Grandstream Networks, Inc.

GWN78xx Switches

CLI Guide

INTRODUCTION

The GWN78xx series switches can be managed locally or remotely, through Web access or via Command Line, offering more flexibility along with secured login sessions. The various features and operations on the GWN78xx switches can now be managed either through Web GUI offering a friendly user interface, or via Command Line through SSH/Telnet access.

SSH is a secure protocol used for the connection to a remote host, through command lines and text-based interface. Once authenticated and connected, all typed commands on the terminal are sent to the remote device and executed there.

This guide will describe the usage of Command Line to manage the GWN78xx switches, and will be illustrated using Putty tool, as SSH client Console.

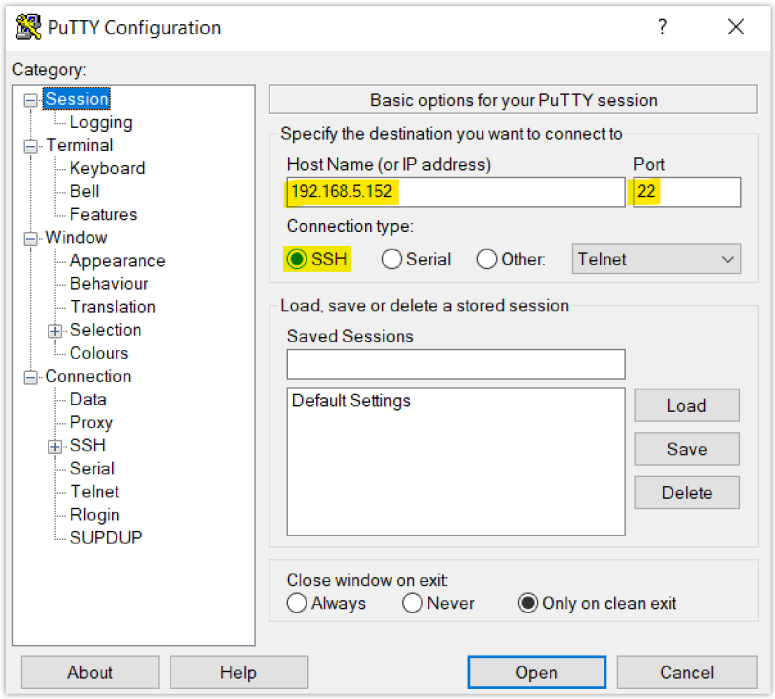
CONNECTING TO THE SWITCH

Connect using SSH

Secure Shell (SSH) provides both secure authentication and secure communications to the CLI. First step to do is to run the SSH client application (PuTTY in our case) and set the following:

- **Host Name or IP Address:** GWN78xx's IP Address, (ex: 192.168.5.152).
- **Port:** 22, this is the by default port for SSH protocol.
- **Connection type:** Set this to SSH

The settings should be similar to the following figure:

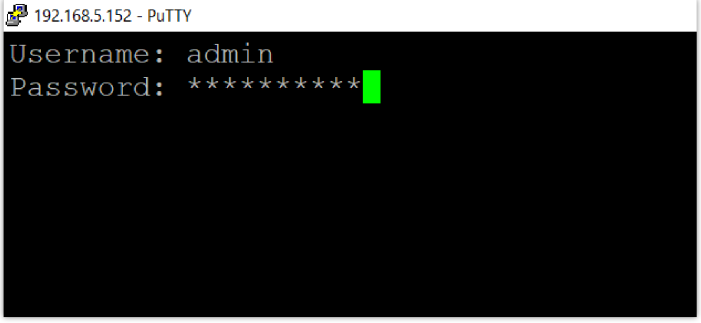


Putty SSH Configuration

Once done, you can press **Open** to start the SSH session and open the console.

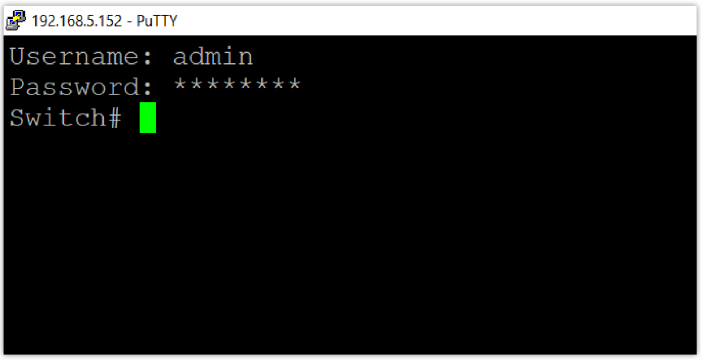
Once pressing **Open** to start the session, the login prompt will appear on the CLI, enter the Username and the Password to login.

> **Note:**
>
> If this is the first login or there are no users created yet, the default username is "admin" and the password is printed on the switch sticker.



CLI Login

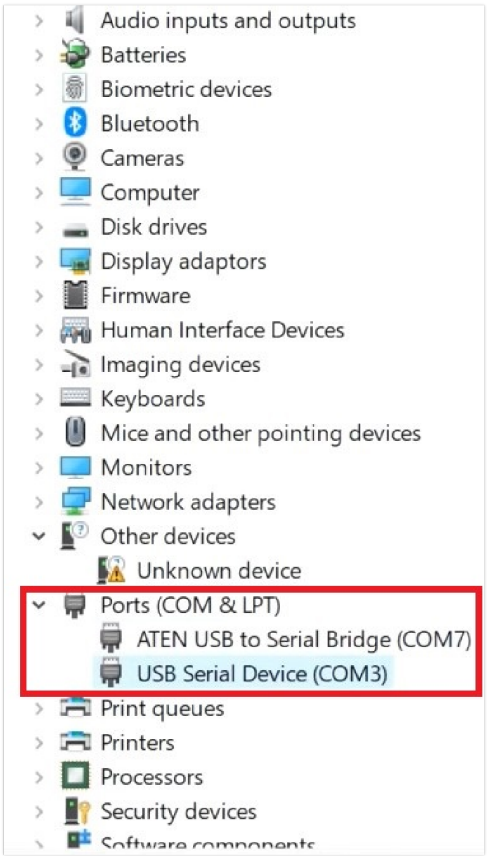
After clicking “Enter”, the user should now have access to the switch.



Successful login

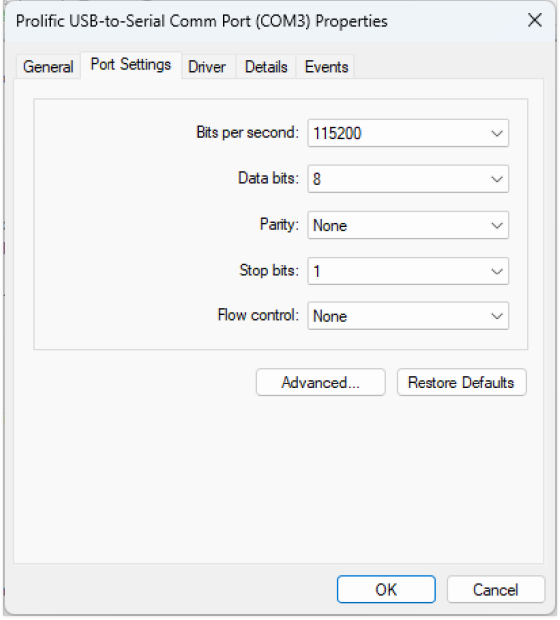
Connect using Console port

First, connect the GWN switch with the computer using the console port on the switch, then in device manager (ex: windows) under ports check what Serial line (ex: COM3, COM7 …) has been used. Please refer to the figure below:



Windows Device Manager

Then, **left click on the port used (USB Serial Device (COM3))** → **Properties** → **Port Settings** and make sure to match the port settings as shown below:

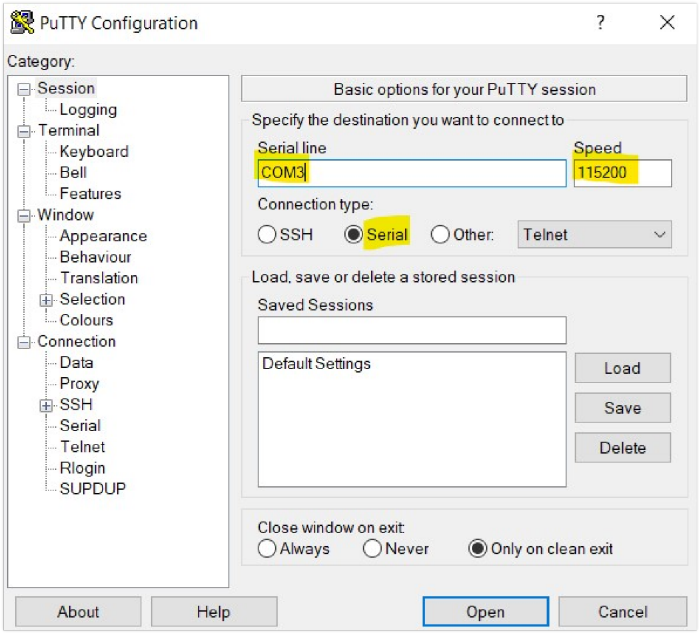


Port Settings Console

We can use PuTTY again to connect to the GWN switch, please use the following configuration below:

- **Serial line:** use the same serial line previously checked on the device manager.
- **Connection type:** select Serial
- **Speed:** 115200

Once finished, click on "**Open**" button at the bottom to open the CLI.



PuTTY Console configuration

> **Note:**
>
> Once the user establishes the connection with the switch, below are all the commands to view, configure, manage etc the GWN78xx(P) series switches.

OVERVIEW

Configure

Command: configure

Mode: Privileged Exec Mode

Parameter: none

Description: Enter global configuration mode

Example:

```
Switch # configure
Switch(config)#
```

Interface

Command:

1. interface IF_PORTS
2. interface range IF_PORTS
3. interface group [1-32]

Mode: interface configuration mode

Parameter:

Parameter	Description
IF_PORTS	Interfaces, including Ethernet ports , optical ports, and aggregation ports.
[1-32]	Port Group ID.

Description:

- **Interface IF_PORTS:** Enter interface configuration mode.
- **Interface range IF_PORTS**: Enter interface configuration mode.
- **Interface group [1-32]**: Enter port group configuration mode.

Example:

```
Enter the configuration of port 1
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)#

Enter the configuration of ports 1-5
Switch# configure
Switch(config)# interface range Ethernet 1/0/1-1/0/5
Switch(config-if-range)#

Enter the configuration of port 2/0/3
Switch# configure
Switch(config)# interface Ethernet 2/0/3
Switch(config-if)#

Enter the configuration of port group 2
Switch# configure
Switch(config)# interface group 2
Switch(config-if-group)#
```

End

Command: end

Mode: none

Parameter: none

Description: Return directly to privileged EXEC mode in other configuration modes except user mode

Example:

```
Switch # configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# end
Switch#
```

Exit

Command: exit

Mode: none

Parameter: none

Description: return to parent schema In user mode, the current CLI session will be closed directly

Example:

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

System Information

View basic switch information

Command: show info

Mode: Privileged Exec Mode

Parameter:

Parameter	Description
System Name	device name
System Location	device location
System Contact	Equipment contact information
MAC Address	MAC address
Mgmt Intf	Managing VLANs
IP Address	IP address
Subnet Mask	subnet mask
Loader Version	bootloader version
Loader Date	bootstrap date
Firmware Version	Software version/system version
Firmware Date	software date
Hardware Version	hardware version
PN Series number	PN serial number
SN Series number	SN serial number
System Object ID	System OIDs
System Up Time	run time

Power On Time	Total power-on duration

Description: Displays basic system information and the current operational status of the switch.

Example:

```
GWN7806PH_Pro# show info

System Name      : GWN7806PH_Pro
System Location  : Default
System Contact   : Default
Device Model     : GWN7806PH Pro
MAC Address      : EC:74:D7:A0:E1:98
Mgmt Intf        : VLAN 1
IP Address       : 192.168.0.254
Subnet Mask      : 255.255.255.0
Loader Version   : 1.0.0.4
Loader Date      : Nov 07 2025 - 09:11:12
Firmware Version : 1.0.16.36
Firmware Date    : Mar 19 2026 - 09:27:45
Hardware Version : V1.0B
PN Series Number : 9640018910B
SN Series Number : 35506G6B63
System Object ID : 1.3.6.1.4.1.42397
System Up Time   : 0 day(s), 0 hour(s), 8 min(s), 25 sec(s)
Power On Time    : 171 day(s), 20 hour(s), 24 min(s), 19 sec(s)s
```

Configure basic switch information

- **Configure switch name**

Command:

1. system name NAME
2. show info

Mode: global configuration mode

Parameter:

Parameter	Description
name	Character range: 1-32 If the string is empty, use “” to quote it.

Description: Modify the switch name

Example:

```
Set the switch name to MySwitch and check
Switch# configure
Switch (config) #system name MySwitch
MySw itch (config) # do show info

System Name : MySwitch
System Location : Default
System Contact : Default
MAC Address : C0:74:AD:B9:3B:44
IP Address : 192.168.80.202
Subnet Mask : 255.255.255.0
Loader Version: 3.6.9.55156
Loader Date : Sep 09 2022 - 16:06:39
Firmware Version: 1.0.1.11
Firmware Date : Nov 01 2022 - 05:07:20
Hardware Version : V1.2A
PN Series number : 9640004612A
SN Series number : 20VXU28N90B93B44
System Object ID : 1.3.6.1.4.1.27282.3.2.10
System Up Time: 1 days, 22 hours, 45 mins, 6 secs
```

- **Configure switch location**

Command: system location LOCATION

Mode: global configuration mode

Parameter:

Parameter	Description
LOCATION	switch location If the string is empty, use “” to quote it

Description: Modify switch location

Example:

```
Modify the location of the switch to shenzhen and check
Switch # configure
Switch(config)#system location shenzhen
Switch(config)#do show info

System Name : MySwitch
System Location: shenzhen
System Contact : Default
MAC Address : C0:74:AD:B9:3B:44
IP Address : 192.168.80.202
Subnet Mask : 255.255.255.0
Loader Version: 3.6.9.55156
Loader Date : Sep 09 2022 - 16:06:39
Firmware Version: 1.0.1.11
Firmware Date : Nov 01 2022 - 05:07:20
Hardware Version : V1.2A
PN Series number : 9640004612A
SN Series number : 20VXU28N90B93B44
System Object ID : 1.3.6.1.4.1.27282.3.2.10
System Up Time: 1 days, 22 hours, 47 mins, 55 secs
```

- **Configure switch contact information**

Command: system contact CONTACT

Mode: global configuration mode

Parameter:

Parameter	Description
CONTACT	switch contact If the string is empty, use “” to quote it.

Description: Modify the switch contact information

Example:

```
Modify the switch contact information to 13546879513 and check
Switch # configure
Switch(config)#system contact 13546879513
Switch(config)#do show info

System Name : MySwitch
System Location: shenzhen
System Contact : 13546879513
MAC Address : C0:74:AD:B9:3B:44
IP Address : 192.168.80.202
Subnet Mask : 255.255.255.0
Loader Version: 3.6.9.55156
Loader Date : Sep 09 2022 - 16:06:39
Firmware Version: 1.0.1.11
Firmware Date : Nov 01 2022 - 05:07:20
Hardware Version : V1.2A
PN Series number : 9640004612A
SN Series number : 20VXU28N90B93B44
System Object ID : 1.3.6.1.4.1.27282.3.2.10
System Up Time: 1 days, 22 hours, 48 mins, 1 secs
```

View the switch CPU information

- **View the input frame rate of the CPU**

Command: show cpu input rate

Mode: Privileged Exec Mode

Parameter: none

Description: View the rate of CPU input frames

Example:

```
Switch# show cpu input rate
Input Rate to CPU is 1 pps
```

- **View CPU usage**

Command: show cpu utilization

Mode: Privileged Exec Mode

Parameter: none

Description: Show CPU usage

Example:

```
Switch# show cpu utilization

CPU utilization
---------------
Current: 0%
```

View CPU port MIB information

Command: `show cpu mib-counters`

Mode: Privileged Exec Mode

Parameter: none

Description: Displays MIB (Management Information Base) counter statistics for the CPU port.

Example:

Plaintext

```
GWN7806PH_Pro# show cpu mib-counters
============================================================
 CPU Port
        ------------ Bridge/Interface MIB -----------
        dot1dTpPortInDiscards : 0
        ifInOctets : 34500
        ifHCInOctets : 34500
        ifInUcastPkts : 0
        ifHCInUcastPkts : 0
        ifInMulticastPkts : 125
        ifHCInMulticastPkts : 125
        ifInBroadcastPkts : 0
        ifHCInBroadcastPkts : 0
        ifOutOctets : 39069
        ifHCOutOctets : 39069
        ifOutUcastPkts : 0
        ifHCOutUcastPkts : 0
        ifOutMulticastPkts : 129
        ifHCOutMulticastPkts : 129
        ifOutBroadcastPkts : 0
        ifHCOutBroadcastPkts : 0
        ifOutDiscards : 0
```

View Memory Information

Command:
`show memory statistics`

Mode:
Privileged EXEC Mode

Parameter:

Parameter	Description
`total`	Total memory
`avail`	Available memory
`used`	Used memory
`free`	Free memory
`shared`	Shared memory

Parameter	Description
`buffer`	Buffer memory
`cache`	Cache memory

Description:
Displays memory statistics in kilobytes (KB), including total, available, used, free, shared, buffer, and cache.

Example:

```
Switch# show memory statistics

total(KB)  avail(KB)  used(KB)  free(KB)  shared(KB)  buffer(KB)  cache(KB)
----------+-----------+----------+----------+-----------+-----------+----------
Mem:       254840     134400     162268     92572        0          2176        61352
-/+ buffers/cache:     98740     156100
Swap:      0           0         0
```

View switch version information

Command: show version

Mode: Privileged Exec Mode

Parameter:

Parameter	description
Loader Version	bootloader version
Loader Date	bootstrap date
Firmware Version	Software version/system version
Firmware Date	software date

Description: Displays version information, including bootloader version, date and software version, date

Example:

```
Switch # show version

Loader Version: 3.6.9.55156
Loader Date : Sep 09 2022 - 16:06:39
Firmware Version: 1.0.1.11
Firmware Date : Nov 01 2022 - 05:07:20
```

Check the Switch Fan Running Status

Supported Models:
GWN7803P / GWN7806 / GWN7806P / GWN12P / GWN7813P / GWN16 / GWN7816P / GWN7832 / GWN7831 / GWN7821P / GWN7822P / GWN7802P Pro / GWN7803PL Pro / GWN7803PH Pro / GWN7806PL Pro / GWN7806PH Pro

Command:

- `show fan`
- `show fan members <1-4>`

Mode:
Privileged EXEC mode

Parameter:

Parameter	Description
<1-4>	The device ID for GWN7803P/GWN7806/GWN7806P/GWN7812P/GWN7813P/GWN7816/GWN7816P/GWN7832/GWN7831/GWN7821P/GWN7822P/GWN7802P Pro/GWN7803PL Pro/GWN7803PH Pro ranges from 1 to 4, while the value range for GWN7806PL Pro/GWN7806PH Pro ranges from 1 to 8.

Description:

- `show fan` : Displays the operating status of the switch's fan(s). The number and speed of fans may vary depending on the model.
- `show fan members <1-4>` : Displays the fan status of a specified device ID in a stacking system.

Example:

```
Switch# show fan
STACK member 1
fan mode: auto control
FanId   Status   Speed
1       NORMAL   LOW
2       NORMAL   LOW
```

Check Switch Temperature

Command:

- `show temperature`
- `show temperature member <1-4>`

Mode:
Privileged EXEC mode

Parameter:

Parameter	Description
<1-4>	The device ID, GWN7801/GWN7801P/GWN7802/GWN7802P/GWN7803/GWN7803P/GWN7806/GWN7806P/GWN7811/GWN7811P/GWN7812P/GWN7813/GWN7813P/GWN7816/GWN7816P/GWN7832/GWN7831/GWN7830/GWN7821P/GWN7822P/GWN7803PL Pro/GWN7803PH Pro, has a value range of 1-4 , while GWN7806PL Pro/GWN7806PH Pro has a value range of 1-8.

Description:
Checks the current operating temperature of the switch.

Example:

```
Switch# show temperature
STACK Member 2
System Temperature: 48 °C
```

Check Power Supply Status (RPS/PSU)

Supported Models:
GWN7813 / GWN7813P / GWN7831 / GWN7832 / GWN7816 / GWN7816P / GWN7822P / GWN7803 Pro / GWN7803PH Pro / GWN7806PL Pro / GWN7806PH Pro

Command:

- `show rps`
- `show rps member <1-4>`

Mode:
Privileged EXEC mode

Parameter:

Parameter	Description
`<1-4>`	The device ID for GWN7813/GWN7813P/GWN7831/GWN7832/GWN7816/GWN7816P/GWN7822P/GWN7803 Pro/GWN7803PH Pro ranges from 1 to 4, while the value for GWN7806P L Pro/GWN7806PH Pro ranges from 1 to 8.

Description:
Checks the power supply (PSU or RPS) status of the device.

Example:

```
Check PSU status on a device such as the GWN7816P:

GWN7816P# show rps

Power Status: PSU1_INUSE_PSU2_UNCONNECTED
Internal Power Status: in use
External Power Status: unconnected

---

Check RPS status on a device such as the GWN7806PL Pro:

GWN7806PL Pro# show rps
STACK member 1

Power Status: INTER_12V_SUPPLY
Internal Power Status: in use
External Power Status: unused
```

View Port/Interface Status, Bandwidth, and Error Information

Command:
show interfaces brief
show interfaces Ethernet `<IF_PORTS>` brief
show interfaces vlan `<IF_VLANS>` brief

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
IF_PORTS	Ethernet port number
IF_VLANS	VLAN interface ID (range: 1 to 4094)

Description:
Displays the physical status, protocol status, input/output bandwidth utilization, and number of received/transmitted error packets for a specified port or interface.

Note: *VLAN interfaces do* ***not*** *support bandwidth and error packet statistics.*

Example:

```
Switch# show interfaces brief

PHY: Physical status
shutdown: administratively down
(l): Loopback Detection down       (stp): Spanning Tree down
(acl): User Defined ACL down       (stm): Storm Control down
(d): DHCP rate limit down          (p): Port Security down
(arp): ARP rate limit down

Protocol: Protocol status
(lacp): Trunk protocol LACP down   (stp): Spanning Tree down

InUti/OutUti: Input/Output bandwidth utilization

Interface      PHY   Protocol   InUti   OutUti   inErrors  outErrors
eth1/0/1       up    up         0.000%  0.000%   0         0
eth1/0/2       down  down       0.000%  0.000%   0         0
eth1/0/3       down  down       0.000%  0.000%   0         0
eth1/0/4       down  down       0.000%  0.000%   0         0
eth1/0/5       down  down       0.000%  0.000%   0         0
eth1/0/6       down  down       0.000%  0.000%   0         0
eth1/0/7       down  down       0.000%  0.000%   0         0
eth1/0/8       down  down       0.000%  0.000%   0         0
eth1/0/9       down  down       0.000%  0.000%   0         0
eth1/0/10      down  down       0.000%  0.000%   0         0
eth1/0/11      down  down       0.000%  0.000%   0         0
eth1/0/12      down  down       0.000%  0.000%   0         0
eth1/0/13      down  down       0.000%  0.000%   0         0
eth1/0/14      down  down       0.000%  0.000%   0         0

Switch# show interfaces Ethernet 1/0/1 brief

Interface      PHY   Protocol   InUti   OutUti   inErrors  outErrors
eth1/0/1       up    up         0.000%  0.000%   0         0

Switch# show interfaces vlan 1 brief

Interface   PHY   Protocol   InUti   OutUti   inErrors  outErrors
VLAN 1      up    up         --      --       0         0
```

Note: *VLAN interfaces do not support* `InUti`, `OutUti`, `inErrors`, *or* `outErrors`.

View Port/Interface Description Information

Command:
show interfaces description
show interfaces Ethernet `<IF_PORTS>` description
show interfaces vlan `<IF_VLANS>` description

Mode:
Privileged EXEC mode

Parameter:

Parameter	Description
IF_PORTS	Ethernet port number
IF_VLANS	VLAN interface ID (range: 1 to 4094)

Description:
Displays the description configured for the specified port or interface.

Example:

```
Switch# show interfaces description

PHY: Physical status
shutdown: administratively down
(l): Loopback Detection down       (stp): Spanning Tree down
(acl): User Defined ACL down       (stm): Storm Control down
(d): DHCP rate limit down          (p): Port Security down
(arp): ARP rate limit down

Protocol: Protocol status
(lacp): Trunk protocol LACP down   (stp): Spanning Tree down

Interface        PHY   Protocol   Description
eth1/0/1         up    up
eth1/0/2         down  down
eth1/0/3         down  down
eth1/0/4         down  down
eth1/0/5         down  down
eth1/0/6         down  down
eth1/0/7         down  down
eth1/0/8         down  down
eth1/0/9         down  down
eth1/0/10        down  down
eth1/0/11        down  down
eth1/0/12        down  down
eth1/0/13        down  down
eth1/0/14        down  down
eth1/0/15        down  down
eth1/0/16        down  down
eth1/0/17        down  down
eth1/0/18        down  down
eth1/0/19        down  down
eth1/0/20        down  down
eth1/0/21        down  down
eth1/0/22        down  down
eth1/0/23        down  down
eth1/0/24        down  down
eth1/0/25        down  down
eth1/0/26        down  down
eth1/0/27        down  down
eth1/0/28        down  down
lag1             down  down
lag2             down  down
lag3             down  down
lag4             down  down
lag5             down  down
lag6             down  down
lag7             down  down
lag8             down  down
lag9             down  down
lag10            down  down
lag11            down  down
lag12            down  down
lag13            down  down
lag14            down  down
lag15            down  down
lag16            down  down
lag17            down  down
lag18            down  down
lag19            down  down
lag20            down  down
lag21            down  down
lag22            down  down
lag23            down  down
lag24            down  down
lag25            down  down
lag26            down  down
lag27            down  down
lag28            down  down
lag29            down  down
lag30            down  down
lag31            down  down
lag32            down  down
Loopback1        up    up
VLAN 1           up    up
VLAN 2           down  down

Switch# show interfaces Ethernet 1/0/1 description

Interface      PHY   Protocol   Description
eth1/0/1       up    up

Switch# show interfaces vlan 1 description
```

```
Interface    PHY    Protocol    Description
VLAN 1       up     up
```

View Current Port Rate, Current Traffic/Actual Bandwidth, and Port Usage

Command:
show interfaces Ethernet `<IF_PORTS>`
show interfaces Ethernet `<IF_PORTS>` brief

Mode:
Privileged EXEC mode
Parameter:

Parameter	Description
IF_PORTS	Ethernet port number

Description:
Use the `show interfaces Ethernet <IF_PORTS>` command to view the current port rate, real-time traffic, and actual bandwidth.
Use the `show interfaces Ethernet <IF_PORTS> brief` command to check port usage including bandwidth utilization and error statistics.

Example:

```
Switch# show interfaces Ethernet 1/0/1

Ethernet1/0/1 is up
  Hardware is Gigabit Ethernet
  Auto-duplex, Auto-speed, media type is Copper
  flow-control is off
  back-pressure is enabled
  selfloop-detection is disabled
  selfloop-detection running is false
  real time input rate  2669 bits/sec, 3 packets/sec
  real time output rate 1281 bits/sec, 1 packets/sec
     687766 packets input, 67775661 bytes, 0 throttles
     Received 55200 broadcasts (512929 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame
     512929 multicast, 0 pause input
     0 input packets over size
     188786 packets output, 25281691 bytes, 0 underrun
     0 output errors, 0 collisions
     0 babbles, 0 late collision, 0 deferred
     0 PAUSE output

Switch# show interfaces Ethernet 1/0/1 brief

PHY: Physical status
shutdown: administratively down
(l): Loopback Detection down       (stp): Spanning Tree down
(acl): User Defined ACL down       (stm): Storm Control down
(d): DHCP rate limit down          (p): Port Security down
(arp): ARP rate limit down

Protocol: Protocol status
(lacp): Trunk protocol LACP down   (stp): Spanning Tree down

InUti/OutUti: Input/Output bandwidth utilization

Interface      PHY   Protocol   InUti   OutUti   inErrors  outErrors
eth1/0/1       up    up         0.000%  0.000%   0         0
```

ETHERNET SERVICE

Basic port configuration

Open/close port

Command:

1. **no shutdown**
2. **shutdown**
3. **schedule id** <1-32>
4. **no schedule id** <1-32>

Mode: interface configuration mode

Parameter:

Parameter	Description
<1-32>	Time policy ID , used to enable the port within a specified time range.

Description: Open/close port

Example:

```
close port 1/0/1
Switch#config
Switch (config) # interface Ethernet 1/0/1
Switch (config-if) #shutdown

open port 1/0/1
Switch (config-if) #no shutdown
```

Configure port description

Command: description DESCRIPTION

Mode: interface configuration mode

Parameter:

Parameter	Description
DESCRIPTION	Character range: 1-128, used to describe the port, **"\?/,** characters are not supported.

Description: Configure the description information of the interface

Example:

```
Configure the description of port 1/0/2 as port - 2
Switch # configure
Switch(config)# interface Ethernet 1/0/2
Switch(config-if)# description port-2
```

Modify port description

Command: description WORD<1-128>

Mode: interface configuration mode

Parameter:

Parameter	Description
WORD<1-128>	Character range: 1-128, used to describe the port. **"\?/,** characters are not supported.

Description: Modify port description

Example:

```
Modify the description of port 1/0/1 to 111111
Switch#config
Switch (config) # interface Ethernet 1/0/1
Switch (config-if) # description 111111
```

Clear port description

Command: no description

Mode: interface configuration mode

Parameter: none

Description: clear port description

Example:

```
Switch#config
Switch (config) # interface Ethernet 1/0/1
Switch (config-if) #no description
```

Configuring Combo port working mode

> **Note:**
>
> Supported models and ports: GWN7831 Ethernet 1/0/1 – 1/0/4.

Command:

- media-type (auto-select|rj45|sfp)
- no media-type

Mode: interface configuration mode

Parameter:

Parameter	Description
auto-select	The auto-negotiation working mode will determine whether to use the electrical port or the optical port based on the actual access. If both have access, the optical port mode will be given priority.

rj45	Electrical port working mode
sfp	Optical port working mode

Description: Configure the working mode of the Combo port.

Example:

```
Enable port 1/0/1 to work in optical port mode.
Switch# config
Switch (config) # interface Ethernet 1/0/1
Switch (config-if) # media-type sfp
```

Configure port automatic detection

> **Note:**
>
> Supported models and ports: GWN7806(P)/GWN7811(P)/GWN7812P/GWN7813(P)/GWN7830/GWN7831/GWN7832 /GWN7816(P) /GWN7821P/GWN7822P /GWN7802P Pro/GWN7803 Pro/GWN7803PL Pro/GWN7803PH Pro/GWN7806PL Pro/GWN7806PH Pro SFP+ and GWN7801P Pro 2.5G SFP.

Command:

1. auto-detect
2. no auto-detect

Mode: interface configuration mode

Parameter: none

Description: Configure whether to enable automatic detection of the SFP+ port. Automatically adjust the port rate according to the connected optical module.

Example:

```
Enable auto- detection of port 1/0/50 .
Switch#config
Switch (config) # interface Ethernet 1/0/50
Switch (config-if) # auto-detect

Disable the automatic detection function on ports 1/0/50 .
Switch (config-if) # no auto-detect
```

Configure Port Speed

Command:

- `speed [10|100|1000|2500|10000]`
- `speed auto [(10|100|1000|10/100)]`

Mode: Interface configuration mode

Parameter:

Parameter	Description
`10`	Force 10 Mbps operation , enforce a port speed of 10 Mbps.

Parameter	Description
100	Force 100 Mbps operation , enforce a port speed of 100 Mbps.
1000	Force 1000 Mbps operation , enforce a port speed of 1000 Mbps.
2500	Force 2500 Mbps operation, enforce a port speed of 2500 Mbps. ***Note:*** *GWN7821P/GWN7822P supports 2.5G Ethernet port, GWN7801P Pro supports 2.5G SFP port, and GWN7802P Pro/GWN7803(PL/PH) Pro /GWN7806PL Pro/GWN7806PG Pro supports SFP+ port.*
10000	Force 10Gbps operation , enforce a port speed of 10 Gbps. ***Note:*** *Only GWN7806(P)/11(P)/12P/13(P)/30/31/32/16(P)/GWN7821P/ GWN7822PGWN7802P Pro/GWN7803(PL/PH)P / GWN7806PL Pro / GWN7806PH Pro SFP+ ports are supported.*
auto	self-negotiation rate has the following four specific cases: • 10: Include 10 Mbps in auto-negotiation advertisement. • 10/100 : Include 10 Mbps and 100Mbps in auto-negotiation advertisement. • 100 : Include 100 Mbps in auto-negotiation advertisement. • 1000 : Include 1000 Mbps in auto-negotiation advertisement.

Description:
Configure port speed.

- **Gigabit Ethernet ports** support: Auto, 10 Mbps, 100 Mbps, and 1000 Mbps.
- **2.5G Gigabit Ethernet ports** support: Auto, 10 Mbps, 100 Mbps, 1000 Mbps, and 2.5 Gbps.
- **Gigabit optical ports** support: Auto, 10 Mbps, and 1000 Mbps.
- **2.5G SFP optical ports** support: 100 Mbps, 1000 Mbps, and 2.5 Gbps.
- **10G optical ports** support: 100 Mbps, 1000 Mbps, and 10 Gbps and 2.5 Gbps.

Example:

```
Configure port 1/0/1 to use 1000 Mbps speed:

Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# speed 1000
```

Configure port duplex mode

Command: duplex auto|full|half

Mode: interface configuration mode

Parameter:

Parameter	Description
auto	Enable AUTO duplex configuration , automatic configuration mode
full _	Force full duplex operation , full duplex mode
half	Force half-duplex operation , half-duplex mode

Description: Configure port duplex mode

Example:

```
Configure the duplex mode of port 1/0/1 to auto.
Switch#config
Switch (config) # interface Ethernet 1/0/1
Switch (config-if) # duplex auto
```

Configure port flow control

Command: flowcontrol auto|off|on

Mode: interface configuration mode

Parameter:

Parameter	Description
auto	Enable AUTO flow-control configuration , automatic configuration
off	Force flow-control as disabled , close
on	Force flow-control as enabled , open

Description: Configure port flow control

Example:

```
Configure the flow control of port 1/0/1 to auto.
Switch#config
Switch (config) # interface Ethernet 1/0/1
Switch (config-if) # flowcontrol auto
```

Disable port flow control

Command: no flowcontrol

Mode: interface configuration mode

Parameter: none

Description: Turn off port flow control

Example:

```
Disable flow control on port 1/0/1 .
Switch#config
Switch (config) # interface Ethernet 1/0/1
Switch (config-if) #no flowcontrol
```

Configure Jumbo Frames

Supported Models: GWN7801(P) / GWN7802(P) / GWN7803(P)

Command: `jumbo-frame <1518-10240>`

Mode: Global configuration mode

Parameter:

Parameter	Description
`<1518-10240>`	Configures jumbo frame size. Default is `9216`.

Description:
Configures jumbo frames.
Jumbo frame configuration is applied globally for GWN7801(P), GWN7802(P), and GWN7803(P) series switches.

Example:

```
Configure the jumbo frame size for port 1/0/1 to 10000:

Switch# config
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# jumbo-frame 10000
Disable jumbo frame on port 1/0/1 and restore default value (9216):
Switch(config-if)# no jumbo-frame
```

Configuring Jumbo Frames

Supported Models:
GWN7806(P)/GWN7811(P)/GWN7812P/GWN7813(P)/GWN7816(P)/GWN7830/GWN7831/GWN7832/GWN7821P/GWN7822P/GWN7801P Pro/GWN7802P Pro/GWN7803(PL/PH) Pro/GWN7806PL Pro/GWN7806PH Pro

Command: jumbo-frame <1518-12288>

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
<1518-12288>	Configures jumbo frames. The default value is 9216.

Description:
Configure jumbo frames. GWN7806(P)/GWN7811(P)/GWN7812P/GWN7813(P)/GWN7816(P)/GWN7830/GWN7831/GWN7832/GWN7821P/GWN7822P/GWN7801P Pro/GWN7802P Pro/GWN7803(PL/PH) Pro/GWN7806PL Pro/GWN7806PH Pro for interface configuration.

Example:

```
Configure jumbo frames on port 1/0/1 to 10000:
Switch#config
Switch (config) # interface Ethernet 1/0/1
Switch (config-if) # jumbo-frame 10000

Disable jumbo frames on port 1/0/1 , and restore the default value of 9216:
Switch (config-if) # no jumbo-frame
```

Viewing Jumbo Frames

Command: show tech-support jumbo

Mode: Privileged Exec Mode

Parameter: None

Description: Displays the current configuration value of jumbo frames.

Example:

```
Switch# show tech-support jumbo
```

View Port Information or Status

Command:

- `show interfaces IF_PORTS`
- `show interfaces IF_PORTS status`

Mode: Privileged EXEC Mode

Parameter:

Parameter	Description
`IF_PORTS`	Switch port numbers, including Ethernet ports and aggregation interfaces.
`status`	Displays detailed port status including: • Port: Port number • Name: Port name • Status: Port status • VLAN: VLAN ID of the port • Duplex: Duplex mode • Speed: Port speed • Type: Port type

Description: Displays port information or status for a specified Ethernet port or aggregation group.

Example:

```
View information about port 1/0/1:
Switch# show interface Ethernet 1/0/1

View information for aggregation group 1:
Switch# show interfaces lag 1

Check the status of port 1/0/1:
Switch# show int Ethernet 1/0/1 status

Check the status of aggregation group 1:
Switch# show int lag 1 status
```

Clear Port Statistics Counter

Command: `clear interfaces IF_PORTS counters`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`IF_PORTS`	Switch port numbers, including Ethernet ports and aggregation interfaces.

Description: Clears the statistics counters for the specified port.

Example:

```
Clear the statistics counters on port 1/0/1:
Switch# clear interfaces Ethernet 1/0/1 counters
```

SFP+ Rate Mode Configuration

Command: `tge-port Ethernet IF_PORTS ability {10g_1g | 10g_2_5g}`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`IF_PORTS`	SFP+ port
`10g_1g`	Sets the speed mode to 10Gbps/1Gbps (supported speed options include 10Gbps, 1Gbps, and 100Mbps).
`10g_2_5g`	Sets the speed mode to 10Gbps/2.5Gbps (supported speed options include 10Gbps and 2.5Gbps).

Description: Configures the SFP+ rate mode.

Note: Modifying the SFP+ rate mode of any port in a group via the CLI will synchronously modify the rate mode for the entire group. The configuration must be saved and the device restarted for the changes to take effect. The number of SFP+ groups is determined by dividing the total number of SFP+ ports on the model by 2. For example:

- GWN7811(P)/21P has 1 group.
- GWN7812P/13(P)/22P/30/31 has 2 groups.
- GWN7806(P)/16(P)/06PL Pro/06PH Pro has 3 groups.
- GWN7832 has 6 groups.

Example:

Plaintext

```
GWN7806P# configure
GWN7806P(config)# tge-port Ethernet 1/0/49 ability 10g_
```

Traffic statistics

View API Statistics

Command:

- `show interfaces IF_PORTS`

- `show interfaces Ethernet IF_PORTS mib-counters`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`IF_PORTS`	Switch port numbers, including Ethernet ports and aggregation interfaces.

Description:
Displays MIB (Management Information Base) statistics for a specified interface.

Example:

```
View statistics for port 1/0/1:

Switch# show interfaces Ethernet 1/0/1
Switch# show interfaces Ethernet 1/0/1 mib-counters
```

View interface traffic information

Command: show tech-support mib-counters

Mode: privileged EXEC mode

Parameter: none

Description: View interface traffic information

Example:

```
Switch# show tech-support mib-counters
```

Loop detection

Enable/disable global loop detection

Command:

1. **Selfloop-detection enable**
2. **selfloop-detection disable**

Mode: global configuration mode

Parameter: none

Description: Enable/disable global loop detection

Example:

```
Enable global loop detection
Switch(config)# selfloop-detection enable
Disable global loop detection
GWN7811P(config)# selfloop-detection disable
```

Detection message type

Command:

1. **selfloop-detection pdu-etherType** *<0x0000-0xffff>*
2. **no selfloop-detection pdu-etherType**

Mode: global configuration mode

Parameter:

Parameter	Description
pdu-etherType	Message type range <0x0000-0xffff>

Note: *The following ranges and values do not support input: 0x0000-0x05FF, 0x0600-0x0601, 0x0800-0x0806, 0x0808, 0x6559, 0x8035, 0x8037, 0x809B, 0x80D5, 0x80F3, 0x8100, 0x8137, 0x814C, 0x86DD, 0x880B, 0x880C, 0x8847, 0x8848, 0x8863, 0x8864, 0x88BB, 0x88CC, 0x8E88, 0x9000, 0x9100, 0x9200.*

Description: Configure the type of detection message

Example:

```
Configure the detection message type to 0x8988
GWN7811P(config)# selfloop-detection pdu-etherType 0x8988
```

Detection interval

Command:

1. **selfloop-detection interval** *<1-1000>*
2. **no selfloop-detection interval**

Mode: global configuration mode

Parameter:

Parameter	Description
<1-1000>	The detection interval time is an integer ranging from 0 to 1000 , and the default value is 300 seconds

Description: Configuring the detection interval

Example:

```
GWN7811P(config)# selfloop-detection interval 15
GWN7811P(config)# no selfloop-detection interval
```

Enable/disable interface loop detection

Command:

1. **selfloop-detection**
2. **no selfloop-detection**

Mode: Interface Configuration Mode

Parameter: none

Description: Enable/disable loop detection on an interface

Example:

```
Switch (config)# int Ethernet 1/0/1
Switch (config-if)# selfloop-detection
Switch (config-if)# no selfloop-detection
```

Port auto recovery

Configure port recovery

Command:

```
errdisable recovery interval seconds
```

```
errdisable recovery cause {all | acl | arp-inspection | bpduguard | dhcp-rate-limit | selfloop | udld | psecure-violation | broadcast-flood | unicast-flood | unknown-multicast-flood | selfloop-detection | dhcpv6-rate-limit}
```

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`seconds`	Port recovery time, ranging from 30 to 86400 seconds.
`cause {all | acl | arp-inspection | bpduguard | dhcp-rate-limit | selfloop | udld | psecure-violation | broadcast-flood | unicast-flood | unknown-multicast-flood | selfloop-detection | dhcpv6-rate-limit}`	Port recovery triggering mechanism.

Description: Configures port auto-recovery, allowing the switch to automatically recover a port from specified error-disabled states.

Example:

Plaintext

```
Configure the port recovery trigger mechanism to unicast flooding and the recovery time to 30 seconds:

Switch# configure
Switch(config)# errdisable recovery cause unicast-flood
Switch(config)# errdisable recovery interval 30
```

View the port restoration table

Command: show errdisable recovery

Mode: privileged EXEC mode

Parameter: none

Description: View port recovery entries

Example:

```
Switch# show errdisable recovery
```

Link aggregation

Add/delete Link Aggregation Group

Command:

- `lag <1-8> mode (static | active | passive)`
- `no lag`

Mode: Interface configuration mode

Parameter:

Parameter	Description
`<1-8>`	Aggregate group ID (range: 1–8) ***Note:*** *GWN7801(P), GWN7802(P), GWN7803(P), GWN7801P Pro, GWN7802P Pro, and GWN7803(PL/PH) Pro support up to 8 link aggregation groups. Other models support up to 32.*
`static`	Static aggregation mode
`active`	LACP (Link Aggregation Control Protocol) active mode
`passive`	LACP passive mode

Description:
Creates a link aggregation group in the specified mode.
Use the `no lag` command to remove a port from aggregation.

Example:

```
Add static LAG 1 to ports 1/0/1 and 1/0/2:

Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# lag 1 mode static
Switch(config)# interface Ethernet 1/0/2
Switch(config-if)# lag 1 mode static

Switch# show lag
```

Load balancing

Command: lag load-balance { src-dst-mac | src-dst-mac-ip }

Mode: global configuration mode

Parameter:

Parameter	Description
src-dst-mac	Load sharing based on src-mac|dst-mac
src-dst-mac-ip	Load sharing based on src-mac|dst-mac|src-ip|dst-ip

Description: Setting Link Aggregation Load Balancing Mode

Example:

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

LACP Configuration

- LACP system priority

Command: lacp system-priority <*1-65535*>

Mode: global configuration mode

Parameter:

Parameter	Description
<1-65535>	LACP system priority range, the value range is an integer from 1 to 65535 , and the default is 32768

Description: Set the system priority of LACP

Example:

```
Set the global LACP system priority to 1
Switch(config-if)# lacp system-priority 1
```

- LACP port priority

Command: lacp port-priority <*1-65535*>

Mode: interface configuration mode

Parameter:

Parameter	Description
<1-65535>	The range of LACP port priority, the value range is an integer from 1 to 65535 , the default is 1

Description: Configure LACP port priority, the default value is 1, the smaller the port priority value, the higher the LACP priority

Example:

```
Set the LACP priority of port 1/0/1 to 2 .
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# lacp port-priority 2
```

- LACP port timeout mechanism

Command: lacp timeout {long|short}

Mode: interface configuration mode

Parameter:

Parameter	Description
short	The timeout period for receiving LACP protocol packets is 3 seconds
long	The timeout period for receiving LACP protocol packets is 90 seconds

Description: Set the timeout time for receiving LACP packets, the default is short

Example:

```
Set the timeout period for receiving LACP packets on port 1/0/1 to long .
Switch # configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# lacp timeout long
```

- Show LACP

Command:

1. show lacp { *<1-8>* | counters |internal|neighbor|sys-id}
2. show lag

Mode: privileged EXEC mode

Parameter:

Parameter	Description
<1-8>	Aggregation group ID , range <1-8> ***Note:*** *The number of aggregation groups for GWN7801/GWN7801P/GWN7802/GWN7802P/GWN7803/GWN780 Pro/GWN7803PH Pro is 8, and the number of aggregation groups for GWN7806/GWN7806P/GWN7811/GWN7811P/GWN7812P/GWN7813/GWN7813P/GWN7832/GWN7831/GWN7 Pro/GWN7806PH Pro is 32.*

Description: View LAG/LACP entries

Example:

```
Switch # show lag
Switch# show lacp sys-id
Switch# show lacp counters
Switch # show lacp internal
Switch# show lacp neighbor
```

Local Priority Forwarding of LAG Interface Traffic

Command: `lag local-first`

Mode: Global configuration mode

Parameter: *None*

Description: In a stacked environment, when the outgoing interface is a link aggregation group, enabling local priority forwarding ensures that traffic from the local device is prioritized.
This prevents traffic from being forwarded through other devices in the stack.
Disabling local priority allows traffic to be forwarded across all devices.

Example:

```
Switch# configure
Switch(config)# lag local-first
```

MAC address table

Set MAC Aging Time

Command: mac address-table aging-time

Mode: global configuration mode

Parameter:

Parameter	Description
aging-time	Dynamic address aging time, the value range is 0 or an integer from 60 to 1000000, 0 means no aging . Default 300 seconds

Description: Set the aging time of dynamic MAC

Example:

```
Switch#conf
Switch(config)# mac address-table aging-time 60
```

Set MAC static address

Command:

1. **mac address-table static** *MAC-address vlan vlan-id interface interface-id*
2. **no mac address-table static** *MAC-address vlan vlan-id interface interface-id*

Mode: global configuration mode

Parameter:

Parameter	Description

MAC-address	MAC address: format A:B:C:D:E:F, such as 00:00:00:00:00:01
vlan vlan-id	vlan id value range <1-4094>
interface interface-id	There are 2 interface modes {Ethernet|LAG }

Description:

1. **mac address-table static** command sets a static MAC address and binds the user device to an interface, thereby preventing illegal users from fraudulently obtaining data
2. The **no mac address-table static** command deletes the specified static MAC address

Example:

```
Switch # configure
Switch(config)# mac address-table static 00:00:00:00:00:01 vlan 1 interfaces Ethernet 1/0/1
Switch(config)#mac address-table static 00:00:00:00:00:02 vlan 2 interfaces LAG 1
Switch(config)# no mac address-table static 00:00:00:00:00:01 vlan 1
```

Set black hole MAC address

Command:

1. **mac address-table static** *MAC-address vlan vlan-id drop*
2. **no mac address-table static** *MAC-address vlan vlan-id drop*

Mode: global configuration mode

Parameter:

Parameter	Description
MAC-address	mac address: format A:B:C:D:E:F, such as 00:00:00:00:00:01
vlan-id	vlan id value range <1-4094>

Description:

1. **mac address-table static** command sets a blackhole MAC address. When the device receives a packet with a destination or source MAC address that is a blackhole MAC address, it discards it directly
2. The **no mac address-table static** command deletes the specified blackhole MAC address

Example:

```
Switch# configure
Switch(config)# mac address-table static 00:00:00:00:00:01 vlan 3 drop
Switch(config)# no mac address-table static 00:00:00:00:00:01 vlan 3
```

Clearing dynamic MAC address entries

Command:

1. **clear mac address-table dynamic**
2. **clear mac address-table dynamic** interface interface-id
3. **clear mac address-table dynamic** vlan vlan-id

Mode: privileged EXEC mode

Parameter:

Parameter	Description
vlan-id	vlan id value range <1-4094>
interface-id	There are 2 interface modes {Ethernet|LAG}

Description: Clear dynamic address entries

Example:

```
Switch# clear mac address-table dynamic
Switch# clear mac address-table dynamic interfaces Ethernet 1/0/1
Switch# clear mac address-table dynamic vlan 1
```

View MAC address entries

Command:

1. **show mac address-table aging-time**
2. **show mac address-table counters**
3. **show mac address-table**
4. **show mac address-table mac-address**
5. **show mac address-table interfaces** *interface-id*
6. **show mac address-table vlan** *vlan-id*
7. **show mac address-table dynamic**
8. **show mac address-table dynamic interfaces** *interface-id*
9. **show mac address-table dynamic vlan** *vlan-id*
10. **show mac address-table static interfaces** *interface-id*
11. **show mac address-table static vlan** *vlan-id*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
mac-address	mac address: format A:B:C:D:E:F, such as 00:00:00:00:00:01
vlan-id	vlan id value range <1-4094>
interface-id	There are 2 interface modes {Ethernet|LAG }

Description:

1. **show mac address-table aging-time** : Check the aging time of dynamic mac address entries
2. **show mac address-table counters** : Check the number of all MAC entries of the switch
3. **show mac address-table** : Check the MAC address table entries
4. **show mac address-table mac-address** : Check the entry of the specified MAC address
5. **show mac address-table interfaces** *interface-id* : Check the interface entry of the mac address table entry
6. **show mac address-table vlan** *vlan-id* : Check the MAC address entry of the vlan in the mac address entry
7. **Switch# show mac address-table dynamic** : Check dynamic MAC address table entries

8. **show mac address-table dynamic interfaces** *interface-id* : Check the interface entries of the dynamic mac address table entries
9. **show mac address-table dynamic vlan** *vlan-id* : Check the M AC address entry of the vlan of the dynamic mac address entry
10. **show mac address-table static interfaces** *interface-id* : Check the interface entries of the static mac address table entries
11. **show mac address-table static vlan** *vlan-id* : Check the MAC address entry of the vlan of the static mac address entry

Example:

```
Switch# show mac address-table aging-time
Switch# show mac address-table counters
Switch# show mac address-table
Switch# show mac address-table 00:00:00:00:00:01
Switch# show mac address-table vlan 1
Switch# show mac address-table static
Switch# show mac address-table dynamic
Switch# show mac address-table interfaces Ethernet 1/0/1
```

Setting the MAC address hash algorithm

Command: `mac address-table hash-mode {mode1 | mode2 | mode3 | mode4}`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`mode1`	The upper half of the hash table uses the hash key generated by sequentially combining the VID and MAC values, while the lower half uses the hash key generated by randomly combining the VID and MAC values.
`mode2`	Both the upper and lower halves of the hash table use the hash key generated by randomly combining the VID and MAC values.
`mode3`	Both the upper and lower halves of the hash table use the hash key generated by sequentially combining the VID and MAC values.
`mode4`	The upper half of the hash table uses the hash key generated by randomly combining the VID and MAC values, while the lower half uses the hash key generated by sequentially combining the VID and MAC values.

Description: Configures the hash algorithm mode for the MAC address table.

Note: A device restart is required for the new MAC address hash algorithm to take effect. All GWN78xx models support `mode1` and `mode2` . Only the GWN7806(P), GWN7811(P), GWN7812P, GWN7813(P), GWN7816(P), GWN7821P, GWN7822P, GWN7830, GWN7831, GWN7832, GWN7806PL Pro, and GWN7806PH Pro models support `mode3` and `mode4` .

Example:

```
Configure the MAC address hash algorithm to mode2.

Switch# configure
Switch(config)# mac address-table hash-mode mode2
```

View the MAC address hash algorithm mode

Command: `show mac address-table hash-mode`

Mode: Privileged Exec Mode

Parameter: none

Description: Displays the current hash algorithm mode configured for the MAC address table.

Example:

Plaintext

```
View the hash algorithm pattern of the MAC address

Switch# show mac address-table hash-mode
```

View MAC address flapping records

Command: `show mac address-table flapping record`

Mode: Privileged Exec Mode

Parameter: none

Description: Displays the MAC address flapping (migration) history records on the switch. This helps identify network loops or issues where a MAC address is rapidly moving between different ports.

Example:

```
View MAC address migration history

Switch# show mac address-table flapping record
```

Clear MAC address flapping records

Command: `clear mac address-table flapping record`

Mode: Privileged Exec Mode

Parameter: none

Description: Clears the MAC address flapping (migration) history records from the switch.

Example:

```
Clear MAC address migration records

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

VLAN

VLAN Basics

- Configure access mode VLAN

Command:

1. **switchport mode { access/ hybrid/ trunk }**
2. **switchport access vlan** *<1-4094>*
3. ***switchport access acceptable-frame-type*** *{all/ untagged-only}*

Mode: interface configuration mode

Parameter:

Parameter	Description
access / hybrid / trunk	Configures the port link type as access, hybrid, or trunk
<1–4094>	Configures the port to join a VLAN; valid VLAN IDs range from 1 to 4094
all	Allows both tagged and untagged frames to be received
untagged-only	Allows only untagged frames to be received

Description: Set the port link type to Access, and add the port to the specified VLAN

Example:

```
Set the port link type to Access, and add port GE1 to VLAN 1
Switch#
Switch # configure
Switch(config)# vlan 2
Switch(config-vlan)# exit
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# switchport mode access
Switch(config-if)# switchport access vlan 1
Switch(config-if)# exit
Switch(config)# exit
Switch# copy running-config startup-config
Success
Switch#
```

- Configure hybrid mode VLAN

Command:

1. **switchport mode** { access/ hybrid/ trunk }
2. **switchport hybrid allowed vlan** {add/ remove} *VLAN-LIST* {untagged/tagged}
3. **switchport hybrid pvid** *<1-4094>*
4. **switchport hybrid acceptable-frame-type** {all/tagged-only/untagged-only}
5. **switchport hybrid ingress-filtering**

Mode: interface configuration mode

Parameter:

Parameter	Description
access/ hybrid/ trunk	Configure the link type access/hybrid/trunk of the port

add/remove	Configure the port link type as hybrid to add /remove vlan
VLAN-LIST	The range of the vlan list is 1-4094
untagged/tagged	Configure the port to receive this VLAN frame as untagged/tagged
<1-4094>	Configure the PVID of the port
all/tagged-only/untagged-only	Configure the type of frame received by the port as all/only tagged/only untagged

Description:

1. **The switchport mode** command configures the port link type as hybrid
2. **switchport hybrid allowed vlan** command configures the VLAN added /removed by the hybrid port, and the received frame type of this vlan is tagged/untagged
3. **switchport hybrid pvid** command configures the PVID of the hybrid port
4. **switchport hybrid acceptable-frame-type** command configures the frame type received by the hybrid port to be all
5. **switchport hybrid ingress-filtering** command to enable inbound filtering

Example:

```
Switch#
Switch # configure
Switch(config)# vlan 3
Switch(config-vlan)# exit
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# switchport mode hybrid
Switch(config-if)# switchport hybrid allowed vlan add 2 tagged
Switch(config-if)# switchport hybrid allowed vlan add 3 untagged
Switch(config-if)# switchport hybrid allowed vlan remove 1
Switch(config-if)# switchport hybrid pvid 3
Switch(config-if)# switchport hybrid acceptable-frame-type all
Switch(config-if)# switchport hybrid ingress-filtering
Switch(config-if)# exit
Switch(config)# exit
Switch# copy running-config startup-config
Success
```

- Configure Trunk mode VLAN

Command:

1. **switchport mode** { access/ hybrid/ / trunk}
2. **switchport trunk allowed vlan** {add/ remove} { *VLAN-LIST/all* }
3. **switchport trunk acceptable-frame-type** {all | tagged-only}
4. **switchport trunk native vlan** *<1-4094>*

Mode: interface configuration mode

Parameter:

Parameter	Description
access / hybrid / trunk	Configures the port link type as access, hybrid, or trunk
add / remove	Adds or removes VLANs on a port configured as trunk
VLAN-LIST / all	VLAN list range: 1–4094 or all VLANs
<1–4094>	Configures the port's PVID (Port VLAN ID); valid range is 1–4094
all	Allows both tagged and untagged frames to be received
tagged-only	Allows only tagged frames to be received

Description:

1. **The switchport mode** command configures the port link type as trunk
2. **switchport trunk allowed vlan** command configures the VLAN added /removed by the trunk port
3. **switchport trunk native vlan** command configures the PVID of the trunk port

Example:

```
Switch#
Switch # configure
Switch(config)# vlan 2-4
Switch(config-vlan)# exit
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# switchport mode trunk
Switch(config-if)# switchport trunk allowed vlan add 3-4
Switch(config-if)# switchport trunk allowed vlan remove 1
Switch(config-if)# switchport trunk native vlan 4
Switch(config-if)# exit
Switch(config)# exit
Switch#
```

- Set port to QinQ (Dot1q-tunnel) mode

Command: `switchport mode tunnel`

`no switchport mode`

Mode: Interface Configuration Mode

Parameter: none

Description: Configures the port to operate in QinQ (Dot1q-tunnel) mode. The `no` form of the command removes the QinQ configuration and restores the port to its default operating mode.

Example:

```
# Configure the port to operate in QinQ (Dot1q-tunnel) mode

Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# switchport mode tunnel
Switch(config-if)# no switchport mode
```

- Configuring Dot1q-tunne l- port VLAN/ default VLAN

Command:

1. **switchport mode tunnel**
2. **switchport tunnel vlan** <1-4094>
3. **no switchport tunnel vlan**

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
<1-4094>	VLAN ID , an integer ranging from 1 to 4094

Description: Configure Dot1q-tunnel port VLAN / default VLAN

Example:

```
Switch( config-if )# switchport tunnel vlan 20
Switch( config-if )# no switchport tunnel vlan
```

- Configuring TPID

Command:
switchport mode trunk
qinq protocol tpid tpid-id

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
tpid-id	Tag protocol identifier. Default is 0x8100. Options include 0x88a8, 0x9100, 0x9200, etc.

Description:
Configures the TPID (Tag Protocol Identifier) for a port.
Note: The port link address type is not Dot1q-tunnel supports configuration.

Example:

```
Switch(config)# interface eth1/0/1
Switch(config-if)# switchport mode trunk
Switch(config-if)# qinq protocol tpid 0x9100
```

- Display and Maintain VLANs

Command:

- `show vlan`
- `show vlan VLAN-LIST`

Mode: None

Parameter:

Parameter	Description
`VLAN-LIST`	VLAN ID list (range: 1–4094)
`Ethernet/LAG`	Select Ethernet port or link aggregation port
`<interface-id>`	For example, on GWN7803P: Ethernet ports 1–28
`<1-8>`	For example, on GWN7803P: Aggregated ports 1–8

Description:

- `show vlan` — Displays information about **all VLANs**.
- `show vlan VLAN-LIST` — Displays information about a **specific VLAN**.

Example:

```
Switch# show vlan

VID: 1
VLAN Name: Default LAN
Untagged Ports: eth1/0/2, eth1/0/4-1/0/48, eth1/0/49, eth1/0/51-1/0/54, lag1-32
Tagged Ports: eth1/0/1, eth1/0/50
Type: Default

VID: 3
VLAN Name: 3
Untagged Ports: ---
Tagged Ports: ---
Type: Static
```

MAC VLAN

- Add/delete MAC VLAN mapping table

Command:

1. **vlan mac-vlan group** A:B:C:D:E:F **mask** <9-48> **vlan** <1-4094> [**priority** <0-7>]
2. no vlan mac-vlan group A:B:C:D:E:F mask <9-48>

Mode: global configuration mode

Parameter:

Parameter	Description
A:B:C:D:E:F	Source MAC address of the client . Only unicast addresses are supported.
<9-48>	The mask of the client MAC address . The value range is an integer from 9 to 48 .
<1-4094>	the MAC address is mapped. The value range is an integer from 1 to 4094 .
<0-7>	802.1p priority, an integer ranging from 0 to 7

Description: Add/delete MAC VLAN mapping table

Example:

```
Switch# configure
Switch(config)# vlan mac-vlan group 00:00:00:00:00:01 mask 48 vlan 10 priority 0
Switch(config)# no vlan mac-vlan group 00:00:00:00:00:01 mask 48
```

- Enabling/Disabling MAC VLAN on a Port

Command:
switchport hybrid mac-vlan
no switchport hybrid mac-vlan

Mode: Interface Configuration Mode

Parameter: None

Description: Enables or disables MAC VLAN on a port. This configuration is only supported on Hybrid port types.

Example:

```
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# switchport mode hybrid
Switch(config-if)# switchport hybrid mac-vlan
Switch(config-if)#no switchport hybrid mac-vlan
```

- Check the MAC VLAN configuration

Command: show vlan mac-vlan groups

Mode: Privileged EXEC mode

Parameter: none

Description: View the configured MAC-VLAN mapping table

Example:

```
Switch# show vlan mac-vlan groups

Mac Address Mask Vlan 802.1p
----------------- ------ -------- ------
00:00:00:00:00:01 48 1 0

Total 1 Entry
```

- Check the port MAC VLAN configuration

Command: show running-config interface Ethernet *{interface-id}*

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
interface-id	Switch port ID

Description: View the MAC VLAN mapping table of the specified port.

Example:

```
Switch# show running-config interface Ethernet 1 /0/1
interface eth1/0/1
switchport mode hybrid
switchport hybrid mac-vlan
```

Protocol VLAN

- Add/delete protocol VLAN group

Command:

1. **vlan protocol-vlan group** *{group-index* **} frame-type** *(ethernet_ii|snap_1042)* **protocol-value** *{value}*
2. **vlan protocol-vlan group** *{ group -index}* **frame-type** *{llc_other}* ***dsap*** *{ Dsap_value}* **ssap** *{ Ssap_value}*

3. **no vlan protocol-vlan group** *{group-index}*

Mode: global configuration mode

Parameter:

Parameter	Description
group-index	Protocol index value , the value range is an integer from 0 to 7
ethernet_ii|snap_1042	Frame type . When you select this frame type, you can set the protocol value.
llc_other	Frame type . When you select this frame type, you can set the DSAP/SSAP value.
value	Protocol value , range is 0x0600-0xFFFF
Dsap_value/Ssap_value	The value range is 0x00-0xFF , and they cannot be 0xaa , 0xe0 and 0xff at the same time.

Description: Add/delete protocol VLAN group

Example:

```
Switch# configure
Switch(config)# vlan protocol-vlan group 0 frame-type ethernet_ii protocol-value 0x0800
Switch(config)# vlan protocol-vlan group 1 frame-type snap_1042 prptocol-value 0x86dd
Switch(config)# vlan protocol-vlan group 2 frame-type llc_other dsap 0x10 ssap 0xe0
Switch(config)# no vlan protocol-vlan group 1
```

- View the protocol VLAN group

Command: show vlan protocol-vlan

Mode: Privileged EXEC mode

Parameter: none

Description: View the protocol VLAN group

Example:

```
show vlan protocol-vlan

Group ID | Status | Type | value
--------------+---------------+-----------------+- ------------------
0 | Enabled | Ethernet | 0x0800
1 | Enabled | SNAP_1024 | 0x86DD
2 | Enabled | LLC other | 0x10E0
```

- Port Binding/Unbinding Protocol VLAN

Command:
vlan protocol-vlan group <group-index> vlan <1-4094> [priority <0-7>]
no vlan protocol-vlan group <group-index>

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
group-index	An integer ranging from 0 to 7.
vlan-id	Bound VLAN ID, an integer ranging from 1 to 4094.

Parameter	Description
802.1p_Range	Configure the 802.1p priority, an integer ranging from 0 to 7.

Description: Port binds a protocol VLAN group.

Example:

```
Note: You need to create a protocol VLAN rule for group 0 before binding it to the hybrid port.

Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# switchport mode hybrid
Switch(config-if)# vlan protocol-vlan group 0 vlan 10 priority 0
Switch(config-if)#no vlan protocol-vlan group 0
```

- Check the port protocol VLAN configuration

Command: show running-config interface Ethernet *{interface-id}*

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
interface-id	Switch port ID

Description: Check the protocol VLAN binding group of the specified port

Example:

```
Switch# show running-config interface Ethernet 1/0/1
interface eth 1/0/1
switchport mode hybrid
switchport hybrid protocol-vlan
vlan protocol-vlan group 0 vlan 10
speed 100
```

VLAN Switching

- Enable/disable VLAN switching

Command:

1. **switchport vlan-translation enable**
2. **no switchport vlan-translation enable**

Mode: Interface Configuration Mode

Parameter: none

Description: Enable/disable VLAN switching function , which is only effective for Trunk or Hybrid ports.

Example:

```
Switch( config ) #interface Ethernet 1/0/1
Switch(config-if)# switchport mode trunk
Switch(config-if)# switchport vlan-translation enable
Switch(config-if ) # no switchport vlan0-translation enable
```

- Configure VLAN Mapping (outer layer)

Command:

- `vlan-mapping vlan <1-4094> [to <1-4094>] remark-vlan <1-4094>`
- `no vlan-mapping vlan <1-4094> [to <1-4094>] remark-vlan <1-4094>`

Mode: Interface configuration mode

Parameter:

Parameter	Description
`<1-4094>`	Outer VLAN or VLAN mapped from the outer layer
`<1-4094> [to <1-4094>]`	Outer VLAN range

Description:
Configures VLAN mapping (1:1, N:1, 2:2).

- **1:1 or N:1**:
  `vlan-mapping vlan <vlan|vlan-range> remark-vlan <vlan>`
- **2:1 (1:1 and N:1 included)**:
  `vlan-mapping vlan <vlan|vlan-range> inner-vlan <vlan> remark-vlan <vlan>`
- **2:2**:
  `vlan-mapping vlan <vlan> inner-vlan <vlan> remark-vlan <vlan> remark-inner-vlan <vlan>`

Note: *Multiple VLAN mappings can be configured on a single port.*

VLAN Mapping Limits by Device

Equipment Model	Max Mapping Groups per Device	Max Mapping Groups per Port	Max VLAN Ranges per Device	Max VLAN Ranges per Port
GWN7801(P), GWN7802(P), GWN7803(P), GWN7801P Pro, GWN7802P Pro, GWN7803(PL/PH) Pro	256	128	16	16
GWN7811(P), GWN7812P, GWN7813(P), GWN7821P, GWN7822P, GWN7830, GWN7830	512	128	64	32
GWN7806(P), GWN7816(P), GWN7832, GWN7806PL Pro, GWN7806PH Pro	1024	128	128	32

Example:

```
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# switchport mode trunk
Switch(config-if)# switchport vlan-translation enable
Switch(config-if)# vlan-mapping vlan 20 remark-vlan 30
Switch(config-if)# vlan-mapping vlan 40 to 50 remark-vlan 60
```

- Configuring VLAN Mapping (Inner Layer and Outer Layer)

Command: `vlan-mapping vlan <1-4094> inner-vlan <1-4094> [to <1-4094>] remark-vlan <1-4094> remark-inner-vlan <1-4094>`

`no vlan-mapping vlan <1-4094> inner-vlan <1-4094> remark-vlan <1-4094> remark-inner-vlan <1-4094>`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`vlan <1-4094>`	Outer VLAN or the VLAN mapped from the outer layer.
`<1-4094> [to <1-4094>]`	Inner or outer VLAN range. (Note: The range feature can only be applied to either the outer or inner layer, not both simultaneously).
`inner-vlan <1-4094>`	Inner VLAN.
`remark-inner-vlan <1-4094>`	Inner mapped (remarked) VLAN.

Description: Configures VLAN mapping (VLAN Translation) for inner and outer VLAN tags. Multiple VLAN mappings can be configured on a single port.

Supported mapping types include:

- **1:1 and N:1 Mapping:** `vlan-mapping vlan {vlan|vlan-range} remark-vlan <vlan>`
- **2:1 Mapping (including 1:1 and N:1 inner mapping):** `vlan-mapping vlan {vlan|vlan-range} inner-vlan <vlan> remark-vlan <vlan>`
- **2:2 Mapping:** `vlan-mapping vlan <vlan> inner-vlan <vlan> remark-vlan <vlan> remark-inner-vlan <vlan>`

Note: Link Aggregation Groups (LAGs) on the GWN7801(P), GWN7802(P), GWN7803(P), GWN7801P Pro, GWN7802P Pro, and GWN7803(PL/PH) Pro models do not support VLAN switching/mapping.

VLAN Mapping Limits by Device:

Equipment Model	Max Mapping Groups (Per Device)	Max Mapping Groups (Per Port)	Max VLAN Ranges (Per Device)	Max VLAN Ranges (Per Port)
GWN7801(P) / 02(P) / 03(P) / 01P Pro / 02P Pro / 03(PL/PH) Pro	256	128	16	16
GWN7811(P) / 12P / 13(P) / 21P / 22P / 30 / 31	512	128	64	32
GWN7806(P) / 16(P) / 32 / 06PL Pro / 06PH Pro	1024	128	128	32

Example:

```
# Enter configuration mode for port 1/0/1
Switch(config)# interface Ethernet 1/0/1

# Configure the port as a trunk port and enable VLAN translation
Switch(config-if)# switchport mode trunk
Switch(config-if)# switchport vlan-translation enable

# Configure 2:2 VLAN mapping: Map outer VLAN 10 and inner VLAN 20 to outer VLAN 30 and inner VLAN 40
Switch(config-if)# vlan-mapping vlan 10 inner-vlan 20 remark-vlan 30 remark-inner-vlan 40

# Configure N:1 inner mapping: Map outer VLAN 11 with inner VLAN range 21-25 to outer VLAN 31 and inner VLAN
41
Switch(config-if)# vlan-mapping vlan 11 inner-vlan 21 to 25 remark-vlan 31 remark-inner-vlan 41
```

- Enable/disable inbound direction

Command:

1. **vlan-mapping ingress**
2. **no vlan-mapping ingress**

Mode: Interface Configuration Mode

Parameter: none

Description: Whether the port VLAN mapping is enabled only for the inbound direction.

Example:

```
Switch( config ) #interface Ethernet 1/0/1
Switch(config-if)# switchport mode trunk
Switch(config-if)# switchport vlan-translation enable
Switch(config-if)# vlan-mapping ingress
Switch(config-if ) # no vlan-mapping ingress
```

- Viewing Port Mapping Configuration

Command:
show running-config interface Ethernet {interface-id}

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
interface-id	Switch port ID

Description:
Displays the VLAN mapping configuration of the specified port.

Example:

```
Switch# show running-config interface Ethernet 1/0/1
interface eth1/0/1
 switchport vlan-translation enable
 vlan-mapping vlan 20 remark-vlan 30
 vlan-mapping vlan 40 to 50 remark-vlan 60
```

VLAN Stacking

- Configure VLAN Stacking

Command: `vlan-stacking vlan <1-4094> stack-vlan <1-4094>`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`vlan <1-4094>`	The original outer VLAN ID (range: 1 to 4094).
`stack-vlan <1-4094>`	The new outer VLAN ID applied after stacking (Service Provider VLAN).

Description: Configures VLAN stacking (Q-in-Q) on the interface by mapping an original outer VLAN to a new stacked VLAN.

Example:

```
# Enter interface configuration mode for port 2/0/10
GWN7806PH_Pro(config)# interface Ethernet 2/0/10

# Enable VLAN translation on the port
GWN7806PH_Pro(config-if)# switchport vlan-translation enable

# Configure VLAN stacking to map original outer VLAN 11 to stacked VLAN 20
GWN7806PH_Pro(config-if)# vlan-stacking vlan 11 stack-vlan 20
```

- Configure VLAN Stacking Range

Command: `vlan-stacking vlan <1-4094> to <1-4094> stack-vlan <1-4094>`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`vlan <1-4094> to <1-4094>`	The range of original outer VLAN IDs to be stacked.
`stack-vlan <1-4094>`	The new outer VLAN ID applied after stacking (Service Provider VLAN).

Description: Configures VLAN stacking (Q-in-Q) on the interface by mapping a specified range of original outer VLANs to a single new stacked VLAN.

Example:

```
# Enter interface configuration mode for port 2/0/10
GWN7806PH_Pro(config)# interface Ethernet 2/0/10

# Enable VLAN translation on the port
GWN7806PH_Pro(config-if)# switchport vlan-translation enable

# Configure VLAN stacking to map original outer VLANs 11 through 15 to stacked VLAN 20
GWN7806PH_Pro(config-if)# vlan-stacking vlan 11 to 15 stack-vlan 20
```

- Configure VLAN Stacking with Priority

Command: `vlan-stacking vlan <1-4094> stack-vlan <1-4094> outer-pri <0-7>`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`vlan <1-4094>`	The original outer VLAN ID (range: 1 to 4094).
`stack-vlan <1-4094>`	The new outer VLAN ID applied after stacking (Service Provider VLAN).
`outer-pri <0-7>`	The 802.1p priority value assigned to the newly stacked outer VLAN tag (range: 0 to 7).

Description: Configures VLAN stacking (Q-in-Q) on the interface by mapping an original outer VLAN to a new stacked VLAN, and assigns a specific 802.1p priority value to the new outer tag.

Example:

```
# Enter interface configuration mode for port 2/0/10
GWN7806PH_Pro(config)# interface Ethernet 2/0/10

# Enable VLAN translation on the port
GWN7806PH_Pro(config-if)# switchport vlan-translation enable

# Configure VLAN stacking to map original outer VLAN 30 to stacked VLAN 40 with an 802.1p priority of 5
GWN7806PH_Pro(config-if)# vlan-stacking vlan 30 stack-vlan 40 outer-pri 5
```

- Check port VLAN stacking configuration

Command: `show running-config interface Ethernet <interface-id>`

Mode: Privileged Exec Mode

Parameter:

Parameter	Description
`<interface-id>`	Switch port ID (e.g., 2/0/10).

Description: Displays the current running configuration for the specified port, including any VLAN stacking (Q-in-Q) settings applied to it.

Example:

```
# View the running configuration for port 2/0/10 to check VLAN stacking settings
GWN7806PH_Pro# show running-config interface Ethernet 2/0/10
interface eth2/0/10
 switchport vlan-translation enable
 vlan-stacking vlan 30 stack-vlan 40 outer-pri 5
```

Voice VLAN

- Configure Global Voice VLAN

Command: `voice-vlan`

`no voice-vlan`

```
voice-vlan state (oui-mode | auto-mode | untagged-oui-mode)

voice-vlan vlan <2-4094>

voice-vlan aging-time <30-65536>

voice-vlan cos <0-7> [remark]

voice-vlan dscp <0-63>

voice-vlan oui-table A:B:C A:B:C description DESCRIPTION
```

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`oui-mode`	Tagged OUI mode; the port is added to the voice VLAN as a tagged port.
`auto-mode`	Automatic voice VLAN mode.
`untagged-oui-mode`	Untagged OUI mode; the port is added to the voice VLAN as an untagged port.
`<2-4094>`	Specifies the voice VLAN ID (range: 2 to 4094).
`<30-65536>`	Specifies the aging time in minutes (range: 30 to 65536).
`<0-7>`	Specifies the Class of Service (CoS) priority (range: 0 to 7).
`[remark]`	Specifies whether to remark the CoS value.
`<0-63>`	Specifies the DSCP priority for the automatic voice VLAN (default is 46).
`A:B:C` (first)	Configures the OUI address (MAC prefix).
`A:B:C` (second)	Configures the OUI mask.
`DESCRIPTION`	A description for the OUI entry.

Description: * `voice-vlan` : Enables the global voice VLAN function.

- `no voice-vlan` : Disables the global voice VLAN function.
- `voice-vlan state` : Selects the operating mode for the voice VLAN.
- `voice-vlan vlan` : Configures the ID of the voice VLAN.
- `voice-vlan aging-time` : Configures the aging time for voice VLAN entries.
- `voice-vlan cos` : Configures the CoS priority for voice traffic.
- `voice-vlan cos remark` : Enables CoS remarking for voice traffic.
- `voice-vlan dscp` : Configures the DSCP priority for the automatic voice VLAN.
- `voice-vlan oui-table` : Configures the OUI address, mask, and description to identify voice devices.

Example:

```
# Enter global configuration mode
Switch# configure

# Enable the global voice VLAN function
Switch(config)# voice-vlan

# Set the voice VLAN mode to OUI mode
Switch(config)# voice-vlan state oui-mode

# Set the voice VLAN ID to 4
Switch(config)# voice-vlan vlan 4

# Set the voice VLAN aging time to 30 minutes
Switch(config)# voice-vlan aging-time 30

# Set the voice VLAN CoS priority to 5
Switch(config)# voice-vlan cos 5

# Configure an OUI table entry for Grandstream devices
Switch(config)# voice-vlan oui-table c0:74:ad ff:ff:ff Grandstream

# Exit configuration mode
Switch(config)# exit
Switch#
```

- Configure port voice VLAN

Command:

1. **voice-vlan**
2. **no voice-vlan**
3. **voice-vlan mode** {auto/manual}

Mode: interface configuration mode

Parameter:

Parameter	Description
auto	Specify port voice VLAN as automatic mode
manual	Specify port voice VLAN as manual mode

Description:

1. **The voice-vlan** command configures the port to enable the voice VLAN
2. **The no voice-vlan** command configures and disables the port voice VLAN function
3. **The voice-vlan mode** command configures the port voice as vlan in automatic /manual mode

Example:

```
Switch#
Switch # configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# voice-vlan
Switch(config-if)# voice-vlan mode auto
Switch(config-if)# voice-vlan mode manual
Switch(config-if)# exit
Switch(config)# exit
Switch#
```

- Display voice VLAN information

Command:

1. **show voice-vlan**
2. **show voice-vlan interfaces** {Ethernet/ LAG} <*interface-id*>/<*1-8*>

Mode: none

Parameter:

Parameter	Description
Ethernet/ LAG	Select Ethernet Port or Aggregated Port
<*interface-id*>	Take GWN 7803P as an example, Ethernet port 1-28
<*1-8*>	Take GWN7803P as an example, aggregation port 1-8

Description:

1. **show voice-vlan** command displays voice VLAN information
2. **show voice-vlan interfaces** command displays port voice VLAN information

Example:

```
Switch# show voice-vlan
Administrate Voice VLAN state : disabled
Voice VLAN ID: none (disable)
Voice VLAN Aging : 1440 minutes
Voice VLAN CoS : 6
Voice VLAN 1p Remark: disabled

Switch# show voice-vlan interface Ethernet 1/0/1
Voice VLAN Aging : 1440 minutes
Voice VLAN CoS : 6
Voice VLAN 1p Remark: disabled

OUI table
OUI MAC | OUI MASK | Description
-----------+-------------+-----------------
00:0B:82 | FF:FF:FF | Grandstream
C0:74:AD | FF:FF:FF | Grandstream
EC:74:D7 | FF:FF:FF | Grandstream
00:E0:BB | FF:FF:FF | 3COM
00:03:6B | FF:FF:FF | Cisco
00:E0:75 | FF:FF:FF | Veritel
00:D0:1E | FF:FF:FF | Pingtel
00:01:E3 | FF:FF:FF | Siemens
00:60:B9 | FF:FF:FF | NEC/Philips
00:0F:E2 | FF:FF:FF | H3C
00:09:6E | FF:FF:FF | Avaya

Port | State | Port Mode | Cos Mode
-----+---------+-------------+-----------
eth1/0/1 | Disabled | Manual | Src
```

PVLAN

Supported models:
GWN7806/GWN7806P/GWN7811/GWN7811P/GWN7812P/GWN7813/GWN7813P/GWN7832/GWN7831/GWN7830/GWN7816/GWN7816P/GWN7821P/GWN7822P/GWN7806PL Pro/GWN7806PH Pro

Set the VLAN Type to Primary

Command: private-vlan primary

Mode: VLAN Configuration Mode
Parameter: None

Description: Sets the current VLAN as a **Primary** VLAN for Private VLAN (PVLAN) configuration.

Example

```
Switch(config)# vlan 20-30
Switch(config-vlan)# private-vlan primary
```

Set the VLAN Type to Community

Command: private-vlan community
Mode: VLAN Configuration Mode
Parameter: None
Description: Sets the current VLAN as a **Community** VLAN for Private VLAN (PVLAN) configuration.

Example:

```
Switch(config)# vlan 20-30
Switch(config-vlan)# private-vlan community
```

Set the VLAN Type to Isolated

Command: private-vlan isolated
Mode: VLAN Configuration Mode
Parameter: None
Description: Sets the current VLAN as an **Isolated** VLAN for Private VLAN (PVLAN) configuration.

Example:

```
Switch(config)# vlan 20-30
Switch(config-vlan)# private-vlan isolated
```

Set the VLAN Type to Normal

Command: no private-vlan
Mode: VLAN Configuration Mode
Parameter: None
Description: Removes any Private VLAN type and sets the VLAN to a **Normal** type.

Example:

```
Switch(config)# vlan 20-30
Switch(config-vlan)# no private-vlan
```

Add / Remove VLAN Association

Command: private-vlan `<2-4094>` association [(add | remove)] VLAN-LIST
Command: no private-vlan `<2-4094>` association
Mode: Global Configuration Mode
Parameter:

Parameter	Description
`<2-4094>`	Primary VLAN ID (range: 2–4094)
add | remove	Add or delete the association between the primary VLAN and secondary VLANs
VLAN-LIST	Auxiliary VLAN(s) to associate. Can be a single VLAN or a list/range.

Description:
Adds or removes the association between a **Primary VLAN** and one or more **Secondary VLANs**.

Example:

```
Switch(config)# private-vlan 10 association 520-530
Switch(config)# private-vlan 10 association add 601, 602
Switch(config)# no private-vlan 10 association

Switch(config)# private-vlan 20 association 540, 541
Switch(config)# private-vlan 20 association remove 540
Switch(config)# no private-vlan 20 association
```

View VLAN Types and Their Associated VLANs

Command: show private-vlan vlan `[VLAN-LIST]`
Mode: Privileged EXEC mode
Parameter:

Parameter	Description
VLAN-LIST	One or more VLANs to display (single or multiple)

Description:
Displays the VLAN type (Primary, Community, Isolated, or Normal) and any associated VLANs.

Example:

```
Switch# show private-vlan vlan
Switch# show private-vlan vlan 100,200
```

Configuring the Port Working Mode

Command: switchport private-vlan mode (host | promiscuous | trunk-promiscuous | host-trunk)
Command: no switchport private-vlan mode
Mode: Port Configuration Mode
Parameter:

Parameter	Description
host | promiscuous | trunk-promiscuous | host-trunk	Port working mode

Description:
Configures the Private VLAN working mode for a port.

Example:

```
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# switchport private-vlan mode host
```

Configuring Port Binding VLAN Association

Command: switchport private-vlan association `<2-4094>` `<VLAN-LIST>`
Command: no switchport private-vlan association `<2-4094>`
Mode: Port Configuration Mode
Parameter:

Parameter	Description
`<2-4094>`	Primary VLAN ID
`<VLAN-LIST>`	Secondary VLAN(s). Can be a single VLAN, list, or range.

Description:
Binds a port to a primary VLAN and one or more associated secondary VLANs.

- **Host** ports: One-to-one association (one primary, one secondary).
- **Host-Trunk** ports: Multiple associations allowed, but each primary VLAN can only bind to one secondary VLAN.
- **Promiscuous** ports: One VLAN association per command, but one primary VLAN can bind to multiple secondary VLANs.
- **Trunk-Promiscuous** ports: Multiple associations supported, one primary VLAN can bind to multiple secondary VLANs.

Example:

```
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# switchport private-vlan mode host
Switch(config-if)# switchport private-vlan association 2 12

Switch(config)# interface Ethernet 1/0/2
Switch(config-if)# switchport private-vlan mode host-trunk
Switch(config-if)# switchport private-vlan association 514 524
Switch(config-if)# switchport private-vlan association 513 523
Switch(config-if)# switchport private-vlan association 512 522

Switch(config)# interface Ethernet 1/0/3
Switch(config-if)# switchport private-vlan mode promiscuous
Switch(config-if)# switchport private-vlan mapping 3 13,23

Switch(config)# interface Ethernet 1/0/4
Switch(config-if)# switchport private-vlan mode trunk-promiscuous
Switch(config-if)# switchport private-vlan mapping 511 521
Switch(config-if)# switchport private-vlan mapping 512 522
Switch(config-if)# switchport private-vlan mapping 506 516-517
Switch(config-if)# switchport private-vlan mapping 657 536,646,648,650,652,654
```

PVLAN Configuration of All Ports

Command: show private-vlan interfaces
Mode: Privileged EXEC mode
Parameter: None
Description: Displays the PVLAN configuration status of all interfaces on the switch.

Example:

```
Switch# show private-vlan interfaces
```

PVLAN Configuration Bound to the Specified Port

Command: show private-vlan interfaces `[IF_PORTS]`
Mode: Privileged EXEC mode
Parameter: None
Description: Displays the PVLAN configuration bound to a specific Ethernet or LAG interface.

Example:

```
Switch# show private-vlan interfaces Ethernet 1/0/1
Switch# show private-vlan interfaces LAG 1
```

GVRP

Global Settings – GVRP

- Enable/Disable GVRP (Global)

Command: `gvrp`

`no gvrp`

Mode: Global Configuration Mode

Parameter: none

Description: Enables or disables the GARP VLAN Registration Protocol (GVRP) globally on the switch. The `no` form of the command disables the GVRP function.

Example:

```
# Enable GVRP globally
Switch(config)# gvrp

# Disable GVRP globally
Switch(config)# no gvrp
```

- Configure GVRP LeaveAll Timer

Command: `gvrp timer leaveall <leaveall>`

`no gvrp timer leaveall`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<leaveall>`	The LeaveAll timer value in centiseconds (hundredths of a second). It must be an integer between 65 and 32765, and it must be a multiple of 5.

Description: Configures the GVRP LeaveAll timer. The LeaveAll timer determines the frequency at which LeaveAll messages are sent to unregister all attributes. The `no` form of the command resets the LeaveAll timer to its default value.

(Note: The original text mentioned "centimeters and seconds," which is a translation error for "centiseconds.")

Example:

```
# Configure the GVRP LeaveAll timer to 10000 centiseconds
Switch(config)# gvrp timer leaveall 10000

# Reset the GVRP LeaveAll timer to its default value
Switch(config)# no gvrp timer leaveall
```

Port Settings – GVRP

- Enable/Disable GVRP on a Port

Command: `gvrp`

`no gvrp`

Mode: Interface Configuration Mode

Parameter: none

Description: Enables or disables the GARP VLAN Registration Protocol (GVRP) on a specified interface. The `no` form of the command disables the GVRP function on the port.

Example:

```
# Enter interface configuration mode for port 1/0/1
Switch(config)# interface Ethernet 1/0/1

# Enable GVRP on the port
Switch(config-if)# gvrp

# Disable GVRP on the port
Switch(config-if)# no gvrp
```

- Dynamic VLAN Creation

Command: `gvrp dynamic-vlan-creation`

`no gvrp dynamic-vlan-creation`

Mode: Interface Configuration Mode

Parameter: none

Description: Enables or disables the dynamic creation of VLANs via GVRP on the specified interface. The `no` form of the command disables this feature, preventing GVRP from dynamically creating new VLANs on the port.

Example:

```
# Enter interface configuration mode for port 1/0/1
Switch(config)# interface Ethernet 1/0/1

# Enable dynamic VLAN creation via GVRP on the port
Switch(config-if)# gvrp dynamic-vlan-creation

# Disable dynamic VLAN creation via GVRP on the port
Switch(config-if)# no gvrp dynamic-vlan-creation
```

- Configure GVRP Registration Mode

Command: `gvrp registration-mode {fixed | forbidden | normal}`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`fixed`	Prevents dynamic VLAN registration on the port. Only declaration messages for statically configured VLANs are sent.
`forbidden`	Prevents dynamic VLAN registration on the port. Unregisters all VLANs except VLAN 1, and only sends declaration messages for VLAN 1.
`normal`	Allows dynamic VLAN registration on the port. Sends declaration messages for both static and dynamic VLANs.

Description: Configures the GVRP registration mode for the specified interface.

Example:

```
# Enter interface configuration mode for port 1/0/1
Switch(config)# interface Ethernet 1/0/1

# Configure the GVRP registration mode to fixed
Switch(config-if)# gvrp registration-mode fixed
```

Configure GVRP Leave Timer

Command: `gvrp timer leave <leave>`

`no gvrp timer leave`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`<leave>`	The Leave timer value in centiseconds (hundredths of a second). It must be an integer ranging from 45 to (LeaveAll – 5), and it must be a multiple of 5.

Description: Configures the GVRP Leave timer on the specified interface. The Leave timer determines how long the switch waits after receiving a Leave message before unregistering a VLAN attribute. The `no` form of the command resets the Leave timer to its default value.

(Note: The original text mentioned "centimeters," which is a translation error for "centiseconds.")

Example:

```
# Enter interface configuration mode for port 1/0/1
Switch(config)# interface Ethernet 1/0/1

# Configure the GVRP Leave timer to 50 centiseconds
Switch(config-if)# gvrp timer leave 50

# Reset the GVRP Leave timer to its default value
Switch(config-if)# no gvrp timer leave
```

- Configure GVRP Leave Timer

Command: `gvrp timer leave <leave>`

`no gvrp timer leave`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`<leave>`	The Leave timer value in centiseconds. It must be an integer ranging from 45 to (LeaveAll – 5), and it must be a multiple of 5.

Description: Configures the GVRP Leave timer on the specified interface. The `no` form of the command resets the Leave timer to its default value.

Example:

```
# Enter interface configuration mode for port 1/0/1
Switch(config)# interface Ethernet 1/0/1

# Configure the GVRP Leave timer to 50 centiseconds
Switch(config-if)# gvrp timer leave 50

# Reset the GVRP Leave timer to its default value
Switch(config-if)# no gvrp timer leave
```

- Configure GVRP Join Timer

Command: `gvrp timer join <join>`

`no gvrp timer join`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`<join>`	The Join timer value in centiseconds. It must be an integer ranging from 20 to (leave / 2), and it must be a multiple of 5.

Description: Configures the GVRP Join timer on the specified interface. The `no` form of the command resets the Join timer to its default value.

Example:

```
# Enter interface configuration mode for port 1/0/1
Switch(config)# interface Ethernet 1/0/1

# Configure the GVRP Join timer to 25 centiseconds
Switch(config-if)# gvrp timer join 25

# Reset the GVRP Join timer to its default value
Switch(config-if)# no gvrp timer join
```

- Configure GVRP Hold Timer

Command: `gvrp timer hold <hold>`

`no gvrp timer hold`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`<hold>`	The Hold timer value in centiseconds. It must be an integer ranging from 10 to (join / 2), and it must be a multiple of 5.

Description: Configures the GVRP Hold timer on the specified interface. The `no` form of the command resets the Hold timer to its default value.

Example:

```
# Enter interface configuration mode for port 1/0/1
Switch(config)# interface Ethernet 1/0/1

# Configure the GVRP Hold timer to 10 centiseconds
Switch(config-if)# gvrp timer hold 10

# Reset the GVRP Hold timer to its default value
Switch(config-if)# no gvrp timer hold
```

- View GVRP configuration

Command: `show gvrp configuration [interfaces <IF_PORTS>]`

Mode: Privileged Exec Mode

Parameter:

Parameter	Description
`<IF_PORTS>`	Optional: Specifies a port or a range of ports.

Description: Displays the GVRP configuration. If no port is specified, it displays the global GVRP configuration. If a port or port range is specified, it displays the GVRP configuration for those specific interfaces.

Example:

```
# View the global GVRP configuration
Switch# show gvrp configuration

# View the GVRP configuration for a specific port
Switch# show gvrp configuration interfaces Ethernet 1/0/1
```

- Check GVRP Port VLAN Status

Command: `show gvrp state interfaces <IF_PORTS> vlan <vlan>`

Mode: Privileged Exec Mode

Parameter:

Parameter	Description
`<IF_PORTS>`	Specifies a port or a range of ports.
`<vlan>`	Specifies the VLAN ID (range: 1 to 4094).

Description: Displays the GVRP registration status for a specific VLAN on the specified interface(s).

Example:

```
# Check the GVRP status of VLAN 2 on port 1/0/1
Switch# show gvrp state interfaces Ethernet 1/0/1 vlan 2
```

- View GVRP port data statistics

Command: `show gvrp statistics [interfaces <IF_PORTS>]`

Mode: Privileged Exec Mode

Parameter:

Parameter	Description
`<IF_PORTS>`	Optional: Specifies a port or a range of ports.

Description: Displays the GVRP data statistics. If no port is specified, it displays the global GVRP statistics. If a port or port range is specified, it displays the statistics for those specific interfaces.

Example:

```
# View global GVRP data statistics
Switch# show gvrp statistics

# View GVRP data statistics for a specific port
Switch# show gvrp statistics interfaces Ethernet 1/0/1
```

Spanning tree

Global Settings

- Turn on/off spanning tree

Command:

1. spanning-tree
2. no spanning-tree

Mode: global configuration mode

Parameter: none

Description: Enable/ disable spanning tree function

Example:

```
Switch(config)# no spanning-tree
Switch(config)# spanning-tree
```

- BPDU processing method

Command: spanning-tree bpdu {filtering|flooding}

Mode: global configuration mode

Parameter:

Parameter	Description
filtering	When spanning tree is disabled, filter DU packets
flooding	Flood BPDU packets when spanning tree is disabled

Description: Set the processing mode of BPDU packets when the spanning tree is disabled

Example:

```
Switch(config)# no spanning-tree
Switch(config)# spanning-tree bpdu filtering
```

- Set Spanning Tree Mode

Command: spanning-tree mode {stp | rstp | mstp | pvst | rpvst}
Mode: Global Configuration Mode
Parameter:

Parameter	Description
stp	Standard Spanning Tree Protocol
rstp	Rapid Spanning Tree Protocol *(default)*
mstp	Multiple Spanning Tree Protocol
pvst	Per-VLAN Spanning Tree Protocol
rpvst	Rapid Per-VLAN Spanning Tree Protocol

Description:
Configures the Spanning Tree operating mode. Default mode is **RSTP**.

Example:

```
Switch(config)# spanning-tree mode rstp
```

- Ignoring BPDU VLAN

Command:
spanning-tree bpdu vlan-ignore
no spanning-tree bpdu vlan-ignore

Mode: Global Configuration Mode

Parameter: none

Description: configures the switch to ignore BPDU VLAN messages.

Example:

```
Switch(config)# spanning-tree bpdu vlan-ignore
Switch(config)# no spanning-tree bpdu vlan-ignore
```

- Path Cost

Command:
`spanning-tree pathcost method {long | short | legacy}`

Mode:
Global configuration mode

Parameter:

Parameter	Description
`long`	Specifies a global path cost using long format. Range: `1` to `200,000,000`.
`short`	Specifies a global path cost using short format. Range: `1` to `65535`.
`legacy`	Specifies the legacy global path cost algorithm (traditional). Range: `1` to `200,000`.

Description:
Sets the global Spanning Tree path cost method.
The default value is `short`.

Example:

```
Switch(config)# spanning-tree pathcost method long
```

- Bridge Priority

Command:

- `spanning-tree priority <priority>`
- `no spanning-tree priority`

Mode:
Global configuration mode

Parameter:

Parameter	Description
`priority`	Global bridge priority value. Range: `0` to `61440`, in increments of `4096`.

Description:
Sets the global bridge priority for Spanning Tree Protocol (STP).
Default value: `32768`.

Example:

```
Switch(config)# spanning-tree priority 0
Switch(config)# no spanning-tree priority
```

- BPDU Contact Time

Command:

- `spanning-tree hello-time <seconds>`
- `no spanning-tree hello-time`

Mode: Global configuration mode

Parameter:

Parameter	Description
`seconds`	Sets the BPDU (Bridge Protocol Data Unit) hello time. Range: `1-10` seconds. Must satisfy: `(Hello Time + 1) × 2 ≤ Max Age ≤ (Forward Delay - 1) × 2`

Description:
Sets the BPDU contact interval (hello time).
Default value: `2 seconds`.

Example:

```
Switch(config)# spanning-tree hello-time 2
Switch(config)# no spanning-tree hello-time
```

- Maximum Aging Time

Command:

- `spanning-tree maximum-age <seconds>`
- `no spanning-tree maximum-age`

Mode: Global configuration mode

Parameter:

Parameter	Description
`seconds`	Sets the maximum aging time. Range: `6-40` seconds. Must satisfy: `(Hello Time + 1) × 2 ≤ Max Age ≤ (Forward Delay - 1) × 2`

Description:
Sets the maximum aging time for Spanning Tree Protocol.
Default value: `20 seconds` .

Example:

```
Switch(config)# spanning-tree maximum-age 20
Switch(config)# no spanning-tree maximum-age
```

- Forwarding Delay Time

Command:

- `spanning-tree forward-delay <seconds>`
- `no spanning-tree forward-delay`

Mode: Global configuration mode

Parameter:

Parameter	Description
`seconds`	Sets the Spanning Tree forwarding delay time. Range: `4-30` seconds. Must satisfy: `(Hello Time + 1) × 2 ≤ Max Age ≤ (Forward Delay - 1) × 2`

Description:
Sets the STP forwarding delay time.
Default value: `15 seconds` .

Example:

```
Switch(config)# spanning-tree forward-delay 15
Switch(config)# no spanning-tree forward-delay
```

- Maximum Number of Jumps

Command:

- `spanning-tree max-hops <hop>`
- `no spanning-tree max-hops`

Mode: Global configuration mode

Parameter:

Parameter	Description
`hop`	Sets the maximum number of hops. Range: `1-40` (integer).

Description:
Sets the maximum number of STP hops (jumps).
Default value: `20` .

Example:

```
Switch(config)# spanning-tree max-hops 20
Switch(config)# no spanning-tree max-hops
```

- Show spanning tree

Command: show spanning tree

Mode: privileged EXEC mode

Parameter: none

Description: View spanning tree information

Example:

```
Switch # show spanning tree
```

Port settings

- Port selection

Command:

1. **interface** *Ethernet id/LAG id*
2. **interface range** *Ethernet/LAG <nm>*

Mode: Interface configuration mode

Parameter:

Parameter	Description
Ethernet id/LAG id	Select switch ports, including common interfaces and aggregated interfaces.
Ethernet/LAG <nm>	Select the switch port range , including common interfaces and aggregated interfaces.

Description: Select ports for spanning tree related configuration

Example:

```
Switch(config)# interface range Ethernet 1/0/2-1/0/10
```

- Port Open/Close Spanning Tree

Command:

1. `spanning-tree`
2. `no spanning-tree`

Mode: Interface configuration mode

Parameter: none

Description:

- `spanning-tree` : Enable the port spanning tree function.
- `no spanning-tree` : Disable the port spanning tree function.

Example:

```
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# spanning-tree
Switch(config-if)# no spanning-tree
```

- Configure Spanning-Tree Port Path Cost

Command: `spanning-tree cost <cost>`

`no spanning-tree cost`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`<cost>`	The spanning-tree path cost value. The allowed range depends on the global path cost configuration: • **long:** 0 to 200,000,000 • **short:** 0 to 65,535 • **legacy:** 0 to 200,000 • **0:** Automatically calculates the cost based on the real-time port rate and the cost algorithm.

Description: Configures the spanning-tree path cost for the specified interface. A lower path cost represents a preferred path. The `no` form of the command resets the port path cost to its default automatic calculation (equivalent to setting the cost to 0).

Example:

```
# Enter interface configuration mode for port 1/0/1
Switch(config)# interface Ethernet 1/0/1

# Manually configure the spanning-tree path cost to 100
Switch(config-if)# spanning-tree cost 100

# Restore the spanning-tree path cost to its default automatic calculation
Switch(config-if)# no spanning-tree cost
```

- Port Priority

Command:

1. `spanning-tree port-priority <priority>`
2. `no spanning-tree port-priority`

Mode: Interface configuration mode

Parameter:

Parameter	Description
`priority`	Port priority a value between 0 and 240, must be a multiple of 16.

Description: Configure the Spanning Tree priority value for the selected port.

Example:

```
Switch(config-if-range)# spanning-tree port-priority 0
Switch(config-if-range)# no spanning-tree port-priority
```

- Configure Edge Port

Command: `spanning-tree edge {auto|true|false}`

Mode: Interface configuration mode

Parameter:

Parameter	Description
`auto`	Automatically negotiates edge port mode.
`true`	Enables edge port mode.
`false`	Disables edge port mode.

Description: Configure the edge port function for the interface.

Example:

```
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# spanning-tree edge auto
```

- Enable/Disable BPDU Filtering

Command:

1. `spanning-tree bpdu-filter`
2. `no spanning-tree bpdu-filter`

Mode: Interface configuration mode

Parameter: none

Description: Enable or disable BPDU filtering on the interface.

Example:

```
Switch(config)# interface e1/0/1
Switch(config-if)# spanning-tree bpdu-filter
Switch(config-if)# no spanning-tree bpdu-filter
```

- Enable/Disable BPDU Protection

Command:

1. `spanning-tree bpdu-guard`
2. `no spanning-tree bpdu-guard`

Mode: Interface configuration mode

Parameter: none

Description: Enable or disable the BPDU protection function on the port.

Example:

```
Switch(config)# interface e1/0/1
Switch(config-if)# spanning-tree bpdu-guard
Switch(config-if)# no spanning-tree bpdu-guard
```

- Enable/Disable Root Protection

Command:

1. `spanning-tree root-protection`
2. `no spanning-tree root-protection`

Mode: Interface configuration mode

Parameter: none

Description: Enable or disable root protection on the port.
Note: *Root protection and loop protection are mutually exclusive.*

Example:

```
Switch(config)# interface e1/0/1
Switch(config-if)# spanning-tree root-protection
Switch(config-if)# no spanning-tree root-protection
```

- Enable/Disable Loop Protection

Command:

1. `spanning-tree loop-protection`
2. `no spanning-tree loop-protection`

Mode:
Interface configuration mode

Parameter:
none

Description:
Enable or disable loop protection on the port.
Note: Root protection and loop protection are mutually exclusive.

Example:

```
Switch(config)# interface e1/0/1
Switch(config-if)# spanning-tree loop-protection
Switch(config-if)# no spanning-tree loop-protection
```

- Point-to-point Link

Command:
`spanning-tree link-type (auto | point-to-point | shared)`
`no spanning-tree link-type`

Mode: Interface configuration mode

Parameter:

Parameter	Description
`auto`	Point-to-point links are auto-negotiated.
`point-to-point`	Forces peer-to-peer link mode.
`shared`	Disables point-to-point and enables shared link mode.

Description:
Configure the point-to-point link function for the port.
`no spanning-tree link-type` : Restores the port link type to the default configuration (`auto`).

Example:

```
Switch(config)# interface e1/0/1
Switch(config-if)# spanning-tree link-type point-to-point
Switch(config-if)# no spanning-tree link-type
```

- Show port

Command: show spanning-tree interfaces IF_PORTS [statistic]

Mode: privileged EXEC mode

Parameter:

parameter	**describe**
interfaces *IF_PORTS*	Port ID or range of port IDs
statistic	Display the spanning tree data information of the port

Description: View port spanning tree information

Example:

```
Switch# show spanning-tree interfaces Ethernet 1/0/2

Port eth1/0/2 enabled
State: forwarding
Role: root
Port id: 12 8.2
Port cost: 4
Type: P2P (STP)
Edge Port: No
Designated bridge Priority : 32767
Address: c0:74:ad:98:d5:10
Designated port id: 128.2
Designated path cost: 0
BPDU Filter: Disabled
BPDU guard: Disabled
BPDU: sent 6, received 692
Protection: NONE
```

MST instance

- Enter MST configuration

Command: spanning-tree mst configuration

Mode: global configuration mode

Parameter: none

Description: MST configuration to enter MSTP mode

Example:

```
Switch(config)# spanning-tree mst configuration
```

- MST Domain Name

Command:

1. `name <name>`
2. `no name`

Mode: MST Configuration Mode

Parameter:

Parameter	Description
`name`	MST (Multiple Spanning Tree) domain name, up to 32 characters

Description: Assign or remove the MST domain name, which identifies the Multiple Spanning Tree instance on the switch.

Example:

```
Switch(config-mst)# name 123
Switch(config-mst)# no name
```

- MSTP Revision

Command:

1. `revision <revision>`
2. `no revision`

Mode: MST Configuration Mode

Parameter:

Parameter	Description
`revision`	MSTP revision number, from 0 to 65535

Description: Set the MSTP revision number for the domain.
The default value is `0`.

Example:

```
Switch(config-mst)# revision 123
Switch(config-mst)# no revision
```

- MST Instance to VLAN Mapping

Command:
`instance <instance-id> vlan <vlan-list>`

no instance instance-id [vlan] vlan-list

Mode: MST Configuration Mode

Parameter:

Parameter	Description
`instance-id`	Instance ID (0-15 /31/63) GWN7801(P)/GWN7802(P)/GWN703(P)/GWN7801P Pro/GWN7802P Pro/GWN7803(PL/PH) Pro has 16 instances, GWN7811(P)/GWN7812P/GWN7813(P)/GWN7830/GWN7831/GWN7821P/GWN7822P has 32 instances, and GWN7806(P)/GWN7816(P)/GWN7832/GWN7806PL Pro/GWN7806PH Pro has 64 instances.
vlan-list	The VLAN range for instance mapping can be specified by entering only one VLAN or a range. If left blank, the default range is 1-4094.

Description: Configure which VLANs are associated with each MST instance.

Example:

```
Switch(config-mst)# instance 2 vlan 50-100
Switch(config-mst)# no instance 2 vlan 50-10
```

- MST Instance Bridge Priority

Command: `spanning-tree mst instance-id priority priority`

no spanning-tree mst instance-id priority

Mode: Global configuration mode

Parameter:

Parameter	Description
`instance-id`	MST instance ID (0–15 / 31 / 63) Supported values vary by device model: – GWN7801(P), GWN7802(P), GWN703(P), GWN7801P Pro, GWN7802P Pro, GWN7803(PL/PH) Pro support up to 16 instances – GWN7811(P), GWN7812P, GWN7813(P), GWN7830, GWN7831, GWN7821P, GWN7822P support up to 32 instances – GWN7806(P), GWN7816(P), GWN7832, GWN7806PL Pro, GWN7806PH Pro support up to 64 instances
`priority`	Bridge priority for the specified MST instance. Must be a multiple of 4096. Valid range: 0 to 61440. Lower values have higher priority in root bridge selection.

Description: Configure the bridge priority of a specified MST (Multiple Spanning Tree) instance. The priority value influences which switch becomes the root bridge for that instance.

Example:

```
Switch(config)# spanning-tree mst 2 priority 0
Switch(config)#no spanning-tree mst 2 priority
```

- View MST configuration

Command: show spanning-tree mst configuration

Mode: privileged EXEC mode

Parameter: none

Description: View MST configuration

Example:

```
Switch# show spanning-tree mst configuration
```

MST port settings

- Port selection

Command:

1. **interface** *Ethernet id/LAG id*
2. **interface range** *Ethernet/LAG <nm>*

Mode: global configuration mode

Parameter:

Parameter	Description
Ethernet id/LAG id	Select switch ports, including common interfaces and aggregated interfaces
Ethernet/LAG <nm>	Select the switch port range , including common interfaces and aggregated interfaces

Description: Select port for MST port configuration

Example:

```
Switch(config)# interface range Ethernet 1/0/2-1/0/10
```

- Port path cost

Command: spanning-tree mst *instance-id* **cost** *cost*

no spanning-tree mst instance-id cost

Mode: interface configuration mode

Parameter:

Parameter	Description
instance-id	Instance ID
cost	Path cost , an integer ranging from 0 to 200000000

Description: Set the path cost of the specified port in the MST instance

Example:

```
Switch(config-if-range)# spanning-tree mst 2 cost 100
Switch(config-if-range)# no spanning-tree mst 2 cost
```

- MST Port Priority

Command:

```
spanning-tree mst instance-id port-priority priority
no spanning-tree mst instance-id port-priority
```

Mode: Interface configuration mode

Parameter:

Parameter	Description
`instance-id`	MST instance ID (0–15 / 31 / 63) Supported per model: – GWN7801(P), GWN7802(P), GWN703(P), GWN7801P Pro, GWN7802P Pro, GWN7803(PL/PH) Pro support 16 instances – GWN7811(P), GWN7812P, GWN7813(P), GWN7830, GWN7831, GWN7821P, GWN7822P support 32 instances – GWN7806(P), GWN7816(P), GWN7832, GWN7806PL Pro, GWN7806PH Pro support 64 instances
`priority`	Port priority value. Must be a multiple of 16. Valid range: 0 to 240.

Description: Set the priority of a specified port for a given MST (Multiple Spanning Tree) instance. Higher priority affects how the port is selected during the path selection process.

Example:

```
Switch(config-if-range)# spanning-tree mst 2 port-priority 0
Switch(config-if-range)# no spanning-tree mst 2 port-priority
```

- View MST Instance Configuration

Command: `show spanning-tree mst instance-id interface IF_PORTS`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`instance-id`	MST instance ID (0–15 / 31 / 63) Supported per model: – GWN7801(P), GWN7802(P), GWN703(P), GWN7801P Pro, GWN7802P Pro, GWN7803(PL/PH) Pro: 16 instances – GWN7811(P), GWN7812P, GWN7813(P), GWN7830, GWN7831, GWN7821P, GWN7822P: 32 instances – GWN7806(P), GWN7816(P), GWN7832, GWN7806PL Pro, GWN7806PH Pro: 64 instances
`IF_PORTS`	Port or port range to display MST configuration on.

Description: View the configuration details of a specific MST (Multiple Spanning Tree) instance on the specified port.

Example:

```
Switch# show spanning-tree mst 2
```

VLAN settings (PVST(+)/RPVST(+))

- Create a VLAN instance

Command: spanning-tree VLAN -LIST

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN ID, enter an integer from 1 to 4094 , multiple choices

Description: Create a VLAN instance

Example:

```
Switch(config)# spanning-tree vlan 1
```

- Delete a VLAN instance

Command: no spanning-tree VLAN -LIST

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN ID, enter an integer from 1 to 4094 , multiple choices

Description: Delete a VLAN instance

Example:

```
Switch(config)# no spanning-tree vlan 1
```

- Contact time

Command: spanning-tree vlan VLAN-LIST hello-time <1-10>

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN ID, enter an integer from 1 to 4094 , multiple choices
<1-10>	Contact time , an integer ranging from 1 to 10 , the default is 2 , and it needs to satisfy (Hello Time+1)*2≤Max Age≤(Forward Delay-1)*2

Description: Set contact time for VLAN instance

Example:

```
Switch(config)# spanning-tree VLAN 1 hello-time 2
```

- Reset Contact Hours

Command: no spanning-tree vlan VLAN-LIST hello-time

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN ID, enter an integer from 1 to 4094 , multiple choices

Description: Reset the contact time of the VLAN instance to the default value of 2 seconds

Example:

```
Switch(config)# no spanning-tree vlan 1 hello-time
```

- Forwarding delay time

Command: spanning-tree vlan VLAN-LIST forward-delay <4-30>

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN ID, the input range is an integer from 1 to 4094 , multiple choices are possible
<4-30>	Forwarding delay time , the value range is an integer from 4 to 30 , the default is 15 seconds , and it needs to satisfy (Hello Time+1)**2≤Max Age≤(Forward Delay-1)**2

Description: Set the forwarding delay time of the VLAN instance

Example:

```
Switch(config)# spanning-tree vlan 1 forward-delay 15
```

- Reset forwarding delay time

Command: no spanning-tree vlan VLAN-LIST forward-delay

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN ID, the input range is an integer from 1 to 4094 , multiple choices are possible

Description: Reset the forwarding delay time of the VLAN instance to the default value of 15 seconds

Example:

```
Switch(config)# no spanning-tree vlan 1 forward-delay
```

- Maximum Aging time

Command: spanning-tree vlan VLAN-LIST maximum-age <6-40>

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN ID, the input range is an integer from 1 to 4094 , multiple choices are possible
<6-40>	The maximum presbyopia time , an integer ranging from 6 to 40 , the default is 20 seconds , and it needs to satisfy (Hello Time+1)**2≤Max Age≤(Forward Delay-1)**2.

Description: Set the maximum aging time of a VLAN instance

Example:

```
Switch(config)# spanning-tree vlan 1 maximum-age 20
```

- Reset max aging time

Command: no spanning-tree vlan VLAN-LIST forward-delay

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN ID, the input range is an integer from 1 to 4094 , multiple choices are possible

Description: time of VLAN instances to the default value of 20 seconds

Example:

```
Switch(config)# no spanning-tree vlan 1 maximum-age
```

- Priority

Command: spanning-tree vlan VLAN-LIST priority <0-61440>

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN ID, the input range is an integer from 1 to 4094 , multiple choices are possible
<0-61440>	Priority , the value range is an integer from 0 to 61440 , and it is a multiple of 4096 , the default is 32768

Description:

1. set priority
2. ***Note:*** *In PVST mode, the actual priority of each instance is the sum of priority and VLAN ID*

Example:

```
Switch(config)# spanning-tree vlan 1 priority 32768
```

- Reset priority

Command: no spanning-tree vlan VLAN-LIST priority

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN ID, the input range is an integer from 1 to 4094 , multiple choices are possible

Description: Reset priority to default 32768

Example:

```
Switch(config)# no spanning-tree vlan 1 priority
```

- View VLAN instance

Command: show spanning-tree VLAN-LIST

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN ID, enter an integer from 1 to 4094 , multiple choices

Description: View VLAN instance

Example:

```
Switch(config)# show spanning-tree 1
```

PVST(+)/RPVST(+) port settings

- Port selection

Command:

1. **interface** Ethernet id/LAG id
2. **interface range** Ethernet/LAG <nm>

Mode: global configuration mode

Parameter:

Parameter	Description
Ethernet id/LAG id	Select switch ports, including common interfaces and aggregated interfaces
Ethernet/LAG <nm>	Select the switch port range , including common interfaces and aggregated interfaces

Description: Select port for PVST port configuration

Example:

```
Switch(config)# interface range Ethernet 1/0/2-1/0/10
```

- Port priority

Command: spanning-tree vlan <1-4094> port- priority <0-240>

Mode: interface configuration mode

Parameter:

Parameter	Description
<1-4094>	VLAN ID, the input range is an integer from 1 to 4094 , multiple choices are possible.
<0-240>	Port priority , the value range is an integer from 0 to 240 , and it is a multiple of 16 , and the default is 128.

Description: Set port priority

Example:

```
Switch(config-if-range)# spanning-tree vlan 1 port-priority 128
```

- Reset port priority

Command: no spanning-tree vlan <1-4094> port- priority

Mode: interface configuration mode

Parameter:

Parameter	Description
<1-4094>	VLAN ID, the input range is an integer from 1 to 4094 , multiple choices are possible

Description: Reset port priority to default 128

Example:

```
Switch(config-if-range)# no spanning-tree vlan 1 port-priority
```

- Port path cost

Command: spanning-tree vlan <1-4094> port-cost cost

Mode: interface configuration mode

Parameter:

Parameter	Description
<1-4094>	VLAN ID, the input range is an integer from 1 to 4094 , multiple choices are possible
cost	Port path overhead. The value range is determined according to the setting of the global path cost. If the global path cost is “long”, the value range is an integer from 0 to 200000000 ; if the global path cost is “short”, the value range is an integer from 0 to 65535 . 0 indicates that the path cost calculation is performed automatically.

Description: Set the path cost of the port

Example:

```
Switch(config-if-range)# spanning-tree vlan 1 port-cost 4096
```

- Reset port path cost

Command: no spanning-tree vlan <1-4094> port-cost

Mode: interface configuration mode

Parameter:

Parameter	Description
<1-4094>	VLAN ID, the input range is an integer from 1 to 4094 , multiple choices are possible.

Description: Reset the path cost of the port

Example:

```
Switch(config-if-range)# no spanning-tree vlan 1 port-cost
```

Port Group

Port Group – Global Settings

Command:

1. **interface group** [1-32]
2. **no interface group** [1-32]

Mode: global configuration mode

Parameter:

Parameter	Description
[1-32]	Port group ID, range 1-32

Description: [no]interface group [1-32] : Add/remove interface group [1-32]

Example:

```
Switch(config)# interface group 1
Switch(config)# no interface group 1
```

Port Group Settings

- Adding/removing port group members

Command:

1. **group-member** [interface]

2. **no group-member** [interface]

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
[interface]	Added switch ports, including electrical ports, optical ports, and aggregated ports.

Description: [no] group-member [interface]: Add/remove port group members.

Example:

```
Switch (config-if-group)# group-member Ethernet 1/0/1
Switch (config-if-group)# no group-member Ethernet 1/0/1
```

- Configure the description of the port group

Command: group description [WORD<1-128>]

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
[WORD<1-128>]	Port group description, supports 1-128 characters, supported characters are ASCII 0x20~0x7E, but does not include "\?/, these 5 items.

Description: group description [WORD<1-128>] : Description of the configured port group.

Example:

```
Switch (config-if-group)# group-member Ethernet 1/0/1
Switch (config-if-group)# group description group1
```

- View Port Group Members

Command:

```
show interfaces group
show interfaces group [1-32]
```

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
[1-32]	Port group ID (1 to 32)

Description: Display the description, members, and configuration details of the specified port group.

Example:

```
Switch# show interfaces group         // View configuration details for all port groups
Switch# show interfaces group 1       // View configuration details for port group 1
```

IP

Manage VLAN and gateway settings

Set the VLAN interface as the management VLAN interface

Command: management-vlan

Mode: Interface Configuration Mode

Parameter: none

Description: Set the interface as the management VLAN interface.

Example:

```
Set VLAN 101 interface as the management VLAN interface
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#management-vlan
```

Viewing Device Management VLAN

Command: show management-vlan

Mode: Interface Configuration Mode

Parameter: None

Description: Checks the device management VLAN.

Example:

```
Switch# show management-vlan
Management VLAN-ID: default(1)
```

Setting the Management IPv4 Address

Command:

```
ip dhcp client
no ip dhcp client
ip address ABCD [mask ABCD]
no ip address [ABCD]
```

Mode: Global configuration mode

Parameter:

Parameter	Description
`ABCD`	Static IPv4 address for the management IP interface, in dotted decimal format.
`mask ABCD`	Subnet mask for the management IP interface, in dotted decimal format.

Description: Configure the management IPv4 address. You can either assign a static IP address or enable DHCP for dynamic assignment.

Example:

```
Switch# configure
Switch(config)# ip address 192.168.10.122 255.255.255.255
Switch(config)# ip dhcp client
```

Set the Default IPv4 Gateway

Command:

```
ip default-gateway XXXX
no ip default-gateway
```

Mode: Interface configuration mode

Parameter:

Parameter	Description
`XXXX`	IPv4 default gateway address

Description: Configure the default IPv4 gateway address for the device.

Example:

```
Switch# configure
Switch(config)# ip default-gateway 192.168.10.1
Switch(config)# no ip default-gateway
```

View IPv4 default gateway

Command: show ip default-gateway

Mode: privileged EXEC mode

Parameter: none

Description: Check the IPv4 default gateway address.

Example:

```
Switch# show ip default-gateway
```

Setting the Management IPv6 Address

Command:
ip ipv6 address X:X::X:X link-local
no ipv6 address X:X::X:X link-local

ipv6 address X:X::X:X/<1-128>
no ipv6 address X:X::X:X/<1-128>

ipv6 dhcp client stateless
no ipv6 dhcp client stateless

ipv6 address autoconfig
no ipv6 address autoconfig

ipv6 dhcp client
no ipv6 dhcp client

ipv6 dhcp gateway priority <2-255>
no ipv6 dhcp gateway priority

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
X:X::X:X	Link-local address of the management IP interface.
<1-128>	If the IPv6 gateway address is a link-local address, specify a VLAN outbound interface.

Description: sets the management IPv6 link-local address.

Example:

```
Switch# config
Switch(config)# ipv6 default-gateway 2409:8754:3020:53::1
Switch(config)# ip default-gateway fe80::10 interface vlan 10
```

Set the Default Gateway for IPv6

Command:
`ipv6 default-gateway X:X::X:X`
`ipv6 default-gateway X:X::X:X interface vlan <1-4094>`
`no ipv6 default-gateway`

Mode: Global configuration mode

Parameter:

Parameter	Description
`X:X::X:X`	IPv6 default gateway address
`<1-4094>`	If the IPv6 gateway is a link-local address, the VLAN interface used for outbound traffic must be specified.

Description: Configure the default gateway address used for IPv6 traffic. If using a link-local address, an outgoing VLAN interface must be specified.

Example:

```
Switch# configure
Switch(config)# ipv6 default-gateway 2409:8754:3020:53::1
Switch(config)# ipv6 default-gateway fe80::10 interface vlan 10
Switch(config)# no ipv6 default-gateway
```

View IPv6 default gateway

Command: show ipv6 gateway

Mode: Privileged EXEC mode

Parameter: none

Description: Check the IPv6 default gateway address.

Example:

```
Switch# show ipv6 gateway
```

VLAN IPv4 interface

View all VLAN IPv4 interfaces

Command: show ip interface

Mode: privileged EXEC mode

Parameter: none

Description: View all IPv4 interfaces

Example:

```
Switch# show ip interface
```

View the IPv4 Interfaces of the Specified VLAN

Command:

`show ip interface loopback1`

`show ip interface vlan <1-4094>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`vlan <1-4094>`	VLAN ID. Valid range: 1 to 4094.

Description: Display the IPv4 interface configuration of a specified VLAN or loopback interface.

Example:

```
Check the IPv4 interfaces of loopback1, VLAN 1, and VLAN 1000.
Switch# show ip interface loopback1
Switch# show ip interface vlan 1
Switch# show ip interface vlan 1000
```

Configure static type VLAN IPv4 interface

Command:

1. **ip address** ip/masklength
2. **ip address** ip netmask

Mode: interface configuration mode

Parameter:

Parameter	Description
ip	IPv4 address
mask length	mask length
netmask	subnet mask

Description: Configure static type VLAN IPv4 interface

Example:

```
Configure the static IPv4 address of VLAN 100 as 192.168.70.111 and the subnet mask as 255.255.255.0
Switch#config
Switch(config)#interface vlan 100
Switch(config-if)#ip address 192.168.70.111/24
Switch(config-if)#ip address 192.168.70.111 255.255.255.0
```

Configure DHCP type VLAN IPv4 interface

Command: ip dhcp client

Mode: interface configuration mode

Parameter: none

Description: Configure DHCP-type VLAN IPv4 interface

Example:

```
Configure a dynamic IPv4 interface address for VLAN 101
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#ip dhcp client
```

Configure the DHCP gateway priority of IPv4 interface

Command: ip dhcp gateway priority <2-255>

Mode: interface configuration mode

Parameter:

Parameter	Description
<2-255>	Gateway priority, the value range is 2-255 , the default is 2. The smaller the value , the higher the priority.

Description: Configuring the DHCP Gateway Priority of an IPv4 Interface.

Example:

```
Configure the DHCP gateway priority of VLAN 101 as 10
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#ip dhcp client
Switch(config-if)#ip dhcp gateway priority 10
```

Clear the static address configuration of the VLAN IPv4 interface

Command:

1. **no ip address**
2. **no ip address** ABCD

Mode: interface configuration mode

Parameter:

Parameter	Description
ABCD	IPv4 address

Description: Clear the static address configuration of the VLAN IPv4 interface

Example:

```
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#no ip address
Switch(config-if)#no ip address 192.168.10.10
```

Clear the DHCP address configuration of the VLAN IPv4 interface

Command: no ip dhcp client

Mode: interface configuration mode

Parameter: none

Description: Clear the DHCP address configuration of the VLAN IPv4 interface

Example:

```
Clear the IPv4 DHCP address configuration of VLAN 101
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#no ip dhcp client
```

Refresh IPv4 Address

Command: `ip address refresh`

Mode: Interface Configuration Mode

Parameter: none

Description: Refreshes the IPv4 address on the specified interface. This command is typically used to renew the IP address lease when the interface is configured to obtain its address via DHCP.

Example:

```
# Enter global configuration mode
Switch# configure

# Enter interface configuration mode for VLAN 101
Switch(config)# interface vlan 101

# Configure the interface to obtain an IP address via DHCP
Switch(config-if)# ip dhcp client

# Refresh the IPv4 address to renew the DHCP lease
Switch(config-if)# ip address refresh
```

VLAN IPv6 interface

View all VLAN IPv6 interfaces

Command: show ip v6 interface

Mode: privileged EXEC mode

Parameter: none

Description: View all IPv6 interfaces

Example:

```
Switch# show ip v6 interface
```

View the specified VLAN IPv6 interface

Command:

1. **show ip v6 interface loopback1**
2. **Show ip v6 interface** vlanxxx

Mode: privileged EXEC mode

Parameter:

Parameter	Description
vlanxxx	VLAN ID , the value range is 1-4094

Description: View the specified VLAN IPv6 interface

Example:

```
View the IPv6 interfaces of loopback1 , VLAN 1 and VLAN 1000
Switch# show ipv6 interface Loopback1
Switch# show ipv6 interface vlan1
Switch# show ipv6 interface vlan1000
```

Enabling the IPv6 function on a VLAN interface

Command: ip v6 enable

Mode: interface configuration mode

Parameter: none

Description: Enabling the IPv6 function on a VLAN interface it is enabled , the link-local address automatic generation function is enabled by default.

Example:

```
Enable the IPv6 function on VLAN 100 interface
Switch#config
Switch(config)#interface vlan 100
Switch(config-if)#ipv6 enable
```

Disable the IPv6 function of the VLAN interface

Command: no ip v6 enable

Mode: interface configuration mode

Parameter: none

Description: Disable the IPv6 function of the VLAN interface

Example:

```
Disable the IPv6 function of VLAN 100 interface
Switch#config
Switch(config)#interface vlan 100
Switch(config-if)#no ipv6 enable
```

Statically configuring the IPv6 link-local address of a VLAN interface

Command: ip v6 address X:X::X:X **link-local**

Mode: interface configuration mode

Parameter:

Parameter	Description
X:X::X:X	link local address

Description: Statically configuring the IPv6 link-local address of a VLAN interface.

Example:

```
Configure the IPv6 link-local address of VLAN 101 interface as fe80::1111
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#ipv6 enable
Switch(config-if)#ipv6 address fe80::1111 link-local
```

Statically configuring the IPv6 global unicast address of a VLAN interface

Command: ip v6 address X:X::X:X/<1-128>

Mode: interface configuration mode

Parameter:

Parameter	Description
X:X::X:X/<1-128>	global unicast address

Description: Configuring an IPv6 global unicast address for a VLAN interface

Example:

```
Configure the IPv6 global unicast address of VLAN 101 interface as 2002: : 1111/64
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#ipv6 enable
Switch(config-if)#ipv6 address 2002::1111/64
```

Configure the IPv6 global unicast address of the VLAN interface as stateful DHCPv6

Command: ip v6 dhcp client

Mode: interface configuration mode

Parameter: none

Description: Configure the IPv6 global unicast address of the VLAN interface as stateful DHCPv6

Example:

```
Configure the IPv6 global unicast address of VLAN 1 0 1 interface as stateful DHCPv6
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#ipv6 enable
Switch(config-if)#ipv6 dhcp client
```

Configure the IPv6 global unicast address of the VLAN interface as stateless DHCPv6

Command: ip v6 dhcp client stateless

Mode: interface configuration mode

Parameter: none

Description: Configure the IPv6 global unicast address of the VLAN interface as stateless DHCPv6

Example:

```
Configure the IPv6 global unicast address of VLAN 101 interface as stateless DHCPv6
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#ipv6 enable
Switch(config-if)#ipv6 dhcp client stateless
```

Configure the IPv6 global unicast address of the VLAN interface as stateless auto-configuration

Command: ip v6 address autoconfig

Mode: interface configuration mode

Parameter: none

Description: Configure the IPv6 global unicast address of the VLAN interface as stateless auto-configuration

Example:

```
Configure the IPv6 global unicast address of VLAN 101 interface as stateless automatic configuration
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#ipv6 enable
Switch(config-if)#ipv6 address autoconfig
```

Configure the automatic configuration gateway priority of the IPv6 interface global unicast address

Command: ipv6 dhcp gateway priority <2-255>

Mode: interface configuration mode

Parameter:

Parameter	Description

<2-255>	Gateway priority, the value range is 2-255 , the default is 2. The smaller the value , the higher the priority

Description: Configure the gateway priority for stateful DHCPv6, stateless DHCPv6, or stateless auto-configuration of the IPv6 interface global unicast address.

Example:

```
Configure the IPv6 global unicast address of VLAN 101 with a stateful DHCPv6 gateway priority of 10
Switch#config
Switch(config)#interface vlan 101
Switch(config)#ipv6 enable
Switch(config-if)#ip v6 dhcp client
Switch(config-if)#ip v6 dhcp gateway priority 10
```

Reset IPv6 DHCP Gateway Priority

Command: `no ipv6 dhcp gateway priority`

Mode: Interface configuration mode

Parameter: None

Description: Restore the global unicast address for the IPv6 interface. The gateway priority for stateful DHCPv6, stateless DHCPv6, or stateless autoconfiguration is reset to its default value.

Example:

```
Restore the IPv6 global unicast address of VLAN 101. The stateful DHCPv6 gateway priority will be reset to
the default value of 2.

Switch# configure
Switch(config)# interface vlan 101
Switch(config-if)# ipv6 enable
Switch(config-if)# ip v6 dhcp client
Switch(config-if)# no ip v6 DHCP gateway priority
```

Clear the address configuration of the VLAN IPv6 interface

Command:

1. **no ip v6 address**
2. **no ipv6 address** X:X::X:X/<1-128>
3. **no ipv6 address autoconfig**
4. **no ipv6 dhcp client**
5. **no ipv6 dhcp client stateless**

Mode: interface configuration mode

Parameter:

Parameter	Description
X:X::X:X/<1-128>	global unicast address

Description:

1. **no ip v6 address** : Clear the IPv6 manually configured address of the VLAN interface, including link- local addresses and global unicast addresses.
2. **no ipv6 address** X:X::X:X/<1-128> : Clear the specified IPv6 manually configured address , link-local address or global unicast address of the VLAN interface.
3. **no ipv6 address autoconfig** : Clear the IPv6 global unicast stateless autoconfig address of the VLAN interface.
4. **no ipv6 dhcp client** : Clear the IPv6 global unicast stateful DHCPv6 address of the VLAN interface.
5. **no ipv6 dhcp client stateless** : Clear the IPv6 global unicast stateless DHCPv6 address of the VLAN interface.

Example:

```
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#no ipv6 address
Switch(config-if)#no ipv6 address 2002 ::1111 /64
Switch(config-if)#no ipv6 address autoconfig
Switch(config-if)#no ipv6 dhcp client
Switch(config-if)#no ipv6 dhcp client stateless
```

Disable VLAN interface

Command: shutdown

Mode: interface configuration mode

Parameter: none

Description: Disable VLAN interface

Example:

```
Disable VLAN 101 interface
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#shutdown
```

Enable VLAN Interface

Command: no shutdown

Mode: Interface configuration mode

Parameter: None

Description: Enables a VLAN interface that was previously disabled by the `shutdown` command.

Example: Enable VLAN interface 101:

```
Switch# configure
Switch(config)# interface vlan 101
Switch(config-if)# no shutdown
```

Refresh IPv6 Address

Command: ipv6 address refresh

Mode: Interface configuration mode

Parameter: None

Description: Refreshes the IPv6 address on the VLAN interface.

Example: Refresh the IPv6 address of VLAN interface 101:

```
Switch# configure
Switch(config)# interface vlan 101
Switch(config-if)# ipv6 dhcp client
Switch(config-if)# ipv6 address refresh
```

Configuring the MTU of VLAN IP Interfaces

Supported Models: GWN7801(P), GWN7802(P), GWN7803(P), GWN7806(P), GWN7811(P), GWN7812P, GWN7813(P), GWN7816(P), GWN7830, GWN7831, GWN7832, GWN7821P, GWN7822P, GWN7806PL Pro, GWN7806PH Pro

Command:

`mtu <1280-9216>`

`no mtu`

Mode: Interface configuration mode

Parameter:

Parameter	Description
`<1280-9216>`	MTU (Maximum Transmission Unit) value for the VLAN IP interface

Description: Configure the MTU (Maximum Transmission Unit) of the VLAN IP interface.
The `no mtu` command resets the MTU to the default value of 1500.

Example:

```
Configure the MTU of VLAN 8 to 1800:
Switch# configure
Switch(config)# interface vlan 8
Switch(config-if)# mtu 1800

Restore the MTU of VLAN 8 to the default value of 1500:
Switch(config-if)# no mtu
```

Configuring the MTU of VLAN IP Interfaces

Supported Models: GWN7801P Pro, GWN7802P Pro, GWN7803(PL/PH) Pro

Command:

`mtu <1280-9216>`

`no mtu`

Mode: Global configuration mode

Parameter:

Parameter	Description
`<1280-9216>`	MTU (Maximum Transmission Unit) value for the VLAN IP interface

Description: Configure the MTU of the VLAN IP interface.
The `no mtu` command restores the MTU to the default value of 1500.

Example:

```
The GWN7803PL Pro is configured with an MTU of 1800 for VLAN 8.

GWN7803PL Pro# configure
GWN7803PL Pro(config)# interface vlan 8
GWN7803PL Pro(config-if)# mtu 1800
All L3 VLAN interfaces will be affected.

To restore the default MTU value of 1500:
GWN7803PL Pro(config-if)# no mtu
```

VLAN IPv6 interface route advertisement

Enable the VLAN interface route advertisement function

Command: Ipv6 nd ra enable

Mode: Interface VLAN configuration mode

Parameter: none

Description: Enable the VLAN interface route advertisement function

Example:

```
Enable the route advertisement function of VLAN 101
Switch # config
Switch(config)# interface vlan101
Switch(config-if ) # ipv6 enable
Switch(config-if)# ipv6 nd ra enable
```

Disable the VLAN interface route advertisement function

Command: no ipv 6 nd ra enable

Mode: Interface VLAN configuration mode

Parameter: none

Description: Disable interface route advertisement function

Example:

```
Switch(config-if)# no ipv6 nd ra enable
```

Turn on option information

Command: ipv6 nd ra adv-interval-option

Mode: Interface VLAN configuration mode

Parameter: none

Description: Open option information

Example:

```
Enable route advertisement option information for VLAN 101
Switch # config
Switch(config)# interface vlan101
Switch(config-if)# ipv6 enable
Switch(config-if)# ipv6 nd ra enable
Switch(config-if)# ipv6 nd ra adv-interval-option
```

Close option information

Command: no ipv6 nd ra adv-interval-option

Mode: Interface VLAN configuration mode

Parameter: none

Description: Close option information

Example:

```
Switch(config-if)# no ipv6 nd ra adv-interval-option
```

Route Advertisement Interval

Command: ipv6 nd ra interval <1-1800>

Mode: Interface VLAN configuration mode

Parameter:

Parameter	Description
<1-1800>	Route advertisement interval time, an integer ranging from 1 to 1800 , the default is 600 seconds.

Description: Set the route advertisement interval.

Example:

```
Set the route advertisement interval of VLAN 101 to 900 seconds
Switch # config
Switch (config)# interface vlan101
Switch(config-if)# ipv6 enable
Switch(config-if)# ipv6 nd ra enable
Switch(config-if)# ipv6 nd ra interval 900
```

Survival time

Command: ipv6 nd ra lifetime <0-9000>

Mode: Interface VLAN configuration mode

Parameter:

Parameter	Description
<0-9000>	Set the life time of IP v6 routing advertisement, the value range is an integer from 0 to 9000, and the default is 1800 seconds.

Description: Set the VLAN interface route advertisement lifetime.

Example:

```
Set the route advertisement lifetime of VLAN 101 to 1200 seconds
Switch # config
Switch(config)# interface vlan101
Switch(config-if)# ipv6 enable
Switch(config-if)# ipv6 nd ra enable
Switch(config-if)# ipv6 nd ra lifetime 1200
```

Turn on the flag bit M Flag

Command: ipv6 nd ra managed-config-flag

Mode: Interface VLAN configuration mode

Parameter: none

Description: Turn on the flag bit M Flag

Example:

```
Switch # config
Switch(config)# interface vlan101
Switch(config-if)# ipv6 enable
Switch(config-if)# ipv6 nd ra enable
Switch (config-if)# ipv6 nd ra managed-config-flag
```

Close the flag bit M Flag

Command: no ipv6 ra managed-config-flag

Mode: Interface VLAN configuration mode

Parameter: none

Description: Close the flag bit M Flag

Example:

```
Switch (config-if)# no ipv6 nd ra managed-config-flag
```

Turn on the flag O Flag

Command: ipv6 nd ra other-config-flag

Mode: Interface VLAN configuration mode

Parameter: none

Description: Turn on the flag O Flag

Example:

```
Switch # config
Switch(config)# interface vlan101
Switch(config-if)# ipv6 enable
Switch(config-if)# ipv6 nd ra enable
Switch(config-if)# ipv6 nd ra other-config-flag
```

Close the flag O Flag

Command: no ipv6 nd ra other-config-flag

Mode: Interface VLAN configuration mode

Parameter: none

Description: Close the flag O Flag

Example:

```
Switch(config-if)# no ipv6 nd ra other-config-flag
```

Default route priority

Command: ipv6 nd ra router-preference { high / low / medium }

Mode: Interface VLAN configuration mode

Parameter:

Parameter	Description
high / low / medium	Set the default route priority to high/low/medium

Description: Set default route priority

Example:

```
Set the default route priority of VLAN 101 to high
Switch # config
Switch(config)# interface vlan101
Switch(config-if)# ipv6 enable
Switch(config-if)# ipv6 nd ra enable
Switch (config-if)# no ipv6 nd ra router-preference high
```

IPv6 addresses and prefixes

Command: ipv6 nd ra prefix X:X::X:X/<1-127>

Mode: Interface VLAN configuration mode

Parameter:

Parameter	Description
X:X::X:X/<1-127>	Set IPv6 address/prefix

Description: Set IPv6 address /prefix

Example:

```
Switch # config
Switch(config)# interface vlan101
Switch(config-if)# ipv6 enable
Switch(config-if)# ipv6 nd ra enable
Switch(config-if)# ipv6 nd ra prefix 2001::1/64
```

Survival time

Command: ipv6 nd ra prefix X:X::X:X/<1-127> <0-4294967295> <0-4294967295>

Mode: Interface VLAN configuration mode

Parameter:

Parameter	Description
X:X::X:X/<1-127>	Set IPv6 address/prefix
<0-4294967295>	Set the effective survival time and preferred survival time, the value range is an integer from 0 to 4294967295 , the default effective survival time is 2592000 seconds , and the preferred survival time is 604800 seconds

Description: the effective lifetime and preferred lifetime for IPv6 addresses /prefixes

Example:

```
Set the effective lifetime and preferred lifetime of the 2001::1/64 address of the VLAN 101 interface to
3000 seconds and 1200 seconds respectively
Switch # config
Switch(config)# interface vlan101
Switch(config-if)# ipv6 enable
Switch(config-if)# ipv6 nd ra enable
Switch(config-if)# ipv6 nd ra prefix 2001::1/64
Switch(config-if)# ipv6 nd ra prefix 2001::1/64 3000 1200
```

Enable/disable flag A Flag, O Flag, R Flag

Command:

1. **ipv6 nd ra prefix** X:X::X:X/<1-127>

2. **ipv6 nd ra prefix** X:X::X:X/<1-127> **router-address**
3. **ipv6 nd ra prefix** X:X::X:X/<1-127> **no-autoconfig**
4. **ipv6 nd ra prefix** X:X::X:X/<1-127> **off-link**

Mode: Interface VLAN configuration mode

Parameter:

Parameter	Description
X:X::X:X/<1-127>	Set IPv6 address/prefix
router-address	Enable A Flag , O Flag and R Flag
no-autoconfig	Turn off A Flag and R Flag
off-link	Close O Flag

Description: Enable/disable flag A Flag, O Flag and R Flag

Example:

```
Switch # config
Switch(config)# interface vlan101
Switch(config-if)# ipv6 enable
Switch(config-if)# ipv6 nd ra enable
Switch(config-if)# ipv6 nd ra prefix 2001::1/64
Switch(config-if)# ipv6 nd ra prefix 2001::1/64 router-address
Switch(config-if)# ipv6 nd ra prefix 2001::1/64 no-autoconfig
Switch(config-if)# ipv6 nd ra prefix 2001::1/64 off-link
```

DHCP Server

Enable/disable DHCP Server

Command:

1. **ip dhcp server**
2. **no ip dhcp server**

Mode: global configuration mode

Parameter: none

Description: Enable/ disable DHCP server

Example:

```
Switch(config)# ip dhcp server
Switch(config)# no ip dhcp server
```

Disable DHCP Address Pool

Command: ip dhcp server pool LISTNAME disable

Mode: Global configuration mode

Parameter:

Parameter	Description
LISTNAME	Address pool name. Length: 1 to 64 bytes.

Description: Disables the specified DHCP address pool.

Example: Disable DHCP address pool A:

```
Switch(config)# ip dhcp server pool A disable
```

Enable DHCP Address Pool

Command: no ip dhcp server pool LISTNAME disable

Mode: Global configuration mode

Parameter:

Parameter	Description
LISTNAME	Address pool name. Length: 1 to 64 bytes.

Description: Enables the specified DHCP address pool.

Example: Enable DHCP address pool A:

```
Switch(config)# no ip dhcp server pool A disable
```

Add Global Address Pool

Command: `ip dhcp server global pool LISTNAME ABCD a .bcd lease <1-11520>`

Mode: Global configuration mode

Parameter:

Parameter	Description
`LISTNAME`	Address pool name. Length must be between 1–64 bytes.
`ABCD`	Subnet IP address.
`abcd`	Subnet mask.
`<1-11520>`	Lease duration in minutes. Valid range: 1 to 11520.

Description: Configure a global DHCP address pool with a specified subnet, mask, and lease duration.

Example:

```
Switch# configure
Switch(config)# ip dhcp server global pool 1 192.168.3.0 255.255.255.0 lease 60
```

Delete Global Address Pool

Command: `no ip dhcp server pool LISTNAME`

Mode: Global configuration mode

Parameter:

Parameter	Description
`LISTNAME`	Address pool name. Length must be between 1–64 bytes. Special characters `\ / ?` are not supported.

Description: Delete an existing global DHCP address pool by specifying its name.

Example:

```
Switch# configure
Switch(config)# no ip dhcp server pool 1
```

Add Interface Address Pool

Command: `ip dhcp server interface pool LISTNAME ABCD abcd lease <1-11520>`

Mode: Global configuration mode

Parameter:

Parameter	Description
`LISTNAME`	Address pool name. Length must be between 1–64 bytes.
`ABCD`	Start IP address.
`abcd`	End IP address.
`<1-11520>`	Lease duration in minutes. Valid range: 1 to 11520.

Description: Configure an interface-based DHCP address pool by specifying the pool name, start/end IP, and lease duration.

Example:

```
Switch(config)# ip dhcp server interface pool 1 192.168.4.2 192.168.4.254 lease 90
```

Delete interface address pool

Command: no IP DHCP server pool LISTNAME

Mode: global configuration mode

Parameter:

Parameter	Description
LISTNAME	Address pool name, the length is limited to 1-64 bytes

Description: Delete interface address pool

Example:

```
Switch(config)# ip dhcp server pool 1
```

Configure DHCP Pool Gateway Address

Command: `ip dhcp server pool <LISTNAME> gateway <ABCD>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<LISTNAME>`	DHCP address pool name (range: 1 to 64 characters).
`<ABCD>`	Gateway IP address. Supports configuring up to 8 gateway IP addresses separated by spaces (e.g., `ABCD ABCD`).

Description: Configures the default gateway IP address or addresses for a specified DHCP server address pool.

Example:

```
# Enter global configuration mode
Switch# configure

# Configure the default gateway IP address for DHCP pool "A"
Switch(config)# ip dhcp server pool A gateway 192.168.10.1
```

Delete DHCP Pool Gateway Address

Command: `no ip dhcp server pool <LISTNAME> gateway <ABCD>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<LISTNAME>`	DHCP address pool name (range: 1 to 64 characters).
`<ABCD>`	Gateway IP address. Supports specifying up to 8 gateway IP addresses separated by spaces to remove them.

Description: Deletes one or more configured default gateway IP addresses from a specified DHCP server address pool.

Example:

```
# Enter global configuration mode
Switch# configure

# Delete the default gateway IP address from DHCP pool "A"
Switch(config)# no ip dhcp server pool A gateway 192.168.10.1
```

Configuring the Address Pool Lease

Command: ip dhcp server pool LISTNAME lease <1-11520>

Mode: Global Configuration Mode

Parameter:

Parameter	Description
LISTNAME	Pool name, with a length limit of 1-64 bytes.
<1-11520>	Lease time in minutes, an integer ranging from 1 to 11520.

Description: configures the address pool lease.

Example:

```
Switch(config)# ip dhcp server pool 1 lease 120
```

Add/Delete Address Pool DNS

Command: [no] ip dhcp server pool LISTNAME dns A.B.C.D [A.B.C.D] [A.B.C.D] [A.B.C.D] [A.B.C.D] [A.B.C.D] [A.B.C.D] [A.B.C.D]

Mode: global configuration mode

Parameter:

Parameter	Description
LISTNAME	Address pool name, the length is limited to 1-64 bytes
A.B.C.D	DNS server, configure up to 8

Description: Add/Delete Address Pool DNS

Example:

```
Add DNS server address 8.8.8.8 of address pool 1
Switch(config)# ip dhcp server pool 1 dns 8.8.8.8

Delete the DNS server address 8.8.8.8 of address pool 1
Switch(config)# no ip dhcp server pool 1 dns 8.8.8.8
```

Add address pool Netbios node type

Command: ip dhcp server pool LISTNAME netbios {b/h/m/p}

Mode: global configuration mode

Parameter:

Parameter	Description
LISTNAME	Address pool name, the length is limited to 1-64 bytes
b/h/m/p	Netbios node type

Description: Configure Netbios node type

Example:

```
Switch(config)# ip dhcp server pool 1 netbios b
```

Delete the address pool Netbios node type

Command: no ip dhcp server pool LISTNAME netbios

Mode: global configuration mode

Parameter:

Parameter	Description
LISTNAME	Address pool name, the length is limited to 1-64 bytes

Description: Delete Netbios node type

Example:

```
Switch(config)# no ip dhcp server pool 1 netbios
```

Add DHCP Options

Command: ip dhcp server pool *LISTNAME* **option** *<2-254>* **type** *{ ascii /ip/hex} WORD*

Mode: global configuration mode

Parameter:

Parameter	Description
LISTNAME	Address pool name, the length is limited to 1-64 bytes
<2-254>	DHCP options , integers ranging from 2 to 254 , excluding 50 to 54 , 56, 58, 59, 61 and 82
{ ascii /ip/hex}	DHCP option type, including ASCII, IP and Hex
WORD	DHCP option content, according to the option type, enter the content that conforms to the format. ASCII : string of 0-255 _ IP : IPv4 address format , up to 8 H ex: 0-256 characters , the number of digits must be even

Description: Add DHCP Option

Example:

```
Switch(config)# ip dhcp server pool 1 option 3 type ip 192.168.1.1
```

Delete DHCP Option

Command: no ip dhcp server pool LISTNAME option <2-254>

Mode: global configuration mode

Parameter:

Parameter	Description
LISTNAME	Address pool name, the length is limited to 1-64 bytes
<2-254>	DHCP options , integers ranging from 2 to 254 , excluding 50 to 54 , 56, 58, 59, 61 and 82

Description: Delete DHCP Option

Example:

```
Switch(config)# no ip dhcp server pool 1 option 3
```

Add/Remove WINS Servers

Command: [no] ip dhcp server pool LISTNAME wins A.B.C.D [A.B.C.D] [A.B.C.D] [A.B.C.D] [A.B.C.D] [A.B.C.D] [A.B.C.D] [A.B.C.D]

Mode: global configuration mode

Parameter:

Parameter	Description
LISTNAME	Address pool name, the length is limited to 1-64 bytes
A.B.C.D	WINS server, configure up to 8

Description: Add/remove WINS server addresses

Example:

```
Add WINS server 192.168.3.2 of address pool 1
Switch(config)# ip dhcp server pool 1 wins 192.168.3.2

Delete the WINS server 192.168.3.2 of address pool 1
Switch(config)# no ip dhcp server pool 1 wins 192.168.3.2
```

Delete address pool

Command: no ip dhcp server pool LISTNAME

Mode: global configuration mode

Parameter:

Parameter	Description
LISTNAME	Address pool name, the length is limited to 1-64 bytes

Description: delete address pool

Example:

```
Switch(config)# no ip dhcp server pool 1
```

Add static binding table

Command:

1. **ip dhcp server pool** LISTNAME **bind** A.B.C.D A:B:C:D:E:F (ethnet|ieee802)
2. **ip dhcp server pool** LISTNAME **bind** A.B.C.D A:B:C:D:E:F (ethnet|ieee802) **cName** NAME
3. **ip dhcp server pool** LISTNAME **bind** A.B.C.D A:B:C:D:E:F (ethnet|ieee802) **cId** Id
4. **ip dhcp server pool** LISTNAME **bind** A.B.C.D A:B:C:D:E:F (ethnet|ieee802) **cName** NAME **cId** Id

Mode: global configuration mode

Parameter:

Parameter	Description
LISTNAME	Address pool name, the length is limited to 1-64 bytes
A.B.C.D	IPv4 address to which the client is bound
A:B:C:D:E:F	Client MAC address
ethnet|ieee802	Client hardware address type
name	Client name, up to 64 characters, **"\?/,** characters are not supported.
ID	Client ID

Description: Add static binding table

Example:

```
Switch(config)# ip dhcp server pool 1 bind 192.168.1.2 00:0b:82:90:78:02 ethnet cName 2222 cId 4444
```

Delete static binding table

Command: no ip dhcp server pool LISTNAME bind ABCD A:B:C:D:E:F

Mode: global configuration mode

Parameter:

Parameter	Description
LISTNAME	Address pool name, the length is limited to 1-64 bytes
ABCD	IPv4 address to which the client is bound
A:B:C:D:E:F	Client MAC address

Description: delete static binding table

Example:

```
Switch(config)# no ip dhcp server pool 1 bind 192.168.1.2 00:0b:82:90:78:02
```

View DHCP Server Global Address Pools

Command: `show ip dhcp server pool`

Mode: Privileged EXEC Mode

Parameter: none

Description: Displays detailed information and status configuration for all globally configured DHCP server address pools.

Example:

```
# View the configuration and statistics of all DHCP server address pools
Switch# show ip dhcp server pool
```

View DHCP Server Interface Address Pool

Command: `show ip dhcp server pool interface vlan <1-4094>`

Mode: Privileged EXEC Mode

Parameter:

Parameter	Description
<1-4094>	The specific VLAN interface ID.

Description: Displays the configuration and runtime statistics for the DHCP server address pool assigned to a specific VLAN interface.

Example:

```
# View the DHCP server address pool status for VLAN interface 10
Switch# show ip dhcp server pool interface vlan 10
```

DHCP Relay

Enable/disable DHCP relay

Command: [no] ip dhcp relay enable

Mode: global configuration mode

Parameter: none

Description: Enable/disable DHCP relay

Example:

```
Switch # config
Switch(config)# ip dhcp relay enable
Switch(config)# no ip dhcp relay enable
```

Enabling/Disabling DHCP Polling

Command: [no] ip dhcp relay cycle

Mode: Global Configuration Mode

Parameter: None

Description: Enables or disables DHCP polling.

Example:

```
Switch(config)# ip dhcp relay cycle
Switch(config)# no ip dhcp relay cycle
```

Configure TTL

Command: ip dhcp relay ttl <1-16>

Mode: global configuration mode

Parameter:

Parameter	Description
1-16	TTL, an integer ranging from 1 to 16

Description: Configure TTL

Example:

```
Switch(config)# ip dhcp relay ttl 6
```

Configure DHCP Relay Next-Hop Server

Command: `ip dhcp relay nexthop <ABCD> [<ABCD> ...]`

Mode: Interface Configuration Mode (VLAN Interface)

Parameter:

Parameter	Description
`<ABCD>`	The IP address of the destination DHCP server. You can configure up to 8 next-hop DHCP server addresses separated by spaces.

Description: Configures the next-hop DHCP server IP addresses for the DHCP relay agent on a specific interface. When the switch receives DHCP broadcast requests from clients on this interface, it forwards them to the configured next-hop server addresses.

Example:

```
# Enter interface configuration mode for VLAN 2
Switch(config)# interface vlan 2

# Configure a DHCP relay next-hop server IP address
Switch(config-if)# ip dhcp relay nexthop 192.168.3.1
```

Delete DHCP Relay Next-Hop Configuration

Command: `no ip dhcp relay nexthop`

Mode: Interface Configuration Mode (VLAN Interface)

Parameter: none

Description: Removes all configured DHCP relay next-hop server IP addresses from the specified VLAN interface.

Example:

```
# Enter interface configuration mode for VLAN 2
Switch(config)# interface vlan 2

# Delete all DHCP relay next-hop server addresses from this interface
Switch(config-if)# no ip dhcp relay nexthop
```

View DHCP Relay Configuration on VLAN Interface

Command: `show ip dhcp relay interface vlan <1-4094>`

Mode: Privileged EXEC Mode

Parameter:

Parameter	Description
`<1-4094>`	Specifies the VLAN interface ID to query.

Description: Displays the configured DHCP relay next-hop server IP addresses associated with the specified VLAN interface.

Example:

```
# View the DHCP relay server configuration for VLAN interface 2
Switch# show ip dhcp relay interface vlan 2
```

ARP

Set the ARP aging time

Command: arp timeout seconds

Mode: global configuration mode

Parameter:

Parameter	Description
seconds	ARP address aging time, with a value range of 60-21600 seconds , and a default of 1200 seconds.

Description: Set the ARP aging time

Example:

```
Set the ARP aging time to 600 seconds
Switch # configure
Switch(config)# arp timeout 600
```

Configure Strict ARP Learning

Supported Models: GWN7801P Pro, GWN7802P Pro, GWN7803(PL/PH) Pro, GWN7806PL Pro, GWN7806PH Pro

Command: `arp learning strict` (`no arp learning strict`)

Mode: Global Configuration Mode

Parameter: none

Description: Enables strict (rigorous) ARP learning globally on the switch. When strict ARP learning is enabled, the switch only learns ARP entries from ARP reply packets that match ARP request packets sent by the switch itself. This feature helps prevent ARP spoofing and poisoning attacks. The `no` form of the command disables strict ARP learning.

Example:

```
# Enter global configuration mode
Switch# configure

# Enable strict ARP learning
Switch(config)# arp learning strict

# Disable strict ARP learning (restore to default)
Switch(config)# no arp learning strict
```

Configure Static ARP Entry

Command:

- `arp <ABCD> <A:B:C:D:E:F>`
- `arp <ABCD> <A:B:C:D:E:F> vlan <vlan-id>`
- `arp <ABCD> <A:B:C:D:E:F> interface <IF-PORT>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<ABCD>`	The IPv4 address of the target device (e.g., `192.168.1.100`).
`<A:B:C:D:E:F>`	The hardware MAC address corresponding to the IP address (e.g., `00:11:22:33:44:55`).
`<vlan-id>`	Specifies the VLAN ID (range: 1 to 4094).
`<IF-PORT>`	Specifies the Layer 3 interface/port number.

Description: Manually configures a static binding between an IPv4 address and a MAC address in the ARP cache.

- Running the command without modifiers adds the mapping to the corresponding VLAN interface matching the IP subnet by default.
- Using the `vlan <vlan-id>` modifier binds the static ARP entry to a specific VLAN.
- Using the `interface <IF-PORT>` modifier binds the static ARP entry to a specific Layer 3 routed port.

Example:

```
# Enter global configuration mode
Switch# configure

# Add a static ARP entry mapped automatically by subnet
Switch(config)# arp 192.168.60.100 00:00:00:00:00:18

# Add a static ARP entry specifically for VLAN 10
Switch(config)# arp 10.1.1.10 00:00:00:00:00:10 vlan 10

# Add a static ARP entry specifically for a Layer 3 interface
Switch(config)# arp 10.1.1.10 00:00:00:00:00:10 interface Ethernet 1/0/1
```

Delete Static ARP Entry

Command:

- `no arp <ABCD>`
- `no arp <ABCD> vlan <vlan-id>`
- `no arp <ABCD> interface <IF-PORT>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<ABCD>`	The IPv4 address of the static ARP entry to be deleted (e.g., `192.168.1.100`).
`<vlan-id>`	Specifies the VLAN ID (range: 1 to 4094) from which to delete the ARP entry.
`<IF-PORT>`	Specifies the Layer 3 interface/port number from which to delete the ARP entry.

Description: Deletes a manually configured static ARP entry from the ARP cache.

- Running `no arp <ABCD>` deletes the specified ARP entry globally.
- Running `no arp <ABCD> vlan <vlan-id>` deletes the entry bound to a specific VLAN.
- Running `no arp <ABCD> interface <IF-PORT>` deletes the entry bound to a specific Layer 3 routed port.

Example:

```
# Enter global configuration mode
Switch# configure

# Delete a global static ARP entry
Switch(config)# no arp 192.168.60.10

# Delete a static ARP entry from VLAN 10
Switch(config)# no arp 10.1.1.10 vlan 10

# Delete a static ARP entry from a specific Layer 3 interface
Switch(config)# no arp 10.1.1.10 interface Ethernet 1/0/1
```

View ARP Entries

Command:

- `show arp`
- `show arp configuration`
- `show arp ip-address <ABCD>`
- `show arp mac-address <A:B:C:D:E:F>`

- `show arp vlan <vlan-id>`
- `show arp interface <IF-PORT>`

Mode: Privileged EXEC Mode

Parameter:

Parameter	Description
`<ABCD>`	Specifies a target IPv4 address to filter the ARP table.
`<A:B:C:D:E:F>`	Specifies a target hardware MAC address to filter the ARP table.
`<vlan-id>`	Specifies a VLAN ID (range: 1 to 4094) to filter the ARP table.
`<IF-PORT>`	Specifies a port or interface name to filter the ARP table.

Description: Displays entries within the switch's Address Resolution Protocol (ARP) table or outputs the global ARP configuration settings. Filters can be applied to narrow down the table entries by IP address, MAC address, VLAN, or specific interface.

Example:

```
# View all learned and static ARP entries
Switch# show arp

# View the current global ARP configuration settings
Switch# show arp configuration

# View ARP entries filtered by a specific IP address
Switch# show arp ip-address 10.1.1.1

# View ARP entries filtered by a specific MAC address
Switch# show arp mac-address 00:00:00:00:00:01

# View ARP entries associated with a specific VLAN
Switch# show arp vlan 1

# View ARP entries learned on a specific interface
Switch# show arp interface Ethernet 1/0/1
```

The neighbor discovered

View IPv6 Neighbor Table

Command:

- `show ipv6 neighbors`
- `show ipv6 neighbors interface <IF-PORT>`
- `show ipv6 neighbors ipv6-address <X:X::X:X>`
- `show ipv6 neighbors mac-address <A:B:C:D:E:F>`
- `show ipv6 neighbors vlan <vlan-id>`

Mode: Privileged EXEC Mode

Parameter:

Parameter	Description
`<IF-PORT>`	Specifies a port or interface name to filter the neighbor table.
`<X:X::X:X>`	Specifies a target IPv6 address to filter the neighbor table.
`<A:B:C:D:E:F>`	Specifies a target hardware MAC address to filter the neighbor table.

Parameter	Description
`<vlan-id>`	Specifies a VLAN ID (range: 1 to 4094) to filter the neighbor table.

Description: Displays the entries within the switch's IPv6 Neighbor Discovery (ND) cache table, which binds IPv6 addresses to physical MAC addresses. Filters can be applied to narrow down the output entries by a specific interface, IPv6 address, MAC address, or VLAN ID.

Example:

```
# View all IPv6 neighbor cache entries
Switch# show ipv6 neighbors

# View IPv6 neighbors discovered on a specific interface
Switch# show ipv6 neighbors interface Ethernet 1/0/1

# View entries filtered by a specific IPv6 address
Switch# show ipv6 neighbors ipv6-address 2001::1

# View entries filtered by a specific MAC address
Switch# show ipv6 neighbors mac-address 00:00:00:00:00:01

# View IPv6 neighbors associated with a specific VLAN
Switch# show ipv6 neighbors vlan 1
```

Add a static neighbor entry

Command: ipv6 neighbor *ipv6-addr* **vlan** *[vlan interface number] [mac address]*

Mode: global configuration mode

Parameter:

Parameter	Description
ipv6-addr	Neighbor IPv6 address
vlan interface number	VLAN interface ID
mac address	neighbor MAC address

Description: Add a static neighbor entry

Example:

```
Add a neighbor entry with IPv6 address 11::2, VLAN 1 , and MAC address 00 : 00: 00:00:00:02
Switch #config
Switch(config)# ipv6 neighbor 11::2 vlan 1 00:00:00:00:00:02
```

Delete Static IPv6 Neighbor Entry

Command:

- `no ipv6 neighbor <ipv6-addr>`
- `no ipv6 neighbor <ipv6-addr> vlan <vlan-id> <mac-address>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
<ipv6-addr>	The IPv6 address of the static neighbor entry to be deleted.
<vlan-id>	Specifies the VLAN interface ID associated with the static entry.
<mac-address>	Specifies the hardware MAC address of the static neighbor entry.

Description: Deletes a manually configured static IPv6 neighbor entry from the Neighbor Discovery (ND) cache table. You can delete an entry globally by specifying only its IPv6 address, or refine the deletion by specifying its associated VLAN interface and MAC address.

Example:

```
# Enter global configuration mode
Switch# configure

# Delete a static IPv6 neighbor entry by IPv6 address
Switch(config)# no ipv6 neighbor 2001::2

# Delete a static IPv6 neighbor entry for a specified VLAN and MAC address
Switch(config)# no ipv6 neighbor 11::2 vlan 1 00:00:00:00:00:02
```

DNS

Enable the DNS function

Command: ip domain lookup

Mode: global configuration mode

Parameter: none

Description: Enable the DNS function

Example:

```
Switch # config
Switch (config)# ip domain lookup
```

Turn off the DNS function

Command: no ip domain lookup

Mode: global configuration mode

Parameter: none

Description: Turn off the DNS function

Example:

```
Switch # config
Switch(config)# no ip domain lookup
```

Add domain extension

Command: ip domain suffix *suffix_name*

Mode: global configuration mode

Parameter:

Parameter	Description
suffix_name	Domain name suffix , 1-64 characters , support numbers, letters and special characters._ –

Description: Add domain extension

Example:

```
Add the domain name suffix of com
Switch # config
Switch(config)# ip domain suffix com
```

Delete domain extension

Command: no ip domain suffix *suffix_name*

Mode: global configuration mode

Parameter:

Parameter	Description
suffix_name	Domain name suffix , 1-64 characters , support numbers, letters and special characters._ –

Description: delete domain extension

Example:

```
Remove com domain name suffix
Switch # config
Switch ( config)# no ip domain suffic com
```

Add DNS server

Command: ip name-server *A.B.C.D/ X:X::X:X*

Mode: global configuration mode

Parameter:

Parameter	Description
A.B.C.D	IPv4 DNS server
X:X::X:X	IPv6 DNS server

Description: Add DNS server

Example:

```
Add DNS server of 114.114.114.114
Switch # config
Switch(confgi)# ip name-server 114.114.114.114
```

Delete DNS server

Command: no ip name-server *A.B.C.D/ X:X::X:X*

Mode: global configuration mode

Parameter:

Parameter	Description
A.B.C.D	IPv4 DNS server
X:X::X:X	IPv6 DNS server

Description: delete DNS server

Example:

```
the DNS server for 114.114.114.114
Switch # config
Switch(config)# no ip name-server 114.114.114.114
```

Add a static domain name

Command: ip host *HOSTNAME A.B.C.D/X:X::X:X*

Mode: global configuration mode

Parameter:

Parameter	Description
HOSTNAME	Host name , 1-191 characters , support numbers, letters and special characters._ –
ABCD	IPv4 address
X:X::X:X	IPv6 address

Description: Add a static domain name

Example:

```
Add a static domain name with host name www.test.com and IP address 192.168.1.1
Switch # config
Switch (config)# ip host www.test.com 192.168.1.1
```

Delete static domain name

Command: no ip host *HOSTNAM*

Mode: global configuration mode

Parameter:

Parameter	Description
HOSTNAME	Host name , 1-191 characters , support numbers, letters and special characters._ –

Description: delete static domain name

Example:

```
Delete the static domain name with hostname www.test.com
Switch # config
Switch(config)# no ip host www.test.com
```

View DNS configuration

Command: show hosts

Mode: privileged EXEC mode

Parameter: none

Description: View DNS configuration

Example:

```
Switch# show host
```

View static domain name mapping table

Command: show dns static-map

Mode: privileged EXEC mode

Parameter: none

Description: View static domain name mapping table

Example:

```
Switch# show dns static-map
```

View dynamic domain name mapping table

Command: show dns dynamic-map

Mode: privileged EXEC mode

Parameter: none

Description: View dynamic domain name mapping table

Example:

```
Switch# show dns dynamic-map
```

MULTICAST

IGMP Snooping

IGMP Snooping global configuration

- Enable/disable IGMP Snooping

Command:

1. **ip igmp snooping**
2. **no ip igmp snooping**

Mode: global configuration mode

Parameter: none

Description: Enable/disable the global IGMP Snooping function

Example:

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

- Multicast Forwarding Mode

Command: ip igmp snooping forward-method (dip|mac **)**

Mode: global configuration mode

Parameter:

Parameter	Description
dip	IP -based multicast forwarding mode
mac	based multicast forwarding mode

Description: Set the multicast forwarding mode, the default is based on MAC

Example:

```
Switch(config)# ip igmp snooping forward-method mac
```

- Enable/disable packet suppression

Command:

1. **ip igmp snooping report-suppression**
2. **no ip igmp snooping report-suppression**

Mode: global configuration mode

Parameter: none

Description: Enable/disable message suppression function

Example:

```
Switch(config)# ip igmp snooping report-suppression
```

- IGMP version

Command: ip igmp snooping version (2|3)

Mode: global configuration mode

Parameter:

Parameter	Description
version (2|3)	Global IGMP running version, including IGMPv2 and IGMPv3

Description: running version of IGMP

Example:

```
Switch(config)# ip igmp snooping version 2
```

- Unknown multicast packet

Command: ip igmp snooping unknown-multicast action (drop|flood|router-port)

Mode: global configuration mode

Parameter:

Parameter	Description
(drop|flood|router-port)	method of unknown multicast packets

Description: Unknown multicast message processing method

Example:

```
Switch(config)# ip igmp snooping unknown-multicast action drop
```

- View IGMP Snooping

Command: show ip igmp snooping

Mode: privileged EXEC mode

Parameter: none

Description: View Global IGMP Snooping Settings

Example:

```
Switch# show ip igmp snooping
```

Configure IGMP Snooping in a specified VLAN

- Add/Delete Multicast VLAN

Command:

```
multicast snooping vlan vlan-id
no multicast snooping vlan vlan-id
```

Mode: Global configuration mode

Parameter:

Parameter	Description
`vlan-id`	VLAN ID. An integer ranging from 1 to 4094.

Description: Add or remove a VLAN for IPv4 and IPv6 multicast snooping.

Example:

```
Add multicast VLAN 100 for both IPv4 and IPv6:
Switch(config)# multicast snooping vlan 100

Remove multicast VLAN 101 for both IPv4 and IPv6:
Switch(config)# no multicast snooping vlan 101
```

- Multicast VLAN Switch Configuration

Command:

```
ip igmp snooping vlan <VLAN-LIST>
ip igmp snooping vlan <VLAN-LIST> enable
ip igmp snooping vlan <VLAN-LIST> disable
```

Mode: Global configuration mode

Parameter:

Parameter	Description
`VLAN-LIST`	VLAN ID(s), range: 1–4094. Can be a single VLAN or a list of VLANs.

Description: Enable or disable IGMP snooping for one or more VLANs.
If the specified multicast VLAN has not been added, this command can be used to add the VLAN and enable IGMP snooping in one step.

Example:

```
Add and enable IGMP snooping for VLAN 2:
Switch(config)# ip igmp snooping vlan 2

Enable IGMP snooping for VLAN 3:
Switch(config)# ip igmp snooping vlan 3 enable

Disable IGMP snooping for VLAN 4:
Switch(config)# ip igmp snooping vlan 4 disable
```

- Class 3 Multicast Address Settings

Supported Models: GWN7811(P), GWN7812P, GWN7813(P), GWN7830, GWN7831, GWN7821P, GWN7822P

Command: `ip igmp snooping address (224_x_0_x | 224_x_1_x | 239_x_x_x) action (drop | flood | forward)`

Mode: Global configuration mode

Parameter:

Parameter	Description
`drop	flood	forward`	Handling method for Class 3 multicast address packets

Description: Specify how the switch handles Class 3 unknown multicast traffic.
Available actions:

- `drop` : Discard the packets
- `flood` : Broadcast the packets to all ports
- `forward` : Process the packets normally

Example:

```
Drop multicast packets from 224.0.0.1/24:
Switch(config)# ip igmp snooping address 224_x_0_x action drop
```

- Class 3 Multicast Address Settings (VLAN Level)

Supported Models:
GWN7806(P), GWN7816(P), GWN7832, GWN7806PL Pro, GWN7806PH Pro

Command:
`ip igmp snooping vlan VLAN-LIST address (224_x_0_x | 224_x_1_x | 239_x_x_x) action (drop | flood | forward)`

Mode:
VLAN configuration mode

Parameter:

Parameter	Description
`drop	flood`	Handling method for unknown multicast address packets

Description:
Define how unknown multicast packets are handled within a specific VLAN.
Supported actions:

- `drop` : Discard packets
- `flood` : Broadcast packets to all ports
- `forward` : Forward packets as normal

Example:

```
Drop multicast packets in VLAN 5 (224.0.0.1/24):
Switch(config)# ip igmp snooping vlan 5 address 224_x_0_x action drop
```

- Port fast leave

Command:

1. **ip igmp snooping vlan** *VLAN-LIST* **immediate-leave**
2. **no ip igmp snooping vlan** *VLAN-LIST* **immediate-leave**

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs

Description: Set the port fast leave function in the specified VLAN

Example:

```
Switch(config)# ip igmp snooping vlan 1 immediate-leave
```

-

- Last Member Query Counter

Command: ip igmp snooping vlan *VLAN-LIST* **last-member-query-count** *count*

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs
count	number of last member queries , an integer ranging from 1 to 7 , the default is 2

Description: Set the last member query count

Example:

```
Switch(config)# ip igmp snooping vlan 1 last-member-query-count 3
```

- Last member query interval

Command: ip igmp snooping vlan *VLAN-LIST* **last-member-query-interval** *interval*

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs
interval	The last member query interval, an integer ranging from 1 to 25 , the default is 1

Description: Set the last member query interval

Example:

```
Switch(config)# ip igmp snooping vlan 1 last-member-query-interval 20
```

- Query interval

Command: ip igmp snooping vlan *VLAN-LIST* **query-interval** *interval*

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs
interval	Query interval , an integer ranging from 30 to 18000 , the default is 125

Description: Set query interval

Example:

```
Switch(config)# ip igmp snooping vlan 1 query-interval 111
```

- Query maximum response time

Command: ip igmp snooping vlan *VLAN-LIST* **response-time** *time*

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs
time	Query the maximum response time, an integer ranging from 5 to 20 , the default is 10

Description: Set query maximum response time

Example:

```
Switch(config)# ip igmp snooping vlan 1 response-time 15
```

- Query Robustness

Command: ip igmp snooping vlan *VLAN-LIST* **robustness-variable** *robustness*

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs
robustness	Query robustness , an integer ranging from 1 to 7 , default 2

Description: Set query robustness

Example:

```
Switch(config)# ip igmp snooping vlan 1 robustness-variable 5
```

- Automatic Learning of Router Ports

Command:

```
ip igmp snooping vlan VLAN-LIST router learn pim-dvmrp
no ip igmp snooping vlan VLAN-LIST router learn pim-dvmrp
```

Mode: Global configuration mode

Parameter:

Parameter	Description
`VLAN-LIST`	VLAN ID(s), range: 1–4094. Can be a single VLAN or a list of VLANs.

Description: Enable or disable automatic router port learning for a specified VLAN.

Example:

```
Switch(config)# ip igmp snooping vlan 1 router learn pim-dvmrp
```

- View VLAN IGMP Snooping configuration

Command: show ip igmp snooping vlan *VLAN-LIST*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs

Description:

View the IGMP Snooping configuration information of a specified VLAN. If not specified , the IGMP Snooping configuration information of all VLANs will be viewed by default.

Example:

```
Switch(config)# do show ip igmp snooping vlan 1
```

- View IGMP Snooping querier information

Command: show ip igmp snooping querier

Mode: privileged EXEC mode

Parameter: none

Description: Display IGMP Snooping querier information for all VLANs

Example:

```
Switch# show ip igmp snooping querier

VID | State | Status | Version | Querier IP
------+----------+------------+---------+--------- ---
1 | Disabled | Non-Querier | No | -----------

Total Entry 1
```

IGMP Snooping querier related configuration

- IGMP Snooping querier running version

Command:

1. **ip igmp snooping vlan** *VLAN-LIST* **query version (2|3)**
2. **[no] ip igmp snooping vlan** *VLAN-LIST* **queryer**

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	range is 1-4094 , it can be a single VLAN or multiple VLANs
version (2|3)	of the IGMP Snooping querier, including IGMPv2 and IGMPv3

Description: Set the IGMP Snooping querier switch and running version of the specified VLAN

Example:

```
Switch(config)# ip igmp snooping vlan 1 querier version 2
```

- IGMP Snooping querier IP address

Command: ip igmp snooping vlan *VLAN-LIST* **query version (2|3) ip** *ip-addr*

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	range is 1-4094 , it can be a single VLAN or multiple VLANs
version (2|3)	of the IGMP Snooping querier, including IGMPv2 and IGMPv3
ip-addr	Querier IP address , if not set, the VLAN interface IPv4 address will be used

Description: Set the IGMP Snooping querier switch , running version , and IP address of the specified VLAN

Example:

```
Switch(config)# ip igmp snooping vlan 1 querier version 2 ip 192.168.0.254
```

- View IGMP Snooping querier information

Command: show ip igmp snooping querier

Mode: privileged EXEC mode

Parameter: none

Description: Display IGMP Snooping querier information for all VLANs

Example:

```
Switch# show ip igmp snooping querier

VID | State | Status | Version | Querier IP
------+----------+------------+---------+--------- ---
1 | Disabled | Non-Querier | No | -----------

Total Entry 1
```

IGMP Routing port configuration

- Configure IGMP Snooping Forbidden Router Ports

Command:

1. `ip igmp snooping vlan <VLAN-LIST> forbidden-router-port {Ethernet | LAG} <port-list>`
2. `no ip igmp snooping vlan <VLAN-LIST> forbidden-router-port {Ethernet | LAG} <port-list>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<VLAN-LIST>`	Specifies a single VLAN ID, or a list/range of VLANs (range: 1 to 4094).
`{Ethernet | LAG}`	Specifies the interface type: physical interface (`Ethernet`) or Link Aggregation Group (`LAG`).

Parameter	Description
`<port-list>`	Specifies the port identifier, range, or list of ports to configure.

Description: Configures or removes a forbidden router port status on specified interfaces within designated VLANs. A forbidden router port is explicitly blocked from dynamically learning or becoming a multicast router port, preventing it from receiving or forwarding IGMP query packets and unwanted multicast traffic streams.

Example:

```
# Enter global configuration mode
Switch# configure

# Configure Ethernet ports 1/0/3 and 1/0/4 as forbidden router ports in VLAN 1
Switch(config)# ip igmp snooping vlan 1 forbidden-router-port Ethernet 1/0/3-1/0/4

# Remove the forbidden router port restriction from the specified ports
Switch(config)# no ip igmp snooping vlan 1 forbidden-router-port Ethernet 1/0/3-1/0/4
```

- Configure IGMP Snooping Static Router Ports

Command:

1. `ip igmp snooping vlan <VLAN-LIST> static-router-port {Ethernet | LAG} <port-list>`
2. `no ip igmp snooping vlan <VLAN-LIST> static-router-port {Ethernet | LAG} <port-list>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<VLAN-LIST>`	Specifies a single VLAN ID, or a list/range of VLANs (range: 1 to 4094).
`{Ethernet | LAG}`	Specifies the interface type: physical interface (`Ethernet`) or Link Aggregation Group (`LAG`).
`<port-list>`	Specifies the port identifier, range, or list of ports to configure.

Description: Configures or removes a statically defined multicast router port within designated VLANs. Statically configuring a router port ensures that all IGMP membership reports and multicast traffic are consistently forwarded to the specified port, even if no dynamic IGMP query packets are received from that interface.

Example:

```
# Enter global configuration mode
Switch# configure

# Configure Ethernet ports 1/0/5 and 1/0/6 as static router ports in VLAN 1
Switch(config)# ip igmp snooping vlan 1 static-router-port Ethernet 1/0/5-1/0/6

# Remove the static router port configuration from the specified ports
Switch(config)# no ip igmp snooping vlan 1 static-router-port Ethernet 1/0/5-1/0/6
```

- View IGMP Snooping Router Ports

Command: `show ip igmp snooping router [dynamic | forbidden | static]`

Mode: Privileged EXEC Mode

Parameter:

Parameter	Description
`dynamic`	(Optional) Displays dynamically learned multicast router ports.
`forbidden`	(Optional) Displays explicitly forbidden multicast router ports.
`static`	(Optional) Displays manually configured static multicast router ports.

Description: Displays the ports configured or learned as multicast router ports within the IGMP Snooping table. If no optional parameter is specified, the switch displays all router port types (dynamic, forbidden, and static) by default.

Example:

```
# View all IGMP snooping router ports
Switch# show ip igmp snooping router

# View only the statically configured IGMP snooping router ports
Switch# show ip igmp snooping router static
```

Multicast group address configuration

- Static multicast address

Command:

1. **ip igmp snooping vlan** *VLAN-LIST* **static-group [<ip-add>] interfaces (Ethernet|LAG) <1-10>**
2. **no ip igmp snooping vlan** *VLAN-LIST* **static-group [<ip-add>] interfaces (Ethernet|LAG) <1-10>**

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs
ip-add	IPv4 multicast address , expressed in dotted decimal notation
(Ethernet|LAG) <1-10>	Switch ports, including Ethernet ports , optical ports, and aggregation ports

Description: /delete static multicast group address on specified VLAN

Example:

```
Switch(config)# ip igmp snooping vlan 1 static-group 224.1.1.1 interfaces Ethernet 1/0/3
```

- Show multicast group address

Command: show ip igmp snooping groups [(dynamic |static)]

Mode: privileged EXEC mode

Parameter:

Parameter	Description

(dynamic | static)	Multicast group address type, including dynamic multicast group address and static multicast group address

Description: View multicast group address, you can specify to view dynamic or static multicast group address. If not specified , all types of multicast group addresses will be viewed by default

Example:

```
Switch(config)# show ip igmp snooping groups
```

Multicast policy configuration

- Add/Remove Multicast Policy

Command:

1. **ip igmp profile** *<1-128>*
2. **no ip igmp profile** *<1-128>*

Mode: global configuration mode

Parameter:

Parameter	Description
<1-128>	Multicast Policy ID

Description: Add/Remove Multicast Policy

Example:

```
Switch(config)# ip igmp profile 1
```

- Edit Multicast Policy

Command: profile range ip *<ip-addr> [ip-addr]* **action (permit|deny)**

Mode: IGMP policy configuration mode

Parameter:

Parameter	Description
<ip-addr>	IP v4 multicast start address
[ip-addr]	IPv4 multicast end address
(permit|deny)	multicast policy on the specified packet includes allow and deny

Description: Configure Multicast Policy

Example:

```
Switch(config-igmp-profile)# profile range ip 224.1.1.1 224.1.1.8 action permit
```

- Show multicast policy

Command: show ip igmp profile

Mode: IGMP policy configuration mode

Parameter: none

Description: View multicast policy

Example:

```
Switch(config-igmp-profile)# show ip igmp profile
```

- Bind/unbind multicast policy

Command:

1. **ip igmp filter** *<1-128>*
2. **no ip igmp filter**

Mode: interface configuration mode

Parameter:

Parameter	Description
<1-128>	Multicast Policy ID

Description: Interface binding/unbinding multicast policy

Example:

```
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ip igmp filter 1
```

- Show the existing port multicast policy configuration

Command: do show ip igmp filter [interfaces IF_PORTS]

Mode: interface configuration mode

Parameter:

Parameter	Description
interfaces IF_PORTS	Designated interfaces , including Ethernet interfaces, optical interfaces, and aggregation interfaces

Description: Check the existing port multicast policy configuration . If no port is specified , the multicast policy configuration of all ports will be displayed by default

Example:

```
Switch(config-if)# do show ip igmp filter
Switch(config-if)# do show ip igmp filter interfaces Ethernet 1/0/1
```

Maximum Multicast Group Configuration

- Configure Maximum IGMP Multicast Groups

Command:

1. `ip igmp max-groups <0-640>`
2. `no ip igmp max-groups`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`<0-640>`	The maximum number of multicast groups the interface is allowed to join (range: 0 to 640, depending on the switch model). Setting this value to `0` prevents the port from joining any multicast groups.

Description: Limits the number of IGMP multicast groups that can be concurrently joined on a specific interface. This is useful for controlling bandwidth usage and preventing denial-of-service (DoS) attacks from exhausting multicast resources on the port. The `no` form restores the default setting.

Example:

```
# Enter interface configuration mode for Ethernet 1/0/1
Switch(config)# interface ethernet 1/0/1

# Limit the interface to a maximum of 10 multicast groups
Switch(config-if)# ip igmp max-groups 10

# Restore the default maximum multicast group limit on the interface
Switch(config-if)# no ip igmp max-groups
```

- Operation exceeded

Command: ip igmp max-groups action (deny|replace)

Mode: interface configuration mode

Parameter:

Parameter	Description
(deny|replace)	The operation after the maximum number of multicast groups is exceeded , supports rejection and replacement

Description: Set the operation after the maximum number of multicast groups is exceeded, which is rejected by default

Example:

```
Switch(config-if)# ip igmp max-groups action replace
```

- Show the maximum number of multicast groups

Command: do show ip igmp max-group [interfaces IF_PORTS]

Mode: interface configuration mode

Parameter:

Parameter	Description
interfaces IF_PORTS	Designated interfaces , including Ethernet interfaces, optical interfaces, and aggregation interfaces

Description: Check the maximum number of multicast groups on the specified interface. If not specified , the maximum number of multicast groups of all interfaces will be displayed by default

Example:

```
Switch(config-if)# do show ip igmp max-group
Switch(config-if)# do show ip igmp max-group interfaces Ethernet 1/0/1
```

- View Exceeded Maximum Group Operations

Command: do show ip igmp max-group action [interfaces IF_PORTS]

Mode: interface configuration mode

Parameter:

Parameter	Description
interfaces IF_PORTS	Designated interfaces , including Ethernet interfaces, optical interfaces, and aggregation interfaces

Description: Check the operation of the specified interface exceeding the maximum multicast number . If not specified , the operation of all interfaces exceeding the maximum multicast number will be displayed by default

Example:

```
Switch(config-if)# do show ip igmp max-group action
Switch(config-if)# do show ip igmp max-group action interfaces Ethernet 1/0/1
```

Clear operation

- Clear multicast group address

Command: clear ip igmp snooping groups [(dynamic |static)]

Mode: privileged EXEC mode

Parameter:

Parameter	Description
(dynamic|static)	Multicast group address type, including dynamic multicast address and static multicast address

Description: Specify the type of multicast group address to be cleared, including dynamic multicast address and static multicast address. If not specified , all multicast group addresses will be cleared by default

Example:

```
Switch# clear ip igmp snooping groups
Switch# show ip igmp snooping groups

VLAN | Group IP Address | Type | Life(Sec) |
-----+------------------+------+-----------+-----

Total Number of Entry = 0
```

- Clear all statistics

Command: clear ip igmp snooping statistics

Mode: privileged EXEC mode

Parameter: none

Description: Clear IGMP statistics information

Example:

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

IGMP Snooping Status
--------------------

Snooping : Enabled
Report Suppression : Disabled
Operation Version: v2
Forward Method : mac
Unknown IP Multicast Action : Flood


Packet Statistics
Total RX : 0
Valid RX : 0
Invalid RX : 0
Other RX : 0
Leave RX : 0
Report RX : 0
General Query RX : 0
Specail Group Query RX : 0
Specail Group & Source Query RX : 0
Leave TX : 0
Report TX : 0
General Query TX : 0
Specail Group Query TX : 0
Specail Group & Source Query TX : 0
```

MLD Snooping

MLD snooping global configuration

- Enable/disable MLD Snooping

Command:

1. **ipv6 mld snooping**
2. **no ipv6 mld snooping**

Mode: global configuration mode

Parameter: none

Description: Enable/disable the global MLD snooping function

Example:

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

- Configure MLD Snooping Destination IP Mask (Matching Domain)

Supported Models: GWN7801(P), GWN7802(P), GWN7803(P), GWN7801P Pro, GWN7802P Pro, GWN7803PH Pro, GWN7803PL Pro, GWN7803 Pro

Command: `ipv6 mld dipmask {hash1 | hash2 | hash3 | hash4 | hash5}`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`hash1-hash5`	Specifies one of five hashing profiles/patterns used to match the destination IPv6 multicast address fields. The default profile is `hash1` .

Description: Configures the destination IP mask (dipmask) matching profile for MLD Snooping. This determines how the hardware processes and hashes destination IPv6 multicast addresses for forwarding tables. This command can only be modified while the global MLD Snooping feature is disabled.

Example:

```
# Enter global configuration mode
Switch# configure

# Configure the MLD Snooping destination IP mask profile to hash2
Switch(config)# ipv6 mld dipmask hash2
```

- Multicast forwarding mode

Command: Ipv6 mld snooping forward-method (dip|mac **)**

Mode: global configuration mode

Parameter:

Parameter	Description
dip	IP -based multicast forwarding mode
mac	based multicast forwarding mode

Description: Set the multicast forwarding mode, the default is based on MAC

Example:

```
Switch(config)# ipv6 mld snooping forward-method mac
```

- Enable/disable packet suppression

Command:

1. **ipv6 mld snooping report-suppression**
2. **no ipv6 mld snooping report-suppression**

Mode: global configuration mode

Parameter: none

Description: Enable/disable message suppression function

Example:

```
Switch(config)# ipv6 mld snooping report-suppression
```

- MLD version

Command: Ipv6 mld snooping version (1|2)

Mode: global configuration mode

Parameter:

Parameter	Description
version (1|2)	Global MLD running version, including MLDv1 and MLD v2

Description: Set the MLD running version

Example:

```
Switch(config)# ipv6 mld snooping version 2
```

- Unknown multicast packet

Command: Ipv6 mld snooping unknown-multicast action (drop|flood|router-port)

Mode: global configuration mode

Parameter:

Parameter	Description
(drop|flood|router-port)	method of unknown multicast packets

Description: Set the processing method for unknown multicast packets

Example:

```
Switch(config)# ipv6 mld snooping unknown-multicast action drop
```

- View MLD Snooping

Command: show ipv6 mld snooping

Mode: privileged EXEC mode

Parameter: none

Description: View global MLD snooping settings

Example:

```
Switch(config)# show ip v6 mld snooping
```

Configure MLD snooping in a specified VLAN

- Multicast VLAN Switch Configuration

Command:

```
ipv6 mld snooping vlan VLAN-LIST
ipv6 mld snooping vlan VLAN-LIST enable
ipv6 mld snooping vlan VLAN-LIST disable
```

Mode: Global configuration mode

Parameter:

Parameter	Description
`VLAN-LIST`	VLAN ID(s), range: 1–4094. Can be a single VLAN or a list of VLANs.

Description: Enable or disable MLD (Multicast Listener Discovery) snooping for one or more VLANs.
If the specified multicast VLAN does not exist, this command will create it and enable MLD snooping automatically.

Example:

```
Add and enable MLD snooping for VLAN 2:
Switch(config)# ipv6 mld snooping vlan 2

Enable MLD snooping for VLAN 3:
Switch(config)# ipv6 mld snooping vlan 3 enable

Disable MLD snooping for VLAN 4:
Switch(config)# ipv6 mld snooping vlan 4 disable
```

- Port fast leave

Command:

1. **ipv6 mld snooping vlan** *VLAN-LIST* **immediate-leave**
2. **no ipv6 mld snooping vlan** VLAN-LIST **immediate-leave**

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs

Description: Set the port fast leave function in the specified VLAN

Example:

```
Switch(config)# ipv6 mld snooping vlan 1 immediate-leave
```

- Last Member Query Counter

Command: Ipv6 mld snooping vlan *VLAN-LIST* **last-member-query-count** *count*

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs
count	number of last member queries , an integer ranging from 1 to 7 , the default is 2

Description: Set the last member query count

Example:

```
Switch(config)# ipv6 mld snooping vlan 1 last-member-query-count 3
```

- Last Member query interval

Command: Ipv6 mld snooping vlan *VLAN-LIST* **last-member-query-interval** *interval*

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs
interval	The last member query interval, an integer ranging from 1 to 25 , the default is 1

Description: Set the last member query interval

Example:

```
Switch(config)# ipv6 mld snooping vlan 1 last-member-query-interval 20
```

- Query interval

Command: Ipv6 mld snooping vlan *VLAN-LIST* **query-interval** *interval*

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs

interval	Query interval , an integer ranging from 30 to 18000 , the default is 125

Description: Set query interval

Example:

```
Switch(config)# ipv6 mld snooping vlan 1 query-interval 111
```

- Query maximum response time

Command: Ipv6 mld snooping vlan *VLAN-LIST* **response-time** *time*

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs
time	Query the maximum response time, an integer ranging from 5 to 20 , the default is 10

Description: Set query maximum response time

Example:

```
Switch(config)# ipv6 mld snooping vlan 1 response-time 15
```

- Query Robustness

Command: Ipv6 mld snooping vlan *VLAN-LIST* **robustness-variable** *robustness*

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs
robustness	Query robustness , an integer ranging from 1 to 7 , default 2

Description: Set query robustness

Example:

```
Switch(config)# ipv6 mld snooping vlan 1 robustness-variable 5
```

- Automatic Learning of Router Ports

Command:

```
ipv6 mld snooping vlan VLAN-LIST router learn pim-dvmrp
no ipv6 mld snooping vlan VLAN-LIST router learn pim-dvmrp
```

Mode: Global configuration mode

Parameter:

Parameter	Description
`VLAN-LIST`	VLAN ID(s), range: 1–4094. Can be a single VLAN or multiple VLANs.

Description: Enable or disable the automatic learning function for multicast router ports on the specified VLAN(s).

Example:

```
Switch(config)# ipv6 mld snooping vlan 1 router learn pim-dvmrp
```

- Show the MLD Snooping configuration of a VLAN

Command: show ipv6 mld snooping vlan *VLAN-LIST*

Mode: privileged EXEC mode

Parameter:

Parameter	**Description**
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs

Description: View the MLD snooping configuration information of a specified VLAN. If not specified , the MLD Snooping configuration information of all VLANs will be viewed by default.

Example:

```
Switch(config)# do show ipv6 mld snooping vlan 1
```

MLD Snooping querier related configuration

- MLD Snooping querier running version

Command:

1. **ipv6 mld snooping vlan** *VLAN-LIST* **querier version (1|2)**
2. **[no] ipv6 mld snooping vlan** *VLAN-LIST* **querier**

Mode: global configuration mode

Parameter:

Parameter	**Description**
VLAN-LIST	range is 1-4094 , it can be a single VLAN or multiple VLANs
version (1|2)	MLD Snooping querier running version, including MLD v 1 and MLDv2

Description: Set the MLD Snooping querier switch and running version of the specified VLAN

Example:

```
Switch(config)# ipv6 mld snooping vlan 1 querier version 1
```

- MLD Snooping querier IP address

Command: ipv6 mld snooping vlan *VLAN-LIST* **query version (1|2) ip** *ipv6-addr*

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	range is 1-4094 , it can be a single VLAN or multiple VLANs
version (1|2)	MLD Snooping querier running version, including MLDv 1 and MLDv2
Ipv6-addr	Querier IPv6 address , if not set, the VLAN interface IPv6 address will be used

Description: Set the MLD Snooping querier switch , running version , and IPv6 address of the specified VLAN

Example:

```
Switch(config)# ipv6 mld snooping vlan 1 querier version 2 ipv6 c0a8:fe:0:18::
```

- View MLD Snooping Querier Information

Command: show ipv6 mld snooping querier

Mode: privileged EXEC mode

Parameter: none

Description: Display MLD snooping querier information for all VLANs

Example:

```
Switch# show ipv6 mld snooping querier

VID | State | Status | Version | Querier IP
------+----------+------------+---------+--------- ---
1 | Disabled | Non-Querier | No | -----------

Total Entry 1
```

MLD Routing port configuration

- Configure MLD Snooping Forbidden Router Ports

Command:

1. `ipv6 mld snooping vlan <VLAN-LIST> forbidden-router-port {Ethernet | LAG} <port-list>`
2. `no ipv6 mld snooping vlan <VLAN-LIST> forbidden-router-port {Ethernet | LAG} <port-list>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<VLAN-LIST>`	Specifies a single VLAN ID, or a list/range of VLANs (range: 1 to 4094).
`{Ethernet | LAG}`	Specifies the interface type: physical interface (`Ethernet`) or Link Aggregation Group (`LAG`).
`<port-list>`	Specifies the port identifier, range, or list of ports to configure.

Description: Configures or removes a forbidden router port status on specified interfaces within designated VLANs for IPv6 MLD Snooping. A forbidden router port is explicitly blocked from dynamically learning or becoming an IPv6 multicast router port, preventing it from receiving or forwarding MLD query packets and unwanted IPv6 multicast traffic streams.

Example:

```
# Enter global configuration mode
Switch# configure

# Configure Ethernet ports 1/0/3 and 1/0/4 as forbidden router ports in VLAN 1
Switch(config)# ipv6 mld snooping vlan 1 forbidden-router-port Ethernet 1/0/3-1/0/4

# Remove the forbidden router port restriction from the specified ports
Switch(config)# no ipv6 mld snooping vlan 1 forbidden-router-port Ethernet 1/0/3-1/0/4
```

- Configure MLD Snooping Static Router Ports

Command:

1. `ipv6 mld snooping vlan <VLAN-LIST> static-router-port {Ethernet | LAG} <port-list>`
2. `no ipv6 mld snooping vlan <VLAN-LIST> static-router-port {Ethernet | LAG} <port-list>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<VLAN-LIST>`	Specifies a single VLAN ID, or a list/range of VLANs (range: 1 to 4094).
`{Ethernet | LAG}`	Specifies the interface type: physical interface (`Ethernet`) or Link Aggregation Group (`LAG`).
`<port-list>`	Specifies the port identifier, range, or list of ports to configure.

Description: Configures or removes a statically defined IPv6 multicast router port within designated VLANs for MLD Snooping. Statically configuring an MLD router port ensures that all MLD membership reports and IPv6 multicast traffic are consistently forwarded to the specified port, even if no dynamic MLD query packets are actively received from that interface.

Example:

```
# Enter global configuration mode
Switch# configure

# Configure Ethernet ports 1/0/5 and 1/0/6 as static router ports in VLAN 1
Switch(config)# ipv6 mld snooping vlan 1 static-router-port Ethernet 1/0/5-1/0/6

# Remove the static router port configuration from the specified ports
Switch(config)# no ipv6 mld snooping vlan 1 static-router-port Ethernet 1/0/5-1/0/6
```

- Show routing port

Command: Show ipv6 mld snooping router [(dynamic | forbidden |static)]

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
(dynamic | forbidden |static)	Routing port type, including dynamic routing port, disabled routing port and static routing port

Description: View routing ports, you can specify to view dynamic, disabled or static. If not specified , all types of routing ports will be viewed by default.

Example:

```
Switch(config)# show ipv6 mld snooping router
```

MLD Multicast group address

- Static multicast address

Command:

1. **ipv6 mld snooping vlan** *VLAN-LIST* **static-group [<ipv6-add>] interfaces (Ethernet|LAG) <1-10>**
2. **no ipv6 mld snooping vlan** *VLAN-LIST* **static-group [<ipv6-add>] interfaces (Ethernet|LAG) <1-10>**

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs
ipv6-add	IPv6 multicast address _
(Ethernet|LAG) <1-10>	Switch ports, including Ethernet ports , optical ports, and aggregation ports

Description: /delete static multicast group address on specified VLAN

Example:

```
Switch(config)# ipv6 mld snooping vlan 1 static-group ff13::1 interfaces Ethernet 1/0/3
```

- Show multicast group address

Command: do show ipv6 mld snooping groups [(dynamic |static)]

Mode: privileged EXEC mode

Parameter:

Parameter	Description
(dynamic | static)	Multicast group address type, including dynamic multicast group address and static multicast group address

Description: View multicast group address, you can specify to view dynamic or static multicast group address. If not specified , all types of multicast group addresses will be viewed by default

Example:

```
Switch(config)# do show ipv6 mld snooping groups
```

MLD Multicast policy configuration

- Add/Remove multicast policy

Command:

1. **ipv6 mld profile <1-128>**
2. **no ipv6 mld profile <1-128>**

Mode: global configuration mode

Parameter:

Parameter	Description
<1-128>	Multicast Policy ID

Description: Add/Remove Multicast Policy

Example:

```
Switch(config)# ipv6 mld profile 1
```

- Edit Multicast policy

Command: profile range ipv6 [ipv6-addr] action (permit|deny)

Mode: MLD policy configuration mode

Parameter:

Parameter	Description
<ipv6-addr>	IP v6 multicast start address
[ip v6-addr]	IPv6 multicast end address
(permit|deny)	multicast policy on the specified packet includes allow and deny

Description: Configure Multicast Policy

Example:

```
Switch(config-igmp-profile)# profile range ipv6 ff13::1 ff13::10 action permit
```

- View IPv6 MLD Profile Configuration

Command: `show ipv6 mld profile`

Mode: MLD Profile Configuration Mode

Parameter: none

Description: Displays the configuration details of the currently selected IPv6 Multicast Listener Discovery (MLD) profile. This command is used to verify the multicast policies, address ranges, and filtering rules defined within the profile.

Example:

```
# View the configuration details within the MLD profile configuration mode
Switch(config-mld-profile)# show ipv6 mld profile
```

- Bind/Unbind IPv6 MLD Multicast Policies

Command:

1. `ipv6 mld filter <1-128>`
2. `no ipv6 mld filter`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`<1-128>`	Specifies the unique ID of the multicast policy (MLD profile) to bind to the interface.

Description: Binds or unbinds a predefined IPv6 MLD multicast filtering policy on a specific interface. Applying a filter allows the switch to control, permit, or deny IPv6 multicast group joins on that port based on the rules defined in the policy ID. The `no` form of the command removes the policy binding from the interface.

Example:

```
# Enter interface configuration mode for Ethernet 1/0/1
Switch(config)# interface Ethernet 1/0/1

# Bind multicast policy ID 1 to this interface
Switch(config-if)# ipv6 mld filter 1

# Unbind the multicast policy from this interface
Switch(config-if)# no ipv6 mld filter
```

- View the existing port multicast policy configuration

Command: do show ipv6 mld filter [interfaces IF_PORTS]

Mode: interface configuration mode

Parameter:

Parameter	Description
interfaces IF_PORTS	Designated interfaces , including Ethernet interfaces, optical interfaces, and aggregation interfaces

Description: Check the existing port multicast policy configuration . If no port is specified , the multicast policy configuration of all ports will be displayed by default

Example:

```
Switch(config-if)# do show ipv6 mld filter
Switch(config-if)# do show ipv6 mld filter interfaces Ethernet 1/0/1
```

MLD Maximum multicast group configuration

- Configure Maximum IPv6 MLD Multicast Groups

Command:

1. `ipv6 mld max-groups <0-640>`
2. `no ipv6 mld max-groups`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`<0-640>`	The maximum number of IPv6 multicast groups the interface is allowed to join (range: 0 to 640, depending on the switch model). Setting this value to `0` prevents the port from joining any MLD multicast groups.

Description: Limits the number of IPv6 MLD multicast groups that can be concurrently joined on a specific interface. This feature helps regulate bandwidth consumption and protects network resources by preventing an individual port from flooding the switch with excessive multicast stream subscriptions. The `no` form restores the default system limit.

Example:

```
# Enter interface configuration mode for Ethernet 1/0/1
Switch(config)# interface ethernet 1/0/1

# Limit the interface to a maximum of 10 IPv6 MLD multicast groups
Switch(config-if)# ipv6 mld max-groups 10

# Restore the default maximum multicast group limit on the interface
Switch(config-if)# no ipv6 mld max-groups
```

- Operation exceeded

Command: ipv6 mld max-groups action (deny|replace)

Mode: interface configuration mode

Parameter:

Parameter	Description
(deny|replace)	The operation after the maximum number of multicast groups is exceeded , supports rejection and replacement

Description: Set the operation after the maximum number of multicast groups is exceeded, which is rejected by default

Example:

```
Switch(config-if)# ipv6 mld max-groups action replace
```

- Show the maximum number of multicast groups

Command: do show ipv6 mld max-group [interfaces IF_PORTS]

Mode: interface configuration mode

Parameter:

Parameter	Description
interfaces IF_PORTS	Designated interfaces , including Ethernet interfaces, optical interfaces, and aggregation interfaces

Description: Check the maximum number of multicast groups on the specified interface. If not specified , the maximum number of multicast groups of all interfaces will be displayed by default

Example:

```
Switch(config-if)# do show ipv6 mld max-group
Switch(config-if)# do show ipv6 mld max-group interfaces Ethernet 1/0/1
```

- Show Exceeding maximum group operations

Command: show ipv6 mld max-group action [interfaces IF_PORTS]

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
interfaces IF_PORTS	Designated interfaces , including Ethernet interfaces, optical interfaces, and aggregation interfaces

Description: Check the operation of the specified interface exceeding the maximum multicast number . If not specified , the operation of all interfaces exceeding the maximum multicast number will be displayed by default

Example:

```
Switch(config-if)# show ipv6 mld max-group action
Switch(config-if)# show ipv6 mld max-group action interfaces Ethernet 1/0/1
```

MLD Clear operation

- Clear multicast group address

Command: clear ipv6 mld snooping groups [(dynamic |static)]

Mode: privileged EXEC mode

Parameter:

Parameter	Description
(dynamic|static)	Multicast group address type, including dynamic multicast address and static multicast address

Description: Specify the type of multicast group address to be cleared, including dynamic multicast address and static multicast address. If not specified , all multicast group addresses will be cleared by default

Example:

```
Switch# clear ipv6 mld snooping groups
Switch# show ip v6 mld snooping groups

VLAN | Group IP Address | Type | Life(Sec) |
-----+------------------+------+-----------+-----

Total Number of Entry = 0
```

- Clear all statistics

Command: clear ipv6 mld snooping statistics

Mode: privileged EXEC mode

Parameter: none

Description: Clear MLD statistics information

Example:

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

MLD Snooping Status
--------------------

Snooping : Disabled
Report Suppression : Disabled
Operation Version: v1
Forward Method : mac
Unknown IPv6 Multicast Action : Flood


Packet Statistics
Total RX : 0
Valid RX : 0
Invalid RX : 0
Other RX : 0
Leave RX : 0
Report RX : 0
General Query RX : 0
Specail Group Query RX : 0
Specail Group & Source Query RX : 0
Leave TX : 0
Report TX : 0
General Query TX : 0
Specail Group Query TX : 0
Specail Group & Source Query TX : 0
```

MVR

MVR Global Configuration

- Enable/disable MVR

Command:

1. **mvr**
2. **no mvr**

Mode: Global Configuration Mode

Parameter: none

Description: enable /disable MVR

Example:

```
Switch(config)# mvr
Switch(config)# no mvr
```

- Configuring MVR Mode

Command: mvr mode [compatible /dynamic]

Mode: Global Configuration Mode

Parameter:

Parameter	Description
compatible	Compatibility Mode
dynamic	Dynamic Mode

Description: Configuring MVR Mode

Example:

```
Switch(config)# mvr mode compatible
```

- Configuring the MVR Group Address

Command: mvr group ABCD [none/ <1-128>]

Mode: Global Configuration Mode

Parameter:

Parameter	Description
ABCD	IPv4 multicast address
none	None, that is, configure a single group address
<1-128>	Number of group addresses , default is 1

Description: Configuring the MVR Group Address

Example:

```
Switch(config)# mvr group 225.1.1.1 10
```

- Configure MVR query response time (seconds)

Command: mvr query-time <1 -10 >

Mode: Global Configuration Mode

Parameter:

Parameter	Description
<1-10>	MVR query response time (seconds), range 1-10 seconds

Description: Configuring MVR Query Response Time

Example:

```
Switch(config)# mvr query-time 5
```

- Configuring Multicast VLAN

Command: mvr vlan VLAN-LIST

Mode: Global Configuration Mode

Parameter:

Parameter	Description
VLAN-LIST	The multicast VLAN of MVR is the created VLAN, and the value range is 1-4094

Description: Configuring Multicast VLAN

Example:

```
Switch(config)# mvr vlan 999
```

- View MVR global configuration

Command: show mvr

Mode: Privileged EXEC mode

Parameter: none

Description: View MVR global configuration

Example:

```
Switch# show mvr
MVR Running: Enabled
MVR Multicast VLAN: 1
MVR Group Range: None
MVR Max Multicast Groups: 128
MVR Current Multicast Groups: 0
MVR Global query response time: 1 sec
MVR Mode: compatible
```

MVR Port Configuration

- MVR Port Settings

Command:

1. **mvr immediate**
2. **mvr type** [receiver / source]
3. **no mvr type**

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
receiver	Set as receiving port
source	Set as source port

Description:

1. **mvr immediate:** Set whether to enable the immediate leave function of the selected port. The immediate leave function of the port is disabled by default.
2. **mvr type [receiver/source]:** Set the selected port as source port / receiver port , the default is none.
3. **no mvr type:** Delete the source port/receive port.

Example:

```
Switch(config-if)# mvr immediate
Switch(config-if)# mvr type receiver
Switch(config-if)# mvr type source
Switch(config-if)# no mvr type
```

- View MVR port configuration

Command: `show mvr interface [none | (Ethernet | LAG)]`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`none`	Queries all ports if no specific port is provided.
`Ethernet | LAG`	Specifies a port interface. Can be Ethernet, optical, or a link aggregation interface.

Description: View the MVR (Multicast VLAN Registration) configuration for specific ports.
If no port is specified, the configuration for all ports will be displayed by default.

Example:

```
Switch# show mvr interface Ethernet 1/0/1
Port      | Type | Immediate Leave
----------+------+-----------------
eth1/0/1 | None | Disabled
```

MVR Multicast Group Configuration

- Add/delete static MVR multicast group

Command:

1. `mvr vlan VLAN-LIST group [<ip-add>] interfaces Ethernet interfaces (Ethernet | LAG)`
2. `no mvr vlan VLAN-LIST group [<ip-add>] interfaces Ethernet interfaces (Ethernet | LAG)`

Mode: Global configuration mode

Parameter:

Parameter	Description
`VLAN-LIST`	VLAN ID(s), range: 1–4094
`ip-add`	IPv4 multicast address
`Ethernet | LAG`	Specifies interface types — Ethernet, optical, or link aggregation interfaces.

Description: Add or remove static MVR (Multicast VLAN Registration) multicast groups for specified VLANs and interfaces.

Example:

```
Add a static multicast group on Ethernet 1/0/1:
Switch(config)# mvr vlan 1 group 225.1.1.1 interfaces Ethernet interfaces Ethernet 1/0/1

Remove a static multicast group from LAG 1:
Switch(config)# no mvr vlan 1 group 225.1.1.1 interfaces Ethernet interfaces LAG 1
```

- View multicast group address entries

Command: show mvr members

Mode: Privileged EXEC mode

Parameter: none

Description: Check the MVR multicast group address table

Example:

```
Switch# show mvr members
```

ROUTING

Routing table

Enable/disable IPv4 routing forwarding

Supported models: *GWN7811(P)/GWN7812P/GWN7813(P)/GWN7830/GWN7831/GWN7832/GWN7816(P)*/GWN7801P Pro/GWN7802P Pro/GWN7803 Pro/GWN7803PL Pro/GWN7803PH Pro

Command:

1. **ip unicast-routing**
2. **no ip unicast-routing**

Mode: global configuration mode

Parameter: none

Description: Enable/disable IPv4 routing forwarding.

Example:

```
Switch(config)# ip unicast-routing
```

Forwarding Mode

Supported Models: GWN7801P Pro, GWN7802P Pro, GWN7803(PL/PH) Pro

Command: `ip unicast-routing mode (classic | manual)`

Mode: Global configuration mode

Parameter:

Parameter	Description
(`classic | manual`)	When “Traditional” is selected, directly connected routes and the neighbor table are effective; when “Manual” is selected, directly connected routes will be disabled, and only static neighbor table entries will be effective. Recommendation: When the number of hosts between IP interfaces on the device exceeds 64, it is recommended to use the “Manual” mode.

Description: Configure the IPv4 routing forwarding mode.

Example:

```
Set the forwarding mode to classic:
GWN7801P Pro(config)# ip unicast-routing mode classic
```

View the IPv4 routing table

Command:

1. **show ip route**
2. **show ip route { connected/detail/static}**

Mode: privileged EXEC mode

Parameter:

Parameter	Description
{ connected/detail/ static }	Select the route type to view, including direct route, route and static route.

Description: View IPv4 routing table

Example:

```
Switch # show ip route
```

Enable/disable IPv6 routing forwarding

Supported models: *GWN7811(P)/GWN7812P/GWN7813(P)/GWN7830/GWN7831/GWN7832/GWN7816(P)*/GWN7801P Pro/GWN7802P Pro/GWN7803 Pro/GWN7803PL Pro/GWN7803PH Pro

Command:

1. **ipv6 unicast-routing**
2. **no ipv6 unicast-routing**

Mode: global configuration mode

Parameter: none

Description: Enable/disable IPv6 routing forwarding.

Example:

```
Switch(config)# ipv6 unicast-routing
```

View the IPv6 routing table

Command:

1. **show ipv6 route**
2. **show ipv6 route { connected/detail/static}**

Mode: privileged EXEC mode

Parameter:

Parameter	Description
{ connected/detail/ static }	Select the route type to view, including direct route, route and static route.

Description: View IPv6 routing table

Example:

```
Switch# show ipv6 route
```

Static routing

IPv4 static routing

- Add IPv4 static route

Command: ip route { Destination prefix [Destination prefix mask]/ Destination prefix and length} { Forwarding router's address/ interface [vlan <1-4094>] / loopback [<1-1>] / null0 } { preference/ description}

Mode: global configuration mode

Parameter:

Parameter	Description
Destination prefix	Specify the destination address in dotted decimal format
Destination prefix mask	Specify the mask of the destination address, in dotted decimal format
Destination prefix and length	Specify the destination address + mask, the destination address uses dotted decimal format, and the mask length is an integer ranging from 0 to 32
Forwarding router's address	Specify the next hop address in dotted decimal format
interface [vlan <1-4094>]	Specifies that the outbound interface of the router forwarding packets is a VLAN interface
loopback [<1-1>]	Specify the outbound interface of the router to forward packets as loopback
null0	the specified route forwarding packets is null0
preference	Specify the priority of the route, the value range is an integer from 1 to 255 , the default is 1
description	Used to describe the route, the length ranges from 0 to 31 characters

Description: Add IPv4 static route

Example:

```
IPv4 static route with destination address 192.168.30.0, mask 24 bits, next hop 192.168.20.1 priority 60
Switch(config)# ip route 192.168.30.0/24 192.168.20.1 preference 60
```

- Delete IPv4 static route

Command: no ip route { Destination prefix [Destination prefix mask]/ Destination prefix and length } { Forwarding router's address / interface [vlan <1-4094>] / loopback [<1-1>] / null0 }

Mode: global configuration mode

Parameter:

Parameter	Description
Destination prefix	Specify the destination address in dotted decimal format
Destination prefix mask	Specify the mask of the destination address, in dotted decimal format
Destination prefix and length	Specify the destination address + mask, the destination address uses dotted decimal format, and the mask length is an integer ranging from 0 to 32
Forwarding router's address	Specify the next hop address in dotted decimal format
interface [vlan <1-4094>]	Specifies that the outbound interface of the router forwarding packets is a VLAN interface
loopback [<1-1>]	Specify the outbound interface of the router to forward packets as loopback
null0	the specified route forwarding packets is null0

Description: Delete IPv4 static route

Example:

```
teIPv4 static route with a destination address of 192.168.30.0, a mask of 24 bits, and a next hop of
192.168.20.1
Switch(config)# no ip route 192.168.30.0/24 192.168.20.1
```

- Configure Maximum Number of Static Routes

Command: `static-routing definition ipv4 < Number of IPv4 static routing > ipv6 < Number of IPv6 static routing >`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<Number of IPv4 static routing>`	Specifies the maximum number of IPv4 static routes the system can support.
`<Number of IPv6 static routing>`	Specifies the maximum number of IPv6 static routes the system can support.

Description: Configures the hardware resource allocation for the static routing table. This command defines the capacity limit for both IPv4 and IPv6 static routes, allowing administrators to reserve appropriate memory and TCAM resources based on the network's requirements.

Example:

```
# Enter global configuration mode
Switch# configure

# Configure the number of IPv4 static routes to 10 and IPv6 static routes to 20
Switch(config)# static-routing definition ipv4 10 ipv6 20
```

IPv6 static routing

- Add IPv6 static route

Command: ipv6 route { Destination prefix and length}{ Forwarding router's address/ interface [vlan <1-4094>] / loopback [<1-1>] / null0 } { preference/ description}

Mode: global configuration mode

Parameter:

Parameter	Description
Destination prefix and length	Specify the destination IPv6 address + mask, the destination address uses hexadecimal format, the mask length is an integer ranging from 0-128
Forwarding router's address	Specifies the next hop address, in hexadecimal format
interface [vlan <1-4094>]	Specifies that the outbound interface of the router forwarding packets is a VLAN interface
loopback [<1-1>]	Specify the outbound interface of the router to forward packets as loopback
null0	the specified route forwarding packets is null0
preference	Specify the priority of the route, the value range is an integer from 1 to 255 , the default is 1
description	Used to describe the route, the length ranges from 0 to 31 characters

Description: Add IPv6 static route

Example:

```
IPv6 static route with an destination address of 2023::, a prefix of 64 bits, a next hop of 2001::1, and a
priority of 60.
Switch(config)# ipv6 route 2023::/64 2001::1 preference 60
```

- Delete IP v6 static route

Command: no ip v6 route { Destination prefix and length} { Forwarding router's address / interface [vlan <1-4094>] / loopback [<1-1>] / null0 }

Mode: global configuration mode

Parameter:

Parameter	Description
Destination prefix and length	Specify the destination IPv6 address + mask, the destination address uses hexadecimal format, and the mask length is an integer ranging from 0 to 32
Forwarding router's address	Specifies the next hop address, in hexadecimal format
interface [vlan <1-4094>]	Specifies that the outbound interface of the router forwarding packets is a VLAN interface
loopback [<1-1>]	Specify the outbound interface of the router to forward packets as loopback
null0	the specified route forwarding packets is null0

Description: Delete IPv6 static route

Example:

```
Delete the IPv6 static route whose destination address is 2023::, prefix 64 bits, next hop 2001::1
Switch(config)# no ipv6 route 2023::/64 2001::1
```

- Configure Maximum Number of Static Routes

Command: `static-routing definition ipv4 <Number of IPv4 static routing> ipv6 <Number of IPv6 static routing>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<Number of IPv4 static routing>`	Specify the number of IPv4 static routes.
`<Number of IPv6 static routing>`	Specify the number of IPv6 static routes.

Description: Configures the hardware resource allocation for the static routing table by defining the maximum number of static routes the system can support for both IPv4 and IPv6.

Example:

```
# Enter global configuration mode
Switch# configure

# Configure the number of IPv4 static routes to 10 and IPv6 static routes to 20
Switch(config)# static-routing definition ipv4 10 ipv6 20
```

Policy Routing

Supported models:
GWN7806(P)/GWN7811(P)/GWN7812P/GWN7813(P)/GWN7816(P)/GWN7830/GWN7831/GNW7832/GWN7821P/GWN7822P

IPv4 Policy Routing

- Adding IPv4 Policy Routing

Command:
ip policy-route WORD acl-name WORD sequence <1-2147483647> redirect ip-nexthop ABCD

Mode: Global Configuration Mode

Parameter:

Parameter	Description
WORD	Policy routing name
acl-name	ACL name
<1-2147483647>	ACL rule number
ABCD	Redirected IP address

Description:
Adds IPv4 policy routing.

Example:

```
Switch(config)# ip policy-route 1 acl-name 666 sequence 1 redirect ip-nexthop 4.1.1.2
```

- Deleting IPv4 Policy Routing

Command: no ip policy-route WORD acl-name WORD sequence <1-2147483647>

Mode: Global Configuration Mode

Parameter:

Parameter	Description
WORD	Policy routing name
acl-name	ACL name
<1-2147483647>	ACL rule number

Description: Deletes the specified IPv4 policy routing.

Example:

```
Switch(config)# no ip policy-route 1 acl-name 666 sequence 1
```

- View IPv4 Policy Routing

Command:

```
show ip policy-route
show ip policy-route acl-name <WORD> sequence <1-2147483647>
```

```
show ip policy-route name <WORD>
show ip policy-route redirect ip-nexthop ABCD
```

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`acl-name`	ACL name
`name`	Policy route name
`redirect`	Redirect information

Description: Display IPv4 policy route configurations based on ACL name, policy route name, or redirect next-hop IP.

Example:

```
Switch# show ip policy-route
Switch# show ip policy-route acl-name 1 sequence 1
Switch# show ip policy-route name 1
Switch# show ip policy-route redirect ip-nexthop 1.1.1.1
```

IPv6 Policy Routing

- Add IPv6 Policy Routing

Command: `ipv6 policy-route WORD acl-name WORD sequence <1-2147483647> redirect ip-nexthop X:X::X:X [link-local vlan <1-4094>]`

Mode: Global configuration mode

Parameter:

Parameter	Description
`WORD` (policy name)	Policy route name
`WORD` (ACL name)	ACL name
`<1-2147483647>`	ACL rule number
`X:X::X:X`	Redirected IPv6 address
`<1-4094>`	(Optional) VLAN ID used when the next-hop address is a link-local IPv6 address. Specifies the outgoing interface.

Description: Add an IPv6 policy route. If the next-hop address is a link-local IPv6 address, the `vlan` option must be used to specify the outgoing interface.

Example:

```
Create a policy route with name 2, matching ACL 2003, rule 1, and redirecting to IP address 4001::2:
Switch(config)# ipv6 policy-route 2 acl-name 2003 sequence 1 redirect ip-nexthop 4001::
```

- Deleting IPv6 Policy Routing

Command Syntax:
no ipv6 policy-route <policy-name> acl-name <acl-name> sequence <rule-number>

Mode: Global Configuration Mode

Parameters:

Parameter	Description
<policy-name>	Name of the policy routing.
<acl-name>	Name of the Access Control List (ACL).
<rule-number>	Sequence number of the ACL rule (range: 1-2147483647).

Description:
Delete an IPv6 policy-based routing entry.

Example:

```
# Delete the policy route with policy "2", ACL "2003", and rule "1".

Switch(config)# no ipv6 policy-route 2 acl-name 2003 sequence 1
```

- View IPv6 Policy Routing

Command:

```
show ipv6 policy-route
show ipv6 policy-route acl-name <WORD> sequence <1-2147483647>
show ipv6 policy-route name <WORD>
show ipv6 policy-route redirect ip-nexthop X:X::X:X
```

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`acl-name`	ACL name
`name`	Policy route name
`redirect`	Redirect information

Description: View IPv6 policy routing configurations based on ACL name, policy route name, or redirect next-hop address.

Example:

```
Switch# show ipv6 policy-route
Switch# show ipv6 policy-route acl-name 1 sequence 1
Switch# show ipv6 policy-route name 1
Switch# show ipv6 policy-route redirect ip-nexthop fe80::ee74:d7ff:fea0:e0d1
```

RIP

> **Note:**
>
> Only supported on GWN78xx(P) L3 switches.

Global RIP configuration

- Enable/disable global RIP

Command:

1. **router rip**
2. **no router rip**

Mode: global configuration mode

Parameter: none

Description: Enable/disable global RIP function

Example:

```
Enable global RIP function
Switch(config)# router rip
```

- Configure the RIP version

Command:

1. **version (1|2)**
2. **no version (1|2)**

Mode: RIP Configuration Mode

Parameter:

Parameter	Description
1	RIP version 1
2	RIP version 2

Description: Configure the RIP version

Example:

```
Configure RIP version 2
Switch(config-rip-router)# version 2
```

- RIP – Import External Routes

Command:

```
import-route (bgp | connected | static | ospf) [metric <1-16>]
no import-route (bgp | connected | static | ospf) [metric <1-16>]
```

Mode: RIP configuration mode

Parameter:

Parameter	Description
`bgp`	Import BGP routes
`connected`	Import directly connected routes
`static`	Import static routes

Parameter	Description
`ospf`	Import OSPF routes
`<1-16>`	Metric value for the imported route

Description: Import external routes into RIP. You can choose to import routes from BGP, directly connected interfaces, static routes, or OSPF. You may also assign a metric value (1–16) to the imported route.

Example:

```
Import a directly connected route with a metric of 10:
Switch(config-rip-router)# import-route connected metric 10
```

- Configure RIP Static Routes

Command:

```
route ABCD | ABCD/M
no route ABCD | ABCD/M
```

Mode: RIP configuration mode

Parameter:

Parameter	Description
`ABCD`	RIP version 1 IP address format. A/B/C/D = 0–255, e.g., `172.16.0.0`
`ABCD/M`	IP address with subnet mask (CIDR). A/B/C/D = 0–255, e.g., `192.168.10.0/24`

Description: Configure or delete static RIP routes.

Example:

```
Configure a static RIP route to 192.168.10.0/25:
Switch(config-rip-router)# route 192.168.10.0/25
```

- Enable/Disable Routing Function of IP Network

Command:

```
network ABCD/M
no network ABCD/M
```

Mode: RIP configuration mode

Parameter:

Parameter	Description
`ABCD/M`	IP address in CIDR format. A/B/C/D = 0–255, e.g., `192.168.10.0/24`

Description: Enable or disable routing functionality for the specified IP network under RIP.

Example:

```
Enable routing for network 192.168.10.0/25:
Switch(config-ripng-router)# network 192.168.10.0/25
```

- Configure/Cancel Timer

Command:

```
timers <5-65535> <5-65535> <5-65535>
no timers <5-65535> <5-65535> <5-65535>
no timers
```

Mode: RIP configuration mode

Parameter:

Parameter	Description
`<5-65535>`	Routing table update interval (in seconds). Default: 30s
`<5-65535>`	Route timeout interval (in seconds). Default: 180s
`<5-65535>`	Garbage collection interval (in seconds). Default: 120s

Description: Configure or reset RIP routing timers.

- `timers` : Set the update, timeout, and garbage collection intervals.
- `no timers` : Restore default values.

Example:

```
Set the update interval to 30s, timeout to 180s, and garbage collection to 120s:
Switch(config-rip-router)# timers 30 180 120

Reset the RIP timers to default values:
Switch(config-rip-router)# no timers
```

- View the RIP Routing Table

Command: `show ip rip`

Mode: Privileged EXEC mode

Parameter: None

Description: Display RIP routing information.

Example:

```
Switch# show ip rip
```

- View RIP global information

Command: show ip rip [status]

Mode: privileged EXEC mode

Parameter: none

Description: View RIP global information

Example:

```
View global RIP information
Switch # show ip rip status
```

- View RIP Neighbor Information

Command: show ip rip neighbor

Mode: privileged EXEC mode

Parameter: none

Description: View RIP Neighbor Information

Example:

```
Switch # show ip rip neighbor
```

Interface RIP configuration

- Enable/disable VLAN interface RIP

Command:

1. **ip rip enable**
2. **no ip rip enable**

Mode: VLAN interface configuration mode

Parameter: none

Description: Enabling /disabling the RIP function of the VLAN interface

Example:

```
Enable the RIP function of VLAN 1 interface
Switch(config)# interface vlan 1
Switch(config-if)# ip rip enable
```

- Configure RIP send/receive version

Command:

1. **ip rip (send|receive) version (1 | 2 | 1 2)**
2. **no ip rip (send|receive) version (1 | 2 | 1 2)**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
send	Specifies to configure the RIP sending version
receive	Specifies to configure the RIP receiving version
1 | 2 | 1 2	Specifies the sending /receiving version number of RIP

Description: Configure RIP send /receive version

Example:

```
the RIP sending version of VLAN 1 interface to 2.
Switch (config)# int vlan 1
Switch(config-if)# ip rip send version 2
Configure the RIP receive version of the VLAN 1 interface to RIPv1 & RIPv2.
Switch (config)# int vlan 1
Switch(config-if)# ip rip receive version 1 2
```

- Enable/disable RIPv2 broadcast

Command:

1. **ip rip v2-broadcast**
2. **no ip rip v2-broadcast**

Mode: VLAN interface configuration mode

Parameter: none

Description: Enable/disable the broadcast function of RIPv2

Example:

```
Enable the RIPv2 broadcast function on the VLAN 1 interface
Switch(config-if)# ip rip v2-broadcast
```

- Enable/disable interface suppression

Command:

1. **ip rip suppress**
2. **no ip rip suppress**

Mode: VLAN interface configuration mode

Parameter: none

Description: Enable/disable interface suppression function

Example:

```
Enable the suppression function of VLAN 1 interface
Switch(config-if)# ip rip suppress
```

- Configuring split horizon and poison reverse

Command:

1. **ip rip split-horizon [poisoned-reverse]**
2. **no ip rip split-horizon [poisoned-reverse]**

Mode: VLAN interface configuration mode

Parameter: none

Description: Configuring split horizon and poison reverse

Example:

```
Enable split horizon
Switch(config-if)# ip rip split-horizon
```

- Configure authentication and keys

Command:

1. **ip rip authentication mode (simple|md5)**
2. **no ip rip authentication mode (simple|md5)**
3. **ip rip authentication string [AUTH_KEY]**
4. **no ip rip authentication string [AUTH_KEY]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
Simple	Specify the authentication mode as simple authentication
md5	Specify the authentication mode as MD5 authentication
AUTH_KEY	Specify the authentication key , limited to 1-16 characters

Description: Configure authentication and keys

Example:

```
Set simple authentication for VLAN 1 interface with key 123456
Switch(config-if)# ip rip authentication simple
Switch(config-if)# ip rip authentication string 123456
```

RIPng

> **Note:**
>
> Only supported on GWN78xx(P) L3 switches.

Global RIPng configuration

- Enable/disable global RIPng

Command:

1. **router ripng**
2. **no router ripng**

Mode: global configuration mode

Parameter: none

Description: Enable/disable global RIPng function

Example:

```
Enable global RIPng function
Switch(config)# router ripng
```

- Configure/Cancel Timer

Command:

1. **timers** <0-65535> <0-65535> <0-65535>
2. **no timers** <0-65535> <0-65535> <0-65535>

Mode: RIPng configuration mode

Parameter:

Parameter	Description
<0-65535>	Routing table update time (in seconds), the value range is an integer from 0 to 65535 , and the default is 30 seconds.
<0-65535>	Routing timeout (in seconds), the value range is an integer from 0 to 65535 , and the default is 180 seconds.
<0-65535>	Garbage route collection time (in seconds), the value range is an integer from 0 to 65535 , and the default is 120 seconds.

Description: Configure/Unconfigure Timers

Example:

```
Set the timer , the routing table update time is 300 seconds , the routing timeout time is 1800 seconds, and
the garbage routing collection time is 1200 seconds
Switch(config-ripng-router)# timers 300 1800 1200
```

- Importing Routes for RIPng

Command Syntax:

import-route connected (bgp|connected|static|ospfv3) [metric <1-16>]
no import-route connected (bgp|connected|static|ospfv3) [metric <1-16>]

Mode: RIPng Configuration Mode

Parameters:

Parameter	Description
bgp|connected|static|ospfv3	Import BGP/direct routes /static routes/OSPFv3
`metric <1-` 16 `>`	The metric of the imported route. The value range is an integer from 0 to 16.

Description: Configure the import of connected, static, or OSPFv3 routes into RIPng and set the metric for the imported routes. You can also remove the route import configuration.

Example:

```
# Introduce a connected route and set the metric to 3.
Switch(config-ripng-router)# import-route connected metric 3

# Import OSPFv3 routes and set the metric to 5.
Switch(config-ripng-router)# import-route ospfv3 metric 5

# Import static routes and set the metric to 6.
Switch(config-ripng-router)# import-route static metric 6

Introduce BGP routes and set the metric value to 1.
Switch(config-ripng-router)# import-route bgp metric 1
Cancel the introduction of BGP routes
Switch(config-ripng-router)# no import-route bgp
```

- Configure RIPng Static Routes

Command:

`route X:X::X:X/<1-128>`

`no route X:X::X:X/<1-128>`

Mode: RIPng configuration mode

Parameter:

Parameter	Description
`X:X::X:X/<1-128>`	IPv6 address with prefix length, e.g., `2001:1011::3126:2003/64`

Description: Configure or delete static routes in RIPng.

Example:

```
Configure a static RIPng route to 2001:1011::3126:2003/64:
Switch(config-ripng-router)# route 2001:1011::3126:2003/64
```

- View the RIPng Routing Table

Command: `show ipv6 ripng`

Mode: Privileged EXEC mode

Parameter: None

Description: Display RIPng routing information.

Example:

```
Switch# show ipv6 ripng
```

- View RIPng Global Information

Command: show ipv6 ripng [status]

Mode: privileged EXEC mode

Parameter: none

Description: View RIPng Global Information

Example:

```
Switch# show ipv6 ripng status
```

- Viewing RIPng Neighbor Information

Command: show ipv6 ripng neighbor

Mode: privileged EXEC mode

Parameter: none

Description: Viewing RIPng Neighbor Information

Example:

```
Switch# show ipv6 ripng neighbor
```

Interface RIPng Neighbor Information

- Enable/disable VLAN interface RIPng

Command:

1. **ipv6 ripng enable**
2. **no ipv6 ripng enable**

Mode: VLAN interface configuration mode

Parameter: none

Description: Enable/disable the RIPng function of the VLAN interface

Example:

```
Enable the RIPng function on the VLAN 1 interface (prerequisite : first enable the interface IPv6 function
and configure an IPv6 global unicast address )
Switch#config
Switch(config)#interface vlan 101
Switch(config-if)#ipv6 enable
Switch(config-if)#ipv6 address 2002::1111/64
Switch(config-if)# ipv6 ripng enable
```

- Configuring split horizon and poison reverse

Command:

1. **ipv6 ripng split-horizon [poisoned-reverse]**
2. **no ipv6 ripng split-horizon [poisoned-reverse]**

Mode: VLAN interface configuration mode

Parameter: none

Description: Configuring split horizon and poison reverse

Example:

```
Enable split horizon
Switch(config-if)# ipv6 ripng split-horizon
```

- Enable/disable route suppression

Command:

1. **ipv6 ripng suppress**
2. **no ipv6 ripng suppress**

Mode: VLAN interface configuration mode

Parameter: none

Description: Enable/disable route suppression

Example:

```
Enable route suppression
Switch(config-if)# ipv6 ripng suppress
```

OSPF

> **Note:**
>
> Only supported on GWN78xx(P) L3 switches.

Global OSPF configuration

- Enable/disable global OSPF

Command:

1. **router ospf**
2. **no router ospf**

Mode: global configuration mode

Parameter: none

Description: Enabling/disabling the global OSPF function

Example:

```
Enable the global OSPF function
Switch(config)# router ospf
Disable global OSPF functionality
Switch(config)# no router ospf
```

- Restart the OSPF process

Command: restart router ospf

Mode: global configuration mode

Parameter: none

Description: Restart the OSPF process

Example:

```
Switch(config)# restart router ospf
```

- Configure Router ID

Command:

1. **router-id ABCD**
2. **no router-id ABCD**
3. **no router-id**

Mode: Global OSPF configuration mode

Parameter:

Parameter	Description
ABCD	Set the Router ID of the switch, configured in IPv4 address format

Description: Configure Router ID

Example:

```
Set Router ID to 1.1.1.1
Switch(config)# router ospf
Switch(config-ospf-router)# router-id 1.1.1.1
Delete Router ID 1.1.1.1
Switch(config)# router ospf
Switch(config-ospf-router)# no router-id 1.1.1.1
Delete Router ID
Switch(config)# router ospf
Switch(config-ospf-router)# no router-id
```

- Compatible with RFC1583

Command:

1. **ospf rfc1583 compatibility**
2. **no ospf rfc1583 compatibility**

Mode: Global OSPF configuration mode

Parameter: none

Description: Compatible with RFC1583

Example:

```
Configuration compatible with RFC1583
Switch(config)# router ospf
Switch(config-ospf-router)# ospf rfc1583compatibility
Disable compatibility with RFC1583
Switch(config)# router ospf
no OSPF RFC1583 compatibility
```

- Opaque LSA

Command:

1. **ospf capability opaque**
2. **no ospf capability opaque**

Mode: Global OSPF configuration mode

Parameter: none

Description: Enable the Opaque LSA function

Example:

```
Enable Opaque LSA feature
Switch(config)# router ospf
Switch(config-ospf-router)# ospf capability opaque
Disable Opaque LSA function
Switch(config)# router ospf
Switch(config-ospf-router)# no ospf capability opaque
```

- Configuring SPF timers

Command:

1. **spf-schedule-interval [<0-600000> <0-600000> <0-600000>]**
2. **no spf-schedule-interval [<0-600000> <0-600000> <0-600000>]**

Mode: Global OSPF configuration mode

Parameter:

Parameter	Description
<0-600000>	Set the waiting time of the SPF timer (in milliseconds) , the value range is an integer from 0 to 600000 , and the default is 0
<0-600000>	Set the minimum time interval between two S PF timers (in milliseconds) , the value range is an integer from 0 to 600000 , and the default is 5 0
<0-600000>	Set the maximum time interval between two S PF timers (in milliseconds) , the value range is an integer from 0 to 600000, and the default is 5 000

Description: Configuring SPF timers

Example:

```
Set the SPF timer , the waiting time is 50 milliseconds , the minimum time interval is 500 milliseconds ,
and the maximum time interval is 5000 milliseconds
Switch(config-ospf-router)# spf-schedule-interval 50 500 5000
Restore SPF timer to default value
Switch(config-ospf-router)# no spf-schedule-interval
```

- Configure LSA transmission delay

Command:

1. **timers lsa all [<0-5000>]**
2. **no timers lsa all [<0-5000>]**

Mode: Global OSPF configuration mode

Parameter:

Parameter	Description
<0-5000>	Set the minimum delay time for receiving a new LSA (in milliseconds) , the value range is an integer from 0 to 5000 , and the default is 5 000

Description: Configure LSA transmission delay time

Example:

```
Configure the LSA transmission delay time to 50 milliseconds
Switch(config-ospf-router)# timers lsa all 50
Restore LSA transmission latency to default value
Switch(config-ospf-router)# no timers lsa all
Remove the configured LSA transmission delay to restore it to the default value.
Switch(config-ospf-router)# no timers lsa all 50
```

- Configure LSA arrival time

Command:

1. **timers lsa arrival [<0-600000>]**
2. **no timers lsa arrival [<0-600000>]**

Mode: Global OSPF configuration mode

Parameter:

Parameter	Description
<0-600000>	Set the minimum receiving interval of LSA (in milliseconds) , the value range is an integer from 0 to 600000 , and the default is 1 000

Description: Configure LSA arrival time

Example:

```
Set the LSA arrival time interval to 2000 milliseconds.
Switch(config-ospf-router)# timers lsa arrival 2000
Restore LSA arrival time interval to default value
Switch(config-ospf-router)# no timers lsa arrival
Remove the configured LSA arrival time interval to restore it to the default value.
Switch(config-ospf-router)# no timers lsa arrival 2000
```

- Turn on/off advertise max metric

Command:

1. **max-metric router-lsa administrative**
2. **no max-metric router-lsa administrative**

Mode: Global OSPF configuration mode

Parameter: none

Description: Turn on/off advertise max metric

Example:

```
Enable Advertise Max Metrics
Switch(config-ospf-router)# max-metric router-lsa administrative
Closing notifications maximum metrics
Switch(config-ospf-router)# no max-metric router-lsa administrative
```

- configure/unset route metric

Command:

1. **distance ospf intra-area <1-255> inter-area <1-255> external <1-255>**
2. **no distance ospf**

Mode: Global OSPF configuration mode

Parameter:

Parameter	Description
intra-area <1-255>	Set the route metric value in the area, the default is 110
inter-area <1-255>	Set the routing metric between areas, the default is 110
external <1-255>	Set external routing metric, default 110

Description: configure/unset route metric

Example:

```
Configure routing metrics: 10 for intra-area routing metrics, 20 for inter-area routing metrics , and 30 for
external routing metrics.
Switch(config-ospf-router)# distance ospf intra-area 10 inter-area 20 external 30
Cancel routing metric
Switch(config-ospf-router)# no distance OSPF
```

- Configure/un-always advertise the default route

Command:

1. **default-route-advertise always metric <0-16777214> metric-type (1|2)**
2. **no default-route-advertise**

Mode: Global OSPF configuration mode

Parameter:

Parameter	Description
metric <0-16777214>	Specify the default route metric, default 1
metric-type (1|2)	Specifies the default routing metric type, default type 2

Description: Configure/un -always advertise the default route

Example:

```
Enable always advertise the default route, metric value 10 , metric type 1.
Switch(config-ospf-router)# default-route-advertise always metric 10 metric-type 1
Cancel always advertise the default route
Switch(config-ospf-router)# no default-route-advertise
```

- Import external routes

Command:

1. **import-route (connected|static|rip) [metric <0-16777214> metric-type (1|2)]**
2. **no import-route (connected|static|rip)**

Mode: Global OSPF configuration mode

Parameter:

Parameter	Description
bgp|connected|static|rip	Set the imported external route type
metric <0-16777214>	Set the redistributed metric value when importing external routes , default 1
metric-type (1|2)	Set the imported external route metric type, the default type is 2

Description: Import external routes

Example:

```
Introduce a directly connected route, metric value 10 , metric type 1.
Switch(config-ospf-router)# import-route connected metric 10 metric-type 1
Cancel the introduction of directly connected routes
Switch(config-ospf-router)# no import-route connected
```

Regional settings

- Stub area

Command:

1. **area {<0-4292967295>/ABCD} stub [no-summary]**

2. **no area {<0-4292967295>/ABCD} stub [no-summary]**

Mode: Global OSPF configuration mode

Parameter:

Parameter	Description
{<0-4294967295> / ABCD}	Zone ID, integer from 0-4294967295 or IPv4 address format
no-summary	Set whether to prohibit the ABR from sending LSA type 3 to the Stub area, that is, configure the area as a Totally Stub area

Description: set/unset locale as stub/totally stub

Example:

```
Set area 1 as stub area
Switch(config)# area 1 stub
Switch(config-ospf-router)# area 1 stub
Region 1 has been restored from a stub region to a normal region.
Switch(config-ospf-router)# no area 1 stub
```

- NSSA area

Command:

1. **area {<0-4294967295> / ABCD} nssa [(translate-candidate|translate-never|translate-always)] [no-summary]**
2. **no area {<0-4294967295> / ABCD} nssa [(translate-candidate|translate-never|translate-always)] [no-summary]**

Mode: Global OSPF configuration mode

Parameter:

Parameter	Description
{<0-4294967295> / ABCD}	Zone ID, integer from 0-4294967295 or IPv4 address format
{translate-always / translate-never}	Set NSSA conversion type, the default is Never
no-summary	Set whether to prohibit the ABR from sending LSA type 3 to the area, that is, configure the area as a Totally NSSA area

Description: configure/unset zone to nssa/totally nssa

Example:

```
Set region 1 as the NSSA region.
Switch(config)# area 1 nssa
Area 1 has been restored from the NSSA area to a normal area.
Switch(config-ospf-router)# no area 1 nssa
Set region 1 as a complete NSSA region.
Switch(config)# area 1 nssa no-summary
Region 1 was restored from a fully NSSA region to a normal region.
Switch(config-ospf-router)# no area 1 nssa
```

Interface OSPF configuration

- Configure area ID

Command:

1. **ip ospf area { <0-4294967295> /[ABCD]}**
2. **no ip ospf area { <0-4294967295> /[ABCD]}**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<0-4294967295> /[ABCD]	Zone ID, integer from 0-4294967295 or IPv4 address format, default is 0.0.0.0

Description: Configure/Cancel Zone ID

Example:

```
Configure the VLAN 10 interface in zone 1.
Switch(config)# interface vlan 10
Switch(config-if)#ip ospf area 1
Cancel the zone settings for VLAN 10 interface
Switch(config-if)# no ip ospf area
```

- Configure network type

Command:

1. **ip ospf network [(broadcast|non-broadcast|point-to-multipoint|point-to-point)]**
2. **no ip ospf network [(broadcast|non-broadcast|point-to-multipoint|point-to-point)]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
{ broadcast / non-broadcast/ point-to-multipoint/ point-to-point}	Set the network type of the interface , the default is broadcast

Description: Configure/Cancel Network Type. If it is set to NBMA type, additional NBMA neighbors need to be set.

Example:

```
enabling VLAN 10 interface is P2P.
Switch(config)# interface vlan 10
Switch(config-if)# ip ospf network point-to-point
Cancel the network type configuration of VLAN 10 interface
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf network
```

- Enable/disable interface suppression

Command:

1. **ip ospf suppress**
2. **no ip ospf suppress**

Mode: VLAN interface configuration mode

Parameter: none

Description: Enable/disable interface suppression function

Example:

```
Enable VLAN 10 interface suppression function
Switch(config)# interface vlan 10
Switch(config-if)#ip ospf suppress
Disable VLAN 10 interface suppression function
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf suppress
```

- Ignore MTU checksum

Command:

1. **ip ospf mtu-ignore**
2. **no ip ospf mtu-ignore**

Mode: VLAN interface configuration mode

Parameter: none

Description: Enable/disable ignore MTU check

Example:

```
Enable ignoring MTU verification on VLAN 10 interface
Switch(config)# interface vlan 10
Switch(config-if)#ip ospf mtu-ignore
Disable MTU checksum on VLAN 10 interface
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf mtu-ignore
```

- Configure/Cancel LSA Retransmission Interval

Command:

1. **ip ospf retransmit-interval [<3-65535>]**
2. **no ip ospf retransmit-interval [<3-65535>]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<3-65535>	Set the LSA retransmission interval (in seconds) , default 5

Description: Configure/Cancel LSA Retransmission Interval

Example:

```
Set the LSA retransmission interval for VLAN 10 interface to 10 seconds.
Switch(config)# interface vlan 10
Switch(config-if)#ip ospf retransmit-interval 10
Cancel the LSA retransmission interval configuration for VLAN 10 interface.
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf retransmit-interval 10
```

- Configure/Cancel LSA Transmission Delay Time

Command:

1. **ip ospf transmit-delay [<1-500>]**
2. **no ip ospf transmit-delay [<1-500>]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<1-500>	Set LSA transmission delay time (in seconds) , default 1

Description: Configure/Cancel LSA Transmission Delay Time

Example:

```
Set the LSA transmission delay time of VLAN 10 interface to 10 seconds.
Switch(config)# interface vlan 10
Switch(config-if)# ip ospf transmit-delay 10
Cancel the LSA transmission delay time configuration for VLAN 10 interface .
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf transmit-delay
```

- Configure/Cancel Hello Time Interval

Command:

1. **ip ospf hello-interval [<1-65535>]**
2. **no ip ospf hello-interval [<1-65535>]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<1-65535>	Set the time interval for the interface to send Hello packets (in seconds) , the default is 10.

Description: Configure/Cancel Hello Interval

Example:

```
Configure the Hello time interval for VLAN 10 interface to 20 seconds.
Switch(config)# interface vlan 10
Switch(config-if)#ip ospf hello-interval 20
Cancel the Hello time interval configuration for VLAN10 interface
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf hello-interval
```

- Configure/Disable Fast Hello

Command:

```
ip ospf dead-interval minimal hello-multiplier <1-10>
no ip ospf dead-interval minimal hello-multiplier <1-10>
```

Mode:
VLAN interface configuration mode

Parameter:

Parameter	Description
`dead-interval <1-65535>`	Time (in seconds) before a neighbor is considered down. Default is 40 seconds.
`hello-multiplier <1-10>`	Enables Fast Hello and sets how many Hello packets are sent per second. Default is 1.

Description:
Enable or disable the OSPF Fast Hello function on an interface. Fast Hello increases the frequency of Hello packets for faster neighbor detection.

Example:

```
Enable Fast Hello on VLAN 10, sending 10 Hello packets per second:
Switch(config)# interface vlan 10
Switch(config-if)# ip ospf dead-interval minimal hello-multiplier 10

Disable Fast Hello on VLAN 10:
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf dead-interval minimal hello-multiplier
```

- Configure /Disable Neighbor Dead Time

Command:

1. **ip ospf dead-interval [<1-65535>]**
2. **no ip ospf dead-interval [<1-65535>]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<*1-65535*> _	Set the failure time of adjacent neighbors (in seconds) , default 40

Description: Configure/Cancel Neighbor Dead Time

Example:

```
Configure the neighbor failure timeout for VLAN 10 interface to 10 seconds.
Switch(config)# interface vlan 10
Switch(config-if)#ip ospf dead-interval 10
Cancel the neighbor expiration time configuration for VLAN 10 interface.
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf dead-interval
```

- Configure/Cancel overhead value

Command:

1. **ip ospf cost [<1-65535>]**
2. **no ip ospf cost [<1-65535>]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<1-65535> _	Set the cost value of the interface, the default is 10

Description: Configure/deactivate the cost value of an interface

Example:

```
Set the overhead value for the VLAN 10 interface to 100.
Switch(config)# interface vlan 10
Switch(config-if)#ip ospf cost 100
Cancel the overhead value configuration for VLAN 10 interface.
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf cost
```

- Configure / Cancel Priority

Command:

1. **ip ospf priority [<0-255>]**
2. **no ip ospf priority [<0-255>]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<0-255> _	Set the priority when the interface selects DR, the default is 1

Description: Configure/Cancel Interface Priority

Example:

```
Set the priority of the VLAN 10 interface to 0.
Switch(config)# interface vlan 10
Switch(config-if)#ip ospf priority 0
Cancel the priority configuration of VLAN 10 interface.
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf priority
```

- Enable / Disable Authentication

Command:

1. **ip ospf authentication**
2. **no ip ospf authentication**

Mode: VLAN interface configuration mode

Parameter: none

Description: Enable/disable interface authentication

Example:

```
Enable authentication on VLAN 10 interface
Switch(config)# interface vlan 10
Switch(config-if)#ip ospf authentication
Disable authentication on VLAN 10 interface
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf authentication
```

- Configure Simple Authentication

Command:

```
ip ospf authentication-key [AUTH_KEY]
no ip ospf authentication-key [AUTH_KEY]
```

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
`AUTH_KEY`	Simple authentication key (1–8 characters).

Description: Configure or remove the simple authentication key for an interface.
Note: Removing the authentication key does not disable OSPF authentication — the feature will remain enabled.

Example:

```
Set the simple authentication key on VLAN 10 to "123456":
Switch(config)# interface vlan 10
Switch(config-if)# ip ospf authentication
Switch(config-if)# ip ospf authentication-key 123456

Remove the simple authentication key on VLAN 10 (authentication stays enabled):
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf authentication-key
```

- Configure MD5 Authentication

Command:

```
ip ospf authentication message-digest
no ip ospf authentication message-digest
ip ospf message-digest-key <1-255> [md5 KEY]
no ip ospf message-digest-key <1-255> [md5 KEY]
```

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
`message-digest-key <1-255>`	setting the key ID used for MD5 authentication of the interface,

Parameter	Description
`MD5 KEY <1-16>`	setting the key used for MD5 authentication of the interface, the input is limited to 1-16 characters .

Description: Enable or disable MD5 authentication on an interface, and configure the authentication key used by OSPF.

Example:

```
Enable MD5 authentication on VLAN 10, using key ID 1 and key "12345678":
Switch(config)# interface vlan 10
Switch(config-if)# ip ospf authentication message-digest
Switch(config-if)# ip ospf message-digest-key 1 md5 12345678

Disable MD5 authentication on VLAN 10:
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospf authentication message-digest
```

NBMA neighbor configuration

- Configuring NBMA neighbors

Command:

1. **neighbor ABCD [hello-interval <1-65535> priority <0-255>]**
2. **no neighbor ABCD [hello-interval <1-65535> priority <0-255>]**

Mode: Global OSPF configuration mode

Parameter:

Parameter	Description
ABCD	specify neighbor interface address
<1-65535>	(in seconds) for sending polling Hello packets on the NBMA network , the default is 6 0
<0-255>	Set the priority when participating in the DR election , the default is 0

Description: Configure/Cancel NBMA Neighborhood

Example:

```
Configure the neighbor settings with the interface address 192.168.10.2 , Hello interval of 20 seconds, and
priority 1.
Switch (config)# router ospf
Switch(config-ospf-router)# neighbor 192.168.10.2 hello-interval 20 priority 1
Cancel NBMA Neighbor
Switch (config)# router ospf
Switch(config-ospf-router)# no neighbor 192.168.10.2
```

View OSPF related information

- Check the OSPF routing table

Command: show ip ospf route

Mode: privileged EXEC mode

Parameter: none

Description: Check the OSPF routing table

Example:

```
Switch# show ip ospf route
```

- View OSPF neighbor information

Command: show ip ospf neighbor {A.B.C.D/detail}

Mode: privileged EXEC mode

Parameter:

Parameter	Description
ABCD	View the details of a specified neighbor by selecting the neighbor ID
detail	View all neighbor details

Description: View OSPF neighbor information

Example:

```
Check neighbor 2.2.2.2 information
Switch# show ip ospf neighbor 2.2.2.2
```

- View OSPF interface information

Command: show ip ospf {vlan <1-4094>}

Mode: privileged EXEC mode

Parameter:

Parameter	Description
vlan <1-4094>	Select to view the corresponding VLAN interface information

Description: View OSPF interface information

Example:

```
View OSPF information on VLAN 10 interfaces of the device
Switch# show ip ospf vlan 10
```

- View OSPF database

Command: show ip ospf database { asbr-summary / external/ max-age/ network/ nssa-external/ opaque-area/ opaque-as/ opaque-link/ router/ self-originate/ summary} { self-originate}

Mode: privileged EXEC mode

Parameter:

Parameter	Description
{ asbr-summary / external/ max-age/ network/ nssa-external/ opaque-area/ opaque-as/ opaque-link/ router/ self-originate/ summary}	View the corresponding database information by selecting the corresponding Type LSA
{self-originate}	Select to view the data information generated by the switch itself

Description: View OSPF database

Example:

```
View OSPF link state database
Switch# show ip ospf database
View link state information of Type 3 LSAs
Switch# show ip ospf database summary
the Type 1 LSA generated by the device itself
Switch# show ip ospf database router self-originate
```

- View OSPF statistics

Command: show ip ospf statistic interface {all/vlan <1-4094>}

Mode: privileged EXEC mode

Parameter:

Parameter	Description
vlan <1-4094>	Choose whether to view the corresponding vlan data statistics

Description: View OSPF statistics

Example:

```
View statistics on all OSPF interfaces on the device
Switch# show ip ospf statistic interface all
View the data statistics of the VLAN 10 interface of the device
Switch# show ip ospf statistic interface vlan 10
```

- View Interface Information in OSPF Enabled State

Command: `show ip ospf statistic interfaces`

Mode: Privileged EXEC mode

Parameter: None

Description: Display information about interfaces that are OSPF-enabled on the device.

Example:

```
View OSPF-enabled interface details:
Switch# show ip ospf interfaces
```

OSPFv3

Global OSPFv3 configuration

- Enable/disable global OSPF

Command:

1. **router ospfv3**
2. **no router ospfv3**

Mode: global configuration mode

Parameter: none

Description: Enabling/disabling the global OSPFv3 function.

Example:

```
Enable global OSPFv3 functionality
Switch(config)# router ospfv3
Disable global OSPFv3 functionality
Switch(config)# no router ospfv3
```

- Restart the OSPF process

Command: restart router ospfv3

Mode: global configuration mode

Parameter: none

Description: Restart the OSPFv3 process

Example:

```
Switch(config)# restart router ospfv3
```

- Configuring Router ID

Command:

1. **router-id ABCD**
2. **no router-id ABCD**
3. **no router-id**

Mode: Global OSPFv3 configuration mode

Parameter:

Parameter	Description
ABCD	Set the Router ID of the switch, configured in IPv4 address format.

Description: Configuring a Router ID

Example:

```
Set the Router ID to 1.1.1.1
Switch(config)# router ospfv3
Switch(config-ospfv3-router)# router-id 1.1.1.1
Delete Router ID
Switch(config)# router ospfv3
Switch(config-ospfv3-router)# no router-id
```

- Configure/Cancel Router Management Distance

Command: `distance ospfv3 intra-area <1-255> inter-area <1-255> external <1-255>`
`no distance ospfv3`

Mode: Global OSPFv3 configuration mode

Parameter:

Parameter	Description
`<1-255>`	Sets the administrative distance for intra-area, inter-area, and external routes. Default is 110.

Description: Configure or reset the OSPFv3 administrative distances for different route types.

Example:

```
Set OSPFv3 administrative distances to 110 for all route types:
Switch(config)# router ospfv3
Switch(config-ospfv3-router)# distance ospfv3 intra-area 110 inter-area 110 external 110

Reset OSPFv3 administrative distances to default:
Switch(config)# router ospfv3
Switch(config-ospfv3-router)# no distance ospfv3
```

- Configuring SPF Timers

Command:

1. **spf-schedule-interval [<0-600000> <0-600000> <0-600000>]**
2. **no spf-schedule-interval [<0-600000> <0-600000> <0-600000>]**

Mode: Global OSPFv3 Configuration Mode

Parameter:

Parameter	Description
<0-600000>	Set the SPF timer waiting time (in milliseconds) , the value range is an integer from 0 to 600000 , the default is 0
<0-600000>	Set the minimum time interval between two SPF timers (in milliseconds) . The value range is an integer from 0 to 600000. The default value is 5 0
<0-600000>	Set the maximum time interval between two SPF timers (in milliseconds) . The value range is an integer from 0 to 600000. The default value is 5000 .

Description: Configuring SPF Timers

Example:

```
Set the SPF timer to wait for 50 milliseconds, with a minimum time interval of 500 milliseconds and a
maximum time interval of 5000 milliseconds.
Switch(config)# router ospfv3
Switch(config-ospfv3-router)# spf-schedule-interval 50 500 5000
Cancel SPF timer
Switch(config)# router ospfv3
Switch(config-ospfv3-router)# no spf-schedule-interval
```

- Configuring LSA Arrival Time

Command:

1. **timers lsa arrival [<0-600000>]**
2. **no timers lsa arrival [<0-600000>]**

Mode: Global OSPFv3 Configuration Mode

Parameter:

Parameter	Description
<0-600000>	Set the minimum time to receive a new LSA (in milliseconds) . The value range is an integer from 0 to 600000. The default value is 1000 .

Description: Configuring LSA Arrival Time.

Example:

```
Configure LSA arrival time interval to 2000 milliseconds
Switch(config)# router ospfv3
Switch(config-ospfv3-router)# timers lsa arrival 2000
Cancel LSA arrival time interval configuration
Switch(config)# router ospfv3
Switch(config-ospfv3-router)# no timers lsa arrival
```

- Import External Routes

Command:

```
import-route (bgp | connected | static | ripng)
no import-route (bgp | connected | static | ripng)
```

Mode: Global OSPFv3 configuration mode

Parameter:

Parameter	Description
`bgp | connected | static | ripng`	Specifies the source of external routes to import into OSPFv3.

Description: Configure or remove the import of external routes into OSPFv3 from BGP, connected, static, or RIPng sources.

Example:

```
Import directly connected routes into OSPFv3:
Switch(config)# router ospfv3
Switch(config-ospfv3-router)# import-route connected

Remove the import of connected routes:
Switch(config)# router ospfv3
Switch(config-ospfv3-router)# no import-route connected
```

Regional settings

- Stub Area

Command:

1. **area {<0-4292967295>/ABCD} stub [no-summary]**
2. **no area {<0-4292967295>/ABCD} stub [no-summary]**

Mode: global configuration mode

Parameter:

Parameter	Description
{<0-4294967295> / ABCD}	Area ID , integer from 0 to 4294967295 or IPv4 address format.
no-summary	Set whether to prohibit the ABR from sending LSA type 3 to the stub area, that is, to configure the area as a totally stub area.

Description: Set/unset zone to stub/totally stub

Example:

```
Set region 1 as the stub region.
Switch(config)# router ospfv3
Switch(config-ospfv3-router)# area 1 stub
Cancel region 1 to stub region
Switch(config)# router ospfv3
Switch(config-ospfv3-router)# no area 1 stub
```

Interface OSPFv3 configuration

- Configuring the Area ID

Command:

1. **ipv6 ospfv3 area { <0-4294967295> /[ABCD]}**
2. **no ipv6 ospfv3 area { <0-4294967295> /[ABCD]}**

Mode: VLAN Interface Configuration Mode

Parameter:

Parameter	Description
<0-4294967295> /[ABCD]	Zone ID , an integer from 0 to 4294967295 or an IPv4 address. The default value is 0.0.0.0

Description: Configure/cancel region ID

Example:

```
Configure the VLAN 10 interface in zone 1.
Switch(config)# interface vlan 10
Switch(config-if)#ip ospfv3 area 1
Cancel the area configuration of VLAN 10 interface
Switch(config)# interface vlan 10
Switch(config-if)# no ip ospfv3 area
```

- Configuring the network type

Command:

1. **ipv6 ospfv3 network [(broadcast|point-to-point)]**
2. **no ipv6 ospfv3 network [(broadcast|point-to-point)]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
{ broadcast / point-to-point }	Set the network type of the interface , the default is broadcast

Description: Configure/cancel network type

Example:

```
enabling VLAN 10 interface is P2P.
Switch(config)# interface vlan 10
Switch(config-if)# ipv6 ospfv3 network point-to-point
Cancel the network type configuration of VLAN 10 interface
Switch(config)# interface vlan 10
Switch(config-if)# no ipv6 ospfv3 network
```

- Enable/disable interface suppression

Command:

1. **ipv6 ospfv3 suppress**
2. **no ipv6 ospfv3 suppress**

Mode: VLAN interface configuration mode

Parameter: none

Description: Enable/disable interface suppression function

Example:

```
Enable VLAN 10 interface suppression function
Switch(config)# interface vlan 10
Switch(config-if)# ipv6 ospfv3 suppress
Disable VLAN 10 interface suppression function
Switch(config)# interface vlan 10
Switch(config-if)# no ipv6 ospfv3 suppress
```

- MTU Settings

Command:

```
ipv6 ospfv3 mtu <1280-9216>
no ipv6 ospfv3 mtu <1280-9216>
```

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<1280-9216>	Sets the MTU (Maximum Transmission Unit) size for the OSPFv3 interface.

Description: Enable or disable MTU configuration for an OSPFv3-enabled interface.

Example:

```
Enable MTU on VLAN 10 and set it to 5000:
Switch(config)# interface vlan 10
Switch(config-if)# ipv6 ospfv3 mtu 5000

Disable MTU setting on VLAN 10:
Switch(config)# interface vlan 10
Switch(config-if)# no ipv6 ospfv3 mtu
```

- Ignore MTU check

Command:

1. **ipv6 ospfv3 mtu-ignore**
2. **no ipv6 ospfv3 mtu-ignore**

Mode: VLAN interface configuration mode

Parameter: none

Description: Enable/disable ignoring MTU check

Example:

```
Enable ignoring MTU verification on VLAN 10 interface
Switch(config)# interface vlan 10
Switch(config-if)# ipv6 ospfv3 mtu-ignore
Disable MTU checksum on VLAN 10 interface
Switch(config)# interface vlan 10
Switch(config-if)# no ipv6 ospfv3 mtu-ignore
```

- Configure/cancel the LSA retransmission interval

Command:

1. **ipv6 ospfv3 retransmit-interval [<1-65535>]**
2. **no ipv6 ospfv3 retransmit-interval [<1-65535>]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<1-65535>	Set the LSA retransmission interval (in seconds) , the default is 5

Description: Configure/cancel the LSA retransmission interval.

Example:

```
Set the LSA retransmission interval for VLAN 10 interface to 10 seconds.
Switch(config)# interface vlan 10
Switch(config-if)# ipv6 ospfv3 retransmit-interval 10
Cancel the LSA retransmission interval configuration for VLAN 10 interface.
Switch(config)# interface vlan 10
Switch(config-if)# no ipv6 ospfv3 retransmit-interval
```

- Configure/cancel the LSA transmission delay time

Command:

1. **ipv6 ospfv3 transmit-delay [<1-800>]**
2. **no ipv6 ospfv3 transmit-delay [<1-800>]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<1-800>	Set the LSA transmission delay time (in seconds) , the default is 1

Description: Configure/cancel the LSA transmission delay time

Example:

```
Set the LSA transmission delay time of VLAN 10 interface to 10 seconds.
Switch(config)# interface vlan 10
Switch(config-if)# ipv6 ospfv3 transmit-delay 10
Cancel the LSA transmission delay time configuration for VLAN 10 interface .
Switch(config)# interface vlan 10
Switch(config-if)# no ipv6 ospfv3 transmit-delay
```

- Configure/cancel the Hello time interval

Command:

1. **ipv6 ospfv3 hello-interval [<1-65535>]**
2. **no ipv6 ospfv3 hello-interval [<1-65535>]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<1-65535>	Set the interval (in seconds) for the interface to send Hello messages . The default value is 10.

Description: Configure/cancel the Hello time interval.

Example:

```
Configure the Hello time interval for VLAN 10 interface to 10 seconds.
Switch(config)# interface vlan 10
Switch(config-if)# ipv6 ospfv3 hello-interval 10
Cancel the Hello time interval configuration for VLAN10 interface
Switch(config)# interface vlan 10
Switch(config-if)# no ipv6 ospfv3 hello-interval
```

- Configure/cancel neighbor dead time

Command:

1. **ipv6 ospfv3 dead-interval [<1-65535>]**
2. **no ipv6 ospfv3 dead-interval [<1-65535>]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<1-65535 >	Set the expiration time of adjacent neighbors (in seconds) , the default is 40.

Description: Configure/cancel neighbor dead time

Example:

```
Configure the neighbor failure timeout for VLAN 10 interface to 10 seconds.
Switch(config)# interface vlan 10
Switch(config-if)# ipv6 ospfv3 dead-interval 10
Cancel the neighbor expiration time configuration for VLAN 10 interface
Switch(config)# interface vlan 10
Switch(config-if)# no ipv6 ospfv3 dead-interval
```

- Configure/cancel cost value

Command:

1. **ipv6 ospfv3 cost [<1-65535>]**
2. **no ipv6 ospfv3 cost [<1-65535>]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<1-65535 >	Set the interface cost value, the default is 10

Description: Configure/cancel the cost value of an interface

Example:

```
Set the overhead value for the VLAN 10 interface to 100.
Switch(config)# interface vlan 10
Switch(config-if)# ipv6 ospfv3 cost 100
Cancel the overhead value configuration for VLAN 10 interface.
Switch(config)# interface vlan 10
Switch(config-if)# no ipv6 ospfv3 cost
```

- Configure/Cancel Priority

Command:

1. **ipv6 ospfv3 priority [<0-255>]**
2. **no ipv6 ospfv3 priority [<0-255>]**

Mode: VLAN interface configuration mode

Parameter:

Parameter	Description
<0-255 >	Set the priority of the interface when selecting DR, the default is 1

Description: Configure/cancel interface priority

Example:

```
Set the priority of the VLAN 10 interface to 0.
Switch(config)# interface vlan 10
Switch(config-if)# ipv6 ospfv3 priority 0
Cancel the priority configuration of VLAN 10 interface.
Switch(config)# interface vlan 10
Switch(config-if)# no ipv6 ospfv3 priority
```

View OSPFv3 related information

- View the OSPFv3 routing table

Command: `show ipv6 ospfv3 route (X:X::X:X/M | X:X::X:X | detail | external-1 | external-2 | inter-area | intra-area | summary)`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`X:X::X:X/M`	Specify an IPv6 prefix
`X:X::X:X`	Specify an IPv6 address
`detail`	Display detailed routing information
`external-1`	Show type 1 external routes
`external-2`	Show type 2 external routes
`inter-area`	Show inter-area routing information
`intra-area`	Show intra-area routing information
`summary`	Show a summary of the routing table

Description: Display detailed or filtered OSPFv3 routing table information based on type, prefix, or address.

Example:

```
Switch# show ipv6 ospfv3 route
```

- View OSPFv3 neighbor information

Command: show ipv6 ospfv3 neighbor {ABCD/detail/ drchoice}

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
ABCD	View the details of a specific neighbor by selecting the neighbor ID
detail	View all neighborhood details
drchoice	Check the DR and BDR election status

Description: Check OSPFv3 neighbor information

Example:

```
View the information of neighbor 2.2.2.2
Switch# show ipv6 ospfv3 neighbor 2.2.2.2
```

- View OSPFv3 Aggregated Ethernet Port Information

Command: `show ipv6 ospfv3 interface { Ethernet port <1-4>/0/<1-28> | LAG<1-32> }`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`Ethernet port <1-4>/0/<1-28>`	Specify an Ethernet interface
`LAG<1-32>`	Specify a link aggregation (LAG) interface (IEEE 802.3)

Description: View OSPFv3 interface information for specified Ethernet or LAG ports.

Example:

```
Display OSPFv3 information for LAG1:
Switch# show ipv6 ospfv3 interface LAG 1

Note: If the port is under aggregation, the system may return:
"The L3 properties do not support configuration under the aggregation port.
```

- View OSPFv3 Interface Information

Command: `show ipv6 ospfv3 vlan <1-4094>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`vlan <1-4094>`	Selects the VLAN to view its OSPFv3 interface information.

Description: Display OSPFv3 configuration and status details for a specific VLAN interface.

Example:

```
View OSPFv3 information for VLAN 10:
Switch# show ipv6 ospfv3 vlan 10
```

- View the OSPFv3 database

Command: show ipv6 ospfv3 database { adv-router / as-external / detail / dump / group-membership / inter-prefix / inter-router / internal **/ intra-prefix / linkstate-id / link / network / router / type-7 } { self-originate}**

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
{ adv-router/as-external/detail/dump/group-membership/inter-prefix/inter-router/internal/intra-prefix/linkstate-id/link/network/router/type-7}	View the corresponding database information by selecting the corresponding Type LSA
{ self-originate }	Select to view the data information generated by the switch itself

Description: Check the OSPFv3 database

Example:

```
View the OSPFv3 link status database
Switch# show ipv6 ospfv3 database
```

- Viewing OSPFv3 Border Routers

Command: `show ipv6 ospfv3 border-routers {<cr> | <ABCD> | detail}`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`ABCD`	Specify the router ID
`detail`	Show detailed information

Description: Check OSPFv3 border router information, optionally filtered by router ID or with detailed output.

Example:

```
View all OSPFv3 border routers:
Switch# show ipv6 ospfv3 border-routers
```

- View OSPFv3 Link Status Information

Command: `show ipv6 ospfv3 border-routers { <cr> / detail / network[ABCD][ABCD] / router[ABCD] }`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`detail`	Show detailed information
`network[ABCD][ABCD]`	Specify a network entry using IPv4 format
`router[ABCD]`	Specify a router ID in IPv4 format

Description: Display OSPFv3 link-state information, including details for specific networks or routers.

Example:

```
View OSPFv3 link-state information:
Switch# show ipv6 ospfv3 linkstate
```

- View OSPFv3 SPF Tree

Command: `show ipv6 ospfv3 spf-tree { <cr> | area[ABCD] }`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`area[ABCD]`	Region (area) identifier in IPv4 format

Description: Display the OSPFv3 SPF (Shortest Path First) tree, optionally filtered by area.

Example:

```
View the OSPFv3 SPF tree:
Switch# show ipv6 ospfv3 spf-tree
```

BGP

Supported Devices: GWN78xx Layer 3 Managed Switches Models.

Global BGP Configuration

- Enable/disable global BGP

Command:

1. **router bgp** [<1-4294967295>]
2. **no router bgp**

Mode: Global Configuration Mode

Parameter:

Parameter	Description
<1-4294967295>	Set the AS number of BGP

Description: Enable/disable the global BGP function , and set the AS number when enabled.

Example:

```
//Enable the global BGP function and set the AS number to 65535
Switch(config)# router bgp 65535
```

- Configuring Router ID

Command:

1. **router-id** ABCD
2. **no router-id**

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
ABCD	Set the router ID of the switch in IPv4 address format

Description: Configuring Router ID.

Example:

```
//Set the router ID to 1.1.1.1
Switch(config)# router bgp 65535
Switch(config-bgp-router)# router-id 1.1.1.1
```

- Configuring Local Preference

Command:

1. **local-preference** <0-65535>
2. **no local-preference**

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
<0-65535>	Set the local preference of BGP

Description: Set the local preference of BGP.

Example:

```
Switch(config-bgp-router)# local-preference 100
```

- Best routing path comparison

Command:

1. **bestpath compare-routerid**
2. **no bestpath compare-routerid**

Mode: Global BGP Configuration Mode

Parameter: none

Description: best routing path comparison.

Example:

```
Switch(config-bgp-router)# bestpath compare-routerid
```

- Route flapping timer

Command:

1. **bgp-dampening** [<1-45>][<1-20000>][<1-20000>][<1-255>]
2. **no bgp-dampening**

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
<1-45>	Set the half-life of route flapping penalty
<1-20000>	the threshold for lifting the suppression of route flapping penalties
<1-20000>	the entry suppression threshold for route flapping penalties
<1-255>	Set the maximum suppression time for route flapping penalties

Description: Route flapping timer.

Example:

```
// Set the route flapping timer half-life to 60 , the suppression release threshold // to 750 , the entry
threshold to 2000 , and the suppression time to 60
Switch(config-bgp-router)# bgp-dampening 15 750 200 60
```

- Ignore AS path attribute

Command:

1. **bestpath as-path ignore**
2. **no bestpath as-path ignore**

Mode: Global BGP Configuration Mode

Parameter: none

Description: Ignore AS path attribute.

Example:

```
Switch(config-bgp-router)# bestpath as-path ignore
```

- Check the first AS number

Command:

1. **check-first-as**
2. **No check-first-as**

Mode: Global BGP Configuration Mode

Parameter: none

Description: Check the first AS number.

Example:

```
Switch(config-bgp-router)# check-first-as
```

BGP Peer Setting

- Configuring BGP Peers

Command:

1. **peer** [<ABCD>|<X:X::X:X>] **remote-as** <1-4294967295>
2. **no peer** [<ABCD>|<X:X::X:X>]

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
<ABCD>	Peer IP address
< X:X::X:X>	Peer IPv6 address
<1-4294967295>	Set the AS number of the BGP peer

Description: Configuring BGP Peers.

Example:

```
Switch(config-bgp-router)# peer 192.168.1.1 remote-as 65535
```

- Configuring the peer source interface

Command:

1. **peer** (ABCD|X:X::X:X) **connect** [loopback number| vlanif number]

2. **no peer** [<ABCD>|<X:X::X:X>] **connect**

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
<ABCD>	Peer IP address
< X:X::X:X>	Peer IPv6 address
loopback number	Set the peer source loopback port
vlanif number	Set the peer source VLAN interface

Description: Configuring the peer source interface.

Example:

```
// Set the peer source interface to VLAN 2
Switch(config-bgp-router)# peer 192.168.1.1 connect interface vlanif 2
```

- Configuring a peer description

Command:

1. **peer** [<ABCD>|<X:X::X:X>] **description** < WORD>
2. **no peer** [<ABCD>|<X:X::X:X>] **description**

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
<ABCD>	Peer IP address
< X:X::X:X>	Peer IPv6 address
WORD	Set the description of this peer

Description: Configuring a peer description.

Example:

```
// The description of configuring peer 192.168.1.1 is dut2
Switch(config-bgp-router)# peer 192.168.1.1 descriptor dut2
```

- Configure TTL related parameters

Command:

1. **peer** (ABCD|X:X::X:X) **ebgp-multihop** <1-255>
   no peer (ABCD|X:X::X:X) **ebgp-multihop**

2. **peer** (ABCD|X:X::X:X) **ttl-hops-security** <1-254>
   no peer (ABCD|X:X::X:X) **ttl-hops-security**

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
<ABCD>	Peer IP address
< X:X::X:X>	Peer IPv6 address
ebgp-multihop	Set the maximum number of hops for peer EBGP connections
ttl-hops-security	Set the peer GTSM hop count
<1-255 >	Maximum hop count range of peer EBGP connections
<1-254>	Peer GTSM hop count range

Description: Configure peer TTL related parameters . You can only choose one of the two options: EBGP maximum hop count and GTSM hop count.

Example:

```
// Configure the peer TTL parameter to ebgp-multihop 255
Switch(config-bgp-router)# peer 192.168.1.1 ebgp-multihop 255
```

- Suppress peer

Command:

1. **peer** [<ABCD>|<X:X::X:X>] **suppress**
2. **no peer [**<ABCD>|<X:X::X:X>**] suppress**

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
<ABCD>	Peer IP address
< X:X::X:X>	Peer IPv6 address
suppress	open messages to this peer

Description: Suppress peer

Example:

```
// Suppress peer 192.168.1.1
Switch(config-bgp-router)# peer 192.168.1.1 suppress
```

- Interrupt peer

Command:

1. **peer** [<ABCD>|<X:X::X:X>] **shutdown**
2. **no peer** [<ABCD>|<X:X::X:X>] **shutdown**

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
<ABCD>	Peer IP address
< X:X::X:X>	Peer IPv6 address
shutdown	Close this peer

Description: Interrupt peer

Example:

```
// Interrupt peer 192.168.1.1
Switch(config-bgp-router)# peer 192.168.1.1 shutdown
```

- Configuration Update Message Timer

Command:

1. **peer** (ABCD|X:X::X:X) **advertisement-interval** <1-600>
2. **no peer** (ABCD|X:X::X:X) **advertisement-interval**

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
<ABCD>	Peer IP address
< X:X::X:X>	Peer IPv6 address
<1-600>	Set the time to update the message

Description: Configuration Update Message Timer.

Example:

```
//Configure the update message timer to 600s
Switch(config-bgp-router)# peer 192.168.1.1 advertisement-interval 600
```

- Configuring MD5 Authentication

Command:

1. **peer** [<ABCD>|<X:X::X:X>] **password** [WORD]
2. **no peer** [<ABCD>|<X:X::X:X>] **password**

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
<ABCD>	Peer IP address
< X:X::X:X>	Peer IPv6 address
WORD	Set the peer's MD5 authentication key

Description: Configuring MD5 Authentication.

Example:

```
//Set the BGP peer 192.168.1.1 authentication key to 123456
Switch(config-bgp-router)# peer 192.168.1.1 password 123456
```

- Configuring Timers

Command:

1. **peer** [<ABCD>|<X:X::X:X>] **timer** [<1-21845>][<3-65535>][<1-65535>]
2. **no peer** [<ABCD>|<X:X::X:X>] **timer**

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
<ABCD>	Peer IP address
< X:X::X:X>	Peer IPv6 address
<1-21845>	Time to live timer
<3-65535>	Hold time timer
<1-65535>	Connection retransmission timer

Description: Configuring Timers

Example:

```
// Set the keepalive timer of peer 192.168.1.1 to 60s, the hold timer to 180s, and the reconnection timer to
120s
Switch(config-bgp-router)# peer 192.168.1.1 timer 60 180 120
```

- Reset BGP peer

Command: reset bgp neighbor (ABCD|X:X::X:X)

Mode: Global Configuration Mode

Parameter:

Parameter	Description
<ABCD>	Peer IP address
< X:X::X:X>	Peer IPv6 address

Description: Reset BGP peer

Example:

```
Switch(config)# reset bgp neighbor 192.168.1.1
```

- BGP peer soft reset

Command: refresh bgp neighbor [<ABCD>|<X:X::X:X>] **[export|import]**

Mode: Global Configuration Mode

Parameter:

Parameter	Description
<ABCD>	Peer IP address
< X:X::X:X>	Peer IPv6 address
export|import	BGP route refresh soft reset: send & receive

Description: BGP peer soft reset

Example:

```
Switch(config)# refresh bgp neighbor 192.168.1.1
```

Address Family Settings

- Enter address family settings

Command: address-family [ipv4 | ipv6] **{ unicast }**

Mode: Global BGP Configuration Mode

Parameter:

Parameter	Description
ipv4	Enter IPv4 address family mode
ipv6	Enter IPv6 address family mode
unicast	Unicast address family settings

Description: Enter address family command mode.

Example:

```
// Enter IPv4 unicast address family settings
Switch(config-bgp-router)# address-family ipv4 unicast
```

- IPv4 route aggregation

Command:

1. **aggregate-address** [ABCD/M] [summary-only] [as-set]
2. **no aggregate-address** [ABCD/M] [summary-only] [as-set]

Mode: IPv4 address family configuration

Parameter:

Parameter	Description
ABCD/M	IP *v4* address and mask of the aggregate network segment

summary-only	Filter unique routes from update routes
as-set	Generate AS setting path information

Description: IPv4 route aggregation.

Example:

```
// Configuring Route Aggregation
Switch (config-bgp-router)# address-family ipv4 unicast
Switch (config-bgp-router-af)# aggregate-address 192.168.1.1/24 summary-only as-set
```

- Import IPv4 routes

Command:

1. **import-route ipv4** [connected| ospf| rip|static]
2. **no import-route ipv4** [connected| ospf| rip|static]

Mode: IPv4 address family configuration

Parameter:

Parameter	Description
connected	Introducing direct routes into BGP
static	Introducing static routes into BGP
rip	Importing RIP routes into BGP
ospf	Importing OSPF routes into BGP

Description: Import IPv4 routes

Example:

```
// Importing OSPF Routes in BGP
Switch (config-bgp-router-af)# import-route ipv4 ospf
```

- Introducing IPv4 Routing in Network Mode

Command:

1. **network** [ABCD/M]
2. **no network** [ABCD/M]

Mode: IPv4 address family configuration

Parameter:

Parameter	Description
ABCD/M	The IP address and mask of the route imported in Network mode

Description: Introduce routes in Network mode

Example:

```
// Introduce the 192.168.1.0/24 network segment route in Network mode
Switch (config-bgp-router-af)# network 192.168.1.0/24
```

- IPv6 route aggregation

Command:

1. **aggregate-address** X:X::X:X/M [summary-only]
2. **no aggregate-address** X:X::X:X/M [summary-only]

Mode: IPv6 Address Family Configuration

Parameter:

Parameter	Description
X:X::X:X/M	IP *v6* address and mask of the aggregate network segment
summary-only	Filter unique routes from update routes

Description: IPv6 route aggregation

Example:

```
// Configuring Route Aggregation
Switch (config-bgp-router)# address-family ipv6 unicast
Switch (config-bgp-router-af)# aggregate-address 2001::1/64 summary-only
```

- Import IPv6 routes

Command:

1. **import-route ipv6** [connected| ospfv3| ripng |static]
2. **no import-route ipv6** [connected| ospfv3 | ripng |static]

Mode: IPv6 Address Family Configuration

Parameter:

Parameter	Description
connected	Introducing direct routes into BGP
static	Introducing static routes into BGP
ripng	Introducing rip ng routes into BGP
OSPFv3	Importing OSPFv3 routes into BGP

Description: Import IPv6 routes

Example:

```
// Importing OSPF Routes in BGP
Switch (config-bgp-router-af)# import-route ipv6 ospf
```

- Introducing IPv6 Routing in Network Mode

Command:

1. **network** [X:X::X:X/M]
2. **no network** [X:X::X:X/M]

Mode: IPv6 Address Family Configuration

Parameter:

Parameter	Description
X:X::X:X/M	IPv6 address and mask of the route imported in Network mode

Description: Introduce routes in Network mode

Example:

```
// Introduce the 2001::1/64 network segment route in Network mode
Switch (config-bgp-router-af)# network 2001::1/64
```

- Enable peer

Command:

1. **peer** (ABCD|X:X::X:X) **enable**
2. **no peer** (ABCD|X:X::X:X) **enable**

Mode: Address family configuration

Parameter:

Parameter	Description
ABCD	Peer IPv4 address
X:X::X:X	Peer IPv6 address

Description: Enable peer

Example:

```
// Enable IPv4 peer 192.168.1.1
Switch (config-bgp-router-af)# peer 192.168.1.1 enable
```

- Advertise all paths

Command:

1. **peer** (ABCD|X:X::X:X) **addpath-tx-all-paths**
2. **no peer** (ABCD|X:X::X:X) **addpath-tx-all-paths**

Mode: Address family configuration

Parameter:

Parameter	Description
ABCD	Peer IPv4 address
X:X::X:X	Peer IPv6 address

Description: Advertise all paths

Example:

```
// IPv4 peer 192.168.1.1 advertises all paths
Switch (config-bgp-router-af)# peer 192.168.1.1 addpath-tx-all-paths
```

- Advertise the best path for each AS

Command:

1. **peer** (ABCD|X:X::X:X) **addpath-tx-bestpath-per-as**
2. **no peer** (ABCD|X:X::X:X) **addpath-tx-bestpath-per-as**

Mode: Address family configuration

Parameter:

Parameter	Description
ABCD	Peer IPv4 address
ABCD/M	Peer IPv6 address

Description: Advertise the best path for each AS

Example:

```
// IPv4 peer 192.168.1.1 advertises the best path for each AS
Switch (config-bgp-router-af)# peer 192.168.1.1 addpath-tx-bestpath-per-as
```

- Configure to receive the same AS path as itself

Command:

1. **peer** (ABCD|X:X::X:X) **allowas-in (<1-10>|origin)**
2. **no peer** (ABCD|X:X::X:X) **allowas-in**

Mode: Address family configuration

Parameter:

Parameter	Description
ABCD	Peer IPv4 address
X:X::X:X	Peer IPv6 address
<1-10>	The number of occurrences of the local AS number allowed to be received
origin	Allow receiving routes generated by local AS numbers

Description: Configure to receive the same AS path as itself.

Example:

```
// IPv4 peer 192.168.1.1 receives the route generated by the local AS number
Switch (config-bgp-router-af)# peer 192.168.1.1 allowas-in origin
```

- Advertise the default route

Command:

1. **peer** (ABCD|X:X::X:X) **default-originate**
2. **no peer** (ABCD|X:X::X:X) **default-originate**

Mode: Address family configuration

Parameter:

Parameter	Description
ABCD	Peer IPv4 address
X:X::X:X	Peer IPv6 address

Description: Advertise the default route

Example:

```
// IPv4 peer 192.168.1.1 advertises default route
Switch (config-bgp-router-af)# peer 192.168.1.1 default-originate
```

- Configuring the Maximum Number of Prefixes

Command:

1. **peer** (ABCD|X:X::X:X) **maximum-prefix** <1-12288>
2. **no peer** (ABCD|X:X::X:X) **maximum-prefix**

Mode: Address family configuration

Parameter:

Parameter	Description
ABCD	Peer IPv4 address
X:X::X:X	Peer IPv6 address
<1-12288>	Maximum number of prefixes

Description: Configuring the Maximum Number of Prefixes.

Example:

```
// IPv4 peer 192.168.1.1 is 128
Switch (config-bgp-router-af)# peer 192.168.1.1 maximum-prefix 128
```

- The next hop is set to its own address

Command:

1. **peer** (ABCD|X:X::X:X) **next-hop-self**
2. **no peer** (ABCD|X:X::X:X) **next-hop-self**

Mode: Address family configuration

Parameter:

Parameter	Description
ABCD	Peer IPv4 address
X:X::X:X	Peer IPv6 address

Description: The next hop is set to its own address

Example:

```
// IPv4 peer 192.168.1.1 is set to its own address
Switch (config-bgp-router-af)# peer 192.168.1.1 next-hop-self
```

- Delete /replace private AS number

Command:

1. **peer** (ABCD|X:X::X:X) **remove-private-as** [replace-as]
2. **no peer** (ABCD|X:X::X:X) **remove-private-as**

Mode: Address family configuration

Parameter:

Parameter	Description
ABCD	Peer IPv4 address
X:X::X:X	Peer IPv6 address
replace-as	Optional deletion and replacement of private AS numbers

Description: Delete /replace private AS number

Example:

```
// IPv4 peer 192.168.1.1 removes private AS number
Switch (config-bgp-router-af)# peer 192.168.1.1 remove-private-as
```

- Receiving route refresh

Command:

1. **peer** (ABCD|X:X::X:X) **soft-reconfiguration inbound**
2. **no peer** (ABCD|X:X::X:X) **soft-reconfiguration inbound**

Mode: Address family configuration

Parameter:

Parameter	Description
ABCD	Peer IPv4 address
X:X::X:X	Peer IPv6 address

Description: Configure route refresh in the receiving direction.

Example:

```
// route refresh for the receiving direction of peer 192.168.1.1
Switch (config-bgp-router-af)# peer 192.168.1.1 soft-reconfiguration inbound
```

- Route filtering

Command:

1. **peer** (ABCD|X:X::X:X) **[access-list| prefix-list][WORD] [in|out]**
2. **no peer** (ABCD|X:X::X:X) **[access-list| prefix-list] [WORD] [in|out]**

Mode: Address family configuration

Parameter:

Parameter	Description
<ABCD>	Peer IP address
X:X::X:X	Peer IPv6 address
access-list	Access List Filtering
prefix-list	Prefix list filtering
WORD	Name of the access list/prefix list
in	Filter inbound routes
out	Filter outbound routes

Description: Configuring route filtering

Example:

```
// Set the access list qq for the first 192.168.1.1 to filter the inbound and outbound directions
Switch (config-bgp-router-af)# peer 192.168.1.1 access-list qq in
Switch (config-bgp-router-af)# peer 192.168.1.1 access-list qq out
```

View BGP related information

- View the BGP routing table

Command: show bgp [ip|ipv6] route

Mode: Privileged EXEC mode

Parameter:

Parameter	Description

IP	IP Information
IPv6	IPv6 Information

Description: View the BGP routing table

Example:

```
Switch# show bgp ip route
```

- Check BGP neighbor information

Command: show bgp [ip|ipv6] neighbors

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
IP	IP Information
IPv6	IPv6 Information

Description: Check BGP neighbor information

Example:

```
// View Neighbor Information
Switch# show bgp ip neighbors
```

- View BGP route filtering information

Command: show bgp [ip|ipv6] [access-list| prefix-list]

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
IP	IP Information
IPv6	IPv6 Information

Description: view BGP route filtering information.

Example:

```
// View the BGP route filtering information of the device
Switch# show bgp ip access-list
```

- Check BGP route flapping

Command: show bgp dampening [dampened-paths| flap-statistics| parameters]

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
parameters	Check the detailed configuration information of BGP route flapping
dampened-paths	View BGP route flapping statistics
flap-statistics	Check the path suppression information of BGP route flapping

Description: Check BGP route flapping information

Example:

```
// Check the detailed configuration information of BGP route flapping
Switch# show bgp dampening parameters
```

- View BGP Nexthop table

Command: showbgp nexthop detail

Mode: Privileged EXEC mode

Parameter: none

Description: View BGP Nexthop table

Example:

```
// View BGP Nexthop table
Switch# show bgp nexthop detail
```

- View the BGP database

Command:

1. **show bgp neighbors** (ABCD|X:X::X:X) (detail|received-routes|advertised-routes|routes|prefix-counts|dampened-routes|flap-statistics)
2. **show bgp prefix** [ABCD/M| X:X::X:X/M] [bestpath]

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
ABCD	Peer IP address
X:X::X:X	Peer IPv6 address
detail|received-routes|advertised-routes|routes|prefix-counts|dampened-routes|flap-statistics	Select to view the data information generated by the switch itself
ABCD /M	IP v 4 addresses and prefix lengths
X:X::X:X /M	IPv6 Address and Prefix Length
BestPath	Only show the best paths in the database

Description: View the BGP database

Example:

```
// Check the neighbor status of BGP 192.168.1.1
Switch# show bgp neighbors 192.168.1.1 detail

// View the optimal path of the BGP neighbor status of 172.168.10.155/23
Switch# show bgp prefix 172.168.10.155/23 bestpath
```

Routing Policy

> **Note:**
>
> Supported only on GWN78xx layer 3 switches.

IPv4 Access List

- Create/Delete Permit Rules

Command:

1. `ip access-list WORD permit ABCD/M`
2. `no ip access-list WORD`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
WORD	Rule name (1–64 characters). Supports letters and special characters, but cannot contain numbers (0–9) or any of the following: " `\ ? / ; , _` ".
ABCD/M	IP address and subnet mask (CIDR notation)

Description: Create or delete permit rules in an Access List.

Example:

```
// Create an IPv4 Access List routing policy named "test" to allow receiving/advertising routes
// destined for the 10.1.1.0/24 network segment:
Switch(config)# ip access-list test permit 10.1.1.0/24

// Delete the IPv4 Access List rule "test":
Switch(config)# no ip access-list test
```

- View Rules

Command: show ip access-list

Mode: Privileged EXEC mode

Parameter: none

Description: view all IPv4 Access-list rules

Example:

```
// View all currently configured IPv4 Access-list rules
Switch# show ip access-list

ip access-list aaa permit 7.8.1.3/32

ip access-list test permit 10.1.1.0/24
```

IPv6 Access List

- Create/Delete Permit Rules (IPv6)

Command:

1. `ipv6 access-list WORD permit X:X::X:X/M`
2. `no ipv6 access-list WORD`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
WORD	Rule name (1–64 characters). Supports letters and special characters, but cannot contain numbers (0–9) or any of the following: " `\ ? / ; , _` ".
X:X::X:X/M	IPv6 address and subnet mask (CIDR notation)

Description: Create or delete permit rules in an IPv6 Access List.

Example:

```
// Delete the IPv6 Access List rule "test":
Switch(config)# no ipv6 access-list test
```

- View Rules

Command: show ipv6 access-list

Mode: Privileged EXEC mode

Parameter: none

Description: View all IPv6 Access-list rules

Example:

```
// View all currently configured IP v6 Access-list rules
Switch# show ipv6 access-list

ipv6 access-list test permit 2055::/64
```

IPv4 Prefix List

- Create/Delete Permit Rules (Prefix List)

Command:

1. `ip prefix-list WORD seq <1-4294967295> permit ABCD/M`
2. `no ip prefix-list WORD [seq <1-4294967295>]`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
WORD	Rule name (1–64 characters). Supports letters and special characters, but cannot contain numbers (0–9) or any of the following: " `\ ? / ; , _` ".
<1–4294967295>	Rule ID (sequence number)
ABCD/M	IP address and subnet mask

Description: Create or delete prefix list permit rules.

Example:

```
// Create an IPv4 Prefix List routing policy named "test"
// to allow receiving/advertising routes to the following destinations:
// 10.1.1.0/24 and 20.1.1.0/24:
Switch(config)# ip prefix-list test seq 1 permit 10.1.1.0/24
Switch(config)# ip prefix-list test seq 2 permit 20.1.1.0/24

// Delete the entire IPv4 Prefix List routing policy "test":
Switch(config)# no ip prefix-list test

// Delete only the sub-rule "seq 1" from the prefix list "test":
Switch(config)# no ip prefix-list test seq 1
```

- View Rules

Command: show ip prefix -list

Mode: Privileged EXEC mode

Parameter: none

Description: View all IPv4 prefix-list rules

Example:

```
// View all currently configured ip v4 prfix -list rules
Switch# show ip prfix -list

ip prefix-list test seq 1 permit 204.1.1.0/29
ip prefix-list test seq 2 permit 204.1.1.0/30

ip prefix-list caseA seq 1 permit 100.1.1.1/32
ip prefix-list caseB seq 1 permit 100.2.2.2/32
ip prefix-list caseC seq 1 permit 100.3.3.3/32
```

IPv6 Prefix List

- Create/Delete Permit Rules (IPv6 Prefix List)

Command:

1. `ipv6 prefix-list WORD seq <1-4294967295> permit X:X::X:X/M`
2. `no ipv6 prefix-list WORD [seq <1-4294967295>]`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
WORD	Rule name (1–64 characters). Supports letters and special characters, but cannot contain numbers (0–9) or any of the following: " `\ ? / ; , _` ".
<1–4294967295>	Rule ID (sequence number)
X:X::X:X/M	IPv6 address and subnet mask

Description: Create or delete permit rules in an IPv6 prefix list.

Example:

```
// Create an IPv6 Prefix List routing policy named "test"
// that allows receiving/advertising routes to the following networks:
// 2001::/64 and 2002::/64 respectively:
Switch(config)# ipv6 prefix-list test seq 1 permit 2001::/64
Switch(config)# ipv6 prefix-list test seq 2 permit 2002::/64

// Delete the entire IPv6 Prefix List routing policy "test":
Switch(config)# no ipv6 prefix-list test

// Delete only sub-rule seq 1 of the prefix list "test":
Switch(config)# no ipv6 prefix-list test seq 1
```

- View Rules

Command: show ipv6 prefix -list

Mode: Privileged EXEC mode

Parameter: none

Description: View all IPv6 prefix-list rules

Example:

```
// View all currently configured ip v6 prfix -list rules
Switch# show ip v6 prfix -list
```

POE

> **Note:**
>
> This section only applies to GWN78xxP switches with PoE/PoE+/PoE++ support.

Configure PoE global attributes

Configure PoE Reserved Power

Command:

1. `poe reserved_power <power-value>`
2. `poe reserved_power <power-value> member <member-id>`
3. `do show poe`
4. `do show poe member <member-id>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<power-value>`	The reserved power value in Watts. The range varies by model: 0-119W (GWN7801P/GWN7811P/GWN7801P Pro); 0-239W (GWN7802P/GWN7812P/GWN7821P/GWN7802P Pro/GWN7803PL Pro); 0-359W (GWN7803P/GWN7813P/GWN7822P); 0-399W (GWN7806P/GWN7803PH Pro/GWN7806PL Pro); 0-719W (GWN7806PH Pro); and 0-739W (GWN7816P).
`<member-id>`	The stack member ID. The value range is 1-4 for models GWN7806P/GWN7811P/GWN7812P/GWN7813P/GWN7816(P)/GWN7821P/GWN7822P, and 1-8 for GWN7806PL Pro/GWN7806PH Pro.

Description: Configures the total reserved PoE power allocation for the switch or a specific switch within a stack. Also provides commands to view the current PoE status and power allocation details.

Example:

```
Switch# configure
Switch(config)# poe reserved_power 100
Switch(config)# poe reserved_power 20 member 2
Switch(config)# do show poe
Switch(config)# do show poe member 2
```

Configure PoE Restart

Command:

1. `poe soft_reboot`
2. `poe soft_reboot member <member-id>`
3. `do show poe`
4. `do show poe member <member-id>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<member-id>`	The stack member ID. The value range is 1-4 for models GWN7806P/GWN7811P/GWN7812P/GWN7813P/GWN7816(P)/GWN7821P/GWN7822P, and 1-8 for GWN7806PL Pro/GWN7806PH Pro.

Description: Reboots all PoE interfaces on the switch or on a specific stack member. Also provides commands to view the current PoE information.

Example:

```
Switch> enable
Switch# configure
Switch(config)# poe soft_reboot
Switch(config)# do show poe
Switch(config)# poe soft_reboot member 2
Switch(config)# do show poe member 2
```

Enable/Disable PoE Port Protection

Command:

1. `poe port_protect`
2. `poe port_protect member <member-id>`
3. `no poe port_protect`
4. `no poe port_protect member <member-id>`

Mode: Global Configuration Mode

Parameter:

Parameter	Description
`<member-id>`	The stack member ID. The value range is 1-4 for models GWN7806P/GWN7811P/GWN7812P/GWN7813P/GWN7816(P)/GWN7821P/GWN7822P, and 1-8 for GWN7806PL Pro/GWN7806PH Pro.

Description: Enables or disables PoE port protection globally or for a specific stack member. When enabled, if a PoE error occurs three times in a row within one minute, the system will immediately disable the port to protect it. Use the `no` form of this command to disable port protection.

Example:

```
Switch> enable
Switch# configure
Switch(config)# poe port_protect
Switch(config)# poe port_protect member 2
```

Configure PoE interface properties

Configure the Interface Power Supply Mode

Command:

- `poe mode { enable | forcepower | disable }`
- `do show poe Ethernet interface-id`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
enable	Automatic power supply mode
forcepower	Forced power supply mode

Parameter	Description
disable	Power off mode
Ethernet interface-id	Switch Ethernet port

Description:

- `poe mode { enable | forcepower }` : Enables PoE on the interface.
- `poe mode disable` : Disables PoE on the interface.
- `do show poe Ethernet interface-id` : Displays PoE interface information.

By default, PoE is enabled and operates in automatic power supply mode.

Example:

```
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# poe mode enable
Switch(config-if)# poe mode disable

Switch(config)# do show poe Ethernet 1/0/1-1/0/8
```

Configure PoE Interface Priority

Command:

- `poe priority { critical | high | low }`
- `do show poe Ethernet interface-id`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
critical	Highest priority
high	Second highest priority
low	Lowest priority
Ethernet interface-id	Switch Ethernet port

Description:

- `poe priority { critical | high | low }` : Configures the PoE interface priority.
- `do show poe Ethernet interface-id` : Displays PoE interface information.

Example:

```
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# poe priority critical

Switch(config)# do show poe Ethernet 1/0/1 - 1/0/8
```

Configure PoE Interface Power Supply Standard

Command:

- `poe af_at { af | at }`
- `poe standard { af | at | bt }`
- `do show poe Ethernet interface-id`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
af	Power supply standard is PoE
at	Power supply standard is PoE+
bt	Power supply standard is PoE++ (Type 3)
Ethernet interface-id	Switch Ethernet port

Description:

- `poe af_at { af | at }` : Configures the PoE interface power supply mode.
  Supported models: GWN78xx models with PoE/PoE+ support.
- `poe standard { af | at | bt }` : Configures the PoE interface power standard.
  Supported models: GWN78xx models with PoE/PoE+/PoE++ support.
- `do show poe Ethernet interface-id` : View PoE interface information.

Example:

```
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# poe af_at af
Switch(config)# do show poe Ethernet 1/0/1-1/0/8
```

Configure Maximum Power Supply of PoE Interface

Command:

1. `poe limit <1-30>`
2. `poe limit_bt <1-60>`
3. `do show poe Ethernet <interface-id>`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`<1-30>`	The maximum power supply limit for standard PoE interfaces (1 to 30W).
`<1-60>`	The maximum power supply limit for 802.3bt PoE interfaces (1 to 60W). Supported models and ports: GWN7813P/GWN7816P/GWN7821P/GWN7806PH Pro ports 1/0/1-1/0/8, GWN7822P ports 1/0/17-1/0/24, GWN7802P Pro ports 1/0/1-1/0/4, GWN7803PH Pro ports 1/0/1-1/0/24.

Description: Configures the maximum power supply limit for the specified PoE interface. Standard PoE interfaces support up to 30W, while specific 802.3bt capable ports support up to 60W. Use the `do show poe` command to view the interface's PoE information.

Example:

```
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# poe limitmode user
Switch(config-if)# poe limit 20
Switch(config-if)# exit
Switch(config)# do show poe Ethernet 1/0/1-1/0/8
```

Configure PoE Interface Limit Mode

Command:

- `poe limitmode { class | user }`
- `do show poe Ethernet interface-id`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
class	Automatic power limit configuration
user	Custom power limit configuration
Ethernet interface-id	Ethernet port

Description:

- `poe limitmode { class | user }` : Configures the PoE interface power limit mode.
- `do show poe Ethernet interface-id` : Displays PoE interface information.

Example:

```
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# poe limitmode user
Switch(config-if)# poe limit 20
Switch(config)# do show poe Ethernet 1/0/1 - 1/0/8
```

Configure PoE Power Schedule Strategy

Command:

1. `poe schedule id <id> mode class`
2. `poe schedule id <id> mode {forcepower | user} pmax <1-30>`
3. `poe schedule id <id> mode {forcepower | user} pmax_bt <1-60>`
4. `no schedule use poe`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
`<id>`	The time schedule policy ID. The value ranges from 1 to 32.
`class`	Configures the port to use an automatic power limit.
`forcepower`	Configures the port to use a forced power limit.

Parameter	Description
`user`	Configures the port to use a custom user-defined power limit.
`pmax <1-30>`	Maximum power limit for standard PoE interfaces (1 to 30W).
`pmax_bt <1-60>`	Maximum power limit for 802.3bt PoE interfaces (1 to 60W). Supported models and ports: GWN7813P/GWN7816P/GWN7821P/GWN7806PH Pro ports 1/0/1-1/0/8; GWN7822P ports 1/0/17-1/0/24; GWN7802P Pro ports 1/0/1-1/0/4; GWN7803PH Pro ports 1/0/1-1/0/24.

Description: Configures a time-based power schedule policy for the PoE interface. This allows administrators to apply different power limit modes (automatic, forced, or user-defined) according to a predefined schedule ID. Use the `no` form of the command to disable the schedule policy on the port.

Example:

```
Switch> enable
Switch# configure
Switch(config)# interface Ethernet 1/0/1

# Port 1 uses time-based schedule ID 1 with automatic power limit
Switch(config-if)# poe schedule id 1 mode class

# Port 1 uses time-based schedule ID 1 with custom user limits
Switch(config-if)# poe schedule id 1 mode user pmax 30
Switch(config-if)# poe schedule id 1 mode user pmax_bt 60

# Port 1 uses time-based schedule ID 1 with forced power limits
Switch(config-if)# poe schedule id 1 mode forcepower pmax 30
Switch(config-if)# poe schedule id 1 mode forcepower pmax_bt 60

# Disable the time schedule policy on Port 1
Switch(config-if)# no schedule use poe
```

View PoE Related Information

Command:

- **`show poe`**
- **`show poe chip`**
- **`show poe chip member member`**`-id`
- **`show poe`** `Ethernet interface-id`

Mode: Privileged EXEC Mode

Parameter:

Parameter	Description
member-id	The stack member IDs. Note: GWN7806P/GWN7811P/GWN7812P/GWN7813P/GWN7816(P)/GWN7821P/GWN7822P have a value range of <1-4> , while GWN7806PL Pro/GWN7806PH Pro have a value range of <1-8>.
Ethernet interface-id	Ethernet port

Description:

- `show poe` : Displays global PoE information.

- `show poe chip` : Displays PoE chip details. ***Example:*** *GWN7801P and GWN7802P have 1 chip; GWN7803P has 3 chips. Actual chip count depends on the device model.*
- `show poe chip member <id>` : Displays chip info for a specific stack member.
- `show poe Ethernet interface-id` : Displays PoE status for a specific port.

Example:

```
Switch# show poe
Switch# show poe chip
Switch# show poe chip member 1
Switch# show poe Ethernet 1/0/1 - 1/0/8
```

QOS

Configure Port QoS Trust Mode

Command:

- `qos trust { 802.1p | 802.1p-dscp | dscp | ip-precedence | none }`
- `no qos trust`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
802.1p	Trust 802.1p priority
802.1p-dscp	Trust both 802.1p and DSCP priority (DSCP takes priority)
dscp	Trust DSCP priority only
ip-precedence	Trust IP precedence priority
none	Do not trust any priority (default)

Description:

- `qos trust` : Configures the QoS trust mode for a specific port.
- By default, the trust mode is set to `none` .

Example:

```
Switch> enable
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# qos trust dscp
Switch(config-if)# do show qos interface Ethernet 1/0/1
```

Configure port priority

Command: qos cos *<0-7>*

Mode: interface configuration mode

Parameter:

Parameter	Description
<0-7>	The allowed CoS value range is 0-7

Description:

1. **qos cos** : Used to configure the default priority of the port.
2. By default, the port priority is 0.

Example:

```
Switch > enable
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# qos cos 3
Switch(config-if)# do show qos interface Ethernet 1/0/1
```

Configure port remarking

Command:

1. **qos remark (cos| dscp| precedence)**
2. **no qos remark (cos| dscp| precedence)**

Mode: interface configuration mode

Parameter:

Parameter	Description
cos	Re-mark CoS priority
dscp	Remark DSCP Priority
precedence	Remark IP priority

Description:

1. **qos remark (cos| dscp| precedence):** This command is used to configure the remark priority of the port.
2. **no qos remark (cos| dscp| precedence):** This command is used to delete the port remark configuration.

By default, the remark function is disabled for all ports.

After remarking is enabled, the corresponding remarking mapping table needs to be configured synchronously.

Note: dscp and IP priority re-marking functions cannot be enabled at the same time.

Example:

```
Switch > enable
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch (config-if) # qos trust dscp
Switch(config-if)# do show qos interface Ethernet 1/0/1
```

Configure CoS – Queue Mapping Table

Command:

1. **qos map cos-queue** *<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7>* **to** *<0-7>*
2. **show qos map cos-queue**

Mode: global configuration mode

Parameter:

Parameter	Description
[<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7>]	Select one or more CoS values
<0-7>	Select a queue for the target CoS value, the queue index is 0~7

Description:

1. **qos map cos-queue *<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7>*** to ***<0-7>*** : Configure queue values for each CoS value
2. **show qos map cos-queue** : View configuration

Example:

```
Switch > enable
Switch# configure
Switch (config) # qos map cos-queue 0 to 1
Switch (config) # qos map cos-queue 2 3 4 to 7
Switch (config) # do show qos map cos-queue
```

Configure DSCP – Queue Mapping Table

Command:

1. **qos map dscp-queue** *<0-63> <0-63> <0-63> <0-63> <0-63> <0-63> <0-63> <0-63>* **to** *<0-7>*
2. **show qos map dscp-queue**

Mode: global configuration mode

Parameter:

Parameter	Description
[<0-63> <0-63> ...<0-63>]	Select one or more dscp values, it is recommended to select up to 8 dscp values at the same time
<0-7>	Select a queue for the target dscp value, the queue index is 0~7

Description:

1. **qos map dscp-queue** *<0-63> <0-63> <0-63> <0-63> <0-63> <0-63> <0-63> <0-63>* **to** *<0-7>:* configure each Queue value for DSCP value
2. **show qos map dscp-queue:** View configuration

Example:

```
Switch > enable
Switch# configure
Switch (config) # qos map dscp -queue 50 to 7
Switch (config) # qos map dscp-queue 0 1 2 3 4 5 6 7 to 2
Switch (config) # do show qos map dscp-queue
```

Configuration IP Priority – Queue Mapping Table

Command:

1. **qos map precedence-queue** *<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7>* **to** *<0-7>*
2. **show qos map precedence-queue**

Mode: global configuration mode

Parameter:

Parameter	Description
[<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7>]	Select one or more ip precedence values
<0-7>	Select a queue for the target ip precedence value, the queue index is 0~7

Description:

1. **qos map precedence-queue** *<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7>* **to** *<0-7>:* Configure the queue value for each ip precedence value
2. **show qos map precedence-queue:** View configuration

Example:

```
Switch > enable
Switch# configure
Switch (config) # qos
Switch (config) # qos map precedence-queue 5 to 7
Switch (config) # qos map precedence-queue 0 1 2 3 4 5 6 7 to 2
Switch# show qos map precedence-queue
```

Configure Queue – CoS remark mapping table

Command:

1. **qos map queue-cos *<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> < 0-7>* to *<0-7>***
2. **show qos map queue-cos**

Mode: global configuration mode

Parameter:

Parameter	Description
[<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7>]	Select one or more queue values, the queue index is 0~7
<0-7>	Choose a cos value for the target queue value

Description:

1. **qos map queue-cos** *<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7>*to*<0-7>* : Configure the remark cos value for each queue
2. **show qos map queue-cos:** view the configuration

Example:

```
Switch > enable
Switch# configure
Switch (config) # qos map queue-cos 1 to 4
Switch (config) # qos map queue-cos 2 3 4 5 6 7 to 5
Switch (config) # do show qos map queue-cos
```

Configure queue – DSCP remark mapping table

Command:

1. **qos map queue-dscp** *<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> to <0-63>*
2. **show qos map queue-dscp**

Mode: global configuration mode

Parameter:

Parameter	Description
[<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7>]	Select one or more queue values, the queue index is 0~7
<0-63>	Select a dscp value for the target queue value

Description:

1. **qos map queue-dscp** *<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> < 0-7> to <0-63> :Configure the* remark dscp value for each queue
2. **show qos map queue-dscp:** view the configuration

Example:

```
Switch > enable
Switch# configure
Switch (config) # qos map queue-dscp 1 to 40
Switch (config) # qos map queue-dscp 2 3 4 5 6 7 to 55
Switch (config) # do show qos map queue-dscp
```

Configure Queue – IP priority remark mapping table

Command:

1. **qos map queue-precedence** *<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> to <0-7>*
2. **show qos map queue-precedence**

Mode: global configuration mode

Parameter:

Parameter	Description
[<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7>]	Select one or more queue values, the queue index is 0 ~ 7
<0-7>	Choose an ip precedence value for the target queue value

Description:

1. **qos map queue-precedence** *<0-7> <0-7> <0-7> <0-7> <0-7> <0-7> <0-7> < 0-7 >* ***to*** *<0-7> : configure the* remark ip precedence value for each queue

2. **show qos map queue-precedence:** View configuration

Example:

```
Switch > enable
Switch# configure
Switch (config) # qos map queue-precedence 1 to 4
Switch (config) # qos map queue-precedence 2 3 4 5 6 7 to 5
Switch (config) # do show qos map queue-precedence
```

Configure Scheduling Algorithm

Command:

1. **qos queue type sp**
2. **qos queue type (wfq |wrr) weight** *<1-1 27> <1-1 27> <1-1 27> <1-1 27> <1-1 27> <1-1 27> <1-1 27> <1-1 27>*
3. **qos queue type (sp-wfq |sp-wrr) weight** *<0-127> <0-127> <0-127> <0-127> <0-127> <0-127> <0-127> <0 -127>*

Mode: interface configuration mode

Parameter:

Parameter	Description
sp	Configure the queue to which the SP scheduling algorithm is applied, but the weight cannot be set
weight [weight1 ~ weight8]	Configure the weight of each queue; weight is an octet data, namely {weight1 ~ weight8}, where the value of a single queue weightN of wfq/wrr scheduling algorithm is an integer between 1-127, sp-wfq/sp- The weightN of a single queue in the wrr scheduling algorithm is an integer ranging from 0 to 127 . Enter the ratio of how often the scheduler forwards packets in each queue. Separate each value with a space. The ratio of queue number N is weightN / SumOf{ weight1 — weight8}

Description:

1. **SP:** Strict Priority (strict priority), scheduling is strictly in accordance with the priority of the queue, and the weight cannot be set.
2. **WRR:** weighted round robin, queues are scheduled according to weighted round robin, and the weight of each queue is set by package.
3. **WFQ** : weighted fair queue, scheduled according to weighted fair queue, and the weight of each queue is set in bytes.
4. **SP-WRR:** Join the SP group first, schedule according to strict priority, and then schedule according to the weight of weighted round robin.
5. **SP-WFQ**: Join the SP group first, schedule according to the strict priority, and then schedule according to the weight of the weighted fair queue. By default, the scheduling algorithm applied to all queues is SP.

Example:

```
Switch > enable
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# qos queue type sp-wfq weight 0 1 2 3 4 5 6 7
Switch(config-if)# do show qos queuing
```

Configure queue shaping (egress queue rate limit CIR)

Command:

1. **rate-limit egress queue** *< 0-7> <16-1000000>*
2. **rate-limit egress queue** *< 0-7 > <16-10000000 >*
3. **rate-limit egress queue** *< 0-7 > <16- 25000000>*
4. **no rate-limit egress queue** *<0-7>*

Mode: interface configuration mode

Parameter:

Parameter	Description
<0-7>	port queue index
<16-1000000> *<16-10000000>* *<16-25000000>*	The average rate limit of the queue, the allowed input range is 16-1000000, the unit is Kbps, and it needs to be a multiple of 16. (If the input is not a multiple of 16, the program will automatically convert to the nearest multiple of 16 to the input value.) The value range of Gigabit electrical port/optical port is 16-1000000, the value range of 2.5G electrical port is 16-25000000, and the value range of 10G optical port is 16-10000000.

Description:

1. **rate-limit egress queue <0-7> [<16-1000000> |<16-10000000>|<16-25000000>]:** Under the specified port, configure the rate limit of the egress queue.
2. **no rate-limit egress queue <0-7>:** Used to clear the rate limit configuration of the specified egress queue.
3. By default, the egress queue rate is not limited.

Example:

```
Switch > enable
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# rate-limit egress queue 3 6400
Switch(config-if)# no rate-limit egress queue 3
```

Configure Queue Reshaping (Exit Queue Rate Limiting CBS)

> ***Supported Models:*** *GWN7806(P), GWN7811(P), GWN7812P, GWN7813(P), GWN7830, GWN7831, GWN7832, GWN7816P, GWN7821P, GWN7822P, GWN7801P Pro, GWN7802P Pro, GWN7803(P/L/PH) Pro, GWN7806PL Pro, GWN7806PH Pro*

Command:

- `rate-limit egress queue <0-7> burst <678-53247>`
- `no rate-limit egress queue <0-7> burst`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
<0–7>	Egress port queue index

Parameter	Description
< *burst-53247* >	instantaneous burst of traffic that can be approved is within the following range: GWN7806(P) /GWN7832 /GWN7816(P) /GWN7806PL Pro /GWN7806PH Pro : 1800 -53247 bytes, default 53247 bytes GWN7811(P)/GWN7812P/GWN7813(P) /GWN7830/GWN7831/GWN7821P/GWN7822P /GWN7801P Pro/GWN7802P Pro/GWN7803(PL/PH) Pro : 678 -53247bytes, default 53247 bytes

Description:

- `rate-limit egress queue <0-7> burst <678-53247>` : Sets the committed burst traffic (CBS) on the specified egress queue. ***Note:*** *CIR must be configured for this to take effect.*
- `no rate-limit egress queue <0-7> burst` : Clears the CBS configuration on the egress queue.
  By default, there are no CBS restrictions.

Example:

```
Switch> enable
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# rate-limit egress queue 1 6400
Switch(config-if)# no rate-limit egress queue 1 burst 53247
```

Configure port speed limit CIR

Command:

1. **rate-limit (egress | ingress)** *<16-1000000>*
2. **rate-limit (egress | ingress)** *<16-10000000>*
3. **rate-limit (egress | ingress)** *<16-25000000>*
4. **no rate-limit (egress| ingress)**

Mode: interface configuration mode

Parameter:

Parameter	Description
egress	Export
ingress	Entrance
<16-1000000> *<16-10000000>* *<16-25000000>*	Average rate limit, the allowable input range is 16-1000000, the unit is Kbps, and it needs to be a multiple of 16 (if the input is not a multiple of 16 , the program will automatically convert it to the closest multiple of 16 to the input value). The value range of Gigabit electrical port/optical port is 16-1000000, the value range of 2.5G electrical port is 16-25000000, and the value range of 10G optical port is 16-10000000.

Description:

1. **rate-limit egress [<16-1000000> |<16-10000000>|<16-25000000>] :** Under the specified port, configure the egress rate limit.
2. **rate-limit ingress [<16-1000000> |<16-10000000>|<16-25000000>]:** Under the specified port, configure the ingress rate limit.
3. **no rate-limit (egress | ingress):** Used to clear egress/ingress rate-limit configuration.
4. By default, there is no restriction on the ingress and egress rates.

Example:

```
Switch > enable
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# rate-limit egress 6400
Switch(config-if)# rate-limit ingress 10000
Switch(config-if)# no rate-limit egress
```

Configure Port Rate Limiting CBS

> ***Supported Models :*** *GWN7806(P), GWN7811(P), GWN7812P, GWN7813(P), GWN7830, GWN7831, GWN7832, GWN7816P, GWN7821P, GWN7822P, GWN7801P Pro, GWN7802P Pro, GWN7803(P/L/PH) Pro, GWN7806PL Pro, GWN7806PH Pro*

Command:

- `rate-limit egress burst <burst-53247>`
- `no rate-limit egress burst`
- `rate-limit ingress burst <32768-burst>`
- `no rate-limit ingress burst`

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
Egress burst	Sets the Committed Burst Size (CBS) for outbound traffic. Defines how much traffic can be sent during short bursts beyond the normal rate.
Ingress burst	Sets the Committed Burst Size (CBS) for inbound traffic. Controls how much incoming traffic the port can handle in short bursts above the average rate.
<burst-53247>	**Outgoing CBS, value range is:** **1800–53247 bytes**: GWN7806(P), GWN7832, GWN7816(P), GWN7806PL Pro, GWN7806PH Pro **678–53247 bytes**: GWN7811(P), GWN7812P, GWN7813(P), GWN7830, GWN7831, GWN7821P, GWN7822P **6843–53247 bytes**: GWN7801P Pro, GWN7802P Pro, GWN7803(PL/PH) Pro
<32768-burst>	**The range of values for inbound CBS is:** **3768–65535 bytes**: GWN7806(P), GWN7832, GWN7816(P), GWN7806PL Pro, GWN7806PH Pro **3768–2147483647 bytes**: GWN7811(P), GWN7812P, GWN7813(P), GWN7830, GWN7831, GWN7821P, GWN7822P, GWN7801P Pro, GWN7802P Pro, GWN7803(PL/PH) Pro

Description:

- **`rate-limit egress burst`** <burst-53247>**:** command sets the Committed Burst Size (CBS) for outbound traffic on the specified port.
- **`no rate-limit egress burst`** **:** to remove the configured egress CBS. If no outbound rate limit is set, CBS will automatically reset to the default value of 32768.
- **`rate-limit ingress burst <32768-burst>`** **:** command sets the CBS for inbound traffic on the specified port.

- `no rate-limit ingress burst` : to clear the configured ingress CBS. If no inbound rate limit is applied, the default CBS value of 32768 will be restored.

Note: *By default, there are no restrictions on the egress and ingress rates.*

Example:

```
Switch> enable
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# rate-limit egress burst 678
Switch(config-if)# no rate-limit egress burst
Switch(config-if)# rate-limit ingress burst 327699
Switch(config-if)# no rate-limit ingress burst
```

View QoS Related Information

Command:

1. `show qos map`
2. `show qos map <mapname>`
3. `show qos interfaces {Ethernet | LAG} <interface>`
4. `show qos queuing`
5. `show qos queuing {Ethernet | LAG} <interface>`
6. `show running-config`
7. `show running-config interfaces {Ethernet | LAG} <interface>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`mapname`	Specifies the Quality of Service mapping table to inspect. Supported map options include: Class of Service to egress queue (`cos-queue`), Differentiated Services Code Point to egress queue (`dscp-queue`), IP Precedence to egress queue (`precedence-queue`), and their respective reverse mapping tables (`queue-cos` , `queue-dscp` , `queue-precedence`).
`Ethernet`	Physical port type.
`LAG`	Aggregate port type (Link Aggregation Group).
`<interface>`	Refers to the physical port identifier or the aggregate port channel group number.

Description: Displays the operational status, hardware mappings, and running configurations for the switch's Quality of Service (QoS) subsystem. This command suite allows administrators to audit global hardware mapping tables that translate Layer 2 and Layer 3 priority markings into internal hardware egress queues. It also provides visibility into port-specific trust boundaries, packet remarking states, active egress queue scheduling algorithms (such as Strict Priority or Weighted Round Robin), and non-default QoS profiles applied globally or to isolated interfaces.

Example:

```
# Enter privileged EXEC mode
Switch> enable

# View the hardware table mapping Layer 3 DSCP values to internal egress queues
Switch# show qos map dscp-queue

# Verify QoS trust state and remarking parameters on Link Aggregation group 1
Switch# show qos interfaces LAG 1

# Isolate and inspect all non-default QoS configurations active on a physical port
Switch# show running-config interfaces Ethernet 1/0/1
```

SECURITY

Storm control

View Storm Control Configuration

Command:

1. `show storm-control`
2. `show storm-control interfaces {Ethernet | LAG} <id>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`id`	The interface identifier. Port options include physical Ethernet ports, fiber optic ports, and aggregated ports (Link Aggregation Groups).

Description:

- `show storm-control` : Queries global and port-specific storm control configurations across the switch.
- `show storm-control interfaces {Ethernet | LAG} <id>` : Displays detailed storm control and traffic suppression configuration settings for the specified port.

Example:

```
Switch> enable
Switch# show storm-control
Switch# show storm-control interfaces Ethernet 1/0/1
```

Global Storm Control Configuration

Command:

1. `storm control ifg {excluded | included}`
2. `storm control unit {kbps | pps}`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`ifg {excluded | included}`	Configures whether the switch hardware includes or excludes the Inter-Frame Gap (IFG) and preamble bytes during traffic rate calculations.
`unit {kbps | pps}`	Sets the system-wide measurement unit for storm control to either kilobits per second (kbps) or packets per second (pps).

Description:

- `storm control ifg {excluded | included}` : Configures the frame interval calculation parameters.
- `storm control unit {kbps | pps}` : Configures the statistical measurement unit used for storm control thresholds.

Example:

```
Switch# storm control ifg excluded
Switch# storm control unit kbps
```

Port Storm Control Configuration

Command:

1. `no storm-control`
2. `storm-control`
3. `storm-control action {drop | shutdown}`
4. `storm-control {broadcast | unknown-multicast | unknown-unicast}`
5. `storm-control {broadcast | unknown-multicast | unknown-unicast} level <1-16777215>`

Mode: Interface configuration mode

Parameter:

Parameter	Description
`[no] storm-control`	Enables or disables the storm control feature on the specific port.
`action {drop | shutdown}`	Defines the action taken when traffic exceeds the threshold (drop the excess packets or shut down the port).
`{broadcast | unknown-multicast | unknown-unicast}`	Specifies the type of traffic to be monitored and rate-limited.
`level <1-16777215>`	Sets the traffic threshold limit (Value range: 1–16777215). The exact value depends on the globally configured measurement unit (kbps/pps) and the maximum port speed.

Description:

- `no storm-control` : Disables storm control on the interface.
- `storm-control` : Enables storm control on the interface.
- `storm-control action {drop | shutdown}` : Configures the penalty action for when the storm threshold is breached.
- `storm-control {broadcast | unknown-multicast | unknown-unicast}` : Activates storm control for the specified traffic type (broadcast, unknown multicast, or unknown unicast).
- `storm-control {broadcast | unknown-multicast | unknown-unicast} level <1-16777215>` : Configures the specific threshold limit for the selected traffic type.

Example:

```
Switch(config-if)# no storm-control
Switch(config-if)# storm-control
Switch(config-if)# storm-control broadcast level 1024
```

Port security

Check – port security

Command:

1. **show port-security**
2. **show port-security address**
3. **show port-security interfaces** *Ethernet interface id*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
Ethernet interface id	The port number

Description:

1. **show port-security:** View port security settings
2. **show port-security address:** View port security MAC address
3. **show port-security interfaces Ethernet interface id:** View port security status

Example:

```
Switch# show port-security
Switch# show port-security address
Switch# show port-security interfaces Ethernet interface 1/0/2
```

Global configuration – port security

Command:

1. **port-security**
2. **no port-security**
3. **port-security rate-limit** *x[1-600]*

Mode: global configuration mode

Parameter:

Parameter	Description
x[1-600]	Value range of port security rate limit

Description:

1. **port-security:** Enable the global port security function
2. **no port-security:** Turn off the global port security function
3. **port-security rate-limit x[1-600]** : configure port security rate limit

Example:

```
Switch(config)# port-security
Switch(config)# no port-security
Switch(config)# port-security rate-limit 600
```

Port configuration – port security

Command:

1. **port-security**
2. **no port-security**
3. **port-security address-limit** *x[0-2048]*
4. **port-security mac-address sticky**
5. **no port-security mac-address sticky**
6. **port-security mac-address** *[mac] [vlan x]*
7. **port-security violation [protect\restrict\shutdown]**

Mode: interface configuration mode

Parameter:

Parameter	Description
x[1-256]	Configuring the maximum number of MAC addresses on a port
[mac] [vlan x]	Entries in the port security MAC address table : MAC address and VLAN
[protect\restrict\shutdown]	Port Protection Action **protect** : discard illegal packets, keep silent **restrict** : Discard illegal packets and report alarm notifications **shutdown** : close the port

Description:

1. **port-security:** Enable port security
2. **no port-security:** turn off port security
3. **port-security address-limit x[0-2048]** : Configure the maximum number of MACs
4. **port-security mac-address sticky:** enable Sticky MAC address function
5. **no port-security mac-address sticky:** disable Sticky MAC address function
6. **port-security mac-address [mac] [vlan x]:** configure port security MAC address and VLAN
7. **port-security violation [protect\restrict\shutdown]:** Configure port security protection action

Example:

```
Switch(config-if)# port-security
Switch(config-if)# port-security address-limit 256
Switch(config-if)# [no] port-security mac-address sticky
Switch(config-if)# port-security mac-address aa:bb:cc:ff:ee:dd vlan 1
Switch(config-if)# port-security violation protect
```

Port isolation

Add/Remove Isolation Group Ports

Command:

1. `port-isolate group {add | bidirection | remove} interfaces Ethernet <interface-id>`
2. `port-isolate group {add | bidirection | remove} interfaces LAG <LAG-id>`
3. `port-isolate group bidirection {add | remove} interfaces Ethernet <interface-id>`
4. `port-isolate group bidirection {add | remove} interfaces LAG <LAG-id>`

Mode: Interface configuration mode

Parameter:

Parameter	Description
`add`	Adds the specified interface or Link Aggregation Group (LAG) to a unidirectional (one-way) isolation group.
`bidirection`	Configures or modifies a bidirectional (two-way) isolation group type.
`remove`	Removes the specified interface or Link Aggregation Group (LAG) from the designated isolation group.
`Ethernet <interface-id>`	Specifies the Ethernet port ID to be isolated.
`interfaces LAG <LAG-id>`	Specifies the Link Aggregation Group (LAG) ID to be isolated.

Description:

- `port-isolate group {add | remove} interfaces Ethernet / LAG` : Adds or removes interfaces from a unidirectional isolation group.
- `port-isolate group bidirection {add | remove} interfaces Ethernet / LAG` : Adds or removes interfaces from a bidirectional isolation group.

Example:

```
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# port-isolate group add interfaces Ethernet 1/0/2
Switch(config-if)# port-isolate group remove interfaces Ethernet 1/0/2
Switch(config-if)# port-isolate group bidirection add interfaces Ethernet 1/0/2
Switch(config-if)# port-isolate group bidirection remove interfaces Ethernet 1/0/2
Switch(config-if)# exit
```

Query Port Isolation Configuration

Command: `show port-isolate group interfaces Ethernet <interface-id>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`Ethernet <interface-id>`	Specifies the Ethernet port ID to query for isolation group configuration and status.

Description: `show port-isolate group interfaces Ethernet <interface-id>` : Displays the current port isolation status and group assignments (unidirectional or bidirectional) configured on the specified interface.

Example:

```
Switch# show port-isolate group interfaces Ethernet 1/0/2
```

Setting Isolation Mode

Command: `port-isolate mode {all | l2}`

Mode: Global configuration mode

Parameter:

Parameter	Description
`all`	Configures the isolation mode to isolate both Layer 2 (data link) and Layer 3 (network) traffic between isolated ports.
`l2`	Configures the isolation mode to restrict Layer 2 switching between isolated ports while still allowing Layer 3 routing/communication.

Description: `port-isolate mode {all | l2}` : Sets the system-wide port isolation enforcement mode, determining whether blocked communication applies to all layers or is restricted strictly to Layer 2 traffic.

Example:

```
Switch(config)# port-isolate mode l2
```

Query Port Isolation Mode

Command: `show port-isolate`

Mode: Privileged EXEC mode

Parameter: None

Description: `show port-isolate` : Displays the current system-wide port isolation enforcement mode (Layer 2 only or both Layer 2 and Layer 3).

Example:

```
Switch# show port-isolate
```

ACL

MAC ACL

- Create/delete MAC ACL

Command:

1. **mac acl** *name*
2. **no mac acl** *name*

Mode: global configuration mode

Parameter:

Parameter	Description
name	MAC ACL name, 1-64 characters, support numbers, letters and special characters (excluding **"\?/,**).

Description: Create/delete MAC ACL

Example:

```
Create an ACL named test1
Switch(config)# mac acl test1
```

- Create/delete permit rules

Command:

1. **sequence** <*1-2147483647*> **permit {source mac} {dest mac} {vlan xx} {cos value} {ethtype <0x0600-0xFFFF>} schedule** *{id}*
2. **no sequence** <*1-2147483647*>

Mode: ACL configuration mode

Parameter:

Parameter	Description
<*1-2147483647*>	rule ID
{source mac}	Source MAC address and mask
{dest mac}	Destination MAC address and mask
{vlan xx}	VLAN ID of the packet
{cos value}	CoS priority
ethtype <0x0600-0xFFFF>	Ethernet protocol
{id}	Time policy ID, an integer ranging from 1 to 32

Description: Create/delete permit rules

Example:

```
a rule that allows LLDP packets with a destination MAC address of 22:33:44:55:66:77 and a VLAN 3 tag to pass
within the time range of time policy ID 1
Switch(config-mac-acl)# permit any 22:33:44:55:66:77/FF:FF:FF:FF:FF:FF:FF vlan 3 ethtype 0x88CC schedule 1
```

- Create/delete deny rules

Command:

1. **sequence** <*1-2147483647*> **deny {source mac} {dest mac} {vlan xx} {cos value} {ethtype <0x0600-0xFFFF>} schedule** *{id}*
2. **no sequence** <*1-2147483647*>

Mode: ACL configuration mode

Parameter:

Parameter	Description

<1-2147483647>	rule ID
{source mac}	Source MAC address and mask
{dest mac}	Destination MAC address and mask
{vlan xx}	VLAN ID of the packet
{cos value}	CoS priority
ethtype <0x0600-0xFFFF>	Ethernet protocol
{id}	Time policy ID , an integer whose value ranges from 1 to 32

Description: Create/delete deny rules

Example:

```
Create a rule to deny the passage of MPLS packets with a source MAC address of 1C:69:7A:B4:E5:AA, a VLAN 20
tag, and a CoS value of 2 within the time range of time policy ID 1
Switch(config-mac-acl)# deny 1C:69:7A:B4:E5:AA/FF:FF:FF:FF:FF:FF any vlan 20 cos 2 7 ethtype 0x8847 schedule
1
```

- Create/delete shutdown rules

Command:

1. **sequence** *<1-2147483647>* **deny {source mac} {dest mac} {vlan xx} {cos value} {ethtype <0x0600-0xFFFF>} schedule** *{id}* **[shutdown]**
2. **no sequence** *<1-2147483647>*

Mode: ACL configuration mode

Parameter:

Parameter	Description
<1-2147483647>	rule ID
{source mac}	Source MAC address and mask
{dest mac}	Destination MAC address and mask
{vlan xx}	VLAN ID of the packet
{cos value}	CoS priority
ethtype <0x0600-0xFFFF>	Ethernet protocol
{id}	Time policy ID, an integer ranging from 1 to 32
[shutdown]	when the rule matches

Description: Create/delete shutdown rules

Example:

```
Created within the time range of time policy ID 1 , when the source MAC is 1C:69:7A:B4:E5:AA with VLAN When
the ARP packet with 10 labels and CoS value is 2, the port executes the shutdown action rule
Switch(config-mac-acl)# deny 1C:69:7A:B4:E5:AA/FF:FF:FF:FF:FF:FF any vlan 10 cos 2 7 ethtype 0x806 schedule
1 shutdown
```

- Creating/Deleting Redirect Rules

Command Syntax:
sequence <1-2147483647> redirect {source mac} {dest mac} {vlan xx} {cos value} {ethtype <0x0600-0xFFFF>} schedule {id} interface {interface}
no sequence <1-2147483647>

Mode: ACL Configuration Mode

Parameters:

Parameter	Description
<1-2147483647>	Rule ID.
{source mac}	Source MAC address and mask.
{dest mac}	Destination MAC address and mask.
{vlan xx}	VLAN ID of the packet.
{cos value}	Class of Service (CoS) priority value.
ethtype <0x0600-0xFFFF>	Ethernet protocol type.
{id}	Time policy ID, an integer from 1 to 32.
{interface}	Physical interface to which data is redirected when the rule is matched (excluding ACL-bound interfaces).

Description:

- Create or delete redirect rules based on MAC addresses, VLAN, CoS priority, and Ethernet type, with an optional time schedule and redirection to a specific interface.

Example:

```
# Create a redirect rule with a time policy ID of 1.
# If the source MAC is 1C:69:7A:B4:E5:AA, VLAN 10, CoS value 2, redirect the traffic to port 2.
Switch(config-mac-acl)# sequence 1 redirect 1C:69:7A:B4:E5:AA/FF:FF:FF:FF:FF:FF any vlan 10 cos 2 ethtype 0x806 schedule 1 interface Ethernet 1/0/2
```

- Port Binding MAC ACL

Command:

1. **mac acl** *name*
2. **no mac acl**

Mode: interface configuration mode

Parameter:

Parameter	Description
name	MAC ACL name, 1-64 characters, support numbers, letters and special characters ._@

Description: Bind/unbind MAC ACL

Example:

```
Bind the mac acl named "test" to the port
Switch(config-if)# mac acl test
Unbind mac acl
Switch(config-if)# no mac acl
```

- VLAN binding MAC ACL

Command:

1. **vlan-acl** *<1-4094>* **mac bind acl** *NAME*
2. **no vlan-acl** *<1-4094>* **mac bind acl**

Mode: global configuration mode

Parameter:

Parameter	Description
<1-4094>	VLAN ID, an integer ranging from 1 to 4094.
NAME	ACL Name

Description: VLAN binding/unbinding MAC ACL.

Example:

```
Bind the mac acl named "test 1 " to VLA N 20
Switch(config-if)# vlan-acl 20 mac bind acl test1
Unbind VLAN acl
Switch(config-if)# no vlan-acl 20 mac bind acl
```

- View rules

Command: show mac acl [*name* **]**

Mode: global configuration mode

Parameter:

Parameter	Description
name	MAC ACL name, 1-64 characters, support numbers, letters and special characters ._@

Description: View MAC Detailed rules of ACL

Example:

```
View the detailed rules of mac acl named test1
Switch# show mac acl test1
```

IPV4 ACL

- Create/delete IPv4 ACL

Command:

1. **ip acl** *name*
2. **no ip acl** *name*

Mode: global configuration mode

Parameter:

Parameter	Description
name	ip ACL name, 1-64 characters, support numbers, letters and special characters (excluding **"\?/,**).

Description: Create/delete IPv4 ACL

Example:

```
Create an ACL named test1
Switch(config)# ip acl test1
```

- Create/delete permit rules

Command:

1. **sequence** <*1-2147483647*> **permit {protocol} {source ip} {dest ip} {dscp/precedence} {value} schedule** *{id}*
2. **sequence** <*1-2147483647*> **permit tcp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} match-all {TCP_FLAG} {dscp/precedence} {value} schedule** {id}
3. **sequence** <*1-2147483647*> **permit udp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} {dscp/precedence} {value} schedule** {id}
4. **sequence** <*1-2147483647*> **permit icmp {source ip} {dest ip} {icmp type} {icmp code} {dscp/precedence} {value} schedule** *{id}*
5. **no sequence** <*1-2147483647*>

Mode: ACL configuration mode

Parameter:

Parameter	Description
<*1-2147483647*>	rule ID
{protocol}	an integer ranging from 0 to 255
{source ip}	Source IP address and mask
{source port/source port range}	Source IP address port /port range
{dest ip}	Destination IP address and mask
{dest port/dest port range}	Destination IP address port /port range
{TCP_FLAG}	TCP flag
{icmp type} {icmp code}	ICMP message type and message code
{dscp/precedence}{value}	Match the type of ToS
{id}	Time policy ID, an integer ranging from 1 to 32

Description: Create/delete permit rules

Example:

```
Created within the time range of time policy ID 1 , allow TCP data with source IP address 192.168.1.245,
source port 20, destination port 5001-5006 , with TCP flags ack and urg, and DSCP priority 63 package
through
Switch(config-ip-acl)# permit tcp 192.168.1.245/255.255.255.255 ftp-data any 5001-5006 match-all +ack+urg
dscp 63 schedule 1

Created within the time range of time policy ID 1 , UDP packets with source port 68 , destination IP
192.168.1.17 , destination port 37 , and IP priority 7 are allowed to pass
Switch(config-ip-acl)# permit udp any bootpc 192.168.1.17/255.255.255.255 time precedence 7 schedule 1
Created within the time range of time policy ID 1 , all ICMP packets with unreachable destinations and
message code 21 are allowed to pass
Switch(config-ip-acl)# permit icmp any any destination-unreachable 21 dscp 60 schedule 1
```

- Create/delete deny rules

Command:

1. **sequence** <*1-2147483647*> **deny {protocol} {source ip} {dest ip} {dscp/precedence} {value} schedule** *{id}*
2. **sequence** <*1-2147483647*> **deny tcp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} match-all {TCP_FLAG} {dscp/precedence} {value} schedule** {id}
3. **sequence** <*1-2147483647*> **deny udp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} {dscp/precedence} {value} schedule** *{id}*
4. **sequence** <*1-2147483647*> **deny icmp {source ip} {dest ip} {icmp type} {icmp code} {dscp/precedence} {value} schedule** *{id}*
5. **no sequence** <*1-2147483647*>

Mode: ACL configuration mode

Parameter:

Parameter	Description
<*1-2147483647*>	rule ID
{protocol}	an integer ranging from 0 to 255
{source ip}	Source IP address and mask
{source port/source port range}	Source IP address port /port range
{dest ip}	Destination IP address and mask
{dest port/dest port range}	Destination IP address port /port range
{TCP_FLAG}	TCP flag
{icmp type} {icmp code}	ICMP message type and message code
{dscp/precedence}{value}	Match the type of ToS
{id}	Time policy ID, an integer ranging from 1 to 32

Description: Create/delete deny rules

Example:

```
Created within the time range of time policy ID 1 , reject TCP packets with source IP address 192.168.1.245
, source port 20 , destination port 5001-5006 , flag bits ack and urg , and DSCP priority 63 pass
Switch(config-ip-acl)# deny tcp 192.168.1.245/255.255.255.255 ftp-data any 5001-5006 match-all +ack+urg dscp
63 schedule 1

Created within the time range of time policy ID 1 , deny the UDP packets with source port 68 , destination
IP address 192.168.1.17 , destination port 37 , and IP priority 7
Switch(config-ip-acl)# deny udp any bootpc 192.168.1.17/255.255.255.255 time precedence 7 schedule 1

Created within the time range of time policy ID 1 , all ICMP packets whose destination is unreachable and
whose message code is 21 are rejected from passing
Switch(config-ip-acl)# deny icmp any any destination-unreachable 21 dscp 60 schedule 1
```

- Create/delete shutdown rules

Command:

1. **sequence** <*1-2147483647*> **deny {protocol} {source ip} {dest ip} {dscp/precedence} {value} schedule** *{id}* **[shutdown]**
2. **sequence** <*1-2147483647*> **deny tcp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} match-all {TCP_FLAG} {dscp/precedence} {value} schedule** {id} **[shutdown]**
3. **sequence** <*1-2147483647*> **deny udp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} {dscp/precedence} {value} schedule** *{id}* **[** ***shutdown*** **]**
4. **sequence** <*1-2147483647*> **deny icmp {source ip} {dest ip} {icmp type} {icmp code} {dscp/precedence} {value} schedule** *{id}* **[shutdown]**
5. **no sequence** <*1-2147483647*>

Mode: ACL configuration mode

Parameter:

Parameter	**description**
<*1-2147483647*>	rule ID
{protocol}	an integer ranging from 0 to 255
{source ip}	Source IP address and mask
{source port/source port range}	Source IP address port /port range
{dest ip}	Destination IP address and mask
{dest port/dest port range}	Destination IP address port /port range
{TCP_FLAG}	T CP flag
{icmp type} {icmp code}	ICMP message type and message code
{dscp/precedence}{value}	Match the type of ToS
{id}	Time policy ID, an integer ranging from 1 to 32
[shutdown]	when the rule matches

Description: Create/delete shutdown rules

Example:

```
Created within the time range of time policy ID 1 , when a TCP with source IP address 192.168.1.245 , source
port 20 , destination port 5001-5006 , flag bits ack and urg , and DSCP priority 63 is encountered Packet,
port execution shutdown action
Switch(config-ip-acl)# deny tcp 192.168.1.245/255.255.255.255 ftp-data any 5001-5006 match-all +ack+urg dscp
63 schedule 1 shutdown

Created within the time range of time policy ID 1 , when a UDP data packet with source port 68 , destination
IP address 192.168.1.17 , destination port 37 , and IP priority 7 is encountered, the port will execute
shutdown action
Switch(config-ip-acl)# deny udp any bootpc 192.168.1.17/255.255.255.255 time precedence 7 schedule 1
shutdown

Created within the time range of time policy ID 1 , when encountering all ICMP data packets whose
destination is unreachable and whose message code is 21 , the port will execute the shutdown action
Switch(config-ip-acl)# deny icmp any any destination-unreachable 21 dscp 60 schedule 1 shutdown
```

- ACL Redirect Rule Configuration

Command:

1. `sequence <1-2147483647> redirect {protocol} {source ip} {dest ip} {dscp/precedence} {value} schedule {id} interface {interface}`
2. `sequence <1-2147483647> redirect tcp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} match-all {TCP_FLAG} {dscp/precedence} {value} schedule {id} interface`

`{interface}`

3. `sequence <1-2147483647> redirect udp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} {dscp/precedence} {value} schedule {id} interface {interface}`
4. `sequence <1-2147483647> redirect icmp {source ip} {dest ip} {icmp type} {icmp code} {dscp/precedence} {value} schedule {id} interface {interface}`
5. `no sequence <1-2147483647>`

Mode: ACL configuration mode

Parameter:

Parameter	Description
`<1-2147483647>`	Specifies the unique sequence ID for the redirect rule.
`{protocol}`	Specifies the IP protocol number (range: 0–255).
`{source ip}`	Defines the source IP address and subnet mask.
`{dest ip}`	Defines the destination IP address and subnet mask.
`{dscp/precedence} {value}`	Matches the Differentiated Services Code Point (DSCP) or IP Precedence value within the Type of Service (ToS) byte.
`{source port/source port range}`	Specifies the source Layer 4 port or a specific port range.
`{dest port/dest port range}`	Specifies the destination Layer 4 port or a specific port range.
`{TCP_FLAG}`	Matches specific TCP control flags (e.g., ACK, SYN, FIN, URG).
`{icmp type} {icmp code}`	Specifies the exact ICMP message type and corresponding error code.
`{id}`	Binds the rule to a predefined time schedule profile ID (range: 1–32).
`{interface}`	Specifies the physical egress interface to which matching traffic will be redirected.

Description:

- `sequence <1-2147483647> redirect ...` : Creates a traffic redirection policy that intercepts matching packets and forces them to a specified physical interface, overriding the standard routing table.
- `no sequence <1-2147483647>` : Removes the specified redirect rule from the active access control list.

Example:

```
! Redirects TCP traffic from 192.168.1.245 (port 20) to any destination (ports 5001-5006) with ACK/URG flags and DSCP 63 to Ethernet port 1/0/2 during schedule 1.
Switch(config-ip-acl)# sequence 1 redirect tcp 192.168.1.245/255.255.255.255 ftp-data any 5001-5006 match-all +ack+urg dscp 63 schedule 1 interface Ethernet 1/0/2

! Redirects UDP traffic from any source (port 68) to 192.168.1.17 (port 37) with IP precedence 7 to Ethernet port 1/0/2 during schedule 1.
Switch(config-ip-acl)# sequence 1 redirect udp any bootpc 192.168.1.17/255.255.255.255 time precedence 7 schedule 1 interface Ethernet 1/0/2

! Redirects ICMP "Destination Unreachable" (code 21) packets with DSCP 60 to Ethernet port 1/0/2 during schedule 1.
Switch(config-ip-acl)# sequence 1 redirect icmp any any destination-unreachable 21 dscp 60 schedule 1 interface Ethernet 1/0/2
```

- Port Binding IPv4 ACL

Command:

1. **ip acl** *name*
2. **no ip acl**

Mode: interface configuration mode

Parameter:

Parameter	Description
name	IPv4 ACL name, 1-64 characters, support numbers, letters and special characters ._@

Description: Bind/unbind IPv4 ACL

Example:

```
v4 acl named "test" to the port
Switch(config-if)# ip acl test
unbind ipv4 acl
Switch(config-if)# no ip acl
```

- VLAN binding IPv4 ACL

Command:

1. **vlan-acl** *<1-4094>* **ip bind acl** *NAME*
2. **no vlan-acl** *<1-4094>* **ip bind acl**

Mode: global configuration mode

Parameter:

Parameter	Description
<1-4094>	VLAN ID, an integer ranging from 1 to 4094
NAME	ACL Name

Description: VLAN binding/unbinding IPv4 ACL

Example:

```
Bind the ipv4 acl named "test 2 " to VLAN 30
Switch(config-if)# vlan-acl 30 ip bind acl test2
Unbind ipv4 acl
Switch(config-if)# no vlan-acl 30 ip bind acl
```

- View rules

Command: show ip acl [*name* **]**

Mode: global configuration mode

Parameter:

Parameter	Description
name	IPv4 ACL name, 1-64 characters, support numbers, letters and special characters ._@

Description: View IPv4 Detailed rules of ACL

Example:

```
View the detailed rules of ip v4 acl named test1
Switch# show ip acl test1
```

IPV6 ACL

- Create/delete IPv6 ACL

Command:

1. **ipv6 acl** *name*
2. **no ipv6 acl** *name*

Mode: global configuration mode

Parameter:

Parameter	Description
name	ipv6 ACL name, 1-64 characters, support numbers, letters and special characters (excluding **"\?/,**).

Description: Create/delete IPv6 ACL

Example:

```
Create an ACL named test1
Switch(config)# ipv6 acl test1
```

- Create/delete permit rules

Command:

1. **sequence** *<1-2147483647>* **permit {protocol} {source ip} {dest ip} {dscp/precedence} {value} schedule** *{id}*
2. **sequence** *<1-2147483647>* **permit tcp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} match-all { TCP_FLAG} {dscp/precedence} {value} schedule** *{id}*
3. **sequence** *<1-2147483647>* **permit udp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} {dscp/precedence} {value} schedule** *{id}*
4. **sequence** *<1-2147483647>* **permit icmp {source ip} {dest ip} {icmp type} {icmp code} {dscp/precedence} {value} schedule** *{id}*
5. **no sequence** *<1-2147483647>*

Mode: ACL configuration mode

Parameter:

Parameter	Description
<1-2147483647>	rule ID
{protocol}	an integer ranging from 0 to 255
{source ip}	Source IPv6 address and mask
{source port/source port range}	Source IPv6 address port /port range
{dest ip}	Destination IPv6 address and mask
{dest port/dest port range}	Destination IPv6 address port /port range
{TCP_FLAG}	TCP flag

{icmp type} {icmp code}	ICMP message type and message code
{dscp/precedence}{value}	Match the type of ToS
{id}	Time policy ID, an integer ranging from 1 to 32

Description: Create/delete permit rules

Example:

```
Created within the time range of time policy ID 1 , the source IPv6 address is allowed to be
2409:8754:3020:11:585e:67e:c77b:aef , the source port is 80 , the destination port is 1000-1200 , with the
TCP flag Bit fin and psh , TCP packets with DSCP priority 1 pass
Switch(config-ipv6-acl)# permit tcp 2409:8754:3020:11:585e:67e:c77b:aef/128 www any 1000-1200 match-all
+fin+psh dscp 1 schedule 1
Create UDP with source port 7 , destination IPv6 address 2409:8754:3020:11:4dc:b5b6:2f2d:1415 , destination
port 514 , and IP priority 3 within the time range of time policy ID 1 . packets through
Switch(config-ipv6-acl)# permit udp any echo 2409:8754:3020:11:4dc:b5b6:2f2d:1415/128 syslog precedence 3
schedule 1

Created within the time range of time policy ID 1 , all ICMP packets with message code 29 and IP priority 7
are allowed to pass through
Switch(config-ipv6-acl)# permit icmp any any packet-too-big 29 precedence 7 schedule 1
```

- Create/delete deny rules

Command:

1. **sequence** <*1-2147483647*> **deny {protocol} {source ip} {dest ip} {dscp/precedence} {value} schedule** *{id}*
2. **sequence** <*1-2147483647*> **deny tcp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} match-all {TCP_FLAG} {dscp/precedence} {value} schedule** *{id}*
3. **sequence** <*1-2147483647*> **deny udp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} {dscp/precedence} {value} schedule** *{id}*
4. **sequence** <*1-2147483647*> **deny icmp {source ip} {dest ip} {icmp type} {icmp code} {dscp/precedence} {value} schedule** {*id}*
5. **no sequence** <*1-2147483647*>

Mode: ACL configuration mode

Parameter:

Parameter	Description
<*1-2147483647*>	rule ID
{protocol}	an integer ranging from 0 to 255
{source ip}	Source IPv6 address and mask
{source port/source port range}	Source IPv6 address port /port range
{dest ip}	Destination IPv6 address and mask
{dest port/dest port range}	Destination IPv6 address port /port range
{TCP_FLAG}	TCP flag
{icmp type} {icmp code}	ICMP message type and message code
{dscp/precedence}{value}	Match the type of ToS
{id}	Time policy ID, an integer ranging from 1 to 32

Description: Create/delete deny rules

Example:

```
Created within the time range of time policy ID 1 , deny source IPv6 address
2409:8754:3020:11:585e:67e:c77b:aef , source port 80 , destination port 1000-1200 , with flag fin and psh,
TCP packets with DSCP priority 1 pass through
Switch(config-ipv6-acl)# deny tcp 2409:8754:3020:11:585e:67e:c77b:aef/128 www any 1000-1200 match-all
+fin+psh dscp 1 schedule 1

Create a UDP with source port 7 , destination IPv6 address 2409:8754:3020:11:4dc:b5b6:2f2d:1415 ,
destination port 514 , and IP priority 3 within the time range of time policy ID 1. packets through
Switch(config-ipv6-acl)# deny udp any echo 2409:8754:3020:11:4dc:b5b6:2f2d:1415/128 syslog precedence 3
schedule 1
Create within the time range of time policy ID 1 , reject all ICMP data packets with message code 29 and IP
priority 7 that are too large to pass through
Switch(config-ipv6-acl)# deny icmp any any packet-too-big 29 precedence 7 schedule 1
```

- Create/delete shutdown rules

Command:

1. **sequence** <*1-2147483647*> **deny {protocol} {source ip} {dest ip} {dscp/precedence} {value} schedule** *{id}* **[shutdown]**
2. **sequence** <*1-2147483647*> **deny tcp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} match-all {TCP_FLAG} {dscp/precedence} {value} schedule** *{id}* **[shutdown]**
3. **sequence** <*1-2147483647*> **deny udp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} {dscp/precedence} {value} schedule** {id} **[** ***shutdown*** **]**
4. **sequence** <*1-2147483647*> **deny icmp {source ip} {dest ip} {icmp type} {icmp code} {dscp/precedence} {value} schedule** *{id}* **[shutdown]**
5. **no sequence** <*1-2147483647*>

Mode: ACL configuration mode

Parameter:

Parameter	**description**
<*1-2147483647*>	rule ID
{protocol}	an integer ranging from 0 to 255
{source ip}	Source IPv6 address and mask
{source port/source port range}	Source IPv6 address port /port range
{dest ip}	Destination IPv6 address and mask
{dest port/dest port range}	Destination IPv6 address port /port range
{TCP_FLAG}	TCP flag
{icmp type} {icmp code}	ICMP message type and message code
{dscp/precedence}{value}	Match the type of ToS
{id}	Time policy ID, an integer ranging from 1 to 32
[shutdown]	when the rule matches

Description: Create/delete shutdown rules

Example:

```
Created within the time range with the time policy ID of 1 , when the source IPv6 address is
2409:8754:3020:11:585e:67e:c77b:aef , the source port is 80 , the destination port is 1000-1200, with a flag
Bit fin and psh, TCP data packets with DSCP priority 1 , the port executes the shutdown action
Switch(config-ipv6-acl)# deny tcp 2409:8754:3020:11:585e:67e:c77b:aef/128 www any 1000-1200 match-all
+fin+psh dscp 1 schedule 1 shutdown

Created within the time range of time policy ID 1 , when the source port is 68 , the destination IPv6
address is 2409:8754:3020:11:4dc:b5b6:2f2d:1415 , the destination port is 514 , and the IP priority is 3 UDP
packets, the port executes the shutdown action
Switch(config-ipv6-acl)# deny udp any echo 2409:8754:3020:11:4dc:b5b6:2f2d:1415/128 syslog precedence 3
schedule 1 shutdown

Created within the time range of the time policy ID 1 , when encountering all ICMP data packets with a
message
code of 29 and an IP priority of 7 , the port will perform a shutdown action
Switch(config-ipv6-acl)# deny icmp any any packet-too-big 29 precedence 7 schedule 1 shutdown
```

- IPv6 ACL Redirect Rule Configuration

Command:

1. `sequence <1-2147483647> redirect {protocol} {source ip} {dest ip} {dscp/precedence} {value} schedule {id} interface {interface}`
2. `sequence <1-2147483647> redirect tcp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} match-all {TCP_FLAG} {dscp/precedence} {value} schedule {id} interface {interface}`
3. `sequence <1-2147483647> redirect udp {source ip} {source port/source port range} {dest ip} {dest port/dest port range} {dscp/precedence} {value} schedule {id} interface {interface}`
4. `sequence <1-2147483647> redirect icmp {source ip} {dest ip} {icmp type} {icmp code} {dscp/precedence} {value} schedule {id} interface {interface}`
5. `no sequence <1-2147483647>`

Mode: IPv6 ACL configuration mode

Parameter:

Parameter	Description
`<1-2147483647>`	Specifies the unique sequence ID for the redirect rule.
`{protocol}`	Specifies the IPv6 protocol number (range: 0–255).
`{source ip}`	Defines the source IPv6 address and prefix length.
`{dest ip}`	Defines the destination IPv6 address and prefix length.
`{source port/source port range}`	Specifies the source Layer 4 port or a specific port range.
`{dest port/dest port range}`	Specifies the destination Layer 4 port or a specific port range.
`{TCP_FLAG}`	Matches specific TCP control flags (e.g., FIN, PSH).
`{dscp/precedence} {value}`	Matches the Differentiated Services Code Point (DSCP) or IP Precedence value within the Traffic Class byte.
`{icmp type} {icmp code}`	Specifies the exact ICMPv6 message type and corresponding error code.
`{id}`	Binds the rule to a predefined time schedule profile ID (range: 1–32).
`{interface}`	Specifies the physical egress interface to which matching traffic will be redirected (excluding interfaces bound by ACLs).

Description:

- `sequence <1-2147483647> redirect ...` : Creates an IPv6 traffic redirection policy that intercepts matching packets and forces them to a specified physical interface, overriding the standard routing table.
- `no sequence <1-2147483647>` : Removes the specified IPv6 redirect rule from the active access control list.

Example:

```
! Redirects TCP traffic from IPv6 source 2409:8754:3020:11:585e:67e:c77b:aef/128 (port 80/www) to any
destination (ports 1000-1200) with FIN/PSH flags and DSCP 1 to Ethernet port 1/0/2 during schedule 1.
Switch(config-ipv6-acl)# sequence 1 redirect tcp 2409:8754:3020:11:585e:67e:c77b:aef/128 www any 1000-1200
match-all +fin+psh dscp 1 schedule 1 interface Ethernet 1/0/2

! Redirects UDP traffic from any source (port 68/echo) to IPv6 destination
2409:8754:3020:11:4dc:b5b6:2f2d:1415/128 (port 514/syslog) with IP precedence 3 to Ethernet port 1/0/2
during schedule 1.
Switch(config-ipv6-acl)# sequence 1 redirect udp any echo 2409:8754:3020:11:4dc:b5b6:2f2d:1415/128 syslog
precedence 3 schedule 1 interface Ethernet 1/0/2

! Redirects ICMPv6 "Packet Too Big" messages (code 29) with IP precedence 7 to Ethernet port 1/0/2 during
schedule 1.
Switch(config-ipv6-acl)# sequence 1 redirect icmp any any packet-too-big 29 precedence 7 schedule 1
interface Ethernet 1/0/2
```

- IPv6 ACL binding

Command:

1. **ipv6 acl** *name*
2. **no ipv6 acl**

Mode: interface configuration mode

Parameter:

Parameter	Description
name	IPv6 ACL name, 1-64 characters, support numbers, letters and special characters ._@

Description: Bind/unbind IPv6 ACL

Example:

```
v6 acl named "test" to the port
Switch(config-if)# ipv6 acl test
unbind ipv6 acl
Switch(config-if)# no ipv6 acl
```

- View rules

Command: show ipv6 acl [*name* **]**

Mode: global configuration mode

Parameter:

Parameter	Description
name	IPv6 ACL name, 1-64 characters, support numbers, letters and special characters ._@

Description: Check the detailed rules of IPv6 ACL

Example:

```
View the detailed rules of ip v6 acl named test1
Switch# show ip v6 acl test1
```

ACL Statistics

- Configure ACL Statistics

Command:

```
acl-counter-set <name> sequence <1-2147483647>
acl-counter-set <name> sequence <1-2147483647> {byte64 | packet32}
acl-counter-set <name> sequence <1-2147483647> {packet32} idx <1-32>
```

Mode: Global configuration mode

Parameters:

Parameter	Description
`name`	ACL Name
`<1-2147483647>`	ACL rule ID
`byte64 | packet32`	Statistical units ***Note :*** *GWN78 11(P)/12P/13(P) /GWN7830 /GWN7831/GWN7821P/GWN7822P/GWN7801P Pro/GWN7802P Pro/GWN7803(PL/PH) Pro supports configuration , while GWN7801(P)/02(P)/03(P) only supports packet32.*
<1-32>	Statistical ID ***Note :*** *Only GWN7801(P)/02(P)/03(P) are supported.*

Description:

Configure ACL Statistics:

- **`acl-counter-set [name] sequence <1-2147483647>`** **:** Sets the ACL counter.
  Supported on: *GWN7806(P), GWN7816(P), GWN7832, GWN7806PL Pro, GWN7806PH Pro*
- **`acl-counter-set [name] sequence <1-2147483647> (byte64 | packet32)`** **:** Sets the statistics unit (bytes or packets).
  Supported on: *GWN7811(P), GWN7812P, GWN7813(P), GWN7830, GWN7831, GWN7821P, GWN7822P, GWN7801P Pro, GWN7802P Pro, GWN7803(PL/PH) Pro*
  Note: *GWN7801(P)/02(P)/03(P) only support* `packet32` .
- **`acl-counter-set [name] sequence <1-2147483647> packet32 idx <1-32>`** **:** Sets a packet-based statistics ID.
  Supported on: *GWN7801(P), GWN7802(P), GWN7803(P)*

Example:

```
# Example 1: Configure statistics for ACL name 1 and sequence number 1.
GWN7806(config)# acl-counter-set 1 sequence 1

# Example 2: Configure statistics for ACL name 2, sequence number 2, with the unit of statistics being
packet32.
GWN7811(config)# acl-counter-set 2 sequence 2 packet32

# Example 3: Configure ACL name 3 , sequence number 3 for statistics, with a statistical unit of packet32
and a statistical ID of 3.
GWN7801(config)# acl-counter-set 3 sequence 3 packet32 idx 3
```

- Cancel ACL Statistics

Command: no acl-counter-set *[name]* sequence *(<1-2147483647>|all)*

Mode: global configuration mode

Parameter:

Parameter	Description
name	ACL name
<1-2147483647>|all	Cancel the statistics of a single rule, or cancel the statistics of all

Description: Cancel ACL Statistics

Example:

```
Cancel the statistical binding of ACL name 1 and serial number 1
GWN7806(config)# no acl-counter-set 1 sequence 1

all statistical bindings for ACL name 2
GWN7811 (config)# no acl-counter-set 2 sequence all
```

- Clear ACL Statistics

Command:

1. acl-counter-clear [name] sequence (<1-2147483647>|all)
2. clear acl-counter [name] sequence (<1-2147483647>|all)

Mode: global configuration mode

Parameter:

Parameter	Description
name	ACL name
<1-2147483647>|all	Clear statistics for a single rule, or all

Description: Clear ACL Statistics

Example:

```
Clear the statistical binding of ACL name 1, sequence number 1
GWN7806(config)# no acl-counter- clear 1 sequence 1

all stat bindings for ACL name 2
GWN7811 (config)# no acl-counter- clear 2 sequence all
```

- View ACL Statistics

Command: show acl-counter *[name]* sequence *<1-2147483647>*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
name	ACL name
<1-2147483647>	ACL rule ID

Description: View ACL Statistics

Example:

```
Check the statistics of ACL name 1 and sequence number 1
GWN7806# show acl-counter 1 sequence 1
acl counter status : enabled
hit count: 0 Bytes
```

ACL Mirror

- **Configure ACL Mirror**

Command: acl-mirror-set *[name]* **sequence** *<1-2147483647>* **original groupId** *<0 – 3>*

Mode: global configuration mode

Parameter:

Parameter	Description
name	ACL name
<1-2147483647>	ACL rule ID
<0 – 3>	Adds the ACL mirror to the specified mirror group

Description: Configures ACL mirroring.

Note: *To configure the ACL mirror observation (monitoring) port, go to Mirroring Settings.*

Example:

```
Configure ACL name 1, sequence number 1 to join mirror group 1
Switch (config)# acl-mirror-set 1 sequence 1 original groupId 0
```

- Cancel ACL Mirror

Command: no acl-mirror-set [name] sequence <1-2147483647>

Mode: global configuration mode

Parameter:

Parameter	Description
name	ACL name
<1-2147483647>	ACL rule ID

Description: Cancel ACL Mirror

Example:

```
Cancel the mirroring of ACL name 1, sequence number 1
Switch (config)# no acl-mirror-set 1 sequence 1
```

- View ACL Mirror

Command: show acl-mirror-set [name] sequence <1-2147483647>

Mode: privileged EXEC mode

Parameter:

Parameter	Description
name	ACL name
<1-2147483647>	ACL rule ID

Description: Configure ACL Mirror

Example:

```
View the image of ACL name 1, sequence number 1
Switch # show acl-mirror-set 1 sequence 1
acl mirror status : enabled
gid: group0
mirror type: original
```

ACL Priority Remapping

- Configuring ACL Priority Remapping

Command: acl-remap-set [name] sequence <1-2147483647> remap <0-7>

Mode: global configuration mode

Parameter:

Parameter	Description
name	ACL name
<1-2147483647>	ACL rule ID
<0-7>	ACL priority , the larger the value, the higher the priority

Description: Configuring ACL Priority Remapping

Example:

```
Configure ACL name 1, the priority of sequence number 1 is 7
Switch (config)# acl-remap-set 1 sequence 1 remap 7
```

- Cancel ACL Priority Remapping

Command: no acl-remap-set [name] sequence (<1-2147483647>|all)

Mode: global configuration mode

Parameter:

Parameter	Description
name	ACL name
<1-2147483647>|all	ACL rule ID , you can cancel the priority setting of a single rule , or cancel the priority setting of all rules

Description: Cancel ACL Priority Remapping

Example:

```
Cancel ACL name 1, the priority of sequence number 1 is configuration
Switch (config)# no acl-remap-set 1 sequence 1
```

- View ACL Priority Remapping

Command: show acl-remap-set [name] sequence <1-2147483647>

Mode: privileged EXEC mode

Parameter:

Parameter	Description
name	ACL name
<1-2147483647>	ACL rule ID

Description: View ACL Priority Remapping

Example:

```
priority configuration of ACL name 1 and sequence number 1
Switch # show acl-remap-set 1 sequence 1
acl remap status : enabled
remap priority: 1
```

ACL Rate Limit

- **ACL Rate Burst Threshold Configuration**

  Supported models: *GWN7801(P) / GWN7802(P) / GWN7803(P)*

Command:

1. `acl-rateBurst-set packet <1-65535>`
2. `acl-rateBurst-set byte <1024-6400000 | 1024-8388480>`
3. `no acl-rateBurst-set {byte | packet}`

Mode: Global configuration mode

Parameter:

Parameter	Description
`packet <1-65535>`	Specifies the burst threshold value in packets (range: 1–65535).
`byte <1024-6400000>`	The type is byte, and the value is an integer between 1024 and 6400000 , and must be a multiple of 128.

Description:

- `acl-rateBurst-set ...` : Configures the global burst size threshold for ACL rate limiting, using either a packet count or a byte count.
- `no acl-rateBurst-set {byte | packet}` : Removes the configured burst threshold for the specified measurement unit.

Example:

```
! Configures a burst threshold of 100 packets for the ACL rate limit.
Switch(config)# acl-rateBurst-set packet 100
```

- **ACL Rate Limit Group Configuration**

Command:

Supported models: *GWN7801(P) / GWN7802(P) / GWN7803(P)*

1. `acl-rateLimit-set meter-idx <1-128> packet rate <1-262143>`
2. `acl-rateLimit-set meter-idx <1-128> byte rate <2-125000>`
3. `no acl-rateLimit-set meter-idx {<1-128> | all}`

Supported models: *GWN7811(P) / GWN7812P / GWN7813(P) / GWN7816(P) / GWN7830 / GWN7831 / GWN7832 / GWN7806(P) / GWN7821P / GWN7822P / GWN7801P Pro / GWN7802P Pro / GWN7803(PL/PH) Pro / GWN7806PL Pro / GWN7806PH Pro*

4. acl-rateLimit-set meter-idx <1-128> packet rate <1-262143> burst <1-65535>
5. acl-rateLimit-set meter-idx <1-128> byte rate <2-125000> burst <1024-8388480>

Mode: Global configuration mode

Parameter:

Parameter	Description
`meter-idx <1-128>`	Specifies the speed limit group ID (meter index).
`packet rate <1-262143>`	Specifies the rate limit in packets per second (range: 1–262143).
`byte rate <2-125000>`	Specifies the rate limit in bytes per second. The value must be an integer ranging from 2 to 125,000 and must be a multiple of 2.
`burst <1-65535>`	Specifies the packet burst size threshold (range: 1–65535).
`burst <1024-8388480>`	Specifies the byte burst size threshold. The value must be an integer ranging from 1024 to 8,388,480 and must be a multiple of 128.
`{<1-128> | all}`	Specifies a single meter index ID to remove, or uses the `all` keyword to delete every configured rate limit group.

Description:

- `acl-rateLimit-set ...` : Configures an ACL rate limiting group (meter index) by defining the maximum permitted bandwidth in either packets or bytes, and conditionally setting burst thresholds depending on the hardware model.
- `no acl-rateLimit-set ...` : Removes a specific ACL rate limiting group or clears all configured groups from the switch.

Example:

```
! Configures rate limit group 1 with a byte rate limit of 6400.
Switch(config)# acl-rateLimit-set meter-idx 1 byte rate 6400

! Configures rate limit group 2 with a packet rate limit of 2000.
Switch(config)# acl-rateLimit-set meter-idx 2 packet rate 2000

! Removes rate limit group 1.
Switch(config)# no acl-rateLimit-set meter-idx 1
```

-
-

- **View Speed Limit Group**

Command: show meter *[<1-128>]*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
<1-128>	Speed limit group ID

Description: View speed limit group

Example:

```
Switch# show meter 1
```

- ACL binding rate limit group

Command:

1. **acl-meter-set** *NAME* **sequence** *<1-2147483647>* **meter-idx** *<1-128>*
2. **no acl-meter-set** *NAME* **sequence** *<1-2147483647>*

Mode: global configuration mode

Parameter:

Parameter	Description
NAME	ACL Name
<1-2147483647>	ACL rule, an integer ranging from 1 to 2147483647
<1-128>	an integer ranging from 1 to 128

Description: Bind or cancel a rate limit group to an ACL.

Example:

```
Switch( config )# acl-meter-set test sequence 1 meter-idx 1
Switch( config )# no acl-meter-set test sequence 1
```

- Check the rate limit group bound to the ACL

Command: show acl-meter NAME sequence <1-2147483647>

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
NAME	ACL Name
<1-2147483647>	ACL rule, an integer ranging from 1 to 2147483647

Description: Check the rate limit group bound to the ACL

Example:

```
Switch# show acl-meter 1 sequence 1
```

- Clear ACL Counters

Command: `clear acl-counter <acl-name> sequence {<1-2147483647> | all}`

1.

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`<acl-name>`	Specifies the identifier (name or number) of the Access Control List.
`<1-2147483647>`	Specifies the unique sequence ID of a specific ACL rule.
`all`	Selects all rules within the specified ACL.

Description:

- `clear acl-counter <acl-name> sequence <1-2147483647>` : Clears the hardware hit count statistics for a specific rule within the designated ACL.
- `clear acl-counter <acl-name> sequence all` : Clears the hardware hit count statistics for all rules within the designated ACL.

Example:

```
! Clears the hit counters for all rules within ACL 1.
Switch# clear acl-counter 1 sequence all

! Clears the hit counter only for sequence rule 1 within ACL 1.
Switch# clear acl-counter 1 sequence 1
```

- View ACL Resource Utilization

Command: `show acl utilization`

Mode: Privileged EXEC mode

Parameter: None

Description: `show acl utilization` : Displays the current hardware resource utilization and capacity statistics for Access Control Lists (ACLs) on the switch.

Example:

```
! Displays the current ACL resource utilization on the switch.
Switch# show acl utilization
```

- View ACL Rule Counter Statistics

Command: `show acl-counter <acl-name> sequence <1-2147483647>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`<acl-name>`	Specifies the identifier (name or number) of the target Access Control List.
`<1-2147483647>`	Specifies the unique sequence ID of the specific ACL rule to query.

Description: `show acl-counter <acl-name> sequence <1-2147483647>` : Displays the real-time hardware hit count and traffic matching rate statistics for a specific rule within the designated ACL.

Example:

```
! Displays the hit counter statistics and traffic rate for sequence rule 1 within ACL 1.
Switch# show acl-counter 1 sequence 1
```

IP Source Guard

View IP Source Guard Bindings

Command:

1. `show ip source binding`
2. `show ip source binding dynamic`
3. `show ip source binding static`
4. `show ip source interfaces Ethernet <interface-id>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`dynamic`	Filters the output to display only dynamically learned binding entries.
`static`	Filters the output to display only statically configured binding entries.
`Ethernet <interface-id>`	Specifies the target Ethernet port ID to query.

Description:

- `show ip source binding` : Displays the complete list of all active IP-MAC-Port-VLAN binding entries.
- `show ip source binding dynamic` : Displays only the dynamically learned 4-tuple binding table entries.
- `show ip source binding static` : Displays only the statically configured 4-tuple binding table entries.

- `show ip source interfaces Ethernet <interface-id>` : Displays the IP Source Guard (IPSG) configuration and operational status for the specified port.

Example:

```
! Displays the complete list of all IP-MAC-Port-VLAN binding entries on the switch.
Switch# show ip source binding

! Displays the IP Source Guard configuration information for Ethernet port 1/0/2.
Switch# show ip source interfaces Ethernet 1/0/2
```

Global Configuration – IP Source Binding

Command: [no] ip source binding *[mac] [mac-mask]* **vlan** *[x] [ip] [ip-mask] [interface]*

Mode: global configuration mode

Parameter:

Parameter	Description
[mac], [mac-mask]	MAC address and mask. The bound MAC address cannot be `FFFF-FFFF-FFFF` , a multicast address, or an all-zero MAC address. Default mask: `FF:FF:FF:FF:FF:FF` .
vlan *[x]*	VLAN ID range: 1–4094.
[ip], [ip-mask]	IPv4 address and subnet mask. Default subnet mask: `255.255.255.255` .
[interface]	Switch port/interface, including Ethernet ports, fiber ports, and aggregation interfaces.

Description:

- **ip source binding** *[mac] [mac-mask]* **vlan** *[x] [ip] [ip-mask] [interface]*: Adds a static four-tuple binding entry.
- **ip source binding vlan** *[x] [ip] [ip-mask] [interface]*: Adds a static ternary binding entry.

Example:

```
Switch(config)# ip source binding aa:aa:aa:bb:ff:ff ff:ff:ff:ff:ff:ff vlan 1 192.168.1.11 255.255.255.255
interface Ethernet 1/0/2
```

Port Configuration – IP Source Guard (IP Source Verify)

Command:

- **IP source verify**
- **no IP source verify**
- **IP source verify** *[mac-and-ip|ip]*

Mode: interface configuration mode

Parameter:

Parameter	Description
[mac-and-ip|ip]	Port verification mode.

Description:

- **[no] IP source verify:** Enables or disables IP source protection.
- **ip source verify [mac-and-ip|ip]:** Sets the port verification mode.

Example:

```
Switch(config-if)#ip source verify
Switch(config-if)# ip source verify mac-and-ip
```

IPv6 Source Guard

View IPv6 Source Guard Bindings

Command:

1. `show ipv6 source binding`
2. `show ipv6 source binding dynamic`
3. `show ipv6 source binding static`
4. `show ipv6 source interfaces Ethernet <interface-id>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`dynamic`	Filters the output to display only dynamically learned IPv6 binding entries.
`static`	Filters the output to display only statically configured IPv6 binding entries.
`Ethernet <interface-id>`	Specifies the target Ethernet port ID to query.

Description:

- `show ipv6 source binding` : Displays the complete list of all active IPv6-MAC-Port-VLAN binding entries.
- `show ipv6 source binding dynamic` : Displays only the dynamically learned IPv6 4-tuple binding table entries (e.g., via DHCPv6 Snooping or ND Snooping).
- `show ipv6 source binding static` : Displays only the statically configured IPv6 4-tuple binding table entries.
- `show ipv6 source interfaces Ethernet <interface-id>` : Displays the IPv6 Source Guard (IPSGv6) enabling status and the active entry count on the specified interface.

Example:

```
! Displays the complete IPv6 binding table status and contents
Switch# show ipv6 source binding

Bind Table: Maximum Binding Entry Number 256
Current Binding Entry Number 0

! Displays the IPv6 Source Guard configuration status for a specific interface
Switch# show ipv6 source interfaces Ethernet 1/0/1
Port       | Status   | Current Entry
-----------+----------+---------------
eth1/0/1   | disabled | 0
```

Static IPv6 Source Guard Binding Configuration

Command:

1. `ip v6 source binding <mac-address> <mac-mask> vlan <vlan-id> <ipv6-address> <prefix-length> interface Ethernet <interface-id>`
2. `no ip v6 source binding <mac-address> <mac-mask> vlan <vlan-id> <ipv6-address> <prefix-length> interface Ethernet <interface-id>`

Mode: Global configuration mode

Parameter:

Parameter	Description
`<mac-address> <mac-mask>`	Specifies the target hardware MAC address and its corresponding network mask. The address cannot be the broadcast address (`ffff-ffff-ffff`), a multicast address, or consist entirely of zeros. The default mask is `ff:ff:ff:ff:ff:ff` .
`vlan <vlan-id>`	Binds the entry to a specific VLAN ID (range: 1–4094).
`<ipv6-address> <prefix-length>`	Specifies the bound IPv6 host address and its corresponding network prefix length (range: 1–128, default: 128).
`interface Ethernet <interface-id>`	Specifies the target switch interface (such as a copper Ethernet port, fiber SFP port, or Link Aggregation Group/LAG) bound to this entry.

Description:

- `ip v6 source binding ...` : Configures a static IPv6 Source Guard (IPSGv6) 4-tuple binding entry linking a specific MAC address, IPv6 address, VLAN, and interface to mitigate malicious source address spoofing.
- `no ip v6 source binding ...` : Deletes the specified static IPv6 Source Guard binding entry from the switch database.

Example:

```
! Adds a static IPv6 4-tuple binding entry linking the MAC, VLAN 1, IPv6 address 2000::1/128, and Ethernet
interface 1/0/1.
Switch(config)# ip v6 source binding aa:aa:aa:bb:ff:ff ff:ff:ff:ff:ff:ff vlan 1 2000::1 128 interface
Ethernet 1/0/1

! Removes the configured static IPv6 binding entry from the switch.
Switch(config)# no ip v6 source binding aa:aa:aa:bb:ff:ff ff:ff:ff:ff:ff:ff vlan 1 2000::1 128 interface
Ethernet 1/0/1
```

Port configuration – IPv6 source guard

Command:

1. **ipv6 source verify**
2. **no ipv6 source verify**
3. **ipv6 source verify** [mac-and-ip\ip]

Mode: interface configuration mode

Parameter:

Parameter	Description
[mac-and-ip\ip]	Port Verification Mode

Description:

1. **[no] ipv6 source verify** : Enable /disable IP source protection
2. **ipv6 source verify [mac-and-ip\ip]** : Set the port verification mode

Example:

```
Switch(config-if)# ip v6 source verify
Switch(config-if)# ip v6 source verify mac-and-ip
```

Attack defense

Check – attack defense

Command: show dos

1.

Mode: privileged EXEC mode

Parameter: none

Description: show dos : View DoS information

1.

Example:

```
Switch # show dos
```

Global Configuration – DoS Protection Options (attack defense)

Command: [no] dos *[option name]*

Mode: global configuration mode

Parameter:

Parameter	Description
[option name]	Main DoS function options: **daeqsa-deny**: Deny source MAC address = destination MAC address **icmp-frag-pkts-deny**: Deny fragmented ICMP packets **icmp-ping-max-length**: Limit the maximum ICMP message length **icmpv4-ping-max-check**: Check the maximum ping size for IPv4 **icmpv6-ping-max-check**: Check the maximum ping size for IPv6 **ipv6-min-frag-size-check**: Check the minimum fragment size of an IPv6 data frame **ipv6-min-frag-size-length**: Set the minimum length used to verify IPv6 data frame fragments **land-deny**: Deny source IP = destination IP **nullscan-deny**: Deny NULL scan attacks **pod-deny**: Prevent Ping of Death attacks **smurf-deny**: Deny Smurf attacks **smurf-netmask**: Configure the subnet mask for Smurf attack checks **syn-sport11024-deny**: Deny TCP source-port attacks **synfin-deny**: Deny TCP FIN attacks **synrst-deny**: Deny TCP RST attacks **tcp-frag-off-min-check**: Reject packets with a TCP fragment offset below the minimum threshold **tcphdr-min-check**: Verify the minimum TCP header field length **tcphdr-min-length**: Configure the minimum TCP header field length **xma-deny**: Deny Christmas tree (Xmas) TCP attacks

Description: Enables or disables the specified DoS protection function.

Example:

```
Switch(config)# dos daeqsa-deny
```

Dynamic ARP Inspection (DAI)

Check – DAI

Command:

1. **show ip arp inspection**
2. **show ip arp inspection interfaces** Ethernet [1-x]

Mode: privileged EXEC mode

Parameter:

Parameter	Description
Ethernet [x]	Port ID

Description:

1. **show ip arp inspection:** View the global switch status of DAI
2. **show ip arp inspection interfaces Ethernet [x]:** View the DAI settings of the specified port

Example:

```
Switch# show ip arp inspection
Switch# show ip arp inspection interfaces Ethernet 1/0/2
```

Global configuration – DAI

Command:

1. **[no] ip arp inspection**
2. **[no] ip arp inspection vlan** [vlan-id]

Mode: global configuration mode

Parameter:

Parameter	Description
[vlan-id]	VLAN ID

Description:

1. **[no] ip arp inspection:** enable/disable the global DAI function
2. **[no] ip arp inspection vlan [vlan-id]:** enable/disable the DAI function of the specified VLAN

Example:

```
Enable the DAI function on VLAN 1
Switch(config)# ip arp inspection vlan 1
```

Interface Dynamic ARP Inspection Configuration

Command:

1. `ip arp inspection trust`
2. `no ip arp inspection trust`
3. `ip arp inspection validate {dst-mac | ip | src-mac}`
4. `no ip arp inspection validate {dst-mac | ip | src-mac}`
5. `ip arp inspection rate-limit <0-50>`
6. `ip arp inspection rate-limit-action {drop | errdisable}`
7. `no ip arp inspection rate-limit-action`

Mode: Interface configuration mode

Parameter:

Parameter	Description
`dst-mac`	Validates incoming ARP packets by checking if the destination MAC address in the Ethernet frame header matches the target hardware address within the ARP payload.

Parameter	Description
`ip`	Inspects the ARP body for invalid or rogue IP addresses, such as all zeros (`0.0.0.0`), all ones (`255.255.255.255`), or multicast addresses.
`src-mac`	Validates incoming ARP packets by checking if the source MAC address in the Ethernet frame header matches the sender hardware address within the ARP payload.
`rate <0-50>`	Sets the maximum allowable rate for incoming ARP packets in packets per second (pps). A value of `0` disables the rate limit entirely.
`{drop | errdisable}`	Defines the enforcement penalty action when incoming ARP traffic exceeds the configured rate limit. Selecting `drop` silently discards packets exceeding the threshold, while `errdisable` places the interface into a shut down state due to a rate violation.

Description:

- `ip arp inspection trust` : Configures the interface as trusted, bypassing all Dynamic ARP Inspection (DAI) validation checks (typically configured on switch-to-switch trunk ports).
- `no ip arp inspection trust` : Reverts the interface to untrusted, forcing the switch to validate all incoming ARP packets against the DHCP snooping binding table or static IP source bindings (typically configured on access ports).
- `ip arp inspection validate ...` : Toggles supplementary header verification rules to add an extra layer of granular security filtering on untrusted traffic.
- `ip arp inspection rate-limit ...` : Restricts the volume of incoming ARP packets on the port to prevent malicious flooding and protect the switch CPU from Denial of Service (DoS) attacks.
- `ip arp inspection rate-limit-action ...` : Configures the switch response behavior (dropping traffic or shutting down the interface) once an ARP packet-per-second limit breach occurs.

Example:

```
! Sets the interface to trusted, configures destination MAC validation, enforces a restriction of 50 pps,
and sets the violation penalty to errdisable.
Switch(config-if)# ip arp inspection trust
Switch(config-if)# ip arp inspection validate dst-mac
Switch(config-if)# ip arp inspection rate-limit 50
Switch(config-if)# ip arp inspection rate-limit-action errdisable
```

RADIUS

Check – RADIUS

Command:

1. show radius
2. show radius default-config

Mode: privileged EXEC mode

Parameter: none

Description:

1. **show radius:** View server list
2. **show radius default-config**: View port configuration

Example:

```
Switch# show radius
Switch# show radius default-config
```

Global Configuration – RADIUS Server

Command:

- **[no] radius** *[host]*
- **radius host** *[ipv4|ipv6|domain]* **[auth-port** <*port*> **key** <*key*> **encrypted priority** <*priority*> **retransmit** <*count*> **]**
- **radius default-config [key encrypted] [retransmit] [timeout]**

Mode: global configuration mode

Parameter:

Parameter	Description
[host]	RADIUS server hostname.
auth-port	UDP port used by RADIUS (range: 1–65535, default: 1812).
key	RADIUS shared key.
encrypted	Indicates the key is encrypted.
priority	Server priority.
retransmit	Number of retransmissions.
timeout	Timeout value.

Description:

- **no radius [host]:** Removes a RADIUS server entry. If *[host]* is omitted, all entries are removed.
- **radius host [ipv4|ipv6|domain] [auth-port \ key \ encrypted \ priority \ retransmit]:** Adds a RADIUS server and optionally sets profile parameters.
- **radius default-config [key encrypted] [retransmit] [timeout]:** Sets the default RADIUS configuration, including support for encrypted keys.

Example:

```
Configure the RADIUS server address as 192.168.1.3, port 1812, key as "test", retransmit count as 2, and
timeout as 2 seconds.
Switch(config)# radius host 192.168.1.3 auth-port 1812 key test retransmit 2 timeout 2 type login

Configure the RADIUS server address as 3.3.3.3, port 1812, with an encrypted key, retransmit count as 2, and
timeout as 2 seconds.
Switch(config)# radius host 3.3.3.3 auth-port 1812 key CPs5fOSG7jNQx3NXTr2O6A== encrypted retransmit 2
timeout 2 type logi
```

TACACS+

View – TACACS+

Command:

- **show tacacs**
- **show tacacs default-config**

Mode: Privileged EXEC mode

Parameter: none

Description:

- **show tacacs:** Displays the list of TACACS+ servers.
- **show tacacs default-config:** Displays the default TACACS+ configuration.

Example:

```
Switch# show tacacs
 Server Address | Prio | Timeout | Port | Key
-----------------+------+---------+--------+----------
2.1.1.1 |111 | 5 | 49 | 111

Switch# show tacacs default-config
Timeout | Key
--------+---------
5 | password
```

Global TACACS+ Server Configuration

Command:

1. `tacacs host {<ipv4-address> | <ipv6-address> | <hostname>} [port <1-65535>] [key [encrypted] <key-string>] [priority <priority-value>] [timeout <seconds>]`
2. `tacacs default-config [key [encrypted] <key-string>] [timeout <seconds>]`
3. `no tacacs host {<ipv4-address> | <ipv6-address> | <hostname> | all}`

Mode: Global configuration mode

Parameter:

Parameter	Description
`{<ipv4-address> | <ipv6-address> | <hostname>}`	Specifies the IPv4 address, IPv6 address, or domain hostname of the remote TACACS+ server.
`port <1-65535>`	Specifies the TCP port used for TACACS+ communication (range: 1–65535, default: 49).
`key <key-string>`	Configures the symmetric shared secret key used to authenticate and encrypt communications between the switch and the TACACS+ server.
`encrypted`	Indicates that the trailing key string is already provided in an encrypted format.
`priority <priority-value>`	Sets the server priority rank, defining the fallback sequence order when multiple TACACS+ servers are configured.
`timeout <seconds>`	Sets the time interval (in seconds) the switch waits for a response from the server before timing out.
`all`	Selects all configured TACACS+ servers for a global deletion sweep.

Description:

- `tacacs host ...` : Adds and configures a remote TACACS+ server profile to facilitate centralized Terminal Access Controller Access-Control System Plus (AAA) management.
- `tacacs default-config ...` : Defines global fallback configuration parameters (such as default keys or timeouts) that apply automatically to any host server missing unique individual settings.

- `no tacacs host ...` : Removes a targeted TACACS+ host record or clears out all server listings from the switch entirely.

Example:

```
! Configures a TACACS+ server at 192.168.1.3 on port 49 using the cleartext shared secret "test", with a
priority of 2 and a timeout of 2 seconds.
Switch(config)# tacacs host 192.168.1.3 port 49 key test priority 2 timeout 2

! Configures a TACACS+ server at 3.3.3.3 on port 49 using a pre-encrypted shared secret key and a timeout of
2 seconds.
Switch(config)# tacacs host 3.3.3.3 port 49 key CPs5fOSG7jNQx3NXTr2O6A== encrypted timeout 2
```

AAA

View – AAA Authentication Lists

Command: show aaa authentication login lists

Mode: privileged EXEC mode

Parameter:

Parameter	Description
login lists	Displays the authentication request sequence for login.
enable lists	Displays the authentication request sequence for enable.

Description: Displays the configured authentication method lists for login (and enable, if configured).

Example:

```
Switch# show aaa authentication login lists
```

Global Configuration – AAA Authentication (Login)

Command: [no] aaa authentication login *[name] [enable|local|none|radius|tacacs]*

Mode: Global configuration mode

Parameter:

Parameter	Description
login	Specifies that this authentication method list applies to the login process.
[name]	Authentication method list name.
[enable|local|none|radius|tacacs]	Authentication method order (up to four items).

Description: Configures an AAA login authentication method list. The method list can be applied to **SSH, Telnet, Console, HTTP, and HTTPS**.

Example:

```
Add an authentication method list named tacacs_1 for the login process, with the sequence tacacs, radius,
none.
Switch(config)# aaa authentication login tacacs_1 tacacs+ radius none
```

Authentication management

View – Authentication Session Information

Command:

- **show authentication sessions**
- **show authentication sessions detail**
- **show authentication sessions mac** *A:B:C:D:E:F*
- **show authentication sessions session-id** *WORD*
- **show authentication sessions interfaces** *IF_NMLPORTS*
- **show authentication sessions type** *{dot1x | mac}*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
A:B:C:D:E:F	Displays session information for the specified MAC user.
WORD	Displays session information for the specified session ID.
IF_NMLPORTS	Displays session information for the specified port.
{dot1x | mac}	Filters session information by session type.

Description: Displays the session information currently managed by authentication.

Example:

```
Switch# show authentication sessions
```

Global Configuration – Authentication management

- Enable/disable 802.1X authentication

Command:

1. **authentication dot1x**
2. **no authentication dot1x**

Mode: global configuration mode

Parameter: none

Description: Enable/disable global 802.1X authentication function.

Example:

```
Switch(config)# authentication dot1x
```

- Enable/disable MAC authentication

Command:

1. **authentication mac**
2. **authentication mac radius mac-case** (lower|upper)
3. **authentication mac radius mac-delimiter** (colon|dot|hyphen|none) [gap (2|4|6)]
4. **no authentication mac**

Mode: global configuration mode

Parameter:

Parameter	Description
lower|upper	Specify whether the MAC address is in uppercase or lowercase.
colon|dot|hyphen|none	The separator used for MAC address characters . Colon is represented by ":", dot is represented by ".", hyphen is represented by "-", and none is used for no separator.
gap (2|4|6)	Set the number of characters in the MAC address to use as a separator.

Description:

- Enable/disable global MAC authentication function.
- enabling , it supports setting the user ID format based on MAC.

Example:

```
Switch(config)#authentication mac
Switch(config)# authentication mac radius mac-case upper
Switch(config)# authentication mac radius mac-delimiter colon gap 2
```

- Setting up guest VLAN

Command:

1. **authentication guest-vlan** <1-4094>
2. **no authentication guest-vlan** <1-4094>

Mode: global configuration mode

Parameter:

Parameter	Description
<1-4094>	Guest VLAN ID

Description: Setting up guest VLAN

Example:

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

Port Configuration – Authentication management

- Set User Authentication Mode

Command: authentication host-mode (multi-session | multi-host | single-host)
Command: no authentication host-mode
Mode: Port Configuration Mode
Parameter:

Parameter	Description
multi-session	MAC-based authentication — each MAC address must authenticate individually
multi-host	Port-based authentication — one success allows all hosts access
single-host	Allows only a single successfully authenticated device per port

Description:
Configures the port's user authentication mode based on the desired access behavior.

Example:

```
Switch(config-if)# authentication host-mode multi-session
```

- Enable guest VLAN

Command:

1. **authentication guest-vlan**
2. **no authentication guest-vlan**

Mode: Interface configuration mode

Parameter: none

Description: Enable guest VLAN on the port

Example:

```
Switch(config-if)# authentication guest-vlan
```

- RADIUS Authorization VLAN Fallback Configuration

Command:

1. `authentication radius-attributes vlan {reject | static}`
2. `no authentication radius-attributes vlan`

Mode: Interface configuration mode

Parameter:

Parameter	Description
`reject`	Rejects the terminal's access request, denying network entry if no VLAN authorization attribute is provided.
`static`	Allows the terminal to authenticate and preserves its original or statically configured port VLAN assignment.

Description:

- `authentication radius-attributes vlan {reject | static}` : Configures the port's fallback behavior when a RADIUS server authenticates a client but fails to push down a dynamic VLAN ID.
- `no authentication radius-attributes vlan` : Restores the default RADIUS authorization VLAN behavior on the interface.

Example:

```
! Configures the interface to reject the client if the RADIUS server does not authorize a specific VLAN.
Switch(config-if)# authentication radius-attributes vlan reject
```

- Set the authentication method

Command:

1. **authentication order mac [dot1x]**
2. **authentication order dot1x [mac]**
3. **no authentication order**

Mode: Port Configuration Mode

Parameter: none

Parameter	Description
MAC-address	MAC address: format A:B:C:D:E:F, such as 00:00:00:00:00:01

Description: Enable the port authentication method and perform authentication in the order of configuration.

Example:

```
Switch(config-if)# authentication order dot1x mac
```

- Setting the authentication method

Command:

1. **authentication mac method radius [local]**
2. **authentication mac method local [radius]**
3. **no authentication mac method**

Mode: Port Configuration Mode

Parameter: none

Description: How to enable port MAC authentication , and perform authentication in the order of configuration. ***Note:*** *Port 802.1X authentication can only use the RADIUS method*.

Example:

```
Switch(config-if)# authentication mac method radius local
```

- Setting the control mode

Command:

1. **authentication port-control** (auto|force-auth|force-unauth)
2. **no authentication port-control**

Mode: Port Configuration Mode

Parameter:

Parameter	Description
auto	Automatically select authentication control mode
force-auth	Port automatic authentication passed
force-unauth	Port forced to deny authentication

Description: Set the port control mode

Example:

```
Switch(config-if)# authentication port-control force-auth
```

- Enable/disable re-authentication

Command:

1. **authentication reauth**
2. **no authentication reauth**

Mode: Port Configuration Mode

Parameter: none

Description: Enable/disable port re-authentication function

Example:

```
Switch(config-if)# authentication reauth
```

- Set the maximum number of users

Command:

1. **authentication max-hosts** < 1-256 >
2. **no authentication max-hosts**

Mode: Interface configuration mode

Parameter:

Parameter	Description
< 1-256 >	Configure the maximum number of hosts allowed for a port. This is only valid for multi-auth.

Description: Set the maximum number of users on a port

Example:

```
Switch(config-if)#authentication max-hosts 256
```

- Setting the general timer

Command:

1. **authentication timer reauth** <300-2147483647>
2. **no authentication timer reauth**
3. **authentication timer inactive** <60-65535>
4. **no authentication timer inactive**
5. **authentication timer quiet** <0-65535>
6. **no authentication timer quiet**

Mode: Port Configuration Mode

Parameter:

Parameter	Description
<300-2147483647>	Renewal time interval after successful authentication
<60-65535>	Offline time when there is no active message
<0-65535>	Re-authentication interval after authentication failure

Description: Set the general timers for the port , including reauthentication time, inactive time interval, and quiet time.

Example:

```
Switch(config-if)# authentication timer reauth 3600
Switch(config-if)#authentication timer inactive 60
Switch(config-if)#authentication timer quiet 60
```

- Setting 802.1X parameters

Command:

1. **dot1x timeout tx-period** <1-65535>
2. **no dot1x timeout tx-period**
3. **dot1x timeout supp-timeout** <1-65535>
4. **no dot1x timeout supp-timeout**
5. **dot1x timeout server-timeout** <1-65535>
6. **no dot1x timeout server-timeout**
7. **dot1x max-req** <1-10>
8. **no dot1x max-req**

Mode: Port Configuration Mode

Parameter:

Parameter	Description
tx-period <1-65535>	Resend EAP request time (in seconds) , the time the device waits for a response to an Extensible Authentication Protocol (EAP) request/identity frame from the supplicant (client) before resending the request.

supp-timeout <1-65535>	Supplicant timeout (in seconds) , the time that elapses before an EAP request is resent to the supplicant.
server-timeout <1-65535>	Server timeout (in seconds) , the time that elapses before the device resends a request to the authentication server.
max-req <1-10>	If no response is received from the client within a certain period of time, the maximum number of times to send an EAP request to the client again.

Description: Set the general timers for the port , including reauthentication time, inactive time interval, and quiet time.

Example:

```
Switch(config-if)# dot1x tx-period 30
Switch(config-if)# dot1x supp-timeout 30
Switch(config-if)# dot1x server-timeout 30
Switch(config-if)# dot1x max-req 2
```

MAC-Based Local User Authentication Configuration

Command:

1. `authentication mac local <mac-address> name <name-string> control unauth`
2. `authentication mac local <mac-address> name <name-string> control auth [vlan <1-4094>] [reauth-period <300-2147483647>] [inactive-timeout <60-65535>]`
3. `no authentication mac local {<mac-address> | all}`

Mode: Global configuration mode

Parameter:

Parameter	Description
`<mac-address>`	Specifies the MAC address of the local user or device (format: `aa:bb:cc:dd:ee:ff`).
`name <name-string>`	Specifies a descriptive name or identifier for the user.
`control {unauth | auth}`	Sets the port authorization control mode. • `unauth` : Acts as a blacklist, explicitly denying authentication and blocking network access for the MAC address. • `auth` : Acts as a whitelist, forcing successful authentication and bypassing standard checks.
`vlan <1-4094>`	Assigns the device to a specific authorized VLAN ID after successful authentication.
`reauth-period <300-2147483647>`	Specifies the re-authentication interval in seconds. The switch will force the client to re-authenticate after this timer expires.
`inactive-timeout <60-65535>`	Specifies the inactivity timeout in seconds. The switch will disconnect the user if no activity is detected within this period.
`{<mac-address> | all}`	Specifies a single MAC address to remove, or uses the `all` keyword to delete every configured MAC-based local user at once.

Description:

- `authentication mac local ...` : Creates a local MAC-based authentication record to either whitelist (authorize) or blacklist (deny) specific devices from accessing the network.
- `no authentication mac local ...` : Removes a specific MAC-based local user entry or clears all configured local users from the switch database.

Example:

```
! Creates a MAC-based local user named "Lily" and blacklists the device (forces an unauthenticated state).
Switch(config)# authentication mac local aa:aa:aa:bb:ff:ff name Lily control unauth

! Creates a MAC-based local user named "Lily", whitelists the device, assigns it to VLAN 5, sets a re-
authentication period of 3600 seconds, and sets an inactivity timeout of 60 seconds.
Switch(config)# authentication mac local aa:aa:aa:bb:ee:ff name Lily control auth vlan 5 reauth-period 3600
inactive-timeout 60

! Deletes the specific MAC-based local user entry.
Switch(config)# no authentication mac local aa:aa:aa:bb:ff:ff

! Deletes all MAC-based local user entries on the switch.
Switch(config)# no authentication mac local all
```

DHCP Snooping

DHCP snooping global configuration

- Enable/disable DHCP Snooping

Command:

1. **ip dhcp snooping**
2. **no ip dhcp snooping**

Mode: global configuration mode

Parameter: none

Description: Enable/disable DHCP Snooping function

Example:

```
Switch(config)# ip dhcp snooping
Switch(config)# no ip dhcp snooping
```

- Select/Clear VLAN

Command:

1. **ip dhcp snooping vlan** *VLAN-LIST*
2. **no ip dhcp snooping vlan** VLAN-LIST

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs

Description:

1. Enable the DHCP snooping function on the specified VLAN
2. Clear the VLAN specified by DHCP Snooping

Example:

```
switch(config)# ip dhcp snooping vlan 1-100
switch(config)# no ip dhcp snooping vlan 1-100
```

- View DHCP Snooping

Command: show ip dhcp snooping

Mode: privileged EXEC mode

Parameter: none

Description: View DHCP snooping settings

Example:

```
switch # show ip dhcp snooping

DHCP Snooping: disabled
Enable on following Vlans : None
circuit-id default format: vlan-port
remote-id: : c0:74:ad:b9:3b:44 (Switch Mac in Byte Order)
```

Port configuration – DHCP Snooping

- Port trust mode

Command:

1. **ip dhcp snooping trust**
2. **no ip dhcp snooping trust**

Mode: interface configuration mode

Parameter: none

Description: Configure the trust mode of the port , the default is not trusted

Example:

```
Switch # configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ip dhcp snooping trust
```

- Chaddr check

Command:

1. ip dhcp snooping verify mac-address
2. no ip dhcp snooping verify mac-address

Mode: interface configuration mode

Parameter: none

Description: Set to check whether the source MAC address of the reported DHCP message frame header is the same as the Chaddr field, which is disabled by default

Example:

```
switch(config)# interface Ethernet 1/0/1
switch(config-if)# ip dhcp snooping verify mac-address
switch(config-if)# no ip dhcp snooping verify mac-address
```

- Port speed limit

Command:

1. **ip dhcp snooping rate-limit** *<1-300>*
2. **no ip dhcp snooping rate-limit**

Mode: interface configuration mode

Parameter:

Parameter	Description
<1-300>	Limit rate, an integer ranging from 1 to 300

Description: Set the rate at which the port processes DHCP packets (pps) , the default is unlimited

Example:

```
switch(config)# interface Ethernet 1/0/1
switch(config-if)# ip dhcp snooping rate-limit 30
```

- View port configuration

Command: show ip dhcp snooping interfaces IF_PORTS

Mode: privileged EXEC mode

Parameter:

Parameter	Description
IF_PORTS	Designated interfaces , including Ethernet interfaces, optical interfaces, and aggregation interfaces

Description: Check the DHCP snooping settings of the port

Example:

```
switch# show ip dhcp snooping interface Ethernet 1/0/1

Interfaces | Trust State | Rate (pps) | hwaddr Check | Insert Option82 |
-----------+-------------+------------+----------- ---+------------------+
eth1/0/1 | Untrusted | None | disabled | disabled |
```

- View DHCP snooping data

Command: show ip dhcp snooping interfaces IF_PORTS statistics

Mode: interface configuration mode

Parameter:

Parameter	Description
IF_PORTS	Switch interfaces , including electrical ports, optical ports, and aggregation interfaces

Description: View the DHCP snooping data of a specified interface

Example:

```
switch# show ip dhcp snooping interfaces Ethernet 1/0/1 statistics

switch# show ip dhcp snooping interfaces Ethernet 1/0/1 statistics
Interfaces | Forwarded | Chaddr Check Dropped | Untrust Port Dropped|Untrust Port With Option82 Dropped |
InvalidDrop
-----------+-----------+----------------------+--- ------------------+------------------------------ ----+-
------
eth1/0/1 | 0 | 0 | 0 | 0 | 0
```

- Clear DHCP snooping data

Command: clear ip dhcp snooping interfaces IF_PORTS statistics

Mode: interface configuration mode

Parameter:

Parameter	Description
IF_PORTS	Switch interfaces , including electrical ports, optical ports, and aggregation interfaces

Description: Clear the DHCP snooping data of the specified interface

Example:

```
switch# clear ip dhcp snooping interfaces Ethernet 1/0/1 statistics

switch# show ip dhcp snooping interfaces Ethernet 1/0/1 statistics
Interfaces | Forwarded | Chaddr Check Dropped | Untrust Port Dropped|Untrust Port With Option82 Dropped |
InvalidDrop
----- ------+-----------+----------------------+--- ------------------+------------------------------ ----
+-------
eth1/0/1 | 0 | 0 | 0 | 0 | 0
```

Configure Option 82

- Enabling/Disabling Option 82

Command Syntax:
ip dhcp snooping option enable
no ip dhcp snooping option enable

Mode: Interface Configuration Mode

Parameters: None

Description: Enable or disable DHCP Option 82 on a specified interface.

Example:

```
# Enable DHCP Option 82 on interface Ethernet 1/0/1.
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ip dhcp snooping option enable
```

- Option 82 mode

Command: ip dhcp snooping option action (drop|keep|replace)

Mode: interface configuration mode

Parameter:

Parameter	Description
drop	If the message contains Option 82, the message will be discarded directly
keep	If the message contains Option 82, keep Option 82 in the message unchanged and forward it
replace	If there is Option 82 in the message, replace the original Option 82 in the message and forward it

Description: Set the processing of the message when the received message contains Option 82 , support discard, retain and replace, and discard by default

Example:

```
switch(config)# interface Ethernet 1/0/1
switch(config-if)# ip dhcp snooping option action replace
```

- Adding/Deleting Circuit ID

Command Syntax:
ip dhcp snooping [vlan <1-4094>] option circuit-id STRING [remote-id STRING] { private }
no ip dhcp snooping [vlan <1-4094>] option circuit-id

Mode: Interface Configuration Mode

Parameters:

Parameter	Description
vlan <1-4094>	VLAN ID, an integer ranging from 1 to 4094.
STRING	Circuit ID value, up to 63 characters, does not support `\?/,` .
STRING	Remote ID value, up to 63 characters, does not support `\?/,` .

Description: Set or delete custom Circuit ID and Remote ID for the specified interface. Supports two formats: standard (using TLV – Type-Length-Value) and private (only using the value).

Example:

```
# Configure the Circuit ID as "portA" and the Remote ID as "PortB" in standard format.
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ip dhcp snooping vlan 1 option circuit-id portA remote-id PortB

# Configure the Circuit ID as "portA" and the Remote ID as "PortB" in private format.
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ip dhcp snooping vlan 1 option circuit-id portA remote-id PortB private
```

- Add/Delete Remote ID

Command:

1. **ip dhcp snooping option remote-id STRING**
2. **ip dhcp snooping option remote-id STRING private**
3. **no ip dhcp snooping option remote-id**

Mode: global configuration mode

Parameter:

Parameter	Description
STRING	Remote ID value, up to 63 characters, **"\?/,** characters are not supported.

Description: Set the Remote ID of the switch in standard or private format . The standard format uses TLV (type-length-value) , while the private format only uses value. The default is the switch MAC address.

Example:

```
Configure remote-id to the standard format of DUT1@AAAa
switch(config)# ip dhcp snooping option remote-id DUT1@AAAa
Configure remote-id to the private format of DUT1@AAAa
switch(config)# ip dhcp snooping option remote-id DUT1@AAAa private
```

- **View – Remote ID**

Command: do show ip dhcp snooping option

Mode: global configuration mode

Parameter: none

Description: Displays the switch Remote ID.

Example:

```
switch# show ip dhcp snooping option remote-id
Remote ID: test_remote
```

Configure database

- Clear/Save to flash

Command:

1. ip dhcp snooping database flash
2. no ip dhcp snooping database

Mode: global configuration mode

Parameter: none

Description: Save DHCP Snooping to flash. Note: This is linked to the “Permanent DHCPv6 Snooping entry” option of DHCPv6 Snooping.

Example:

```
Switch(config)# ip dhcp snooping database flash
Switch(config)# no ip dhcp snooping database
```

- **Global Configuration – DHCP Snooping Database Write Delay**

Command:

- **ip dhcp snooping database write-delay** *<15-86400>*
- **no ip dhcp snooping database write-delay**

Mode: Global configuration mode

Parameter:

Parameter	Description
<15-86400>	Wait time (in seconds) after the DHCP Snooping table is updated (range: 15–86400). Default: 300 seconds.

Description:

- Sets the delay (wait time) after a DHCP Snooping entry is updated before writing to the database.
- **no ip dhcp snooping database write-delay:** Resets the wait time to the default (300 seconds).

Example:

```
switch(config)#ip dhcp snooping database write-delay 60
```

- Viewing DHCP snooping entries

Command: show ip dhcp snooping database

Mode: privileged EXEC mode

Parameter: none

Description: Viewing DHCP Snooping Entries

Example:

```
switch# show ip dhcp snooping database
```

- Clear DHCP snooping entries

Command: clear ip dhcp snooping database statistics

Mode: privileged EXEC mode

Parameter: none

Description: Clearing DHCP Snooping Entries

Example:

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

- Read DHCP snooping entries

Command: renew ip dhcp snooping database

Mode: privileged EXEC mode

Parameter: none

Description: Read DHCP Snooping entries from the saved database file

Example:

```
Switch# show ip dhcp snooping database

Type : None
FileName:
Write delay Timer : 300 seconds
Abort Timer : 300 seconds

Agent Running : None
Delay Timer Expiry : Not Running
Abort Timer Expiry : Not Running

Last Succeded Time : None
Last Failed Time : None
Last Failed Reason :

Total Attempts : 0
Successful Transfers : 0 Failed Transfers : 0
Successful Reads : 0 Failed Reads : 0
Successful Writes : 0 Failed Writes : 0


Switch# show ip dhcp snooping binding

Bind Table: Maximum Binding Entry Number 256
Port | VID | MAC Address | IP | Type |
-------+------+-----------------+---------------- ------+------------+-----------
eth1/0/1|1|48:5B:39:C7:12:62|192.168.1.100(255.255.255.255)|DHCP Snooping|86400
```

- Display the binding entries learned by DHCP snooping

Command: show ip dhcp snooping binding

Mode: privileged EXEC mode

Parameter: none

Description: Display the binding entries learned by DHCP snooping

Example:

```
Switch# show ip dhcp snooping binding

Bind Table: Maximum Binding Entry Number 256
Port | VID | MAC Address | IP | Type |
-------+------+------------------+---------------- ------+------------+-----------
eth1/0/1|1|48:5B:39:C7:12:62|192.168.1.100(255.255.255.255)|DHCP Snooping|86400
```

DHCPv6 Snooping

DHCPv6 Snooping Global Configuration

- Enable/disable DHCPv6 Snooping

Command:

1. **IPv6 DHCP snooping**
2. **no ipv6 dhcp snooping**

Mode: global configuration mode

Parameter: none

Description: Enable/disable DHCPv6 snooping

Example:

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

- Select/Clear VLAN

Command:

1. **Ipv6 dhcp snooping vlan** *VLAN-LIST*
2. **no ipv6 dhcp snooping vlan** VLAN-LIST

Mode: global configuration mode

Parameter:

Parameter	Description
VLAN-LIST	VLAN, the value range is 1-4094 , it can be a single VLAN or multiple VLANs

Description: Enable DHCPv6 Snooping on a specified VLAN. Clear the VLAN specified by DHCPv6 Snooping

Example:

```
switch(config)# ipv6 dhcp snooping vlan 1-100
switch(config)# no ipv6 dhcp snooping vlan 1-100
```

- **View – DHCPv6 Snooping**

Command: show ipv6 dhcp snooping

Mode: Privileged EXEC mode

Parameter: none

Description: Displays DHCPv6 Snooping settings.

Example:

```
Switch# show ipv6 dhcp snooping
DHCPv6 Snooping: disabled
Enable on following Vlans : None
circuit-id default format: vlan-port
remote-id : c0:74:ad:b9:3b:44
```

Port Configuration – DHCPv6 Snooping

- Port Trust Mode

Command:

1. **Ipv6 dhcp snooping trust**
2. **no ipv6 dhcp snooping trust**

Mode: Interface Configuration Mode

Parameter: none

Description: Configure the port trust mode , the default is not trusted.

Example:

```
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ipv6 dhcp snooping trust
```

- Port rate limit

Command:

1. **ipv6 dhcp snooping rate-limit** *<1-300>*
2. **no ipv6 dhcp snooping rate-limit**

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
<1-300>	limit is an integer ranging from 1 to 300.

Description: Set the port's processing rate for DHCPv6 messages (pps). The default is unlimited.

Example:

```
switch(config)# interface Ethernet 1/0/1
switch(config-if)# ipv6 dhcp snooping rate-limit 30
```

- View port configuration

Command: show ipv6 dhcp snooping interfaces IF_PORTS

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
IF_PORTS	Specify interfaces , including Ethernet interfaces, optical interfaces, and aggregate interfaces.

Description: Check the DHCPv6 Snooping settings of the port.

Example:

```
switch# show ipv6 dhcp snooping interface Ethernet 1/0/1

Interfaces | Trust State | Rate (pps) | Insert Option18 | Insert Option37 |
------------+-------------+------------+-----------------+-----------------+
eth1/0/1 | Untrusted | 30 | disabled | disabled |
```

- Viewing DHCPv6 Snooping Data

Command: show ipv6 dhcp snooping interfaces IF_PORTS statistics

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
IF_PORTS	Switch interfaces , including electrical interfaces, optical interfaces, and aggregation interfaces.

Description: Check the DHCPv6 Snooping data of a specified interface.

Example:

```
switch# show ipv6 dhcp snooping interfaces Ethernet 1/0/1 statistics

Interfaces | Forwarded | Untrust Port Dropped | Untrust Port With Option18 Dropped | Untrust Port With
Option37 Dropped | Invalid Drop
------------+-----------+----------------------+--------------------------------------------+-----------
----------------------------+--------------
eth1/0/1 | 0 | 0 | 0 | 0 | 0
```

- Clear DHCPv6 Snooping Data

Command: clear ipv6 dhcp snooping interfaces IF_PORTS statistics

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
IF_PORTS	Switch interfaces , including electrical interfaces, optical interfaces, and aggregation interfaces.

Description: Clear DHCPv6 Snooping data for a specified interface.

Example:

```
switch# clear ipv6 dhcp snooping interfaces Ethernet 1/0/1 statistics

switch# show ipv6 dhcp snooping interfaces Ethernet 1/0/1 statistics
Interfaces | Forwarded | Untrust Port Dropped | Untrust Port With Option18 Dropped | Untrust Port With
Option37 Dropped | Invalid Drop
------------+-----------+----------------------+-- ----------------------------------+------------------ ---
-----------------------+-------------
eth1/0/1 | 0 | 0 | 0 | 0 | 0
```

Configure Option 37 – DHCPv6 Snooping

- Enable/disable Option 37

Command:

1. **ipv6 dhcp snooping option remote-id enable**
2. **no ipv6 dhcp snooping option remote-id enable**

Mode: Interface Configuration Mode

Parameter: none

Description: Enable /disable Option 37 function on the specified interface.

Example:

```
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ipv6 dhcp snooping option remote-id enable
```

- Option 37 mode

Command: ipv6 dhcp snooping option remote-id action (drop|keep|replace)

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
drop	If the message contains Option 37 , the message will be discarded directly.
keep	If the message contains Option 37 , keep Option 37 unchanged and forward it.
replace	If the message contains Option 37 , replace the original Option 37 in the message and forward it.

Description: Set the processing of the received message when it contains Option 37. Supports discard, keep and replace. The default is discard.

Example:

```
switch(config)# interface Ethernet 1/0/1
switch(config-if)# ipv6 dhcp snooping option remote-id action replace
```

- Add/Delete Remote ID

Command:

1. **ipv6 dhcp snooping option remote-id STRING**
2. **no ipv6 dhcp snooping option remote-id**

Mode: global configuration mode

Parameter:

Parameter	Description
STRING	Remote ID value, up to 63 characters, supports input ./:-{}

Description: Set the switch Remote ID, the default is the switch MAC address.

Example:

```
switch(config)# ipv6 dhcp snooping option remote-id test_remote.
```

- View Remote ID

Command: show ipv6 dhcp snooping option remote-id

Mode: Privileged EXEC mode

Parameter: none

Description: Check the switch remote ID

Example:

```
switch# show ipv6 dhcp snooping option remote-id
Remote ID: test_remote
```

Configure Option 18 – DHCPv6 Snooping

- Enable/disable Option 18

Command:

1. **ipv6 dhcp snooping option interface-id enable**
2. **no ipv6 dhcp snooping option interface-id enable**

Mode: Interface Configuration Mode

Parameter: none

Description: Enable/disable Option 18 function on the specified interface.

Example:

```
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ipv6 dhcp snooping option interface-id enable
```

- Option 18 mode

Command: ipv6 dhcp snooping option interface-id action (drop|keep|replace)

Mode: Interface Configuration Mode

Parameter:

Parameter	Description
drop	If the message contains Option 18, the message will be discarded directly.
keep	If the message contains Option 18, the message is forwarded without changing Option 18.
replace	If the message contains Option 18, replace the original Option 18 in the message and forward it.

Description: Set the processing of the received message when it contains Option 18. Supports discard, keep and replace. The default is discard.

Example:

```
switch(config)# interface Ethernet 1/0/1
switch(config-if)# ipv6 dhcp snooping option interface-id action replace
```

- Add/remove Option 18

Command:

1. **ipv6 dhcp snooping option interface-id format standard** WORD<3-63>
2. **ipv6 dhcp snooping option interface-id format extended** *WORD<3-63>*
3. **no ipv6 dhcp snooping option interface-id**

Mode: global configuration mode

Parameter:

Parameter	Description
standard WORD<3-63>	Interface ID value, in the format of VLANn, where n comes from the VLAN added to DHCPv6 Snooping.
extended WORD <3-63>	Interface ID value, 3 to 63 characters.

Description: Set the custom interface ID of the specified interface . In the standard format, the value must be a VLAN that has been added to DHCP v6 Snooping , and the letters must be uppercase. In the extended format, any legal character can be entered.

Example:

```
switch(config)# interface Ethernet 1/0/1
switch(config-if)# ip v 6 dhcp snooping option interface-id format standard VLAN155
switch(config-if)# ip v 6 dhcp snooping option interface-id format extended test
switch(config-if)# no ipv6 dhcp snooping option interface-id
```

- View Interface ID

Command: show ipv6 dhcp snooping option interface-id

Mode: Privileged EXEC mode

Parameter: none

Description: View the switch interface ID

Example:

```
switch# show ipv6 dhcp snooping option interface-id

Interfaces | Interface ID |
-----------+-----------------------------------------------------------------------+
eth1/0/9 | VLAN155 |
-----------+-----------------------------------------------------------------------+
eth1/0/10 | test |
```

Configure DHCPv6 Snooping Entries

- Check the binding entries learned by DHCPv6 Snooping

Command: show ipv6 dhcp snooping binding

Mode: Privileged EXEC mode

Parameter: none

Description: Check the binding entries learned by DHCPv6 Snooping.

Example:

```
switch# show ipv6 dhcp snooping binding

Bind Table: Maximum Binding Entry Number 256
Interface: eth1/0/2
Vlan: 1
MAC : 54:05:DB:91:14:15
IPv6 : 2409:8754:3020:51::8d
Type : DHCP Snooping
Lease Time: 491
```

Configure database

- Saving DHCP Snooping Entries to Flash

Command Syntax: ip v6 dhcp snooping database flash

Mode: Global configuration modeode

Parameters: None

Description: Save DHCPv6 Snooping entries to flash memory to retain the entries permanently.

Example:

```
Switch(config)#ip v6 dhcp snooping database flash
```

- Checking DHCPv6 Snooping Entries

Command Syntax: show ip dhcp snooping database

Mode: Privileged EXEC mode

Parameters: None

Description: Check the current DHCPv6 Snooping entries.

Example:

```
Switch# show ip dhcp snooping database
```

- Clearing DHCPv6 Snooping Entries

Command Syntax: clear ip dhcp snooping database statistics

Mode: Privileged EXEC mode

Parameters: None

Description: Clear the statistics for DHCPv6 Snooping entries.

Example:

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

- Reading DHCPv6 Snooping Entries

Command Syntax: renew ip dhcp snooping database

Mode: Privileged EXEC mode

Parameters: None

Description: Load and display DHCPv6 Snooping entries from the saved database file.

Example:

```
# Show the current DHCPv6 Snooping database information.
Switch# show ip dhcp snooping database

Type : None
FileName :
Write delay Timer : 300 seconds
Abort Timer : 300 seconds

Agent Running : None
Delay Timer Expiry : Not Running
Abort Timer Expiry : Not Running

Last Succeeded Time : None
Last Failed Time : None
Last Failed Reason :

Total Attempts       :     0
Successful Transfers :     0   Failed Transfers :     0
Successful Reads     :     0   Failed Reads     :     0
Successful Writes    :     0   Failed Writes    :     0

# Display the IPv6 DHCP Snooping binding table.
Switch# show ipv6 dhcp snooping binding

Bind Table: Maximum Binding Entry Number 256
Interface : eth1/0/16
Vlan : 1
MAC : 28:54:71:DD:56:31
MACMASK : FF:FF:FF:FF:FF:FF
IPv6: 2409:8754:3020:51:ee74:d7ff:0:6c6
IPv6MASK: 128
Type: DHCPv6 Snooping
Lease Time: 3597
```

- Displaying DHCPv6 Snooping Binding Entries

Command Syntax: show ipv6 dhcp snooping binding

Mode: Privileged EXEC mode

Parameters: None

Description: Displays the binding entries learned by DHCPv6 Snooping.

Example:

```
Switch# show ipv6 dhcp snooping binding

Bind Table: Maximum Binding Entry Number 256
Interface : eth1/0/16
Vlan: 1
MAC : 28:54:71:DD:56:31
MACMASK : FF:FF:FF:FF:FF:FF
IPv6: 2409:8754:3020:51:ee74:d7ff:0:6c6
IPv6MASK : 128
Type : DHCPv6 Snooping
Lease Time: 3597
```

CPU Protection

View – CPU Defend Rate Limit Values

Command:

- **show cpu-defend**
- **show cpu-defend packet-type** <*Packet Name*>

Mode: privileged EXEC mode

Parameter:

Parameter	Description
Packet Name	Specify the specific data packet type for the query . The packet name is as follows: arp-reply arp-request dhcp-client dhcp-server dhcp6-reply dhcp6-request igmp mdns mld nd OSPF ospfv3 rip ripng selfloop-detect vrrp vrrp6

Description: Displays the CIR/CBS rate-limit default values for each message type.

Example:

```
switch# show cpu-defend packet-type vrrp
switch# show cpu-defend
Packet Name        Status   Cir(pps)  Cbs(pps)  Queue  oper-Cir(pps)  oper-Cbs(pps)  oper-Queue
arp-reply          Enable   100       200       3      100            200            3
arp-request        Enable   100       200       3      100            200            3
selfloop-detect    Enable   8         16        7      8              16             7
isis               Disable  100       200       3      100            200            3
ospf               Disable  100       200       5      100            200            5
ospfv3             Disable  100       200       5      100            200            5
rip                Enable   100       200       5      100            200            5
ripng              Enable   100       200       5      100            200            5
vrrp               Disable  100       200       5      100            200            5
vrrp6              Disable  100       200       5      100            200            5
mld                Disable  100       200       3      100            200            3
igmp               Disable  100       200       3      100            200            3
mdns               Enable   100       200       4      100            200            4
dhcp-client        Enable   100       200       3      100            200            3
dhcp-server        Disable  100       200       3      100            200            3
dhcp6-reply        Disable  100       200       3      100            200            3
dhcp6-request      Disable  100       200       3      100            200            3
nd                Enable   100       200       5      100            200            5
```

View – CPU Input Rate (Packet Rate Limiting Status)

Command: show CPU input rate

Mode: privileged EXEC mode

Parameter: none

Description: Displays the status for both regular and instantaneous message types in the hit messages.

Example:

```
switch# show CPU input rate
```

Global Configuration – CPU Defend Packet Type

Command:

- **cpu-defend packet-type** <*Packet Name*>
- **no cpu-defend packet-type** <*Packet Name*>
- **cpu-defend packet-type** <*Packet Name*> **queue** <*0-7*>

Mode: Global configuration mode

Parameter:

Parameter	Description
Packet Name	Specify the specific data packet type for enabling/disabling . The message types are as follows: arp-reply arp-request dhcp-client dhcp-server dhcp6-reply dhcp6-request igmp mdns mld nd OSPF ospfv3 rip ripng selfloop-detect vrrp vrrp6
0-7	Specifies the queue number of the message in the CPU , ranging from 0 to 7.

Description: Enables or disables packet rate limiting for the specified packet type and configures its CPU queue number.

Example:

```
Switch(config)# cpu-defend packet-type arp-reply
Switch(config)# cpu-defend packet-type arp-reply queue 4
```

ND Snooping

Global Configuration

- Global ND Snooping Configuration

Command:

1. `nd snooping`
2. `no nd snooping`

Mode: Global configuration mode

Parameter: None

Description:

- `nd snooping` : Globally enables Neighbor Discovery (ND) Snooping on the switch to intercept, validate, and secure IPv6 neighbor discovery messages, preventing malicious address spoofing.
- `no nd snooping` : Globally disables Neighbor Discovery (ND) Snooping across the switch.

Example:

```
! Globally enables ND Snooping on the switch.
Switch(config)# nd snooping

! Globally disables ND Snooping on the switch.
Switch(config)# no nd snooping
```

- VLAN ND Snooping Configuration

Command:

1. `nd snooping vlan <1-4094>`
2. `no nd snooping vlan <1-4094>`

Mode: Global configuration mode

Parameter:

Parameter	Description
`<1-4094>`	Specifies the active VLAN ID on which ND Snooping will be enabled. The targeted VLAN must already be configured on the switch.

Description:

- `nd snooping vlan <1-4094>` : Enables Neighbor Discovery (ND) Snooping on a specific VLAN, allowing the switch to intercept, validate, and build a binding table from IPv6 ND messages within that broadcast domain.
- `no nd snooping vlan <1-4094>` : Disables ND Snooping on the specified VLAN.

Example:

```
! Enables ND Snooping on VLAN 2.
Switch(config)# nd snooping vlan 2

! Disables ND Snooping on VLAN 2.
Switch(config)# no nd snooping vlan 2
```

- ND Snooping Address Learning Configuration

Command:

1. `nd snooping learn {global | local | both}`

Mode: Global configuration mode

Parameter:

Parameter	Description
`global`	Restricts the ND Snooping binding database to learn only IPv6 Global Unicast Addresses (GUA).
`local`	Restricts the ND Snooping binding database to learn only IPv6 Link-Local Addresses (LLA).

Parameter	Description
`both`	Configures ND Snooping to learn both IPv6 Global Unicast and Link-Local Addresses concurrently.

Description:

- `nd snooping learn ...` : Specifies the scope of IPv6 address types that the switch will dynamically harvest and log into its ND Snooping binding table when processing Neighbor Discovery messages.

Example:

```
! Configures ND Snooping to discover and log only IPv6 Global Unicast Addresses.
Switch(config)# nd snooping learn global
```

- ND Snooping Timed Detection Configuration

Command: `nd snooping time_detect`

Mode: Global configuration mode

Parameter: None

Description: `nd snooping time_detect` : Enables the periodic online status verification feature for dynamic ND Snooping entries. The switch actively probes dynamically learned IPv6 hosts to confirm their network presence, ensuring that stale or disconnected device entries are automatically cleared from the binding table.

Example:

```
! Enables the function of periodically checking the online status of hosts in the dynamic ND Snooping table.
Switch(config)# nd snooping time_detect
```

- ND Snooping Detection Retransmit and Interval Configuration

Command: `nd snooping time_detect retransmit <1-10> interval <1-10000>`

Mode: Global configuration mode

Parameter:

Parameter	Description
`retransmit <1-10>`	Sets the total number of Neighbor Solicitation (NS) probe messages to send before determining a host is offline. (Range: 1–10, Default: 2).
`interval <1-10000>`	Sets the time delay interval between each sent NS probe message in **milliseconds**. (Range: 1–10000, Default: 1000 ms).

Description: `nd snooping time_detect retransmit <1-10> interval <1-10000>` : Adjusts the fine-grained timing behavior of the periodic host detection feature. It explicitly defines how many times the switch will attempt to probe an IPv6 user entry and how long it waits between those verification packets before flushing the dynamic binding table entry.

Example:

```
! Sets the switch to send 1 NS probe message with an interval of 100 milliseconds between checks.
Switch(config)# nd snooping time_detect retransmit 1 interval 100
```

- ND Snooping Online Detection Timers Configuration

Command: `nd snooping online_detect wait-time <1-500> life-time <1-10000>`

Mode: Global configuration mode

Parameter:

Parameter	Description
`wait-time <1-500>`	Configures the waiting time before the device transmits Neighbor Solicitation (NS) probe messages. Measured in **milliseconds**. (Range: 1–500, Default: 250 ms).
`life-time <1-10000>`	Sets the survival lifespan of the ND Snooping binding table entries while the probing/verification process is actively running. Measured in **milliseconds**. (Range: 1–10000, Default: 500 ms).

Description:

- `nd snooping online_detect wait-time <1-500>` : Defines the backoff or waiting interval used when sending validation probe packets to verify a host's status.
- `nd snooping online_detect ... life-time <1-10000>` : Dictates how long a bound entry is allowed to persist in a transitional state while the switch waits for an active probe response during the snooping process.

Example:

```
! Configures the online detection wait time to 10 milliseconds and the entry life time to 10 milliseconds.
Switch(config)# nd snooping online_detect wait-time 10 life-time 10
```

- View ND Snooping Global Configuration

Command: `show nd snooping`

Mode: Privileged EXEC mode

Parameter: None

Description: `show nd snooping` : Displays the global operational status and configuration parameters of Neighbor Discovery (ND) Snooping on the switch. This includes whether the feature is globally active, the specific VLANs it is running on, the address learning types, and the configured detection timers.

Example:

```
! Displays the global ND Snooping configuration and status on the switch.
Switch# show nd snooping
```

Port Settings

- Interface ND Snooping Trust Configuration

Command:

1. `nd snooping trust`
2. `no nd snooping trust`

Mode: Interface configuration mode

Parameter: None

Description:

- `nd snooping trust` : Configures the interface as a trusted port for ND Snooping. Trusted ports bypass Neighbor Discovery message validation checks and are permitted to receive and forward all ND packets (typically configured on core uplinks or ports connected to trusted gateways/routers).

- `no nd snooping trust` : Configures the interface as an untrusted port. Untrusted ports intercept incoming ND packets and validate them against the ND Snooping binding table to block unauthorized or spoofed IPv6 traffic (typically configured on user-facing access ports).

Example:

```
! Disables trust mode on the interface, making it untrusted for ND Snooping.
Switch(config-if)# no nd snooping trust

! Enables trust mode on the interface, allowing all ND traffic to pass without validation.
Switch(config-if)# nd snooping trust
```

- Interface ND Snooping Validity Check Configuration

Command:

1. `nd snooping check {na | ns | rs}`
2. `no nd snooping check {na | ns | rs}`

Mode: Interface configuration mode

Parameter:

Parameter	Description
`na`	Enables validity checking for Neighbor Advertisement (NA) messages on the interface.
`ns`	Enables validity checking for Neighbor Solicitation (NS) messages on the interface.
`rs`	Enables validity checking for Router Solicitation (RS) messages on the interface.

Description:

- `nd snooping check ...` : Configures the interface to perform cryptographic or binding-table validity checks on specific types of IPv6 Neighbor Discovery messages to mitigate spoofing attacks.
- `no nd snooping check ...` : Disables validation checks for the specified Neighbor Discovery message type on the interface.

Example:

```
! Enables validity checking for Neighbor Advertisement (NA) packets on the port.
Switch(config-if)# nd snooping check na

! Disables validity checking for Neighbor Advertisement (NA) packets on the port.
Switch(config-if)# no nd snooping check na
```

- View Interface ND Snooping Configuration

Command:

1. `show nd snooping interfaces Ethernet <interface-id>`
2. `show nd snooping interfaces LAG <lag-id>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`Ethernet <interface-id>`	Specifies the target physical copper (electrical) or SFP (fiber optic) Ethernet port ID.

Parameter	Description
`LAG <lag-id>`	Specifies the target Link Aggregation Group (LAG) bundle ID.

Description:

- `show nd snooping interfaces Ethernet <interface-id>` : Displays the current ND Snooping operational status, trust mode settings, and message validity check configurations for the specified physical port.
- `show nd snooping interfaces LAG <lag-id>` : Displays the ND Snooping configuration and status details for the specified logical aggregation group interface.

Example:

```
! Displays the ND Snooping configuration information for physical interface Ethernet 1/0/1.
Switch# show nd snooping interfaces Ethernet 1/0/1

! Displays the ND Snooping configuration information for the link aggregation bundle LAG 1.
Switch# show nd snooping interfaces LAG 1
```

Prefix Management Table Configuration

- Static ND Snooping Prefix Management Configuration

Command: `nd snooping static-prefix ipv6 <ipv6-address> prefix-length <1-128> vlan <1-4094>`

Mode: Global configuration mode

Parameter:

Parameter	Description
`<ipv6-address>`	Specifies the IPv6 network or host address for the static prefix management entry.
`prefix-length <1-128>`	Defines the network prefix length (subnet mask equivalent) for the specified IPv6 address.
`vlan <1-4094>`	Binds the static prefix entry to a specific VLAN ID.

Description: `nd snooping static-prefix ipv6 ...` : Manually adds an authorized static IPv6 prefix entry into the prefix management table for a designated VLAN. This ensures that only authorized IPv6 prefixes are recognized and permitted during Neighbor Discovery operations within that specific VLAN broadcast domain.

Example:

```
! Adds a static prefix management entry for IPv6 network 2001::1 with a prefix length of 64 bound to VLAN 2.
Switch(config)# nd snooping static-prefix ipv6 2001::1 prefix-length 64 vlan 2
```

- View ND Snooping Prefix Management Table

Command: `show nd snooping prefix`

Mode: Privileged EXEC mode

Parameter: None

Description: `show nd snooping prefix` : Displays the contents of the Neighbor Discovery (ND) Snooping prefix management table. This includes all authorized static and dynamically learned IPv6 prefixes along with their associated network prefix lengths and bound VLAN IDs.

Example:

```
! Displays all prefix management table entries for ND Snooping.
Switch# show nd snooping prefix
```

- Delete ND Snooping Static Prefix Management Entries

Command:

1. `no nd snooping static-prefix ipv6 <ipv6-address> prefix-length <1-128> vlan <1-4094>`
2. `no nd snooping static-prefix`

Mode: Global configuration mode

Parameter:

Parameter	Description
`<ipv6-address>`	Specifies the IPv6 network or host address of the static prefix management entry to be deleted.
`prefix-length <1-128>`	Specifies the prefix length of the targeted static entry.
`vlan <1-4094>`	Specifies the VLAN ID bound to the targeted static entry.

Description:

- `no nd snooping static-prefix ipv6 ...` : Deletes a specific, manually configured IPv6 prefix entry from the ND Snooping prefix management table.
- `no nd snooping static-prefix` : Deletes all configured entries in the static prefix management table simultaneously.

Example:

```
! Deletes the specific static prefix entry 2000:: with a prefix length of 12 on VLAN 2.
Switch(config)# no nd snooping static-prefix ipv6 2000:: prefix-length 12 vlan 2

! Clears all static prefix management entries from the switch.
Switch(config)# no nd snooping static-prefix
```

Data Statistics

- View Interface ND Snooping Statistics

Command:

1. `show nd snooping interfaces Ethernet <interface-id> statistics`
2. `show nd snooping interfaces LAG <lag-id> statistics`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`Ethernet <interface-id>`	Specifies the physical copper or fiber Ethernet port ID to view packet statistics.
`LAG <lag-id>`	Specifies the Link Aggregation Group (LAG) bundle ID to view aggregated packet statistics.

Description:

- `show nd snooping interfaces Ethernet ... statistics` : Displays detailed counter statistics for Neighbor Discovery packets (such as NS, NA, RS, RA, and Redirect messages) processed, permitted, or dropped by ND Snooping on a specific physical interface.

- `show nd snooping interfaces LAG ... statistics` : Displays the combined ND Snooping message counter statistics for all member ports residing within the specified logical link aggregation group.

Example:

```
! Displays ND Snooping packet counters and statistics for physical interface Ethernet 1/0/1.
Switch# show nd snooping interfaces Ethernet 1/0/1 statistics

! Displays ND Snooping packet counters and statistics for the aggregation bundle LAG 1.
Switch# show nd snooping interfaces LAG 1 statistics
```

- Clear Interface ND Snooping Statistics

Command:

1. `clear nd snooping interfaces Ethernet <interface-id> statistics`
2. `clear nd snooping interfaces LAG <lag-id> statistics`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`Ethernet <interface-id>`	Specifies the physical copper or fiber Ethernet port ID to reset its packet counters.
`LAG <lag-id>`	Specifies the Link Aggregation Group (LAG) bundle ID to reset its aggregated packet counters.

Description:

- `clear nd snooping interfaces Ethernet ... statistics` : Clears and resets all Neighbor Discovery packet counters (such as NS, NA, RS, RA, and Redirect messages processed or dropped) to zero on the specified physical interface.
- `clear nd snooping interfaces LAG ... statistics` : Clears and resets all ND Snooping packet counters to zero across the entire specified link aggregation group bundle.

Example:

```
! Resets the ND Snooping packet statistics counters on physical interface Ethernet 1/0/1 to zero.
Switch# clear nd snooping interfaces Ethernet 1/0/1 statistics

! Resets the ND Snooping packet statistics counters on the logical bundle LAG 1 to zero.
Switch# clear nd snooping interfaces LAG 1 statistics
```

Dynamic Binding Tables

- View ND Snooping Dynamic Binding Table

Command: `show nd snooping user-bind`

Mode: Privileged EXEC mode

Parameter: None

Description: `show nd snooping user-bind` : Displays the active, dynamically learned entries within the Neighbor Discovery (ND) Snooping binding database. This table lists the verified associations between IPv6 addresses, MAC addresses, VLAN IDs, and their corresponding ingress switch interfaces, which the switch uses to prevent IPv6 address spoofing.

Example:

```
! Displays all dynamically bound IPv6 client entries in the ND Snooping database.
Switch# show nd snooping user-bind
```

MAINTENANCE

Upgrade

Configure Firmware Upgrade Method

Command: upgrade protocol *[http | https | tftp | ftp | ftps]*

Mode: global configuration mode

Parameter:

Parameter	Description
http	via HTTP protocol
https	via HTTPS protocol
tftp	via TFTP protocol
ftp	Upgrade via FTP protocol
ftps	FTPS (explicit FTPS only).

Description: Configures the firmware upgrade method. The default upgrade method is **HTTP**.

Example:

```
Set the upgrade method to HTTP.
Switch(config)# upgrade protocol http
```

Configure or Clear Firmware Server Path, Username, and Password

Command:

- **upgrade server** *[ip v4 -addr|hostname|ip v6 -addr]*
- **upgrade server** *[ip v4 -addr|hostname|ip v6 -addr] [USERNAME] [PASSWORD]*
- **upgrade server**

Mode: global configuration mode

Parameter:

Parameter	Description
IP v4 -addr	Firmware server IPv4 address.
hostname	Firmware server hostname (or URL/path).
IP v6 -addr	Firmware server IPv6 address.
USERNAME	Username.
PASSWORD	Password.

Description: Configures the IP address or URL of the firmware (software) upgrade server. The default address is `fm.grandstream.com/gs` .

Example:

```
Set the upgrade server address to fm.grandstream.com/gs
Switch(config)# upgrade server fm.grandstream.com/gs

Set the server username to admin and the password to admin123
Switch(config)# upgrade server fm.grandstream.com/gs admin admin123
```

Configure DHCP option upgrade

Command: upgrade dhcpoverride [disable | enable | enablefallback]

Mode: global configuration mode

Parameter:

Parameter	Description
disable	Disable DHCP Option Upgrade
enable	Enable DHCP Option upgrade
enable fallback	Set the upgrade method of DHCP Option to be used first, fall back when it fails, and use the local firmware server address to upgrade

Description: Set the DHCP Option upgrade method, the default is to enable DHCP Option upgrade.

Example:

```
Enable DHCP Option upgrade
Switch(config)# upgrade dhcpoverride enable
```

Upgrade Configuration Now

Command: upgrade *[hostname]*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
hostname	(Optional) Firmware server address.

Description: Starts an immediate upgrade using the configured firmware server. If *hostname* is provided, the switch upgrades from the specified server address.
During an immediate upgrade, the system prompts twice: whether to start the upgrade now, and whether to save the current configuration before upgrading.

Example:

```
Prompt for upgrade via the configured firmware server path
Switch# upgrade
System: Upgrade firmware.
Do you want to upgrade now? (y/n)
y
Do you want to save the current configuration before upgrading? (y/n)
y

Request an upgrade from the specified firmware server address; the path must include the correct filename.
Switch# upgrade http://192.168.1.111:8080/gwn780Xfw.bin
System: upgrade firmware.
Do you want to upgrade now? (y/n)
y
Do you want to save the current configuration before upgrading? (y/n)
y

Switch# upgrade
System: upgrade firmware.
Do you want to upgrade now? (y/n)
y
Do you want to save the current configuration before upgrading? (y/n)
n
```

Enable or Disable Scheduled Upgrades

Command:

- **schedule use id** *{id}* **provision**
- **no schedule use provision**

Mode: Global configuration mode

Parameter: none

Description:

- **schedule use id {id} provision:** Enables appointment-based (scheduled) upgrades by referencing a time-based policy ID.
- **no schedule use provision:** Disables scheduled upgrades.

Example:

```
Enable appointment-based upgrades (reference policy ID 1)
Switch# config
Switch(config)# schedule use id 1 provision

Disable appointment upgrade
Switch(config)# no schedule use provision
```

View upgrade configuration

Command: show upgrade

Mode: privileged EXEC mode

Parameter: none

Description: View upgrade configuration

Example:

```
switch # show upgrade
```

Configure or Disable Startup Update Detection

Command:

- **upgrade onboot**
- **no upgrade onboot**

Mode: global configuration mode

Parameter: none

Description: Enables or disables update detection on startup. This feature is enabled by default. When enabled, the device checks for firmware updates and configuration files during startup. GAPS upgrade, GAPS configuration distribution, and factory upgrade must be enabled.

Example:

```
Enable update detection on startup
switch(config)# upgrade onboot

Disable startup update detection
GWN7803 Pro(config)# no upgrade onboot
```

Configure or Disable Forced Downgrade

Command:

- **upgrade force**
- **no upgrade force**

Mode: global configuration mode

Parameter: none

Description: Internal feature. It is not allowed to be enabled in the official release. When enabled, downgrading is not restricted by the anti-downgrade function.

Example:

```
Enable forced downgrade
switch(config)# upgrade force
The current version is official and does not support forcible degradation!

Disable forced downgrade
switch(config)# no upgrade force
The current version is official and does not support forcible degradation!
```

Diagnosis

Log

- **Configure Global Logging**

Command:

- **[no] logging** *[buffered | console | other]*
- **show logging**

Mode: global configuration mode

Parameter:

Parameter	Description
buffered	Buffer log recording.
console	Serial port printing records.
other	Other log records.

Description: Enables or disables global logging. Global logging is enabled by default.

Example:

```
Switch > enable
Switch# configure
Switch (config) # logging
Switch (config) # no logging
Switch# show logging
```

- **Clear Log**

Command: clear logging

Mode: privileged EXEC mode

Parameter: none

Description: Clears log messages in RAM and FLASH.

Example:

```
Switch > enable
Switch# clear logging buffered
Switch# clear logging file
```

- **Configure Logging Level**

Command: logging *[buffered | console | other]* **[severity** *sev* **]**

Mode: global configuration mode

Parameter:

Parameter	Description
buffered	Buffer logging.
console	Serial port logging output.
other	Other log records.
severity sev	Log level (range: 0–7).

Description: Configures the switch to log different severity levels:

- 0: Emergency
- 1: Alert
- 2: Critical
- 3: Error
- 4: Warning
- 5: Notice
- 6: Information
- 7: Debug

Example:

```
Switch(config)# logging buffered severity 7
Switch(config)# logging file severity 7
```

- Configuring Log Aggregation

Command Syntax:

1. logging aggregation
2. no logging aggregation

Mode: Global Configuration Mode

Parameters: None

Description: Configure whether to aggregate identical logs into one log entry.

Example:

```
Switch(config)# logging aggregation
```

- Configuring Log Aggregation Timeout

Command Syntax: logging aggregation aging-time <15-3600>

Mode: Global Configuration Mode

Parameters:

Parameter	Description
<15-3600>	The timeout for log aggregation, in seconds. Range: 15 to 3600 (default: 60 seconds).

Description: Configure the timeout period for log aggregation. Logs generated within this period will be aggregated into a single log entry.

Example:

```
Switch(config)# logging aggregation aging-time 60
```

- **Configure Remote Log Server**

Command: logging server *<1-3>* **host** *<ip | ipv6 | hostname> [port] [severity] [facility] [protocol]*

Mode: global configuration mode

Parameter:

Parameter	Description
Remote log server entry	Remote log server entry number *<1-3>*.
host	Remote log server address (IPv4 / IPv6 / hostname). IPv4 format: A.B.C.D (A/B/C/D = 0–255). IPv6 format: X:X::X:X.
facility	Syslog facility for the remote log server (local0–local7). Default: **local7**.
port	Log server port number (range: 1–65535, default: 514).
protocol	Log transport protocol. TCP logs are transmitted over TCP; UDP logs are transmitted over UDP.
severity sev	Minimum log level (range: 0–7): 0 Emergency, 1 Alert, 2 Critical, 3 Error, 4 Warning, 5 Notice, 6 Information, 7 Debug.

Description: Adds a remote log server.

Example:

```
Add a log server with the address 1.2.3.4.
Switch(config)# logging host 1.2.3.4
Switch(config)# logging server 1 host 1.2.3.4 port 43 severity 2 facility local7 protocol tcp
```

- **View Log Configuration Information**

Command: show logging

Mode: privileged EXEC mode

Parameter: none

Description: Displays log configuration information.

Example:

```
Switch# show logging
```

- Log Filtering (Include/Exclude)

Command:

1. `show logging exclude <filter-string>`
2. `show logging include <filter-string>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`exclude <filter-string>`	Specifies a string pattern (1–256 characters). The switch will hide any log entries that contain this matching text.

Parameter	Description
`include <filter-string>`	Specifies a string pattern (1–256 characters). The switch will display only the log entries that contain this matching text.

Description:

- `show logging exclude <filter-string>` : Displays the system log buffer while suppressing and hiding any log entries that match the specified string.
- `show logging include <filter-string>` : Scans the system log buffer and outputs only the lines that explicitly contain the specified string, filtering out everything else.

Example:

```
! Displays the log buffer while hiding all entries containing the string "2026".
Switch# show logging exclude 2026

! Displays only the log buffer entries that contain the string "2026".
Switch# show logging include 2026
```

- Log Filtering by Severity Level (Include/Exclude)

Command:

1. `show logging severity {alert | crit | debfg | emerg | error | info | notice | warning} exclude <filter-string>`
2. `show logging severity {alert | crit | debfg | emerg | error | info | notice | warning} include <filter-string>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`alert`	Severity Level 1: Immediate action needed.
`crit`	Severity Level 2: Critical conditions.
`debfg`	Severity Level 7: Debugging messages. *(Note: This keyword is a firmware-specific abbreviation/typo for "debug")*.
`emerg`	Severity Level 0: System is unusable.
`error`	Severity Level 3: Error conditions.
`info`	Severity Level 6: Informational messages.
`notice`	Severity Level 4: Normal but significant conditions.
`warning`	Severity Level 5: Warning conditions.
`exclude <filter-string>`	Specifies a string pattern (1–256 characters). Hides logs of the selected severity that contain this text.
`include <filter-string>`	Specifies a string pattern (1–256 characters). Only displays logs of the selected severity that contain this text.

Description:

- `show logging severity ... exclude` : Filters the system log buffer by a specific severity level while suppressing and hiding any log entries that match the specified text string.
- `show logging severity ... include` : Filters the system log buffer by a specific severity level and outputs only the lines that explicitly contain the matching text string.

Example:

```
! Displays alert-level logs while hiding any entries that contain the string "2026".
Switch# show logging severity alert exclude 2026

! Displays only the critical-level (crit) logs that explicitly contain the string "2026".
Switch# show logging severity crit include 2026
```

Mirror

- Configuring Remote VLAN

Command Syntax:

1. mirror remote-vlan VLAN-LIST
2. no mirror remote-vlan VLAN-LIST

Mode: Global Configuration Mode

Parameters:

Parameter	Description
VLAN-LIST	Remote VLAN, an integer from 1 to 4094. Must exist on the switch. VLAN 1 is not recommended.

Description: Set the remote VLAN, which is only effective for remote mirroring (RSPAN).

Example:

```
! Step 1: Create the VLAN to be used for RSPAN
GWN7806PH Pro(config)# vlan 2
GWN7806PH Pro(config-vlan)# exit

! Step 2: Configure VLAN 2 as the remote mirror VLAN
Switch(config)# mirror remote-vlan 2

! Deletes remote VLAN 2 configuration
Switch(config)# no mirror remote-vlan 2
```

- Configuring Local Mirroring (SPAN)

Command Syntax:

1. mirror session Session-ID source interface {Ethernet|LAG} interface-id {both|rx|tx}
2. mirror session Session-ID destination interface {Ethernet|LAG} interface-id allow-ingress
3. no mirror session (Session-ID | all)

Mode: Global Configuration Mode

Parameters:

Parameter	Description
Session-ID	Mirror group, value range: 1-4.
source	Source port (mirrored port).
{Ethernet|LAG} interfaced-id	Switch port numbers, including Ethernet ports and aggregate interfaces
destination	Destination port, the port being monitored Note: GWN7801(P)/GWN7802(P)/GWN7803(P)/GWN7801P Pro/GWN7802P Pro/GWN7803(PL/PH) Pro support aggregated member ports; other models support aggregated ports.
both	Monitor both inbound and outbound traffic on the source port.

Parameter	Description
rx	Monitor incoming traffic on the source port.
tx	Monitor outgoing traffic on the source port.
allow-ingress	Allow receiving traffic from the destination port.

Description:

- Use the no mirror session configuration command to clear the mirror group configuration.
- Use the no mirror session source configuration command to delete the Mirror source port.
- Use the no mirror session destination configuration command to delete the Mirror destination port.

Note: *When configuring the destination port of the mirror, there is an allow-ingress parameter. After this configuration, this port can receive messages from the connected device. In other words, after this configuration, the device connected to this port can communicate normally*

Example:

```
# Enter global configuration mode.
Switch# configure

# Configure the mirror source port (Ethernet 1/0/2) to monitor both directions.
Switch(config)# mirror session 1 source interface Ethernet 1/0/2 both

# Configure the mirror destination port (Ethernet 1/0/4) with allow-ingress.
Switch(config)# mirror session 1 destination interface Ethernet 1/0/4 allow-ingress

# Exit global configuration mode.
Switch(config)# exit

# Delete the mirror session 1.
Switch(config)# no mirror session 1

# Delete all mirror sessions.
Switch(config)# no mirror session all

# Delete the mirror source port (Ethernet 1/0/2).
Switch(config)# no mirror session 1 source interface Ethernet 1/0/2 both

# Delete the mirror destination port (Ethernet 1/0/4).
Switch(config)# no mirror session 1 destination interface Ethernet 1/0/4
```

- **Configure Remote Mirroring (RSPAN)**

Command:

- **mirror rspan session** *Session-ID* **role** *(src|dst)* **vlan** *<1-4094>*
- **no mirror rspan session** *Session-ID*
- **mirror session** *Session-ID* **source interface** *{Ethernet|LAG} interface-id {both|rx|tx}*
- **mirror session** *Session-ID* **destination interface** *{Ethernet|LAG} interface-id* **allow-ingress**

Mode: Global configuration mode

Parameter:

Parameter	Description
Session-ID	Mirror group, value range <1-4>
(src|dst)	Select the switch role, choosing between the active switch and the destination switch.
source	Source port (mirrored port).
{Ethernet|LAG} interface-id	Switch port numbers, including Ethernet ports and aggregation interfaces.

Parameter	Description
Destination	Destination port, the port being monitored Note: GWN7801(P)/GWN7802(P)/GWN7803(P)/GWN7801P Pro/GWN7802P Pro/GWN7803(PL/PH) Pro support aggregated member ports; other models support aggregated ports.
both	Monitor inbound and outbound traffic on the source port.
rx	Monitor inbound traffic on the source port.
tx	Monitor outbound traffic on the source port.
allow-ingress	Allow receiving traffic on the destination (monitoring port).

Description:
Use the **no mirror session** commands to clear the mirror group configuration, remove the mirror source port, or remove the mirror destination port.
When configuring the destination (monitoring) port, **allow-ingress** is required so the connected device can receive packets. Only after this configuration will devices connected to the destination port communicate normally.

Example:

```
Switch# configure
Switch(config)# vlan 2,3
Switch(config-vlan)# exit

! Add VLAN 2 and 3 as remote RSPAN VLANs
Switch(config)# mirror remote-vlan 2,3

! Configure RSPAN as the source mirror switch for VLAN 2
Switch(config)# mirror rspan session 1 role src vlan 2

! Configure RSPAN as the destination mirror switch for VLAN 3
Switch(config)# mirror rspan session 4 role dst vlan 3

! Configure mirror source port to monitor traffic in both directions
Switch(config)# mirror session 1 source interface Ethernet 1/0/2 both

! Configure mirror destination port and allow normal network ingress traffic
Switch(config)# mirror session 1 destination interface Ethernet 1/0/4 allow-ingress
Switch(config)# exit

! Clear the RSPAN mirror group role configuration
Switch(config)# no mirror rspan session 1

! Delete a specific mirror session completely
Switch(config)# no mirror session 1

! Delete all mirror sessions on the switch
Switch(config)# no mirror session all

! Remove a specific source port from the mirror session
Switch(config)# no mirror session 1 source interface Ethernet 1/0/2 both

! Remove a specific destination port from the mirror session
Switch(config)# no mirror session 1 destination interface Ethernet 1/0/4
```

- **View Mirror Group Configuration**

Command:

- **show mirror**
- **show mirror session** *Session-ID*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
Session-ID	Mirror group, value range <1-4>

Description: Displays mirror group configuration.

Example:

```
View mirror entries
Switch# show mirror
```

- **View the Remote VLAN List**

Command: show mirror remote-vlan

Mode: privileged EXEC mode

Parameter: none

Description: Displays the list of remote VLANs.

Example:

```
View the list of remote VLANs
Switch# show mirror remote-vlan
```

Cable detection

Command: show cable-diag interfaces Ethernet interfaced-id

Mode: privileged EXEC mode

Parameter:

Parameter	Description
interfaced-id	port number, such as 1/0/1

Description: View cable tests for ports.

Example:

```
the cable detection result of port 1/0/1
Switch# show cable-diag interfaces Ethernet 1/0/1
Port | Speed | Local pair | Pair length |
--------+-------+------------+-------------+----- ----------
eth1/0/1 | auto | Pair A | 0.98 |
Pair B | 0.97 | Open
Pair C | 1.05 | Open
Pair D | 0.98 | Open
```

Optical Module

Command: show fiber-transceiver interfaces Ethernet *interfaced-id*

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
interfaced-id	Port number (for example, Ethernet 1/0/1).

Description: Displays the optical module information for the specified Ethernet port.

Example:

```
View the optical module at port Ethernet 1/0/25
Switch# show fiber-transceiver interfaces Ethernet 1/0/25
```

Ping Watchdog

- Configuring the Port to Ping the Watchdog IP Address

Command Syntax: ping watchdog ip address ABCD

Mode: Interface Configuration Mode

Parameters:

Parameter	Description
ABCD	IP address to be used for the Ping watchdog.

Description:
Enable the port's Ping watchdog function and set the specified IP address for the watchdog to monitor.

Example:

```
# Enable and configure the Ping watchdog for port 1 with IP address 192.168.70.7.
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ping watchdog ip address 192.168.70.7
```

- Configuring the Port Packet Sending Interval

Command Syntax: ping watchdog ip address ABCD interval <30-3600>

Mode: Interface Configuration Mode

Parameters:

Parameter	Description
ABCD	Ping watchdog IP address of the port.
<30-3600>	The packet sending interval in seconds, range: 30 to 3600 (default: 30 seconds).

Description:
Configure the interval for sending packets from the port when using the Ping watchdog function.

Example:

```
# Enable and configure the ping watchdog packet sending interval of port 1 to 30 seconds.
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ping watchdog ip address 192.168.70.7 interval 30
```

- Configuring the Port Startup Delay Time

Command Syntax: ping watchdog ip address ABCD delaytime <60-3600>

Mode: Interface Configuration Mode

Parameters:

Parameter	Description
ABCD	Ping watchdog IP address of the port.
<60-3600>	Port startup delay time in seconds, range: 60 to 3600 (default: 60 seconds).

Description:
Configure the startup delay time for the port when using the Ping watchdog function.

Example:

```
# Enable and configure the ping watchdog startup delay time of port 1 to 60 seconds.
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ping watchdog ip address 192.168.70.7 delaytime 60
```

- Configuring port retry times

Command Syntax: ping watchdog ip address ABCD retry <1-10>

Mode: Interface Configuration Mode

Parameters:

Parameter	Description
ABCD	Ping watchdog IP address of the port.
<1-10>	The number of retry attempts, range: 1 to 10 (default: 2 times).

Description:
Configure the number of retry attempts for the port when using the Ping watchdog function.

Example:

```
# Enable and configure the ping watchdog retry count for port 1 to 6 times.
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ping watchdog ip address 192.168.70.7 retry 6
```

- Configuring Port Disable Time

Command Syntax: ping watchdog ip address ABCD forbidtime <5-30>

Mode: Interface Configuration Mode

Parameters:

Parameter	Description
ABCD	Ping watchdog IP address of the port.
<5-30>	Port disable time in seconds, range: 5 to 30 (default: 5 seconds).

Description:
Configure the port disable time for the Ping watchdog function.

Example:

```
# Enable and configure the ping watchdog disable time for port 1 to 5 seconds.
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# ping watchdog ip address 192.168.70.7 forbidtime 5
```

- Disabling Port Ping Watchdog

Command Syntax: no ping watchdog ip address ABCD

Mode: Interface Configuration Mode

Parameters: None

Description: Disable the port Ping watchdog function.

Example:

```
# Disable the ping watchdog for port 1.
Switch# configure
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# no ping watchdog
```

- Viewing Port Ping Watchdog

Command Syntax: show ping watchdog Ethernet IF_PORTS

Mode: Interface Configuration Mode

Parameters:

Parameter	Description
IF_PORTS	Switch ports, including electrical and optical ports.

Description: View Ping watchdog information for a specified port.

Example:

```
# View the Ping watchdog information for port 1.
Switch# show ping watchdog Ethernet 1/0/1

Port    | Ping Watchdog State
--------+------------------------
eth1/0/1 | disabled

Ping Watchdog Config | VALUE
-------------------- + ----------------
IP address           |
Packet sending interval | 30
Start-up delay time  | 60
Number of retries    | 2
Forbidden time       | 5
```

Ping and Traceroute

- **Configure Ping**

Command: ping *{ ABCD | HOSTNAME | X:X::X:X }* **size** *<0-65500>* **count** *<1-65535>* **vlan** *<1-4094>*

Mode: Privilege mode

Parameter:

Parameter	Description
ABCD	IPv4 address.
HOSTNAME	Domain name.
X:X::X:X	IPv6 address.
Size	Packet length. Default: 56 (range: 0–65500).
Count	Number of packets to send. Default: 4 (range: 1–65535).
VLAN	VLAN interface (optional). Range: 1–4094.

Description: Sends ICMP echo requests to a specified IPv4/IPv6 address or hostname. You can also specify the packet size, packet count, and VLAN interface.

Example:

```
Ping 192.168.10.1 with 10 packets and a packet size of 1518 bytes on VLAN 1.
Switch# ping 192.168.10.1 size 1518 count 10 vlan 1
```

- **Configure Traceroute**

Command: traceroute *HOSTNAME [max_hop | vlan]*

Mode: Privilege mode

Parameter:

Parameter	Description
HOSTNAME	Hostname, IP address, or domain name.
max_hop	Maximum number of hops.
VLAN	VLAN interface.

Description: Runs traceroute to the specified hostname/IP address. You can optionally set the maximum hop count and the VLAN interface.

Example:

```
Traceroute to 192.168.10.1 with a maximum hop count of 255 on VLAN 1.
Switch# traceroute 192.168.10.1 max_hop 255 vlan 1
```

One-click Debugging

- **Run One-Click Debugging (Full or Module-Specific)**

Command:

- **show tech-support**
- **show tech-support** <*specific debugging module*>

Mode: privileged EXEC mode

Parameter:

Parameter	Description
Specify specific debugging information	Optional module keyword to display module-specific tech-support output.

Supported values:

Value	Description
aaa	AAA
acl	ACL
advdns	ADV DNS
alarm	alarm config & status
authmgr	Authentication Manager
board	Board Configuration
bootlog	bootlog
cable-diag	Cable Diagnostic
chip	Chip Information
config-analysis	Config Analysis
cpu	CPU usage
dai	DAI
dhcp-snooping	DHCP Snooping
dmesg	dmesg
dos	DoS Protection
fan	fan alarm state
filesystem	File System
igmp-snooping	IGMP Snooping
interfaces	Interfaces
interfaces-status	Interfaces Status
ip	IP Configuration
isg	IP Source Guard
jumbo	Jumbo Frame

Value	Description
l3-mac-address-table	L3 MAC Address Table
lag	LAG Summary
lldp	LLDP
logging	Logging
mac-address-counters	MAC Address Counters
mac-address-table	MAC Address Table
memory	Process Memory
mgmt-info	Management Platform Connection
mib-counters	Mib Counters
mirror	Mirror
mld-snooping	MLD Snooping
mtd	MTD Information
mvr	MVR
optical-module	Optical Module
poe	poe
port-isolation	Port Isolation
port-security	Port Security
protocol-vlan	Protocol VLAN
qos	QoS
rate-limit	Rate Limit
register	Table & Registers
rmon	RMON
running-config	Running-config
sfp	SFP Information
snmp	SNMP
spanning-tree	Spanning-Tree
ssh	SSH
stack	Stacking
startup-config	Startup-config
static-route	Static Route
storm-control	Storm Control
surveillance-vlan	Surveillance VLAN
system	System Information
time	Time
udld	UDLD
user-defined-acl	User-defined ACL
users	User Status
vlan	VLAN
voice-vlan	Voice VLAN

Description: Runs one-click debugging on the device. You can either collect full diagnostic information or specify a module to collect module-specific debugging information. Debug output can be printed through the serial port.

Example:

```
Switch# show tech-support
Switch# show tech-support acl
```

- **Specify the TFTP Remote Path for One-Click Debugging Information**

Command: copy tech-support *[tftp://]*
Mode: privilege mode

Parameter:

Parameter	Description
tftp://	Remote TFTP server path (for example: `tftp://192.168.1.111/remote_file_name`).

Description: Generates a one-click debug file and uploads it to the specified TFTP server path.

Example:

```
Switch# copy tech-support tftp://192.168.96.149/

Switch# copy tech-support tftp://192.168.96.149/aaa
Aug 19 2025 11:35:30 logger-5-log:Create debug files:oneclickdebug20250819113523.tar.gz
Uploading file. Please wait...
Uploading Done
Success
```

sFlow

- Global sFlow Configuration

Command:

1. `sflow agent {ip <ipv4-address> | ipv6 <ipv6-address>}`
2. `sflow collector 1 {ip <ipv4-address> | ipv6 <ipv6-address>} [udp-port <1024-65535>] [length <200-8192>] [description <string>]`

Mode: Global configuration mode

Parameter:

Parameter	Description
`agent ip <ABCD> | ipv6 <X:X::X:X>`	Configures the sFlow agent IPv4 or IPv6 address. This is typically the switch's own management IP, used as the source address to identify the device on the collector.
`collector 1 ip <ABCD> | ipv6 <X:X::X:X>`	Specifies the destination IPv4 or IPv6 address of the network monitoring server running the sFlow collector software.
`udp-port <1024-65535>`	Defines the destination UDP port listening for sFlow datagrams on the collector server. (Default: 6343).
`length <200-8192>`	Sets the maximum packet payload length in bytes for sent sFlow datagrams. (Range: 200–8192, Default: 1400 bytes).
`description <string>`	Assigns an optional alphanumeric text description to the collector group (0–64 characters).

Description:

- `sflow agent ...` : Uniquely identifies the network device sending the traffic samples.
- `sflow collector 1 ...` : Dictates where the sampled data packet streams are exported, including optional packet encapsulation parameters and documentation notes.

Example:

```
! Configure the global sFlow Agent IP address
Switch(config)# sflow agent ip 192.168.1.1

! Configure the target sFlow Collector server details
Switch(config)# sflow collector 1 ip 192.168.1.2 udp-port 6343 length 1400 description test
```

- Delete Global sFlow Configuration

Command:

1. `no sflow agent ip`
2. `no sflow collector 1`

Mode: Global configuration mode

Parameter: None

Description:

- `no sflow agent ip` : Deletes the configured sFlow agent IP address from the switch.
- `no sflow collector 1` : Removes the configuration for sFlow collector 1, stopping the switch from exporting traffic samples to that server.

Example:

```
! Deletes the global sFlow Agent IP address configuration
Switch(config)# no sflow agent ip

! Deletes the sFlow Collector 1 configuration
Switch(config)# no sflow collector 1
```

- Interface sFlow Configuration

Command:

1. `sflow flow-sampling collector 1 length <128-256> rate <256-65535> {both | inbound | outbound}`
2. `sflow counter-sampling collector 1 [interval <2-3600>]`

Mode: Interface configuration mode (Port configuration mode)

Parameter:

Parameter	Description
`length <128-256>`	Sets the maximum header size (in bytes) of the sampled packet to cut off and copy to the collector. (Range: 128–256, Default: 128 bytes).
`rate <256-65535>`	Defines the packet sampling rate (e.g., 1 out of every N packets). (Range: 256–65535, Default: 400).
`{both | inbound | outbound}`	Sets the traffic direction for packet flow sampling: • `both` : Monitor both incoming and outgoing traffic. • `inbound` : Monitor incoming traffic only. • `outbound` : Monitor outgoing traffic only. (Default: `both`).
`interval <2-3600>`	Sets the period interval in seconds for exporting interface performance counter metrics (like packet drops, byte counts, and errors). (Range: 2–3600, Default: 30 seconds).

Description:

- `sflow flow-sampling ...` : Enables **Flow Sampling** on the interface. This randomly captures statistical packet headers based on the defined rate and direction to analyze network traffic patterns and conversations.

- `sflow counter-sampling ...` : Enables **Counter Sampling** on the interface. This systematically polls and exports interface counter statistics at regular time intervals to analyze general bandwidth usage and port health.

Example:

```
! Enter global configuration mode
Switch# configure

! Enter the target physical interface configuration mode
Switch(config)# interface Ethernet 1/0/1

! Enable Flow Sampling on collector 1 with a max packet length of 128 bytes, a rate of 1:300, capturing
inbound traffic
Switch(config-if)# sflow flow-sampling collector 1 length 128 rate 300 inbound

! Enable Counter Sampling on collector 1 with an update interval of 10 seconds
Switch(config-if)# sflow counter-sampling collector 1 interval 10
```

- Delete Interface sFlow Configuration

Command:

1. `no sflow flow-sampling collector`
2. `no sflow counter-sampling collector`

Mode: Interface configuration mode (Port configuration mode)

Parameter: None

Description:

- `no sflow flow-sampling collector` : Disables flow sampling on the designated interface, stopping the switch from capturing and mirroring random packet header statistics to the sFlow collector.
- `no sflow counter-sampling collector` : Disables counter sampling on the designated interface, stopping the periodic polling and exporting of port performance metrics (such as byte counts, error counters, and packet utilization).

Example:

```
! Enter global configuration mode
Switch# configure

! Enter the target physical interface configuration mode
Switch(config)# interface Ethernet 1/0/1

! Disable and remove the flow sampling configuration on this port
Switch(config-if)# no sflow flow-sampling collector

! Disable and remove the counter sampling configuration on this port
Switch(config-if)# no sflow counter-sampling collector
```

- View sFlow Configuration and Statistics

Command:

1. `show sflow`
2. `show sflow interfaces Ethernet <port-id>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`Ethernet <port-id>`	Specifies the physical copper or fiber Ethernet port ID (e.g., 1/0/1) to check specific port sampling status.

Description:

- `show sflow` : Displays global sFlow information, including whether sFlow is enabled, the configured Agent IP address, and detailed status/parameters for the Collector (such as destination IP, UDP port, max packet length, and description).
- `show sflow interfaces Ethernet <port-id>` : Displays the operational sFlow status of a specific interface. This includes active settings for both Flow Sampling (rate, truncation length, direction) and Counter Sampling (polling interval).

Example:

```
! Displays global sFlow agent and collector configurations
Switch# show sflow

! Displays specific flow and counter sampling metrics for interface Ethernet 1/0/1
Switch# show sflow interfaces Ethernet 1/0/1
```

Capture

- CPU Packet Capture Streaming to TFTP Configuration

Command:

1. `packet-capture cpu mode stream tftp-server <tftp-server-ip>`
2. `packet-capture cpu mode stream tftp-server <tftp-server-ip> udp <port-number>`
3. `packet-capture cpu mode stream tftp-server <tftp-server-ip> timer <minutes>`
4. `packet-capture cpu mode stream tftp-server <tftp-server-ip> udp <port-number> timer <minutes>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`<tftp-server-ip>`	Configures a valid target IPv4 address for the TFTP server where capture files will be saved (e.g., 192.168.96.24).
`udp <1-65535>`	Specifies the destination UDP port used by the TFTP server. (Range: 1–65535, Default: 69).
`timer <1-1440>`	Defines the maximum operational duration for the packet capture session in **minutes**. (Range: 1–1440 minutes).

Description:

- `packet-capture cpu mode stream tftp-server...` : Instructs the switch to capture packets passing through or destined for the switch CPU and stream them in real time directly to an external TFTP server.
- To prevent system buffer issues, the streaming mechanism automatically segments data into manageable batches, saving a new capture file sequentially for every **2,000 packets** received.

Example:

```
! Enable real-time CPU packet streaming to a TFTP server using default settings
Switch# packet-capture cpu mode stream tftp-server 192.168.96.24

! Enable CPU packet streaming to a custom UDP port with a 30-minute automated timeout
Switch# packet-capture cpu mode stream tftp-server 192.168.96.24 udp 69 timer 30

! Enable CPU packet streaming using the default UDP port with a 30-minute automated timeout
Switch# packet-capture cpu mode stream tftp-server 192.168.96.24 timer 30
```

- Stop CPU Packet Capture Streaming

Command: `no packet-capture cpu mode`

Mode: Privileged EXEC mode

Parameter: None

Description: `no packet-capture cpu mode` : Terminates the active real-time CPU packet capture session and stops streaming data to the designated external TFTP server.

Example:

```
! Disables and stops the active CPU packet capture session
Switch# no packet-capture cpu mode
```

- View CPU Packet Capture Status

Command: `show packet-capture`

Mode: Privileged EXEC mode

Parameter: None

Description: `show packet-capture` : Displays the current operational status and configuration parameters for CPU packet capture. This includes whether a capture session is actively running, the target TFTP server IP address, the UDP port, the configured timer, and the current progress or packet counters.

Example:

```
! Displays the active configuration and status of CPU packet captures
Switch# show packet-capture
```

- CPU Packet Capture Filter Configuration

Command:

1. `packet-capture cpu filter interface Ethernet <interface-id>`
2. `packet-capture cpu filter vlan <vlan-id>`
3. `packet-capture cpu filter vlan <vlan-id> src-mac <mac-address>`
4. `packet-capture cpu filter vlan <vlan-id> dst-mac <mac-address>`
5. `packet-capture cpu filter interface Ethernet <interface-id> vlan <vlan-id> dst-mac <mac-address> src-mac <mac-address>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`Ethernet <interface-id>`	Specifies the physical Ethernet port on the switch to filter traffic from (e.g., 1/0/1).
`vlan <vlan-id>`	Specifies the VLAN ID to filter. (Range: 1–4094).
`src-mac <mac-address>`	Specifies the source MAC address to match, formatted as `XX:XX:XX:XX:XX:XX` .
`dst-mac <mac-address>`	Specifies the destination MAC address to match, formatted as `XX:XX:XX:XX:XX:XX` .

Description:

- `packet-capture cpu filter ...` : Configures specific matching rules (Access Control List style filters) to restrict which packets the CPU captures and streams to the TFTP server.
- **Important Note:** Due to the underlying design framework, multiple parameters must be configured in a strict, sequential order: **Interface** -> **VLAN** -> **Destination MAC** -> **Source MAC**.

Example:

```
! 1. Configure a filter matching a specific port only
Switch# packet-capture cpu filter interface Ethernet 1/0/2

! 2. Configure a filter matching a specific VLAN only
Switch# packet-capture cpu filter vlan 2

! 3. Configure a filter matching a VLAN and a specific source MAC address
Switch# packet-capture cpu filter vlan 1 src-mac EC:74:D7:9B:F3:1A

! 4. Configure a filter matching a VLAN and a specific destination MAC address
Switch# packet-capture cpu filter vlan 1 dst-mac EC:74:D7:9B:F3:1A

! 5. Configure a comprehensive filter combining all parameters in the required order
Switch# packet-capture cpu filter interface Ethernet 1/0/1 vlan 1 dst-mac EC:74:D7:9B:F3:40 src-mac
EC:74:D7:9B:F3:40

! Query and display the currently configured packet matching parameters
Switch# show packet-capture
```

- Clear CPU Packet Capture Filters

Command: `no packet-capture cpu filter`

Mode: Privileged EXEC mode

Parameter: None

Description: `no packet-capture cpu filter` : Clears all configured packet matching rules (filters) for CPU packet capture. This removes any specific restrictions based on interface, VLAN, or MAC addresses, causing the switch to revert to capturing all eligible CPU-bound traffic without limitations.

Example:

```
! Clears all configured CPU packet capture matching filters
Switch# no packet-capture cpu filter
```

- CPU Packet Capture to Terminal

Command: `packet-capture cpu mode terminal <1-64>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`<1-64>`	Specifies the exact number of captured packets to print directly to the active terminal console. (Range: 1–64).

Description:

- `packet-capture cpu mode terminal ...` : Captures CPU-bound network packets and prints their details directly to the local terminal or serial port console.
- **Note:** You must stop any active TFTP streaming packet capture (using the `no packet-capture cpu mode` command) before you can successfully output captured packets to the terminal.

Example:

```
! Captures and prints the details of the next 10 CPU packets directly to the terminal console
Switch# packet-capture cpu mode terminal 10
```

Backup and Restore

Backing Up and Uploading Files

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**
- **copy tech-support tftp://**

Mode: privileged EXEC mode

Parameter:

Parameter	Description
flash://	File path in flash memory.
tftp://	Remote TFTP server path (for example: `tftp://192.168.1.111/remote_file_name`).
backup-config	Backup configuration.
running-config	Running configuration.
startup-config	Startup configuration.

Description: Backs up, uploads, or downloads configuration files.
copy tech-support tftp:// generates a one-click debug file and uploads it to the specified TFTP server path.

Example:

```
Upload the file "ssl_cert" from flash to the TFTP server "192.168.1.111".
Switch# copy flash://ssl_cert tftp://192.168.1.111
Uploading file. Please wait...
Uploading Done

Upload the file "dsa2" from flash to the TFTP server "192.168.1.111" and rename it to "dsa2_test".
Switch# copy flash://dsa2 tftp://192.168.1.111/dsa2_test
Uploading file. Please wait...
Uploading Done
```

Delete File – Backup and Restore

Command: delete *[startup-config | backup-config | flash://]*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
flash://	File path in flash memory.
startup-config	Deletes the startup configuration. After deleting the configuration and rebooting, the device will be restored to factory settings.

Parameter	Description
backup-config	Backup configuration.

Description: Deletes a configuration file or a file stored in flash.

Example:

```
Delete backup configuration file
Switch# delete backup-config

Delete startup configuration file (this will restore the device to factory settings, please use with
caution).
Switch# delete startup-config
```

Restore Factory Settings

Command: restore-defaults *[interfaces IF_PORTS]*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
interfaces IF_PORTS	Performs a factory reset operation on the specified port(s).

Description: Restores all system default values. This command is equivalent to **delete startup-config**.

Example:

```
Switch# restore-defaults
Restore Default Success. Do you want to reboot now? (y/n)
n

Switch# restore-defaults interfaces Ethernet 1/0/11
```

Save Configuration (Running-Config → Startup-Config)

Command:

- **save**
- **copy running-config startup-config**

Mode: privileged EXEC mode

Parameter: none

Description: Saves the current running configuration to the startup configuration file.
copy running-config startup-config overwrites **startup-config** with **running-config**. **running-config** is the configuration currently in use, while **startup-config** is the configuration saved for the next reboot.
copy running-config startup-config is equivalent to **save**.

Example:

```
Switch# save
Success

Switch# copy running-config startup-config
Success
```

Backup Configuration Management (Advanced)

Command:

- **backup-config create** *{running-config | startup-config}*
- **backup-config delete** *file_CreatDate*
- **backup-config apply** *file_CreatDate*
- **backup-config list**

Mode: privileged EXEC mode

Parameter:

Parameter	Description
file_CreatDate	The backup file creation time (fixed format: `1970/01/01_00:00:00`). You can view and obtain it using **backup-config list**.

Description:

- **backup-config create {running-config | startup-config}:** Backs up the running configuration or startup configuration.
- **backup-config delete file_CreatDate:** Deletes a backup configuration file.
- **backup-config apply file_CreatDate:** Applies a backup configuration file.
- **backup-config list:** Displays the list of backup configuration files.
  Notice: After executing **restore-defaults**, the files shown in **backup-config list** will be deleted. The **backup-config** feature is also used by the **copy** command.

Example:

```
Apply a backup configuration file
GWN7806PH Pro# backup-config apply 2025/08/13_15:35:46
The device restarts after the configuration is applied,Do you want to apply the backup files GWN7806PH
Pro_EC74D7A0E16C_1-0-14-19_20250813153543.cfg? (y/n)
y

View the list of backup configuration files
GWN7816# backup-config list
Backup file list:
FileName  FileSize  CreatDate
GWN7816_C074ADF0A89C_1-0-15-115_20250512162928.cfg  5.60k  2025/05/12_16:29:31
GWN7816_C074ADF0A89C_1-0-15-116_20250616203648.cfg  18.57k  2025/06/16_20:36:48
GWN7816_C074ADF0A89C_1-0-15-124_20250702104239.cfg  18.48k  2025/07/02_10:42:39
GWN7816_C074ADF0A89C_1-0-15-125_20250702104938.cfg  18.61k  2025/07/02_10:49:38

Backup startup configuration
GWN7816# backup-config create startup-config
Backup file is created successfully, GWN7816_C074ADF0A89C_1-0-15-126_20250813175945.cfg
```

View Configuration Files

Command:

- **show flash**
- **show running-config**
- **show startup-config**
- **show backup-config**

Mode: privileged EXEC mode

Parameter: none

Description:

- **show flash:** Displays the files stored in flash memory.
- **show running-config:** Displays the running configuration.
- **show startup-config:** Displays the startup configuration.
- **show backup-config:** Displays the backup configuration.

A **backup-config** file is generated only after performing **copy [running-config | startup-config] backup-config**. It does not exist by default.

Example:

```
Switch# show flash
File Name  File Size  Modified
-----------------------------------------------------------
startup-config 19738 2025-08-07 16:48:27
rsa2 2455 2025-05-07 10:33:06
dsa2 672 2025-05-07 10:33:06
rsa2.pub 559 2025-05-07 10:33:06
dsa2.pub 595 2025-05-07 10:33:06
ssl_cert 1245 2025-05-07 10:33:06
image0 (active) 20827038 2025-06-20 08:23:31
image1 (backup) 20829073 2025-06-18 08:06:11
```

Configure Automated Backup Schedule

Command: `schedule use id <1-32> backup`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`id <1-32>`	Specifies the unique appointment ID number of a previously configured schedule block. (Range: 1–32).

Description: `schedule use id ... backup` : Binds a predefined schedule configuration to the system's automated backup task. This dictates the exact recurring time block during which the switch will automatically execute its system backups.

Example:

```
! Step 1: Create a new schedule entry with ID 1 and assign it a name
Switch(config)# schedule id 1 name backu1+mon

! Step 2: Define the recurring time window (e.g., Every Monday from 02:30 to 04:30)
Switch(config)# schedule id 1 week 1 hour 2 minute 30 to hour 4 minute 30

! Step 3: Apply schedule ID 1 to the automated backup process
Switch(config)# schedule use id 1 backup
```

SNMP

View SNMP configuration

Command: show snmp

Mode: privileged EXEC mode

Parameter: none

Description: View the status of Simple Network Management Protocol (SNMP)

Example:

```
Switch # show snmp
SNMP is enabled.
```

View SNMP community configuration

Command: show snmp community

Mode: privileged EXEC mode

Parameter: none

Description: View SNMP community configuration

Example:

```
Switch# show snmp community

Commnunity Name Group Name View Access
--------------- -- ---------------- --------- -------- ---
public                   all ro

Total Entries: 1
```

View SNMP engine ID configuration

Command: show snmp engineid

Mode: privileged EXEC mode

Parameter: none

Description: View the SNMPv3 engine ID defined on the switch

Example:

```
Switch# show snmp engineid
Local SNMPV3 Engine id: 80006a9203c074ad2202b1

IP address     Remote SNMP engineID
------ ------ --- ---------------------------------- -

Total Entries: 0
```

View SNMP group configuration

Command: show snmp group

Mode: privileged EXEC mode

Parameter: none

Description: Check the configuration of the SNMP group

Example:

```
Switch# show snmp group
Group Name Model Level ReadView WriteView NotifyView
---------- ------ ------ -------- ---------- ---------- -

Total Entries: 0
```

View SNMP notification configuration

Command: show snmp host

Mode: privileged EXEC mode

Parameter: none

Description: View the configuration of SNMP notification

Example:

```
Switch# show snmp host
Server  Community/User Name  Notification Version Notification Type  UDP Port  Retries Timeout
-------- - ---------------------- ---------------------- ------------------- ------------ ----------- -----
---- - -
192.168.6.162 public   v1 trap        162  -- --

Total Entries: 1
```

View SNMP trap configuration

Command: show snmp trap

Mode: privileged EXEC mode

Parameter: none

Description: View SNMP trap configuration

Example:

```
Switch# show snmp trap
SNMP auth failed trap : Enable
SNMP linkUpDown trap : Enable
SNMP cold-start trap : Enable
SNMP warm-start trap : Enable
```

View SNMP view configuration

Command: show snmp view

Mode: privileged EXEC mode

Parameter: none

Description: Check the configuration of the SNMP view

Example:

```
Switch# show snmp view
View Name Subtree OIDs OID Mask     View Type
---------- -- ---------------- - - ------------ -------- - --
all        .1 all included

Total Entries: 1
```

View SNMP user configuration

Command: show snmp user

Mode: privileged EXEC mode

Parameter: none

Description: View SNMP user configuration

Example:

```
Switch# show snmp user
Username: v3
Password: ***********
Privilege Mode: rw
Access GroupName: v3
Authentication Protocol: md5
Encryption Protocol: none
Access SecLevel: auth

Total Entries: 1
```

Configure SNMP

Command:

1. **snmp**
2. **no snmp**

Mode: global configuration mode

Parameter: none

Description: To enable SNMP on the switch, use the SNMP command in global configuration mode. Use the no form of the command to disable SNMP.

Example:

```
Enable SNMP function
Switch(config)# snmp
```

Configure SNMP community

Command:

1. **snmp community community-name** [**view** view-name] (**ro|rw**)
2. **snmp community community-name group** group-name
3. **no snmp community community-name**

Mode: global configuration mode

Parameter:

Parameter	Description
community-name	Group name, up to 32 characters, **"\?/,** characters are not supported.
view view-name	referenced view name
ro	set to read-only
rw	set to read-write
group group-name	referenced group name

Description: Define SNMP communities that allow access to SNMP v1 and v2

Example:

```
community named private that references all view and is read-only
Switch(config)# snmp community private ro
```

Configure SNMP Engine ID

Command: snmp engineid *[default* | *ENGINEID]*
Mode: global configuration mode

Parameter:

Parameter	Description
default	Uses the default local engine ID.
ENGINEID	Sets the local engine ID in hexadecimal format (2–56 characters). The number of digits must be an even number. The default ID starts with **8000a59d**.

Description: Defines the local SNMP engine ID.

Example:

```
Switch(config)# snmp engineid 8000a59d 00036D001122
```

Configure SNMP Remote Engine ID

Command:

- **snmp engineid remote** *[ip-addr|ipv6-addr|hostname]* **ENGINEID**
- **no snmp engineid remote** *[ip-addr|ipv6-addr|hostname]*

Mode: Global mode

Parameter:

Parameter	Description
ENGINEID	Remote engine ID in hexadecimal format (10–64 characters). The number of digits must be even.
ip-addr	Server IPv4 address.
ipv6-addr	Server IPv6 address.
hostname	Server domain name.

Description:

- **snmp engineid remote [ip-addr|ipv6-addr|hostname] ENGINEID:** Defines the remote host of the SNMP engine.
- **no snmp engineid remote [ip-addr|ipv6-addr|hostname]:** Removes a remote host from the SNMP engine.

Example:

```
Switch(config)# snmp engineid remote 192.168.1.11 00036D001122
```

Configure SNMP group

Command:

1. **snmp group** group-name (**1|2c|3**) (**noauth|auth|priv**) **read-view** *read-view* **write-view** *write-view* [**notify-view** *notify-view*]
2. **no snmp group** group-name security-mode version (**1|2c|3**)

Mode: global configuration mode

Parameter:

Parameter	Description
group-name	Group name, up to 32 characters, **"\?/,** characters are not supported.
(**1|2c|3**)	SNMP version
noauth	no authentication no encryption
auth	Authentication only without encryption
private	Both authentication and encryption
read-view *read-view*	read-only view name
write-view *write-view*	Read and write view names
notify-view *notify-view*	notification view name

Description:

1. **snmp group** group-name (**1|2c|3**) (**noauth|auth|priv**) **read-view** *read-view* **write-view** *write-view* [**notify-view** *notify-view*] : define SNMP group
2. **no snmp group** group-name security-mode version (**1|2c|3**) : delete the configuration

Example:

```
Switch(config)# snmp group v3 version 3 auth read-view all write-view all notify-view all
```

Configure SNMP notification

Command:

1. **snmp host** (ip-addr|ipv6-addr|hostmane) [**traps|informs**] [**version (1|2c)**] community-name [**udp-port** udp-port] [**timeout** timeout] [**retries** retries]
2. **snmp host** (ip-addr|ipv6-addr|hostmane) [**traps|informs**] **version 3** [**(auth|noauth|priv)**] community-name [**udp-port** udp-port] [**timeout** timeout] [**retries** retries]
3. **no snmp host** (ip-addr|ipv6-addr|hostmane) [**traps|informs**] [**version (1|2c|3)**]

Mode: global configuration mode

Parameter:

Parameter	Description
ip-addr	Server IPv4 address
ipv6-addr	Server IPv6 address
hostmane	server hostname
traps	notification type is traps
informs	notification type is informs
version (1|2c|3)	Notified SNMP version
noauth	no authentication no encryption
auth	Authentication only without encryption
private	Both authentication and encryption
community-name	The community name under which notifications are sent
udp-port	UDP port number
timeout timeout	v 2 c notification timeout , the value range is an integer from 1 to 300 , the default is 15 seconds
retries retries	The maximum number of retransmissions for v 2 c notifications , an integer ranging from 1 to 255 , defaulting to 3 times

Description:

1. **The snmp host** command defines SNMP notifications
2. **no snmp host** delete notification configuration

Example:

```
Switch(config)# snmp host 192.168.1.11 private
```

Configure SNMP Trap

Command:

- **snmp trap** *(all|arp|auth|bridge|cold-start|config|cpu|envmon|errdisable|link-updown|mac-notification|port-security|power-ethernet|sfp|syslog|vlancreate|vlandelete|warm-start)*
- **no snmp trap** *(all|arp|auth|bridge|cold-start|config|cpu|envmon|errdisable|link-updown|mac-notification|port-security|power-ethernet|sfp|syslog|vlancreate|vlandelete|warm-start)*
- **snmp trap syslog severity** *[0-7]*

Mode: global configuration mode

Parameter:

Parameter	Description
auth	Setting authentication failure trap.
arp	Configure ARP alarm trap
bridge	Configure STP bridge changes to trap.
cold-start	Configure cold start trap.
link-updown	Configure port up/down trap.
warm-start	Configure warm start trap.
config	Configure the trap event to be sent.
cpu	Set a trap when CPU usage reaches its limit.
envmon	Set up an environment monitoring trap to detect when memory usage reaches its limit, device temperature is too high, or fan malfunction.
errdisable	Set a trap for abnormal port shutdown.
mac-notification	Trap for MAC address add/delete/migration events. **Note:** This trap is not supported on GWN7801(P)/GWN7802(P)/GWN7803(P).
port-security	Set up port security trap.
power-ethernet	Set up a PoE power supply trap. **Note:** This trap is supported by GWN7801P/GWN7802P/GWN7803P/GWN7806P/GWN7811P/GWN7812P/GWN7813P/GWN7816P.
vlancreate	Set the trap for VLAN creation events. **Note:** This trap is not supported on GWN7801(P)/GWN7802(P)/GWN7803(P).
vlandelete	Set the trap for VLAN deletion events. **Note:** This trap is not supported on GWN7801(P)/GWN7802(P)/GWN7803(P).
sfp	Configure optical module alarm events trap
syslog	Set the trap for logging events.
severity [0-7]	Set the minimum log level.

Description: The **snmp trap** command configures SNMP traps. **no snmp trap** removes the trap configuration.

Example:

```
Switch(config)# no snmp trap link-updown
Switch(config)# snmp trap link-updown
```

Configure SNMP user

Command:

1. **snmp user** username group-name [**auth (md5|sha)** AUTHPASSWD]
2. **snmp user** username group-name **auth (md5|sha)** AUTHPASSWD **priv** (aes|des) PRIVPASSWD
3. **no snmp user** username

Mode: global configuration mode

Parameter:

Parameter	Description
username	SNMP username, up to 32 characters, **"\?/,** characters are not supported.
group-name	referenced v3 group name
auth md5	MD5 authentication method
auth sha	SHA authentication method
AUTHPASSWD	authentication password
aes	AES encryption method
des	DES encryption method
priv PRIVPASSWD	encrypted password

Description:

1. **snmp user** command defines an SNMP user
2. **no snmp user** command deletes user configuration

Example:

```
Switch(config)# snmp user v3 v3 auth md5 12345678
```

Configure SNMP view

Command:

1. **snmp view** view-name **subtree** oid-tree **oid-mask** (**all**|oid-mask) **viewtype** (**included|excluded**)
2. **no snmp view** view-name **subtree** (**all**|oid-tree)

Mode: global configuration mode

Parameter:

Parameter	Description
view-name	view name, up to 32 characters, **"\?/,** characters are not supported.
subtree oid-tree	view subtree
oid-mask (**all**|oid-mask)	subtree mask
viewtype (**included|excluded**)	Include or exclude selected MIBs from the view

Description: Use the command SNMP *view to* define the SNMP view; use the no command to delete the configuration

Example:

```
Switch(config)# snmp view private subtree 1.3.3.1 oid-mask all viewtype included
```

Configure SNMP Version

Command:

1. `snmp v1_2c`
2. `snmp v3`
3. `no snmp v1_2c`
4. `no snmp v3`

Mode: Global configuration mode

Parameter:

Parameter	Description
`v1_2c`	Specifies and enables SNMP versions 1 and 2c on the switch.
`v3`	Specifies and enables SNMP version 3 on the switch.

Description:

- `snmp <version>` : Enables the specified SNMP (Simple Network Management Protocol) version, allowing the switch to process SNMP requests formatted for that version.
- `no snmp <version>` : Disables the specified SNMP version. The switch will no longer respond to SNMP requests using this version.

Example:

```
! Enable SNMP versions 1 and 2c
Switch(config)# snmp v1_2c

! Enable SNMP version 3
Switch(config)# snmp v3

! Disable SNMP versions 1 and 2c
Switch(config)# no snmp v1_2c
```

RMON

Configure RMON Events

Command:

- **rmon event** *<1-32>* **[log] [trap COMMUNITY] [description DESCRIPTION] [owner NAME]**
- **no rmon event** *{ <1-32> | all }*

Mode: Global configuration mode

Parameter:

Parameter	Description
<1-32>	Event ID.
all	All events
log	Sets the event type to **log**.
trap COMMUNITY	Sets the event type to **trap** and specifies the SNMP community string.
description DESCRIPTION	Event description (maximum 32 characters). Does not support input `"\?"` .

Parameter	Description
owner NAME	Event owner (maximum 32 characters). Does not support input `"\?"`.

Description: The **rmon event** command adds or modifies RMON event entries. The **no rmon event** command deletes an event.

Example:

```
switch(config)# rmon event 1 log trap public description test owner admin
```

Configure RMON Alarm

Command:

- **rmon alarm** *<1-32>* **interface IF_PORT** *(drop-events|octets|pkts|broadcast-pkts|multicast-pkts|crc-align-errors|undersize-pkts|oversize-pkts|fragments|jabbers|collisions|lpkt64octets|pkts65to127octets|pkts128to255octets|pkts256to511octets|pkts512to1023octets|pkts1024to1518octets) <1-2147483647>* startup {rising|rising-falling|falling} {absolute|delta} {rising|rising-falling|falling} <1-99> <1-32> [**owner NAME**]
- **No rmon alarm** *{<1-65535> | all}*

Mode: Global configuration mode

Parameter:

Parameter	Description
<1-32>	Event ID.
IF_PORT	Specify sampling port.
<1-2147483647>	Sampling interval.
absolute|delta	Sampling method: absolute sampling or incremental (delta) sampling.
<0-2147483647>	Threshold value for triggering an upward or downward alarm.
all	All events
rising|rising-falling|falling	Startup event mode: rising only, falling only, or both.
owner NAME	(Optional) Owner name for the alarm (maximum 32 characters). `"\?"` is not supported.

Description: The **rmon alarm** command adds or modifies RMON alarm entries. At least one event entry must be created before adding an alarm entry. The **no rmon alarm** command deletes an alarm entry. You can verify the configuration using **show rmon alarm**.

Example:

```
Switch(config)# rmon event 1 log
Switch(config)# rmon alarm 1 interface eth1/0/1 pkts 300 startup rising delta rising 21 1 owner admin
Switch(config)# no rmon event 1
```

Configure RMON History

Command:

- **rmon history** *<1-32>* **interface IF_PORT [buckets <1-50>] [interval <1-3600>] [owner NAME]**
- **No rmon history** *{ <1-65535> | all }*

Mode: Global configuration mode

Parameter:

Parameter	Description
<1-32>	History table ID.
IF_PORT	Specify sampling port.
buckets <1-50>	(Optional) Maximum number of samples.
interval <1-3600>	(Optional) Sampling interval.
owner NAME	(Optional) Owner name of the history table (maximum 32 characters). `"\?"` is not supported.
all	All History Group

Description: The **rmon history** command adds or modifies RMON history entries. The **no rmon history** command deletes a history entry. You can verify the configuration using **show rmon history**.

Example:

```
switch(config)# rmon history 1 interface eth1/0/1 interval 60 owner admin
switch(config)# no rmon history 1
```

Clear RMON statistics

Command: clear rmon interfaces IF_PORTS statistics

Mode: privileged EXEC mode

Parameter:

Parameter	Description
IF_PORTS	Specifies the interface for clearing statistics

Description:

1. Clear the statistics recorded on the specified interface.
2. You can verify the result with the show rmon interface statistics command.

Example:

```
switch# clear rmon interfaces eth1/0/1 statistics
switch# show rmon interfaces eth1/0/1 statistics
==== Port eth1/0/1 ================================
etherStatsDropEvents 0
etherStatsOctets0
etherStatsPkts0
etherStatsBroadcastPkts0
etherStatsMulticastPkts0
etherStatsCRCAlignErrors 0
etherStatsUnderSizePkts0
etherStatsOverSizePkts0
etherStatsFragments 0
etherStatsJabbers0
etherStatsCollisions0
etherStatsPkts64Octets0
etherStatsPkts65to127Octets0
etherStatsPkts128to255Octets 0
etherStatsPkts256to511Octets 0
etherStatsPkts512to1023Octets 0
etherStatsPkts1024to1518Octets 0
```

View RMON statistics

Command: show rmon interfaces IF_PORT statistics

Mode: privileged EXEC mode

Parameter:

Parameter	Description
IF_PORT	specified port

Description: Use the show rmon interfaces statistics command to display interface statistics

Example:

```
switch# show rmon interfaces eth1/0/8 statistics
==== Port eth1/0/8 ================================
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
```

View RMON Events

Command: show rmon event *(<1-32> | all)*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
<1-32>	Event ID.
all	Displays all existing events.

Description: Displays configured RMON event entries using **show rmon event**.

Example:

```
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
```

View RMON Event Logs

Command: show rmon event *<1-32>* **log**

Mode: privileged EXEC mode

Parameter:

Parameter	Description
<1-32>	Event log ID.

Description: Displays the log records for the specified RMON event.

Example:

```
switch(config)# show rmon event 1 log
============================================================
Index 1
Alarm Index 1
Action: Startup Falling
Time: (32918334) 3 days, 19:26:23.34
Description: fal.Pkts=0 <= 100
```

View RMON Alarms

Command: show rmon alarm *(<1-32> | all)*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
<1-32>	Alarm ID.
all	Displays all existing alarms.

Description: Displays configured RMON alarm entries using **show rmon alarm**.

Example:

```
Switch# show rmon alarm 1
```

View RMON History Groups

Command: show rmon history *(<1-32> | all)*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
<1-32>	History group ID.
all	Displays all existing history groups.

Description: Displays entries in the RMON history group using **show rmon history**.

Example:

```
switch(config)# rmon history 1 interface eth1/0/1 interval 30 owner admin
switch(config)# show rmon history 1
Rmon History Index 1
Rmon Collection Interface: eth1/0/1
Rmon History Bucket 50
Rmon History Interval 30
Rmon History Owner: admin
```

View RMON Historical Group Statistics

Command: show rmon history *<1-32>* **statistic**

Mode: privileged EXEC mode

Parameter:

Parameter	Description
<1-32>	Historical group statistics table ID.

Description: Displays the historical statistics for the specified RMON history group using **show rmon history**.

Example:

```
switch(config)# show rmon history 1 statistic
============================================================
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
```

LLDP

LLDP global configuration

- Enable/disable LLDP

Command:

1. **lldp**
2. **no lldp**

Mode: global configuration mode

Parameter: none

Description: Enable/disable LLDP

Example:

```
Enable the global LLDP function
Switch (config)# lldp
```

- TLV sending interval

Command: lldp tx-interval <*5-32767*>

Mode: global configuration mode

Parameter:

Parameter	Description

<5-32767>	sending LLDP packets , the value range is an integer from 5 to 32767 , and the default is 30 seconds

Description: Set TLV sending interval

Example:

```
Globally set the TLV interval to 30 seconds
Switch(config)# lldp tx-interval 30
```

- TTL multiplier

Command: lldp holdtime-multiplier *<2-10>*

Mode: global configuration mode

Parameter:

Parameter	Description
<2-10>	The value of the TTL field of LLDPDU time to live, the value range is an integer from 2 to 10 , and the default is 4

Description: Set TTL multiplier

Example:

```
Globally set the TTL multiplier to 2 seconds
Switch(config)# lldp holdtime-multiplier 2
```

- Port initialization delay time

Command: lldp reinit-delay *<1-10>*

Mode: global configuration mode

Parameter:

Parameter	Description
<1-10>	LLDP initialization, the value range is an integer from 1 to 10 , the default is 2 seconds

Description: Set port initialization delay time

Example:

```
Globally set the port initialization delay time to 10 seconds
Switch(config)# lldp reinit-delay 10
```

- LLDPDU sending delay time

Command: lldp tx-delay *<1-8191>*

Mode: global configuration mode

Parameter:

Parameter	Description
<1-8191>	Send LLDPDU sending delay time, the value range is an integer from 1 to 8191 , the default is 2 seconds

Description: Set LLDPDU sending delay time

Example:

```
Globally set the LLDPDU sending delay time to 30 seconds
Switch(config)# lldp tx-delay 30
```

- LLDP processing

Command: lldp lldpdu {bridging/filtering/flooding}

Mode: global configuration mode

Parameter:

Parameter	Description
bridging	Bridging , the LLDP packet received by the switch is directly forwarded to the port of the same VLAN domain except the ingress
filtering	Filtering , the LLDP packets received by the switch will not be forwarded to the downstream device, and will be discarded directly
flooding	Flooding , the LLDP packets received by the switch are directly forwarded to ports other than the ingress, regardless of VLAN

Description: When LLDP is disabled, set the processing of LLDP packets.

Example:

```
When lldp is disabled globally, set the flood operation when receiving lldp packets
Switch (config)# no lldp
switch(config)# lldp lldpdu flooding
```

- View LLDP configuration and port information

Command: show lldp

Mode: privileged EXEC mode

Parameter: none

Description: View global LLDP configuration and port information

Example:

```
View LLDP global information and port information
Switch # show lldp

State: Enabled
Timer: 30 Seconds
Hold multiplier: 4
Reinit delay: 2 Seconds
Tx delay: 2 Seconds
LLDP packet handling: Flooding

Port | State | Optional TLVs | Address
-------- + ------ + -------------- + --------
eth1/0/1 | RX,TX | |192.168.80.202
eth1/0/2 | RX,TX | |192.168.80.202
eth1/0/3 | RX,TX | |192.168.80.202
eth1/0/4 | RX,TX | |192.168.80.202
eth1/0/5 | RX,TX | |192.168.80.202
eth1/0/6 | RX,TX | |192.168.80.202
eth1/0/7 | RX,TX | |192.168.80.202
eth1/0/8 | RX,TX | |192.168.80.202
eth1/0/9 | RX,TX | |192.168.80.202
eth1/0/10 | RX,TX | |192.168.80.202

Port ID: eth1/0/1
802.3 optional TLVs:
802.1 optional TLVs
PVID: Enabled
--More--
```

LLDP port setting

- The working mode is to send

Command: LLDP tx

Mode: interface configuration mode

Parameter: none

Description: Set the working mode of the specified interface to send

Example:

```
Set the working mode on the port to send
Switch(config-if)# lldp tx
```

- The working mode is receiving

Command: LLDP rx

Mode: interface configuration mode

Parameter: none

Description: Set the working mode of the specified interface to receive

Example:

```
Set the working mode on the port to receive
Switch(config-if)# lldp rx
```

- The working mode is sending and receiving

Command:

1. **LLDP tx**
2. **LLDP rx**

Mode: interface configuration mode

Parameter: none

Description: Set the working mode of the specified interface to send and receive

Example:

```
Set the working mode on the port to send and receive
Switch(config-if)# lldp tx
Switch(config-if)# lldp rx
```

- Working mode is disabled

Command:

1. **no lldp tx**
2. **no lldp rx**

Mode: interface configuration mode

Parameter: none

Description: Set the working mode of the specified interface to disabled.

Example:

```
Set the working mode on the port to disabled
Switch(config-if)# no lldp tx
Switch(config-if)# no lldp rx
```

- **TLV Selection**

Command:

- **lldp tlv-select** *TLV{port-desc/sys-name/sys-desc/sys-cap/mac-phy/lag/max-frame-size/management-addr/power-via-mdi/pvid/vlan-name}*
- **lldp tlv-select pvid** *(disable|enable)*
- **lldp tlv-select vlan-name** *(add|remove)* **VLAN-LIST**
- **no lldp tlv-select**

Mode: Interface configuration mode

Parameter:

Parameter	Description
TLV{port-desc/sys-name/sys-desc/sys-cap/mac-phy/lag/max-frame-size/management-addr/power-via-mdi/pvid/vlan-name}	Select a specific TLV, including Port Description TLV, System Name TLV, System Description TLV, System Function TLV, MAC/PHY TLV, Link Aggregation TLV, Maximum Frame Size TLV, Management Address TLV, PoE-PSE TLV, Port VLAN ID TLV, and VLAN Name TLV. ***Note:*** *PoE-PSE TLV is only supported on PoE models.*
(disable|enable)	Enable/disable PVID TLV.
(add|remove)	Add/remove VLANs in the VLAN Name TLV.
VLAN-LIST	VLAN list for VLAN Name TLV (VLAN name).

Description: Configures the LLDP TLVs for the specified interface.

Example:

```
On ports 1, 2, and 3, select the TLVs as Port Description TLV, System Name TLV, PVID TLV, and add a VLAN
Name TLV with VLAN name 1.
Switch(config)# interface range eth1/0/1-eth1/0/3
Switch(config-if)# lldp tlv-select port-desc sys-name
Switch(config-if)# lldp tlv-select pvid enable
Switch(config-if)# lldp tlv-select vlan-name add 1
```

- View port LLDP configuration information

Command: show lldp interfaces Ethernet xx

Mode: privileged EXEC mode

Parameter:

Parameter	Description
Ethernet xx	Port ID

Description: View the LLDP configuration information of a specified port

Example:

```
Check port 1 information
Switch# show lldp interface Ethernet 1/0/1

State: Enabled
Timer: 30 Seconds
Hold multiplier: 4
Reinit delay: 2 Seconds
Tx delay: 2 Seconds
LLDP packet handling: Flooding

Port | State | Optional TLVs | Address
-------- + ------ + -------------- + --------
eth1/0/1 | RX,TX | |192.168.80.202

Port ID: eth1/0/1
802.3 optional TLVs:
802.1 optional TLVs
PVID: Enabled
```

LLDP MED global configuration

- Number of fast packets

Command: lldp med fast-start-repeat-count *<1-10>*

Mode: global configuration mode

Parameter:

Parameter	Description
<1-10>	of LLDPDU packets containing LLDP-MED, an integer ranging from 1 to 10 , the default is 3

Description: Set the number of fast packets

Example:

```
Set the number of fast packets to 10
Switch(config)# lldp med fast-start-repeat-count 10
```

- **Add/Remove Network Policies**

Command:

- **lldp med network-policy** *<1-32>* **app** *(voice|voice-signaling|guest-voice|guest-voice-signaling|softphone-voice|video-conferencing|streaming-video|video-signaling)* **vlan** *<1-4094>* **vlan-type** *(tag|untag)* **priority** *<0-7>* **dscp** *<0-63>*
- **no lldp med network-policy** *(<1-32> | all | voice-auto)*

Mode: Global configuration mode

Parameter:

Parameter	Description
<1-32>	Network policy ID.
app (voice|voice-signaling|guest-voice|guest-voice-signaling|softphone-voice|video-conferencing|streaming-video|video-signaling)	Network policy application type.
<1-4094>	Voice VLAN ID.
(tag|untag)	VLAN tag type.
<0-7>	CoS priority.
<0-63>	DSCP priority.

Description: Adds or removes LLDP-MED network policies.

Example:

```
Configure a voice network policy, tagging it with VLAN 10, setting CoS priority to 7 and DSCP priority to
56.
Switch(config)# lldp med network-policy 1 app voice vlan 10 vlan-type tag priority 7 dscp 56

Delete the policy with network policy ID 1
Switch(config)# no lldp med network-policy 1
```

- Enable/disable automatic voice network policy

Command:

1. lldp med network-policy voice-auto
2. no lldp med network-policy voice-auto

Mode: global configuration mode

Parameter: none

Description: Enable/disable automatic voice network policy

Example:

```
Enable automatic voice network policy
Switch(config)# lldp med network-policy voice-auto
```

- View LLDP-MED configuration information

Command: show lldp med

Mode: privileged EXEC mode

Parameter: none

Description: View LLDP MED configuration information

Example:

```
View LLDP MED information
Switch #show lldp med

Fast Start Repeat Count: 3

Network policy 1
-------------------
Application type: Voice
VLAN ID: 222 tagged
Layer 2 priority: 0
DSCP: 0

Network policy 2
-------------------
Application type: Voice
VLAN ID: 2 tagged
Layer 2 priority: 0
DSCP: 0

Port | Capabilities | Network Policy | Location | Inventory | PoE PSE
------ + ------------ + -------------- + -------- + ------ --- + -------
eth1/0/1 | Yes | No | No | No | N/A
eth1/0/2 | Yes | No | No | No | N/A
eth1/0/3 | Yes | No | No | No | N/A
eth1/0/4 | Yes | No | No | No | N/A
eth1/0/5 | Yes | No | No | No | N/A
eth1/0/6 | Yes | No | No | No | N/A
eth1/0/7 | Yes | No | No | No | N/A
--More--
```

LLDP MED port setting

- Enable/disable LLDP-MED

Command:

1. no lldp med
2. lldp med

Mode: interface configuration mode

Parameter: none

Description: Enable/disable the LLDP-MED function of the specified interface

Example:

```
Enable the LLDP-MED function of port 1 and disable the lLDP-MED function of port 2
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# lldp med
Switch(config)# interface Ethernet 1/0/2
Switch(config-if)# no lldp med
```

- MED TLV selection

Command:

1. lldp med tlv-select MEDTLV{network-policy/location/inventory/poe-pse}
2. no lldp med tlv-select

Mode: interface configuration mode

Parameter:

Parameter	Description
MEDTLV{network-policy/location/inventory/poe-pse}	Select to specify MED TLV, including Network Policy TLV, Location TLV, Asset Inventory TLV and PoE-PSE TLV

Description: Select /delete the MED TLV of the specified interface

Example:

```
Specify the TLV sent by port 2 as location, inventory, and network policy information
Switch(config)# interface eth1/0/2
Switch(config-if)# lldp med tlv-select location inventory network-policy
Cancel the TLV sent by port 2
Switch(config-if)#no lldp med tlv-select
```

- Add/remove location information

Command:

1. **lldp med location (coordination|civic-address|ecs-elin)** *ADDR*
2. **no lldp med location(coordination|civic-address|ecs-elin)**

Mode: interface configuration mode

Parameter:

Parameter	Description
coordination	Position coordinates , 16 pairs of hexadecimal
civic-address	City address , 6-16 pairs of hexadecimal
ecs-elin	Emergency phone number , 10 -25 pairs of hexadecimal
ADDR	Specifies the location information data format

Description: Add/delete LLDP MED location information

Example:

```
the location information of port 1
Switch(config)# interface Ethernet 1/0/1
Switch(config-if)# lldp med location coordinate
112233445566778899AABBCCDDEEFF00
Switch(config-if)# lldp med location civic-address
112233445566
Switch(config-if)# lldp med location ecs-elin
11223344556677889AA
```

- Add/remove network policy information

Command: lldp med network-policy (add|remove) <*1-32*>

Mode: interface configuration mode

Parameter:

Parameter	Description
add	Add a binding between a network policy and an interface
remove	Delete the binding of a network policy to an interface
< *1-32* >	Specifies the network policy ID

Description: Add/remove network policy for specified interface

Example:

```
/ remove network policy with policy ID 1 to port binding
Switch(config-if)# lldp med network-policy add/remove 1
```

- View port LLDP-MED configuration information

Command: show lldp interfaces Ethernet xx med

Mode: privileged EXEC mode

Parameter:

Parameter	Description
Ethernet xx	Specify port ID

Description: View LLDP-MED configuration information on a specified port

Example:

```
View LLDP-MED configuration information on port 1
Switch# show lldp interfaces eth1/0/1 med
Port | Capabilities | Network Policy | Location |
Inventory
---- + ------------ + -------------- + -------- + ------
eth1/0/1 | Yes | Yes | Yes |
Yes
Port ID: eth1/0/1
Network policies: 1, 32
Location:
Coordinates: 112233445566778899AABBCCDDEEFF00
Civic-address: 112233445566
Ecs-elin: 1122334455667788 99AA
```

Information viewing and clearing

- View device local information

Command: show lldp local-device

Mode: privileged EXEC mode

Parameter: none

Description: View device local information

Example:

```
View device local information
Switch# show lldp local-device

LLDP Local Device Information:
Chassis Type : Mac Address
Chassis ID: C0:74:AD:B9:3B:44
System Name : Switch
System Description : GWN7801
System Capabilities Support : Bridge, Router
System Capabilities Enable : Bridge, Router
Management Address : 192.168.80.202(IPv4)
Management Address : fe80::c274:adff:feb9:3b44(IPv6)
```

- View port local information

Command: show lldp interfaces Ethernet xx local-device

Mode: privileged EXEC mode

Parameter:

Parameter	Description
Ethernet xx	Specify port ID

Description: View the local information of the specified port

Example:

```
Check the local information of port 1
Switch121212(config)# show lldp interfaces eth1/0/1 local-device

Device ID: 00:12:12:12:12:12
Port ID: eth1/0/1
System Name: Switch121212
Capabilities: Bridge
System description:
Port description:
Management address: 192.168.1.254
Time To Live: 120
802.3 MAC/PHY Configur/Status
Auto-negotiation support: Supported
Auto-negotiation status: Enabled
Auto-negotiation Advertised Capabilities: 10BASE-T half
duplex, 10BASE-T full duplex, 100BASE-TX half duplex,
100BASE-TX full duplex
Operational MAU type: Other or unknown
802.3 Link Aggregation
Aggregation capability: Capable of being aggregated
Aggregation status: Not currently in aggregation
Aggregation port ID: 0
802.3 Maximum Frame Size: 1522
802.1 PVID: 1
LLDP-MED capabilities: Capabilities, Network Policy, Location,
Extended PSE, Inventory
LLDP-MED Device type: Network Connectivity
LLDP-MED Network policy
Application type: Voice Signaling
Flags: Unknown Policy
VLAN ID: 2
Layer 2 priority: 3
DSCP: 4
LLDP-MED Network policy
Application type: Conferencing
Flags: Unknown Policy
VLAN ID: 5
Layer 2 priority: 1
DSCP: 63
Hardware revision: 1123
Firmware revision: 2.5.0-beta.32801
Software revision: 2.5.0-beta.32801
Serial number: abc
Manufacturer Name:
Model name: RTL8328-24FE-4GE
Asset ID:
LLDP-MED Location
Coordinates: 11:22:33:44:55:66:77:88:99:AA:BB:CC:DD:EE:FF:00
Civic-address: 11:22:33:44:55:66
Ecs-elin: 11:22:33:44:55:66:77:88:99:AA
```

- View neighbor information

Command:

1. show lldp neighbor
2. show lldp interfaces Ethernet xx neighbor

Mode: privileged EXEC mode

Parameter:

Parameter	Description
Ethernet xx	Specify port ID

Description:

1. View Device Neighborhood Information
2. View the neighbor information of a specified port

Example:

```
View Device Neighborhood Information
Switch# show lldp neighbor
Port | Device ID | Port ID | SysName
| Capabilities | TTL
---- + ----------------- + ---------------- + ---------- -----
-- + -------------- + -----
eth1/0/3 | 00:12:12:12:12:12 | eth1/0/1 |
Switch121212 | Bridge | 111
eth1/0/1 | TREEBASE |00:1A:4D:26:EB:E8 |
TREEBASE | Station Only | 33

Check the neighbor information of port 3
Switch# show lldp interface Ethernet 1/0/3 neighbor

Device ID: 00:12:12:12:12:12
Port ID: eth1/0/1
System Name: Switch121212
Capabilities: Bridge
System description:
Port description:
Management address: 192.168.1.254
Time To Live: 98
802.3 MAC/PHY Configur/Status
Auto-negotiation support: Supported
Auto-negotiation status: Enabled
Auto-negotiation Advertised Capabilities: 10BASE-T half
duplex, 10BASE-T full duplex, 100BASE-TX half duplex,
100BASE-TX full duplex
Operational MAU type: 100BASE-TX full duplex mode
802.3 Link Aggregation
Aggregation capability: Capable of being aggregated
Aggregation status: Not currently in aggregation
Aggregation port ID: 0
802.3 Maximum Frame Size: 1522
802.1 PVID: 1
LLDP-MED capabilities: Capabilities, Network Policy, Location,
Extended PSE, Inventory
LLDP-MED Device type: Network Connectivity
LLDP-MED Network policy
Application type: Voice Signaling
Flags: Unknown Policy
VLAN ID: 2
Layer 2 priority: 3
DSCP: 4
LLDP-MED Network policy
Application type: Conferencing
Flags: Unknown Policy
VLAN ID: 5
Layer 2 priority: 1
DSCP: 63
LLDP-MED Power over Ethernet
Device Type: Power Sourcing Entity
Power Source: Primary Power Source
Power priority: Low
Power value: 13.0 Watts
Hardware revision: 1123
Firmware revision: 2.5.0-beta.32801
Software revision: 2.5.0-beta.32801
Serial number: abc
Manufacturer Name:
Model name: RTL8328-24FE-4GE
Asset ID:
LLDP-MED Location
Coordinates: 11:22:33:44:55:66:77:88:99:AA:BB:CC:DD:EE:FF:00
Civic-address: 11:22:33:44:55:66
Ecs-elin: 11:22:33:44:55:66:77:88:99:AA
```

- View LLDP statistics

Command:

1. show lldp statistics
2. show lldp interfaces Ethernet xx statistics

Mode: privileged EXEC mode

Parameter:

Parameter	Description
Ethernet xx	Specify port ID

Description:

1. View LLDP statistics
2. View LLDP statistics on a specified port

Example:

```
View LLDP statistics
LLDP Global Statistics:
Insertions: 0
Deletions: 0
Drops: 0
Age Outs : 0

| TX Frames | RX Frames | RX TLVs | RX Ageouts
Total | Total | Discarded | Errors | Discarded | Unrecognized | Total
--------+----------+-------+-----------+-------+ -----------+--------------+----------
eth1/0/1 | 0 | 0 | 0 | 0 | 0 | 0 | 0
eth1/0/2 | 5537 | 0 | 0 | 0 | 0 | 0 | 0
eth1/0/3 | 0 | 0 | 0 | 0 | 0 | 0 | 0
eth1/0/4 | 0 | 0 | 0 | 0 | 0 | 0 | 0
eth1/0/5 | 0 | 0 | 0 | 0 | 0 | 0 | 0
eth1/0/6 | 0 | 0 | 0 | 0 | 0 | 0 | 0
eth1/0/7 | 0 | 0 | 0 | 0 | 0 | 0 | 0
eth1/0/8 | 0 | 0 | 0 | 0 | 0 | 0 | 0
eth1/0/9 | 0 | 0 | 0 | 0 | 0 | 0 | 0
eth1/0/10 | 0 | 0 | 0 | 0 | 0 | 0 | 0

View LLDP statistics on port 1
Switch# show lldp interface Ethernet 1/0/1 statistics

LLDP Port Statistics:
| TX Frames | RX Frames | RX TLVs | RX Ageouts
Total | Total | Discarded | Errors | Discarded | Unrecognized | Total
--------+----------+-------+-----------+-------+ -----------+--------------+----------
Eth1/0/1 | 0 | 0 | 0 | 0 | 0 | 0 | 0
```

- Whether the port TLV is overloaded

Command: show lldp interfaces Ethernet xx tlvs-overloading

Mode: privileged EXEC mode

Parameter:

Parameter	Description
Ethernet xx	Specify port ID

Description: Check whether the TLV of the specified port is overloaded

Example:

```
Check whether the TLV of port 1 is overloaded
Switch# show lldp interface Ethernet 1/0/1 statistics

LLDP Port Statistics:
| TX Frames | RX Frames | RX TLVs | RX Ageouts
Total | Total | Discarded | Errors | Discarded | Unrecognized | Total
--------+----------+-------+-----------+-------+ -----------+--------------+----------
eth1/0/1 | 0 | 0 | 0 | 0 | 0 | 0 | 0

Switch#
Switch#
Switch# show lldp interface Ethernet tlvs-overloading
invalid port id
Switch# show lldp interface Ethernet 1/0/1 tlvs-overloading

eth1/0/1:

TLVs Group | Bytes | Status
--------------------------- + ------- + ------------- ---
Mandatory | 21 | Transmitted
LLDP-MED Capabilities | 9 | Transmitted
802.1 | 8 | Transmitted

Total: 38 bytes
Left: 1450 bytes
```

- **Clear Statistics**

Command:

- **clear lldp global statistics**
- **clear lldp interfaces Ethernet xx statistics**

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
Ethernet xx	Specify port ID.

Description: Clears LLDP statistics globally or for a specified port.

Example:

```
Clear global LLDP statistics
Switch# clear lldp global statistics

Clear LLDP statistics on port 1
Switch# clear lldp interfaces Ethernet 1/0/1 statistics
```

EEE

Enable/disable 802.3 EEE

Command:

1. **lldp**
2. **no lldp**

Mode: global configuration mode

Parameter: none

Description: Enable/disable LLDP

Example:

```
Enable the global LLDP function
Switch (config)# lldp
```

Check the EEE status of the port

Command: show eee Ethernet interface-id

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
interface-id	Ethernet interface ID

Description: Check the status of the specified port EEE

Example:

```
GWN7831# show eee Ethernet 1/0/1
Port Enable NegotiationAuto Status
eth1/0/1 disable enable disable
```

Alarm

Viewing the Configuration and Status of All Device Alarms

Command Syntax:

1. show alarm config
2. show alarm status

Mode: Privileged EXEC mode

Parameters: None

Description: View the configuration and status of all device alarms.

Example:

```
# View the alarm configuration.
Switch# show alarm config

# View the alarm status.
Switch# show alarm status
```

Checking the CPU Usage Alarm Configuration and Status

Command Syntax:

1. show alarm cpu-high config
2. show alarm cpu-high status

Mode: Privileged EXEC mode

Parameters: None

Description: Check the configuration and status of the CPU usage alarm.

Example:

```
# Check the CPU usage alarm configuration.
Switch# show alarm cpu-high config

# Check the CPU usage alarm status.
Switch# show alarm cpu-high status
```

Checking the Configuration and Status of the Memory Usage Alarm

Command Syntax:

1. show alarm memory-high config
2. show alarm memory-high status

Mode: Privileged EXEC mode

Parameters: None

Description: Check the configuration and status of the memory usage alarm.

Example:

```
# Check the memory usage alarm configuration.
Switch# show alarm memory-high config

# Check the memory usage alarm status.
Switch# show alarm memory-high status
```

Checking the Configuration and Status of the PoE Power Alarm

Command Syntax:

1. show alarm poe-poweruse config
2. show alarm poe-poweruse status

Mode: Privileged EXEC mode

Parameters: None

Description: Check the configuration and status of the PoE power usage alarm.

Example:

```
# Check the PoE power usage alarm configuration.
Switch# show alarm poe-poweruse config

# Check the PoE power usage alarm status.
Switch# show alarm poe-poweruse status
```

Checking the Configuration and Status of the MAC Address Limit Alarm

Command Syntax:

1. show alarm mac-limit config
2. show alarm mac-limit status

Mode: Privileged EXEC mode

Parameters: None

Description: Check the configuration and status of the MAC address limit alarm.

Example:

```
# Check the MAC address limit alarm configuration.
Switch# show alarm mac-limit config

# Check the MAC address limit alarm status.
Switch# show alarm mac-limit status
```

View ARP Alarm Configuration and Status

Command:

1. `show alarm arp-use config`
2. `show alarm arp-use status`

Mode: Privileged EXEC mode

Parameter: None

Description:

- `show alarm arp-use config` : Displays the configured threshold limits and system settings for ARP table usage alarms.
- `show alarm arp-use status` : Displays the real-time operational status, current utilization metrics, and active trigger states of ARP usage alarms.

Example:

```
! Displays the configured threshold settings for ARP usage alarms
Switch# show alarm arp-use config

! Displays the real-time status and current utilization of ARP capacity
Switch# show alarm arp-use status
```

Enable or Disable System Alarms

Command:

1. `alarm {cpu-high | fan-fault | mac-limit | mainpowerfault | memory-high | poe-chipfault | poe-poweruse | temp-high | arp-use} alarm-threshold <threshold> alarm-delay <delay> normal-threshold`

`<threshold> normal-delay <delay> level {alert | crit | debug | emerg | error | info | notice | warning}`

2. `no alarm {cpu-high | fan-fault | mac-limit | mainpowerfault | memory-high | poe-chipfault | poe-poweruse | temp-high | arp-use}`

Mode: Global configuration mode

Parameter:

Parameter	Description
`cpu-high` ... `arp-use`	Specifies the type of system alarm to configure. **Hardware Restrictions:** • **PoE alarms** (`poe-chipfault` , `poe-poweruse`) are only supported on PoE models. • **Fan alarms** (`fan-fault`) are only supported on models GWN7803P, GWN7806(P), GWN7812P, GWN7813P, GWN7816(P), GWN7831, and GWN7832. • **Main power alarms** (`mainpowerfault`) are only supported on models GWN7813(P), GWN7816(P), GWN7831, and GWN7832.
`alarm-threshold <threshold>`	The specific value or metric that triggers the alarm.
`alarm-delay <delay>`	The duration (in seconds) the condition must persist before generating the alarm.
`normal-threshold <threshold>`	The recovery value that indicates the system has returned to normal.
`normal-delay <delay>`	The duration (in seconds) the normal condition must persist before clearing the alarm.
`level <severity>`	The syslog severity level assigned to the alarm (e.g., `alert` , `error` , `warning`).

Description:

- `alarm ...` : Configures the trigger thresholds, delay timers, recovery metrics, and severity levels for specific system health alarms.
- `no alarm ...` : Disables the specified alarm type and removes its custom threshold configuration.

Example:

```
! Configure a high-temperature alarm to trigger at 100°C after 5 seconds, generating an 'alert' level log.
! The alarm clears when the temperature drops to 80°C or below for 10 seconds.
Switch(config)# alarm temp-high alarm-threshold 100 alarm-delay 5 normal-threshold 80 normal-delay 10 level alert

! Disable the high-temperature alarm
Switch(config)# no alarm temp-high
```

View Global Alarm Status

Command: `show alarm`

Mode: Privileged EXEC mode

Parameter: None

Description: `show alarm` : Displays the current operational status, configured thresholds, and active triggered states of all global system health alarms (such as CPU, memory, temperature, and PoE) on the switch.

Example:

```
! Displays the status and configuration of all global system alarms
Switch# show alarm
```

Enable or Disable Global Alarms

Command:

1. `alarm`
2. `no alarm`

Mode: Global configuration mode

Parameter: None

Description:

- `alarm` : Globally enables the system health alarm and alerting mechanism on the switch, allowing it to monitor and trigger alerts based on configured thresholds.
- `no alarm` : Globally disables the system alarm mechanism, preventing the switch from monitoring or generating any health or system alerts.

Example:

```
! Globally enables the system alarm mechanism
Switch(config)# alarm

! Globally disables the system alarm mechanism
Switch(config)# no alarm
```

Checking the Fan Fault Alarm Configuration and Status

Command Syntax:

1. show alarm fan-fault config
2. show alarm fan-fault status

Mode: Privileged EXEC mode

Parameters: None

Description: Check the fan fault alarm configuration and status.

Example:

```
# Check the fan fault alarm configuration.
Switch# show alarm fan-fault config

# Check the fan fault alarm status.
Switch# show alarm fan-fault status
```

Checking the Configuration and Status of the PoE Chip Fault Alarm

Command Syntax:

1. show alarm poe-chipfault config
2. show alarm poe-chipfault status

Mode: Privileged EXEC mode

Parameters: None

Description: Check the configuration and status of the PoE chip fault alarm.

Example:

```
# Check the PoE chip fault alarm configuration.
Switch# show alarm poe-chipfault config

# Check the PoE chip fault alarm status.
Switch# show alarm poe-chipfault status
```

Checking the Configuration and Status of the Power Failure Alarm

Command Syntax:

1. show alarm mainpowerfault config
2. show alarm mainpowerfault status

Mode: Privileged EXEC mode

Parameters: None

Description: Check the configuration and status of the power failure alarm.

Example:

```
# Check the power failure alarm configuration.
Switch# show alarm mainpowerfault config

# Check the power failure alarm status.
Switch# show alarm mainpowerfault status
```

Checking the Configuration and Status of the MAC Address Limit Alarm

Command Syntax:

1. show alarm mac-limit config
2. show alarm mac-limit status

Mode: Privileged EXEC mode

Parameters: None

Description: Check the configuration and status of the MAC address limit alarm.

Example:

```
# Check the MAC address limit alarm configuration.
Switch# show alarm mac-limit config

# Check the MAC address limit alarm status.
Switch# show alarm mac-limit status
```

Enabling/Disabling Various Types of Alarms

Command Syntax:

1. alarm cpu-high/fan-fault/mac-limit/mainpowerfault/memory-high/poe-chipfault/poe-poweruse/temp-high alarm-threshold threshold alarm-delay delay normal-threshold threshold normal-delay delay level <0-7>
2. no alarm cpu-high/fan-fault/mac-limit/mainpowerfault/memory-high/poe-chipfault/poe-poweruse/temp-high

Mode: Privileged EXEC mode

Parameters:

Parameter	Description
cpu-high / fan-fault / mac-limit / mainpowerfault / memory-high / poe-chipfault / poe-poweruse / temp-high	Various types of alarms Note: 1. PoE power supply alarm and PoE chip fault alarm are only supported by PoE models. 2. Fan alarm is only supported by GWN7803P/GWN7806(P)/GWN7812P/GWN7813P/GWN7816(P)/GWN7831/GWN7832 Power alarm is only supported by GWN7813(P)/GWN7816(P)/GWN7831/GWN7832
threshold	Set alarm thresholds and recovery thresholds
delay	Set the alarm waiting time and recovery waiting time
<0-7>	Set the alarm level

Description: Enable or disable various types of alarms by configuring the thresholds, delays, and alarm levels.

Example:

```
# When the temperature reaches 100°C, a high-temperature alarm with a delay of 5 seconds is generated.
Switch# alarm temp-high alarm-threshold 100 alarm-delay 5 level 1
```

SYSTEM

Basic Settings

Basic Setting

- Configure switch name

Command: system name *WORD<1-64>*

Mode: global configuration mode

Parameter:

Parameter	Description
WORD<1-64>	Character range: 1-64, support letters, numbers and special characters (excluding **"\?/,**). If the string is empty, use "" to quote it.

Description: Set switch name

Example:

```
Set the switch name to MySwitch and check
Switch # config
Switch(config)# system name MySwitch
MySw itch (config) # d o show info

System Name : MySwitch
System Location : Default
System Contact : Default
Device model : GWN7801
MAC Address : C0:74:AD:B9:3B:44
IP Address : 192.168.80.201
Subnet Mask : 255.255.255.0
Loader Version: 3.6.9.55156
Loader Date : Mar 17 2023 - 02:00:37
Firmware Version : 1.0.3.15
Firmware Date : Jan 12 2023 - 11:51:17
Hardware Version : V1.2A
PN Series number : 9640004612A
SN Series number : 20VXU28N90B93B44
System Object ID : 1.3.6.1.4.1.42379
System Up Time: 6 days, 18 hours, 51 mins, 3 secs
```

- Configure Switch Location

Command: system location LOCATION

Mode: global configuration mode

Parameter:

Parameter	Description
LOCATION	Character range: 0-64, support letters, numbers and special characters (excluding **"\?/,**). If the string is empty, use "" to quote it.

Description: Set switch location

Example:

```
Set the switch location to hangzhou and check
Switch # config
Switch(config)# system location Hangzhou
Switch(config)# do show info

System Name : Switch
System Location : hangzhou
System Contact : Default
Device model : GWN7801
MAC Address : C0:74:AD:B9:3B:44
IP Address : 192.168.80.201
Subnet Mask : 255.255.255.0
Loader Version: 3.6.9.55156
Loader Date : Mar 17 2023 - 02:00:37
Firmware Version : 1.0.3.15
Firmware Date : Jan 12 2023 - 11:51:17
Hardware Version : V1.2A
PN Series number : 9640004612A
SN Series number : 20VXU28N90B93B44
System Object ID : 1.3.6.1.4.1.42379
System Up Time: 6 days, 18 hours, 54 mins, 12 secs
```

- Configure Switch Contact Information

Command: system contact CONTACT

Mode: global configuration mode

Parameter:

Parameter	Description
CONTACT	Character range: 0-64, support letters, numbers and special characters (excluding **"\?/,**). If the string is empty, use "" to quote it.

Description: Set Switch Contacts

Example:

```
Set the switch contact to 15968140574 and check
Switch # config
Switch(config)# do show info

System Name : Switch
System Location : hangzhou
System Contact : 15968140574
Device model : GWN7801
MAC Address : C0:74:AD:B9:3B:44
IP Address : 192.168.80.201
Subnet Mask : 255.255.255.0
Loader Version: 3.6.9.55156
Loader Date : Mar 17 2023 - 02:00:37
Firmware Version : 1.0.3.15
Firmware Date : Jan 12 2023 - 11:51:17
Hardware Version : V1.2A
PN Series number : 9640004612A
SN Series number : 20VXU28N90B93B44
System Object ID : 1.3.6.1.4.1.42379
System Up Time: 6 days, 19 hours, 9 mins, 37 secs
```

- **Configure Web GUI Language**

Command: webui language *{ languages }*

Mode: global configuration mode

Parameter:

Parameter	Description
languages	Web GUI language: simplified-chinese/english/latino/deutsch/french/portuguese/vietnamese/arabic/danish/finnish/greek/hebrew/italian/russian/euskara/brazilian_portuguese/serbian

Description: Sets the switch Web GUI language.

Example:

```
Set the switch language to Simplified Chinese.
Switch# config
Switch(config)# webui language simplified-chinese
```

Time setting

- **View the Current System Time**

Command:

- **show clock**
- **show clock detail**

- **show clock support-timezones**

Mode: Privileged EXEC mode

Parameter: none

Description: Displays the current system time. Use **show clock detail** for additional details, and **show clock support-timezones** to view supported time zones.

Example:

```
Switch# show clock
Switch# show clock detail
Switch# show clock support-timezones
```

- Set static time manually

Command: clock set HH:MM:SS (jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec)

<1-31> <2000-2035>

Mode: Privileged Exec Mode

Parameter:

Parameter	Description
HH:MM:SS	Minutes and seconds
(jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec)	month
<1-31>	day
<2000-2035>	years

Description: Manually set the time

Example:

```
Switch# clock set 04:14 :2 4 jan 24 2034
```

- Set the time source to manual setting

Command: clock source local

Mode: global configuration mode

Parameter: none

Description: Set the time source to manual setting

Example:

```
Switch # configure
Switch (config) # clock source local
```

- Set time source as SNTP server

Command:

1. **clock source sntp**
2. **show sntp**

Mode: global configuration mode

Parameter: none

Description:

1. **clock source sntp** set the time source as SNTP server
2. **show sntp** View SNTP server

Example:

```
Switch # configure
Switch (config) # clock source local
Switch(config) #d o show sntp
```

- **Configure SNTP Server**

Command:

- **sntp host { A . BCD | HOSTNAME } [port] <1-65535>**
- **sntp cloudsync state <0/1>**

Mode: Global configuration mode

Parameter:

Parameter	Description
A. BCD	SNTP server IP address.
HOSTNAME	SNTP server domain name.
port<1-65535>	SNTP server port number (range: 1–65535).
<0/1>	CloudSync state: **0** = disable, **1** = enable.

Description: Configures the SNTP server address and port. You can also enable or disable SNTP CloudSync.

Example:

```
Switch# configure
Switch(config)# sntp host 192.168.1.27 port 123
Switch(config)# sntp host time.windows.com port 124
Switch(config)# sntp cloudsync state 0
```

- Clear SNTP server

Command: no sntp

Mode: global configuration mode

Parameter: none

Description: clear SNTP server

Example:

```
Switch # configure
Switch (config) #no sntp
```

- **Configure Time Zone**

Command: clock timezone POS HOUR-OFFSET minutes<0-59>

Mode: Global configuration mode

Parameter:

Parameter	Description
POS<0-12>	Time zone position (location).
HOUR-OFFSET<-12-14>	Hour offset from UTC.
minutes<0-59>	Minute offset from UTC.

Description: Configures the system time zone (UTC offset).

Example:

```
Switch# configure
Switch (config) #clock timezone 0 -12 minutes 0
```

- Restore default timezone

Command: no clock timezone

Mode: global configuration mode

Parameter: none

Description: restore default timezone

Example:

```
Switch # configure
Switch (config) #no clock timezone
```

Daylight saving time

- Configuring periodic daylight saving time

Command: 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>]

Mode: global configuration mode

Parameter:

Parameter	Description
(<1-5>|first|last)	1st -5th or 1st or last
(sun|mon|tue|wed|thu|fri|sat)	Day of the week
(jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec)	Month
HH:MM	Specific time
<1-1440>	Offset time , an integer ranging from 1 to 1440 , in minutes

Description: Configuring periodic daylight saving time.

Example:

```
#Configure periodic daylight saving time
Switch (config) #clock summer-time “123” recurring 1 sun jan 0:0 5 sun dec 23:59 123
```

- Configuring US/European Daylight Saving Time

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

Mode: global configuration mode

Parameter:

Parameter	Description
usa|eu	Select region , US /Europe
<1-1440>	Offset time , an integer ranging from 1 to 1440 , in minutes

Description: Configuring US/European Daylight Saving Time

Example:

```
#Configure US Daylight Saving Time
Switch(config)# clock summer-time “123” recurring usa 60
```

- Configuring Absolute Daylight Saving 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>]

Mode: global configuration mode

Parameter:

Parameter	Description
jan|feb|mar|apr|may|jun|jul|aug|sep|oct|nov|dec	month
<1-31>	date
<2000-2037>	years
HH:MM	Specific time
<1-1440>	Offset time , an integer ranging from 1 to 1440 , in minutes.

Description: Configuring Absolute Daylight Saving Time.

Example:

```
#Configure absolute daylight saving time
Switch(config)# clock summer-time "123" date jan 1 2024 0:0 dec 31 2024 23:59 123
```

- Remove Daylight Saving Time

Command: no clock summer-time

Mode: global configuration mode

Parameter: none

Description: Remove Daylight Saving Time

Example:

```
#Delete daylight saving time
Switch(config)# no clock summer-time
```

- View daylight saving time information

Command: show clock detail

Mode: Privileged EXEC mode

Parameter: none

Description: View daylight saving time information

Example:

```
#View daylight saving time information
Switch#show clock detail

2024-01-22 14:53:37 (UTC+08:00) Beijing,Shanghai,Chongqing,Hong Kong,Urumqi,Harbin,Kashgar(UTC+8:00)
Time source is sntp

Time zone:
Acronym is (UTC+08:00) Beijing,Shanghai,Chongqing,Hong Kong,Urumqi,Harbin,Kashgar
Offset is UTC+8:00
```

Scheduled restart

- Scheduled restart

Command:

1. **schedule use id** *{id}* **reboot**
2. **no schedule use reboot**

Mode: global configuration mode

Parameter:

Parameter	Description
{id}	Time policy ID, an integer ranging from 1 to 32

Description:

1. **schedule use id** *{id}* **reboot** : set switch restart time
2. **no schedule use reboot** : Turn off the scheduled reboot function

Example:

```
Turn on timed restart ( refer to time policy 1 )
Switch # config
Switch(config)# schedule use id 2 reboot

Turn off scheduled restart
Switch (config)# no schedule use reboot
```

Access control

Web service management

- Enable telnet permission/ssh permission/https access

Command: ip telnet|ssh|https

Mode: global configuration mode

Parameter: none

Description: Enable telnet permission/ssh permission/https access

Example:

```
Switch # configure
Switch (config) # ip telnet|ssh|https
```

- Disable telnet permission/ssh permission/https access

Command: no ip telnet|ssh|https

Mode: global configuration mode

Parameter: none

Description: Close telnet permission/ssh permission/https access

Example:

```
Switch # configure
Switch (config) #no ip telnet|ssh|https
```

- View https access status

Command: show ip https

Mode: Privileged Exec Mode

Parameter: none

Description: View https access status

Example:

```
Switch# show ip https
```

- Modify web (https) idle timeout

Command: ip web session-timeout session-timeout

Mode: Global configuration mode

Parameter:

Parameter	Description
session-timeout	HTTPS timeout, the value range is 1-1440 minutes

Description: Modify web idle timeout

Example:

```
Switch#configure
Switch (config) # ip web session-timeout 500
```

- Set HTTPS port

Command: ip https port (443|<1024-65535>)

Mode: global configuration mode

Parameter:

Parameter	Description
443|<1024-65535>	HTTPS port , the value range is 443 and an integer between 1024-65535 , the default is 443.

Description: Set the HTTPS access port number

Example:

```
Switch#configure
Switch (config) #ip https port 1024
```

- View the HTTPS port status

Command: show ip https

Mode: Privileged EXEC mode

Parameter: none

Description: Check the HTTPS port status

Example:

```
Switch# show ip https
```

- Set SSH port

Command: ip ssh port (22|<1024-65535>)

Mode: global configuration mode

Parameter:

Parameter	Description
22|<1024-65535>	HTTPS port , the value range is 22 and an integer between 1024-65535 , the default is 22

Description: Set the SSH access port number

Example:

```
Switch#configure
Switch (config) #ip ssh port 1025
```

- Check SSH port status

Command: show line ssh

Mode: Privileged EXEC mode

Parameter: none

Description: Check the SSH port status

Example:

```
Switch# show line ssh
```

- Configure Telnet Port

Command: `ip telnet port {23 | <1024-65535>}`

Mode: Global configuration mode

Parameter:

Parameter	Description
`23`	The standard, default TCP port used for Telnet connections.
`<1024-65535>`	Specifies a custom TCP port number for the Telnet service. (Range: 1024–65535).

Description: `ip telnet port ...` : Configures the TCP port number that the switch's internal Telnet server listens on for remote management connections.

Example:

```
! Enter global configuration mode
Switch# configure

! Change the Telnet server port to 1026
Switch(config)# ip telnet port 1026
```

- View Telnet Port Status

Command: `show line telnet`

Mode: Privileged EXEC mode

Parameter: None

Description: `show line telnet` : Displays the current configuration and operational status of the Telnet service on the switch, including the active TCP port it is listening on.

Example:

```
! Displays the current Telnet configuration and status
Switch# show line telnet
```

Password-free access

- Enable Web Passwordless Remote Access

Command: `web-passwordless-remoteaccess`

Mode: Global configuration mode

Parameter: None

Description: `web-passwordless-remoteaccess` : Enables passwordless remote access for the switch's web interface. This feature is typically used to allow seamless single sign-on (SSO) or direct remote management access from a central controller (such as GDMS Networking or GWN Manager) without requiring the administrator to manually enter the local device credentials.

Example:

```
! Enter global configuration mode
Switch# configure

! Enable passwordless remote access for web management
Switch(config)# web-passwordless-remoteaccess
```

- Disable Web Passwordless Remote Access

Command: `no web-passwordless-remoteaccess`

Mode: Global configuration mode

Parameter: None

Description: `no web-passwordless-remoteaccess` : Disables the passwordless remote access feature for the switch's web interface. This enforces standard, credential-based authentication for all remote management login attempts, including those initiated from central management platforms (like GWN.Cloud or GWN Manager).

Example:

```
! Enter global configuration mode
Switch# configure

! Disable passwordless remote access for web management
Switch(config)# no web-passwordless-remoteaccess
```

- View Web Passwordless Remote Access Status

Command: `show web-remoteaccess-without-password`

Mode: Privileged EXEC mode

Parameter: None

Description: `show web-remoteaccess-without-password` : Displays the current configuration status of the web passwordless remote access feature, indicating whether it is currently enabled or disabled on the switch.

Example:

```
! Displays the current status of passwordless remote access
Switch# show web-remoteaccess-without-password
```

Management platform settings

- Configuring the Management Platform Server Address

Command Syntax: manager [state (enable | disable)] [role (manager | router)] [server (IP | IPv6 | Hostname)] [port <1-65535>]

Mode: Global Configuration Mode

Parameters:

Parameter	Description
enable|disable	Whether to enable manual setting of the management platform server address
manager/router	Select the management platform, including GWN Manager and GWN Route
IP/ IPv6 / Hostname	Management platform server address , including IPv4 address , IPv6 address and host name
<1-65535>	Port number, an integer from 1 to 65535.

Description:
Configure the management platform server address, including options for GWN Manager or GWN Router, and set the IP address or hostname with the appropriate port number.

Example:

```
# Configure the GWN Manager server address to 192.168.1.1 and port 8443.
Switch(config)# manager state enable role manager server 192.168.1.1 port 8443
```

- **Configure Manager Server Address**

Command: manager server *{IP | IPv6 | Hostname | “”}*

Mode: Global configuration mode

Parameter:

Parameter	Description
IP / IPv6 / Hostname	Management platform server address (IPv4 address, IPv6 address, or hostname).
“”	Clear the manager server address.

Description: Configures the manager server address.

Example:

```
Configure the manager server address as 192.168.1.1
Switch(config)# manager server 192.168.1.1

Clear the manager server address
Switch(config)# manager server ""
```

- **Configure Manager Server Port**

Command: manager port <1-65535>

Mode: Global configuration mode

Parameter:

Parameter	Description
<1-65535>	Manager server port number (range: 1–65535).

Description: Configures the port used by the manager server.

Example:

```
Configure the manager server to use port 20.
Switch(config)# manager port 20
```

- **Enable/Disable Manager Server**

Command: manager state {enable | disable}

Mode: Global configuration mode

Parameter:

Parameter	Description
enable/disable	Enable or disable the manager server.

Description: Enables or disables the manager server.

Example:

```
Enable the manager server
Switch(config)# manager state enable

Disable the manager server
Switch(config)# manager state disable
```

- Enabling/Disabling DHCP Option 43 to Set Management Platform Server Settings

Command Syntax: manager dhcp43 Override {enable | disable}

Mode: Global Configuration Mode

Parameters: None

Description: Enable or disable DHCP option 43 settings for configuring management platform server settings.

Example:

```
# Enable DHCP option 43 to set the management platform server settings.
Switch(config)# manager dhcp43 Override enable
```

- Checking the Management Platform Configuration

Command Syntax: show manager

Mode: Privileged EXEC mode

Parameters: None

Description: View the current management platform configuration.

Example:

```
Switch# show manager

MANAGER OPTION      | VALUE
--------------------+----------------------------
manager set         | enabled
manager server      | 192.168.1.1
manager port        | 8443
allow dhcp overwrite| disabled
```

Telnet/SSH Client

- **SSH Help Information 1 (Parameter Details)**

Command: ssh {ip-addr | hostname | ipv6-addr | knownhostremove | knownhostsclear} ?

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
ip-addr	Switch IPv4 address.
host	Switch domain name (hostname).
ipv6-addr	Switch IPv6 address.
knownhostremove	Remove a specified known host entry.
knownhostsclear	Clear all known host entries.

Description: Displays additional help for the `ssh` command. Available help topics include: **debug**, **keyfile**, **port**, **user**, and **vlan**.

Example:

```
Switch# ssh 192.168.80.201
<cr>
debug       config show debug log
keyfile     Log in with the SSH server specified public key
port        TCP/UDP port
user        SSH login username
vlan        VLAN interface
```

- **Telnet Help Information 2 (Parameter Details)**

Command: telnet {ip-addr | hostname | ipv6-addr} ?

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
ip-addr	Switch IPv4 address.
hostname	Switch domain name (hostname).
ipv6-addr	Switch IPv6 address.

Description: Displays additional help for the `telnet` command. Available help topics include: **port** and **vlan**.

Example:

```
Switch# telnet 192.168.80.201
<cr>
port    TCP/UDP port
vlan    VLAN interface
```

- SSH Public Key Help (Sub-commands)

Command: sshprivatekey ?

Mode: Privileged EXEC mode

Parameter: none

Description: Display available `sshpublickey` sub-commands. The supported options are:

- **delete**: Delete the public key stored on the device.
- **list**: Display public key files downloaded to the device.
- **tftp://**: Download an SSH server public key via TFTP.

Example:

```
Switch# sshprivatekey
delete Delete the private key on the device
list The key file that has been downloaded to the device list
tftp:// Private key download
```

- **SSH Connection for Remote Device Management**

Command: ssh *{ip-addr|hostname|ipv6-addr|knownhostremove|knownhostsclear} { debug/ keyfile/port/user /vlan }*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
ip-addr	Remote device IPv4 address
hostname	Remote device hostname (domain name)
ipv6-addr	Remote device IPv6 address
knownhostremove	Remove a host entry from the known_hosts list
knownhostsclear	Clear all entries from the known_hosts list
debug	Enable debug output
keyfile	Specify the private key file to use
port	Specify the SSH port on the remote device
user	Specify the username to connect with
VLAN	Specify the VLAN port number

Description: Use SSH to connect to and manage a remote device. You can optionally specify the username, port, and a private key file for key-based authentication. If the remote device was factory reset and you have connected to it before, remove the old known_hosts entry before reconnecting.

Example:

```
The SSH server's IP address is 192.168.0.254, and SSH is enabled on the GWN switch by default.
Log in to the SSH server using the default root account.
Switch# ssh 192.168.0.254

Log in to the SSH server using the admin account.
Switch# ssh 192.168.0.254 user admin

If the SSH server uses port 6622, specify the port.
Switch# ssh 192.168.0.254 user admin port 6622

If the SSH server uses public key encryption and the private key file is GWN, key-based login is supported.
Switch# ssh 192.168.0.254 user root keyfile GWN

If the device was factory reset and was previously connected, clear the known_hosts entry before logging in.
Switch# ssh knownhostremove 192.168.0.254
```

- **Telnet Connection for Remote Device Management**

Command: telnet *{ip-addr | hostname | ipv6-addr} {port | vlan}*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
ip-addr	Remote device IPv4 address
hostname	Remote device hostname (domain name)
port	Specify the Telnet port on the remote device
VLAN	Specify the VLAN port number

Description: Use Telnet to connect to and manage a remote device.

Example:

```
The Telnet server IP address is 192.168.0.254. Telnet is disabled on the GWN switch by default.

Log in using Telnet:
Switch# telnet 192.168.0.254

If the Telnet server uses port 6623, specify the port:
Switch# telnet 192.168.0.254 port 6623
```

- **Upload SSH Public Key (TFTP)**

Command: sshprivatekey tftp://target_ip/target_file rename

Mode: privileged EXEC mode

Parameter:

Parameter	Description
tftp://target_ip	TFTP server IP address (used to upload the key file).
target_file	Key file to be uploaded.
rename	Rename the uploaded key file.

Description: Upload SSH key files via TFTP. Supports RSA/ECDSA/ED25519 private key formats. The system will display one of the following results: **Key uploaded successfully**, **Downloading Done**, or **Key upload failed (Downloading config file failed)**.

Example:

```
Switch# sshprivatekey list
Switch# sshprivatekey tftp://192.168.99.176/gwn
Downloading Done
```

- **View Uploaded SSH Public Keys**

Command: sshpublickey list

Mode: privileged EXEC mode

Parameter: none

Description: Displays all uploaded key files.

Example:

```
Switch# sshprivatekey list
gwn
```

- **Delete Uploaded SSH Public Key**

Command: sshprivatekey delete *xxx*

Mode: privileged EXEC mode

Parameter:

Parameter	Description
xxx	Key file name.

Description: Deletes the specified key file.

Example:

```
Switch# sshprivatekey delete xxx
Switch# sshprivatekey list
```

- View Flash Memory Content (Device Keys)

Command: `show flash`

Mode: Privileged EXEC mode

Parameter: None

Description: `show flash` : Displays a directory listing of the files stored in the switch's local flash memory. This is used to view system files, including configuration backups, firmware images, logs, and cryptographic device key files (such as RSA/DSA public/private keys and SSL certificates).

Example:

```
! Displays the contents of the flash memory, including generated device keys
Switch# show flash

File Name                File Size        Modified
------------------------ ---------------- ------------------------
startup-config           2283             2023-05-22 03:23:33
flash.log                3552             2023-05-19 11:56:38
rsa2                     2455             2023-05-18 03:13:34
dsa2                     668              2023-05-18 03:13:39
rsa2.pub                 559              2023-05-18 03:13:34
dsa2.pub                 595              2023-05-18 03:13:39
ssl_cert                 1245             2023-05-18 03:13:44
image                    12277439         2023-05-18 12:27:04
```

- Upload Device Key to a TFTP Server

Command: `copy flash://<target-file> tftp://<target-ip>`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`<target-file>`	The exact filename of the target file stored in the switch's local flash memory (e.g., `rsa2` , `ssl_cert`).
`<target-ip>`	The IPv4 address of the destination TFTP server where the file will be uploaded.

Description: `copy flash://... tftp://...` : Uploads a specified file (such as cryptographic device keys, system logs, or configuration backups) from the switch's internal flash memory to a remote TFTP server for backup or distribution to other devices.

Example:

```
! Upload the RSA private key file 'rsa2' to a TFTP server at 192.168.99.176
Switch# copy flash://rsa2 tftp://192.168.99.176
Uploading file. Please wait...
Uploading Done
```

- **SSH Remote Access**

Command: ssh-remoteaccess

Mode: global configuration mode

Parameter: none

Description: Enables SSH remote access.

Example:

```
Switch# config
Switch(config)#ssh-remoteaccess
```

- **View SSH Remote Access**

Command: show ssh-remoteaccess
Mode: privileged EXEC mode

Parameter: none

Description: Displays the SSH remote access status.

Example:

```
Switch# show ssh-remoteaccess
```

Manage ACL

- Enabling/Disabling Hardware Management ACL

Command Syntax:

1. management hardware-access enable
2. no management hardware-access enable

Mode: Global Configuration Mode

Parameters: None

Description: Enable or disable the hardware management ACL.

Example:

```
# Enable hardware management ACL.
Switch(config)# management hardware-access enable

# Disable hardware management ACL.
Switch(config)# no management hardware-access enable
```

- Configuring/Deleting Hardware Management ACL

Command Syntax:

1. management hardware-access-rule sequence <1-2147483647> {permit | deny} (https | ssh | telnet | snmp) interface vlan <1-4094> ip ABCD [mask ABCD]
2. no management hardware-access-rule sequence <1-2147483647>

Mode: Global Configuration Mode

Parameters:

Parameter	Description
<1-2147483647>	Hardware ACL rule number.
{ permit /deny}	The behavior when matching the hardware ACL rule is either allow or deny.
(https|ssh|telnet|snmp)	Service type for accessing the switch
<1-4094>	VLAN ID of the VLAN IP interface.
ABCD	Source IP address and mask of the access.

Description: Configure or delete hardware management ACLs with specific rules for allowing or denying access to the switch via services such as HTTP, SSH, Telnet, or SNMP.

Example:

```
Configure the rule number to 1, the behavior to deny , the source IP to 10.0.0.1 00 , the mask to
255.255.255.0 , and access the switch 's hardware management ACL via https
Switch (config)# management hardware-access enable
Switch (config)# management hardware-access-rule sequence 1 deny https interface vlan 10 ip 10.0.0.1 00 mask
255.255.255.0
```

- Viewing Hardware Management ACL

Command Syntax: show management hardware-access

Mode: Privileged EXEC mode

Parameters: None

Description: View the currently configured hardware management ACL.

Example:

```
Switch# show management hardware-access
```

- Configuring/Deleting Software Management ACL

Command Syntax:

1. management software-access-list NAME
2. no management software-access-list NAME

Mode: Global Configuration Mode

Parameters:

Parameter	Description
NAME	The name of the software management ACL, up to 64 characters long.

Description: Configure or delete software management ACL by specifying a unique ACL name.

Example:

```
# Enable hardware management ACL.
Switch(config)# management hardware-access enable

# Configure software management ACL with the name "ACL-List-1".
Switch(config)# management software-access-list ACL-List-1

# Delete software management ACL with the name "ACL-List-1".
Switch(config)# no management software-access-list ACL-List-1
```

- **Software Management ACL Rules**

Command:

- **sequence** *<1-2147483647> {permit/deny} [ip ABCD/ABCD] [ipv6 X:X::X:X/<1-128>] [interfaces IF_PORTS]* **service** *[https] [snmp] [ssh] [telnet]*
- **No sequence** *<1-2147483647>*

Mode: Software Management ACL Configuration mode

Parameter:

Parameter	Description
<1-2147483647>	Software ACL rule number.
{permit/deny}	Action when the software ACL rule matches: permit or deny.
[ip ABCD/ABCD]	Source IPv4 address and subnet mask.
[ipv6 X:X::X:X/<1-128>]	Source IPv6 address and prefix length.
[interfaces IF_PORTS]	Access ports (Ethernet ports, fiber ports, and aggregation ports).
[https], [snmp], [ssh], [telnet]	Service types allowed when accessing the switch (multiple can be selected).

Description: Configures or deletes software management ACL rules.

Example:

```
Configure rule number 1 to allow the source IP 10.0.0.100 (subnet mask 255.255.255.0) and IPv6 2001::1/128
to access the switch via port 1/0/10 using HTTPS.
Switch(config-macl)#sequence 1 permit ip 10.0.0.100/255.255.255.255 ipv6 2001::1/128 interfaces eth1/0/10
service https
```

- **Enable/Disable Software Management ACL**

Command:

- **management software-access-class** *NAME*
- **no management software-access-class**

Mode: Global configuration mode

Parameter:

Parameter	Description
NAME	Software management ACL name (maximum 64 characters).

Description: Enables or disables the software management ACL.
Note: Only one software management ACL can be enabled at a time.

Example:

```
Enable software management ACL 1
Switch(config)# management software-access-class 1
```

- Viewing Software Management ACL

Command Syntax:

1. show management software-access-class
2. show management software-access-list [NAME]

Mode: Privileged EXEC mode

Parameters:

Parameter	Description
NAME	The name of the software management ACL, up to 64 characters long.

Description:
View the details of the software management ACL, including active and configured access lists.

Example:

```
# View the active software management ACL.
Switch# show management software-access-class

# View the details of software management ACL with the name "1".
Switch# show management software-access-list 1
```

Login service

View telnet/ssh/console process status

Command: show line telnet/ssh/console

Mode: privileged EXEC mode

Parameter: none

Description: View telnet/ssh/console process status

Example:

```
Switch# show line telnet

Telnet ================================
Telnet Server : enabled
Session Timeout : 10 (minutes)
History Count : 128
Password Retry : 3
Silent Time : 180 (seconds)
```

Modify telnet/ssh/console idle time

Command:

1. **line telnet/ssh/console**
2. **exec-timeout** < 0-65535>

Mode: global configuration mode

Parameter:

Parameter	Description
< 0-65535>	specified minutes, 0 means no timeout

Description: Modify telnet/ssh/console idle time

Example:

```
Switch#configure
Switch (config) #line telnet /ssh/console
Switch (config) #exec -timeout 100
Switch (config) #do show line telnet/ssh/console
```

Modify telnet/ssh/console history command count

Command:

1. **line telnet/ssh/console**
2. **history** < 1-256>

Mode: global configuration mode

Parameter:

Parameter	Description
< 1-256>	History command count

Description: Modify telnet/ssh/console history command count

Example:

```
Switch#configure
Switch (config) #line telnet /ssh/console
Switch (config) #history 100
Switch (config) #do show line telnet/ssh/console
```

Modify the number of telnet/ssh/console password retries

Command:

1. **line telnet/ssh/console**

2. **password-thresh** < 0-120>

Mode: global configuration mode

Parameter:

Parameter	Description
< 0-120>	Number of password retries allowed , 0 means unlimited

Description: Modify the number of telnet/ssh/console password retries

Example:

```
Switch#configure
Switch (config) #line telnet /ssh/console
Switch (config) #password-thresh 5
Switch (config) #do show line telnet/ssh/console
```

Modify telnet/ssh/console silent time

Command:

1. **line telnet/ssh/console**
2. **silent-time** < 0-65535>

Mode: global configuration mode

Parameter:

Parameter	Description
< 0-65535>	suppress console response , 0 means unlimited

Description: Modify telnet/ssh/console silent time. When the user enters the password to log in, the authentication fails, the number of failed retries will be increased by one, when the number of failed retries exceeds the configured number, the cli will block the login for a silent time

Example:

```
Switch#configure
Switch (config) #line telnet /ssh/console
Switch (config) #silent-time 2400
Switch (config) #do show line telnet/ssh/console
```

Clear telnet/ssh process

Command: clear line telnet|ssh

Mode: privileged EXEC mode

Parameter: none

Description: Clear telnet /ssh processes

Example:

```
Switch# clear line telnet|ssh
```

User Management

View User List

Command: show username

Mode: privileged EXEC mode

Parameter: none

Description: Displays the user list.

Example:

```
Switch# show username
Priv | Type   | User Name | Create User | Create Time           | password |
-----+--------+-----------+-------------+-----------------------+----------+
15   | secret | admin     | --          | --                    | ...      |
01   | secret | test01    | admin       | 2025/08/15 16:03:08   | ...      |
00   | secret | test02    | admin       | 2025/08/15 16:03:22   | ...      |
```

View Currently Online Users

Command: show users

Mode: privileged EXEC mode

Parameter: none

Description: Displays all currently online users.

Example:

```
Switch# show users
Username Protocol Location
------------------------
admin    console  Member 1
admin    https    192.168.73.20
```

View current user's level

Command: show privilege

Mode: privileged EXEC mode

Parameter:

Parameter	Description
Current CLI Username	Current CLI username
Current CLI Privilege	Current CLI user level

Description: View current user's level

Example:

```
Switch # show privilege

Current CLI Username: admin
Current CLI Privilege: 15
```

Add User

Command: username *WORD<1-64>* **[privilege** *(admin|monitor|operator)* **] (password** *PASSWORD* **| secret** *PASSWORD* **)**

Mode: Global configuration mode

Parameter:

Parameter	Description
WORD<1-64>	Username (length: 1–64). "\?/" is not supported.
privilege (admin|monitor|operator)	User privilege level: admin, monitor, or operator.
password PASSWORD	Password in plain text (not encrypted).
secret PASSWORD	Encrypted password.

Description: Adds a user.

Example:

```
Switch# configure
Switch (config) #username test1 privilege operator admin1 password 123456 78
Switch (config) #username test2 privilege monitor secret 123456 78
Switch (config) # show username
```

Delete user

Command: no username WORD<1-64>

Mode: global configuration mode

Parameter:

Parameter	Description
WORD<1-64>	Username

Description: delete users

Example:

```
Switch # configure
Switch (config) #no username test2
```

Change User Password

Command: username *WORD<1-64>* **(privilege** *(admin|operator|monitor)* **) (password** *PASSWORD* **| secret** *PASSWORD* **)**

Mode: Global configuration mode

Parameter:

Parameter	Description
WORD<1-64>	Username (length: 1–64).
privilege (admin|operator|monitor)	User privilege level.
password PASSWORD	Password in plain text (not encrypted).
secret PASSWORD	Encrypted password.

Description: Changes the password for the specified user.

Example:

```
Switch# configure
Switch( config)#username test3 password aa33333333
Old password: 123456 78
```

Add SSH Public Key

Command: `ip ssh publickey username <username> text "<public-key-content>"`

Mode: Global configuration mode

Parameter:

Parameter	Description
`username <string>`	The local username to associate with the public key. (Length: 1–64 characters).
`text "<string>"`	The actual SSH public key string (e.g., the content of an `id_rsa.pub` file). The key content must be enclosed in double quotes (`""`). (Length: 1–2048 characters).

Description: `ip ssh publickey ...` : Adds an SSH public key to a specific user account on the switch. This enables secure, passwordless login via SSH using public key authentication.

Example:

```
! Enter global configuration mode
Switch# configure

! Add an SSH public key for the user "256"
Switch(config)# ip ssh publickey username "256" text "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQ...user@host"
```

Delete SSH Public Key

Command: `no ip ssh publickey username <username>`

Mode: Global configuration mode

Parameter:

Parameter	Description
`username <string>`	The local username whose associated SSH public key will be removed. (Length: 1–64 characters).

Description: `no ip ssh publickey ...` : Deletes the stored SSH public key associated with the specified local user account. This action disables key-based, passwordless SSH login for that user, requiring them to use standard password authentication for future remote management sessions.

Example:

```
! Enter global configuration mode
Switch# configure

! Remove the SSH public key for the user "256"
Switch(config)# no ip ssh publickey username 256
```

Time strategy

View time policy

Command: show schedule

Mode: privileged EXEC mode

Parameter: none

Description: View time policy

Example:

```
Switch# show schedule
|------------------------------------------------ -------------|
| ID:1 | NAME: reboot | USE:
|------------------------------------------------ -------------|
| week1:0000-0030
| week2:0000-0030
| abtime1:
|------------------------------------------------ -------------|
```

Configure Schedule Policy

Command:

- **schedule id** *{id}* **name** *{name}*
- **schedule id** *{id}* **week** *{week} {hour} {minute}* **to** *{hour} {minute}*
- **schedule id** *{id}* **abtime** *{abtime}* **date** *{date}* **mon** *{mon}* **day** *{day}* [force]
- **schedule id** *{id}* **add abtime**

Mode: Global configuration mode

Parameter:

Parameter	Description
{id}	Policy ID (range: 1–32).
{name}	Policy name (length: 1–64). "\"/" is not supported.
{week}	Day of week (1–7: Monday–Sunday).

Parameter	Description
{hour}	Hour (0–24).
{minute}	Minute (0 or 30).
{abtime}	Special date index (up to 8 entries).
{date}	Year (2022–9999).
{mon}	Month (January–December).
{day}	Day (1–31).

Description: Adds a time strategy (schedule policy).

Example:

```
Create a time policy with ID 1 and name policy1, with a period of Wednesday 4:00-5:30.
Switch(config)# schedule id 1 name policy1
Switch(config)# schedule id 1 week 3 hour 4 minute 0 to hour 5 minute 30
```

Delete Schedule Policy

Command: `no schedule id <1-32> [abtime <time-range>] [add abtime] [week <1-7> <time-range>]`

Mode: Global configuration mode

Parameter:

Parameter	Description
`id <1-32>`	Specifies the unique policy ID of the schedule to modify or delete. (Range: 1–32).
`week`	Specifies a recurring weekly time block to remove from the schedule.
`abtime`	Specifies a one-time absolute/special time block to remove from the schedule.
`add abtime`	Removes an additionally appended absolute time condition from the schedule.

Description:

- `no schedule id ...` : This command deletes an existing time-based scheduling policy.
- If only the `id` is specified, the entire schedule policy is deleted.
- If optional parameters (`week` , `abtime` , or `add abtime`) are included, only those specific time blocks or exceptions are removed, leaving the rest of the schedule intact.

Example:

```
! Delete the entire schedule policy associated with ID 1
Switch(config)# no schedule id 1

! Delete a specific absolute time block from schedule ID 1
Switch(config)# no schedule id 1 abtime 1 hour 0 minute 0 to hour 1 minute 0

! Delete a specific recurring weekly time block from schedule ID 1
Switch(config)# no schedule id 1 week 1 hour 0 minute 0 to hour 1 minute 0

! Delete an added absolute time exception from schedule ID 1
Switch(config)# no schedule id 1 add abtime
```

Apply Schedule Policy

Command: `schedule use id <1-32> {backup | reboot | upgrade}`

Mode: Global configuration mode

Parameter:

Parameter	Description
`id <1-32>`	Specifies the unique policy ID of a previously configured schedule. (Range: 1–32).
`{backup | reboot | upgrade}`	Specifies the automated system action to execute during the scheduled time window: • `backup` : Automatically backs up the system configuration. • `reboot` : Automatically restarts the device. • `upgrade` : Automatically executes a firmware upgrade.

Description: `schedule use id ...` : Binds a predefined, time-based scheduling policy to a specific system maintenance task. This allows administrators to safely automate disruptive tasks like reboots or firmware upgrades so they occur strictly during planned maintenance windows.

Example:

```
! Enter global configuration mode
Switch# configure

! Apply the time-based schedule policy ID 1 to automate a device firmware upgrade
Switch(config)# schedule use id 1 upgrade
```

Cancel Schedule Policy Application

Command: `no schedule use {acl | backup | reboot | upgrade}`

Mode: Global configuration mode

Parameter:

Parameter	Description
`{acl | backup | reboot | upgrade}`	Specifies the automated system action from which to remove the time schedule: • `acl` : Removes the time-based schedule bound to Access Control Lists. • `backup` : Cancels the scheduled automated configuration backup. • `reboot` : Cancels the scheduled automated device reboot. • `upgrade` : Cancels the scheduled automated firmware upgrade.

Description: `no schedule use ...` : Detaches and cancels an active time-based scheduling policy from a specific system task. Once removed, the device will no longer automatically execute that maintenance task during the previously specified time windows.

Example:

```
! Enter global configuration mode
Switch# configure

! Cancel the scheduled time policy applied to automated firmware upgrades
Switch(config)# no schedule use upgrade
```

1588 v2 TC

> **Note:**
>
> Only supported on GWN7811(P)/GWN7812P/GWN7813(P)/GWN7830/GWN7831/GWN7816(P)/GWN7821P/GWN7822P /GWN7801P Pro/GWN7802P Pro/GWN7803(PL/PH) Pro/GWN7806PL Pro/GWN7806PH Pro.

Enable/disable global 1588v2 TC

Command:

1. ptp enable
2. no ptp enable

Mode: global configuration mode

Parameter: none

Description: Enable/disable global 1588v2 TC function

Example:

```
Enable the global 1588 v2 TC function
Switch # config
Switch(config)# ptp enable
Disable global 1588 v2 TC function
Switch# config
Switch(config)# no ptp enable
```

Configure 1588v2 TC clock type

Command: ptp clock-type e2e-tc | p2p-tc

Mode: global configuration mode

Parameter:

Parameter	Description
e2e-tc	E2E TC clock type
p2p-tc	PTP TC clock type

Description: Configure 1588v2 TC clock type

Example:

```
Configure the 1588 v2 TC clock type as E2E TC
Switch # config
Switch(config)# ptp enable
Switch(config)# ptp clock-type e2e-tc
```

Configuring PTP TC Message Encapsulation Format

Command Syntax: ptp protocol mac | udp | udp-over-ipv6

Mode: Global Configuration Mode

Parameters:

Parameter	Description
mac	Ethernet encapsulation (default).
udp	UDP over IPv4 encapsulation.
udp-over-ipv6	UDP over IPv6 encapsulation.

Description: Configure the encapsulation format of PTP TC (Precision Time Protocol Transparent Clock) messages. The default encapsulation format is mac.

Example:

```
Configure the PTP TC message encapsulation format to mac
Switch# config
Switch(config)# ptp enable
Switch(config)# ptp clock-type p2p-tc
Switch(config)# ptp protocol mac
```

Configure a PTP TC domain

Command: ptp domain <0-255>

Mode: global configuration mode

Parameter:

Parameter	Description
<0-255>	Configure the PTP TC clock domain ID

Description: Configure the PTP TC clock domain

Example:

```
Configure the PTP TC clock domain as 10
Switch # config
Switch(config)# ptp enable
Switch(config)# ptp clock-type p2p-tc
Switch(config)# ptp domain 10
```

Configure PTP TC Virtual Clock ID

Command: ptp virtual – clock-id *auto|xxxxxxxxxxxxxxxx*

Mode: Global configuration mode

Parameter:

Parameter	Description
auto	Automatically generates a virtual clock ID by inserting **FFFE** in the middle of the MAC address (**XXXXXX-FFFE-XXXXXX**).

Parameter	Description
xxxxxxxxxxxxxxxx	16 hexadecimal characters. If fewer than 16 characters are entered, it will be padded with leading zeros.

Description: Configures the PTP TC virtual clock ID.

Example:

```
Configure the PTP TC virtual clock ID as 12365acaaaaa
Switch# config
Switch(config)# ptp enable
Switch(config)# ptp clock-type p2p-tc
Switch(config)# ptp virtual-clock-id 12365acaaaaa
```

Enable/Disable 1588 v2 TC on an Interface

Supported Models and Ports: *GWN7811(P) / GWN7821P (Port 11/0/0-1/0/8), GWN7812P (Port 1/0/1-1/0/16), GWN7813(P) / GWN7822P (Port 1/0/1-1/0/24), GWN7830 (Port 1/0/5-1/0/8), GWN7831 (Port 1/0/5-1/0/24), GWN7816(P) (Port 1/0/1-1/0/48), GWN7801P Pro (Port 1/0/1-1/0/10), GWN7802P Pro (Port 1/0/1-1/0/18), GWN7803(PL/PH) Pro (Port 1/0/1-1/0/26), GWN7806PL Pro/GWN7806PH Pro ports 1/0/1-1/0/48*

Command:

- **ptp enable**
- **no ptp enable**

Mode: interface configuration mode

Parameter: none

Description: Enables or disables IEEE 1588 v2 TC on the interface.

Example:

```
Enable 1588 v2 TC functionality on ports 1/0/1-1/0/10
Switch# config
Switch(config)# interface range e1/0/1-e1/0/10
Switch(config-if-range)# ptp enable
```

View 1588 v2 TC related information

Command: show ptp state

Mode: privileged EXEC mode

Parameter: none

Description: View global and port 1588 v2 TC status

Example:

```
Switch# show ptp state
|-------------------------------------------------|
PTP clock type : e2e-tc
|-------------------------------------------------|
PTP state : enabled
|-------------------------------------------------|
| LogicPort mode |
--------------------------------------------------
| eth1/0/1 Disabled |
--------------------------------------------------
| eth1/0/2 Disabled |
--------------------------------------------------
| eth1/0/3 Disabled |
--------------------------------------------------
| eth1/0/4 Disabled |
--------------------------------------------------
| eth1/0/5 Disabled |
--------------------------------------------------
| eth1/0/6 Disabled |
--------------------------------------------------
| eth1/0/7 Disabled |
--------------------------------------------------
| eth1/0/8 Disabled |
--------------------------------------------------
| eth1/0/9 Disabled |
--------------------------------------------------
| eth1/0/10 Disabled |
--------------------------------------------------
| eth1/0/11 Disabled |
--------------------------------------------------
| eth1/0/12 Disabled |
--------------------------------------------------
| eth1/0/13 Disabled |
--------------------------------------------------
| eth1/0/14 Disabled |
--------------------------------------------------
| eth1/0/15 Disabled |
--------------------------------------------------
| eth1/0/16 Disabled |
--------------------------------------------------
```

Restart and view running configuration

Reboot

Command: Reboot

Mode: privileged EXEC mode

Parameter: none

Description: reboot switch

Example:

```
Switch # reboot
```

View running configuration

Command: show running-config

Mode: privileged EXEC mode

Parameter: none

Description: View running configuration

Example:

```
Switch# show running-config
```

STACK

Supported models:
GWN7806(P)/GWN7811(P)/GWN7812P/GWN7813(P)/GWN7816(P)/GWN7821P/GWN7822P/GWN7830/GWN7831/GWN7832/GWN7806PL Pro/GWN7806PH Pro

The following table describes how GWN78XX switches supports the stacking feature:

Supported Models	Physical Ports That Support Stacking
GWN7806(P)	SFP+ 51-54
GWN7806PL Pro	SFP+ 51-54
GWN7806PH Pro	SFP+ 51-54
GWN7811(P)	SFP+ 9-10
GWN7812P	SFP+ 17-20
GWN7813(P)	SFP+ 25-28
GWN7816(P)	SFP+ 51-54
GWN7821P	SFP+ 9-10
GWN7822P	SFP+ 25-28
GWN7830	SFP+ 9-12
GWN7831	SFP+ 25-28
GWN7832	SFP+ 9-12

Important Notes:

- **Firmware Match:** All switches in the stack system must be running the exact same firmware version.
- **Port & Speed Constraints:** Stacking is only supported on the last 2 or 4 SFP+ optical ports, and the connection speed must strictly be **10 Gbps**.
- **Model Match:** A stack system can only be formed using identical switch models.

Stack Settings

Configuring Stack Priority

Command: stack member `<1-4>` priority `<1-255>`
Mode: Global Configuration Mode
Parameter:

Parameter	Description
`<1-4>`	Device ID (range: 1–4)
`<1-255>`	Stack priority value (range: 1–255; 255 = highest)

Description:
Sets the priority of a device within the stack. A higher priority increases the chance of being selected as the stack master.

Example:

```
Switch(config)# stack member 1 priority 255
```

Modify Stacking Device ID

Command: stack member [*<1-4>*] **renumber** [*<1-4>*]

Mode: Global configuration mode
Parameter:

Parameter	Description
<1-4>	Device ID (range: 1–4).

Description: Changes the stacking device ID.

Notes:

- *Each device ID must be unique for the stack to form and operate normally.*
- *After changing the stack device ID, save the configuration and reboot for the change to take effect.*
- *Once a stack with two or more devices is formed, the stack device ID and device priority cannot be modified. (Single device only.)*
- ***GWN7806PL/PH Pro** supports stacking up to **8** devices (stack ID range: **1–8**).*

Example:

```
Change the stacking device ID to 3.
Switch(config)# stack member 1 renumber 3
```

Stack Interface Configuration

Enter the Stacking Port

Command: int stack-port `<slot-id/stack-port-number>`
Mode: Stack Interface Configuration Mode
Parameter:

Parameter	Description
slot-id/stack-port-number	Specifies the stack port. `slot-id` is 1–4 (device ID), `port-number` is 1–2 (logical stack port)

Description:
Enters stack interface configuration mode for the specified stack port.

Example:

```
Switch(config)# int stack-port 1/1
```

Setting the Stack Port

Command: port interface `[IF_PORTS | IF_PORTS to IF_PORTS]` enable
Command: no port interface `[IF_PORTS | IF_PORTS to IF_PORTS]` enable
Mode: Stack Interface Configuration Mode
Parameter:

Parameter	Description
IF_PORTS	Single Ethernet port (typically one of the last 2 or 4 10G SFP+ ports)
IF_PORTS to IF_PORTS	Range of Ethernet ports (used for selecting multiple SFP+ ports)

Description:
Adds or removes Ethernet ports to/from the stacking interface. Only supported on specific 10G SFP+ ports.

Example:

```
Switch(config)# int stack-port 1/1
Switch(config-stack-port)# port interface Ethernet 1/0/9 enable
```

Notes:

- *Stack connections require **cross-connection**: e.g., Device 1's Stack Port 1 must connect to Device 2's Stack Port 2.*
- *Each stack logical port can connect to only **one other device**.*
- *Only the **last 2 or 4 10G SFP+ ports** support stacking. For example, on GWN7832 (with 12 SFP+ ports), only ports **9–12** support stacking.*
- *To add a stacking port, i.e., to enable stacking, the Ethernet port to be added to the stacking port must be shut down before this operation can be performed.*
- *Once stacking is formed with 2+ devices, the **last active stacking port** cannot be shut down.*
- ***Stack ports do not support copper transceivers (RJ45 modules).***

View Stack Related Information

Checking Stack System Information

Command: show stack
Mode: Privileged EXEC mode
Parameter: None
Description: Displays system-wide stack information including device roles, IDs, priorities, and link status.

Example:

```
Switch# show stack
```

Check the Stack System Configuration

Command: show stack configuration
Mode: Privileged EXEC mode
Parameter: None
Description: Displays the current stack configuration including member device IDs, priorities, and assigned stack ports.

Example:

```
Switch# show stack configuration
```

View Stacking Topology

Command: show stack topology
Mode: Privileged EXEC mode
Parameter: None
Description: Displays the physical and logical topology of the stacking system.

Example:

```
Switch# show stack topology
```

Check the Stack System Upgrade Status

Command: show stack upgrade
Mode: Privileged EXEC mode
Parameter: None
Description: Displays the upgrade status of all devices in the stack, including version info and synchronization progress.

Example:

```
Switch# show stack upgrade
```

Check the Status of the Stack Port

Command: show interfaces stack-port `<slot-id/stack-port-number>`
Mode: Privileged EXEC mode
Parameter:

Parameter	Description
slot-id/stack-port-number	Specifies the stack port. `slot-id` is 1–4 (device ID), `port-number` is 1–2 (logical stack port)

Description:
Displays the operational status, link condition, and physical connection details of the specified stack port.

Example:

```
Switch# show interfaces stack-port 1/1
```

Check the Stack Port Protocol Message Information

Command: show interfaces stack-port `<slot-id/stack-port-number>` pkt-stat
Mode: Privileged EXEC mode
Parameter:

Parameter	Description
slot-id/stack-port-number	Specifies the stack port. `slot-id` is 1–4 (device ID), `port-number` is 1–2 (logical stack port)

Description:
Displays protocol packet statistics and message-level information for the specified stack port.

Example:

```
Switch# show interfaces stack-port 1/1 pkt-stat
```

Check the Stack Port Protocol Message Information

Command: show interfaces stack-port `<slot-id/stack-port-number>` pkt-stat
Mode: Privileged EXEC mode
Parameter:

Parameter	Description
slot-id/stack-port-number	Specifies the stack port. `slot-id` is 1–4 (device ID), `port-number` is 1–2 (logical stack port)

Description:
Displays protocol-level packet statistics for the specified stack port.

Example:

```
Switch# show interfaces stack-port 1/1 pkt-stat

Interface stack-port 1/1 pkt-stat
Rx-Pkts:           0
Tx-Pkts:           0
Err-Pkts:          0
Stack-Rx-Pkts:     0|0|0
Stack-Tx-Pkts:     0|0|0
```

Fan

Supported models:
GWN7802P/GWN7803P/GWN7812P/GWN7813P/GWN7832/GWN7831/GWN7821P/GWN7822P/GWN7806/GWN7806P/GWN7816/GWN7816P/GWN7802P Pro/GWN7803PL Pro/GWN7803PH Pro/GWN7806PL Pro/GWN7806PH Pro

Configure Fan Mode

Command:

- **fan mode_force** *[member <1-4>]*
- **no fan mode_force** *[member <1-4>]*

Mode: Global configuration mode

Parameter:

Parameter	Description
<1-4>	Device ID (range: 1–4). For the GWN7806PL/PH Pro model, the range is 1–8.

Description: The fan's default mode is automatic. After enabling forced mode, the fan speed can be configured.

- **fan mode_force [member <1-4>]:** Enables forced fan mode (and allows fan speed configuration) for the specified stacking member.
- **no fan mode_force [member <1-4>]:** Restores automatic fan mode for the specified stacking member.

Example:

```
Configure forced mode
Switch(config)# fan mode_force
Fan mode: Force control

Configure automatic mode
Switch(config)# no fan mode_force
fan mode: auto control
```

Configure Fan Mode per Stacking Member

Command:

- **fan mode_force member** *<1-4>*
- **no fan mode_force member** *<1-4>*

Mode: Global configuration mode

Parameter:

Parameter	Description
<1-4>	Device ID (range: 1–4). For the GWN7806PL/PH Pro model, the range is 1–8.

Description: The default fan mode is automatic. After enabling forced mode for a specific stacking member, the fan speed can be configured.

Example:

```
Configure forced mode
Switch(config)# fan mode_force member 1
Fan mode: Force control

Configure automatic mode
Switch(config)# no fan mode_force member 1
fan mode: auto control
```

Configure Fan Speed

Command: fan speed *[high | low | middle | stop]* **member** *<1-4>*

Mode: Global configuration mode

Parameter:

Parameter	Description
high	Sets the fan speed to high.
low	Sets the fan speed to low.
middle	Sets the fan speed to medium.
stop	Stops the fan.
<1-4>	Device ID (range: 1–4). For the GWN7806PL/PH Pro model, the range is 1–8.

Description: You must enable forced fan mode before configuring fan speed. The default fan speed is **stop**. Available speed options may vary by model.

Example:

```
Configure the fan to run at high speed
Switch(config)# fan speed high
fan level: high

Configure the fan to run at low speed
Switch(config)# fan speed low
fan level: low

Configure the fan to run at medium speed
Switch(config)# fan speed middle
fan level: middle

Stop the fan
Switch(config)# fan speed stop
fan level: stop

Set the fan of stacking member 1 to low speed
Switch(config)# fan speed low member 1
fan level: low
```

View Fan Status

Command: `show fan [member <member-id>]`

Mode: Privileged EXEC mode

Parameter:

Parameter	Description
`member <member-id>`	Specifies the stack member device ID to query. The standard value range is 1–4. For the GWN7806PX pro model, the value range is 1–8.

Description: **`show fan ...`** **:** Displays the current operational status, control mode (such as auto control), and rotational speed of the physical cooling fans installed in the switch or a designated stack member device.

Example:

```
! Check the overall fan status for the local device (defaulting to stack member 1)
Switch# show fan
STACK member 1
fan mode: auto control
FanId Status Speed
1     STOP   --
2     STOP   --

! Check the fan status specifically for stack member 2
Switch# show fan member 2
STACK member 2
fan mode: auto control
FanId        Status        Speed
1            STOP          --
2            STOP          --
```

CHANGE LOG

This section highlights significant changes and updates in the GWN78xx switches CLI Guide. Major feature additions and improvements are documented below. Minor updates for corrections or editing are not documented here.

Version 1.10

Supported models: GWN780x, GWN781x, GWN783x, GWN782x, GWN780x Pro

Firmware: **1.0.17.5** (GWN7806 (PL/PH) Pro, GWN7806(P)**)**, **1.0.15.219** (GWN7801P Pro, GWN7802P Pro, GWN7803 Pro, GWN7803PL Pro, GWN7803PH Pro), **1.0.15.138** (GWN7801(P), GWN7802(P), GWN7803(P)), **1.0.15.137** (GWN7811(P), GWN7812P, GWN7813(P), GWN7816(P), GWN7821P, GWN7822P, GWN7830, GWN7831, GWN7832)

- Add SFP+ speed mode [SFP+ Rate]
- Add MAC address hashing algorithm [MAC address hash algorithm]
- Add MAC address migration record
- Add VLAN Stacking [Stack]
- Add GVRP [GVRP]
- Optimize DHCP Server [DHCP Server]
- Add MLD matching domain
- Added customized static routes
- Optimize ACL rate limit
- Add ND Snooping [ND Snooping]
- Optimize syslog
- Add sFlow [sflow]
- Add Capture [Capture]
- Add SNMP version [snmp]
- Optimize Alert
- Add Telnet settings [Telnet]
- Add passwordless remote access [Access Control]
- Add SSH public key for user
- Add other modifications

Version 1.9

Supported models: GWN780x, GWN781x, GWN783x, GWN782x, GWN780x Pro

Firmware: **1.0.15.132** (GWN780x, GWN781x, GWN783x, GWN782x**)**, **1.0.15.211** (GWN780x Pro)

- Added new models: GWN7801P Pro/GWN7802P Pro/GWN7803(PL/PH) Pro/GWN7806PL Pro/GWN7806PH Pro

- Added [ARP learning strict]
- Added [Forwarding Mode]
- Added 3 special multicast address settings. [MULTICAST]
- Added [CPU Protection]
- Added [Ping/Traceroute]
- Added [One-Click Debug]
- Added [Fan]

Version 1.8

Supported models: GWN780x, GWN781x, GWN783x, GWN782x

Firmware: 1.0.15.126

- Added PVLAN. [PVLAN]
- Added Stacking. [Stack]
- Add RPVST for STP [Spanning tree]
- Add more interface information. [System Information]

Version 1.7

Supported models: GWN780x, GWN781x, GWN783x, GWN782x

Firmware: 1.0.13.6

- Added new models: GWN7821P/GWN7822P.
- Added BGP. [BGP]
- Added Routing Policy. [Routing Policy]
- Added MVR. [MVR]

Version 1.6

Supported models: GWN780x, GWN781x, GWN783x

Firmware: 1.0.9.15

- Removed DAC cable configuration.
- Added more settings to STP, including options to ignore VLAN in BPDU, root protection, and loopback protection. [Spanning Tree]
- Updated the pool lease range for the DHCP server. [DHCP Server]
- Added policy routing feature. [Policy Routing]
- Optimized RIP/RIPng protocols. [RIP] [RIPng]
- Enhanced CBS valid range in Queue Shaping. [Queue Shaping]
- Added redirect to interface functionality for ACL. [ACL]
- Introduced port-based remote-ID configuration for DHCP Snooping. [DHCP Snooping]
- Added log aggregation for improved log management. [Log Aggregation]
- Implemented Ping watchdog feature in diagnostics. [Ping Watchdog]
- Added RSPAN, supporting both port-based and ACL-based remote mirroring. [Mirror]
- Enhanced SNMP Traps capabilities. [Configuring SNMP Trap]
- Integrated PoE-PSE TLV into LLDP. [LLDP port setting]
- Added alert features for improved monitoring. [Alarm]
- Introduced management ACL, supporting both hardware-based and software-based management ACLs. [Manage ACL]
- Updated management platform settings for better control. [Management platform settings]

Version 1.5.2

Supported models: GWN780x, GWN781x, GWN783x

Firmware: 1.0.7.71

- Introduced port scheduling feature.
- Added Port Group functionality.
- Integrated Loopback Detection.
- Added QinQ support.
- Introduced MAC VLAN and Protocol VLAN.
- Added VLAN Translation capabilities.
- Added default gateway settings under management VLAN.
- Prioritized gateway configuration when using DHCP to assign VLAN IP addresses.
- Updated the valid range for DHCP server duration.
- Introduced IP/IPv6 unicast routing on/off toggle.
- Added support for OSPFv3.
- Introduced VLAN bind ACL functionality.
- Added ACL Rate Limiting.
- Enhanced IPv6 Source Guard features.
- Added mask configuration for IPSG/IPv6SG.
- Added MAC authentication functionality.
- Updated Option 82 in DHCP Snooping.
- Added support for DHCPv6 Snooping.
- Introduced FTP/FTPS methods for upgrading.
- Added Fiber Module Diagnostics feature.
- Displayed port status in EEE.
- Integrated Daylight Saving Time settings.
- Customizable HTTPS/SSH ports added under Web Service Management.
- Updated Manager Settings.

Version 1.3

Supported models: GWN780x, GWN781x, GWN783x

- Introduced new models: GWN7830, GWN7831, and GWN7832.
- Added working mode for GWN7831 Combo port.
- Enhanced PoE functionality.

Version 1.2

Supported models: GWN780x, GWN781x

- Introduced new models: GWN7806(P), GWN7811(P), GWN7812P, GWN7813(P).
- Added auto-detection and DAC cable support for SFP+.
- Added dynamic voice VLAN support.
- Introduced gateway priority for VLAN interfaces.
- Added RIP and RIPng protocols.
- Added OSPF protocol.
- Enhanced QoS settings.
- Introduced ACL advanced settings.
- Added auto-voice network policy in LLDP-MED.

- Updated SSH/Telnet client.
- Added 1588v2 TC support.

Version 1.1

Supported models: GWN780x

- Renamed switch basic settings to System/Basic Settings/Basic Info.
- Added fan status monitoring.
- Updated interface naming from “GigabitEthernet id” to “Ethernet 1/0/id” (e.g., gi{id} to eth1/0/id).
- Introduced PVST in STP.
- Added VLAN IPv4 and IPv6 Interfaces.
- Added support for VLAN IPv6 RA.
- Introduced DHCP Server and DHCP Relay functionality.
- Added ARP and ND capabilities.
- Introduced DNS functionality.
- Modified IGMP Snooping Querier behavior.
- Enhanced Multicast Group Address Configuration in IGMP Snooping.
- Updated MLD Snooping Querier.
- Added Route Table and Static Routing features.
- Introduced PoE power-off scheduling in PoE port settings.
- Enhanced QoS functionality.
- Introduced scheduling in ACL rules.
- Added upgrade scheduling.
- Added Copper Test functionality.
- Introduced EEE support.
- Updated Basic Settings and Access Control in System settings.
- Added Scheduling functionality.

Version 1.0

Supported models: GWN780x

- Initial version.