







# NS4702-24P-4X Managed Switch Command Guide

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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.	<b>COMMAND&gt;</b>	Enter Logout command
Privileged mode	From the User Mode, enter the enable command.	<b>Switch#</b>	To exit to the User Mode, enter exit or Logout.
Global config mode	From the Privileged Mode, enter the configuration command.	<b>Switch (Config)#</b>	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.	<b>Switch (interface &lt;port#&gt;)#</b>	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

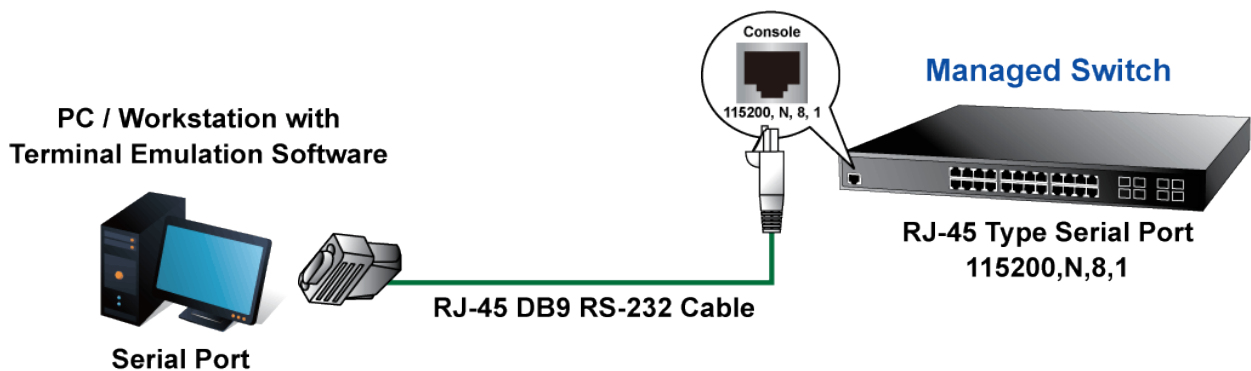
- Workstations running Windows XP/Vista/7/8/10, Windows 2003/2008, MAC OS X or later, Linux, UNIX, or other platforms are compatible with TCP/IP protocols.
- Workstations are installed with Ethernet NIC (Network Interface Card).
- Serial Port Connection (Terminal)
  - The above Workstations come with 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

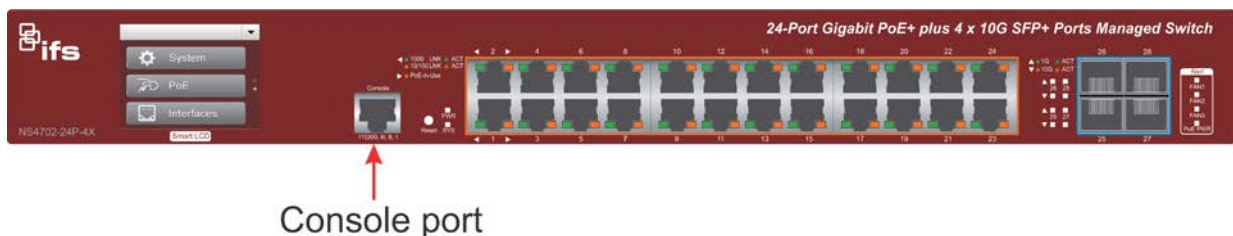
## Console CLI management

### 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.

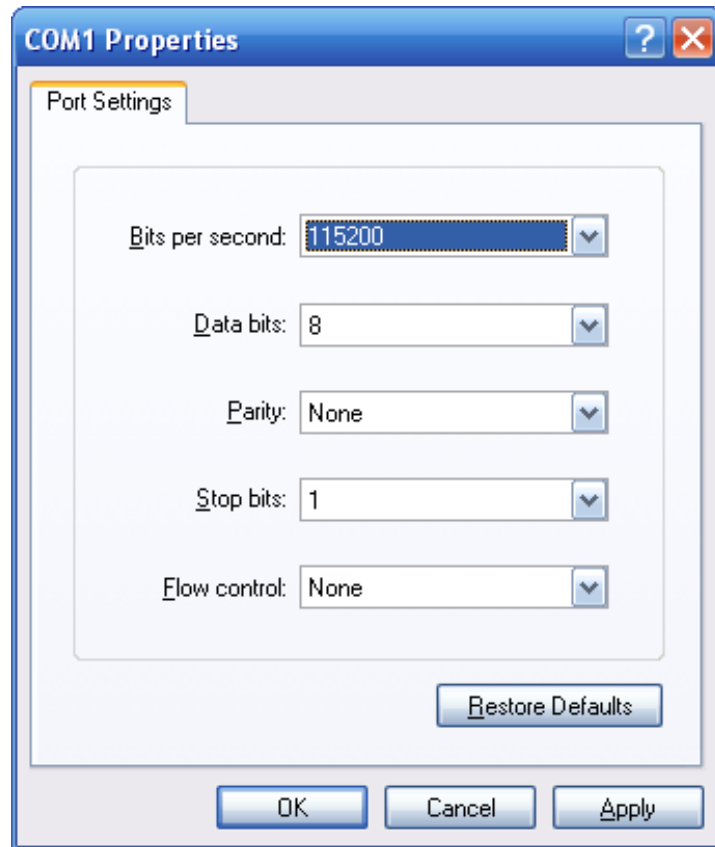


The console port of the managed switch is a RJ-45 type, RS-232 serial port connector. It is an interface for connecting a terminal directly. Through the console port, it provides rich diagnostic information including IP Address setting, factory reset, port management, link status, and system settings. 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:



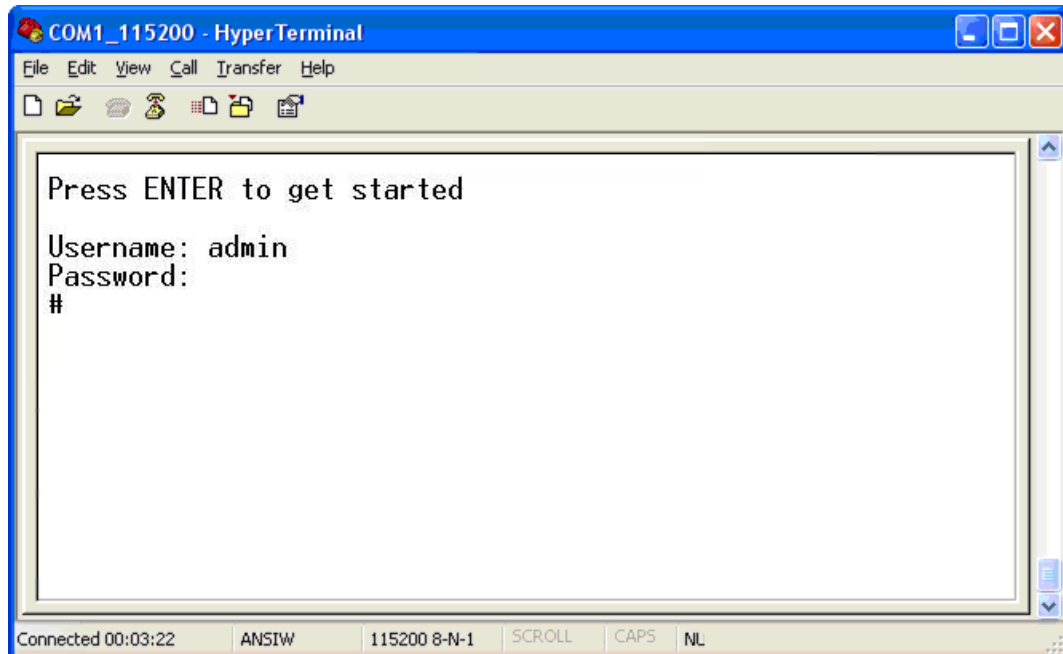
If required, you can change these settings after you log on. This management method is often preferred because you can remain connected and monitor the system during system reboots. Also, certain error messages are sent to the serial port, regardless of the interface through which the associated action 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

Once the terminal is connected to the device, power on the managed switch, and the terminal will display “running testing procedures”. Then, the following message asks to log-in user name and password. The factory default user name and password are shown as follows and the login screen appears.

```
Username: admin
Password: admin
```





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

**Note:**

1. For security purposes, change and memorize the new password after this first setup.
2. Only accept commands in lowercase letters under the console interface.

## Configuring the IP address

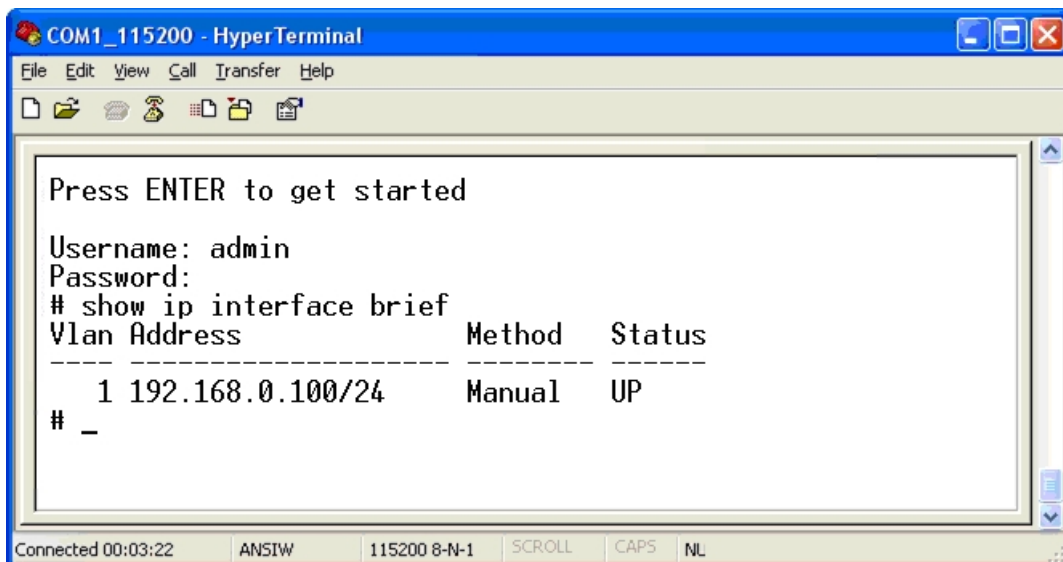
The Managed Switch is shipped with default IP address shown below.

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



## Configure the IP address

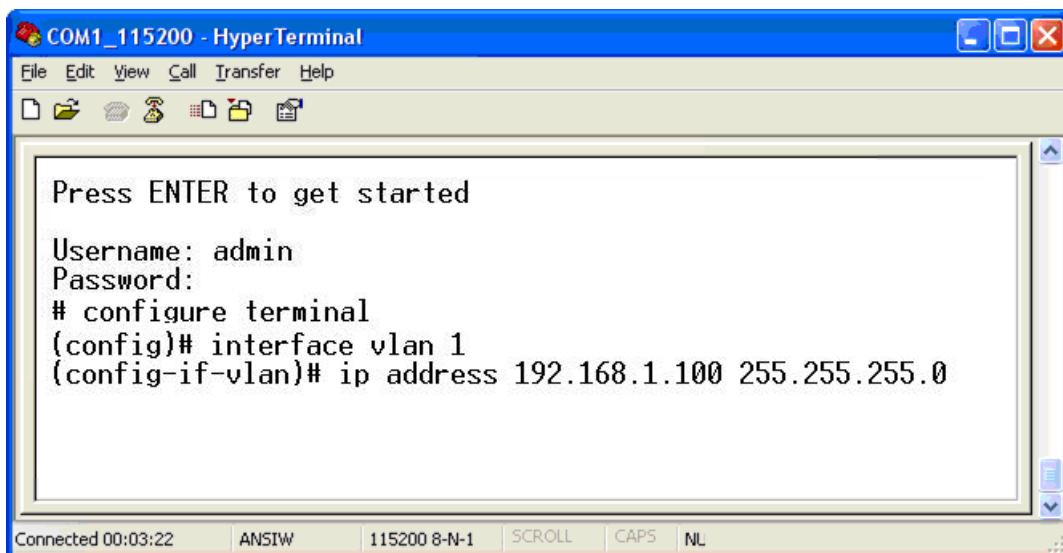
At the “#” prompt, enter the following command and press Enter.

```
# 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**

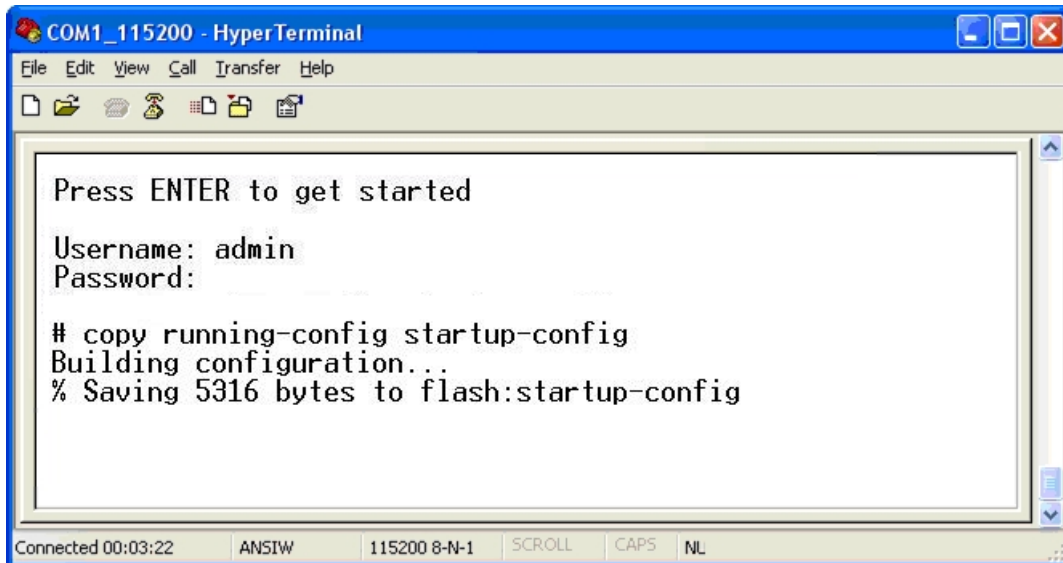


At the “#” prompt, enter “show ip interface brief” to check if the IP address has changed.

## Store the current switch configuration

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

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



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

**Note:** If you are not familiar with the console command or the related parameter, enter “?” at any time in the console to get the help description.

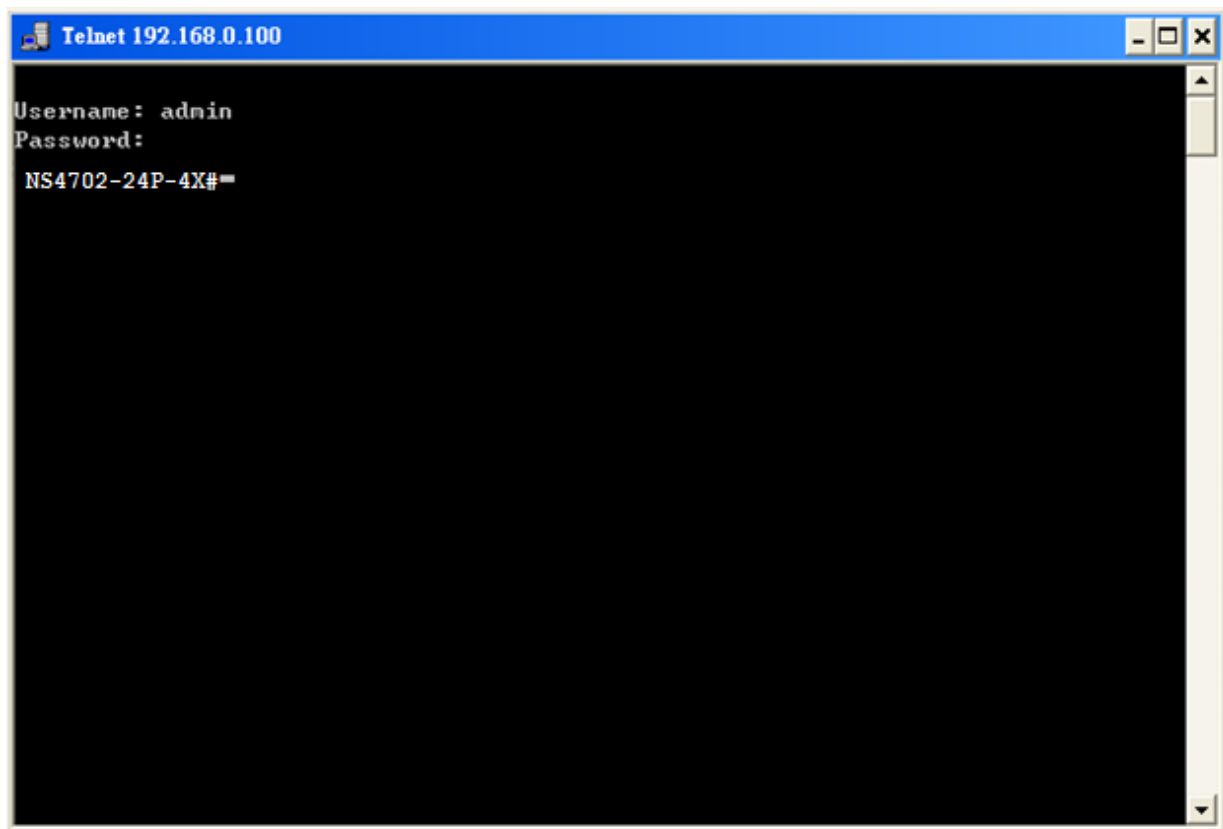
# Chapter 3

## Telnet CLI management

### Telnet login

The managed switch also supports telnet for remote management. The switch asks for a user name and password for remote login when using telnet. Use “**admin**” for the both the username and password.

```
Default IP address: 192.168.0.100  
Username: admin  
Password: admin
```



# 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 evc statistics****Command:**

```
clear evc statistics
```

**Default:**

N/A

**Usage Guide:**

To clear the Ethernet Virtual Connections statistics.

**Example:**

To clear the Switch's Ethernet Virtual Connections statistics.

```
Switch# clear evc statistics
```

**clear ip arp****Command:**

```
clear ip arp
```

**Default:**

N/A

**Usage Guide:**To clear the **ARP cache**.**Example:**To clear the Switch's **ARP 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 ip statistics icmp icmp-msg

### Command:

```
clear ip statistics icmp icmp-msg <Type : 0~255>
```

<Type : 0~255> ICMP message type ranges from 0 to 255

### Default:

N/A

### Usage Guide:

To clear the IPv4 ICMP traffic for designated message type.

### Example:

To clear the Switch's IPv4 ICMP traffic for designated message type 0.

```
Switch# clear ip statistics icmp icmp-msg 0
```

## clear ip statistics icmp interface vlan

### Command:

```
clear ip statistics icmp interface vlan <vlan_list>
```

<vlan\_list> VLAN identifier(s): VID

### Default:

N/A

### Usage Guide:

To clear the IPv4 interface/ICMP statistics for specific VLAN.

### Example:

To clear the Switch's **IP interface/ICMP statistics** for specific VLAN 1.

```
Switch# clear ip statistics icmp interface vlan 1
```

## clear ip statistics system icmp icmp-msg

### Command:

```
clear ip statistics system icmp icmp-msg <Type : 0~255>
```

<Type : 0~255> ICMP message type ranges from 0 to 255

### Default:

N/A

### Usage Guide:

To clear the IPv4 ICMP statistics for specific ICMP message type.

### Example:

To clear the Switch's IPv4 ICMP statistics for specific ICMP message type 0.

```
Switch# clear ip statistics system icmp icmp-msg 0
```

## clear ip statistics system icmp interface vlan

### Command:

```
clear ip statistics system icmp interface vlan
```

<vlan\_list> VLAN identifier(s): VID

### Default:

N/A

### Usage Guide:

To clear the IPv4 ICMP interface statistics for specific VLAN.

### Example:

To clear the Switch's **IPv4 ICMP interface statistics** for specific VLAN 1.

```
Switch# clear ip statistics system icmp interface vlan 1
```

## 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 ipv6 statistics icmp icmp-msg

### Command:

```
clear ipv6 statistics icmp icmp-msg <Type : 0~255>
```

<Type : 0~255> ICMP message type ranges from 0 to 255

### Default:

N/A

### Usage Guide:

To clear the IPv6 ICMP traffic for designated message type.

### Example:

To clear the Switch's IPv6 ICMP traffic for designated message type 0.

```
Switch# clear ipv6 statistics icmp icmp-msg 0
```

## clear ipv6 statistics icmp interface vlan

### Command:

```
clear ipv6 statistics icmp interface vlan <vlan_list>
```

<vlan\_list> VLAN identifier(s): VID

### Default:

N/A

### Usage Guide:

To clear the IPv6 interface/ICMP statistics for specific VLAN.

### Example:

To clear the Switch's **IPv6 interface/ICMP statistics** for specific VLAN 1.

```
Switch# clear ipv6 statistics icmp interface vlan 1
```

## clear ipv6 statistics system icmp icmp-msg

### Command:

```
clear ipv6 statistics system icmp icmp-msg <Type : 0~255>
```

<Type : 0~255> ICMP message type ranges from 0 to 255

### Default:

N/A

### Usage Guide:

To clear the IPv6 ICMP statistics for specific ICMP message type.

### Example:

To clear the Switch's IPv6 ICMP statistics for specific ICMP message type 0.

```
Switch# clear ipv6 statistics system icmp icmp-msg 0
```

## clear ipv6 statistics system icmp interface vlan

### Command:

```
clear ipv6 statistics system icmp interface vlan
```

<vlan\_list> VLAN identifier(s): VID

### Default:

N/A

### Usage Guide:

To clear the IPv6 ICMP interface statistics for specific VLAN.

### Example:

To clear the Switch's **IPv6 ICMP interface statistics** for specific VLAN 1.

```
Switch# clear ipv6 statistics system icmp interface vlan 1
```

## 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 network-clock clk-source

### Command:

```
clear network-clock clk-source <clk-source : 1-2>
```

<clk-source : 1-2> Clock source number

### Default:

N/A

### Usage Guide:

To clear the **ERPS WTR timer** for a specific profile.

### Example:

To clear the Switch's **ERPS WTR timer** for a specific profile 1.

```
Switch# clear network-clock clk-source 1
```

## 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 <Aceld : 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 {<Aceld : 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}
```

<Aceld : 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 <Aceld : 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 {<Aceld : 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}
```

**<Aceld : 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
```

**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 "dddd".

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

```
dddd  
1
```

Telnet 192.168.0.100

```
dddd  
  
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 "wwwwwwwww".

```
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>
```

&lt;WORD&gt; 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>
```

&lt;RateLimiterId : 1-16&gt; 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> mep****Command:**

```
erps <1-64> revertive <wtr_time_minutes: 1-12>
```

**<1-64>** ERPS group number

**<wtr\_time\_minutes: 1-12>** Wait-to-restore time in minutes

**Default:**

0

**Usage Guide:**

To configure **WTR time** for specific **ERPS** profile.

**Example:**

To configure **WTR time**(5 minutes) for specific **ERPS** profile 1.

```
Switch# configure terminal
Switch (config)# erps 1 revertive 5
```

**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
#
```

## green-ethernet led interval

### Command:

```
green-ethernet led interval <0~24> intensity <0-100>
```

**<0~24>** Interval from 00.00 to 24.00 (00 is used to start at midnight, while 24 is used to stop at midnight).

**intensity** LEDs intensity.

**<0-100>** Intensity from 0% (LEDs OFF) to 100%

### Default:

N/A

### Usage Guide:

To configure **LED Power reduction** for interval time.

### Example:

To configure **LED Power reduction** as tabled below.

Start Time	End Time	Intensity
08:00	13:00	80 %
13:00	08:00	20 %

```
Switch# configure terminal
Switch (config)# green-ethernet led interval 8-13 intensity 80
```

## green-ethernet led on-event

### Command:

```
green-ethernet led on-event error | link-change <0-65535>
```

**error** Set LEDs intensity to 100% if an error occurs.

**link-change** Specifies how long to turn LEDs intensity into 100%, when a link changes state.

**<0-65535>** Number of seconds to set LEDs intensity at 100% at link change.

**Default:**

N/A

**Usage Guide:**To configure **LED Power on-event** to trigger LED light**Example:**To configure **LED Power on-event** as tabled below:

On time at link change	On at errors
55	Sec. <input checked="" type="checkbox"/>

```
Switch# configure terminal
Switch (config)# green-ethernet led on-event error link-change
55
```

**gvrp****Command:**

```
gvrp
```

**Default:**

Disable

**Usage Guide:**To enable **GVRP**.**Example:**To enable **GVRP**.

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

**gvrp max-vlans****Command:**

```
gvrp max-vlans <1-4095>
```

**Default:**

20

**Usage Guide:**To configure how many VLANs will be in **GVRP**.**Example:**To configure 200 VLANs in **GVRP**.

```
Switch# configure terminal
Switch (config)# gvrp max-vlans 200
```

## gvrp time

### Command:

```
gvrp time join-time <Jointime : 1-20> leave-all-time
<Leavealltime : 1000-5000> leave-time <Leavetime : 60-300>
```

**join-time** Set GARP protocol parameter JoinTime. See IEEE 802.1D-2004, clause 12.11

**<Jointime : 1-20>** join-time in units of centi seconds. Range is 1-20. Default is 20.

**leave-all-time** Set GARP protocol parameter LeaveAllTime. See IEEE 802.1D-2004, clause 12.11

**<Leavealltime : 1000-5000>** leave-all-time in units of centi seconds Range is 1000-5000. Default is 1000.

**leave-time** Set GARP protocol parameter LeaveTime. See IEEE 802.1D-2004, clause 12.11

**<Leavetime : 60-300>** leave-time in units of centi seconds. Range is 60-300. Default is 60.

### Default:

<b>Join-time:</b>	20
<b>Leave-time:</b>	60
<b>LeaveAll-time:</b>	1000

### Usage Guide:

To configure **Join-time**, **Leave-time**, **Leave all-time** for **GVRP**.

### Example:

To configure **Join-time**, **Leave-time**, **Leave all-time** for **GVRP** as tabled below.

<b>Join-time:</b>	5
<b>Leave-time:</b>	150
<b>LeaveAll-time:</b>	1200

```
Switch# configure terminal
Switch (config)# gvrp time join-time 5 leave-all-time 1200 leave-
time 150
```

## 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 continuously  
**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
```



**Ildp med media-vlan policy-list****Command:**

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

**ildp** 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) # Ildp med media-vlan policy-list 2
```

**Ildp med transmit-tlv****Command:**

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

**ildp** 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) # Ildp med transmit-tlv capabilities location
```

**Ildp receive****Command:**

```
Ildp receive
```

**ildp** 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
```

**Ildp tlv-select system-capabilities****Command:**

```
Ildp tlv-select system-capabilities
```

**Ildp** 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) # Ildp tlv-select system-capabilities
```

**Ildp tlv-select system-description****Command:**

```
Ildp tlv-select system-description
```

**Ildp** 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) # Ildp tlv-select system-description
```

**Ildp tlv-select system-name****Command:**

```
Ildp tlv-select system-name
```

**Ildp** 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 transmission 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
```

**media-type****Command:**

**media-type dual | rj45 | sfp**

**media-type** Media type.  
**dual** Dual media interface (copper & fiber interface).  
**rj45** rj45 interface (copper interface).  
**sfp** sfp interface (fiber interface).

**Default:**

N/A

**Usage Guide:**

To configure **Copper** or **Fiber mode** of **media type** for specific interface

**Example:**

To configure **Copper mode** of **media type** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # media-type rj45
```

**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
```

**network-clock synchronization ssm**

**Command:**

```
network-clock synchronization ssm
```

**network-clock** network-clock  
**synchronization** SSM enable/disable.  
**ssm** SSM enable/disable.

**Default:**

Disable

**Usage Guide:**

To enable **SSM** of **SyncE** for specific interface

**Example:**

To enable **SSM** of **SyncE** for **GigabitEthernet X/X**

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # network-clock synchronization ssm
```

**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
```

**poE mode****Command:**

```
poE mode { standard | plus }
```

**poE** Power Over Ethernet.

**mode** PoE mode.

**plus** Set mode to PoE+ (Maximum power 30.0 W)

**standard** Set mode to PoE (Maximum power 15.4 W)

**Default:**

N/A

**Usage Guide:**

To configure 802.3at/af mode for specific interface

**Example:**

To configure 802.3at mode for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # poE mode plus
```

**poe pdcheck IP****Command:**

```
poe pdcheck IP <ipv4_addr>
```

**poe** Power Over Ethernet.

**pdcheck** Allows user to enable or disable per port PD Alive Check function.

**IP** To set PoE device IP address here for system making ping to the PoE device.

```
<ipv4_addr> <ipv4_addr>
```

**Default:**

N/A

**Usage Guide:**

To configure **Ping PD IP Address** of **PoE** for specific interface

**Example:**

To configure **Ping PD IP Address (10.101.10.10)** of **PoE** for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # poe pdcheck IP 10.101.10.10
```

**poe pdcheck action****Command:**

```
poe pdcheck action { reboot | alarm | reboot-alarm }
```

**poe** Power Over Ethernet.

**pdcheck** Allows user to enable or disable per port PD Alive Check function.

**action** Allows user to set which action will be applied if the PD is without any response

**alarm** It means system will issue an alarm message via Syslog, SMTP.

**reboot** It means system will reset the PoE port that is connected to the PD.

**reboot-alarm** It means system will reset the PoE port and issue an alarm message via Syslog, SMTP.

**Default:**

N/A

**Usage Guide:**

To configure **PD Ping Alive Check Action** of **PoE** for specific interface

**Example:**

To configure **PD Ping Alive Check Action (Alarm)** of **PoE** for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # poe pdcheck action alarm
```

**poe pdcheck enable****Command:**

```
poe pdcheck enable
```

**poe** Power Over Ethernet.

**pdcheck enable** Allows user to enable or disable per port PD Alive Check function.  
PD alive check enable.

**Default:**

Disabled

**Usage Guide:**To enable **PD Ping Alive Check** function of **PoE** for specific interface.**Example:**To enable **PD Ping Alive Check** function of **PoE** for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # poe pdcheck enable
```

**poe pdcheck interval****Command:**

```
poe pdcheck interval <10-300>
```

**poe** Power Over Ethernet.**pdcheck** Allows user to enable or disable per port PD Alive Check function.**interval** set how long system should be issue a ping request to PD for detecting whether PD is alive or dead.**<10-300>** interval <10~300>**Default:**

30

**Usage Guide:**To configure **PD Ping Alive Check** interval of **PoE** for specific interface.**Example:**To configure **PD Ping Alive Check** interval (100 seconds) of **PoE** for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # poe pdcheck interval 100
```

**poe pdcheck reboot-time****Command:**

```
poe pdcheck reboot-time <30-180>
```

**poe** Power Over Ethernet.**pdcheck** Allows user to enable or disable per port PD Alive Check function.**reboot-time** set the PoE device rebooting time.**<30-180>** reboot-time <30-180>**Default:**

90

**Usage Guide:**To configure **PD Ping Alive Check** rebooting time of **PoE** for specific interface.**Example:**To configure **PD Ping Alive Check** rebooting time (100 seconds) of **PoE** for

### GigabitEthernet X/X.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # poe pdcheck reboot-time 100
```

#### poe pdcheck retry-count

Command:

```
poe pdcheck retry-count <1-5>
```

- poe** Power Over Ethernet.
- pdcheck** Allows user to enable or disable per port PD Alive Check function.
- retry-count** set how many times system retry ping to PD.
- <1-5>** retry-count <1-5>

Default:

2

Usage Guide:

To configure **PD Ping Alive Check** retry count of **PoE** for specific interface.

Example:

To configure **PD Ping Alive Check** retry count (5) of **PoE** for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # poe pdcheck retry-count 5
```

#### poe power limit

Command:

```
poe power limit { <Power in watts>}
```

- poe** Power Over Ethernet.
- power** Setting maximum power for port in allocation mode.
- limit** The maximum power.
- <Power in watts : option>** Maximum power for the interface (0-15.4 Watt for PoE standard mode, 0-30.0 Watt for PoE plus mode)

Default:

2

Usage Guide:

To configure maximum power of **PoE** for specific interface.

Example:

To configure maximum power (29 watts) of **PoE** for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # poe power limit 29
```

**poe priority****Command:**

```
poe priority { low | high | critical }
```

**poe** Power Over Ethernet.  
**priority** Interface priority.  
**critical** Set priority to critical.  
**high** Set priority to high.  
**low** Set priority to low.

**Default:**

2

**Usage Guide:**

To configure interface priority of **PoE** for specific interface.

**Example:**

To configure interface priority (low) of **PoE** for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # poe priority low
```

**poe time-range****Command:**

```
poe time-range { profile1 | profile2 | profile3 | profile4 }
```

**poe** Power Over Ethernet.  
**time-range** To bind a PoE time-range to the corresponding port.  
**profile1** The profile name of the PoE time-range to be bound to the port.  
**profile2** The profile name of the PoE time-range to be bound to the port.  
**profile3** The profile name of the PoE time-range to be bound to the port.  
**profile4** The profile name of the PoE time-range to be bound to the port.

**Default:**

Profile 1

**Usage Guide:**

To configure time-range profile of **PoE** for specific interface.

**Example:**

To configure time-range profile (Profile 3) of **PoE** for **GigabitEthernet X/X**.

```
Switch# configure terminal
Switch (config)# interface GigabitEthernet X/X
Switch (config-if) # poe time-range profile3
```

**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** Shut down 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
```

**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**

QoS class	DP level	PCP	DEI
1	1	6	0

```
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 bpduguard****Command:**

```
spanning-tree bpduguard
```

**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 bpduguard
```

**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 <lpmcQi : 1-31744>
```

**ip** Interface Internet Protocol config commands  
**igmp** Internet Group Management Protocol  
**snooping** Snooping IGMP  
**query-interval** Query Interval in seconds  
**<lpmcQi : 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 <IpmcLmqi : 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

**<IpmcLmqi : 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”

<b>Vendor 1 Class Identifier</b>	0x8
<b>Vendor 1 Specific Information</b>	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 **vtty 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 **vtty 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 **vtty 1**.

```
Switch# configure terminal
Switch (config)# line vty 1
Switch (config-line)# width 50
```

## Ildp holdtime

### Command:

```
Ildp holdtime <2-10>
```

**Ildp** 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)# Ildp holdtime 5
```

## Ildp med datum

### Command:

```
Ildp med datum nad83-mlw | nad83-navd88 | wgs84
```

**Ildp** LLDP configurations.

**med** Media Endpoint Discovery

**datum** Datum (geodetic system) type

**nad83-mlw** 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-mlw)** of LLDP

```
Switch# configure terminal
Switch (config)# Ildp med datum nad83-mlw
```

## Ildp med fast

### Command:

```
Ildp med fast <1-10>
```

**Ildp** 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
```

## Ildp med media-vlan-policy

Command:

```
Ildp 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>
```

- Ildp** 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**

Policy ID	Application Type	Tag	VLAN ID	L2 Priority	DSCP
1	Guest Voice	Tagged	1	5	45

```
Switch# configure terminal
Switch (config)# Ildp med media-vlan-policy 1 guest-voice
tagged 1 dscp 45 l2-priority 5
```

## Ildp reinit

Command:

```
Ildp reinit <1-10>
```

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

VLAN ID	MAC Address	Port Members																												
		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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

```
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

Priority	Frame Rate	Protection
1 f/sec	<input checked="" type="checkbox"/>	

```
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 be 'multi' in case of RAPS.
- uni** OAM PDU is transmitted with unicast MAC. The MAC is taken from peer MEP MAC database. Only possible in case of LAPS.
- 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

APS Protocol			
Priority	Cast	Type	Last Octet
7	Multi	L-APS	1

```
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:**

Priority	Frame rate
0	1 f/sec

**Usage Guide:**

To configure **CC** of **MEP**

**Example:**

To configure **CC** of **MEP 1** as below table

Priority	Frame rate
2	10 f/sec

```
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.

Evc	5
Level	4
AIS prio	High
LCK prio	3

```
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 delays 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 synchronized

### Command:

```
mep <Instance> dm synchronized
```

**mep** Maintenance Entity Point  
**<Instance>** The MEP instance number.  
**dm** Delay Measurement  
**synchronized** Near end and far end is real time synchronized.

### 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 synchronized
```

## 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
<input checked="" type="checkbox"/>	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 untagged 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
<input type="checkbox"/>	0	1	1	64	All Zero	<input type="checkbox"/>

**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
<input checked="" type="checkbox"/>	3	2	10	68	10101010	<input checked="" type="checkbox"/>

```
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
```

**mep <Instance> voe****Command:**

```
mep <Instance> voe
```

- mep** Maintenance Entity Point  
**<Instance>** The MEP instance number.  
**voe** MEP is VOE based



**Default:**

0

**Usage Guide:**To set **VOE** of **MEP**.**Example:**To set **VOE (8)** of **MEP 1**

```
Switch# configure terminal
Switch (config)# mep 1 voe
```

**monitor destination****Command:**

```
monitor destination interface 10GigabitEthernet
<port_type_list> | GigabitEthernet <port_type_list>
```

**monitor** Set monitor configuration**destination** The destination port. That is the port that trafficed should be mirrored to**Default:**

Disabled

**Usage Guide:**To configure **Mirroring Port****Example:**To set **Mirroring Port (GigabitEthernet 1/2)**

```
Switch# configure terminal
Switch (config)# monitor destination interface GigabitEthernet
1/2
```

**monitor source****Command:**

```
monitor source interface * | 10GigabitEthernet
<port_type_list> | GigabitEthernet <port_type_list> { both | rx
| tx }
```

**monitor** Set monitor configuration**source** The source port(s). That is the ports to be mirrored to the destination port.**Default:**

Disabled

**Usage Guide:**To configure **Mirrored Port****Example:**To set **Mirrored Port (GigabitEthernet 1/1, Tx + Rx)**

```
Switch# configure terminal
Switch (config)# monitor source interface GigabitEthernet 1/1 both
```

**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 **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 <lpmcLmqi :
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  
**<lpmcLmqi : 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
```

**network-clock clk-source <clk-source> aneg-mode****Command:**

```
network-clock clk-source <clk-source> aneg-mode { master |
slave | forced }
```

**network-clock** network-clock**clk-source** clk-source - commands related to a specific clock source.**<clk-source : 1-2>** Clock source number**aneg-mode** Sets the preferred negotiation.**forced** Activate forced slave negotiation**master** Activate prefer master negotiation**slave** Activate prefer slave negotiation**Default:**

None

**Usage Guide:**To configure **preferred negotiation** of **network-clock****Example:**To configure **preferred negotiation** (slave) of **network-clock** (source 1)

```
Switch# configure terminal
Switch (config)# network-clock clk-source 1 aneg-mode slave
```

**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
```

## poe admin-mode enable

### Command:

```
poe admin-mode enable
```

**poe** Power Over Ethernet  
**admin-mode** Enable or disable global PoE management function.

**enable** poe admin-mode enable

**Default:**

Enabled

**Usage Guide:**

To enable **System PoE Admin Mode**.

**Example:**

To enable **System PoE Admin Mode**.

```
Switch# configure terminal
Switch (config)# poe admin-mode enable
```

## poe management mode

**Command:**

```
poe management mode { class-consumption | class-reserved-
power | allocation-consumption | allocation-reserved-power |
lldp-consumption | lldp-reserved-power }
```

**poe** Power Over Ethernet

**management** Use management mode to configure PoE power management method.

**mode** mode

**allocation-consumption** Max. port power determined by allocated, and power is managed according to power consumption.

**allocation-reserved-power** Max. port power determined by allocated, and is managed according to reserved power.

**class-consumption** Max. port power determined by class, and power is managed according to power consumption.

**class-reserved-power** Max. port power determined by class, and power is managed according to reserved power.

**lldp-consumption** Max. port power determined by LLDP Media protocol, and power is managed according to consumption.

**lldp-reserved-power** Max. port power determined by LLDP Media protocol, and power is managed according to reserved power.

**Default:**

Allocation-consumption

**Usage Guide:**

To configure **PoE Management Mode**.

**Example:**

To configure **PoE Management Mode** as **LLDP-consumption mode**.

```
Switch# configure terminal
Switch (config)# poe management mode lldp-consumption
```

## poe sequential enable

**Command:**

```
poe sequential enable
```

**poe** Power Over Ethernet  
**sequential** PoE sequential is to delay power feeding when the switch is completely booted.  
**enable** poe sequential enable

**Default:**

Enabled

**Usage Guide:**To enable **Sequential Power up Option**.**Example:**To enable **Sequential Power up Option**.

```
Switch# configure terminal
Switch (config)# poe sequential enable
```

**poe sequential interval****Command:**

```
poe sequential interval <1-30>
```

**poe** Power Over Ethernet  
**sequential** PoE sequential is to delay power feeding when the switch is completely booted.  
**interval** Set how long system should feeding power to next PoE interface <1-30>  
<1-30> poe sequential enable

**Default:**

5

**Usage Guide:**To configure **Sequential Power up Interval**.**Example:**To configure **Sequential Power up Interval (30 seconds per port)**.

```
Switch# configure terminal
Switch (config)# poe sequential interval 30
```

**poe sequential rule****Command:**

```
poe sequential rule { port | priority }
```

**poe** Power Over Ethernet  
**sequential rule** PoE sequential is to delay power feeding when the switch is completely booted.  
**port** System sequential feeding power the PoE interfaces based port number.  
**priority** Use priority command to configure sequential feeding power to PoE interfaces based on port PoE priority.

**Default:**

Port

**Usage Guide:**

To configure **Sequential Power up Port Option**.

**Example:**

To configure **Sequential Power up Port Option (Priority)**.

```
Switch# configure terminal
Switch (config)# poe sequential rule priority
```

**poe supply****Command:**

```
poe supply <1-XXX>
```

**poe** Power Over Ethernet

**supply** Use poe supply to specify the maximum power the power supply can deliver.

**<1-XXX>** Maximum power the power supply can deliver.

**Default:**

Maximum

**Usage Guide:**

To configure **Power Supply Budget**.

**Example:**

To configure **Power Supply Budget (200 watts)**.

```
Switch# configure terminal
Switch (config)# poe supply 200
```

**poe temperature-protection enable****Command:**

```
poe temperature-protection enable
```

**poe** Power Over Ethernet

**temperature-protection** Configure PoE over temperature protection to enable or disable.

**enable** poe temperature-protection enable

**Default:**

Enabled

**Usage Guide:**

To enable **PoE Temperature Protection**.

**Example:**

To enable **PoE Temperature Protection**.

```
Switch# configure terminal
Switch (config)# poe temperature-protection enable
```

## poe temperature-threshold

### Command:

```
poe temperature-threshold <0-100>
```

**poe** Power Over Ethernet

**temperature-threshold** Set a lower high temperature threshold for the secondary temperature alarm in degrees C.

**<0-100>** Specifies the new threshold temperature.

### Default:

80

### Usage Guide:

To enable **PoE Temperature Protection**.

### Example:

To enable **PoE Temperature Protection** (70 degrees C).

```
Switch# configure terminal
Switch (config)# poe temperature-threshold 70
```

## poe usage-threshold

### Command:

```
poe usage-threshold <1-99>
```

**poe** Power Over Ethernet

**usage-threshold** The poe usage-threshold command sets a percentage threshold above which the system sends a log or SNMP trap.<1-99>: The -threshold percentage configured with this command.

**<1-99>** The usage-threshold percentage configured with this command.

### Default:

85

### Usage Guide:

To configure **PoE Usage Threshold**.

### Example:

To configure **PoE Usage Threshold** (90 %).

```
Switch# configure terminal
Switch (config)# poe usage-threshold 90
```

## poe-time-range

### Command:

```
poe-time-range {profile1 | profile2 | profile3 | profile4}
```

**poe-time-range** Used to create PoE time-range for the switch and enter Power Time-range Create Configuration Mode.

**profile1** The PoE time-range profile name, ranging from Profile 1

**profile2** The PoE time-range profile name, ranging from Profile 2

- profile3** The PoE time-range profile name, ranging from Profile 3
- profile4** The PoE time-range profile name, ranging from Profile 4

**Default:**

N/A

**Usage Guide:**

To enter PoE time-range profile mode.

**Example:**

To enter PoE time-range profile 1 mode

```
Switch# configure terminal
Switch (config)# poe-time-range profile1
Switch (config-poe-time-range)#
```

**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)# poe-time-range profile1
Switch (config-poe-time-range)#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)# poe-time-range profile1
Switch (config-poe-time-range)#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)# poe-time-range profile1
Switch (config-poe-time-range)#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)# poe-time-range profile1
Switch (config-poe-time-range)#no description 999
```

**periodic**

**Command:**

```
periodic { Mon | Tue | Wed | Thu | Fri | Sat | Sun } <start_h>
<start_m> to <end_h> <end_m> [ reboot <reboot_h>
<reboot_m> ]
```

**periodic** To create a periodic mode time-range for the PoE time-range of the switch.

**Fri** Periodic Mode, with Friday.

**Mon** Periodic Mode, with Monday.  
**Sat** Periodic Mode, with Saturday.  
**Sun** Periodic Mode, with Sunday.  
**Thu** Periodic Mode, with Thursday.  
**Tue** Periodic Mode, with Tuesday.  
**Wed** Periodic Mode, with Wednesday.  
**< start\_h: 0-23>** <0-23> start hour  
**< start\_m: 0-59>** <0-59> start minute  
**to** start to end  
**< end\_h: 0-23>** <0-23> end hour  
**< end\_m: 0-59>** <0-59> end minute  
**reboot** Enable reboot function  
**< reboot\_h: 0-23>** <0-23> reboot hour  
**< reboot\_m:0-59>** <0-59> reboot minute

**Default:**  
 N/A

**Usage Guide:**

To configure the **Power Over Ethernet Schedule** for specific profile.

**Example:**

To configure the **Power Over Ethernet Schedule** (below table) for specific profile 1.

Week Day	Start Hour	Start Min	End Hour	End Min	Reboot Enable	Reboot Only	Reboot Hour	Reboot Min
Mon	11	59	22	50	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11	44

```
Switch# configure terminal
Switch (config)# poe-time-range profile1
Switch (config-poe-time-range)# periodic Mon 11 59 to 22 50
reboot 11 44
```

**reboot-only**

**Command:**

```
reboot-only { Mon | Tue | Wed | Thu | Fri | Sat | Sun }
<reboot_h> <reboot_m>
```

**reboot-only** To create a periodic mode time-range for the PoE time-range of the switch.

**Fri** Periodic Mode, with Friday.  
**Mon** Periodic Mode, with Monday.  
**Sat** Periodic Mode, with Saturday.  
**Sun** Periodic Mode, with Sunday.  
**Thu** Periodic Mode, with Thursday.  
**Tue** Periodic Mode, with Tuesday.  
**Wed** Periodic Mode, with Wednesday.  
**< reboot\_h: 0-23>** <0-23> reboot hour  
**< reboot\_m:0-59>** <0-59> reboot minute

**Default:**  
 N/A



**Usage Guide:**

To configure the **Power Over Ethernet Reboot Schedule** for specific profile.

**Example:**

To configure the **Power Over Ethernet Reboot Schedule** (below table) for specific profile.

Week Day	Start Hour	Start Min	End Hour	End Min	Reboot Enable	Reboot Only	Reboot Hour	Reboot Min
Mon	00	0	00	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	00	0

```
Switch# configure terminal
Switch (config)# poe-time-range profile1
Switch (config-poe-time-range)# reboot Mon 0 0
```

**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

<b>af11</b>	Assured Forwarding PHB AF11(DSCP 10)
<b>af12</b>	Assured Forwarding PHB AF12(DSCP 12)
<b>af13</b>	Assured Forwarding PHB AF13(DSCP 14)
<b>af21</b>	Assured Forwarding PHB AF21(DSCP 18)
<b>af22</b>	Assured Forwarding PHB AF22(DSCP 20)
<b>af23</b>	Assured Forwarding PHB AF23(DSCP 22)
<b>af31</b>	Assured Forwarding PHB AF31(DSCP 26)
<b>af32</b>	Assured Forwarding PHB AF32(DSCP 28)
<b>af33</b>	Assured Forwarding PHB AF33(DSCP 30)
<b>af41</b>	Assured Forwarding PHB AF41(DSCP 34)
<b>af42</b>	Assured Forwarding PHB AF42(DSCP 36)
<b>af43</b>	Assured Forwarding PHB AF43(DSCP 38)
<b>be</b>	Default PHB(DSCP 0) for best effort traffic
<b>cs1</b>	Class Selector PHB CS1 precedence 1(DSCP 8)
<b>cs2</b>	Class Selector PHB CS2 precedence 2(DSCP 16)
<b>cs3</b>	Class Selector PHB CS3 precedence 3(DSCP 24)
<b>cs4</b>	Class Selector PHB CS4 precedence 4(DSCP 32)
<b>cs5</b>	Class Selector PHB CS5 precedence 5(DSCP 40)
<b>cs6</b>	Class Selector PHB CS6 precedence 6(DSCP 48)
<b>cs7</b>	Class Selector PHB CS7 precedence 7(DSCP 56)
<b>ef</b>	Expedited Forwarding PHB(DSCP 46)
<b>va</b>	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**



Key Parameters		Action Parameters	
DMAC	Unicast <input type="button" value="v"/>	CoS	0 <input type="button" value="v"/>
SMAC	Any <input type="button" value="v"/>	DPL	1 <input type="button" value="v"/>
Tag	Tagged <input type="button" value="v"/>	DSCP	4 <input type="button" value="v"/>
VID	Specific <input type="button" value="v"/> Value: 5 <input type="text"/>	<b>UDP Parameters</b>	
PCP	3 <input type="button" value="v"/>	Sport	Specific <input type="button" value="v"/> Value: 55 <input type="text"/>
DEI	1 <input type="button" value="v"/>	Dport	Any <input type="button" value="v"/>
Frame Type	IPv4 <input type="button" value="v"/>		
<b>IPv4 Parameters</b>			
Protocol	UDP <input type="button" value="v"/>		
SIP	Any <input type="button" value="v"/>		
IP Fragment	No <input type="button" value="v"/>		
DSCP	Specific <input type="button" value="v"/> 19 <input type="button" value="v"/>		

```
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	<input type="checkbox"/>	0	1	5	10
1	<input checked="" type="checkbox"/>	2	3	4	5
2	<input type="checkbox"/>	0	1	5	10
3	<input type="checkbox"/>	0	1	5	10
4	<input type="checkbox"/>	0	1	5	10
5	<input type="checkbox"/>	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	<input type="checkbox"/>	0	1	5	10
1	<input type="checkbox"/>	0	1	5	10
2	<input type="checkbox"/>	0	1	5	10
3	<input type="checkbox"/>	0	1	5	10
4	<input type="checkbox"/>	0	1	5	10
5	<input type="checkbox"/>	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 <ld : 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**

<b>Trap Destination Address</b>	interlogix.com
<b>Trap Destination Port</b>	66
<b>Trap Inform Mode</b>	Enabled

```
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**

<b>Trap Inform Timeout (seconds)</b>	55
<b>Trap Inform Retry Times</b>	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> ] [ <securtname> ] }
```

**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**

Trap Version	SNMP v2c
Trap Community	IFS

```
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 bpduguard

**Command:**

```
spanning-tree bpduguard
```

**spanning-tree** Spanning Tree protocol  
**bpduguard** 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 bpduguard
```

**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
```

## upnp ttl

**Command:**

```
upnp ttl <1-255>
```

**upnp** Set UPnP's configurations

**ttl** Set TTL value  
**<1-255>** TTL value

**Default:**

4

**Usage Guide:**

To configure the **TTL** of **UPnP**

**Example:**

To configure the **TTL** (8) of **UPnP**

```
Switch# configure terminal
Switch (config)# upnp ttl 8
```

## username

### Command:

```
username <username> privilege <priv> password { encrypted
<encyr_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  
**<0x0-0xfffff>** SNAP OUI (Range 0x000000 - 0FFFFFFF)  
**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.
rcvfrom: Operation timed out
rcvfrom: Operation timed out
rcvfrom: Operation timed out
rcvfrom: Operation timed out
rcvfrom: Operation timed out
rcvfrom: 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

**vtty** 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 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 evc****Command:**

```
show evc { [ <evc_id> | all ] } [ ece [ <ece_id> ] ]
```

**show** Show running system information  
**evc** Ethernet Virtual Connections  
**<EvcId : 1-4096>** EVC identifier  
**all** Process all EVCs  
**ece** EVC Control Entry  
**<EceId : 1-4096>** ECE identifier

**Default:**

N/A

**Usage Guide:**

To display the **EVC status**.

**Example:**

To display the All of **EVC status**.

```
Switch # show evc all
EVC ID Status
-----
1      Active
```

### show evc statistics

**Command:**

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

**show** Show running system information  
**green-ethernet** Green ethernet (Power reduction)

**Default:**

N/A

**Usage Guide:**

To display the **EVC statistics**.

**Example:**

To display the **EVC Red Frames** statistics for all.

```
Switch # show evc statistics all red
EVC ID Interface          Rx Red Frames
-----
1      GigabitEthernet 1/1  0
1      GigabitEthernet 1/2  0
```

### show green-ethernet

**Command:**

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

**show** Show running system information  
**green-ethernet** Green ethernet (Power reduction)  
**interface** Shows green ethernet status for a specific port or ports.

**Default:**

N/A

**Usage Guide:**

To display the **Green Ethernet** status.

**Example:**

To display the **Green Ethernet** status for all.

```
Switch # show green-ethernet interface *
```

## show green-ethernet energy-detect

### Command:

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

**show** Show running system information  
**green-ethernet** Green ethernet (Power reduction)  
**energy-detect** Shows green ethernet energy-detect status for a specific port or ports.  
**interface** Shows green ethernet status for a specific port or ports.

### Default:

N/A

### Usage Guide:

To display the **energy-detect** of **Green Ethernet**.

### Example:

To display the **energy-detect** of **Green Ethernet** for all.

```
Switch # show green-ethernet energy-detect interface *
```

## show green-ethernet short-reach

### Command:

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

**show** Show running system information  
**green-ethernet** Green ethernet (Power reduction)  
**short-reach** Shows green ethernet short-reach status for a specific or ports  
**interface** Shows green ethernet status for a specific port or ports.

### Default:

N/A

### Usage Guide:

To display the **short-reach** of **Green Ethernet**.

### Example:

To display the **short-reach** of **Green Ethernet** for all.

```
Switch # show green-ethernet short-reach interface *
```

## 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 identifier 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 http server secure status

**Command:**

```
show ip http server secure status
```

**show** Show running system information  
**ip** Internet Protocol  
**http** Hypertext Transfer Protocol  
**server** HTTP web server  
**secure** Secure  
**status** Status

**Default:**

N/A

**Usage Guide:**

To display the **DHCP Snooping** table.

**Example:**

To display the **DHCP Snooping** table.

```
Switch # show ip http server secure status
Switch secure HTTP web server is disabled
Switch secure HTTP web redirection is disabled
```

## 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  
Frag: 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
```

```
Frag: 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
Frag: 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
Frag: 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
Frag: 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 network-clock

### Command:

```

show network-clock
    
```

**show** Show running system information  
**network-clock** Show selector state

### Default:

N/A

### Usage Guide:

To display the **SyncE** information.

### Example:

To display the **SyncE** information.

```

Switch # show network-clock

Selector State is: Free Run

Alarm State is:
Clk:    1    2
LOCS:  FALSE FALSE
SSM:   FALSE FALSE
WTR:   FALSE FALSE

LOL:   FALSE
DHOLD: TRUE

SSM State is:
Interface      Tx SSM    Rx SSM Mode
GigabitEthernet 1/1    QL_NONE  QL_LINK Master
    
```

## 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 community v3

**Command:**

```
show snmp community v3 [ <community> ]
```

- show** Show running system information
- snmp** Display SNMP configurations
- community** Community
- v3** SNMPv3
- <Community : word127>** Specify community name

**Default:**

N/A

**Usage Guide:**

To display the **SNMPv3 Community** information.

**Example:**

To display the **SNMPv3 Community** information

```
Switch # show snmp community v3
Community       : public
Source IP       : 0.0.0.0
Source Mask     : 0.0.0.0

Community       : private
Source IP       : 0.0.0.0
Source Mask     : 0.0.0.0
```

## show snmp host

### 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 - 0xFFFFFFFF)  
**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	Privilege Level			
Group Name		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 size for current terminal session.

### Example:

To configure history buffer size 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
```