PLANET
Networking & Communication

Command Guide

Industrial L2/L4 Managed Ethernet Switch

- IGS-4215 Series
- IGS-801M
- WGS-4215/804HPT Series

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Chapter 1 COMMAND LINE INTERFACE

1.1 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).

1.2 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 is 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's commands.

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

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

Table 4-1 CLI Command Modes

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, and 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(config-if)#

1.3 Command Help

To enter ? at any command mode, and the CLI will return possible commands at that point, along with some description of the keywords:

Switch(config)# **copy tftp ?**
running-config Running configurations
startup-config Startup configurations
firmware Runtime firmware image
To use the <Tab> key to do keyword auto completion:
Switch(config)# **copy tftp r<Tab>**
Switch(config)# **copy tftp running-config**

You do not need to type in the entire commands; you only need to type in enough characters for the CLI to recognize the command as unique. The following example shows you how to enter the show running-config command:

Switch(config)# **sh ru**
Note: If you want to stop displaying the information, press key "**q**" to escape.

1.4 Command Line Editing

Before you press <Enter>, the current command line can be edited using special keys including arrows and <Ctrl> keys. The following table describes the special keys and their function supported by the CLI:

Keys	Function
<Ctrl>-B; ←	Moves the cursor back one character
<Ctrl>-D	Deletes the character at the cursor
<Ctrl>-E	Jumps to the end of the current command line
<Ctrl>-F; →	Moves the cursor forward one character
<Ctrl>-K	Deletes from the cursor to the end of the command line
<Ctrl>-N; ↓	Enters the next command line in the command history
<Ctrl>-P; ↑	Enters the previous command line in the command history
<Ctrl>-U	Deletes from the cursor to the beginning of the command line
<Ctrl>-W	Deletes the last word typed
<Esc> B	Moves the cursor backward one word
<Esc> D	Deletes from the cursor to the end of the word
<Esc> F	Moves the cursor forward one word
<Backspace>	Delete the character before the cursor
<Del>	Delete the character at the cursor

1.5 Requirements

- **Workstations** running Windows XP/2003/Vista/7/8/10/2008/10/11, 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.

1.6 Command Support

As shown in the following table, some command groups or commands are supported on particular switch models.

Command Group or Command	RJ45 Gigabit Ethernet	SFP Gigabit Ethernet	IEEE 802.3at PoE+	IEEE 802.3bt PoE++	E.R.P.S (Ring)
Industrial DIN-rail Managed Ethernet Switches					
IGS-801M	■	-	-	-	■
IGS-4215-4T2S	■	■	-	-	■
IGS-4215-8T2S	■	■	-	-	■
IGS-4215-16T2S	■	■	-	-	■
IGS-4215-16T2S-U	■	■	-	-	■
IGS-4215-4P4T	■	-	■	-	■
IGS-4215-4P4T2S	■	■	■	-	■
IGS-4215-8P2T2S	■	■	■	-	■
IGS-4215-4UP4T2S	■	■	-	■	■
IGS-4215-8UP2T2S	■	■	-	■	■
Industrial Flat-type Managed Ethernet Switches					
WGS-804HPT	■	-	■	-	■
WGS-4215-8P2S	■	■	■	-	■
WGS-4215-8HP2S	■	■	■	■	■
WGS-4215-16P2S	■	■	■		■
WGS-4215-8T	■	-	-	-	■

■ = Supported, - = Not supported

Chapter 2 CONSOLE CLI MANAGEMENT

2.1 Terminal Setup

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

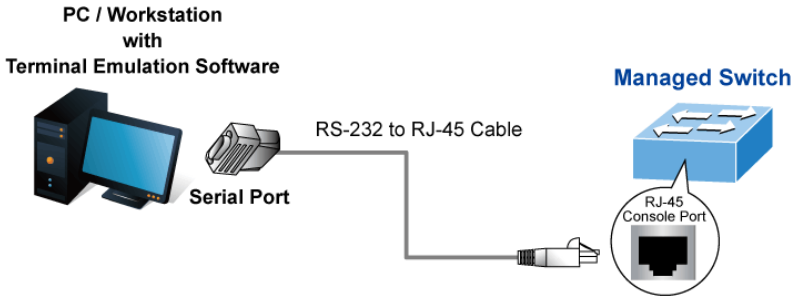

Figure 2-1 Managed Switch Console Connectivity

The console port of the Managed Switch is an RJ45 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 setting. Users can use the attached 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.

IGS-4215 Series Rear Panel

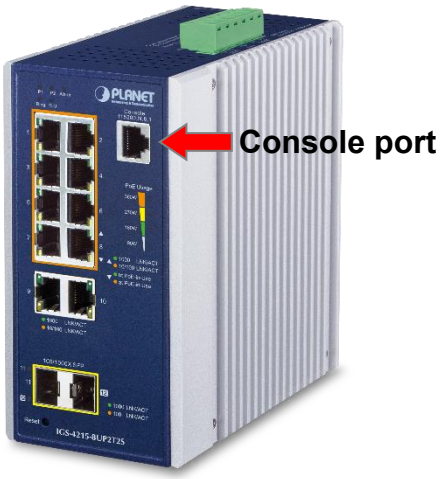

Figure 2-2: Rear Panel of IGS-4215 Series

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**, then **Programs**, **Accessories** and then **Hyper Terminal**.

2. When the following screen appears, make sure that the COM port should be configured as:

- **Baud : 115200**
- **Data bits : 8**
- **Parity : None**
- **Stop bits : 1**
- **Flow control : None**

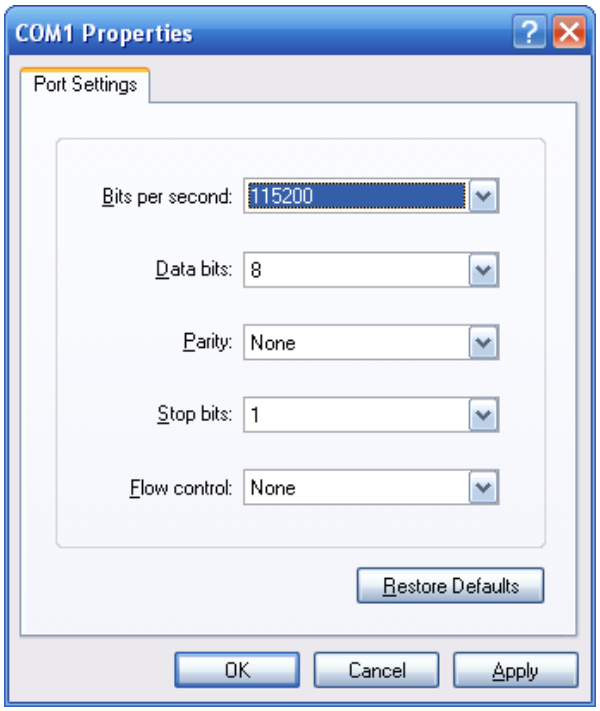

Figure 2-3 Hyper Terminal COM Port Configuration

You can change these settings, if desired, 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.

2.2 Loggin on to the Console

Once the terminal is connected to the device, power on the Industrial Managed PoE+ 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 in Figure 3-1 appears.

Note: The following console screen is based on the IGS-4215-8UP2T2S. The display of the other IGS-4215 PoE series is the same as that of the IGS-4215-8UP2T2S.

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

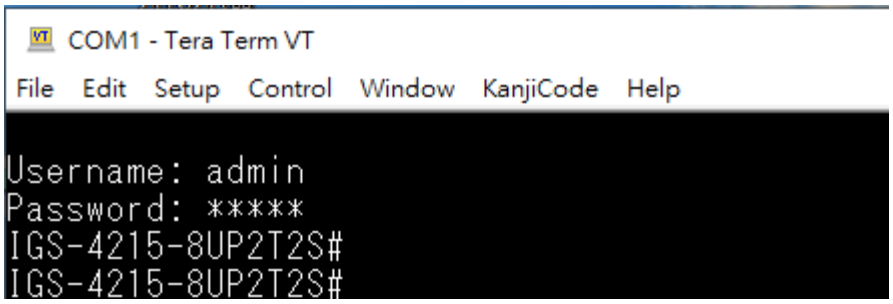

Figure 3-1: Managed Switch Console Login Screen

The user can now enter commands to manage the Managed Switch. For a detailed description of the commands, please refer to the following chapters.

Note

1. For security reason, please change and memorize the new password after this first setup.
2. Only accept command in lowercase letter under console interface.

2.3 Configuring 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 procedure as follows:

■ Showing the Current IP Address

1. At the **"#"** prompt, enter **"show ip"**.
2. The screen displays the current IP address and Subnet Mask as shown in Figure 3-2.

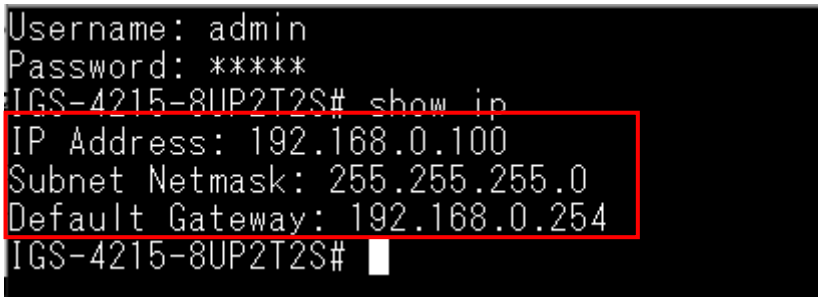

Figure 3-2: IP Information Screen

■ Configuring IP Address

3. On "**IGS-4215#**" prompt, enter "**configure**".
4. On "**IGS-4215(config)#**" prompt, enter the following command and press **<Enter>** as shown in Figure 3-3.

IGS-4215(config)# **ip address 192.168.1.100 mask 255.255.255.0**

IGS-4215(config)# **ip default-gateway 192.168.1.254**

The previous command would apply the following settings for the Switch.

IP Address: 192.168.1.100
Subnet Mask: 255.255.255.0
Gateway: 192.168.1.254

Figure 3-3: Configuring IP Address Screen

5. Repeat step 1 to check if the IP address has changed.

■ Storing Current Switch Configuration

6. At the "**#**" prompt, enter the following command and press **<Enter>.**

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

Figure 3-4: Saving Current Configuration Command Screen

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.

If you are not familiar with the console command or the related parameter, enter " **?**" anytime in console to get the help description.

Chapter 3 TELNET CLI MANAGEMENT

3.1 Telnet Login

The Managed Switch also supports telnet for remote management. The switch asks for user name and password for remote login when using telnet; please use **"admin"** for both username and password.

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

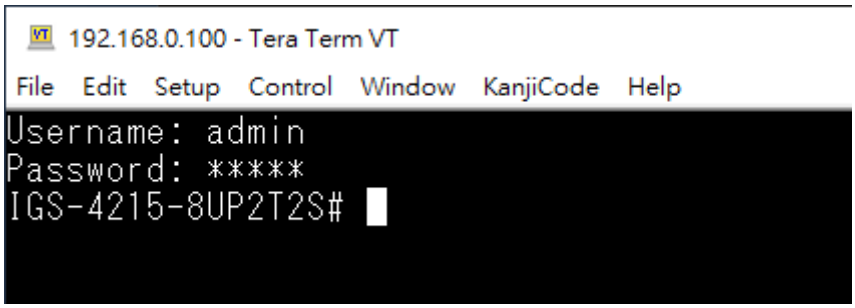

Figure 4-1 Managed Switch Telnet Login Screen

Chapter 4 Commands for CLI Configuration

4.1 clear

4.1.1 clear arp

Command:

```
clear arp
```

clear **Clear configuration**

arp **Clear entries in the ARP cache**

Default:

N/A

Usage Guide:

To clear entries in the ARP cache.

A.B.C.D IP address to clear

Example:

To clear the Switch's entries in the ARP cache.

```
Switch# clear arp
```

4.1.2 clear gvrp

Command:

```
clear gvrp error-statistics interfaces GigabitEthernet
```

clear Clear configuration

gvrp GVRP configuration

error-statistics GVRP Error Statistics info

interfaces Interface status and configuration

GigabitEthernet Gigabit ethernet interface to configure

LAG IEEE 802.3 Link Aggregateion interface

<1-12> GigabitEthernet device number

statistics GVRP Statistics info

interfaces Interface status and configuration

GigabitEthernet Gigabit ethernet interface to configure

LAG IEEE 802.3 Link Aggregateion interface

<1-12> GigabitEthernet device number

Default:

N/A

Usage Guide:

To clear the **GVRP Error Statistics info**

Example:

To clear the Switch's **GVRP Error Statistics info**

```
Switch# clear gvrp error-statistics interfaces GigabitEthernet 1
```

4.1.3 clear interface

Command:

```
clear interfaces [ GigabitEthernet | LAG ]
```

clear **Clear configuration**

interfaces **Interface status and configuration**

GigabitEthernet **Gigabit ethernet interface to configure**

<1-12> **GigabitEthernet device number**

LAG **IEEE 802.3 Link Aggregateion interface**

<1-8> **LAG interface number**

Default:

N/A

Usage Guide:

To clear the **Interface status and configuration**

Example:

To clear the Switch's **Interface status and configuration**

```
Switch# clear interfaces GigabitEthernet 1
```

4.1.4 clear ip arp

Command:

```
clear ip arp
```

clear **Clear configuration**

ip **IP configuration**

arp **ARP configuration**

inspection **ARP Inspection information**

interfaces **Interface status and configuration**

GigabitEthernet **Gigabit ethernet interface to configure**

<1-12> **GigabitEthernet device number**

LAG **IEEE 802.3 Link Aggregateion interface**

<1-8> **LAG interface number**

Default:

N/A

Usage Guide:

To clear the **ARP cache.**

Example:

To clear the Switch's A**RP cache.**

```
Switch# clear ip arp
```

4.1.5 clear ip dhcp

Command:

```
clear ip dhcp snooping [ database | interfaces ]
```

clear Clear configuration

ip IP configuration

dhcp DHCP configuration

snooping Snopping information

database DHCP snooping database agent

statistics Statistics

interfaces Interface status and configuration

GigabitEthernet Gigabit ethernet interface to configure

<1-12> GigabitEthernet device number

LAG IEEE 802.3 Link Aggregateion interface

<1-8> LAG interface number

Default:

N/A

Usage Guide:

To clear the IP **DHCP Snopping information**

Example:

To clear the Switch's IP **DHCP Snopping information**

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

4.1.6 clear ip igmp snooping

Command:

clear ip igmp snooping [groups | statistics]

clear **Clear configuration**

ip **IP configuration**

igmp **IGMP Configuration**

snooping **IGMP Snooping Configuration**

groups **IPv4 multicast groups**

dynamic **dynamic groups**

static **static groups**

statistics **Clear 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**

4.1.7 clear ipv6 mld snooping groups

Command:

```
clear ipv6 mld snooping groups [dynamic | static ]
```

clear Clear configuration

ipv6 IPv6 information

mld MLD Configuration

snooping MLD Snooping Configuration

groups IPv6 multicast groups

dynamic dynamic groups

static static groups

Default:

N/A

Usage Guide:

To clear the **ipv6 mld snooping Configuration**

Example:

To clear the Switch's **ipv6 mld snooping Configuration**

```
Switch# clear ipv6 mld snooping groups dynamic
```

4.1.8 clear ipv6 mld snooping statistics

Command:

```
clear ipv6 mld snooping statistics
```

clear **Clear configuration**

ipv6 **IPv6 information**

mld **MLD Configuration**

snooping **MLD Snooping Configuration**

statistics **Clear 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
```

4.1.9 clear lacp statistics

Command:

```
lear lacp 1 ccounters
```

clear **Clear configuration**

lacp **LACP Configuration**

<1-8> **LAG number**

counters **Traffic information**

Default:

N/A

Usage Guide:

To clear the **lacp statistics.**

Example:

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

```
Switch# lear lacp 1    ccounters
```

4.1.10 clear line

Command:

```
clear line [ ssh | telnet ]
```

clear **Clear configuration**

line **To identify a specific line for configuration**

ssh **SSH (Secure Shell) configuration**

telnet **Telnet daemon configuration**

Default:

N/A

Usage Guide:

To clear the **SSH (Secure Shell) configuration**

Example:

To clear the Switch's **v SSH (Secure Shell) configuration**

```
Switch# clear line ssh
```

4.1.11 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
```

4.1.12 clear logging

Command:

```
clear logging [ buffered | file ]
```

clear **Clear configuration**

logging **Log Configuration**

buffered **Buffered logging**

file **File logging**

Default:

N/A

Usage Guide:

To clear the **l Log Configuration**

Example:

To clear the Switch's **Log Configuration**

```
Switch# clear logging buffered
```

4.1.13 clear mac address-table

Command:

```
clear mac address-table dynamic [interfaces | vlan ]
```

clear **Clear configuration**

mac **MAC configuration**

address-table **MAC address table configuration**

dynamic **dynamic addresses**

interfaces **Interface status and configuration**

GigabitEthernet **Gigabit ethernet interface to configure**

<1-12> **GigabitEthernet device number**

vlan **VLAN configuration**

<1-4094> **VLAN ID (e.g. 100)**

LAG **IEEE 802.3 Link Aggregateion interface**

<1-8> **LAG interface number**

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
```

4.1.14 clear rmon

Command:

```
clear rmon interfaces [GigabitEthernet | LAG ]
```

clear **Clear configuration**

rmon **RMON information**

interfaces **Interface status and configuration**

GigabitEthernet **Gigabit ethernet interface to configure**

LAG **IEEE 802.3 Link Aggregateion interface**

<1-12> **GigabitEthernet device number**

Default:

N/A

Usage Guide:

To clear the **RMON information**

Example:

To clear the **RMON information**

```
Switch# clear rmon interfaces GigabitEthernet 1
```

4.2 Clock

Command:

```
clock set HH:MM:SS (jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec) <1-31>
<2000-2035>
```

Parameter:

HH:MM:SS	Specify static time of year, month, day, hour, minute, second
(jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec) <1-31> <2000-2035>	

Mode:

Global Configuration

Usage Guide:

Use the **clock set** command to set static time. The static time won't save to configuration file.

Example:

The example shows how to set static time of switch. You can verify settings by the following show **show clock** command.

```
switch# clock set 11:03:00 sep 21 2012
11:03:00 DFL(UTC+8) Sep 21 2012
switch# show clock
11:03:21 DFL(UTC+8) Sep 21 2012
No time source
```

4.3 configure

4.3.1 AAA

4.3.1.1 aaa authentication

Command:

aaa authentication (login | enable) (default | *LISTNAME*) *METHODLIST* [*METHODLIST*] [*METHODLIST*] [*METHODLIST*] **no aaa authentication (login | enable) *LISTNAME***

Parameter:

authentication	Authentication
enable	Add/Edit enable authentication list
login	Add/Edit login authentication list
LISTNAME	Specify the list name for authentication type
default	Edit default authentication list
METHODLIST	Specify the authenticate method, including none, local, enable, tacacs+, radius.

Default:

Default authentication list name for type login is “default” and default method is “local”.

Default authentication list name for type enable is “default” and default method is “enable”

Mode:

Global Configuration

Usage Guide:

Login authentication is used when user try to login into the switch. Such as CLI login dialog and WEBUI login web page.

Enable authentication is used only on CLI for user trying to switch from User EXEC mode to Privileged EXEC mode.

Both of them support following authenticate methods.

Local: Use local user account database to authenticate. (This method is not supported for enable authentication)

Enable: Use local enable password database to authenticate.

Tacacs+: Use remote Tacas+ server to authenticate.

Radius: Use remote Radius server to authenticate.

None: Do nothing and just make user to be authenticated.

Each list allows you to combine these methods with different orders. For example, we want to authenticate login user with remote Tacacs+ server, but server may be crashed. Therefore, we need a backup plan, such as another Radius server. So we can configure the list with Tacacs+ server as first authentication method and Radius server as second one.

Use no form to delete the existing list. However, “default” list is not allowed to remove.

Example:

This example shows how to add a login authentication list to authenticate with order tacacs+, radius, local.

```
Switch(config)# aaa authentication login test1 tacacs+ radius local
```

This example shows how to show existing login authentication lists

```
Switch# show aaa authentication login lists
Login List Name | Authentication Method List
----------------+-------------------------------
default | local
test1 | tacacs+ radius local
```

This example shows how to add an enable authentication list to authenticate with order tacacs+, radius, enable.

```
Switch(config)# aaa authentication enable test1 tacacs+ radius enable
```

This example shows how to show existing enable authentication lists

```
Switch# show aaa authentication login lists
Enable List Name | Authentication Method List
----------------+-------------------------------
default | enable
test2 | tacacs+ radius enable
```

4.3.2 BOOT

Command:

```
boot system [ image0 | image1]
```

Parameter:

boot	**Booting Operations**
system	**Run time firmware image**
image0	**Runtime image 0**
image1	**Runtime image 1**

Mode:

Global Configuration

Usage Guide:

Use the **Booting Operations** to r**un time firmware image0**.

Example:

The example shows how to set the **Booting Operations** to r**un time firmware image0**.

```
switch# boot system image0
```

4.3.3 Clock

4.3.3.1 Clock set

Command:

```
clock set HH:MM:SS (jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec) <1-31>
<2000-2035>
```

Parameter:

HH:MM:SS	Specify static time of year, month, day, hour, minute, second
(jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec) <1-31> <2000-2035>	

Mode:

Global Configuration

Usage Guide:

Use the **clock set** command to set static time. The static time won't save to configuration file.

Example:

The example shows how to set static time of switch. You can verify settings by the following show **show clock** command.

```
switch# clock set 11:03:00 sep 21 2012
11:03:00 DFL(UTC+8) Sep 21 2012
switch# show clock
11:03:21 DFL(UTC+8) Sep 21 2012
No time source
```

4.3.3.2 clock timezone

Command:

```
clock timezone ACRONYM HOUR-OFFSET [minutes <0-59>]

no clock timezone
```

Parameter:

ACRONYM	Specify acronym name of time zone
HOUR-OFFSET	Specify hour offset of time zone
minutes <0-59>	Specify minute offset of time zone

Default:

Default time zone is UTC+8.

Mode:

Global Configuration

Usage Guide:

Use the **clock timezone** command to set timezone setting. Use the no form of this command to default setting.

Example:

The example shows how to set time zone of switch and then restore to default time zone. You can verify settings by the following show show clock command.

```
switch(config)# clock timezone test +5
switch(config)# show clock detail
10:13:27 test(UTC+5) Sep 21 2012
No time source
Time zone:
Acronym is test
Offset is UTC+5
switch(config)# no clock timezone
switch(config)# show clock detail
13:14:50 DFL(UTC+8) Sep 21 2012
No time source
Time zone:
Acronym is DFL
Offset is UTC+8
```

4.3.3.3 clock source

Command:

```
clock source (local|sntp)
```

Parameter:

local	Specify to use static time
sntp	Specify to use sntp time

Default:

Default is using local time.

Mode:

Global Configuration

Usage Guide:

Use the **clock source** command to set the source of time. The "**local**" means that use static setting by user manual set. The "**sntp**" means that use remote SNTP server. Use the no form of this command to default setting.

Example:

The example shows how to set clock source of switch. You can verify settings by the following show show clock command.

```
switch(config)# clock source sntp
switch(config)# show clock detail
08:32:12 test(UTC+5) Sep 21 2012
No time source
Time zone:
Acronym is DFL
Offset is UTC+8
```

4.3.3.4 clock summer-time

Command:

```
clock summer-time ACRONYM date
(jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec) <1-31> <2000-2037> HH:MM
(jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec) <1-31> <2000-2037> HH:MM
[<1-1440>]

clock summer-time ACRONYM recurring (usa|eu) [<1-1440>]

clock summer-time ACRONYM recurring (<1-5>|first|last)
(sun|mon|tue|wed|thu|fri|sat) (jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec)
HH:MM (<1-5>|first|last) (sun|mon|tue|wed|thu|fri|sat)
(jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec) HH:MM [<1-1440>]

no clock summer-time
```

Parameter:

(jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec) <1-31> <2000-2037> HH:MM	Specify acronym name of time zone
[<1-1440>]	Specify adjust offset of daylight saving time
usa	Using daylight saving time in the United States that starts on the second Sunday of March and ends on the first Sunday of November
eu	Using daylight saving time in the Europe that starts on the last Sunday in March and ending on the last Sunday in October
(<1-5>|first|last) (sun|mon|tue|wed|thu|fri|sat) (jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec) HH:MM	Specify ecurring daylight saving time duration.

Mode:

Global Configuration

Usage Guide:

Use the **clock summer-time** command to set daylight saving time for system time. The "**usa**" or "**eu**" means that use the global daylight saving policy which defined by international organization. In both the "**date**"and "**recurring**", the first part of the command specifies when summer time begins, and the second part specifies when it ends. All times are relative to the local time zone. The "**recurring**" means that adjust time every year within the month . Use the no form of this command to default setting.

Example:

The example shows how to set clock source of switch. You can verify settings by the following show show clock command.

```
switch(config)# clock source sntp
switch(config)# show clock detail
08:32:12 test(UTC+5) Sep 21 2012
No time source
Time zone:
Acronym is DFL
Offset is UTC+8
```

4.3.3.5 show clock

Command:

```
show clock [detail]
```

Parameter:

detail	Show more detail information of clock

Mode:

Global Configuration

Usage Guide:

Use the **show clock** command to show clock of switch. The "**detail**" means that show more information of clock such as time zone and daylight saving time.

Example:

The example shows how to show clock of switch and detail information.

```
Switch(config)# clock source sntp
Switch(config)# clock summer-time DLS recurring usa
Switch(config)# sntp host 192.168.1.100
Switch(config)# show clock
14:34:43 DLS(UTC+9) Sep 25 2012
Time source is sntp
Switch(config)# show clock detail
14:35:39 DLS(UTC+9) Sep 25 2012
Time source is sntp
Time zone:
Acronym is DFL
Offset is UTC+8
Summertime:
Acronym is DLS
Recurring every year.
Begins at 2 0 3 2:0
Ends at 1 0 11 2:0
Offset is 60 minutes.
```

4.3.3.6 sntp

Command:

```
sntp host HOSTNAME [port <1-65535>]

no sntp
```

Parameter:

HOSTNAME	Specify ip address or hostname of sntp server
port <1-65535>	Specify server port of sntp server

Mode:

Global Configuration

Usage Guide:

Use the sntp command to set remote SNTP server. Default server port is 123. Use the no form of this command to default setting.

Example:

The example shows how to set remote SNTP server of switch. You can verify settings by the following show show sntp command.

```
switch(config)# clock source sntp
switch(config)# sntp host 192.168.1.100
switch(config)# show sntp
SNTP is Enabled
SNTP Server address: 192.168.1.100
SNTP Server port: 123
```

4.3.3.7 show sntp

Command:

```
show sntp
```

Mode:

Global Configuration

Usage Guide:

Use the **show sntp** command to remote SNTP server information.

Example:

The example shows how to show remote SNTP server.

```
Switch(config)# show sntp
SNTP is Enabled
SNTP Server address: 192.168.1.100
SNTP Server port: 123
```

4.3.4 DoS

4.3.4.1 dos

Command:

```
dos (daeqsa-deny | icmp-frag-pkts-deny | icmpv4-ping-max-check |
icmpv6-ping-max-check | ipv6-min-frag-size-check | land-deny | nullscan-deny |
pod-deny | smurf-deny | syn-sportl1024-deny | synfin-deny | synrst-deny |
tcp-frag-off-min-check | tcpblat-deny | tcphdr-min-check | udpblat-deny | xma-deny)

no dos (daeqsa-deny | icmp-frag-pkts-deny | icmpv4-ping-max-check |
icmpv6-ping-max-check | ipv6-min-frag-size-check | land-deny | nullscan-deny |
pod-deny | smurf-deny | syn-sportl1024-deny | synfin-deny | synrst-deny |
tcp-frag-off-min-check | tcpblat-deny | tcphdr-min-check | udpblat-deny | xma-deny)

dos icmp-ping-max-length <0-65535>

dos ipv6-min-frag-size-length <0-65535>

dos smurf-netmask <0-32>

dos tcphdr-min-length <0-31>
```

Parameter:

daeqsa-deny	Enable/Disable daeqsa-deny protection.
icmp-frag-pkts-deny	Enable/Disable icmp-frag-pkts-deny protection.
icmp-ping-max-length	Specify icmp-ping-max length.
icmpv4-ping-max-check	Enable/Disable icmpv4-ping-max-check protection.
icmpv6-ping-max-check	Enable/Disable icmpv6-ping-max-check protection.
ipv6-min-frag-size-check	Enable/Disable ipv6-min-frag-size-check protection.
ipv6-min-frag-size-length	Specify ipv6-min-fragsize length.
land-deny	Enable/Disable land-deny protection.
nullscan-deny	Enable/Disable nullscan-deny protection.
pod-deny	Enable/Disable pod-deny protection.
smurf-deny	Enable/Disable smurf-deny protection.
smurf-netmask	Specify smurf netmask.
syn-sportl1024-deny	Enable/Disable syn-sportl1024-deny protection.

synfin-deny	Enable/Disable synfin-deny protection.
synrst-deny	Enable/Disable synrst-deny protection.
tcp-frag-off-min-check	Enable/Disable tcp-frag-off-min-check protection.
tcpblat-deny	Enable/Disable tcpblat-deny protection.
tcphdr-min-check	Enable/Disable tcphdr-min-check protection.
tcphdr-min-length	Specify tcphdr-min length.
udpblat-deny	Enable/Disable udpblat-deny protection.
xma-deny	Enable/Disable xma-deny protection.

Default:

Default enable state of all DoS types are enabled.

Default smurf netmask length is 0.

Default tcphdr-min length is 20.

Default icmp-ping-max length is 512.

Default ipv6-min-frag-size length is 1240.

Mode:

Global Configuration

Usage Guide:

DoS is using to protect malicious attack from other devices. This command can configure DUT to enable/disable following types of attacks.

- **daeqsa-deny** : Destination MAC equals to source MAC
- **icmp-frag-pkts-deny** : Fragmented ICMP packets
- **icmp-ping-max-length** : DoS information
- **icmpv4-ping-max-check** : Check ICMPv4 ping maximum packets size
- **icmpv6-ping-max-check** : Check ICMPv6 ping maximum packets size
- **ipv6-min-frag-size-check** : Check minimum size of IPv6 fragments
- **ipv6-min-frag-size-length** : DoS information
- **land-deny** : Source IP equals to destination IP
- **nullscan-deny** : NULL Scan Attacks
- **pod-deny** : Ping of Death Attacks
- **smurf-deny** : Smurf Attacks
- **smurf-netmask** : DoS information
- **syn-sportl1024-deny** : SYN packets with sport less than 1024
- **synfin-deny** : SYN and FIN bits set in the packet
- **synrst-deny** : SYNC and RST bits set in the packet
- **tcp-frag-off-min-check** : TCP fragment packet with offset equals to one
- **tcpblat-deny** : Source TCP port equals to destination TCP port
- **tcphdr-min-check** : Check minimum TCP header
- **tcphdr-min-length** : DoS information
- **udpblat-deny** : Source UDP port equals to destination UDP port
- **xma-deny** : Xmascan: sequence number is zero and the FIN, URG and PSH bits are set

Example:

This example shows how to disable synfin-deny and smurf with netmask length 30.

```
Switch(config)# no dos synfin-deny
Switch(config)# dos smurf-netmask 30
```

This example shows how to show current dos state on interface gi1

```
Switch# show dos
Type | State (Length)
-----------------------------+-----------------------
DMAC equal to SMAC | enabled
Land (DIP = SIP) | enabled
UDP Blat (DPORT = SPORT) | enabled
TCP Blat (DPORT = SPORT) | enabled
POD (Ping of Death) | enabled
IPv6 Min Fragment Size | enabled (1240 Bytes)
ICMP Fragment Packets | enabled
IPv4 Ping Max Packet Size | enabled (512 Bytes)
IPv6 Ping Max Packet Size | enabled (512 Bytes)
Smurf Attack | enabled (Netmask Length: 30)
TCP Min Header Length | enabled (20 Bytes)
TCP Syn (SPORT < 1024) | disabled
Null Scan Attack | enabled
X-Mas Scan Attack | enabled
TCP SYN-FIN Attack | enabled
TCP SYN-RST Attack | enabled
TCP Fragment (Offset = 1) | enabled
```

4.3.4.2 port dos

Command:

```
dos
no dos
```

Default:

Default value is disable

Mode:

Interface Configuration

Usage Guide:

Use “**dos**” command to enable dos configuration on selected ports. Use “**no dos**” to diable on selected ports.

Example:

This example shows how to show current dos state on interface gi1

```
Switch# show dos interfaces gi1
Port | DoS Protection | Gratuitous-ARP
----------+----------------+---------------
gi1 | enabled | disabled
```

4.3.4.3 ip gratuitous-arps

Command:

```
ip gratuitous-arps

no ip gratuitous-arps
```

Default:

Default value is disable

Mode:

Interface Configuration

Usage Guide:

Use "**ip gratuitous-arps**" command to enable dos configuration on selected ports. Use "**no ip gratuitous-arps**" to diable on selected ports.

Example:

This example shows how to show current dos state on interface gi1

```
Switch# show dos interfaces gi1
Port | DoS Protection | Gratuitous-ARP
----------+----------------+----------------
gi1 | enabled | disabled
```

4.3.4.4 show dos

Command:

```
show dos [interfaces IF_PORTS]
```

Parameter:

IF_PORTS	Enable/Disable syn-fin protection.

Mode:

Privileged EXEC

Usage Guide:

Use "**show dos**" command to show dos configuration on selected ports

Example:

This example shows how to show current dos state on interface gi1

```
Switch# show dos interfaces gi1
Port | DoS Protection | Gratuitous-ARP
----------+----------------+----------------
gi1 | enabled | disabled
```

4.3.5 dot1x

4.3.5.1 dot1x

Command:

```
dot1x

no dot1x
```

Default:

Default is disabled

Mode:

Global Configuration

Usage Guide:

The "**dot1x**" command enables the global setting of IEEE 802.1X port-based network access control. Only when it is enabled, can the port-based setting work.

Use the **no** form of this command to disable

Example:

The following example shows how to enable 802.1X access control on port 1.

```
Switch(config)# dot1x
switch(config)# interface gi1
switch(config-if)# dot1x auto
switch(config-if)# exit
switch(config)# show dot1x
802.1x protocol is: Enabled
802.1x protocol version: 2
switch(config)# show dot1x interfaces gi1
Port | Mode | Current State | Reauth Control | Reauth Period
--------+-------------------+----------------------+--------------------+----------------
gi1 Authentication | Initialize | Enabled | 3600
Quiet Period: 60 Second
Supplicant timeout: 30 Second
Max req: 2
Session Time (HH:MM:SS): 0: 0: 0: 0
```

4.3.5.2 dot1x authentication

Command:

```
dot1x (auto|force-auth|force-unauth)

no dot1x
```

Parameter:

auto	Port control will depend on the outcome of authentication.
force-auth	Force this port to be unconditional authorized.
force-unauth	Force this port to be unconditional unauthorized.

Default:

Default is disabled

Mode:

Interface Configuration

Usage Guide:

Use the "**dot1x**" command to enable 802.1X function on port. Use the **no** form of this command to disable this function.

The enable of 802.1X global setting is a must

Example:

The following example shows how to enable 802.1X access control on port 1.

```
Switch(config)# dot1x
switch(config)# interface gi1
switch(config-if)# dot1x auto
switch(config-if)# exit
switch(config)# show dot1x
802.1x protocol is: Enabled
802.1x protocol version: 2
switch(config)# show dot1x interfaces gi1
Port | Mode | Current State | Reauth Control | Reauth Period
--------+-------------------+---------------------+--------------------+----------------
gi1 Authentication | Initialize | Enabled | 3600
Quiet Period: 60 Second
Supplicant timeout: 30 Second
Max req: 2
Session Time (HH:MM:SS): 0: 0: 0: 0
```

4.3.5.3 dot1x reauthentication

Command:

```
dot1x reauth

no dot1x reauth
```

Default:

Default is disabled

Mode:

Interface Configuration

Usage Guide:

Use the "**dot1x reauth**" command to enable 802.1X periodical reauthentication function on port. Use the **no** form of this command to disable this function.

Example:

The following example shows how to enable 802.1X access control on port 1.

```
switch(config)# interface gi1
switch(config-if)# dot1x reauth
switch(config-if)# exit
switch(config)# show dot1x
802.1x protocol is: Enabled
802.1x protocol version: 2
switch(config)# show dot1x interfaces gi1
Port | Mode | Current State | Reauth Control | Reauth Period
--------+-------------------+----------------------+--------------------+----------------
gi1 Authentication | Initialize | Enabled | 3600
Quiet Period: 60 Seconds
Supplicant Timeout: 30 Seconds
Max req: 2
Session Time (HH:MM:SS): 0: 0: 0: 0
```

4.3.5.4 dot1x timeout reauth-period

Command:

```
dot1x timeout reauth-period <30-65535>

no dot1x timeout reauth-period
```

Parameter:

<30-65535> Specify the re-authentication period.

Default:

3600 seconds

Mode:

Interface Configuration

Usage Guide:

Use the "**dot1x timeout reauth-period**" command to configure the re-authentication period. Use the **no** form of this command to restore the period to default value.

Example:

The example shows how to configure re-authentication period to 300 sec. on port 1.

```
switch(config)# interface gi1
switch(config-if)# dot1x timeout reauth-period 300
switch(config-if)# exit
switch(config)# show dot1x interfaces gi1
Port | Mode | Current State | Reauth Control | Reauth Period
--------+-------------------+----------------------+--------------------+----------------
gi1 Authentication | Initialize | Enabled | 300
Quiet Period: 60 Seconds
Supplicant Timeout: 30 Seconds
Max req: 2
Session Time (HH:MM:SS): 0: 0: 0: 0
```

4.3.5.5 dot1x timeout quiet-period

Command:

```
dot1x timeout quiet-period <0-65535>

no dot1x timeout quite-period
```

Parameter:

<0-65535> Specify the quiet period.

Default:

36 seconds

Mode:

Interface Configuration

Usage Guide:

Use the "**dot1x timeout quiet-period**" command to configure the quiet period. Use the **no** form of this command to restore the period to default value.

Example:

The example shows how to configure quiet period to 300 sec. on port 1.

```
switch(config)# interface gi1
switch(config-if)# dot1x timeout quite-period 300
switch(config-if)# exit
switch(config)# show dot1x interfaces gi1
Port | Mode | Current State | Reauth Control | Reauth Period
--------+-------------------+----------------------+--------------------+----------------
gi1 Authentication | Initialize | Enabled | 3600
Quiet Period: 300 Seconds
Supplicant Timeout: 30 Seconds
Max req: 2
Session Time (HH:MM:SS): 0: 0: 0: 0
```

4.3.5.6 dot1x timeout supp-timeout

Command:

```
dot1x timeout supp-timeout <1-65535>

no dot1x timeout supp-timeout
```

Parameter:

<1-65535> Specify the supplicant period.

Default:

30 seconds

Mode:

Interface Configuration

Usage Guide:

Use the "**dot1x timeout supp-timeout**" command to configure the supplicant period. Use the **no** form of this command to restore the period to default value.

Example:

The example shows how to configure supplicant period to 300 sec. on port 1.

```
switch(config)# interface gi1
switch(config-if)# dot1x timeout supp-timeout 300
switch(config-if)# exit
switch(config)# show dot1x interfaces gi1
Port | Mode | Current State | Reauth Control | Reauth Period
--------+-------------------+----------------------+--------------------+----------------
gi1 Authentication | Initialize | Enabled | 3600
Quiet Period: 60 Seconds
Supplicant Timeout: 300 Seconds
Max req: 2
Session Time (HH:MM:SS): 0: 0: 0: 0
```

4.3.5.7 dot1x max-req

Command:

```
dot1x max-req <1-10>

no dot1x max-req
```

Parameter:

<1-10> Specify the maximum request retries.

Default:

2 times

Mode:

Interface Configuration

Usage Guide:

Use the "**dot1x max-req"** command to configure the maximum request retries. Use the **no** form of this command to restore the period to default value.

Example:

The example shows how to configure maximum request retries to 4 times on port 1.

```
switch(config)# interface gi1
switch(config-if)# dot1x max-req 4
switch(config-if)# exit
switch(config)# show dot1x interfaces gi1
Port | Mode | Current State | Reauth Control | Reauth Period
--------+--------------------+----------------------+--------------------+----------------
gi1 Authentication | Initialize | Enabled | 3600
Quiet Period: 60 Seconds
Supplicant Timeout: 30 Seconds
Max req: 4
Session Time (HH:MM:SS): 0: 0: 0: 0
```

4.3.5.8 dot1x guest-vlan

Command:

```
dot1x guest-vlan <1-4094>

no dot1x guest-vlan
```

Parameter:

<1-4094> Specify VLAN ID to enable 802.1X guest VLAN.

Default:

Default is disabled

Mode:

Global Configuration

Usage Guide:

Use the **dot1x guest-vlan** command to globally enable guest VLAN function. Use the **no** form of this command to disable guest VLAN function.

For a port to become a member of guest VLAN after authentication fail, you should also enable guest VLAN on that port.

Example:

The example shows how to configure VLAN 2 as guest VLAN and enable guest VLAN on port 1.

```
switch(config)# dot1x guest-vlan 2
switch(config)# interface gi1
switch(config-if)# dot1x auto
switch(config-if)# dot1x guest-vlan
switch(config-if)# exit
switch(config)# show dot1x guest-vlan
Guest VLAN ID: 2
Port | Guest VLAN | In Guest VLAN
-------+------------+---------------
gi1 | Enabled | No
gi2 | Disabled | ---
gi3 | Disabled | ---
gi4 | Disabled | ---
gi5 | Disabled | ---
gi6 | Disabled | ---
gi7 | Disabled | ---
gi8 | Disabled | ---
gi9 | Disabled | ---
```

```
gi10 | Disabled | ---
gi11 | Disabled | ---
gi12 | Disabled | ---
gi13 | Disabled | ---
gi14 | Disabled | ---
gi15 | Disabled | ---
gi16 | Disabled | ---
gi17 | Disabled | ---
gi18 | Disabled | ---
gi19 | Disabled | ---
gi20 | Disabled | ---
gi21 | Disabled | ---
gi22 | Disabled | ---
gi23 | Disabled | ---
gi24 | Disabled | ---
gi25 | Disabled | ---
gi26 | Disabled | ---
gi27 | Disabled | ---
gi28 | Disabled | ---
```

4.3.5.9 dot1x guest-vlan

Command:

```
dot1x guest-vlan <1-4094>

no dot1x guest-vlan
```

Parameter:

<1-4094>	Specify VLAN ID to enable 802.1X guest VLAN.

Default:

Default is disabled

Mode:

Interface Configuration

Usage Guide:

Use the **dot1x guest-vlan** command to enable guest VLAN function on a port. Use the **no** form of this command to disable guest VLAN function.

For a port to become a member of guest VLAN after authentication fail, you should also globally enable guest VLAN.

Example:

The example shows how to configure VLAN 2 as guest VLAN and enable guest VLAN on port 1.

```
switch(config)# dot1x guest-vlan 2 enable
switch(config)# interface gi1
switch(config-if)# dot1x auto
switch(config-if)# dot1x guest-vlan
switch(config-if)# exit
switch(config)# show dot1x guest-vlan
Guest VLAN ID: 2
Port | Guest VLAN | In Guest VLAN
-------+------------+---------------
gi1 | Enabled | No
gi2 | Disabled | ---
gi3 | Disabled | ---
gi4 | Disabled | ---
gi5 | Disabled | ---
gi6 | Disabled | ---
gi7 | Disabled | ---
gi8 | Disabled | ---
gi9 | Disabled | ---
gi10 | Disabled | ---
gi11 | Disabled | ---
```

```
gi12 | Disabled | ---
gi13 | Disabled | ---
gi14 | Disabled | ---
gi15 | Disabled | ---
gi16 | Disabled | ---
gi17 | Disabled | ---
gi18 | Disabled | ---
gi19 | Disabled | ---
gi20 | Disabled | ---
gi21 | Disabled | ---
gi22 | Disabled | ---
gi23 | Disabled | ---
gi24 | Disabled | ---
gi25 | Disabled | ---
gi26 | Disabled | ---
gi27 | Disabled | ---
gi28 | Disabled | ---
```

4.3.5.10 show dot1x

Command:

```
show dot1x
```

Mode:

Privileged EXEC

Usage Guide:

Use "**show dot1x**" command to show dot1x enabling status.

Example:

This example shows how to show the dot1x enabling status.

```
Switch# show dot1x
802.1x protocol is: Disabled
802.1x protocol version: 2
```

4.3.5.11 show dot1x authenticated-hosts

Command:

```
show dot1x auth-hosts
```

Mode:

Privileged EXEC

Usage Guide:

Use "**show dot1x auth-hosts**" command to show all dot1x authorized hosts.

Example:

This example shows how to show the dot1x authorized hosts.

```
Switch# show dot1x auth-hosts
User Name | Port | Session Time | Authentication Method | MAC Address
------------+-------+----------------+-----------------------+--------------
8389_1 | GE3 | 0: 0: 0:20 | Remote | 00:30:4F:D5:5C:19
```

4.3.5.12 show dot1x interface

Command:

```
show dot1x interface IF_PORTS
```

Parameter:

IF_PORTS	Select port to show dot1x configurations.

Mode:

Privileged EXEC

Usage Guide:

Use "**show dot1x interfaces**" command to show dot1x information of the specified port.

Example:

This example shows how to show dot1x configurations on interface gi1.

```
Switch# show dot1x interfaces gi1
Port | Mode | Current State | Reauth Control | Reauth Period
--------+--------------------+----------------------+-----------------+--------------
gi1 | 802.1X Disabled | - | Enabled | 3600
Quiet Period: 60 Second
Supplicant timeout: 30 Second
Max req: 2
Session Time (HH:MM:SS): 0: 0: 0: 0
```

4.3.5.13 show dot1x guest-vlan

Command:

```
show dot1x guest-vlan
```

Mode:

Privileged EXEC

Usage Guide:

Use "**show dot1x guest-vlan**" command to show dot1x guest-vlan status.

Example:

This example shows how to show the dot1x guest-vlan status.

```
Switch# show dot1x guest-vlan
Guest VLAN ID: 2
Port | Guest VLAN | In Guest VLAN
-------+------------+---------------
gi1 | Enabled | No
gi2 | Disabled | ---
gi3 | Disabled | ---
gi4 | Disabled | ---
gi5 | Disabled | ---
gi6 | Disabled | ---
gi7 | Disabled | ---
gi8 | Disabled | ---
gi9 | Disabled | ---
gi10 | Disabled | ---
gi11 | Disabled | ---
gi12 | Disabled | ---
gi13 | Disabled | ---
gi14 | Disabled | ---
gi15 | Disabled | ---
gi16 | Disabled | ---
gi17 | Disabled | ---
gi18 | Disabled | ---
gi19 | Disabled | ---
gi20 | Disabled | ---
gi21 | Disabled | ---
gi22 | Disabled | ---
```

```
gi23 | Disabled | ---
gi24 | Disabled | ---
gi25 | Disabled | ---
gi26 | Disabled | ---
gi27 | Disabled | ---
gi28 | Disabled | ---
```

4.3.6 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
```

4.3.7 enable

Command:

Enable password [privilege <*0-15*>] (password | secret) *WORD*<*0-32*>

Parameter:

password Use clear text password

PASSWORD Configure the 'enable' password.

secret Use encrypted password

PASSWORD Configure the 'enable' password.

encrypted Specifies the password as encrypted

Default:

Default enable password for all privilege levels are “”.

Mode:

Global Configuration

Usage Guide:

Use “**enable password**” command to edit password for each privilege level for enable authentication. And use “**no enable**” command to restore enable password to default empty value.

The only way to show this configuration is using “**show running-config**” command.

Example:

This example shows how to edit enable password for privilege level 15

Switch(config)# enable secret encrypted enblpasswd

4.3.8 end

Command:

```
end
```

Mode:

Privileged EXEC

Global Configuration

Interface Configuration

Line Configuration

.....

Usage Guide:

Use “**end**” command to return to privileged EXEC mode directly. Every mode except User EXEC mode has the “end” command.

Example:

This example shows how to enter Interface Configuration mode and use end command to go back to privileged EXEC mode

```
Switch# configure
Switch(config)# interface gi1
Switch(config-if)# end
Switch#
```

4.3.9 erps

4.3.9.1 erps <1-64> command

Command:

```
erps <1-64> command [clear | force | manual ] [port0 | port1]
```

erps **ERPS configuration**

<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:

0

Usage Guide:

To **Clear ERPS Administrative Command configuration**.

Example:

To **Clear ERPS Administrative Command configuration**.

```
Switch# erps 1 command manual port0
```

4.3.9.2 erps <1-64> guard

Command:

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

erps **ERPS configuration**

<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
```

4.3.9.3 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
```

4.3.9.4 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**

4.3.9.5 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
```

4.3.9.6 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
```

4.3.9.7 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
```

4.3.9.8 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
```

4.3.9.9 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
```

4.3.9.10 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
```

4.3.9.11 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
```

4.3.10 errdisable

4.3.10.1 errdisable recovery cause

Command:

errdisable recovery cause (all | acl | arp-inspection | broadcast-flood | bpduguard | dhcp-rate-limit | psecure-violation | unicast-flood | udld | unknown-multicast-flood | selfloop)

no errdisable recovery cause (all | acl | arp-inspection | broadcast-flood | bpduguard | dhcp-rate-limit | psecure-violation | unicast-flood | udld | unknown-multicast-flood | selfloop)

Parameter:

all	Enable/Disable to auto recovery for port error disabled by all reasons
acl	Enable/Disable to auto recovery for port error disabled by ACL shutdown port reason.
arp-inspection	Enable/Disable to auto recovery for port error disabled by arp-inspection reason.
broadcast-flood	Enable/Disable to auto recovery for port error disabled by storm control broadcast flood reason.
bpduguard	Enable/Disable to auto recovery for port error disabled by STP BPDU Guard reason.
dhcp-rate-limit	Enable/Disable to auto recovery for port error disabled by dhcp-rate-limit reason.
psecure-violation	Enable/Disable to auto recovery for port error disabled by violate port security rule reason.
unicast-flood	Enable/Disable to auto recovery for port error disabled by storm control unicast flood reason.
udld	Enable/Disable to auto recovery for port error disabled by udld reason.
unknown-multicast -flood	Enable/Disable to auto recovery for port error disabled by storm control unknown multicast flood reason.
selfloop	Enable/Disable to auto recovery for port error disabled by self loop detect reason.

Default:

Default auto recover state for all reasons are disabled.

Mode:

Global Configuration

Usage Guide:

Port will be disabled by some invalid actions detected by protocols. Administrator can enabled these error disabled port manually by "**no shutdown**" command in Interface Mode, or just turn on the auto recovery mechanism by this command to auto enable the error disabled port after auto recovery interval.

Example:

This example shows how to enable auto recovery with reason bpduguard and broadcast-flood.

```
Switch(config)# errdisable recovery cause bpduguard
Switch(config)# errdisable recovery cause broadcast-flood
```

This example shows how to show current auto recovery state of each reason and port error disabled status.

```
Switch# show errdisable recovery
ErrDisable Reason | Timer Status
--------------------------+---------------
bpduguard | enabled
udld | disabled
selfloop | disabled
broadcast-flood | enabled
unknown-multicast-flood | disabled
unicast-flood | disabled
acl | disabled
psecure-violation | disabled
dhcp-rate-limit | disabled
arp-inspection | disabled
Timer Interval : 300 seconds
Interfaces that will be enabled at the next timeout:
Port | Error Disable Reason | Time Left
-----+----------------------------+------------
```

4.3.10.2 errdisable recovery interval

Command:

```
errdisable recovery interval <0-86400>
```

Parameter:

<0-86400>	Specify the auto recovery interval with unit second.

Default:

Default auto recovery interval is 300 second.

Mode:

Global Configuration

Usage Guide:

Port will be disabled by some invalid actions detected by protocols. Auto recovery mechanism will enable these error disabled port after a while. This command configures how long the port will be enabled after error disabled.

Example:

This example shows how to configure the auto recovery interval to 600 seconds.

```
Switch(config)# errdisable recovery interval 600
```

This example shows how to show current auto recovery interval

```
Switch# show errdisable recovery
ErrDisable Reason | Timer Status
--------------------------+--------------
bpduguard | enabled
udld | disabled
selfloop | disabled
broadcast-flood | enabled
unknown-multicast-flood | disabled
unicast-flood | disabled
acl | disabled
psecure-violation | disabled
dhcp-rate-limit | disabled
arp-inspection | disabled
Timer Interval : 600 seconds
Interfaces that will be enabled at the next timeout:
Port | Error Disable Reason | Time Left
-----+----------------------------+------------
```

4.3.10.3 show errdisable recovery

Command:

```
show errdisable recovery
```

Mode:

Privileged EXEC

Usage Guide:

Use "**show errdisable recovery**" command to show each error disable state, error disable recovery interval and current error disabled port status.

Example:

This example shows how to show current auto recovery interval

```
Switch# show errdisable recovery
ErrDisable Reason | Timer Status
--------------------------+---------------
bpduguard | enabled
udld | disabled
selfloop | disabled
broadcast-flood | enabled
unknown-multicast-flood | disabled
unicast-flood | disabled
acl | disabled
psecure-violation | disabled
dhcp-rate-limit | disabled
arp-inspection | disabled
Timer Interval : 600 seconds
Interfaces that will be enabled at the next timeout:
Port | Error Disable Reason | Time Left
-----+----------------------------+------------
```

4.3.11 exit

Command:

```
exit
```

Mode:

User EXEC

Privileged EXEC

Global Configuration

Interface Configuration

Line Configuration

.....

Usage Guide:

In User EXEC mode, "**exit**" command will close current CLI session. In other modes, "**exit**" command will go to the parent mode. And every mode has the "exit" command.

Example:

This example shows how to enter privileged EXEC mode and use exit command to go back to user EXEC mode.

```
Switch> enable
Switch# exit
Switch>
```

4.3.12 ext-gpio

Command:

```
ext-gpio [read | write ] <0x00-0xFF>
```

ext-gpio **ext-Gpio information**

read **address**

write **address**

<0x00-0xFF>

Mode:

ext-Gpio information

Usage Guide:

To setting the **ext-Gpio information**

Example:

This example is setup the **ext-Gpio read address**

```
Switch> ext-gpio read <0x00-0xFF>
```

4.3.13 fa

Command:

```
fa set [ disable | enable ] [function | log | one_dc | port_en | port_state | power_fault |
two_dc ] <0x00-0x3FF>
```

fa **fault alarm function configuration**

disable

enable

function

log

one_dc

port_en

port_state

power_fault

snmp

two_dc

<0x00-0x3FF>

Mode:

Fault alarm function configuration

Usage Guide:

Fault alarm function configuration

Example:

This example shows how to disable the

```
Switch> fa set enable log <0x00-0x3FF>
```

4.3.14 gvrp

4.3.14.1 gvrp

Command:

```
gvrp

no gvrp
```

gvrp **GVRP configuration**

Default:

no gvrp

Mode:

Global Configuration

Usage Guide:

'no gvrp' will clear all dynamic vlan entry. do not learn vlan.

The configure can use 'show gvrp'.

Example:

The following example specifies that set global gvrp test.

```
Switch(config)# gvrp
Switch# show gvrp
GVRP Status
--------------------
GVRP : Enabled
Join time : 200 ms
Leave time : 600 ms
LeaveAll time : 10000 ms
```

4.3.14.2 gvrp (port)

Command:

```
Gvrp
no gvrp
```

Default:

no gvrp

Mode:

Interface Configuration

Usage Guide:

'no gvrp' will remove dynamic port from vlan

'gvrp' must work at port mode is trunk.

The configure can use show gvrp configuration.

Example:

The following example specifies that set port gvrp test.

The port gvrp enable must set port mode is trunk firstly.

```
Switch(config)#interface gi1
Switch(config-if)# switchport mode trunk
Switch(config)#gvrp
Switch# show gvrp configuration interfaces gi1
Port | GVRP-Status | Registration | Dynamic VLAN Creation
--------+---------------+---------------+----------------------
gi1 Enabled Normal Disabled
```

4.3.14.3 gvrp port registration mode

Command:

```
gvrp registration-mode (normal | fixed | forbidden)

show gvrp configuration
```

Parameter:

(normal | fixed | forbidden)	normal: register dynamic vlan, and transmit all vlan attribute. fixed: do not register dynamic vlan, and only transmit static vlan attribute. forbidden: do not register dynamic vlan, and only transmit default vlan attribute.

Mode:

Interface Configuration

Usage Guide:

When set registration-mode is fixed or forbidden, will remove the port from vlan witch is dynamic port. And do not learning vlan.

Example:

The following example specifies that set gvrp registration mode test.

```
Switch(config)# interface gi1
Switch(config-if)# gvrp registration-mode fixed
Switch# show gvrp configuration interfaces gi1
Port | GVRP-Status | Registration | Dynamic VLAN Creation
--------+---------------+---------------+----------------------
gi1 Enabled Fixed Disabled
```

4.3.14.4 gvrp port creation vlan forbidden

Command:

```
gvrp vlan-creation-forbid

no gvrp vlan-creation-forbid
```

Default:

no gvrp vlan-creation-forbid

Mode:

Interface Configuration

Usage Guide:

'gvrp vlan-creation-forbid' will not remove dynamic port from vlan immediate.

The configure can use show gvrp configuration.

Example:

The following example specifies that set port gvrp vlan-creation-forbid test.

```
Switch(config)#interface gi1
Switch(config-if)# gvrp vlan-creation-forbid
Switch(config-if)#exit
Switch# show gvrp configuration interfaces gi1
Port | GVRP-Status | Registration | Dynamic VLAN Creation
--------+---------------+---------------+----------------------
gi1 Enabled Normal Disabled
```

4.3.14.5 clear gvrp statistics

Command:

```
clear gvrp (error-statistics | statistics) [interfaces IF_PORTS]
```

Parameter:

(error-statistics |	Error-statistics: error gvrp packet statistics
statistics)	Statistics: gvrp event message statistics
[interfaces	Specifies posts to clear statistics
IF_PORTS]	

Mode:

Privileged Configuration

Usage Guide:

This command will clear the ports error statistics or statistics info.

The configure can use ‘show gvrp error-statistics or show gvrp statistics’ to check.

Example:

The following example specifies that clear gvrp error statistics and statistics test.

```
Switch# clear gvrp statistics
Switch# clear gvrp error-statistics
Switch# show gvrp statistics
Switch# show gvrp error-statistics
```

4.3.14.6 show gvrp statistics

Command:

```
show gvrp statistics [interfaces IF_PORTS]
show gvrp error-statistics [interfaces IF_PORTS]
```

Parameter:

[interfaces IF_PORTS]	Specifies posts

Mode:

Privileged Configuration

Usage Guide:

This command will display the ports error statistics or statistics info.

Example:

The following example specifies that display gvrp error statistics and statistics test.

```
Switch(config)# aaa authentication login test1 tacacs+ radius local
Switch# show gvrp statistics
Switch# show gvrp error-statistics
INVPROT : Invalid protocoal Id
INVATYP : Invalid Attribute Type INVALEN : Invalid Attribute Length
INVAVAL : Invalid Attribute Value INVEVENT: Invalid Event
Port | INVPROT | INVATYP | INVALEN | INVAVAL | INVEVENT
gi1 0 0 0 0 0
gi2 0 0 0 0 0
gi3 0 0 0 0 0
gi4 0 0 0 0 0
gi5 0 0 0 0 0
gi6 0 0 0 0 0
```

4.3.14.7 show gvrp

Command:

```
show gvrp
```

Mode:

privileged Configuration

Usage Guide:

This command will display the gvrp global info.

Example:

The following example specifies that display gvrp test.

```
Switch# show gvrp
GVRP Status
--------------------
GVRP : Disabled
Join time : 200 ms
Leave time : 600 ms
LeaveAll time : 10000 ms
```

4.3.14.8 show gvrp port configuration

Command:

```
show gvrp configuration [interface IF_PORTS]
```

Parameter:

[interface IF_PORTS]	Display Specifies posts configuration

Mode:

Privileged Configuration

Usage Guide:

This command will display the ports configuration info.

Example:

The following example specifies that display gvrp port configuration test.

```
Switch# show gvrp configuration
Port | GVRP-Status | Registration | Dynamic VLAN Creation
--------+---------------+---------------+---------------------
gi1 Disabled Normal Enabled
gi 2 Disabled Normal Enabled
gi 3 Disabled Normal Enabled
gi 4 Disabled Normal Enabled
gi 5 Disabled Normal Enabled
gi 6 Disabled Normal Enabled
gi 7 Disabled Normal Enabled
--More--
```

4.3.15 hostname

Command:

Hostname WORD

hostname **Set system's network name**

WORD **This system's network name**

Mode:

N/A

Usage Guide:

To set system's network name

Example:

This example shows how to **set system's network name**

```
Switch>hostname PLANET
PLANET(config)#
```

4.3.16 interface

Command:

```
interface IF_PORTS

interface range IF_PORTS
```

Parameter:

IF_PORTS	Specify the port to select. This parameter allows partial port name and ignore case. For Example: Gigabit4 ..... If port range is specified, the list format is also available. For Example: gi1-3 .....

Mode:

Global Configuration

Usage Guide:

Some configurations are port based. In order to configure these configurations, we need to enter Interface Configuration mode to configure them. Use "**interface**" command to enter the Interface Configuration mode and select the port to be configured.

In Interface Configuration mode, the prompt will show as "**Switch(config-if)#**"

Example:

This example shows how to enter Interface Configuration mode

```
Switch> enable
Switch# exit
Switch>
Switch# configure
Switch(config)# interface gi1
Switch(config-if)#
```

4.3.17 ip

4.3.17.1 ip acl

Command:

```
ip acl
```

show **Show running system information**

acl **This command creates an ACL, which perform classification on layer 3 fields and enters ip-access configuration mode.**

NAME **Specify the ACL name.**

Default:

N/A

Usage Guide:

This command creates an ACL, which perform classification on layer 3 fields and enters ip-access configuration mode.

Example:

This command creates an ACL, which perform classification on layer 3 fields and enters ip-access configuration mode.

```
Switch # ip acl XXXX
```

4.3.17.2 ip address

Command:

```
ip address A.B.C.D [mask A.B.C.D]
```

Parameter:

address *A.B.C.D*	Specify IPv4 address for switch
mask *A.B.C.D*	Specify net mask address for switch

Default:

Default IP address is 192.168.0.100 and default net mask is 255.255.255.0.

Mode:

Global Configuration

Usage Guide:

Use "**ip address**" command to modify administration ipv4 address. This address is very important. When we try to use telnet, ssh, http, https, snmp… to connect to the switch, we need to use this ip address to access it.

Example:

This example shows how to modify the ipv4 address of the switch.

```
Switch(config)# ip address 192.168.1.200 mask 255.255.255.0
```

This example shows how to show current ipv4 address of the switch.

```
Switch# show ip
IP Address: 192.168.1.200
Subnet Netmask: 255.255.255.0
Default Gateway: 192.168.1.254
```

4.3.17.3 ip arp

Command:

```
ip arp

no ip default-gateway
```

Parameter:

ip **IP configuration**

arp **ARP configuration**

inspection **ARP Inspection information**

vlan **VLAN configuration**

VLAN-LIST **VLAN List (e.g. 3,6-8): The range of VLAN ID is 1 to 4094**

Default:

N/A

Mode:

Global Configuration

Usage Guide:

Use "**ip default-gateway**" command to modify default gateway address. And use "**no ip default-gateway**" to restore default gateway address to factory default.

Example:

This example to define ip arp configuration

```
Switch(config)# ip arp inspection vlan 222
```

4.3.17.4 ip arp inspection

Command:

```
ip arp inspection

no ip arp inspection
```

Default:

Dynamic Arp inspection is disabled

Mode:

Global Configuration

Usage Guide:

Use the **ip arp inspection** command to enable Dynamic Arp Inspection function. Use the **no** form of this command to disable.

Example:

The example shows how to enable Dynamic Arp Inspection on VLAN 1. You can verify settings by the following **show ip arp inspection** command.

```
switch(config)# ip arp inspection
switch(config)# ip arp inspection vlan 1
switch(config)# show ip arp inspection
Dynamic ARP Inspection : enabled
Enable on Vlans : 1
```

4.3.17.5 ip arp inspection vlan

Command:

```
ip arp inspection vlan VLAN-LIST

no ip arp inspection vlan VLAN-LIST
```

Parameter:

VLAN-LIST	Specify VLAN ID or a range of VLANs to enable or disable dynamic Arp inspection

Default:

Default is disabled on all VLANs

Mode:

Global Configuration

Usage Guide:

Use the **ip arp inspection vlan** command to enable VLANs on Dynamic Arp Inspection function. Use the **no** form of this command to disable VLANs on Dynamic Arp Inspection function.

Example:

The example shows how to enable VLAN 1-100 on Dynamic Arp Inspection, and then disable VLAN 30-40 on Dynamic Arp Inspection. You can verify settings by the following **show ip arp inspection** command.

```
switch(config)# vlan 1-100
switch(config)# exit
switch(config)# ip arp inspection
switch(config)# ip arp inspection vlan 1-100
switch(config)# show ip arp inspection
Dynamic ARP Inspection : enabled
Enable on Vlans : 1-100
switch(config)# no ip arp inspection vlan 30-40
switch(config)# show ip arp inspection
Dynamic ARP Inspection : enabled
Enable on Vlans : 1-29,41-100
```

4.3.17.6 ip arp inspection trust

Command:

```
ip arp inspection trust

no ip arp inspection trust
```

Default:

Dynamic Arp inspection trust is disabled

Mode:

Interface Configuration

Usage Guide:

Use the **ip arp inspection trust** command to set trusted interface. The switch does not check ARP packets that are received on the trusted interface; it simply forwards it. Use the **no** form of this command to set untrusted interface.

Example:

The example shows how to set interface gi1 to trust. You can verify settings by the following **show ip arp inspection interface** command.

```
switch(config)# interface gi1
switch(config)# ip arp inspection trust
switch(config)# do show ip arp inspection interface gi1
Interfaces | Trust State | Rate (pps) | SMAC Check | DMAC Check | IP Check/Allow Zero |
------------+--------------+--------------+----------------|-----------------+-------------------------+
gi1 | Trusted | None | disabled | disabled | disabled/disabled
```

4.3.17.7 ip arp inspection validate

Command:

```
ip arp inspection validate src-mac

ip arp inspection validate dst-mac

ip arp inspection validate ip [allow-zeros]

no ip arp inspection validate src-mac

no ip arp inspection validate dst-mac

no ip arp inspection validate ip [allow-zeros]
```

Default:

Default is disabled of all validation

Mode:

Interface Configuration

Usage Guide:

Use the **ip arp inspection validate** command to enable validate function on interface.

The "**src-mac**" drop ARP requests and reply packets that arp-sender-mac and ethernet-source-mac is not match. The "**dst-mac**" drop ARP reply packets that arp-target-mac and ethernet-dst-mac is not match. The "**ip**" drop ARP request and reply packets that sender-ip is invalid such as broadcast、multicast、all zero IP address and drop ARP reply packets that target-ip is invalid. The "**allow-zeros**" means won't drop all zero IP address. Use the no form of this command to disable validation.

Example:

The example shows how to set interface gi1 to validate "**src-mac**" 、 "**dst-mac**" and "**ip allow zeros**". You can verify settings by the following **show ip arp inspection interface** command.

```
switch(config)# interface gi1
switch(config-if)# ip arp inspection validate src-mac
switch(config-if)# ip arp inspection validate dst-ma
switch(config-if)# ip arp inspection validate ip allow-zeros
switch(config)# do show ip arp inspection interface gi1
Interfaces | Trust State | Rate (pps) | SMAC Check | DMAC Check | IP Check/Allow Zero |
------------+--------------+--------------+----------------|-----------------+-------------------------+
gi1 | Untrusted | None | enabled | enabled | enabled/ enabled
```

4.3.17.8 ip arp inspection rate-limit

Command:

```
ip arp inspection rate-limit <1-50>

no ip arp inspection rate-limit
```

Parameter:

<1-50>	Set 1 to 50 PPS of DHCP packet rate limitation

Default:

Default is un-limited of ARP packet

Mode:

Interface Configuration

Usage Guide:

Use the i**p arp inspection rate-limit** command to set rate limitation on interface. The switch drop ARP packets after receives more than configured rate of packets per second. Use the no form of this command to return to default settings.

Example:

The example shows how to set rate limit to 30 pps on interface gi1. You can verify settings by the following **show ip arp inspection interface** command.

```
switch(config)# interface gi1
switch(config)# ip arp inspection rate-limit 30
switch(config)# do show ip arp inspection interface gi1
Interfaces | Trust State | Rate (pps) | SMAC Check | DMAC Check | IP Check/Allow Zero |
------------+--------------+--------------+----------------|-----------------+------------------------+
gi1 | Untrusted | 30 | disabled | disabled | disabled/disabled
```

4.3.17.9 clear ip arp inspection statistics

Command:

```
clear ip arp inspection interfaces IF_PORTS statistics
```

Parameter:

IF_PORTS specifies ports to clear statistics

Mode:

Global Configuration

Usage Guide:

Use the **clear ip arp inspection interfaces statistics** command to clear statistics that are recorded on interface.

Example:

The example shows how to clear statistics on interface gi1. You can verify settings by the following **show ip arp inspection interface statistics** command.

```
switch# clear ip arp inspection interfaces gi1 statistics
switch# show ip arp inspection interfaces gi1 statistics
Port| Forward |Source MAC Failures|Dest MAC Failures| SIP Validation Failures|DIP
Validation Failures|IP-MAC Mismatch Failures
----+---------+------------+-------------+------------+--------------+------------------
gi1| 0 | 0 | 0 | 0 | 0 | 0
```

4.3.17.10 show ip arp inspection

Command:

```
show ip arp inspection
```

Mode:

Global Configuration

Usage Guide:

Use the **show ip arp inspection** command to show settings of Dynamic Arp Inspection

Example:

The example shows how to show settings of Dynamic Arp Inspection

```
switch(config)# show ip arp inspection
Dynamic ARP Inspection : enabled
Enable on Vlans : 1
```

4.3.17.11 show ip arp inspection interface

Command:

```
show ip arp inspection interfaces IF_PORTS

show ip arp inspection interfaces IF_PORTS statistics
```

Parameter:

IF_PORTS specifies ports to show statistics

Mode:

Global Configuration

Usage Guide:

Use the **show ip arp inspection interfaces** command to show settings or statistics of interface.

Example:

The example shows how to show settings of interface gi1.

```
switch# show ip arp inspection interface gi1
Interfaces | Trust State | Rate (pps) | SMAC Check | DMAC Check | IP Check/Allow Zero |
------------+--------------+--------------+----------------|-----------------+------------------------+
gi1 | Trusted | None | disabled | disabled | disabled/disabled
```

The example shows how to show statistics of interface gi1.

```
Switch(config)# aaa authentication login test1 tacacs+ radius local
switch# show ip arp inspection interfaces gi1 statistics
Port| Forward |Source MAC Failures|Dest MAC Failures| SIP Validation Failures|DIP
Validation Failures|IP-MAC Mismatch Failures
----+---------+------------+-------------+------------+--------------+------------------
gi1| 0 | 0 | 0 | 0 | 0 | 0
```

4.3.17.12 ip default-gateway

Command:

```
ip default-gateway A.B.C.D

no ip default-gateway
```

Parameter:

A.B.C.D	Specify default gateway IPv4 address for switch

Default:

Default IP address of default gateway is 192.168.1.254.

Mode:

Global Configuration

Usage Guide:

Use "**ip default-gateway**" command to modify default gateway address. And use "**no ip default-gateway**" to restore default gateway address to factory default.

Example:

This example shows how to modify the ipv4 address of the switch.

```
Switch(config)# ip default-gateway 192.168.1.100
```

This example shows how to show current ipv4 default gateway of the switch.

```
Switch# show ip
IP Address: 192.168.1.1
Subnet Netmask: 255.255.255.0
Default Gateway: 192.168.1.100
```

4.4 IP DHCP

4.4.1 Ip dhcp snooping

Command:

```
ip dhcp snooping

no ip dhcp snooping
```

Default:

DHCP snooping is disabled

Mode:

Global Configuration

Usage Guide:

Use the ip dhcp snooping command to enable DHCP Snooping function. Use the no form of this command to disable.

Example:

The example shows how to enable DHCP Snooping on VLAN 1. You can verify settings by the following show ip dhcp snooping command.

```
switch(config)# ip dhcp snooping
switch(config)# ip dhcp snooping vlan 1
switch(config)# show ip dhcp snooping
DHCP Snooping : enabled
Enable on following Vlans : 1
circuit-id default format: vlan-port
remote-id: : 00:11:22:33:44:55 (Switch Mac in Byte Order)
```

4.4.2 ip dhcp snooping vlan

Command:

```
ip dhcp snooping vlan VLAN-LIST
```

Parameter:

VLAN-LIST	Specify VLAN ID or a range of VLANs to enable or disable dynamic Arp inspection

Default:

Default is disabled on all VLANs

Mode:

Global Configuration

Usage Guide:

Use the **ip dhcp snooping vlan** command to enable VLANs on DHCP Snooping function. Use the **no** form of this command to disable VLANs on DHCP Snooping function.

Example:

The example shows how to enable VLAN 1-100 on DHCP Snooping, and then disable VLAN 30-40 on DHCP Snooping. You can verify settings by the following **show ip dhcp snooping** command.

```
switch(config)# vlan 1-100
switch(config)# exit
switch(config)# ip dhcp snooping
switch(config)# ip dhcp snooping vlan 1-100
switch(config)# show ip dhcp snooping
DHCP Snooping : enabled
Enable on following Vlans : 1-100
circuit-id default format: vlan-port
remote-id: : 00:11:22:33:44:55 (Switch Mac in Byte Order)
switch(config)# no ip dhcp snooping vlan 30-40
switch(config)# show ip dhcp snooping
DHCP Snooping : enabled
Enable on following Vlans : 1-29,41-100
circuit-id default format: vlan-port
remote-id: : 00:11:22:33:44:55 (Switch Mac in Byte Order)
```

4.4.3 ip dhcp snooping trust

Command:

```
ip dhcp snooping trust

no ip dhcp snooping trust
```

Default:

DHCP snooping trust is disabled

Mode:

Interface Configuration

Usage Guide:

Use the **ip dhcp snooping trust** command to set trusted interface. The switch does not check DHCP packets that are received on the trusted interface; it simply forwards it. Use the **no** form of this command to set untrusted interface.

Example:

The example shows how to set interface gi1 to trust. You can verify settings by the following **show ip dhcp snooping interface** command.

```
switch(config)# interface gi1
switch(config-if)# ip dhcp snooping trust
switch(config-if)# do show ip dhcp snooping interface gi1
Interfaces|Trust State|Rate (pps)|hwaddr Check|Insert Option82|
----------+-----------+----------+------------+---------------+
gi1 | Trusted | None | disabled | disabled |
```

4.4.4 ip dhcp snooping verify

Command:

```
ip dhcp snooping verify mac-address

no ip dhcp snooping verify mac-address
```

Default:

DHCP snooping verify mac-address is disabled

Mode:

Interface Configuration

Usage Guide:

Use the **ip dhcp snooping verify** command to verify MAC address function on interface.

The "**mac-address**" drop DHCP packets that chaddr and ethernet-source-mac is not match.

Example:

The example shows how to set interface gi1 to validate "**mac-address**". You can verify settings by the following **show ip dhcp snooping interface** command.

```
switch(config)# interface gi1
switch(config-if)# ip dhcp snooping verify mac-address
switch(config-if)# do show ip dhcp snooping interface gi1
Interfaces|Trust State|Rate (pps)|hwaddr Check|Insert Option82|
----------+-----------+----------+------------+---------------+
gi1 | Untrusted | None | enabled | disabled |
```

4.4.5 ip dhcp snooping limit rate

Command:

```
ip dhcp snooping limit rate <1-300>

no ip dhcp snooping limit rate
```

Parameter:

<1-300> Set 1 to 300 PPS of DHCP packet rate limitation

Default:

Default is un-limited of DHCP packet

Mode:

Interface Configuration

Usage Guide:

Use the **ip dhcp snooping limit rate** command to set rate limitation on interface. The switch drop DHCP packets after receives more than configured rate of packets per second. Use the **no** form of this command to return to default settings.

Example:

The example shows how to set rate limit to 30 pps on interface gi1. You can verify settings by the following **show ip dhcp snooping interface** command.

```
switch(config)# interface gi1
switch(config-if)# ip dhcp snooping rate-limit 30
switch(config-if)# do show ip dhcp snooping interfaces gi1
Interfaces|Trust State|Rate (pps)|hwaddr Check|Insert Option82|
----------+-----------+----------+------------+---------------+
gi1 | Untrusted | 30 | disabled | disabled |
```

4.4.6 clear ip dhcp snooping statistics

Command:

```
clear ip dhcp snooping interfaces IF_PORTS statistics
```

Parameter:

IF_PORTS specifies ports to clear statistics

Mode:

Global Configuration

Usage Guide:

Use the **clear ip dhcp snooping interfaces statistics** command to clear statistics that are recorded on interface.

Example:

The example shows how to clear statistics on interface gi1. You can verify settings by the following **show ip dhcp snooping interface statistics** command.

```
switch# clear ip dhcp snooping interfaces gi1 statistics
switch# show ip dhcp snooping interfaces gi1 statistics
Interfaces | Forwarded | Chaddr Check Dropped | Untrust Port Dropped | Untrust Port With
Option82 Dropped | Invalid Drop
-------+-----------+-----------------+----------------------+-------------------------+--------
gi1 | 0 | 0 | 0 | 0 | 0
```

4.4.7 show ip dhcp snooping

Command:

```
show ip dhcp snooping
```

Mode:

Global Configuration

Usage Guide:

Use the **show ip dhcp snooping** command to show settings of DHCP Snooping.

Example:

The example shows how to show settings of DHCP Snooping

```
switch(config)# show ip dhcp snooping
DHCP Snooping : enabled
Enable on following Vlans : 1
circuit-id default format: vlan-port
remote-id: : 00:11:22:33:44:55 (Switch Mac in Byte Order)
```

4.4.8 show ip dhcp snooping interface

Command:

```
show ip dhcp snooping interfaces IF_PORTS

no show ip dhcp snooping interfaces IF_PORTS
```

Parameter:

IF_PORTS specifies ports to show statistics

Mode:

Global Configuration

Usage Guide:

Use the **show ip dhcp snooping interfaces** command to show settings or statistics of interface.

Example:

The example shows how to show settings of interface gi1.

```
switch# show ip dhcp snooping interface gi1
Interfaces | Trust State | Rate (pps) | hwaddr Check | Insert Option82 |
-----------+--------------+-------------+-------------------+-------------------+
gi1 | Untrusted | None | enabled | disabled |
```

The example shows how to show statistics of interface gi1.

```
switch# show ip dhcp snooping interfaces gi1 statistics
Interfaces | Forwarded | Chaddr Check Dropped | Untrust Port Dropped | Untrust Port With
Option82 Dropped | Invalid Drop
-------+-----------+-----------------+----------------------+-------------------------+--------
gi1 | 0 | 0 | 0 | 0 | 0
```

4.4.9 show ip dhcp snooping binding

Command:

```
show ip dhcp snooping binding
```

Mode:

Global Configuration

Usage Guide:

Use the **show ip dhcp snooping binding** command to show binding entries that learned by DHCP Snooping

Example:

The example shows how to show binding entries that learned by DHCP Snooping.

```
switch# show ip dhcp snooping binding
Bind Table: Maximun Binding Entry Number 192
Port | VID | MAC Address | IP | Type | Lease Time
--------+------+--------------------+---------------------------------------+--------------------+-----------
fa1 | 1 | 00:30:4F:C7:12:62 | 192.168.1.100(255.255.255.255)|DHCP Snooping | 86400
```

4.4.10 ip dhcp snooping option

Command:

```
ip dhcp snooping option

no ip dhcp snooping option
```

Default:

DHCP snooping option82 is disabled

Mode:

Interface Configuration

Usage Guide:

Use the **ip dhcp snooping option** command to enable that insert option82 content into packet. Use the **no** form of this command to disable.

Example:

The example shows how to enable option82 insertion. You can verify settings by the following **show ip dhcp snooping interface** command.

```
switch(config)# interface gi1
switch(config-if)# ip dhcp snooping option
switch(config-if)# do show ip dhcp snooping interfaces gi1
Interfaces | Trust State | Rate (pps) | hwaddr Check | Insert Option82 |
------------+--------------+-------------+-------------------+-------------------+
gi1 | Untrusted | None | disabled | enabled |
```

4.4.11 ip dhcp snooping option action

Command:

```
ip dhcp snooping option action (drop|keep|replace)

no ip dhcp snooping option action
```

Parameter:

drop	Drop packets with option82 that are received from un trusted port
keep	Keep original option82 content in packet
replace	Replace option82 content by switch setting

Default:

DHCP snooping option82 is drop

Mode:

Interface Configuration

Usage Guide:

Use the **ip dhcp snooping option action** command to set the action when receive packets that with option82 content. Use the **no** form of this command to default setting.

Example:

The example shows how to set action to replace option82 content. You can verify settings by the following **show running-config** command.

```
switch(config)# interface gi1
switch(config-if)# ip dhcp snooping option action replace
```

4.4.12 ip dhcp snooping option circuit-id

Command:

```
ip dhcp snooping [vlan <1-4094>] option circuit-id STRING

no ip dhcp snooping [vlan <1-4094>] option circuit-id
```

Parameter:

vlan <1-4094>	VLAN ID to set user defined circuit-id string
STRING	Circuit-id string, 1 to 63 ASCII characters, no spaces.

Default:

Default circuit-id is port id + vlan id in byte format.

Mode:

Interface Configuration

Usage Guide:

Use the **ip dhcp snooping option circuit-id** command to set user-defined circuit-id string. Circuit-id is per port per VLAN setting. If a VLAN is not found user-defined circuit-id then use per port circuit-id string. Use the **no** form of this command to default setting.

Example:

The example shows how to set a user-defined circuit-id string on interface gi1 and VLAN 1. You can verify settings by the following **show running-config** command

```
switch(config)# interface gi1
switch(config-if)# ip dhcp snooping vlan 1 option circuit-id test
```

4.4.13 ip dhcp snooping option remote-id

Command:

```
ip dhcp snooping option remote-id STRING

no ip dhcp snooping option remote-id
```

Parameter:

STRING Remote-id string, 1 to 63 ASCII characters, no spaces.

Default:

Default remote-id is the switch MAC address in byte order

Mode:

Global Configuration

Usage Guide:

Use the **ip dhcp snooping option remote-id** command to set user-defined remote-id string.

Remote-id is an global and unique string. Use the **no** form of this command to default setting.

Example:

The example shows how to set a user-defined remote-id string on switch. You can verify settings by the following **show ip dhcp snooping option remote-id**

```
switch(config)# ip dhcp snooping option remote-id test_remote
switch(config)# do show ip dhcp snooping option remote-id
Remote ID: test_remote
```

4.4.14 show ip dhcp snooping option

Command:

```
show ip dhcp snooping option remote-id
```

Mode:

Global Configuration

Usage Guide:

Use the **show ip dhcp snooping option remote-id** command to show remote-id string.

Example:

The example shows how to show remote-id string

```
switch(config)# do show ip dhcp snooping option remote-id
Remote ID: test_remote
```

4.4.15 ip dhcp snooping database

Command:

```
ip dhcp snooping database flash
ip dhcp snooping database tftp (A.B.C.D|HOSTNAME) NAME
no ip dhcp snooping database
```

Parameter:

(A.B.C.D| HOSTNAME)	Specify the IP address or hostname of remote TFTP server
NAME	Input name of backup file

Default:

DHCP snooping database is disabled

Mode:

Global Configuration

Usage Guide:

Use the **ip dhcp snooping database** command to enable DHCP Snooping database agent. The "**flash**" means that write backup file to switch local drive. The "**tftp**" means that write backup file to remote TFTP server. Use the **no** form of this command to disable.

Example:

The example shows how to enable DHCP Snooping database agent and write backup file to remote TFTP server with file name "backup_file". You can verify settings by the following **show ip dhcp snooping database** command.

```
switch(config)# ip dhcp snooping database tftp 192.168.1.50 backup_file
switch(config)# do show ip dhcp snooping database
Type : tftp: 192.168.1.50
FileName : backup_file
Write delay Timer : 300 seconds
Abort Timer : 300 seconds
Agent Running : Running
Delay Timer Expiry : 300 seconds
Abort Timer Expiry : 299
Last Succeded Time : None
Last Failed Time : None
Last Failed Reason : No failure recorded.
Total Attempts : 1
Successful Transfers : 0 Failed Transfers : 0
Successful Reads : 0 Failed Reads : 0
Successful Writes : 0 Failed Writes : 0
```

4.4.16 ip dhcp snooping database write-deley

Command:

```
ip dhcp snooping database write-delay <15-86400>

no ip dhcp snooping database write-delay
```

Parameter:

<15-86400>	Specifies the seconds of timeout. Specify the duration for which the transfer should be delayed after the binding database changes

Default:

DHCP snooping database write-delay is 300 seconds

Mode:

Global Configuration

Usage Guide:

Use the **ip dhcp snooping database write-delay** command to modify the write-delay timer. Use the **no** form of this command to default setting.

Example:

The example shows how to set write-delay timer to 60 seconds. You can verify settings by the following **show ip dhcp snooping database** command.

```
switch(config)# ip dhcp snooping database write-delay 60
switch(config)# do show ip dhcp snooping database
Type : tftp: 192.168.1.50
FileName : backup_file
Write delay Timer : 60 seconds
Abort Timer : 300 seconds
Agent Running : Running
Delay Timer Expiry : 300 seconds
Abort Timer Expiry : 299
Last Succeded Time : None
Last Failed Time : None
Last Failed Reason : No failure recorded.
Total Attempts : 1
Successful Transfers : 0 Failed Transfers : 0
Successful Reads : 0 Failed Reads : 0
Successful Writes : 0 Failed Writes : 0
```

4.4.17 ip dhcp snooping database timeout

Command:

```
ip dhcp snooping database timeout <0-86400>

no ip dhcp snooping database timeout
```

Parameter:

<0-86400>	specifies the seconds of timeout。Specify (in seconds) how long to wait for the database transfer process to finish before stopping the process. Use 0 to define an infinite duration, which means to continue trying the transfer indefinitely

Default:

DHCP snooping database timeout is 300 seconds

Mode:

Global Configuration

Usage Guide:

Use the **ip dhcp snooping database timeout** command to modify the timeout timer. Use the **no** form of this command to default setting.

Example:

The example shows how to set timeout timer to 60 seconds. You can verify settings by the following **show ip dhcp snooping database** command.

```
switch(config)# ip dhcp snooping database timeout 60
switch(config)# do show ip dhcp snooping database
Type : tftp: 192.168.1.50
FileName : backup_file
Write delay Timer : 300 seconds
Abort Timer : 60 seconds
Agent Running : Running
Delay Timer Expiry : 300 seconds
Abort Timer Expiry : 299
Last Succeded Time : None
Last Failed Time : None
Last Failed Reason : No failure recorded.
Total Attempts : 1
Successful Transfers : 0 Failed Transfers : 0
Successful Reads : 0 Failed Reads : 0
Successful Writes : 0 Failed Writes : 0
```

4.4.18 clear ip dhcp snooping database statistics

Command:

```
clear ip dhcp snooping database statistics
```

Mode:

Global Configuration

Usage Guide:

Use the **clear ip dhcp snooping database statistics** command to clear statistics of DHCP Snooping databae.

Example:

The example shows how to clear statistics of DHCP Snooping agent. You can verify settings by the following **show ip dhcp snooping database** command.

```
switch# clear ip dhcp snooping database statistics
switch# show ip dhcp snooping database
Type : tftp: 192.168.1.50
FileName : backup_file
Write delay Timer : 300 seconds
Abort Timer : 60 seconds
Agent Running : Running
Delay Timer Expiry : 300 seconds
Abort Timer Expiry : 299
Last Succeded Time : None
Last Failed Time : None
Last Failed Reason : No failure recorded.
Total Attempts : 0
Successful Transfers : 0 Failed Transfers : 0
Successful Reads : 0 Failed Reads : 0
Successful Writes : 0 Failed Writes : 0
```

4.4.19 renew ip dhcp snooping database

Command:

```
renew ip dhcp snooping database
```

Mode:

Global Configuration

Usage Guide:

Use the **renew ip dhcp snooping database** command to renew DHCP Snooping database from backup file.

Example:

The example shows how to renew DHCP Snooping database. You can verify settings by the following **show ip dhcp snooping database** and **show ip dhcp snooping binding** command.

```
switch# show ip dhcp snooping database
Type : tftp: 192.168.1.50
FileName : backup_file
Write delay Timer : 300 seconds
Abort Timer : 60 seconds
Agent Running : Running
Delay Timer Expiry : 300 seconds
Abort Timer Expiry : 299
Last Succeded Time : None
Last Failed Time : None
Last Failed Reason : No failure recorded.
Total Attempts : 1
Successful Transfers : 1 Failed Transfers : 0
Successful Reads : 1 Failed Reads : 0
Successful Writes : 0 Failed Writes : 0
switch# show ip dhcp snooping binding
Bind Table: Maximun Binding Entry Number 192
Port | VID | MAC Address | IP | Type | Lease Time
--------+------+--------------------+-------------------------------------+--------------------+----------
fa1 | 1 | 00:30:4F:C7:12:62 | 192.168.1.100(255.255.255.255)|DHCP Snooping | 86400
```

4.4.20 show ip dhcp snooping database

Command:

```
show ip dhcp snooping database
```

Mode:

Global Configuration

Usage Guide:

Use the **show ip dhcp snooping database** command to show settings of DHCP Snooping agent.

Example:

The example shows how to show settings of DHCP Snooping agent.

```
switch(config)# show ip dhcp snooping database
Type : tftp: 192.168.1.50
FileName : backup_file
Write delay Timer : 300 seconds
Abort Timer : 60 seconds
Agent Running : Running
Delay Timer Expiry : 300 seconds
Abort Timer Expiry : 299
Last Succeded Time : None
Last Failed Time : None
Last Failed Reason : No failure recorded.
Total Attempts : 1
Successful Transfers : 1 Failed Transfers : 0
Successful Reads : 1 Failed Reads : 0
Successful Writes : 0 Failed Writes : 0
```

4.4.20.1 ip dns

Command:

```
ip dns A.B.C.D [A.B.C.D]

no ip dns [A.B.C.D]
```

Parameter:

A.B.C.D	Specify the DNS server ip address.

Default:

Default IP address of DNS server is 168.95.1.1 and 168.95.192.1.

Mode:

Global Configuration

Usage Guide:

Use "**ip dns**" command to modify DNS server address. And use "**no ip dns**" to delete existing DNS server.

Example:

This example shows how to modify the DNS server of the switch.

```
Switch(config)# ip dns 111.111.111.111 222.222.222.222
```

This example shows how to show current DNS server of the switch.

```
Switch# show ip dns
DNS Server 1 : 111.111.111.111
DNS Server 2 : 222.222.222.222
```

4.4.20.2 ip http

Command:

```
ip http [login| secure-redirect | session-timeout]
```

Parameter:

ip **IP configuration**

http **HTTP server configuration**

https **HTTPS server configuration**

login **Login Authentication**

secure-redirect **Secure HTTP web redirection**

session-timeout **Session timeout configuration**

Default:

N/A

Mode:

Global Configuration

Usage Guide:

To setting the **HTTP server configuration**

Example:

This example to setting the **HTTP server configuration**

```
Switch(config)# ip http [login| secure-redirect
```

4.4.20.3 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
```

4.4.20.4 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
```

4.4.20.5 ip https

Command:

```
ip http [login| secure-redirect | session-timeout]
```

Parameter:

ip **IP configuration**

https **HTTPS server configuration**

login **Login Authentication**

session-timeout **Session timeout configuration**

Default:

N/A

Mode:

Global Configuration

Usage Guide:

To setting the **HTTPS server configuration**

Example:

This example to setting the **HTTPS server configuration**

```
Switch(config)# ip https login authentication
```

4.4.21 ipv6

4.4.21 1 ipv6 address

Command:

```
ipv6 address X:X::X:X prefix <0-128>
```

Parameter:

address *X:X::X:X*	Specify IPv6 address for switch
prefix *<0-128>*	Specify IPv6 prefix length for switch

Mode:

Global Configuration

Usage Guide:

Use "**ipv6 address**" command to specify static IPv6 address.

Example:

This example shows how to add static ipv6 address of the switch.

```
Switch(config)# ipv6 address fe80::20e:2eff:fef1:4b3c prefix 128
```

This example shows how to show current ipv6 address of the switch.

```
Switch# show ipv6
IPv6 DHCP Configuration : Disabled
IPv6 DHCP DUID :
IPv6 Auto Configuration : Enabled
IPv6 Link Local Address : fe80::dcad:beff:feef:102/64
IPv6 static Address : fe80::20e:2eff:fef1:4b3c/128
IPv6 static Gateway Address : ::
IPv6 in use Address : fe80::dcad:beff:feef:102/64
IPv6 in use Gateway Address : ::
```

4.4.21 2 ipv6 autoconfig

Command:

```
ipv6 autoconfig

no ipv6 autoconfig
```

Default:

Default IPv6 auto config is enabled.

Mode:

Global Configuration

Usage Guide:

Use "**ipv6 autoconfig**" command to enabled IPv6 auto configuration feature.

Use "**no ipv6 autoconfig**" command to disabled IPv6 auto configuration feature.

Example:

This example shows how to disable IPv6 auto config.

```
Switch(config)# no ipv6 autoconfig
```

This example shows how to show current IPv6 auto config state.

```
Switch# show ipv6
IPv6 DHCP Configuration : Disabled
IPv6 DHCP DUID :
IPv6 Auto Configuration : Disabled
IPv6 Link Local Address : fe80::dcad:beff:feef:102/64
IPv6 static Address : fe80::20e:2eff:fef1:4b3c/128
IPv6 static Gateway Address : ::
IPv6 in use Address : fe80::dcad:beff:feef:102/64
IPv6 in use Gateway Address : ::
```

4.4.21 3 ipv6 default-gateway

Command:

```
ipv6 default-gateway X:X::X:X
```

Parameter:

X:X::X:X	Specify default gateway IPv6 address for switch

Mode:

Global Configuration

Usage Guide:

Use "**ipv6 default-gateway**" command to modify default gateway IPv6 address.

Example:

This example shows how to modify the ipv6 default gateway address of the switch.

```
Switch(config)# ipv6 default-gateway fe80::dcad:beff:feef:103
Switch# show ipv6
IPv6 DHCP Configuration : Disabled
IPv6 DHCP DUID :
IPv6 Auto Configuration : Enabled
IPv6 Link Local Address : fe80::dcad:beff:feef:102/64
IPv6 static Address : fe80::20e:2eff:fef1:4b3c/128
IPv6 static Gateway Address : ::
IPv6 in use Address : fe80::dcad:beff:feef:102/64
IPv6 in use Gateway Address : ::
```

4.4.21 4 ipv6 dhcp

Command:

```
ipv6 dhcp

no ipv6 dhcp
```

Default:

Default DHCPv6 client is disabled.

Mode:

Global Configuration

Usage Guide:

Use "**ipv6 dhcp**" command to enabled dhcpv6 client to get IP address from remote DHCPv6 server.

Use "**no ipv6 dhcp**" command to disabled dhcpv6 client and use static ipv6 address or ipv6 auto config address.

Example:

This example shows how to enable dhcp client.

```
Switch(config)# ipv6 dhcp
```

This example shows how to show current dhcpv6 client state of the switch.

```
Switch# show ipv6 dhcp
DHCPv6 Status : enabled
```

4.4.22 jumbo-frame

Command:

```
jumbo-frame < 1518-10000>
```

Parameter:

<64-9216>	Specify the maximum frame size.

Default:

Default maximum frame size is 1522.

Mode:

Interface Configuration

Usage Guide:

Use "**jumbo-frame**" command to modify maximum frame size.

The only way to show this configuration is using "**show running-config**" command.

Example:

This example shows how to modify maximum frame size on gi1 to 9216 bytes.

```
Switch(config)# interface gi1
Switch(config-if)# jumbo-frame 9216
```

This example shows how to show current jumbo-frmae size

```
Switch# show running-config interface gi1
interface gi1
jumbo-frame 9216
```

4.4.23 lacp

4.4.23 1 lacp system-priority

Command:

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

no lacp system-priority
```

Parameter:

<1-65535> Specify system priority value

Default:

Default system priority is 1.

Mode:

Global Configuration

Usage Guide:

LACP system priority is used for two connected DUT to select master switch. Lower system priority value has higher priority. And the DUT with higher priority can decide which ports are able to join the LAG.

Use "**no lacp system-priority**" to restore to the default priority value. The only way to show this configuration is using "**show running-config**" command.

Example:

This example shows how to configure lacp system priority to 1000.

```
Switch(config)# lacp system-priority 1000
```

4.4.24 lag

4.4.24.1 lag load-balance

Command:

```
lag load-balance (src-dst-mac | src-dst-mac-ip)
```

Parameter:

src-dst-mac	Specify algorithm to balance traffic by using source and destination MAC address for all packets.
src-dst-mac-ip	Specify algorithm to balance traffic by using source and destination IP address for IP packets and using source and destination MAC address for non-IP packets.

Default:

Default load balance algorithm is src-dst-mac

Mode:

Global Configuration

Usage Guide:

Link aggregation group port should transmit packets spread to all ports to balance traffic loading. There are two algorithm supported and this command allow you to select the algorithm.

Example:

This example shows how to change load balance algorithm to src-dst-mac-ip.

```
Switch(config)# lag load-balance src-dst-mac-ip
```

This example shows how to show current load balance algorithm.

```
Switch# show lag
Load Balancing: src-dst-mac-ip.
Group ID | Type | Ports
---------+----------+---------------------------------------
1 | --------- |
2 | --------- |
3 | --------- |
4 | --------- |
5 | --------- |
6 | --------- |
7 | --------- |
8 | --------- |
```

4.4.25 line

Command:

```
line ( console | telnet | ssh )
```

Parameter:

console	Select console line to configure.
telnet	Select telnet line to configure.
ssh	Select ssh line to configure.

Mode:

Global Configuration

Usage Guide:

Some configurations are line based. In order to configure these configurations, we need to enter Line Configuration mode to configure them. Use "**line**" command to enter the Line Configuration mode and select the line to be configured.

In Line Configuration mode, the prompt will show as "**Switch(config-line)#**"

Example:

This example shows how to enter Interface Configuration mode

```
Switch# configure
Switch(config)# line console
Switch(config-line)#
```

4.4.26 lldp

Command:

```
lldp

no lldp
```

Mode:

Global Configuration

Usage Guide:

The “lldp” command globally enable LLDP RX/TX ability. “no lldp run” command disables the LLDP RX/TX ability and the behavior when receiving LLDP PDU would be decided by “lldp lldpdu” command. The LLDP enable status is displayed by “show lldp” command.

Example:

The following example sets LLDP enable/disable.

```
Switch(config)# lldp
Switch# show lldp
State: Enabled
Timer: 30 Seconds
Hold multiplier: 4
Reinit delay: 2 Seconds
Tx delay: 2 Seconds
LLDP packet handling: Flooding
Switch(config)# no lldp
Switch# show lldp
State: Disabled
Timer: 30 Seconds
Hold multiplier: 4
Reinit delay: 2 Seconds
Tx delay: 2 Seconds
LLDP packet handling: Flooding
```

4.4.26.1 lldp holdtime-multiplier

Command:

```
lldp holdtime-multiplier <2-10>
```

Parameter:

<2-10> Specify the LLDP hold time multiplier.

Default:

lldp holdtime-multiplier 4

Mode:

Global Configuration

Usage Guide:

This command globally configures the LLDP PDU hold multiplier that decides time-to-live (TTL) value sent in LLDP advertisements: TTL = (tx-interval * holdtime-multiplier). The configuration could be shown by “show lldp” command.

Example:

This example sets LLDP hold time multiplier to 3.

```
Switch(config)# lldp holdtime-multiplier 3
Switch# show lldp
State: Disabled
Timer: 10 Seconds
Hold multiplier: 3
Reinit delay: 2 Seconds
Tx delay: 2 Seconds
LLDP packet handling: Flooding
```

4.4.26.2 lldp lldpdu

Command:

```
lldp lldpdu (filtering|flooding|bridging)
```

Parameter:

(filtering|flooding|bridging)	Specifies that when LLDP is globally disabled, received LLDP packets are filtered (dropped), flooded (forwarded to all interfaces) or bridged (flooded to VLAN member ports).

Default:

Lldp lldpdu flooding

Mode:

Global Configuration

Usage Guide:

This command globally configures the LLDP PDU handling behavior when LLDP is globally disabled. It should be noticed that if LLDP is globally enabled and per port LLDP RX status is configured to disabled, the received LLDP PDU would be dropped instead of taking the global disable behavior. The configuration could be shown by “show lldp” command.

Example:

This example sets LLDP disable action to bridging.

```
Switch(config)# lldp lldpdu bridging
Switch(config)# show lldp
State: Enabled
Timer: 30 Seconds
Hold multiplier: 4
Reinit delay: 2 Seconds
Tx delay: 2 Seconds
LLDP packet handling: Bridging
```

4.4.26.3 lldp med

Command:

```
lldp med

no lldp med
```

Mode:

Interface Configuration

Usage Guide:

The command per port configures the LLDP MED enable status. If LLDP MED is enabled, LLDP MED capability TLV and other selected MED TLV would be attached. The configuration could be shown by “show lldp med” command.

Example:

This example sets port gi1-4 to enable LLDP MED, port gi5-8 to disable LLDP MED.

```
Switch(config)# interface range gi1-4
Switch(config-if)# lldp med
Switch(config-if)# exit
Switch(config)# interface range gi5-8
Switch(config-if)# no lldp med
Switch(config-if)# exit
Switch(config)# show lldp interfaces gi1-8 med
Port | Capabilities | Network Policy | Location | Inventory | POE
------ + ------------- + -------------- + -------- + ----------+ -----
gi1 | Yes | Yes | No | No | No
gi2 | Yes | Yes | No | No | No
gi3 | Yes | Yes | No | No | No
gi4 | Yes | Yes | No | No | No
gi5 | No | Yes | No | No | No
gi6 | No | Yes | No | No | No
gi7 | No | Yes | No | No | No
gi8 | No | Yes | No | No | No
```

4.4.26.4 lldp reinit-delay

Command:

```
lldp reinit-delay <1-10>
```

Parameter:

<1-10>	Specify the LLDP re-initial delay time in unit of second.

Default:

lldp reinit-delay 2

Mode:

Global Configuration

Usage Guide:

This command globally configures the LLDP re-initial delay. This delay avoids LLDP generate too many PDU if the port is up and down frequently. The delay starts to count when the port links down. The port would not generate LLDP PDU until the delay counts to zero. The configuration could be shown by “show lldp” command.

Example:

This example sets LLDP re-initial delay to 5 seconds.

```
Switch(config)# lldp reinit-delay 5
Switch# show lldp
State: Disabled
Timer: 10 Seconds
Hold multiplier: 4
Reinit delay: 5 Seconds
Tx delay: 2 Seconds
LLDP packet handling: Flooding
```

4.4.26.5 lldp tx-delay

Command:

```
lldp tx-delay <1-8192>
```

Parameter:

<1-8192> Specify the LLDP tx delay in unit of seconds.

Default:

lldp tx-delay 2

Mode:

Global Configuration

Usage Guide:

This command globally configures the delay in seconds between successive LLDP frame transmissions. The delay starts to count in any case LLDP PDU is sent such as by LLDP PDU advertise routine, LLDP PDU content change, port link up, etc. The configuration could be shown by “show lldp” command.

Example:

This example sets LLDP PDU TX delay to 10.

```
Switch(config)# lldp tx-delay 10
Switch# show lldp
State: Disabled
Timer: 10 Seconds
Hold multiplier: 4
Reinit delay: 2 Seconds
Tx delay: 10 Seconds
LLDP packet handling: Flooding
```

4.4.26.6 lldp tx-interval

Command:

```
lldp tx-interval <5-32768>
```

Parameter:

<5-32768> Specify the LLDP PDU TX interval in unit of second.

Default:

lldp tx-interval 30

Mode:

Global Configuration

Usage Guide:

This command globally configures the LLDP TX interval. It should be noticed that both “lldp tx-interval” and “lldp tx-delay” affects the LLDP PDU TX time. The larger value of the two configuration decides the TX interval. The configuration could be shown by “show lldp” command.

Example:

This example sets LLDP TX interval to 10 seconds.

```
Switch(config)# lldp tx-interval 10
Switch# show lldp
State: Disabled
Timer: 10 Seconds
Hold multiplier: 4
Reinit delay: 2 Seconds
Tx delay: 2 Seconds
LLDP packet handling: Flooding
```

4.4.27 logging

Command:

```
logging

no logging
```

Mode:

Global Configuration

Usage Guide:

Enable/Disable the logging service.

logging

Enable the logging service. It is the global option of logging service. The status of the logging service is available from the command “show logging”.

no logging

Disable the logging service. When the logging service is disabled, all messages will stop logging to the system.

show logging

Display the global logging status. It will show the logging configuration of the system, including the global logging status, and the lists of logging services.

Example:

```
Switch(config)# show logging
Switch(config)# no logging
Switch(config)# show logging
Logging service is disabled
TARGET | STATUS | Server (PORT) | FACILITY | LOG LEVEL
----------+----------+--------------------------------+----------+--------------------------------
buffered | enabled | | |emerg, alert, crit, error, warning, notice, info
Switch(config)# logging
Switch(config)# show logging
Logging service is enabled
TARGET | STATUS | Server (PORT) | FACILITY | LOG LEVEL
----------+----------+--------------------------------+----------+--------------------------------
buffered | enabled | | |emerg, alert, crit, error, warning, notice, info
```

4.4.27.1 logging flash | buffered

Command:

```
logging (flash|buffered) [severity <0-7>]

no logging (flash|buffered)
```

Parameter:

flash	Specify logging to flash.
buffer	Specify logging to RAM.
severity	Specify the minimum severity mask of logging message.

Default:

Severity = 6 (emerg, alert, crit, error, warning, notice, info)

Mode:

Global Configuration

Usage Guide:

Enable/Disable the local capability to log message to RAM/flash with the minimum severity. The minimum severity value is “6”, including messages of severity emergency, alert, critical, error, warning, notice, and info.

logging flash

Enable the capability to log message to flash, and the default minimum severity is 6. When the service is enables, messages will start to be logged to the flash. All logging messages will be saved when the system shutdown. Only when the local logging capability of flash is enabled, the status of logging flash service will be shown by the command “show logging”.

logging buffered

Enable the capability to log message to RAM, and the default minimum severity is 6. When the service is enabled, the messages will start to be logged to RAM. All logging message will be lost when the system shutdown.

no logging flash

Disable the capability to log message to flash. Once the logging capability of flash is disabled, the status of logging flash service will be removed from the service list shown by the command “show logging”.

no logging buffered

Disable the capability to log message to RAM.

show logging

Display the logging status. It will show the logging configuration of the system, including the global logging status, and the lists of logging services. When the local logging capability is enabled, the status of the local logging (flash or buffered) will be shown by the command “show logging”; Otherwise, the logging entry will be removed from the service list.

Example:

```
Switch(config)# show logging
Logging service is enabled
TARGET | STATUS | Server (PORT) | FACILITY | LOG LEVEL
----------+----------+--------------------------------+----------+--------------------------------
buffered | enabled | | |emerg, alert, crit, error, warning, notice, info
Switch(config)# no logging buffer
Switch(config)# show logging
Logging service is enabled
TARGET | STATUS | Server (PORT) | FACILITY | LOG LEVEL
----------+----------+--------------------------------+----------+--------------------------------
Switch(config)# logging buffered
Switch(config)# logging flash severity 5
Switc(config)h# show logging
Logging service is enabled
TARGET | STATUS | Server (PORT) | FACILITY | LOG LEVEL
----------+----------+--------------------------------+----------+--------------------------------
buffered | enabled | | |emerg, alert, crit, error, warning, notice, info
flash | enabled | | |emerg, alert, crit, error, warning, notice
```

4.4.27.2 logging host

Command:

```
logging host <ip-addr> [port <0-65535>] [severity <0-7>] [facility
(local0|local1|local2|local3|local4|local5|local6|local7)]

no logging <ip-addr>
```

Parameter:

ip-addr	Specify the IP address of remote logging server.
port	Specify the port number of remote logging server.
severity	Specify the minimum severity mask of logging message.
facility	Specify the facility of logging messages.

Default:

Port = 514,

Severity = 6 (emerg, alert, crit, error, warning, notice, info)

Facility = Local7

Mode:

Global Configuration

Usage Guide:

Enable/Disable the capability to log message to the remote syslog server.

logging host 192.168.1.100

Enable the capability to log messages to the remote server. The default values of the parameter port is “514”, severity is “6” (emerg, alert, crit, error, warning, notice, info), and the facility is “local7”. All logging message will be sent to the remote server. Only when the remote logging capability is enabled, the status of remote logging service will be shown by the command “show logging”. When an existed entry is set twice, the old setting will be replaced and modified with the new one.

no logging host 192.168.1.100

Disable the capability to log messages to the remote server. When the remote logging service is disabled, the log will not be sent to the remote syslog server, and the status of remote logging entry will be removed from service list shown by the command “show command”.

show logging

Display the logging status. It will show the logging configuration of the system, including the global logging status, and the lists of logging services. When the remote logging capability is enabled, the status of remote logging will be shown by the command “show logging”; Otherwise, the remote logging entry will be removed from the service list.

Example:

```
Switch(config)# logging host 192.168.1.100
Switch(config)# logging host 192.168.1.100 port 2048 severity 3 facility local1
Switch(config)# show logging
Logging service is enabled
TARGET | STATUS | Server (PORT) | FACILITY | LOG LEVEL
----------+----------+---------------------------------+----------+---------------------------------
buffered | enabled | | |emerg, alert, crit, error, warning, notice, info
flash | enabled | | |emerg, alert, crit, error, warning, notice
host | enabled | 192.168.1.100( 2048)| local1 |emerg, alert, crit, error
Switch(config)# no logging host 192.168.1.100
Switch(config)# show logging
Logging service is enabled
TARGET | STATUS | Server (PORT) | FACILITY | LOG LEVEL
----------+----------+---------------------------------+----------+---------------------------------
buffered | enabled | | |emerg, alert, crit, error, warning, notice, info
flash | enabled | | |emerg, alert, crit, error, warning, notice
```

4.4.27.3 show logging

Command:

```
show logging
```

Mode:

Global Configuration

Privileged Configuration

Usage Guide:

show logging

Show the logging configuration. The information includes the global logging service status, and the list of logging service.

Status of global logging service can be determined by the command “logging/no logging”. The list of logging service shows all the active logging service.

Example:

```
Switch(config)# show logging
Logging service is enabled
TARGET | STATUS | Server (PORT) | FACILITY | LOG LEVEL
----------+----------+--------------------------------+----------+---------------------------------
buffered | enabled | | |emerg, alert, crit, error, warning, notice, info
```

4.4.27.4 show logging flash | buffered

Command:

```
show logging (flash|buffered)
```

Parameter:

flash	Specify showing the messages logged to flash.
buffered	Specify showing the messages logged to RAM.

Mode:

Global Configuration

Privileged Configuration

Usage Guide:

Show the messages logged to flash/RAM.

show logging flash

Show the messages logged to the flash. When the capability of the service is enabled, it will show all message logged to the flash. All messages will be logged in inverse chronological order.

show logging buffered

Show the messages logged to the RAM. When the capability of the service is enabled, it will show all message logged to the RAM. Logs will be lost after system shutdown. All messages will be logged in inverse chronological order.

Example:

```
Switch(config)# show logging buffered
Log messages in buffered
NO.| Timestamp | Category | Severity | Message
---------------------+----------------+----------+---------------------------------------
1| Jan 01 08:00:57| STP| info| Port 1 STP port state is set to Forwarding
2| Jan 01 08:00:42| STP| info| Port 1 STP port state is set to Learning
3| Jan 01 08:00:30| AAA| info| User '' enter privileged mode from console with level '15'
success
4| Jan 01 08:00:28| AAA| info| User '' is authorized with privilege level 1
5| Jan 01 08:00:28| AAA| info| User '' login from console success
6| Jan 01 08:00:24| System| info| Sysinfo variable 'resetdefault' is set to value '0'
7| Jan 01 08:00:23| System| notice| System Startup!
```

4.4.27.5 clear logging flash | buffered

Command:

```
clear logging (flash|buffered)
```

Parameter:

flash	Specify showing the messages logged to flash.
buffered	Specify showing the messages logged to RAM.

Mode:

Global Configuration

Privileged Configuration

Usage Guide:

Clear the message logged to flash/RAM.

clear logging flash

Clear the messages logged to flash.

clear logging buffered

Clear the messages logged to RAM.

Example:

```
Switch# show logging buffered
Log messages in buffered
NO.| Timestamp | Category | Severity | Message
---------------------+----------------+----------+---------------------------------------
1| Jan 01 08:00:57| STP| info| Port 1 STP port state is set to Forwarding
2| Jan 01 08:00:42| STP| info| Port 1 STP port state is set to Learning
3| Jan 01 08:00:30| AAA| info| User '' enter privileged mode from console with level '15'
success
4| Jan 01 08:00:28| AAA| info| User '' is authorized with privilege level 1
5| Jan 01 08:00:28| AAA| info| User '' login from console success
6| Jan 01 08:00:24| System| info| Sysinfo variable 'resetdefault' is set to value '0'
7| Jan 01 08:00:23| System| notice| System Startup!
Switch# clear logging buffered
Switch# show logging buffered
Log messages in buffered
NO.| Timestamp | Category | Severity | Message
---------------------+----------------+----------+---------------------------------------
```

4.4.28 mac

4.4.28.1 clear mac address-table

Command:

```
clear mac address-table dynamic [interfaces IF_PORTS] [vlan <1-4094>]
```

Parameter:

IF_PORTS	Delete all dynamic addresses on the specified interface.
<1-4094>	Delete all dynamic addresses on the specified VLAN

Mode:

Privileged Configuration

Usage Guide:

Use the **clear mac address-table Privileged EXEC** command to delete dynamic mac entry on specified interface or VLAN or all dynamic mac entry in mac address table

You can verify your setting by entering the **show mac address-table dynamic Privileged EXEC** command

Example:

This example shows how to delete dynamic MAC address entries on gi1

```
Switch# show mac address-table dynamic
VID | MAC Address | Type | Ports
-------+---------------------------+-----------------------+----------
1 | 00:30:4F:00:00:12 | Dynamic | gi11
1 | 00:30:4F:3B:1E:E6 | Dynamic | gi1
Total number of entries: 2
Switch(config)# clear mac address-table dynamic interfaces gi1
Switch# show mac address-table dynamic
VID | MAC Address | Type | Ports
-------+---------------------------+-----------------------+----------
1 | 00:30:4F:00:00:12 | Dynamic | gi11
Total number of entries: 1
```

4.4.28.2 mac address-table aging-time

Command:

```
mac address-table aging-time <10-630>
```

Parameter:

<10-630>	Specify aging time value of second.

Default:

In default aging out time is 300s.

Mode:

Global Configuration

Usage Guide:

Use the mac address-table aging-time Global configuration command to set the aging time of the address table

You can verify your setting by entering the **show mac address-table aging-time Privileged EXEC** command

Example:

The following example show how to configure dynamic mac entry aging out time

```
Switch(config)# mac address-table aging-time 100
Switch# show mac address-table aging-time
Mac Address Table aging time: 100 sec
```

4.4.28.3 mac address-table static

Command:

```
mac address-table static A:B:C:D:E:F vlan <1-4094> interfaces IF_PORTS

no mac address-table static A:B:C:D:E:F vlan <1-4094>
```

Parameter:

A:B:C:D:E:F	Destination MAC address (unicast or multicast) to add to the address table. Packets with this destination address received in the specified VLAN are forwarded to the specified interface.
<1-4094>	Specify the VLAN for which the packet with the specified MAC address is received.
IF_PORTS	Interface to which the received packet is forwarded. Valid interfaces include physical ports and port channels.

Mode:

Global Configuration

Usage Guide:

Use the **mac address-table static** global configuration command to add static addresses to the MAC address table.

Use the **no** form of this command to remove static entries from the table.

You can verify your setting by entering the **show mac address-table static** Privileged EXEC command

Example:

This example shows how to add static addresses to the MAC address table.

```
Switch(config)# mac address-table static 0:1:2:3:4:5 vlan 1 interfaces gi5
Switch(config)# mac address-table static 1:6:7:9:a:b vlan 100 interfaces gi1,gi5,gi10
Switch# show mac address-table static
VID | MAC Address | Type | Ports -----+-------------------------+-----------------
---------+---------------- 1 | 00:30:4F:03:04:05 | Static | gi5
100 | 00:30:4F:09:0A:0B | Static | gi1,gi5,gi10
Total number of entries: 2
```

4.4.28.4 mac address-table static drop

Command:

```
mac address-table static A:B:C:D:E:F vlan <1-4094> drop
```

Parameter:

A:B:C:D:E:F	Unicast source or destination MAC address. Packets with this MAC address are dropped.
<1-4094>	Specify the VLAN for which the packet with the specified MAC address is received.

Default:

Unicast MAC address filtering is disabled. The switch does not drop traffic for specific source or destination MAC addresses.

Mode:

Global Configuration

Usage Guide:

Use the **mac address-table static drop** global configuration command to enable unicast MAC address filtering and to configure the switch to drop traffic with a specific source or destination MAC address.

Use the **no** form of this command to return to the default setting.

You can verify your setting by entering the **show mac address-table static** Privileged EXEC command

Example:

This example shows how to add filter mac addresses to the MAC address table.

```
Switch(config)# mac address-table static a:b:c:d:e:f vlan 20 drop
Switch# show mac address-table static
VID | MAC Address | Type | Ports -----+-------------------------+-----------`------
---------+---------------- 1 | 00:30:4F:03:04:05 | Static | gi5
100 | 00:30:4F:09:0A:0B | Static | gi1,gi5,gi10 20 | 00:30:4F:0D:0E:0F | Filtering | All
Total number of entries: 3
```

4.4.28.5 show mac address-table

Command:

```
show mac address-table [(static|dynamic)] [interfaces IF_PORTS] [vlan <1-4094>]

show mac address-table A:B:C:D:E:F [vlan <1-4094>]
```

Parameter:

static	Add/Edit login authentication list
dynamic	Displays only static MAC address table entries.
IF_PORTS	Displays entries for a specific interface ID. The interface ID can be one of the following types: Ethernet port or port-channel.
<1-4094>	Displays entries for a specific VLAN.
A:B:C:D:E:F	Displays entries for a specific MAC address.

Mode:

Privileged EXEC

Usage Guide:

Use the show mac address-table command in EXEC mode to view entries in the MAC address table.

Example:

This example shows all MAC address entries in mac address table.

```
Switch# show mac address-table
VID | MAC Address | Type | Ports
------+------------------------+--------------------------+----------------
1 | DE:AD:BE:EF:01:02 | Management | CPU 1 | 00:00:E3:00:00:12 | Dynamic | gi11
1 | 00:01:02:03:04:05 | Static | gi5
1 | 00:14:78:3B:1E:E6 | Dynamic | gi1
100 | 01:06:07:09:0A:0B | Static | gi1,gi5,gi10 20 | 0A:0B:0C:0D:0E:0F | Static | All
Total number of entries: 6
The following example displays address table entries containing the specified MAC
address.
Switch# show mac address-table 0:1:2:3:4:5
VID | MAC Address | Type | Ports
------+-------------------+------------+----------------
1 | 00:01:02:03:04:05 | Static | gi5
Total number of entries: 1
```

4.4.28.6 show mac address-table counters

Command:

```
show mac address-table counters
```

Mode:

Privileged EXEC

Usage Guide:

Use the **show mac address-table counters** command in EXEC mode to display the number of addresses present in mac address-table

Example:

This example shows how to display total mac entry counters

```
Switch# show mac address-table counters
Total number of entries: 5
```

4.4.28.7 show mac address-table aging-time

Command:

```
show mac address-table aging-time
```

Mode:

Privileged EXEC

Usage Guide:

Use the **show mac address-table aging-time** command in EXEC mode to display the aging time for dynamic mac entries.

Example:

This example shows how to display aging time of dynamic mac address entry

```
Switch# show mac address-table aging-time
Mac Address Table aging time: 300 sec
```

4.4.29 management

Command:

```
management [ access-class | access-list ]

no management [ access-class | access-list ]
```

access-class Use this command to choose the active access-list.

access-list Use this command to configure a management access list.

NAME The device can be managed only from the console.

Parameter:

Default:

Management access-class is disabled

0 management access-lists are created

Mode:

4.4.30 management-vlan

Command:

```
management-vlan vlan <1-4094>

no management-vlan
```

Parameter:

<1-4094> Specify the VLAN ID of management-vlan.

Default:

management VLAN = VLAN 1

Mode:

Global Configuration

Usage Guide:

(1) Set <1-4094> as management VLAN id; suggest to create the VLAN and make the port to be member of it firstly.

(2) When use no command, restore management vlan to be default VLAN.

(3) If want to see management vlan created ,use “show management-vlan”

Example:

The following example specifies that management vlan 2 is created

```
Switch(config)# management-vlan vlan 2
```

4.4.31 mirror

4.4.31.1 mirror session

Command:

```
mirror session <1-4> source interfaces IF_PORTS (both | rx | tx)

no mirror session <1-4> source interfaces IF_PORTS (both|rx|tx)

mirror session <1-4> source vlan <1-4094>

no mirror session <1-4> source vlan

mirror session <1-4> destination interface IF_NMLPORT [allow-ingress]

no mirror session <1-4> destination interface IF_NMLPORT

no mirror session (<1-4> | all)
```

Parameter:

<1-4>	Specify the mirror session to configure
IF_PORTS	Specify the source interface, Valid interfaces include physical ports and port channels.
both,rx,tx	Specify the traffic direction to mirror.
<1-4094>	Specify the mirrored VLAN ID
IF_NMLPORT	Specify the SPAN destination. A destination must be a physical port
allow-ingress	Enable ingress traffic forwarding.

Mode:

Global Configuration

Usage Guide:

Use the **monitor session** global configuration command to start a new Switched Port Analyzer (SPAN) source or destination session

Use the **no** form of this command to remove the SPAN session or to remove source or destination interfaces or filters from the SPAN session

You can verify your setting by entering the **show mirror** Privileged EXEC command

Example:

This example shows how to create a local SPAN session 1 to monitor both sent and received traffic on source port gi1.

```
Switch(config)# mirror session 1 source interface gi2-5 both
Switch(config)# mirror session 1 destination interface gi1
Switch(config)# show mirror session 1
Session 1 Configuration
Source RX Port : gi2-5
Source TX Port : gi2-5
Destination port : gi1
Ingress State: disabled
Switch(config)# mirror session 2 source vlan 100
Switch(config)# mirror session 2 destination interface gi1 allow-ingress
Switch(config)# show mirror session 2
Session 2 Configuration
Mirrored VLAN: 100
Destination port : gi1
Ingress State: enable
```

4.4.31.2 show mirror

Command:

```
show mirror [session <1-4>]
```

Parameter:

<1-4>	Specify the mirror session to display

Mode:

Privileged EXEC

Usage Guide:

Use the **show mirror** command in EXEC mode to display mirror session configuration

Example:

This example shows how to display mirror session configuration

```
Switch(config)# show mirror
Session 1 Configuration
Source RX Port : gi2-5
Source TX Port : gi2-5
Destination port : gi1
Ingress State: disabled
Session 2 Configuration
Mirrored source : Not Config
Destination port : Not Config
Session 3 Configuration
Mirrored source : Not Config
Destination port : Not Config
Session 4 Configuration
Mirrored source : Not Config
Destination port : Not Config
```

4.4.32 nms

Command:

```
nms operation-mode [ cloudviewer-server | nms-controller ]
```

nms Enable and set the switch's NMS agent operation mode configur ation

operation-mode Set the switch's NMS agent operation mode configuration

cloudviewer-server Enable the switch to transmit MQTT packages to remote inte rnet CloudViewer server

WORD It is for you to input your mail account name.

nms-controller Enable the switch to transmit MQTT packages to local PLANET NMS controller.

Default:

N/A

Usage Guide:

To Enable the switch to transmit MQTT packages to local PLANET NMS controller.

Example:

To Enable the switch to transmit MQTT packages to local PLANET NMS controller.

```
Switch# nms operation-mode cloudviewer-server
```

4.4.33 no

Command:

```
no
```

no **Negate command**

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
```

4.4.34 poe

4.4.34.1 poe admin-mode

Command:

```
poe admin-mode { enable | disable }
```

poe Power Over Ethernet

admin-mode Enable or disable global PoE management function.

disable **Disable PoE**

enable **Enable PoE**

Default:

Enabled

Usage Guide:

To enable System PoE Admin Mode.

Example:

To enable System PoE Admin Mode.

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

4.4.34.2 poe debug

Command:

```
poe admin-mode { checkSumEn | dump | get | set }
```

checkSumEn checkSumEn

dump dump

get get

set set

Default:

Enabled

Usage Guide:

To enable System PoE Admin Mode.

To disable System PoE Admin Mode.

Example:

To enable System PoE Admin Mode.

To disable System PoE Admin Mode.

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

4.4.34.3 poe limit-mode

Command:

```
poe limit-mode { allocation | consumption }
```

poe PoE configuration

limit-mode Configure System PoE power limit mode information

allocation Max. port power determined by allocated, and power is managed acc ording to power consumption.Power is allocated according to the a ctual need of each PD

consumption.

Default:

Consumption

Usage Guide:

To configure **PoE limit-mode**.

Example:

To configure **PoE** Configure System PoE power limit mode information

```
Switch# configure
Switch (config)# poe limit-mode consumption
```

4.4.34.4 poe mode

Command:

```
poe mode { bt | endspan | midspan }
```

bt **Set the port of PoE to BT mode**

<1-8> **Port List**

all **All ports**

endspan **Set the port of PoE to EndSpan mode**

<1-8> **Port List**

all **All ports**

midspan **Set the port of PoE to MidSpan mode**

<1-8> **Port List**

all **All ports**

Default:

bt

Usage Guide:

Select the port poe mode function (endsapn/midspan/upoe)

Example:

To Select the port poe mode function (endsapn/midspan/upoe).

```
Switch# configure
Switch (config)# poe mode bt all
```

4.4.34.5 poe pd

Command:

```
poe pd type { force | legacy | standard }
```

pd **Select the port poe pd type (standard/legacy/force)**

type **Set the port pd type of PoE to standard**

force **Port List**

<1-8> **All ports**

all

legacy **Set the port pd type of PoE to force**

<1-8> **All ports**

all

standard **Set the port pd type of PoE to legacy**

<1-8> **All ports**

all

Default:

standard

Usage Guide:

To **Select the port poe pd type (standard/legacy/force)**

Example:

To **Select the port poe pd type (standard/legacy/force)**.

```
Switch# configure
Switch (config)# poe pd type standard all
```

4.4.34.6 poe pdalive-add

Command:

```
poe pdalive-add { disable | enable }
```

pdalive-add **Add PoE PD alive check**

disable **Disable PoE Alive check**

A.B.C.D **ip address A.B.C.D**

enable **Enable PoE Alive check**

A.B.C.D **ip address A.B.C.D**

Default:

disable

Usage Guide:

To Add PoE PD alive check

Example:

To Add PoE PD alive check.

```
Switch# configure
Switch (config)# poe pdalive-add enable 192.168.1.100
```

4.4.34.7 poe port

Command:

```
poe port { disable | enable | schedule }
```

port **Enable/Disable/Schedule the port PoE injects functionsupply** Use poe supply to

disable **Disable PoE**

<1-8> **Port ID (e.g. 1-8)configuraton**

all **all Port ID**

enable **Enable PoE**

<1-8> **Port ID (e.g. 1-8)configuraton**

all **all Port ID**

schedule **Schedule PoE**

<1-8> **Port ID (e.g. 1-8)configuraton**

all **all Port ID**

Default:

disable

Usage Guide:

To configure **Enable/Disable/Schedule the port PoE injects function**

Example:

To configure **Enable the port PoE injects function**.

```
Switch# configure
Switch (config)# poe port enable all
```

4.4.34.8 poe power-limit

Command:

poe power-limit

power-limit Enable per port power output limit

<0-950> power limit range from 0~95, the set value must multiple of 10

<1-8> Port ID (e.g. 1-8)configuraton

all all Port ID

Default:

95

Usage Guide:

To Enable per port power output limit**.**

Example:

To Enable per port power output limit to 95 watt**.**

Switch# configure Switch (config)# **poe power-limit 95 all**

4.4.34.9 poe power_budget

Command:

```
poe power_budget
```

power_budget **Configure System PoE power budget information**

<1-360> **The system power budget is (1 to 360)**

Default:

240

Usage Guide:

To **Configure System PoE power budget information.**

Example:

To **Configure System PoE power budget information to 240 watt.**

```
Switch# configure
Switch (config)# poe power_budget 240
```

4.4.34.10 poe priority

Command:

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

priority Set PoE priority for the power supply management

critical Indicates that operating the powered device is high priority

<1-8> Port ID (e.g. 1-8)configuraton

all all Port ID

high Indicates that operating the powered device is medium priority

<1-8> Port ID (e.g. 1-8)configuraton

all all Port ID

low Indicates that operating the powered device is low priority

<1-8> Port ID (e.g. 1-8)configuraton

all all Port ID

Default:

N/A

Usage Guide:

To **Set PoE priority for the power supply management.**

Example:

To **Set PoE priority for the power supply management to poe priority critical 1.**

```
Switch# configure
Switch (config)# poe priority critical 1
```

4.4.34.11 poe schedule-add

Command:

```
poe schedule-add
```

schedule-add **Add PoE schedule list**

<1-4> Profile number 1-4

<1-16> List number 1-16

<0-6> Start Day 0-6 (ex. Sun. is 0, Sat. is 6)

START_TIME Start Time (ex. 09:00)

END_TIME End Time (ex. 18:00)

no_reboot **no_reboot means that no need to reboot**

reboot_enable **reboot_enable means that PoE need to reboot at REBOOT TIME**

reboot_only **reboot_only means that PoE supply all day and reboot only at REBOOT TIME**

REBOOT_TIME Reboot Time (ex. 12:00)

reboot_enable **reboot_only**

reboot_enable **reboot_only**

Default:

Usage Guide:

To **Add PoE schedule list**

Example:

To **Add PoE schedule list**.

```
Switch# configure
Switch (config)# poe schedule-add 1 1 1 09:00 18:00 reboot_enable 12:00
```

4.4.34.12 poe schedule-delete

Command:

```
poe schedule-delete
```

schedule-delete **Delete PoE schedule list**

<1-4> **Profile number 1-4**

<1-16> **List number 1-16**

Default:

Usage Guide:

To **Delete PoE schedule list**

Example:

To **Delete PoE schedule list**

```
Switch# configure
Switch (config)# poe schedule-delete 1 1
```

4.4.34.13 poe schedule-profile

Command:

```
poe schedule-profile
```

schedule-profile Select PoE schedule profile

<1-4> Profile number 1-4

<1-8> Port ID (e.g. 1-8)configuraton

all all Port ID

Default:

Usage Guide:

To **Select PoE schedule profile**

Example:

To **Select All PoE schedule profile**

```
Switch# configure
Switch (config)# poe schedule-profile 1 all
```

4.4.34.14 poe temperature-threshold

Command:

```
poe temperature-threshold <0-120>
```

poe Power Over Ethernet

temperature-threshold **Configure System PoE temperature threshold information**

<0-120> The system will handle power budget according to the value (0 to 120).

Default:

120

Usage Guide:

To **Configure System PoE temperature threshold information.**

Example:

To **Configure System PoE temperature threshold information** (70 degrees C).

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

4.4.35 port-security

Command:

```
port-security

no port-security
```

Default:

Default is disabled

Mode:

Global Configuration

Usage Guide:

The "**port-security**" command enables the port security functionality on this port.

Use the **no** form of this command to disable

Example:

This example shows how to enable port security on port 1 and set the learning limit number to 10.

```
switch(config)# interface gi1
switch(config-if)# port-security address-limit 10 action discard
switch(config-if)# port-security
switch(config)# show port-security interfaces gi1
Port | Mode | Security | CurrentAddr | Action
-------------+------------+----------------------+---------------+----------------------
gi1 | Dynamic | Enabled ( 10) | 0 | Discard
```

4.4.35.1 port-security address-limit

Command:

```
port-security address-limit <1-256> action (forward|discard|shutdown)

no dot1x port-control address-limit
```

Parameter:

<1-256>	The learning-limit number. It specifies how many MAC addresses this port can learn
forward	Forward this packet whose SMAC is new to system and exceed the learning-limit number
discard	Discard this packet whose SMAC is new to system and exceed the learning-limit number.
shutdown	Shutdown this port when receives a packet whose SMAC is new to system and exceed the learning limit number.

Default:

The address-limit default is 10 and action is “discard”.

Mode:

Interface Configuration

Usage Guide:

Use the “**port-security address-limit**” command to set the learning-limit number and the violation action. Use the **no** form of this command to restore the default settings.

Example:

The following example shows how to enable port security on port 1 and set the learning limit number to 10.

```
switch(config)# interface gi1
switch(config-if)# port-security address-limit 10 action discard
switch(config-if)# port-security
switch(config)# show port-security interfaces gi1
Port | Mode | Security | CurrentAddr | Action
-------------+------------+----------------------+---------------+---------------------
gi1 | Dynamic | Enabled ( 10) | 0 | Discard
```

4.4.35.2 show port-security

Command:

```
show port-security interface IF_PORTS
```

Parameter:

IF_PORTS	Select port to show port-security configurations.

Mode:

Privileged EXEC

Usage Guide:

Use "**show port-security interfaces**" command to show port-security information of the specified port.

Example:

This example shows how to show port-security configurations on interface gi1.

```
Switch# show port-security interfaces gi1
Port | Mode | Security | CurrentAddr | Action
-------------+------------+----------------------+---------------+----------------------
gi1 | Dynamic | Enabled ( 10) | 0 | Discard
```

4.4.36 qos

Command:

```
qos basic

no qos
```

Parameter:

basic	Specify the device to qos basic mode

Mode:

Global Configuration

Usage Guide:

QoS have following 2 modes, use this command is able to switch between them.

Disable:

QoS function is disabled and all packets will go through lowest priority queue. It means first in will be first out, no QoS is guarantee.

Basic:

According to basic trust type to assign queue for packets, and packets with higher priority are able to send first.

Example:

This example shows how to change qos to basic mode.

```
Switch(config)# qos basic
```

This example shows how to change qos to disabled mode.

```
Switch(config)# no qos
```

This example shows how to check current qos mode

```
Switch# show qos
QoS Mode: basic
Basic trust: cos
```

4.4.36.1 qos map

Command:

```
qos map (cos-queue | dscp-queue | precedence-queue) SEQUENCE to <1-8>

qos map (queue-cos | queue-precedence) SEQUENCE to <0-7>

qos map queue-dscp SEQUENCE to <0-63>
```

Parameter:

cos-queue	Configure or show CoS to queue map
dscp-queue	Configure or show DSCP to queue map
precedence-queue	Configure or show IP Precedence to queue map.
queue-cos	Configure or show queue to CoS map
queue-dscp	Configure or show queue to DSCP map
queue-precedence	Configure or show queue to IP Precedence map
SEQUENCE	Specify the cos, dscp, precedence or queue with one or multiple values.
<1-8>	Specify th queue id
<0-7>	Specify the cos or precedence values
<0-63>	Specify the dscp values

Default:

The default values of cos-queue are showing in the following table.

CoS	Queue ID
0	2
1	1
2	3
3	4
4	5
5	6
6	7
7	8

The default values of dscp-queue are showing in the following table.

DSCP	Queue ID
0~7	1
8~15	2
16~23	3
24~31	4
32~39	5
40~47	6
48~55	7
56~63	8

The default values of ip precedence are showing in the following table.

IP Precedence	Queue ID
0	1
1	2
2	3
3	4
4	5
5	6
6	7
7	8

The default values of queue-cos are showing in the following table.

Queue ID	CoS
1	1
2	0
3	2
4	3
5	4
6	5
7	6
8	7

The default values of queue-dscp are showing in the following table.

Queue ID	DSCP
1	0
2	8
3	16
4	24
5	32
6	40
7	48
8	56

The default values of queue-precedence are showing in the following table.

Queue ID	DSCP
1	0
2	1
3	2
4	3
5	4
6	5
7	6
8	7

Mode:

Global Configuration

Usage Guide:

According to different trust type, packets will be assigned to different queue based on the specific qos map. For example, if the trust type is trust cos, the device will get the cos value in packet and reference the cos-queue mapping to assign the correct queue.

The queue to cos, dscp or precedence maps are used by remarking function. If the port remarking feature is enabled, the remarking function will reference these 3 tables to remark packets.

Example:

This example shows how to map cos 6 and 7 to queue 1.

```
Switch(config)# qos map cos-queue 6 7 to 1
Switch# show qos map cos-queue
CoS to Queue mappings
COS 0 1 2 3 4 5 6 7
---------------------------------
Queue 2 1 3 4 5 6 1 1
```

This example shows how to map queue 4 and 5 to cos 7.

```
Switch(config)# qos map queue-cos 4 5 to 7
Switch# show qos map queue-cos
Queue to CoS mappings
Queue 1 2 3 4 5 6 7 8
---------------------------------
CoS 1 0 2 7 7 5 6 7
```

4.4.36.2 qos queue

Command:

```
qos queue strict-priority-num <0-8>

qos queue weight SEQUENCE

show qos queueing
```

Parameter:

strict-priority-num ***<0-8>***	Specify the strict priority queue number
weight ***SEQUENCE***	Specify the non-strict priority queue weight value. The valid queue weight value is from 1 to 127.

Default:

Default strict priority queue number is 8, it means all queues are strict priority queue.

The default queue weight for each queue is shown in following table.

Queue ID	Queue Weight
1	1
2	2
3	3
4	4
5	5
6	9
7	13
8	15

Mode:

Global Configuration

Usage Guide:

The device support total 8 queues for QoS queueing. It is able to set the queue to be strict priority queue or weighted queue to prevent starvation. The queue with higher id value has higher priority.

First, you need to decide how many strict priority queue you need. The strict priority queue will always occupy the higher priority queue. For example, if you specify the strict priority number to be 2, then the queue 7 and 8 will be the strict priority queues and the others are weighted queues.

After you setup the number of strict priority queue, you need to setup the weight for the weighted queues by using “qos queue weight” command. And the bandwidth will shared by the weight you configured between these weighted queues.

Example:

This example shows how to setup device with 3 strict priority queues and give other weighted queues with weight 5, 10, 15, 20, 25.

```
Switch(config)# qos queue strict-priority-num 3
Switch(config)# qos queue weight 5 10 15 20 25
Switch# show qos queueing
qid-weights Ef - Priority
1 - 5 dis- N/A
2 - 10 dis- N/A
3 - 15 dis- N/A
4 - 20 dis- N/A
5 - 25 dis- N/A
6 - N/A ena- 6
7 - N/A ena- 7
8 - N/A ena- 8
```

4.4.36.3 qos trust

Command:

```
qos trust (cos | cos-dscp | dscp | ip-precedence)
```

Parameter:

cos	Specify the device to trust CoS
cos-dscp	Specify the device to trust DSCP for IP packets, and trust CoS for non-IP packets.
dscp	Specify the device to trust DSCP
Ip-precedence	Specify the device to trust IP Precedence

Default:

Default qos basic mode trust type is cos.

Mode:

Global Configuration

Usage Guide:

In QoS basic mode, there are 4 trust types for device to judge the appropriate queue of the packets. This command is able to switch between these trust types.

CoS:

IEEE 802.1p defined 3bits priority value in vlan tag. Trust this value in packets and assign queue according to cos-queue map.

DSCP:

IETF RFC2474 defined 6bits priority value in IP packet (highest 6bits in ToS field). Trust this value in packets and assign queue according to dscp-queue map.

IP Precedence:

The highest 3bits priority value in IP packet ToS field. Trust this value in packets and assign queue according to precedence-queue map.

CoS-DSCP:

Trust DSCP for IP packets and assign queue according to dscp-queue map. Trust CoS for non-IP packets and assign queue according to cos-queue map.

Example:

This example shows how to change qos basic mode trust types.

```
Switch(config)# qos trust cos
Switch(config)# qos trust cos-dscp
Switch(config)# qos trust dscp
Switch(config)# qos trust ip-precedence
```

This example shows how to check current qos trust type.

```
Switch# show qos
QoS Mode: basic
Basic trust: cos
```

4.4.36.4 qos cos

Command:

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

Parameter:

cos <*0-7*> Specify the CoS value for the interface.

Default:

Default CoS value for interface is 0.

Mode:

Interface Configuration

Usage Guide:

Sometimes, there is no qos information in the packets, such as CoS, DSCP, IP Precedence. But we still can give the priority for packets by configuring the interface default cos value. If there is no qos information in the packets, the device will use this default cos value and find the cos-queue map to get the final destination queue.

Use "**qos cos**" command to assign port default cos value.

Example:

This example shows how to configure default cos value 7 on interface gi1.

```
Switch(config)# interface GigabitEthernet 1
Switch(config-if)# qos cos 7
Switch(config-if)# end
Switch# show qos interface GigabitEthernet 1
Port | CoS | Trust State | Remark Cos | Remark DSCP | Remark IP Prec
--------+-------+---------------+------------+-------------+---------------
gi1 | 7 | enabled | disabled | disabled | disabled |
```

4.4.36.5 qos trust

Command:

```
qos trust

no qos trust
```

Default:

Default interface qos trust state is enabled.

Mode:

Interface Configuration

Usage Guide:

After QoS function is enabled in basic mode, the device also support per interface enable/disable the qos function. If the trust state on interface is enabled, all ingress packets of this interface will remap according to the trust type and the qos maps. Otherwise, all ingress packets will assign to queue 1.

Use "**qos trust**" to enable trust state on interface and use "**no qos trust**" to disable trust state on interface.

Example:

This example shows how to disable qos trust state on interface gi1.

```
Switch(config)# interface GigabitEthernet 1
Switch(config-if)# no qos trust
Switch(config-if)# end
Switch# show qos interface GigabitEthernet 1
Port | CoS | Trust State | Remark Cos | Remark DSCP | Remark IP Prec
--------+-------+---------------+------------+-------------+----------------
gi1 | 0 | disabled | disabled | disabled | disabled |
```

4.4.36.6 qos remark

Command:

```
qos remark (cos | dscp | precedence)

no qos remark (cos | dscp | precedence)
```

Parameter:

cos	Enable/Disable cos remarking.
dscp	Enable/Disable dscp remarking.
precedence	Enable/Disable precedence remarking.

Default:

Default CoS remarking is disabled.

Default DSCP remarking is disabled.

Default IP Precedence remarking is disabled.

Mode:

Interface Configuration

Usage Guide:

QoS remarking feature allow you to change priority information in packets based on egress queue. For example, you want all packets egress from interface fa1 queue 1 to remark the cos value to be 5 for next tier of device, you can enable the cos remarking feature on fa1 and configure the queue-cos map for queue 1 map to cos 5.

Use "**qos remark**" command to enable remarking feature on specific type. And use "**no qow remark**" command to disable it.

Example:

This example shows how to enable remarking features on interface gi1.

```
Switch(config)# interface GigabitEthernet 1
Switch(config-if)# qos remark cos
Switch(config-if)# qos remark dscp
Switch(config-if)# qos remark precedence
Switch(config-if)# end
Switch# show qos interface GigabitEthernet 1
Port | CoS | Trust State | Remark Cos | Remark DSCP | Remark IP Prec
--------+-------+--------------+------------+-------------+----------------
gi1 | 0 | enabled | enabled | enabled | enabled
```

4.4.36.7 show qos

Command:

```
show qos
```

Mode:

Privileged EXEC

Usage Guide:

Use "**show qos**" command to show qoe mode and trust type.

Example:

This example shows how to check current qos mode.

```
Switch# show qos
QoS Mode: basic
Basic trust: cos
```

4.4.36.8 show qos map

Command:

```
show qos map [(cos-queue | dscp-queue | precedence-queue | queue-cos |
queue-dscp | queue-precedence)]
```

Parameter:

cos-queue	Show CoS to queue map.
dscp-queue	Show DSCP to queue map
precedence-queue	Show IP Precedence to queue map.
queue-cos	Show queue to CoS map.
queue-dscp	Show queue to DSCP map.
queue-precedence	Show queue to IP Precedence map.

Mode:

Privileged EXEC

Usage Guide:

Use "**show qos map**" command to show all kinds of mapping for qos remapping and remarking features.

Example:

This example shows how to show all qos maps.

```
Switch(config)# show qos map
CoS to Queue mappings
COS 0 1 2 3 4 5 6 7
---------------------------------
Queue 2 1 3 4 5 6 7 8
DSCP to Queue mappings
d1: d2 0 1 2 3 4 5 6 7 8 9
---------------------------------------
0: 1 1 1 1 1 1 1 1 2 2
1: 2 2 2 2 2 2 3 3 3 3
2: 3 3 3 3 4 4 4 4 4 4
3: 4 4 5 5 5 5 5 5 5 5
4: 6 6 6 6 6 6 6 6 7 7
5: 7 7 7 7 7 7 8 8 8 8
6: 8 8 8 8
IP Precedence to Queue mappings
```

```
IP Precedence 0 1 2 3 4 5 6 7
----------------------------------------
Queue 1 2 3 4 5 6 7 8
Queue to CoS mappings
Queue 1 2 3 4 5 6 7 8
---------------------------------
CoS 1 0 2 3 4 5 6 7
Queue to DSCP mappings
Queue 1 2 3 4 5 6 7 8
---------------------------------
DSCP 0 8 16 24 32 40 48 56
Queue to IP Precedence mappings
Queue 1 2 3 4 5 6 7 8
---------------------------------
ipprec 0 1 2 3 4 5 6 7
```

4.4.36.9 show qos interface

Command:

```
show qos interface IF_PORTS
```

Parameter:

IF_PORTS	Select port to show qos configurations.

Mode:

Privileged EXEC

Usage Guide:

Use "**show qos interfaces**" command to show port default cos ,remarking state and remarking type state informations.

Example:

This example shows how to show qos configurations on interface gi1.

```
Switch# show qos interface GigabitEthernet 1
Port | CoS | Trust State | Remark Cos | Remark DSCP | Remark IP Prec
--------+-------+--------------+------------+-------------+---------------
gi1 | 7 | enabled | disabled | disabled | disabled |
```

4.4.37 radius

4.4.37.1 radius default-config key

Command:

```
radius default-config key <Key : line1-63>
```

radius Configure RADIUS

key Set RADIUS encryption key

<Key : line1-63> The shared key

Default:

None

Usage Guide:

To configure the **Key** of **Radius**

Example:

To configure the **Key** (123456789) of **Radius**

```
Switch# configure terminal
Switch (config)# radius radius key 123456789
```

4.4.37.2 radius retransmit

Command:

```
radius retransmit <Retries : 1-1000>
```

radius 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**

Example:

To configure the retransmitted time (5) of **Radius**

```
Switch# configure terminal
Switch (config)# radius retransmit 5
```

4.4.37.3 radius timeout

Command:

```
radius timeout <Seconds : 1-1000>
```

radius 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**

Example:

To configure the **timeout** (10) of **Radius**

```
Switch# configure terminal
Switch (config)# radius timeout 10
```

4.4.37.4 radius host

Command:

```
radius host <host_name> [ auth-port <auth_port> ] [ acct-port <acct_port> ]
[ timeout <seconds> ] [ retransmit <retries> ] [ key <key> ]
```

radius 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**

Example:

To configure the **Host** (below table) of **Radius**

Hostname	Auth Port	Acct Port	Timeout	Retransmit	Key
planet.com.tw	1812	1813	10	6	123456789

```
Switch# configure terminal
Switch (config)# radius host planet.com.tw timeout 10 retransmit 6 key 123456789
```

4.4.38 snmp

Command:

```
snmp

no snmp
```

Mode:

Global Configuration

Usage Guide:

'no snmp' will disable snmp.

'snmp' will enable snmp.

The configure can use show snmp

Example:

The following example specifies that set global snmp test

```
Switch(config)# snmp
Switch# show snmp
SNMP is enabled
```

4.4.38.1 snmp community

Command:

```
snmp community NAME [view NAME] (ro|rw)

snmp community NAME group NAME

no snmp community NAME
```

Parameter:

community NAME	Snmp v1/v2 community name
group NAME	Snmp community specifies access group name for advance mode
[view NAME]	Snmp community specifies view for basic mode
(ro|rw)	Snmp community read or readwrite attribute for basic mode

Mode:

Global Configuration

Usage Guide:

The community support basic & advace mode.

Basic: community assigned view and read/write right.

Advace: community assigned access group.

The community specifies the group witch must exist.

The community specifies the view witch must exist. It will generate the no exist v1 or v2 access group for community.

The configure can use ‘show snmp community’ to check

Example:

The following example specifies that configure community test.

```
Switch(config)# snmp communit public rw
Switch(config)# snmp communit test1 view all ro
Switch(config)# snmp group group2 version 2c noauth read-view all write-view ""
Switch(config)# snmp community test2 group group2
Switch# show snmp comunity
Commnunity Name Group Name View
Access
-------------------- ------------------------------ ------------------------------ ------------
public all rw
test2 group2
test1 all ro
```

4.4.38.2 snmp engineID

Command:

```
snmp engineid (default | ENGINEID)

snmp engineid remote (A.B.C.D|X:X::X:X) ENGINEID

no snmp engineid remote (A.B.C.D|X:X::X:X)
```

Parameter:

(default |	Default is MAC address.
ENGINEID)	ENGINEID is 10~64 hex characters
(A.B.C.D|X:X::X:X)	Host ipv4/ipv6 address

Mode:

Global Configuration

Usage Guide:

Default engineid is DUT MAC address.

The configure can use ‘show snmp engineid’

Example:

The following example specifies that set remote engine id test.

```
Switch(config)# snmp engineid remote 192.168.1.100 112233445566
Switch# show snmp engineid
Local SNMPV3 Engine id: DEADBEEF0114
IP address Remote SNMP engineID
---------- ----------
192.168.1.100 112233445566
```

4.4.38.3 snmp access group

Command:

```
snmp group NAME version (1 |2c |3) (noauth | auth | priv) read-view NAME write-view
NAME [notify-view NAME]

no snmp group NAME security-mode version (1 |2c | 3)
```

Parameter:

NAME	Access group name
(1 |2c |3)	Access model for snmp v1/v2c/v3
(noauth | auth |	Noauth for snmp v1/v2c/v3
priv)	Auth and priv group for snmp v3
read-view NAME	Access group specifies read view
write-view NAME	Access group specifies write view
notify-view NAME	Access group specifies notify view

Mode:

Global Configuration

Usage Guide:

The group version 1 and 2c only for snmp community use. And version 3 group only for snmp user use.

When group version is 1 or 2c , can only use noauth

The read/write/notify view must exist.

The configure use ‘show snmp group’ to check

Example:

The following example specifies that set snmp group test.

```
Switch(config)#snmp group group1 version 1 noauth read-view all write-viw “”
Switch(config)#snmp group group2 version 2c noauth read-view all write-view all
Switch(config)# snmp group group3 version 3 auth read-view all write-view all
Switch# show snmp group
Group Name Model Level ReadView WriteView NotifyView
----------------------- ------ ------ ------------- -------------- -------------
group1 v1 noauth all --- ---
group2 v2c noauth all all ---
group3 v3 auth all all ---
```

4.4.38.4 snmp host

Command:

```
snmp host (A.B.C.D|X:X::X:X|HOSTNAME) [(traps | informs)] [version (1|2c)] NAME
[udp-port <1-65535>] [timeout <1-300>] [retries <1-255>]

snmp host (A.B.C.D|X:X::X:X|HOSTNAME) [(traps | informs)] version 3 [(auth |
noauth | priv)] NAME [udp-port <1-65535>] [timeout <1-300>] [retries <1-255>]

no snmp host (A.B.C.D|X:X::X:X|HOSTNAME) [(traps | informs)] [version (1|2c|3)]
```

Parameter:

(A.B.C.D|X:X::X:X|HOSTNAME)	Snmp trap host ipv4/ipv6 address or host name
[(traps | informs)]	Snmp notification type is traps or informs
[version (1|2c|3)]	V1/v2c/v3 traps
[(auth | noauth | priv)]	V3 trap for auth/noauth/priv
NAME	Snmp community name or user name
[udp-port <1-65535>]	The manage receive trap udp port num
[timeout <1-300>]	The notify type is inform timeout value
[retries <1-255>]	The notify type is inform retries

Mode:

Global Configuration

Usage Guide:

This command can’t configure version 1 inform

When use traps, this command can’t configure udp-port and retries.

The host use NAME witch is snmp community or user NAME must exist.

The host use host security level must match the snmp user security level

The configure can use ‘show snmp host’ to check

Example:

The following example specifies that snmp community configure test.

```
Switch(config)# snmp community public ro
Switch(config)# snmp community private rw
Switch(config)# snmp group group3 version 3 auth read-view all write-view all
Switch(config)# snmp user user1 group3 auth md5 12345678
Switch(config)# snmp host 192.168.1.100 version 2c public
Switch(config)# snmp host 192.168.1.100 informs version 2c private
Switch(config)# snmp host 192.168.1.100 version 3 auth user1
Switch# show snmp host
Server Community Name Notification Version Notification Type UDP Port Retries Timeout
---------------------------------------------------------------------------------------------------------------
192.168.1.100 public v2c trap 162 -- --
192.168.1.100 private v2c inform 200 3 10
192.168.1.100 user1 v3 trap 162 -- --
```

4.4.38.5 snmp trap

Command:

```
[no] snmp trap (auth|linkUpDown|warm-start|cold-start|port-security)
```

Default:

snmp trap auth

snmp trap linkUpDown

snmp trap warm-start

snmp trap cold-start

snmp trap port-security

Mode:

Global Configuration

Usage Guide:

'no snmp trap auth' snmp will not send auth failure trap.

'no snmp trap linkUpDown' snmp will not send linkup and link down trap.

'no snmp trap warm-start snmp will not send warm start trap.

'no snmp trap cold-start' snmp will not send cold start trap.

'no snmp trap port-security' snmp will not send port-security trap.

The configure can use show snmp trap.

Example:

The following example specifies that set trap auth disable test.

```
Switch(config)#no snmp auth
Switch# show snmp trap
SNMP auth failed trap : Disable
SNMP linkUpDown trap : Enable
SNMP warm-start trap : Enable
SNMP cold-start trap : Enable
SNMP port security trap: Enable
```

4.4.38.6 snmp user

Command:

```
snmp user USERNAME GROUPNAME [auth (md5|sha) AUTHPASSWD]

snmp user USERNAME GROUPNAME auth (md5|sha) AUTHPASSWD priv
PRIVPASSWD

no snmp user NAME
```

Parameter:

USERNAME	Snmp user name
GROUPNAME	Snmp user specifies group
[auth (md5|sha)]	Snmp user auth protocol
AUTHPASSWD	Snmp user auth password
PRIVPASSWD	Snmp user priv password

Mode:

Global Configuration

Usage Guide:

The group version must be v3 , and the security level must match the snmp user configure.

AUTHPASSWD and PRIVPASSWD min length is 8.max length is 32 and 64

The configure can use ‘show snmp user’ to check

Example:

The following example specifies that set auth snmp user test.

```
Switch(config)# snmp group group3 version 3 auth read-view all write-view all
Switch(config)# snmp user user1 group3 auth md5 12345678
Switch# show snmp user
Username: user1
Password: ********
Privilege Mode: rw
Access GroupName: group3
Authentication Protocol: md5
Encryption Protocol: none
Access SecLevel: auth
```

4.4.38.7 snmp view

Command:

```
snmp view NAME subtree OID oid-mask (all | MASK) viewtype (included | excluded)

no snmp view NAME subtree (all |OID)
```

Parameter:

NAME	View Name
OID	View subtree OID
(all | MASK)	View subtree OID mask. All: all mask bit is '1'
(included | excluded)	View subtree is accessed or not allowed accesse
(all |OID)	Delete the View name all subtree OID or specifies OID

Default:

Default View is "all" and subtree is .1 the type is include.

Mode:

Global Configuration

Usage Guide:

The default view can't delete and create by user

The min view is sysUpTime.

The exclude view must in range of include view.otherwise, it is not invalid.

The configure use 'show snmp view' to check

Example:

The following example specifies that set view systemView test.

```
Switch(config)# snmp view systemView subtree 1.3.6.1.2.1.1 oid-mask all viewtype
included
Switch# show snmp view
View Name Subtree OID OID Mask View Type
---------- ---------- ---------- ----------
all .1 all included
systemView .1.3.6.1.2.1.1 all included
```

4.4.38.8 show snmp

Command:

```
show snmp
```

Mode:

privileged mode

Usage Guide:

This command will snmp status.

Example:

The following example specifies that show snmp test

```
Switch# show snmp
```

4.4.38.9 show snmp trap

Command:

```
show snmp trap
```

Mode:

privileged mode

Usage Guide:

This command will display snmp trap class auth/linkupdown/cold-start/warm-start/port-security/. Status.

Example:

The following example specifies that display snmp trap test

```
Switch# show snmp trap
```

4.4.38.10 show snmp view

Command:

```
show snmp view
```

Mode:

privileged mode

Usage Guide:

This command will display the snmp view entry.

Example:

The following example specifies that display snmp view test.

```
Switch# show snmp view
```

4.4.38.11 show snmp group

Command:

```
show snmp group
```

Mode:

privileged mode

Usage Guide:

This command will display the snmp group

Example:

The following example specifies that display snmp group test.

```
Switch# show snmp group
```

4.4.38.12 show snmp community

Command:

```
show snmp community
```

Mode:

privileged mode

Usage Guide:

This command will display the snmp community entry.

Example:

The following example specifies that display snmp community test

```
Switch# show snmp community
```

4.4.38.13 show snmp host

Command:

```
show snmp host
```

Mode:

privileged mode

Usage Guide:

This command will display the snmp host entry.

Example:

The following example specifies that display snmp host test.

```
Switch# show snmp host
```

4.4.38.14 show snmp user

Command:

```
show snmp user
```

Mode:

privileged mode

Usage Guide:

This command will display the snmp user entry.

Example:

The following example specifies that display snmp user test.

```
Switch# show snmp user
```

4.4.38.15 show snmp engineid

Command:

```
show snmp engineid
```

Mode:

privileged mode

Usage Guide:

This command will display the snmp local/remote engine id

Example:

The following example specifies that display snmp local/remote engine id test.

```
Switch# show snmp engineid
```

4.4.39 sntp

Command:

```
sntp host
```

Default:

Default is disabled

Mode:

sntp Simple Network Time Protocol

host Configure SNTP server address.

HOSTNAME Hostname String

Usage Guide:

The “sntp” command is Simple Network Time Protocol, type the IP address or domain name of the SNTP server.

Example:

This example shows how to enable SNTP and type the IP address or domain name of the SNTP server.

```
switch(config)# sntp host 192.168.1.20
```

4.4.39.1 spanning-tree

Command:

```
spanning-tree

no spanning-tree
```

Mode:

Global Configuration

Usage Guide:

Enable or Disable Spanning-Tree Protocol. Using `spanning-tree` command to enable STP or `no spanning-tree` command to disable STP

Example:

The following example sets the STP status to enable and disable.

```
Switch# configure
Switch(config)# spanning-tree
Switch(config)# exit
Switch# show spanning-tree
Spanning tree enabled mode RSTP
Default port cost method: long
Root ID Priority 32768
Address 00:03:4F:28:55:00
This switch is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Number of topology changes 1 last change occurred 01:49:43 ago
Times: hold 0, topology change 0, notification 0
hello 2, max age 20, forward delay 15
Interfaces
Name State Prio.Nbr Cost Sts Role EdgePort Type
--------- -------- -------- -------- ------ ---- -------- -----------------
gi1 enabled 128.1 20000 Frw Desg No P2P
(RSTP)
Switch#
```

4.4.39.2 spanning-tree bpdu

Command:

```
spanning-tree bpdu ( filtering | flooding )
```

Parameter:

(filtering | flooding)	Specify the forwarding action of BPDU to filtering or flooding.

Default:

spanning-tree bpdu flooding

Mode:

Global Configuration

Usage Guide:

Configure the BPDU forwarding action when STP is disabled.

Example:

This example sets the BPDU forwarding action to filtering.

```
Switch# configure
Switch(config)# no spanning-tree
Switch(config)# spanning-tree bpdu filtering
Switch(config)# exit
Switch# show spanning-tree
Spanning tree disabled (BPDU filtering) mode RSTP
Default port cost method: long
Switch#
```

4.4.39.3 spanning-tree forward-delay

Command:

```
spanning-tree forward-delay <4-30>
```

Parameter:

<4-30> Specify the forward-delay interval (second).

Default:

spanning-tree forward-delay = 15

Mode:

Global Configuration

Usage Guide:

This command configures the BPDU forward-delay interval (second). The configuration could be shown by “show spanning-tree” command.

Example:

This example sets the BPDU forward-delay to 30 sec.

```
Switch# configure
Switch(config)# spanning-tree forward-delay 30
```

4.4.39.4 spanning-tree hello-time

Command:

```
spanning-tree hello-time <1-10>
```

Parameter:

<1-10> Specify the hello-time interval (second).

Default:

spanning-tree hello-time = 2

Mode:

Global Configuration

Usage Guide:

This command configures the BPDU hello-time interval (second). The configuration could be shown by “show spanning-tree” command.

Example:

This example sets the BPDU hello-time to 5 sec.

```
Switch# configure
Switch(config)# spanning-tree hello-time 5
Switch(config)# exit
Switch# show spanning-tree
Spanning tree enabled mode RSTP
Default port cost method: long
Root ID Priority 16384
Address 00:30:4F:28:55:00
This switch is the root
Hello Time 5 sec Max Age 20 sec Forward Delay 15 sec
Number of topology changes 2 last change occurred 00:00:01 ago
Times: hold 0, topology change 0, notification 0
hello 5, max age 20, forward delay 15
Interfaces
Name State Prio.Nbr Cost Sts Role EdgePort Type
--------- -------- -------- -------- ------ ---- -------- -----------------
gi1 enabled 128.1 20000 Frw Desg No P2P (RSTP)
Switch#
```

4.4.39.5 spanning-tree max-hops

Command:

```
spanning-tree max-hops <1-40>
```

Parameter:

<1-40> Specify the max-hops value

Default:

spanning-tree max-hops = 20

Mode:

Global Configuration

Usage Guide:

This command configures the maximum hops value for MSTP. The configuration could be shown by “show spanning-tree” command.

Example:

This example sets the max-hops to 15.

```
Switch# configure
Switch(config)# spanning-tree max-hops 15
```

4.4.39.6 spanning-tree maximum-age

Command:

```
spanning-tree maximum-age <6-40>
```

Parameter:

<6-40>	Specify the maximum-age time (second).

Default:

spanning-tree maximum-age = 20

Mode:

Global Configuration

Usage Guide:

This command configures the BPDU maximum-age interval (second). The configuration could be shown by “show spanning-tree” command.

Example:

This example sets the BPDU maximum-age to 10 sec.

```
Switch# configure
Switch(config)# spanning-tree maximum-age 10
```

4.4.39.7 spanning-tree mode

Command:

```
spanning-tree mode ( stp | rstp | mstp )
```

Parameter:

stp	Specify the mode to Spanning Tree Protocol
rstp	Specify the mode to Rapid Spanning Tree Protocol
mstp	Specify the mode to Multiple Spanning Tree Protocol.

Default:

spanning-tree mode stp

Mode:

Global Configuration

Usage Guide:

Configure the force-version of Spanning-Tree Protocol. The configuration could be shown by “show spanning-tree” command.

Example:

This example sets STP mode to STP (Classic Spanning Tree Protocol).

```
Switch# configure
Switch(config)# spanning-tree mode stp
Switch(config)# exit
Switch# show spanning-tree
Spanning tree enabled mode STP
Default port cost method: long
Root ID Priority 32768
Address 00:30:4F:28:55:00
This switch is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Number of topology changes 1 last change occurred 00:05:13 ago
Times: hold 0, topology change 0, notification 0
hello 2, max age 20, forward delay 15
Interfaces
Name State Prio.Nbr Cost Sts Role EdgePort Type
--------- -------- -------- -------- ------ ---- -------- -----------------
gi1 enabled 128.1 200000 Dscd Desg No P2P (STP)
Switch#
```

4.4.39.8 spanning-tree priority

Command:

```
spanning-tree priority <0-61440>
```

Parameter:

<0-61440> Specify the bridge priority, it must multiples of 4096

Default:

spanning-tree priority 32768

Mode:

Global Configuration

Usage Guide:

This command configures the bridge priority. The configuration could be shown by “show spanning-tree” command.

Example:

This example sets the bridge priority to 16384.

```
Switch# configure
Switch(config)# spanning-tree priority 16384
Switch(config)# exit
Switch# show spanning-tree
Spanning tree enabled mode RSTP
Default port cost method: long
Root ID Priority 16384
Address 00:30:4F:28:55:00
This switch is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Number of topology changes 2 last change occurred 00:03:37 ago
Times: hold 0, topology change 0, notification 0
hello 2, max age 20, forward delay 15
Interfaces
Name State Prio.Nbr Cost Sts Role EdgePort Type
--------- -------- -------- -------- ------ ---- -------- -----------------
gi1 enabled 128.1 20000 Frw Desg No P2P (RSTP)
Switch#
```

4.4.39.9 spanning-tree tx-hold-count

Command:

```
spanning-tree tx-hold-count <1-10>
```

Parameter:

<1-10> Specify the tx-hold-count value.

Default:

spanning-tree tx-hold-count = 6

Mode:

Global Configuration

Usage Guide:

This command configures the BPDU tx-hold-count.

Example:

This example sets the BPDU tx hold count to 10

```
Switch# configure
Switch(config)# spanning-tree tx-hold-count 10
```

4.4.39.10 spanning-tree pathcost method

Command:

```
spanning-tree pathcost method ( long | short )
```

Parameter:

long	Specify the type of pathcost value to 32 bits (long).
short	Specify the type of pathcost value to 16 bits (short).

Default:

spanning-tree pathcost method = long

Mode:

Global Configuration

Usage Guide:

This command configures the BPDU pathcost value type to 16bits (short) or 32 bits (long). The configuration could be shown by “show spanning-tree” command.

Example:

This example sets the type of pathcost value to short.

```
Switch# configure
Switch(config)# spanning-tree pathcost method short
```

4.4.39.11 spanning-tree port-priority

Command:

```
spanning-tree port-priority <0-240>
```

Parameter:

<0-240> Specify the STP port priority. It must multiples of 16.

Default:

spanning-tree port-priority = 128

Mode:

Port Configuration

Usage Guide:

This command per port configures the STP port priority. The configuration could be shown by “show spanning-tree interface” command.

Example:

This example sets port gi1 STP port priority to 64.

```
Switch# configure
Switch(config)# interface gi1
Switch(config-if)# spanning-tree port-priority 64
```

4.4.39.12 spanning-tree cost

Command:

```
spanning-tree cost <0-200000000>
```

Parameter:

<0-200000000> Specify the STP port cost. In short pathcost method, the range is from 0 to 65535. (0 = Auto)

Default:

spanning-tree cost = 0

Mode:

Port Configuration

Usage Guide:

This command per port configures the STP port cost. The configuration could be shown by “show spanning-tree interface” command.

Example:

This example sets port gi1 STP port cost to 100.

```
Switch# configure
Switch(config)# interface gi1
Switch(config-if)# spanning-tree cost 100
```

4.4.39.13 spanning-tree edge

Command:

```
spanning-tree edge

no spanning-tree edge
```

Mode:

Port Configuration

Usage Guide:

This command per port configures the STP edge port function. The configuration could be shown by “show spanning-tree interface” command.

Example:

This example sets port gi1 STP edge port to enable.

```
Switch# configure
Switch(config)# interface gi1
Switch(config-if)# spanning-tree edge
```

4.4.39.14 spanning-tree bpdu-filter

Command:

```
spanning-tree bpdu-filter

no spanning-tree bpdu-filter
```

Mode:

Port Configuration

Usage Guide:

This command per port configures the STP BPDU Filter status. The configuration could be shown by “show spanning-tree interface” command.

Example:

This example sets port gi1 STP BPDU Filter status to enable.

```
Switch# configure
Switch(config)# interface gi1
Switch(config-if)# spanning-tree bpdu-filter
```

4.4.39.15 spanning-tree bpdu-guard

Command:

```
spanning-tree bpdu-guard

no spanning-tree bpdu-guard
```

Mode:

Port Configuration

Usage Guide:

This command per port configures the STP BPDU Guard status. The configuration could be shown by “show spanning-tree interface” command.

Example:

This example sets port gi1 STP BPDU Guard status to enable.

```
Switch# configure
Switch(config)# interface gi1
Switch(config-if)# spanning-tree bpdu-guard
```

4.4.39.16 spanning-tree link-type

Command:

```
spanning-tree link-type ( point-to-point | shared )

no spanning-tree link-type
```

Parameter:

(point-to-point | shared)	Specify the STP port link-type to Point-to-Point or Shared medium.

Mode:

Port Configuration

Usage Guide:

This command per port configures the STP port link-type. The configuration could be shown by “show spanning-tree interface” command.

Example:

This example sets port gi1 STP port link-type to be Shared.

```
Switch# configure
Switch(config)# interface gi1
Switch(config-if)# spanning-tree link-type shared
```

4.4.39.17 spanning-tree mst configuration

Command:

```
spanning-tree mst configuration

    name NAME

    revision <0-65535>

instance <0-15> vlan [ VLAN-LIST ]
```

Parameter:

NAME	Specify the MSTP bridge name of MST Configuration ID. (Max. 32 chars)
<0-65535>	Specify the MSTP revision number of MST Configuration ID.
<0-15>	Specify the MST instance ID.
VLAN-LIST	Specify the VLAN list to be mapped to this specified instance.

Default:

name (Switch's MAC address)

revision 0

instance 0 vlan all

Mode:

Global Configuration

Usage Guide:

This command configures the MSTP Configuration ID. The configuration could be shown by "show spanning-tree mst configuration" command.

Example:

This example sets MSTP Configuration ID, name to `Region1`, revision to `123` and VLAN 100 mapped to instance 1.

```
Switch# configure
Switch(config)# spanning-tree mst configuration
Switch(config-mst)# name Region1
Switch(config-mst)# revision 123
Switch(config-mst)# instance 1 vlan 100
Switch(config-mst)# exit
Switch(config)# exit
Switch# show spanning-tree mst configuration
Name [Region1]
Revision 123 Instances configured 2
Instance Vlans mapped
-------- ---------------------------------------------------------------------
0 1-99,101-4094
1 100
---------------------------------------------------------------------------
```

4.4.39.18 spanning-tree mst priority

Command:

```
spanning-tree mst <0-15> priority <0-61440>
```

Parameter:

<0-15>	Specify the MST instance ID to configure.
<0-61440>	Specify the bridge priority, it must multiples of 4096.

Default:

spanning-tree mst = 0 ; priority = 32768

Mode:

Global Configuration

Usage Guide:

This command configures the MST instance priority. The configuration could be shown by “show spanning-tree mst” command.

Example:

This example sets the priority of MST instance 1 to 4096.

```
Switch# configure
Switch(config)# spanning-tree mode mstp
Switch(config)# spanning-tree mst 1 priority 4096
```

4.4.39.19 spanning-tree mst cost

Command:

```
spanning-tree mst <0-15> cost <0-200000000>
```

Parameter:

<0-15>	Specify the MST instance ID to configure.
<0-200000000>	Specify the STP port cost. In short pathcost method, the range is from 0 to 65535. (0 = Auto)

Default:

spanning-tree mst = 0 ; cost = 0

Mode:

Port Configuration

Usage Guide:

This command configures the MSTP port cost for this MST instance. The configuration could be shown by “show spanning-tree mst interface” command.

Example:

This example sets port gi1 STP pathcost of MST instance 1 to 100.

```
Switch# configure
Switch(config)# interface gi1
Switch(config-if)# spanning-tree mst 1 cost 100
```

4.4.39.20 spanning-tree mst port-priority

Command:

```
spanning-tree mst <0-15> priority <0-240>
```

Parameter:

<0-15>	Specify the MST instance ID to configure.
<0-240>	Specify the STP port priority. It must multiples of 16.

Default:

spanning-tree mst = 0; port-priority = 128

Mode:

Port Configuration

Usage Guide:

This command configures the MST port priority. The configuration could be shown by “show spanning-tree mst interface” command.

Example:

This example sets port gi1 MST port priority of MST instance 0 to 32.

```
Switch# configure
Switch(config)# interface gi1
Switch(config-if)# spanning-tree mst 1 cost 0
Switch(config-if)# exit
Switch(config)# interface gi1
Switch(config-if)# spanning-tree mst 1 port-priority 32
```

4.4.40 Storm-control

4.4.40.1 storm-control ifg

Command:

```
storm-control ifg (include | exclude)
```

Parameter:

include	Include preamble & IFG (20 bytes) when count ingress storm control rate.
exclude	Exclude preamble & IFG (20 bytes) when count ingress storm control rate

Default:

Default storm control inter frame gap is excluded.

Mode:

Global Configuration

Usage Guide:

Storm control mechanism will try to calculate ingress packets is exceed configured rate or not and do corresponding action. This command allows you to decide to include/exclude the preamble and inter frame gap into the calculating or not.

Example:

This example shows how to configure storm control rate unit as pps.

```
Switch(config)# storm-control ifg include
```

This example shows how to show storm control global configuration.

```
Switch# show storm-control
Storm control preamble and IFG: Included
Storm control unit: pps
.....
```

4.4.40.2 Storm-control unit

Command:

```
storm-control unit (bps | pps)
```

Parameter:

bps	Storm control rate calculates by octet-based
pps	Storm control rate calculates by packet-based

Default:

Default storm control unit is bps.

Mode:

Global Configuration

Usage Guide:

Storm control mechanism will try to calculate ingress packets is exceed configured rate or not and do corresponding action. This command allows you to change the unit of calculating method

Example:

This example shows how to configure storm control rate unit as pps.

```
Switch(config)# storm-control unit pps
```

This example shows how to show storm control global configuration

```
Switch# show storm-control
Storm control preamble and IFG: Excluded
Storm control unit: pps
.....
```

4.4.40.3 storm-control

Command:

```
storm-control

no storm-control

storm-control (broadcast | unknown-unicast | unknown-multicast)

no storm-control (broadcast | unknown-unicast | unknown-multicast)

storm-control (broadcast | unknown-unicast | unknown-multicast) level <0-1000000>

no storm-control (broadcast | unknown-unicast | unknown-multicast) level
```

Parameter:

broadcast	Select broadcast storm control type
unknown-unicast	Select unknown unicast storm control type
unknown-multicast	Select unknown multicast storm control type
level <*0-1000000*>	Specify the storm control rate for selected type

Default:

Default broadcast storm control is disabled.

Default unknown multicast storm control is disabled

Default unknown unicast storm control is disabled

Default broadcast storm control rate is 10000.

Default unknown multicast storm control rate is 10000.

Default unknown unicast storm control rate is 10000.

Mode:

Interface Configuration

Usage Guide:

Storm control function is able to enable/disable on each single port. Use the "**storm control**" command to enable storm control feature on the selected ports. And use "**no storm control**" command to disable storm control feature. Not only port is able to enable/disable on the port. Each storm control type is also able to enable/disable on each single port. Use the "**storm-control (broadcast | unknown-unicast | unknown-multicast)**" command to enable the storm control type you need and use no form to disable it.

Each control type is allowed to have different storm control rate. Use "**storm-control (broadcast | unknown-unicast | unknown-multicast) level**" command to configure it and use no form to restore to default value.

Example:

This example shows how to enable storm control on interface gi1.

```
Switch(config)# interface gi1
Switch(config-if)# storm-control
```

This example shows how to enable broadcast storm control and configure broadcast storm control rate to 200.

```
Switch(config)# interface gi1
Switch(config-if)# storm-control broadcast
Switch(config-if)# storm-control broadcast level 200
```

This example shows how to show current storm control configuration on interface gi1

```
Switch# show storm-control interfaces gi1
Port | State | Broadcast | Unkown-Multicast | Unknown-Unicast | Action
| | pps | pps | pps |
---------+-------+------------+--------------------+-----------------|-----------
gi1 enable 200 Off( 10000) Off( 10000) Shutdown
```

4.4.40.4 storm-control action

Command:

```
storm-control action (drop | shutdown)

no storm-control action
```

Parameter:

(drop | shutdown) Storm-control action for drop|flood|router-port

Default:

Default storm control action is drop.

Mode:

Interface Configuration

Usage Guide:

The storm control mechanism allows you to drop packets which exceed storm control rate or just shutdown port.

Use no form to restore to default action.

Example:

This example shows how to configure storm control action to shutdown port on interface gi1.

```
Switch(config)# interface gi1
Switch(config-if)# storm-control action shutdown
```

This example shows how to show storm control action on interface gi1.

```
Switch# show storm-control interfaces gi1
Port | State | Broadcast | Unkown-Multicast | Unknown-Unicast | Action
| | pps | pps | pps |
---------+-------+------------+--------------------+-----------------|-----------
gi1 disable Off( 10000) Off( 10000) Off( 10000) Shutdown
```

4.4.40.5 show storm-control

Command:

```
show storm-control

show storm-control interface IF_PORTS
```

Parameter:

IF_PORTS	Specify port to show.

Mode:

Privileged EXEC

Usage Guide:

Use "**show storm-control**" command to show all storm control related configurations including global configuration and per port configurations.

Use "**show storm-control interface**" command to show selected port storm control configurations.

Example:

This example shows how to show storm control global configuration.

```
Switch# show storm-control
Storm control preamble and IFG: Excluded
Storm control unit: pps
.....
```

This example shows how to show current storm control configuration on interface gi1

```
Switch# show storm-control interfaces gi1
Port | State | Broadcast | Unkown-Multicast | Unknown-Unicast | Action
| | pps | pps | pps |
---------+-------+------------+--------------------+-----------------|-----------
fa1 enable 200 Off( 10000) Off( 10000) Shutdown
```

4.4.41 Rmon

4.4.41.1 Rmon alarm

Command:

```
rmon alarm <1-65535> interface IF_PORT (drop-events|octets|pkts|broadcast-pkts|
multicast-pkts|crc-align-errors|undersize-pkts|oversize-pkts|fragments|jabbers|collisions
|pkts64octets|pkts65to127octets|pkts128to255octets|pkts256to511octets|pkts512to1023octets
|pkts1024to1518octets) <1-2147483647> (absolute|delta) rising <0-2147483647> <0-65535>
falling <0-2147483647> <0-65535> startup (rising|rising-falling|falling) [owner NAME]

no rmon alarm <1-65535>
```

Parameter:

<1-65535>	Specify alarm index to create or modify
IF_PORT	Specify the interface to sample
(drop-events|octets|pkts|broadcast-pkts| multicast-pkts|crc-align-errors|undersize-pkts|oversize-pkts|fragments|jabbers|collisions|pkts64octets|pkts65to127octets|pkts128to255octets|pkts256to511octets|pkts512to1023octets|pkts1024to1518octets)	Specify a mib object to sample
<1-2147483647>	Specify the time in seconds that the alarm monitors the MIB variable
(absolute|delta)	Specify absolute to compare sample counter absolutely. Specify delta to compare delta counter between samples
<0-2147483647>	Specify a number which the alarm trigger rising event
<0-65535>	Specify event index when the rising threshold exceeds.
<0-2147483647>	Specify a number which the alarm trigger falling event
<0-65535>	Specify event index when the falling threshold exceeds.

(rising|rising-falling |falling)	Specify only to how rising or falling startup event. Or show either rising or falling startup event.
[owner NAME]	(Optional) Specify owner of alarm.

Mode:

Global Configuration

Usage Guide:

Use the **rmon event** command to add or modify a RMON event entry. Before add alarm entry, at least one event entry must be added. Use the **no** form of this command to delete.

Example:

The example shows how to add RMON alarm entry that sample interface fa1 packets delta count every 300 seconds. Trigger event index 1 if over than rising threshold 10000, trigger event index 2 if lower than falling threshold.

You can verify settings by the following **show rmon alarm** command.

```
switch(config)# rmon event 1 log
switch(config)# rmon event 2 log
switch(config)# show rmon event all
Rmon Event Index : 1
Rmon Event Type : Log
Rmon Event Community :
Rmon Event Description :
Rmon Event Last Sent :
Rmon Event Owner :
Rmon Event Index : 2
Rmon Event Type : Log
Rmon Event Community :
Rmon Event Description :
Rmon Event Last Sent :
Rmon Event Owner :
Switch(config)# rmon alarm 1 interface gi1 pkts 300 delta rising 10000 1 falling 100 1
startup rising-falling owner admin
Rmon Alarm Index : 1
Rmon Alarm Sample Interval : 300
Rmon Alarm Sample Interface : gi1
Rmon Alarm Sample Variable : Pkts
Rmon Alarm Sample Type : delta
Rmon Alarm Type : Rising or Falling
Rmon Alarm Rising Threshold : 10000
Rmon Alarm Rising Event : 1
Rmon Alarm Falling Threshold : 100
Rmon Alarm Falling Event : 1
Rmon Alarm Owner : admin
```

4.4.41.2 Rmon event

Command:

```
rmon event <1-65535> [log] [trap COMMUNITY] [description DESCRIPTION] [owner
NAME]

no rmon event <1-65535>
```

Parameter:

<1-65535>	Specify event index to create or modify
[log]	(Optional)Specify to show syslog.
[trap COMMUNITY]	(Optional)Specify SNMP community to show SNMP trap.
[description DESCRIPTION]	(Optional)Specify description of event
[owner NAME]	(Optional)Specify owner of event.

Mode:

Global Configuration

Usage Guide:

Use the **rmon alarm** command to add or modify a RMON alarm entry. Use the **no** form of this command to delete.

Example:

The example shows how to add RMON event entry with log and trap action and then modify it action to log only. You can verify settings by the following **show rmon event** command.

```
switch(config)# rmon event 1 log trap public description test owner admin
switch(config)# show rmon event 1
Rmon Event Index : 1
Rmon Event Type : Log and Trap
Rmon Event Community : public
Rmon Event Description : test
Rmon Event Last Sent :
Rmon Event Owner : admin
switch(config)# rmon event 1 log description test owner admin
switch(config)# show rmon event 1
Rmon Event Index : 1
Rmon Event Type : Log
Rmon Event Community : public
Rmon Event Description : test
Rmon Event Last Sent :
Rmon Event Owner : admin
```

4.4.41.3 rmon history

Command:

```
rmon history <1-65535> interface IF_PORT [buckets <1-65535>] [interval <1-3600>]
[owner NAME]

no rmon history <1-65535>
```

Parameter:

<1-65535>	Specify history index to create or modify.
IF_PORT	Specify the interface to sample
[bucket <1-65535>]	(Optional) Specify the maximum number of buckets.
[interval <1-3600>]	(Optional) Specify time interval for each sample
[owner NAME]	(Optional)Specify owner of history

Mode:

Global Configuration

Usage Guide:

Use the **rmon history** command to add or modify a RMON history entry. Use the **no** form of this command to delete

Example:

The example shows how to add RMON history entry that monitor interface gi1 every 60 seconds and then modify it to monitor every 30 seconds. You can verify settings by the following **show rmon history** command.

```
switch(config)# rmon history 1 interface gi1 interval 60 owner admin
switch(config)# show rmon history 1
Rmon History Index : 1
Rmon Collection Interface: gi1
Rmon History Bucket : 50
Rmon history Interval : 60
Rmon History Owner : admin
switch(config)# rmon history 1 interface gi1 interval 30 owner admin
switch(config)# show rmon history 1
Rmon History Index : 1
Rmon Collection Interface: gi1
Rmon History Bucket : 50
Rmon history Interval : 30
Rmon History Owner : admin
```

4.4.41.4 clear rmon interfaces statistics

Command:

```
clear rmon interfaces IF_PORTS statistics
```

Parameter:

IF_PORTS specifies ports to clear

Mode:

Global Configuration

Usage Guide:

Use the **clear rmon interfaces statistics** command to clear RMON etherStat statistics those are recorded on interface.

Example:

The example shows how to clear RMON etherStat statistics on interface gi1. You can verify settings by the following **show rmon interface statistics** command.

```
switch# clear rmon interfaces gi1 statistics
switch# show rmon interfaces gi1 statistics
==== Port gi1 ============================
etherStatsDropEvents : 0
etherStatsOctets : 0
etherStatsPkts : 0
etherStatsBroadcastPkts : 0
etherStatsMulticastPkts : 0
etherStatsCRCAlignErrors : 0
etherStatsUnderSizePkts : 0
etherStatsOverSizePkts : 0
etherStatsFragments : 0
etherStatsJabbers : 0
etherStatsCollisions : 0
etherStatsPkts64Octets : 0
etherStatsPkts65to127Octets : 0
etherStatsPkts128to255Octets : 0
etherStatsPkts256to511Octets : 0
etherStatsPkts512to1023Octets : 0
etherStatsPkts1024to1518Octets : 0
```

4.4.41.5 show rmon event

Command:

```
show rmon event (<1-65535> | all)
```

Parameter:

<1-65535>	specifies event index to show
all	Show all existed event

Mode:

Global Configuration

Usage Guide:

Use the **show rmon event** command to show existed RMON event entry.

Example:

The example shows how to show rmon event entry.

```
switch(config)# rmon event 1 log trap public description test owner admin
switch(config)# show rmon event 1
Rmon Event Index : 1
Rmon Event Type : Log and Trap
Rmon Event Community : public
Rmon Event Description : test
Rmon Event Last Sent :
Rmon Event Owner : admin
```

4.4.41.6 show rmon event log

Command:

```
show rmon event <1-65535> log
```

Parameter:

<1-65535> specifies event index to show event log

Mode:

Global Configuration

Usage Guide:

Use the **show rmon event log** command to show log triggered by RMON alarm.

Example:

The example shows how to show rmon event log.

```
switch(config)# show rmon event 1 log
=====================================================
Index : 1
Alarm Index : 1
Action : Startup Falling
Time : (32918334) 3 days, 19:26:23.34
Description : gi1.Pkts=0 <= 100
```

4.4.41.7 show rmon alarm

Command:

```
show rmon alarm (<1-65535> | all)
```

Parameter:

<1-65535>	specifies alarm index to show
all	Show all existed alarm

Mode:

Global Configuration

Usage Guide:

Use the **show rmon alarm** command to show existed RMON alarm entry.

Example:

The example shows how to show rmon alarm entry.

```
Switch(config)# rmon alarm 1 interface gi1 pkts 300 delta rising 10000 1 falling 100 1
startup rising-falling owner admin
Rmon Alarm Index : 1
Rmon Alarm Sample Interval : 300
Rmon Alarm Sample Interface : gi1
Rmon Alarm Sample Variable : Pkts
Rmon Alarm Sample Type : delta
Rmon Alarm Type : Rising or Falling
Rmon Alarm Rising Threshold : 10000
Rmon Alarm Rising Event : 1
Rmon Alarm Falling Threshold : 100
Rmon Alarm Falling Event : 1
Rmon Alarm Owner : admin
```

4.4.41.8 show rmon history

Command:

```
show rmon history (<1-65535> | all)
```

Parameter:

<1-65535>	specifies history index to show
all	Show all existed history

Mode:

Global Configuration

Usage Guide:

Use the **show rmon history** command to show existed RMON history entry

Example:

The example shows how to show RMON history entry.

```
switch(config)# rmon history 1 interface gi1 interval 30 owner admin
switch(config)# show rmon history 1
Rmon History Index : 1
Rmon Collection Interface: gi1
Rmon History Bucket : 50
Rmon history Interval : 30
Rmon History Owner : admin
```

4.4.41.9 show rmon history statistics

Command:

```
show rmon history <1-65535> statistic
```

Parameter:

<1-65535> specifies history index to show history statistic

Mode:

Global Configuration

Usage Guide:

Use the **show rmon history statistic** command to show statistics that are recorded by RMON history..

Example:

The example shows how to show RMON history statistics

```
switch(config)# show rmon history 1 statistics
=======================================================
Sample Index : 2
Interval Start : (32940466) 3 days, 19:30:04.66
DropEvents : 0
Octets : 117226
Pkts : 763
BroadcastPkts : 9
MulticastPkts : 0
CRCAlignErrors : 0
UnderSizePkts : 0
OverSizePkts : 0
Fragments : 0
Jabbers : 0
Collisions : 0
Utilization : 1
=======================================================
Sample Index : 1
Interval Start : (32939462) 3 days, 19:29:54.62
DropEvents : 0
Octets : 220
Pkts : 3
BroadcastPkts : 1
```

```
MulticastPkts : 0
CRCAlignErrors : 0
UnderSizePkts : 0
OverSizePkts : 0
Fragments : 0
Jabbers : 0
Collisions : 0
Utilization : 0
```

4.4.42 system

4.4.42.1 system contact

Command:

```
system contact CONTACT
```

Parameter:

CONTACT	Specify contact string.

Mode:

Global Configuration

Usage Guide:

Use "**system contact**" command to modify contact information of the switch.

Example:

This example shows how to modify contact information

```
Switch(config)# system contact callme
```

This example shows how to show system contact information

```
Switch(config)# system contact callme
Switch# show info
System Name : Switch
System Location : Default Location
System Contact : callme
MAC Address : 00:30:4F:EF:01:02
IP Address : 192.168.0.100
Subnet Mask : 255.255.255.0
Loader Version : 1.3.0.26225
Loader Date : Thu May 17 15:19:42 CST 2012
Firmware Version : 2.5.0-beta.32811
Firmware Date : Mon Sep 24 19:33:42 CST 2012
System Object ID : 1.3.6.1.4.1.27282.3.2.10
System Up Time : 0 days, 0 hours, 2 mins, 37 secs
```

4.4.42.2 system location

Command:

```
system location LOCATION
```

Parameter:

LOCATION	Specify location string.

Mode:

Global Configuration

Usage Guide:

Use "**system location**" command to modify location information of the switch.

Example:

This example shows how to modify location information

```
Switch(config)# system location home
```

This example shows how to show system location information

```
Switch(config)# system location home
Switch# show info
System Name : SwitchEF0102
System Location : home
System Contact : Default Contact
MAC Address : 00:30:4f:EF:01:02
IP Address : 192.168.0.100
Subnet Mask : 255.255.255.0
Loader Version : 1.3.0.26225
Loader Date : Thu May 17 15:19:42 CST 2012
Firmware Version : 2.5.0-beta.32811
Firmware Date : Mon Sep 24 19:33:42 CST 2012
System Object ID : 1.3.6.1.4.1.27282.3.2.10
System Up Time : 0 days, 0 hours, 2 mins, 37 secs
```

4.4.42.3 system name

Command:

```
system name NAME
```

Parameter:

NAME	Specify system name string.

Mode:

Global Configuration

Usage Guide:

Use "**system name**" command to modify system name information of the switch. The system name is also used to be CLI prompt.

Example:

This example shows how to modify contact information

```
Switch(config)# system name myname
myname(config)#
```

This example shows how to show system name information

```
Switch# show info
System Name : myname
System Location : Default Location
System Contact : Default Contact
MAC Address : 00:30:4F:EF:01:02
IP Address : 192.168.0.100
Subnet Mask : 255.255.255.0
Loader Version : 1.3.0.26225
Loader Date : Thu May 17 15:19:42 CST 2012
Firmware Version : 2.5.0-beta.32811
Firmware Date : Mon Sep 24 19:33:42 CST 2012
System Object ID : 1.3.6.1.4.1.27282.3.2.10
System Up Time : 0 days, 0 hours, 2 mins, 37 secs
```

4.4.43 tacacs

4.4.43.1 tacacs default-config

Command:

```
Tacacs default-config <key | timeout>
```

tacacs **TACACS+ server information**

default-config **TACACS+ server default parameters**

key **TACACS+ key**

timeout **TACACS+ timeout**

TACPLUSKEY **Tacacs+ server key**

<1-30> **Tacacs+ server timeout**

Default:

0

Usage Guide:

To configure the **default-config** of **TACACS+ Server**

Example:

To enable the **default-config** of **TACACS+ Server**

```
Switch (config)# tacacs default-config key admin
```

4.4.43.2 tacacs host

Command:

```
tacacs host <host_name> [ port <port> ] [ timeout <seconds> ] [ key <key> ]
```

tacacs 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 host planet.com port 55 timeout 6 key 7788
```

4.4.43.3 show tacacs

Command:

```
show tacacs
```

show Show running system information

tacacs TACACS+ configuration

Default:

N/A

Usage Guide:

To display the **TACACS+ Server** configuration.

Example:

To display the **TACACS+ Server** configuration.

```
Switch # show tacacs
Global TACACS+ Server Timeout          : 5 seconds
Global TACACS+ Server Deadtime         : 0 minutes
Global TACACS+ Server Key              :
No hosts configured!
```

4.4.44 username

Command:

username *WORD<0-32>* [privilege (admin | user | *<0-15>*)] (password | secret) *WORD<0-32>*

no username *WORD<0-32>*

Parameter:

username	Specify user name to add/delete/edit.
WORD<0-32>	
privilege admin	Specify privilege level to be admin (privilege 15)
privilege user	Specify privilege level to be user (privilege 1)
privilege *<0-15>*	Specify custom privilege level
password	Specify password string and make it not encrypted.
WORD<0-32>	

Default:

Default username “” has password “” with privilege 1.

Default username “admin” has password “admin” with privilege 15.

Mode:

Global Configuration

Usage Guide:

Use “**username**” command to add a new user account or edit an existing user account. And use “**no username**” to delete an existing user account. The user account is a local database for login authentication.

Example:

This example shows how to add a new user account.

```
Switch(config)# username test secret passwd
```

This example shows how to show existing user accounts.

```
Switch# show username
Priv | Type | User Name | Password
------+--------+--------------------+------------------------
01 | secret | | dnXencJRwflV6
15 | secret | admin | FzjrGO6vfbERY
15 | secret | test | 7p57T9yMkViSUS
```

4.4.45 vlan

Command:

```
vlan

no vlan
```

Mode:

Global Configuration

Usage Guide:

Create or remove a VLAN entry. Using `vlan` command to entry the VLAN configuration mode.

Example:

The following example creates and removes a VLAN entry (100).

```
Switch# configure
Switch (config)# vlan 100
Switch (config-vlan)# exit
Switch (config)# no vlan 100
Switch (config)# exit
Switch#
```

4.4.45.1 vlan name

Command:

```
vlan name NAME
```

Parameter:

NAME	Specify the name of the VLAN (Max. 32 chars).

Mode:

VLAN Configuration

Usage Guide:

Configure the name of a VLAN entry.

Example:

This example sets the VLAN name of VLAN 100 to be `VLAN-one-hundred`.

```
Switch# configure
Switch(config)# vlan 100
Switch(config-vlan)# name VLAN-one-hundred
Switch(config-vlan)# exit
Switch(config)#
```

4.4.45.2 switchport mode

Command:

```
switchport mode ( access | hybrid | trunk [uplink] | tunnel )
```

Parameter:

access	Specify the VLAN mode to Access port.
hybrid	Specify the VLAN mode to Hybrid port.
trunk	Specify the VLAN mode to Trunk port.
uplink	Specify the Uplink property on this Trunk port.
tunnel	Specify the VLAN mode to Dot1Q Tunnel port.

Default:

Switchport mode trunk

Mode:

Port Configuration

Usage Guide:

The VLAN mode is used to configure the port for different port role.

Access port: Accepts only untagged frames and join an untagged VLAN.

Hybrid port: Support all functions as defined in IEEE 802.1Q specification.

Trunk port: An untagged member of one VLAN at most, and is a tagged member of zero or more VLANs. If it is an uplink port, it can recognize double tagging on this port.

Tunnel port: Port-based Q-in-Q mode.

The configuration could be shown by “show interface switchport” command.

Example:

This example sets VLAN mode to Access port.

```
Switch(config)# interface gi12
Switch(config-if)# switchport mode access
```

4.4.45.3 switchport hybrid pvid

Command:

```
switchport hybrid pvid <1-4094>
```

Parameter:

<1-4094> Specify the port-based VLAN ID on the Hybrid port.

Default:

switchport hybrid pvid = 1

Mode:

Port Configuration

Usage Guide:

This command configures the hybrid port's PVID. The configuration could be shown by "show interface switchport" command.

Example:

This example sets PVID to 100.

```
Switch# configure
Switch(config)# interface gi10
Switch(config-if)# switchport mode hybrid
Switch(config-if)# switchport hybrid pvid 100
```

4.4.45.4 switchport hybrid ingress-filtering

Command:

```
switchport bybrid ingress-filtering

no switchport bybrid ingress-filtering
```

Mode:

Port Configuration

Usage Guide:

This command per port configures the ingress-filtering status. This filtering is used to filter the frames come from the non-member ingress port. The configuration could be shown by “show interface switchport” command.

Example:

This example sets ingress-filtering to disable.

```
Switch# configure
Switch(config)# interface gi10
Switch(config-if)# switchport mode hybrid
Switch(config-if)# switchport hybrid ingress-filtering
```

4.4.45.5 switchport hybrid acceptable-frame-type

Command:

```
switchport hybrid acceptable-frame-type ( all | tagged-only | untagged-only )
```

Parameter:

all	Specify to accept all frames
tagged-only	Specify to only accept tagged frames
untagged-only	Specify to only accept untagged frames

Default:

switchport hybrid acceptable-frame-type = all

Mode:

Port Configuration

Usage Guide:

This command per port configures the acceptable-frame-type. The configuration could be shown by “show interface switchport” command.

Example:

This example sets acceptable-frame-type to tagged-only.

```
Switch# configure
Switch(config)# interface gi10
Switch(config-if)# switchport mode hybrid
Switch(config-if)# switchport hybrid acceptable-frame-type tagged-only
```

4.4.45.6 switchport hybrid allowed vlan add

Command:

```
switchport hybrid allowed vlan add VLAN-LIST [ ( tagged | untagged ) ]
```

Parameter:

VLAN-LIST	Specifies the VLAN list to be added
(tagged |	Specifies the member type to tagged or untagged.
untagged)	

Mode:

Port Configuration

Usage Guide:

This command per hybrid port configures to add the allowed VLAN list. The configuration could be shown by “show interface switchport” command.

Example:

This example sets port fa10 VLAN to join the VLAN 100 as tagged member.

```
Switch# configure
Switch(config)# interface gi10
Switch(config-if)# switchport hybrid allowed vlan add 100
```

4.4.45.7 switchport hybrid allowed vlan remove

Command:

```
switchport hybrid allowed vlan remove VLAN-LIST
```

Parameter:

VLAN-LIST Specifies the VLAN list to be removed.

Mode:

Port Configuration

Usage Guide:

This command per hybrid port configures to remove the allowed VLAN list. The configuration could be shown by "show interface switchport" command.

Example:

This example sets port fa10 VLAN to leave the VLAN 100.

```
Switch# configure
Switch(config)# interface gi10
Switch(config-if)# switchport hybrid allowed vlan remove 100
```

4.4.45.8 switchport access vlan

Command:

```
switchport access vlan <1-4094>
```

Parameter:

<1-4094> Specifies the access VLAN ID.

Mode:

Port Configuration

Usage Guide:

This command per Access port configures the native VLAN ID. The configuration could be shown by “show interface switchport” command

Example:

This example sets Access port fa10 native VLAN ID to 100.

```
Switch# configure
Switch(config)# interface gi10
Switch(config-if)# switchport mode access
Switch(config-if)# switchport access vlan 100
```

4.4.45.9 switchport tunnel vlan

Command:

```
switchport tunnel vlan <1-4094>
```

Mode:

Port Configuration

Usage Guide:

The command per Tunnel port configures the native VLAN. The configuration could be shown by “show interface switchport” command

Example:

This example sets Tunnel port gi10 native VLAN to 100

```
Switch# configure
Switch(config)# interface gi10
Switch(config-if)# switchport mode tunnel
Switch(config-if)# switchport tunnel vlan 100
```

4.4.45.10 switchport trunk native vlan

Command:

```
switchport trunk native vlan <1-4094>
```

Mode:

Port Configuration

Usage Guide:

The command per Trunk port configures the native VLAN. The configuration could be shown by “show interface switchport” command.

Example:

This example sets Trunk port gi10 native VLAN to 100.

```
Switch# configure
Switch(config)# interface gi10
Switch(config-if)# switchport mode trunk
Switch(config-if)# switchport trunk native vlan 100
```

4.4.45.11 switchport trunk allowed vlan

Command:

```
switchport trunk allowed vlan ( add | remove ) ( VLAN-LIST | all )
```

Parameter:

(add | remove)	Specify the action to add or remove the allowed VLAN list.
(VLAN-LIST | all)	Specify the VLAN list or all VLANs to be added or removed.

Mode:

Port Configuration

Usage Guide:

The command per Trunk port configures the allowed VLAN list. The configuration could be shown by “show interface switchport” command.

Example:

This example sets Trunk port gi10 to add the allowed VLAN 100.

```
Switch# configure
Switch(config)# interface gi10
Switch(config-if)# switchport trunk allowed vlan add 100
```

4.4.45.12 switchport default-vlan tagged

Command:

```
switchport default-vlan tagged

no switchport default-vlan tagged
```

Mode:

Port Configuration

Usage Guide:

The command per port configures the membership of the default VLAN to tagged. The configuration could be shown by “show interface switchport” command.

Example:

This example sets Trunk port gi10 membership with the default VLAN to tagged.

```
Switch# configure
Switch(config)# interface gi10
Switch(config-if)# switchport default-vlan tagged
```

4.4.45.13 switchport forbidden default-vlan

Command:

```
switchport forbidden default-vlan

no switchport forbidden default-vlan
```

Mode:

Port Configuration

Usage Guide:

The command per port configures the membership of the default VLAN to forbidden. The configuration could be shown by “show interface switchport” command.

Example:

This example sets the membership of the default VLAN with port gi10 to forbidden.

```
Switch# configure
Switch(config)# interface gi10
Switch(config-if)# switchport forbidden default-vlan
```

4.4.45.14 switchport forbidden vlan

Command:

```
switchport forbidden vlan ( add | remove ) VLAN-LIST
```

Parameter:

(add | remove)	Add or remove forbidden membership.
VLAN-LIST	Specify the VLAN list.

Mode:

Port Configuration

Usage Guide:

The command per port configures the membership of the specfied VLANs to forbidden. The configuration could be shown by “show interface switchport” command.

Example:

This example sets the membership of the VLAN 100 with port fa10 to forbidden

```
Switch# configure
Switch(config)# interface gi10
Switch(config-if)# switchport forbidden vlan add 100
```

4.4.45.15 show management-vlan

Command:

```
show management-vlan
```

Parameter:

login	Add/Edit login authentication list
enable	Add/Edit enable authentication list
default	Edit default authentication list

Mode:

Global Configuration

Usage Guide:

Display information about management vlan

Example:

The following example specifies that show management vlan

```
Switch(config)# show management-vlan
```

4.4.45.16 protocol-vlan group

Command:

```
vlan protocol-vlan group <1-8> frame-type (ethernet_ii|llc_other|snap_1042)
protocol-value VALUE
no vlan protocol-vlan group <1-8>
```

Parameter:

<1-8>	Specify protocol vlan group to configure
(ethernet_ii|llc_other|snap_1042)	Specify protocol based frame type
VALUE	Specify protocol value to configure

Mode:

Global Configuration

Usage Guide:

Use the **vlan protocol-vlan group** Global Configuration mode command to add protocol vlan group with spefied proto type and value.

Use the no form of this command to remove protocol vlan group setting.

You can verify your setting by entering the **show vlan proto-vlan Privileged EXEC** command

Example:

The following example show how to configure protocol vlan group:

```
Switch(config)# vlan protocol-vlan group 1 frame-type ethernet_ii protocol-value
0x806
Switch(config)# vlan protocol-vlan group 2 frame-type llc_other protocol-value 0x800
Switch# show vlan protocol-vlan
Group ID | Status | Type | value
---------------+-------------------+---------------------+------------------
1 | Enabled | Ethernet | 0x0806
2 | Enabled | LLC other | 0x0800
3 | Disabled | -- | --
4 | Disabled | -- | --
5 | Disabled | -- | --
6 | Disabled | -- | --
7 | Disabled | -- | --
8 | Disabled | -- | --
```

4.4.45.17 protocol vlan binding

Command:

```
vlan protocol-vlan group <1-8> vlan <1-4094>

no vlan protocol-vlan group <1-8>
```

Parameter:

<1-8>	Specify protocol vlan group to binding
<1-4094>	Specifies the Proto VLAN ID to configure.

Mode:

Interface Configuration

Usage Guide:

Use the **vlan protocol-vlan binding** Interface Configuration mode command to binding protocol VLAN Group on specified interfaces,

Use the no form of this command to cancel protocol VLAN Group Binding.

You can verify your setting by entering the **show vlan protocol-vlan interfaces IF_PORTS Privileged EXEC** command

Example:

The following example how to configure Protocol VLAN function on specified interfaces.

```
Switch(config)# interface gi1
Switch(config-if)# vlan protocol-vlan group 1 vlan 2
Switch(config-if)# vlan protocol-vlan group 2 vlan 3
```

4.4.45.18 show protocol vlan group

Command:

```
show vlan protocol-vlan [group <1-8>]
```

Parameter:

<1-8>	Specify protocol vlan group to display

Mode:

Privileged EXEC

Usage Guide:

Use the **show vlan proto-vlan** command in EXEC mode to display Proto VLAN group configuration

Example:

The following example how to display Proto VLAN group configuration

```
Switch# show vlan protocol-vlan
Group ID | Status | Type | value
---------------+-------------------+---------------------+------------------
1 | Enabled | Ethernet | 0x0806
2 | Enabled | LLC other | 0x0800
3 | Disabled | -- | --
4 | Disabled | -- | --
5 | Disabled | -- | --
6 | Disabled | -- | --
7 | Disabled | -- | --
8 | Disabled | -- | --
```

4.4.45.19 show protocol vlan interfaces

Command:

```
show vlan protocol-vlan interfaces IF_PORTS
```

Parameter:

IF_PORTS	Specify interfaces protocol vlan to display

Mode:

Privileged EXEC

Usage Guide:

Use the **show vlan mac-vlan interface** command in EXEC mode to display the Protocol VLAN interfaces setting

Example:

The following example shows how to display the Protocol VLAN interfaces setting

```
Switch# show vlan protocol-vlan interfaces gi1
Port gi1 :
Group 1
Status : Enabled
VLAN ID : 2
Group 2
Status : Enabled
VLAN ID : 3
Group 3
Status : Disabled
Group 4
Status : Disabled
Group 5
Status : Disabled
Group 6
Status : Disabled
Group 7
Status : Disabled
Group 8
Status : Disabled
```

4.4.46 Voice-vlan

Command:

```
voice-vlan

no voice-vlan
```

Mode:

Global Configuration

Usage Guide:

Use the **voice vlan** global configuration command to enable the functional Voice VLAN on the device.

Use the no form of this command to disable voice vlan function.

You can verify your setting by entering the **show voice vlan Privileged EXEC** command.

Example:

The following example shows how to change voice vlan state from auto to oui mode.

```
Switch(config)# no voice-vlan
Switch(config)# voice-vlan cos 6
```

4.4.46.1 voice vlan aging-time

Command:

```
voice-vlan aing-time <30-65536>
```

Parameter:

<30-65536>	Specify the voice VLAN aging timeout interval in minutes

Default:

The default aging-timeout value is 1440 minutes

Mode:

Global Configuration

Usage Guide:

Use the **voice vlan aging-time** global configuration command to configure the voice VLAN aging timeout

You can verify your setting by entering the **show voice vlan Privileged EXEC** command

Example:

The following example show how to set aging time.

```
Switch(config)# voice-vlan aging-time 720
```

4.4.46.2 voice vlan cos

Command:

```
voice-vlan cos <0-7> [remark]

no voice-vlan
```

Parameter:

<0-7>	Specify the voice VLAN Class of Service value in telephone oui mode
remark	Specify that the L2 user priority is remarked with the CoS value

Default:

The default cos value is 6, remark is disabled.

Mode:

Global Configuration

Usage Guide:

Use the **voice vlan cos** global configuration command to configure the voice VLAN cos value and 1p remark function

You can verify your setting by entering the **show voice vlan Privileged EXEC** command

Example:

The following example show how to set cos value and enable 1p remark function

```
Switch(config)# voice-vlan cos 7 remark
```

4.4.46.3 voice vlan oui-table

Command:

```
voice-vlan oui-table A:B:C DESCRIPTION

no voice-vlan oui-table A:B:C
```

Parameter:

A:B:C	Specify OUI Mac address to add or remove
DESCRIPTION	Specify description of the specified MAC address to the voice VLAN OUI table

Mode:

Global Configuration

Usage Guide:

Use the **voice vlan oui-table** global configuration command to add oui mac address to OUI Table

Use the **no** form of this command to remove all or specified oui mac address..

You can verify your setting by entering the **show voice vlan Privileged EXEC** command

Example:

This following example shows how to add OUI Mac.

```
Switch(config)#voice-vlan oui-table 00:01:02“Test”
```

4.4.46.4 voice vlan id

Command:

```
voice-vlan vlan <1-4094>
```

Parameter:

<1-4094>	Specify the voice VLAN ID

Mode:

Global Configuration

Usage Guide:

Use the **voice vlan id** global configuration command to configure the VLAN identifier of the voice VLAN statically

You can verify your setting by entering the **show voice vlan Privileged EXEC** command

Example:

The following example shows how to set Voice VLAN ID, before make sure the VLAN EXIST.

```
Switch(config)# voice-vlan vlan 128
```

4.4.46.5 voice vlan cos mode

Command:

```
voice-vlan cos ( src | all )

no voice-vlan
```

Parameter:

src	Specify QoS attributes are applied to packets with OUIs in the source MAC address.
all	Specify QoS attributes are applied to packets that are classified to the Voice VLAN.

Default:

The defaultall port in Src mode.

Mode:

Interface Configuration

Usage Guide:

Use the **voice vlan cos mode** Interface configuration command to configure OUI voice VLAN cos mode configuration on an interface

You can verify your setting by entering the **show voice vlan interfaces Privileged EXEC** command

Example:

The following example how to configure voice packet QoS attributes on an interface

```
Switch(config)#interface range gi1-3
Switch(config-if)#voice-vlan cos all
```

4.4.46.6 voice vlan enable

Command:

```
voice-vlan

no voice-vlan
```

Mode:

Interface Configuration

Usage Guide:

Use the **voice vlan** Interface configuration command to enable OUI voice VLAN configuration on an interface

Use the **no** form of this command to disable voice vlan on an interfaces

You can verify your setting by entering the **show voice vlan Privileged EXEC** command

Example:

The following example how to enable voice VLAN function in oui mode on an interface

```
Switch(config)#interface range gi1-3
Switch(config-if)#voice-vlan
```

4.4.46.7 show voice vlan

Command:

```
show voice-vlan
show voice-vlan interfaces IF_PORTS
```

Parameter:

IF_PORTS	Specifies intefaces to display voice VLAN settings in oui mode

Mode:

Privileged EXEC

Usage Guide:

Use the **show voice vlan** command in EXEC mode to display the voice VLAN status for all interfaces or for a specific interface if the voice VLAN type is OUI

Example:

The following example show how to display voice vlan auto mode and oui mode settings

```
Switch# show voice-vlan
Administrate Voice VLAN state : disabled
Voice VLAN ID : 1
Voice VLAN Aging : 720 minutes
Voice VLAN CoS : 5
Voice VLAN 1p Remark: enabled
Switch# show voice-vlan interfaces gi1
Voice VLAN Aging : 720 minutes
Voice VLAN CoS : 5
Voice VLAN 1p Remark: enabled
OUI table
OUI MAC | Description
--------------+-----------------
00:E0:BB | 3COM
00:03:6B | Cisco
00:E0:75 | Veritel
00:D0:1E | Pingtel
00:01:E3 | Siemens
00:60:B9 | NEC/Philips
00:0F:E2 | H3C
00:09:6E | Avaya
Port | State | Cos Mode
-------+----------+-----------
gi1 | Disabled | Src
```

4.5 copy

Command:

```
copy (flash:// | tftp://) (flash:// | tftp://)

copy tftp:// (backup-config | running-config | startup-config)

copy (backup-config | running-config | startup-config) tftp://

copy (backup-config | startup-config) running-config

copy (backup-config | running-config) startup-config

copy (running-config | startup-config) backup-config
```

Parameter:

flash://	Specify the file stored in flash to operation. Available files are: flash://startup-config flash://backup-config flash://image0 flash://image1 flash://ram.log flash://flash.log
tftp://	Specify remote tftp server and remote file name. The format is “tftp://192.168.1.111/remote_file_name”
running-config	Running configuration file
startup-config	Startup configuration file
backup-config	Edit default authentication list

Mode:

Privileged EXEC

Usage Guide:

There are many types of files in system. These files are very important for administrator to manage the switch. The most common file operation is copy. By using these copy commands, we can upgrade, backup following type of files.

Firmware Image

Configuration Files

Syslog Files

Example:

This example shows how to copy running configuration to startup configuration.

```
Switch# copy running-config startupst-config
```

This example shows how to backup running configuration to remote tftp server 192.168.111 with file name test1.cfg.

```
Switch# copy running-config tftp://192.168.1.111/test1.cfg
Uploading file...Please Wait...
Uploading Done
```

This example shows how to upgrade startup configuration from remote tftp server 192.168.1.111 with file name test2.cfg.

```
Switch# copy tftp://192.168.1.111/test2.cfg startup-config
Downloading file...Please Wait...
Downloading Done
Upgrade config success. Do you want to reboot now? (y/n)n
```

This example shows how to backup security file dsa2 to remote tftp server 192.168.1.111 with file name dsa2.

```
Switch# copy flash://dsa2 tftp://192.168.1.111/dsa2
Uploading file...Please Wait...
Uploading Done
```

4.6 delete

Command:

```
delete (startrup-config | backup-config | flash://)

delete system (image0 | image1)
```

Parameter:

flash://	Specify the configuration file stored in flash to delete. Available files are: flash://startup-config flash://backup-config
startup-config	Delete startup configuration file
backup-config	Delete backup configuration file
image0	Delete flash image0.
Image1	Delete flash image1.

Mode:

Privileged EXEC

Usage Guide:

Use "**delete**" command to delete configuration files or use "**delete system**" command to delete firmware image stored in flash.

The "**delete startup-config**" command is using to restore factory default and it is equal to command "**restore-defaults**".

Example:

This example shows how to delete backup configuration file.

```
Switch# delete backup-config
```

This example shows how to delete backup firmware image from flash.

```
Switch# delete system image1
```

4.7 disable

Command:

```
disable
```

disable Turn off privileged mode command

<1-14> Privilege level

Default:

None

Usage Guide:

To exit **enable mode**

Example:

To exit **enable mode**

```
Switch # disable
Switch >
```

4.8 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#
```

4.9 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)#
```

4.10 ping

Command:

ping *HOSTNAME* [count <*1-999999999*>]

Mode:

Privileged EXEC

Usage Guide:

Use “ping” command to do network ping diagnostic.

Example:

This example shows how to ping remote host 192.168.1.111.

```
Switch# ping 192.168.1.111
PING 192.168.1.111 (192.168.1.111): 56 data bytes
64 bytes from 192.168.1.111: icmp_seq=0 ttl=128 time=10.0 ms
64 bytes from 192.168.1.111: icmp_seq=1 ttl=128 time=0.0 ms
64 bytes from 192.168.1.111: icmp_seq=2 ttl=128 time=0.0 ms
64 bytes from 192.168.1.111: icmp_seq=3 ttl=128 time=0.0 ms
--- 192.168.1.111 ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 0.0/2.5/10.0 ms
```

4.11 reboot

Command:

```
reboot
```

Mode:

Privileged EXEC

Usage Guide:

Use “**reboot**” command to make system hot restart.

Example:

This example shows how to restart the system

```
Switch# reboot
```

4.12 renew

4.12.1 renew ip dhcp snooping database

Command:

```
renew ip dhcp snooping database
```

Mode:

Global Configuration

Usage Guide:

Use the **renew ip dhcp snooping database** command to renew DHCP Snooping database from backup file.

Example:

The example shows how to renew DHCP Snooping database. You can verify settings by the following **show ip dhcp snooping database** and **show ip dhcp snooping binding** command.

```
switch# show ip dhcp snooping database
Type : tftp: 192.168.1.50
FileName : backup_file
Write delay Timer : 300 seconds
Abort Timer : 60 seconds
Agent Running : Running
Delay Timer Expiry : 300 seconds
Abort Timer Expiry : 299
Last Succeded Time : None
Last Failed Time : None
Last Failed Reason : No failure recorded.
Total Attempts : 1
Successful Transfers : 1 Failed Transfers : 0
Successful Reads : 1 Failed Reads : 0
Successful Writes : 0 Failed Writes : 0
switch# show ip dhcp snooping binding
Bind Table: Maximun Binding Entry Number 192
Port | VID | MAC Address | IP | Type | Lease Time
--------+------+--------------------+---------------------------------------+---------------------+-----------
fa1 | 1 | 00:30:4F:C7:12:62 | 192.168.1.100(255.255.255.255)|DHCP Snooping | 86400
```

4.13 restore-default

Command:

```
restore-default
```

Mode:

Privileged EXEC

Usage Guide:

Use “**restore-defaults**” command to restore factory default of all system. The command is equal to “**delete startup-config**”

Example:

This example shows how to restore factory defaults.

```
Switch# restore-defaults
Restore Default Success. Do you want to reboot now? (y/n)n
```

4.14 save

Command:

```
save
```

Mode:

Privileged EXEC

Usage Guide:

Use “**save**” command to save running configuration to startup configuration file. This command is equal to “**copy running-config startup-config**”.

Example:

This example shows how to save running configuration to startup configuration.

```
Switch# save
Success
```

4.15 show

4.15.1 show aaa

Command:

```
show aaa authentication
```

show **Show running system information**

aaa **Authentication, Authorization, Accounting**

authentication **Authentication enable** **Enable Authentication**

enable **Enable Authentication**

login **Login Authentication**

lists **Auth Method List**

Default:

Default Enable

Default Local

Usage Guide:

To display the **AAA** services.

Example:

To display the **AAA** services

```
Switch # show aaa authentication login lists
Login List Name       Authentication Method List
----------------- --------------------------------
              Default     Local
Switch # show aaa authentication enable lists
Enable List Name      Authentication Method List
----------------- --------------------------------
              Default     Enable
```

4.15.2 show acl

Command:

show show acl [utilization]

show **Show running system information**

utilization **Utilization**

Default:

N/A

Usage Guide:

To display **Access Management Statistics.**

Example:

To display **Access Management Statistics.**

Switch # **show acl utilization** **Type: sys** **usage: 256**

4.15.3 show arp

Command:

```
show arp
```

show **Show running system information**

arp **Show the IP ARP translation table**

Default:

N/A

Usage Guide:

To **Show the IP ARP translation table**

Example:

To **Show the IP ARP translation table**

```
Switch # show arp
```

4.15.4 show backup-config

backup-config

Command:

```
show backup-config
```

show Show running system information

backup-config **Backup configuration**

Default:

N/A

Usage Guide:

To display the **Backup configuration.**

Example:

To display the **Backup configuration**

```
Switch # show show backup-config
```

4.15.5 show cable-diag

Command:

```
show arp
```

show Show running system information

cable-diag **Cable Diagnostics**

interfaces **Interface status and configuration**

GigabitEthernet **Gigabit ethernet interface to configure**

<1-12> **GigabitEthernet device number**

Default:

N/A

Usage Guide:

To Show running system information

Example:

To Show **Gigabit ethernet 1 interface to configure**

```
Switch # show cable-diag interfaces GigabitEthernet 1
Port    |  Speed | Local pair | Pair length | Pair status
----------+------------+----------------+---------------+---------------
  gi1   |  auto  |     Pair A  |    0.90    | Open
                       Pair B  |    0.92    | Open
                       Pair C  |    0.91    | Open
                       Pair D  |    0.88    | Open
```

4.15.6 show clock

Command:

```
show clock detail
```

show	Show running system information
clock	**Display the time and date from the system clock**
detail	**Show timezone and summertime configuration**

Default:

N/A

Usage Guide:

To display the the time and date from the system clock

Example:

To Display the time and date from the system clock

```
Switch # show clock detail
01:16:16 web(UTC+0) Jan 01 2000
No time source

Time zone:
Acronym is web
Offset is UTC+0
```

4.15.7 show cpu

Command:

```
show aggregation [ mode ]
```

show Show running system information

cpu **Displays information about the system CPU utilization.**

input **Show rate of input frames to CPU.**

utilization **Displays information about the system CPU utilization.**

rate **Show rate of input frames to CPU.**

Default:

N/A

Usage Guide:

To display **information about the system CPU utilization.**

Example:

To display **information about the system CPU utilization.**

```
Switch # show cpu input rate
Input Rate to CPU is 0 pps

Switch # show cpu utilization
  CPU utilization
  ---------------
  Current: 50%
```

4.15.8 show dos

Command:

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

show Show running system information
dos DoS information
interfaces Interface status and configuration
GigabitEthernet Gigabit ethernet interface to configure
<1-12> GigabitEthernet device number
LAG IEEE 802.3 Link Aggregateion interface
<1-8> LAG interface number

Default:

N/A

Usage Guide:

To display the DoS information

Example:

To display the DoS information

```
Switch # show dos interfaces GigabitEthernet 1
   Port       | DoS Protection
----------+----------------
        gi1   |       enabled

Switch # show dos interfaces interfaces LAG 1
   Port       | DoS Protection
----------+----------------
        lag1   |       enabled
```

4.15.9 show dot1x

Command:

show dot1x [auth-hosts | guest-vlan | interfac**es**]

show Show running system information

dot1x **802.1x configuration**

auth-hosts **authenticated hosts**

guest-vlan **Guest VLAN configuration**

interfaces **Interface status and configuration**

GigabitEthernet **Gigabit ethernet interface to configure**

<1-12> **GigabitEthernet device number**

Default:

N/A

Usage Guide:

To display the **802.1x configuration**

Example:

To display the **802.1x configuration**

```
Switch # show dot1x auth-hosts
GigabitEthernet 1/1 EAPOL Statistics:
        User Name        |  Port  |      Session Time      |  Authentication Method |    MAC Address
--------------------+--------+--------------------+------------------------+------------------


Switch #show dot1x guest-vlan
Guest VLAN ID: none (disabled)
   Port   | Guest VLAN | In Guest VLAN
--------+------------+---------------
     gi1  |    Disabled |          ---
     gi2  |    Disabled |          ---
     gi3  |    Disabled |          ---
     gi4  |    Disabled |          ---
     gi5  |    Disabled |          ---
     gi6  |    Disabled |          ---
     gi7  |    Disabled |          ---
     gi8  |    Disabled |          ---
     gi9  |    Disabled |          ---
    gi10  |    Disabled |          ---
```

```
   gi11   |     Disabled |          ---
   gi12   |     Disabled |          ---

Switch # show dot1x interfaces GigabitEthernet 1
   Port   |          Mode           |      Current State        |  Reauth Control | Reauth Period
--------+--------------------+----------------------+-----------------+--------------
    gi1   |      802.1X Disabled |                 -           |         Enabled      |              3600

Quiet Period:                 60 Second
Supplicant timeout:       30 Second
Max req:                        2
Session Time (HH:MM:SS): 0: 0: 0: 0
```

4.15.10 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
```

4.15.11 show errdisable

Command:

```
show errdisable
```

show Show running system information

errdisable Error Disable

recovery Recovery from error disable

Default:

N/A

Usage Guide:

To display the Error Disable.

Example:

To display the Error Disable.

```
Switch # show errdisable recovery
ErrDisable Reason            | Timer Status
-------------------------+---------------
                    bpduguard | disabled
                     selfloop | disabled
              broadcast-flood | disabled
  unknown-multicast-flood | disabled
                unicast-flood | disabled
                          acl | disabled
          psecure-violation | disabled
            dhcp-rate-limit | disabled
             arp-inspection | disabled

Timer Interval : 300 seconds


Interfaces that will be enabled at the next timeout:

Port |   Error Disable Reason      | Time Left
-----+-------------------------+------------
```

4.15.12 show fiber-transceiver

Command:

```
show fiber-transceiver
```

show Show running system information

fiber-transceiver Fiber ports diagnositics

interfaces Interface status and configuration

GigabitEthernet Gigabit ethernet interface to configure

<1-12> GigabitEthernet device number

Default:

N/A

Usage Guide:

To display the **Fiber ports diagnositics**

Example:

To display the **Fiber ports diagnositics**

```
Switch # show fiber-transceiver interfaces GigabitEthernet 1
Port    | Temperature | Voltage     | Current       | Output power | Input power | OE-Present | LOS    gi1     |
          | [C]               | [Volt]        | [mA]           | [mWatt]          | [mWatt]       |                  |
=========================================================================
  Temp               - Internally measured transceiver temperature
  Voltage          - Internally measured supply voltage
  Current          - Measured TX bias current
  Output Power - Measured TX output power in milliWatts
  Input Power    - Measured RX received power in milliWatts
  OE-Present      - SFP Presetn or Not Present
  LOS                - Loss of signal
  N/A - Not Available, N/S - Not Supported, W - Warning, E - Error
```

4.15.13 show flash

Command:

```
show flash
```

show Show running system information

flash Flash Operations

Default:

N/A

Usage Guide:

To display Shows green ethernet status for a specific port or ports.

Example:

To display Shows green ethernet status for a specific port or ports.

```
Switch # show flash
          File Name                 File Size          Modified
---------------------------------- ------------------------- ----------------------
 startup-config                     2286                2000-01-01 00:03:44
 rsa2                               2590                2000-01-01 00:00:49
 dsa2                               1381                2000-01-01 00:00:58
 ssl_cert                           1285                2000-01-01 00:01:06
 image0 (active)                    6570834             2023-01-12 18:04:10
 image1 (backup)                    6570834             2023-01-12 18:04:10
```

4.15.14 show gvrp

Command:

```
show gvrp [ configuration | error-statistics | statistics ]
```

show Show running system information

gvrp GVRP configuration

configuration GVRP configuration

interfaces Interface status and configuration

GigabitEthernet Gigabit ethernet interface to configure

<1-12> GigabitEthernet device number

LAG IEEE 802.3 Link Aggregateion interface

<1-8> LAG interface number

error-statistics Gvrp Error Statistics

interfaces Interface status and configuration

GigabitEthernet Gigabit ethernet interface to configure

<1-12> GigabitEthernet device number

LAG IEEE 802.3 Link Aggregateion interface

<1-8> LAG interface number

statistics Gvrp Statistics

interfaces Interface status and configuration

GigabitEthernet Gigabit ethernet interface to configure

<1-12> GigabitEthernet device number

LAG IEEE 802.3 Link Aggregateion interface

<1-8> LAG interface number

Default:

N/A

Usage Guide:

To display the GVRP configuration

Example:

To display the GVRP configuration

```
Switch # show gvrp configuration interfaces LAG 1
  Port   |   GVRP-Status   | Registration   | Dynamic VLAN Creation
--------+---------------+---------------+----------------------
lag1              Disabled             Normal                 Enabled
```

4.15.15 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
```

4.15.16 show info

Command:

```
show info
```

show Show running system information

info **Basic information**

Default:

N/A

Usage Guide:

To display the **Basic information**

Example:

To display the **Basic information**

```
Switch # show info
System Name          : IGS-4215-8UP2T2S
System Location    : Default Location
System Contact     : Default Contact
MAC Address          : A8:F7:E0:2E:6B:81
IP Address           : 192.168.0.200
Subnet Mask          : 255.255.255.0
Loader Version     : 1.0.0.48161
Loader Date          : Nov 28 2022 - 10:40:05
Firmware Version : 1.305b230112
Firmware Date       : Jan 12 2023 - 18:04:10
System Object ID : 1.3.6.1.4.1.10456.9.93
System Up Time     : 0 days, 4 hours, 10 mins, 26 secs
```

4.15.17 show interface

Command:

```
show interface [GigabitEthernet | LAG | switchport]
```

show Show running system information

interface Interface status and configuration

GigabitEthernet Gigabit ethernet interface to configure

<1-12> GigabitEthernet device number

LAG IEEE 802.3 Link Aggregateion interface

<1-8> LAG interface number

switchport Set switching mode characteristics

GigabitEthernet Gigabit ethernet interface to configure

<1-12> GigabitEthernet device number

LAG IEEE 802.3 Link Aggregateion interface

<1-8> LAG interface number

Default:

N/A

Usage Guide:

To display the Interface status and configuration

Example:

To display the Interface status and configuration

```
Switch # show interfaces GigabitEthernet 1

GigabitEthernet1 is down
  Hardware is Gigabit Ethernet
  Auto-duplex, Auto-speed, media type is Copper
  flow-control is off
  back-pressure is enabled
    0 packets input, 0 bytes, 0 throttles
```

```
Received 0 broadcasts (0 multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 multicast, 0 pause input
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underrun
0 output errors, 0 collisions, 0 interface resets
0 babbles, 0 late collision, 0 deferred
0 PAUSE output
```

4.15.18 show ip

4.15.18.1 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
```

4.15.18.2 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
```

4.15.18.3 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
```

4.15.18.4 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
```

4.15.18.5 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

4.15.18.6 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
```

4.15.18.7 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 -
```

4.15.18.8 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
```

4.15.18.9 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.
```

4.15.18.10 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
```

4.15.18.11 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
```

4.15.18.12 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
=========================
```

4.15.18.13 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
```

4.15.18.14 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
```

4.15.18.15 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
```

4.15.18.16 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.
```

4.15.18.17 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
```

4.15.18.18 show ip source

Command:

```
show ip source [ binding | interfaces ]
```

show Show running system information

ip Internet Protocol

source **IP Source Guard Configuration**

binding **IP Source Guard Binding Table**

interfaces **Interface status and configuration**

dynamic **Dynamic binding entry**

static **Static binding entry**

Default:

N/A

Usage Guide:

To display the **IP Source Guard Configuration**

Example:

To display the **IP Source Guard Configuration**

```
Switch # show ip source binding dynamic
Bind Table: Maximun Binding Entry Number 256
  Port  | VID  |      MAC Address      |              IP                |      Type       | Lease Time
----------+-------+-----------------------------+--------------------------------+--------------------+--------------
```

4.15.19 show ipv6

4.15.19.1 show ipv6 interface

Command:

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

show Show running system information

ipv6 IPv6 configuration commands

vlan VLAN of IPv6 interface

brief Brief summary of IPv6 status and configuration

statistics Traffic statistics

Default:

N/A

Usage Guide:

To display the **IPv6 configuration**.

Example:

To display the **IPv6 configuration**.

```
Switch # show ipv6 interface

IPv6 Vlan1 interface is up.
  Internet address is 2001::7766
  Internet address is fe80::201:c1ff:fe00:9900
  Static address is 2001::7766/64
  IP stack index (IFID) is 2
  Routing is enabled on this interface
  MTU is 1500 bytes

  IPv6 Statistics on Interface VLAN: 1
  Rcvd:  3 total in 168 bytes
         3 local destination, 0 forwarding
         0 header error, 0 address error, 0 unknown protocol
         0 no route, 0 truncated, 0 discarded
  Sent:  17 total in 1104 bytes
         17 generated, 0 forwarded
         0 discarded
  Frags: 0 reassemble (0 reassembled, 0 couldn't reassemble)
```

```
        0 fragment (0 fragmented, 0 couldn't fragment)
        0 fragment created
Mcast: 3 received in 168 bytes
        17 sent in 1104 bytes
Bcast: 0 received, 0 sent
```

4.15.19.2 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.
```

4.15.19.3 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
```

4.15.19.4 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
```

4.15.19.5 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>
```

4.15.19.6 show ipv6 statistics

Command:

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

show Show running system information

ipv6 IPv6 configuration commands

statistics Traffic statistics

icmp IPv6 ICMP traffic

icmp-msg IPv6 ICMP traffic for designated message type

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

interface Select an interface to configure

vlan IPv6 interface traffic

system IPv6 system traffic

Default:

N/A

Usage Guide:

To display the **IPv6 statistics**.

Example:

To display the **IPv6 statistics**.

```
Switch # show ipv6 statistics

IPv6 statistics:

  Rcvd:  24 total in 2064 bytes
         6 local destination, 0 forwarding
         0 header error, 0 address error, 0 unknown protocol
         0 no route, 0 truncated, 18 discarded
  Sent:  34 total in 2208 bytes
         38 generated, 0 forwarded
         0 no route, 0 discarded
  Frags: 0 reassemble (0 reassembled, 0 couldn't reassemble)
         0 fragment (0 fragmented, 0 couldn't fragment)
         0 fragment created
  Mcast: 24 received in 2064 bytes
         34 sent in 2208 bytes
  Bcast: 0 received, 0 sent
```

```
IP interface statistics:

  IPv6 Statistics on Interface VLAN: 1
  Rcvd:   12 total in 1032 bytes
          3 local destination, 0 forwarding
          0 header error, 0 address error, 0 unknown protocol
          0 no route, 0 truncated, 9 discarded
  Sent:   17 total in 1104 bytes
          17 generated, 0 forwarded
          0 discarded
  Frags: 0 reassemble (0 reassembled, 0 couldn't reassemble)
          0 fragment (0 fragmented, 0 couldn't fragment)
          0 fragment created
  Mcast: 12 received in 1032 bytes
          17 sent in 1104 bytes
  Bcast: 0 received, 0 sent

IPv6 ICMP statistics:

  Rcvd: 3 Messages, 0 Error
  Sent: 19 Messages, 0 Error

ICMP message statistics:

  IPv6 ICMP Message: Multicast Listener Report
  Rcvd: 0 Packet
  Sent: 10 Packets
  IPv6 ICMP Message: Router Solicitation (NDP)
  Rcvd: 3 Packets
  Sent: 6 Packets
  IPv6 ICMP Message: Neighbor Solicitation (NDP)
  Rcvd: 0 Packet
  Sent: 3 Packets
```

4.15.20 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
```

4.15.21 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.
```

4.15.22 show lldp

4.15.22.1 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
```

4.15.22.2 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
```

4.15.22.3 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
```

4.15.22.4 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
```

4.15.23 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
```

4.15.24 show mac

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
```

4.15.25 show management

Command:

Show management [access-class | access-list]

show Show running system information

management **Specify management restrictions configuration**

access-class **Show management active list definition.**

access-list **Show management access list or lists definition.**

Default:

N/A

Usage Guide:

To display the **Specify management restrictions configuration**.

Example:

To display the **Specify management restrictions configuration**

Switch # **show management access-class** Management access-class is disabled

4.15.26 show management-vlan

Command:

show management-vlan

show Show running system information

management-vlan **Management VLAN configuration**

Default:

N/A

Usage Guide:

To display the **Management VLAN configuration**

Example:

To display the **Management VLAN configuration**

Switch # **show management-vlan**
IGS-4215-8UP2T2S# show management-vlan
Management VLAN-ID : Default(1)

4.15.27 show memory

Command:

show Memory statistics

show Show running system information

memory **Memory statistics.**

Default:

N/A

Usage Guide:

To display the **Memory statistics.**

Example:

To display the **Memory statistics.**

```
Switch # show memory statistics
                total(KB)      used(KB)      free(KB)    shared(KB)    buffer(KB)     cache(KB)
-------------------+------------+------------+------------+------------+------------
Mem:              62416         52980          9436             0          1556         20364
-/+ buffers/cache:              31060         31356
Swap:                 0             0             0
```

4.15.28 show mirror

Command:

```
show mirror
```

show Show running system information

mirror **Mirror configuration**

session **Mirror Session configuration**

<1-4> **Session ID (e.g. 1-4)configuraton**

Default:

N/A

Usage Guide:

To display the **Mirror Session configuration**

Example:

To display the **Mirror Session configuration**.

```
Switch # show mirror session

Session 1 Configuration
Mirrored source     : Not Config
Destination port    : Not Config
```

4.15.29 show nms

Command:

show ntp status

show Show running system information

nms **nms information**

status **show nms status**

Default:

N/A

Usage Guide:

To display the **nms information**

Example:

To display the **nms information**

Switch # **show nms status** **NMS Operation Mode: nms-controller** **Status: no bind**

4.15.30 show poe

Command:

show poe

show Show running system information

poe **Show per PoE port information**

Default:

N/A

Usage Guide:

To display the **Show per PoE port information.**

Example:

To display the **Show per PoE port information.**

```
Switch # show poe
System PoE Admin Mode                : Enable
Power Limit Mode                     : Consumption
Maximum Available Power              : 240 Watt
PoE Power Consumption                : 0.0 Watt

      |    PoE   | inline  |    PD     |Schedule |            | PD  |        Current         | Power
 Port| Function | Mode    |   Type    |   Profile   |Priority   |Class|   [mA] |     [Watt]     | Limit
 ----+--------+----------+--------+----------+--------+-----+-------+-----------+------
  01 |   Enable|          BT|Standard|Profile 1|Critical| --- |    0    |       0       | 95.0
  02 |   Enable|          BT|Standard|Profile 1|Critical| --- |    0    |       0       | 95.0
  03 |   Enable|          BT|Standard|Profile 1|Critical| --- |    0    |       0       | 95.0
  04 |   Enable|          BT|Standard|Profile 1|Critical| --- |    0    |       0       | 95.0
  05 |   Enable|          BT|Standard|Profile 1|Critical| --- |    0    |       0       | 95.0
  06 |   Enable|          BT|Standard|Profile 1|Critical| --- |    0    |       0       | 95.0
  07 |   Enable|          BT|Standard|Profile 1|Critical| --- |    0    |       0       | 95.0
  08 |Schedule|          BT|Standard|Profile 1|Critical| --- |    0    |       0       | 95.0
 ----+--------+----------+--------+----------+--------+-----+-------+-----------+------
```

4.15.31 show port-security

Command:

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

show Show running system information

port-security port-security

interfaces Interface status and configuration

GigabitEthernet Gigabit ethernet interface to configure

LAG IEEE 802.3 Link Aggregateion interface

<1-12> GigabitEthernet device number

Default:

N/A

Usage Guide:

To display the status of **Port Security**.

Example:

To display the status of **Port Security**.

```
Switch # sh port-security interfaces GigabitEthernet 1
  Port      |      Security       | CurrentAddr |       Action
----------+------------------+-------------+------------------
      gi1   |      Disabled       |          0      |      Discard
```

4.15.32 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
```

4.15.33 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
```

4.15.34 show radius

Command:

```
show radius [ statistics ]
```

show Show running system information

radius **RADIUS server information**

default-config **RADIUS server default configurations**

Default:

N/A

Usage Guide:

To display the **RADIUS server information**

Example:

To display the **RADIUS server information**

```
Switch # sh radius default-config

Retries| Timeout|     Key
--------+--------+---------
       3   |       3   |
```

4.15.35 show rmon

4.15.35.1 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
```

4.15.35.2 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
```

4.15.35.3 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
```

4.15.35.4 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
```

4.15.36 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
```

4.15.37 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
```

4.15.37.1 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
```

4.15.37.2 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
```

4.15.37.3 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
```

4.15.37.4 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)
```

4.15.37.5 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

4.15.37.6 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
```

4.15.37.7 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
```

4.15.37.8 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
```

4.15.38 show sntp

Command:

```
show sntp
```

show Show running system information

sntp **Simple Network Time Protocol (SNTP) information**

Default:

N/A

Usage Guide:

To display the **Simple Network Time Protocol (SNTP) information**

Example:

To display the **Simple Network Time Protocol (SNTP) information**

```
Switch # show sntp
SNTP is Disabled
SNTP Server address:
SNTP Server port: 123
```

4.15.39 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
---------   --------------   ----------   ---   --------   ----   ---   -------------
```

4.15.40 show startup-config

Command:

```
show startup-config
```

show Show running system information

startup-config Startup configuration

Default:

N/A

Usage Guide:

To display the Startup configuration.

Example:

To display the Startup configuration.

```
Switch # show startup-config
SYSTEM CONFIG FILE ::= BEGIN
! System Description: PLANET IGS42158UP2T2S Switch
! System Version: v3.0.5.48161.48161
! System Name: IGS-4215-8UP2T2S
! System Up Time: 0 days, 0 hours, 3 mins, 44 secs
!
system name "IGS-4215-8UP2T2S"
ip address 192.168.0.200 mask 255.255.255.0
clock timezone web 0 minutes 0
username "admin" secret encrypted
MjEyMzJmMjk3YTU3YTVhNzQzODk0YTBlNGE4MDFmYzM=
vlan 1
 name "Default"
voice-vlan oui-table 00:E0:BB 3COM
voice-vlan oui-table 00:03:6B Cisco
voice-vlan oui-table 00:E0:75 Veritel
voice-vlan oui-table 00:D0:1E Pingtel
voice-vlan oui-table 00:01:E3 Siemens
voice-vlan oui-table 00:0F:E2 H3C
voice-vlan oui-table 00:09:6E Avaya
voice-vlan oui-table 00:30:4F PLANET
```

4.15.41 show storm-control

Command:

```
show storm-control
```

show Show running system information

storm-control **Storm control configuration**

interfaces **Interface status and configuration**

GigabitEthernet **Gigabit ethernet interface to configure**

<1-12> **GigabitEthernet device number**

Default:

N/A

Usage Guide:

To display the **Storm control configuration**

Example:

To display the **Storm control configuration.**

```
Switch # show storm-control interfaces GigabitEthernet 1
  Port     | State |   Broadcast   |   Unkown-Multicast   | Unknown-Unicast |    Action
           |       |      kbps     |          kbps        |       kbps      |
----------+-------+---------------+----------------------+-----------------|-----------
  gi1        disable Off(   10000)    Off(   10000)           Off(   10000)          Drop
```

4.15.42 show tacacs

Command:

```
show tacacs
```

show Show running system information

tacacs **TACACS+ server information**

default-config **Tacacs+ server default configurations**

Default:

N/A

Usage Guide:

To display the **TACACS+ Server** configuration.

Example:

To display the **TACACS+ Server** configuration**.**

```
Switch # show tacacs default-config
Timeout   |    Key
----------+---------
        5  |
```

4.15.43 show temperature

Command:

show temperature

show Show running system information

temperature **Temperature**

Default:

N/A

Usage Guide:

To display the Temperature information.

Example:

To display the Temperature information**.**

Switch # **show temperature**	
PoE Temperature	: 43.0(C) / 80.6(F)
PoE Temperature	: 45.0(C) / 84.2(F)

4.15.44 show username

Command:

```
show username
```

show Show running system information

username **Local User**

Default:

N/A

Usage Guide:

To display the **Local User** information.

Example:

To display the **Local User** information**.**

```
Switch # show username
Priv  |  Type  |              User Name                |              Password
-------+--------+---------------------------------+---------------------------------
  15        |  secret  |                                                                admin  |
MjEyMzJmMjk3YTU3YTVhNzQzODk0YTBlNGE4MDFmYzM=
```

4.15.45 show users

Command:

```
show users
```

show Show running system information

users **Display information about users**

Default:

N/A

Usage Guide:

To display the **information about users**

Example:

To display the **information about users**.

```
Switch # show users
   Username          Protocol              Location
---------------------- ---------------------- ------------------------
        admin          console                 0.0.0.0
```

4.15.46 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 version
Loader Version     : 1.0.0.48161
Loader Date        : Nov 28 2022 - 10:40:05
Firmware Version : 1.305b230112
Firmware Date      : Jan 12 2023 - 18:04:10
M031 FW Version    : v1.b221115
```

4.15.47 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
  VID  |      VLAN Name      |          Untagged Ports          |          Tagged Ports          |  Type
-------+---------------------+----------------------------------+--------------------------------+---------
   1   |             Default |                  gi1-12,lag1-8 |                            --- | Default
```

4.15.48 show voice vlan

Command:

```
show voice-vlan interfaces [GigabitEthernet | LAG]
```

show Show running system information

voice-vlan **Voice VLAN configuration**

interfaces **Interface status and configuration**

GigabitEthernet **Gigabit ethernet interface to configure**

<1-12> **GigabitEthernet device number**

LAG **IEEE 802.3 Link Aggregateion interface**

<1-8> **LAG interface number**

Default:

N/A

Usage Guide:

To display the **Voice VLAN** information.

Example:

To display the **Voice VLAN** information for **GigabitEthernet 1**

```
Switch # show voice-vlan interfaces GigabitEthernet 1
Voice VLAN Aging       : 1440 minutes
Voice VLAN CoS         : 6
Voice VLAN 1p Remark: disabled

OUI table
    OUI MAC       |     Description
--------------+-----------------
    00:E0:BB     | 3COM
    00:03:6B     | Cisco
    00:E0:75     | Veritel
    00:D0:1E     | Pingtel
    00:01:E3     | Siemens
    00:0F:E2     | H3C
    00:09:6E     | Avaya
    00:30:4F     | PLANET

   Port | State       | Port Mode     | Cos Mode
-------+----------+-------------+-----------
gi1       | Disabled |       Auto         | Src
```

4.16 ssl

Command:

```
ssl
```

Mode:

Global Configuration

Usage Guide:

Use “ssl” command to generate security certificate files such as RSA, DSA.

Example:

This example shows how to generate certificate files.

```
Switch(config)# ssl
```

This example shows how to show the certificate file lists.

```
Switch# show flash
File Name File Size Modified
------------------------ ---------------- ------------------------
startup-config 1191 2000-01-01 00:00:23
rsa1 974 2000-01-01 00:00:18
rsa2 1675 2000-01-01 00:00:18
dsa2 668 2000-01-01 00:00:18
ssl_cert 993 2000-01-01 00:00:18
image0 (active) 4372401 2012-09-24 01:57:29
image1 (backup) 0
```

4.17 terminal

Command:

```
terminal length <lines>
```

length **Terminal length**

<0-24> **Length value. 0 means no limit**

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 running-config
SYSTEM CONFIG FILE ::= BEGIN
! System Description: PLANET IGS42158UP2T2S Switch
! System Version: v3.0.5.48161.48161
! System Name: IGS-4215-8UP2T2S
! System Up Time: 6 days, 23 hours, 5 mins, 52 secs
--More--
```