TP-LINK®

CLI Reference Guide

TL-SG2424P

24-Port Gigabit Smart PoE Switch with 4 Combo SFP Slots

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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-SG2424P 24-Port Gigabit Smart PoE Switch with 4 Combo SFP Slots.

Overview of this Guide

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

Chapter 2: User Interface

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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 through an Ethernet port. To log on to the switch by a Telnet connection, please take the following steps:

1.　Make sure the switch and the PC are in the same LAN.

2.　Click **Start → Run** to open the **Run** window.

Figure 1-1 Open the Run window

3.　Type "cmd" in the prompt Run window as Figure 1-2 and click **OK** button.
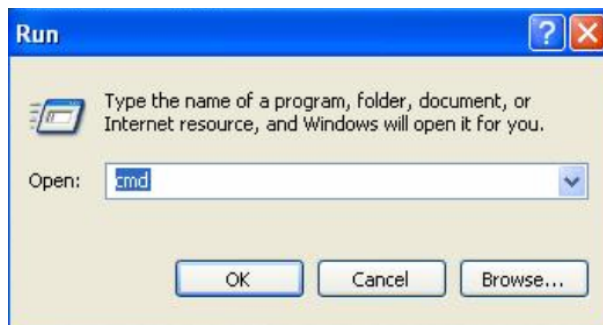
Figure 1-2 Run Window

4. Type "telnet 192.168.0.1" in the **command prompt** shown as Figure 1-3, and press the **Enter** button.
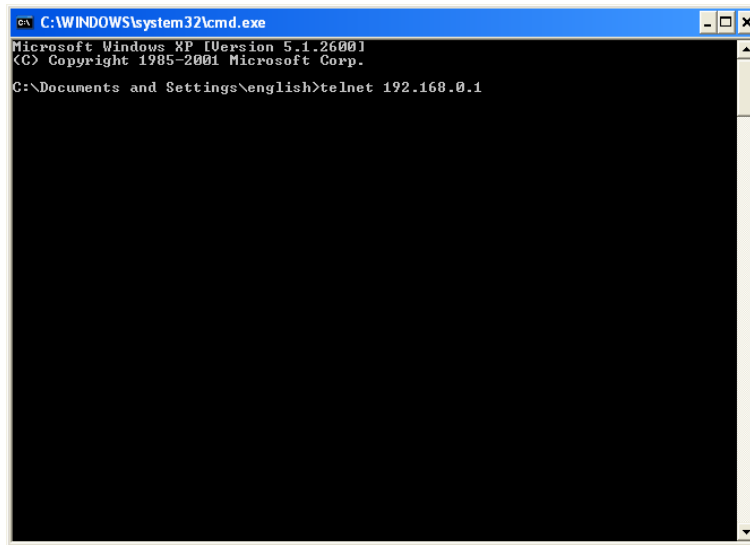
Figure 1-3 Connecting to the Switch

5. Type the User name and Password (the factory default value for both of them is admin) and press the **Enter** button, then you can use the CLI now, which is shown as Figure1-4.
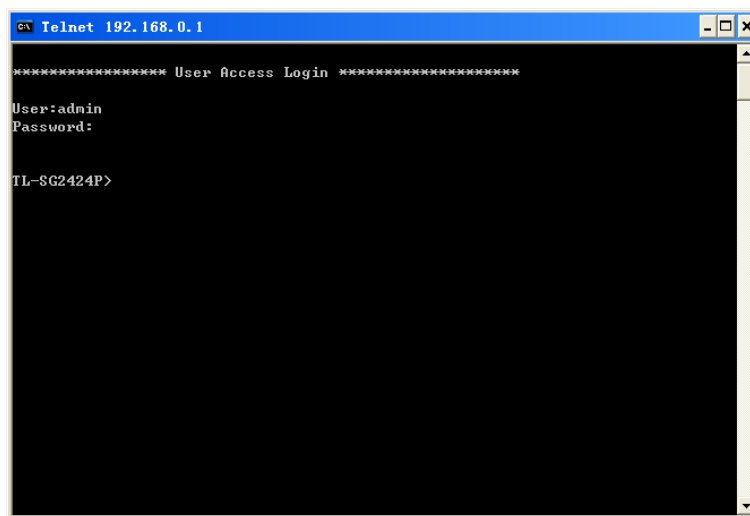
Figure 1-4 Log in the Switch

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 gigabitEthernet, 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-SG2424P>**	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-SG2424P#**	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.	**TL-SG2424P(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.
Interface Configuration Mode	Use the **interface gigabitEthernet** *port* or **interface range gigabitEthernet** *port-list* command to enter this mode from Global Configuration mode.	**TL-SG2424P(config-if)#** or **TL-SG2424P(config-if-range)#**	Use the **end** command or press **Ctrl+Z** to return to Privileged EXEC mode. Enter the **exit** 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-SG2424P(config-vlan)#**	Use the **end** command or press **Ctrl+Z** to return to Privileged EXEC mode. Enter the **exit** 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 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 an Ethernet port, such as Duplex-mode, flow control status.

b). Interface range gigabitEthernet: The commands contained are the same as that of the Interface Ethernet. Configure parameters for several 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**: Displays all information of switch, for example: statistic information, port information, VLAN information.

- **history**: Displays 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. However, Guest users are restricted to access the CLI.

Users can enter Privileged EXEC mode from User EXEC mode by using the **enable** command.

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: **switchport type** { access | trunk | general }

- 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 entered 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, 3-5,7 indicates choosing 1,3,4,5,7.

- The port number should format as 1/0/3, meaning unit/slot/port. The unit number is always 1, and slot number is always 0 and the port number is a variable (an actual value must be assigned).

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-SG2424P> enable

Enter password:

TL-SG2424P#

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*

no enable password

Parameter

password —— super password, which contains 16 characters at most, composing digits, English letters and underdashes only. By default, no password is set.

Command Mode

Global Configuration Mode

Example

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

TL-SG2424P(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-SG2424P# disable

TL-SG2424P>

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-SG2424P# configure

TL-SG2424P(config)#

exit

Description

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

Syntax

exit

Command Mode

Any Configuration Mode

Example

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

TL-SG2424P (config-if)# exit

TL-SG2424P(config)# exit

TL-SG2424P#

end

Description

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

Syntax

end

Command Mode

Any Configuration Mode

Example

Return to Privileged EXEC Mode from Interface Configuration Mode:

TL-SG2424P(config-if)# end

TL-SG2424P#

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-SG2424P(config)# vlan 2-10,100

Delete VLAN 2:

TL-SG2424P(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-SG2424P(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-SG2424P(config)# vlan** 2
>
> **TL-SG2424P(config-vlan)# name** group1

switchport mode

Description

> The **switchport mode** command is used to configure the Link Type for the ports.

Syntax

    switchport mode { access | trunk | general }

Parameter

    access | trunk | general —— Link Types. There are three Link Types for the ports.

Command Mode

    Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

    Specify the Link Type of port 3 as trunk:

    TL-SG2424P(config)# interface gigabitEthernet 1/0/3

    TL-SG2424P(config-if)# switchport mode trunk

switchport access vlan

Description

    The **switchport access vlan** command is used to add the desired Access port to IEEE 802.1Q VLAN. To remove the specified port/ports from the corresponding VLAN, please use **no switchport access vlan** command.

Syntax

    switchport access vlan *vlan-id*

    no switchport access vlan

Parameter

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

Command Mode

    Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

    Specify the Link Type of port 3 as access and add it to VLAN 2:

    TL-SG2424P(config)# interface gigabitEthernet 1/0/3

    TL-SG2424P(config-if)# switchport mode access

    TL-SG2424P(config-if)# switchport access vlan 2

switchport trunk allowed vlan

Description

The **switchport trunk allowed vlan** command is used to add the desired Trunk port to IEEE 802.1Q VLAN. To delete the corresponding VLAN/VLANs, please use **no switchport trunk allowed vlan** command.

Syntax

switchport trunk allowed vlan *vlan-list*

no switchport trunk 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.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Specify the Link Type of port 2 as trunk and add it to VLAN 2:

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(config-if)# switchport mode trunk

TL-SG2424P(config-if)# switchport trunk allowed vlan 2

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 egress rule. To delete the corresponding VLAN/VLANs, 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

Specify the Link Type of port 4 as "general", then add it to VLAN 2 and configure the egress rule of port 4 as "tagged":

TL-SG2424P(config)# interface gigabitEthernet 1/0/4

TL-SG2424P(config-if)# switchport mode general

TL-SG2424P(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 —— Specify IEEE 802.1Q VLAN ID, ranging from 1 to 4094.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Specify the PVID of port 3 as 1:

TL-SG2424P(config)# interface gigabitEthernet 1/0/3

TL-SG2424P(config-if)# switchport pvid 1

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-SG2424P(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-SG2424P(config)# show vlan brief

show vlan

Description

The **show vlan** command is used to display the detailed information of the specified IEEE 802.1Q VLAN. By default, the detailed information of all vlans will be displayed.

Syntax

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

Parameter

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

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the detailed information of all VLANs:

TL-SG2424P(config)# show vlan

Display the detailed information of VLAN 2:

TL-SG2424P(config)# show vlan id 2

Display the detailed information of VLAN 3-10:

TL-SG2424P(config)# show vlan id 3-10

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-SG2424P(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-SG2424P(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-SG2424P(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-SG2424P(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:

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:

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:

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-SG2424P(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-SG2424P(config)# show voice vlan switchport

Display the Voice VLAN configuration information of port 2:

TL-SG2424P(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 8.

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-SG2424P(config)# interface range gigabitEthernet 1/0/2-4

TL-SG2424P(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-SG2424P(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-SG2424P(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-SG2424P(config)# interface range gigabitEthernet 1/0/1-3

TL-SG2424P(config-if-range)# lacp port-priority 1024

Configure the LACP port priority as 2048 for port 4:

TL-SG2424P(config)# interface gigabitEthernet 1/0/4

TL-SG2424P(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 8. 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-SG2424P(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-SG2424P(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 8. 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-SG2424P(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-SG2424P(config)# show lacp sys-id

Chapter 6   User Manage Commands

User Manage Commands are used to manage the user's logging information by Web, CLI or SSH, so as to protect the settings of the switch from being randomly changed.

user

Description

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

Syntax

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

no user *user-name*

Parameter

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

password ——Type a password for users' login, which contains 16 characters at most, composing digits, English letters and under dashes 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.

Command Mode

Global Configuration Mode

Example

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

TL-SG2424P(config)# user 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-SG2424P(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-SG2424P(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-SG2424P(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 maximum login user numbers at the same time. To cancel the limit on login numbers, 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 allowed to log 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 allowed to log 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 maximum number of users' login as Admin and Guest as 5 and 3:

TL-SG2424P(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. The value is 10 by default.

Command Mode

Global Configuration Mode

Example

Configure the timeout time of the switch as 15 minutes:

TL-SG2424P(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-SG2424P(config)# show user account-list

show user configuration

Description

The **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-SG2424P(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.

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 return to the default configuration, 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-SG2424P(config)# logging buffer 6

logging file flash

Description

The **logging file flash** command is used to configure the level and the status of the log file input. To restore to the default configuration, please use **no logging file flash** command. The log file indicates the flash sector for saving system log. The information in the log file will not be lost after the switch is restarted and can be got by the **show logging flash** command.

Syntax

logging file flash *level*

no logging file flash

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 4 indicating that the log information marked with 0~4 will be saved in the log buffer.

Command Mode

Global Configuration Mode

Example

Enable the log file function and set the severity as 7:

TL-SG2424P(config)# logging file flash 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-SG2424P(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

Set the IP address as 192.168.0.148, the level 5:

TL-SG2424P(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-SG2424P(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-SG2424P(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

*leve*l —— 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-SG2424P(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-SG2424P(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-SG2424P(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-SG2424P(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 999 in seconds. By default, this value is 500.

Command Mode

Global Configuration Mode

Example

Specify the idle-timeout time of SSH as 300 seconds:

TL-SG2424P(config)# ip ssh timeout 300

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-SG2424P(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 a SSH-1 type key file named ssh-key from TFTP server with the IP Address 192.168.0.148:

TL-SG2424P(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-SG2424P(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-SG2424P(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 a SSL Certificate named ssl-cert from TFTP server with the IP Address of 192.168.0.146:

TL-SG2424P(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 a 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 a SSL Key named ssl-key from TFTP server with the IP Address of 192.168.0.146:

TL-SG2424P(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-SG2424P(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* **gigabitEthernet** *port*

no mac address-table static { **mac** *mac-addr* | **vid** *vid* | **mac** *mac-addr* **vid** *vid* | **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-SG2424P(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-SG2424P(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-SG2424P(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-SG2424P(config)# interface gigabitEthernet 1/0/1

TL-SG2424P(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-SG2424P(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:

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-SG2424P(config)# show mac address-table max-mac-count interface gigabitEthernet

Display the security configuration of port 1:

TL-SG2424P(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:

TL-SG2424P(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-SG2424P(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 00:00:00:00:23:00:00:

TL-SG2424P(config)#show mac address-table mac 00:00:00:00:23:00:00

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-SG2424P(config)# show mac address-table vlan 1

Chapter 11   System Configuration Commands

System Configuration Commands can be used to configure the system information and system IP of the switch, and to reboot and reset the switch, upgrade the switch system and commands used for device diagnose, including loopback test and cable test.

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, in the format of MM/DD/YYYY- HH: MM: SS.

Command Mode

Global Configuration Mode

Example

Configure the system time as 02/14/2012- 12:30:00:

TL-SG2424P(config)# system-time manual 02/14/2012-12:30:00

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 GMT automatically if it has connected to a NTP Server.

Syntax

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

Parameter

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

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

GMT-12 —— TimeZone for Eniwetok,Kwajalein.

GMT-11　——　TimeZone for Midway Island,Samoa.

GMT-10　——　TimeZone for Hawaii.

GMT-09　——　TimeZone for Alaska.

GMT-08　——　TimeZone for Pacific Time.

GMT-07　——　TimeZone for Mountain Time(US Canada).

GMT-06　——　TimeZone for Central Time(US Canada).

GMT-05　——　TimeZone for Eastern Time(US Canada).

GMT-04　——　TimeZone for Atlantic Time(Canada).

GMT-03　——　TimeZone for Newfoundland, Brasilia, Buenos Aires.

GMT-02　——　TimeZone for Mid-Atlantic.

GMT-01　——　TimeZone for Azores, Cape Verde Is.

GMT　——　TimeZone for Greenwich Mean Time, Dublin, London.

GMT+01　——　TimeZone for Berlin, Stockholm, Rome, Bern, Brussels.

GMT+02　——　TimeZone for Athens, Helsinki, Eastern Europe, Israel.

GMT+03　——　TimeZone for Baghdad, Kuwait, Nairobi, Riyadh, Moscow.

GMT+04　——　TimeZone for Abu Dhabi, Muscat, Kazan, Volgograd.

GMT+05　——　TimeZone for Islamabad, Karachi, Ekaterinburg.

GMT+06　——　TimeZone for Almaty, Dhaka.

GMT+07　——　TimeZone for Bangkok, Jakarta, Hanoi.

GMT+08　——　TimeZone for Beijing, Hong Kong, Perth, Singapore.

GMT+09　——　TimeZone for Tokyo, Osaka, Sapporo, Seoul, Yakutsk.

GMT+10　——　TimeZone for Brisbane, Canberra, Melbourne, Sydney.

GMT+11　——　TimeZone for Magadan, Solomon Is., New Caledonia.

GMT+12　——　TimeZone for Fiji, Kamchatka, Auckland.

GMT+13　——　TimeZone for Nuku'alofa.

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 GMT-12, 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-SG2424P(config)# system-time ntp GMT-12 133.100.9.2 139.79.100.163

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system-time dst predefined

Description

The **system-time dst predefined** command is used to select a predefined DST configuration and the configuration can be recycled.

Syntax

system-time dst predefined [USA / Australia | Europe | New-Zealand]

Parameter

USA | Australia | Europe | New-Zealand —— Predefined DST mode, with four options: USA, Australia, Europe and New-Zealand. By default, the setting is "Europe".

The DST time periods which the four predefined DST mode represents are displayed as follow:

USA: First Sunday in April, 02:00 ~ Last Sunday in October, 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: First Sunday in October, 02:00 ~ Last Sunday in March, 03:00.

Command Mode

Global Configuration Mode

Example

Configure the DST period of the switch as Europe:

TL-SG2424P(config)# system-time dst predefined Europe

system-time dst date

Description

The **system-time dst date** command is used to specify the DST configuration in Date mode. This configuration is one-off in use. By default, the current year is used as the starting time. The month to end can carry forward to next year, but the length of DST time should be less than 12 months.

Syntax

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

Parameter

    smonth —— Month to start, with the options: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec

    sday —— Day to start, ranging from 1 to 31. Please mind that the number of days depends on the month.

    stime —— Time to start, in the format of hh:mm.

    emonth —— Month to end, with the options: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec

    eday —— Day to end, ranging from 1 to 31. Please mind that the number of days depends on the month.

    etime —— Time to end, in the format of hh:mm.

    offset —— Specify the time adding in minutes when Daylight Saving Time comes. The range of value depends and the default value is 60 minutes. It is optional.

Command Mode

Global Configuration Mode

Example

Configure the DST start time as 00:00 am on April 1st, the end time as 00:00 am on October 1st and the offset as 30 minutes:

TL-SG2424P(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 specify the DST configuration in recurring mode. This configuration is recurring in use. The month to end can carry forward to next year, but the time length should be less than 12 months.

Syntax

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

Parameter

    sweek —— Week to start, with the options: first, second, third, fourth, last.

    sday —— Day to start, with the options: Sun, Mon, Tue, Wed, Thu, Fri, Sat.

smonth—— Month to start, with options: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

stime —— Time to start, in the format of: hh:mm.

eweek —— Week to end, with options: first, second, third, fourth, last.

eday —— Day to end, with options: Sun, Mon, Tue, Wed, Thu, Fri, Sat.

emonth —— Month to end, with options: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

etime —— Time to end, in the format of: hh:mm.

offset —— Specify the time adding in minutes when Daylight Saving Time comes. The range of value depends and the default value is 60 minutes. It is optional.

Command Mode

Global Configuration Mode

Example

Specify the DST start time of the switch as 2:00 am on the first Sunday in May, the end time as 2:00 am on the last Sunday in October and the offset as 45 minutes:

TL-SG2424P(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 *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-SG2424P".

Command Mode

Global Configuration Mode

Example

Configure the system name as TPLINK:

```
TL-SG2424P(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 *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-SG2424P(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 *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:

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-SG2424P# 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-SG2424P# 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-SG2424P# copy running-config startup-config

copy startup-config tftp

Description

The **copy startup-config tftp** command is used to backup the configuration file from 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 from TFTP server with the IP 192.168.0.148 and name this file config.cfg:

TL-SG2424P# copy startup-config tftp ip-address 192.168.0.148 **filename** config.cfg

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-SG2424P# copy startup-config tftp ip-address 192.168.0.148 **filename** config.cfg

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-SG2424P# 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.

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

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

-i *count* —— 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-SG2424P# 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 *url* [*maxHops*]

Parameter

url —— 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-SG2424P# tracert 192.168.0.131 20

loopback interface

Description

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

Syntax

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

Parameter

port —— The number of Ethernet port which is selected for loopback test.

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:

TL-SG2424P# loopback interface gigabitEthernet 1/0/1 internal

Do an External-type loopback test for port 1:

TL-SG2424P# loopback interface gigabitEthernet 1/0/1 external

show system-time

Description

The **show system-time** command is used to display the current time system and its source.

Syntax

show system-time

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the time information of the switch:

TL-SG2424P# 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-SG2424P# 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-SG2424P# show system-time ntp

show system-info

Description

The **show system-info** command is used to display system description, system 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-SG2424P# show system-info

show cable-diagnostics interface

Description

The **show cable-diagnostics interface** 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-SG2424P# 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 2:

TL-SG2424P(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 effect 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, 2, 3, 6, 7 and 9 at the same time by adding them to one port-list:

TL-SG2424P(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-SG2424P(config)# interface gigabitEthernet 1/0/5

TL-SG2424P(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 3:

TL-SG2424P(config)# interface gigabitEthernet 1/0/3

TL-SG2424P(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-SG2424P(config)# interface gigabitEthernet 1/0/3

TL-SG2424P(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-SG2424P(config)# interface gigabitEthernet 1/0/3

TL-SG2424P(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 3:

TL-SG2424P(config)# interface gigabitEthernet 1/0/3

TL-SG2424P(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. 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-SG2424P(config)# interface gigabitEthernet 1/0/5

TL-SG2424P(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 —— Select the bandwidth for receiving multicast packets on the port. The packet traffic exceeding the bandwidth will be discarded. 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-SG2424P(config)# interface gigabitEthernet 1/0/5

TL-SG2424P(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 —— Select the bandwidth for receiving UL-Frame on the port. The packet traffic exceeding the bandwidth will be discarded. 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-SG2424P(config)# interface gigabitEthernet 1/0/5

TL-SG2424P(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:1-102400 for the megaport, 1-1024000 for the gigaport.

egress-rate —— Specify the bandwidth for sending packets. Range:1-102400 for the megaport, 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-SG2424P(config)# interface gigabitEthernet 1/0/5

TL-SG2424P(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-SG2424P(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-SG2424P(config)# show interface status

Display the connective-status of port 1:

TL-SG2424P(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-SG2424P(config)# show interface counters

Display the statistic information of port 2:

TL-SG2424P(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-SG2424P(config)# show interface description

Display the description of port 2:

TL-SG2424P(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-SG2424P# show interface flowcontrol

Display the flow-control information of port 2:

TL-SG2424P# 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-SG2424P(config)# show interface configuration

Display the configurations of port 2:

TL-SG2424P(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:

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 4:

TL-SG2424P(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 CoS (Class of Service) based on port. To return to the default configuration, please use **no qos** command.

Syntax

qos *cos-id*

no qos

Parameter

cos-id —— The priority of port. It ranges from 0 to 7, which represent CoS0-CoS7 respectively. By default, the priority is 0.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

User Guidelines

Port priority is one property of the port. When the port priority is specified, the data will be classified into the egress queue based on the CoS value of the ingress port and the mapping relation between the CoS and TC in IEEE 802.1P.

Example

Configure the priority of port 5 as 3:

TL-SG2424P(config)# interface gigabitEthernet 1/0/5

TL-SG2424P(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-SG2424P(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 CoS 0 to CoS 7.

tc-id —— The egress queue the packets with tag are mapped to. It ranges from 0 to 3, which represents TC0, TC1, TC2, 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 CoS 5 to TC 2.:

TL-SG2424P(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* } { *cos-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.

cos-id —— The priority level the packets with tag are mapped to, which ranges from CoS 0 to CoS 7.

Command Mode

Global Configuration Mode

User Guidelines

By default, the mapping relation between tag and the egress queue is: (0-7)-CoS 0, (8-15)-CoS 1, (16-23)-CoS 2, (24-31)-CoS 3, (32-39)-CoS 4, (40-47)-CoS 5, (48-55)-CoS 6, (56-63)-CoS 7.

Example

Map DSCP values 10-12 to CoS 2:

TL-SG2424P(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-SG2424P(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 5:

TL-SG2424P# show qos interface gigabitEthernet 1/0/5

Display the configuration of QoS for ports 1-4:

TL-SG2424P# 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-SG2424P# 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-SG2424P# 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-SG2424P# 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-SG2424P# 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 as the monitoring port:

TL-SG2424P(config)#   monitor   session   1   destination   interface gigabitEthernet 1/0/1

Delete the monitor session 1:

TL-SG2424P(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-SG2424P(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-SG2424P(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-SG2424P(config)# show monitor session 1

Display the monitoring configuration of all monitor sessions:

TL-SG2424P(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, 2, and 4 to the forward port list of port 5:

TL-SG2424P(config)# interface gigabitEthernet 1/0/5

TL-SG2424P(config-if)# port isolation gi-forward-list 1/0/1-2,1/0/4

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

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(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 2:

TL-SG2424P# show port isolation interface gigabitEthernet 1/0/2

Display the forward-list of all Ethernet ports:

TL-SG2424P# 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-SG2424P(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-SG2424P(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 3 to 100 and the default value is 3.

Command Mode

Global Configuration Mode

Example

Configure the recovery-time as 3 times of detection interval:

TL-SG2424P(config)# loopback-detection recovery-time 3

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-SG2424P(config)# interface range gigabitEthernet 1/0/1-3

TL-SG2424P(Config-if)# 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-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(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-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(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-SG2424P# 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-SG2424P# show loopback-detection interface

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

TL-SG2424P# show loopback-detection interface gigabitEthernet 1/0/5

Chapter 17   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 disabe please use no dhcp filtering command.

Syntax

ip dhcp filtering

no ip dhcp filtering

Command Mode

Global Configuration Mode

Example

Enable the DHCP Filtering:

TL-SG2424P(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-SG2424P(config)#interface gigabitEthernet 1/0/1

TL-SG2424P(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-SG2424P#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-SG2424P#show ip dhcp filtering interface

Display the DHCP Filtering configuration information of port 5:

TL-SG2424P#show ip dhcp filtering interface gigabitEthernet 1/0/5

Chapter 18   PoE Commands

PoE (Power over Ethernet) technology describes a system to transmit electrical power along with data to remote devices over standard twisted-pair cable in an Ethernet network. It is especially useful for supplying power to IP telephones, wireless LAN access points, cameras and so on.

power inline consumption (global)

Description

The **power inline consumption** command is used to configure the max power the PoE switch can supply globally.

Syntax

power inline consumption *power-limit*

Parameter

power-limit ——The max power the PoE switch can supply, ranging from 1 to 180w. By default, the value is 180.

Command Mode

Global Configuration Mode

Example

Configure the max power the PoE switch can supply as 160w:

TL-SG2424P(config)# power inline consumption 160

power profile

Description

The **power profile** command is used to create a PoE profile for the switch. To delete the configured PoE profile configuration, please use **no power profile** command. PoE Profile is a short cut for the configuration of the PoE port. In a PoE profile, the PoE status, PoE priority and power limit are configured. You can specify a PoE profile for each PoE port individually.

Syntax

power profile *name* [**supply** { enable | disable } [**priority** { low | middle | high } [**consumption** { *power-limit* | auto | class1 | class2 | class3 | class4 }]]]
no power profile *name*

Parameter

name —— The PoE profile name, ranging from 1 to 16 characters. If the name being assigned contains spaces then put it inside double quotes.

supply —— The PoE status of the port in the profile. By default, the PoE status is "enable".

priority —— The PoE priority of the port in the profile. The priority levels include "high", "middle" and "low" in descending order. When the supply power exceeds the system power limit, the PD linked to the port with lower priority will be disconnected. By default, the PoE priority is "low".

consumption —— The max power the port in the profile can supply, with five options: "power-limit", "auto", "class1", "class2", "class3" and "class4". "Power-limit" indicates you can manually enter a value ranging from 1 to 180. The value is in the unit of 0.1 watt. For instance, if you want to configure the max power as 5w, you should enter 50. "Auto" indicates the value is assigned automatically by the PoE switch. "Class1" represents 4w. "Class2" represents 7w. "Class3" represents 15.4w. "Class4" represents 30w.

Command Mode

Global Configuration Mode

Example

Create a PoE profile named "IP Camera" whose PoE status is "enable", PoE priority is "low" and the power limit is "5w":

TL-SG2424P(config)# power profile "IP Camera" **supply** enable **priority** low **consumption** 50

power time-range

Description

The **power time-range** command is used to create PoE time-range for the switch and enter Power Time-range Create Configuration Mode. After a PoE time-range is created, you need to specify the date and time which has three mode options: absolute, periodic and holiday. A PoE time-range can implement multiple time-ranges simultaneously as long as they do not conflict with each other. To delete the corresponding PoE time-range configuration, please use **no power time-range** command. The PoE time-range determines the power supply time of the switch. You can specify a PoE time-range for each PoE port individually.

Syntax

power time-range *name*

no power time-range *name*

Parameter

name —— The PoE time-range name, ranging from 1 to 16 characters.

Command Mode

Global Configuration Mode

Example

Create a PoE time-range named "tRange1" for the switch:

TL-SG2424P(config)# power time-range tRange1

power holiday

Description

The **power holiday** command is used to create PoE holiday for the switch. To delete the corresponding PoE holiday configuration, please use **no power holiday** command.

Syntax

power holiday *name* **start-date** *start-date* **end-date** *end-date*

no power holiday *name*

Parameter

name —— The PoE holiday name, ranging from 1 to 16 characters.

start-date —— The start date of the PoE holiday, in the format of MM/DD, for instance, 05/01.

end-date ——The end date of the PoE holiday, in the format of MM/DD, for instance, 05/01.

Command Mode

Global Configuration Mode

Example

Create a PoE holiday named "National Day", and configure the start date as October 1st and the end date as October 3rd:

TL-SG2424P(config)# power holiday NationalDay **start-date** 10/01 **end-date** 10/03

absolute

Description

The **absolute** command is used to create an absolute mode time-range for the PoE time-range of the switch. The switch will supply power when the specified absolute time occurs. To delete the corresponding absolute mode time-range configuration, please use **no absolute** command.

Syntax

absolute start *start-date* **end** *end-date*

no absolute

Parameter

start-date —— The start date in Absoluteness Mode, in the format of MM/DD/YYYY.

end-date —— The end date in Absoluteness Mode, in the format of MM/DD/YYYY.

Command Mode

Power Time-range Create Configuration Mode

Example

Create an absolute mode time-range for the PoE of the switch and specify the date extending from May 5, 2012 through Oct. 5, 2012:

TL-SG2424P(config)# power time-range tRange1

TL-SG2424P(config-pwr-time-range)# absolute start 05/05/2012 **end** 10/05/2012

periodic

Description

The **periodic** command is used to create a periodic mode time-range for the PoE time-range of the switch. The switch will supply power when the specified periodic time occurs. To delete the corresponding periodic mode time-range configuration, please use **no periodic** command.

Syntax

periodic { [**week-date** *week-day*] [**time-slice1** *time-slice*] [**time-slice2** *time-slice*] [**time-slice3** *time-slice*] [**time-slice4** *time-slice*] }

no periodic [week-date | time-slice]

Parameter

week-day —— Periodic Mode, with "1-7", "daily", "off-day" and "working-day" options. "1-7" should be entered in the format of 1-3, 7 which represent Monday, Tuesday, Wednesday and Sunday. "Daily" represents every day. "Off-day" represents weekend. "Working-day" represents working day.

time-slice —— Create time-slice, in the format of HH:MM-HH:MM.

Command Mode

Power Time-range Create Configuration Mode

Example

Configure the PoE time-range named "tRange2" as a periodic time-range and specify the date and time as 8:30 to 12:00 on weekends:

TL-SG2424P(config)# power time-range tRange2

TL-SG2424P(config-pwr-time-range)# periodic week-date off-day **time-slice1** 08:30-12:00

holiday

Description

The **holiday** command is used to create holiday mode time-range for the PoE time-range of the switch. When the PoE holiday which is excluded from PoE time-range occurs, the switch will not supply power.

Syntax

holiday { exclude | include }

Parameter

exclude —— Indicates the PoE time-range of the switch excluding the PoE holiday. When PoE holiday occurs, the switch will not supply power.

include —— Indicates the PoE time-range of the switch including the PoE holiday. It is the default option. When PoE holiday occurs, the switch will supply power.

Command Mode

Power Time-range Create Configuration Mode

Example

Create a holiday mode time-range for the PoE time-range named "tRange3" and configure PoE time-range of the switch excludes the PoE holiday:

TL-SG2424P(config)# power time-range tRange3

TL-SG2424P(config-pwr-time-range)# holiday exclude

power inline consumption (interface)

Description

The **power inline consumption** command is used to configure the power limit the corresponding port can supply.

Syntax

power inline consumption { *power-limit* | auto | class1 | class2 | class3 | class4 }

Parameter

power-limit ——The max power the port in the profile can supply, with five options: "power-limit", "auto", "class1", "class2", "class3" and "class4". "Power-limit" indicates you can manually enter a value ranging from 1 to 180. The value is in the unit of 0.1 watt. For instance, if you want to configure the max power as 5w, you should enter 50. "Auto" indicates the value is assigned automatically by the PoE switch. "Class1" represents 4w. "Class2" represents 7w. "Class3" represents 15.4w. "Class4" represents 30w.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Configure the power limit as "5w" for port 2:

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(config-if)# power inline consumption 50

power inline priority

Description

The **power inline priority** command is used to configure the PoE priority for the corresponding port

Syntax

power inline priority { low | middle | high }

Parameter

priority ——The PoE priority of the port. The priority levels include "high", "middle" and "low" in descending order. When the supply power exceeds the system power limit, the PD linked to the port with lower priority will be disconnected. By default, the priority level is "low".

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Configure the PoE priority as "low" for port 2:

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(config-if)# power inline priority low

power inline supply

Description

The **power inline supply** command is used to configure the PoE status of the corresponding port.

Syntax

power inline supply { enable | disable }

Parameter

enable | disable —— The PoE status of the port. By default, the PoE status is "enable".

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the PoE feature for port 2:

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(config-if)# power inline supply enable

power inline profile

Description

The **power inline profile** command is used to bind a PoE profile to the corresponding port. To cancel the bind relation, please use **no power inline profile** command.

Syntax

power inline profile *name*

no power inline profile

Parameter

name —— The name of the PoE profile to be bound to the port. If the name being assigned contains spaces then put it inside double quotes.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Bind the PoE profile named "IP Camera" to port 2:

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(config-if)# power inline profile "IP Camera"

power inline time-range

Description

The **power inline time-range** command is used to bind a PoE time-range to the corresponding port. To cancel the bind relation, please use **no power inline time-range** command.

Syntax

power inline time-range *name*

no power inline time-range

Parameter

name —— The name of the PoE time-range to be bound to the port.

Command Mode

Interface Configuration Mode

Example

Bind the PoE time-range named "tRange2" to port 2:

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(config-if)# power inline time-range tRange2

show power inline

Description

The **show power inline** command is used to display the global PoE information of the system.

Syntax

show power inline

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the PoE information of the system:

TL-SG2424P# show power inline

show power inline configuration interface

Description

The **show power inline configuration interface** command is used to display the PoE configuration of the certain port.

Syntax

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

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the PoE configuration of all ports:

TL-SG2424P# show power inline configuration interface

show power inline information interface

Description

The **show power inline information** command is used to display the PoE information of the certain port.

Syntax

show power inline information interface [**gigabitEthernet** port]

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the PoE information of all ports:

> **TL-SG2424P# show power inline information interface**

show power profile

Description

The **show power profile** command is used to display the defined PoE profile.

Syntax

> **show power profile**

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the defined PoE profile:

> **TL-SG2424P# show power profile**

show power holiday

Description

The **show power holiday** command is used to display the defined PoE holiday.

Syntax

> **show power holiday**

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the defined PoE holiday:

> **TL-SG2424P# show power holiday**

show power time-range

Description

The **show power time-range** command is used to display the configuration of PoE time-range.

Syntax

show power time-range

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the configuration of PoE time-range:

TL-SG2424P# show power time-range

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-SG2424P(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 2:

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

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, and configure the Port Priority as 64, ExtPath Cost as 100, IntPath Cost as 100, and then enable Edge Port:

TL-SG2424P(config)# interface gigabitEthernet 1/0/1

TL-SG2424P(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-SG2424P(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-SG2424P(config)# spanning-tree mst configuration

instantce

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-SG2424P(config)# spanning-tree mst configuration

TL-SG2424P(config-mst)# instance 1 **vlan** 1-100

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

TL- SG2424P(config)# spanning-tree mst configuration

TL- SG2424P(config-mst)# no instance 1

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

TL-SG2424P(config)# spanning-tree mst configuration

TL-SG2424P(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-SG2424P(config)# spanning-tree mst configuration

TL-SG2424P(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-SG2424P(config)# spanning-tree mst configuration

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-SG2424P(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-SG2424P(config)# interface gigabitEthernet 1/0/1

  TL-SG2424P(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-SG2424P(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-SG2424P(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-SG2424P(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:

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-SG2424P(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 2:

> **TL-SG2424P(config)# interface gigabitEthernet** 1/0/2
>
> **TL-SG2424P(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 2:

> **TL-SG2424P(config)# interface gigabitEthernet** 2
>
> **TL-SG2424P(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 2:

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(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 2:

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(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

>Global Configuration Mode

Example

>Enable the TC Protect of Spanning Tree for port 2:

>**TL-SG2424P(config)# interface gigabitEthernet** 1/0/2

>**TL-SG2424P(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 2:

>**TL-SG2424P(config)# interface gigabitEthernet** 1/0/2

>**TL-SG2424P(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-SG2424P(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-SG2424P(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-SG2424P(config)# show spanning-tree interface

Display the spanning-tree information of port 2:

TL-SG2424P(config)# show spanning-tree interface gigabitEthernet 1/0/2

Display the spanning-tree mode information of port 2:

TL-SG2424P(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-SG2424P(config)# show spanning-tree interface-security

Display the protect information of port 1:

TL-SG2424P(config)#show   spanning-tree   interface-security

gigabitEthernet 1/0/1

Display the interface security bpdufilter information:

TL-SG2424P(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 related information of MST Instance 1:

TL-SG2424P(config)# show spanning-tree mst instance 1

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-SG2424P(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 3:

TL-SG2424P(config)# interface gigabitEthernet 1/0/3

TL-SG2424P(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 3:

TL-SG2424P(config)# interface gigabitEthernet 1/0/3

TL-SG2424P(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-SG2424P(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 VLAN1-3, and set the Leave time as 15 seconds for VLAN1-2:

TL-SG2424P(config)# ip igmp snooping vlan-config 1-3 **rtime** 300

TL-SG2424P(config)# ip igmp snooping vlan-config 1-3 **mtime** 200

TL-SG2424P(config)# ip igmp snooping vlan-config 1-2 **ltime** 15

Add static multicast IP address 225.0.0.1, which correspond to VLAN 2, and configure the forward port as port 1-3:

TL-SG2424P(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-SG2424P(config)# ip igmp snooping multi-vlan-config 3 **rtime** 100

TL-SG2424P(config)# ip igmp snooping multi-vlan-config 3 **mtime** 100

TL-SG2424P(config)# ip igmp snooping multi-vlan-config 3 **ltime** 3

TL-SG2424P(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-SG2424P(config)# interface gigabitEthernet** 1/0/3
>
> **TL-SG2424P(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-SG2424P(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 3:

TL-SG2424P(config)# interface gigabitEthernet 1/0/3

TL-SG2424P(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-SG2424P(config)# interface range gigabitEthernet 1/0/2-5

TL-SG2424P(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 3:

> **TL-SG2424P(config)# interface gigabitEthernet** 1/0/3

> **TL-SG2424P(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-SG2424P# 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-SG2424P# show ip igmp snooping interface gigabitEthernet filter

Display the IGMP basic configuration of port 2:

TL-SG2424P# show ip igmp snooping interface gigabitEthernet 1/0/2 basic-config

Display the IGMP packet statistics of ports 1-4:

TL-SG2424P# 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-SG2424P# **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-SG2424P# 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 VALN.

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.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the information of all IGMP snooping groups:

TL-SG2424P#show ip igmp snooping groups

Display all the multicast entries in VLAN 5:

TL-SG2424P(config)#show ip igmp snooping groups vlan 5

Display the count of multicast entries in VLAN 5:

TL-SG2424P(config)#show ip igmp snooping groups vlan 5 count

Display the dynamic multicast groups of VLAN 5

TL-SG2424P(config)#show ip igmp snooping groups vlan 5 dynamic

Display the static multicast groups of VLAN 5

TL-SG2424P(config)#show ip igmp snooping groups vlan 5 static

Display the count of dynamic multicast entries of VLAN 5

TL-SG2424P(config)#show ip igmp snooping groups vlan 5 dynamic count

Display the count of static multicast entries of VLAN 5

TL-SG2424P(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-SG2424P(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-SG2424P(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-SG2424P(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-SG2424P(config)# snmp-server group group1 **smode** v3 **slev** authNoPriv

read viewDefault **write** viewDefault **notify** viewDefault

Delete group 1:

TL-SG2424P(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 a 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-SG2424P(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-SG2424P(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-SG2424P(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-SG2424P(config)# snmp-server engineID local 1234567890 **remote** abcdef123456

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 Gi1/0/2 and the sample interval as 100 seconds for the entry 1-3:

TL-SG2424P(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-SG2424P(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-SG2424P(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-SG2424P# 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-SG2424P# 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-SG2424P# 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-SG2424P# 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-SG2424P# 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-SG2424P# 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-SG2424P# 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-SG2424P# 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 entry1-4:

TL-SG2424P# 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-SG2424P# show rmon alarm 1-2

Chapter 22   LLDP Commands

LLDP function enables network devices to advertise their own device information periodically to neighbors on the same LAN. The information of the LLDP devices in the LAN can be stored by its neighbor in a standard MIB, so it is possible for the information to be accessed by a Network Management System (NMS) such as SNMP.

lldp

Description

The **lldp** command is used to enable LLDP function. To disable the LLDP function, please use **no lldp** command.

Syntax

lldp

no lldp

Command Mode

Global Configuration Mode

Example

Enable LLDP function globally:

TL-SG2424P(config)# lldp

lldp hold-multiplier

Description

The **lldp hold-multiplier** command is used to configure the Hold Multiplier parameter. The aging time of the local information in the neighbor device is determined by the actual TTL value used in the sending LLDPDU. TTL = Hold Multiplier * Transmit Interval. To return to the default configuration, please use **no lldp hold-multiplier** command.

Syntax

lldp hold-multiplier *multiplier*

no lldp hold-multiplier

Parameter

multiplier —— Configure the Hold Multiplier parameter. It ranges from 2 to 10. By default, it is 4.

Command Mode

Global Configuration Mode

Example

Specify Hold Multiplier as 5:

TL-SG2424P(config)# lldp hold-multiplier 5

lldp timer

Description

The **lldp timer** command is used to configure the parameters about transmission. To return to the default configuration, please use **no lldp timer** command.

Syntax

lldp timer { **tx-interval** *tx-interval* | **tx-delay** *tx-delay* | **reinit-delay** *reinit-delay* | **notify-interval** *notify-interval* | **fast-count** *fast-count* }

no lldp timer { tx-interval | tx-delay | reinit-delay | notify-interval | fast-count }

Parameter

tx-interval —— Configure the interval for the local device to transmit LLDPDU to its neighbors. The value ranges from 5 to 32768 and the default value is 30 seconds.

tx-delay —— Configure a value from 1 to 8192 in seconds to specify the time for the local device to transmit LLDPDU to its neighbors after changes occur so as to prevent LLDPDU being sent frequently. By default, it is 2 seconds.

reinit-delay —— This parameter indicates the amount of delay from when LLDP status becomes "disable" until re-initialization will be attempted. The value ranges from 1 to 10 and the default value is 3.

notify-interval —— Specify the interval of Trap message which will be sent from local device to network management system. The value ranges from 5 to 3600 and the default value is 5 seconds.

fast-count —— When the port's LLDP state transforms from Disable (or Rx_Only) to Tx&Rx (or Tx_Only), the fast start mechanism will be enabled, that is, the transmit interval will be shorten to a second, and several LLDPDUs will

be sent out (the number of LLDPDUs equals this parameter). The value ranges from 1 to 10 and the default value is 3.

Command Mode

Global Configuration Mode

Example

Specify the Transmit Interval of LLDPDU as 45 seconds and Trap message to NMS as 120 seconds:

TL-SG2424P(config)# lldp timer tx-interval 45

TL-SG2424P(config)# lldp timer notify-interval 120

lldp med-fast-count

Description

The **lldp med-fast-count** command is used to configure the number of the LLDP-MED frames that will be sent out. When LLDP-MED fast start mechanism is activated, multiple LLDP-MED frames will be transmitted based on this parameter. The default value is 4. To return to the default configuration, please use **no lldp med-fast-count** command.

Syntax

lldp med-fast-count *count*

no lldp med-fast-count

Parameter

count —— Configure the Fast Start Count parameter. It ranges from 1 to 10. By default, it is 4.

Command Mode

Global Configuration Mode

Example

Specify Fast Start Count as 5:

TL-SG2424P(config)# lldp med-fast-count 5

lldp receive

Description

The **lldp receive** command is used to enable the designated port to receive LLDPDU. To disable the function, please use **no lldp receive** command.

Syntax

lldp receive

no lldp receive

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable port 1 to receive LLDPDU:

TL-SG2424P(config)# interface gigabitEthernet 1/0/1

TL-SG2424P(config-if)# lldp receive

lldp transmit

Description

The **lldp transmit** command is used to enable the designated port to transmit LLDPDU. To disable the function, please use **no lldp transmit** command.

Syntax

lldp transmit

no lldp transmit

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable port 1 to transmit LLDPDU:

TL-SG2424P(config)# interface gigabitEthernet 1/0/1

TL-SG2424P(config-if)# lldp transmit

lldp snmp-trap

Description

The **lldp snmp-trap** command is used to enable the port's SNMP notification. If enabled, the port will notify the trap event to network management system. To disable the ports' SNMP notification, please use **no lldp snmp-trap** command.

Syntax

lldp snmp-trap

no lldp snmp-trap

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the SNMP notification for port 1:

TL-SG2424P(config)# interface gigabitEthernet 1/0/1

TL-SG2424P(config-if)# lldp snmp-trap

lldp tlv-select

Description

The **lldp tlv-select** command is used to configure TLVs to be included in outgoing LLDPDU. To exclude TLVs, please use **no lldp tlv-select** command. By default, All TLVs are included in outgoing LLDPDU.

Syntax

lldp tlv-select [port-description | system-capability | system-description | system-name | management-address | port-vlan | protocol-vlan | vlan-name | link-aggregation | mac-phy-cfg | max-frame-size | power | all]

no lldp tlv-select [port-description | system-capability | system-description | system-name | management-address | port-vlan | protocol-vlan | vlan-name | link-aggregation | mac-phy-cfg | max-frame-size | power | all]

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Exclude "management-address" and "port-vlan-id" TLVs in LLDPDU outgoing from port 1:

TL-SG2424P(config)# interface gigabitEthernet 1/0/1

TL-SG2424P(config-if)# no lldp tlv-select management-address port-vlan

lldp med-location

Description

The lldp med-location command is used to configure the Location Identification TLV's content in outgoing LLDPDU of the port.

Syntax

lldp med-location { **emergency-number** *identifier* | **civic-address** { [language *language*] [province-state *province-state*] [county *county*] [city *city*] [street *street*] [house-number *house-number*] [name *name*] [postal-zipcode *postal-zipcode*] [room-number *room-number*] [post-office-box *post-office-box*] [additional *additional*] [country-code *country-code*] [what { dhcp-server | endpoint | switch }] } }

Parameter

emergency-number —— Emergency Call Service ELIN identifier, which is used during emergency call setup to a traditional CAMA or ISDN trunk-based PSAP. The length of this field ranges from 10 to 25 characters.

civic-address —— The civic address is defined to reuse the relevant sub-fields of the DHCP option for civic Address based Location Configuration Information as specified by IETF.

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Configure the civic address in the Location Identification TLV's content in outgoing LLDPDU of port 2. Configure the language as English and city as London:

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(config-if)# lldp med-location civic-address language English city London

lldp med-status

Description

The **lldp med-status** command is used to enable the LLDP-MED feature for the corresponding port. After the LLDP-MED feature is enabled, the port's Admin

Status will be changed to Tx&Rx. To disable the LLDP-MED feature for the corresponding port, please use **no lldp med-status** command.

Syntax

lldp med-status

no lldp med-status

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Enable the LLDP-MED feature for port 2:

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(config-if)# lldp med-status

lldp med-tlv-select

Description

The **lldp med-tlv-select** command is used to configure LLDP-MED TLVs to be included in outgoing LLDPDU for the corresponding port. To exclude LLDP-MED TLVs, please use **no lldp med-tlv-select** command. By default, All TLVs are included in outgoing LLDPDU.

Syntax

lldp med-tlv-select { [inventory-management] [location] [network-policy] [power-management] [all] }

no lldp med-tlv-select { [inventory-management] [location] [network-policy] [power-management] [all] }

Command Mode

Interface Configuration Mode (interface gigabitEthernet / interface range gigabitEthernet)

Example

Exclude "network policy" and "inventory" TLVs in LLDPDU outgoing from port 2:

TL-SG2424P(config)# interface gigabitEthernet 1/0/2

TL-SG2424P(config-if)# no lldp med-tlv-select network-policy

inventory-management

show lldp

Description

The **show lldp** command is used to display the global configuration of LLDP and LLDP-MED fast start repeat count number.

Syntax

show lldp

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the global configuration of LLDP and LLDP-MED fast start repeat count number:

TL-SG2424P# show lldp

show lldp interface

Description

The **show lldp interface** command is used to display LLDP and LLDP-MED configuration of the corresponding port. By default, the configuration of all the ports will be displayed.

Syntax

show lldp interface [**gigabitEthernet** *port*]

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the LLDP and LLDP-MED configuration of port 1:

TL-SG2424P# show lldp interface gigabitEthernet 1/0/1

show lldp local-information interface

Description

The **show lldp local-information interface** command is used to display the LLDP and LLDP-MED local information of the corresponding port. By default, the information of all the ports will be displayed.

Syntax

show lldp local-information interface [**gigabitEthernet** *port*]

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the LLDP and LLDP-MED local information of port 1:

TL-SG2424P# show lldp local-information interface gigabitEthernet 1/0/1

show lldp neighbor-information interface

Description

The **show lldp neighbor-information interface** command is used to display the LLDP and LLDP-MED neighbor information of the corresponding port. By default, the neighbor information of all the ports will be displayed.

Syntax

show lldp neighbor-information interface [**gigabitEthernet** *port*]

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the LLDP and LLDP-MED neighbor information of port 1:

TL-SG2424P# show lldp neighbor-information interface gigabitEthernet 1/0/1

show lldp traffic interface

Description

The **show lldp traffic interface** command is used to display the LLDP statistic information between the local device and neighbor device of the corresponding port. By default, the LLDP statistic information of all the ports will be displayed.

Syntax

show lldp traffic interface [**gigabitEthernet** *port*]

Parameter

port —— The Ethernet port number.

Command Mode

Privileged EXEC Mode and Any Configuration Mode

Example

Display the LLDP statistic information of port 1:

TL-SG2424P# show lldp traffic interface gigabitEthernet 1/0/1