



CLI Reference Guide

TL-SG2216/TL-SG2424

Gigabit Smart Switch



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CONTENTS

Preface	1
Chapter 1 Using the CLI	3
1.1 Accessing the CLI	3
1.2 CLI Command Modes	4
1.3 Security Levels	6
1.4 Conventions	7
1.4.1 Format Conventions	7
1.4.2 Special Characters	7
1.4.3 Parameter Format	7
Chapter 2 User Interface	8
enable	8
enable password	8
disable	9
configure	9
exit	9
end	10
Chapter 3 IEEE 802.1Q VLAN Commands	11
vlan database	11
vlan	11
interface vlan	12
description	12
switchport type	13
switchport allowed vlan	13
switchport pvid	14
switchport general egress-rule	14
show vlan	15
show interface switchport	15
Chapter 4 LAG Commands	16
interface link-aggregation	16
interface range link-aggregation	16
link-aggregation	17
link-aggregation hash-algorithm	18
description	18

show interface link-aggregation	19
Chapter 5 User Manage Commands.....	20
user add	20
user remove	21
user modify status	21
user modify type	22
user modify password.....	22
user access-control disable	23
user access-control ip-based.....	23
user access-control mac-based.....	24
user access-control port-based	24
user max-number	25
user idle-timeout.....	25
show user account-list.....	26
show user configuration.....	26
Chapter 6 Log Commands	28
logging local buffer	28
logging local flash.....	29
logging clear	29
logging loghost	30
show logging local-config	31
show logging loghost.....	31
show logging buffer level	32
show logging flash level.....	32
Chapter 7 Address Commands.....	34
bridge address port-security	34
bridge address static	35
bridge aging-time.....	36
bridge address filtering	36
show bridge port-security	37
show bridge address	37
show bridge aging-time	38
Chapter 8 System Commands	39
system-descript	39
system-time manual	39

system-time dst predefined	40
system-time dst date	41
system-time dst recurring	42
ip address.....	43
ip management-vlan	43
ip dhcp-alloc	44
ip bootp-alloc	44
reset	45
reboot	45
user-config backup	45
user-config load	46
user-config save	46
firmware upgrade	47
ping	47
tracert	48
loopback	49
show system-info.....	49
show ip address	49
show system-time.....	50
show system-time dst.....	50
show system-time source	51
show system-time mode.....	51
Chapter 9 Ethernet Configuration Commands	52
interface ethernet	52
interface range ethernet	52
description	53
shutdown	53
flow-control	54
negotiation	54
storm-control	55
storm-control disable bc-rate	56
storm-control disable mc-rate	56
storm-control disable ul-rate	57
port rate-limit	57
port rate-limit disable ingress.....	58
port rate-limit disable egress	58
show interface configuration.....	59

show interface status	59
show interface counters	60
show storm-control ethernet	60
show port rate-limit	61
Chapter 10 QoS Commands.....	62
qos	62
qos dot1p config	62
qos dscp enable	63
qos dscp config	64
qos scheduler	65
show qos port-based	66
show qos dot1p	66
show qos dscp	66
show qos scheduler	67
Chapter 11 Port Mirror Commands	68
mirror add	68
mirror remove group	69
mirror remove mirrored	69
show mirror	70
Chapter 12 Port Isolation Commands	71
port isolation	71
show port isolation	71
Chapter 13 MSTP Commands	73
spanning-tree global	73
spanning-tree common-config	74
spanning-tree region	75
spanning-tree msti	76
spanning-tree msti	77
spanning-tree tc-defend	78
spanning-tree security	78
spanning-tree mcheck	79
show spanning-tree global-info	80
show spanning-tree global-config	80
show spanning-tree port-config	80
show spanning-tree region	81

show spanning-tree msti config	81
show spanning-tree msti port	82
show spanning-tree security tc-defend	82
show spanning-tree security port-defend.....	83
Chapter 14 IGMP Commands	84
igmp-snooping global	84
igmp-snooping config	84
igmp-snooping vlan-config-add	85
igmp-snooping vlan-config.....	86
igmp-snooping multi-vlan-config.....	87
igmp-snooping static-entry-add	88
igmp-snooping filter-add	89
igmp-snooping filter-config	89
igmp-snooping filter	90
show igmp-snooping global-config	91
show igmp-snooping port-config.....	91
show igmp-snooping vlan-config	92
show igmp-snooping multi-vlan	92
show igmp-snooping multi-ip-list	93
show igmp-snooping filter-ip-addr	93
show igmp-snooping port-filter	93
show igmp-snooping packet-stat	94
show igmp-snooping packet-stat-clear	94
Chapter 15 SNMP Commands.....	95
snmp global	95
snmp view-add	96
snmp group-add	96
snmp user-add	98
snmp community-add	99
snmp notify-add	100
snmp-rmon history sample-cfg	101
snmp-rmon history owner	102
snmp-rmon history enable	102
snmp-rmon event user.....	103
snmp-rmon event description	103
snmp-rmon event type.....	104

snmp-rmon event owner	105
snmp-rmon event enable	105
snmp-rmon alarm config	106
snmp-rmon alarm owner	107
snmp-rmon alarm enable	108
show snmp global-config	108
show snmp view	109
show snmp group	109
show snmp user	109
show snmp community	110
show snmp destination-host	110
show snmp-rmon history	110
show snmp-rmon event	111
show snmp-rmon alarm	111

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-SG2216/TL-SG2424 Gigabit Smart Switch.

Overview of this Guide

Chapter 1: Using the CLI

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

Chapter 2: User Interface

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

Chapter 3: IEEE 802.1Q VLAN Commands

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

Chapter 4: LAG Commands

Provide information about the commands used for configuring LAG (Link Aggregation Group).

Chapter 5: User Manage Commands

Provide information about the commands used for user management.

Chapter 6: Log Commands

Provide information about the commands used for configuring system log.

Chapter 7: Address Commands

Provide information about the commands used for Address configuration.

Chapter 8: System Commands

Provide information about the commands used for configuring the System information and System IP, reboot and reset the switch, upgrade the switch system and other operations.

Chapter 9: Ethernet Configuration Commands

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

Chapter 10: QoS Commands

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

Chapter 11: Port Mirror Commands

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

Chapter 12: Port Isolation Commands

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

Chapter 13: MSTP Commands

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

Chapter 14: IGMP Commands

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

Chapter 15: SNMP Commands

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

Chapter 1 Using the CLI

1.1 Accessing the CLI

You can log on to the switch and access the CLI by logging on to the switch remotely by a Telnet 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**.

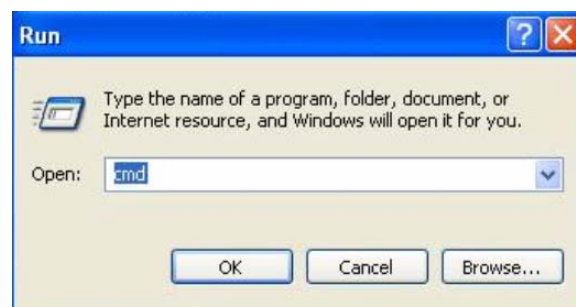


Figure 1-2 Run Window

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

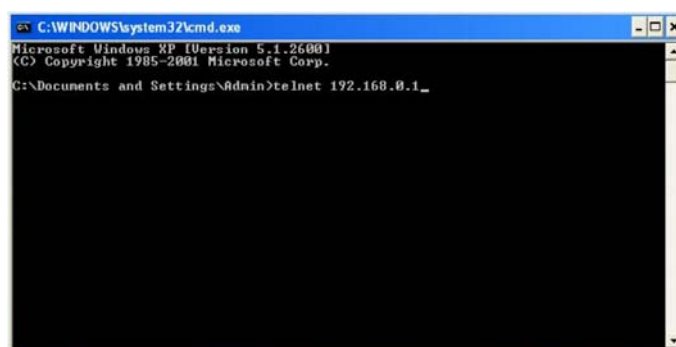


Figure 1-3 Connecting to the Switch

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.

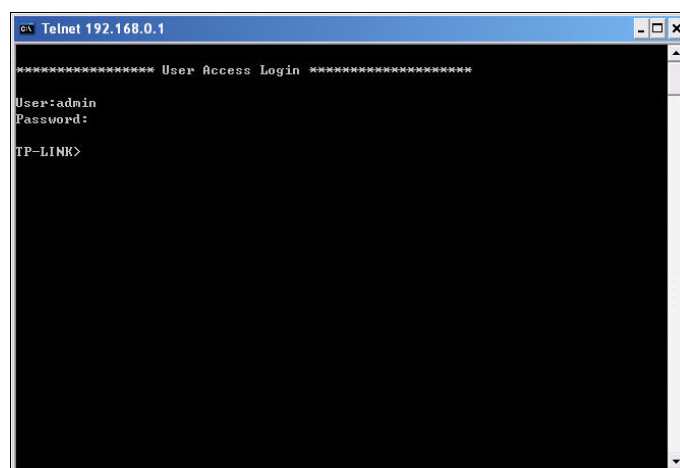
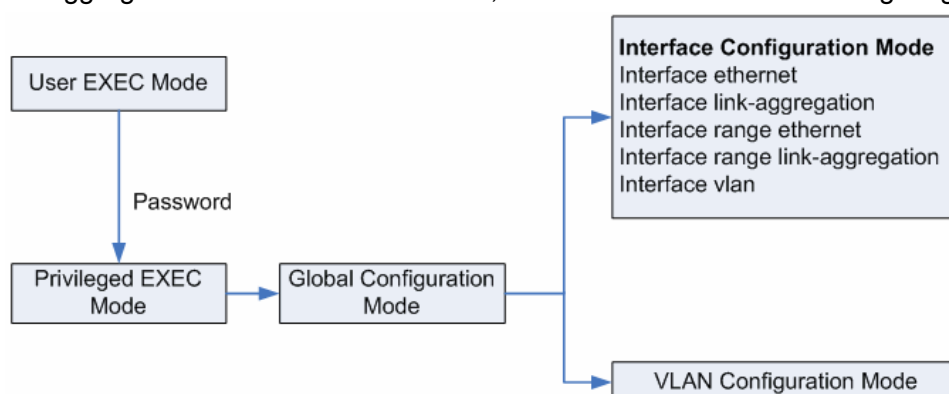


Figure 1-4 Log in the Switch

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 Database (VLAN Configuration Mode). Interface Configuration Mode can also be divided into Interface Ethernet, Interface link-aggregation, Interface range ethernet, Interface range link-aggregation, Interface vlan, 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.	TP-LINK>	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.	TP-LINK#	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.	TP-LINK(config)#	Use the exit or the end command or press Ctrl+Z to return to Privileged EXEC mode. Use the interface type number command to access interface Configuration mode. Use the vlan database to access VLAN Configuration mode.
Interface Configuration Mode	Use the interface type number command to enter this mode from Global Configuration mode.	TP-LINK(config-if)#	Use the end command or press Ctrl+Z to return to Privileged EXEC mode. Enter exit command to return to Global Configuration mode. A port number must be specified in the interface command.
VLAN Configuration Mode	Use the vlan database command to enter this mode from Global Configuration mode.	TP-LINK(config-vlan)#	Use the end command or press Ctrl+Z to return to Privileged EXEC mode. Enter the exit 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 Ethernet: Configure parameters for an Ethernet port, such as Duplex-mode, flow control status.
 - b). Interface range Ethernet: 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:** display all information of switch, for example: statistic information, port information, VLAN information.
 - **history:** Display the commands history.

1.3 Security Levels

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

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

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

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

1.4 Conventions

1.4.1 Format Conventions

The following conventions are used in this Guide:

- Items in square brackets [] are optional
- Items in braces { } are required
- Alternative items are grouped in braces and separated by vertical bars. For example: **speed** {10 | 100 | 1000 }
- Bold indicates an unalterable keyword. For example: **show logging**
- Normal Font indicates a constant (several options are enumerated and only one can be selected). For example: **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 enter in the format of xx:xx:xx:xx:xx:xx
- One or several values can be typed for a port-list or a vlan-list using comma to separate. Use a hyphen to designate a range of values, for instance, 1,3-5,7 indicates choosing 1,3,4,5,7.

Chapter 2 User Interface

enable

Description

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

Syntax

enable

Command Mode

User EXEC Mode

Example

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

```
TP-LINK>enable
Enter password:
TP-LINK#
```

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 can contains 16 characters at most, composing digits, English letters and underdashes only. By default, it is empty.

Command Mode

Global Configuration Mode

Example

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

```
TP-LINK(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:

```
TP-LINK# disable
TP-LINK>
```

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:

```
TP-LINK# configure
TP-LINK(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:

```
TP-LINK(config-if)# exit
TP-LINK(config)#exit
TP-LINK#
```

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:

```
TP-LINK(config-if)#end
TP-LINK#
```

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 database

Description

The **vlan database** command is used to access VLAN Configuration Mode for creating, deleting 802.1Q VLAN and other operations.

Syntax

vlan database

Command Mode

Global Configuration Mode

Example

Access VLAN Configuration Mode:

```
TP-LINK(config)# vlan database
TP-LINK(config-vlan)#
```

vlan

Description

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

Syntax

vlan *vlan-id-list*
no vlan *vlan-id-list*

Parameter

vlan-id-list ——VLAN ID, ranging from 2 to 4094.

Command Mode

VLAN Configuration Mode

Example

Create a VLAN, the vid of which is 12:

```
TP-LINK(config)# vlan database
```

```
TP-LINK(config-vlan)#vlan 12
```

interface vlan

Description

The **interface vlan** command is used to access VLAN Interface Mode to configure the specified VLAN.

Syntax

```
interface vlan vlan-id
```

Parameter

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

Command Mode

Global Configuration Mode

Example

Configure the VLAN 2:

```
TP-LINK(config)# interface vlan 2
```

description

Description

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

Syntax

```
description descript
```

```
no description
```

Parameter

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

Command Mode

Interface Configuration Mode (interface vlan)

Example

Specify the description string of the VLAN 2 as "vlan2":

```
TP-LINK(config)# interface vlan 2
```

```
TP-LINK(config-if)#description vlan2
```

switchport type

Description

The **switchport type** command is used to configure the Link Types for the ports.

Syntax

```
switchport type { access | trunk | general }
```

Parameter

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

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Specify the Link Type of port 5 as general:

```
TP-LINK(config)# interface ethernet 5
TP-LINK(config-if)#switchport type general
```

switchport allowed vlan

Description

The **switchport allowed vlan** command is used to add the desired port to IEEE 802.1Q VLAN, or to remove a port from the corresponding VLAN.

Syntax

```
switchport allowed vlan add vlan-list
switchport allowed vlan remove vlan-list
```

Parameter

vlan-list — VLAN ID list, it is multi-optional.

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Add port 2 to IEEE 802.1Q VLAN:

```
TP-LINK(config)# interface ethernet 2
```

```
TP-LINK(config-if)# switchport allowed vlan add 2
```

switchport pvid

Description

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

Syntax

```
switchport pvid vlan-id
```

Parameter

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

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Specify the PVID of port 2 as 2:

```
TP-LINK(config)# interface ethernet 2
```

```
TP-LINK(config-if)# switchport pvid 2
```

switchport general egress-rule

Description

The **switchport general egress-rule** command is used to configure the egress-rule of the general port.

Syntax

```
switchport general egress-rule vlan-id { untagged | tagged }
```

Parameter

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

untagged | tagged — egress-rule, either untagged or tagged

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Specify the egress-rule of port 2 in vlan 3 as tagged:

```
TP-LINK(config)# interface ethernet 2
```

```
TP-LINK(config-if)# switchport general egress-rule 3 tagged
```

show vlan

Description

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

Syntax

show vlan [*vlan-id*]

Parameter

vlan-id —— VLAN ID, ranging from 1 to 4094. By default , display all the information of IEEE 802.1Q VLAN.

Command Mode

Any Configuration Mode

Example

Display the information of vlan 5:

```
TP-LINK(config)# show vlan 5
```

show interface switchport

Description

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

Syntax

show interface switchport [*port-num*]

Parameter

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

Command Mode

Any Configuration Mode

Example

Display the VLAN configuration information of all ports:

```
TP-LINK(config)# show interface switchport
```

Chapter 4 LAG Commands

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.

interface link-aggregation

Description

The **interface link-aggregation** command is used to access the Interface Link-aggregation Mode. To delete the aggregation group, please use **no interface link-aggregation** command.

Syntax

```
interface link-aggregation group-number  
no interface link-aggregation group-number
```

Parameter

group-number ——The LAG number, ranging from 1 to 6.

Command Mode

Global Configuration Mode

Example

Access the Interface Link-aggregation Mode and configure the aggregation group 1:

```
TP-LINK(config)# interface link-aggregation 1  
TP-LINK(config-if)#
```

interface range link-aggregation

Description

The **interface range link-aggregation** command is used to access the Interface range Link-aggregation Mode, and you can configure some aggregation groups at the same time. To delete the aggregation group, please use **no interface range link-aggregation** command.

Syntax

```
interface range link-aggregation group-list  
no interface range link-aggregation group-list
```

Command Mode

Global Configuration Mode

Parameter

group-list ——The aggregation group list. You can configure some aggregation groups at the same time.

Example

Access the Interface range Link-aggregation Mode and configure the aggregation group 1,4-6:

```
TP-LINK(config)# interface range link-aggregation 1,4-6  
TP-LINK(config-if)#
```

link-aggregation

Description

The **link-aggregation** command is used to add the current Ethernet port to an aggregation group. To remove the current Ethernet port from the aggregation group, please use **no link-aggregation** command.

Syntax

```
link-aggregation group-num  
no link-aggregation
```

Parameter

group-num ——The LAG number, ranging from 1 to 6.

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Add the Ethernet port 2-4 to aggregation group 1:

```
TP-LINK(config)# interface range ethernet 2-4  
TP-LINK(config-if)#link-aggregation 1
```

link-aggregation hash-algorithm

Description

The **link-aggregation hash-algorithm** command is used to configure the Aggregate Arithmetic for LAG.

Syntax

link-aggregation hash-algorithm {src_dst_mac | src_dst_ip }

Parameter

src_dst_mac —— The source and destination MAC addresses.

src_dst_ip ——The source and destination IP addresses.

Command Mode

Global Configuration Mode

Example

Configure the Aggregate Arithmetic for LAG as src_dst_mac:

```
TP-LINK(config)# link-aggregation hash-algorithm src_dst_mac
```

description

Description

The **description** command is used to set a description for an aggregation group.
To remove the description of an aggregation group, please use **no description** command.

Syntax

description *description*

no description

Parameter

description——The description of LAG, which contains 16 characters at most.

Command Mode

Interface Configuration Mode (interface link-aggregation)

Example

Set the description "movie server" for aggregation group1:

```
TP-LINK(config)# interface link-aggregation 1
TP-LINK(config-if)# description movie server
```

show interface link-aggregation

Description

The **show interface link-aggregation** command is used to display the configuration information of the Aggregate Arithmetic and the aggregation groups.

Syntax

```
show interface link-aggregation [group-num]
```

Parameter

group-num —The LAG number, ranging from 1 to 6. By default, the LAG configuration information of all the Ethernet ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the LAG configuration information of all ports:

```
TP-LINK(config)#show interface link-aggregation
```

Chapter 5 User Manage Commands

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

user add

Description

The **user add** command is used to add a new user.

Syntax

```
user add user-name password password confirm-password confirm-password  
{guest | admin} {disable | enable}
```

Parameter

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

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

confirm-password ——Type the password again.

guest | admin —— Access level.

Guest: only can view the settings without the right to edit and modify.

Admin: can edit, modify and view all the settings of different functions.

disable | enable ——Enable/disable the user.

Command Mode

Global Configuration Mode

Example

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

```
TP-LINK(config)#user add tplink password password confirm-password  
password admin enable
```

user remove

Description

The user remove command is used to delete an existing user. The current user can't be deleted by itself.

Syntax

user remove *user-name*

Parameter

user-name —— An existed user name.

Command Mode

Global Configuration Mode

Example

Delete the user named tmlink:

```
TP-LINK(config)# user remove tmlink
```

user modify status

Description

The **user modify status** command is used to modify the status of the existing user. The current user can't be modified by itself.

Syntax

user modify status *user-name* {disable | enable}

Parameter

user-name —— The existing user name.

disable | enable ——Disable/enable the user.

Command Mode

Global Configuration Mode

Example

Enable the status of user "tmlink":

```
TP-LINK(config)# user modify status tmlink enable
```

user modify type

Description

The **user modify type** command is used to modify the access level for the existing user. The current user can't be modified by itself.

Syntax

user modify type *user-name* {guest | admin}

Parameter

user-name —— The existing user name.

guest | admin —— Access level. Guest means limited user; and admin means manager.

Command Mode

Global Configuration Mode

Example

Change the access level of tplink to admin:

```
TP-LINK(config)# user modify type tplink admin
```

user modify password

Description

The **user modify password** command is used to modify the password for the existing user.

Syntax

user modify password *user-name* *old-password* *new-password*
confirm-password

Parameter

user-name —— The existing user name.

old-password —— The old password.

new-password —— The new password, which contains 16 characters at most, composing digits, English letters and underdashes only.

confirm-password —— Type the new password again.

Command Mode

Global Configuration Mode

Example

Modify the password of tplink as newpwd:

```
TP-LINK(config)# user modify password tplink password newpwd newpwd
```

user access-control disable

Description

The **user access-control disable** command is used to cancel the user access-control.

Syntax

user access-control disable

Command Mode

Global Configuration Mode

Example

Cancel the user access-control:

```
TP-LINK(config)# user access-control disable
```

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 for login.

Syntax

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

Parameter

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

Command Mode

Global Configuration Mode

Example

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

```
TP-LINK(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 are allowed for login

Syntax

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

Parameter

mac-addr — The source MAC address.

Command Mode

Global Configuration Mode

Example

Enable the access-control of the user whose MAC address is 00:00:13:0A:00:01:

```
TP-LINK(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 for login.

Syntax

user access-control port-based *port-list*

Parameter

port-list — The Ethernet port numbers. You can appoint 5 ports at most.

Command Mode

Global Configuration Mode

Example

Enable the access-control of the port 2, port 4, port 5, port 6, and port 10:

```
TP-LINK(config)# user access-control port-based 2,4-6,10
```

user max-number

Description

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

Syntax

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

no user max-number

Parameter

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

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

Command Mode

Global Configuration Mode

Example

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

```
TP-LINK(config)# user max-num 5 3
```

user idle-timeout

Description

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

Syntax

user idle-timeout *minutes*

no user idle-timeout

Parameter

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

Command Mode

Global Configuration Mode

Example

Configure the timeout time of the switch as 15 minutes:

```
TP-LINK(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

Any Configuration Mode

Example

Display the information of the current users:

```
TP-LINK(config)# show user account-list
```

show user configuration

Description

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

Syntax

show user configuration

Command Mode

Any Configuration Mode

Example

Display the security configuration information of the users:

```
TP-LINK(config)# show user configuration
```

Chapter 6 Log Commands

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

logging local buffer

Description

The **logging local buffer** command is used to configure the severity level and the status of the configuration input to the log buffer. To restore to the default configuration, please use **no logging local 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. 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 local buffer {/level} [disable | enable]

no logging local 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.

disable | enable —— Disable or enable the log buffer. By default, it is enabled.

Command Mode

Global Configuration Mode

Example

Enable the log buffer function and set the severity as 6:

```
TP-LINK(config)# logging local buffer 6 enable
```

logging local flash

Description

The **logging local 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 local 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 local flash {*level*} [disable | enable]
no logging local 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.

disable | enable ——Disable or enable the log file. By default, it is enabled.

Command Mode

Global Configuration Mode

Example

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

```
TP-LINK(config)# logging local flash 7
```

logging clear

Description

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

Syntax

logging clear [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:

```
TP-LINK(config)# logging clear buffer
```

logging loghost

Description

The **logging loghost** command is used to configure the Log Host. To clear the configuration of the specified Log Host, please use **no logging loghost** 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 loghost index {idx} {host-ip} {level} { disable | enable }

no logging loghost index {idx}

Parameter

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

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.

disable | enable ——Disable or enable the log host. By default, it is disabled.

Command Mode

Global Configuration Mode

Example

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

```
TP-LINK(config)# logging loghost index 2 192.168.0.148 5 enable
```

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

Any configuration Mode

Example

Display the configuration of the Local Log:

```
TP-LINK(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.
Display the configuration of all the log hosts by default.

Command Mode

Any Configuration Mode

Example

Display the configuration of the log host 2:

```
TP-LINK(config)# show logging loghost 2
```

show logging buffer level

Description

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

Syntax

show logging buffer level [*level*]

Parameter

level ——Severity level. There are 8 severity levels marked with values 0-7. The information will be displayed only when the log with the same or smaller severity level value. Display all the log information in the log buffer by default.

Command Mode

Any Configuration Mode

Example

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

```
TP-LINK(config)# show logging buffer level 5
```

show logging flash level

Description

The **show logging flash level** 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 will be displayed only when the log with the same or smaller severity level value. Display all the log information in the log file by default.

Command Mode

Any Configuration Mode

Example

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

```
TP-LINK(config)# show logging flash level 3
```

Chapter 7 Address Commands

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

bridge address port-security

Description

The **bridge address port-security** command is used to configure port security. To return to the default configuration, please use **no bridge address port-security** 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 learn 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

bridge address port-security [**max-number** *num*] [**mode** {dynamic | static | permanent}] [**status** {disable | enable}]

no bridge address port-security

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.

mode — 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 ethernet / interface range ethernet)

Example

Enable Port Security function for port1, select Static mode as the learn mode, and specify the maximum number of MAC addresses that can be learned on this port as 30:

```
TP-LINK(config)# interface ethernet 1
TP-LINK(config-if)# bridge address port-security max-number 30 mode
static status enable
```

bridge address static

Description

The **bridge address static** command is used to add the static MAC address entry. To remove the corresponding entry, please use **no bridge address 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

bridge address static {*mac mac*} {*vid vid*} {*port port*}

no bridge address static [*mac*] [*vid*] [*port*]

Parameter

mac —— 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 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 Port1 together:

```
TP-LINK(config)# bridge address static mac 00:02:58:4f:6c:23 vid 1 port 1
```

bridge aging-time

Description

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

Syntax

bridge aging-time *aging-time*

no bridge 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. By default, this value is 300.

Command Mode

Global Configuration Mode

Example

Configure the aging time as 500 seconds:

```
TP-LINK(config)# bridge aging-time 500
```

bridge address filtering

Description

The **bridge address filtering** command is used to add the filtering address entry. To delete the corresponding entry, please use **no bridge address 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

bridge address filtering {*mac*} {*vid*}

no bridge address filtering [*mac*] [*vid*]

Parameter

mac —— 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 whose VLAN ID is 1 and MAC address 00:1e:4b:04:01:5d:

```
TP-LINK(config)# bridge address filtering 00:1e:4b:04:01:5d 1
```

show bridge port-security

Description

The **show bridge port-security** command is used to configure the Port Security for each port, such as configure the Max number of MAC addressed that can be learned on the port and the Learn Mode.

Syntax

show bridge port-security [*port-num*]

Parameter

port-num — The port number of the switch. By default, the Port Security configuration of all ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the Port Security configuration of port 2:

```
TP-LINK(config)# show bridge port-security 2
```

show bridge address

Description

The **show bridge address** command is used to display the information of all Address entries.

Syntax

show bridge address { dynamic | static | filtering | all }

Parameter

dynamic | static | filtering | all — the type of your desired entry

Command Mode

Any Configuration Mode

Example

Display the information of all Address entries:

```
TP-LINK(config)# show bridge address all
```

show bridge aging-time

Description

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

Syntax

```
show bridge aging-time
```

Command Mode

Any Configuration Mode

Example

Display the Aging Time of the MAC address:

```
TP-LINK(config)# show bridge aging-time
```

Chapter 8 System Commands

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

system-descript

Description

The **system-descript** command is used to configure the Device Name, Device Location and System Contact. To clear all the information, please use **no system-descript** command.

Syntax

system-descript { **sysname** *sysname* | **location** *location* | **contact-info** *contact-info* }

no system-descript {*sysname* | *location* | *contact-info*}

Parameter

sysname —— System Name(Device Name). The length of the name ranges from 1 to 32 characters. By default, it is empty.

location —— Device Location. It consists of 32 characters at most. By default, it is empty.

contact-info —— Contact Information. It consists of 32 characters at most. By default, it is empty.

Command Mode

Global Configuration Mode

Example

Configure the System Contact as www.tp-link.com.cn:

```
TP-LINK(config)# system-descript contact-info www.tp-link.com.cn
```

system-time manual

Description

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

Syntax

system-time manual *time*

Parameter

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

Command Mode

Global Configuration Mode

Example

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

```
TP-LINK(config)# system-time manual 12/20/2010-17:30:35
```

system-time dst predefined

Description

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

Syntax

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

no system-time dst

Parameter

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

Following are the time ranges of each option:

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

European

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 daylight saving time as USA standard:

```
TP-LINK(config)#system-time dst predefined USA
```

system-time dst date

Description

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

Syntax

```
system-time dst date {smonth} {sday} {stime} {emonth} {eday} {etime} [offset]  
no system-time dst
```

Parameter

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

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

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

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

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

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

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

Command Mode

Global Configuration Mode

Example

Configure the daylight saving time from zero clock, Apr 1st to zero clock Oct 1st

and the offset is 30 minutes:

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

system-time dst recurring

Description

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

Syntax

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

```
no system-time dst
```

Parameter

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

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

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

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

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

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

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

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

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

Command Mode

Global Configuration Mode

Example

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

```
TP-LINK(config)# system-time dst recurring first Sun May 02:00 last Sun Oct  
02:00 45
```

ip address

Description

The **ip address** command is used to configure the IP Address, Subnet Mask and Default Gateway. To restore to the factory defaults, please use **no ip address** command.

Syntax

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

no ip address

Parameter

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

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

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

Command Mode

Global Configuration Mode

Example

Configure the system IP as 192.168.0.69 and the Subnet Mask as 255.255.255.0:

```
TP-LINK(config)# ip address 192.168.0.69 255.255.255.0
```

ip management-vlan

Description

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

Syntax

ip management-vlan *vlan-id*

Parameter

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

Command Mode

Global Configuration Mode

Example

Set the VLAN 6 as IP management VLAN:

```
TP-LINK(config)# ip management-vlan 6
```

ip dhcp-alloc

Description

The **ip dhcp-alloc** command is used to enable the DHCP Client function. When this function is enabled, the switch will obtain IP from DHCP Client server.

Syntax

ip dhcp-alloc

Command Mode

Global Configuration Mode

Example

Enable the DHCP Client function:

```
TP-LINK(config)# ip dhcp-alloc
```

ip bootp-alloc

Description

The **ip bootp-alloc** command is used to obtain IP address from BOOTP Server.

Syntax

ip bootp-alloc

Command Mode

Global Configuration Mode

Example

Enable the BOOTP Protocol to obtain IP address from BOOTP Server:

```
TP-LINK(config)# ip bootp-alloc
```

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:

```
TP-LINK# 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:

```
TP-LINK# reboot
```

user-config backup

Description

The **user-config backup** command is used to backup the configuration file by TFTP server.

Syntax

user-config backup filename *name* ip-address *ip-addr*

Parameter

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

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

Command Mode

Privileged EXEC Mode

Example

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

```
TP-LINK# user-config backup filename config.cfg ip-address 192.168.0.148
```

user-config load

Description

The **user-config load** command is used to download the configuration file to the switch by TFTP server.

Syntax

```
user-config load filename name ip-address ip-addr
```

Parameter

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

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

Command Mode

Privileged EXEC Mode

Example

Download the configuration file to the switch by TFTP server with the IP 192.168.0.148 and name this file config.cfg:

```
TP-LINK# user-config load filename config.cfg ip-address 192.168.0.148
```

user-config save

Description

The **user-config save** command is used to save current settings.

Syntax

user-config save

Command Mode

Privileged EXEC Mode

Example

Save current settings:

```
TP-LINK# user-config save
```

firmware upgrade

Description

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

Syntax

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

Parameter

name — Specify the name for the Firmware File.

ip-addr — IP Address of the TFTP server.

Command Mode

Privileged EXEC Mode

Example

Upgrade the switch system via the TFTP server with the IP 192.168.0.148:

```
TP-LINK# firmware upgrade filename firmware.bin ip-address 192.168.0.148
```

ping

Description

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

Syntax

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

Parameter

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

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

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

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

Command Mode

User EXEC Mode and Privileged EXEC Mode

Example

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

```
TP-LINK# 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:

```
TP-LINK# tracert 192.168.0.131 20
```


loopback

Description

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

Syntax

loopback {*port*} { internal | external }

Parameter

port — The number of the 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 a Internal-type loopback test for port 4:

```
TP-LINK# loopback 4 internal
```

show system-info

Description

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

Syntax

show system-info

Command Mode

Any Configuration Mode

Example

Display the system information:

```
TP-LINK# show system-info
```

show ip address

Description

The **show ip address** command is used to display MAC Address, IP Address,

Subnet Mask and Default Gateway of the system, whether the DHCP Client function is enabled or not and some other information.

Syntax

show ip address

Command Mode

Any Configuration Mode

Example

Display the IP Address of the system

```
TP-LINK# show ip address
```

show system-time

Description

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

Syntax

show system-time

Command Mode

Any Configuration Mode

Example

Display the time information of the switch

```
TP-LINK# 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

Any Configuration Mode

Example

Display the DST time information of the switch

```
TP-LINK# show system-time dst
```

show system-time source

Description

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

Syntax

```
show system-time source
```

Command Mode

Any Configuration Mode

Example

Display the time source of the switch

```
TP-LINK# show system-time source
```

show system-time mode

Description

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

Syntax

```
show system-time mode
```

Command Mode

Any Configuration Mode

Example

Display the time mode of the switch:

```
TP-LINK# show system-time mode
```

Chapter 9 Ethernet Configuration Commands

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

interface ethernet

Description

The **interface ethernet** command is used to enter the Interface Configuration Mode and configure one Ethernet port.

Syntax

interface ethernet *interface*

Parameter

interface — The Ethernet port to be configured.

Command Mode

Global Configuration Mode

Example

Enter the Interface Configuration Mode and configure Ethernet port 2:

```
TP-LINK(config)# interface ethernet 2
```

interface range ethernet

Description

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

Syntax

interface range ethernet *port-list*

Parameter

port-list — The list of the Ethernet ports to be configured. Inconsecutive ports or port-groups are separated by a comma with no space. Use a hyphen to designate a range of ports, for instance 1-10 indicates from port 1 to port 10.

Command Mode

Global Configuration Mode

User Guidelines

Command in the Interface Range Ethernet 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

Enter the Interface Configuration Mode, add ports 1-3, 6-9 to the port-list and configure them:

```
TP-LINK(config)# interface range ethernet 1-3,6-9
```

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 ethernet)

Example

Add a description Port #5 to port 5:

```
TP-LINK(config)# interface ethernet 5
```

```
TP-LINK(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 ethernet / interface range ethernet)

Example

Disable Ethernet port 3:

```
TP-LINK(config)# interface ethernet 3
TP-LINK(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 packets drop in the network.

Syntax

flow-control

no flow-control

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Enable the flow-control function for Ethernet port 5:

```
TP-LINK(config)# interface ethernet 5
TP-LINK(config-if)# flow-control
```

negotiation

Description

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

Syntax

negotiation { auto | 10h | 10f | 100h | 100f | 1000f }

no negotiation

Parameter

auto —— Auto negotiation (default).
10h —— 10M half-duplex.
10f —— 10M full-duplex.
100h —— 100M half-duplex.
100f —— 100M full-duplex.
1000f —— 1000M full-duplex.

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Configure the Negotiation Mode as 100M full-duplex for Ethernet port 5:

```
TP-LINK(config)# interface ethernet 5
TP-LINK(config-if)# negotiation 100f
```

storm-control

Description

The **storm-control** command is used to configure the Storm Control function. To disable the Storm Control function, please use **no storm-control** command. Storm Control function allows the switch to filter broadcast, multicast and UL frame in the network. If the transmission rate of the three kind packets exceeds the set bandwidth, the packets will be automatically discarded to avoid network broadcast storm.

Syntax

storm-control [**bc-rate** *bc-rate*] [**mc-rate** *mc-rate*] [**ul-rate** *ul-rate*]
no storm-control

Parameter

bc-rate —— The maximum ingress rate of the Broadcast. The packet traffic exceeding the bandwidth will be discarded. The value of it can be 128 | 256 | 512kbps or 1 | 2 | 4 | 5 | 10 | 20 | 40 | 50mbps.

mc-rate —— The maximum ingress rate of the Multicast packets. The packet traffic exceeding the bandwidth will be discarded. The value of it can be 128 | 256 | 512kbps or 1 | 2 | 4 | 5 | 10 | 20 | 40 | 50mbps.

ul-rate —— The maximum ingress rate of the UL-Frame. The packet traffic exceeding the bandwidth will be discarded. The value of it can be 128 | 256 | 512kbps or 1 | 2 | 4 | 5 | 10 | 20 | 40 | 50mbps.

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Enable the Storm Control function for port 5 and specify the *bc-rate* as 128kbps, *mc-rate* as 512kbps and *ul-rate* as 2Mbps:

```
TP-LINK(config)# interface ethernet 5
```

```
TP-LINK(config-if)# storm-control bc-rate 128k mc-rate 512k ul-rate 2m
```

storm-control disable bc-rate

Description

The **storm-control disable bc-rate** command is used to disable the Broadcast packets control.

Syntax

storm-control disable bc-rate

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Disable the Broadcast packets control for port 5:

```
TP-LINK(config)# interface ethernet 5
```

```
TP-LINK(config-if)# storm-control disable bc-rate
```

storm-control disable mc-rate

Description

The **storm-control disable mc-rate** command is used to disable the Multicast packets control.

Syntax

storm-control disable mc-rate

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Disable the Multicast packets control for port 5:


```
TP-LINK(config)# interface ethernet 5
TP-LINK(config-if)# storm-control disable mc-rate
```

storm-control disable ul-rate

Description

The **storm-control disable ul-rate** command is used to disable the UL-Frame control.

Syntax

storm-control disable ul-rate

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Disable the UL-Frame control for port 5:

```
TP-LINK(config)# interface ethernet 5
TP-LINK(config-if)# storm-control disable ul-rate
```

port rate-limit

Description

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

Syntax

port rate-limit [**ingress** *ingress-rate*] [**egress** *egress-rate*]
no port rate-limit

Parameter

ingress-rate — Configure the bandwidth for receiving packets on the port, and the system will automatically select integral multiple of 64Kbps that closest to the rate you entered as the real Ingress rate.

egress-rate — Configure the bandwidth for sending packets on the port, and the system will automatically select integral multiple of 64Kbps that closest to the rate you entered as the real Egress rate.

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Configure the ingress-rate as 1Mbps and egress-rate as 10Mbps for port 5:

```
TP-LINK(config)# interface ethernet 5
TP-LINK(config-if)# port rate-limit ingress 1024 egress 10240
```

port rate-limit disable ingress

Description

The **port rate-limit disable ingress** command is used to disable the ingress-rate limit.

Syntax

port rate-limit disable ingress

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Disable the ingress-rate limit for port 5:

```
TP-LINK(config)# interface ethernet 5
TP-LINK(config-if)# port rate-limit disable ingress
```

port rate-limit disable egress

Description

The **port rate-limit disable egress** command is used to disable the egress-rate limit.

Syntax

port rate-limit disable egress

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Disable the egress-rate limit for port 5:

```
TP-LINK(config)# interface ethernet 5
TP-LINK(config-if)# port rate-limit disable egress
```

show interface configuration

Description

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

Syntax

show interface configuration ethernet [*port*]

Parameter

port — The port number selected to display the configurations. By default, the configuration information of all ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the configurations of port 5:

```
TP-LINK# show interface configuration ethernet 5
```

show interface status

Description

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

Syntax

show interface status ethernet [*port*]

Parameter

port — The port number selected to display the connective-status. By default, the connective-status of all ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the connective-status of all Ethernet ports:

```
TP-LINK(config)# show interface status ethernet
```

show interface counters

Description

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

Syntax

show interface counters ethernet [*port*]

Parameter

port — The port number selected to display the statistic information. By default, the statistic information of all ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the statistic information of Ethernet port 3:

```
TP-LINK(config)# show interface counters ethernet 3
```

show storm-control ethernet

Description

The **show storm-control ethernet** command is used to display the storm-control information of an Ethernet port or all Ethernet ports.

Syntax

show storm-control ethernet [*port*]

Parameter

port — The port number selected to display the storm-control information. By default, the storm-control information of all ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the storm-control information of all Ethernet ports:

```
TP-LINK(config)# show storm-control ethernet
```

show port rate-limit

Description

The **show port rate-limit** command is used to display the rate-limit information of an Ethernet port or all Ethernet ports.

Syntax

show port rate-limit [*port*]

Parameter

port — The port number selected to display the rate-limit information. By default, the rate-limit information of all ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the rate-limit information of all Ethernet ports:

```
TP-LINK(config)# show port rate-limit
```

Chapter 10 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, CoS1, CoS2, CoS3, CoS4, CoS5, CoS6, CoS7 respectively. By default, the priority is 0.

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

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:

```
TP-LINK(config)# interface ethernet 5
TP-LINK(config-if)# qos 3
```

qos dot1p config

Description

The **qos dot1p config** command is used to configure the mapping relation between IEEE 802.1P Priority and Egress Queue. To return to the default configuration, please use **no qos dot1p config** command. IEEE 802.1P gives the Pri field in IEEE 802.1Q tag a recommended definition. This field is used to

divide packets into 8 priorities. When IEEE 802.1P Priority is enabled, the packets with IEEE 802.1Q tag are mapped to different priority levels based on IEEE 802.1P priority mode. The untagged packets are mapped based on port priority mode.

Syntax

qos dot1p config {tag} {pri}

no qos dot1p config

Parameter

tag —— The 8 priority levels defined by IEEE 802.1P, ranging from 0 to 7.

pri —— The priority level the packets with tag are mapped to. It ranges from 0 to 3, which represent TC0, TC1, TC2, TC3 respectively.

Command Mode

Global Configuration Mode

User Guidelines

1. By default, the mapping relation between tag 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 tag value 0 to TC3:

```
TP-LINK(config)# qos dot1p config 0 3
```

qos dscp enable

Description

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

Syntax

qos dscp enable

no qos dscp enable

Command Mode

Global Configuration Mode

Example

Enable the mapping relation between DSCP Priority and Egress Queue:

```
TP-LINK(config)# qos dscp enable
```

qos dscp config

Description

The **qos dscp config** command is used to configure the mapping relation between DSCP Priority and 802.1P Priority. To return to the default configuration, please use **no qos dscp config** 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 dscp config {dscp-list} {cos-id}
```

```
no qos dscp config
```

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

DSCP priorities are mapped to the corresponding 802.1p priorities. IP datagram will determine its egress queue based on the mapping relation between 802.1p priority and priority levels.

Example

Map DSCP values 10,11,15 to CoS0:

```
TP-LINK(config)# qos dscp config 10,11,15 0
```


qos scheduler

Description

The **qos scheduler** command is used to configure the Schedule Mode. To return to the default configuration, please use **no qos scheduler** 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 scheduler { sp | wrr | sp+wrr | equ }

no qos scheduler

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:

```
TP-LINK(config)# qos scheduler wrr
```

show qos port-based

Description

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

Syntax

show qos port-based [*interface-num*]

Parameter

interface-num — The Ethernet port selected to display the configuration. By default, information of all the ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the configuration of QoS for port 5:

```
TP-LINK# show qos port-based 5
```

show qos dot1p

Description

The **show qos dot1p** command is used to display the configuration of IEEE 802.1P Priority.

Syntax

show qos dot1p

Command Mode

Any Configuration Mode

Example

Display the configuration of IEEE 802.1P Priority:

```
TP-LINK# show qos dot1p
```

show qos dscp

Description

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

Syntax

show qos dscp

Command Mode

Any Configuration Mode

Example

Display the configuration of DSCP Priority:

```
TP-LINK# show qos dscp
```

show qos scheduler

Description

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

Syntax

show qos scheduler

Command Mode

Any Configuration Mode

Example

Display the schedule rule of the egress queues:

```
TP-LINK# show qos scheduler
```

Chapter 11 Port Mirror Commands

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

mirror add

Description

The **mirror add** command is used to enable Port Mirror function.

Syntax

mirror add {mirrored *port*} {mirroring *port*} {none | ingress | egress | both}
{group-num}

Parameter

mirrored port —— The port to be monitored.

mirroring port —— The mirroring port.

none —— Remove the mirrored port from the current mirror group.

ingress —— Ingress monitoring. Select this option, the incoming packets received by the mirrored port will be copied to the mirroring port.

egress —— Egress monitoring. Select this option, the outgoing packets sent by the mirrored port will be copied to the mirroring port.

both —— *Ingress and Egress monitoring. Select this option, the incoming packets received and the outgoing packets sent by the mirrored port will both be copied to the mirroring port.*

group-num —— *The group number of mirror group.*

Command Mode

Global Configuration Mode

Example

Configure port 3 as mirrored port, port 4 as mirroring port, the mirror mode as both and group number as 1 :

```
TP-LINK(config)# mirror add 3 4 both 1
```

User Guidelines

1. The mirroring port is corresponding to current interface configuration mode.
2. Mirrored ports number is not limited, but it can't be the mirroring port at the

same time.

3. Whether the mirroring port and mirrored ports are in the same VLAN or not is not demanded strictly.
4. The mirroring port and mirrored ports cannot be link-aggregation member.

mirror remove group

Description

The **mirror remove group** command is used to remove mirror group.

Syntax

mirror remove group [group-num]

Parameter

group-num — The group number of mirror group.

Command Mode

Global Configuration Mode

Example

Remove mirror group 1:

```
TP-LINK(config)# mirror remove group 1
```

mirror remove mirrored

Description

The **mirror remove mirrored** command is used to remove the mirrored port from the mirror group.

Syntax

mirror remove mirrored {mirrored port} {group-num}

Parameter

mirrored port — The port to be monitored.

group-num — The group number of mirror group.

Command Mode

Global Configuration Mode

Example

Remove mirrored port 1,2-4 from mirror group 1:

```
TP-LINK(config)# mirror remove mirrored 1,2-4 1
```

show mirror

Description

The **show mirror** command is used to display the configuration of a specified mirror group or all mirror groups.

Syntax

show mirror [group-num]

Parameter

group-num — The group number of mirror group.

Command Mode

Any Configuration Mode

Example

Display configuration of mirror group 1:

```
TP-LINK# show mirror 1
```

Chapter 12 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 portlist of a port, so that this port can only communicate with the ports on its portlist. To delete the corresponding configuration, please use **no port isolation** command.

Syntax

port isolation *forward-list*

no port isolation

Parameter

forward-list — portlist of forward port. It is multi-optional.

Command Mode

Interface Configuration Mode

Example

Configure port 1 and port 2 can only forward packets to port 6 and port 13:

```
TP-LINK(config)# interface range ethernet 1-2
```

```
TP-LINK(config-if)# port isolation 6,13
```

show port isolation

Description

The **show port isolation** command is used to display the forward portlist of a port or all ports.

Syntax

show port isolation [*port*]

Parameter

port — The port-number you want to show its forward portlist.

Command Mode

Any Configuration Mode

Example

Display the forward-list of port 6:

```
TP-LINK# show port isolation 6
```


Chapter 13 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 global** command is used to configure STP globally. To return to the default configuration, please use **no spanning-tree global** command.

Syntax

```
spanning-tree global [status { disable | enable }] [mode { stp | rstp | mstp }]
[cist cist] [htime hello-time] [max-age max-age] [delay forward-delay] [hcount
hold-count] [max-hops max-hops]
no spanning-tree global
```

Parameter

status — Enable/ Disable STP function globally. By default, it is disabled.

mode — STP Version. There are three options, including STP (Spanning Tree Protocol), RSTP (Rapid Spanning Tree Protocol) and MSTP (Multiple Spanning Tree Protocol). By default, the STP version is STP.

cist — CIST Priority, which must be multiple of 4096 ranging from 0 to 61440. By default, the CIST priority is 32768. CIST Priority is an important criterion on determining the root bridge. In the same condition, the switch with the highest priority will be chosen as the root bridge. The lower value has the higher priority.

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, $2 * (\text{Hello Time} + 1) \leq \text{Max Age}$.

max-age — Max Age, which is the maximum time the switch can wait without receiving a BPDU before attempting to reconfigure. Max Age ranges from 6 to 40 in seconds. By default, it is 20.

forward-delay — 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, $2 * (\text{Forward Delay} - 1) \geq \text{Max Age}$.

hold-count —— TxHold Count, which is the maximum number of BPDU packets transmitted per Hello Time interval. TxHold Count ranges from 1 to 20 in pps. By default, it is 5.

max-hops —— Max Hops, which is the maximum number of hops that occur in a specific region before the BPDU is discarded. Max Hops ranges from 1 to 40 in hop. By default, it is 20.

Command Mode

Global Configuration Mode

Example

Enable the STP function, and configure the STP version as MSTP, CIST priority as 4096, Hello Time as 4 seconds, Max Age as 10 seconds, Forward Delay as 10 seconds, TxHold Count as 8pps and Max Hops as 15 hops:

```
TP-LINK(config)# spanning-tree global status enable mode mstp cist 4096
hetime 4 mage 10 delay 10 hcount 8 mhops 15
```

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 [status { disable | enable }] [pri priority]
[expath expath-consum] [inpath inpath-consum] [edge { disable | enable }]
[ptop { auto | open | close }]
no spanning-tree common-config
```

Parameter

status —— Enable/ Disable STP function for the desired port. By default, it is disabled.

priority —— 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.

expath-consum —— ExtPath 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. By default, it is automatic.

inpaht-consum —— IntPath 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.

edge —— 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.

ptop —— 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 ethernet / interface range ethernet)

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:

```
TP-LINK(config)# interface ethernet 1
TP-LINK(config-if)# spanning-tree common-config status enable pri 64
expath 100 inpath 100 edge enable
```

spanning-tree region

Description

The **spanning-tree region** command is used to configure the region of MSTP. A switched network can be divided into many MST regions (Multiple Spanning Tree Regions). An MST region comprises multiple switches which have the same region configuration (including region name and region revision configuration) and the same VLAN-to-spanning-tree mapping configuration.

Syntax

spanning-tree region {name} {revision}

Parameter

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

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

Command Mode

Global Configuration Mode

Example

Configure the region name of MSTP as r1, and the revision level as 100:

```
TP-LINK(config)# spanning-tree region r1 100
```

spanning-tree msti

Description

The **spanning-tree msti** command is used to configure MSTP Instance. To return to the default configuration of the corresponding Instance, please use **no spanning-tree msti** command. Instance Configuration, a property of MST region, is used to describe the VLAN-to-spanning-tree mapping configuration. You can assign VLAN to different instances appropriate to your needs. Every instance is a VLAN group independent of other instances and CST.

Syntax

spanning-tree msti {*msti-id*} [**status** { *disable* | *enable* }] [**pri** *priority*] [**mapped** *mapped*]

no spanning-tree msti {*msti-id*}

Parameter

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

status — Enable/ Disable the corresponding instance. By default, it is disabled.

priority — 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.

mapped — VLAN-Instance mapping. Enter the VLAN ID which belongs to the corresponding instance ID, in the format of 1,2-4.

Command Mode

Global Configuration Mode

Example

Enable Instance 1, add VLAN 2, 3, 4, 5, 8 for it, and configure MSTI Priority as 4096:

```
TP-LINK(config)# spanning-tree msti 1 status enable pri 4096 mapped 2-5,8
```

spanning-tree msti

Description

The **spanning-tree msti** command is used to configure MSTP Instance Port. To return to the default configuration of the corresponding Instance Port, please use **no spanning-tree msti** 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 msti {id} [pri pri] [path path]
```

```
no spanning-tree msti {id}
```

Parameter

id —— The desired instance ID for its port configuration, 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.

path —— 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.

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Configure the priority of port 5 in instance 1 as 64, and Path Cost as 100:

```
TP-LINK(config)# interface ethernet 5
```

```
TP-LINK(config-if)# spanning-tree msti 1 pri 64 path 100
```

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:

```
TP-LINK(config)# spanning-tree tc-defend threshold 30 period 10
```

spanning-tree security

Description

The **spanning-tree security** command is used to configure MSTP Port Protect. To return to the default configuration, please use **no spanning-tree security** command. Port Protect function is to prevent the devices from any malicious attack against STP features.

Syntax

spanning-tree security [**loop** { disable | enable }] [**root** { disable | enable }] [**TC** { disable | enable }] [**defend** { disable | enable }] [**hold** { disable | enable }]

no spanning-tree security

Parameter

loop — Enable/ Disable Loop Protect. By default, it is disabled. Loop Protect is to prevent the loops in the network brought by recalculating STP because of link failures and network congestions.

root — Enable/ Disable Root Protect. By default, it is disabled. Root Protect is to prevent wrong network topology change caused by the role change of the current legal root bridge.

TC — Enable/ Disable TC Protect. By default, it is disabled.

defend — Enable/ Disable BPDU Protect. By default, it is disabled. BPDU Protect is to prevent the edge port from being attacked by maliciously created BPDUs.

hold — Enable/ Disable BPDU Filter. By default, it is disabled. BPDU Filter is to prevent BPDUs flood in the STP network.

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Enable Loop Protect, Root Protect, TC Protect, BPDU Protect, and BPDU Filter for port 2:

```
TP-LINK(config)# interface ethernet 2
TP-LINK(config-if)# spanning-tree security loop enable root enable TC
enable defend enable hold enable
```

spanning-tree mcheck

Description

The **spanning-tree mcheck** command is used to enable MCheck.

Syntax

spanning-tree mcheck

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Enable MCheck for port 2:

```
TP-LINK(config)# interface ethernet 2
TP-LINK(config-if)# spanning-tree mcheck
```

show spanning-tree global-info

Description

The **show spanning-tree global-info** command is used to display the current status of Spanning Tree.

Syntax

show spanning-tree global-info

Command Mode

Any Configuration Mode

Example

Display the current status of Spanning Tree:

```
TP-LINK# show spanning-tree global-info
```

show spanning-tree global-config

Description

The **show spanning-tree global-config** command is used to display the global configuration of Spanning Tree.

Syntax

show spanning-tree global-config

Command Mode

Any Configuration Mode

Example

Display the global configuration of Spanning Tree:

```
TP-LINK# show spanning-tree global-config
```

show spanning-tree port-config

Description

The **show spanning-tree port-config** command is used to display the Port configuration of Spanning Tree.

Syntax

show spanning-tree port-config [*port*]

Parameter

port — The port selected to display the configuration. By default, the

configuration of all ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the configuration of port 5:

```
TP-LINK(config)# show spanning-tree port-config 5
```

show spanning-tree region

Description

The **show spanning-tree region** command is used to display the Region configuration of MSTP.

Syntax

```
show spanning-tree region
```

Command Mode

Any Configuration Mode

Example

Display the region configuration of MSTP:

```
TP-LINK(config)# show spanning-tree region
```

show spanning-tree msti config

Description

The **show spanning-tree msti config** command is used to display the Instance configuration of Spanning Tree.

Syntax

```
show spanning-tree msti config {id}
```

Parameter

id — The ID of the instance selected to display the configuration, ranging from 1 to 8.

Command Mode

Any Configuration Mode

Example

Display the configuration of instance 1:

```
TP-LINK(config)# show spanning-tree msti config 1
```

show spanning-tree msti port

Description

The **show spanning-tree msti port** command is used to display the Instance Port configuration of Spanning Tree.

Syntax

```
show spanning-tree msti port {id} [port]
```

Parameter

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

port —— The port selected to display the configuration. By default, the configuration of all ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the configuration of port 5 in Instance 1:

```
TP-LINK(config)# show spanning-tree msti port 1 5
```

show spanning-tree security tc-defend

Description

The **show spanning-tree security tc-defend** command is used to display TC Threshold and TC Protect Cycle of Spanning Tree.

Syntax

```
show spanning-tree security tc-defend
```

Command Mode

Any Configuration Mode

Example

Display TC Threshold and TC Protect Cycle of Spanning Tree:

```
TP-LINK(config)# show spanning-tree security tc-defend
```

show spanning-tree security port-defend

Description

The **show spanning-tree security port-defend** command is used to display the Port Protect configuration of Spanning Tree.

Syntax

show spanning-tree security port-defend [*port*]

Parameter

port — The port selected to display the configuration. By default, the Port Protect configuration of all ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the Port Protect configuration of port 2:

```
TP-LINK(config)# show spanning-tree security port-defend 2
```

Chapter 14 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.

igmp-snooping global

Description

The **igmp-snooping global** command is used to configure IGMP globally. To return to the default configuration, please use **no igmp-snooping global** command.

Syntax

igmp-snooping global [status { disable | enable }] [unknown-packet { pass | discard }]

no igmp-snooping global

Parameter

status —— Enable/ Disable IGMP Snooping function globally on the switch. By default, it is disabled.

unknown-packet —— The operation for the switch to process unknown multicast, with pass and discard options.

Command Mode

Global Configuration Mode

Example

Enable IGMP Snooping function, and specify the operation to process unknown multicast as discard:

```
TP-LINK(config)# igmp-snooping global status enable unknown-packet  
discard
```

igmp-snooping config

Description

The **igmp-snooping config** command is used to configure IGMP Snooping and Fast Leave function for port. To return to the default configuration, please use **no igmp-snooping config** command.

Syntax

igmp-snooping config status {disable | enable} **fast-leave** {disable | enable}
no igmp-snooping config

Parameter

status —— Enable/ Disable IGMP Snooping for the desired port.

fast-leave —— Enable/ Disable Fast Leave feature for the desired port. If Fast Leave is enabled for a port, the switch will immediately remove this port from the multicast group upon receiving IGMP leave messages.

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Enable IGMP Snooping and Fast Leave function for port 5:

```
TP-LINK(config)# interface ethernet 5
```

```
TP-LINK(config-if)# igmp-snooping config status enable fast-leave enable
```

igmp-snooping vlan-config-add

Description

The **igmp-snooping vlan-config-add** command is used to configure IGMP Snooping parameters for individual VLANs. To delete the corresponding configuration for the certain VLAN, please use **no igmp-snooping vlan-config-add** command. Multicast groups established by IGMP Snooping are based on VLANs. You can configure different IGMP parameters for different VLANs.

Syntax

igmp-snooping vlan-config-add {vlan-id} [**rtime** router-time] [**mtime** member-time] [**ltime** leave-time] [**rport** router-port]
no igmp-snooping vlan-config-add {vlan-id}

Parameter

vlan-id —— The ID of the VLAN desired to enable IGMP Snooping, ranging from 1 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.

router-port — Static Router Port, which is mainly used in the network with stable topology.

Command Mode

Global Configuration Mode

Example

Enable IGMP Snooping for VLAN 1, and configure Router Port Time as 200 seconds, Member Port Time as 100 seconds, Leave time as 10 seconds and Static Router Port as port 1:

```
TP-LINK(config)# igmp-snooping vlan-config-add 1 rtime 200 mtime 100  
ltime 10 rport 1
```

igmp-snooping vlan-config

Description

The **igmp-snooping vlan-config** command is used to modify IGMP Snooping parameters for individual VLANs. To return to the primary configuration of the corresponding VLAN, please use **no igmp-snooping vlan-config** command.

Syntax

```
igmp-snooping vlan-config {vlan-id} [rtime router-time] [mtime member-time]  
[ltime leave-time] [rport router-port]  
no igmp-snooping vlan-config {vlan-id}
```

Parameter

vlan-id — The ID of the VLAN desired to modify configuration, ranging from 1 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.

router-port —— Static Router Port, which is mainly used in the network with stable topology.

Command Mode

Global Configuration Mode

Example

Modify Router Port Time as 300 seconds, Member Port Time as 200 seconds, and Leave time as 15 seconds for VLAN 1:

```
TP-LINK(config)# igmp-snooping vlan-config 1 rtime 300 mtime 200 ltime 15
```

igmp-snooping multi-vlan-config

Description

The **igmp-snooping multi-vlan-config** command is used to create Multicast VLAN. To delete the corresponding Multicast VLAN, please use **no igmp-snooping multi-vlan-config** command.

Syntax

igmp-snooping multi-vlan-config { disable | enable } {*vid*} [**rtime** *router-time*]
[**mtime** *member-time*] [**ltime** *leave-time*] [**rport** *router-port*]

no igmp-snooping multi-vlan-config

Parameter

disable | enable —— Enable/ Disable Multicast VLAN.

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.

router-port — Static Router Port, which is mainly used in the network with stable topology.

Command Mode

Global Configuration Mode

Example

Enable Multicast VLAN, and configure Router Port Time as 300 seconds, Member Port Time as 200 seconds, and Leave time as 15 seconds for VLAN 2:

```
TP-LINK(config)# igmp-snooping multi-vlan-config enable 2 rtime 300  
mtime 200 ltime 15
```

igmp-snooping static-entry-add

Description

The **igmp-snooping static-entry-add** command is used to create static multicast IP entry. To delete the corresponding entry, please use **no igmp-snooping static-entry-add** command. The multicast groups configured here are not learned by IGMP Snooping and independent of dynamic multicast groups and multicast filter. 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

igmp-snooping static-entry-add {ip} {vlan-id} {switch-port}

no igmp-snooping static-entry-add {ip} {vlan-id}

Parameter

ip — The static multicast IP address.

vlan-id — The VLAN ID of the multicast IP, ranging from 1 to 4094.

switch-port — The forward port of the multicast group, in the format of 1-3,6,23.

Command Mode

Global Configuration Mode

Example

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

```
TP-LINK(config)# igmp-snooping static-entry-add 225.0.0.1 2 1
```

igmp-snooping filter-add

Description

The **igmp-snooping filter-add** command is used to configure the multicast IP-range desired to filter. To delete the corresponding IP-range, please use **no igmp-snooping filter-add** 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

igmp-snooping filter-add {*id*} {*start-ip*} {*end-ip*}

no igmp-snooping filter-add {*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

Add multicast IP-range 225.0.0.1~225.0.0.4 to filter, and specify the IP-range ID as 20:

```
TP-LINK(config)# igmp-snooping filter-add 20 225.0.0.1 225.0.0.4
```

igmp-snooping filter-config

Description

The **igmp-snooping filter-config** command is used to modify the multicast filtering IP-range.

Syntax

igmp-snooping filter-config {*id*} {*start-ip*} {*end-ip*}

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 20 as 225.0.0.10~225.0.0.12:

```
TP-LINK(config)# igmp-snooping filter-config 20 225.0.0.10 225.0.0.12
```

igmp-snooping filter

Description

The **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

igmp-snooping filter status {disable | enable} [**mode** {refuse | accept} |

addr-id *filter-addr-id* | **maxgroup** *max-group*]

no igmp-snooping filter

Parameter

status —— Enable / Disable port multicast filtering function. By default, it is disabled.

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.

filter-addr-id —— The IP-range ID the port will be bound to, in the format of 1-3, 4, 6. Up to 5 IP-Ranges can be bound to one port.

max-group — The maximum number of multicast groups for the port to join in. It is used to prevent some ports taking up too much bandwidth.

Command Mode

Interface Configuration Mode (interface ethernet / interface range ethernet)

Example

Enable multicast filtering function for port 5, specify Action Mode as accept, bound IP-range 2, 3, 4, and specify the maximum number of multicast groups for port 5 to join in as 128:

```
TP-LINK(config)# interface ethernet 5
TP-LINK(config-if)# igmp-snooping filter status enable mode accept addr-id
2-4 maxgroup 128
```

show igmp-snooping global-config

Description

The **show igmp-snooping global-config** command is used to display the global configuration of IGMP.

Syntax

show igmp-snooping global-config

Command Mode

Any Configuration Mode

Example

Display the global configuration of IGMP:

```
TP-LINK> show igmp-snooping global-config
```

show igmp-snooping port-config

Description

The **show igmp-snooping port-config** command is used to display one port's or all ports' configuration of IGMP.

Syntax

show igmp-snooping port-config [*port*]

Parameter

port — The port selected to display the configuration. By default, the configuration of all ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the IGMP configuration of port 2:

```
TP-LINK> show igmp-snooping port-config 2
```

show igmp-snooping vlan-config

Description

The **show igmp-snooping vlan-config** command is used to display the VLAN configuration of IGMP.

Syntax

```
show igmp-snooping vlan-config
```

Command Mode

Any Configuration Mode

Example

Display the VLAN configuration of IGMP:

```
TP-LINK> show igmp-snooping vlan-config
```

show igmp-snooping multi-vlan

Description

The **show igmp-snooping multi-vlan** command is used to display the Multicast VLAN configuration.

Syntax

```
show igmp-snooping multi-vlan
```

Command Mode

Any Configuration Mode

Example

Display the Multicast VLAN configuration:

```
TP-LINK> show igmp-snooping multi-vlan
```

show igmp-snooping multi-ip-list

Description

The **show igmp-snooping multi-ip-list** command is used to display the Multicast IP table.

Syntax

show igmp-snooping multi-ip-list

Command Mode

Any Configuration Mode

Example

Display the Multicast IP table:

```
TP-LINK> show igmp-snooping multi-ip-list
```

show igmp-snooping filter-ip-addr

Description

The **show igmp-snooping filter-ip-addr** command is used to display the Multicast Filter IP-Range table.

Syntax

show igmp-snooping filter-ip-addr

Command Mode

Any Configuration Mode

Example

Display the Multicast Filter IP-Range table:

```
TP-LINK(config)# show igmp-snooping filter-ip-addr
```

show igmp-snooping port-filter

Description

The **show igmp-snooping port-filter** command is used to display the configuration of Multicast Port Filter.

Syntax

show igmp-snooping port-filter [*port-num*]

Parameter

port-num — The port selected to display the configuration of Multicast Filter.

By default, the configuration of all ports is displayed.

Command Mode

Any Configuration Mode

Example

Display the Multicast Filter configuration of port 5:

```
TP-LINK> show igmp-snooping port-filter 5
```

show igmp-snooping packet-stat

Description

The **show igmp-snooping packet-stat** command is used to display the Packet Statistics information of all ports.

Syntax

```
show igmp-snooping packet-stat
```

Command Mode

Any Configuration Mode

Example

Display the Packet Statistics information:

```
TP-LINK> show igmp-snooping packet-stat
```

show igmp-snooping packet-stat-clear

Description

The **show igmp-snooping packet-stat-clear** command is used to clear the Packet Statistics information of all ports.

Syntax

```
show igmp-snooping packet-stat-clear
```

Command Mode

Any Configuration Mode

Example

Clear the Packet Statistics information:

```
TP-LINK> show igmp-snooping packet-stat-clear
```

Chapter 15 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 global

Description

The **snmp global** command is used to configure the SNMP function globally. To return to the default configuration, please use **no snmp global** command.

Syntax

snmp global [**status** {disable | enable}] [**engine-id** *engine-id*] [**remote-id** *remote-id*]

no snmp global

Parameter

status —— Enable/ Disable the SNMP function. By default, it is disabled.

engine-id —— 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-id —— 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 traps and informs from the switch. Its length ranges from 10 to 64 hexadecimal characters, which must be even number meanwhile.

Command Mode

Global Configuration Mode

Example

Enable the SNMP function, and specify the Local Engine ID as 1234567890, the Remote Engine ID as 123456abcdef:

```
TP-LINK(config)# snmp global status enable engine-id 1234567890
remote-id 123456abcdef
```

snmp view-add

Description

The **snmp view-add** command is used to add View. To delete the corresponding View, please use **no snmp view-add** 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 view-add {*name*} {*mib-oid*} {include | exclude}

no snmp view-add {*name*} {*mib-oid*}

Parameter

name — The entry name of View, ranging from 1 to 16 characters. Each View can include 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:

```
TP-LINK(config)# snmp view-add view1 1.3.6.1.6.3.20 include
```

snmp group-add

Description

The **snmp group-add** command is used to manage and configure the SNMP group. To delete the corresponding SNMP group, please use **no snmp group-add** 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 group-add {name} [smode { v1 | v2c | v3 }] [slev { noAuthNoPriv |  
authNoPriv | authPriv }] [ro ro-view] [wo wo-view] [inform inform-view]
```

```
no snmp group-add {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. SNMP v1 and SNMP v2c are both authenticated by Community Name (please refer [snmp community-add](#) for detailed information), SNMP v3 is authenticated by USM mechanism. By default, the Security Model 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 Security Level is noAuthNoPriv. There is no need to configure this in SNMP v1 Model and SNMP v2c Model.

ro-view —— Read-only view. The management access is restricted to read-only, and changes cannot be made to the assigned SNMP View.

wo-view —— Write-only 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.

inform-view —— Notify view. The management station software can receive trap messages of the assigned SNMP view generated by the Switch's SNMP agent.

Command Mode

Global Configuration mode

Example

Add group 1, configure its Security Model as SNMP v2c, view1 can be read and edited by group member, and the trap messages sent by view2 can be received by Management station:

```
TP-LINK(config)# snmp group-add group1 smode v2c ro view1 wo view1  
inform view2
```

snmp user-add

Description

The **snmp user-add** command is used to add User. To delete the corresponding User, please use **no snmp user-add** 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 user-add {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 user-add {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 indicates 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 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:

```
TP-LINK(config)# snmp user-add admin local group2 smode v3 slev authPriv  
cmode MD5 cpwd 11111 emode DES epwd 22222
```

snmp community-add

Description

The **snmp community-add** command is used to add Community. To delete the corresponding Community, please use **no snmp community-add** 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 community-add {*name*} {read-only | read-write} {*mib-view*}

no snmp community-add {*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 community1, and the community has read-write management right to View view1:

```
TP-LINK(config)# snmp community-add community1 read-write view1
```

snmp notify-add

Description

The **snmp notify-add** command is used to add Notification. To delete the corresponding Notification, please use **no snmp notify-add** command. With the Notification function enabled, the switch can initiatively report to the management station about the important events that occur on the Views, which allows the management station to monitor and process the events in time.

Syntax

```
snmp notify-add {ip} {udp-port} {user-name} [smode { v1 | v2c | v3 }] [slev  
{ noAuthNoPriv | authNoPriv | authPriv }] [type { trap | inform }] [resend resend]  
[timeout timeout]
```

```
no snmp notify-add {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. By default, it is 162.

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.

resend — The amount of times the switch resends 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 192.168.0.1, 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 resending time as 100:

```
TP-LINK(config)# snmp notify-add 192.168.0.1 162 admin smode v2c type  
inform resend 100 timeout 1000
```

snmp-rmon history sample-cfg

Description

The **snmp-rmon history sample-cfg** command is used to configure the history sample entry. To return to the default configuration, please use **no snmp-rmon history sample-cfg** command. RMON (Remote Monitoring), based 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

```
snmp-rmon history sample-cfg {index} {port} {interval}  
no snmp-rmon history sample-cfg {index}
```

Parameter

index — The index number of the entry, ranging from 1 to 12, in the format of 1-3,5.

port — The port from which the history samples were taken.

interval — The interval to take samplings from the port, ranging from 10 to 3600 in seconds. By default, it is 1800.

Command Mode

Global Configuration Mode

Example

Configure the sample port as 1, and the sample interval as 100 seconds for the entries 1-3:

```
TP-LINK(config)# snmp-rmon history sample-cfg 1-3 1 100
```

snmp-rmon history owner

Description

The **snmp-rmon history owner** command is used to configure the owner of the history sample entry. To return to the default configuration, please use **no snmp-rmon history owner** command.

Syntax

snmp-rmon history owner {*index*} [*owner*]

no snmp-rmon history owner {*index*}

Parameter

index —— The index number of the sample entry, ranging from 1 to 12. You can only select one entry for each command.

owner —— The owner of the history sample entry, ranging from 1 to 16 characters. By default, it is minitor.

Command Mode

Global Configuration Mode

Example

Configure the owner of entry 1 as owner1:

```
TP-LINK(config)# snmp-rmon history owner 1 owner1
```

snmp-rmon history enable

Description

The **snmp-rmon history enable** command is used to enable the history sample entry. To disable the corresponding entry, please use **no snmp-rmon history enable** command.

Syntax

snmp-rmon history enable {*index*}

no snmp-rmon history enable {*index*}

Parameter

index — The index number of the entry desired to enable, ranging from 1 to 12, in the format of 1-3,5.

Command Mode

Global Configuration Mode

Example

Enable the history sample entries 1,2,3,4 and 8:

```
TP-LINK(config)# snmp-rmon history enable 1-4,8
```

snmp-rmon event user

Description

The **snmp-rmon event user** command is used to configure the user name of SNMP-RMON Event. To return to the default configuration, please use **no snmp-rmon event user** 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

snmp-rmon event user {*index*} [*user*]

no snmp-rmon event user {*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 — The name of the User to which the event belongs, ranging from 1 to 16 characters. By default, it is public.

Command Mode

Global Configuration Mode

Example

Configure the user name of entry 1 as user1:

```
TP-LINK(config)# snmp-rmon event user 1 user1
```

snmp-rmon event description

Description

The **snmp-rmon event description** command is used to configure the description of SNMP-RMON Event. To return to the default configuration, please use **no snmp-rmon event description** command.

Syntax

snmp-rmon event description *{index}* *{description}*

no snmp-rmon event description *{index}*

Parameter

index — The index number of the event entry, ranging from 1 to 12. You can only select one entry for each command.

description — The description of the event, ranging from 1 to 16 characters. By default, it is empty.

Command Mode

Global Configuration Mode

Example

Configure the description of entry 1 as description1:

```
TP-LINK(config)# snmp-rmon event description 1 description1
```

snmp-rmon event type

Description

The **snmp-rmon event type** command is used to configure the type of SNMP-RMON Event. To return to the default configuration, please use **no snmp-rmon event type** command.

Syntax

snmp-rmon event type *{index}* { none | log | notify | both }

no snmp-rmon event type *{index}*

Parameter

index — The index number of the entry, ranging from 1 to 12, in the format of 1-3,5.

none | log | notify | both — 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.

Command Mode

Global Configuration Mode

Example

Configure the event type of entries 1,2,3,4 and 8 as log:

```
TP-LINK(config)# snmp-rmon event type 1-4,8 log
```

snmp-rmon event owner

Description

The **snmp-rmon event owner** command is used to configure the owner of SNMP-RMON Event. To return to the default configuration, please use **no snmp-rmon event owner** command.

Syntax

snmp-rmon event owner *{index}* [*owner*]

no snmp-rmon event owner *{index}*

Parameter

index — The index number of the event entry, ranging from 1 to 12. You can only select one entry for each command.

owner — The owner of the event entry, ranging from 1 to 16 characters. By default, it is minitor.

Command Mode

Global Configuration Mode

Example

Configure the owner of entry 1 as owner1:

```
TP-LINK(config)# snmp-rmon event owner 1 owner1
```

snmp-rmon event enable

Description

The **snmp-rmon event enable** command is used to enable SNMP-RMON Event entry. To disable the corresponding entry, please use **no snmp-rmon event enable** command.

Syntax

snmp-rmon event enable *{index}*

no snmp-rmon event enable *{index}*

Parameter

index — The index number of the entry desired to enable, ranging from 1 to

12, in the format of 1-3,5.

Command Mode

Global Configuration Mode

Example

Enable the SNMP-RMON Event entries 1,2,3,4 and 8:

```
TP-LINK(config)# snmp-rmon event enable 1-4,8
```

snmp-rmon alarm config

Description

The **snmp-rmon alarm config** command is used to configure SNMP-RMON Alarm Management. To return to the default configuration, please use **no snmp-rmon alarm config** 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

```
snmp-rmon alarm config {index} [var { drop | revbyte | revpkt | bpkt | mpkt |  
crc-align | undersize | oversize | fragment | jabber | collision | 64 | 65-127 |  
128-511 | 512-1023 | 1024-10240 }] [port port] [s-type { absolute | increment }]  
[r-hold r-hold] [r-event r-event] [f-hold f-hold] [f-event f-event] [a-type { rise |  
fall | all }] [interval interval]
```

```
no snmp-rmon alarm config {index}
```

Parameter

index — The index number of the Alarm Management entry, ranging from 1 to 12, in the format of 1-3,5.

var — The alarm variable. By default, the option is drop.

port — The port on which the Alarm entry acts.

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 increment. Absolute indicates comparing the values directly with the thresholds at the end of the sampling interval. Increment 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.

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 alarm interval time of the entries 1,2,3 and 6 as 1000 seconds:

```
TP-LINK(config)# snmp-rmon alarm config 1-3,6 interval 1000
```

snmp-rmon alarm owner

Description

The **snmp-rmon alarm owner** command is used to configure the owner of the Alarm Management entry. To return to the default configuration, please use **no snmp-rmon alarm owner** command.

Syntax

snmp-rmon alarm owner *{index}* [*owner*]

no snmp-rmon alarm owner *{index}*

Parameter

index — The index number of the entry, ranging from 1 to 12. You can only select one entry for each command.

owner — The owner of the entry, ranging from 1 to 16 characters. By default,

it is minitor.

Command Mode

Global Configuration Mode

Example

Configure the owner of entry 1 as owner1:

```
TP-LINK(config)# snmp-rmon alarm owner 1 owner1
```

snmp-rmon alarm enable

Description

The **snmp-rmon alarm enable** command is used to enable SNMP-RMON Alarm Management entry. To disable the corresponding entry, please use **no snmp-rmon alarm enable** command.

Syntax

snmp-rmon alarm enable {*index*}

no snmp-rmon alarm enable {*index*}

Parameter

index — The index number of the entry desired to enable, ranging from 1 to 12, in the format of 1-3,5.

Command Mode

Global Configuration Mode

Example

Enable the Alarm Management entries 1,2,3,4 and 8:

```
TP-LINK(config)# snmp-rmon alarm enable 1-4,8
```

show snmp global-config

Description

The **show snmp global-config** command is used to display SNMP configuration globally.

Syntax

show snmp global-config

Command Mode

Any Configuration Mode

Example

Display SNMP configuration globally:

```
TP-LINK> show snmp global-config
```

show snmp view

Description

The **show snmp view** command is used to display the View table.

Syntax

```
show snmp view
```

Command Mode

Any Configuration Mode

Example

Display the View table:

```
TP-LINK> show snmp view
```

show snmp group

Description

The **show snmp group** command is used to display the Group table.

Syntax

```
show snmp group
```

Command Mode

Any Configuration Mode

Example

Display the Group table:

```
TP-LINK> show snmp group
```

show snmp user

Description

The **show snmp user** command is used to display the User table.

Syntax

```
show snmp user
```

Command Mode

Any Configuration Mode

Example

Display the User table:

```
TP-LINK> show snmp user
```

show snmp community

Description

The **show snmp community** command is used to display the Community table.

Syntax

```
show snmp community
```

Command Mode

Any Configuration Mode

Example

Display the Community table:

```
TP-LINK> show snmp community
```

show snmp destination-host

Description

The **show snmp destination-host** command is used to display the Notification table.

Syntax

```
show snmp destination-host
```

Command Mode

Any Configuration Mode

Example

Display the Notification table:

```
TP-LINK> show snmp destination-host
```

show snmp-rmon history

Description

The **show snmp-rmon history** command is used to display the configuration of the history sample entry.

Syntax

show snmp-rmon history [*index*]

Parameter

index — The index number of the entry selected to display the configuration, ranging from 1 to 12. You can only select one entry for each command. By default, the configuration of all entries is displayed.

Command Mode

Any Configuration Mode

Example

Display the configuration of all history sample entries:

```
TP-LINK> show snmp-rmon history
```

show snmp-rmon event

Description

The **show snmp-rmon event** command is used to display the configuration of SNMP-RMON Event.

Syntax

show snmp-rmon event [*index*]

Parameter

index — The index number of the entry selected to display the configuration, ranging from 1 to 12. You can only select one entry for each command. By default, the configuration of all entries is displayed.

Command Mode

Any Configuration Mode

Example

Display the Event configuration of entry 2:

```
TP-LINK> show snmp-rmon event 2
```

show snmp-rmon alarm

Description

The **show snmp-rmon alarm** command is used to display the configuration of

the Alarm Management entry.

Syntax

show snmp-rmon alarm [*index*]

Parameter

index — The index number of the entry selected to display the configuration, ranging from 1 to 12. You can only select one entry for each command. By default, the configuration of all entries is displayed.

Command Mode

Any Configuration Mode

Example

Display the configuration of all Alarm Management entries:

```
TP-LINK> show snmp-rmon alarm
```