NS4750-24S-4T-4X-V2 Managed Switch Command Guide

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FCC compliance This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC compliance **Class A:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canada This Class A digital apparatus complies with CAN ICES-003 (A)/NMB-3 (A).

Cet appareil numérique de la classe A est conforme à la norme CAN ICES-003 (A)/NMB-3 (A).

ACMA compliance **Notice!** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Certification

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Chapter 1
Command line interface

Accessing the CLI

When accessing the management interface for the switch over a direct connection to the server’s console port or via a Telnet connection, the switch can be managed by entering command keywords and parameters at the prompt. Using the switch's command-line interface (CLI) is very similar to entering commands on a UNIX system.

This chapter describes how to use the Command Line Interface (CLI).

Command line modes

The CLI groups all the commands in appropriate modes according to the nature of the command. A sample of the CLI command modes are described below. Each of the command modes supports specific software commands.

Mode-based command hierarchy

The Command Line Interface (CLI) groups all the commands in appropriate modes by the nature of the commands. Examples of the CLI command modes are described below. Each of the command modes supports specific switch commands.

The CLI Command Modes table captures the command modes, the prompts visible in that mode and the exit method from that mode.

Command Mode	Access Method	Prompt	Exit or Access Previous Mode
User mode	This is the first level of access. Perform basic tasks and list system information.	**COMMAND>**	Enter Logout command
Priveleged mode	From the User Mode, enter the enable command.	**Switch#**	To exit to the User Mode, enter exit or Logout.
Global config mode	From the Privileged Mode, enter the configuration command.	**Switch (Config)#**	To exit to the Privileged Mode, enter the exit command.

Command Mode	Access Method	Prompt	Exit or Access Previous Mode
Interface config mode	From the Global Config mode, enter the interface <port#> command.	**Switch (interface <port#>)#**	To exit to the Global Config mode, enter exit.

The CLI is divided into various modes. The commands in one mode are not available until the operator switches to that particular mode. The commands available to the operator at any point in time depend upon the mode. Entering a question mark (?) at the CLI prompt displays a list of the available commands and descriptions of the commands.

The CLI provides the following modes:

User Mode

When the operator logs into the CLI, the User Mode is the initial mode. The User Mode contains a limited set of commands. The command prompt shown at this level is:

Command Prompt: switch>

Privileged Mode

To have access to the full suite of commands, the operator must enter the Privileged Mode. The Privileged Mode requires password authentication. From Privileged Mode, the operator can issue any Exec command to enter the Global Configuration mode. The command prompt shown at this level is:

Command Prompt: switch#

Global Config Mode

This mode permits the operator to make modifications to the running configuration. General setup commands are grouped in this mode. From the Global Configuration mode, the operator can enter the Interface Configuration mode. The command prompt at this level is:

Command Prompt: switch(Config)#

From the Global Config mode, the operator may enter the following configuration modes:

Interface Config Mode

Many features are enabled for a particular interface. The Interface commands enable or modify the operation of an interface. In this mode, a physical port is set up for a specific logical connection operation. The command prompt at this level is:

Command Prompt: Switch(Interface <port#>)#

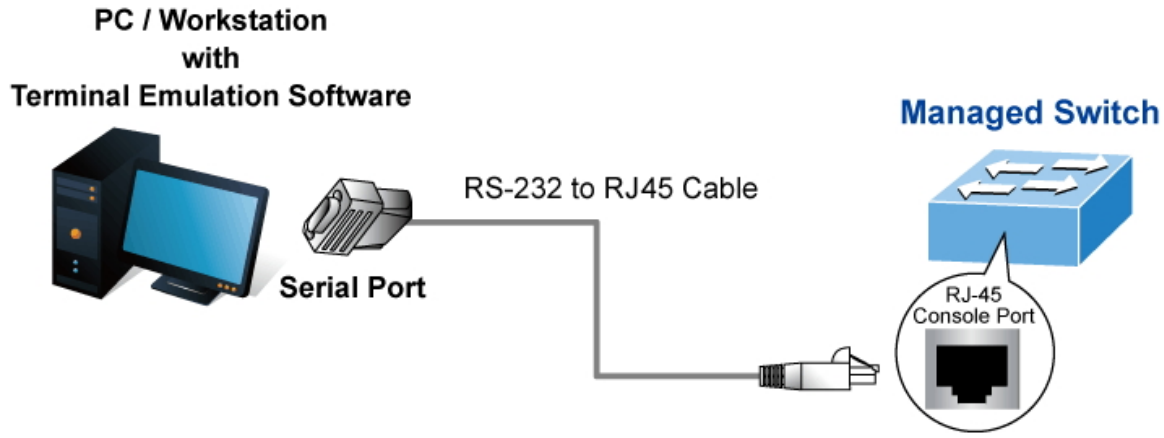
Requirements

- Workstations running Windows XP/Vista/7/8/10, Windows 2003/2008, MAC OS X or later, Linux, UNIX, or other platforms are compatible with TCP/IP protocols.
- Workstations are installed with Ethernet NIC (Network Interface Card).
- Serial Port Connection (Terminal)
  - The above Workstations come with COM Port (DB9) or USB-to-RS-232 converter.
  - The above Workstations have been installed with terminal emulator, such as Hyper Terminal included in Windows XP/2003.
  - Serial cable -- one end is attached to the RS-232 serial port, while the other end to the console port of the Managed Switch.
- Ethernet Port Connection
  - Network cables -- Use standard network (UTP) cables with RJ-45 connectors.
  - The above PC is installed with Web Browser and JAVA runtime environment plug-in.

Chapter 2
Console CLI management

Terminal setup

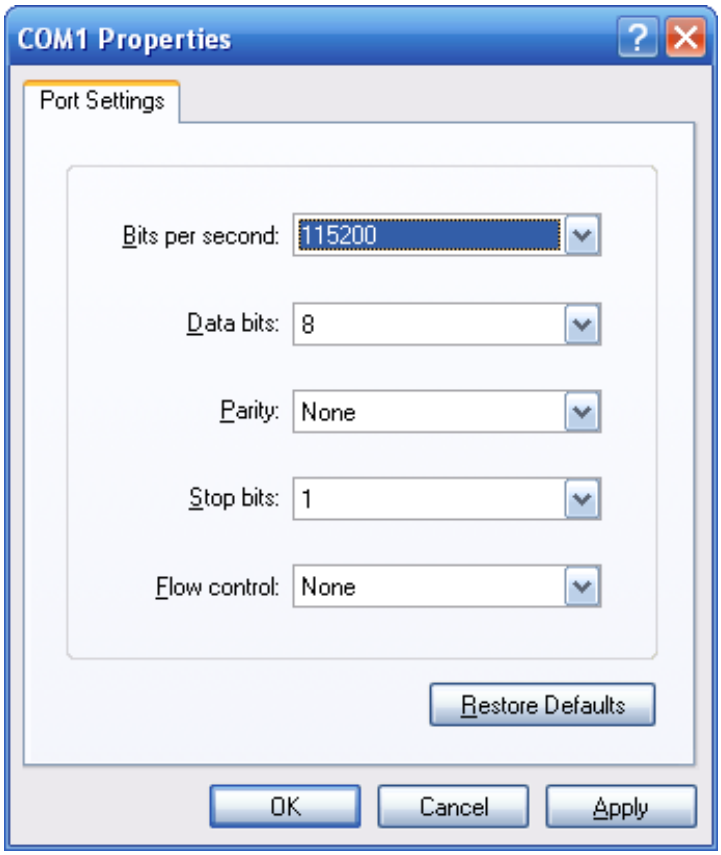
To configure the system, connect a serial cable to a COM port on a PC or notebook computer and to the RJ-45 type of serial (console) port of the managed switch.



The console port of the managed switch is a RJ-45 type, RS-232 serial port connector. It is an interface for connecting a terminal directly. Through the console port, it provides rich diagnostic information including IP Address setting, factory reset, port management, link status, and system settings. Users can use the RS-232 cable in the package and connect to the console port on the device. After the connection, users can run any terminal emulation program (Hyper Terminal, ProComm Plus, Telix, Winterm, and so on) to enter the startup screen of the device.

A terminal program is required to make the software connection to the managed switch. Windows' Hyper Terminal program may be a good choice. The Hyper Terminal can be accessed from the **Start** menu.

1. Click **Start** > **Programs** > **Accessories**, and then click **Hyper Terminal**.
2. When the following screen appears, make sure that the COM port is configured as shown:

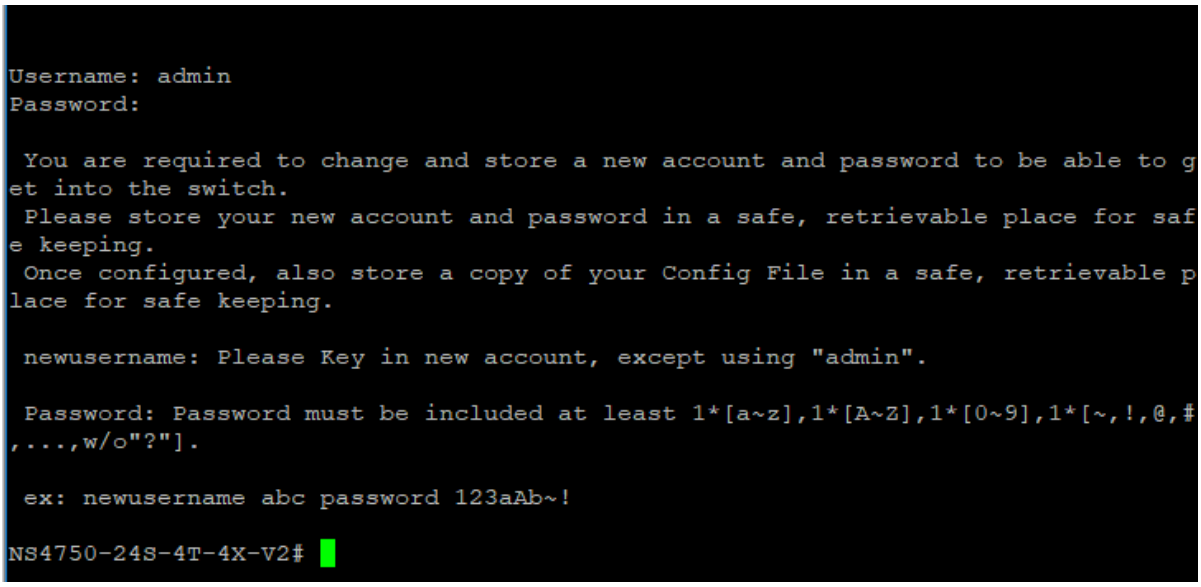


If required, you can change these settings after you log on. This management method is often preferred because you can remain connected and monitor the system during system reboots. Also, certain error messages are sent to the serial port, regardless of the interface through which the associated action was initiated. A Macintosh or PC attachment can use any terminal-emulation program for connecting to the terminal serial port. A workstation attachment under UNIX can use an emulator such as TIP.

Log on to the console

After the terminal is connected to the device, power on the managed switch. “Running testing procedures” appears in the terminal display. Then, a user name and password prompt appears. The factory default user name and password are shown as follows and the login screen appears.

Username: **admin**
Password: **admin**



After logging in with the default user name and password, a new user name and password must be configured.

newusername

Command:

newusername <username> password <password>

username Establish a new User Name Authentication
<username> New User name allows letters, numbers and underscores except admin
password Specify the password for the user
<password > The new password is required **at least 8 characters** and must be included
one lowercase letter [a~z], **one uppercase letter** [A~Z], **one number** [0~9], and **one special character** [~,!,@,#,...,w/o"?"].

Default:

N/A

Usage Guide:

To change user name and password when logging with default account(admin)**.**

Example:

To **change user name and password.**

Switch# **newusername abc password 123aAb~!**

The user can now enter commands to manage the managed switch. For a detailed description of the commands, refer to the following chapters.

Note: For security purposes, store the new account information ain a safe location.

Configuring the IP address

The managed switch is shipped with default IP address shown below.

IP Address: **192.168.0.100**
Subnet Mask: **255.255.255.0**

To check the current IP address or modify a new IP address for the switch, please use the procedures as follows:

Show the current IP address

At the “#” prompt, type “show ip interface brief”. The screen displays the current IP address and Subnet Mask as shown:

```
NS4750-24S-4T-4X-V2# show ip interface brief
Interface  Address              Method   Status
---------- -------------------- -------- ------
VLAN 1     192.168.0.100/24     Manual   UP
NS4750-24S-4T-4X-V2#
```

Configure the IP address

At the “**#**” prompt, enter the following command and press Enter.

```
# configure terminal
(config)# interface vlan 1
(config-if-vlan)# ip address 192.168.1.100 255.255.255.0
```

The previous command would apply the following settings for the managed switch.

IP Address: **192.168.1.100**

Subnet Mask: **255.255.255.0**

```
NS4750-24S-4T-4X-V2# configure terminal
NS4750-24S-4T-4X-V2(config)# interface vlan 1
NS4750-24S-4T-4X-V2(config-if-vlan)# ip address 192.168.1.100 255.255.255.0
NS4750-24S-4T-4X-V2(config-if-vlan)#
```

At the “#” prompt, type “show ip interface brief” to check if the IP address has changed.

Store the current switch configuration

At the “**#**” prompt, enter the following command and press Enter.

```
# copy running-config startup-config
```

```
NS4750-24S-4T-4X-V2# copy running-config startup-config
Building configuration...
do not reset or power off the device!
% Saving 5373 bytes to flash:startup-config
NS4750-24S-4T-4X-V2#
```

If the IP is successfully configured, the managed switch applies the new IP address setting immediately. You can access the web interface of the managed switch through the new IP address.

Note: If unfamiliar with the console command or the related parameter, type “?” at any time in the console to obtain the help description.

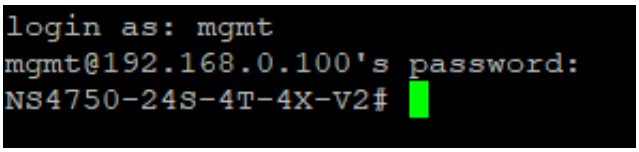
.

Chapter 3
Remote CLI management

SSH login

The managed switch also supports SSH for remote management. The switch asks for a user name and password for remote login when using telnet. Use the new username and password.

Default IP address: **192.168.0.100**
New username and password:



Chapter 4
Commands for CLI configuration

clear

clear access management statistics

Command:

```
clear access management statistics
```

Default:

N/A

Usage Guide:

To clear the access management statistics.

Example:

To clear the switch's access management statistics.

```
Switch# clear access management statistics
```

clear access-list ace statistics

Command:

```
clear access-list ace statistics
```

Default:

N/A

Usage Guide:

To clear the Access list entry statistics.

Example:

To clear the switch's Access list entry statistics.

```
Switch# clear access-list ace statistics
```

clear dot1x statistics interface

Command:

```
clear dot1x statistics interface GigabitEthernet |
10GigabitEthernet
```

Default:

N/A

Usage Guide:

To clear the dot1x statistics.

Example:

To clear the switch's GigabitEthernet 1/25 dot1x statistics.

```
Switch# clear dot1x statistics interface GigabitEthernet 1/25
```

clear eps

Command:

```
clear eps <Inst : uint>
```

<Inst : uint> The EPS instance number.

Default:

N/A

Usage Guide:

To clear the EPS instance number.

clear erps

Command:

```
clear erps < ERPS group numbers > statistics
```

Default:

N/A

Usage Guide:

To clear the ERPS group numbers statistics.

Example:

To clear the switch's ERPS group 1 statistics.

```
Switch# # clear erps 1 statistics
```

clear erps statistics

Command:

```
clear erps statistics
```

Default:
N/A
Usage Guide:
To clear the ERPS statistics.
Example:
To clear the switch's **ERPS statistics.**

```
Switch# clear erps statistics
```

clear ip arp

Command:

```
clear ip arp
```

Default:
N/A
Usage Guide:
To clear the **ARP cache.**
Example:
To clear the switch's A**RP cache.**

```
Switch# clear ip arp
```

clear ip dhcp detailed statistics all

Command:

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

Default:
N/A
Usage Guide:
To clear the DHCP detailed statistics for all.
Example:
To clear the switch's **DHCP detailed statistics** for all**.**

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

clear ip dhcp detailed statistics client

Command:

```
clear ip dhcp detailed statistics client
```

Default:
N/A
Usage Guide:

To clear the DHCP client statistics.

Example:

To clear the switch's DHCP client statistics.

```
Switch# clear ip dhcp detailed statistics client
```

clear ip dhcp detailed statistics helper

Command:

```
clear ip dhcp detailed statistics helper
```

Default:

N/A

Usage Guide:

To clear the DHCP normal L2 or L3 forward statistics.

Example:

To clear the switch's DHCP normal L2 or L3 forward statistics.

```
Switch# clear ip dhcp detailed statistics helper
```

clear ip dhcp detailed statistics server

Command:

```
clear ip dhcp detailed statistics server
```

Default:

N/A

Usage Guide:

To clear the DHCP server statistics.

Example:

To clear the switch's DHCP server statistics.

```
Switch# clear ip dhcp detailed statistics server
```

clear ip dhcp detailed statistics snooping

Command:

```
clear ip dhcp detailed statistics snooping
```

Default:

N/A

Usage Guide:

To clear the DHCP snooping statistics.

Example:

To clear the switch's DHCP normal L2 or L3 forward statistics.

```
Switch# clear ip dhcp detailed statistics snooping
```

clear ip dhcp relay statistics

Command:

```
clear ip dhcp relay statistics
```

Default:

N/A

Usage Guide:

To clear the DHCP relay statistics.

Example:

To clear the switch's DHCP relay statistics.

```
Switch# clear ip dhcp relay statistics
```

clear ip dhcp server binding

Command:

```
clear ip dhcp server binding <IP>
```

<IP> A.B.C.D

Default:

N/A

Usage Guide:

To clear the DHCP server binding cache.

Example:

To clear the switch's DHCP server(192.168.0.100) binding cache.

```
Switch# clear ip dhcp server binding 192.168.0.100
```

clear ip dhcp server binding automatic

Command:

```
clear ip dhcp server binding automatic
```

Default:

N/A

Usage Guide:

To clear the DHCP automatic bindings cache.

Example:

To clear the switch's DHCP automatic bindings cache.

```
Switch# clear ip dhcp server binding automatic
```

clear ip dhcp server binding expired

Command:

```
clear ip dhcp server binding expired
```

Default:

N/A

Usage Guide:

To clear the DHCP expired bindings for free.

Example:

To clear the switch's DHCP expired bindings for free.

```
Switch# clear ip dhcp server binding expired
```

clear ip dhcp server binding manual

Command:

```
clear ip dhcp server binding manual
```

Default:

N/A

Usage Guide:

To clear the DHCP server manual binding cache.

Example:

To clear the switch's DHCP server manual binding cache.

```
Switch# clear ip dhcp server binding manual
```

clear ip igmp snooping statistics

Command:

```
clear ip igmp snooping statistics
```

Default:

N/A

Usage Guide:

To clear the IGMP snooping statistics.

Example:

To clear the switch's IGMP snooping statistics.

```
Switch# clear ip igmp snooping statistics
```

clear ip igmp snooping vlan

Command:

```
clear ip igmp snooping vlan < vlan_list> statistics
```

<vlan_list> VLAN identifier(s): VID

Default:

N/A

Usage Guide:

To clear the IGMP snooping vlan < vlan_list> statistics.

Example:

To clear the switch's IGMP snooping vlan 1 statistics.

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

clear ipv6 mld snooping statistics

Command:

```
clear ipv6 mld snooping statistics
```

Default:

N/A

Usage Guide:

To clear the ipv6 mld snooping statistics.

Example:

To clear the switch's ipv6 mld snooping statistics.

```
Switch# clear ipv6 mld snooping statistics
```

clear ipv6 mld snooping vlan

Command:

```
clear ipv6 mld snooping vlan <vlan_list> statistics
```

<vlan_list> VLAN identifier(s): VID

Default:

N/A

Usage Guide:

To clear the ipv6 mld snooping statistics for specific VLAN.

Example:

To clear the switch's **ipv6 mld snooping statistics** for specific VLAN 1**.**

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

clear ipv6 neighbors

Command:

```
clear ipv6 neighbors
```

Default:

N/A

Usage Guide:

To clear the ipv6 neighbors.

Example:

To clear the switch's **ipv6 neighbors.**

```
Switch# clear ipv6 neighbors
```

clear lacp statistics

Command:

```
clear lacp statistics
```

Default:

N/A

Usage Guide:

To clear the lacp statistics.

Example:

To clear the switch's **lacp statistics.**

```
Switch# clear lacp statistics
```

clear lldp statistics

Command:

```
clear lldp statistics
```

Default:

N/A

Usage Guide:

To clear the lldp statistics.

Example:

To clear the switch's **lldp statistics.**

```
Switch# clear lldp statistics
```

clear logging error info

Command:

```
clear logging error info
```

Default:

N/A

Usage Guide:

To clear the logging error info.

Example:

To clear the switch's logging error info.

```
Switch# clear logging error info
```

clear logging error warning

Command:

```
clear logging error warning
```

Default:

N/A

Usage Guide:

To clear the logging error warning.

Example:

To clear the switch's logging error warning.

```
Switch# clear logging error warning
```

clear logging info error

Command:

```
clear logging info error
```

Default:

N/A

Usage Guide:

To clear the logging info error.

Example:

To clear the switch's logging info error.

```
Switch# clear logging info error
```

clear logging info warning

Command:

```
clear logging info warning
```

Default:

N/A

Usage Guide:

To clear the logging info warning.

Example:

To clear the switch's logging info warning.

```
Switch# clear logging info warning
```

clear logging warning error

Command:

```
clear logging warning error
```

Default:

N/A

Usage Guide:

To clear the logging warning error.

Example:

To clear the switch's logging warning error.

```
Switch# clear logging warning error
```

clear logging warning info

Command:

```
clear logging warning info
```

Default:

N/A

Usage Guide:

To clear the logging warning info.

Example:

To clear the switch's logging warning info.

```
Switch# clear logging warning info
```

clear mac address-table

Command:

```
clear mac address-table
```

Default:

N/A

Usage Guide:

To clear the mac address-table.

Example:

To clear the switch's **mac address-table.**

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

clear mep

Command:

```
clear mep <Inst : uint>
```

<Inst : uint> The MEP instance.

Default:

N/A

Usage Guide:

To clear the MEP instance profiles.

clear mvr name

Command:

```
clear mvr name <MvrName : word16>
```

<MvrName : word16> MVR multicast VLAN name

Default:

N/A

Usage Guide:

To clear the mvr name profiles.

clear mvr statistics

Command:

```
clear mvr statistics
```

Default:

N/A

Usage Guide:

To clear the mvr statistics.

Example:

To clear the switch's **mvr statistics.**

```
Switch# clear mvr statistics
```

clear mvr vlan

Command:

```
clear mvr vlan <vlan_list> statistics
```

<vlan_list> MVR multicast VLAN list

Default:

N/A

Usage Guide:

To clear the **mvr vlan statistics** for specific VLAN**.**

Example:

To clear the switch's **mvr vlan statistics** for specific VLAN 1**.**

```
Switch# clear mvr vlan 1 statistics
```

clear spanning-tree detected-protocols interface *

Command:

```
clear spanning-tree detected-protocols interface *
```

Default:

N/A

Usage Guide:

To clear the spanning-tree detected-protocols for all.

Example:

To clear the switch's spanning-tree detected-protocols for all.

```
Switch# clear spanning-tree detected-protocols interface *
```

clear spanning-tree detected-protocols interface *

Command:

```
clear spanning-tree detected-protocols interface *
```

Default:

N/A

Usage Guide:

To clear the spanning-tree detected-protocols for all.

Example:

To clear the switch's spanning-tree detected-protocols for all.

```
Switch# clear spanning-tree detected-protocols interface *
```

clear spanning-tree detected-protocols interface GigabitEthernet

Command:

```
clear spanning-tree detected-protocols interface
GigabitEthernet <PORT_LIST>
```

<PORT_LIST> Port list in X/X-XX

Default:

N/A

Usage Guide:

To clear the spanning-tree detected-protocols for specific GigabitEthernet port.

Example:

To clear the switch's spanning-tree detected-protocols for specific GigabitEthernet 1/1.

```
Switch# clear spanning-tree detected-protocols interface
GigabitEthernet 1/1
```

clear spanning-tree detected-protocols interface 10GigabitEthernet

Command:

```
clear spanning-tree detected-protocols interface
10GigabitEthernet <PORT_LIST>
```

<PORT_LIST> Port list in X/X-XX

Default:

N/A

Usage Guide:

To clear the spanning-tree detected-protocols for specific 10GigabitEthernet port.

Example:

To clear the switch's spanning-tree detected-protocols for specific 10GigabitEthernet 1/1.

```
Switch# clear spanning-tree detected-protocols interface
10GigabitEthernet 1/1
```

clear spanning-tree statistics interface *

Command:

```
clear spanning-tree statistics interface *
```

Default:

N/A

Usage Guide:

To clear the spanning-tree statistics for all.

Example:

To clear the switch's **spanning-tree statistics** for all.

```
Switch# clear spanning-tree statistics interface *
```

clear spanning-tree statistics interface GigabitEthernet

Command:

```
clear spanning-tree statistics interface GigabitEthernet
<PORT_LIST>
```

<PORT_LIST> Port list in X/X-XX

Default:

N/A

Usage Guide:

To clear the spanning-tree statistics for specific GigabitEthernet port.

Example:

To clear the switch's spanning-tree statistics for specific GigabitEthernet 1/1.

```
Switch# clear spanning-tree statistics interface GigabitEthernet
1/1
```

clear spanning-tree statistics interface 10GigabitEthernet

Command:

```
clear spanning-tree statistics interface 10GigabitEthernet
<PORT_LIST>
```

<PORT_LIST> Port list in X/X-XX

Default:

N/A

Usage Guide:

To clear the spanning-tree statistics for specific 10GigabitEthernet port.

Example:

To clear the switch's spanning-tree statistics for specific 10GigabitEthernet 1/1.

```
Switch# clear spanning-tree statistics interface 10GigabitEthernet
1/1
```

clear statistics *

Command:

```
clear statistics *
```

Default:

N/A

Usage Guide:

To clear the **statistics** for all**.**

Example:

To clear the switch's **statistics** for all**.**

```
Switch# clear statistics *
```

clear statistics GigabitEthernet

Command:

```
clear statistics GigabitEthernet <PORT_LIST>
```

<PORT_LIST> Port list in X/X-XX

Default:

N/A

Usage Guide:

To clear the statistics for specific GigabitEthernet port.

Example:

To clear the switch's **statistics** for specific **GigabitEthernet 1/1.**

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

clear statistics 10GigabitEthernet

Command:

```
clear statistics 10GigabitEthernet <PORT_LIST>
```

<PORT_LIST> Port list in X/X-XX

Default:

N/A

Usage Guide:

To clear the statistics for specific 10GigabitEthernet port.

Example:

To clear the switch's statistics for specific 10GigabitEthernet 1/1.

```
Switch# clear statistics 10GigabitEthernet 1/1
```

configure terminal

aaa authentication login console local

Command:

aaa authentication login console local

Default:
console : local
Usage Guide:
To authenticate the **local** account via **console** only.
Example:
To authenticate the **local** account via **console.**

```
Switch# configure terminal
Switch (config)# aaa authentication login console local
```

aaa authentication login console radius

Command:

aaa authentication login console radius

Default:
console : local
Usage Guide:
To authenticate the **radius** account via **console** only.
Example:
To authenticate the **local** and **radius** account via **console**.

```
Switch# configure terminal
Switch (config)# aaa authentication login console local radius
```

aaa authentication login console tacacs

Command:

aaa authentication login console tacacs

Default:
console : local
Usage Guide:
To authenticate the **tacacs** account via **console** only.
Example:
To authenticate the **local** and **radius** and **tacacs** account via **console**.

```
Switch# configure terminal
Switch (config)# aaa authentication login console local radius
tacacs
```

aaa authentication login http local

Command:

aaa authentication login http local

Default:
http : local
Usage Guide:
To authenticate the **local** account via **http** only.
Example:
To authenticate the **local** account via **http**.

```
Switch# configure terminal
Switch (config)# aaa authentication login http local
```

aaa authentication login http radius

Command:

aaa authentication login http radius

Default:
http : local
Usage Guide:
To authenticate the **radius** account via **http** only.
Example:
To authenticate the **local** and **radius** account via **http**.

```
Switch# configure terminal
Switch (config)# aaa authentication login http local radius
```

aaa authentication login http tacacs

Command:

aaa authentication login http tacacs

Default:
http : local
Usage Guide:
To authenticate the **tacacs** account via **http** only.
Example:
To authenticate the **local** and **radius** and **tacacs** account via **http**.

```
Switch# configure terminal
Switch (config)# aaa authentication login http local radius tacacs
```

aaa authentication login ssh local

Command:

aaa authentication login ssh local

Default:
ssh : local
Usage Guide:
To authenticate the **local** account via **ssh** only.
Example:
To authenticate the **local** account via **ssh**.

```
Switch# configure terminal
Switch (config)# aaa authentication login ssh local
```

aaa authentication login ssh radius

Command:

aaa authentication login ssh radius

Default:
ssh : local
Usage Guide:
To authenticate the **radius** account via **ssh** only.
Example:
To authenticate the **local** and **radius** account via **ssh**.

```
Switch# configure terminal
Switch (config)# aaa authentication login ssh local radius
```

aaa authentication login ssh tacacs

Command:

aaa authentication login ssh tacacs

Default:
ssh : local

Usage Guide:
To authenticate the **tacacs** account via **ssh** only.
Example:
To authenticate the **local** and **radius** and **tacacs** account via **console**.

```
Switch# configure terminal
Switch (config)# aaa authentication login ssh local radius tacacs
```

aaa authentication login telnet local

Command:

aaa authentication login telnet local

Default:
telnet : local
Usage Guide:
To authenticate the **local** account via **telnet** only.
Example:
To authenticate the **local** account via **telnet**.

```
Switch# configure terminal
Switch (config)# aaa authentication login telnet local
```

aaa authentication login telnet radius

Command:

aaa authentication login telnet radius

Default:
telnet : local
Usage Guide:
To authenticate the **radius** account via **telnet** only.
Example:
To authenticate the **local** and **radius** account via **telnet**.

```
Switch# configure terminal
Switch (config)# aaa authentication login telnet local radius
```

aaa authentication login telnet tacacs

Command:

aaa authentication login telnet tacacs

Default:
telnet : local
Usage Guide:
To authenticate the **tacacs** account via **telnet** only.
Example:
To authenticate the **local** and **radius** and **tacacs** account via **telnet**.

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

access management

Command:

access management <AccessId : 1-16> <AccessVid : 1-4095> <AddrRangeStart : ipv4_addr | ipv6_addr> all | snmp | telnet | to | Web

<AccessId : 1-16> ID of access management entry
<AccessVid : 1-4095> The VLAN ID for the access management entry
<AddrRangeStart : ipv4_addr> Start IPv4 address
<AddrRangeStart : ipv6_addr> Start IPv6 address
all All services
snmp SNMP service
telnet TELNET/SSH service
to End address of the range
web Web service

Default:
access management : disable
Usage Guide:
To enable the **access management** profile to allow SNMP / Telnet / HTTP services**.**

Example:
To create a Profile 1 enabling all services for VLAN 1 (IPv6 address 2001::7788) **.**

```
Switch# configure terminal
Switch (config)# access management 1 1 2001::7788 all
```

access-list ace

Command:

access-list ace <AceId : 1-512> action {deny, permit} | dmac-type {any, broadcast, multicast, unicast} | frametype {any, arp, etype, ipv4, ipv4-icmp, ipv4-tcp, ipv4-udp, ipv6, ipv6-icmp, ipv6-tcp, ipv6-udp} | ingress {any, interface 10GigabitEthernet | GigabitEthernet <PORT_ID>} | logging {disable, next, policy, rate-limiter, shutdown, tag-priority, vid} | next {<AceId : 1-512>, last}| policy <PolicyId : 0-255> | rate-limiter {<RateLimiterId : 1-16>, disable} | redirect {disable, interface 10GigabitEthernet | GigabitEthernet <PORT_ID>} | tag-priority {0-1, 0-3, 2-3, 4-5, 4-7, 6-7, <TagPriority : 0-7>, any} | vid {<Vid : 1-4095>, any}

<AceId : 1-512> ACE ID
action Access list action
dmac-type The type of destination MAC address
frametype Frame type
ingress Ingress
logging Logging frame information. Note: The logging feature only works when the packet length is less than 1518 (without VLAN tags) and the System Log memory size and logging rate are limited.
next Insert the current ACE before the next ACE ID

policy Policy
rate-limiter Rate limiter
redirect Redirect frame to specific port
shutdown Shutdown incoming port. The shutdown feature only works when the packet length is less than 1518 (without VLAN tags).
tag-priority Tag priority
vid VID field

Default:
N/A

Usage Guide:
To create and set up a profile for the **access list.**

Example:
To set a Profile 1 up (action: permit, dmac-type: unicast, frametype: ipv4-icmp, ingress: any, logging: disable, policy: 1, rate-limiter: 1, tag-priority: 1. vid: 1).

```
Switch# configure terminal
Switch (config)# access-list ace 1 action permit dmac-type unicast frametype ipv4-icmp ingress any logging disable policy 1 rate-limiter 1 tag-priority 1 vid 1
```

access-list ace update

Command:

```
access-list ace update <AceId : 1-512> action {deny, permit} | dmac-type {any, broadcast, multicast, unicast} | frametype {any, arp, etype, ipv4, ipv4-icmp, ipv4-tcp, ipv4-udp, ipv6, ipv6-icmp, ipv6-tcp, ipv6-udp} | ingress {any, interface 10GigabitEthernet | GigabitEthernet <PORT_ID>} | logging {disable, next, policy, rate-limiter, shutdown, tag-priority, vid} | next {<AceId : 1-512>, last}| policy <PolicyId : 0-255> | rate-limiter {<RateLimiterId : 1-16>, disable} | redirect {disable, interface 10GigabitEthernet | GigabitEthernet <PORT_ID>} | tag-priority {0-1, 0-3, 2-3, 4-5, 4-7, 6-7, <TagPriority : 0-7>, any} | vid {<Vid : 1-4095>, any}
```

<AceId : 1-512> ACE ID
action Access list action
dmac-type The type of destination MAC address
frametype Frame type
ingress Ingress
logging Logging frame information. Note: The logging feature only works when the packet length is less than 1518 (without VLAN tags) and the System Log memory size and logging rate are limited.
next Insert the current ACE before the next ACE ID
policy Policy
rate-limiter Rate limiter
redirect Redirect frame to specific port

shutdown Shutdown incoming port. The shutdown feature only works when the packet length is less than 1518 (without VLAN tags).
tag-priority Tag priority
vid VID field

Default:
N/A
Usage Guide:
To update the specific profile for the **access list.**
Example:
Original:
Profile 1 (action: permit, dmac-type: unicast, frametype: ipv4-icmp, ingress: any, logging: disable, policy: 1, rate-limiter: 1, tag-priority: 1. vid: 1).

Updated:
Profile 1 (action: deny, dmac-type: any, frametype: ipv4-icmp, ingress: any, logging: disable, policy: 1, rate-limiter: 1, tag-priority: 1. vid: 1).

```
Switch# configure terminal
Switch (config)# access-list ace update 1 action deny dmac-type
any
```

access-list rate-limiter

Command:

```
access-list rate-limiter <RateLimiterList : 1~16> pps
<PpsRate : 0-131071>
```

<RateLimiterList : 1~16> Rate limiter ID
<PpsRate : 0-131071> Rate value

Default:
0
Usage Guide:
To set pps rate for specific **rate-limiter ID**.
Example:
To set pps rate(10000 pps) for specific **rate-limiter ID 1**.

```
Switch# configure terminal
Switch (config)# access-list rate-limiter 1 pps 10000
```

access-list rate-limiter pps

Command:

```
access-list rate-limiter pps <PpsRate : 0-131071>
```

<PpsRate : 0-131071> Rate value

Default:

0

Usage Guide:

To set pps rate for all **rate-limiter ID.**

Example:

To set pps rate(10000 pps) for all **rate-limiter ID**.

```
Switch# configure terminal
Switch (config)# access-list rate-limiter pps 100
```

aggregation mode

Command:

```
aggregation mode dmac | ip | port | smac
```

dmac Destination MAC affects the distribution
ip IP address affects the distribution
port IP port affects the distribution
smac Source MAC affects the distribution

Default:

SMAC : Enabled
DMAC : Disabled
IP : Enabled
Port : Enabled

Usage Guide:

To configure static aggregation mode type.

Example:

To configure static aggregation mode type with Destination MAC affects the distribution and Source MAC affects the distribution only.

```
Switch# configure terminal
Switch (config)# access-list rate-limiter pps 100
```

banner

Command:

```
banner <LINE>
```

<LINE> c banner-text c, where 'c' is a delimiting character

Default:

N/A

Usage Guide:

To configure banner-text.

Example:

To configure **banner-text** with word “ddddd”.

```
Switch# configure terminal
Switch (config)# banner 1
Enter TEXT message.  End with the character '1'.
```

```
ddddd
1
```

Telnet 192.168.0.100

```
ddddd

Username:
```

banner exec

Command:

```
banner login <LINE>
```

<LINE> c banner-text c, where 'c' is a delimiting character

Default:

N/A

Usage Guide:

To configure **login banner-text**.

Example:

To configure **login banner-text** with word “wwwwwwwwww”.

```
Switch# configure terminal
Switch (config)# banner exec 1
Enter TEXT message.  End with the character '1'.
gggggg
1
```

Telnet 192.168.0.100:

```
Username: admin
Password:

gggggg

#
```

banner login

Command:

```
banner login <LINE>
```

<LINE> c banner-text c, where 'c' is a delimiting character

Default:

N/A

Usage Guide:

To configure **login banner-text**.

Example:

To configure **login banner-text** with word “wwwwwwwwww”.

```
Switch# configure terminal
Switch (config)# banner login 1
Enter TEXT message.  End with the character '1'.
wwwwwwwwww
1
```

Console:

```
Press ENTER to get started


wwwwwwwwww


Username: admin
Password:
```

banner motd

Command:

```
banner motd <LINE>
```

<LINE> c banner-text c, where 'c' is a delimiting character

Default:

N/A

Usage Guide:

To configure **motd banner-text**.

Example:

To configure **motd banner-text** with word “ffffff”.

```
Switch# configure terminal
Switch (config)# banner motd 1
Enter TEXT message.  End with the character '1'.
ffffff
1
```

Console:

```
ffffff


Press ENTER to get started


Username:
```

clock summer-time

Command:

```
clock summer-time <WORD> date <Monthstart: 1-12>
<Daystart: 1-31> <Yearstart: 1-12> <Timestart: hh:mm >
<Monthend: 1-12> <Dayend: 1-31> <Yearend: 1-12>
<Timeend: hh:mm > <Offset minutes: 1-1440 >
```

Default:

N/A

Usage Guide:

To set daylight saving.

Example:

To set daylight saving (Started time: Feb, 3. 2013 8:8AM, End time: Dec, 31. 2013 8:8AM, Offset time: 60 minutes).

```
Switch# configure terminal
Switch (config)# clock summer-time 1 date 2 3 2013 8:8 12 31
2013 8:8 60
```

clock timezone

Command:

```
clock timezone <WORD> <timezone: -23-23>
```

<WORD> name of time zone

Default:

0

Usage Guide:

To set timezone.

Example:

To set timezone (GMT -15) with **profile 1**.

```
Switch# configure terminal
Switch (config)# clock timezone 1 -15
```

default access-list rate-limiter

Command:

```
default access-list rate-limiter <RateLimiterId : 1-16>
```

<RateLimiterId : 1-16> Rate limiter ID

Default:

0

Usage Guide:

To default the **Rate limiter**.

Example:

To default the **Rate limiter ID 1**.

```
Switch# configure terminal
Switch (config)# default access-list rate-limiter 1
```

dot1x authentication timer inactivity

Command:

```
dot1x authentication timer inactivity <10-1000000>
```

Default:

Aging period: 300

Usage Guide:

To set the **Aging period** for **Network Access Server**.

Example:

To set the **Aging period (147 seconds)**.

```
Switch# configure terminal
Switch (config)# dot1x authentication timer inactivity 147
```

dot1x authentication timer re-authenticate

Command:

```
dot1x authentication timer re-authenticate <1-3600>
```

Default:

Re-authenticated Period: 3600

Usage Guide:

To set the **Re-authenticated Period** for **Network Access Server**.

Example:

To set the **Re-authenticated Period (777 seconds)**.

```
Switch# configure terminal
Switch (config)# dot1x authentication timer re-authenticate 777
```

dot1x feature

Command:

```
dot1x feature guest-vlan | radius-qos | radius-vlan
```

Default:

Disable

Usage Guide:

To enable the **guest-vlan, radius-qos, radius-vlan** for **Network Access Server**

Example:

To enable the **guest-vlan, radius-qos, radius-vlan** for **Network Access Server.**

```
Switch# configure terminal
Switch (config)# dot1x authentication timer re-authenticate 777
```

dot1x guest-vlan

Command:

```
dot1x guest-vlan <1-4095>
```

<1-4095> Guest VLAN ID used when entering the Guest VLAN**.**

Default:

1

Usage Guide:

To set the value of **guest-vlan** for **Network Access Server**

Example:

To set the value of **guest-vlan(2)** for **Network Access Server**

```
Switch# configure terminal
Switch (config)# dot1x guest-vlan 2
```

dot1x guest-vlan supplicant

Command:

```
dot1x guest-vlan supplicant
```

supplicant 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.

Default:

Disable

Usage Guide:

To allow all frames automatically entering **guest-vlan** for **Network Access Server**

Example:

To allow all frames automatically entering **guest-vlan** for **Network Access Server**

```
Switch# configure terminal
Switch (config)# dot1x guest-vlan supplicant
```

dot1x max-reauth-req

Command:

```
dot1x max-reauth-req <1-255>
```

Default:

2

Usage Guide:

To define 802.1X re-authentication frequency for **Network Access Server**

Example:

To define 802.1X re-authentication frequency with 78 times for **Network Access Server**

```
Switch# configure terminal
Switch (config)# dot1x max-reauth-req 78
```

dot1x system-auth-control

Command:

```
dot1x system-auth-control
```

Default:

Disable

Usage Guide:

To enable 802.1X service for **Network Access Server**

Example:

To enable 802.1X service for **Network Access Server**

```
Switch# configure terminal
Switch (config)# dot1x system-auth-control
```

dot1x timeout quiet-period

Command:

```
dot1x timeout quiet-period <10-1000000>
```

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

Default:

10

Usage Guide:

To configure 802.1X **hold time** for **Network Access Server**

Example:

To configure 802.1X **hold time**(12 seconds) for **Network Access Server**

```
Switch# configure terminal
Switch (config)# dot1x timeout quiet-period 12
```

dot1x timeout tx-period

Command:

```
dot1x timeout tx-period <1-65535>
```

tx-period The time between EAPOL retransmissions.

Default:

30

Usage Guide:

To configure 802.1X **EPOAL timeout** for **Network Access Server**

Example:

To configure 802.1X **EPOAL timeout** (45 seconds) for **Network Access Server**

```
Switch# configure terminal
Switch (config)# dot1x timeout tx-period 45
```

enable password

Command:

```
enable password <WORD>
```

<WORD> The UNENCRYPTED (cleartext) password.

Default:

Disable

Usage Guide:

To configure **enable password** for user

Example:

To configure **enable password**(admin) for user

```
Switch# configure terminal
Switch (config)# enable password admin

Press ENTER to get started

Username:
Password:

> enable
Password: *****
#
```

enable password level

Command:

```
enable password level <1-15> <WORD>
```

<1-15> Level number

<WORD> The UNENCRYPTED (cleartext) password.

Default:

Disable

Usage Guide:

To configure **enable password** and specific level for user

Example:

To configure **enable password**(admin) and specific level(15) for user

```
Switch# configure terminal
Switch (config)# enable password level 15 admin

Press ENTER to get started

Username:
Password:

> enable
Password: admin
#
```

enable secret

Command:

```
enable secret 0 | 5 level <1-15> <WORD>
```

0 Specifies an UNENCRYPTED password will follow
5 Specifies an ENCRYPTED secret will follow
<1-15> Level number
<WORD> The UNENCRYPTED (cleartext) / ENCRYPTED(MD5) password.

Default:

Disable

Usage Guide:

To configure **enable password** to encrypted secret in the system configurations and specific level for user

Example:

To configure **enable password**(cisco) to encrypted secret in the system configurations and specific level(15) for user

```
Switch# configure terminal
Switch (config)# enable secret 0 level 15 cisco

# show running-config
Building configuration...
enable secret 5 level 15
FC89368B9513DE0760290BCE9A1DA90A
……
Press ENTER to get started

Username:
Password:

> enable
Password: cisco
#
```

end

Command:

```
end
```

Default:

N/A

Usage Guide:

To level the **configure terminal** mode

Example:

To level the **configure terminal** mode

```
Switch# configure terminal
Switch (config)# end
#
```

erps <1-64> guard

Command:

```
erps <1-64> guard <10-2000>
```

<1-64> ERPS group number

<10-2000> Guard time in ms

Default:

500

Usage Guide:

To configure the **Guard Time** for **ERPS.**

Example:

To configure the **Guard Time**(178 ms) for **ERPS**(Profile 1)

```
Switch# configure terminal
Switch (config)# erps 1 guard 178
```

erps <1-64> holdoff

Command:

```
erps <1-64> holdoff < 0-10000>
```

<1-64> ERPS group number

< 0-10000> Holdoff time in ms

Default:

0

Usage Guide:

To configure the **Hold Off Time** for **ERPS**

Example:

To configure the **Hold Off Time** (178 ms) for **ERPS**(Profile 1)

```
Switch# configure terminal
Switch (config)# erps 1 holdoff 900
```

erps <1-64> major

Command:

```
erps <1-64> major port0 interface {10GigabitEthernet,
GigabitEthernet} <PORT0_ID> port1 interface
{10GigabitEthernet, GigabitEthernet} <PORT1_ID>
[ interconnect ]
```

<1-64> ERPS group number
interconnect Major ring is interconnected

Default:

0

Usage Guide:

To create a profile and configure the **Major ERPS interface port 0, port 1.**

Example:

To create a profile 1 and configure the **Major ERPS interface port 0(GigabitEthernet 1/1), port 1(GigabitEthernet 1/2)** without **interconnected mode**

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

erps <1-64> mep

Command:

```
erps <1-64> mep port0 sf <p0_sf: 1-100> aps <p0_aps: 1-100>
port1 sf <p1_sf: 1-100> aps <p1_aps: 1-100>
```

<1-64> ERPS group number
<p0_sf: 1-100> Index of Port 0 SignalFail MEP
<p0_aps: 1-100> Index of Port 0 APS MEP
<p1_sf: 1-100> Index of Port 1 SignalFail MEP
<p1_aps: 1-100> Index of Port 1 APS MEP

Default:

0

Usage Guide:

To configure **ERPS Instance Data** for specific **ERPS** profile.

Example:

To configure **ERPS Instance Data(Port0: SF MEP = 2, APS MEP = 1. Port1: SF MEP = 4, APS MEP = 3)** for specific **ERPS** profile(1).

```
Switch# configure terminal
Switch (config)# erps 1 mep port0 sf 2 aps 1 port1 sf 4 aps 3
```

erps <1-64> rpl neighbor

Command:

```
erps <1-64> rpl neighbor { port0 | port1 }
```

port0 ERPS Port 0 interface
port1 ERPS Port 1 interface

Default:
N/A
Usage Guide:
To configure **Ring Protection Link Neighbor Role** for specific **ERPS** interface.
Example:
To configure **Ring Protection Link Neighbor Role** for specific **ERPS** interface..

```
Switch# configure terminal
Switch (config)# erps 1 rpl neighbor port0
```

erps <1-64> rpl owner

Command:

```
erps <1-64> rpl owner { port0 | port1 }
```

port0 ERPS Port 0 interface
port1 ERPS Port 1 interface

Default:
N/A
Usage Guide:
To configure **Ring Protection Link Owner Role** for specific **ERPS** interface.
Example:
To configure **Ring Protection Link Owner Role** for specific **ERPS** interface..

```
Switch# configure terminal
Switch (config)# erps 1 rpl owner port0
```

erps <1-64> sub

Command:

```
erps <1-64> sub port0 interface {10GigabitEthernet,
GigabitEthernet} <PORT0_ID> { { port0 interface
{10GigabitEthernet, GigabitEthernet} <PORT1_ID> },
{interconnect <major_ring_id: 1-64> [ virtual-channel ] } }
```

<1-64> ERPS group number
interconnect Sub ring is interconnected
<major_ring_id: 1-64> Major ring group number
virtual-channel Enable virtual channel for sub-ring

Default:
0

Usage Guide:

To create a profile and configure the **Sub ERPS interface port 0, port 1.**

Example 1:

To create a profile 3 and configure the **Sub ERPS interface port 0(GigabitEthernet 1/5), port 1(GigabitEthernet 1/6)** without **interconnected mode** and **Major RIng group** and **virtual-channel**

```
Switch# configure terminal
Switch (config)# erps 3 sub port0 interface GigabitEthernet 1/5
port1 interface GigabitEthernet 1/6
```

Example 2:

To create a profile 2 and configure the **Sub ERPS interface port 0(GigabitEthernet 1/3), port 1(GigabitEthernet 1/4)** with **interconnected mode** and **Major RIng group 1** and **virtual-channel**

```
Switch# configure terminal
Switch (config)# erps 1 sub port0 interface GigabitEthernet 1/3
interconnect 1 virtual-channel
```

erps <1-64> topology-change propagate

Command:

```
erps <1-64> topology-change propagate
```

<1-64> ERPS group number
topology-change Topology Change
propagate Propagate

Default:

N/A

Usage Guide:

To configure **topology change notification (TCN)** propagation for the specific profile.

Example:

To configure **topology change notification (TCN)** propagation for the specific profile 1

```
Switch# configure terminal
Switch (config)# erps 1 topology-change propagate
```

erps <1-64> topology-change propagate

Command:

```
erps <1-64> version 1 | 2
```

<1-64> ERPS group number
version Version

Default:

V2

Usage Guide:

To configure **ERPS version** number for the specific profile.

Example:

To configure **ERPS version 1** for the specific profile 1.

```
Switch# configure terminal
Switch (config)# erps 1 version 1
```

erps <1-64> vlan

Command:

```
erps <1-64> vlan { none | [ add | remove ] <vlans> }
```

<1-64> ERPS group number
<vlan_list> List of VLANs
add Add to set of included VLANs
none Do not include any VLANs
remove Remove from set of included VLANs

Default:

V2

Usage Guide:

To configure **ERPS VLANs** for the specific profile.

Example:

To configure **ERPS VLANs**(VLAN5 - VLAN8) for the specific profile 1.

```
Switch# configure terminal
Switch (config)# erps 1 vlan add 5-8
```

exit

Command:

```
exit
```

Default:

N/A

Usage Guide:

To exit **configure terminal** mode.

Example:

To exit **configure terminal** mode.

```
Switch# configure terminal
Switch (config)# exit
#
```

help

Command:

```
help
```

Default:
N/A
Usage Guide:
To explain how to use commands.
Example:
To explain how to use commands.

```
Switch# configure terminal
Switch (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 back up until entering a '?' showing 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?'.)
```

hostname

Command:

```
hostname < WORD >
```

< WORD > This system's network name

Default:
N/A
Usage Guide:
To configure switch's **hostname.**
Example:
To configure switch's **hostname** with **"IFSbestswitch"**

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

interface * | 10GigabitEthernet | GigabitEthernet

Command:

```
interface * | 10GigabitEthernet <port_type_list> |
```

```
GigabitEthernet <port_type_list>
```

***** All switches or All ports
GigabitEthernet 1 Gigabit Ethernet Port
10GigabitEthernet 10 Gigabit Ethernet Port

Default:
N/A
Usage Guide:
To enter the **interface mode.**
Example:
To enter the **interface 10GigabitEthernet 1/2**

```
Switch# configure terminal
Switch (config)# interface 10GigabitEthernet 1/2
Switch (config-if) #
```

access-list action permit

Command:

```
access-list action permit
```

action Access list action

Default:
Permit
Usage Guide:
To configure **Permit** for the **ACL action**.
Example:
To configure **Permit ACL action** for the **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # access-list action permit
```

access-list action deny

Command:

```
access-list action deny
```

action Access list action

Default:
Deny
Usage Guide:
To configure **Deny** for the **ACL action**.
Example:
To configure **Deny ACL action** for the **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
```

```
Switch (config-if) # access-list action deny
```

access-list logging

Command:

```
access-list logging
```

logging Logging frame information. Note: The logging feature only works when the packet length is less than 1518 (without VLAN tags) and the System Log memory size and logging rate is limited.

Default:

Disable

Usage Guide:

To enable **Logging** function for the **ACL**.

Example:

To enable **ACL Logging** function for the **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # access-list logging
```

access-list policy

Command:

```
access-list policy <PolicyId : 0-255>
```

policy Policy

<PolicyId : 0-255> Policy ID

Default:

Policy ID: 0

Usage Guide:

To configure **Policy ID** for the **ACL**.

Example:

To configure **ACL Policy ID 1** for the **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # access-list policy 1
```

access-list port-state

Command:

```
access-list port-state
```

port-state Re-enable shutdown port that was shutdown by access-list module

Default:

Enable

Usage Guide:

To enable **Port-state** function for the **ACL**.

Example:

To configure **ACL Port-state** function for the **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # access-list port-state
```

access-list rate-limiter

Command:

```
access-list rate-limiter <RateLimiterId : 1-16>
```

rate-limiter Rate limiter

<RateLimiterId : 1-16> Rate limiter ID

Default:

Disable

Usage Guide:

To apply **Rate Limiter ID** for the **ACL**.

Example:

To apply **ACL Rate Limiter ID 1** for the **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # access-list rate-limiter 1
```

access-list redirect interface

Command:

```
access-list redirect interface 10GigabitEthernet
<port_type_list> | GigabitEthernet <port_type_list>
```

redirect Redirect frame to specific port

Default:

Disable

Usage Guide:

To redirect frames to specific Port**.**

Example:

To redirect **GigabitEthernet X/X** frames to **GigabitEthernet 1/2**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # access-list redirect interface
GigabitEthernet 1/2
```

access-list shutdown

Command:

```
access-list shutdown
```

shutdown Shut down incoming port. The shutdown feature only works when the packet length is less than 1518 (without VLAN tags).

Default:

Disable

Usage Guide:

To enable **Shutdown** function for the **ACL**.

Example:

To enable **ACL Shutdown** function for the **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # access-list shutdown
```

aggregation group

Command:

```
aggregation group <uint>
```

aggregation Create an aggregation
group Create an aggregation group
<uint> The aggregation group id

Default:

N/A

Usage Guide:

To configure **aggregation group**.

Example:

To configure **aggregation group 7** for the **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # aggregation group 7
```

description

Command:

```
description <string>
```

description Port description
<string> specifies a comment or a description of the port to assist the user. (Length: 1-12 characters)

Default:

N/A

Usage Guide:

To configure port description**.**

Example:

To configure port description (IPTV_Port) for the **GigabitEthernet X/X.**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # description IPTV_Port
```

do

Command:

```
do < exec commands >
```

do To run exec commands in config mode

Default:

N/A

Usage Guide:

To run **exec commands** in **configure terminal mode**

Example:

To run “show aaa” in **configure terminal mode.**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # do show aaa
console : local
telnet  : local
ssh     : local
http    : local
```

dot1x guest-vlan

Command:

```
dot1x guest-vlan
```

dot1x IEEE Standard for port-based Network Access Control
guest-vlan Enables/disables guest VLAN

Default:

Disable

Usage Guide:

To enable **Guest VLAN**

Example:

To enable **Guest VLAN** for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # dot1x guest-vlan
```

dot1x port-control

Command:

```
dot1x port-control auto | force-authorized | force-
unauthorized | mac-based | multi |  single
```

dot1x IEEE Standard for port-based Network Access Control
port-control Sets the port security state.
auto Port-based 802.1X Authentication
force-authorized Port access is allowed
force-unauthorized Port access is not allowed
mac-based Switch authenticates on behalf of the client

multi	Multiple Host 802.1X Authentication
single	Single Host 802.1X Authentication

Default:
Force-authorized
Usage Guide:
To configure **Port-control** mode for 802.1X
Example:
To configure **Port-Based 802.1X(Auto)** mode for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # dot1x port-control auto
```

dot1x radius-qos

Command:

```
dot1x radius-qos
```

dot1x	IEEE Standard for port-based Network Access Control
radius-qos	Enables/disables per-port state of RADIUS-assigned QoS.

Default:
Disable
Usage Guide:
To enable **RADIUS-assigned QoS** for 802.1X
Example:
To enable **RADIUS-assigned QoS** for **GigabitEthernet X/X.**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # dot1x radius-qos
```

dot1x radius-vlan

Command:

```
dot1x radius-vlan
```

dot1x	IEEE Standard for port-based Network Access Control
radius-vlan	Enables/disables per-port state of RADIUS-assigned VLAN.

Default:
Disable
Usage Guide:
To enable **RADIUS-assigned VLAN** for 802.1X
Example:
To enable **RADIUS-assigned VLAN** for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # dot1x radius-vlan
```

dot1x re-authenticate

Command:

```
dot1x re-authenticate
```

dot1x IEEE Standard for port-based Network Access Control
re-authenticate Refresh (restart) 802.1X authentication process.

Default:

N/A

Usage Guide:

To restart 802.1X authentication process.

Example:

To restart 802.1X authentication process for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # dot1x re-authenticate
```

duplex

Command:

```
duplex auto | full | half
```

duplex Interface duplex
auto Auto negotiation of duplex mode.
full Forced full duplex.
half Forced half duplex.

Default:

Auto

Usage Guide:

To configure **duplex** mode for interface.

Example:

To configure auto **duplex** mode for **GigabitEthernet X/X.**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # duplex auto
```

end

Command:

```
end
```

end Go back to EXEC mode

Default:

Auto

Usage Guide:

To back to **EXEC mode**

Example:

To back to **EXEC mode**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # end
Switch#
```

excessive-restart

Command:

```
excessive-restart
```

excessive-restart Restart backoff algorithm after 16 collisions (No excessive-restart means discard frame after 16 collisions)

Default:

Discard

Usage Guide:

To enable **Backoff Algorithm** for the specific interface

Example:

To enable **Backoff Algorithm** for the **GigabitEthernet X/X.**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # excessive-restart
```

exit

Command:

```
exit
```

exit Exit from current mode

Default:

None

Usage Guide:

To exit current mode

Example:

To exit current mode**.**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # exit
Switch (config)#
```

flowcontrol

Command:

```
flowcontrol off | on
```

flowcontrol Traffic flow control.
off Disable flow control.
on Enable flow control.

Default:
Disable
Usage Guide:
To enable **Flow-control** for specific interface
Example:
To enable **Flow-control** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # flowcontrol on
```

ip arp inspection check-vlan

Command:

```
ip arp inspection check-vlan
```

arp Address Resolution Protocol
inspection ARP inspection
check-vlan ARP inspection VLAN mode config

Default:
Disable
Usage Guide:
To configure **Check-VLAN mode** into **ARP inspection** for specific interface
Example:
To configure **Check-VLAN mode (Enabled)** into **ARP inspection** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ip arp inspection check-vlan
```

ip arp inspection logging

Command:

```
ip arp inspection logging all | deny | permit
```

arp Address Resolution Protocol
inspection ARP inspection
logging ARP inspection logging mode config
all log all entries
deny log denied entries
permit log permitted entries

Default:
None
Usage Guide:
To configure **Logging type** into **ARP inspection** for specific interface
Example:
To configure **Logging type (All)** into **ARP inspection** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ip arp inspection logging all
```

ip arp inspection trust

Command:

```
ip arp inspection trust
```

arp Address Resolution Protocol
inspection ARP inspection
trust ARP inspection trust config

Default:

Trusted

Usage Guide:

To configure Trusted into **ARP inspection** for specific interface

Example:

To configure Trusted into **ARP inspection** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ip arp inspection trust
```

ip dhcp snooping trust

Command:

```
ip dhcp snooping trust
```

Default:

Trusted

Usage Guide:

To configure Trusted into **DHCP Snooping** for specific interface

Example:

To configure Trusted into **DHCP Snooping** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ip dhcp snooping trust
```

ip igmp snooping filter

Command:

```
ip igmp snooping filter <ProfileName : word16>
```

<ProfileName : word16> Profile name in 16 words

Default:

N/A

Usage Guide:

To apply the **IGMP Snooping filter** ID for specific interface

Example:

To apply the **IGMP Snooping filter** ID 1 for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ip igmp snooping filter 1
```

ip igmp snooping immediate-leave

Command:

```
ip igmp snooping immediate-leave
```

Default:

Disabled

Usage Guide:

To enable **IGMP Snooping Immediate-leave (Fast Leave)** for specific interface

Example:

To enable **IGMP Snooping Immediate-leave (Fast Leave)** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ip igmp snooping immediate-leave
```

ip igmp snooping max-groups

Command:

```
ip igmp snooping max-groups <Throttling : 1-10>
```

max-groups IGMP group throttling configuration

<Throttling : 1-10> Maximum number of IGMP group registration

Default:

Unlimited

Usage Guide:

To limit maximum number of **IGMP group** for specific interface

Example:

To limit 5 groups of **IGMP** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ip igmp snooping max-groups 5
```

ip igmp snooping mrouter

Command:

```
ip igmp snooping mrouter [ automatic | fix | none ]
```

mrouter Multicast router port configuration

automatic auto mode

fix fix mode
none none mode

Default:
Auto
Usage Guide:
To configure **Multicast router port mode** for specific interface
Example:
To configure **Multicast router port mode** (fix) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ip igmp snooping mrouter fix
```

ip verify source

Command:

```
ip verify source
```

Default:
Disabled
Usage Guide:
To enable **IP Source Guard** for specific interface
Example:
To enable **IP Source Guard** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ip verify source
```

ip verify source limit

Command:

```
ip verify source limit <0-2>
```

<0-2> the number of limit

Default:
Unlimited
Usage Guide:
To limit numbers of **Dynamic Client** for specific interface
Example:
To limit 2 numbers of **Dynamic Client** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ip verify source limit 2
```

ipv6 mld snooping filter

Command:

```
ipv6 mld snooping filter <ProfileName : word16>
```

filter Access control on MLD multicast group registration
<ProfileName : word16> Profile name in 16 words

Default:
N/A
Usage Guide:
To apply the **MLD Snooping filter** ID for specific interface
Example:
To apply the **MLD Snooping filter** ID 1 for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ipv6 mld snooping filter 1
```

ipv6 mld snooping immediate-leave

Command:

```
ipv6 mld snooping immediate-leave
```

Default:
Disabled
Usage Guide:
To enable **MLD Snooping Immediate-leave (Fast Leave)** for specific interface
Example:
To enable **MLD Snooping Immediate-leave (Fast Leave)** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ipv6 mld snooping immediate-leave
```

ipv6 mld snooping max-groups

Command:

```
ipv6 mld snooping max-groups <Throttling : 1-10>
```

max-groups IGMP group throttling configuration
<Throttling : 1-10> Maximum number of IGMP group registration

Default:
Unlimited
Usage Guide:
To limit maximum number of **MLD group** for specific interface
Example:
To limit 5 groups of **MLD** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ipv6 mld snooping max-groups 5
```

ipv6 mld snooping mrouter

Command:

```
ipv6 mld snooping mrouter [ automatic | fix | none]
```

mrouter Multicast router port configuration
automatic auto mode
fix fix mode
none none mode

Default:
Auto
Usage Guide:
To configure **MLD router port mode** for specific interface
Example:
To configure **MLD router port mode** (fix) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ipv6 mld snooping mrouter fix
```

lacp

Command:

```
lacp
```

lacp Enable LACP on this interface

Default:
Disabled
Usage Guide:
To enable **LACP** for specific interface
Example:
To enable **LACP** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lacp
```

lacp key

Command:

```
lacp key <1-65535> | auto
```

lacp Enable LACP on this interface
key Key of the LACP aggregation
<1-65535> Key value
auto Choose a key based on port speed

Default:

Auto

Usage Guide:

To configure **LACP key** for specific interface

Example:

To configure **LACP key** (555) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lacp key 555
```

lacp port-priority

Command:

```
lacp port-priority <1-65535>
```

lacp Enable LACP on this interface
port-priority LACP priority of the port
<1-65535> Priority value, lower means higher priority

Default:

32768

Usage Guide:

To configure **LACP port-priority** for specific interface

Example:

To configure **LACP port-priority** (555) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lacp port-priority 555
```

lacp role

Command:

```
lacp role active | passive
```

lacp Enable LACP on this interface
role Active / Passive (speak if spoken to) role
active Transmit LACP BPDUs continously
passive Wait for neighbour LACP BPDUs before transmitting

Default:

Active

Usage Guide:

To configure **LACP role** for specific interface

Example:

To configure **LACP role** (passive) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lacp role passive
```

lacp timeout

Command:

```
lacp timeout fast | slow
```

lacp Enable LACP on this interface
timeout The period between BPDU transmissions
fast Transmit BPDU each second (fast timeout)
slow Transmit BPDU each 30th second (slow timeout)

Default:

Fast

Usage Guide:

To configure **LACP timeout** type for specific interface

Example:

To enable **LACP timeout** type (slow) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lacp timeout slow
```

lldp cdp-aware

Command:

```
lldp cdp-aware
```

lldp LLDP configurations
cdp-aware Configures if the interface shall be CDP aware (CDP discovery information is added to the LLDP neighbor table)

Default:

Passive

Usage Guide:

To configure **MIB variable retrieve** local info or remote info of **LLDP** for specific interface

Example:

To configure **MIB variable retrieve** (local info) of **LLDP** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lldp cdp-aware
```

lldp med media-vlan policy-list

Command:

```
lldp med media-vlan policy-list <v_range_list>
```

lldp LLDP configurations
med Media Endpoint Discovery
media-vlan Media VLAN assignment
policy-list Assignment of policies
<v_range_list> Policies to assign to the interface

Default:

N/A

Usage Guide:

To apply **MED Media-VLAN** policy of **LLDP** for specific interface

Example:

To apply **MED Media-VLAN** policy 2 of **LLDP**for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lldp med media-vlan policy-list 2
```

lldp med transmit-tlv

Command:

```
lldp med transmit-tlv [ capabilities ] [ location ] [ network-policy ]
```

lldp LLDP configurations
med Media Endpoint Discovery
transmit-tlv LLDP-MED Location Type Length Value 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**.**

Default:

N/A

Usage Guide:

To configure **LLDP-MED TLV Type** for specific interface

Example:

To enable **LLDP-MED TLV (capabilities and location)** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lldp med transmit-tlv capabilities location
```

lldp receive

Command:

```
lldp receive
```

lldp LLDP configurations
receive Enable/Disable decoding of received LLDP frames.

Default:

Both (Tx +Rx)

Usage Guide:

To configure **LLDP Rx only mode** for specific interface

Example:

To configure **LLDP Rx only mode** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lldp receive
```

lldp tlv-select management-address

Command:

```
lldp tlv-select management-address
```

lldp LLDP configurations

tlv-select To transmit which optional TLVs.

management-address Enable/Disable transmission of management address.

Default:

Enabled

Usage Guide:

To enable **management address** of **LLDP TLV** for specific interface

Example:

To enable **management address** of **LLDP TLV** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lldp tlv-select management-address
```

lldp tlv-select port-description

Command:

```
lldp tlv-select port-description
```

lldp LLDP configurations

tlv-select To transmit which optional TLVs.

port-description Enable/Disable transmission of port description.

Default:

Enabled

Usage Guide:

To enable **port-description** of **LLDP TLV** for specific interface

Example:

To enable **port-description** of **LLDP TLV** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lldp tlv-select port-description
```

lldp tlv-select system-capabilities

Command:

lldp tlv-select system-capabilities

lldp LLDP configurations
tlv-select To transmit which optional TLVs.
system-capabilities Enable/Disable transmission of system capabilities.

Default:
Enabled
Usage Guide:
To enable **system-capabilities** of **LLDP TLV** for specific interface
Example:
To enable **system-capabilities** of **LLDP TLV** for **GigabitEthernet X/X**

Switch# configure terminal Switch (config)# interface GigabitEthernet X/X Switch (config-if) # **lldp tlv-select system-capabilities**

lldp tlv-select system-description

Command:

lldp tlv-select system-description

lldp LLDP configurations
tlv-select To transmit which optional TLVs.
system-description Enable/Disable transmission of system description.

Default:
Enabled
Usage Guide:
To enable **system-description** of **LLDP TLV** for specific interface
Example:
To enable **system-description** of **LLDP TLV** for **GigabitEthernet X/X**

Switch# configure terminal Switch (config)# interface GigabitEthernet X/X Switch (config-if) # **lldp tlv-select system-description**

lldp tlv-select system-name

Command:

lldp tlv-select system-name

lldp LLDP configurations
tlv-select To transmit which optional TLVs.
system-name Enable/Disable transmission of system name.

Default:
Enabled
Usage Guide:
To enable **system-name** of **LLDP TLV** for specific interface
Example:

To enable **system-name** of **LLDP TLV** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lldp tlv-select system-name
```

lldp transmit

Command:

```
lldp transmit
```

lldp LLDP configurations
transmit Enable/Disabled transmision of LLDP frames.

Default:
Both (Tx +Rx)
Usage Guide:
To configure **LLDP Tx only mode** for specific interface
Example:
To configure **LLDP Tx only mode** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # lldp transmit
```

loop-protect

Command:

```
loop-protect
```

loop-protect Loop protection configuration

Default:
Enabled
Usage Guide:
To enable **loop-protect** for specific interface
Example:
To enable **loop-protect** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # loop-protect
```

loop-protect action

Command:

```
loop-protect action [log] [shutdown]
```

loop-protect Loop protection configuration
action Action if loop detected
log Generate log
shutdown Shutdown port

Default:

Shutdown

Usage Guide:

To configure **action mode** of **Loop protection** for specific interface

Example:

To configure **action mode (log** and **shutdown)** of **Loop protection** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # loop-protect action shutdown log
```

loop-protect tx-mode

Command:

```
loop-protect tx-mode
```

loop-protect Loop protection configuration
tx-mode Actively generate PDUs

Default:

Enabled

Usage Guide:

To enable **tx-mode** of **Loop protection** for specific interface

Example:

To enable **tx-mode** of **Loop protection** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # loop-protect tx-mode
```

loop-protect tx-mode

Command:

```
loop-protect tx-mode
```

loop-protect Loop protection configuration
tx-mode Actively generate PDUs

Default:

Enabled

Usage Guide:

To enable **tx-mode** of **Loop protection** for specific interface

Example:

To enable **tx-mode** of **Loop protection** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # loop-protect tx-mode
```

mac address-table learning

Command:

```
mac address-table learning [secure]
```

mac MAC keyword
address-table MAC table configuration
learning Port learning mode
secure Port Secure mode

Default:
Enabled (Auto)
Usage Guide:
To enable **learning** of **MAC address table** for specific interface
Example:
To enable **learning** of **MAC address table** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # mac address-table learning
```

mtu

Command:

```
mtu <1518-10056>
```

mtu Maximum transmission unit
<1518-10056> Maximum frame size in bytes.

Default:
10056
Usage Guide:
To configure **MTU sizes** for specific interface
Example:
To configure **MTU sizes (9000)** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # mtu 9000
```

mvr immediate-leave

Command:

```
mvr immediate-leave
```

mvr Multicast VLAN Registration configuration
immediate-leave Immediate leave configuration

Default:
Disabled
Usage Guide:
To enable **Immediate-leave of MVR** for specific interface
Example:
To enable **Immediate-leave of MVR** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # mvr immediate-leave
```

mvr name

Command:

```
mvr name <MvrName : word16> type [receiver | source]
```

mvr Multicast VLAN Registration configuration
name MVR multicast name
<MvrName : word16> MVR multicast VLAN name
type MVR port role configuration
receiver MVR receiver port
source MVR source port

Default:

Inactive

Usage Guide:

To configure **port role** of specific **MVR profile** for specific interface

Example:

To configure **port role (source)** of **MVR profiles (111)** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # mvr name 111 type source
```

mvr vlan

Command:

```
mvr vlan <v_vlan_list> type [source | receiver ]
```

mvr Multicast VLAN Registration configuration
vlan MVR multicast vlan
<vlan_list> MVR multicast VLAN list
type MVR port role configuration
receiver MVR receiver port
source MVR source port

Default:

Inactive

Usage Guide:

To configure **port role** of specific **MVR VLAN ID** for specific interface

Example:

To configure **port role (source)** of **MVR VLAN ID (111)** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # mvr name 111 type source
```

no

Command:

```
no
```

no Negate a command or set its defaults

Default:

N/A

Usage Guide:

To default the function for specific interface

Example:

To enable the function (**network-clock synchronization ssm**) for **GigabitEthernet X/X.**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # no network-clock synchronization ssm
```

ping ip

Command:

```
ping ip <ipv4_addr> size <size: 2-1452>
```

ping The ping command allows you to test connectivity to a network host from the appliance

ip ip

<ipv4_addr> IP address

size size

<size: 2-1452> Default is 56 (excluding MAC, IP and ICMP headers)

Default:

N/A

Usage Guide:

To run Ping function for specific interface

Example:

To run Ping function (IP address: 10.10.10.10 with size 88 bytes) for **GigabitEthernet X/X.**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # ping ip 10.10.10.10 size 88
```

port-security

Command:

```
port-security
```

port-security Enable/disable port security per interface.

Default:

Disabled

Usage Guide:

To enable **Port-security** for specific interface

Example:

To enable **Port-security** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # port-security
```

port-security maximum

Command:

```
port-security maximum <Number of addresses : 1-1024>
```

port-security Enable/disable port security per interface.
maximum Maximum number of MAC addresses that can be learned on this set of interfaces.
<Number of addresses : 1-1024> Number of addresses

Default:

None

Usage Guide:

To configure number of **Port-security** addresses for specific interface

Example:

To configure 100 **Port-security** addresses for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # port-security maximum 100
```

port-security violation

Command:

```
port-security violation [protect | shutdown | trap | trap-shutdown]
```

port-security Enable/disable port security per interface.
violation The action involved with exceeding the limit.
protect Don't do anything
shutdown Shutdown the port
trap Send an SNMP trap
trap-shutdown Send an SNMP trap and shut down the port

Default:

None (Protected)

Usage Guide:

To configure protected mode of **Port-security** for specific interface

Example:

To configure protected mode **(trap-shutdown)** of **Port-security** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # port-security violation trap-shutdown
```

pvlan

Command:

```
pvlan <range_list>
```

pvlan Private VLAN
<range_list> list of PVLANs. Range is from 1 to number of ports.

Default:
None
Usage Guide:
To create PVLAN ID for specific interface
Example:
To create PVLAN ID (5) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # pvlan 5
```

pvlan isolation

Command:

```
pvlan isolation
```

pvlan Private VLAN
isolation Port isolation

Default:
None
Usage Guide:
To enable **PVLAN isolation** for specific interface
Example:
To enable **PVLAN isolation** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # pvlan isolation
```

qos cos

Command:

```
qos cos <Cos : 0-7>
```

qos Quality of Service
cos Class of service configuration
<Cos : 0-7> Specific class of service
Default:
0
Usage Guide:
To configure **CoS** of **QoS** for specific interface
Example:
To configure **CoS** (4) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
```

```
Switch (config-if) # qos cos 4
```

qos dei

Command:

```
qos dei <Dei : 0-1>
```

qos Quality of Service
dei Drop Eligible Indicator configuration
<Dei : 0-1> Specific Drop Eligible Indicator

Default:
0

Usage Guide:
To configure **DEI** of **QoS** for specific interface

Example:
To configure **DEI** (1) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos dei 1
```

qos dpl

Command:

```
qos dpl <Dei : 0-1>
```

qos Quality of Service
dpl Drop precedence level configuration
<Dpl : dpl> Specific drop precedence level

Default:
0

Usage Guide:
To configure **DPL** of **QoS** for specific interface

Example:
To configure **DPL** (1) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos dpl 1
```

qos dscp-classify

Command:

```
qos dscp-classify any | selected | zero
```

qos Quality of Service
dscp-classify DSCP ingress classification
any Classify to new DSCP always
selected Classify to new DSCP if classify is enabled for specific DSCP value in global dscp-classify map
zero Classify to new DSCP if DSCP is 0

Default:

Disabled

Usage Guide:

To configure **DSCP Classify** of **QoS** for specific interface

Example:

To configure **DSCP Classify** (Any) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos dscp-classify any
```

qos dscp-remark

Command:

```
qos dscp-remark remap | rewrite
```

qos Quality of Service
dscp-remark DSCP egress remarking
remap Rewrite DSCP field using classified DSCP remapped through global dscp-egress-translation map
rewrite Rewrite DSCP field with classified DSCP value (no translation)

Default:

Disabled

Usage Guide:

To configure **DSCP egress remarking** of **QoS** for specific interface

Example:

To configure **DSCP egress remarking** (**Remap**) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos dscp-remark remap
```

qos dscp-translate

Command:

```
qos dscp-translate
```

qos Quality of Service
dscp-translate DSCP ingress translation

Default:

Disabled

Usage Guide:

To configure **DSCP ingress translation** of **QoS** for specific interface

Example:

To configure **DSCP ingress translation** of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos dscp-translate
```

qos map cos-tag

Command:

```
qos map cos-tag cos <Cos : 0~7> dpl <Dpl : 0~1> pcp <Pcp : 0-7> dei <Dei : 0-1>
```

qos Quality of Service
map QoS Map/Table configuration
cos-tag Map for cos to tag configuration
cos Specify class of service
<Cos : 0~7> Specific class of service or range
dpl Specify drop precedence level
<Dpl : 0~1> Specific drop precedence level or range
pcp Specify PCP (Priority Code Point)
<Pcp : 0-7> Specific PCP
dei Specify DEI (Drop Eligible Indicator)
<Dei : 0-1> Specific DEI

Default:

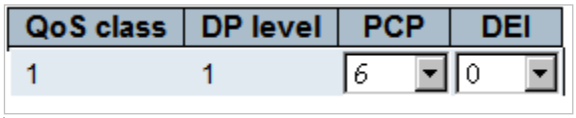
Disabled

Usage Guide:

To configure **(QoS class, DP level) to (PCP, DEI) Mapping** of **QoS** for specific interface

Example:

To configure **(QoS class, DP level) to (PCP, DEI) Mapping** of **QoS** as below table for **GigabitEthernet X/X**




```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos map cos-tag cos 1 dpl 1 pcp 6 dei 0
```

qos map tag-cos

Command:

```
qos map tag-cos pcp <Pcp : 0-7> dei <Dei : 0-1> cos <Cos : 0~7> dpl <Dpl : 0~1>
```

qos Quality of Service
map QoS Map/Table configuration
tag-cos Map for tag to cos configuration
pcp Specify PCP (Priority Code Point)
<Pcp : 0-7> Specific PCP
dei Specify DEI (Drop Eligible Indicator)
<Dei : 0-1> Specific DEI
cos Specify class of service
<Cos : 0~7> Specific class of service or range
dpl Specify drop precedence level
<Dpl : 0~1> Specific drop precedence level or range

Default:

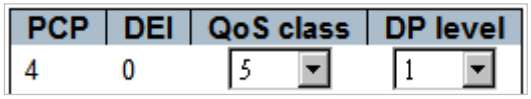
Disabled

Usage Guide:

To configure **(PCP, DEI) to (QoS class, DP level) Mapping** of **QoS** for specific interface

Example:

To configure **(PCP, DEI) to (QoS class, DP level) Mapping** of **QoS** as below table for **GigabitEthernet X/X**



PCP	DEI	QoS class	DP level
4	0	5	1

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos map tag-cos pcp 4 dei 0 cos 5 dpl 1
```

qos pcp

Command:

```
qos pcp <Pcp : 0-7>
```

qos Quality of Service
pcp Priority Code Point configuration
<Pcp : 0-7> Specific Priority Code Point

Default:

0

Usage Guide:

To configure **PCP** of **QoS** for specific interface

Example:

To configure **PCP** (6) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos pcp 6
```

qos policer

Command:

```
qos policer <Rate : 100-13200000>
```

qos Quality of Service
policer Policer configuration
<Rate : 100-13200000> Policer rate (default kbps)

Default:

0

Usage Guide:

To configure **Ingress Port Policers Rate** of **QoS** for specific interface

Example:

To configure **Ingress Port Policers Rate** (9999 Kbps) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos policer 9999
```

qos queue-policer queue

Command:

```
qos queue-policer queue <Queue : 0~7> <Rate : 100-13200000>
```

qos Quality of Service
queue-policer Queue policer configuration
queue Specify queue
<Queue : 0~7> Specific queue or range
<Rate : 100-13200000> Policer rate in kbps

Default:

0

Usage Guide:

To configure **Ingress Queue Policers Rate** of **QoS** for specific interface

Example:

To configure **Ingress Queue** (4) **Policers Rate** (9999 Kbps) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos queue-policer queue 4 9999
```

qos queue-shaper queue

Command:

```
qos queue-shaper queue <Queue : 0~7> <Rate : 100-13200000>
```

qos Quality of Service
queue-shaper Queue shaper configuration
queue Specify queue
<Queue : 0~7> Specific queue or range
<Rate : 100-13200000> Policer rate in kbps

Default:

0

Usage Guide:

To configure **Egress Queue Shapers Rate** of **QoS** for specific interface

Example:

To configure **Egress Queue** (4) **Shapers Rate** (9999 Kbps) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos queue-shaper queue 4 9999
```

qos shaper

Command:

```
qos shaper <Rate : 100-13200000>
```

qos Quality of Service
shaper Shaper configuration
<Rate : 100-13200000> Shaper rate in kbps

Default:

0

Usage Guide:

To configure **Egress Port Shapers Rate** of **QoS** for specific interface

Example:

To configure **Egress Port** (4) **Shapers Rate** (9999 Kbps) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos queue-shaper queue 4 9999
```

qos storm broadcast

Command:

```
qos storm broadcast <Rate : 100-13200000> [fps]
```

qos Quality of Service
storm Storm policer
broadcast Police broadcast frames
<Rate : 100-13200000> Policer rate (default kbps)
fps Rate is fps

Default:

500

Usage Guide:

To configure **Broadcast Frames Storm Control Rate** of **QoS** for specific interface

Example:

To configure **Broadcast Frames Storm Control Rate** (999 fps) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos storm broadcast 999 fps
```

qos storm unicast

Command:

```
qos storm unicast <Rate : 100-13200000> [fps]
```

qos Quality of Service
storm Storm policer
unicast Police unicast frames
<Rate : 100-13200000> Policer rate (default kbps)
fps Rate is fps

Default:

500

Usage Guide:

To configure **Unicast Frames Storm Control Rate** of **QoS** for specific interface

Example:

To configure **Unicast Frames Storm Control Rate** (999 Kbps) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos storm unicast 999
```

qos storm unknown

Command:

```
qos storm unknown <Rate : 100-13200000> [fps]
```

qos Quality of Service
storm Storm policer
unknown Police unknown (flooded) frames
<Rate : 100-13200000> Policer rate (default kbps)
fps Rate is fps

Default:

500

Usage Guide:

To configure **Unknown Frames Storm Control Rate** of **QoS** for specific interface

Example:

To configure **Unknown Frames Storm Control Rate** (999 fps) of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos storm unicast 999 fps
```

qos tag-remark

Command:

```
qos tag-remark pcp <Pcp : 0-7> dei <Dei : 0-1>
```

qos Quality of Service
tag-remark Tag remarking configuration
pcp Specify default PCP
<Pcp : 0-7> Specific PCP
dei Specify default DEI
<Dei : 0-1> Specific DEI

Default:

0

Usage Guide:

To enable **Tag-remark default mode** of **QoS** for specific interface

Example:

To enable **Tag-remark default mode** (PCP:1 , DEI:1) of **QoS** for **GigabitEthernet**

X/X

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos tag-remark pcp 1 dei 1
```

qos tag-remark mapped

Command:

```
qos tag-remark mapped
```

qos Quality of Service
tag-remark Tag remarking configuration
mapped Used mapped values (cos,dpl -> pcp,dei)

Default:

Classified

Usage Guide:

To enable **Tag-remark mapped mode** of **QoS** for specific interface

Example:

To enable **Tag-remark mapped mode** of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos tag-remark mapped
```

qos trust dscp

Command:

```
qos trust dscp
```

qos Quality of Service
trust Trust configuration
dscp DSCP value

Default:

Disabled

Usage Guide:

To enable **DSCP Classification** of **QoS** for specific interface

Example:

To enable **DSCP Classification** of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos trust dscp
```

qos trust tag

Command:

```
qos trust tag
```

qos Quality of Service
trust Trust configuration

tag VLAN tag

Default:
Disabled
Usage Guide:
To enable **VLAN tag Classification** of **QoS** for specific interface
Example:
To enable **VLAN tag Classification** of **QoS** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # qos trust tag
```

rmon collection history

Command:

```
rmon collection history <1-65535> buckets <1-65535> interval <1-3600>
```

rmon Configure Remote Monitoring on an interface
collection Configure Remote Monitoring Collection on an interface
history Configure history
buckets Requested buckets of intervals. Default is 50 buckets
interval Interval to sample data for each bucket. Default is 1800 seconds

Default:
N/A
Usage Guide:
To configure **RMON History Configuration** for specific interface
Example:
To configure **RMON History Configuration** as below table for **GigabitEthernet X/X**

ID	Data Source	Interval	Buckets
1	.1.3.6.1.2.1.2.2.1.1.X	3	5

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # rmon collection history 1 buckets 5 interval 3
```

rmon collection stats

Command:

```
rmon collection stats <1-65535>
```

rmon Configure Remote Monitoring on an interface
collection Configure Remote Monitoring Collection on an interface
stats Configure statistics

Default:

0

Usage Guide:

To configure **RMON Statistics Configuration** for specific interface

Example:

To configure **RMON Statistics Configuration (2)** as below table for **GigabitEthernet X/X**

ID	Data Source
2	.1.3.6.1.2.1.2.2.1.1.X

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # rmon collection stats 2
```

shutdown

Command:

```
shutdown
```

shutdown Shutdown of the interface.

Default:

No shutdown

Usage Guide:

To shut down specific interface

Example:

To shut down **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # shutdown
```

spanning-tree

Command:

```
spanning-tree
```

spanning-tree Spanning Tree protocol

Default:

Disabled

Usage Guide:

To enable **STP** for specific interface

Example:

To enable **STP** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # spanning-tree
```

spanning-tree auto-edge

Command:

```
spanning-tree auto-edge
```

spanning-tree Spanning Tree protocol
auto-edge Auto detects edge status

Default:

Enabled

Usage Guide:

To enable **Auto Edge** of **CIST Normal Port Configuration** for specific interface

Example:

To enable **Auto Edge** of **CIST Normal Port Configuration** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # spanning-tree auto-edge
```

spanning-tree bpdu-guard

Command:

```
spanning-tree bpdu-guard
```

spanning-tree Spanning Tree protocol
auto-edge Auto detects edge status

Default:

Disabled

Usage Guide:

To enable **BPDU Guard** of **CIST Normal Port Configuration** for specific interface

Example:

To enable **BPDU Guard** of **CIST Normal Port Configuration** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # spanning-tree bpdu-guard
```

spanning-tree edge

Command:

```
spanning-tree edge
```

spanning-tree Spanning Tree protocol
edge Edge port

Default:

Non-Edge

Usage Guide:

To enable **edge port** of **CIST Normal Port Configuration** for specific interface

Example:

To enable **edge port** of **CIST Normal Port Configuration** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # spanning-tree edge
```

spanning-tree link-type

Command:

```
spanning-tree link-type auto | point-to-point | shared
```

spanning-tree Spanning Tree protocol
link-type Port link-type
auto Auto detect
point-to-point Forced to point-to-point
shared Forced to Shared

Default:

Auto

Usage Guide:

To configure **point to point mode** of **CIST Normal Port Configuration** for specific interface

Example:

To enable **point to point mode** (shared) of **CIST Normal Port Configuration** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # spanning-tree edge
```

spanning-tree mst <Instance : 0-7> cost

Command:

```
spanning-tree mst <Instance : 0-7> cost <Cost : 1-200000000>
| auto
```

spanning-tree Spanning Tree protocol
mst STP bridge instance
<Instance : 0-7> instance 0-7 (CIST=0, MST2=1...)
cost STP Cost of this port
<Cost : 1-200000000> Cost range
auto Use auto cost

Default:

Auto

Usage Guide:

To configure **Path Cost** of **CIST / MST Normal Port Configuration** for specific interface

Example:

To enable **Path Cost** (100) of **CIST / MST Normal Port Configuration** (CIST) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
```

```
Switch (config-if) # spanning-tree mst 0 cost 100
```

spanning-tree mst <Instance : 0-7> cost

Command:

```
spanning-tree mst <Instance : 0-7> port-priority <Prio : 0-240>
```

spanning-tree Spanning Tree protocol
mst STP bridge instance
<Instance : 0-7> instance 0-7 (CIST=0, MST2=1...)
port-priority STP priority of this port
<Prio : 0-240> Range (lower higher priority)
auto Use auto cost

Default:

Auto

Usage Guide:

To configure **Path Cost** of **CIST / MST Normal Port Configuration** for specific interface

Example:

To enable **Path Cost** (32) of **CIST / MST Normal Port Configuration** (CIST) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # spanning-tree mst 0 port-priority 32
```

spanning-tree restricted-role

Command:

```
spanning-tree restricted-role
```

spanning-tree Spanning Tree protocol
restricted-role Port role is restricted (never root port)

Default:

Disabled

Usage Guide:

To enable **Restricted-role** of **CIST Normal Port Configuration** for specific interface

Example:

To enable **Restricted-role** of **CIST Normal Port Configuration** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # spanning-tree restricted-role
```

spanning-tree restricted-tcn

Command:

```
spanning-tree restricted-tcn
```

spanning-tree Spanning Tree protocol
restricted-tcn Restrict topology change notifications

Default:
Disabled
Usage Guide:
To enable **Restrict topology change notifications** of **CIST Normal Port Configuration** for specific interface
Example:
To enable **Restrict topology change notifications** of **CIST Normal Port Configuration** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # spanning-tree restricted-tcn
```

speed

Command:

```
speed [10 | 100 | 1000 | 10g | auto]
```

speed Configures interface speed. If you use 10, 100, or 1000 keywords with the auto keyword the port will only advertise the specified speeds.
10 10Mbps
100 100Mbps
1000 1Gbps
10g 10Gbps
auto Auto negotiation

Default:
Auto
Usage Guide:
To configure line speed for specific interface
Example:
To configure line speed (1Gbps) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # speed 1000
```

switchport access vlan

Command:

```
switchport access vlan <vlan_id>
```

switchport Switching mode characteristics
access Set access mode characteristics of the interface
vlan Set VLAN when interface is in access mode
<vlan_id> VLAN ID of the VLAN when this port is in access mode

Default:
1
Usage Guide:

To configure **access VLAN ID** for specific interface

Example:

To configure **access VLAN ID** (5) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport access vlan 5
```

switchport forbidden vlan add

Command:

```
switchport forbidden vlan add <vlan_list>
```

switchport Switching mode characteristics
forbidden Adds or removes forbidden VLANs from the current list of forbidden VLANs
vlan Add or modify VLAN entry in forbidden table.
add Add to existing list.
<vlan_list> VLAN IDs

Default:

1

Usage Guide:

To add **forbidden VLAN ID** for specific interface

Example:

To add **forbidden VLAN ID** (5) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport forbidden vlan add 5
```

switchport forbidden vlan remove

Command:

```
switchport forbidden vlan remove <vlan_list>
```

switchport Switching mode characteristics
forbidden Adds or removes forbidden VLANs from the current list of forbidden VLANs
vlan Add or modify VLAN entry in forbidden table.
remove Remove from existing list.
<vlan_list> VLAN IDs

Default:

1

Usage Guide:

To remove **forbidden VLAN ID** for specific interface

Example:

To remove **forbidden VLAN ID** (5) for **GigabitEthernet X/X**

```
Switch# configure terminal
```

```
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport forbidden vlan remove 5
```

switchport hybrid acceptable-frame-type

Command:

```
switchport hybrid acceptable-frame-type all | tagged |
untagged
```

switchport Switching mode characteristics
hybrid Change PVID for hybrid port
acceptable-frame-type Set acceptable frame type on a port.
all Allow all frames
tagged Allow only tagged frames
untagged Allow only untagged frames

Default:

All

Usage Guide:

To configure **acceptable-frame-type** of **Hybrid VLAN** for specific interface

Example:

To configure **acceptable-frame-type** (tagged) of **Hybrid VLAN** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport hybrid acceptable-frame-type
tagged
```

switchport hybrid allowed vlan

Command:

```
switchport hybrid allowed vlan [all | none | add <vlan_list> |
remove <vlan_list> | except <vlan_list>]
```

switchport Switching mode characteristics
hybrid Change PVID for hybrid port
allowed Set allowed VLAN characteristics when interface is in hybrid mode
<vlan_list> VLAN IDs of the allowed VLANs when this port is in hybrid mode
add Add VLANs to the current list
all All VLANs
except All VLANs except the following
none No VLANs
remove Remove VLANs from the current list

Default:

All

Usage Guide:

To configure **VLAN list** of **Hybrid VLAN** for specific interface

Example:

To configure **VLAN list** (None) of **Hybrid VLAN** for **GigabitEthernet X/X**

```
Switch# configure terminal
```

```
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport hybrid allowed vlan none
```

switchport hybrid egress-tag

Command:

```
switchport hybrid egress-tag [none | all | all except-native]
```

switchport Switching mode characteristics
hybrid Change PVID for hybrid port
egress-tag Egress VLAN tagging configuration
all Tag all frames
none No egress tagging
except-native Tag all frames except frames classified to native VLAN of the hybrid port

Default:

Untagged Port VLAN

Usage Guide:

To configure **Egress Tagging VLAN mode** for specific interface

Example:

To configure **Egress Tagging VLAN mode (None)** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport hybrid egress-tag none
```

switchport hybrid ingress-filtering

Command:

```
switchport hybrid ingress-filtering
```

switchport Switching mode characteristics
hybrid Change PVID for hybrid port
ingress-filtering VLAN Ingress filter configuration

Default:

Enabled

Usage Guide:

To enable **Ingress-filtering** with **Hybrid VLAN mode** for specific interface

Example:

To enable **Ingress-filtering** with **Hybrid VLAN mode** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport hybrid ingress-filtering
```

switchport hybrid native vlan

Command:

```
switchport hybrid native vlan <vlan_id>
```

switchport Switching mode characteristics

hybrid Change PVID for hybrid port
native Set native VLAN
vlan Set native VLAN when interface is in hybrid mode
<vlan_id> VLAN ID of the native VLAN when this port is in hybrid mode

Default:
1

Usage Guide:
To configure **PVID** in **Hybrid VLAN mode** for specific interface

Example:
To enable **PVID** (5) in **Hybrid VLAN mode** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport hybrid native vlan 5
```

switchport hybrid port-type

Command:

```
switchport hybrid port-type c-port | s-custom-port | s-port | unaware
```

switchport Switching mode characteristics
hybrid Change PVID for hybrid port
port-type Set port type
c-port Customer port
s-custom-port Custom Provider port
s-port Provider port
unaware Port in not aware of VLAN tags.

Default:
C-port

Usage Guide:
To configure **Port type** in **Hybrid VLAN mode** for specific interface

Example:
To enable **Port type** (Unaware) in **Hybrid VLAN mode** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport hybrid port-type unaware
```

switchport mode

Command:

```
switchport mode c-port | s-custom-port | s-port | unaware
```

switchport Switching mode characteristics
mode Set mode of the interface
port-type Set port type
c-port Customer port
s-custom-port Custom Provider port
s-port Provider port
unaware Port in not aware of VLAN tags.

Default:

unaware

Usage Guide:

To configure **VLAN mode** for specific interface

Example:

To configure **VLAN mode** (trunk) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport mode trunk
```

switchport vlan ip-subnet

Command:

```
switchport vlan ip-subnet id <1-128> <ipv4_subnet> vlan
<vlan_id>
```

switchport Switching mode characteristics
vlan VLAN commands
ip-subnet VCL IP Subnet-based VLAN configuration.
id id keyword
<1-128> Unique VCE ID for each VCL entry (1-128)
<ipv4_subnet> Source IP address and mask (Format: xx.xx.xx.xx/mm.mm.mm.mm).
vlan vlan keyword
<vlan_id> VLAN ID required for the group to VLAN mapping (Range: 1-4095)

Default:

None

Usage Guide:

To configure **IP Subnet-based VLAN** for specific interface

Example:

To configure **IP Subnet-based VLAN** as below table for **GigabitEthernet X/X**

VCE ID	IP Address	Mask Length	VLAN ID
1	192.168.1.0	24	5

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport vlan ip-subnet id 1
192.168.1.0/255.255.255.0 vlan 5
```

switchport vlan mac

Command:

```
switchport vlan mac <mac_ucast> vlan <vlan_id>
```

switchport Switching mode characteristics
vlan VLAN commands
mac MAC-based VLAN commands
<mac_ucast> 48 bit unicast MAC address: xx:xx:xx:xx:xx:xx

vlan vlan keyword
<vlan_id> VLAN ID required for the group to VLAN mapping (Range: 1-4095)

Default:
None
Usage Guide:
To configure **MAC-based VLAN** for specific interface
Example:
To configure **MAC-based VLAN** as below table for **GigabitEthernet X/X**

MAC Address	VLAN ID
00-55-44-33-22-11	5

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport vlan mac 00:55:44:33:22:11 vlan 5
```

switchport vlan mapping

Command:

```
switchport vlan mapping <group id : 1-29>
```

switchport Switching mode characteristics
vlan VLAN commands
mapping Maps an interface to a VLAN translation group**.**
<group id : 1-29> Group id

Default:
None
Usage Guide:
To configure **Group mapping Table** for specific interface
Example:
To configure **Group mapping** (Group 25) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport vlan mapping 25
```

switchport vlan protocol group

Command:

```
switchport vlan protocol group <word16> vlan <vlan_id>
```

switchport Switching mode characteristics
vlan VLAN commands
protocol Protocol-based VLAN commands
group Protocol-based VLAN group commands
<word16> Group Name (Range: 1 - 16 characters)
vlan vlan keyword
<vlan_id> VLAN ID required for the group to VLAN mapping (Range: 1-4095)

Default:

None

Usage Guide:

To configure **VLAN protocol group** for specific interface

Example:

To configure **VLAN protocol group** as tabled below for **GigabitEthernet X/X**

Group Name	VLAN ID
8081	5

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport vlan protocol group 8081 vlan 5
```

switchport voice vlan discovery-protocol

Command:

```
switchport voice vlan discovery-protocol both | lldp | oui
```

switchport Switching mode characteristics
voice Voice appliance attributes
vlan Vlan for voice traffic
discovery-protocol Set Voice VLAN port discovery protocol
both Detect telephony device by OUI address and LLDP
lldp Detect telephony device by LLDP
oui Detect telephony device by OUI address

Default:

OUI

Usage Guide:

To configure **Discovery-protocol** in **the Voice VLAN** for specific interface

Example: To configure **Discovery-protocol** (LLDP) in **the Voice VLAN** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport voice vlan discovery-protocol
lldp
```

switchport voice vlan mode

Command:

```
switchport voice vlan mode auto | disable | force
```

switchport Switching mode characteristics
voice Voice appliance attributes
vlan Vlan for voice traffic
mode Set Voice VLAN port mode
auto Enable auto detect mode
disable disjoin Voice VLAN
force Force to join Voice VLAN

Default:

Disabled

Usage Guide:

To configure **Voice VLAN mode** for specific interface

Example:

To configure **Voice VLAN mode** (Auto) for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport voice vlan mode auto
```

switchport voice vlan security

Command:

```
switchport voice vlan security
```

switchport Switching mode characteristics
voice Voice appliance attributes
vlan Vlan for voice traffic
security Enable Voice VLAN port security mode

Default:

Disabled

Usage Guide:

To enable **Voice VLAN security** for specific interface

Example:

To enable **Voice VLAN security** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # switchport voice vlan security
```

interface vlan

Command:

```
interface vlan <vlan_list>
```

vlan VLAN interface configurations
<vlan_list> List of VLAN interface numbers, 1~4095

Default:

N/A

Usage Guide:

To enter the **VLAN interface mode**.

Example:

To enter the **VLAN 1 interface mode**

```
Switch# configure terminal
Switch (config)# interface vlan 1
Switch (config-if-vlan)#
```

do

Command:

```
do < exec commands >
```

do To run exec commands in config mode

Default:

N/A

Usage Guide:

To run **exec commands** in **configure terminal mode**

Example:

To run “show aaa” in **configure terminal mode.**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# do show aaa
console : local
telnet  : local
ssh     : local
http    : local
```

end

Command:

```
end
```

end Go back to EXEC mode

Default:

Auto

Usage Guide:

To back to **EXEC mode**

Example:

To back to **EXEC mode**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# end
Switch#
```

exit

Command:

```
exit
```

exit Exit from current mode

Default:

None

Usage Guide:

To exit current mode

Example:

To exit current mode**.**

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

ip address

Command:

```
ip address <ipv4_addr> <ipv4_netmask>
```

ip Interface Internet Protocol config commands
address Address configuraton
<ipv4_addr> IP address
<ipv4_netmask> IP netmask

Default:

None

Usage Guide:

To configure **IP address mode** for specific VLAN

Example:

To configure **IP address mode** (192.168.1.10/24) for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip address 192.168.1.10 255.255.255.0
```

ip address dhcp

Command:

```
ip address dhcp
```

ip Interface Internet Protocol config commands
address Address configuraton
dhcp Enable DHCP

Default:

None

Usage Guide:

To configure **IP address mode** for specific VLAN

Example:

To configure **IP address mode** (DHCP) for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip address dhcp
```

ip address dhcp fallback

Command:

```
ip address dhcp fallback <ipv4_addr> <ipv4_netmask>
```

ip Interface Internet Protocol config commands
address Address configuraton
dhcp Enable DHCP
<ipv4_addr> DHCP fallback address
<ipv4_netmask> DHCP fallback netmask

Default:
None
Usage Guide:
To configure **DHCP fallback IP address** for specific VLAN
Example:
To configure **DHCP fallback IP address** (192.168.1.10/24) for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip address dhcp fallback 192.168.1.10
255.255.255.0
```

ip dhcp server

Command:

```
ip dhcp server
```

ip Interface Internet Protocol config commands
dhcp Configure DHCP server parameters
server Enable DHCP server per VLAN

Default:
None
Usage Guide:
To enable **IPv4 DHCP Server** for specific VLAN

Example:
To enable **IPv4 DHCP Server** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip dhcp server
```

ip igmp snooping

Command:

```
ip igmp snooping
```

ip Interface Internet Protocol config commands
igmp Internet Group Management Protocol
snooping Snooping IGMP

Default:
Disabled

Usage Guide:

To enable **IGMP snooping** for specific VLAN

Example:

To enable **IGMP snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip igmp snooping
```

ip igmp snooping compatibility

Command:

```
ip igmp snooping compatibility auto | v1 | v2 | v3
```

ip Interface Internet Protocol config commands
igmp Internet Group Management Protocol
snooping Snooping IGMP
compatibility Interface compatibility
auto Compatible with IGMPv1/IGMPv2/IGMPv3
v1 Forced IGMPv1
v2 Forced IGMPv2
v3 Forced IGMPv3

Default:

Auto

Usage Guide:

To configure **IGMP snooping version** for specific VLAN

Example:

To configure **IGMP snooping V2** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip igmp snooping compatibility v2
```

ip igmp snooping last-member-query-interval

Command:

```
ip igmp snooping last-member-query-interval <lpmcLmqi : 0-31744>
```

ip Interface Internet Protocol config commands
igmp Internet Group Management Protocol
snooping Snooping IGMP
last-member-query-interval Last Member Query Interval in tenths of seconds
<lpmcLmqi : 0-31744> 0 - 31744 tenths of seconds

Default:

10

Usage Guide:

To configure **Last-member-query-interval of IGMP snooping** for specific VLAN

Example:

To configure **Last-member-query-interval** (100 seconds) **of IGMP snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip igmp snooping last-member-query-interval 1000
```

ip igmp snooping priority

Command:

```
ip igmp snooping priority <CosPriority : 0-7>
```

ip Interface Internet Protocol config commands
igmp Internet Group Management Protocol
snooping Snooping IGMP
priority Interface CoS priority
<CosPriority : 0-7> CoS priority ranges from 0 to 7

Default:

0

Usage Guide:

To configure **CoS priority of IGMP snooping** for specific VLAN

Example:

To configure **CoS priority** (5) **of IGMP snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip igmp snooping priority 5
```

ip igmp snooping querier address

Command:

```
ip igmp snooping querier address <ipv4_ucast>
```

ip Interface Internet Protocol config commands
igmp Internet Group Management Protocol
snooping Snooping IGMP
querier IGMP Querier configuration
address IGMP Querier address configuration
<ipv4_ucast> A valid IPv4 unicast address

Default:

0.0.0.0

Usage Guide:

To configure **Querier address of IGMP snooping** for specific VLAN

Example:

To configure **Querier address** (192.168.1.15) **of IGMP snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip igmp snooping querier address
192.168.1.15
```

ip igmp snooping querier election

Command:

```
ip igmp snooping querier election
```

ip Interface Internet Protocol config commands
igmp Internet Group Management Protocol
snooping Snooping IGMP
querier IGMP Querier configuration
election Act as an IGMP Querier to join Querier-Election

Default:

Enabled

Usage Guide:

To enable **Querier-election of IGMP snooping** for specific VLAN

Example:

To enable **Querier-election of IGMP snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip igmp snooping querier election
```

ip igmp snooping query-interval

Command:

```
ip igmp snooping query-interval <IpmcQi : 1-31744>
```

ip Interface Internet Protocol config commands
igmp Internet Group Management Protocol
snooping Snooping IGMP
query-interval Query Interval in seconds
<IpmcQi : 1-31744> 1 - 31744 seconds

Default:

125

Usage Guide:

To configure **Querier-interval of IGMP snooping** for specific VLAN

Example:

To configure **Querier-interval** (600 seconds) **of IGMP snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip igmp snooping query-interval 600
```

ip igmp snooping query-max-response-time

Command:

```
ip igmp snooping query-max-response-time <lpmcQi : 1-31744>
```

ip Interface Internet Protocol config commands
igmp Internet Group Management Protocol
snooping Snooping IGMP
query-max-response-time Query Response Interval in tenths of seconds
<lpmcQri : 0-31744> 0 - 31744 tenths of seconds

Default:
125
Usage Guide:
To configure **Querier-interval of IGMP snooping** for specific VLAN
Example:
To configure **Querier-interval** (60 seconds) **of IGMP snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip igmp snooping query-max-response-time 600
```

ip igmp snooping robustness-variable

Command:

```
ip igmp snooping robustness-variable <lpmcRv : 1-255>
```

ip Interface Internet Protocol config commands
igmp Internet Group Management Protocol
snooping Snooping IGMP
robustness-variable Robustness Variable
<lpmcRv : 1-255> Packet loss tolerance count from 1 to 255

Default:
2
Usage Guide:
To configure **Robustness Variable of IGMP snooping** for specific VLAN
Example:
To configure **Robustness Variable** (88) **of IGMP snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip igmp snooping robustness-variable 88
```

ip igmp snooping unsolicited-report-interval

Command:

```
ip igmp snooping unsolicited-report-interval <lpmcUri : 0-31744>
```

ip Interface Internet Protocol config commands
igmp Internet Group Management Protocol
snooping Snooping IGMP
robustness-variable Robustness Variable
<lpmcUri : 0-31744> 0 - 31744 seconds

Default:

1

Usage Guide:

To configure **Unsolicited-Report-Interval of IGMP snooping** for specific VLAN

Example:

To configure **Unsolicited-Report-Interval** (99 seconds) **of IGMP snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ip igmp snooping unsolicited-report-interval 99
```

ipv6 address

Command:

```
Ipv6 address X:X:X:X::X/<0-128>
```

ipv6 IPv6 configuration commands
address Configure the IPv6 address of an interface
X:X:X:X::X/<0-128> IPv6 prefix x:x::y/z

Default:

None

Usage Guide:

To configure **IPv6 address** for specific VLAN

Example:

To configure **IPv6 address (2001::7788/64)** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ipv6 address 2001::7788/64
```

ipv6 mld snooping

Command:

```
ipv6 mld snooping
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD

Default:

Disabled

Usage Guide:

To enable **MLD snooping** for specific VLAN

Example:

To enable **MLD snooping** for **VLAN X**

```
Switch# configure terminal
```

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

ipv6 mld snooping compatibility

Command:

```
ipv6 mld snooping compatibility auto | v1 | v2
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD
compatibility Interface compatibility
auto Compatible with MLDv1/MLDv2
v1 Forced MLDv1
v2 Forced MLDv2

Default:

Auto

Usage Guide:

To configure **MLD snooping version** for specific VLAN

Example:

To configure **MLD snooping V2** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ipv6 mld snooping compatibility v2
```

ipv6 mld snooping last-member-query-interval

Command:

```
ipv6 mld snooping last-member-query-interval <lpmcLmqi : 0-31744>
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD
last-member-query-interval Last Member Query Interval in tenths of seconds
<lpmcLmqi : 0-31744> 0 - 31744 tenths of seconds

Default:

10

Usage Guide:

To configure **Last-member-query-interval of MLD snooping** for specific VLAN

Example:

To configure **Last-member-query-interval** (100 seconds) **of MLD snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ipv6 mld snooping last-member-query-interval 1000
```

ipv6 mld snooping priority

Command:

```
ipv6 mld snooping priority <CosPriority : 0-7>
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD
priority Interface CoS priority
<CosPriority : 0-7> CoS priority ranges from 0 to 7

Default:

0

Usage Guide:

To configure **CoS priority of MLD snooping** for specific VLAN

Example:

To configure **CoS priority** (5) **of MLD snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ipv6 mld snooping priority 5
```

ipv6 mld snooping querier election

Command:

```
ipv6 mld snooping querier election
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD
querier MLD Querier configuration
election Act as an MLD Querier to join Querier-Election

Default:

Enabled

Usage Guide:

To enable **Querier-election of MLD snooping** for specific VLAN

Example:

To enable **Querier-election of MLD snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ipv6 mld snooping querier election
```

ipv6 mld snooping query-interval

Command:

```
ipv6 mld snooping query-interval <lpmcQi : 1-31744>
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD
query-interval Query Interval in seconds
<lpmcQi : 1-31744> 1 - 31744 seconds

Default:
125
Usage Guide:
To configure **Querier-interval of MLD snooping** for specific VLAN
Example:
To configure **Querier-interval** (600 seconds) **of MLD snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ipv6 mld snooping query-interval 600
```

ipv6 mld snooping query-max-response-time

Command:

```
ipv6 mld snooping query-max-response-time <lpmcQi : 1-31744>
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD
query-max-response-time Query Response Interval in tenths of seconds
<lpmcQri : 0-31744> 0 - 31744 tenths of seconds

Default:
125
Usage Guide:
To configure **Querier-interval of MLD snooping** for specific VLAN
Example:
To configure **Querier-interval** (60 seconds) **of MLD snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ipv6 mld snooping query-max-
response-time 600
```

ipv6 mld snooping robustness-variable

Command:

```
ipv6 mld snooping robustness-variable <lpmcRv : 1-255>
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD
robustness-variable Robustness Variable
<lpmcRv : 1-255> Packet loss tolerance count from 1 to 255

Default:
2
Usage Guide:
To configure **Robustness Variable of MLD snooping** for specific VLAN
Example:
To configure **Robustness Variable** (88) **of MLD snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ipv6 mld snooping robustness-variable
88
```

ipv6 mld snooping unsolicited-report-interval

Command:

```
ipv6 mld snooping unsolicited-report-interval <lpmcUri : 0-31744>
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD
robustness-variable Robustness Variable
<lpmcUri : 0-31744> 0 - 31744 seconds

Default:

1

Usage Guide:

To configure **Unsolicited-Report-Interval of MLD snooping** for specific VLAN

Example:

To configure **Unsolicited-Report-Interval** (99 seconds) **of MLD snooping** for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# ipv6 mld snooping unsolicited-report-
interval 99
```

no

Command:

```
no
```

no Negate a command or set its defaults

Default:

N/A

Usage Guide:

To default the function for specific interface

Example:

To disable the function (**ip address dhcp**) for **VLAN X**

```
Switch# configure terminal
Switch (config)# interface vlan X
Switch (config-if-vlan)# no ip address dhcp
```

ip arp inspection

Command:

```
ip arp inspection
```

ip Internet Protocol
arp Address Resolution Protocol
inspection ARP inspection

Default:
N/A
Usage Guide:
To enable **ARP inspection**
Example:
To enable **ARP inspection**

```
Switch# configure terminal
Switch (config)# ip arp inspection
```

ip arp inspection entry interface

Command:

```
ip arp inspection entry interface [10GigabitEthernet |
GigabitEthernet] <vlan_id> <mac_ucast> <ipv4_ucast>
```

ip Internet Protocol
arp Address Resolution Protocol
inspection ARP inspection
entry arp inspection entry
interface arp inspection entry interface config
GigabitEthernet 1 Gigabit Ethernet Port
10GigabitEthernet 10 Gigabit Ethernet Port
<vlan_id> Select a VLAN id to configure
<mac_ucast> Select a MAC address to configure
<ipv4_ucast> Select an IP Address to configure

Default:
N/A
Usage Guide:
To configure **Static ARP Inspection Table.**
Example:
To configure **Static ARP Inspection Table** as below table**.**

Port	VLAN ID	MAC Address	IP Address
1	1	00-11-22-33-44-55	192.168.0.18

```
Switch# configure terminal
Switch (config)# ip arp inspection entry interface
GigabitEthernet 1/1 1 00:11:22:33:44:55 192.168.0.18
```

ip arp inspection translate

Command:

```
ip arp inspection translate
```

ip Internet Protocol
arp Address Resolution Protocol
inspection ARP inspection
translate arp inspection translate all entries

Default:
N/A
Usage Guide:
To translate dynamic entries into **static ARP inspection table.**
Example:
To translate dynamic entries into **static ARP inspection table.**

```
Switch# configure terminal
Switch (config)# ip arp inspection translate
ARP Inspection:
    Translate 1 dynamic entries into static entries.
```

ip arp inspection translate interface

Command:

```
ip arp inspection translate interface [10GigabitEthernet |
GigabitEthernet] <vlan_id> <mac_ucast> <ipv4_ucast>
```

ip Internet Protocol
arp Address Resolution Protocol
inspection ARP inspection
translate arp inspection translate all entries
interface arp inspection entry interface config
GigabitEthernet 1 Gigabit Ethernet Port
10GigabitEthernet 10 Gigabit Ethernet Port
<vlan_id> Select a VLAN id to configure
<mac_ucast> Select a MAC address to configure
<ipv4_ucast> Select an IP Address to configure

Default:
N/A
Usage Guide:
To translate dynamic entries into **static ARP inspection table** for specific interface**.**
Example:
To translate below dynamic entries into **static ARP inspection table** for **GigabitEthernet 1/1.**

Port	VLAN ID	MAC Address	IP Address
1	1	00-11-22-33-44-55	192.168.0.18

```
Switch# configure terminal
Switch (config)# ip arp inspection translate interface
GigabitEthernet 1/1 1 00:11:22:33:44:55 192.168.0.18
```

ip arp inspection vlan

Command:

```
ip arp inspection vlan <vlan_list> logging all | deny | permit
```

ip Internet Protocol
arp Address Resolution Protocol
inspection ARP inspection
vlan arp inspection vlan setting
<vlan_list> arp inspection vlan list
logging ARP inspection vlan logging mode config
all log all entries
deny log denied entries
permit log permitted entries

Default:
N/A
Usage Guide:
To configure **VLAN mode** of **ARP inspection.**
Example:
To configure **VLAN mode** (VLAN 1, Log type: Permit) of **ARP inspection.**

```
Switch# configure terminal
Switch (config)# ip arp inspection vlan 1 logging permit
```

ip dhcp excluded-address

Command:

```
ip dhcp excluded-address <A.B.C.D>
```

ip Internet Protocol
dhcp Dynamic Host Configuration Protocol
excluded-address Prevent DHCP from assigning certain addresses
<A.B.C.D> Low IP address

Default:
N/A
Usage Guide:
To configure **excluded IP range** of **DHCP Server.**
Example:
To configure **excluded IP range** (192.168.0.100~192.168.0.101) of **DHCP Server.**

```
Switch# configure terminal
Switch (config)# ip dhcp excluded-address 192.168.0.100
192.168.0.101
```

ip dhcp pool

Command:

```
ip dhcp pool <WORD>
```

ip Internet Protocol
dhcp Dynamic Host Configuration Protocol
pool Configure DHCP address pools
<WORD> Pool name in 32 characters

Default:
N/A
Usage Guide:
To create a **DHCP pool.**
Example:
To create a **DHCP pool (Name: IFSbestswitch).**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)#
```

broadcast

Command:

```
broadcast <A.B.C.D>
```

broadcast Broadcast address in use on the client's subnet
<A.B.C.D> Broadcast IP address

Default:
None
Usage Guide:
To configure **Broadcast IP address (DHCP option 28)** of **DHCP Server**
Example:
To configure **Broadcast IP address** (192.168.0.66) of **DHCP Server** for **pool "**IFSbestswitch**"**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# broadcast 192.168.0.66
```

client-identifier fqdn

Command:

```
client-identifier fqdn <LINE>
```

client-identifier Client identifier
fqdn FQDN type of client identifier
<LINE> FQDN in 128 characters
Default:
None
Usage Guide:
To configure **FQDN** of **DHCP Server**
Example:
To configure **FQDN** (123) of **DHCP Server** for **pool "**IFSbestswitch**"**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# client-identifier fqdn 123
```

client-identifier mac-address

Command:

```
client-identifier mac-address <MAC>
```

client-identifier Client identifier
mac-address MAC address type of client identifier
<MAC> MAC address of client

Default:
None
Usage Guide:
To configure **Bind IP to MAC** of **DHCP Server**
Example:
To configure **Bind IP to MAC** (00:11:22:33:44:55) of **DHCP Server** for **pool "**IFSbestswitch**"**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# client-identifier mac-address
00:11:22:33:44:55
```

client-name

Command:

```
client-name
```

client-name Client host name

Default:
None
Usage Guide:
To configure **Client-name** of **DHCP Server**
Example:
To configure **Client-name** (555) of **DHCP Server** for **pool "**IFSbestswitch**"**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# client-name 555
```

default-router

Command:

```
default-router <A.B.C.D>
```

default-router Default routers
<A.B.C.D> Router's IP address

Default:
None
Usage Guide:
To configure **Default Gateway** of **DHCP Server**
Example:
To configure **Default Gateway** (192.168.0.1) of **DHCP Server** for **pool "**IFSbestswitch**"**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# default-router 192.168.0.1
```

dns-server
Command:

```
dns-server <A.B.C.D>
```

dns-server DNS servers
<A.B.C.D> Server's IP address

Default:
None
Usage Guide:
To configure **DNS Server** of **DHCP Server**
Example:
To configure **DNS Server** (168.95.1.1, 8.8.8.8) of **DHCP Server** for **pool "**IFSbestswitch**"**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# dns-server 168.95.1.1 8.8.8.8
```

do
Command:

```
do < exec commands >
```

do To run exec commands in config mode

Default:
N/A
Usage Guide:
To run **exec commands**
Example:
To run "show aaa"**.**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# do show aaa
console : local
```

```
telnet  : local
ssh     : local
http    : local
```

domain-name

Command:

```
domain-name <word128>
```

domain-name Domain name

<word128> Domain name

Default:

None

Usage Guide:

To configure **Domain Name** of **DHCP Server**

Example:

To configure **Domain Name** (interlogix.com) of **DHCP Server** for **pool "**IFSbestswitch**"**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# domain-name interlogix.com
```

end

Command:

```
end
```

end Go back to EXEC mode

Default:

Auto

Usage Guide:

To back to **EXEC mode**

Example:

To back to **EXEC mode**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# end
Switch#
```

exit

Command:

```
exit
```

exit Exit from current mode

Default:

None

Usage Guide:

To exit current mode

Example:

To exit current mode**.**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# exit
Switch (config)#
```

hardware-address

Command:

```
hardware-address <MAC>
```

hardware-address Client hardware address

<MAC> Client MAC address

Default:

None

Usage Guide:

To configure **MAC address** of **DHCP Server** while the pool is in the **host** type.

Example:

To configure **MAC address** (00:11:22:33:44:55) of **DHCP Server** for **pool "**IFSbestswitch**"** while the pool is in the **host** type.

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# hardware-address 00:11:22:33:44:55
```

host

Command:

```
host <IP: A.B.C.D> <Subnet: A.B.C.D>
```

host Client IP address and mask

<IP: A.B.C.D> Network number

<Subnet: A.B.C.D> Network mask in dotted-decimal notation, excluding 255.255.255.255

Default:

None

Usage Guide:

To configure **Host IP address** of **DHCP Server**.

Example:

To configure **Host IP address** (192.168.1.10/24) of **DHCP Server** for **pool "**IFSbestswitch**"**.

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# host 192.168.1.10 255.255.255.0
```

lease

Command:

```
lease <0-365> <0-23> <0-59> | infinite
```

lease Address lease time
<0-365> Days
<0-23> Hours
<0-59> Minutes
infinite Infinite lease

Default:

1 day

Usage Guide:

To configure **Lease Time** of **DHCP Server**.

Example:

To configure **Lease Time** (119 minutes) of **DHCP Server** for **pool "**IFSbestswitch**".**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# lease 0 1 59
```

netbios-name-server

Command:

```
netbios-name-server <A.B.C.D>
```

netbios-name-server NetBIOS (WINS) name servers
<A.B.C.D> Server's IP address

Default:

None

Usage Guide:

To configure **NetBIOS Name Server** of **DHCP Server**.

Example:

To configure **NetBIOS Name Server** (192.168.1.10) of **DHCP Server** for **pool "**IFSbestswitch**".**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# netbios-name-server 192.168.1.10
```

netbios-node-type

Command:

```
netbios-node-type b-node | h-node | m-node | p-node
```

netbios-node-type NetBIOS node type
b-node Broadcast node
h-node Hybrid node
m-node Mixed node
p-node Peer-to-peer node

Default:

None

Usage Guide:

To configure **NetBIOS node type** of **DHCP Server**.

Example:

To configure **NetBIOS node type** (B-node) of **DHCP Server** for **pool "**IFSbestswitch**".**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# netbios-node-type b-node
```

netbios-scope

Command:

```
netbios-scope <LINE>
```

netbios-scope NetBIOS scope

<LINE> Netbios scope identifier, in 128 characters

Default:

None

Usage Guide:

To configure **NetBIOS scope** of **DHCP Server**.

Example:

To configure **NetBIOS scope** (IFS) of **DHCP Server** for **pool "**IFSbestswitch**".**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# netbios-scope IFS
```

network

Command:

```
network <IP: A.B.C.D> <Subnet: A.B.C.D>
```

network Network number and mask

<IP: A.B.C.D> Network number

<Subnet: A.B.C.D> Network mask in dotted-decimal notation, excluding 255.255.255.255

Default:

None

Usage Guide:

To configure **Network IP address** of **DHCP Server**.

Example:

To configure **Network IP address** (192.168.1.11/24) of **DHCP Server** for **pool "**IFSbestswitch**"**.

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
```

```
Switch (config-dhcp-pool)# network 192.168.0.11 255.255.255.0
```

nis-domain-name

Command:

```
nis-domain-name <word128>
```

nis-domain-name NIS domain name
<word128> Domain name

Default:
None
Usage Guide:
To configure **NIS Domain Name** of **DHCP Server**
Example:
To configure **NIS Domain Name** (interlogix.com) of **DHCP Server** for **pool "**IFSbestswitch**"**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# nis-domain-name interlogix.com
```

nis-server

Command:

```
nis-server <A.B.C.D>
```

nis-server Network information servers
<A.B.C.D> Server's IP address

Default:
None
Usage Guide:
To configure **NIS Server** of **DHCP Server**
Example:
To configure **NIS Server** (1.1.1.1) of **DHCP Server** for **pool "**IFSbestswitch**"**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# nis-server 1.1.1.1
```

no

Command:

```
no
```

no Negate a command or set its defaults

Default:
N/A
Usage Guide:
To default the function

Example:

To disable the function (**nis-domain-name interlogix.com**) for **pool "**IFSbestswitch**"**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# no nis-domain-name interlogix.com
```

ntp-server

Command:

```
ntp-server <A.B.C.D>
```

ntp-server NTP servers
<A.B.C.D> Server's IP address

Default:

None

Usage Guide:

To configure **NTP Server** of **DHCP Server**

Example:

To configure **NTP Server** (1.1.1.1) of **DHCP Server** for **pool "**IFSbestswitch**"**

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# ntp-server 1.1.1.1
```

vendor

Command:

```
vendor class-identifier <"0x "> specific-info <HEX-VALUE>
```

vendor Vendor configuration
class-identifier Vendor class identifier
"<0x >" Class identifier in 64 characters
specific-info Vendor specific information
<HEX-VALUE> Hex values in 64 octets

Default:

None

Usage Guide:

To configure **Vendor ID** and **info** of **DHCP Server**

Example:

To configure **Vendor ID** and **info** as below table of **DHCP Server** for **pool "**IFSbestswitch**"**

Vendor 1 Class Identifier	0x8
Vendor 1 Specific Information	0x08

```
Switch# configure terminal
Switch (config)# ip dhcp pool IFSbestswitch
Switch (config-dhcp-pool)# vendor class-identifier "0x8"
specific-info 0x8
```

ip dns proxy

Command:

```
ip dns proxy
```

ip Internet Protocol
dns Domain Name System
proxy DNS proxy service

Default:
Disabled
Usage Guide:
To enable **DNS proxy.**
Example:
To enable **DNS proxy.**

```
Switch# configure terminal
Switch (config)# ip dns proxy
```

ip helper-address

Command:

```
ip helper-address <Ip : ipv4_ucast>
```

ip Internet Protocol
helper-address DHCP relay server
<Ip : ipv4_ucast> IP address of the DHCP relay server

Default:
None
Usage Guide:
To configure **IP address** of **DHCP**.
Example:
To configure **IP address** (1.1.1.1) of **DHCP**.

```
Switch# configure terminal
Switch (config)# ip helper-address 1.1.1.1
```

ip http secure-redirect

Command:

```
ip http secure-redirect
```

ip Internet Protocol
http Hypertext Transfer Protocol
secure-redirect Secure HTTP web redirection

Default:
Disabled
Usage Guide:

To redirect **WebUI** from **HTTP** to **HTTPs**

Example:

To redirect **WebUI** from **HTTP** to **HTTPs**

```
Switch# configure terminal
Switch (config)# ip http secure-redirect
```

ip http secure-server

Command:

```
ip http secure-server
```

ip Internet Protocol
http Hypertext Transfer Protocol
secure-server Secure HTTP web server

Default:

Disabled

Usage Guide:

To enable **HTTPs WebUI.**

Example:

To enable **HTTPs WebUI.**

```
Switch# configure terminal
Switch (config)# ip http secure-server
```

ip igmp host-proxy

Command:

```
ip igmp host-proxy
```

ip Internet Protocol
igmp Internet Group Management Protocol
host-proxy IGMP proxy configuration

Default:

Disabled

Usage Guide:

To enable **IGMP Proxy**

Example:

To enable **IGMP Proxy.**

```
Switch# configure terminal
Switch (config)# ip igmp host-proxy
```

ip igmp host-proxy leave-proxy

Command:

```
ip igmp host-proxy leave-proxy
```

ip Internet Protocol
igmp Internet Group Management Protocol
host-proxy IGMP proxy configuration
leave-proxy IGMP proxy for leave configuration

Default:
Disabled
Usage Guide:
To enable **IGMP leave-proxy**
Example:
To enable **IGMP leave-proxy.**

```
Switch# configure terminal
Switch (config)# ip igmp host-proxy leave-proxy
```

ip igmp snooping

Command:

```
ip igmp snooping
```

ip Internet Protocol
igmp Internet Group Management Protocol
snooping Snooping IGMP

Default:
Disabled
Usage Guide:
To enable **IGMP Snooping.**
Example:
To enable **IGMP Snooping.**

```
Switch# configure terminal
Switch (config)# ip igmp snooping
```

ip igmp snooping vlan

Command:

```
ip igmp snooping vlan <vlan_list>
```

ip Internet Protocol
igmp Internet Group Management Protocol
snooping Snooping IGMP
vlan IGMP VLAN
<vlan_list> VLAN identifier(s): VID

Default:
Disabled
Usage Guide:
To enable **IGMP Snooping for specific VLAN.**
Example:
To enable **IGMP Snooping for VLAN 1.**

```
Switch# configure terminal
Switch (config)# ip igmp snooping vlan 1
```

ip igmp ssm-range

Command:

```
ip igmp ssm-range <ipv4_mcast> <Ipv4PrefixLength : 4-32>
```

ip Internet Protocol
igmp Internet Group Management Protocol
ssm-range IPv4 address range of Source Specific Multicast
<ipv4_mcast> Valid IPv4 multicast address
<vlan_list> VLAN identifier(s): VID
<Ipv4PrefixLength : 4-32> Prefix length ranges from 4 to 32
Default:
232.0.0.0/8
Usage Guide:
To enable **SSM Range** of **IGMP.**
Example:
To enable **SSM Range** (239.239.239.239/32) of **IGMP.**

```
Switch# configure terminal
Switch (config)# ip igmp ssm-range 239.239.239.239 32
```

ip igmp unknown-flooding

Command:

```
ip igmp unknown-flooding
```

ip Internet Protocol
igmp Internet Group Management Protocol
unknown-flooding Flooding unregistered IPv4 multicast traffic

Default:
Enabled
Usage Guide:
To flood unregistered **IPv4 multicast** traffic**.**

Example:
To flood unregistered **IPv4 multicast** traffic**.**

```
Switch# configure terminal
```

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

ip name-server

Command:

```
ip name-server <ipv4_ucast>
```

ip Internet Protocol
name-server Domain Name System
<ipv4_ucast> A valid IPv4 unicast address

Default:

Enabled

Usage Guide:

To configure DNS server IP address**.**

Example:

To configure DNS server IP address (8.8.8.8)**.**

```
Switch# configure terminal
Switch (config)# ip name-server 8.8.8.8
```

ip name-server dhcp

Command:

```
ip name-server dhcp
```

ip Internet Protocol
name-server Domain Name System
dhcp Dynamic Host Configuration Protocol

Default:

None

Usage Guide:

To configure DNS IP address via DHCP Server**.**

Example:

To configure DNS IP address via DHCP Server**.**

```
Switch# configure terminal
Switch (config)# ip name-server 8.8.8.8
```

ip name-server dhcp interface vlan

Command:

```
ip name-server dhcp interface vlan <vlan_id>
```

ip Internet Protocol
name-server Domain Name System
dhcp Dynamic Host Configuration Protocol
vlan VLAN Interface
<vlan_id> VLAN identifier(s): VID

Default:

None

Usage Guide:

To configure DNS IP address via specific VLAN DHCP Server**.**

Example:

To configure DNS IP address via specific VLAN 5 DHCP Server**.**

```
Switch# configure terminal
Switch (config)# ip name-server dhcp interface vlan 5
```

ip route

Command:

```
ip route <ipv4_addr> <ipv4_netmask> <ipv4_gateway>
```

ip Internet Protocol
route Add IP route
<ipv4_addr> Network
<ipv4_netmask> Netmask
<ipv4_gateway> Gateway

Default:

None

Usage Guide:

To configure **static route**

Example:

To configure **static route** as **below table.**

Network	Mask Length	Gateway
192.168.1.0	24	192.168.0.1

```
Switch# configure terminal
Switch (config)# ip route 192.168.1.0 255.255.255.0 192.168.0.1
```

ip routing

Command:

```
ip routing
```

ip Internet Protocol
routing Enable routing for IPv4 and IPv6

Default:

None

Usage Guide:

To enable **IP routing**

Example:

To enable **IP routing**

```
Switch# configure terminal
Switch (config)# ip routing
```

ip source binding interface

Command:

```
ip source binding interface 10GigabitEthernet |
GigabitEthernet <port_type_id> <ipv4_ucast>
<ipv4_netmask>
```

ip Internet Protocol
source source command
binding ip source binding
interface ip source binding entry interface config
<ipv4_ucast> Select an IP Address to configure
<ipv4_netmask> Select a subnet mask to configure

Default:

None

Usage Guide:

To enable **Static IP Source Guard Table** for **specific interface**

Example:

To enable **Static IP Source Guard Table as below table** for **GigabitEthernet 1/1**

Port	VLAN ID	IP Address	IP Mask
1	1	192.168.0.77	255.255.255.255

```
Switch# configure terminal
Switch (config)# ip source binding interface GigabitEthernet
1/1 1 192.168.0.77 255.255.255.255
```

ip ssh

Command:

```
ip ssh
```

ip Internet Protocol
ssh Secure Shell

Default:

None

Usage Guide:

To enable **SSH service**

Example:

To enable **SSH service**

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

ip verify source

Command:

```
ip verify source
```

ip Internet Protocol
verify verify command
source verify source

Default:
Disabled
Usage Guide:
To enable **IP Source Guard**
Example:
To enable **IP Source Guard**

```
Switch# configure terminal
Switch (config)# ip verify source
```

ip verify source translate

Command:

```
ip verify source translate
```

ip Internet Protocol
verify verify command
source verify source
translate ip verify source translate all entries

Default:
Disabled
Usage Guide:
To translate dynamic entries to **IP Source Guard table**
Example:
To translate dynamic entries to **IP Source Guard table**

```
Switch# configure terminal
Switch (config)# ip verify source translate
```

ipmc profile

Command:

```
ipmc profile
```

ipmc IPv4/IPv6 multicast configuration
profile IPMC profile configuration

Default:
Disabled
Usage Guide:

To enable **IPMC profile**

Example:

To enable **IPMC profile**

```
Switch# configure terminal
Switch (config)# ipmc profile
```

ipmc profile <word16>

Command:

```
ipmc profile <word16>
```

ipmc IPv4/IPv6 multicast configuration
profile IPMC profile configuration
<word16> Profile name

Default:

Disabled

Usage Guide:

To enter **IPMC profile mode**

Example:

To enter **IPMC profile mode** (IFS)

```
Switch# configure terminal
Switch (config)# ipmc profile IFS
Switch (config-ipmc-profile)#
```

default range

Command:

```
default range <EntryName : word16>
```

default Set a command to its defaults
range A range of IPv4/IPv6 multicast addresses for the profile
<EntryName : word16> Range entry name

Default:

None

Usage Guide:

To default **IPMC Profile Rule** for specific **IPMC Profile**

Example:

To default **IPMC Profile Rule** (Entry 1) for specific **IPMC Profile** (IFS)

```
Switch# configure terminal
Switch (config)# ipmc profile IFS
Switch (config-ipmc-profile)# default range 1
```

description

Command:

```
description <ProfileDesc : line64>
```

description Additional description about the profile
<ProfileDesc : line64> Description for the designated IPMC filtering profile

Default:
None
Usage Guide:
To configure description for specific **IPMC Profile**
Example:
To configure description (999) for specific **IPMC Profile** (IFS)

```
Switch# configure terminal
Switch (config)# ipmc profile IFS
Switch (config-ipmc-profile)# description 999
```

do
Command:

```
do < exec commands >
```

do To run exec commands in config mode

Default:
N/A
Usage Guide:
To run **exec commands**
Example:
To run “show aaa”.

```
Switch# configure terminal
Switch (config)# ipmc profile IFS
Switch (config-ipmc-profile)# do show aaa
console : local
telnet  : local
ssh     : local
http    : local
```

end
Command:

```
end
```

end Go back to EXEC mode

Default:
Auto
Usage Guide:
To back to **EXEC mode**
Example:
To back to **EXEC mode**

```
Switch# configure terminal
Switch (config)# ipmc profile IFS
```

```
Switch (config-ipmc-profile)#end
Switch#
```

exit

Command:

```
exit
```

exit Exit from current mode

Default:

None

Usage Guide:

To exit current mode

Example:

To exit current mode**.**

```
Switch# configure terminal
Switch (config)# ipmc profile IFS
Switch (config-ipmc-profile)# exit
Switch (config)#
```

no

Command:

```
no
```

no Negate a command or set its defaults

Default:

N/A

Usage Guide:

To default the function.

Example:

To enable the function (**description 999**).

```
Switch# configure terminal
Switch (config)# ipmc profile IFS
Switch (config-ipmc-profile)# no description 999
```

range

Command:

```
range <EntryName : word16> deny | permit
```

description Additional description about the profile
<EntryName : word16> Range entry name
deny Deny matching addresses
permit Permit matching addresses

Default:

Deny

Usage Guide:

To configure **action** of **entry** for specific **IPMC Profile**

Example:

To configure **action** (permit) of **entry** (1) for specific **IPMC Profile** (IFS)

```
Switch# configure terminal
Switch (config)# ipmc profile IFS
Switch (config-ipmc-profile)# range 1 permit
```

ipv6 mld host-proxy

Command:

```
ipv6 mld host-proxy
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
host-proxy MLD proxy configuration

Default:

Disabled

Usage Guide:

To enable **MLD Proxy**

Example:

To enable **MLD Proxy.**

```
Switch# configure terminal
Switch (config)# ipv6 mld host-proxy
```

ipv6 mld host-proxy leave-proxy

Command:

```
ipv6 mld host-proxy leave-proxy
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
host-proxy MLD proxy configuration
leave-proxy MLD proxy for leave configuration

Default:

Disabled

Usage Guide:

To enable **MLD leave-proxy**

Example:

To enable **MLD leave-proxy.**

```
Switch# configure terminal
Switch (config)# ipv6 mld host-proxy leave-proxy
```

ipv6 mld snooping

Command:

```
ipv6 mld snooping
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD

Default:
Disabled
Usage Guide:
To enable **MLD Snooping.**
Example:
To enable **MLD Snooping.**

```
Switch# configure terminal
Switch (config)# ipv6 mld snooping
```

ipv6 mld snooping vlan

Command:

```
ipv6 mld snooping vlan <vlan_list>
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD
vlan MLD VLAN
<vlan_list> VLAN identifier(s): VID

Default:
Disabled
Usage Guide:
To enable **MLD Snooping for specific VLAN.**
Example:
To enable **MLD Snooping for VLAN 1.**

```
Switch# configure terminal
Switch (config)# ipv6 mld snooping vlan 1
```

ipv6 mld ssm-range

Command:

```
ipv6 mld ssm-range <ipv6_mcast> <Ipv6PrefixLength : 8-128>
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
ssm-range IPv6 address range of Source Specific Multicast
<ipv6_mcast> Valid IPv6 multicast address
<Ipv6PrefixLength : 8-128> Prefix length ranges from 8 to 128

Default:
ff3e:: /96
Usage Guide:
To enable **SSM Range** of **MLD.**
Example:
To enable **SSM Range** (ff3e::7788/128) of **MLD.**

```
Switch# configure terminal
Switch (config)# ipv6 mld ssm-range ff3e::7788 128
```

ipv6 mld unknown-flooding

Command:

```
ipv6 mld unknown-flooding
```

ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
unknown-flooding Flooding unregistered IPv6 multicast traffic

Default:
Enabled
Usage Guide:
To flood unregistered **IPv6 multicast** traffic**.**
Example:
To flood unregistered **IPv6 multicast** traffic**.**

```
Switch# configure terminal
Switch (config)# ipv6 mld unknown-flooding
```

ipv6 route

Command:

```
Ipv6 route <X:X:X:X::X/<0-128>> {<X:X:X:X::X>, interface vlan
<vlan_id> <FE80::X:X:X >}
```

ipv6 IPv6 configuration commands
route Add IP route
<X:X:X:X::X/<0-128>> IPv6 prefix x:x::y/z
<X:X:X:X::X> IPv6 unicast address (except link-local address) of next-hop
interface Select an interface to configure
vlan VLAN Interface
<vlan_id> VLAN identifier(s): VID
<FE80::X:X:X> IPv6 link-local address of next-hop

Default:
None
Usage Guide:
To configure **static route** for **IPv6**
Example 1:

To configure **static route** as **below table** for **IPv6.**

Network	Mask Length	Gateway	Next Hop VLAN
2001::7788	128	2002::1	0

```
Switch# configure terminal
Switch (config)# ipv6 route 2001::7788/128 2002::1
```

Example 2:

To configure **static route** as **below table** for **IPv6.**

Network	Mask Length	Gateway	Next Hop VLAN
2001::7788	128	fe80::1	1

```
Switch# configure terminal
Switch (config)# ipv6 route 2001::7788/128 interface vlan 1
fe80::1
```

lacp system-priority

Command:

```
lacp system-priority <1-65535>
```

lacp LACP settings
system-priority System priority
<1-65535> Priority value, lower means higher priority

Default:

32768

Usage Guide:

To configure **LACP system-priority.**

Example:

To configure **LACP system-priority** (99)**.**

```
Switch# configure terminal
Switch (config)# lacp system-priority 99
```

line

Command:

```
line { <0~16> | console 0 | vty <0~15> }
```

line Configure a terminal line
<0~16> List of line numbers
console Console terminal line
vty Virtual terminal

Default:

N/A

Usage Guide:

To enter **line mode**

Example:

To enter **line mode** (**vty 1**)

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)#
```

do

Command:

```
do < exec commands >
```

do To run exec commands.

Default:

N/A

Usage Guide:

To run **exec commands.**

Example:

To run “show aaa”**.**

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# do show aaa
console : local
telnet  : local
ssh     : local
http    : local
```

editing

Command:

```
editing
```

editing Enable command line editing

Default:

Enabled

Usage Guide:

To allow user editing command line.

Example:

To allow user editing command line**.**

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# editing
```

end

Command:

```
end
```

end Go back to EXEC mode

Default:
None
Usage Guide:
To back to **EXEC mode**
Example:
To back to **EXEC mode**

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)#end
Switch#
```

exec-banner

Command:

```
exec-banner
```

exec-banner Enable the display of the EXEC banner

Default:
Enabled
Usage Guide:
To enable the display of the **EXEC banner**
Example:
To enable the display of the **EXEC banner**

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# exec-banner
```

exec-timeout

Command:

```
exec-timeout <0-1440>
```

exec-timeout Set the EXEC timeout
<0-1440> Timeout in minutes

Default:
N/A
Usage Guide:
To configure **EXEC timeout**
Example:
To configure **EXEC timeout** (10 minutes)

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# exec-timeout 10
```

exec-timeout

Command:

```
exec-timeout <0-1440>
```

exec-timeout Set the EXEC timeout
<0-1440> Timeout in minutes

Default:
N/A

Usage Guide:
To configure **EXEC timeout**

Example:
To configure **EXEC timeout** (10 minutes)

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# exec-timeout 10
```

exit

Command:

```
exit
```

exit Exit from current mode

Default:
None

Usage Guide:
To exit current mode

Example:
To exit current mode**.**

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# exit
Switch (config)#
```

history size

Command:

```
history size <0-32>
```

history Control the command history function
size Set history buffer size
<0-32> Number of history commands, 0 means disable

Default:
None

Usage Guide:
To exit current mode

Example:
To exit current mode**.**

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# history size 1
```

length

Command:

```
length <0 or 3-512>
```

length Set number of lines on a screen
<0 or 3-512> Number of lines on screen (0 for no pausing)

Default:
None
Usage Guide:
To configure displayed lines on a screen.
Example:
To configure displayed lines on a screen.

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# length 10
```

location

Command:

```
location <LINE>
```

location Enter terminal location description
<LINE> One text line describing the terminal's location
Default:
None
Usage Guide:
To configure description of location.
Example:
To configure description (**taiwan**) of location.

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# location taiwan
```

motd-banner

Command:

```
motd-banner
```

motd-banner Enable the display of the MOTD banner

Default:
Enabled
Usage Guide:
To enable MOTD banner.

Example:

To enable MOTD banner..

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# motd-banner
```

no

Command:

```
no
```

no Negate a command or set its defaults

Default:

N/A

Usage Guide:

To default the function

Example:

To disable the function (**motd-banner**) for **vty 1**

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# no motd-banner
```

privilege level

Command:

```
privilege level <0-15>
```

privilege Change privilege level for line
level Assign default privilege level for line
<0-15> Default privilege level for line

Default:

15

Usage Guide:

To configure privilege level

Example:

To configure privilege level (5) for **vty 1.**

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# privilege level 5
```

width

Command:

```
width <0 or 40-512>
```

width Set width of the display terminal
<0 or 40-512> Number of characters on a screen line (0 for unlimited width)

Default:

0

Usage Guide:

To configure width of the display terminal.

Example:

To configure width (50) of the display terminal for **vty 1.**

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# width 50
```

lldp holdtime

Command:

```
lldp holdtime <2-10>
```

lldp LLDP configurations.
holdtime Sets LLDP hold time (The neighbor switch will discarded the LLDP information after "hold time" multiplied with "timer" seconds).
<2-10> 2-10 seconds

Default:

4

Usage Guide:

To enable **LLDP hold time**

Example:

To enable **LLDP hold time** (5)

```
Switch# configure terminal
Switch (config)# lldp holdtime 5
```

lldp med datum

Command:

```
lldp med datum nad83-mllw | nad83-navd88 | wgs84
```

lldp LLDP configurations.
med Media Endpoint Discovery
datum Datum (geodetic system) type
nad83-mllw Mean lower low water datum 1983
nad83-navd88 North American vertical datum 1983
wgs84 World Geodetic System 1984

Default:

WGS84

Usage Guide:

To configure **Datum type** of **LLDP**

Example:

To configure **Datum type (nad83-mllw)** of **LLDP**

```
Switch# configure terminal
Switch (config)# lldp med datum nad83-mllw
```

lldp med fast

Command:

```
lldp med fast <1-10>
```

lldp LLDP configurations.
med Media Endpoint Discovery
fast Number of times to repeat LLDP frame transmission at fast start.

Default:
4
Usage Guide:
To configure **frame transmission time** of **LLDP**
Example:
To configure **frame transmission time** (6) of **LLDP**

```
Switch# configure terminal
Switch (config)# lldp med fast 6
```

lldp med location-tlv altitude

Command:

```
lldp med location-tlv altitude [floors <Meters or floors>] |
[meters <Meters or floors>]
```

lldp LLDP configurations.
med Media Endpoint Discovery
location-tlv LLDP-MED Location Type Length Value parameter
altitude Altitude parameter
floors Specify the altitude in floor.
<Meters or floors> Altitude value.
meters Specify the altitude in meters.

Default:
0
Usage Guide:
To configure **altitude** of **LLDP-MED**
Example:
To configure **altitude (Floors 5)** of **LLDP-MED**

```
Switch# configure terminal
Switch (config)# lldp med location-tlv altitude floors 5
```

lldp med location-tlv elin-addr

Command:

```
lldp med location-tlv elin-addr <ELIN number>
```

lldp LLDP configurations.
med Media Endpoint Discovery
location-tlv LLDP-MED Location Type Length Value parameter
elin-addr Emergency Location Identification Number, (e.g. E911 and others), such as defined by TIA or NENA.
<ELIN number> ELIN value

Default:
0
Usage Guide:
To configure **Emergency Location Identification Number** of **LLDP-MED**
Example:
To configure **Emergency Location Identification Number (911)** of **LLDP-MED**

```
Switch# configure terminal
Switch (config)# lldp med location-tlv elin-addr 911
```

lldp med location-tlv latitude

Command:

```
lldp med location-tlv latitude north <Degrees> | south
<Degrees>
```

lldp LLDP configurations.
med Media Endpoint Discovery
location-tlv LLDP-MED Location Type Length Value parameter
latitude Latitude parameter
north Setting latitude direction to north.
south Setting latitude direction to south
<Degrees> Latitude degrees (0.0000-90.0000)

Default:
North, 0
Usage Guide:
To configure **latitude direction** of **LLDP-MED**
Example:
To configure **latitude direction** (south, 5) of **LLDP-MED**

```
Switch# configure terminal
Switch (config)# lldp med location-tlv latitude south 5
```

lldp med location-tlv longitude

Command:

```
lldp med location-tlv longitude east <Degrees> | west
<Degrees>
```

lldp LLDP configurations.
med Media Endpoint Discovery
location-tlv LLDP-MED Location Type Length Value parameter

longitude Longitude parameter
east Setting longitude direction to east.
west Setting longitude direction to west.
<Degrees> Longitude degrees (0.0000-180.0000)

Default:
North, 0

Usage Guide:
To configure **longitude direction** of **LLDP-MED**

Example:
To configure **longitude direction** (east, 5) of **LLDP-MED**

```
Switch# configure terminal
Switch (config)# lldp med location-tlv longitude east 5
```

lldp med media-vlan-policy

Command:

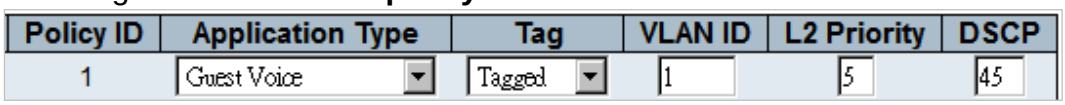
```
lldp med media-vlan-policy <Index : 0-31> {guest-voice |
guest-voice-signaling  softphone-voice | streaming-video |
video-conferencing | video-signaling | voice | voice-signaling}
{tagged | untagged} <vlan_id> dscp <0-63> l2-priority <0-7>
```

lldp LLDP configurations.
med Media Endpoint Discovery
media-vlan-policy Use the media-vlan-policy to create a policy, which can be assigned to an interface.
<Index : 0-31> Policy id for the policy which is created.
guest-voice Create a guest voice policy.
guest-voice-signaling Create a guest voice signaling policy.
softphone-voice Create a softphone voice policy.
streaming-video Create a streaming video policy.
video-conferencing Create a video conferencing policy.
video-signaling Create a video signaling policy.
voice Create a voice policy.
voice-signaling Create a voice signaling policy.
tagged The policy uses tagged frames.
untagged The policy uses un-tagged frames.
<vlan_id> The VLAN the policy uses tagged frames.
dscp Differentiated Services Code Point.
<0-63> DSCP value 0-63
l2-priority Layer 2 priority.
<0-7> Priority 0-7

Default:
0

Usage Guide:
To configure **media-VLAN-policy** of **LLDP-MED**

Example:
To configure **media-VLAN-policy** as below table of **LLDP-MED**



```
Switch# configure terminal
Switch (config)# lldp med media-vlan-policy 1 guest-voice
tagged 1 dscp 45 l2-priority 5
```

lldp reinit

Command:

```
lldp reinit <1-10>
```

lldp LLDP configurations.
reinit LLDP tx reinitialization delay in seconds
<1-10> 1-10 seconds.

Default:
2

Usage Guide:
To configure **Tx re-initialization delay time** of **LLDP**

Example:
To configure **Tx re-initialization delay time** (5) of **LLDP**

```
Switch# configure terminal
Switch (config)# lldp reinit 5
```

lldp timer

Command:

```
lldp timer <5-32768>
```

lldp LLDP configurations.
timer Sets LLDP TX interval (The time between each LLDP frame transmitted in seconds)
<5-32768> 5-32768 seconds.

Default:
30

Usage Guide:
To configure **Tx interval time** of **LLDP**

Example:
To configure **Tx interval time** (555) of **LLDP**

```
Switch# configure terminal
Switch (config)# lldp timer 555
```

lldp transmission-delay

Command:

```
lldp transmission-delay <1-8192>
```

lldp LLDP configurations.
transmission-delay Sets LLDP transmision-delay. LLDP transmission delay (the amount of time that the transmission of LLDP frames will delayed after LLDP configuration has changed) in seconds.)
<1-8192> 1-8192 seconds.

Default:
2
Usage Guide:
To configure **Tx transmission-delay time** of **LLDP**
Example:
To configure **Tx transmission-delay time** (88) of **LLDP**

```
Switch# configure terminal
Switch (config)# lldp transmission-delay 88
```

logging host

Command:

```
logging host <hostname> | <ipv4_ucast>
```

logging Syslog
host host
<hostname> Domain name of the log server
<ipv4_ucast> IP address of the log server

Default:
0
Usage Guide:
To configure address of **log server**
Example:
To configure address of **log server**

```
Switch# configure terminal
Switch (config)# logging host 192.168.5.5
```

logging level

Command:

```
logging level error | info | warning
```

logging Syslog
level level
error Error
info Information
warning Warning

Default:
Info

Usage Guide:
To configure level of **log server**
Example:
To configure level of **log server**

```
Switch# configure terminal
Switch (config)# logging level error
```

logging on

Command:

```
logging on
```

logging Syslog
on Enable syslog server

Default:
Disabled
Usage Guide:
To enable **log server**
Example:
To enable **log server**

```
Switch# configure terminal
Switch (config)# logging on
```

loop-protect

Command:

```
loop-protect
```

loop-protect Loop protection configuration

Default:
Disabled
Usage Guide:
To enable **Loop Protection**
Example:
To enable **Loop Protection**

```
Switch# configure terminal
Switch (config)# loop-protect
```

loop-protect shutdown-time

Command:

```
loop-protect shutdown-time <0-604800>
```

loop-protect Loop protection configuration
shutdown-time Loop protection shutdown time interval

<0-604800> Shutdown time in second

Default:
180
Usage Guide:
To configure **shutdown time interval** of **Loop Protection**
Example:
To configure **shutdown time interval** (888) of **Loop Protection**

```
Switch# configure terminal
Switch (config)# loop-protect shutdown-time 888
```

loop-protect transmit-time

Command:

```
loop-protect transmit-time <0-10>
```

loop-protect Loop protection configuration
transmit-time Loop protection transmit time interval
<1-10> Transmit time in second

Default:
5
Usage Guide:
To configure **Transmission Time** of **Loop Protection**
Example:
To configure **Transmission Time** (8) of **Loop Protection**

```
Switch# configure terminal
Switch (config)# loop-protect transmit-time 8
```

mac address-table aging-time

Command:

```
mac address-table aging-time <0,10-1000000>
```

mac MAC table entries/configuration
address-table MAC table entries/configuration
<0,10-1000000> Aging time in seconds, 0 disables aging

Default:
300
Usage Guide:
To configure **Aging Time** of **MAC Address Table**
Example:
To configure **Aging Time** (888) of **MAC Address Table**

```
Switch# configure terminal
Switch (config)# mac address-table aging-time 888
```

mac address-table static

Command:

```
mac address-table static <mac_addr> vlan <vlan_id>
interface * | 10GigabitEthernet <port_type_list> |
GigabitEthernet <port_type_list>
```

mac MAC table entries/configuration
address-table MAC table entries/configuration
static Static MAC address
<mac_addr> 48 bit MAC address: xx:xx:xx:xx:xx:xx
vlan VLAN keyword
<vlan_id> VLAN IDs 1-4095
interface Select an interface to configure
***** All switches or All ports
GigabitEthernet 1 Gigabit Ethernet Port
10GigabitEthernet 10 Gigabit Ethernet Port

Default:

300

Usage Guide:

To configure **Static MAC Address Table**

Example:

To configure **Static MAC Address Table** as below table

		Port Members																										
VLAN ID	MAC Address	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	00-11-22-33-44-55	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

```
Switch# configure terminal
Switch (config)# mac address-table static 00:11:22:33:44:55
vlan 1 interface GigabitEthernet 1/1
```

mep <Instance> ais

Command:

```
mep <Instance> ais [ fr1m | fr1s ] [ protect ]
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
ais Alarm Indication Signal
fr1m Frame rate is 1 f/min.
fr1s Frame rate is 1 f/s**.**
protect The AIS can be used for protection. At the point of state change three AIS PDU is transmitted as fast as possible.

Default:

None

Usage Guide:

To configure **AIS** of **MEP**

Example:

To configure **AIS** of **MEP 1** as below table

```
Switch# configure terminal
Switch (config)# mep 1 ais fr1s
```

mep <Instance> aps

Command:

```
mep <Instance> aps <prio> [ multi | uni ] { laps | { raps [ octet
<octet> ] } }
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
aps Automatic Protection Switching protocol
laps Linear Automatic Protection Switching protocol.
multi OAM PDU is transmitted with multicast MAC. Must me '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.
raps Ring Automatic Protection Switching protocol.
octet Then last OCTET in the multicast MAC. Only possible in case of RAPS.
<Octet : uint> Last OCTET value
uni OAM PDU is transmitted with unicast MAC. The MAC is taken from peer MEP MAC database. Only possible in case of LAPS.

Default:

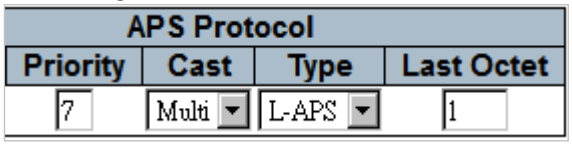
None

Usage Guide:

To configure **APS** of **MEP**

Example:

To configure **APS** of **MEP 1** as below table




```
Switch# configure terminal
Switch (config)# mep 1 aps 7 laps
```

mep <Instance> cc

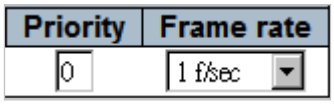
Command:

```
mep <Instance> cc <Prio : 0-7> fr100s | fr10s | fr1m | fr1s |
fr300s | fr6h | fr6m
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
cc Continuity Check
<Prio : 0-7> Priority in case of tagged OAM. In the EVC domain this is the COS-ID.

fr100s Frame rate is 100 f/s.
fr10s Frame rate is 10 f/s.
fr1m Frame rate is 1 f/min.
fr1s Frame rate is 1 f/s.
fr300s Frame rate is 300 f/s.
fr6h Frame rate is 6 f/hour.
fr6m Frame rate is 6 f/min.

Default:

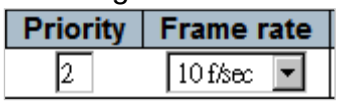


Usage Guide:

To configure **CC** of **MEP**

Example:

To configure **CC** of **MEP 1** as below table




```
Switch# configure terminal
Switch (config)# mep 1 cc 2 fr10s
```

mep <Instance> client domain

Command:

```
mep <Instance> client domain { evc | vlan }
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
client Transport layer Client
evc EVC Domain.
vlan Vlan Domain

Default:

EVC

Usage Guide:

To configure **Client Domain** of **MEP**

Example:

To configure **Client Domain** (EVC) of **MEP 1**

```
Switch# configure terminal
Switch (config)# mep 1 client domain evc
```

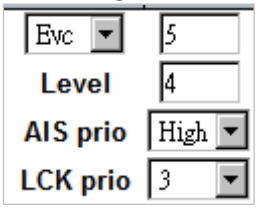
mep <Instance> client flow

Command:

```
mep <Instance> client flow <cflow> level <level> [ ais-prio
[ <aisprio> | ais-highest ] ] [ lck-prio [ <lckprio> | lck-
highest ] ]
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
level The MEG level on the client layer
<Level : 0-7> The MEG level value
ais-prio AIS injection priority
<Aisprio : 0-7> AIS injection priority value
ais-highest Request the highest possible AIS priority
lck-prio LCK injection priority
<Lckprio : 0-7> LCK injection priority value.
lck-highest Request the highest possible LCK priority.

Default:
0
Usage Guide:
To configure **Client Flow** of **MEP**
Example:
To configure **Client Flow** of **MEP 1** as below table**.**




```
Switch# configure terminal
Switch (config)# mep 1 client flow 5 level 4 ais-prio ais-highest
lck-prio 3
```

mep <Instance> dm

Command:

```
mep <Instance> dm <prio> [ multi | { uni mep-id <mepid> } ]
[ single | dual ] [ rdtrp | flow ] interval <interval> last-n <lastn>
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
dm Delay Measurement
<Prio : 0-7> Priority in case of tagged OAM. In the EVC domain this is the COS-ID
dual Delay Measurement based on 1DM PDU transmission.
flow The two way delay is calculated as round trip symmetrical flow delay. The far end residence time is subtracted.
interval Interval between PDU transmission in 10ms. Min value is 10.
<Interval : uint> Interval value
multi OAM PDU is transmitted with multicast MAC.
rdtrp The two way delay is calculated as round trip delay. The far end residence time is not subtracted.
single Delay Measurement based on DMM/DMR PDU.
uni OAM PDU is transmitted with unicast MAC. The MAC is taken from peer MEP MAC database.
mep-id Peer MEP-ID for unicast DM. The MAC is taken from peer MEP MAC database.

<Mepid : uint> Peer MEP-ID value
last-n The last N dalays used for average last N calculation. Min value is 10.
<Lastn : uint> The last N value

Default:
0
Usage Guide:
To configure **Delay Measurement** of **MEP**
Example:
To configure **Delay Measurement** of **MEP 1** as below table**.**

Priority	Cast	Peer MEP	Way	Tx Mode	Calc	Gap	Count
5	Multi	0	Two-way	Standardize	Round trip	10	10

```
Switch# configure terminal
Switch (config)# mep 1 dm 5 rdtrp interval 10 last-n 10
```

mep <Instance> dm ns

Command:

```
mep <Instance> dm ns
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
dm Delay Measurement
ns Nano Seconds

Default:
us
Usage Guide:
To configure **Delay Measurement** of **MEP**
Example:
To configure **Delay Measurement unit (ns)** of **MEP 1** as below table**.**

Priority	Cast	Peer MEP	Way	Tx Mode	Calc	Gap	Count
5	Multi	0	Two-way	Standardize	Round trip	10	10

```
Switch# configure terminal
Switch (config)# mep 1 dm ns
```

mep <Instance> dm overflow-reset

Command:

```
mep <Instance> dm overflow-reset
```

mep Maintenance Entity Point
<Instance> The MEP instance number.

dm Delay Measurement
overflow-reset Reset all Delay Measurement results on total delay counter overflow.

Default:
Keep
Usage Guide:
To reset **Delay Measurement** of **MEP** while overflowing
Example:
To reset **Delay Measurement** of **MEP 1** while overflowing

```
Switch# configure terminal
Switch (config)# mep 1 dm overflow-reset
```

mep <Instance> dm proprietary

Command:

```
mep <Instance> dm proprietary
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
dm Delay Measurement
proprietary Proprietary Delay Measurement

Default:
Standard
Usage Guide:
To configure **Tx mode (proprietary)** of **MEP**.
Example:
To configure **Tx mode (proprietary)** of **MEP 1**

```
Switch# configure terminal
Switch (config)# mep 1 dm proprietary
```

mep <Instance> dm syncronized

Command:

```
mep <Instance> dm syncronized
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
dm Delay Measurement
syncronized Near enad and far end is real time syncronized.
Default:
Enabled
Usage Guide:
To configure **Time Sync** of **MEP**.
Example:
To configure **Time Sync** of **MEP 1**

```
Switch# configure terminal
Switch (config)# mep 1 dm syncronized
```

mep <Instance> down

Command:

```
mep <Instance> [ mip ] down domain { port | evc | vlan } [ vid
<vid> ] flow <flow> level <level> interface <port_type> <port>
```

mep Maintenance Entity Point
mip This MEP instance is a half-MIP
<Instance> The MEP instance number.
down This MEP is a Down-MEP
domain The domain of the MEP
evc This MEP is a EVC domain MEP.
port This MEP is a Port domain MEP.
vlan This MEP is a VLAN domain MEP.
flow The flow instance that the MEP is related to.
<flow > The flow instance number when not in the port domain.
vid In case the MEP is a port Up-MEP or a EVC customer MIP the VID must be given.
<Vid : vlan_id> The port Domain MEP VID. This is required for a Port Up-MEP.

Default:

None

Usage Guide:

To configure **Down-MEP** of **MEP**.

Example:

To configure **Down-MEP** of **MEP 1** as below table

Instance	Domain	Mode	Direction	Residence Port	Level	Flow Instance	Tagged VID
1	Port	Mep	Down	1	0	1	0

```
Switch# configure terminal
Switch (config)# mep 1 down domain port flow 1 level 0
interface GigabitEthernet 1/1
```

mep <Instance> lb

Command:

```
mep <Instance> lb <prio> [ dei ] [ multi | { uni { { mep-id
<mepid> } | { mac <mac> } } } ] count <count> size <size>
interval <interval>
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
lb Loop Back
<Prio : 0-7> Priority in case of tagged OAM. In the EVC domain this is the COS-ID.
count The number of LBM PDU to send in one loop test. The value 0 indicate

infinite transmission (test behavior). This is HW based LBM/LBR and Requires VOE.

<Count : uint> Number of LBM PDU to send value

size The number of bytes in the LBM PDU Data Pattern TLV

<size> The LBM frame size. This is entered as the wanted size (in bytes) of a un-tagged frame containing LBM OAM PDU - including CRC (four bytes). Example when 'Size' = 64 => Un-tagged frame size = DMAC(6) + SMAC(6) + TYPE(2) + LBM PDU LENGTH(46) + CRC(4) = 64

interval The number of bytes in the LBM PDU Data Pattern TLV

<interval> The interval between transmitting LBM PDU. in case 'count' != 0 this is in 10ms and max is 100. In case 'count' == 0 this is in 1us and max is 10.000.

dei Drop Eligible Indicator in case of tagged OAM**.**

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.

mac Loop Back unicast MAC to be used in case of LB against MIP.

<Mac : mac_addr> Loop Back target unicast MAC value

mep-id Peer MEP-ID for unicast LB. The MAC is taken from peer MEP MAC database.

<Mepid : uint> Peer MEP-ID value

Default:

None

Usage Guide:

To configure **Loop Back** of **MEP**.

Example:

To configure **Loop Back** of **MEP 2** as below table

Dei	Priority	Cast	Peer MEP	Unicast MAC	To Send	Size	Interval
☑	1	Multi	1	00-00-00-00-00-00	10	64	100

```
Switch# configure terminal
Switch (config)# mep 2 lb 1 dei count 10 size 64 interval 100
```

mep <Instance> lck

Command:

```
mep <Instance> lck fr1m | fr1s
```

mep Maintenance Entity Point

<Instance> The MEP instance number.

lck Locked Signal

fr1m Frame rate is 1 f/min.

fr1s Frame rate is 1 f/s.

Default:

1 frame/sec

Usage Guide:

To configure **Locked Frame Rate** of **MEP**.

Example:

To configure **Locked Frame Rate (**1 frame/sec**)** of **MEP 2**.

```
Switch# configure terminal
Switch (config)# mep 2 lck
Switch (config)# mep 2 lck fr1s
```

mep <Instance> level

Command:

```
mep <Instance> level <Level : 0-7>
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
level The MEG level of the MEP
<Level : 0-7> The MEG level value

Default:

0

Usage Guide:

To configure **MEG level** of **MEP**.

Example:

To configure **MEG level (**2**)** of **MEP 2**.

```
Switch# configure terminal
Switch (config)# mep 2 level 2
```

mep <Instance> lm

Command:

```
mep <Instance> lm <prio> [ multi | uni ] [ single | dual ] [ fr10s
| fr1s | fr6m | fr1m | fr6h ] [ flr <flr> ]
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
lm Loss Measurement
<Prio : 0-7> Priority in case of tagged OAM. In the EVC domain this is the COS-ID.
fr10s Frame rate is 10 f/s.
fr1m Frame rate is 1 f/min.
fr1s Frame rate is 1 f/s.
fr6h Frame rate is 6 f/hour.
fr6m Frame rate is 6 f/min.
dual Dual ended LM is based on CCM PDU.
single Single ended LM is based on LMM/LMR PDU.
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 LM there is only one peer MEP.
flr The Frame Loss Ratio interval.
<Flr : uint> The Frame Loss Ratio interval value.

Default:

Priority	Frame rate	Cast	Ended	FLR Interval
0	1 f/sec	Multi	Single	5

Usage Guide:

To configure **Loss Measurement** of **MEP**.

Example:

To configure **Loss Measurement** of **MEP 2** as below table

Priority	Frame rate	Cast	Ended	FLR Interval
5	1 f/sec	Uni	Single	4

```
Switch# configure terminal
Switch (config)# mep 2 lm 5 uni flr 4
```

mep <Instance> lt

Command:

```
mep <Instance> lt <prio> { { mep-id <mepid> } | { mac
<mac> } } ttl <ttl>
```

mep Maintenance Entity Point

<Instance> The MEP instance number.

lt Link Trace

<Prio : 0-7> Priority in case of tagged OAM. In the EVC domain this is the COS-ID.

mac Link Trace target unicast MAC to be used in case of LT against MIP.

<Mac : mac_addr> Link Trace target unicast MAC value.

mep-id Peer MEP-ID for Link Trace target unicast MAC. The MAC is taken from peer MEP MAC database.

<Mepid : uint> Peer MEP-ID value.

ttl Time To Live.

<Ttl : uint> Time To Live value

Default:

Priority	Peer MEP	Unicast MAC	Time To Live
0	1	00-00-00-00-00-00	1

Usage Guide:

To configure **Link Trace** of **MEP**.

Example:

To configure **Link Trace** of **MEP 1** as below table

Priority	Peer MEP	Unicast MAC	Time To Live
4	0	11-3A-15-A3-53-44	5

```
Switch# configure terminal
Switch (config)# mep 1 lt 4 mac 11-3A-15-A3-53-44
```

mep <Instance> meg-id

Command:

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

mep Maintenance Entity Point
<Instance> The MEP instance number.
meg-id The ITU/IEEE MEG-ID
<Megid : word> 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..
ieee The MEG-ID (Short MA Name) has IEEE Character String format. The meg-id 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
name Only relevant for IEEE. The MAID is with Maintenance Domain Name
<Name : word> Maintenance Domain Name string. The max is 16 characters

Default:

Format	Domain Name	MEG id	MEP id
ITU ICC		ICC000MEG0000	1

Usage Guide:
To configure **MEG-ID** of **MEP**.
Example:
To configure **MEG-ID** of **MEP 1** as below table

Format	Domain Name	MEG id	MEP id
IEEE String	planet.com	ICC000MEG0000	1

Switch# configure terminal
Switch (config)# **mep 1 meg-id ICC000MEG0000 ieee name interlogix.com**

mep <Instance> mep-id

Command:

mep <Instance> mep-id <mepid>

mep Maintenance Entity Point
<Instance> The MEP instance number.
mep-id The MEP-ID
<Mepid : uint> The MEP-ID value.

Default:
None
Usage Guide:
To configure **MEP-ID** of **MEP**.
Example:
To configure **MEP-ID** (5) of **MEP 1**.

```
Switch# configure terminal
Switch (config)# mep 1 mep-id 5
```

mep <Instance> peer-mep-id

Command:

```
mep <Instance> peer-mep-id <mepid> [ mac <mac> ]
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
peer-mep-id The peer MEP-ID
<Mepid : uint> The peer MEP-ID value
mac The peer MAC. this will be overwritten by any learned MAC – through CCM reception.
<Mac : mac_addr> The peer MAC string

Default:
None
Usage Guide:
To configure **Peer MEP-ID** of **MEP**.
Example:
To configure **Peer MEP-ID** of **MEP 1** as below table

Peer MEP ID	Unicast Peer MAC
0	11-3A-05-A1-53-11

```
Switch# configure terminal
Switch (config)# mep 1 peer-mep-id 0 mac 11-3A-05-A1-53-11
```

mep <Instance> performance-monitoring

Command:

```
mep <Instance> performance-monitoring
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
performance-monitoring Performance monitoring Data Set collection (MEF35)

Default:
Disabled
Usage Guide:
To enable **Performance Monitoring** of **MEP**.
Example:
To enable **Performance Monitoring** of **MEP 1**

```
Switch# configure terminal
Switch (config)# mep 1 performance-monitoring
```

mep <Instance> tst

Command:

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

mep Maintenance Entity Point
<Instance> The MEP instance number.
tst Test Signal
<Prio : 0-7> Priority in case of tagged OAM. In the EVC domain this is the COS-ID.
dei Drop Eligible Indicator in case of tagged OAM.
mep-id Peer MEP-ID for unicast TST. The MAC is taken from peer MEP MAC database.
<Mepid : uint> Peer MEP-ID value
sequence Enable sequence number in TST PDU
all-one Test pattern is set to all one.
all-zero Test pattern is set to all zero.
one-zero Test pattern is set to 10101010.
rate The TST frame transmission bit rate - in Mega bits pr. second. Limit on Caracal is 400 Mbps. Limit on Serval is 1Gbps. This is the bit rate of a standard frame without any encapsulation. If 1 Mbps rate is selected in a EVC MEP, the added tag will give a hi
<Rate : uint> Transmission rate value
size The TST frame size. This is entered as the wanted size (in bytes) of a un-tagged frame containing TST OAM PDU - including CRC (four bytes). Example when 'Size' = 64 => Un-tagged frame size = DMAC(6) + SMAC(6) + TYPE(2) + TST PDU LENGTH(46) + CRC(4) = 64
<Size : uint> Frame size value

Default:

Dei	Priority	Peer MEP	Rate	Size	Pattern	Sequence Number
☐	0	1	1	64	All Zero	☐

Usage Guide:

To enable **Test Signal** of **MEP**.

Example:

To enable **Test Signal** of **MEP 1** as below table

Dei	Priority	Peer MEP	Rate	Size	Pattern	Sequence Number
☑	3	2	10	68	10101010	☑

Switch# configure terminal
Switch (config)# **mep 1 tst 3 dei mep-id 2 sequence one-zero rate 10 size 68**

mep <Instance> up

Command:

mep <Instance> [mip] up domain { port | evc | vlan } [vid <vid>] flow <flow> level <level> interface <port_type> <port>

mep Maintenance Entity Point

<Instance> The MEP instance number.
mip This MEP instance is a half-MIP
up This MEP is a Up-MEP
domain The domain of the MEP
evc This MEP is a EVC domain MEP.
port This MEP is a Port domain MEP.
vlan This MEP is a VLAN domain MEP.
flow The flow instance that the MEP is related to.
<flow > The flow instance number when not in the port domain.
vid In case the MEP is a port Up-MEP or a EVC customer MIP the VID must be given.
<Vid : vlan_id> The port Domain MEP VID. This is required for a Port Up-MEP.

Default:
None
Usage Guide:
To configure **Up-MEP** of **MEP**.
Example:
To configure **Up-MEP** of **MEP 2** as below table

Instance	Domain	Mode	Direction	Residence Port	Level	Flow Instance	Tagged VID
2	Port	Mep	Up	1	2	1	1

```
Switch# configure terminal
Switch (config)# mep 2 up domain port vid 1 flow 1 level 2
interface GigabitEthernet 1/1
```

mep <Instance> vid

Command:

```
mep <Instance> vid <vid>
```

mep Maintenance Entity Point
<Instance> The MEP instance number.
vid The MEP VID
<Vid : vlan_id> The MEP VID value

Default:
0
Usage Guide:
To set **VID** of **MEP**.
Example:
To set **VID** (8) of **MEP 1**.

```
Switch# configure terminal
Switch (config)# mep 1 vid 8
```

mvr

Command:

```
mvr
```

mvr Multicast VLAN Registration configuration

Default:

Disabled

Usage Guide:

To enable **MVR**

Example:

To enable **MVR**

```
Switch# configure terminal
Switch (config)# mvr
```

mvr name <mvr_name> channel

Command:

```
mvr name <mvr_name> channel <ProfileName : word16>
```

mvr Multicast VLAN Registration configuration
name MVR multicast name
<MvrName : word16> MVR multicast VLAN name
channel MVR channel configuration
<ProfileName : word16> Profile name

Default:

None

Usage Guide:

To configure **channel interface** of **MVR profile**

Example:

To configure **channel interface (1)** of **MVR profile (123)**

```
Switch# configure terminal
Switch (config)# mvr name 123 channel 1
```

mvr name <mvr_name> frame priority

Command:

```
mvr name <mvr_name> frame priority <CosPriority : 0-7>
```

mvr Multicast VLAN Registration configuration
name MVR multicast name
<MvrName : word16> MVR multicast VLAN name
frame MVR control frame in TX
priority Interface CoS priority
<CosPriority : 0-7> CoS priority ranges from 0 to 7

Default:

0

Usage Guide:

To configure **frame priority** of **MVR profile**

Example:

To configure **frame priority (5)** of **MVR profile (123)**

```
Switch# configure terminal
Switch (config)# mvr name 123 frame priority 5
```

mvr name <mvr_name> frame tagged

Command:

```
mvr name <mvr_name> frame tagged
```

mvr Multicast VLAN Registration configuration
name MVR multicast name
<MvrName : word16> MVR multicast VLAN name
frame MVR control frame in TX
tagged Tagged IGMP/MLD frames will be sent

Default:

None

Usage Guide:

To configure **frame tagged** of **MVR profile**

Example:

To configure **frame tagged (frame tagged)** of **MVR profile (123)**

```
Switch# configure terminal
Switch (config)# mvr name 123 frame tagged
```

mvr name <mvr_name> igmp-address

Command:

```
mvr name <mvr_name> igmp-address <ipv4_ucast>
```

mvr Multicast VLAN Registration configuration
name MVR multicast name
<MvrName : word16> MVR multicast VLAN name
igmp-address MVR address configuration used in IGMP
<ipv4_ucast> A valid IPv4 unicast address

Default:

0.0.0.0

Usage Guide:

To configure the **MVR address** of **MVR profile**

Example:

To configure the **MVR address (192.168.0.55)** of **MVR profile (123)**

```
Switch# configure terminal
Switch (config)# mvr name 123 igmp-address 192.168.0.55
```

mvr name <mvr_name> last-member-query-interval

Command:

```
mvr name <mvr_name> last-member-query-interval
<lpmcLmqi : 0-31744>
```

mvr Multicast VLAN Registration configuration
name MVR multicast name
<MvrName : word16> MVR multicast VLAN name
last-member-query-interval Last Member Query Interval in tenths of seconds
<lpmcLmqi : 0-31744> 0 - 31744 tenths of seconds

Default:
5
Usage Guide:
To configure the **Last Member Query Interval** of **MVR profile**
Example:
To configure the **Last Member Query Interval (50 seconds)** of **MVR profile (123)**

```
Switch# configure terminal
Switch (config)# mvr name 123 last-member-query-interval 500
```

mvr name <mvr_name> mode

Command:

```
mvr name <mvr_name> mode { compatible | dynamic }
```

mvr Multicast VLAN Registration configuration
name MVR multicast name
<MvrName : word16> MVR multicast VLAN name
mode MVR mode of operation
compatible Compatible MVR operation mode
dynamic Dynamic MVR operation mode

Default:
Dynamic
Usage Guide:
To configure the **mode** of **MVR profile**
Example:
To configure the **mode (compatible)** of **MVR profile (123)**

```
Switch# configure terminal
Switch (config)# mvr name 123 mode compatible
```

mvr vlan <vlan_list>

Command:

```
mvr vlan <vlan_list>
```

mvr Multicast VLAN Registration configuration
vlan MVR multicast vlan
<vlan_list> MVR multicast VLAN list

Default:

None

Usage Guide:

To create a profile of **MVR VLAN**

Example:

To create a profile of **MVR VLAN** (5)

```
Switch# configure terminal
Switch (config)# mvr vlan 5
```

mvr vlan <vlan_list> channel

Command:

```
mvr vlan <vlan_list> channel <ProfileName : word16>
```

mvr Multicast VLAN Registration configuration
vlan MVR multicast vlan
<vlan_list> MVR multicast VLAN list
channel MVR channel configuration
<ProfileName : word16> Profile name

Default:

0

Usage Guide:

To configure the **channel** of **MVR profile**

Example:

To configure the **channel (1)** of **MVR VLAN (5)**

```
Switch# configure terminal
Switch (config)# mvr vlan 5 channel 1
```

mvr vlan <vlan_list> frame priority

Command:

```
mvr vlan <vlan_list> frame priority <CosPriority : 0-7>
```

mvr Multicast VLAN Registration configuration
vlan MVR multicast vlan
<vlan_list> MVR multicast VLAN list
frame MVR control frame in TX
priority Interface CoS priority
<CosPriority : 0-7> CoS priority ranges from 0 to 7

Default:

0

Usage Guide:

To configure the **frame priority** of **MVR VLAN**

Example:

To configure the **frame priority (5)** of **MVR VLAN (123)**

```
Switch# configure terminal
Switch (config)# mvr vlan 123 frame priority 5
```

mvr vlan <vlan_list> tagged

Command:

```
mvr vlan <vlan_list> tagged
```

mvr Multicast VLAN Registration configuration
vlan MVR multicast vlan
<vlan_list> MVR multicast VLAN list
tagged Tagged IGMP/MLD frames will be sent

Default:
Enabled
Usage Guide:
To enable the **IGMP/MLD frame tagged** of **MVR VLAN**
Example:
To enable the **IGMP/MLD frame tagged** of **MVR VLAN (123)**

```
Switch# configure terminal
Switch (config)# mvr vlan 123 tagged
```

mvr vlan <vlan_list> igmp-address

Command:

```
mvr vlan <vlan_list> igmp-address <ipv4_ucast>
```

mvr Multicast VLAN Registration configuration
vlan MVR multicast vlan
<vlan_list> MVR multicast VLAN list
igmp-address MVR address configuration used in IGMP
<ipv4_ucast> A valid IPv4 unicast address

Default:
0.0.0.0
Usage Guide:
To configure the **MVR address** of **MVR VLAN**
Example:
To configure the **MVR address (192.168.0.55)** of of **MVR VLAN (123)**

```
Switch# configure terminal
Switch (config)# mvr vlan 123 igmp-address 192.168.0.55
```

mvr vlan <vlan_list> last-member-query-interval

Command:

mvr vlan <vlan_list> last-member-query-interval <IpmcLmqi : 0-31744>

mvr Multicast VLAN Registration configuration
vlan MVR multicast vlan
<vlan_list> MVR multicast VLAN list
last-member-query-interval Last Member Query Interval in tenths of seconds
<IpmcLmqi : 0-31744> 0 - 31744 tenths of seconds

Default:

5

Usage Guide:

To configure the **Last Member Query Interval** of **MVR VLAN**

Example:

To configure the **Last Member Query Interval (50 seconds)** of **MVR VLAN (123)**

Switch# configure terminal Switch (config)# **mvr vlan 123 last-member-query-interval 500**

mvr vlan <vlan_list> mode

Command:

mvr vlan <vlan_list> mode [compatible | dynamic]

mvr Multicast VLAN Registration configuration
vlan MVR multicast vlan
<vlan_list> MVR multicast VLAN list
mode MVR mode of operation
compatible Compatible MVR operation mode
dynamic Dynamic MVR operation mode

Default:

Dynamic

Usage Guide:

To configure the **mode** of **MVR VLAN**

Example:

To configure the **mode (compatible)** of **MVR VLAN (123)**

Switch# configure terminal Switch (config)# **mvr vlan 123 mode compatible**

mvr vlan <vlan_list> name

Command:

mvr vlan <vlan_list> name

mvr Multicast VLAN Registration configuration
vlan MVR multicast vlan

<vlan_list> MVR multicast VLAN list
name MVR multicast name

Default:
None
Usage Guide:
To configure profile name of **MVR VLAN**
Example:
To configure profile name (6) of **MVR VLAN** (5)

```
Switch# configure terminal
Switch (config)# mvr vlan 5 name 6
```

no

Command:

```
no
```

no Negate a command or set its defaults

Default:
N/A
Usage Guide:
To default the function
Example:
To disable the function (**loop-protect**)

```
Switch# configure terminal
Switch (config)# no loop-protect
```

ntp

Command:

```
ntp
```

ntp Configure NTP

Default:
Disabled
Usage Guide:
To enable the NTP service
Example:
To enable the NTP service

```
Switch# configure terminal
Switch (config)# ntp
```

ntp server

Command:

```
ntp server <1-5> ip-address { <ipv4_var> | <ipv6_var> |
<name_var> }
```

ntp Configure NTP
server Configure NTP server
<1-5> index number
<hostname> domain name
<ipv4_ucast> ipv4 address
<ipv6_ucast> ipv6 address

Default:
None
Usage Guide:
To configure the **IP addresses** of **NTP Server**
Example:
To configure the **IP address** (9.9.9.9) of **NTP Server** for index 1

```
Switch# configure terminal
Switch (config)# ntp server 1 ip-address 9.9.9.9
```

port-security

Command:

```
port-security
```

port-security Enable/disable port security globally

Default:
Disabled
Usage Guide:
To enable the **Port Security**

Example:
To enable the **Port Security**

```
Switch# configure terminal
Switch (config)# port-security
```

port-security aging

Command:

```
port-security aging
```

port-security Enable/disable port security globally
aging Enable/disable port security aging

Default:
Disabled
Usage Guide:
To enable the **Port Aging**
Example:

To enable the **Port Aging**

```
Switch# configure terminal
Switch (config)# port-security port-security aging
```

port-security aging time

Command:

```
port-security aging time <10-10000000>
```

port-security Enable/disable port security globally
aging Enable/disable port security aging
time Time in seconds between check for activity on learned MAC addresses
<10-10000000> seconds

Default:
3600
Usage Guide:
To configure the **Aging Period** of **Port Security**
Example:
To configure the **Aging Period** (159) of **Port Security**

```
Switch# configure terminal
Switch (config)# port-security aging time 159
```

privilege

Command:

```
privilege { exec | configure | config-vlan | line | interface | if-vlan | ipmc-profile | snmps-host | stp-aggr | dhcp-pool | rfc2544-profile } level <privilege> <cmd>
```

privilege Command privilege parameters
config-vlan VLAN Configuration Mode
configure Global configuration mode
dhcp-pool DHCP Pool Configuration Mode
exec Exec mode
if-vlan VLAN Interface Mode
interface Port List Interface Mode
ipmc-profile IPMC Profile Mode
line Line configuration mode
rfc2544-profile RFC2544 Profile Mode
snmps-host SNMP Server Host Mode
stp-aggr STP Aggregation Mode
level Set privilege level of command
<0-15> Privilege level
<cmd> Initial valid words and literals of the command to modify

Default:
None
Usage Guide:

To configure the **Privilege Level** for **Command Line**

Example:

To configure the **Privilege Level** (DHCP Pool mode, Level 12, Command: host) for **Command Line**

```
Switch# configure terminal
Switch (config)# privilege dhcp-pool level 12 host
```

qos map cos-dscp

Command:

```
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 } }
```

qos Quality of Service
map Global QoS Map/Table
cos-dscp Map for cos to dscp
<Cos : 0~7> Specific class of service or range
dscp Specify DSCP
<DscpNum : 0-63> Specific DSCP
af11 Assured Forwarding PHB AF11(DSCP 10)
af12 Assured Forwarding PHB AF12(DSCP 12)
af13 Assured Forwarding PHB AF13(DSCP 14)
af21 Assured Forwarding PHB AF21(DSCP 18)
af22 Assured Forwarding PHB AF22(DSCP 20)
af23 Assured Forwarding PHB AF23(DSCP 22)
af31 Assured Forwarding PHB AF31(DSCP 26)
af32 Assured Forwarding PHB AF32(DSCP 28)
af33 Assured Forwarding PHB AF33(DSCP 30)
af41 Assured Forwarding PHB AF41(DSCP 34)
af42 Assured Forwarding PHB AF42(DSCP 36)
af43 Assured Forwarding PHB AF43(DSCP 38)
be Default PHB(DSCP 0) for best effort traffic
cs1 Class Selector PHB CS1 precedence 1(DSCP 8)
cs2 Class Selector PHB CS2 precedence 2(DSCP 16)
cs3 Class Selector PHB CS3 precedence 3(DSCP 24)
cs4 Class Selector PHB CS4 precedence 4(DSCP 32)
cs5 Class Selector PHB CS5 precedence 5(DSCP 40)
cs6 Class Selector PHB CS6 precedence 6(DSCP 48)
cs7 Class Selector PHB CS7 precedence 7(DSCP 56)
ef Expedited Forwarding PHB(DSCP 46)
va Voice Admit PHB(DSCP 44)

Default:

0

Usage Guide:

To configure the **DSCP Classification**

Example:

To configure the **DSCP Classification (QoS Class 3: DSCP CS1)**

```
Switch# configure terminal
Switch (config)# qos map cos-dscp 3 dscp cs1
```

qos map dscp-classify

Command:

```
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 } }
```

qos Quality of Service
map Global QoS Map/Table
dscp-classify Map for dscp classify enable
<DscpNum : 0-63> Specific DSCP
af11 Assured Forwarding PHB AF11(DSCP 10)
af12 Assured Forwarding PHB AF12(DSCP 12)
af13 Assured Forwarding PHB AF13(DSCP 14)
af21 Assured Forwarding PHB AF21(DSCP 18)
af22 Assured Forwarding PHB AF22(DSCP 20)
af23 Assured Forwarding PHB AF23(DSCP 22)
af31 Assured Forwarding PHB AF31(DSCP 26)
af32 Assured Forwarding PHB AF32(DSCP 28)
af33 Assured Forwarding PHB AF33(DSCP 30)
af41 Assured Forwarding PHB AF41(DSCP 34)
af42 Assured Forwarding PHB AF42(DSCP 36)
af43 Assured Forwarding PHB AF43(DSCP 38)
be Default PHB(DSCP 0) for best effort traffic
cs1 Class Selector PHB CS1 precedence 1(DSCP 8)
cs2 Class Selector PHB CS2 precedence 2(DSCP 16)
cs3 Class Selector PHB CS3 precedence 3(DSCP 24)
cs4 Class Selector PHB CS4 precedence 4(DSCP 32)
cs5 Class Selector PHB CS5 precedence 5(DSCP 40)
cs6 Class Selector PHB CS6 precedence 6(DSCP 48)
cs7 Class Selector PHB CS7 precedence 7(DSCP 56)
ef Expedited Forwarding PHB(DSCP 46)
va Voice Admit PHB(DSCP 44)

Default:

Disabled

Usage Guide:

To enabled the **DSCP Ingress Classification**

Example:

To configure the **DSCP Ingress Classification (DSCP 36)**

```
Switch# configure terminal
Switch (config)# qos map dscp-classify af42
```

qos map dscp-cos

Command:

```
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>
```

qos Quality of Service
map Global QoS Map/Table
dscp-cos Map for dscp to cos
<DscpNum : 0-63> Specific DSCP
af11 Assured Forwarding PHB AF11(DSCP 10)
af12 Assured Forwarding PHB AF12(DSCP 12)
af13 Assured Forwarding PHB AF13(DSCP 14)
af21 Assured Forwarding PHB AF21(DSCP 18)
af22 Assured Forwarding PHB AF22(DSCP 20)
af23 Assured Forwarding PHB AF23(DSCP 22)
af31 Assured Forwarding PHB AF31(DSCP 26)
af32 Assured Forwarding PHB AF32(DSCP 28)
af33 Assured Forwarding PHB AF33(DSCP 30)
af41 Assured Forwarding PHB AF41(DSCP 34)
af42 Assured Forwarding PHB AF42(DSCP 36)
af43 Assured Forwarding PHB AF43(DSCP 38)
be Default PHB(DSCP 0) for best effort traffic
cs1 Class Selector PHB CS1 precedence 1(DSCP 8)
cs2 Class Selector PHB CS2 precedence 2(DSCP 16)
cs3 Class Selector PHB CS3 precedence 3(DSCP 24)
cs4 Class Selector PHB CS4 precedence 4(DSCP 32)
cs5 Class Selector PHB CS5 precedence 5(DSCP 40)
cs6 Class Selector PHB CS6 precedence 6(DSCP 48)
cs7 Class Selector PHB CS7 precedence 7(DSCP 56)
ef Expedited Forwarding PHB(DSCP 46)
va Voice Admit PHB(DSCP 44)
cos Specify class of service
<Cos : 0-7> Specific class of service
dpl Specify drop precedence level
<Dpl : dpl> Specific drop precedence level

Default:

0

Usage Guide:

To configure the **DSCP-Based QoS Ingress Classification**

Example:

To configure the **DSCP-Based QoS Ingress Classification (DSCP: 44, QoS Class: 6, DPL: 2)**

```
Switch# configure terminal
Switch (config)# qos map dscp-cos va cos 6 dpl 2
```

qos map dscp-egress-translation

Command:

```
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 } } 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 } }

qos Quality of Service
map Global QoS Map/Table
dscp-egress-translation Map for dscp egress translation
<DscpNum : 0-63> Specific DSCP
af11 Assured Forwarding PHB AF11(DSCP 10)
af12 Assured Forwarding PHB AF12(DSCP 12)
af13 Assured Forwarding PHB AF13(DSCP 14)
af21 Assured Forwarding PHB AF21(DSCP 18)
af22 Assured Forwarding PHB AF22(DSCP 20)
af23 Assured Forwarding PHB AF23(DSCP 22)
af31 Assured Forwarding PHB AF31(DSCP 26)
af32 Assured Forwarding PHB AF32(DSCP 28)
af33 Assured Forwarding PHB AF33(DSCP 30)
af41 Assured Forwarding PHB AF41(DSCP 34)
af42 Assured Forwarding PHB AF42(DSCP 36)
af43 Assured Forwarding PHB AF43(DSCP 38)
be Default PHB(DSCP 0) for best effort traffic
cs1 Class Selector PHB CS1 precedence 1(DSCP 8)
cs2 Class Selector PHB CS2 precedence 2(DSCP 16)
cs3 Class Selector PHB CS3 precedence 3(DSCP 24)
cs4 Class Selector PHB CS4 precedence 4(DSCP 32)
cs5 Class Selector PHB CS5 precedence 5(DSCP 40)
cs6 Class Selector PHB CS6 precedence 6(DSCP 48)
cs7 Class Selector PHB CS7 precedence 7(DSCP 56)
ef Expedited Forwarding PHB(DSCP 46)
va Voice Admit PHB(DSCP 44)

Default:
None
Usage Guide:
To configure the **DSCP Egress Translation**
Example:
To configure the **DSCP Egress Translation (AF11 to AF12)**

```
Switch# configure terminal
Switch (config)# qos map dscp-egress-translation af11 to af12
```

qos map dscp-ingress-translation

Command:

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 } }

qos Quality of Service
map Global QoS Map/Table
dscp-ingress-translation Map for dscp ingress translation
<DscpNum : 0-63> Specific DSCP
af11 Assured Forwarding PHB AF11(DSCP 10)
af12 Assured Forwarding PHB AF12(DSCP 12)
af13 Assured Forwarding PHB AF13(DSCP 14)
af21 Assured Forwarding PHB AF21(DSCP 18)
af22 Assured Forwarding PHB AF22(DSCP 20)
af23 Assured Forwarding PHB AF23(DSCP 22)
af31 Assured Forwarding PHB AF31(DSCP 26)
af32 Assured Forwarding PHB AF32(DSCP 28)
af33 Assured Forwarding PHB AF33(DSCP 30)
af41 Assured Forwarding PHB AF41(DSCP 34)
af42 Assured Forwarding PHB AF42(DSCP 36)
af43 Assured Forwarding PHB AF43(DSCP 38)
be Default PHB(DSCP 0) for best effort traffic
cs1 Class Selector PHB CS1 precedence 1(DSCP 8)
cs2 Class Selector PHB CS2 precedence 2(DSCP 16)
cs3 Class Selector PHB CS3 precedence 3(DSCP 24)
cs4 Class Selector PHB CS4 precedence 4(DSCP 32)
cs5 Class Selector PHB CS5 precedence 5(DSCP 40)
cs6 Class Selector PHB CS6 precedence 6(DSCP 48)
cs7 Class Selector PHB CS7 precedence 7(DSCP 56)
ef Expedited Forwarding PHB(DSCP 46)
va Voice Admit PHB(DSCP 44)

Default:

None

Usage Guide:

To configure the **DSCP Ingress Translation**

Example:

To configure the **DSCP Ingress Translation (AF11 to AF12)**

```
Switch# configure terminal
Switch (config)# qos map dscp-ingress-translation af11 to af12
```

qos qce

Command:

```
qos qce <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 } ] } ]
```

qos Quality of Service
- **qce** QoS Control Entry
- **action** Setup action
- **dmac** Setup matched DMAC
- **frame-type** Setup matched frame type
- **interface** Interfaces
- **last** Place QCE at the end
- **next** Place QCE before the next QCE ID
- **smac** Setup matched SMAC
- **tag** Setup tag options

Default:

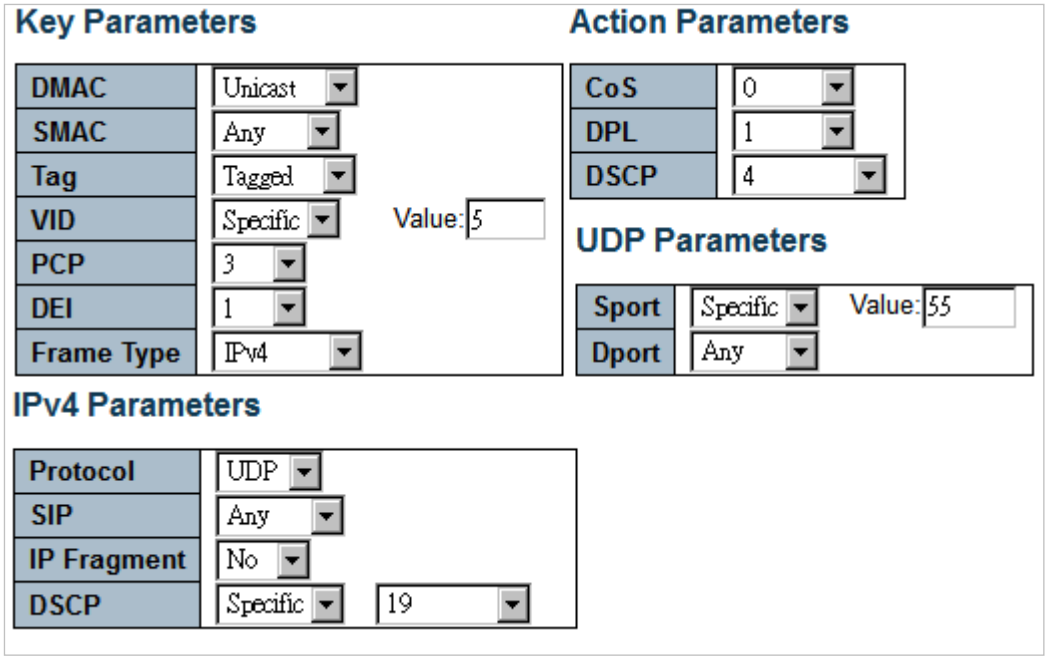
None

Usage Guide:

To configure the **QCE**

Example:

To configure the **QCE 1 (below table)** for **interface GigabitEthernet 1/1-2**



Switch# configure terminal
Switch (config)# **qos qce 1 interface GigabitEthernet 1/1-2 tag type tagged vid 5 pcp 3 dei 1 dmac unicast frame-type ipv4 proto udp dscp 19 frag no sport 55 action cos 0 dpl 1 dscp 4**

qos qce update

Command:

```
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 } ] } ]
```

qos Quality of Service
- **qce** QoS Control Entry
- **update** Update an existing QCE
- **action** Setup action
- **dmac** Setup matched DMAC
- **frame-type** Setup matched frame type
- **interface** Interfaces
- **last** Place QCE at the end
- **next** Place QCE before the next QCE ID
- **smac** Setup matched SMAC
- **tag** Setup tag options

Default:

None

Usage Guide:

To update the **QCE**

Example:

To update the **QCE 1 (DMAC: Unicast, Action: Cos 0)**.

```
Switch# configure terminal
Switch (config)# qos qce update 1 dmac unicast action cos 0
```

qos qce refresh

Command:

```
qos qce refresh
```

qos Quality of Service
qce QoS Control Entry
refresh Refresh QCE tables in hardware

Default:
None

Usage Guide:
To refresh the **QCE**

Example:
To refresh the **QCE**.

```
Switch# configure terminal
Switch (config)# qos qce refresh
```

qos wred

Command:

```
qos wred queue <queue> min-th <min_th> mdp-1 <mdp_1>
mdp-2 <mdp_2> mdp-3 <mdp_3>
```

qos Quality of Service
wred Weighted Random Early Discard
queue Specify queue
<Queue : 0~5> Specific queue or range
min-th Specify minimum threshold
<MinTh : 0-100> Specific minimum threshold in percent
mdp-1 Specify drop probability for drop precedence level 1
<Mdp1 : 0-100> Specific drop probability in percent
mdp-2 Specify drop probability for drop precedence level 2
<Mdp2 : 0-100> Specific drop probability in percent
mdp-3 Specify drop probability for drop precedence level 3
<Mdp3 : 0-100> Specific drop probability in percent

Default:

Queue	Enable	Min. Threshold	Max. DP 1	Max. DP 2	Max. DP 3
0	☐	0	1	5	10
1	☑	2	3	4	5
2	☐	0	1	5	10
3	☐	0	1	5	10
4	☐	0	1	5	10
5	☐	0	1	5	10

Usage Guide:

To configure the **Weighted Random Early Detection**

Example:

To configure the **Weighted Random Early Detection** (below table)

Queue	Enable	Min. Threshold	Max. DP 1	Max. DP 2	Max. DP 3
0	☐	0	1	5	10
1	☐	0	1	5	10
2	☐	0	1	5	10
3	☐	0	1	5	10
4	☐	0	1	5	10
5	☐	0	1	5	10

```
Switch# configure terminal
Switch (config)# qos wred queue 1 min-th 2 mdp-1 3 mdp-2 4
mdp-3 5
```

radius-server attribute 32

Command:

```
radius-server attribute 32 <Id : line1-253>
```

radius-server Configure RADIUS
32 NAS-Identifier

Default:

None

Usage Guide:

To configure the **NAS-Identifier**

Example:

To configure the **NAS-Identifier** (IFS)

```
Switch# configure terminal
Switch (config)# radius-server attribute 32 IFS
```

radius-server attribute 4

Command:

```
radius-server attribute 4 <Ipv4 : ipv4_ucast>
```

radius-server Configure RADIUS
4 NAS-IP-Address

Default:

None

Usage Guide:

To configure the **NAS-IP-Address**

Example:

To configure the **NAS-IP-Address** (7.7.7.7)

```
Switch# configure terminal
Switch (config)# radius-server attribute 4 7.7.7.7
```

radius-server attribute 95

Command:

```
radius-server attribute 95 <Ipv6 : ipv6_ucast>
```

radius-server Configure RADIUS
95 NAS-IPv6-Address

Default:
None

Usage Guide:
To configure the **NAS-IPv6-Address**

Example:
To configure the **NAS-IPv6-Address** (2001::7788)

```
Switch# configure terminal
Switch (config)# radius-server attribute 95 2001::7788
```

radius-server deadtime

Command:

```
radius-server deadtime <Minutes : 1-1440>
```

radius-server Configure RADIUS
deadtime Time to stop using a RADIUS server that doesn't respond
<Minutes : 1-1440> Time in minutes

Default:
0

Usage Guide:
To configure the **Deadtime** of **Radius-Server**

Example:
To configure the **Deadtime** (15) of **Radius-Server**

```
Switch# configure terminal
Switch (config)# radius-server deadtime 15
```

radius-server host

Command:

```
radius-server host <host_name> [ auth-port <auth_port> ]
[ acct-port <acct_port> ] [ timeout <seconds> ] [ retransmit
<retries> ] [ key <key> ]
```

radius-server Configure RADIUS
host Specify a RADIUS server

<HostName : word1-255> Hostname or IP address
acct-port UDP port for RADIUS accounting server
<AcctPort : 0-65535> UDP port number
auth-port UDP port for RADIUS authentication server
<AuthPort : 0-65535> UDP port number
key Server specific key (overrides default)
<Key : line1-63> The shared key
retransmit Specify the number of retries to active server (overrides default)
<Retries : 1-1000> Number of retries for a transaction
timeout Time to wait for this RADIUS server to reply (overrides default)
<Seconds : 1-1000> Wait time in seconds

Default:
None
Usage Guide:
To configure the **Host** of **Radius-Server**
Example:
To configure the **Host** (below table) of **Radius-Server**

Hostname	Auth Port	Acct Port	Timeout	Retransmit	Key
interlogix.com	1812	1813	10	6	123456789

```
Switch# configure terminal
Switch (config)# radius-server host interlogix.com timeout 10
retransmit 6 key 123456789
```

radius-server key

Command:

```
radius-server key <Key : line1-63>
```

radius-server Configure RADIUS
key Set RADIUS encryption key
<Key : line1-63> The shared key

Default:
None
Usage Guide:
To configure the **Key** of **Radius-Server**
Example:
To configure the **Key** (123456789) of **Radius-Server**

```
Switch# configure terminal
Switch (config)# radius radius-server key 123456789
```

radius-server retransmit

Command:

```
radius-server retransmit <Retries : 1-1000>
```

radius-server Configure RADIUS

retransmit Specify the number of retries to active server
<Retries : 1-1000> Number of retries for a transaction

Default:
3
Usage Guide:
To configure the retransmitted time of **Radius-Server**
Example:
To configure the retransmitted time (5) of **Radius-Server**

```
Switch# configure terminal
Switch (config)# radius-server retransmit 5
```

radius-server timeout

Command:

```
radius-server timeout <Seconds : 1-1000>
```

radius-server Configure RADIUS
timeout Time to wait for a RADIUS server to reply
<Seconds : 1-1000> Wait time in seconds

Default:
5
Usage Guide:
To configure the **timeout** of **Radius-Server**
Example:
To configure the **timeout** (10) of **Radius-Server**

```
Switch# configure terminal
Switch (config)# radius-server timeout 10
```

rmon alarm

Command:

```
rmon alarm <id> {<oid_str> | {{ ifInOctets | ifInUcastPkts |
ifInNUcastPkts | ifInDiscards | ifInErrors | ifInUnknownProtos
| ifOutOctets | ifOutUcastPkts | ifOutNUcastPkts |
ifOutDiscards | ifOutErrors } <ifIndex>}} <interval: 1-
2147483647> { absolute | delta } rising-threshold
<rising_threshold: -2147483648-2147483647>
[<rising_event_id: 0-65535>] falling-threshold
<falling_threshold: -2147483648-2147483647>
[ <falling_event_id: 0-65535> ] { [ rising | falling | both ] }
```

rmon Remote Monitoring
alarm Configure an RMON alarm
<oid_str> MIB object to monitor
ifInDiscards The number of inbound packets that are discarded even the packets are normal
ifInErrors The number of inbound packets that contained errors preventing

them from being deliverable to a higher-layer protocol
ifInNUcastPkts The number of broad-cast and multi-cast packets delivered to a higher-layer protocol
ifInOctets The total number of octets received on the interface, including framing characters
ifInUcastPkts The number of uni-cast packets delivered to a higher-layer protocol
ifInUnknownProtos The number of the inbound packets that were discarded because of the unknown or un-support protocol
ifOutDiscards The number of outbound packets that are discarded event the packets is normal
ifOutErrors The The number of outbound packets that could not be transmitted because of errors
ifOutNUcastPkts The number of broad-cast and multi-cast packets that request to transmit
ifOutOctets The number of octets transmitted out of the interface, including framing characters
<uint> ifIndex
<interval: 1-2147483647> Sample interval
absolute Test each sample directly
delta Test delta between samples
rising-threshold Configure the rising threshold
<rising_threshold: -2147483648-2147483647> rising threshold value
<rising_event_id: 0-65535> Event to fire on rising threshold crossing
falling-threshold Configure the falling threshold
<falling_threshold: -2147483648-2147483647> falling threshold value
<falling_event_id: 0-65535> Event to fire on falling threshold crossing
both Trigger alarm when the first value is larger than the rising threshold or less than the falling threshold (default)
falling Trigger alarm when the first value is less than the falling threshold
rising Trigger alarm when the first value is larger than the rising threshold

Default:
None
Usage Guide:
To configure the **Alarm** of **RMON**
Example:
To configure the **Alarm** (below table) of **RMON**

ID	Interval	Variable	Sample Type	Value	Startup Alarm	Rising Threshold	Rising Index	Falling Threshold	Falling Index
1	50	.1.3.6.1.2.1.2.2.1.10.15	Absolute	0	Falling	1000	1	520	1

```
Switch# configure terminal
Switch (config)# rmon alarm 1 .1.3.6.1.2.1.2.2.1.10.15 50
absolute rising-threshold 1000 1 falling-threshold 520 1
falling
```

rmon event

Command:

```
rmon event <id: 1-65535> [ log ] [ trap <community> ]
{ [ description <description> ] }
```

rmon Remote Monitoring
event Configure an RMON event
<id: 1-65535> Event entry ID
description Specify a description of the event
<description> Event description
log Generate RMON log when the event fires
trap Generate SNMP trap when the event fires
<community> SNMP community string

Default:
None
Usage Guide:
To configure the **Event** of **RMON**
Example:
To configure the **Event** (below table) of **RMON**

ID	Desc	Type	Community	Event Last Time
1	error	logandtrap	IFS	0

```
Switch# configure terminal
Switch (config)# rmon event 1 log trap IFS description error
```

sfp temperature-threshold

Command:

```
sfp temperature-threshold <0-100>
```

sfp temperature-threshold Set a lower high temperature threshold for the secondary temperature alarm in degrees C.
<0-100> Specifies the new threshold temperature.

Default:
None
Usage Guide:
To configure the **SFP temperature-threshold** of **sFlow**
Example:
To configure the **SFP temperature-threshold** (55 degrees C) of **sFlow**

```
Switch# configure terminal
Switch (config)# sfp temperature-threshold 55
```

snmp-server

Command:

```
snmp-server
```

snmp-server Set SNMP server's configurations

Default:
Enabled

Usage Guide:

To enable the SNMP Service

Example:

To enable the SNMP Service

```
Switch# configure terminal
Switch (config)# snmp-server
```

snmp-server access

Command:

```
snmp-server access <group_name> model { v1 | v2c | v3 |
any } level { auth | noauth | priv } [ read <view_name> ] [ write
<write_name> ]
```

snmp-server Set SNMP server's configurations
access access configuration
<GroupName : word32> group name
model security model
any any security model
v1 v1 security model
v2c v2c security model
v3 v3 security model
level security level
auth authNoPriv Security Level
noauth noAuthNoPriv Security Level
priv authPriv Security Level
read specify a read view for the group
<ViewName : word255> read view name
write specify a write view for the group
<WriteName : word255> write view name

Default:

None

Usage Guide:

To configure the **Access** of **SNMP**

Example:

To configure the **Access** (below table) of **SNMP**

Group Name	Security Model	Security Level	Read View Name	Write View Name
default_rw_group	v2c	Auth, Priv	default_view	default_view

```
Switch# configure terminal
Switch (config)# snmp-server access default_rw_group model
v2c level priv read default_view write default_view
```

snmp-server community

Command:

```
snmp-server community { v2c <comm> [ ro | rw ] | v3
<v3_comm> [ <v_ipv4_addr> <v_ipv4_netmask> ] }
```

snmp-server Set SNMP server's configurations
community Set the SNMP community
v2c SNMPv2c
<comm> Community word
ro Read only
rw Read write
v3 SNMPv3
<V3Comm : word127> Community word
<ipv4_addr> IPv4 address
<ipv4_netmask> IPv4 netmask

Default:
None

Usage Guide:
To configure the **Read / Write / Source network Community** of **SNMP**
Example:
To configure the **Read / Write / Source network Community** (below table) of **SNMP**

Community	Source IP	Source Mask
public	192.168.0.15	255.255.255.0

```
Switch# configure terminal
Switch (config)# snmp-server community v3 public
192.168.0.15 255.255.255.0
```

snmp-server contact

Command:

```
snmp-server contact <line255>
```

snmp-server Set SNMP server's configurations
contact Set the SNMP server's contact string
<line255> contact string

Default:
None
Usage Guide:
To configure the **sysContact string** of **SNMP**
Example:
To configure the **sysContact string** (**Server123**) of **SNMP**

```
Switch# configure terminal
Switch (config)# snmp-server contact Server123
```

snmp-server engine-id

Command:

```
snmp-server engine-id local <Engineid : word10-32>
```

snmp-server Set SNMP server's configurations
engine-id Set SNMP engine ID
local Set SNMP local engine ID
<Engineid : word10-32> local engine ID

Default:
None
Usage Guide:
To configure the **Engine ID**of **SNMP**
Example:
To configure the **Engine ID** (1234567890) of **SNMP**

```
Switch# configure terminal
Switch (config)# snmp-server engine-id local 1234567890
```

snmp-server host

Command:

```
snmp-server host <conf_name>
```

snmp-server Set SNMP server's configurations
host Set SNMP host's configurations
<conf_name> Name of the host configuration

Default:
None
Usage Guide:
To enter the **SNMP host mode**
Example:
To enter the **SNMP host mode (IFS)**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)#
```

do
Command:

```
do < exec commands >
```

do To run exec commands.
Default:
N/A
Usage Guide:
To run **exec commands.**
Example:
To run “show aaa”**.**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)#do show aaa
console : local
telnet  : local
ssh     : local
http    : local
```

end

Command:

```
end
```

end Go back to EXEC mode

Default:

Auto

Usage Guide:

To back to **EXEC mode**

Example:

To back to **EXEC mode**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)#end
Switch#
```

exit

Command:

```
exit
```

exit Exit from current mode

Default:

None

Usage Guide:

To exit current mode

Example:

To exit current mode**.**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)#exit
Switch (config)#
```

host

Command:

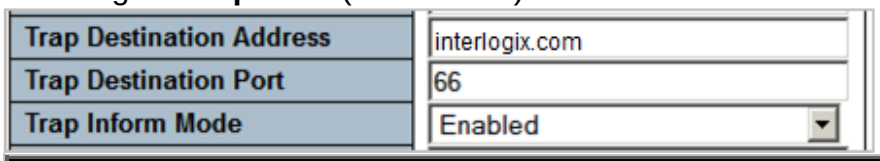
```
host [<hostname> | <ipv4_ucast> | <ipv6_ucast>] <UdpPort :
1-65535> { informs | traps }
```

host host configuration

<hostname> hostname of SNMP trap host

<ipv4_ucast> IP address of SNMP trap host
<ipv6_ucast> IP address of SNMP trap host
<UdpPort : 1-65535> UDP port of the trap messages
informs Send Inform messages to this host
traps Send Trap messages to this host

Default:
None
Usage Guide:
To configure **Trap Host** of **SNMP**
Example:
To configure **Trap Host** (below table) of **SNMP**




```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# host interlogix.com 66 informs
```

no
Command:

```
no
```

no Negate a command or set its defaults

Default:
N/A
Usage Guide:
To default the function
Example:
To disable the function (**host interlogix.com 66 informs**)

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# no ip address dhcp
```

informs
Command:

```
informs retries <retries> timeout <timeout>
```

informs Send Inform messages to this host
retries retires inform messages
<Retries : 0-255> retires times
timeout timeout parmater
<Timeout : 0-2147> timeout interval

Default:
None
Usage Guide:
To configure **Trap Inform time** of **SNMP**

Example:

To configure **Trap Inform time** (below table) of **SNMP**

Trap Inform Timeout (seconds)	55
Trap Inform Retry Times	2

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# informs retries 2 timeout 55
```

shutdown

Command:

```
shutdown
```

shutdown Disable the trap configuration

Default:

Disabled

Usage Guide:

To disable **Trap mode** of **SNMP**

Example:

To disable **Trap mode** of **SNMP**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# shutdown
```

traps

Command:

```
traps [ aaa authentication ] [ system [ coldstart ]
[ warmstart ] ] [ switch [ stp ] [ rmon ] ]
```

traps trap event configuration
aaa AAA event group
authentication Authentication fail event
switch Switch event group
system System event group
coldstart Cold start event
warmstart Warm start event
rmon RMON event
stp STP event

Default:

Disabled

Usage Guide:

To configure **Trap event** of **SNMP**

Example:

To configure **Trap event (STP, RMON)** of **SNMP**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# traps switch rmon stp
```

version

Command:

```
version { v1 [ <v1_comm> ] | v2 [ <v2_comm> ] | v3 [ probe |
engineID <v_word10_to_32> ] [ <securtyname> ] }
```

version Set SNMP trap version
v1 SNMP trap version 1
<V1Comm : word127> SNMP trap community
v2 SNMP trap version 2
<V2comm : word127> SNMP trap community
v3 SNMP trap version 3
<Securtyname : word32> seucrity name
engineID Configure trap server's engine ID
probe Probe trap server's engine ID

Default:

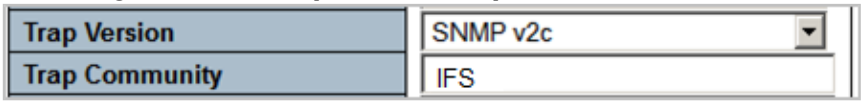
Disabled

Usage Guide:

To configure **Version** of **SNMP**

Example:

To configure **Version (below table)** of **SNMP**




```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# version v2 IFS
```

spanning-tree aggregation

Command:

```
spanning-tree aggregation
```

spanning-tree Spanning Tree protocol
aggregation Aggregation mode

Default:

None

Usage Guide:

To enter **aggregation mode** of **STP**

Example:

To enter **aggregation mode** of **STP**

```
Switch# configure terminal
Switch (config)# spanning-tree aggregation
Switch (config-stp-aggr)#
```

do

Command:

```
do < exec commands >
```

do To run exec commands.

Default:

N/A

Usage Guide:

To run **exec commands.**

Example:

To run “show aaa”**.**

```
Switch# configure terminal
Switch (config)# spanning-tree aggregation
Switch (config-stp-aggr)#do show aaa
console : local
telnet  : local
ssh     : local
http    : local
```

end

Command:

```
end
```

end Go back to EXEC mode

Default:

Auto

Usage Guide:

To back to **EXEC mode**

Example:

To back to **EXEC mode**

```
Switch# configure terminal
Switch (config)# spanning-tree aggregation
Switch (config-stp-aggr)#end
Switch#
```

exit

Command:

```
exit
```

exit Exit from current mode

Default:

None

Usage Guide:

To exit current mode

Example:

To exit current mode**.**

```
Switch# configure terminal
Switch (config)# spanning-tree aggregation
Switch (config-stp-aggr)#exit
Switch (config)#
```

no

Command:

```
no
```

no Negate a command or set its defaults

Default:

N/A

Usage Guide:

To default the function

Example:

To disable the function (**spanning-tree auto-edge**)

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# no spanning-tree auto-edge
```

spanning-tree auto-edge

Command:

```
spanning-tree auto-edge
```

spanning-tree Spanning Tree protocol
auto-edge Auto detect edge status

Default:

Enabled

Usage Guide:

To enable the **Auto Edge** of **CIST Aggregated Port**

Example:

To enable the **Auto Edge** of **CIST Aggregated Port**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# spanning-tree auto-edge
```

spanning-tree bpdu-guard

Command:

```
spanning-tree bpdu-guard
```

spanning-tree Spanning Tree protocol
bpdu-guard Enable/disable BPDU guard

Default:

Disabled

Usage Guide:

To enable the **BPDU Guard** of **CIST Aggregated Port**

Example:

To enable the **BPDU Guard** of **CIST Aggregated Port**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# spanning-tree bpdu-guard
```

spanning-tree edge

Command:

```
spanning-tree edge
```

spanning-tree Spanning Tree protocol
edge Edge port

Default:

Disabled

Usage Guide:

To enable the **Admin Edge** of **CIST Aggregated Port**

Example:

To enable the **Admin Edge** of **CIST Aggregated Port**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# spanning-tree edge
```

spanning-tree link-type

Command:

```
spanning-tree link-type link-type { point-to-point | shared |
auto }
```

spanning-tree Spanning Tree protocol
link-type Port link-type
auto Auto detect
point-to-point Forced to point-to-point
shared Forced to Shared

Default:

Point to Point

Usage Guide:

To configure the **Point to Point mode (Shared)** of **CIST Aggregated Port**

Example:

To configure the **Point to Point mode (Shared)** of **CIST Aggregated Port**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# spanning-tree link-type shared
```

spanning-tree mst <instance> cost

Command:

```
spanning-tree mst <instance> cost { <cost> | auto }
```

spanning-tree Spanning Tree protocol
mst STP bridge instance
<Instance : 0-7> instance 0-7 (CIST=0, MST1=1...)
cost STP Cost of this port
<Cost : 1-200000000> Cost range
auto Use auto cost

Default:
Auto
Usage Guide:
To configure the **Path Cost** of **MSTI Port**
Example:
To configure the **Path Cost (321)** of **MSTI Port (MST 2)**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# spanning-tree mst 2 cost 321
```

spanning-tree mst <instance> port-priority

Command:

```
spanning-tree mst <instance> port-priority <prio>
```

spanning-tree Spanning Tree protocol
mst STP bridge instance
<Instance : 0-7> instance 0-7 (CIST=0, MST1=1...)
port-priority STP priority of this port
<Prio : 0-240> Range (lower higher priority)

Default:
Auto
Usage Guide:
To configure the **Port Priority** of **MSTI Port**
Example:
To configure the **Port Priority (96)** of **MSTI Port (MST 2)**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# spanning-tree mst 2 port-priority
96
```

spanning-tree restricted-role

Command:

```
spanning-tree restricted-role
```

spanning-tree Spanning Tree protocol
restricted-role Port role is restricted (never root port)

Default:
Disabled
Usage Guide:
To enable the **Restricted Role** of **CIST**
Example:
To enable the **Restricted Role** of **CIST**

```
Switch# configure terminal
Switch (config)# snmp-server host IFS
Switch (config-snmps-host)# spanning-tree restricted-role
```

spanning-tree restricted-tcn

Command:

```
spanning-tree restricted-tcn
```

spanning-tree Spanning Tree protocol
restricted-tcn Restrict topology change notifications

Default:
Disabled
Usage Guide:
To enable the **Restricted TCN** of **CIST**
Example:
To enable the **Restricted TCN** of **CIST**

```
Switch# configure terminal
(config)# spanning-tree aggregation
(config-stp-aggr)# spanning-tree restricted-tcn
```

switchport vlan mapping

Command:

```
switchport vlan mapping <group> <vlan_list>
<translation_vlan>
```

switchport Set switching mode characteristics
vlan vlan - Vlan translation
mapping Add VLAN translation entry into a group
<group id : 1-29> Group id
<vlan_list> VLAN list
< translation_vlan > translation VLAN ID

Default:
None
Usage Guide:
To configure the **VLAN Translation**
Example:
To enable the **VLAN Translation (below table)**

Group ID	VLAN ID	Translated to VID
1	3	5

```
Switch# configure terminal
Switch (config)# switchport vlan mapping 1 3 5
```

tacacs-server deadtime

Command:

```
tacacs-server deadtime <minutes>
```

tacacs-server Configure TACACS+
deadtime Time to stop using a TACACS+ server that doesn't respond
<Minutes : 1-1440> Time in minutes

Default:
0
Usage Guide:
To configure the **Deadtime** of **TACACS+ Server**
Example:
To enable the **Deadtime (6)** of **TACACS+ Server**

```
Switch# configure terminal
Switch (config)# tacacs-server deadtime 6
```

tacacs-server host

Command:

```
tacacs-server host <host_name> [ port <port> ] [ timeout
<seconds> ] [ key <key> ]
```

tacacs-server Configure TACACS+
host Specify a TACACS+ server
<HostName : word1-255> Hostname or IP address
key Server specific key (overrides default)
port TCP port for TACACS+ server
<Port : 0-65535> TCP port number
timeout Time to wait for this TACACS+ server to reply (overrides default)
<Seconds : 1-1000> Wait time in seconds
<Key : line1-63> The shared key

Default:
None
Usage Guide:
To configure the **Host** of **TACACS+ Server**
Example:
To enable the **Host (below table)** of **TACACS+ Server**

```
Switch# configure terminal
Switch (config)# tacacs-server host interlogix.com port 55
timeout 6 key 7788
```

transport email authentication

Command:

```
transport email authentication username <username>
password <password>
```

transport Enable or disable transport email function.
email Enable or disable transport email function.
authentication configure SMTP authentication's username and password
<Username> User name allows letters, numbers and underscores
<Password> 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.

Default:

N/A

Usage Guide:

To configure SMTP authentication's username and password

Example:

To configure SMTP authentication's username (123@interlogix.com) and password (456)

```
Switch# configure terminal
Switch (config)# transport email authentication username
123@interlogix.com password 456
```

transport email from

Command:

```
transport email from <mail_addr> subject <title>
```

transport Enable or disable transport email function.
email Enable or disable transport email function.
from sender's email address
<mail_addr> mail address
subject subject/title of the email
<title> email title

Default:

N/A

Usage Guide:

To configure SMTP sender's email address and title of the email

Example:

To configure SMTP sender's email address (**sys@interlogix.com**) and title of the email (**syserror**)

```
Switch# configure terminal
Switch (config)# transport email from sys@interlogix.com
subject syserror
```

transport email smtp-server

Command:

```
transport email smtp-server { <ipv4_addr> | <server> } port
<1_to_65535>
```

transport Enable or disable transport email function.
email Enable or disable transport email function.
smtp-server Set the SMTP server name or IP address of the SMTP server
<ipv4_ucast> <ipv4_addr>: IP address
<server> hostname
port port
<1-65535> port_number: Specifies the port number. The range is from 1 to 65535. The default port number is 25.

Default:

N/A

Usage Guide:

To configure SMTP Server address and port number.

Example:

To configure SMTP Server address (**mail.interlogix.com**) and port number (**123**)

```
Switch# configure terminal
Switch (config)# transport email smtp-server
mail.interlogix.com port 123
```

transport email to

Command:

```
transport email to <1 | 2> <mail_addr>
```

transport Enable or disable transport email function.
email Enable or disable transport email function.
to receiver's email
<1|2> 1: mail address 1 2: mail address 2
<mail_addr> mail address

Default:

N/A

Usage Guide:

To configure SMTP destination mail address.

Example:

To configure SMTP destination mail address 1 (**ss@interlogix.com**).

```
Switch# configure terminal
Switch (config)# transport email to 1 ss@interlogix.com
```

upnp

Command:

```
upnp
```

upnp Set UPnP's configurations

Default:
Disabled
Usage Guide:
To enable the **UPnP service**
Example:
To enable the **UPnP service**

```
Switch# configure terminal
Switch (config)# upnp
```

upnp advertising-duration

Command:

```
upnp advertising-duration <100-86400>
```

upnp Set UPnP's configurations
advertising-duration Set advertising duration
<100-86400> advertising duration

Default:
100
Usage Guide:
To configure the **Advertising Duration** of **UPnP**
Example:
To configure the **Advertising Duration** (123) of **UPnP**

```
Switch# configure terminal
Switch (config)# upnp advertising-duration 123
```

username

Command:

```
username <username> privilege <priv> password { encrypted
<encry_password> | none | unencrypted <password> }
```

username Establish User Name Authentication
<Username : word31> User name allows letters, numbers and underscores
privilege Set user privilege level
<privilegeLevel : 0-15> User privilege level
password Specify the password for the user
encrypted Specifies an ENCRYPTED password will follow
none NULL password
unencrypted Specifies an UNENCRYPTED password will follow
<Password : word4-44> 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

Default:
None

Usage Guide:

To configure the **Profiles** of **Username**

Example:

To configure the **Profiles** of **Username (Username: 1234, Password: 1234, Privilege Level: 15)**

```
Switch# configure terminal
Switch (config)# username 1234 privilege 15 password unencrypted 1234
Press ENTER to get started

Username: 1234
Password: 1234
#
```

vlan

Command:

```
vlan <vlist>
```

vlan VLAN commands

<vlan_list> VLAN IDs 1~4095

Default:

None

Usage Guide:

To create the **VLAN Profiles**

Example:

To create the **VLAN Profiles (VLAN 5)**

```
Switch# configure terminal
Switch (config)# vlan 5
Switch (config-vlan)#
```

do

Command:

```
do < exec commands >
```

do To run exec commands.

Default:

N/A

Usage Guide:

To run **exec commands.**

Example:

To run “show aaa”**.**

```
Switch# configure terminal
Switch (config)# vlan 5
```

```
Switch (config-vlan)#do show aaa
console : local
telnet  : local
ssh     : local
http    : local
```

end

Command:

```
end
```

end Go back to EXEC mode

Default:

Auto

Usage Guide:

To back to **EXEC mode**

Example:

To back to **EXEC mode**

```
Switch# configure terminal
Switch (config)# vlan 5
Switch (config-vlan)#end
Switch#
```

exit

Command:

```
exit
```

exit Exit from current mode

Default:

None

Usage Guide:

To exit current mode

Example:

To exit current mode

```
Switch# configure terminal
Switch (config)# vlan 5
Switch (config-vlan)# exit
Switch (config)#
```

name

Command:

```
name <vlan_name>
```

name ASCII name of the VLAN

<vword32> The ASCII name for the VLAN

Default:

None

Usage Guide:

To configure description of **VLAN**

Example:

To configure description (FAE) of **VLAN**

```
Switch# configure terminal
Switch (config)# vlan 5
Switch (config-vlan)# name FAE
```

no

Command:

```
no
```

no Negate a command or set its defaults

Default:

N/A

Usage Guide:

To default the function

Example:

To disable the function (**name FAE**)

```
Switch# configure terminal
Switch (config)# vlan 5
Switch (config-vlan)# no name FAE
```

vlan ethertype s-custom-port

Command:

```
vlan ethertype s-custom-port <etype>
```

vlan VLAN commands
ethertype Ether type for Custom S-ports
s-custom-port Custom S-ports configuration
<etype> Ethertype (Range: 0x0600-0xffff)

Default:

0x88A8

Usage Guide:

To create the **Ethernet type** of **Custom S-ports**

Example:

To create the **Ethernet type (0x88A9)** of **Custom S-ports**

```
Switch# configure terminal
Switch (config)# vlan ethertype s-custom-port 0x88a9
```

vlan protocol

Command:

```
vlan protocol { { eth2 { <etype> | arp | ip | ipx | at } } | { snap
{ <oui> | rfc-1042 | snap-8021h } <pid> } | { llc <dsap>
<ssap> } } group <grp_id>
```

vlan VLAN commands
protocol Protocol-based VLAN commands
eth2 Ethernet-based VLAN commands
<0x600-0xffff> Ether Type(Range: 0x600 - 0xFFFF)
arp Ether Type is ARP
at Ether Type is AppleTalk
ip Ether Type is IP
ipx Ether Type is IPX
llc LLC-based VLAN group
<0x0-0xff> DSAP (Range: 0x00 - 0xFF)
<0x0-0xff> SSAP (Range: 0x00 - 0xFF)
snap SNAP-based VLAN group
<0x0-0xffffff> SNAP OUI (Range 0x000000 - 0XFFFFFF)
rfc-1042 SNAP OUI is rfc-1042
snap-8021h SNAP OUI is 8021h
group Protocol-based VLAN group commands
<grp_id> Group Name (Range: 1 - 16 characters)

Default:
None
Usage Guide:
To configure the **Protocol-based VLAN**
Example:
To configure the **Protocol-based VLAN (below table)**

Frame Type	Value	Group Name
LLC	55-66	3

```
Switch# configure terminal
Switch (config)# vlan protocol llc 0x55 0x66 group 3
```

voice vlan

Command:

```
voice vlan
```

voice Voice appliance attributes
vlan Vlan for voice traffic

Default:
Disabled
Usage Guide:
To enable the **Voice VLAN** service
Example:
To enable the **Voice VLAN** service

```
Switch# configure terminal
```

```
Switch (config)# voice vlan
```

voice vlan aging-time

Command:

```
voice vlan aging-time <aging_time>
```

voice Voice appliance attributes
vlan Vlan for voice traffic
aging-time Set secure learning aging time
<AgingTime : 10-10000000> Aging time, 10-10000000 seconds

Default:
86400
Usage Guide:
To configure the **Aging Time** of **Voice VLAN**
Example:
To configure the **Aging Time** of **Voice VLAN**

```
Switch# configure terminal
Switch (config)# voice vlan aging-time 8888
```

voice vlan class

Command:

```
voice vlan class <traffic_class>
```

voice Voice appliance attributes
vlan Vlan for voice traffic
class Set traffic class
< traffic_class : 0-7> Traffic class value

Default:
7
Usage Guide:
To configure the **Traffic Class** of **Voice VLAN**
Example:
To configure the **Traffic Class (5)** of **Voice VLAN**

```
Switch# configure terminal
Switch (config)# voice vlan class 5
```

voice vlan oui

Command:

```
voice vlan oui <oui> [ description <description> ]
```

voice Voice appliance attributes
vlan Vlan for voice traffic

oui OUI configuration
<oui> OUI value
description Set description for the OUI
<Description : line32> Description line

Default:
None
Usage Guide:
To configure the **OUI** of **Voice VLAN**
Example:
To configure the **OUI (OUI: 00:45:89, Description: qwe)** of **Voice VLAN**

```
Switch# configure terminal
Switch (config)# voice vlan oui 00:45:89 description qwe
```

voice vlan vid

Command:

```
voice vlan vid <vlan_id>
```

voice Voice appliance attributes
vlan Vlan for voice traffic
vid Set VLAN ID
<vlan_id> VLAN ID, 1-4095

Default:
1000
Usage Guide:
To configure the **VID** of **Voice VLAN**
Example:
To configure the **VID (66)** of **Voice VLAN**

```
Switch# configure terminal
Switch (config)# voice vlan vid 66
```

web privilege group

Command:

```
web privilege group <group_name> level { [ cro <cro: 0-15> ]
[ crw <crw: 0-15> ] [ sro <sro: 0-15> ] [ srw <srw: 0-15> ] }
```

web Web
privilege Web privilege
group Web privilege group
<vlan_id> VLAN ID, 1-4095
<group_name> Valid words are 'Aggregation' 'DHCP' 'Debug' 'Dhcp_Client' 'Diagnostics' 'EPS' 'ERPS' 'ETH_LINK_OAM' 'EVC' 'Green_Ethernet' 'IP2' 'IPMC_Snooping' 'LACP' 'LLDP' 'Loop_Protect' 'MAC_Table' 'MEP' 'MVR' 'Maintenance' 'Mirroring' 'NTP' 'POE' 'PTP' 'Ports' 'Private_VLANs' 'QoS' 'RPC' 'Security' 'Spanning_Tree' 'System' 'Timer' 'UPnP'

'VCL' 'VLAN_Translation' 'VLANs' 'Voice_VLAN' 'XXRP' 'ZL_3034X_API'

level Web privilege group level
cro Configuration Read-only level
crw Configuration Read-write level
sro Status/Statistics Read-only level
srw Status/Statistics Read-write level

Default:

N/A

Usage Guide:

To configure the **Privilege Level**

Example:

To configure the **Privilege Level (below table)**

Group Name	Privilege Levels			
	Configuration Read-only	Configuration/Execute Read/write	Status/Statistics Read-only	Status/Statistics Read/write
Aggregation	3	4	3	5

```
Switch# configure terminal
Switch (config)# web privilege group Aggregation level cro 3 crw 4 sro 3 srw 5
```

copy

copy

Command:

```
copy { startup-config | running-config | <source_path> }
{ startup-config | running-config | <destination_path> }
[ syntax-check ]
```

copy Copy from source to destination
flash:filename | tftp://server/path-and-filename File in FLASH or on TFTP server
running-config Currently running configuration
startup-config Startup configuration Output modifiers
syntax-check Perform syntax check on source configuration

Default:

None

Usage Guide:

To copy configuration from source to destination

Example:

To copy configuration from source (**running-config**) to destination (**startup-config**)

```
Switch# copy running-config startup-config
```

debug

debug

Command:

```
debug prompt <debug_prompt>
```

debug Debugging functions
prompt Set prompt for testing
<debug_prompt> Word for prompt

Default:
None
Usage Guide:
To configure Description of **Debug Prompt**
Example:
To configure Description (1233) of **Debug Prompt**

```
Switch # debug prompt 1233
1233#
```

delete

delete

Command:

```
delete <path>
```

delete Delete one file in flash: file system
<Path : word> Name of file to delete

Default:
None
Usage Guide:
To delete Configuration File of **Flash**
Example:
To delete Configuration File (222) of **Flash**

```
Switch # copy running-config flash:222
Building configuration...
% Saving 1833 bytes to flash:222

Switch # dir
Directory of flash:
   r- 1970-01-01 00:00:00      648 default-config
   rw 1970-01-01 07:26:26     1833 startup-config
   rw 1970-01-01 00:18:40     1833 222
```

```
3 files, 4314 bytes total.

Switch # delete flash:222

Switch # dir
Directory of flash:
   r- 1970-01-01 00:00:00      648 default-config
   rw 1970-01-01 07:26:26     1833 startup-config
2 files, 2481 bytes total.
```

dir

dir

Command:

```
dir
```

dir Directory of all files in flash: file system

Default:

None

Usage Guide:

To list directory of file system

Example:

To list directory of file system

```
Switch # dir
Directory of flash:
   r- 1970-01-01 00:00:00      648 default-config
   rw 1970-01-01 07:26:26     1833 startup-config
2 files, 2481 bytes total.
```

disable

disable

Command:

```
disable
```

disable Turn off privileged commands

Default:

None

Usage Guide:

To exit **enable mode**

Example:

To exit **enable mode**

```
Switch # disable
Switch >
```

do

do

Command:

```
do < exec commands >
```

do To run exec commands.

Default:

N/A

Usage Guide:

To run **exec commands.**

Example:

To run “show aaa”**.**

```
Switch# do show aaa
console : local
telnet  : local
ssh     : local
http    : local
```

dot1x

dot1x initialize

Command:

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

dot1x IEEE Standard for port-based Network Access Control
initialize Force re-authentication immediately

Default:

N/A

Usage Guide:

To re-authenticate specific interface immediately**.**

Example:

To re-authenticate specific interface (**GigabitEthernet 1/1**) immediately**.**

```
Switch# dot1x initialize interface GigabitEthernet 1/1
```

enable

enable

Command:

```
enable
```

enable Turn on privileged commands

Default:

None

Usage Guide:

To enter **enable mode**

Example:

To enter **enable mode**

```
Switch > enable
Switch #
```

erps

erps

Command:

```
erps <group> command { force | manual | clear } { port0 |
port1 }
```

erps Ethernet Ring Protection Switching
1-64 ERPS group number
command Administrative Command
clear Clear command
force Force command
manual Manual command
port0 ERPS Port 0 interface
port1 ERPS Port 1 interface

Default:

None

Usage Guide:

To configure **Instance Command** of **Group**

Example:

To configure **Instance Command** (below table) of **Group (1)**

Command	Port
Forced Switch	Port0

```
Switch # erps 1 command force port0
```

exit

exit

Command:

```
exit
```

exit Exit from EXEC mode

Default:

None

Usage Guide:

To exit EXEC mode

Example:

To exit EXEC mode

```
Switch # disable
Switch > exit

Press ENTER to get started
```

firmware

firmware swap

Command:

```
firmware swap
```

firmware Firmware upgrade/swap
swap Swap between Active and Alternate firmware image

Default:

None

Usage Guide:

To swap **Active** and **Alternate firmware image**

Example:

To swap **Active** and **Alternate firmware image**

```
Switch # firmware swap
```

firmware upgrade

Command:

```
firmware upgrade <tftpserver_path_file>
```

firmware Firmware upgrade/swap
upgrade Firmware upgrade

<TFTPServer_path_file : word> TFTP Server IP address, path and file name for the server containing the new image.

Default:
None
Usage Guide:
To upgrade firmware via **TFTP Server**
Example:
To upgrade firmware via **TFTP Server (File: tftp://192.168.0.11/switch.bin)**

```
Switch # firmware upgrade tftp://192.168.0.11/switch.bin
```

ip

ip dhcp retry interface vlan

Command:

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

ip IPv4 commands
dhcp Dhcp commands
retry Restart the DHCP query process
interface Interface
vlan Vlan interface
<vlan_id> Vlan ID

Default:
None
Usage Guide:
To do **DHCP renew** for specific VLAN
Example:
To do **DHCP renew** for specific VLAN (6)

```
Switch # ip dhcp retry interface vlan 6
```

logout

logout

Command:

```
logout
```

logout Exit from EXEC mode
Default:
None

Usage Guide:
To exit EXEC mode
Example:
To exit EXEC mode

```
Switch # logout

Press ENTER to get started
```

more

more

Command:

```
more <path>
```

more Display file
<Path> File in FLASH or on TFTP server

Default:
None
Usage Guide:
To view the file
Example:
To view the file (222)

```
Switch # copy running-config flash:222
Building configuration...
% Saving 2038 bytes to flash:222

Switch # more flash:222
hostname Switch
username admin privilege 15 password none
!
vlan 1
!
vlan 5
!
!
!
```

no

no

Command:

```
no
```

no Negate a command or set its defaults

Default:

N/A

Usage Guide:

To default the function

Example:

To disable the function (**erps 1 command force port0**)

```
Switch# no erps 1 command force port0
```

ping

ping ip

Command:

```
ping ip <v_ip_addr> [ repeat <count> ] [ size <size> ] [ interval
<seconds> ]
```

ping Send ICMP echo messages
ip IP (ICMP) echo
<v_ip_addr> ICMP destination address
interval Specify repeat interval
<Seconds : 0-30> 0-30; Default is 0
repeat Specify repeat count
<Count : 1-60> 1-60; Default is 5
size Specify datagram size
<Size : 2-1452> 2-1452; Default is 56 (excluding MAC, IP and ICMP headers)

Default:

N/A

Usage Guide:

To run the **IPv4 Ping** function

Example:

To run the **IPv4 Ping** (192.168.0.78) function

```
Switch# ping ip 192.168.0.78
PING server 192.168.0.78, 56 bytes of data.
64 bytes from 192.168.0.78: icmp_seq=0, time=0ms
64 bytes from 192.168.0.78: icmp_seq=1, time=0ms
```

```
64 bytes from 192.168.0.78: icmp_seq=2, time=0ms
64 bytes from 192.168.0.78: icmp_seq=3, time=0ms
64 bytes from 192.168.0.78: icmp_seq=4, time=0ms
Sent 5 packets, received 5 OK, 0 bad
```

ping ipv6

Command:

```
ping ipv6 <v_ipv6_addr> [ repeat <count> ] [ size <size> ]
[ interval <seconds> ] [ interface vlan <v_vlan_id> ]
```

ping Send ICMP echo messages
ipv6 IPv6 (ICMPv6) echo
interface Select an interface to configure
vlan VLAN Interface
<v_vlan_id> VLAN identifier(s): VID
interval Specify repeat interval
<Seconds : 0-30> 0-30; Default is 0
repeat Specify repeat count
<Count : 1-60> 1-60; Default is 5
size Specify datagram size
<Size : 2-1452> 2-1452; Default is 56 (excluding MAC, IP and ICMP headers)

Default:

N/A

Usage Guide:

To run the **IPv6 Ping** function

Example:

To run the **IPv6 Ping** (2001::7788) function

```
Switch# ping ipv6 2001::7788
PING6 server 2001::7788, 56 bytes of data.
recvfrom: Operation timed out
recvfrom: Operation timed out
recvfrom: Operation timed out
recvfrom: Operation timed out
recvfrom: Operation timed out
Sent 5 packets, received 0 OK, 0 bad
```

reload

reload cold

Command:

```
reload cold
```

reload Reload system
cold Reload cold.

Default:
N/A
Usage Guide:
To restart the device.
Example:
To restart the device.

```
Switch# reload cold
```

reload defaults

Command:

```
reload defaults [ keep-ip ]
```

reload Reload system
defaults Reload defaults without rebooting.
keep-ip Attempt to keep VLAN1 IP setup.

Default:
N/A
Usage Guide:
To store the device factory default settings.
Example:
To store the device factory default settings.

```
Switch# reload defaults
```

send

send

Command:

```
send { * | console 0 | vty <vty_list> } <message>
```

reload Reload system
***** All tty lines
console Primary terminal line
vty Virtual terminal

Default:
N/A
Usage Guide:
To send message for **command line** user.
Example:
To send message (hi, I will upgrade the firmware, OK?) for **command line** user (All).

```
Switch # send * 1
Enter TEXT message.  End with the character '1'.
hi, I will upgrade the firmware, OK?
1


---------------------------------------
*** Message from line 0:

hi, I will upgrade the firmware, OK?

---------------------------------------
```

show

show aaa

Command:

```
show aaa
```

show Show running system information
aaa Login methods

Default:

N/A

Usage Guide:

To display the **AAA** services.

Example:

To display the **AAA** services

```
Switch # show aaa
console : local
telnet  : local
ssh     : local
http    : local
```

show access management

Command:

```
show access management [ statistics | <access_id_list> ]
```

show Show running system information
access Access management
management Access management configuration
<AccessIdList : 1~16> ID of access management entry
Statistics Statistics data

Default:

N/A

Usage Guide:

To display **Access Management Statistics.**

Example:

To display **Access Management Statistics.**

```
Switch # show access management statistics

Access Management Statistics:
-----------------------------
HTTP     Receive:        0    Allow:        0    Discard:        0
HTTPS    Receive:        0    Allow:        0    Discard:        0
SNMP     Receive:        0    Allow:        0    Discard:        0
TELNET   Receive:        0    Allow:        0    Discard:        0
SSH      Receive:        0    Allow:        0    Discard:        0
```

show access-list

Command:

```
show access-list [ interface [ ( <port_type>
[ <v_port_type_list> ] ) ] ] [ rate-limiter [ <rate_limiter_list> ] ]
[ ace statistics [ <ace_list> ] ]
```

show Show running system information
access Access management
management Access management configuration
<AccessIdList : 1~16> ID of access management entry
statistics Statistics data

Default:

N/A

Usage Guide:

To display **ACL Statistics, Rate Limiter List, ACE Statistics.**

Example:

To display **ACL Statistics, Rate Limiter List, ACE Statistics for interface GigabitEthernet 1/1.**

```
Switch # show access-list interface GigabitEthernet 1/1 ace
statistics rate-limiter
Switch access-list ace number: 0

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
Switch access-list rate limiter ID 9 is 1 pps
Switch access-list rate limiter ID 10 is 1 pps
```

```
Switch access-list rate limiter ID 11 is 1 pps
Switch access-list rate limiter ID 12 is 1 pps
Switch access-list rate limiter ID 13 is 1 pps
Switch access-list rate limiter ID 14 is 1 pps
Switch access-list rate limiter ID 15 is 1 pps
Switch access-list rate limiter ID 16 is 1 pps

GigabitEthernet 1/1 :
--------------------
GigabitEthernet 1/1 access-list action is permit
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 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

Command:

```
show access-list [ interface [ ( <port_type>
[ <v_port_type_list> ] ) ] ] [ rate-limiter [ <rate_limiter_list> ] ]
[ ace statistics [ <ace_list> ] ]
```

show Show running system information
access-list Access list
ace Access list entry
statistics Traffic statistics
interface Select an interface to configure
rate-limiter Rate limiter

Default:

N/A

Usage Guide:

To display the **ACL Statistics, Rate Limiter List, ACE Statistics.**

Example:

To display the **ACL Statistics, Rate Limiter List, ACE Statistics for interface GigabitEthernet 1/1.**

```
Switch # show access-list interface GigabitEthernet 1/1
ace statistics rate-limiter
Switch access-list ace number: 0

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
Switch access-list rate limiter ID 9 is 1 pps
Switch access-list rate limiter ID 10 is 1 pps
Switch access-list rate limiter ID 11 is 1 pps
Switch access-list rate limiter ID 12 is 1 pps
Switch access-list rate limiter ID 13 is 1 pps
Switch access-list rate limiter ID 14 is 1 pps
Switch access-list rate limiter ID 15 is 1 pps
Switch access-list rate limiter ID 16 is 1 pps

GigabitEthernet 1/1 :
GigabitEthernet 1/1 access-list action is permit
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 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

Command:

```
show access-list ace-status [ static ] [ link-oam ] [ loop-protect ] [ dhcp ] [ ptp ] [ upnp ] [ arp-inspection ] [ mep ] [ ipmc ] [ ip-source-guard ] [ ip-mgmt ] [ conflicts ] [ switch <switch_list> ]
```

show Show running system information
access-list Access list
arp-inspection The ACEs that are configured by ARP Inspection module
conflicts The ACEs that did not get applied to the hardware due to hardware limitations
dhcp The ACEs that are configured by DHCP module
ip-source-guard The ACEs that are configured by IP Source Guard module
ipmc The ACEs that are configured by IPMC module
link-oam The ACEs that are configured by Link OAM module
loop-protect The ACEs that are configured by Loop Protect module
mep The ACEs that are configured by MEP module
ptp The ACEs that are configured by PTP module
static The ACEs that are configured by users manually
upnp The ACEs that are configured by UPnP module

Default:

N/A

Usage Guide:

To display the **ACE Status.**

Example:

To display the **ACE Status.**

```
Switch # show access-list ace-status
User
----
S   : Static
IPSG: IP Source Guard
IPMC: IPMC
MEP : MEP
ARPI: ARP Inspection
UPnP: UPnP
PTP : PTP
DHCP: DHCP
LOOP: Loop Protect
LOAM: Link OAM

User ID   Frame  Action Rate L.  CPU    Counter Conflict
---- --   -----  ------ -------- ------ ------- --------
DHCP 1    UDP    Deny   Disabled Yes         0 No
DHCP 2    UDP    Deny   Disabled Yes         0 No
PTP  1    EType  Deny   Disabled Yes         0 No
PTP  2    EType  Deny   Disabled Yes         0 No
Switch 1 access-list ace number: 4
```

show aggregation

Command:

```
show aggregation [ mode ]
```

show Show running system information
aggregation Aggregation port configuration
mode Traffic distribution mode

Default:

N/A

Usage Guide:

To display the **Aggregation status.**

Example:

To display the **Aggregation status.**

```
Switch # show aggregation
AggrID   Name   Type   Speed   Configured Ports   Aggregated
Ports
-------------------------------------------------------------------------------
----------------------
```

show aggregation mode

Command:

```
show aggregation [ mode ]
```

show Show running system information

aggregation Aggregation port configuration
mode Traffic distribution mode

Default:
N/A
Usage Guide:
To display the **Aggregation mode status.**
Example:
To display the **Aggregation mode status.**

```
Switch # show aggregation mode
Aggregation Mode:

SMAC  : Enabled
DMAC  : Disabled
IP    : Enabled
Port  : Enabled
```

show clock

Command:

```
show clock
```

show Show running system information
clock Configure time-of-day clock

Default:
N/A
Usage Guide:
To display the **system time.**
Example:
To display the **system time.**

```
Switch # show clock
System Time     : 2014-01-01T00:25:51+00:00
```

show clock detail

Command:

```
show clock detail
```

show Show running system information
clock Configure time-of-day clock
detail Display detailed information

Default:
N/A
Usage Guide:
To display the detailed **system time.**
Example:

To display the detailed **system time.**

```
Switch # show clock detail
System Time     : 1970-01-01T00:29:25+00:00

Timezone : Timezone Offset : 0 ( 0 minutes)
Timezone Acronym :

Daylight Saving Time Mode : Disabled.
Daylight Saving Time Start Time Settings :
      Week: 0
      Day: 0
      Month: 0
      Date: 0
      Year: 0
      Hour: 0
      Minute: 0
Daylight Saving Time End Time Settings :
      Week: 0
      Day: 0
      Month: 0
      Date: 0
      Year: 0
      Hour: 0
      Minute: 0
Daylight Saving Time Offset : 1 (minutes)
```

show dot1x statistics

Command:

```
show dot1x statistics
```

show Show running system information
dot1x IEEE Standard for port-based Network Access Control
statistics Shows statistics for either eapol or radius
all Show all dot1x statistics
eapol Show EAPOL statistics
radius Show Backend Server statistics
interface Interface

Default:

N/A

Usage Guide:

To display the **IEEE 802.1X statistics.**

Example:

To display the **All of IEEE 802.1X statistics** for **interface GigabitEthernet 1/1.**

```
Switch # show dot1x statistics all interface GigabitEthernet
1/1
GigabitEthernet 1/1 EAPOL Statistics:
```

```
Rx Total:                    0
Tx Total:                    0
Rx Response/Id:              0
Tx Request/Id:               0
Rx Response:                 0
Tx Request:                  0
Rx Start:                    0
Rx Logoff:                   0
Rx Invalid Type:             0
Rx Invalid Length:           0

GigabitEthernet 1/1 Backend Server Statistics:

Rx Access Challenges:        0
Tx Responses:                0
Rx Other Requests:           0
Rx Auth. Successes:          0
Rx Auth. Failures:           0
```

show dot1x status

Command:

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

show Show running system information
dot1x IEEE Standard for port-based Network Access Control
status Shows dot1x status, such as admin state, port state and last source.
interface Interface
brief Show status in a brief format

Default:
N/A

Usage Guide:
To display the **IEEE 802.1X status.**

Example:
To display the **All of IEEE 802.1X status** for brief.

```
Switch # show dot1x status
GigabitEthernet 1/1 :
---------------------
Admin State        Port State          Last Source       Last ID
------------------     ---------------------        ------------------      ------------
-
Force Authorized    Globally Disabled      -                -

Current Radius QOS    Current Radius VLAN   Current Guest
VLAN
--------------------          --------------------          --------------------
-                        -                  -
```

```
GigabitEthernet 1/2 :
---------------------
Admin State        Port State           Last Source       Last ID
------------------     ---------------------        -----------------      ------------
-
Force Authorized    Globally Disabled      -                -

Current Radius QOS    Current Radius VLAN   Current Guest
VLAN
--------------------          --------------------          --------------------
-                          -                  -
```

show eps

Command:

```
show eps [ <inst> ] [ detail ]
```

show Show running system information
eps Ethernet Protection Switching
<Inst : range_list> The range of EPS instances
detail Show detailed state including configuration information

Default:
N/A

Usage Guide:
To display the **EPS instance information.**

Example:
To display the **EPS instance 1 detailed information.**

```
Switch # show eps 1 detail

EPS state is:
    Inst       State     Wstate     Pstate     TxAps r b
      1      Disable        Ok         Ok        NR 0 0

RxAps r b     FopPm     FopCm     FopNr     FopNoAps
  NR 0 0     False     False     False        False


EPS Configuration is:
    Inst     Dom     Archi     Wflow     Pflow     Wmep     Pmep
      1    Port    1plus1        1         2        3        4

 APSmep     Direct     Revert     Wtr     Hold     Aps
   5        xxx        xxx     xxx      xxx     xxx
```

show erps

Command:

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

show Show running system information
erps Ethernet Ring Protection Switching
<groups> Zero or more ERPS group numbers
detail Show detailed information
statistics Show statistics

Default:

N/A

Usage Guide:

To display the **ERPS group** information.

Example:

To display the **ERPS group 1** detailed information.

```
Switch # show erps 1 detail
Grp#  Port 0        Port 1        RPL:Role   Port    Blocking
  1  Gi 1/1        Gi 1/2        -         -       -
   Protected VLANS:
     None
   Protection Group State           :Active
   Port 0 SF MEP                    :1
   Port 1 SF MEP                    :2
   Port 0 APS MEP                    :1
   Port 1 APS MEP                    :2
   WTR Timeout                      :1
   WTB Timeout                      :5500
   Hold-Off Timeout                 :0
   Guard Timeout                    :500
   Node Type                       :Major
   Reversion                      :Revertive
   Version                       :2
   ERPSv2 Administrative Command      :None

   FSM State                      :PENDING
   Port 0 Link Status               :Link Up
   Port 1 Link Status               :Link Up
   Port 0 Block Status               :BLOCKED
   Port 1 Block Status               :BLOCKED
   R-APS Transmission                  :STOPPED
   R-APS Port 0 Reception            :NONE
   R-APS Port 1 Reception            :NONE
   FOP Alarm                      :OFF
```

show history

Command:

```
show history
```

show Show running system information
history Display the session command history

Default:
N/A
Usage Guide:
To display the **command** history.
Example:
To display the **command** history.

```
Switch # show history
  show green-ethernet interface GigabitEthernet 1/1
  show green-ethernet interface R
  show green-ethernet interface *
  show green-ethernet energy-detect interface *
  show green-ethernet energy-detect
  show green-ethernet
  show green-ethernet short-reach interface *
  show history
```

show interface <port_type> <port_type_list> capabilities

Command:

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

show Show running system information
interface Interface status and configuration
switchport Show interface switchport information
capabilities Display capabilities

Default:
N/A
Usage Guide:
To display the **SFP Transceiver** information.
Example:
To display the **SFP Transceiver** information for **interface GigabitEthernet 1/1**.

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

GigabitEthernet 1/1 Capabilities:
SFP Type: None
SFP Vendor name:
SFP Vendor PN:
SFP Vendor revision:
```

show interface <port_type> <port_type_list> statistics

Command:

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

show Show running system information
interface Interface status and configuration
statistics Display statistics counters
bytes Show byte statistics.
discards Show discard statistics.
down Show ports which are down
errors Show error statistics.
filtered Show filtered statistics.
packets Show packet statistics.
priority Queue number
up Show ports which are up

Default:
N/A
Usage Guide:
To display the **port statistics** information.
Example:
To display the **port statistics** information (Byte statistics) for **interface GigabitEthernet 1/1**.

```
Switch # show interface GigabitEthernet 1/1 statistics bytes
Interface              Rx Octets          Tx Octets
---------------------  -----------------  -----------------
GigabitEthernet 1/1    0                  0
```

show interface <port_type> <port_type_list> status

Command:

```
show interface <port_type> <port_type_list> status
```

show Show running system information
interface Interface status and configuration
status Display status

Default:
N/A
Usage Guide:
To display the **port status**.
Example:
To display the **port status** for **interface GigabitEthernet 1/1**.

```
Switch # show interface GigabitEthernet 1/1 status
Interface            Mode     Speed & Duplex   Max Frame
Excessive  Link
---------------------      -------      ---------------    ---------      ---------  ---
-----
GigabitEthernet 1/1   enabled      Auto        10056     Discard
```

```
Down
```

show interface <port_type> <port_list> switchport

Command:

```
show interface <port_type> <port_list> switchport [ access | trunk | hybrid ]
```

show Show running system information
interface Interface status and configuration
switchport Show interface switchport information
access Show access ports status
hybrid Show hybrid ports status
trunk Show trunk ports status

Default:

N/A

Usage Guide:

To display the **VLAN mode**.

Example:

To display the **VLAN mode** for **interface GigabitEthernet 1/1**.

```
Switch # 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 <port_type> <port_type_list> veriphy

Command:

```
show interface <port_type> <port_type_list> veriphy
```

show Show running system information
interface Interface status and configuration
veriphy Run cable diagnostics and show result.

Default:

N/A

Usage Guide:

To display the result of **Cable Diagnostics**.

Example:

To display the result of **Cable Diagnostics** for **interface GigabitEthernet 1/1**.

```
Switch # show interface GigabitEthernet 1/1 veriphy
Starting VeriPHY - Please wait
Interface             Pair A  Length  Pair B, Length
----------------------      ------  ------     -------  -------
GigabitEthernet 1/1    OK     3      OK     3

Pair C  Length  Pair D  Length
------    ------   ------  -------
OK     3      OK     3
```

show interface <port_type> <port_type_list> veriphy

Command:

```
show interface <port_type> <port_type_list> veriphy
```

show Show running system information
interface Interface status and configuration
veriphy Run cable diagnostics and show result.

Default:

N/A

Usage Guide:

To display the result of **Cable Diagnostics**.

Example:

To display the result of **Cable Diagnostics** for **interface GigabitEthernet 1/1**.

```
Switch # show interface GigabitEthernet 1/1 veriphy
Starting VeriPHY - Please wait
Interface             Pair A  Length  Pair B, Length
----------------------      ------  ------     -------  -------
GigabitEthernet 1/1    OK     3      OK     3

Pair C  Length  Pair D  Length
------    ------   ------  -------
OK     3      OK     3
```

show interface vlan

Command:

```
show interface vlan [ <vlist> ]
```

show Show running system information
interface Interface status and configuration
vlan VLAN status

Default:

N/A

Usage Guide:

To display the MAC address and IP address of specific VLAN.

Example:

To display the MAC address and IP address for all VLANs.

```
Switch # show interface vlan
VLAN1
  LINK: 00-30-4F-00-99-00 Mtu:1500 <UP BROADCAST
RUNNING MULTICAST>
  IPv4: 192.168.0.100/24 192.168.0.255
  IPv6: fe80:2::201:c1ff:fe00:9900/64 <ANYCAST TENTATIVE
AUTOCONF>
```

show ip arp

Command:

```
show ip arp
```

show Show running system information
ip Internet Protocol
arp Address Resolution Protocol

Default:

N/A

Usage Guide:

To display the **ARP table**.

Example:

To display the **ARP table** for all.

```
Switch # show ip arp
192.168.0.45 via VLAN1:d4-3d-7e-fd-e3-ac
192.168.0.78 via VLAN1:00-30-4f-97-72-2d
```

show ip arp inspection

Command:

```
show ip arp inspection
```

show Show running system information
ip Internet Protocol
arp Address Resolution Protocol
inspection ARP inspection

Default:

N/A

Usage Guide:

To display the **ARP Inspection Configuration**.

Example:

To display the **ARP Inspection Configuration**.

```
Switch # 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
```

show ip arp inspection

Command:

```
show ip arp inspection [ interface <port_type>
<port_type_list> ] | vlan <vlan_list> ]
```

show Show running system information
ip Internet Protocol
arp Address Resolution Protocol
inspection ARP inspection
interface Interface status and configuration
vlan VLAN status

Default:

N/A

Usage Guide:

To display the **ARP Inspection Configuration**.

Example:

To display the **ARP Inspection Configuration**.

```
Switch # 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
```

show ip arp inspection entry

Command:

```
show ip arp inspection entry [ dhcp-snooping | static ]
[ interface ( <port_type> [ <port_type_list> ] ) ]
```

show Show running system information
ip Internet Protocol
arp Address Resolution Protocol
inspection ARP inspection
entry arp inspection entries
dhcp-snooping learn from dhcp snooping
static setting from static entries
interface arp inspection entry interface config

Default:

N/A

Usage Guide:

To display the **ARP Inspection entry**.

Example:

To display the **ARP Inspection entry**.

```
Switch # show ip arp inspection entry
```

show ip dhcp detailed statistics

Command:

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

show Show running system information
ip Internet Protocol
dhcp Dynamic Host Configuration Protocol
detailed DHCP server
statistics Traffic statistics
client DHCP client
combined Show all DHCP related statistics
normal-forward DHCP normal L2 or L3 forward
relay DHCP relay
server DHCP server
snooping DHCP snooping
interface arp inspection entry interface config

Default:

N/A

Usage Guide:

To display the **DHCP detailed statistics**.

Example:

To display the **DHCP detailed statistics (Client) for GigabitEthernet 1/1**.

```
Switch # show ip dhcp detailed statistics client interface
GigabitEthernet 1/1
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 Lease Active:                 0
Tx Lease Active:                 0
Rx Discarded checksum error:     0
```

show ip dhcp excluded-address

Command:

```
show ip dhcp excluded-address
```

show Show running system information
ip Internet Protocol
dhcp Dynamic Host Configuration Protocol
excluded-address Excluded IP database

Default:

N/A

Usage Guide:

To display the **excluded IP range**.

Example:

To display the **excluded IP range**.

```
Switch # show ip dhcp excluded-address

   Low Address      High Address
   ---------------  ---------------
01 192.168.0.100    192.168.0.101
```

show ip dhcp pool

Command:

```
show ip dhcp pool [ <pool_name> ]
```

show Show running system information
ip Internet Protocol
dhcp Dynamic Host Configuration Protocol

pool DHCP pools information

Default:

N/A

Usage Guide:

To display the **DHCP pools** information.

Example:

To display the **DHCP pools** information.

```
Switch # show ip dhcp pool

Pool Name: test
-----------------------------------------------
  Type is network
  IP is 192.168.1.100
  Subnet mask is 255.255.255.0
  Subnet broadcast address is -
  Lease time is 1 days 0 hours 0 minutes
  Default router is 192.168.1.1
  Domain name is -
  DNS servers are 168.95.1.1 8.8.8.8
  NTP server is -
  Netbios name server is -
  Netbios node type is -
  Netbios scope identifier is -
  NIS domain name is -
  NIS server is -
  Vendor class information is -
  Client identifer is -
  Hardware address is -
  Client name is -
```

show ip dhcp relay

Command:

```
show ip dhcp relay [ statistics ]
```

show Show running system information
ip Internet Protocol
dhcp Dynamic Host Configuration Protocol
relay DHCP relay agent configuration
statistics Traffic statistics

Default:

N/A

Usage Guide:

To display the **DHCP relay** information.

Example:

To display the **DHCP relay** information.

```
Switch # show ip dhcp relay
Switch DHCP relay mode is enabled
Switch DHCP relay server address is 192.168.0.76
Switch DHCP relay information option is enabled
Switch DHCP relay information policy is keep
```

show ip dhcp server

Command:

```
show ip dhcp server
```

show Show running system information
ip Internet Protocol
dhcp Dynamic Host Configuration Protocol
server DHCP server information

Default:

N/A

Usage Guide:

To display the **DHCP Server Mode Configuration**.

Example:

To display the **DHCP Server Mode Configuration**.

```
Switch # show ip dhcp server

DHCP server is globally disabled.
 All VLANs are disabled.
```

show ip dhcp server binding (GG)

Command:

```
show ip dhcp server binding [ state { allocated | committed |
expired } ] [ type { automatic | manual | expired } ] [ <ip> ]
```

show Show running system information
ip Internet Protocol
dhcp Dynamic Host Configuration Protocol
server DHCP server information
binding DHCP address bindings
state State of binding
allocated Allocated state
committed Committed state
expired Expired state
type Type of binding
automatic Automatic binding with infinite lease time
expired Expired binding that is aged out
manual Manual binding for a specific host
<ip> IP address in dotted-decimal notation

Default:
N/A
Usage Guide:
To display the **DHCP Server binding configuration**.
Example:
To display the **DHCP Server binding configuration**.

```
Switch # show ip dhcp server binding
```

show ip dhcp server declined-ip (GG)

Command:

```
show ip dhcp server declined-ip
```

show Show running system information
ip Internet Protocol
dhcp Dynamic Host Configuration Protocol
server DHCP server information
declined-ip Declined IP address

Default:
N/A
Usage Guide:
To display the **DHCP Decline** information.
Example:
To display the **DHCP Decline** information.

```
Switch # show ip dhcp server declined-ip
```

show ip dhcp server statistics

Command:

```
show ip dhcp server statistics
```

show Show running system information
ip Internet Protocol
dhcp Dynamic Host Configuration Protocol
server DHCP server information
statistics DHCP server statistics

Default:
N/A
Usage Guide:
To display the **DHCP Server** statistics.

Example:

To display the **DHCP Server** statistics.

```
Switch # show ip dhcp server statistics

Database Counters
=========================
 POOL               2
 Excluded IP        1
 Declined IP        0
=========================

Binding Counters
=========================
 Automatic          0
 Manual             0
 Expired            0
=========================

Message Received Counters
=========================
 DISCOVER           0
 REQUEST            0
 DECLINE            0
 RELEASE            0
 INFORM             0
=========================

Message Sent Counters
=========================
 OFFER              0
 ACK                0
 NAK                0
=========================
```

show ip dhcp snooping

Command:

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

show Show running system information
ip Internet Protocol
dhcp Dynamic Host Configuration Protocol
snooping DHCP snooping
interface Select an interface to configure

Default:

N/A

Usage Guide:

To display the **DHCP Snooping** configuration.

Example:

To display the **DHCP Snooping** configuration for **GigabitEthernet 1/1**.

```
Switch # show ip dhcp snooping interface GigabitEthernet 1/1
GigabitEthernet 1/1 untrusted
```

show ip dhcp snooping table

Command:

```
show ip dhcp snooping table
```

show Show running system information
ip Internet Protocol
dhcp Dynamic Host Configuration Protocol
snooping DHCP snooping
table show ip dhcp snooping table

Default:

N/A

Usage Guide:

To display the **DHCP Snooping** table.

Example:

To display the **DHCP Snooping** table.

```
Switch # show ip dhcp snooping table
```

show ip igmp snooping

Command:

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

show Show running system information
ip Internet Protocol
igmp Internet Group Management Protocol
snooping Snooping IGMP
vlan Search by VLAN
group-database Multicast group database from IGMP
interface Search by port
sfm-information Including source filter multicast information from IGMP
detail Detail running information/statistics of IGMP snooping

Default:

N/A

Usage Guide:

To display the **IGMP Snooping** information.

Example:

To display the **IGMP Snooping** information (Detail).

```
Switch # show ip igmp snooping detail

IGMP Snooping is disabled to stop snooping IGMP control plane.
Multicast streams destined to unregistered IGMP groups will be
flooding.
```

show ip igmp snooping mrouter

Command:

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

show Show running system information
ip Internet Protocol
igmp Internet Group Management Protocol
snooping Snooping IGMP
mrouter Multicast router port status in IGMP
detail Detail running information/statistics of IGMP snooping

Default:

N/A

Usage Guide:

To display the **IGMP Router Port** information.

Example:

To display the **IGMP Router Port** information.

```
Switch # show ip igmp snooping mrouter

IGMP Snooping is disabled to stop snooping IGMP control plane.

Switch-1 IGMP Router Port Status
Gi 1/1: Static and Dynamic Router Port
```

show ip interface brief

Command:

```
show ip interface brief
```

show Show running system information
ip Internet Protocol
interface IP interface status and configuration
brief Brief IP interface status

Default:

N/A

Usage Guide:

To display the **IP interface status**.

Example:

To display the **IP interface status**.

```
Switch # show ip interface brief
Vlan Address            Method   Status
```

```
---- ------------------- -------- ------
  1 192.168.0.100/24     Manual   UP
```

show ip name-server

Command:

```
show ip name-server
```

show Show running system information
ip Internet Protocol
name-server Domain Name System

Default:
N/A
Usage Guide:
To display the **DNS Server** information.
Example:
To display the **DNS Server** information.

```
Switch # show ip name-server

Current DNS server is 8.8.8.8 set by STATIC.
```

show ip route

Command:

```
show ip route
```

show Show running system information
ip Internet Protocol
route Display the current ip routing table

Default:
N/A
Usage Guide:
To display the **IP Routing table**.
Example:
To display the **IP Routing table**.

```
Switch # show ip route
11.11.11.0/24 via 192.168.0.14 <UP GATEWAY HW_RT>
127.0.0.1/32 via 127.0.0.1 <UP HOST>
192.168.0.0/24 via VLAN1 <UP HW_RT>
224.0.0.0/4 via 127.0.0.1 <UP>
```

show ip source binding

Command:

```
show ip source binding [ dhcp-snooping | static ] [ interface
( <port_type> [ <port_type_list> ] ) ]
```

show Show running system information
ip Internet Protocol
source source command
binding ip source binding
dhcp-snooping learn from dhcp snooping
interface ip source binding interface config
static setting from static entries

Default:
N/A
Usage Guide:
To display the **Static IP Source Guard Table**.
Example:
To display the **Static IP Source Guard Table**.

```
Switch # show ip source binding interface GigabitEthernet 1/1

Type     Port                VLAN  IP Address      IP Mask
 ----     ----                ----  ----------       -------
Static   GigabitEthernet 1/1        1  192.168.0.22
255.255.255.0
```

show ip ssh

Command:

```
show ip ssh
```

show Show running system information
ip Internet Protocol
ssh Secure Shell

Default:
N/A
Usage Guide:
To display the **SSH Management** status.
Example:
To display the **SSH Management** status.

```
Switch # show ip ssh
Switch SSH is enabled
```

show ip statistics

Command:

```
show ip statistics
```

show Show running system information
ip Internet Protocol

statistics Traffic statistics

Default:

N/A

Usage Guide:

To display the **IP statistics**.

Example:

To display the **IP statistics**.

```
Switch # show ip statistics

IPv4 statistics:

  Rcvd:  9751 total in 1454882 bytes
        9606 local destination, 0 forwarding
        0 header error, 0 address error, 0 unknown protocol
        0 no route, 0 truncated, 145 discarded
  Sent:  8087 total in 2703484 bytes
        8087 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: 913 received in 99661 bytes
        0 sent in 0 byte
  Bcast: 768 received, 0 sent

IP interface statistics:

  IPv4 Statistics on Interface VLAN: 1
  Rcvd:  9751 total in 1454882 bytes
        9606 local destination, 0 forwarding
        0 header error, 0 address error, 0 unknown protocol
        0 no route, 0 truncated, 145 discarded
  Sent:  8087 total in 2703484 bytes
        8087 generated, 0 forwarded
        0 discarded
  Frags: 0 reassemble (0 reassembled, 0 couldn't reassemble)
        0 fragment (0 fragmented, 0 couldn't fragment)
        0 fragment created
  Mcast: 913 received in 99661 bytes
        0 sent in 0 byte
  Bcast: 768 received, 0 sent

IPv4 ICMP statistics:

  Rcvd: 2618 Messages, 0 Error
  Sent: 2618 Messages, 0 Error

ICMP message statistics:
```

```
IPv4 ICMP Message: Echo Reply
Rcvd: 0 Packet
Sent: 2618 Packets
IPv4 ICMP Message: Echo
Rcvd: 2618 Packets
Sent: 0 Packet
```

show ip verify source

Command:

```
show ip verify source [ interface ( <port_type>
[ <port_type_list> ] ) ]
```

show Show running system information
ip Internet Protocol
verify verify command
source verify source
interface ip verify source interface config

Default:

N/A

Usage Guide:

To display the **IP Source Guard** configuration.

Example:

To display the **IP Source Guard** configuration for **GigabitEthernet 1/1**.

```
Switch # show ip verify source interface GigabitEthernet 1/1

Port                Port Mode    Dynamic Entry Limit
----                ---------    -------------------
GigabitEthernet 1/1          enabled          1
```

show ipmc profile

Command:

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

show Show running system information
ipmc IPv4/IPv6 multicast configuration
profile IPMC profile configuration
<ProfileName : word16> Profile name
detail Detail information of a profile

Default:

N/A

Usage Guide:

To display the **IP Multicast Profile**.

Example:

To display the **IP Multicast Profile**.

```
Switch # show ipmc profile

IPMC Profile is now enabled to start filtering.

Profile: 1 (In VER-INI Mode)
Description: test
```

show ipmc range

Command:

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

show Show running system information
ipmc IPv4/IPv6 multicast configuration
range A range of IPv4/IPv6 multicast addresses for the profile
<EntryName : word16> Range entry name

Default:
N/A
Usage Guide:
To display the **IP Multicast Range**.
Example:
To display the **IP Multicast Range**.

```
Switch # show ipmc range

Range Name   : 1
Start Address: 224.24.24.24
End Address  : 224.24.24.25
```

show ipv6 interface

Command:

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

show Show running system information
ipv6 IPv6 configuration commands
vlan VLAN of IPv6 interface
brief Brief summary of IPv6 status and configuration
statistics Traffic statistics

Default:
N/A
Usage Guide:
To display the **IPv6 configuration**.
Example:
To display the **IPv6 configuration**.

```
Switch # show ipv6 interface

IPv6 Vlan1 interface is up.
  Internet address is 2001::7766
  Internet address is fe80::201:c1ff:fe00:9900
  Static address is 2001::7766/64
  IP stack index (IFID) is 2
  Routing is enabled on this interface
  MTU is 1500 bytes

  IPv6 Statistics on Interface VLAN: 1
  Rcvd:  3 total in 168 bytes
        3 local destination, 0 forwarding
        0 header error, 0 address error, 0 unknown protocol
        0 no route, 0 truncated, 0 discarded
  Sent:  17 total in 1104 bytes
        17 generated, 0 forwarded
        0 discarded
  Frags: 0 reassemble (0 reassembled, 0 couldn't reassemble)
        0 fragment (0 fragmented, 0 couldn't fragment)
        0 fragment created
  Mcast: 3 received in 168 bytes
        17 sent in 1104 bytes
  Bcast: 0 received, 0 sent
```

show ipv6 mld snooping

Command:

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

show Show running system information
ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD
vlan Search by VLAN
group-database Multicast group database from MLD
interface Search by port
sfm-information Including source filter multicast information from MLD
detail Detail running information/statistics of MLD snooping

Default:

N/A

Usage Guide:

To display the **MLD Snooping** information.

Example:

To display the **MLD Snooping** information (Detail).

```
Switch # show ipv6 mld snooping detail
```

MLD Snooping is disabled to stop snooping MLD control plane. Multicast streams destined to unregistered MLD groups will be flooding.

show ipv6 mld snooping mrouter

Command:

show ip igmp snooping mrouter [detail]

show Show running system information
ipv6 IPv6 configuration commands
mld Multicast Listener Discovery
snooping Snooping MLD
mrouter Multicast router port status in MLD
detail Detail running information/statistics of MLD snooping

Default:

N/A

Usage Guide:

To display the **MLD Router Port** information.

Example:

To display the **MLD Router Port** information.

```
Switch # show ipv6 mld snooping mrouter

MLD Snooping is enabled to start snooping MLD control plane.

Switch-1 MLD Router Port Status
Gi 1/1: Static and Dynamic Router Port
```

show ipv6 neighbor

Command:

show ipv6 neighbor [interface vlan <vlan_list>]

show Show running system information
ipv6 IPv6 configuration commands
neighbor IPv6 neighbors
interface Select an interface to configure
vlan VLAN of IPv6 interface

Default:

N/A

Usage Guide:

To display the **IPv6 neighbor** information.

Example:

To display the **IPv6 neighbor** information.

```
Switch # show ipv6 neighbor
```

```
2001::7766 via VLAN1: 00-30-4F-00-99-00
Permanent/REACHABLE
fe80::201:c1ff:fe00:9900 via VLAN1: 00-30-4F-00-99-00
Permanent/REACHABLE
```

show ipv6 route

Command:

```
show ipv6 route [ interface vlan <vlan_list> ]
```

show Show running system information
ipv6 IPv6 configuration commands
route IPv6 routes
interface Select an interface to configure
vlan VLAN of IPv6 interface

Default:

N/A

Usage Guide:

To display the **IPv6 Routing table**.

Example:

To display the **IPv6 Routing table**.

```
Switch # show ipv6 route
::1/128 via ::1 <UP HOST>
2001::/64 via VLAN1 <UP HW_RT>
2001::7766/128 via 1:c100:9900:: <UP HOST>
2002::/64 via 2001::7788 <UP GATEWAY HW_RT>
```

show ipv6 statistics

Command:

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

show Show running system information
ipv6 IPv6 configuration commands
statistics Traffic statistics
icmp IPv6 ICMP traffic
icmp-msg IPv6 ICMP traffic for designated message type
<Type : 0~255> ICMP message type ranges from 0 to 255
interface Select an interface to configure
vlan IPv6 interface traffic
system IPv6 system traffic

Default:

N/A

Usage Guide:

To display the **IPv6 statistics**.

Example:

To display the **IPv6 statistics**.

```
Switch # show ipv6 statistics

IPv6 statistics:

  Rcvd:  24 total in 2064 bytes
        6 local destination, 0 forwarding
        0 header error, 0 address error, 0 unknown protocol
        0 no route, 0 truncated, 18 discarded
  Sent:  34 total in 2208 bytes
        38 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: 24 received in 2064 bytes
        34 sent in 2208 bytes
  Bcast: 0 received, 0 sent

IP interface statistics:

  IPv6 Statistics on Interface VLAN: 1
  Rcvd:  12 total in 1032 bytes
        3 local destination, 0 forwarding
        0 header error, 0 address error, 0 unknown protocol
        0 no route, 0 truncated, 9 discarded
  Sent:  17 total in 1104 bytes
        17 generated, 0 forwarded
        0 discarded
  Frags: 0 reassemble (0 reassembled, 0 couldn't reassemble)
        0 fragment (0 fragmented, 0 couldn't fragment)
        0 fragment created
  Mcast: 12 received in 1032 bytes
        17 sent in 1104 bytes
  Bcast: 0 received, 0 sent

IPv6 ICMP statistics:

  Rcvd: 3 Messages, 0 Error
  Sent: 19 Messages, 0 Error

ICMP message statistics:

  IPv6 ICMP Message: Multicast Listener Report
  Rcvd: 0 Packet
  Sent: 10 Packets
  IPv6 ICMP Message: Router Solicitation (NDP)
  Rcvd: 3 Packets
  Sent: 6 Packets
  IPv6 ICMP Message: Neighbor Solicitation (NDP)
  Rcvd: 0 Packet
```

```
Sent: 3 Packets
```

show lacp

Command:

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

show Show running system information
lacp LACP configuration/status
internal Internal LACP configuration
neighbour Neighbour LACP status
statistics Internal LACP statistics
system-id LACP system id

Default:

N/A

Usage Guide:

To display the **LACP mode** information.

Example:

To display the **LACP mode** information.

```
Switch # show lacp internal
Port              Mode    Key   Role    Timeout  Priority
--------------------      --------    ----  ------  -------     --------
Gi 1/1            Enabled   Auto  Active  Fast    32768
Gi 1/2            Enabled   Auto  Active  Fast    32768
Gi 1/3            Disabled   Auto  Active  Fast    32768
```

show line

Command:

```
show line [ alive ]
```

show Show running system information
line TTY line information
alive Display information about alive lines

Default:

N/A

Usage Guide:

To display the **VTY** information.

Example:

To display the **VTY** information.

```
Switch # show line alive
Line is con 0.
   * You are at this line now.
   Alive from Console.
   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 17 min 20 sec.
Idle time is 0 day 0 hour 0 min 0 sec.
```

show lldp med media-vlan-policy

Command:

```
show lldp med media-vlan-policy [<0~31>]
```

show Show running system information
lldp Display LLDP neighbors information
med Display LLDP-MED neighbors information
media-vlan-policy Display media vlan policies
<0~31> List of policies

Default:
N/A
Usage Guide:
To display the **LLDP-MED policy** information.
Example:
To display the **LLDP-MED policy** information.

```
Switch # show lldp med media-vlan-policy
Policy Id  Application Type        Tag     Vlan ID  L2 Priority  DSCP
0          Voice                   Tagged  1        0            0
```

show lldp med remote-device

Command:

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

show Show running system information
lldp Display LLDP neighbors information
med Display LLDP-MED neighbors information
remote-device Display remote device LLDP-MED neighbors information
interface Interface to display

Default:
N/A
Usage Guide:
To display the **LLDP-MED entries** information.
Example:

To display the **LLDP-MED entries** information.

```
Switch # show lldp med remote-device
No LLDP-MED entries found
```

show lldp neighbors

Command:

```
show lldp neighbors [ interface ( <port_type>
[ <port_type_list> ] ) ]
```

show Show running system information
lldp Display LLDP neighbors information
neighbors Display LLDP neighbors information
interface Interface to display

Default:

N/A

Usage Guide:

To display the **LLDP neighbors** information.

Example:

To display the **LLDP neighbors** information.

```
Switch # show lldp neighbors
No LLDP entries found
```

show lldp statistics

Command:

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

show Show running system information
lldp Display LLDP neighbors information
statistics Display LLDP statistics information
interface Interface to display

Default:

N/A

Usage Guide:

To display the **LLDP statistics** information.

Example:

To display the **LLDP statistics** information for **GigabitEthernet 1/1**.

```
Switch # show lldp statistics interface GigabitEthernet 1/1
                    Rx      Tx      Rx
Interface           Frames  Frames  Errors
---------           ------  ------  ------
GigabitEthernet 1/1     0    3030    0

Rx      Rx TLV  Rx TLV  Rx TLV
```

```
Discards  Errors    Unknown  Organiz.  Aged
--------    ------     -------    --------    ----
0       0       0          0       0
```

show logging

Command:

```
show logging {<log_id> | error | info | warning } [ switch
<switch_list> ]
```

show Show running system information
logging Syslog
<logging_id: 1-4294967295> Logging ID
switch Switch
<switch_list> Switch ID list in 1

Default:

N/A

Usage Guide:

To display the **Syslog** information.

Example:

To display the **Syslog** information with Log ID 235861.

```
Switch # show logging 235861
Switch : 1
ID     : 235861
Level  : Warning
Time   : 1970-01-01T13:33:57+00:00
Message:
Loop Detected: Port 5 shut down
```

show loop-protect

Command:

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

show Show running system information
loop-protect Loop protection configuration
interface Interface status and configuration

Default:

N/A

Usage Guide:

To display the **Loop protection** information.

Example:

To display the **Loop protection** information for **GigabitEthernet 1/1**.

```
Switch # show loop-protect interface GigabitEthernet 1/1

Loop Protection Configuration
```

```
==================================
Loop Protection   : Enable
Transmission Time : 2 sec
Shutdown Time     : 2 sec

GigabitEthernet 1/1
------------------------------
   Loop protect mode is enabled.
   Actions are both of shutdown and log.
   Transmit mode is enabled.
   No loop.
   The number of loops is 12390.
   Time of last loop is at 1970-01-01T14:58:28+00:00
   Status is down.
```

show mac address-table

Command:

```
show mac address-table [ conf | static | aging-time |
{ { learning | count } [ interface ( <port_type>
[ <port_type_list> ] ) ] } | { address <mac_addr> [ vlan
<vlan_id> ] } | vlan <vlan_id_1> | interface ( <port_type>
[ <port_type_list> ] ) ]
```

show Show running system information
mac MAC Address Table information
address-table MAC Address Table
address MAC address lookup
aging-time Aging time
conf User added static MAC addresses
count Total number of MAC addresses
interface Select an interface to configure
learning Learn/disable/secure state
static All static MAC addresses
vlan Addresses in this VLAN

Default:

N/A

Usage Guide:

To display the **MAC address table**.

Example:

To display the **MAC address table** for **VLAN 1**.

```
Switch # show mac address-table vlan 1
Type    VID  MAC Address        Ports
Static  1    33:33:00:00:00:01  GigabitEthernet 1/1-25
10GigabitEthernet 1/1-4 CPU
Static  1    33:33:00:00:00:02  GigabitEthernet 1/1-25
10GigabitEthernet 1/1-4 CPU
Static  1    33:33:ff:00:99:00  GigabitEthernet 1/1-25
10GigabitEthernet 1/1-4 CPU
```

```
Dynamic 1    d4:3d:7e:fd:e3:ac  GigabitEthernet 1/21
Static  1    ff:ff:ff:ff:ff:ff  GigabitEthernet 1/1-25 10GigabitEthernet
1/1-4 CPU
```

show mep

Command:

```
show mep [ <instance> ] [ peer | cc | lm | dm | lt | lb | tst | aps |
client | ais | lck ] [ detail ]
```

show Show running system information
mep Maintenance Entity Point
<instance> The range of MEP instances
ais Show AIS state
aps Show APS state
cc Show CC state
client Show Client state
detail Show detailed state including configuration information.
dm Show DM state
lb Show LB state
lck Show LCK state
lm Show LM state
lt Show LT state
peer Show peer mep state
tst Show TST state

Default:

N/A

Usage Guide:

To display the **MEP** information.

Example:

To display the **MEP instance 1** information.

```
Switch # show mep 1

MEP state is:
  Inst  cLevel  cMeg  cMep  cAis   cLck   cSsf   aBlk   aTsf
    1   False  False  False  False  False  True  False  True
```

show mvr

Command:

```
show mvr [ vlan <vlan_list> | name <mvr_name> ] [ group-
database [ interface ( <port_type> [ <port_type_list> ] ) ]
[ sfm-information ] ] [ detail ]
```

show Show running system information
mvr Multicast VLAN Registration configuration
name Search by MVR name
vlan Search by VLAN
group-database Multicast group database from MVR

interface Search by port
sfm-information Including source filter multicast information from MVR
detail Detail information/statistics of MVR group database

Default:
N/A
Usage Guide:
To display the **MVR** information.
Example:
To display the **MVR** information.

```
Switch # show mvr

MVR is now enabled to start group registration.

Switch-1 MVR-IGMP Interface Status

IGMP MVR VLAN 1 (Name is 1) interface is enabled.
Querier status is IDLE
RX IGMP Query:0 V1Join:0 V2Join:0 V3Join:0 V2Leave:0
TX IGMP Query:0 / (Source) Specific Query:0
Interface Channel Profile: <No Associated Profile>

Switch-1 MVR-MLD Interface Status

MLD MVR VLAN 1 (Name is 1) interface is enabled.
Querier status is IDLE
RX MLD Query:0 V1Report:0 V2Report:0 V1Done:0
TX MLD Query:0 / (Source) Specific Query:0
Interface Channel Profile: <No Associated Profile>
```

show ntp status

Command:

```
show ntp status
```

show Show running system information
ntp Configure NTP
status status

Default:
N/A
Usage Guide:
To display the **NTP Server** information.
Example:
To display the **NTP Server** information.

```
Switch # show ntp status
NTP Mode : enabled
Idx   Server IP host address (a.b.c.d) or a host name string
```

```
---   ----------------------------------------------------
1     192.168.0.44
2
3
4
5
```

show platform phy

Command:

```
show platform phy [ interface ( <port_type>
[ <port_type_list> ] ) ]
```

show Show running system information
platform Platform specific information
phy PHYs' information
interface Search by port

Default:
N/A
Usage Guide:
To display the **PHY** information.
Example:
To display the **PHY** information for **GigabitEthernet 1/1**.

```
Switch # show platform phy interface GigabitEthernet 1/1
Port   API Inst   WAN/LAN/1G  Mode      Duplex    Speed     Link
----    ---------     ---------    ----        ------     -----      ----
1      Default      1G       ANEG        -         -         No
```

show platform phy failover

Command:

```
show platform phy failover
```

show Show running system information
platform Platform specific information
phy PHYs' information
failover Failover status

Default:
N/A
Usage Guide:
To display the **PHY** failover status.
Example:
To display the **PHY** failover status.

```
Switch # show platform phy failover
Port        Active     Channel    Broadcast  After reset
----         ------      -------      ---------    ------------
```

show platform phy id

Command:

```
show platform phy id [ interface ( <port_type>
[ <port_type_list> ] ) ]
```

show Show running system information
platform Platform specific information
phy PHYs' information
id id
interface Search by port

Default:
N/A

Usage Guide:
To display the **PHY** ID.

Example:
To display the **PHY** ID for **GigabitEthernet 1/1**.

```
Switch # show platform phy id interface GigabitEthernet 1/1
Port   Channel    API Base   Phy Id     Phy Rev.
----      -------      --------      -------      ------
1      0          0 (1g)     8634       0
```

show platform phy status

Command:

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

show Show running system information
platform Platform specific information
phy PHYs' information
status status
interface Search by port

Default:
N/A

Usage Guide:
To display the **PHY** status.

Example:
To display the **PHY** status.

```
Switch # show platform phy status interface GigabitEthernet
1/1
Port   Issues seen during 1G PHY warmstart   Issues during 10G
PHY WS
----      ----------------------------------          ------------------------
1              No                                No
```

show port-security port

Command:

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

show Show running system information
port-security port-security
port Show MAC Addresses learned by Port Security
interface Search by port

Default:
N/A
Usage Guide:
To display the **MAC Addresses** of **Port Security**.
Example:
To display the **MAC Addresses** of **Port Security**.

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

show port-security switch

Command:

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

show Show running system information
port-security port-security
switch Show Port Security status
interface Search by port

Default:
N/A
Usage Guide:
To display the status of **Port Security**.
Example:
To display the status of **Port Security**.

```
Switch # show port-security switch interface GigabitEthernet
1/1
Users:
L = Limit Control
8 = 802.1X
D = DHCP Snooping
V = Voice VLAN
```

```
Interface               Users  State         MAC Cnt
----------------------        -----    -------------        -------
GigabitEthernet 1/1      ----     No users            0
```

show privilege

Command:

```
show privilege
```

show Show running system information
privilege Display command privilege

Default:
N/A
Usage Guide:
To display the **Privilege** information.
Example:
To display the **Privilege** information.

```
Switch # show privilege
```

show pvlan

Command:

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

show Show running system information
pvlan PVLAN configuration

Default:
N/A
Usage Guide:
To display the Private VLAN membership configuration.
Example:
To display the Private VLAN membership configuration for all VLANs.

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

show pvlan isolation

Command:

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

show Show running system information

pvlan PVLAN configuration
isolation show isolation configuration
interface Search by port

Default:
N/A
Usage Guide:
To display the port isolation configuration.
Example:
To display the port isolation configuration.

```
Switch # show pvlan isolation
Port                          Isolation
------------------------------          ---------
GigabitEthernet 1/1           Disabled
GigabitEthernet 1/2           Disabled
GigabitEthernet 1/3           Disabled
```

show qos

Command:

```
show qos [ { interface [ ( <port_type> [ <port> ] ) ] } | wred |
{ maps [ dscp-cos ] [ dscp-ingress-translation ] [ dscp-
classify ] [ cos-dscp ] [ dscp-egress-translation ] } | { qce
[ <qce> ] } ]
```

show Show running system information
qos Quality of Service
interface Interface
maps Global QoS Maps/Tables
cos-dscp Map for cos to dscp
dscp-classify Map for dscp classify enable
dscp-cos Map for dscp to cos
dscp-egress-translation Map for dscp egress translation
dscp-ingress-translation Map for dscp ingress translation
qce QoS Control Entry
<qce> QCE ID
wred Weighted Random Early Discard

Default:
N/A
Usage Guide:
To display the **QoS** configuration.
Example:
To display the **QoS** configuration for **GigabitEthernet 1/1**.

```
Switch # 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
 qos map tag-cos pcp 3 dei 1 cos 3 dpl 1
 qos map tag-cos pcp 4 dei 0 cos 4 dpl 0
 qos map tag-cos pcp 4 dei 1 cos 4 dpl 1
 qos map tag-cos pcp 5 dei 0 cos 5 dpl 0
 qos map tag-cos pcp 5 dei 1 cos 5 dpl 1
 qos map tag-cos pcp 6 dei 0 cos 6 dpl 0
 qos map tag-cos pcp 6 dei 1 cos 6 dpl 1
 qos map tag-cos pcp 7 dei 0 cos 7 dpl 0
 qos map tag-cos pcp 7 dei 1 cos 7 dpl 1
 qos trust dscp disabled
 qos policer mode: disabled, rate: 500 kbps
 qos queue-policer queue 0 mode: disabled, rate: 500 kbps
 qos queue-policer queue 1 mode: disabled, rate: 500 kbps
 qos queue-policer queue 2 mode: disabled, rate: 500 kbps
 qos queue-policer queue 3 mode: disabled, rate: 500 kbps
 qos queue-policer queue 4 mode: disabled, rate: 500 kbps
 qos queue-policer queue 5 mode: disabled, rate: 500 kbps
 qos queue-policer queue 6 mode: disabled, rate: 500 kbps
 qos queue-policer queue 7 mode: disabled, rate: 500 kbps
 qos shaper mode: disabled, rate: 500 kbps
 qos queue-shaper queue 0 mode: disabled, rate: 500 kbps,
excess: disabled
 qos queue-shaper queue 1 mode: disabled, rate: 500 kbps,
excess: disabled
 qos queue-shaper queue 2 mode: disabled, rate: 500 kbps,
excess: disabled
 qos queue-shaper queue 3 mode: disabled, rate: 500 kbps,
excess: disabled
 qos queue-shaper queue 4 mode: disabled, rate: 500 kbps,
excess: disabled
 qos queue-shaper queue 5 mode: disabled, rate: 500 kbps,
excess: disabled
 qos queue-shaper queue 6 mode: disabled, rate: 500 kbps,
excess: disabled
 qos queue-shaper queue 7 mode: disabled, rate: 500 kbps,
excess: disabled
 qos wrr mode: disabled, weight: q0:17 q1:17 q2:17 q3:17 q4:17
q5:17
 qos tag-remark classified
 qos map cos-tag cos 0 dpl 0 pcp 1 dei 0
 qos map cos-tag cos 0 dpl 1 pcp 1 dei 1
 qos map cos-tag cos 1 dpl 0 pcp 0 dei 0
 qos map cos-tag cos 1 dpl 1 pcp 0 dei 1
```

```
qos map cos-tag cos 2 dpl 0 pcp 2 dei 0
qos map cos-tag cos 2 dpl 1 pcp 2 dei 1
qos map cos-tag cos 3 dpl 0 pcp 3 dei 0
qos map cos-tag cos 3 dpl 1 pcp 3 dei 1
qos map cos-tag cos 4 dpl 0 pcp 4 dei 0
qos map cos-tag cos 4 dpl 1 pcp 4 dei 1
qos map cos-tag cos 5 dpl 0 pcp 5 dei 0
qos map cos-tag cos 5 dpl 1 pcp 5 dei 1
qos map cos-tag cos 6 dpl 0 pcp 6 dei 0
qos map cos-tag cos 6 dpl 1 pcp 6 dei 1
qos map cos-tag cos 7 dpl 0 pcp 7 dei 0
qos map cos-tag cos 7 dpl 1 pcp 7 dei 1
qos dscp-translate disabled
qos dscp-classify disabled
qos dscp-remark disabled
qos storm unicast mode: disabled, rate: 500 kbps
qos storm broadcast mode: disabled, rate: 500 kbps
qos storm unknown mode: disabled, rate: 500 kbps
```

show radius-server

Command:

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

show Show running system information
radius-server RADIUS configuration
statistics RADIUS statistics

Default:

N/A

Usage Guide:

To display the **RADIUS Server** configuration.

Example:

To display the **RADIUS Server** configuration.

```
Switch # show radius-server
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 hosts configured!
```

show rmon alarm

Command:

```
show rmon alarm [ <id_list> ]
```

show Show running system information
rmon RMON statistics
alarm Display the RMON alarm table

Default:
N/A
Usage Guide:
To display the **RMON Alarm** configuration.
Example:
To display the **RMON Alarm ID 1** configuration.

```
Switch # show rmon alarm 1

Alarm ID :    1
---------------
    Interval         : 30
    Variable         : .1.3.6.1.2.1.2.2.1.20.1
    SampleType       : deltaValue
    Value        : 0
    Startup          : risingOrFallingAlarm
    RisingThrld      : 2
    FallingThrld     : 1
    RisingEventIndex  : 2
    FallingEventIndex : 1
```

show rmon event

Command:

```
show rmon event [ <id_list> ]
```

show Show running system information
rmon RMON statistics
event Display the RMON event table

Default:
N/A
Usage Guide:
To display the **RMON Event** configuration.
Example:
To display the **RMON Event ID 1** configuration.

```
Switch # show rmon event 1

Event ID :    1
---------------
    Description     : 2
```

```
        Type          : none
        Community     : public
        LastSent      : Never
```

show rmon history

Command:

```
    show rmon history [ <id_list> ]
```

show Show running system information
rmon RMON statistics
history Display the RMON history table

Default:
N/A
Usage Guide:
To display the **RMON History** configuration.
Example:
To display the **RMON History ID 1** configuration.

```
    Switch # show rmon history 1

    History ID :    1
    -----------------
      Data Source        : .1.3.6.1.2.1.2.2.1.1.5
      Data Bucket Request : 50
      Data Bucket Granted : 50
      Data Interval      : 1800
```

show rmon statistics

Command:

```
    show rmon statistics [ <id_list> ]
```

show Show running system information
rmon RMON statistics
statistics Display the RMON statistics table

Default:
N/A
Usage Guide:
To display the **RMON Statistics** configuration.
Example:
To display the **RMON Statistics ID 1** configuration.

```
    Switch # show rmon statistics 1

    Statistics ID :    1
```

```
--------------------
   Data Source : .1.3.6.1.2.1.2.2.1.1.5
   etherStatsDropEvents         : 3
   etherStatsOctets             : 10221727
   etherStatsPkts               : 127086
   etherStatsBroadcastPkts      : 45280
   etherStatsMulticastPkts      : 70008
   etherStatsCRCAlignErrors     : 0
   etherStatsUndersizePkts      : 0
   etherStatsOversizePkts       : 0
   etherStatsFragments          : 0
   etherStatsJabbers            : 0
   etherStatsCollisions         : 0
   etherStatsPkts64Octets       : 26017
   etherStatsPkts65to127Octets  : 101063
   etherStatsPkts128to255Octets : 5
   etherStatsPkts256to511Octets : 1
   etherStatsPkts512to1023Octets : 0
   etherStatsPkts1024to1518Octets: 0
```

show running-config

Command:

```
show running-config [ all-defaults ] [feature <feature_name>
[ all-defaults ]] [interface vlan <list> [ all-defaults ] ]  [line
{ console | vty } <list> [ all-defaults ]]  [vlan <list> [ all-
defaults ]]
```

show Show running system information
running-config Show running system information
all-defaults Include most/all default values
feature Show configuration for specific feature
<feature_name> Valid words are 'GVRP' 'access' 'access-list' 'aggregation' 'arp-inspection' 'auth' 'clock' 'dhcp' 'dhcp-snooping''dhcp_server' 'dns' 'dot1x' 'eps' 'erps' 'evc' 'green-ethernet' 'http' 'icli' 'ip-igmp-snooping' 'ip-igmp-snooping-port' 'ip-igmp-snooping-vlan' 'ipmc-profile' 'ipmc-profile-range' 'ipv4' 'ipv6' 'ipv6-mld-snooping' 'ipv6-mld-snooping-port' 'ipv6-mld-snooping-vlan' 'lacp' 'link-oam' 'lldp' 'logging' 'loop-protect' 'mac' 'mep' 'monitor' 'mstp' 'mvr' 'mvr-port' 'network-clock' 'ntp' 'phy' 'poe' 'port' 'port-security' 'ptp' 'pvlan' 'qos' 'rmon' 'snmp' 'source-guard' 'ssh' 'upnp' 'user' 'vlan' 'voice-vlan' 'web-privilege-group-level'
all-defaults Include most/all default values
interface Show specific interface(s)
vlan VLAN
line Show line settings
console Console
vty VTY

Default:

N/A

Usage Guide:

To display the **running-config**.

Example 1:

To display the **running-config**.

```
Switch # show running-config
Building configuration...
username admin privilege 15 password none
loop-protect
loop-protect transmit-time 2
loop-protect shutdown-time 2
!
vlan 1
!
!
!
```

Example 2:

To display the **running-config** with filtered **MVR** function

```
Switch # show running-config feature mvr
Building configuration...
!
vlan 1
!
!
!
mvr
mvr vlan 1 name 1
```

show snmp

Command:

```
show snmp
```

show Show running system information
snmp Display SNMP configurations

Default:

N/A

Usage Guide:

To display the **SNMP** information.

Example:

To display the **SNMP** information

```
Switch # show snmp

SNMP Configuration
SNMP Mode               : enabled
SNMP Version            : 2c
```

```
Read Community              : public
Write Community             : private
Trap Mode                   : disabled
Trap Version                : 1

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


SNMPv3 Users Table:
User Name             : default_user
Engine ID             : 800007e5017f000001
Security Level        : NoAuth, NoPriv
Authentication Protocol : None
Privacy Protocol      : None


SNMPv3 Groups Table;
Security Model : v1
Security Name  : public
Group Name     : default_ro_group

Security Model : v1
Security Name  : private
Group Name     : default_rw_group

Security Model : v2c
Security Name  : public
Group Name     : default_ro_group

Security Model : v2c
Security Name  : private
Group Name     : default_rw_group

Security Model : v3
Security Name  : default_user
Group Name     : default_rw_group


SNMPv3 Accesses Table:
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


SNMPv3 Views Table:
View Name   : default_view
OID Subtree : .1
View Type   : included
```

show snmp access

Command:

```
show snmp access [ <group_name> { v1 | v2c | v3 | any }
{ auth | noauth | priv } ]
```

show Show running system information
snmp Display SNMP configurations
access access configuration
<GroupName : word32> group name
any any security model
v1 v1 security model
v2c v2c security model
v3 v3 security model
auth authNoPriv Security Level
noauth noAuthNoPriv Security Level
priv authPriv Security Level

Default:

N/A

Usage Guide:

To display the **SNMP Access** information.

Example:

To display the **SNMP Access** information

```
Switch # 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 host

Command:

```
show snmp host [ <conf_name> ] [ system ] [ switch ]
[ interface ] [ aaa ]
```

show Show running system information
snmp Display SNMP configurations
host Set SNMP host's configurations
<ConfName : word32> Name of the host configuration
aaa AAA event group
interface Interface event group
switch Switch event group
system System event group

Default:

N/A

Usage Guide:

To display the **SNMP Host** information.

Example:

To display the **SNMP Host** information

```
Switch # show snmp host
Trap Global Mode: Disabled
```

show snmp mib context

Command:

```
show snmp mib context
```

show Show running system information
snmp Display SNMP configurations
mib MIB(Management Information Base)
context MIB context

Default:

N/A

Usage Guide:

To display the **SNMP MIB contexts**.

Example:

To display the **SNMP MIB contexts.**

```
Switch # show snmp mib context
BRIDGE-MIB :
   - dot1dBase (.1.3.6.1.2.1.17.1)
   - dot1dTp (.1.3.6.1.2.1.17.4)
Dot3-OAM-MIB :
   - dot3OamMIB (.1.3.6.1.2.1.158)
ENTITY-MIB :
   - entityMIBObjects (.1.3.6.1.2.1.47.1)
EtherLike-MIB :
   - transmission (.1.3.6.1.2.1.10)
```

```
IEEE8021-MSTP-MIB :
   - ieee8021MstpMib (.1.3.111.2.802.1.1.6)
IEEE8021-PAE-MIB :
   - ieee8021paeMIB (.1.0.8802.1.1.1.1)
IEEE8023-LAG-MIB :
   - lagMIBObjects (.1.2.840.10006.300.43.1)
IF-MIB :
   - ifMIB (.1.3.6.1.2.1.31)
IP-FORWARD-MIB :
   - ipForward (.1.3.6.1.2.1.4.24)
IP-MIB :
   - ipv4InterfaceTable (.1.3.6.1.2.1.4.28)
   - ipv6InterfaceTable (.1.3.6.1.2.1.4.30)
   - ipTrafficStats (.1.3.6.1.2.1.4.31)
   - ipAddressTable (.1.3.6.1.2.1.4.34)
   - ipNetToPhysicalTable (.1.3.6.1.2.1.4.35)
   - ipv6ScopeZoneIndexTable (.1.3.6.1.2.1.4.36)
   - ipDefaultRouterTable (.1.3.6.1.2.1.4.37)
   - icmpStatsTable (.1.3.6.1.2.1.5.29)
   - icmpMsgStatsTable (.1.3.6.1.2.1.5.30)
LLDP-EXT-MED-MIB :
   - lldpXMedMIB (.1.0.8802.1.1.2.1.5.4795.1)
LLDP-MIB :
   - lldpObjects (.1.0.8802.1.1.2.1)
MAU-MIB :
   - snmpDot3MauMgt (.1.3.6.1.2.1.26)
MGMD-MIB :
   - mgmdMIBObjects (.1.3.6.1.2.1.185.1)
P-BRIDGE-MIB :
   - pBridgeMIB (.1.3.6.1.2.1.17.6)
POWER-ETHERNET-MIB :
   - powerEthernetMIB (.1.3.6.1.2.1.105)
Q-BRIDGE-MIB :
   - qBridgeMIB (.1.3.6.1.2.1.17.7)
RADIUS-ACC-CLIENT-MIB :
   - radiusAccClientMIBObjects (.1.3.6.1.2.1.67.2.2.1)
RADIUS-AUTH-CLIENT-MIB :
   - radiusAuthClientMIBObjects (.1.3.6.1.2.1.67.1.2.1)
RFC1213-MIB :
   - system (.1.3.6.1.2.1.1)
   - interfaces (.1.3.6.1.2.1.2)
   - ip (.1.3.6.1.2.1.4)
   - snmp (.1.3.6.1.2.1.5)
   - tcp (.1.3.6.1.2.1.6)
   - udp (.1.3.6.1.2.1.7)
RMON-MIB :
   - statistics (.1.3.6.1.2.1.16.1)
   - history (.1.3.6.1.2.1.16.2)
   - alarm (.1.3.6.1.2.1.16.3)
   - event (.1.3.6.1.2.1.16.9)
SMON-MIB :
```

```
    - switchRMON (.1.3.6.1.2.1.16.22)
SNMP-FRAMEWORK-MIB :
    - snmpEngine (.1.3.6.1.6.3.10.2.1)
SNMP-MPD-MIB :
    - dot1dTpHCPortTable (.1.3.6.1.2.1.17.4.5)
    - snmpMPDStats (.1.3.6.1.6.3.11.2.1)
SNMP-USER-BASED-SM-MIB :
    - usmStats (.1.3.6.1.6.3.15.1.1)
    - usmUserTable (.1.3.6.1.6.3.15.1.2)
SNMP-VIEW-BASED-ACM-MIB :
    - vacmContextTable (.1.3.6.1.6.3.16.1.1)
    - vacmSecurityToGroupTable (.1.3.6.1.6.3.16.1.2)
    - vacmAccessTable (.1.3.6.1.6.3.16.1.4)
    - vacmMIBViews (.1.3.6.1.6.3.16.1.5)
```

show snmp mib ifmib ifIndex

Command:

```
show snmp mib ifmib ifIndex
```

show Show running system information
snmp Display SNMP configurations
mib MIB(Management Information Base)
ifmib IF-MIB
ifIndex The IfIndex that is defined in IF-MIB

Default:
N/A

Usage Guide:
To display the **SNMP MIB ifIndex contexts**.

Example:
To display the **SNMP MIB ifIndex contexts.**

```
Switch # show snmp mib ifmib ifIndex
ifIndex    ifDescr                          Interface
----------    ------------------------------------    ---------
        1  Switch  1 - Port  1              GigabitEthernet 1/1
        2  Switch  1 - Port  2              GigabitEthernet 1/2
        3  Switch  1 - Port  3              GigabitEthernet 1/3
        4  Switch  1 - Port  4              GigabitEthernet 1/4
        5  Switch  1 - Port  5              GigabitEthernet 1/5
        6  Switch  1 - Port  6              GigabitEthernet 1/6
        7  Switch  1 - Port  7              GigabitEthernet 1/7
        8  Switch  1 - Port  8              GigabitEthernet 1/8
        9  Switch  1 - Port  9              GigabitEthernet 1/9
       10  Switch  1 - Port 10              GigabitEthernet 1/10
       11  Switch  1 - Port 11              GigabitEthernet 1/11
       12  Switch  1 - Port 12              GigabitEthernet 1/12
       13  Switch  1 - Port 13              GigabitEthernet 1/13
       14  Switch  1 - Port 14              GigabitEthernet 1/14
```

```
    15  Switch  1 - Port 15              GigabitEthernet 1/15
    16  Switch  1 - Port 16              GigabitEthernet 1/16
    17  Switch  1 - Port 17              GigabitEthernet 1/17
    18  Switch  1 - Port 18              GigabitEthernet 1/18
    19  Switch  1 - Port 19              GigabitEthernet 1/19
    20  Switch  1 - Port 20              GigabitEthernet 1/20
    21  Switch  1 - Port 21              GigabitEthernet 1/21
    22  Switch  1 - Port 22              GigabitEthernet 1/22
    23  Switch  1 - Port 23              GigabitEthernet 1/23
    24  Switch  1 - Port 24              GigabitEthernet 1/24
    25  Switch  1 - Port 25              10GigabitEthernet 1/1
    26  Switch  1 - Port 26              10GigabitEthernet 1/2
    27  Switch  1 - Port 27              10GigabitEthernet 1/3
    28  Switch  1 - Port 28              10GigabitEthernet 1/4
    29  Switch  1 - Port 29              GigabitEthernet 1/25
 50001  VLAN    1                        vlan 1
 60001  IP Interface 1                   vlan 1
```

show snmp security-to-group

Command:

```
show snmp security-to-group [ { v1 | v2c | v3 }
<security_name> ]
```

show Show running system information
snmp Display SNMP configurations
security-to-group security-to-group configuration
v1 v1 security model
v2c v2c security model
v3 v3 security model
<SecurityName : word32> security group name

Default:

N/A

Usage Guide:

To display the **SNMP Group** information.

Example:

To display the **SNMP Group** information**.**

```
Switch # 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

Security Model : v2c
Security Name  : public
Group Name     : default_ro_group
```

```
Security Model : v2c
Security Name  : private
Group Name     : default_rw_group

Security Model : v3
Security Name  : default_user
Group Name     : default_rw_group
```

show snmp user

Command:

```
show snmp user [ <username> <engineID> ]
```

show Show running system information
snmp Display SNMP configurations
user User
<Username : word32> Security user name
<Engiedid : word10-32> Security Engine ID

Default:

N/A

Usage Guide:

To display the **SNMP User** information.

Example:

To display the **SNMP User** information**.**

```
Switch # show snmp user
User Name              : default_user
Engine ID              : 800007e5017f000001
Security Level         : NoAuth, NoPriv
Authentication Protocol : None
Privacy Protocol       : None
```

show snmp view

Command:

```
show snmp view [ <view_name> <oid_subtree> ]
```

show Show running system information
snmp Display SNMP configurations
view MIB view configuration
<ViewName : word32> MIB view name
<OidSubtree : word255> MIB view OID

Default:

N/A

Usage Guide:

To display the **SNMP viewer** information.

Example:

To display the **SNMP viewer** information**.**

```
Switch # show snmp view
View Name   : default_view
OID Subtree : .1
View Type   : included
```

show spanning-tree

Command:

```
show spanning-tree [ summary | active | { interface
( <port_type> [ <port_type_list> ] ) } | { detailed [ interface
( <port_type> [ <port_type_list> ] ) ] } | { mst [ configuration |
{ <instance> [ interface ( <port_type>
[ <port_type_list> ] ) ] } ] } ]
```

show Show running system information
spanning-tree STP Bridge
active STP active interfaces
detailed STP statistics
interface Choose port
summary STP summary
mst Configuration
configuration STP bridge instance no (0-7, CIST=0, MST1=1...)
<Instance : 0-7> Choose port

Default:

N/A

Usage Guide:

To display the **STP** information.

Example:

To display the **STP** information**.**

```
Switch # show spanning-tree
CIST Bridge STP Status
Bridge ID    : 32768.00-30-4F-00-99-00
Root ID      : 32768. 00-30-4F-00-99-00
Root Port    : -
Root PathCost: 0
Regional Root: 32768. 00-30-4F-00-99-00
Int. PathCost: 0
Max Hops     : 20
TC Flag      : Steady
TC Count     : 0
TC Last      : -
Port      Port Role      State      Pri  PathCost  Edge  P2P  Uptime
--------- -------------- ---------- ---  --------  ----  ---  -------------
```

show switchport forbidden

Command:

```
show switchport forbidden [ { vlan <vid> } | { name <name> } ]
```

show Show running system information
switchport Display switching mode characteristics
forbidden Lookup VLAN Forbidden port entry
name name - Show forbidden access for specific VLAN name
vlan vid - Show forbidden access for specific VLAN id

Default:
N/A
Usage Guide:
To display the **VLAN Forbidden** port entry.
Example:
To display the **VLAN Forbidden** port entry**.**

```
Switch # show switchport forbidden
VID   Interfaces
----  ----------
2     1
```

show tacacs-server

Command:

```
show tacacs-server
```

show Show running system information
tacacs-server TACACS+ configuration

Default:
N/A
Usage Guide:
To display the **TACACS+ Server** configuration.
Example:
To display the **TACACS+ Server** configuration**.**

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

show terminal

Command:

```
show terminal
```

show Show running system information
terminal Display terminal configuration parameters

Default:
N/A
Usage Guide:
To display the your login information.
Example:
To display the your login information**.**

```
Switch # show terminal
Line is con 0.
  * You are at this line now.
  Alive from Console.
  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 1 hour 12 min 15 sec.
  Idle time is 0 day 0 hour 0 min 0 sec.
```

show upnp

Command:

```
show upnp
```

show Show running system information
upnp Display UPnP configurations

Default:
N/A
Usage Guide:
To display the **UPnP** information.
Example:
To display the **UPnP** information**.**

```
Switch # show upnp
UPnP Mode              : Disabled
UPnP TTL               : 4
UPnP Advertising Duration : 100
```

show users

Command:

```
show users [ myself ]
```

show Show running system information
users Display information about terminal lines
myself Display information about mine

Default:
N/A
Usage Guide:
To display the user status.
Example:
To display the user status for all.

```
Switch # show users
Line is con 0.
  * You are at this line now.
  Connection is from Console.
  User name is admin.
  Privilege is 15.
  Elapsed time is 0 day 1 hour 20 min 49 sec.
  Idle time is 0 day 0 hour 0 min 0 sec.

Line is vty 0.
  Connection is from 192.168.0.45:49527 by Telnet.
  User name is admin.
  Privilege is 15.
  Elapsed time is 0 day 0 hour 8 min 46 sec.
  Idle time is 0 day 0 hour 8 min 42 sec.
```

show version

Command:

```
show version
```

show Show running system information
version System hardware and software status

Default:
N/A
Usage Guide:
To display the **software and system** information.
Example:
To display the **software and system** information**.**

```
Switch # show verison

MAC Address      : 00-30-4f-00-99-00
System Contact   :
System Name      :
System Location  :
System Time      : 1970-01-01T22:56:08+00:00
System Uptime    : 22:56:08
```

```
Active Image
------------
Image          : managed
Version        : 000
Date           : 2013-12-06T15:22:03+01:00


Alternate Image
---------------
Image          : managed.bk
Version        : 000
Date           : 2013-10-02T15:15:04+02:00


Product        : IFS Best Switch
Software Version : 000
Build Date     : 2013-12-06T15:22:03+01:00
```

show vlan

Command:

```
show vlan [ id <vlan_list> | name <name> | brief ]
```

show Show running system information
vlan VLAN status
id VLAN status by VLAN id
name VLAN status by VLAN name
brief VLAN summary information

Default:

N/A

Usage Guide:

To display the **VLAN** information.

Example:

To display the **VLAN** information**.**

```
Switch # show vlan
VLAN  Name                            Interfaces
----  ------------------------------  ----------
1     default                         Gi 1/1-25 10G 1/1-4
```

show vlan ip-subnet

Command:

```
show vlan ip-subnet [ id <subnet_id> ]
```

show Show running system information
vlan VLAN status

ip-subnet Show VLAN ip-subnet entries
id Show a specific ip-subnet entry

Default:
N/A
Usage Guide:
To display the **IP-based VLAN** information.
Example:
To display the **IP-based VLAN** information**.**

```
Switch # show vlan ip-subnet
VCE ID  IP Address      Mask Length  VID   Interfaces
------  --------------  -----------  ----  ----------
1       192.168.78.0    24           5     GigabitEthernet 1/1
```

show vlan mac

Command:

```
show vlan mac [ address <mac_addr> ]
```

show Show running system information
vlan VLAN status
mac Show VLAN MAC entries
address Show a specific MAC entry

Default:
N/A
Usage Guide:
To display the **MAC-based VLAN** information.
Example:
To display the **MAC-based VLAN** information**.**

```
Switch # show vlan mac
MAC Address        VID   Interfaces
-----------        ---   ----------
00-40-55-00-00-00  1     GigabitEthernet 1/1
```

show vlan protocol

Command:

```
show vlan protocol [ eth2 { <etype> | arp | ip | ipx | at } ] [ snap
{ <oui> | rfc-1042 | snap-8021h } <pid> ] [ llc <dsap> <ssap> ]
```

show Show running system information
vlan VLAN status
protocol Protocol-based VLAN status
eth2 Ethernet protocol based VLAN status
<etype> Ether Type(Range: 0x600 - 0xFFFF)
arp Ether Type is ARP
at Ether Type is AppleTalk
ip Ether Type is IP
ipx Ether Type is IPX

llc LLC-based VLAN status
<dsap> DSAP (Range: 0x00 - 0xFF)
<ssap> SSAP (Range: 0x00 - 0xFF)
snap SNAP-based VLAN status
<oui> SNAP OUI (Range 0x000000 - 0XFFFFFF)
rfc-1042 SNAP OUI is rfc-1042
snap-8021h SNAP OUI is 8021h
<pid> PID (Range: 0x0 - 0xFFFF)

Default:
N/A
Usage Guide:
To display the **Protocol-based VLAN** information.
Example:
To display the **Protocol-based VLAN** information**.**

```
Switch # show vlan protocol
Protocol Type  Protocol (Value)          Group ID
-------------     ------------------------          --------
LLC_SNAP     OUI-00:e0:2b; PID:0x1     q


Switch 1
---------
Group ID         VID   Ports
----------------        ----    -----
q                2     GigabitEthernet 1/1
```

show voice vlan

Command:

```
show voice vlan [ oui <oui> | interface ( <port_type>
[ <port_list> ] ) ]
```

show Show running system information
voice Voice appliance attributes
vlan Vlan for voice traffic
interface Select an interface to configure
oui OUI configuration
<oui> OUI value

Default:
N/A
Usage Guide:
To display the **Voice VLAN** information.

Example:

To display the **Voice VLAN** information for **GigabitEthernet 1/1**

```
Switch #  show voice vlan interface GigabitEthernet 1/1

GigabitEthernet 1/1 :
--------------------
GigabitEthernet 1/1 switchport voice vlan mode is auto
GigabitEthernet 1/1 switchport voice security is disabled
GigabitEthernet 1/1 switchport voice discovery protocol is oui
```

show web privilege group

Command:

```
show web privilege group [ <group_name> ] level
```

show Show running system information
web Web
privilege Web privilege
group Web privilege group
<group_name> Valid words are 'Aggregation' 'DHCP' 'Debug' 'Dhcp_Client' 'Diagnostics' 'EPS' 'ERPS' 'ETH_LINK_OAM' 'EVC' 'Green_Ethernet' 'IP2' 'IPMC_Snooping' 'LACP' 'LLDP' 'Loop_Protect' 'MAC_Table' 'MEP' 'MVR' 'Maintenance' 'Mirroring' 'NTP' 'POE' 'PTP' 'Ports' 'Private_VLANs' 'QoS' 'RPC' 'Security' 'Spanning_Tree' 'System' 'Timer' 'UPnP' 'VCL' 'VLAN_Translation' 'VLANs' 'Voice_VLAN' 'XXRP' 'ZL_3034X_API'
level Web privilege group level

Default:

N/A

Usage Guide:

To display the **Web privilege group**.

Example:

To display the **Web privilege group**

```
Switch #  show web privilege group level
```

Group Name	Privilege Level			
	CRO	CRW	SRO	SRW
Aggregation	6	10	5	10
Debug	15	15	15	15
DHCP	5	10	5	10
Dhcp_Client	5	10	5	10
Diagnostics	5	10	5	10
EPS	5	10	5	10
ERPS	5	10	5	10
ETH_LINK_OAM	5	10	5	10
EVC	5	10	5	10
Green_Ethernet	5	10	5	10

IP2	5	10	5	10
IPMC_Snooping	5	10	5	10
LACP	5	10	5	10
LLDP	5	10	5	10
Loop_Protect	5	10	5	10
MAC_Table	5	10	5	10
Maintenance	15	15	15	15
MEP	5	10	5	10
Mirroring	5	10	5	10
MVR	5	10	5	10
NTP	5	10	5	10
POE	5	10	5	10
Ports	5	10	1	10
Private_VLANs	5	10	5	10
PTP	5	10	5	10
QoS	5	10	5	10
RPC	5	10	5	10
Security	5	10	5	10
Spanning_Tree	5	10	5	10
System	5	10	1	10
Timer	5	10	5	10
UPnP	5	10	5	10
VCL	5	10	5	10
VLAN_Translation	5	10	5	10
VLANs	5	10	5	10
Voice_VLAN	5	10	5	10
XXRP	5	10	5	10
ZL_3034X_API	5	10	5	10

terminal

terminal editing

Command:

```
terminal editing
```

terminal Set terminal line parameters
editing Enable command line editing

Default:

Enabled

Usage Guide:

To enable editing mode for current terminal session.

Example:

To enable editing mode for current terminal session.

```
Switch # terminal editing
```

terminal exec-timeout

Command:

```
terminal exec-timeout <min> [ <sec> ]
```

terminal Set terminal line parameters
exec-timeout Set the EXEC timeout
<min> Timeout in minutes
<sec> Timeout in seconds

Default:
N/A
Usage Guide:
To configure idle timeout of EXEC mode for current terminal session.
Example:
To configure idle timeout with 500 minutes of EXEC mode for current terminal session.

```
Switch # terminal exec-timeout 500
```

terminal history size

Command:

```
terminal history size <history_size>
```

terminal Set terminal line parameters
history Control the command history function
size Set history buffer size
<history_size> Number of history commands, 0 means disable

Default:
N/A
Usage Guide:
To configure history buffer side for current terminal session.
Example:
To configure history buffer side with 20 lines for current terminal session.

```
Switch # terminal history size 20
```

terminal length

Command:

```
terminal length <lines>
```

terminal Set terminal line parameters
length Set number of lines on a screen
<lines: 0 or 3-512> Number of lines on screen (0 for no pausing)
Default:
N/A
Usage Guide:

To configure length of command display for current terminal session.

Example:

To configure length of command display with 5 lines for current terminal session.

```
Switch # terminal length 5
Switch # show run
Building configuration...
username admin privilege 15 password none
loop-protect
-- more --, next page: Space, continue: g, quit: ^C
```

terminal width

Command:

```
terminal width <lines>
```

terminal Set terminal line parameters
width Set width of the display terminal
<lines:0 or 40-512> Number of characters on a screen line (0 for unlimited width)

Default:

N/A

Usage Guide:

To configure width of command display for current terminal session.

Example:

To configure width of command display with 40 characters per line for current terminal session.

```
Switch # terminal width 40
```