

Syntax

show rmon log

View

Any view.

Parameters

None.

Description

Use **show rmon log** command to display the rmon logs.

Examples

(rmon)# show rmon log

Index	Event	Time	Description

3.24 SNTP Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
SNTP view	**sntp mode service year** *year* **month** *month* **day** *day* **hour** *hour* **minute** *minute* **second** *second* **sntp mode client server-ip** *server-ip* **response-time** *response-time* **zone-offset** *zone-offset* **time-offset** *time-offset* **no sntp**
Any view	**show sntp**

Sntp mode

Syntax

sntp mode service year *year* **month** *month* **day** *day* **hour** *hour* **minute** *minute* **second** *second*
sntp mode client server-ip *server-ip* **response-time** *response-time* **zone-offset** *zone-offset* **time-offset** *time-offset*
no sntp

View

SNTP view.

Parameters

year, month, day, hour, minute, second: the parameters is used to configure the Sntp service mode. in which month is in the range of 1 to 12, day is in the range of 1 to 31, hour is in the range of 0 to 23, while both minute and second are in the range of 0 to 59.
server-ip: the IP address of the SNTP server.
response-time: the interval of this switch gets a responds from the SNTP server.
Zone-offset: the time difference in hours between Greenwich Mean Time (GMT) and local time.
Time-offset: the minute offset between Greenwich Mean Time (GMT) and local time.

Description

Use **sntp mode service** command to configure the sntp sever mode and set the time of sntp server, use **sntp mode client** command to configure the sntp client mode and set the time of sync server.
Use **no sntp** command to restore the sntp configuration to the default mode.

Examples

sntp mode server year 2011 month 3 day 1 hour 13 minute 48 second 20
Configuration completed successfully.
no sntp
Restored to the default mode successfully.

sntp mode client server-ip 192.168.0.202 response-time 20 zone-offset GMT-12 time-offset 20
Get time from server times out.

Show sntp

Syntax

show sntp

View

Any view.

Parameters

None.

Description

Use **show sntp** command to display the information of SNTP configuration

Examples

show sntp

SNTP Mode :Client
Server IP address :192.168.0.202
Response time(s) 20
Time zone offset :GMT12
Time offset (min) 20

3.25 SMTP Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

Command list:

View	Command
SMTP view	**smtp destination-mail** *des-mail* **server-ip** *server-ip* **account-name** *account-name* **password** *password1* **confirm-password** *password2*
SMTP view	**smtp test**
SMTP view	**no smtp**
Any view	**show smtp**

Smtp

Syntax

smtp destination-mail *des-mail* **server-ip** *server-ip* **account** *account-name* **password** *password1* **confirm-password** *password2*

View

SMTP view.

Parameters

des-mail: the e-mail address to receive the event information.
server-ip: the IP address of SMTP server.
account-name: e-mail account on SMTP server.
password1: the password for e-mail account.its string length is up to 32 characters.

Password2: the confirm password for email account is the same as passwoed1, its string length is up to 32 characters.

Description

Use **Smtp** command to configure the SMTP server ip and send/receive E-mails.

Examples

Smtp destination-mail ftth@yahoo.com.cn server-ip 192.168.0.202 account-name superuser

Account password : ***

Confirm password : ***
Configuration completed successfully.

Smtp test

Syntax

Smtp test

View

SMTP view.

Parameters

None.

Description

Use **Smtp test** command to test the Smtp configuration.

Examples

smtp test
Please configure the SMTP parameters.

No Smtp

Syntax

no Smtp

View

SMTP view.

Parameters

None.

Description

Use **no Smtp** command to clear the SMTP configuration.

Examples

no Smtp
Clear SMTP configuration successfully.

Show Smtp

Syntax

show Smtp

View

Any view.

Parameters

None.

Description

Use **show Smtp** command to display the SMTP configuration.

Examples

show Smtp

SMTP Configuration

Destination mail :ftth@yahoo.com.cn
SMTP server IP :192.168.0.202
SMTP account name :superuser
MTB password :***

3.26 ALARM Commands

The “Any view” in the below table refers to anyone of the following: System view, Ethernet port view, Port-based VLAN view, VLAN view, or dot1x view.

3.26.1 E-mail alarm Commands

Command list:

View	Command
e-mail alarm view	**alarm e-mail**
e-mail alarm view	**alarm-type** *type* **ethernet** *ethernet-port* **[to ethernet** *ethernet-port***]** **no alarm-type** *type* **ethernet** *ethernet-port* **[to ethernet** *ethernet-port***]**
e-mail alarm view	**auth-failure** **no auth-failure**
e-mail alarm view	**cold-start** **no cold-start**
e-mail alarm view	**warm-start** **no warm-start**
e-mail alarm view	**frp-topology-change** **no frp-topology-change**
e-mail alarm view	**rmon-event-log** **no rmon-event-log**
e-mail alarm view	**traffic overload threshold** *threshold* **duration** *duration* **ethernet** *ethernet-port* **[to ethernet** *ethernet-port***]** **no traffic overload ethernet** *ethernet-port* **[to ethernet** *ethernet-port* **]**
Any view	**show alarm e-mail**

Alarm e-mail

Syntax

alarm e-mail

View

e-mail alarm view.

Parameters

None.

Description

Use **alarm e-mail** command to enter the e-mail alarm configuration mode.

Examples

alarm e-mail
(e-mail alarm)#

Alarm-type

Syntax

alarm-type *type* **ethernet** *ethernet-port* **[to ethernet e***thernet-port***]**
no alarm-type ethernet *ethernet-port* **[to ethernet** *ethernet-port***]**

View

e-mail alarm view.

Parameters

type: there are three alarm types, includes link-up, link-down, link-up & link-down.
ethernet-port: in the form of {*interface-type***/***interface-number}*, *interface-type* = {0 | 1}, when *interface-type* is 0, *interface-number* = { 1 | 2 | … | 16}, when *interface-type* is 1, *interface-number* = {1 | 2 | 3 | 4 }.

Description

Use **alarm-type** command to enable the function of sending e-mail alarm when the specified port links up or down.
Use **no alarm-type** command to disable the e-mail alarm function for the port event.
By default, no alarm-type is configured.

Examples

(e-mail alarm) # alarm-type link-up ethernet
0/1 Enable port up or down alarm
successfully.
(e-mail alarm)# no alarm-type ethernet 0/1
Disable port up or down alarm successfully.

(e-mail alarm) # alarm-type link-up ethernet 0/1 to ethernet
0/2 Enable port(s) up or down alarm successfully.
(e-mail alarm) # no alarm-type ethernet 0/1 to ethernet
0/2 Disable port(s) up or down alarm successfully.

Auth-failure

Syntax

auth-failure
no auth-failure

View

e-mail alarm view.

Parameters

None.

Description

Use **auth-failure** command to enable the function of sending e-mail alarm if inputting wrong password when login the web page.
Use **no auth-failure** command to disable the function of sending e-mail alarm for the password verification failure.
By default, no auth-failure is configured.

Examples

(e-mail alarm) # auth-failure
Configuration completed successfully.
(e-mail alarm) # no auth-failure
Configuration completed successfully.

Cold-start

Syntax

cold-start
no cold-start

View

e-mail alarm view.

Parameters

None.

Description

Use **cold-start** command to enable the function of sending e-mail alarm when the switch cold starts.
Use **no cold-start** command to disable the function of sending e-mail alarm when the switch cold starts.
By default, no cold-start is configured.

Examples

(e-mail alarm) # cold-start
Configuration completed successfully.
(e-mail alarm) # no cold-start
Configuration completed successfully.

Warm-start

Syntax

warm-start
no warm-start

View

e-mail alarm view.

Parameters

None.

Description

Use **warm-start** command to enable the function of sending e-mail alarm when the switch warm starts.

Use **no warm-start** command to disable the function of sending e-mail alarm when the switch warm starts.
By default, no warm-start is configured.

Examples

(e-mail alarm) # warm-start
Configuration completed successfully.
(e-mail alarm) # no warm-start
Configuration completed successfully.

Frp-topology-change

Syntax

frp-topology-change
no frp-topology-change

View

e-mail alarm view.

Parameters

None.

Description

Use **frp-topology-change** command to enable the function of sending e-mail alarm when the status of FRP ring changes.
Use **no frp-topology-change** command to disable the function of sending e-mail alarm when the status of FRP ring changes.
By default, no frp-topology-change is configured.

Examples

(e-mail alarm) # frp-topology-change
Configuration completed successfully.
(e-mail alarm) # no frp-topology-
change Configuration completed
successfully.

Rmon-event-log

Syntax

rmon-event-log
no rmon-event-log

View

e-mail alarm view.

Parameters

None.

Description

Use **rmon-event-log** command to enable the function of sending e-mail alarm when RMON event occurs.
Use **no rmon-event-log** command to disable the function of sending e-mail alarm when RMON event occurs.
By default, no rmon-event-log is configured.

Examples

(e-mail alarm) # rmon-event-log
Configuration completed successfully.
(e-mail alarm) # no rmon-event-log
Configuration completed successfully.

Traffic overload

Syntax

traffic overload threshold *threshold* **duration** *duration* **ethernet** *ethernet-port* **[to ethernet** *ethernet-port***]**
no traffic overload ethernet *ethernet-port* **[to ethernet** *ethernet-port***]**

View

e-mail alarm view.

Parameters

threshold: the threshold for port traffic in percentage of the port speed. It is in the range of 1 to 99.
duration: the statistics duration time for calculating port traffic. It is in the range of 10 to 9999.
ethernet-port: in the form of {*interface-type*|*interface-number*}, *interface-type* = {0 | 1}, when *interface-type* is 0, *interface-number* = { 1 | 2 | … | 16}, when *interface-type* is 1, *interface-number* = { 1 | 2 | 3 | 4 }.

Description

Use **traffic overload** command to enable the port event to send e-mail alarm when the port traffic exceeds Traffic Threshold during the traffice duration,
Use **no traffic overload** command to disable the port traffic overload e-mail alarm.
By default， no traffic overload is configured.

Examples

(e-mail alarm) # traffic overload threshold 50 duration 100 ethernet 0/1 to ethernet 0/2
Configuration successfully.
(e-mail alarm) # no traffic overload ethernet 0/1 to ethernet
0/2 Disable port traffic overload successfully.

(e-mail alarm) # traffic overload threshold 60 duration 200 ethernet
0/3 Configuration successfully.
(e-mail alarm) # no traffic overload ethernet
0/3 Disable port traffic overload successfully.

Show alarm e-mail

Syntax

show alarm e-mail

View

Any view.

Parameters

None.

Description

Use **show alarm e-mail** command to display the configuration of the port e-mail alarm event.

Examples

(e-mail alarm)# show alarm e-mail

Cold start :Disabled
Warm start :Enabled
Auth failure :Enabled
FRP topology change :Disabled
RMON event log :Enabled

Interfaces

Port	AlarmType	TrafficOverload	Threshold(%)	Duration(s)
Ethernet0/1	Disabled	Enabled	50	100
Ethernet0/2	Disabled	Enabled	50	100
Ethernet0/3	Disabled	Disabled	0	0
Ethernet0/4	Disabled	Disabled	0	0
Ethernet0/5	Disabled	Disabled	0	0
Ethernet0/6	Disabled	Disabled	0	0
Ethernet0/7	Disabled	Disabled	0	0
Ethernet0/8	Disabled	Disabled	0	0
Ethernet0/9	Disabled	Disabled	0	0
Ethernet0/10	Disabled	Disabled	0	0
Ethernet0/11	Disabled	Disabled	0	0
Ethernet0/12	Disabled	Disabled	0	0
Ethernet0/13	Disabled	Disabled	0	0
Ethernet0/14	Disabled	Disabled	0	0
Ethernet0/15	Disabled	Disabled	0	0
Ethernet0/16	Disabled	Disabled	0	0

Press any key to continue (Q to quit)

3.26.2 Relay alarm Commands

Command list:

View	Command
relay alarm view	**alarm relay**
relay alarm view	**alarm-type** *type* **ethernet** *ethernet-port* **[to ethernet** *ethernet-port***]** **no alarm-type ethernet** *ethernet-port* **[to ethernet** *ethernet-port***]**
relay alarm view	**frp-ring-broken** **no frp-ring-broken**
relay alarm view	**power-A/B-failure** **no power-A/B-failure**
relay alarm view	**traffic overload threshold** *threshold* **duration** *duration* **ethernet** *ethernet-port* **[to ethernet** *ethernet-port***]** **no traffic overload ethernet** *ethernet-port* **[to ethernet** *ethernet-port***]**

Any view	**show alarm relay**

Alarm relay

Syntax

alarm relay

View

relay alarm view.

Parameters

None.

Description

Use **alarm relay** command to enter the relay alarm confuguration mode.

Examples

alarm relay
(relay alarm)
#

Alarm-type

Syntax

alarm-type *type* **ethernet** *ethernet-port* **[to ethernet** *ethernet-port***]**
no alarm-type ethernet *ethernet-port* **[to ethernet** *ethernet-port***]**

View

relay alarm view.

Parameters

type: there are three alarm types, includes link-up, link-down, link-up & link-down.
ethernet-port: in the form of {interface-type**/**interface-number}, interface-type = {0 | 1}, when interface-type is 0, interface-number = {1 | 2 | … | 16}, when interface-type is 1, interface-number = {1 | 2 | 3 | 4}.

Description

Use **alarm-type** command to enable the function of sending relay alarm when the port links up pr down.
Use **no alarm-type** command to disable the relay alarm for the port linkevent.
By default, no alarm-type is configured.

Examples

(relay alarm) # alarm-type link-up ethernet
0/4 Enable port up or down alarm
successfully.

(relay alarm) # no alarm-type ethernet 0/4
Disable port up or down alarm successfully.

(relay alarm) # alarm-type link-down ethernet 0/5 to ethernet
0/6 Enable port(s) up or down alarm successfully.
(relay alarm) # no alarm-type ethernet 0/5 to ethernet
0/6 Disable port(s) up or down alarm successfully.

frp-ring-broken

Syntax

frp-ring-broken

no frp-ring-broken

View

relay alarm view.

Parameters

None.

Description

Use **frp-ring-broken** command to enable the configuration to send relay alarm when the FRP ring is broken.
Use **no frp-ring-broken** command to disable the the configuration to send relay alarm when FRP ring is broken.
By default, no frp-ring -broken is configured.

Examples

(relay alarm) # frp-ring-broken
Configuration completed successfully.
(relay alarm) # no frp-ring-broken
Disable FRP ring broken alarm successfully.

Power-A/B-failure

Syntax

Power-A failure
Power-B failure
no power-A-failure
no power-B-failure

View

relay alarm view.

Parameters

None.

Description

Use **power-A/B-failure** command to enable the function of sending relay alarm when the switch power A or B is power failure.
Use **no power-A/B-failure** command to disable the relay alarm function when the switch power A or B is power failure.
By default, no power-A/B-failure is configured.

Examples

(relay alarm) # power-A-failure
Enable power A failure alarm successfully.
(relay alarm) # no power-A-failure
Disable power A failure alarm successfully.
(relay alarm) # power-B-failure
Enable power B failure alarm successfully.
(relay alarm) # no power-B-failure
Disable power B failure alarm successfully.

Traffic overload

Syntax

traffic overload threshold *threshold* **duration** *duration* **ethernet** *ethernet-port* **[to ethernet** *ethernet-port***]**
no traffic overload ethernet *ethernet-port* **[to ethernet** *ethernet-port***]**

View

Any view.

Parameters

threshold: the threshold for port traffic in percentage of the port speed. It is in the range of 1 to 99.
duration: the statistics duration time for calculating port traffic. It is in the range of 10 to 9999.
ethernet-port: in the form of {*interface-type*|*interface-number*}, *interface-type* = {0 | 1}, when interface-*type is* 0, interface-*number* = {1 | 2 | … | 16}, when *interface-type* is 1, *interface-number* = {1 | 2 | 3 | 4}.

Description

Use **traffic overload** command to enable the port event to send relay alarm when the port traffic exceeds Traffic Threshold during the traffic duration,
Use **no traffic overload** command to disable the port traffic overload relay alarm.
By default， no traffic overload is configured.

Examples

(relay alarm) # traffic overload threshold 20 duration 50 ethernet 0/1 Configuration successfully.
(relay alarm) # no traffic overload ethernet 0/1
Disable port traffic overload alarm successfully.
(relay alarm) # traffic overload threshold 20 duration 60 ethernet 0/1 to ethernet 0/2
Configuration successfully.
(relay alarm) # no traffic overload ethernet 0/1 to ethernet 0/2 Disable port(s) traffic overload alarm successfully.

Show alarm relay

Syntax

show alarm relay

View

relay alarm view.

Parameters

None.

Description

Use **show alarm relay** command to display the configuration of the port relay alarm event.

Examples

(relay alarm) # show alarm

relay Alarm Relay

Configuration Power A failure :Enabled
Power B failure :Disabled
FRP broken :Disabled

Interfaces

Port	AlarmType	TrafficOverload	Threshold(%)	Duration(s)
Ethernet0/1	Disabled	Enabled	20	60
Ethernet0/2	Disabled	Enabled	20	60
Ethernet0/3	Disabled	Disabled	0	0
Ethernet0/4	Disabled	Disabled	0	0
Ethernet0/5	Disabled	Disabled	0	0
Ethernet0/6	Disabled	Disabled	0	0
Ethernet0/7	Disabled	Disabled	0	0
Ethernet0/8	Disabled	Disabled	0	0
Ethernet0/9	Disabled	Disabled	0	0
Ethernet0/10	Disabled	Disabled	0	0
Ethernet0/11	Disabled	Disabled	0	0
Ethernet0/12	Disabled	Disabled	0	0
Ethernet0/13	Disabled	Disabled	0	0
Ethernet0/14	Disabled	Disabled	0	0
Ethernet0/15	Disabled	Disabled	0	0
Ethernet0/16	Disabled	Disabled	0	0
Ethernet1/1	Disabled	Disabled	0	0
Ethernet1/2	Disabled	Disabled	0	0
Ethernet1/3	Disabled	Disabled	0	0
Ethernet1/4	Disabled	Disabled	0	0

4 Ordering Information

KY-3120DM support up to 4x1000BaseX SFP slots. Please find the compatible SFP module information in Appendix I.

5 Appendix I Compatible SFP Modules