4 Interface Management Commands

4.1 Basic Interface Configuration Commands

4.1.1 Command Support

Commands provided in this section and all the parameters in the commands are supported by all switch models (except the S5731-L and S5731S-L), unless otherwise specified. For details, see specific commands.

4.1.2 collect counters top

Function

The **collect counters top** command sets the parameters for top N interface traffic statistics and enables the function to generate top N interface traffic statistics reports.

Format

collect counters top [*number*] **interface** { *interface-type* | **all** | **layer-2** | **layer-3** } [**sort-by** *statistics-type* | **interval** *interval-value*] *

Parameters

Parameter	Description	Value
number	Specifies the number of busiest interfaces for which traffic statistics reports are to be generated. For example, if the value is 10, a traffic statistics report about top 10 busiest interfaces is generated. If you do not specify this parameter, a traffic statistics report about top 20 busiest interfaces is generated.	The value is an integer ranging from 1 to 50000.
interface { *interface-type* | **all** | **layer-2** | **layer-3** }	Specifies the type of the interfaces for which a top N traffic statistics report is to be generated: • *interface-type*: indicates a specific type of interface. • **all**: indicates all interfaces. • **layer-2**: indicates Layer 2 interfaces. • **layer-3**: indicates Layer 3 interfaces.	The specified interfaces must be Ethernet physical interfaces or Eth-Trunk interfaces.

Parameter	Description	Value
sort-by *statistics-type*	Specifies the statistics type by which ports are determined to be the busiest. If you do not specify **sort-by** *statistics-type*, statistics are sorted by the total number of bytes in descending order.	The value can be: • **utilization**: indicates to sort statistics by bandwidth utilization. • **bytes**: indicates to sort statistics by the total number of bytes. • **packets**: indicates to sort statistics by the total number of packets. • **multicast**: indicates to sort statistics by the total number of multicast packets. • **broadcast**: indicates to sort statistics by the total number of broadcast packets. • **errors**: indicates to sort statistics by the total number of error packets. • **discards**: indicates to sort statistics by the total number of dropped packets.
interval *interval-value*	Specifies the interval at which statistics are collected.	The value is an integer ranging from 1 to 999, in seconds. The default value is 30.

Views

All views

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

The display command allows you to view statistics about the traffic sent and received by each interface on a device, but cannot sort these statistics by traffic volume in descending order. The **display counters top interface** command allows you to view top N interface traffic statistics reports, facilitating interface monitoring. Before you view a top N interface traffic statistics report, run the **collect counters top** command to generate your desired top N interface traffic

statistics report. For example, configure the device to generate a top N statistics report about packets dropped on Layer 2 interfaces within 50s.

The top N interface traffic statistics function sorts statistics about inbound and outbound traffic processed by interfaces within a collection interval in descending order and generates a top N interface traffic statistics report. The device stops collecting interface traffic statistics after the collection interval ends. To generate another top N interface traffic statistics report, run the **collect counters top** command again.

Configuration Impact

- After the **collect counters top** command is run, the device collects interface traffic statistics and generates a top N interface traffic statistics report based on the set parameters.
- The **collect counters top** command configuration is not saved in the configuration file.

Follow-up Procedure

To view a top N interface traffic statistics report, run the **display counters top interface** command.

Precautions

- When the master switch in a stack containing multiple member switches is faulty, the top N interface traffic statistics function takes effect only on a master switch. If the master switch encounters a fault and switches to the backup state, run the **collect counters top** command on the new master switch again.
- The **collect counters top** command can be run multiple times in succession with different parameters specified. For example, you can configure a device to generate a top N statistics report about interface multicast packets when the device is still generating a top N statistics report about interface broadcast packets.
- The top N interface traffic statistics function allows a device to generate a maximum of five top N interface traffic statistics reports. If you want the device to generate new top N interface traffic statistics reports when five top N interface traffic statistics reports already exist, run the **reset counters top interface** command to clear existing ones.

Example

Configure a device to generate a statistics report about top 10 Layer 2 interfaces in terms of the number of packets dropped within 40s.

```
<HUAWEI> collect counters top 10 interface layer-2 sort-by discards interval 40
```

4.1.3 bandwidth (Interface view)

Function

The **bandwidth** command sets the interface bandwidth obtained by the NMS from the MIB.

The **undo bandwidth** command restores the default configuration.

By default, the interface bandwidth obtained by the NMS from the MIB depends on the interface type. For example, the bandwidth of a GE interface is 1000 Mbit/s.

NOTE

Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support this command.

Format

bandwidth *bandwidth* [**kbps**]

undo bandwidth

Parameters

Parameter	Description	Value
bandwidth	Specifies the bandwidth of an interface.	The value is an integer ranging from 1 to 1000000, and the unit is Mbit/s.
kbps	Indicates the unit of an interface bandwidth is kbit/s. If **kbps** is not specified, the unit of an interface bandwidth is Mbit/s.	-

Views

Ethernet interface view, GE interface view, XGE interface view, 25GE interface view, GE sub-interface view, XGE sub-interface view, 40GE interface view, 100GE interface view, 40GE sub-interface view, 100GE sub-interface view, MultiGE interface view, MultiGE sub-interface view, tunnel interface view, Eth-Trunk interface view, Eth-Trunk sub-interface view, VLANIF interface view, VE interface view, VE sub-interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Running the **bandwidth** command sets an interface bandwidth obtained by the NMS from the MIB and does not change an interface actual bandwidth. The NMS can check the interface bandwidth through the two objects **ifSpeed** and **ifHighSpeed** in **IF-MIB**.

- If the configured bandwidth is smaller than 4000 Mbit/s, **ifSpeed** and **ifHighSpeed** are respectively displayed as *bandwidth* x 1000 x 1000 and *bandwidth*.
- If the configured bandwidth is equal to or larger than 4000 Mbit/s, **ifSpeed** and **ifHighSpeed** are respectively displayed as 4294967295 (0XFFFFFFFF) and *bandwidth*.

Precautions

For a VLANIF interface, no matter how many physical interfaces are added to the VLAN corresponding to the VLANIF interface, the interface bandwidth obtained by the NMS from the MIB is always 1000 Mbit/s.

Example

Set the bandwidth of GE0/0/1 to 100 Mbit/s.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet0/0/1
[HUAWEI-GigabitEthernet0/0/1] bandwidth 100
```

4.1.4 description (interface view)

Function

The **description** command configures the description for an interface.

The **undo description** command restores the default description of an interface.

By default, the description of an interface is null.

Format

description *description*

undo description

Parameters

Parameter	Description	Value
description	Specifies the interface description.	The value is a string of 1 to 242 characters. The character string is case sensitive. It can contain blanks but cannot contain the question mark (?).

Views

Interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

To facilitate switch management and maintenance, you can configure interface descriptions. An interface description can contain:

Precautions

The interface description is displayed from the first non-space character.

Example

Configure the description of GE0/0/1 as To-[DeviceB]GE-0/0/1, indicating that this device is connected to device B through GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] description To-[DeviceB]GE-0/0/1
```

4.1.5 display counters

Function

The **display counters** command displays traffic statistics on an interface.

Format

display counters [**inbound** | **outbound**] [**interface** *interface-type* [*interface-number*]] [**nonzero**]

Parameters

Parameter	Description	Value
inbound	Displays incoming traffic statistics on an interface.	-
outbound	Displays outgoing traffic statistics on an interface.	-
interface *interface-type* [*interface-number*]	Displays traffic statistics on a specified interface. • *interface-type* specifies the interface type. • *interface-number* specifies the interface number. If the interface number is not specified, traffic statistics on all the interfaces of the specified type are displayed.	-

Parameter	Description	Value
nonzero	Displays statistics about interface traffic. If the numbers of bytes, octets packets, unicast packets, multicast packets, and broadcast packets on an interface are all 0s, traffic statistics on this interface are not displayed.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

You can run the **display counters** command to view incoming or outgoing traffic statistics based on the interface type for fault location.

Precautions

Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support sub-interfaces.

When a device has a large number of interfaces, you are advised to specify the interface type in the **display counters** command to view only desired information. If you do not specify those parameters, the following faults will occur:

- The displayed information is repeatedly refreshed, causing desired information unable to be obtained.
- The system does not respond because of long-time information traversing and searching.

Example

Display traffic statistics on GE0/0/1.

```
<HUAWEI> display counters interface gigabitethernet 0/0/1
Inbound
Interface         Octets(bytes) Unicast(pkts) Multicast(pkts) Broadcast(pkts)
GE0/0/1            754918035105    1408179641        15018056      9668635374
Outbound
Interface         Octets(bytes) Unicast(pkts) Multicast(pkts) Broadcast(pkts)
GE0/0/1            764800451602    1148151623        15086605      9957268821
```

Display traffic statistics on interfaces with at least one of the numbers of bytes, unicast packets, multicast packets, and broadcast packets not 0.

```
<HUAWEI> display counters nonzero
Info: This operation may take a few seconds. Please wait for a moment...
Inbound
Interface         Octets(bytes) Unicast(pkts) Multicast(pkts) Broadcast(pkts)
GE0/0/1               1467604             0            2902             0
Outbound
```



```
Interface         Octets(bytes) Unicast(pkts) Multicast(pkts) Broadcast(pkts)
GE0/0/1              2703904          0          13750          1
```

Table 4-1 Description of the **display counters** command output

Item	Description
Inbound	Incoming traffic statistics on an interface.
Interface	Interface name.
Octets(bytes)	Total number of incoming or outgoing bytes.
Unicast(pkts)	Number of incoming or outgoing unicast packets.
Multicast(pkts)	Number of incoming or outgoing multicast packets.
Broadcast(pkts)	Number of incoming or outgoing broadcast packets.
Outbound	Outgoing traffic statistics on an interface.

4.1.6 display counters discard

Function

The **display counters discard** command displays statistics about dropped packets.

Format

display counters discard [**inbound** | **outbound**] [**interface** *interface-type* [*interface-number*]]

Parameters

Parameter	Description	Value
inbound	Displays statistics about incoming packets dropped.	-
outbound	Displays statistics about outgoing packets dropped.	-
interface *interface-type* [*interface-number*]	Specifies the interface type and number of an interface on which statistics about dropped packets are to be displayed. If *interface-number* is not specified, traffic statistics on all interfaces with the type specified by *interface-type* are displayed.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

To view detailed statistics about dropped packets on interfaces of different types, run the **display counters discard** command. When a large number of packets are dropped, this configuration facilitates device maintenance.

Precautions

For the S1730S, S300, S5735-L, S2730S-S, S5735-L-I, S5735-L1,S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, or S5735S-S, if multiple switches set up a stack, statistics about dropped packets on stack ports cannot be viewed.

Example

Display statistics about dropped packets on Ethernet 1/0/1.

```
<HUAWEI> display counters discard interface ethernet 1/0/1
Interface               InDiscards              OutDiscards
Eth1/0/1                0                       0
```

Table 4-2 Description of the **display counters discard** command output

Item	Description
Interface	Interface name
InDiscards	Number of incoming packets dropped on the interface
OutDiscards	Number of outgoing packets dropped on the interface

4.1.7 display counters error

Function

The **display counters error** command displays error packet statistics.

Format

display counters error [**inbound** | **outbound**] [**interface** *interface-type* [*interface-number*]]

Parameters

Parameter	Description	Value
inbound	Displays inbound error packet statistics.	-
outbound	Displays outbound error packet statistics.	-
interface *interface-type* [*interface-number*]	Displays error packet statistics on the specified interface. • *interface-type* specifies the interface type. • *interface-number* specifies the interface number. If interface type and interface number are not specified, the statistics of error packets on all interfaces are displayed.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

You can run the **display counters error** command to view detailed error packet statistics on all types of interfaces, which facilitates maintenance when there is a large number of error packets. (The actual output information may differ from the following information.)

Example

Check all error packet statistics on the device.

```
<HUAWEI> display counters error
Inbound
Interface         Total         CRC         Giants      Fragments
GE0/0/1               0           0              0              0
GE0/0/2               0           0              0              0
GE0/0/3               0           0              0              0
GE0/0/4               0           0              0              0
GE0/0/5               0           0              0              0
Interface         Runts      DropEvents      Alignments          Symbols
GE0/0/1               0           0              0              0
GE0/0/2               0           0              0              0
GE0/0/3               0           0              0              0
GE0/0/4               0           0              0              0
GE0/0/5               0           0              0              0
Outbound
Interface         Total      Collisions      Excess-Col  Late Collisions
GE0/0/1               0           0              0              0
GE0/0/2               0           0              0              0
GE0/0/3               0           0              0              0
```



```
GE0/0/4              0          0          0          0
GE0/0/5              0          0          0          0
```

Table 4-3 Description of the **display counters error** command output

Item	Description
Inbound	Inbound error packet statistics.
Outbound	Outbound error packet statistics.
Interface	Interface name.
Total	Total number of inbound and outbound error packets.
CRC	Number of packets with length ranging from 64 bytes to 1518 bytes and incorrect FCS values. For the S5720I-SI, S5735-S, S500, S5735S-S, S5735-S-I, S5735S-H, S5736-S, S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6720S-S, S6730-H, S6730S-H, S6730-S, and S6730S-S the value of this field includes the number of received packets longer than the maximum jumbo frame length and with incorrect FCS values. For switches, the value of this field contains the number of received packets with length ranging from 1518 bytes to the jumbo frame size configured on the interface and incorrect FCS values.
Giants	Number of received packets with length exceeding the maximum jumbo frame size.
Fragments	Number of fragmented packets received by the interface. A fragmented packet is a packet with length less than 64 bytes and incorrect CRC values. On the S5720I-SI, S5735-S, S500, S5735S-S, S5735-S-I, S5735S-H, S5736-S, S6720S-S, S6735-S, S6720-EI, and S6720S-EI, the command output does not contain the Fragments field to display statistics about received fragmented packets.
Runts	Number of received undersized frames with correct CRC values. An undersized frame is a frame that is shorter than 64 bytes, in correct format, and contains a valid CRC field. For the S5720I-SI, S5735-S, S500, S5735S-S, S5735-S-I, S5735S-H, S5736-S, S6720S-S, S6735-S, S6720-EI, and S6720S-EI, the value of this field includes the number of received fragmented packets shorter than 64 bytes and with incorrect CRC values.
DropEvents	Number of received packets that are discarded due to GBP full or back pressure.
Alignments	Number of received frames with alignment error.

Item	Description
Symbols	Number of received frames with coding error.
Collisions	Number of packets with 1 to 15 collisions during packet forwarding. **NOTE** If the command output contains only this field and the Excess-Col field is not displayed, the field also includes the number of frames that are canceled due to consecutive 16 collisions.
Excess-Col	After sixteen successive collisions, the system will take it as excessive collision statistics when another collision occurs. Frames that are not sent due to excessive collisions are counted in this field.
Late Collisions	Number of delay collision frames. A delay collision frame is a frame that is delayed because a collision is detected when the first 512 bits of the frame are sent.

4.1.8 display counters interface

Function

The **display counters interface** command displays traffic statistics on an interface, including typical packet statistics and number of packets discarded in queues.

Format

display counters interface *interface-type interface-number* **verbose**

display counters interface verbose [**nonzero**]

Parameters

Parameter	Description	Value
interface-type interface-number	Specifies the interface type and number. • *interface-type* specifies the interface type. • *interface-number* specifies the interface number.	-

Parameter	Description	Value
verbose	Displays detailed traffic statistics on an interface, including typical packet statistics and number of packets discarded in queues.	-
nonzero	Displays non-zero traffic statistics on an interface, including typical packet statistics and number of packets discarded in queues.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

When diagnosing faults on an interface, run this command to view detailed information about packets received and sent by the interface to determine whether the interface works properly. You can also run this command to view detailed traffic statistics on an interface, including typical packet statistics and number of packets discarded in queues. You can also run this command to view non-zero traffic statistics on an interface, including typical packet statistics and number of packets discarded in queues.

Follow-up Procedure

If you want to collect new traffic statistics, run the **reset counters interface** command to clear the current statistics.

Example

Display traffic statistics on an interface, including typical packet statistics and number of packets discarded in queues.

```
<HUAWEI> display counters interface gigabitethernet 0/0/1 verbose
GigabitEthernet0/0/1
InPackets                :                0
InOctets                 :                0
InUcastPkts              :                0
InMcastPkts              :                0
InBcastPkts              :                0
OutPackets               :                0
OutOctets                :                0
```



```
OutUcastPkts            :              0
OutMcastPkts            :              0
OutBcastPkts            :              0
InJumbo                 :              0
InPause                 :              0
Frames                  :              0
OutJumbo                :              0
OutPause                :              0
InDiscards              :              0
OutDiscards             :              0
InErrors                :              0
OutErrors               :              0
CRC                     :              0
Giants                  :              0
Jabbers                 :              0
Fragments               :              0
Runts                   :              0
DropEvents              :              0
Alignments              :              0
Symbols                 :              0
Ignoreds                :              0
Collisions              :              0
ExcessiveCollisions     :              0
Late Collisions         :              0
Deferreds               :              0
Buffers purged          :              0
InPkts64Octets          :              0
InPkts65to127Octets     :              0
InPkts128to255Octets    :              0
InPkts256to511Octets    :              0
InPkts512to1023Octets   :              0
InPkts1024to1518Octets  :              0
OutPkts64Octets         :              0
OutPkts65to127Octets    :              0
OutPkts128to255Octets   :              0
OutPkts256to511Octets   :              0
OutPkts512to1023Octets  :              0
OutPkts1024to1518Octets :              0
Queue0lostPkts          :              0
Queue1lostPkts          :              0
Queue2lostPkts          :              0
Queue3lostPkts          :              0
Queue4lostPkts          :              0
Queue5lostPkts          :              0
Queue6lostPkts          :              0
Queue7lostPkts          :              0
```

Table 4-4 Description of the **display counters interface** command output

Item	Description
GigabitEthernet0/0/1	The interface type and number.
InPackets	Total number of packets received by the interface.
InOctets	Total number of bytes in packets received by the interface.
InUcastPkts	Number of unicast packets received by the interface.
InMcastPkts	Number of multicast packets received by the interface.
InBcastPkts	Number of broadcast packets received by the interface.
OutPackets	Total number of packets sent by the interface.

Item	Description
OutOctets	Total number of bytes in packets sent by the interface.
OutUcastPkts	Number of unicast packets sent by the interface.
OutMcastPkts	Number of multicast packets sent by the interface.
OutBcastPkts	Number of broadcast packets sent by the interface.
InJumbo	Number of Ethernet frames with length ranging from 1518 bytes to the maximum jumbo frame size and correct FCS values received by the interface, or number of VLAN frames with length ranging from 1522 bytes to the maximum jumbo frame size and correct FCS values received or sent by the interface.
InPause	Number of pause frames received by the interface.
Frames	Number of packets in which the 802.3 length field does not match the actual length received by the interface.
OutJumbo	Number of Ethernet frames with length ranging from 1518 bytes to the maximum jumbo frame size and correct FCS values sent by the interface, or number of VLAN frames with length ranging from 1522 bytes to the maximum jumbo frame size and correct FCS values received or sent by the interface.
OutPause	Number of pause frames sent by the interface.
InDiscards	Number of incoming packets discarded by the interface. The number is detected during physical layer detection.
OutDiscards	Number of outgoing packets discarded by the interface. The number is detected during physical layer detection.
InErrors	Number of incoming error packets on the interface. The number is detected during physical layer detection.
OutErrors	Number of outgoing error packets on the interface. The number is detected during physical layer detection.
CRC	For the S5720-LI, S5731-H, S5731S-H, S5731S-S, S5732-H, S5736-S, S6720S-S, S6730-H, S6730S-H, S6730-S, and S6730S-S, the value of this field includes the number of received packets longer than the maximum jumbo frame length and with incorrect FCS values. The value of this field contains the number of received packets with length ranging from 1518 bytes to the jumbo frame size configured on the interface and incorrect FCS values.

Item	Description
Giants	Number of received packets with length exceeding the maximum jumbo frame size. • On a 10000M interface, the number of bytes for Giants packets is calculated according to the actual packet length. • On a 1000M interface, the number of bytes for Giants packets is calculated according to the maximum jumbo frame size. To set the maximum jumbo frame size, run the **jumboframe_enable** command.
Jabbers	The S5720-LI, S5720I-SI, S5731-S, S5731S-S, S5731-H, S5731S-H, S5732-H, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, S5735S-H, S5736-S, S6720S-S, S6735-S, S6720-EI, S6720S-EI, S6730S-S, and S6730-H do not have the Jabbers field. On the other product models, this field indicates the number of received packets with length exceeding the maximum jumbo frame length and incorrect FCS values.
Fragments	Number of received fragmented packets. A fragmented packet is a packet shorter than 64 bytes and with incorrect CRC values. For the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S, the value of this field contains the number of undersized frames with the correct CRC values received is displayed. On the S5720-LI, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, S5720I-SI, S5735S-H, S5736-S, S6720S-S, S6720S-EI, S6735-S, and S6720-EI, the command output does not contain the Fragments field to display statistics about received fragmented packets.
Runts	Number of undersized frames with correct CRC values received by the interface. For the S5720-LI, S5735-S, S500, S5735S-S, S5735-S-I, S5720I-SI, S5735-L, S300, S2730S-S, S5735-L1, S5735-L-I, S5735S-H, S5736-S, S6720S-S, S6720S-EI, S6735-S, and S6720-EI, the value of this field includes the number of received fragmented packets shorter than 64 bytes and with incorrect CRC values.
DropEvents	Number of received packets that are discarded due to GBP full or back pressure.
Alignments	Number of received frames with alignment errors.
Symbols	Number of received frames with coding errors.

Item	Description
Ignoreds	Number of received MAC control frames whose OpCode is not PAUSE.
Collisions	Number of packets with 1 to 15 collisions during packet forwarding. **NOTE** If the command output contains only this field and the ExcessiveCollisions field is not displayed, the field also includes the number of frames that are canceled due to consecutive 16 collisions.
ExcessiveCollisions	Number of packets with 16 collisions and fail to be sent.
Late Collisions	Number of packets with conflict and delayed.
Deferreds	Number of delayed packets without conflict.
Buffers Purged	Number of packets aged in the cache.
InOutPkts64Octets	Number of packets shorter than 64 bytes received and sent by the interface.
InOutPkts65to127Octets	Number of packets with length ranging from 65 bytes to 127 bytes received and sent by the interface.
InOutPkts128to255Octets	Number of packets with length ranging from 128 bytes to 255 bytes received and sent by the interface.
InOutPkts256to511Octets	Number of packets with length ranging from 256 bytes to 511 bytes received and sent by the interface.
InOutPkts512to1023Octets	Number of packets with length ranging from 512 bytes to 1023 bytes received and sent by the interface.
InOutPkts1024toMaxOctets	Number of packets with length exceeding 1024 bytes received and sent by the interface.
InPkts64Octets	Number of packets shorter than 64 bytes received by the interface.
InPkts65to127Octets	Number of packets with length ranging from 65 bytes to 127 bytes received by the interface.
InPkts128to255Octets	Number of packets with length ranging from 128 bytes to 255 bytes received by the interface.
InPkts256to511Octets	Number of packets with length ranging from 256 bytes to 511 bytes received by the interface.
InPkts512to1023Octets	Number of packets with length ranging from 512 bytes to 1023 bytes received by the interface.
InPkts1024to1518Octets	Number of packets with length ranging from 1024 bytes to 1518 bytes received by the interface.

Item	Description
OutPkts64Octets	Number of packets shorter than 64 bytes sent by the interface. The value **NA** indicates that the interface does not support this field.
OutPkts65to127Octets	Number of packets with length ranging from 65 bytes to 127 bytes sent by the interface. The value **NA** indicates that the interface does not support this field.
OutPkts128to255Octets	Number of packets with length ranging from 128 bytes to 255 bytes sent by the interface. The value **NA** indicates that the interface does not support this field.
OutPkts256to511Octets	Number of packets with length ranging from 256 bytes to 511 bytes sent by the interface. The value **NA** indicates that the interface does not support this field.
OutPkts512to1023Octets	Number of packets with length ranging from 512 bytes to 1023 bytes sent by the interface. The value **NA** indicates that the interface does not support this field.
OutPkts1024to1518Octets	Number of packets with length ranging from 1024 bytes to 1518 bytes sent by the interface. The value **NA** indicates that the interface does not support this field.
Queue0lostPkts	Number of packets discarded in queue 0.
Queue1lostPkts	Number of packets discarded in queue 1.
Queue2lostPkts	Number of packets discarded in queue 2.
Queue3lostPkts	Number of packets discarded in queue 3.
Queue4lostPkts	Number of packets discarded in queue 4.
Queue5lostPkts	Number of packets discarded in queue 5.
Queue6lostPkts	Number of packets discarded in queue 6.
Queue7lostPkts	Number of packets discarded in queue 7.

NOTE

The number (InPkts) of packets received by the interface and the number (OutPkts) of packets sent by the interface can be displayed separately only on the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S. The SS1720GW-E, S1720GWR-E, S5720I-SI, S5720-LI, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5720S-LI, S5735-S, S500, S5735S-S, S5735-S-I, S5735S-H, S5736-S,S6720S-S, display only the total number (InOutPkts) of packets received and sent by the interface.

4.1.9 display counters rate

Function

The **display counters rate** command displays the incoming or outgoing traffic rate of an interface.

Format

display counters rate [**inbound** | **outbound**] [**interface** *interface-type* [*interface-number*]] [**nonzero**]

Parameters

Parameter	Description	Value
inbound	Displays the incoming traffic rate of an interface.	-
outbound	Displays the outgoing traffic rate of an interface.	-
interface *interface-type* [*interface-number*]	Displays the traffic rate of a specified interface. • *interface-type* specifies the interface type. • *interface-number* specifies the interface number. If the interface number is not specified, the traffic rates of all the interfaces of the specified type are displayed.	-
nonzero	Displays the traffic rate of an interface. If the numbers of bytes, Octets packets, unicast packets, multicast packets, and broadcast packets on an interface are all 0s, the traffic rate of this interface is not displayed.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

You can run the **display counters rate** command to view the incoming or outgoing traffic rate based on the interface type for fault location.

Precautions

After the system is started, in the case of the first query or when the interval with the last query is longer than 600s, the system re-initiates rate statistics collection. In this case, you need to wait until the rate statistics collection result is displayed.

The minimum statistics collection interval is 5 seconds. If the interval is less than 5 seconds, the data collected last time is displayed.

When a device has a large number of interfaces, you are advised to specify the interface type in the **display counters rate** command to view only desired information. If you do not specify those parameters, the following faults will occur:

- The displayed information is repeatedly refreshed, causing desired information unable to be obtained.
- The system does not respond because of long-time information traversing and searching.

Example

Display the traffic rate of GE0/0/1.

```
<HUAWEI> display counters rate interface gigabitethernet 0/0/1
Inbound
Interface   Octets(bytes/s) Unicast(pkts/s) Multicast(pkts/s) Broadcast(pkts/s)
GE0/0/1               18              0              0              0
Outbound
Interface   Octets(bytes/s) Unicast(pkts/s) Multicast(pkts/s) Broadcast(pkts/s)
GE0/0/1               61              0              0              0
```

Display the traffic rate of interfaces with at least one of the numbers of bytes, unicast packets, multicast packets, and broadcast packets not 0.

```
<HUAWEI> display counters rate nonzero
Info: This operation may take a few seconds. Please wait for a moment...
Inbound
Interface   Octets(bytes/s) Unicast(pkts/s) Multicast(pkts/s) Broadcast(pkts/s)
GE0/0/1               82              1              0              0
Outbound
Interface   Octets(bytes/s) Unicast(pkts/s) Multicast(pkts/s) Broadcast(pkts/s)
GE0/0/1              224              2              0              0
```

Table 4-5 Description of the **display counters rate** command output

Item	Description
Inbound	Incoming traffic rate.
Outbound	Outgoing traffic rate.
Interface	Interface name.
Octets(bytes/s)	Total incoming or outgoing traffic rate, in bytes/s.
Unicast(pkts/s)	Incoming or outgoing rate of unicast packets, in pkts/s.

Item	Description
Multicast(pkts/s)	Incoming or outgoing rate of multicast packets, in pkts/s.
Broadcast(pkts/s)	Incoming or outgoing rate of broadcast packets, in pkts/s.

4.1.10 display counters top interface

Function

The **display counters top interface** command displays top N interface traffic statistics reports.

Format

display counters top interface report [*report-number*]

Parameters

Parameter	Description	Value
report-number	Specifies the number of a top N interface traffic statistics report. If you do not specify this parameter, the command output displays the summary information about all top N interface traffic statistics reports.	The value is an integer ranging from 1 to 5.

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

The **collect counters top** command generates top N interface traffic statistics reports, but does not display these reports. To view the generated reports, run the **display counters top interface report** [*report-number*] command.

Precautions

Before you run the **display counters top interface report** [*report-number*] command, ensure that a top N interface traffic statistics report has been generated using the **collect counters top** command. Otherwise, the "There is no

TOPN interface counters report." message is displayed after you run the **display counters top interface report** [*report-number*] command.

Example

Display the summary information about all top N interface traffic statistics reports.

```
<HUAWEI> display counters top interface report
Id Start Time                Interval Number Sort-By   Status Interface-Type
--------------------------------------------------------------------------------
1  2012-09-05 09:03:13-08:00 30       20     bytes     doing  GigabitEthernet
```

Table 4-6 Description of the **display counters top interface report** command output

Item	Description
Id	Indicates the number of a top N interface traffic statistics report.
Start Time	Indicates the start time of statistics collection.
Interval	Indicates the statistics collection interval.
Number	Indicates the number of busiest interfaces for which interface statistics reports are to be generated.
Sort By	Indicates the statistics type by which ports are determined to be the busiest, which can be: • utilization: indicates to sort statistics by bandwidth utilization. • bytes: indicates to sort statistics by the total number of bytes. • packets: indicates to sort statistics by the total number of packets. • multicast: indicates to sort statistics by the total number of multicast packets. • broadcast: indicates to sort statistics by the total number of broadcast packets. • errors: indicates to sort statistics by the total number of error packets. • discards: indicates to sort statistics by the total number of dropped packets.
Status	Indicates the generation status of a top N interface traffic statistics report, which can be: • doing: The report is being generated. • done: The report has been generated.

Item	Description
Interface-Type	Indicates the type of interfaces for which the top N interface traffic statistics report is generated, which can be: • all: indicates all interfaces. • layer-2: indicates Layer 2 interfaces. • layer-3: indicates Layer 3 interfaces. • Specified interface type: indicates Ethernet physical interfaces or Eth-Trunk interfaces.

Display the detailed information about the top N interface traffic statistics report numbered 1.

```
<HUAWEI> display counters top interface report 1
Owner             : RT1(10.1.1.1)
Start Time        : 2012-09-17 13:26:06
End Time          : 2012-09-17 13:26:36
Interface Type    : GigabitEthernet
Sort By           : bytes
Interval          : 30 seconds
Port       Band  Util Bytes      Packets    Broadcast  Multicast  Error
Discards
           width      (In + Out) (In + Out) (In + Out) (In + Out)
-------  ----- ------ ---------- ---------- ---------- ---------- ----- --------
GE0/0/1    1000M   0% 974        4          0          4          0     0
```

Table 4-7 Description of the **display counters top interface report 1** command output

Item	Description
Owner	Indicates the device on which the top N interface traffic statistics report is generated.
Start Time	Indicates the start time of statistics collection.
End Time	Indicates the end time of statistics collection.
Interface Type	Indicates the type of interfaces for which the top N interface traffic statistics report is generated, which can be: • all: indicates all interfaces. • layer-2: indicates Layer 2 interfaces. • layer-3: indicates Layer 3 interfaces. • Specified interface type: indicates Ethernet physical interfaces or Eth-Trunk interfaces.

Item	Description
Sort By	Indicates the statistics type by which ports are determined to be the busiest, which can be: • utilization: indicates to sort statistics by bandwidth utilization. • bytes: indicates to sort statistics by the total number of bytes. • packets: indicates to sort statistics by the total number of packets. • multicast: indicates to sort statistics by the total number of multicast packets. • broadcast: indicates to sort statistics by the total number of broadcast packets. • errors: indicates to sort statistics by the total number of error packets. • discards: indicates to sort statistics by the total number of dropped packets.
Interval	Indicates the statistics collection interval.
Port	Indicates the interface name.
Band width	Indicates interface bandwidth.
Util	Indicates bandwidth utilization.
Bytes	Indicates the total number of sent and received bytes.
Packets	Indicates the total number of sent and received packets.
Multicast	Indicates the total number of sent and received multicast packets.
Broadcast	Indicates the total number of sent and received broadcast packets.
Error	Indicates the total number of error packets.
Discards	Indicates the total number of dropped packets.

4.1.11 display interface

Function

The **display interface** command displays the interface running status and statistics.

Format

display interface [*interface-type* [*interface-number* [.*subinterface-number*] | **main**] | **main**]

display interface slot *slot-id* [**main**]

Parameters

Parameter	Description	Value
interface-type [*interface-number*]	Displays the running status and traffic statistics of an interface. • *interface-type* specifies the interface type. • *interface-number* specifies the interface number. If the interface type is specified but no interface number is specified, the running status of all the interfaces of this type is displayed.	-
subinterface-number	Displays the running status and traffic statistics of a sub-interface.	The value is an integer that ranges from 1 to 4096.
main	Displays running status and traffic statistics about an interface. • If an interface has no sub-interfaces, status and traffic statistics about the interface are displayed whether you specify the **main** parameter or not. • If an interface has sub-interfaces, status and traffic statistics about the interface and sub-interfaces are displayed if you do not specify the **main** parameter.	-
slot *slot-id*	Specifies the slot ID.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

The running status and statistics of an interface includes the physical status, basic configuration, and statistics about forwarded packets on the interface. You can use the **display interface** command to collect traffic statistics or locate faults on an interface.

Precautions

- If no interface type is specified, the running status and statistics of all the interfaces is displayed. If the interface type is specified but no interface number is specified, the running status of all the interfaces of this type is displayed.
- When the XGE service interface of the S5731-H includes Ignoreds, Runts, and Fragments packets, the bytes statistics are incorrect.
- Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support sub-interfaces.

Example

Display the running status, basic configuration, and statistics about forwarded packets on GE0/0/1.

```
<HUAWEI> display interface gigabitethernet 0/0/1
GigabitEthernet 0/0/1 current state : UP
Line protocol current state : UP
Description:
Switch Port, Link-type : access(negotiated),
PVID :    1, TPID : 8100(Hex), The Maximum Frame Length is 9216
IP Sending Frames' Format is PKTFMT_ETHNT_2, Hardware address is 00e0-fc12-3456
Last physical up time   : 2018-07-04 18:59:25
Last physical down time : 2018-07-04 19:02:07
Current system time: 2018-07-10 16:03:43
Port Mode: COMMON COPPER
Speed : 1000,   Loopback: NONE
Duplex: FULL,   Negotiation: ENABLE
Mdi   : AUTO,   Flow-control: DISABLE
Last 300 seconds input rate 0 bits/sec, 0 packets/sec
Last 300 seconds output rate 0 bits/sec, 0 packets/sec
Input peak rate 50765440 bits/sec, Record time: 2018-07-04 19:01:29
Output peak rate 748160 bits/sec, Record time: 2018-07-04 19:01:29
Input:  850737 packets, 74865496 bytes
  Unicast:                850735,  Multicast:                   2
  Broadcast:                   0,  Jumbo:                     0
  Discard:                     0,  Pause:                     0
  Frames:                      0

  Total Error:                 0
  CRC:                         0,  Giants:                    0
  Jabbers:                     0,  Fragments:                 0
  Runts:                       0,  DropEvents:                0
```



```
  Alignments:                 0,  Symbols:                   0
  Ignoreds:                   0

Output:  11905 packets, 1000668 bytes
  Unicast:                    0,  Multicast:                 3
  Broadcast:                  0,  Jumbo:                     0
  Discard:                    0,  Pause:                 11902

  Total Error:                0
  Collisions:                 0,  ExcessiveCollisions:       0
  Late Collisions:            0,  Deferreds:                 0
  Buffers Purged:             0

    Input bandwidth utilization threshold : 80.00%
    Output bandwidth utilization threshold: 80.00%
    Input bandwidth utilization  :    0%
    Output bandwidth utilization :    0%
```

Display the running status, basic configuration, and statistics about forwarded packets on 100GE0/0/1.

```
<HUAWEI> display interface 100GE 0/0/1
100GE0/0/1 current state : DOWN
Line protocol current state : DOWN
Description:
Switch Port, Link-type : access(negotiated),
PVID :    1, TPID : 8100(Hex), The Maximum Frame Length is
9216
IP Sending Frames' Format is PKTFMT_ETHNT_2, Hardware address is 00e0-
fc12-3456
Last physical up time   : -
Last physical down time : 2019-02-26 09:45:16
Current system time: 2019-02-26 09:47:43
Port Mode: COMMON FIBER
Speed : 100000, Loopback: NONE
Duplex: FULL,   Negotiation: DISABLE
Mdi   : -,      Flow-control: DISABLE
FEC   : NONE
Last 300 seconds input rate 0 bits/sec, 0 packets/sec
Last 300 seconds output rate 0 bits/sec, 0 packets/sec
Input peak rate 0 bits/sec, Record time: -
Output peak rate 0 bits/sec, Record time: -

Input:  0 packets, 0 bytes
Unicast:                    0,  Multicast:                 0
Broadcast:                  0,  Jumbo:                     0
Discard:                    0,  Pause:                     0

Total Error:                0
CRC:                        0,  Giants:                    0
Runts:                      0,  Fragments:                 0
Alignments:                 0,  Symbols:                   0
Ignoreds:                   0

Output:  0 packets, 0 bytes
Unicast:                    0,  Multicast:                 0
Broadcast:                  0,  Jumbo:                     0
Discard:                    0,  Pause:                     0

                                                    Input bandwidth utilization
threshold : 80.00%
Output bandwidth utilization threshold: 80.00%
Input bandwidth utilization  :    0%
Output bandwidth utilization :
0%
```

Table 4-8 Description of this command output

Item	Description
current state	Current status of the interface: • UP: The interface is physically Up. • DOWN: The interface is physically Down. Protected port: An interface is added to an interface protection group and set to be a protected interface. To add an interface to an interface protection group and set the interface to be a protected interface, run the **port protect-group** and **protect-group member** commands. • Administratively down: The administrator has run the **shutdown** command on the interface. • TRIGGER DOWN (BFD): When BFD detects a fault, the physical status of the interface becomes Down according to the OAM association. • TRIGGER DOWN (3AH): When 3AH detects a fault, the physical status of the interface becomes Down according to the OAM association. • TRIGGER DOWN (1AG): When 1AG detects a fault, the physical status of the interface becomes Down according to the OAM association. • ERROR DOWN(auto-defend): When the interface receives packets from an attack source, the physical status of the interface becomes Down. • ERROR DOWN(efm-threshold-event): When the number of error frames, error codes, or error frame seconds of EFM OAM detected by the interface reaches or exceeds the threshold within a set period, the physical status of the interface becomes Down according to the OAM association. • ERROR DOWN(efm-remote-failure): When EFM detects a remote failure, the physical status of the interface becomes Down according to the OAM association. • ERROR DOWN(bpdu-protection): If an edge interface receives RST BPDUs after BPDU protection is enabled, the physical status of the edge interface becomes Down. • ERROR DOWN(error-statistics): If the system detects that the number of error packets received by the interface exceeds the threshold, the physical status of the interface becomes Down. • ERROR DOWN(transceiver-power-low): If the system detects that the optical power of the interface falls below the configured lower alarm threshold, the physical status of the interface becomes Down.

Item	Description
	• ERROR DOWN(port-security): When the number of learned MAC address entries reaches the threshold, the interface goes Down. • ERROR DOWN(mac-address-flapping): When the learned MAC address flaps, the interface goes Down. • ERROR DOWN(dhcp-packet-overspeed): When the DHCP packet rate of the interface exceeds the threshold, the physical status of the associated interface becomes Down. • ERROR DOWN(link-flap): When the link flaps, the physical status of the associated interface becomes Down. • ERROR DOWN(data-integrity-error): The chip memory identifier has a data integrity error and the physical status of the interface becomes Down. • LOOPBACK-DETECT DOWN: The interface goes Down due to loopback detection. • LINK-FLAP DOWN: The interface goes physically Down due to automatic link flapping detection. • UP(E-TRUNK-DOWN): The Eth-Trunk interface goes Down because of E-Trunk negotiation. **NOTE** There is a delay before the interface state is reported, so an interface undergoes a short-time intermediate state before it transitions to the ERROR DOWN state. The intermediate state is ERROR DOWN (ERROR DOWN reason), up. This state does not affect functioning of the interface. When the physical status of the interface is ERROR DOWN(data-integrity-error), perform the following operations: 1. Check whether the **error-down auto-recovery cause data-integrity-error interval** *interval-value* command has been configured on the switch. If the command has been configured, go to step 2. Otherwise, go to step 3. 2. Check whether the interface restores to Up state after the time specified by *interval-value* expires. If the interface does not restore to Up state, go to step 3. 3. Run the **undo shutdown** command in the interface view to enable the interface and check whether the interface restores to Up state. If the interface does not restore to Up state, go to step 4. 4. Run the **reset slot** command to restart the switch. After the switch restarts, check whether the interface restores to Up state. If the interface does not restore to Up state, go to step 5. 5. Replace the switch.

Item	Description
Line protocol current state	Link layer protocol status of the interface: • UP: The link layer protocol of the interface is working properly. • UP (BFD status down): BFD associated with the interface is Down. • UP (Main BFD status down): The BFD session associated with the main interface becomes Down and is associated with the sub-interface status. This state is displayed only for sub-interfaces. • UP (spoofing): The link layer protocol of the interface is always Up with the spoofing feature enabled. • DOWN: The link-layer protocol status of the interface is Down or no IP address is assigned to the interface. For example, if no IP address is assigned to an IP service-capable interface, its protocol status is Down. • DOWN (CFM down): CFM detects a fault or receives a fault notification message from its associated module. In this case, the link layer protocol of the interface becomes CFM Down. • DOWN (EFM down): EFM detects a fault or receives a fault notification message from its associated module. In this case, the link layer protocol of the interface becomes EFM Down. • DOWN (DLDP down): DLDP detects a fault or receives a fault notification message from its associated module. In this case, the link layer protocol of the interface becomes DLDP Down. • DOWN (MACsec down): MACsec is not enabled on the peer interface. In this case, the link layer protocol of the interface becomes MACsec Down. **NOTE** DOWN (MACsec down) is displayed only after the MACsec plug-in is installed. You can search for **Plug-in Usage Guide** at the Huawei technical support website (**Enterprise Network** or **Carrier**), and choose the desired plug-in usage guide based on the switch model and software version. If you do not have permission to access the website, contact technical support personnel. • DOWN (Observe-port forwarding down): The interface status becomes Down because the packet forwarding function is disabled on the observing port or in the observing port group where the port resides. • DOWN(BFD status down): indicates that BFD detects a fault and changes the link status of the interface to BFD DOWN. In this state, the interface discards Layer 2 and Layer 3 packets but permits BFD packets.

Item	Description
	• DOWN(Main BFD status down): indicates that BFD detects a fault and changes the link status of the main interface and its sub-interfaces to BFD DOWN. This state is applicable only to sub-interfaces. In this state, Layer 2 and Layer 3 packets are discarded, but BFD packets are permitted.
Description	Interface description. To configure the description for an interface, run the **description** command.
Switch Port	A Layer 2 interface. To switch an interface to the Layer 3 mode, run the **undo portswitch** command. If the interface is a Layer 3 interface, **Route Port** is displayed here.
PVID	Default VLAN ID of the interface.
Link-type	Link type of an interface, which is displayed only when the interface works in Layer 2 mode: • access(configured): The interface is manually configured as the access type. • hybrid: The interface is manually configured as the hybrid type. • trunk(configured): The interface is manually configured as the trunk type. • dot1q-tunnel: The interface is manually configured as the dot1q-tunnel type. • access(negotiated): The interface is automatically negotiated as the access type. • trunk(negotiated): The interface is automatically negotiated as the trunk type. To set the link type for an interface, run the **port link-type** command.
The Maximum Frame Length	Maximum frame length allowed by the interface. To set the maximum frame length, run the **jumboframe enable** command.
TPID	Type of frames that are supported on the interface. By default, this field displays 0x8100, indicating an 802.1Q frame. This field is displayed only for a Layer 2 interface.
IP Sending Frames' Format	Format of frames sent by the IP protocol, including PKTFMT_ETHNT_2, Ethernet_802.3, and Ethernet_SNAP.
Hardware address	MAC address of the interface.

Item	Description
Port Mode	Working mode of the interface: • COMMON COPPER: The interface works as an electrical interface. • COMMON FIBER: The interface works as an optical interface. If the interface is a combo interface: • COMBO AUTO: The combo interface automatically selects the working mode. • FORCE FIBER: The combo interface is configured as an optical interface. • FORCE COPPER: The combo interface is configured as an electrical interface. To configure the working mode for an interface, run the **combo-port** command.
Supported rates	Rate supported by the interface. **NOTE** Only the XG electrical interface of MultiGE electrical interfaces and XG electrical interface on the ES5D21X08T00 subcard support this parameter.
Transceiver	Type of the optical module. • This field is not displayed for electrical interfaces. • If an optical or copper module is inserted into the optical interface, the field indicates the model of the optical or copper module. • If an optical or copper module is not inserted into the optical interface, the field is not displayed. • If the optical interface is connected to the high-speed cable, the field indicates the type of the cable. • For the S5720-LI, S5720-SI, S5720S-LI, and S5735-S-I, If GPON optical module or a faulty optical module is installed on an optical interface, the field is displayed as ONLINE within 1 minute; the detailed type of the GPON optical module is displayed after 1 minute, and no information about other faulty optical modules is displayed.
Last physical up time	Last time the interface went Up physically. If this field displays "-", the physical status of the interface does not change. If the system is configured with a time zone and is in the daylight saving time, the time is displayed in the format of YYYY-MM-DD HH:MM:SS UTC±HH:MM DST.

Item	Description
Last physical down time	Last time the interface went Down physically. If this field displays "-", the physical status of the interface does not change. If the system is configured with a time zone and is in the summer daylight saving time, the time is displayed in the format of YYYY-MM-DD HH:MM:SS UTC±HH:MM DST.
Current system time	Current system time. If the time zone is configured and the daylight saving time is used, the time is in YYYY-MM-DD HH:MM:SS ±HH:MM format.
Speed	Current rate of the interface. ● In auto-negotiation mode, the **auto speed** command configures the rate of an interface. ● In non-auto-negotiation mode, the **speed** command configures the rate of an interface.
Loopback	Loopback configuration of the interface. To configure loopback on an interface, run the **loopback** command.
Duplex	Duplex mode of the interface: ● FULL: The interface works in full-duplex mode. ● HALF: The interface works in half-duplex mode. ● In auto-negotiation mode, the **auto duplex** command configures the duplex mode of an interface. ● In non-auto-negotiation mode, the **duplex** command configures the duplex mode of an interface.
Negotiation	Auto-negotiation mode of the interface. To configure the auto-negotiation mode for an interface, run the **negotiation auto** command. ● ENABLE: The interface works in auto-negotiation mode. ● DISABLE: The interface works in non-auto-negotiation mode. ● DISABLE(Only non-auto-negotiation is supported): The interface does not support the auto-negotiation mode and cannot have the **negotiation auto** command configured. Only the S6735-S supports this parameter.

Item	Description
Mdi	Network cable type of the interface. To configure the network cable type of an interface, run the **mdi** command. The Mdi field displays - for an optical interface.
Flow-control	Whether flow control is enabled: ● ENABLE: Flow control is enabled on the interface. ● DISABLE: Flow control and received flow control is disabled on the interface. ● RECEIVE ENABLE: Receive flow control is enabled on the interface. **NOTE** If the **flow-control** command has been executed to enable flow control on an Ethernet interface, or the **flow-control receive** command has been executed to enable received flow control on an Ethernet interface, this field displays **DISABLE** in the following situations: ● The interface is in Down state. ● The interface works in half-duplex mode.
FEC	Whether FEC is enabled on an interface: ● RS-FEC: RS-FEC is enabled on the interface. ● BASE-R: BASE-R FEC is enabled on the interface. ● NONE: The optical module is not properly installed and FEC is not configured; FEC is disabled; or FEC is not supported because a 40G optical module (except CFP 40GE optical module) is installed on a 100GE interface. When FEC is not configured, whether FEC is enabled on the interface depends on the medium. When a CFP 40GE/100GE optical module is installed on the interface, FEC cannot be configured on the interface and this field displays -.
Last 300 seconds input rate	Incoming packet rate (bits per second and packets per second) within the last 300 seconds.
Last 300 seconds output rate	Outgoing packet rate (bits per second and packets per second) within the last 300 seconds.
Input peak rate 0 bits/sec,Record time	Maximum rate of incoming packets and time when the maximum rate is reached.
Output peak rate 0 bits/sec,Record time	Maximum rate of outgoing packets and time when the maximum rate is reached.
Input	Total number of received packets.
Output	Total number of sent packets.

Item	Description
Unicast	Number of unicast packets that are received or sent by the interface.
Multicast	Number of multicast packets that are received or sent by the interface. For the S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S the value of this field contains the number of pause frames. For the S5736-S24T4XC, S5736-S24U4XC, S5736-S48T4XC, and S5736-S48U4XC, the value of the Multicast field contains the number of outgoing pause frames on GE electrical interfaces.
Broadcast	Number of broadcast packets that are received or sent by the interface.

Item	Description
Jumbo	This field includes the following values in the outbound direction of an interface: ● Number of sent Ethernet frames that exceed 1517 bytes with correct FCS values on the S200, S1730S-S1, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I or number of sent Ethernet frames that exceed 1518 bytes with correct FCS values on other switch models. ● Number of sent VLAN frames that exceed 1517 bytes with correct FCS values on the S200, S1730S-S1, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, number of sent VLAN frames that exceed 1522 bytes with correct FCS values on the S6735-S, S6720-EI and S6720S-EI, or number of sent VLAN frames that exceed 1518 bytes with correct FCS values on other switch models. This field includes the following values in the inbound direction of an interface: ● Number of received Ethernet frames with the length ranging from 1518 bytes to the configured maximum jumbo frame length and with correct FCS values on the S200, S1730S-S1, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I or number of received Ethernet frames with the length ranging from 1519 bytes to the configured maximum jumbo frame length and with correct FCS values on other switch models. ● Number of received VLAN frames with the length ranging from 1518 bytes to the configured maximum jumbo frame length and with correct FCS values on the S200, S1730S-S1, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, number of received VLAN frames with the length ranging from 1523 bytes to the configured maximum jumbo frame length and with correct FCS values on the S6735-S, S6720-EI and S6720S-EI, or number of received VLAN frames with the length ranging from 1519 bytes to the configured maximum jumbo frame length and with correct FCS values on other switch models. For the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S, and the value of this field contains the number of received packets with length ranging from 1518 bytes to the jumbo frame length configured on the interface and correct CRC values.

Item	Description
	To set the maximum jumbo frame length, run the **jumboframe enable** command. **NOTE** Only S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support statistics on Jumbo frames.
Discard	Number of packets discarded by the interface during physical layer detection. On the S5720-LI, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5720S-LI, S5735-S, S500, S5735S-S, S5735-S-I, S5720I-SI, S5735S-H, S5736-S, S6720S-S, after you run the **reset qos queue statistics** command, the number of packets discarded by the interface is cleared.
Total Error	Number of error packets found during physical layer detection.
CRC	Number of packets with length ranging from 64 bytes to 1518 bytes and incorrect FCS values. For the S5720-LI, S5731-H, S5731S-H, S5731S-S, S5732-H, S5736-S, S6720S-S, S6730-H, S6730S-H, S6730-S, and S6730S-S, the value of this field includes the number of received packets longer than the maximum jumbo frame length and with incorrect FCS values. For the SS1720GW-E, S1720GWR-E, S5720-LI, S5720S-LI, S5720I-SI, S5735S-H, S5736-S, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, S6720S-S, the value of this field contains the number of received packets with length ranging from 1518 bytes to the jumbo frame size configured on the interface and incorrect FCS values.
Giants	Number of received frames with length exceeding the maximum jumbo frame length.
Jabbers	The S5720-LI, S5720I-SI, S5731-S, S5731S-S, S5731-H, S5731S-H, S5732-H, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, S5735S-H, S5736-S, S6720S-S, S6735-S, S6720-EI, S6720S-EI, S6730S-S, and S6730-H do not have the Jabbers field. On the other product models, this field indicates the number of received packets with length exceeding the maximum jumbo frame length and incorrect FCS values.

Item	Description
Fragments	Number of received fragmented packets. A fragmented packet is a packet shorter than 64 bytes and with incorrect CRC values. For the S5731-H, S5731-S, S5731S-H, S5731S-S, S6730-H, S6730S-H, S6730-S, and S6730S-S, the value of this field contains the number of undersized frames with the correct CRC values received is displayed. On the S5720-LI, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, S5720I-SI, S5735S-H, S5736-S, S6720S-S, S6720S-EI, S6735-S, and S6720-EI, the command output does not contain the Fragments field to display statistics about received fragmented packets.
Runts	Number of received undersized frames with correct CRC values. For the S5720-LI, S5735-S, S500, S5735S-S, S5735-S-I, S5720I-SI, S5735-L, S300, S2730S-S, S5735-L1, S5735-L-I, S5735S-H, S5736-S, S6720S-S, S6720S-EI, S6735-S, and S6720-EI, the value of this field includes the number of received fragmented packets shorter than 64 bytes and with incorrect CRC values.
DropEvents	Number of received packets that are discarded due to GBP full or back pressure.
Alignments	Number of received frames with alignment errors.
Symbols	Number of received frames with coding errors.
Ignoreds	Number of received MAC control frames whose OpCode is not PAUSE.
Frames	Number of packets with incorrect 802.3 length. **NOTE** Only the S2730S-S, S5735-L-I, S5735-L1, S5735S-L1, S300, S5735-L, S5735-S, S500, S5735-S-I, S6735-S, and S6720-EI support frame statistics collection.
Pause	Number of pause frames. **NOTE** The following interfaces do not support the function of collecting Pause frame statistics when flow control is not enabled: • Four XGE optical interfaces and last eight GE electrical interfaces on the S5720-56C-HI • Four XGE optical interfaces on the S5720-32C-HI-24S

Item	Description
Collisions	Number of packets with 1 to 15 collisions during packet forwarding. **NOTE** If the command output contains only this field and the ExcessiveCollisions field is not displayed, the field also includes the number of frames that are canceled due to consecutive 16 collisions.
ExcessiveCollisions	Number of packets with 16 collisions and fail to be sent.
Late Collisions	Number of packets with conflict and delayed.
Deferreds	Number of delayed packets without conflict.
Buffers Purged	Number of packets aged in the cache. The S500, S5735-S, S5735S-S, S5735-S-I, S6720S-EI, S6735-S, and S6720-EI do not have the Buffers Purged field. On other models, the value of this field is always 0.
Input bandwidth utilization threshold	Threshold for inbound bandwidth usage.
Output bandwidth utilization threshold	Threshold for outbound bandwidth usage.
Input bandwidth utilization	Inbound bandwidth usage. For the SS1720GW-E, S1720GWR-E, S5735-S, S500, S5735S-S, S5735-S-I, S5720I-SI, S5720-LI, S5735S-L-M, S5720S-LI, S5735S-H, S5736-S, S6720S-S, the bandwidth usage of Giants packets is calculated based on the configured jumbo frame length. To set the maximum jumbo frame length, run the **jumboframe enable** command.
Output bandwidth utilization	Outbound bandwidth usage. For the SS1720GW-E, S1720GWR-E, S5735-S, S500, S5735S-S, S5735-S-I, S5720I-SI, S5720-LI, S5735S-L-M, S5720S-LI, S5735S-H, S5736-S, S6720S-S, the bandwidth usage of Giants packets is calculated based on the configured jumbo frame length. To set the maximum jumbo frame length, run the **jumboframe enable** command.

4.1.12 display interface brief

Function

The **display interface brief** command displays brief information about the status and configuration of interfaces.

Format

display interface brief [**main**]

Parameters

Parameter	Description	Value
main	Displays brief information about an Ethernet main interface, but does not display sub-interface information. If no sub-interface is configured on the main interface, the command output is the same as that without the main parameter.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

The **display interface brief** command displays brief information about interfaces, including the physical status, link layer protocol status, inbound and outbound bandwidth usage within a certain period, and numbers of sent and received error packets. This information helps locate faults on interfaces.

Precautions

To clear statistics on an interface, run the **reset counters interface** command.

Example

Display brief information about the status and configuration of interfaces.

```
<HUAWEI> display interface brief
PHY: Physical
*down: administratively down
#down: LBDT down

(l): loopback
(s): spoofing
(E): E-Trunk down
(b): BFD down
(e): ETHOAM down
```



```
(dl): DLDP down
(lb): LBDT block
(lp): Loop-detect block
(ms): MACsec down
(o): Observe-port forwarding down
InUti/OutUti: input utility/output utility
Interface                   PHY   Protocol InUti OutUti   inErrors  outErrors
GigabitEthernet0/0/1        up    up       0.06%  100%          0   21217388
GigabitEthernet0/0/2        up    up        100%  100%          0          0
GigabitEthernet0/0/3        up    up          0%  100%          0          0
GigabitEthernet0/0/4        up    up        100%  100%          0          0
GigabitEthernet0/0/5        up    up         99%  100%          0          0
GigabitEthernet0/0/6        down  down        0%    0%         10          0
GigabitEthernet0/0/7        down  down        0%    0%         12          0
GigabitEthernet0/0/8        down  down        0%    0%          0          0
GigabitEthernet0/0/9        down  down        0%    0%          0          0
GigabitEthernet0/0/10       down  down        0%    0%          0          0
GigabitEthernet0/0/11       down  down        0%    0%          0          0
GigabitEthernet0/0/12       down  down        0%    0%          0          0
GigabitEthernet0/0/13       down  down        0%    0%          0          0
GigabitEthernet0/0/14       down  down        0%    0%          0          0
GigabitEthernet0/0/15       down  down        0%    0%          0          0
GigabitEthernet0/0/16       down  down        0%    0%          0          0
GigabitEthernet0/0/17       down  down        0%    0%          0          0
GigabitEthernet0/0/18       down  down        0%    0%          0          0
GigabitEthernet0/0/19       down  down        0%    0%          0          0
GigabitEthernet0/0/20       down  down        0%    0%          0          0
GigabitEthernet0/0/21       down  down        0%    0%          0          0
GigabitEthernet0/0/22       down  down        0%    0%          0          0
GigabitEthernet0/0/23       down  down        0%    0%          0          0
GigabitEthernet0/0/24       down  down        0%    0%          0          0
MEth0/0/1                   down  down        0%    0%          0          0
NULL0                       up    up(s)       0%    0%          0          0
```

Table 4-9 Description of the **display interface brief** command output

Item	Description
Interface	Type and number of an interface.

Item	Description
PHY	Physical status of an interface: ● up: indicates that the interface is working properly. ● down: indicates that the physical layer of the interface fails. ● *down: Administratively Down, indicating that the administrator has run the **shutdown** command on the interface. ● ^down: indicates that the interface is a backup interface. ● #down: LBDT down, indicating that loop detection is enabled on the interface. The interface is shut down when the device detects a loop on the downstream network or between interfaces. ● -down: indicates that the interface is shut down due to automatic link flapping detection. ● (l): indicates that the loopback function is enabled on the interface. ● (b): indicates that the physical layer of the interface is in BFD down state.

Item	Description
Protocol	Link layer protocol status of the interface: • up: indicates that the interface is working properly. • down: indicates that the link layer protocol fails. • up(lp)/down(lp): indicates that the interface status is Block due to the loop detected by the L2VPN loop detection function on the interface. • (s): indicates that the spoofing function is enabled on the interface. • (E): indicating that the Eth-Trunk goes down because of the E-Trunk negotiation failure. • (b): indicates that the link layer of the interface is in BFD down state. • (e): indicates that the link layer of the interface is in ETHOAM down state. • (dl): indicates that the link layer of the interface is in DLDP down state. • (lb): indicates that the interface is blocked due to loops on the downstream network or between interfaces. • (lp): indicates that the interface status becomes Down due to loops in the VLAN where the interface resides. • (ms): indicates that the link layer of the interface is in MACsec down state because MACsec is not enabled on the peer interface. **NOTE** (ms): MACsec down is displayed only after the MACsec plug-in is installed. You can search for **Plug-in Usage Guide** at the Huawei technical support website (**Enterprise Network** or **Carrier**), and choose the desired plug-in usage guide based on the switch model and software version. If you do not have permission to access the website, contact technical support personnel. • (o): indicates that the interface status becomes Down because the packet forwarding function is disabled on the observing port or in the observing port group where the port resides.

Item	Description
InUti	Average inbound bandwidth usage of an interface within the last 300 seconds. Average inbound bandwidth usage within the last 300 seconds = Average inbound traffic rate within the last 300 seconds/Interface bandwidth When the average bandwidth usage is smaller than 0.005% and greater than 0, the value 0 is displayed. When the average bandwidth usage is smaller than 0.01% and greater than 0.005%, the value 0.01% is displayed. When the interface bandwidth becomes lower, for example, the **speed** command is executed to reduce the bandwidth of an Ethernet interface, the bandwidth usage be displayed as 100% because the traffic volume is not adjusted in time. "--" indicates that an interface does not support the display of bandwidth usage.
OutUti	Average outbound bandwidth usage within the last 300 seconds. Average outbound bandwidth usage within the last 300 seconds = Average outbound traffic rate within the last 300 seconds/Interface bandwidth When the average bandwidth usage is smaller than 0.005% and greater than 0, the value 0 is displayed. When the average bandwidth usage is smaller than 0.01% and greater than 0.005%, the value 0.01% is displayed. When the interface bandwidth becomes lower, for example, the **speed** command is executed to reduce the bandwidth of an Ethernet interface, the bandwidth usage may be displayed as 100% because the traffic volume is not adjusted in time. "--" indicates that an interface does not support the display of bandwidth usage.
inErrors	The number of error packets received by an interface. The value ranges from 0 to 4294967295. The count restarts after the value exceeds the upper limit. The value becomes 0 when you run the **reset counters interface** command in the user view or when the number of received packets reaches the maximum value 0xFFFFFFFF.
outErrors	The number of error packets sent by an interface. The value ranges from 0 to 4294967295. The count restarts after the value exceeds the upper limit. The value becomes 0 when you run the **reset counters interface** command in the user view or when the number of sent packets reaches the maximum value 0xFFFFFFFF.

4.1.13 display interface description

Function

The **display interface description** command displays the description of an interface.

Format

display interface description [*interface-type* [*interface-number*]]

display interface description [*interface-type*] **main**

Parameters

Parameter	Description	Value
interface-type [*interface-number*]	Displays the description of a specified interface. If an interface type is specified but no interface number is specified, the description of all interfaces of the specified type is displayed.	-
main	Displays the description of the main interface. • If an interface has no sub-interfaces, description about the interface is displayed regardless of whether you specify the **main** parameter. • If an interface has sub-interfaces, description about the interface and sub-interfaces is displayed if you do not specify the **main** parameter.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

The **display interface** command can also display the description of an interface. To quickly view the description of an interface, you are advised to use the **display interface description** command.

Precautions

If no interface type is specified, the description of all interfaces is displayed. If an interface type is specified but no interface number is specified, the description of all interfaces of the specified type is displayed.

If there is a great deal of statistics about traffic on Eth-Trunk interfaces, you are recommended to specify *trunk-id* to filter output information. Otherwise, a problem may occur due to excessive output information: The displayed information is repeatedly refreshed, and therefore required information cannot be located.

Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support sub-interfaces.

Example

Display the description of GE0/0/1.

```
<HUAWEI> display interface description gigabitethernet 0/0/1
PHY: Physical
*down: administratively down
#down: LBDT down
(l): loopback
(s): spoofing
(E): E-Trunk down
(b): BFD down
(e): ETHOAM down
(dl): DLDP down
(lb): LBDT block
(ms): MACsec down
Interface                   PHY     Protocol Description
GE0/0/1                     down    down
```

Table 4-10 Description of the **display interface description** command output

Item	Description
Interface	Type and number of an interface. If the bandwidth of an interface exceeds 1 GB, the bandwidth value is displayed following the interface name.

Item	Description
PHY	Physical status of an interface: • up: indicates that the interface is working properly. • down: indicates that the physical layer of the interface fails. • *down: administratively down, indicating that the administrator has run the **shutdown** command on the interface. • #down: LBDT down, indicating that loopback detection is enabled on the interface. The interface is shut down when the device detects a loop on the downstream network or between interfaces. • (l): loopback, indicating that the loopback function is enabled on the interface. • (b): BFD down, indicating that the physical layer of the interface is in BFD Down state.
Protocol	Link layer protocol status of the interface: • up: indicates that the interface is working properly. • down: indicates that the link layer protocol of the interface fails. • (s): spoofing, indicating that the spoofing function is enabled on the interface. • (E): E-Trunk down, indicating that the interface goes down because of the E-Trunk negotiation failure. • (b): indicates that the link layer of the interface is in BFD down state. • (e): ETHOAM down, indicating that the link layer protocol of the interface is in ETHOAM down state. • (dl): DLDP down, indicating that the link layer protocol of the interface is in DLDP down state. • (lb): indicates that the interface is blocked due to loops on the downstream network or between interfaces. • (ms): MACsec down, indicating that the interface is Down because MACsec is not enabled on the peer interface. **NOTE** (ms): MACsec down is displayed only after the MACsec plug-in is installed. You can search for **Plug-in Usage Guide** at the Huawei technical support website (**Enterprise Network** or **Carrier**), and choose the desired plug-in usage guide based on the switch model and software version. If you do not have permission to access the website, contact technical support personnel.
Description	Interface description.

4.1.14 display ip interface

Function

The **display ip interface** command displays the IP configuration and statistics on interfaces. The statistics include the number of packets and bytes received and sent by interfaces, number of multicast packets sent and received by interfaces, and number of broadcast packets received, sent, forwarded, and discarded by interfaces.

The **display ip interface brief** command displays brief information about interface IP addresses, including the IP address, subnet mask, physical status, link-layer protocol status, and number of interfaces in different states.

Format

display ip interface [*interface-type interface-number*]

display ip interface brief [*interface-type* [*interface-number*] | **slot** *slot-id* [**card** *card-number*]]

display ip interface brief [*interface-type*] &<1-8>

Parameters

Parameter	Description	Value
interface-type interface-number	Specifies the type and number of an interface. If no interface is specified, IP configuration and statistics about all interfaces are displayed.	-
brief	Displays brief information, including the IP address, subnet mask, physical status, link-layer protocol status, and number of interfaces in different states.	-
slot *slot-id*	Displays the IP configuration and statistics of interfaces on the specified slot. If the slot number is not specified, brief information related to the IP addresses of the interfaces on all interface boards and main control boards is displayed.	-
card *card-number*	Displays the IP configuration and statistics of interfaces on specified card.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

You can run the **display ip interface brief** command to view the following information:

- IP configurations of all interfaces
- IP configurations of interfaces of the specified type and a specified interface
- IP configurations of interfaces that have IP addresses

This command, however, cannot display the IP configurations of Layer 2 interfaces or Eth-Trunk member interfaces.

NOTE

- You can run the **display interface description** command to view the interface description.
- You can run the **display interface** command to view detailed information about the running status and statistics on the interface.
- Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support sub-interfaces.

Example

Display IP information about VLANIF15.

```
<HUAWEI> display ip interface vlanif 15
Vlanif15 current state : UP
Line protocol current state : UP
The Maximum Transmit Unit : 1500 bytes
input packets : 766390, bytes : 41540847, multicasts : 681817
output packets : 242239, bytes : 14679482, multicasts : 172333
Directed-broadcast packets:
 received packets:          0, sent packets:          0
 forwarded packets:         0, dropped packets:       0
Internet Address is 10.1.1.119/24
Broadcast address : 10.1.1.255
TTL being 1 packet number:    164035
TTL invalid packet number:       0
ICMP packet input number:        0
  Echo reply:                    0
  Unreachable:                   0
  Source quench:                 0
  Routing redirect:              0
  Echo request:                  0
  Router advert:                 0
  Router solicit:                0
  Time exceed:                   0
  IP header bad:                 0
  Timestamp request:             0
  Timestamp reply:               0
  Information request:           0
  Information reply:             0
  Netmask request:               0
  Netmask reply:                 0
  Unknown type:                  0
```


Table 4-11 Description of the **display ip interface** command output

Item	Description
Vlanif15 current state	Physical status of the interface: • UP: indicates that the interface is physically Up. • DOWN: indicates that the interface is physically Down. • Administratively down: indicates that the administrator has run the **shutdown (interface view)** command on the interface.
Line protocol current state	Link layer protocol status of the interface: • UP: The link layer protocol of the interface is running properly. • DOWN: The link layer protocol of the interface is Down or no IP address is configured on the interface.
The Maximum Transmit Unit	MTU of the interface. The default MTU of an Ethernet interface or a serial interface is 1500 bytes. Packets longer than the MTU are fragmented before being transmitted. If fragmentation is not allowed, the packets are discarded.
input packets : 766390, bytes : 41540847, multicasts : 681817	Total number of packets, bytes, and multicast packets received by the interface.
output packets : 242239, bytes : 14679482, multicasts : 172333	Total number of packets, bytes, and multicast packets sent by the interface.
Directed-broadcast packets	Number of packets broadcast on the interface directly.
received packets	Total number of received packets.
sent packets	Total number of sent packets.
forwarded packets	Total number of forwarded packets.
dropped packets	Total number of discarded packets.
Internet Address is	IP address assigned to the interface and mask length.
Broadcast address	Broadcast address of the interface.
TTL being 1 packet number	Number of packets with TTL 1.
TTL invalid packet number	Number of packets with invalid TTL.
ICMP packet input number	Number of received ICMP packets.

Item	Description
Echo reply	Number of Echo Reply packets.
Unreachable	Number of Destination Unreachable packets.
Source quench	Number of Source Quench packets.
Routing redirect	Number of Redirect packets.
Echo request	Number of Echo Request packets.
Router advert	Number of Router Advertisement packets.
Router solicit	Number of Router Solicitation packets.
Time exceed	Number of Time Exceeded packets.
IP header bad	Number of IP header error packets.
Timestamp request	Number of Timestamp Request packets.
Timestamp reply	Number of Timestamp Reply packets.
Information request	Number of Information Request packets.
Information reply	Number of Information Reply packets.
Netmask request	Number of Address Mask Request packets.
Netmask reply	Number of Address Mask Reply packets.
Unknown type	Number of unknown packets.

Display brief IP information about VLANIF15.

```
<HUAWEI> display ip interface brief vlanif 15
*down: administratively down
^down: standby
(l): loopback
(s): spoofing
(E): E-Trunk down
Interface                   IP Address/Mask      Physical   Protocol
Vlanif15                    10.1.1.119/24        up         up
```

Table 4-12 Description of the **display ip interface brief** command output

Item	Description
*down:	Reason why an interface is physically Down. Administratively down indicates that the administrator has run the **shutdown** command on the interface.
^down	^down: indicates that the interface is a backup interface.
(l): loopback	The letter "l" refers to loopback.

Item	Description
(s): spoofing	The letter "s" refers to spoofing.
(E): E-Trunk down	Indicates that the Eth-Trunk is Down because of the protocol negotiation on the E-Trunk.
Interface	Interface type and number.
IP Address/Mask	IP address and mask of an interface.
Physical	Physical status of an interface: • Up: indicates that the interface is physically Up. (l) indicates that the loopback function is configured on the interface. • Down: indicates that the interface becomes faulty. • *down: indicates that the administrator has run the **shutdown (interface view)** command on the interface. (l) indicates that the loopback function is configured on the interface. • !down: indicates that the FIB module is suspended. In this case, the link protocol status of the interface is Down.
Protocol	Link protocol status of the interface: • Up: indicates that the link protocol of the interface is running properly. (s) indicates that the link protocol status of the interface is Up when this interface is created and has no IP address configured. This is an inherent attribute of an interface. When this interface is configured with an IP address, (s) is still displayed. • Down: indicates that the link protocol of the interface fails or no IP address is configured on the interface. (l) indicates that the loopback function is configured on the interface.

4.1.15 display ip interface description

Function

The **display ip interface description** command displays IP-related information (such as the IP address, subnet mask, physical layer status, link layer protocol status, and number of interfaces in different states) and description of an interface.

Format

display ip interface description [*interface-type* [*interface-number*] | *interface-type* &<1-8> | **slot** *slot-number* [**card** *card-number*]]

Parameters

Parameter	Description	Value
interface-type	Indicates the interface type. If no interface type is specified, IP-related configurations and statistics of all interfaces are displayed.	-
interface-number	Indicates the interface number, which is used together with *interface-type* to identify an interface. If no interface number is specified, IP-related configurations and statistics of interfaces in the same type are displayed.	-
interface-type	Indicates that the command can display IP-related information about interfaces of multiple types. The command can display IP-related information about interfaces in a maximum of eight types.	-
slot *slot-number*	Specifies the interface board number.	-
card *card-number*	Indicates the card number. If no card number is specified, IP-related information about all interfaces on all cards in a specified slot is displayed.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

Instead of running the **display ip interface brief** and **display interface description** commands, you can run the **display ip interface description** command to view both IP-related information and description of an interface, which facilitates the user operation.

The **display ip interface description** command cannot display information about Layer 2 interfaces. When it runs on an Eth-Trunk interface, it displays the status and description of Eth-Trunk member interfaces.

Example

View IP-related information and description of a specified interface.

```
<HUAWEI> display ip interface description
Codes:
     Ana(Analogmodem),       Asy(Async),            Cell(Cellular),
     Dia(Dialer),            Eth(Ethernet)          GE(GigabitEthernet),
     H(Hssi),                Ima(Ima-group),        Loop(LoopBack),
     MTun(MTunnel),          S(Serial),             Tun(Tunnel),
     VE(Virtual-Ethernet),   VT(Virtual-Template)

     d(dampened),            D(down),               *D(administratively down)
     ^D(standby),            l(loopback),           s(spoofing),
     U(up)                   E(E-Trunk down)


--------------------------------------------------------------------------------
Number of interfaces whose physical status is Up: 9
Number of interfaces whose physical status is Down: 1
Number of interfaces whose protocol status is Up: 9
Number of interfaces whose protocol status is Down: 1

Interface                   IP Address/Mask    Phy  Prot Description
Loop0                       10.3.0.2/32        U    U(s)
Loop1                       unassigned         U    U(s)
MEth0/0/1                     192.168.150.143/24 U    U
NULL0                       unassigned         U    U(s)
Tun1                        unassigned         U    D
Vlanif10                    unassigned         D    D
Vlanif20                    10.1.2.2/24        D    D
Vlanif30                    10.1.1.1/24        D    D
Vlanif100                   unassigned         *D   D
```


Table 4-13 Description of the **display ip interface description** command output

Item	Description
Codes:	The following information provides the full spelling and explanation of the abbreviated interface names, physical status, and link layer protocols. Full spelling of the abbreviated interface names is as follows: ● Ana: Analogmodem interfaces ● Asy: Async interfaces ● Cell: Cellular interfaces ● Dia: Dialer interfaces ● Eth: Ethernet interfaces ● GE: GigabitEthernet interfaces ● H: Hssi interfaces ● Ima: IMA-Group interfaces ● Loop: Loopback interfaces ● MTun: MTunnel interfaces ● S: Serial interfaces ● Tun: Tunnel interfaces ● VE: Virtual-Ethernet interfaces ● VT: Virtual-Template interfaces Explanation of the abbreviated physical status of the interface is as follows: ● U: indicates that the physical status of the interface is Up.U(l) indicates that the interface is enabled with the loopback function. ● D: indicates that the physical status of the interface is Down. ● *D: indicates that the network administrator has run the **shutdown** command on the interface. ● !D: indicates that the FIB module is in the overload suspension state. The link layer protocol of the interface goes Down. ● ^D: indicates that the FIB module is in the standby state. ● s: indicates that the interface is in spoofing status. ● E: the Eth-Trunk goes Down because of E-Trunk negotiation. Explanation of the abbreviated link layer protocol status is as follows:

Item	Description
	• U: indicates that the status of the link layer protocol on the interface is Up. U(s) indicates that the link layer protocol of the interface is Up even though the interface is not configured with an IP address. (s) is an inherent attribute of the interface and will be displayed when the interface is configured with an IP address. (d) indicates that the protocol module of the interface is dampened. • D: indicates that the link layer protocol of the interface is Down or no IP address is assigned to the interface.
Number of interfaces whose physical status is Up:	Indicates the number of interfaces whose physical status is Up.
Number of interfaces whose physical status is Down:	Indicates the number of interfaces whose physical status is Down.
Number of interfaces whose protocol status is Up:	Indicates the number of interfaces whose link layer protocol is Up.
Number of interfaces whose protocol status is Down:	Indicates the number of interfaces whose link layer protocol is Down.
Interface	Indicates the name and number of an interface.
IP Address/Mask	Indicates the IP address and subnet mask of an interface.
Phy	Indicates the physical status of an interface.
Prot	Indicates the link layer protocol status of an interface.
Description	Indicates the description of an interface, expressed in characters. A maximum of 20 characters can be displayed. When the length of the description is greater than 20 characters, only the first 16 characters are displayed and the last 3 characters are replaced by ellipsis (...). If the description of an interface is the default setting, no information is displayed.

4.1.16 display this interface

Function

The **display this interface** command displays interface information in the current interface view.

Format

display this interface

Parameters

None

Views

Interface view

Default Level

1: Monitoring level

Usage Guidelines

In the interface view, you can run the **display this interface** command to rapidly view the status of the interface and packet statistics on the interface.

Example

Display information about GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] display this interface
GigabitEthernet0/0/1 current state : UP
Line protocol current state : UP
Description:
Switch Port,Link-type : access(negotiated),
 PVID :    1, TPID : 8100(Hex), The Maximum Frame Length is 9216
IP Sending Frames' Format is PKTFMT_ETHNT_2, Hardware address is 00e0-fc12-3456
Last physical up time   : -
Last physical down time : 2000-04-01 23:55:43
Current system time: 2012-08-24 00:41:35+08:00
Port Mode: COMMON FIBER, Transceiver: 1000_BASE_SX_SFP
Speed : 1000,  Loopback: NONE
Duplex: FULL,  Negotiation: ENABLE
Mdi   : -, Flow-control: DISABLE
Last 300 seconds input rate 0 bits/sec, 0 packets/sec
Last 300 seconds output rate 0 bits/sec, 0 packets/sec
Input peak rate 0 bits/sec, Record time: 2007-12-26 07:23:14
Output peak rate 0 bits/sec, Record time: 2007-12-26 07:23:14

Input:  0 packets, 0 bytes
  Unicast:                0,  Multicast:                0
  Broadcast:              0,  Jumbo:                    0
  Discard:                0,  Pause:                    0
  Frames:                 0
```



```
  Total Error:                0
  CRC:                        0,  Giants:                 0
  Jabbers:                    0,  Fragments:              0
  Runts:                      0,  DropEvents:             0
  Alignments:                 0,  Symbols:                0
  Ignoreds:                   0

Output:  0 packets, 0 bytes
  Unicast:                    0,  Multicast:              0
  Broadcast:                  0,  Jumbo:                  0
  Discard:                    0,  Pause:                  0

  Total Error:                0
  Collisions:                 0,  ExcessiveCollisions:    0
  Late Collisions:            0,  Deferreds:              0
  Buffers Purged:             0

    Input bandwidth utilization threshold : 80.00%
    Output bandwidth utilization threshold: 80.00%
    Input bandwidth utilization  :    0%
    Output bandwidth utilization :    0%
```


Table 4-14 Description of this command output

Item	Description
current state	Current status of the interface: • UP: The interface is physically Up. • DOWN: The interface is physically Down. Protected port: An interface is added to an interface protection group and set to be a protected interface. To add an interface to an interface protection group and set the interface to be a protected interface, run the **port protect-group** and **protect-group member** commands. • Administratively down: The administrator has run the **shutdown** command on the interface. • TRIGGER DOWN (BFD): When BFD detects a fault, the physical status of the interface becomes Down according to the OAM association. • TRIGGER DOWN (3AH): When 3AH detects a fault, the physical status of the interface becomes Down according to the OAM association. • TRIGGER DOWN (1AG): When 1AG detects a fault, the physical status of the interface becomes Down according to the OAM association. • ERROR DOWN(auto-defend): When the interface receives packets from an attack source, the physical status of the interface becomes Down. • ERROR DOWN(efm-threshold-event): When the number of error frames, error codes, or error frame seconds of EFM OAM detected by the interface reaches or exceeds the threshold within a set period, the physical status of the interface becomes Down according to the OAM association. • ERROR DOWN(efm-remote-failure): When EFM detects a remote failure, the physical status of the interface becomes Down according to the OAM association. • ERROR DOWN(bpdu-protection): If an edge interface receives RST BPDUs after BPDU protection is enabled, the physical status of the edge interface becomes Down. • ERROR DOWN(error-statistics): If the system detects that the number of error packets received by the interface exceeds the threshold, the physical status of the interface becomes Down. • ERROR DOWN(transceiver-power-low): If the system detects that the optical power of the interface falls below the configured lower alarm threshold, the physical status of the interface becomes Down.

Item	Description
	• ERROR DOWN(port-security): When the number of learned MAC address entries reaches the threshold, the interface goes Down. • ERROR DOWN(mac-address-flapping): When the learned MAC address flaps, the interface goes Down. • ERROR DOWN(dhcp-packet-overspeed): When the DHCP packet rate of the interface exceeds the threshold, the physical status of the associated interface becomes Down. • ERROR DOWN(link-flap): When the link flaps, the physical status of the associated interface becomes Down. • ERROR DOWN(data-integrity-error): The chip memory identifier has a data integrity error and the physical status of the interface becomes Down. • LOOPBACK-DETECT DOWN: The interface goes Down due to loopback detection. • LINK-FLAP DOWN: The interface goes physically Down due to automatic link flapping detection. • UP(E-TRUNK-DOWN): The Eth-Trunk interface goes Down because of E-Trunk negotiation. **NOTE** There is a delay before the interface state is reported, so an interface undergoes a short-time intermediate state before it transitions to the ERROR DOWN state. The intermediate state is ERROR DOWN (ERROR DOWN reason), up. This state does not affect functioning of the interface. When the physical status of the interface is ERROR DOWN(data-integrity-error), perform the following operations: 1. Check whether the **error-down auto-recovery cause data-integrity-error interval** *interval-value* command has been configured on the switch. If the command has been configured, go to step 2. Otherwise, go to step 3. 2. Check whether the interface restores to Up state after the time specified by *interval-value* expires. If the interface does not restore to Up state, go to step 3. 3. Run the **undo shutdown** command in the interface view to enable the interface and check whether the interface restores to Up state. If the interface does not restore to Up state, go to step 4. 4. Run the **reset slot** command to restart the switch. After the switch restarts, check whether the interface restores to Up state. If the interface does not restore to Up state, go to step 5. 5. Replace the switch.

Item	Description
Line protocol current state	Link layer protocol status of the interface: • UP: The link layer protocol of the interface is working properly. • UP (BFD status down): BFD associated with the interface is Down. • UP (Main BFD status down): The BFD session associated with the main interface becomes Down and is associated with the sub-interface status. This state is displayed only for sub-interfaces. • UP (spoofing): The link layer protocol of the interface is always Up with the spoofing feature enabled. • DOWN: The link-layer protocol status of the interface is Down or no IP address is assigned to the interface. For example, if no IP address is assigned to an IP service-capable interface, its protocol status is Down. • DOWN (CFM down): CFM detects a fault or receives a fault notification message from its associated module. In this case, the link layer protocol of the interface becomes CFM Down. • DOWN (EFM down): EFM detects a fault or receives a fault notification message from its associated module. In this case, the link layer protocol of the interface becomes EFM Down. • DOWN (DLDP down): DLDP detects a fault or receives a fault notification message from its associated module. In this case, the link layer protocol of the interface becomes DLDP Down. • DOWN (MACsec down): MACsec is not enabled on the peer interface. In this case, the link layer protocol of the interface becomes MACsec Down. **NOTE** DOWN (MACsec down) is displayed only after the MACsec plug-in is installed. You can search for **Plug-in Usage Guide** at the Huawei technical support website (**Enterprise Network** or **Carrier**), and choose the desired plug-in usage guide based on the switch model and software version. If you do not have permission to access the website, contact technical support personnel. • DOWN (Observe-port forwarding down): The interface status becomes Down because the packet forwarding function is disabled on the observing port or in the observing port group where the port resides. • DOWN(BFD status down): indicates that BFD detects a fault and changes the link status of the interface to BFD DOWN. In this state, the interface discards Layer 2 and Layer 3 packets but permits BFD packets.

Item	Description
	• DOWN(Main BFD status down): indicates that BFD detects a fault and changes the link status of the main interface and its sub-interfaces to BFD DOWN. This state is applicable only to sub-interfaces. In this state, Layer 2 and Layer 3 packets are discarded, but BFD packets are permitted.
Description	Interface description. To configure the description for an interface, run the **description** command.
Switch Port	A Layer 2 interface. To switch an interface to the Layer 3 mode, run the **undo portswitch** command. If the interface is a Layer 3 interface, **Route Port** is displayed here.
PVID	Default VLAN ID of the interface.
Link-type	Link type of an interface, which is displayed only when the interface works in Layer 2 mode: • access(configured): The interface is manually configured as the access type. • hybrid: The interface is manually configured as the hybrid type. • trunk(configured): The interface is manually configured as the trunk type. • dot1q-tunnel: The interface is manually configured as the dot1q-tunnel type. • access(negotiated): The interface is automatically negotiated as the access type. • trunk(negotiated): The interface is automatically negotiated as the trunk type. To set the link type for an interface, run the **port link-type** command.
The Maximum Frame Length	Maximum frame length allowed by the interface. To set the maximum frame length, run the **jumboframe enable** command.
TPID	Type of frames that are supported on the interface. By default, this field displays 0x8100, indicating an 802.1Q frame. This field is displayed only for a Layer 2 interface.
IP Sending Frames' Format	Format of frames sent by the IP protocol, including PKTFMT_ETHNT_2, Ethernet_802.3, and Ethernet_SNAP.
Hardware address	MAC address of the interface.

Item	Description
Port Mode	Working mode of the interface: • COMMON COPPER: The interface works as an electrical interface. • COMMON FIBER: The interface works as an optical interface. If the interface is a combo interface: • COMBO AUTO: The combo interface automatically selects the working mode. • FORCE FIBER: The combo interface is configured as an optical interface. • FORCE COPPER: The combo interface is configured as an electrical interface. To configure the working mode for an interface, run the **combo-port** command.
Supported rates	Rate supported by the interface. **NOTE** Only the XG electrical interface of MultiGE electrical interfaces and XG electrical interface on the ES5D21X08T00 subcard support this parameter.
Transceiver	Type of the optical module. • This field is not displayed for electrical interfaces. • If an optical or copper module is inserted into the optical interface, the field indicates the model of the optical or copper module. • If an optical or copper module is not inserted into the optical interface, the field is not displayed. • If the optical interface is connected to the high-speed cable, the field indicates the type of the cable. • For the S5720-LI, S5720-SI, S5720S-LI, and S5735-S-I, If GPON optical module or a faulty optical module is installed on an optical interface, the field is displayed as ONLINE within 1 minute; the detailed type of the GPON optical module is displayed after 1 minute, and no information about other faulty optical modules is displayed.
Last physical up time	Last time the interface went Up physically. If this field displays "-", the physical status of the interface does not change. If the system is configured with a time zone and is in the daylight saving time, the time is displayed in the format of YYYY-MM-DD HH:MM:SS UTC±HH:MM DST.

Item	Description
Last physical down time	Last time the interface went Down physically. If this field displays "-", the physical status of the interface does not change. If the system is configured with a time zone and is in the summer daylight saving time, the time is displayed in the format of YYYY-MM-DD HH:MM:SS UTC±HH:MM DST.
Current system time	Current system time. If the time zone is configured and the daylight saving time is used, the time is in YYYY-MM-DD HH:MM:SS ±HH:MM format.
Speed	Current rate of the interface. ● In auto-negotiation mode, the **auto speed** command configures the rate of an interface. ● In non-auto-negotiation mode, the **speed** command configures the rate of an interface.
Loopback	Loopback configuration of the interface. To configure loopback on an interface, run the **loopback** command.
Duplex	Duplex mode of the interface: ● FULL: The interface works in full-duplex mode. ● HALF: The interface works in half-duplex mode. ● In auto-negotiation mode, the **auto duplex** command configures the duplex mode of an interface. ● In non-auto-negotiation mode, the **duplex** command configures the duplex mode of an interface.
Negotiation	Auto-negotiation mode of the interface. To configure the auto-negotiation mode for an interface, run the **negotiation auto** command. ● ENABLE: The interface works in auto-negotiation mode. ● DISABLE: The interface works in non-auto-negotiation mode. ● DISABLE(Only non-auto-negotiation is supported): The interface does not support the auto-negotiation mode and cannot have the **negotiation auto** command configured. Only the S6735-S supports this parameter.

Item	Description
Mdi	Network cable type of the interface. To configure the network cable type of an interface, run the **mdi** command. The Mdi field displays - for an optical interface.
Flow-control	Whether flow control is enabled: ● ENABLE: Flow control is enabled on the interface. ● DISABLE: Flow control and received flow control is disabled on the interface. ● RECEIVE ENABLE: Receive flow control is enabled on the interface. **NOTE** If the **flow-control** command has been executed to enable flow control on an Ethernet interface, or the **flow-control receive** command has been executed to enable received flow control on an Ethernet interface, this field displays **DISABLE** in the following situations: ● The interface is in Down state. ● The interface works in half-duplex mode.
FEC	Whether FEC is enabled on an interface: ● RS-FEC: RS-FEC is enabled on the interface. ● BASE-R: BASE-R FEC is enabled on the interface. ● NONE: The optical module is not properly installed and FEC is not configured; FEC is disabled; or FEC is not supported because a 40G optical module (except CFP 40GE optical module) is installed on a 100GE interface. When FEC is not configured, whether FEC is enabled on the interface depends on the medium. When a CFP 40GE/100GE optical module is installed on the interface, FEC cannot be configured on the interface and this field displays -.
Last 300 seconds input rate	Incoming packet rate (bits per second and packets per second) within the last 300 seconds.
Last 300 seconds output rate	Outgoing packet rate (bits per second and packets per second) within the last 300 seconds.
Input peak rate 0 bits/sec,Record time	Maximum rate of incoming packets and time when the maximum rate is reached.
Output peak rate 0 bits/sec,Record time	Maximum rate of outgoing packets and time when the maximum rate is reached.
Input	Total number of received packets.
Output	Total number of sent packets.

Item	Description
Unicast	Number of unicast packets that are received or sent by the interface.
Multicast	Number of multicast packets that are received or sent by the interface. For the S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S the value of this field contains the number of pause frames. For the S5736-S24T4XC, S5736-S24U4XC, S5736-S48T4XC, and S5736-S48U4XC, the value of the Multicast field contains the number of outgoing pause frames on GE electrical interfaces.
Broadcast	Number of broadcast packets that are received or sent by the interface.

Item	Description
Jumbo	This field includes the following values in the outbound direction of an interface: ● Number of sent Ethernet frames that exceed 1517 bytes with correct FCS values on the S200, S1730S-S1, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I or number of sent Ethernet frames that exceed 1518 bytes with correct FCS values on other switch models. ● Number of sent VLAN frames that exceed 1517 bytes with correct FCS values on the S200, S1730S-S1, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, number of sent VLAN frames that exceed 1522 bytes with correct FCS values on the S6735-S, S6720-EI and S6720S-EI, or number of sent VLAN frames that exceed 1518 bytes with correct FCS values on other switch models. This field includes the following values in the inbound direction of an interface: ● Number of received Ethernet frames with the length ranging from 1518 bytes to the configured maximum jumbo frame length and with correct FCS values on the S200, S1730S-S1, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I or number of received Ethernet frames with the length ranging from 1519 bytes to the configured maximum jumbo frame length and with correct FCS values on other switch models. ● Number of received VLAN frames with the length ranging from 1518 bytes to the configured maximum jumbo frame length and with correct FCS values on the S200, S1730S-S1, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, number of received VLAN frames with the length ranging from 1523 bytes to the configured maximum jumbo frame length and with correct FCS values on the S6735-S, S6720-EI and S6720S-EI, or number of received VLAN frames with the length ranging from 1519 bytes to the configured maximum jumbo frame length and with correct FCS values on other switch models. For the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S, and the value of this field contains the number of received packets with length ranging from 1518 bytes to the jumbo frame length configured on the interface and correct CRC values.

Item	Description
	To set the maximum jumbo frame length, run the **jumboframe enable** command. **NOTE** Only S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support statistics on Jumbo frames.
Discard	Number of packets discarded by the interface during physical layer detection. On the S5720-LI, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5720S-LI, S5735-S, S500, S5735S-S, S5735-S-I, S5720I-SI, S5735S-H, S5736-S, S6720S-S, after you run the **reset qos queue statistics** command, the number of packets discarded by the interface is cleared.
Total Error	Number of error packets found during physical layer detection.
CRC	Number of packets with length ranging from 64 bytes to 1518 bytes and incorrect FCS values. For the S5720-LI, S5731-H, S5731S-H, S5731S-S, S5732-H, S5736-S, S6720S-S, S6730-H, S6730S-H, S6730-S, and S6730S-S, the value of this field includes the number of received packets longer than the maximum jumbo frame length and with incorrect FCS values. For the SS1720GW-E, S1720GWR-E, S5720-LI, S5720S-LI, S5720I-SI, S5735S-H, S5736-S, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, S6720S-S, the value of this field contains the number of received packets with length ranging from 1518 bytes to the jumbo frame size configured on the interface and incorrect FCS values.
Giants	Number of received frames with length exceeding the maximum jumbo frame length.
Jabbers	The S5720-LI, S5720I-SI, S5731-S, S5731S-S, S5731-H, S5731S-H, S5732-H, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, S5735S-H, S5736-S, S6720S-S, S6735-S, S6720-EI, S6720S-EI, S6730S-S, and S6730-H do not have the Jabbers field. On the other product models, this field indicates the number of received packets with length exceeding the maximum jumbo frame length and incorrect FCS values.

Item	Description
Fragments	Number of received fragmented packets. A fragmented packet is a packet shorter than 64 bytes and with incorrect CRC values. For the S5731-H, S5731-S, S5731S-H, S5731S-S, S6730-H, S6730S-H, S6730-S, and S6730S-S, the value of this field contains the number of undersized frames with the correct CRC values received is displayed. On the S5720-LI, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, S5735S-S, S5735-S-I, S5720I-SI, S5735S-H, S5736-S, S6720S-S, S6720S-EI, S6735-S, and S6720-EI, the command output does not contain the Fragments field to display statistics about received fragmented packets.
Runts	Number of received undersized frames with correct CRC values. For the S5720-LI, S5735-S, S500, S5735S-S, S5735-S-I, S5720I-SI, S5735-L, S300, S2730S-S, S5735-L1, S5735-L-I, S5735S-H, S5736-S, S6720S-S, S6720S-EI, S6735-S, and S6720-EI, the value of this field includes the number of received fragmented packets shorter than 64 bytes and with incorrect CRC values.
DropEvents	Number of received packets that are discarded due to GBP full or back pressure.
Alignments	Number of received frames with alignment errors.
Symbols	Number of received frames with coding errors.
Ignoreds	Number of received MAC control frames whose OpCode is not PAUSE.
Frames	Number of packets with incorrect 802.3 length. **NOTE** Only the S2730S-S, S5735-L-I, S5735-L1, S5735S-L1, S300, S5735-L, S5735-S, S500, S5735-S-I, S6735-S, and S6720-EI support frame statistics collection.
Pause	Number of pause frames. **NOTE** The following interfaces do not support the function of collecting Pause frame statistics when flow control is not enabled: • Four XGE optical interfaces and last eight GE electrical interfaces on the S5720-56C-HI • Four XGE optical interfaces on the S5720-32C-HI-24S

Item	Description
Collisions	Number of packets with 1 to 15 collisions during packet forwarding. **NOTE** If the command output contains only this field and the ExcessiveCollisions field is not displayed, the field also includes the number of frames that are canceled due to consecutive 16 collisions.
ExcessiveCollisions	Number of packets with 16 collisions and fail to be sent.
Late Collisions	Number of packets with conflict and delayed.
Deferreds	Number of delayed packets without conflict.
Buffers Purged	Number of packets aged in the cache. The S500, S5735-S, S5735S-S, S5735-S-I, S6720S-EI, S6735-S, and S6720-EI do not have the Buffers Purged field. On other models, the value of this field is always 0.
Input bandwidth utilization threshold	Threshold for inbound bandwidth usage.
Output bandwidth utilization threshold	Threshold for outbound bandwidth usage.
Input bandwidth utilization	Inbound bandwidth usage. For the SS1720GW-E, S1720GWR-E, S5735-S, S500, S5735S-S, S5735-S-I, S5720I-SI, S5720-LI, S5735S-L-M, S5720S-LI, S5735S-H, S5736-S, S6720S-S, the bandwidth usage of Giants packets is calculated based on the configured jumbo frame length. To set the maximum jumbo frame length, run the **jumboframe enable** command.
Output bandwidth utilization	Outbound bandwidth usage. For the SS1720GW-E, S1720GWR-E, S5735-S, S500, S5735S-S, S5735-S-I, S5720I-SI, S5720-LI, S5735S-L-M, S5720S-LI, S5735S-H, S5736-S, S6720S-S, the bandwidth usage of Giants packets is calculated based on the configured jumbo frame length. To set the maximum jumbo frame length, run the **jumboframe enable** command.

4.1.17 interface

Function

The **interface** command displays the interface view or sub-interface view.

The **undo interface** command deletes a sub-interface.

Format

interface *interface-type interface-number*

undo interface *interface-type interface-number*

Parameters

Parameter	Description	Value
interface-type interface-number	Specifies the type and number of an interface. The interface type and number can be closely next to each other or separated by a space character. To create a sub-interface, enter the sub-interface view, or delete a sub-interface, specify *interface-number* in the format of main interface number.sub-interface number. For example, the number of sub-interface 1 on GE0/0/1 is GE0/0/1.1.	-

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

After the specified interface view is displayed, you can set attributes for the interface.

Precautions

- VLAN termination sub-interfaces cannot be created on a VCMP client.
- You need to set the interface type before creating a sub-interface. Only hybrid and trunk interfaces on the preceding series of cards support Ethernet sub-interface configuration.
- Physical interfaces cannot be created or deleted. You can only run the **interface** *interface-type interface-number* command to enter the view of an existing physical interface.
- Sub-interfaces can be created. Run the **interface** *interface-type interface-number* command to create a sub-interface and enter the sub-interface view.
- Sub-interfaces can be deleted. Run the **undo interface** *interface-type interface-number* command to delete a sub-interface.
- Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support sub-interfaces.

Example

Display the view of GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1]
```

Create sub-interface GE0/0/1.1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] port link-type hybrid
[HUAWEI-GigabitEthernet0/0/1] quit
[HUAWEI] interface gigabitethernet 0/0/1.1
```

Delete sub-interface GE0/0/1.1.

```
<HUAWEI> system-view
[HUAWEI] undo interface gigabitethernet 0/0/1.1
```

4.1.18 mtu (Interface view)

Function

Using the **mtu** command, you can set the maximum transmission unit (MTU) of an interface.

Using the **undo mtu** command, you can restore the default MTU of an interface.

By default, the MTU of an interface is 1500 bytes.

Format

mtu *mtu*

undo mtu

Parameters

Parameter	Description	Value
mtu	Specifies the MTU of an interface.	• For a physical interface, a VLANIF interface, an Eth-Trunk interface, a physical sub-interface, and an Eth-Trunk sub-interface, the value is an integer that ranges from 128 to 9216, in bytes. • For a VE sub-interface, the value is an integer that ranges from 46 to 1500, in bytes. • For a VBDIF interface, the value is an integer that ranges from 128 to 1560, in bytes. • For a tunnel interface, the value is an integer. For the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S the value ranges from 128 to 9216. For other switch models, the value ranges from 128 to 1530.

Views

Interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

The maximum transmission unit (MTU) determines the maximum number of bytes in IP packets each time a sender can send. The MTU of an IP packet refers to the number of bytes from the IP header of the packet to the data.

The size of data frames is limited at the network layer. Any time the IP layer receives an IP packet to be sent, it checks to which local interface the packet needs to be sent and obtains the MTU configured on the interface. Generally, the IP layer compares the MTU with the packet length. If the packet length is longer than the MTU, the IP layer fragments the packet into smaller packets, which are shorter than or equal to the MTU. If unfragmentation is configured, some packets may be discarded during data transmission at the IP layer. To ensure jumbo packets are not dropped during transmission, you need to configure forcible fragmentation. In this case, you can run the **mtu** command to set the size of a fragment.

The switch checks the MTU of CPU-forwarded IP packets. If the packet length is greater than the MTU, the switch fragments the packets. When the length of an IP

packet forwarded by the chip is greater than the MTU, switches of different models and with different configurations process the packet differently.

Table 4-15 Packet processing on switches of different models and with different configurations

Model	Configuration	Packet Type	Result
S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S	The **ipv4 fragment enable** command is not configured.	GRE packet	If the packet carries the fragment flag, the switch fragments the packet before forwarding it. Otherwise, the switch discards the packet.
	The **ipv4 fragment enable** command is not configured.	Non-GRE packet	The switch forwards the packet without fragmenting it.
	The **ipv4 fragment enable** command is configured.	GRE packet	If the packet carries the fragment flag, the switch fragments the packet before forwarding it. Otherwise, the switch discards the packet.
	The **ipv4 fragment enable** command is configured.	Non-GRE packet	The switch fragments the packet before forwarding it.
Devices except S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S	NA	All packet types	The switch forwards the packet without fragmenting it.

Prerequisites

Run the **undo portswitch** command to change the working mode of Ethernet physical interfaces from Layer 2 mode to Layer 3 mode.

Precautions

- After changing the maximum transmission unit (MTU) using the **mtu** command on an interface, you need to restart the interface to make the new MTU take effect. To restart the interface, run the **shutdown** command and

then the **undo shutdown** command, or run the **restart** command in the interface view.

- If IPv6 is run on a tunnel interface and the MTU set using the **mtu** command on the interface is smaller than 1280, IPv6 works abnormally on this interface. To prevent this problem, set the MTU of a tunnel interface to a value greater than or equal to 1280 if IPv6 runs on the tunnel interface.
- Configuring the MTU of an interface affects the maximum number of bytes for IP packets to be sent by the interface at a time. This configuration also affects the maximum frame length of sent Ethernet packets. The Ethernet packet size cannot exceed the maximum frame length allowed by the peer interface, which can be set using the **jumboframe enable** command.

Example

Set the MTU of GE0/0/1 to 1200 bytes.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] undo portswitch
[HUAWEI-GigabitEthernet0/0/1] mtu 1200
[HUAWEI-GigabitEthernet0/0/1] restart
```

Set the MTU of the VLANIF interface to 1492 bytes.

```
<HUAWEI> system-view
[HUAWEI] interface Vlanif 100
[HUAWEI-Vlanif100] mtu 1492
[HUAWEI-Vlanif100] restart
```

Set the MTU of Tunnel 1 to 1492.

```
<HUAWEI> system-view
[HUAWEI] interface tunnel 1
[HUAWEI-Tunnel1] mtu 1492
[HUAWEI-Tunnel1] shutdown
[HUAWEI-Tunnel1] undo shutdown
```

4.1.19 port description

Function

The **port description** command configures description about the device type connected to an interface.

The **undo port description** command restores the default setting.

By default, no description about the device type connected to an interface is configured.

Format

port description { **router** | **switch** | **phone** | **desktop** }

undo port description

Parameters

Parameter	Description	Value
router	Indicates that the interface is connected to a router.	-
switch	Indicates that the interface is connected to a switch.	-
phone	Indicates that the interface is connected to an IP phone.	-
desktop	Indicates that the interface is connected to a desktop terminal, such as a PC.	-

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, Eth-Trunk interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

You can run this command to configure description about the device type connected to an interface to facilitate device management and maintenance. For example, you can run **port description router** command to indicate that the interface is connected to a router.

Precautions

After you configure this command on an interface, the interface can still switch between Layer 2 and Layer 3 modes.

Example

Specify description of the Ethernet interface GE0/0/1 to **router** to indicate that the interface is connected to a router.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] port description router
```


4.1.20 reset counters if-mib interface

Function

The **reset counters if-mib interface** command clears interface traffic statistics in the Network Management System (NMS).

Format

reset counters if-mib interface [*interface-type* [*interface-number*]]

Parameters

Parameter	Description	Value
interface-type [*interface-number*]	Clears traffic statistics on a specified interface in the NMS. • *interface-type* specifies the interface type. • *interface-number* specifies the interface number. If an interface type is specified but no interface number is specified, traffic statistics on all interfaces of the specified type are cleared.	-

Views

User view

Default Level

3: Management level

Usage Guidelines

Usage Scenario

Before collecting traffic statistics on a specific interface within a period in the NMS, clear existing traffic statistics on this interface in the NMS.

NOTE

For details on how to view interface traffic statistics in the NMS, see the NMS documentation.

Precautions

- If no interface type and number are specified, traffic statistics of all interfaces in the NMS are cleared.
- After you run the **reset counters if-mib interface** command, traffic statistics on all interfaces in the NMS are cleared. Therefore, confirm the action before you run this command.

- Running the **reset counters if-mib interface** command does not affect the interface traffic statistics displayed by the **display interface** command. To clear the interface traffic statistics displayed by the **display interface** command, run the **reset counters interface** command.

Example

Clear traffic statistics on GE0/0/1 in the NMS.

```
<HUAWEI> reset counters if-mib interface gigabitethernet 0/0/1
```

4.1.21 reset counters interface

Function

The **reset counters interface** command clears traffic statistics about a specified interface.

Format

reset counters interface [*interface-type* [*interface-number*]]

Parameters

Parameter	Description	Value
interface-type [*interface-number*]	Clears traffic statistics on a specified interface. • *interface-type* specifies the interface type. • *interface-number* specifies the interface number. If an interface type is specified but no interface number is specified, traffic statistics on all interfaces of the specified type are cleared.	-

Views

User view

Default Level

3: Management level

Usage Guidelines

Usage Scenario

Before collecting traffic statistics on an interface within a certain period, run the **reset counters interface** command to clear existing traffic statistics.

Precautions

- Statistics cannot be restored after being cleared. Therefore, exercise caution before clearing the statistics.
- Traffic accounting is based on the packet statistics on an interface. The clearing of the packet statistics on an interface by using the **reset counters interface** command affects the traffic accounting result. Therefore, do not randomly clear the packet statistics on an interface in a normal application environment.
- If no interface type is specified, traffic statistics on all types of interfaces are cleared. If an interface type is specified but no interface number is specified, traffic statistics on all interfaces of the specified type are cleared.
- Running the **reset counters interface** command clears the last part of the **display interface** command output. That is, statistics about received and transmitted packets on the interface are cleared.

Example

Clear traffic statistics on all interfaces.

```
<HUAWEI> reset counters interface
```

Clear traffic statistics on VLANIF10.

```
<HUAWEI> reset counters interface vlanif 10
```

4.1.22 reset counters top interface

Function

The **reset counters top interface** command clears top N interface traffic statistics reports.

Format

reset counters top interface report [*report-number*]

Parameters

Parameter	Description	Value
report-number	Specifies the number of the top N interface traffic statistics report to be deleted. If you do not specify this parameter, the command clears all top N interface traffic statistics reports.	The value is an integer ranging from 1 to 5.

Views

User view

Default Level

3: Management level

Usage Guidelines

Usage Scenario

The top N interface traffic statistics function allows a device to generate a maximum of five top N interface traffic statistics reports. If you want to generate new top N interface traffic statistics reports when five top N interface traffic statistics reports already exist, run the **reset counters top interface report** [*report-number*] command to clear existing ones.

Precautions

- After you run the **reset counters top interface report** *report-number* command to clear a specified top N interface traffic statistics report, the numbers of other top N interface traffic statistics reports remain unchanged.
- You can run the **reset counters top interface report** [*report-number*] command even if less than five top N interface traffic statistics reports exist.

Example

Clear all top N interface traffic statistics reports.
<HUAWEI> **reset counters top interface report**

Clear the top N interface traffic statistics report numbered 1.
<HUAWEI> **reset counters top interface report 1**

4.1.23 restart (interface view)

Function

The **restart** command restarts an interface.

Format

restart

Parameters

None

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 40GE interface view, 100GE interface view, Eth-Trunk interface view, VLANIF interface view, Sub-interface view, Tunnel interface view, VE interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

After modifying parameters of an interface, run the **restart** command to make the modification take effect.

Precautions

- Restarting an interface during data transmission will cause data frame loss or service interruption. Exercise caution when you use the **restart** command.
- Running the **restart** command is equivalent to running the **shutdown** command and the **undo shutdown** command in sequence.
- Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support sub-interfaces.

Example

Restart GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] restart
```

4.1.24 set flow-stat interval

Function

The **set flow-stat interval** command sets the interval for collecting the traffic statistics on interfaces.

The **undo set flow-stat interval** command restores the default interval for collecting traffic statistics on interfaces.

By default, the interval for collecting traffic statistics on interfaces is 300 seconds.

Format

set flow-stat interval *interval-time*

undo set flow-stat interval

Parameters

Parameter	Description	Value
interval-time	Specifies the interval for collecting traffic statistics on interfaces.	The value is an integer that ranges from 10 to 600, in seconds. In addition, the value must be a multiple of 10. The default value is 300s.

Views

System view, Interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

By using the **set flow-stat interval** command to set the interval for collecting traffic statistics on interfaces, you can collect and analyze traffic statistics according to your needs. You can also take traffic control measures based on the traffic statistics to prevent network congestion and service interruption.

- When congestion occurs, set the interval for collecting traffic statistics on an interface to less than 300 seconds, or 30 seconds if congestion worsens. Then observe the traffic distribution on the interface within a short period of time. If data packets cause congestion, take proper measures to control the rate of the packets.
- When the network bandwidth is sufficient and services are running properly, set the interval for collecting traffic statistics on an interface to more than 300 seconds. If the value of any traffic parameter is not within the specified range, change the interval for collecting traffic statistics to observe the traffic volume in real time.

Precautions

- The interval configured in the system view takes effect on all the interfaces that use the default interval.
- The interval configured in the interface view takes effect only on the current interface.
- The interval configured in the interface view takes precedence over the interval configured in the system view.

Example

Set the interval for collecting traffic statistics on GE0/0/1 to 400s.


```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] set flow-stat interval 400
```

4.1.25 shutdown (interface view)

Function

The **shutdown** command disables an interface.

The **undo shutdown** command enables an interface.

By default, interfaces are enabled.

Format

shutdown

undo shutdown

Parameters

None

Views

Interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

After modifying parameters of an interface, run the **shutdown** and **undo shutdown** commands to make the modification take effect.

When an interface is not connected to a cable or fiber, you can use the **shutdown** command to disable the interface to prevent exceptions caused by interference.

Precautions

- When the device supports the autocomplete function, you must enter at least the characters **shut** before the device can automatically complete the **shutdown** command.
- Disabling an interface during data transmission will cause data frame loss or service interruption. Exercise caution when you use the **shutdown** command.
- Some logical interfaces, such as loopback, and null interfaces, do not support the **shutdown** and **undo shutdown** commands.
- If you run the **shutdown** command in the Eth-Trunk interface view, all Eth-Trunk member interfaces are disabled.
- Running the **shutdown** and **undo shutdown** commands is equivalent to running the **restart** command.

- When an interface is configured with a sub-interface, the default interval for running the **shutdown** and **undo shutdown** commands on the main interface is 15 seconds.
- When a physical interface functions as an Eth-Trunk member interface, the default interval for running the **shutdown** and **undo shutdown** commands on this interface is 15 seconds.

Example

Shut down GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] shutdown
```

4.2 Ethernet Interface Configuration Commands

4.2.1 Command Support

Commands provided in this section and all the parameters in the commands are supported by all switch models (except the S5731-L and S5731S-L), unless otherwise specified. For details, see specific commands.

4.2.2 am isolate

Function

The **am isolate** command isolates the current interface from a specified interface unidirectionally.

The **undo am isolate** command cancels unidirectional isolation between the current interface and a specified interface. If no interface is specified, unidirectional isolation between the current interface and all the other interfaces is canceled.

By default, no unidirectional isolation is configured between the current interface and a specified interface.

Format

am isolate { *interface-type interface-number* }&<1-8>

undo am isolate [*interface-type interface-number*]&<1-8>

am isolate *interface-type interface-number1* [**to** *interface-number2*]

undo am isolate [*interface-type interface-number1* [**to** *interface-number2*]]

Parameters

Parameter	Description	Value
interface-type interface-number	Specifies the type and number of the interface from which the current interface is isolated unidirectionally. • *interface-type* specifies the type of the interface. • *interface-number* specifies the number of the interface.	-
interface-type interface-number1 [**to** *interface-number2*]	Specifies the type and number of the interface from which the current interface is isolated unidirectionally. **to** specifies an interface range, indicating all the interfaces numbered between *interface-number1* and *interface-number2*.	*interface-number2* must be greater than *interface-number1*.

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, Eth-Trunk interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

The **am isolate** command isolates interfaces unidirectionally. For example, if interface A is isolated from interface B unidirectionally, packets sent from interface A cannot reach interface B, but packets sent from interface B can reach interface A. Unidirectional isolation needs to be configured in the following scenarios:

- When multiple hosts connect to different interfaces of a device and a host sends many broadcast packets to the other hosts, isolate the interface connected to the host from other interfaces unidirectionally. Then the other hosts do not receive packets from the host.

- Interfaces in a port isolation group are isolated from each other, but interfaces in different port isolation groups can communicate. To isolate interfaces in different port isolation groups, configure unidirectional isolation between these interfaces.

By default, only Layer 2 packets of the current interface are isolated from a specified interface, but Layer 3 packets are not isolated. To isolate both Layer 2 and Layer 3 packets on interfaces unidirectionally, run the **port-isolate mode all** command.

Precautions

An interface can be unidirectionally isolated from another type of interface. However, an interface cannot be unidirectionally isolated from itself or from the management interface. In addition, an Eth-Trunk cannot be unidirectionally isolated from its member interfaces.

NOTE

An interface can be isolated from a maximum of 128 interfaces unidirectionally.

Example

Isolate GE0/0/1 from GE0/0/2 unidirectionally.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] am isolate gigabitethernet 0/0/2
```

4.2.3 assign port-type 100ge

Function

The **assign port-type 100ge** command sets the maximum rate of QSFP28 interfaces to 100 Gbit/s.

The **undo assign port-type 100ge** command restores the maximum rate of QSFP28 interfaces to 40 Gbit/s.

For the S6730-H24X6C (part number: 02352FSG) and S6730-H48X6C (part number: 02352FSF) with the factory version V200R013C02, the default rate of QSFP28 interfaces is 100 Gbit/s. After a version upgrade from V200R013C02 to V200R019C00 or later, the default rate of QSFP28 interfaces is still 100 Gbit/s.

For the S5732-H24S6Q, S5732-H48S6Q, S6730-H24X6C (part number: 02352FSG) and S6730-H48X6C (part number: 02352FSF) with the factory version V200R019C00 or later, the default rate of QSFP28 interfaces is 40 Gbit/s.

The S6730-H24X6C (part number: 02353GFC), S6730S-H24X6C-A, S6730-H48X6C (part number: 02353FWL) and with the factory version V200R013C02 or later, the license has been loaded by default, and the default rate of QSFP28 interfaces is 100 Gbit/s.

NOTE

This command is supported only on the following switch models:

S5732-H24S6Q, S5732-H48S6Q, S6730S-H24X6C-A, S6730-H24X6C, S6730-H48X6C

Format

assign port-type 100ge [**slot** *slot-id* | **all**]

undo assign port-type 100ge [**slot** *slot-id* | **all**]

Parameters

Parameter	Description	Value
slot *slot-id*	Specifies a slot ID.	The value must be set according to the device configuration.
all	Indicates all slots.	-

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

For the S5732-H24S6Q, S5732-H48S6Q, S6730-H24X6C (part number: 02352FSG), S6730-H48X6C (part number: 02352FSF), to change the rate of QSFP28 interfaces, apply for and purchase a license from the equipment supplier, activate the license, and then run the **assign port-type 100ge command**. The corresponding license does not need to be activated before the **undo assign port-type 100ge** command is run.

For the S6730-H24X6C (part number: 02353GFC), S6730S-H, S6730-H48X6C (part number: 02353FWL), the license has been loaded by default. To change the rate of QSFP28 interfaces, run the **assign port-type 100ge** command. The corresponding license does not need to be activated before the **undo assign port-type 100ge** command is run.

Precautions

- The corresponding license is required before the **assign port-type 100ge** command is run, whereas no license is required before the **undo assign port-type 100ge** command is run.
- To check the current rate of an interface and the rate that takes effect after a device restart, run the **display device port-type configuration** command.
- After the command is executed, restart the device immediately for the configuration to take effect.
- After the device restarts, the original interface configuration may be lost. Therefore, back up the configuration before the restart. After the restart, check the configuration and modify it if necessary.

- After this command is executed, the maximum rate of QSFP28 interfaces is the configured rate if you restore the factory settings with one click or downgrade the software version.
- After the license expires, the maximum rate of QSFP28 interfaces is the default rate if you restart the device and then restore the factory settings with one click.

Example

Set the maximum rate of QSFP28 interfaces to 100 Gbit/s.

```
<HUAWEI> system-view
[HUAWEI] assign port-type 100ge all
Warning: The configuration of 40G interfaces may be lost after the device restart. Therefore, back up their configuration before the
 restart, and check the configuration after the restart is complete. Continue? [Y/N]:y
Info: The current configuration has been modified and takes effect after the device is restarted.
```

4.2.4 assign port-type xge

Function

The **assign port-type xge** command sets the maximum rate of 1000BASE-X interfaces to 10 Gbit/s.

The **undo assign port-type xge** command restores the maximum rate of 1000BASE-X interfaces to 1 Gbit/s.

By default, no license is loaded to a device, and 1000BASE-X interfaces support the maximum rate of 1 Gbit/s.

NOTE

This command is supported only on the following switch models:

S5736-S48S4X-A, S5736-S48S4X-D

Format

assign port-type xge [**slot** *slot-id* | **all**]

undo assign port-type xge [**slot** *slot-id* | **all**]

Parameters

Parameter	Description	Value
slot *slot-id*	Specifies a slot ID.	The value must be the ID of an existing slot on the device.
all	Indicates all slots.	-

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

By default, 1000BASE-X interfaces on a switch work at a maximum rate of 1 Gbit/s. To enable these interfaces to work at a maximum rate of 10 Gbit/s, apply for and purchase a license from the equipment supplier, activate the license, and then run the **assign port-type xge** command to set the maximum rate of 1000BASE-X interfaces to 10 Gbit/s. To restore the maximum rate of 1000BASE-X interfaces to 1 Gbit/s, run the **undo assign port-type xge** command. This command configuration takes effect only after the device is restarted.

Precautions

- A license is required for running the **assign port-type xge** command, whereas no license is required for running the **undo assign port-type xge** command.
- To check the current rate of an interface and the rate that takes effect after a device restart, run the **display device port-type configuration** command.
- After the command is executed, restart the device immediately for the configuration to take effect.
- After the device restarts, the original interface configuration may be lost. Therefore, back up the configuration before the restart. After the restart, check the configuration and modify it if necessary.
- After this command is executed, the maximum rate of SFP interfaces is the configured rate if you restore the factory settings with one click or downgrade the software version.
- After the license expires, the maximum rate of SFP interfaces is the default rate if you restore the factory settings with one click after a device restart.

Example

Set the maximum rate of 1000BASE-X interfaces to 10 Gbit/s.

```
<HUAWEI> system-view
[HUAWEI] assign port-type xge all
Warning: The configuration of GE interfaces may be lost after the device restart. Therefore, back up their configuration before the
restart, and check the configuration after the restart is complete. Continue? [Y/
N]:y
Warning: Running this command will change ports' capability of supporting dedicated stack cables. Continue? [Y/N]:y
Info: The current configuration has been modified and takes effect after the device is restarted.
```

4.2.5 assign port-type 25ge

Function

The **assign port-type 25ge** command sets the maximum rate of 10GE SFP+ Ethernet optical ports to 25 Gbit/s.

The **undo assign port-type 25ge** command restores the maximum rate of 10GE SFP+ Ethernet optical ports to 10 Gbit/s.

By default, no license is loaded to a device, and 10GE SFP+ Ethernet optical ports work at a maximum rate of 10 Gbit/s.

NOTE

This command is supported only on the S6730-H24X4Y4C.

Format

assign port-type 25ge [**slot** *slot-id* | **all**]

undo assign port-type 25ge [**slot** *slot-id* | **all**]

Parameters

Parameter	Description	Value
slot *slot-id*	Specifies a slot ID.	The value must be set according to the device configuration.
all	Indicates all slots.	-

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

By default, 10GE SFP+ Ethernet optical ports on a device work at a maximum rate of 10 Gbit/s. To enable these ports to work at a maximum rate of 25 Gbit/s, apply for and purchase a license from the equipment supplier, activate the license, and then run the **assign port-type 25ge** command to set the maximum rate of the ports to 25 Gbit/s. To restore the maximum rate of the ports to 10 Gbit/s, run the **undo assign port-type 25ge** command. This command configuration takes effect only after the device is restarted.

Precautions

- A license is required for running the **assign port-type 25ge** command, whereas no license is required for running the **undo assign port-type 25ge** command.
- To check the current rate of an interface and the rate that takes effect after a device restart, run the **display device port-type configuration** command.
- After the command is executed, restart the device immediately for the configuration to take effect.

- After the device restarts, the original interface configuration may be lost. Therefore, back up the configuration before the restart. After the restart, check the configuration and modify it if necessary.
- After this command is executed, the maximum rate of 10GE interfaces is the configured rate if you restore the factory settings with one click or downgrade the software version.
- After the license expires, the maximum rate of 10GE interfaces is the default rate if you restore the factory settings with one click after a device restart.

Example

Increase the maximum rate of all 10GE SFP+ Ethernet optical ports to 25 Gbit/s.

```
<HUAWEI> system-view
[HUAWEI] assign port-type 25ge all
Warning: The configuration of XGE interfaces may be lost after the device restart. Therefore, back up their configuration before the
restart, and check the configuration after the restart is complete. Continue? [Y/N]:y
Info: The current configuration has been modified and takes effect after the device is restarted.
```

4.2.6 assign group-speed

Function

The **assign group-speed** command sets the maximum rate of interfaces in a MultiGE interface group.

The **undo assign group-speed** command restores the default maximum rate of interfaces in a MultiGE interface group.

By default, you can run the **display device group-speed configuration** command to check the maximum rate of a MultiGE interface based on the **BaseSpeed** field in the command output.

NOTE

This command is supported only on the following switch models:
S5732-H24UM2CC, S5732-H48UM2CC, S5736-S24UM4XC

Format

assign group-speed [**slot** *slot-id*] **group** *group-number speed*

undo assign group-speed [**slot** *slot-id*] **group** *group-number*

Parameters

Parameter	Description	Value
slot *slot-id*	Specifies a slot ID. In a stack, if no slot ID is specified, the maximum rate of interfaces in the MultiGE interface group on the master switch is configured.	The value must be set according to the device configuration.
group *group-number*	Specifies the number of a MultiGE interface group.	The value is an integer and must be set according to the device configuration. Every 12 MultiGE interfaces form a MultiGE interface group. The number of MultiGE interface groups determines the value range. For example, if a device has 24 MultiGE interfaces, the value is 0 or 1.
speed	Specifies the maximum rate of a MultiGE interface.	The value is of the enumerated type: • 1000 • 2500 • 5000 • 10000 The unit is Mbit/s. **NOTE** • The value range of this parameter depends on the loaded license control item. • The specified MultiGE interface rate cannot be lower than the default MultiGE interface rate.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

On the S5732-H24UM2CC, S5732-H48UM2CC, S5736-S24UM4XC, every 12 MultiGE interfaces form a MultiGE interface group. To set the maximum rate of interfaces in a specified MultiGE interface group, run the **assign group-speed** command. The maximum rates of interfaces in the same MultiGE interface group are the same, and the maximum rates of interfaces in different MultiGE interface groups can be different.

Precautions

- This command takes effect only on the device to which license control items are loaded. For details about how to use license control items, see Other: How Can I Increase the Rate of Ports Through the RTU License? in the *S1720, S5700, and S6700 Series Switches License Usage Guide*.
- After you run the **assign group-speed** command to set the maximum rate of interfaces in a MultiGE interface group, restart the switch to make the configuration take effect. If you have run the **assign group-speed** command multiple times to set the maximum rate of interfaces in multiple MultiGE interface groups, restart the switch to make these configurations take effect simultaneously.
- After the **assign group-speed** command is run, the maximum rate of interfaces in a MultiGE interface group is restored to the default value if factory settings are restored with one click.
- After the license for a MultiGE interface group expires, if the device is restarted or factory settings are restored with one click, the maximum rate of interfaces in the MultiGE interface group is restored to the default value.

Example

Set the maximum rate of interfaces in MultiGE interface group 0 to 10000 Mbit/s.

```
<HUAWEI> system-view
[HUAWEI] assign group-speed group 0 10000
```

4.2.7 auto duplex

Function

The **auto duplex** command configures the duplex mode on an Ethernet electrical interface in auto-negotiation mode.

The **undo auto duplex** command restores the default duplex mode on an Ethernet electrical interface in auto-negotiation mode.

By default, the duplex mode on an Ethernet electrical interface is negotiated with the peer interface.

NOTE

Physical interfaces of the S5732-H24S6Q, S5732-H48S6Q, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S, and MultiGE interface of the S5732-H24UM2CC, S5732-H48UM2CC, S5732-H48XUM2CC do not support the half duplex mode and this command is not supported.

Format

auto duplex { **half** | **full** }*

undo auto duplex

Parameters

Parameter	Description	Value
half	Sets the duplex mode on an Ethernet electrical interface in auto-negotiation mode to half-duplex.	-
full	Sets the duplex mode on an Ethernet electrical interface in auto-negotiation mode to full-duplex.	-

Views

Ethernet interface view, MultiGE interface view, GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

In auto-negotiation mode, interfaces on both ends of a link negotiate their duplex mode. If the negotiated duplex mode is not the required one, you can run the **auto duplex** command to set the required duplex mode in auto-negotiation mode.

- If service traffic volume of enterprise users is high, interfaces at both ends of a link must work in full-duplex mode. Otherwise, packet loss occurs. You can run the **auto duplex full** command to set the duplex mode to full-duplex. After the auto-negotiation succeeds, the interfaces work in full-duplex mode.
- If service traffic volume of enterprise users is low, interfaces at both ends of a link can meet data transmission requirements when they work in half-duplex mode. You can run the **auto duplex half** command to set the duplex mode to half-duplex. After the auto-negotiation succeeds, the interfaces work in half-duplex mode.

Prerequisites

Run the **negotiation auto** command to configure Ethernet interface to work in auto-negotiation mode.

Precautions

- In auto-negotiation mode, an FE electrical interface negotiates the duplex mode with the peer device on the link.
- In auto-negotiation mode, a GE electrical interface that works at a rate of 1000 Mbit/s only supports the full-duplex mode. If the duplex mode is changed to half-duplex, the GE electrical interface works at a maximum rate of 100 Mbit/s.
- The GE optical interfaces support the duplex mode configuration when they are equipped with GE copper modules.
- The interfaces on both ends of a link must have the same duplex mode.

Example

Configure Ethernet electrical interface GE0/0/1 in auto-negotiation mode to work in half-duplex mode.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] negotiation auto
[HUAWEI-GigabitEthernet0/0/1] auto duplex half
```

4.2.8 auto speed

Function

The **auto speed** command configures the auto-negotiation rate of an Ethernet electrical interface.

The **undo auto speed** command restores the default auto-negotiation rate of an Ethernet electrical interface.

By default, Ethernet electrical interfaces on both ends can negotiate to any rate they support.

Format

auto speed { **10** | **100** | **1000** | **2500** | **5000** | **10000** } *

undo auto speed

Parameters

Parameter	Description	Value
10	Sets the auto-negotiation rate of an Ethernet electrical interface to 10 Mbit/s.	-
100	Sets the auto-negotiation rate of an Ethernet electrical interface to 100 Mbit/s.	-

Parameter	Description	Value
1000	Sets the auto-negotiation rate of an Ethernet electrical interface to 1000 Mbit/s. **NOTE** FE electrical interfaces do not support this parameter.	-
2500	Sets the auto-negotiation rate of an Ethernet electrical interface to 2500 Mbit/s. **NOTE** Only MultiGE interfaces support this parameter.	-
5000	Sets the auto-negotiation rate of an Ethernet electrical interface to 5000 Mbit/s. **NOTE** Only MultiGE interfaces support this parameter.	-
10000	Sets the auto-negotiation rate of an Ethernet electrical interface to 10000 Mbit/s. **NOTE** Only MultiGE interfaces support this parameter.	-

Views

Ethernet interface view, GE interface view, MultiGE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

In auto-negotiation mode, interfaces on both ends of a link negotiate their rate. If the negotiated rate is not the required one, run the **auto speed** command to set the auto-negotiation rate range to limit the negotiated rate.

For example, the network adapter speeds on Server1, Server2, and Server3 that form a server cluster are all 1000 Mbit/s, and the speed of the outbound interface

GE0/0/4 connecting the device to external networks is also 1000 Mbit/s. The servers connect to GE0/0/1, GE0/0/2, and GE0/0/3 respectively. If the auto-negotiation speed is not specified on the device, the speeds negotiated by GE0/0/1, GE0/0/2, and GE0/0/3 with their connected servers are all 1000 Mbit/s. When the servers send data at the speed of 1000 Mbit/s concurrently, the outbound interface GE0/0/4 will be blocked. In this case, you can run the **auto speed 100** command to configure the auto-negotiation speed to 100 Mbit/s for GE0/0/1, GE0/0/2, and GE0/0/3, preventing the outbound interface from being blocked.

Prerequisites

Run the **negotiation auto** command to configure the Ethernet interface to work in auto-negotiation mode.

Precautions

The rate of MultiGE interfaces on the S5732-H24UM2CC, S5732-H48UM2CC, and S5736-S24UM4XC can be increased using the RTU license. After the license is activated, you can run the **assign group-speed** command and restart the device to make the configured maximum rate supported by the interfaces in the MultiGE interface group take effect.

To check the default rate of MultiGE interfaces, run the **display device group-speed configuration** command. The **BaseSpeed** field indicates the default rate.

Example

Configure Ethernet electrical interface GE0/0/1 to work at a rate of 100 Mbit/s in auto-negotiation mode.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] negotiation auto
[HUAWEI-GigabitEthernet0/0/1] auto speed 100
```

4.2.9 cable-snr-test

Function

The **cable-snr-test** command checks the network cable quality and displays the check result.

NOTE

This command is supported only on the XGE electrical interfaces on the ES5D21X08T00 card of the S5731-H, and S5731S-H, GE electrical interfaces on the S5731-H, S2730S-S, S5735-L-I, S5735-L1, S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S5735-S (except the S5735-S48S4X), S500, S5735S-S, S5735-S-I, and S5720I-SI, and MultiGE electrical interfaces on the S5731-S24N4X2Q-A, S5731-S24UN4X2Q, S5731-S8UM16UN2Q, S5731S-S24N4X2Q-A1, S5731S-S24UN4X2Q-A, S5731S-S8UM16UN2Q-A, S5720-28X-PWH-LI-AC, S5720-28X-PWH-LI-ACF, S5732-H24UM2CC, S5732-H48UM2CC, S5732-H48XUM2CC, S5736-S24UM4XC.

Format

cable-snr-test

Parameters

None

Views

MultiGE interface view, XGE interface view, GE interface view

Default Level

3: Management level

Usage Guidelines

Usage Scenario

You can check the quality of the network cable on an electrical interface to determine whether the network cable quality meets communication requirements.

Precautions

- This command checks real-time quality of the network cable on an interface, and the network cable quality changes with the external environment.
- A MultiGE electrical interface supports accurate network cable quality check only when it works at the rate of 2.5 Gbit/s or higher.
- An XGE electrical interface supports accurate network cable quality check only when it works at the rate of 10 Gbit/s.
- A GE electrical interface supports accurate network cable quality check only when it works at the rate of 1 Gbit/s.
- An interface does not support the network cable quality check when it is Down or in loopback detection mode.
- After the interface goes Up, wait for several minutes before running this command. Otherwise, the command fails to be delivered.

Example

Check the network cable quality on GigabitEthernet0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] cable-snr-test
Info: The current network cable is of good quality.
```

4.2.10 carrier

Function

The **carrier** command configures the delay in reporting an interface status change event.

The **undo carrier** command restores the default delay in reporting an interface status change event.

By default, the delay in reporting an interface Up event is 2000 milliseconds, and the delay in reporting an interface Down event is 0 milliseconds.

Format

carrier { **up-hold-time** | **down-hold-time** } *interval*

undo carrier { **up-hold-time** | **down-hold-time** }

Parameters

Parameter	Description	Value
up-hold-time *interval*	Specifies the delay in reporting an interface Up event.	The value is 0 or an integer that ranges from 50 to 120000, in milliseconds.
down-hold-time *interval*	Specifies the delay in reporting an interface Down event.	The value is 0 or an integer that ranges from 1000 to 120000, in milliseconds.

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

The physical status of an Ethernet interface can be Up or Down. When the physical status changes, the system notifies upper-layer protocol modules (such as the routing and forwarding modules) of the change to direct packet receiving and forwarding. The system also automatically generates traps and logs to remind users to perform corresponding operations on physical links. For example, when the physical status of the active interface in an interface protection group changes from Up to Down, the system immediately instructs the upper-layer service forwarding protocol to send service packets from the standby interface.

If frequent physical status changes are reported to the system, extra system costs are generated. You can configure the delay in reporting physical status changes to

solve the problem. The system is unaware of the physical status changes on interfaces within the configured delay. If the interface physical status is not recovered after the delay expires, the physical status changes are reported to the system.

You can configure the delay in reporting physical status changes based on the network connection status.

- Setting a long delay

  For example, an interface frequently alternates between Up and Down states at an interval shorter than the IP route convergence time. In this case, the upper-layer protocol does not need to sense the physical status changes. You can set a long delay in reporting physical status changes to avoid unnecessary routing entry refreshing caused by frequent physical status changes.

- Setting a short delay

  For example, when the physical status of the active interface in an interface protection group changes from Up to Down, the system needs to immediately instruct the upper-layer service forwarding protocol to send service packets from the standby interface. In this case, you can set a short delay in reporting physical status changes to ensure real-time service switchover.

Precautions

If you run the **carrier** command multiple times in the same interface view, only the latest configuration takes effect.

Example

Set the delay in reporting an interface Up event to 1000 milliseconds on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] carrier up-hold-time 1000
```

4.2.11 clear configuration port-isolate

Function

The **clear configuration port-isolate** command clears all the interface isolation configurations on the device.

By default, interface isolation configurations on the device are not cleared.

Format

clear configuration port-isolate

Parameters

None

Views

System view

Default Level

2: Configuration level

Usage Guidelines

To clear all the interface isolation configurations on the device, you need to delete the configurations one by one. If a large number of configurations exist on the device, deleting the configurations takes much time and increases the maintenance workload. To reduce the maintenance workload and operation complexity, run the **clear configuration port-isolate** command in the system view to clear all the interface isolation configurations on the device. The configurations involve the port isolation group, unidirectional port isolation, and isolation mode.

Example

Clear all the interface isolation configurations on the device.

```
<HUAWEI> system-view
[HUAWEI] clear configuration port-isolate
Warning: The port isolate will be cancelled. Continue?[Y/N]:y
Info: This operation may take a few seconds. Please wait for a moment...done.
```

4.2.12 combo-port

Function

The **combo-port** command configures the working mode of a combo interface.

The **undo combo-port** command restores the default setting.

By default, a combo interface works in auto mode. That is, the combo interface automatically switches between the electrical mode and optical mode.

NOTE

Only combo interfaces support this command. For details about the combo interface supported by the switch, see the Hardware Description or click **Info-Finder**.

Format

combo-port { **auto** | **copper** | **fiber** }

undo combo-port

Parameters

Parameter	Description	Value
auto	Allows a combo interface to automatically select the working mode. The combo interface checks whether an optical module has been installed: ● When a cable is not connected and an optical module is installed, the combo interface works in optical mode. ● When a cable is connected, the interface is in Up state, and an optical module is installed, the combo interface works in electrical mode. After the device restarts, the combo interface works in optical mode. ● When a cable is connected, the interface is in Down state, and an optical module is installed, the combo interface works in optical mode. In summary, when an optical module is installed on the combo optical interface, the combo interface works in optical mode after the device restarts.	-
copper	Configures a combo interface to work in electrical mode so that data is transmitted through network cables.	-

Parameter	Description	Value
fiber	Configures a combo interface to work in optical mode so that data is transmitted through optical fibers.	-

Views

GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

A combo interface consists of a GE electrical interface and a GE optical interface on the panel. The multiplexed electrical and optical interfaces share one internal forwarding interface and cannot work at the same time. When one interface works, the other interface is disabled. You can use the electrical or optical interface based on the remote interface type. The electrical and optical interfaces share one interface view. When you enable the electrical or optical interface, configure the interface attributes (such as the rate and duplex mode) in the same interface view.

Precautions

This command takes effect only on combo interfaces.

If a combo interface is configured to work in a different mode from the remote interface, the two interfaces cannot communicate.

The electrical interface is used with the optical interface as a combo interface. Combo optical interface does not support GE copper module.

Example

Configure GE0/0/1 to work in electrical mode.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] combo-port copper
```

4.2.13 display counters protocol

Function

The **display counters protocol** command displays IPv4 and IPv6 packet statistics on an interface.

NOTE

Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support this command.

Format

display counters [**interface** *interface-type interface-number*] **protocol** [**rate**]

Parameters

Parameter	Description	Value
interface *interface-type interface-number*	Specifies the interface type and number.	-
protocol	Displays IPv4 and IPv6 packet statistics.	-
rate	Displays packet rate information.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

After enabling IPv4 or IPv6 packet statistics collection on an interface, you can run this command to view packet statistics, facilitating fault location and troubleshooting.

Example

Display IPv4 and IPv6 packet statistics on interfaces.

```
<HUAWEI> display counters protocol
-: Statistic not enable
Inbound
Interface       IPv4(bytes)     IPv4(pkts)     IPv6(bytes)     IPv6(pkts)
GE0/0/20                  0              0               0              0
GE0/0/21                  -              -               0              0
Outbound
Interface       IPv4(bytes)     IPv4(pkts)     IPv6(bytes)     IPv6(pkts)
GE0/0/20                  0              0               0              0
GE0/0/21                  -              -               0              0
```

Display IPv4 and IPv6 packet rate information on interfaces.

```
<HUAWEI> display counters protocol rate
-: Statistic not enable
Inbound
```



```
Interface      IPv4(bytes/s)   IPv4(pkts/s)   IPv6(bytes/s)   IPv6(pkts/s)
GE0/0/20              0              0              0              0
GE0/0/21              -              -              0              0
Outbound
Interface      IPv4(bytes/s)   IPv4(pkts/s)   IPv6(bytes/s)   IPv6(pkts/s)
GE0/0/20              0              0              0              0
GE0/0/21              -              -              0              0
```

Table 4-16 Description of the **display counters protocol** command output

Item	Description
-: Statistic not enable	If a field of an interface displays **-**, traffic statistics collection about the corresponding type of packets is disabled.
Inbound	Packet statistics in the inbound direction of an interface.
Outbound	Packet statistics in the outbound direction of an interface.
Interface	Interface name.
IPv4(bytes)	Number of bytes in IPv4 packets.
IPv4(pkts)	Number of IPv4 packets.
IPv6(bytes)	Number of bytes in IPv6 packets.
IPv6(pkts)	Number of IPv6 packets.
IPv4(bytes/s)	Rate of bytes in IPv4 packets.
IPv4(pkts/s)	Rate of IPv4 packets.
IPv6(bytes/s)	Rate of bytes in IPv6 packets.
IPv6(pkts/s)	Rate of IPv6 packets.

4.2.14 display card port-config-mode configuration

Function

The **display card port-config-mode configuration** command displays information about the card interface working mode.

NOTE

The following switch models support this command when equipped with an S7X08000 card:

- S5731-H24T4XC, S5731-H24P4XC, S5731-H48T4XC, S5731-H48P4XC, S5731-H24HB4XZ, S5731-H48HB4XZ
- S5731S-H24T4XC-A, S5731S-H48T4XC-A, S5731S-H24HB4XZ-A, S5731S-H48HB4XZ-A
- S5736-S
- S5732-H24UM2CC, S5732-H48UM2CC, S5732-H48XUM2CC

Format

display card port-config-mode configuration

Parameters

None

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

To check the card interface working mode or check whether the card interface working mode configured using the **set card port-config-mode 25g-port enable** command takes effect, run the **display card port-config-mode configuration** command.

Example

Display information about the card interface working mode.

```
<HUAWEI> display card port-config-mode configuration
-----------------------------------
 SlotId      Current      Next
-----------------------------------
 1           8*10G        8*10G
-----------------------------------
```

Table 4-17 Description of the **display card port-config-mode configuration** command output

Item	Description
SlotId	Slot ID.
Current	Current interface working mode. **NOTE** (*) indicates that the S7X08000 card is not properly installed or does not support the change of the port working mode.

Item	Description
Next	Interface working mode used at the next startup. **NOTE** (*) indicates that the S7X08000 card is not properly installed or does not support the change of the port working mode.

4.2.15 display device group-speed configuration

Function

The **display device group-speed configuration** command displays information about the rate of interfaces in MultiGE interface groups.

NOTE

This command is supported only on the following switch models:
S5732-H24UM2CC, S5732-H48UM2CC, S5732-H48XUM2CC, S5736-S24UM4XC

Format

display device group-speed configuration

Parameters

None

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

You can run this command to check the following information:

- Default maximum rates of interfaces in MultiGE interface groups
- Maximum rates of interfaces in MultiGE interface groups, which are configured using the **assign group-speed** command
- Maximum rates of interfaces in MultiGE interface groups during the current device startup
- Maximum rates of interfaces in MultiGE interface groups for the next device startup

Example

Display the rates of interfaces in MultiGE interface groups.

```
<HUAWEI> display device group-speed configuration

-------------------------------------------------------------------------------
Slot Group  Interfaces              BaseSpeed ConfigSpeed CurrentSpeed
NextSpeed
-------------------------------------------------------------------------------
 0    0    MultiGE2/0/1  ~ 2/0/12   1G        10G         10G          10G
      1    MultiGE2/0/13 ~ 2/0/24   1G        -           1G           1G
```

Table 4-18 Description of the **display device group-speed configuration** command output

Item	Description
Slot	Slot ID.
Group	Number of a MultiGE interface group.
Interfaces	Interface number.
BaseSpeed	Default maximum rates of interfaces in MultiGE interface groups The unit is bit/s.
ConfigSpeed	Maximum rates of interfaces in MultiGE interface groups, which are configured using the **assign group-speed** command The unit is bit/s. **NOTE** If this field displays -, **ConfigSpeed** is the same as **BaseSpeed**.
CurrentSpeed	Maximum rates of interfaces in MultiGE interface groups during the current device startup The unit is bit/s.
NextSpeed	Maximum rates of interfaces in MultiGE interface groups for the next device startup The unit is bit/s.

4.2.16 display device port-config-mode status

Function

The **display device port-config-mode status** command displays information about the card interface working mode.

Format

display device port-config-mode status [**slot** *slot-id*]

Parameters

Parameter	Description	Value
slot *slot-id*	Specifies the slot ID.	The value depends on the device configuration.

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

For the S5731-S8UM16UN2Q, S5731S-S8UM16UN2Q-A, S5732-H24UM2CC (part number: 02353HUC/02353HUC-003/02353SJY/02353SJY-001/02353SJY-004/02353SJY-010/02353SJY-011/02353SJY-014/02353SJY-015/02353SJY-016/02353SJY-019/02353SJY-002/02353SJY-003/02353SJY-012/02353SJY-013/02353SJY-017/02353SJY-018), S5732-H48UM2CC (part number: 02353HUB/02353HUB-002/02353SJT/02353SJT-001/02353SJT-003/02353SJT-004/02353SJT-010/02353SJT-011/02353SJT-013/02353SJT-014/02353SJT-015/02353SJT-016/02353SJT-018/02353SJT-002) and S5732-H48XUM2CC, you can run the **display device port-config-mode status** command to check the interface working mode and interface split information.

Example

Display the interface working mode and interface split information on the S5732-H24UM2CC.

```
<HUAWEI&gt; display device port-config-mode status
Slot ID       Port-config-mode       Split-port              Status
------------------------------------------------------------------------------
0             4*25GE+4*10GE+40GE     XGigabitEthernet0/0/1
enable
                                     XGigabitEthernet0/0/2
                                     XGigabitEthernet0/0/3
                                     XGigabitEthernet0/0/4
------------------------------------------------------------------------------
```

Table 4-19 Description of the **display device port-config-mode status** command output

Item	Description
Slot ID	Slot ID.
Port-config-mode	The interface working mode is 4x25GE+4x10GE+40GE mode.
Split-port	If an interface is not split, this field displays -. If an interface is split, this field displays the converted interfaces.
Status	Current status of interface split: ● enable: Interface split is enabled. ● disable: Interface split is disabled.

4.2.17 display device port-type configuration

Function

The **display device port-type configuration** command displays the maximum rate of interfaces on the device.

NOTE

This command is supported only on the following switch models:

S5732-H24S6Q, S5732-H48S6Q, S6730S-H24X6C-A, S6730-H24X6C, S6730-H48X6C, S6730-H24X4Y4C, S5736-S48S4X-A, and S5736-S48S4X-D

Format

display device port-type configuration

Parameters

None

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

On the S5732-H24S6Q, S5732-H48S6Q, S6730S-H24X6C-A, S6730-H24X6C, S6730-H48X6C, after the maximum rate of QSFP28 interfaces is changed using the **assign port-type 100GE** command, you can run the **display device port-type configuration** command to check the supported maximum rate configuration.

On the S6730-H24X4Y4C, after the maximum rate of a 10GE SFP+ Ethernet optical interface is set to 25 Gbit/s using the **assign port-type 25GE** command, you can run the **display device port-type configuration** command to check the maximum rate configuration.

On the S5736-S48S4X-A, S5736-S48S4X-D, after the maximum rate of 1000BASE-X interfaces is set to 10 Gbit/s using the **assign port-type XGE** command, you can run the **display device port-type configuration** command to check the supported maximum rate configuration.

Precautions

The corresponding license does not need to be activated before this command is run.

Example

Display the maximum rate of 40GE interfaces on a switch.

```
<HUAWEI> display device port-type configuration
-----------------------------------
SlotId      Current      Next
-----------------------------------
0           40GE         100GE
1           40GE         100GE
-----------------------------------
```

Table 4-20 Description of the **display device port-type configuration** command output

Item	Description
Slot	Slot ID.
Current	Current maximum rate of 40GE interfaces.
Next	Configured maximum rate supported by the device. **NOTE** If a switch does not restart after the maximum rate of 40GE interfaces is changed, the **Next** field value will be inconsistent with the **Current** field value.

4.2.18 display error-down recovery

Function

The **display error-down recovery** command displays information about the port in Error-Down state, including the interface name, cause of the Error-Down event, delay for the interface to change from Down to Up, and remaining time for the Up event.

NOTE

An interface enters the error-down state after being shut down due to an error. Currently, errors include the auto-defend protection, threshold crossing event, remote failure event, MAC address flapping, link flapping, low optical power, error packets exceeding the alarm threshold, and BPDU protection.

Format

display error-down recovery [**interface** *interface-type interface-number*]

Parameters

Parameter	Description	Value
interface-type interface-number	Displays the specified port in Error-Down state. • *interface-type* specifies the interface type. • *interface-number* specifies the interface number.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

The auto recovery function is configured and the delay for an interface to change from Down to Up is set using the **error-down auto-recovery** command. If the interface is in the Error-Down state, you can run the **display error-down recovery** command to view the remaining time for the Up event.

Prerequisites

The auto recovery function has been configured on an interface using the **error-down auto-recovery** command.

Precautions

If **interface** is not specified in this command, the system displays information about all interfaces in error-down state.

Example

Display the delay for the interface to change from Down to Up and the remaining time for the Up event.

```
<HUAWEI> display error-down recovery
interface                   error-down cause          recovery   remainder
                                                      time(sec)  time(sec)
--------------------------------------------------------------------------------
GigabitEthernet0/0/1        bpdu-protection           30         10
```


Table 4-21 Description of the **display error-down recovery** command output

Item	Description
interface	Interface name.
error-down cause	Cause of the Error-Down event, including: • as-not-ready: An AS is not in service. • auto-defend • efm-threshold-event • efm-remote-failure • bpdu-protection • data-integrity-error • error-statistics • storm-control • port-security • mac-address-flapping • transceiver-power-low • link-flap
recovery time(sec)	Delay for the interface to change from Down to Up, in seconds. If no automatic recovery time is configured, you need to run the **shutdown** and **undo shutdown** commands in the interface view. Alternatively, run the **restart** command in the interface view to make the interface go Up and the recovery time is displayed as **--**.
remainder time(sec)	Remaining time for the Up event, in seconds. If no automatic recovery time is configured, you need to run the **shutdown** and **undo shutdown** commands in the interface view. Alternatively, run the **restart** command in the interface view to make the interface go Up and the remaining time is displayed as **--**.

4.2.19 display error-statistics trigger speed-down-grade oui

Function

The **display error-statistics trigger speed-down-grade oui** command displays the terminal MAC addresses that can be identified in automatic rate reduction on interfaces.

NOTE

This command is supported only on the following switch models: S5731-S, S5731S-S, S5731-H, S5731S-H.

Format

display error-statistics trigger speed-down-grade oui

Parameters

None

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

When a GE electrical interface on a device is connected to a specific printer and the interface rate is higher than 10 Mbit/s, the interface can go Up, but the printer cannot work properly. Alignment error packets will be detected on the interface. In this case, you can run the **set error-statistics trigger speed-down-grade** command to enable the device to automatically reduce the interface rate when the number of error packets on the interface reaches the threshold. The device then automatically sets the interface rate to 10 Mbit/s, reports an alarm (hwPortErrPktSpeedDownGrade), and records a log (IFPDT/1/ERRPKT_SPEEDDOWN) when the following conditions are met:

- The interface receives three alignment error packets within 60 seconds.
- The interface is in the auto-negotiation state and works at the rate of 100 Mbit/s.
- Only one MAC address is learned on the interface, and the MAC address starts with 001B-82 or is in the MAC address blacklist configured using this command.

You can run this command to view the terminal MAC addresses that can be identified by the device in addition to the default MAC address.

Example

Display the terminal MAC addresses that can be identified in automatic rate reduction on interfaces.

```
<HUAWEI> display error-statistics trigger speed-down-grade oui
-------------------------------------------------------
OuiAddress      Mask           Description
-------------------------------------------------------
0001-0000-0000  ffff-0000-0000 printer
```


Table 4-22 Description of the **display error-statistics trigger speed-down-grade oui** command output

Item	Description
OuiAddress	MAC OUI. To set this parameter, run the **error-statistics trigger speed-down-grade** command.
Mask	Mask of the MAC address.
Description	Description of the MAC address.

4.2.20 display interface ethernet brief

Function

The **display interface ethernet brief** command displays brief information about Ethernet interfaces.

Format

display interface ethernet brief [**main**]

Parameters

Parameter	Description	Value
main	Displays brief information about Ethernet main interfaces.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

You can use the **display interface ethernet brief** command to view brief information about Ethernet interfaces, including the physical status, auto-negotiation mode, duplex mode, rate, and average inbound and outbound bandwidth usages within the last period of time. This information helps you locate and rectify faults.

Precautions

To clear statistics on an interface, run the **reset counters interface** command.

Example

Display brief information about Ethernet interfaces.

```
<HUAWEI> display interface ethernet brief
PHY: Physical
*down: administratively down
#down: LBDT down
(l): loopback
(b): BFD down
InUti/OutUti: input utility/output utility
Interface                   PHY   Auto-Neg Duplex Bandwidth  InUti OutUti Trunk
GigabitEthernet0/0/1        up    enable   half       100M  0.06%   100%    --
GigabitEthernet0/0/2        up    enable   full      1000M   100%   100%    --
GigabitEthernet0/0/3        up    enable   full      1000M     0%   100%    --
GigabitEthernet0/0/4        up    enable   full      1000M   100%   100%     1
GigabitEthernet0/0/5        up    enable   full      1000M    99%   100%    --
GigabitEthernet0/0/6        down  enable   half       1000M     0%     0%    --
GigabitEthernet0/0/7        down  enable   half       1000M     0%     0%    --
GigabitEthernet0/0/8        down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/9        down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/10       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/11       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/12       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/13       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/14       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/15       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/16       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/17       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/18       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/19       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/20       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/21       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/22       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/23       down  enable   full       1000M     0%     0%    --
GigabitEthernet0/0/24       down  enable   full       1000M     0%     0%    --
MEth0/0/1                   down  enable   half        100M     0%     0%    --
```

Table 4-23 Description of the **display interface ethernet brief** command output

Item	Description
Interface	Type and number of an interface. All interfaces are displayed in alphabetical order. Information about the following interfaces can be displayed: • MEth0/0/1 interface • FE interface • GE interface • XGE interface • 25GE interface • MultiGE interface • 40GE interface • 100GE interface

Item	Description
PHY	Physical status of an interface: ● up: indicates that the interface works properly. ● down: indicates that the physical layer of the interface fails. ● *down: refers to administratively down, indicating that the administrator has run the **shutdown (interface view)** command on the interface. ● #down: LBDT down, indicating that loop detection is enabled on the interface. The interface is shut down when the device detects a loop on the downstream network or between interfaces. ● (l): refers to loopback, indicating that the loopback function is enabled on the interface. ● (b): indicates that the physical layer of the interface is in BFD down state.
Auto-Neg	Whether auto-negotiation is enabled on an interface: ● enable: indicates that auto-negotiation is enabled on the interface. ● disable: indicates that auto-negotiation is disabled on the interface. To configure the auto-negotiation mode for an interface, run the **negotiation auto** command.
Duplex	Duplex mode of an interface: ● full: indicates the full-duplex mode. ● half: indicates the half-duplex mode. ● In auto-negotiation mode, use the **auto duplex** command to configure the duplex mode of an interface. ● In non-auto negotiation mode, use the **duplex** command to configure the duplex mode of an interface.
Bandwidth	Bandwidth on the interface.
InUti	Average inbound bandwidth usage within the last 5 minutes. Average inbound bandwidth usage = Average inbound rate within the last 5 minutes/Interface bandwidth When the average bandwidth usage is smaller than 0.01% and greater than 0.005%, the value 0.01% is displayed. When the average bandwidth usage is smaller than 0.005% and greater than 0, the value 0 is displayed. When the interface bandwidth becomes smaller, for example, the bandwidth is changed using the **speed** command, or when an Eth-Trunk member interface becomes Down or is removed from the Eth-Trunk, the bandwidth usage be displayed as 100% because the communication traffic is not adjusted in time.

Item	Description
OutUti	Average outbound bandwidth usage within the last 5 minutes. Average outbound bandwidth usage = Average outbound rate within the last 5 minutes/Interface bandwidth When the average bandwidth usage is smaller than 0.01% and greater than 0.005%, the value 0.01% is displayed. When the average bandwidth usage is smaller than 0.005% and greater than 0, the value 0 is displayed. When the interface bandwidth becomes smaller, for example, the bandwidth is changed using the **speed** command, or when an Eth-Trunk member interface becomes Down or is removed from the Eth-Trunk, the bandwidth usage be displayed as 100% because the communication traffic is not adjusted in time.
Trunk	Number of the Eth-Trunk to which an interface is added.

4.2.21 display port-group

Function

The **display port-group** command displays information about permanent port groups and interfaces in these groups.

Format

display port-group [**all** | *port-group-name*]

Parameters

Parameter	Description	Value
all	Displays information about all permanent port groups and interfaces in these groups.	-
port-group-name	Displays information about a specified permanent port group and interfaces in the group.	The value is the name of an existing port group.

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

When using the **display port-group** command, note that:

- If no parameter is configured, names of all permanent port groups are displayed.
- If **all** is configured, information about all permanent port groups and interfaces in these groups is displayed.
- If *port-group-name* is configured, information about a specified permanent port group and interfaces in the group is displayed.

Example

Display information about all port groups and interfaces in these groups.

```
<HUAWEI> display port-group all
Portgroup: 1
GigabitEthernet0/0/1
GigabitEthernet0/0/2
GigabitEthernet0/0/3
```

Table 4-24 Description of the **display port-group** command output

Item	Description
Portgroup	Name of a permanent port group.

4.2.22 display port-group member-configuration

Function

The **display port-group member-configuration** command displays the configuration of each member interface in a specified interface group.

Format

display port-group *port-group-name* **member-configuration**

Parameters

Parameter	Description	Value
port-group-name	Specifies the name of an interface group to be queried.	The value is the name of an existing port group.

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

To view the configuration of each member interface in a specified interface group, run the **display port-group member-configuration** command.

Example

Display the configuration of each member interface in an interface group named group1.

```
<HUAWEI> display port-group group1 member-configuration
Portgroup: group1
#
interface GigabitEthernet0/0/1
 description group1
 shutdown
 stp disable
#
interface GigabitEthernet0/0/2
 description group1
 shutdown
 stp disable
#
```

Table 4-25 Description of the **display port-group member-configuration** command output

Item	Description
Portgroup	Name of a permanent port group.

4.2.23 display port-isolate group

Function

The **display port-isolate group** command displays the configuration of a port isolation group.

Format

display port-isolate group { *group-id* | **all** }

Parameters

Parameter	Description	Value
group-id	Displays the configuration of a specified port isolation group.	The value is an integer that ranges from 1 to 64.

Parameter	Description	Value
all	Displays the configurations of all port isolation groups.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

The port isolation feature isolates interfaces in a VLAN. Run **port-isolate enable** [**group** *group-id*] command to add interfaces to a port isolation group, you can implement Layer 2 isolation between these interfaces. To view the configuration of the port isolation group, run the **display port-isolate group** command.

Example

Display the configurations of all port isolation groups.

```
<HUAWEI> display port-isolate group all
  The ports in isolate group 3:
GigabitEthernet0/0/1
GigabitEthernet0/0/2
  The ports in isolate group 4:
GigabitEthernet0/0/3
GigabitEthernet0/0/4
```

4.2.24 display port link-flap auto-detect recovery

Function

The **display port link-flap auto-detect recovery** command displays information about interfaces that go Down due to link flapping.

Format

display port link-flap auto-detect recovery

Parameters

None

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

If the physical status of an interface is **LINK-FLAP DOWN** in the **display interface** command output, you can run the **display port link-flap auto-detect recovery** command to view the automatic recovery period of the interface.

Example

Display information about interfaces that go Down due to link flapping.

```
<HUAWEI> display port link-flap auto-detect recovery
--------------------------------------------------------------------------------
Interface                RecoveryTime(sec)       RemainTime(sec)
--------------------------------------------------------------------------------
XGigabitEthernet0/0/1    60                      40
```

Table 4-26 Description of the **display port link-flap auto-detect recovery** command output

Item	Description
Interface	Interface name.
RecoveryTime(sec)	Automatic recovery period after an interface goes Down due to link flapping. To set the automatic recovery period, run the **port link-flap auto-detect recovery interval** command.
RemainTime(sec)	Remaining automatic recovery period after an interface goes Down due to link flapping.

4.2.25 display port protect-group

Function

The **display port protect-group** command displays information about member interfaces in an interface protection group.

Format

display port protect-group { **all** | *protect-group-index* }

Parameters

Parameter	Description	Value
all	Displays information about all interface protection groups and their member interfaces.	-
protect-group-index	Displays information about member interfaces in the specified interface protection group.	The value is an integer that ranges from 0 to 63.

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Hosts are usually connected to an external network through a default gateway. If the outbound interface of the default gateway fails, the hosts cannot communicate with the external network, interrupting normal service transmission and degrading device reliability. The port protection function solves this problem. Without changing the networking, you can add two interfaces on the device to a port protection group to implement interface backup in active/standby mode. When the active interface fails, services are immediately switched to the standby interface, ensuring non-stop service transmission.

The **display port protect-group** command displays information about member interfaces in an interface protection group.

Example

Display information about interface protection group 1 and its member interfaces.

```
<HUAWEI> display port protect-group 1
  Group ID : 1
-------------------------------------------------
  Protect-group member       Role     State
-------------------------------------------------
  GigabitEthernet0/0/1       Master   Work
  GigabitEthernet0/0/2       Standby  Protect
```

Table 4-27 Description of the display port protect-group command output

Item	Description
Group ID	ID of the interface protection group.

Item	Description
Protect-group member	Member name of the interface protection group.
Role	Interface role: • Master: working interface • Standby: protected interface
State	Interface status: • Work: working state • Protect: protection state • Down: the interface is physically down

4.2.26 display port split

Function

The **display port split** command displays the current status of a split or merged interface.

NOTE

Only interfaces on the panel of the S5731-S24N4X2Q-A, S5731-S24UN4X2Q, S5731-S8UM16UN2Q, S5731S-S24N4X2Q-A1, S5731S-S24UN4X2Q-A, S5731S-S8UM16UN2Q-A support interface split and merge.

For the devices that have the S7C02000 or S7Q02001 card installed, interfaces on the card support interface split and merge.

Format

display port split [**slot** *slot-id*]

Parameters

Parameter	Description	Value
slot *slot-id*	Specifies the slot ID.	The value is an integer and must be set according to the device configuration.

Views

User view, system view

Default Level

1: Monitoring level

Usage Guidelines

After interfaces are split, you can run this command to view the current status of the split and merged interface.

Example

Display the current status of a split or merged interface.

```
<HUAWEI> display port split
*enable  : Will be enabled after board reset
*disable : Will be disabled after board reset

 Port          Status     Split Port
-----------------------------------------------------
 40GE0/0/1     enable     XGigabitEthernet0/0/49
                          XGigabitEthernet0/0/50
                          XGigabitEthernet0/0/51
                          XGigabitEthernet0/0/52
 40GE0/0/2     enable     XGigabitEthernet0/0/53
                          XGigabitEthernet0/0/54
                          XGigabitEthernet0/0/55
                          XGigabitEthernet0/0/56
 40GE0/1/1     disable    -
 40GE0/1/2     enable     XGigabitEthernet0/1/5
                          XGigabitEthernet0/1/6
                          XGigabitEthernet0/1/7
                          XGigabitEthernet0/1/8
 40GE0/1/3     disable    -
 40GE0/1/4     disable    -
```

Table 4-28 Description of the display port split command output

Item	Description
Port	Port that can be split or merged.
Status	Current status of a split or merged interface: • enable: Interface split is enabled. • disable: Interface split is disabled. • *enable: Interface split is enabled after the device is reset. • *disable: Interface merge is enabled after the device is reset.
Split Port	Interfaces that have been split. If an interface is not split, this field displays as -. If an interface is split, converted interfaces are displayed.

4.2.27 display virtual-cable-test

Function

The **display virtual-cable-test** command displays the last cable test result on an Ethernet electrical interface.

NOTE

The service interfaces on the following devices do not support this command:

- MultiGE interfaces on the S5720-28X-PWH-LI-AC and S5736-S24UM4XC
- XGE electrical interfaces on the ES5D21X08T00 card

Format

display virtual-cable-test *interface-type interface-number*

Parameters

Parameter	Description	Value
interface-type interface-number	Displays cable test results on a specified interface. This parameter can be configured after a GE optical interface has a GE copper module installed. This parameter can be configured after an XGE optical interface has a GE copper module installed. After a 25GE optical interface is configured to work at the rate of 1 Gbit/s using the **port mode ge** command and has a GE copper module installed, the **virtual-cable-test** command can be configured on the interface.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

A cable test detects faults on the cable connected to an interface. If the cable is working properly, the test result displays the total length of the cable. If the cable cannot work properly, the test result displays the distance between the interface and the failure point.

NOTE

The test result is only for reference and may be inaccurate for cables of some vendors.

Example

Display the cable test result on Ethernet electrical interface GE0/0/1.

```
<HUAWEI> display virtual-cable-test gigabitethernet 0/0/1
VCT test last ran on: 2013-7-12 21:25:13
Pair A length: 189meter(s)
Pair B length: 189meter(s)
Pair C length: 189meter(s)
Pair D length: 189meter(s)
Pair A state: Ok
Pair B state: Ok
Pair C state: Ok
Pair D state: Ok
Info: The test result is only for reference.
```

Table 4-29 Description of the **display virtual-cable-test** command output

Item	Description
VCT test last ran on	Time when the last VCT test was performed on an interface. **NOTE** • When the daylight saving time (DST) is not used, the system displays the following information: VCT test last ran on: 2013-7-12 21:25:13. • When the DST is used, the system displays the following information: VCT test last ran on: 2013-7-12 21:25:13 DST.

Item	Description
Pair A length	Length of a network cable. • The length is the distance between the interface and the faulty point if a fault occurs. • The length is the actual length of the cable when the cable works properly. • The length is the default length 0 m if the interface is not connected to any network cable. The test result of different chips may vary, and the displayed result is for reference only. **NOTE** If the cable length is displayed as Unknown, the cable status is OK, but the cable length test result cannot be used.
Pair A state	Status of a circuit pair of the cable: • Ok: indicates that the circuit pair is terminated normally. • Open: indicates that the circuit pair is not terminated. • Short: indicates that the circuit pair is short-circuited. • Crosstalk: indicates that the circuit pairs interfere with each other. • Unknown: indicates that the circuit pair has an unknown fault.

NOTE

Pairs A, B, C, and D are the four pairs in a cable.

4.2.28 device transceiver 1000BASE-X

Function

The **device transceiver 1000BASE-X** command pre-configures the module to be installed as a GE optical module.

The **undo device transceiver 1000BASE-X** command cancels the pre-configuration.

By default, modules to be installed are not pre-configured as GE optical modules.

NOTE

Only XGE interfaces support this command.

Format

device transceiver 1000BASE-X

undo device transceiver 1000BASE-X

Parameters

None

Views

XGE interface

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

When a large number of switches need to be deployed on the live network, a tool is used to deliver unified configurations in a batch, including the **undo negotiation auto** command configuration on interfaces. Currently, XGE interfaces on Huawei switches do not support the **undo negotiation auto** command when no optical module is installed. As a result, the deployment workload increases.

When no optical module is installed into an XGE interface, you can run the **device transceiver 1000BASE-X** and **undo negotiation auto** commands in sequence on the XGE interface, and then install a GE optical module into the XGE interface. Then the non-auto-negotiation configuration takes effect.

Prerequisites

This command can be delivered when no optical module is installed into the XGE interface or a GE optical module is installed into the XGE interface.

Follow-up Procedure

After this command is delivered, the **undo negotiation auto** command configuration can be delivered when no GE optical module is installed into the XGE interface.

Precautions

None

Example

```
<HUAWEI> system-view
[HUAWEI] interface XGigabitEthernet0/0/1
[HUAWEI-XGigabitEthernet0/0/1] device transceiver 1000base-x
[HUAWEI-XGigabitEthernet0/0/1] undo negotiation auto
```


4.2.29 duplex

Function

The **duplex** command sets the duplex mode for an Ethernet electrical interface in non-auto-negotiation mode.

The **undo duplex** command restores the default duplex mode for an Ethernet electrical interface in non-auto-negotiation mode.

By default, the duplex mode of an Ethernet electrical interface is full duplex when the interface works in non-auto-negotiation mode.

NOTE

Physical interfaces of the S5732-H24S6Q, S5732-H48S6Q, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S, and MultiGE interface of the S5732-H24UM2CC, S5732-H48UM2CC, S5732-H48XUM2CC do not support the half duplex mode and this command is not supported.

Format

duplex { **full** | **half** }

undo duplex

Parameters

Parameter	Description	Value
full	Sets the duplex mode to full duplex for an Ethernet electrical interface in non-auto-negotiation mode.	-
half	Sets the duplex mode to half duplex for an Ethernet electrical interface in non-auto-negotiation mode.	-

Views

Ethernet interface view, MultiGE interface view, GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Interfaces can work in the following two duplex modes:

- Half-duplex mode: An interface in this mode only receives or sends data at a time within a specified transmission distance.
- Full-duplex mode: An interface in this mode receives and sends data at the same time. The maximum throughput in full-duplex mode is double that in half-duplex mode, and the transmission distance is not limited.

If the peer device does not support auto-negotiation, you can run this command to manually set the duplex mode for the local interface in non-auto-negotiation mode to ensure that the interface works in the same duplex mode as the peer interface.

Prerequisites

The Ethernet interface has been set to work in non-auto-negotiation mode by running the **undo negotiation auto** command.

Precautions

- When the working rate of a GE electrical interface is 1000 Mbit/s, the interface supports only the full duplex mode and does not need to negotiate the duplex mode with the peer interface.
- When an interface works in half-duplex mode, flow control does not take effect on the interface.
- Interfaces on both ends of a link must have the same duplex mode.

Example

Set the duplex mode to half duplex for Ethernet electrical interface GE0/0/1 in non-auto-negotiation mode.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] undo negotiation auto
[HUAWEI-GigabitEthernet0/0/1] speed 100
[HUAWEI-GigabitEthernet0/0/1] duplex half
```

4.2.30 error-down auto-recovery

Function

The **error-down auto-recovery** command enables an interface in Error-Down state to go Up and sets the auto recovery delay.

The **undo error-down auto-recovery** command disables an interface in Error-Down state from going Up automatically.

By default, an interface in Error-Down state is not enabled to go Up.

NOTE

An interface enters the Error-Down state after being shut down due to an error. Currently, errors include the auto-defend protection, threshold crossing event, remote failure event, MAC address flapping, link flapping, low optical power, error packets exceeding the alarm threshold, and BPDU protection.

Format

error-down auto-recovery cause { **as-not-ready** | **auto-defend** | **bpdu-protection** | **efm-remote-failure** | **efm-threshold-event** | **error-statistics** | **link-flap** | **mac-address-flapping** | **remote-unit-link** | **remote-unit-misconfig** | **port-security** | **transceiver-power-low** | **storm-control** | **data-integrity-error** } **interval** *interval-value*

undo error-down auto-recovery cause { **auto-defend** | **bpdu-protection** | **efm-remote-failure** | **efm-threshold-event** | **error-statistics** | **link-flap** | **mac-address-flapping** | **remote-unit-link** | **remote-unit-misconfig** | **port-security** | **transceiver-power-low** | **storm-control** | **data-integrity-error** }

Parameters

Parameter	Description	Value
cause	Indicates the cause for an interface in Error-Down state.	-
as-not-ready	Indicates that the AS where the interface resides is not in service.	-
auto-defend	Indicates that the auto-defend function is enabled.	-
bpdu-protection	Indicates that STP BPDU protection is enabled.	-
efm-remote-failure	Indicates that an EFM remote failure event occurs.	-
efm-threshold-event	Indicates that a threshold crossing event occurs.	-
error-statistics	Indicates that the number of error packets exceeds the alarm threshold.	-
link-flap	Indicates that link flapping occurs.	-
storm-control	Indicates that storm control is enabled.	-

Parameter	Description	Value
port-security	Indicates that the number of learned secure MAC addresses exceeds the upper limit or static MAC address flapping is detected.	-
remote-unit-link	Indicates that the link between the RU and central switch is not operational.	-
remote-unit-misconfig	Indicates that the configurations of the RU and central switch are incorrect.	-
mac-address-flapping	Indicates that MAC address flapping occurs.	-
transceiver-power-low	Indicates that the optical power is too low.	-
data-integrity-error	Indicates that the chip memory identifier has a data integrity error. **NOTE** Only the S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S support this parameter.	-
interval *interval-value*	Specifies the auto recovery delay.	The value is an integer that ranges from 30 to 86400, in seconds. ● A smaller value indicates a higher frequency at which an interface alternates between Up and Down states. ● A larger value indicates longer traffic interruption.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

By default, an interface can only be resumed by a network administrator after being shut down. To configure the interface to restore to the Up state automatically, run the **error-down auto-recovery** command to set an auto recovery delay. After the delay, the interface goes Up automatically. Alternatively, you can run the **shutdown** and **undo shutdown** commands on the interface in the Error-Down state to restore it to the Up state.

The restored interface is shut down again if the interface receives BPDUs again or the link is considered unavailable in a specified time.

An interface enters the Error-Down state in the following scenarios.

Cause for an Interface in Error-Down State	Scenario	Remarks
as-not-ready	When the device negotiates to the AS mode, its port status becomes Down and then becomes Up after services in the service profiles have been delivered.	-
auto-defend	After the **auto-defend action** command is used to configure actions against attack sources, the interface that receives attack packets is shut down to prevent the device from attacks.	-
bpdu-protection	On an STP-enabled network where BPDU protection is configured on an edge port, if malicious attackers send bogus BPDUs to attack the switching device, the switching device sets the edge port to Down immediately after the edge port receives BPDUs. As a result, all services on the edge port are interrupted.	For details, see **stp bpdu-protection**.

Cause for an Interface in Error-Down State	Scenario	Remarks
efm-remote-failure	The **efm trigger error-down** command associates an error event with an interface. When EFM detects **critical-event**, **dying-gasp**, **link-fault**, or **timeout** faults, the protocol status of the interface becomes Down and all services on the interface are interrupted.	-
efm-threshold-event	When link monitoring is configured for an interface on a link, the link is considered unavailable, if the number of errored frames, errored codes, or errored frame seconds detected by the interface reaches or exceeds the threshold within a period. You can associate an EFM crossing event with an interface. Then the system sets the administrative status of the interface to Down. In this manner, all services on the interface are interrupted.	-
error-statistics	When an Ethernet interface configured with a backup link receives error packets, faults such as packet loss occur. To ensure nonstop service transmission, when the number of received error packets reaches the alarm threshold, the interface is shut down and services are switched to the backup link.	For details, see **trap-threshold error-statistics** and **error-statistics threshold-event trigger error-down**.

Cause for an Interface in Error-Down State	Scenario	Remarks
link-flap	Network cable faults or active/standby switchovers may cause an interface to alternate between Up and Down. You can configure link flapping protection. When the device receives an interface Up/Down message, it checks the interface flapping count and link flapping detection interval. If the interface flapping count reaches the limit within the specified period, the device shuts down interface.	For details, see **port link-flap protection enable**.
storm-control	After the storm control action is configured as error-down on an interface, the interface is shut down when the average rate of receiving broadcast, multicast, and unknown unicast packets is larger than the specified limit within the interval for detecting storms.	For details, see **storm-control action**.
port-security	After port security is enabled on an interface, MAC addresses learned by the interface change to secure dynamic MAC addresses. If the **port-security protect-action** command sets the security protection action to **shutdown**, the interface is shut down when the number of learned MAC addresses on the interface exceeds the upper limit or static MAC address flapping is detected.	For details, see **port-security protect-action** and **port-security enable**.

Cause for an Interface in Error-Down State	Scenario	Remarks
remote-unit-link	The following link faults may occur when an RU is connected to the central switch: ● A unidirectional fault occurs on the link connecting the central switch to the RU. In this case, the interface on the central switch goes Error-Down. This fault occurs if one of the following conditions is met: – The central switch does not receive heartbeat packets from the RU for three consecutive periods (30s in total). – The heartbeat packets sent by the RU do not carry central switch information in three consecutive periods (30s in total). ● When the central switch is connected to the RU through two links and the interface of one link goes Error-Down due to a unidirectional link fault, the interface of the other link does not enter the Error-Down state even if this link fails.	-

Cause for an Interface in Error-Down State	Scenario	Remarks
remote-unit-misconfig	An interface connecting the central switch to an RU goes Error-Down if one of the following configuration errors occurs: ● The two downlink interfaces on the central switch connected to the same RU are not added to an Eth-Trunk. In this case, the interface connected later goes Error-Down. ● The two downlink interfaces on the central switch connected to the same RU are added to two Eth-Trunks respectively. In this case, the interface connected later goes Error-Down. ● Two central switches are connected to the same RU, and the two central switches do not set up a stack. In this case, the interface with a larger system MAC address on the central switches goes Error-Down.	If member interfaces of an Eth-Trunk on a central switch connect to two or more RUs, the interfaces will not enter the Error-Down state if configurations are incorrect and the alarm hwRuMngPortRuFull is generated.

Cause for an Interface in Error-Down State	Scenario	Remarks
mac-address-flapping	If the user network where the device is deployed does not support loop prevention protocols, configure a loop prevention action for the device to perform when the device detects MAC address flapping. The device shuts down an interface when detecting MAC address flapping on the interface.	For details, see **mac-address flapping detection** and **mac-address flapping action**.
transceiver-power-low	When the optical power of an Ethernet optical interface configured with a backup link is reduced, faults such as packet loss occur. When the optical power is lower than the lower alarm threshold, the interface is triggered to be in Error-Down state and services are switched immediately.	For details, see **transceiver power low trigger error-down**.
data-integrity-error	After the switch runs for a long time, the chip memory identifier has a data integrity error.	-

Precautions

- The **error-down auto-recovery** command is invalid for the interface that has been in Error-Down state. It takes effect for only the interface that enters the Error-Down state after the **error-down auto-recovery** command is executed.
- BPDU protection has been enabled using the **stp bpdu-protection** command in the system view.
- A threshold crossing event has been associated with an interface using the **efm threshold-event trigger error-down** command in the interface view.
- An error event has been associated with an interface using the **efm trigger error-down** command in the interface view.

Example

Set the delay for an interface changes from Down to Up to 50s after the edge port is enabled with BPDU protection on an STP-enabled network.


```
<HUAWEI> system-view
[HUAWEI] error-down auto-recovery cause bpdu-protection interval 50
```

Set the auto recovery delay to 50s after an EFM threshold crossing event is associated with an interface.

```
<HUAWEI> system-view
[HUAWEI] error-down auto-recovery cause efm-threshold-event interval 50
```

Set the auto recovery delay to 50s after an EFM remote failure event is associated with an interface.

```
<HUAWEI> system-view
[HUAWEI] error-down auto-recovery cause efm-remote-failure interval 50
```

4.2.31 error-down-threshold error-percentage

Function

The **error-down-threshold error-percentage** command configures the alarm threshold for received CRC packets causing an interface status to change to Error-Down against all the received packets on the interface and alarm interval.

The **undo error-down-threshold error-percentage** command deletes the configured alarm threshold and interval.

By default, the alarm threshold and interval are not configured.

Format

error-down-threshold error-percentage *threshold-value* **interval** *interval-value*

undo error-down-threshold error-percentage [*threshold-value* **interval** *interval-value*]

Parameters

Parameter	Description	Value
threshold-value	Specifies the alarm threshold for the percentage of received CRC packets causing an interface status change to Error-Down against all the received packets on the interface.	The value is an integer that ranges from 1 to 50. **NOTE** You are advised to set the threshold to be greater than or equal to the alarm threshold configured in the **trap-threshold error-percentage** command.
interval *interval-value*	Specifies the interval for calculating the percentage of received CRC packets causing an interface status to change to Error-Down against all the received packets on the interface.	The value is an integer that ranges from 10 to 65535, in seconds.

Views

Ethernet interface view, GE interface view, XGE interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

When the **error-statistics threshold-event trigger error-down** command is run and the number of error packets that the interface receives within a specified period exceeds the threshold, the interface status is triggered to change to Error-Down. By default, if an interface receives three CRC packets within 10 seconds, the interface status is triggered to change to Error-Down. When you want to use the percentage of received CRC packets against all the received packets as the threshold for triggering an interface status to change to Error-Down, run the **error-down-threshold error-percentage** command.

Precautions

- This command is mutually exclusive to the **error-down-threshold error-statistics** command. After this command is configured, the **error-down-threshold error-statistics** command configuration does not take effect.
- This command cannot be configured on stack interfaces.

Example

Set the alarm threshold for the percentage of received CRC packets causing the interface status to change to Error-Down against all the received packets to 10% and the interval for calculating the percentage of received CRC packets against all the received packets to 30 seconds on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface GigabitEthernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] error-down-threshold error-percentage 10 interval 30
```

4.2.32 error-down-threshold error-statistics

Function

The **error-down-threshold error-statistics** command configures the alarm threshold for CRC error packets causing an interface status to change to Error-Down and interval for receiving CRC error packets.

The **undo error-down-threshold error-statistics** command restores the default value of the alarm threshold and the alarm interval for CRC error packets that cause the interface status to change to Error-Down.

By default, the alarm threshold for CRC error packets is 3 and the alarm interval is 10 seconds.

Format

error-down-threshold error-statistics *threshold-value* **interval** *interval-value*

undo error-down-threshold error-statistics

Parameters

Parameter	Description	Value
threshold-value	Specifies the alarm threshold for error packets that cause the interface status to change to Error-Down.	The value is an integer that ranges from 1 to 65535. **NOTE** The threshold is greater than or equal to the alarm threshold for error packets configured by the **trap-threshold error-statistics** command.
interval *interval-value*	Specifies the alarm interval for error packets that cause the interface status to change to Error-Down.	The value is an integer that ranges from 10 to 65535, in seconds.

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

After an interface is configured to transit to the Error-Down state when the number of received CRC error packets exceeds the threshold using the **error-statistics threshold-event trigger error-down** command, the interface transits to the Error-Down state when the number of received error packets exceeds the threshold within the specified interval. By default, an interface transits to the Error-Down state when the number of received error packets exceeds 3 within 10 seconds. Run the **error-down-threshold error-statistics** command to configure the interval and the threshold for received error packets.

Precautions

This command is not supported on the stack interface.

On a switch running a version earlier than V200R009C00, if the alarm threshold has been set to *n* and alarm interval to *m* seconds using the **trap-threshold error-statistics** *threshold-value* **interval** *interval-value* command, the **error-down-threshold error-statistics** *n* **interval** *m* configuration is automatically generated after the system software version is upgraded to V200R009C00 or a later version.

On a switch running a version earlier than V200R009C00, if the **error-down-threshold error-statistics** configuration exists on the switch, the configuration remains unchanged after the system software version is upgraded to V200R009C00 or a later version.

Example

By default, the alarm threshold of CRC error packets that cause the interface status to change to Error-Down is 10 and the alarm interval is 30 seconds.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] error-down-threshold error-statistics 10 interval 30
```

4.2.33 error-statistics threshold-event trigger error-down

Function

The **error-statistics threshold-event trigger error-down** command configures an interface to transit to the error-down state when the number of error packets received on the interface reaches the threshold.

The **undo error-statistics threshold-event trigger error-down** command restores the default setting.

By default, an interface does not transit to the error-down state when the number of error packets received on the interface reaches the threshold.

Format

error-statistics threshold-event trigger error-down

undo error-statistics threshold-event trigger error-down

Parameters

None

Views

Ethernet interface view, GE interface view, XGE interface view, 25GE interface view, MultiGE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

When an Ethernet interface receives excessive error packets, faults such as packet loss will occur. Because the interface is still in Up state, traffic is still transmitted on the interface even if a backup link is configured. To avoid impact on services, you can configure the interface to change to the Error-down state when it receives excessive error packets. When the number of received error packets on the interface exceeds the threshold, the system disables the interface and records the interface status as **ERROR DOWN(error-statistics)** state (indicating that the interface is Down because of excessive error packets). Services are then switched to the backup link immediately.

Follow-up Procedure

An interface in Error-down state can be recovered using either of the following methods:

- Manual recovery: If a few interfaces need to be recovered forcibly, run the **shutdown** and **undo shutdown** commands in the interface view. Alternatively, run the **restart** command in the interface view to restart the interfaces.
- Automatic recovery: If a large number of interfaces need to be recovered, manual recovery is time consuming and some interfaces may be omitted. You can run the **error-down auto-recovery cause error-statistics interval** *interval-value* command in the system view to enable automatic interface recovery and set the recovery delay time. An interface in Error-down state automatically recovers when the specified delay time expires.

Example

Configure GE0/0/1 to transit to the error-down state when the number of error packets received on the interface reaches the threshold.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] error-statistics threshold-event trigger error-down
```

4.2.34 error-statistics trigger speed-down-grade

Function

The **error-statistics trigger speed-down-grade** command configures the blacklist of terminal MAC addresses that can be identified in automatic rate reduction on interfaces.

The **undo error-statistics trigger speed-down-grade** command deletes the blacklist of terminal MAC addresses that can be identified in automatic rate reduction on interfaces.

By default, the device can identify only MAC addresses starting with 001B-82.

NOTE

This command is supported only on the following switch models: S5731-S, S5731S-S, S5731-H, S5731S-H.

Format

error-statistics trigger speed-down-grade mac-address *mac-address* **mask** *mask* [**description** *description*]

undo error-statistics trigger speed-down-grade mac-address { *mac-address* | **all** }

Parameters

Parameter	Description	Value
mac-address *mac-address*	Specifies the terminal MAC address that can be identified.	The value is in the format of H-H-H, in which H is a hexadecimal number of 1 to 4 digits. The value cannot be FFFF-FFFF-FFFF, 0000-0000-0000, or a multicast MAC address.
mask *mask*	Specifies the mask of a terminal MAC address.	The value is in the format of H-H-H, in which H is a hexadecimal number of 1 to 4 digits.
description *description*	Specifies the description of a terminal MAC address.	The value is a string of 1 to 80 characters. The character string is case sensitive and can contain blanks.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

When a GE electrical interface on a device is connected to a specific printer and the interface rate is higher than 10 Mbit/s, the interface can go Up, but the printer cannot work properly. Alignment error packets will be detected on the interface. In this case, you can run the **set error-statistics trigger speed-down-grade** command to enable the device to automatically reduce the interface rate when the number of error packets on the interface reaches the threshold. The device then automatically sets the interface rate to 10 Mbit/s, reports an alarm (hwPortErrPktSpeedDownGrade), and records a log (IFPDT/1/ERRPKT_SPEEDDOWN) when the following conditions are met:

- The interface receives three alignment error packets within 60 seconds.
- The interface is in the auto-negotiation state and works at the rate of 100 Mbit/s.

- Only one MAC address is learned on the interface, and the MAC address starts with 001B-82 or is in the MAC address blacklist configured using this command.

Precautions

This command supports a maximum of 32 terminal MAC address blacklists, excluding the default MAC address blacklist in which MAC addresses start with 001B-82.

Example

Configure the MAC address 1-1-1 in the blacklist of the terminal MAC address that can be identified in automatic rate reduction on interfaces.

```
<HUAWEI> system-view
[HUAWEI] error-statistics trigger speed-down-grade mac-address 1-1-1 mask ffff-0-0 description printer
```

4.2.35 fast-link-down disable

Function

The **fast-link-down disable** command enables an interface to go Down after a delay.

The **undo fast-link-down disable** command disables an interface from going Down after a delay.

By default, an interface is disabled from going Down after a delay.

NOTE

Only the GE electrical interfaces of the following models support this command:

S1720GW-E, S1720GWR-E, S5720-LI, S5720S-LI, S5720I-SI, S5735S-H, S5736-S, S2730S-S, S5735-L-I, S5735-L1, S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S500, S6720S-S, S5735-S, S5735-S-I, S5735S-S

Format

fast-link-down disable

undo fast-link-down disable

Parameters

None

Views

GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

After an interface is enabled to go Down after a delay, the device detects the interface Down event after a delay of hundreds of milliseconds. When the interface alternates between Up and Down states, the interface does not go Down immediately, enhancing the anti-interference capability of the device.

Precautions

- If the **energy-efficient-ethernet enable** command has been executed to enable the EEE function on an electrical interface, the interface cannot be enabled to go Down after a delay. If the **fast-link-down disable** command has been executed to enable the interface to go Down after a delay, you can still run the **energy-efficient-ethernet enable** command to enable the EEE function on the interface.
- If the loopback detection mode has been configured on an interface using the **loopback** command, the interface cannot be enabled to go Down after a delay. If the **fast-link-down disable** command has been executed to enable the interface to go Down after a delay, you can still run the **loopback** command to configure the loopback detection mode for the interface.

Example

Enable an interface to go Down after a delay.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] fast-link-down disable
```

4.2.36 fec mode base-r

Function

The **fec mode base-r** command enables the Base-R FEC function on an interface.

The **fec mode none** command disables the Base-R FEC function on an interface.

The **undo fec mode** command restores the default Base-R FEC configuration on an interface.

By default, the medium on a 25GE interface determines whether the Base-R FEC function is enabled on the interface. For details, see **Table 4-30**.

NOTE

This command is supported on the following: S5732-H24UM2CC, S5732-H48UM2CC, S5732-H48XUM2CC, S6730-H28Y4C, S6730-H24X4Y4C and S7Y08000 cards.

This command is supported when the interface working mode on the S7X08000 or S7X0800K0 card is set to 25GE using the **set card port-config-mode 25g-port enable** command.

Format

fec mode { **base-r** | **none** }

undo fec mode [**base-r** | **none**]

Parameters

Parameter	Description	Value
base-r	Enables the Base-R FEC function.	-
none	Disables the Base-R FEC function.	-

Views

25GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Base-R FEC is a bit error correction technology that adds correction information to data packets at the transmit end, and corrects bit errors generated during data packet transmission at the receive end based on the correction information. You can enable the Base-R FEC function to improve the signal quality.

You can run the **display interface** command in any view or run the **display this interface** command in the interface view to check whether the FEC function is enabled on an interface based on the **Fec** field in the command output.

Prerequisites

You can run this command on an interface only when the following conditions are met:

- Auto-negotiation is disabled on the interface.
- The interface is not a stack member interface.

Precautions

- For the device running a version earlier than V200R019C10, the Base-R FEC function is enabled by default on interfaces and cannot be disabled. If you need to disable the function, upgrade the device to V200R019C10 or a later version.
- In V200R019C10 and later versions: Ensure that the FEC status on both ends of a link is the same. If the Base-R FEC function is enabled on one end, this function also needs to be enabled on the other end to ensure that the Base-R FEC status on both ends of the link is the same.
- The FEC function is mutually exclusive with auto-negotiation and the **port mode ge** command. If FEC has been configured, the FEC configuration will be automatically deleted when auto-negotiation is enabled or the **port mode ge** command is run.
- When an XGE optical module or XGE high-speed cable is installed on a 25GE interface, the interface does not support the Base-R FEC function.

- When a 40GE optical module or 40GE high-speed cable is installed on a 100GE interface, the interface does not support the Base-R FEC function.
- When 25GE interfaces are interconnected, you are advised to enable FEC on both ends of the link to reduce the transmission bit error rate of the physical link. Otherwise, error packets may be generated.

Example

Enable the Base-R FEC function on an interface.

```
<HUAWEI> system-view
[HUAWEI] interface 25ge 0/0/1
[HUAWEI-25GE0/0/1] fec mode base-r
```

4.2.37 fec mode rs

Function

The **fec mode rs** command enables the Reed-Solomon Forward Error Correction (RS-FEC) function on an interface.

The **fec mode none** command disables the RS-FEC function on an interface.

The **undo fec mode** command restores the default RS-FEC configuration on an interface.

By default, the medium on an optical interface determines whether the RS-FEC function is enabled on the interface. For details, see **Table 4-30** and **Table 4-31**.

Table 4-30 FEC function of 25GE interfaces

Interface Type	FEC Requirement	Default Setting
SFP-25G-AOC (5e-5)	RS-FEC	Enabled
SFP-25G-SR	RS-FEC	Enabled
SFP-25G-ACC (5e-5)	RS-FEC	Enabled
25G BASE-CR CA-L	RS-FEC	Auto-negotiation is enabled: 1. Whether to enable FEC through negotiation 2. Whether to enable RS-FEC or Base-R FEC through negotiation
25G BASE-CR CA-S	Base-R FEC	
25G BASE-CR CA-N	None	
SFP-25G-AOC (10e-12)	RS-FEC/Base-R FEC/None	Enabled
SFP-25G-ACC (10e-12)	RS-FEC/Base-R FEC/None	Enabled
10G/25G_BR_SFP28	RS-FEC	Enabled (cannot be modified)

Interface Type	FEC Requirement	Default Setting
25GBASE_ER_SFP28	RS-FEC	Enabled (cannot be modified)

Table 4-31 FEC function of 100GE interfaces

Interface Type	FEC Requirement	Default Setting
QSFP-100G-AOC (5e-5)	RS-FEC	RS-FEC
QSFP-100G-SR4	RS-FEC	RS-FEC
QSFP-100G-LR4	None	None
100GBASE_LR1_QSFP28	None	None
100G Base-ER4	None	None
100G Base-SR10	None	None
QSFP-100G-CWDM4 with FEC	RS-FEC	RS-FEC
QSFP-100G-CWDM4-Lite	RS-FEC	RS-FEC
QSFP-100G-PSM4	RS-FEC	RS-FEC
QSFP-100G-ACC (5e-5)	RS-FEC	RS-FEC
100G Base-CR4	RS-FEC	RS-FEC
QSFP-100G-CLR4	RS-FEC/None	RS-FEC
QSFP-100G-AOC (10e-12)	RS-FEC/None	RS-FEC
QSFP-100G-ACC (10e-12)	RS-FEC/None	RS-FEC
100GBASE_SDLC_QSFP28	None	None

Format

fec mode { **rs** | **none** }

undo fec mode [**rs** | **none**]

Parameters

Parameter	Description	Value
rs	Enables the RS-FEC function.	-

Parameter	Description	Value
none	Disables the RS-FEC function.	-

Views

25GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

RS-FEC is a bit error correction technology that adds correction information to data packets at the transmit end, and corrects bit errors generated during data packet transmission at the receive end based on the correction information. RS-FEC improves the signal quality, but increases the signal transmission delay. You can disable this function based on requirements to reduce the signal transmission delay.

You can run the **display interface** command in any view or run the **display this interface** command in the interface view to check whether the FEC function is enabled on an interface based on the **FEC** field in the command output.

Precautions

- For the device running a version earlier than V200R019C00, the RS-FEC function is enabled by default on interfaces and cannot be disabled. If you need to disable the function, upgrade the device to V200R019C00 or a later version.
- In V200R019C00 and later versions, if the RS-FEC function is enabled on one end, this function also needs to be enabled on the other end to ensure that the RS-FEC status on both ends of the link is the same.
- When an XGE optical module or XGE high-speed cable is installed on a 25GE interface, the interface does not support the RS-FEC function.
- When a 40GE optical module or 40GE high-speed cable is installed on a 100GE interface, the interface does not support the RS-FEC function.
- The FEC function is mutually exclusive with auto-negotiation and the **port mode ge** command. If FEC has been configured, the FEC configuration will be automatically deleted when auto-negotiation is enabled or the **port mode ge** command is run.
- When 25GE interfaces are interconnected, you are advised to enable FEC on both ends of the link to reduce the transmission bit error rate of the physical link. Otherwise, error packets may be generated.

Example

Disable the FEC function on 100GE0/0/1.


```
<HUAWEI> system-view
[HUAWEI] interface 100ge 0/0/1
[HUAWEI-100GE0/0/1] fec mode none
```

4.2.38 flow-control (interface view)

Function

The **flow-control** command enables flow control on an Ethernet interface.

The **undo flow-control** command disables flow control on an Ethernet interface.

By default, flow control is disabled on an Ethernet interface.

NOTE

The following interfaces do not support this command:

- S5732-H24UM2CC (part number: 02353HUC/02353HUC-003/02353SJY/02353SJY-001/02353SJY-004/02353SJY-010/02353SJY-011/02353SJY-014/02353SJY-015/02353SJY-016/02353SJY-019/02353SJY-002/02353SJY-003/02353SJY-012/02353SJY-013/02353SJY-017/02353SJY-018), S5732-H48UM2CC (part number: 02353HUB/02353HUB-002/02353SJT/02353SJT-001/02353SJT-003/02353SJT-004/02353SJT-010/02353SJT-011/02353SJT-013/02353SJT-014/02353SJT-015/02353SJT-016/02353SJT-018/02353SJT-002), and S5732-H48XUM2CC
  - 25G, 40G, and 100G interfaces of the device.
  - Four SFP28 Ethernet optical interfaces (25GE by default) and two QSFP28 Ethernet optical interfaces (40GE by default) have been configured using the **set device port-config-mode enable** command.
  - 8*10GE ports and 2*25GE ports when the S7X08000 card is installed.
  - 8*25GE ports when the S7Y08000 card is installed.
- GE interfaces of the S5735S-H24S4XC-A
- GE interfaces of the S5736-S24S4XC and S5736-S48S4XC
- When the RTU license is not loaded on the S6730-H24X4Y4C, the first eight XGE interfaces numbered 0/0/1 to 0/0/8 do not support flow control. In V200R021C00 and later versions, the RTU license can be loaded. After the license is loaded, the interface rate is increased from 10 Gbit/s to 25 Gbit/s, and the first eight 25GE interfaces numbered 0/1/1 to 0/1/8 do not support flow control.
- First eight 25GE interfaces of the S6730-H28Y4C
- XGE interfaces that have copper modules installed on the S6735-S

Format

flow-control

undo flow-control

Parameters

None

Views

Ethernet interface view, GE interface view, XGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Flow control prevents packet loss caused by network congestion. If network congestion occurs on the local device after flow control is configured, the local device sends a message to the remote device, requesting the remote device to temporarily stop sending packets. After receiving the message, the remote device temporarily stops sending packets to the local device regardless of the interface working rate. In this case, the device can receive and send pause frames.

Precautions

- If flow control is enabled on an interface, it must also be enabled on the peer interface.
- Flow control and flow control auto-negotiation can be configured on Ethernet interfaces, but they cannot be configured concurrently.
- When an interface works in half-duplex mode, flow control does not take effect on the interface.
- In a scenario where Layer 3 services are deployed, enabling flow control may affect the IP traffic forwarding on the interface. As a result, the interface becomes unavailable. You can run the **undo flow-control** command in the interface view to disable flow control to recover the interface.
- If the flow control configuration is implemented on the S5735S-H and S5736-S using the **flow-control** command, the rate limit for outbound traffic of the GE electrical interface is 200 Mbit/s, and a congestion occurs, the inbound traffic rate cannot be reduced to be the same as the outbound traffic rate on the GE electrical interface. (The inbound traffic rate is about 200 Mbit/s.)
- For the S2730S-S, S5735-L1, S5735-L-I, S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, S5735-S-I, and S5735S-S, the multicast functions (both Layer 2 and Layer 3 multicast functions) conflict with the flow control function.

Example

Enable flow control on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] flow-control
```

4.2.39 flow-control negotiation

Function

The **flow-control negotiation** command enables flow control auto-negotiation on an Ethernet interface.

The **undo flow-control negotiation** command disables flow control auto-negotiation on an Ethernet interface.

By default, flow control auto-negotiation is disabled on an Ethernet interface.

NOTE

The following interfaces do not support this command:

- S5732-H24UM2CC (part number: 02353HUC/02353HUC-003/02353SJY/02353SJY-001/02353SJY-004/02353SJY-010/02353SJY-011/02353SJY-014/02353SJY-015/02353SJY-016/02353SJY-019/02353SJY-002/02353SJY-003/02353SJY-012/02353SJY-013/02353SJY-017/02353SJY-018), S5732-H48UM2CC (part number: 02353HUB/02353HUB-002/02353SJT/02353SJT-001/02353SJT-003/02353SJT-004/02353SJT-010/02353SJT-011/02353SJT-013/02353SJT-014/02353SJT-015/02353SJT-016/02353SJT-018/02353SJT-002), and S5732-H48XUM2CC
  - 25G, 40G, and 100G interfaces of the device.
  - Four SFP28 Ethernet optical interfaces (25GE by default) and two QSFP28 Ethernet optical interfaces (40GE by default) have been configured using the **set device port-config-mode enable** command.
  - 8*10GE ports and 2*25GE ports when the S7X08000 card is installed.
  - 8*25GE ports when the S7Y08000 card is installed.
- GE interfaces of the S5735S-H24S4XC-A
- GE interfaces of the S5736-S24S4XC and S5736-S48S4XC
- When the RTU license is not loaded on the S6730-H24X4Y4C, the first eight XGE interfaces numbered 0/0/1 to 0/0/8 do not support flow control. In V200R021C00 and later versions, the RTU license can be loaded. After the license is loaded, the interface rate is increased from 10 Gbit/s to 25 Gbit/s, and the first eight 25GE interfaces numbered 0/1/1 to 0/1/8 do not support flow control.
- First eight 25GE interfaces of the S6730-H28Y4C
- XGE interfaces that have copper modules installed on the S6735-S

Format

flow-control negotiation

undo flow-control negotiation

Parameters

None

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Network congestion causes packet loss. Flow control can prevent packet loss. If congestion occurs on a device, the device sends a message to request the peer

device to stop sending packets, which prevents packet loss. Flow control auto-negotiation enables a device to determine whether to enable flow control by negotiating with the peer device.

Prerequisites

Run the **negotiation auto** command to configure the Ethernet interface to work in auto negotiation mode.

Precautions

- Electrical interfaces support flow control auto-negotiation.
- If flow control auto-negotiation is enabled on an interface, it must also be enabled on the peer interface.
- If flow control has been enabled on an Ethernet interface using the **flow-control** command, run the **undo flow-control** command to disable flow control before running the **flow-control negotiation** command. Otherwise, the **flow-control negotiation** command fails to be executed.
- This command can be used on an XGE optical interface that has a GE copper module installed.
- This command can be used on a GE optical interface that has a GE optical module or GE copper module installed.
- This command can be used on an 25GE optical interface that has a GE copper module installed. Before installing a GE copper module on a 25GE optical interface, you need to run the **port mode ge** command to configure the interface to work at the rate of 1 Gbit/s.

NOTE

On the S5720-52P-LI-AC, if interfaces 0 to 23 work as inbound interfaces (or outbound interfaces) and interfaces 24 to 47 work as outbound interfaces (or inbound interfaces), flow control auto-negotiation does not take effect on these interfaces.

Multicast functions (Layer 2 and Layer 3 multicast) and the flow control function (configured using the **flow-control** command) are mutually exclusive on the following models: S2730S-S, S5735-L-I, S5735-L1, S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S500, S5735-S, S5735S-S, S5735-S-I

Example

Enable flow control auto-negotiation on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] negotiation auto
[HUAWEI-GigabitEthernet0/0/1] flow-control negotiation
```

4.2.40 flow-control negotiation receive

Function

The **flow-control negotiation receive** command enables received flow control auto-negotiation on an Ethernet interface.

The **undo flow-control negotiation receive** command disables received flow control auto-negotiation on an Ethernet interface.

By default, received flow control auto-negotiation is disabled on an Ethernet interface.

NOTE

The following interfaces do not support this command:

- S5732-H24UM2CC (part number: 02353HUC/02353HUC-003/02353SJY/02353SJY-001/02353SJY-004/02353SJY-010/02353SJY-011/02353SJY-014/02353SJY-015/02353SJY-016/02353SJY-019/02353SJY-002/02353SJY-003/02353SJY-012/02353SJY-013/02353SJY-017/02353SJY-018), S5732-H48UM2CC (part number: 02353HUB/02353HUB-002/02353SJT/02353SJT-001/02353SJT-003/02353SJT-004/02353SJT-010/02353SJT-011/02353SJT-013/02353SJT-014/02353SJT-015/02353SJT-016/02353SJT-018/02353SJT-002), and S5732-H48XUM2CC
  - 25G, 40G, and 100G interfaces of the device.
  - Four SFP28 Ethernet optical interfaces (25GE by default) and two QSFP28 Ethernet optical interfaces (40GE by default) have been configured using the **set device port-config-mode enable** command.
  - 8*10GE ports and 2*25GE ports when the S7X08000 card is installed.
  - 8*25GE ports when the S7Y08000 card is installed.
- GE interfaces of the S5735S-H24S4XC-A
- GE interfaces of the S5736-S24S4XC and S5736-S48S4XC
- When the RTU license is not loaded on the S6730-H24X4Y4C, the first eight XGE interfaces numbered 0/0/1 to 0/0/8 do not support flow control. In V200R021C00 and later versions, the RTU license can be loaded. After the license is loaded, the interface rate is increased from 10 Gbit/s to 25 Gbit/s, and the first eight 25GE interfaces numbered 0/1/1 to 0/1/8 do not support flow control.
- First eight 25GE interfaces of the S6730-H28Y4C
- XGE interfaces that have copper modules installed on the S6735-S
- Ethernet optical interfaces on the S5720I-SI, S5720-LI (last four optical interfaces on the S5720-52X-LI-48S-AC), and S5720S-LI

Format

flow-control negotiation receive

undo flow-control negotiation receive

Parameters

None

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Flow control prevents packet loss caused by network congestion. Received flow control auto-negotiation enables a device to determine whether to enable received flow control by negotiating with the peer device. On a unidirectional communication network, you can run the **flow-control negotiation receive** command on the Ethernet interface functioning as the outbound interface at the transmit side to enable received flow control auto-negotiation, and run the **flow-control negotiation** command on the inbound interface at the receive side to enable flow control auto-negotiation. After received flow control auto-negotiation is enabled on the Ethernet interface, if congestion occurs on a device, the device sends a message to request the peer device to stop sending packets, which prevents packet loss.

Prerequisites

The Ethernet interface has been configured to work in auto-negotiation mode using the **negotiation auto** command.

Precautions

- Electrical interfaces support this configuration.
- Received flow control auto-negotiation can be implemented only if flow control auto-negotiation is enabled on the interface of the peer device.
- Flow control, received flow control, flow control auto-negotiation, and received flow control auto-negotiation can be configured on Ethernet interfaces, but cannot be configured together. For example, if received flow control auto-negotiation has been enabled on an Ethernet interface using the **flow-control receive** command, you need to run the **undo flow-control receive** command to disable received flow control and then run the **flow-control negotiation receive** command. Otherwise, the **flow-control negotiation receive** command fails to be executed.
- XGE optical interfaces support this command after GE copper modules are installed on them.
- GE optical interfaces support this command after GE optical or GE copper modules are installed on them.
- This command can be used on an 25GE optical interface that has a GE copper module installed. Before installing a GE copper module on a 25GE optical interface, you need to run the **port mode ge** command to configure the interface to work at the rate of 1 Gbit/s.

NOTE

For the S5720-52P-LI-AC, if received flow control auto-negotiation is configured on the interfaces 0 to 23 that work as inbound interfaces and flow control auto-negotiation is configured on the interfaces 24 to 47 that work as outbound interfaces, received flow control auto-negotiation and flow control auto-negotiation do not take effect.

Multicast functions (Layer 2 and Layer 3 multicast) and the flow control function (configured using the **flow-control** command) are mutually exclusive on the following models: S2730S-S, S5735-L-I, S5735-L1, S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S500, S5735-S, S5735S-S, S5735-S-I

Example

Enable received flow control auto-negotiation on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
```



```
[HUAWEI-GigabitEthernet0/0/1] negotiation auto
[HUAWEI-GigabitEthernet0/0/1] flow-control negotiation receive
```

4.2.41 flow-control receive

Function

The **flow-control receive** command enables received flow control on an Ethernet interface.

The **undo flow-control receive** command disables received flow control on an Ethernet interface.

By default, received flow control is disabled on an Ethernet interface.

NOTE

The following interfaces do not support this command:

- S5732-H24UM2CC (part number: 02353HUC/02353HUC-003/02353SJY/02353SJY-001/02353SJY-004/02353SJY-010/02353SJY-011/02353SJY-014/02353SJY-015/02353SJY-016/02353SJY-019/02353SJY-002/02353SJY-003/02353SJY-012/02353SJY-013/02353SJY-017/02353SJY-018), S5732-H48UM2CC (part number: 02353HUB/02353HUB-002/02353SJT/02353SJT-001/02353SJT-003/02353SJT-004/02353SJT-010/02353SJT-011/02353SJT-013/02353SJT-014/02353SJT-015/02353SJT-016/02353SJT-018/02353SJT-002), and S5732-H48XUM2CC
  - 25G, 40G, and 100G interfaces of the device.
  - Four SFP28 Ethernet optical interfaces (25GE by default) and two QSFP28 Ethernet optical interfaces (40GE by default) have been configured using the **set device port-config-mode enable** command.
  - 8*10GE ports and 2*25GE ports when the S7X08000 card is installed.
  - 8*25GE ports when the S7Y08000 card is installed.
- GE interfaces of the S5735S-H24S4XC-A
- GE interfaces of the S5736-S24S4XC and S5736-S48S4XC
- When the RTU license is not loaded on the S6730-H24X4Y4C, the first eight XGE interfaces numbered 0/0/1 to 0/0/8 do not support flow control. In V200R021C00 and later versions, the RTU license can be loaded. After the license is loaded, the interface rate is increased from 10 Gbit/s to 25 Gbit/s, and the first eight 25GE interfaces numbered 0/1/1 to 0/1/8 do not support flow control.
- First eight 25GE interfaces of the S6730-H28Y4C
- XGE interfaces that have copper modules installed on the S6735-S

Format

flow-control receive

undo flow-control receive

Parameters

None

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Flow control prevents packet loss caused by network congestion. On a unidirectional communication network, after received flow control is enabled on the Ethernet interface at the transmit side using the **flow-control receive** command and flow control is enabled on the Ethernet interface at the receive side using the **flow-control** command, if congestion occurs on the device at the receive side, the device sends a message to the device at the transmit side to notify it to stop sending packets. After receiving the message, the device at the transmit side temporarily stops sending packets to the device at the receive side regardless of the interface working rate, preventing congestion. In this case, the device at the transmit side can receive pause frames, but cannot send pause frames; the device at the receive side can receive and send pause frames.

Precautions

- Flow control can be implemented only after flow control is enabled on the peer device.
- Flow control, received flow control, flow control auto-negotiation, and received flow control auto-negotiation can be configured on Ethernet interfaces, but cannot be configured together.
- When an interface works in half-duplex mode, received flow control does not take effect.
- In a scenario where Layer 3 services are deployed, enabling received flow control may affect the IP traffic forwarding on the interface. As a result, the interface becomes unavailable. You can run the **undo flow-control receive** command in the interface view to disable received flow control to recover the interface.
- For the S2730S-S, S5735-L1, S5735-L-I, S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, S5735-S, S500, S5735-S-I, and S5735S-S, the multicast functions (both Layer 2 and Layer 3 multicast functions) conflict with the flow control function.

Example

Enable received flow control on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] flow-control receive
```


4.2.42 group-member

Function

The **group-member** command adds specified Ethernet interfaces to a permanent port group.

The **undo group-member** command deletes specified Ethernet interfaces from a permanent port group.

By default, no Ethernet interface is added to a permanent port group.

Format

group-member { *interface-type interface-number1* [**to** *interface-type interface-number2*] } &<1-10>

undo group-member { *interface-type interface-number1* [**to** *interface-type interface-number2*] } &<1-10>

undo group-member all-unavailable-interface

Parameters

Parameter	Description	Value
interface-type interface-number1 **to** *interface-type interface-number2*	Adds an Ethernet interface to a permanent port group. **to** indicates an interface range. All interfaces numbered between *interface-number1* and *interface-number2* are added to the temporary port group.	*interface-number2* must be greater than *interface-number1*.
all-unavailable-interface	Delete all unavailable interfaces from this port-group.	-

Views

Permanent port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

If you need to perform the same operations on multiple Ethernet interfaces, configuring each interface one by one easily causes incorrect configurations and is labor-intensive.

The port group function easily solves the problem. You can add all the Ethernet interfaces to the same port group. After you run a configuration command once in the port group view, the configuration takes effect on all the Ethernet interfaces in the port group, reducing the configuration workload.

Prerequisite

Prior to running this command, run the **port-group** command in the system view to create a permanent interface group.

Configuration Impact

If the **group-member** command is run more than once, all configurations take effect.

Precautions

- Both physical and logical interfaces can be added to a permanent port group.
- This command has the same function as the **port-group group-member** command that is used in the system view. You can also run the **port-group group-member** command to add interfaces to a temporary port group to configure the interfaces in batches.
- When you specify the keyword **to** in the **group-member** command:
  - The interfaces specified before and after the keyword **to** must have the same attribute. For example, both of them are main interfaces or sub-interfaces. If they are sub-interfaces, they must belong to the same main interface.
  - If **to** is not used, these limitations do not apply.
  - Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support sub-interfaces.

Example

Add GE0/0/1 and GE0/0/2 to port group **portgroup1**.

```
<HUAWEI> system-view
[HUAWEI] port-group portgroup1
[HUAWEI-port-group-portgroup1] group-member gigabitethernet 0/0/1 to gigabitethernet 0/0/2
```

4.2.43 interface (Ethernet interface)

Function

The **interface** command displays the specified interface view or sub-interface view.

The **undo interface** command deletes a sub-interface.

Format

interface { **ethernet** | **gigabitethernet** | **multige** | **xgigabitethernet** | **25ge** | **40ge** | **100ge** } *interface-number*[.*subinterface-number*] [**mode l2**]

undo interface { **ethernet** | **gigabitethernet** | **multige** | **xgigabitethernet** | **25ge** | **40ge** | **100ge** } *interface-number*[.*subinterface-number*]

Parameters

Parameter	Description	Value
ethernet	Displays the view of an FE interface.	-
gigabitethernet	Displays the view of a GE interface.	-
multige	Displays the view of a MultiGE interface. **NOTE** Only the S5720-28X-PWH-LI-AC, S5720-28X-PWH-LI-ACF, S5732-H24UM2CC, S5732-H48UM2CC, S5732-H48XUM2CC, S5731-S24N4X2Q-A, S5731-S24UN4X2Q, S5731-S8UM16UN2Q, S5731S-S24N4X2Q-A1, S5731S-S24UN4X2Q-A, S5731S-S8UM16UN2Q-A, and S5736-S24UM4XC support MultiGE interfaces.	-
xgigabitethernet	Displays the view of an XGE interface.	-
25ge	Displays the view of a 25GE interface.	-
40ge	Displays the view of a 40GE interface.	-
100ge	Displays the view of a 100GE interface.	-
interface-number	Specifies the number of an interface.	The value depends on the interface type and slot ID.
subinterface-number	Specifies the number of a sub-interface.	The value is an integer that ranges from 1 to 4096.

Parameter	Description	Value
mode l2	Configures a sub-interface to work in Layer 2 mode for the VXLAN service. **NOTE** Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support this parameter.	-

Views

System view

Default Level

2: Configuration level

Usage Guidelines

After entering the specified Ethernet interface view, you can set attributes for the Ethernet interface.

NOTE

- Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support Ethernet sub-interfaces.
- Only hybrid and trunk interfaces on the preceding switches support Layer 2 Ethernet sub-interface configuration.
- After you run the **undo portswitch** command to switch Layer 2 interfaces on the preceding series of switches into Layer 3 interfaces, you can configure Layer 3 Ethernet sub-interfaces on the interfaces.
- After an interface is added to an Eth-Trunk, sub-interfaces cannot be configured on the interface.
- VLAN termination sub-interfaces cannot be created on a VCMP client.

Example

Enter the view of GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1]
```


4.2.44 interface range

Function

The **interface range** command creates a temporary interface group and adds specified interfaces to this temporary interface group. Commands configured for a temporary interface group then automatically run on all member interfaces.

By default, no temporary interface group is created.

Format

interface range { *interface-type interface-number1* [**to** *interface-type interface-number2*] } &<1-10>

Parameters

Parameter	Description	Value
interface-type interface-number1 [**to** *interface-type interface-number2*]	Specifies Ethernet interfaces to be added to a temporary port group. **to** indicates an interface range. All interfaces numbered between *interface-number1* and *interface-number2* are added to the temporary port group.	The value of *interface-number2* must be larger than the value of *interface-number1*. A maximum of 48 temporary port groups can be created on a device.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

If you need to perform the same operations on multiple Ethernet interfaces, configuring each interface one by one easily causes incorrect configurations and is labor-intensive.

The port group function easily solves the problem. You can add all the Ethernet interfaces to the same port group. After you run a configuration command once in the port group view, the configuration takes effect on all the Ethernet interfaces in the port group, reducing the configuration workload.

Configuration Impact

If the **interface range** command is run more than once, all configurations take effect.

Precautions

- The **interface range** and **port-group group-member** commands have the same functions. Therefore, use either of the commands for configuration. After exiting from the temporary port group view, the system deletes the temporary port group.
- The **interface range** command is equivalent to the **group-member** command executed in the permanent port group view. Multiple interfaces can be added to a permanent port group in batches using the **group-member** command.
- When you specify the keyword **to** in the **interface range** command:
  - The interfaces specified by *interface-number1* and *interface-number2* must reside on the same member switch. To add contiguous interfaces on different member switches to the same port group, run this command several times or use the keyword **to** several times.
  - The interfaces specified by *interface-number1* and *interface-number2* must be of the same type, for example, both of the interfaces are GE interfaces.
  - The interfaces specified before and after the keyword **to** must have the same attribute. For example, both of them are main interfaces or sub-interfaces. If they are sub-interfaces, they must belong to the same main interface.
  - If **to** is not specified, the preceding limitations do not apply.
  - Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support sub-interfaces.

Example

Add GE0/0/1, 0/0/2, and 0/0/3 to a temporary port group.

```
<HUAWEI> system-view
[HUAWEI] interface range gigabitethernet 0/0/1 to gigabitethernet 0/0/3
[HUAWEI-port-group]
```

4.2.45 jumboframe enable

Function

The **jumboframe enable** command sets the maximum frame length allowed by an interface.

The **undo jumboframe enable** command restores the default maximum frame length allowed by an interface.

By default, the maximum frame length allowed by the S200, S1730S-S1, S500, S5735-S, S5735S-S, S5735-S-I, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735-L-I, and S5735S-L-M is 10240 bytes, and the maximum frame length allowed by other switches is 9216 bytes.

NOTE

The following switch models do not support this command:

S200, S1730S-S1, S500, S5735-S, S5735S-S, S5735-S-I, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735-L-I, and S5735S-L-M

Format

jumboframe enable [*value*]

undo jumboframe enable

Parameters

Parameter	Description	Value
value	Specifies the maximum frame length allowed by an Ethernet interface.	The value is an integer, in bytes. • On the SS1720GW-E, S1720GWR-E, S5720I-SI, S5720-LI, S5720S-LI, S5735S-H, S5736-S, S6720S-S the value is an integer that ranges from 1536 to 10240, in bytes. • On the S5732-H24S6Q, S5732-H48S6Q, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S, the value is an integer that ranges from 1536 to 12288, in bytes. • On the S5731-S24N4X2Q-A, S5731-S24UN4X2Q, S5731-S8UM16UN2Q, S5731S-S24N4X2Q-A1, S5731S-S24UN4X2Q-A, S5731S-S8UM16UN2Q-A, S5732-H24UM2CC, S5732-H48UM2CC, S5732-H48XUM2CC, S5731-H, S5731S-H, S5731-S, and S5731S-S, the value is an integer that ranges from 1536 to 9600, in bytes. • On the S6735-S, the value is an integer that ranges from 1536 to 9216, in bytes. **NOTE** On the SS1720GW-E, S1720GWR-E, S5720I-SI, S5720-LI, S5720S-LI, S5735S-H, S5736-S, S6720S-S, *value* cannot be set to an odd number. For GE electrical interfaces on the S5735S-H and S5736-S, *value* can only be set to 10232. If *value* is set to an odd number in a version earlier than V200R008, the value of *value* increases by one automatically after the system software is upgraded to V200R008 or later versions. For example, *value* is set to 8879 in V200R007. After the system software is upgraded to V200R008, the value of *value* is 8880.

Views

Ethernet interface view, GE interface view, XGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view, Eth-Trunk interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

When transmitting a large amount of data (such as files and videos), an Ethernet interface may receive jumbo frames. If the jumbo frame length exceeds the default data frame length that can be processed, the device directly discards the jumbo frames. You can set the jumbo frame length allowed on an interface.

After you configure the device to allow jumbo frames, packet forwarding becomes more flexible. If multiple common Ethernet frames are used to transmit a data packet, many redundant contents such as interframe gaps (IFGs) and preambles are also transmitted. If jumbo frames are used to transmit the data packet, fewer frames, as well as fewer IFGs and preambles, are transmitted, improving bandwidth efficiency.

Precautions

If you run the **jumboframe enable** command multiple times in the same interface view to set the maximum frame length allowed by the interface, only the latest configuration takes effect.

If you run the **jumboframe enable** command on an interface without specifying the *value* parameter, the interface allows the default jumbo frame length. By default, the jumbo frame length allowed by Ethernet interfaces of other models is 9216 bytes.

If the length of an outgoing packet exceeds the maximum frame length allowed on an interface, the interface can directly forward the packet.

If the maximum frame length allowed by interfaces is configured in batches through the port group function, the maximum frame length range displayed when the **jumboframe enable ?** command is executed in the port group view is 1536-12288. The actual maximum frame length allowed by the interfaces is defined in **Parameters**. Configure the maximum frame length as required.

Example

Set the maximum frame length allowed by GE0/0/1 to 5000 bytes.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] jumboframe enable 5000
```


4.2.46 log-threshold input-rate output-rate

Function

The **log-threshold input-rate output-rate** command sets the inbound and outbound bandwidth usage thresholds for generating a log.

The **undo log-threshold input-rate output-rate** command restores the default inbound and outbound bandwidth usage thresholds for generating a log.

The default inbound and outbound bandwidth usage thresholds for generating a log is 80.

Format

log-threshold { **input-rate** | **output-rate** } *bandwidth-in-use* [**resume-rate** *resume-threshold*]

undo log-threshold { **input-rate** | **output-rate** }

Parameters

Parameter	Description	Value
input-rate	Specifies the inbound bandwidth.	-
output-rate	Specifies the outbound bandwidth.	-
bandwidth-in-use	Specifies the bandwidth usage threshold for generating a log.	The value is an integer that ranges from 1 to 100.
resume-rate *resume-threshold*	Specifies the bandwidth usage threshold for clearing a log.	The value is an integer that ranges from 1 to the value of *bandwidth-in-use*. The default value is the value of *bandwidth-in-use*.

Views

Ethernet interface view, GE interface view, XGE interface view, 25GE interface view, 40GE interface view, 100GE interface view

Default Level

2: Configuration level

Usage Guidelines

Monitoring bandwidth usage helps you know current load on a device. If the bandwidth usage exceeds a threshold, bandwidth resources are insufficient and

the device capacity needs to be expanded. For example, if the bandwidth usage exceeds 95%, an alarm is generated, indicating that bandwidth resources are almost exhausted. As a result, some services may be interrupted before device capacity expansion.

You can configure two thresholds: low threshold (log threshold) and high threshold (alarm threshold). The system generates a log when the bandwidth usage exceeds the low threshold and generates an alarm when the bandwidth usage exceeds the high threshold. This configuration ensures that you can expand the device capacity in advance to avoid service interruptions caused by bandwidth exhaustion.

NOTE

Outbound bandwidth usage threshold = (Outbound interface rate/Outbound physical interface bandwidth) x 100

Inbound bandwidth usage threshold = (Inbound interface rate/Inbound physical interface bandwidth) x 100

The **trap-threshold** command is used to set the bandwidth usage threshold for generating a trap.

The **log-threshold input-rate output-rate** command with the following parameters provides various functions:

- **log-threshold input-rate** *bandwidth-in-use* **resume-rate** *resume-threshold*: sets the inbound bandwidth usage threshold for generating a log to provide the following functions:
  - If inbound bandwidth usage value exceeds the value of *bandwidth-in-use*, an IFNET_BWRATE_IN_RISING log is generated, indicating that inbound bandwidth usage exceeds the configured threshold.
  - If inbound bandwidth usage value is lower than the value of *resume-threshold*, an IFNET_BWRATE_IN_RESUME log is generated, indicating that inbound bandwidth usage is lower than the configured threshold.
- **log-threshold output-rate** *bandwidth-in-use* **resume-rate** *resume-threshold*: sets the outbound bandwidth usage threshold for generating a log to provide the following functions:
  - If outbound bandwidth usage value exceeds the value of *bandwidth-in-use*, an IFNET_BWRATE_OUT_RISING log is generated, prompting for a bandwidth increase request.
  - If outbound bandwidth usage falls below the threshold specified by *resume-threshold*, an IFNET_BWRATE_OUT_RESUME log is generated, indicating that bandwidth usage has been restored.

If the offset between the value of *bandwidth-in-use* and the value of *resume-threshold* is too small, log information may be frequently displayed.

The log threshold must be lower than the trap threshold, providing efficient protection for services. For example, when the inbound bandwidth usage reaches 80%, a log is generated. If the inbound bandwidth usage continues to increase and reaches 95%, a trap is generated. This ensures that a log is generated for inbound bandwidth usage of 80%, and a trap is generated for inbound bandwidth usage of 95%. Either the log or the trap prompts for a bandwidth increase, preventing service interruption.

Example

Configure GE0/0/1 to generate a log when the outbound interface rate exceeds 80% of the bandwidth.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] log-threshold output-rate 80
```

Configure GE0/0/1 to generate a log when the outbound interface rate exceeds 80% of the bandwidth and to clear a log when the outbound interface rate is lower than 60% of the bandwidth.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] log-threshold output-rate 80 resume-rate 60
```

4.2.47 log-threshold input-discard output-discard (interface view)

Function

The **log-threshold input-discard** command sets the log threshold for congestion-triggered packet loss and interval for collecting statistics on discarded packets in the inbound direction of an interface.

The **log-threshold output-discard** command sets the log threshold for congestion-triggered packet loss and interval for collecting statistics on discarded packets in the outbound direction of an interface.

The **undo log-threshold input-discard** command restores the default settings.

The **undo log-threshold output-discard** command restores the default settings.

By default, the log threshold for congestion-triggered packet loss in the inbound or outbound direction of an interface is 3000, and the interval for collecting statistics on discarded packets in the inbound or outbound direction of an interface is 300s.

Format

log-threshold { **input-discard** | **output-discard** } [*threshold-value* **interval** *interval-value*]

undo log-threshold { **input-discard** | **output-discard** }

Parameters

Parameter	Description	Value
input-discard	Records logs about congestion-triggered packet loss in the inbound direction of an interface.	-

Parameter	Description	Value
output-discard	Records logs about congestion-triggered packet loss in the outbound direction of an interface.	-
threshold-value	Specifies the log threshold for congestion-triggered packet loss.	The value is an integer in the range from 100 to 4294967295.
interval *interval-value*	Specifies the interval for collecting statistics on discarded packets due to congestion.	The value is an integer in the range from 60 to 86400, in seconds.

Views

Ethernet interface view, GE interface view, XGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Network congestion during service transmission may cause packet loss. If a lot of packets are discarded, services are affected. To better monitor the number of discarded packets, you can run the **log-threshold output-discard** or **log-threshold input-discard** command to set the threshold for packet loss caused by congestion and interval for collecting statistics on discarded packets in the inbound or outbound direction of an interface. The device generates a log when the number of discarded incoming and outgoing packets on the interface in a specified period exceeds the threshold. Logs help you know the congestion on the interface. You can determine whether to increase the bandwidth or cancel the bandwidth limit on the interface based on the logs. In this way, the congestion problem can be solved.

Precautions

- If the number of discarded incoming and outgoing packets falls below the threshold in a specified period, the device generates a log indicating that the number of discarded packets falls below the threshold.
- If the number of discarded packets exceeds the threshold in an interval for collecting statistics on discarded packets, the device immediately generates a log indicating that the number of discarded packets exceeds the threshold, and enters the next statistics interval. In the next statistics interval, the number of discarded packets on an interface is calculated using the following formula:

Number of discarded packets = Current number of discarded packets - Number of discarded packets in the beginning of the statistics interval

- If the number of discarded packets exceeds the threshold in several consecutive statistics intervals, the device only generates a log in the first statistics interval, indicating that the number of discarded packets exceeds the threshold. If the number of discarded packets falls below the threshold, the device generates a log indicating that the number of discarded packets falls below the threshold. If the number of discarded packets on an interface exceeds the threshold again, the device will generate a log indicating that the number of discarded packets exceeds the threshold.
- If the user log function is disabled in the system view, the user log function no longer takes effect in the interface view. To record user logs, run the **log-threshold** { **input-discard** | **output-discard** }* command in the system view to enable the log function first.

Example

Set the log threshold for congestion-triggered packet loss to 100 and interval for collecting statistics on discarded packets to 60 seconds in the inbound direction of GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] log-threshold input-discard 100 interval 60
```

4.2.48 log-threshold

Function

The **log-threshold** command enables the log function for congestion-triggered packet loss on all interfaces of a device.

The **undo log-threshold** command disables the log function for congestion-triggered packet loss on all interfaces of a device.

By default, the log function is enabled for congestion-triggered packet loss on all interfaces of a device.

Format

log-threshold { **input-discard** | **output-discard** }*

undo log-threshold { **input-discard** | **output-discard** }*

Parameters

Parameter	Description	Value
input-discard	Records logs about congestion-triggered packet loss in the inbound direction of an interface.	-

Parameter	Description	Value
output-discard	Records logs about congestion-triggered packet loss in the outbound direction of an interface.	-

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Enable or disable the log function for congestion-triggered packet loss on all interfaces of a device in the system view.

Example

Enable the log function for inbound congestion-triggered packet loss on a device.

```
<HUAWEI> system-view
[HUAWEI] log-threshold input-discard
```

4.2.49 loopback

Function

The **loopback** command enables loopback detection on an interface.

The **undo loopback** command disables loopback detection on an interface.

By default, loopback detection is not configured.

Format

loopback internal

undo loopback

Parameters

Parameter	Description	Value
internal	Configures internal loopback detection on a specified interface.	-

Views

Ethernet interface view, GE interface view, XGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

When testing some special functions, for example, locating an Ethernet fault, you need to enable loopback detection on Ethernet interfaces to check whether the interfaces are working properly. After loopback detection is enabled on an Ethernet interface, the interface is in Up state if it works properly, and is in Down state if it fails.

Follow-up Procedure

Run the **display interface** command to check whether the current status of the interface configured with internal loopback is Up. If the **current status** of the interface is Up, the internal forwarding function works well; otherwise, a fault occurs during internal forwarding.

After loopback detection is enabled on an interface, the **Speed** field in the **display this interface** command output indicates the configured interface rate or the rate of the installed optical module, copper module, or network cable, and the **Bandwidth** field in the **display interface ethernet brief** command output indicates the actual interface rate. Installing and then removing the optical or copper module or restarting the device may affect the actual interface rate.

Precautions

- Loopback detection interrupts the operation of Ethernet interfaces and links. After loopback detection is performed, run the **undo loopback** command to disable loopback detection immediately.
- You cannot run the **loopback** command to perform loopback detection on a fabric port.
- The **loopback** command and the **single-fiber enable** command cannot be configured on the same interface.

Example

Configure loopback detection on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] loopback internal
Warning: The configuration may cause loops.
```


4.2.50 loopbacktest

Function

The **loopbacktest** command configures internal loopback detection on an interface.

By default, internal loopback detection is not configured.

Format

loopbacktest internal

Parameters

Parameter	Description	Value
internal	Configures internal loopback detection. Internal loopback detection is used to check whether the internal forwarding chip controls forwarding on the interface correctly. • If the test packet is received, the internal forwarding chip functions properly. • If the test packet is not received, the internal forwarding chip is faulty.	-

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view

Default Level

3: Management level

Usage Guidelines

You can run the **loopbacktest** command to check whether the internal forwarding chip functions properly.

NOTE

Loopback detection is not required when an interface is shut down.

Loopback detection is not supported on a service stack interface.

The internal loopback detection result can be used only when no service is configured on the switch.

You cannot run the **loopbacktest** command to perform loopback detection on a fabric port.

After the energy-saving mode is set to basic or deep, loopback detection is disabled on an interface. Therefore, before performing loopback detection, set the energy-saving mode to standard.

Example

Configure internal loopback detection on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] loopbacktest internal
Warning: This command may conflict with other service configurations. It can only be used on a device with no configuration. Continu
e?[Y/N]:y
Info: This operation may take a few seconds. Please wait for a moment.....
Info: Loopback packet test succeeded.
```

4.2.51 mdi

Function

The **mdi** command configures the medium dependent interface (MDI) mode of an Ethernet electrical interface.

The **undo mdi** command restores the default MDI mode of an Ethernet electrical interface.

By default, an Ethernet electrical interface automatically identifies the network cable type.

Format

mdi { **across** | **auto** | **normal** }

undo mdi

Parameters

Parameter	Description	Value
across	Sets the MDI mode of an Ethernet electrical interface to **across**.	-

Parameter	Description	Value
auto	Sets the MDI mode of an Ethernet electrical interface to **auto**. An Ethernet electrical interface automatically identifies the network cable type.	-
normal	Sets the MDI mode of an Ethernet electrical interface to **normal**.	-

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Twisted pairs used to connect Ethernet devices include:

- Straight-through cable: connects devices of different types, such as a switch and a PC or a switch and a router.
- Crossover cable: connects devices of the same type, such as two switches, two routers, or two PCs.

Generally, if two interfaces are connected with a twisted-pair cable, the receive pin on the local end must be connected to the transmit pin on the remote end and the transmit pin on the local end must be connected to the receive pin on the remote end so that a link can be Up. According to pin assignment, twisted-pair cables are classified into straight-through and crossover cables. The device must support negotiation and crossover of receive and transmit pins so that Ethernet electrical interfaces can support the two types of twisted-pair cables. The device supports the following medium dependent interface (MDI) modes: auto, normal, and across.

Generally, when interfaces at both ends work in auto mode, devices can communicate regardless of whether the straight-through or crossover cable is used. Set the MDI mode to normal or across only when the device cannot identify the network cable type. When configuring an MDI mode on an interface, pay attention to the following points:

- When a straight-through cable is used, the local and remote interfaces must use different MDI modes, for example, across mode on one end and normal mode on the other end.

- When a crossover cable is used, the local and remote interfaces must use the same MDI mode. For example, both ends must use the across or normal mode, or at least one end uses the auto mode

NOTE

Electrical interfaces support the MDI type configuration.

The XGE electrical interfaces on the ES5D21X08T00 card of the S5731-H, and S5731S-H can only use the auto MDI type.

The MDI type can be configured on an optical interface that has a GE copper module installed. Before installing a GE copper module on a 25GE optical interface, you need to run the **port mode ge** command to configure the interface to work at the rate of 1 Gbit/s.

Example

Set the MDI mode of GE0/0/1 to **across**.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] mdi across
```

4.2.52 negotiation active

Function

The **negotiation active** command configures an interface to work in slave mode.

The **undo negotiation active** command cancels the slave mode configuration on an interface.

By default, an interface does not work in slave mode.

Format

negotiation active

undo negotiation active

Parameters

None

Views

MultiGE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

When a MultiGE interface on a Huawei switch is connected to an interface on a Cisco AP, the two interfaces may both support 2.5 Gbit/s or higher rates, but

cannot negotiate to work in the highest rate. You can configure the MultiGE interface on the Huawei switch to work in slave mode (the interface on the Cisco AP works in master mode). The two interfaces then can negotiate to work in the highest rate supported by both of them to improve the data transmission capability.

Precautions

- It is recommended that you run this command on an interface working in auto-negotiation mode.
- When MultiGE interfaces of two switches are connected, you cannot configure the **negotiation active** command on the MultiGE interfaces simultaneously; otherwise, the MultiGE interfaces cannot go Up.

Example

Configure MultiGE 0/0/1 to work in slave mode.

```
<HUAWEI> system-view
[HUAWEI] interface MultiGE 0/0/1
[HUAWEI-MultiGE0/0/1] negotiation active
```

4.2.53 negotiation auto

Function

The **negotiation auto** command configures an Ethernet interface to work in auto-negotiation mode.

The **undo negotiation auto** command configures an Ethernet interface to work in non-auto negotiation mode.

By default, an Ethernet interface works in auto-negotiation mode.

Format

negotiation auto

undo negotiation auto

Parameters

None

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, port group view, Meth interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Earlier Ethernet worked in 10M half-duplex mode and required mechanisms such as Carrier Sense Multiple Access (CSMA)/Collision Detection (CD) to ensure system stability. As Ethernet technology develops, full-duplex Ethernet and 100 Mbit/s Ethernet emerge. This greatly improves Ethernet performance. Auto-negotiation technology allows new Ethernet to be compatible with earlier Ethernet. In auto-negotiation mode, interfaces on both ends of a link negotiate their operating parameters, including the duplex mode and rate. If the negotiation succeeds, the two interfaces work at the same operating parameters.

Precautions

- For details about Ethernet interfaces supporting the auto-negotiation function, see Licensing Requirements and Limitations for Ethernet Interfaces.
- By default, auto-negotiation is enabled on GE optical interfaces and rate auto-negotiation is disabled. You can run the **speed auto-negotiation** command to enable rate auto-negotiation.
- When a GE optical module is installed on an XGE optical interface, the interface works in auto-negotiation mode by default. To configure the interface to work in non-auto-negotiation mode, run the **undo negotiation auto** command. If you replace the GE optical module with an XGE optical module, the interface does not support the auto-negotiation mode and works in non-auto-negotiation mode by default. If you replace the XGE optical module with a GE optical module, the **undo negotiation auto** command configuration becomes ineffective. If you need the interface to still work in non-auto-negotiation mode, reconfigure this command.
- After configuring the auto-negotiation function on an interface, if you remove and install a single optical fiber on the interface, the interface may be Up and the remote interface may be Down. You can run the **shutdown** and **undo shutdown** commands on the remote interface to make the remote interface go Up.

Example

Configure GE0/0/1 to work in non-auto negotiation mode.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] undo negotiation auto
```

4.2.54 negotiation priority

Function

The **negotiation priority** command configures the protocol that a MultiGE interface in auto-negotiation mode preferentially uses.

The **undo negotiation priority** command restores the default protocol that a MultiGE interface in auto-negotiation mode preferentially uses.

By default, a MultiGE interface in auto-negotiation mode preferentially uses IEEE 802.3bz.

NOTE

Only multi-GE interfaces on the S5720-28X-PWH-LI-AC, S5720-28X-PWH-LI-ACF, S5732-H48XUM2CC, S5736-S24UM4XC, S5732-H24UM2CC (part number: 02353HUC/02353HUC-003/02353SJY/02353SJY-001/02353SJY-004/02353SJY-010/02353SJY-011/02353SJY-014/02353SJY-015/02353SJY-016/02353SJY-019/02353SJY-002/02353SJY-003/02353SJY-012/02353SJY-013/02353SJY-017/02353SJY-018), S5732-H48UM2CC (part number: 02353HUB/02353HUB-002/02353SJT/02353SJT-001/02353SJT-003/02353SJT-004/02353SJT-010/02353SJT-011/02353SJT-013/02353SJT-014/02353SJT-015/02353SJT-016/02353SJT-018/02353SJT-002) support this command.

Format

negotiation priority { **802.3bz** | **mgbase-t** }

undo negotiation priority

Parameters

Parameter	Description	Value
802.3bz	Configures IEEE 802.3bz as the protocol that a MultiGE interface in auto-negotiation mode preferentially uses.	-
mgbase-t	Configures Mgbase-t as the protocol that a MultiGE interface in auto-negotiation mode preferentially uses. **NOTE** Only the S5732-H24UM2CC, S5732-H48XUM2CC, and S5732-H48UM2CC do not support this parameter.	-

Views

MultiGE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

If the peer device supports 2.5 Gbit/s or 5 Gbit/s rate when the peer device connects to the MultiGE interface of Huawei switch and the peer device uses the proprietary protocol Mgbase-t of the Broadcom company, the MultiGE interface of the interconnected Huawei switch may fail to be enabled. You can configure Mgbase-t as the protocol that the MultiGE interface on the Huawei switch preferentially uses, so that the MultiGE interface can be properly enabled.

Example

Configure Mgbase-t as the protocol that a MultiGE interface in auto-negotiation mode preferentially uses.


```
<HUAWEI> system-view
[HUAWEI] interface MultiGE 0/0/1
[HUAWEI-MultiGE0/0/1] negotiation priority mgbase-t
```

4.2.55 port clock-mode slave

Function

The **port clock-mode slave** command sets the clock negotiation mode of an XGE electrical interface to the slave mode.

The **undo port clock-mode slave** command restores the clock negotiation mode of an XGE electrical interface to the auto-negotiation mode.

By default, the clock negotiation mode of an XGE electrical interface is the auto-negotiation mode.

NOTE

Only the XGE electrical interfaces of the ES5D21X08T00 cards support this command.

Format

port clock-mode slave

undo port clock-mode slave

Parameters

None

Views

XGE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

On a modern communications network, most telecommunications services require that the frequency offset or time difference between devices be in an acceptable range. When an XGE electrical interface on an ES5D21X08T00 card of a Huawei device connects to a non-Huawei device, the clock negotiation mode of the XGE electrical interface on the local device is auto-negotiation by default. The two devices determine the master/slave relationship based on the negotiation result and perform network clock synchronization. When the local device negotiates to become the master device, the interfaces on both ends may fail to go Up or their rate may decrease due to the impact of the non-Huawei device. In this case, run the **port clock-mode slave** command to set the clock negotiation mode of the XGE electrical interface of the local device to the slave mode. This configuration ensures clock synchronization between the two devices.

Precautions

If the interfaces on both ends are configured to work in slave mode, clock negotiation will fail and the interfaces cannot go Up.

Example

Set the clock negotiation mode of an XGE electrical interface to slave.

```
<HUAWEI> system-view
[HUAWEI] interface XGigabitEthernet 0/1/1
[HUAWEI-XGigabitEthernet0/1/1] port clock-mode slave
```

4.2.56 port link-flap auto-detect protection disable

Function

The **port link-flap auto-detect protection disable** command disables global link flapping protection.

The **undo port link-flap auto-detect protection disable** or **port link-flap auto-detect protection enable** command enables global link flapping protection.

By default, global link flapping protection is enabled.

Format

port link-flap auto-detect protection disable

undo port link-flap auto-detect protection disable

port link-flap auto-detect protection enable

Parameters

Parameter	Description	Value
enable	Enables global link flapping protection.	-

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

If network jitter or a link fault occurs on an interface, the physical status of the interface frequently alternates between Up and Down, affecting service traffic

forwarding. After global link flapping detection protection is enabled, if the number of times that an interface alternates between Up and Down within a specified period reaches the configured threshold, the system shuts down the interface so that the interface goes Down. This reduces the impact of interface link flaps on services.

By default, global link flapping protection is enabled and the system detects link flaps on all interfaces. If the number of link flaps on an interface reaches the threshold within the link flapping detection period, the system automatically shuts down this interface and records the interface status as **LINK-FLAP DOWN**. That is, the interface goes Down due to link flapping protection. By default, the link flapping detection period is 10 seconds, the threshold for the number of link flaps is 5, and the automatic recovery period is 60 seconds. If an interface alternates between Up and Down five times within 10 seconds, the interface goes Down. After 60 seconds, the interface automatically goes Up. To set the link flapping detection period, run the **port link-flap auto-detect interval** command. To set the threshold for the number of link flaps, run the **port link-flap auto-detect threshold** command. To set the automatic recovery period, run the **port link-flap auto-detect recovery interval** command.

Precautions

- To check whether a link flap occurs on a specified interface, run the **port link-flap protection enable** command on this interface to enable link flapping protection. The link flapping protection function on an interface and the global link flapping protection function are mutually exclusive.
- If link flapping protection is enabled on an interface, global link flapping protection does not take effect on this interface.
- If an interface is set to Down due to link flapping protection, enabling link flapping protection on this interface will restore the interface to Up.
- Stack interfaces do not support link flapping protection.

Example

Disable global link flapping protection.

```
<HUAWEI> system-view
[HUAWEI] port link-flap auto-detect protection disable
```

4.2.57 port link-flap auto-detect interval

Function

The **port link-flap auto-detect interval** command sets the global link flapping detection period.

The **undo port link-flap auto-detect interval** command restores the default global link flapping detection period.

By default, the global link flapping detection period is 10s.

Format

port link-flap auto-detect interval *interval-value*

undo port link-flap auto-detect interval

Parameters

Parameter	Description	Value
interval *interval-value*	Specifies the global link flapping detection period.	The value is an integer that ranges from 5 to 600, in seconds. The default value is 10s.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

If the number of link flaps on an interface reaches the threshold within the link flapping detection period, the system automatically shuts down this interface and records the interface status as **LINK-FLAP DOWN**. That is, the interface goes Down due to link flapping protection. By default, the link flapping detection period is 10 seconds, the threshold for the number of link flaps is 5, and the automatic recovery period is 60 seconds. If an interface alternates between Up and Down five times within 10 seconds, the interface goes Down. After 60 seconds, the interface automatically goes Up.

If high network reliability is required, you can run this command to shorten the detection period to quickly detect network flapping. Otherwise, you can increase the detection period.

Example

Set the global link flapping detection period to 50s.

```
<HUAWEI> system-view
[HUAWEI] port link-flap auto-detect interval 50
```

4.2.58 port link-flap auto-detect threshold

Function

The **port link-flap auto-detect threshold** command sets the global threshold for the number of link flaps within a specified period.

The **undo port link-flap auto-detect threshold** command restores the default global threshold for the number of link flaps within a specified period.

By default, the global threshold for the number of link flaps within a specified period is 5.

Format

port link-flap auto-detect threshold *threshold-value*

undo port link-flap auto-detect threshold

Parameters

Parameter	Description	Value
threshold-value	Specifies the threshold for the number of link flaps within a specified period.	The value is an integer in the range from 1 to 10. The default value is 5.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

If the number of link flaps on an interface reaches the threshold within the link flapping detection period, the system automatically shuts down this interface and records the interface status as **LINK-FLAP DOWN**. That is, the interface goes Down due to link flapping protection. By default, the link flapping detection period is 10 seconds, the threshold for the number of link flaps is 5, and the automatic recovery period is 60 seconds. If an interface alternates between Up and Down five times within 10 seconds, the interface goes Down. After 60 seconds, the interface automatically goes Up.

If high network reliability is required, you can run this command to reduce the threshold for the number of link flaps to quickly detect network flapping. Otherwise, you can increase the threshold for the number of link flaps.

Example

Set the threshold for the number of link flaps within a specified period to 5.

```
<HUAWEI> system-view
[HUAWEI] port link-flap auto-detect threshold 5
```

4.2.59 port link-flap auto-detect recovery interval

Function

The **port link-flap auto-detect recovery interval** command sets the automatic recovery period after interfaces go Down due to global link flapping protection.

The **undo port link-flap auto-detect recovery interval** command restores the default automatic recovery period after interfaces go Down due to global link flapping protection.

By default, the automatic recovery period after interfaces go Down due to global link flapping protection is 60 seconds.

Format

port link-flap auto-detect recovery interval *interval-value*

undo port link-flap auto-detect recovery interval

Parameters

Parameter	Description	Value
interval-value	Specifies the automatic recovery period after interfaces go Down due to global link flapping protection.	The value is an integer that ranges from 60 to 86400, seconds. The default value is 60 seconds, and the increment value is 60 seconds. That is, the value must be a multiple of 60.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

If the number of link flaps on an interface reaches the threshold within the link flapping detection period, the system automatically shuts down this interface and records the interface status as **LINK-FLAP DOWN**. That is, the interface goes Down due to link flapping protection. By default, the link flapping detection period is 10 seconds, the threshold for the number of link flaps is 5, and the automatic recovery period is 60 seconds. If an interface alternates between Up and Down five times within 10 seconds, the interface goes Down. After 60 seconds, the interface automatically goes Up. To set the automatic recovery period after interfaces go Down due to global link flapping protection, run the **port link-flap auto-detect recovery interval** command.

Example

Set the automatic recovery period after interfaces go Down due to global link flapping protection to 120 seconds.


```
<HUAWEI> system-view
[HUAWEI] port link-flap auto-detect recovery interval 120
```

4.2.60 port link-flap interval

Function

The **port link-flap interval** command sets the link flapping detection interval.

The **undo port link-flap interval** command restores the default link flapping detection interval.

By default, the link flapping detection interval is 10s.

Format

port link-flap interval *interval-value*

undo port link-flap interval

Parameters

Parameter	Description	Value
interval *interval-value*	Specifies the link flapping detection interval.	The value is an integer that ranges from 5 to 600, in seconds. The default value is 10s.

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

A link flap occurs when the physical status of an interface frequently alternates between Up and Down due to network flapping or network cable faults. This causes frequent network topology changes and affects user communication. For example, two links work in primary/backup mode. If the interface of the primary link experiences frequent Up/Down transitions, flows are switched between the primary and backup links. Frequent service switchovers increase load of the device and may result in service data loss.

Link flapping protection can solve the problem. To be specific, you can configure link flapping protection globally or on a specified interface. This function disables

interfaces that frequently alternate between Up and Down so that the interfaces become Down. This prevents the network topology from changing frequently. When the system detects frequent physical status changes on the interface of the primary link, the system directly disables the interface to trigger a primary/backup link switchover. The backup link then steadily transmits services. The link flapping protection function involves the following parameters:

- Number of link flaps: A link flap refers to an interface Up/Down transition.
- Link flapping detection period: It is a period during which the system counts the number of link flaps.

If the number of link flaps on an interface reaches the threshold within a link flapping detection period, the system disables the interface and records its status as **ERROR DOWN(link-flap)** when link flapping protection is configured on this interface or records its status as **LINK-FLAP DOWN** when link flapping protection is configured globally. By default, after link flapping protection is enabled, an interface goes Down if its status changes five times within 10 seconds.

Prerequisites

The configured interval takes effect only after link flapping protection is enabled using the **port link-flap protection enable** command on the interface.

Precautions

If you run the **port link-flap interval** command multiple times in the same interface view, only the latest configuration takes effect.

Example

Set the link flapping detection interval to 50s on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] port link-flap interval 50
```

4.2.61 port link-flap protection enable

Function

The **port link-flap protection enable** command enables link flapping protection on an interface.

The **undo port link-flap protection enable** command disables link flapping protection on an interface.

By default, link flapping protection is disabled on an interface.

Format

port link-flap protection enable

undo port link-flap protection enable

Parameters

None

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

A link flap occurs when the physical status of an interface frequently alternates between Up and Down due to network flapping or network cable faults. This causes frequent network topology changes and affects user communication. For example, two links work in primary/backup mode. If the interface of the primary link experiences frequent Up/Down transitions, flows are switched between the primary and backup links. Frequent service switchovers increase load of the device and may result in service data loss.

Link flapping protection can solve the problem. To be specific, you can configure link flapping protection globally or on a specified interface. This function disables interfaces that frequently alternate between Up and Down so that the interfaces become Down. This prevents the network topology from changing frequently. When the system detects frequent physical status changes on the interface of the primary link, the system directly disables the interface to trigger a primary/backup link switchover. The backup link then steadily transmits services. The link flapping protection function involves the following parameters:

- Number of link flaps: A link flap refers to an interface Up/Down transition.
- Link flapping detection period: It is a period during which the system counts the number of link flaps.

If the number of link flaps on an interface reaches the threshold within a link flapping detection period, the system disables the interface and records its status as **ERROR DOWN(link-flap)** when link flapping protection is configured on this interface or records its status as **LINK-FLAP DOWN** when link flapping protection is configured globally. By default, after link flapping protection is enabled, an interface goes Down if its status changes five times within 10 seconds.

Follow-up Procedure

- Run the **port link-flap interval** *interval-value* command to set the link flapping interval for the interface.
- Run the **port link-flap threshold** *threshold-value* command to set the number of link flappings for the interface.
- An interface in **ERROR DOWN(link-flap)** state can be recovered using either of the following methods:
  - Manual recovery. If a few interfaces need to be recovered forcibly, run the **shutdown** and **undo shutdown** commands in sequence in the interface view. Alternatively, run the **restart** command in the interface view to restart the interface.

– Automatic recovery. If a large number of interfaces need to be recovered, manual recovery is time consuming and error prone. Instead, you can run the **error-down auto-recovery cause link-flap interval** *interval-value* command in the system view to enable automatic interface recovery and set the automatic recovery delay. Interfaces in Error-Down state then automatically recover after the specified delay expires.

Example

Enable link flapping protection on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] port link-flap protection enable
```

4.2.62 port link-flap threshold

Function

The **port link-flap threshold** command sets the maximum number of link flapping events on an interface.

The **undo port link-flap threshold** command restores the default maximum number of link flapping events on an interface.

By default, the maximum number of link flapping events is 5.

Format

port link-flap threshold *threshold-value*

undo port link-flap threshold

Parameters

Parameter	Description	Value
threshold *threshold-value*	Specifies the maximum number of link flapping events on an interface.	The value is an integer that ranges from 1 to 10. The default value is 5.

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

A link flap occurs when the physical status of an interface frequently alternates between Up and Down due to network flapping or network cable faults. This causes frequent network topology changes and affects user communication. For example, two links work in primary/backup mode. If the interface of the primary link experiences frequent Up/Down transitions, flows are switched between the primary and backup links. Frequent service switchovers increase load of the device and may result in service data loss.

Link flapping protection can solve the problem. To be specific, you can configure link flapping protection globally or on a specified interface. This function disables interfaces that frequently alternate between Up and Down so that the interfaces become Down. This prevents the network topology from changing frequently. When the system detects frequent physical status changes on the interface of the primary link, the system directly disables the interface to trigger a primary/backup link switchover. The backup link then steadily transmits services. The link flapping protection function involves the following parameters:

- Number of link flaps: A link flap refers to an interface Up/Down transition.
- Link flapping detection period: It is a period during which the system counts the number of link flaps.

If the number of link flaps on an interface reaches the threshold within a link flapping detection period, the system disables the interface and records its status as **ERROR DOWN(link-flap)** when link flapping protection is configured on this interface or records its status as **LINK-FLAP DOWN** when link flapping protection is configured globally. By default, after link flapping protection is enabled, an interface goes Down if its status changes five times within 10 seconds.

Prerequisites

The **port link-flap threshold** command configuration takes effect only after link flapping protection is enabled using the **port link-flap protection enable** command on the interface.

Precautions

If you run the **port link-flap threshold** command multiple times in the same interface view, only the latest configuration takes effect.

Example

Set the maximum number of link flapping events on GE0/0/1 to 10.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] port link-flap threshold 10
```

4.2.63 port-group

Function

The **port-group** command creates a permanent port group and displays the permanent port group view.

The **undo port-group** command deletes permanent port groups.

By default, no permanent port group is configured.

Format

port-group *port-group-name*

undo port-group { **all** | *port-group-name* }

Parameters

Parameter	Description	Value
port-group-name	Specifies the name of a permanent interface group. The value cannot conflict with the group-member keyword. For example, the name cannot be g, gr, or group-m.	The value is a string of 1 to 32 case-insensitive characters without spaces. When double quotation marks are used around the string, spaces are allowed in the string. **NOTE** A permanent port group cannot be named **all**. Meanwhile, to avoid a usage conflict between the **port-group group-member** command and *port-group-name*, do not specify g, group-member, or first letters of group-member as the name of a permanent interface group.
all	Deletes all port groups.	-

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

If you need to perform the same operations on multiple Ethernet interfaces, configuring each interface one by one easily causes incorrect configurations and is labor-intensive.

The port group function easily solves the problem. You can add all the Ethernet interfaces to the same port group. After you run a configuration command once in the port group view, the configuration takes effect on all the Ethernet interfaces in the port group, reducing the configuration workload.

Two types of port groups are available:

- Temporary port group: To temporarily deliver a configuration to multiple interfaces, you can create a temporary port group. After you deliver the configuration and exit from the port group view, the system automatically deletes the temporary port group.
- Permanent port group: To deliver configurations to interfaces multiple times, you can create a permanent port group. After you exit from the port group view, the port group and member interfaces in the group still exist, facilitating subsequent batch configuration for the member interfaces. To delete a permanent port group, run the **undo port-group** { **all** | *port-group-name* } command.

Follow-up Procedure

Run the **group-member** command to add Ethernet interfaces to the created permanent port group.

Precautions

- The system supports a maximum of 32 permanent port groups and each port group supports a maximum of 48 member interfaces.
- Deleting a permanent port group will not clear the configurations of an interface in the port group.

Example

Create port group **portgroup1** and enter the port group view.

```
<HUAWEI> system-view
[HUAWEI] port-group portgroup1
[HUAWEI-port-group-portgroup1]
```

4.2.64 port-group group-member

Function

The **port-group group-member** command creates a temporary port group and adds specified Ethernet interfaces to the temporary port group. Commands configured for a temporary port group will be automatically run on all member interfaces.

By default, no temporary port group is created.

Format

port-group group-member { *interface-type interface-number1* [**to** *interface-type interface-number2*] } &<1-10>

Parameters

Parameter	Description	Value
interface-type interface-number1 [**to** *interface-type interface-number2*]	Specifies Ethernet interfaces to be added to a temporary port group. **to** indicates an interface range. All interfaces numbered between *interface-number1* and *interface-number2* are added to the temporary port group.	The value of *interface-number2* must be larger than the value of *interface-number1*.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

If you need to perform the same operations on multiple Ethernet interfaces, configuring each interface one by one easily causes incorrect configurations and is labor-intensive.

The port group function easily solves the problem. You can add all the Ethernet interfaces to the same port group. After you run a configuration command once in the port group view, the configuration takes effect on all the Ethernet interfaces in the port group, reducing the configuration workload.

Two types of port groups are available:

- Temporary port group: To temporarily deliver a configuration to multiple interfaces, you can create a temporary port group. After you deliver the configuration and exit from the port group view, the system automatically deletes the temporary port group.
- Permanent port group: To deliver configurations to interfaces multiple times, you can create a permanent port group. After you exit from the port group view, the port group and member interfaces in the group still exist, facilitating subsequent batch configuration for the member interfaces. To delete a permanent port group, run the **undo port-group** { **all** | *port-group-name* } command.

Configuration Impact

If the **port-group group-member** command is run more than once, all configurations take effect.

Precautions

- The **port-group group-member** command is equivalent to the **group-member** command executed in the permanent port group view. Multiple

interfaces can be added to a permanent port group in batches using the **group-member** command.

- When you specify the keyword **to** in the **port-group group-member** command:
  - The interfaces specified by *interface-number1* and *interface-number2* must reside on the same member switch. To add contiguous interfaces on different member switches to the same port group, run this command several times or use the keyword **to** several times.
  - The interfaces specified by *interface-number1* and *interface-number2* must be of the same type, for example, both of the interfaces are GE interfaces.
  - The interfaces specified before and after the keyword **to** must have the same attribute. For example, both of them are main interfaces or sub-interfaces. If they are sub-interfaces, they must belong to the same main interface.
  - If **to** is not specified, the preceding limitations do not apply.
  - Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support sub-interfaces.

Example

Add GE0/0/1, GE0/0/2, and GE0/0/3 to a temporary port group.

```
<HUAWEI> system-view
[HUAWEI] port-group group-member gigabitethernet 0/0/1 to gigabitethernet 0/0/3
[HUAWEI-port-group]
```

4.2.65 port-isolate enable

Function

The **port-isolate enable** command enables port isolation.

The **undo port-isolate enable** command disables port isolation.

By default, port isolation is disabled.

Format

port-isolate enable [**group** *group-id*]

undo port-isolate enable [**group** *group-id*]

Parameters

Parameter	Description	Value
group *group-id*	Specifies the ID of a port isolation group.	The value is an integer that ranges from 1 to 64.

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 40GE interface view, 100GE interface view, 25GE interface view, , port group view, Eth-Trunk interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

To implement Layer 2 isolation between interfaces, add different interfaces to different VLANs. This, however, wastes VLAN resources. To save VLAN resources, enable port isolation to isolate interfaces in a VLAN. That is, you can add interfaces to a port isolation group to implement Layer 2 isolation between these interfaces. Port isolation provides secure and flexible networking schemes for customers.

Precautions

- After port isolation is configured, ports are isolated at Layer 2 but can communicate at Layer 3 by default. To configure both Layer 2 isolation and Layer 3 isolation, run the **port-isolate mode all** command.
- Interfaces in a port isolation group are isolated from each other, but interfaces in different port isolation groups can communicate. If *group-id* is not specified, interfaces are added to port isolation group 1 by default.
- There is no limit on the number of members in a port isolation group on the S200, and S1730S-S1. The maximum number of members in a port isolation group on other switch models is 512.
- In the same VLAN, if the **mac-address learning disable** command is run to disable MAC address learning and traffic is forwarded in broadcast mode, the device first copies the traffic received on the inbound interface before checking whether port isolation is configured, though port isolation has been configured. When the copied traffic exceeds the chip performance, the device discards the traffic, resulting in packet loss in forwarding.

Example

Enable port isolation on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] port-isolate enable group 1
```

4.2.66 port-isolate exclude vlan

Function

The **port-isolate exclude vlan** command excludes a VLAN where port isolation needs to be disabled.

The **undo port-isolate exclude vlan** command cancels the configuration.

By default, no VLAN is excluded when port isolation is configured.

Format

port-isolate exclude vlan { *vlan-id1* [**to** *vlan-id2*] } &<1-10>

undo port-isolate exclude vlan { *vlan-id1* [**to** *vlan-id2*] } &<1-10>

Parameters

Parameter	Description	Value
vlan-id1	Specifies the ID of a VLAN.	The value is an integer that ranges from 1 to 4094.
vlan-id2	Specifies the ID of a VLAN.	The value is an integer that ranges from 1 to 4094.
vlan-id1 **to** *vlan-id2*	Specifies VLAN IDs in a batch. • *vlan-id1* specifies the first VLAN ID. • *vlan-id2* specifies the last VLAN ID. *vlan-id2* must be greater than *vlan-id1*. *vlan-id1* and *vlan-id2* determine a VLAN range. • If you do not specify **to** *vlan-id2*, only one VLAN is specified.	The values of *vlan-id1* and *vlan-id2* are integers that range from 1 to 4094.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

To enable communication between users in a VLAN where port isolation needs to be disabled, run the **port-isolate exclude vlan** command to exclude the VLAN.

Only SS1720GW-E, S1720GWR-E, S5720I-SI, S5720-LI, S5720S-LI, S5735S-H, S5736-S, S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6720S-S, S6730-H, S6730S-H, S6730-S, and S6730S-S support this command.

Example

Exclude VLAN 10 where port isolation needs to be disabled.

```
<HUAWEI> system-view
[HUAWEI] port-isolate exclude vlan 10
```

4.2.67 protect-group member

Function

The **protect-group member** command adds the specified Ethernet interface to an interface protection group.

The **undo protect-group member** command deletes an Ethernet interface from an interface protection group.

By default, no Ethernet interface is added to an interface protection group.

Format

protect-group member *interface-type interface-number* { **master** | **standby** }

undo protect-group member *interface-type interface-number*

Parameters

Parameter	Description	Value
interface-type interface-number	Specifies the type and number of the interface to be added to an interface protection group.	-
master	Indicates the working interface.	-
standby	Indicates the protected interface.	-

Views

Interface protection group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Hosts are usually connected to an external network through a default gateway. If the outbound interface of the default gateway fails, the hosts cannot

communicate with the external network, interrupting normal service transmission and degrading device reliability. The port protection function solves this problem. Without changing the networking, you can add two interfaces on the device to a port protection group to implement interface backup in active/standby mode. When the active interface fails, services are immediately switched to the standby interface, ensuring non-stop service transmission.

Prerequisites

An interface protection group has been created using the **port protect-group** command.

Precautions

An interface protection group contains only a working interface and a protected interface.

Example

Add GigabitEthernet0/0/1 to an interface protection group.

```
<HUAWEI> system-view
[HUAWEI] port protect-group 1
[HUAWEI-protect-group1] protect-group member gigabitethernet 0/0/1 master
```

4.2.68 port mode 2.5ge

Function

The **port mode 2.5ge** command configures an interface to work at the rate of 2.5 Gbit/s.

The **undo port mode** command restores the default interface rate.

By default, the rate of a GE interface is 1 Gbit/s, and the rate of an XGE interface is 10 Gbit/s.

NOTE

Only the following interfaces on the following models can be configured to work at the rate of 2.5 Gbit/s:

- S5731-S32ST4X, S5731-S32ST4X-A, S5731-S32ST4X-D, S5731S-S32ST4X-A, and S5731S-S32ST4X-A1: 24 downlink GE interfaces
- S5731-S48S4X, S5731-S48S4X-A, S5731S-S48T4X-A, and S5731S-S48T4X-A1: 44 GE interfaces numbered 5 to 48
- S5731-H24HB4XZ and S5731S-H24HB4XZ-A: first 20 downlink GE interfaces and four downlink 10GE interfaces
- S5731-H48HB4XZ and S5731S-H48HB4XZ-A: 28 GE interfaces numbered 1 to 8 and 25 to 44 and four downlink 10GE interfaces

Format

port mode 2.5ge

undo port mode

Parameters

None

Views

GE interface view, XGE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

GE and XGE interfaces can work at the rate of 2.5 Gbit/s. You can run this command to change the rate of a GE or XGE interface based on networking and bandwidth requirements. After the change, replace the transmission medium to enable the interface to work at the corresponding rate.

The rate of interfaces is changed by group. Every four interfaces form a group. If the rate of any interface in the group is changed, the rate of other interfaces in the same group is changed to be the same. For GE interfaces, the four interfaces in the same group work at the same rate (either all 1 Gbit/s or all 2.5 Gbit/s). For XGE interfaces, the following situations exist: The four interfaces in the same group work at the same rate (all 2.5 Gbit/s, all 1 Gbit/s, or all 10 Gbit/s). The four interfaces in the same group work at different rates, that is, some interfaces work at the rate of 1 Gbit/s, while other interfaces work at the rate of 10 Gbit/s.

Precautions

- After an interface is configured to work at the rate of 2.5 Gbit/s, the interface cannot be configured to work in auto-negotiation mode, and does not support single-fiber communication, MACsec, training, FEC, 100M optical modules, GE optical modules, or optical-to-electrical conversion modules.
- After an interface is configured to work at the rate of 2.5 Gbit/s, it cannot be configured as a stack interface. Similarly, after an interface is configured as a stack interface, it cannot be configured to work at the rate of 2.5 Gbit/s.
- For the S5731-H24HB4XZ, S5731-H48HB4XZ, S5731S-H24HB4XZ-A, and S5731S-H48HB4XZ-A, if the interface rate is changed to 2.5 Gbit/s after a subcard is installed, the subcard becomes unavailable due to insufficient bandwidth. You need to confirm the operation as prompted before changing the interface rate.

Example

Configure a GE interface to work at the rate of 2.5 Gbit/s.

```
<HUAWEI> system-view
[HUAWEI] interface ge 0/0/3
[HUAWEI-GigabitEthernet0/0/3] port mode 2.5ge
Warning: The interface(s)(GigabitEthernet0/0/1, GigabitEthernet0/0/2, GigabitEthernet0/0/3,
GigabitEthernet0/0/4) will be converted to 2.5GE mode, Continue? [Y/N]:y
Info: This operation may take a few seconds. Please wait for a moment.....done.
```


4.2.69 port mode ge (25GE interface)

Function

The **port mode ge** command configures a 25GE interface to work at the rate of 1 Gbit/s.

The **undo port mode** command restores the rate of a 25GE interface to 25 Gbit/s.

By default, when a 25GE medium is installed on a 25GE interface, the interface works at the rate of 25 Gbit/s; when an XGE medium is installed on a 25GE interface, the interface works at the rate of 10 Gbit/s; when a GE medium is installed on a 25GE interface, the interface cannot go Up.

NOTE

This command is supported by the following: S5732-H24UM2CC (part number: 02353HUC/02353HUC-003/02353SJY/02353SJY-001/02353SJY-004/02353SJY-010/02353SJY-011/02353SJY-014/02353SJY-015/02353SJY-016/02353SJY-019/02353SJY-002/02353SJY-003/02353SJY-012/02353SJY-013/02353SJY-017/02353SJY-018), S5732-H48UM2CC (part number: 02353HUB/02353HUB-002/02353SJT/02353SJT-001/02353SJT-003/02353SJT-004/02353SJT-010/02353SJT-011/02353SJT-013/02353SJT-014/02353SJT-015/02353SJT-016/02353SJT-018/02353SJT-002), S5732-H48XUM2CC, S6730-H28Y4C, S6730-H24X4Y4C and S7Y08000 card.

This command is supported when the interface working mode on the S7X08000 or S7X0800K0 card is set to 25GE using the **set card port-config-mode 25g-port enable** command.

Format

port mode ge

undo port mode

Parameters

None

Views

25GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

A 25GE interface can work at the rate of 1 Gbit/s. You can configure the rate as required and replace the transmission medium.

When a 25GE interface is configured to work at the rate of 1 Gbit/s, all interfaces in the interface group to which the 25GE interface belongs are configured to work at the rate of 1 Gbit/s.

- For the S6730-H28Y4C, each group of interfaces numbered 1 to 4, 5 to 8, 9 to 16, 17 to 20, 21 to 24, or 25 to 28 belong to the same interface group.
- Interfaces numbered 1 and 2 on the S7X08000 or S7X0800K0 card belong to the same interface group.
- For the S5732-H24UM2CC (part number: 02353HUC/02353HUC-003/02353SJY/02353SJY-001/02353SJY-004/02353SJY-010/02353SJY-011/02353SJY-014/02353SJY-015/02353SJY-016/02353SJY-019/02353SJY-002/02353SJY-003/02353SJY-012/02353SJY-013/02353SJY-017/02353SJY-018), S5732-H48UM2CC (part number: 02353HUB/02353HUB-002/02353SJT/02353SJT-001/02353SJT-003/02353SJT-004/02353SJT-010/02353SJT-011/02353SJT-013/02353SJT-014/02353SJT-015/02353SJT-016/02353SJT-018/02353SJT-002), S5732-H48XUM2CC, S6730-H24X4Y4C and S7Y08000 card, each group of interfaces numbered 1 to 4, 5 to 8, or 9 to 12 belong to the same interface group.

Precautions

- Configure the remote interface to work at the same rate as that of the local interface.
- Ensure that all interfaces in the interface group in which the interface rate is to be changed are in Down status before running this command. If the status of an interface is Up, run the **shutdown** command on the interface and then change the interface rate.
- After the **port mode ge** command is run on an interface, if any interface in the same interface group as that interface is Up, the command configuration will not be cleared after the **clear configuration this** or **clear configuration interface** command is run. If all the interfaces in the interface group are Down, the command configuration will be cleared after the **clear configuration this** or **clear configuration interface** command is run.
- 25GE interfaces split from other interfaces cannot work at the rate of 1 Gbit/s.

Example

Configure a 25GE interface to work at the rate of 1 Gbit/s.

```
<HUAWEI> system-view
[HUAWEI] interface 25ge 0/1/1
[HUAWEI-25GE0/1/1] port mode ge
Warning:The interface(s)(25GE0/1/1,25GE0/1/2) will be converted to GE mode.[Y/N]:y
Info: This operation may take a few seconds. Please wait for a moment....done.
```

4.2.70 port-isolate mode

Function

The **port-isolate mode** command sets the port isolation mode.

The **undo port-isolate mode** command restores the default port isolation mode.

By default, ports are isolated at Layer 2 but can communicate at Layer 3.

Format

port-isolate mode { **l2** | **all** }

undo port-isolate mode

Parameters

Parameter	Description	Value
l2	Indicates that ports are isolated at Layer 2 but can communicate at Layer 3.	-
all	Indicates that ports are isolated at both Layer 2 and Layer 3.	-

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

To implement Layer 2 isolation between interfaces, you can add different interfaces to different VLANs. This wastes VLAN resources. Port isolation can isolate interfaces in the same VLAN. That is, you only need to add interfaces to a port isolation group to implement Layer 2 isolation between these interfaces. Port isolation provides secure and flexible networking schemes.

You can configure the interface isolation mode to **all** to implement Layer 2 and Layer 3 isolation between interfaces in a port isolation group.

NOTE

The S5720-LI, S2730S-S, S5735-L-I, S5735-L1,S300, S500, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, and S5720S-LI support isolation at Layer 2 and interworking at Layer 3, and do not support this command.

Example

Configure Layer 2 isolation and Layer 3 communication.

```
<HUAWEI> system-view
[HUAWEI] port-isolate mode l2
```


4.2.71 port media type (GE interface view)

Function

The **port media type** command determines whether an interface configuration item belongs to an optical or electrical interface.

The **undo port media type** command restores the default settings.

Format

port media type { **copper** | **fiber** }

undo port media type { **copper** | **fiber** }

Parameters

Parameter	Description	Value
copper	Determines that the interface configuration item belongs to a combo interface or GE interface that is equipped with a copper module and works as an electrical interface.	-
fiber	Determines that the interface configuration item belongs to a combo interface or GE interface that is equipped with a copper module and works as an optical interface.	-

Views

GE interface view

Default Level

2: Configuration level

Usage Guidelines

This command only distinguishes optical interface configuration and electrical interface configuration, and is not configurable.

If you have specified the interface attributes (such as auto-negotiation, speed, and full-duplex mode) on a combo interface, the system automatically generates this

command to determine whether an interface configuration item belongs to the optical interface or electrical interface. After this command is generated, the configuration for the other interface type (such as optical interface) will not be lost if the combo interface works as an electrical interface.

For example, after you run the **display this** command on a combo interface, the interface configuration is as follows:

```
#
interface GigabitEthernet0/0/1
 port media type copper
  undo negotiation auto
  speed 100
 port media type fiber
  undo negotiation auto
#
```

The command output shows that there are two configuration items **undo negotiation auto** and **speed 100** when the combo interface works as an electrical interface and one configuration item **undo negotiation auto** when the combo interface works as an optical interface.

Example

None

4.2.72 port media type (XGE interface view)

Function

The **port media type** command determines whether an interface configuration item belongs to the optical or electrical interface.

The **undo port media type** command restores the default settings.

Format

port media type { **copper** | **fiber** }

undo port media type { **copper** | **fiber** }

Parameters

Parameter	Description	Value
copper	Determines the interface configuration item belongs to an XGE interface that is equipped with a copper module and works as an electrical interface.	-

Parameter	Description	Value
fiber	Determines the interface configuration item belongs to an XGE interface that is equipped with a copper module and works as an optical interface.	-

Views

XGE interface view

Default Level

2: Configuration level

Usage Guidelines

This command cannot be manually configured and belongs to internal implementation commands. This command only distinguishes optical interface configuration and electrical interface configuration, and is not configurable.

If you have installed a copper module on an XGE interface and specified the interface attributes (such as auto-negotiation, speed, and full-duplex mode), the system automatically generates this command to determine whether an interface configuration item belongs to the optical or electrical interface.

For example, after you run the **display this** command on an XGE interface, the interface configuration is as follows:

```
#
interface XGigabitEthernet0/0/1
 port media type copper
  mdi across
 port media type fiber
  als enable
#
```

The command output indicates that there is one configuration item **mdi across** when the XGE interface works as an electrical interface and one configuration item **als enable** when the XGE interface works as an optical interface.

Example

None

4.2.73 port media type (25GE interface view)

Function

The **port media type** command determines whether an interface configuration item belongs to an optical or electrical interface.

The **undo port media type** command restores the default settings.

Format

port media type { **copper** | **fiber** }

undo port media type { **copper** | **fiber** }

Parameters

Parameter	Description	Value
copper	Determines the interface configuration item belongs to a 25GE interface that is equipped with a GE copper module and works as an electrical interface.	-
fiber	Determines the interface configuration item belongs to a 25GE interface that is equipped with a GE copper module and works as an optical interface.	-

Views

25GE interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

This command only distinguishes optical interface configuration and electrical interface configuration, and is not configurable.

If you have run the **port mode ge** command to configure a 25GE interface to work at the rate of 1 Gbit/s, installed a GE copper module on the 25GE interface, and specified the interface attributes (such as auto-negotiation and MDI type) for the 25GE interface, the system automatically generates this command to determine whether an interface configuration item belongs to the optical or electrical interface.

For example, after you run the **display this** command on a 25GE interface, the interface configuration is as follows:

```
#
interface 25GigabitEthernet0/0/1
 port media type copper
  mdi across
 port media type fiber
  als enable
#
```

The command output indicates that there is one configuration item **mdi across** when the 25GE interface works as an electrical interface and one configuration item **als enable** when the 25GE interface works as an optical interface.

Example

None

4.2.74 port protect-group

Function

The **port protect-group** command creates an interface protection group and enters the interface protection group view.

The **undo port protect-group** command deletes the created interface protection group.

By default, no interface protection group is created.

Format

port protect-group *protect-group-index*

undo port protect-group *protect-group-index*

Parameters

Parameter	Description	Value
protect-group-index	Specifies the ID of an interface protection group.	The value is an integer that ranges from 0 to 63.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Hosts are usually connected to an external network through a default gateway. If the outbound interface of the default gateway fails, the hosts cannot communicate with the external network, interrupting normal service transmission and degrading device reliability. The port protection function solves this problem. Without changing the networking, you can add two interfaces on the device to a port protection group to implement interface backup in active/standby mode. When the active interface fails, services are immediately switched to the standby interface, ensuring non-stop service transmission.

Follow-up Procedure

Run the **protect-group member** command to add the specified Ethernet interface to an interface protection group.

Example

Create an interface protection group.

```
<HUAWEI> system-view
[HUAWEI] port protect-group 1
```

4.2.75 port split

Function

The **port split** command splits a specified interface.

The **undo port split** command cancels the split configuration on an interface.

By default, an interface is not split.

NOTE

Only interfaces on the panel of the S5731-S24N4X2Q-A, S5731-S24UN4X2Q, S5731-S8UM16UN2Q, S5731S-S24N4X2Q-A1, S5731S-S24UN4X2Q-A, S5731S-S8UM16UN2Q-A support interface split and merge.

For the devices that have the S7C02000 or S7Q02001 card installed, interfaces on the card support interface split and merge.

Format

40GE interfaces on the device panel or card

port split split-type 40GE:4*XGE

100GE interfaces on the device panel or card

port split split-type 100GE:4*25GE

10GE and 25GE interfaces split from other interfaces

undo port split

Parameters

Parameter	Description	Value
40GE:4*XGE	Splits a specified 40GE interface into four 10GE interfaces.	-
100GE:4*25GE	Splits a specified 100GE interface into four 25GE interfaces.	-

Views

XGE interface view, 40GE interface view25GE interface view, 100GE interface view

Default Level

3: Management level

Usage Guidelines

Usage Scenario

To split an interface, run the **port split split-type** command in the view of the interface. To merge converted interfaces into the original interface, run the **undo port split** command in the view of only one of the converted interfaces.

Precautions

- After configuring interface split using the **port split split-type** command, restart the interface card to make the configuration take effect.
- If interface split or merge is configured on an interface, the original configuration on the interface is lost. Therefore, exercise caution when deciding to perform the interface split or merge operation.
- 10GE interfaces converted from a 40GE interface are numbered based on the number of the last 10GE interface on the switch. For interfaces on the switch panel, if the last 10GE interface is numbered XGE 0/y/m and a 40GE interface to be split is numbered 40GE 0/y/n, the four 10GE interfaces converted from the 40GE interface are numbered XGE 0/y/(m + 4 * (n - 1) + z + 1). For example, if the last 10GE interface on a switch is numbered XGE 0/0/48, the four 10GE interfaces converted from 40GE 0/0/3 are numbered XGE 0/0/57, XGE 0/0/58, XGE 0/0/59, and XGE 0/0/60. For interfaces on a card, m has a fixed value of 0. For example, the four 10GE interfaces converted from 40GE 1/1/1 on a card are numbered XGE 1/1/1, XGE 1/1/2, XGE 1/1/3, and XGE 1/1/4.
  - y: indicates the subcard number.
  - m: indicates the sequence number of the last 10GE interface on the switch.
  - n: indicates the sequence number of the 40GE interface.
  - z: indicates the interface location. The value ranges from 0 to 3.
- 25GE interfaces converted from a 100GE interface are numbered based on the number of the last 25GE interface on the switch. Because only the 100GE interfaces on cards support interface split, if a 100GE interface to be split is

numbered 100GE 0/y/n, the four 25GE interfaces converted from the 100GE interface are numbered 25GE 0/y/(4 * (n - 1) + z + 1). For example, the four 25GE interfaces converted from 100GE 0/1/1 on a card are numbered 25GE 0/1/1, 25GE 0/1/2, 25GE 0/1/3, and 25GE 0/1/4.

- y: indicates the subcard number.
- m: indicates the sequence number of the last 10GE interface on the switch.
- n: indicates the sequence number of the 40GE interface.
- z: indicates the interface location. The value ranges from 0 to 3.

NOTE

Split interfaces are numbered in the same sequence as the wires of a cable are numbered. For example, in a 1-to-4 cable, the wire numbered 1 corresponds to the interface with the lowest interface number, and the wire numbered 4 corresponds to the interface with the highest interface number.

- After interface split is configured, the interface and converted interfaces cannot be added to a stack interface, regardless of whether the configuration takes effect. If an interface has been added to a stack interface, the interface cannot be split.
- After configuring interface split using the **port split split-type 40GE:4*XGE** command, or using the **undo port split** command, restart the device to make the configuration take effect. You can run the **display port split** command in any view to check the status of a split interface.

Example

Split a 40GE interface into four 10GE interfaces and restart the device to make the configuration take effect.

```
<HUAWEI> system-view
[HUAWEI] interface 40GE 0/0/1
[HUAWEI-40GE0/0/1] port split split-type 40GE:4*XGE
Warning: This command will take effect only after resetting the board. 40GE0/0/1 will be split up into XGE, and the port configuration will be lost when the port type is changed. Continue? [Y/N]:y
Info: Succeeded in setting the configuration.
[HUAWEI-40GE0/0/1] return
<HUAWEI> reboot
Info: The system is now comparing the configuration, please wait.
Warning: The configuration has been modified, and it will be saved to the next startup saved-configuration file flash:/device.cfg. Continue? [Y/N]:y
Now saving the current configuration to the slot 0.
Save the configuration successfully.
Info: If want to reboot with saving diagnostic information, input 'N' and then execute 'reboot save diagnostic-information'.
System will reboot! Continue?[Y/N]:y
```

4.2.76 port serdes-mode

Function

The **port serdes-mode** command configures the Serdes mode of a MultiGE interface.

The **undo port serdes-mode** command restores the default Serdes mode of a MultiGE interface.

By default, a MultiGE interface can work in 1G or 10G Serdes mode.

NOTE

This command is supported only on the following switch models:

S5732-H24UM2CC (part number: 02353HUC/02353HUC-003/02353SJY/02353SJY-001/02353SJY-004/02353SJY-010/02353SJY-011/02353SJY-014/02353SJY-015/02353SJY-016/02353SJY-019/02353SJY-002/02353SJY-003/02353SJY-012/02353SJY-013/02353SJY-017/02353SJY-018), S5732-H48UM2CC (part number: 02353HUB/02353HUB-002/02353SJT/02353SJT-001/02353SJT-003/02353SJT-004/02353SJT-010/02353SJT-011/02353SJT-013/02353SJT-014/02353SJT-015/02353SJT-016/02353SJT-018/02353SJT-002), S5732-H48XUM2CC (excluding MultiGE interfaces numbered 9 to 12)

Format

port serdes-mode { **2500-base-x** | **5000-base-x** } { **sgmii** | **xfi** }

port serdes-mode sgmii xfi

undo port serdes-mode

Parameters

Parameter	Description	Value
2500-base-x	Configures an interface to work in 2.5G Serdes mode.	-
5000-base-x	Configures an interface to work in 5G Serdes mode.	-
sgmii	Configures an interface to work in 1G Serdes mode.	-
xfi	Configures an interface to work in 10G Serdes mode.	-

Views

MultiGE interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

By default, when a MultiGE interface works at the rate of 2.5 Gbit/s or 5 Gbit/s, the Serdes mode of the MultiGE interface is 10G. When a Huawei device is connected to a non-Huawei device, if the preamble of packets sent from the non-Huawei device is not fixed, the MultiGE interface connecting the Huawei device to the non-Huawei device discards the packets. To prevent this problem, when a

Huawei device connects to a non-Huawei device and receives the ENTITYTRAP_1.3.6.1.4.1.2011.5.25.219.2.2.3 hwBoardFail alarm with EntityTrapFaultID being 132282, run the **port serdes-mode** command to change the Serdes mode of the MultiGE interface to 2.5G or 5G based on the alarm information.

When a Huawei device connects to a non-Huawei device, the MultiGE interface connecting the Huawei device to the non-Huawei device cannot go Up if its Serdes mode is different from that on the non-Huawei device. To prevent this problem, when a Huawei device connects to a non-Huawei device and receives the ENTITYTRAP_1.3.6.1.4.1.2011.5.25.219.2.2.3 hwBoardFail alarm with EntityTrapFaultID being 132283, run the **port serdes-mode** command to change the Serdes mode of the MultiGE interface to be the same as that on the non-Huawei device based on the alarm information.

Precautions

MultiGE interfaces of different devices can be split into separate interface groups based on rules. MultiGE interfaces in each interface group support only two Serdes modes.

- On the S5732-H24UM2CC (part number: 02353HUC), each group of MultiGE interfaces 1 to 8, 9 to 16, and 17 to 24 forms an interface group.
- On the S5732-H24UM2CC (part number: 02353HUC), each group of MultiGE interfaces 1 to 8, 9 to 16, 17 to 24, 25 to 32, 33 to 36, 37 to 40, 41 to 44, and 45 to 48 forms an interface group.
- On the S5732-H48XUM2CC, each group of MultiGE interfaces 1 to 8, 13 to 20, and 21 to 24 forms an interface group.

Example

Configure a MultiGE interface to work in 2.5G or 10G Serdes mode.

```
<HUAWEI> system-view
[HUAWEI] interface MultiGE 0/0/1
[HUAWEI-MultiGE0/0/1] port serdes-mode 2500-base-x xfi
```

4.2.77 portswitch

Function

The **portswitch** command changes the working mode of Ethernet interfaces from Layer 3 mode to Layer 2 mode.

The **undo portswitch** command changes the working mode of Ethernet interfaces from Layer 2 mode to Layer 3 mode.

By default, an Ethernet interface works in Layer 2 mode.

Format

portswitch

undo portswitch

Parameters

None

Views

GE interface view, XGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, Eth-Trunk interface view, port group view, MultiGE interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

By default, an Ethernet interface on the device works in Layer 2 mode. To enable Layer 3 functions on the interface, run the **undo portswitch** command on the interface.

Precautions

- If an interface has the non-attribute configuration, this command cannot be executed. Before running this command, delete the non-attribute configuration on the interface.
- The minimum interval between running the **portswitch** and **undo portswitch** commands must be 30s.

NOTE

Only interfaces on the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support switching between Layer 2 and Layer 3 modes.

Ethernet interfaces working at Layer 3 support IP address configuration.

By default, Ethernet interfaces on the device work at Layer 2 mode and have been added to VLAN 1. You can run the **undo portswitch** command to change the working mode to Layer 3 mode. The Ethernet interfaces are removed from VLAN 1 only after Layer 3 protocols become Up.

Example

Change the working mode of GE0/0/1 from Layer 2 mode to Layer 3 mode.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] undo portswitch
[HUAWEI-GigabitEthernet0/0/1] ip address 10.10.10.10 255.255.255.0
```

4.2.78 portswitch batch

Function

The **portswitch batch** command changes the working mode of Ethernet interfaces from Layer 3 mode to Layer 2 mode in batches.

The **undo portswitch batch** command changes the working mode of Ethernet interfaces from Layer 2 mode to Layer 3 mode in batches.

By default, the working mode of the interface is Layer 2 mode.

Format

portswitch batch *interface-type* { *interface-number1* [**to** *interface-number2*] } &<1-10>

undo portswitch batch *interface-type* { *interface-number1* [**to** *interface-number2*] } &<1-10>

Parameters

Parameter	Description	Value
interface-type interface-number1 [**to** *interface-number2*]	Specifies interfaces of which the working mode needs to be changed. • *interface-number1* specifies the number of the first interface. • *interface-number2* specifies the number of the last interface. The value of *interface-number2* must be larger than the value of *interface-number1*. *interface-number1* and *interface-number2* specify the range of interfaces. • If **to** *interface-number2* is not specified, only the working mode of the interface specified by *interface-number1* is changed. **NOTE** You can specify a maximum of 10 interface number ranges at a time. The entered ranges cannot overlap.	-

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

You can run the **portswitch batch** or **undo portswitch batch** command to change the working mode of interfaces in batches.

Precautions

- The mode switching function takes effect when the interface only has attribute configurations (for example, **shutdown** and **description**

configurations). If the service configuration (for example, **port link-type access** configuration) exists on the interface, you must clear the service configuration before running this command.

- The minimum interval between running the **portswitch batch** and **undo portswitch batch** commands must be 30s.

NOTE

Only interfaces on the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support switching between Layer 2 and Layer 3 modes.

Ethernet interfaces working at Layer 3 support IP address configuration.

Example

Change the working mode of GE0/0/1, 0/0/2, and 0/0/3 to Layer 2 mode.

```
<HUAWEI> system-view
[HUAWEI] portswitch batch gigabitethernet 0/0/1 0/0/2 0/0/3
```

4.2.79 reset statistics-peak

Function

The **reset statistics-peak** command clears Peak Information Rate (PIR) statistics on an interface.

Format

reset statistics-peak interface *interface-type interface-number*

NOTE

PIR statistics on the management interface cannot be cleared.

Parameters

Parameter	Description	Value
interface *interface-type interface-number*	Clears PIR statistics on a specified interface. • *interface-type* specifies the interface type. • *interface-number* specifies the interface number.	-

Views

All views

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Generally, the PIR of an interface indicates the maximum rate of the interface in a long time. To check the recent peak rate of an interface, run the **reset statistics-peak** command to clear the previous peak rate record and obtain the new peak rate. To view the peak rate of an interface, run the **display interface** command. The following information is displayed:

```
Input peak rate 244425848 bits/sec,Record time: 2008-01-01 00:16:37
Output peak rate 753496 bits/sec,Record time: 2008-01-15 19:25:12
```

Precautions

PIR statistics on a specified interface cannot be restored after they are cleared. Exercise caution before clearing the statistics.

Example

Clear PIR statistics on GE0/0/1.

```
<HUAWEI> reset statistics-peak interface gigabitethernet 0/0/1
```

4.2.80 reset statistics-peak interface

Function

The **reset statistics-peak interface** command clears peak information rate (PIR) statistics on all the interfaces in one click.

Format

reset statistics-peak interface

NOTE

PIR statistics on management interfaces cannot be cleared.

Parameters

None

Views

User view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Generally, the PIR of an interface indicates the maximum rate of the interface in a long time. To check the recent PIR of a specified interface, run the **reset statistics-peak** command to clear the previous PIR statistics and obtain the new PIR. To check recent PIR statistics on multiple or all interfaces, you may need to spend a long time in clearing the PIR statistics, increasing the workload. To reduce the workload, you can run this command in the user view to clear PIR statistics on all the interfaces.

Precautions

PIR statistics on an interface cannot be restored after they are cleared. Exercise caution before clearing the statistics.

Example

Clear PIR statistics on all the interfaces.

```
<HUAWEI> reset statistics-peak interface
```

4.2.81 reset virtual-cable-test

Function

The **reset virtual-cable-test** command deletes cable test results on an interface.

NOTE

The service interfaces on the following devices do not support this command:

- MultiGE interfaces on the S5720-28X-PWH-LI-AC and S5736-S24UM4XC
- XGE electrical interfaces on the ES5D21X08T00 card

Format

reset virtual-cable-test { *interface-type interface-number* | **all** }

Parameters

Parameter	Description	Value
interface-type interface-number	Deletes cable test results on a specified interface. • *interface-type* specifies an interface type. • *interface-number* specifies an interface number.	-
all	Deletes cable test results on all interfaces.	-

Views

All views

Default Level

3: Management level

Usage Guidelines

Usage Scenario

Before conducting a cable test on an electrical interface, you can use this command to delete the previous test results.

Precautions

The cable test results cannot be restored after being cleared. Exercise caution before clearing the statistics.

Example

Delete cable test results on GE0/0/1.
<HUAWEI> **reset virtual-cable-test gigabitethernet 0/0/1**

4.2.82 set card port-config-mode 25g-port enable

Function

The **set card port-config-mode 25g-port enable** command sets the card interface working mode to 25GE.

The **undo set card port-config-mode 25g-port enable** command restores the default card interface working mode.

By default, the card interface working mode is 10GE.

NOTE

The following switch models support this command when equipped with an S7X08000 card:

- S5731-H24T4XC, S5731-H24P4XC, S5731-H48T4XC, S5731-H48P4XC, S5731-H24HB4XZ, S5731-H48HB4XZ
- S5731S-H24T4XC-A, S5731S-H48T4XC-A, S5731S-H24HB4XZ-A, S5731S-H48HB4XZ-A
- S5736-S
- S5732-H24UM2CC, S5732-H48UM2CC, S5732-H48XUM2CC

Format

set card port-config-mode 25g-port enable slot *slot-id*

undo set card port-config-mode 25g-port enable slot *slot-id*

Parameters

Parameter	Description	Value
slot *slot-id*	Configures the interface working mode for the card in a specified slot.	The value must be set according to the device configuration.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

By default, the card interface working mode is 10GE, and the number of interfaces is **8*10GE**. To use 25GE interfaces, run the **set card port-config-mode 25g-port enable** command. In this case, the number of interfaces on the card is **2*25GE**, and the last six interfaces are unavailable.

Precautions

- After running this command, you need to confirm the automatic reset of cards as prompted to make the configuration take effect.
- After the interface working mode is changed, replace the connection medium.
- When the interface working mode of a card is being changed, the card cannot be removed and then reinstalled.
- After you run the **reset factory-configuration** command to restore factory settings and restart the device, the card interface working mode is restored to 10GE.
- If there are stack ports on a card, changing the card interface working mode may cause a stack split after the card is reset.

Example

Configure the card interface working mode to 25GE.

```
<HUAWEI> system-view
[HUAWEI] set card port-config-mode 25g-port enable slot 1
Warning: Only the first two ports will be available after the subcard is automatically initialized. Continue?
[Y/N]:y
Warning: The subcard needs to be reset for the new port mode to take effect. Ensure that subcard is
properly installed during re-ini
tialization. Otherwise, port mode switching fails. Continue? [Y/
N]:y
Info: The system is executing the command. Please wait.....
Info: The port mode is changed successfully.
```


4.2.83 set device port-config-mode enable

Function

The **set device port-config-mode enable** command changes the working mode of SFP28 Ethernet optical ports or MultiGE interfaces on the device panel and changes the working mode of QSFP28 Ethernet optical ports or splits QSFP28 Ethernet optical ports.

The **undo set device port-config-mode enable** command restores the default configuration.

By default, four SFP28 Ethernet optical ports on the panel of the S5732-H24UM2CC (part number: 02353HUC/02353HUC-003/02353SJY/02353SJY-001/02353SJY-004/02353SJY-010/02353SJY-011/02353SJY-014/02353SJY-015/02353SJY-016/02353SJY-019/02353SJY-002/02353SJY-003/02353SJY-012/02353SJY-013/02353SJY-017/02353SJY-018), S5732-H48UM2CC (part number: 02353HUB/02353HUB-002/02353SJT/02353SJT-001/02353SJT-003/02353SJT-004/02353SJT-010/02353SJT-011/02353SJT-013/02353SJT-014/02353SJT-015/02353SJT-016/02353SJT-018/02353SJT-002) and S5732-H48XUM2CC work at the rate of 25 Gbit/s, and two QSFP28 Ethernet optical ports work at the rate of 40 Gbit/s. On the panel of the S5731-S8UM16UN2Q and S5731S-S8UM16UN2Q-A, the first 16 MultiGE interfaces work at the rate of 2.5 Gbit/s, the last eight MultiGE interfaces work at the rate of 10 Gbit/s, four SFP+ Ethernet optical ports are unavailable, and two QSFP+ Ethernet optical ports work at the rate of 40 Gbit/s.

NOTE

This command is supported only on the S5731-S8UM16UN2Q, S5731S-S8UM16UN2Q-A, S5732-H24UM2CC (part number: 02353HUC/02353HUC-003/02353SJY/02353SJY-001/02353SJY-004/02353SJY-010/02353SJY-011/02353SJY-014/02353SJY-015/02353SJY-016/02353SJY-019/02353SJY-002/02353SJY-003/02353SJY-012/02353SJY-013/02353SJY-017/02353SJY-018), S5732-H48UM2CC (part number: 02353HUB/02353HUB-002/02353SJT/02353SJT-001/02353SJT-003/02353SJT-004/02353SJT-010/02353SJT-011/02353SJT-013/02353SJT-014/02353SJT-015/02353SJT-016/02353SJT-018/02353SJT-002) and S5732-H48XUM2CC.

Format

set device port-config-mode *port-config-mode* **enable** { **all** | **slot** *slot-id* }

undo set device port-config-mode enable { **all** | **slot** *slot-id* }

Parameters

Parameter	Description	Value
port-config-mode	Specifies the working mode of ports on the device panel.	The value is a character string: • **4*25GE+2*40GE** • **4*25GE+4*10GE+40GE** • **4*25GE+40GE+4*10GE** • **4*25GE+8*10GE** • **2*100GE** • **4*25GE+100GE** • **100GE+4*25GE** • **8*25GE** • **8*10G+16*2.5G+2*40G** • **12*10G+12*2.5G+4*10G** **NOTE** The **8*10G+16*2.5G+2*40G** and **12*10G+12*2.5G+4*10G** parameters are supported only on the S5731-S8UM16UN2Q and S5731S-S8UM16UN2Q-A.
all	Indicates all slots.	-
slot *slot-id*	Specifies a slot ID.	The value must be set according to the device configuration.

Views

System view

Default Level

3: Management level

Usage Guidelines

Usage Scenario

There are four SFP28 Ethernet optical ports and two QSFP28 Ethernet optical ports on the panel of S5732-H24UM2CC (part number: 02353HUC/ 02353HUC-003/02353SJY/ 02353SJY-001/02353SJY-004/02353SJY-010/02353SJY-011/02353SJY-014/02353SJY-015/02353SJY-016/02353SJY-019/02353SJY-002/02353SJY-003/02353SJY-012/02353SJY-013/02353SJY-017/02353SJY-018), S5732-H48UM2CC (part number: 02353HUB/02353HUB-002/02353SJT/ 02353SJT-001/02353SJT-003/02353SJT-004/02353SJT-010/02353SJT-011/02353SJT-013/02353SJT-014/02353SJT-015/02353SJT-016/02353SJT-018/02353SJT-002) and S5732-H48XUM2CC. You can run the **set device port-config-mode enable** command to change the working mode of SFP28 Ethernet optical ports on the

device panel and change the working mode of QSFP28 Ethernet optical ports or split QSFP28 Ethernet optical ports. The device supports eight types of working mode switching modes or interface split modes:

- **4*25GE+2*40GE**: Four SFP28 Ethernet optical ports work at the rate of 25 Gbit/s, and two QSFP28 Ethernet optical ports work at the rate of 40 Gbit/s.
- **4*25GE+4*10GE+40GE**: Four SFP28 Ethernet optical ports work at the rate of 25 Gbit/s, QSFP28 Ethernet optical port 1 is split into four 10GE ports, and QSFP28 Ethernet optical port 2 works at the rate of 40 Gbit/s.
- **4*25GE+40GE+4*10GE**: Four SFP28 Ethernet optical ports work at the rate of 25 Gbit/s, QSFP28 Ethernet optical port 1 works at the rate of 40 Gbit/s, and QSFP28 Ethernet optical port 2 is split into four 10GE ports.
- **4*25GE+8*10GE**: Four SFP28 Ethernet optical ports work at the rate of 25 Gbit/s, and each of two QSFP28 Ethernet optical ports is split into four 10GE ports.
- **2*100GE**: Four SFP28 Ethernet optical ports are unavailable, and two QSFP28 Ethernet optical ports work at the rate of 100 Gbit/s.
- **4*25GE+100GE**: Four SFP28 Ethernet optical ports are unavailable, QSFP28 Ethernet optical port 1 is split into four 25GE ports, and QSFP28 Ethernet optical port 2 works at the rate of 100 Gbit/s.
- **100GE+4*25GE**: Four SFP28 Ethernet optical ports are unavailable, QSFP28 Ethernet optical port 1 works at the rate of 100 Gbit/s, and QSFP28 Ethernet optical port 2 is split into four 25GE ports.
- **8*25GE**: Four SFP28 Ethernet optical ports are unavailable, and each of two QSFP28 Ethernet optical ports is split into four 25GE ports.

On the panel of the S5731-S8UM16UN2Q and S5731S-S8UM16UN2Q-A, there are 24 MultiGE interfaces, four SPF+ Ethernet optical ports, and two QSFP+ Ethernet optical ports. You can switch the interface working mode as required. The device supports the following working mode switching modes:

- **8*10G+16*2.5G+2*40G**: On the panel, the first 16 MultiGE interfaces work at the rate of 2.5 Gbit/s, the last eight MultiGE interfaces work at the rate of 10 Gbit/s, four SFP+ Ethernet optical ports are unavailable, and two QSFP+ Ethernet optical ports work at the rate of 40 Gbit/s.
- **12*10G+12*2.5G+4*10G**: On the panel, the first 12 MultiGE interfaces work at the rate of 2.5 Gbit/s, the last 12 MultiGE interfaces work at the rate of 10 Gbit/s, four SFP+ Ethernet optical ports work at the rate of 10 Gbit/s, and two QSFP+ Ethernet optical ports are unavailable.

Precautions

- After the working mode of an interface is changed or an interface is split, the configuration on the original interface is lost. Therefore, exercise caution when performing this operation.
- After running this command, you need to confirm the automatic restart of the device as prompted to make the configuration take effect. To prevent configuration loss, save the configuration in advance.
- After interface split is configured, the interface and converted interfaces cannot be added to a stack interface, regardless of whether the configuration takes effect. If an interface has been added to a stack interface, the interface cannot be split.

Example

Configure the two QSFP28 Ethernet optical ports on the device panel to work at the rate of 100 Gbit/s.

```
<HUAWEI> system-view
[HUAWEI] set device port-config-mode 2*100GE enable all
Warning: After the command is run, some ports may become unavailable or their configurations may be lost, and the device automatically restarts. Continue? [Y/N]:y
Warning: Save the configuration before restart. Otherwise, configuration will be lost and the device will restart. Continue? [Y/N]:y
```

4.2.84 set ethernet speed down-grade

Function

The **set ethernet speed down-grade** command enables the rate decrease auto-negotiation function on an interface.

The **undo set ethernet speed down-grade** command disables the rate decrease auto-negotiation function on an interface.

By default, rate decrease auto-negotiation is disabled on an interface.

NOTE

The rate decrease auto-negotiation function takes effect only on the following interfaces:

- MultiGE interface
- GE electrical interface
- GE optical interface that has a GE copper module installed
- Last four 10GE electrical interfaces on the ES5D21X08T00 card of the S5731-H and S5731S-H

Format

set ethernet speed down-grade

undo set ethernet speed down-grade

Parameters

None

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Two devices are connected through two GE electrical interfaces using a network cable. The two GE interfaces are configured to work in rate auto-negotiation

mode. The network cable can only work at the rate of 100 Mbit/s or 10 Mbit/s because it deteriorates, but the maximum rate supported by the two GE interfaces is 1000 Mbit/s. The interfaces negotiate the working rate to 1000 Mbit/s, but cannot go Up because the network cable does not support the rate of 1000 Mbit/s.

You can use the rate decrease auto-negotiation function to solve this problem. After rate decrease auto-negotiation is enabled using this command, the two GE interfaces can decrease the negotiated rate to 10 Mbit/s or 100 Mbit/s, and then can go Up.

Prerequisites

The two connected interfaces work in auto-negotiation mode. If an interface works in non-auto-negotiation mode, run the **negotiation auto** command in the interface view to configure it to work in auto-negotiation mode.

Precautions

If rate decrease auto-negotiation is configured on the local interface, but not on the remote interface, the local interface can still decrease the negotiated rate to 100 Mbit/s. If the rate decrease auto-negotiation function is configured on an interface of the S5720-28X-PWH-LI-AC or S5720-28X-PWH-LI-ACF, configure this function on the remote interface; otherwise, the local and remote interfaces may not go Up.

If the network cable quality is low, a MultiGE interface takes longer time to go Up after the rate decrease auto-negotiation function is configured. For example, if the rate is decreased from 10 Gbit/s to 100 Mbit/s, the MultiGE interface takes about 40 seconds to go Up. If the rate is decreased from 2.5 Gbit/s to 100 Mbit/s, the MultiGE interface takes about 20 seconds to go Up. It is recommended that you replace the network cable.

After the rate decrease auto-negotiation function is configured on a MultiGE interface, the interface rate may automatically decrease to 1000 Mbit/s, if a network cable is removed and reinstalled on the interface in Down state continuously or if the **shutdown** and **undo shutdown** commands are frequently run on the interface. To restore the interface rate to 2500 Mbit/s, remove and reinstall the network cable again after the interface goes Up or run the **shutdown** and **undo shutdown** commands on the remote interface.

After the rate decrease auto-negotiation function is configured on a GE interface, the interface rate may automatically decrease to 100 Mbit/s, if a network cable is removed and reinstalled on the interface in Down state continuously or if the **shutdown** and **undo shutdown** commands are frequently run on the interface. To restore the interface rate to 1000 Mbit/s, remove and reinstall the network cable again after the interface goes Up or run the **shutdown** and **undo shutdown** commands on the remote interface.

Example

Configure the rate decrease auto-negotiation function on a GE interface.

```
<HUAWEI> system-view
[HUAWEI] set ethernet speed down-grade
```


4.2.85 set error-statistics trigger speed-down-grade

Function

The **set error-statistics trigger speed-down-grade** command enables the device to automatically reduce the interface rate when the number of error packets on an interface reaches the threshold.

The **undo set error-statistics trigger speed-down-grade** command disables the device from automatically reducing the interface rate when the number of error packets on an interface reaches the threshold.

By default, the device is enabled to automatically reduce the interface rate when the number of error packets on an interface reaches the threshold.

NOTE

This command is supported only on the following switch models: S5731-S, S5731S-S, S5731-H, S5731S-H.

Format

set error-statistics trigger speed-down-grade { **disable** | **enable** }

undo set error-statistics trigger speed-down-grade disable

Parameters

Parameter	Description	Value
disable	Disables the device from automatically reducing the interface rate when the number of error packets on an interface reaches the threshold.	-
enable	Enables the device to automatically reduce the interface rate when the number of error packets on an interface reaches the threshold.	-

Views

GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

When a GE electrical interface on a device is connected to a specific printer and the interface rate is higher than 10 Mbit/s, the interface can go Up, but the printer cannot work properly. Alignment error packets will be detected on the interface. In

this case, you can enable the device to automatically reduce the interface rate when the number of error packets on the interface reaches the threshold. The device then automatically sets the interface rate to 10 Mbit/s, reports an alarm (hwPortErrPktSpeedDownGrade), and records a log (IFPDT/1/ERRPKT_SPEEDDOWN) when the following conditions are met:

- The interface receives three alignment error packets within 60 seconds.
- The interface is in the auto-negotiation state and works at the rate of 100 Mbit/s.
- Only one MAC address is learned on the interface, and the MAC address starts with 001B-82 or is in the MAC address blacklist configured using **error-statistics trigger speed-down-grade** command.

After the interface rate is set to 10 Mbit/s, the device does not automatically reduce the interface rate if any of the following conditions is met. Instead, the device restores the interface rate to the default value obtained through auto-negotiation, sends a clear alarm (hwPortErrPktSpeedDownGradeResume), and records a log (IFPDT/1/ERRPKT_SPEEDDOWNRECOVER).

- The **set ethernet speed down-grade disable** command is run to disable the device from automatically reducing the interface rate when the number of error packets on an interface reaches the threshold.
- The **auto speed** command is run on the interface to set the auto-negotiation rate.
- The **undo negotiation auto** command is run on the interface to set the working mode of the interface to non-auto-negotiation.
- A new MAC address is learned on the interface, and the number of MAC address entries on the interface is not 1.

To prevent the interface rate reduction information from being lost after the device restarts, the device automatically records the interface rate information in the file named **speeddowngrade.txt** every 10 minutes or you can run the **save** command to record the information in the file named **speeddowngrade.txt**. After the device restarts, the interface rate remains unchanged. Running the **reset saved-configuration** or **reset factory-configuration** command automatically clears the saved files.

Precautions

- After the interface rate is set to 10 Mbit/s, you need to restart the printer so that the printer can work properly.
- When the interface goes Down, the function of automatically reducing the interface rate when the number of error packets on an interface reaches the threshold still takes effect, and the interface rate remains 10 Mbit/s.

Example

Enable the device to automatically reduce the interface rate when the number of error packets on an interface reaches the threshold.

```
<HUAWEI> system-view
[HUAWEI] set error-statistics trigger speed-down-grade enable
```


4.2.86 set flow-statistics include-interframe

Function

The **set flow-statistics include-interframe** command configures traffic statistics on an interface to contain the inter-frame gap and preamble.

The **undo set flow-statistics include-interframe** command configures traffic statistics on an interface not to contain the inter-frame gap and preamble.

By default, traffic statistics on an interface contain the inter-frame gap and preamble.

Format

set flow-statistics include-interframe

undo set flow-statistics include-interframe

Parameters

None

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view, Eth-Trunk interface view

Default Level

2: Configuration level

Usage Guidelines

You can run the **display interface** command to view the running status and traffic statistics on an interface. The **Last 300 seconds input rate** or **Last 300 seconds output rate** field in the command output indicates the inbound or outbound traffic rate on the interface in the last 300 seconds.

- If you want to obtain the total number of bytes passing through an interface in a period, configure the device to count the bytes in the interframe gap (IFG) and preamble when collecting traffic statistics on the interface. The interface traffic rate is as follows:

  Interface traffic rate = (Original packet length + IFG + Preamble) x Number of packets passing through the interface every second
- If you want to obtain only the number of packet bytes passing through an interface in a period, configure the device not to count the bytes in the IFG and preamble when collecting traffic statistics on the interface. The interface traffic rate is as follows:

  Interface traffic rate = Original packet length x Number of packets passing through the interface every second

By default, the IFG has a fixed value of 12 bytes and the preamble has a fixed value of 8 bytes.

Example

Configure traffic statistics on GE0/0/1 to contain the inter-frame gap and preamble.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] set flow-statistics include-interframe
```

4.2.87 set flow-change-ratio

Function

The **set flow-change-ratio** { **input-threshold** | **output-threshold** } **upper-limit** command sets the trap threshold for a sudden traffic volume change on interfaces.

The **undo set flow-change-ratio** { **input-threshold** | **output-threshold** } **upper-limit** command restores the default trap threshold for a sudden traffic volume change on interfaces.

By default, the trap threshold for a sudden traffic volume change on interfaces is 50%.

Format

set flow-change-ratio { **input-threshold** | **output-threshold** } **upper-limit** *threshold*

undo set flow-change-ratio { **input-threshold** | **output-threshold** } **upper-limit**

Parameters

Parameter	Description	Value
input-threshold	Specifies the trap threshold for a sudden traffic volume change in the inbound direction of interfaces.	-
output-threshold	Specifies the trap threshold for a sudden traffic volume change in the outbound direction of interfaces.	-
upper-limit *threshold*	Specifies the threshold for the traffic volume change percentage on interfaces.	The value is an integer that ranges from 0 to 100. The default value is 50.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

To allow the switch to detect real-time traffic volume changes on interfaces, you can run this command to set the trap threshold for a sudden traffic volume change on interfaces for triggering a trap.

Traffic volume change percentage on interfaces = |Interface rate in the current traffic statistics collection interval - Interface rate in the previous traffic statistics collection interval| / Interface rate in the previous traffic statistics collection interval

Configuration Impact

If the trap function for a sudden traffic volume change is enabled (using the **snmp-agent trap enable feature ifpdt trap-name hwInputRateChangeOverThresholdNotice** or **snmp-agent trap enable feature ifpdt trap-name hwOutputRateChangeOverThresholdNotice** command) after the **set flow-change-ratio** command is enabled, a trap will be generated when the traffic volume change percentage on interfaces exceeds the specified threshold (value of *threshold*) and the bandwidth usage percentage is not lower than the lower threshold (*threshold* configured using the **set flow-change-ratio start-check** command).

Precautions

You can run the **set flow-stat interval** command to configure the traffic statistics collection interval on interfaces. The default interval is 300 seconds.

Example

Set the trap threshold for a sudden traffic volume change in the inbound direction of interfaces to 70%.

```
<HUAWEI> system-view
[HUAWEI] set flow-change-ratio input-threshold upper-limit 70
```

4.2.88 set flow-change-ratio input-broadcast-detect disable

Function

The **set flow-change-ratio input-broadcast-detect disable** command disables detection of a sudden broadcast traffic volume change in the inbound direction of interfaces.

The **undo set flow-change-ratio input-broadcast-detect disable** command enables detection of a sudden broadcast traffic volume change in the inbound direction of interfaces.

By default, detection of a sudden broadcast traffic volume change in the inbound direction of interfaces is enabled.

Format

set flow-change-ratio input-broadcast-detect disable

undo set flow-change-ratio input-broadcast-detect disable

Parameters

None

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

By default, the switch checks whether the volume of broadcast traffic in the inbound direction of interfaces changes suddenly, and generates a trap after detecting a sudden change, facilitating network maintenance.

If the switch has many interfaces, detection of a sudden broadcast traffic volume change in the inbound direction of interfaces consumes some CPU and memory resources. You can run the **set flow-change-ratio input-broadcast-detect disable** command to disable the function.

Precautions

If the system software is upgraded from V200R009C00 or an earlier version to V200R010C00 or a later version, detection of a sudden broadcast traffic volume change in the inbound direction of interfaces is disabled by default.

Example

Disable detection of a sudden broadcast traffic volume change in the inbound direction of interfaces.

```
<HUAWEI> system-view
[HUAWEI] set flow-change-ratio input-broadcast-detect disable
```

4.2.89 set flow-change-ratio start-check

Function

The **set flow-change-ratio start-check bandwidth-usage** command sets the lower threshold of the initial bandwidth usage percentage for triggering a trap.

The **undo set flow-change-ratio start-check bandwidth-usage** command restores the default lower threshold of the initial bandwidth usage percentage for triggering a trap.

By default, the lower threshold of the initial bandwidth usage percentage for triggering a trap is 20%.

Format

set flow-change-ratio start-check bandwidth-usage *bandwidth-usage-threshold*

undo set flow-change-ratio start-check bandwidth-usage

Parameters

Parameter	Description	Value
bandwidth-usage *bandwidth-usage-threshold*	Specifies the lower threshold of the initial bandwidth usage percentage for triggering a trap.	The value is an integer that ranges from 1 to 100. The default value is 20.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

To allow the switch to detect real-time traffic volume changes on interfaces, you can run this command to set the lower threshold of the initial bandwidth usage percentage for triggering a trap.

Configuration Impact

If the trap function for a sudden traffic volume change is enabled (using the **snmp-agent trap enable feature ifpdt trap-name hwInputRateChangeOverThresholdNotice** or **snmp-agent trap enable feature ifpdt trap-name hwOutputRateChangeOverThresholdNotice** command) after the **set flow-change-ratio** command is enabled, a trap will be generated when the traffic volume change percentage on interfaces exceeds the specified threshold (*threshold* configured using the **set flow-change-ratio** command) and the bandwidth usage percentage is not lower than the lower threshold (value of *bandwidth-usage-threshold*).

Precautions

You can run the **set flow-stat interval** command to configure the traffic statistics collection interval on interfaces. The default interval is 300 seconds.

Example

Set the trap threshold for the lower threshold of the initial bandwidth usage percentage to 70%.

```
<HUAWEI> system-view
[HUAWEI] set flow-change-ratio start-check bandwidth-usage 70
```

4.2.90 set if-mib sample-interval

Function

The **set if-mib sample-interval** command configures the interval of collecting traffic statistics on an interface.

The **undo set if-mib sample-interval** command restores the default interval.

The default interval is 60 seconds.

Format

set if-mib sample-interval *interval-value*

undo set if-mib sample-interval [*interval-value*]

Parameters

Parameter	Description	Value
interval-value	Specifies the interval of collecting traffic statistics on an interface.	The value can be 0 or an integer multiple of 10 in the range from 10 to 300, in seconds. The value 0 indicates that the function of periodically collecting traffic statistics on an interface is disabled.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

When the NMS obtains interface traffic statistics through the MIB tables iftable and ifxtable, the time for querying interface traffic statistics in real time is long. When the device has a large number of interfaces, the query efficiency of the NMS is low. To resolve this issue, switches can be configured to periodically collect traffic statistics on interfaces. In this case, the NMS can directly obtain traffic statistics collected on interfaces, improving the query efficiency.

Precautions

- If the command has been run for multiple times, only the latest configuration takes effect.
- When the **undo set if-mib sample-interval** [*interval-value*] command is run, if the interval is specified, the value must be consistent with the current configuration.
- A short interval will cause a high CPU usage.

Example

Set the interval of collecting traffic statistics on an interface to 100 seconds.

```
<HUAWEI> system-view
[HUAWEI] set if-mib sample-interval 100
```

4.2.91 set log updown disable

Function

The **set log updown disable** command disables the log function for interface up/down changes.

The **undo set log updown disable** command enables the log function for interface up/down changes.

By default, the log function for interface up/down changes is enabled.

Format

set log updown disable

undo set log updown disable

Parameters

None

Views

Ethernet interface view, MultiGE interface view, GE interface view, XGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

You can disable the log function for interface up/down changes in the following situation: A large number of interfaces repeatedly alternate between up and down states and users do not need to pay attention to the up/down changes of these

interfaces, for example, interfaces alternate between up and down states when APs connected to the network go online and offline.

Precautions

This command is not supported on an interface that is configured as a stack interface.

Example

Disable the log function for up/down changes on GE**0**/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/0] set log updown disable
```

4.2.92 set port-enable delay

Function

The **set port-enable delay** command sets the delay after which an interface goes Up after a device restart.

The **undo set port-enable delay** command deletes the delay after which an interface goes Up after a device restart.

By default, an interface goes Up immediately after a device restart.

Format

set port-enable delay *delay-timer*

undo set port-enable delay

Parameters

Parameter	Description	Value
delay-timer	Specifies the delay after which an interface goes Up after a device restart.	The value is an integer ranging from 0 to 1800, in seconds. The increment value is 10 seconds.

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

On an unstable network, devices may fail to obtain IP addresses from the expected DHCP server. If devices obtain IP addresses from another DHCP server, the devices cannot obtain IP addresses on the expected network segment for a long time even after the network is recovered. To prevent this problem, you can set the delay after which interfaces go Up after a device restart.

Precautions

- If you run the **shutdown** and **undo shutdown** commands or run the **restart** command on the interface during the delay, the delay does not take effect.
- The configuration takes effect only after the device is restarted.

Example

Set the delay after which GE0/0/1 goes Up after a device restart to 20 seconds.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] set port-enable delay 20
Warning: The configuration takes effect only after the card or subcard is restarted.
```

4.2.93 single-fiber enable

Function

The **single-fiber enable** command enables the single-fiber communication function on an optical interface.

The **undo single-fiber enable** command disables the single-fiber communication function on an optical interface.

By default, the single-fiber communication function is disabled on an optical interface.

NOTE

The first four GE optical ports on the S5731-S48S4X, S5731-S48S4X-A, S5731S-S48S4X-A, and S5731S-S48S4X-A1 do not support this configuration.

GE, XGE, 25GE, and 40GE interfaces on the S5731-H24HB4XZ, S5731-H48HB4XZ, S5731S-H24HB4XZ-A, and S5731S-H48HB4XZ-A support this configuration. On other S5731-H, only XGE, 25GE, and 40GE interfaces support this configuration.

On the S5732-H, S6730-H, and S6730S-H, only 25GE, 40GE, and 100GE interfaces support this configuration.

On the S6730-S and S6730S-S, only 40GE interfaces support this configuration.

GE optical interfaces on the following models do not support this command: S5720-52X-LI-24S-AC1, S5720-52X-LI-48S-AC1, S5720-52X-LI-48S-DC1, S5736-S24S4XC, S5736-S48S4XC, S6720S-S24S28X-A.

XGE optical interfaces on the following models support this command after they have GE optical modules installed: S6735-S, S6720-EI, S6720S-EI.

Optical interfaces of other models support this command.

Note the following:

- A GE optical interface supports this command only when it works at the rate of 1000 Mbit/s.
- An XGE optical interface supports this command only when it has no optical module installed or has an XGE optical module installed.
- A 25GE optical interface supports this command only when it has no optical module installed or has a GE, XGE, or 25GE optical module installed.
- A 40GE optical interface supports this command only when it has no optical module installed or has a 40GE optical module installed.
- A 100GE optical interface supports this command only when it has no optical module installed or has a 40GE or 100GE optical module installed.
- The QSFP-40G-SR-BD, QSFP-40G-SDLC-PAM, QSFP-40G-LR4-Lite, QSFP-40G-LX4-MM, and QSFP-40G-eSDLC-PAM optical modules do not support the single-fiber function.

Format

single-fiber enable

undo single-fiber enable

Parameters

None

Views

GE interface view, XGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

During network management and maintenance, the administrator may need to send traffic from users to a specified server for analysis and processing. If a server can receive and send packets, there is a possibility that the server forwards user traffic to other devices, causing a security risk. The unidirectional single-fiber communication function can address this issue. A single fiber means that two optical modules are connected by only one fiber, and unidirectional communication means that packets can be sent in only one direction. With this function, a switch can only send but cannot receive packets, and an analysis server can only receive but cannot send packets. Data security on the analysis server is ensured.

Precautions

- The remote interface also works in non-auto negotiation mode and the rate of the peer interface is the same as the rate of the local interface.
- The **single-fiber enable** command and **configuring internal loopback detection** and **MAC SWAP loopback test** cannot be configured on the same interface.
- If this command has been run on an interface, the command configuration is lost in the following situations:
  - The GE optical interface has an FE optical module installed.
  - The GE optical interface does not work at a rate of 1000 Mbit/s.
  - The XGE interface is connected to a cable or has a GE optical module installed.
  - The 25GE interface is connected to a cable.
  - The 40GE interface is connected to a cable.
  - The 100GE interface is connected to a cable.

Example

Enable XGigabitEthernet0/0/1 to send packets through a single fiber.

```
<HUAWEI> system-view
[HUAWEI] interface XGigabitEthernet 0/0/1
[HUAWEI-XGigabitEthernet0/0/1] single-fiber enable
```

4.2.94 speed

Function

The **speed** command sets the rate for an Ethernet interface in non-auto negotiation mode.

The **undo speed** command restores the default rate of an Ethernet interface in non-auto negotiation mode.

By default, an Ethernet interface works at its highest rate when it works in non-auto negotiation mode.

Format

speed { **10** | **100** | **1000** | **2500** | **5000** | **10000** }

undo speed

Parameters

Parameter	Description	Value
10	Indicates that the interface works at 10 Mbit/s.	-
100	Indicates that the interface works at 100 Mbit/s.	-
1000	Indicates that the interface works at 1000 Mbit/s. **NOTE** FE interfaces do not support this parameter.	-
2500	Sets the auto-negotiation rate of an Ethernet electrical interface to 2500 Mbit/s. **NOTE** Only MultiGE interfaces support this parameter.	-
5000	Sets the auto-negotiation rate of an Ethernet electrical interface to 5000 Mbit/s. **NOTE** Only MultiGE interfaces support this parameter.	-
10000	Sets the auto-negotiation rate of an Ethernet electrical interface to 10000 Mbit/s. **NOTE** Only MultiGE interfaces and 25GE interfaces with XGE/25GE dual-rate optical modules installed support this parameter.	-

Views

Ethernet interface view, GE interface view, MultiGE interface view, 25GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

In non-auto negotiation mode, if interfaces on two connected devices work at different rates, use the **speed** command to change the rates of the interfaces to be the same so that the two devices can communicate.

Precautions

- If the remote interface does not support the auto negotiation mode, run the **undo negotiation auto** command on the local interface to configure the interface to work in non-auto negotiation mode. You can then change the rate of the local interface to be the same as the rate of the remote interface to ensure proper communication.
- For details about the rates supported by Ethernet interfaces, see Licensing Requirements and Limitations for Ethernet Interfaces.
- On 25GE interfaces, the **speed 10000** command is mutually exclusive with the following commands:
  - **port mode ge (25GE interface)**
  - **fec mode rs**
  - **fec mode base-r**
- The rate of MultiGE interfaces on the S5732-H24UM2CC, S5732-H48UM2CC, and S5736-S24UM4XC can be increased using the RTU license. After the license is activated, you can run the **assign group-speed** command and restart the device to make the configured maximum rate supported by the interfaces in the MultiGE interface group take effect.

  To check the default rate of MultiGE interfaces, run the **display device group-speed configuration** command. The **BaseSpeed** field indicates the default rate.

Example

Configure GE0/0/1 to work at 100 Mbit/s in non-auto negotiation mode.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] undo negotiation auto
[HUAWEI-GigabitEthernet0/0/1] speed 100
```

4.2.95 speed auto-negotiation

Function

The **speed auto-negotiation** command enables auto-negotiation on a GE optical interface.

The **undo speed auto-negotiation** command disables auto-negotiation on a GE optical interface.

By default, auto-negotiation is disabled on a GE optical interface.

NOTE

Only the following models do not support this command:

- S200 series
- S300 series
- S500-8T4S, S500-8P4S, S500-24T4S, S500-16T4S, S500-24P4S, S500-16P4S, and S500-48T4S
- S1730S-S8T4S-A1, S1730S-S8P4S-A1, S1730S-S24T4S-A1, S1730S-S24P4S-A1, S1730S-S48T4S-A1, and S1730S-S48P4S-A1
- S2730S-S8FT4S-A, S2730S-S8FP4S-A, S2730S-S16FT4S-A, S2730S-S24FT4S-A, S2730S-S24FP4S-A, and S2730S-S48FT4S-A
- S5720-12TP-LI-AC, S5720-12TP-PWR-LI-AC, S5720-28TP-LI-AC, S5720-28TP-PWR-LI-AC, S5720-28TP-PWR-LI-ACL, S5720-28P-LI-AC, S5720-28P-PWR-LI-AC, S5720-52P-LI-AC, and S5720-52P-PWR-LI-AC
- S5720S-12TP-LI-AC, S5720S-12TP-PWR-LI-AC, S5720S-28TP-PWR-LI-ACL, S5720S-28P-LI-AC, S5720SV2-28P-LI-AC, S5720S-28P-PWR-LI-AC, S5720S-52P-LI-AC, S5720SV2-52P-LI-AC, and S5720S-52P-PWR-LI-AC
- S5731S-H24T4S-A and S5731S-H48T4S-A
- S5732-H24S6Q and S5732-H48S6Q
- S6720S-S24S28X-A

Format

speed auto-negotiation

undo speed auto-negotiation

Parameters

None

Views

GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

If an optical interface is configured to work in auto-negotiation mode using the **negotiation auto** command, the interface cannot negotiate the rate with another interface. You can run the **speed auto-negotiation** command to configure the auto-negotiation function on the interface. After auto-negotiation is configured on the interface, if the interface is Down, the device cyclically switches the interface to the auto-negotiated 1000 Mbit/s, forced 1000 Mbit/s, and forced 100 Mbit/s until the interface goes Up.

Prerequisites

Run the **negotiation auto** command to enable auto-negotiation before using the **speed auto-negotiation** command on the interface.

Precautions

- The **speed auto-negotiation** command will make flow control auto-negotiation and internal loopback ineffective.
- After auto-negotiation is configured on an interface, if a single fiber is removed and then inserted or the link is not operational, the interface may be Up and the remote interface may be down. You can run the **shutdown** and **undo shutdown** commands on the remote interface to make the remote interface go Up.
- After auto-negotiation is configured on an interface, if this interface becomes Up and the remote interface becomes Down after the negotiation, run the **shutdown** and **undo shutdown** commands on the remote interface or run the **undo speed auto-negotiation** and **speed auto-negotiation** commands on this interface to enable the two ends to negotiate their rate again.

Example

Enable auto-negotiation on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] negotiation auto
[HUAWEI-GigabitEthernet0/0/1] speed auto-negotiation
```

4.2.96 statistic enable (interface view)

Function

The **statistic enable** command enables IPv4 or IPv6 packet statistics collection on an interface.

The **undo statistic enable** command disables IPv4 or IPv6 packet statistics collection on an interface.

By default, IPv4 or IPv6 packet statistics collection is disabled on an interface.

NOTE

Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6735-S, S6720-EI, S6720S-EI, S6730-H, S6730S-H, S6730-S, and S6730S-S support this command.

Format

{ **ipv4** | **ipv6** } * **statistic enable** { **both** | **inbound** | **outbound** }

undo { **ipv4** | **ipv6** } * **statistic enable** { **both** | **inbound** | **outbound** }

Parameters

Parameter	Description	Value
ipv4	Indicates IPv4 packet statistics collection.	-

Parameter	Description	Value
ipv6	Indicates IPv6 packet statistics collection.	-
both	Indicates statistics collection for incoming and outgoing packets.	-
inbound	Indicates statistics collection for incoming packets.	-
outbound	Indicates statistics collection for outgoing packets.	-

Views

Eth-Trunk interface view, GE interface view, XGE interface view, 25GE interface view, MultiGE interface view, 40GE interface view, 100GE interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

To check the network status or locate network faults, you can enable IPv4 or IPv6 packet statistics collection on an interface to collect IPv4 or IPv6 packet statistics on the interface.

Precautions

- If this command and the **traffic-policy (interface view)** command are configured together on the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S, traffic policy will fail to be applied.
- After the IPv4 or IPv6 packet statistics collection function is enabled on an interface, you can run the **display counters protocol** command to check traffic statistics on the interface.

Example

Enable IPv4 packet statistics collection in the inbound direction of GigabitEthernet0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface GigabitEthernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] ipv4 statistic enable inbound
```


4.2.97 traffic-pppoe

Function

The **traffic-pppoe** command configures an interface to allow only PPPoE packets to pass through.

The **undo traffic-pppoe** command cancels the configuration.

By default, an interface allows all types of packets to pass through.

NOTE

S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S do not support the configuration.

Format

traffic-pppoe { **any** | *source-address* } { **any** | *destination-address* }

undo traffic-pppoe { **any** | *source-address* } { **any** | *destination-address* }

Parameters

Parameter	Description	Value
{ **any** | *source-address* }	Indicates that an interface allows PPPoE packets with a specified source MAC address to pass through. • **any** indicates that PPPoE packets with any source MAC address can pass through the interface. • *source-address* indicates that PPPoE packets with a specified source MAC address can pass through the interface.	The value of *source-address* is in the format H-H-H. An H contains 1 to 4 hexadecimal digits.

Parameter	Description	Value
{ **any** | *destination-address* }	Indicates that an interface allows PPPoE packets with a specified destination MAC address to pass through. • **any** indicates that PPPoE packets with any destination MAC address can pass through the interface. • *destination-address* indicates that PPPoE packets with a specified destination MAC address can pass through the interface.	The value of *destination-address* is in the format H-H-H. An H contains 1 to 4 hexadecimal digits.

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 40GE interface view, port group view, Eth-Trunk interface view

Default Level

2: Configuration level

Usage Guidelines

If you run the **traffic-pppoe any any** command on an interface, the interface allows only PPPoE packets to pass through and discards other packets.

Example

Configure GE0/0/1 to allow only PPPoE packets to pass through.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] traffic-pppoe any any
```

Configure GE0/0/1 to allow only PPPoE packets with source MAC address 1-1-1 to pass through.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] traffic-pppoe 1-1-1 any
```


4.2.98 training (40GE interface view)

Function

The **training disable** and **undo training enable** commands disable the training function on a 40GE interface.

The **training enable** and **undo training disable** commands enable the training function on a 40GE interface.

By default, the training function is enabled on a 40GE interface.

NOTE

- The training function can be configured on the 40GE interfaces of the S6720-EI and S6720S-EI.
- The training function can be configured on the 40GE interfaces of the S5735S-H, S5731-H, S5731S-H24T4XC-A, S5731S-H48T4XC-A or S5736-S that has the ES5D21Q02Q00 or ES5D21Q04Q01 card installed.

Format

training { enable | disable }

undo training { enable | disable }

Parameters

None

Views

40GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

With the increase of transmission rate or frequency, attenuation of signal's high-frequency components becomes increasingly severe. To guarantee transmission performance of signals, it is necessary to compensate for signals, and commonly used compensation technologies are pre-emphasis and balancing. The pre-emphasis technology increases high-frequency components of signals at the transmit end of transmission lines to compensate attenuation during the transmission. However, the pre-emphasis technology increases crosstalk while amplifying high-frequency components. To solve this problem, the balancing technology is developed. The balancing technology is used at the receive end of transmission lines to function like a filter for filtering high-frequency crosstalk.

After the training function is enabled on a 40GE interface, the transmit end exchanges frames with the receive end to automatically set the pre-emphasis and

balancing parameters, improving processing efficiency of the two technologies. Note that the negotiated parameters for the training function are obtained based on the site environment. If the site environment changes, for example, from high-temperature environment to low-temperature environment, the parameters may be inaccurate. Therefore, bit errors may occur when the training function is enabled. The training function is optional in IEEE802.3 standards, and its implementation on different types of products from various vendors may differ.

When connecting two devices, enable or disable the training function on both ends simultaneously. By default, the training function is enabled on a 40GE interface. If the training function is disabled on the remote device or the remote device does not support the function, run the **training disable** or **undo training enable** command to disable the function.

Precautions

- The **training disable** and **undo training enable** commands can be configured on a 40GE interface only when the interface connects to a high-speed cable and is not a physical member interface in a stack.
- After a cable is installed on a 40GE interface without the **training disable** configuration, the **training enable** configuration is automatically generated on the interface.
- If no cable is installed on an interface, only the **training enable** and **undo training disable** commands can be configured on the interface.
- If the **display this include-default** command is run on an interface to view the training configuration after a cable is installed on the interface, the default **training enable** configuration is always displayed in the command output and does not change with the training configuration change.
- The training configuration on an interface takes effect only after a cable is installed on the interface. If the cable is replaced with an optical module, the **training disable** and **training enable** configurations will be automatically deleted from the interface.
- If a 40GE interface is configured as a physical member interface in a stack system, the **training disable** and **training enable** configurations will be automatically deleted from the interface.
- If a 40GE interface has been configured as a physical member interface in a stack system, the training function is disabled on the interface by default and cannot be enabled.
- If the **training disable** or **undo training enable** command is configured on a 40GE interface of the S6720S-26Q-EI-24S-AC or S6720S-26Q-EI-24S-DC after a cable is installed on the interface, and the interface is connected to a remote interface on which the training function is disabled or a remote interface that does not support the training function, the two interfaces may not go Up or go Up after a delay. Therefore, configure the **training disable** or **undo training enable** command only when the training function is disabled on the remote interface or the remote interface does not support the training function. In other scenarios, it is recommended that you do not disable the training function.
- If the training configuration does not exist on an interface of a switch running V200R008C00 or an earlier version, the **training disable** configuration is automatically generated on the interface after the system software is upgraded to a version later than V200R009C00. If the training configuration

exists on the interface, the configuration remains unchanged after the system software is upgraded to a version later than V200R009C00.

Example

Disable the training function on 40GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface 40ge 0/0/1
[HUAWEI-40GE0/0/1] training disable
Warning: The configuration will cause an abnormality in port running. Continue? [Y/N]:y
```

4.2.99 training (100GE interface view)

Function

The **training disable** and **undo training enable** commands disable the training function on a 100GE interface.

The **training enable** and **undo training disable** commands enable the training function on a 100GE interface.

By default, the training function is enabled on a 100GE interface.

NOTE

Only the S6735-S supports this command.

The **training disable** and **undo training enable** commands can be configured on a 100GE interface only when the interface connects to a 40GE or 100GE cable.

Format

training { enable | disable }

undo training { enable | disable }

Parameters

None

Views

100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

With the increase of transmission rate or frequency, attenuation of signal's high-frequency components becomes increasingly severe. To guarantee transmission performance of signals, it is necessary to compensate for signals, and commonly used compensation technologies are pre-emphasis and balancing. The pre-

emphasis technology increases high-frequency components of signals at the transmit end of transmission lines to compensate attenuation during the transmission. However, the pre-emphasis technology increases crosstalk while amplifying high-frequency components. To solve this problem, the balancing technology is developed. The balancing technology is used at the receive end of transmission lines to function like a filter for filtering high-frequency crosstalk.

After the training function is enabled on a 100GE interface, the transmit end exchanges frames with the receive end to automatically set the pre-emphasis and balancing parameters, improving processing efficiency of the two technologies. Note that the negotiated parameters for the training function are obtained based on the site environment. If the site environment changes, for example, from high-temperature environment to low-temperature environment, the parameters may be inaccurate. Therefore, bit errors may occur when the training function is enabled. The training function is optional in IEEE802.3 standards, and its implementation on different types of products from various vendors may differ.

When connecting two devices, enable or disable the training function on both ends simultaneously. By default, the training function is enabled on a 100GE interface. If the training function is disabled on the remote device or the remote device does not support the function, run the **training disable** or **undo training enable** command to disable the function.

Precautions

- After a 40GE or 100GE cable is installed on a 100GE interface without the **training disable** configuration, the **training enable** configuration is automatically generated on the interface.
- If no cable is installed on an interface, only the **training enable** and **undo training disable** commands can be configured on the interface.
- If the **display this include-default** command is run on an interface to view the training configuration after a cable is installed on the interface, the default **training enable** configuration is always displayed in the command output and does not change with the training configuration change.
- The training configuration on an interface takes effect only after a cable is installed on the interface. If the cable is replaced with an optical module, the **training disable** and **training enable** configurations will be automatically deleted from the interface.

Example

Disable the training function on 100GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface 100ge 0/0/1
[HUAWEI-100GE0/0/1] training disable
Warning: The configuration will cause an abnormality in port running. Continue? [Y/N]:y
Info: This operation may take a few seconds. Please wait for a moment.....
```

4.2.100 transceiver power low trigger error-down

Function

The **transceiver power low trigger error-down** command enables an Ethernet optical interface to enter the error-down state when the optical power is low.

The **undo transceiver power low trigger error-down** command disabled an Ethernet optical interface from entering the error-down state when the optical power is low.

By default, an Ethernet optical interface does not enter the error-down state when the optical power is low.

Format

transceiver power low trigger error-down

undo transceiver power low trigger error-down

Parameters

None

Views

Ethernet interface view, GE interface view, XGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Low optical power of the device may cause intermittent service interruption. To ensure that services are running properly, enable an interface to enter the error-down state when the optical power is low so that services can be switched in a timely manner.

Follow-up Procedure

An interface in Error-down state can be recovered using either of the following methods:

- Manual recovery: If a few interfaces need to be recovered forcibly, run the **shutdown** and **undo shutdown** commands in the interface view. Alternatively, run the **restart** command in the interface view to restart the interfaces.
- Automatic recovery: If a large number of interfaces need to be recovered, manual recovery is time consuming and some interfaces may be omitted. You can run the **error-down auto-recovery cause transceiver-power-low interval** *interval-value* command in the system view to enable automatic interface recovery and set the recovery delay time. An interface in Error-down state automatically recovers when the specified delay time expires.

Example

Enable GE0/0/1 to enter the error-down state when the optical power is low.


```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] transceiver power low trigger error-down
```

4.2.101 trap-threshold

Function

The **trap-threshold** command sets the inbound and outbound bandwidth usage thresholds for generating a trap.

The **undo trap-threshold** command restores the default inbound and outbound bandwidth usage thresholds for generating a trap.

The default inbound or outbound bandwidth usage threshold for generating a trap is 80.

Format

trap-threshold { **input-rate** | **output-rate** } *bandwidth-in-use* [**resume-rate** *resume-threshold*]

undo trap-threshold { **input-rate** | **output-rate** }

Parameters

Parameter	Description	Value
input-rate	Indicates inbound bandwidth.	-
output-rate	Indicates outbound bandwidth.	-
bandwidth-in-use	Specifies the bandwidth usage threshold for generating a trap.	The value is an integer that ranges from 1 to 100.
resume-rate *resume-threshold*	Specifies the bandwidth usage threshold for clearing a trap.	The value is an integer that ranges from 1 to *bandwidth-in-use*. The default value is *bandwidth-in-use*.

Views

Ethernet interface view, GE interface view, XGE interface view, 25GE interface view, MultiGE interface view, 40GE interface view, 100GE interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Monitoring bandwidth usage helps you know current load on a device. If the bandwidth usage exceeds a threshold, bandwidth resources are insufficient and the device capacity needs to be expanded. For example, if the bandwidth usage exceeds 95%, an alarm is generated, indicating that bandwidth resources are almost exhausted. As a result, some services may be interrupted before device capacity expansion.

You can configure two thresholds: low threshold (log threshold) and high threshold (alarm threshold). The system generates a log when the bandwidth usage exceeds the low threshold and generates an alarm when the bandwidth usage exceeds the high threshold. This configuration ensures that you can expand the device capacity in advance to avoid service interruptions caused by bandwidth exhaustion.

NOTE

Outbound bandwidth usage = (Outbound interface rate/Outbound physical interface bandwidth) x 100

Inbound bandwidth usage = (Inbound interface rate/Inbound physical interface bandwidth) x 100

The interval for collecting statistics on the traffic rate on an interface is the value configured using the **set flow-stat interval** command on the interface.

The interface rate and bandwidth are expressed in bits per second.

To set a lower threshold, run the **log-threshold** command.

The **trap-threshold** command sets the bandwidth usage threshold for generating a trap. The **trap-threshold** with the following parameters provides various functions:

- **trap-threshold input-rate** *bandwidth-in-use* **resume-rate** *resume-threshold*: sets the inbound bandwidth usage threshold for generating a trap.
  - If inbound bandwidth usage exceeds the threshold specified in *bandwidth-in-use*, an hwIfMonitorInputRateRising trap is generated, indicating that inbound bandwidth usage exceeds the configured threshold.
  - If inbound bandwidth usage falls below the threshold specified in *resume-threshold*, an hwIfMonitorInputRateResume trap is generated, indicating that inbound bandwidth usage falls between the configured threshold for clearing a trap.
- **trap-threshold output-rate** *bandwidth-in-use* **resume-rate** *resume-threshold*: sets the outbound bandwidth usage threshold for generating a trap.
  - If outbound bandwidth usage exceeds the threshold specified in *bandwidth-in-use*, an hwIfMonitorOutputRateRising trap is generated, indicating that outbound bandwidth usage exceeds the configured threshold.
  - If outbound bandwidth usage falls below the threshold specified in *resume-threshold*, an hwIfMonitorOutputRateResume trap is generated, indicating that outbound bandwidth usage falls between the configured threshold for clearing a trap.

If the offset between the value of *bandwidth-in-use* and the value of *resume-threshold* is too small, trap information may be frequently displayed.

The log threshold must be lower than the trap threshold, providing efficient protection for services. For example, when the inbound bandwidth usage reaches 80%, a log is generated. If the inbound bandwidth usage continues to increase and reaches 95%, a trap is generated. This ensures that a log is generated for inbound bandwidth usage of 80%, and a trap is generated for inbound bandwidth usage of 95%. Either the log or the trap prompts for a bandwidth increase, preventing service interruption.

Example

Configure GE0/0/1 to generate a trap when the outbound bandwidth usage exceeds 60%.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] trap-threshold output-rate 60
```

Configure GE0/0/1 to generate a trap when the outbound bandwidth usage exceeds 80% and clear the trap when the outbound bandwidth usage falls below 60%.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] trap-threshold output-rate 80 resume-rate 60
```

4.2.102 trap-threshold enable

Function

The **trap-threshold enable** command enables the function of reporting an alarm if packets are discarded on an interface due to a congestion.

The **undo trap-threshold enable** command disables the function of reporting an alarm if packets are discarded on an interface due to a congestion.

By default, this function is disabled.

Format

trap-threshold { **input-discard** | **output-discard** } **enable**

undo trap-threshold { **input-discard** | **output-discard** } **enable**

Parameters

Parameter	Description	Value
input-discard	Enables the function of reporting an alarm if incoming packets are discarded on an interface due to a congestion.	-

Parameter	Description	Value
output-discard	Enables the function of reporting an alarm if outgoing packets are discarded on an interface due to a congestion.	-

Views

GE interface view, MultiGE interface view, XGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

NOTE

Only the S5736-S equipped with the S7C02000, S7Q02001, ES5D21Q02Q00 or ES5D21Q04Q01 card supports this command in the 40GE interface view.

Default Level

2: Configuration level

Usage Guidelines

If a congestion occurs on a network that is running, packets may be discarded when service flows are transmitted on the network. If a lot of packets are discarded, services are affected. To improve transmission quality of service flows, you can run the **trap-threshold enable** command to enable the function of reporting an alarm if packets are discarded on an interface due to a congestion. The device then reports an alarm if the number of discarded incoming and outgoing packets on the interface in a specified period exceeds the threshold. Such alarms help you know the congestion on the interface. You can determine whether to increase the bandwidth or cancel the bandwidth limit on the interface based on the logs. In this way, the congestion problem can be rectified.

Example

Enable the function of reporting an alarm if incoming packets are discarded on XGE0/0/1 due to a congestion.

```
<HUAWEI> system-view
[HUAWEI] interface XGigabitEthernet 0/0/1
[HUAWEI-XGigabitEthernet0/0/1] trap-threshold input-discard enable
```

4.2.103 trap-threshold error-percentage

Function

The **trap-threshold error-percentage** command configures the alarm threshold for the percentage of CRC packets against all the received packets on an interface and alarm interval.

The **undo trap-threshold error-percentage** command deletes the configured alarm threshold and interval.

By default, the alarm threshold and interval are not configured.

Format

trap-threshold error-percentage *threshold-value* **interval** *interval-value*

undo trap-threshold error-percentage [*threshold-value* **interval** *interval-value*]

Parameters

Parameter	Description	Value
threshold-value	Specifies the alarm threshold for the percentage of CRC packets against all the received packets on the interface.	The value is an integer that ranges from 1 to 50. **NOTE** You are advised to set the threshold to be smaller than the alarm threshold configured in the **error-down-threshold error-percentage** command.
interval *interval-value*	Specifies the interval for calculating the percentage of CRC packets against all the received packets on the interface.	The value is an integer that ranges from 10 to 65535, in seconds.

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

When an interface receives too many CRC packets, packet forwarding is affected. To enable the device to report the corresponding alarm if the percentage of received CRC packets against all the received packets within the specified period exceeds the alarm threshold, run this command.

Precautions

This command is mutually exclusive to the **trap-threshold error-statistics** command. After this command is configured, the **trap-threshold error-statistics** command configuration does not take effect.

Example

Set the alarm threshold for the percentage of CRC packets against all the received packets to 10% and the interval for calculating the percentage of CRC packets against all the received packets to 20 seconds on GE0/0/1.

```
<HUAWEI> system-view
[HUAWEI] interface GigabitEthernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] trap-threshold error-percentage 10 interval 20
```

4.2.104 trap-threshold error-statistics

Function

The **trap-threshold error-statistics** command sets the alarm threshold for error packets and alarm interval.

The **undo trap-threshold error-statistics** command restores the default alarm threshold for error packets and default alarm interval.

By default, the alarm threshold for error packets is 3 and the alarm interval is 10 seconds.

Format

trap-threshold error-statistics *threshold-value* **interval** *interval-value*

undo trap-threshold error-statistics

Parameters

Parameter	Description	Value
threshold-value	Sets the alarm threshold for error packets.	The value is an integer that ranges from 1 to 65535. **NOTE** The value should not be greater than the alarm threshold for error packets that cause the interface status to change to Error-Down configured by the **error-down-threshold error-statistics** command.
interval *interval-value*	Sets the interval for reporting alarms for error packets.	The value is an integer that ranges from 10 to 65535, in seconds.

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, 40GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

The system generates an alarm when the number of error packets received by an interface within an alarm interval exceeds the alarm threshold. If the number of received error packets is 0 in the next alarm interval, the system displays an alarm clearance message.

Example

Set the alarm threshold for error packets on GE0/0/1 to 10 and the alarm interval to 30 seconds.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] trap-threshold error-statistics 10 interval 30
```

4.2.105 trap-threshold interval

Function

The **trap-threshold interval** command sets the interval for reporting an alarm if packets are discarded on an interface due to a congestion.

The **undo trap-threshold interval** command restores the default interval for reporting an alarm if packets are discarded on an interface due to a congestion.

By default, the interval for reporting an alarm if packets are discarded on an interface due to a congestion is 300 seconds.

Format

trap-threshold { **input-discard** | **output-discard** } **interval** *interval-value*

undo trap-threshold { **input-discard** | **output-discard** } **interval**

Parameters

Parameter	Description	Value
input-discard	Enables the function of reporting an alarm if incoming packets are discarded on an interface due to a congestion.	-
output-discard	Enables the function of reporting an alarm if outgoing packets are discarded on an interface due to a congestion.	-

Parameter	Description	Value
interval *interval-value*	Specifies the interval for reporting an alarm.	The value is an integer ranging from 60 to 86400, in seconds. It must be an integer multiple of 10.

Views

GE interface view, MultiGE interface view, XGE interface view, 25GE interface view, 100GE interface view, port group view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Network congestion during service transmission may cause packet loss. If a lot of packets are discarded, services are affected. To improve transmission quality of service flows, you need to enable the device to report alarms to notify users of the current network status if the number of packets discarded due to a congestion in a period of time reaches the specified limit. In this case, you can run the **trap-threshold interval** command to flexibly adjust the interval for reporting an alarm if packets are discarded due to a congestion based on actual service situations. Such alarms help you know the congestion on the interface. You can determine whether to increase the bandwidth or cancel the bandwidth limit on the interface based on the logs. In this way, the congestion problem can be solved.

Precautions

After this command is run, only the interval for reporting an alarm if packets are discarded on an interface due to a congestion is set. The corresponding alarm is triggered only after the function of reporting an alarm if packets are discarded on an interface due to a congestion is enabled using the **trap-threshold enable** command and the number of discarded packets on the interface within a specified period of time reaches the alarm threshold.

If this command is executed multiple times, only the latest configuration takes effect.

Example

Set the interval for reporting an alarm if incoming packets are discarded on XGE0/0/1 due to a congestion to 80 seconds.

```
<HUAWEI> system-view
[HUAWEI] interface XGigabitEthernet 0/0/1
[HUAWEI-XGigabitEthernet0/0/1] trap-threshold input-discard interval 80
```


4.2.106 trap-threshold threshold

Function

The **trap-threshold threshold** command sets the alarm threshold for the number of discarded packets on an interface due to a congestion.

The **undo trap-threshold threshold** command restores the default alarm threshold for the number of discarded on an interface due to a congestion.

By default, the alarm threshold for the number of discarded packets on an interface due to a congestion is 6000.

Format

trap-threshold { **input-discard** | **output-discard** } **threshold** *threshold-value*

undo trap-threshold { **input-discard** | **output-discard** } **threshold**

Parameters

Parameter	Description	Value
input-discard	Enables the function of reporting an alarm if incoming packets are discarded on an interface due to a congestion.	-
output-discard	Enables the function of reporting an alarm if outgoing packets are discarded on an interface due to a congestion.	-
threshold-value	Specifies the alarm threshold for the number of discarded packets on an interface due to a congestion.	The value is an integer that ranges from 100 to 4294967295.

Views

Ethernet interface view, GE interface view, XGE interface view, MultiGE interface view, 25GE interface view, port group view

NOTE

Only the S5736-S equipped with the S7C02000, S7Q02001, ES5D21Q02Q00 or ES5D21Q04Q01 card supports this command in the 40GE interface view.

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

Network congestion during service transmission may cause packet loss. If a lot of packets are discarded, services are affected. To improve transmission quality of service flows, you need to enable the device to report alarms to notify users of the current network status if the number of packets discarded due to a congestion in a period of time reaches the specified limit. In this case, you can run the **trap-threshold threshold** command to flexibly adjust the alarm threshold for the number of discarded packets on an interface due to a congestion based on actual service situations. Such alarms help you know the congestion on the interface. You can determine whether to increase the bandwidth or cancel the bandwidth limit on the interface based on the logs. In this way, the congestion problem can be solved.

Precautions

- After this command is run, only the interval for reporting an alarm if packets are discarded on an interface due to a congestion is set. The corresponding alarm is triggered only after the function of reporting an alarm if packets are discarded on an interface due to a congestion is enabled using the **trap-threshold enable** command and the number of discarded packets on the interface within a specified period of time reaches the alarm threshold.
- If the number of discarded packets exceeds the threshold in several consecutive statistics intervals, the device only reporting an alarm in the first statistics interval, indicating that the number of discarded packets exceeds the threshold. If the number of discarded packets falls below the threshold, the device reporting an alarm indicating that the number of discarded packets falls below the threshold. If the number of discarded packets on an interface exceeds the threshold again, the device will report an alarm indicating that the number of discarded packets exceeds the threshold.
- If this command is executed multiple times, only the latest configuration takes effect.

Example

Set the alarm threshold for the number of discarded incoming packets on XGE0/0/1 due to a congestion to 200.

```
<HUAWEI> system-view
[HUAWEI] interface XGigabitEthernet 0/0/1
[HUAWEI-XGigabitEthernet0/0/1] trap-threshold input-discard threshold 200
```

4.2.107 virtual-cable-test

Function

The **virtual-cable-test** command tests the cable connected to an Ethernet electrical interface and displays the test result.

NOTE

The MEth management interfaces on the following devices support this command: S5731-S, S5731S-S, S5731-H, S5731S-H, S5732-H, S6730-S, S6730S-S, S6730-H, S6730S-H, S6735-S.

The service interfaces on the following devices do not support this command:

- MultiGE interfaces on the S5720-28X-PWH-LI-AC and S5736-S24UM4XC
- XGE electrical interfaces on the ES5D21X08T00 card

For the S5731-S24N4X2Q-A, S5731-S24UN4X2Q, S5731-S8UM16UN2Q, S5731S-S24N4X2Q-A1, S5731S-S24UN4X2Q-A, S5731S-S8UM16UN2Q-A, S5732-H24UM2CC (part number: 02353SJY-020, 02353SJY-021, 02353SJY-024), and S5732-H48UM2CC (part number: 02353SJT-020, 02353SJT-021, 02353SJT-023, 02353SJT-024), if the MultiGE interface is configured to work in auto-negotiation mode, and the peer interface is set to 100 Mbit/s, the local check result obtained using the **virtual-cable-test** command is inaccurate.

Format

virtual-cable-test

Parameters

None

Views

MEth interface view, Ethernet interface view, GE interface view, XGE interface view, 25GE interface view

Default Level

3: Management level

Usage Guidelines

Usage Scenario

If the cable is faulty, the interface is in Down state or the interface rate is abnormal even if it is in Up state. You can run the **virtual-cable-test** command to check whether the cable works properly. According to the command output, you can locate and rectify cable faults.

- If the cable works properly, the total length of the cable is displayed.
- If the cable cannot work properly, the distance between the interface and the failure point is displayed.

VCT can be performed in either of the following modes:

- Common mode: The test speed is fast (about 2.5s), but the test precision is low.
- Enhanced mode: The test precision is high, but the test duration is longer (about 8s).

NOTE

For the S5736-S24T4XC, S5736-S48T4XC, S5736-S24U4XC, and S5736-S48U4XC, when ports are Up, VCT operates in common mode; when ports are Down, VCT operates in enhanced mode. Other devices support only VCT in enhanced mode.

Precautions

- The test result is only for reference and may be inaccurate for cables of some vendors.
- If the detection result is **Unknown**, you are advised to use the cable analyzer to perform the test.
- The test result is related to the cable signal attenuation. When the cable length is shorter than 3 m, the cable signal attenuation mostly is resulted from the connector, not the cable. The test result is therefore inaccurate.
- Running the **virtual-cable-test** command may affect services on the interface in a short period of time, and the interface in Up state may alternate between Up and Down.
- Combo electrical interfaces support cable tests, but cable tests are not recommended on combo electrical interfaces because services will be interrupted.
- This command can be used on an XGE optical interface or GE optical interface when the interface has a GE copper module installed.
- After a 25GE optical interface is configured to work at the rate of 1 Gbit/s using the **port mode ge** command and has a GE copper module installed, the **virtual-cable-test** command can be configured on the interface.
- When a GE electrical interface on the S5720-LI, S2730S-S, S5735-L-I, S5735-L1, S300, S5735-L, S5735S-L1, S5735S-L, S5735S-L-M, S5720S-LI, S5735S-H, S5736-S, S6720S-S, S500, S5735-S, S5735S-S, S5735-S-I, and S5720I-SI works at a rate of 1000 Mbit/s or 100 Mbit/s and the interface is up, the detection result is inaccurate.
- On the S6720S-EI, S5732-H, S6730-H, S6730S-H, S6730-S, S6730S-S, S6735-S, and S6720-EI, when a GE electrical interface works at a rate of 100 Mbit/s, the detection result is inaccurate.
- On the S5731-H, S5731S-H, S5731-S, and S5731S-S, when a GE electrical interface works at a rate of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s and the interface is up, the detection result is inaccurate.
- The test result is inaccurate when the interface is in the Up state or the remote interface is shut down.
- An FE electrical port uses only two pairs of wire pairs. The test result of the two pairs of wire pairs that are not used during the VCT test is inaccurate.
- When a GE electrical port works at a rate of 10 Mbit/s or 100 Mbit/s, only two pairs of cables are used to detect the VCT status. The other two pairs of cables do not detect or return the default result.
- The virtual cable test (VCT) cannot be performed on multiple interfaces of the device at the same time.

Example

Test the cable connected to Ethernet electrical interface GE0/0/1.


```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 0/0/1
[HUAWEI-GigabitEthernet0/0/1] virtual-cable-test
Warning: The command will stop service for a while. Continue? [Y/N]y
Info: This operation may take a few seconds. Please wait for a moment.....done.
Pair A length: 189meter(s)
Pair B length: 189meter(s)
Pair C length: 189meter(s)
Pair D length: 189meter(s)
Pair A state: Ok
Pair B state: Ok
Pair C state: Ok
Pair D state: Ok
Info: The test result is only for reference.
```

Table 4-32 Description of the virtual-cable-test command output

Item	Description
Pair A/B/C/D	Four pairs of circuits in a network cable. A: orange/white and orange B: green/white and green C: blue/white and blue D: brown/white and brown

Item	Description
Pair A length	Length of a network cable: • The length is the distance between the interface and the faulty point if a fault occurs. • The length is the actual length of the cable when the cable works properly. • The length is the default length 0 m if the interface is not connected to any cable. The test result of different chips may vary, and the displayed result is for reference only. **NOTE** If the cable length is displayed as Unknown, the cable status is OK, but the cable length test result cannot be used. If the cable status is Open (indicating open circuit), the cable length in the VCT result can be used. If the remote interface is shut down, the cable length in the VCT result can be used for combo electrical interfaces on the following switches: • S5720I-SI • S5720-12TP-LI-AC, S5720-12TP-PWR-LI-AC, S5720-28TP-PWR-LI-AC, S5720S-28TP-PWR-LI-AC, S5720-28TP-PWR-LI-AC, S5720-28TP-LI-AC, S5720-52X-LI-48S-AC, S5720-52X-LI-48S-AC1, S5720-52X-LI-48S-DC1, S5720-52X-LI-24S-AC1 If the remote interface is shut down, the cable length in the VCT result can be used for electrical interfaces on the following switches: • S5731-H • S6730-H • S6730S-H • S5720-16X-PWH-LI-AC, S5720-28X-PWH-LI-AC, S5720-28X-PWH-LI-ACF, S5720-52X-LI-48S-AC, S5720-52X-LI-48S-AC1, S5720-52X-LI-48S-DC1, S5720-52X-LI-24S-AC1

Item	Description
Pair A state	Network cable status: • Ok: indicates that the circuit pair is terminated normally. • Open: indicates that the circuit pair is not terminated. • Short: indicates that the circuit pair is short-circuited. • Crosstalk: indicates that the circuit pairs interfere with each other. • Unknown: Other unknown fault causes are detected or the detection result is inaccurate.

4.3 Logical Interface Configuration Commands

4.3.1 Command Support

Commands provided in this section and all the parameters in the commands are supported by all switch models (except the S5731-L and S5731S-L), unless otherwise specified. For details, see specific commands.

4.3.2 display interface loopback

Function

Using the **display interface loopback** command, you can view the status and traffic statistics of a loopback interface.

Format

display interface loopback [*loopback-number* | **main**]

Parameters

Parameter	Description	Value
loopback-number	Displays status and traffic statistics about a specified loopback interface. If *loopback-number* is not specified, the status and traffic statistics of all loopback interfaces are displayed.	-

Parameter	Description	Value
main	Displays status and traffic statistics about a Loopback interface. A Loopback interface has no sub-interfaces. Status and traffic statistics about a Loopback interface are displayed whether you specify the **main** parameter or not.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

In the scenario where you need to monitor the status of an interface or locate an interface fault, you can use the **display interface loopback** command to collect the statistics on the interface including the status. Through the displayed information, you can collect the traffic statistics and troubleshoot the interface.

Prerequisite

A loopback interface has been created using the **interface loopback** command.

Example

Display the status and traffic statistics of a specified loopback interface.

```
<HUAWEI> display interface loopback 6
LoopBack6 current state : UP
Line protocol current state : UP (spoofing)
Description:
Route Port,The Maximum Transmit Unit is 1500
Internet Address is 10.3.3.3/32
Current system time: 2012-02-25 09:56:04
    Last 10 seconds input rate 0 bits/sec, 0 packets/sec
    Last 10 seconds output rate 0 bits/sec, 0 packets/sec
    Realtime 0 seconds input rate 0 bits/sec, 0 packets/sec
    Realtime 0 seconds output rate 0 bits/sec, 0 packets/sec
    Input: 0 packets,0 bytes
          0 unicast,0 broadcast,0 multicast
          0 errors,0 unknownprotocol
    Output:0 packets,0 bytes
          0 unicast,0 broadcast,0 multicast
          0 errors
    Input bandwidth utilization  :    0%
    Output bandwidth utilization :    0%
```


Table 4-33 Description of the **display interface loopback** command output

Item	Description
LoopBack6 current state	Physical status of a loopback interface. The physical status of a loopback interface is always Up after the loopback interface is created.
Line protocol current state	Link layer protocol status of a loopback interface. The link layer protocol status of a loopback interface is always Up after the loopback interface is created.
Description	Indicates the description of the interface, which can be set by using the **description** command.
Route Port,The Maximum Transmit Unit is 1500	Indicates the maximum transmission unit (MTU). The default MTU is 1500 bytes. Packets longer than the MTU are fragmented before being transmitted. If fragmentation is not allowed, the packet is discarded.
Internet Address is	Indicates the IP address of the interface.
Current system time	Indicates the current system time.
Input bandwidth utilization	Indicates the percentage of the rate for receiving packets to the total bandwidth.
Output bandwidth utilization	Indicates the percentage of the rate for sending packets to the total bandwidth.

4.3.3 display interface null

Function

Using the **display interface null** command, you can view the status and traffic statistics of a null interface.

Format

display interface null [**0** | **main**]

Parameters

Parameter	Description	Value
0	Displays status and traffic statistics about a specified Null interface.	The value can be 0 only.

Parameter	Description	Value
main	Displays status and traffic statistics about a Null interface. A Null interface has no sub-interfaces. Status and traffic statistics about a Null interface are displayed whether you specify the **main** parameter or not.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

Usage Scenario

The **display interface null** command displays the status of a null interface. The interface status information includes: the physical status, link layer protocol status, description, MTU, IP address, current system time, last time statistics about the null interface are cleared, incoming and outgoing packet rates in bit/s and pps, total numbers of packets and bytes received and sent by the null interface, and percentages of the rates for receiving and sending packets to the total bandwidth.

Precautions

There is only one null interface, namely, NULL 0.

Example

Display the status and traffic statistics of Null 0 interface.

```
<HUAWEI> display interface null 0
NULL0 current state : UP
Line protocol current state : UP (spoofing)
Description:
Route Port,The Maximum Transmit Unit is 1500
Internet protocol processing : disabled
Physical is NULL DEV
Current system time: 2012-02-25 10:25:59
    Last 300 seconds input rate 0 bits/sec, 0 packets/sec
    Last 300 seconds output rate 0 bits/sec, 0 packets/sec
    Realtime 0 seconds input rate 0 bits/sec, 0 packets/sec
    Realtime 0 seconds output rate 0 bits/sec, 0 packets/sec
    Input: 0 packets,0 bytes
          0 unicast,0 broadcast,0 multicast
          0 errors,0 unknownprotocol
    Output:0 packets,0 bytes
          0 unicast,0 broadcast,0 multicast
          0 errors
    Input bandwidth utilization  :    0%
    Output bandwidth utilization :    0%
```


Table 4-34 Description of the display interface null command output

Item	Description
NULL0 current state	Indicates the physical status of the null interface. The physical status of the null interface is always Up.
Line protocol current state	Indicates the link layer protocol status of the interface. The protocol status of the null interface is always Up.
Description	Indicates the description of the interface, which can be set by using the **description** command.
Route Port	A Layer 3 interface.
The Maximum Transmit Unit	Indicates the MTU of the interface.
Internet protocol processing : disabled	Indicates that the Internet protocol processing is not configured.
Physical is NULL DEV	Indicates that the interface is null.
Current system time	Indicates the current system time.
Last 300 seconds input rate Last 300 seconds output rate	Indicates the rates for sending and receiving the bytes and the packets by the interface in the last five minutes.
Realtime 0 seconds input rate Realtime 0 seconds output rate	Indicates the real-time rates of sending and receiving the bytes and the packets. It refers to the interval between two **display** commands that are run on the same interface. The maximum value is the statistical interval displayed in the previous piece of information. This entry is displayed only when information about a logical interface is viewed.
Input	Indicates the total number of packets and the total number of bytes received by the interface.
Output	Indicates the total number of packets and the total number of bytes sent by the interface.
Input bandwidth utilization	Indicates the percentage of the rate for receiving packets to the total bandwidth.
Output bandwidth utilization	Indicates the percentage of the rate for sending packets to the total bandwidth.

4.3.4 display interface virtual-ethernet

Function

The **display interface virtual-ethernet** command displays status and traffic statistics about Virtual Ethernet (VE) interfaces.

NOTE

Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S support this command.

Format

display interface virtual-ethernet [*ve-number* | **main**]

Parameters

Parameter	Description	Value
ve-number	Displays status and traffic statistics about a specified VE interface. If no interface number is specified, information about all VE interfaces is displayed.	The sequence number ranges from 0 to 511.
main	Displays status and traffic statistics about a VE interface. If you do not specify the **main** parameter, status and traffic statistics about both a VE interface and VE sub-interfaces are displayed.	-

Views

All views

Default Level

1: Monitoring level

Usage Guidelines

In the scenario where you need to monitor the status of an interface or locate an interface fault, you can use the **display interface virtual-ethernet** command to collect the statistics on the interface including the status. Through the displayed information, you can collect the traffic statistics and troubleshoot the interface.

Example

Display the status and traffic statistics of VE 0/0/1.

```
<HUAWEI> display interface virtual-ethernet 0/0/1
Virtual-Ethernet0/0/1 current state : UP
```

```
Line protocol current state : UP
Description:
Route Port,The Maximum Transmit Unit is 1500
Internet protocol processing : disabled
IP Sending Frames' Format is PKTFMT_ETHNT_2, Hardware address is xxxx-xxxx-xxxx
Current system time: 2017-01-02 02:20:03
Last 300 seconds input rate 0 bits/sec, 0 packets/sec
Last 300 seconds output rate 0 bits/sec, 0 packets/sec
Input:  0 packets, 0 bytes
  Unicast:                0,  Multicast:                0
  Broadcast:              0
Output:  0 packets, 0 bytes
  Unicast:                0,  Multicast:                0
  Broadcast:              0
    Input bandwidth utilization  :    0%
    Output bandwidth utilization :    0%
```

Table 4-35 Description of the **display interface virtual-Ethernet** command output

Item	Description
Virtual-Ethernet0/0/1 current state	Physical status of the VE interface: ● UP: indicates that the interface is Up. ● DOWN: indicates that the interface is Down. ● Administratively DOWN: indicates that the administrator uses the **shutdown** command on the interface.
Line protocol current state	Indicates the link layer protocol status of the interface: ● UP: indicates that the link layer protocol on the interface is Up. ● DOWN: indicates that the link layer protocol on the interface is Down or no IP address is assigned to the interface.
Description	Description of an interface. The information allows users to know about functions of the interface and is used to identify the current interface. You can run the **description** command to configure or modify the description of an interface.
Route Port	Layer 3 interface. If this parameter specifies a Layer 2 interface, the value of this parameter will be displayed as "Switch Port". You can run the **portswitch** command to change the mode of an interface from Layer 3 to Layer 2.
The Maximum Transmit Unit is	MTU of the interface.
Internet protocol processing : disabled	No IP address is configured for the interface. If an IP address is configured for the interface, the interface's IP address and subnet mask are displayed.

Item	Description
IP Sending Frames' Format is	Format of frames sent by the IP protocol, including PKTFMT_ETHNT_2, Ethernet_802.3, and Ethernet_SNAP.
Hardware address is	MAC address of the interface.
Current system time	Current system time. If the system is configured with a time zone and is in the summer daylight saving time, the time is displayed in the format of YYYY/MM/DD HH:MM:SS UTC±HH:MM DST.
Last 300 seconds input rate	Incoming packet rate (bits per second and packets per second) within the last 300 seconds.
Last 300 seconds output rate	Outgoing packet rate (bits per second and packets per second) within the last 300 seconds.
Input	Total number of received packets.
Output	Total number of sent packets.
Unicast	Number of unicast packets that are received or sent by the interface.
Broadcast	Number of broadcast packets that are received or sent by the interface.
Input bandwidth utilization	Inbound bandwidth usage.
Output bandwidth utilization	Outbound bandwidth usage.

4.3.5 interface loopback

Function

The **interface loopback** command creates a loopback interface.

The **undo interface loopback** command deletes a loopback interface.

Format

interface loopback *loopback-number*

undo interface loopback *loopback-number*

Parameters

Parameter	Description	Value
loopback-number	Specifies the number of a loopback interface.	The value is an integer. On the S5735S-H, S5736-S, S5735-S, S5735S-S, S5731-H, S5731S-H, S6730-H, and S6720S-S series switches, the value ranges from 0 to 1023. On the SS1720GW-E, S1720GWR-E, S5720-LI, S2730S-S, S5735-L-I, S5735-L1,S300, S5735-L, S5735S-L, S5735S-L1, S5735S-L-M, and S5720S-LI series switches, the value ranges from 0 to 15.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

A loopback interface is always Up.

The IP address of a loopback interface is usually specified as the source address of packets.

Example

Create loopback interface 5.

```
<HUAWEI> system-view
[HUAWEI] interface loopback 5
[HUAWEI-LoopBack5]
```

4.3.6 interface null

Function

Using the **interface null** command, you can enter the null interface view.

Format

interface null 0

Parameters

None

Views

System view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

The Null0 interface never forwards or accepts any traffic. All traffic sent to this interface is directly discarded. Unnecessary traffic can be sent to the Null0 interface to avoid using ACLs.

Precautions

There is only one null interface, named null0. This interface is always Up and cannot be shut down or deleted.

Example

Enter the view of the Null0 interface.

```
<HUAWEI> system-view
[HUAWEI] interface null 0
[HUAWEI-NULL0]
```

4.3.7 interface virtual-ethernet

Function

The **interface virtual-ethernet** command displays the view of an existing virtual Ethernet (VE) interface, or creates a VE interface and displays the VE interface view.

The **undo interface virtual-ethernet** command deletes a VE interface.

By default, no VE interface is created.

NOTE

Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S support this command.

Format

interface virtual-ethernet *ve-number*[.*subnumber*]

undo interface virtual-ethernet *ve-number* [.*subnumber*]

Parameters

Parameter	Description	Value
ve-number	Specifies the number of a VE interface.	The sequence number is an integer that ranges from 0 to 511.

Parameter	Description	Value
subnumber	Specifies the number of a VE sub-interface.	The value is an integer that ranges from 1 to 1024.

Views

System view

Default Level

2: Configuration level

Usage Guidelines

A VE interface is a logical interface with Ethernet features on a switch. VE interfaces are mainly used in scenarios where Ethernet over GRE is configured or an L2VPN accesses to an L3VPN. You need to create a VE sub-interface when configuring an L2VPN to access to an L3VPN.

Example

Create VE interface 0//0/1.

```
<HUAWEI> system-view
[HUAWEI] interface virtual-ethernet 0/0/1
[HUAWEI-Virtual-Ethernet0/0/1]
```

Create VE sub-interface VE0/0/1.1.

```
<HUAWEI> system-view
[HUAWEI] interface virtual-ethernet 0/0/1
[HUAWEI-Virtual-Ethernet0/0/1] ve-group 1 l3-access
[HUAWEI-Virtual-Ethernet0/0/1] quit
[HUAWEI] interface virtual-ethernet 0/0/1.1
[HUAWEI-Virtual-Ethernet0/0/1.1]
```

4.3.8 portswitch (VE interface view)

Function

The **portswitch** command changes the working mode of a virtual Ethernet (VE) interface from Layer 3 mode to Layer 2 mode.

The **undo portswitch** command changes the working mode of a VE interface from Layer 2 mode to Layer 3 mode.

By default, a VE interface works in Layer 3 mode.

NOTE

Only the S5731-H, S5731-S, S5731S-H, S5731S-S, S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S support this command.

Format

portswitch

undo portswitch

Parameters

None

Views

VE interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

By default, a VE interface on the device works in Layer 3 mode. To enable Layer 2 forwarding on the VE interface, run the **portswitch** command to change the working mode to Layer 2 mode.

Precautions

- If an interface has the non-attribute configuration, this command cannot be executed. Before running this command, delete the non-attribute configuration on the interface.
- The minimum interval between running the **portswitch** and **undo portswitch** commands must be 30s.

Example

Change VE0/0/1 to Layer 2 mode.

```
<HUAWEI> system-view
[HUAWEI] interface virtual-ethernet 0/0/1
[HUAWEI-Virtual-Ethernet0/0/1] portswitch
```

4.3.9 statistic enable (sub-interface view)

Function

The **statistic enable** command enables traffic statistics collection on a sub-interface.

The **undo statistic enable** command disables traffic statistics collection on a sub-interface.

By default, traffic statistics collection is disabled on a sub-interface.

NOTE

This configuration is supported only by the S5731-H, S5731S-H, S5731-S, S5731S-S, S5732-H, S6730-H, S6730S-H, S6730-S and S6730S-S.

For the S5732-H, S6730-H, S6730S-H, S6730-S, and S6730S-S: Configuring traffic statistics collection on sub-interfaces may affect the forwarding performance. For example, some packets may be discarded when all interfaces forward packets at the line rate. Therefore, configure traffic statistics collection on sub-interfaces if necessary.

Format

statistic enable { **both** | **inbound** | **outbound** }

undo statistic enable { **both** | **inbound** | **outbound** }

Parameters

Parameter	Description	Value
both	Enables traffic statistics collection for incoming and outgoing traffic.	-
inbound	Enables traffic statistics collection for incoming traffic.	-
outbound	Enables traffic statistics collection for outgoing traffic.	-

Views

GE sub-interface view, XGE sub-interface view, MultiGE sub-interface view, 25GE sub-interface view, 40GE sub-interface view, 100GE sub-interface view, Eth-Trunk sub-interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

To check the network status or troubleshoot network faults, enable traffic statistics collection on a sub-interface. The device then collects traffic statistics on the sub-interface.

Precautions

- After you run the **undo statistic enable** command to disable traffic statistics collection on a sub-interface, traffic statistics collection on the sub-interface is stopped and the collected traffic statistics are cleared.

- Traffic statistics collection on sub-interfaces occupies a device's limited ACL resources. If this function is enabled on too many sub-interfaces, other services may fail to obtain ACL resources.
- Traffic statistics collection on sub-interfaces is unavailable for error packets.
- The device supports traffic statistics collection on a maximum of 4096 sub-interfaces.
- VXLAN Layer 2 sub-interfaces do not support traffic statistics collection.

Example

Enable traffic statistics collection for incoming and outgoing traffic on the sub-interface GigabitEthernet1/0/1.1.

```
<HUAWEI> system-view
[HUAWEI] interface gigabitethernet 1/0/1.1
[HUAWEI-GigabitEthernet1/0/1.1] statistic enable both
```

4.3.10 trigger trap

Function

Using the **trigger trap** command, you can configure an interface to send traps to the NMS.

Format

trigger trap { **linkup** | **linkdown** }

Parameters

Parameter	Description	Value
linkup	Sends the LinkUp trap to the NMS.	-
linkdown	Sends the LinkDown trap to the NMS.	-

Views

Loopback interface view

Default Level

2: Configuration level

Usage Guidelines

Usage Scenario

The traps configured by **trigger trap** are used to check whether the network between the NMS and device functions properly. If the NMS receives a trap sent from the interface, the network between the NMS and device functions properly; otherwise, a fault may occur on the network.

Prerequisites

Run the **snmp-agent trap enable feature-name** command to enable the LinkUp and LinkDown traps.

Precautions

The **trigger trap** command is used on loopback interfaces to check the network between the NMS and device. The interface status does not change according to the meaning of the trap. For example, if the **trigger trap linkdown** command is used, the loopback interface sends a LinkDown trap to the NMS but does not change its status to Down. If you have used the **trigger trap linkdown** command, you must run the **trigger trap linkup** command to clear the LinkDown trap on the NMS.

Example

Configure a loopback interface to send the LinkUp trap to the NMS.

```
<HUAWEI> system-view
[HUAWEI] interface loopback 1
[HUAWEI-LoopBack1] trigger trap linkup
```

