CLI Reference Guide

CONTENTS

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 Omada Business Router that supports the CLI function without any explanation. Some models featured in this guide may be unavailable in your country or region. For local sales information, visit https://www.tp-link.com.

Overview of this Guide

Chapter 1: Using the CLI

About how to use the CLI, CLI Command Modes, and some Conventions.

Chapter 2: Public Commands

About the commands relating to general operations, such as viewing the available commands, rebooting the device, and testing the network connectivity.

Chapter 3: User Management Commands

About the commands used for user management.

Chapter 4: DHCP Commands

About the commands used for DHCP settings.

Chapter 5: Port Mirroring Commands

About the commands used for configuring the Port Mirror function.

Chapter 6: IEEE 802.1Q VLAN Commands

About the commands used for configuring IEEE 802.1Q VLAN.

Chapter 7: NAT Commands

About the commands used for configuring the NAT.

Chapter 8: Static Routing Commands

About the commands used for configuring the static routing rules.

Chapter 9: RIP Commands

About the commands used for configuring the RIP function.

Chapter 10: OSPF Commands

About the commands used for configuring the OSPF function.

Chapter 11: IPSec Commands

About the commands used for configuring the IPSec settings.

Chapter 12: ACL Commands

About the commands used for configuring the ACL.

Chapter 13: SSH Commands

About the commands used for configuring the SSH settings.

Chapter 14: SNMP Commands

About the commands used for configuring the SNMP settings.

Chapter 15: HTTP and HTTPS Commands

About the commands used for configuring the HTTP and HTTPS logon.

Chapter 16: Time Management Commands

About the commands used for the rime-range settings, and the system time settings.

Chapter 17: ARP Commands

About the commands used for the ARP function.

Chapter 1 Using the CLI

1 Accessing the CLI

You can log on to the router and access the CLI by the following two methods.

1 Logon Via the Console Port (Only for certain models).

2 Logon By SSH.

1.1.1 Logon by a console port

Note: Console port is only available on certain devices.

- Console Port

Some models are equipped with an RJ-45 console port. Take the following steps to log on to the device via the console port.

1. Connect the Console port of the router to the management PC using an RJ45 console cable.
2. Start the terminal emulation program (such as the HyperTerminal) on the PC and configure the terminal emulation program as follows:
   - Baud rate: 115200 bps
   - Data bits: 8
   - Parity: none
   - Stop bits: 1
   - Flow control: none
3. In the Hyper Terminal main window, press **Enter** and ">" will appear, indicating that you have successfully logged in to the router and you can use the CLI now.

Note: The username "admin" in the figure above is for demonstration only. Please enter the username and password according to the real situation.

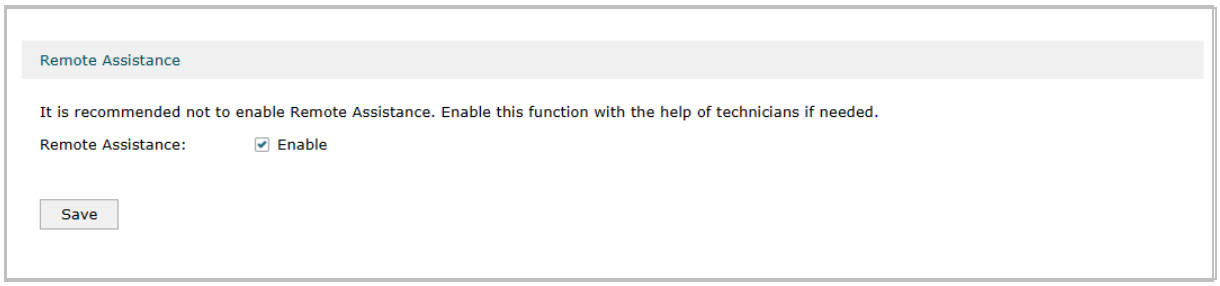
1.1.2 Logon by SSH

To log on by SSH, you are recommended to use the software PuTTY via password authentication. You need to first prepare the username and password you set for logging in to the router's web management page.

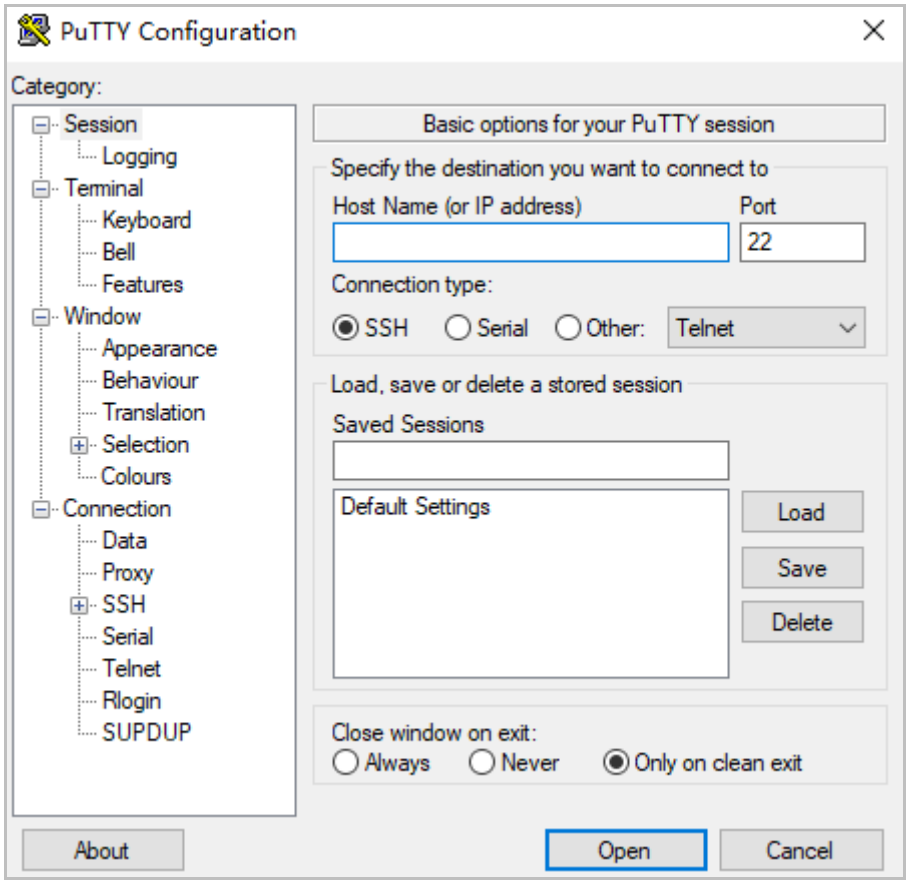
Note:

Before SSH login, you should enable **Remote Assistance** for the router. Follow the steps:

1. Go to the router's management page.
2. Go to **System Tools** > **Diagnostics** > **Remote Assistance**
3. In Remote Assistance section, enable **Remote Assistance**, and click **Save.**



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



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

2 CLI Command Modes

The CLI is divided into three main modes: **User EXEC Mode**, **Public Mode**, and **Global Configuration Mode**. Global Configuration Mode is further divided into various subsidiary modes including Config DHCP Mode, Config VLAN Mode, Interface Mode Config NAT OTO Mode, Config NAT VS Mode, Config RIP Mode, OSPF Mode, IPSEC_ISAKMP Mode, IPSEC_TRANSFORM Mode, and IPSEC_MAP Mode.

For the main modes, the accessing path, prompt, and ways to log out or access the next mode are presented below:

Mode	Accessing path	Prompt	Logout or access the subsidiary mode
User EXEC Mode	Primary mode once you log in to the CLI interface.	**>**	No exit. Use the **enable** command to go to Public Mode.
Public Mode	Use the **enable** command to enter this mode from User EXEC Mode.	**#**	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 **config** command to enter this mode from Public Mode.	**(config)#**	Use the **exit** command or press **Ctrl+Z** to return to Public Mode. To go to the subsidiary modes, refer to specific commands: 4.2 ip dhcp server pool 6.2 router vlan 6.4 router port 6.6 interface 7.4 nat one-to-one 7.10 nat virtual-server 9.1 router rip 10.1 router ospf 11.1 crypto policy 11.10 crypto ipsec transform-set 11.14 crypto map

Note:

1. The user is automatically in User EXEC Mode after the connection between the PC and the router is established by an SSH connection.
2. Each command mode has its own set of specific commands. To configure some commands, you should access the corresponding command mode firstly.
3. Some commands can be performed in all modes.

3 Conventions

3.1.1 Format Conventions

The following conventions are used in this Guide:

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

3.1.2 Special Characters

- These six characters " < > , \ & cannot be input.
- Special characters in this guide are the space and the question mark. Typing a space means you are about to enter the next parameter or command. Enter a question mark in the position of a parameter, and a tip will appear, indicating what you are supposed to type in. You can't use the space and the question mark as a username or password.

3.1.3 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 example: **(config)#monitor session 1 source port 2, 3-5**

Chapter 2 Public Commands

2.1 help

Description

The **help** command is used to view all the available commands of the current mode.

Syntax

help

Command Mode

All

Example

View the available commands of the Global Configuration Mode:

```
>enable
#config
(config)#help
```

2.2 exit

Description

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

Syntax

exit

Command Mode

All

Example

Return to Public Mode from Global Configuration Mode:

```
(config)#exit
```

2.3 enable

Description

The **enable** command is used to access Public mode from User EXEC mode.

Syntax

enable

Command Mode

User EXEC Mode

Example

Go to Public Mode from User EXEC Mode:

```
>enable
```

2.4 disable

Description

The **disable** command is used to return to the User EXEC mode from Public mode.

Syntax

disable

Command Mode

Public Mode

Example

Return to the User EXEC Mode from Public Mode :

```
#disable
```

2.5 config

Description

The **config** command is used to enter the Global Configuration mode from the Public mode.

Syntax

config

Command Mode

Public Mode

Example

Enter the Global Configuration Mode from the Public Mode:

```
#config
```

2.6 show history

Description

The **show history** command is used to display the latest 20 commands you have entered.

Syntax

show history

Command Mode

All

Example

In Public Mode, view the history command you have entered:

```
>enable

#show history
```

2.7 clear history

Description

The **clear history** command is used to clear the commands history. Therefore, these commands will not appear next time you use the **show history** command.

Syntax

clear history

Command Mode

All

Example

In Public Mode, clear the commands you have entered:

```
>enable
#clear history
```

2.8 reboot

Description

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

Syntax

reboot

Command Mode

Public Mode

Example

To reboot your device:

```
>enable
#reboot
This will reboot device. Continue? (Y/N): Y
```

2.9 show system-info

Description

The **show system-info** command is used to display System Description, System Name, Contact Information, Hardware Version, Firmware Version, Mac Address, System Time, Running Time, etc.

Syntax

show system-info

Command Mode

All

Example

View the system information of your router:

```
(config)#show system-info
```

2.10 ping

Description

The **ping** command is used to test the connectivity between the router and the tested host and measure the round-trip time. Only IPv4 addresses are supported.

Syntax

ping *address*

Parameter

address —— Enter the IPv4 address of the tested host.

Command Mode

Public Mode

Example

To test the connectivity between the router and a tested host (e.g., 192.168.0.100) through the **ping** command:

```
>enable

#ping 192.168.0.100
```

2.11 tracert

Description

The **tracert** command is used to display the route (path) your router has passed to reach the tested host and measure transit delays of packets across an Internet Protocol network. Only the IPv4 addresses are supported.

Syntax

tracert *address*

Parameter

address —— Enter the IPv4 address of the tested host.

Command Mode

Public Mode

Example

To test the connectivity between the router and a tested host (e.g., 192.168.0.100) through the **tracert** command:

>enable

 # tracert 192.168.0.100

Chapter 3 User Management Commands

3.1 local-user username password

Description

The **local-user username password** command is used to set a new username or password for you to log in to the router. Using this command will make the SSH to reload.

Syntax

local-user username *username* **password** *password*

Parameter

username —— Specify a username for the local user account (1-64 letters, digits or special characters).

password —— Specify a password for the local user account (6-64 letters, digits or special characters).

Command Mode

Global Configuration Mode

Example

Set the username as “admin”, and the password as “12345678”:

```
(config)#local-user username admin password 12345678
```

Chapter 4 DHCP Commands

DHCP (Dynamic Host Configuration Protocol) is a network configuration protocol for hosts on TCP/IP networks, and it provides a framework for distributing configuration information to hosts. DHCP server assigns IP addresses from specified address pools on a switch or router to DHCP clients and manages them.

4.1 service dhcp server

Description

The **service dhcp server** command is used to enable DHCP service. To disable DHCP service, please use the **no service dhcp server** command.

Syntax

service dhcp server

no service dhcp server

Command Mode

Global Configuration Mode

Example

Enable DHCP server of the router:

```
(config)#service dhcp server
```

4.2 ip dhcp server pool

Description

The **ip dhcp server pool** command is used to create an address pool of the DHCP server and enter the Config DHCP Server mode. You should set the network address, subnet mask, and VLAN ID for an address pool in the config-dhcp-server mode for it to work. An unfinished address pool will be saved into the cache, and you can continue to configure it using the **ip dhcp server pool** command**.** Likewise, the **ip dhcp server pool** command allows you to edit the existing address pools.

To delete an address pool, please use the **no ip dhcp server pool** command.

Syntax

ip dhcp server pool *pool-name*

no ip dhcp server pool *pool-name*

Parameter

pool-name —— Enter the address pool name within 40 characters with letters, numbers, or underscores.

Command Mode

Global Configuration Mode

Example

Create an address pool named "P1":

(config)#ip dhcp server pool P1

4.3 ip-mask

Description

The **ip-mask** command is used to specify the network address and subnet mask of the network pool. It is one of the prerequisites for a newly created address pool to take effect.

Syntax

ip-mask {*network-address*} {*subnet-mask*}

Parameter

network-address —— Specify the network address of the pool, with the format A.B.C.D. All the IP addresses in the same subnet are allocable except the reserved addresses and specific addresses.

subnet-mask —— Specify the subnet mask of the pool, with the format A.B.C.D.

Command Mode

Config DHCP Server Mode

Example

For address pool "P1", set its network address as "192.168.3.1", and the subnet mask as "255.255.255.0":

(config)#ip dhcp server pool P1

(config-dhcp-server)#ip-mask 192.168.3.1 255.255.255.0

4.4 vlan-id

Description

The **vlan-id** command is used to set a VLAN for a DHCP server. It is one of the prerequisites for a newly created address pool to take effect.

Syntax

vlan-id *vlan-id*

Parameter

vlan-id —— Specify the VLAN ID for the DHCP server. The value ranges from 1 to 4094.

Command Mode

Config DHCP Server Mode

Example

Set the VLAN of the address pool "P1" as "2":

(config)#ip dhcp server pool P1

(config-dhcp-server)#vlan-id 2

4.5 lease

Description

The **lease** command is used to specify the lease time for DHCP clients. Lease time defines how long the clients can use the IP address assigned by the DHCP server. Generally, the client will automatically request the DHCP server for extending the lease time before the lease expired. If the request failed, the client will have to stop using that IP address when the lease finally expired, and try to get a new IP address from the other DHCP servers.

Syntax

lease *lease-time*

Parameter

lease-time —— Specify the lease time ranging from 1 to 2880 minutes. The default value is 120 minutes.

Command Mode

Config DHCP Server Mode

Example

Specify the lease time of address pool "P1" as "180" minutes:

(config)#ip dhcp server pool P1

(config-dhcp-server)#lease 180

4.6 default-gateway

Description

The **default-gateway** command is used to specify the default gateway for the address pool. To delete the configuration, please use the **no default-gateway** command.

Syntax

default-gateway *gateway*

no default-gateway

Parameter

gateway—— Enter the default gateway for the address pool.

Command Mode

Config DHCP Server Mode

Example

For the address pool *P1*, set its default gateway as "192.168.3.1":

(config)#ip dhcp server pool P1

(config-dhcp-server)#default-gateway 192.168.3.1

4.7 domain-name

Description

The **domain-name** command is used to specify the domain name for the DHCP client. To delete the domain name, please use the **no domain-name** command.

Syntax

domain-name *domainname*

no domain-name

Parameter

domainname —— Specify the domain name for the DHCP client.

Command Mode

Config DHCP Server Mode

Example

For address pool "P1", specify its DHCP client's domain name as "example.com":

(config)#ip dhcp server pool P1

(config-dhcp-server)#domain-name example.com

4.8 dns-server

Description

The **dns-server** command is used to specify the DNS server of the address pool. To delete this configuration, please use the **no dns-server** command.

Syntax

dns-server {**dns1** *primarydns* | **dns2** *secondarydns*}

no dns-server

Parameter

primarydns —— Enter the primary DNS server address provided by your ISP. If you are not sure, please consult your ISP.

secondarydns —— Enter the secondary DNS server address provided by your ISP. If you are not sure, please consult your ISP.

Command Mode

Config DHCP Server Mode

Example

For address pool "P1", specify its primary DNS as "192.168.0.1":

(config)#ip dhcp server pool P1

(config-dhcp-server)#dns-server dns1 192.168.0.1

For address pool "P1", specify its secondary DNS as "192.168.1.1":

(config)#ip dhcp server pool P1

(config-dhcp-server)#dns-server dns2 192.168.1.1

4.9 option

Description

The **option** command is used to specify an option for the DHCP client. To delete the option, please use the **no option command**.

Syntax

option {60 | 66 | 67 | 150 | 159 | 160 | 176 | 242} {*value*}

option138 ip-address *ip-address*

no option {60 | 66 | 67 | 138 | 150 | 159 | 160 | 176 | 242}

Parameter

60 —— DHCP clients use this field to optionally identify the vendor type and configuration of a DHCP client. Mostly, it is used in the scenario where the APs apply for different IP addresses from different servers according to the needs. For detailed information, please consult the vendor. For TP-Link, the parameter *value* should be TP-Link.

66 —— Option 66 specifies the TFTP server information and supports a single TFTP server IP address.

67 —— Option 67 specifies the boot file name.

150 —— Option 150 specifies the TFTP server information and supports multiple TFTP server IP addresses.

160 —— Option 160 is used to configure DHCP captive portal.

176 —— Option 176 is used to configure parameters for IP phones.

242 —— Option 242 is used to provide the TMS address automatically.

value —— The value you specified for an option to take effect.

ip-address —— Enter the management address of an Omada Controller for it to discover the router. Option 138 is used in discovering the devices by an Omada controller.

Command Mode

Config DHCP Server Mode

Example

Set the file name of DHCP Network Boot as “Example”:

```
(config-dhcp-server)#option 67 Example
```

4.10 ip dhcp relay helper-address

Description

The **ip dhcp relay helper-address** command is used to enable DHCP relay, and specify a server address. If you select DHCP Relay as the DHCP Mode, the gateway will relay DHCP requests from LAN clients to the DHCP server in another network. Then the DHCP server will assign IP addresses to the LAN clients.

To disable DHCP relay, please use the **no ip dhcp relay helper-address** command.

Syntax

ip dhcp relay helper-address *ip-address*

no ip dhcp relay helper-address

Parameter

ip-address —— Enter the IP address of the DHCP server.

Command Mode

Config DHCP Server Mode

Example

For address pool "P1", enable DHCP Relay and set the Server Address as "192.168. 3.1":

(config)#ip dhcp server pool P1

(config-dhcp-server)#ip dhcp relay helper-address 192.168.3.1

4.11 show dhcp relay

Description

The **show dhcp relay** command is used to display the information of the DHCP Relay mode.

Syntax

show dhcp relay

Command Mode

Global Configuration Mode

Example

To view the router's DHCP relay information:

```
(config)#show dhcp relay
```

4.12 show ip dhcp server pool

Description

The **show ip dhcp server pool** command is used to display the configuration of the address pool.

Syntax

show ip dhcp server pool

Command Mode

Global Configuration Mode

Example

Display the configured address pool:

```
(config)#show ip dhcp server pool
```

4.13 show ip dhcp server status

Description

The **show ip dhcp server status command** is used to display the status of the DHCP server.

Syntax

show ip dhcp server status

Command Mode

Global Configuration Mode

Example

Display the status of DHCP server:

```
(config)#show ip dhcp server status
```

4.14 show dhcp server client-list

Description

The **show dhcp server client-list** command is used to display the DHCP server client information.

Syntax

show dhcp server client-list

Command Mode

Global Configuration Mode

Example

Display the DHCP server client information:

```
(config)#show dhcp server client-list
```

4.15 show dhcp server

Description

The **show dhcp server** command is used to display the settings of the DHCP servers you created and the unfinished DHCP servers saved in the cache.

Syntax

show dhcp server

Command Mode

Global Configuration Mode

Example

Display the information of the DHCP servers:

```
(config)#show dhcp server
```

Chapter 5 Port Mirroring Commands

Port Mirror function allows the router to forward packet copies of the monitored ports to a specific monitoring port. Then you can analyze the copied packets to monitor network traffic and troubleshoot network problems.

5.1 monitor session enable

Description

The **monitor session enable** command is used to enable the Port Mirror function. To disable this function, please use the **no monitor session enable** command.

Syntax

monitor session *session_num* **enable**

no monitor session *session_num* **enable**

Parameter

session_num —— The monitor session number, can only be specified as 1.

Command Mode

Global Configuration Mode

Example

Enable the Port Mirror function and create monitor session "1":

(config)#monitor session 1 **enable**

5.2 monitor session port

Description

The **monitor session port** command is used to configure the monitoring port (the mirroring port). Each monitor session has only one monitoring port. To change the monitoring port, please edit the port-id of the **monitor session port** command.

Syntax

monitor session *session_num* **port** *port-id*

Parameter

session_num —— The monitor session number, can only be specified as 1.

port-id —— The monitoring port number ranging from 1 to 5.

Command Mode

Global Configuration Mode

Example

For monitor session 1, configure port 1 as the monitoring port:

(config)#monitor session 1 **port** 1

5.3 monitor session source port

Description

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

Syntax

monitor session *session_num* **source port** *port-id*

no monitor session *session_num* **source port** *port-id*

Parameter

session_num —— The monitor session number, can only be specified as 1.

port-id —— The monitored port number, cannot be the same as the monitoring port. To create or delete multiple monitored ports, separate the port-id with a comma in the command.

Command Mode

Global Configuration Mode

Example

For monitor session 1, configure port 2 and 3 as the monitored port:

(config)#monitor session 1 **source port** 2,3

5.4 monitor session mode

Description

The **monitor session mode** command is used to set the monitor mode (the Mirror Mode). The command includes three options: ingress, engress, and both.

Syntax

monitor session *session_num* {ingress | egress | both}

Parameter

session_num —— The monitor session number, can only be specified as 1.

ingress —— The packets received by the mirrored port will be copied to the mirroring port.

egress —— The packets sent by the mirrored port will be copied to the mirroring port.

both —— Both the incoming and outgoing packets through the mirrored port will be copied to the mirroring port

Command Mode

Global Configuration Mode

Example

For monitor session 1, set the monitor mode as “ingress”:

```
(config)#monitor session 1 ingress
```

5.5 show monitor session

Description

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

Syntax

show monitor session [*session_num***]**

Parameter

session_num —— The monitor session number, can only be specified as 1. It is optional.

Command Mode

Global Configuration Mode

Example

Display the monitoring configuration of monitor session 1:

```
(config)#show monitor session 1
```

Chapter 6 IEEE 802.1Q VLAN Commands

VLAN enables you to divide the LAN into multiple logical networks and control the traffic among them in a convenient and flexible way. The LAN can be logically segmented by departments, application, or types of users, without regard to geographic locations. VLAN can enhance performance by conserving bandwidth, and improve security by limiting traffic to specific domains.

6.1 vlan

Description

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

Syntax

vlan *vlan-list*

no vlan *vlan-list*

Parameter

interface —— Specify IEEE 802.1Q VLAN ID list, ranging from 2 to 4094. It is multi-optional.

To create a new VLAN, enter in the format of vlan 2.

To create new VLANs in batches, enter in the format of vlan 2-5.

To delete a VLAN, enter in the format of vlan 2.

To create the VLANs in batches, enter in the format of vlan 2,3,4,5.

Command Mode

Global Configuration Mode

Example

Create VLAN 2-5:

```
(config)#vlan 2-5
```

Delete VLAN 2:

```
(config)#no vlan 2
```

6.2 router vlan

Description

The **router vlan** command is used to go to the Config VLAN Mode, in which you can configure a VLAN separately.

Syntax

router vlan *vlan-id*

Parameter

vlan-id —— Enter the ID of a VLAN you want to configure. This value ranges from 1 to 4094.

Command Mode

Global Configuration Mode

Example

Enter the Config VLAN Mode and configure VLAN 1:

(config)#router vlan 1

6.3 name

Description

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

Syntax

name *vlan-name*

no name

Parameter

vlan-name —— Enter the VLAN ID you want to configure with letters, numbers, or underscores of less than 50 characters.

Command Mode

Config VLAN Mode

Example

Name VLAN 1 as “group1”:

(config)#router vlan 1

(config-vlan)#name group1

6.4 router port

Description

The **router port** command is used to enter the Config Port Mode, so you can configure the port settings for a VLAN.

Syntax

router port *port-id*

Parameter

port-id —— Enter the number of the port you want to configure. The range of this value depends on the number of physical interfaces of your product.

Command Mode

Config VLAN Mode

Example

Enter the Config Port Mode, and configure the settings of port 2 for VLAN 1:

(config)#router vlan 1

(config-vlan)#router port 2

6.5 switchport acceptable frame

Description

The **switchport acceptable frame** command is used to set the acceptable frame type of a port in a VLAN.

Syntax

switchport acceptable frame {untagged | tagged}

Parameter

untagged —— Choose to enter this value in the command, and the egress rule of the packets transmitted by the port will be “Untagged”.

tagged —— Choose to enter this value in the command, and the egress rule of the packets transmitted by the port will be “Tagged”.

Command Mode

Config Port Mode

Example

For VLAN 1, set the acceptable frame of port 2 as “untagged”:

```
(config)#router vlan 1
(config-vlan)#router port 2
(config-port)#switchport acceptable frame untagged
```

6.6 interface

Description

The **interface** command is used to go to the corresponding Interface Mode according to the port-id or vlan-id you enter.

Syntax

interface {**switchport** *port-id*| **vlan** *vlan-id*}

Parameter

port-id —— Enter the port number to go to the Interface Mode. This value depends on the number of physical interfaces of your product.

vlan-id —— Enter the VLAN ID to go to the Interface Mode. This value ranges from 1 to 4094. You should enter an existing VLAN ID.

Command Mode

Global Configuration Mode

Example

Go to the Interface Mode, and configure port 2:

```
(config)#interface switchport 2
```

Go to the Interface Mode, and configure VLAN 1:

```
(config)#interface vlan 1
```

6.7 description

Description

The **description** command is used to add a description for a port or a VLAN. To clear a description, please use the **no description** command.

Syntax

description *description*

no description

Parameter

description —— Enter a description within 50 characters.

Command Mode

Interface Mode

Example

For VLAN 5, set its description as “example”.

(config)#interface vlan 5

(config-interface) #description example

6.8 switchport pvid

Description

The **switchport pvid** command is used to configure the PVID for a port.

Syntax

switchport pvid *vlan-id*

Parameter

vlan-id —— VLAN ID, ranging from 1 to 4094. You should enter an existing VLAN ID.

Command Mode

Interface Mode

Example

For port 2, set its PVID as “5”.

(config)#interface switchport 2

(config-interface)#switchport pvid 5

6.9 show interface

Description

The **show interface** command is used to display the information of a port or a VLAN you chose.

Syntax

show interface {**switchport** *interface* | **vlan** *vlan-id*}

Parameter

interface —— Enter the port number you want to check.

vlan-id —— Enter the VLAN ID you want to check.

Command Mode

All

Example

View the information of port 2:

```
>enable
#show interface switchport 2
```

View the information of VLAN 1:

```
(config)#show interface vlan 1
```

6.10 show vlan summary

Description

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

Syntax

show vlan summary

Command Mode

Global Configuration Mode

Example

Display the summarized information of IEEE 802.1Q VLAN:

```
(config)#show vlan summary
```

6.11 show vlan

Description

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

Syntax

show vlan

Command Mode

Global Configuration Mode

Example

Display the detailed information of IEEE 802.1Q VLAN:

```
(config)#show vlan
```

6.12 show interface status

Description

The **show interface status** command is used to display the connection status of all ports.

Syntax

show interface status

Command Mode

Global Configuration Mode

Example

Display the connection status of all ports:

```
(config)#show interface status
```

Chapter 7 NAT Commands

NAT (Network Address Translation) is the translation between private IP and public IP. NAT provides a way to allow multiple private hosts to access the public network using one public IP at the same time, which alleviates the shortage of IP addresses. Furthermore, NAT strengthens the LAN (Local Area Network) security since the address of LAN host never appears on the internet.

7.1 show nat one-to-one

Description

The **show nat one-to-one** command is used to display the detailed information of the One-to-One NAT entries.

Syntax

show nat one-to-one

Command Mode

All

Example

Display the detailed information of the One-to-One NAT entries:

```
>enable
#show nat one-to-one
```

7.2 show nat virtual-server

Description

The **show nat virtual-server** command is used to display the detailed information of the Virtual Server entries.

Syntax

show nat virtual-server

Command Mode

All

Example

Display the detailed information of the Virtual Server entries:

```
>enable
# show nat virtual-server
```

7.3 show nat alg

Description

The **show nat alg** command is used to display the ALG settings.

Syntax

show nat alg

Command Mode

All

Example

Display the ALG settings:

```
>enable
# show nat alg
```

7.4 nat one-to-one

Description

The **nat one-to-one** command is used to enable the One-to-One NAT function by creating a new One-to-One NAT entry. You also use this command to enter the Config NAT OTO Mode.

The newly created One-to-One NAT entry takes effect only when you configure its Interface, Original IP, Translated IP, DMZ Forwarding parameters using the commands of **interface one-to-one**, **original-ip**, **translated-ip**, and **dmz forwarding**.

To disable this function, please use the **no nat one-to-one** command.

Note: One-to-One NAT takes effect only when the WAN connection type is Static IP.

Syntax

nat one-to-one *name*

no nat one-to-one *name*

Parameter

name —— Enter the name of the One-to-One NAT entry you want to create or delete with letters, numbers or underscores.

Command Mode

Global Configuration Mode

Example

Create a new One-to-One NAT entry named “example”:

(config)#nat one-to-one example

7.5 interface one-to-one

Description

The **interface one-to-one** command is used to specify an interface for an One-to-One NAT rule.

Syntax

interface one-to-one *interface_name_one*

Parameter

interface_name_one —— Speficy an interface for an One-to-One NAT entry by entering its VLAN ID.

Command Mode

Config NAT OTO Mode

Example

For an One-to-One NAT entry “example”, set the WAN port as its interface. The VLAN ID of the WAN port is “4094”:

(config)#nat one-to-one example

(config-nat-oto)#interface one-to-one 4094

7.6 original-ip

Description

The **original-ip** command is used to specify a private IP address for a One-to-One NAT entry.

Syntax

original-ip *original_ip*

Parameter

original_ip —— Specify an original IP address which cannot be the broadcast address or the IP address of the LAN interface.

Command Mode

Config NAT OTO Mode

Example

For the One-to-One NAT entry "example", set the original IP address as "192.168.0.5":

(config)#nat one-to-one example

(config-nat-oto)#original-ip 192.168.0.5

7.7 translated-ip

Description

The **translated-ip** command is used to specify a public IP address for a One-to-One NAT entry.

Syntax

translated-ip *translated_ip*

Parameter

translated_ip —— Specify a translated IP address which cannot be the broadcast address or the IP address of the WAN interface.

Command Mode

Config NAT OTO Mode

Example

For the One-to-One NAT entry "example", set the translated IP address as "192.168.0.6":

(config)#nat one-to-one example

(config-nat-oto)#translated-ip 192.168.0.6

7.8 dmz forwarding

Description

The **dmz forwarding** command is used to enable or disable DMZ Forwarding. If DMZ Forwarding is enabled, the packets transmitted to the translated IP address will be forwarded to the host of the original IP address.

Syntax

dmz forwarding {on | off}

Parameter

On —— Enter this value to enable DMZ Forwarding.

Off —— Enter this value to disable DMZ Forwarding.

Command Mode

Config NAT OTO Mode

Example

For the One-to-One NAT entry "example", enable DMZ Forwarding:

(config)#nat one-to-one example

(config-nat-oto)#dmz forwarding on

7.9 description-one

Description

The **description-one** command is used to add a description to a One-to-One NAT entry.

Syntax

description-one *description*

Parameter

description —— Add a brief description.

Command Mode

Config NAT OTO Mode

Example

For the One-to-One NAT entry "example", add a description "example description":

(config)#nat one-to-one example

(config-nat-oto)#description-one example description

7.10 nat virtual-server

Description

The **nat virtual-server** command is used to enable the Virtual Server function by creating a new Virtual Server entry. You also use this command to enter the Config NAT VS Mode.

The newly created Virtual Server entry takes effect only when you configure its Interface, External Port, Internal Port, Internal Server IP, and Protocol using the commands of **interface virtual-server**, **external port**, **internal port**, **internal server-ip**, and **protocol**.

To disable this function, please use the **no nat virtual-server** command.

Syntax

nat virtual-server *name*

no nat virtual-server *name*

Parameter

name —— Enter the name of the Virtual Server entry you want to create or delete with letters, numbers or underscores.

Command Mode

Global Configuration Mode

Example

Create a new Virtual Server entry named "example":

(config)#nat virtual-server example

7.11 interface virtual-server

Description

The **interface virtual-server** command is used to specify an interface for a Virtual Server rule.

Syntax

interface virtual-server *interface_vlan*

Parameter

interface_vlan —— Speficy an interface for a Virtual Server entry by entering its VLAN ID.

Command Mode

Config NAT VS Mode

Example

For a Virtual Server entry "example", set the WAN port as its interface. The VLAN ID of the WAN port is "4094":

(config)#nat one-to-one example

(config-nat-vs)#interface virtual-server 4094

7.12 external port

Description

The **external port** command is used to specify an external port for a Virtual Server rule.

Syntax

external port *external_port*

Parameter

external_port —— Enter the service port the router provided for accessing external network. This value ranges from 1 to 65535, and cannot overlap with the external ports of other virtual server rules.

Command Mode

Config NAT VS Mode

Example

For a Virtual Server entry "example", set the external port as "66":

(config)#nat virtual-server example

(config-nat-vs)#external port 66

7.13 internal port

Description

The **internal port** command is used to specify an internal port for a Virtual Server rule.

Syntax

internal port *internal_port*

Parameter

internal_port —— Specify the service port of the LAN host as a virtual server. This value ranges from 1 to 65535.

Command Mode

Config NAT VS Mode

Example

For a Virtual Server entry "example", set the internal port as "67":

(config)#nat virtual-server example

(config-nat-vs)#internal port 67

7.14 internal server-ip

Description

The **internal server-ip** command is used to specify an internal server IP for a Virtual Server rule. All the requests from the internet to the specified LAN port will be redirected to this host.

Syntax

internal server-ip *server_ip*

Parameter

server_ip —— Enter the IP address of the specified internal server for the entry.

Command Mode

Config NAT VS Mode

Example

For a Virtual Server entry “example”, set the internal server IP as “192.168.0.4”:

(config)#nat virtual-server example

(config-nat-vs)#internal server-ip 192.168.0.4

7.15 protocol

Description

The **protocol** command is used to specify the protocol used for the entry.

Syntax

protocol {ALL | TCP | UDP}

Parameter

ALL —— Choose to enter this value in the command, and the Virtual Server rule will use TCP and UDP as the protocols.

TCP —— Choose to enter this value in the command, and the Virtual Server rule will use TCP as the protocol.

UDP—— Choose to enter this value in the command, and the Virtual Server rule will use UDP as the protocol.

Command Mode

Config NAT VS Mode

Example

For a Virtual Server entry “example”, select TCP as its protocol:

(config)#nat virtual-server example

(config-nat-vs)#protocol TCP

7.16 nat alg

Description

The **nat alg** command is used to enable an ALG function.

To disable an ALG function, please use the **no nat alg** command.

Syntax

nat alg {ftp | ipsec | pptp | sip | h.323}

no nat alg {ftp | ipsec | pptp | sip | h.323}

Parameter

ftp —— Choose to enter this value in the command, and the FTP ALG will be enabled or disabled.

ipsec —— Choose to enter this value in the command, and the IPsec ALG will be enabled or disabled.

pptp —— Choose to enter this value in the command, and the PPTP ALG will be enabled or disabled.

sip —— Choose to enter this value in the command, and the SIP ALG will be enabled or disabled.

h.323 —— Choose to enter this value in the command, and the H.323 ALG will be enabled or disabled.

Command Mode

Global Configuration Mode

Example

Disable SIP ALG:

```
(config)#no nat alg sip
```

Chapter 8 Static Routing Commands

8.1 show ip route static

Description

The **show ip route static** command is used to show the static route information.

Syntax

show ip route static

Command Mode

All

Example

Show the static route information:

```
>enable
#show ip route static
```

8.2 ip route

Description

The **ip route** command is used to create a static routing entry.

Syntax

ip route {*name*} {*target*} {*netmask*} {*gateway*} {*interface*} {*metric*}

Parameter

name —— Specify a name for the entry.

target —— Enter the destination IP of the static routing entry.

netmask —— Specify the subnet mask of the destination network.

gateway —— Specify the IP address to which the packet should be sent next.

interface —— Specify the physical network interface through which this route is accessible by entering its VLAN ID.

metric —— Define the priority of the route. This value ranges from 0-15, and a smaller value means a higher priority.

Command Mode

Global Configuration Mode

Example

Create a static routing rule with the following settings:

Name: Example

Destination IP: 10.31.41.60

Subnet Mask: 255.255.255.0

Next Hop: 172.31.53.45

Interface: WAN (with the VLAN ID “4094”)

Metric: 5

(config)#ip route Example 10.31.41.60 255.255.255.0 172.31.53.45 4094 5

8.3 no ip route

Description

The **no ip route** command is used to delete a static routing entry.

Syntax

no ip route *index*

Parameter

index—— Enter the ID of the static routing entry you want to delete.

Command Mode

Global Configuration Mode

Example

Delete a static routing entry whose ID is “1”:

(config)#no ip route 1

Chapter 9 RIP Commands

RIP (Routing Information Protocol) is a dynamic router protocol with Distance Vector Algorithms.

9.1 router rip

Description

The **router rip** command is used to enable the RIP function and enter the Config RIP Mode.

To disable RIP, please use the **no router rip** command.

Syntax

router rip

no router rip

Command Mode

Global Configuration Mode

Example

Enable the RIP function and enter the Config RIP Mode:

```
(config)#router rip
```

9.2 rip version

Description

The **rip version** command is used to set the global RIP version.

To restore the RIP version to the default, please use the **no version** command.

Syntax

version {default | ripv1| ripv2}

no version

Parameter

default —— Send with RIP version 2 and receive with both RIP version 1 and 2.

ripv1 —— Send and receive RIP version 1 formatted packets via broadcast.

ripv2 —— Send and receive RIP version 2 packets using multicast.

Command Mode

Config RIP Mode

Example

Set the RIP version as "RIPv1":

```
(config-rip)#version ripv1
```

9.3 rip distance

Description

The **rip distance** command is used to set the global RIP distance.

To restore the RIP version to the default (120), please use the **no distance** command.

Syntax

distance *distance_value*

no distance

Parameter

distance_value——Enter a value from 1 to 255.

Command Mode

Config RIP Mode

Example

Set the RIP distance as "130":

```
(config-rip)#distance 130
```

9.4 auto-summary

Description

The **auto-summary** command is used to enable the Auto Summary function globally to summarize entries to their main class boundary.

To disable Auto Summary, please use the **no auto-summary** command.

Syntax

auto-summary

no auto-summary

Command Mode

Config RIP Mode

Example

Enable Auto Summary:

```
(config-rip)#auto-summary
```

9.5 timers basic update

Description

The **timers basic update** command is used to set the update timer globally, which can generate a complete response to every neighboring gateway.

Syntax

timers basic update *timers_value*

Parameter

timers_value——Enter a value from 5 to 100 seconds.

Command Mode

Config RIP Mode

Example

Set the update timer to "40" seconds:

```
(config-rip)#timers basic update 40
```

9.6 timers basic timeout

Description

The **timers basic timeout** command is used to set the timeout timer globally. Upon the expiration of the timeout, the route is no longer valid and set to unreachable.

Syntax

timers basic timeout *timers_value*

Parameter

timers_value——Enter a value from 5 to 300 seconds.

Command Mode

Config RIP Mode

Example

Set the timeout timer to “200” seconds:

```
(config-rip)#timers basic timeout 200
```

9.7 timers basic garbage-collect

Description

The **timers basic garbage-collect** command is used to set the garbage timer globally. Upon the expiration of the garbage-collection timer, the route will be finally removed.

Syntax

timers basic garbage-collect *timers_value*

Parameter

timers_value——Enter a value from 5 to 500 seconds.

Command Mode

Config RIP Mode

Example

Set the garbage timer to “300” seconds:

```
(config-rip)#timers basic garbage-collect 300
```

9.8 no timers basic

Description

The **no timers basic** command is used to restore the update timer, timeout timer, and garbage timer to the default.

Syntax

no timers basic

Command Mode

Config RIP Mode

Example

Restore the update timer, timeout timer, and garbage timer to the default:

(config-rip)#no timer basic

9.9 rip network

Description

The **rip network** command is used to add a network to the router's RIP network list. To remove a network from the list, please use the **no network** command.

Syntax

network {*ipadress*} {*mask*}

no network *ipadress*

Parameter

ipadress —— The IP address of the network.

mask —— The subnet mask of the network.

Command Mode

Config RIP Mode

Example

Add a network (IP address: 192.168.0.4, subnet mask: 255.255.255.0) to the router's RIP network list:

(config-rip)#network 192.168.0.4 255.255.255.0

9.10 ip rip send version

Description

The **ip rip send version** command is used to configure the RIP send version for the specified interface.

To restore the send version to the default (RIPv2), please use the **no ip rip send version** command.

Syntax

ip rip send version {ripv1| ripv2}

no ip rip send version

Parameter

ripv1 —— Send RIP version 1 formatted packets via broadcast.

ripv2 —— Send RIP version 2 packets using multicast.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the RIP send version as “ripv1” :

(config)#interface vlan 1

(config-interface)#ip rip send version ripv1

9.11 ip rip receive version

Description

The **ip rip receive version** command is used to configure the RIP receive version for the specified interface.

To restore the receive version to the default (Both), please use the **no ip rip receive version** command.

Syntax

ip rip receive version {ripv1| ripv2 | both}

no ip rip receive version

Parameter

ripv1 —— Accept only RIP version 1 formatted packets.

ripv2 —— Accept only RIP version 2 formatted packets.

both —— Accept both RIP version 1 and RIP version 2 formatted packets.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the RIP receive version as “ripv1” :

(config)#interface vlan 1

(config-interface)#ip rip receive version ripv1

9.12 ip rip split-horizon

Description

The **ip rip split-horizon** command is used to set the Split Horizon Mode to Split-horizon for the specified interface.

If you don't want to set the Split Horizon Mode, please use the **no ip rip split-horizon** command to disable Split-horizon.

Syntax

ip rip split-horizon

no ip rip split-horizon

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the Split Horizon Mode to Split-horizon :

```
(config)#interface vlan 1
(config-interface)#ip rip split-horizon
```

9.13 ip rip poison-reverse

Description

The **ip rip poison-reverse** command is used to set the Split Horizon Mode to Poison Reverse for the specified interface.

If you don't want to set the Split Horizon Mode, please use the **no ip rip poison-reverse** command to disable Poison Reverse.

Syntax

ip rip poison-reverse

no ip rip poison-reverse

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the Split Horizon Mode to Poison Reverse:

```
(config)#interface vlan 1
(config-interface)#ip rip poison-reverse
```

9.14 ip rip authentication-mode

Description

The **ip rip authentication-mode** command is used to set the RIP authentication mode for the specified interface.

To restore the authentication mode to the default (None), please use the **no ip rip authentication-mode** command.

Syntax

ip rip authentication-mode {**simple** *key*| **md5** *key-id key-string*}

no ip rip authentication-mode

Parameter

simple —— Choose to enter this value, and the router will use the simple password to authenticate. You need to enter the *key*.

key—— The key used for simple authentication.

md5 —— Choose to enter this value, and the router will use the md5 message-digest algorithm to authenticate. You need to enter the *key-id* and the *key-string*.

key-id—— The key ID used for md5 authentication.

key-string—— The key used for md5 authentication.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the authentication type as "Simple", and set the key as "12345678":

```
(config)#interface vlan 1
(config-interface)#ip rip authentication-mode simple 12345678
```

9.15 show ip rip

Description

The **show ip rip** command is used to show the detailed information of the RIP settings.

Syntax

show ip rip

Command Mode

All

Example

Show the detailed information of the RIP settings:

```
>enable

#show ip rip
```

Chapter 10 OSPF Commands

OSPF (Open Shortest Path First) is an Interior Gateway Protocol (IGP) used to make routing decisions in a single autonomous system (AS).

10.1 router ospf

Description

The **router ospf** command is used to enable the OSPF globally, and to enter the OSPF Mode.

To disable the OSPF, please use the **no router ospf** command.

Syntax

router ospf

no router ospf

Command Mode

Global Configuration Mode

Example

Enable the OSPF globally, and to enter the OSPF Mode:

```
(config)#router ospf
```

10.2 router-id

Description

The **router-id** command is used to set a Router ID for the OSPF.

Syntax

router-id *router-id*

Parameter

router-id—— Enter the Router ID in dotted decimal format.

Command Mode

OSPF Mode

Example

Set the Router ID as “192.168.0.4” :

(config-ospf)#router-id 192.168.0.4

10.3 area-id

Description

The **area-id** command is used to set an Area ID for the OSPF.

Syntax

area-id *area-id*

Parameter

area-id—— Enter a value from 0- 4294967295.

Command Mode

OSPF Mode

Example

Set the Area ID as “1” :

(config-ospf)#area-id 1

10.4 compatible rfc1583

Description

The **compatible rfc1583** command is used to enable RFC 1583 Compatibility for the OSPF.

To disable RFC 1583 Compatibility, please use the **no compatible rfc1583** command.

Syntax

compatible rfc1583

no compatible rfc1583

Command Mode

OSPF Mode

Example

Enable RFC 1583 Compatibility:

```
(config-ospf)#compatible rfc1583
```

10.5 ospf-network

Description

The **ospf-network** command is used to create a network interface for the OSPF, which will be shown on the Network Table of the web management page.

To delete an entry, please use the **no ospf-network** command.

Syntax

ospf-network {*ip_adress*} {*mask*}

no ospf-network *ip_adress*

Parameter

ip_adress —— Enter the IP address of the network in the format of 100.100.0.0.

mask —— Enter the wildcard mask of the network in the format of 0.0.255.255. Normal subnet mask is also supported.

Command Mode

OSPF Mode

Example

Create a network interface with the IP Address “192.168.0.0” and Wildcard Mask “0.0.255.255”:

```
(config-ospf)#ospf-network 192.168.0.0 0.0.255.255.
```

10.6 ospf-distance

Description

The **ospf-distance** command is used to specify OSPF route distance. When more than two protocols have routes to the same destination, only the route that havs smallest distance will be inserted to IP routing table.

Syntax

ospf-distance *distance*

Parameter

distance —— Specify OSPF route distance from 0-255.

Command Mode

OSPF Mode

Example

Set the OSPF route distance as "95":

```
(config-ospf)#ospf-distance 95
```

10.7 timers throttle spf

Description

The **timers throttle spf** command is used to set the SPF Delay Time, SPF Hold Init Time, and SPF Hold Max Time.

Syntax

timers throttle spf {*spf-delay*} {*spf-init_holdtime*} {*spf-max_holdtime*}

Parameter

spf-delay —— The number of seconds from when OSPF receives a topology change to the start of the next SPF calculation. The valid value ranges from 0 to 600 000 msec.

spf-init_holdtime —— The number of seconds from when OSPF receives a topology change to the start of the next SPF calculation. The valid value ranges from 0 to 600 000 msec.

spf-max_holdtime —— Maximum hold time (msec). The valid value ranges from 0 to 600000 msec.

Command Mode

OSPF Mode

Example

Set the SPF Delay Time as "10", the SPF Hold Init Time "40", and the SPF Hold Max Time "6000":

```
(config-ospf)#timer throttle spf 10 40 6000
```

10.8 maximum-paths

Description

The **maximum-paths** command is used to set the number of paths that OSPF can report for a given destination.

Syntax

maximum-paths *max-paths*

Parameter

max-paths —— Specify the Maximum Paths for the OSPF by entering a value from 1-16.

Command Mode

OSPF Mode

Example

Set the Maximum Paths as "5":

(config-ospf)#maximum-paths 5

10.9 passive-interface default

Description

The **passive-interface default** command is used to configure the global passive mode settings for all OSPF interfaces. Use this command will overwrite any present interface level passive mode settings.

To disable Passive Default, please use the **no passive-interface default** command.

Syntax

passive-interface default

no passive-interface default

Command Mode

OSPF Mode

Example

Enable the Passive Default for the OSPF:

(config-ospf)#passive-interface default enable

10.10 ip ospf priority

Description

The **ip ospf priority** command is used to configure the router priority for the interface you selected.

Syntax

ip ospf priority *priority*

Parameter

priority —— Enter a value from 0-255. 0 indicates that the router is not eligible to become the designated router on this network.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the Router Priority as "1".

```
(config)#interface vlan 1
(config-interface)#ip ospf priority 1
```

10.11 ip ospf hello-interval

Description

The **ip ospf hello-interval** command is used to set the hello interval for the specified interface in seconds. This parameter must be the same for all routers attached to a network.

Syntax

ip ospf hello-interval *hello-interval*

Parameter

hello-interval—— Enter a value from 1 to 65535 seconds.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the Hello Interval as "15" seconds.

```
(config)#interface vlan 1
```

```
(config-interface)#ip ospf hello-interval 15
```

10.12 ip ospf dead-interval

Description

The **ip ospf dead-interval** command is used to set the dead interval for the specified interface in seconds. This specifies how long a router will wait to see a neighbor router's Hello packets before declaring that the router is down. This parameter must be the same for all routers attached to a network.

Syntax

ip ospf dead -interval *dead-interval*

Parameter

dead-interval—— Enter a value from 1 to 65535 seconds.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the Dead Interval as "15" seconds.

```
(config)#interface vlan 1

(config-interface)#ip ospf dead-interval 15
```

10.13 ip ospf transmit-delay

Description

The **ip ospf transmit-delay** command is used to set the Transmit Delay for the specified interface. This specifies the estimated number of seconds it takes to transmit a link state update packet over the selected interface.

Syntax

ip ospf transmit-delay *transmit-delay*

Parameter

transmit-delay—— Enter a value from 1 to 65535 seconds.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the Transmit Delay as "15" seconds.

```
(config)#interface vlan 1
(config-interface)# ip ospf transmit-delay 15
```

10.14 ip ospf retransmit-interval

Description

The **ip ospf retransmit-interval** command is used to set the retransmit interval for the specified interface. Retransmit interval is the number of seconds between link-state advertisements for adjacencies belonging to this router interface. This value is also used when retransmitting database descriptions and link-state request packets.

Syntax

ip ospf retransmit-interval *retransmit-interval*

Parameter

retransmit-interval—— Enter a value from 1 to 65535 seconds.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the Retransmit Interval as "15" seconds.

```
(config)#interface vlan 1
(config-interface)# ip ospf retransmit-interval 15
```

10.15 ip ospf cost

Description

The **ip ospf cost** command is used to set the link cost. OSPF uses the link cost in computing shortest paths.

Syntax

ip ospf cost *cost*

Parameter

cost—— Enter a value from 1 to 65535 seconds.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the link cost as “90”.

```
(config)#interface vlan 1
(config-interface)# ip ospf cost 90
```

10.16 ip ospf passive

Description

The **ip ospf passive** command is used to enable or disable the passive mode for the specified interface. The passive mode is disabled by default.

Syntax

ip ospf passive {enable | disable}

Parameter

enable —— Choose to enter this value, and the passive mode of the specified interface will be enabled.

disable —— Choose to enter this value, and the passive mode of the specified interface will be disabled.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, enable the passive mode.

```
(config)#interface vlan 1
(config-interface)# ip ospf passive enable
```

10.17 ip ospf mtu-ignore

Description

The **ip ospf mtu-ignore** command is used to enable or disable the MTU Ignore for the specified interface. If MTU Ignore is enabled, the OSPF MTU mismatch detection will be disabled on received database description packets. MTU Ignore is disabled by default.

Syntax

ip ospf mtu-ignore {enable | disable}

Parameter

enable —— Choose to enter this value, and the MTU Ignore of the specified interface will be enabled.

disable —— Choose to enter this value, and the MTU Ignore of the specified interface will be disabled.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, enable the MTU Ignore:

(config)#interface vlan 1

(config-interface)# ip ospf mtu-ignore enable

10.18 ip ospf authentication

Description

The **ip ospf authentication** command is used to set the OSPF authentication type for the specified interface.

Syntax

ip ospf authentication {**None** | **Simple** *simple-key* | **MD5** *md5-key-id md5-key*}

Parameter

None —— Choose to enter this value, and there won't be any authentication.

Simple —— Choose to enter this value, and the router will use the simple password to authenticate. You need to enter the *simple-key*.

simple-key —— The key used for simple authentication.

MD5 —— Choose to enter this value, and the router will use the md5 message-digest algorithm to authenticate. You need to enter the *md5-key-id* and the *md5-key*.

md5-key-id —— The key ID used for md5 authentication.

md5-key —— The key used for md5 authentication.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the authentication type as “Simple”, and set the simple-key as “12345678”:

(config)#interface vlan 1

(config-interface)#ip ospf authentication Simple 12345678

10.19 ip ospf network

Description

The **ip ospf network** command is used to set the OSPF network type on the interface. The default network type for Ethernet interfaces is Broadcast.

Syntax

ip ospf network {point-to-point | broadcast}

Parameter

point-to-point —— Enter this value to set the OSPF network type as Point-to-point.

broadcast —— Enter this value to set the OSPF network type as Broadcast.

Command Mode

Interface Mode

Example

For the interfaces in VLAN 1, set the OSPF network type as Point-to-point:

(config)#interface vlan 1

(config-interface)#ip ospf network point-to-point

10.20 show ip ospf database

Description

The **show ip ospf database** command is used to show the OSPF link state database.

Syntax

show ip ospf database

Command Mode

All

Example

Show the OSPF link state database.

```
>enable
#show ip ospf database
```

10.21 show ip ospf neighbor

Description

The **show ip ospf neighbor** command is used to show the OSPF neighbor table information.

Syntax

show ip ospf neighbor

Command Mode

All

Example

Show the OSPF neighbor table information:

```
>enable
#show ip ospf neighbor
```

10.22 show ip ospf interface

Description

The **show ip ospf interface** command is used to show the OSPF interface information.

Syntax

show ip ospf interface

Command Mode

All

Example

Show the OSPF interface information:

```
>enable
```

```
#show ip ospf interface
```

10.23 show ip ospf

Description

The **show ip ospf** command is used to show the OSPF information globally.

Syntax

show ip ospf

Command Mode

All

Example

Show the OSPF information globally:

```
>enable
#show ip ospf
```

10.24 show network

Description

The **show network** command is used to show the OSPF network information.

Syntax

show network

Command Mode

All

Example

Show the OSPF network information:

```
>enable
#show network
```

Chapter 11 IPSec Commands

IPsec (IP Security) can provide security services such as data confidentiality, data integrity, and data origin authentication at the IP layer. IPsec uses IKEv1 (Internet Key Exchange version 1) to handle the negotiation of protocols and algorithms based on the user-specified policy, and generate the encryption and authentication keys to be used by IPsec. IKEv1 negotiation includes two phases, which are IKEv1 Phase-1 and IKEv1 Phase-2.

11.1 crypto policy

Description

The **crypto policy** command is used to create an IKEv1 or IKEv2 policy, and enter the IPSEC_ISAKMP Mode. You can use the **crypto policy** command to edit an existing policy.

To delete an IPSec policy, please use the **no crypto policy** command.

Syntax

crypto {ikev1 | ikev2} **policy** *policy_name*

no crypto {ikev1 | ikev2} **policy** *policy_name*

Parameter

ikev1 —— Choose to enter this value to create or edit an policy with the protocol version of IKEV1.

ikev2 —— Choose to enter this value to create or edit an policy with the protocol version of IKEV2

policy_name —— Specify a policy name within 32 characters.

Command Mode

Global Configuration Mode

Example

Create an IKEv1 policy named “example”:

(config)#crypto ikev1 policy example

11.2 hash

Description

The **hash** command is used to configure the authentication algorithm in Phase-1.

Note that the authentication algorithms sha256 / sha384 / sha512 are not compatible with the encryption algorithm des or the DH algorithms dh1 / dh2.

Syntax

hash {md5 | sha1 | sha256 | sha384 | sha512}

Parameter

{md5 | sha1 | sha256 | sha384 | sha512} —— Select to enter one value as the authentication algorithm.

Command Mode

IPSEC_ISAKMP Mode

Example

For an IKEv1 policy named "example", set "md5" as the authentication algorithm:

(config)#crypto ikev1 policy example

(config-ikev1-policy)#hash md5

11.3 encryption

Description

The **encryption** command is used to configure the encryption algorithm in Phase-1.

Note that the encryption algorithm des is not compatible with the authentication algorithms sha256, sha384, or sha512.

Syntax

encryption {des | 3des | aes128 | aes196 | aes256}

Parameter

{des | 3des | aes128 | aes196 | aes256} —— Select to enter one value as the encryption algorithm.

Command Mode

IPSEC_ISAKMP Mode

Example

For an IKEv1 policy named "example", set "3des" as the encryption algorithm:

(config)#crypto ikev1 policy example

```
(config-ikev1-policy)#encryption 3des
```

11.4 group

Description

The **group** command is used to configure the DH group in Phase-1.

Note that the DH group dh1 / dh2 are not compatible with the authentication algorithms sha256, sha384, or sha512.

Syntax

group {1 | 2 | 5 | 14 | 15 | 16 | 19 | 20 | 21 | 25 | 26}

Parameter

{1 | 2 | 5 | 14 | 15 | 16 | 19 | 20 | 21 | 25 | 26} —— Select to enter one value as the DH group.

Command Mode

IPSEC_ISAKMP Mode

Example

For an IKEv1 policy named "example", set "dh14" as the DH group:

```
(config)#crypto ikev1 policy example
(config-ikev1-policy)#group 14
```

11.5 exchange-mode

Description

The **exchange-mode** command is used to configure the IKE exchange mode in Phase-1. Note that this command is supported only for IKEv1.

Aggressive Mode establishes a faster connection but with lower security, which applies to scenarios with lower requirements for identity protection, or scenarios that there is a NAT device (e.g. modem) in front of the devices at both ends of the IPsec.

Main mode provides identity protection and exchanges more information, which applies to scenarios with higher requirements for identity protection. It is the default mode.

Syntax

exchange-mode {aggressive | main}

Parameter

aggressive —— Enter this value to set the exchange mode as Aggressive.

main —— Enter this value to set the exchange mode as Main.

Command Mode

IPSEC_ISAKMP Mode

Example

For an IKEv1 policy named "example", set "Aggressive" as the exchange mode:

(config)#crypto ikev1 policy example

(config-ikev1-policy)#exchange-mode aggressive

11.6 ike-lifetime

Description

The **ike-lifetime** command is used to configure the SA lifetime in Phase-1.

Syntax

ike-lifetime *time*

Parameter

time —— Enter a value from 60 to 604800 seconds. And the default is 28800 seconds.

Command Mode

IPSEC_ISAKMP Mode

Example

For an IKEv1 policy named "example", set the SA lifetime of the Phase-1 Settings to "30000" seconds:

(config)#crypto ikev1 policy example

(config-ikev1-policy)#ike-lifetime 30000

11.7 crypto isakmp key

Description

The **crypto isakmp key** command is used to specify the unique pre-shared key for both peers' authentication.

Syntax

crypto isakmp key *keyword*

Parameter

keyword —— Specify a keyword within 128 characters.

Command Mode

IPSEC_ISAKMP Mode

Example

For an IKEv1 policy named "example", set the pre-shared key as "example123456":

(config)#crypto ikev1 policy example

(config-ikev1-policy)#crypto isakmp key example123456

11.8 dpd

Description

The **dpd** command is used to enable or disable DPD (Dead Peer Detect) in Phase-1. If enabled, the IKE endpoint can send a DPD request to the peer to inspect whether the IKE peer is alive.

The DPD function is enabled by default.

Syntax

dpd {enable | disable}

Parameter

enable —— Enter this value to enable DPD.

disable —— Enter this value to disable DPD.

Command Mode

IPSEC_ISAKMP Mode

Example

For an IKEv1 policy named "example", disable DPD in Phase-1:

(config)#crypto ikev1 policy example

(config-ikev1-policy)#dpd disable

11.9 dpd-interval

Description

The **dpd-interval** command is used to specify the interval between sending DPD requests.

The DPD interval works only when the DPD function is enabled.

Syntax

dpd-interval *time*

Parameter

time —— Specify a value from 1 to 300 seconds, and the default is 10.

Command Mode

IPSEC_ISAKMP Mode

Example

For an IKEv1 policy named "example", when DPD is enabled, set the DPD interval to "20" seconds:

(config)#crypto ikev1 policy example

(config-ikev1-policy)#dpd-interval 20

11.10 crypto ipsec transform-set

Description

The **crypto ipsec transform-set** command is used to create a transform-set and to enter the IPSEC_TRANSFORM Mode. You can use this command to edit an existing transform-set.

To delete a transform-set, please use the **no crypto transform-set** command.

The encryption algorithm des is not compatible with the authentication algorithms sha256, sha384, or sha512.

Syntax

crypto ipsec transform-set {*tset_name*} {esp-des | esp-3des | esp-aes128 | esp-aes196 | esp-aes256} {esp-md5 | esp-sha1 | esp-sha256 | esp-sha384 | esp-sha512}

no crypto tansform-set *tset_name*

Parameter

tset_name —— Specify a transform-set name within 32 characters.

{esp-des | esp-3des | esp-aes128 | esp-aes196 | esp-aes256} —— The protocol and encryption algorithm of the Phase-2 Settings. Select to enter one in the command.

{esp-md5 | esp-sha1 | esp-sha256 | esp-sha384 | esp-sha512} —— The protocol and authentication algorithm of the Phase-2 Settings. Select to enter one in the command.

Command Mode

Global Configuration Mode

Example

Create a transform-set named "example1", and set the protocol as "esp", the encryption algorithm "3des", and the authentication algorithm "sha1":

(config)#crypto ipsec transform-set example1 esp-3des esp-sha1

11.11 lifetime

Description

The **lifetime** command is used to configure the SA lifetime in Phase-2.

Syntax

lifetime *time*

Parameter

time —— Enter a value from 120 to 604800 seconds. And the default is 28800 seconds.

Command Mode

IPSEC_TRANSFORM Mode

Example

For the transform-set named "example1", set the SA lifetime in Phase-2 to "30000" seconds:

(config)#crypto ipsec transform-set example1 esp-3des esp-sha1

(config-transform-set)#lifetime 30000

11.12 encapsulation-mode

Description

The **encapsulation-mode** command is used to set the encapsulation mode in Phase-2 as Tunnel Mode or Transport Mode. The default mode is Tunnel Mode.

Syntax

encapsulation-mode {tunnel | transport}

Parameter

tunnel —— Choose to enter this value in the command to set the encapsulation mode as Tunnel Mode.

transport —— Choose to enter this value in the command to set the encapsulation mode as Transport Mode.

Command Mode

IPSEC_TRANSFORM Mode

Example

For the transform-set named "example1", set the encapsulation mode as Transport Mode:

(config)#crypto ipsec transform-set example1 esp-3des esp-sha1

(config-transform-set)#encapsulation-mode transport

11.13 pfs

Description

The **pfs** command is used to specify a DH group to enable PFS (Perfect Forward Security) for IKE mode, then the key generated in phase-2 will be irrelevant with the key in phase-1, which enhance the network security. If you select None, it means PFS is disabled and the key in phase-2 will be generated based on the key in phase-1. The default is None.

Syntax

pfs {none | 1 | 2 | 5 | 14}

Parameter

{none | 1 | 2 | 5 | 14} —— The DH groups. Choose to enter one value in the command.

Command Mode

IPSEC_TRANSFORM Mode

Example

For the transform-set named “example1”, specify “dh5” to enable the PFS function:

(config)#crypto ipsec transform-set example1 esp-3des esp-sha1

(config-transform-set)#pfs 5

11.14 crypto map

Description

The **crypto map** command is used to create a new map, specify the map name, and apply a well configured IPSec policy to the map. You can also use the **crypto map** command to edit an existing map, and enter the IPSEC_MAP Mode.

The map will appear on the IPsec Policy List of the web management page.

To delete a map, please use the **no crypto map** command.

Syntax

crypto map {*map_name*} {*policy_name*}

no crypto map *map_name*

Parameter

{*map_name*} —— Enter the name of the map with 32 characters.

{*policy_name*} —— Enter the name of a well configured IPSec policy.

Command Mode

Global Configuration Mode

Example

Create a map named “map1”, and apply an IPSec policy named “example” to the map:

(config)#crypto map map1 example

11.15 set peer

Description

The **set peer** command is used to set the remote gateway for the map.

Syntax

set peer *remote_peer*

Parameter

remote_peer —— Enter an IP address or a domain name (1 to 255 characters) as the remote gateway. 0.0.0.0 represents any IP address. Only when the negotiation mode is set to Responder Mode can you enter 0.0.0.0.

Command Mode

IPSEC_MAP Mode

Example

For a map named "map1" with an IPSec policy named "example", set the remote gateway as "10.13.41.60":

(config)#crypto map map1 example

(config-map)#set peer 10.31.41.60

11.16 set transform-set

Description

The **set transform-set** command is used to set the transform-set applying to the map. The transform-set should be well configured.

Syntax

set transform-set *tset_name*

Parameter

tset_name —— Enter the name of a well configured transform-set.

Command Mode

IPSEC_MAP Mode

Example

For a map named "map1" with an IPSec policy named "example", apply a transform-set named "example1" to it:

(config)#crypto map map1 example

(config-map)#set transform-set example1

11.17 localsubnet

Description

The **localsubnet** command is used to specify a local subnet for the map. It's always the IP address range of LAN on the local side of the VPN tunnel. After the IPsec tunnel is established, the peer can access the local subnet.

Syntax

localsubnet {*ip*}**/**{*mask*}

Parameter

ip —— Enter an valid local IP address.

mask —— Enter the subnet mask of the IP address.

Command Mode

IPSEC_MAP Mode

Example

For a map named "map1" with an IPSec policy named "example", set the local subnet as "192.168.0.0/24":

(config)#crypto map map1 example

(config-map)#localsubnet 192.168.0.0/24

11.18 remotesubnet

Description

The **remotesubnet** command is used to specify a remote subnet for the map. It's always the IP address range of LAN on the remote peer of the VPN tunnel. Only the traffic to the remote subnet will be forwarded through the IPsec tunnel.

Syntax

remotesubnet {*ip*}**/**{*mask*}

Parameter

ip —— Enter an valid remote IP address.

mask —— Enter the subnet mask of the IP address.

Command Mode

IPSEC_MAP Mode

Example

For a map named “map1” with an IPSec policy named “example”, set the remote subnet as “192.168.1.0/24”:

(config)#crypto map map1 example

(config-map)#remotesubnet 192.168.1.0/24

11.19 negotiation-mode

Description

The **negotiation-mode** command is used to set the negotiation mode for the map. Initiator Mode is the default mode.

Responder Mode: The local device responds a connection to the peer.

Syntax

negotiation-mode {initiator | responder}

Parameter

initiator —— Enter this value to set the negotiation mode as the Initiator Mode, and the local device will initiate a connection to the peer.

responder —— Enter this value to set the negotiation mode as the Responder Mode, and the local device will respond a connection to the peer.

Command Mode

IPSEC_MAP Mode

Example

For a map named “map1” with an IPSec policy named “example”, set the negotiation mode as the Responder Mode:

(config)#crypto map map1 example

(config-map)#negotiation-mode responder

11.20 ipsec map

Description

The **ipsec map** command is used to bind a map to your desired WAN ports, and distribute the map.

Syntax

ipsec map *map_name*

Parameter

map_name —— Enter the name of the map you created.

Command Mode

Interface Mode

Example

Bind a map named "map1" to a WAN port of the router, and the VLAN ID of that WAN port is "4094":

(config)#interface vlan 4094

(config-interface)#ipsec map map1

11.21 show policy

Description

The **show policy** command is used to display the settings of the IKEv1 policy or the IKEv2 policy.

To view the settings of all the existing IKEv1 policies or IKEv2 policies, please use the **show all policy** command.

Syntax

show {ikev1| ikev2} **policy** *policy_name*
show all {ikev1| ikev2} **policy**

Parameter

ikev1 —— Choose to enter this value, if you want to view the settings of the IKEv1 policy.

ikev2 —— Choose to enter this value, if you want to view the settings of the IKEv2 policy.

policy_name —— Enter the name of the IKEv1 or IKEv2 policy you want to view.

Command Mode

All

Example

View the settings of an IKEv1 policy named "example":

(config)#show ikev1 policy example

View the settings of all the IKEv2 policies you have created:

(config)#show all ikev2 policy

11.22 show transform-set

Description

The **show transform-set** command is used to display the settings of a specified transform-set.

To view the settings of all the existing transform-set entries, please use the **show all transform-set** command.

Syntax

show transform-set *tset_name*
show all transform-set

Parameter

tset_name —— Enter the name of the transform-set you want to view its details.

Command Mode

All

Example

View the settings of a transform-set named "example1":

(config)#show transform-set example1

11.23 show crypto map

Description

The **show crypto map** command is used to display the settings of a specified map.

To view the settings of all the existing maps, please use the **show all crypto map** command.

Syntax

show crypto map *map_name*
show all crypto map

Parameter

map_name —— Enter the name of the map you want to view its details.

Command Mode

All

Example

View the settings of a map named "map1":

(config)#show crypto map map1

11.24 show crypto ipsec sa

Description

The **show crypto ipsec sa** command is used to display the SA settings of an established map.

Syntax

show crypto ipsec sa *map_name*

Parameter

map_name —— Enter the name of a map.

Command Mode

All

Example

View the SA settings of a map named "map1":

(config)#show crypto ipsec sa map1

Chapter 12 ACL Commands

ACL (Access Control List) is used to filter data packets by configuring a series of match conditions, operations and time ranges. It provides a flexible and secured access control policy and facilitates you to control the network security.

12.1 show access-list

Description

The **show access-list** command is used to display the access control rules. The order in which the rules are listed is the order in which they take effect.

Syntax

show access-list

Command Mode

Global Configuration Mode

Example

Display the access control rules:

```
(config)#show access-list
```

12.2 access-list ip

Description

The **access-list ip** command is used to add an access control rule. You can use this command to edit an existing rule.

To delete the corresponding rule, please use **no access-list ip** command.

Syntax

access-list ip *acl-name* **rule** {*position*} {deny | permit} {ALL | FTP | SSH | TELNET | SMTP | DNS | HTTP | POP3 | SNTP | H323 | ICMPv6 } {WAN | LAN | LAN-LAN | ALL} {*sip-address*} {*dip-address*} {*time-range*}

no access-list ip *acl-name*

Parameter

acl-name —— Specify a rule name which should be 6 to 64 characters with letters, numbers, or underscores.

position —— Enter a number to define the priority for the rule. A smaller value means a higher priority.

{deny | permit} —— Specify the action to be taken with the packets that match the rule. By default, it is set to permit. The packets will be discarded if "deny" is selected and forwarded if "permit" is selected.

{ALL | FTP | SSH | TELNET | SMTP | DNS | HTTP | POP3 | SNTP | H323 | ICMPv6 } —— Specify the service type by selecting one in the command.

{WAN | LAN | LAN-LAN | ALL} —— Specify the effective traffic direction for the rule.

{*sip-address*} —— The source network for the rule. You can only choose to enter one of these parameters: {LAN | IPGROUP_ANY | IPGROUP_LAN}. If you set the traffic direction as "LAN", you can only enter "LAN". If you set the traffic direction as "WAN", "LAN-LAN", or "ALL", you can enter "IPGROUP_ANY" or "IPGROUP_LAN".

{*dip-address*} —— The destination network for the rule. You can only choose to enter one of these parameters: {LAN | IPGROUP_ANY | IPGROUP_LAN}. If you set the traffic direction as "LAN", you can only enter "LAN". If you set the traffic direction as "WAN", "LAN-LAN", or "ALL", you can enter "IPGROUP_ANY" or "IPGROUP_LAN".

time-range —— Enter the name of a time range entry you created. If you haven't created any time range, you can only enter "Any", which is the name of the default time range. To create a time range, refer to 16.2 time-range week- date time-slice.

Note: When using the CLI, you can enter a question mark in the position of a parameter, and the corresponding tip will show.

Command Mode

Global Configuration Mode

Example

Create an access control rule with the following settings:

Name: example

Priority: 1

Policy: Permit

Service Type: FTP

Direction: All

Source: IPGROUP_ANY

Destination: IPGROUP_ANY

Effective Time: Any

(config)#access-list ip example **rule** 1 permit FTP ALL IPGROUP_ANY IPGROUP_ANY Any

Chapter 13 SSH Commands

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

13.1 show ssh configuration

Description

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

Syntax

show ssh configuration

Command Mode

All

Example

Display the global configuration of SSH:

```
>enable
#show ssh configuration
```

13.2 ssh server

Description

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

Note: The SSH terminal you are useing will be disabled if you use the **no ssh server** command.

Syntax

ssh server

no ssh server

Command Mode

Global Configuration Mode

Example

Enable the SSH function:

```
(config)#ssh server
```

Chapter 14 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.

14.1 snmp-server v3

Description

The **snmp-server v3** command is used to enable SNMPv3 and set a username and password.

To disable SNMPv3, please use the **no snmp-server v3** command.

Syntax

snmp-server v3 username *username* **password** *password* **enable**

no snmp-server v3

Parameter

username —— Enter the username within 42 characters with letters, numbers, or underscores.

password —— Enter the password within 32 characters with letters, numbers, or underscores.

Command Mode

Global Configuration Mode

Example

Enable SNMPv3, set the username as "example", and the password as"12345678":

(config)#snmp-server v3 username example **password** 12345678 **enable**

14.2 snmp-server v1-v2c

Description

The **snmp-server v1-v2c** command is used to enable SNMPv1&v2c.

To disable SNMPv1&v2c, please use the **no snmp-server v1-v2c enable** command.

Syntax

snmp-server v1-v2c enable;

no snmp-server v1-v2c enable

Command Mode

Global Configuration Mode

Example

Enable SNMPv1&v2c:

(config)#snmp-server v1-v2c enable

14.3 snmp-server v1-v2c host

Description

The **snmp-server v1-v2c host** command is used to set the Get Trusted Host. The trusted IP address can serve as Get Community to read the SNMP information of this device.

To restore the Get Trusted Host value to the default (0.0.0.0), use the **no snmp-server v1-v2c host** command.

Syntax

snmp-server v1-v2c host *ip-address*

no snmp-server v1-v2c host

Parameter

ip-address —— Enter a valid IPv4 address.

Command Mode

Global Configuration Mode

Example

Set "192.168.0.4" as the trusted host:

(config)#snmp-server v1-v2c host 192.168.0.4

14.4 snmp-server v1-v2c contact

Description

The **snmp-server v1-v2c contact** command is used to set a textual identification of the contact person for this device. The default value is www.tp-link.com.

To delete your settings, use the **no snmp-server v1-v2c contact** command.

Syntax

snmp-server v1-v2c contact *contact*

no snmp-server v1-v2c contact

Parameter

contact —— Enter a valid URL (a domain name).

Command Mode

Global Configuration Mode

Example

Delete the contact settings:

```
(config)#no snmp-server v1-v2c contact
```

14.5 snmp-server v1-v2c device-name

Description

The **snmp-server v1-v2c device-name** command is used to set the device name for the SNMP settings.

To delete your settings, use the **no snmp-server v1-v2c device-name** command.

Syntax

snmp-server v1-v2c device-name *device-name*

no snmp-server v1-v2c device-name

Parameter

device-name —— Enter a name for your router with 64 characters.

Command Mode

Global Configuration Mode

Example

Set the device name as “example”:

(config)# snmp-server v1-v2c device-name example

14.6 snmp-server v1-v2c community

Description

The **snmp-server v1-v2c community** command is used to set the Get Community for the SNMP settings.

To restore the Get Community value to the default (public), use the **no snmp-server v1-v2c community** command.

Syntax

snmp-server v1-v2c community *community*

no snmp-server v1-v2c community

Parameter

community—— Enter the community string with 64 characters.

Command Mode

Global Configuration Mode

Example

Add a community “public”:

(config)# snmp-server v1-v2c community public

14.7 snmp-server v1-v2c location

Description

The **snmp-server v1-v2c location** command is used to set the location of the SNMP server. For example, you can set the building, floor number, or room number as the location.

To delete the location, use the **no snmp-server v1-v2c location** command.

Syntax

snmp-server v1-v2c location *location*

no snmp-server v1-v2c location

Parameter

location —— Specify the location string with 64 characters.

Command Mode

Global Configuration Mode

Example

Set the SNMP server location as “Building”:

(config)# snmp-server v1-v2c location Building

14.8 show snmp-server

Description

The **show snmp-server** command is used to display the SNMP server settings.

Syntax

show snmp-server

Command Mode

All

Example

View the SNMP server information:

>enable

#show snmp-server

Chapter 15 HTTP and HTTPS Commands

With the help of HTTP (HyperText Transfer Protocol) or HTTPS (Hyper Text Transfer Protocol over Secure Socket Layer), you can manage the switch through a standard browser.

15.1 ip http port

Description

The **ip http port** command is used to configure the port number of the HTTP server within the router.

Syntax

ip http port *port-num*

Parameter

port-num —— Enter the port number. This value ranges from 1024 to 65535, and cannot overlap with the HTTPS server port number.

Command Mode

Global Configuration Mode

Example

Set the port number of the HTTP server as "1800":

```
(config)# ip http port 1800
```

15.2 ip http server redirect-to-https

Description

With the **ip http server redirect-to-https** command, you will access the web management interface by HTTPS protocol, which is considered as a more secured way.

To disable the Redirect HTTP to HTTPS function, please use the **no ip http server redirect-to-https** command.

Syntax

ip http server redirect-to-https

no ip http server redirect-to-https

Command Mode

Global Configuration Mode

Example

Enable the Redirect HTTP to HTTPS function:

```
(config)#ip http server redirect-to-https
```

15.3 ip http secure-port

Description

The **ip http secure-port** command is used to configure the port number of the HTTPS server within the router.

Syntax

ip http secure-port *port-num*

Parameter

port-num —— Enter the port number. This value can be specified as 443, or 443-65535. It cannot overlap with the HTTP server port number.

Command Mode

Global Configuration Mode

Example

Set the port number of the HTTPS server as "2800":

```
(config)# ip http secure-port 2800
```

15.4 ip http secure-server

Description

The **ip http secure-server** command is used to enable the HTTPS server, then you can access the management interface via HTTPS server.

To disable this function, please use the **no ip http secure-server** command.

Syntax

ip http secure-server

no ip http secure-server

Command Mode

Global Configuration Mode

Example

Enable the HTTPS server:

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

15.5 ip http session timeout

Description

The **ip http session timeout** command is used to configure the web idle timeout. The web session will log out for security if there is no operation within the specified time.

Syntax

ip http session timeout *timeout*

Parameter

timeout — The timeout time, ranging from 5 to 60 in minutes. By default, the value is 6.

Command Mode

Global Configuration Mode

Example

Set the web idle timeout as "30" minutes:

```
(config)# ip http session timeout 30
```

15.6 show ip http configuration

Description

The **show ip http configuration** command is used to display the settings of the HTTP server and the HTTPS server.

Syntax

show ip http configuration

Command Mode

All

Example

View the settings of the HTTP server and the HTTPS server:

```
(config)# show ip http configuration
```

Chapter 16 Time Management Commands

16.1 show time-range

Description

The **show time-range** command is used to display the information of the existing time range entries.

Syntax

show time-range

Command Mode

Global Configuration Mode

Example

View the information of the existing time range entries:

```
(config)#show time-range
```

16.2 time-range week- date time-slice

Description

The **time-range week-date time-slice** command is used to create time range rules by specifying the period in a day and days in a week. The configured time range can be used for features like ACL, saving you from repeatedly setting up the same information.

To delete a time range entry, please use the **no time-range** command.

Syntax

time-range *name* **week-date** *day* **time-slice** *time1* [*time2*] [*time3*] [*time4*]

no time-range name

Parameter

name —— Enter a name for the time range entry within 16 characters with letters, digits, or underscores. The default time range named "Any" cannot be created, edited, or deleted, so "Any" cannot be entered in the command.

day —— Enter the day in a week the time range takes effect. Supports sequential input from 1 to 7, and supports shorthand, such as "3-5", or "1,2-4".

time1 —— Enter a time slice in the 24-hour clock format. The starting time should not be greater than the ending time. The valid examples are 03:00-05:00, or 06:15-19:04.

time2 —— This field is optional. Enter the second time slice in the 24-hour clock format. The starting time should not be greater than the ending time, and the new time slice cannot overlap with the existing ones.

time3 —— This field is optional. Enter the third time slice in the 24-hour clock format. The starting time should not be greater than the ending time, and the new time slice cannot overlap with the existing ones.

time4 —— This field is optional. Enter the fourth time slice in the 24-hour clock format. The starting time should not be greater than the ending time, and the new time slice cannot overlap with the existing ones.

Command Mode

Global Configuration Mode

Example

Create a time range entry named "example", and let it works every Tuesday to Thursday, from 05:00 to 15:00, and 22:02-23:09:

```
(config)#time-range example week-date 2-4 time-slice 05:00-15:00 22:02-23:09
```

16.3 show system-time

Description

The **show system-time** command is used to show system time, or the system time zone and the NTP server address.

Syntax

show system-time [**ntp**]

Parameter

ntp —— This is optional. Enter this value, the system time zone and NTP server address will show. Otherwise, the system time will show.

Command Mode

Global Configuration Mode

Example

View the system time:

```
(config)#show system-time
```

View the system time zone and NTP server address:

(config)#show system-time ntp

16.4 system-time manual

Description

The **system-time manual** command is used to set the system time according to your needs.

Syntax

system-time manual *time*

Parameter

time —— Enter your desired system time in the format of MM/DD/YYYY-HH:MM:SS

Command Mode

Global Configuration Mode

Example

Set the system time to "03/04/2005-06:07:08":

(config)#system-time manual 03/04/2005-06:07:08

16.5 system-time ntp timezone server

Description

The **system-time ntp timezone server** command is used to set the ststem time zone and the NTP server. The router will get UTC automatically if it is connected to an NTP Server.

Syntax

system-time ntp timezone *timezone* **ntp-server1** *ntp-server1* **[ntp-server2** *ntp-server2***]**

Parameter

timezone —— Specify a time zone. The range is from UTC-12:00 to UTC+13:00.
The detailed information of each time-zone are displayed:
UTC-12:00 —— TimeZone for International Date Line West.
UTC-11:00 —— TimeZone for Coordinated Universal Time-11.

UTC-10:00 —— TimeZone for Hawaii.

UTC-09:00 —— TimeZone for Alaska.

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

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

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

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

UTC-04:30 —— TimeZone for Caracas.

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

UTC-03:30 —— TimeZone for Newfoundland.

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

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

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

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

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

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

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

UTC+03:30 —— TimeZone for Tehran.

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

UTC+04:30 —— TimeZone for Kabul.

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

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

UTC+05:45 —— TimeZone for Kathmandu.

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

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

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

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

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

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

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

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

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

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

ntp-server1 —— The IP address of the primary NTP server.

ntp-server2 —— The IP address of the secondary NTP server. This value is optional.

Command Mode

Global Configuration Mode

Example

Configure the system time mode as NTP, the time zone "UTC-12:00", the primary NTP server "133.100.9.2":

(config)#system-time ntp timezone UTC-12:00 **ntp-server1** 133.100.9.2

Chapter 17 ARP Commands

17.1 show arp

Description

The **show arp** command is used to display the ARP entry information.

Syntax

show arp

Command Mode

All

Example

Display the ARP entry information:

```
(config)#show arp
```