CLI Reference Guide

(GTD-5271)

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Revision History

Date	Version	Description
2019-11-15	R1.0	Initial Release

1 Preface

1.1 Declaration

This document updates at irregular intervals because of product upgrade or other reason.

This document is for your reference only.

1.2 Suggestion feedback

If you have any questions when using our product and reading this document, please contact us:

Email:

1.3 Audience

This document is for the following audiences:

- System maintenance engineers
- Debugging and testing engineers
- Network monitoring engineers
- Field maintenance engineers

1.4 Conventions

Table 1-1 Command syntax convention table

Syntax	Description
Italic type with capital letters	Use *italic type* with capital letters for the parameters of the commands. Parameters are the parts which need to replace with the actual value.
(x|y|…)	Select one among the choices.

(x|y|…|)	Select one or none among the choices.
[x|y|…]	Select one or more among the choices. The choices can be selected repeatedly.
[x|y|…|]	Select one or more or none among the choices. The choices can be selected repeatedly.
{x|y|…}	Select one or more among the choices. The choices can be selected only once.
{x|y|…|}	Select one or more or none among the choices. The choices can be selected only once.
<x-y>	Select a number between x and y.

2 Basic Commands

2.1 Global Commands

2.1.1 hostname

Command Purpose

In global mode, use the command to configure hostname.

Command Syntax

hostname *NAME_STRING*

no hostname

Parameter	Parameter Description	Parameter Value
NAME_STRING	Host name	The first character should be a-z or A-Z, character only can be 0-9A-Za-z.-_ and the length of hostname can not be more than 63 characters.

Command Mode

Global Configuration

Default

The default value of hostname is switch.

Usage

Hostname will appear in prompt and default configure file. Hostname must conform to the provisions of ARPANET. Hostname must start with character include English character, number, hyphen and underline. Host name can not be more than 63 characters.

Examples

The following example configures hostname to sandbox:

```
Switch# configure terminal
Switch(config)# hostname sandbox
```

The following example configures hostname to default value:

```
sandbox# configure terminal
sandbox(config)#
sandbox(config)# no hostname
Switch(config)#
```

Related Commands

None

2.1.2 format udisk:

Command Purpose

In global mode, use the command to format USB device.

Command Syntax

format *udisk:*

Command Mode

Global Configuration

Default

None

Usage

USB device must mount to system, and use the command to format USB device.

Examples

The following example formats USB devices:

```
Switch# configure terminal
Switch(config)# format udisk:
WARNING: All data on udisk: will be lost!!!
And format operation may take a while. Are you sure to process with format?
[yes/no]: yes
```

Related Commands

None

2.1.3 umount udisk:

Command Purpose

In global mode, use the command to unload USB device, before uppluging the usb device from the system.

Command Syntax

umount *udisk:*

Command Mode

Global Configuration

Default

None

Usage

USB device must mount to system, and use the command to unload USB device.

Examples

The following example umonts USB devices:

```
Switch# configure terminal
Switch(config)# umount udisk:
```

Related Commands

None

2.1.4 management ip address

Command Purpose

Use this command to set the management IP address on the Switch.

To remove the management IP address, use the no form of this command.

Command Syntax

management ip address *IP_ADDR_MASK*

no management ip address

Parameter	Parameter Description	Parameter Value
IP_ADDR_MASK	IP address with a subnet mask suffix	-

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example sets management ip address:

```
Switch# configure terminal
Switch(config)# management ip address 192.168.100.100/24
```

The following example removes management ip address:

```
Switch# configure terminal
Switch(config)# no management ip address
```

Related Commands

management route gateway

2.1.5 management ip6 address

Command Purpose

Use this command to set the management IPv6 address on the Switch.

To remove the management IPv6 address, use the no form of this command.

Command Syntax

management ipv6 address *IPv6_ADDR_MASK*

no management ipv6 address

Parameter	Parameter Description	Parameter Value
IPv6_ADDR_MASK	IPv6 address with a subnet mask suffix	-

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example sets management ipv6 address:

```
Switch# configure terminal
Switch(config)# management ipv6 address 3001::1/48
```

The following example removes management ipv6 address:

```
Switch# configure terminal
Switch(config)# no management ipv6 address
```

Related Commands

2.1.6 management route gateway

Command Purpose

Use this command to set the management route gateway on the Switch.

To remove the management IP address, use the no form of this command.

Command Syntax

management route gateway *IP_ADDR*

no management route gateway

Parameter	Parameter Description	Parameter Value
IP_ADDR	IP address	-

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example sets management route gateway:

```
Switch# configure terminal
Switch(config)# management route gateway 192.168.100.254
```

The following example removes management route gateway:

```
Switch# configure terminal
Switch(config)# no management route gateway
```

Related Commands

management ip address

2.1.7 ns-port-forwarding local-service

Command Purpose

Switch use the default namespace for the forward network, and use outband management namespace for the outband management port to achieve the goal of isolating the forwarding network and managing the network. Switch use this command to configure local business port mapping to outband management. To remove the business port mapping to outband management, use the no form of this command.

Command Syntax

ns-port-forwarding local-service (tcp | udp) *L4_PORT_NUM*

no ns-port-forwarding local-service (tcp | udp) *L4_PORT_NUM*

Parameter	Parameter Description	Parameter Value
L4_PORT_NUM	The local port mapping to default namespace	1025-65535

Command Mode

Global Configuration

Default

None

Usage

Local business refers to the service of the side on the switch default namespace. If client need to access the service by outband management, this command need to be used to realize mapping.

Examples

The following example enables ns-port-forwarding local-service:

```
Switch# configure terminal
switch(config)# ns-port-forwarding local-service tcp 6633
```

The following example disables ns-port-forwarding local-service:

```
Switch# configure terminal
switch(config)# no ns-port-forwarding local-service tcp 6633
```

Related Commands

None

2.1.8 service telnet enable

Command Purpose

Use this command to turn on/off the telnet service of switch.

Command Syntax

service telnet enable

service telnet disable

Command Mode

Global Configuration

Default

on

Usage

If telnet service is off, only can login switch by other ways, such as serial port.

Examples

The following example enables telnet service:

```
Switch# configure terminal
Switch(config)# service telnet enable
Connection closed by foreign host.
```

The following example disables telnet service:

```
Switch# configure terminal
Switch(config)# service telnet disable
```

Related Commands

None

2.1.9 service telnet port

Command Purpose

Use this command to change telnet port, and use the no form of the command to recover to default.

Command Syntax

service telnet port *SERVICE_PORT*

no service telnet port

Parameter	Parameter Description	Parameter Value

SERVICE_PORT	port number	Range is 1025-65535

Command Mode

Global Configuration

Default

23

Usage

If telnet port is changed, all telnet users must be forced to quit.

Examples

The following example sets telnet service port:

```
Switch# configure terminal
Switch(config)# service telnet port 2000
Connection closed by foreign host.
```

The following example recovers telnet service port to default port:

```
Switch# configure terminal
Switch(config)# no service telnet port
```

Related Commands

None

2.1.10 service telnet acl

Command Purpose

Use this command to set telnet ACL, and use the no form of the command to recover to default.

Command Syntax

service telnet acl *ACL_NAME*

no service telnet acl

Parameter	Parameter Description	Parameter Value
ACL_NAME	IP ACL NAME	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example sets telnet service acl:

```
Switch# configure terminal
Switch# ip access-list sacl01
Switch(config-ip-acl-sacl01)# exit
Switch(config)# service telnet acl sacl01
```

The following example delete telnet service acl:

```
Switch# configure terminal
Switch(config)# no service telnet acl
```

Related Commands

None

2.1.11 service http

Command Purpose

Use the command to configure http service.

Command Syntax

service http (enable | disable | restart | port *L4_PORT_NUM*)

Parameter	Parameter Description	Parameter Value
L4_PORT_NUM	port number of http service	1025-65535

Command Mode

Global Configuration

Default

Default port number is 80

Usage

Use this command to enable, disable, reboot http service, or set http port. Http service can not be enabled when RPC-API has been enabled.

Examples

The following example enables http service:

```
Switch# configure terminal
Switch(config)# service http enable
Switch(config)#
```

Related Commands

None

2.1.12 service https

Command Purpose

Use the command to configure https service.

Command Syntax

service https (enable | disable | restart | port *L4_PORT_NUM*)

Parameter	Parameter Description	Parameter Value
L4_PORT_NUM	port number of https service	1025-65535

Command Mode

Global Configuration

Default

Default port number is 443

Usage

Use this command to enable, disable, reboot http service, or set http port.

Examples

The following example enables https service:

```
Switch# configure terminal
Switch(config)# service https enable
Switch(config)#
```

Related Commands

None

2.1.13 service rpc-api enable

Command Purpose

Use the command to enable rpc-api service. And use disable command to disable rpc-api service.

Command Syntax

service rpc-api enable (port *PORT_NUM* |) (ssl (ssl-port *SSL_PORT_NUM* |) |)

service rpc-api disable

Parameter	Parameter Description	Parameter Value
PORT_NUM	port number of https service	Default port number is 80
SSL_PORT_NUM	port number of SSL service	Default port number is 443

Command Mode

Global Configuration

Default

RPC-API service is off by default.

Usage

Use this command to enable RPC-API service. If parameters need to be modified, RPC-API service need to be disable. RPC-API service can not be enable when http has been enable.

Examples

The following example enables encrypted RPC-API service:

```
Switch# configure terminal
Switch(config)# service rpc-api enable ssl
Switch(config)#
```

The following example disables encrypted RPC-API service:

```
Switch# configure terminal
Switch(config)# service rpc-api disable
Switch(config)#
```

Related Commands

show services rpc-api

2.1.14 service rpc-api auth-mode

Command Purpose

Use the command to configure the auth mode of RPC-API, and use the no form of the command to recover to default.

Command Syntax

service rpc-api auth-mode (basic)

no service rpc-api auth-mode

Command Mode

Global Configuration

Default

Configure the auth mode of RPC-API.

Usage

Use this command to enable or disable the auth mode of RPC-API.If the auth mode has been enabled, it will be valid after rpc-api service is restarted. All rpc-api requests will check user name and password after it's valid.

Examples

The following example enables the auth mode of RPC-API:

```
Switch# configure terminal
Switch(config)# service rpc-api auth-mode basic
```

The following example disables the auth mode of RPC-API:

```
Switch# configure terminal
Switch(config)# no service rpc-api auth-mode
```

Related Commands

services rpc-api enable

show services rpc-api

2.1.15 cut-through-forwarding enable

Command Purpose

Use the command to turn on / off cut-through-forwarding mode.In this mode, the delay of switch is smaller.

Command Syntax

cut-through-forwarding enable

no cut-through-forwarding enable

Command Mode

Global Configuration

Default

The default is store-and-forward mode.

Usage

attention

Examples

The following example enables cut-through-forwarding mode:

```
Switch# configure terminal
Switch(config)# cut-through-forwarding enable
Notice: Configuration about cutting through forwarding mode has been stored, but
cannot take effect until the next reload
```

The following example disables cut-through-forwarding mode:

```
Switch# configure terminal
Switch(config)# no cut-through-forwarding enable
Notice: Configuration about cutting through forwarding mode has been stored, but
cannot take effect until the next reload
```

Related Commands

None

2.1.16 show history

Command Purpose

In privileged mode, use the command to show history command line.

Command Syntax

show history

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example uses this command to show information of history command:

```
Switch# show history
1  show history
2  show running-config
3  show history
```

Related Commands

None

2.1.17 show running-config interface

Command Purpose

In privileged mode, use the command to show information of current configuration of interface.

Command Syntax

show running-config interface (*IF_NAME_EA* |)

Parameter	Parameter Description	Parameter Value
IF_NAME_EA	Interface name: physical interface, link aggregation interface, vlan interface or lookup interface.	

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows interface configuration:

```
Switch# show running-config interface
Building configuration...
interface eth-0-1/1
  speed 1000
  switchport mode trunk
  switchport trunk allowed vlan add 100
!
interface eth-0-1/2
  speed 1000
```

```
  switchport mode trunk
  switchport trunk allowed vlan add 100
!
interface eth-0-1/3
  speed 1000
!
interface eth-0-1/4
  speed 1000
!
interface eth-0-2/1
  speed 1000
  shutdown
!
interface eth-0-2/2
  speed 1000
!
interface eth-0-2/3
!
interface eth-0-2/4
!
interface eth-0-3
  shutdown
!
interface eth-0-4
  shutdown
!
interface eth-0-5
  shutdown
!
interface eth-0-6
  shutdown
!
interface eth-0-7
  shutdown
!
interface eth-0-8
  shutdown
!
interface eth-0-9
  shutdown
!
interface eth-0-10
  shutdown
!
interface eth-0-11
  no switchport
  shutdown
!
interface eth-0-12
  shutdown
!
interface eth-0-13
  shutdown
!
interface eth-0-14
```

```
  shutdown
!
interface eth-0-15
  shutdown
!
interface eth-0-16
  shutdown
!
interface eth-0-17
  shutdown
!
interface eth-0-18
  shutdown
!
interface eth-0-19
  shutdown
!
interface eth-0-20
  shutdown
!
interface eth-0-21
  shutdown
!
interface eth-0-22
  shutdown
!
interface eth-0-23
  shutdown
!
interface eth-0-24
  shutdown
!
Swtich#
```

Related Commands

None

2.1.18 show running-config ip route

Command Purpose

In privileged mode, use the command to show information of current configuration of IP.

Command Syntax

show running-config ip route

Parameter	Parameter Description	Parameter Value
route	route: specifies show route ip.	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows ip route configuration:

```
Switch# show running-config ip route
Building configuration...
ip route 1.1.0.0/23 11.1.1.1
!
```

Related Commands

None

2.1.19 show running-config qos

Command Purpose

In privileged mode, use the command to show information of current configuration of qos

Command Syntax

show running-config qos

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows qos configuration:

```
Switch# show running-config qos
Building configuration...
qos global
  qos enable
!
qos domain 2
  tc 1 color yellow to exp 3
  exit
!
qos policer-profile p2
  mode rfc2697 color-blind cir 100000000 cbs 128000 ebs 128000
  exit
!
qos scheduler-profile p1
  mode sp
  weight 1
  pir 100000000
  exit
!
```

Related Commands

None

2.1.20 show running-config router

Command Purpose

In privileged mode, use the command to show information of current configuration of router

Command Syntax

show running-config router (ospf | vrrp)

Parameter	Parameter Description	Parameter Value
ospf|vrrp	ospf: specifies show information of ospf. vrrf: specifies show information of vrrf	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows ospf configuration:

```
Switch# show running-config router ospf
Building configuration...
router ospf
router-id 12.12.1.1
area 10 authentication message-digest
```

Related Commands

None

2.1.21 show running-config switch

Command Purpose

In privileged mode ,use the command to show information of current configuration of switch stp,vlan,radius-server or tacacs-server.

Command Syntax

show running-config switch (stp | vlan | radius-server | tacacs-server)

Parameter	Parameter Description	Parameter Value
stp | vlan | radius-server | tacacs-server	stp: specifies show configuration of STP. vlan: specifies show configuration of vlan. radius-server: specifies show configuration of Radius server. tacacs-server: specifies show configuration of Tacacs server.	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows vlan configuration:

```
Switch# show running-config switch vlan
Building configuration...
vlan 3
name v3
!
vlan range 4-9,11
!
```

Related Commands

None

2.1.22 show running-config

Command Purpose

In privileged mode, use the command to show information of current configuration.

Command Syntax

show running-config

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows information of current configuration:

```
Switch# show running-config
Building configuration...
```

```
enable password Switch
hostname Switch
aaa new-model
!
aaa authentication login aaa radius
aaa authentication login default none
!
username admin privilege 4 password admin
username test password test
!
split interface eth-0-1 10giga
switch interface eth-0-1 sfp
split interface eth-0-2 10giga
!
!
ip ssh server version v1
!
logging merge disable
!
tacacs-server host 10.10.35.251
!
management ip address 10.10.39.104/23
management route gateway 10.10.39.254
!
vlan 100
!
!
radius-server host 1.1.1.1
!
radius-server host 10.10.35.251
!
interface eth-0-1/1
  speed 1000
  switchport mode trunk
  switchport trunk allowed vlan add 100
!
interface eth-0-1/2
  speed 1000
  switchport mode trunk
  switchport trunk allowed vlan add 100
!
interface eth-0-1/3
  speed 1000
!
interface eth-0-1/4
  speed 1000
!
interface eth-0-2/1
  speed 1000
  shutdown
!
interface eth-0-2/2
  speed 1000
!
interface eth-0-2/3
```

```
!
interface eth-0-2/4
!
interface eth-0-3
  shutdown
!
interface eth-0-4
  shutdown
!
interface eth-0-5
  shutdown
!
interface eth-0-6
  shutdown
!
interface eth-0-7
  shutdown
!
interface eth-0-8
  shutdown
!
interface eth-0-9
  shutdown
!
interface eth-0-10
  shutdown
!
interface eth-0-11
  no switchport
  shutdown
!
interface eth-0-12
  shutdown
!
interface eth-0-13
  shutdown
!
interface eth-0-14
  shutdown
!
interface eth-0-15
  shutdown
!
interface eth-0-16
  shutdown
!
interface eth-0-17
  shutdown
!
interface eth-0-18
  shutdown
!
interface eth-0-19
  shutdown
!
```

```
interface eth-0-20
  shutdown
!
interface eth-0-21
  shutdown
!
interface eth-0-22
  shutdown
!
interface eth-0-23
  shutdown
!
interface eth-0-24
  shutdown
!
line console 0
 no line-password
line vty 0 6
 exec-timeout 35791 0
 privilege level 4
 no line-password
line vty 7
 exec-timeout 35791 0
 privilege level 4
 line-password Switch
```

Related Commands

None

2.2 Management Commands

2.2.1 show diagnostic-information

Command Purpose

Use this command line to show diagnostic-information (only part information is displayed because it's too long)

Command Syntax

show diagnostic-information

Command Mode

Privileged EXEC

Default

None

Usage

Diagnostic information is a collection of command, these command include “show version”, “show clock” and so on. The output of this command is very long, therefore we usually redirect it to a file in flash.

Examples

The following example shows diagnostic-information:

```
Switch# show diagnostic-information
 ------------------ show version ------------------
Software, GTD-5271, Version 1.0.1 Copyright (C) 2004-2016 Switch Networks Inc. All
rights reserved.
The current running image is: flash:/boot/GTD-5271-v1.0.1.r.bin
Switch uptime is 1 days,1 hours,27 minutes
Hardware Type         : 20Q4Z
SDRAM size            : 1024M
Flash size            : 2048M
Hardware Version      : 1.0
EPLD Version          : 2.1
BootRom Version       : 8.1.1
System serial number : E130GD151005
------------------ show clock ------------------
17:11:04 UTC Wed Sep 21 2016
------------------ show running-config ------------------
Building configuration...
version 2.0.8
hostname Switch
!
username admin privilege 4 password admin
!
split interface eth-0-1 10giga
switch interface eth-0-1 sfp
split interface eth-0-5 10giga
split interface eth-0-21 10giga
split interface eth-0-22 10giga
split interface eth-0-23 10giga
```

The following example redirects diagnostic-information to a file in flash:

```
Switch# show diagnostic-information > flash:/diag_20160901.txt
```

Related Commands

None

2.2.2 show services

Command Purpose

In privileged mode, use the command to show information of net service.

Command Syntax

show services

Command Mode

Privileged EXEC

Default

None

Usage

Use the command to show information of net service.

Examples

The following example shows network service on switch:

```
Switch# show services
Networking services configuration:
Service Name      Status         Port        Protocol
----------------+-------------+-----------+-----------
dhcp              disable        67/68       UDP
http              enable         80          TCP
rpc-api           disable        80          TCP
telnet            enable         23          TCP
ssh               enable         22          TCP
snmp              disable        161         UDP
```

Related Commands

service telnet

service http

service rpc-api

2.2.3 show services rpc-api

Command Purpose

In privileged mode, use the command to show information of RPC-API.

Command Syntax

show services rpc-api

Command Mode

Privileged EXEC

Default

None

Usage

Use the command to show configure information of RPC-API

Examples

The following example shows RPC-API service on switch:

```
Switch# show services rpc-api
RPC-API service configuration:
 Server State        : disable
 Port                : 80
 Authentication Mode : none
 SSL State           : disable
```

Related Commands

service rpc-api

2.3 System Commands

2.3.1 disable

Command Purpose

In privileged mode, use “disable” command to quit from privileged mode and enter user mode.

Command Syntax

disable

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example uses this command to enter user mode. Use “disable” command to quit from privileged mode and enter user mode. Attention: when enter user mode, the character “>” is used, and when enter in privileged mode, the character “#” is used:

```
Switch# disable
Switch>
```

Related Commands

None

2.3.2 enable

Command Purpose

In privileged mode, use “enable” command to enter privileged mode.

Command Syntax

enable

Command Mode

User EXEC

Default

None

Usage

None

Examples

The following example uses this command to enter user mode. Use “disable” command to quit from privileged mode and enter user mode. Attention: when enter user mode, the character “>” is used, and when enter in privileged mode, the character “#” is used:

```
Switch# configure terminal
Switch(config)# enable password admin
Switch(config)# exit
Switch# disable
Switch> enable
Password:
Switch#
```

Related Commands

2.3.3 logout

Command Purpose

In privileged mode, use this command to quit from current session.

Command Syntax

logout

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example uses this command to quit from current session:

```
Switch# logout
Connection closed by foreign host.
```

Related Commands

None

2.3.4 reboot

Command Purpose

In privileged mode, use this command to reboot system.

Command Syntax

reboot

Command Mode

Privileged EXEC

Default

None

Usage

Before use this command, system configure need to be stored.

Examples

The following example shows how to reboot switch:

```
Switch# reboot
Building configuration...
System configuration has been modified. Save? [yes/no]: yes
Reboot system? [confirm] yes

Waiting ...
Connection is closed by administrator!
 success
Connection closed by foreign host.
```

Related Commands

reboot fast

2.3.5 reboot fast

Command Purpose

In privileged mode, use this command to reboot system fast.

Command Syntax

reboot fast

Command Mode

Privileged EXEC

Default

None

Usage

Before use this command, system configure need to be stored. When use this command, Linux system and hardware do not be reset, only business process and forward chips need to be initialized. In default, fast reboot takes about 30 seconds. After fast reboot, show reboot-info command display information is MANUAL-FAST.

Examples

The following example shows how to reboot switch in fast mode:

```
Switch# reboot fast
Building configuration...
Reboot system? [confirm] yes
Waiting ... Success
```

Related Commands

reboot

2.3.6 write

Command Purpose

In privileged mode, use this command to write to current system configuration.

Command Syntax

write

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to save current configuration:

```
Switch# write
Building configuration...
```

Related Commands

None

2.3.7 boot system flash

Command Purpose

In privileged mode, use this command to specify start-up image in flash

Command Syntax

boot system flash *STRING*

Parameter	Parameter Description	Parameter Value
STRING	start-up image	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example configures switch boot from image in flash:

```
Switch# boot system flash:/boot/GTD-5271-v1.0.0.1.r.bin
```

Related Commands

boot fast flash

2.3.8 boot system tftp:

Command Purpose

In privileged mode, use this command to specify start-up image in tftp server.

Command Syntax

boot system *tftp:* mgmt-if *IP_ADDR STRING*

Parameter	Parameter Description	Parameter Value
IP_ADDR	ip address of tftp server	-
STRING	start-up image	-

Command Mode

Privileged EXEC

Default

None

Usage

When start-up by tftp mode, use management ip address in startup-config file as source address.

Examples

The following example configures switch boot from image in tftp server:

```
Switch# boot system tftp: mgmt-if 10.10.38.160 GTD-5271-v1.0.0.1.r.bin
```

Related Commands

None

2.3.9 terminal length

Command Purpose

In privileged mode, use this command to set terminal display lines.

Command Syntax

terminal length *TERM_LINES*

Parameter	Parameter Description	Parameter Value
TERM_LINES	terminal display lines	Range is 1-512

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example configures terminal length to 1000:

```
Switch# terminal length 100
```

Related Commands

None

2.3.10 terminal no length

Command Purpose

In privileged mode, use this command to reset terminal display lines.

Command Syntax

terminal no length (*TERM_LINES* |)

Parameter	Parameter Description	Parameter Value
TERM_LINES	terminal display lines	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example recovers terminal length to default value:

```
Switch# terminal no length
```

Related Commands

None

2.3.11 terminal monitor

Command Purpose

In privileged mode, use this command to show debug information of system.

Command Syntax

terminal monitor

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example uses this command to show debug information:

```
Switch# terminal monitor
```

Related Commands

None

2.3.12 terminal no monitor

Command Purpose

In privileged mode, use this command to remove debug information of system.

Command Syntax

terminal no monitor

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example uses this command to disable show debug information:

```
Switch# terminal no monitor
```

Related Commands

None

2.3.13 cd

Command Purpose

In privileged mode, use this command to change current path.

Command Syntax

cd (*STRING* |)

Parameter	Parameter Description	Parameter Value
STRING	path name: file system path. Put a colon at the end	-

Command Mode

Privileged EXEC

Default

The initial current path of the system is flash: . If user does not set the current path, the default current path of the system is the root path of the file system flash: .

Usage

None

Examples

The following example uses this command to change current path:

```
Switch# cd flash:/boot
Switch# pwd
flash:/boot
```

Related Commands

None

2.3.14 mkdir

Command Purpose

In privileged mode, use this command to make a new path.

Command Syntax

mkdir *STRING*

Parameter	Parameter Description	Parameter Value
STRING	new path name	-

Command Mode

Privileged EXEC

Default

None

Usage

The command is only valid to local file system.

Examples

The following example adds a new path named newdir:

```
Switch# mkdir flash:/newdir
```

Related Commands

2.3.15 rmdir

Command Purpose

In privileged mode, use this command to remove a path.

Command Syntax

rmdir *STRING*

Parameter	Parameter Description	Parameter Value
STRING	path name or file name	-

Command Mode

Privileged EXEC

Default

None

Usage

The command is only valid to local file system.

Examples

The following example removes a new path named newdir:

```
Switch# rmdir flash:/newdir
Are you sure to delete flash:/newdir ? [no]y
```

Related Commands

None

2.3.16 pwd

Command Purpose

In privileged mode, use this command to print current path.

Command Syntax

pwd

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example uses this command to show current path:

```
Switch# pwd
flash:/
```

Related Commands

None

2.3.17 ls

Command Purpose

In privileged mode, use this command to show file list in current path.

Command Syntax

ls (*STRING* |)

Parameter	Parameter Description	Parameter Value
STRING	path name or file name.	-

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to show file list in current path.

Examples

The following example shows file table:

```
Switch# ls
Directory of flash:/
total 3516
-rw-r--r-- 1 3290555 Aug 25 10:45 bgpd_100
drwxr-xr-x 2    1160 Sep  9 10:29 boot
drwxr-xr-x 7     624 Mar 31 09:16 cold
drwxr-xr-x 3     296 Mar 31 09:16 conf
-rw-r--r-- 1    2421 Jun 10 16:34 configlic
-rw------- 1     147 Sep  5 14:39 dhcpsnooping
-rw------- 1     151 Sep  5 14:39 dhcpv6snooping
drwxr-xr-x 2     800 Jun 15 22:23 info
drwxr-xr-x 2     288 Mar 31 09:16 log
drwxr-xr-x 7     488 Mar 31 09:16 monitor
drwxr-xr-x 2     232 Sep  9 10:37 reboot-info
-rw-r--r-- 1    1061 Sep 10 10:35 startup-config.conf
```

```
-rw-r--r-- 1  264981 Sep 10 16:32 syslog
drwxr-xr-x 2    6112 Sep  4 17:31 syslogfile
Total 887.00M bytes (875.00M bytes free)
```

Related Commands

None

2.3.18 copy running-config

Command Purpose

In privileged mode, use this command to copy running-config file to other folder.

Command Syntax

copy running-config (mgmt-if *STRING* |) (*STRING*)

Parameter	Parameter Description	Parameter Value
STRING	destination URL	-

Command Mode

Privileged EXEC

Default

None

Usage

use this command to copy running-config file to destination URL.

Examples

The following example copies current-config.conf to destination URL:

```
Switch# copy running-config flash:/current-config.conf
flash:/current-config.conf
[OK]
```

Related Commands

None

2.3.19 copy startup-config

Command Purpose

In privileged mode, use this command to copy startup-config file to other folder.

Command Syntax

copy startup-config (mgmt-if *STRING* |) (*STRING*)

Parameter	Parameter Description	Parameter Value
STRING	destination URL	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example copies startup-config.conf to tftp server:

```
Switch# copy startup-config mgmt-if tftp://10.10.38.160/
TFTP server [10.10.38.160]
Name of the TFTP file to access [] startup-config
Send file to tftp://10.10.38.160/startup-config
Sent 2337 bytes in 0.0 seconds
```

Related Commands

None

2.3.20 copy mgmt-if

Command Purpose

In privileged mode, use this command to copy remote file to local.

Command Syntax

copy mgmt-if *STRING_SRC STRING_DES*

Parameter	Parameter Description	Parameter Value
STRING_SRC	source URL	-
STRING_DES	The file need to be copied	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example copies file from tftp server to flash:

```
Switch# copy mgmt-if tftp://10.10.38.160 flash:/boot
TFTP server [10.10.38.160]
Name of the TFTP file to access [] collections.py
Download from URL to temporary file.
Get file from tftp://10.10.38.160/collections.py
.
Received 25403 bytes in 0.2 seconds
Copy the temporary file to its destination.
.
File system synchronization. Please waiting...
25403 bytes in 0.1 seconds, 248 kbytes/second
```

Related Commands

None

2.3.21 copy

Command Purpose

In privileged mode, use this command to copy local file to server or local.

Command Syntax

copy (*STRING1* (mgmt-if *STRING2* |) (*STRING3* | (running-config |) startup-config) *STRING4*)

Parameter	Parameter Description	Parameter Value
STRING1	the file need to be copied	-
STRING2	destination URL	-
STRING3	source URL	-
STRING4	destination folder..	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example copies file to flash to tftp server :

```
Switch# copy flash:/startup-config.conf mgmt-if tftp://10.10.38.160
TFTP server [10.10.38.160]
Name of the TFTP file to access [] startup-config.conf
Send file to tftp://10.10.38.160/startup-config.conf
.
Sent 2177 bytes in 0.1 seconds
```

Related Commands

None

2.3.22 copy xmodem

Command Purpose

Use this command to copy file from console to local disk.

Command Syntax

copy *xmodem:STRING*

Parameter	Parameter Description	Parameter Value
STRING	file need to be copied.	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example copies file from console to flash:

```
Switch# copy xmodem: flash:/aaa.txt
```

Related Commands

2.3.23 ftp

Command Purpose

Use this command to trasmit file by ftp.

Command Syntax

ftp (*STRING* | mgmt-if *STRING*)

Parameter	Parameter Description	Parameter Value
STRING	IP address or remote host.	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

```
Switch# ftp mgmt-if 10.10.10.1
```

Related Commands

None

2.3.24 more

Command Purpose

In privileged mode, use this command to show file.

Command Syntax

more *STRING*

Parameter	Parameter Description	Parameter Value
STRING	file name	-

Command Mode

Privileged EXEC

Default

None

Usage

System can only display one file at a time in ASCII format.

Examples

The following example shows startup-config file in flash:

```
Switch# more flash:/startup-config.conf
```

Related Commands

None

2.3.25 delete

Command Purpose

In privileged mode, use this command to delete file in flash.

Command Syntax

delete *STRING*

Parameter	Parameter Description	Parameter Value

STRING	file name	-

Command Mode

Privileged EXEC

Default

None

Usage

If user delete system configure file, the system prompts the user to confirm the deletion.

Examples

The following example deletes file named test in flash:

```
Switch# delete flash:/test
Are you sure to delete flash:/test? [no]y
```

Related Commands

None

2.3.26 rename

Command Purpose

In privileged mode, use this command to rename a file.

Command Syntax

rename *STRING1 STRING2*

Parameter	Parameter Description	Parameter Value
STRING1	the origin name of the file or path	-

STRING2	destination path or file name	-

Command Mode

Privileged EXEC

Default

None

Usage

The command is only valid to local file system.

Examples

The following example renames the file from startup-config.conf-bak to startup-config.conf-bak1:

```
Switch# rename flash:/startup-config.conf-bak flash:/startup-config.conf-bak1
Are you sure to rename flash:/startup-config.conf-bak ? [confirm]y
.
File system synchronization. Please waiting...
1061 bytes in 0.1 seconds, 10 kbytes/second
```

Related Commands

None

2.3.27 source

Command Purpose

In shell environment, read and execute configuration file.

Command Syntax

source *STRING*

Parameter	Parameter Description	Parameter Value

STRING	configuration file	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example reads and expect flie in flash:

```
Switch# source flash:/batch_shutdown.txt
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# interface eth-0-1/1
Switch(config-if-eth-0-1/1)# shutdown
Switch(config-if-eth-0-1/1)# interface eth-0-1/2
Switch(config-if-eth-0-1/2)# shutdown
Switch(config-if-eth-0-1/2)# interface eth-0-1/3
Switch(config-if-eth-0-1/3)# shutdown
Switch(config-if-eth-0-1/3)# interface eth-0-1/4
Switch(config-if-eth-0-1/4)# shutdown
Switch(config-if-eth-0-1/4)# end
```

Related Commands

None

2.3.28 sha512sum

Command Purpose

In privileged mode, use this command to calculate sha512sum.

Command Syntax

sha512sum *STRING*

Parameter	Parameter Description	Parameter Value
STRING	file name	-

Command Mode

Privileged EXEC

Default

None

Usage

The command is only valid to filename.

Examples

The following example calculate verification value of file:

```
DUT4# sha512sum flash:/startup-config.conf
59cf447bb2a93e38e146105808aa35411c65799b851146147cbd286bc7c65904d71599159970fffa2de
ead58d6e5fb1bc377e827f42ec1db8da07abbabd925f0
```

Related Commands

None

2.3.29 reset factory-config

Command Purpose

In privileged mode, use this command to reset factory data.

Command Syntax

reset factory-config

Command Mode

Privileged EXEC

Default

None

Usage

Before executing the command, factory-config file must be restored.

Examples

The following example uses this command to reset factory data:

```
Switch# factory-config write
Switch# reset factory-config
Startup-config will be overwritten with factory-config. Continue? [yes/no]:
```

Related Commands

show reset factory-config

2.3.30 show factory-config

Command Purpose

In privileged mode, use this command to show factory setting.

Command Syntax

show factory-config

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example uses this command to show factory data:

```
Switch# factory-config write
Switch# show factory-config
!
username admin privilege 4 password admin
!
!
management ip address 10.10.39.161/23
management route add gateway 10.10.39.254
!
vlan 100
!
!
interface eth-0-1
 switchport access vlan 100
!
interface eth-0-2
 switchport access vlan 100
```

Related Commands

reset factory-config

2.3.31 show management ip address

Command Purpose

In privileged mode, use this command to show management ip address.

Command Syntax

show management ip address

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example uses this command to show ip address of management:

```
Switch# show management ip address
Management IP address:  10.10.39.131/23
Gateway:  0.0.0.0
```

Related Commands

None

2.3.32 show file system

Command Purpose

In privileged mode, use this command to show information of file system.

Command Syntax

show file system

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows information of file system:

```
Switch# show file system
Type         Size         Used         Free         Use%
======================================================================
flash:/      887M         56M          827M         7%
flash:/boot  776M         360M         412M         47%
udisk:       0B           0B           0B           100%
```

Related Commands

None

2.3.33 show management interface

Command Purpose

In privileged mode, use this command to show management interface.

Command Syntax

show management interface

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example uses this command to show configuration of management:

```
Switch# show management interface
Management Interface current state: UP
Description:
Link encap: Ethernet        HWaddr: 00:1E:08:0A:71:85
net addr: 10.10.39.161      Mask: 255.255.254.0
Bcast: 10.10.39.255         MTU: 1500
Speed: 1000Mb/s             Duplex: Full
Auto-negotiation: Enable
```

```
Received:              6737 Packets,          558970 Bytes (545.8 KiB)
Transmitted:            462 Packets,           31717 Bytes (30.9 KiB)
```

Related Commands

None

2.3.34 show cpu packets

Command Purpose

In privileged mode, use this command to show CPU packet statistics.

Command Syntax

show cpu packets

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example uses this command to show information of cpu packets:

```
Switch# show cpu packets
CPU Packet Stats:
Type Rx Tx Total
--------------------+---------------+---------------+---------------
BPDU 10 3 13
SLOW PROTO 0 0 0
EAPOL 0 0 0
LLDP 0 0 0
ERPS 0 0 0
ARP 0 2 2
DHCP 0 0 0
IGMP 0 0 0
```

```
RIP 0 - -
OSPF 0 - -
MACDA 0 - -
IPDA 0 - -
MAC LIMIT 0 - -
MAC MISMATCH 0 - -
L3COPY CPU 0 - -
TTL ERROR 0 - -
Other 0 0 0
Total 10 5
15
```

Related Commands

None

2.3.35 show startup-config

Command Purpose

In privileged mode, use this command to show start-up configuration

Command Syntax

show startup-config

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows current configuration in switch:

```
Switch# show running-config
Building configuration...
service http enable
```

```
!
aaa authentication login default local
!
username admin privilege 4 password admin
username Switch privilege 4 password Switch
!
split interface eth-0-1 10giga
switch interface eth-0-1 sfp
!
ns-port-forwarding local-service tcp 80
ns-port-forwarding local-service tcp 443
!
management ip address 10.10.39.131/23
!
spanning-tree priority 0
!
interface eth-0-1/1
!
interface eth-0-1/2
!
interface eth-0-1/3
!
interface eth-0-1/4
!
interface eth-0-2
!
interface eth-0-3
!
interface eth-0-4
!
interface eth-0-5
!
interface eth-0-6
!
interface eth-0-7
!
interface eth-0-8
!
interface eth-0-9
!
interface eth-0-10
!
interface eth-0-11
!
interface eth-0-12
!
interface eth-0-13
!
interface eth-0-14
!
interface eth-0-15
!
interface eth-0-16
!
interface eth-0-17
```

```
!
interface eth-0-18
!
interface eth-0-19
!
interface eth-0-20
!
interface eth-0-21
!
interface eth-0-22
!
interface eth-0-23
!
interface eth-0-24
!
line con 0
 speed 115200
 no line-password
 no login
line vty 0 7
 exec-timeout 35791 0
 privilege level 4
 no line-password
 no login
```

Related Commands

None

2.3.36 show memory history

Command Purpose

In privileged mode, use this command to show memory usage in history.

Command Syntax

show memory history ((per-1-min *HISTORY_PER_MINUTES*) | (per-10-mins *HISTORY_PER_TENMINUTES*) |)

Parameter	Parameter Description	Parameter Value
HISTORY_PER_MINUTES	configure the time to show memory usage history at minute intervals.	Range is 1-60

HISTORY_PER_TENMINUTES	configure the time to show memory usage history at 10 minutes intervals.	Range is 1-72

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows history usage of memory:

```
Switch# show memory history per-1-min 20
                    Memory usage (last 20 minutes)
  time |    1    2    3    4    5    6    7    8    9    10
(HH:MM)|....0....0....0....0....0....0....0....0....0....0 usage(%)
 05:35 |===============                                      30
 05:36 |===============                                      30
 05:37 |===============                                      30
 05:38 |===============                                      30
 05:39 |===============                                      30
 05:40 |===============                                      30
 05:41 |===============                                      30
 05:42 |===============                                      30
 05:43 |===============                                      30
 05:44 |===============                                      30
 05:45 |===============                                      30
 05:46 |===============                                      30
 05:47 |===============                                      30
 05:48 |===============                                      31
 05:49 |===============                                      31
 05:50 |===============                                      31
 05:51 |===============                                      31
 05:52 |===============                                      31
 05:53 |===============                                      31
 05:54 |===============                                      31
```

Related Commands

None

2.3.37 show boot

Command Purpose

In privileged mode, use this command to show start-up image.

Command Syntax

show boot (image |)

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows information of boot image:

```
Switch# show boot
The current boot image version is: OSP-2.1.4.15
The current running image is: flash:/boot/GTD-5271-v1.0.0.1.r.bin
The next running image is: flash:/boot/GTD-5271-v1.0.0.1.r.bin
```

Related Commands

None

2.3.38 show memory

Command Purpose

In privileged mode, use this command to specify start-up image in tftp server. In privileged mode, use this command to show memory usage of process.

Command Syntax

show memory (process (ccs | cds | switch | opm | routed | chsm | appcfg | ssm | ptp | fea | dhcrelay | dhcsnooping | opm) | history (per-1-min | per-10-mins) | summary totol)

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows usage of memory:

```
Switch# show memory summary total
Total memory       : 1005816 KB
Used memory        : 288532 KB
Freed memory       : 717284 KB
Buffer memory      : 0 KB
Cached memory      : 146404 KB
Memory utilization: 28.69%
```

Related Commands

None

2.3.39 show cpu utilization

Command Purpose

In privileged mode ,use this command to show memory usage of CPU.

Command Syntax

show cpu utilization

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows usage of cpu:

```
Switch# show cpu utilization
command           usage(%)
-------+-----------------+----------------------------------------
ps                 6.0
kmemleak           2.7
fea                2.4
cdbctl             1.0
ksoftirqd          0.1
Total             12.2
```

Related Commands

None

2.3.40 show cpu history

Command Purpose

In privileged mode, use this command to show memory usage of CPU in history.

Command Syntax

show cpu history ((per-1-min *HISTORY_PER_MINUTES*) | (per-10-mins *HISTORY_PER_TENMINUTES*) |)

Parameter	Parameter Description	Parameter Value
HISTORY_PER_MINUTES	configuer the time to show cpu history at minute intervals.	Range is 1-60

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows history usage of cpu:

```
Switch# show cpu history
                    CPU usage (last 60 minutes)
  time |    1    2    3    4    5    6    7    8    9    10
(HH:MM)|....0....0....0....0....0....0....0....0....0....0 usage(%)
 04:48 |===                                                  6
 04:49 |==                                                   5
 04:50 |==                                                   5
 04:51 |==                                                   5
 04:52 |==                                                   5
 04:53 |==                                                   5
```

```
 04:54 |==                                                  5
 04:55 |==                                                  5
 04:56 |==                                                  5
 04:57 |==                                                  5
 04:58 |==                                                  4
 04:59 |==                                                  5
 05:00 |==                                                  5
 05:01 |==                                                  5
 05:02 |==                                                  5
 05:03 |==                                                  5
 05:04 |==                                                  5
 05:05 |==                                                  5
 05:06 |==                                                  5
 05:07 |==                                                  5
 05:08 |==                                                  5
 05:09 |==                                                  4
 05:10 |==                                                  5
 05:11 |==                                                  5
 05:12 |==                                                  4
 05:13 |==                                                  5
 05:14 |==                                                  5
 05:15 |==                                                  5
 05:16 |==                                                  5
 05:17 |==                                                  4
 05:18 |===                                                 6
 05:19 |==                                                  5
 05:20 |==                                                  5
 05:21 |==                                                  5
 05:22 |==                                                  5
 05:23 |==                                                  5
 05:24 |===                                                 6
 05:25 |=====                                              10
 05:26 |==                                                  5
 05:27 |==                                                  4
 05:28 |==                                                  5
 05:29 |==                                                  4
 05:30 |==                                                  5
 05:31 |======                                             13
 05:32 |==================================================  99
 05:33 |==================================================  98
 05:34 |==================================                  70
 05:35 |==                                                  4
 05:36 |====                                                8
 05:37 |==                                                  5
 05:38 |==                                                  4
 05:39 |==                                                  4
 05:40 |==                                                  4
 05:41 |==                                                  4
 05:42 |==                                                  4
 05:43 |==                                                  4
 05:44 |==                                                  4
 05:45 |==                                                  4
 05:46 |==                                                  4
 05:47 |===                                                 7
Switch# show cpu history per-10-mins 12
```

```
                    CPU usage (last 120 minutes)
  time |    1    2    3    4    5    6    7    8    9    10
(HH:MM)|....0....0....0....0....0....0....0....0....0....0 usage(%)
 03:59 |==                                                      4
 04:09 |==                                                      5
 04:19 |==                                                      4
 04:29 |==                                                      4
 04:39 |==                                                      5
 04:49 |==                                                      4
 04:59 |==                                                      4
 05:09 |==                                                      4
 05:19 |==                                                      4
 05:29 |==                                                      5
 05:39 |===============                                        31
 05:49 |==                                                      4
```

Related Commands

None

2.4 SSH Commands

2.4.1 ssh

Command Purpose

In privileged mode, use this command to log in remote ssh server.

Command Syntax

ssh -l *NAME_STRING* (-i *RSAKEYNAME* |) (-p *L4_PORT_NUM* |) (-v (1 | 2) |) (-c (3des |) (des |) (3des-cbc |) (aes128-cbc |) (aes192-cbc |) aes256-cbc |) (-m (hmac-md5-128 |) (hmac-md5-96 |) (hmac-sha1-160 |) hmac-sha1-96 |) (-o number of password prompts *SSHPINPROMPTS* |) (mgmt-if |) (*IP_ADDR* | *IPV6_ADDR* | *STRING*)

Parameter	Parameter Description	Parameter Value
NAME_STRING	logging name	-
RSAKEYNAME	specify key	-
L4_PORT_NUM	remote ssh server port	-
SSHPINPROMPTS	specified secret	-

IP_ADDR	IPv4 address of ssh server	-
IPV6_ADDR	IPv6 address of ssh server	-
STRING	specified ssh sever host name	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to establish connection by ssh:

```
Switch# ssh -l aaa 1.1.1.1
aaa@1.1.1.1's password:

Switch#
```

Related Commands

None

2.4.2 ip ssh server enable

Command Purpose

In global mode, use this command to start ssh server.

Command Syntax

ip ssh server enable

Command Mode

Global Configuration

Default

start

Usage

None

Examples

The following example starts ssh server:

```
Switch# configure terminal
Switch(config)# ip ssh server enable
```

Related Commands

None

2.4.3 ip ssh server disable

Command Purpose

In global mode, use this command to disable ssh server.

Command Syntax

ip ssh server disable

Command Mode

Global Configuration

Default

disable

Usage

None

Examples

The following example disables ssh server:

```
Switch# configure terminal
Switch(config)# ip ssh server disable
```

Related Commands

None

2.4.4 ip ssh server authentication-retries

Command Purpose

Use this command to set retry times when log in remote ssh server. Use the command in no format, could rest retry times to default value.

Command Syntax

ip ssh server authentication-retries *SSHAUTHRETRIES*

no ip ssh server authentication-retries

Parameter	Parameter Description	Parameter Value
SSHAUTHRETRIES	set retry times when log in remote ssh server.	1-6

Command Mode

Global Configuration

Default

Default retry times is 6.

Usage

None

Examples

The following example configures SSH authentication retry times on your switch:

```
Switch# configure terminal
Switch(config)# ip ssh server authentication-retries 3


Switch# configure terminal
Switch(config)# no ip ssh server authentication-retries
```

Related Commands

None

2.4.5 ip ssh server authentication-timeout

Command Purpose

To configure Secure Shell (SSH) authentication timeout on your switch, use the ip ssh server authentication-timeout command in global configuration mode. Recover default timeout time by using the command in no format.

Command Syntax

ip ssh server authentication-timeout *SSHAUTHTIMEOUT*

no ip ssh server authentication-timeout

Parameter	Parameter Description	Parameter Value
SSHAUTHTIMEOUT	Set default value of timeout as 120s. Unit is second	1-120

Command Mode

Global Configuration

Default

default 120s

Usage

None

Examples

The following example configures Secure Shell (SSH) authentication timeout on your switch 100s:

```
Switch# configure terminal
Switch(config)# ip ssh server authentication-timeout 100
```

The following example recovers Secure Shell (SSH) authentication timeout on your switch to default value:

```
Switch# configure terminal
Switch(config)# no ip ssh server authentication-timeout
```

Related Commands

None

2.4.6 ip ssh server authentication-type

Command Purpose

To configure Secure Shell (SSH) authentication-type on your switch, use the ip ssh server authentication-type command in global configuration mode. Recover default authentication-type by using the command in no format.

Command Syntax

ip ssh server authentication-type (all | public-key | password | rsa)

no ip ssh server authentication-type

Parameter	Parameter Description	Parameter Value
all	all type	-

password	password	-
public-key	public-ky type	-

Command Mode

Global Configuration

Default

In default, support public-key type and password type.

Usage

When logging in using SSH, the authentication mode will be negotiated at the beginning of establishing connection reply.

Examples

The following example configures SSH authentication type to password authentication:

```
Switch# configure terminal
Switch(config)# ip ssh server authentication-type password
```

The following example configures SSH authentication type to default authentication:

```
Switch# configure terminal
Switch(config)# no ip ssh server authentication-type
```

Related Commands

None

2.4.7 ip ssh server host-key

Command Purpose

Use this command to configure host-key.

Command Syntax

ip ssh server host-key rsa key *RSAKEYNAME*

no ip ssh server host-key

Parameter	Parameter Description	Parameter Value
RSAKEYNAME	The name of host key	-

Command Mode

Global Configuration

Default

Default undefined.

Usage

Host-key is used to generate session when establish connection.

Examples

The following example configures host-key:

```
Switch# configure terminal
Switch(config)# ip ssh server host-key rsa key KEY1
```

The following example removes host-key:

```
Switch# configure terminal
Switch(config)# no ip ssh server host-key
```

Related Commands

None

2.4.8 ip ssh server port

Command Purpose

Use this command to configure ssh service port.

Command Syntax

ip ssh server port *SERVICE_PORT*

no ip ssh server port

Parameter	Parameter Description	Parameter Value
SERVICE_PORT	port number	Range is 1025-65535

Command Mode

Global Configuration

Default

22

Usage

When change ssh service port, all users must be forced to disconnect.

Examples

The following example configures port number:

```
Switch# configure terminal
Switch(config)# ip ssh server port 2000
```

The following example recovers ssh port to default port:

```
Switch# configure terminal
Switch(config)# no ip ssh server port
```

Related Commands

None

2.4.9 ip ssh server acl

Command Purpose

Use this command to configure ssh service acl.

Command Syntax

ip ssh server acl *ACL_NAME*

no ip ssh server acl

Parameter	Parameter Description	Parameter Value
ACL_NAME	IP ACL NAME	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example sets ssh service acl:

```
Switch# configure terminal
Switch(config)# ip access-list sacl01
Switch(config-ip-acl-sacl01)# exit
Switch(config)# ip ssh server acl sacl01
```

The following example delete ssh service acl:

```
Switch# configure terminal
Switch(config)# no ip ssh server acl
```

Related Commands

None

2.4.10 show ip ssh server status

Command Purpose

In privileged mode, use this command to show information of SSH.

Command Syntax

show ip ssh server status

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to show information of SSH.

Examples

The following example shows information of ssh server:

```
Switch# show ip ssh server status
 SSH server enabled
 Version: v2
 Authentication timeout: 33 second(s)
 Authentication retries: 6 time(s)
 Server key lifetime: 60 minute(s)
 Authentication type: password, public-key
```

Related Commands

None

3 Interface Commands

3.1 Interface Commands

3.1.1 bypass

Command Purpose

Use this command to set bypass interface.

Command Syntax

bypass interface *IFNAME1 IFNAME2* (slot *SLOT_NO* |)

no bypass (slot *SLOT_NO* |)

Parameter	Parameter Description	Parameter Value
IFNAME1	IFNAME, e.g.eth-0-1	-
IFNAME2	IFNAME, e.g.eth-0-2	-
SLOT_NO	bypass slot number	-

Command Mode

Global Configuration

Default

None

Usage

Not only IFNAME1 and IFNAME2 must be different interface, but also only physical port can be allocated. For each port can only configure bypass on one slot.

Examples

The following example shows how to set eth-0-1 and eth-0-2 to bypass interface for slot 2:

```
Switch# configure terminal
Switch(config)# bypass interface eth-0-1 eth-0-2 slot 2
```

Related Commands

None

3.1.2 interface range

Command Purpose

Use this command to enter interface range mode, include physical port, VLAN interface, linkagg interface and loopback interface.

Command Syntax

interface range *KLINE*

Parameter	Parameter Description	Parameter Value
KLINE	Interface range, with “,” or “-” to distinguish the interface range set.	-

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to enter interface range eth-0-1 to eth-0-24:

```
Switch# configure terminal
Switch(config)# interface range eth-0-1 - 24
Switch(config-if-range)# shutdown
```

Related Commands

interface

3.1.3 interface

Command Purpose

Use this command to create and enter interface mode. And use no form of this command to delete interface.

Command Syntax

interface *IF_NAME_ALL*

no interface *IF_NAME_ALL*

Parameter	Parameter Description	Parameter Value
IF_NAME_ALL	IFNAME, e.g.eth-0-1, agg1, vlan1.	-

Command Mode

Global Configuration

Default

None

Usage

The interface name can be either a port name (i.e.eth-0-1) or link-agg name (i.e.agg1) or VLAN name (i.e.vlan1).

Examples

The following example shows how to enter physical port eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
```

The following example shows how to enter aggregation interface:

```
Switch# configure terminal
Switch(config-if-eth-0-3)# static-channel-group 2
Switch(config-if-eth-0-3)# exit
Switch(config)# interface agg2
Switch(config-if-agg2)#
```

The following example shows how to enter logic interface vlan2:

```
Switch# configure terminal
Switch(config)# vlan 2
Switch(config-vlan2)# exit
Switch(config)# interface vlan2
Switch(config-if-vlan2)#
```

The following example shows how to remove physical port eth-0-1:

```
Switch# configure terminal
Switch(config)# no interface eth-0-1
```

The following example shows how to remove logic interface vlan2:

```
Switch# configure terminal
Switch(config)# no interface vlan2
```

Related Commands

interface range

3.1.4 shutdown

Command Purpose

Use this command to disable the interface manually. Use the no form of this command to enable the interface.

Command Syntax

shutdown

no shutdown

Command Mode

Interface Configuration

Default

no shutdown

Usage

Use this command to disable the interface manually.

Examples

The following example shows how to enter physical port eth-0-1 and enable the interface:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no shutdown
```

The following example shows how to enter physical port eth-0-1 and disable the interface:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# shutdown
```

Related Commands

show interface status

3.1.5 description

Command Purpose

Use this command to set the description on the interface. And use the no form of this command to delete interface description.

Command Syntax

description *KLINE*

no description

Parameter	Parameter Description	Parameter Value
KLINE	Interface description	-

Command Mode

Interface Configuration

Default

None

Usage

None

Examples

The following example shows how to set the description on the interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# description Ethernet
```

The following example shows how to remove the description on the interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no description
```

Related Commands

show interface description

3.1.6 speed

Command Purpose

Use this command to set the interface speed. And use the no form of this command to restore the interface to its default speed value.

Command Syntax

speed (auto | 10 | 100 | 1000 | *2.5G* | *5G* | *10G* | *40G* | *100G*)

no speed

Parameter	Parameter Description	Parameter Value
auto	Auto port negotiation speed	-
10	Force the port speed to be 10Mb/s	-
100	Force the port speed to be 100Mb/s	-
1000	Force the port speed to be 1000Mb/s	-
2.5G	Force the port speed to be 2.5Gb/s	-
5G	Force the port speed to be 5Gb/s	-
10G	Force the port speed to be 10Gb/s	-
40G	Force the port speed to be 40Gb/s	-
100G	Force the port speed to be 10GMb/s	-

Command Mode

Interface Configuration

Default

Auto

Usage

Use this command to set the interface speed. For different interface, some speed value can't be set.

Examples

The following example shows how to set the port speed to 1000Mb/s:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# speed 1000
```

The following example shows how to restore the port speed to default value:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no speed
```

Related Commands

show interface status

show interface

3.1.7 duplex

Command Purpose

Use this command to set the mode of operation for a port. And use the no form of this command set the mode of operation to default value.

Command Syntax

duplex (auto | full | half)

no duplex

Parameter	Parameter Description	Parameter Value

auto	Auto negotiation mode, the port should be automatically detected in full duplex or half duplex state according to the device it is connected to	-
full	Full duplex mode	-
half	Half duplex mode, can only be configured on ports of 10M or 100M	-

Command Mode

Interface Configuration

Default

Auto duplex

Usage

None

Examples

The following example shows how to set the mode of operation to auto negotiation:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# duplex auto
```

The following example shows how to set the mode of operation to full duplex:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# duplex full
```

The following example shows how to set duplex mode to default value:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no duplex
```

Related Commands

show interface status

show interface

3.1.8 unidirectional

Command Purpose

Use this command to set unidirectional function for a port.

Command Syntax

unidirectional (enable | disable)

Parameter	Parameter Description	Parameter Value
enable	unidirectional function enable	-
disable	unidirectional function disable	-

Command Mode

Interface Configuration

Default

Disable

Usage

None

Examples

The following example shows how to set unidirectional function for a port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# unidirectional enable
```

The following example shows how to disable unidirectional function for a port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# unidirectional disable
```

Related Commands

None

3.1.9 bandwidth

Command Purpose

Use this command to set the bandwidth of the port.And use the no form of this command to

unset the bandwidth of the port.

Command Syntax

bandwidth *BANDWIDTH*

no bandwidth

Parameter	Parameter Description	Parameter Value
BANDWIDTH	Bandwidth of port	range is <1-100000000>, unit is kbps.

Command Mode

Interface Configuration

Default

None

Usage

None

Examples

The following example shows how to set the bandwidth of the port to 1M kpbs:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# bandwidth 1000
```

The following example shows how to set the bandwidth to default value:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no bandwidth
```

Related Commands

show interface

3.1.10 jumboframe

Command Purpose

Use this command to allow long frame through the Ethernet port. And use the no form of this command to disable this function.

Command Syntax

jumboframe enable

no jumboframe enable

Command Mode

Interface Configuration

Default

Disable

Usage

The long frame is not allowed to transmit on interface by default, the max frame which can be transmitted is 1632 bytes. When enable jumboframe, the max length of frame that is allowed to transmit is 9600 bytes.

Examples

The following example shows how to enable jumboframe function:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# jumboframe enable
```

The following example shows how to disable jumboframe function:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no jumboframe enable
```

Related Commands

show interface

3.1.11 mtu

Command Purpose

Use this command to configure the maximum transmit unit for this interface. And use no form of this command restore MTU to default value.

Command Syntax

mtu *MTU*

no mtu

Parameter	Parameter Description	Parameter Value
MTU	MTU value	-

Command Mode

Interface Configuration

Default

1500

Usage

This command is only allowed to be used in layer3 interface.

Examples

The following example shows how to configure MTU 1600 for VLAN interface 1:

```
Switch# configure terminal
Switch(config)# interface vlan1
Switch(config-if-vlan1)# mtu 1600
```

The following example shows how to restore MTU to default value for VLAN interface 1:

```
Switch# configure terminal
Switch(config)# interface vlan1
Switch(config-if-vlan1)# no mtu
```

Related Commands

show interface

3.1.12 static-channel-group

Command Purpose

Use this command to add a port to a static channel group. And use the no form of this command to remove this port from this static channel group.

Command Syntax

static-channel-group *AGG_GID*

no static-channel-group

Parameter	Parameter Description	Parameter Value
AGG_GID	Channel group ID	range is <1-55>

Command Mode

Interface Configuration

Default

None

Usage

None

Examples

The following example shows how to add interface to static channel group 1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# static-channel-group 1
```

The following example shows how to remove interface from static channel group 1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no static-channel-group
```

Related Commands

show interface

3.1.13 channel-group

Command Purpose

Use this command to add a port to a channel group. And use the no form of this command to remove this port from this channel group.

Command Syntax

channel-group *AGG_GID* mode (active | passive)

no channel-group

Parameter	Parameter Description	Parameter Value
AGG_GID	Channel group ID	range is <1-55>
active	Enable initiation of LACP negotiation on a port	-
passive	Disable initiation of LACP negotiation on a port	-

Command Mode

Interface Configuration

Default

None

Usage

None

Examples

The following example shows how to add interface to channel group 1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# channel-group 1 mode active
```

The following example shows how to remove interface from channel group 1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no channel-group
```

Related Commands

show interface

3.1.14 mac learning

Command Purpose

Use this command to set MAC learning enable or disable.

Command Syntax

mac learning (enable | disable)

Parameter	Parameter Description	Parameter Value
enable	enable mac learning	-
disable	disable mac learning	-

Command Mode

Interface Configuration

Default

mac learning enable

Usage

None

Examples

The following example shows how to set mac_learning enable or disable:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# mac learning enable
Switch(config-if-eth-0-1)# mac learning disable
```

Related Commands

None

3.1.15 fec

Command Purpose

Use this command to set fec function for a port. And use the no form of this command to unset fec function for a port.

Command Syntax

fec (enable | disable | none | baser | rs)

no fec

Parameter	Parameter Description	Parameter Value
enable	no support	-
disable	no support	-
none	fec none	-
baser	fec baser	-
rs	fec rs	-

Command Mode

Interface Configuration

Default

no fec

Usage

FEC is support on 10G/40G/25G/50G/100G physical interface

Examples

The following example shows how to enable fec rs function for a port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# fec rs
```

The following example shows how to disable fec function for a port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# fec none
```

The following example shows how to set default fec function for a port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no fec
```

Related Commands

None

3.1.16 media-type

Command Purpose

Use this command to set media type of combo port.And use the no form of this command to unset set media type of combo port.

Command Syntax

media-type (auto | rj45 | sfp)

no media-type

Parameter	Parameter Description	Parameter Value
auto	set media type of combo port auto,only for combo port	-
rj45	set media type of combo port rj45,only for combo port	-

sfp	set media type of combo port sfp,only for combo port	-

Command Mode

Interface Configuration

Default

Disable

Usage

None

Examples

The following example shows how to set the media type of combo port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# media-type auto
Switch(config-if-eth-0-1)# media-type rj45
Switch(config-if-eth-0-1)# media-type sfp
```

The following example shows how to unset media type of combo port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no media-type
```

Related Commands

None

3.1.17 carrier down-hold-time interval

Command Purpose

Use this command to configure the port blink-down tolerance mechanism. And use the no form of this command to unset the port blink-down tolerance mechanism.

Command Syntax

carrier down-hold-time interval *HOLDTIME*

no carrier down-hold-time interval

Parameter	Parameter Description	Parameter Value
HOLDTIME	Tolerance interval for port blink-down	range is 0-500, unit is ms

Command Mode

Interface Configuration

Default

Disable

Usage

In some cases, switch and optical module compatibility exist problems, case of blink-down may occur. Under certain circumstances need switch ignore case of blink-down. If the port flash-tolerance function is turned on, the switch waits for HOLDTIME milliseconds before confirming whether the port is down. If down, the down event is normally reported; If not down, ignore the down event.

Examples

The following example shows how to set tolerance interval for port blink-down:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# carrier down-hold-time interval 100
```

The following example shows how to unset tolerance interval for port blink-down:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no carrier down-hold-time interval
```

Related Commands

show carrier blink-down

3.1.18 log-threshold

Command Purpose

Use this command to configure function of physical port diagnostic logging. And use the no form of this command to

unset physical port diagnostic logging.

Command Syntax

log-threshold { input-rate | output-rate } *BANDWIDTH-IN-USE* resume-rate *RESUME-THRESHOLD*

log-threshold output-discard *THRESHOLD_VALUE* interval *INTERVAL-VALUE*

no log-threshold { input-rate | output-rate | output-discard }

Parameter	Parameter Description	Parameter Value
BANDWIDTH-IN-USE	Percentage of the bandwidth utilization warning threshold	range is 1-100
RESUME-THRESHOLD	Percentage of bandwidth utilization recovery logs	range is 1-BANDWIDTH-IN-USE
THRESHOLD_VALUE	Exit direction lost count	range is 100-4294967295
INTERVAL-VALUE	Statistical time	range is 1-1440, unit is minutes

Command Mode

Interface Configuration

Default

Disable

Usage

In order to avoid fluctuation of log and alarm information, values of bandwidth-in-use and resume-threshold should be kept as far as possible.

Examples

The following example shows how to set configure function of physical port diagnostic logging:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# log-threshold input-rate 80 resume-rate 60
```

The following example shows how to disable log-threshold on an interface:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no log-threshold input-rate
```

Related Commands

None

3.1.19 load-interval

Command Purpose

Use this command to configure physical port rate statistics cycle. And use the no form of this command to unset physical port rate statistics cycle.

Command Syntax

load-interval *INTERVAL*

no load-interval

Parameter	Parameter Description	Parameter Value
INTERVAL	Physical port rate statistics cycle	range is 30-300, unit is second

Command Mode

Interface Configuration

Default

300s

Usage

Configuration time must be for 30 seconds interval; with smaller values of the configuration and the large of flow, there may be a big error in two consecutive port rate displays (within 8%).

Examples

The following example shows how to configure rate statistics cycle on interface:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# load-interval 150
```

The following example shows how to restore rate statistics cycle to default value on an interface:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no load-interval
```

Related Commands

None

3.1.20 show route-mac

Command Purpose

In privileged mode, use this command display readable route-mac information of the device.

Command Syntax

show route-mac

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display route-mac information of the device:

```
Switch# show route-mac
  Route MAC is: 001e.080a.662f
```

Related Commands

None

3.1.21 show system-mac

Command Purpose

In privileged mode, use this command display system-mac information of the device.

Command Syntax

show system-mac

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display system-mac information of the device:

```
Switch# show system-mac
Index   System MAC
mac0    001e.080a.662f
mac1    001e.080a.6630
mac2    001e.080a.6631
mac3    001e.080a.6632
mac4    001e.080a.6633
mac5    001e.080a.6634
mac6    001e.080a.6635
mac7    001e.080a.6636
mac8    001e.080a.6637
mac9    001e.080a.6638
mac10   001e.080a.6639
mac11   001e.080a.663a
mac12   001e.080a.663b
mac13   001e.080a.663c
mac14   001e.080a.663d
mac15   001e.080a.663e
mac16   001e.080a.663f
mac17   001e.080a.6640
mac18   001e.080a.6641
mac19   001e.080a.6642
mac20   001e.080a.6643
mac21   001e.080a.6644
mac22   001e.080a.6645
mac23   001e.080a.6646
mac24   001e.080a.6647
mac25   001e.080a.6648
mac26   001e.080a.6649
mac27   001e.080a.664a
```

Related Commands

None

3.1.22 show interface

Command Purpose

Use this command to display the configurations and statistics on all interfaces or an interface.

Command Syntax

show interface (*IF_NAME_ALL* |)

Parameter	Parameter Description	Parameter Value
IF_NAME_ALL	IFNAME	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the configurations and statistics on interface eth-0-1:

```
Switch# show interface eth-0-1
Interface eth-0-1
  Interface current state: DOWN
  Hardware is Port, address is 001e.0809.78a3
  Bandwidth 1000000 kbits
  Index 1 , Metric 1
  Speed - auto , Duplex - auto , Media type is 1000BASE_T
  Link speed type is autonegotiation,   Link duplex type is autonegotiation
  Admin input flow-control is off, output flow-control is off
  Oper input flow-control is off, output flow-control is off
  The Maximum Frame Size is 1632 bytes
    5 minute input rate 0 bits/sec, 0 packets/sec
    5 minute output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes
    Received 0 unicast, 0 broadcast, 0 multicast
    0 runts, 0 giants, 0 input errors, 0 CRC
    0 frame, 0 overrun, 0 pause input
    0 packets output, 0 bytes
    Transmitted 0 unicast, 0 broadcast, 0 multicast
    0 underruns, 0 output errors, 0 pause output
```

Related Commands

show interface status

3.1.23 show interface status

Command Purpose

Use this command to display the brief information on all Ethernet and link aggregation interfaces.

Command Syntax

show interface status

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the brief information on all Ethernet, LAG and VLAN interfaces:

```
Switch# show interface status
Name       Status      Duplex   Speed    Mode    Type          Description
----------+-----------+--------+--------+-------+------------+----------------
eth-0-1    up          a-full   a-1000   access  1000BASE_T
eth-0-2    down        auto     auto     access  1000BASE_T
eth-0-3    down        auto     auto     access  1000BASE_T
eth-0-4    down        auto     auto     access  1000BASE_T
eth-0-5    down        auto     auto     access  1000BASE_T
eth-0-6    down        auto     auto     access  1000BASE_T
eth-0-7    down        auto     auto     access  1000BASE_T
eth-0-8    down        auto     auto     access  1000BASE_T
```

```
eth-0-9    down         auto      auto      access   1000BASE_T
eth-0-10   down         auto      auto      access   1000BASE_T
```

Related Commands

show interface

3.1.24 show interface description

Command Purpose

Use this command to display the description information on all interfaces.

Command Syntax

show interface description

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the description information on all Ethernet, LAG and VLAN interfaces:

```
Switch# show interface description
Name       Status      Description
----------+-----------+------------------------------------------------------------
eth-0-1    admin down ABCDEABCDE
eth-0-2    admin down ABCDEABCDEABCDEABCDEABCDEABCDEABCDEABCDEABCDEABCDE ABCDEAB
CDE1234
eth-0-3    admin down
eth-0-4    admin down
eth-0-5    admin down
eth-0-6    admin down
```

```
eth-0-7    admin down
eth-0-8    admin down
```

Related Commands

show interface

3.1.25 show loopback

Command Purpose

Use this command to display the loopback information on all interfaces.

Command Syntax

show loopback

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the loopback information on all Ethernet interfaces:

```
Switch# show loopback
Interface    Type
------------+------------
eth-0-1      external
eth-0-3      internal
```

Related Commands

None

3.1.26 show carrier blink-down

Command Purpose

Use this command to display carrier blink-down history records.

Command Syntax

show carrier blink-down

Command Mode

Privileged EXEC

Default

None

Usage

In some cases, switch and optical module compatibility exist problems, case of blink-down may occur. Under certain circumstances need switch ignore case of blink-down.

Examples

The following example shows how to display the statistics information on all interfaces:

```
Switch# show carrier blink-down
Index  Interface          Time
------+------------------+------------------------
1      eth-0-53           2017-07-17 10:15:16
2      eth-0-54           2017-07-17 13:25:54
```

Related Commands

show carrier blink-down

3.1.27 show interface bandwidth-in-use

Command Purpose

Use this command to display the physical port bandwidth usage information and the current configured log-threshold.

Command Syntax

show interface bandwidth-in-use [*INTERFACE-NAME* [input | output]]

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display percentage of current bandwidth usage and configuration of current log-threshold:

```
Switch# show interface bandwidth-in-use eth-0-1/1
Name       Direction  Speed    Load-interval Threshold  ResumeRate Usage
----------+----------+--------+-------------+----------+----------+------
eth-0-1/1  input      40Gb/s   150s          90%        70%        60%
eth-0-1/1  output     40Gb/s   150s          80%        60%        85%
```

Related Commands

None

3.1.28 clear counters

Command Purpose

Use this command to clear the statistics information on the interface.

Command Syntax

clear counters (*IF_NAME_EA* |)

Parameter	Parameter Description	Parameter Value
IF_NAME_EA	IFNAME. This can be either physical port or aggregate port. If this is empty, packet statistics of all interfaces are cleared.	-

Command Mode

Privileged EXEC

Default

None

Usage

In some cases, if the flow of a certain port needs to be counted with a certain time, the original statistical information of the port needs to be cleared before the beginning of the statistics, and make the statistics again. If you do not allocate a port type and port number, then remove all ports o statistics; If only designated port type, then clear all the information for this type of statistics port.

Examples

The following example shows how to clear the statistics information on all interfaces:

```
Switch# clear counters
```

The following example shows how to clear the statistics information on interface eth-0-1:

```
Switch# clear counters eth-0-1
```

The following example shows how to clear the statistics information on agg1:

```
Switch# clear counters agg1
```

Related Commands

None

3.1.29 clear carrier blink-down

Command Purpose

Use this command to remove carrier blink-down history records.

Command Syntax

clear carrier blink-down

Command Mode

Privileged EXEC

Default

None

Usage

In some cases, switch and optical module compatibility exist problems, case of blink-down may occur. Under certain circumstances need switch ignore case of blink-down.

Examples

The following example shows how to clear the statistics information on all interfaces:

```
Switch# clear carrier blink-down
```

Related Commands

show carrier blink-down

3.2 Layer2 Interface Commands

3.2.1 switchport

Command Purpose

Use this command to switch ports between layer2 and layer3 routing ports.

Command Syntax

switchport

no switchport

Command Mode

Interface Configuration

Default

Layer2

Usage

By default, the port is a switchport. When using this command to change the mode of a port, all bridge or routing configurations of this port will be cleared and not restored.

Examples

The following example shows how to configure a port to layer2 port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport
```

The following example shows how to configure a port to layer3 port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
```

Related Commands

None

3.2.2 switchport mode

Command Purpose

Use this command to configure the port work in access mode, trunk mode or in dot1q-tunnel mode. And use the no form of this command to restore the mode of port working to default mode, Access.

Command Syntax

switchport mode (access | trunk | dot1q-tunnel)

no switchport mode

Parameter	Parameter Description	Parameter Value
access	configure the port work in access mode	-
trunk	configure the port work in trunk mode	-
dot1q-tunnel	configure the port work in dot1q-tunnel mode	-

Command Mode

Interface Configuration

Default

Access port

Usage

When port mode changed, all the dynamic FDB will be cleared.Dot1q-tunnle mode is used in Q-IN-Q tunnel configuration.

Examples

The following example shows how to configure the port to access mode:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport mode access
```

The following example shows how to configure the port to trunk mode:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport mode trunk
```

The following example shows how to configure the port to default mode:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport mode
```

Related Commands

switchport trunk allowed vlan

switchport access vlan

3.2.3 switchport access vlan

Command Purpose

Use this command to set the default VLAN for access port. And use the no form of this command to restore the default VLAN to 1.

Command Syntax

switchport access vlan *VLAN_ID*

no switchport access vlan

Parameter	Parameter Description	Parameter Value

VLAN_ID	VLAN ID	-

Command Mode

Interface Configuration

Default

VLAN 1

Usage

Before this command is used, port must be set to access port. By default, VLAN should be 1.

Examples

The following example shows how to change the port default VLAN to 10:

```
Switch# configure terminal
Switch(config)# vlan 10
Switch(config-vlan10)# exit
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport mode access
Switch(config-if-eth-0-1)# switchport access vlan 10
```

The following example shows how to restore the port default VLAN to 1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport access vlan
```

Related Commands

switchport mode

switchport trunk allowed vlan

3.2.4 switchport access allowed vlan

Command Purpose

Use this command to allow packets of the specified VLAN to pass through the access port.

Command Syntax

switchport access allowed vlan (add *VLAN_LIST* | remove *VLAN_LIST*)

Parameter	Parameter Description	Parameter Value
VLAN_LIST	Allows messages that specify a VLAN to pass through the port, e.g.2-5, 7, 9-11	-

Command Mode

Interface Configuration

Default

None

Usage

None

Examples

The following example shows how to allow the message specified VLAN to pass through the port:

```
Switch# configure terminal
Switch(config)# vlan 10
Switch(config-vlan10)# exit
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport access allowed vlan add 10
```

The following example shows how to prevent the message specified VLAN from passing through the port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport access allowed vlan remove 10
```

Related Commands

switchport access vlan

3.2.5 switchport trunk native vlan

Command Purpose

Use this command to configure the default VLAN for this trunk port. And use the no form of this command to restore the default VLAN to 1.

Command Syntax

switchport trunk native vlan *VLAN_ID*

no switchport trunk native vlan

Parameter	Parameter Description	Parameter Value
VLAN_ID	VLAN ID	-

Command Mode

Interface Configuration

Default

VLAN 1

Usage

Before this command is used, port must be set to trunk port. By default, VLAN should be 1.

Examples

The following example shows how to configure default VLAN 10 for trunk port eth-0-1:

```
Switch# configure terminal
Switch(config)# vlan 10
Switch(config-vlan10)# exit
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport mode trunk
Switch(config-if-eth-0-1)# switchport trunk native vlan 10
```

The following example shows how to restore the default VLAN to 1 for trunk port eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport mode trunk
Switch(config-if-eth-0-1)# no switchport trunk native vlan
```

Related Commands

switchport trunk allowed vlan

3.2.6 switchport trunk allowed vlan

Command Purpose

Use this command to allow packets of the specified VLAN to pass through the trunk port.

Command Syntax

switchport trunk allowed vlan (add *VLAN_LIST* | remove *VLAN_LIST* | none | all)

Parameter	Parameter Description	Parameter Value
VLAN_LIST	Allows messages that specify a VLAN to pass through the port, e.g.2-5, 7, 9-11	-

Command Mode

Interface Configuration

Default

VLAN 1

Usage

None

Examples

The following example shows how to configure the specified VLAN flow pass through the port:

```
Switch# configure terminal
Switch(config)# vlan 10
Switch(config-vlan10)# exit
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport trunk allowed vlan add 10
```

The following example shows how to configure all VLAN flow pass through the port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport trunk allowed vlan all
```

The following example shows how to configure the specified VLAN flow cannot pass through the port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport trunk allowed vlan remove 10
```

The following example shows how to configure that all VLAN flow cannot pass through the port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport trunk allowed vlan none
```

Related Commands

switchport mode

switchport access vlan

3.2.7 switchport trunk untagged vlan

Command Purpose

Use this command to allow the specified VLAN message to pass through the trunk port in untagged.

Command Syntax

switchport trunk untagged vlan (add *VLAN_LIST* | remove *VLAN_LIST*)

Parameter	Parameter Description	Parameter Value
VLAN_LIST	Allows messages that specify a VLAN to pass through the port in untagged, e.g.2-5, 7, 9-11	-

Command Mode

Interface Configuration

Default

None

Usage

Native vlan in trunk portis not supported.

Examples

The following example shows how to configure the specified VLAN flow pass through the port in untagged:

```
Switch# configure terminal
Switch(config)# vlan 10
Switch(config-vlan10)# exit
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport trunk untagged vlan add 10
```

The following example shows how to configure the specified VLAN flow cannot pass through the port in untagged:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport trunk untagged vlan remove 10
```

Related Commands

switchport mode

switchport allowed vlan

3.2.8 switchport dot1q-tunnel native vlan

Command Purpose

Use this command to configure the default VLAN for this dot1q-tunnel port, Configure the inner-vlan to match the native VLAN that matches the inside layer. And use the no form of this command to restore the default VLAN to 1 for this dot1q-tunnel port.

Command Syntax

switchport dot1q-tunnel native (vlan | inner-vlan) *VLAN_ID*

no switchport trunk native vlan

Parameter	Parameter Description	Parameter Value
VLAN_ID	VLAN ID	-

Command Mode

Interface Configuration

Default

VLAN 1

Usage

Before this command is used, port must be set to dot1q-tunnel port. By default, VLAN should be 1.

Examples

The following example shows how to configure default VLAN for 10 for dot1q-tunnel port eth-0-1:

```
Switch# configure terminal
Switch(config)# vlan 10
Switch(config-vlan10)# exit
Switch(config)# interface eth-0-1
```

```
Switch(config-if-eth-0-1)# switchport mode dot1q-tunnel
Switch(config-if-eth-0-1)# switchport dot1q-tunnel native vlan 10
```

The following example shows how to configure default VLAN 1 for dot1q-tunnel port eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport mode dot1q-tunnel
Switch(config-if-eth-0-1)# no switchport dot1q-tunnel native vlan
```

Related Commands

switchport dot1q-tunnel allowed vlan

3.2.9 switchport dot1q-tunnel allowed vlan

Command Purpose

Use this command to allow the specified VLAN flow to pass through the dot1q-tunnel port.

Command Syntax

switchport dot1q-tunnel allowed vlan (add *VLAN_LIST* | remove *VLAN_LIST* | none | all)

Parameter	Parameter Description	Parameter Value
VLAN_LIST	Allows messages that specify a VLAN to pass through the port, e.g.2-5, 7, 9-11	-

Command Mode

Interface Configuration

Default

VLAN 1

Usage

None

Examples

The following example shows how to configure the specified VLAN flow pass through the port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport dot1q-tunnel allowed vlan add 10
```

The following example shows how to configure all VLAN flow pass through the port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport dot1q-tunnel allowed vlan all
```

The following example shows how to configure the specified VLAN flow cannot pass through the port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport dot1q-tunnel allowed vlan remove 10
```

The following example shows how to configure all VLAN flow cannot pass through the port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# switchport dot1q-tunnel allowed vlan none
```

Related Commands

switchport mode

switchport dot1q-tunnel vlan

3.2.10 show interface switchport

Command Purpose

Use this command to display the VLAN configurations on all switch ports.

Command Syntax

show interface switchport

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display Layer2 configuration information for one or all VLAN.

Examples

The following example shows how to display the VLAN configurations on all switch ports:

```
Switch# show interface switchport
Interface name           : eth-0-1
Switchport mode          : trunk
Ingress filter           : Enable
Acceptable frame types   : all
Default Vlan             : 1
Configured Vlans         : 1,100
Interface name           : eth-0-2
Switchport mode          : trunk
Ingress filter           : Enable
Acceptable frame types   : all
Default Vlan             : 1
Configured Vlans         : 1,100
Interface name           : eth-0-3
Switchport mode          : trunk
Ingress filter           : Enable
Acceptable frame types   : all
Default Vlan             : 1
Configured Vlans         : 1,100
```

Related Commands

None

3.2.11 show interface switchport interface

Command Purpose

Use this command to display the VLAN configurations on specific switch ports.

Command Syntax

show interface switchport interface *IF_NAME_EA*

Parameter	Parameter Description	Parameter Value
IF_NAME_EA	Interface name, eth-X-X or aggX	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the VLAN configurations on specific switch ports:

```
Switch# show interface switchport interface eth-0-1
Interface name          : eth-0-1
Switchport mode         : trunk
Ingress filter          : Enable
Acceptable frame types  : all
Default Vlan            : 1
Configured Vlans        : 1,100
```

Related Commands

None

3.2.12 show interface summary

Command Purpose

Use this command to display the information on all interfaces or specific interface.

Command Syntax

show interface summary (*IF_NAME_EA* |)

Parameter	Parameter Description	Parameter Value
IF_NAME_EA	Interface name, eth-X-X or aggX	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display statistics information on specific interface:

```
Switch# show interface summary eth-0-1
RXBS: rx rate (bytes/sec)         RXPS: rx rate (pkts/sec)
TXBS: tx rate (bytes/sec)         TXPS: tx rate (pkts/sec)
Interface  Link   RXBS             RXPS             TXBS             TXPS
----------+------+---------------+---------------+---------------+---------------
eth-0-1    UP     0                0                0                0
```

Related Commands

None

3.2.13 show interface trunk

Command Purpose

Use this command to show the trunk port configurations.

Command Syntax

show interface trunk

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display trunk information on the interface:

```
Switch# show interface trunk
Port        Encapsulation  Status      Native VLAN
----------+--------------+-----------+-----------
eth-0-1     802.1q         trunking    1

Port        Allowed VLANs on Trunk
----------+------------------------------------------------------------
eth-0-1     1,2
```

Related Commands

None

3.3 Link Aggregation Commands

3.3.1 lacp system-priority

Command Purpose

Use this command to configure the system priority for the LACP, and use the no form of this command to restore the system priority to default value.

Command Syntax

lacp system-priority *PRIORITY*

no lacp system-priority

Parameter	Parameter Description	Parameter Value
PRIORITY	Priority	range is 1-65535

Command Mode

Global Configuration

Default

32768

Usage

None

Examples

The following example shows how to configure the system priority 100 for the LACP:

```
Switch# configure terminal
Switch(config)# lacp system-priority 100
```

The following example shows how to configure the system priority to default value:

```
Switch# configure terminal
Switch(config)# no lacp system-priority
```

Related Commands

None

3.3.2 lacp port-priority

Command Purpose

Use this command to configure the port priority for the LACP, use the no form of this command to restore the port priority to default value.

Command Syntax

lacp port-priority *PRIORITY*

no lacp port-priority

Parameter	Parameter Description	Parameter Value
PRIORITY	Priority	range is 1-65535

Command Mode

Interface Configuration

Default

32768

Usage

None

Examples

The following example shows how to configure the port priority 100 for the LACP:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# static-channel-group 1
Switch(config-if-eth-0-1)# lacp port-priority 100
```

The following example shows how to restore the port priority to default value:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no lacp port-priority
```

Related Commands

3.3.3 lacp timeout

Command Purpose

Use this command to configure the port timeout for the LACP. And use the no form of this command to restore the port timeout to default value.

Command Syntax

lacp timeout (short | long)

no lacp timeout

Parameter	Parameter Description	Parameter Value
short	configure the port timeout for the LACP to be short mode	-
long	configure the port timeout for the LACP to be long mode	-

Command Mode

Interface Configuration

Default

Long

Usage

None

Examples

The following example shows how to configure the port timeout short for the LACP:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# static-channel-group 1
Switch(config-if-eth-0-1)# lacp timeout short
```

The following example shows how to restore the port timeout to default value for the LACP:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no lacp timeout
```

Related Commands

None

3.3.4 port-channel

Command Purpose

Use this command to configure the load balance of the port channel from static to dynamic or loop.

Command Syntax

port-channel *AGG_GID load_balance-mode* (dynamic | roud-robin)

no port-channel *AGG_GID load_balance-mode*

Parameter	Parameter Description	Parameter Value
AGG_GID	Port channel ID	range is 1-55
dynamic	Set the load balance of the port channel to dynamic.	-
roud-robin	Set the load balance of the port channel to loop.	-

Command Mode

Global Configuration

Default

Static

Usage

Set port channel load balance to dynamic or cyclic.

Examples

The following example shows how to set load balance of port channel 1 to cyclic:

```
Switch# configure terminal
Switch(config)# port-channel 1 load-balance-mode round-robin
```

The following example shows how to restore load balance of port channel 1 to static:

```
Switch# configure terminal
Switch(config)# no port-channel 1 load-balance-mode
```

Related Commands

None

3.3.5 show lacp

Command Purpose

Use show LACP counters command to display the packet traffic on all of the channel groups, or a specified channel group. Use show LACP internal command to display internal information of all of the channel groups, or a specified channel group. Use show LACP neighbor command to display detailed neighbor information of all of the channel groups, or a specified channel group.

Command Syntax

show lacp (*AGG_GID* |) (counters | internal | neighbor) (detail)

Parameter	Parameter Description	Parameter Value
AGG_GID	Channel group ID	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the packet traffic on all of the channel groups:

```
Switch# show lacp counters
LACPDU                Packet Error
Port                Send       Recv       Send       Recv
--------------------+----------+----------+----------+----------
Channel-group agg10:
eth-0-9             3          3          0          0
eth-0-10            3          3          0          0
Channel-group agg20:
eth-0-11            22         18         0          0
eth-0-12            22         18         0          0
```

The following example shows how to display the packet traffic on channel groups 10:

```
Switch# show lacp 10 counters
                          LACPDU                Packet Error
Port                Send       Recv       Send       Recv
--------------------+----------+----------+----------+----------
Channel-group agg10:
eth-0-9             5          5          0          0
eth-0-10            5          5          0          0
```

The following example shows how to display the internal information on channel groups 10:

```
Switch# show lacp 10 internal
Flags:  S - Device is requesting Slow LACPDUs
        F - Device is requesting Fast LACPDUs
        A - Device is in Active mode
        P - Device is in Passive mode
Channel-group agg10:
Actor's information:
                                        LACP port  Admin  Oper   Port   Port
Port     Flags   State                  Priority   Key    Key    Number State
--------+-------+----------------------+----------+------+------+------+--------
eth-0-9  SA      In-Bundle              32768      10     10     9      0x3d
eth-0-10 SA      In-Bundle              32768      10     10     10     0x3d
Switch# show lacp 10 internal detail
Flags:  S - Device is requesting Slow LACPDUs
        F - Device is requesting Fast LACPDUs
        A - Device is in Active mode
        P - Device is in Passive mode
Channel-group agg10:
Actor's information:
Port       System ID             Port Number Flags
----------+---------------------+-----------+----------
eth-0-9    32768,1445.3ea2.1900 9           SA
           Port Priority        Oper Key    Port State
           +--------------------+-----------+----------
           32768                10          0x3d
           Port State Flags Decode:
           Activity:    Timeout:       Aggregation:   Synchronization:
           +------------+--------------+--------------+---------------
           Active       Long           Yes            Yes
           Collecting:  Distributing:  Defaulted:     Expired:
           +------------+--------------+--------------+---------------
           Yes          Yes            No             No
           Port State Decode:
           Selected:    PeriodicTX:    Receive:       Mux:
           +------------+--------------+--------------+---------------
           SELECTED     SLOW_PERIODIC  CURRENT        COLLECTING_DISTRIBUTING
Port       System ID             Port Number Flags
----------+---------------------+-----------+----------
eth-0-10   32768,1445.3ea2.1900 10          SA
           Port Priority        Oper Key    Port State
           +--------------------+-----------+----------
           32768                10          0x3d
           Port State Flags Decode:
           Activity:    Timeout:       Aggregation:   Synchronization:
           +------------+--------------+--------------+---------------
           Active       Long           Yes            Yes
           Collecting:  Distributing:  Defaulted:     Expired:
           +------------+--------------+--------------+---------------
           Yes          Yes            No             No
           Port State Decode:
           Selected:    PeriodicTX:    Receive:       Mux:
           +------------+--------------+--------------+---------------
           SELECTED     SLOW_PERIODIC  CURRENT        COLLECTING_DISTRIBUTING
```

The following example shows how to display the neighbor information on all of the channel groups:

```
Switch# show lacp neighbor

    Switch# show lacp neighbor
Flags:  S - Device is requesting Slow LACPDUs
            F - Device is requesting Fast LACPDUs
            A - Device is in Active mode       P - Device is in Passive mode

    Channel group 1 neighbors

    Partner's information:

                      LACP port                     Admin   Oper    Port         Port
    Port      Flags   Priority   Dev ID             key     Key     Number
State
    eth-0-11  FA      32768      ca9c.e21d.a301     0       1       0x56         0x3f
    eth-0-12  FA      32768      ca9c.e21d.a301     0       1       0x57         0x3f

    Channel group 50 neighbors

    Partner's information:

                      LACP port                     Admin   Oper    Port         Port
    Port      Flags   Priority   Dev ID             key     Key     Number
State
    eth-0-9   FA      32768      ca9c.e21d.a301     0       99      0x54         0x3f
    eth-0-10  FA      32768      ca9c.e21d.a301     0       99      0x55         0x3f
```

The following example shows how to display the neighbor information on channel groups 10:

```
Switch# show lacp 10 neighbor
Flags:  S - Device is requesting Slow LACPDUs
        F - Device is requesting Fast LACPDUs
        A - Device is in Active mode
        P - Device is in Passive mode
Channel-group agg10:
Partner's information:
                                      LACP port  Admin  Oper   Port   Port
Port     Flags   SystemID             Priority   Key    Key    Number State
--------+-------+--------------------+----------+------+------+------+--------
eth-0-9  SA      32768,2222.f8c2.3300 32768      0      10     9      0x3d
eth-0-10 SA      32768,2222.f8c2.3300 32768      0      10     10     0x3d
Switch# show lacp 10 neighbor
Flags:  S - Device is requesting Slow LACPDUs
        F - Device is requesting Fast LACPDUs
        A - Device is in Active mode
        P - Device is in Passive mode
Channel-group agg10:
Partner's information:
                                      LACP port  Admin  Oper   Port   Port
Port     Flags   SystemID             Priority   Key    Key    Number State
```

```
--------+-------+-------------------+----------+------+------+------+--------
eth-0-9  SA      32768,2222.f8c2.3300 32768      0      10     9      0x3d
eth-0-10 SA      32768,2222.f8c2.3300 32768      0      10     10     0x3d


Switch# show lacp 10 neighbor detail
Flags:  S - Device is requesting Slow LACPDUs
        F - Device is requesting Fast LACPDUs
        A - Device is in Active mode
        P - Device is in Passive mode
Channel-group agg10:
Partner's information:
Port        System ID             Port Number Flags
----------+--------------------+-----------+----------
eth-0-9     32768,2222.f8c2.3300 9           SA
            Port Priority        Oper Key    Port State
           +--------------------+-----------+----------
            32768                10          0x3d
           Port State Flags Decode:
            Activity:    Timeout:       Aggregation:   Synchronization:
           +------------+-------------+-------------+---------------
            Active       Long           Yes            Yes
            Collecting:  Distributing:  Defaulted:     Expired:
           +------------+-------------+-------------+---------------
            Yes          Yes            No             No
Port        System ID             Port Number Flags
----------+--------------------+-----------+----------
eth-0-10    32768,2222.f8c2.3300 10          SA
            Port Priority        Oper Key    Port State
           +--------------------+-----------+----------
            32768                10          0x3d
           Port State Flags Decode:
            Activity:    Timeout:       Aggregation:   Synchronization:
           +------------+-------------+-------------+---------------
            Active       Long           Yes            Yes
            Collecting:  Distributing:  Defaulted:     Expired:
           +------------+-------------+-------------+---------------
            Yes          Yes            No             No
```

Related Commands

None

3.3.6 show lacp sys-id

Command Purpose

Use this command to display the LACP system ID, include LACP protocol priority and system MAC address.

Command Syntax

show lacp sys-id

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display system ID:

```
Switch# show lacp sys-id
System ID: 32768,001e.080a.ace5
```

Related Commands

None

3.3.7 show channel-group

Command Purpose

Use show channel-group summary command to display a summary of all of the channel groups, or a specified channel group. Use show channel-group detail command to display detailed information of all of the channel groups, or a specified channel group. Use show channel-group port command to display port information of all of the channel groups, or a specified channel group.

Command Syntax

show channel-group (*AGG_GID* |) (summary | detail | port)

Parameter	Parameter Description	Parameter Value
AGG_GID	Channel group ID	range is <1-55>

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display detailed information of the channel group 10:

```
Switch# show channel-group 10 detail
Group: 10
----------------------------
  Mode           : switch
  Ports          : 2          Maxports : 16
  Bundle Ports   : 2
  Protocol       : LACP
  Port           : eth-0-9
  ----------------------------
    State          : Up In-Bundle
    Channel group  : 10
    Protocol       : LACP
    Mode           : Active
    Port index     : 9

    Actor's information:
                       Port                 Admin     Oper      Port      Port
    Port        Flags  Priority State       Key       Key       Number    State
    ----------+------+--------+-----------+--------+--------+--------+--------
    eth-0-9     SA     32768    In-Bundle   10        10        9         0x3d

    Partner's information:
                       Port                           Oper      Port      Port
    Port        Flags  Priority System ID             Key       Number    State
    ----------+------+--------+--------------------+--------+--------+--------
    eth-0-9     SA     32768    32768,2222.f8c2.3300 0xa       9         0x3d
```

```
  Port          : eth-0-10
  ----------------------------
    State         : Up In-Bundle
    Channel group : 10
    Protocol      : LACP
    Mode          : Active
    Port index    : 10

    Actor's information:
                        Port                Admin     Oper      Port      Port
    Port        Flags   Priority State       Key       Key       Number    State
    ----------+------+--------+-----------+--------+--------+--------+--------
    eth-0-10    SA      32768    In-Bundle   10        10        10        0x3d

    Partner's information:
                        Port                          Oper      Port      Port
    Port        Flags   Priority System ID            Key       Number    State
    ----------+------+--------+--------------------+--------+--------+--------
    eth-0-10    SA      32768    32768,2222.f8c2.3300 0xa       10        0x3d
```

The following example shows how to display a summary of all of the channel groups:

```
Switch# show channel-group summary
Port-channel load-balance hash-field-select:
    src-mac dst-mac src-ip dst-ip
Flags:  s - suspend           T - standby
        w - wait              B - in Bundle
        R - Layer3            S - Layer2
        D - down/admin down   U - in use
Aggregator  Protocol  Ports
-----------+---------+-------------------------------------------------------
agg10(SU)   LACP      eth-0-9(B)    eth-0-10(B)
agg20(SU)   LACP      eth-0-11(B)   eth-0-12(B)
```

The following example shows how to display a summary of the channel group 10:

```
Switch# show channel-group 10 summary
Port-channel load-balance hash-field-select:
    src-mac dst-mac src-ip dst-ip
Flags:  s - suspend           T - standby
        w - wait              B - in Bundle
        R - Layer3            S - Layer2
        D - down/admin down   U - in use
Aggregator  Protocol  Ports
-----------+---------+-------------------------------------------------------
agg10(SU)   LACP      eth-0-9(B)    eth-0-10(B)
```

Related Commands

None

3.3.8 show channel-group interface

Command Purpose

Use this command to display link aggregation information for the port.

Command Syntax

show channel-group interface *IF_NAME_E*

Parameter	Parameter Description	Parameter Value
IF_NAME_E	IFNAME	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display link aggregation information for the specified port:

```
Switch# show channel-group interface eth-0-11
Port          : eth-0-11
----------------------------
  State          : Up In-Bundle
  Channel group : 20
  Protocol       : LACP
  Mode           : Active
  Port index     : 11

  Actor's information:
                     Port                 Admin     Oper      Port      Port
  Port       Flags  Priority State        Key       Key       Number    State
  ----------+------+--------+-----------+--------+--------+--------+--------
```

```
eth-0-11    SA      32768     In-Bundle    20        20        11        0x3d

Partner's information:
                    Port                              Oper      Port      Port
Port        Flags   Priority  System ID               Key       Number    State
----------+------+--------+--------------------+--------+--------+--------
eth-0-11    SA      32768     32768,2222.f8c2.3300 0x14      11        0x3d
```

Related Commands

None

3.3.9 clear lacp

Command Purpose

Use this command to clear all counters of all of the channel groups, or a specified channel group.

Command Syntax

clear lacp (*AGG_GID* |) (counters)

Parameter	Parameter Description	Parameter Value
AGG_GID	Channel group ID	range is <1-55>

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to clear counters of all of the channel groups:

```
Switch# clear lacp counters
```

The following example shows how to clear counters of the specified channel groups:

```
Switch# clear lacp 10 counters
```

Related Commands

None

3.4 ErrDisable Commands

3.4.1 errdisable detect

Command Purpose

Use this command to enable link error status detection function for ports. And use the no form of this command to restore to default value.

Command Syntax

errdisable detect reason (fdb-loop | link-flap)

no errdisable detect reason (fdb-loop | link-flap)

Parameter	Parameter Description	Parameter Value
fdb-loop	FDB loop detection	-
link-flap	Link oscillation detection	-

Command Mode

Global Configuration

Default

Default is Enable except fdb-loop,

Default fdb-loop is disable

Usage

In this system, only FDB loop detection and link oscillation detection are supported.

Examples

The following example shows how to enable link error status detection function for port:

```
Switch# configure terminal
Switch(config)# errdisable detect reason link-flap
```

The following example shows how to disable link error status detection function for port:

```
Switch# configure terminal
Switch(config)# no errdisable detect reason link-flap
```

Related Commands

show errdisable detect

3.4.2 errdisable recovery interval

Command Purpose

Use this command to set the recovery time of the link from the error state. And use the no form of this command to restore recovery time to default value.

Command Syntax

errdisable recovery interval *ERRDIS_RECOVER_TIMER_PARAM*

no errdisable recovery interval

Parameter	Parameter Description	Parameter Value
ERRDIS_RECOVER_TIMER_PARA	Time interval to recover from error state	range is 30-86400, unit is second

Command Mode

Global Configuration

Default

300

Usage

None

Examples

The following example shows how to set the interval for error status recovery to 100 seconds:

```
Switch# configure terminal
Switch(config)# errdisable recover interval 100
```

The following example shows how to restore the interval to default value:

```
Switch# configure terminal
Switch(config)# no errdisable recover interval
```

Related Commands

show errdisable recovery

3.4.3 errdisable recovery reason

Command Purpose

Use this command to enable the error recovery function for the specified reason. And use the no form of this command to disable this function.

Command Syntax

errdisable recovery reason (all | fdb-loop | link-flap | port-security | bpduguard | bpduloop | arp-numberlimit | arp-ratelimit)

no errdisable recovery reason (all | fdb-loop | link-flap | port-security | bpduguard | bpduloop | arp-numberlimit | arp-ratelimit)

Parameter	Parameter Description	Parameter Value

all	Enable or disable the error recovery function for all reasons	-
fdb-loop	Enable or disable the error recovery function for FDB loop	-
link-flap	Enable or disable the error recovery function for link oscillation	-
port-security	Enable or disable the error recovery function for port binding	-
bpduguard	Enable or disable the error recovery function for BPDU protection control	-
bpduloop	Enable or disable the error recovery function for BPDU loopback protection	-
arp-numberlimit	Enable or disable the error recovery function for ARP-Numberlimit	-
arp-ratelimit	Enable or disable the error recovery function for ARP-Ratelimit	-

Command Mode

Global Configuration

Default

Disable

Usage

Use this command to enable or disable the error recovery function for the specified reason, include FDB loop recovery, port-security, and the recovery for all reasons.

Examples

The following example shows how to enable the error recovery function for port:

```
Switch# configure terminal
Switch(config)# errdisable recover reason all
Switch(config)# errdisable recover reason link-flap
Switch(config)# errdisable recover reason fdb-loop
Switch(config)# errdisable recover reason port-security
```

The following example shows how to disable the error recovery function for port:

```
Switch# configure terminal
Switch(config)# no errdisable recover reason all
Switch(config)# no errdisable recover reason link-flap
Switch(config)# no errdisable recover reason fdb-loop
Switch(config)# no errdisable recover reason port-security
```

Related Commands

show errdisable recovery

3.4.4 errdisable fdb-loop

Command Purpose

Use this command to set FDB loop detection parameters. Use the no form of this command to restore the default value.

Command Syntax

errdisable fdb-loop *ERRDIS_FDBLOOP_MAXSIZE ERRDIS_FDBLOOP_RATE*

no errdisable fdb-loop

Parameter	Parameter Description	Parameter Value

ERRDIS_FDBLOOP_MAXSIZE	The max count of tokens in the bucket, to prevent false errdisable caused by normal FDB port update	range is 1000-1000000
ERRDIS_FDBLOOP_RATE	The number of tokens increased per second in the bucket	range is 0-1000

Command Mode

Global Configuration

Default

60000

Usage

There are two parameters in fdb loop detection, one is the max count of tokens in bucket, the other is the number of token increments per second, when the FDB token in the bucket exhausted, the port will enter errdisable state.

Examples

The following example shows how to set token max count is 20000, and add rate is 100 in the bucket:

```
Switch# configure terminal
Switch(config)# errdisable fdb-loop 20000 100
```

The following example shows how to delete configuration of fdb-loop detection:

```
Switch# configure terminal
Switch(config)# no errdisable fdb-loop
```

Related Commands

show errdisable fdb-loop

3.4.5 errdisable flap

Command Purpose

Use this command set link oscillation parameters. And use the no form of this command to restore to default setting.

Command Syntax

errdisable flap reason link-flap *ERRDIS_FLAP_COUNT ERRDIS_FLAP_TIME*

no errdisable flap reason link-flap

Parameter	Parameter Description	Parameter Value
ERRDIS_FLAP_COUNT	The maximum number of possible oscillations before setting the port to errdisable	range is 1-100
ERRDIS_FLAP_TIME	The time of possible oscillations before setting the port to errdisable	range is 1-120

Command Mode

Global Configuration

Default

10

Usage

There are two parameters in link flap error detection, one is flap count, the other is flap time, if the count of flap reach the max flap count in time of flap time specified, the port will enter errdisable state.

Examples

The following example shows how to set link oscillation parameters:

```
Switch# configure terminal
Switch(config)# errdisable flap reason link-flap 30 40
```

The following example shows how to restore link oscillation parameters to default value:

```
Switch# configure terminal
Switch(config)# no errdisable flap reason link-flap
```

Related Commands

show errdisable flap

3.4.6 show errdisable detect

Command Purpose

Use this command to display whether error detection is enabled.

Command Syntax

show errdisable detect

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display whether error detection is enabled:

```
Switch# show errdisable detect
ErrDisable Reason         Detection status
------------------------+--------------------
arp-numberlimit           Enabled
arp-ratelimit             Enabled
bpduguard                 Enabled
bpduloop                  Enabled
fdb-loop                  Enabled
link-flap                 Enabled
port-security             Enabled
```

Related Commands

errdisable detect reason

3.4.7 show errdisable recovery

Command Purpose

Use this command to display whether error recovery is enabled.

Command Syntax

show errdisable recovery

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to get the recovery status of all error reason. If link error is happened, it can get the recovery information.

Examples

The following example shows how to display whether error recovery is enabled:

```
Switch# show errdisable recovery
ErrDisable Reason         Timer status
```

```
------------------------+--------------------
arp-numberlimit          Enabled
arp-ratelimit            Enabled
bpduguard                Enabled
bpduloop                 Enabled
fdb-loop                 Enabled
link-flap                Enabled
port-security            Enabled
Timer interval: 100 seconds
Interfaces that will be enabled at the next timeout:
Interface     Errdisable Reason Time Left(sec)
-------------+-----------------+--------------
eth-0-1       fdb-loop          98
```

Related Commands

errdisable recovery interval

errdisable recovery reason

3.4.8 show errdisable fdb-loop

Command Purpose

Use this command to display the information of FDB loop detection.

Command Syntax

show errdisable fdb-loop

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to get the bucket max size, bucket token rate per second, current token count of FDB loop detection.

Examples

The following example shows how to display the information of FDB loop detection:

```
Switch# show errdisable fdb-loop
Errdisable FDB loop information
Bucket Max Size:      60000
Bucket Token Rate:    200
Current Token Count:  60000
```

Related Commands

errdisable fdb-loop

3.4.9 show errdisable flap

Command Purpose

This command is used to display parameters for link oscillation error detection.

Command Syntax

show errdisable flap

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to display the link oscillation error detection time, unit is second.

Examples

The following example shows how to display the link oscillation error detection time:

```
Switch# show errdisable flap
ErrDisable Reason Flaps      Time (sec)
```

```
-----------------+----------+----------
link-flap          10          10
```

Related Commands

errdisable flap

3.5 Hash load-banlance Commands

3.5.1 hash field

Command Purpose

Use this command to set hash field or create a new hash field, and enter hash field configure view;use the no command to delete user-defined hash field.

Command Syntax

hash-field (port-channel | ecmp | *NAME*)

no hash-field *NAME*

Parameter	Parameter Description	Parameter Value
port-channel	Port-channel of system default hash field	-
ecmp	Ecmp of system default hash field	-
NAME	Hash field name string	The initial character of name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 64

Command Mode

Global Configuration

Default

port-channel，ecmp

Usage

The system support the max number of hash field is 4, including 2 system default hash fields named port-channel and ecmp and 2 user-defined hash fields.when applied to the hash value,it can’t be deleted.

Examples

The following example shows how to create a new hash field named user:

```
Switch(config)# hash-field user
Switch(config-hash-field-user)#
```

The following example shows how to delete the user-defined hash field named user:

```
Switch(config)# no hash-field user
Switch(config)#
```

Related Commands

show hash-field

3.5.2 l2

Command Purpose

Use this command to set l2 packet hash field; use the no command to set the l2 packet field to default.

Command Syntax

l2 (macda | macsa | vlan | eth-type | src-interface)

no l2

Parameter	Parameter Description	Parameter Value
macda	MAC Destination Address	-

macsa	MAC Source Address	-
vlan	Vlan	-
eth-type	Ethernet Type	-
src-interface	Source Interface	-

Command Mode

Config-hash-field

Default

l2 macsa macda

Usage

None

Examples

The following example shows how to select macsa for l2 packet load balance in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# l2 macsa
```

The following example shows how to select default l2 packet load balance in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# no l2
```

Related Commands

show hash-field

3.5.3 ip

Command Purpose

Use this command to set ip packet hash field; use the no command to set the ip packet field to default.

Command Syntax

ip (ipda | ipsa | ip-protocol | sourceport | destport | src-interface)

no ip

Parameter	Parameter Description	Parameter Value
ipda	IP Destination Address	-
ipsa	IP Source Address	-
ip-protocol	IP Header protocol	-
sourceport	Layer4 Source Port	-
destport	Layer4 Destination Port	-
src-interface	Source Interface	-

Command Mode

Config-hash-field

Default

ip ipsa ipda sourceport destport ip-protocol

Usage

None

Examples

The following example shows how to select ipsa for ip packet load balance in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# ip ipsa
```

The following example shows how to select default ip packet load balance in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# no ip
```

Related Commands

show hash-field

3.5.4 ipv6

Command Purpose

Use this command to set ipv6 packet hash field; use the no command to set the ipv6 field to default.

Command Syntax

ipv6 (ipda | ipsa | ip-protocol | sourceport | destport | src-interface)

no ipv6

Parameter	Parameter Description	Parameter Value
ipda	IP Destination Address	-
ipsa	IP Source Address	-
ip-protocol	IP Header protocol	-
sourceport	Layer4 Source Port	-
destport	Layer4 Destination Port	-
src-interface	Source Interface	-

Command Mode

Config-hash-field

Default

ipv6 ipsa ipda sourceport destport ip-protocol

Usage

Only when the system is in ipv6 mode, the ipv6 packet hash field can work normally.

Examples

The following example shows how to select ipsa for ipv6 packet load balance in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# ipv6 ipsa
```

The following example shows how to select default ipv6 packet load balance in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# no ipv6
```

Related Commands

show hash-field

3.5.5 vxlan

Command Purpose

Use this command to set vxlan packet hash field.

To return the configuration to default value use the no form of this command.

Command Syntax

vxlan { vni | src-interface }

vxlan ({ vni | src-interface } |) outer { ipsa | ipda | sourceport | destport | vlan }

vxlan ({ vni | src-interface } |) inner-layer2 { macsa | macda | eth-type }

vxlan ({ vni | src-interface } |) inner-layer3 { ipsa | ipda | sourceport | destport | ip-protocol }

no vxlan

Parameter	Parameter Description	Parameter Value
vni	VXLAN VNI	-
src-interface	Source Interface	-
outer ipsa	Outer header's IP Source Address	-
outer ipda	Outer header's IP Destination Address	-
outer sourceport	Outer header's Layer4 Source Port	-
outer destport	Outer header's Layer4 Destination Port	-
outer vlan	Outer header's Vlan ID	-
inner macsa	Inner header's MAC Source Address	-
inner macda	Inner header's MAC Destination Address	-
inner eth-type	Inner header's Ethernet Type	-
inner ipsa	Inner header's IP Source Address	-
inner ipda	Inner header's IP Destination Address	-
inner sourceport	Inner header's Layer4 Source Port	-
inner destport	Inner header's Layer4 Destination Port	-

inner ip-protocol	Inner header's IP Header protocol	-

Command Mode

Config-hash-field

Default

vxlan vni outer ipsa ipda sourceport

Usage

Outer configuration and inner configuration cannot take effect at the same time.

Examples

The following example shows how to select outer ipsa and vni for vxlan packet load balance in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# vxlan vni outer ipda
```

The following example shows how to select default vxlan packet load balance in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# no vxlan
```

Related Commands

show hash-field

3.5.6 nvgre

Command Purpose

Use this command to set nvgre packet hash field.

To return the configuration to default value use the no form of this command.

Command Syntax

nvgre { vsid | src-interface }

nvgre ({ vsid | src-interface } |) outer { ipsa | ipda | gre-protocol }

nvgre ({ vsid | src-interface } |) inner-layer2 { macsa | macda | eth-type }

nvgre ({ vsid | src-interface } |) inner-layer3 { ipsa | ipda | sourceport | destport | ip-protocol }

no nvgre

Parameter	Parameter Description	Parameter Value
vsid	NVGRE VSID	-
src-interface	Source Interface	-
outer ipsa	Outer header's IP Source Address	-
outer ipda	Outer header's IP Destination Address	-
outer gre-protocol	Outer header's GRE Protocol	-
inner macsa	Inner header's MAC Source Address	-
inner macda	Inner header's MAC Destination Address	-
inner eth-type	Inner header's Ethernet Type	-
inner ipsa	Inner header's IP Source Address	-
inner ipda	Inner header's IP Destination Address	-
inner sourceport	Inner header's Layer4 Source Port	-

inner destport	Inner header's Layer4 Destination Port	-
inner ip-protocol	Inner header's IP Header protocol	-

Command Mode

Config-hash-field

Default

nvgre vsid outer ipsa ipda

Usage

Outer configuration and inner configuration cannot take effect at the same time.

Examples

The following example shows how to select outer ipsa and vsid for nvgre packet load balance in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# nvgre vsid outer ipda
```

The following example shows how to select default nvgre packet load balance in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# no nvgre
```

Related Commands

show hash-field

3.5.7 mpls

Command Purpose

Use this command to set mpls packet hash field.

To return the configuration to default value use the no form of this command.

Command Syntax

mpls { top-label | 2nd-label | 3rd-label | src-interface }

no mpls

Parameter	Parameter Description	Parameter Value
top-label	Mpls Top Lable	-
2nd-label	Mpls Second Lable	-
3rd-label	Mpls Third Lable	-
src-interface	Source Interface	-

Command Mode

Config-hash-field

Default

mpls top-label 2nd-label

Usage

None

Examples

The following example shows how to select top-label for mpls packet load balance in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# mpls top-label
```

The following example shows how to select default mpls packet load balance in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# no mpls
```

Related Commands

show hash-field

3.5.8 disable control

Command Purpose

Use this command to force ip packet ,ipv6 packet or mpls packet to follow l2 hash configuration.

To return the configuration to default value use the no form of this command.

Command Syntax

ip disable

no ip disable

ipv6 disable

no ipv6 disable

mpls disable

no mpls disable

Command Mode

Config-hash-field

Default

no ip disable

no ipv6 disable

no mpls disable

Usage

None

Examples

The following example shows how to not select ipv6 packet field to hash in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# ipv6 disable
```

The following example shows how to select ipv6 packet field to hash in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# no ipv6 disable
```

Related Commands

show hash-field

3.5.9 hash arithmetic

Command Purpose

Use this command to set hash arithmetic.

To return the configuration to default value use the no form of this command.

Command Syntax

hash-arithmetic first (crc | xor) second (crc | xor)

no hash-arithmetic

Parameter	Parameter Description	Parameter Value
crc	Cyclical redundancy check arithmetic	-
xor	Exclusive or arithmetic	-

Command Mode

Config-hash-field

Default

hash-arithmetic first xor second crc

Usage

None

Examples

The following example shows how to set first hash arithmetic and second hash arithmetic in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# hash-arithmetic first crc second xor
```

The following example shows how set default first hash arithmetic and second hash arithmetic in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# no hash-arithmetic
```

Related Commands

show hash-field

3.5.10 hash symmetry

Command Purpose

Use this command to enable hash symmetry function.

To return the configuration to default value use the no form of this command.

Command Syntax

mode symmetry

no mode symmetry

Command Mode

Config-hash-field

Default

no mode symmetry

Usage

None

Examples

The following example shows how to set hash symmetry in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# mode symmetry
```

The following example shows how to set hash symmetry to default in port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# no mode symmetry
```

Related Commands

show hash-field

3.5.11 description

Command Purpose

Use this command to configure the description for hash field; use the no command to delete the description.

Command Syntax

descrition *NAME*

no description

Parameter	Parameter Description	Parameter Value

NAME	Hash field descrition	The initial character of name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 64

Command Mode

Config-hash-field

Default

None

Usage

None

Examples

The following example shows how to set descrition for port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# description linkagg
```

The following example shows how to delete descrition for port-channel:

```
Switch(config)# hash-field port-channel
Switch(config-hash-field-port-channel)# no description
```

Related Commands

show hash-field

3.5.12 show hash-filed

Command Purpose

Use this command to display the configurations and statistics on all hash fields or a hash field.

Command Syntax

show hash-field (port-channel | ecmp | *NAME* |)

Parameter	Parameter Description	Parameter Value
port-channel	Port-channel of system default hash field	-
ecmp	Ecmp of system default hash field	-
NAME	Hash field name string	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the configurations and statistics on the port-channel:

```
Switch# show hash-field port-channel
hash-field name: port-channel
 Option                              Control type
------------------------------------------------------------------------
 hash-arithmetic first               xor
 hash-arithmetic second              crc
 hash symmetry                       disable
 ip                                  enable
 ipv6                                enable
 mpls                                enable
------------------------------------------------------------------------
 hash field select
 Packet                HashField
------------------------------------------------------------------------
```

l2:	macsa	macda
ip:	ipsa	ipda
	l4-sourceport	l4-destport
	ip-protocol	
ipv6:	ipsa	ipda
	l4-sourceport	l4-destport
	ip-protocol	
gre:	ipsa	ipda
	gre-key	
vxlan:	vni	outer-l4-sourceport
	outer-ipda	outer-ipsa
nvgre:	vsid	outer-ipda
	outer-ipsa	
mpls:	top-label	2nd-label

Related Commands

None

3.5.13 hash value

Command Purpose

Use this command to create a hash value and enter hash value configure view; use the no command to delete the hash value.

Command Syntax

hash-value *NAME*

no hash-value *NAME*

Parameter	Parameter Description	Parameter Value
NAME	Hash value name string	The initial character of name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 64

Command Mode

Global Configuration

Default

None

Usage

The system support the max number of hash value is 63.when applied to the interface,it can't be deleted.

Examples

The following example shows how to creat hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)#
```

The following example shows how to delete hash value aaa:

```
Switch(config)# no hash-value aaa
Switch(config)#
```

Related Commands

show hash-value

3.5.14 port-channel select

Command Purpose

Use this command to select hash field and hash arithmetic for all mode linkagg; use the no command to delete the configuration.

Command Syntax

port-channel select *NAME* hash-arithmetic (first | second)

no port-channel select

Parameter	Parameter Description	Parameter Value

NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value

Default

None

Usage

If there is only “port-channel select” configuration in the hash value, the hash value can apply on the agg output and input.

If the hash value has “port-channel static select” configuration or “port-channel dynamic select” configuration, the hash value only can be applied on input port.

Examples

The following example shows how to select hash field and hash arithmetic for linkagg in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# port-channel select user hash-arithmetic first
```

The following example shows how to delete hash field and hash arithmetic for linkagg in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# no port-channel select
```

Related Commands

show hash-value

3.5.15 port-channel static select

Command Purpose

Use this command to select hash field and hash arithmetic for static linkagg; use the no command to delete the configuration.

Command Syntax

port-channel static select *NAME* hash-arithmetic (first | second)

no port-channel static select

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value

Default

None

Usage

This command has a higher priority than command “port-channel select NAME hash-arithmetic (first | second)” for static mode linkagg.

Examples

The following example shows how to select hash field and hash arithmetic for static mode linkagg in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# port-channel static select user hash-arithmetic
first
```

The following example shows how to delete hash field and hash arithmetic for static mode linkagg in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# no port-channel static select
```

Related Commands

show hash-value

3.5.16 port-channel dynamic select

Command Purpose

Use this command to select hash field and hash arithmetic for dynamic linkagg; use the no command to delete the configuration.

Command Syntax

port-channel dynamic select *NAME* hash-arithmetic (first | second)

no port-channel dynamic select

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value

Default

None

Usage

This command has a higher priority than command “port-channel dynamic select NAME hash-arithmetic (first | second)” for dynamic mode linkagg.

Examples

The following example shows how to select hash field and hash arithmetic for dynamic mode linkagg in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# port-channel select user hash-arithmetic first
```

The following example shows how to delete hash field and hash arithmetic for dynamic mode linkagg in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# no port-channel dynamic select
```

Related Commands

show hash-value

3.5.17 ecmp select

Command Purpose

Use this command to select hash field and hash arithmetic for all mode ecmp; use the no command to delete the configuration.

Command Syntax

ecmp select *NAME* hash-arithmetic (first | second)

no ecmp select

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value

Default

None

Usage

This command can configure the static, dynamic or dynamic flow id mode.

If ecmp has static, dynamic or dynamic flow id set on the command mode, this command has low priority level.

Examples

The following example shows how to select hash field and hash arithmetic for all mode ecmp in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# ecmp select user hash-arithmetic first
```

The following example shows how to delete the ecmp select configuration in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# no ecmp select
```

Related Commands

show hash-value

3.5.18 ecmp dynamic select

Command Purpose

Use this command to select hash field and hash arithmetic for dynamic mode ecmp; use the no command to delete the configuration.

Command Syntax

ecmp dynamic select *NAME* hash-arithmetic (first | second)

no ecmp dynamic select

Parameter	Parameter Description	Parameter Value

NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value

Default

None

Usage

This command has a higher priority than command “ecmp select NAME hash-arithmetic (first | second)” for dynamic mode ecmp.

Examples

The following example shows how to select hash field and hash arithmetic for dynamic ecmp in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# ecmp dynamic select user hash-arithmetic first
```

The following example shows how to delete hash field and hash arithmetic for dynamic ecmp in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# no ecmp dynamic select
```

Related Commands

show hash-value

3.5.19 ecmp dynamic flow-id select

Command Purpose

Use this command to select hash field and hash arithmetic for dynamic flow mode; use the no command to delete the configuration.

Command Syntax

ecmp dynamic flow-id select *NAME* hash-arithmetic (first | second)

no ecmp dynamic flow-id select

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value

Default

None

Usage

This command has a higher priority than command “ecmp select NAME hash-arithmetic (first | second)” for dynamic flow-id mode ecmp.

Examples

The following example shows how to select hash field and hash arithmetic for dynamic flow id ecmp in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# ecmp dynamic flow-id select user hash-arithmetic
first
```

The following example shows how to delete hash field and hash arithmetic for dynamic flow id ecmp in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# no ecmp dynamic flow-id
```

Related Commands

show hash-value

3.5.20 ecmp static select

Command Purpose

Use this command to select hash field and hash arithmetic for static mode ecmp; use the no command to delete the configuration.

Command Syntax

ecmp static select *NAME* hash-arithmetic (first | second)

no ecmp static select

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value

Default

None

Usage

This command has a higher priority than command “ecmp select NAME hash-arithmetic (first | second)” for static mode ecmp.

Examples

The following example shows how to select hash field and hash arithmetic for static ecmp in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# ecmp static select user hash-arithmetic first
```

The following example shows how to delete hash field and hash arithmetic for static ecmp in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# no ecmp static select
```

Related Commands

show hash-value

3.5.21 ecmp static select packet

Command Purpose

Use this command to select hash field and hash arithmetic for static mode ecmp of L3/nvgre/vxlan packet; use the no command to delete the configuration.

Command Syntax

ecmp static select *NAME* hash-arithmetic (first | second) l3

no ecmp static select l3

ecmp static select *NAME* hash-arithmetic (first | second) nvgre

no ecmp static select nvgre

ecmp static select *NAME* hash-arithmetic (first | second) vxlan

no ecmp static select vxlan

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value

Default

None

Usage

This command has a higher priority than command “ecmp static select NAME hash-arithmetic (first | second)” for static mode ecmp.

Examples

The following example shows how to select hash field and hash arithmetic for static ecmp of L3 packet in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# ecmp static select user hash-arithmetic first l3
```

The following example shows how to delete hash field and hash arithmetic for static ecmp of L3 packet in hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# no ecmp static select
```

Related Commands

show hash-value

3.5.22 description

Command Purpose

Use this command to configure the description for hash value; use the no command to delete the description.

Command Syntax

descrition *NAME*

no description

Parameter	Parameter Description	Parameter Value

NAME	Hash value descrition	The initial character of name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 64

Command Mode

Config-hash-value

Default

None

Usage

None

Examples

The following example shows how set descrition for hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# description valueaaa
```

The following example shows how delete descrition for hash value aaa:

```
Switch(config)# hash-value aaa
Switch(config-hash-value-aaa)# no description
```

Related Commands

show hash-value

3.5.23 show hash-value

Command Purpose

Use this command to display the configurations of a hash value or all hash value.

Command Syntax

show hash-value (*NAME* |)

Parameter	Parameter Description	Parameter Value
NAME	Hash value name string	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the configurations of hash value:

```
Switch# show hash-value
LBT:load balance type          LBM:load balance mode
PT :packet type                HF :hash field name
HA :hash arithmetic
hash-value name: aaa
 LBT             LBM             PT              HF              HA
------------------------------------------------------------------------
 port-channel    static          all             NOCFG           NOCFG
 port-channel    dynamic         all             NOCFG           NOCFG
 ecmp            static          l3              NOCFG           NOCFG
 ecmp            static          nvgre           NOCFG           NOCFG
 ecmp            static          vxlan           NOCFG           NOCFG
 ecmp            dynamic         all             NOCFG           NOCFG
 ecmp            flow id         all             NOCFG           NOCFG
```

Related Commands

None

3.5.24 hash-value global

Command Purpose

Use this command to enter hash value global configure view.

Command Syntax

hash-value global

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to enter hash value global view:

```
Switch(config)# hash-value global
Switch(config-hash-value-global)#
```

Related Commands

show hash-value global

3.5.25 port-channel select

Command Purpose

Use this command to select hash field and hash arithmetic for linkagg; use the no command to set the default configuration.

Command Syntax

port-channel select *NAME* hash-arithmetic (first | second)

no port-channel select

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value-global

Default

port-channel

Usage

Compared with hash value configuration, this command has lower priority

Examples

The following example shows how to select hash field and hash arithmetic for linkagg in hash value global :

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# port-channel select user hash-arithmetic first
```

The following example shows how to set default hash field and hash arithmetic for linkagg in hash value global :

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# no port-channel select
```

Related Commands

show hash-value global

3.5.26 ecmp select

Command Purpose

Use this command to select hash field and hash arithmetic for all mode ecmp; use the no command to set the default configuration.

Command Syntax

ecmp select *NAME* hash-arithmetic (first | second)

no ecmp select

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value-global

Default

ecmp

Usage

This command can configure the static, dynamic or dynamic flow id mode.

If ecmp has static, dynamic or dynamic flow id set on the command mode, this command has low priority level.

Examples

The following example shows how to select hash field and hash arithmetic for all mode ecmp in hash value global :

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# ecmp select user hash-arithmetic first
```

The following example shows how to set default hash field and hash arithmetic for all mode ecmp in hash value global :

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# no ecmp select
```

Related Commands

show hash-value global

3.5.27 ecmp dynamic select

Command Purpose

Use this command to select hash field and hash arithmetic for dynamic mode ecmp; use the no command to set the default configuration.

Command Syntax

ecmp dynamic select *NAME* hash-arithmetic (first | second)

no ecmp dynamic select

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value-global

Default

ecmp

Usage

This command has a higher priority than command “ecmp select NAME hash-arithmetic (first | second)” for dynamic mode ecmp.

Examples

The following example shows how to select hash field and hash arithmetic for dynamic mode ecmp in hash value global :

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# ecmp dynamic select user hash-arithmetic first
```

The following example shows how to set default hash field and hash arithmetic for dynamic mode ecmp in hash value global :

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# no ecmp dynamic select
```

Related Commands

show hash-value global

3.5.28 ecmp dynamic flow-id select

Command Purpose

Use this command to select hash field and hash arithmetic for dynamic flow mode ecmp; use the no command to set the default configuration.

Command Syntax

ecmp dynamic flow-id select *NAME* hash-arithmetic (first | second)

no ecmp dynamic flow-id select

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value-global

Default

ecmp

Usage

This command has a higher priority than command “ecmp select NAME hash-arithmetic (first | second)” for dynamic flow id mode ecmp.

Examples

The following example shows how to select hash field and hash arithmetic for dynamic flow mode ecmp in hash value global :

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# ecmp dynamic flow-id select user hash-arithmetic
first
```

The following example shows how to set default hash field and hash arithmetic for dynamic flow mode ecmp in hash value global :

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# no ecmp dynamic flow-id select
```

Related Commands

show hash-value global

3.5.29 ecmp static select

Command Purpose

Use this command to select hash field and hash arithmetic for static mode ecmp; use the no command to set the default configuration.

Command Syntax

ecmp static select *NAME* hash-arithmetic (first | second)

no ecmp static select

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value-global

Default

ecmp

Usage

This command has a higher priority than command “ecmp select NAME hash-arithmetic (first | second)” for static mode ecmp.

Examples

The following example shows how to select hash field and hash arithmetic for static mode ecmp in hash value global :

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# ecmp static select user hash-arithmetic first
```

The following example shows how to set default hash field and hash arithmetic for static mode ecmp in hash value global :

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# no ecmp static select
```

Related Commands

show hash-value global

3.5.30 ecmp static select packet

Command Purpose

Use this command to select hash field and hash arithmetic for static mode ecmp of L3/nvgre/vxlan packet; use the no command to delete the configuration.

Command Syntax

ecmp static select *NAME* hash-arithmetic (first | second) l3

no ecmp static select l3

ecmp static select *NAME* hash-arithmetic (first | second) nvgre

no ecmp static select nvgre

ecmp static select *NAME* hash-arithmetic (first | second) vxlan

no ecmp static select vxlan

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value-global

Default

None

Usage

This command has a higher priority than command “ecmp static select NAME hash-arithmetic (first | second)” for static mode ecmp.

Examples

The following example shows how to select hash field and hash arithmetic for static ecmp of L3 packet in hash value global :

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# ecmp static select user hash-arithmetic first l3
```

The following example shows how to delete hash field and hash arithmetic for static ecmp of L3 packet in hash value global:

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# no ecmp static select l3
```

Related Commands

show hash-value global

3.5.31 lbid select

Command Purpose

Use this command to select hash field and hash arithmetic for linkagg and it only works for no unicast packets; use the no command to set the default configuration.

Command Syntax

lbid select *NAME* hash-arithmetic (first | second)

no lbid select

Parameter	Parameter Description	Parameter Value
NAME	Hash field name string	-
first	First hash arithmetic	-
second	Second hash arithmetic	-

Command Mode

Config-hash-value-global

Default

port-channel

Usage

None

Examples

The following example shows how to select hash field and hash arithmetic for linkagg and it works when packet is not unicast:

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# lbid select user hash-arithmetic first
```

The following example shows how to set default hash field and hash arithmetic for linkagg and it works when packet is not unicast:

```
Switch(config)# hash-value global
Switch(config-hash-value-global)# no lbid select
```

Related Commands

show hash-value global

3.5.32 show hash-value global

Command Purpose

Use this command to display the configurations of hash value global.

Command Syntax

show hash-value global

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the configurations of hash value global:

```
Switch# show hash-value global
LBT:load balance type          LBM :load balance mode
PT :packet type                HF  :hash field name
HA :hash arithmetic
hash-value global
 LBT             LBM             PT              HF              HA
-------------------------------------------------------------------------
 port-channel    -               all             port-channel    first
 lbid            -               all             port-channel    first
 ecmp            static          l3              ecmp            first
 ecmp            static          nvgre           ecmp            first
 ecmp            static          vxlan           ecmp            first
 ecmp            dynamic         all             ecmp            first
 ecmp            flow id         all             ecmp            first
```

Related Commands

None

3.5.33 hash value applied to interface

Command Purpose

Use this command to apply a hash value to interface; use the no command to remove the hash-value from interface.

Command Syntax

load-balance hash-value *NAME* (input | output)

no load-balance hash-value (input | output)

Parameter	Parameter Description	Parameter Value
NAME	Hash value name	-
input	Input direction	-

output	Output direction	-

Command Mode

Interface Configuration

Default

None

Usage

Physical port only can select input direction， linkagg port can select input direction and output direction. Agg member port can’t configure the command.

Examples

The following example shows how to apply a hash value to eth-0-1:

```
Switch(config)# interface eth-0-1
Switch(config-if)# load-balance hash-value aaa input
```

The following example shows how to remove a hash value from eth-0-1:

```
Switch(config)# interface eth-0-1
Switch(config-if)# no load-balance hash-value input
```

Related Commands

show hash-value interface-applied

3.5.34 show hash-value interface-applied

Command Purpose

Use this command to display the relationship between hash value and interface.

Command Syntax

show hash-value interface-applied

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the relationship between hash value paorfile and interface:

```
Switch# show hash-value interface-applied
eth-0-1
 hash-value aaa input
```

Related Commands

None

4 Ethernet Commands

4.1 VLAN Commands

4.1.1 vlan

Command Purpose

Use this command to configure a VLAN. And use the no form of this command to remove a VLAN.

Command Syntax

vlan *VLAN_ID*

no vlan *VLAN_ID*

Parameter	Parameter Description	Parameter Value
VLAN_ID	VLAN ID	Range is 1-4094

Command Mode

Global Configuration

Default

VLAN 1 is the default VLAN, it can not be removed, and all ports have been added to it by default.

Usage

Default VLAN 1 can not be removed.

Examples

The following example shows how to create VLAN 11 and named VLAN 11:

```
Switch# configure terminal
Switch(config)# vlan 11
Switch(config-vlan11)#
```

The following example shows how to remove VLAN 11:

```
Switch# configure terminal
Switch(config)# no vlan 11
```

Related Commands

show vlan

4.1.2 vlan range

Command Purpose

Use the vlan VLAN_LIST configuration command to add a normal-range VLANs to the VLAN database. And use the no form of this command to remove VLANs of this range.

Command Syntax

vlan range *VLAN_LIST*

no vlan range *VLAN_LIST*

Parameter	Parameter Description	Parameter Value
VLAN_LIST	VLAN LIST	e.g.2-5, 7, 9-11

Command Mode

Global Configuration

Default

VLAN 1 is the default VLAN, it can not be removed, and all ports have been added to it by default.

Usage

VLAN list need to be joined and separated by “-” and “,”, and it has to be sorted in ascending order.

Examples

The following example shows how to add VLAN 100, 200, 300-400:

```
Switch# configure terminal
Switch(config)# vlan range 100,200,300-400
```

The following example shows how to remove VLAN 100, 200, 300-400:

```
Switch# configure terminal
Switch(config)# no vlan range 100,200,300-400
```

Related Commands

show vlan

4.1.3 name

Command Purpose

Use this command to set VLAN name. And use the no form of this command to set VLAN name to default.

Command Syntax

name *NAME_STRING*

no name

Parameter	Parameter Description	Parameter Value
NAME_STRING	VLAN NAME	Up to 16 characters

Command Mode

VLAN Configuration

Default

VLANxxxx

Usage

VLAN 1 is default VLAN, its name can not be set.

Examples

The following example shows how to create VLAN 11 and name it VLAN11:

```
Switch# configure terminal
Switch(config)# vlan 11
Switch(config-vlan11)# name vlan11
```

The following example shows how to remove VLAN 11 name:

```
Switch# configure terminal
Switch(config)# vlan 11
Switch(config-vlan11)# no name
```

Related Commands

show vlan

4.1.4 statistics

Command Purpose

Use this command to enable VLAN statistics function. And use the no form of this command to restore the function to default setting.

Command Syntax

statistics enable

no statistics enable

Command Mode

VLAN Configuration

Default

Disable

Usage

None

Examples

The following example shows how to enable statistics function for VLAN 10:

```
Switch# configure terminal
Switch(config)# vlan 10
Switch(config-vlan10)# statistics enable
```

The following example shows how to disable statistics function for VLAN 10:

```
Switch# configure terminal
Switch(config)# vlan 10
Switch(config-vlan10)# no statistics enable
```

Related Commands

show vlan VLAN_ID statistics

4.1.5 show vlan

Command Purpose

Use this command to display VLAN status and configuration.

Command Syntax

show vlan *VLAN_ID*

Parameter	Parameter Description	Parameter Value
VLAN_ID	VLAN ID	Range is 1-4094

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display VLAN properties including name, state, stp id, DSCP, member ports.

Examples

The following example shows how to display the information on vlan 11:

```
Switch# show vlan 11
VLAN ID  Name              State    Instance Member ports
--------+-----------------+--------+--------+--------------------------------
11       VLAN0011          Active   0        eth-0-3, eth-0-4, eth-0-5
```

Related Commands

None

4.1.6 show vlan statistics

Command Purpose

Use this command to display statistics for the specified VLAN.

Command Syntax

show vlan *VLAN_ID* statistics

Parameter	Parameter Description	Parameter Value
VLAN_ID	VLAN ID	Range is 1-4094

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display statistics for VLAN 10:

```
Switch# show vlan 10 statistics
VLAN: 10
------------+--------------------+----------------------------
Item                Packets               Bytes
-------------------------------------------------------------------
Inbound:            0                     0
Outbound:           0                     0
-------------------------------------------------------------------
```

Related Commands

None

4.2 FDB Commands

4.2.1 mac-address-table ageing-time

Command Purpose

Use the mac-address-table aging-time global configuration command on the switch to set the aging time for dynamic entry in the MAC address table, use no command restore aging time to default value. The aging time applies to MAC address entry in all VLANs.

Command Syntax

mac-address-table ageing-time *AGING_TIME*

no mac-address-table ageing-time

Parameter	Parameter Description	Parameter Value
AGING_TIME	Aging time, unit is second.	-

Command Mode

Global Configuration

Default

300 seconds, range is 10-1000000.

Usage

If packets are not received continuously, user can increase the aging time to make the system recording the dynamic entries for a longer time. Increasing the time can reduce the possibility of flooding when the hosts send again.

Examples

The following example shows how to set the aging time of MAC address entry to 200s for all VLANs:

```
Switch# configure terminal
Switch(config)# mac-address-table ageing-time 200
```

The following example shows how to set the aging time of MAC address entry to default value for all VLANs:

```
Switch# configure terminal
Switch(config)# no mac-address-table ageing-time
```

Related Commands

show mac-address-table ageing-time

4.2.2 mac-address-table ageing-time 0

Command Purpose

Use this command to make the MAC aging function does not work.

Command Syntax

mac-address-table ageing-time 0

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to set the aging time function does not work:

```
Switch# configure terminal
Switch(config)# mac-address-table ageing-time 0
```

Related Commands

show mac-address-table ageing-time

4.2.3 show mac-address-table ageing-time

Command Purpose

Use the show mac-address-table ageing-time privileged EXEC command to display the aging time of all entry on all VLANs.

Command Syntax

show mac-address-table ageing-time

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to view the aging time of entry:

```
Switch# show mac-address-table ageing-time
MAC address table ageing time is 200 seconds
```

Related Commands

mac-address-table ageing-time

4.2.4 show mac-address-table

Command Purpose

Use the show mac address-table privileged EXEC command to display a specific MAC address table static and dynamic entry or the MAC address table static and dynamic entries on a specific interface or VLAN.

Command Syntax

show mac-address-table (static | dynamic | multicast) (interface *IF_NAME_EA* | vlan *VLAN_ID* | address *MAC_ADDR*)

Parameter	Parameter Description	Parameter Value
static	Displaying static entries	-
dynamic	Displaying dynamic entries	-
multicast	Displaying multicast entries	-

address MAC_ADDR	Displaying specific MAC address entries	-
IF_NAME_EA	IFNAME	-
VLAN_ID	VLAN ID	-
MAC_ADDR	MAC address	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to view entries output:

```
Switch# show mac-address-table
              Mac Address Table
------------------------------------------
(*)  - Security Entry      (M)  - MLAG Entry
(MO) - MLAG Output Entry   (MI) - MLAG Input Entry
VLAN ID MAC Address       Type          Port
-------+----------------+------------+--------
1       0000.0011.1168   static       eth-0-49/1
1       0000.0011.112d   dynamic      eth-0-49/1
```

The following example shows how to view static entries output:

```
Switch# show mac-address-table static
              Mac Address Table
------------------------------------------
(*)  - Security Entry      (M)  - MLAG Entry
(MO) - MLAG Output Entry   (MI) - MLAG Input Entry
VLAN ID MAC Address       Type          Port
-------+----------------+------------+--------
1       0000.0011.1168   static       eth-0-49/1
```

The following example shows how to view dynamic entries output:

```
Switch# show mac-address-table dynamic
              Mac Address Table
-------------------------------------------
(*)  - Security Entry     (M)  - MLAG Entry
(MO) - MLAG Output Entry  (MI) - MLAG Input Entry
VLAN ID MAC Address       Type          Port
-------+----------------+------------+--------
1       0000.0011.112d    dynamic       eth-0-49/1
```

Related Commands

mac-address-table

4.2.5 show mac-address-table count

Command Purpose

Use the show mac-address-table count privileged EXEC command to display the all static and dynamic entry numbers.

Command Syntax

show mac-address-table count

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to use show mac-address-table count command view entries numbers:

```
Switch# show mac-address-table count
MAC Address Count:
```

```
(Include MAC security entry)
-----------------------------------------
Dynamic Address Count   :     1     (Security: 0)
Static  Address Count   :     0     (Security: 0)
Multicast Address Count:      0     (Security: 0)
Total Mac Addresses     :     1     (Security: 0)
```

Related Commands

mac-address-table

4.2.6 show mac-address-table add-fdb-fail

Command Purpose

Use the show mac-address-table add-fdb-fail privileged EXEC command to display the entry which add in hardware fail.

Command Syntax

show mac-address-table add-fdb-fail

Command Mode

Privileged EXEC

Default

None

Usage

When fdb add in hardware fail, system will print a log and users can use the show command to display the information of failed fdb.

Examples

The following example shows how to use show mac-address-table add-fdb-fail command view the information of failed fdb:

```
Switch# show mac-address-table add-fdb-fail
Mac Address Table
-------------------------------------------
```

```
(*)  - Security Entry      (M)  - MLAG Entry
(MO) - MLAG Output Entry   (MI) - MLAG Input Entry
VLAN ID MAC Address       Type          Port
-------+-----------------+------------+--------
1        0000.0000.002     static       eth-0-49/1
```

Related Commands

mac-address-table

4.2.7 show macfilter address-table

Command Purpose

Use the show macfilter address-table privileged EXEC command to display information of macfilter address table.

Command Syntax

show macfilter address-table

Command Mode

Privileged EXEC

Default

None

Usage

The information of macfilter address table include current count, max count, left count of macfilter, and the all mac address.

Examples

The following example shows how to use show macfilter address-table command view the number of all macfilter:

```
Switch# configure terminal
Switch(config)# mac-address-table 0.0.1 discard
Switch(config)# exit
Switch# show macfilter address-table
```

```
     MAC Filter Address Table
---------------------------------
Current count       : 1
Max count           : 128
Left count          : 127
---------------------------------
Mac Address:
0000.0000.0001
```

Related Commands

mac-address-table

4.2.8 clear mac-address-table

Command Purpose

Use the clear mac address-table privileged EXEC command to delete all dynamic(or static, or multicast) entries, or part of dynamic(or static, or multicast) entries on a specific interface/specific VLAN/specific address.

Command Syntax

clear mac-address-table (static | dynamic) (interface *IF_NAME_EA* | vlan *VLAN_ID* | address *MAC_ADDR*)

Parameter	Parameter Description	Parameter Value
static	Deleting static entries	-
dynamic	Deleting dynamic entries	-
multicast	Deleting multicast entries	-
IF_NAME_EA	IFNAME	-
VLAN_ID	VLAN ID	-
MAC_ADDR	MAC address	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to delete MAC addresses in VLAN dynamic address table:

```
Switch# clear mac-address-table dynamic vlan 1
```

Related Commands

show mac-address-table

4.3 Spanning-tree Protocol Commands

4.3.1 spanning-tree enable

Command Purpose

Use this command enable spanning-tree, use no command disable spanning-tree.

Command Syntax

spanning-tree enable

no spanning-tree enable

Command Mode

Global Configuration

Default

Disable

Usage

Spanning-tree enable will initialize protocol state-machine on all switch ports.

No spanning-tree enable will disable protocol state-machine on all switch ports, and set ports' state to FORWARDING.

Examples

The following example shows how to enable spanning-tree:

```
Switch# configure terminal
Switch(config)# spanning-tree enable
```

The following example shows how to disable spanning-tree:

```
Switch# configure terminal
Switch(config)# no spanning-tree enable
```

Related Commands

show spanning-tree

4.3.2 spanning-tree mode

Command Purpose

Use this command configure spanning-tree mode.

Command Syntax

spanning-tree mode (stp | rstp | mstp)

no spanning-tree mode

Command Mode

Global Configuration

Default

rstp

Usage

The switch supports STP, RSTP and MSTP mode.

Examples

The following example shows how to configure spanning-tree mode to stp mode:

```
Switch# configure terminal
Switch(config)# spanning-tree mode stp
```

The following example shows how to configure spanning-tree mode to default mode(rstp):

```
Switch# configure terminal
Switch(config)# no spanning-tree mode
```

Related Commands

show spanning-tree

4.3.3 spanning-tree pathcost-standard

Command Purpose

Use this command configure spanning-tree pathcost standard.

Command Syntax

spanning-tree pathcost-standard (dot1d-1998 | dot1t)

no spanning-tree pathcost-standard

Command Mode

Global Configuration

Default

dot1t

Usage

If the pathcost-standard is changed, cost of every port will be reset and auto-calculated.

Examples

The following example shows how to configure spanning-tree pathcost standard to dot1d-1998:

```
Switch# configure terminal
Switch(config)# spanning-tree pathcost-standard dot1d-1998
```

The following example shows how to configure spanning-tree pathcost standard to default(dot1t):

```
Switch# configure terminal
Switch(config)# no spanning-tree pathcost-standard
```

Related Commands

show spanning-tree

4.3.4 spanning-tree priority

Command Purpose

This command is used to set the priority of the bridge. The priority values must be in multiples of 4096.

Command Syntax

spanning-tree priority *BRG_PRIORITY*

no spanning-tree priority

Parameter	Parameter Description	Parameter Value
BRG_PRIORITY	Bridge Priority	Range is 0-61440, must with step 4096

Command Mode

Global Configuration

Default

32768

Usage

This command is used to set the priority of the bridge. The priority values must be in multiples of 4096.

Examples

The following example shows how to configure spanning-tree bridge priority:

```
Switch# configure terminal
Switch(config)# spanning-tree priority 4096
```

The following example shows how to configure spanning-tree bridge priority to default value:

```
Switch# configure terminal
Switch(config)# no spanning-tree priority
```

Related Commands

show spanning-tree

4.3.5 spanning-tree transmit-holdcount

Command Purpose

Use this command to configure spanning-tree bridge transmit holdcount.

Command Syntax

spanning-tree transmit-holdcount *TX_HOLD_COUNT*

Parameter	Parameter Description	Parameter Value

TX_HOLD_COUNT	Transmit Hold Count of BPDU	Range is 1-10

Command Mode

Global Configuration

Default

6

Usage

This command is used to configure max transmit BPDU count per second.

Examples

The following example shows how to configure spanning-tree bridge transmit holdcount:

```
Switch# configure terminal
Switch(config)# spanning-tree transmit-holdcount 5
```

The following example shows how to configure spanning-tree bridge transmit holdcount to default value:

```
Switch# configure terminal
Switch(config)# no spanning-tree transmit-holdcount
```

Related Commands

show spanning-tree

4.3.6 spanning-tree tc-protection

Command Purpose

Use this command to enable spanning-tree bridge (Topology change)TC protection.

Command Syntax

spanning-tree tc-protection

no spanning-tree tc-protection

Command Mode

Global Configuration

Default

Disable

Usage

If tc-protection is set, the number of TC packets which can be processed every hello time interval shouldn't be greater than the number of tc-protection threshold.

Examples

The following example shows how to enable spanning-tree bridge tc-protection:

```
Switch# configure terminal
Switch(config)# spanning-tree tc-protection


Switch# configure terminal
Switch(config)# no spanning-tree tc-protection
```

Related Commands

None

4.3.7 spanning-tree forward-time

Command Purpose

Use this command to configure spanning-tree bridge forward time.

Command Syntax

spanning-tree forward-time *FWD_DELAY_TIME*

no spanning-tree forward-time

Parameter	Parameter Description	Parameter Value
FWD_DELAY_TIME	Forward Delay Time	Range is 4-30, unit is second

Command Mode

Global Configuration

Default

15

Usage

This command is used to configure spanning-tree bridge forward time. The bridge port will after the forward time and changes state to learning and forwarding.

Examples

The following example shows how to configure spanning-tree bridge forward time:

```
Switch# configure terminal
Switch(config)# spanning-tree forward-time 20
```

The following example shows how to configure spanning-tree bridge forward time to default value:

```
Switch# configure terminal
Switch(config)# no spanning-tree forward-time
```

Related Commands

show spanning-tree

4.3.8 spanning-tree hello-time

Command Purpose

Use this command to configure spanning-tree bridge hello time.

Command Syntax

spanning-tree hello-time *HELLO_TIME*

no spanning-tree hello-time

Parameter	Parameter Description	Parameter Value
HELLO_TIME	Hello Time	Range is 1-10, unit is second

Command Mode

Global Configuration

Default

2

Usage

This command is used to configure spanning-tree bridge hello time. The bridge port will send BPDUs in hello time interval.

Examples

The following example shows how to configure spanning-tree bridge hello time:

```
Switch# configure terminal
Switch(config)# spanning-tree hello-time 4
```

The following example shows how to configure spanning-tree bridge hello time to default value:

```
Switch# configure terminal
Switch(config)# no spanning-tree hello-time
```

Related Commands

show spanning-tree

4.3.9 spanning-tree max-age

Command Purpose

Use this command to configure spanning-tree bridge max age.

Command Syntax

spanning-tree max-age *MAX_AGE_TIME*

Parameter	Parameter Description	Parameter Value
MAX_AGE_TIME	Max Age Time	Range is 6-40, unit is second

Command Mode

Global Configuration

Default

20

Usage

This command is used to configure spanning-tree bridge max age. Max age is the maximum time for which (if a bridge is the root bridge) a message is considered valid. This prevents the frames from looping indefinitely. The value of maximum age should be greater than twice the value of hello time plus 1, and less than twice the value of forward delay minus 1.

Examples

The following example shows how to configure spanning-tree bridge max age:

```
Switch# configure terminal
Switch(config)# spanning-tree max-age 10
```

The following example shows how to configure spanning-tree bridge max age to default value:

```
Switch# configure terminal
Switch(config)# no spanning-tree max-age
```

Related Commands

show spanning-tree

4.3.10 spanning-tree edgeport

Command Purpose

Use this command to enable spanning-tree edgeport properties.

Command Syntax

spanning-tree edgeport (bpdu-filter | bpdu-guard)

no spanning-tree edgeport (bpdu-filter | bpdu-guard)

Command Mode

Global Configuration

Default

Disable

Usage

Enabling bpdu-filter ensures that edgeport enabled ports do not transmit or receive any BPDUs. Enabling bpdu-guard makes that edgeport enabled ports will enter port errdisable when receive any BPDUs.

Examples

The following example shows how to enable spanning-tree bridge edgeport bpdu-filter:

```
Switch# configure terminal
Switch(config)# spanning-tree edgeport bpdu-filter
```

The following example shows how to disable spanning-tree bridge edgeport bpdu-filter:

```
Switch# configure terminal
Switch(config)# no spanning-tree edgeport bpdu-filter
```

Related Commands

None

4.3.11 spanning-tree link-type

Command Purpose

Use this command to configure port link-type.

Command Syntax

spanning-tree link-type (auto | point-to-point | shared)

no spanning-tree link-type

Command Mode

Interface Configuration

Default

auto

Usage

None

Examples

The following example shows how to configure port link-type:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# spanning-tree link-type point-to-point
```

The following example shows how to configure port link-type to default value:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# no spanning-tree link-type
```

Related Commands

show spanning-tree interface

4.3.12 spanning-tree force-version

Command Purpose

This command is used to configure port force-version.

Command Syntax

spanning-tree force-version *VERSION*

no spanning-tree force-version

Parameter	Parameter Description	Parameter Value
VERSION	Version ID	0-STP, 2-RSTP, 3-MSTP

Command Mode

Interface Configuration

Default

None

Usage

This command is used to configure port force-version. Default value is 0 for STP, 2 for RSTP, 3 for MSTP.

Examples

The following example shows how to configure port force-version:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# spanning-tree force-version 0
```

The following example shows how to configure port force-version to default value:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# no spanning-tree force-version
```

Related Commands

show spanning-tree interface

4.3.13 spanning-tree edgeport

Command Purpose

Use this command to enable port edgeport.

Command Syntax

spanning-tree edgeport

no spanning-tree edgeport

Command Mode

Interface Configuration

Default

Non-edgeport

Usage

This command is used to enable port edgeport.

Examples

The following example shows how to enable port edgeport:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# spanning-tree edgeport
```

This example shows how to disable port edgeport:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# no spanning-tree edgeport
```

Related Commands

show spanning-tree interface

4.3.14 spanning-tree edgeport bpdu-filter

Command Purpose

Use this command to configure port edgeport bpdu-filter properties.

Command Syntax

spanning-tree edgeport bpdu-filter (default | enable | disable)

no spanning-tree edgeport bpdu-filter

Parameter	Parameter Description	Parameter Value
enable	Enable	-
disable	Disable	-
default	Default, using global configuration	-

Command Mode

Interface Configuration

Default

Default

Usage

If select default, will uses bridge's edgeport bpdu-filter configurations.

Examples

This example shows how to enable port edgeport bpdu-filter:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# spanning-tree edgeport bpdu-filter enable
```

This example shows how to enable port edgeport bpdu-filter to default:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# no spanning-tree edgeport bpdu-filter
```

Related Commands

show spanning-tree interface

4.3.15 spanning-tree edgeport bpdu-guard

Command Purpose

Use this command to configure port edgeport bpdu-guard properties.

Command Syntax

spanning-tree edgeport bpdu-guard (default | enable | disable)

no spanning-tree edgeport bpdu-guard

Parameter	Parameter Description	Parameter Value
enable	Enable	-
disable	Disable	-
default	Default, using global configuration	-

Command Mode

Interface Configuration

Default

Default

Usage

If select default, will uses bridge's edgeport bpdu-guard configurations.

Examples

The following example shows how to enable port edgeport bpdu-guard:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# spanning-tree edgeport bpdu-guard enable
```

The following example shows how to set port edgeport bpdu-guard to default:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# no spanning-tree edgeport bpdu-guard
```

Related Commands

show spanning-tree interface

4.3.16 spanning-tree guard

Command Purpose

Use this command to configure port edgeport bpdu-guard properties.

Command Syntax

spanning-tree guard (loop | root)

no spanning-tree guard (loop | root)

Parameter	Parameter Description	Parameter Value
loop	If enable, protection against Layer 2 forwarding loops	-
root	If enable, makes sure that the port is a designated port	-

Command Mode

Interface Configuration

Default

Disable

Usage

The root guard makes sure that the port on which it is enabled is a designated port. This loop guard provides additional protection against Layer 2 forwarding loops.

Examples

The following example shows how to enable port root guard:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# spanning-tree guard root
```

The following example shows how to disable port root guard:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# no spanning-tree guard root
```

Related Commands

show spanning-tree interface

4.3.17 spanning-tree path-cost

Command Purpose

Use this command to configure port path-cost.

Command Syntax

spanning-tree path-cost *PATH_COST*

no spanning-tree path-cost

Parameter	Parameter Description	Parameter Value
PATH_COST	Path Cost	Range is 1-200000000 for 802.1t, 1-65535 for 802.1d-1998

Command Mode

Interface Configuration

Default

None

Usage

This command is used to configure port path-cost.

Examples

The following example shows how to enable port path cost:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# spanning-tree path-cost 2000000
```

The following example shows how to enable port path cost to default value:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# no spanning-tree path-cost
```

Related Commands

show spanning-tree interface

4.3.18 spanning-tree port

Command Purpose

Use this command to configure spanning-tree port enable.

Command Syntax

spanning-tree port (enable | disable)

Command Mode

Interface Configuration

Default

Enable

Usage

This command is used to configure spanning-tree port enable or disable.

Examples

The following example shows how to enable STP on a port:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# spanning-tree port enable
```

Related Commands

show spanning-tree interface

4.3.19 spanning-tree port-priority

Command Purpose

Use this command to configure port priority.

Command Syntax

spanning-tree port-priority *PORT_PRIORITY*

no spanning-tree port-priority

Parameter	Parameter Description	Parameter Value
MSTP_PORT_PRIORITY	Port Priority	Range is 0-240, must step with 16

Command Mode

Interface Configuration

Default

None

Usage

This command is used to configure port priority. The priority values must be in multiples of 16.

Examples

The following example shows how to enable port path cost:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# spanning-tree port-priority 16
```

The following example shows how to enable port path cost to default value:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# no spanning-tree port-priority
```

Related Commands

show spanning-tree interface

4.3.20 spanning-tree restricted-role

Command Purpose

Use this command to enable port restricted-role.

Command Syntax

spanning-tree restricted-role

no spanning-tree restricted-role

Command Mode

Interface Configuration

Default

Disable

Usage

This command is used to enable port restricted-role.

Examples

The following example shows how to enable port restricted-role.:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# spanning-tree restricted-role
```

The following example shows how to disable port restricted-role:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# no spanning-tree restricted-role
```

Related Commands

show spanning-tree interface

4.3.21 spanning-tree restricted-tcn

Command Purpose

Use this command to enable port restricted-tcn.

Command Syntax

spanning-tree restricted-tcn

no spanning-tree restricted-tcn

Command Mode

Interface Configuration

Default

Disable

Usage

This command is used to enable port restricted-tcn.

Examples

The following example shows how to enable port restricted-tcn:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# spanning-tree restricted-tcn
Switch(config-if-eth-0-1)# no spanning-tree restricted-tcn
```

Related Commands

show spanning-tree interface

4.3.22 clear spanning-tree detected-protocols

Command Purpose

Use this command to clear spanning-tree detected protocols.

Command Syntax

clear spanning-tree detected-protocols (interface *IFNAME* |)

Parameter	Parameter Description	Parameter Value
IFNAME	Interface Name	Only support eth or agg interface

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to clear spanning-tree detected protocols of all ports

Examples

The following example shows how to clear spanning-tree detected protocols of all ports:

```
Switch# clear spanning-tree detected-protocols
```

Related Commands

show spanning-tree interface

4.3.23 clear spanning-tree disabled-port

Command Purpose

This command is used to clear spanning-tree disabled ports, that is, set all port to enable.

Command Syntax

clear spanning-tree disabled-port

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to clear spanning-tree disabled ports, that is, set all port to enable.

Examples

The following example shows how to clear spanning-tree disabled ports:

```
Switch# clear spanning-tree disabled-port
```

Related Commands

show spanning-tree disabled-port

4.3.24 clear spanning-tree counters

Command Purpose

This command is used to clear spanning-tree received and transmitted BPDU counters of specific port or all ports.

Command Syntax

clear spanning-tree counters (interface *IFNAME* |)

Parameter	Parameter Description	Parameter Value
IFNAME	Interface Name	Only support eth or agg interface

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to clear spanning-tree received and transmitted BPDU counters of specific port or all ports.

Examples

The following example shows how to clear spanning-tree BPDU counters all ports:

```
Switch# clear spanning-tree counters
```

Related Commands

show spanning-tree interface

4.3.25 show spanning-tree

Command Purpose

This command is used to display spanning-tree information, including global information and per-port information.

Command Syntax

show spanning-tree (interface *IFNAME* |) (brief | all |)

Parameter	Parameter Description	Parameter Value
IFNAME	Interface Name	Only support eth or agg interface

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display spanning-tree information, including global information and per-port information.

Examples

This example shows how to display the spanning-tree brief information:

```
Switch# show spanning-tree brief
Spanning-tree Enabled, Mode RSTP
Root ID     Priority    32768 (0x8000)
            Address     1445.3ea2.1900
            Hello Time 2  sec  Max Age 20 sec  Forward Delay 15 sec
```

```
Bridge ID   Priority    32768 (0x8000)
            Address     1445.3ea2.1900
            Hello Time 2  sec  Max Age 20 sec  Forward Delay 15 sec
            Aging Time 300 sec
Interface    Role         State             Cost        Priority.Number   Type
-----------+-----------+-----------------+-------------------+--------+------
eth-0-1      Designated   Forwarding        500               128.1        P2p
```

The following example shows how to display the spanning-tree detail information:

```
Switch# show spanning-tree
-----[Spanning-tree Enabled][Mode RSTP]-----
Root Id               - 8000-3c16.2830.c300
Bridge Id             - 8000-3c16.2830.c300
Bridge Times          - HelloTime 2, MaxAge 20, ForwardDelay 15
Root Info             - Path Cost 0, Port 0, Bridge Priority 32768
Path Cost Standard    - dot1t
Tx Hold Count         - 6
Max Hops              - 20
Port Default Action   - BPDU-Filter Disabled, BPDU-Guard Disabled
Last TopoChange Time - Thu Jun  2 05:12:33 2016
-----[Interface eth-0-1][Role Designated][State Learning]-----
 eth-0-1: Port           - Index 1, Priority 128, Id 8001
 eth-0-1: Port PathCost - admin None, oper 500
 eth-0-1: Port Time      - HelloTime 2, MaxAge 20, ForwardDelay 15, MessageAge 0
 eth-0-1: Port Timer     - Hello 1, ForwardDelay 1, MessageAge 0, TopoChange 0
 eth-0-1: Designated     - Root 32768-3c16.2830.c300, Bridge 32768-3c16.2830.c300
 eth-0-1: Designated     - Port Id 8001, Priority 128, Path Cost 0
 eth-0-1: BPDU Count     - Send 3, Received 0
 eth-0-1: BPDU Version   - RSTP, Send RSTP, Received None
 eth-0-1: Edgeport       - admin Disabled, oper Off
 eth-0-1: BPDU Filter    - admin Default, oper Off
 eth-0-1: BPDU Guard     - admin Default, oper Off
 eth-0-1: Root Guard     - admin Disabled, oper Off
 eth-0-1: Loop Guard     - admin Disabled, oper Off
 eth-0-1: Link Type      - admin Auto, oper P2p
 eth-0-1: Forward-transitions 0
```

Related Commands

None

4.3.26 show spanning-tree disabled-port

Command Purpose

Use this command to display spanning-tree disabled port.

Command Syntax

show spanning-tree disabled-port

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display spanning-tree disabled port.

Examples

This example shows how to display the spanning-tree disabled port:

```
Switch# show spanning-tree disabled-port
Interface
----------------
eth-0-1
```

Related Commands

clear spanning-tree disabled-port

5 IP Service Commands

5.1 ARP Commands

5.1.1 arp

Command Purpose

This command can add a static ARP entry. Use the no form of this command to remove static ARP entry.

Command Syntax

arp *IP_ADDR MAC_ADDR*

no arp *IP_ADDR*

Parameter	Parameter Description	Parameter Value
IP_ADDR	IP address	-
MAC_ADDR	MAC address	-

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to add an ARP entry:

```
Switch# configure terminal
Switch(config)# arp 1.1.1.1 0.0.1
```

The following example shows how to remove an ARP entry:

```
Switch# configure terminal
Switch(config)# no arp 1.1.1.1
```

Related Commands

show ip arp

5.1.2 gratuitous-arp-learning

Command Purpose

Use this command to enable gratuitous ARP learning. Use the no form of this command to disable gratuitous ARP learning.

Command Syntax

gratuitous-arp-learning enable

no gratuitous-arp-learning enable

Command Mode

Global Configuration

Default

Enable

Usage

None

Examples

The following example shows how to enable the gratuitous ARP learning:

```
Switch# configure terminal
Switch(config)# gratuitous-arp-learning enable
```

The following example shows how to disable the gratuitous ARP learning:

```
Switch# configure terminal
Switch(config)# no gratuitous-arp-learning enable
```

Related Commands

show ip arp

5.1.3 arp retry-interval

Command Purpose

To configure the ARP request delay interval between 2 messages, use ARP retry-interval command in interface configuration mode. Use the no form of this command to restore the ARP retry-interval to default value.

Command Syntax

arp retry-interval *ARP_RETRY_TIME*

no arp retry-interval

Parameter	Parameter Description	Parameter Value
ARP_RETRY_TIME	ARP retry time	Range is 0-3, unit is second

Command Mode

Interface Configuration

Default

1

Usage

None

Examples

The following example shows how to sets the ARP retry interval to 3 seconds:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# arp retry-interval 3
```

The following example shows how to sets the ARP retry interval to default value:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no arp retry-interval
```

Related Commands

show interface

5.1.4 arp timeout

Command Purpose

To configure how long a dynamically learned IP address and its corresponding Media Control Access (MAC) address remain in the Address Resolution Protocol (ARP) cache, use the ARP timeout command in interface configuration mode. Use the no form of this command to restore the ARP aging time to default value.

Command Syntax

arp timeout *ARP_AGING_TIME*

no arp timeout

Parameter	Parameter Description	Parameter Value
ARP_AGING_TIME	ARP aging time	Range is 1-2147483, unit is second

Command Mode

Interface Configuration

Default

3600

Usage

None

Examples

The following example shows how to sets the ARP aging time to 1200 seconds:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# arp timeout 1200
```

The following example shows how to sets the ARP aging time to default value:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no arp timeout
```

Related Commands

show interface

5.1.5 proxy-arp enable

Command Purpose

To enable proxy Address Resolution Protocol (ARP) on an interface, use the proxy-arp enable command in interface configuration mode. To disable proxy ARP on the interface, use the no form of this command.

Command Syntax

proxy-arp enable

no proxy-arp enable

Command Mode

Interface Configuration

Default

Disable

Usage

When proxy ARP is disabled, a device will respond to ARP requests received on its interface only if the target IP address is the same as its IP address.

Examples

The following example shows how to enable the ARP proxy:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# no shutdown
Switch(config-if-eth-0-1)# ip address 1.1.1.1/24
Switch(config-if-eth-0-1)# proxy-arp enable
```

The following example shows how to disable the ARP proxy:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no proxy-arp enable
```

Related Commands

local-proxy-arp enable

5.1.6 local-proxy-arp enable

Command Purpose

The local proxy ARP feature allow the L3 device to response ARP request which's ARP Target address is in the same subnet the ARP request comes from. To enable local proxy Address Resolution Protocol (ARP) on an interface, use the local-proxy-arp enable command in interface configuration mode. To disable local proxy ARP on the interface, use the no form of this command.

Command Syntax

local-proxy-arp enable

no local-proxy-arp enable

Command Mode

Interface Configuration

Default

Disable

Usage

The main condition we need to enable local ARP proxy is that the switch enables port isolate. Internet Control Message Protocol (ICMP) redirects are disabled on interfaces where the local proxy ARP feature is enabled.

Examples

The following example enables the local ARP proxy:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# no shutdown
Switch(config-if-eth-0-1)# ip address 1.1.1.1/24
Switch(config-if-eth-0-1)# local-proxy-arp enable
```

The following example disables the local ARP proxy:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no local-proxy-arp enable
```

Related Commands

proxy-arp enable

5.1.7 show ip arp

Command Purpose

To display all the entries in the Address Resolution Protocol (ARP) table, use the show ip arp command in privileged EXEC mode.

Command Syntax

show ip arp

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows all ARP entries:

```
Switch# show ip arp
Protocol   Address          Age (min)  Hardware Addr    Interface
----------+---------------+----------+----------------+----------
Internet   10.31.7.19       -          0800.0900.1834   eth-0-1
Internet   10.108.1.27      -          001e.0809.7ea3   eth-0-1
Internet   192.31.7.17      -          001e.0809.7ea3   eth-0-2
Internet   192.31.8.17      -          001e.0809.7ea3   eth-0-2
```

Related Commands

arp

5.1.8 show ip arp summary

Command Purpose

To display the summary information in the Address Resolution Protocol (ARP) table, use the show ip arp summary command in privileged EXEC mode.

Command Syntax

show ip arp summary

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows ARP summary information:

```
Switch# show ip arp summary
 Gratuitous ARP learning is disabled
 0 IP ARP entries,with 0 of them incomplete
 (Static:0, Dynamic:0,Interface:0)
 ARP Pkt Received is: 8
 ARP Pkt Send number is: 25
 ARP Pkt Discard number is: 5
```

Related Commands

clear ip arp summary statistics

5.1.9 show ip arp interface

Command Purpose

To display the entries of one port in the Address Resolution Protocol (ARP) table, use the show ip arp command in privileged EXEC mode.

Command Syntax

show ip arp interface *IFNAME*

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to use show ip arp interface:

```
Switch# show ip arp interface eth-0-1
Protocol   Address          Age (min)  Hardware Addr    Interface
----------+---------------+----------+----------------+----------
Internet   10.31.7.19       -          0800.0900.1834   eth-0-1
Internet   10.108.1.27      -          001e.0809.7ea3   eth-0-1
```

Related Commands

show ip arp

5.1.10 clear arp-cache

Command Purpose

To refresh dynamically created entries from the Address Resolution Protocol (ARP) cache, use the clear arp-cache command in privileged EXEC mode.

Command Syntax

clear arp-cache

Command Mode

Privileged EXEC

Default

None

Usage

This command updates the dynamically learned IP address and MAC address mapping information in the ARP table to ensure the validity of those entries. If the refresh operation encounters any stale entries (dynamic ARP entries that have expired but have not yet been aged out by an internal, timer-driven process), those entries are aged out of the ARP table immediately as opposed to at the next refresh interval. Use this command without any arguments or keywords to refresh all ARP cache entries for all enabled interfaces.

Examples

The following example shows how to refresh all dynamically learned ARP cache entries:

```
Switch# clear arp-cache
```

Related Commands

show ip arp

5.1.11 clear arp-cache interface

Command Purpose

To refresh dynamically created entries from the Address Resolution Protocol (ARP) cache for interface, use the clear arp-cache command in privileged EXEC mode.

Command Syntax

clear arp-cache interface *IFNAME*

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	-

Command Mode

Privileged EXEC

Default

None

Usage

This command updates the dynamically learned IP address and MAC address mapping information in the ARP table to ensure the validity of those entries. If the refresh operation encounters any stale entries (dynamic ARP entries that have expired but have not yet been aged out by an internal, timer-driven process), those entries are aged out of the ARP table immediately as opposed to at the next refresh interval.

Examples

The following example shows how to refresh the dynamically learned ARP cache entries of eth-0-1:

```
Switch# clear arp-cache interface eth-0-1
```

Related Commands

clear arp-cache

5.1.12 clear arp-cache ip

Command Purpose

To refresh the specific dynamically created entry from the Address Resolution Protocol (ARP) cache by ip, use the clear arp-cache ip command in privileged EXEC mode.

Command Syntax

clear arp-cache ip *IP_ADDR*

Parameter	Parameter Description	Parameter Value
IP_ADDR	IP address	-

Command Mode

Privileged EXEC

Default

None

Usage

This command updates the specific dynamically learned IP address and MAC address mapping information in the ARP table. If the refresh operation encounters any stale entries (dynamic ARP entries that have expired but have not yet been aged out by an internal, timer-driven process), the entry is aged out of the ARP table immediately as opposed to at the next refresh interval.

Examples

The following example shows how to clear ARP cache by ip address:

```
Switch# clear arp-cache ip 10.31.7.19
```

Related Commands

clear arp-cache

5.1.13 clear ip arp summary statistics

Command Purpose

To clear the ARP summary statistics information, use the clear ip arp summary statistics command in privileged EXEC mode.

Command Syntax

clear ip arp summary statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to clear ARP statistics information:

```
Switch# clear ip arp summary statistics
```

Related Commands

show ip arp summary

5.2 ARP Limit Commands

5.2.1 ip arp number-limit enable

Command Purpose

Use this command on the L3 port to set ARP number-limit enable. Use the no form of this command to disable ARP number-limit.

Command Syntax

ip arp number-limit enable

no ip arp number-limit enable

Command Mode

Interface Configuration

Default

Disable

Usage

The port must be L3 port.

Include vlan port, agg port and routed port.

The number-limit maximum and number-limit violation will be work only when ARP number-limit enable.

Examples

The following example shows how to set ARP number-limit enable:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# ip arp number-limit enable
```

The following example shows how to set ARP number-limit disable:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ip arp number-limit enable
```

Related Commands

show ip arp number-limit

5.2.2 ip arp number-limit maximum

Command Purpose

Use this command on the L3 port to set the maximum of ARP entries can be learned. Use the no form of this command to set the maximum of ARP number-limit to default value.

Command Syntax

ip arp number-limit maximum *ARP_NUMBERLIMIT*

no ip arp number-limit maximum

Parameter	Parameter Description	Parameter Value
ARP_NUMBERLIMIT	ARP number-limit maximum value	Range is 1-2048

Command Mode

Interface Configuration

Default

512

Usage

The port must be L3 port.

Include vlan port, agg port and routed port.

Examples

The following example shows how to set the maximum of ARP number-limit:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# ip arp number-limit maximum 100
```

The following example shows how to unset the maximum of ARP number-limit:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ip arp number-limit maximum
```

Related Commands

ip arp number-limit enable

5.2.3 ip arp number-limit violation

Command Purpose

Use this command on the L3 port to set the violation mode. Use the no form of this command to set the violation mode to default.

Command Syntax

ip arp number-limit violation (protect | restrict | errdisable)

no ip arp number-limit violation

Parameter	Parameter Description	Parameter Value
protect	Discard packet silently	-
restrict	Discard packet and print log	-
errdisable	Discard packet, log and set the interface error-disabled	-

Command Mode

Interface Configuration

Default

Protect

Usage

The packet will be discarded directly in the mode of violation protect. In the mode of restrict,packet will be discarded and log will be printed. Besides, the interface will be set to error-disabled if in the mode of errdisable.

Examples

The following example shows how to set the violation mode:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# ip arp number-limit violation errdisable
```

The following example shows how to set the violation mode to default:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ip arp number-limit violation
```

Related Commands

ip arp number-limit enable

5.2.4 ip arp rate-limit enable

Command Purpose

Use this command on L3 port to enable ARP rate limit. Use the no form of this command to set ARP rate limit disable.

Command Syntax

ip arp rate-limit enable

no ip arp rate-limit enable

Command Mode

Interface Configuration

Default

Disable

Usage

The port must be L3 port. Include vlan port, agg port and routed port. The rate-limit maximum and rate-limit violation will be work only when ARP rate-limit enable.

Examples

The following example shows how to set ARP rate-limit enable:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# ip arp rate-limit enable
```

The following example shows how to set ARP rate-limit disable:

```
Switch# configure terminal
Switch(config-if-eth-0-2)# no ip arp rate-limit enable
```

Related Commands

show ip arp rate-limit

5.2.5 ip arp rate-limit maximum

Command Purpose

Use this command on the L3 port to set the maximum of ARP packets can receive in 30 seconds. Use the no form of this command to set IP ARP rate-limit maximum to default.

Command Syntax

ip arp rate-limit maximum *ARP_RATE_LIMIT_NUM*

no ip arp rate-limit maximum

Parameter	Parameter Description	Parameter Value

ARP_RATE_LIMIT_NUM	ARP rate-limit maximum value	Range is 1-9000

Command Mode

Interface Configuration

Default

150 packets in 30 seconds

Usage

The port must be L3 port. Include vlan port, agg port and routed port.

Examples

The following example shows how to set the maximum of ARP rate-limit:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# ip arp rate-limit maximum 100
```

The following example shows how to set ARP rate-limit maximum to default:

```
Switch# configure terminal
Switch(config-if-eth-0-2)# no ip arp rate-limit maximum
```

Related Commands

ip arp rate-limit enable

5.2.6 ip arp rate-limit violation

Command Purpose

Use this command on L3 port to set the violation mode. Use the no form of this command to set IP ARP rate-limit violation to default mode.

Command Syntax

ip arp rate-limit violation (restrict | errdisable)

no ip arp rate-limit violation

Parameter	Parameter Description	Parameter Value
restrict	Discard packet and print log	-
errdisable	Discard packet, print log and set the interface error-disabled	-

Command Mode

Interface Configuration

Default

Restrict

Usage

When the number of received packets reaches the maximum within 30 seconds, the switch will discard packet and print log in restrict mode. Besides,it will set interface to error-disabled if in errdisable mode.

Examples

The following example shows how to set the violation on one port:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# ip arp rate-limit violation errdisable
```

The following example shows how to set ARP rate-limit violation to default:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-2)# no ip arp rate-limit violation
```

Related Commands

ip arp rate-limit enable

5.2.7 show ip arp number-limit

Command Purpose

Use this command to display the information of all ports which have configured the ARP number-limit, includes ARP number limit port, max number limit number, current dynamic ARP number and violation mode.

Command Syntax

show ip arp number-limit

Command Mode

Privileged EXEC

Default

None

Usage

The port must be L3 port, include vlan port, agg port and routed port. The MaxLimitNum and CurrentNum are dynamic ARP address number, exclude static ARP address number.

Examples

The following example shows how to show the ARP number-limit:

```
Switch# show ip arp number-limit
ArpNumlimit Port  MaxLimitNum  CurrentNum  ViolationMode
----------------+------------+-----------+--------------
eth-0-1           512          0           protect
```

Related Commands

ip arp number-limit enable

5.2.8 show ip arp number-limit interface

Command Purpose

Use this command to display the ARP number-limit information of L3 port.

Command Syntax

show ip arp number-limit interface (*IFNAME* |)

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	-

Command Mode

Privileged EXEC

Default

None

Usage

The port must be L3 port.

Include vlan port, agg port and routed port.

Examples

The following example shows how to show the ARP number-limit for interface:

```
Switch# show ip arp number-limit interface eth-0-1
Arp number limit                    : enabled
Arp number limit violate mode       : discard packet silence
Arp number limit maximum            : 512
ARP number limit total number       : 0
```

Related Commands

ip arp number-limit enable

5.2.9 show ip arp rate-limit

Command Purpose

This command can display the ARP rate limit configuration and statistics on all interfaces.

Command Syntax

show ip arp rate-limit

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to show the ARP rate limit information:

```
Switch# show ip arp rate-limit
Port      States  MaxLimitNum  CurrentNum  Violation     Abnormal
The statistics is counting at 19.79s in 30.00s's time period
---------+-------+------------+-----------+-------------+----------
eth-0-1   enable  1500         1499        restrict      N
eth-0-3   enable  1500         1600        restrict      Y
```

Related Commands

ip arp rate-limit enable

5.2.10 show ip arp rate-limit interface

Command Purpose

This command can display the ARP rate limit configuration and statistics on special interface.

Command Syntax

show ip arp rate-limit interface *IFNAME*

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	-

Command Mode

Privileged EXEC

Default

None

Usage

The port must be L3 port. Include vlan port, agg port and routed port.

Examples

The following example shows how to show the ARP rate-limit on one interface:

```
Switch# show ip arp rate-limit interface eth-0-1
Port      States  MaxLimitNum  CurrentNum  Violation     Abnormal
The statistics is counting at 13.94s in 30.00s's time period
---------+-------+------------+-----------+-------------+----------
eth-0-1   enable  1500  1499  restrict        N
```

Related Commands

ip arp rate-limit enable

5.3 DHCP Relay Commands

5.3.1 dhcp relay

Command Purpose

To enable the DHCP relay service, use the dhcp relay command in global configuration mode. To disable this function, use the no form of this command.

Command Syntax

dhcp relay

no dhcp relay

Command Mode

Global Configuration

Default

Disable

Usage

Before DHCP relay service is enabled, DHCP service command must be configured to enable DHCP function. DHCP relay function will not take effect until DHCP function is enabled by the system.

Examples

The following example shows how to enable the DHCP relay service:

```
Switch# configure terminal
Switch(config)# dhcp relay
```

Related Commands

service dhcp

5.3.2 dhcp-server(global)

Command Purpose

To create a DHCP server group, use the dhcp-server command in global configuration mode. To remove a DHCP server group, use the no form of this command.

Command Syntax

dhcp-server *NUMBER SERVER-LIST*

no dhcp-server *NUMBER* (*SERVER-LIST* |)

Parameter	Parameter Description	Parameter Value
NUMBER	The serial number of the DHCP server group	Ranging is 1-16
SERVER-LIST	A list of IP addresses of DHCP servers added to a server group	-

Command Mode

Global Configuration

Default

By default, the system does not set up any DHCP server groups

Usage

This command is used to configure a remote DHCP server.

Examples

The following example shows how to add a DHCP server group:

```
Switch# configure terminal
Switch(config)# dhcp-server 1 1.1.1.1 2.2.2.2 3.3.3.3
```

The following example shows how to remove a DHCP server group:

```
Switch# configure terminal
Switch(config)# no dhcp-server 1
```

Related Commands

service dhcp

dhcp-server (interface)

5.3.3 dhcp-server (interface)

Command Purpose

To add an interface into a DHCP server group, use the dhcp-server command in interface configuration mode. To remove this interface from the DHCP server group, use the no form of this command.

Command Syntax

dhcp-server *NUMBER*

no dhcp-server

Parameter	Parameter Description	Parameter Value
NUMBER	The serial number of the DHCP server group	Ranging is 1-16

Command Mode

Interface Configuration

Default

By default, the interface is not added to any DHCP server group

Usage

This command is only valid on L3 interface.

Examples

The following example shows how to enable DHCP server group 1 at the interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# dhcp-server 1
```

The following example shows how to disable DHCP server group 1 at the interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no dhcp-server 1
```

Related Commands

service dhcp

5.3.4 dhcp relay information check

Command Purpose

To enable validation of relay agent information option in forwarded reply messages, use the dhcp relay information check command in global configuration mode.

To disable an information check, use the no form of this command.

Command Syntax

dhcp relay information check

no dhcp relay information check

Command Mode

Global Configuration

Default

Enable

Usage

This command is used for cable access to the router terminal system.

Examples

The following example shows how to enable the DHCP server to authenticate the forwarded BOOTREPLY message with a relay agent message:

```
Switch# configure terminal
Switch(config)# dhcp relay information check
```

The following example shows how to disable the DHCP server to authenticate the forwarded BOOTREPLY message with a relay proxy message:

```
Switch# configure terminal
Switch(config)# no dhcp relay information check
```

Related Commands

dhcp relay information option

5.3.5 dhcp relay information option

Command Purpose

To enable the system to insert a DHCP relay agent information option in forwarded request messages to a DHCP server, use the dhcp relay information option command in global configuration mode. To disable inserting relay information, use the no form of this command.

Command Syntax

dhcp relay information option

no dhcp relay information option

Command Mode

Global Configuration

Default

Disable

Usage

This command enables the DHCP server to detect requests sent by users, and adds appropriate content to the option 82. The DHCP relay information option command adds circuit ID and remote ID to the message.

Examples

The following example shows how to enable the system to insert options 82 into DHCP messages:

```
Switch# configure terminal
Switch(config)# dhcp relay information option
```

The following example shows how to disable the system to insert options 82 into DHCP messages:

```
Switch# configure terminal
Switch(config)# no dhcp relay information option
```

Related Commands

dhcp relay information check

5.3.6 dhcp relay information policy

Command Purpose

To configure the information re-forwarding policy for a DHCP relay agent (what a relay agent should do if a message already contains relay information), use the dhcp relay information policy command in global configuration.

To restore the default relay information policy, use the no form of this command.

Command Syntax

dhcp relay information policy (drop | keep | replace)

no dhcp relay information policy

Parameter	Parameter Description	Parameter Value
drop	Messages with option 82 are discarded directly	-
keep	Message forwarding with option 82	-
replace	Replace the option 82 option in the original message and forward it	-

Command Mode

Global Configuration

Default

Keep

Usage

This command is used for cable access to the router terminal system. A DHCP relay agent may receive a DHCP message containing option 82 information sent from another DHCP relay agent.

Examples

The following example shows how to set a message with option 82 to be discarded directly:

```
Switch# configure terminal
Switch(config)# dhcp relay information policy drop
```

The following example shows how to set message with option 82 forwarding policy to default:

```
Switch# configure terminal
Switch(config)#no dhcp relay information policy
```

Related Commands

dhcp relay information option

5.3.7 dhcp relay information trust-all

Command Purpose

To configure all interfaces as trusted sources of the DHCP relay agent information option, use the dhcp relay information trust-all command in global configuration mode. To restore these interfaces to their default behavior, use the no form of this command.

Command Syntax

dhcp relay information trust-all

no dhcp relay information trust-all

Command Mode

Global Configuration

Default

Disable

Usage

By default, if the gateway address of the DHCP message is set to 0.0.0.0 and the option 82 is included in the message, the DHCP relay agent will discard the message. If the DHCP relay information trust-all command is configured globally, even if the gateway address of the DHCP message is set to all 0, the DHCP relay agent will not discard the DHCP message, instead, the DHCP relay agent will receive the DHCP message. The DISCOVER or DHCP REQUEST message is forwarded to the address configured by the command DHCP-server according to the normal DHCP relay operation.

Examples

The following example shows how to configure dhcp relay information trust globally:

```
Switch# configure terminal
Switch(config)# dhcp relay information trust-all
```

The following example shows how to configure dhcp relay information untrust globally:

```
Switch# configure terminal
Switch(config)# no dhcp relay information trust-all
```

Related Commands

dhcp relay information trusted

5.3.8 dhcp relay information trusted

Command Purpose

To configure an interface as a trusted source of DHCP relay agent information option, use the dhcp relay information trusted command in interface configuration mode. To restore the interface to the default behavior, use the no form of the command.

Command Syntax

dhcp relay information trusted

no dhcp relay information trusted

Command Mode

Interface Configuration

Default

Disable

Usage

By default, if the gateway address of the DHCP message is set to 0.0.0.0 and the option 82 is included in the message, the DHCP relay agent will discard the message. If the DHCP relay information trust-all command is configured globally, even if the gateway address of the DHCP message is set to all 0, the DHCP relay agent will not discard the DHCP message, instead, the DHCP relay agent will receive the DHCP message. The DISCOVER or DHCP REQUEST message is forwarded to the address configured by the command DHCP-server according to the normal DHCP relay operation.This command is only valid on L3 interface.

Examples

The following example shows how to configure an interface as trusted source of dhcp relay information:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# dhcp relay information trusted
```

The following example shows how to configure an interface as untrusted source of dhcp relay information:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# no dhcp relay information trusted
```

Related Commands

dhcp relay information trust-all

5.3.9 service dhcp

Command Purpose

To enable the Dynamic Host Configuration Protocol (DHCP) snooping and relay agent features on your router, use the service dhcp enable command in global configuration mode.

To disable the DHCP snooping and relay agent features, use service dhcp disable command.

Command Syntax

service dhcp enable

service dhcp disable

Command Mode

Global Configuration

Default

Disable

Usage

Only the main DHCP service is enabled by the service dhcp command, can other DHCP services be used, such as dhcp relay.

Examples

The following example shows how to enable DHCP service globally :

```
Switch# configure terminal
Switch(config)# service dhcp enable
```

The following example shows how to disable DHCP service globally :

```
Switch# configure terminal
Switch(config)# service dhcp disable
```

Related Commands

dhcp relay

5.3.10 show dhcp-server

Command Purpose

To display the DHCP server groups, use the show dhcp-server command in privileged EXEC mode.

Command Syntax

show dhcp-server

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the DHCP server group information:

```
Switch# show dhcp-server
DHCP server group information:
============================================================
group 1 ip address list:
    [1] 1.1.1.1
    [2] 2.2.2.2
    [3] 3.3.3.3
    [4] 4.4.4.4
    [5] 5.5.5.5
    [6] 6.6.6.6
    [7] 7.7.7.7
    [8] 8.8.8.8
```

Related Commands

dhcp-server (global)

5.3.11 show dhcp relay interfaces

Command Purpose

To display to which dhcp-server group the interface belongs, use the show dhcp relay interfaces command in privileged EXEC mode.

Command Syntax

show dhcp relay interfaces

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display dhcp relay interfaces information:

```
Switch# show dhcp relay interfaces
List of DHCP relay enabled interface(s):
DHCP relay service status: enabled
Interface Name          DHCP server group
================================================================
eth-0-1                   1
```

Related Commands

show dhcp-server

5.3.12 show dhcp relay information config

Command Purpose

To display the DHCP relay information configurations, use the show dhcp relay information config command in privileged EXEC mode.

Command Syntax

show dhcp relay information config

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display dhcp relay configuration:

```
Switch# show dhcp relay information config
DHCP relay agent information configuration:
============================================================
no dhcp relay information option
dhcp relay information check
dhcp relay information policy keep
```

Related Commands

dhcp relay information option

5.3.13 show dhcp relay information trusted-sources

Command Purpose

To display all interfaces configured to be a trusted source for the DHCP relay information option, use the show dhcp relay information trusted-sources command in privileged EXEC mode.

Command Syntax

show dhcp relay information trusted-sources

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display dhcp relay information trusted-sources:

```
Switch# show dhcp relay information trusted-sources
List of trusted sources of relay agent information option:
============================================================
eth-0-2
```

Related Commands

dhcp relay information trusted

5.3.14 show dhcp relay statistics

Command Purpose

To display the statistics of DHCP packets relayed by the switch, use the show dhcp relay statistics command in privileged EXEC mode.

Command Syntax

show dhcp relay statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display dhcp relay statistics:

```
Switch# show dhcp relay statistics
DHCP relay packet statistics:
============================================================
Client relayed packets          :  0
Server relayed packets          :  0

Client error packets            :  0
Server error packets            :  0
Bogus GIADDR drop packets       :  0
Bad circuit ID packets          :  0
Corrupted agent option packets  :  0
Missing agent option packets    :  0
Missing circuit ID packets      :  0
```

Related Commands

clear dhcp relay statistics

5.3.15 clear dhcp relay statistics

Command Purpose

To clear the statistics of DHCP packets relayed by the switch, use the clear dhcp relay statistics command in privileged EXEC mode.

Command Syntax

clear dhcp relay statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to clear dhcp relay statistics:

```
Switch# clear dhcp relay statistics
```

Related Commands

show dhcp relay statistics

5.4 DHCP Client Commands

5.4.1 ip address dhcp

Command Purpose

Use this command to get the IP address through DHCP; use the no form of this command to delete the obtained IP address, and disable the function of DHCP client.

Command Syntax

ip address dhcp

no ip address dhcp

Command Mode

Interface Configuration

Default

Disable

Usage

This command enables the DHCP client function on the interface. It is only valid on L3 interface. If the interface is open, it immediately starts to get the IP address through DHCP. Otherwise, the DHCP client function of the interface is suspended. After the interface is opened, DHCP client is activated. With no keyword, the obtained IP address is released and DHCP RELEASE message is sent.

Examples

The following example shows how to obtaining IP address with DHCP:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# ip address dhcp
```

The following example shows how to disable the DHCP client function and release the IP address obtained through DHCP:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ip address dhcp
```

Related Commands

dhcp client request

dhcp client client-id

dhcp client class-id

dhcp client lease

dhcp client hostname

management ip address dhcp

show dhcp client

5.4.2 management ip address dhcp

Command Purpose

Use this command to get the IP address through DHCP on the management port; use the no form of this command to delete the acquired IP address with the keyword no, and disable the function of DHCP client.

Command Syntax

management ip address dhcp

no management ip address dhcp

Command Mode

Global Configuration

Default

Disable

Usage

This command enables the DHCP client function on the management port. Using the no keyword, it releases the obtained IP address and sends DHCP RELEASE.It can not be set on interface with ip or route configured。

Examples

The following example shows how to using DHCP to Get IP Address for Management Port:

```
Switch# configure terminal
Switch(config)# management ip address dhcp
```

The following example shows how to disable the DHCP client function and release the IP address obtained through DHCP:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no management ip address dhcp
```

Related Commands

show dhcp client

5.4.3 dhcp client request

Command Purpose

Use this command to set client to get the specified configuration parameters through DHCP; use the no form of this command to set request default parameters.

Command Syntax

dhcp client request (router | static-route | classless-static-route | classless-static-route-ms | tftp-server-address | dns-nameserver | domain-name | netbios-nameserver | vendor-specific)

no dhcp client request (router | static-route | classless-static-route | classless-static-route-ms | tftp-server-address | dns-nameserver | domain-name | netbios-nameserver | vendor-specific)

Parameter	Parameter Description	Parameter Value
router	Default router options(3)	-
static-route	Static router options(33)	-
classless-static-route	Classless static routing options(121)	-
classless-static-route-ms	Microsoft Classless Static Routing Options(249)	-
tftp-server-address	TFTP server IP address options(150)	-
dns-nameserver	DNS Server Options(6)	-
domain-name	header option(15)	-
netbios-nameserver	Netbios Server Options(44)	-

vendor-specific	Vendor-related configuration options(43)	-

Command Mode

Interface Configuration

Default

router, static-route, classless-static-route, classless-static-route-ms, tftp-server-address

Usage

This command DHCP server requests the specified configuration parameters, which can be specified multiple times or all required parameters at one time. This command needs to be executed before ip address dhcp command configured, otherwise it will only take effect after the next ip address dhcp command. There is a priority relationship between options 33, 121 and 249. Option 121 takes precedence over options 33 and 249, and options 249 takes precedence over option 33.

Examples

The following example shows how to specify the request TFTP server IP address and static route:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# dhcp client request static-route tftp-server-address
```

The following example shows how to set default router request:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no dhcp client request router
```

Related Commands

ip address dhcp

5.4.4 dhcp client client-id

Command Purpose

Use this command to set the DHCP client ID as a tag for the DHCP client; use the no form of this command to delete the configured client ID, and use the default client ID.

Command Syntax

dhcp client client-id (ascii *WORD* | hex *HEX-STRING* | *IFVLAN* | *IFAGG* | *IFPHYSICAL*)

no dhcp client client-id

Parameter	Parameter Description	Parameter Value
ascii WORD	ASCII string	-
hex HEX-STRING	Hexadecimal string	-
IFVLAN	VLAN interface name	-
IFAGG	AGG interface name	-
IFPHYSICAL	Physical interface name	-

Command Mode

Interface Configuration

Default

Appropriate switch-HWADDR-IFNAME is adopted by default

Usage

This command needs to be executed before ip address dhcp command configured, otherwise it will only take effect after the next ip address dhcp command.

Examples

The following example shows how to set DHCP client ID to switch-client:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# dhcp client client-id ascii switch-client
```

The following example shows how to delete the configured DHCP client ID:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no dhcp client client-id
```

Related Commands

ip address dhcp

5.4.5 dhcp client class-id

Command Purpose

Use this command to set the class-id of DHCP client; use the no form of this command to delete the configured class-id.

Command Syntax

dhcp client class-id (*WORD* | hex *HEX-STRING*)

no dhcp client class-id

Parameter	Parameter Description	Parameter Value
WORD	ASCII string	-
hex HEX-STRING	Hexadecimal string	-

Command Mode

Interface Configuration

Default

None

Usage

DHCP client uses class-id to mark the type of configuration parameters it needs. Different vendors will define their own special configuration. DHCP client requests these vendor-related configuration parameters from server through class-id. This command needs to be executed before ip address dhcp command configured, otherwise it will only take effect after the next ip address dhcp command.

Examples

The following example shows how to specify class-id for DHCP client:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# dhcp client class-id switch
```

The following example shows how to delete the specified class-id:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no dhcp client class-id
```

Related Commands

ip address dhcp

5.4.6 dhcp client lease

Command Purpose

Use this command to set the expected lease period for DHCP client; use the no form of this command to cancel the configured expected lease period.

Command Syntax

dhcp client lease (*DAYS* (*HOURS* (*MINUTES* |) |) | infinite)

no dhcp client lease

Parameter	Parameter Description	Parameter Value
DAYS	Rental period, unit days	-

HOURS	Rental period, unit of hours	-
MINUTES	Rental period, unit of branch	-
infinite	The lease term is permanent.	-

Command Mode

Interface Configuration

Default

20min

Usage

Setting the lease that DHCP client expects, DHCP server can accept the lease, or ignore the client's request and assign the lease that it sets. This command needs to be executed before ip address dhcp command configured, otherwise it will only take effect after the next ip address dhcp command.

Examples

The following example shows how to configure DHCP client expects a 20-minute lease:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# dhcp client lease 0 0 20
```

The following example shows how to delete the configured lease:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no dhcp client lease
```

Related Commands

ip address dhcp

5.4.7 dhcp client hostname

Command Purpose

Use this command to set the host name used in the DHCP message; use the no form of this command to delete the host name.

Command Syntax

dhcp client hostname *WORD*

no dhcp client hostname

Parameter	Parameter Description	Parameter Value
WORD	Host name	-

Command Mode

Interface Configuration

Default

System Host Name

Usage

This command needs to be executed before ip address dhcp command configured, otherwise it will only take effect after the next ip address dhcp command.

Examples

The following example shows how to set the host name of the DHCP message to switch:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# dhcp client hostname switch
```

The following example shows how to delete the host name:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no dhcp client hostname
```

Related Commands

ip address dhcp

5.4.8 dhcp client default-router distance

Command Purpose

Use this command to set the default router distance for the route obtained from DHCP server; use the no form of this command to set the default router distance to default.

Command Syntax

dhcp client default-router distance *METRIC*

no dhcp client default-router distance

Parameter	Parameter Description	Parameter Value
METRIC	Default router distance	Range is 1-255

Command Mode

Global Configuration

Default

254

Usage

None

Examples

The following example shows how to set default router distance to 233:

```
Switch# configure terminal
Switch(config)# dhcp client default-router distance 233
```

The following example shows how to set default router distance to default:

```
Switch# configure terminal
Switch(config)# no dhcp client default-router distance
```

Related Commands

ip address dhcp

5.4.9 dhcp client broadcast-flag

Command Purpose

Use this command to set broadcast flag in DHCP messages; use the no form of this command to delete broadcast flag.

Command Syntax

dhcp client broadcast-flag

no dhcp client broadcast-flag

Command Mode

Global Configuration

Default

Enable

Usage

Broadcast flag means that DHCP client cannot accept unicast IP messages before obtaining IP addresses, so if broadcast flag is set, DHCP server or DHCP relay agent will broadcast DHCP messages to the client's subnet.

Examples

The following example shows how to setting broadcast flag:

```
Switch# configure terminal
Switch(config)# dhcp client broadcast-flag
```

The following example deletes broadcast flag:

```
Switch# configure terminal
Switch(config)# no dhcp client broadcast-flag
```

Related Commands

ip address dhcp

5.4.10 show dhcp client

Command Purpose

This command displays the working status of DHCP client.

Command Syntax

show dhcp client (*IFVLAN* | *IFAGG* | *IFPHYSICAL* |) (verbose |)

Parameter	Parameter Description	Parameter Value
IFVLAN	VLAN interface name	-
IFAGG	AGG interface name	-
IFPHYSICAL	Physical interface name	-
verbose	Detailed information	-

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to display the working status of DHCP client on one or more interfaces and add verbose to view detailed messages.

Examples

The following example shows how to display the working status of DHCP client on all interfaces:

```
Switch# show dhcp client verbose
DHCP client informations:
============================================================
vlan1 DHCP client information:
  Current state: SELECT
  Transaction ID: 0x3ac1c1c7
============================================================
eth-0-1 DHCP client information:
  Current state: SELECT
  Transaction ID: 0x2fd3f55b
```

Related Commands

ip address dhcp

5.4.11 show dhcp client statistics

Command Purpose

Use this command to displays DHCP client statistics.

Command Syntax

show dhcp client statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display DHCP client message statistics:

```
Switch# show dhcp client statistics
DHCP client packet statistics:
============================================================
DHCP OFFERS     received: 0
DHCP ACKs       received: 0
DHCP NAKs       received: 0
DHCP Others     received: 0
DHCP DISCOVER       sent: 0
DHCP DECLINE        sent: 0
DHCP RELEASE        sent: 0
DHCP REQUEST        sent: 0
DHCP packet send failed: 0
```

Related Commands

ip address dhcp

clear dhcp client statistics

5.4.12 clear dhcp client statistics

Command Purpose

Use this command to clear the DHCP client statistics.

Command Syntax

clear dhcp client statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to clear the DHCP client message statistics:

```
Switch# clear dhcp client statistics
```

Related Commands

ip address dhcp

show dhcp client statistics

6 IP Unicast-Routing Commands

6.1 IP Unicast-Routing Commands

6.1.1 ip route

Command Purpose

To establish static routes, use the ip route command in global configuration mode. To remove static routes, use the no form of this command.

Command Syntax

ip route *IP_ADDR_MASK* (*IP_ADDR* | null 0) (*DISTANCE* |) (track *TRACK_ID* |)

no ip route *IP_ADDR_MASK* (*IP_ADDR* | null 0 |) (track |)

Parameter	Parameter Description	Parameter Value
IP_ADDR_MASK	IP address with a subnet mask suffix	e.g. 192.168.1.2/24
IP_ADDR	IP address	-
DISTANCE	Administrative distance	Range is 1-255
TRACK_ID	TRACK ID	Range is 1-500

Command Mode

Global Configuration

Default

Administrative distance is 1

Usage

To add a permanent entry in RIB, use this command with the ip mask and next-hop address (distance is not necessary).

The establishment of a static route is appropriate when the switch cannot dynamically build a route to the destination.

Examples

The following example establishes a static route entry:

```
Switch# configure terminal
Switch(config)# ip route 10.1.1.1/8 192.168.2.2
```

The following example removes a static route entry:

```
Switch# configure terminal
Switch(config)# no ip route 10.1.1.1/8 192.168.2.2
```

Related Commands

show ip route

6.1.2 ip address

Command Purpose

To configure the primary or secondary ip address of the interface, use the ip adress command in interface configuration mode. It can only be used on L3 interface. To remove the ip address of the interface, use the no ip address command in interface configuration mode.

Command Syntax

ip address *IP_ADDR_MASK* (secondary |)

no ip address (*IP_ADDR_MASK* (secondary |) |)

Parameter	Parameter Description	Parameter Value
IP_ADDR_MASK	IP address with a subnet mask suffix	e.g. 192.168.1.2/24

secondary	Secondary IP address	-

Command Mode

Interface Configuration

Default

None

Usage

An interface can have one primary IP address and multiple secondary IP addresses. Packets generated by the switch always use the primary IP address. Therefore, all switches and access servers on a segment should share the same primary network number.

Hosts can determine subnet masks using the Internet Control Message Protocol (ICMP) mask request message. Switch respond to this request with an ICMP mask reply message.

You can disable IP processing on a particular interface by removing its IP address with the no ip address command. If the software detects another host using one of its IP addresses, it will print an error message on the console.

The optional secondary keyword allows you to specify up to 8 secondary addresses. Secondary addresses are treated like primary addresses, except the system never generates datagrams other than routing updates with secondary source addresses. IP broadcasts and Address Resolution Protocol (ARP) requests are handled properly, as are interface routes in the IP routing table.

Secondary IP addresses can be used in a variety of situations. The following are the most common applications:

There may not be enough host addresses for a particular network segment. For example, your subnet allows up to 254 hosts per logical subnet, but on one physical subnet you need 300 host addresses. Using secondary IP addresses on the switches or access servers allows you to have two logical subnets using one physical subnet.

Many older networks were built using Level 2 bridges. The judicious use of secondary addresses can aid in the transition to a subnet and router-based network.

Switches on an older, bridged segment can be easily made aware that many subnets are on that segment.

Two subnets of a single network might otherwise be separated by another network. This situation is not permitted when subnets are in use. In these instances, the first network is extended, or layered on top of the second network using secondary addresses.

Examples

The following example adds a primary IP address and a secondary IP address:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# ip address 192.168.1.1/24
Switch(config-if-eth-0-1)# ip address 192.31.7.17/24 secondary
```

The following example removes a primary IP address:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ip address 192.168.1.1/24
```

Related Commands

show ip interface

6.1.3 ip redirects

Command Purpose

To enable send the ICMP redirect messages generated by the switch, use the ip redirects command in interface configuration mode. To disable send the ICMP redirect messages, use the command no ip redirects.

Command Syntax

ip redirects

no ip redirects

Command Mode

Interface Configuration

Default

Enable

Usage

None

Examples

The following example enables send the ICMP redirect message:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip address 10.10.10.1/24
Switch(config-if-eth-0-1)# ip redirects
```

The following example disables send the ICMP redirect message:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip address 10.10.10.1/24
Switch(config-if-eth-0-1)# no ip redirects
```

Related Commands

show ip interface

6.1.4 ip verify unicast

Command Purpose

To enable RPF check to the interface, use the command ip verify unicast reverse-path in interface configuration mode. To disable RPF check to the interface, use the command no ip verify unicast reverse-path in interface configuration mode.

Command Syntax

ip verify unicast reverse-path

no ip verify unicast reverse-path

Command Mode

Interface Configuration

Default

Disable

Usage

None

Examples

The following example enables RPF check:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip address 10.10.10.1/24
Switch(config-if-eth-0-1)# ip verify unicast reverse-path
```

The following example disables RPF check:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip address 10.10.10.1/24
Switch(config-if-eth-0-1)# no ip verify unicast reverse-path
```

Related Commands

None

6.1.5 ecmp load-balance-mode

Command Purpose

Use this command to set ecmp load-balance-mode, use the no form of this command to unset ecmp load-balance-mode.

Command Syntax

ecmp load-balance-mode (static (self-healing |) | round-robin *IP_ADDR_MASK* | dynamic (tcp-only |))

no ecmp load-balance-mode (static (self-healing |) | round-robin *IP_ADDR_MASK* | dynamic (tcp-only |))

Parameter	Parameter Description	Parameter Value
IP_ADDR_MASK	IP address with a subnet mask suffix	e.g. 192.168.1.2/24

Command Mode

Global Configuration

Default

Static

Usage

None

Examples

The following example shows how to set ecmp load-balance-mode:

```
Switch# configure terminal
Switch(config)# ecmp load-balance-mode static self-healing
```

The following example shows how to unset ecmp load-balance-mode:

```
Switch# configure terminal
Switch(config)# no ecmp load-balance-mode static self-healing
```

Related Commands

show ecmp information

6.1.6 show ip route

Command Purpose

To display the entries in the Route Information Base (RIB) table, use the show ip route command in privileged EXEC mode.

Command Syntax

show ip route (add-fib-fail （count | ） | *IP_ADDR_MASK* (longer-prefixes |) | *IP_ADDR* | connected | ospf | static |)

Parameter	Parameter Description	Parameter Value
IP_ADDR_MASK	IP address with a subnet mask suffix	e.g. 192.168.1.2/24
IP_ADDR	IP address	-

Command Mode

Privileged EXEC

Default

None

Usage

To display all entries in the RIB, use this command without any arguments or keywords.

To display the entry in the RIB for detail, use this command with the keyword of ip or ip mask.

Use this command with the keyword of ip mask longer-prefixes, Show route matching the specified Network/Mask pair only.

To display the entry in the RIB for connected route, use this command with the keyword of connected.

To display the entry in the RIB for ospf route, use this command with the keyword of ospf.

To display the entry in the RIB for static route, use this command with the keyword of static.

Examples

The following example shows how to use show ip route:

```
Switch# show ip route
Codes: C - connected, S - static, R - RIP,
       O - OSPF, I - IS-IS, B - BGP, P - PIM,
       > - selected route, * - FIB route
[*] - [AD/Metric]
C>* 1.1.1.0/24 is directly connected, eth-0-4
S>* 2.2.2.0/24 [1/0] via 10.1.1.2, eth-0-10
C>* 10.1.1.0/24 is directly connected, eth-0-10
```

Related Commands

ip route

6.1.7 show ip route summary

Command Purpose

To display the summary of Route Information Base and Forwording Information Base table, use the show ip route summary command in privileged EXEC mode.

Command Syntax

show ip route summary

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to use show ip route summary:

```
Switch# show ip route summary
Route Source          Routes               FIB  (vrf Default-IP-Routing-Table)
connected             13                   13
static                26                   26
------
Totals                39                   39
```

Related Commands

ip route

6.1.8 show ip interface

Command Purpose

Use this command to show layer3 interface information in privileged EXEC mode.

Command Syntax

show ip interface (*IFNAME* |) (brief |)

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to use show ip interface:

```
Switch# show ip interface brief
Interface              IP-Address      Status                 Protocol
---------------------+---------------+----------------------+--------
eth-0-1                10.10.1.1       up                     up
eth-0-12               164.0.0.1       up                     up
```

Related Commands

ip address

6.1.9 show ecmp information

Command Purpose

Use this command to show the running information of ecmp settings in privileged EXEC mode.

Command Syntax

show ecmp information

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to show the running information:

```
Switch# show ecmp information
ECMP load balance enable mode: Static
```

Related Commands

ecmp hash-field-select

6.2 OSPF Commands

6.2.1 router ospf

Command Purpose

To configure an Open Shortest Path First (OSPF) routing process, use the router ospf command in global configuration mode. To terminate an OSPF routing process, use the no form of this command.

Command Syntax

router ospf

no router ospf

Command Mode

Global Configuration

Default

No OSPF routing process is defined

Usage

None

Examples

The following example creates the OSPF routing process:

```
Switch# configure terminal
Switch(config)# router ospf
Switch(config-router)#
```

The following example removes the OSPF routing process:

```
Switch# configure terminal
Switch(config)# no router ospf
```

Related Commands

show ip ospf

6.2.2 ip ospf hello-interval

Command Purpose

To specify the interval between hello packets that the switch sends on the interface, use the ip ospf hello-interval command in interface configuration mode. To return to the default time, use the no form of this command.

Command Syntax

ip ospf hello-interval *SECONDS*

no ip ospf hello-interval

Parameter	Parameter Description	Parameter Value
SECONDS	Hello-interval value	Range is 1-65535, unit is second

Command Mode

Interface Configuration

Default

10 seconds

Usage

This value is advertised in the hello packets. This value must be the same for all routers and access servers on a specific network. The smaller the hello interval, the faster topological changes will be detected, but more routing traffic will ensue.

Examples

The following example sets the interval between hello packets to 15 seconds:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip ospf hello-interval 15
```

The following example sets the interval between hello packets to default:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ip ospf hello-interval
```

Related Commands

ip ospf dead-interval

6.2.3 ip ospf dead-interval

Command Purpose

To set the interval during which at least one hello packet must be received from a neighbor before the router declares that neighbor down, use the ip ospf dead-interval command in interface configuration mode. To restore the default value, use the no form of this command.

Command Syntax

ip ospf dead-interval *SECONDS*

no ip ospf dead-interval

Parameter	Parameter Description	Parameter Value
SECONDS	Dead-interval value	Range is 1-65535, unit is second

Command Mode

Interface Configuration

Default

40 seconds

Usage

The dead interval is advertised in OSPF hello packets. This value must be the same for all networking devices on a specific network.

Specifying a smaller dead interval (seconds) will give faster detection of a neighbor being down and improve convergence, but might cause more routing instability.

Examples

The following example sets the dead interval to 20 seconds:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip ospf dead-interval 20
```

The following example sets the dead interval to default:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ip ospf dead-interval
```

Related Commands

ip ospf hello-interval

6.2.4 ip ospf authentication

Command Purpose

To specify the authentication type for an interface, use the ip ospf authentication command in interface configuration mode. To remove the authentication type for an interface, use the no form of this command.

Command Syntax

ip ospf authentication message-digest

no ip ospf authentication

Command Mode

Interface Configuration

Default

No authentication (null authentication)

Usage

Before using the ip ospf authentication command, configure a password for the interface using the ip ospf authentication-key command.

For backward compatibility, authentication type for an area is still supported. If the authentication type is not specified for an interface, the authentication type for the area will be used (the area default is null authentication).

Examples

The following example enables message-digest authentication:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# ip ospf authentication message-digest
```

The following example disables message-digest authentication:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ip ospf authentication
```

Related Commands

ip ospf message-digest-key

6.2.5 ip ospf message-digest-key

Command Purpose

To enable Open Shortest Path First (OSPF) Message Digest 5 (MD5) authentication, use the ip ospf message-digest-key command in interface configuration mode. To remove an old MD5 key, use the no form of this command.

Command Syntax

ip ospf message-digest-key *KEY_ID* md5 *KEY*

no ip ospf message-digest-key *KEY_ID*

Parameter	Parameter Description	Parameter Value
KEY_ID	Key ID	Range is 1-255
KEY	Alphanumeric password of up to 16 characters	-

Command Mode

Interface Configuration

Default

Disable

Usage

All routers access the same network/sub network share the same password when using this type of authentication. For every OSPF packet, the password is used for generating/examining the “message digest” which is at the tail of the OSPF packet. This “message digest” is processed by OSPF packet and password. There may multiple password be activated on the same interface, this command line always used to transit smoothly to the new password from the old one.

Examples

The following example sets a new key 19 with the password 8ry4222:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip ospf message-digest-key 19 md5 8ry4222
```

The following example removes an old MD5 key 19:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ip ospf message-digest-key 19
```

Related Commands

ip ospf authentication

6.2.6 ip ospf mtu-ignore

Command Purpose

To disable Open Shortest Path First (OSPF) maximum transmission unit (MTU) mismatch detection on receiving Database Descriptor (DBD) packets, use the ip ospf mtu-ignore command in interface configuration mode. To reset to default, use the no form of this command.

Command Syntax

ip ospf mtu-ignore

no ip ospf mtu-ignore

Command Mode

Interface Configuration

Default

Enable

Usage

OSPF checks whether neighbors are using the same MTU on a common interface. This check is performed when neighbors exchange DBD packets. If the receiving MTU in the DBD packet is higher than the IP MTU configured on the incoming interface, OSPF adjacency will not be established.

Examples

The following example disables MTU mismatch detection on receiving DBD packets:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip ospf mtu-ignore
```

The following example enables MTU mismatch detection on receiving DBD packets:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ip ospf mtu-ignore
```

Related Commands

show ip ospf interface

6.2.7 ip ospf cost

Command Purpose

To explicitly specify the cost of sending a packet on an interface, use the ip ospf cost command in interface configuration mode. To reset to default, use the no form of this command.

Command Syntax

ip ospf cost *OSPF_COST*

no ip ospf cost

Parameter	Parameter Description	Parameter Value
OSPF_COST	Interface cost value	Range is 1-65535

Command Mode

Interface Configuration

Default

Cost is calculated according to port speed

Usage

You can set the metric manually using this command, if you need to change the default. Using the bandwidth command changes the link cost as long as this command is not used.

The link-state metric is advertised as the link cost in the router link advertisement.

In general, the path cost is calculated using the following formula: (100G / bandwidth)+0.5;

the integer part of result will be set to cost when its range is from 1 to 65535; if the result is less than 1, the cost should be 1; if the result is greater than 65535, the cost should be 65535.

Examples

The following example sets the interface cost value to 65:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip ospf cost 65
```

The following example sets the interface cost value to default:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ip ospf cost
```

Related Commands

show ip ospf interface

6.2.8 ip ospf network point-to-point

Command Purpose

Use the ip ospf network point-to-point command in interface configuration mode can configure the interface network type to point-to-point. To reset to default, use the no form of this command.

Command Syntax

ip ospf network point-to-point

no ip ospf network

Command Mode

Interface Configuration

Default

Broadcast

Usage

None

Examples

The following example sets the interface network type to point-to-point:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip ospf network point-to-point
```

The following example sets the interface network type to default:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ip ospf network
```

Related Commands

show ip ospf interface

6.2.9 router-id

Command Purpose

To use a fixed router ID, use the router-id command in router configuration mode. To force Open Shortest Path First (OSPF) to use the previous OSPF router ID behavior, use the no form of this command.

Command Syntax

router-id *IP_ADDR*

no router-id

Parameter	Parameter Description	Parameter Value
IP_ADDR	router-id(as an IP address)	-

Command Mode

Router Configuration

Default

Depend to system interface configuration

Usage

You can configure an arbitrary value in the IP address format for each router. However, each router ID must be unique.

If at least one neighbor on full state, the configured router-id will not take effect; otherwise, the configured router-id take effect immediately.

Examples

The following example specifies a fixed router-id:

```
Switch# configure terminal
Switch(config)# router ospf 119
Switch(config-router)# router-id 10.1.1.1
```

The following example unsets the router-id:

```
Switch# configure terminal
Switch(config)# router ospf
Switch(config-router)# no router-id
```

Related Commands

router ospf

6.2.10 network

Command Purpose

To define the interfaces on which Open Shortest Path First (OSPF) runs and to define the area ID for those interfaces, use the network area command in router configuration mode. To disable OSPF routing for interfaces defined with the address wildcard-mask pair, use the no form of this command.

Command Syntax

network *IP_ADDR_MASK* area *AREA_ID*

no network *IP_ADDR_MASK* area *AREA_ID*

Parameter	Parameter Description	Parameter Value
IP_ADDR_MASK	IP address with a subnet mask suffix	e.g. 192.168.1.2/24
AREA_ID	Area ID	Range is 0-4294967295

Command Mode

Router Configuration

Default

Disable

Usage

The IP-ADDRESS and WILDCARD-MASK arguments together allow you to define one or multiple interfaces to be associated with a specific OSPF area using a single command.

Examples

The following example initializes the OSPF routing process, and defines three OSPF areas: 0, 2, 3:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip address 10.108.20.1/24
Switch(config)# router ospf
Switch(config-router)# network 10.108.0.0/16  area 2
Switch(config-router)# network 10.109.10.0/24  area 3
Switch(config-router)# network 0.0.0.0/0 area 0
```

The following example deletes the OSPF areas:

```
Switch# configure terminal
Switch(config)# router ospf
Switch(config-router)# no network 10.108.0.0/16 area 2
Switch(config-router)# no network 10.109.10.0/24  area 3
Switch(config-router)# no network 0.0.0.0/0 area 0
```

Related Commands

router ospf

6.2.11 area authentication

Command Purpose

To enable authentication for an Open Shortest Path First (OSPF) area, use the area authentication command in router configuration mode. To remove authentication for an Open Shortest Path First (OSPF) area, use the no form of this command.

Command Syntax

area *AREA_ID* authentication message-digest

no area *AREA_ID* authentication

Parameter	Parameter Description	Parameter Value
AREA_ID	Area ID	Range is 0-4294967295

Command Mode

Router Configuration

Default

No authentication

Usage

The authentication type must be the same for all routers and access servers in an area. If you enable MD5 authentication with the message-digest keyword, you must configure a password with the ip ospf message-digest-key interface command.

Examples

The following example mandates authentication for areas 0 of OSPF routing:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip address 192.168.251.201/24
Switch(config-if-eth-0-1)# ip ospf message-digest-key 1 md5 adcdefgh
Switch(config)# router ospf
Switch(config-router)# network 10.0.0.0/24 area 0
Switch(config-router)# network 192.168.0.0/16 area 0
Switch(config-router)# area 0 authentication message-digest
```

The following example mandates delete authentication for areas 0 of OSPF routing:

```
Switch# configure terminal
Switch(config)# router ospf
Switch(config-router)# no area 0 authentication
```

Related Commands

router ospf

6.2.12 area range

Command Purpose

To consolidate and summarize routes at an area boundary, use the area range command in router configuration mode. To disable this feature, use the no form of this command. If advertise or not-advertise is not specified, advertise is default.

Command Syntax

area *AREA_ID* range *IP_ADDR_MASK* (advertise | not-advertise |)

no area *AREA_ID* range *IP_ADDR_MASK*

Parameter	Parameter Description	Parameter Value
AREA_ID	Area ID	Range is 0-4294967295
IP_ADDR_MASK	IP address with a subnet mask suffix	e.g. 192.168.1.2/24
advertise	Advertise this range	-
not-advertise	Do not advertise this range	-

Command Mode

Router Configuration

Default

None

Usage

The area range command is used only with Area Border Routers (ABRs). It is used to consolidate or summarize routes for an area.

Examples

The following example mandates routes summarize for area 1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no switchport
Switch(config-if-eth-0-1)# ip address 192.168.110.1/24
Switch(config)# router ospf
Switch(config-router)# network 192.168.110.0/24 area 1
Switch(config-router)# area 1 range 192.168.0.0/16
```

The following example mandates remove route summarization for area 1:

```
Switch# configure terminal
Switch(config)# router ospf
Switch(config-router)#no area 1 range 192.168.0.0/16
```

Related Commands

router ospf

6.2.13 default-information originate

Command Purpose

To generate a default external route into an Open Shortest Path First (OSPF) routing domain, use the default-information originate command in router configuration mode. To disable this feature, use the no form of this command.

Command Syntax

default-information originate (always |)

no default-information originate

Parameter	Parameter Description	Parameter Value
always	Always advertises the default route regardless of whether the system has a default route	-

Command Mode

Router Configuration

Default

Disable

Usage

Whenever you use the redistribute or the default-information router configuration command to redistribute routes into an OSPF routing domain, the switch automatically becomes an autonomous System Boundary Router (ASBR). However, an ASBR does not, by default, generate a default route into the OSPF routing domain. The system still must have a default route for itself before it generates one, except when you have specified the always keyword.

Examples

The following example enables generate a route:

```
Switch# configure terminal
Switch(config)# router ospf
Switch(config-router)# default-information originate always
```

The following example disables generate a default route:

```
Switch# configure terminal
Switch(config)# router ospf
Switch(config-router)#no default-information originate
```

Related Commands

router ospf

6.2.14 Redistribute

Command Purpose

To redistribute routes from one routing domain into Open Shortest Path First (OSPF) routing domain, use the redistribute command in router configuration mode. To disable this feature, use the no form of this command.

Command Syntax

redistribute (static | connected)

no redistribute (static | connected)

Command Mode

Router Configuration

Default

Disable

Usage

None

Examples

The following example enables redistribute the static routes into OSPF:

```
Switch# configure terminal
Switch(config)# router ospf
Switch(config-router)# redistribute static
```

The following example disables redistribute the static routes into OSPF:

```
Switch# configure terminal
Switch(config)# router ospf
Switch(config-router)# no redistribute static
```

Related Commands

router ospf

6.2.15 show ip ospf

Command Purpose

To display general information about Open Shortest Path First (OSPF) routing processes, use the show ip ospf command in privileged EXEC mode.

Command Syntax

show ip ospf

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to use show ip ospf:

```
Switch# show ip ospf
OSPF Routing Process, Router ID: 1.1.1.1
Supports only single TOS (TOS0) routes
This implementation conforms to RFC2328
RFC1583Compatibility flag is disabled
OpaqueCapability flag is disabled
Initial SPF scheduling delay 200 millisec(s)
Minimum hold time between consecutive SPFs 1000 millisec(s)
Maximum hold time between consecutive SPFs 10000 millisec(s)
Hold time multiplier is currently 1
SPF algorithm last executed 26m51s ago
Last SPF duration 198 usecs
SPF timer is inactive
Refresh timer 10 secs
This router is an ASBR (injecting external routing information)
Number of external LSA 1. Checksum Sum 0x0000cefe
Number of opaque AS LSA 0. Checksum Sum 0x00000000
Number of areas attached to this router: 1
Area ID: 0.0.0.0 (Backbone)
Number of interfaces in this area: Total: 2, Active: 2
Number of fully adjacent neighbors in this area: 0
Area has no authentication
SPF algorithm executed 12 times
Number of LSA 2
Number of router LSA 1. Checksum Sum 0x00004f0e
Number of network LSA 1. Checksum Sum 0x000079ac
Number of summary LSA 0. Checksum Sum 0x00000000
Number of ASBR summary LSA 0. Checksum Sum 0x00000000
```

```
Number of NSSA LSA 0. Checksum Sum 0x00000000
Number of opaque link LSA 0. Checksum Sum 0x00000000
Number of opaque area LSA 0. Checksum Sum 0x00000000
```

Related Commands

router ospf

6.2.16 show ip ospf border-routers

Command Purpose

To display the internal Open Shortest Path First (OSPF) routing table entries to an Area Border Router (ABR) and Autonomous System Boundary Router (ASBR), use the show ip ospf border-routers command in privileged EXEC mode.

Command Syntax

show ip ospf border-routers

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following shows how to uses show ip ospf border-routers:

```
Switch# show ip ospf border-routers
R -Router, IA - OSPF inter area
============ OSPF router routing table =============
    R    10.1.1.1              [3] area: 0.0.0.0, ABR
                               via 10.1.1.1, eth-0-9
```

Related Commands

router ospf

6.2.17 show ip ospf database

Command Purpose

To display lists of information related to the Open Shortest Path First (OSPF) database for a specific router, use the show ip ospf database command in EXEC mode.

Command Syntax

show ip ospf database（max-age | self-originate | ）

show ip ospf database （asbr-summary | external | network | router | *summary*）（*IP_ADDR* | adv-router *IP_ADDR_ADV* | ）

Parameter	Parameter Description	Parameter Value
IP_ADDR	Link State ID (as an IP address)	-
IP_ADDR_ADV	Advertising Router (as an IP address)	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following shows how to uses show ip ospf database:

```
Switch# show ip ospf database
OSPF Router with ID (1.1.1.1)
Router Link States (Area 0.0.0.0)
Link ID         ADV Router      Age  Seq#       CkSum  Link count
1.1.1.1         1.1.1.1         1758 0x80000007 0x4f0e 2
                Net Link States (Area 0.0.0.0)
Link ID         ADV Router      Age  Seq#       CkSum
17.1.1.2        1.1.1.1         2237 0x80000002 0x79ac
                Summary Link States (Area0.0.0.0)
Link ID         ADV Router      Age  Seq#       CkSum  Route
0.0.0.0         1.1.1.1         1757 0x80000001 0xcefe E2 0.0.0.0/0 [0x0]
```

Related Commands

show ip ospf

6.2.18 show ip ospf interface

Command Purpose

To display Open Shortest Path First (OSPF)-related interface information, use the show ip ospf interface command in EXEC mode.

Command Syntax

show ip ospf interface （*IFNAME* | ）

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following shows how to uses show ip ospf interface:

```
Switch# show ip ospf interface eth-0-17
eth-0-17 is up
  ifindex 121, MTU 1514 bytes, BW 0 Kbit UP,BROADCAST,RUNNING,MULTICAST
  Internet Address 17.1.1.3/24, Broadcast 17.1.1.255, Area 0.0.0.0
  MTU mismatch detection:enabled
  Router ID 1.1.1.1, Network Type BROADCAST, Cost: 10
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 1.1.1.1, Interface Address 17.1.1.3
  No backup designated router on this network
  Multicast group memberships: OSPFAllRouters OSPFDesignatedRouters
  Timer intervals configured, Hello 10s, Dead 40s, Wait 40s, Retransmit 5
    Hello due in 0.384s
  Neighbor Count is 0, Adjacent neighbor count is 0
```

Related Commands

show ip ospf

6.2.19 show ip ospf neighbor

Command Purpose

To display Open Shortest Path First (OSPF)-neighbor information on a per-interface basis, use the show ip ospf neighbor command in privileged EXEC mode.

Command Syntax

show ip ospf neighbor

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following shows how to uses show ip ospf neighbor:

```
Switch# show ip ospf neighbor
Neighbor ID Pri State            Dead Time Address         Interface
RXmtL RqstL DBsmL
2.2.2.2           1 Full/Backup       39.320s 17.1.1.2        eth-0-17:17.1.1.3
3     0     0
```

Related Commands

router ospf

6.2.20 show ip ospf route

Command Purpose

To display the routes used by OSPF, use the show ip ospf route command in privileged EXEC mode.

Command Syntax

show ip ospf route

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to use show ip ospf route:

```
Switch# show ip ospf route
N - Network, D - Discard, IA - OSPF inter area
R -Router, E1 - OSPF external type 1
E2 - OSPF external type 2
============ OSPF network routing table ============
N    17.1.1.0/24           [10] area: 0.0.0.0
                           directly attached to eth-0-17
N    171.1.1.1/32          [10] area: 0.0.0.0
                           directly attached to loopback1
============ OSPF router routing table =============
============ OSPF external routing table ===========
```

Related Commands

router ospf

6.2.21 clear ip ospf interface

Command Purpose

To clear route based on interface, use the clear ip ospf interface command in privileged EXEC mode.

Command Syntax

clear ip ospf interface (*IFNAME* |)

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example clears OSPF interface information:

```
Switch# clear ip ospf interface eth-0-1
```

Related Commands

router ospf

6.2.22 clear ip ospf process

Command Purpose

To clear ospf process, rebuilt neighbor and update router-id, use the clear ip ospf process command in privileged EXEC mode.

Command Syntax

clear ip ospf process

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example clears OSPF process:

```
Switch# clear ip ospf process
```

Related Commands

router ospf

7 Multicast Commands

7.1 IGMP Host Join Commands

7.1.1 ip igmp snooping vlan

Command Purpose

Use this command to enter IGMP snooping VLAN view.

Command Syntax

ip igmp snooping vlan *VLAN_ID*

Parameter	Parameter Description	Parameter Value
VLAN_ID	VLAN ID	-

Command Mode

Global Configuration

Default

None

Usage

This command is used to enter IGMP snooping VLAN view.

Examples

The following example shows how to enter IGMP snooping VLAN view:

```
Switch# configure terminal
Switch(config)# vlan range 2-3
```

```
Switch(config)# ip igmp snooping vlan 2
Switch(config-igmp-snooping-2)#
```

Related Commands

show ip igmp snooping vlan

7.1.2 ip igmp snooping host-join

Command Purpose

Use this command to enable global IGMP snooping host join.

Use the no form of this command to disable global IGMP snooping host join.

Command Syntax

ip igmp snooping host-join

no ip igmp snooping host-join

Command Mode

Global Configuration

Default

Disable

Usage

This command is used to enable global IGMP snooping host join.

Examples

The following example shows how to enable global IGMP snooping host join:

```
Switch# configure terminal
Switch(config)# ip igmp snooping host-join
```

The following example shows how to disable global IGMP snooping host join:

```
Switch# configure terminal
Switch(config)# no ip igmp snooping host-join
```

Related Commands

show ip igmp snooping global

7.1.3 querier address

Command Purpose

Use this command to configure IGMP snooping querier address on specific VLAN.

Use the no form of this command to reset IGMP snooping querier address on specific VLAN to default value.

Command Syntax

querier address *IP_ADDR*

no querier address

Parameter	Parameter Description	Parameter Value
IP_ADDR	IP address	-

Command Mode

IGMP Snooping Configuration

Default

None

Usage

This command is used to configure IGMP snooping querier address on specific VLAN.

Examples

The following example shows how to configure IGMP snooping querier address on vlan 2:

```
Switch# configure terminal
Switch(config)# vlan range 2-3
```

```
Switch(config)# ip igmp snooping vlan 2
Switch(config-igmp-snooping-2)# querier address 12.1.1.1
```

The following example shows how to reset IGMP snooping querier address on vlan 2 to default value:

```
Switch# configure terminal
Switch(config)# vlan range 2-3
Switch(config)# ip igmp snooping vlan 2
Switch(config-igmp-snooping-2)# no querier address
```

Related Commands

show ip igmp snooping querier

7.1.4 mrouter interface

Command Purpose

Use this command to add IGMP snooping static mrouter interface on specific VLAN.

Use the no form of this command to delete IGMP snooping static mrouter interface on specific VLAN.

Command Syntax

mrouter interface *IF_NAME*

no mrouter interface *IF_NAME_EA*

Parameter	Parameter Description	Parameter Value
IF_NAME	Interface name	-

Command Mode

IGMP Snooping Configuration

Default

None

Usage

This command is used to add IGMP snooping static mrouter interface on specific VLAN.

Examples

The following example shows how to add IGMP snooping static mrouter interface on vlan 2:

```
Switch# configure terminal
Switch(config)# vlan range 2-3
Switch(config)# ip igmp snooping vlan 2
Switch(config-igmp-snooping-2)# mrouter interface eth-0-1
```

The following example shows how to remove IGMP snooping static mrouter interface on vlan 2:

```
Switch# configure terminal
Switch(config)# vlan range 2-3
Switch(config)# ip igmp snooping vlan 2
Switch(config-igmp-snooping-2)# no mrouter interface eth-0-1
```

Related Commands

show ip igmp snooping mrouter

7.1.5 join-group

Command Purpose

Use this command to add IGMP snooping static join group on specific VLAN.

Use the no form of this command to remove IGMP snooping static join group on specific VLAN.

Command Syntax

join-group *IP_ADDR*

no join-group *IP_ADDR*

Parameter	Parameter Description	Parameter Value

IP_ADDR	Group address	-

Command Mode

IGMP Snooping Configuration

Default

None

Usage

This command is used to add IGMP snooping static group entry on specific VLAN.

Examples

The following example shows how to add IGMP snooping static group entry on vlan 2:

```
Switch# configure terminal
Switch(config)# vlan range 2-3
Switch(config)# ip igmp snooping vlan 2
Switch(config-igmp-snooping-2)# join-group 224.10.10.1
```

The following example shows how to remove IGMP snooping static group entry on vlan 2:

```
Switch# configure terminal
Switch(config)# vlan range 2-3
Switch(config)# ip igmp snooping vlan 2
Switch(config-igmp-snooping-2)# no join-group 224.10.10.1
```

Related Commands

show ip igmp snooping join-groups

7.1.6 show ip igmp snooping global

Command Purpose

Use this command to display IGMP snooping global configurations.

Command Syntax

show ip igmp snooping global

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display IGMP snooping global configurations.

Examples

The following example shows how to display IGMP snooping global configurations:

```
Switch# show ip igmp snooping global
Global IGMP Snooping configuration:
------------------------------------+-----------
Igmp Snooping                       : Enabled
Fast-Leave                          : Disabled
Report-Suppression                  : Enabled
Version                             : 2
Robustness Variable                 : 2
Max Member Number                   : 2048
Unknown Multicast Behavior          : Flood
Host Join                           : Enabled
```

Related Commands

None

7.1.7 show ip igmp snooping join-groups

Command Purpose

Use this command to display IGMP snooping VLAN configurations.

Command Syntax

show ip igmp snooping join-groups (vlan *VLAN_ID* |)

Parameter	Parameter Description	Parameter Value
VLAN_ID	VLAN ID	-

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display IGMP snooping joined groups.

Examples

The following example shows how to display IGMP snooping joined groups:

```
Switch# show ip igmp snooping join-groups vlan 2
VLAN     Host Join Group
--------+--------------------
2        224.10.10.1
```

Related Commands

join-group

7.1.8 show ip igmp snooping querier

Command Purpose

Use this command to display IGMP snooping querier configurations.

Command Syntax

show ip igmp snooping querier (vlan *VLAN_ID* |)

Parameter	Parameter Description	Parameter Value
VLAN_ID	VLAN ID	-

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display IGMP snooping querier configurations.

Examples

The following example shows how to display IGMP snooping querier configurations:

```
Switch# show ip igmp snooping querier
Global Igmp Snooping Querier Configuration:
-----------------------------------+-----------
Version                            : 2
Last Member Query Count             : 2
Last Member Query Interval (msec)   : 1000
Max Query Response Time (sec)       : 10
Query Interval (sec)                : 125
Global Source Address               : 192.168.0.1
TCN Query                           : Disabled
TCN Query Count                     : 2
TCN Query Interval (sec)            : 10
TCN Query Max Respose Time (sec)    : 5

VLAN 1:
-----------------------------------+-----------
Elected querier is                  : 0.0.0.0
-----------------------------------+-----------
Admin State                         : Disabled
Admin Version                       : 2
Operational State                   : Non-Querier
Querier Configure Address           : N/A
Querier Operational Address         : 192.168.0.1
Last Member Query Count             : 2
Last Member Query Interval (msec)   : 1000
Max Query Response Time (sec)       : 10
Query Interval (sec)                : 125
Querier Timeout (sec)               : 255
```

```
VLAN 2:
-------------------------------------+-----------
Elected querier is                   : 12.1.1.1
-------------------------------------+-----------
Admin State                          : Disabled
Admin Version                        : 2
Operational State                    : Querier
Querier Configure Address            : 12.1.1.1
Querier Operational Address          : 12.1.1.1
Last Member Query Count              : 2
Last Member Query Interval (msec)    : 1000
Max Query Response Time (sec)        : 10
Query Interval (sec)                 : 125
Querier Timeout (sec)                : 255
```

Related Commands

querier address

7.1.9 show ip igmp snooping mrouter

Command Purpose

Use this command to display IGMP snooping mrouter configurations.

Command Syntax

show ip igmp snooping mrouter (vlan *VLAN_ID* |)

Parameter	Parameter Description	Parameter Value
VLAN_ID	VLAN ID	-

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display IGMP snooping mrouter configurations.

Examples

The following example shows how to display IGMP snooping mrouter configurations:

```
Switch# show ip igmp snooping mrouter
VLAN      Interface         Mode      Uptime           Expires-time
--------+-----------------+---------+---------------+---------------
2         eth-0-1           static    01:14:29         -
```

Related Commands

mrouter interface

8 Traffic Management Commands

8.1 QOS Commands

8.1.1 qos global

Command Purpose

Use this command to enter into qos domain view.

Command Syntax

qos global

Command Mode

Global Configuration

Default

None

Usage

Into qos global view, configurate qos global configuration.

Examples

The following example shows how to enter into qos global view:

```
Switch# configure terminal
Switch(config)# qos global
Switch(config-qos-global)#
```

Related Commands

None

8.1.2 qos enable

Command Purpose

Use this command to enable qos globally. Use the no command to disable qos globally.

Command Syntax

qos enable

no qos enable

Command Mode

Configure-qos-global-view

Default

Enable

Usage

Only enable qos globally can configurate qos related function.

Examples

The following example shows how to enable qos globally:

```
Switch# configure terminal
Switch(config)# qos global
Switch(config-qos-global)# qos enable
```

The following example shows how to disable qos globally:

```
Switch# configure terminal
Switch(config)# qos global
Switch(config-qos-global)# no qos enable
```

Related Commands

show qos global

8.1.3 qos ipg

Command Purpose

Use this command to enable qos rating include ipg. Use the disable command to disable qos rating include ipg.

Command Syntax

qos ipg (enable | disable)

Command Mode

Configure-qos-global-view

Default

Enable

Usage

Use this command to set qos policing or shaping include ipg or not.

Examples

The following example shows how to enable qos ipg and disable qos ipg:

```
Switch# configure terminal
Switch(config)# qos global
Switch(config-qos-global)# qos ipg enable
Switch(config-qos-global)# qos ipg disable
```

Related Commands

show qos global

8.1.4 qos cos-domain

Command Purpose

Use this command to enter into qos cos domain view.

Command Syntax

qos cos-domain *QOS_DOMAIN_ID*

Parameter	Parameter Description	Parameter Value
QOS_DOMAIN_ID	Qos domain id	Range is 0-6

Command Mode

Global Configuration

Default

None

Usage

Into qos cos domain view，the mapping relation in cos with tc can be reset.

Examples

The following example shows how to enter into qos cos domain 1 view:

```
Switch# configure terminal
Switch(config)# qos cos-domain 1
```

Related Commands

show qos

8.1.5 cos

Command Purpose

Use this command to configure qos mapping cos to tc and color in qos cos domain. Use no command to restore default mapping.

Command Syntax

cos *COS_ID* to tc *TC_VALUE* color (green | yellow | red)

no cos *COS_ID* to tc

Parameter	Parameter Description	Parameter Value
COS_ID	Code of service	Range is 0-7
TC_VALUE	Traffic class value	Range is 0-7

Command Mode

Configure-qos-cos-domain-view

Default

By default, cos x mapping to tc x and color green, such as cos 2 mapping to tc 2 color green.

Usage

None

Examples

The following example shows how to set cos 2 mapping to tc 5 color yellow in qos cos domain 1:

```
Switch# configure terminal
Switch(config)# qos cos-domain 1
Switch(config-qos-cos-domain-1)# cos 2 to tc 5 color yellow
```

The following example shows how to restore cos 2 default mapping in qos cos domain 1:

```
Switch# configure terminal
Switch(config)# qos cos-domain 1
Switch(config-qos-cos-domain-1)# no cos 2 to tc
```

Related Commands

show qos

8.1.6 cos range

Command Purpose

Use this command to configure qos mapping cos range to tc and color in qos cos domain. Use no command to restore default mapping.

Command Syntax

cos range *NAME_STRING* to tc *TC_VALUE* color (green | yellow | red)

no cos range *NAME_STRING* to tc

Parameter	Parameter Description	Parameter Value
NAME_STRING	Number range string	e.g. 0-2,4,6-7
TC_VALUE	Traffic class value	Range is 0-7

Command Mode

Configure-qos-cos-domain-view

Default

By default, cos x mapping to tc x and color green, such as cos 2 mapping to tc 2 color green.

Usage

None

Examples

The following example shows how to set cos 2-5 mapping to tc 5 color yellow in qos cos domain 1:

```
Switch# configure terminal
Switch(config)# qos cos-domain 1
Switch(config-qos-cos-domain-1)# cos range 2-5 to tc 2 color yellow
```

The following example shows how to restore cos 2-5 default mapping in qos cos domain 1:

```
Switch# configure terminal
Switch(config)# qos cos-domain 1
Switch(config-qos-cos-domain-1)# no cos range 2-5 to tc
```

Related Commands

show qos

8.1.7 qos dscp-domain

Command Purpose

Use this command to enter into qos dscp domain view.

Command Syntax

qos dscp-domain *QOS_DOMAIN_ID*

Parameter	Parameter Description	Parameter Value
QOS_DOMAIN_ID	Qos domain id	Range is 0-6

Command Mode

Global Configuration

Default

None

Usage

Into qos dscp domain view，the mapping relation in dscp with tc can be reset.

Examples

The following example shows how to enter into qos dscp domain 1 view:

```
Switch# configure terminal
Switch(config)# qos dscp-domain 1
```

Related Commands

show qos

8.1.8 dscp

Command Purpose

Use this command to configure qos mapping dscp to tc and color in qos dscp domain. Use no command to restore default mapping.

Command Syntax

dscp *DSCP_VALUE* to tc *TC_VALUE* color (green | yellow | red)

no dscp *DSCP_VALUE* to tc

Parameter	Parameter Description	Parameter Value
DSCP_VALUE	Differentiated service code point	Range is 0-63
TC_VALUE	Traffic class value	Range is 0-7

Command Mode

Configure-qos-dscp-domain-view

Default

By default, dscp x mapping to tc x/8 and color green, such as dscp 24 mapping to tc 3 color green.

Usage

None

Examples

The following example shows how to set dscp 24 mapping to tc 5 color yellow in qos dscp domain 1:

```
Switch# configure terminal
Switch(config)# qos dscp-domain 1
Switch(config-qos-dscp-domain-1)# dscp 24 to tc 5 color yellow
```

The following example shows how to restore dscp 24 default mapping in qos dscp domain 1:

```
Switch# configure terminal
Switch(config)# qos dscp-domain 1
Switch(config-qos-dscp-domain-1)# no dscp 24 to tc
```

Related Commands

show qos

8.1.9 dscp range

Command Purpose

Use this command to configure qos mapping dscp range to tc and color in qos dscp domain. Use no command to restore default mapping.

Command Syntax

dscp range *NAME_STRING* to tc *TC_VALUE* (green | yellow | red)

no dscp range *NAME_STRING* to tc

Parameter	Parameter Description	Parameter Value

NAME_STRING	Number range string	e.g. 0-2,21-30
TC_VALUE	Traffic class value	Range is 0-7

Command Mode

Configure-qos-dscp-domain-view

Default

By default, dscp x mapping to tc x/8 and color green, such as dscp 24 mapping to tc 3 color green.

Usage

None

Examples

The following example shows how to set dscp 0-20 mapping to tc 3 color yellow in qos dscp domain 1:

```
Switch# configure terminal
Switch(config)# qos dscp-domain 1
Switch(config-qos-dscp-domain-1)# dscp range 0-20 to tc 3 color yellow
```

The following example shows how to restore dscp 0-20 default mapping in qos dscp domain 1:

```
Switch# configure terminal
Switch(config)# qos dscp-domain 1
Switch(config-qos-dscp-domain-1)# no dscp range 0-20 to tc
```

Related Commands

show qos

8.1.10 qos exp-domain

Command Purpose

Use this command to enter into qos exp domain view.

Command Syntax

qos exp-domain *QOS_DOMAIN_ID*

Parameter	Parameter Description	Parameter Value
QOS_DOMAIN_ID	Qos domain id	Range is 0-6

Command Mode

Global Configuration

Default

None

Usage

Into qos exp domain view，the mapping relation in exp with tc can be reset.

Examples

The following example shows how to enter into qos exp domain 1 view:

```
Switch# configure terminal
Switch(config)# qos exp-domain 1
```

Related Commands

show qos

8.1.11 exp

Command Purpose

Use this command to configure qos mapping exp to tc and color in qos exp domain.
Use no command to restore default mapping.

Command Syntax

exp *EXP_VALUE* to tc *TC_VALUE* color (green | yellow | red)

no exp *EXP_VALUE* to tc

Parameter	Parameter Description	Parameter Value
EXP_VALUE	Mpls exp field	Range is 0-7
TC_VALUE	Traffic class value	Range is 0-7

Command Mode

Configure-qos-exp-domain-view

Default

By default, exp x mapping to tc x and color green, such as exp 2 mapping to tc 2 color green.

Usage

None

Examples

The following example shows how to set exp 2 mapping to tc 5 color yellow in qos exp domain 1:

```
Switch# configure terminal
Switch(config)# qos exp-domain 1
Switch(config-qos-exp-domain-1)# exp 2 to tc 5 color yellow
```

The following example shows how to restore exp 2 default mapping in qos exp domain 1:

```
Switch# configure terminal
Switch(config)# qos exp-domain 1
Switch(config-qos-exp-domain-1)#no exp 2 to tc
```

Related Commands

show qos

8.1.12 exp range

Command Purpose

Use this command to configure qos mapping exp range to tc and color in qos exp domain. Use no command to restore default mapping.

Command Syntax

exp range *NAME_STRING* to tc *TC_VALUE* color (green | yellow | red)

no exp range *NAME_STRING* to tc

Parameter	Parameter Description	Parameter Value
NAME_STRING	Number range string	e.g. 0-2,4,6-7
TC_VALUE	Traffic class value	Range is 0-7

Command Mode

Configure-qos-exp-domain-view

Default

By default, exp x mapping to tc x and color green, such as exp 2 mapping to tc 2 color green.

Usage

None

Examples

The following example shows how to set exp 2-5 mapping to tc 5 color yellow in qos exp domain 1:

```
Switch# configure terminal
Switch(config)# qos exp-domain 1
Switch(config-qos-exp-domain-1)# exp range 2-5 to tc 2 color yellow
```

The following example shows how to restore exp 2-5 default mapping in qos domain 1:

```
Switch# configure terminal
Switch(config)# qos exp-domain 1
Switch(config-qos-exp-domain-1)# no exp range 2-5 to tc
```

Related Commands

show qos

8.1.13 tc

Command Purpose

Use this command to configure qos mapping, tc and color to cos, exp or dscp in qos cos/exp/dscp domain. Use no command to restore default mapping.

Command Syntax

tc *TC_VALUE* color (green | yellow | red) to cos *COS_ID*

tc *TC_VALUE* color (green | yellow | red) to exp *EXP_VALUE*

tc *TC_VALUE* color (green | yellow | red) to dscp *DSCP_VALUE*

no tc *TC_VALUE* color (green | yellow | red) to cos

no tc *TC_VALUE* color (green | yellow | red) to exp

no tc *TC_VALUE* color (green | yellow | red) to dscp

Parameter	Parameter Description	Parameter Value
TC_VALUE	Traffic class value	Range is 0-7
COS_ID	Code of service	Range is 0-7
EXP_VALUE	Mpls exp field	Range is 0-7
DSCP_VALUE	Differentiated service code point	Range is 0-63

Command Mode

Configure-qos-cos-domain-view

Configure-qos-exp-domain-view

Configure-qos-dscp-domain-view

Default

By default, tc x and color all mapping to cos x, exp x and dscp x*8. such as tc 3 and color green to cos 3, exp 3, dscp 24.

Usage

None

Examples

The following example shows how to set tc 3 color yellow mapping to cos 6 in qos cos domain 1:

```
Switch# configure terminal
Switch(config)# qos cos-domain 1
Switch(config-qos-cos-domain-1)# tc 3 color yellow to cos 6
```

The following example shows how to restore tc 3 color yellow default mapping in qos cos domain 1:

```
Switch# configure terminal
Switch(config)# qos cos-domain 1
Switch(config-qos-cos-domain-1)# no tc 3 color yellow to cos
```

Related Commands

show qos

8.1.14 tc range

Command Purpose

Use this command to configure qos mapping, tc range and color to cos, exp or dscp in qos cos/exp/dscp domain. Use no command to restore default mapping.

Command Syntax

tc tc range *NAME_STRING* color (green | yellow | red) to cos *COS_ID*

tc tc range *NAME_STRING* color (green | yellow | red) to exp *EXP_VALUE*

tc tc range *NAME_STRING* color (green | yellow | red) to dscp *DSCP_VALUE*

no tc range *NAME_STRING* color (green | yellow | red) to cos

no tc range *NAME_STRING* color (green | yellow | red) to exp

no tc range *NAME_STRING* color (green | yellow | red) to dscp

Parameter	Parameter Description	Parameter Value
NAME_STRING	Number range string	e.g. 0-2,4,6-7
COS_ID	Code of service	Range is 0-7
EXP_VALUE	Mpls exp field	Range is 0-7
DSCP_VALUE	Differentiated service code point	Range is 0-63

Command Mode

Configure-qos-cos-domain-view

Configure-qos-dscp-domain-view

Configure-qos-exp-domain-view

Default

By default, tc x and color all mapping to cos x, exp x and dscp x*8. such as tc 3 and color green to cos 3, exp 3, dscp 24.

Usage

None

Examples

The following example shows how to set tc 2-4 color yellow mapping to cos 6 in qos cos domain 1:

```
Switch# configure terminal
Switch(config)# qos cos-domain 1
Switch(config-qos-cos-domain-1)#tc range 2-4 color yellow to cos 6
```

The following example shows how to restore tc 2-4 color yellow default mapping in qos cos domain 1:

```
Switch# configure terminal
Switch(config)# qos cos-domain 1
Switch(config-qos-cos-domain-1)#no tc range 2-4 color yellow to cos
```

Related Commands

show qos

8.1.15 qos mpls-label

Command Purpose

Use this command to set mpls label exp domain.

Command Syntax

qos mpls-label *MPLS_LABEL_VAL* exp-domain *QOS_DOMAIN_ID*

no qos mpls-label *MPLS_LABEL_VAL* exp-domain

Parameter	Parameter Description	Parameter Value
MPLS_LABEL_VAL	Mpls label	Range is 16-1048575
QOS_DOMAIN_ID	Qos domain id	Range is 0-6

Command Mode

Global Configuration

Default

None

Usage

By defalut, all mpls label belong to exp domain 0.

Examples

The following example shows how to set mpls labe 300 belong to exp domain 2:

```
Switch# configure terminal
Switch(config)# qos mpls-label 300 exp-domain 2
```

The following example shows how to restore mpls label 300 exp domain:

```
Switch# configure terminal
Switch(config)# no qos mpls-label 300 exp-domain
```

Related Commands

show qos mpls-label exp-domain

8.1.16 qos policer-profile

Command Purpose

Use this command to creat a qos policer profile. Use no command to delete policer profile.

Command Syntax

qos policer-profile *NAME_STRING*

no qos policer-profile *NAME_STRING*

Parameter	Parameter Description	Parameter Value
NAME_STRING	Policer profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Global Configuration

Default

None

Usage

If the system already has a policer profile name with the same name, this command will enter profile configuration mode. Otherwise, this command will create the profile firstly and then enter the profile configuration mode. When use no command to delete policer profile, make sure that it isn't referred by any policy-map or port.

Examples

The following example shows how to create a new policer profile named p1:

```
Switch# configure terminal
Switch(config)# qos policer-profile p1
```

The following example shows how to delete a policer profile named p1:

```
Switch# configure terminal
Switch(config)# no qos policer-profile p1
```

Related Commands

show qos policer-profile

8.1.17 mode

Command Purpose

Use this command to configure algorithm-mode, color-mode, cir, cbs, eir, ebs and stats in qos policer profile.

Command Syntax

mode rfc2697 (pps |) (color-aware | color-blind |) cir *POLICER_RATE* (cbs *POLICER_BURST* |) (ebs *POLICER_BURST1* |) (stats |)

mode rfc4115 (pps |) (color-aware | color-blind |) cir *POLICER_RATE* (cbs *POLICER_BURST* |) eir *POLICER_RATE1* (ebs *POLICER_BURST1* |) (stats |)

Parameter	Parameter Description	Parameter Value
POLICER_RATE	CIR	BPS mode, unit is kbps, range is 0-100000000 PPS mode, unit is packets/s, range is 0-140000000
POLICER_BURST	CBS	BPS mode, unit is byte, range is 126..128000 PPS mode, unit is packet, range is 2-1500
POLICER_BURST1	EBS	BPS mode, unit is byte, range is 126..128000 PPS mode, unit is packet, range is 2-1500
POLICER_RATE1	EIR	BPS mode, unit is kbps, range is 0-100000000 PPS mode, unit is packets/s, range is 0-140000000

Command Mode

Configure-qos-policer-view

Default

Color-mode is blind, cir 100000000 cbs 128000 ebs 128000 and stats is disable.

Usage

None

Examples

The following example shows how to set policer profile p1 rfc2697 and enable stats:

```
Switch# configure terminal
Switch(config)# qos policer-profile p1
Switch(config-qos-policer-p1)# mode rfc2697 cir 10000 cbs 2000 ebs 300 stats
```

Related Commands

qos policer-profile

8.1.18 set

Command Purpose

Use this command to apply qos policer action profile in policer profile. Use no command to remove policer action profile from policer profile.

Command Syntax

set action-profile *NAME_STRING*

no set action-profile

Parameter	Parameter Description	Parameter Value
NAME_STRING	Policer action profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Configure-qos-policer-view

Default

None

Usage

By defalut, red color after policing will be drop, if you want to change the behaviour of green/yellow/red, including transmit and tc attribute, policer action profile will work out.

Examples

The following example shows how to apply a policer action profile in policer profile p1:

```
Switch# configure terminal
Switch(config-qos-police-p1)# set action-profile a1
```

The following example shows how to remove policer action profile from policer profile p1:

```
Switch# configure terminal
Switch(config-qos-police-p1)# no set action-profile
```

Related Commands

show qos policer-profile

8.1.19 qos policer-action-profile

Command Purpose

Use this command to creat a qos policer action profile. Use no command to delete policer action profile.

Command Syntax

qos policer-action-profile *NAME_STRING*

no qos policer-action-profile *NAME_STRING*

Parameter	Parameter Description	Parameter Value

NAME_STRING	Policer action profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Global Configuration

Default

None

Usage

If the system already has a policer action profile name with the same name, this command will enter profile configuration mode. Otherwise, this command will create the profile firstly and then enter the profile configuration mode. When use no command to delete policer action profile, make sure that it isn't referred by any policer profile.

Examples

The following example shows how to create a new policer action profile named p1:

```
Switch# configure terminal
Switch(config)# qos policer-action-profile p1
```

The following example shows how to delete a policer action profile named p1:

```
Switch# configure terminal
Switch(config)# no qos policer-action-profile p1
```

Related Commands

show qos policer-action-profile

8.1.20 set

Command Purpose

Use this command to configure qos policer acton profile. Use no command to restore qos policer acton profile default configuration.

Command Syntax

set (confirm-action | exceed-action | violate-action) (transmit | drop | tc *TC_VALUE*)

no set (confirm-action | exceed-action | violate-action)

Parameter	Parameter Description	Parameter Value
TC_VALUE	Traffic class value	Range is 0-7

Command Mode

Configure-qos-policer-action-view

Default

confirm-action: transmit tc invalid

exceed-action: transmit tc invalid

violate-action: drop tc invalid

Usage

In system, packet's tc can be change by policy map,policing and qos mapping, the overwrite order as below:

tc=policy map>policing>qos mapping

Examples

The following example shows how to set violate action transmit and tc 0:

```
Switch# configure terminal
Switch(config-qos-policer-action-p1)# set violate-action transmit
Switch(config-qos-policer-action-p1)# set violate-action tc 0
```

The following example shows how to restore violate action:

```
Switch# configure terminal
Switch(config-qos-policer-action-p1)# no set violate-action
```

Related Commands

show qos policer-action-profile

8.1.21 qos drop-profile

Command Purpose

Use this command to creat a qos drop profile. Use the no command to delete drop profile.

Command Syntax

qos drop-profile *NAME_STRING*

no qos drop-profile *NAME_STRING*

Parameter	Parameter Description	Parameter Value
NAME_STRING	Drop profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Global Configuration

Default

None

Usage

If the system already has a drop profile name with the same name, this command will enter profile configuration mode. Otherwise, this command will create the profile firstly and then enter the profile configuration mode. When use no command to delete drop profile, make sure that it isn't referred by any port queue.

Examples

The following example shows how to create a new drop profile named p1:

```
Switch# configure terminal
Switch(config)# qos drop-profile p1
```

The following example shows how to delete a drop profile named p1:

```
Switch# configure terminal
Switch(config)# no qos drop-profile p1
```

Related Commands

show qos drop-profile

8.1.22 green

Command Purpose

Use this command to configure green max threshold, min threshold and probability in drop profile.

Command Syntax

green maximum *DROP_THRD* minimun *DROP_THRD* probability *DROP_PROB*

Parameter	Parameter Description	Parameter Value
DROP_THRD	Drop threshold	Unit is cell, 1cell=288bytes, range is 12-10000
DROP_PROB	Drop probability	Range is 0-100

Command Mode

Configure-qos-drop-view

Default

Max drop threshold:600

Min drop threshold:75

Drop probability:61

Usage

Min threshold must less than max threshold.

Examples

The following example shows how to set green threshold and probability in drop profile p1:

```
Switch# configure terminal
Switch(config)# qos drop-profile p1
Switch(config-qos-drop-profile-p1)# green maximum 1200 minimun 400 probability 15
```

Related Commands

show qos drop-profile

8.1.23 yellow

Command Purpose

Use this command to configure yellow max threshold, min threshold and probability in drop profile.

Command Syntax

yellow maximum *DROP_THRD* minimun *DROP_THRD* probability *DROP_PROB*

Parameter	Parameter Description	Parameter Value

DROP_THRD	Drop threshold	Unit is cell, 1cell=288bytes, range is 12-10000
DROP_PROB	Drop probability	Range is 0-100

Command Mode

Configure-qos-drop-view

Default

Max drop threshold:600

Min drop threshold:75

Drop probability:61

Usage

Min threshold must less than max threshold.

Examples

The following example shows how to set yellow threshold and probability in drop profile p1:

```
Switch# configure terminal
Switch(config)# qos drop-profile p1
Switch(config-qos-drop-profile-p1)# yellow maximum 600 minimun 200 probability 15
```

Related Commands

show qos drop-profile

8.1.24 red

Command Purpose

Use this command to configure red max threshold, min threshold and probability in drop profile.

Command Syntax

red maximum *DROP_THRD* minimun *DROP_THRD* probability *DROP_PROB*

Parameter	Parameter Description	Parameter Value
DROP_THRD	Drop threshold	Unit is cell, 1cell=288bytes, range is 12-10000
DROP_PROB	Drop probability	Range is 0-100

Command Mode

Configure-qos-drop-view

Default

Max drop threshold:600

Min drop threshold:75

Drop probability:61

Usage

Min threshold must less than max threshold.

Examples

The following example shows how to set red threshold and probability in drop profile p1:

```
Switch# configure terminal
Switch(config)# qos drop-profile p1
Switch(config-qos-drop-profile-p1)# red maximum 400 minimun 100 probability 10
```

Related Commands

show qos drop-profile

8.1.25 qos scheduler-profile

Command Purpose

Use this command to creat a qos scheduler profile. Use the no command to delete scheduler profile.

Command Syntax

qos scheduler-profile *NAME_STRING*

no qos scheduler-profile *NAME_STRING*

Parameter	Parameter Description	Parameter Value
NAME_STRING	Scheduler profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Global Configuration

Default

None

Usage

If the system already has a scheduler profile name with the same name, this command will enter profile configuration mode. Otherwise, this command will create the profile firstly and then enter the profile configuration mode. When use no command to delete schduler profile, make sure that it isn't referred by any port queue.

Examples

The following example shows how to create a new scheduler profile named p1:

```
Switch# configure terminal
Switch(config)# qos scheduler-profile p1
```

The following example shows how to delete a schduler profile named p1:

```
Switch# configure terminal
Switch(config)# no qos scheduler-profile p1
```

Related Commands

show qos scheduler-profile

8.1.26 pir

Command Purpose

Use this command to configure shaping pir in scheduler profile.

Command Syntax

pir *SHAPE_RATE*

Parameter	Parameter Description	Parameter Value
SHAPE_RATE	Shaping rate	Unit is kbps, range is 0-100000000

Command Mode

Configure-qos-scheduler-view

Default

100000000

Usage

Use this command to set pir in queue level.

Examples

The following example shows how to set pir 100000kbps in schduler profile p1:

```
Switch# configure terminal
Switch(config)# qos scheduler-profile p1
Switch(config-qos-scheduler-p1)# pir 100000
```

Related Commands

show qos scheduler-profile

8.1.27 mode

Command Purpose

Use this command to configure scheduling mode in scheduler profile.

Command Syntax

mode (sp | dwrr)

Command Mode

Configure-qos-scheduler-view

Default

SP

Usage

None

Examples

The following example shows how to set dwrr mode in scheduler profile p1:

```
Switch# configure terminal
Switch(config)# qos scheduler-profile p1
Switch(config-qos-scheduler-p1)# mode dwrr
```

Related Commands

show qos scheduler-profile

8.1.28 weight

Command Purpose

Use this command to configure dwrr weight in scheduler profile.

Command Syntax

weight *QUEUE_WEIGHT*

Parameter	Parameter Description	Parameter Value
QUEUE_WEIGHT	Queue weight	Range is 1-100

Command Mode

Configure-qos-scheduler-view

Default

1

Usage

In dwrr mode, the larger queue weight is, the more bandwith assigned.

Examples

The following example shows how to set dwrr weight in scheduler profile p1:

```
Switch# configure terminal
Switch(config)# qos scheduler-profile p1
Switch(config-qos-scheduler-p1)# weight 10
```

Related Commands

show qos scheduler-profile

8.1.29 qos port-shape-profile

Command Purpose

Use this command to creat a qos port shape profile. Use the no command to delete port shape profile.

Command Syntax

qos port-shape-profile *NAME_STRING*

no qos port-shape-profile *NAME_STRING*

Parameter	Parameter Description	Parameter Value
NAME_STRING	Port shape profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Global Configuration

Default

None

Usage

If the system already has a port shape profile name with the same name, this command will enter profile configuration mode. Otherwise, this command will create the profile firstly and then enter the profile configuration mode. When use no command to delete port shape profile, make sure that it isn't referred by any port.

Examples

The following example shows how to create a new port shape profile named p1:

```
Switch# configure terminal
Switch(config)# qos port-shape-profile p1
```

The following example shows how to delete a port shape profile named p1:

```
Switch# configure terminal
Switch(config)# no qos port-shape-profile p1
```

Related Commands

show qos port-shape-profile

8.1.30 pir

Command Purpose

Use this command to configure shaping pir in port shape profile.

Command Syntax

pir *SHAPE_RATE*

Parameter	Parameter Description	Parameter Value
SHAPE_RATE	Shaping rate	Unit is kbps, range is 0-100000000

Command Mode

Configure-qos-port-shape-view

Default

Shaping is disable

Usage

Use this command to set pir in port level.

Examples

The following example shows how to set pir 100000kbps in port shape profile p1:

```
Switch# configure terminal
Switch(config)# qos port-shape-profile p1
Switch(config-qos-port-shape-p1)# pir 100000
```

Related Commands

show qos port-shape-profile

8.1.31 qos cos-domain

Command Purpose

Use this command to configure QoS cos domain for a port. Use the no command to restore default domain of a port.

Command Syntax

qos cos-domain *QOS_DOMAIN_ID*

no qos cos-domain

Parameter	Parameter Description	Parameter Value
QOS_DOMAIN_ID	Qos domain id	Range is 0-6

Command Mode

Interface Configuration

Default

Cos doamin 0

Usage

None

Examples

The following example shows how to apply qos cos doamin 5 to eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# qos cos-domain 5
```

The following example shows how to restore eth-0-1 default qos cos domain:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no qos cos-domain
```

Related Commands

show qos interface

8.1.32 qos dscp-domain

Command Purpose

Use this command to configure QoS dscp domain for a port. Use the no command to restore default domain of a port.

Command Syntax

qos dscp-domain *QOS_DOMAIN_ID*

no qos dscp-domain

Parameter	Parameter Description	Parameter Value
QOS_DOMAIN_ID	Qos domain id	Range is 0-6

Command Mode

Interface Configuration

Default

Dscp domain 0

Usage

None

Examples

The following example shows how to apply qos dscp doamin 5 to eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# qos dscp-domain 5
```

The following example shows how to restore eth-0-1 default qos dscp domain:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no qos dscp-domain
```

Related Commands

show qos interface

8.1.33 qos port-shape-profile

Command Purpose

Use this command to apply a port shape profile on the port. Use the no command to unapply a profile on the port.

Command Syntax

qos port-shape-profile (*NAME_STRING*)

no qos port-shape-profile

Parameter	Parameter Description	Parameter Value
NAME_STRING	Port shape profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Interface Configuration

Default

None

Usage

None

Examples

The following example shows how to apply port shape profile p1 to eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# qos port-shape-profile p1
```

The following example shows how to remove port shape profile from eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no qos port-shape-profile
```

Related Commands

show qos interface

8.1.34 qos port-policer

Command Purpose

Use this command to apply a policer profile on the port. Use the no command to unapply a profile on the port.

Command Syntax

qos port-policer (input | output) *NAME_STRING*

no qos port-policer (input | output)

Parameter	Parameter Description	Parameter Value

NAME_STRING	Policer profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Interface Configuration

Default

None

Usage

None

Examples

The following example shows how to apply policer profile p1 to eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# qos port-policer input p1
```

The following example shows how to remove policer profile from eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no qos port-policer input
```

Related Commands

show qos interface

8.1.35 replace dscp

Command Purpose

Use this command to configurate replace dscp for the port in egress direction. Use the no command to disable replace dscp on the port.

Command Syntax

replace dscp

no replace dscp

Command Mode

Interface Configuration

Default

Disable

Usage

When enable replace dscp on a port, packet's dscp field will be modified according to qos domain dscp mapping relation.

Examples

The following example shows how to enable replace dscp on eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# replace dscp
```

The following example shows how to disable replace dscp on eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no replace dscp
```

Related Commands

show qos interface

8.1.36 replace cos

Command Purpose

Use this command to configurate replace cos for the port in egress direction. Use the no command to disable replace cos on the port.

Command Syntax

replace cos

no replace cos

Command Mode

Interface Configuration

Default

Enable

Usage

When enable replace cos on a port, packet's cos field will be modified according to qos domain dscp mapping relation.

Examples

The following example shows how to enable replace cos on eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# replace cos
```

The following example shows how to disable replace cos on eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no replace cos
```

Related Commands

show qos interface

8.1.37 trust

Command Purpose

Use this command to configure trust type for the port. Use the no command to restore default trust type for the port.

Command Syntax

trust (cos | dscp | port)

no trust

Command Mode

Interface Configuration

Default

Trust cos

Usage

For incoming packet, it will select related field in packet according to port trust type to use for qos mapping.

Examples

The following example shows how to set eth-0-1 trust dscp-exp:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# trust dscp
```

The following example shows how to set eth-0-1 default trust type:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no trust
```

Related Commands

show qos interface

8.1.38 set cos

Command Purpose

Use this command to set port priority value. Use the no command to set default priority for the port.

Command Syntax

set cos *COS_ID*

no set cos

Parameter	Parameter Description	Parameter Value
COS_ID	Cos ID	Range is 0-7

Command Mode

Interface Configuration

Default

0

Usage

When the trust type is trust port, the port priority is used for qos mapping.

Examples

The following example shows how to set eth-0-1 priority:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# set cos 3
```

The following example shows how to restore eth-0-1 default priority:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no set cos
```

Related Commands

show qos interface

8.1.39 qos queue

Command Purpose

Use this command to enter into port queue view.

Command Syntax

qos queue *QUEUE_ID*

Parameter	Parameter Description	Parameter Value
QUEUE_ID	Queue ID	Range is 0-7

Command Mode

Interface Configuration

Default

None

Usage

None

Examples

The following example shows how to enter into queue view of eth-0-1:

```
Switch# configure terminal
DUT2(config-if-eth-0-1)# qos queue 3
DUT2(config-if-eth-0-1-queue-3)#
```

Related Commands

None

8.1.40 drop-profile

Command Purpose

Use this command to apply a drop profile on the port queue. Use the no command to remove profile from the port queue.

Command Syntax

drop-profile (*NAME_STRING*)

no drop-profile

Parameter	Parameter Description	Parameter Value
NAME_STRING	Drop profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

configure-if-queue-view

Default

None

Usage

None

Examples

The following example shows how to apply drop profile p1 to eth-0-1 queue 2:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# qos queue 2
Switch(config-if-eth-0-1-queue-2)# drop-profile p1
```

The following example shows how to remove drop profile from eth-0-1 queue 2:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# qos queue 2
Switch(config-if-eth-0-1-queue-2)# no drop-profile
```

Related Commands

show qos interface

8.1.41 scheduler-profile

Command Purpose

Use this command to apply a scheduler profile on the port queue. Use the no command to remove profile from the port queue.

Command Syntax

scheduler-profile (*NAME_STRING*)

no scheduler-profile

Parameter	Parameter Description	Parameter Value
NAME_STRING	Scheduler profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

configure-if-queue-view

Default

None

Usage

None

Examples

The following example shows how to apply scheduler profile p1 to eth-0-1 queue 2:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# qos queue 2
Switch(config-if-eth-0-1-queue-2)# scheduler-profile p1
```

The following example shows how to remove scheduler profile from eth-0-1 queue 2:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# qos queue 2
Switch(config-if-eth-0-1-queue-2)# no scheduler-profile
```

Related Commands

show qos interface

8.1.42 random-detect

Command Purpose

Use this command to set drop mode on the port queue. Use the no command to restore default drop mode on the port queue.

Command Syntax

random-detect enable

no random-detect enable

Command Mode

configure-if-queue-view

Default

Disable

Usage

When random-detect enable, it means WRED mode, otherwise means WTD mode.

Examples

The following example shows how to set eth-0-1 queue 2 WRED mode:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# qos queue 2
Switch(config-if-eth-0-1-queue-2)# random-detect enable
```

The following example shows how to restore eth-0-1 queue 2 default mode:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# qos queue 2
Switch(config-if-eth-0-1-queue-2)# no random-detect enable
```

Related Commands

show qos interface

8.1.43 show qos global

Command Purpose

Use this command to display qos global configuration.

Command Syntax

show qos global

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display qos global configuration:

```
Switch# show qos global
QoS global state:
  QoS enable state              : Enable
  QoS ipg state                 : Enable
```

Related Commands

qos global

8.1.44 show qos

Command Purpose

Use this command to display the both ingress and egress information of QoS map-table.

Command Syntax

show qos (cos-domain | dscp-domain | exp-domain) *QOS_DOMAIN_ID* map-table (all | ingress | egress)

Parameter	Parameter Description	Parameter Value
QOS_DOMAIN_ID	Qos domain id	Range is 0-6

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display qos cos domain 0 ingree mapping relation::

```
Switch# show qos cos-domain 0 map-table ingress
QoS DOMAIN 0, CFI Disable, COS map to TC & COLOR:
-----------+------+------+------+------+------+------+------
  COS      : 0      1      2      3      4      5      6      7
  TC       : 0      1      2      3      4      5      6      7
  color    : green  green  green  green  green  green  green  green
```

Related Commands

qos cos-domain

8.1.45 show qos mpls-label exp-domain

Command Purpose

Use this command to display the mapping between mpls label and exp domain.

Command Syntax

show qos mpls-label exp-domain

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the mapping between mpls and exp domain:

```
Switch# show qos mpls-label exp-domain
mpls-label      |      exp-domain
--------------------------------
default         |          0
--------------------------------
300             |          2
--------------------------------
```

Related Commands

qos mpls-label

8.1.46 show qos policer-profile

Command Purpose

Use this command to display qos policer profile configuration and application.

Command Syntax

show qos policer-profile (*NAME_STRING* |)

Parameter	Parameter Description	Parameter Value
NAME_STRING	Policer profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Privileged EXEC

Default

None

Usage

If specify a policer profile name, it will show the profile's configuration and application. Otherwise, it will show all policer profile created.

Examples

The following example shows how to display qos policer profile p1's configuration and application:

```
Switch# show qos policer-profile p1
 POLICER-PROFILE-NAME: p1
  mode rfc2697, color blind mode, CIR 100000000 Kbps, CBS 128000 Bytes, EBS 128000
Bytes
  Applied-interfaces:
             interface                direction
             ---------------------------------
             eth-0-3                  input

  Applied-policy-map:
             policy-map               class-map
             ---------------------------------
```

Related Commands

qos policer-profile

8.1.47 show qos policer-action-profile

Command Purpose

Use this command to display qos policer action profile configuration.

Command Syntax

show qos policer-action-profile (*NAME_STRING* |)

Parameter	Parameter Description	Parameter Value

NAME_STRING	Policer action profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Privileged EXEC

Default

None

Usage

If specify a policer action profile name, it will show the profile's configuration. Otherwise, it will show all policer action profile created.

Examples

The following example shows how to display qos policer action profile p1's configuration:

```
Switch# show qos policer-action-profile p1
 POLICER-ACTION-PROFILE-NAME: p1
   confirm-action transmit tc 5
   exceed-action transmit tc invalid
   violate-action drop tc invalid
```

Related Commands

qos policer-action-profile

8.1.48 show qos drop-profile

Command Purpose

Use this command to display qos drop profile configuration and application.

Command Syntax

show qos drop-profile (*NAME_STRING* |)

Parameter	Parameter Description	Parameter Value
NAME_STRING	Drop profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Privileged EXEC

Default

None

Usage

If specify a drop profile name, it will show the profile's configuration and application. Otherwise, it will show all drop profile created.

Examples

The following example shows how to display qos drop profile p1's configuration and application:

```
Switch# show qos drop-profile p1
 DROP-PROFILE-NAME: p1
  green packet threshold:
    maximum buffer cell: 600
    minimum buffer cell: 75
    drop probability   : 19
  yellow packet threshold:
    maximum buffer cell: 600
    minimum buffer cell: 75
    drop probability   : 19
  red packet threshold:
    maximum buffer cell: 600
    minimum buffer cell: 75
    drop probability   : 19
```

```
  Applied-queue:
              eth-0-5:queue  1
```

Related Commands

qos drop-profile

8.1.49 show qos scheduler-profile

Command Purpose

Use this command to display qos scheduler profile configuration and application.

Command Syntax

show qos scheduler-profile (*NAME_STRING* |)

Parameter	Parameter Description	Parameter Value
NAME_STRING	Scheduler profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Privileged EXEC

Default

None

Usage

If specify a scheduler profile name, it will show the profile's configuration and application. Otherwise, it will show all scheduler profile created.

Examples

The following example shows how to display qos scheduler profile p1's configuration and application:

```
Switch# show qos scheduler-profile p1
 SCHEDULER-PROFILE-NAME: p1
  CIR is 0 kbps, PIR is 100000000 kbps
  scheduler mode is sp
  scheduler dwrr weight is 1
  Applied-queue:
           eth-0-5:queue  5
```

Related Commands

qos scheduler-profile

8.1.50 show qos port-shape-profile

Command Purpose

Use this command to display qos port shape profile configuration and application.

Command Syntax

show qos port-shape-profile (*NAME_STRING* |)

Parameter	Parameter Description	Parameter Value
NAME_STRING	Port shape profile name	The initial character name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20.

Command Mode

Privileged EXEC

Default

None

Usage

If specify a port shape profile name, it will show the profile's configuration and application. Otherwise, it will show all port shape profile created.

Examples

The following example shows how to display qos port shape profile p1's configuration and application:

```
Switch# show qos port-shape-profile p1
 PORT-SHAPE-PROFILE-NAME: p1
  PIR is 100000000 kbps
  Applied-interfaces: eth-0-5
```

Related Commands

qos port-shape-profile

8.1.51 show qos interface

Command Purpose

Use this command to display qos related configuration of a interface and qos stats.

Command Syntax

show qos interface *IFNAME* ((queue (drop | schedule | statistics)) | (policer statistics (input | output)) | (port-shape) | (classify-remark))

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	Only physical interface

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display queue stats of interface eth-0-1:

```
Switch# show qos interface eth-0-1 queue statistics
Queue Transmit-Packets     Transmit-Bytes       Drop-Packets    Drop-Bytes
-----+--------------------+--------------------+---------------+---------------
0     0                    0                    0               0
1     0                    0                    0               0
2     0                    0                    0               0
3     0                    0                    0               0
4     0                    0                    0               0
5     0                    0                    0               0
6     0                    0                    0               0
7     0                    0                    0               0
```

Related Commands

clear qos interface

8.1.52 clear qos interface

Command Purpose

Use this command to clear qos related stats of an interface, including shaping,policing and queue stats.

Command Syntax

clear qos interface *IFNAME* statistics ((queue (*QUEUE_ID* |)) | (policer (input | output)))

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	Only physical interface
QUEUE_ID	Queue ID	Range is 0-7

Command Mode

Privileged EXEC

Default

None

Usage

When clear queue statistics, if specify queue ID, it will clear specified queue statistics, otherwise, it will clear all queue statistics of an interface.

Examples

The following example shows how to clear queue statistics of interface eth-0-1:

```
Switch# clear qos interface eth-0-1 statistics queue
```

Related Commands

show qos interface

9 Security Commands

9.1 AUTH Commands

9.1.1 line console

Command Purpose

Use line console command to set console terminal line configuration.

Command Syntax

line console *CONID*

Parameter	Parameter Description	Parameter Value
CONID	First Line number	Range is 0-0

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to configure line console:

```
Switch# configure terminal
Swtich(config)# line console 0
Switch(config-line)#
```

Related Commands

show console

9.1.2 line vty

Command Purpose

Use line vty command to set virtual terminal line configuration.

Command Syntax

line vty *VTYID1* (*VTYID2* |)

Parameter	Parameter Description	Parameter Value
VTYID1	First Line number	Range is 0-7
VTYID2	Last Line number	Range is 0-7

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to configure line vty:

```
Switch# configure terminal
Swtich(config)# line vty 0 7
Swtich(config-line)#
```

Related Commands

show users

9.1.3 line vty maximum

Command Purpose

Use line vty maximum command to set maximum vty users. Use the no form of this command to return to the default setting.

Command Syntax

line vty maximum *VTYMAX*

no line vty maximum

Parameter	Parameter Description	Parameter Value
VTYMAX	Max Line number	Range is 0-8

Command Mode

Global Configuration

Default

8

Usage

Maximum can't be less than the used vty number.

Examples

The following example shows how to configure line vty maximum:

```
Switch# configure terminal
Swtich(config)# line vty maximum 3
```

The following example shows how to restore line vty maximum to default value:

```
Switch# configure terminal
Swtich(config)# no line vty maximum
```

Related Commands

None

9.1.4 rsa key

Command Purpose

Use this command to create a key. To import the key file from a specified source, use the rsa key import command. To export the key file to a specified destination, use the rsa key export command. Use the no form of this command to delete rsa key.

Command Syntax

rsa key *RSAKEYNAME* generate *RSAKEYBITS*

rsa key *RSAKEYNAME* import (mgmt-if |) url *STRING1* (private | public) (der | der-hex | pem | ssh1 | ssh2)

rsa key *RSAKEYNAME* export (mgmt-if |) url *STRING2* (private | public) (der | der-hex | pem (3des | aes128 | aes192 | aes256 | des |) | ssh1 (3des |) | ssh2 (3des |))

no rsa key

Parameter	Parameter Description	Parameter Value
RSAKEYNAME	RSA key name	character only can be 0-9A-Za-z.-_ and start with a-z or A-Z
RSAKEYBITS	RSA key bits number	Range is 1024-4096
STRING1	Import from URL	-
STRING2	Export to URL	-

Command Mode

Global Configuration

Default

RSAKEYBITS is 1024

Usage

None

Examples

The following example shows how to create key and enter key mode:

```
Switch# configure terminal
Switch(config)# rsa key KEY1
Switch(config-rsa-key)#
```

The following example shows how to delete key:

```
Switch# configure terminal
Switch(config)# rsa key KEY1 generate
Switch(config)# no rsa key KEY1
```

Related Commands

show rsa key

9.1.5 username

Command Purpose

Use username command to create a local user account on the switch. Use username password command to add username and password. Use the no form of this command to delete username and password.

Command Syntax

username *NAME_STRING*

username *NAME_STRING* assign rsa key *RSAKEYNAME*

username *NAME_STRING* password (*HIDDEN_FLAG* |) *PASSWORD* (privilege *PRIVILEGE* |)

username *NAME_STRING* secret *PASSWORD*

username *NAME_STRING* privilege *PRIVILEGE* ((password (*HIDDEN_FLAG* |) *PASSWORD* |) | secret *PASSWORD* |)

username *NAME_STRING* service-type ({ telnet | ssh | web | rpc-api } | all | none)

no username *USERNAME* (assign rsa key | service-type)

Parameter	Parameter Description	Parameter Value
NAME_STRING	User name	the first character should be a-z or A-Z，can only include 0-9A-Za-z.-_ and the max len is 31
RSAKEYNAME	RSA key name	character only can be 0-9A-Za-z.-_ and start with a-z or A-Z
HIDDEN_FLAG	Specifies a hidden password will follow	Range is 8-8
PRIVILEGE	User privilege level	Range is 1-4
PASSWORD	User password string	can only include 0-9A-Za-z~!@#^&*()_+-={}[]|:;<>,.characters and its length range is 1-63

Command Mode

Global Configuration

Default

PRIVILEGE is 1

Usage

None

Examples

The following example shows how to add username testName and password 123456:

```
Switch# configure terminal
Switch(config)# username testName password 123456
```

The following example shows how to delete username testName:

```
Switch# configure terminal
Switch(config)# username testName password 123456
Switch(config)# no username testName
```

Related Commands

show usernames

9.1.6 re-username

Command Purpose

Use re-username command to modify local user account on the switch.

Command Syntax

re-username *NAME_STRING1 NAME_STRING2*

Parameter	Parameter Description	Parameter Value
NAME_STRING1	Old user name	the first character should be a-z or A-Z，character only can be 0-9A-Za-z.-_ and the max len is 31
NAME_STRING2	New user name	the first character should be a-z or A-Z，character only can be 0-9A-Za-z.-_ and the max len is 31

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to change user account name:

```
Switch# configure terminal
Switch(config)# username oldUser password 123456
Switch(config)# re-username oldUser newUser
```

Related Commands

show usernames

9.1.7 enable password

Command Purpose

Use this command to set the password which is needed when user enter Privileged EXEC mode. Use the no form of this command to delete password.

Command Syntax

enable password (*HIDDEN_FLAG* | secret) *NAME_STRING*

no enable password

Parameter	Parameter Description	Parameter Value
HIDDEN_FLAG	Specifies a hidden password will follow	Range is 8-8

NAME_STRING	password string	Only include 0-9A-Za-z~!@#^&*()_+-={}[]|:;<>,.and its length range is 1-63

Command Mode

Global Configuration

Default

Disable

Usage

If this command is set, user need to provide the password when enter Privileged EXEC mode.

Examples

The following example shows how to set the password:

```
Switch# configure terminal
Switch(config)# enable password 654321
```

The following example shows how to delete the password:

```
Switch# configure terminal
Switch(config)# no enable password
```

Related Commands

None

9.1.8 enable password privilege

Command Purpose

Use this command to set the password which is needed when user enter Privileged EXEC mode. Use the no form of this command to delete password.

Command Syntax

enable password privilege *PRIVILEGE* (*HIDDEN_FLAG* | secret) *PASSWORD*

no enable password privilege *PRIVILEGE*

Parameter	Parameter Description	Parameter Value
PRIVILEGE	User privilege level	Range is 1-4
HIDDEN_FLAG	Specifies a hidden password will follow	Range is 8-8
PASSWORD	Password string	can only include 0-9A-Za-z~!@#^&*()_+-={}[]|:;<>,.characters and its length range is 1-63

Command Mode

Global Configuration

Default

Disable

Usage

If this command is set, user need to provide the password when enter Privileged EXEC mode.

Examples

The following example shows how to set privilege password:

```
Switch# configure terminal
Switch(config)# enable password privilege 2 abc123
```

The following example shows how to delete privilege password:

```
Switch# configure terminal
Switch(config)# no enable password privilege 2
```

Related Commands

None

9.1.9 service password-encryption

Command Purpose

Use this command to set up miscellaneous service encrypt system passwords.

Command Syntax

service password-encryption

no service password-encryption

Command Mode

Global Configuration

Default

Disable

Usage

None

Examples

The following example shows how to set service password-encryption:

```
Switch# configure terminal
Switch(config)# service password-encryption
```

The following example shows how to unset service password-encryption:

```
Switch# configure terminal
Switch(config)# no service password-encryption
```

Related Commands

None

9.1.10 aaa new-model

Command Purpose

Use this command to enable the authentication, authorization, accounting (AAA) access control model. Use the no form of this command to disable AAA.

Command Syntax

aaa new-model

no aaa new-model

Command Mode

Global Configuration

Default

Disable

Usage

None

Examples

The following example shows how to enable AAA access control:

```
Switch# configure terminal
Switch(config)# aaa new-model
```

The following example shows how to disable AAA access control:

```
Switch# configure terminal
Switch(config)# no aaa new-model
```

Related Commands

9.1.11 aaa authentication login

Command Purpose

Use the aaa authentication login configuration command to Set AAA authentication at login. Use the no form of this command to delete AAA authentication at login.

Command Syntax

aaa authentication login (default | *AUTHLISTNAME*) (enable |) (line |) (radius |) (tacplus |) (local |) (none |)

no aaa authentication login (default | *AUTHLISTNAME*)

Parameter	Parameter Description	Parameter Value
AUTHLISTNAME	Named authentication list	can only include a-zA-Z0-9._-
default	Default authentication list	-
enable	Enable password	-
line	Line password	-
none	No authentication	-
radius	Use list of all Radius hosts	-
local	Local username	-
tacplus	Use list of all Tacacs+ hosts	-

Command Mode

Global Configuration

Default

None

Usage

Use the aaa authentication login configuration command to specify one or more AAA methods.

Examples

The following example shows how to add authentication at login:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# aaa authentication login default local radius none
```

The following example shows how to delete authentication at login:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# no aaa authentication login default
```

Related Commands

show aaa method-lists authentication

9.1.12 aaa authorization exec

Command Purpose

Use the aaa authorization exec configuration command to set AAA authorization at login. Use the no form of this command to delete AAA authorization at login.

Command Syntax

aaa authorization exec (default | *AUTHLISTNAME*) { none | radius | local | tacplus }

no aaa authorization exec (default | *AUTHLISTNAME*)

Parameter	Parameter Description	Parameter Value
AUTHLISTNAME	Named authorization list	can only include a-zA-Z0-9._-
default	Default authorization list	-

none	No authorization	-
radius	Use list of all Radius hosts	-
local	Local username	-
tacplus	Use list of all Tacacs+ hosts	-

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to add authorization at login:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# aaa authorization exec default tacplus none
```

The following example shows how to delete authorization at login:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# no aaa authorization exec default
```

Related Commands

show aaa method-lists authorization

9.1.13 aaa accounting exec

Command Purpose

Use this command to set AAA accounting at login. Use the no form of this command to delete AAA accounting at login.

Command Syntax

aaa accounting exec (default | *AUTHLISTNAME*) (((start-stop | stop-only) { radius | tacplus } (none |)) | none)

no aaa accounting exec (default | *AUTHLISTNAME*)

Parameter	Parameter Description	Parameter Value
AUTHLISTNAME	Named accounting list	can only include a-zA-Z0-9._-
default	Default accounting list	-
start-stop	Record start and stop without waiting	-
stop-only	Record stop when service terminates	-
none	No accounting	-
radius	Use list of all Radius hosts	-
tacplus	Use list of all Tacacs+ hosts	-

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to add accounting at login:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# aaa accounting exec default start-stop tacplus
```

The following example shows how to delete accounting at login:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# no aaa accounting exec default
```

Related Commands

show aaa method-lists accounting

9.1.14 aaa accounting commands

Command Purpose

Use this command to set AAA accounting commands at login. Use the no form of this command to delete AAA accounting.

Command Syntax

aaa accounting commands (default | *AUTHLISTNAME*) ((tacplus (none |)) | none)

no aaa accounting commands (default | *AUTHLISTNAME*)

Parameter	Parameter Description	Parameter Value
AUTHLISTNAME	Named accounting list	-
default	The default accounting list	-
none	No accounting	-

tacplus	Use list of all Tacacs+ hosts	-

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to add commands accounting at login:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# aaa accounting commands default tacplus
```

The following example shows how to delete commands accounting at login:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# no aaa accounting commands default
```

Related Commands

show aaa method-lists accounting

9.1.15 aaa privilege mapping

Command Purpose

Use this command to set the privilege mapping in AAA server and switch. Use the no form of this command to delete the mapping.

Command Syntax

aaa privilege mapping *AAA_PRIVILEGE1 AAA_PRIVILEGE2 AAA_PRIVILEGE3*

no aaa privilege mapping

Parameter	Parameter Description	Parameter Value
AAA_PRIVILEGE1	Max server privilege mapping to switch privilege 1	Range is 0-12
AAA_PRIVILEGE2	Max server privilege mapping to switch privilege 2	Range is 0-13
AAA_PRIVILEGE3	Max server privilege mapping to switch privilege 3	Range is 0-14

Command Mode

Global Configuration

Default

0

Usage

Server privilege is 0-15, aaa privilege is 1-4。Default values of aaa privilege 1-3 are 0, 1, 10:

0: server privilege 0 is mapping to aaa privilege 1;

1: server privilege 1 is mapping to aaa privilege 2;

2: server privilege 2-10 are mapping to aaa privilege 3;

Examples

The following example shows how to configure aaa privilege mapping:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# aaa privilege mapping 0 1 14
```

The following example shows how to restore aaa privilege mapping to default value:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# no aaa privilege mapping
```

Related Commands

show aaa privilege mapping

9.1.16 exec-timeout

Command Purpose

Use this command to set console timeout value. Use the no form of this command to default value.

Command Syntax

exec-timeout *ETIMEOUTMIN* (*ETIMEOUTSEC* |)

no exec-timeout

Parameter	Parameter Description	Parameter Value
ETIMEOUTMIN	Timeout value in minute(s)	Range is 0-35791
ETIMEOUTSEC	Timeout value in second(s)	Range is 0-2147483

Command Mode

Line Configuration

Default

ETIMEOUTMIN is 10

ETIMEOUTSEC is 0

Usage

None

Examples

The following example shows how to configure exec-timeout:

```
Switch# configure terminal
Switch(config)# line vty 1
Switch(config-line)# exec-timeout 2 30
```

The following example shows how to restore exec-timeout to default value:

```
Switch# configure terminal
Switch(config)# line vty 1
Switch(config-line)# no exec-timeout
```

Related Commands

None

9.1.17 login

Command Purpose

Use this command to enable console password checking, you can choose local password checking. Use the no form of this command to disable checking.

Command Syntax

login (local | authentication (default | *AUTHLISTNAME*))

no login (local | authentication)

Parameter	Parameter Description	Parameter Value
AUTHLISTNAME	Named authentication list	can only include a-zA-Z0-9._-

Command Mode

Line Configuration

Default

Disable

Usage

None

Examples

The following example shows how to enable console local password checking:

```
Switch# configure terminal
Switch(config)# line vty 1
Switch(config-line)# login local
```

The following example shows how to disable console local password checking:

```
Switch# configure terminal
Switch(config)# line vty 1
Switch(config-line)# no login local
```

Related Commands

None

9.1.18 privilege level

Command Purpose

Use this command to set console privilege level for line. Use the no form of this command to restore it to default value.

Command Syntax

privilege level *PRIVILEGE*

no privilege level

Parameter	Parameter Description	Parameter Value
PRIVILEGE	Default privilege level for line	Range is 1-4

Command Mode

Line Configuration

Default

1

Usage

None

Examples

The following example shows how to configure privilege level:

```
Switch# configure terminal
Switch(config)# line vty 1
Switch(config-line)# privilege level 2
```

The following example shows how to restore privilege level to default value:

```
Switch# configure terminal
Switch(config)# line vty 1
Switch(config-line)# no privilege level
```

Related Commands

None

9.1.19 line-password

Command Purpose

Use this command to set console line-password specifies a hidden password will follow or user password

string. Use the no form of this command to delete the line-password.

Command Syntax

line-password (*HIDDEN_FLAG* |) *NAME_STRING*

no line-password

Parameter	Parameter Description	Parameter Value

HIDDEN_FLAG	Specifies a hidden password will follow	Range is 8-8
NAME_STRING	password string	can only include 0-9A-Za-z~!@#^&*()_+-={}[]|:;<>,.characters and its length range is 1-63

Command Mode

Line Configuration

Default

None

Usage

None

Examples

The following example shows how to configure line-pasword:

```
Switch# configure terminal
Switch(config)# line vty 1
Switch(config-line)# line-password 8 test
```

The following example shows how to delete line-pasword:

```
Switch# configure terminal
Switch(config)# line vty 1
Switch(config-line)# no line-password
```

Related Commands

None

9.1.20 stopbits

Command Purpose

Use this command to set console sync line stop bits.

Command Syntax

stopbits (*LINE_STOP*)

no stopbits

Parameter	Parameter Description	Parameter Value
LINE_STOP	console sync line stop bits	Range is 1-2

Command Mode

Line Configuration

Default

one-bit stop

Usage

None

Examples

The following example shows how to configure stopbits to one-bit stop:

```
Switch# configure terminal
Switch(config)# line console 0
Switch(config-line)# stopbits 1
```

Related Commands

None

9.1.21 databits

Command Purpose

Use this command to set console number of data bits per character.

Command Syntax

databits (*DATABIT*)

no databits

Parameter	Parameter Description	Parameter Value
DATABIT	number of data bits per character	Range is 7-8

Command Mode

Line Configuration

Default

8-bit databits

Usage

None

Examples

The following example shows how to set console number of data bits per character to 7-bit databits:

```
Switch# configure terminal
Switch(config)# line console 0
Switch(config-line)# databits 7
```

Related Commands

None

9.1.22 parity

Command Purpose

Use this command to set console terminal parity. Use the no form of this command to restore parity to default value.

Command Syntax

parity (even | odd | none)

no parity

Parameter	Parameter Description	Parameter Value
even	Even parity	-
odd	Odd parity	-
none	None parity	-

Command Mode

Line Configuration

Default

None parity

Usage

None

Examples

The following example shows how to set parity to odd:

```
Switch# configure terminal
Switch(config)# line console 0
Switch(config-line)# parity odd
```

The following example shows how to restore parity to default value:

```
Switch# configure terminal
Switch(config)# line console 0
Switch(config-line)# no parity
```

Related Commands

None

9.1.23 speed

Command Purpose

Use this command to set transmit and receive speeds of console terminal. Use the no form of this command to restore speed to default value.

Command Syntax

speed (115200 | 57600 | 38400 | 19200 | 9600 | 4800 | 2400 | 1200 | 600)

no speed

Command Mode

Line Configuration

Default

115200

Usage

None

Examples

The following example shows how to set console terminal speed to 115200:

```
Switch# configure terminal
Switch(config)# line console 0
Switch(config-line)# speed 115200
```

The following example shows how to set console terminal speed to default value:

```
Switch# configure terminal
Switch(config)# line console 0
Switch(config-line)# no speed
```

Related Commands

None

9.1.24 authorization exec

Command Purpose

Use this command to enable AAA authorization for logins. Use the no form of this command to restore authorization to default value.

Command Syntax

authorization exec (default | *LISTNAME*)

no authorization exec

Parameter	Parameter Description	Parameter Value
default	Default authorization list	-
LISTNAME	An authorization list with this name	can only include a-zA-Z0-9._-

Command Mode

Line Configuration

Default

default

Usage

None

Examples

The following example shows how to enable authorization for logins:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# line vty 1
Switch(config-line)# authorization exec default
```

The following example shows how to enable authorization for logins to default value:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# line vty 1
Switch(config-line)# no authorization exec
```

Related Commands

None

9.1.25 accounting exec

Command Purpose

Use this command to enable AAA accounting for logins. Use the no form of this command to restore accounting to default value.

Command Syntax

accounting exec (default | *LISTNAME*)

no accounting exec

Parameter	Parameter Description	Parameter Value
default	Default accounting list	-
LISTNAME	Named accounting list	can only include a-zA-Z0-9._-

Command Mode

Line Configuration

Default

default

Usage

None

Examples

The following example shows how to enable AAA accounting:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# line vty 1
Switch(config-line)# accounting exec default
```

The following example shows how to disable AAA accounting:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# line vty 1
Switch(config-line)# no accounting exec
```

Related Commands

None

9.1.26 accounting commands

Command Purpose

Use this command to set AAA accounting for commands. Use the no form of this command to restore accounting commands to default value.

Command Syntax

accounting commands (default | *LISTNAME*)

no accounting commands

Parameter	Parameter Description	Parameter Value
default	Default accounting commands list	-
LISTNAME	Named accounting list	-

Command Mode

Line Configuration

Default

default

Usage

None

Examples

The following example shows how to enable AAA accounting commands:

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# line vty 1
Switch(config-line)# accounting commands default
```

Related Commands

None

9.1.27 end

Command Purpose

Use this command to end the current configuration session and return to Privileged EXEC mode, use the end command in global configuration mode.

Command Syntax

end

Command Mode

Interface Configuration

Default

None

Usage

This command will bring you back to Privileged EXEC mode regardless of what configuration mode or configuration sub-mode you are in. This global configuration command can be used in any configuration mode. Use this command when you are done configuring the system and you want to return to EXEC mode to perform verification steps.

Examples

The following example shows how to exit from interface configuration mode and return to Privileged EXEC mode:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# end
```

Related Commands

None

9.1.28 reset

Command Purpose

Use this command to clear all key configurations, use the reset command in RSA key configuration mode.

Command Syntax

reset

Command Mode

Rsa Key Configuration

Default

None

Usage

Use the reset command to clear all key configurations.

Examples

The following example shows how to clear all key configurations:

```
Switch# configure terminal
Switch(config-rsa-key)# reset
```

Related Commands

None

9.1.29 key type

Command Purpose

To specify the key type, use the key type command in RSA key configuration mode. Use the no form of this command to restore key type to default value.

Command Syntax

key type (private | public)

Command Mode

Rsa Key Configuration

Default

None

Usage

None

Examples

The following example shows how to configure the key type of KEY1 as public key:

```
Switch# configure terminal
Switch(config)# rsa key KEY1
Switch(config-rsa-key)# key type public
```

Related Commands

None

9.1.30 key format

Command Purpose

To specify the key format, use the key format command in RSA key configuration mode. Use the no form of this command to restore key format to default value.

Command Syntax

key format (der | pem)

Command Mode

Rsa Key Configuration

Default

DER

Usage

None

Examples

The following example shows how to configure the key format of KEY1 as der:

```
Switch# configure terminal
Switch(config)# rsa key KEY1
Switch(config-rsa-key)# key format der
```

Related Commands

None

9.1.31 key string end

Command Purpose

Use this command to exit the rsa key configuration mode to global configuration mode and apply all rsa key configurations.

Command Syntax

key string end

Command Mode

Rsa Key Configuration

Default

None

Usage

None

Examples

The following example shows how to exit the rsa key configuration mode:

```
Switch# configure terminal
Switch(config)# rsa key newkey
Switch(config-rsa-key)# key string end
```

Related Commands

None

9.1.32 validate

Command Purpose

Use this command to check the validation of the key strings, use the validate command in RSA key configuration mode.

Command Syntax

validate

Command Mode

Rsa Key Configuration

Default

None

Usage

None

Examples

The following example shows how to validate rsa key:

```
Switch# configure terminal
Switch(config)# rsa key newkey
Switch(config-rsa-key)# validate
```

Related Commands

None

9.1.33 KEYLINE

Command Purpose

To add key strings from the screen directly, type any strings in RSA key configuration mode except the keywords in this mode.

Command Syntax

KEYLINE

Command Mode

Rsa Key Configuration

Default

None

Usage

None

Examples

The following example shows how to configure rsa key string:

```
Switch# configure terminal
Switch(config)# rsa key newkey
Switch(config-rsa-key)# 00302017 4A7D385B 1234EF29 335FC973
Switch(config-rsa-key)# 2DD50A37 C4F4B0FD 9DADE748 429618D5
```

Related Commands

None

9.1.34 radius-server deadtime

Command Purpose

Use this command to improve RADIUS response times when some servers might be unavailable and cause the unavailable servers to be skipped immediately. Use the no form of this command to restore it to default value.

Command Syntax

radius-server deadtime *RADIUS_DEAD_TIME*

no radius-server deadtime

Parameter	Parameter Description	Parameter Value
RADIUS_DEAD_TIME	RADIUS server deadtime in minutes	Range is 1-20

Command Mode

Global Configuration

Default

5

Usage

Use this command to cause the switch to mark as “dead” any RADIUS servers that fail to respond to authentication requests, thus avoiding the wait for the request to time out before trying the next configured server. A RADIUS server marked as “dead” is skipped by additional requests for the duration of minutes, unless there are no servers not marked “dead”.

Examples

The following example shows how to configure radius-server deadtime to 10 minutes:

```
Switch# configure terminal
Switch(config)# radius-server deadtime 10
```

The following example shows how to configure radius-server deadtime to default value:

```
Switch# configure terminal
Switch(config)# no radius-server deadtime
```

Related Commands

None

9.1.35 radius-server retransmit

Command Purpose

Use this command to specify the number of times the switch searches the list of RADIUS server hosts before giving up. Use the no form of this command to restore it to default value.

Command Syntax

radius-server retransmit *RADIUS_RETRANSMIT*

no radius-server retransmit

Parameter	Parameter Description	Parameter Value
RADIUS_RETRANSMIT	RADIUS server retries	Range is 1-100

Command Mode

Global Configuration

Default

3

Usage

The switch tries all servers, allowing each one to time out before increasing the retransmit count. If the RADIUS server is only a few hops from the switch, we recommend that you configure the RADIUS server retransmit rate to 3.

Examples

The following example shows how to configure radius-server retransmit:

```
Switch# configure terminal
Switch(config)# radius-server retransmit 10
```

The following example shows how to configure radius-server retransmit to default value:

```
Switch# configure terminal
Switch(config)# no radius-server retransmit
```

Related Commands

None

9.1.36 radius-server timeout

Command Purpose

Use this command to set the interval for which a switch waits for a server host to reply. Use the no form of this command to restore it to default value.

Command Syntax

radius-server timeout *RADIUS_TIMEOUT*

no radius-server timeout

Parameter	Parameter Description	Parameter Value
RADIUS_TIMEOUT	RADIUS server timeout in secs	Range is 1-1000

Command Mode

Global Configuration

Default

5

Usage

Use this command to set the number of seconds a switch waits for a server host to reply before timing out.

If the RADIUS server is only a few hops from the switch, we recommend that you configure the RADIUS server timeout to 15 seconds.

Examples

The following example shows how to configure radius-server timeout to 10 seconds:

```
Switch# configure terminal
Switch(config)# radius-server timeout 10
```

The following example shows how to configure radius-server timeout to default value:

```
Switch# configure terminal
Switch(config-if-eth-0-1)# no radius-server timeout
```

Related Commands

None

9.1.37 radius-server key

Command Purpose

Use this command to set the shared encryption key of RADIUS server. Use the no form of this command to delete radius-server key.

Command Syntax

radius-server key (*HIDDEN_FLAG* | secret) *STRING*

no radius-server key

Parameter	Parameter Description	Parameter Value
HIDDEN_FLAG	Specifies a hidden password will follow	Range is 8-8
STRING	RADIUS server key-string	Only include: 0-9A-Za-z~!@#$^&*()_+-={}[]|:;<>,.

Command Mode

Global Configuration

Default

None

Usage

Use this command to set the shared encryption key in a switch. Shared encryption key is the foundation

of communicate between switch and server. You need set a same shared encryption string in authentication

server and switch.

Examples

The following example shows how to configure radius-server key:

```
Switch# configure terminal
Switch(config)# radius-server key 123456
```

The following example shows how to configure radius-server key to default value:

```
Switch# configure terminal
Switch(config)# no radius-server key
```

Related Commands

None

9.1.38 radius-server host

Command Purpose

Use this command to specify a RADIUS server host. Use the no form of this command to delete RADIUS server host.

Command Syntax

radius-server host (mgmt-if |) (*IP_ADDR* (source-ip *SRC_IP_ADDR*) | *IPv6_ADDR*) (auth-port *AUTHDPORT* |) (key (*HIDDEN_FLAG* |) *AUTHDKEY* |) (retransmit *AUTHDRETRIES* |) (timeout *AUTHDTIMEOUT* |)

no radius-server host (mgmt-if |) (*IP_ADDR* | *IPv6_ADDR*) (auth-port *AUTHDPORT* |)

Parameter	Parameter Description	Parameter Value

IP_ADDR	Radius Server IP address	-
IPv6_ADDR	Radius Server IPv6 address	-
SRC_IP_ADDR	Bind source ip address	-
AUTHDPORT	Radius server port	Range is 1-65535
HIDDEN_FLAG	Specifies a hidden password will follow	Range is 8-8
AUTHDKEY	Shared encryption key of Radius server	Only include: 0-9A-Za-z~`!@#$^&*()_+-={}[]|:;<>,.
AUTHDRETRIES	Maximum failed Radius requests sent to server	Range is 1-100
AUTHDTIMEOUT	Timeout value for no response from Radius server	Range is 1-1000

Command Mode

Global Configuration

Default

None

Usage

You can use multiple radius-server host commands to specify multiple hosts. The software searches for

hosts in the order in show running-config. If no host-specific timeout, retransmit, or key values are

specified, the global values apply to each host.

Examples

The following example shows how to configure radius-server host:

```
Switch# configure terminal
Switch(config)# radius-server host 10.0.0.1
```

The following example shows how to delete radius-server host:

```
Switch# configure terminal
Switch(config)# no radius-server host 10.0.0.1
```

Related Commands

show radius-server

9.1.39 tacacs-server host

Command Purpose

Use this command to create tacacs-server and set parameters. Use the no form of this command to delete tacacs server.

Command Syntax

tacacs-server host (mgmt-if |) (*IP_ADDR* (source-ip *SRC_IP_ADDR*) | *IPv6_ADDR*) (auth-port *AUTHDPORT* |) (key (*HIDDEN_FLAG* |) *AUTHDKEY* |) (retransmit *AUTHDRETRIES* |) (timeout *AUTHDTIMEOUT* |)

no tacacs-server host (mgmt-if |) (*IP_ADDR* | *IPv6_ADDR*) (auth-port *AUTHDPORT* |)

Parameter	Parameter Description	Parameter Value
IP_ADDR	TACACS Server IP address	-
IPv6_ADDR	TACACS Server IPv6 address	-
SRC_IP_ADDR	Bind source ip address	-
AUTHDPORT	TACACS server port	Range is 1-65535

HIDDEN_FLAG	Specifies a hidden password will follow	Range is 8-8
AUTHDKEY	Shared encryption key of TACACS server	Only include: 0-9A-Za-z~`!@#$^&*()_+-={}[]|:;<>,.
AUTHDRETRIES	Maximum failed TACACS requests sent to server	Range is 1-100
AUTHDTIMEOUT	Timeout value for no response from TACACS server	Range is 1-1000

Command Mode

Global Configuration

Default

AUTHDPORT is 49

AUTHDRETRIES is 3

AUTHDTIMEOUT is 5

Usage

None

Examples

The following example shows how to configure tacacs server:

```
Switch# configure terminal
Swtich(config)# tacacs-server host 2.1.1.1 key mykey
```

The following example shows how to delete tacacs serve:

```
Switch# configure terminal
Swtich(config)# no tacacs-server host 2.1.1.1
```

Related Commands

show tacacs-server

9.1.40 re-activate tacacs-server

Command Purpose

Use this command to re-activate all tacacs servers.

Command Syntax

re-activate tacacs-servers (all |)

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to re-activate the tacacs servers. It's unnecessary for users to wait for the tacacs-servers dead time with this command.

Examples

The following example shows how to re-activate all tacacs-servers:

```
Switch# re-activate tacacs-servers all
```

Related Commands

tacacs-servers host

9.1.41 re-activate tacacs-server host

Command Purpose

Use this command to re-activate the specified tacacs servers.

Command Syntax

re-activate tacacs-server (host | all) (*IP_ADDR* | *IPv6_ADDR*) (auth-port *AUTHDPORT* |)

Parameter	Parameter Description	Parameter Value
IP_ADDR	TACACS Server IP address	-
IPv6_ADDR	TACACS Server IPv6 address	-
AUTHDPORT	TACACS server port	Range is 1-65535

Command Mode

Privileged EXEC

Default

AUTHDPORT is 45

Usage

Use this command to re-activate the tacacs server. It's unnecessary for users to wait for the tacacs-server dead time with this command.

Examples

The following example shows how to re-activate tacacs-server:

```
Switch# configure terminal
Switch(config)# tacacs-server host 10.0.0.1 auth-port 49
Switch(config)# end
Switch# re-activate tacacs-server host 10.0.0.1 auth-port 49
```

Related Commands

None

9.1.42 clear line console 0

Command Purpose

Use this command to clear primary console terminal line login.

Command Syntax

clear line console 0

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to clear line console:

```
Switch# clear line console 0
[OK]
```

Related Commands

None

9.1.43 clear line vty

Command Purpose

Use this command to clear virtual terminal line login. Line number range is 0 to 7.

Command Syntax

clear line vty *VTYID1* (*VTYID2* |)

Parameter	Parameter Description	Parameter Value
VTYID1	First Line number	Range is 0-7
VTYID2	Last Line number	Range is 0-7

Command Mode

Privileged EXEC

Default

None

Usage

Not allowed to clear current line

Examples

The following example shows how to clear line vty:

```
Switch# clear line vty 0 2
[OK]
```

Related Commands

None

9.1.44 clear web session

Command Purpose

Use this command to clear web sessions.

Command Syntax

clear web session (all | *WEBSESSION*)

Parameter	Parameter Description	Parameter Value
WEBSESSION	Session ID	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to clear web session:

```
Switch# clear web session all
[OK]
```

Related Commands

None

9.1.45 re-activate radius-server

Command Purpose

Use this command to re-activate all radius servers.

Command Syntax

re-activate radius-server (all |)

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to re-activate the radius server. It's unnecessary for users to wait for the radius-server dead time with this command.

Examples

The following example shows how to re-activate all radius-server:

```
Switch# re-activate radius-server all
```

Related Commands

radius-server host

9.1.46 re-activate radius-server host

Command Purpose

Use this command to re-activate the specified radius servers.

Command Syntax

re-activate radius-server host (*IP_ADDR* | *IPv6_ADDR*) (auth-port *DOT1X_AUTH_PORT* |)

Parameter	Parameter Description	Parameter Value
IP_ADDR	Radius Server IP address	-
IPv6_ADDR	Radius Server IPv6 address	-
DOT1X_AUTH_PORT	RADIUS server port number	Range is 1-65535

Command Mode

Privileged EXEC

Default

DOT1X_AUTH_PORT is 1812

Usage

Use this command to re-activate the radius server. It's unnecessary for users to wait for the radius-server dead time with this command.

Examples

The following example shows how to re-activate radius-server:

```
Switch# configure terminal
Switch(config)# radius-server host 10.0.0.1 auth-port 1813
Switch(config)# end
Switch# re-activate radius-server host 10.0.0.1 auth-port 1813
```

Related Commands

radius-server host

9.1.47 show usernames

Command Purpose

Use this command to show local user account names on the switch.

Command Syntax

show usernames

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to usernames :

```
Switch# show usernames
Number    User name                          Privilege    Password    Rsa Key
=========================================================================
1         admin                              4            *
```

Related Commands

None

9.1.48 show users

Command Purpose

Use this command to display information about terminal lines.

Command Syntax

show users

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to users :

```
Switch# show users
 Line           User       Host(s)              Idle       Location
 130 vty  0                idle                 00:58:28   10.10.33.249
 131 vty  1                idle                 00:01:32   10.10.22.235
 132 vty  2                idle                 00:49:00   10.10.25.30
*133 vty  3                idle                 00:00:00   10.10.25.30
```

Related Commands

None

9.1.49 show web users

Command Purpose

Use this command to display information of web logined users.

Command Syntax

show web users

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to web users :

```
Switch# show web users
Web user list:
Session Id    Expire Time           Client IP       User Name
=============================================================
1             2012-03-23 06:12:43   127.0.0.1       admin
```

Related Commands

None

9.1.50 show privilege

Command Purpose

Use this command to display the current privilege.

Command Syntax

show privilege

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to privilege:

```
Switch# show privilege
Current privilege level is 4
```

Related Commands

None

9.1.51 show console

Command Purpose

Use this command to show the current console configuration.

Command Syntax

show console

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to console:

```
Switch# show console
Current console configuration:
=============================================================
line console 0
 speed 115200
 parity none
 databits 8
 stopbits 1
 exec-timeout 10 0
 privilege level 4
 no line-password
 no login
```

Related Commands

None

9.1.52 show vty

Command Purpose

Use this command to show the current vty configuration.

Command Syntax

show vty

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to vty:

```
Switch# show vty
line vty maximum 8
line vty 0 7
 exec-timeout 35791 0
 privilege level 4
 no line-password
 no login
```

Related Commands

None

9.1.53 show rsa keys

Command Purpose

Use this command to show RSA key information.

Command Syntax

show rsa keys

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to rsa keys:

```
Switch# show rsa keys
Current RSA key configuration:
Name                                Type      Usage    Modulus
=============================================================
abc                                 private   0        1024
```

Related Commands

None

9.1.54 show rsa key

Command Purpose

Use this command to show RSA key information.

Command Syntax

show rsa key *RSAKEYNAME* (der | pem (3des *RSAPASSWORD* | aes128 *RSAPASSWORD* | *aes192 RSAPASSWORD* | aes256 *RSAPASSWORD* | des *RSAPASSWORD* |) |)

Parameter	Parameter Description	Parameter Value
RSAKEYNAME	RSA key name	Only can be 0-9A-Za-z.-_ and start with a-z or A-Z

RSAPASSWORD	Passphrase used to protect the private key	length should be 6-68

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows rsa key:

```
Switch# show rsa key abc
RSA key information:
============================================================
Name: abc
Type: private
Modulus: 1024 bit
Usage count: 0
Private key DER code:
  30820258
    0201
      00
    028180
      BCA50EB2 75145939 B247E630 830A1FEE C596F433 3F5B6C84 88C50026 F204ED2A
      9FB1F424 9EE50FA5 DA51F74C 6E711CBD 4D6C0DFC 050AF194 55117937 5C789ED6
      8A2B2AD5 AA5C3FAF BE8621EC 2878B5FC 7E9C5031 3CEF42A4 CB37EFC7 AF80D16A
      3464AA42 5229AA0D F00197A5 452DC3D2 5825CB5B 2B38E7B2 161ADB19 814A142B
    0203
      010001
    028180
      6D085DA9 49C05C1D DBEC70A0 836CBBAE 2F2823B6 E71CB969 15000029 8262D48D
      7945CA9D CBF50B09 4A596BBD 126C7036 FDE3C165 73A8B29E 90588C1E 32654930
      291D5BB3 F87FB7B7 BB3ECF29 6C5BE47E 6AF91CE9 F59AFB59 228E2934 D7F9B4B1
      F3D3AA96 C10CEFCD 630E51AE 336B73EE DEF92B2A 5E48539C DED9A9F7 1715A171
    0240
      F91E09E8 93D02645 1227F3AD B55B0206 63848D27 74EACE0E B9A4D0BB 4C5B92C5
      BD3D6190 15B68360 D0E44186 7B9C028E 883C6B27 6D3FC1E3 1F03C04B 681327C9
    0240
      C1DB4EA4 EBC16333 929837FC E90A61BE 683204D4 937385CC 88F215AA F1A98056
      063CC0A2 50DCB5FF A7D69776 9E4DFE43 807CB191 B513148A 1D5881B2 2FA5BE53
```

```
    0240
      6018EF57 91958CFD BE083D5E F803985F 608A646D 2113E6D3 1557F7D1 189E869A
      D2EA57B5 5E3ADEA9 3D4B9FDF 41D5A7C2 D5D900B8 DFD2E577 38A298CE 3DE28DC9
    0240
      70D8BF11 1603FF41 5846AFE0 D3AFAD72 6FA91E52 B87AF91A 3565E6E3 19C637E4
      DBC0A5CA 57140406 0CA7C887 CE634C6D F2EFA356 547804EE D9625A2D 65BB2FED
    0240
      80FBD19D 2676C907 BDEB255B FFFE08C7 9B2AC9CD 2F48143F 0BC4A475 F25167EA
      C7AAFC95 BFBC65EF D4EF40A2 9E4076CE 3B9F33BE 48BA3ACF 42E5E1DB 704990E1
Public key DER code:
  308188
    028180
      BCA50EB2 75145939 B247E630 830A1FEE C596F433 3F5B6C84 88C50026 F204ED2A
      9FB1F424 9EE50FA5 DA51F74C 6E711CBD 4D6C0DFC 050AF194 55117937 5C789ED6
      8A2B2AD5 AA5C3FAF BE8621EC 2878B5FC 7E9C5031 3CEF42A4 CB37EFC7 AF80D16A
      3464AA42 5229AA0D F00197A5 452DC3D2 5825CB5B 2B38E7B2 161ADB19 814A142B
    0203
      010001
```

Related Commands

None

9.1.55 show key config

Command Purpose

Use this command to display the details of the current key configuration.

Command Syntax

show key config

Command Mode

Rsa Key Configuration

Default

None

Usage

None

Examples

The following example shows key config:

```
Switch(config-rsa-key)# show key config
Current key configuration:
  key type: public
  key format: der
  key password: unspecified
```

Related Commands

None

9.1.56 show key string

Command Purpose

Use this command to display the details of the current key string.

Command Syntax

show key string

Command Mode

Rsa Key Configuration

Default

None

Usage

None

Examples

The following example shows key string:

```
Switch(config-rsa-key)# show key string
Current key string:
rsa key key1
rsa-key-string
```

Related Commands

None

9.1.57 show tacacs

Command Purpose

Use this command to display information about AAA server configurations.

Command Syntax

show tacacs

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows key tacacs server:

```
Switch# show tacacs
------------------------------------------------------------------
Host              Port   Timeout Retries Dead Secret
------------------------------------------------------------------
4.4.4.201         49     5       3       0    123456
```

Related Commands

None

9.1.58 show aaa status

Command Purpose

Use this command to show AAA status.

Command Syntax

show aaa status

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to aaa status:

```
Switch# show aaa status
AAA status:
     Authentication enable
```

Related Commands

None

9.1.59 show aaa privilege mapping

Command Purpose

Use this command to show privilege mapping relationship with server privilege.

Command Syntax

show aaa privilege mapping

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to privilege mapping:

```
Switch# show aaa privilege mapping
mapping
    Server      Switch      Server
=======================================
         0           1           0
         1           2           1
      2~10           3          10
     11~15           4          15
```

Related Commands

None

9.1.60 show aaa method-lists

Command Purpose

Use this command to show AAA method lists.

Command Syntax

show aaa method-lists (all | accounting | authentication | authorization)

Parameter	Parameter Description	Parameter Value
all	Authentication， Authorization，Accounting	-
Authentication		-
authorization		-
accounting		-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows aaa method-lists:

```
Switch# show aaa method-lists authentication
authen queue = AAA_ML_AUTHEN_LOGIN
    name = default  state = ALIVE :   radius
authen queue = AAA_ML_AUTHEN_LOGIN
    name = group_a  state = ALIVE :   radius  local  line  enable  none
authen queue=AAA_ML_AUTHEN_LOGIN
    name = group_b  state = ALIVE :   local  line
```

Related Commands

None

9.1.61 show radius-server

Command Purpose

Use this command to display radius server states of each IEEE 802.1x session.

Command Syntax

show radius-server

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to display the current radius-server and dead radius-servers of each IEEE 802. 1x sessions.

Examples

The following example shows radius-server:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# dot1x port-control auto
Switch(config-if-eth-0-1)# end
Switch# show radius-server
=====================================
radius servers in dead list:
N/A
=====================================
802.1X session on interface eth-0-1:
current radius server:
=====================================
```

Related Commands

radius-server host

9.1.62 show radius-server interface

Command Purpose

Use this command to display radius server states for specified interface.

Command Syntax

show radius-server interface *IFNAME*

Parameter	Parameter Description	Parameter Value
IFNAME	Interface Name	Only support eth interface

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to radius-server for specified interface:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# dot1x port-control auto
Switch(config-if-eth-0-1)# end
Switch# show radius-server interface eth-0-9
====================================
radius servers in dead list:
N/A
====================================
802.1X session on interface eth-0-1:
current radius server:
====================================
```

Related Commands

radius-server host

9.2 DDoS Prevent Commands

9.2.1 ip intercept

Command Purpose

Using the IP intercept ICMP command to configure the system to defend against ICMP flooding attacks, the default number of packets per second is 500.

Configuring switches to defend against Smurf attacks using the IP intercept Smurf command.

Configuring switches to defend against Fraggle attacks using the IP intercept Fraggle command.

Using the IP intercept UDP command to configure the system to defend against UDP flooding attacks, the default number of packets per second is 500.

Using the IP intercept TCP command to configure the system to defend against SYN flooding attacks, the default number of packets per second is 500.

Using the IP intercept small-package command, the configuration system filters IP tabloids with a default length of 28.

Using the IP intercept maceq command, configure the system to filter ports whose source MAC address is equal to the destination MAC address.

Using IP intercept ipeq command, configure the system to filter ports whose source IP address is equal to the destination IP address.

Command Syntax

ip intercept (smurf | fraggle | maceq | ipeq | icmp (maxcount *IPT_MAXCOUNT* |) tcp (maxcount *IPT_MAXCOUNT* |) udp (maxcount *IPT_MAXCOUNT* |) small-packet (length *IPT_LENGTH* |))

no ip intercept (smurf | fraggle | maceq | ipeq | icmp | tcp | udp | small-packet)

Parameter	Parameter Description	Parameter Value
IPT_MAXCOUNT	Set the maximum rate of receiving packets	Range is 0-1000
IPT_LENGTH	Set the length of the IP packets	Range is 28-65535

Command Mode

Global Configuration

Default

Disable

Usage

None

Examples

The following example shows how to configures the ip intercept:

```
Switch# configure terminal
Switch(config)# ip intercept small-packet
Switch(config)# ip intercept icmp maxcount 100
Switch(config)# ip intercept fraggle
Switch(config)# ip intercept maceq
Switch(config)# ip intercept tcp maxcount 200
```

The following example shows how to convert the ip intercept icmp:

```
Switch# configure terminal
Switch(config)# no ip intercept icmp
```

Related Commands

show ip-intercept statistics

show ip-intercept config

9.2.2 show ip-intercept config

Command Purpose

In privileged mode, use this command to display the current DDos defense configuration

Command Syntax

show ip-intercept config

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows to the current ddos defense config:

```
Switch# show ip-intercept config
Current DDoS Prevent configuration:
--------------------------------+--------+--------+---------
Fraggle Attack Intercept          :Enable
ICMP Flood Intercept              :Enable  Maxcount:500
IP Equal Intercept                :Disable
MAC Equal Intercept               :Disable
Small-packet Attack Intercept     :Enable  Packet Length:28
Smurf Attack Intercept            :Enable
SYN Flood Intercept               :Enable  Maxcount:200
UDP Flood Intercept               :Disable
```

Related Commands

ip intercept

9.2.3 show ip-intercept statistics

Command Purpose

In privileged mode, display current attack detection packet loss statistics using show ip-intercept statistics command.

Command Syntax

show ip-intercept statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to the statistics of the intercept packets:

```
Switch# show ip-intercept statistics
Current DDoS Prevent statistics:
-------------------------------------------------+---------------
Resist Fraggle Attack packets number             :  0
Resist ICMP Flood packets number                 :  16
Resist Small-packet Attack packets number        :  0
Resist Smurf Attack packets number               :  0
Resist SYN Flood packets number                  :  0
mgmt-if Resist Fraggle Attack packets number     :  0
mgmt-if Resist ICMP Flood packets number         :  0
mgmt-if Resist Small-packet Attack packets number :  0
mgmt-if Resist Smurf Attack packets number       :  0
mgmt-if Resist SYN Flood packets number          :  0
```

Related Commands

clear ip-intercept statistics

9.2.4 clear ip-intercept statistics

Command Purpose

In privileged mode, clear ip-intercept statistics command is used to clear current attack detection packet loss statistics.

Command Syntax

clear ip-intercept statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to clear statistic of the intercept packets:

```
Switch# clear ip-intercept statistics
```

Related Commands

show ip-intercept statistics

10 Reliability Commands

10.1 COPP Commands

10.1.1 policy input

Command Purpose

Use this command to set control-plane input policy-map, and use the no command to delete the configuration control-plane input policy-map.

Command Syntax

policy input *NAME_STRING*

no policy input

Parameter	Parameter Description	Parameter Value
NAME_STRING	Policy Map NAME	The initial character of name should be a-z, A-Z, or 0-9, character only can be 0-9A-Za-z.-_ and the max length is 20

Command Mode

Control plane Configuration

Default

None

Usage

Before applying policy map to control-plane, the policy map must be created. When deleting the policy map of control-plane, there is no need to specify the policy map name.

Examples

The following example shows how to configure policy map in control-plane:

```
Switch# configure terminal
Switch(config)# policy-map pmap1
Switch1(config-policy-map-pmap1)# exit
Switch(config)# control-plane
Switch(config-control-plane)# policy input pmap1
```

Related Commands

show control-plane statistics

10.1.2 class rate

Command Purpose

Use this command to set the rate of all classes under control-plane; use the no command to set the class rate to default value.

Command Syntax

class *CLASS_ID* rate *RATE_VALUE*

no class *CLASS_ID* rate

Parameter	Parameter Description	Parameter Value
CLASS_ID	Class ID of control-plane	Range is 0-5
RATE_VALUE	Specify the class rate of the CPU message, per pps	Range is 0-1000000

Command Mode

Control plane Configuration

Default

Class 1,2,3,4,5 has a default value of 2048 PPS and Class 0 has a default value of 1024 pps, ranging from 0 to 1000000.

Usage

Set the control-plane class speed limit, all the messages sent to the CPU belong to one of the 6 classes, and show control-plane class command can be used to display the specific classes of the CPU messages, in which class 5 has the highest priority and Class 0 has the lowest priority.

Examples

The following example shows how to configure class rate on control-plane:

```
Switch# configure terminal
Switch(config)# control-plane
Switch(config-control-plane)# class 2 rate 12800
```

Related Commands

show control-plane class

10.1.3 total rate

Command Purpose

Use this command to set the total rate of the upper CPU message under control-plane, and restore the default value of the total rate of the upper CPU message in the no form of the named.

Command Syntax

total rate *RATE_VALUE*

no total rate

Parameter	Parameter Description	Parameter Value

RATE_VALUE	Specify the total rate of the CPU message	Range is 0-1000000, per pps

Command Mode

Control plane Configuration

Default

The default value of total rate is 2048 pps, ranging from 0 to 1000000.

Usage

Set the total rate of the CPU message, send the CPU message from the class 0-5 speed limit, and then pass through the total rate level to speed limit.

Examples

The following example shows how to set send to cpu packets total rate on control-plane:

```
Switch# configure terminal
Switch(config)# control-plane
Switch(config-control-plane)# total rate 1280
```

Related Commands

show control-plane class

10.1.4 reason rate

Command Purpose

Use this command to set the rate of the CPU on a control-plane reason message; use the no command to set the reason rate to default value.

Command Syntax

reason (arp | bpdu | dhcp | eapol | erps | icmpv6 | igmp | l2pro-group-mac | l2pro-protocol-mac | lldp | management-traffic | mlag | mtu-fail | ospf | packet-in | ptp | slow-protocol | ssh | telnet | ttl-expired | vrrp) rate *RATE_VALUE*

no reason (arp | bpdu | dhcp | eapol | erps | icmpv6 | igmp | l2pro-group-mac | l2pro-protocol-mac | lldp | management-traffic | mlag | mtu-fail | ospf | packet-in | ptp | slow-protocol | ssh | telnet | ttl-expired | vrrp) rate

Parameter	Parameter Description	Parameter Value
RATE_VALUE	Specify the rate of CPU messages on a reason	Range from 0-1000000, per kbps

Command Mode

Control plane Configuration

Default

Default arp rate is 160 kbps

Default bpdu rate is 64 kbps

Default dhcp rate is 320 kbps

Default eapol rate is 64 kbps

Default erps rate is 64 kbps

Default icmpv6 rate is 64 kbps

Default igmp rate is 128 kbps

Default l2pro-group-mac rate is 256 kbps

Default l2pro-protocol-mac rate is 256 kbps

Default lldp rate is 64 kbps

Default mtu-fail rate is 64 kbps

Default management-traffic rate is 1600 kbps

Default mlag rate is 256 kbps

Default ospf rate is 64 kbps

Default packet-in rate is 160 kbps

Default ptp rate is 128 kbps

Default slow-protocol rate is 64 kbps

Default ssh rate is 512 kbps

Default telnet rate is 512 kbps

Default ttl-expired rate is 64 kbps

Default vrrp rate is 256 kbps

Usage

Initial values of each reasoning rate for system initialization are default rates.

Examples

The following example shows how to set set cpu packets reason rate on control-plane:

```
Switch# configure terminal
Switch(config)# control-plane
Switch(config-control-plane)# reason bpdu rate 128
```

Related Commands

show control-plane reason

10.1.5 show control-plane statistics

Command Purpose

Use this command to display control-plane policy-map statistics.

Command Syntax

show control-plane statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to show the statistics of control-plane policy-map:

```
Switch# configure terminal
Switch(config)# ip access-list a
Switch(config-ip-acl-a)# permit
Switch(config-ip-acl-a)# exit
Switch(config)# class-map a
Switch(config-class-map-a)# match access-list a
Switch(config-class-map-a)# exit
Switch(config)# policy-map a
Switch(config-policy-map-a)# class a
Switch(config-pmap-a-cmap-a)# exit
Switch(config-policy-map-a)# exit
Switch(config)# control-plane
Switch(config-control-plane)# policy input a
Switch(config-control-plane)# end
Switch# show control-plane statistics
Ingress service policy: a
 Class name: a
  access-group: a
    1 permit any (1 match 409 bytes)
 total (1 match 409 bytes)
```

Related Commands

clear control-place statistics

10.1.6 show control-plane reason statistics

Command Purpose

Use this command to display statistics matching control-plane reason.

Command Syntax

show control-plane reason statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to show the statistics of control-plane reason:

```
Switch# show control-plane reason statistics
Reason               Transmit-Pkts  Transmit-Bytes Drop-Pkts      Drop-Bytes
-------------------+--------------+--------------+--------------+--------------
mtu-fail             0              0              0              0
ttl-expired          0              0              0              0
arp                  0              0              0              0
icmpv6               0              0              0              0
packet-in            0              0              0              0
dhcp                 0              0              0              0
eapol                0              0              0              0
igmp                 0              0              0              0
lldp                 0              0              0              0
ptp                  0              0              0              0
bpdu                 0              0              0              0
erps                 0              0              0              0
l2pro-group-mac      0              0              0              0
l2pro-protocol-mac   0              0              0              0
mlag                 0              0              0              0
ospf                 0              0              0              0
slow-protocol        0              0              0              0
vrrp                 0              0              0              0
management-traffic   0              0              0              0
ssh                  0              0              0              0
telnet               0              0              0              0
total                0              0              0              0
```

Related Commands

clear control-place reason statistics

10.1.7 clear control-plane reason statistics

Command Purpose

Use this command to clear control-plane class statistics.

Command Syntax

clear control-plane reason statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example to clear the statistics of control-plane reason:

```
Switch# clear control-plane reason statistics
```

Related Commands

show control-plane reason statistics

10.1.8 show control-plane class statistics

Command Purpose

Use this command to clear control-plane class statistics.

Command Syntax

show control-plane class statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example to show the statistics of control-plane reason:

```
Switch# show control-plane class statistics
Class                Transmit-Pkts  Transmit-Bytes Drop-Pkts       Drop-Bytes
-------------------+--------------+--------------+--------------+--------------
class 0              0              0              0              0
class 1              0              0              0              0
class 2              0              0              0              0
class 3              0              0              0              0
class 4              0              0              0              0
class 5              0              0              0              0
total                0              0              0              0
```

Related Commands

clear control-place class statistics

10.1.9 clear control-plane class statistics

Command Purpose

Use this command to clear control-plane class statistics.

Command Syntax

clear control-plane class statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to clear the statistics of control-plane class:

```
Switch# clear control-plane class statistics
```

Related Commands

show control-plane class statistics

10.1.10 show control-plane class

Command Purpose

Use this command to display the configuration of control-plane class.

Command Syntax

show control-plane class

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to control-plane class:

```
Switch# show control-plane class
control-plane class         rate (pps)
--------------------------+------------
class 0                     1024
class 1                     2048
class 2                     2048
class 3                     2048
class 4                     2048
class 5                     2048
--------------------------+------------
total rate                  2048

control-plane class information:
    class 5 is used for all managing packet and ssh telnet packet!
    class 4 is used for follow protocol packet!
       LACP, ESMC, STP, ERPS, OSPF, VRRP, MLAG, L2PROTOCOL!
    class 3 is used for follow protocol packet!
       LLDP, EAPOL, DHCP, IGMP, PTP!
    class 2 is used for packet-in!
    class 1 is used for ARP and ICMPv6 (include ND) packet!
    class 0 is used for other packet!
```

Related Commands

None

10.1.11 show control-plane reason

Command Purpose

Use this command to display the configuration of control-plane reason

Command Syntax

show control-plane reason

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to control-plane reason information:

```
Switch# show control-plane reason
Rate unit (kbps)
Reason                Class      Rate       Default Rate
--------------------+----------+----------+------------
mtu-fail              0          64         64
ttl-expired           0          64         64
arp                   1          160        160
icmpv6                1          64         64
packet-in             2          160        160
dhcp                  3          320        320
eapol                 3          64         64
igmp                  3          128        128
lldp                  3          64         64
ptp                   3          128        128
bpdu                  4          64         64
erps                  4          64         64
l2pro-group-mac       4          256        256
l2pro-protocol-mac    4          256        256
mlag                  4          256        256
ospf                  4          32         32
slow-protocol         4          64         64
vrrp                  4          256        256
management-traffic    5          1600       1600
ssh                   5          512        512
telnet                5          512        512
```

Related Commands

None

10.1.12 clear control-plane statistics

Command Purpose

Use this command to clear control-plane policy-map statistics.

Command Syntax

clear control-plane statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to clear the statistics of control-plane input policy:

```
Switch# configure terminal
Switch(config)# ip access-list a
Switch(config-ip-acl-a)# permit
Switch(config-ip-acl-a)# exit
Switch(config)# class-map a
Switch(config-class-map-a)# match access-list a
Switch(config-class-map-a)# exit
Switch(config)# policy-map a
Switch(config-policy-map-a)# class a
Switch(config-pmap-a-cmap-a)# exit
Switch(config-policy-map-a)# exit
Switch(config)# control-plane
Switch(config-control-plane)# policy input a
Switch(config-control-plane)# end
Switch# clear control-plane statistics
```

Related Commands

show control-plane statistics

10.2 IP SLA Commands

10.2.1 ip sla monitor

Command Purpose

Use this command to create a IPSLA entry.

Use the no form of this command to delete the IP SLA entry.

Command Syntax

ip sla monitor *ENTRY*

no ip sla monitor *ENTRY*

Parameter	Parameter Description	Parameter Value
ENTRY	IPSLA entry index	Range is 1-255

Command Mode

Global Configuration

Default

None

Usage

This command is used to create a IPSLA entry.

Examples

The following example shows how to create a IPSLA entry:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
```

The following example shows how to delete a IPSLA entry:

```
Switch# configure terminal
Switch(config)# no ip sla monitor 1
```

Related Commands

show ip sla monitor

10.2.2 ip sla monitor schedule

Command Purpose

Use this command to schedule an IPSLA entry and start probe.

Use the no form of this command to stop an IPSLA entry probe.

Command Syntax

ip sla monitor schedule *ENTRY*

no ip sla monitor schedule *ENTRY*

Parameter	Parameter Description	Parameter Value
ENTRY	IPSLA entry index	Range is 1-255

Command Mode

Global Configuration

Default

None

Usage

This command is used to schedule an IPSLA entry and start probe. The entry must be created and the type should be set.

Examples

The following example shows how to schedule an IPSLA entry and start probe:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# type icmp-echo 2.2.2.2
```

```
Switch(config-ipsla-1)# exit
Switch(config)# ip sla monitor schedule 1
```

The following example shows how to stop an IPSLA entry probe:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# type icmp-echo 2.2.2.2
Switch(config-ipsla-1)# exit
Switch(config)# ip sla monitor schedule 1
Switch(config)# no ip sla monitor schedule 1
```

Related Commands

ip sla monitor 1

10.2.3 type

Command Purpose

Use this command to configure the type and destination IP address of IPSLA entry, only support icmp-echo by far.

Use the no form of this command to clear the type configuration.

Command Syntax

type icmp-echo *IP_ADDR_DST* (source-ip *IP_ADDR_SRC* |) (source-interface *IF_NAME_EAV* |)

no type icmp-echo

Parameter	Parameter Description	Parameter Value
IP_ADDR_DST	Destination IP address	-
IP_ADDR_SRC	Source IP address	-
IFNAME	Source interface name	-

Command Mode

IP SLA Configuration

Default

None

Usage

The type and destination IP address must be set before start probe.

Examples

The following example shows how to configure the type and destination IP address of IPSLA entry:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# type icmp-echo 2.2.2.2 source-interface vlan200
```

The following example shows how to clear configure the type and destination IP address of IPSLA entry:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# no type icmp-echo 2.2.2.2
```

Related Commands

show ip sla monitor

10.2.4 frequency

Command Purpose

Use this command to configure the frequency between IPSLA probe tests.

Use the no form of this command to reset the frequency between IPSLA probe tests to default value.

Command Syntax

frequency *IPSLA_FREQUENCY*

no frequency

Parameter	Parameter Description	Parameter Value

IPSLA_FREQUENCY	Frequency between tests	Range is 1-4800 in seconds

Command Mode

IP SLA Configuration

Default

60

Usage

Pay attention to the value check of interval & timeout & threshold & packet-per-test.

Examples

The following example shows how to configure the frequency between IPSLA probe tests:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# frequency 80
```

The following example shows how to reset the frequency between IPSLA probe tests to default value:

Related Commands

show ip sla monitor

10.2.5 description

Command Purpose

Use this command to configure the description of IPSLA entry.

Use the no form of this command to clear the description of IPSLA entry.

Command Syntax

description *NAME_STRING*

no description

Parameter	Parameter Description	Parameter Value
NAME_STRING	Description string	Length range is 1-255

Command Mode

IP SLA Configuration

Default

None

Usage

None

Examples

The following example shows how to configure the description of IPSLA entry:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# description ipslaeth0
```

The following example shows how to clear the description of IPSLA entry:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# no description
```

Related Commands

show ip sla monitor

10.2.6 timeout

Command Purpose

Use this command to configure the timeout of IPSLA probe.

Use the no form of this command to reset the timeout of IPSLA probe to default value.

Command Syntax

timeout *IPSLA_TIMEOUT*

no timeout

Parameter	Parameter Description	Parameter Value
IPSLA_TIMEOUT	Timeout time	Range is 1-4800 in seconds

Command Mode

IP SLA Configuration

Default

5

Usage

Pay attention to the value check of interval & timeout & threshold & packet-per-test.

Examples

The following example shows how to configure the timeout of IPSLA probe:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# timeout 3
```

The following example shows how to reset the timeout of IPSLA probe to default value:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# no timeout
```

Related Commands

show ip sla monitor

10.2.7 interval

Command Purpose

Use this command to configure the interval of IPSLA probe.

Use the no form of this command to reset the interval of IPSLA probe to default value.

Command Syntax

interval *IPSLA_INTERVAL*

no interval

Parameter	Parameter Description	Parameter Value
IPSLA_INTERVAL	probe interval time	Range is 1-4800 in seconds

Command Mode

IP SLA Configuration

Default

6

Usage

Pay attention to the value check of interval & timeout & threshold & packet-per-test.

Examples

The following example shows how to configure the interval of IPSLA probe:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# interval 3
```

The following example shows how to reset the interval of IPSLA probe to default value:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# no interval
```

Related Commands

show ip sla monitor

10.2.8 threshold

Command Purpose

Use this command to configure the threshold of IPSLA probe.

Use the no form of this command to reset the threshold of IPSLA probe to default value.

Command Syntax

threshold *IPSLA_THRESHOLD*

no threshold

Parameter	Parameter Description	Parameter Value
IPSLA_THRESHOLD	threshold of receive packet	Range is 1-4800000 in milliseconds

Command Mode

IP SLA Configuration

Default

5000

Usage

Pay attention to the value check of interval & timeout & threshold & packet-per-test.

Examples

The following example shows how to configure the threshold of IPSLA probe:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# threshold 1000
```

The following example shows how to reset the threshold of IPSLA probe to default value:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# no threshold
```

Related Commands

show ip sla monitor

10.2.9 ttl

Command Purpose

Use this command to configure the ttl of IPSLA probe.

Use the no form of this command to reset the ttl of IPSLA probe to default value.

Command Syntax

ttl *IPSLA_TTL*

no ttl

Parameter	Parameter Description	Parameter Value
IPSLA_TTL	Packets ttl	Range is 1-255

Command Mode

IP SLA Configuration

Default

64

Usage

None

Examples

The following example shows how to configure the ttl of IPSLA probe:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# ttl 128
```

The following example shows how to reset the ttl of IPSLA probe to default value:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# no ttl
```

Related Commands

show ip sla monitor

10.2.10 tos

Command Purpose

Use this command to configure the tos of IPSLA probe.

Use the no form of this command to reset the tos of IPSLA probe to default value.

Command Syntax

tos *IPSLA_TOS*

no tos

Parameter	Parameter Description	Parameter Value
IPSLA_TOS	Packets tos	Range is 0-255

Command Mode

IP SLA Configuration

Default

0

Usage

None

Examples

The following example shows how to configure the tos of IPSLA probe:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# tos 7
```

The following example shows how to reset the tos of IPSLA probe to default value:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# no tos
```

Related Commands

show ip sla monitor

10.2.11 data-size

Command Purpose

Use this command to configure the data-size of IPSLA probe.

Use the no form of this command to reset the data-size of IPSLA probe to default value.

Command Syntax

data-size *IPSLA_DATA_SIZE*

no data-size

Parameter	Parameter Description	Parameter Value
IPSLA_ DATA_SIZE	Packets data size	Range is 0-8100

Command Mode

IP SLA Configuration

Default

28

Usage

None

Examples

The following example shows how to configure the data size of IPSLA probe:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# data-size 40
```

The following example shows how to reset the data size of IPSLA probe to default value:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# no data-size
```

Related Commands

show ip sla monitor

10.2.12 data-pattern

Command Purpose

Use this command to configure the data-pattern of IPSLA probe.

Use the no form of this command to reset the data-pattern of IPSLA probe to default value.

Command Syntax

data-pattern *IPSLA_DATA_PATTERN*

no data-pattern

Parameter	Parameter Description	Parameter Value
IPSLA_ DATA_PATTERN	Packets data parttern	Range is 0x0-0xFFFFFFFF

Command Mode

IP SLA Configuration

Default

0xABCDABCD

Usage

None

Examples

The following example shows how to configure the data pattern of IPSLA probe:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# data-pattern 11aa11aa
```

The following example shows how to reset the data pattern of IPSLA probe to default value:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# no data-pattern
```

Related Commands

show ip sla monitor

10.2.13 fail-percent

Command Purpose

Use this command to configure the fail-percent of IPSLA test.

Use the no form of this command to reset the fail-percent of IPSLA test to default value.

Command Syntax

fail-percent *IPSLA_FAIL_PERCENT*

no fail-percent

Parameter	Parameter Description	Parameter Value
IPSLA_FAIL_PERCENT	IPSLA probe fail percent	Range is 1-100

Command Mode

IP SLA Configuration

Default

100

Usage

None

Examples

The following example shows how to configure the fail-percent of IPSLA test:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# fail-percent 50
```

The following example shows how to reset the fail-percent of IPSLA probe to default value:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# no fail-percent
```

Related Commands

show ip sla monitor

10.2.14 packets-per-test

Command Purpose

Use this command to configure the packets number of each IPSLA test.

Use the no form of this command to reset the packets number of each IPSLA test to default value.

Command Syntax

packets-per-test *IPSLA_PCAKET_CNT*

no packets-per-test

Parameter	Parameter Description	Parameter Value
IPSLA_PACKET_CNT	Send packets number per test	Range is 1-10

Command Mode

IP SLA Configuration

Default

3

Usage

None

Examples

The following example shows how to configure the packets number of each IPSLA test:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# packets-per-test 10
```

The following example shows how to reset the packets number of each IPSLA test to default value:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# no packets-per-test
```

Related Commands

show ip sla monitor

10.2.15 statistics

Command Purpose

Use this command to configure the saved statistics number of IPSLA packets and tests.

Use the no form of this command to reset the saved statistics number of IPSLA packets and tests to default value.

Command Syntax

statistics (packet *IPSLA_PACKET_CNT* | test *IPSLA_TEST_CNT*)

no statistics ((packet |) test)

Parameter	Parameter Description	Parameter Value
IPSLA_PACKET_CNT	Packets statistics number	Range is 0-1000
IPSLA_TEST_CNT	Tests statistics number	Range is 1-10

Command Mode

IP SLA Configuration

Default

packet 50 test 5

Usage

None

Examples

The following example shows how to configure the saved statistics number of IPSLA packets and tests:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# statistics packet 100
Switch(config-ipsla-1)# statistics test 8
```

The following example shows how to reset the saved statistics number of IPSLA packets and tests to default value:

```
Switch# configure terminal
Switch(config)# ip sla monitor 1
Switch(config-ipsla-1)# no statistics packet
Switch(config-ipsla-1)# no statistics test
```

Related Commands

show ip sla monitor

10.2.16 show ip sla monitor

Command Purpose

Use this command to display the information of IPSLA entry.

Command Syntax

show ip sla monitor *ENTRY* (statistics (packet | test) |)

Parameter	Parameter Description	Parameter Value
ENTRY	IP SLA entry index	Range is 1-255

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the information of IPSLA entry:

```
Switch# show ip sla monitor 1
    Entry 1
    ----------------------------------------
     Type                  : Echo
     Admin State           : Enable
     Destination Address   : 2.2.2.2
     Source Interface      : eth-0-1
     Frequency             : 60s
     Timeout               : 5s
     Threshold             : 5000ms
     Interval              : 6s
     Packet Per Test       : 3
     TTL                   : 64
     TOS                   : 0
     Data Size             : 28 bytes
     Data Pattern          : abcdabcd
     Fail Percent          : 100%
     Packet Item Cnt       : 50
     Test Item Cnt         : 5
     Running Frequency     : 52s
     Running Interval      : 4s
     Return Code           : Unknown
```

Related Commands

ip sla monitor

10.2.17 clear ip sla statisitcs

Command Purpose

Use this command to clear statistics of IPSLA entry.

Command Syntax

clear ip sla statistics *ENTRY*

Parameter	Parameter Description	Parameter Value

ENTRY	IP SLA entry index	Range is 1-255

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to clear statistics of IPSLA entry:

```
Switch# clear ip sla statistics 1
```

Related Commands

statistics

10.3 Monitor Commands

10.3.1 heart-beat-monitor enable

Command Purpose

Use this command to configure open/close system monitoring functions.

Command Syntax

heart-beat-monitor enable

no heart-beat-monitor enable

Command Mode

Global Configuration

Default

Enable

Usage

When the system monitoring is open, if the business module does not have heartbeat message to the system monitoring module in 5 minutes, the system monitoring module considers that the business module is abnormal, and will deal with the abnormal response. The system restarts, closes all ports, or only prints the alarm information. The default abnormal response processing is the system restart.

Examples

The following example shows how to configure open system monitoring :

```
Switch# configure terminal
Switch(config)# heart-beat-monitor enable
Switch(config)#
```

Related Commands

heart-beat-monitor reactivate

10.3.2 heart-beat-monitor reactivate

Command Purpose

Use this command to configure the system to monitor the processing behavior, use no command to restore the default configuration, select reload to restart the switch, shutdown to close all ports of the switch, Waring to print alarm information only.

Command Syntax

heart-beat-monitor reactivate (reload | shutdown | warning)

no heart-beat-monitor reactivate

Command Mode

Global Configuration

Default

reload

Usage

None

Examples

The following example shows how to configure system monitoring reactivate:

```
Switch# configure terminal
Switch(config)# heart-beat-monitor reactivate shutdown
Switch(config)#
```

Related Commands

heart-beat-monitor enable

10.3.3 show heart-beat-monitor

Command Purpose

In privileged mode, use this command to display system monitoring configuration.

Command Syntax

show heart-beat-monitor

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display system monitoring configuration.

Examples

The following example shows how to display system monitoring configuration:

```
Switch# show heart-beat-monitor
heart-beat-monitor enable
heart-beat-monitor reactivation: reload system
```

Related Commands

heart-beat-monitor enable

heart-beat-monitor reactivate

10.4 Track Commands

10.4.1 track

Command Purpose

Use this command to create a track object and enter it's configuration mode.

Use the no form of this command to delete the track object.

Command Syntax

track *TRACK_OBJECT_ID* (interface *IF_NAME_ALL* linkstate) | (ip sla *IPSLA_ENTRY_ID* (reachability | state))

no track *TRACK_OBJECT_ID*

Parameter	Parameter Description	Parameter Value
TRACK_OBJECT_ID	track object index	Range is 1-500
IF_NAME	tracked interface name	-
IPSLA_ENTRY_ID	tracked ip sla entry index	-

Command Mode

Global Configuration

Default

None

Usage

This command is used to create a track object.

Examples

The following example shows how to create a track object:

```
Switch# configure terminal
Switch(config)# track 1 interface eth-0-1 linkstate
```

The following example shows how to delete a track object:

```
Switch# configure terminal
Switch(config)# no track 1
```

Related Commands

show track

10.4.2 delay

Command Purpose

Use this command to configure the state change time.

Use the no form of this command to reset the state change time to default value.

Command Syntax

delay (up | down) *TRACK_DELAY_TIME*

no delay (up | down)

Parameter	Parameter Description	Parameter Value

TRACK_DELAY_TIME	track delay time	Range is 0-180 in seconds

Command Mode

Track Configuration

Default

0

Usage

None

Examples

The following example shows how to configure the state change time:

```
Switch# configure terminal
Switch(config)# track 1 interface eth-0-1 linkstate
Switch(config-track-1)# delay up 10
```

The following example shows how to reset the state change time to default value:

```
Switch# configure terminal
Switch(config)# track 1 interface eth-0-1 linkstate
Switch(config-track-1)# no delay up
```

Related Commands

show track

10.4.3 show track

Command Purpose

Use this command to display track information.

Command Syntax

show track *OBJECT_ID*

Parameter	Parameter Description	Parameter Value
OBJECT_ID	track object index	Range is 1-500

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display track information:

```
Switch# show track 1
    Track 1
     Type                : Interface Linkstate
     Interface           : eth-0-1
     State               : up
     Delay up            : 10 seconds
     Delay down          : 10 seconds
```

Related Commands

track

11 Device Management Commands

11.1 Mirror Commands

11.1.1 monitor cpu capture packet

Command Purpose

Using this command, you can use start to write mirror CPU messages into a file, or stop writing using stop.

Command Syntax

monitor cpu capture packet (start | stop)

Parameter	Parameter Description	Parameter Value
start	Start writing messages into documents	-
stop	Stop writing messages into documents	-

Command Mode

Privileged EXEC

Default

None

Usage

When start capturing packet, the cpu mirror packets will be written in a text file and the file name is assigned by system. The text file is stored in the directory of flash:/mirror/

Examples

The following example shows how to write packets in a txt file:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination cpu
Switch(config)# monitor session 1 source interface eth-0-5
Switch(config)# end
Switch# monitor cpu capture packet start
```

Related Commands

pcap convert flash:/mirror TXTFILENAME

11.1.2 pcap convert

Command Purpose

Use this command to convert text files to pcap files.

Command Syntax

pcap convert *flash:/mirror/ TXTFILENAME*

Parameter	Parameter Description	Parameter Value
TXTFILENAME	Generated text file	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to convert the txt file to the pcap file:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination cpu
Switch(config)# monitor session 1 source interface eth-0-5
Switch(config)# end
Switch# monitor cpu capture packet start
Switch# cd mirror
Switch# ls
total 4
-rw-r--r-- 1 314 Jan  2 02:58 MirCpuPkt-2010-01-02-02-43-50.txt
-rw-r--r-- 1   0 Jan  2 02:59 MirCpuPkt-2010-01-02-02-59-35.txt
-rw-r--r-- 1   0 Dec 11  2018 MirCpuPkt-2018-12-11-16-11-41.txt
Switch# pcap convert flash:/mirror/MirCpuPkt-2010-01-02-02-43-50.txt
```

Related Commands

show monitor cpu packet all

11.1.3 monitor session destination interface

Command Purpose

Use this command to set mirror destination cpu.To remove this setting, use the no form of this command

Command Syntax

monitor session *MIRROR_ID* destination interface *IFNAME*

no monitor session *MIRROR_ID* destination

Parameter	Parameter Description	Parameter Value
MIRROR_ID	Mirror session ID	Range is 1-4
IFNAME	Interface name	-

Command Mode

Global Configuration

Default

None

Usage

The port in this command can be either physical port or logical port agg, which does not support the type of vlanif for the time being. When this command is used, the port must be up. A mirror session ID cannot be applied to both local and remote. When a port is allocated to the dest port of mirror session, STP on the port will be deleted. Before deleting the dest of mirror session, the mirror session should be deleted source first.

Examples

The following example shows how to set the mirror destination port to eth-0-1 in session 1:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination interface eth-0-1
```

The following example shows how to delete mirror destination session:

```
Switch# configure terminal
Switch(config)# no monitor session 1 destination
```

Related Commands

show monitor

11.1.4 monitor session destination cpu

Command Purpose

Use this command to set mirror destination cpu.To remove this setting, use the no form of this command.

Command Syntax

monitor session *MIRROR_ID* destination cpu

no monitor session *MIRROR_ID* destination

Parameter	Parameter Description	Parameter Value
MIRROR_ID	Mirror session ID	Range is 1-4
destination cpu	Mirror destination port	-

Command Mode

Global Configuration

Default

None

Usage

The CPU port is used as mirror dest, which is configured as the mirror destination port, and the CPU port can only be the mirror destination port of a mirror session. Before deleting the dest of the session, the source of the mirror session should be deleted first.

Examples

The following example shows how to set mirror destination of cpu:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination cpu
```

The following example shows how to delete mirror destination of cpu:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination cpu
Switch(config)# no monitor session 1 destination
```

Related Commands

show monitor cpu

11.1.5 monitor session source cpu

Command Purpose

Configure the mirror source CPU using the monitor session source CPU command, and delete the configuration by adding the keyword no before the original command.

Command Syntax

monitor session *MIRROR_ID* source cpu (both | tx | rx)

no monitor session *MIRROR_ID* source cpu (both | tx | rx)

Parameter	Parameter Description	Parameter Value
MIRROR_ID	Mirror session ID	Range is 1-4
source cpu	Mirror source CPU	-
both	Packet Traffic Received and Sended on Mirror Source CPU	-
rx	Packet Traffic Received on Mirror Source CPU	-
tx	Message traffic sent on mirror source CPU	-

Command Mode

Global Configuration

Default

None

Usage

CPU port is used as mirror source, which is mainly used by users and engineers to monitor messages passing through the port. If the direction is not specified, the

default value is bidirectional. Before deleting dest of mirror session, the source of mirror session should be deleted first.

Examples

The following example shows how to set mirror source of cpu:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination interface eth-0-1
Switch(config)# monitor session 1 source cpu
```

The following example shows how to delete mirror source of cpu:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination interface eth-0-1
Switch(config)# monitor session 1 source cpu
Switch(config)# no monitor session 1 source cpu both
```

Related Commands

show monitor cpu

11.1.6 monitor session destination group member

Command Purpose

This command is used to create mirror multi destination group. The port of the multi destination group can only be a physical port.To remove this setting, use the no form of this command.

Command Syntax

monitor session *MIRROR_ID* destination group *GROUP_ID* member *IFNAME*

no monitor session *MIRROR_ID* destination group *GROUP_ID* member *IFNAME*

Parameter	Parameter Description	Parameter Value
MIRROR_ID	Mirror session ID	Range is 1-4
GROUP_ID	Mirror session group ID	Range is 2-4094
IFNAME	Interface name	-

Command Mode

Global Configuration

Default

None

Usage

Only one session can configure to multi-dest group. One session can have multi destination group members which port is physical port. Same session can't configure both local destination interface and remote destination VLAN.

Examples

The following example shows how to set multi-destination mirror in session 1:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination group 1 member eth-0-1
Switch(config)# monitor session 1 destination group 1 member eth-0-2
Switch(config)# monitor session 1 destination group 1 member eth-0-3
```

The following example shows how to remove multi-destination mirror in session 1:

```
Switch# configure terminal
Switch(config)# no monitor session 1 destination group 1 member eth-0-1
Switch(config)# no monitor session 1 destination group 1 member eth-0-2
Switch(config)# no monitor session 1 destination group 1 member eth-0-3
```

Related Commands

no monitor session destination group member

no monitor session destination group

show monitor

11.1.7 monitor session destination remote

Command Purpose

This command is used to create remote mirror sessions.

Delete remote mirror session with no command.

Command Syntax

monitor session *MIRROR_ID* destination remote *VLAN_ID* interface *IFNAME*

no monitor session *MIRROR_ID* destination remote vlan

Parameter	Parameter Description	Parameter Value
MIRROR_ID	Mirror session ID	Range is 1-4
VLAN_ID	remote VLANID	Range is 2-4094
IFNAME	Remote mirror session destination interface name	-

Command Mode

Global Configuration

Default

None

Usage

Before configuring the remote port mirror destination vlan, the VLAN must be created, and the outgoing port must be a physical port. In order to prevent flooding messages on the port, vlan1 must remove the port. Before removing the remote mirror session, it must delete the source of the remote session.

Examples

The following example shows how to create remote mirror session:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination remote vlan 2 interface eth-0-3
```

The following example shows how to delete remote mirror session:

```
Switch# configure terminal
Switch(config)# no monitor session 1 destination remote vlan
```

Related Commands

show monitor

11.1.8 monitor cpu capture strategy

Command Purpose

This command is used to set the policy of capturing CPU messages. Restore default capturing CPU message policy with no command.

Command Syntax

monitor cpu capture strategy (drop | replace)

no monitor cpu capture strategy

Parameter	Parameter Description	Parameter Value
drop	Set the capture message policy to drop	-
replace	Set the capture message policy to replace	-

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to set the strategy of capturing packets:

```
Switch# configure terminal
Switch(config)# monitor cpu capture strategy drop
```

Related Commands

show monitor cpu packet all

11.1.9 monitor cpu set packet buffer

Command Purpose

Using this command, configure the size of the message storage space of mirror CPU with a default value of up to 1000 packages. Delete the configuration by adding the keyword no before the original command.

Command Syntax

monitor cpu set packet buffer *LENGTH*

no monitor cpu set packet buffer

Parameter	Parameter Description	Parameter Value
LENGTH	Set the length of the packet buffer	Range is 1-1000

Command Mode

Global Configuration

Default

1000

Usage

1-1000 is the number of messages stored by the CPU on the message mirror. The default value is 1000.

Examples

The following example shows how to set mirror cpu buffer size:

```
Switch# configure terminal
Switch(config)# monitor cpu set packet buffer 5
```

Related Commands

show monitor cpu

11.1.10 monitor session source interface

Command Purpose

Use this command to set the source interface mode of mirror session. Delete source mode of mirror session with no command.

Command Syntax

monitor session *MIRROR_ID* source interface *IF_NAME* (both | tx | rx)

no monitor session *MIRROR_ID* source interface *IFNAME* (both | tx | rx)

Parameter	Parameter Description	Parameter Value
MIRROR_ID	Mirror Session ID	Range is 1-4
IFNAME	Physical port or AGG port	-
both	TX and RX Directions	-
rx	TX Directions	-
tx	RX Directions	-

Command Mode

Global Configuration

Default

None

Usage

The port in source mode of mirror session can be either physical port or agg port. The default direction in source mode is both.

Examples

The following example shows how to set mirror source of interface mode:

```
Switch# configure terminal
Switch(config)# monitor session 1 source interface eth-0-11
```

The following example shows how to delete mirror source of interface mode:

```
Switch# configure terminal
Switch(config)# no monitor session 1 source interface eth-0-11
```

Related Commands

show monitor

11.1.11 monitor session source vlan

Command Purpose

Use this command to set the source VLAN mode of mirror session. Delete source VLAN mode of mirror session with no command.

Command Syntax

monitor session *MIRROR_ID* source vlan *VLAN_ID* (both | tx | rx)

no monitor session *MIRROR_ID* source vlan *VLAN_ID* (both | tx | rx)

Parameter	Parameter Description	Parameter Value
MIRROR_ID	Mirror Session ID	Range is 1-4
VLAN_ID	VLAN ID	Range is 1-4094
both	TX and RX Directions	-
rx	TX Directions	-

tx	RX Directions	-

Command Mode

Global Configuration

Default

None

Usage

Before configuring the source VLAN mode of the session, create the VLAN and vlanif first. If the mirror source VLAN is configured, and then delete the VLAN or vlanif, the mirror source VLAN will also be deleted. The default direction in source mode is both.

Examples

The following example shows how to set mirror source of vlan mode:

```
Switch# configure terminal
Switch(config)# monitor session 1 source vlan 2 both
```

The following example shows how to delete mirror source of vlan mode:

```
Switch# configure terminal
Switch(config)# no monitor session 1 source vlan 2
```

Related Commands

show monitor

11.1.12 monitor mac escape

Command Purpose

Use this command to set remote mirror Mac escape feature. When these escape

entries are set, the packets with specified MAC-DA will not be mirrored to the remote destination vlan when using Rspan

Command Syntax

monitor mac escape *MAC MASK*

no monitor mac escape (*MAC MASK* |)

Parameter	Parameter Description	Parameter Value
MAC	MAC address	-
MASK	MASK address	-

Command Mode

Global Configuration

Default

None

Usage

Mac escape is used for remote mirror. It will not affect the result of local mirror.

If a Mac escape entry is set, the packet with this Mac destination can not be mirrored in remote mirror.

Command “no monitor mac escape ” should delete the specified entry.

Command “no monitor mac escape” should delete all entries.

Examples

The following example shows how to set remote mirror mac escape :

```
Switch# configure terminal
Switch(config)# monitor mac escape 0.0.1 ffff.ffff.ffff
```

The following example shows how to delete remote mirror mac escape :

```
Switch# configure terminal
Switch(config)# no monitor mac escape 0.0.1 ffff.ffff.ffff
```

Related Commands

show monitor mac escape

11.1.13 show monitor

Command Purpose

Use this command to show the information about monitor.

Command Syntax

show monitor

Command Mode

Privileged EXEC

Default

None

Usage

This command displays the information about monitor.If the system does not configure the mirror, an error will be returned.

Examples

The following example shows how to display the information about monitor:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination cpu
Switch(config)# monitor session 1 source interface eth-0-5
Switch(config)# end
Switch# show monitor
Session          : 1
Status           : valid
Type             : CPU Session
Source Ports     :
Receive Only     :
Transmit Only    :
Both             : eth-0-5
Source Vlans     :
```

```
Receive Only      :
Transmit Only     :
Both              :
Destination Port : CPU
```

Related Commands

show monitor session

11.1.14 show monitor session

Command Purpose

Use this command to display information about a particular mirror session.

Command Syntax

show monitor session *MIRROR_ID*

Parameter	Parameter Description	Parameter Value
MIRROR_ID	Mirror Session	Number is 1-4

Command Mode

Privileged EXEC

Default

None

Usage

If a specific session ID does not configure mirrored sessions, an error is returned.

Examples

The following example shows how to display information about a specified mirror session:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination cpu
Switch(config)# monitor session 1 source interface eth-0-5
```

```
Switch# show monitor session 1
Session           : 1
Status            : valid
Type              : CPU Session
Source Ports      :
Receive Only      :
Transmit Only     :
Both              : eth-0-5
Source Vlans      :
Receive Only      :
Transmit Only     :
Both              :
Destination Port : CPU
```

Related Commands

show monitor

11.1.15 show monitor cpu

Command Purpose

Using this command, display the current buffer space size and message saving strategy of mirror cpu.

Command Syntax

show monitor cpu

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the strategy and buffer size information about monitor:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination cpu
Switch(config)# monitor session 1 source interface eth-0-5
Switch# show monitor cpu
Capture strategy : replace
Buffer size      : 6/1000
```

Related Commands

show monitor

11.1.16 show monitor mac escape

Command Purpose

Use this command to show mac escape settings for remote mirror.

Command Syntax

show monitor mac escape

Command Mode

Privileged EXEC

Default

None

Usage

This command displays mac escape settings for remote mirror.

Examples

The following example shows how to display mac escape setting for remote mirror:

```
Switch# show monitor mac escape
-------------------------------------------------------
monitor rspan mac escape database
-------------------------------------------------------
count : 2
-------------------------------------------------------
Mac   : 0000.0000.0001
Mask  : FFFF.FFFF.FFFF
Mac   : 0000.0000.0002
Mask  : FFFF.FFFF.FFFF
-------------------------------------------------------
```

Related Commands

monitor mac escape

11.1.17 show monitor cpu packet

Command Purpose

Under the condition that the cpu mirror session has been established, use this command to show the mirror cpu packets in memory.

Command Syntax

show monitor cpu packet (all | *buffer_id*)

Parameter	Parameter Description	Parameter Value
all	Show all of mirror cpu packets in memory	-
buffer_id	Show the specified mirror cpu packet in memory	Range is 1-1000

Command Mode

Privileged EXEC

Default

None

Usage

This command displays the package details.

Examples

The following example shows how to display the mirror cpu packets in memory:

```
Switch# configure terminal
Switch(config)# monitor session 1 destination cpu
Switch(config)# monitor session 1 source interface eth-0-5
Switch# show monitor cpu packet all
 ------------------------------------------------------
Packet     : 1
Source port: eth-0-1
MACDA:ffff.ffff.ffff, MACSA:0000.0011.2233
IPv4 Packet, IP Protocol is 105
IPDA: 99.47.105.110, IPSA: 104.47.115.114
Data length: 64
Data:
 ffff ffff ffff 0000 0011 2233 0800 496e
 6465 783a 2073 7769 7463 682f 7372 632f
 696e 7466 2f69 665f 6167 672e 630a 3d3d
696e 7466 2f69 665f 6167 672e 630a 3d3d
------------------------------------------------------
```

Related Commands

monitor cpu capture packet

11.1.18 clear monitor cpu packet all

Command Purpose

Use this command to clear messages stored in memory of mirror cpu.

Command Syntax

clear monitor cpu packet all

Command Mode

Privileged EXEC

Default

None

Usage

This command clears all message data in buffers.

Examples

The following example shows how to clear the mirror cpu packets in memory:

```
Switch# clear monitor cpu packet all
```

Related Commands

show monitor cpu packet all

11.2 Syslog Commands

11.2.1 logging sync

Command Purpose

In privileged mode, use this command to write the log in the memory buffer to the syslog file in flash.

Command Syntax

logging sync

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to enable logging sync function:

```
Switch# logging sync
```

Related Commands

None

11.2.2 logging buffer

Command Purpose

In global configuration mode, the command is used to set the number of logs saved by the system temporary buffer, and the default value is restored in the form of no of the command.

Command Syntax

logging buffer *CFGLOGLINES*

no logging buffer

Parameter	Parameter Description	Parameter Value
CFGLOGLINES	Log quantity	10-1000

Command Mode

Global Configuration

Default

Default is 500, valid range is 10-1000.

Usage

None

Examples

The following example shows how to set to save 10 logs on the system:

```
Switch# configure terminal
Switch(config)# logging buffer 10
```

The following example shows how to restore the default value:

```
Switch# configure terminal
Switch(config)# no logging buffer
```

Related Commands

None

11.2.3 logging file

Command Purpose

In global configuration mode, use this command to set whether to write logs into log files.

Command Syntax

logging file (enable | disable)

Parameter	Parameter Description	Parameter Value
enable	Write log information into log files	-
disable	Cancel writing log information to log file	-

Command Mode

Global Configuration

Default

The default system will write log information to the log file.

Usage

Once enabled, the log writes the currently generated log to the flash/log file every 10 minutes.

Examples

The following example shows how to write log information into log files:

```
Switch# configure terminal
Switch(config)# logging file enable
```

Related Commands

None

11.2.4 logging level file

Command Purpose

In global mode, using this command to set the level of log information, logs above or equal to this level will be counted into log files, and the no form of this command will be restored to the default configuration.

Command Syntax

logging level file (*LOGSEVERITY* | emergency | alert | critical | error | warning | notice | information | debug)

no logging level file

Parameter	Parameter Description	Parameter Value
emergency	0, the system is unavailable	-
alert	1, The need for immediate action	-

critical	2, Decide to adjust	-
error	3, Error adjustment	-
warning	4, Warning adjustment	-
notice	5, Normal and appropriate adjustment	-
information	6, Informative messages	-
debug	7, Debugging information	-
LOGSEVERITY	Safety Level	Range is 0-7

Command Mode

Global Configuration

Default

information

Usage

Use this command to set the level of log information. Log information above or equal to this level will be logged to the log file, while log information below this level will not be logged to the file. If debug is specified, all log messages will be logged to the log file.

Examples

The following example shows how to configure the log message level to error:

```
Switch# configure terminal
Switch(config)# logging level file error
```

The following example shows how to restore the default value of log message level:

```
Switch# configure terminal
Switch(config)# no logging level file
```

Related Commands

None

11.2.5 logging level module

Command Purpose

In the global configuration mode, the command is used to set the level of log information sent to the terminal and entered into the buffer. Logs higher than or equal to this level will be displayed on the terminal and recorded into the buffer. The no form of the command will be restored to the default configuration.

Command Syntax

logging level module (*LOGSEVERITY* | emergency | alert | critical | error | warning | notice | information | debug)

no logging level module

Parameter	Parameter Description	Parameter Value
emergency	0, the system is unavailable	-
alert	1, The need for immediate action	-
critical	2, Decide to adjust	-
error	3, Error adjustment	-
warning	4, Warning adjustment	-
notice	5, Normal and appropriate adjustment	-
information	6, Informative messages	-
debug	7, Debugging information	-
LOGSEVERITY	Safety Level	Range is 0-7

Command Mode

Global Configuration

Default

debug

Usage

With this, the command sets the level of log information sent to the terminal and recorded to the buffer. Log messages above or equal to this level will be displayed to the terminal and written to the log buffer, while those below this level will not be displayed at the terminal, nor will they be written to the log buffer.

Examples

The following example shows how to set logging level module to error:

```
Switch# configure terminal
Switch(config)# logging level module error
```

The following example shows how to restore the default value of logging level module:

```
Switch# configure terminal
Switch(config)# no logging level module
```

Related Commands

None

11.2.6 logging timestamp

Command Purpose

In global configuration mode, the command is used to set the timestamp format of log information, and the no form of the command is used to restore the default configuration.

Command Syntax

logging timestamp (date | bsd | iso | rfc3164 | rfc3339 | none)

no logging timestamp

Parameter	Parameter Description	Parameter Value
date	The time format displayed when using the date command	-
bsd	BSD time format	-
iso	ISO time format	-
rfc3164	RFC 3164 time format	-
rfc3339	RFC 3339 time format	-
none	No timestamp for log information	-

Command Mode

Global Configuration

Default

BSD

Usage

This command is used to specify the timestamp for recording messages.

Examples

The following example shows how to set the log message timestamp format to RFC3164:

```
Switch# configure terminal
Switch(config)# logging timestamp rfc3164
```

The following example shows how to recovery log message timestamp format as default:

```
Switch# configure terminal
Switch(config)# no logging timestamp
```

Related Commands

None

11.2.7 logging server

Command Purpose

In global configuration mode, use this command to set whether to use a remote log server.

Command Syntax

logging server (enable | disable)

Command Mode

Global Configuration

Default

Disable

Usage

This command is used to set whether to send logs to remote servers.

Examples

The following example shows how to enable log server:

```
Switch# configure terminal
Switch(config)# logging server enable
```

Related Commands

None

11.2.8 logging server severity

Command Purpose

In global configuration mode, this command is used to set the log level sent to the remote log server. Logs above or equal to this level will be sent to the log server, and the default configuration will be restored in the form of no of this command.

Command Syntax

logging server severity (*LOGSEVERITY* | emergency | alert | critical | error | warning | notice | information | debug)

no logging server severity

Parameter	Parameter Description	Parameter Value
emergency	0, the system is unavailable	-
alert	1, The need for immediate action	-
critical	2, Decide to adjust	-
error	3, Error adjustment	-
warning	4, Warning adjustment	-
notice	5, Normal and appropriate adjustment	-
information	6, Informative messages	-
debug	7, Debugging information	-
LOGSEVERITY	Safety Level	Range is 0-7

Command Mode

Global Configuration

Default

warning

Usage

This command is used to set the level of log information sent to the remote log server. Logs higher than or equal to this level will be sent to the log server. If the threshold value is debug, all log messages will be sent to the log server.

Examples

The following example shows how to set the level of log messages sent to remote log servers to be error, and information above or equal to the level of error will be sent to remote servers:

```
Switch# configure terminal
Switch(config)# logging server severity error
```

The following example shows how to recovery the level of log messages sent to remote log servers by default:

```
Switch# configure terminal
Switch(config)# no logging server severity
```

Related Commands

None

11.2.9 logging server facility

Command Purpose

In global configuration mode, the log daemon on the server is configured with this command, and the no form of this command is restored to the default.

Command Syntax

logging server facility (*LOGFAC* | *LOGFAC2* | auth | authpriv | cron | daemon | ftp | kern | local0 | local1 | local2 | local3 | local4 | local5 | local6 | local7 | lpr | mail | news | syslog | user | uucp)

no logging server facility

Parameter	Parameter Description	Parameter Value
LOGFAC	Facility value	Range is 0-11
LOGFAC2	Facility value	Range is 16-23
auth	Facility auth	-
authpriv	Facility authpriv	-
cron	Facility cron	-
daemon	Facility daemon	-
ftp	Facility ftp	-
kern	Facility kern	-
local0	Facility local0	-
local1	Facility local1	-
local2	Facility local2	-
local3	Facility local3	-
local4	Facility local4	-
local5	Facility local5	-
local6	Facility local6	-
local7	Facility local7	-
lpr	Facility lpr	-
mail	Facility mail	-
news	Facility news	-

syslog	Facility syslog	-
user	Facility user	-
uucp	Facility uucp	-

Command Mode

Global Configuration

Default

local4

Usage

None

Examples

The following example shows how to set logging server facility to local3:

```
Switch# configure terminal
Switch(config)# logging server facility local3
```

The following example shows how to restore the default value of logging server facility:

```
Switch# configure terminal
Switch(config)# no logging server facility
```

Related Commands

None

11.2.10 logging server address

Command Purpose

In the global configuration mode, this command is used to set the IP address of the log server. The switch can send the log information to this server and delete the address in the form of no of this command.

Command Syntax

logging server address（mgmt-if | ） (*IP_ADDR* (source-ip *SRC_IP_ADDR* |) | *IPV6_ADDR*)

no logging server address （mgmt-if | ） (*IP_ADDR* | *IPV6_ADDR*)

Parameter	Parameter Description	Parameter Value
IP_ADDR	Remote server IPV4 address	-
SRC_IP_ADDR	Source IP address of remote server binding	-
IPV6_ADDR	Remote server IPV6 address	-

Command Mode

Global Configuration

Default

Default log messages are not sent to any remote server.

Usage

In order for the switch to send the system log information to the log server correctly, make sure that the server is in its normal functional state.

Examples

The following example shows how to set the IP address of log server 10.10.38.236:

```
Switch# configure terminal
Switch(config)# logging server address 10.10.38.236
```

The following example shows how to delete log server:

```
Switch# configure terminal
Switch(config)# no logging server address 10.10.38.236
```

Related Commands

None

11.2.11 logging merge

Command Purpose

In global configuration mode, system logs are merged using this command setting to reduce the number of logs, and recovery parameters in the form of no of this command are the default values.

Command Syntax

logging merge (enable | disable | timeout *MERGETIMEOUT* | fifo-size *MERGEFSIZE*)

no logging merge (timeout | fifo-size)

Parameter	Parameter Description	Parameter Value
timeout MERGETIMEOUT	For a specified period of time, the same logs that appear during that period are merged into one, defaulting to 10 seconds	1-300
fifo-size MERGEFSIZE	Set the size of the background log merge buffer in terms of entries, default 1024 entries	100-1024
enable	Setting up system log merge	-
disable	Setting up not to merge system logs	-

Command Mode

Global Configuration

Default

Merge is enabled by default. The default time is 10 seconds, ranging from 1 to 300, and the default merge buffer size is 1024, ranging from 100 to 10240.

Usage

When this function is enabled, the switch merges the same logs that appear in a specified period of time into one. During this period, the switch places the received logs in a temporary buffer of a specified size in the background. The size of this period can be specified by using the timeout parameter, and the size of the backstage temporary buffer can be specified by using fifo-size parameter.

Examples

The following example shows how to enable log merge:

```
Switch# configure terminal
Switch(config)# logging merge enable
```

The following example shows how to recovery merge parameter to default value:

```
Switch# configure terminal
Switch(config)# no logging merge timeout
```

Related Commands

None

11.2.12 show logging

Command Purpose

In privileged mode, use this command to display the configuration of logging.

Command Syntax

show logging

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the configuration of logging:

```
Switch# show logging
Current logging configuration:
============================================================
logging buffer 500
logging timestamp bsd
logging file enable
logging level file warning
logging level module debug
logging server disable
logging server severity warning
logging server facility local4
logging merge disable
logging merge fifo-size 1024
logging merge timeout 10
```

Related Commands

None

11.2.13 show logging buffer statistics

Command Purpose

In privileged mode, use this command to display the amount of information stored in the log buffer.

Command Syntax

show logging buffer statistics

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the statistics of logging buffer:

```
Switch# show logging buffer statistics
Logging buffer statistics:
============================================================
Total processed 1059 entries
Total dropped 0 entries
Current have 500 entries
```

Related Commands

None

11.2.14 show logging levels

Command Purpose

In privileged mode, use this command to display security level information for logs.

Command Syntax

show logging levels

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the severity level information of logging:

```
Switch# show logging levels
Severity  Name          Note
============================================================
0         emergency     system is unusable
1         alert         action must be taken immediately
2         critical      critical conditions
3         error         error conditions
4         warning       warning conditions
5         notice        normal but significant condition
6         information   informational
7         debug         debug-level messages
```

Related Commands

None

11.2.15 show logging facilities

Command Purpose

In privileged mode, use this command to display log daemon tool information.

Command Syntax

show logging facilities

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the facility information of logging:

```
Switch# show logging facilities
Logging facility information:
Facility  Name         Note
============================================================
0         kern         kernel messages
1         user         random user-level messages
2         mail         mail system
3         daemon       system daemons
4         auth         security/authorization messages
5         syslog       messages generated internally by syslogd
6         lpr          line printer subsystem
7         news         network news subsystem
8         uucp         UUCP subsystem
9         cron         clock daemon
10        authpriv     security/authorization messages (private)
11        ftp          ftp daemon
16        local0       reserved for local use 0
17        local1       reserved for local use 1
18        local2       reserved for local use 2
19        local3       reserved for local use 3
20        local4       reserved for local use 4
21        local5       reserved for local use 5
22        local6       reserved for local use 6
23        local7       reserved for local use 7
```

Related Commands

None

11.2.16 clear logging buffer

Command Purpose

In privileged mode, use this command to clear records in the log buffer.

Command Syntax

clear logging buffer

Command Mode

Privileged EXEC

Default

None

Usage

Clear logs in log buffer

Examples

The following example shows how to clear logging buffer:

```
Switch# clear logging buffer
```

Related Commands

None

11.3 Management Commands

11.3.1 stm prefer

Command Purpose

STM is the abbreviation of system item management. You can use STM prefer command to configure the switch table item resources reasonably so as to support the functions your application is using to the greatest extent. You can choose STM template to enable the system to support the maximum number of unicast MAC entries, or the maximum number of support and access control entries, the number of unicast routes, using this command. Return to default configuration file in no form.

Command Syntax

stm prefer default

Command Mode

Global Configuration

Default

First boot, the system uses the default resource profile, which balances all functions

Usage

When you change the configuration, you must restart the switch configuration to take effect.

Examples

The following example shows how to configure the default profile on the switch:

```
Switch# configure terminal
Switch(config)# stm prefer default
```

Related Commands

show stm prefer current

11.3.2 temperature

Command Purpose

Use this command to configure the system temperature threshold and restore the default configuration in the form of no of this command.

Command Syntax

temperature *TEMP_LOW TEMP_HIGH TEMP_CRIT*

no temperature

Parameter	Parameter Description	Parameter Value

TEMP_LOW	Low temperature range	Range is -15 - 50, unit is degree centigrade.
TEMP_HIGH	High temperature range	Range is 50 - 80, unit is degree centigrade.
TEMP_CRIT	High-risk temperature range	Range is 55 - 90, unit is degree centigrade.

Command Mode

Global Configuration

Default

By default, the low-temperature alarm temperature is 5 degrees, the high-temperature alarm temperature is 65 degrees and the high-risk temperature is 80 degrees.

Usage

The unit is Celsius.

High-risk temperatures must be at least 5 degrees above high temperatures.

The high temperature must be at least 5 degrees above the low temperature.

Examples

The following example shows how to configure to specify the temperature thresholds:

```
Switch# configure terminal
Switch(config)# temperature 5 70 80
```

The following example shows how to recover to specify the temperature thresholds:

```
Switch# configure terminal
Switch(config)# no temperature
```

Related Commands

show environment

11.3.3 clock set datetime

Command Purpose

Use this command to modify system time in global configuration mode.

Command Syntax

clock set datetime *ABS_TIME CLOCK_MONTH ABS_DAY ABS_YEAR*

Parameter	Parameter Description	Parameter Value
ABS_TIME	current time	00:00:00-23:59:59
CLOCK_MONTH	Set the current month	1-12
ABS_DAY	Set the current date	1-31
ABS_YEAR	Setting up the year of the year	2000-2037

Command Mode

Global Configuration

Default

UTC time

Usage

In an application environment that requires strict absolute time acquisition, the current date and clock of the device must be set.

Examples

The following example shows how to set system date and time :

```
Switch# configure terminal
Switch(config)# clock set datetime 13:32:00 9 23 2016
```

Related Commands

None

11.3.4 clock set timezone

Command Purpose

Use this command to modify the system time zone under global configuration.

Command Syntax

clock set timezone *ZONE_NAME* (add | minus) *TIMEZONE_HOURS* (*TIMEZONE_MINUTES* | *TIMEZONE_SECONEDS*)

no clock set timezone

Parameter	Parameter Description	Parameter Value
ZONE_NAME	Time zone name	Must be less than 32 characters(A-Za-z)
TIMEZONE_HOURS	UTC offset clock	0-23
TIMEZONE_MINUTES	UTC offset minute	0-59
TIMEZONE_SECONEDS	UTC offset seconds, offset must be 0-59	-

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to set the clock timezone :

```
Switch# configure terminal
Switch(config)# clock set timezone Beijing add 8
```

Related Commands

None

11.3.5 update bootrom

Command Purpose

Use this command to update bootrom image.

Command Syntax

update bootrom *STRING*

Parameter	Parameter Description	Parameter Value
STRING	Source File Directory	-

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to update bootrom image:

```
Switch# configure terminal
Switch(config)# update bootrom flash:/boot/bootrom.bin
```

Related Commands

None

11.3.6 split interface

Command Purpose

Using this command, you can split 40G or 100G physical ports to 10G or 40G, and use the command no form to cancel the splitting.

Command Syntax

split interface *IFNAME* (10giga)

no split interface *IFNAME*

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	-

Command Mode

Global Configuration

Default

None

Usage

After splitting the command configuration or canceling the configuration, the configuration should be saved and restarted before it takes effect.

Examples

The following example shows how to split interface eth-0-1 to four 10G ports:

```
Switch# configure terminal
Switch(config)# split interface eth-0-1 10giga
```

The following example shows how to cancel splitting interface eth-0-1:

```
Switch# configure terminal
Switch(config)# no split interface eth-0-1
```

Related Commands

switch interface

11.3.7 switch interface

Command Purpose

Use this command to set a port as a split port type, and use the command no form as a non-split type.

Command Syntax

switch interface *IFNAME* (sfp | qsfp)

no switch interface *IFNAME*

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	-
sfp	SFP+ type	-
qsfp	QSFP+ type	-

Command Mode

Global Configuration

Default

None

Usage

After splitting the command configuration or canceling the configuration, the configuration should be saved and restarted before it takes effect.

Examples

The following example shows how to set the port eth-0-1 disassembly type to SFP:

```
Switch# configure terminal
Switch(config)# switch interface eth-0-1 sfp
```

The following example shows how to cancel interface eth-0-1 disassembly type:

```
Switch# configure terminal
Switch(config)# no switch interface eth-0-1
```

Related Commands

split interface

11.3.8 schedule reboot at

Command Purpose

In global configuration mode, set the system restart time by using the schedule reboot at command, which cancels the set restart time in the no form.

Command Syntax

schedule reboot at *HOUR_MIN* (*YEAR_MON_DAY* |)

Parameter	Parameter Description	Parameter Value
HOUR_MIN	Set Hours and Minutes	00:00-23:59
YEAR_MON_DAY	Setting date	Tomorrow-2037/12/31

Command Mode

Global Configuration

Default

None

Usage

Restart time format, hour and minute HH: MM, date can be YYYY/MM/DD or MM/DD/YYY or MM/DD format. If the month and date are specified, the system will restart at the specified time in the specified month and date. If no month and date are specified, the system will restart at the specified time on that day.

Examples

The following example shows how to set system reboot time:

```
Switch# configure terminal
Switch(config)# schedule reboot at 10:20 2016/6/2
```

Related Commands

show schedule reboot

11.3.9 schedule reboot delay

Command Purpose

In the global configuration mode, the schedule reboot delay command is used to set the system delay reboot time, and the no form of the command cancels the set reboot time.

Command Syntax

schedule reboot delay *DELAY_TIME*

no schedule reboot

Parameter	Parameter Description	Parameter Value
DELAY_TIME	Hours, minutes or minutes	00:00-23:59 or 0-720

Command Mode

Global Configuration

Default

None

Usage

The delay time format is hours, minutes, ranging from 00:00-23:59, or minutes, ranging from 1-720 minutes.

Examples

The following example shows how to set the restart delay to 100 minutes:

```
Switch# configure terminal
Switch(config)# schedule reboot delay 100
```

The following example shows how to cancel restart delay:

```
Switch# configure terminal
Switch(config)# no schedule reboot
```

Related Commands

show schedule reboot

11.3.10 clear reboot-info

Command Purpose

Use this command to clear system restart information.

Command Syntax

clear reboot-info

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to clear reboot information:

```
Switch# clear reboot-info
```

Related Commands

show reboot-info

11.3.11 set device id-led

Command Purpose

Use this command to set device LED instructions to force lighting or closing.

Command Syntax

set device id-led (on | off)

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to set device indicate led force on or force off:

```
Switch# set device id-led on
```

Related Commands

show device id-led

11.3.12 show version

Command Purpose

In privileged mode, use this command to display the hardware and firmware version information of the device.

Command Syntax

show version

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display hardware and firmware version information of the device.

Examples

The following example shows how to display the version information of the hardware and firmware:

```
Switch# show version
SwitchOS Software, GTD-5271, Version 1.0.1
Vendor Information:
```

```
The current running image is: flash:/boot/GTD-5271-hybrid-v1.0.1.bin
Switch uptime is 0 days, 2 hours, 24 minutes
Hardware Type :
SDRAM size :
Flash size :
Hardware Version : 1.0
EPLD Version :
BootRom Version :
System serial number :
```

Related Commands

None

11.3.13 show stm prefer

Command Purpose

In privileged mode, use this command to display specific system resource allocation information.

Command Syntax

show stm prefer (current | default | next | ipv6)

Command Mode

Privileged EXEC

Default

None

Usage

Current refers to the current resource allocation information, default refers to the default resource allocation information, next refers to the resource allocation information after the next restart, and IPv6 refers to the resource allocation information under the IPv6 mode. When you change the configuration but do not restart the switch, then it shows the system resource information currently in use. Only after restarting the switch, the configuration will really take effect.

Examples

The following example shows how to display information about the profiles that can be used to maximize system resources for a particular feature:

```
Switch# show stm prefer current
default profile:
number of Ethernet features:
    MSTP instances                          : 1/64
    VLAN forwarding instances               : 1/4094
    Ucast MAC addresses                     : 0/32768
        static MAC address                  : 0/1024
        dynamic MAC address                 : 0/32768
    MAC Filter entry                        : 0/116
    Ethernet Virtual Connection             : 0/4094
    VLAN Mapping Table                      : 0/64
    Applied VLAN Mapping Entry              : 0/1024
    L2protocol entry                        : 0/8
number of IP unicast features:
    IPv4 host routes                        : 0/4096
    Indirect IPv4 routes                    : 0/8192
    Static IPv4 routes                      : 0/8192
    IPv4 ecmp groups(member maximum 8)      : 0/239
    IPv4 source guard entries               : 0/1024
number of Security features:
    ACL ingress entries                     : 0/960
    ACL egress entries                      : 0/256
    System ACL configure                    : 0/4096
    System ACE configure                    : 0/8192
    System ACE L4 Port Range entries        : 0/7
number of vlan interface                    : 0/256
number of time range                        : 0/256
number of dot1x mac based                   : 0/256
number of L2 multicast features:
    Group Member                            : 0/2048
    L2 Mcast Entry                          : 0/2048
number of L3 multicast entries              : 0/1024
number of link aggregation(static & lacp)   : 0/31
number of mac based vlan class              : 0/512
number of ipv4 based vlan class             : 0/512
number of ARP ACL features:
    System ARP ACL configure                : 0/64
    System ARP ACE configure                : 0/512
number of OSPF features:
    ospf network                            : 0/32
    ospf area range                         : 0/32
    ospf area authentication                : 0/3000
number of qos features:
    policer profile                         : 0/243
    drop profile                            : 0/2
    scheduler profile                       : 0/59
    port shape profile                      : 0/127
number of vrrp sessions                     : 0/31
```

```
number of IP sla entries                    : 0/255
number of track objects                     : 0/500
```

Related Commands

stm prefer

11.3.14 show environment

Command Purpose

Use this command to display hardware environment information.

Command Syntax

show environment

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the hardware environment information:

```
Switch# show environment
Fan tray status:
Index       Status        SpeedRate     Mode
----------+------------+------------+------------
1-1         OK            40%           AUTO
1-2         OK            40%           AUTO
1-3         OK            40%           AUTO
1-4         OK            40%           AUTO
Power status:
Index       Status        Power         Type          Alert
----------+------------+------------+------------+------------
1           ABSENT        -             -             -
```

```
2           PRESENT      OK           AC           NO
Sensor status (Degree Centigrade):
Index       Temperature  Lower_alarm  Upper_alarm  Critical     Position
----------+------------+------------+------------+------------+------------
1           43           5            65           80           AROUND_CHIP
2           31           5            65           80           AROUND_PSU
3           33           5            65           80           AROUND_FAN
4           42           5            65           80           AROUND_CPU
5           60           -10          100          110          SWITCH_CHIP
```

Related Commands

temperature

11.3.15 show clock

Command Purpose

Use this command to display the time and date information of the current system.

Command Syntax

show clock

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the clock information:

```
Switch# show clock
17:23:32 UTC Wed Sep 21 2016
```

Related Commands

None

11.3.16 show transceiver

Command Purpose

Use this command to display optical module transceiver information.

Command Syntax

show transceiver (*IFNAME* |) (detail)

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	-

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to display optical module transceiver information and details.

Examples

The following example shows how to display the transceiver information:

```
Switch# show transceiver detail
Port eth-0-5/1 transceiver info:
Transceiver Type: 40GBASE_XLPPI
 Transceiver Vendor Name : Teralux
 Transceiver PN          : BCQ022
 Transceiver S/N         : 1613600002
Transceiver Output Wavelength: 850 nm
Supported Link Type and Length:
Link Length for copper: 10m
-------------------------------------------------------------------------------
```

```
Transceiver is internally calibrated.
mA: milliamperes, dBm: decibels (milliwatts), NA or N/A: not applicable.
++ : high alarm, +  : high warning, -  : low warning, -- : low alarm.
The threshold values are calibrated.
-------------------------------------------------------------------------------
                                 High Alarm  High Warn   Low Warn    Low Alarm
                Temperature      Threshold   Threshold   Threshold   Threshold
Port            (Celsius)        (Celsius)   (Celsius)   (Celsius)   (Celsius)
--------------+----------------+-----------+-----------+-----------+----------
eth-0-5/1       36.38            80.00       75.00       -5.00       -10.00
-------------------------------------------------------------------------------
                                 High Alarm  High Warn   Low Warn    Low Alarm
                Voltage          Threshold   Threshold   Threshold   Threshold
Port            (Volts)           (Volts)     (Volts)     (Volts)     (Volts)
--------------+----------------+-----------+-----------+-----------+----------
eth-0-5/1       3.45             3.70        3.60        3.00        2.90
-------------------------------------------------------------------------------
                                 High Alarm  High Warn   Low Warn    Low Alarm
                Current          Threshold   Threshold   Threshold   Threshold
Port            (milliamperes)     (mA)        (mA)        (mA)        (mA)
--------------+----------------+-----------+-----------+-----------+----------
eth-0-5/1       6.76             11.00       10.00       3.00        2.00
-------------------------------------------------------------------------------
                Optical          High Alarm  High Warn   Low Warn    Low Alarm
                Transmit Power   Threshold   Threshold   Threshold   Threshold
Port             (dBm)             (dBm)       (dBm)       (dBm)       (dBm)
--------------+----------------+-----------+-----------+-----------+----------
eth-0-5/1       -1.56            3.00        2.50        -5.00       -6.00
-------------------------------------------------------------------------------
                Optical          High Alarm  High Warn   Low Warn    Low Alarm
                Receive Power    Threshold   Threshold   Threshold   Threshold
Port             (dBm)             (dBm)       (dBm)       (dBm)       (dBm)
--------------+----------------+-----------+-----------+-----------+----------
eth-0-5/1       2.01             3.00        2.50        -12.00      -13.00
Port eth-0-5/2 transceiver info:
Transceiver Type: 40GBASE_XLPPI
 Transceiver Vendor Name : Teralux
 Transceiver PN          : BCQ022
 Transceiver S/N         : 1613600002
Transceiver Output Wavelength: 850 nm
Supported Link Type and Length:
 Link Length for copper: 10m
-------------------------------------------------------------------------------
Transceiver is internally calibrated.
mA: milliamperes, dBm: decibels (milliwatts), NA or N/A: not applicable.
++ : high alarm, +  : high warning, -  : low warning, -- : low alarm.
The threshold values are calibrated.
-------------------------------------------------------------------------------
                                 High Alarm  High Warn   Low Warn    Low Alarm
                Temperature      Threshold   Threshold   Threshold   Threshold
Port            (Celsius)        (Celsius)   (Celsius)   (Celsius)   (Celsius)
--------------+----------------+-----------+-----------+-----------+----------
eth-0-5/2       36.11            80.00       75.00       -5.00       -10.00
-------------------------------------------------------------------------------
                                 High Alarm  High Warn   Low Warn    Low Alarm
```

```
                Voltage            Threshold   Threshold   Threshold   Threshold
Port            (Volts)              (Volts)     (Volts)     (Volts)     (Volts)
--------------+-----------------+-----------+-----------+-----------+----------
eth-0-5/2       3.45               3.70        3.60        3.00        2.90
-------------------------------------------------------------------------------
                                   High Alarm  High Warn   Low Warn    Low Alarm
                Current            Threshold   Threshold   Threshold   Threshold
Port            (milliamperes)       (mA)        (mA)        (mA)        (mA)
--------------+-----------------+-----------+-----------+-----------+----------
eth-0-5/2       6.76               11.00       10.00       3.00        2.00
-------------------------------------------------------------------------------
                Optical            High Alarm  High Warn   Low Warn    Low Alarm
                Transmit Power     Threshold   Threshold   Threshold   Threshold
Port              (dBm)              (dBm)       (dBm)       (dBm)       (dBm)
--------------+-----------------+-----------+-----------+-----------+----------
eth-0-5/2       -1.72              3.00        2.50        -5.00       -6.00
-------------------------------------------------------------------------------
                Optical            High Alarm  High Warn   Low Warn    Low Alarm
                Receive Power      Threshold   Threshold   Threshold   Threshold
Port              (dBm)              (dBm)       (dBm)       (dBm)       (dBm)
--------------+-----------------+-----------+-----------+-----------+----------
eth-0-5/2       3.07       ++      3.00        2.50        -12.00      -13.00
```

Related Commands

None

11.3.17 show system summary

Command Purpose

Use this command to display system information overview.

Command Syntax

show system summary

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display the summary of system information:

```
Switch# show system summary
########## Version Table ##########
SwitchOS Software, GTD-5271, Version 1.0.1
Vendor Information
The current running image is: flash:/boot/GTD-5271-hybrid-v1.0.1.bin
Switch uptime is 0 days, 5 hours, 12 minutes
Hardware Type :
SDRAM size :
Flash size :
Hardware Version :
EPLD Version :
BootRom Version :
System serial number :
########## Management IP Table ##########
Management IP address: 10.10.33.214/24
Gateway: 10.10.33.254
########## Route Mac Table ##########
Route MAC is: 001e.080a.4f01
########## Users Table ##########
Line             Host(s)     Idle       Location         User
---------------+----------+----------+---------------+----------
130 vty 0        idle        05:10:18   Local
131 vty 1        idle        03:51:48   10.10.25.22
*132 vty 2       idle        00:00:00   10.10.25.27
########## Memory Summary Table ##########
Total memory :
Used memory :
Freed memory :
Buffer memory :
Cached memory :
Memory utilization:
```

Related Commands

None

11.3.18 show reboot-info

Command Purpose

Use this command to display system restart information.

Command Syntax

show reboot-info

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display reboot information:

```
Switch# show reboot-info
Times       Reboot Type      Reboot Time
----------+---------------+--------------------
1           MANUAL           2016-09-15 04:47:48
2           MANUAL           2016-09-19 17:30:36
3           MANUAL           2016-09-19 17:37:31
4           MANUAL           2016-09-19 17:45:55
5           MANUAL           2016-09-19 19:55:20
6           MANUAL           2016-09-20 13:28:41
7           MANUAL           2016-09-20 14:02:38
8           MANUAL           2016-09-20 14:20:25
9           MANUAL           2016-09-20 15:32:09
10          MANUAL           2016-09-20 15:44:08
```

Related Commands

clear reboot-info

11.3.19 show device id-led

Command Purpose

Use this command to display status information of device LED indicator.

Command Syntax

show device id-led

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display device indicate led information:

```
Switch# show device id-led
Indicate led is forced on
```

Related Commands

set device id-led

11.3.20 show schedule reboot

Command Purpose

Use this command to display system restart schedule information.

Command Syntax

show schedule reboot

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to display schedule reboot information:

```
Switch# show schedule reboot
No reboot schedule
```

Related Commands

schedule reboot at

schedule reboot delay

11.3.21 watch

Command Purpose

Use this command to run specified commands periodically.

Command Syntax

watch ((-n *SECONDS* |) (-t |) *STRING* | -h)

Parameter	Parameter Description	Parameter Value
SECONDS	Loop period in seconds (default 2)	Range is 1-3600, default is 2
STRING	Command to be run periodically	-

Command Mode

Privileged EXEC

Default

None

Usage

Supported commands:

show environment

show memory (history|process|summary)

show cpu (history| packets|utilization)

show transceiver (eth- | detail)

show interface xxx

ovs-ofctl dump-flows br0 -O openflow13

ovs-ofctl dump-meters br0 -O openflow13

ovs-ofctl dump-groups br0 -O openflow13

Examples

The following example shows how to run command periodically::

```
Switch# watch -n 3 "show environment"

Every 3.0s: cdbctl show/cdb/sys/show_environment        Thu Jul  4 11:59:28 2019

    Fan tray status:
    Index       Status        SpeedRate     Mode
    ----------+------------+------------+------------
    2-2         OK            50%           AUTO
    2-3         OK            95%           AUTO

    Power status:
    Index       Status        Power         Type          Alert
    ----------+------------+------------+------------+------------
    3           PRESENT       OK            DC48V         NO ALERT
    6           PRESENT       OK            DC48V         NO ALERT

    Sensor status (Degree Centigrade):
    Index       Temperature   Lower_alarm   Upper_alarm   Critical      Position
    ----------+------------+------------+------------+------------+------------
    4           100           0             0             0             CHIP1
    6           200           0             0             0             BOARD1
```

Related Commands

None

12 Network Management Commands

12.1 NTP Commands

12.1.1 ntp minimum-distance

Command Purpose

In global mode, use this command to set minimum-distance of NTP. Recover to default value by using the no form of the command.

Command Syntax

ntp minimum-distance *NTP_MIN_DISP*

Parameter	Parameter Description	Parameter Value
NTP_MIN_DISP	NTP minimum-distance	Range is 1-1000

Command Mode

Global Configuration

Default

1ms

Usage

Use this command to set minimum-distance of NTP.

Examples

The following example shows how to configure ntp minimum-distance as 1s :

```
Switch# configure terminal
Switch(config)# ntp minimum-distance 1000
```

Related Commands

None

12.1.2 ntp server

Command Purpose

In global mode, use this command to appoint NTP server. And remove NTP server by using the no form of the command.

Command Syntax

ntp server (mgmt-if |) (*IP_ADDR* (source-ip *SRC_IP_ADDR* |) | *IPV6_ADDR*) (key *NTP_KEYID* |) (version *NTP_VERSION* |) (prefer |)

no ntp server (mgmt-if |) (*IP_ADDR* | *IPV6_ADDR*)

Parameter	Parameter Description	Parameter Value
IP_ADDR	IPv4 address of NTP server	-
SRC_IP_ADDR	source ip address	-
IPv6_ADDR	IPv6 address of NTP server	-
NTP_KEYID	NTP key	-
NTP_VERSION	NTP version	-

Command Mode

Global Configuration

Default

Not synchronized with any NTP server by default.

Usage

Use this command to appoint NTP server.

Examples

The following example shows how to configure ntp server ip as 172.13.22.44, the version of NTP as 2:

```
Switch# configure terminal
Switch(config)# ntp server 172.16.22.44 version 2
```

The following example shows how to delete ntp server 172.13.22.44:

```
Switch# configure terminal
Switch(config)# no ntp server 172.16.22.44
```

Related Commands

None

12.1.3 ntp authentication

Command Purpose

To enable NTP authentication, use the ntp authentication enable command. To disable the NTP authentication, use the ntp authentication disable command.

Command Syntax

ntp authentication (enable | disable)

Command Mode

Global Configuration

Default

None

Usage

When NTP authentication is enabled, the identity key need to be set to trusted, only in this way, can the process of authenticate work accurately. Device can use trusted key to connect to NTP server and sychronize time.

Examples

The following example shows how to enable ntp authentication:

```
Switch# configure terminal
Switch(config)# ntp authentication enable
```

Related Commands

None

12.1.4 ntp trustedkey

Command Purpose

In global mode, use this command to create trusted key. And cancel NTP trusted by using the no form of the command.

Command Syntax

ntp trustedkey *NTP_TRUSTEDKEY*

no ntp trustedkey *NTP_TRUSTEDKEY*

Parameter	Parameter Description	Parameter Value
NTP_TRUSTEDKEY	Key ID	-

Command Mode

Global Configuration

Default

None

Usage

If authentication is enabled, use this command to define one or more key numbers (corresponding

to the keys defined with the ntp key command) that a peer NTP system must provide in its NTP packets, in order for this system to synchronize to it. This function provides protection against accidentally synchronizing the system to a system that is not trusted, because the other system must know the correct

authentication key.

Examples

The following example shows how to configure the system to synchronize only to systems providing authentication key 42 in its NTP packets:

```
Switch# configure terminal
Switch(config)# ntp authentication enable
Switch(config)# ntp key 42 aNiceKey
Switch(config)# ntp trustedkey 42
```

The following example shows how to disable authentication of the identity of the system :

```
Switch# configure terminal
Switch(config)# no ntp trustedkey 42
```

Related Commands

None

12.1.5 ntp key

Command Purpose

In global mode, use this command to create a value for a NTP key. And remove the value of the NTP key by the no form of the command.

Command Syntax

ntp key *NTP_TRUSTEDKEY STRING*

no ntp key *NTP_TRUSTEDKEY*

Parameter	Parameter Description	Parameter Value
NTP_TRUSTEDKEY	Key ID	-
STRING	Key value	-

Command Mode

Global Configuration

Default

None

Usage

Use this command to create key of NTP

Examples

The following example shows how to the value 321 is given to the NTP key 123:

```
Switch# configure terminal
Switch(config)# ntp key 123 321
```

The following example shows how to the value 321 is removed from the NTP key 123:

```
Switch# configure terminal
Switch(config)# no ntp key 123
```

Related Commands

None

12.1.6 ntp disable

Command Purpose

In global mode, use this command to configure Disable NTP packets from being received on the interface.

Command Syntax

ntp disable

no ntp disable

Command Mode

Interface Configuration

Default

By default, all interfaces receive NTP packets

Usage

None

Examples

The following example shows how to configured system not to receive NTP packet in interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# ntp disable
```

The following example shows how to configure the system allow to receive NTP packet in interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ntp disable
```

Related Commands

None

12.1.7 show ntp

Command Purpose

In privileged mode, use this command to display NTP configuration.

Command Syntax

show ntp

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to display NTP configuration

Examples

The following example shows how to display the NTP configurations :

```
Switch# show ntp
Current NTP configuration:
============================================================
10.10.33.239 server (mgmt-if)
3.3.3.2 server
4000:2000::1 server (mgmt-if)
Authentication: enabled
```

Related Commands

None

12.1.8 show ntp status

Command Purpose

In privileged mode, use this command to display current NTP state.

Command Syntax

show ntp status

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to display current NTP state.

Examples

The following example shows how to display ntp status:

```
Switch# show ntp status
Current NTP status:
============================================================
system peer mode      : client
leap indicator        : 00
stratum               : 12
precision             : -19
root distance         : 0.00032 s
minimum distance      : 0.00099 s
selection threshold   : 1.50000 s
root dispersion       : 0.20023 s
reference ID          : [10.10.33.239]
reference time        : df5b5f67.4d9e6edc  Sun,Sep 30 2018 14:42:47.303
system flags          : bclient auth monitor ntp kernel stats
jitter                : 0.000000 s
stability             : 0.000 ppm
broadcastdelay        : 3.000000 s
authdelay             : 0.000000 s
```

Related Commands

None

12.1.9 show ntp statistics

Command Purpose

In privileged mode, use this command to display ntp statistics.

Command Syntax

show ntp statistics

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to display ntp statistics.

Examples

The following example shows how to display ntp statistics:

```
Switch# show ntp statistics
Current NTP I/O statistics:
============================================================
time since reset:     175834
receive buffers:      10
free receive buffers: 9
used receive buffers: 0
low water refills:    1
dropped packets:      0
ignored packets:      0
received packets:     32
packets sent:         31
packets not sent:     0
interrupts handled:   32
received by int:      32
```

Related Commands

None

12.1.10 show ntp associations

Command Purpose

In privileged mode, use this command to display neighbor state of NTP.

Command Syntax

show ntp associations

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to display neighbor state of NTP.

Examples

The following example shows how to display the status of NTP associations:

```
Switch# show ntp associations
***Server reports data not found
```

Related Commands

None

12.1.11 show ntp key

Command Purpose

In privileged mode, use this command to display NTP key.

Command Syntax

show ntp key

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to display NTP key.

Examples

The following example shows how to display the keys of NTP:

```
Switch# show ntp key
Current NTP key configuration:
============================================================
       1 abcd
   64000 KKKK
```

Related Commands

None

12.1.12 clear ntp statistics

Command Purpose

In privileged mode, use this command to clear NTP statistics.

Command Syntax

clear ntp statistics

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to clear NTP statistics.

Examples

The following example shows how to clear ntp statistics:

```
Switch# clear ntp statistics
```

Related Commands

None

12.2 Network Diagnosis Commands

12.2.1 ping

Command Purpose

Use this command to detect host accessibility and statistics in a network. Generally, there are several situations as flollow: host is inaccessible, interface is in accessible, timeout. The command could be used in public network or VRF.

Command Syntax

ping ((-a *IP_ADDR* |) (-si *IFNAME_ALL* |) (-m *PING_INTERVAL* |) (-c *PING_COUNT* |) (-s *PING_SIZE* |) (-f |) (-tos *PING_TOS* |) (-h *PING_TTL* |) | mgmt-if) *WORD*

Parameter	Parameter Description	Parameter Value
IP_ADDR	source ip address	-
IFNAME_ALL	Interface name	-
PING_INTERVAL	send interval	Default is millisecond,unit is second
PING_COUNT	packets number	Default is 5
PING_SIZE	packet size	Default is 5 byte

PING_TOS	TOS value	Default is 0
PING_TTL	TTL value	Default is 255
WORD	destination ip	-
mgmt-if	management interface	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to ping destination ip address by management interface:

```
Switch# ping mgmt-if 10.10.38.160
PING 10.10.38.160 (10.10.38.160) 56(84) bytes of data.
64 bytes from 10.10.38.160: icmp_seq=1 ttl=64 time=0.513 ms
64 bytes from 10.10.38.160: icmp_seq=2 ttl=64 time=0.229 ms
64 bytes from 10.10.38.160: icmp_seq=3 ttl=64 time=0.261 ms
64 bytes from 10.10.38.160: icmp_seq=4 ttl=64 time=0.265 ms
64 bytes from 10.10.38.160: icmp_seq=5 ttl=64 time=0.387 ms

--- 10.10.38.160 ping statistics ---
5 packets transmitted,5 received,0% packet loss,time 3999ms
rtt min/avg/max/mdev = 0.229/0.331/0.513/0.105 ms
```

Related Commands

None

12.2.2 traceroute

Command Purpose

Use this command to show the path from the current device to the destination device. If user use command ping and find network fault, this command could analyze the network fault nodes.

Command Syntax

traceroute ((-a *IP_ADDR* |) (-si *IFNAME_ALL* |) | mgmt-if) *WORD*

Parameter	Parameter Description	Parameter Value
IP_ADDR	suorce ip address	-
IFNAME_ALL	Interface name	-
mgmt-if	management interface	-
WORD	destination ip address	-

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to look in the path of ip address 10.108.1.29:

```
Switch# traceroute 10.108.1.29
traceroute to 10.108.1.29 (10.108.1.29),30 hops max,38 byte packets
 1  10.108.1.27 (10.108.1.27)  2998.076 ms !H  3000.361 ms !H  3007.748 ms !H
```

Related Commands

None

12.3 SNMP Commands

12.3.1 snmp-server enable

Command Purpose

Use this command to enable the SNMP function.

Use the no form of this command to disable SNMP function.

Command Syntax

snmp-server enable

no snmp-server enable

Command Mode

Global Configuration

Default

Disabled

Usage

The command is used to enable SNMP global.

Examples

The following example shows how to enable snmp global:

```
Switch# configure terminal
Switch(config)# snmp-server enable
```

The following example shows how to disable snmp global:

```
Switch# configure terminal
Switch(config)# no snmp-server enable
```

Related Commands

show snmp

12.3.2 snmp-server engineID

Command Purpose

Use this command to specify the Simple Network Management Protocol (SNMP) engine ID on the local device.

Use the no form of this command to remove engineID.

Command Syntax

snmp-server *engineID ENGINEID*

no snmp-server *engineID*

Parameter	Parameter Description	Parameter Value
ENGINEID	engine ID	The hexadecimal number string minimum length is 10 and maximum length is 64

Command Mode

Global Configuration

Default

30383038303830383038

Usage

The SNMP engine ID is a unique string used to identify the device for administration purposes. You do not need to specify an engine ID for the device. For further details on the SNMP engine ID, see RFC 2571. Need to configure ’no snmp-server enable’and ’snmp-server enable’to active engineID”.

Examples

The following example shows how to set SNMP engine ID:

```
Switch# configure terminal
Switch(config)# snmp-server engineID 1234567890
```

The following example shows how to reset SNMP engine ID to default value:

```
Switch# configure terminal
Switch(config)# no snmp-server engineID
```

Related Commands

show snmp-server engineID

12.3.3 snmp-server system-contact

Command Purpose

Use this command to set the system contact (sysContact) string.

Use the no form of this command to remove contact.

Command Syntax

snmp-server system-contact *KLINE*

no snmp-server system-contact

Parameter	Parameter Description	Parameter Value
KLINE	SNMP system contact	-

Command Mode

Global Configuration

Default

None

Usage

This command is used to set the system contact of the SNMP agent so that these descriptions can be accessed through the configuration file.

Examples

The following example shows how to configure the system contact of the SNMP:

```
Switch# configure terminal
Switch(config)# snmp-server system-contact xxx@example.com
```

The following example shows how to remove the system contact of the SNMP:

```
Switch# configure terminal
Switch(config)# no snmp-server system-contact
```

Related Commands

show snmp-server sys-info

12.3.4 snmp-server system-location

Command Purpose

Use this command to set the system location string.

Use the no form of this command to remove system-location.

Command Syntax

snmp-server system-location *KLINE*

no snmp-server system-location

Parameter	Parameter Description	Parameter Value
KLINE	SNMP system location	-

Command Mode

Global Configuration

Default

None

Usage

This command is used to set the system location of the SNMP agent so that these descriptions can be accessed through the configuration file.

Examples

The following example shows how to configure the system location of the SNMP:

```
Switch# configure terminal
Switch(config)# snmp-server system-location Sample-Place
```

The following example shows how to remove the system location of the SNMP:

```
Switch# configure terminal
Switch(config)# no snmp-server system-location
```

Related Commands

show snmp-server sys-info

12.3.5 snmp-server version

Command Purpose

Use this command to specify the support of SNMP version.

Use the no form of this command to recover to default version.

Command Syntax

snmp-server version (all | v1 | v2c | v3)

no snmp-server version

Parameter	Parameter Description	Parameter Value
all	all version	-
v1	support v1	-

v2c	support v2	-
v3	support v3	-

Command Mode

Global Configuration

Default

Support v1 and v2c and v3 SNMP versions

Usage

This command is used to set the SNMP version the switch supported.

Examples

The following example shows how to set the SNMP version:

```
Switch# configure terminal
Switch(config)# snmp-server version v2c
```

The following example shows how to recover the default SNMP version:

```
Switch# configure terminal
Switch(config)# no snmp-server version
```

Related Commands

show snmp-server version

12.3.6 snmp-server view

Command Purpose

Use this command to create or update a view entry.

Use the no form of this command to remove view.

Command Syntax

snmp-server view *SNMPNAME* (excluded | included) *SNMPSUBTREE* (mask *SNMPMASK* |)

no snmp-server view *SNMPNAME* (excluded | included) *SNMPSUBTREE*

Parameter	Parameter Description	Parameter Value
SNMPNAME	Name of the view	-
SNMPSUBTREE	Subtree name (.A.B.C…..)	-
SNMPMASK	Subtree mask string in hexadecimal format	-

Command Mode

Global Configuration

Default

None

Usage

This command is used to create a view to be used as arguments for other commands.

Examples

The following example shows how to create a view:

```
Switch# configure terminal
Switch(config)# snmp-server view abc excluded 1.3.6.2
```

The following example shows how to remove a view:

```
Switch# configure terminal
Switch(config)# no snmp-server view abc excluded 1.3.6.2
```

Related Commands

show snmp-server view

12.3.7 snmp-server community

Command Purpose

Use this command to set up the community access string to permit access to the Simple Network Management Protocol (SNMP).

Use the no form of this command to remove snmp-server community.

Command Syntax

snmp-server community *SNMPNAME* (read-only | read-write) (view *SNMPVIEW* |)

no snmp-server community *SNMPNAME*

Parameter	Parameter Description	Parameter Value
SNMPNAME	Specify a SNMP community name	-
SNMPVIEW	MIB view to which this community has access	-

Command Mode

Global Configuration

Default

None

Usage

None

Examples

The following example shows how to create a community:

```
Switch# configure terminal
Switch(config)# snmp-server community private read-write
```

The following example shows how to remove a community:

```
Switch# configure terminal
Switch(config)# no snmp-server community private
```

Related Commands

show snmp-server community

12.3.8 snmp-server trap enable

Command Purpose

Use this command to enable all Simple Network Management Protocol (SNMP) notification types that are available on your system.

Use the no form of this command to turn off this function.

Command Syntax

snmp-server trap enable (all | coldstart | warmstart | linkdown | linkup | system | vrrp)

no snmp-server trap enable (all | coldstart | warmstart | linkdown | linkup | system | vrrp)

Command Mode

Global Configuration

Default

Disabled

Usage

The snmp-server trap enable command is used in conjunction with the snmp-server trap target-address command. Use the snmp-server trap target-address command to specify which host or hosts receive SNMP notifications. There exist 30 seconds delay when configure “snmp-server trap enable all” and “no snmp-server trap enable all” continuing.

Examples

The following example shows how to enable all snmp-server trap:

```
Switch# configure terminal
Switch(config)# snmp-server trap enable all
```

The following example shows how to disable all snmp-server trap:

```
Switch# configure terminal
Switch(config)# no snmp-server trap enable all
```

Related Commands

snmp-server trap target-address

12.3.9 snmp-server trap target-address

Command Purpose

Use this command to configure a remote trap management IP address.

Use the no form of this command to delete the specified server.

Command Syntax

snmp-server trap target-address (mgmt-if |) (*IP_ADDR* (source-ip *SRC_IP_ADDR* |) | *IPV6_ADDR*) community *SNMPNAME* (udpport *SNMP_UDP_PORT* |)

no snmp-server trap target-address (mgmt-if |) (*IP_ADDR* | *IPV6_ADDR*) community *SNMPNAME* (udpport *SNMP_UDP_PORT* |)

Parameter	Parameter Description	Parameter Value
IP_ADDR	SNMP IPV4 address,A.B.C.D	-
IPV6_ADDR	SNMP IPV6 address,X:X::X:X	-
SRC_IP_ADDR	Bind ip address,A.B.C.D	-
SNMPNAME	SNMP community name	-

SNMP_UDP_PORT	Port number	Range is 0-65535, default is 162

Command Mode

Global Configuration

Default

None

Usage

This command is used to specify the server target address to which the trap is sent.

Examples

The following example shows how to set the snmp-server trap target-address command:

```
Switch# configure terminal
Switch(config)# snmp-server trap target-address 10.10.10.1 community test udpport
13
```

The following example shows how to remove the snmp-server trap target-address command :

```
Switch# configure terminal
Switch(config)# no snmp-server trap target-address 10.10.10.1 community test
```

Related Commands

None

12.3.10 snmp-server trap delay linkup

Command Purpose

Use this command to configure the trap delay linkup time.

Use the no form of this command to remove trap delay.

Command Syntax

snmp-server trap delay linkup *TRAP_DELAY_TIME*

no snmp-server trap delay linkup

Parameter	Parameter Description	Parameter Value
TRAP_DELAY_TIME	Linkup trap delay time	Range is 1-10 in seconds

Command Mode

Global Configuration

Default

0s

Usage

This command is used to set the trap delay time for link up interface.

Examples

The following example shows how to set the trap delay time for link up interface:

```
Switch# configure terminal
Switch(config)# snmp-server trap delay linkup 10
```

The following example shows how to remove the trap delay time for link up interface:

```
Switch# configure terminal
Switch(config)# no snmp-server trap delay linkup
```

Related Commands

snmp-server trap enable

12.3.11 snmp-server trap delay linkdown

Command Purpose

Use this command to configure the trap delay linkup time.

Use the no form of this command to remove trap delay.

Command Syntax

snmp-server trap delay linkdown *TRAP_DELAY_TIME*

no snmp-server trap delay linkdown

Parameter	Parameter Description	Parameter Value
TRAP_DELAY_TIME	Linkdown trap delay time	Range is 1-10 in seconds

Command Mode

Global Configuration

Default

0s

Usage

This command is used to set the default trap delay time for link down interface.

Examples

The following example shows how to set the trap delay time for link down interface:

```
Switch# configure terminal
Switch(config)# snmp-server trap delay linkdown 10
```

The following example shows how to remove the trap delay time for link down interface:

```
Switch# configure terminal
Switch(config)# no snmp-server trap delay linkdown
```

Related Commands

snmp-server trap enable

12.3.12 snmp-server inform target-address

Command Purpose

Use this command to specify the recipient of a Simple Network Management Protocol (SNMP) inform message.

Use the no form of this command to remove the configuration.

Command Syntax

snmp-server inform target-address (mgmt-if |) (*IP_ADDR* (source-ip *SRC_IP_ADDR* |) | *IPV6_ADDR*) community *SNMPNAME* (udpport *SNMP_UDP_PORT* |)

no snmp-server inform target-address (mgmt-if |) (*IP_ADDR* | *IPV6_ADDR*) community *SNMPNAME* (udpport *SNMP_UDP_PORT* |)

Parameter	Parameter Description	Parameter Value
IP_ADDR	Specify a SNMP IPV4 address,A.B.C.D	-
IPV6_ADDR	Specify a SNMP IPV6 address,X:X::X:X	-
SRC_IP_ADDR	Bind ip address,A.B.C.D	-
SNMPNAME	Specify a SNMP community name	-
SNMP_UDP_PORT	Port number	Range is 0-65535, default is 162

Command Mode

Global Configuration

Default

None

Usage

This command is used to specify the server target address to which the inform is sent.

Examples

The following example shows how to set the snmp-server inform target-address command:

```
Switch# configure terminal
Switch(config)# snmp-server inform target-address 10.10.10.1 community test udpport
100
```

The following example shows how to remove the snmp-server inform target-address command :

```
Switch# configure terminal
Switch(config)# no snmp-server inform target-address 10.10.10.1 community test
udpport 100
```

Related Commands

None

12.3.13 snmp-server context

Command Purpose

Use this command to create a Simple Network Management Protocol (SNMP) context.

Use the no form of this command to remove the configuration.

Command Syntax

snmp-server context *CONTEXT_NAME*

no snmp-server context *CONTEXT_NAME*

Parameter	Parameter Description	Parameter Value
CONTEXT_NAME	Name of the context	-

Command Mode

Global Configuration

Default

None

Usage

When set snmp-server access with context name, only context name be created then snmp server can access connect the device.

Examples

The following example shows how to create a Simple Network Management Protocol (SNMP) context:

```
Switch# configure terminal
Switch(config)# snmp-server context contextA
```

The following example shows how to remove a Simple Network Management Protocol (SNMP) context:

```
Switch# configure terminal
Switch(config)# no snmp-server context contextA
```

Related Commands

show snmp-server context

12.3.14 snmp-server usm-user

Command Purpose

Use this command to configure a new Simple Network Management Protocol (SNMP) usm user.

Use the no form of this command to remove the usm user.

Command Syntax

snmp-server usm-user *USM_NAME* (remote *ENGINEID* |) (authentication (md5 | sha) (8 |) *AUTH_PWD* (privacy (des | aes) (8 |) *PRIV_PWD* |) |)

no snmp-server usm-user *USM_NAME*

Parameter	Parameter Description	Parameter Value
USM_NAME	Name of the user on the host that connects to the agent	-
ENGINEID	Specifies a remote SNMP entity to which the user belongs	-
authentication	configure authentication	-
md5	configure authentication to MD5	-
sha	configure authentication to SHA	-
8	Hide password or not	-
AUTH_PWD	String that specifies the authentication password	-
privacy	Configure the security model to SNMPv3 USM	-
des	Configure encrypption protocol as Digital Encryption Standard	-
aes	Configure encrypption protocol as Advanced Encryption Standard	-
PRIV_PWD	String that specifies the privacy password	-

Command Mode

Global Configuration

Default

None

Usage

To configure a remote user, specify the IP address or port number for the remote SNMP agent of the device where the user resides.

Examples

The following example shows how to to configure a new usm user:

```
Switch# configure terminal
Switch(config)# snmp-server usm-user u1 authentication sha abcdef123 privacy des
aabbccdd1234
```

The following example shows how to remove the usm user:

```
Switch# configure terminal
Switch(config)# no snmp-server usm-user u1
```

Related Commands

show snmp-server usm-user

12.3.15 snmp-server group

Command Purpose

Use this command to configure a new Simple Network Management Protocol (SNMP) group.

Use the no form of this command to remove group.

Command Syntax

snmp-server group *GROUPNAME* user *USERNAME* security-model usm

no snmp-server group *GROUPNAME* user *USERNAME* security-model usm

Parameter	Parameter Description	Parameter Value
GROUPNAME	The name of the group	-
USERNAME	The name of the user	-

Command Mode

Global Configuration

Default

None

Usage

This command is used to add a new SNMP server group in global configuration mode.

Examples

The following example shows how to configure a new group:

```
Switch# configure terminal
Switch(config)# snmp-server group g1 user u1 security-model usm
```

The following example shows how to remove the group:

```
Switch# configure terminal
Switch(config)# no snmp-server group g1 user u1 security-model usm
```

Related Commands

show snmp-server group

12.3.16 snmp-server access

Command Purpose

Use this command to set the access security of MIB view.

Use the no form of this command to remove access security.

Command Syntax

snmp-server access *GROUP_NAME* security-model usm (auth | noauth | priv) { context *CONTEXT* (prefix | exact |) | read *READ_VIEW* | write *WRITE_VIEW* | notify *NOTIFY_VIEW* | }

no snmp-server access *GROUP_NAME* security-model usm (auth | noauth | priv) { context *CONTEXT* | }

Parameter	Parameter Description	Parameter Value
GROUP_NAME	The name of the group which has this access	-
CONTEXT	The SNMP context to associate with this SNMP group and its views	-
READ_VIEW	A read view for the SNMP group.This view enables you to view only the contents of the agent	-
WRITE_VIEW	A write view for the SNMP group.This view enables you to enter data and configure the contents of the agent	-
NOTIFY_VIEW	A notify view for the SNMP group.This view enables you to specify a notify,inform,or trap	-
auth	The message is authenticated but not encrypted	-
noauth	The message is not authenticated and not encrypted	-

priv	The message is authenticated and encrypted	-

Command Mode

Global Configuration

Default

None

Usage

This command is used to set the access security of MIB view.

Examples

The following example shows how to set the access security of MIB view:

```
Switch# configure terminal
Switch(config)# snmp-server group g1 user user1 security-model usm
Switch(config)# snmp-server access g1 security-model usm auth
```

The following example shows how to remove the access security of MIB view:

```
Switch# configure terminal
Switch(config)# no snmp-server access g1 security-model usm auth
```

Related Commands

show snmp-server access

12.3.17 snmp-server notify

Command Purpose

Use this command to set the notification of traps for Simple Network Management Protocol (SNMP).

Use the no form of this command to remove the notification.

Command Syntax

snmp-server notify *NOTIFY_NAME* tag *TAG_NAME* (trap | inform |)

no snmp-server notify *NOTIFY_NAME*

Parameter	Parameter Description	Parameter Value
NOTIFY_NAME	The name of the notify	-
TAG_NAME	The name of the tag	-
trap	Configure notification mode to trap	-
inform	Configure notification mode to inform	-

Command Mode

Global Configuration

Default

None

Usage

This command is used to send events with the notification type of the SNMP server.

Examples

The following example shows how to set the notification of traps for SNMP:

```
Switch# configure terminal
Switch(config)# snmp-server notify n1 tag t1
```

The following example shows how to remove the notification:

```
Switch# configure terminal
Switch(config)# no snmp-server notify n1
```

Related Commands

show snmp-server notify

12.3.18 snmp-server target-address

Command Purpose

Use this command to specify the recipient of a Simple Network Management Protocol (SNMP) notification message.

Use the no form of this command to remove the configuration.

Command Syntax

snmp-server target-address *TARGET_NAME* param *PARANAME* (mgmt-if |) (*IP_ADDR* | *IPV6_ADDR*) (udpport *SNMP_UDP_PORT* |) (timeout *SNMP_TIMEOUT* |) (retries *SNMP_RETRY* |) taglist *LINE*

no snmp-server target-address *TARGET_NAME* (mgmt-if |) (*IP_ADDR* | *IPV6_ADDR*) (udpport *SNMP_UDP_PORT* |)

Parameter	Parameter Description	Parameter Value
TARGET_NAME	The name of the target address	-
PARANAME	The name of the param	-
IP_ADDR	A remote notification receiver IPv4 address	-
IPV6_ADDR	A SNMP IPV6 address,X:X::X:X	-
SNMP_UDP_PORT	The port number which area is 0 to 65535,the default is 162	-
SNMP_TIMEOUT	The timeout value which area is 0 to 65535,the default is 2 second	-

SNMP_RETRY	The retry time value which area is 0 to 255,the default is 3	-
LINE	The name of the taglist (128 tags are supported)	-

Command Mode

Global Configuration

Default

None

Usage

This command is used to configure a remote manager's IP address. This command is used for SNMP v3.

Examples

The following example shows how to specify the recipient of SNMPv3:

```
Switch# configure terminal
Switch(config)# snmp-server target-params p1 user user1 security-model v3 message-processing v3 noauth
Switch(config)# snmp-server target-address tar1 param p1 mgmt-if 10.10.27.227 taglist t1
```

The following example shows how to remove the recipient of SNMPv3:

```
Switch# configure terminal
Switch(config)# no snmp-server target-address tar1 mgmt-if 10.10.27.227
```

Related Commands

show snmp-server target-address

12.3.19 snmp-server target-params

Command Purpose

Use this command to specify the SNMP target information to be used in the generation of SNMP messages.

Use the no form of this command to remove target-params.

Command Syntax

snmp-server target-params *PARA_NAME* user *USER_NAME* security-model v3 message-processing v3 (noauth | auth | priv)

no snmp-server target-params *PARA_NAME*

Parameter	Parameter Description	Parameter Value
PARA_NAME	The name of the target params	-
USER_NAME	The name of the user	-

Command Mode

Global Configuration

Default

None

Usage

The snmp-server target-params contains the SNMP target information to be used in the generation of SNMP messages.

Examples

The following example shows how to specify the SNMP target information to be used in the generation of SNMP messages:

```
Switch# configure terminal
Switch(config)# snmp-server target-params p1 user u1 security-model v3 message-
processing v3 auth
```

The following example shows how to remove target-params:

```
Switch# configure terminal
Switch(config)# no snmp-server target-params p1
```

Related Commands

show snmp-server target-params

12.3.20 show snmp

Command Purpose

Use this command to show whether the SNMP service is turn on.

Command Syntax

show snmp

Command Mode

Privileged EXEC

Default

Disabled

Usage

This command is used to display the service information of SNMP (enable or disable).

Examples

The following example shows how to display the service information of SNMP:

```
Switch# show snmp
SNMP services: disable
```

Related Commands

snmp server enable

12.3.21 show snmp statistics

Command Purpose

Use this command to show statistics of SNMP messages.

Command Syntax

show snmp statistics

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display the statistics of SNMP messages, including receive, transmit and trap messages.

Examples

The following example shows how to display the statistics of SNMP:

```
Switch# show snmp statistics
Received count: 811
Transmit count: 811
Trap count:     3
```

Related Commands

clear snmp statistics

12.3.22 clear snmp statistics

Command Purpose

Use this command to clear statistics of SNMP messages.

Command Syntax

clear snmp statistics

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to clear the statistics of SNMP messages, including receive, transmit and trap messages.

Examples

The following example shows how to clear the statistics of SNMP:

```
Switch# clear snmp statistics
```

Related Commands

show snmp statistics

12.3.23 show snmp-server version

Command Purpose

Use this command to display the supported version of SNMP.

Command Syntax

show snmp-server version

Command Mode

Privileged EXEC

Default

SNMPv1,SNMPv2c and SNMPv3

Usage

This command is used to display snmp version information configured by command snmp-server version.

Examples

The following example shows how to display snmp version information:

```
Switch# show snmp-server version
SNMP version: SNMPv1/SNMPv2c/SNMPv3
```

Related Commands

snmp-server version

12.3.24 show snmp-server community

Command Purpose

Use this command to display the SNMP community information.

Command Syntax

show snmp-server community

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display the community information configured by command snmp-server community.

Examples

The following example shows how to display community information:

```
Switch# show snmp-server community
Community-Access   Community-String     Security-name
-----------------+--------------------+-------------------
read-write         cstring              comm1
```

Related Commands

snmp-server community

12.3.25 show snmp-server engineID

Command Purpose

Use this command to display the identification of the local Simple Network Management Protocol (SNMP) engine and all remote engines that have been configured on the router.

Command Syntax

show snmp-server *engineID*

Command Mode

Privileged EXEC

Default

30383038303830383038

Usage

An SNMP engine is a copy of SNMP that can reside on a local or remote device.

Examples

The following example shows how to display engineID:

```
Switch# show snmp-server engineID
Engine ID   : 000000090200000000c025808
```

Related Commands

snmp-server engineID

12.3.26 show snmp-server sys-info

Command Purpose

Use this command to display the system information of SNMP.

Command Syntax

show snmp-server sys-info

Command Mode

Privileged EXEC

Default

None

Usage

The system contact can be set by using the snmp-server system-contact command. The system location can be set by using the snmp-server system-location command.

Examples

The following example shows how to display system-contact and location information:

```
Switch# show snmp-server sys-info
Contact: admin@exampledomain.com
Location: Sample Place
```

Related Commands

snmp-server system-contact snmp-server system-location

12.3.27 show snmp-server trap-receiver

Command Purpose

Use this command to display the SNMP traps receiver.

Command Syntax

show snmp-server trap-receiver

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display traps receiver information configured by command snmp-server trap target-address.

Examples

The following example shows how to display the SNMP traps receiver:

```
Switch# show snmp-server trap-receiver
Target-ipaddress mgmt-if udpport version pdu-type community
----------------+-------+-------+-------+--------+-----------------------------
```

```
10.10.27.232      no      162      v1      trap      cstring1
10.10.27.232      no      162      v2c     trap      cstring2
```

Related Commands

snmp-server trap target-address

12.3.28 show snmp-server inform-receiver

Command Purpose

Use this command to display the SNMP informs receiver.

Command Syntax

show snmp-server inform-receiver

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display inform receiver information configured by command snmp-server inform target-address.

Examples

The following example shows how to display the SNMP informs receiver:

```
Switch# show snmp-server inform-receiver
Target-ipaddress mgmt-if udpport version pdu-type community
----------------+-------+-------+-------+--------+------------------------------
10.10.22.232      yes     162     v2c     inform    cstring
```

Related Commands

snmp-server inform target-address

12.3.29 show snmp-server view

Command Purpose

Use this command to display the family name, storage type, and status of a Simple Network Management Protocol (SNMP) configuration and associated MIB.

Command Syntax

show snmp-server view (*VIEW_NAME* |)

Parameter	Parameter Description	Parameter Value
VIEW_NAME	view name of snmp need to be display	-

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to display the SNMP view configuration.

Examples

The following example shows how to display the family name, storage type, and status of a Simple Network Management Protocol (SNMP) configuration and associated MIB:

```
Switch# show snmp-server view
View-name                       View-type          Subtree
------------------------------+-----------------+---------
a1                              included           .1
a2                              included           .1.2
abc                             excluded           .1.3.6.2
_all_                           included           .0
_all_                           included           .1
_all_                           included           .2
```

```
_none_                          excluded        .0
_none_                          excluded        .1
_none_                          excluded        .2
```

Related Commands

snmp-server view

12.3.30 show snmp-server context

Command Purpose

Use this command to display the SNMP context information.

Command Syntax

show snmp-server context (*CONTEXT_NAME* |)

Parameter	Parameter Description	Parameter Value
CONTEXT_NAME	context name of snmp need to be display	-

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display the context information configured by command snmp-server context.

Examples

The following example shows how to display the SNMP context information:

```
Switch# show snmp-server context
Context-name
```

```
------------------------------
contextA
```

Related Commands

snmp-server context

12.3.31 show snmp-server usm-user

Command Purpose

Use this command to display information about the configured characteristics of Simple Network Management Protocol (SNMP) users.

Command Syntax

show snmp-server usm-user (*USER_NAME* |)

Parameter	Parameter Description	Parameter Value
USER_NAME	Specify a usm user name that want to show(optional)	-

Command Mode

Privileged EXEC

Default

None

Usage

An SNMP user must be part of an SNMP group, as configured using the snmp-server usm-user command.

Examples

The following example shows how to display information about the configured characteristics of SNMP users:

```
Switch# configure terminal
Switch(config)# snmp-server usm-user u1 authentication sha abcdef123 privacy des
aabbccdd1234
Switch(config)# exit
Switch# show snmp-server usm-user u1
User Name:      u1
EnginedID:      0808080808
Auth Protocol: sha
Auth password: abcdef123
Priv Protocol: des
Priv password: aabbccdd1234
Storage Type:  nonvolatile
Row status:    active contextA
```

Related Commands

snmp-server usm-user

12.3.32 show snmp-server access

Command Purpose

Use this command to display the access group information of SNMP.

Command Syntax

show snmp-server *access*（*GROUP_NAME* | ）

Parameter	Parameter Description	Parameter Value
GROUP_NAME	Specify a access group name that want to show	-

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display the access information configured by command snmp-server access.

Examples

The following example shows how to display the access group information of SNMP:

```
Switch# configure terminal
Switch(config)# snmp-server group g1 user u1 security-model usm
Switch(config)# snmp-server access g1 security-model usm auth
Switch(config)# exit
Switch# show snmp-server access g1
Group name:     g1
Context:
Security model: usm
Security level: auth
Context Match:  exact
Read view:      _all_
Write view:     none
Notify view:    none
Storage Type:   permanent
Row status:     active
```

Related Commands

snmp-server access

12.3.33 show snmp-server group

Command Purpose

Use this command to display the names of configured SNMP groups, the security model being used, the different security name being used, and the storage type of each group.

Command Syntax

show snmp-server group （*GROUP_NAME* | ）

Parameter	Parameter Description	Parameter Value

GROUP_NAME	Specify a group name that want to show	-

Command Mode

Privileged EXEC

Default

None

Usage

SNMP groups are configured using the snmp-server group command.

Examples

The following example shows how to display the names of configured SNMP groups, the security model being used, the different security name being used, and the storage type of each group:

```
Switch# configure terminal
Switch(config)# snmp-server group g1 user user1 security-model usm
Switch(config)# exit
Switch# show snmp-server group g1
Group name:     g1
Security model: v3
Security name:  u1
Storage Type:   permanent
Row status:     active
```

Related Commands

snmp-server group

12.3.34 show snmp-server notify

Command Purpose

Use this command to display notification information of SNMP.

Command Syntax

show snmp-server notify (*NOTIFY_NAME* |)

Parameter	Parameter Description	Parameter Value
NOTIFY_NAME	Specify a notify name that want to show	-

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display the notification information configured by command snmp-server notify.

Examples

The following example shows how to display notification information of SNMP:

```
Switch# configure terminal
Switch(config)# snmp-server notify n1 tag t1
Switch(config)# exit
Switch# show snmp-server notify n1
Notify name:    n1
Notify tag:     t1
Notify type:    trap
Storage Type:   nonvolatile
Row status:     active
```

Related Commands

snmp-server notify

12.3.35 show snmp-server target-address

Command Purpose

Use this command to display target address information of SNMP.

Command Syntax

show snmp-server target-address (*TARGET_NAME* |)

Parameter	Parameter Description	Parameter Value
TARGET_NAME	Specify a target address name that want to show	-

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display the target address information configured by command snmp-server target address.

Examples

The following example shows how to display target address information of SNMP:

```
Switch# configure terminal
Switch(config)# snmp-server target-params p1 user u1 security-model v3 message-
processing v3 noauth
Switch(config)# snmp-server target-address tar1 param p1 mgmt-if 10.10.27.227
taglist t1
Switch(config)# exit
Switch# show snmp-server target-address tar1
Targetaddr name:     tar1
IP address:          10.10.27.227
Mgmt-If:             yes
UDP Port:            162
Timeout:             2
```

```
Retry count:          3
Tag List:             t1
Parameters:           p1
Storage Type:         nonvolatile
Row status:           active
```

Related Commands

snmp-server target-address

12.3.36 show snmp-server target-params

Command Purpose

Use this command to display target params information of SNMP.

Command Syntax

show snmp-server target-params （*PARAM_NAME* | ）

Parameter	Parameter Description	Parameter Value
PARAM_NAME	Specify a target params name that want to show	-

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display the target params information configured by command snmp-server target params.

Examples

The following example shows how to display target params information of SNMP:

```
Switch# configure terminal
Switch(config)# snmp-server target-params p1 user u1 security-model v3 message-
processing v3 auth
Switch(config)# exit
Switch# show snmp-server target-params p1
Target parameter name:      p1
Message processing model:   v3
Security model:             v3
Security name:              u1
Security level:             auth
Storage Type:               nonvolatile
Row status:                 active
```

Related Commands

snmp-server target-params

12.4 SFLOW Commands

12.4.1 sflow enable

Command Purpose

Use this command to show the running information of sflow. And turn off sflow function by using the no form of this command.

Command Syntax

sflow enable

no sflow enable

Command Mode

Global Configuration

Default

off

Usage

Before any other sFlow command can be configured, sFlow services must be enabled globally. Use the no parameter with this command to remove all sFlow configurations and disable sFlow globally.

Examples

This example shows how to enable sFlow services globally:

```
Switch# configure terminal
Switch(config)# sflow enable
```

Related Commands

show sflow

12.4.2 sflow agent

Command Purpose

Use this command to configure sFlow agent.

Command Syntax

sflow agent ip *IP_ADDR*

no sflow agent ip

Parameter	Parameter Description	Parameter Value
IP_ADDR	IP address	-

Command Mode

Global Configuration

Default

0.0.0.0

Usage

Use this command to configure IP address for sflow agent. If not configured, sflow agent IP address will be 0.0.0.0

Examples

This example shows how to configure agent with IP address:

```
Switch# configure terminal
Switch(config)# sflow agent ip 10.0.0.254
```

Related Commands

show sflow

12.4.3 sflow collector

Command Purpose

Use this command to configure sFlow collector. And remove configuration by using the no form of this command.

Command Syntax

sflow collector (mgmt-if |) *IP_ADDR_C* (source-ip *IP_ADDR_S* |) (*UDP_PORT* |)

no sflow collector ipv4-address

Parameter	Parameter Description	Parameter Value
IP_ADDR_C	IP address of sflow collector	-
IP_ADDR_S	Bind Source ip address	-
UDP_PORT	Collector UDP port number	Range is 1-65535

Command Mode

Global Configuration

Default

Default udp port is 6343,and default source ipv4 address is the ip address of port that connect to server.

Usage

Use this command to add a collector by specifying the combination of IP address and UDP port and source IP address. Only up to two unique combinations can be allowed to add.

Examples

This example shows how to add a collector:

```
Switch# configure terminal
Switch(config)# sflow collector 10.0.0.254 3000
```

Related Commands

show sflow

12.4.4 sflow counter interval

Command Purpose

Use this command to set sFlow polling-interval for counter sample. Use the noparameter with this command to restore to the default value. Default interval value is 20 seconds.

Command Syntax

sflow counter interval *interval_val*

no sflow counter interval

Parameter	Parameter Description	Parameter Value
INTERVAL_VALUE	Interval value.Unit is second	Range is 1-2000

Command Mode

Global Configuration

Default

20s

Usage

Use this command to set sFlow polling-interval for counter sample.

Examples

This example shows how to set sFlow polling-interval to 10 second:

```
Switch# configure terminal
Switch(config)# sflow counter interval 10
```

Related Commands

show sflow

12.4.5 sflow counter-sampling enable

Command Purpose

Use this command to enable counter sampling on specified port. And turn off it by using the no form of this command.

Command Syntax

sflow counter-sampling enable

no sflow counter-sampling enable

Command Mode

Interface Configuration

Default

Disabled

Usage

Use this command to enable counter sampling on specified port. This command can only be configured on a port which is not a link-agg group member. The port can be either a physical port or a link-agg port.

Examples

This example shows how to enable sFlow counter sampling on interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# sflow counter-sampling enable
```

Related Commands

show sflow

12.4.6 sflow flow-sampling rate

Command Purpose

Use this command to configure flow sampling rate. And recover to default value by using the no form of this command.

Command Syntax

sflow flow-sampling rate *rate_val*

no sflow flow-sampling rate

Parameter	Parameter Description	Parameter Value
RATE_VAL	Sample rate value	Must be a power of 2, Range is 32-1048576

Command Mode

Interface Configuration

Default

8192

Usage

Use this command to set sFlow packet sampling rate. The rate value is packet number, When the value is 32768, one packet will be sampled when 32768 packets are passed. sFlow uses CPU resources to collect samples and send samples to the collector. If a low sampling rate is set, CPU utilization can become high. To protect CPU fromoverwhelming, exceeded flow samples would be dropped. If a sampling rate less than default value is configured, a prompt will be given to info the potential of involving a high CPU utilization. This command can only be configured on a port which is not a link-agg group member. The port can be either a physical port or a link-agg port.

Examples

This example shows how to set the sFlow sampling rate to 2048 on eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# sflow flow-sampling rate 2048
% Warning: sFlow sampling requires high CPU usage,especially with a low rate.
Suggested rate not less than 8192.
```

Related Commands

show sflow

12.4.7 sflow flow-sampling enable

Command Purpose

Use this command to enable packet sampling on individual port. And turn off it by using the no form of this command.

Command Syntax

sflow flow-sampling enable (input | output | both)

no sflow flow-sampling enable (input | output | both)

Command Mode

Interface Configuration

Default

Disabled

Usage

Use this command to enable packet sampling on individual port. This command can only

be configured on a port which is not a link-agg group member. The port can be either

a physical port or a link-agg port.

Examples

This example shows how to enable input packet sampling on route port eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# sflow flow-sampling enable input
```

Related Commands

show sflow

12.4.8 show sflow

Command Purpose

Use this command to show the running information of sflow.

Command Syntax

show sflow

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to show the running information of sflow.

Examples

This example shows how to show the sflow running information:

```
Switch# show sflow
sFlow is disabled
```

Related Commands

sflow enable

sflow collector

sflow counter interval

sflow counter-sampling enable

sflow flow-sampling rate

sflow flow-sampling enable

13 OAM Commands

13.1 G8131 Commands

13.1.1 lsp-aps-group

Command Purpose

Use this command to create a lsp aps group and enter lsp-aps-group mode. To remove a lsp aps group, use the no form of this command.

Command Syntax

lsp-aps-group *APS_GROUP_ID*

no lsp-aps-group *APS_GROUP_ID*

Parameter	Parameter Description	Parameter Value
APS_GROUP_ID	Specify a LSP APS Group	1-4294967040

Command Mode

Global Configuration

Default

None

Usage

The maximum of lsp aps group and pw aps group is 500; if one group id is used by pw aps group, the group id is not allowed to be used by lsp aps group.

Examples

The following example shows how to create a lsp aps group:

```
Switch(config)# lsp-aps-group 3
```

Related Commands

None

13.1.2 pw-aps-group

Command Purpose

Use this command to create a pw aps group and enter pw-aps-group mode. To remove a pw aps group, use the no form of this command.

Command Syntax

pw-aps-group *APS_GROUP_ID*

no pw-aps-group *APS_GROUP_ID*

Parameter	Parameter Description	Parameter Value
APS_GROUP_ID	Specify a PW APS Group	1-4294967040

Command Mode

Global Configuration

Default

None

Usage

The maximum of lsp aps group and pw aps group is 500, if one group id is used by lsp aps group, the group is not allowed to be used by pw aps group.

Examples

The following example shows how to create a pw aps group:

```
Switch(config)# pw-aps-group 4
```

Related Commands

None

13.1.3 g8131 mode

Command Purpose

Use this command to set the g8131 mode. To restore the default configuration, use the no form of this command.

Command Syntax

g8131 mode (revertive | non-revertive)

no g8131 mode

Command Mode

Lsp-aps-group Configuration

Pw-aps-group Configuration

Default

revertive

Usage

When the active path changes from working to protection, it can be changed back to protection in revertive mode, it can't be changed to protection in non-revertive mode.

If the g8131 mode is non-revertive, wait-to-restore time is invalid.

Examples

The following example shows how to set g8131 lsp group mode:

```
Switch(lsp-aps-group-3)# g8131 mode non-revertive
```

The following example shows how to set g8131 pw group mode:

```
Switch(pw-aps-group-4)# g8131 mode non-revertive
```

Related Commands

None

13.1.4 g8131 timer wait-to-restore

Command Purpose

Use this command to set the wait-to-restore time. To restore the default configuration, use the no form of this command.

Command Syntax

g8131 timer wait-to-restore *APS_WTR_TIME*

no g8131 timer wait-to-restore

Parameter	Parameter Description	Parameter Value
APS_WTR_TIME	Wait-to-restore time, unit is minute	0-12

Command Mode

Lsp-aps-group Configuration

Pw-aps-group Configuration

Default

5 minutes

Usage

If the g8131 mode is non-revertive, the wait-to-restore time is not allowed to configure, and the wait-to-restore time is invalid.

Examples

The following example shows how to set g8131 lsp group wait-to-restore time:

```
Switch(config-lsp-aps-group-3)# g8131 timer wait-to-restore 3
```

The following example shows how to set g8131 pw group wait-to-restore time:

```
Switch(config-pw-aps-group-4)# g8131 timer wait-to-restore 5
```

Related Commands

g8131 timer hold-off

13.1.5 g8131 timer hold-off

Command Purpose

Use this command to set the hold-off time. To restore the default configuration, use the no form of this command.

Command Syntax

g8131 timer hold-off *APS_HOLDOFF_TIME*

no g8131 timer hold-off

Parameter	Parameter Description	Parameter Value
APS_HOLDOFF_TIME	Hold-off time, unit is 100ms	0-100

Command Mode

Lsp-aps-group Configuration

Pw-aps-group Configuration

Default

0ms

Usage

None

Examples

The following example shows how to set g8131 lsp group hold-off time:

```
Switch(lsp-aps-group-3)# g8131 timer hold-off 60
```

The following example shows how to set g8131 pw group hold-off time:

```
Switch(pw-aps-group-4)# g8131 timer hold-off 70
```

Related Commands

g8131 timer wait-to-restore

13.1.6 show g8131

Command Purpose

Use this command to show the all lsp aps group and pw aps group detail information.

Command Syntax

show g8131

Command Mode

Privileged EXEC

Default

None

Usage

The lsp aps group and pw aps group detail information may be configured by openflow table or CLI.

Examples

The following example shows how to display g8131 detail information:

```
Switch# show g8131

    CS - Current State, LS - Last State, CE - Current Event,
    FE - Far end last Event, RS - Request Signal, WRSF - Working recovers from SF,
    PRSF - Protecting recovers from SF, DFOP - Failure of protocol defects
    A - APS protocol type (No APS Channel, APS Channel)
    B - Local protection architecture type (1+1, 1:1)
    D - Local protection switching type (Unidirectional, Bidirectional)
    R - Local protection operation type (Non-revertive, Revertive)
    T - Local Bridge Type (Selector, Broadcast)
    ================================================================================
     CS        LS        CE        FE        RS      A      B      D      R      T
    ---------+---------+--------+--------+------+-----+-----+-----+-----+---------
     NR_W     NR_W       N/A       N/A       NULL    APS    1:1    BI     REV    BR
    LSP Group ID      : 3
    Working LSP       : lsp_outlabel = 31 ofport = 1
    Protection LSP    : lsp_outlabel = 32 ofport = 2
    Active-Path       : Working
    WTR-Timer         : -/60(s)
    HOLD OFF-Timer    : -/0(ms)
    DFOP State        : Not in defect mode

    ================================================================================
    CS        LS        CE        FE        RS      A      B      D      R      T
    ---------+--------+--------+--------+------+-----+-----+-----+-----+----------
    N/A       N/A       N/A       N/A       N/A     APS    1:1    BI     REV    BR
    PW Group ID       : 4
    Working LSP       : N/A
    Protection LSP    : N/A
    Active-Path       : None
    WTR-Timer         : -/300(s)
    HOLD OFF-Timer    : -/0(ms)
    DFOP State        : Not in defect mode
```

Related Commands

None

13.1.7 show g8131 brief

Command Purpose

Use this command to show the all lsp aps group and pw aps group brief information.

Command Syntax

show g8131 brief

Command Mode

Privileged EXEC

Default

None

Usage

The lsp aps group and pw aps group brief information may be configured by openflow table or CLI.

Examples

The following example shows the g8131 all brief information:

```
Switch# show g8131 brief


Group      Type       Active-Path     Current-State
-----------+----------+---------------+------------
3          LSP        Working         NR_W
4          PW         None            N/A
```

Related Commands

None

13.1.8 show g8131 counters

Command Purpose

Use this command to show the all lsp aps group and pw aps group counters.

Command Syntax

show g8131 counters

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows the g8131 counters:

```
Switch# show g8131 counters


LSP         PW          Total
------------+-----------+------
1           1           2
```

Related Commands

None

13.1.9 show g8131 lsp-aps-group

Command Purpose

Use this command to display the all lsp aps group detail information or the specific lsp aps group detail information.

Command Syntax

show g8131 lsp-aps-group (*APS_GROUP_ID* |)

Parameter	Parameter Description	Parameter Value
APS_GROUP_ID	Specify a LSP APS Group	1-4294967040

Command Mode

Privileged EXEC

Default

None

Usage

The command of show g8131 lsp-aps-group display the all lsp aps group detail information and the command of show g8131 lsp-aps-group GROUP_ID display the specific lsp aps group detail information.

Examples

The following example shows all lsp aps group detail information:

```
Switch# show g8131 lsp-aps-group

CS - Current State, LS - Last State, CE - Current Event, (L/R) - Local/Remote,
FE - Far end last Event, RS - Request Signal, WRSF - Working recovers from SF,
PRSF - Protecting recovers from SF, DFOP - Failure of protocol defects
A - APS protocol type (No APS Channel, APS Channel)
B - Local protection architecture type (1+1, 1:1)
D - Local protection switching type (Unidirectional, Bidirectional)
R - Local protection operation type (Non-revertive, Revertive)
T - Local Bridge Type (Selector, Broadcast)
```

```
================================================================================
 CS       LS       CE(L/R)  FE(L/R)  RS     A     B     D     R     T
----------+--------+--------+--------+------+-----+-----+-----+-----+------
 N/A      N/A      N/A      N/A      N/A    APS   1:1   BI    REV   BR
LSP Group ID     : 1
Working Info     : lsp_outlabel = 300  port = eth-0-1/2
Protection Info  : lsp_outlabel = 400  port = eth-0-1/3
Active-Path      : None
WTR-Timer        : -/300(s)
HOLD OFF-Timer   : -/0(ms)
DFOP State       : Not in defect mode
```

Related Commands

None

13.1.10 show g8131 lsp-aps-group brief

Command Purpose

Use this command to show the all lsp aps group brief information.

Command Syntax

show lsp-aps-group brief

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows all lsp aps group brief information:

```
Switch# show g8131 lsp-aps-group brief

Group        Type      Active-Path    Current-State
```

```
-------------+---------+-------------+------------
3            LSP       Working        NR_W
```

Related Commands

None

13.1.11 show g8131 pw-aps-group

Command Purpose

Use this command to display the all pw aps group detail information and the specific pw aps group detail information.

Command Syntax

show g8131 *pw-aps-group*（*APS_GROUP_ID* | ）

Parameter	Parameter Description	Parameter Value
APS_GROUP_ID	Specify a PW APS Group	1-4294967040

Command Mode

Privileged EXEC

Default

None

Usage

The command of show g8131 pw-aps-group displays the all pw aps group detail information and the command of show g8131 pw-aps-group GROUP_ID displays the specific pw aps group detail information.

Examples

The following example shows all pw aps group detail information:

```
Switch# show g8131 pw-aps-group
```

```
CS - Current State, LS - Last State, CE - Current Event,
FE - Far end last Event, RS - Request Signal, WRSF - Working recovers from SF,
PRSF - Protecting recovers from SF, DFOP - Failure of protocol defects
A - APS protocol type (No APS Channel, APS Channel)
B - Local protection architecture type (1+1, 1:1)
D - Local protection switching type (Unidirectional, Bidirectional)
R - Local protection operation type (Non-revertive, Revertive)
T - Local Bridge Type (Selector, Broadcast)
================================================================================
 CS       LS       CE       FE       RS     A     B     D     R     T
---------+--------+--------+--------+------+-----+-----+-----+-----+-----
 N/A      N/A      N/A      N/A      N/A    APS   1:1   BI    REV   BR
PW Group ID       : 4
Working LSP       : N/A
Protection LSP    : N/A
Active-Path       : None
WTR-Timer         : -/300(s)
HOLD OFF-Timer    : -/0(ms)
DFOP State        : Not in defect mode
```

Related Commands

None

13.1.12 show pw-aps-group brief

Command Purpose

Use this command to display the all pw aps group brief information.

Command Syntax

show pw-aps-group brief

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows all pw aps group brief information:

```
Switch# show g8131 pw-aps-group brief

Group         Type       Active-Path     Current-State
--------------+----------+---------------+------------
4             PW         None            N/A
```

Related Commands

None

13.1.13 g8131 clear

Command Purpose

Use this command to change the lsp aps group or pw aps group current state.

Command Syntax

g8131 clear (lsp-aps-group | pw-aps-group) *APS_GROUP_ID*

Parameter	Parameter Description	Parameter Value
APS_GROUP_ID	Specify APS Group ID	1-4294967040

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to use g8131 clear to change the lsp aps group current state:

```
Switch# g8131 clear lsp-aps-group 3
```

Related Commands

None

13.1.14 g8131 exercise

Command Purpose

Use this command to change the lsp aps group or pw aps group current state.

Command Syntax

g8131 exercise (lsp-aps-group | pw-aps-group) *APS_GROUP_ID*

Parameter	Parameter Description	Parameter Value
APS_GROUP_ID	Specify APS Group ID	1-4294967040

Command Mode

Privileged EXEC

Default

None

Usage

When the current state is “No Request” or “Lockout” or “Forced Switch” or “Signal Fail on Working” or “Signal Fail on Protection” or “Signal Degrade on Working” or “Signal Degrade on Protection” or “Manual Switch to Protection” or “Manual Switch to Working” or “Wait-to-Restore” or “Exercise on Working” or “Exercise on Protection”, the CLI can’t be configured.

Examples

The following example shows how to use g8131 exercise to change the lsp aps group current state:

```
Switch# g8131 exercise lsp-aps-group 3
```

Related Commands

None

13.1.15 g8131 force

Command Purpose

Use this command to change the lsp aps group or pw aps group current state.

Command Syntax

g8131 force (lsp-aps-group | pw-aps-group) *APS_GROUP_ID*

Parameter	Parameter Description	Parameter Value
APS_GROUP_ID	Specify APS Group ID	1-4294967040

Command Mode

Privileged EXEC

Default

None

Usage

If the g8131 current state is “Lockout” or “Signal Fail on Protection” or “Forced Switch”, the command is not allowed to be configured.

Examples

The following example shows how to use g8131 force to change the lsp aps group current state:

```
Switch# g8131 force lsp-aps-group 3
```

Related Commands

None

13.1.16 g8131 lockout

Command Purpose

Use this command to change the lsp aps group or pw aps group current state.

Command Syntax

g8131 lockout (lsp-aps-group | pw-aps-group) *APS_GROUP_ID*

Parameter	Parameter Description	Parameter Value
APS_GROUP_ID	Specify APS Group ID	1-4294967040

Command Mode

Privileged EXEC

Default

None

Usage

If the g8131 current state is “Lockout”, the command is not allowed to be configured.

Examples

The following example shows how to use g8131 exercise to change the lsp aps group current state:

```
Switch# g8131 lockout lsp-aps-group 3
```

Related Commands

None

13.1.17 g8131 manual-switch-to-protection

Command Purpose

Use this command to change the lsp aps group or pw aps group current state.

Command Syntax

g8131 manual-switch-to-protection (lsp-aps-group | pw-aps-group) *APS_GROUP_ID*

Parameter	Parameter Description	Parameter Value
APS_GROUP_ID	Specify APS Group ID	1-4294967040

Command Mode

Privileged EXEC

Default

None

Usage

If the g8131 current state is “Lockout” or “Forced Switch” or “Signal Fail on Working” or “Signal Fail on Protection” or “Signal Degrade on Working” or “Signal Degrade on Protection” or “Manual Switch to Working” or “Manual Switch to Protection”, the command is not allowed to be configured.

Examples

The following example shows how to use g8131 manual-switch-to-protection to change the lsp aps group current state:

```
Switch# g8131 manual-switch-to-protection lsp-aps-group 3
```

Related Commands

None

13.1.18 g8131 manual-switch-to-working

Command Purpose

Use g8131 manual-switch-to-working to change the lsp aps group or pw aps group current state.

Command Syntax

g8131 manual-switch-to- working (lsp-aps-group | pw-aps-group) *APS_GROUP_ID*

Parameter	Parameter Description	Parameter Value
APS_GROUP_ID	Specify APS Group ID	1-4294967040

Command Mode

Privileged EXEC

Default

None

Usage

If the g8131 current state is “Lockout” or “Forced Switch” or “Signal Fail on Working” or “Signal Fail on Protection” or “Signal Degrade on Working” or “Signal Degrade on Protection” or “Manual Switch to Protection” or “Manual Switch to Working”, the command is not allowed to be configured.

Examples

The following example shows how to use g8131 manual-switch-to-working to change the lsp aps group current state:

```
Switch# g8131 manual-switch-to-working lsp-aps-group 3
```

Related Commands

None

13.2 TPOAM Commands

13.2.1 tpoam session

Command Purpose

Use this command to create an oam session instance. To remove an oam session instance, use the no form of this command.

Command Syntax

tpoam session *SESSION_ID*

no tpoam session *SESSION_ID*

Parameter	Parameter Description	Parameter Value
SESSION_ID	OAM session ID	1-1000

Command Mode

Global Configuration

Default

None

Usage

None

Examples

This example shows how to create an oam session instance:

```
Switch(config)# tpoam session 1
Switch(config-tpoam-session-1)#
```

Related Commands

show mpls-tp oam-y1731

13.2.2 mpls-tp oam-y1731 fast-aps enable

Command Purpose

Use this command to enable fast-aps. To disable this function, use the no form of this command.

Command Syntax

mpls-tp oam-y1731 fast-aps enable

no mpls-tp oam-y1731 fast-aps enable

Command Mode

Global Configuration

Default

Enable

Usage

Use fast-aps, the system could change mode more faster.

Examples

The following example shows how to enable fast-aps:

```
Switch(config)# mpls-tp oam-y1731 fast-aps enable
```

Related Commands

show mpls-tp oam-y1731

13.2.3 mpls-tp node-id

Command Purpose

Use this command to set Node ID. To restore the default configuration, use the no form of this command.

Command Syntax

mpls-tp node-id *IP_ADDR*

no mpls-tp node-id

Parameter	Parameter Description	Parameter Value
IP_ADDR	Node ID value with IP address format	-

Command Mode

Global Configuration

Default

0.0.0.0

Usage

The Node ID is used to identifier a Node for MIP.

Examples

The following example shows how to set Node ID:

```
Switch(config)# mpls-tp nod-id 1.1.1.1
```

Related Commands

show mpls-tp oam-y1731

13.2.4 mpls-tp oam-y1731 dm interval

Command Purpose

Use this command to set dm interval. To restore the default configuration, use the no form of this command.

Command Syntax

mpls-tp oam-y1731 dm interval *DM_INTERVAL*

no mpls-tp oam-y1731 dm interval

Parameter	Parameter Description	Parameter Value
DM_INTERVAL	Interval value, default is 10 packets	1-100

Command Mode

Global Configuration

Default

10

Usage

When received packet num of DMR is equal to configured value, the system will calculate the average delay, and clean the cache list to receive new packets.

Examples

The following example shows how to set dm interval:

```
Switch(config)# mpls-tp oam-y1731 dm interval 50
```

Related Commands

show mpls-tp oam-y1731 dm

13.2.5 mpls-tp oam-y1731 dm threshold

Command Purpose

Use this command to set dm threshold globally. To restore the default configuration, use the no form of this command.

Command Syntax

mpls-tp oam-y1731 dm threshold *DM_THRESHOLD*

no mpls-tp oam-y1731 dm threshold

Parameter	Parameter Description	Parameter Value
DM_THRESHOLD	DM threshold in nanoseconds	0-4000000000

Command Mode

Global Configuration

Default

0

Usage

If threshold had set in tpoam session view, use the threshold configured in tpoam session view. When threshold is 0, the dm result won't be compared with threshold and no event will be reported when dm result is greater than threshold.

Examples

The following example shows how to set dm threshold globally:

```
Switch(config)# mpls-tp oam-y1731 dm threshold 50
```

Related Commands

show mpls-tp oam-y1731 dm

13.2.6 mpls-tp oam-y1731 lm interval

Command Purpose

Use this command to set lm interval. To restore the default configuration, use the no form of this command.

Command Syntax

mpls-tp oam-y1731 lm interval *LM_INTERVAL*

no mpls-tp oam-y1731 lm interval

Parameter	Parameter Description	Parameter Value
LM_INTERVAL	LM Interval in seconds	1-100

Command Mode

Global Configuration

Default

20

Usage

When the time up to the configured value, the system will calculate the frame loss and loss ratio for the last time range, and clean the cache list to receive new statistics infomation.

Examples

The following example shows how to set lm interval:

```
Switch(config)# mpls-tp oam-y1731 lm interval 50
```

Related Commands

show mpls-tp oam-y1731 lm

13.2.7 mpls-tp oam-y1731 lm threshold

Command Purpose

Use this command to set lm local or remote threshold globally. To restore the default configuration, use the no form of this command.

Command Syntax

mpls-tp oam-y1731 lm threshold *LM_THRESHOLD*

no mpls-tp oam-y1731 lm threshold

Parameter	Parameter Description	Parameter Value
LM_THRESHOLD	Threshold of percentage of packet loss,uinit is %	0.000- 99.999

Command Mode

Global Configuration

Default

0

Usage

If threshold had set in tpoam session view, use the threshold configured in tpoam session view. When threshold is 0, the lm result won't be compared with threshold and no event will be reported when lm result is greater than threshold.

Examples

The following example shows how to set lm local threshold globally:

```
Switch(config)# mpls-tp oam-y1731 lm threshold 50
```

Related Commands

show mpls-tp oam-y1731 lm

13.2.8 mpls-tp oam-y1731 pw-mode standard

Command Purpose

Use this command to set Pseudo-Wire work in standard mode. To set Pseudo-Wire work in nonstandard mode, use the no form of this command.

Command Syntax

mpls-tp oam-y1731 pw-mode standard

no mpls-tp oam-y1731 pw-mode standard

Command Mode

Global Configuration

Default

standard mode

Usage

To set Pseudo-Wire work in standard mode, use control word.

Examples

The following example shows how to configure pw-mode:

```
Switch(config)# mpls-tp oam-y1731 pw-mode standard
```

Related Commands

None

13.2.9 mpls-tp oam-y1731 cycle-packet-in (oam-session | aps-group) enable

Command Purpose

Use this command to enable oam cycle packet-in. To disable this function, use the no form of this command.

Command Syntax

mpls-tp oam-y1731 cycle-packet-in (oam-session | aps-group) enable

no mpls-tp oam-y1731 cycle-packet-in (oam-session | aps-group) enable

Command Mode

Global Configuration

Default

Enable

Usage

None

Examples

The following example shows how to enable oam cycle packet-in:

```
Switch(config)# mpls-tp oam-y1731 cycle-packet-in oam-session enable
```

Related Commands

None

13.2.10 mpls-tp oam-y1731 cycle-packet-in (oam-session | aps-group) interval

Command Purpose

Use this command to set cycle packet in interval. To restore the default configuration, use the no form of this command.

Command Syntax

mpls-tp oam-y1731 cycle-packet-in (oam-session | aps-group) interval *CYCLE_PACKET_IN_INTERVAL*

no mpls-tp oam-y1731 cycle-packet-in (oam-session | aps-group) interval

Parameter	Parameter Description	Parameter Value
CYCLE_PACKET_IN_INTERVAL	Interval value,unit is second	5-100

Command Mode

Global Configuration

Default

TPOAM is 15

APS is 30

Usage

Use this command to set cycle packet in interval.

Examples

The following example shows how to set cycle packet in interval:

```
Switch(config)# mpls-tp oam-y1731 cycle-packet-in oam-session interval 20
```

Related Commands

None

13.2.11 oam-y1731 dm threshold

Command Purpose

Use this command to set dm threshold for oam session. To restore the default configuration, use the no form of this command.

Command Syntax

oam-y1731 dm threshold *DM_THRESHOLD*

no oam-y1731 dm threshold

Parameter	Parameter Description	Parameter Value
DM_THRESHOLD	DM threshold in nanoseconds	0-4000000000

Command Mode

TPOAM session Configuration

Default

0

Usage

If threshold had not set in tpoam session view, use the threshold configured in global configuration view.

Examples

The following example shows how to set dm threshold for oam session:

```
Switch(config)# tpoam session 1
Switch(config-tpoam-session-1)# oam-y1731 dm threshold 50
```

Related Commands

mpls-tp oam-y1731 dm threshold

13.2.12 oam-y1731 lm threshold

Command Purpose

Use this command to set lm threshold for oam session. To restore the default configuration, use the no form of this command.

Command Syntax

oam-y1731 lm threshold *LM_THRESHOLD*

no oam-y1731 lm threshold

Parameter	Parameter Description	Parameter Value
LM_THRESHOLD	Percentage of packet loss, unit is %	0.000-99.999

Command Mode

TPOAM session Configuration

Default

0

Usage

If threshold had not set in tpoam session view, use the threshold configured in global configuration view.

Examples

The following example shows how to set lm local threshold for oam session:

```
Switch(config)# tpoam session 1
Switch(config-tpoam-session-1)# oam-y1731 lm threshold 50
```

Related Commands

mpls-tp oam-y1731 lm threshold

13.2.13 oam-y1731 megid

Command Purpose

Use this command to set megid for oam session. To restore the default configuration, use the no form of this command.

Command Syntax

oam-y1731 megid *MEG_ID*

no oam-y1731 megid

Parameter	Parameter Description	Parameter Value
MEG_ID	The length of MEG ID should be between 6 and 13, default is megdefault	the length of string is 6-13

Command Mode

TPOAM session Configuration

Default

megdefault

Usage

None

Examples

The following example shows how to set megid for oam session 1:

```
Switch(config)# tpoam session 1
Switch(config-tpoam-session-1)# oam-y1731 megid meg_sess1
```

Related Commands

show mpls-tp oam-y1731

13.2.14 oam-y1731 mepid

Command Purpose

Use this command to set mepid and ccm interval for oam session. To restore the default configuration, use the no form of this command.

Command Syntax

oam-y1731 mepid *MEPID* interval (1 | 2 | 3 | 4 | 5 | 6 | 7)

no oam-y1731 mepid

Parameter	Parameter Description	Parameter Value
MEPID	Local MEP ID	1-8191
1	CC Interval 3.3 ms	-
2	CC Interval 10 ms	-
3	CC Interval 100 ms	-
4	CC Interval 1 second	-
5	CC Interval 10 second	-
6	CC Interval 1 minute	-
7	CC Interval 10 minute	-

Command Mode

TPOAM session Configuration

Default

Default mepid is 1, LSP or section interval is 1, PW interval is 2.

Usage

Use this command to set mepid and ccm interval for oam session.

Examples

The following example shows how to set mepid for oam session 1:

```
Switch(config)# tpoam session 1
Switch(config-tpoam-session-1)# oam-y1731 mepid 2 interval 2
```

Related Commands

show mpls-tp oam-y1731 mp

13.2.15 oam-y1731 rmepid

Command Purpose

Use this command to set rmepid for oam session. To restore the default configuration, use the no form of this command.

Command Syntax

oam-y1731 rmepid *RMEP_ID*

no oam-y1731 rmepid

Parameter	Parameter Description	Parameter Value
RMEP_ID	Remote MEP ID Value	1-8191

Command Mode

TPOAM session Configuration

Default

1

Usage

Use this command to set rmepid for oam session.

Examples

The following example shows how to set rmepid for oam session 1:

```
Switch(config)# tpoam session 1
Switch(config-tpoam-session-1)# oam-y1731 rmepid 2
```

Related Commands

show mpls-tp oam-y1731 mp

13.2.16 oam-y1731 cc

Command Purpose

Use this command to enable CC. To disable this function, use the no form of this command.

Command Syntax

oam-y1731 cc

no oam-y1731 cc

Command Mode

TPOAM session Configuration

Default

Enable

Usage

None

Examples

The following example shows how to enable cc:

```
Switch(config)# tpoam session 1
Switch(config-tpoam-session-1)# oam-y1731 cc
```

Related Commands

show mpls-tp oam-y1731

13.2.17 oam-y1731 dm enable

Command Purpose

Use this command to enable two-way dm for oam session. To disable this function, use the no form of this command.

Command Syntax

oam-y1731 dm enable interval (1 | 10)

no oam-y1731 dm enable

Parameter	Parameter Description	Parameter Value
1	1 second	-
10	10 seconds	-

Command Mode

TPOAM session Configuration

Default

Default is enable, interval is 10s.

Usage

Use this command to enable two-way dm for oam session.

Examples

The following example shows how to enable two-way dm for oam session:

```
Switch(config)# tpoam session 1
Switch(config-tpoam-session-1)# oam-y1731 dm enable interval 10
```

Related Commands

show mpls-tp oam-y1731 dm

13.2.18 oam-y1731 lm enable dual-ended

Command Purpose

Use this command to enable dual-ended lm for oam session. To disable this function, use the no form of this command.

Command Syntax

oam-y1731 lm enable dual-ended

no oam-y1731 lm enable

Command Mode

TPOAM session Configuration

Default

Enable

Usage

None

Examples

The following example shows how to enable dual-ended lm for oam session:

```
Switch(config)# tpoam session 1
Switch(config-tpoam-session-1)# oam-y1731 lm enable dual-ended
```

Related Commands

show mpls-tp oam-y1731 lm

13.2.19 description

Command Purpose

Use this command to set description for oam session. To delete description, use the no form of this command.

Command Syntax

description *DESCRIPTION*

no description

Parameter	Parameter Description	Parameter Value
DESCRIPTION	Description characters only can be 0-9A-Za-z.-_ and the max len is 32	-

Command Mode

TPOAM session Configuration

Default

None

Usage

None

Examples

The following example shows how to set description for oam session:

```
Switch(config)# tpoam session 1
Switch(config-tpoam-session-1)# description oam_session_description
```

Related Commands

None

13.2.20 show mpls-tp oam-y1731

Command Purpose

Use this command to show the global information of TPOAM.

Command Syntax

show mpls-tp oam-y1731

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows the global information of TPOAM:

```
Switch# show mpls-tp oam-y1731

Fast APS                      : Enable
DM upload interval            : 10(DMR packets)
Global DM threshold           : 0(ns)
LM upload interval            : 20(s)
Global LM local threshold     : 0.000(%)
Global LM remote threshold    : 0.000(%)
Channel Type                  : 0x8902
Standard PW mode              : Yes (with control word)
Statistics
"-" means hardware processed
Packet             TX          RX          RX Discard
-----------------+----------+----------+----------
DMM                259         -           0
```

```
DMR                 -           0           0
APS                 0           0           0
```

Related Commands

show mpls-tp oam-y1731 mp

13.2.21 show mpls-tp oam-y1731 mp (status|)

Command Purpose

Use this command to show MP status.

Command Syntax

show mpls-tp oam-y1731 mp (status |) (session *SESSION_ID* |)

Parameter	Parameter Description	Parameter Value
SESSION_ID	OAM session ID	1-1000

Command Mode

Privileged EXEC

Default

None

Usage

This command will show MP status of all oam sessions without optional parameter.

Examples

The following example shows the MP staus of TPOAM:

```
Switch# show mpls-tp oam-y1731 mp

SessID Type         MEG           LVL MP   LMEP CCM INTVL RMEP State
------+------------+-------------+---+---+----+---+-----+----+----------
1      LSP-PE       megdefault    7   MEP 1    En  3.3ms 1    Init
2      PW TPE       megdefault    7   MEP 1    En  10ms  1    Init
```

Related Commands

show mpls-tp oam-y1731

13.2.22 show mpls-tp oam-y1731 statistics

Command Purpose

Use this command to show TPOAM session packet statistics.

Command Syntax

show mpls-tp oam-y1731 statistics (session *SESSION_ID* |)

Parameter	Parameter Description	Parameter Value
SESSION_ID	OAM session ID	1-1000

Command Mode

Privileged EXEC

Default

None

Usage

This command will show packet statistics of all oam sessions without optional parameter.

Examples

The following example shows packet statistics of TPOAM:

```
Switch# show mpls-tp oam-y1731 statistics session 1

"-" means hardware processed
Session ID     : 2
Packet             TX          RX          RX Discard
-----------------+----------+----------+----------
LBM                0           0           0
LBR                0           0           0
```

```
DMM                 0               -               0
DMR                 -               0               0
APS                 0               0               0
```

Related Commands

clear mpls-tp oam-y1731 statistics

13.2.23 show mpls-tp oam-y1731 dm

Command Purpose

Use this command to show dm information.

Command Syntax

show mpls-tp oam-y1731 dm (session *SESSION_ID* |)

Parameter	Parameter Description	Parameter Value
SESSION_ID	OAM session ID	1-1000

Command Mode

Privileged EXEC

Default

None

Usage

This command will show dm information of all oam sessions without optional parameter.

Examples

The following example shows how to show dm information:

```
Switch# show mpls-tp oam-y1731 dm session 1

Session ID      : 1
MEGID           : megdefault
```

```
MEPID          : 1
Type           : LSP-PE
DM Enable      : Yes
Session State  : OK
Threshold      : 0ns
DMM Tx interval: 1s
Codes: * - delay exceed the configured threshold
Idx     Delay(ns) Variation(ns) Time
---+-------------+-------------+------------------------------
1          100000             0 2018/05/09 01:58:55
2          300000        200000 2018/05/09 01:58:56
3          100000        200000 2018/05/09 01:58:57
4          100000             0 2018/05/09 01:58:58
5          100000             0 2018/05/09 01:58:59
6          100000             0 2018/05/09 01:59:00
7          100000             0 2018/05/09 01:59:01
Average Delay(ns) Average Var(ns)  Max Delay(ns)  Min Delay(ns)
-----------------+---------------+--------------+--------------
           128571           66666         300000         100000
```

Related Commands

oam-y1731 dm enable interval

13.2.24 show mpls-tp oam-y1731 lm

Command Purpose

Use this command to show lm information.

Command Syntax

show mpls-tp oam-y1731 lm (session *SESSION_ID* |)

Parameter	Parameter Description	Parameter Value
SESSION_ID	OAM session ID	1-1000

Command Mode

Privileged EXEC

Default

None

Usage

This command will show lm information of all oam sessions without optional parameter.

Examples

The following example shows how to show lm information:

```
Switch# show mpls-tp oam-y1731 lm session 1

Session ID     : 1
MEGID          : megdefault
MEPID          : 1
Type            : LSP-PE
LM Enable       : Yes
Session State   : OK
Local Threshold : 0.000%
Remote Threshold: 0.000%
Stats Interval  : 1s
Start Time     : 2018/05/09 2:02:20
End Time       : 2018/05/09 2:02:23
Codes: * - loss ratio exceed the configured value
Latest dual-ended loss statistics:
------------------------------------------------------------------------
Idx  Exp Local-loss Local-loss-ratio(%) Remote-loss Remote-loss-ratio(%)
----+---+----------+------------------+-----------+--------------------
1    all          0             00.0000           0               00.0000
2    all          0             00.0000           0               00.0000
------------------------------------------------------------------------
Maximum Local-loss  : 0          Maximum Local-loss-ratio  : 00.0000%
Minimum Local-loss  : 0          Minimum Local-loss-ratio  : 00.0000%
Maximum Remote-loss : 0          Maximum Remote-loss-ratio : 00.0000%
Minimum Remote-loss : 0          Minimum Remote-loss-ratio : 00.0000%
```

Related Commands

oam-y1731 lm enable dual-ended

13.2.25 show mpls-tp oam-y1731 lm upload

Command Purpose

Use this command to show upload lm information.

Command Syntax

show mpls-tp oam-y1731 lm upload (session *SESSION_ID* |)

Parameter	Parameter Description	Parameter Value
SESSION_ID	OAM session ID	1-1000

Command Mode

Privileged EXEC

Default

None

Usage

This command will show lm upload information of all oam sessions without optional parameter.

Examples

The following example shows how to show lm upload information:

```
Switch# show mpls-tp oam-y1731 lm upload session 1

Codes: * - loss ratio exceed the configured value
Latest dual-ended loss statistics:
------------------------------------------------------------------------
SessID  Local-loss Local-loss-ratio(%) Remote-loss Remote-loss-ratio(%)
-------+----------+------------------+-----------+--------------------
3               0            00.0000           0              00.0000
```

Related Commands

oam-y1731 lm enable dual-ended

13.2.26 show mpls-tp oam-y1731 loopback

Command Purpose

Use this command to show running loopback test information.

Command Syntax

show mpls-tp oam-y1731 loopback

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to show loopback information:

```
Switch# show mpls-tp oam-y1731 loopback

Session ID       : 3
LB Type          : MEP
MEGID            : megdefault
MEPID            : 1
Session State    : Init
Remote MEP       : 1
Timeout          : 5
Repeat Count     : 1/1
EXP              : 6
```

Related Commands

mpls-tp oam-y1731 loopback rmep

13.2.27 show mpls-tp oam-y1731 session

Command Purpose

Use this command to show the session information of TPOAM.

Command Syntax

show mpls-tp oam-y1731 session (*SESSION_ID* | *lsp_pe* | *lsp_p* | pw-tpe | section | unbind |)

Parameter	Parameter Description	Parameter Value
SESSION_ID	OAM session ID	1-1000
lsp_pe	LSP PE	-
lsp_p	LSP P	-
pw-tpe	Pseudowire Terminating PE	-
section	Section	-
unbind	Unbind service	-

Command Mode

Privileged EXEC

Default

None

Usage

This command will show all oam sessions information without optional parameter.

Examples

The following example shows the session information of TPOAM:

```
Switch# show mpls-tp oam-y1731 session 3


SessID Type    MEGID          MEPID RMEPID InLabel   OutLabel Port
------+-------+-------------+-----+------+--------+--------+-----------
3      LSP-PE  megdefault     1     1      51        61       eth-0-9
```

Related Commands

show mpls-tp oam-y1731

13.2.28 show mpls-tp oam-y1731 binding-flow

Command Purpose

Use this command to show binding flow information.

Command Syntax

show mpls-tp oam-y1731 binding-flow (session *SESSION_ID* |)

Parameter	Parameter Description	Parameter Value
SESSION_ID	OAM session ID	1-1000

Command Mode

Privileged EXEC

Default

None

Usage

This command will show binding flow info of all oam sessions without optional parameter.

Examples

The following example shows binding flow info of TPOAM:

```
Switch#  show mpls-tp oam-y1731 binding-flow

SessID InlabelFlowID OutlabelFlowID OutlabelGroupID
------+-------------+--------------+---------------
3      11            12             N/A
```

Related Commands

show mpls-tp oam-y1731 session

13.2.29 show oam-packet-in info

Command Purpose

Use this command to show OAM packet-in information.

Command Syntax

show oam-packet-in info

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to show OAM packet-in info:

```
Switch# show oam-packet-in info

 oam and aps packet-in status:
   oam cycle packet-in is enable
   oam cycle packet-in interval default: 15s
   oam cycle packet-in interval current: 15s
   aps cycle packet-in is enable
   aps cycle packet-in interval default: 30s
   aps cycle packet-in interval current: 30s
   the max number of oam-session in one cycle-packet-in : 30
   the max number of oam-session in one event-packet-in : 100
   the max number of aps-group in one cycle-packet-in : 50
   the max number of aps-group in one event-packet-in : 50
 ============================================================
 oam and aps packet-in packet stats:
   oam cycle-packet-in packet                    : 0
   oam event-packet-in ccm packet                : 0
   oam event-packet-in lm packet                 : 0
   oam event-packet-in dm packet                 : 0
   aps cycle-packet-in packet                    : 0
```

```
   aps event-packet-in path change packet       : 0
 ============================================================
oam and aps packet-in session stats:
   oam cycle-packet-in                    : 0
   oam event-packet-in ccm                : 0
   oam event-packet-in lm                 : 0
   oam event-packet-in dm                 : 0
   aps cycle-packet-in                    : 0
   aps event-packet-in path change        : 0
```

Related Commands

mpls-tp oam-y1731 cycle-packet-in enable

13.2.30 clear mpls-tp oam-y1731 statistics

Command Purpose

Use this command to clear MPLS-TP OAM statistics.

Command Syntax

clear mpls-tp oam-y1731 statistics (session *SESSION_ID* |)

Parameter	Parameter Description	Parameter Value
SESSION_ID	OAM session ID	1-1000

Command Mode

Privileged EXEC

Default

None

Usage

This command will clear statistics of all oam sessions without optional parameter.

Examples

The following example shows how to clear the statistics:

```
Switch# clear mpls-tp oam-y1731 statistics
```

Related Commands

show mpls-tp oam-y1731 statistics

13.2.31 clear mpls-tp oam-y1731 loopback

Command Purpose

Use this command to clear running loopback test.

Command Syntax

clear mpls-tp oam-y1731 loopback

Command Mode

Privileged EXEC

Default

None

Usage

None

Examples

The following example shows how to clear running loopback test:

```
Switch# clear mpls-tp oam-y1731 loopback
```

Related Commands

show mpls-tp oam-y1731 loopback

13.2.32 mpls-tp oam-y1731 loopback rmep

Command Purpose

Use this command to do MPLS-TP OAM MEP loopback.

Command Syntax

mpls-tp oam-y1731 loopback rmep *RMEP_ID* session *SESSION_ID* (ttl *TTL* |) (repeat *REPEAT* |) (timeout *TIMEOUT* |)

Parameter	Parameter Description	Parameter Value
SESSION_ID	Session ID	1-1000
RMEP_ID	Remote MEP ID	1-8191
TTL	TTL	1-255
REPEAT	Repeat count	1-255
TIMEOUT	Timeout in seconds	1-255

Command Mode

Privileged EXEC

Default

Default value of TTL is 255

Default value of repeat count is 1

Default value of timeout is 5 seconds

Usage

Use this command to do MPLS-TP OAM MEP loopback.

Examples

The following example shows how to do MPLS-TP OAM MEP loopback:

```
Switch# mpls-tp oam-y1731 loopback rmep 1 session 3

Sending MPLS-TP OAM Y.1731 loopback MEP messages
Remote MEP    :   1
Timeout       :   5
Repeat Count  :   1
EXP           :   6
(! Pass . Wait)
!
 Loopback completed, takes 2.43 seconds.
 ----------------------------------
 Success rate is 100 percent(1/1)
```

Related Commands

13.2.33 mpls-tp oam-y1731 loopback mip

Command Purpose

Use this command to do MPLS-TP OAM MIP loopback.

Command Syntax

mpls-tp oam-y1731 loopback mip session *SESSION_ID* node-id *IP_ADDR* ttl *TTL* (repeat *REPEAT* |) (timeout *TIMEOUT* |)

Parameter	Parameter Description	Parameter Value
SESSION_ID	Session ID	1-1000
IP_ADDR	Node ID value with IP address format	IP Address
TTL	TTL value	1-255
REPEAT	Repeat count value	1-255
TIMEOUT	Timeout in seconds	1-255

Command Mode

Privileged EXEC

Default

Default value of repeat count is 1

Default value of timeout is 5 seconds

Usage

Use this command to do MPLS-TP OAM MIP loopback.

Examples

The following example shows how to do MPLS-TP OAM MIP loopback:

```
Switch# mpls-tp oam-y1731 loopback mip session 3 node-id 1.1.1.3 ttl 2

Sending MPLS-TP OAM Y.1731 loopback MIP messages
TTL             :   2
Timeout         :   5
Repeat Count    :   1
EXP             :   6
(! Pass . Wait)
!
 Loopback completed, takes 1.34 seconds.
 ----------------------------------
 Success rate is 100 percent(1/1)
```

Related Commands

None

13.2.34 mpls-tp oam-y1731 loopback discovery

Command Purpose

Use this command to do MPLS-TP OAM discovery loopback.

Command Syntax

mpls-tp oam-y1731 loopback discovery session *SESSION_ID* ttl from *TTL* to *TTL* (timeout *TIMEOUT* |)

Parameter	Parameter Description	Parameter Value

SESSION_ID	Session ID	1-1000
TTL	TTL value	1-255
TIMEOUT	Timeout in seconds	1-255

Command Mode

Privileged EXEC

Default

Default value of timeout is 5 seconds

Usage

Use this command to do MPLS-TP OAM discovery loopback.

Examples

The following example shows how to do MPLS-TP OAM discovery loopback:

```
Switch# mpls-tp oam-y1731 loopback discovery session 3 ttl from 1 to 3

Sending MPLS-TP OAM Y.1731 loopback discovery messages
TTL            :   [1-3]
Timeout        :   5
Repeat Count   :   1
EXP            :   6
TTL Reply    MEPID    ICC            NodeID
---+--------+--------+--------------+---------------
1    MIP               megdef         1.1.1.2
2    MIP               megdef         1.1.1.3
3    MEP       1
 Loopback completed, takes 4.68 seconds.
 ----------------------------------
 Success rate is 100 percent(3/3)
```

Related Commands

None

13.3 TPOAM DEBUG Commands

13.3.1 debug g8131

Command Purpose

Use this command to turn on g8131 debug switch. And turn off it by the no form of the command.

Command Syntax

debug g8131 (event | tx | rx | all)

no debug g8131 (event | tx | rx | all)

Parameter	Parameter Description	Parameter Value
event	G8131 event	-
tx	G8131 transmit packets	-
rx	G8131 receive packets	-
all	G8131 all debug	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set G8131 debug function.

Examples

The following example shows how to turn on all G8131 debug function:

```
Switch# debug g8131 all
```

The following example shows how to turn off all G8131 debug function:

```
Switch# no debug g8131 all
```

Related Commands

show debugging g8131

13.3.2 debug tpoam

Command Purpose

Use this command to turn on tpoam debug switch. And turn off it by the no form of the command.

Command Syntax

debug tpoam (all | lb (all | lbm | lbr) | lm | dm (all | dmm | dmr | process) | packet (all | rx | tx) | event)

no debug tpoam (all | lb (all | lbm | lbr) | lm | dm (all | dmm | dmr | process) | packet (all | rx | tx) | event)

Parameter	Parameter Description	Parameter Value
event	tpoam event	-
packet	tpoam packet	-
rx	tpoam receive packets	-
tx	tpoam transmit packets	-
dm	tpoam delay measurement	-
dmm	tpoam delay measurement message	-
dmr	tpoam delay measurement reply	-
process	tpoam delay measurement process	-

lm	tpoam loss measurement	-
lb	tpoam loopback	-
lbm	tpoam loopback message	-
lbr	tpoam loopback reply	-
all	tpoam all debug	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set tpoam debug function.

Examples

The following example shows how to turn on all tpoam debug function:

```
Switch# debug tpoam all
```

The following example shows how to turn off all tpoam debug function:

```
Switch# no debug tpoam all
```

Related Commands

show debugging tpoam

13.3.3 show debugging g8131

Command Purpose

Use this command to show g8131 debug function.

Command Syntax

show debugging g8131

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to show g8131 debug function.

Examples

The following example shows G8131 debug function:

```
Switch# show debugging g8131

Module        Feature           Type                Status
------------+-----------------+-------------------+------
opm           g8131             tx                  on
              g8131             rx                  on
              g8131             event               on
```

Related Commands

None

13.3.4 show debugging tpoam

Command Purpose

Use this command to show tpoam debug function.

Command Syntax

show debugging tpoam

Command Mode

Privileged EXEC

Default

None

Usage

Use this command to show tpoam debug function.

Examples

The following example shows tpoam debug function:

```
Switch# show debugging tpoam

Module        Feature           Type                 Status
------------+-----------------+--------------------+------
opm           tpoam             dm dmm               on
              tpoam             dm dmr               on
              tpoam             dm process           on
              tpoam             event                on
              tpoam             lb lbm               on
              tpoam             lb lbr               on
              tpoam             lm                   on
              tpoam             packet rx            on
              tpoam             packet tx            on
```

Related Commands

None

14 Debug Commands

14.1 Debug Commands

14.1.1 no debug all

Command Purpose

Use this command to turn off all debug switch.

Command Syntax

no debug all

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to turn off all debug switch.

Examples

The following example shows how to turn off all debug function:

```
Switch# no debug all
```

Related Commands

show debugging

14.1.2 debug aaa

Command Purpose

Use this command to turn on aaa debug switch. And turn off it by the no form of the command.

Command Syntax

debug aaa (all | event | packet | protocol | timer)

no debug aaa (all | event | packet | protocol | timer)

Parameter	Parameter Description	Parameter Value
all	turn on aaa debug switch	-
event	aaa event	-
packet	aaa message information	-
protocol	aaa protocol information	-
timer	aaa timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set aaa debug switch.

Examples

The following example shows how to turn on all aaa debug function:

```
Switch# debug aaa all
```

The following example shows how to turn off all aaa debug function:

```
Switch# no debug aaa all
```

Related Commands

show debugging

14.1.3 debug arp

Command Purpose

Use this command to turn on arp debug switch. And turn off it by the no form of the command.

Command Syntax

debug arp (all | event | packet | protocol | timer)

no debug arp (all | event | packet | protocol | timer)

Parameter	Parameter Description	Parameter Value
all	turn on arp debug switch	-
event	arp event	-
packet	arp message information	-
protocol	arp protocol information	-
timer	arp timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set arp debug switch.

Examples

The following example shows how to turn on all arp debug function:

```
Switch# debug arp all
```

The following example shows how to turn off all arp debug function:

```
Switch# no debug arp all
```

Related Commands

show debugging

14.1.4 debug arp-inspection

Command Purpose

Use this command to turn on arp inspection debug switch. And turn off it by the no form of the command.

Command Syntax

debug arp (all | event | packet | protocol | timer)

no debug arp (all | event | packet | protocol | timer)

Parameter	Parameter Description	Parameter Value
all	turn on arp inspection debug switch	-
event	arp inspection event	-
packet	arp inspection message information	-
protocol	arp inspection protocol information	-

timer	arp inspection timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set arp inspection debug switch.

Examples

The following example shows how to turn on all arp inspection debug function:

```
Switch# debug arp-inspection all
```

The following example shows how to turn off all arp inspection debug function:

```
Switch# no debug arp-inspection all
```

Related Commands

show debugging

14.1.5 debug cpu-packet

Command Purpose

Use this command to turn on cpu packets inspection debug switch. And turn off it by the no form of the command.

Command Syntax

debug cpu-packet (all | (direction (tx | rx | both)) | (reason (all | arp | bpdu | bgp | dhcp | eapol | erps | igmp | ipda | l3copycpu | lldp | macda | maclimit | macmismatch | other | ospf | | ptp | raw | slowproto)))

no debug cpu-packet (all | (direction (tx | rx | both)) | (reason (all | arp | bpdu | bgp | dhcp | eapol | erps | igmp | ipda | l3copycpu | lldp | macda | maclimit | macmismatch | other | ospf | ptp | raw | slowproto)))

Parameter	Parameter Description	Parameter Value
tx	send direction	-
rx	receive direction	-
both	send direction&receive direction	-
bpdu	BPDU message	-
all	all message	-
arp	arp message	-
bgp	BGP message	-
dhcp	DHCP message	-
eapol	EAPOL message	-
erps	ERPS message	-
igmp	IGMP message	-
ipda	IPDA fordward to CPU	-
l3copycpu	L3 copied to CPU	-
lldp	LLDP message	-
macda	port-security more than threshold. MACDA forward to CPU	-
macmismatch	In port-security， MAC is not match to port.	-
ospf	OSPF message	-
raw	message data switch	-

slowproto	slow protocol message	-
ptp	ptp message	-
other	other message	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set CPU packet debug switch.

Examples

The following example shows how to turn on all CPU packet debug function in receive direction:

```
Switch# debug cpu-packet direction rx
Switch# debug cpu-packet reason bpdu
```

The following example shows how to turn off all CPU packet debug function in receive direction:

```
Switch# no debug cpu-packet direction rx
Switch# no debug cpu-packet reason bpdu
```

Related Commands

show debugging

14.1.6 debug dhcp client

Command Purpose

Use this command to turn on DHCP client debug switch. And turn off it by the no form of the command.

Command Syntax

debug dhcp client (all | dump | events | error | packet)

no debug dhcp client (all | dump | events | error | packet)

Parameter	Parameter Description	Parameter Value
all	turn on DHCP client debug switch	-
dump	debug message of DHCP client in hexadecimal form	-
events	debug events of DHCP client	-
error	debug errors of DHCP client	-
packet	debug message of DHCP client	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set dhcp client debug function.

Examples

The following example shows how to turn on all DHCP client debug function:

```
Switch# debug dhcp client all
```

The following example shows how to turn off all DHCP client debug function:

```
Switch# no debug dhcp client all
```

Related Commands

show debugging

14.1.7 debug dhcp relay

Command Purpose

Use this command to turn on DHCP relay debug switch. And turn off it by the no form of the command.

Command Syntax

debug dhcp relay (all | dump | events | error | packet)

no debug dhcp relay (all | dump | events | error | packet)

Parameter	Parameter Description	Parameter Value
all	turn on DHCP rely debug switch	-
dump	debug message of DHCP relay in hexadecimal form	-
events	debug events of DHCP relay	-
error	debug errors of DHCP relay	-
packet	debug message of DHCP relay	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set dhcp relay debug function.

Examples

The following example shows how to turn on all DHCP relay debug function:

```
Switch# debug dhcp relay all
```

The following example shows how to turn off all DHCP relay debug function:

```
Switch# no debug dhcp relay all
```

Related Commands

show debugging

14.1.8 debug dhcpv6 client

Command Purpose

Use this command to turn on DHCPV6 client debug switch. And turn off it by the no form of the command.

Command Syntax

debug dhcpv6 client (all | dump | events | error | packet)

no debug dhcpv6 client (all | dump | events | error | packet)

Parameter	Parameter Description	Parameter Value
all	turn on DHCPV6 client debug switch	-
dump	debug message of DHCPV6 client in hexadecimal form	-

events	debug events of DHCPV6 client	-
error	debug errors of DHCPV6 client	-
packet	debug message of DHCPV6 client	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set dhcpv6 client debug function.

Examples

The following example shows how to turn on all DHCPV6 client debug function:

```
Switch# debug dhcpv6 client all
```

The following example shows how to turn off all DHCPV6 client debug function:

```
Switch# no debug dhcpv6 client all
```

Related Commands

show debugging

14.1.9 debug dhcp snooping

Command Purpose

Use this command to turn on DHCP snooping debug switch. And turn off it by the no form of the command.

Command Syntax

debug dhcp snooping (all | dump | event | error | packet)

no debug dhcp snooping (all | dump | event | error | packet)

Parameter	Parameter Description	Parameter Value
all	turn on DHCP snooping debug switch	-
dump	debug message of DHCP snooping in hexadecimal form	-
event	debug events of DHCP snooping	-
error	debug errors of DHCP snooping	-
packet	debug message of DHCP snooping	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set dhcp snooping debug function.

Examples

The following example shows how to turn on all DHCP Snooping debug function:

```
Switch# debug dhcp snooping all
```

The following example shows how to turn off all DHCP Snooping debug function:

```
Switch# no debug dhcp snooping all
```

Related Commands

show debugging

14.1.10 debug dot1x

Command Purpose

Use this command to set dot1x debug function. And turn off it by the no form of the command.

Command Syntax

debug dot1x (all | event | packet | protocol | timer)

no debug dot1x (all | event | packet | protocol | timer)

Parameter	Parameter Description	Parameter Value
all	turn on all dot1x debug switch	-
event	dot1x event	-
packet	dot1x message information	-
protocol	dot1x protocol information	-
timer	dot1x timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set dot1x debug function.

Examples

The following example shows how to turn on all dot1x debug function:

```
Switch# debug dot1x all
```

The following example shows how to turn off all dot1x debug function:

```
Switch# no debug dot1x all
```

Related Commands

show debugging

14.1.11 debug erps

Command Purpose

Use this command to turn on ERPS debug function.

Command Syntax

debug erps (all | event | packet | protocol | timer)

no debug erps (all | event | packet | protocol | timer)

Parameter	Parameter Description	Parameter Value
all	turn on all ERPS debug switch	-
event	ERPS event	-
packet	ERPS message information	-
protocol	ERPS protocol information	-
timer	ERPS timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to turn on ERPS debug function.

Examples

The following example shows how to turn on all ERPS debug function:

```
Switch# debug erps all
```

The following example shows how to turn off all ERPS debug function:

```
Switch# no debug erps all
```

Related Commands

show debugging

14.1.12 debug igmp-snooping

Command Purpose

Use this command to set IGMP Snooping debug function. And turn off it by the no form of the command.

Command Syntax

debug igmp-snooping (event | packet (tx | rx |) | protocol | timer | all)

no debug igmp-snooping (event | packet (tx | rx |) | protocol | timer | all)

Parameter	Parameter Description	Parameter Value
event	IGMP Snooping event	-

packet	IGMP Snooping message	-
protocol	IGMP Snooping protocol	-
timer	IGMP Snooping timer	-
all	turn on all IGMP Snooping debug switch	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set IGMPSnooping debug function.

Examples

The following example shows how to turn on all IGMP Snooping debug function:

```
Switch# debug igmp-snooping all
```

The following example shows how to turn off all IGMPSnooping debug function:

```
Switch# no debug igmp-snooping all
```

Related Commands

show debugging

14.1.13 debug igmp

Command Purpose

Use this command to set IGMP debug function. And turn off it by the no form of the command.

Command Syntax

debug igmp (all | event | packet | trace)

no debug igmp (all | event | packet | trace)

Parameter	Parameter Description	Parameter Value
event	IGMP event	-
packet	IGMP message	-
trace	IGMP trace	-
all	turn on all IGMP debug switch	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set IGMP debug function.

Examples

The following example shows how to turn on all IGMP debug function:

```
Switch# debug igmp all
```

The following example shows how to turn off all IGMP debug function:

```
Switch# no debug igmp all
```

Related Commands

show debugging

14.1.14 debug ipsg

Command Purpose

Use this command to turn on IP Source Guard debug function.

Command Syntax

debug ipsg (all | error | event)

no debug ipsg (all | error | event)

Parameter	Parameter Description	Parameter Value
all	turn on all IP Source Guard debug switch	-
error	IP Source Guard error	-
event	IP Source Guard event	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set IP Source Guard debug function.

Examples

The following example shows how to turn on all IP source guard debug function:

```
Switch# debug ipsg all
```

The following example shows how to turn off all IP source guard debug function:

```
Switch# no debug ipsg all
```

Related Commands

show debugging

14.1.15 debug lacp

Command Purpose

Use this command to set LACP debug function.

Command Syntax

debug lacp (all | event | packet | protocol | timer)

no debug lacp (all | event | packet | protocol | timer)

Parameter	Parameter Description	Parameter Value
all	turn on all LACP debug switch	-
event	LACP event	-
packet	LACP message information	-
protocol	LACP protocol information	-
timer	LACP timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set LACP debug function.

Examples

The following example shows how to turn on all LACP debug function:

```
Switch# configure terminal
Swtich# debug lacp all
```

The following example shows how to turn off all LACP debug function:

```
Switch# configure terminal
Swtich# no debug lacp all
```

Related Commands

show debugging

14.1.16 debug lldp

Command Purpose

Use this command to set LLDP debug function. And turn off it by the no form of the command.

Command Syntax

debug lldp (all | event | packet (tx | rx |) | protocol | timer)

no debug lldp (all | event | packet (tx | rx |) | protocol | timer)

Parameter	Parameter Description	Parameter Value
all	turn on all LLDP debug switch	-
event	LLDP event	-
packet	LLDP message information	-
protocol	LLDP protocol information	-
timer	LLDP timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set LLDP debug function.

Examples

The following example shows how to turn on all LLDP debug function:

```
Switch# debug lldp all
```

The following example shows how to turn off all LLDP debug function:

```
Switch# no debug lldp all
```

Related Commands

show debugging

14.1.17 debug mlag

Command Purpose

Use this command to set MLAG debug function. And turn off it by the no form of the command.

Command Syntax

debug mlag (all | event | packet | protocol | timer)

no debug mlag (all | event | packet | protocol | timer)

Parameter	Parameter Description	Parameter Value
all	turn on all MLAG debug switch	-
event	MLAG event	-

packet	MLAG message information	-
protocol	MLAG protocol information	-
timer	MLAG timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set MLAG debug function.

Examples

The following example shows how to turn on all MLAG debug function:

```
Switch# debug mlag all
```

The following example shows how to turn off all MLAG debug function:

```
Switch# no debug mlag all
```

Related Commands

show debugging

14.1.18 debug ospf

Command Purpose

Use this command to set MLAG debug function.

Command Syntax

debug ospf (all | event | ism | lsa | nsm | packet | zebra)

no debug ospf (all | event | ism | lsa | nsm | packet | zebra)

Parameter	Parameter Description	Parameter Value
all	turn on all OSPF debug switch	-
event	OSPF event	-
ism	OSPF interface state machine information	-
lsa	OSPF link state machine information	-
nsm	OSPF neighbor state machine information	-
packet	OSPF packet information	-
zebra	OSPF Zebra information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set OSPF debug function.

Examples

The following example shows how to turn on all OSPF debug function:

```
Switch# configure terminal
Swtich# debug ospf all
```

The following example shows how to turn off all OSPF debug function:

```
Switch# configure terminal
Swtich# no debug ospf all
```

Related Commands

show debugging

14.1.19 debug sflow

Command Purpose

Use this command to set sflow debug function. And turn off it by the no form of the command.

Command Syntax

debug sflow (all | counter | packet | sample)

no debug sflow (all | counter | packet | sample)

Parameter	Parameter Description	Parameter Value
all	turn on all sflow debug switch	-
counter	counter information	-
packet	packet information	-
sample	sample information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set sflow debug function.

Examples

The following example shows how to turn on all S-Flow debug function:

```
Switch# debug sflow all
```

The following example shows how to turn off all S-Flow debug function:

```
Switch# no debug sflow all
```

Related Commands

show debugging

14.1.20 debug stp

Command Purpose

Use this command to set STP debug function. And turn off it by the no form of the command.

Command Syntax

debug stp (all | event | packet (tx | rx |) | protocol (cist | msti |) | timer)

no debug stp (all | event | packet (tx | rx |) | protocol (cist | msti |) | timer)

Parameter	Parameter Description	Parameter Value
all	turn on all STP debug switch	-
event	STP event	-
packet	STP message information	-
protocol	STP protocol information	-
timer	STP timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set STP debug function.

Examples

The following example shows how to turn on all STP debug function:

```
Switch# debug stp all
```

The following example shows how to turn off all STP debug function:

```
Switch# no debug stp all
```

Related Commands

show debugging

14.1.21 debug vrrp

Command Purpose

Use this command to set vrrp debug function. And turn off it by the no form of the command.

Command Syntax

debug vrrp (all | events | packet (recv | send | detail |))

no debug vrrp (all | events | packet (recv | send | detail |))

Parameter	Parameter Description	Parameter Value
all	turn on all vrrp debug switch	-

events	vrrp events	-
packet	vrrp packet	-
recv	vrrp recieve packet	-
send	vrrp send packet	-
detail	vrrp packet information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set STP debug function.

Examples

The following example shows how to turn on all VRRP debug function:

```
Switch# debug vrrp all
```

The following example shows how to turn off all VRRP debug function:

```
Switch# no debug vrrp all
```

Related Commands

show debugging

14.1.22 debug ssm

Command Purpose

Use this command to set ssm debug function. And turn off it by the no form of the command.

Command Syntax

debug ssm (all | event | *packet_tx* | *packet_rx* | timer)

no debug ssm (all | event | *packet_tx* | *packet_rx* | timer)

Parameter	Parameter Description	Parameter Value
all	turn on all SSM debug switch	-
event	SSM events	-
packet_tx	SSM transmit message information	-
packet_rx	SSM receive message information	-
timer	SSM timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set ssm debug function.

Examples

The following example shows how to turn on all ssm debug function:

```
Switch# debug ssm all
```

The following example shows how to turn off all ssm debug function:

```
Switch# no debug ssm all
```

Related Commands

show debugging

14.1.23 debug g8032

Command Purpose

Use this command to set g8032 debug function. And turn off it by the no form of the command.

Command Syntax

debug g8032 (all | event | *packet_tx* | *packet_rx* | timer)

no debug g8032 (all | event | *packet_tx* | *packet_rx* | timer)

Parameter	Parameter Description	Parameter Value
all	turn on all g8032 debug switch	-
event	g8032 events	-
packet_tx	g8032 transmit message information	-
packet_rx	g8032 receive message information	-
timer	g8032 timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set g8032 debug function.

Examples

The following example shows how to turn on all g8032 debug function:

```
Switch# debug g8032 all
```

The following example shows how to turn off all g8032 debug function:

```
Switch# no debug g8032 all
```

Related Commands

show debugging

14.1.24 debug g8131

Command Purpose

Use this command to set g8131 debug function. And turn off it by the no form of the command.

Command Syntax

debug g8131 (all | event | tx | rx)

no debug g8131 (all | event | tx | rx)

Parameter	Parameter Description	Parameter Value
all	turn on all g8131 debug switch	-
event	g8131 events	-
tx	g8131 transmit message information	-
rx	g8131 receive message information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set g8131 debug function.

Examples

The following example shows how to turn on all g8131 debug function:

```
Switch# debug g8131 all
```

The following example shows how to turn off all g8131 debug function:

```
Switch# no debug g8131 all
```

Related Commands

show debugging

14.1.25 debug ipsla

Command Purpose

Use this command to set IP SLA debug function. And turn off it by the no form of the command.

Command Syntax

debug ipsla (all | event | packet)

no debug ipsla (all | event | packet)

Parameter	Parameter Description	Parameter Value
all	turn on all IP SLA debug switch	-

event	IP SLA event	-
packet	IP SLA packet information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set IP SLA debug function.

Examples

The following example shows how to turn on all IP SLA debug function:

```
Switch# debug ipsla all
```

The following example shows how to turn off all IP SLA debug function:

```
Switch# no debug ipsla all
```

Related Commands

show debugging

14.1.26 debug ipv6 nd

Command Purpose

Use this command to set ND debug function. And turn off it by the no form of the command.

Command Syntax

debug ipv6 nd (all | event | packet | protocol | timer)

no debug ipv6 nd (all | event | packet | protocol | timer)

Parameter	Parameter Description	Parameter Value
all	turn on all ND debug switch	-
event	ND event	-
packet	ND message information	-
protocol	ND protocol information	-
timer	ND timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set ND debug function.

Examples

The following example shows how to turn on all ND debug function:

```
Switch# debug ipv6 nd all
```

The following example shows how to turn off all ND debug function:

```
Switch# no debug ipv6 nd all
```

Related Commands

show debugging

14.1.27 debug nat

Command Purpose

Use this command to set NAT debug function. And turn off it by the no form of the command.

Command Syntax

debug nat (all | events | timer)

no debug nat (all | events | timer)

Parameter	Parameter Description	Parameter Value
all	turn on all NAT debug switch	-
events	NAT events	-
timer	NAT timer information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set NAT debug function.

Examples

The following example shows how to turn on all NAT debug function:

```
Switch# debug nat all
```

The following example shows how to turn off all NAT debug function:

```
Switch# no debug nat all
```

Related Commands

show debugging

14.1.28 debug mroute

Command Purpose

Use this command to set MROUTE debug function. And turn off it by the no form of the command.

Command Syntax

debug mroute (detail |)

no debug mroute (detail |)

Parameter	Parameter Description	Parameter Value
detail	mroute packet information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set MROUTE debug function.

Examples

The following example shows how to turn on MROUTE debug function:

```
Switch# debug mroute
```

The following example shows how to turn off MROUTE debug function:

```
Switch# no debug mroute
```

Related Commands

14.1.29 debug ip icmp

Command Purpose

Use this command to set ICMP debug function. And turn off it by the no form of the command.

Command Syntax

debug ip icmp

no debug ip icmp

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set ICMP debug function.

Examples

The following example shows how to turn on ICMP debug function:

```
Switch# debug icmp
```

The following example shows how to turn off ICMP debug function:

```
Switch# no debug icmp
```

Related Commands

14.1.30 debug rmon

Command Purpose

Use this command to set rmon debug function. And turn off it by the no form of the command.

Command Syntax

debug rmon (all | event | alarm | stats | history)

no debug rmon (all | event | alarm | stats | history)

Parameter	Parameter Description	Parameter Value
all	turn on all rmon debug switch	-
event	rmon event	-
alarm	rmon alarm	-
stats	rmon interface stastics	-
history	rmon histoty stastics	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set rmon debug function.

Examples

The following example shows how to turn on all rmon debug function:

```
Switch# debug rmon all
```

The following example shows how to turn off all rmon debug function:

```
Switch# no debug rmon all
```

Related Commands

show debugging

14.1.31 debug tpoam

Command Purpose

Use this command to set tpoam debug function. And turn off it by the no form of the command.

Command Syntax

debug tpoam (all | lb | lm | dm | packet | event)

no debug tpoam (all | lb | lm | dm | packet | event)

Parameter	Parameter Description	Parameter Value
all	turn on all tpoam debug switch	-
lb	tpoam loopback	-
lm	tpoam loss measurement	-
dm	tpoam delay measurement	-
packet	tpoam packet	-
event	tpoam event	-

Command Mode

Default

Privileged EXEC

Usage

关闭

Examples

该命令用于设置 tpoam 调试功能。：

```
如下示例，启用 tpoam 的所有调试功能
Switch# debug tpoam all

如下示例，关闭 tpoam 的所有调试功能
Switch# no debug tpoam all
```

Related Commands

show debugging

14.1.32 debug track

Command Purpose

Use this command to set track debug function. And turn off it by the no form of the command.

Command Syntax

debug track (all | event)

no debug track (all | event)

Parameter	Parameter Description	Parameter Value
all	turn on all track debug switch	-

event	track event	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set track debug function.

Examples

The following example shows how to turn on all track debug function:

```
Switch# debug track all
```

The following example shows how to turn off all track debug function:

```
Switch# no debug track all
```

Related Commands

show debugging

14.1.33 debug rpcapi

Command Purpose

Use this command to set RPC API debug function. And turn off it by the no form of the command.

Command Syntax

debug rpcapi (all | request | command)

no debug rpcapi (all | request | command)

Parameter	Parameter Description	Parameter Value

all	turn on all rpcapi debug switch	-
request	RPC API request	-
command	RPC API command	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set RPC API debug function.

Examples

The following example shows how to turn on all RPC API debug function:

```
Switch# debug rpcapi all
```

The following example shows how to turn off all RPC API debug function:

```
Switch# no debug rpcapi all
```

Related Commands

show debugging

14.1.34 debug openflow

Command Purpose

Use this command to set openflow debug function. And turn off it by the no form of the command.

Command Syntax

debug openflow (vconn | rconn)

no debug openflow (vconn | rconn)

Parameter	Parameter Description	Parameter Value
vconn	openflow message exchange debug	-
rconn	openflow connection with controller information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set openflow debug function.

Examples

The following example shows how to turn on openflow vconn debug function:

```
Switch# debug openflow vconn
```

The following example shows how to turn off openflow vconn debug function:

```
Switch# no debug openflow vconn
```

Related Commands

show debugging

14.1.35 debug snmp agent

Command Purpose

Use this command to set snmp debug function. And turn off it by the no form of the command.

Command Syntax

debug snmp agent

no debug snmp agent

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set SNMP debug function.

Examples

The following example shows how to turn on SNMP debug function:

```
Switch# debug snmp agent
```

The following example shows how to turn off SNMP debug function:

```
Switch# no debug snmp agent
```

Related Commands

show debugging

14.1.36 show debugging

Command Purpose

In privilege mode use this command to show debug information.

Command Syntax

show debugging (g8131 | tpoam | aaa | arp | arp-inspection | cpu-packet | dhcp | dhcpv6 | dot1x | erps | g8032 | igmp-snooping | ipsg | ipsla | lacp | lldp | mlag | ospf | igmp | mroute | nat | nd | ntp | openflow | pim | rmon | rpcapi | sflow | snmp | ssm | stp | track | vrrp | cfm |) (detail |)

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to show debug information.

Examples

The following example shows how to display the debugging status:

```
Switch# debug stp event
Switch# show debugging stp
Module        SubModule         Type              Status
------------+----------------+---------------+------
switch        stp               event             on
```

Related Commands

debug

14.1.37 debug ntp

Command Purpose

Use this command to turn on ntp debug switch. And turn off it by the no form of the command.

Command Syntax

debug ntp (emerg | alert | crit | error | warning | notice | info | debug)

no debug ntp

Parameter	Parameter Description	Parameter Value
emerg	print emerge information	-
alert	print alert and emerge information	-
crit	print crit, alert and emerge information	-
error	print error,crit, alert and emerge information	-
warning	print warning,error,crit, alert and emerge information	-
notice	print notice, warning,error,crit, alert and emerge information	-
info	print info, notice, warning,error,crit, alert and emerge information	-
debug	print debug, info, notice, warning,error,crit, alert and emerge information	-

Command Mode

Privileged EXEC

Default

Disable

Usage

Use this command to set ntp debug switch.

Examples

The following example shows how to turn on all ntp debug function:

```
Switch# debug ntp debug
```

The following example shows how to turn off all ntp debug function:

```
Switch# no debug ntp
```

Related Commands

show debugging

15 openflow Commands

15.1.1 openflow set protocols

Command Purpose

Use this command to set openflow protocol.

Command Syntax

openflow set protocols { (openflow10 |) (openflow12 |) (openflow13 |) (openflow14 |) }

Parameter	Parameter Description	Parameter Value
openflow10	Openflow1.0 spec standard	-
openflow12	Openflow1.2 spec standard	-
openflow13	Openflow1.3 spec standard	-
openflow14	Openflow1.4 spec standard	-

Command Mode

Global Configuration

Default

OpenFlow10 OpenFlow13

Usage

None

Examples

This example shows how to set openflow protocol:

```
Switch# configure terminal
Switch(config)# openflow set protocols openflow12
```

Related Commands

show openflow protocol status

15.1.2 openflow dot1q

Command Purpose

Use this command to set vlan tag tpid value. To restore the default configuration. Use the no form of this command to restore dot1q value.

Command Syntax

openflow dot1q (stpid | ctpid) (0x8100 | 0x9100 | 0x88a8)

no openflow dot1q (stpid | ctpid)

Parameter	Parameter Description	Parameter Value
stpid	Server tag protocol identifier	-
ctpid	Custom tag protocol identifier	-
0x8100	Set the value of tpid to 0x8100	-
0x9100	Set the value of tpid to 0x9100	-

0x88a8	Set the value of tpid to 0x88a8	-

Command Mode

Global Configuration

Default

The default value of stpid and ctpid are 0x8100

Usage

To configurate tpid value, it will affect packet how to be parsed and openflow qinq process.

Examples

This example shows how to set vlan tag tpid value:

```
Switch# configure terminal
Switch(config)# openflow dot1q stpid 0x9100
```

This example shows how to restore vlan tag tpid value:

```
Switch# configure terminal
Switch(config)# no openflow dot1q stpid
```

Related Commands

show openflow dot1q

15.1.3 openflow udf

Command Purpose

Use this command to enable udf function in system.

Use the no form of this command to disable udf function in system.

Command Syntax

openflow udf enable

no openflow udf enable

Command Mode

Global Configuration

Default

Disable

Usage

When udf is enabled, flow can match udf field. Before config udf function, all flow should be deleted firstly.

Examples

This example shows how to set udf enable globally:

```
Switch# configure terminal
Switch(config)# openflow udf enable
```

This example shows how to set udf disable globally:

```
Switch# configure terminal
Switch(config)# no openflow udf enable
```

Related Commands

show openflow udf status

15.1.4 openflow set async-msg-id

Command Purpose

Use this command to enable carry id in three kind of async messages(port_status, packet_in and flow_removed) in system.

Use the no form of this command to disable this function in system.

Command Syntax

openflow set async-msg-id enable

no openflow set async-msg-id enable

Command Mode

Global Configuration

Default

Disable

Usage

When async_msg_id is enabled, the async message should carru id in packets.

Examples

This example shows how to set async_msg_id enable globally:

```
Switch# configure terminal
Switch(config)# openflow set async-msg-id enable
```

This example shows how to set async_msg_id disable globally:

```
Switch# configure terminal
Switch(config)# no openflow async-msg-id enable
```

Related Commands

show openflow controller status

15.1.5 openflow set ff-group-cutback

Command Purpose

Use this command to enable bucket cut back in fast failover group.

Use the no form of this command to disable this function in system.

Command Syntax

openflow set ff-group-cutback enable

no openflow set ff-group-cutback enable

Command Mode

Global Configuration

Default

Disable

Usage

When ff group cut back enable, the choosed bucket would be change to the first up bucket.

Examples

This example shows how to set ff-group-cutback enable globally:

```
Switch# configure terminal
Switch(config)# openflow set ff-group-cutback enable
```

This example shows how to set ff-group-cutback disable globally:

```
Switch# configure terminal
Switch(config)# no openflow ff-group-cutback enable
```

Related Commands

None

15.1.6 openflow set controller-affect-flow

Command Purpose

Use this command to control flows if should be deleted or not when controller be added or deleted. By default, when controller be added or deleted, flows will be deleted.

Command Syntax

openflow set controller-affect-flow (enable | disable)

Parameter	Parameter Description	Parameter Value

enable	Flows should be deleted when controller is added or deleted	-
disable	Flows should not be deleted when controller is added or deleted	-

Command Mode

Global Configuration

Default

Enable

Usage

This command is used to controll flows if should be deleted or not when controller be added or deleted.

Examples

This example shows how to set flows will not be deleted when controller be added or deleted:

```
Switch# configure terminal
Switch(config)# openflow set controller-affect-flow disable
```

Related Commands

show openflow controller status

15.1.7 openflow set controller

Command Purpose

Use this command to set openflow controller. Usw delete command of this command to delete all controller or specified controller.

Command Syntax

openflow set controller tcp (mgmt-if |) *IP_ADDR L4_PORT_NUM* (source-ip *IP_ADDR* |) (*max_backoff BACKOFF_VALUE* |) (*inactivity_probe PROBE_VALUE* |)

openflow delete controller ((tcp *IP_ADDR L4_PORT_NUM*) |)

Parameter	Parameter Description	Parameter Value
IP_ADDR	IP address of the controller	IPv4 address
L4_PORT_NUM	TCP port number	Range is 1-65535
BACKOFF_VALUE	Max backoff	Range is 4-64
PROBE_VALUE	Inactivity_probe	Range is 5-200

Command Mode

Global Configuration

Default

None

Usage

None

Examples

This example shows how to set a controller:

```
Switch# configure terminal
Switch(config)# openflow set controller mgmt-if tcp 192.168.1.1 6600
```

This example shows how to delete a controller:

```
Switch# configure terminal
Switch(config)# openflow delete controller tcp 192.168.1.1 6600
```

Related Commands

show openflow controller status

15.1.8 group drop-pkt-to-ingress-port

Command Purpose

Use this command to set group action, drop packet which forward to ingress port.

Use the no form of this command to restore the default configuration.

Command Syntax

group drop-pkt-to-ingress-port

no group drop-pkt-to-ingress-port

Command Mode

Global Configuration

Default

group drop-pkt-to-ingress-port

Usage

None

Examples

This example shows how to set group action, drop the packet which forward to ingress port:

```
Switch# configure terminal
Switch(config)# group drop-pkt-to-ingress-port
```

This example shows how to set group action, forward the packet which forward to ingress port:

```
Switch# configure terminal
Switch(config)# no group drop-pkt-to-ingress-port
```

Related Commands

None

15.1.9 flow drop-pkt-to-ingress-port

Command Purpose

Use this command to set flow action, drop packet which forward to ingress port. Use the no form of this command to restore the default configuration.

Command Syntax

flow drop-pkt-to-ingress-port

no flow drop-pkt-to-ingress-port

Command Mode

Global Configuration

Default

no flow drop-pkt-to-ingress-port

Usage

None

Examples

This example shows how to set flow action, drop the packet which forward to ingress port:

```
Switch# configure terminal
Switch(config)# flow drop-pkt-to-ingress-port
```

This example shows how to set flow action ,forward the packet which forward to ingress port:

```
Switch# configure terminal
Switch(config)# no flow drop-pkt-to-ingress-port
```

Related Commands

None

15.1.10 openflow mac-learning enable

Command Purpose

Use this command to set mac learning enable, when the packet match flow. Use the no form of this command to restore the default configuration.

Command Syntax

openflow mac-learning enable

no openflow mac-learning enable

Command Mode

Global Configuration

Default

no openflow mac-learning enable

Usage

None

Examples

This example shows how to set mac learning enable when the packet match flow:

```
Switch# configure terminal
Switch(config)# openflow mac-learning enable
```

This example shows how to set mac learning disable when the packet match flow:

```
Switch# configure terminal
Switch(config)# no openflow mac-learning enable
```

Related Commands

show openflow mac-learning status

15.1.11 openflow spanning-tree exclude-all-vlans

Command Purpose

Use this command to set openflow spanning-tree exclude all VLANs. Use the no form of this command to restore the default configuration.

Command Syntax

openflow spanning-tree exclude-all-vlans

no openflow spanning-tree exclude-all-vlans

Command Mode

Global Configuration

Default

Disable

Usage

This command is to exclude all VLANs to forward state but not spanning-tree state.

Examples

This example shows how to exclude all VLANs from spanning-tree state:

```
Switch# configure terminal
Switch(config)# openflow spanning-tree exclude-all-vlans
```

This example shows how to restore default configuration:

```
Switch# configure terminal
Switch(config)# no openflow spanning-tree exclude-all-vlans
```

Related Commands

show openflow spanning-tree-vlan

15.1.12 openflow spanning-tree include-vlan

Command Purpose

Use this command to include VLANs into spanning-tree state. Use the no form of this command to remove vlan list.

Command Syntax

openflow spanning-tree include-vlan *VLAN_LIST*

no openflow spanning-tree include-vlan *VLAN_LIST*

Parameter	Parameter Description	Parameter Value
VLAN_LIST	VLAN ID list, example: 2-5,7,9-11	Range is 1-4094

Command Mode

Global Configuration

Default

None

Usage

This command is to include VLANs into spanning-tree state.

Examples

This example shows how to include VLANs into spanning-tree state:

```
Switch# configure terminal
Switch(config)# openflow spanning-tree include-vlan 2-5,10
```

This example shows how to remove VLANs from spanning-tree state:

```
Switch# configure terminal
Switch(config)# no openflow spanning-tree include-vlan 2-5,10
```

Related Commands

openflow spanning-tree exclude-all-vlans

15.1.13 vxlan-tunnel src-port

Command Purpose

Use this command to set source-port number of vxlan packets. Use the no form of this command to restore the default configuration.

Command Syntax

vxlan-tunnel src-port *L4_PORT_NUM*

no vxlan-tunnel src-port

Parameter	Parameter Description	Parameter Value
L4_PORT_NUM	Vxlan l4 port number	Range is 1-65535

Command Mode

Global Configuration

Default

Switch hash generate

Usage

This command is to set vxlan l4 source port.

Examples

This example shows how to set vxlan src port:

```
Switch# configure terminal
Switch(config)# vxlan-tunnel src-port 400
```

This example shows how to restore the default vxlan src port:

```
Switch# configure terminal
Switch(config)# no vxlan-tunnel src-port
```

Related Commands

show openflow interface tunnel

15.1.14 vxlan-tunnel dest-port

Command Purpose

Use this command to set dest-port number of vxlan packets.

Use the no form of this command to restore the default configuration.

Command Syntax

vxlan-tunnel dest-port *L4_PORT_NUM*

no vxlan-tunnel dest-port

Parameter	Parameter Description	Parameter Value
L4_PORT_NUM	Vxlan l4 port number	Range is 1-65535

Command Mode

Global Configuration

Default

4789

Usage

This command is to set vxlan l4 destination port.

Examples

This example shows how to set vxlan dest port:

```
Switch# configure terminal
Switch(config)# vxlan-tunnel dest-port 400
```

This example shows how to restore the default vxlan dest port:

```
Switch# configure terminal
Switch(config)# no vxlan-tunnel dest-port
```

Related Commands

show openflow interface tunnel

15.1.15 openflow set dpid

Command Purpose

Use this command to set dpid. Use the no form of this command to restore the default configuration.

Command Syntax

openflow set dpid *DPID_VALUE*

no openflow set dpid

Parameter	Parameter Description	Parameter Value
DPID_VALUE	DPID number	hex and 64bits

Command Mode

Global Configuration

Default

Generated by route mac

Usage

DPID is device identity in Controller.

Examples

This example shows how to set DPID:

```
Switch# configure terminal
Switch(config)# openflow set dpid 0000000001680000
```

This example shows how to restore the default DPID:

```
Switch# configure terminal
Switch(config)# no openflow set dpid
```

Related Commands

ovs-ofctl show br0

15.1.16 openflow enable

Command Purpose

Use this command to set port openflow enable. When openflow enabled, this port is a hybrid port. Use the no form of this command to set port openflow disable. When openflow disabled, this port is a L2/L3 port.

Command Syntax

openflow enable

no openflow enable

Command Mode

Interface Configuration

Default

Disable

Usage

This command is to set port openflow enable, when openflow enable, this port is a hybrid port. The no form of this command is to set port openflow disable, when openflow disable, this port is a L2/L3 port. Only when ingress-add-native-vlan,

vlan-filter and vlan-filter of port are default value, this command can be configured.

Examples

This example shows how to set openflow enable on interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# openflow enable
```

This example shows how to set openflow disable on interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no openflow enable
```

Related Commands

None

15.1.17 vlan-filter disable

Command Purpose

Use this command to set port vlan-fliter disable. When configured this command, openflow enable must be configured. Use the no form of this command to set port no vlan-fliter disable.

Command Syntax

vlan-filter disable

no vlan-filter disable

Command Mode

Interface Configuration

Default

Enable

Usage

This command is to set port vlan-fliter disable.

Examples

This example shows how to set vlan-filter disable on interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# vlan-filter disable
```

Related Commands

None

15.1.18 openflow tunnel type

Command Purpose

Use this command to set tunnel type on interface. Use the no form of this command to restore the default configuration.

Command Syntax

openflow tunnel type { (vxlan |) (nvgre |) (l2gre |) }

no openflow tunnel type

Parameter	Parameter Description	Parameter Value
vxlan	Virtual Exrensible LAN	-
nvgre	Nerwork Virtualization using Generic Routing Encapsulation	-
l2gre	Generic Routing Encapsulation	-

Command Mode

Interface Configuration

Default

Vxlan

Usage

This command is to set port tunnel type.

Examples

This example shows how to set nvgre tunnel type on interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# openflow tunnel type nvgre
```

Related Commands

None

15.1.19 ingress-add-native-vlan enable

Command Purpose

Use this command to set port add ingress native vlan. When configured this command, openflow enable must be configured. Use the no form of this command to restore the default configuration.

Command Syntax

ingress-add-native-vlan enable

no ingress-add-native-vlan enable

Command Mode

Interface Configuration

Default

Disable

Usage

This command is to set port add ingress native vlan.

Examples

This example shows how to set port add ingress native vlan on interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# ingress-add-native-vlan enable
```

This example shows how to disable port add ingress native vlan on interface eth-0-1:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no ingress-add-native-vlan enable
```

Related Commands

openflow enable

15.1.20 tunnel-bind-static bind-port

Command Purpose

Use this command to set tunnel basic information: bind port, nexthop-mac, mac address or bind vlan. Use the no form of this command to delete tunnel bind basic information.

Command Syntax

tunnel-bind-static bind-port *IFNAME* nexthop-mac *MAC_ADDR* (bind-vlan *VLAN_ID* |)

no tunnel-bind-static

Parameter	Parameter Description	Parameter Value
IFNAME	Ethernet interface name	Only physical interface
MAC_ADDR	MAC address	MAC address in HHHH.HHHH.HHHH format

VLAN_ID	VLAN ID	Range is 1-4094

Command Mode

Interface Configuration

Default

None

Usage

This command is to set tunnel basic information: bind port, nexthop mac address or bind vlan.

Examples

This example shows how to set tunnel bind basic information:

```
Switch# configure terminal
Switch(config)# interface vxlan1
Switch(config-if-vxlan1)# tunnel-bind-static bind-port eth-0-1 nexthop-mac 0.0.1
bind-vlan 20
```

This example shows how to delete tunnel bind basic information:

```
Switch# configure terminal
Switch(config)# interface vxlan1
Switch(config-if-vxlan1)# no tunnel-bind-static
```

Related Commands

show openflow interface tunnel

15.1.21 tunnel-source-ip

Command Purpose

Use this command to set tunnel basic information: source-ip.

Use the no form of this command to unset tunnel basic information: source-ip.

Command Syntax

tunnel-source-ip *IP_ADDR*

no tunnel-source-ip

Parameter	Parameter Description	Parameter Value
IP_ADDR	Tunnel source ip address	IPv4 address

Command Mode

Interface Configuration

Default

None

Usage

This command is to set tunnel basic information: source-ip.

Examples

This example shows how to set tunnel bind source-ip:

```
Switch# configure terminal
Switch(config)# interface vxlan1
Switch(config-if-vxlan1)# tunnel-source-ip 10.10.1.1
```

This example shows how to unset tunnel bind source-ip:

```
Switch# configure terminal
Switch(config)# interface vxlan1
Switch(config-if-vxlan1)# no tunnel-source-ip
```

Related Commands

show openflow interface tunnel

15.1.22 tunnel-remote-ip

Command Purpose

Use this command to set tunnel basic information: remote-ip.

Use the no form of this command to unset tunnel basic information: remote-ip.

Command Syntax

tunnel-remote-ip *IP_ADDR*

no tunnel-remote-ip

Parameter	Parameter Description	Parameter Value
IP_ADDR	Tunnel remote ip address	IPv4 address

Command Mode

Interface Configuration

Default

None

Usage

This command is to set tunnel basic information: remote-ip.

Examples

This example shows how to set tunnel bind remote-ip:

```
Switch# configure terminal
Switch(config)# interface vxlan1
Switch(config-if-vxlan1)# tunnel-remote-ip 10.10.2.2
```

This example shows how to unset tunnel bind remote-ip:

```
Switch# configure terminal
Switch(config)# interface vxlan1
Switch(config-if-vxlan1)# no tunnel-remote-ip
```

Related Commands

show openflow interface tunnel

15.1.23 protected-vlan

Command Purpose

Use this command to set protected vlan. When configured this command, openflow enable must be configured. Use the no form of this command to unset protected vlan.

Command Syntax

protected-vlan *VLAN_ID*

no protected-vlan *VLAN_ID*

Parameter	Parameter Description	Parameter Value
VLAN_ID	VLAN id	Range is 1-4094

Command Mode

Interface Configuration

Default

None

Usage

This command is to set protected vlan.

Examples

This example shows how to set protected vlan:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# protected-vlan 10
```

This example shows how to unset protected vlan:

```
Switch# configure terminal
Switch(config)# interface eth-0-1
Switch(config-if-eth-0-1)# no protected-vlan 10
```

Related Commands

show protected-vlan info

15.1.24 no protected-vlan all

Command Purpose

Use this command to unset all protected vlan.

Command Syntax

no protected-vlan all

Command Mode

Interface Configuration

Default

None

Usage

This command is to unset all protected vlan.

Examples

This example shows how to unset all protected vlan:

```
Switch(config-if-eth-0-1)# no protected-vlan all
```

Related Commands

protected-vlan

15.1.25 openflow e2e enable

Command Purpose

Use this command to set openflow ptp e2e enable. Use the no form of this command to restore it to default value.

Command Syntax

openflow e2e enable

no openflow e2e enable

Command Mode

Global Configuration

Default

Disable

Usage

None

Examples

This example shows how to enable ptp e2e:

```
Switch# configure terminal
Switch(config)# openflow e2e enable
```

Related Commands

15.1.26 show openflow controller status

Command Purpose

Use this command to display openflow controller status.

Command Syntax

show openflow controller status

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display openflow controller status.

Examples

This example shows how to display the openflow controller:

```
Switch# show openflow controller status

Openflow controller-affect-flow: enable
Total Controllers: 1
Controller                : tcp:10.10.33.239:6697
-------------------------------------------------
status                    : online
online-time               : 1d 0h 18m 5s
role                      : other
mgmt-if                   : yes
bind_ip                   : none
max_backoff(sec)          : 8
inactivity_probe(sec)     : 5
```

Related Commands

openflow set controller

15.1.27 show openflow controller stats

Command Purpose

Use this command to display openflow controller stats.

Command Syntax

show openflow controller stats

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display openflow contriller stats.

Examples

This example shows how to display the openflow controller stats:

```
Switch# show openflow controller stats

Total Controllers: 1

controller               : tcp:10.10.33.239:6697
-------------------------------------------------
connection attempts      : 85
successful  attempts     : 22
receive flow adds        : process:3 deny:0
receive flow mods        : process:0 deny:0
receive flow deletes     : 0
packet-in                : 0
packet-out               : 0
echo-request on switch   : rx:0 tx:118090
echo-reply on switch     : rx:118071 tx:0

local
-------------------------------------------------
receive flow adds        : process:27 deny:11
receive flow mods        : process:0 deny:0
receive flow deletes     : 17
```

Related Commands

clear openflow controller stats

15.1.28 show openflow packet action

Command Purpose

Use this command to display some protocol packet action on interface,forward, redirect or copy.

Command Syntax

show openflow packet ation *IFNAME*

Parameter	Parameter Description	Parameter Value
IFNAME	Interface name	Only physical interface

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display some protocol packet action on interface.

Examples

This example shows how to display protocol packet action:

```
Switch# show openflow packet action eth-0-1

Interface eth-0-1:
 openflow packet stp      forward
 openflow packet lacp     forward
 openflow packet lldp     forward
 openflow packet erps     forward
 openflow packet dot1x    forward
 openflow packet arp      forward
```

Related Commands

None

15.1.29 show protected-vlan info

Command Purpose

Use this command to display protected-vlan configuration.

Command Syntax

show protected-vlan info

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display protected-vlan configuration.

Examples

This example shows how to display protected-vlan configuration:

```
Switch# show protected-vlan info

interface eth-0-1 :
protected_vlan 2
```

Related Commands

protected-vlan

15.1.30 show openflow interface tunnel

Command Purpose

Use this command to display interface tunnel information.

Command Syntax

show openflow interface tunnel (brief | l2gre | nvgre | vxlan)

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display interface tunnel information.

Examples

This example shows how to display interface tunnel information:

```
Switch# show interface tunnel brief

The Maximum of tunnel ports is 500, currently 1 tunnel ports is valid.

Default tunnel_type of bind_port is vxlan, if you want to use other type of
tunnel, modify tunnel mode on the bind_port.

Vxlan source port is dynamic
Vxlan dest port is default: 4789

Decap mode: ipda + ipsa + vni [default]
----------------------------------------
index 1
    type:            vxlan
    name:            vxlan1
    port:            2201
    source-ip:       1.1.1.1
    remote_ip:       2.2.2.2
    link:            UP
    dynamic:         FALSE
```

```
    bind_port:        eth-0-2
    remote_mac:       00:00:00:00:00:03
    vlan_id:          None
---------------------------------------
```

Related Commands

tunnel-bind-static bind-port

15.1.31 show openflow protocol status

Command Purpose

Use this command to display openflow protocol status information.

Command Syntax

show openflow protocol status

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display openflow protocol status information.

Examples

This example shows how to display openflow protocol status information:

```
Switch# show openflow protocol status

protocol support:
OpenFlow10 OpenFlow13
```

Related Commands

openflow set protocols

15.1.32 show openflow dot1q

Command Purpose

Use this command to display openflow dot1q configuration.

Command Syntax

show openflow dot1q

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display dot1q configuration.

Examples

This example shows how to display dot1q configuration:

```
Switch# show openflow dot1q

stpid    ctpid
--------+--------
0x8100   0x8100
```

Related Commands

openflow dot1q

15.1.33 show openflow udf status

Command Purpose

Use this command to display openflow udf global configuration.

Command Syntax

show openflow udf status

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display openflow udf global configuration.

Examples

This example shows how to display openflow udf global configuration:

```
Switch# show openflow udf status

Udf global state: Enable
```

Related Commands

openflow udf enable

15.1.34 show openflow mac-learning status

Command Purpose

Use this command to display openflow mac-learning status.

Command Syntax

show openflow mac-learning status

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display openflow mac-learning status.

Examples

This example shows how to display openflow mac-learning configuration:

```
Switch# show openflow mac-learning status

Openflow Mac Learning Status: Disable
```

Related Commands

openflow mac-learning enable

15.1.35 show openflow spanning-tree-vlan

Command Purpose

Use this command to display openflow exclude and include VLAN for spanning-tree.

Command Syntax

show openflow spanning-tree-vlan

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to display openflow spanning-tree VLANs configuration.

Examples

This example shows how to display spanning-tree configuration:

```
Switch# show openflow spanning-tree-vlan


Openflow Spanning-tree VLAN Information:
Exclude ALL VLANs    : Enabled
Include VLANs        : 10
```

Related Commands

openflow spanning-tree exclude-all-vlans

15.1.36 clear openflow controller stats

Command Purpose

Use this command to clear controller stats.

Command Syntax

clear openflow controller stats ((tcp *IP_ADDR PORT*) |)

Parameter	Parameter Description	Parameter Value
tcp	Transmission Control Protocol	-
IP_ADDR	IP address of the controller	IPv4 address
PORT	Port number of the controller	1-65535

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to clear controller stats.

Examples

This example shows how to clear controller stats:

```
Switch# clear openflow controller stats tcp 192.168.1.1 6635
```

Related Commands

show openflow controller stats

15.1.37 clear counters flows

Command Purpose

Use this command to clear flow conters.

Command Syntax

clear counters flows

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to clear all flow counters.

Examples

This example shows how to clear all flow counters:

```
Switch# clear counters flows
```

Related Commands

clear counter groups

15.1.38 clear counters groups

Command Purpose

Use this command to clear group conters.

Command Syntax

clear counters groups

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to clear all group counters.

Examples

This example shows how to clear all group counters:

```
Switch# clear counters groups
```

Related Commands

clear counter flows

15.1.39 clear counters meters

Command Purpose

Use this command to clear meters conters.

Command Syntax

clear counters meters

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to clear all meters counters.

Examples

This example shows how to clear all meters counters:

```
Switch# clear counters meters
```

Related Commands

clear counters flows

15.1.40 openflow batch

Command Purpose

Use this command to config pure openflow mode.

Command Syntax

openflow batch

Command Mode

Privileged EXEC

Default

None

Usage

This command is used to set property pure mode to all interface.

Examples

This example shows how to config pure openflow mode:

```
Switch# openflow batch
```

Related Commands

openflow batch