

Command Line Interface

USER GUIDE

Introduction

The purpose of this document is to provide software engineers with general information about the use of switch source files in switch team chip development.

While every effort has been made to ensure that this document is up-to-date and accurate, more information may have been updated after the preparation of this guide.

Revision Record

Date	Version	Description
Nov. 27, 2020	V1.0	First Edition
Mar. 2, 2023	V1.1	Add hostname

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1. AAA

aaa accounting

Syntax

```
aaa accounting { console | telnet | ssh } tacacs { [ commands <priv_lv> ] [ exec ] }
no aaa accounting { console | telnet | ssh }
```

Parameter

console	Configure console command accounting
telnet	Configure telnet command accounting
ssh	Configure SSH command accounting
<i><priv_lv></i>	Command privilege level. Commands equal and above this level are accounted

Default

Mode

Global Configuration

Usage

Use the aaa accounting command to configure the accounting methods.

Example

```
(config)# aaa accounting telnet tacacs commands 0 exec
```

aaa authentication

Syntax

```
aaa authentication login { console | telnet | ssh | http } { { local | radius | tacacs } [ { local | radius | tacacs } [ { local | radius | tacacs } ] ] }
no aaa authentication login { console | telnet | ssh | http }
```

Parameter

console	Configure Console authentication
telnet	Configure Telnet authentication

ssh	Configure SSH authentication
http	Configure HTTP authentication
local	Use local database for authentication
radius	Use RADIUS for authentication
tacacs	Use TACACS+ for authentication

Default**Mode**

Global Configuration

Usage

Use the aaa authentication login command to configure the authentication methods.

Example

```
(config)# aaa authentication login telnet local radius tacacs
```

aaa authorization**Syntax**

```
aaa authorization { console | telnet | ssh } tacacs commands <priv_lvl>
[ config-commands ]
no aaa authorization { console | telnet | ssh }
```

Parameter

console	Configure Console command authorization
telnet	Configure Telnet command authorization
ssh	Configure SSH command authorization
<i><priv_lvl></i>	Command privilege level. Commands equal and above this level are authorized

Default**Mode**

Global Configuration

Usage

Use the aaa authorization command to configure the authorization methods.

Example

```
(config)# aaa authorization telnet tacacs commands 0
```

clear dot1x statistics

Syntax

```
clear dot1x statistics { eapol | radius | all } [ interface ( <port_type>
[ <v_port_type_list> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><v_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Clear dot1x statistics.

Example

This example shows how to clear dot1x statistics:

```
# show dot1x statistics radius interface GigabitEthernet 1/1-2
```

dot1x authentication timer inactivity

Syntax

```
dot1x authentication timer inactivity <v_10_to_100000>
no dot1x authentication timer inactivity
```

Parameter

<i><v_10_to_100000></i>	Seconds
-------------------------------	---------

Default**Mode**

Global Configuration

Usage

Time in seconds between check for activity on successfully authenticated MAC addresses..

Example

```
(config)# dot1x authentication timer inactivity 13
```

dot1x authentication timer re-authenticate**Syntax**

```
dot1x authentication timer re-authenticate <v_1_to_3600>
no dot1x authentication timer re-authenticate
```

Parameter

<v_1_to_3600>	Seconds
---------------	---------

Default**Mode**

Global Configuration

Usage

The period between re-authentication attempts in seconds.

Example

```
(config)# dot1x authentication re-authenticate 5
```

dot1x feature**Syntax**

```
dot1x feature { [ guest-vlan ] [ radius-qos ] [ radius-vlan ] }
no dot1x feature
```

Parameter

guest-vlan	Globally enables/disables state of guest-VLAN.
radius-qos	Globally enables/disables state of RADIUS-assigned QoS.
radius-vlan	Globally enables/disables state of RADIUS-assigned VLAN.

Default**Mode**

Global Configuration

Usage

Globally enables/disables a dot1x feature functionality.

Example

```
(config)# dot1x feature guest-vlan
```

dot1x guest-vlan(Global)**Syntax**

```
dot1x guest-vlan <value>
no dot1x guest-vlan
```

Parameter

<i><value></i>	Guest VLAN ID used when entering the Guest VLAN.
----------------------	--

Default**Mode**

Global Configuration

Usage

Configure guest VLAN.

Example

```
(config)# dot1x guest-vlan 5
```

dot1x guest-vlan(Interface)

Syntax

```
dot1x guest-vlan  
no dot1x guest-vlan
```

Parameter

Default

Mode

Interface Configuration

Usage

Enables/disables guest VLAN.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# dot1x guest-vlan
```

dot1x guest-vlan supplicant

Syntax

```
dot1x guest-vlan supplicant  
no dot1x guest-vlan supplicant
```

Parameter

Default

Default supplicant is disabled.

Mode

Global Configuration

Usage

The switch remembers if an EAPoL frame has been received on the port for the life-time of the port. Once the switch considers whether to enter the Guest VLAN, it will first check if this option is enabled or disabled. If disabled (unchecked, default), the switch will only enter the Guest VLAN if an EAPoL frame has not been received on the port for the life-time of the port.

If enabled (checked), the switch will consider entering the Guest VLAN even if an EAPoL frame has been received on the port for the life-time of the port..

Example

```
(config)# dot1x guest-vlan supplicant
```

dot1x initialize

Syntax

```
dot1x initialize [ interface ( <port_type> [ <plist> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><plist></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Force re-authentication immediately.

Example

```
# dot1x initialize
```

dot1x max-reauth-req

Syntax

```
dot1x max-reauth-req <value>
no dot1x max-reauth-req
```

Parameter

<i><value></i>	Number of times
----------------------	-----------------

Default**Mode**

Global Configuration

Usage

The number of times a Request Identity EAPoL frame is sent without response before considering entering the Guest VLAN.

Example

```
(config)# dot1x max-reauth-req 22
```

dot1x port-control**Syntax**

```
dot1x port-control { force-authorized | force-unauthorized | auto | single | multi |
mac-based }
no dot1x port-control
```

Parameter

force-authorized	Port access is allowed
force-unauthorized	Port access is not allowed
auto	Port-based 802.1X Authentication
single	Single Host 802.1X Authentication
multi	Multiple Host 802.1X Authentication
mac-based	Switch authenticates on behalf of the client

Default**Mode**

Interface Configuration

Usage

Sets the port security state.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# dot1x port-control force-authorized
```

dot1x radius-qos

Syntax

```
dot1x radius-qos  
no dot1x radius-qos
```

Parameter

Default

Mode

Interface Configuration

Usage

Enables/disables per-port state of RADIUS-assigned QoS.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# dot1x radius-qos
```

dot1x radius-vlan

Syntax

```
dot1x radius-vlan  
no dot1x radius-vlan
```

Parameter

Default

Mode

Interface Configuration

Usage

Enables/disables per-port state of RADIUS-assigned VLAN.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# dot1x radius-vlan
```

dot1x re-authenticate

Syntax

```
dot1x re-authenticate  
no dot1x re-authenticate
```

Parameter

Default

Mode

Interface Configuration

Usage

Refresh (restart) 802.1X authentication process.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# dot1x re-authenticate
```

dot1x re-authentication

Syntax

```
dot1x re-authentication
```

Parameter

Default

Mode

Global Configuration

Usage

Set Re-authentication state.

Example

```
(config)# dot1x re-authentication
```

dot1x system-auth-control**Syntax**

```
dot1x system-auth-control
no dot1x system-auth-control
```

Parameter**Default****Mode**

Global Configuration

Usage

Set the global NAS state.

Example

```
(config)# dot1x system-auth-control
```

dot1x timeout quiet-period**Syntax**

```
dot1x timeout quiet-period <v_10_to_1000000>
no dot1x timeout quiet-period
```

Parameter

<v_10_to_1000000>	Seconds
-------------------	---------

Default

Default quiet-period is 10.

Mode

Global Configuration

Usage

Time in seconds before a MAC-address that failed authentication gets a new authentication chance.

Example

```
(config)# dot1x timeout quiet-period 11
```

dot1x timeout tx-period

Syntax

```
dot1x timeout tx-period <v_1_to_65535>
no dot1x timeout tx-period
```

Parameter

<v_1_to_65535>	Seconds
----------------	---------

Default

Mode

Global Configuration

Usage

The time between EAPoL retransmissions.

Example

```
(config)# dot1x timeout tx-period 4
```

radius-server attribute 32

Syntax

```
radius-server attribute 32 <id>
no radius-server attribute 32
```

Parameter

<id>	NAS-Identifier
------	----------------

Default**Mode**

Global Configuration

Usage

NAS Identifier attributes configuration.

Example

```
(config)# radius-server attribute 32 abc
```

radius-server attribute 4**Syntax**

```
radius-server attribute 4 <ipv4>
no radius-server attribute 4
```

Parameter

<ipv4>	NAS-IP-Address
--------	----------------

Default**Mode**

Global Configuration

Usage

NAS IP address attributes configuration.

Example

```
(config)# radius-server attribute 4 192.168.1.254
```

radius-server attribute 95**Syntax**

```
radius-server attribute 95 <ipv6>
no radius-server attribute 95
```

Parameter

<ipv6>	NAS-IPv6-Address
--------	------------------

Default**Mode**

Global Configuration

Usage

NAS IPv6 address attributes configuration.

Example

```
(config)# radius-server attribute 95 2001:1000::1
```

radius-server deadtime**Syntax**

```
radius-server deadtime <minutes>
no radius-server deadtime
```

Parameter

<minutes>	Time in minutes
-----------	-----------------

Default**Mode**

Global Configuration

Usage

Use the radius-server deadtime command to configure the global RADIUS deadtime value.

Example

```
(config)# radius-server deadtime 10
```

radius-server host

Syntax

```
radius-server host <host_name> [ auth-port <auth_port> ] [ acct-port <acct_port> ]
[ timeout <seconds> ] [ retransmit <retries> ] [ key <key> ]
no radius-server host <host_name> [ auth-port <auth_port> ] [ acct-port <acct_port> ]
```

Parameter

<host_name>	Hostname or IP address
<auth_port>	UDP port number or 0 to disable authentication
<acct_port>	UDP port number or 0 to disable accounting
<seconds>	Wait time in seconds
<retries>	Number of retries for a transaction
<key>	The shared key

Default

Mode

Global Configuration

Usage

Use the radius-server host command to add a new RADIUS host.

Example

```
(config)# radius-server host abc
```

radius-server key

Syntax

```
radius-server key <key>
no radius-server key
```

Parameter

<key>	The shared key
-------	----------------

Default**Mode**

Global Configuration

Usage

Use the radius-server key command to configure the global RADIUS key.

Example

```
(config)# radius-server key hr_abc
```

radius-server retransmit**Syntax**

```
radius-server retransmit <retries>
no radius-server retransmit
```

Parameter

<retries>	Number of retries for a transaction
-----------	-------------------------------------

Default**Mode**

Global Configuration

Usage

Use the radius-server retransmit command to configure the global RADIUS retransmit value.

Example

```
(config)# radius-server retransmit 10
```

radius-server timeout**Syntax**

```
radius-server timeout <seconds>
no radius-server timeout
```

Parameter

<seconds>	Wait time in seconds
-----------	----------------------

Default**Mode**

Global Configuration

Usage

Use the radius-server timeout command to configure the global RADIUS timeout value.

Example

```
(config)# radius-server timeout 10
```

show aaa**Syntax**

```
show aaa
```

Parameter**Default****Mode**

Privileged EXEC

Usage

Use the show aaa command to view the currently active authentication login methods.

Example

```
# show aaa
Authentication :
  console : local
  telnet  : local
  ssh     : local
  http    : local
Authorization :
  console : no, commands disabled
  telnet  : no, commands disabled
```

```

ssh      : no, commands disabled
Accounting :
console : no, commands disabled, exec disabled
telnet   : no, commands disabled, exec disabled
ssh      : no, commands disabled, exec disabled
    
```

show dot1x statistics

Syntax

```

show dot1x statistics { eapol | radius | all } [ interface ( <port_type>
[ <v_port_type_list> ] ) ]
    
```

Parameter

<port_type>	interface
<v_port_type_list>	Port list in 1/1-4

Default

Mode

Privileged EXEC

Usage

Show dot1x statistics.

Example

```

# show dot1x statistics radius
      Rx Access  Rx Other  Rx Auth.  Rx Auth.  Tx      MAC
Interface  Challenges Requests  Successes Failures  Responses Address
-----
-----
Gi 1/1          0          0          0          0          0      0 -
Gi 1/2          0          0          0          0          0      0 -
Gi 1/3          0          0          0          0          0      0 -
Gi 1/4          0          0          0          0          0      0 -
2.5G 1/1       0          0          0          0          0      0 -
2.5G 1/2       0          0          0          0          0      0 -
    
```


show dot1x status

Syntax

```
show dot1x status [ interface ( <port_type> [ <v_port_type_list> ] ) ] [ brief ]
```

Parameter

<i><port_type></i>	interface
<i><v_port_type_list></i>	Port list in 1/1-4

Default

Mode

Privileged EXEC

Usage

Show dot1x status.

Example

```
# show dot1x status
Interface  Admin Port State      Last Src      Last ID      QOS VLAN Guest
-----
Gi 1/1     Auth  Disabled    -            -            -   -   -
Gi 1/2     Auth  Disabled    -            -            -   -   -
Gi 1/3     Auth  Disabled    -            -            -   -   -
Gi 1/4     Auth  Disabled    -            -            -   -   -
2.5G 1/1   Auth  Disabled    -            -            -   -   -
2.5G 1/2   Auth  Disabled    -            -            -   -   -
```

show radius-server statistics

Syntax

```
show radius-server [ statistics ]
```

Parameter

Default

Mode

Privileged EXEC

Usage

Use the show radius-server command to view the current RADIUS configuration and statistics.

Example

```
# show radius-server statistics
Global RADIUS Server Timeout      : 5 seconds
Global RADIUS Server Retransmit   : 3 times
Global RADIUS Server Deadtime     : 0 minutes
Global RADIUS Server Key         :
Global RADIUS Server Attribute 4  :
Global RADIUS Server Attribute 95 :
Global RADIUS Server Attribute 32 :
No servers configured!
```

show tacacs-server

Syntax

```
show tacacs-server
```

Parameter

Default

Mode

Privileged EXEC

Usage

Use the show tacacs-server command to view the current TACACS+ configuration.

Example

```
# show tacacs-server
Global TACACS+ Server Timeout      : 5 seconds
Global TACACS+ Server Deadtime     : 0 minutes
Global TACACS+ Server Key         :
No servers configured!
```

tacacs-server deadtime

Syntax

```
tacacs-server deadtime <minutes>
no tacacs-server deadtime
```

Parameter

<minutes>	Time in minutes
-----------	-----------------

Default

Mode

Global Configuration

Usage

Use the tacacs-server deadtime command to configure the global TACACS+ deadtime value.

Example

```
(config)# tacacs-server deadtime 100
```

tacacs-server host

Syntax

```
tacacs-server host <host_name> [ port <port> ] [ timeout <seconds> ] [ key <key> ]
no tacacs-server host <host_name> [ port <port> ]
```

Parameter

<host_name>	Hostname or IP address
<port>	TCP port number
<seconds>	Wait time in seconds
<key>	The shared key

Default

Mode

Global Configuration

Usage

Use the `tacacs-server host` command to add a new TACACS+ host.

Example

```
(config)# tacacs-server host abc
```

tacacs-server key

Syntax

```
tacacs-server key <key>
no tacacs-server key
```

Parameter

<code><key></code>	The shared key
--------------------------	----------------

Default

Mode

Global Configuration

Usage

Use the `tacacs-server key` command to configure the global TACACS+ key.

Example

```
(config)# tacacs-server key abc
```

tacacs-server timeout

Syntax

```
tacacs-server timeout <seconds>
no tacacs-server timeout
```

Parameter

<code><seconds></code>	Wait time in seconds
------------------------------	----------------------

Default**Mode**

Global Configuration

Usage

Use the `tacacs-server timeout` command to configure the global TACACS+ timeout value.

Example

```
(config)# tacacs-server timeout 100
```

2. DHCP

clear ip dhcp detailed statistics

Syntax

```
clear ip dhcp detailed statistics { server | client | snooping | relay | helper | all } [ interface
( <port_type> [ <in_port_list> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><in_port_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default**Mode**

Privileged EXEC

Usage

Use the `clear ip dhcp detailed statistics` privileged EXEC command to clear the statistics, or particularly the IP DHCP statistics for the interface. Notice that except for clear statistics on all interfaces, clear the statistics on specific port may not take effect on global statistics since it gathers the different layer overview.

Example

This example shows how to clear all ip dhcp statistics

```
# clear ip dhcp detailed statistics all
```

clear ip dhcp snooping statistics

Syntax

```
clear ip dhcp snooping statistics [ interface ( <port_type> [ <in_port_list> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><in_port_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Use the clear ip dhcp snooping statistics privileged EXEC command to clear the statistics maintained by IP DHCP snooping, or particularly the IP DHCP snooping statistics for the interface.

Example

This example shows how to clear all ip dhcp snooping statistics

```
# clear ip dhcp snooping statistics
```

ip dhcp pool

Syntax

```
ip dhcp pool <pool_name>
```

Parameter

<i><pool_name></i>	Pool name in 32 characters
--------------------------	----------------------------

Default

Mode

Global Configuration

Usage

Configure DHCP address pools.

Example

```
(config)# ip dhcp pool abc
(config-dhcp-pool)#
```

ip dhcp retry

Syntax

```
ip dhcp retry interface vlan <vlan_id>
```

Parameter

<vlan_id>	VLAN ID
-----------	---------

Default

Mode

Privileged EXEC

Usage

Restart the dhcp client.

Example

```
# ip dhcp pool retry interface vlan 1
```

ip dhcp snooping

Syntax

```
ip dhcp snooping
no ip dhcp snooping
```

Parameter

Default

DHCP snooping is disabled.

Mode

Global Configuration

Usage

Use the `ip dhcp snooping global configuration` command to globally enable DHCP snooping. Use the `no` form of this command to globally disable DHCP snooping.

Example

This example shows how to enable DHCP snooping
(config)# **ip dhcp snooping**

ip dhcp snooping trust

Syntax

```
ip dhcp snooping trust
no ip dhcp snooping trust
```

Parameter

Default

DHCP snooping trust is enabled.

Mode

Interface Configuration

Usage

Use the `ip dhcp snooping trust interface configuration` command to configure a port as trusted for DHCP snooping purposes. Use the `no` form of this command to configure a port as untrusted.

Example

This example shows how to enable DHCP snooping trust on a port
(config)# **interface GigabitEthernet 1/1**
(config-if)# **ip dhcp snooping trust**

ip dns proxy

Syntax

```
ip dns proxy
no ip dns proxy
```

Parameter

Default

DNS proxy is disabled by default.

Mode

Global Configuration

Usage

Use the ip dns proxy command to configure DNS proxy.

Example

```
(config)# ip dns proxy
```

ip domain name

Syntax

```
ip domain name { <v_domain_name> | dhcp [ ipv4 | ipv6 ] [ interface vlan
<v_vlan_id_dhcp> ] }
no ip domain name
```

Parameter

<i><v_domain_name></i>	Default domain name
dhcp	Dynamic Host Configuration Protocol
<i><v_vlan_id_dhcp></i>	VLAN identifier (VID)

Default

Mode

Global Configuration

Usage

ip domain name.

Example

```
(config)# ip domain name abc
```

ip name-server

Syntax

```
ip name-server [ <order> ] { <v_ipv4_ucast> | { <v_ipv6_ucast> [ interface vlan
<v_vlan_id_static> ] } | dhcp [ ipv4 | ipv6 ] [ interface vlan <v_vlan_id_dhcp> ] }
no ip name-server [ <order> ]
```

Parameter

<i><order></i>	Preference of DNS server. Default selection is 0
<i><v_ipv4_ucast></i>	A valid IPv4 unicast address
<i><v_ipv6_ucast></i>	A valid IPv6 unicast address
<i><v_vlan_id_static></i>	VLAN identifier (VID)
ipv4	DNS setting is derived from DHCPv4. Default selection.
ipv6	DNS setting is derived from DHCPv6
<i><v_vlan_id_dhcp></i>	VLAN identifier (VID)

Default

Mode

Global Configuration

Usage

Set the DNS server for resolving domain names.

Example

```
(config)# ip name-server 0 192.168.10.1
```

ipv6 address

Syntax

```
ipv6 address <subnet>
```

```
no ipv6 address [ <subnet> ]
```

Parameter

<subnet>	IPv6 prefix x:x:y/z
----------	---------------------

Default

Mode

VLAN Interface Configuration

Usage

Configure the IPv6 address of an interface.

Example

```
(config)# interface vlan 100
(config)# ipv6 address 2001:1000::1/64
```

show ip dhcp detailed statistics

Syntax

```
show ip dhcp detailed statistics { server | client | snooping | relay | normal-forward |
combined } [ interface ( <port_type> [ <in_port_list> ] ) ]
```

Parameter

<port_type>	Port type in Fast, Giga or Tengiga ethernet
<in_port_list>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Use the show ip dhcp detailed statistics user EXEC command to display statistics. Notice that the normal forward per-port TX statistics isn't increased if the incoming DHCP packet is done by L3 forwarding mechanism. Notice that the normal forward per-port TX statistics isn't increased if the incoming DHCP packet is done by L3 forwarding mechanism.

Example

```
# show ip dhcp detailed statistics client
```

```
GigabitEthernet 1/1 Statistics:
```

```
-----
Rx Discover:           0   Tx Discover:           0
Rx Offer:             0   Tx Offer:             0
Rx Request:          0   Tx Request:          0
Rx Decline:          0   Tx Decline:          0
Rx ACK:              0   Tx ACK:              0
Rx NAK:              0   Tx NAK:              0
Rx Release:          0   Tx Release:          0
Rx Inform:           0   Tx Inform:           0
Rx Lease Query:      0   Tx Lease Query:      0
Rx Lease Unassigned: 0   Tx Lease Unassigned: 0
Rx Lease Unknown:    0   Tx Lease Unknown:    0
Rx Lease Active:     0   Tx Lease Active:     0
Rx Discarded checksum error: 0
```

show ip dhcp snooping interface

Syntax

```
show ip dhcp snooping [ interface ( <port_type> [ <in_port_list> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><in_port_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Use the show ip dhcp snooping user EXEC command to display the DHCP snooping configuration.

Example

```
# show ip dhcp snooping
```

```
Switch DHCP snooping is enabled
```

```
DHCP snooping is configured on following
```

GigaEthernet 1/1 trust
GigaEthernet 1/2 trust
GigaEthernet 1/3 untrust

show ip dhcp snooping table

Syntax

```
show ip dhcp snooping table
```

Parameter

Default

Mode

Privileged EXEC

Usage

Use the show ip dhcp snooping table user EXEC command to display the IP assigned information that is obtained from DHCP server except for local VLAN interface IP addresses.

Example

```
# show ip dhcp snooping table
DHCP Snooping IP Assigned Information :
-----
Entry 1 :
-----
MAC Address : 00-10-60-2b-66-63
VLAN ID : 1
Source Port : GigabitEthernet 1/2
IP Address : 192.168.2.1
IP Subnet Mask : 255.255.255.0
DHCP Server Address : 192.168.2.250
```

show ip interface brief

Syntax

```
show ip interface brief
```

Parameter**Default****Mode**

Privileged EXEC

Usage

Brief IP interface status.

Example

```
# show ip interface brief
Interface          Address                Method   Status
-----
VLAN 1             192.168.0.2/24        Manual   UP
```

show ip name-server**Syntax**

```
show ip name-server
```

Parameter**Default****Mode**

Privileged EXEC

Usage

Display the active domain name server information.

Example

```
# show ip name-server
Current DNS server is not set.
Configured DNS server 0 is set by NONE:
No address is used for DNS lookup.
Configured DNS server 1 is set by NONE:
No address is used for DNS lookup.
Configured DNS server 2 is set by NONE:
No address is used for DNS lookup.
```

Configured DNS server 3 is set by NONE:
No address is used for DNS lookup.

show ipv6 interface vlan

Syntax

```
show ipv6 interface [ vlan <v_vlan_list> { brief | statistics } ]
```

Parameter

<v_vlan_list>	IPv6 interface VLAN list
---------------	--------------------------

Default

Mode

Privileged EXEC

Usage

Brief IPv6 interface status.

Example

show ipv6 interface

IPv6 Vlan1 interface is up.

Internet address is fe80::1e2a:a3ff:fe01:23c6

Static address is not set

IP stack index (IFID) is 2

Routing is enabled on this interface

MTU is 1500 bytes

IPv6 Statistics on Interface VLAN: 1

Rcvd: 438 total in 26152 bytes

438 local destination, 0 forwarding

0 header error, 0 address error, 0 unknown protocol

0 no route, 0 truncated, 0 discarded

Sent: 10 total in 696 bytes

10 generated, 0 forwarded

0 discarded

Frag: 0 reassemble (0 reassembled, 0 couldn't reassemble)

0 fragment (0 fragmented, 0 couldn't fragment)

0 fragment created

Mcast: 438 received in 26152 bytes

10 sent in 696 bytes

Bcast: 0 received, 0 sent

3. ERPS

clear erps

Syntax

```
clear erps [ <groups> ] statistics
```

Parameter

<groups>	The ERPS group number
----------	-----------------------

Default

Mode

Privileged EXEC

Usage

Clear statistics for ERPS groups.

Example

This example shows how to clear statistics for ERPS
 # **clear erps 1 statistics**

clear evc

Syntax

```
clear evc statistics { [ <evc_id> | all ] } [ ece [ <ece_id> ] ] [ interface ( <port_type> [ <port_list> ] ) ] [ pw <pw_num_list> ]
```

Parameter

<evc_id>	EVC identifier
<ece_id>	ECE identifier
<port_type>	Port type in Fast, Giga or Tengiga ethernet
<port_list>	List of Port ID, ex, 1/1,3-5;2/2-4,6
<pw_num_list>	List of MPLS-TP Pseudo-Wire numbers

Default**Mode**

Privileged EXEC

Usage**Example**

```
# clear evc statistics interface GigabitEthernet 1/1
```

clear mep**Syntax**

```
clear mep <inst> { lm | dm | tst | bfd }
```

Parameter

<inst>	The MEP instance.
--------	-------------------

Default**Mode**

Privileged EXEC

Usage

Clear measuring or statistics information. What measuring / statistics information to be cleared can be selected to be one of the supported 'functionality configuration'.

Example

```
# clear mep 1 lm
```

erps**Syntax**

```
erps <group> command { force | manual | clear } { port0 | port1 }
no erps <group> command [ port0 ] [ port1 ]
```

Parameter

<i><group></i>	ERPS group number
force	Force command
manual	Manual command
clear	Clear command
port0	ERPS Port 0 interface
port1	ERPS Port 1 interface

Default**Mode**

Privileged EXEC

Usage

Set/clear ERPS administrative command..

Example

```
# erps 1 command clear port0
```

erps guard**Syntax**

```
erps <group> guard <guard_time_ms>
no erps <group> guard
```

Parameter

<i><group></i>	ERPS group number
<i><guard_time_ms></i>	Guard time in ms

Default**Mode**

Global Configuration

Usage

Configure ERPS guard time.

Example

```
(config)# erps 1 guard 500
```

erps holdoff

Syntax

```
erps <group> holdoff <holdoff_time_ms>  
no erps <group> holdoff
```

Parameter

<i><group></i>	ERPS group number
<i><holdoff_time_ms></i>	Hold-off time in ms

Default

Mode

Global Configuration

Usage

Configure ERPS hold off time.

Example

```
(config)# erps 1 holdoff 100
```

erps major

Syntax

```
erps <group> major port0 interface <port_type> <port0> port1 interface <port_type>  
<port1> [ interconnect ]
```

Parameter

<i><group></i>	ERPS group number
major	Major ring
port0	ERPS Port 0 interface
port1	ERPS Port 1 interface
<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet

<i><port0></i>	Port ID in the format of switch-no/port-no
interconnect	Major ring is interconnected

Default**Mode**

Global Configuration

Usage

Configure ERPS group.

Example

```
(config)# erps 1 major port0 interface GigabitEthernet 1/1 port1 interface
GigabitEthernet 1/2
```

erps mep**Syntax**

```
erps <group> mep port0 sf <p0_sf> aps <p0_aps> port1 sf <p1_sf> aps <p1_aps>
no erps <group> mep
```

Parameter

<i><group></i>	ERPS group number
mep	MEP
port0	ERPS Port 0 interface
port1	ERPS Port 1 interface
<i><p0_sf></i>	Index of Port 0 SignalFail MEP
<i><p0_aps></i>	Index of Port 0 APS MEP
<i><p1_sf></i>	Index of Port 1 SignalFail MEP
<i><p1_aps></i>	Index of Port 1 APS MEP

Default**Mode**

Global Configuration

Usage

Configure MEPs for ERPS group.

Example

```
(config)# erps 1 mep port0 sf 2 aps 2 port1 sf 3 aps 3
```

erps revertive

Syntax

```
erps <group> revertive <wtr_time_minutes>
no erps <group> revertive
```

Parameter

<group>	ERPS group number
<wtr_time_minutes>	MEP
<p1_aps>	Wait-to-restore time in minutes

Default

Mode

Global Configuration

Usage

Enable ERPS revertive and set timeout.

Example

```
(config)# erps 1 revertive 1
```

erps rpl

Syntax

```
erps <group> rpl { owner | neighbor } { port0 | port1 }
no erps <group> rpl
```

Parameter

<group>	ERPS group number
owner	Owner role
neighbor	Neighbor role
port0	ERPS Port 0 interface

port1	ERPS Port 1 interface
--------------	-----------------------

Default

Mode

Global Configuration

Usage

Configure ERPS Ring Protection Link.

Example

(config)# **erps 1 rpl owner port0**

erps sub

Syntax

erps <group> **sub port0 interface** <port_type> <port0> { { **port1 interface** <port_type> <port1> } } { **interconnect** <major_ring_id> } } [**virtual-channel**]

Parameter

<group>	ERPS group number
sub	Sub-ring
<port_type>	Port type in Fast, Giga or Tengiga ethernet
<port0>	Port ID in the format of switch-no/port-no
interconnect	Sub-ring is interconnected
<major_ring_id>	Major ring group number
virtual-channel	Enable virtual channel for sub-ring

Default

Mode

Global Configuration

Usage

Configure ERPS sub ring group.

Example

```
(config)# erps 1 1 sub port0 interface GigabitEthernet 1/2 port1 interface
GigabitEthernet 1/3
```

erps topology

Syntax

```
erps <group> topology-change propagate
no erps <group> topology-change propagate
```

Parameter

<group>	ERPS group number
---------	-------------------

Default

Mode

Global Configuration

Usage

Configure ERPS topology change propagation.

Example

```
(config)# erps 1 topology-change propagate
```

erps version

Syntax

```
erps <group> version { 1 | 2 }
no erps <group> version
```

Parameter

<group>	ERPS group number
---------	-------------------

Default**Mode**

Global Configuration

Usage

Set ERPS version.

Example

```
(config)# erps 1 version 2
```

erps vlan**Syntax**

```
erps <group> vlan { none | [ add | remove ] <vlans> }
no erps <group> vlan
```

Parameter

<i><group></i>	ERPS group number
<i><vlans></i>	List of VLANs

Default**Mode**

Global Configuration

Usage

Configure set of protected VLANs in ERPS group.

Example

```
(config)# erps 1 vlan 1
```


mep

Syntax

```

mep <inst> [ mip ] { up | down } domain { port | evc | vlan | tp-link | tunnel-tp | pw | lsp }
[ vid <vid> ] [ flow <flow> ] level <level> [ interface <port_type> <port> ]
no mep <inst>

```

Parameter

<inst>	The MEP instance number
mip	This MEP instance is a half-MIP
up	This MEP is an Up-MEP
down	This MEP is a Down-MEP
domain	The domain of the MEP
<vid>	The port Domain MEP or EVC domain customer MIB VID
<flow>	The VLAN, EVC, MPLS-TP link, MPLS-TP tunnel, MPLS-TP LSP or MPLS-TP Pseudo-Wire flow instance number
<level>	The MEG level value
<port_type>	Port type in Fast, Giga or Tengiga ethernet
<port>	Port ID in the format of switch-no/port-no

Default

Mode

Global Configuration

Usage

Create a MEP instance.

Example

```
(config)# mep 1 down domain port level 0 interface GigabitEthernet 1/2
```

mep ais

Syntax

```

mep <inst> ais [ fr1s | fr1m ] [ protect ]
no mep <inst> ais

```

Parameter

<i><inst></i>	The MEP instance number
fr1s	Frame rate is 1 f/s
fr1m	Frame rate is 1 f/min
protect	The AIS can be used for protection. At the point of state change three AIS PDU is transmitted as fast as possible

Default**Mode**

Global Configuration

Usage

Configure Alarm Indication Signal.

Example

```
(config)# mep 1 ais fr1s
```

mep aps**Syntax**

```
mep <inst> aps <prio> [ multi | uni ] { laps | { raps [ octet <octet> ] } }
no mep <inst> aps
```

Parameter

<i><inst></i>	The MEP instance number
<i><prio></i>	Priority in case of tagged OAM. In the MPLS and EVC domain this is the COS-ID
multi	OAM PDU is transmitted with multicast MAC. Must be 'multi' in case of RAPS
uni	OAM PDU is transmitted with unicast MAC. The MAC is taken from peer MEP MAC database. Only possible in case of LAPS
laps	Linear Automatic Protection Switching protocol
raps	Ring Automatic Protection Switching protocol
<i><octet></i>	Last OCTET value

Default**Mode**

Global Configuration

Usage

Configuration of Automatic Protection Switching protocol.

Example

```
(config)# mep 1 aps 0 raps
```

mep cc**Syntax**

```
mep <inst> cc <prio> [ fr300s | fr100s | fr10s | fr1s | fr6m | fr1m | fr6h ]
no mep <inst> cc
```

Parameter

<i><inst></i>	The MEP instance number
<i><prio></i>	Priority in case of tagged OAM. In the MPLS and EVC domain this is the COS-ID
fr300s	Frame rate is 300 f/s
fr100s	Frame rate is 100 f/s
fr10s	Frame rate is 10 f/s
fr1s	Frame rate is 1 f/s
fr6m	Frame rate is 6 f/min
fr1m	Frame rate is 1 f/min
fr6h	Frame rate is 6 f/hour

Default**Mode**

Global Configuration

Usage

Configuration of Continuity Check.

Example

```
(config)# mep 1 cc 0 fr300s
```

mep ccm-tlv

Syntax

```
mep <inst> ccm-tlv
no mep <inst> ccm-tlv
```

Parameter

<inst>	The MEP instance number
--------	-------------------------

Default

Mode

Global Configuration

Usage

Enable CCM TLV insertion.

Example

```
(config)# mep 1 ccm-tlv
```

mep client

Syntax

```
mep <inst> client domain { evc | vlan | lsp } flow <cflow> [ level <level> ] [ ais-prio
[ <aisprio> | ais-highest ] ] [ lck-prio [ <lckprio> | lck-highest ] ]
no mep <inst> client domain { evc | vlan | lsp } flow { <cflow> | all }
```

Parameter

<inst>	The MEP instance number
evc	EVC client flow
vlan	VLAN client flow
lsp	MPLS-TP LSP client flow
<cflow>	Client flow instance number value
<level>	The MEG level value
<aisprio>	AIS injection priority value
ais-highest	Request the highest possible AIS priority

<lckprio>	LCK injection priority value
lck-highest	Request the highest possible LCK priority

Default

Mode

Global Configuration

Usage

Configuration of client flow instance.

Example

(config)# **mep 1 client domain vlan flow 1**

mep dm

Syntax

mep <inst> **dm** <prio> [**multi** | { **uni mep-id** <mepid> }] [**single** | **dual**] [**rdtrp** | **flow**]
interval <interval> **last-n** <lastn>
no mep <inst> **dm**

Parameter

<inst>	The MEP instance number
dm	Delay Measurement
multi	OAM PDU is transmitted with multicast MAC
<mepid>	Peer MEP ID value
single	Delay Measurement based on DMM/DMR PDU
dual	Delay Measurement based on 1DM PDU transmission
rdtrp	The two way delay is calculated as round trip delay. The far end residence time is not subtracted
flow	The two way delay is calculated as round trip symmetrical flow delay. The far end residence time is subtracted
<interval>	Interval value
<lastn>	The last N value

Default

Mode

Global Configuration

Usage

Configuration of Delay Measurement.

Example

```
(config)# mep 1 dm 0 flow uni mep-id 1 single interval 10 last-n 10
```

mep dm bin fd

Syntax

```
mep <inst> dm bin fd <num_fd_var>
no mep <inst> dm bin fd <num_fd_var>
```

Parameter

<i><inst></i>	The MEP instance number
<i><num_fd_var></i>	The number of FD Measurement Bins

Default

Mode

Global Configuration

Usage

Configuration the number of FD Measurement Bins.

Example

```
(config)# mep 1 dm bin fd 2
```

mep dm bin ifdv

Syntax

```
mep <inst> dm bin ifdv <num_ifdv_var>
no mep <inst> dm bin ifdv <num_ifdv_var>
```

Parameter

<i><inst></i>	The MEP instance number
<i><num_ifdv_var></i>	The number of IFDV Measurement Bins

Default**Mode**

Global Configuration

Usage

Configuration the number of IFDV Measurement Bins.

Example

```
(config)# mep 1 dm bin ifdv 2
```

mep dm bin threshold**Syntax**

```
mep <inst> dm bin threshold <threshold_var>
no mep <inst> dm bin threshold <threshold_var>
```

Parameter

<i><inst></i>	The MEP instance number
<i><threshold_var></i>	the threshold for each Delay Measurement Binning

Default**Mode**

Global Configuration

Usage

Configuration the measurement threshold for each Delay Measurement Bin.

Example

```
(config)# mep 1 dm bin threshold 200
```

mep dm ns**Syntax**

```
mep <inst> dm ns
```

```
no mep <inst> dm ns
```

Parameter

<inst>	The MEP instance number
--------	-------------------------

Default

Mode

Global Configuration

Usage

Configuration of Delay Measurement results represented in Nano Seconds.

Example

```
(config)# mep 1 dm ns
```

mep dm overflow-reset

Syntax

```
mep <inst> dm overflow-reset
no mep <inst> dm overflow-reset
```

Parameter

<inst>	The MEP instance number
--------	-------------------------

Default

Mode

Global Configuration

Usage

Configuration of reset of all Delay Measurement results on total delay counter overflow.

Example

```
(config)# mep 1 dm overflow-reset
```


mep dm proprietary

Syntax

```
mep <inst> dm proprietary
no mep <inst> dm proprietary
```

Parameter

<inst>	The MEP instance number
--------	-------------------------

Default

Mode

Global Configuration

Usage

Configuration of proprietary Delay Measurement. In order to achieve higher accuracy an proprietary OAM PDU type is used to sen follow-up timestamps.

Example

```
(config)# mep 1 dm proprietary
```

mep dm synchronized

Syntax

```
mep <inst> dm synchronized
no mep <inst> dm synchronized
```

Parameter

<inst>	The MEP instance number
--------	-------------------------

Default

Mode

Global Configuration

Usage

Configuration of synchronized Delay Measurement results. Near end and far end is real-time synchronized and therefore one way delay measurement result can be calculated based on DMM/DMR PDU timestamps.

Example

```
(config)# mep 1 dm synchronized
```

mep lb

Syntax

```
mep <inst> lb <prio> [ dei ] [ multi | { uni { { mep-id <mepid> } | { mac <mac> } } } ] | mpls
ttl <mpls_ttl> ] count <count> size <size> interval <interval>
no mep <inst> lb
```

Parameter

<i><inst></i>	The MEP instance number
<i><prio></i>	Priority in case of tagged OAM. In the MPLS and EVC domain this is the COS-ID
dei	Drop Eligible Indicator in case of tagged OAM
multi	OAM PDU is transmitted with multicast MAC. Not used for MPLS-TP
uni	OAM PDU is transmitted with unicast MAC. The MAC is taken from peer MEP MAC database. Not used for MPLS-TP
<i><mepid></i>	Peer MEP ID value. Not used for MPLS-TP
<i><mac></i>	Loop Back target unicast MAC value
<i><mpls_ttl></i>	Time-To-Live value used for an MPLS-TP OAM LBM PDU
<i><count></i>	Number of LBM PDUs to send value
<i><size></i>	The number of bytes in the LBM frame
<i><interval></i>	The interval between transmitting LBM PDU

Default

Mode

Global Configuration

Usage

Configuration of Loop Back.

Example

```
(config)# mep 1 lb 0 dei count 10 size 64 interval 100
```

mep lck**Syntax**

```
mep <inst> lck [ fr1s | fr1m ]
no mep <inst> lck
```

Parameter

<inst>	The MEP instance number
fr1s	Frame rate is 1 f/s
fr1m	Frame rate is 1 f/min

Default**Mode**

Global Configuration

Usage

Configure Locked Signal.

Example

```
(config)# mep 1 lck fr1s
```

mep level**Syntax**

```
mep <inst> level <level>
```

Parameter

<inst>	The MEP instance number
<level>	The MEG level value

Default**Mode**

Global Configuration

Usage

Configure the MEG Level.

Example

```
(config)# mep 1 level 0
```

mep link-state-tracking**Syntax**

```
mep <inst> link-state-tracking
no mep <inst> link-state-tracking
```

Parameter

<i><inst></i>	The MEP instance number
---------------------	-------------------------

Default**Mode**

Global Configuration

Usage

Enable the Link State Tracking feature.

Example

```
(config)# mep 1 link-state-tracking
```

mep lm**Syntax**

```
mep <inst> lm <prio> [ synthetic ] [ multi | { uni [ mep-id <mepid> ] } ] [ single | dual ]
[ fr100s | fr10s | fr1s | fr6m ] [ size <size> ] [ flr <flr> ] [ meas <meas> ] [ threshold
<loss_th> ]
```

no mep *<inst>* **lm**

Parameter

<i><inst></i>	The MEP instance number
<i><prio></i>	Priority in case of tagged OAM. In the MPLS and EVC domain this is the COS-ID
synthetic	Do synthetic LM using SLM/1SL OAM PDUs. Synthetic LM allows multiple peer MEP configured. Service frame LM allows only one peer MEP
multi	OAM PDU is transmitted with multicast MAC
uni	OAM PDU is transmitted with unicast MAC. The MAC is taken from peer MEP MAC database. In case of 'not synthetic' LM there is only one peer MEP
<i><mepid></i>	Peer MEP ID value
single	Single ended LM is based on LMM/LMR PDU or SLM/SLR PDU in case of 'synthetic'
dual	Dual ended LM is based on CCM PDU or 1SL PDU in case of 'synthetic'
fr100s	Frame rate is 100 f/s. Is only allowed for 'synthetic' LM
fr10s	Frame rate is 10 f/s.
fr1s	Frame rate is 1 f/s
fr6m	Frame rate is 6 f/min. Is not allowed for dual ended 'service frame' LM (CCM PDU based)
<i><size></i>	The number of bytes in the SLM frame.
<i><flr></i>	The Frame Loss Ratio interval value in number of measurement intervals
<i><meas></i>	The measurement interval value in milliseconds
<i><loss_th></i>	Frame Loss threshold value. Default 1

Default

Mode

Global Configuration

Usage

Enable Loss Measurement initiator. Initiator is transmitting/receiving CCM or LMM/LMR or SLM/SLR/1SL PDUs and doing loss calculation.

Example

```
(config)# mep 1 lm 0 synthetic threshold 0
```

mep lm flow-counting

Syntax

```
mep <inst> lm flow-counting
no mep <inst> lm flow-counting
```

Parameter

<inst>	The MEP instance number
--------	-------------------------

Default

Mode

Global Configuration

Usage

Loss Measurement is counting service frames per flow - all priority in one.

Example

```
(config)# mep 1 lm flow-counting
```

mep lm oam-counting

Syntax

```
mep <inst> lm oam-counting { [ y1731 | all ] }
no mep <inst> lm oam-counting { [ y1731 | all ] }
```

Parameter

<inst>	The MEP instance number
y1731	Loss Measurement is counting OAM frames as service frames as described in Y1731
all	Loss Measurement is counting all OAM frames as service frames

Default

Mode

Global Configuration

Usage

Loss Measurement can count OAM frames in different ways.

Example

```
(config)# mep 1 lm oam-counting all
```

mep lm rx

Syntax

```
mep <inst> lm rx [ synthetic ] [ fr100s | fr10s | fr1s | fr6m ] [ flr <flr> ] [ meas <meas> ]
[ threshold <loss_th> ]
no mep <inst> lm rx
```

Parameter

<inst>	The MEP instance number
rx	Receive LM PDUs and calculate LM status
synthetic	This is to indicate synthetic LM
fr100s	Frame rate is 100 f/s.
fr10s	Frame rate is 10 f/s.
fr1s	Frame rate is 1 f/s
fr6m	Frame rate is 6 f/min.
<flr>	The Frame Loss Ratio interval.
<meas>	The measurement interval value in milliseconds
<loss_th>	Frame Loss threshold value. Default 1

Default

Mode

Global Configuration

Usage

Enable loss calculation when receiving LM PDUs (LMM/SLM/1SL). This command is ignored when LM is enabled.

Example

```
(config)# mep 1 lm rx synthetic threshold 0
```

mep lm slm-testid

Syntax

```
mep <inst> lm slm-testid <slm_test_id>
```

Parameter

<inst>	The MEP instance number
<slm_test_id>	The SLM Test-ID value

Default

Default slm-testid is 0.

Mode

Global Configuration

Usage

Specify a G.8013 section 9.22.1 Test-ID for use in SLM PDUs.

Example

```
(config)# mep 1 lm slm-testid 0
```

mep lm-avail interval

Syntax

```
mep <inst> lm-avail interval <interval> flr-threshold <flr_th>
no mep <inst> lm-avail
```

Parameter

<inst>	The MEP instance number
<interval>	Availability interval - number of measurements with same availability in order to change Availability state
<flr_th>	Availability FLR Threshold in per mile.

Default

Mode

Global Configuration

Usage

Configuration of Availability for Loss Measurement.

Example

```
(config)# mep 1 lm-avail interval 10 flr-threshold 10
```

mep lm-avail maintenance

Syntax

```
mep <inst> lm-avail maintenance
no mep <inst> lm-avail maintenance
```

Parameter

<inst>	The MEP instance number
--------	-------------------------

Default

Mode

Global Configuration

Usage

Set the Availability Maintenance indicator.

Example

```
(config)# mep 1 lm-avail maintenance
```

mep lm-hli flr-threshold

Syntax

```
mep <inst> lm-hli flr-threshold <flr_th> interval <interval>
no mep <inst> lm-hli
```

Parameter

<inst>	The MEP instance number
<flr_th>	High Loss Interval FLR Threshold in permille
<interval>	High Loss Interval consecutive interval (number of measurements)

Default**Mode**

Global Configuration

Usage

Configuration of High Loss Interval for Loss Measurement.

Example

```
(config)# mep 1 lm-hli flr-threshold 100 interval 100
```

mep lm-notif los-int-cnt-holddown**Syntax**

```

mep <inst> lm-notif los-int-cnt-holddown <los_int_cnt_holddown>
los-th-cnt-holddown <los_th_cnt_holddown> hli-cnt-holddown <hli_cnt_holddown>
no mep <inst> lm-notif

```

Parameter

<inst>	The MEP instance number
<los_int_cnt_holddown>	Hold down timer for JSON notification updates for near and far end frame loss interval count
<los_th_cnt_holddown>	Hold down timer for JSON notification updates for near and far end frame loss threshold count
<hli_cnt_holddown>	Hold down timer for JSON notification updates for near and far end High Loss Interval count

Default**Mode**

Global Configuration

Usage

Configuration of holddown timers for Loss Measurement JSON notifications.

Example

```

(config)# mep 1 lm-notif los-int-cnt-holddown 10 los-th-cnt-holddown 10
hli-cnt-holddown 10

```

mep lm-sdeg tx-min

Syntax

```
mep <inst> lm-sdeg tx-min <tx_min> flr-threshold <flr_th> bad-threshold <bad_th>
good-threshold <good_th>
no mep <inst> lm-sdeg
```

Parameter

<inst>	The MEP instance number
<tx_min>	Minimum number of frames that must be transmitted in a measurement before FLR is tested against the SDEG FLR threshold
<flr_th>	Signal Degrade FLR threshold in permille
<bad_th>	Number of consecutive bad interval measurements required to set degrade state
<good_th>	Number of consecutive good interval measurements required to clear degrade state.

Default

Mode

Global Configuration

Usage

Configuration of Signal Degrade for Loss Measurement.

Example

```
(config)# mep 1 lm-sdeg tx-min 0 flr-threshold 10 bad-threshold 10 good-threshold 10
```

mep lt

Syntax

```
mep <inst> lt <prio> {{ mep-id <mepid> } | { mac <mac> } } ttl <ttl>
no mep <inst> lt
```

Parameter

<inst>	The MEP instance number
<prio>	Priority in case of tagged OAM. In the EVC domain this is the COS-ID
<mepid>	Peer MEP ID value

<i><mac></i>	Link Trace target unicast MAC value
<i><ttl></i>	Time To Live value

Default**Mode**

Global Configuration

Usage

Configuration of Link Trace.

Example

```
(config)# mep 1 lt 0 mep-id 0 ttl 10
```

mep meg-id**Syntax**

```
mep <inst> meg-id <megid> [ { itu | itu-cc | { ieee [ name <name> ] } } ]
```

Parameter

<i><inst></i>	The MEP instance number
<i><megid></i>	The MEG-ID string. This is either the ITU MEG-ID or the IEEE Short MA, depending on the selected MEG-ID format. The ITU max. is 13 characters. The ITU-CC max. is 15 characters. The IEEE max. is 16 characters
itu	The MEG-ID has ITU format (ICC - UMC). The MEG-ID max. is 13 characters
itu-cc	The MEG-ID has ITU Country Code format (CC - ICC - UMC). The MEG-ID max. is 15 characters
ieee	The MEG-ID (Short MA Name) has IEEE Character String format. The MEG-ID max. is 16 characters
<i><name></i>	Maintenance Domain Name string. The max is 16 characters

Default**Mode**

Global Configuration

Usage

Configuring the MEG-ID.

Example

```
(config)# mep 1 mep-id abc itu
```

mep mep-id

Syntax

```
mep <inst> mep-id <mepid>
```

Parameter

<inst>	The MEP instance number
<mepid>	The MEP ID value

Default

Mode

Global Configuration

Usage

Configure the MEP-ID.

Example

```
(config)# mep 1 mep-id 1
```

mep peer-mep-id

Syntax

```
mep <inst> peer-mep-id <mepid> [ mac <mac> ]  
no mep <inst> peer-mep-id { <mepid> | all }
```

Parameter

<inst>	The MEP instance number
<mepid>	The peer MEP ID value
<mac>	The peer MAC string

Default**Mode**

Global Configuration

Usage

Configuration of a peer MEP.

Example

```
(config)# mep 1 peer-mep-id 0 mac 00-00-00-00-00-01
```

mep performance-monitoring**Syntax**

```
mep <inst> performance-monitoring
no mep <inst> performance-monitoring
```

Parameter

<i><inst></i>	The MEP instance number
---------------------	-------------------------

Default**Mode**

Global Configuration

Usage

Enable the PM Data Set contribution.

Example

```
(config)# mep 1 performance-monitoring
```

mep syslog**Syntax**

```
mep <inst> syslog
no mep <inst> syslog
```

Parameter

<i><inst></i>	The MEP instance number
---------------------	-------------------------

Default

Mode

Global Configuration

Usage

Configure Syslog to be enabled.

Example

(config)# **mep 1 syslog**

mep tst

Syntax

mep *<inst>* **tst** *<prio>* [**dei**] **mep-id** *<mepid>* [**sequence**] [**all-zero** | **all-one** | **one-zero**]
rate *<rate>* **size** *<size>*

Parameter

<i><inst></i>	The MEP instance number
<i><prio></i>	Priority in case of tagged OAM. In the MPLS and EVC domain this is the COS-ID
dei	Drop Eligible Indicator in case of tagged OAM
<i><mepid></i>	Peer MEP ID value
sequence	Enable sequence number in TST PDU
all-zero	Test pattern is set to all zero
all-one	Test pattern is set to all one
one-zero	Test pattern is set to 10101010
<i><rate></i>	Transmission rate value
<i><size></i>	The number of bytes in the TST frame

Default

Mode

Global Configuration

Usage

Configuration of Test Signal.

Example

```
(config)# mep 1 tst 0 dei mep-id 1 rate 100 size 100
```

mep tst rx

Syntax

```
mep <inst> tst rx
no mep <inst> tst rx
```

Parameter

<i><inst></i>	The MEP instance number
---------------------	-------------------------

Default

Mode

Global Configuration

Usage

Enable RX of Test Signal.

Example

```
(config)# mep 1 tst rx
```

mep tst tx

Syntax

```
mep <inst> tst tx
no mep <inst> tst tx
```

Parameter

<i><inst></i>	The MEP instance number
---------------------	-------------------------

Default**Mode**

Global Configuration

Usage

Enable/Disable TX of Test Signal.

Example

```
(config)# mep 1 tst tx
```

mep vid**Syntax**

```
mep <inst> vid <vid>
no mep <inst> vid
```

Parameter

<i><inst></i>	The MEP instance number
<i><vid></i>	The MEP VID value

Default**Mode**

Global Configuration

Usage

Configuration of the MEP VID. This will add a tag in the port domain. This will be the EVC subscriber MIP VID expected behind the EVC tag.

Example

```
(config)# mep 1 vid 1
```

mep voe

Syntax

```
mep <inst> voe
no mep <inst> voe
```

Parameter

<inst>	The MEP instance number
--------	-------------------------

Default

Mode

Global Configuration

Usage

Configuration of MEP to be VOE based. Require VOE supporting platform.

Example

```
(config)# mep 1 voe
```

mep os-tlv oui

Syntax

```
mep os-tlv oui <oui> sub-type <subtype> value <value>
```

Parameter

<oui>	
<subtype>	Sub-Type value - one octet
<value>	Value - one octet

Default

Mode

Global Configuration

Usage

Configure the transmitted Organization-Specific TLV.

Example

```
(config)# mep os-tlv oui 0x0600 sub-type 0x00 value 0x0F
```

show erps

Syntax

```
show erps { [ <groups> ] } [ detail | statistics ]
```

Parameter

<groups>	Zero or more ERPS group numbers
----------	---------------------------------

Default

Mode

Privileged EXEC

Usage

Show information about ERPS groups.

Example

```
# show erps
(L=Link Up/Down; B=Blocked/Unblocked)      Maj RPL  RPL   RPL  FSM   R-APS
Gr Typ V Rev Port 0      L B Port 1      L B Grp Role Port  Blck State TX RX FOP
--+-+---+---+-----+---+-----+---+---+---+-----+---+---+---+-----+---+---+
  1 Maj 2 Rev Gi 1/1      U B Gi 1/2      U U -   -   -   -   PEND Y   N
```

show mep

Syntax

```
show mep [ <inst> ] [ peer | cc | lm | dm | lt | lb | tst | aps | client | ais | lck | pm | syslog | tlv
| bfd | rt | lst | lm-avail ] [ lm-hli ] [ detail ]
```

Parameter

<inst>	The range of MEP instances
--------	----------------------------

Default**Mode**

Privileged EXEC

Usage

Show the state of a list of MEP instances. What state to be shown can be selected to be 'basic configuration' or one of the supported 'functionality configuration'.

Example

```
# show mep
MEP state is:
  Inst  cLevel  cMeg  cMep  cAis  cLck  cLoop  cConf  cSsf  aBlk  aTsd  aTsf  Peer
MEP    cLoc   cRdi  cPeriod  cPrio  cDeg
```

4. Interface Configuration

aggregation group

Syntax

```
aggregation group <v_uint>
no aggregation group
```

Parameter

<i><v_uint></i>	The aggregation group id
-----------------------	--------------------------

Default**Mode**

Interface Configuration

Usage

Use the aggregation group command to configure port members in group.

Example

```
(config)# interface GigabitEthernet 1/1-8  
(config-if)# aggregation group 2
```

aggregation mode

Syntax

```
aggregation mode { [ smac ] [ dmac ] [ ip ] [ port ] }  
no aggregation mode
```

Parameter

Default

Mode

Global Configuration

Usage

Use the aggregation group command to configure Traffic distribution mode.

Example

```
(config)# aggregation mode smac dmac ip port
```

clear lacp statistics

Syntax

```
clear lacp statistics
```

Parameter

Default

Mode

Privileged EXEC

Usage

Clear all LACP statistics.

Example

```
# clear lacp statistics
```

clear statistics**Syntax**

```
clear statistics [ interface ] ( <port_type> [ <v_port_type_list> ] )
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><v_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default**Mode**

Privileged EXEC

Usage

Clear the statistics of the interface.

Example

```
# clear statistics GigabitEthernet 1/1
```

ddmi**Syntax**

```
ddmi
no ddmi
```

Parameter**Default**

The DDMI is enabled.

Mode

Global Configuration

Usage

DDMI switch.

Example

This example shows how to enable the DDMI
(config)# **ddmi**

description

Syntax

description *<v_line>*
no description

Parameter

<i><v_line></i>	Up to 256 ASII characters describing this interface
-----------------------	---

Default

Mode

Interface Configuration

Usage

Set the description of the interface.

Example

```
(config)# interface g1/2
(config-if)# description b32 floor to b33 floor
```

duplex

Syntax

duplex { **half** | **full** | **auto** [**half** | **full**] }
no duplex

Parameter

half	Forced half duplex
-------------	--------------------

full	Forced full duplex
auto	Auto negotiation of duplex mode

Default

Default duplex is auto

Mode

Interface Configuration

Usage

Use duplex to configure interface duplex mode.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# duplex full
```

excessive-restart

Syntax

```
excessive-restart
no excessive-restart
```

Parameter

Default

Excessive-restart is no excessive-restart (Discard frame after 16 collisions).

Mode

Interface Configuration

Usage

Use excessive-restart to configure back off algorithm in half duplex mode.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# excessive-restart
```


flowcontrol

Syntax

```
flowcontrol { on | off }  
no flowcontrol
```

Parameter

Default

Flow control receive and send is off.

Mode

Interface Configuration

Usage

Use flowcontrol to configure flow control for the interface.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# flowcontrol on
```

frame-length-check

Syntax

```
frame-length-check  
no frame-length-check
```

Parameter

Default

Flow control receive and send is off.

Mode

Interface Configuration

Usage

Enable 803.3 frame length check for EtherTypes below 0x0600.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# frame-length-check
```

green-ethernet eee

Syntax

```
green-ethernet eee  
no green-ethernet eee
```

Parameter

Default

Flow control receive and send is off.

Mode

Interface Configuration

Usage

Sets EEE mode, Powering down of PHYs when there is no traffic.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# green-ethernet eee
```

green-ethernet eee optimize-for-power

Syntax

```
green-ethernet eee optimize-for-power  
no green-ethernet eee optimize-for-power
```

Parameter

Default

Mode

Global Configuration

Usage

Sets if EEE should be optimized for least traffic latency or least power consumption.

Example

```
(config)# green-ethernet eee optimize-for-power
```

green-ethernet eee urgent-queues

Syntax

```
green-ethernet eee urgent-queues [ <urgent_queue_range_list> ]
no green-ethernet eee urgent-queues [ <urgent_queue_range_list> ]
```

Parameter

<i><urgent_queue_range_list></i>	EEE Interface
--	---------------

Default

Mode

Interface Configuration

Usage

Sets EEE urgent queues.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# green-ethernet eee urgent-queues 1
```

green-ethernet energy-detect

Syntax

```
green-ethernet energy-detect
no green-ethernet energy-detect
```

Parameter**Default****Mode**

Interface Configuration

Usage

Enables energy-detect power savings.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# green-ethernet energy-detect
```

green-ethernet led interval**Syntax**

```
green-ethernet led interval <v_0_to_24> intensity <v_0_to_100>
no green-ethernet led interval <v_0_to_24>
```

Parameter

<v_0_to_24>	Interval from 00.00 to 24.00 (00 is used to start at midnight, while 24 is used to stop at midnight)
<v_0_to_100>	Intensity from 0%% (LEDs OFF) to 100%%

Default

Intensity is 20%%.

Mode

Global Configuration

Usage

Use green-ethernet led interval to configure the LED intensity at specific interval of the day.

Example

```
(config)# green-ethernet led interval 1-5 50
```

green-ethernet led on-event

Syntax

```
green-ethernet led on-event { [ link-change <v_0_to_65535> ] [ error ] }
no green-ethernet led on-event { [ link-change ] [ error ] }
```

Parameter

<v_0_to_65535>	Number of seconds to set LEDs intensity at 100%% intensity at link change
----------------	---

Default

link-change is 10 seconds, error is default turning LEDs intensity to 100%% at errors.

Mode

Global Configuration

Usage

Use green-ethernet led on-event to configure when to turn LEDs intensity to 100%%..

Example

```
(config)# green-ethernet led on-event link-change 30 error
```

green-ethernet short-reach

Syntax

```
green-ethernet short-reach
no green-ethernet short-reach
```

Parameter

Default

short-reach power savings is disabled.

Mode

Interface Configuration

Usage

Enables short-reach power savings.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# green-ethernet short-reach
```

interface

Syntax

```
interface ( <port_type> [ <plist> ] )
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><plist></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Global Configuration

Usage

Select an interface to configure.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)#
```

lACP

Syntax

```
lACP
no lACP
```

Parameter**Default**

LACP is disabled.

Mode

Interface Configuration

Usage

Enable LACP on an interface.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# lacp
```

lacp key**Syntax**

```
lacp key { <v_1_to_65535> | auto }
no lacp key { <v_1_to_65535> | auto }
```

Parameter

<code><v_1_to_65535></code>	Key value
<code>auto</code>	Choose a key based on port speed

Default

Auto is default, i.e. key is based on port speed.

Mode

Interface Configuration

Usage

Set the LACP key.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# lacp key 10
```

lacp port-priority

Syntax

```
lacp port-priority <v_1_to_65535>
no lacp port-priority <v_1_to_65535>
```

Parameter

<v_1_to_65535>	Priority value, lower means higher priority
----------------	---

Default

Default port priority is 32768.

Mode

Interface Configuration

Usage

Set the LACP port priority.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# lacp port-priority 1
```

lacp role

Syntax

```
lacp role { active | passive }
no lacp role { active | passive }
```

Parameter

active	Transmit LACP BPDUs continuously
passive	Wait for neighbor LACP BPDUs before transmitting

Default

Default role is active.

Mode

Interface Configuration

Usage

Set the LACP role, active or passive in transmitting BPDUs.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# lacp role passive
```

lacp system-priority

Syntax

```
lacp system-priority <v_1_to_65535>
no lacp system-priority <v_1_to_65535>
```

Parameter

<v_1_to_65535>	Priority value, lower means higher priority
----------------	---

Default

Default system priority is 32768.

Mode

Global Configuration

Usage

Set the LACP system priority. Lower number means higher priority.

Example

```
(config)# lacp system-priority 1
```

lacp timeout

Syntax

```
lacp timeout { fast | slow }
no lacp timeout { fast | slow }
```

Parameter

fast	Transmit BPDU each second (fast timeout)
slow	Transmit BPDU each 30th second (slow timeout)

Default

Default timeout is fast.

Mode

Interface Configuration

Usage

Set the LACP timeout, i.e. how fast to transmit BPDUs, once a sec or once each 30 sec.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# lacp timeout slow
```

monitor destination**Syntax**

```
monitor destination interface <port_type> <in_port_type>
no monitor destination
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><in_port_type></i>	Port ID in 1/1-6

Default**Mode**

Global Configuration

Usage

Sets monitor destination port.

Example

```
(config)# monitor destination interface GigabitEthernet 1/1
```

monitor source

Syntax

```
monitor source { { interface ( <port_type> [ <v_port_type_list> ] ) } | { cpu
[ <cpu_switch_range> ] } } { both | rx | tx }
no monitor source { { interface <port_type> [ <v_port_type_list> ] } | { cpu
[ <cpu_switch_range> ] } }
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><v_port_type_list></i>	Port ID in 1/1-6
<i><cpu_switch_range></i>	Mirror CPU traffic
both	Setting source port to both will mirror both ingress and egress traffic.
rx	Setting source port to Rx will mirror ingress traffic
tx	Setting source port to Tx will mirror egress traffic

Default

Mode

Global Configuration

Usage

Sets monitor source port.

Example

```
(config)# monitor source interface GigabitEthernet 1/2 both
```

mtu

Syntax

```
mtu <max_length>
no mtu
```

Parameter

<i><max_length></i>	Maximum frame size in bytes
---------------------------	-----------------------------

Default

Default duplex is auto

Mode

Interface Configuration

Usage

Use mtu to specify maximum frame size (1518-9600 bytes).

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# mtu 1518
```

no port-security shutdown**Syntax**

```
no port-security shutdown [ interface ( <port_type> [ <v_port_type_list> ] ) ]
```

Parameter

<i><port_type></i>	
<i><v_port_type_list></i>	Port list in 1/1-6

Default**Mode**

Privileged EXEC

Usage**Example**

```
# no port-security shutdown interface GigabitEthernet 1/1
```

port-security(Global)**Syntax**

```
port-security
```

no port-security

Parameter

Default

Mode

Global Configuration

Usage

Enable/disable port security globally.

Example

```
(config)# port-security
```

port-security(Interface)

Syntax

```
port-security  
no port-security
```

Parameter

Default

Mode

Interface Configuration

Usage

Enable/disable port security per interface.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# port-security
```

port-security aging

Syntax

```
port-security aging [ time <v_10_to_10000000> ]
no port-security aging [ time ]
```

Parameter

<v_10_to_10000000>	Time in seconds between check for activity on learned MAC addresses
--------------------	---

Default

Mode

Global Configuration

Usage

Enable/disable port security aging.

Example

```
(config)# port-security aging time 300
```

port-security maximum

Syntax

```
port-security maximum [ <v_1_to_1024> ]
no port-security maximum
```

Parameter

<v_1_to_1024>	Number of addresses
---------------	---------------------

Default

Mode

Interface Configuration

Usage

Maximum number of MAC addresses that can be learned on this set of interfaces.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# port-security maximum 100
```

port-security violation

Syntax

```
port-security violation { protect | trap | trap-shutdown | shutdown }
no port-security violation
```

Parameter

protect	Don't do anything
trap	Send an SNMP trap
trap-shutdown	Send an SNMP trap and shutdown the port
shutdown	Shutdown the port

Default

Mode

Interface Configuration

Usage

The action involved with exceeding the limit.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# port-security violation shutdown
```

pvlan

Syntax

```
pvlan <pvlan_list>
no pvlan <pvlan_list>
```

Parameter

<i><pvlan_list></i>	list of PVLANS. Range is from 1 to number of ports
---------------------------	--

Default**Mode**

Interface Configuration

Usage

Use the pvlan add or remove command to add or remove a port from a PVLAN.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# pvlan 2
```

pvlan isolation**Syntax**

```
pvlan isolation  
no pvlan isolation
```

Parameter**Default****Mode**

Interface Configuration

Usage

Use the pvlan isolation command to add the port into an isolation group.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# pvlan isolation
```

show aggregation**Syntax**

```
show aggregation [ mode ]
```


Parameter**Default****Mode**

Privileged EXEC

Usage

Show aggregation port configuration.

Example

```
# show aggregation mode
```

```
Aggregation Mode:
```

```
SMAC : Enabled
```

```
DMAC : Enabled
```

```
IP : Enabled
```

```
Port : Enabled
```

show ddmi**Syntax**

```
show ddmi
```

Parameter**Default****Mode**

Privileged EXEC

Usage

Show DDMI configuration.

Example

```
# show ddmi
```

```
Current mode: Enabled
```

show green-ethernet interface

Syntax

```
show green-ethernet [ interface ( <port_type> [ <port_list> ] ) ]
```

Parameter

<port_type>	Interface
<port_list>	Port list in 1/1-4

Default

Mode

Privileged EXEC

Usage

Shows Green Ethernet status.

Example

```
# show green-ethernet
Interface          Lnk  Energy-detect  Short-Reach  EEE Capable  EEE Enabled
LP EEE Capable    EEE In Power Save
-----
GigabitEthernet 1/1    No   No              No            Yes           No
No                No
GigabitEthernet 1/2    No   No              No            Yes           No
No                No
GigabitEthernet 1/3    Yes  No              No            Yes           No
No                No
GigabitEthernet 1/4    No   No              No            Yes           No
No                No
2.5GigabitEthernet 1/1  No   N/A             N/A           No            N/A
N/A                N/A
2.5GigabitEthernet 1/2  No   N/A             N/A           No            N/A
N/A                N/A
```

show green-ethernet eee

Syntax

```
show green-ethernet eee [ interface ( <port_type> [ <port_list> ] ) ]
```

Parameter

<i><port_type></i>	Interface
<i><port_list></i>	Port list in 1/1-4

Default

Mode

Privileged EXEC

Usage

Shows Green Ethernet EEE status.

Example

```
# show green-ethernet eee
Interface          Lnk  EEE Capable  EEE Enabled  LP EEE Capable  EEE In
Power Save
-----
GigabitEthernet 1/1  No  Yes          No           No           No
GigabitEthernet 1/2  No  Yes          No           No           No
GigabitEthernet 1/3  Yes Yes          No           No           No
GigabitEthernet 1/4  No  Yes          No           No           No
2.5GigabitEthernet 1/1 No  No           N/A          N/A          N/A
2.5GigabitEthernet 1/2 No  No           N/A          N/A          N/A
```

show green-ethernet energy-detect

Syntax

```
show green-ethernet energy-detect [ interface ( <port_type> [ <port_list> ] ) ]
```

Parameter

<i><port_type></i>	Interface
<i><port_list></i>	Port list in 1/1-4

Default

Mode

Privileged EXEC

Usage

Shows Green Ethernet energy-detect status.

Example

```
# show green-ethernet energy-detect
Interface                Lnk  Energy-detect
-----
GigabitEthernet 1/1     No   No
GigabitEthernet 1/2     No   No
GigabitEthernet 1/3     Yes  No
GigabitEthernet 1/4     No   No
2.5GigabitEthernet 1/1 No   N/A
2.5GigabitEthernet 1/2 No   N/A
```

show green-ethernet short-reach

Syntax

```
show green-ethernet short-reach [ interface ( <port_type> [ <port_list> ] ) ]
```

Parameter

<i><port_type></i>	Interface
<i><port_list></i>	Port list in 1/1-4

Default

Mode

Privileged EXEC

Usage

Shows Green Ethernet short-reach status.

Example

```
# show green-ethernet short-reach
Interface                Lnk  Short-Reach
-----
GigabitEthernet 1/1     No   No
GigabitEthernet 1/2     No   No
GigabitEthernet 1/3     Yes  No
GigabitEthernet 1/4     No   No
```

```
2.5GigabitEthernet 1/1 No N/A
2.5GigabitEthernet 1/2 No N/A
```

show interface switchport

Syntax

```
show interface ( <port_type> [ <in_port_list> ] ) switchport [ access | trunk | hybrid ]
```

Parameter

<port_type>	Port type in Fast, Giga or Tengiga ethernet
<port_list>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Use the show interface command to display the administrative and operational status of all interfaces or a specified interface.

Example

```
# show interface GigabitEthernet 1/1 switchport
Name: GigabitEthernet 1/1
Administrative mode: access
Access Mode VLAN: 1
Trunk Native Mode VLAN: 1
Administrative Native VLAN tagging: disabled
Allowed VLANs: 1-4095
Hybrid port configuration
-----
Port Type: C-Port
Acceptable Frame Type: All
Ingress filter: Disabled
Egress tagging: All except-native
Hybrid Native Mode VLAN: 1
Hybrid VLANs Enabled: 1-4095
```

show interface transceiver

Syntax

```
show interface ( <port_type> [ <plist> ] ) transceiver
```

Parameter

<port_type>	Port type in Fast, Giga or Tengiga ethernet
<plist>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Show interface transceiver.

Example

```
# show interface 2.5GigabitEthernet 1/1 transceiver
2.5GigabitEthernet 1/1
-----
% No SFP module is detected
```

show interface capabilities

Syntax

```
show interface ( <port_type> [ <v_port_type_list> ] ) capabilities
```

Parameter

<port_type>	Port type in Fast, Giga or Tengiga ethernet
<v_port_type_list>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Show interface capabilities.

Example

```
# show interface GigabitEthernet 1/1 capabilities
```

```
GigabitEthernet 1/1 Capabilities:
  Model:                42AS-BT
  Type:                 10/100/1000BaseT
  Speed:                10,100,1000,auto
  Duplex:               half,full,auto
  Trunk encap. type:    802.1Q
  Trunk mode:           access,hybrid,trunk
  Channel:              yes
  Broadcast suppression: no
  Flowcontrol:          yes
  Fast Start:           no
  QoS scheduling:       tx-(8q)
  CoS rewrite:          yes
  ToS rewrite:          yes
  UDLD:                 no
  Inline power:         yes
  RMirror:              no
  PortSecure:           yes
  Dot1x:                yes
```

show interface description

Syntax

```
show interface ( <port_type> [ <v_port_type_list> ] ) description
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><v_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Show interface description.

Example

```
# show interface GigabitEthernet 1/1 description
-----
GigabitEthernet 1/1
```

show interface statistics

Syntax

```
show interface ( <port_type> [ <v_port_type_list> ] ) statistics [ { packets | bytes | errors |
discards | filtered | { priority [ <priority_v_0_to_7> ] } } ] [ { up | down } ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><v_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6
<i><priority_v_0_to_7></i>	Priority of the queue (or queues) to show statistics for

Default

Mode

Privileged EXEC

Usage

Shows the statistics for the interface.

Example

```
# show interface GigabitEthernet 1/1 statistics
GigabitEthernet 1/1 Statistics:
Rx Packets:          79033   Tx Packets:          931
Rx Octets:           8139116 Tx Octets:           212233
Rx Unicast:          1024    Tx Unicast:          761
Rx Multicast:        42956   Tx Multicast:        167
Rx Broadcast:        35053   Tx Broadcast:         3
Rx Pause:            0       Tx Pause:            0

Rx 64:               29109   Tx 64:               448
Rx 65-127:           35122   Tx 65-127:          143
```



```

Rx 128-255:          13624   Tx 128-255:          202
Rx 256-511:          251     Tx 256-511:          52
Rx 512-1023:         919     Tx 512-1023:         20
Rx 1024-1526:         8       Tx 1024-1526:        66
Rx 1527-      :      0       Tx 1527-      :      0

Rx Priority 0:        79033   Tx Priority 0:         0
Rx Priority 1:         0       Tx Priority 1:         0
Rx Priority 2:         0       Tx Priority 2:         0
Rx Priority 3:         0       Tx Priority 3:         0
Rx Priority 4:         0       Tx Priority 4:         0
Rx Priority 5:         0       Tx Priority 5:         0
Rx Priority 6:         0       Tx Priority 6:         0
Rx Priority 7:         0       Tx Priority 7:        931
    
```

show interface status

Syntax

```
show interface ( <port_type> [ <v_port_type_list> ] ) status
```

Parameter

<port_type>	Port type in Fast, Giga or Tengiga ethernet
<v_port_type_list>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Shows the status for the interface.

Example

```

# show interface GigabitEthernet 1/1 status
Interface      Mode      Speed & Duplex  Flow Control  Max Frame  Excessive  Link
-----
GigabitEthernet 1/1  enabled  Auto           disabled      9600       Discard    Down
    
```

show interface veriphy

Syntax

```
show interface ( <port_type> [ <v_port_type_list> ] ) veriphy
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><v_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Display cable diagnostics.

Example

```
# show interface GigabitEthernet 1/1 veriphy
Interface          Pair A  Length  Pair B, Length  Pair C  Length  Pair D  Length
-----
GigabitEthernet 1/1  No test results
```

show lacp

Syntax

```
show lacp { internal | statistics | system-id | neighbor }
```

Parameter

Default

Mode

Privileged EXEC

Usage

Show LACP configuration and status.

Example

```
# show lacp internal
Port                Mode      Key   Role   Timeout  Priority
-----
Gi 1/1              disabled  Auto  Active Fast      32768
Gi 1/2              disabled  Auto  Active Fast      32768
Gi 1/3              disabled  Auto  Active Fast      32768
Gi 1/4              disabled  Auto  Active Fast      32768
2.5G 1/1            disabled  Auto  Active Fast      32768
2.5G 1/2            disabled  Auto  Active Fast      32768
```

show port-security port

Syntax

```
show port-security port [ interface ( <port_type> [ <v_port_type_list> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><v_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Show port security port configuration.

Example

```
# show port-security port interface GigabitEthernet 1/1
GigabitEthernet 1/1
-----
MAC Address      VID   State   Added                               Age/Hold Time
-----
<none>
```

show port-security switch

Syntax

```
show port-security switch [ interface ( <port_type> [ <v_port_type_list> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><v_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Show port security switch configuration.

Example

```
# show port-security switch
```

Users:

L = Limit Control

8 = 802.1X

Interface	Users	State	MAC Cnt
GigabitEthernet 1/1	--	No users	0
GigabitEthernet 1/2	--	No users	0
GigabitEthernet 1/3	--	No users	0
GigabitEthernet 1/4	--	No users	0
2.5GigabitEthernet 1/1	--	No users	0
2.5GigabitEthernet 1/2	--	No users	0

show pvlan

Syntax

```
show pvlan [ <pvlan_list> ]
```

Parameter

<i><pvlan_list></i>	PVLAN ID to show configuration for
---------------------------	------------------------------------

Default**Mode**

Privileged EXEC

Usage

Use the show pvlan command to view the PVLAN configuration.

Example

```
# show pvlan 1
PVLAN ID  Ports
-----
1          GigabitEthernet 1/1, GigabitEthernet 1/2, GigabitEthernet 1/3,
          GigabitEthernet 1/4, 2.5GigabitEthernet 1/1, 2.5GigabitEthernet 1/2
```

show pvlan isolation**Syntax**

```
show pvlan isolation [ interface ( <port_type> [ <plist> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><plist></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default**Mode**

Privileged EXEC

Usage

Use the show pvlan isolation command to view the PVLAN isolation configuration.

Example

```
# show pvlan isolation
Port                               Isolation
-----
GigabitEthernet 1/1                Disabled
GigabitEthernet 1/2                Disabled
```

GigabitEthernet 1/3 Disabled
 GigabitEthernet 1/4 Disabled

shutdown

Syntax

```
shutdown
no shutdown
```

Parameter

Default

Mode

Interface Configuration

Usage

Use shutdown to shut down the interface.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# no shutdown
```

speed

Syntax

```
speed { 10g | 2500 | 1000 | 100 | 10 | auto { [ 10 ] [ 100 ] [ 1000 ] } }
no speed
```

Parameter

10g	10Gbps
2500	2.5Gbps
1000	1Gbps
100	100Mbps
10	10Mbps
auto	Auto negotiation

Default

Default speed is auto.

Mode

Interface Configuration

Usage

Configures interface speed. If you use 10, 100, or 1000 keywords with the auto keyword the port will only advertise the specified speeds..

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# speed 1000
```

5. LLDP

clear lldp statistics

Syntax

```
clear lldp statistics { [ interface ( <port_type> [ <plist> ] ) ] | global }
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><plist></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default**Mode**

Privileged EXEC

Usage

Clear the LLDP statistics.

Example

```
# clear lldp statistics
```

lldp holdtime

Syntax

```
lldp holdtime <val>
no lldp holdtime
```

Parameter

<val>	2-10 seconds.
-------	---------------

Default

Mode

Global Configuration

Usage

Use to set LLDP hold time.

Example

```
(config)# lldp holdtime 3
```

lldp med datum

Syntax

```
lldp med datum { wgs84 | nad83-navd88 | nad83-mlw }
no lldp med datum
```

Parameter

wgs84	World Geodetic System 1984
nad83-navd88	North American vertical datum 1983
nad83-mlw	Mean lower low water datum 1983

Default

Mode

Global Configuration

Usage

Use the lldp med datum to configure the datum (geodetic system) to use.

Example

```
(config)# lldp med datum wgs84
```

lldp med fast

Syntax

```
lldp med fast <v_1_to_10>
no lldp med fast
```

Parameter

fast	Number of times to repeat LLDP frame transmission at fast start
------	---

Default

Mode

Global Configuration

Usage

Use the lldp med fast to configure the number of times the fast start LLDPDU are being sent during the activation of the fast start mechanism defined by LLDP-MED (1-10).

Example

```
(config)# lldp med fast 5
```

lldp med location-tlv altitude

Syntax

```
lldp med location-tlv altitude { meters | floors } <v_word11>
no lldp med location-tlv altitude
```

Parameter

meters	Specify the altitude in meters
floors	Specify the altitude in floor

<code><v_word11></code>	Altitude value. Valid range -2097151.9 to 2097151.9
-------------------------------	---

Default**Mode**

Global Configuration

Usage

Use the `lldp med location-tlv altitude` to configure the location altitude.

Example

```
(config)# lldp med location-tlv altitude meters 12.2
```

lldp med location-tlv civic-addr**Syntax**

```
lldp med location-tlv civic-addr { { country <country> } | { state | county | city | district |
block | street | leading-street-direction | trailing-street-suffix | street-suffix | house-no |
house-no-suffix | landmark | additional-info | name | zip-code | building | apartment |
floor | room-number | place-type | postal-community-name | p-o-box |
additional-code } <v_line> }
```

```
no lldp med location-tlv civic-addr { { country | state | county | city | district | block |
street | leading-street-direction | trailing-street-suffix | street-suffix | house-no |
house-no-suffix | landmark | additional-info | name | zip-code | building | apartment |
floor | room-number | place-type | postal-community-name | p-o-box |
additional-code }
```

Parameter

<code><country></code>	The two-letter ISO 3166 country code in capital ASCII letters - Example: DK, DE or US.
<code><v_line></code>	Value for the corresponding selected civic address.

Default

The default civic address is "" (empty).

Mode

Global Configuration

Usage

Use `lldp med location-tlv civic-addr` to configure the civic address.

Example

```
(config)# lldp med location-tlv civic-addr street "Poppelve"
```

lldp med location-tlv elin-addr

Syntax

```
lldp med location-tlv elin-addr <v_word25>
no lldp med location-tlv elin-addr
```

Parameter

<v_word25>	ELIN value
------------	------------

Default

Mode

Global Configuration

Usage

Use the `lldp med location-tlv elin-addr` to configure value for the Emergency Call Service.

Example

```
(config)# lldp med location-tlv elin-addr 112
```

lldp med location-tlv latitude

Syntax

```
lldp med location-tlv latitude { north | south } <v_word8>
no lldp med location-tlv latitude
```

Parameter

north	Setting latitude direction to north
south	Setting latitude direction to south
<v_word8>	Latitude degrees (0.0000-90.0000)

Default**Mode**

Global Configuration

UsageUse the `lldp med location-tlv latitude` to configure the location latitude.**Example**

```
(config)# lldp med location-tlv latitude north 12.2345
```

lldp med location-tlv longitude**Syntax**

```
lldp med location-tlv longitude { west | east } <v_word9>
no lldp med location-tlv longitude
```

Parameter

west	Setting longitude direction to west
east	Setting longitude direction to east
<i><v_word9></i>	Longitude degrees (0.0000-180.0000)

Default**Mode**

Global Configuration

UsageUse the `lldp med location-tlv longitude` to configure the location longitude.**Example**

```
(config)# lldp med location-tlv longitude east 12.2345
```

Ildp med media-vlan policy-list

Syntax

```
lldp med media-vlan policy-list <v_range_list>
no lldp med media-vlan policy-list [ <v_range_list> ]
```

Parameter

<v_range_list>	Policies to assign to the interface
----------------	-------------------------------------

Default

Mode

Interface Configuration

Usage

Use the media-vlan policy-list to assign policy to the interface.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# lldp med media-vlan policy-list 1,5
```

Ildp med media-vlan-policy

Syntax

```
lldp med media-vlan-policy <policy_index> { voice | voice-signaling |
guest-voice-signaling | guest-voice | softphone-voice | video-conferencing |
streaming-video | video-signaling } { untagged | tagged <v_vlan_id> [ I2-priority
<v_0_to_7> ] } [ dscp <v_0_to_63> ]
no lldp med media-vlan-policy <policies_list>
```

Parameter

<policy_index>	Policy id for the policy which is created
<v_vlan_id>	The VLAN the policy uses tagged frames
<v_0_to_7>	Priority 0-7
<v_0_to_63>	DSCP value 0-63

Default**Mode**

Global Configuration

Usage

Used to create a policy, which can be assigned to an interface.

Example

```
(config)# lldp med media-vlan-policy 1 voice tagged 1 1 1
```

lldp med transmit-tlv**Syntax**

```
lldp med transmit-tlv [ capabilities ] [ location ] [ network-policy ] [ poe ]  
no lldp med transmit-tlv [ capabilities ] [ location ] [ network-policy ] [ poe ]
```

Parameter

capabilities	Enable transmission of the optional capabilities TLV
location	Enable transmission of the optional location TLV
network-policy	Enable transmission of the optional network-policy TLV
poe	Runtime

Default**Mode**

Interface Configuration

Usage

Use the lldp med transmit-tlv to configure which TLVs to transmit to link partner.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# lldp med transmit-tlv capabilities
```

Ildp med type

Syntax

```

lldp med type { connectivity | end-point }
no lldp med type

```

Parameter

connectivity	Work as connectivity device
end-point	Work as end-point device

Default

Mode

Interface Configuration

Usage

Select if the interface is working as 'Network Connectivity Device' or an 'Endpoint Device'. The difference between working as 'Network Connectivity Device' and an 'Endpoint Device' is a question of who is initializing the LLDP-MED TLVs transmission. A 'Network Connectivity Device' is not starting LLDP-MED TLVs transmission until it has detected an 'Endpoint Device' as link partner. An 'Endpoint Device' will start LLDP-MED TLVs transmission at once.

Example

```

(config)# interface GigabitEthernet 1/1
(config-if)# lldp med type end-point

```

Ildp receive

Syntax

```

lldp receive
no lldp receive

```

Parameter

Default

Mode

Interface Configuration

Usage

Sets if switch shall update LLDP entry table with incoming LLDP information.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# lldp receive
```

lldp reinit

Syntax

```
lldp reinit <val>
no lldp reinit
```

Parameter

<val>	1-10 seconds
-------	--------------

Default

Mode

Global Configuration

Usage

Use to set LLDP reinitialization delay.

Example

```
(config)# lldp reinit 5
```

lldp timer

Syntax

```
lldp timer <val>
no lldp timer
```

Parameter

<val>	5-32768 seconds
-------	-----------------

Default**Mode**

Global Configuration

Usage

Use to set LLDP TX interval.

Example

```
(config)# lldp timer 125
```

lldp tlv-select**Syntax**

```
lldp tlv-select { management-address | port-description | system-capabilities |
system-description | system-name }
no lldp tlv-select { management-address | port-description | system-capabilities |
system-description | system-name }
```

Parameter

management-address	Enable/Disable transmission of management address
port-description	Enable/Disable transmission of port description
system-capabilities	Enable/Disable transmission of system capabilities
system-description	Enable/Disable transmission of system description
system-name	Enable/Disable transmission of system name

Default**Mode**

Interface Configuration

Usage

Enables/disables LLDP optional TLVs.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# lldp tlv-select management-address
```

Ildp transmission-delay

Syntax

```

ldp transmission-delay <val>
no ldp transmission-delay

```

Parameter

<val>	1-8192 seconds
-------	----------------

Default

Mode

Global Configuration

Usage

Sets LLDP transmission-delay. LLDP transmission delay (the amount of time that the transmission of LLDP frames will be delayed after LLDP configuration has changed) in seconds.

Example

```
(config)# ldp transmission-delay 5
```

Ildp transmit

Syntax

```

ldp transmit
no ldp transmit

```

Parameter

Default

Mode

Interface Configuration

Usage

Sets if switch shall transmit LLDP frames.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# lldp transmit
```

show lldp eee

Syntax

```
show lldp eee [ interface ( <port_type> [ <v_port_type_list> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><v_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Shows the LLDP local and neighbors EEE information.

Example

```
# show lldp eee
Local Interface      : GigabitEthernet 1/3
EEE not enabled for this interface
```

show lldp med media-vlan-policy

Syntax

```
show lldp med media-vlan-policy [ <v_0_to_31> ]
```

Parameter

<i><v_0_to_31></i>	List of policies.
--------------------------	-------------------

Default**Mode**

Privileged EXEC

Usage

Show media vlan policy(ies).

Example

show lldp med media-vlan-policy

show lldp med remote-device**Syntax**

show lldp med remote-device [interface (<port_type> [<port_list>])]

Parameter

<port_type>	Port type in Fast, Giga or Tengiga ethernet
<port_list>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default**Mode**

Privileged EXEC

Usage

Show LLDP-MED neighbor device information.

Example

show lldp med remote-device interface GigabitEthernet 1/1

show lldp neighbors**Syntax**

show lldp neighbors [interface (<port_type> [<v_port_type_list>])]

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><port_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default**Mode**

Privileged EXEC

Usage

Shows the LLDP neighbors information.

Example

```
# show lldp neighbors
Local Interface      : GigabitEthernet 1/3
Chassis ID           : 1C-2A-A3-00-00-24
Port ID              : gi22
Port Description     :
System Name          :
System Description   :
System Capabilities  :
PoE Type             :
PoE Source           :
PoE Power            :
PoE Priority         :
```

show lldp statistics**Syntax**

```
show lldp statistics [ interface ( <port_type> [ <v_port_type_list> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><port_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default**Mode**

Privileged EXEC

Usage

Shows the LLDP or interface statistics.

Example

```
# show lldp statistics interface GigabitEthernet 1/1
Rx          Tx          Rx          Rx          Rx TLV      Rx TLV      Rx TLV
Interface  Frames  Frames  Errors  Discards  Errors  Unknown  Organiz.  Aged
-----
GigabitEthernet 1/1  155    163    0       0       0       0       155     0
```

6. Loop Protection

loop-protect(Global)

Syntax

```
loop-protect
no loop-protect
```

Parameter

Default

Mode

Global Configuration

Usage

Loop protection configuration.

Example

```
(config)# loop-protect
```

loop-protect(Interface)

Syntax

```
loop-protect
no loop-protect
```

Parameter**Default****Mode**

Interface Configuration

Usage

Loop protection configuration.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# loop-protect
```

loop-protect action**Syntax**

```
loop-protect action { [ shutdown ] [ log ] }
no loop-protect action
```

Parameter

shutdown	Shutdown port
log	Generate log

Default**Mode**

Interface Configuration

Usage

Loop protection action configuration on port.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# loop-protect action shutdown
```

loop-protect shutdown-time

Syntax

```
loop-protect shutdown-time <t>
no loop-protect shutdown-time
```

Parameter

<t>	Shutdown time in second
-----	-------------------------

Default

Mode

Global Configuration

Usage

Loop protection shutdown time interval.

Example

```
(config)# loop-protect shutdown-time 5
```

loop-protect transmit-time

Syntax

```
loop-protect transmit-time <t>
no loop-protect transmit-time
```

Parameter

<t>	Transmit time in second
-----	-------------------------

Default

Mode

Global Configuration

Usage

Loop protection transmit time interval.

Example

```
(config)# loop-protect transmit-time 5
```

loop-protect tx-mode

Syntax

```
loop-protect tx-mode
no loop-protect tx-mode
```

Parameter

Default

Mode

Interface Configuration

Usage

Actively generate PDUs.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# loop-protect tx-mode
```

show loop-protect

Syntax

```
show loop-protect [ interface ( <port_type> [ <plist> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><plist></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Shows Loop protection configuration.

Example

```
# show loop-protect
Loop Protection Configuration
=====
Loop Protection      : Disable
Transmission Time   : 5 sec
Shutdown Time       : 180 sec

GigabitEthernet 1/1
-----
    Loop protect mode is enabled.
    Action is shutdown.
    Transmit mode is enabled.
    No loop.
    The number of loops is 0.
    Status is down.
```

7. MAC Address

clear mac address-table

Syntax

```
clear mac address-table
```

Parameter

Default

Mode

Privileged EXEC

Usage

Clear mac address cache.

Example

```
# clear mac address-table
```

mac address-table aging-time

Syntax

```
mac address-table aging-time <v_0_10_to_1000000>
no mac address-table aging-time [ <v_0_10_to_1000000> ]
```

Parameter

<v_0_10_to_1000000>	Aging time in seconds, 0 disables aging
---------------------	---

Default

Mode

Global Configuration

Usage

Set switch aging time, 0 to disable.

Example

```
(config)# mac address-table aging-time 300
```

mac address-table learning

Syntax

```
mac address-table learning [ secure ]
no mac address-table learning [ secure ]
```

Parameter

learning	Port learning mode
secure	Port Secure mode

Default

Learning is enabled.

Mode

Interface Configuration

Usage

Enable learning on port.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# mac address-table learning
```

mac address-table learning vlan

Syntax

```
mac address-table learning vlan <vlan_list>
no mac address-table learning vlan <vlan_list>
```

Parameter

<vlan_list>	VLAN ID list
-------------	--------------

Default

Mode

Global Configuration

Usage

VLAN learning.

Example

```
(config)# mac address-table learning vlan 1
```

mac address-table static

Syntax

```
mac address-table static <v_mac_addr> vlan <v_vlan_id> [ interface ( <port_type>
[ <v_port_type_list> ] ) ]
no mac address-table static <v_mac_addr> vlan <v_vlan_id> [ interface ( <port_type>
[ <v_port_type_list> ] ) ]
```

Parameter

<v_mac_addr>	48 bit MAC address: xx:xx:xx:xx:xx:xx
<v_vlan_id>	VLAN IDs 1-4095
<port_type>	Port type in Fast, Giga or Tengiga ethernet
<v_port_type_list>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default**Mode**

Global Configuration

Usage

Assign a static mac address to this port.

Example

```
(config)# mac address-table static 00:00:00:00:00:01 vlan 2 interface GigabitEthernet 1/2
```

show mac address-table**Syntax**

```
show mac address-table [ conf | static | aging-time | { { learning | count } [ interface ( <port_type> [ <v_port_type_list> ] ) | vlan <v_vlan_id_2> ] } | { address <v_mac_addr> [ vlan <v_vlan_id> ] } | vlan <v_vlan_id_1> | interface ( <port_type> [ <v_port_type_list_1> ] ) ] ]
```

Parameter

<port_type>	Port type in Fast, Giga or Tengiga ethernet
<v_port_type_list>	List of Port ID, ex, 1/1,3-5;2/2-4,6
<v_vlan_id_2>	VLAN IDs 1-4095
<v_mac_addr>	48 bit MAC address: xx:xx:xx:xx:xx:xx
<v_vlan_id>	VLAN IDs 1-4095
<v_vlan_id_1>	VLAN IDs 1-4095

Default**Mode**

Privileged EXEC

Usage

Shows MAC address entries.

Example

```
# show mac address-table
Type   VID  MAC Address      Ports
Dynamic 1   00:0b:0e:0f:00:ed GigabitEthernet 1/3
Dynamic 1   00:cf:e0:52:b0:4f GigabitEthernet 1/3
Dynamic 1   00:cf:e0:52:b0:8b GigabitEthernet 1/3
```

8. Multicast

clear ip dhcp snooping statistics

Syntax

```
clear ip igmp snooping [ vlan <v_vlan_list> ] statistics
```

Parameter

<v_vlan_list>	VLAN identifier (VID)
---------------	-----------------------

Default

Mode

Privileged EXEC

Usage

Example

```
# clear ip igmp snooping vlan 1 statistics
```

clear ipv6 mld snooping statistics

Syntax

```
clear ipv6 mld snooping [ vlan <v_vlan_list> ] statistics
```

Parameter

<code><v_vlan_list></code>	VLAN identifier (VID)
----------------------------------	-----------------------

Default**Mode**

Privileged EXEC

Usage**Example**

```
# clear ipv6 mld snooping vlan 1 statistics
```

default range**Syntax**

```
default range <entry_name>
```

Parameter

<code><entry_name></code>	Range entry name in 16 characters
---------------------------------	-----------------------------------

Default**Mode**

IPMC Profile Configuration

Usage

Set the filtering rule in an IPMC profile as default condition. When you are in IPMC profile configuration mode, use default range command to make a specific filtering rule working in default conditions.

Example

This example shows when and how to execute default range command in IPMC profile configuration mode

```
(config)# ipmc range Video 230.0.0.0 230.0.0.255
(config)# ipmc profile EXAMPLE
(config-ipmc-profile)# range Video permit log
```

```
(config-ipmc-profile)# do show running-config
...

!
ipmc range Video 230.0.0.0 230.0.0.255
!
ipmc profile EXAMPLE
range Video permit log
!
...

(config-ipmc-profile)# default range Video
(config-ipmc-profile)# exit
(config)# do show running-config
...
!
ipmc range Video 230.0.0.0 230.0.0.255
!
ipmc profile EXAMPLE
range Video deny
!
...
```

description

Syntax

```
description <profile_desc>
no description
```

Parameter

<profile_desc>	Description for the designated IPMC filtering profile
----------------	---

Default

Mode

IPMC Profile Configuration

Usage

Set the additional description for an IPMC profile. When you are in IPMC profile configuration mode, use description command to set the additional description for a profile.

Example

This example shows when and how to execute description command in ipmc profile configuration mode

```
(config)# ipmc profile EXAMPLE
(config-ipmc-profile)# description This is a profile used for test
(config-ipmc-profile)# do show running-config
...
!
ipmc profile EXAMPLE
description This is a profile used for test
!
...
```

ip igmp host-proxy

Syntax

```
ip igmp host-proxy [ leave-proxy ]
no ip igmp host-proxy [ leave-proxy ]
```

Parameter

<i>leave-proxy</i>	IGMP proxy for leave configuration
--------------------	------------------------------------

Default

Mode

Global Configuration

Usage

IGMP proxy configuration.

Example

```
(config)# ip igmp host-proxy
```

ip igmp snooping(global)

Syntax

```
ip igmp snooping
no ip igmp snooping
```

Parameter**Default****Mode**

Global Configuration

Usage

Snooping IGMP configuration.

Example

```
(config)# ip igmp snooping
```

ip igmp snooping(VLANIF)**Syntax**

```
ip igmp snooping  
no ip igmp snooping
```

Parameter**Default****Mode**

VLAN Interface Configuration

Usage

Snooping IGMP configuration.

Example

```
(config)# interface vlan 100  
(config-if-vlan)# ip igmp snooping
```

ip igmp snooping compatibility**Syntax**

```
ip igmp snooping compatibility { auto | v1 | v2 | v3 }  
no ip igmp snooping compatibility
```

Parameter

auto	Compatible with IGMPv1/IGMPv2/IGMPv3
v1	Forced IGMPv1
v2	Forced IGMPv2
v3	Forced IGMPv3

Default**Mode**

VLAN Interface Configuration

Usage

Interface compatibility configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ip igmp snooping compatibility auto
```

ip igmp snooping filter**Syntax**

```
ip igmp snooping filter <profile_name>
no ip igmp snooping filter
```

Parameter

<i><profile_name></i>	Profile name in 16 characters
-----------------------------	-------------------------------

Default**Mode**

Interface Configuration

Usage

Access control on IGMP multicast group registration configuration.

Example

```
(config)# interface GigabitEthernet 1/2
```

```
(config-if-vlan)# ip igmp snooping filter abc
```

ip igmp snooping immediate-leave

Syntax

```
ip igmp snooping immediate-leave
no ip igmp snooping immediate-leave
```

Parameter

Default

Mode

Interface Configuration

Usage

Immediate leave configuration.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# ip igmp snooping immediate-leave
```

ip igmp snooping last-member-query-interval

Syntax

```
ip igmp snooping last-member-query-interval <ipmc_lmqi>
no ip igmp snooping last-member-query-interval
```

Parameter

<ipmc_lmqi>	0 - 31744 tenths of seconds
-------------	-----------------------------

Default

Mode

VLAN Interface Configuration

Usage

Last Member Query Interval in tenths of seconds configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ip igmp snooping last-member-query-interval 100
```

ip igmp snooping max-groups

Syntax

```
ip igmp snooping max-groups <throttling>
no ip igmp snooping max-groups
```

Parameter

<i><throttling></i>	Maximum number of IGMP group registration
---------------------------	---

Default

Mode

Interface Configuration

Usage

IGMP group throttling configuration.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# ip igmp snooping max-groups 10
```

ip igmp snooping mrouter

Syntax

```
ip igmp snooping mrouter
no ip igmp snooping mrouter
```

Parameter

Default

Mode

Interface Configuration

Usage

Multicast router port configuration.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# ip igmp snooping mrouter
```

ip igmp snooping priority

Syntax

```
ip igmp snooping priority <cos_priority>
no ip igmp snooping priority
```

Parameter

<i><cos_priority></i>	CoS priority ranges from 0 to 7
-----------------------------	---------------------------------

Default

Mode

VLAN Interface Configuration

Usage

Interface CoS priority configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ip igmp snooping priority 4
```

ip igmp snooping querier

Syntax

```
ip igmp snooping querier { election | address <v_ipv4_ucast> }
no ip igmp snooping querier
```

Parameter

election	Act as an IGMP Querier to join Querier-Election
-----------------	---

<code><v_ipv4_ucast></code>	A valid IPv4 unicast address
-----------------------------------	------------------------------

Default**Mode**

VLAN Interface Configuration

Usage

IGMP Querier configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ip igmp snooping querier election
```

ip igmp snooping query-interval**Syntax**

```
ip igmp snooping query-interval <ipmc_qi>
no ip igmp snooping query-interval
```

Parameter

<code><ipmc_qi></code>	1 - 31744 seconds
------------------------------	-------------------

Default**Mode**

VLAN Interface Configuration

Usage

Query Interval in seconds configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ip igmp snooping query-interval 100
```

ip igmp snooping query-max-response-time

Syntax

```
ip igmp snooping query-max-response-time <ipmc_qri>
no ip igmp snooping query-max-response-time
```

Parameter

<ipmc_qri>	0 - 31744 tenths of seconds
------------	-----------------------------

Default

Mode

VLAN Interface Configuration

Usage

Query Response Interval in tenths of seconds configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ip igmp snooping query-max-response-time 100
```

ip igmp snooping robustness-variable

Syntax

```
ip igmp snooping robustness-variable <ipmc_rv>
no ip igmp snooping robustness-variable
```

Parameter

<ipmc_rv>	Packet loss tolerance count from 1 to 255
-----------	---

Default

Mode

VLAN Interface Configuration

Usage

Robustness Variable configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ip igmp snooping robustness-variable 10
```

ip igmp snooping unsolicited-report-interval

Syntax

```
ip igmp snooping unsolicited-report-interval <ipmc_uri>
no ip igmp snooping unsolicited-report-interval
```

Parameter

<ipmc_uri>	0 - 31744 seconds
------------	-------------------

Default

Mode

VLAN Interface Configuration

Usage

Unsolicited Report Interval in seconds configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ip igmp snooping unsolicited-report-interval 100
```

ip igmp snooping vlan

Syntax

```
ip igmp snooping vlan <v_vlan_list>
no ip igmp snooping vlan [ <v_vlan_list> ]
```

Parameter

<v_vlan_list>	VLAN identifier (VID)
---------------	-----------------------

Default**Mode**

Global Configuration

Usage

IGMP VLAN configuration.

Example

```
(config)# ip igmp snooping vlan 1
```

ip igmp ssm-range**Syntax**

```
ip igmp ssm-range <v_ipv4_mcast> <ipv4_prefix_length>
no ip igmp ssm-range
```

Parameter

<i><v_ipv4_mcast></i>	Valid IPv4 multicast address
<i><ipv4_prefix_length></i>	Prefix length ranges from 4 to 32

Default**Mode**

Global Configuration

Usage

IPv4 address range of Source Specific Multicast configuration.

Example

```
(config)# ip igmp ssm-range 239.255.1.1 32
```

ip igmp unknown-flooding**Syntax**

```
ip igmp unknown-flooding
```

no ip igmp unknown-flooding

Parameter

Default

Mode

Global Configuration

Usage

Flooding unregistered IPv4 multicast traffic configuration.

Example

```
(config)# ip igmp unknown-flooding
```

ipmc profile

Syntax

```
ipmc profile [ <profile_name> ]
no ipmc profile [ <profile_name> ]
```

Parameter

<i><profile_name></i>	Profile name in 16 characters.
-----------------------------	--------------------------------

Default

IPMC profile filtering is disabled by default.

Mode

Global Configuration

Usage

Enable IPMC profile filtering configuration. When the IPMC profile filtering is required, use this command to enable the profile filtering.

Example

```
(config)# ipmc profile
```

ipmc range

Syntax

```
ipmc range <entry_name> { <v_ipv4_mcast> [ <v_ipv4_mcast_1> ] | <v_ipv6_mcast>
[ <v_ipv6_mcast_1> ] }
no ipmc range <entry_name>
```

Parameter

<entry_name>	Range entry name in 16 characters
<v_ipv4_mcast>	Valid IPv4 multicast address
<v_ipv4_mcast_1>	Valid IPv4 multicast address that is not less than start address
<v_ipv6_mcast>	Valid IPv6 multicast address
<v_ipv6_mcast_1>	Valid IPv6 multicast address that is not less than start address

Default

IPMC profile filtering is disabled by default.

Mode

Global Configuration

Usage

Create or update an IPMC profile range entry. When the IPMC profile address range is required, use this command to configure the profile address range.

Example

This example shows how to execute ipmc range command in global configuration mode
(config)# **ipmc range Video 230.0.0.0 230.0.0.255**

ipv6 mld host-proxy

Syntax

```
ipv6 mld host-proxy [ leave-proxy ]
no ipv6 mld host-proxy [ leave-proxy ]
```

Parameter

<i>leave-proxy</i>	MLD proxy for leave configuration
--------------------	-----------------------------------

Default

Mode

Global Configuration

Usage

MLD proxy configuration.

Example

```
(config)# ipv6 mld host-proxy
```

ipv6 mld snooping(global)

Syntax

```
ipv6 mld snooping  
no ipv6 mld snooping
```

Parameter

Default

Mode

Global Configuration

Usage

Snooping MLD configuration.

Example

```
(config)# ipv6 mld snooping
```

ip mld snooping(VLANIF)

Syntax

```
ip mld snooping  
no ipv6 mld snooping
```

Parameter**Default****Mode**

VLAN Interface Configuration

Usage

Snooping MLD configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ipv6 mld snooping
```

ipv6 mld snooping compatibility**Syntax**

```
ipv6 mld snooping compatibility { auto | v1 | v2 }
no ipv6 mld snooping compatibility
```

Parameter

auto	Compatible with MLDv1/MLDv2
v1	Forced MLDv1
v2	Forced MLDv2

Default**Mode**

VLAN Interface Configuration

Usage

Interface compatibility configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ipv6 mld snooping compatibility auto
```

ipv6 mld snooping filter

Syntax

```
ipv6 mld snooping filter <profile_name>
no ipv6 mld snooping filter
```

Parameter

<profile_name>	Profile name in 16 characters
----------------	-------------------------------

Default

Mode

Interface Configuration

Usage

Access control on MLD multicast group registration configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if-vlan)# ipv6 mld snooping filter abc
```

ipv6 mld snooping immediate-leave

Syntax

```
ipv6 mld snooping immediate-leave
no ipv6 mld snooping immediate-leave
```

Parameter

Default

Mode

Interface Configuration

Usage

Immediate leave configuration.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# ipv6 mld snooping immediate-leave
```

ipv6 mld snooping last-member-query-interval

Syntax

```
ipv6 mld snooping last-member-query-interval <ipmc_lmqi>
no ipv6 mld snooping last-member-query-interval
```

Parameter

<ipmc_lmqi>	0 - 31744 tenths of seconds
-------------	-----------------------------

Default

Mode

VLAN Interface Configuration

Usage

Last Member Query Interval in tenths of seconds configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ipv6 mld snooping last-member-query-interval 100
```

ipv6 mld snooping max-groups

Syntax

```
ipv6 mld snooping max-groups <throttling>
no ipv6 mld snooping max-groups
```

Parameter

<throttling>	Maximum number of MLD group registration
--------------	--

Default**Mode**

Interface Configuration

Usage

IGMP group throttling configuration.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# ipv6 mld snooping max-groups 10
```

ipv6 mld snooping mrouter**Syntax**

```
ipv6 mld snooping mrouter
no ipv6 mld snooping mrouter
```

Parameter**Default****Mode**

Interface Configuration

Usage

Multicast router port configuration.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# ipv6 mld snooping mrouter
```

ipv6 mld snooping priority**Syntax**

```
ipv6 mld snooping priority <cos_priority>
no ipv6 mld snooping priority
```

Parameter

<code><cos_priority></code>	CoS priority ranges from 0 to 7
-----------------------------------	---------------------------------

Default**Mode**

VLAN Interface Configuration

Usage

Interface CoS priority configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ipv6 mld snooping priority 4
```

ipv6 mld snooping querier election**Syntax**

```
ipv6 mld snooping querier election
no ipv6 mld snooping querier election
```

Parameter

<code>election</code>	Act as an MLD Querier to join Querier-Election
-----------------------	--

Default**Mode**

VLAN Interface Configuration

Usage

MLD Querier configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ipv6 mld snooping querier election
```

ipv6 mld snooping query-interval

Syntax

```
ipv6 mld snooping query-interval <ipmc_qi>
no ipv6 mld snooping query-interval
```

Parameter

<ipmc_qi>	1 - 31744 seconds
-----------	-------------------

Default

Mode

VLAN Interface Configuration

Usage

Query Interval in seconds configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ipv6 mld snooping query-interval 100
```

ipv6 mld snooping query-max-response-time

Syntax

```
ipv6 mld snooping query-max-response-time <ipmc_qri>
no ipv6 mld snooping query-max-response-time
```

Parameter

<ipmc_qri>	0 - 31744 tenths of seconds
------------	-----------------------------

Default

Mode

VLAN Interface Configuration

Usage

Query Response Interval in tenths of seconds configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ipv6 mld snooping query-max-response-time 100
```

ipv6 mld snooping robustness-variable**Syntax**

```
ipv6 mld snooping robustness-variable <ipmc_rv>
no ipv6 mld snooping robustness-variable
```

Parameter

<ipmc_rv>	Packet loss tolerance count from 1 to 255
-----------	---

Default**Mode**

VLAN Interface Configuration

Usage

Robustness Variable configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ipv6 mld snooping robustness-variable 10
```

ipv6 mld snooping unsolicited-report-interval**Syntax**

```
ipv6 mld snooping unsolicited-report-interval <ipmc_uri>
no ipv6 mld snooping unsolicited-report-interval
```

Parameter

<ipmc_uri>	0 - 31744 seconds
------------	-------------------

Default**Mode**

VLAN Interface Configuration

Usage

Unsolicited Report Interval in seconds configuration.

Example

```
(config)# interface vlan 100
(config-if-vlan)# ipv6 mld snooping unsolicited-report-interval 100
```

ipv6 mld snooping vlan**Syntax**

```
ipv6 mld snooping vlan <v_vlan_list>
no ipv6 mld snooping vlan [ <v_vlan_list> ]
```

Parameter

<v_vlan_list>	VLAN identifier (VID)
---------------	-----------------------

Default**Mode**

Global Configuration

Usage

IGMP VLAN configuration.

Example

```
(config)# ipv6 mld snooping vlan 1
```

ipv6 mld ssm-range**Syntax**

```
ipv6 mld ssm-range <v_ipv6_mcast> <ipv6_prefix_length>
no ipv6 mld ssm-range
```

Parameter

<code><v_ipv6_mcast></code>	Valid IPv6 multicast address
<code><ipv6_prefix_length></code>	Prefix length ranges from 8 to 128

Default**Mode**

Global Configuration

Usage

IPv6 address range of Source Specific Multicast configuration.

Example

```
(config)# ipv6 mld ssm-range FF02:100::01/64
```

ipv6 mld unknown-flooding**Syntax**

```
ipv6 mld unknown-flooding
no ipv6 mld unknown-flooding
```

Parameter**Default****Mode**

Global Configuration

Usage

Flooding unregistered IPv6 multicast traffic configuration.

Example

```
(config)# ipv6 mld unknown-flooding
```

range

Syntax

```
range <entry_name> { permit | deny } [ log ] [ next <next_entry> ]
no range <entry_name>
```

Parameter

<entry_name>	Range entry name in 16 characters
<next_entry>	Range entry name in 16 characters

Default

Mode

IPMC Profile Configuration

Usage

Create or update the filtering rule in an IPMC profile.

Example

```
(config)# ipmc profile example
(config-ipmc-profile)# range Video permit log
```

show ip igmp snooping

Syntax

```
show ip igmp snooping [ vlan <v_vlan_list> ] [ group-database [ interface ( <port_type>
[ <v_port_type_list> ) ] ] [ sfm-information ] ] [ detail ]
```

Parameter

<v_vlan_list>	VLAN identifier (VID)
<port_type>	Port type in Fast, Giga or Tengiga ethernet
<v_port_type_list>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Show IGMP snooping configuration.

Example

```
# show ip igmp snooping
```

show ip igmp snooping mrouter**Syntax**

```
show ip igmp snooping mrouter [ detail ]
```

Parameter**Default****Mode**

Privileged EXEC

Usage

Show multicast router port status in IGMP configuration.

Example

```
# show ip igmp snooping mrouter
```

show ipmc profile**Syntax**

```
show ipmc profile [ <profile_name> ] [ detail ]
```

Parameter

<profile_name>	Profile name in 16 characters
----------------	-------------------------------

Default**Mode**

Privileged EXEC

Usage

This privileged execution command displays the settings for entire IPMC profile ranges or for a specific IPMC profile range.

Example

```
# show ipmc profile EXAMPLE
Profile: EXAMPLE (In HYBRID Mode)
Description: A Profile
HEAD-> Video (Permit the following range)
Start Address: 225.0.0.0
End Address : 225.0.0.255
NEXT-> Audio (Deny the following range and log the matched entry)
Start Address: ff3e:0000:0000:0000:0000:0000:1234
End Address : ff3e:0000:0000:0000:0000:0000:2234
```

show ipmc range

Syntax

```
show ipmc range [ <entry_name> ]
```

Parameter

<entry_name>	Range entry name in 16 characters
--------------	-----------------------------------

Default

Mode

Privileged EXEC

Usage

This privileged execution command displays the settings for entire IPMC profile ranges or for a specific IPMC profile range.

Example

```
# show ipmc range
Range Name : Audio
Start Address: ff3e:0000:0000:0000:0000:0000:1234
End Address : ff3e:0000:0000:0000:0000:0000:2234
Range Name : Video
Start Address: 226.1.2.3
```

End Address : 226.2.2.3

show ipv6 mld snooping

Syntax

```
show ipv6 mld snooping [ vlan <v_vlan_list> ] [ group-database [ interface ( <port_type>
[ <v_port_type_list> ) ] ] [ sfm-information ] ] [ detail ]
```

Parameter

<v_vlan_list>	VLAN identifier (VID)
<port_type>	Port type in Fast, Giga or Tengiga ethernet
<v_port_type_list>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Show IPv6 MLD snooping configuration.

Example

```
# show ipv6 mld snooping
```

show ipv6 mld snooping mrouter

Syntax

```
show ipv6 mld snooping mrouter [ detail ]
```

Parameter

Default

Mode

Privileged EXEC

Usage

Show IPv6 multicast router port status in MLD.

Example

```
# show ipv6 mld snooping mrouter
```

9. Network Administration

clear ip arp

Syntax

```
clear ip arp
```

Parameter**Default****Mode**

Privileged EXEC

Usage

Clear ARP cache

Example

```
# clear ip arp
```

clear ip statistics

Syntax

```
show ip statistics [ system ] [ interface vlan <v_vlan_list> ] [ icmp ] [ icmp-msg <type> ]
```

Parameter

<v_vlan_list>	VLAN identifier (VID)
<type>	ICMP message type ranges from 0 to 255

Default**Mode**

Privileged EXEC

Usage

Clear IP statistics.

Example

```
# clear ip statistics
```

clear ipv6 neighbors**Syntax**

```
clear ipv6 neighbors
```

Parameter**Default****Mode**

Privileged EXEC

Usage

Clear IPv6 neighbors cache

Example

```
# clear ip neighbors
```

clear ipv6 statistics**Syntax**

```
show ipv6 statistics [ system ] [ interface vlan <v_vlan_list> ] [ icmp ] [ icmp-msg <type> ]
```

Parameter

<v_vlan_list>	VLAN identifier (VID)
---------------	-----------------------

<i><type></i>	ICMP message type ranges from 0 to 255
---------------------	--

Default**Mode**

Privileged EXEC

Usage

Clear IPv6 statistics.

Example

```
# clear ipv6 statistics
```

clock timezone**Syntax**

```
clock timezone offset <offset_var>
```

Parameter

<i><offset_var></i>	offset
<i><type></i>	ICMP message type ranges from 0 to 255

Default**Mode**

Global Configuration

Usage

Configure time-of-day clock.

Example

```
# clock timezone offset 0
```

default snmp-server community

Syntax

```
default snmp-server community v2c { ro | rw }
```

Parameter

ro	Read only
rw	Read write

Default

Mode

Global Configuration

Usage

Example

```
(config) # default snmp-server community v2c ro
```

show clock

Syntax

```
show clock
```

Parameter

Default

Mode

Privileged EXEC

Usage

Show system clock.

Example

```
# show clock
System Time      : 1970-01-01T01:06:49+00:00
```

show ip arp

Syntax

```
show ip arp
```

Parameter

Default

Mode

Privileged EXEC

Usage

Print ARP table.

Example

```
# show ip arp
192.168.0.20 via VLAN1:00-e0-4c-2e-2c-dd
```

show ip domain

Syntax

```
show ip domain
```

Parameter

Default

Mode

Privileged EXEC

Usage

Show IP domain.

Example

```
# show ip domain
Current domain name is not configured.
```

show ip statistics

Syntax

```
show ip statistics [ system ] [ interface vlan <v_vlan_list> ] [ icmp ] [ icmp-msg <type> ]
```

Parameter

<v_vlan_list>	VLAN identifier (VID)
<type>	ICMP message type ranges from 0 to 255

Default

Mode

Privileged EXEC

Usage

Show IP traffic statistics.

Example

```
# show ip statistics system
IPv4 statistics:
  Rcvd: 39672 total in 4194505 bytes
        9967 local destination, 0 forwarding
        0 header error, 13737 address error, 0 unknown protocol
        0 no route, 0 truncated, 29525 discarded
  Sent: 4771 total in 1400350 bytes
        4591 generated, 0 forwarded
        3 no route, 0 discarded
  Frags: 0 reassemble (0 reassembled, 0 couldn't reassemble)
        0 fragment (0 fragmented, 0 couldn't fragment)
        0 fragment created
  Mcast: 33044 received in 3079054 bytes
        0 sent in 0 byte
  Bcast: 17256 received, 0 sent
```


show ipv6 neighbor

Syntax

```
show ipv6 neighbor [ interface vlan <v_vlan_list> ]
```

Parameter

<v_vlan_list>	VLAN identifier (VID)
---------------	-----------------------

Default

Mode

Privileged EXEC

Usage

Show IPv6 neighbor.

Example

```
# show ipv6 neighbor
fe80::144f:be:99d0:5796 via VLAN1: 40-83-1d-eb-69-9f Dynamic/STALE
fe80::169d:9ff:fee6:5854 via VLAN1: 14-9d-09-e6-58-54 Dynamic/STALE
```

show ipv6 statistics

Syntax

```
show ipv6 statistics [ system ] [ interface vlan <v_vlan_list> ] [ icmp ] [ icmp-msg <type> ]
```

Parameter

<v_vlan_list>	VLAN identifier (VID)
<type>	ICMP message type ranges from 0 to 255

Default

Mode

Privileged EXEC

Usage

Show IPv6 traffic statistics.

Example

```
# show ipv6 statistics system
IPv6 statistics:
  Rcvd: 565 total in 33744 bytes
        565 local destination, 0 forwarding
        0 header error, 0 address error, 0 unknown protocol
        0 no route, 0 truncated, 0 discarded
  Sent: 10 total in 696 bytes
        14 generated, 0 forwarded
        0 no route, 0 discarded
  Frags: 0 reassemble (0 reassembled, 0 couldn't reassemble)
        0 fragment (0 fragmented, 0 couldn't fragment)
        0 fragment created
  Mcast: 565 received in 33744 bytes
        10 sent in 696 bytes
  Bcast: 0 received, 0 sent
```

10. PoE

poe capacitor-detect

Syntax

```
poe capacitor-detect
no poe capacitor-detect
```

Parameter

Default

Mode

Global Configuration

Usage

Enable or disable capacitor detection.

Example

```
(config)# poe capacitor-detect
```

poe description

Syntax

```
poe description <poe_description>
no poe description
```

Parameter

<poe_description>	PoE interface description
-------------------	---------------------------

Default

Mode

Interface Configuration

Usage

add description for specific PoE port.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# poe description abc
```

poe management mode

Syntax

```
poe management mode { class-consumption | class-reserved-power |
allocation-consumption | allocation-reserved-power | lldp-consumption |
lldp-reserved-power }
no poe management mode
```

Parameter

class-consumption	Max. port power determined by class, and power is managed according to power consumption
class-reserved-power	Max. port power determined by class, and power is managed according to reserved power.
allocation-consumption	Max. port power determined by allocated, and power is managed according to power consumption.
allocation-reserved-power	Max. port power determined by allocated, and power is managed according to reserved power.

lldp-consumption	Max. port power determined by LLDP Media protocol, and power is managed according to power consumption
lldp-reserved-power	Max. port power determined by LLDP Media protocol, and power is managed according to reserved power

Default

Management mode is class-consumption.

Mode

Global Configuration

Usage

Use management mode to configure PoE power management method..

Example

```
(config)# poe management mode class-reserved-power
```

poe mode

Syntax

```
poe mode { disable | standard | plus | bt }
no poe mode
```

Parameter

disable	Set mode to Disable
standard	Set mode to PoE (Maximum power 15.4 W, if port power limit is current above 15.4W, it is automatically adjusted to 15.4W)
plus	Set mode to PoE+ (Maximum power 30.0 W)
bt	Set mode to PoE-BT (Maximum power 90.0 W)

Default

PoE is plus.

Mode

Interface Configuration

Usage

Use poe mode to configure of PoE mode.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# poe mode plus
```

poe power limit

Syntax

```
poe power limit { <v_word9> }
no poe power limit
```

Parameter

<v_word9>	Maximum power for the interface (0-15.4 Watt for PoE standard mode, 0-30.0 Watt for PoE plus mode)
-----------	--

Default

Maximum power is 15.4W.

Mode

Interface Configuration

Usage

Use poe power limit to configure the maximum allowed power for the interface when power management is in allocation mode.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# poe power limit 30
```

poe priority

Syntax

```
poe priority { low | high | critical }
no poe priority
```

Parameter

low	Set priority to low.
high	Set priority to high
critical	Set priority to critical.

Default

Default PoE priority is low.

Mode

Interface Configuration

Usage

Use poe priority to configure PoE priority.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# poe priority high
```

poe schedule**Syntax**

```
poe schedule { sunday | monday | tuesday | wednesday | thursday | friday | saturday }
start { <start_0_to_50> } end { <end_0_to_50> }
no poe schedule { sunday | monday | tuesday | wednesday | thursday | friday | saturday }
```

Parameter

<i><start_0_to_50></i>	The Start represents the start time(PoE output will be enabled then) of PoE scheduling for the port.
<i><end_0_to_50></i>	The End represents the end time(PoE output will be disabled then) of PoE scheduling for the port.

Default

Default is disabled.

Mode

Interface Configuration

Usage

Use to configure PoE scheduling method.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# poe schedule sunday start 6 end 8
```

poE supply

Syntax

```
poE supply sid <v_1_to_16> <v_1_to_2000>
no poE supply [ sid <v_1_to_16> ]
```

Parameter

<v_1_to_16>	runtime
<v_1_to_2000>	Maximum power the power supply can deliver

Default

Power supply maximum is 2000W

Mode

Global Configuration

Usage

Use to specify the maximum power the power supply can deliver.

Example

```
(config)# poE supply 1000
```

show poE

Syntax

```
show poE [ interface ( <port_type> [ <v_port_type_list> ] ) ]
```

Parameter

<code><port_type></code>	Port type in Fast, Giga or Tengiga ethernet
<code><v_port_type_list></code>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default**Mode**

Privileged EXEC

Usage

Use to show PoE status for the switch.

Example

```
# show poe
Interface          PD Class  Port Status          Power Used [W]  Current Used [mA]
-----
GigabitEthernet 1/1    0      PoE turned OFF      0.0             0
GigabitEthernet 1/2    0      PoE turned OFF      0.0             0
GigabitEthernet 1/3    0      PoE turned OFF      0.0             0
GigabitEthernet 1/4    0      PoE turned OFF      0.0             0
2.5GigabitEthernet 1/1 does not have PoE support
2.5GigabitEthernet 1/2 does not have PoE support
```

11. QoS

qos cos

Syntax

```
qos cos <cos>
no qos cos
```

Parameter

<code><cos></code>	Specific class of service
--------------------------	---------------------------

Default**Mode**

Interface Configuration

Usage

Class of service configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos cos 0
```

qos dei**Syntax**

```
qos dei <dei>
no qos dei
```

Parameter

<dei>	Specific Drop Eligible Indicator
-------	----------------------------------

Default**Mode**

Interface Configuration

Usage

Drop Eligible Indicator configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos dei 0
```

qos dpl**Syntax**

```
qos dpl <dpl>
```

no qos dpl

Parameter

<code><dpl></code>	Specific drop precedence level
--------------------------	--------------------------------

Default

Mode

Interface Configuration

Usage

Drop precedence level configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos dpl 0
```

qos dscp-classify

Syntax

```
qos dscp-classify { zero | selected | any }
no qos dscp-classify
```

Parameter

zero	Classify to new DSCP if DSCP is 0
selected	Classify to new DSCP if classify is enabled for specific DSCP value in global DSCP classification map
any	Classify to new DSCP always

Default

Mode

Interface Configuration

Usage

DSCP ingress classification.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos dscp-classify zero
```

qos dscp-remark

Syntax

```
qos dscp-remark { rewrite | remap | remap-dp }
no qos dscp-remark
```

Parameter

rewrite	Rewrite DSCP field with classified DSCP value (no translation)
remap	Rewrite DSCP field using classified DSCP and DPL=0 remapped through global dscp-egress-translation map
remap-dp	Rewrite DSCP field using classified DSCP and DPL remapped through global DSCP egress translation map

Default

Mode

Interface Configuration

Usage

DSCP egress remarking.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos dscp-remark remap
```

qos dscp-translate

Syntax

```
qos dscp-translate
no qos dscp-translate
```

Parameter**Default****Mode**

Interface Configuration

Usage

DSCP ingress translation.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos dscp-translate
```

qos map cos-dscp**Syntax**

```
qos map cos-dscp <cos> dpl <dpl> dscp { <dscp_num> | { be | af11 | af12 | af13 | af21 |
af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef |
va } }
no qos map cos-dscp <cos> dpl <dpl>
```

Parameter

<cos>	Specific class of service or range
<dpl>	Specific drop precedence level or range
<dscp_num>	Specific DSCP

Default**Mode**

Global Configuration

Usage

Map for COS to DSCP.

Example

```
(config)# qos map cos-dscp 0 dpl 0 dscp 0
```

qos map cos-tag cos

Syntax

```
qos map cos-tag cos <cos> dpl <dpl> pcp <pcp> dei <dei>
no qos map cos-tag cos <cos> dpl <dpl>
```

Parameter

<cos>	Specific class of service or range
<dpl>	Specific drop precedence level or range
<pcp>	Specific PCP
<dei>	Specific DEI

Default

Mode

Interface Configuration

Usage

Map for cos to tag configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos map cos-tag cos 0 dpl 0 pcp 0 dei 0
```

qos map dscp-classify

Syntax

```
qos map dscp-classify { <dscp_num> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 |
af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } }
no qos map dscp-classify { <dscp_num> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 |
af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } }
```

Parameter

<dscp_num>	Specific DSCP or range
------------	------------------------

Default**Mode**

Global Configuration

Usage

Map for DSCP classify enable.

Example

```
(config)# qos map dscp-classify 0
```

qos map dscp-cos**Syntax**

```
qos map dscp-cos { <dscp_num> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 |
af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } } cos <cos> dpl <dpl>
no qos map dscp-cos { <dscp_num> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 |
af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } }
```

Parameter

<i><dscp_num></i>	Specific DSCP or range
<i><cos></i>	Specific class of service
<i><dpl></i>	Specific drop precedence level

Default**Mode**

Global Configuration

Usage

Map for DSCP to COS.

Example

```
(config)# qos map dscp-cos 0 cos 1 dpl 1
```

qos map dscp-egress-translation

Syntax

```
qos map dscp-egress-translation { <dscp_num> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } }
<dpl> to { <dscp_num_tr> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } }
no qos dscp-egress-translation { <dscp_num> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } } <dpl>
```

Parameter

<dscp_num>	Specific DSCP or range
<dpl>	Specific drop precedence level or range
<dscp_num_tr>	Translated DSCP value

Default

Mode

Global Configuration

Usage

Map for DSCP egress translation.

Example

```
(config)# qos map dscp-egress-translation 0 0 to 10
```

qos map dscp-ingress-translation

Syntax

```
qos map dscp-ingress-translation { <dscp_num> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } } to
{ <dscp_num_tr> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } }
no qos dscp-ingress-translation { <dscp_num> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } }
```

Parameter

<dscp_num>	Specific DSCP or range
<dscp_num_tr>	Translated DSCP value

Default**Mode**

Global Configuration

Usage

Map for DSCP ingress translation.

Example

```
(config)# qos map dscp-ingress-translation 0 to 10
```

qos map tag-cos**Syntax**

```
qos map tag-cos pcp <pcp> dei <dei> cos <cos> dpl <dpl>
no qos map tag-cos pcp <pcp> dei <dei>
```

Parameter

<pcp>	Specific PCP or range
<dei>	Specific DEI or range
<cos>	Specific class of service
<dpl>	Specific drop precedence level

Default**Mode**

Interface Configuration

Usage

Map for tag to cos configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos map tag-cos pcp 0 dei 0 cos 0 dpl 0
```


qos pcp

Syntax

```
qos pcp <pcp>
no qos pcp
```

Parameter

<pcp>	Specific Priority Code Point
-------	------------------------------

Default

Mode

Interface Configuration

Usage

Priority Code Point configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos pcp 0
```

qos policer

Syntax

```
qos policer <rate> [ kbps | mbps | fps | kfps ] [ flowcontrol ]
no qos policer
```

Parameter

<rate>	Policer rate (default kbps). Internally rounded up to the nearest value supported by the port policer.
--------	--

Default

Mode

Interface Configuration

Usage

Policer configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos policer 1000
```

qos qce refresh

Syntax

```
qos qce refresh
```

Parameter

Default

Mode

Global Configuration

Usage

Refresh QCE tables in hardware.

Example

```
(config)# qos map refresh
```

qos qce

Syntax

```
qos qce { [ update ] } <qce_id> [ { next <qce_id_next> } | last ] [ interface ( <port_type>
[ <port_list> ] ) ] [ smac { <smac> | <smac_24> | any } ] [ dmac { <dmac> | unicast |
multicast | broadcast | any } ] [ tag { [ type { untagged | tagged | c-tagged | s-tagged |
any } ] [ vid { <ot_vid> | any } ] [ pcp { <ot_pcp> | any } ] [ dei { <ot_dei> | any } ] ] ]
[ inner-tag { [ type { untagged | tagged | c-tagged | s-tagged | any } ] [ vid { <it_vid> |
any } ] [ pcp { <it_pcp> | any } ] [ dei { <it_dei> | any } ] ] ] [ frame-type { any | { etype
[ { <etype_type> | any } ] } | llc [ dsap { <llc_dsap> | any } ] [ ssap { <llc_ssap> | any } ]
[ control { <llc_control> | any } ] } ] | { snap [ { <snap_data> | any } ] } | ipv4 [ proto { <pr4> |
tcp | udp | any } ] [ sip { <sip4> | any } ] [ dip { <dip4> | any } ] [ dscp { <dscp4> | { be | af11
| af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 |
cs5 | cs6 | cs7 | ef | va } | any } ] [ fragment { yes | no | any } ] [ sport { <sp4> | any } ] [ dport
{ <dp4> | any } ] ] | { ipv6 [ proto { <pr6> | tcp | udp | any } ] [ sip { <sip6> | any } ] [ dip
{ <dip6> | any } ] [ dscp { <dscp6> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 |
af33 | af41 | af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } | any } ] [ sport { <sp6>
```

```
| any ] ] [ dport { <dp6> | any ] ] } ] [ action { [ cos { <action_cos> | default } ] [ dpl
{ <action_dpl> | default } ] [ pcp-dei { <action_pcp> <action_dei> | default } ] [ dscp
{ <action_dscp_dscp> | { be | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 |
af42 | af43 | cs1 | cs2 | cs3 | cs4 | cs5 | cs6 | cs7 | ef | va } | default } ] [ policy
{ <action_policy> | default } ] ] ]
no qos qce <qce_id_range>
```

Parameter

<qce_id>	QCE ID
<qce_id_next>	The next QCE ID
<port_type>	Port interface
<port_list>	Port list in 1/1-4
<smac>	Matched SMAC (XX-XX-XX-XX-XX-XX)
<ot_vid>	Matched VLAN ID value/range
<ot_pcp>	Matched PCP value/range
<ot_dei>	Matched DEI
<it_vid>	Matched VLAN ID value/range
<it_pcp>	Matched PCP value/range
<it_dei>	Matched DEI
<etype_type>	Matched EtherType
<llc_dsap>	Matched LLC DSAP
<llc_ssap>	Matched LLC SSAP
<llc_control>	Matched LLC Control byte
<snap_data>	Setup matched SNAP EtherType
<sip4>	Matched source IP address/mask
<dip4>	Matched destination IP address/mask
<dscp4>	Matched DSCP value/range
<sp4>	Match UDP/TCP source port value/range
<dp4>	Match UDP/TCP destination port value/range
<pr6>	Matched IP protocol
<sip6>	Matched source IP address/mask
<dip6>	Matched destination IP address/mask
<dscp6>	Matched DSCP value/range
<sp6>	Match UDP/TCP source port value/range
<dp6>	Match UDP/TCP destination port value/range
<action_cos>	Assign class of service
<action_dpl>	Assign drop precedence level
<action_pcp>	Assign PCP
<action_dei>	Assign DEI
<action_dscp_dscp>	Assign DSCP
<action_policy>	Assign ACL policy

<code><qce_id_range></code>	QCE ID
-----------------------------------	--------

Default**Mode**

Global Configuration

Usage

Qos qce configuration.

Example

```
(config)# qos qce 1 frame-type any
```

qos qce addr**Syntax**

```
qos qce { [ addr { source | destination } ] [ key { double-tag | normal | ip-addr |
mac-ip-addr } ] }
no qos qce { [ addr ] [ key ] }
```

Parameter**Default****Mode**

Interface Configuration

Usage

Setup address match mode.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos qce addr source
```

qos queue-policer**Syntax**

```
qos queue-policer queue <queue> <rate> [ kbps | mbps ]
```

```
no qos queue-policer queue <queue>
```

Parameter

<queue>	Specific queue or range
<rate>	Policer rate (default kbps). Internally rounded up to the nearest value supported by the queue policer

Default

Mode

Interface Configuration

Usage

Qos queue policer rate configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos queue-policer queue 0 1000
```

qos queue-shaper

Syntax

```
qos queue-shaper queue <queue> <rate> [ kbps | mbps ] [ excess ] [ rate-type { line | data } ]
no qos queue-shaper queue <queue>
```

Parameter

<queue>	Specific queue or range
<rate>	Shaper rate (default kbps). Internally rounded up to the nearest value supported by the queue shaper

Default

Mode

Interface Configuration

Usage

Qos queue shaper rate configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos queue-shaper 0 1000
```

qos shaper

Syntax

```
qos shaper <pbs> <rate> [ kbps | mbps ] [ rate-type { line | data } ]
no qos shaper
```

Parameter

<pbs>	Shaper Burst Size (KB). Internally rounded up to the nearest value supported by the port shaper.
<rate>	Shaper rate (default kbps). Internally rounded up to the nearest value supported by the port shaper.

Default

Mode

Interface Configuration

Usage

QoS shaper configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos shaper 4096 32768
```

qos storm

Syntax

```
qos storm { unicast | multicast | broadcast } <rate> [ fps | kfps | kbps | mbps ]
no qos storm { unicast | multicast | broadcast }
```

Parameter

unicast	Police unicast frames
multicast	Police multicast frames

broadcast	Police broadcast frames
<i><rate></i>	Policer rate (default fps). Internally rounded up to the nearest value supported by the storm policer

Default**Mode**

Global Configuration

Usage

QoS global storm policer Configuration.

Example

```
(config)# qos storm unicast 16 fps
```

qos tag-remark**Syntax**

```
qos tag-remark { pcp <pcp> dei <dei> | mapped }
no qos tag-remark
```

Parameter

<i><pcp></i>	Specific PCP
<i><dei></i>	Specific DEI

Default**Mode**

Interface Configuration

Usage

Tag remarking configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos tag-remark pcp 0 dei 0
```

qos trust dscp

Syntax

```
qos trust dscp
no qos trust dscp
```

Parameter

Default

Mode

Interface Configuration

Usage

Trust dscp configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos trust dscp
```

qos trust tag

Syntax

```
qos trust tag
no qos trust tag
```

Parameter

Default

Mode

Interface Configuration

Usage

Trust tag configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos trust tag
```


qos wrr

Syntax

```
qos wrr <w0> <w1> <w2> <w3> <w4> <w5>
no qos wrr
```

Parameter

<w0>	Weight for queue 0
<w1>	Weight for queue 1
<w2>	Weight for queue 2
<w3>	Weight for queue 3
<w4>	Weight for queue 4
<w5>	Weight for queue 5

Default

Mode

Interface Configuration

Usage

Weighted round robin configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# qos wrr 10 10 10 20 20 30
```

show qos

Syntax

```
show qos [ { interface [ ( <port_type> [ <port> ] ) ] } | wred | { maps [ dscp-cos ]
[ dscp-ingress-translation ] [ dscp-classify ] [ cos-dscp ] [ dscp-egress-translation ] } |
storm | { qce [ <qce> ] } ]
```

Parameter

<port_type>	Port type in Fast, Giga or Tengiga ethernet
<port>	List of Port ID, ex, 1/1,3-5;2/2-4,6

<code><qce></code>	QCE ID
--------------------------	--------

Default**Mode**

Privileged EXEC

Usage

Show QoS configuration.

Example

```
# show qos interface GigabitEthernet 1/1
interface GigabitEthernet 1/1
  qos cos 0
  qos pcp 0
  qos dpl 0
  qos dei 0
  qos trust tag disabled
  qos map tag-cos pcp 0 dei 0 cos 1 dpl 0
  qos map tag-cos pcp 0 dei 1 cos 1 dpl 1
  qos map tag-cos pcp 1 dei 0 cos 0 dpl 0
  qos map tag-cos pcp 1 dei 1 cos 0 dpl 1
  qos map tag-cos pcp 2 dei 0 cos 2 dpl 0
  qos map tag-cos pcp 2 dei 1 cos 2 dpl 1
  qos map tag-cos pcp 3 dei 0 cos 3 dpl 0
  .....
```

12. Routing

interface vlan

Syntax

```
interface vlan <vlist>
no interface vlan <vlist>
```

Parameter

<code><vlist></code>	List of VLAN interface numbers, 1~4095
----------------------------	--

Default**Mode**

Global Configuration

Usage

Select a VLAN interface to configure.

Example

```
(config)# interface vlan 100
(config-if-vlan)#
```

ip address**Syntax**

```
ip address { { <address> <netmask> } | { dhcp [ fallback <fallback_address>
<fallback_netmask> [ timeout <fallback_timeout> ] ] } }
no ip address
```

Parameter

<i><address></i>	IP address
<i><netmask></i>	IP netmask
dhcp	Enable DHCP
<i><fallback_address></i>	DHCP fallback address
<i><fallback_netmask></i>	DHCP fallback netmask
<i><fallback_timeout></i>	DHCP fallback timeout in seconds. Legal values are 0 to 4294967295 seconds

Default

Default IP address is 192.168.2.1, default IP netmask is 255.255.255.0.

Mode

VLAN Interface Configuration

Usage

IP address configuration.

Example

```
(config)# interface vlan 2
(config-if-vlan)# ip address 192.168.1.1 255.255.255.0
```

ip route**Syntax**

```
ip route <v_ipv4_addr> <v_ipv4_netmask> <v_ipv4_gw>
no ip route <v_ipv4_addr> <v_ipv4_netmask> <v_ipv4_gw>
```

Parameter

<v_ipv4_addr>	Network
<v_ipv4_netmask>	Netmask
<v_ipv4_gw>	Gateway

Default**Mode**

Global Configuration

Usage

Add new IP route.

Example

```
(config)# ip route 10.1.1.0 255.255.255.0 192.168.1.254
```

ip routing**Syntax**

```
ip routing
no ip routing
```

Parameter**Default****Mode**

Global Configuration

Usage

Configure IP routing mode.

Example

```
(config)# ip routing
```

ipv6 route**Syntax**

```
ipv6 route <v_ipv6_subnet> { <v_ipv6_ucast> / interface vlan <v_vlan_id> <v_ipv6_addr> }
no ipv6 route <v_ipv6_subnet> { <v_ipv6_ucast> / interface vlan <v_vlan_id>
<v_ipv6_addr> }
```

Parameter

<v_ipv6_subnet>	IPv6 prefix x:x:y/z
<v_ipv6_ucast>	IPv6 unicast address (except link-local address) of next-hop
<v_vlan_id>	VLAN identifier (VID)
<v_ipv6_addr>	IPv6 link-local address of next-hop

Default**Mode**

Global Configuration

Usage

Add new IPv6 route.

Example

```
(config)# ipv6 route 2001:1000::/64 2002:abcd::2
```

show ip route

Syntax

```
show ip route
```

Parameter

Default

Mode

Privileged EXEC

Usage

Show routing table status.

Example

```
# show ip route
127.0.0.1/32 via 127.0.0.1 <UP HOST>
192.168.0.0/24 via interface index 1 <UP HW_RT>
224.0.0.0/4 via 127.0.0.1 <UP>
```

show ipv6 route

Syntax

```
show ipv6 route
```

Parameter

Default

Mode

Privileged EXEC

Usage

Show IPv6 routing table status.

Example

```
# show ipv6 route
::1/128 via ::1 <UP HOST>
```

13. Security

access management

Syntax

```

access management
access management <access_id> <access_vid> <start_addr> [ to <end_addr> ] { [ web ]
[ snmp ] [ telnet ] | all }
access management <access_id> <access_vid> <start_addr> [ to <end_addr> ] { [ web ]
[ snmp ] [ telnet ] | all }
no access management
no access management <access_id_list>

```

Parameter

<i><access_id></i>	ID of access management entry
<i><access_vid></i>	The VLAN ID for the access management entry
<i><start_addr></i>	Start IP address
<i><end_addr></i>	End IP address
web	Web service
snmp	SNMP service
telnet	TELNET/SSH service
all	All services

Default

Mode

Global Configuration

Usage

Use the access management global configuration command to enable the access management. Use the no form of this command to disable the access management.

Example

```
(config)# access management 1 10 1.1.1.1 to 1.1.1.10 all
```

access-list ace

Syntax

```

access-list ace [ update ] <ace_id> [ next { <ace_id_next> | last } ] [ ingress { switch
<ingress_switch_id> | switchport { <ingress_switch_port_id> | <ingress_switch_port_list> } |
interface { <port_type> <ingress_port_id> | ( <port_type> [ <ingress_port_list> ] ) } | any } ]
[ policy <policy> [ policy-bitmask <policy_bitmask> ] ] [ tag { tagged | untagged | any } ]
[ vid { <vid> | any } ] [ tag-priority { <tag_priority> | 0-1 | 2-3 | 4-5 | 6-7 | 0-3 | 4-7 | any } ]
[ dmac-type { unicast | multicast | broadcast | any } ] [ frame-type { any | etype
[ etype-value { <etype_value> | any } ] [ smac { <etype_smac> | any } ] [ dmac
{ <etype_dmac> | any } ] | arp [ sip { <arp_sip> | any } ] [ dip { <arp_dip> | any } ] [ smac
{ <arp_smac> | any } ] [ arp-opcode { arp | rarp | other | any } ] [ arp-flag [ arp-request
{ <arp_flag_request> | any } ] [ arp-smac { <arp_flag_smac> | any } ] [ arp-tmac
{ <arp_flag_tmac> | any } ] [ arp-len { <arp_flag_len> | any } ] [ arp-ip { <arp_flag_ip> |
any } ] [ arp-ether { <arp_flag_ether> | any } ] ] | ipv4 [ sip { <sipv4> | any } ] [ dip { <dipv4>
| any } ] [ ip-protocol { <ipv4_protocol> | any } ] [ ip-flag [ ip-ttl { <ip_flag_ttl> | any } ]
[ ip-options { <ip_flag_options> | any } ] [ ip-fragment { <ip_flag_fragment> | any } ] ] |
ipv4-icmp [ sip { <sipv4_icmp> | any } ] [ dip { <dipv4_icmp> | any } ] [ icmp-type
{ <icmipv4_type> | any } ] [ icmp-code { <icmipv4_code> | any } ] [ ip-flag [ ip-ttl
{ <ip_flag_icmp_ttl> | any } ] [ ip-options { <ip_flag_icmp_options> | any } ] [ ip-fragment
{ <ip_flag_icmp_fragment> | any } ] ] | ipv4-udp [ sip { <sipv4_udp> | any } ] [ dip
{ <dipv4_udp> | any } ] [ sport { <sportv4_udp_start> [ to <sportv4_udp_end> ] | any } ]
[ dport { <dportv4_udp_start> [ to <dportv4_udp_end> ] | any } ] [ ip-flag [ ip-ttl
{ <ip_flag_udp_ttl> | any } ] [ ip-options { <ip_flag_udp_options> | any } ] [ ip-fragment
{ <ip_flag_udp_fragment> | any } ] ] | ipv4-tcp [ sip { <sipv4_tcp> | any } ] [ dip
{ <dipv4_tcp> | any } ] [ sport { <sportv4_tcp_start> [ to <sportv4_tcp_end> ] | any } ]
[ dport { <dportv4_tcp_start> [ to <dportv4_tcp_end> ] | any } ] [ ip-flag [ ip-ttl
{ <ip_flag_tcp_ttl> | any } ] [ ip-options { <ip_flag_tcp_options> | any } ] [ ip-fragment
{ <ip_flag_tcp_fragment> | any } ] ] [ tcp-flag [ tcp-fin { <tcpv4_flag_fin> | any } ] [ tcp-syn
{ <tcpv4_flag_syn> | any } ] [ tcp-rst { <tcpv4_flag_rst> | any } ] [ tcp-psh { <tcpv4_flag_psh>
| any } ] [ tcp-ack { <tcpv4_flag_ack> | any } ] [ tcp-urg { <tcpv4_flag_urg> | any } ] ] | ipv6
[ next-header { <next_header> | any } ] [ sip { <sipv6> [ sip-bitmask <sipv6_bitmask> ] |
any } ] [ hop-limit { <hop_limit> | any } ] | ipv6-icmp [ sip { <sipv6_icmp> [ sip-bitmask
<sipv6_bitmask_icmp> ] | any } ] [ icmp-type { <icmipv6_type> | any } ] [ icmp-code
{ <icmipv6_code> | any } ] [ hop-limit { <hop_limit_icmp> | any } ] | ipv6-udp [ sip
{ <sipv6_udp> [ sip-bitmask <sipv6_bitmask_udp> ] | any } ] [ sport { <sportv6_udp_start>
[ to <sportv6_udp_end> ] | any } ] [ dport { <dportv6_udp_start> [ to <dportv6_udp_end> ]
| any } ] [ hop-limit { <hop_limit_udp> | any } ] | ipv6-tcp [ sip { <sipv6_tcp> [ sip-bitmask
<sipv6_bitmask_tcp> ] | any } ] [ sport { <sportv6_tcp_start> [ to <sportv6_tcp_end> ] |
any } ] [ dport { <dportv6_tcp_start> [ to <dportv6_tcp_end> ] | any } ] [ hop-limit
{ <hop_limit_tcp> | any } ] [ tcp-flag [ tcp-fin { <tcpv6_flag_fin> | any } ] [ tcp-syn
{ <tcpv6_flag_syn> | any } ] [ tcp-rst { <tcpv6_flag_rst> | any } ] [ tcp-psh { <tcpv6_flag_psh>
| any } ] [ tcp-ack { <tcpv6_flag_ack> | any } ] [ tcp-urg { <tcpv6_flag_urg> | any } ] ] ]
[ action { permit | deny | filter { switchport <filter_switch_port_list> | interface
( <port_type> [ <filter_port_list> ] ) } } ] [ rate-limiter { <rate_limiter_id> | disable } ]
[ evc-policer { <evc_policer_id> | disable } ] [ mirror [ disable ] ] [ logging [ disable ] ]

```



```
[ shutdown [ disable ] ] [ lookup-second [ disable ] ] [ redirect { switchport
{ <redirect_switch_port_id> | <redirect_switch_port_list> } | interface { <port_type>
<redirect_port_id> | ( <port_type> [ <redirect_port_list> ] ) } | disable } ]
no access-list ace <ace_list>
```

Parameter

<ace_id>	ACE ID
update	Update an existing ACE
<ingress_switch_id>	Switch ID
<ingress_switch_port_id>	Switchport ID
<ingress_switch_port_list>	List of switchport ID
<port_type>	Port type in Fast, Giga or Tengiga ethernet
<ingress_port_id>	List of Port ID, ex, 1/1,3-5;2/2-4,6
<policy>	Policy ID
<policy_bitmask>	The value of policy bitmask
<vid>	The value of VID field
<tag_priority>	The value of tag priority
<etype_value>	The value of EtherType field
<etype_smac>	The value of source MAC address field
<etype_dmac>	The value of destination MAC address field
<arp_sip>	The value of source IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<arp_dip>	The value of destination IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<arp_smac>	The value of source MAC address field
<arp_flag_request>	The value of ARP Request/Reply opcode field
<arp_flag_smac>	The value of ARP sender hardware address (SHA) field
<arp_flag_tmac>	The value of ARP target hardware address (THA) field
<arp_flag_len>	The value of ARP/RARP hardware address length (HLN) and protocol address length (PLN) field
<arp_flag_ip>	The value of ARP/RARP hardware address space (HRD) field
<arp_flag_ether>	The value of ARP/RARP protocol address space (PRO) field
<sipv4>	The value of source IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<dipv4>	The value of destination IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP

	address will explicitly adding deny action
<ipv4_protocol>	The value of IPv4 protocol field
<ip_flag_ttl>	The value of IPv4 TTL field
<ip_flag_options>	The value of IPv4 options field
<ip_flag_fragment>	The value of IPv4 fragment field
<sipv4_icmp>	The value of source IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<dipv4_icmp>	The value of destination IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<icmpv4_type>	The value of ICMP type field
<icmpv4_code>	The value of ICMP code field
<ip_flag_icmp_ttl>	The value of IPv4 TTL field
<ip_flag_icmp_options>	The value of IPv4 options field
<ip_flag_icmp_fragment>	The value of IPv4 fragment field
<sipv4_udp>	The value of source IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<dipv4_udp>	The value of destination IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<sportv4_udp_start>	The value of UDP source port field
<sportv4_udp_end>	The value of UDP source port field
<dportv4_udp_start>	The value of UDP destination port field
<dportv4_udp_end>	The value of UDP destination port field
<ip_flag_udp_ttl>	The value of IPv4 TTL field
<ip_flag_udp_options>	The value of IPv4 options field
<ip_flag_udp_fragment>	The value of IPv4 fragment field
<sipv4_tcp>	The value of source IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<dipv4_tcp>	The value of destination IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<sportv4_tcp_start>	The value of TCP source port field
<sportv4_tcp_end>	The value of TCP source port field
<dportv4_tcp_start>	The value of TCP destination port field
<dportv4_tcp_end>	The value of TCP destination port field

<ip_flag_tcp_ttl>	The value of IPv4 TTL field
<ip_flag_tcp_options>	The value of IPv4 options field
<ip_flag_tcp_fragment>	The value of IPv4 fragment field
<tcpv4_flag_fin>	The value of TCP FIN field
<tcpv4_flag_syn>	The value of TCP SYN field
<tcpv4_flag_rst>	The value of TCP RST field
<tcpv4_flag_psh>	The value of TCP PSH field
<tcpv4_flag_ack>	The value of TCP ACK field
<tcpv4_flag_urg>	The value of TCP URG field
<next_header>	The value of IPv6 hop limiter field
<sipv6>	The value of source IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<sipv6_bitmask>	The value of IPv6 source address bitmask
<hop_limit>	The value of IPv6 hop limiter field
<sipv6_icmp>	The value of source IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<sipv6_bitmask_icmp>	The value of IPv6 source address bitmask
<icmpv6_type>	The value of ICMP type field
<icmpv6_code>	The value of ICMP code field
<hop_limit_icmp>	The value of IPv6 hop limiter field
<sipv6_udp>	The value of source IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<sipv6_bitmask_udp>	The value of IPv6 source address bitmask
<sportv6_udp_start>	The value of UDP source port field
<sportv6_udp_end>	The value of UDP source port field
<dportv6_udp_start>	The value of UDP destination port field
<dportv6_udp_end>	The value of UDP destination port field
<hop_limit_udp>	The value of IPv6 hop limiter field
<sipv6_tcp>	The value of source IP address field. Notice the invalid IP address configuration is acceptable too, for example, 0.0.0.0. Normally, an ACE with invalid IP address will explicitly adding deny action
<sipv6_bitmask_tcp>	The value of IPv6 source address bitmask
<sportv6_tcp_start>	The value of TCP source port field
<sportv6_tcp_end>	The value of TCP source port field
<dportv6_tcp_start>	The value of TCP destination port field
<dportv6_tcp_end>	The value of TCP destination port field
<hop_limit_tcp>	The value of IPv6 hop limiter field

<code><tcpv6_flag_fin></code>	The value of TCP FIN field
<code><tcpv6_flag_syn></code>	The value of TCP SYN field
<code><tcpv6_flag_rst></code>	The value of TCP RST field
<code><tcpv6_flag_psh></code>	The value of TCP PSH field
<code><tcpv6_flag_ack></code>	The value of TCP ACK field
<code><tcpv6_flag_urg></code>	The value of TCP URG field
<code><filter_switch_port_list></code>	List of switchport ID
<code><rate_limiter_id></code>	Rate limiter ID
<code><evc_policer_id></code>	EVC policer ID
<code><redirect_switch_port_id></code>	Switchport ID
<code><redirect_switch_port_list></code>	List of switchport ID
<code><redirect_port_id></code>	Port ID in the format of switch-no/port-no
<code><redirect_port_list></code>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Global Configuration

Usage

Use the `access-list ace global configuration` command to set the access-list ace. The command without the `update` keyword will create or overwrite an existing ACE, any unspecified parameter will be set to its default value. Use the `update` keyword to update an existing ACE and only specified parameters are modified. The ACE must be ordered by an appropriate sequence, the received frame will only be hit on the first matched ACE. Use the `next` or `last` keyword to adjust the ACE's sequence order.

Note1: There are a lot of parameters that are dependent on these features if supported on the platform. For example, the parameter of `switch <SwitchID>` and `switchport {<SwitchPortId>|<SwitchPortList>}` only support on stackable platform. The parameter of `<port_type_id>`, is used for ACLv1, `<port_type_list>`, action filter, tag, mirror, ipv6-icmp, ipv6-udp and ipv6-tcp is used for ACLv2. In stackable platform, the feature is only supported for local interfaces. The command keyword of `evc-policer` is only supported on CE platform. Use the parameter of `redirect switchport` for global ACE on stackable device.

Note2: The logging and shutdown features only work when the packet length is less than 1518 (without VLAN tags).

Example

This example shows how to set the access-list ace ID 1:

```
(config)# access-list ace 1
```

access-list action

Syntax

```
access-list action { permit | deny }
```

Parameter

Default

Mode

Interface Configuration

Usage

Use the access-list action interface configuration command to configure access-list action. The access-list interface configuration will affect the received frames if it doesn't match any ACE.

Example

```
This example shows how to configure access-list permit
(config)# interface GigabitEthernet 1/1
(config-if)# access-list permit
```

access-list evc-policer

Syntax

```
access-list evc-policer <evc_policer_id>
no access-list evc-policer
```

Parameter

<i><evc_policer_id></i>	EVC policer ID
-------------------------------	----------------

Default

Mode

Interface Configuration

Usage

Use the `access-list evc-policer` interface configuration command to configure the access-list evc-policer ID. The access-list interface configuration will affect the received frames if it doesn't match any ACE.

Example

This example shows how to configure the access-list evc-policer value 1

```
(config)# interface GigabitEthernet 1/1
(config-if)# access-list evc-policer 1
```

access-list policy

Syntax

```
access-list policy <policy_id>
no access-list policy
```

Parameter

<policy_id>	Policy ID
-------------	-----------

Default

Mode

Interface Configuration

Usage

Use the `access-list policy` interface configuration command to configure the access-list policy ID. The access-list interface configuration will affect the received frames if it doesn't match any ACE.

Example

This example shows how to configure the access-list policy value 1

```
(config)# interface GigabitEthernet 1/1
(config-if)# access-list policy 1
```

access-list logging

Syntax

```
access-list logging
no access-list logging
```

Parameter

Default

Default access-list logging is disabled.

Mode

Interface Configuration

Usage

Use the access-list logging interface configuration command to enable access-list logging. Use the no form of this command to disable access-list logging. The access-list interface configuration will affect the received frames if it doesn't match any ACE.

Note: The logging feature only works when the packet length is less than 1518(without VLAN tags).

Example

```
This example shows how to enable access-list logging
(config)# interface GigabitEthernet 1/1
(config-if)# access-list logging
```

access-list mirror

Syntax

```
access-list mirror
no access-list mirror
```

Parameter

Default

Default access-list mirror is disabled.

Mode

Interface Configuration

Usage

Use the access-list mirror interface configuration command to enable access-list mirror. Use the no form of this command to disable access-list mirror. The access-list interface configuration will affect the received frames if it doesn't match any ACE.

Example

This example shows how to enable access-list mirror

```
(config)# interface GigabitEthernet 1/1  
(config-if)# access-list mirror
```

access-list port-state

Syntax

```
access-list port-state  
no access-list port-state
```

Parameter

Default

Default access-list port-state is enabled.

Mode

Interface Configuration

Usage

Enable access-list port state. If an interface had been shut down by access-list module, this command can be used to reopen the interface, then it can receive normal frame again.

Example

This example shows how to enable access-list port state

```
(config)# interface GigabitEthernet 1/1  
(config-if)# access-list port-state
```


access-list rate-limiter(Global)

Syntax

```
access-list rate-limiter [ <rate_limiter_list> ] { pps <pps_rate> | 10pps <pps10_rate> |
100pps <pps100_rate> | 25kbps <kpbs25_rate> | 100kbps <kpbs100_rate> }
no access-list rate-limiter [ <rate_limiter_list> ]
```

Parameter

<rate_limiter_list>	Rate limiter ID
<pps_rate>	Rate value for pps
<pps10_rate>	Rate value for 10 packets per second
<pps100_rate>	Rate value for 100 packets per second
<kpbs25_rate>	Rate value for 25k bits per second
<kpbs100_rate>	Rate value for 100k bits per second

Default

The access-list rate-limiter is 1 pps

Mode

Global Configuration

Usage

Configure the access-list rate-limiter ID.

Example

This example shows how to configure the access-list rate-limiter ID 1 to 512 pps
(config)# **access-list rate-limiter 1 pps 512**

access-list rate-limiter(Interface)

Syntax

```
access-list rate-limiter <rate_limiter_id>
no access-list rate-limiter
```

Parameter

<rate_limiter_id>	Rate limiter ID
-------------------	-----------------

Default

The access-list rate-limiter is disabled

Mode

Interface Configuration

Usage

Configure the access-list rate-limiter ID.

Example

This example shows how to configure the access-list rate-limiter ID 1

```
(config)# interface GigabitEthernet 1/1
```

```
(config-if)# access-list rate-limiter 1
```

access-list redirect

Syntax

```
access-list { redirect } interface { <port_type> <port_type_id> | ( <port_type>  
[ <port_type_list> ] ) }  
no access-list redirect
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><port_type_id></i>	Port ID in the format of switch-no/port-no
<i><port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

The access-list redirect is disabled

Mode

Interface Configuration

Usage

Use the no access-list redirect interface configuration command to configure the access-list redirect interface. The access-list interface configuration will affect the received frames if it doesn't match any ACE.

Note: The parameter of <port_type_id> is used for ACLv1, <port_type_list> is used for ACLv2. On stackable platforms, the feature only supported for local interfaces.

Example

This example shows how to configure the access-list redirect interface to interface GigaEthernet 1/1

```
(config)# interface GigabitEthernet 1/2  
(config-if)# access-list redirect interface to interface GigEthernet 1/1
```

access-list shutdown

Syntax

```
access-list shutdown  
no access-list shutdown
```

Parameter

Default

access-list shutdown is disabled

Mode

Interface Configuration

Usage

Use the access-list shutdown interface configuration command to enable access-list shutdown. Use the no form of this command to disable access-list shutdown. The access-list interface configuration will affect the received frames if it doesn't match any ACE.

Note: The shutdown feature only works when the packet length is less than 1518(without VLAN tags).

Example

This example shows how to enable access-list shutdown

```
(config)# interface GigabitEthernet 1/1  
(config-if)# access-list shutdown
```

clear access management statistics

Syntax

```
clear access management statistics
```

Parameter

Default

Mode

Privileged EXEC

Usage

Use the clear access management statistics privileged EXEC command to clear the statistics maintained by access management.

Example

This example shows how to clear access management statistics:
clear access management statistics

clear access-list ace statistics

Syntax

```
clear access-list ace statistics
```

Parameter

Default

Mode

Privileged EXEC

Usage

Use the clear access-list ace statistics privileged EXEC command to clear the statistics maintained by access-list, including access-list interface statistics and ACE's statistics.

Example

This example shows how to clear access-list ace statistics:
clear access-list ace statistics

default access-list rate-limiter

Syntax

```
default access-list rate-limiter [ <rate_limiter_list> ]
```

Parameter

<i><rate_limiter_list></i>	Rate limiter ID
----------------------------------	-----------------

Default

Mode

Global Configuration

Usage

Use the default access-list rate-limiter global configuration command to restore the default setting of access-list rate-limiter.

Example

This example shows how to restore the default setting on all rate-limiter IDs
(config)# **default access-list rate-limiter**

ip arp inspection

Syntax

```
ip arp inspection  
no ip arp inspection
```

Parameter

Default

ARP inspection is disabled.

Mode

Global Configuration

Usage

Use the `ip arp inspection global` configuration command to globally enable ARP inspection. Use the `no` form of this command to globally disable ARP inspection.

Example

This example shows how to enable ARP inspection
(config)# **ip arp inspection**

ip arp inspection check-vlan

Syntax

```
ip arp inspection check-vlan  
no ip arp inspection check-vlan
```

Parameter

Default

ARP inspection is disabled.

Mode

Interface Configuration

Usage

Use the `ip arp inspection check-vlan` interface configuration command to configure a port as VLAN mode for ARP inspection purposes. Use the `no` form of this command to configure a port as default.

Example

This example shows how to enable ARP inspection VLAN mode on a port
(config)# **interface GigabitEthernet 1/2**
(config-if)# **ip arp inspection check-vlan**

ip arp inspection entry interface

Syntax

```
ip arp inspection entry interface <port_type> <in_port_type_id> <vlan_var> <mac_var>  
<ipv4_var>
```

```
no ip arp inspection entry interface <port_type> <in_port_type_id> <vlan_var>
<mac_var> <ipv4_var>
```

Parameter

<port_type>	Port type in Fast, Giga or Tengiga ethernet
<in_port_type_id>	Port ID in the format of switch-no/port-no
<vlan_var>	Select a VLAN id to configure
<mac_var>	Select a MAC address to configure
<ipv4_var>	Select an IP Address to configure

Default

ARP inspection is disabled.

Mode

Global Configuration

Usage

ARP inspection entry.

Example

```
(config)# ip arp inspection entry interface GigabitEthernet 1/2 1 00:e0:fc:11:22:33
192.168.1.10
```

ip arp inspection logging

Syntax

```
ip arp inspection logging { deny | permit | all }
no ip arp inspection logging
```

Parameter

deny	Log denied entries
permit	Log permitted entries
all	Log all entries

Default

ARP inspection default is logging none.

Mode

Interface Configuration

Usage

Use the ip arp inspection logging interface configuration command to configure a port as some logging mode for ARP inspection purposes. Use the no form of this command to configure a port as logging none.

Example

This example shows how to enable ARP inspection logging mode on a port
(config)# **interface GigabitEthernet 1/2**
(config-if)# **ip arp inspection logging all**

ip arp inspection translate

Syntax

```
ip arp inspection translate [ interface <port_type> <in_port_type_id> <vlan_var>
<mac_var> <ipv4_var> ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><in_port_type_id></i>	Port ID in the format of switch-no/port-no
<i><vlan_var></i>	Select a VLAN id to configure
<i><mac_var></i>	Select a MAC address to configure
<i><ipv4_var></i>	Select an IP Address to configure

Default

ARP inspection is disabled.

Mode

Global Configuration

Usage

ARP inspection translate all entries.

Example

```
(config)# ip arp inspection translate interface GigabitEthernet 1/2 1 00:e0:fc:11:22:33  
192.168.1.10
```

ip arp inspection trust

Syntax

```
ip arp inspection trust  
no ip arp inspection trust
```

Parameter

Default

ARP inspection trust is enabled.

Mode

Interface Configuration

Usage

Use the `ip arp inspection trust interface configuration` command to configure a port as trusted for ARP inspection purposes. Use the `no` form of this command to configure a port as untrusted.

Example

This example shows how to enable ARP inspection trust on a port

```
(config)# interface GigabitEthernet 1/2  
(config-if)# ip arp inspection trust
```

ip arp inspection vlan

Syntax

```
ip arp inspection vlan <in_vlan_list>  
ip arp inspection vlan <in_vlan_list> logging { deny | permit | all }  
no ip arp inspection vlan <in_vlan_list>  
ip arp inspection vlan <in_vlan_list> logging
```

Parameter

<i><in_vlan_list></i>	ARP inspection VLAN list
deny	Log denied entries
permit	Log permitted entries
all	Log all entries

Default

ARP inspection is disabled.

Mode

Global Configuration

Usage

Use the `ip arp inspection vlan` configuration command to enable vlan ARP inspection. Use the `no` form of this command to disable vlan ARP inspection.

Example

```
(config)# ip arp inspection vlan 1
```

ip source binding interface**Syntax**

```
ip source binding interface <port_type> <in_port_type_id> <vlan_var> <ipv4_var>
<mac_var>
no ip source binding interface <port_type> <in_port_type_id> <vlan_var> <ipv4_var>
<mac_var>
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><in_port_type_id></i>	Port ID in the format of switch-no/port-no
<i><vlan_var></i>	Select a VLAN id to configure
<i><ipv4_var></i>	Select an IP Address to configure
<i><mac_var></i>	Select a MAC address to configure

Default

ARP inspection is disabled.

Mode

Global Configuration

Usage

IP source binding entry interface configuration.

Example

```
(config)# ip source binding interface GigabitEthernet 1/2 1 192.168.10.1
00:00:e0:11:22:33
```

ip verify source(Global)**Syntax**

```
ip verify source [ translate ]
no ip verify source
```

Parameter

translate	IP verify source translate all entries
-----------	--

Default**Mode**

Global Configuration

Usage

Verify source configuration.

Example

```
(config)# ip verify source
```

ip verify source(Interface)**Syntax**

```
ip verify source [ limit <cnt_var> ]
no ip verify source [ limit ]
```

Parameter

<code><cnt_var></code>	the number of limit
------------------------------	---------------------

Default**Mode**

Interface Configuration

Usage

Verify source configuration.

Example

```
(config)# interface GigabitEthernet 1/2
(config-fi)# ip verify source
```

show access management**Syntax**

```
show access management [ statistics | <access_id_list> ]
```

Parameter

<code><access_id_list></code>	ID of access management entry
-------------------------------------	-------------------------------

Default**Mode**

Privileged EXEC

Usage

Use the show access management user EXEC command without keywords to display the access management configuration, or use the statistics keyword to display statistics, or use the <AccessId> keyword to display the specific access management entry.

Example

```
This is an example of output from the show access management command
# show access management
```

```
Switch access management mode is disabled
```

W: WEB/HTTPS
 S: SNMP
 T: TELNET/SSH
 Idx VID Start IP Address End IP Address W S T

 1 1 192.168.0.1 192.168.0.254 Y N N

show access-list interface

Syntax

```
show access-list [ interface [ ( <port_type> [ <v_port_type_list> ] ) ] ] [ rate-limiter
[ <rate_limiter_list> ] ] [ ace statistics [ <ace_list> ] ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><v_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6
<i><rate_limiter_list></i>	Rate limiter ID
<i><ace_list></i>	ACE ID

Default

Mode

Privileged EXEC

Usage

Use the show access-list privilege EXEC command without keywords to display the access-list configuration, or particularly the show access-list interface for the access-list interface configuration, or use the rate-limiter keyword to display access-list rate-limiter configuration, or use the ace keyword to display access-list ace configuration.

Example

This is an example of output from the show access-list command

```
# show access-list
ID Policy Frame Action Rate L. Mirror Counter
-----
1 Any Any Permit Disabled Disabled 9110
Switch access-list ace number: 2
Switch access-list rate limiter ID 1 is 1 pps
Switch access-list rate limiter ID 2 is 1 pps
Switch access-list rate limiter ID 3 is 1 pps
Switch access-list rate limiter ID 4 is 1 pps
```

```

Switch access-list rate limiter ID 5 is 1 pps
Switch access-list rate limiter ID 6 is 1 pps
Switch access-list rate limiter ID 7 is 1 pps
Switch access-list rate limiter ID 8 is 1 pps
GigabitEthernet 1/1 :
-----
GigabitEthernet 1/1 access-list action is deny
GigabitEthernet 1/1 access-list policy ID is 0
GigabitEthernet 1/1 access-list rate limiter ID is disabled
GigabitEthernet 1/1 access-list redirect is disabled
GigabitEthernet 1/1 access-list mirror is disabled
GigabitEthernet 1/1 access-list logging is disabled
GigabitEthernet 1/1 access-list shutdown is disabled
GigabitEthernet 1/1 access-list port-state is enabled
GigabitEthernet 1/1 access-list counter is 0

```

show access-list ace-status

Syntax

```

show access-list ace-status [ static ] [ link-oam ] [ loop-protect ] [ dhcp ] [ ptp ] [ upnp ]
[ arp-inspection ] [ evc ] [ mep ] [ ipmc ] [ ip-source-guard ] [ ip-mgmt ] [ tt-loop ]
[ y1564 ] [ ztp ] [ ring ] [ conflicts ] [ switch <switch_list> ]

```

Parameter

<switch_list>	List of switch ID, ex, 1,3-5,6
---------------	--------------------------------

Default

Mode

Privileged EXEC

Usage

Use the show access-list ace-status privilege EXEC command without keywords to display the access-list ace status for all access-list users, or particularly the access-list user for the access-list ace status. Use conflicts keyword to display the access-list ace that doesn't apply on the hardware. In other word, it means the specific ACE is not applied to the hardware due to hardware limitations.

Note: The parameter of access-list users is depended on these features if supported on the platform.

Example

This is an example of output from the show access-list ace-status command

```
# show access-list ace-status
User
-----
S : Static
IPSG: IP Source Guard
IPMC: IPMC
ARPI: ARP Inspection
UPnP: UPnP
DHCP: DHCP
LOOP: Loop Protect
User ID Frame Action Rate L. CPU Counter Conflict
-----
S 1 Any Permit Disabled No 3606 No
S 2 Any Permit Disabled No 0 No
Switch 2 access-list ace number: 2
```

show ip arp inspection interface

Syntax

```
show ip arp inspection [ interface ( <port_type> [ <in_port_type_list> ] ) | vlan
<in_vlan_list> ]
```

Parameter

<port_type>	Port type in Fast, Giga or Tengiga ethernet
<in_port_type_list>	List of Port ID, ex, 1/1,3-5;2/2-4,6
<in_vlan_list>	Select a VLAN id to configure

Default

Mode

Privileged EXEC

Usage

Show ARP inspection.

Example

```
# show ip arp inspection
ARP Inspection Mode : disabled
```

Port	Port Mode	Check VLAN	Log Type
GigabitEthernet 1/1	disabled	disabled	NONE
GigabitEthernet 1/2	disabled	disabled	NONE
GigabitEthernet 1/3	disabled	disabled	NONE
GigabitEthernet 1/4	disabled	disabled	NONE
2.5GigabitEthernet 1/1	disabled	disabled	NONE
2.5GigabitEthernet 1/2	disabled	disabled	NONE

show ip arp inspection entry

Syntax

```
show ip arp inspection entry [ dhcp-snooping | static ] [ interface ( <port_type>
[ <in_port_type_list> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><in_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Show ARP inspection entries.

Example

```
# show ip arp inspection entry
```

show ip source binding

Syntax

```
show ip source binding [ dhcp-snooping | static ] [ interface ( <port_type>
[ <in_port_type_list> ] ) ]
```


Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><in_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default**Mode**

Privileged EXEC

Usage

Show IP source binding interface configuration.

Example

```
# show ip source binding
```

show ip verify source**Syntax**

```
show ip verify source [ interface ( <port_type> [ <in_port_type_list> ] ) ]
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><in_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default**Mode**

Privileged EXEC

Usage

Show IP source binding interface configuration.

Example

```
# show ip verify source
IP Source Guard Mode : disabled
```

```
Port                Port Mode    Dynamic Entry Limit
```

-----	-----	-----
GigabitEthernet 1/1	disabled	unlimited
GigabitEthernet 1/2	disabled	unlimited
GigabitEthernet 1/3	disabled	unlimited
GigabitEthernet 1/4	disabled	unlimited
2.5GigabitEthernet 1/1	disabled	unlimited
2.5GigabitEthernet 1/2	disabled	unlimited

show web privilege group

Syntax

show web privilege group [<group_name>] level

Parameter

<group_name>	Group name
--------------	------------

Default

Mode

Privileged EXEC

Usage

Display web privilege information.

Example

```
# show web privilege group ip level
Group Name                Privilege Level
                          CRO CRW SRO SRW
-----
IP                        5  10  5  10
```

web privilege group

Syntax

```
web privilege group <group_name> level { [ configRoPriv <configRoPriv> ]  
[ configRwPriv <configRwPriv> ] [ statusRoPriv <statusRoPriv> ] [ statusRwPriv  
<statusRwPriv> ] }  
no web privilege group <group_name> level
```

Parameter

<i><group_name></i>	Web privilege group name
<i><configRoPriv></i>	Configuration Read-only level
<i><configRwPriv></i>	Configuration Read-write level
<i><statusRoPriv></i>	Status/Statistics Read-only level
<i><statusRwPriv></i>	Status/Statistics Read-write level

Default**Mode**

Global Configuration

Usage

Set web privilege group.

Example

```
(config)# web privilege group ddmi level configRwPriv 15
```

14. Spanning Tree

clear spanning-tree

Syntax

```
clear spanning-tree { { statistics [ interface ( <port_type> [ <v_port_type_list> ] ) ] } |
{ detected-protocols [ interface ( <port_type> [ <v_port_type_list_1> ] ) ] } }
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><v_port_type_list></i>	List of switch ID, ex, 1,3-5,6

Default**Mode**

Privileged EXEC

Usage

Example

```
# clear spanning-tree statistics
```

show spanning-tree

Syntax

```
show spanning-tree [ summary | active | { interface ( <port_type> [ <v_port_type_list> ] ) }
| { detailed [ interface ( <port_type> [ <v_port_type_list_1> ] ) ] } | { mst [ configuration |
{ <instance> [ interface ( <port_type> [ <v_port_type_list_2> ] ) ] } ] } ] }
```

Parameter

<i><port_type></i>	Port type in Fast, Giga or Tengiga ethernet
<i><v_port_type_list></i>	List of Port ID, ex, 1/1,3-5;2/2-4,6
<i><instance></i>	Choose port

Default

Mode

Privileged EXEC

Usage

Show spanning tree configuration.

Example

```
# show spanning-tree
CIST Bridge STP Status
Bridge ID      : 32768.1C-2A-A3-01-23-C6
Root ID       : 32768.1C-2A-A3-01-23-C6
Root Port     : -
Root PathCost: 0
Regional Root: 32768.1C-2A-A3-01-23-C6
Int. PathCost: 0
Max Hops      : 20
TC Flag       : Steady
TC Count      : 0
TC Last       : -
```

Port	Port Role	State	Pri	PathCost	Edge	P2P	Uptime
-----	-----	-----	---	-----	-----	-----	-----

spanning-tree(Interface)

Syntax

```
spanning-tree
no spanning-tree
```

Parameter

Default

Mode

Interface Configuration

Usage

Enable/disable STP on this interface.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# spanning-tree
```

spanning-tree(STP Aggregation)

Syntax

```
spanning-tree
no spanning-tree
```

Parameter

Default

Mode

STP Aggregation Configuration

Usage

Enable/disable STP on this interface.

Example

```
(config)# spanning-tree aggregation
(config-stp-aggr)# spanning-tree
```

spanning-tree auto-edge(Interface)

Syntax

```
spanning-tree auto-edge
no spanning-tree auto-edge
```

Parameter

Default

Mode

Interface Configuration

Usage

Auto detect edge status.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# spanning-tree auto-edge
```

spanning-tree auto-edge(STP Aggregation)

Syntax

```
spanning-tree auto-edge
no spanning-tree auto-edge
```

Parameter

Default

Mode

STP Aggregation Configuration

Usage

Auto detect edge status.

Example

```
(config)# spanning-tree aggregation
(config-stp-aggr)# spanning-tree auto-edge
```

spanning-tree bpdu-guard(Interface)

Syntax

```
spanning-tree bpdu-guard
no spanning-tree bpdu-guard
```

Parameter

Default

Mode

Interface Configuration

Usage

Enable/disable BPDU guard.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# spanning-tree bpdu-guard
```

spanning-tree bpdu-guard(STP Aggregation)

Syntax

```
spanning-tree bpdu-guard
no spanning-tree bpdu-guard
```

Parameter**Default****Mode**

STP Aggregation Configuration

Usage

Enable/disable BPDU guard.

Example

```
(config)# spanning-tree aggregation  
(config-stp-aggr)# spanning-tree bpdu-guard
```

spanning-tree edge(Interface)**Syntax**

```
spanning-tree edge  
no spanning-tree edge
```

Parameter**Default****Mode**

Interface Configuration

Usage

Edge port.

Example

```
(config)# interface GigabitEthernet 1/2  
(config-if)# spanning-tree edge
```

spanning-tree edge(STP Aggregation)**Syntax**

```
spanning-tree edge
```


no spanning-tree edge

Parameter

Default

Mode

STP Aggregation Configuration

Usage

Edge port.

Example

```
(config)# spanning-tree aggregation  
(config-stp-aggr)# spanning-tree edge
```

spanning-tree edge bpdu-filter

Syntax

```
spanning-tree edge bpdu-filter  
no spanning-tree edge bpdu-filter
```

Parameter

Default

Mode

Global Configuration

Usage

Enable BPDU filter (stop BPDU tx/rx).

Example

```
(config)# spanning-tree edge bpdu-filter
```

spanning-tree edge bpdu-guard

Syntax

```
spanning-tree edge bpdu-guard
no spanning-tree edge bpdu-guard
```

Parameter

Default

Mode

Global Configuration

Usage

Enable BPDU guard

Example

```
(config)# spanning-tree edge bpdu-guard
```

spanning-tree link-type(Interface)

Syntax

```
spanning-tree link-type { point-to-point | shared | auto }
no spanning-tree link-type
```

Parameter

point-to-point	Forced to point-to-point
shared	Forced to Shared
auto	Auto detect

Default

Mode

Interface Configuration

Usage

Set port link-type.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# spanning-tree link-type auto
```

spanning-tree link-type(STP Aggregation)

Syntax

```
spanning-tree link-type { point-to-point | shared | auto }
no spanning-tree link-type
```

Parameter

point-to-point	Forced to point-to-point
shared	Forced to Shared
auto	Auto detect

Default

Mode

STP Aggregation Configuration

Usage

Set port link-type.

Example

```
(config)# spanning-tree aggregation
(config-stp-aggr)# spanning-tree link-type auto
```

spanning-tree mode

Syntax

```
spanning-tree mode { stp | rstp | mstp }
no spanning-tree mode
```

Parameter

stp	802.1D Spanning Tree
rstp	Rapid Spanning Tree (802.1w)
mstp	Multiple Spanning Tree (802.1s)

Default**Mode**

Global Configuration

Usage

Set spanning tree mode.

Example

```
(config)# spanning-tree mode mstp
```

spanning-tree mst cost(Interface)**Syntax**

```
spanning-tree mst <instance> cost { <cost> | auto }
no spanning-tree mst <instance> cost
```

Parameter

<i><instance></i>	instance (CIST=0, MSTI1=1...)
<i><cost></i>	STP cost of this port
auto	Use auto cost

Default**Mode**

Interface Configuration

Usage

Set spanning tree mst port cost.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# spanning-tree mst 1 cost 100
```

spanning-tree mst cost(STP Aggregation)

Syntax

```
spanning-tree mst <instance> cost { <cost> | auto }
no spanning-tree mst <instance> cost
```

Parameter

<i><instance></i>	instance (CIST=0, MSTI1=1...)
<i><cost></i>	STP cost of this port
auto	Use auto cost

Default

Mode

STP Aggregation Configuration

Usage

Set spanning tree mst port cost.

Example

```
(config)# spanning-tree aggregation
(config-stp-aggr)# spanning-tree mst 1 cost 100
```

spanning-tree mst port-priority(Interface)

Syntax

```
spanning-tree mst <instance> port-priority <prio>
no spanning-tree mst <instance> port-priority
```

Parameter

<i><instance></i>	instance (CIST=0, MSTI1=1...)
<i><prio></i>	STP priority of this port

Default

Mode

Interface Configuration

Usage

Set STP priority of this port.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# spanning-tree mst 1 port-priority 0
```

spanning-tree mst port-priority(STP Aggregation)

Syntax

```
spanning-tree mst <instance> port-priority <prio>
no spanning-tree mst <instance> port-priority
```

Parameter

<i><instance></i>	instance (CIST=0, MST1=1...)
<i><prio></i>	STP priority of this port

Default

Mode

STP Aggregation Configuration

Usage

Set STP priority of this port.

Example

```
(config)# spanning-tree aggregation
(config-stp-aggr)# spanning-tree mst 1 port-priority 0
```

spanning-tree mst priority

Syntax

```
spanning-tree mst <instance> priority <prio>
no spanning-tree mst <instance> priority
```

Parameter

<i><instance></i>	instance (CIST=0, MSTI1=1...)
<i><prio></i>	Priority of the instance

Default**Mode**

Global Configuration

Usage

Set Priority of the instance.

Example

```
(config)# spanning-tree mst 1 priority 0
```

spanning-tree mst vlan**Syntax**

```
spanning-tree mst <instance> vlan <v_vlan_list>
no spanning-tree mst <instance> vlan
```

Parameter

<i><instance></i>	instance (CIST=0, MSTI1=1...)
<i><v_vlan_list></i>	Range of VLANs

Default**Mode**

Global Configuration

Usage

Set VLAN for instance.

Example

```
(config)# spanning-tree mst 1 vlan 1
```

spanning-tree mst forward-time

Syntax

```
spanning-tree mst forward-time <fwdtime>
no spanning-tree mst forward-time
```

Parameter

<fwdtime>	Range in seconds
-----------	------------------

Default

Mode

Global Configuration

Usage

Set delay between port states.

Example

```
(config)# spanning-tree mst forward-time 100
```

spanning-tree mst hello-time

Syntax

```
spanning-tree mst hello-time <hellotime>
no spanning-tree mst hello-time
```

Parameter

<hellotime>	Hello BPDU timer value
-------------	------------------------

Default

Mode

Global Configuration

Usage

Set MSTP bridge hello time.

Example

```
(config)# spanning-tree mst hello-time 10
```

spanning-tree mst max-age**Syntax**

```
spanning-tree mst max-age <maxage> [ forward-time <fwdtime> ]
no spanning-tree mst max-age
```

Parameter

<maxage>	Max bridge age before timeout
<fwdtime>	Range in seconds

Default**Mode**

Global Configuration

Usage

Set Max bridge age before timeout.

Example

```
(config)# spanning-tree mst max-age 10
```

spanning-tree mst max-hops**Syntax**

```
spanning-tree mst max-hops <maxhops>
no spanning-tree mst max-hops
```

Parameter

<maxhops>	Hop count range
-----------	-----------------

Default**Mode**

Global Configuration

Usage

Set MSTP bridge max hop count.

Example

```
(config)# spanning-tree mst max-hops 10
```

spanning-tree mst name

Syntax

```
spanning-tree mst name <name> revision <v_0_to_65535>
no spanning-tree mst name
```

Parameter

<i><name></i>	Name of the bridge
<i><v_0_to_65535></i>	Revision number

Default

Mode

Global Configuration

Usage

Set revision of STP bridge instance.

Example

```
(config)# spanning-tree mst name abc revision 1
```

spanning-tree recovery interval

Syntax

```
spanning-tree recovery interval <interval>
no spanning-tree recovery interval
```

Parameter

<i><interval></i>	Range in seconds
-------------------------	------------------

Default**Mode**

Global Configuration

Usage

Set the error recovery timeout.

Example

```
(config)# spanning-tree recovery interval 10
```

spanning-tree restricted-role(Interface)**Syntax**

```
spanning-tree restricted-role  
no spanning-tree restricted-role
```

Parameter**Default****Mode**

Interface Configuration

Usage

Port role is restricted (never root port).

Example

```
(config)# interface GigabitEthernet 1/2  
(config-if)# spanning-tree restricted-role
```

spanning-tree restricted-role(STP Aggregation)**Syntax**

```
spanning-tree restricted-role  
no spanning-tree restricted-role
```

Parameter**Default****Mode**

STP Aggregation Configuration

Usage

Port role is restricted (never root port).

Example

```
(config)# spanning-tree aggregation  
(config-stp-aggr)# spanning-tree restricted-role
```

spanning-tree restricted-tcn(Interface)**Syntax**

```
spanning-tree restricted-tcn  
no spanning-tree restricted-tcn
```

Parameter**Default****Mode**

Interface Configuration

Usage

Restrict topology change notifications.

Example

```
(config)# interface GigabitEthernet 1/2  
(config-if)# spanning-tree restricted-tcn
```

spanning-tree restricted-tcn(STP Aggregation)**Syntax**

```
spanning-tree restricted-tcn
```

no spanning-tree restricted-tcn

Parameter

Default

Mode

STP Aggregation Configuration

Usage

Restrict topology change notifications.

Example

```
(config)# spanning-tree aggregation
(config-stp-aggr)# spanning-tree restricted-tcn
```

spanning-tree transmit hold-count

Syntax

```
spanning-tree transmit hold-count <holdcount>
no spanning-tree transmit hold-count
```

Parameter

<i><holdcount></i>	1-10 per sec, 6 is default
--------------------------	----------------------------

Default

Mode

Global Configuration

Usage

Max number of transmit BPDUs per sec.

Example

```
(config)# spanning-tree transmit hold-count 1
```

15. System Configuration

clear logging

Syntax

```
clear logging [ informational ] [ notice ] [ warning ] [ error ] [ switch <switch_list> ]
```

Parameter

<code><switch_list></code>	List of switch ID, ex, 1,3-5,6
----------------------------------	--------------------------------

Default

Mode

Privileged EXEC

Usage

Use the clear logging privileged EXEC command to clear the logging message.

Example

This example shows how to clear the logging message of error level
clear logging warning

configure terminal

Syntax

```
configure terminal
```

Parameter

Default

Mode

Privileged EXEC

Usage

Example

```
# configure terminal
(config)#
```

copy

Syntax

```
copy { startup-config | running-config | <source_path> } { startup-config |
running-config | <destination_path> } [ syntax-check ]
```

Parameter

<i><source_path></i>	File in FLASH or on TFTP server. Syntax: <flash:filename tftp://server/path-and-filename>. A valid file name is a text string drawn from alphabet (A-Za-z), digits (0-9), dot (.), hyphen (-), underscore (_). The maximum length is 63 and hyphen must not be first character. The file name content that only contains '.' is not allowed.
<i><destination_path></i>	File in FLASH or on TFTP server. Syntax: <flash:filename tftp://server/path-and-filename>. A valid file name is a text string drawn from alphabet (A-Za-z), digits (0-9), dot (.), hyphen (-), underscore (_). The maximum length is 63 and hyphen must not be first character. The file name content that only contains '.' is not allowed.

Default

Mode

Privileged EXEC

Usage

Copy from source to destination

Example

```
# copy running-config startup-config
Building configuration...
% Saving 2100 bytes to flash:startup-config
```

delete

Syntax

```
delete <path>
```

Parameter

<i><path></i>	File in FLASH. Syntax: <flash:filename>. A valid file name is a text string drawn from alphabet (A-Za-z), digits (0-9), dot (.), hyphen (-), underscore (_). The maximum length is 63 and hyphen must not be first character. The file name content that only contains '.' is not allowed.
---------------------	--

Default

Mode

Privileged EXEC

Usage

Delete one file in flash.

Example

dir

Syntax

```
dir
```

Parameter

Default

Mode

Privileged EXEC

Usage

Directory of all files in flash: file system.

Example

```
# dir
Directory of flash:
  r- 1970-01-01 00:00:00      764 default-config
```

do

Syntax

do

Parameter

Default

Mode

Global Configuration
ICLI mode for multiline input
VLAN Configuration
Interface Configuration
Line Configuration
...

Usage

To run exec commands in the configuration mode.

Example

```
(config)# do show running-config
...
!
```

editing

Syntax

editing
no editing

Parameter

Default

Mode

Line Configuration

Usage

Enable command line editing.

Example

(config-line)# **editing**

end

Syntax

end

Parameter

Default

Mode

Global Configuration
ICLI mode for multiline input
VLAN Configuration
Interface Configuration
Line Configuration
...

Usage

Go back to Privileged EXEC mode.

Example

(config)# **end**
#

exec-timeout

Syntax

```
exec-timeout <min> [ <sec> ]
no exec-timeout
```

Parameter

<min>	Timeout in minutes
<sec>	Timeout in seconds

Default

Mode

Line Configuration

Usage

Set the EXEC timeout.

Example

```
(config)# line 0
(config-line)# exec-timeout 0 0
```

exit

Syntax

```
exit
```

Parameter

Default

Mode

Global Configuration
 ICLI mode for multiline input
 VLAN Configuration
 Interface Configuration
 Line Configuration
 ...

Usage

Exit from current mode.

Example

```
(config-line)# exit  
(config)#
```

firmware swap

Syntax

```
firmware swap
```

Parameter

Default

Mode

Privileged EXEC

Usage

Use firmware swap to swap the active and alternative firmware images.

Example

```
# firmware swap
```

firmware upgrade

Syntax

```
firmware upgrade <url_file>
```

Parameter

<url_file>	<p>Uniform Resource Locator. It is a specific character string that constitutes a reference to a resource. Syntax: <protocol>://[<username>[:<password>]@]<host>[:<port>][/<path>]/<file_name> If the following special characters: space !"#\$%&'()*+,-./:;<=>?@[\\]^_{}~ need to be contained in the input URL string, they should be percent-encoded. A valid file name is a text string drawn from alphabet (A-Za-z), digits (0-9), dot (.), hyphen (-), underscore (_). The maximum length is 63 and hyphen must not be first character. The file name content that only contains '.' is not allowed.</p>
------------	--

Default

Mode

Privileged EXEC

Usage

Use firmware upgrade to load new firmware image to the switch.

Example

```
# firmware upgrade tftp://10.10.10.10/new_image_path/new_image.dat
```

help

Syntax

help

Parameter

<min>	Timeout in minutes
<sec>	Timeout in seconds

Default

Mode

- Global Configuration
- ICLI mode for multiline input
- VLAN Configuration
- Interface Configuration
- Line Configuration
- ...

Usage

Description of the interactive help system.

Example

```
(config)# help
```

Help may be requested at any point in a command by entering a question mark '?'. If nothing matches, the help list will be empty and you must backup until entering a '?' shows the available options.

Two styles of help are provided:

1. Full help is available when you are ready to enter a command argument (e.g. 'show ?') and describes each possible argument.
2. Partial help is provided when an abbreviated argument is entered and you want to know what arguments match the input (e.g. 'show pr?'.)

history

Syntax

```
history size <history_size>
no history size
```

Parameter

<history_size>	Number of history commands, 0 means disable
----------------	---

Default

Mode

Line Configuration

Usage

Set history buffer size.

Example

```
(config)# line 0
(config-line)# history size 0
```

host

Syntax

```

host <v_ipv6_ucast> [ <udp_port> ] [ traps | informs ]
host { <v_ipv4_ucast> | <v_word> } [ <udp_port> ] [ traps | informs ]
no host

```

Parameter

<v_ipv6_ucast>	IPv6 address of SNMP trap host
<v_ipv4_ucast>	IPv4 address of SNMP trap host
<v_word>	Hostname of SNMP trap host
<udp_port>	UDP port of the trap messages
traps	Send Trap messages to this host
informs	Send Inform messages to this host

Default

Mode

SNMP Server Host Configuration

Usage

Host configuration.

Example

```

(config)# snmp-server host abc
(config-snmps-host)# host 192.168.2.20 traps

```

hostname

Syntax

```

hostname <hostname>
no hostname

```

Parameter

<hostname>	This system's network name
------------	----------------------------

Default**Mode**

Global Configuration

Usage

Set system's network name.

Example

```
(config)# hostname abclin
abclin(config)#
```

informs retries**Syntax**

```
informs retries <retries> timeout <timeout>
no informs
```

Parameter

<retries>	Retires times
<timeout>	Timeout interval

Default**Mode**

SNMP Server Host Configuration

Usage

Send Inform messages to this host.

Example

```
(config)# snmp-server host abc
(config-snmps-host)# informs retries 0 timeout 0
```


ip ssh

Syntax

```
ip ssh
no ip ssh
```

Parameter

Default

The SSH is enabled.

Mode

Global Configuration

Usage

Use the ip ssh global configuration command to enable the SSH. Use the no form of this command to disable the SSH.

Example

This example shows how to enable the SSH
(config)# **ip ssh**

length

Syntax

```
length <length>
no length
```

Parameter

<i><length></i>	Number of lines on screen (0 for no pausing)
-----------------------	--

Default

Mode

Line Configuration

Usage

Set number of lines on a screen.

Example

```
(config)# line 0
(config-line)# length 20
```

line**Syntax**

```
line { <0~16> | console 0 | vty <0~15> }
```

Parameter

<0~16>	List of line numbers
console	Console terminal line
vtty	Virtual terminal

Default**Mode**

Global Configuration

Usage

Configure a terminal line.

Example

```
(config)# line 0
(config-line)#
```

location**Syntax**

```
location <location>
no location
```

Parameter

<location>	One text line describing the terminal's location in 32 characters.
------------	--

Default**Mode**

Line Configuration

Usage

Enter terminal location description.

Example

```
(config)# line 0
(config-line)# location Beijin
```

logging host**Syntax**

```
logging host { <ipv4_addr> | <domain_name> }
no logging host
```

Parameter

<i><ipv4_addr></i>	The IPv4 address of the log server
<i><domain_name></i>	The domain name is to provide a mechanism for naming resources on the Internet. A complete domain name consists of one or more subdomain names which are separated by dots (.)

Default**Mode**

Global Configuration

Usage

Use the logging host global configuration command to configure the host address of logging server.

Example

This example shows how to configure the host address of logging server

```
(config)# logging host 192.168.2.20
```

logging level

Syntax

logging level { informational | notice | warning | error }

Parameter

informational	Severity 6: Informational messages
notice	Severity 5: Normal but significant condition
warning	Severity 4: Warning conditions
error	Severity 3: Error conditions

Default

logging level is information.

Mode

Global Configuration

Usage

Use the logging level global configuration command to configure what level of message will send to logging server.

Example

This example shows how to configure logging error level
 (config)# **logging level error**

logging on

Syntax

logging on
no logging on

Parameter

Default

The logging server is disabled.

Mode

Global Configuration

Usage

Use the logging on global configuration command to enable the logging server. Use the no form of this command to disable the logging server.

Example

This example shows how to enable the logging server
(config)# **logging on**

logout

Syntax

logout

Parameter

Default

Mode

Privileged EXEC

Usage

Exit from EXEC mode.

Example

logout

privilege level

Syntax

privilege level *<privileged_level>*
no privilege level

Parameter

<i><privileged_level></i>	Default privilege level for line
---------------------------------	----------------------------------

Default**Mode**

Line Configuration

Usage

Change privilege level for line.

Example

```
(config)# line 0
(config-line)# privilege level 15
```

snmp-server view**Syntax**

```
snmp-server view <view_name> <oid_subtree> { include | exclude }
no snmp-server view <view_name> <oid_subtree>
```

Parameter

<i><view_name></i>	MIB view name
<i><oid_subtree></i>	MIB view OID
include	Included type from the view
exclude	Excluded type from the view

Default**Mode**

Global Configuration

Usage

To specify the MIB view configuration.

Example

```
(config)# snmp-server version view subtree .1.3.6.2.1001.1 include
```

ping ip

Syntax

```
ping ip { <v_ip_addr> | <v_ip_name> } [ repeat <count> ] [ size <size> ] [ interval <seconds> ]
```

Parameter

<v_ip_addr>	ICMP destination IPv4 address
<v_ip_name>	ICMP destination IP domain name
<count>	1-60; Default is 5
<size>	2-1452; Default is 56 (excluding MAC, IP and ICMP headers)
<seconds>	0-30; Default is 0

Default

Mode

Privileged EXEC

Usage

Send ICMP echo messages.

Example

```
# ping ip 11.1.1.1
```

ping ipv6

Syntax

```
ping ipv6 { <v_ipv6_addr> | <v_ipv6_name> } [ repeat <count> ] [ size <size> ] [ interval <seconds> ] [ interface vlan <v_vlan_id> ]
```

Parameter

<v_ipv6_addr>	ICMPv6 destination IPv6 address
<v_ipv6_name>	ICMPv6 destination IP domain name
<count>	1-60; Default is 5
<size>	2-1452; Default is 56 (excluding MAC, IP and ICMP headers)
<seconds>	0-30; Default is 0
<v_vlan_id>	VLAN identifier (VID)

Default**Mode**

Privileged EXEC

Usage

Send ICMPv6 echo messages.

Example

```
# ping ipv6 FE80:3E2F:10AC::C001
```

reload**Syntax**

```
reload {{{ cold | warm } [ sid <usid> ] } | { defaults [ keep-ip ] } }
```

Parameter

cold	Reload cold
warm	Reload warm (CPU restart only).
<i><usid></i>	Stack switch ID
defaults	Reload defaults without rebooting.
keep-ip	Attempt to keep VLAN1 IP setup

Default**Mode**

Privileged EXEC

Usage

Reload system, either cold (reboot) or restore defaults without reboot.

Example

```
# reload default
```


send

Syntax

```
send { * | <session_list> | console 0 | vty <vty_list> } <message>
```

Parameter

<i><session_list></i>	Send a message to multiple lines
<i><vty_list></i>	Send a message to multiple lines
<i><message></i>	Message to be sent to lines, in 128 characters.

Default

Mode

Privileged EXEC

Usage

Send a message to other tty lines.

Example

```
# send console 0 show
```

show history

Syntax

```
show history
```

Parameter

Default

Mode

Privileged EXEC

Usage

Show history.

Example

```
# show clock
  show access-list
  show aggregation
  show aggregation mode
  show clock
  show ddmi
```

show ip ssh

Syntax

```
show ip ssh
```

Parameter

Default

Mode

Privileged EXEC

Usage

Use the show ip ssh privileged EXEC command to display the SSH status.

Example

```
# show ip ssh
Switch SSH is enabled
```

show line

Syntax

```
show line [ alive ]
```

Parameter

Default

Mode

Privileged EXEC

Usage

Show TTY line information.

Example

```
# show line alive
Line is vty 0.
  * You are at this line now.
  Alive from Telnet.
  Default privileged level is 2.
  Command line editing is enabled
  Display EXEC banner is enabled.
  Display Day banner is enabled.
  Terminal width is 80.
    length is 24.
    history size is 32.
    exec-timeout is 10 min 0 second.

Current session privilege is 15.
Elapsed time is 0 day 0 hour 12 min 39 sec.
Idle time is 0 day 0 hour 0 min 0 sec.
```

show logging

Syntax

```
show logging <log_id> [ switch <switch_list> ]
```

Parameter

<log_id>	Logging ID
<switch_list>	List of switch ID, ex, 1,3-5,6

Default

Mode

Privileged EXEC

Usage

Use the show logging privileged EXEC command with logging ID to display the detail logging message.

Example

show logging

```
Switch logging host mode is disabled
Switch logging host address is null
Switch logging level is informational
```

Number of entries on Switch 1:

```
Error          : 0
Warning        : 0
Notice         : 11
Informational: 7
All           : 18
```

ID	Level	Time & Message
1	Informational	1970-01-01T00:00:01+00:00 SYS-BOOTING: Switch just made a cold boot.
2	Notice	1970-01-01T00:00:01+00:00 LINK-UPDOWN: Interface Vlan 1, changed state to down

show logging information

Syntax

```
show logging [ informational ] [ notice ] [ warning ] [ error ] [ switch <switch_list> ]
```

Parameter

<switch_list>	List of switch ID, ex, 1,3-5,6
---------------	--------------------------------

Default

Mode

Privileged EXEC

Usage

Use the show logging privileged EXEC command without keywords to display the logging configuration, or particularly the logging message summary for the logging level.

Example

```
# show logging informational
```

Switch logging host mode is disabled
 Switch logging host address is null
 Switch logging level is informational

Number of entries on Switch 1:

Error : 0
 Warning : 0
 Notice : 11
 Informational: 7
 All : 18

ID	Level	Time & Message
-----	-----	-----
1	Informational	1970-01-01T00:00:01+00:00 SYS-BOOTING: Switch just made a cold boot.
13	Informational	1970-01-01T01:32:51+00:00 DDMI-MODULE_INSERT_REMOVE: Inserted SFP module on Interface 2.5GigabitEthernet 1/1

show privilege

Syntax

```
show privilege
```

Parameter

Default

Mode

Privileged EXEC

Usage

Display command privilege.

Example

```
# show privilege
```

show process list

Syntax

```
show process list [ detail ]
```

Parameter

Default

Mode

Privileged EXEC

Usage

Show current state of system threads.

Example

```
# show process list
```

ID	State	SetPrio	CurPrio	Name	1sec Load	10sec Load	Stack	Base	Size	Used
DSR	N/A	N/A	N/A	DSR Context	N/A	N/A	N/A	N/A	N/A	N/A
3	Sleep	6	6	Network alarm support	N/A	N/A	0x82737a90	4096	1832	
4	Sleep	7	7	Network support	N/A	N/A	0x821b5298	8192	2264	
5	Susp	15	15	pthread.00000800	N/A	N/A	0x827620e4	7828	280	
6	Sleep	7	7	Main	N/A	N/A	0x81af8d30	16384	496	
7	Sleep	7	7	Critd	N/A	N/A	0x81e6c1d8	8192	656	
8	Sleep	8	8	Configuration	N/A	N/A	0x80e8ab20	8192	1060	
9	Sleep	7	7	ICFG Loader	N/A	N/A	0x8119c450	65536	11624	
10	Sleep	7	7	Port Control	N/A	N/A	0x81eba850	16384	3292	

show process load

Syntax

```
show process load
```

Parameter

Default

Mode

Privileged EXEC

Usage

Show current CPU load: 100ms, 1s and 10s running average (in percent, zero is idle).

Example

```
# show process load
Load average(100ms, 1s, 10s):  0%,  0%,  0%
```

show running-config

Syntax

```
show running-config [ all-defaults ]
```

Parameter

Default

Mode

Privileged EXEC

Usage

Show running configuration.

Example

```
# show running-config
Building configuration...
username admin privilege 15 password encrypted YWRtaW4=
!
vlan 1,2
!
!
snmp-server host abc
!
ip routing
ip dhcp relay
ip helper-address 192.168.100.1
.....
```

show running-config feature

Syntax

```
show running-config feature <feature_name> [ all-defaults ]
```

Parameter

<feature_name>	specific feature
----------------	------------------

Default

Mode

Privileged EXEC

Usage

Show configuration for specific feature.

Example

```
# show running-config feature vlan
Building configuration...
!
vlan 1,2,10,20,100
!
snmp-server host abc
.....
```

show running-config interface

Syntax

```
show running-config interface ( <port_type> [ <list> ] ) [ all-defaults ]
```

Parameter

<port_type>	Port type in Fast, Giga or Tengiga ethernet
<list>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Show specific interface or interfaces.

Example

```
# show running-config interface GigabitEthernet 1/1
Building configuration...
interface GigabitEthernet 1/1
  no spanning-tree
!
end
```

show running-config interface vlan

Syntax

```
show running-config interface vlan <list> [ all-defaults ]
```

Parameter

<list>	VLAN identifier (VID)
--------	-----------------------

Default

Mode

Privileged EXEC

Usage

Show specific VLAN.

Example

```
# show running-config interface vlan 1
Building configuration...
interface vlan 1
  ip address 192.168.0.2 255.255.255.0
!
end
```

show snmp

Syntax

```
show snmp
```

Parameter

Default

Mode

Privileged EXEC

Usage

Display SNMP configurations.

Example

```
# show snmp
SNMP Configuration
SNMP Mode           : enabled
SNMP Version        : 2c
Read Community      : public
Write Community     : private
Trap Mode           : disabled
```

SNMPv3 Communities Table:

```
Community   : public
Source IP   : 0.0.0.0
Source Mask : 0.0.0.0
```

```
Community   : private
Source IP   : 0.0.0.0
Source Mask : 0.0.0.0
.....
```

show snmp access

Syntax

```
show snmp access [ <group_name> { v1 | v2c | v3 | any } { auth | noauth | priv } ]
```

Parameter**Default**

<code><group_name></code>	Group name
---------------------------------	------------

Mode

Privileged EXEC

Usage

Display access configurations.

Example

```
# show snmp access
Group Name       : default_ro_group
Security Model   : any
Security Level   : NoAuth, NoPriv
Read View Name   : default_view
Write View Name  : <no writeview specified>

Group Name       : default_rw_group
Security Model   : any
Security Level   : NoAuth, NoPriv
Read View Name   : default_view
Write View Name  : default_view
```

show snmp community**Syntax**

```
show snmp community v3 [ <community> ]
```

Parameter**Default**

<code><community></code>	Specify community name
--------------------------------	------------------------

Mode

Privileged EXEC

Usage

Display Community configurations.

Example

```
# show snmp community v3
```

```
Community   : public
```

```
Source IP   : 0.0.0.0
```

```
Source Mask : 0.0.0.0
```

```
Community   : private
```

```
Source IP   : 0.0.0.0
```

```
Source Mask : 0.0.0.0
```

show snmp host

Syntax

```
show snmp host [ <conf_name> ] [ system ] [ switch ] [ interface ] [ aaa ]
```

Parameter

Default

<i><conf_name></i>	Name of the host configuration
--------------------------	--------------------------------

Mode

Privileged EXEC

Usage

Display snmp host configurations.

Example

```
# show snmp host
```

```
Trap Global Mode: disabled
```

```
Trap abc (ID:0) is disabled
```

```
Community       : Public
```

```
Destination Host: 0.0.0.0
```

```
UDP Port        : 162
```

```
Version         : V2C
```

```
Inform Mode     : disabled
```

```
Inform Timeout  : 3
```

Inform Retry : 5

show snmp mib context

Syntax

```
show snmp mib context
```

Parameter

Default

Mode

Privileged EXEC

Usage

Use the show snmp mib context user EXEC command to display the supported MIBs in the switch.

Example

```
# show snmp mib context
BRIDGE-MIB :
  - dot1dBase (.1.3.6.1.2.1.17.1)
  - dot1dTp (.1.3.6.1.2.1.17.4)
ENTITY-MIB :
  - entityMIBObjects (.1.3.6.1.2.1.47.1)
EtherLike-MIB :
  - transmission (.1.3.6.1.2.1.10)
.....
```

show snmp mib ifmib ifIndex

Syntax

```
show snmp mib ifmib ifIndex
```

Parameter**Default****Mode**

Privileged EXEC

Usage

Use the `show snmp mib ifmib ifIndex user EXEC` command to display the SNMP ifIndex(defined in IF-MIB) mapping information in the switch.

Example

```
# show snmp mib ifmib ifIndex
ifIndex      ifDescr
-----
          1  VLAN      1
1000001      Switch  1 - Port  1
1000002      Switch  1 - Port  2
1000003      Switch  1 - Port  3
1000004      Switch  1 - Port  4
Interface
-----
          1  vlan 1
1000001      GigabitEthernet 1/1
1000002      GigabitEthernet 1/2
1000003      GigabitEthernet 1/3
1000004      GigabitEthernet 1/4
```

show snmp security-to-group**Syntax**

```
show snmp security-to-group [ { v1 | v2c | v3 } <security_name> ]
```

Parameter**Default**

<security_name>	security user name
-----------------	--------------------

Mode

Privileged EXEC

Usage

Display snmp security to group configurations.

Example

```
# show snmp security-to-group
```

```
Security Model : v1
Security Name  : public
Group Name    : default_ro_group
```

```
Security Model : v1
Security Name  : private
Group Name    : default_rw_group
.....
```

show snmp user

Syntax

```
show user [ <username> <engineID> ]
```

Parameter

Default

<i><username></i>	security user name
<i><engineID></i>	Security Engine ID

Mode

Privileged EXEC

Usage

Display snmp security user configurations.

Example

```
# show snmp user
User Name      : default_user
Engine ID     : 800007e5017f000001
Security Level : NoAuth, NoPriv
Authentication Protocol : None
Privacy Protocol : None
```

show snmp view

Syntax

```
show view [ <view_name> <oid_subtree> ]
```

Parameter**Default**

<i><view_name></i>	MIB view name
<i><oid_subtree></i>	MIB view OID

Mode

Privileged EXEC

Usage

Display snmp view configuration.

Example

```
# show snmp view
View Name   : default_view
OID Subtree : .1
View Type   : included
```

show system cpu status**Syntax**

```
show system cpu status
```

Parameter**Default****Mode**

Privileged EXEC

Usage

Display system CPU status.

Example

```
# show system cpu status
Average load in 100 ms : 0%
Average load in 1 sec : 0%
Average load in 10 sec : 0%
```


show system led status

Syntax

```
show system led status
```

Parameter

Default

Mode

Privileged EXEC

Usage

Display system LED status.

Example

```
# show system led status
System LED: green, solid, normal indication.
```

show terminal

Syntax

```
show terminal
```

Parameter

Default

Mode

Privileged EXEC

Usage

Display terminal configuration parameters.

Example

```
# show terminal
Line is vty 0.
* You are at this line now.
Alive from Telnet.
```

```
Default privileged level is 2.  
Command line editing is enabled  
Display EXEC banner is enabled.  
Display Day banner is enabled.  
Terminal width is 80.  
    length is 24.  
    history size is 32.  
    exec-timeout is 10 min 0 second.
```

```
Current session privilege is 15.  
Elapsed time is 0 day 0 hour 16 min 43 sec.  
Idle time is 0 day 0 hour 0 min 0 sec.
```

show user-privilege

Syntax

```
show user-privilege
```

Parameter

Default

Mode

```
Privileged EXEC
```

Usage

```
Show Users privilege configuration.
```

Example

```
# show user-privilege  
username admin privilege 15 password encrypted YWRtaW4=
```

show users

Syntax

```
show users [ myself ]
```

Parameter**Default****Mode**

Privileged EXEC

Usage

Display information about terminal lines.

Example

```
# show users
Line is vty 0.
  * You are at this line now.
  Connection is from 192.168.0.20:56376 by Telnet.
  User name is admin.
  Privilege is 15.
  Elapsed time is 0 day 0 hour 19 min 46 sec.
  Idle time is 0 day 0 hour 0 min 0 sec.
```

show version**Syntax**

```
show version [ brief ]
```

Parameter**Default****Mode**

Privileged EXEC

Usage

Use show version to display firmware information.

Example

```
# show version

MEMORY           : Total=89879 KBytes, Free=77849 KBytes, Max=77752 KBytes
FLASH            : 0x40000000-0x40ffffff, 256 x 0x10000 blocks
```

MAC Address : 9a-86-03-ab-57-01
Previous Restart : Cold

shutdown

Syntax

```
shutdown  
no shutdown
```

Parameter

Default

Mode

SNMP Server Host Configuration

Usage

Use shutdown to shut down the SNMP server.

Example

```
(config)# snmp-server host abc  
(config-snmps-host)# no shutdown
```

snmp-server

Syntax

```
snmp-server  
no snmp-server
```

Parameter

Default

Mode

Global Configuration

Usage

The command can enable SNMP server on SNMPv1, SNMPv2c, or SNMPv3.

Example

```
(config)# snmp-server
```

snmp-server access

Syntax

```
snmp-server access <group_name> model { v1 | v2c | v3 | any } level { auth | noauth |
priv } [ read <view_name> ] [ write <write_name> ]
no snmp-server access <group_name> model { v1 | v2c | v3 | any } level { auth | noauth |
priv }
```

Parameter

<i><group_name></i>	group name
<i><view_name></i>	read view name
<i><write_name></i>	write view name

Default

Mode

Global Configuration

Usage

Configure SNMP server access.

Example

```
(config)# snmp-server access
```

snmp-server community v2c

Syntax

```
snmp-server community v2c <comm> [ ro | rw ]
no snmp-server community v2c <comm> [ ro | rw ]
```

Parameter

<i><comm></i>	Community word
---------------------	----------------

Default**Mode**

Global Configuration

Usage

Set the SNMP community.

Example

```
(config)# snmp-server community v2c private rw
```

snmp-server community v3**Syntax**

```
snmp-server community v3 <v3_comm> [ <v_ipv4_addr> <v_ipv4_netmask> ]
no snmp-server community v3 <v3_comm> [ <v_ipv4_addr> <v_ipv4_netmask> ]
```

Parameter

<v3_comm>	Community word
<v_ipv4_addr>	IPv4 address
<v_ipv4_netmask>	IPv4 netmask

Default**Mode**

Global Configuration

Usage

Set the SNMP v3 community.

Example

```
(config)# snmp-server community v3 123@admin
```

snmp-server contact

Syntax

```
snmp-server contact <v_line255>
no snmp-server contact
```

Parameter

<v_line255>	contact string
-------------	----------------

Default

Mode

Global Configuration

Usage

To specify the system contact string.

Example

```
(config)# snmp-server contact abc.com
```

snmp-server engine-id local

Syntax

```
snmp-server engine-id local <engineID>
no snmp-server engine-id local
```

Parameter

<engineID>	local engine ID
------------	-----------------

Default

Mode

Global Configuration

Usage

To specify SNMP server's engine ID.

Example

```
(config)# snmp-server engine-id local 800007e5017f000001
```

snmp-server host**Syntax**

```
snmp-server host <conf_name>
no snmp-server host <conf_name>
```

Parameter

<conf_name>	Name of the host configuration
-------------	--------------------------------

Default**Mode**

Global Configuration

Usage

Set SNMP host's configurations.

Example

```
(config)# snmp-server host abc
```

snmp-server host trap**Syntax**

```
snmp-server host <conf_name> traps [ linkup ] [ linkdown ] [ lldp ]
no snmp-server host <conf_name> traps
```

Parameter

<conf_name>	Name of the host configuration
-------------	--------------------------------

Default**Mode**

Interface Configuration

Usage

Enable traps.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# snmp-server host abc traps linkup linkdown
```

snmp-server location

Syntax

```
snmp-server location <v_line255>
no snmp-server location
```

Parameter

<v_line255>	location string
-------------	-----------------

Default

Mode

Global Configuration

Usage

To specify the system location string.

Example

```
(config)# snmp-server location abc
```

snmp-server security-to-group

Syntax

```
snmp-server security-to-group model { v1 | v2c | v3 } name <security_name> group
<group_name>
no snmp-server security-to-group model { v1 | v2c | v3 } name <security_name> group
<group_name>
```

Parameter

<i><security_name></i>	security user name
<i><group_name></i>	security group name

Default**Mode**

Global Configuration

Usage

To specify the security-to-group configuration.

Example

```
(config)# snmp-server security-to-group model v3 name admin@123 group abc
```

snmp-server trap**Syntax**

```
snmp-server trap
no snmp-server trap
```

Parameter**Default****Mode**

Global Configuration

Usage

Set trap's configurations.

Example

```
(config)# snmp-server trap
```

snmp-server user

Syntax

```
snmp-server user <username> engine-id <engineID> [ { md5 <md5_passwd> | sha
<sha_passwd> } [ priv { des | aes } <priv_passwd> ] ]
no snmp-server user <username> engine-id <engineID>
```

Parameter

<username>	User name
<engineID>	Engine ID octet string
<md5_passwd>	MD5 password
<sha_passwd>	SHA password
<priv_passwd>	Set privacy password

Default

Mode

Global Configuration

Usage

Set the SNMPv3 user's configurations.

Example

```
(config)# snmp-server user admin@123 engine-id 800007e5017f000001
```

snmp-server version

Syntax

```
snmp-server version { v1 | v2c | v3 }
no snmp-server version
```

Parameter

v1	SNMPv1
v2	SNMPv2c
v3	SNMPv3

Default

Default is SNMPv2c.

Mode

Global Configuration

Usage

Set the SNMP server version to SNMPv1, SNMPv2c or SNMPv3.

Example

```
(config)# snmp-server version v2c
```

sntp**Syntax**

```
sntp  
no sntp
```

Parameter**Default****Mode**

Global Configuration

Usage

Enable the global SNTP service.

Example

```
(config)# sntp
```

sntp server**Syntax**

```
sntp server ip-address { <ipv4_var> }  
no sntp server
```

Parameter

<code><ipv4_var></code>	IPv4 address
-------------------------------	--------------

Default**Mode**

Global Configuration

Usage

Set SNTP server IPv4 address.

Example

```
(config)# sntp server ip-address 120.25.108.11
```

terminal editing**Syntax**

```
terminal editing
no terminal editing
```

Parameter**Default****Mode**

Privileged EXEC

Usage

Enable command line editing.

Example

```
# terminal editing
```

terminal exec-timeout**Syntax**

```
terminal exec-timeout <min> [ <sec> ]
```

no terminal exec-timeout**Parameter**

<i><min></i>	Timeout in minutes
<i><sec></i>	Timeout in seconds

Default**Mode**

Privileged EXEC

Usage

Set the EXEC timeout.

Example

terminal exec-timeout 1

terminal history size**Syntax**

```
terminal history size <history_size>
no terminal history size
```

Parameter

<i><history_size></i>	Number of history commands, 0 means disable
-----------------------------	---

Default**Mode**

Privileged EXEC

Usage

Set history buffer size.

Example

terminal history size 100

terminal length

Syntax

terminal length *<lines>*
no terminal length

Parameter

<i><lines></i>	Number of lines on screen (0 for no pausing)
----------------------	--

Default

Mode

Privileged EXEC

Usage

Set number of lines on a screen.

Example

```
# terminal length 50
```

terminal width

Syntax

terminal width *<width>*
no terminal width

Parameter

<i><width></i>	Number of characters on a screen line (0 for unlimited width)
----------------------	---

Default

Mode

Privileged EXEC

Usage

Set width of the display terminal.

Example

```
# terminal width 50
```

traps

Syntax

```
traps [ authentication snmp-auth-fail ] [ system [ coldstart ] [ warmstart ] ] [ switch [ stp ]
[ rmon ] ]
no traps
```

Parameter

authentication snmp-auth-fail	Authentication fail event
coldstart	Cold start event
warmstart	Warm start event
stp	STP event
rmon	RMON event

Default

Mode

SNMP Server Host Configuration

Usage

Trap event configuration.

Example

```
(config)# snmp-server host abc
(config-snmps-host)# traps
```

username

Syntax

```
username <username> privilege <priv> password encrypted <ency_password>
username <username> privilege <priv> password none
username <username> privilege <priv> password unencrypted <password>
no username <username>
```


Parameter

<code><username></code>	User name allows letters, numbers and underscores
<code><priv></code>	User privilege level
<code><encry_password></code>	The ENCRYPTED (hidden) user password. Notice the ENCRYPTED password will be decoded by system internally. You cannot directly use it as same as the Plain Text and it is not human-readable text normally.
none	NULL password
<code><password></code>	The UNENCRYPTED (Plain Text) user password. Any printable characters including space is accepted. Notice that you have no chance to get the Plain Text password after this command. The system will always display the ENCRYPTED password.

Default**Mode**

Global Configuration

Usage

Add a user for the local switch access.

Example

```
(config)# username testuser privilege 5 password encrypted dGVzdHVzZXI=
```

version**Syntax**

```
version { v1 [ <v1_comm> ] | v2 [ <v2_comm> ] | v3 [ probe | engineID <v_word10_to_64> ]
[ <securtyname> ] }
no version
```

Parameter

v1	SNMP trap version 1
v2	SNMP trap version 2
v3	SNMP trap version 3
probe	Probe trap server's engine ID
<code><v_word10_to_64></code>	trap server's engine ID
<code><securtyname></code>	security name

Default**Mode**

SNMP Server Host Configuration

Usage

Configure SNMP version.

Example

```
(config)# snmp-server host abc
(config-snmps-host)# version v2
```

width**Syntax**

```
width <width>
no width
```

Parameter

<width>	Number of characters on a screen line (0 for unlimited width)
---------	---

Default**Mode**

Line Configuration

Usage

Set width of the display terminal.

Example

```
(config)# line 0
(config-line)# width 100
```

16. VLAN

name

Syntax

```
name <vlan_name>
no name
```

Parameter

<vlan_name>	The ASCII name for the VLAN
-------------	-----------------------------

Default

Mode

VLAN Configuration

Usage

Use the name <vword32> command to configure VLAN name.

Example

```
This example shows how to configure the VLAN name
(config)# vlan 10
(config-vlan)# name guest
```

show interface vlan

Syntax

```
show interface vlan [ <vlist> ]
```

Parameter

<vlist>	VLAN list
---------	-----------

Default

Mode

Privileged EXEC

Usage

Display VLAN interface status.

Example

```
# show interface vlan
VLAN1
  LINK: 1c-2a-a3-01-23-c6 Mtu:1500 <UP BROADCAST RUNNING MULTICAST>
  IPv4: 192.168.0.2/24 192.168.0.255
  IPv6: fe80::1e2a:a3ff:fe01:23c6/64 <UP RUNNING>
```

show switchport forbidden

Syntax

```
show switchport forbidden [ { vlan <vlan_list> } | { name <name> } ]
```

Parameter

<vlan_list>	Forbidden VLAN by VLAN ID
<name>	Forbidden VLANs by VLAN name

Default

Mode

Privileged EXEC

Usage

Display switchport forbidden VLAN configuration.

Example

```
# show switchport forbidden
```

show vlan

Syntax

```
show vlan [ id <vlan_list> | name <name> | brief ] [ all ]
```

Parameter

<vlan_list>	VLAN IDs 1-4095
<name>	VLAN name

Default

Mode

Privileged EXEC

Usage

Use the show vlan command to view the VLAN configuration.

Example

```
# show vlan id 1
VLAN  Name                               Interfaces
-----
1     default                               Gi 1/1,3 2.5G 1/1
```

show vlan status

Syntax

```
show vlan status [ interface ( <port_type> [ <plist> ] ) ] [ admin | all | combined | conflicts
| erps | evc | gvrp | mep | mstp | mvr | nas | rmirror | vcl | voice-vlan ]
```

Parameter

<port_type>	Port type in Fast, Giga or Tengiga ethernet
<plist>	List of Port ID, ex, 1/1,3-5;2/2-4,6

Default

Mode

Privileged EXEC

Usage

Use the show VLAN status command to view the VLANs configured for each interface.

Example

```
# show vlan status interface GigabitEthernet 1/1
GigabitEthernet 1/1 :
-----
VLAN User  PortType  PVID  Frame Type  Ing Filter  Tx Tag  UVID  Conflicts
-----
```

Combined Admin	C-Port	1	All	Enabled	All except-native	1	No
Admin	C-Port	1	All	Enabled	All except-native	1	No
NAS							No
GVRP							No
MSTP							No
.....							No

switchport access vlan

Syntax

```
switchport access vlan <pvid>
no switchport access vlan
```

Parameter

<pvid>	VLAN ID of the VLAN when this port is in access mode
--------	--

Default

The no switchport access command resets the access mode VLAN to the appropriate default VLAN.

Mode

Interface Configuration

Usage

Use the switchport access vlan command to configure a port to a VLAN. Valid VLAN IDs are 1 to 4095.

Example

```
(config)# interface GigabitEthernet 1/2
(config-if)# switchport access vlan 1
```

switchport forbidden vlan

Syntax

```
switchport forbidden vlan { add | remove } <vlan_list>
no switchport forbidden vlan
```

Parameter

<code><vlan_list></code>	VLAN IDs
--------------------------------	----------

Default**Mode**

Interface Configuration

Usage

Configure forbidden VLAN.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# switchport forbidden vlan add 2
```

switchport hybrid acceptable-frame-type**Syntax**

```
switchport hybrid acceptable-frame-type { all | tagged | untagged }
no switchport hybrid acceptable-frame-type
```

Parameter

all	Allow all frames
tagged	Allow only tagged frames
untagged	Allow only untagged frames

Default**Mode**

Interface Configuration

Usage

Configure the type of frame the port allows to receive.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# switchport hybrid acceptable-frame-type all
```

switchport hybrid allowed vlan

Syntax

```
switchport hybrid allowed vlan { all | none | [ add | remove | except ] <vlan_list> }
no switchport hybrid allowed vlan
```

Parameter

all	All VLANs
none	No VLANs
<i><vlan_list></i>	VLAN IDs of the allowed VLANs when this port is in hybrid mode

Default

Mode

Interface Configuration

Usage

Configure VLAN allows to receive on hybrid port.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# switchport hybrid allowed vlan add 100
```

switchport hybrid egress-tag

Syntax

```
switchport hybrid egress-tag { none | all [ except-native ] }
no switchport hybrid egress-tag
```

Parameter

none	No egress tagging
all	Tag all frames
except-native	Tag all frames except frames classified to native VLAN of the hybrid port

Default**Mode**

Interface Configuration

Usage

Port out direction tag attribute data filtering.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# switchport hybrid ingress-filtering
```

switchport hybrid ingress-filtering**Syntax**

```
switchport hybrid ingress-filtering  
no switchport hybrid ingress-filtering
```

Parameter**Default****Mode**

Interface Configuration

Usage

VLAN Ingress filter configuration.

Example

```
(config)# interface GigabitEthernet 1/1  
(config-if)# switchport hybrid ingress-filtering
```

switchport hybrid native vlan**Syntax**

```
switchport hybrid native vlan <pvid>  
no switchport hybrid native vlan
```

Parameter

<code><pvid></code>	VLAN ID of the native VLAN when this port is in hybrid mode
---------------------------	---

Default

The `no switchport hybrid` command resets the hybrid native VLAN to the appropriate default VLAN

Mode

Interface Configuration

Usage

Use the `switchport native vlan` command to configure a port VLAN ID for a hybrid port.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# switchport hybrid native vlan 1
```

switchport hybrid port-type**Syntax**

```
switchport hybrid port-type { unaware | c-port | s-port | s-custom-port }
no switchport hybrid port-type
```

Parameter

unaware	Port in not aware of VLAN tags.
c-port	Customer port
s-port	Provider port
s-custom-port	Custom Provider port

Default**Mode**

Interface Configuration

Usage

Set port type.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# switchport hybrid port-type unaware
```

switchport mode

Syntax

```
switchport mode { access | trunk | hybrid }
no switchport mode
```

Parameter

access	Set mode to ACCESS unconditionally
trunk	Set mode to TRUNK unconditionally
hybrid	Set mode to HYBRID unconditionally

Default

Mode

Interface Configuration

Usage

Use the switchport mode command to define the type of the port.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# switchport mode trunk
```

switchport trunk allowed vlan

Syntax

```
switchport trunk allowed vlan { all | none | [ add | remove | except ] <vlan_list> }
no switchport trunk allowed vlan
```

Parameter

all	All VLANs
none	No VLANs
<i><vlan_list></i>	VLAN IDs of the allowed VLANs when this port is in trunk mode

Default**Mode**

Interface Configuration

Usage

Set allowed VLANs when interface is in trunk mode.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# switchport trunk allowed vlan add 1,10
```

switchport trunk native vlan**Syntax**

```
switchport trunk native vlan <pvld>
no switchport trunk native vlan
```

Parameter

<i><pvld></i>	VLAN ID of the native VLAN when this port is in trunk mode
---------------------	--

Default**Mode**

Interface Configuration

Usage

Use the switchport native vlan command to configure a port VLAN ID for a trunk port.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# switchport trunk native vlan 1
```

switchport trunk tag native**Syntax**

```
switchport trunk tag native
```

no switchport trunk tag native

Parameter

Default

Mode

Interface Configuration

Usage

Configure tag native VLAN.

Example

```
(config)# interface GigabitEthernet 1/1
(config-if)# switchport trunk tag native
```

vlan

Syntax

```
vlan <vlan_list>
vlan ethertype s-custom-port <etype>
no vlan { { ethertype s-custom-port } | <vlan_list> }
```

Parameter

<vlan_list>	ISL VLAN IDs 1~4095
<etype>	EtherType (Range: 0x0600-0xffff)
<vlan_list>	ISL VLAN IDs 1~4095

Default

Mode

Global Configuration

Usage

Configure VLAN commands.

Example

```
(config)# vlan 10
```