TP-LINK®

CLI Reference Guide

TL-SG2008

8-Port Gigabit Smart Switch

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Preface

This Guide is intended for network administrator to provide referenced information about CLI (Command Line Interface). The device mentioned in this Guide stands for TL-SG2008 8-Port Gigabit Smart Switch.

Overview of this Guide

Chapter 1: Using the CLI

Provide information about how to use the CLI, CLI Command Modes, Security Levels and some Conventions.

Chapter 2: User Interface

Provide information about the commands used to switch between five CLI Command Modes.

Chapter 3: IEEE 802.1Q VLAN Commands

Provide information about the commands used for configuring IEEE 802.1Q VLAN.

Chapter 4: Voice VLAN Commands

Provide information about the commands used for configuring Voice VLAN.

Chapter 5: Etherchannel Commands

Provide information about the commands used for configuring LAG (Link Aggregation Group) and LACP (Link Aggregation Control Protocol).

Chapter 6: User Management Commands

Provide information about the commands used for user management.

Chapter 7: System Log Commands

Provide information about the commands used for configuring system log.

Chapter 8: SSH Commands

Provide information about the commands used for configuring and managing SSH (Security Shell).

Chapter 9: SSL Commands

Provide information about the commands used for configuring and managing SSL (Secure Sockets Layer).

Chapter 10: MAC Address Commands

Provide information about the commands used for address configuration.

Chapter 11: System Configuration Commands

Provide information about the commands used for configuring the System information and System IP, reboot and reset the switch, upgrade the switch system and commands used for device diagnose, including loopback test and cable test.

Chapter 12: Ethernet Configuration Commands

Provide information about the commands used for configuring the Bandwidth Control, Negotiation Mode, and Storm Control for enthernet ports.

Chapter 13: QoS Commands

Provide information about the commands used for configuring the QoS function.

Chapter 14: Port Mirror Commands

Provide information about the commands used for configuring the Port Mirror function.

Chapter 15: Port Isolation Commands

Provide information about the commands used for configuring Port Isolation function.

Chapter 16: Loopback Detection Commands

Provide information about the commands used for configuring the Loopback Detection function.

Chapter 17: ACL Commands

Provide information about the commands used for configuring the ACL (Access Control List).

Chapter 18: DHCP Filtering Commands

Provide information about the commands used for configuring the DHCP Filtering function.

Chapter 19: MSTP Commands

Provide information about the commands used for configuring the MSTP (Multiple Spanning Tree Protocol).

Chapter 20: IGMP Commands

Provide information about the commands used for configuring the IGMP Snooping (Internet Group Management Protocol Snooping).

Chapter 21: SNMP Commands

Provide information about the commands used for configuring the SNMP (Simple Network Management Protocol) functions.

Chapter 1 Using the CLI

1.1 Accessing the CLI

You can log on to the switch and access the CLI by logging on to the switch remotely by a Telnet or SSH connection through an Ethernet port.

1.1.1. Logon by Telnet

To log on to the switch by a Telnet connection, please take the following steps:

1. Click **Start** → **Run** to open the **Run** window, and type **telnet 192.168.0.1** in the prompt Run window as Figure 1-1 and click **OK**.

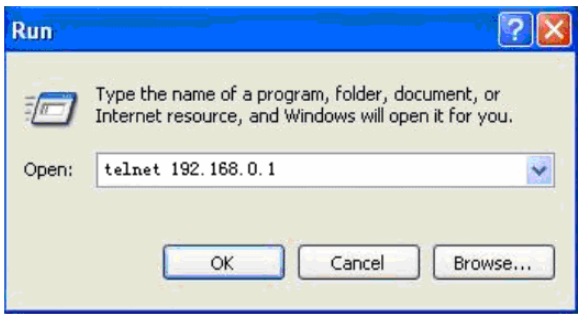


Figure 1-1 Run Window

2. Type in the User name and Password (the factory default value for both of them are admin) and press the **Enter** button to enter User EXEC Mode , which is shown as Figure 1-2.

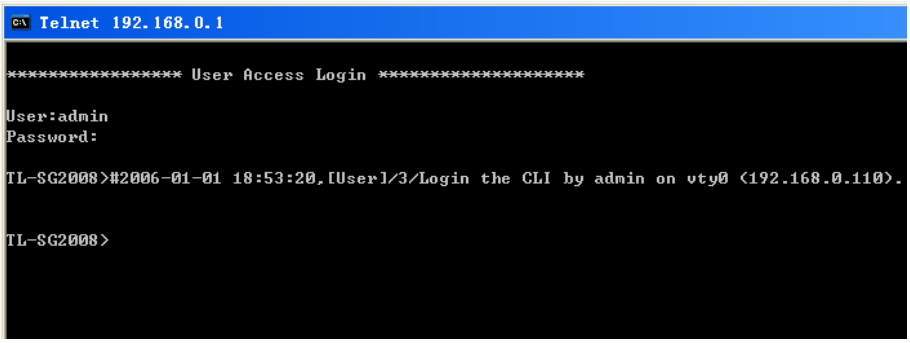


Figure 1-2 Log in the Switch

3. Type in **enable** command to enter Privileged EXEC Mode.

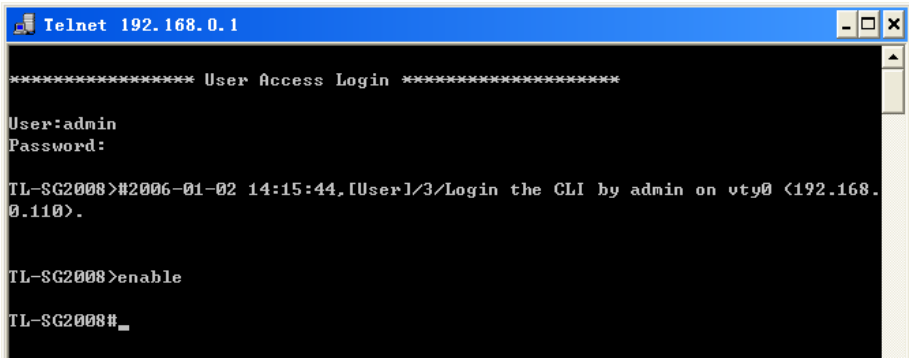


Figure 1-3 Enter into Priviledged EXEC Mode

1.1.2. Logon by SSH

To log on by SSH, a Putty client software is recommended. There are two authentication modes to set up an SSH connection:

Password Authentication Mode: It requires username and password, which are both **admin** by default.

Key Authentication Mode: It requires a public key for the switch and a private key for the SSH client software. You can generate the public key and the private key through Putty Key Generator.

Note:

Before SSH login, please follow the steps shown in Figure 1-4 to enable the SSH function through Telnet connection.

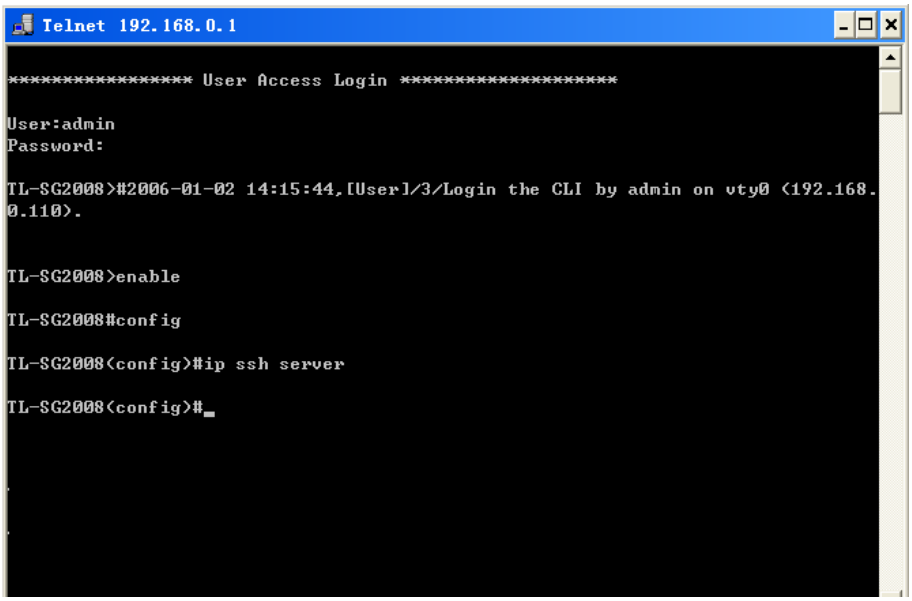


Figure 1-4 Enable SSH function

➢ **Password Authentication Mode**

1. Open the software to log on to the interface of PuTTY. Enter the IP address of the switch into Host Name field; keep the default value 22 in the Port field; select SSH as the Connection type.

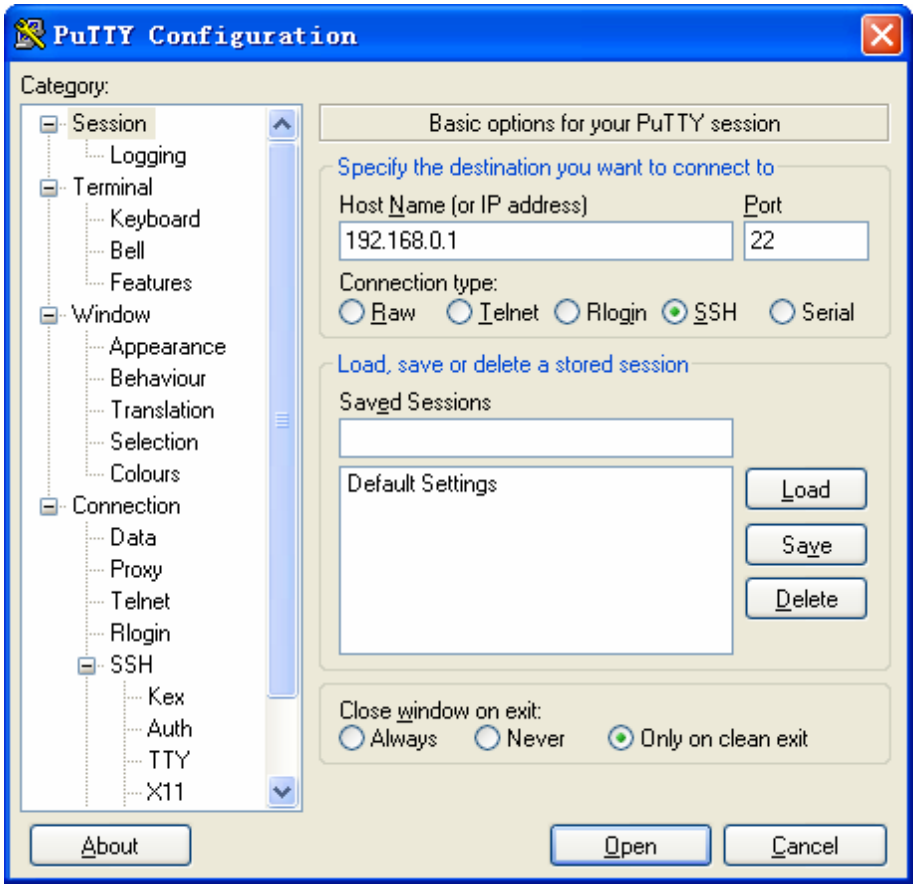


Figure 1-5 SSH Connection Config

2. Click the **Open** button in the above figure to log on to the switch. Enter the login user name and password to log on the switch, and then enter enable to enter Privileged EXEC Mode, so you can continue to configure the switch.

Figure 1-6 Log on the Switch

➢ **Key Authentication Mode**

1. Select the key type and key length, and generate SSH key.

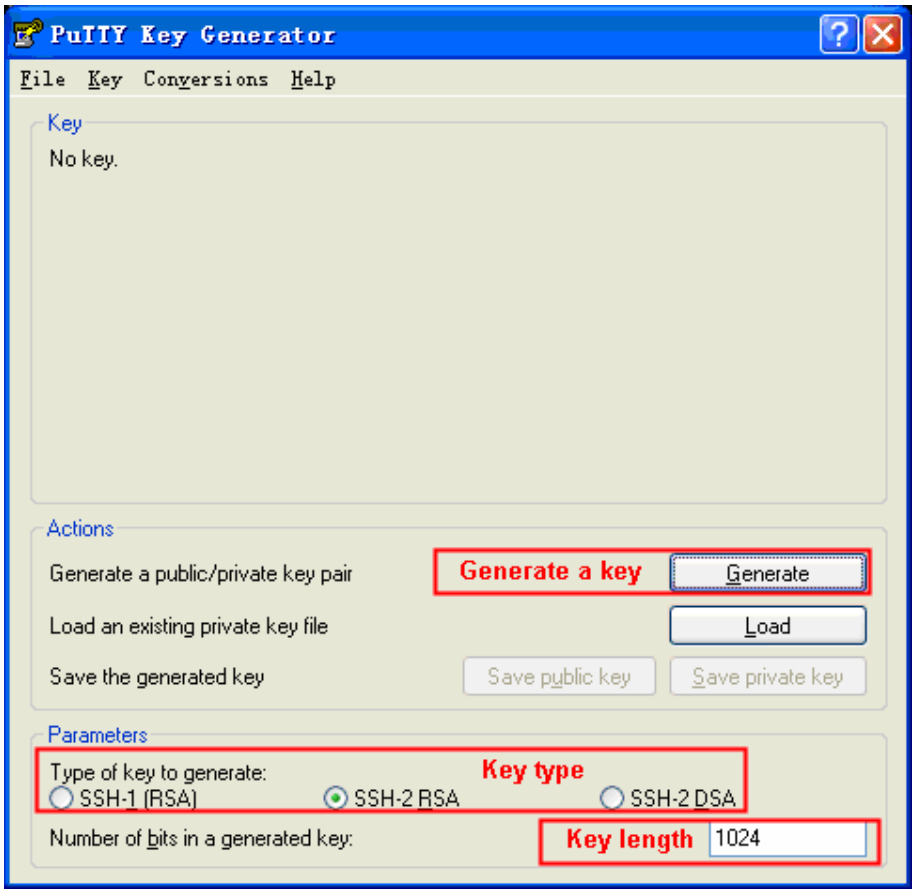


Figure 1-7 Generate SSH Key

Note:

1. The key length is in the range of 256 to 3072 bits.
2. During the key generation, randomly moving the mouse quickly can accelerate the key generation.

2. After the key is successfully generated, please save the public key and private key to a TFTP server.

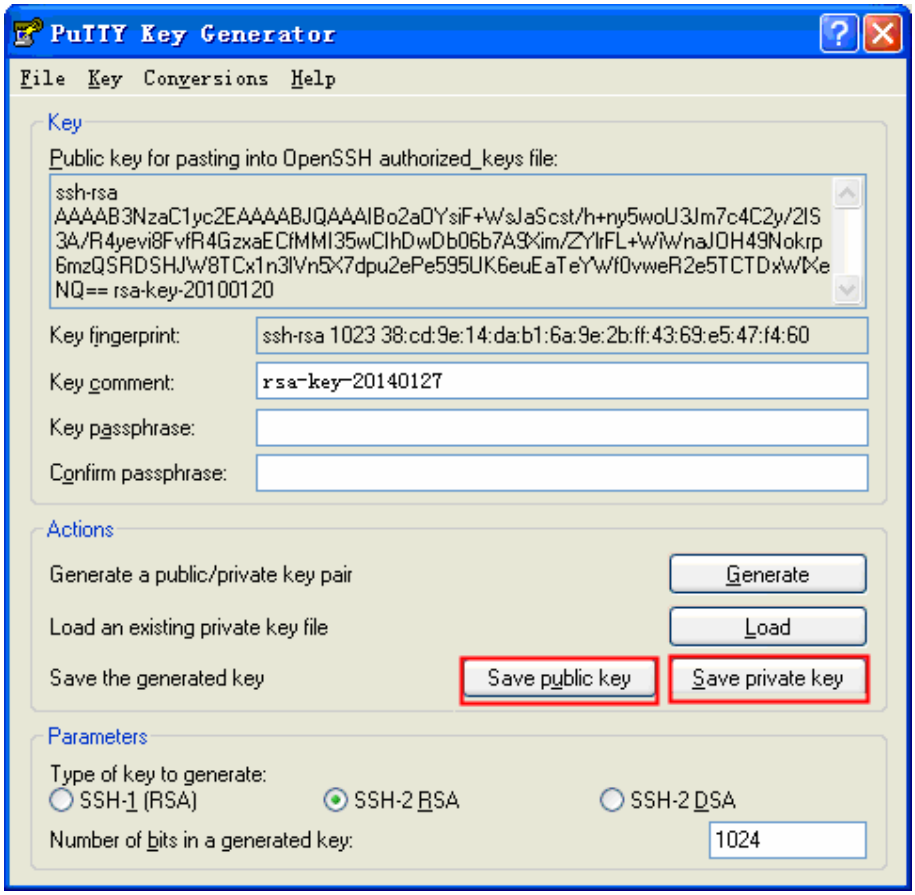


Figure 1-8 Save the Generated Key

3. Log on to the switch by Telnet and download the public key file from the TFTP server to the switch, as the following figure shows:

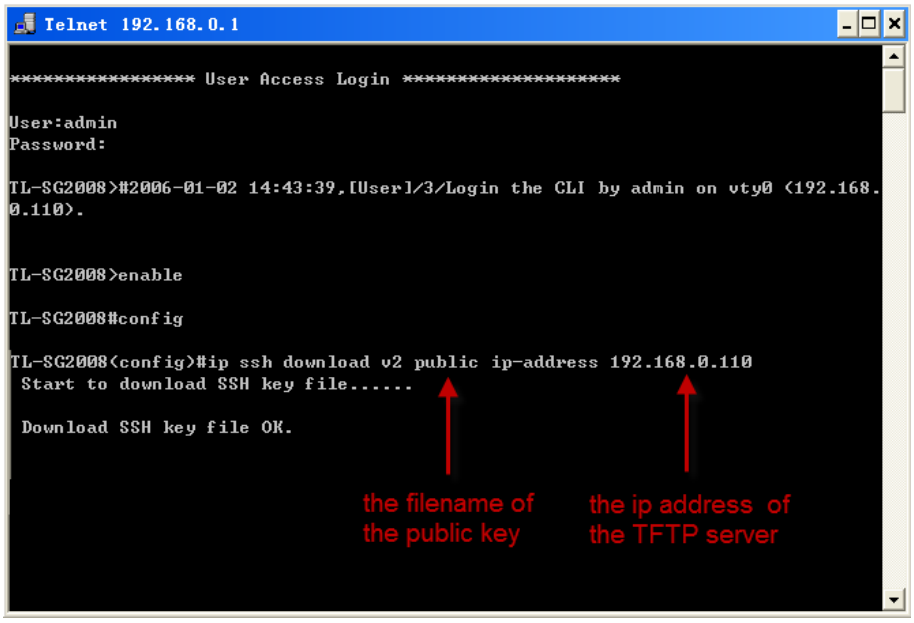


Figure 1-9 Download the Public Key

Note:

1. The key type should accord with the type of the key file.
2. The SSH key downloading can not be interrupted.

4. After the public key is downloaded, please log on to the interface of PuTTY and enter the IP address for login.

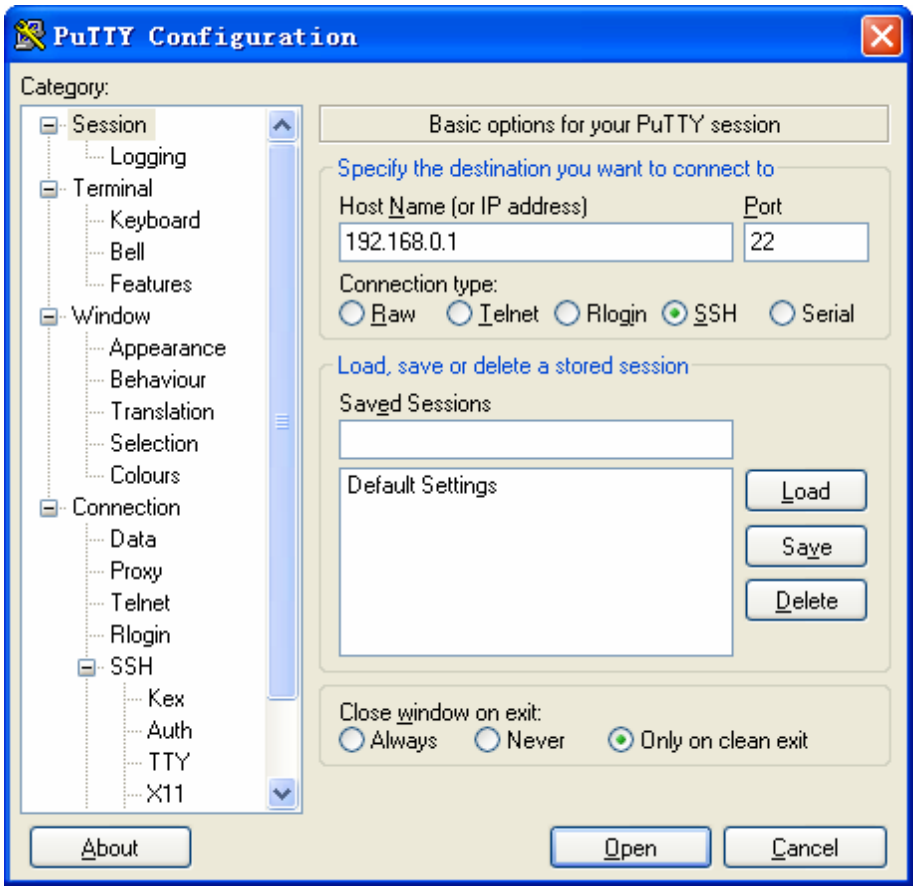


Figure 1-10 SSH Connection Config

5. Click **Browse** to download the private key file to SSH client software and click **Open**.

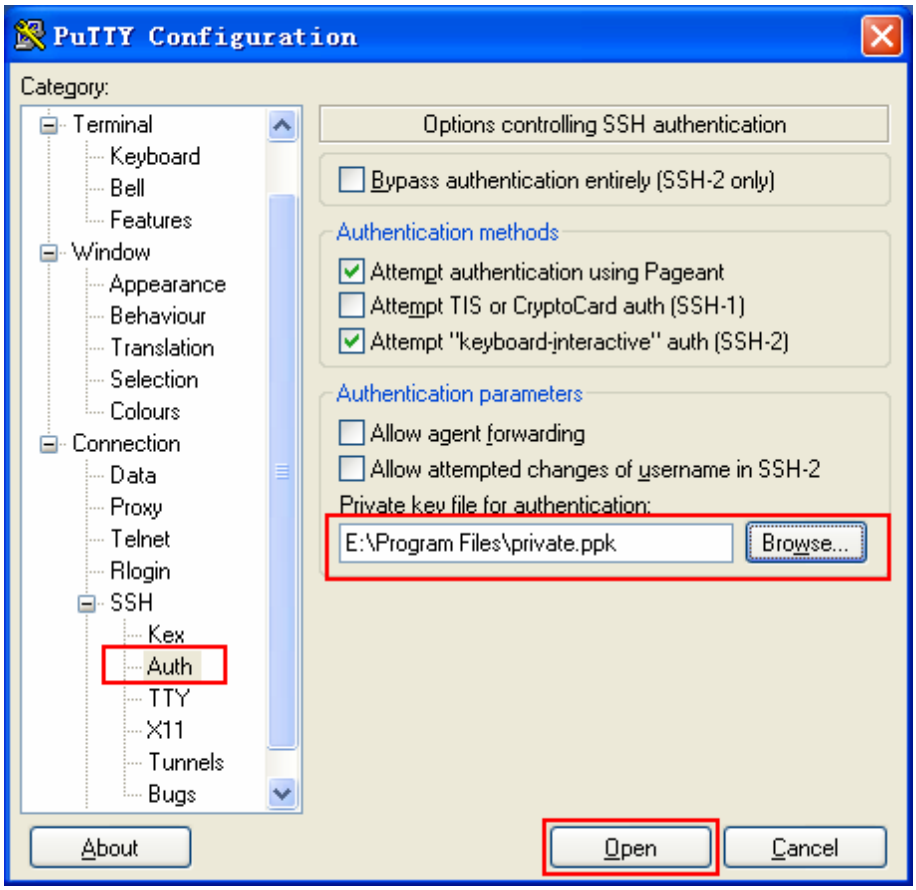


Figure 1-11 Download the Private Key

6. After successful authentication, please enter the login user name. If you log on to the switch without entering password, it indicates that the key has been successfully downloaded.

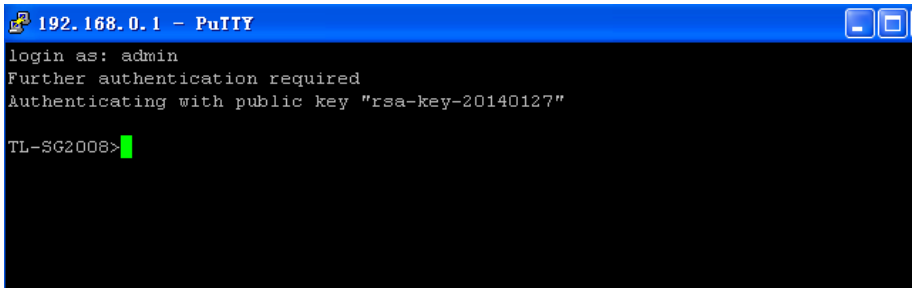
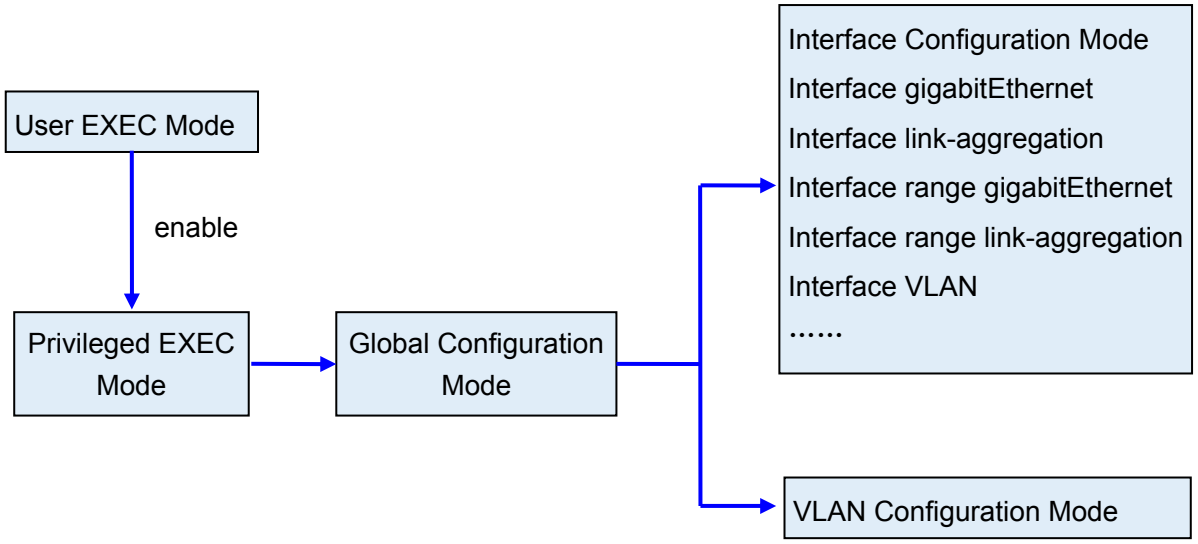


Figure 1-12 Log on the Switch

1.2 CLI Command Modes

The CLI is divided into different command modes: User EXEC Mode, Privileged EXEC Mode, Global Configuration Mode, Interface Configuration Mode and VLAN Configuration Mode. Interface Configuration Mode can also be divided into Interface Ethernet, Interface link-aggregation and some other modes, which is shown as the following diagram.



The following table gives detailed information about the Accessing path, Prompt of each mode and how to exit the current mode and access the next mode.

Mode	Accessing Path	Prompt	Logout or Access the next mode
User EXEC Mode	Primary mode once it is connected with the switch.	**TL-SG2008>**	Use the **exit** command to disconnect the switch. Use the **enable** command to access Privileged EXEC Mode.
Privileged EXEC Mode	Use the **enable** command to enter this mode from User EXEC Mode.	**TL- SG2008#**	Enter the **disable** or the **exit** command to return to User EXEC Mode. Enter **configure** command to access Global Configuration Mode.
Global Configuration Mode	Use the **configure** command to enter this mode from Privileged EXEC mode.	**T L- SG2008 (config)#**	Use the **exit** or the **end** command or press **Ctrl+Z** to return to Privileged EXEC Mode. Use the **interface gigabitEthernet** *port* or **interface range gigabitEthernet** *port-list* command to access interface Configuration Mode. Use the **vlan** *vlan-list* to access VLAN Configuration Mode.

Mode	Accessing Path	Prompt	Logout or Access the next mode
Interface Configuration Mode	Use the **interface** *type number* command to enter this mode from Global Configuration Mode.	**TL-SG2008 (config-if)#** **or** **TL-SG2008(config-if-range)#**	Use the **end** command or press **Ctrl+Z** to return to Privileged EXEC Mode. Enter **exit** command or the **#** command to return to Global Configuration Mode. A port number must be specified in the **interface** command.
VLAN Configuration Mode	Use the **vlan** *vlan-list* command to enter this mode from Global Configuration Mode.	**TL-SG2008 (config-vlan)#**	Use the **end** command or press **Ctrl+Z** to return to Privileged EXEC Mode. Enter the **exit** command or the # command to return to Global configuration Mode.

Note:

1. The user is automatically in User EXEC Mode after the connection between the PC and the switch is established by a Telnet/SSH connection.
2. Each command mode has its own set of specific commands. To configure some commands, you should access the corresponding command mode firstly.
   - **Global Configuration Mode**: In this mode, global commands are provided, such as the Spanning Tree, Schedule Mode and so on.
   - **Interface Configuration Mode**: In this mode, users can configure one or several ports, different ports corresponds to different commands
     a). Interface gigabitEthernet: Configure parameters for a Gigabit Ethernet port, such as Duplex-mode, flow control status.
     b). Interface range gigabitEthernet: Configure parameters for several Gigabit Ethernet ports.
     c). Interface link-aggregation: Configure parameters for a link-aggregation, such as broadcast storm.
     d). Interface range link-aggregation: Configure parameters for multi-trunks.
     e). Interface vlan: Configure parameters for the vlan-port.
   - **Vlan Configuration Mode**: In this mode, users can create a VLAN and add a specified port to the VLAN.

3. Some commands are global, that means they can be performed in all modes:

- **show**: display all information of switch, for example: statistic information, port information, VLAN information.
- **history**: Display the commands history.

1.3 Security Levels

This switch's security is divided into two levels: User level and Admin level.

User level only allows users to do some simple operations in User EXEC Mode; Admin level allows you to monitor, configure and manage the switch in Privileged EXEC Mode, Global Configuration Mode, Interface Configuration Mode and VLAN Configuration Mode.

Users get the privilege to the User level once logging in by Telnet or SSH. However, Guest users are restricted to access the CLI.

Users can enter Privileged EXEC Mode from User EXEC Mode by using the **enable** command. In default case, no password is needed. In Global Configuration Mode, you can configure password for Admin level by **enable password** command. Once password is configured, you are required to enter it to access Privileged EXEC Mode.

1.4 Conventions

1.4.1 Format Conventions

The following conventions are used in this Guide:

- Items in square brackets [ ] are optional
- Items in braces { } are required
- Alternative items are grouped in braces and separated by vertical bars. For example: **speed** {10 | 100 | 1000 }
- Bold indicates an unalterable keyword. For example: **show logging**
- Normal Font indicates a constant (several options are enumerated and only one can be selected). For example: **mode** {dynamic | static | permanent}
- Italic Font indicates a variable (an actual value must be assigned). For example: **bridge aging-time** *aging-time*

1.4.2 Special Characters

You should pay attentions to the description below if the variable is a character string:

- These six characters ” < > , \ & can not be input.
- If a blank is contained in a character string, single or double quotation marks should be used, for example ’hello world’, ”hello world”, and the words in the quotation marks will be identified as a string. Otherwise, the words will be identified as several strings.

1.4.3 Parameter Format

Some parameters must be entered in special formats which are shown as follows:

- MAC address must be enter in the format of xx:xx:xx:xx:xx:xx
- One or several values can be typed for a port-list or a vlan-list using comma to separate. Use a hyphen to designate a range of values, for instance,1/0/1,1/0/3-5,1/0/7 indicates choosing port 1/0/1,1/0/3,1/0/4,1/0/5,1/0/7.

Chapter 2 User Interface

enable

Description

The **enable** command is used to access Privileged EXEC Mode from User EXEC Mode.

Syntax

enable

Command Mode

User EXEC Mode

Example

If you have set the password to access Privileged EXEC Mode from User EXEC Mode:

```
TL-SG2008>enable
Enter password：
TL-SG2008#
```

enable password

Description

The **enable password** command is used to set the password for users to access Privileged EXEC Mode from User EXEC Mode. To return to the default configuration, please use **no enable password** command.

Syntax

enable password *password* [**secret** { simple | cipher }]

no enable password

Parameter

password —— super password, which can contains 31 characters at most, composing digits, English letters and underdashes only. By default, it is empty.

simple | cipher —— The way of displaying password in configuration file. By default, it is “simple”.

Command Mode

Global Configuration Mode

Example

Set the super password as admin to access Privileged EXEC Mode from User EXEC Mode:

TL-SG2008(config)# enable password admin

disable

Description

The **disable** command is used to return to User EXEC Mode from Privileged EXEC Mode.

Syntax

disable

Command Mode

Privileged EXEC Mode

Example

Return to User EXEC Mode from Privileged EXEC Mode:

TL-SG2008# disable
TL-SG2008>

configure

Description

The **configure** command is used to access Global Configuration Mode from Privileged EXEC Mode.

Syntax

configure

Command Mode

Privileged EXEC Mode

Example

Access Global Configuration Mode from Privileged EXEC Mode:

TL-SG2008# configure
TL-SG2008(config)#

exit

Description

The **exit** command is used to return to the previous Mode from the current Mode.

Syntax

exit

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Return to Global Configuration Mode from Interface Configuration Mode, and then return to Privileged EXEC Mode:

```
TL-SG2008(config-if)# exit
TL-SG2008(config)#exit
TL-SG2008#
```

end

Description

The **end** command is used to return to Privileged EXEC Mode.

Syntax

end

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Return to Privileged EXEC Mode from Interface Configuration Mode:

```
TL-SG2008(config-if)#end
TL-SG2008#
```

history

Description

The **history** command is used to show the latest 20 commands you entered in the current mode since the switch is powered.

Syntax

history

Command Mode

Privileged EXEC Mode and any Configuration Mode

Example

Show the commands you have entered in the current mode:

```
TL-SG2008(config)# history
    1 history
```

history clear

Description

The **history clear** command is used to clear the commands you have entered in the current mode, therefore these commands will not be shown next time you use the **history** command.

Syntax

history clear

Command Mode

Privileged EXEC Mode and any Configuration Mode

Example

Clear the commands you have entered in the current mode:

```
TL-SG2008(config)#history clear
```

Chapter 3 IEEE 802.1Q VLAN Commands

VLAN (Virtual Local Area Network) technology is developed for the switch to divide the LAN into multiple logical LANs flexibly. Hosts in the same VLAN can communicate with each other, regardless of their physical locations. VLAN can enhance performance by conserving bandwidth, and improve security by limiting traffic to specific domains.

vlan

Description

The **vlan** command is used to create IEEE 802.1Q VLAN and enter VLAN Configuration Mode. To delete the IEEE 802.1Q VLAN, please use **no vlan** command.

Syntax

vlan *vlan-list*

no vlan *vlan-list*

Parameter

vlan-list —— Specify IEEE 802.1Q VLAN ID list, ranging from 2 to 4094, in the format of 2-3, 5. It is multi-optional.

Command Mode

Global Configuration Mode

Example

Create VLAN 2-10 and VLAN 100:

TL-SG2008(config)# vlan 2-10,100

Delete VLAN 2:

TL-SG2008(config)# no vlan 2

interface vlan

Description

The **interface vlan** command is used to create VLAN Interface and enter Interface VLAN Mode. To delete VLAN Interface, please use **no interface vlan** command.

Syntax

interface vlan *vlan-id*

no interface vlan *vlan-id*

Parameter

vlan-id —— Specify IEEE 802.1Q VLAN ID, ranging from 1 to 4094.

Command Mode

Global Configuration Mode

Example

Create VLAN Interface 2:

TL-SG2008(config)# interface vlan 2

name

Description

The **name** command is used to assign a description to a VLAN. To clear the description, please use **no name** command.

Syntax

name *descript*

no name

Parameter

descript ——String to describe the VLAN, which contains 16 characters at most.

Command Mode

VLAN Configuration Mode (VLAN)

Example

Specify the name of VLAN 2 as “group1”:

TL-SG2008(config)# vlan 2

TL-SG2008(config-vlan)# name group1

switchport general allowed vlan

Description

The **switchport general allowed vlan** command is used to add the desired General port to IEEE 802.1Q VLAN and specify the port’s type. To delete the corresponding VLAN(s), please use **no switchport general allowed vlan** command.

Syntax

switchport general allowed vlan *vlan-list* { tagged | untagged }

no switchport general allowed vlan *vlan-list*

Parameter

vlan-list —— Specify IEEE 802.1Q VLAN ID list, ranging from 2 to 4094, in the format of 2-3, 5. It is multi-optional.

tagged | untagged —— Egress rule, untagged or tagged. Tagged: All packets forwarded by the port are tagged. The packets contain VLAN information. Untagged: Packets forwarded by the port are untagged.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Add port 4 it to VLAN 2 and configure the type of port 4 as tagged:

TL-SG2008(config)# interface gigabitEthernet 1/0/4

TL-SG2008(config-if)# switchport general allowed vlan 2 tagged

switchport pvid

Description

The **switchport pvid** command is used to configure the PVID for the switch ports.

Syntax

switchport pvid *vlan-id*

Parameter

vlan-id —— VLAN ID, ranging from 1 to 4094.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Specify the PVID of port 2 as 2:

TL-SG2008(config)# interface gigabitEthernet 2

TL-SG2008(config-if)# switchport pvid 2

show vlan summary

Description

The **show vlan summary** command is used to display the summarized information of IEEE 802.1Q VLAN.

Syntax

show vlan summary

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the summarized information of IEEE 802.1Q VLAN:

```
TL-SG2008(config)# show vlan summary
```

show vlan brief

Description

The **show vlan brief** command is used to display the brief information of IEEE 802.1Q VLAN.

Syntax

show vlan brief

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the brief information of IEEE 802.1Q VLAN:

```
TL-SG2008(config)# show vlan brief
```

show vlan

Description

The **show vlan** command is used to display the information of IEEE 802.1Q VLAN .

Syntax

show vlan [**id** *vlan-list*]

Parameter

vlan-list —— Specify IEEE 802.1Q VLAN ID, ranging from 1 to 4094. It is multi-optional. Using the **show vlan** command without parameter displays the detailed information of all VLANs.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the information of vlan 5:

TL-SG2008(config)# show vlan id 5

show interface switchport

Description

The **show interface switchport** command is used to display the IEEE 802.1Q VLAN configuration information of the specified port or all ports.

Syntax

show interface switchport [*port*]

Parameter

port —— The port number. By default, display the VLAN configuration information of all ports.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the VLAN configuration information of all ports:

TL-SG2008(config)# show interface switchport

Chapter 4 Voice VLAN Commands

Voice VLANs are configured specially for voice data stream. By configuring Voice VLANs and adding the ports with voice devices attached to voice VLANs, you can perform QoS-related configuration for voice data, ensuring the transmission priority of voice data stream and voice quality.

voice vlan

Description

The **voice vlan** command is used to enable Voice VLAN function. To disable Voice VLAN function, please use **no voice vlan** command.

Syntax

voice vlan *vlan-id*

no voice vlan

Parameter

vlan-id —— Specify IEEE 802.1Q VLAN ID, ranging from 2 to 4094.

Command Mode

Global Configuration Mode

Example

Enable the Voice VLAN function for VLAN 10:

```
TL-SG2008(config)# voice vlan 10
```

voice vlan aging time

Description

The **voice vlan aging time** command is used to set the aging time for a voice VLAN. To restore to the default aging time for the Voice VLAN, please use **no voice vlan aging time** command.

Syntax

voice vlan aging time *time*

no voice vlan aging time

Parameter

time —— Aging time (in minutes) to be set for the Voice VLAN. It ranges from 1 to 43200 and the default value is 1440.

Command Mode

Global Configuration Mode

Example

Set the aging time for the Voice VLAN as 1 minute:

```
TL-SG2008(config)# voice vlan aging time 1
```

voice vlan priority

Description

The **voice vlan priority** command is used to configure the priority for the Voice VLAN. To restore to the default priority, please use **no voice vlan priority** command.

Syntax

voice vlan priority *pri*

no voice vlan priority

Parameter

pri —— Priority, ranging from 0 to 7, and the default value is 6.

Command Mode

Global Configuration Mode

Example

Configure the priority of the Voice VLAN as 5:

```
TL-SG2008(config)# voice vlan priority 5
```

voice vlan mac-address

Description

The **voice vlan mac-address** command is used to create Voice VLAN OUI. To delete the specified Voice VLAN OUI, please use **no voice vlan mac-address** command.

Syntax

voice vlan mac-address *mac-addr* **mask** *mask* [**description** *descript*]

no voice vlan mac-address *mac-addr*

Parameter

mac-addr —— The OUI address of the voice device, in the format of XX:XX:XX:XX:XX:XX.

mask —— The OUI address mask of the voice device, in the format of XX:XX:XX:XX:XX:XX.

descript ——Give a description to the OUI for identification which contains 16 characters at most.

Command Mode

Global Configuration Mode

Example

Create a Voice VLAN OUI described as TP-Phone with the OUI address 00:11:11:11:11:11 and the mask address FF:FF:FF:00:00:00:

TL-SG2008(config)#voice vlan mac-address 00:11:11:11:11:11 **mask** FF:FF:FF:00:00:00 **description** TP-Phone

switchport voice vlan mode

Description

The **switchport voice vlan mode** command is used to configure the Voice VLAN mode for the Ethernet port.

Syntax

switchport voice vlan mode { manual | auto }

Parameter

manual | auto —— Port mode.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Configure the port 3 to operate in the auto voice VLAN mode:

TL-SG2008(config)# interface gigabitEthernet 1/0/3

TL-SG2008(config-if)# switchport voice vlan mode auto

switchport voice vlan security

Description

The **switchport voice vlan security** command is used to enable the Voice VLAN security feature. To disable the Voice VLAN security feature, please use **no switchport voice vlan security** command.

Syntax

switchport voice vlan security

no switchport voice vlan security

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable port 3 for the Voice VLAN security feature:

TL-SG2008(config)# interface gigabitEthernet 1/0/3

TL-SG2008(config-if)# switchport voice vlan security

show voice vlan

Description

The **show voice vlan** command is used to display the global configuration information of Voice VLAN.

Syntax

show voice vlan

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration information of Voice VLAN globally:

TL-SG2008(config)# show voice vlan

show voice vlan oui

Description

The **show voice vlan oui** command is used to display the configuration information of Voice VLAN OUI.

Syntax

show voice vlan oui

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration information of Voice VLAN OUI:

TL-SG2008(config)# show voice vlan oui

show voice vlan switchport

Description

The **show voice vlan switchport** command is used to display the Voice VLAN configuration information of all ports or a specified port.

Syntax

show voice vlan switchport [**gigabitEthernet** *port*]

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the Voice VLAN configuration information of all ports:

TL-SG2008(config)# show voice vlan switchport

Display the Voice VLAN configuration information of port 2:

TL-SG2008(config)# show voice vlan switchport gigabitEthernet 1/0/2

Chapter 5 Etherchannel Commands

Etherchannel Commands are used to configure LAG and LACP function.

LAG (Link Aggregation Group) is to combine a number of ports together to make a single high-bandwidth data path, which can highly extend the bandwidth. The bandwidth of the LAG is the sum of bandwidth of its member port.

LACP (Link Aggregation Control Protocol) is defined in IEEE802.3ad and enables the dynamic link aggregation and disaggregation by exchanging LACP packets with its partner. The switch can dynamically group similarly configured ports into a single logical link, which will highly extend the bandwidth and flexibly balance the load.

channel-group

Description

The **channel-group** command is used to add a port to the EtherChannel Group and configure its mode. To delete the port from the EtherChannel Group, please use **no channel-group** command.

Syntax

channel-group *num* **mode** { on | active | passive }

no channel-group

Parameter

num —— The number of the EtherChannel Group, ranging from 1 to 6.

on —— Enable the static LAG.

active —— Enable the active LACP mode.

passive —— Enable the passive LACP mode.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Add ports 2-4 to EtherChannel Group 1 and enable the static LAG:

TL-SG2008(config)# interface range gigabitEthernet 1/0/2-4

TL-SG2008(config-if-range)# channel-group 1 **mode** on

port-channel load-balance

Description

The **port-channel load-balance** command is used to configure the Aggregate Arithmetic for LAG. To return to the default configurations, please use **no port-channel load-balance** command.

Syntax

port-channel load-balance { src-dst-mac | src-dst-ip }

no port-channel load-balance

Parameter

src-dst-mac —— The source and destination MAC address. When this option is selected, the Aggregate Arithmetic will be based on the source and destination MAC addresses of the packets. The Aggregate Arithmetic for LAG is “src-dst-mac” by default.

src-dst-ip—— The source and destination IP address. When this option is selected, the Aggregate Arithmetic will be based on the source and destination IP addresses of the packets.

Command Mode

Global Configuration Mode

Example

Configure the Aggregate Arithmetic for LAG as “src-dst-mac”:

TL-SG2008(config)# port-channel load-balance src-dst-mac

lacp system-priority

Description

The **lacp system-priority** command is used to configure the LACP system priority globally. To return to the default configurations, please use **no lacp system-priority** command.

Syntax

lacp system-priority *pri*

no lacp system-priority

Parameter

pri —— The system priority, ranging from 0 to 65535. It is 32768 by default.

Command Mode

Global Configuration Mode

Example

Configure the LACP system priority as 1024 globally:

TL-SG2008(config)# lacp system-priority 1024

lacp port-priority

Description

The **lacp port-priority** command is used to configure the LACP port priority for specified ports. To return to the default configurations, please use **no lacp port-priority** command.

Syntax

lacp port-priority *pri*

no lacp port-priority

Parameter

pri —— The port priority, ranging from 0 to 65535. It is 32768 by default.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Configure the LACP port priority as 1024 for ports 1-3:

TL-SG2008(config)# interface range gigabitEthernet 1/0/1-3

TL-SG2008(config-if-range)# lacp port-priority 1024

Configure the LACP port priority as 2048 for port 4:

TL-SG2008(config)# interface gigabitEthernet 1/0/4

TL-SG2008(config-if)# lacp port-priority 2048

show etherchannel

Description

The **show etherchannel** command is used to display the EtherChannel information.

Syntax

show etherchannel [*channel-group-num*] { detail | summary }

Parameter

channel-group-num —— The EtherChannel Group number, ranging from 1 to 6. By default, it is empty, and will display the information of all EtherChannel Groups.

detail —— The detailed information of EtherChannel.

summary —— The EtherChannel information in summary.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the detailed information of EtherChannel Group 1:

```
TL-SG2008(config)# show etherchannel 1 detail
```

show etherchannel load-balance

Description

The **show etherchannel load-balance** command is used to display the Aggregate Arithmetic of LAG.

Syntax

show etherchannel load-balance

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the Aggregate Arithmetic of LAG:

```
TL-SG2008(config)# show etherchannel load-balance
```

show lacp

Description

The **show lacp** command is used to display the LACP information for a specified EtherChannel Group.

Syntax

show lacp [*channel-group-num*] { internal | neighbor }

Parameter

channel-group-num —— The EtherChannel Group number, ranging from 1 to 6. By default, it is empty, and will display the information of all LACP groups.

internal —— The internal LACP information.

neighbor —— The neighbor LACP information.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the internal LACP information of EtherChannel Group 1:

```
TL-SG2008(config)# show lacp 1 internal
```

show lacp sys-id

Description

The **show lacp sys-id** command is used to display the LACP system priority globally.

Syntax

show lacp sys-id

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the LACP system priority:

```
TL-SG2008(config)# show lacp sys-id
```

Chapter 6 User Management Commands

User Management Commands are used to configure the user name and password for users to log on to the Web management page with a certain access level so as to protect the settings of the switch from being randomly changed.

user name

Description

The **user name** command is used to add a new user or modify the existed user's information. To delete the existed users, please use **no user name** command.

Syntax

user name *user-name* **password** *password* [**type** { guest | admin }] [**status** { disable | enable}] [**secret** { simple | cipher }]

no user name *user-name*

Parameter

user-name ——Type in a name for users' login, which contains 16 characters at most, composing digits, English letters and underlines only.

password ——Type in a password for users' login, which contains 31 characters at most, composing digits, English letters and underlines only.

guest | admin —— Access level. Guest means that you can only view the settings without the right to edit and modify. Admin means that you can edit, modify and view all the settings of different functions. It is "admin" by default.

disable | enable ——Enable/disable the user. The new added user is enabled by default.

simple | cipher —— The way of displaying password in configuration file. By default, it is "simple".

Command Mode

Global Configuration Mode

Example

Add and enable a new admin user named tplink, of which the password is password:

TL-SG2008(config)# user name tplink **password** password **type** admin **status** enable

user access-control ip-based

Description

The **user access-control ip-based** command is used to limit the IP-range of the users for login. Only the users within the IP-range you set here are allowed to login. To cancel the user access limit, please use **no user access-control** command.

Syntax

user access-control ip-based *ip-addr ip-mask*

no user access-control

Parameter

ip-addr —— The source IP address. Only the users within the IP-range you set here are allowed for login.

ip-mask ——The subnet mask of the IP address.

Command Mode

Global Configuration Mode

Example

Enable the access-control of the user whose IP address is 192.168.0.148:

TL-SG2008(config)# user access-control ip-based 192.168.0.148 255.255.255.255

user access-control mac-based

Description

The **user access-control mac-based** command is used to limit the MAC address of the users for login. Only the user with this MAC address you set here is allowed to login. To cancel the user access limit, please use **no user access-control** command.

Syntax

user access-control mac-based *mac-addr*

no user access-control

Parameter

mac-addr —— The source MAC address. Only the user with this MAC address is allowed to login.

Command Mode

Global Configuration Mode

Example

Configure that only the user whose MAC address is 00:00:13:0A:00:01 is allowed to login:

TL-SG2008(config)# user access-control mac-based 00:00:13:0A:00:01

user access-control port-based

Description

The **user access-control port-based** command is used to limit the ports for login. Only the users connected to these ports you set here are allowed to login. To cancel the user access limit, please use **no user access-control** command.

Syntax

user access-control port-based interface { **gigabitEthernet** *port* | **range gigabitEthernet** *port-list* }

no user access-control

Parameter

port —— The Ethernet port number.

port-list ——The list group of Ethernet ports, in the format of 1/0/1-4. You can appoint 5 ports at most.

Command Mode

Global Configuration Mode

Example

Configure that only the users connected to ports 2-6 are allowed to login:

TL-SG2008(config)# user access-control port-based interface range gigabitEthernet 1/0/2-6

user max-number

Description

The **user max-number** command is used to configure the number of the users logging on at the same time. To cancel the limit to the numbers of the users logging in, please use **no user max-number** command.

Syntax

user max-number *admin-num guest-num*

no user max-number

Parameter

admin-num —— The maximum number of the users logging on as Admin, ranging from 1 to 16. The total number of Admin and Guest should be less than 16.

guest-num —— The maximum number of the users logging on as Guest, ranging from 0 to 15.The total number of Admin and Guest should be less than 16.

Command Mode

Global Configuration Mode

Example

Configure the number of the users as Admin and Guest logging on as 5 and 3:

TL-SG2008(config)# user max-num 5 3

user idle-timeout

Description

The **user idle-timeout** command is used to configure the timeout time of the switch. To restore to the default timeout time, please use **no user idle-timeout** command.

Syntax

user idle-timeout *minutes*

no user idle-timeout

Parameter

minutes ——The timeout time, ranging from 5 to 30 in minutes. By default, the value is 10.

Command Mode

Global Configuration Mode

Example

Configure the timeout time of the switch as 15 minutes:

TL-SG2008(config)# user idle-timeout 15

show user account-list

Description

The **show user account-list** command is used to display the information of the current users.

Syntax

show user account-list

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the information of the current users:

TL-SG2008(config)# show user account-list

show user configuration

Description

The **show user configuration** command is used to display the security configuration information of the users, including access-control, max-number and the idle-timeout, etc.

Syntax

show user configuration

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the security configuration information of the users:

TL-SG2008(config)# show user configuration

Chapter 7 System Log Commands

The log information will record the settings and operation of the switch respectively for you to monitor operation status and diagnose malfunction.

logging buffer

Description

The **logging buffer** command is used to configure the severity level and the status of the configuration input to the log buffer. To disable the logging buffer function, please use **no logging buffer** command. Local Log is the log information saved in the switch. It has two output channels, that is, it can be saved to two different positions, log buffer and log file. The log buffer indicates the RAM for saving system log and the information in the log buffer can be got by **show logging buffer** command. It will be lost when the switch is restarted.

Syntax

logging buffer *level*

no logging buffer

Parameter

level —— Severity level of the log information output to each channel. There are 8 severity levels marked with values 0-7. The smaller value has the higher priority. Only the log with the same or smaller severity level value will be output. By default, it is 7 indicating that all the log information will be saved in the log buffer.

Command Mode

Global Configuration Mode

Example

Set the severity level as 6:

```
TL-SG2008(config)# logging buffer 6
```

logging file flash

Description

The **logging file flash** command is used to store the log messages in a file in the flash on the switch. To disable the log file flash function, please use **no logging file flash** command. The log file flash indicates the flash sector for saving system log. The information in the log file of the flash will not be lost after the switch is restarted and can be got by the **show logging flash** command.

Syntax

logging file flash

no logging file flash

Command Mode

Global Configuration Mode

Example

Enable the log file flash function:

```
TL-SG2008(config)#logging file flash
```

logging file flash frequency

Description

The **logging file flash frequency** command is used to specify the frequency to synchronize the system log file in the log buffer to the flash. To resume the default synchronizing frequency, please use the **no logging file flash frequency** command.

Syntax

logging file flash frequency { **periodic** *periodic* **| immediate** }

no logging file flash frequency

Parameter

periodic —— The frequency to synchronize the system log file in the log buffer to the flash, ranging from 1 to 48 hours. By default, the synchronization process takes place every 24 hours.

immediate —— The system log file in the buffer will be synchronized to the flash immediately. This option will reduce the life of the flash and is not recommended.

Command Mode

Global Configuration Mode

Example

Specify the log file synchronization frequency as 10 hours:

TL-SG2008(config)#logging file flash frequency periodic10

logging file flash level

Description

The **logging file flash level** command is used to specify the system log message severity level. Messages will a severity level equal to or higher than this value will be stored to the flash. To restore to the default level, please use **no logging file flash level** command.

Syntax

logging file flash level *level*

no logging file flash level

Parameter

level —— Severity level of the log message. There are 8 severity levels marked with values 0-7. The smaller value has the higher priority. Only the log with the same or smaller severity level value will be saved to the flash. By default, it is 2 indicating that the log message marked with 0~2 will be saved in the log flash.

Command Mode

Global Configuration Mode

Example

Save the log messages with their severities equal or higher than 7 to the flash :

TL-SG2008(config)#logging file flash level 7

clear logging

Description

The **clear logging** command is used to clear the information in the log buffer and log file.

Syntax

clear logging [buffer | flash]

Parameter

buffer | flash —The output channels: buffer and flash. Clear the information of the two channels, by default.

Command Mode

Global Configuration Mode

Example

Clear the information in the log file:

TL-SG2008(config)# clear logging buffer

logging host index

Description

The **logging host index** command is used to configure the Log Host. To clear the configuration of the specified Log Host, please use **no logging host index** command. Log Host is to receive the system log from other devices. You can remotely monitor the settings and operation status of other devices through the log host.

Syntax

logging host index *idx host-ip level*

no logging host index *idx*

Parameter

idx —— The index of the log host. The switch supports 4 log hosts at most.

host-ip —— The IP for the log host.

level —— The severity level of the log information sent to each log host. There are 8 severity levels marked with values 0-7. The smaller value has the higher priority. Only the log with the same or smaller severity level value will be sent to the corresponding log host. By default, it is 6 indicating that the log information marked with 0~6 will be sent to the log host.

Command Mode

Global Configuration Mode

Example

Enable log host 2 and set its IP address as 192.168.0.148, the level 5:

TL-SG2008(config)# logging host index 2 192.168.0.148 5

show logging local-config

Description

The **show logging local-config** command is used to display the configuration of the Local Log including the log buffer and the log file.

Syntax

show logging local-config

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration of the Local Log:

TL-SG2008(config)# show logging local-config

show logging loghost

Description

The **show logging loghost** command is used to display the configuration of the log host.

Syntax

show logging loghost [*index*]

Parameter

index ——The index of the log host whose configuration will be displayed, ranging from 1 to 4. Display the configuration of all the log hosts by default.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration of the log host 2:

TL-SG2008(config)# show logging loghost 2

show logging buffer

Description

The **show logging buffer** command is used to display the log information in the log buffer according to the severity level.

Syntax

show logging buffer [**level** *level*]

Parameter

level —— Severity level. There are 8 severity levels marked with values 0-7. The information of levels with priority not lower than the select level will display. Display all the log information in the log buffer by default.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the log information from level 0 to level 5 in the log buffer:

```
TL-SG2008(config)# show logging buffer level 5
```

show logging flash

Description

The **show logging flash** command is used to display the log information in the log file according to the severity level.

Syntax

show logging flash [**level** *level*]

Parameter

level —— Severity level. There are 8 severity levels marked with values 0-7. The information of levels with priority not lower than the select level will display. Display all the log information in the log file by default.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the log information with the level marked 0~3 in the log file:

TL-SG2008(config)# show logging flash level 3

Chapter 8 SSH Commands

SSH (Security Shell) can provide the unsecured remote management with security and powerful authentication to ensure the security of the management information.

ip ssh server

Description

The **ip ssh server** command is used to enable SSH function. To disable the SSH function, please use **no ip ssh server** command.

Syntax

ip ssh server

no ip ssh server

Command Mode

Global Configuration Mode

Example

Enable the SSH function:

```
TL-SG2008(config)# ip ssh server
```

ip ssh version

Description

The **ip ssh version** command is used to enable the SSH protocol version. To disable the protocol version, please use **no ip ssh version** command.

Syntax

ip ssh version { v1 | v2 }

no ip ssh version { v1 | v2 }

Parameter

v1 | v2 —— The SSH protocol version to be enabled. They represent SSH v1 and SSH v2 respectively.

Command Mode

Global Configuration Mode

Example

Enable SSH v2:

```
TL-SG2008(config)# ip ssh version v2
```

ip ssh timeout

Description

The **ip ssh timeout** command is used to specify the idle-timeout time of SSH. To restore to the factory defaults, please use **ip ssh timeout** command.

Syntax

ip ssh timeout *value*

no ip ssh timeout

Parameter

value —— The Idle-timeout time. During this period, the system will automatically release the connection if there is no operation from the client. It ranges from 1 to 120 in seconds. By default, this value is 120 seconds.

Command Mode

Global Configuration Mode

Example

Specify the idle-timeout time of SSH as 30 seconds:

```
TL-SG2008(config)# ip ssh timeout 30
```

ip ssh max-client

Description

The **ip ssh max-client** command is used to specify the maximum number of the connections to the SSH server. To return to the default configuration, please use **no ip ssh max-client** command.

Syntax

ip ssh max-client *num*

no ip ssh max-client

Parameter

num —— The maximum number of the connections to the SSH server. It ranges from 1 to 5. By default, this value is 5.

Command Mode

Global Configuration Mode

Example

Specify the maximum number of the connections to the SSH server as 3:

TL-SG2008(config)# ip ssh max-client 3

ip ssh download

Description

The **ip ssh download** command is used to download the SSH key file from TFTP server.

Syntax

ip ssh download { v1 | v2 } *key-file* **ip-address** *ip-addr*

Parameter

v1 | v2 —— Select the type of SSH key to download, v1 represents SSH-1, v2 represents SSH-2.

key-file —— The name of the key-file which is selected to download. The length of the name ranges from 1 to 25 characters. The key length of the downloaded file must be in the range of 256 to 3072 bits.

ip-addr —— The IP address of the TFTP server.

Command Mode

Global Configuration Mode

Example

Download an SSH-1 type key file named ssh-key from TFTP server with the IP address 192.168.0.148:

TL-SG2008(config)# ip ssh download v1 ssh-key **ip-address** 192.168.0.148

show ip ssh

Description

The **show ip ssh** command is used to display the global configuration of SSH.

Syntax

show ip ssh

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the global configuration of SSH:

```
TL-SG2008(config)# show ip ssh
```

Chapter 9 SSL Commands

SSL (Secure Sockets Layer), a security protocol, is to provide a secure connection for the application layer protocol(e.g. HTTP) based on TCP. Adopting asymmetrical encryption technology, SSL uses key pair to encrypt/decrypt information. A key pair refers to a public key (contained in the certificate) and its corresponding private key. By default the switch has a certificate (self-signed certificate) and a corresponding private key. The Certificate/Key Download function enables the user to replace the default key pair.

ip http secure-server

Description

The **ip http secure-server** command is used to enable the SSL function globally on the switch. To disable the SSL function, please use **no ip http secure-server** command. Only the SSL function is enabled, a secure HTTPS connection can be established.

Syntax

ip http secure-server

no ip http secure-server

Command Mode

Global Configuration Mode

Example

Enable the SSL function:

```
TL-SG2008(config)# ip http secure-server
```

ip http secure-server download certificate

Description

The **ip http secure-server download certificate** command is used to download a certificate to the switch from TFTP server.

Syntax

ip http secure-server download certificate *ssl-cert* **ip-address** *ip-addr*

Parameter

ssl-cert —— The name of the SSL certificate which is selected to download to the switch. The length of the name ranges from 1 to 25 characters. The Certificate must be BASE64 encoded.

ip-addr —— The IP address of the TFTP server.

Command Mode

Global Configuration Mode

Example

Download an SSL Certificate named ssl-cert from TFTP server with the IP address of 192.168.0.146:

TL-SG2008(config)# ip http secure-server download certificate ssl-cert **ip-address** 192.168.0.146

ip http secure-server download key

Description

The **ip http secure-server download key** command is used to download an SSL key to the switch from TFTP server.

Syntax

ip http secure-server download key *ssl-key* **ip-address** *ip-addr*

Parameter

ssl-key —— The name of the SSL key which is selected to download to the switch. The length of the name ranges from 1 to 25 characters. The Key must be BASE64 encoded.

ip-addr —— The IP address of the TFTP server.

Command Mode

Global Configuration Mode

Example

Download an SSL Key named ssl-key from TFTP server with the IP address of 192.168.0.146:

TL-SG2008(config)# ip http secure-server download key ssl-key **ip-address** 192.168.0.146

show ip http secure-server

Description

The **show ip http secure-server** command is used to display the global configuration of SSL.

Syntax

show ip http secure-server

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the global configuration of SSL:

```
TL-SG2008(config)# show ip http secure-server
```

Chapter 10 MAC Address Commands

MAC Address configuration can improve the network security by configuring the Port Security and maintaining the address information by managing the Address Table.

mac address-table static

Description

The **mac address-table static** command is used to add the static MAC address entry. To remove the corresponding entry, please use **no mac address-table static** command. The static address can be added or removed manually, independent of the aging time. In the stable networks, the static MAC address entries can facilitate the switch to reduce broadcast packets and enhance the efficiency of packets forwarding remarkably.

Syntax

mac address-table static mac *mac-addr* **vid** *vid* **interface gigabitEthernet** *port*

no mac address-table static { **mac** *mac-addr* | **vid** *vid* | **mac** *mac-addr* **vid** *vid* | **interface gigabitEthernet** *port* }

Parameter

mac-addr ——The MAC address of the entry you desire to add.

vid —— The VLAN ID number of your desired entry. It ranges from 1 to 4094.

port —— The Ethernet port number of your desired entry.

Command Mode

Global Configuration Mode

Example

Add a static Mac address entry to bind the MAC address 00:02:58:4f:6c:23, VLAN1 and port 1 together:

```
TL-SG2008(config)# mac address-table static mac 00:02:58:4f:6c:23 vid 1
interface gigabitEthernet 1/0/1
```

mac address-table aging-time

Description

The **mac address-table aging-time** command is used to configure aging time for the dynamic address. To return to the default configuration, please use **no mac address-table aging-time** command.

Syntax

mac address-table aging-time *aging-time*

no mac address-table aging-time

Parameter

aging-time —— The aging time for the dynamic address. The value of it can be 0 or ranges from 10 to 630 seconds. When 0 is entered, the Auto Aging function is disabled. It is 300 by default.

Command Mode

Global Configuration Mode

Example

Configure the aging time as 500 seconds:

TL-SG2008(config)# mac address-table aging-time 500

mac address-table filtering

Description

The **mac address-table filtering** command is used to add the filtering address entry. To delete the corresponding entry, please use **no mac address-table filtering** command. The filtering address function is to forbid the undesired package to be forwarded. The filtering address can be added or removed manually, independent of the aging time.

Syntax

mac address-table filtering mac *mac-addr* **vid** *vid*

no mac address-table filtering {[**mac** *mac-addr*] [**vid** *vid*]}

Parameter

mac-addr —— The MAC address to be filtered.

vid —— The corresponding VLAN ID of the MAC address. It ranges from 1 to 4094.

Command Mode

Global Configuration Mode

Example

Add a filtering address entry of which VLAN ID is 1 and MAC address is 00:1e:4b:04:01:5d:

TL-SG2008(config)# mac address-table filtering mac 00:1e:4b:04:01:5d **vid** 1

mac address-table max-mac-count

Description

The **mac address-table max-mac-count** command is used to configure the Port Security. To return to the default configurations, please use **no mac address-table max-mac-count** command. Port Security is to protect the switch from the malicious MAC address attack by limiting the maximum number of the MAC addresses that can be learned on the port. The port with Port Security feature enabled will learned the MAC address dynamically. When the learned MAC address number reaches the maximum, the port will stop learning. Therefore, the other devices with the MAC address unlearned can not access to the network via this port.

Syntax

mac address-table max-mac-count {[**max-number** *num*] [**mode** { dynamic | static | permanent }] [**status** { disable | enable }]}

no mac address-table max-mac-count

Parameter

num —— The maximum number of MAC addresses that can be learned on the port. It ranges from 0 to 64. By default this value is 64.

dynamic | static | permanent —— Learn mode for MAC addresses. There are three modes, including Dynamic mode, Static mode and Permanent mode. When Dynamic mode is selected, the learned MAC address will be deleted automatically after the aging time. When Static mode is selected, the learned MAC address will be out of the influence of the aging time and can only be deleted manually. The learned entries will be cleared after the switch is rebooted. When permanent mode is selected, the learned MAC address will be out of the influence of the aging time and can only be deleted manually too. However, the learned entries will be saved even the switch is rebooted.

status —— Enable or disable the Port Security function for a specified port. By default, this function is disabled.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable Port Security function for port 1, select Static mode as the learn mode, and specify the maximum number of MAC addresses that can be learned on this port as 30:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/1
TL-SG2008(config-if)# mac address-table max-mac-count max-number 30
mode static status enable
```

show mac address-table address

Description

The **show mac address-table address** command is used to display the information of all address entries.

Syntax

show mac address-table address { dynamic | static | drop | all }

Parameter

dynamic | static | drop | all —— The type of your desired entry

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the information of all address entries:

```
TL-SG2008(config)# show mac address-table address all
```

show mac address-table aging-time

Description

The **show mac address-table aging-time** command is used to display the Aging Time of the MAC address.

Syntax

show mac address-table aging-time

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the Aging Time of the MAC address:

```
TL-SG2008(config)# show mac address-table aging-time
```

show mac address-table max-mac-count interface gigabitEthernet

Description

The **show mac address-table max-mac-count interface gigabitEthernet** command is used to display the security configuration of all ports or the specified port.

Syntax

show mac address-table max-mac-count interface gigabitEthernet [*port*]

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the security configuration of all ports:

```
TL-SG2008(config)# show mac address-table max-mac-count interface gigabitEthernet
```

Display the security configuration of port 1/0/1:

```
TL-SG2008(config)# show mac address-table max-mac-count interface gigabitEthernet 1/0/1
```

show mac address-table interface gigabitEthernet

Description

The **show mac address-table interface gigabitEthernet** command is used to display the address configuration of the specified port.

Syntax

show mac address-table interface gigabitEthernet *port*

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the address configuration of port 1/0/1:

```
TL-SG2008(config)# show mac address-table interface gigabitEthernet 1/0/1
```

show mac address-table mac-num

Description

The **show mac address-table mac-num** command is used to display the total amount of MAC address table.

Syntax

show mac address-table mac-num

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the total amount of MAC address table:

```
TL-SG2008(config)# show mac address-table mac-num
```

show mac address-table mac

Description

The **show mac address-table mac** command is used to display the information of the specified MAC address.

Syntax

show mac address-table mac *mac-addr*

Parameter

mac-addr ——The specified MAC address.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the information of the MAC address 00:00:00:00:23:00:

```
TL-SG2008(config)#show mac address-table mac 00:00:00:00:23:00
```

show mac address-table vlan

Description

The **show mac address-table vlan** command is used to display the MAC address configuration of the specified vlan.

Syntax

show mac address-table vlan *vid*

Parameter

vid —— The specified VLAN id.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the MAC address configuration of vlan 1:

```
TL-SG2008(config)# show mac address-table vlan 1
```

Chapter 11 System Commands

System Commands can be used to configure the System information and System IP, reboot and reset the switch, upgrade the switch system and other operations.

system-time manual

Description

The **system-time manual** command is used to configure the system time manually.

Syntax

system-time manual *time*

Parameter

time —— Set the date and time manually, MM/DD/YYYY-HH:MM:SS

Command Mode

Global Configuration Mode

Example

Configure the system mode as manual, and the time is 12/20/2010 17:30:35

TL-SG2008(config)# system-time manual 12/20/2010-17:30:35

system-time ntp

Description

The **system-time ntp** command is used to configure the time zone and the IP address for the NTP Server. The switch will get UTC automatically if it has connected to an NTP Server.

Syntax

system-time ntp { *timezone* } { *ntp-server* } { *backup-ntp-server* } { *fetching-rate* }

Parameter

timezone —— Your local time-zone, and it ranges from UTC-12:00 to UTC+13:00.

The detailed information that each time-zone means are displayed as follow:

UTC-12:00 —— TimeZone for International Date Line West.

UTC-11:00 —— TimeZone for Coordinated Universal Time-11.

UTC-10:00 —— TimeZone for Hawaii.

UTC-09:00 —— TimeZone for Alaska.

UTC-08:00 —— TimeZone for Pacific Time(US Canada).

UTC-07:00 —— TimeZone for Mountain Time(US Canada).

UTC-06:00 —— TimeZone for Central Time(US Canada).

UTC-05:00 —— TimeZone for Eastern Time(US Canada).

UTC-04:30 —— TimeZone for Caracas.

UTC-04:00 —— TimeZone for Atlantic Time(Canada).

UTC-03:30 —— TimeZone for Newfoundland.

UTC-03:00 —— TimeZone for Buenos Aires, Salvador, Brasilia.

UTC-02:00 —— TimeZone for Mid-Atlantic.

UTC-01:00 —— TimeZone for Azores, Cape Verde Is.

UTC —— TimeZone for Dublin, Edinburgh, Lisbon, London.

UTC+01:00 —— TimeZone for Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna.

UTC+02:00 —— TimeZone for Cairo, Athens, Bucharest, Amman, Beirut, Jerusalem.

UTC+03:00 —— TimeZone for Kuwait, Riyadh, Baghdad.

UTC+03:30 —— TimeZone for Tehran.

UTC+04:00 —— TimeZone for Moscow, St.Petersburg, Volgograd, Tbilisi, Port Louis.

UTC+04:30 —— TimeZone for Kabul.

UTC+05:00 —— TimeZone for Islamabad, Karachi, Tashkent.

UTC+05:30 —— TimeZone for Chennai, Kolkata, Mumbai, New Delhi.

UTC+05:45 —— TimeZone for Kathmandu.

UTC+06:00 —— TimeZone for Dhaka,Astana, Ekaterinburg.

UTC+06:30 —— TimeZone for Yangon (Rangoon).

UTC+07:00 —— TimeZone for Novosibrisk, Bangkok, Hanoi, Jakarta.

UTC+08:00—— TimeZone for Beijing, Chongqing, Hong Kong, Urumqi, Singapore.

UTC+09:00 —— TimeZone for Seoul, Irkutsk, Osaka, Sapporo, Tokyo.

UTC+09:30 —— TimeZone for Darwin, Adelaide.

UTC+10:00 —— TimeZone for Canberra, Melbourne, Sydney, Brisbane.

UTC+11:00 —— TimeZone for Solomon Is., New Caledonia, Vladivostok.

UTC+12:00 —— TimeZone for Fiji, Magadan, Auckland, Welington.

UTC+13:00 —— TimeZone for Nuku'alofa, Samoa.

ntp-server —— The IP address for the Primary NTP Server.

backup-ntp-server —— The IP address for the Secondary NTP Server.

fetching-rate —— Specify the rate fetching time from NTP server.

Command Mode

Global Configuration Mode

Example

Configure the system time mode as NTP, the time zone is UTC-12:00, the primary NTP server is 133.100.9.2 and the secondary NTP server is 139.78.100.163, the fetching-rate is 11 hours:

TL-SG2008(config)# system-time ntp UTC-12:00 133.100.9.2 139.79.100.163 11

system-time dst predefined

Description

The **system-time dst predefined** command is used to select a daylight saving time configuration from the predefined mode. The configuration can be used recurrently. To disable DST function, please use **no system-time dst** command.

Syntax

system-time dst predefined {USA | Australia | Europe | New-Zealand}

no system-time dst

Parameter

USA | Australia | Europe | New-Zealand —— The mode of daylight saving time. There are 4 options which are USA, Australia, Europe and New-Zealand respectively. The default value is Europe.

Following are the time ranges of each option:

USA: Second Sunday in March, 02:00 ~ First Sunday in November, 02:00.
Australia: First Sunday in October, 02:00 ~ First Sunday in April, 03:00.
Europe: Last Sunday in March, 01:00 ~ Last Sunday in October, 01:00.
New Zealand: Last Sunday in September, 02:00 ~ First Sunday in April, 03:00.

Command Mode

Global Configuration Mode

Example

Configure the daylight saving time as USA standard:

TL-SG2008(config)#system-time dst predefined USA

system-time dst date

Description

The **system-time dst date** command is used to configure the one-off daylight saving time. The start date is in the current year by default. The time range of the daylight saving time must shorter than one year, but you can configure it spanning years. To disable DST function, please use **no system-time dst** command.

Syntax

system-time dst date {*smonth*} {*sday*} {*stime*} {*emonth*} {*eday*} {*etime*} [*offset*]

no system-time dst

Parameter

smonth ——The start month of the daylight saving time. There are 12 values showing as follows: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

sday —— The start day of the daylight saving time, ranging from 1 to 31. Here you should show special attention to February and the differences between a solar month and a lunar month.

stime —— The start moment of the daylight saving time, HH:MM.

emonth —— The end month of the daylight saving time. There are 12 values showing as follows: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

eday —— The end day of the daylight saving time, ranging from q to 31. Here you should show special attention to February and the differences between a solar month and a lunar month.

etime —— The end moment of the daylight saving time, HH:MM.

offset —— The number of minutes to add during the daylight saving time. It is 60 minutes by default.

Command Mode

Global Configuration Mode

Example

Configure the daylight saving time from zero clock, Apr 1st to zero clock Oct 1st and the offset is 30 minutes:

```
TL-SG2008(config)# system-time dst date Apr 1 00:00 Oct 1 00:00 30
```

system-time dst recurring

Description

The **system-time dst recurring** command is used to configure the recurring daylight saving time. It can be configured spanning years. To disable DST function, please use **no system-time dst** command.

Syntax

system-time dst recurring {*sweek*} {*sday*} {*smonth*} {*stime*} {*eweek*} {*eday*} {*emonth*} {*etime*} [*offset*]

no system-time dst

Parameter

sweek ——The start week of the daylight saving time. There are 5 values showing as follows: first, second, third, fourth, last.

sday —— The start day of the daylight saving time. There are 7 values showing as follows: Sun, Mon, Tue, Wed, Thu, Fri, Sat.

smonth —— The start month of the daylight saving time. There are 12 values showing as follows: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

stime —— The start moment of the daylight saving time, HH:MM.

eweek ——The end week of the daylight saving time. There are 5 values showing as follows: first, second, third, fourth, last.

eday —— The end day of the daylight saving time. There are 5 values showing as follows: Sun, Mon, Tue, Wed, Thu, Fri, Sat.

emonth —— The end month of the daylight saving time. There are 12 values showing as following: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

etime —— The end moment of the daylight saving time, HH:MM.

offset —— The number of minutes to add during the daylight saving time. It is 60 minutes by default.

Command Mode

Global Configuration Mode

Example

Configure the daylight saving time from 2:00am, the first Sunday of May to 2:00am, the last Sunday of Oct and the offset is 45 minutes:

TL-SG2008(config)# system-time dst recurring first Sun May 02:00 last Sun Oct 02:00 45

hostname

Description

The **hostname** command is used to configure the system name. To clear the system name information, please use **no hostname** command.

Syntax

hostname *hostname*

no hostname

Parameter

hostname —— System Name. The length of the name ranges from 1 to 32 characters. By default, it is the device name, for example “TL-SG2008”.

Command Mode

Global Configuration Mode

Example

Configure the system name as TPLINK:

TL-SG2008(config)# hostname TPLINK

location

Description

The **location** command is used to configure the system location. To clear the system location information, please use **no location** command.

Syntax

location *location*

no location

Parameter

location —— Device Location. It consists of 32 characters at most. It is “SHENZHEN” by default.

Command Mode

Global Configuration Mode

Example

Configure the system location as SHENZHEN:

TL-SG2008(config)# location SHENSHEN

contact-info

Description

The **contact-info** command is used to configure the system contact information. To clear the system contact information, please use **no contact-info** command.

Syntax

contact-info *contact_info*

no contact-info

Parameter

contact_info —— Contact Information. It consists of 32 characters at most. It is "www.tp-link.com" by default.

Command Mode

Global Configuration Mode

Example

Configure the system contact information as www.tp-link.com:

TL-SG2008(config)# contact-info www.tp-link.com

ip management-vlan

Description

The **ip management-vlan** command is used to configure the IP management VLAN, through which you can log on to the switch.

Syntax

ip management-vlan *vlan-id*

Parameter

vlan-id —— VLAN ID, ranging from 1 to 4094.

Command Mode

Global Configuration Mode

Example

Set the VLAN 6 as IP management VLAN:

TL-SG2008(config)# ip management-vlan 6

ip address

Description

The **ip address** command is used to configure the system IP address, Subnet Mask and Default Gateway. To restore to the factory defaults, please use **no ip address** command. This command should be configured in the Interface Configuration Mode of the management VLAN.

Syntax

ip address {*ip-addr*} {*ip-mask*} [*gateway*]

no ip address

Parameter

ip-addr —— The system IP of the switch. The default system IP is 192.168.0.1.

ip-mask —— The Subnet Mask of the switch. The default Subnet Mask is 255.255.255.0.

gateway —— The Default Gateway of the switch. By default, it is empty.

Command Mode

Interface Configuration Mode (interface vlan)

Example

Configure the system IP as 192.168.0.69 and the Subnet Mask as 255.255.255.0 when the management VLAN of the switch is VLAN1:

TL-SG2008(config)# interface vlan 1

TL-SG2008(config-if)# ip address 192.168.0.69 255.255.255.0

ip address-alloc dhcp

Description

The **ip address-alloc dhcp** command is used to enable the DHCP Client function. When this function is enabled, the switch will obtain IP from DHCP server. This command should be configured in the Interface Configuration Mode of the management VLAN.

Syntax

ip address-alloc dhcp

Command Mode

Interface Configuration Mode (interface vlan)

Example

Enable the DHCP Client function when the management VLAN of the switch is VLAN1:

```
TL-SG2008(config)# interface vlan 1
TL-SG2008(config-if)# ip address-alloc dhcp
```

ip address-alloc bootp

Description

The **ip address-alloc bootp** command is used to enable the BOOTP Protocol. When the BOOTP Protocol is enabled, the switch will obtain IP address from BOOTP Server. This command should be configured in the Interface Configuration Mode of the management VLAN.

Syntax

ip address-alloc bootp

Command Mode

Interface Configuration Mode (interface vlan)

Example

Enable the BOOTP Protocol to obtain IP address from BOOTP Server when the management VLAN of the switch is VLAN1:

```
TL-SG2008(config)# interface vlan 1
TL-SG2008(config-if)# ip address-alloc bootp
```

reset

Description

The **reset** command is used to reset the switch's software. After resetting, all configuration of the switch will restore to the factory defaults and your current settings will be lost.

Syntax

reset

Command Mode

Privileged EXEC Mode

Example

Reset the software of the switch:

```
TL-SG2008# reset
```

reboot

Description

The **reboot** command is used to reboot the Switch. To avoid damage, please don’t turn off the device while rebooting.

Syntax

reboot

Command Mode

Privileged EXEC Mode

Example

Reboot the Switch:

```
TL-SG2008# reboot
```

copy running-config startup-config

Description

The **copy running-config startup-config** command is used to save the current settings.

Syntax

copy running-config startup-config

Command Mode

Privileged EXEC Mode

Example

Save current settings:

```
TL-SG2008# copy running-config startup-config
```

copy startup-config tftp

Description

The **copy startup-config tftp** command is used to backup the configuration file to TFTP server.

Syntax

copy startup-config tftp ip-address *ip-addr* **filename** *name*

Parameter

ip-addr —— IP address of the TFTP server.

name —— Specify the name for the configuration file which would be backup.

Command Mode

Privileged EXEC Mode

Example

Backup the configuration files to TFTP server with the IP 192.168.0.148 and name this file config.cfg:

TL-SG2008# copy startup-config tftp ip-address 192.168.0.148 **filename** config

copy tftp startup-config

Description

The **copy tftp startup-config** command is used to download the configuration file to the switch from TFTP server.

Syntax

copy tftp startup-config ip-address *ip-addr* **filename** *name*

Parameter

ip-addr —— IP address of the TFTP server.

name —— Specify the name for the configuration file which would be downloaded.

Command Mode

Privileged EXEC Mode

Example

Download the configuration file named as config.cfg to the switch from TFTP server with the IP 192.168.0.148:

TL-SG2008# copy tftp startup-config ip-address 192.168.0.148 **filename** config

firmware upgrade

Description

The **firmware upgrade** command is used to upgrade the switch system file via the TFTP server.

Syntax

firmware upgrade ip-address *ip-addr* **filename** *name*

Parameter

ip-addr —— IP address of the TFTP server.

name —— Specify the name for the firmware file.

Command Mode

Privileged EXEC Mode

Example

Upgrade the switch system file named as firmware.bin via the TFTP server with the IP address 192.168.0.148:

TL-SG2008# firmware upgrade ip-address 192.168.0.148 **filename** firmware.bin

ping

Description

The **ping** command is used to test the connectivity between the switch and one node of the network.

Syntax

ping {*ip_addr*} [**-n** *count*] [**-l** *count*] [**-i** *count*]

Parameter

ip_addr —— The IP address of the destination node for ping test.

count (-n) —— The amount of times to send test data during Ping testing. It ranges from 1 to 10. By default, this value is 4.

count (-l) —— The size of the sending data during ping testing. It ranges from 1 to 1024 bytes. By default, this value is 64.

count (-i) —— The interval to send ICMP request packets. It ranges from 100 to 1000 milliseconds. By default, this value is 1000.

Command Mode

User EXEC Mode and Privileged EXEC Mode

Example

To test the connectivity between the switch and the network device with the IP 192.168.0.131, please specify the *count* (-l) as 512 bytes and *count* (-i) as 1000 milliseconds. If there is not any response after 8 times' Ping test, the connection between the switch and the network device is failed to establish:

TL-SG2008# ping 192.168.0.131 **–n** 8 **–l** 512

tracert

Description

The **tracert** command is used to test the connectivity of the gateways during its journey from the source to destination of the test data.

Syntax

tracert {*ip-addr*} [*maxHops*]

Parameter

ip-addr —— The IP address of the destination device.

maxHops —— The maximum number of the route hops the test data can pass though. It ranges from 1 to 30. By default, this value is 4.

Command Mode

User EXEC Mode and Privileged EXEC Mode

Example

Test the connectivity between the switch and the network device with the IP 192.168.0.131. If the destination device has not been found after 20 *maxHops*, the connection between the switch and the destination device is failed to establish:

TL-SG2008# tracert 192.168.0.131 20

loopback interface gigabitEthernet

Description

The **loopback interface gigabitEthernet** command is used to test whether the port is available or not.

Syntax

loopback interface gigabitEthernet { *port* } { internal | external }

Parameter

port —— The Gigabit Ethernet port number.

internal | external —— Loopback Type. There are two options: “internal” and “external”.

Command Mode

User EXEC Mode and Privileged EXEC Mode

Example

Do an internal-type loopback test for port 1/0/5:

TL-SG2008# loopback interface gigabitEthernet 1/0/5 internal

Do an external-type loopback test for port 1/0/5:

TL-SG2008# loopback interface gigabitEthernet 1/0/5 external

show system-info

Description

The **show system-info** command is used to display System Description, Device Name, Device Location, System Contact, Hardware Version, Firmware Version, System Time, Run Time and so on.

Syntax

show system-info

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the system information:

TL-SG2008# show system-info

show running-config

Description

The **show running-config** command is used to display the current operating configuration of the system or of a specified port.

Syntax

show running-config [**interface gigabitEthernet** *port*]

Parameter

port —— The Gigabit Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the system current operating configuration:

```
TL-SG2008# show running-config
```

show system-time

Description

The **show system-time** command is used to display the time information of the switch.

Syntax

show system-time

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the time information of the switch

```
TL-SG2008# show system-time
```

show system-time dst

Description

The **show system-time dst** command is used to display the DST time information of the switch.

Syntax

show system-time dst

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the DST time information of the switch

```
TL-SG2008# show system-time dst
```

show system-time ntp

Description

The **show system-time ntp** command is used to display the NTP mode configuration information.

Syntax

show system-time ntp

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the NTP mode configuration information of the switch:

```
TL-SG2008# show system-time ntp
```

show cable-diagnostics interface gigabitEthernet

Description

The **show cable-diagnostics interface gigabitEthernet** command is used to display the cable diagnostics of the connected Ethernet Port., which facilitates you to check the connection status of the cable connected to the switch, locate and diagnose the trouble spot of the network.

Syntax

show cable-diagnostics interface gigabitEthernet *port*

Parameter

port —— The number of the port which is selected for Cable test.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Show the cable-diagnostics of port 3:

TL-SG2008# show cable-diagnostics interface gigabitEthernet 1/0/3

Chapter 12 Ethernet Configuration Commands

Ethernet Configuration Commands can be used to configure the Bandwidth Control, Negotiation Mode and Storm Control for Ethernet ports.

interface gigabitEthernet

Description

The **interface gigabitEthernet** command is used to enter the Interface gigabitEthernet Configuration Mode and configure the corresponding Gigabit Ethernet port.

Syntax

interface gigabitEthernet *port*

Parameter

port —— The Ethernet port number.

Command Mode

Global Configuration Mode

Example

To enter the Interface gigabitEthernet Configuration Mode and configure port 1/0/2:

TL-SG2008(config)# interface gigabitEthernet 1/0/2

interface range gigabitEthernet

Description

The **interface range gigabitEthernet** command is used to enter the interface range gigabitEthernet Configuration Mode and configure multiple Gigabit Ethernet ports at the same time.

Syntax

interface range gigabitEthernet *port-list*

Parameter

port-list —— The list of Ethernet ports.

Command Mode

Global Configuration Mode

User Guidelines

Command in the **Interface Range gigabitEthernet** Mode is executed independently on all ports in the range. It does not affect the execution on the other ports at all if the command results in an error on one port.

Example

To enter the Interface range gigabitEthernet Configuration Mode, and configure ports 1/0/1-3,1/0/6-7 and 1/0/9 at the same time by adding them to one port-list:

TL-SG2008(config)# interface range gigabitEthernet 1/0/1-3,1/0/6-7,1/0/9

description

Description

The **description** command is used to add a description to the Ethernet port. To clear the description of the corresponding port, please use **no description** command.

Syntax

description *string*

no description

Parameter

string —— Content of a port description, ranging from 1 to 16 characters.

Command Mode

Interface Configuration Mode (interface gigabitEthernet)

Example

Add a description Port #5 to port 5:

TL-SG2008(config)# interface gigabitEthernet 1/0/5

TL-SG2008(config-if)# description Port#5

shutdown

Description

The **shutdown** command is used to disable an Ethernet port. To enable this port again, please use **no shutdown** command.

Syntax

shutdown

no shutdown

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Disable port 1/0/3:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/3
TL-SG2008(config-if)# shutdown
```

flow-control

Description

The **flow-control** command is used to enable the flow-control function for a port. To disable the flow-control function for this corresponding port, please use **no flow-control** command. With the flow-control function enabled, the Ingress Rate and Egress Rate can be synchronized to avoid packet loss in the network.

Syntax

flow-control

no flow-control

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the flow-control function for port 3:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/3
TL-SG2008(config-if)# flow-control
```

duplex

Description

The **duplex** command is used to configure the Duplex Mode for an Ethernet port. To return to the default configuration, please use **no duplex** command.

Syntax

duplex { full | half }

no duplex

Parameter

full | half —— The duplex mode of the Ethernet port. There are two options: full-duplex mode (default) and half-duplex mode.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Configure the Duplex Mode as full-duplex for port 3:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/3
TL-SG2008(config-if)# duplex full
```

speed

Description

The **speed** command is used to configure the Speed Mode for an Ethernet port. To return to the default configuration, please use **no speed** command.

Syntax

speed { 10 | 100 | 1000 | auto }

no speed

Parameter

10 | 100 | 1000 | auto —— The speed mode of the Ethernet port. There are four options: 10Mbps, 100Mbps, 1000Mbps and Auto negotiation mode (default).

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Configure the Speed Mode as 100Mbps for port 1/0/3:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/3
TL-SG2008(config-if)# speed 100
```

storm-control broadcast

Description

The **storm-control broadcast** command is used to enable the broadcast control function. To disable the broadcast control function, please use **no**

storm-control broadcast command. Broadcast control function allows the switch to filter broadcast in the network. If the transmission rate of the broadcast packets exceeds the set bandwidth, the packets will be automatically discarded to avoid network broadcast storm.

Syntax

storm-control broadcast [**rate** *rate*]

no storm-control broadcast

Parameter

rate —— Specify the bandwidth for receiving broadcast packets on the port. The packet traffic exceeding the bandwidth will be discarded. The value of it can be 128k | 256k| 512k|1m | 2m | 4m | 5m | 10m | 20m | 40m | 50m in bps. By default, the value is “128K”.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the broadcast control function for port 5:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/5
TL-SG2008(config-if)# storm-control broadcast
```

storm-control multicast

Description

The **storm-control multicast** command is used to enable the multicast control function. To disable the multicast control function, please use **no storm-control multicast** command. Multicast control function allows the switch to filter multicast in the network. If the transmission rate of the multicast packets exceeds the set bandwidth, the packets will be automatically discarded to avoid network broadcast storm.

Syntax

storm-control multicast [**rate** *rate*]

no storm-control multicast

Parameter

rate —— Specify the bandwidth for receiving multicast packets on the port. The packet traffic exceeding the bandwidth will be discarded. The value of it can be

128k | 256k| 512k|1m | 2m | 4m | 5m | 10m | 20m | 40m | 50m in bps. By default, the value is “128K”.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the multicast control function for port 5:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/5
TL-SG2008(config-if)# storm-control multicast
```

storm-control unicast

Description

The **storm-control unicast** command is used to enable the unicast control function. To disable the unicast control function, please use **no storm-control unicast** command. Unicast control function allows the switch to filter UL frame in the network. If the transmission rate of the UL frames exceeds the set bandwidth, the packets will be automatically discarded to avoid network broadcast storm.

Syntax

storm-control unicast [**rate** *rate*]

no storm-control unicast

Parameter

rate —— Specify the bandwidth for receiving UL-Frame on the port. The packet traffic exceeding the bandwidth will be discarded. The value of it can be 128k | 256k| 512k|1m | 2m | 4m | 5m | 10m | 20m | 40m | 50m in bps. By default, the value is “128K”.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the unicast control function for port 5:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/5
TL-SG2008(config-if)# storm-control unicast
```

bandwidth

Description

The **bandwidth** command is used to configure the bandwidth limit for an Ethernet port. To disable the bandwidth limit, please use **no bandwidth** command.

Syntax

bandwidth {[**ingress** *ingress-rate*] [**egress** *egress-rate*]}

no bandwidth { all | ingress | egress }

Parameter

ingress-rate —— Specify the bandwidth for receiving packets. Range: 1-1024000 for the gigaport.

egress-rate —— Specify the bandwidth for sending packets. Range: 1-1024000 for the gigaport.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Configure the ingress-rate as 5120Kbps and egress-rate as 1024Kbps for port 5:

TL-SG2008(config)# interface gigabitEthernet 1/0/5

TL-SG2008(config-if)# bandwidth ingress 5120 **egress** 1024

clear counters

Description

The **clear counters** command is used to clear the statistic information of all the Ethernet ports.

Syntax

clear counters

Command Mode

Global Configuration Mode

Example

Clear the statistic information of all ports

TL-SG2008(config)# clear counters

show interface status

Description

The **show interface status** command is used to display the connective-status of an Ethernet port.

Syntax

show interface [**gigabitEthernet** *port*] **status**

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the connective-status of all ports:

TL-SG2008(config)# show interface status

Display the connective-status of port 1/0/1:

TL-SG2008(config)# show interface gigabitEthernet 1/0/1 **status**

show interface counters

Description

The **show interface counters** command is used to display the statistic information of all ports or an Ethernet port.

Syntax

show interface [**gigabitEthernet** *port*] **counters**

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the statistic information of all Ethernet ports:

TL-SG2008(config)# show interface counters

Display the statistic information of port 2:

TL-SG2008(config)# show interface gigabitEthernet 1/0/2 **counters**

show interface description

Description

The **show interface description** command is used to display the description of all ports or an Ethernet port.

Syntax

show interface [**gigabitEthernet** *port*] **description**

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the description of all Ethernet ports:

TL-SG2008(config)# show interface description

Display the description of port 1/0/2:

TL-SG2008(config)# show interface gigabitEthernet 1/0/2 **description**

show interface flowcontrol

Description

The **show interface flowcontrol** command is used to display the flow-control information of an Ethernet port.

Syntax

show interface [**gigabitEthernet** *port*] **flowcontrol**

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the flow-control information of all Ethernet ports:

TL-SG2008# show interface flowcontrol

Display the flow-control information of port 2:

TL-SG2008# show interface gigabitEthernet 1/0/2 **flowcontrol**

show interface configuration

Description

The **show interface configuration** command is used to display the configurations of all ports or an Ethernet port, including Port-status, Flow Control, Negotiation Mode and Port-description.

Syntax

show interface [**gigabitEthernet** *port*] **configuration**

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configurations of all Ethernet ports:

TL-SG2008(config)# show interface configuration

Display the configurations of port 1/0/2:

TL-SG2008(config)# show interface gigabitEthernet 1/0/2 **configuration**

show storm-control

Description

The **show storm-control** command is used to display the storm-control information of Ethernet ports.

Syntax

show storm-control [**interface** { **gigabitEthernet** *port* | **range gigabitEthernet** *port-list* }]

Parameter

port —— The Ethernet port number.

port-list —— The list of Ethernet ports.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the storm-control information of port 4, 5, 6, and 7:

TL-SG2008(config)# show storm-control interface range gigabitEthernet 1/0/4-7

show bandwidth

Description

The **show bandwidth** command is used to display the bandwidth-limit information of Ethernet ports.

Syntax

show bandwidth [**interface** { **gigabitEthernet** *port* | **range gigabitEthernet** *port-list* }]

Parameter

port —— The Ethernet port number.

port-list —— The list of the Ethernet ports.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the bandwidth-limit information of port 1/0/4:

TL-SG2008(config)# show bandwidth interface gigabitEthernet 1/0/4

Chapter 13 QoS Commands

QoS (Quality of Service) function is used to optimize the network performance. It provides you with network service experience of a better quality.

qos

Description

The **qos** command is used to configure the priority level of packets from the port. To return to the default configuration, please use **no qos** command.

Syntax

qos *pri*

no qos

Parameter

pri —— The priority level of port. The port priorities are labeled as TC0,TC1,TC2 and TC3. By default, the priority is TC0.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Configure the priority of port 5 as TC3:

TL-SG2008(config)# interface gigabitEthernet 1/0/5

TL-SG2008(config-if)# qos 3

qos dscp

Description

The **qos dscp** command is used to enable the mapping relation between DSCP Priority and CoS value. To disable the mapping relation, please use **no qos dscp** command.

Syntax

qos dscp

no qos dscp

Command Mode

Global Configuration Mode

User Guidelines

DSCP (DiffServ Code Point) is a new definition to IP ToS field given by IEEE. DSCP priorities are mapped to the corresponding 802.1p priorities. IP datagram will be classified into the egress queue based on the mapping relation between DSCP priority and CoS value.

Example

Enable the mapping relation between DSCP Priority and CoS value:

```
TL-SG2008(config)# qos dscp
```

qos queue cos-map

Description

The **qos queue cos-map** command is used to configure the mapping relation between IEEE 802.1P priority tag/IEEE 802.1Q tag, CoS value and the TC egress queue. To return to the default configuration, please use **no qos queue cos-map** command. When 802.1P Priority is enabled, the packets with 802.1Q tag are mapped to different priority levels based on 802.1P priority mode. The untagged packets are mapped based on port priority mode.

Syntax

qos queue cos-map { *tag/cos-id* } { *tc-id* }

no qos queue cos-map

Parameter

tag/cos-id —— The 8 priority levels defined by IEEE 802.1P or the priority level the packets with tag are mapped to, which ranges from 0 to 7.

tc-id —— The egress queue the packets with tag are mapped to. It ranges from 0 to 3, which represents TC0, TC1, TC2 and TC3 respectively.

Command Mode

Global Configuration Mode

User Guidelines

1. By default, the mapping relation between tag/cos and the egress queue is: 0-TC1, 1-TC0, 2-TC0, 3-TC1, 4-TC2, 5-TC2, 6-TC3, 7-TC3
2. Among the priority levels TC0-TC3, the bigger value, the higher priority.

Example

Map 802.1Q tag 5 to TC 2.:

TL-SG2008(config)# qos queue cos-map 5 2

qos queue dscp-map

Description

The **qos queue dscp-map** command is used to configure the mapping relation between DSCP Priority and the CoS value. To return to the default configuration, please use **no qos queue dscp-map** command. DSCP (DiffServ Code Point) is a new definition to IP ToS field given by IEEE. This field is used to divide IP datagram into 64 priorities. When DSCP Priority is enabled, IP datagram are mapped to different priority levels based on DSCP priority mode; non-IP datagram with IEEE 802.1Q tag are mapped to different priority levels based on IEEE 802.1P priority mode if IEEE 802.1P Priority is enabled; the untagged non-IP datagram are mapped based on port priority mode.

Syntax

qos queue dscp-map { *dscp-list* } { *tc-id* }

no qos queue dscp-map

Parameter

dscp-list —— List of DSCP value. One or several DSCP values can be typed using comma to separate. Use a hyphen to designate a range of values, for instance, 1,4-7,11 indicates choosing 1,4,5,6,7,11. The DSCP value ranges from 0 to 63.

tc-id —— The TC queue ID, which ranges from 0 to 3.

Command Mode

Global Configuration Mode

User Guidelines

By default, the mapping relation between DSCP value and the egress queue is: (0-15)-TC 0, (16-31)-TC 1, (3247)-TC 2, (48-63)-TC 3.

Example

Map DSCP values 10-12 to TC 2:

TL-SG2008(config)# qos queue dscp-map 10-12 2

qos queue mode

Description

The **qos queue mode** command is used to configure the Schedule Mode. To return to the default configuration, please use **no qos queue mode** command. When the network is congested, the program that many packets complete for resources must be solved, usually in the way of queue scheduling. The switch will control the forwarding sequence of the packets according to the priority queues and scheduling algorithms you set. On this switch, the priority levels are labeled as TC0, TC1… TC3.

Syntax

qos queue mode { sp | wrr | sp+wrr | equ }

no qos queue mode

Parameter

sp —— Strict-Priority Mode. In this mode, the queue with higher priority will occupy the whole bandwidth. Packets in the queue with lower priority are sent only when the queue with higher priority is empty.

wrr —— Weight Round Robin Mode. In this mode, packets in all the queues are sent in order based on the weight value for each queue. The weight value ratio of TC0, TC1, TC2 and TC3 is 1:2:4:8.

sp+wrr —— Strict-Priority + Weight Round Robin Mode. In this mode, the switch provides two scheduling groups, SP group and WRR group. Queues in SP group and WRR group are scheduled strictly based on Strict-Priority mode while the queues inside WRR group follow the WRR mode. In SP + WRR mode, TC3 is the SP group; TC0, TC1 and TC2 belong to the WRR group and the weight value ratio of TC0, TC1 and TC2 is 1:2:4. In this way, when scheduling queues, the switch allows TC3 to occupy the whole bandwidth following the SP mode and the TC0, TC1 and TC2 in the WRR group will take up the bandwidth according to their ratio 1:2:4.

equ —— Equal-Mode. In this mode, all the queues occupy the bandwidth equally. The weight value ratio of all the queues is 1:1:1:1.

Command Mode

Global Configuration Mode

Example

Specify the Schedule Mode as Weight Round Robin Mode:

```
TL-SG2008(config)# qos queue mode wrr
```

show qos interface

Description

The **show qos interface** command is used to display the configuration of QoS based on port priority.

Syntax

show qos interface [**gigabitEthernet** *port* | **range gigabitEthernet** *port-list*]

Parameter

port —— The Ethernet port number.

port-list —— The list of Ethernet ports.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration of QoS for port 1/0/5:

TL-SG2008# show qos interface gigabitEthernet 1/0/5

Display the configuration of QoS for ports 1/0/1-4:

TL-SG2008# show qos interface range gigabitEthernet 1/0/1-4

show qos cos-map

Description

The **show qos cos-map** command is used to display the configuration of IEEE 802.1P Priority and the mapping relation between cos-id and tc-id.

Syntax

show qos cos-map

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration of IEEE 802.1P Priority and the mapping relation between cos-id and tc-id:

TL-SG2008# show qos cos-map

show qos dscp-map

Description

The **show qos dscp-map** command is used to display the configuration of DSCP Priority.

Syntax

show qos dscp-map

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration of DSCP Priority:

```
TL-SG2008# show qos dscp-map
```

show qos queue mode

Description

The **show qos queue mode** command is used to display the schedule rule of the egress queues.

Syntax

show qos queue mode

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the schedule rule of the egress queues:

```
TL-SG2008# show qos queue mode
```

show qos status

Description

The **show qos status** command is used to display the status of IEEE 802.1P priority and DSCP priority.

Syntax

show qos status

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the status of IEEE 802.1P priority and DSCP priority:

```
TL-SG2008# show qos status
```

Chapter 14 Port Mirror Commands

Port Mirror refers to the process of forwarding copies of packets from one port to a monitoring port. Usually, the monitoring port is connected to data diagnose device, which is used to analyze the monitored packets for monitoring and troubleshooting the network.

monitor session destination interface

Description

The **monitor session destination interface** command is used to configure the monitoring port. Each monitor session has only one monitoring port. To change the monitoring port, please use the **monitor session destination interface** command by changing the port value. The **no monitor session** command is used to delete the corresponding monitor session.

Syntax

monitor session *session_num* **destination interface gigabitEthernet** *port*

no monitor session *session_num*

Parameter

session_num —— The monitor session number, ranging from 1 to 4.

port —— The Ethernet port number.

Command Mode

Global Configuration Mode

Example

Create monitor session 1 and configure port 1/0/1 as the monitoring port:

TL-SG2008(config)# monitor session 1 **destination interface gigabitEthernet** 1/0/1

Delete the monitor session 1:

TL-SG2008(config)# no monitor session 1

monitor session source interface

Description

The **monitor session source interface** command is used to configure the monitored port. To delete the corresponding monitored port, please use **no monitor session source interface** command.

Syntax

monitor session *session_num* **source interface gigabitEthernet** *port-list mode*

no monitor session *session_num* **source interface gigabitEthernet** *port-list mode*

Parameter

session_num —— The monitor session number, ranging from 1 to 4.

port-list —— List of monitored port. It is multi-optional.

mode —— The monitor mode. There are three options: rx, tx and both. Rx (ingress monitoring mode), means the incoming packets received by the monitored port will be copied to the monitoring port. Tx (egress monitoring mode), indicates the outgoing packets sent by the monitored port will be copied to the monitoring port. Both (ingress and egress monitoring), presents the incoming packets received and the outgoing packets sent by the monitored port will both be copied to the monitoring port.

Command Mode

Global Configuration Mode

User Guidelines

1. The monitoring port is corresponding to current interface configuration mode.
2. Monitored ports number is not limited, but it can't be the monitoring port at the same time.
3. Whether the monitoring port and monitored ports are in the same VLAN or not is not demanded strictly.
4. The monitoring port and monitored ports cannot be link-aggregation member.

Example

Create monitor session 1, then configure port 4, 5, 7 as monitored port and enable ingress monitoring:

TL-SG2008(config)# monitor session 1 **source interface gigabitEthernet** 1/0/4-5,1/0/7 rx

Delete port 4 in monitor session 1 and its configuration:

TL-SG2008(config)# no monitor session 1 **source interface gigabitEthernet** 1/0/4 rx

show monitor session

Description

The **show monitor session** command is used to display the configuration of port monitoring.

Syntax

show monitor session [*session_num*]

Parameter

session_num —— The monitor session number, ranging from 1 to 4. It is optional. By default, the monitoring configuration of all monitor sessions is displayed.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the monitoring configuration of monitor session 1:

TL-SG2008(config)# show monitor session 1

Display the monitoring configuration of all monitor sessions:

TL-SG2008(config)# show monitor session

Chapter 15 Port Isolation Commands

Port Isolation provides a method of restricting traffic flow to improve the network security by forbidding the port to forward packets to the ports that are not on its forwarding port list.

port isolation

Description

The **port isolation** command is used to configure the forward port list of a port, so that this port can only communicate with the ports on its port list. To delete the corresponding configuration, please use **no port isolation** command.

Syntax

port isolation gi-forward-list *gi-forward-list*

no port isolation

Parameter

gi-forward-list —— The list of Ethernet ports.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Set port 1/0/1, 1/0/2, and 1/0/4 to the forward port list of port 1/0/5:

TL-SG2008(config)# interface gigabitEthernet 1/0/5

TL-SG2008(config-if)# port isolation gi-forward-list 1/0/1-2,1/0/4

Set all Ethernet ports to forward port list of port 1/0/2, namely restore to the default setting:

TL-SG2008(config)# interface gigabitEthernet 1/0/2

TL-SG2008(config-if)# no port isolation

show port isolation interface

Description

The **show port isolation interface** command is used to display the forward port list of a port.

Syntax

show port isolation interface [**gigabitEthernet** *port*]

Parameter

port —— The number of Ethernet port you want to show its forward port list, in the format of 1/0/2.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the forward-list of port 1/0/2:

TL-SG2008# show port isolation interface gigabitEthernet 1/0/2

Display the forward-list of all Ethernet ports:

TL-SG2008# show port isolation interface

Chapter 16 Loopback Detection Commands

With loopback detection feature enabled, the switch can detect loops using loopback detection packets. When a loop is detected, the switch will display an alert or further block the corresponding port according to the configuration.

loopback-detection(global)

Description

The **loopback-detection** command is used to enable the loopback detection function globally. To disable it, please use **no loopback detection** command.

Syntax

loopback-detection

no loopback-detection

Command Mode

Global Configuration Mode

Example

Enable the loopback detection function globally:

```
TL-SG2008(config)# loopback-detection
```

loopback-detection interval

Description

The **loopback-detection interval** command is used to define the interval of sending loopback detection packets from switch ports to network, aiming at detecting network loops periodically.

Syntax

loopback-detection interval *interval-time*

Parameter

interval-time —— The interval of sending loopback detection packets. It ranges from 1 to 1000 seconds. By default, this value is 30.

Command Mode

Global Configuration Mode

Example

Specify the interval-time as 50 seconds:

TL-SG2008(config)# loopback-detection interval 50

loopback-detection recovery-time

Description

The **loopback-detection recovery-time** command is used to configure the time after which the blocked port would automatically recover to normal status.

Syntax

loopback-detection recovery-time *recovery-time*

Parameter

recovery-time —— The time after which the blocked port would automatically recover to normal status, and the loopback detection would restart. It is integral times of detection interval, ranging from 1 to 100 and the default value is 3.

Command Mode

Global Configuration Mode

Example

Configure the recovery-time as 5 times of detection interval:

TL-SG2008(config)# loopback-detection recovery-time 5

loopback-detection(interface)

Description

The **loopback-detection** command is used to enable the loopback detection function of the specified port. To disable it, please use **no loopback-detection** command.

Syntax

loopback-detection

no loopback-detection

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the loopback detection function of ports 1-3:

TL-SG2008(config)# interface range gigabitEthernet 1/0/1-3

TL-SG2008(Config-if-range)# loopback-detection

loopback-detection config

Description

The **loopback-detection config** command is used to configure the process-mode and recovery-mode for the ports by which the switch copes with the detected loops.

Syntax

loopback-detection config [**process-mode** { alert | port-based }] [**recovery-mode** { auto | manual }]

Parameter

process-mode —— The mode how the switch processes the detected loops.

Alert: When a loop is detected, display an alert.

Port based: When a loop is detected, display an alert and block the port.

recovery-mode —— The mode how the blocked port recovers to normal status.

Auto: Block status can be automatically removed after recovery time.

Manual: Block status can only be removed manually.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Configure the loopback detection process-mode as port-based and recovery-mode as manual for port 2:

TL-SG2008(config)# interface gigabitEthernet 1/0/2

TL-SG2008(config-if)# loopback-detection config process-mode port-based

recovery-mode manual

loopback-detection recover

Description

The **loopback-detection recover** command is used to remove the block status of selected ports, recovering the blocked ports to normal status,

Syntax

loopback-detection recover

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Recover the blocked port 2 to normal status:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/2
TL-SG2008(config-if)# loopback-detection recover
```

show loopback-detection global

Description

The **show loopback-detection global** command is used to display the global configuration of loopback detection function such as loopback detection global status, loopback detection interval and loopback detection recovery time.

Syntax

show loopback-detection global

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the global configuration of loopback detection function:

```
TL-SG2008# show loopback-detection global
```

show loopback-detection interface

Description

The **show loopback-detection interface** command is used to display the configuration of loopback detection function and the status of the specified Ethernet port.

Syntax

show loopback-detection interface [**gigabitEthernet** *port*]

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration of loopback detection function and the status of all ports:

TL-SG2008# show loopback-detection interface

Display the configuration of loopback detection function and the status of port 5:

TL-SG2008# show loopback-detection interface gigabitEthernet 1/0/5

Chapter 17 ACL Commands

access-list create

Description

The **access-list create** command is used to create standard-IP ACL and extend-IP ACL.

Syntax

access-list create *access-list-num*

Parameter

access-list-num —— ACL ID, ranging from 100 to 299. The ID range of Standard-IP ACL ranges is 100-199 and the Extend-IP ACL is 200-299.

Command Mode

Global Configuration Mode

Example

Create a standard-IP ACL whose ID is 123:

TL-SG2008(config)# access-list create 123

mac access-list

Description

The **mac access-list** command is used to create MAC ACL. To set the detailed configurations for a specified MAC ACL, please use **mac access-list** command to access Mac Access-list Configuration Mode. To delete the MAC ACL, please use no **mac access-list**.

Syntax

mac access-list *access-list-num*

no mac access-list *access-list-num*

Parameter

access-list-num —— ACL ID, ranging from 0 to 99.

Command Mode

Global Configuration Mode

Example

Create a MAC ACL whose ID is 23:

TL-SG2008(config)# mac access-list 23

access-list standard

Description

The **access-list standard** command is used to add Standard-IP ACL rule. To delete the corresponding rule, please use **no access-list standard** command. Standard-IP ACLs analyze and process data packets based on a series of match conditions, which can be the source IP addresses and destination IP addresses carried in the packets.

Syntax

access-list standard *acl-id* **rule** *rule-id* { deny | permit } [[**sip** *source-ip*] **smask** *source-ip-mask*] [[**dip** *destination-ip*] **dmask** *destination-ip-mask*]

no access-list standard *acl-id* **rule** *rule-id*

Parameter

acl-id —— The desired Standard-IP ACL for configuration.

rule-id —— The rule ID.

deny —— The operation to discard packets.

permit ——The operation to forward packets. It is the default value.

source-ip —— The source IP address contained in the rule.

source-ip-mask —— The source IP address mask. It is required if you typed the source IP address.

destination-ip —— The destination IP address contained in the rule.

destination-ip-mask —— The destination IP address mask. It is required if you typed the destination IP address.

Command Mode

Global Configuration Mode

Example

Create a Standard-IP ACL whose ID is 120, and add Rule 10 for it. In the rule, the source IP address is 192.168.0.100, the source IP address mask is 255.255.255.0, and the packets match this rule will be forwarded by the switch:

TL-SG2008(config)# access-list create 120

TL-SG2008(config)# access-list standard 120 **rule** 10 permit **sip** 192.168.0.100 **smask** 255.255.255.0

access-list extended

Description

The **access-list extended** command is used to add Extended-IP ACL rule. To delete the corresponding rule, please use **no access-list extended** command.

Syntax

access-list extended *acl-id* **rule** *rule-id* { deny | permit } [[**sip** *source-ip*] **smask** *source-ip-mask*] [[**dip** *destination-ip*] **dmask** *destination-ip-mask*] [**s-port** *s-port*] [**d-port** *d-port*] [**protocol** *protocol*]

no access-list extended *acl-id* **rule** *rule-id*

Parameter

acl-id——The desired Extended-IP ACL for configuration.

rule-id —— The rule ID.

deny —— The operation to discard packets.

permit ——The operation to forward packets. It is the default value.

source-ip —— The source IP address contained in the rule.

source-ip-mask —— The source IP address mask. It is required if you typed the source IP address.

destination-ip —— The destination IP address contained in the rule.

destination-ip-mask —— The destination IP address mask. It is required if you typed the destination IP address.

s-port —— The source port number.

d-port —— The destination port number.

protocol —— Configure the value of the matching protocol.

Command Mode

Global Configuration Mode

Example

Create an Extended-IP ACL whose ID is 220, and add Rule 10 for it. In the rule, the source IP address is 192.168.0.100, the source IP address mask is 255.255.255.0, and the packets match this rule will be forwarded by the switch:

TL-SG2008(config)# access-list create 220

TL-SG2008(config)# access-list extended 220 **rule** 10 permit **sip** 192.168.0.100 **smask** 255.255.255.0

rule

Description

The **rule** command is used to configure MAC ACL rule. To delete the corresponding rule, please use **no rule** command.

Syntax

rule *rule-id* { deny | permit } [[**smac** *source-mac*] **smask** *source-mac-mask*] [[**dmac** *destination-mac*] **dmask** *destination-mac-mask*]

no rule *rule-id*

Parameter

rule-id —— The rule ID.

deny —— The operation to discard packets.

permit ——The operation to forward packets. It is the default value.

source-mac —— The source MAC address contained in the rule.

source-mac-mask —— The source MAC address mask. It is required if you typed the source MAC address.

destination-mac —— The destination MAC address contained in the rule.

destination-mac-mask —— The destination MAC address mask. It is required if you typed the destination MAC address.

Command Mode

Mac Access-list Configuration Mode

Example

Create a MAC ACL whose ID is 20, and add Rule 10 for it. In the rule, the source MAC address is 00:01:3F:48:16:23, the source MAC address mask is 11:11:11:11:11:00, and the packets match this rule will be forwarded by the switch:

TL-SG2008(config)# mac access-list 20

TL-SG2008(config-mac-acl)# rule 10 permit **smac** 00:01:3F:48:16:23 **smask** 11:11:11:11:11:00

access-list policy name

Description

The **access-list policy name** command is used to add Policy. To delete the corresponding Policy, please use **no access-list policy name** command. A

Policy is used to control the data packets those match the corresponding ACL rules by configuring ACLs and actions together for effect. The operations here include stream mirror, stream condition, QoS Remarking and redirect.

Syntax

access-list policy name *name*

no access-list policy name *name*

Parameter

name —— The Policy Name, ranging from 1 to 16 characters.

Command Mode

Global Configuration Mode

Example

Add a Policy named policy1:

TL-SG2008(config)# access-list policy name policy1

access-list policy action

Description

The **access-list policy action** command is used to add ACLs and create actions for the policy. To set the detailed configuration of actions for a policy, please use **access-list policy action** command to access Action Configuration Mode. To delete the corresponding actions, please use **no access-list policy action** command.

Syntax

access-list policy action *policy-name acl-id*

no access-list policy action *policy-name acl-id*

Parameter

policy-name —— The Policy Name, ranging from 1 to 16 characters.

acl-id —— The ID of the ACL to which the above policy is applied.

Command Mode

Global Configuration Mode

Example

Add ACL whose ID is 120 to policy1 and create an action for them:

TL-SG2008(config)# access-list policy action policy1 120

access-list bind(interface)

Description

The **access-list bind** command is used to bind a policy to a specified port. To cancel the bind relation, please use **no access-list bind** command.

Syntax

access-list bind *policy-name*

no access-list bind *policy-name*

Parameter

policy-name —— The name of the policy desired to bind.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Bind policy1 to port 1/0/2:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/2
TL-SG2008(config-if)# access-list bind policy1
```

access-list bind(vlan)

Description

The **access-list bind** command is used to bind a policy to a VLAN. To cancel the bind relation, please use **no access-list bind** command.

Syntax

access-list bind *policy-name*

no access-list bind *policy-name*

Parameter

policy-name —— The name of the policy desired to bind.

Command Mode

Interface VLAN Mode

Example

Bind policy1 to VLAN 2:

```
TL-SG2008(config)# interface vlan 2
```

```
TL-SG2008(config-if)# access-list bind policy1
```

show access-list

Description

The **show access-list** command is used to display configuration of ACL.

Syntax

show access-list *acl-id*

Parameter

acl-id —— The ID of the ACL selected to display the configuration.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration of the MAC ACL whose ID is 20:

```
TL-SG2008(config)# show access-list 20
```

show access-list policy

Description

The **show access-list policy** command is used to display the information of a specified policy.

Syntax

show access-list policy *name*

Parameter

name —— The Policy Name desired to show.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the information of a policy named policy1:

```
TL-SG2008(config)# show access-list policy policy1
```

show access-list bind

Description

The **show access-list bind** command is used to display the configuration of Policy bind.

Syntax

show access-list bind

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration of Policy bind:

```
TL-SG2008(config)# show access-list bind
```

Chapter 18 DHCP Filtering Commands

DHCP Filtering functions to monitor the process of hosts obtaining IP addresses from DHCP Servers by configuring the desired port(s) as Trusted Port(s). Only the hosts connected to the trusted port(s) can receive DHCP packets from DHCP servers. In this way, the switch can devoid of DHCP cheating attack which will cause network confusion and security problem.

ip dhcp filtering

Description

The **ip dhcp filtering** command is used to enable DHCP Filtering function. To disable please use **no ip dhcp filtering** command.

Syntax

ip dhcp filtering

no ip dhcp filtering

Command Mode

Global Configuration Mode

Example

Enable the DHCP Filtering:

```
TL-SG2008(config)# ip dhcp filtering
```

ip dhcp filtering trust

Description

The **ip dhcp filtering trust** command is used to configure a port to be a Trusted Port. Only the trusted ports can receive DHCP packets from DHCP servers. To turn the port back to a distrusted port, please use **no ip dhcp filtering trust** command.

Syntax

ip dhcp filtering trust

no ip dhcp filtering trust

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range Ethernet)

Example

Configure port 1 to be a trusted port:

```
TL-SG2008(config)#interface gigabitEthernet 1/0/1
TL-SG2008(config-if)#ip dhcp filtering trust
```

show ip dhcp filtering

Description

The **show ip dhcp filtering** command is used to display the running status of DHCP Filtering.

Syntax

show ip dhcp filtering

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the running status of DHCP Filtering:

```
TL-SG2008#show ip dhcp filtering
```

show ip dhcp filtering interface

Description

The **show ip dhcp filtering interface** command is used to display the DHCP Filtering configuration information of a desired port or of all ports.

Syntax

show ip dhcp filtering interface [**gigabitEthernet** *port*]

Parameters

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the DHCP Filtering configuration information of all Ethernet ports:

```
TL-SG2008#show ip dhcp filtering interface
```

Display the DHCP Filtering configuration information of port 1/0/5:

```
TL-SG2008#show ip dhcp filtering interface gigabitEthernet 1/0/5
```

Chapter 19 MSTP Commands

MSTP (Multiple Spanning Tree Protocol), compatible with both STP and RSTP and subject to IEEE 802.1s, can disbranch a ring network. STP is to block redundant links and backup links as well as optimize paths.

spanning-tree(global)

Description

The **spanning-tree** command is used to enable STP function globally. To disable the STP function, please use **no spanning-tree** command.

Syntax

spanning-tree

no spanning-tree

Command Mode

Global Configuration Mode

Example

Enable the STP function:

```
TL-SG2008(config)# spanning-tree
```

spanning-tree(interface)

Description

The **spanning-tree** command is used to enable STP function for a port. To disable the STP function, please use **no spanning-tree** command.

Syntax

spanning-tree

no spanning-tree

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the STP function for port 1/0/2:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/2
```

TL-SG2008(config-if)# spanning-tree

spanning-tree common-config

Description

The **spanning-tree common-config** command is used to configure the parameters of the ports for comparison in the CIST and the common parameters of all instances. To return to the default configuration, please use **no spanning-tree common-config** command. CIST (Common and Internal Spanning Tree) is the spanning tree in a switched network, connecting all devices in the network.

Syntax

spanning-tree common-config [**port-priority** *pri*] [**ext-cost** *ext-cost*] [**int-cost** *int-cost*] [**portfast** { enable | disable }] [**point-to-point** { auto | open | close }]

no spanning-tree common-config

Parameter

pri —— Port Priority, which must be multiple of 16 ranging from 0 to 240. By default, the port priority is 128. Port Priority is an important criterion on determining if the port connected to this port will be chosen as the root port. In the same condition, the port with the highest priority will be chosen as the root port. The lower value has the higher priority.

ext-cost —— External Path Cost, which is used to choose the path and calculate the path costs of ports in different MST regions. It is an important criterion on determining the root port. The lower value has the higher priority. It ranges from o to 2000000. By default, it is 0 which is mean auto.

int-cost —— Internal Path Cost, which is used to choose the path and calculate the path costs of ports in an MST region. It is an important criterion on determining the root port. The lower value has the higher priority. By default, it is automatic. It ranges from o to 2000000. By default, it is 0 which is mean auto.

portfast —— Enable/ Disable Edge Port. By default, it is disabled. The edge port can transit its state from blocking to forwarding rapidly without waiting for forward delay.

point-to-point —— The P2P link status, with auto, open and close options. By default, the option is auto. If the two ports in the P2P link are root port or designated port, they can transit their states to forwarding rapidly to reduce the unnecessary forward delay.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the STP function of port 1/0/1, and configure the Port Priority as 64, ExtPath Cost as 100, IntPath Cost as 100, and then enable Edge Port:

TL-SG2008(config)# interface gigabitEthernet 1/0/1

TL-SG2008(config-if)# spanning-tree common-config port-priority 64

ext-cost 100 **int-cost** 100 **portfast** enable **point-to-point** open

spanning-tree mode

Description

The **spanning-tree mode** command is used to configure the STP mode of the switch. To return to the default configurations, please use **no spanning-tree mode** command.

Syntax

spanning-tree mode { stp | rstp | mstp }

no spanning-tree mode

Parameter

stp ——Spanning Tree Protocol, the default value.

rstp ——Rapid Spanning Tree Protocol

mstp ——Multiple Spanning Tree Protocol

Command Mode

Global Configuration Mode

Example

Configure the spanning-tree mode as mstp:

TL-SG2008(config)# spanning-tree mode mstp

spanning-tree mst configuration

Description

The **spanning-tree mst configuration** command is used to access MST Configuration Mode from Global Configuration Mode, as to configure the VLAN-Instance mapping, region name and revision level. To return to the

default configuration of the corresponding Instance, please use **no spanning-tree mst configuration** command.

Syntax

spanning-tree mst configuration

no spanning-tree mst configuration

Command Mode

Global Configuration Mode

Example

Enter into the MST configuration mode:

```
TL-SG2008(config)# spanning-tree mst configuration
TL-SG2008(Config-mst)#
```

instance

Description

The **instance** command is used to configure the VLAN-Instance mapping. To remove the VLAN-instance mapping or disable the corresponding instance, please use **no instance** command. When an instance is disabled, the related mapping VLANs will be removed.

Syntax

instance *instance-id* **vlan** *vlan-id*

no instance *instance-id* [**vlan** *vlan-id*]

Parameters

instance-id —— Instance ID, ranging from 1 to 8.

vlan-id —— The VLAN ID selected to mapping with the corresponding instance.

Command Mode

MST Configuration Mode

Example

Map the VLANs 1-100 to Instance 1:

```
TL-SG2008(config)# spanning-tree mst configuration
TL-SG2008(config-mst)# instance 1 vlan 1-100
```

Disable Instance 1, namely remove all the mapping VLANs 1-100:

```
TL- SG2008(config)# spanning-tree mst configuration
TL- SG2008(config-mst)# no instance 1
```

Remove VLANs 1-50 in mapping VLANs 1-100 for Instance 1:

TL-SG2008(config)# spanning-tree mst configuration

TL-SG2008(config-mst)# no instance 1 **vlan** 1-50

name

Description

The **name** command is used to configure the region name of MST instance.

Syntax

name *name*

Parameters

name —— The region name, used to identify MST region. It ranges from 1 to 32 characters.

Command Mode

MST Configuration Mode

Example

Configure the region name of MST as “region1”:

TL-SG2008(config)# spanning-tree mst configuration

TL-SG2008(config-mst)# name region1

revision

Description

The **revision** command is used to configure the revision level of MST instance.

Syntax

revision *revision*

Parameters

revision —— The revision level for MST region identification, ranging from 0 to 65535.

Command Mode

MST Configuration Mode

Example

Configure the revision level of MST as 100:

TL-SG2008(config)# spanning-tree mst configuration

```
TL-SG2008(config-mst)# revision 100
```

spanning-tree mst instance

Description

The **spanning-tree mst instance** command is used to configure the priority of MST instance. To return to the default value of MST instance priority, please use **no spanning-tree mst instance** command.

Syntax

spanning-tree mst instance *instance-id* **priority** *pri*

no spanning-tree mst instance *instance-id* **priority**

Parameter

instance-id —— Instance ID, ranging from 1 to 8.

pri —— MSTI Priority, which must be multiple of 4096 ranging from 0 to 61440. By default, it is 32768. MSTI priority is an important criterion on determining if the switch will be chosen as the root bridge in the specific instance.

Command Mode

Global Configuration Mode

Example

Enable the MST Instance 1 and configure its priority as 4096:

```
TL-SG2008(config)# spanning-tree mst instance 1 priority 4096
```

spanning-tree mst

Description

The **spanning-tree mst** command is used to configure MST Instance Port. To return to the default configuration of the corresponding Instance Port, please use **no spanning-tree mst** command. A port can play different roles in different spanning tree instance. You can use this command to configure the parameters of the ports in different instance IDs as well as view status of the ports in the specified instance.

Syntax

spanning-tree mst instance *instance-id* {[**port-priority** *pri*] | [**cost** *cost*]}

no spanning-tree mst instance *instance-id*

Parameter

instance-id —— Instance ID, ranging from 1 to 8.

pri —— Port Priority, which must be multiple of 16 ranging from 0 to 240. By default, it is 128. Port Priority is an important criterion on determining if the port will be chosen as the root port by the device connected to this port.

cost —— Path Cost, ranging from 0 to 200000. The lower value has the higher priority. Its default value is 0 meaning “auto”.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Configure the priority of port 1 in MST Instance 1 as 64, and path cost as 2000:

TL-SG2008(config)# interface gigabitEthernet 1/0/1

TL-SG2008(config-if)# spanning-tree mst instance 1 **port-priority** 64 **cost** 2000

spanning-tree priority

Description

The **spanning-tree priority** command is used to configure the bridge priority. To return to the default value of bridge priority, please use **no spanning-tree priority** command.

Syntax

spanning-tree priority *pri*

no spanning-tree priority

Parameter

pri —— Bridge priority, ranging from 0 to 61440. It is 32768 by default.

Command Mode

Global Configuration Mode

Example

Configure the bridge priority as 4096:

TL-SG2008(config)# spanning-tree priority 4096

spanning-tree tc-defend

Description

The **spanning-tree tc-defend** command is used to configure the TC Protect of Spanning Tree globally. To return to the default configuration, please use **no spanning-tree tc-defend** command. A switch removes MAC address entries upon receiving TC-BPDUs. If a malicious user continuously sends TC-BPDUs to a switch, the switch will be busy with removing MAC address entries, which may decrease the performance and stability of the network.

Syntax

spanning-tree tc-defend threshold *threshold* **period** *period*

no spanning-tree tc-defend

Parameter

threshold —— TC Threshold, ranging from 1 to 100 packets. By default, it is 20. TC Threshold is the maximum number of the TC-BPDUs received by the switch in a TC Protect Cycle.

period —— TC Protect Cycle, ranging from 1 to 10 in seconds. By default, it is 5.

Command Mode

Global Configuration Mode

Example

Configure TC Threshold as 30 packets and TC Protect Cycle as 10 seconds:

```
TL-SG2008(config)# spanning-tree tc-defend threshold 30 period 10
```

spanning-tree timer

Description

The **spanning-tree timer** command is used to configure forward-time, hello-time and max-age of Spanning Tree. To return to the default configurations, please use **no spanning-tree timer** command.

Syntax

spanning-tree timer {[**forward-time** *forward-time*] [**hello-time** *hello-time*] [**max-age** *max-age*]}

no spanning-tree timer

Parameter

forward-time —— Forward Delay, which is the time for the port to transit its state after the network topology is changed. Forward Delay ranges from 4 to 30 in seconds and it is 15 by default. Otherwise, 2 * (Forward Delay - 1) >= Max Age.

hello-time ——Hello Time, which is the interval to send BPDU packets, and used to test the links. Hello Time ranges from 1 to 10 in seconds and it is 2 by default. Otherwise, 2 * (Hello Time + 1) <= Max Age.

max-age —— The maximum time the switch can wait without receiving a BPDU before attempting to reconfigure, ranging from 6 to 40 in seconds. By default, it is 20.

Command Mode

Global Configuration Mode

Example

Configure forward-time, hello-time and max-age for Spanning Tree as 16 seconds, 3 seconds and 22 seconds respectively:

TL-SG2008(config)# spanning-tree timer forward-time 16 **hello-time** 3 **max-age** 22

spanning-tree hold-count

Description

The **spanning-tree hold-count** command is used to configure the maximum number of BPDU packets transmitted per Hello Time interval. To return to the default configurations, please use **no spanning-tree hold-count** command.

Syntax

spanning-tree hold-count *value*

no spanning-tree hold-count

Parameter

value —— The maximum number of BPDU packets transmitted per Hello Time interval, ranging from 1 to 20 in pps. By default, it is 5.

Command Mode

Global Configuration Mode

Example

Configure the hold-count of STP as 8pps:

TL-SG2008(config)# spanning-tree hold-count 8

spanning-tree max-hops

Description

The **spanning-tree max-hops** command is used to configure the maximum number of hops that occur in a specific region before the BPDU is discarded. To return to the default configurations, please use **no spanning-tree max-hops** command.

Syntax

spanning-tree max-hops *value*

no spanning-tree max-hops

Parameter

value —— The maximum number of hops that occur in a specific region before the BPDU is discarded, ranging from 1 to 40 in hop. By default, it is 20.

Command Mode

Global Configuration Mode

Example

Configure the max-hops of STP as 30:

```
TL-SG2008(config)# spanning-tree max-hops 30
```

spanning-tree bpdufilter

Description

The **spanning-tree bpdufilter** command is used to enable the BPDU filter function for a port. With the function enabled, the port can be prevented from receiving and sending any BPDU packets. To disable the BPDU filter function, please use **no spanning-tree bpdufilter** command.

Syntax

spanning-tree bpdufilter

no spanning-tree bpdufilter

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the BPDU filter function for port 1/0/2:

TL-SG2008(config)# interface gigabitEthernet 1/0/2

TL-SG2008(config-if)# spanning-tree bpdufilter

spanning-tree bpduguard

Description

The **spanning-tree bpduguard** command is used to enable the BPDU protect function for a port. With the BPDU protect function enabled, the port will set itself automatically as ERROR-PORT when it receives BPDU packets, and the port will disable the forwarding function for a while. To disable the BPDU protect function, please use **no spanning-tree bpduguard** command.

Syntax

spanning-tree bpduguard

no spanning-tree bpduguard

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the BPDU protect function for port 1/0/2:

TL-SG2008(config)# interface gigabitEthernet 1/0/2

TL-SG2008(config-if)# spanning-tree bpduguard

spanning-tree guard loop

Description

The **spanning-tree guard loop** command is used to enable the Loop Protect function for a port. Loop Protect is to prevent the loops in the network brought by recalculating STP because of link failures and network congestions. To disable the Loop Protect function, please use **no spanning-tree guard loop** command.

Syntax

spanning-tree guard loop

no spanning-tree guard loop

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the Loop Protect function for port 1/0/2:

TL-SG2008(config)# interface gigabitEthernet 1/0/2

TL-SG2008(config-if)# spanning-tree guard loop

spanning-tree guard root

Description

The **spanning-tree guard root** command is used to enable the Root Protect function for a port. With the Root Protect function enabled, the root bridge will set itself automatically as ERROR-PORT when receiving BPDU packets with higher priority, in order to maintain the role of root ridge. To disable the Root Protect function, please use **no spanning-tree guard root** command.

Syntax

spanning-tree guard root

no spanning-tree guard root

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the Root Protect function for port 1/0/2:

TL-SG2008(config)# interface gigabitEthernet 1/0/2

TL-SG2008(config-if)# spanning-tree guard root

spanning-tree guard tc

Description

The **spanning-tree guard tc** command is used to enable the TC Protect of Spanning Tree function for a port. To disable the TC Protect of Spanning Tree function, please use **no spanning-tree guard tc** command. A switch removes MAC address entries upon receiving TC-BPDUs. If a malicious user continuously sends TC-BPDUs to a switch, the switch will be busy with removing MAC address entries, which may decrease the performance and stability of the network. With the Protect of Spanning Tree function enabled, you can configure the number of TC-BPDUs in a required time, so as to avoid the process of removing MAC addresses frequently.

Syntax

spanning-tree guard tc

no spanning-tree guard tc

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the TC Protect of Spanning Tree for port 2:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/2
TL-SG2008(config-if)# spanning-tree guard tc
```

spanning-tree mcheck

Description

The **spanning-tree mcheck** command is used to enable mcheck.

Syntax

spanning-tree mcheck

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable mcheck for port 1/0/2:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/2
TL-SG2008(config-if)# spanning-tree mcheck
```

show spanning-tree active

Description

The **show spanning-tree active** command is used to display the active information of spanning-tree.

Syntax

show spanning-tree active

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the active information of spanning-tree:

```
TL-SG2008(config)# show spanning-tree active
```

show spanning-tree bridge

Description

The **show spanning-tree bridge** command is used to display the bridge parameters.

Syntax

show spanning-tree bridge [forward-time | hello-time | hold-count | max-age | max-hops | mode | priority | state]

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the bridge parameters:

```
TL-SG2008(config)# show spanning-tree bridge
```

show spanning-tree interface

Description

The **show spanning-tree interface** command is used to display the spanning-tree information of all ports or a specified port.

Syntax

show spanning-tree interface [**gigabitEthernet** *port*] [edge | ext-cost | int-cost | mode | p2p | priority | role | state | status]

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the spanning-tree information of all ports:

```
TL-SG2008(config)# show spanning-tree interface
```

Display the spanning-tree information of port 1/0/2:

TL-SG2008(config)# show spanning-tree interface gigabitEthernet 1/0/2

Display the spanning-tree mode information of port 2:

TL-SG2008(config)# show spanning-tree interface gigabitEthernet 1/0/2 mode

show spanning-tree interface-security

Description

The **show spanning-tree interface-security** command is used to display the protect information of all ports or a specified port.

Syntax

show spanning-tree interface-security [**gigabitEthernet** *port*] [bpdufilter | bpduguard | loop | root | tc | tc-defend]

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the protect information of all ports:

TL-SG2008(config)# show spanning-tree interface-security

Display the protect information of port 1/0/1:

TL-SG2008(config)#show spanning-tree interface-security gigabitEthernet 1/0/1

Display the interface security bpdufilter information:

TL-SG2008(config)# show spanning-tree interface-security bpdufilter

show spanning-tree mst

Description

The **show spanning-tree mst** command is used to display the related information of MST Instance.

Syntax

show spanning-tree mst { **configuration** [**digest**] | **instance** *instance-id* [**interface** [**gigabitEthernet** *port*]]}

Parameter

instance-id —— Instance ID desired to show, ranging from 1 to 8.

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the region information and mapping information of VLAN and MST Instance:

TL-SG2008(config)#show spanning-tree mst configuration

Display the related information of MST Instance 1:

TL-SG2008(config)#show spanning-tree mst instance 1

Display all the ports information of MST Instance 1:

TL-SG2008(config)#show spanning-tree mst instance 1 **interface**

Chapter 20 IGMP Commands

IGMP Snooping (Internet Group Management Protocol Snooping) is a multicast control mechanism running on Layer 2 switch. It can effectively prevent multicast groups being broadcasted in the network.

ip igmp snooping(global)

Description

The **ip igmp snooping** command is used to configure IGMP Snooping globally. To disable the IGMP Snooping function, please use **no ip igmp snooping** command.

Syntax

ip igmp snooping

no ip igmp snooping

Command Mode

Global Configuration Mode

Example

Enable IGMP Snooping function:

```
TL-SG2008(config)# ip igmp snooping
```

ip igmp snooping(interface)

Description

The **ip igmp snooping** command is used to enable the IGMP Snooping function for the desired port. To disable the IGMP Snooping function, please use **no ip igmp snooping** command.

Syntax

ip igmp snooping

no ip igmp snooping

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable IGMP Snooping function of port 1/0/3:

TL-SG2008(config)# interface gigabitEthernet 1/0/3

TL-SG2008(config-if)# ip igmp snooping

ip igmp snooping immediate-leave

Description

The **ip igmp snooping immediate-leave** command is used to configure the Fast Leave function for port. To disable the Fast Leave function, please use **no ip igmp snooping immediate-leave** command.

Syntax

ip igmp snooping immediate-leave

no ip igmp snooping immediate-leave

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the Fast Leave function for port 1/0/3:

TL-SG2008(config)# interface gigabitEthernet 1/0/3

TL-SG2008(config-if)# ip igmp snooping immediate-leave

ip igmp snooping drop-unknown

Description

The **ip igmp snooping drop-unknown** command is used to process the unknown multicast as discard. To disable the operation of processing the unknown multicast as discard, please use **no ip igmp snooping drop-unknown** command.

Syntax

ip igmp snooping drop-unknown

no ip igmp snooping drop-unknown

Command Mode

Global Configuration Mode

Example

Specify the operation to process unknown multicast as discard:

TL-SG2008(config)# ip igmp snooping drop-unknown

ip igmp snooping vlan-config

Description

The **ip igmp snooping vlan-config** command is used to enable VLAN IGMP Snooping function or to modify IGMP Snooping parameters, and to create static multicast IP entry. To disable the VLAN IGMP Snooping function, please use **no ip igmp snooping vlan-config** command.

Syntax

ip igmp snooping vlan-config *vlan-id-list* [**rtime** *router-time* | **mtime** *member-time* | **ltime** *leave-time* | **rport interface gigabitEthernet** *port*]

ip igmp snooping vlan-config *vlan-id* **static** *ip* **interface gigabitEthernet** *port*

no ip igmp snooping vlan-config *vlan-id-list*

no ip igmp snooping vlan-config *vlan-id* **static** *ip*

Parameter

vlan-id-list —— The ID list of the VLAN desired to modify configuration, ranging from 2 to 4094, in the format of 1-3, 5.

router-time —— Router Port Time. Within this time, if the switch does not receive IGMP query message from the router port, it will consider this port is not a router port any more. Router Port Time ranges from 60 to 600 in seconds. By default, it is 300.

member-time —— Member Port Time. Within this time, if the switch does not receive IGMP report message from the member port, it will consider this port is not a member port any more. Member Port Time ranges from 60 to 600 in seconds. By default, it is 260.

leave-time —— Leave Time, which is the interval between the switch receiving a leave message from a host and the switch removing the host from the multicast groups. Leave Time ranges from 1 to 30 in seconds. By default, it is 1.

port —— The Ethernet port number.

vlan-id —— The VLAN ID of the multicast IP, ranging from 1 to 4094.

ip —— The static multicast IP address.

port-list —— The list of Ethernet ports.

Command Mode

Global Configuration Mode

Example

Enable the IGMP Snooping function and modify Router Port Time as 300 seconds, Member Port Time as 200 seconds for VLAN 1-3, and set the Leave time as 15 seconds for VLAN 1-2:

TL-SG2008(config)# ip igmp snooping vlan-config 1-3 **rtime** 300

TL-SG2008(config)# ip igmp snooping vlan-config 1-3 **mtime** 200

TL-SG2008(config)# ip igmp snooping vlan-config 1-2 **ltime** 15

Add static multicast IP address 225.0.0.1, which corresponds to VLAN 2, and configure the forward port as port 1/0/1-3:

TL-SG2008(config)# ip igmp snooping vlan-config 2 **static** 225.0.0.1 **interface gigabitEthernet** 1/0/1-3

ip igmp snooping multi-vlan-config

Description

The **ip igmp snooping multi-vlan-config** command is used to create Multicast VLAN. To delete the corresponding Multicast VLAN, please use **no ip igmp snooping multi-vlan-config** command.

Syntax

ip igmp snooping multi-vlan-config [*vlan-id*] [**rtime** *router-time* | **mtime** *member-time* | **ltime** *leave-time* | **rport interface gigabitEthernet** *port*]

no ip igmp snooping multi-vlan-config

Parameter

vid —— The ID of the VLAN desired to modify configuration, ranging from 2 to 4094.

router-time —— Router Port Time. Within this time, if the switch does not receive IGMP query message from the router port, it will consider this port is not a router port any more. Router Port Time ranges from 60 to 600 in seconds. By default, it is 300.

member-time —— Member Port Time. Within this time, if the switch does not receive IGMP report message from the member port, it will consider this port is not a member port any more. Member Port Time ranges from 60 to 600 in seconds. By default, it is 260.

leave-time —— Leave Time, which is the interval between the switch receiving a leave message from a host and the switch removing the host from the multicast groups. Leave Time ranges from 1 to 30 in seconds. By default, it is 1.

port —— The Ethernet port number.

Command Mode

Global Configuration Mode

Example

Enable Multicast VLAN 3, and configure Router Port Time as 100 seconds, Member Port Time 100 seconds, Leave Time 3 seconds, and Static Router Port port 3:

TL-SG2008(config)# ip igmp snooping multi-vlan-config 3 **rtime** 100

TL-SG2008(config)# ip igmp snooping multi-vlan-config 3 **mtime** 100

TL-SG2008(config)# ip igmp snooping multi-vlan-config 3 **ltime** 3

TL-SG2008(config)# ip igmp snooping multi-vlan-config 3 **rport interface gigabitEthernet** 1/0/3

ip igmp snooping filter add-id

Description

The **ip igmp snooping filter add-id** command is used to configure the multicast IP-range desired to filter. To delete the corresponding IP-range, please use **no ip igmp snooping filter add-id** command. When IGMP Snooping is enabled, you can specified the multicast IP-range the ports can join so as to restrict users ordering multicast programs via configuring multicast filter rules. Multicast IP addresses ranges from 224.0.0.0 to 239.255.255.255. The range for receivers to join is from 224.0.1.0 to 239.255.255.255.

Syntax

ip igmp snooping filter addr-id *addr-id list*

no ip igmp snooping filter addr-id *addr-id list*

Parameter

addr-id list —— The filtering address ID to be bound.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Bind the filtering address ID 2-6 to port 3:

TL-SG2008(config)# interface gigabitEthernet 1/0/3

TL-SG2008(config-if)# ip igmp snooping filter addr-id 2-6

ip igmp snooping filter(global)

Description

The **ip igmp snooping filter** command is used to add or modify the multicast filtering IP-range. To delete the multicast filtering IP-range, please use **no ip igmp snooping filter** command.

Syntax

ip igmp snooping filter *id start-ip end-ip*

no ip igmp snooping filter *id*

Parameter

id —— IP-range ID, ranging from 1 to 30.

start-ip —— The start multicast IP of the IP-range.

end-ip —— The end multicast IP of the IP-range.

Command Mode

Global Configuration Mode

Example

Modify the multicast IP-range whose ID is 3 as 225.1.1.1~226.3.2.1:

TL-SG2008(config)# ip igmp snooping filter 3 225.1.1.1 226.3.2.1

ip igmp snooping filter(interface)

Description

The **ip igmp snooping filter** command is used to configure Port Filter. To return to the default configuration, please use **no igmp snooping filter** command. When the switch receives IGMP report message, it examines the multicast filtering IP ID configured on the access port to determine if the port can join the multicast group. If the multicast IP is not filtered, the switch will add the port to the forward port list of the multicast group. Otherwise, the switch will drop the IGMP report message. In that way, you can control the multicast groups that users can access.

Syntax

ip igmp snooping filter

no ip igmp snooping filter

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable IGMP Snooping filter function for port 1/0/3:

TL-SG2008(config)# interface gigabitEthernet 1/0/3

TL-SG2008(config-if)# ip igmp snooping filter

ip igmp snooping filter maxgroup

Description

The **ip igmp snooping filter maxgroup** command is used to specify the maximum number of multicast groups for a port to join in.

Syntax

ip igmp snooping filter maxgroup *maxgroup*

Parameter

maxgroup —— The maximum number of multicast groups for a port to join in. It is used to prevent some ports taking up too much bandwidth.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Specify the maximum number of multicast groups for ports 2-5 to join in as 10:

TL-SG2008(config)# interface range gigabitEthernet 1/0/2-5

TL-SG2008(config-if-range)# ip igmp snooping filter maxgroup 10

ip igmp snooping filter mode

Description

The **ip igmp snooping filter mode** command is used to configure the Action mode for the desired port.

Syntax

ip igmp snooping filter mode *mode*

Parameter

mode —— Action Mode, with refuse and accept options. Refuse indicates only the multicast packets whose multicast IP is not in the IP-range will be processed, while accept indicates only the multicast packets whose multicast IP is in the IP-range will be processed. By default, the option is “accept”.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Specify the Action Mode as accept for port 1/0/3:

TL-SG2008(config)# interface gigabitEthernet 1/0/3

TL-SG2008(config-if)# ip igmp snooping filter mode accept

show ip igmp snooping

Description

The **show ip igmp snooping** command is used to display the global configuration of IGMP snooping.

Syntax

show ip igmp snooping

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the global configuration of IGMP:

TL-SG2008# show ip igmp snooping

show ip igmp snooping interface

Description

The **show ip igmp snooping interface** command is used to display the port configuration of IGMP snooping.

Syntax

show ip igmp snooping interface gigabitEthernet [*port* | *port-list*] { basic-config | filter | packet-stat }

Parameter

port —— The Ethernet port number.

port-list —— The list of Ethernet ports.

basic-config | filter | packet-stat —— The related configuration information selected to display.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the IGMP filter configuration of all ports:

TL-SG2008# show ip igmp snooping interface gigabitEthernet filter

Display the IGMP basic configuration of port 1/0/2:

TL-SG2008# show ip igmp snooping interface gigabitEthernet 1/0/2 basic-config

Display the IGMP packet statistics of ports 1-4:

TL-SG2008# show ip igmp snooping interface gigabitEthernet 1/0/1-4 packet-stat

show ip igmp snooping vlan

Description

The **show ip igmp snooping vlan** command is used to display the VLAN configuration of IGMP snooping.

Syntax

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

Parameter

vlan-id ——The VLAN ID selected to display.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the IGMP snooping configuration information of VLAN 2:

```
TL-SG2008# show ip igmp snooping vlan 2
```

show ip igmp snooping multi-vlan

Description

The **show ip igmp snooping multi-vlan** command is used to display the Multicast VLAN configuration.

Syntax

show ip igmp snooping multi-vlan

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the Multicast VLAN configuration:

```
TL-SG2008# show ip igmp snooping multi-vlan
```

show ip igmp snooping groups

Description

The **show ip igmp snooping groups** command is used to display the information of all IGMP snooping groups. It can be extended to some other commands to display the dynamic and static multicast information of a selected VLAN.

Syntax

show ip igmp snooping groups [**vlan** *vlan-id*] [count | dynamic | dynamic count | static | static count]

Parameter

vlan-id ——The VLAN ID selected to display the information of all multicast items.

count—— The numbers of all multicast groups.

dynamic—— Display dynamic multicast groups.

dynamic count—— The numbers of all dynamic multicast groups.

static—— Display static multicast groups.

static count—— The numbers of all static multicast groups.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the information of all IGMP snooping groups:

TL-SG2008#show ip igmp snooping groups

Display all the multicast entries in VLAN 5:

TL-SG2008(config)#show ip igmp snooping groups vlan 5

Display the count of multicast entries in VLAN 5:

TL-SG2008(config)#show ip igmp snooping groups vlan 5 count

Display the dynamic multicast groups of VLAN 5

TL-SG2008(config)#show ip igmp snooping groups vlan 5 dynamic

Display the static multicast groups of VLAN 5

TL-SG2008(config)#show ip igmp snooping groups vlan 5 static

Display the count of dynamic multicast entries of VLAN 5

TL-SG2008(config)#show ip igmp snooping groups vlan 5 dynamic count

Display the count of static multicast entries of VLAN 5

TL-SG2008(config)#show ip igmp snooping groups vlan 5 static count

show ip igmp snooping filter

Description

The **show ip igmp snooping filter** command is used to display the Multicast Filter Address table.

Syntax

show ip igmp snooping filter [*filter-addr-id-list*]

Parameter

filter-addr-id-list ——The multicast ID selected to display the multicast filter address information. It is optional.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display all the multicast filter address information:

TL-SG2008(config)# show ip igmp snooping filter

Chapter 21 SNMP Commands

SNMP (Simple Network Management Protocol) functions are used to manage the network devices for a smooth communication, which can facilitate the network administrators to monitor the network nodes and implement the proper operation.

snmp-server

Description

The **snmp-server** command is used to enable the SNMP function. By default, it is disabled. To return to the default configuration, please use **no snmp-server** command.

Syntax

snmp-server

no snmp-server

Command Mode

Global Configuration Mode

Example

Enable the SNMP function:

```
TL-SG2008(config)# snmp-server
```

snmp-server view

Description

The **snmp-server view** command is used to add View. To delete the corresponding View, please use **no snmp-server view** command. The OID (Object Identifier) of the SNMP packets is used to describe the managed objects of the switch, and the MIB (Management Information Base) is the set of the OIDs. The SNMP View is created for the SNMP management station to manage MIB objects.

Syntax

snmp-server view *name mib-oid* { include | exclude }

no snmp-server view *name mib-oid*

Parameter

name —— The entry name of View, ranging from 1 to 16 characters. Each View includes several entries with the same name.

mib-oid —— MIB Object ID. It is the Object Identifier (OID) for the entry of View, ranging from 1 to 61 characters.

include | exclude —— View Type, with include and exclude options. They represent the view entry can/cannot be managed by the SNMP management station individually.

Command Mode

Global Configuration Mode

Example

Add a View named view1, configuring the OID as 1.3.6.1.6.3.20, and this OID can be managed by the SNMP management station:

```
TL-SG2008(config)# snmp-server view view1 1.3.6.1.6.3.20 include
```

snmp-server group

Description

The **snmp-server group** command is used to manage and configure the SNMP group. To delete the corresponding SNMP group, please use **no snmp-server group** command. SNMP v3 provides the VACM (View-based Access Control Model) and USM (User-Based Security Model) mechanisms for authentication. The users in the SNMP Group can manage the device via the Read View, Write View and Notify View. And the authentication mode and the privacy mode guarantee the high security for the communication between the management station and the managed device.

Syntax

snmp-server group *name* [**smode** { v1 | v2c | v3 }] [**slev** { noAuthNoPriv | authNoPriv | authPriv }] [**read** *read-view*] [**write** *write-view*] [**notify** *notify-view*]

no snmp-server group *name* **smode** { v1 | v2c | v3 } **slev** { noAuthNoPriv | authNoPriv | authPriv }

Parameter

name ——The SNMP Group name, ranging from 1 to 16 characters. The Group Name, Security Model and Security Level compose the identifier of the SNMP Group. These three items of the Users in one group should be the same.

smode —— Security Model, with v1, v2c and v3 options. They represent SNMP v1, SNMP v2c and SNMP v3.

slev —— The Security Level of SNMP v3 Group. There are three options, including noAuthNoPriv (no authorization and no encryption), authNoPriv (authorization and no encryption) and authPriv (authorization and encryption).

By default, the Security Level is noAuthNoPriv. There is no need to configure this in SNMP v1 Mode and SNMP v2c Mode.

read-view —— Select the View to be the Read View. The management access is restricted to read-only, and changes cannot be made to the assigned SNMP View.

write-view —— Select the View to be the Write View. The management access is writing only and changes can be made to the assigned SNMP View. The View defined both as the Read View and the Write View can be read and modified.

notify-view —— Select the View to be the Notify View. The management station can receive notification messages of the assigned SNMP view generated by the switch's SNMP agent.

Command Mode

Global Configuration mode

Example

Add a group, and configure the name as group 1, the Security Model as SNMP v3, the security level as authNoPriv, the management access to the assigned View viewDefault as read-write, besides the notification messages sent by View viewDefault can be received by Management station:

TL-SG2008(config)# snmp-server group group1 **smode** v3 **slev** authNoPriv **read** viewDefault **write** viewDefault **notify** viewDefault

Delete group 1:

TL-SG2008(config)# no snmp-server group group1 **smode** v3 **slev** authNoPriv

snmp-server user

Description

The **snmp-server user** command is used to add User. To delete the corresponding User, please use **no snmp-server user** command. The User in an SNMP Group can manage the switch via the management station software. The User and its Group have the same security level and access right.

Syntax

snmp-server user *name* { local | remote } *group-name* [**smode** { v1 | v2c | v3 }] [**slev** { noAuthNoPriv | authNoPriv | authPriv }] [**cmode** { none | MD5 | SHA }] [**cpwd** *confirm-pwd*] [**emode** { none | DES }] [**epwd** *encrypt-pwd*]

no snmp-server user *name*

Parameter

name —— User Name, ranging from 1 to 16 characters.

local | remote —— User Type, with local and remote options. Local indicates that the user is connected to a local SNMP engine, while remote means that the user is connected to a remote SNMP engine.

group-name —— The Group Name of the User. The User is classified to the corresponding Group according to its Group Name, Security Model and Security Level.

smode —— The Security Model of the User, with v1, v2c and v3 options. By default, the option is v1. The Security Model of the User must be the same with that of the Group which the User belongs to.

slev —— The Security Level of SNMP v3 Group. There are three options, including noAuthNoPriv (no authorization and no encryption), authNoPriv (authorization and no encryption) and authPriv (authorization and encryption). By default, the option is “noAuthNoPriv”. The Security Level of the User must be the same with that of the Group which the User belongs to.

cmode —— The Authentication Mode of the SNMP v3 User, with none, MD5 and SHA options. None indicates no authentication method is used, MD5 indicates the port authentication is performed via HMAC-MD5 algorithm and SHA indicates the port authentication is performed via SHA (Secure Hash Algorithm). SHA authentication mode has a higher security than MD5 mode. By default, the Authentication Mode is “none”.

confirm-pwd —— Authentication Password, ranging from 1 to 16 characters.

emode —— The Privacy Mode of the SNMP v3 User, with none and DES options. None indicates no privacy method is used, and DES indicates DES encryption method is used. By default, the Privacy Mode is “none”.

encrypt-pwd —— Privacy Password, ranging from 1 to 16 characters.

Command Mode

Global Configuration Mode

Example

Add Local User admin to Group group2, and configure the Security Model of the user as v3, the Security Level of the group as authPriv, the Authentication Mode of the user as MD5, the Authentication Password as 11111, the Privacy Mode as DES, and the Privacy Password as 22222:

TL-SG2008(config)# snmp-server user admin local group2 **smode** v3 **slev** authPriv **cmode** MD5 **cpwd** 11111 **emode** DES **epwd** 22222

snmp-server community

Description

The **snmp-server community** command is used to add Community. To delete the corresponding Community, please use **no snmp-server community** command. SNMP v1 and SNMP v2c adopt community name authentication. The community name can limit access to the SNMP agent from SNMP network management station, functioning as a password.

Syntax

snmp-server community *name* { read-only | read-write } *mib-view*

no snmp-server community *name*

Parameter

name —— Community Name, ranging from 1 to 16 characters.

read-only | read-write —— The access rights of the community, with read-only and read-write options.

mib-view —— The MIB View for the community to access.

Command Mode

Global Configuration Mode

Example

Add community public, and the community has read-write management right to View viewDefault:

TL-SG2008(config)# snmp-server community public read-write viewDefault

snmp-server host

Description

The **snmp-server host** command is used to add Notification. To delete the corresponding Notification, please use **no snmp-server host** command.

Syntax

snmp-server host *ip udp-port user-name* [**smode** { v1 | v2c | v3 }] [**slev** { noAuthNoPriv | authNoPriv | authPriv }] [**type** { trap | inform }] [**retries** *retries*] [**timeout** *timeout*]

no snmp-server host *ip user-name*

Parameter

ip —— The IP address of the management Host.

udp-port —— UDP port, which is used to send notifications. The UDP port functions with the IP address for the notification sending. It ranges from 1 to 65535.

user-name —— The User name of the management station.

smode —— The Security Model of the management station, with v1, v2c and v3 options. By default, the option is v1.

slev —— The Security Level of SNMP v3 Group. There are three options, including noAuthNoPriv (no authorization and no encryption), authNoPriv (authorization and no encryption) and authPriv (authorization and encryption). By default, the option is “noAuthNoPriv”.

type —— The type of the notifications, with trap and inform options. Trap indicates traps are sent, while inform indicates informs are sent. The inform type has a higher security than the trap type and resend and timeout need to be configured if you select this option. You can only select the trap type in Security Model v1. By default, the type of the notifications is “trap”.

retries —— The amount of times the switch retries an inform request, ranging from 1 to 255. The switch will resend the inform request if it doesn’t get the response from the management station during the Timeout interval, and it will terminate resending the inform request if the resending times reach the specified Retry times.

timeout —— The maximum time for the switch to wait for the response from the management station before resending a request, ranging from 1 to 3600 in seconds.

Command Mode

Global Configuration Mode

Example

Add a Notification entry, and configure the IP address of the management Host as 192.168.0.146, the UDP port as 162, the User name of the management station as admin, the Security Model of the management station as v2c, the type of the notifications as inform, the maximum time for the switch to wait as 1000 seconds, and the retries time as 100:

TL-SG2008(config)# snmp-server host 192.168.0.146 162 admin **smode** v2c **type** inform **retries** 100 **timeout** 1000

snmp-server engineID

Description

The **snmp-server engineID** command is used to configure the local and remote engineID of the switch. To restore to the default setting, please use **no snmp-server engineID** command.

Syntax

snmp-server engineID { [**local** *local-engineID*] [**remote** *remote-engineID*] }

no snmp-server engineID

Parameter

local-engineID —— Local Engine ID for local clients. The Engine ID is a unique alphanumeric string used to identify the SNMP engine on the switch. Its length ranges from 10 to 64 hexadecimal characters, which must be even number meanwhile.

remote-engineID —— Remote Engine ID for the switch. The Engine ID is a unique alphanumeric string used to identify the SNMP engine on the remote device which receives informs from the switch. Its length ranges from 10 to 64 hexadecimal characters, which must be even number meanwhile. The **snmp-server engineID** will be disabled if the **local** and **remote** are both not configured.

Command Mode

Global Configuration Mode

Example

Specify the local engineID as 1234567890, and the remote engineID as abcdef123456:

```
TL-SG2008(config)# snmp-server engineID local 1234567890 remote
abcdef123456
```

snmp-server traps snmp

Description

The **snmp-server traps snmp** command is used to enable SNMP standard traps which include four types: linkup, linkdown, warmstart and coldstart. To disable the sending of SNMP standard traps, please use **no snmp-server traps snmp** command.

Syntax

snmp-server traps snmp [linkup | linkdown | warmstart | coldstart]

no snmp-server traps snmp [linkup | linkdown | warmstart | coldstart]

Parameter

linkup —— Enable linkup trap. It is sent when port status changes from linkdown to linkup. By default, it is enabled.

linkdown ——Enable linkdown trap. It is sent when port status changes from linkup to linkdown. By default, it is enabled.

warmstart —— Enable warmstart trap. It is sent upon SNMP function reboot. By default, it is enabled.

coldstart —— Enable coldstart trap. It is sent upon switch reboot. By default, it is enabled.

Command Mode

Global Configuration Mode

Example

Enable SNMP standard linkup trap for the switch:

```
TL-SG2008(config)# snmp-server traps snmp linkup
```

snmp-server traps link-status

Description

The **snmp-server traps link-status** command is used to enable SNMP link status trap for the specified port. To disable the sending of SNMP link status trap, please use **no snmp-server traps link-status** command.

Syntax

snmp-server traps link-status

no snmp-server traps link-status

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable SNMP link status trap for port 1/0/3:

```
TL-SG2008(config)# interface gigabitEthernet 1/0/3
TL- SG2008(config-if)# snmp-server traps link-status
```

snmp-server traps

Description

The **snmp-server traps** command is used to enable SNMP extended traps. To disable the sending of SNMP extended traps, please use **no snmp-server traps** command.

Syntax

snmp-server traps { bandwidth-control | cpu | flash | ipaddr-change | loopback-detection | storm-control | spanning-tree }

no snmp-server traps { bandwidth-control | cpu | flash | ipaddr-change | loopback-detection | storm-control | spanning-tree }

Parameter

bandwidth-control —— Enable bandwidth-control trap. It is sent when the rate limit function is enabled and the bandwidth exceeds the predefined value.

cpu —— Allow CPU-related trap. It is sent when CPU usage exceeds the predefined threshold. By default, the CPU usage threshold of the switch is 80%.

flash —— Enable flash trap. It is sent when flash is modified during operations such as backup, reset, firmware upgrade, configuration import, etc.

ipaddr-change —— Enable ipaddr-change trap. It is sent when IP address is changed such as user manually modifies the IP address or the switch obtains a new IP address from DHCP.

loopback-detection —— Enable loopback-detection trap. It is sent when the switch detects loopback or loopback is cleared.

storm-control —— Enable storm-control trap. It is sent when the multicast or broadcast rate exceeds the predefined value.

spanning-tree —— Enable spanning-tree trap. It is sent when the port forwarding status changes or the port receives TCN packet or packet with TC flag.

Command Mode

Global Configuration Mode

Example

Enable SNMP extended bandwidth-control trap for the switch:

```
TL-SG2008(config)# snmp-server traps bandwidth-control
```

snmp-server traps mac

Description

The **snmp-server traps mac** command is used to enable SNMP extended MAC address-related traps which include four types: new, full, learn-mode-change and max-learned. To disable the sending of SNMP extended MAC address related traps, please use **no snmp-server traps mac** command.

Syntax

snmp-server traps mac [new | full | learn-mode-change | max-learned]

no snmp-server traps mac [new | full | learn-mode-change | max-learned]

Parameter

new —— Enable new MAC address trap. It is sent when the switch learns new MAC address including dynamic address, static address and filter address.

full —— Enable MAC address table trap. It is sent when the MAC address table is full.

learn-mode-change —— Enable MAC address learn-mode-change trap. It is sent when MAC address learning mode of the switch changes.

max-learned —— Enable MAC address max-learned trap. It is sent when the amount of learned MAC address reaches the limit which is configured in port security module.

Command Mode

Global Configuration Mode

Example

Enable all SNMP extended MAC address-related traps for the switch:

```
TL-SG2008(config)# snmp-server traps mac
```

Enable new MAC address trap only for the switch:

```
TL-SG2008(config)# snmp-server traps mac new
```

snmp-server traps vlan

Description

The **snmp-server traps vlan** command is used to enable SNMP extended VLAN-related traps which include two types: create and delete. To disable this function, please use **no snmp-server traps vlan** command.

Syntax

snmp-server traps vlan [create | delete]

no snmp-server traps vlan [create | delete]

Parameter

create —— Enable VLAN-created trap. It is sent when new VLAN is created successfully.

delete —— Enable VLAN-deleted traps. It is sent when VLAN is deleted successfully.

Command Mode

Global Configuration Mode

Example

Enable all SNMP extended VLAN-related traps for the switch：

TL-SG2008(config)# snmp-server traps vlan

Enable VLAN-created trap only for the switch:

TL-SG2008(config)# snmp-server traps vlan create

rmon history

Description

The **rmon history** command is used to configure the history sample entry. To return to the default configuration, please use **no rmon history** command. RMON (Remote Monitoring), basing on SNMP architecture, functions to monitor the network. History Group is one of the commonly used RMON Groups. After a history group is configured, the switch collects network statistics information periodically, based on which the management station can monitor network effectively.

Syntax

rmon history *index* **interface gigabitEthernet** *port* [**interval** *seconds*] [**owner** *owner-name*]

no rmon history *index*

Parameter

index —— The index number of the entry, ranging from 1 to 12, in the format of 1-3,5.

port ——The Ethernet port number.

seconds —— The interval to take samplings from the port, ranging from 10 to 3600 in seconds. By default, it is 1800.

owner-name —— The owner of the history sample entry, ranging from 1 to 16 characters. By default, it is “monitor”.

Command Mode

Global Configuration Mode

Example

Configure the sample port as 1/0/2 and the sample interval as 100 seconds for the entry 1-3:

TL-SG2008(config)# rmon history 1-3 **interface gigabitEthernet** 1/0/2 **interval** 100 **owner** owner1

rmon event

Description

The **rmon event** command is used to configure the entries of SNMP-RMON Event. To return to the default configuration, please use **no rmon event** command. Event Group, as one of the commonly used RMON Groups, is used to define RMON events. Alarms occur when an event is detected.

Syntax

rmon event *index* [**user** *user-name*] [**description** *descript*] [**type** { none | log | notify | log-notify }] [**owner** *owner-name*]

no rmon event *index*

Parameter

index —— The index number of the event entry, ranging from 1 to 12. You can only select one entry for each command.

user-name —— The name of the User to which the event belongs, ranging from 1 to 16 characters. By default, it is “public”.

descript —— The description of the event, ranging from 1 to 16 characters. By default, it is empty.

type —— The event type, with none, log, notify and both options. None indicates no processing, log indicates logging the event, notify indicates sending trap messages to the management station, and both indicates logging the event and sending trap messages to the management station.

owner-name —— The owner of the event entry, ranging from 1 to 16 characters. By default, it is “monitor”.

Command Mode

Global Configuration Mode

Example

Configure the user name of entry 1, 2, 3 and 4 as user1, the description of the event as description1, the type of event as log and the owner of the event as owner1:

TL-SG2008(config)# rmon event 1-4 **user** user1 **description** description1 **type** log **owner** owner1

rmon alarm

Description

The **rmon alarm** command is used to configure SNMP-RMON Alarm Management. To return to the default configuration, please use **no rmon alarm** command. Alarm Group is one of the commonly used RMON Groups. RMON alarm management allows monitoring the specific alarm variables. When the value of a monitored variable exceeds the threshold, an alarm event is generated, which triggers the switch to act in the set way.

Syntax

rmon alarm *index* **interface gigabitEthernet** *port* [**alarm-variable** { drop | revbyte | revpkt | bpkt | mpkt | crc-lign | undersize | oversize | fragment | jabber | collision | 64 | 65-127 | 128-511 | 512-1023 | 1024-10240 }] [**s-type** { absolute | delta}] [**rising-threshold** *r-hold*] [**rising-event-index** *r-event*] [**falling-threshold** *f-hold*] [**falling-event-index** *f-event*] [**a-type** { rise | fall | all }] [**owner** *owner-name*] [**interval** *interval*]

no rmon alarm *index*

Parameter

index —— The index number of the Alarm Management entry, ranging from 1 to 12, in the format of 1-3,5.

port —— The Ethernet port number.

alarm-variable —— The alarm variable. By default, the option is “drop”.

s-type —— Sample Type, which is the sampling method for the selected variable and comparing the value against the thresholds. There are two options, absolute and delta. Absolute indicates comparing the values directly with the thresholds at the end of the sampling interval. Delta indicates subtracting the

last sampled value from the current value, and then comparing the difference in the values with the threshold. By default, the Sample Type is “absolute”.

r-hold —— The rising counter value that triggers the Rising Threshold alarm, ranging from 1 to 65535. By default, it is 100.

r-event —— Rise Event, which is the index of the corresponding event which will be triggered if the sampled value is larger than the Rising Threshold. It ranges from 1 to 12.

f-hold —— The falling counter value that triggers the Falling Threshold alarm, ranging from 1 to 65535. By default, it is 100.

f-event —— Fall Event, which is the index of the corresponding event which will be triggered if the sampled value is lower than the Falling Threshold. It ranges from 1 to 12.

a-type —— Alarm Type, with rise, fall and all options. Rise indicates that the alarm event will be triggered when the sampled value exceeds the Rising Threshold, fall indicates that the alarm event will be triggered when the sampled value is under the Falling Threshold, and all indicates that the alarm event will be triggered either the sampled value exceeds the Rising Threshold or is under the Falling Threshold. By default, the Alarm Type is “all”.

owner-name —— The owner of the entry, ranging from 1 to 16 characters. By default, it is “monitor”.

interval —— The alarm interval time, ranging from 10 to 3600 in seconds. By default, it is 1800.

Command Mode

Global Configuration Mode

Example

Configure the port of entries of 1,2 and 3 as port 2, the owners as owner1 and the alarm intervals as 100 seconds

```
TL-SG2008(config)# rmon alarm 1-3 interface gigabitEthernet 1/0/2 owner owner1 interval 100
```

show snmp-server

Description

The **show snmp-server** command is used to display SNMP configuration globally.

Syntax

show snmp-server

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display SNMP configuration globally:

```
TL-SG2008# show snmp-server
```

show snmp-server view

Description

The **show snmp-server view** command is used to display the View table.

Syntax

show snmp-server view

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the View table:

```
TL-SG2008# show snmp-server view
```

show snmp-server group

Description

The **show snmp-server group** command is used to display the Group table.

Syntax

show snmp-server group

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the Group table:

```
TL-SG2008# show snmp-server group
```

show snmp-server user

Description

The **show snmp-server user** command is used to display the User table.

Syntax

show snmp-server user

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the User table:

```
TL-SG2008# show snmp-server user
```

show snmp-server community

Description

The **show snmp-server community** command is used to display the Community table.

Syntax

show snmp-server community

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the Community table:

```
TL-SG2008# show snmp-server community
```

show snmp-server host

Description

The **show snmp-server host** command is used to display the Host table.

Syntax

show snmp-server host

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the Host table:

```
TL-SG2008# show snmp-server host
```

show snmp-server engineID

Description

The **show snmp-server engineID** command is used to display the engineID of the SNMP.

Syntax

show snmp-server engineID

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the engineID:

```
TL-SG2008# show snmp-server engineID
```

show rmon history

Description

The **show rmon history** command is used to display the configuration of the history sample entry.

Syntax

show rmon history [*index*]

Parameter

index —— The index number of the entry selected to display the configuration, ranging from 1 to 12, in the format of 1-3, 5. You can select more than one entry for each command. By default, the configuration of all history sample entries is displayed.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration of all history sample entries:

```
TL-SG2008# show rmon history
```

show rmon event

Description

The **show rmon event** command is used to display the configuration of SNMP-RMON Event.

Syntax

show rmon event [*index*]

Parameter

index —— The index number of the entry selected to display the configuration, ranging from 1 to 12, in the format of 1-3, 5. You can select more than one entry for each command. By default, the configuration of all SNMP-RMON enabled entries is displayed.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the Event configuration of entry 1-4:

```
TL-SG2008# show rmon event 1-4
```

show rmon alarm

Description

The **show rmon alarm** command is used to display the configuration of the Alarm Management entry.

Syntax

show rmon alarm [*index*]

Parameter

index —— The index number of the entry selected to display the configuration, ranging from 1 to 12, in the format of 1-3, 5. You can select more than one entry for each command. By default, the configuration of all Alarm Management entries is displayed.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration of the Alarm Management entry 1-2:

```
TL-SG2008# show rmon alarm 1-2
```