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Ethernet interface commands

Common Ethernet interface commands

bandwidth

Use **bandwidth** to set the expected bandwidth of an interface.

Use **undo bandwidth** to restore the default.

Syntax

```
bandwidth bandwidth-value
```

```
undo bandwidth
```

Default

The expected bandwidth (in kbps) is the interface baud rate divided by 1000.

Views

Ethernet interface view

Ethernet subinterface view

Predefined user roles

network-admin

Parameters

bandwidth-value: Specifies the expected bandwidth in the range of 1 to 400000000 kbps.

Usage guidelines

The expected bandwidth is an informational parameter used only by higher-layer protocols for calculation. You cannot adjust the actual bandwidth of an interface by using this command.

Examples

```
# Set the expected bandwidth of Ten-GigabitEthernet 1/0/1 to 1000 kbps.
```

```
<Sysname> system-view
```

```
[Sysname] interface ten-gigabitethernet 1/0/1
```

```
[Sysname-Ten-GigabitEthernet1/0/1] bandwidth 1000
```

```
# Set the expected bandwidth of Ten-GigabitEthernet 1/0/1.1 to 1000 kbps.
```

```
<Sysname> system-view
```

```
[Sysname] interface ten-gigabitethernet 1/0/1.1
```

```
[Sysname-Ten-GigabitEthernet1/0/1.1] bandwidth 1000
```

Related commands

speed

broadcast-suppression

Use **broadcast-suppression** to enable broadcast suppression and set the broadcast suppression threshold.

Use **undo broadcast-suppression** to disable broadcast suppression.

Syntax

```
broadcast-suppression { ratio | pps max-pps | kbps max-kbps }  
undo broadcast-suppression
```

Default

Ethernet interfaces do not suppress broadcast traffic.

Views

Ethernet interface view

Predefined user roles

network-admin

Parameters

ratio: Sets the broadcast suppression threshold as a percentage of the interface bandwidth. The value range for this argument is 0 to 100. A smaller value means that less broadcast traffic is allowed to pass through.

pps *max-pps*: Specifies the maximum number of broadcast packets that the interface can forward per second. The value range for the *max-pps* argument (in pps) is 0 to 1.4881 × the interface bandwidth.

kbps *max-kbps*: Specifies the maximum number of kilobits of broadcast traffic that the Ethernet interface can forward per second. The value range for this argument (in kbps) is 0 to the interface bandwidth.

Usage guidelines

The broadcast storm suppression features limits the size of broadcast traffic to a threshold on an interface. When the broadcast traffic on the interface exceeds this threshold, the system drops packets until the traffic drops below this threshold.

Both the **storm-constrain** command and the **broadcast-suppression** command can suppress broadcast storms on a port. The **broadcast-suppression** command uses the chip to physically suppress broadcast traffic. It has less influence on the device performance than the **storm-constrain** command, which uses software to suppress broadcast traffic.

For the traffic suppression result to be determined, do not configure both the **storm-constrain broadcast** command and the **broadcast-suppression** command on an interface.

When you configure the suppression threshold in kbps, the actual suppression threshold might be different from the configured one as follows:

- If the configured value is smaller than 64, the value of 64 takes effect.
- If the configured value is greater than 64 but not an integer multiple of 64, the integer multiple of 64 that is greater than and closest to the configured value takes effect.

For the suppression threshold that takes effect, see the prompt on the device.

Examples

```
# Set the broadcast suppression threshold to 10000 kbps on Ten-GigabitEthernet 1/0/1.
```

```
<Sysname> system-view
```

```
[Sysname] interface ten-gigabitethernet 1/0/1
```

```
[Sysname-Ten-GigabitEthernet1/0/1] broadcast-suppression kbps 10000
```

```
The actual value is 10048 on port Ten-GigabitEthernet1/0/1 currently.
```

The output shows that the value that takes effect is 10048 kbps (157 times of 64), because the chip only supports step 64.

Related commands

`multicast-suppression`
`unicast-suppression`

combo enable

Use `combo enable` to activate the copper or fiber combo port of a combo interface.

Syntax

```
combo enable { auto | copper | fiber }
```

Default

The copper or fiber combo port is automatically activated depending on the medium inserted in the combo interface.

Views

Ethernet interface view

Predefined user roles

network-admin

Parameters

auto: Automatically identifies the media inserted and activates the corresponding combo port.

copper: Activates the copper combo port. In this case, use twisted pairs to connect the port.

fiber: Activates the fiber combo port. In this case, use optical fibers to connect the port.

Usage guidelines

A combo interface is a logical interface that physically contains one fiber combo port and one copper combo port on the device panel. The two ports share one forwarding interface. As a result, they cannot work simultaneously. When you activate either port, the other port is automatically disabled. You can select to activate the copper combo port or fiber combo port.

This command is available only on devices that support combo interfaces.

If you execute the `combo enable auto` command on a combo interface and the combo interface is connected to cables or optical fibers, you can use the `display interface` command to display the interface information.

- If the `display interface` command output contains "Media type is twisted pair," the copper combo port is activated.
- Otherwise, the fiber combo port is activated.

Before using this command, perform the following tasks according to the marks on the device panel:

- Determine the combo interfaces on your device.
- Identify the two physical interfaces that belong to each combo interface.

Examples

```
# Activate the copper combo port of combo interface Ten-GigabitEthernet 1/0/1.
```

```
<Sysname> system-view  
[Sysname] interface ten-gigabitethernet 1/0/1  
[Sysname-Ten-GigabitEthernet1/0/1] combo enable copper
```

```
# Activate the fiber combo port of combo interface Ten-GigabitEthernet 1/0/1.
```

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

```
[Sysname-Ten-GigabitEthernet1/0/1] combo enable fiber
```

dampening

Use **dampening** to enable the device to dampen an interface when the interface is flapping.

Use **undo dampening** to restore the default.

Syntax

```
dampening [ half-life reuse suppress max-suppress-time ]  
undo dampening
```

Default

Interface dampening is disabled on Ethernet interfaces.

Views

Ethernet interface view

Predefined user roles

network-admin

Parameters

half-life: Specifies the amount of time after which a penalty is decreased, in the range of 1 to 120 seconds. The default value is 54 seconds.

reuse: Specifies the reuse threshold in the range of 200 to 20000. The default value is 750. The reuse threshold must be less than the suppression threshold.

suppress: Specifies the suppression threshold in the range of 200 to 20000. The default value is 2000.

max-suppress-time: Specifies the maximum amount of time the interface can be dampened, in the range of 1 to 255 seconds. The default value is 162 seconds (three times the half-life timer).

Usage guidelines

When configuring the **dampening** command, follow these rules to set the values mentioned above:

- The ceiling is equal to 2 (Max-suppress-time/Decay) × reuse-limits. It is not user configurable.
- The configured suppress limit is lower than or equal to the ceiling.
- The ceiling is lower than or equal to the maximum suppress limit supported.

This command and the **link-delay** command are mutually exclusive on an interface.

This command does not take effect on the administratively down events. When you execute the **shutdown** command, the penalty restores to 0, and the interface reports the down event to the higher layer protocols.

Do not enable the dampening function on an interface with RRPP, MSTP, or Smart Link enabled.

After an interface in down state is dampened, the interface state displayed through the **display interface** command is always down.

Examples

```
# Enable interface dampening on Ten-GigabitEthernet 1/0/1.
```

```
<Sysname> system-view  
[Sysname] interface ten-gigabitethernet 1/0/1  
[Sysname-Ten-GigabitEthernet1/0/1] dampening
```

```
# Enable interface dampening on Ten-GigabitEthernet 1/0/1, and set the following parameters:
```

- Half life time to 2 seconds.
- Reuse value to 800.
- Suppression threshold to 3000.
- Maximum suppression interval to 5 seconds.

```
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] dampening 2 800 3000 5
```

Related commands

```
display interface
link-delay
```

default

Use **default** to restore the default settings for an interface.

Syntax

```
default
```

Views

```
Ethernet interface view
Ethernet subinterface view
```

Predefined user roles

```
network-admin
```

Usage guidelines

CAUTION:

The **default** command might interrupt ongoing network services. Make sure you are fully aware of the impacts of this command when you use it in a live network.

This command might fail to restore the default settings for some commands because of command dependencies or system restrictions. You can use the **display this** command in interface view to identify these commands, and use their **undo** forms or follow the command reference to restore their default settings. If your restoration attempt still fails, follow the error message instructions to solve the problem.

Examples

```
# Restore the default settings for Ten-GigabitEthernet 1/0/1.
```

```
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] default
```

```
# Restore the default settings for Ten-GigabitEthernet 1/0/1.1.
```

```
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1.1
[Sysname-Ten-GigabitEthernet1/0/1.1] default
```

description

Use **description** to configure the description of an interface.

Use **undo description** to restore the default.

Syntax

```
description text  
undo description
```

Default

The description of an interface is the interface name plus **Interface** (for example, **Ten-GigabitEthernet1/0/1 Interface**).

Views

Ethernet interface view
Ethernet subinterface view

Predefined user roles

network-admin

Parameters

text: Specifies the interface description, a case-sensitive string of 1 to 255 characters.

Examples

```
# Set the description of Ten-GigabitEthernet 1/0/1 to lan-interface.  
<Sysname> system-view  
[Sysname] interface ten-gigabitethernet 1/0/1  
[Sysname-Ten-GigabitEthernet1/0/1] description lan-interface  
  
# Set the description of Ten-GigabitEthernet 1/0/1.1 to subinterface1/0/1.1.  
<Sysname> system-view  
[Sysname] interface ten-gigabitethernet 1/0/1.1  
[Sysname-Ten-GigabitEthernet1/0/1.1] description subinterface1/0/1.1
```

display counters

Use **display counters** to display interface traffic statistics.

Syntax

```
display counters { inbound | outbound } interface [ interface-type  
[ interface-number ] ]
```

Views

Any view

Predefined user roles

network-admin
network-operator

Parameters

inbound: Displays inbound traffic statistics.
outbound: Displays outbound traffic statistics.
interface-type: Specifies an interface type.
interface-number: Specifies an interface number.

Usage guidelines

To clear the Ethernet interface traffic statistics, use the **reset counters interface** command.

If you do not specify an interface type, this command displays traffic statistics for all interfaces that have traffic counters.

If you specify an interface type but do not specify an interface number, this command displays traffic statistics for all interfaces of the specified type.

If you specify an interface type and number, this command displays traffic statistics for the specified interface.

Examples

Display inbound traffic statistics for all interfaces.

```
<Sysname> display counters inbound interface
```

Interface	Total (pkts)	Broadcast (pkts)	Multicast (pkts)	Err (pkts)
XGE1/0/1	100	100	0	0
XGE1/0/2	Overflow	Overflow	Overflow	Overflow

Overflow: More than 14 digits (7 digits for column "Err").

--: Not supported.

Table 1 Command output

Field	Description
Interface	Abbreviated interface name.
Total (pkts)	Total number of packets received or sent through the interface.
Broadcast (pkts)	Total number of broadcast packets received or sent through the interface.
Multicast (pkts)	Total number of multicast packets received or sent through the interface.
Err (pkts)	Total number of error packets received or sent through the interface.
Overflow: More than 14 digits (7 digits for column "Err")	The command displays Overflow when any of the following conditions exist: <ul style="list-style-type: none">The data length of an Err field value is greater than 7 decimal digits.The data length of a non-Err field value is greater than 14 decimal digits.
--: Not supported	The statistical item is not supported.

Related commands

reset counters interface

display counters rate

Use **display counters rate** to display traffic rate statistics for interfaces in up state for the most recent statistics polling interval.

Syntax

```
display counters rate { inbound | outbound } interface [ interface-type  
[ interface-number ] ]
```

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

inbound: Displays inbound traffic rate statistics.

outbound: Displays outbound traffic rate statistics.

interface-type: Specifies an interface type.

interface-number: Specifies an interface number.

Usage guidelines

If you do not specify an interface type, this command displays traffic rate statistics for all up interfaces that have traffic counters.

If you specify an interface type but do not specify an interface number, this command displays traffic rate statistics for all up interfaces of the specified type.

If you specify an interface type and an interface, this command displays traffic rate statistics for the specified interface.

If an interface that you specify is always down for the most recent statistics polling interval, the system prompts that the interface does not support the command.

To set the statistics polling interval, use the **flow-interval** command.

Examples

Display the inbound traffic rate statistics for all interfaces.

```
<Sysname> display counters rate inbound interface
```

Usage: Bandwidth utilization in percentage

Interface	Usage (%)	Total (pps)	Broadcast (pps)	Multicast (pps)
XGE1/0/1	3	200	100	100

Overflow: More than 14 digits.

--: Not supported.

Table 2 Command output

Field	Description
Interface	Abbreviated interface name.
Usage (%)	Bandwidth usage (in percentage) of the interface for the last statistics polling interval.
Total (pps)	Average receiving or sending rate (in pps) for unicast packets for the last statistics polling interval.
Broadcast (pps)	Average receiving or sending rate (in pps) for broadcast packets for the last statistics polling interval.
Multicast (pps)	Average receiving or sending rate (in pps) for multicast packets for the last statistics polling interval. .
Overflow: more than 14 decimal digits	The command displays Overflow if the data length of a statistical item is greater than 14 decimal digits.
--: not supported	The statistical item is not supported.

Related commands

flow-interval

reset counters interface

display ethernet statistics

Use `display ethernet statistics` to display the Ethernet module statistics.

Syntax

```
display ethernet statistics slot slot-number
```

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

`slot slot-number`: Specifies an IRF member device by its member ID.

Examples

Display the Ethernet module statistics for the specified slot.

```
<Sysname> display ethernet statistics slot 1
```

```
ETH receive packet statistics:
```

```
Totalnum      : 10447      ETHIINum      : 4459
SNAPNum       : 0          RAWNum        : 0
LLCNum        : 0          UnknownNum    : 0
ForwardNum    : 4459      ARP           : 0
MPLS          : 0          ISIS          : 0
ISIS2         : 0          IP            : 0
IPV6          : 0
```

```
ETH receive error statistics:
```

```
NullPoint     : 0          ErrIfindex    : 0
ErrIfcb       : 0          IfShut       : 0
ErrAnalyse    : 5988      ErrSrcMAC    : 5988
ErrHdrLen     : 0
```

```
ETH send packet statistics:
```

```
L3OutNum      : 211       VLANOutNum    : 0
FastOutNum    : 155       L2OutNum     : 0
```

```
ETH send error statistics:
```

```
MbufRelayNum  : 0          NullMbuf     : 0
ErrAdjFwd     : 0          ErrPrepend   : 0
ErrHdrLen     : 0          ErrPad       : 0
ErrQoSTrs    : 0          ErrVLANTrs   : 0
ErrEncap      : 0          ErrTagVLAN   : 0
IfShut        : 0          IfErr        : 0
```

Table 3 Output description

Field	Description
ETH receive packet statistics	Statistics about the Ethernet packets received by the Ethernet module: <ul style="list-style-type: none">• Totalnum—Total number of received packets.• ETHIINum—Number of packets encapsulated by using Ethernet II.

Field	Description
	<ul style="list-style-type: none"> • SNAPNum—Number of packets encapsulated by using SNAP. • RAWNum—Number of packets encapsulated by using RAW. • ISISNum—Number of packets encapsulated by using ISIS. • LLCNum—Number of packets encapsulated by using LLC. • UnknownNum—Number of packets encapsulated by using unknown methods. • ForwardNum—Number of packets forwarded at Layer 2 or sent to the CPU. • ARP—Number of ARP packets. • MPLS—Number of MPLS packets. This field is not supported in the current software version. • ISIS—Number of IS-IS packets. • ISIS2—Number of large 802.3/802.2 frames encapsulated by using IS-IS. • IP—Number of IP packets. • IPv6—Number of IPv6 packets.
ETH receive error statistics	<p>Statistics about the error Ethernet packets in the inbound direction on the Ethernet module. Errors might be included in packets or occur during the receiving process. The items include:</p> <ul style="list-style-type: none"> • NullPoint—Number of packets that include null pointers. • ErrIfindex—Number of packets that include incorrect interface indexes. • ErrIfcb—Number of packets that include incorrect interface control blocks. • IfShut—Number of packets that are being received when the interface is shut down. • ErrAnalyse—Number of packets that include packet parsing errors. • ErrSrcMAC—Number of packets that include incorrect source MAC addresses. • ErrHdrLen—Number of packets that include header length errors.
ETH send packet statistics	<p>Statistics about the Ethernet packets sent by the Ethernet module:</p> <ul style="list-style-type: none"> • L3OutNum—Number of packets sent out of Layer 3 Ethernet interfaces. • VLANOutNum—Number of packets sent out of VLAN interfaces. • FastOutNum—Number of packets fast forwarded. • L2OutNum—Number of packets sent out of Layer 2 Ethernet interfaces. • MbufRelayNum—Number of packets transparently sent.
ETH send error statistics	<p>Statistics about the error Ethernet packets in the outbound direction on the Ethernet module:</p> <ul style="list-style-type: none"> • NullMbuf—Number of packets with null pointers. • ErrAdjFwd—Number of packets with adjacency table errors. • ErrPrepend—Number of packets with extension errors. • ErrHdrLen—Number of packets with header length errors. • ErrPad—Number of packets with padding errors. • ErrQoS—Number of packets that failed to be sent by QoS. • ErrVLAN—Number of packets that failed to be sent in VLANs. • ErrEncap—Number of packets that failed to be sent due to link header encapsulation failures. • ErrTagVLAN—Number of packets that failed to be sent due to VLAN tag encapsulation failures. • IfShut—Number of packets that are being sent when the interface is shut down. • IfErr—Number of packets with incorrect outgoing interfaces.

Related commands

`reset ethernet statistics`

display interface

Use `display interface` to display interface information.

Syntax

```
display interface [ interface-type [ interface-number | interface-number.subnumber ] ] [ brief [ description | down ] ]
```

Views

Any view

Predefined user roles

network-admin
network-operator

Parameters

interface-type: Specifies an interface type.

interface-number: Specifies an interface number.

interface-number.subnumber: Specifies a subinterface number. The *interface-number* argument is an interface number. The *subnumber* argument is the number of a subinterface created under the interface. The value range for the *subnumber* argument is 1 to 4094.

brief: Displays brief interface information. If you do not specify this keyword, the command displays detailed interface information.

description: Displays complete interface descriptions. If you do not specify this keyword, the command displays only the first 27 characters of each interface description.

down: Displays information about interfaces in down state and the causes. If you do not specify this keyword, the command displays information about interfaces in all states.

Usage guidelines

If you do not specify an interface type, this command displays information about all interfaces.

If you specify an interface type but do not specify an interface number, this command displays information about all interfaces of the specified type.

Examples

Display information about Layer 3 interface Ten-GigabitEthernet 1/0/1.

```
<Sysname> display interface ten-gigabitethernet 1/0/1
Ten-GigabitEthernet1/0/1
Current state: Administratively DOWN
Line protocol state: DOWN
Description: Ten-GigabitEthernet1/0/1 Interface
Bandwidth: 1000000 kbps
Maximum transmission unit: 1500
Allow jumbo frames to pass
Broadcast max-ratio: 100%
Multicast max-ratio: 100%
Unicast max-ratio: 100%
Internet protocol processing: Disabled
```

```

IP packet frame type: Ethernet II, hardware address: 3822-d666-bd0c
IPv6 packet frame type: Ethernet II, hardware address: 3822-d666-bd0c
Media type is twisted pair, port hardware type is 1000_BASE_T
Port priority: 2
Unknown-speed mode, unknown-duplex mode
Link speed type is autonegotiation, link duplex type is autonegotiation
Flow-control is not enabled
The maximum frame length is 9416
Last link flapping: 6 hours 39 minutes 28 seconds
Last clearing of counters: Never
Current system time:2018-08-10 14:56:12
Last time when physical state changed to up:-
Last time when physical state changed to down:2018-08-10 14:55:25
Peak input rate: 0 bytes/sec, at 2013-07-07 16:07:11
Peak output rate: 0 bytes/sec, at 2013-07-07 16:07:11
Last 300 seconds input: 0 packets/sec 0 bytes/sec 0%
Last 300 seconds output: 0 packets/sec 0 bytes/sec 0%
Input (total): 0 packets, 0 bytes
    0 unicasts, 0 broadcasts, 0 multicasts, - pauses
Input (normal): 0 packets, 0 bytes
    0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses
Input: 0 input errors, 0 runts, 0 giants, 0 throttles
    0 CRC, 0 frame, 0 overruns, - aborts
    - ignored, - parity errors
Output (total): 0 packets, 0 bytes
    0 unicasts, 0 broadcasts, 0 multicasts, - pauses
Output (normal): 0 packets, 0 bytes
    0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses
Output: 0 output errors, - underruns, - buffer failures
    0 aborts, 0 deferred, 0 collisions, 0 late collisions
    - lost carrier, - no carrier

```

Display detailed information about Layer 2 interface Ten-GigabitEthernet 1/0/1.

```

<Sysname> display interface ten-gigabitethernet 1/0/1
Ten-GigabitEthernet1/0/1
Current state: DOWN
Line protocol state: DOWN
IP packet frame type: Ethernet II, hardware address: 000c-2963-b767
Description: Ten-GigabitEthernet1/0/1 Interface
Bandwidth: 100000 kbps
Loopback is not set
Media type is twisted pair, port hardware type is 1000_BASE_T_AN_SFP
Unknown-speed mode, unknown-duplex mode
Link speed type is autonegotiation, link duplex type is autonegotiation
Flow-control is not enabled
Maximum frame length: 9216
Allow jumbo frame to pass
Broadcast max-ratio: 100%
Multicast max-ratio: 100%

```

```

Unicast max-ratio: 100%
PVID: 1
MDI type: Automdix
Port link-type: Access
  Tagged VLANs:   None
  UnTagged VLANs: 1
Port priority: 2
Last link flapping: 6 hours 39 minutes 25 seconds
Last clearing of counters:  14:34:09 Tue 11/01/2011
Current system time:2018-08-10 14:58:27
Last time when physical state changed to up:-
Last time when physical state changed to down:2018-08-10 14:57:58
  Peak input rate: 0 bytes/sec, at 2013-07-17 22:06:19
  Peak output rate: 0 bytes/sec, at 2013-07-17 22:06:19
  Last 300 seconds input:  0 packets/sec 0 bytes/sec -%
  Last 300 seconds output: 0 packets/sec 0 bytes/sec -%
Input (total):  0 packets, 0 bytes
                0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses
Input (normal): 0 packets, 0 bytes
                0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses
Input:  0 input errors, 0 runts, 0 giants, 0 throttles
        0 CRC, 0 frame, 0 overruns, 0 aborts
        0 ignored, 0 parity errors
Output (total): 0 packets, 0 bytes
                0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses
Output (normal): 0 packets, 0 bytes
                0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses
Output: 0 output errors, 0 underruns, 0 buffer failures
        0 aborts, 0 deferred, 0 collisions, 0 late collisions
        0 lost carrier, 0 no carrier

```

Table 4 Command output

Field	Description
Current state	Physical link state of the interface: <ul style="list-style-type: none"> • Administratively DOWN—The interface has been shut down by using the shutdown command. • DOWN—The interface is administratively up, but its physical state is down (possibly because no physical link exists or the link has failed). • DOWN (Link-Aggregation interface down)—The aggregate interface to which the interface belongs has been shut down by using the shutdown command. • DOWN (Monitor-Link uplink down)—The interface has been shut down by Monitor Link. • mac-address moving down—The interface has been shut down by the MAC address move suppression feature. • MAD ShutDown—The interface has been shut down by IRF MAD. This state occurs if the interface is on an IRF fabric placed in Recovery state after an IRF split. • OFF DOWN—The interface has been shut down by OpenFlow.

Field	Description
	<ul style="list-style-type: none"> • Storm-Constrain—The interface has been shut down because the storm control feature detected that unknown unicast traffic, multicast traffic, or broadcast traffic exceeded the upper threshold. • STP DOWN—The interface has been shut down by the BPDU guard feature. • UP—The interface is both administratively and physically up.
Line protocol state	<p>Data link layer state of the interface. The state is determined through automatic parameter negotiation at the data link layer.</p> <ul style="list-style-type: none"> • UP—The data link layer protocol is up. • UP (spoofing)—The data link layer protocol is up, but the link is an on-demand link or does not exist. This attribute is typical of null interfaces and loopback interfaces. • DOWN—The data link layer protocol is down. • DOWN (protocols)—The data link layer has been shut down by protocols included in the parentheses. Available protocols include: <ul style="list-style-type: none"> ○ DLDP—Shuts down the data link layer when it detects that the link is unidirectional. ○ OAM—Shuts down the data link layer when it detects a remote link failure. ○ LAGG—Shuts down the data link layer when it detects that the aggregate interface does not have Selected ports. ○ BFD—Shuts down the data link layer when it detects a link failure.
Bandwidth	Expected bandwidth of the interface.
Maximum transmission unit	MTU of the interface.
Internet protocol processing: Disabled	The interface is not assigned an IP address and cannot process IP packets.
Internet address	IP address of the interface. The primary attribute indicates that the address is the primary IP address.
IP packet frame type	IPv4 packet framing format.
hardware address	MAC address of the interface.
IPv6 packet frame type	IPv6 packet framing format.
Port priority	Port priority of the interface.
Loopback is set internal	An internal loopback test is running on the interface. This field depends on your configuration.
Loopback is set external	An external loopback test is running on the interface. This field depends on your configuration.
Loopback is not set	No loopback test is running on the interface. This field depends on your configuration.
10Mbps-speed mode	The interface is operating at 10 Mbps. This field depends on your configuration and the link parameter negotiation result.
100Mbps-speed mode	The interface is operating at 100 Mbps. This field depends on your configuration and the link parameter negotiation result.
1000Mbps-speed mode	The interface is operating at 1000 Mbps. This field depends on your configuration and the link parameter negotiation result.

Field	Description
10Gbps-speed mode	The interface is operating at 10 Gbps. This field depends on your configuration and the link parameter negotiation result.
25Gbps-speed mode	The interface is operating at 25 Gbps. This field depends on your configuration and the link parameter negotiation result.
40Gbps-speed mode	The interface is operating at 40 Gbps. This field depends on your configuration and the link parameter negotiation result.
100Gbps-speed mode	The interface is operating at 100 Gbps. This field depends on your configuration and the link parameter negotiation result.
Unknown-speed mode	The speed of the interface is unknown because the speed negotiation fails or the interface is physically disconnected.
half-duplex mode	The interface is operating in half duplex mode. This field depends on your configuration and the link parameter negotiation result.
full-duplex mode	The interface is operating in full duplex mode. This field depends on your configuration and the link parameter negotiation result.
unknown-duplex mode	The duplex mode of the interface is unknown because the duplex mode negotiation fails or the interface is physically disconnected.
Link speed type is autonegotiation	The interface is configured with the speed auto command.
Link speed type is force link	The interface is manually configured with a speed (for example, 1000 Mbps) by using the speed command.
link duplex type is autonegotiation	The interface is configured with the duplex auto command.
link duplex type is force link	The interface is manually configured with a duplex mode (for example, half or full) by using the duplex command.
Flow-control is not enabled	Generic flow control is disabled on the interface. This field depends on your configuration and the link parameter negotiation result.
Maximum frame length	Maximum length of Ethernet frames allowed to pass through the interface.
Allow jumbo frame to pass	The interface allows jumbo frames to pass through.
Broadcast max-	Broadcast storm suppression threshold in ratio, pps, or kbps. The unit of the threshold depends on your configuration.
Multicast max-	Multicast storm suppression threshold in ratio, pps, or kbps. The unit of the threshold depends on your configuration.
Unicast max-	Unknown unicast storm suppression threshold in ratio, pps, or kbps. The unit of the threshold depends on your configuration.
PVID	Port VLAN ID (PVID) of the interface.
MDI type	MDIX mode of the interface: <ul style="list-style-type: none"> • automdix. • mdi. • mdix.
Port link-type	Link type of the interface: <ul style="list-style-type: none"> • access. • trunk. • hybrid.
Tagged VLANs	VLANs for which the interface sends packets without removing VLAN tags.

Field	Description
Untagged VLANs	VLANs for which the interface sends packets after removing VLAN tags.
VLAN Passing	VLANs whose packets can be forwarded by the port. The VLANs must have been created.
VLAN permitted	VLANs whose packets are permitted by the port.
Trunk port encapsulation	Encapsulation protocol type for the trunk port.
Last link flapping	The amount of time that has elapsed since the most recent physical state change of the interface. This field displays Never if the interface has been physically down since device startup.
Last clearing of counters	Time when the reset counters interface command was last used to clear the interface statistics. This field displays Never if the reset counters interface command has never been used on the interface since device startup.
Current system time	Current system time in the YYYY/MM/DD HH:MM:SS format. If the time zone is configured, this field is in the YYYY/MM/DD HH:MM:SS <i>zone-name</i> ±HH:MM:SS format, where the <i>zone-name</i> argument is the local time zone.
Last time when physical state changed to up	Last time when the physical state of the interface changed to up. If the time zone is configured, this field is in the YYYY/MM/DD HH:MM:SS <i>zone-name</i> ±HH:MM:SS format, where the <i>zone-name</i> argument is the local time zone. A hyphen (-) indicates that the physical state of the interface has never changed.
Last time when physical state changed to down	Last time when the physical state of the interface changed to down. If the time zone is configured, this field is in the YYYY/MM/DD HH:MM:SS <i>zone-name</i> ±HH:MM:SS format, where the <i>zone-name</i> argument is the local time zone. A hyphen (-) indicates that the physical state of the interface has never changed.
Last 300 seconds input: 0 packets/sec 0 bytes/sec 0% Last 300 seconds output: 0 packets/sec 0 bytes/sec 0%	Average inbound or outbound traffic rate (in pps and Bps) in the last 300 seconds, and the ratio of the actual rate to the interface bandwidth. A hyphen (-) indicates that the statistical item is not supported.
Input(total): 0 packets, 0 bytes 0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses	The two fields on the first line represent the inbound traffic statistics (in packets and bytes) for the interface. All inbound normal packets, abnormal packets, and normal pause frames were counted. The four fields on the second line represent: <ul style="list-style-type: none"> • Number of inbound unicast packets. • Number of inbound broadcasts. • Number of inbound multicasts. • Number of inbound pause frames. A hyphen (-) indicates that the statistical item is not supported.
Input(normal): 0 packets, 0 bytes 0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses	The two fields on the first line represent the inbound normal traffic and pause frame statistics (in packets and bytes) for the interface. The four fields on the second line represent: <ul style="list-style-type: none"> • Number of inbound normal unicast packets. • Number of inbound normal broadcasts.

Field	Description
	<ul style="list-style-type: none"> Number of inbound normal multicasts. Number of inbound normal pause frames. <p>A hyphen (-) indicates that the statistical item is not supported.</p>
input errors	Statistics of incoming error packets.
runts	<p>Number of inbound frames meeting the following conditions:</p> <ul style="list-style-type: none"> Shorter than 64 bytes. In correct format. Containing valid CRCs.
giants	<p>Number of inbound giants. Giants refer to frames larger than the maximum frame length supported on the interface.</p> <p>For an Ethernet interface that does not permit jumbo frames, the maximum frame length is as follows:</p> <ul style="list-style-type: none"> 1518 bytes (without VLAN tags). 1522 bytes (with VLAN tags). <p>For an Ethernet interface that permits jumbo frames, the maximum Ethernet frame length is set when you configure jumbo frame support on the interface.</p>
throttles	Number of inbound frames that had a non-integer number of bytes.
CRC	Total number of inbound frames that had a normal length, but contained CRC errors.
frame	Total number of inbound frames that contained CRC errors and a non-integer number of bytes.
overruns	Number of packets dropped because the input rate of the port exceeded the queuing capability.
aborts	<p>Total number of illegal inbound packets:</p> <ul style="list-style-type: none"> Fragment frames—CRC error frames shorter than 64 bytes. The length (in bytes) can be an integral or non-integral value. Jabber frames—CRC error frames greater than the maximum frame length supported on the Ethernet interface (with an integral or non-integral length). <ul style="list-style-type: none"> For an Ethernet interface that does not permit jumbo frames, the maximum frame length is 1518 bytes (without VLAN tags) or 1522 bytes (with VLAN tags). For an Ethernet interface that permits jumbo frames, the maximum Ethernet frame length is set when you configure jumbo frame support on the interface. Symbol error frames—Frames that contained a minimum of one undefined symbol. Unknown operation code frames—Non-pause MAC control frames. Length error frames—Frames whose 802.3 length fields did not match the actual frame length (46 to 1500 bytes).
ignored	Number of inbound frames dropped because the receiving buffer of the port ran low.
parity errors	Total number of frames with parity errors.
Output(total): 0 packets, 0 bytes 0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses	The two fields on the first line represent the outbound traffic statistics (in packets and bytes) for the interface. All outbound normal packets, abnormal packets, and normal pause frames were counted.

Field	Description
	<p>The four fields on the second line represent:</p> <ul style="list-style-type: none"> • Number of outbound unicast packets. • Number of outbound broadcasts. • Number of outbound multicasts. • Number of outbound pause frames. <p>A hyphen (-) indicates that the statistical item is not supported.</p>
Output(normal): 0 packets, 0 bytes 0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses	<p>The two fields on the first line represent the outbound normal traffic and pause frame statistics (in packets and bytes) for the interface.</p> <p>The four fields on the second line represent:</p> <ul style="list-style-type: none"> • Number of outbound normal unicast packets. • Number of outbound normal broadcasts. • Number of outbound normal multicasts. • Number of outbound normal pause frames. <p>A hyphen (-) indicates that the statistical item is not supported.</p>
output errors	Number of outbound packets with errors.
underruns	Number of packets dropped because the output rate of the interface exceeded the output queuing capability. This is a low-probability hardware anomaly.
buffer failures	Number of packets dropped because the transmitting buffer of the interface ran low.
aborts	Number of packets that failed to be transmitted, for example, because of Ethernet collisions.
deferred	Number of frames that the interface deferred to transmit because of detected collisions.
collisions	Number of frames that the interface stopped transmitting because Ethernet collisions were detected during transmission.
late collisions	Number of frames that the interface deferred to transmit after transmitting their first 512 bits because of detected collisions.
lost carrier	Number of carrier losses during transmission. This counter increases by one when a carrier is lost, and applies to serial WAN interfaces.
no carrier	Number of times that the port failed to detect the carrier when attempting to send frames. This counter increases by one when a port failed to detect the carrier, and applies to serial WAN interfaces.
Peak input rate	Peak rate of inbound traffic in Bps, and the time when the peak inbound traffic rate occurred.
Peak output rate	Peak rate of outbound traffic in Bps, and the time when the peak outbound traffic rate occurred.

Display brief information about all interfaces.

```
<Sysname> display interface brief
```

```
Brief information on interfaces in route mode:
```

```
Link: ADM - administratively down; Stby - standby
```

```
Protocol: (s) - spoofing
```

```
Interface           Link Protocol Primary IP           Description
```

```

XGE1/0/1          DOWN DOWN    --
Loop0             UP    UP(s)    2.2.2.9
NULL0            UP    UP(s)    --
Vlan1            UP    DOWN     --
Vlan999          UP    UP       192.168.1.42

```

Brief information on interfaces in bridge mode:

Link: ADM - administratively down; Stby - standby

Speed: (a) - auto

Duplex: (a)/A - auto; H - half; F - full

Type: A - access; T - trunk; H - hybrid

```

Interface          Link Speed  Duplex Type PVID Description
XGE1/0/2           DOWN auto   A     A    1
XGE1/0/3           UP    auto   F(a)  A    1  aaaaaaaaaaaaaaaaaaaaaaaaaaaaaa

```

Display brief information about Ten-GigabitEthernet 1/0/3, including the complete description of the interface.

```
<Sysname> display interface ten-gigabitethernet 1/0/3 brief description
```

Brief information on interfaces in bridge mode:

Link: ADM - administratively down; Stby - standby

Speed: (a) - auto

Duplex: (a)/A - auto; H - half; F - full

Type: A - access; T - trunk; H - hybrid

```

Interface          Link Speed  Duplex Type PVID Description
XGE1/0/3           UP    auto   F(a)  A    1  aaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa

```

Display information about interfaces in DOWN state and the causes.

```
<Sysname> display interface brief down
```

Brief information on interfaces in route mode:

Link: ADM - administratively down; Stby - standby

```

Interface          Link Cause
XGE1/0/1           DOWN Not connected
Vlan2              DOWN Not connected

```

Brief information on interfaces in bridge mode:

Link: ADM - administratively down; Stby - standby

```

Interface          Link Cause
XGE1/0/2           DOWN Not connected

```

Table 5 Command output

Field	Description
Brief information on interfaces in route mode:	Brief information about Layer 3 interfaces.
Interface	Interface name.
Link	Physical link state of the interface: <ul style="list-style-type: none"> • UP—The interface is physically up. • DOWN—The interface is physically down. • ADM—The interface has been shut down by using the shutdown command. To restore the physical state of the

Field	Description
	interface, use the undo shutdown command. <ul style="list-style-type: none"> • Stby—The interface is a backup interface in standby state.
Protocol	Data link layer protocol state of the interface: <ul style="list-style-type: none"> • UP—The data link layer protocol of the interface is up. • DOWN—The data link layer protocol of the interface is down. • UP(s)—The data link layer protocol of the interface is up, but the link is an on-demand link or does not exist. The (s) attribute represents the spoofing flag. This value is typical of null interfaces and loopback interfaces.
Primary IP	Primary IP address of the interface. This field displays two hyphens (--) if the interface does not have an IP address.
Description	Description of the interface.
Brief information of interfaces in bridge mode:	Brief information about Layer 2 interfaces.
Type: A - access; T - trunk; H - hybrid	Link type options for interfaces.
Speed	Speed of the interface, in bps. This field displays the (a) flag next to the speed if the speed is automatically negotiated. This field displays auto if the interface is configured to autonegotiate its speed but the autonegotiation has not started.
Duplex	Duplex mode of the interface: <ul style="list-style-type: none"> • A—Autonegotiation. The interface is configured to autonegotiate its duplex mode but the autonegotiation has not started. • F—Full duplex. • F(a)—Autonegotiated full duplex. • H—Half duplex. • H(a)—Autonegotiated half duplex.
Type	Link type of the interface: <ul style="list-style-type: none"> • A—Access. • H—Hybrid. • T—Trunk.
PVID	Port VLAN ID.
Cause	Cause for the physical link state of an interface to be DOWN : <ul style="list-style-type: none"> • Administratively—The interface has been manually shut down by using the shutdown command. To restore the physical state of the interface, use the undo shutdown command. • DOWN (Link-Aggregation interface down)—The interface is a member port of an aggregate interface, and the aggregate interface is down. • DOWN (Loopback detection down)—The loopback detection module has detected loops. • DOWN (Monitor-Link uplink down)—The monitor link module has detected that the uplink is down. • MAD ShutDown—The interface is on an IRF fabric placed by IRF MAD in Recovery state after an IRF split. • Not connected—No physical connection exists (possibly because the network cable is disconnected or faulty). • Storm-Constrain—The storm control feature has detected that unknown unicast traffic, multicast traffic, or broadcast traffic

Field	Description
	<p>exceeded the upper threshold.</p> <ul style="list-style-type: none"> • STP DOWN—The interface has been shut down by the BPDU guard feature. • Port Security Disabled—The interface has been shut down by the intrusion detection mechanism because the interface received illegal packets. • OFP DOWN—The interface has been shut down by OpenFlow.

Related commands

`reset counters interface`

display interface link-info

Use `display interface link-info` to display the status and packet statistics of interfaces.

Syntax

`display interface link-info [main]`

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

main: Specifies all interfaces except subinterfaces. If you do not specify this keyword, this command displays status and packet statistics of all interfaces.

Examples

Display status and statistics of all interfaces.

```
<Sysname> display interface link-info
```

```
Link: ADM - administratively down; Stby - standby
```

```
Protocol: (s) - spoofing
```

Interface	Link	Protocol	InUsage	OutUsage	InErrs	OutErrs
XGE1/0/1	UP	UP	10%	0%	0	0
NULL0	UP	UP(s)	0%	0%	0	0

Overflow: More than 7 digits.

--: Not supported.

Table 6 Command output

Field	Description
Link: ADM - administratively down; Stby - standby	<p>Physical link state of the interface:</p> <ul style="list-style-type: none"> • ADM—The interface has been shut down by using the shutdown command. To restore the physical state of the interface, use the undo shutdown command. • Stby—The interface is a backup interface in standby state. To see the primary interface, use the display interface-backup state command.

Field	Description
Protocol: (s) – spoofing	The data link layer protocol of the interface is up, but the link is an on-demand link or does not exist. The (s) attribute represents the spoofing flag. This value is typical of null interfaces, loopback interfaces, and InLoopback interfaces.
Interface	Abbreviated interface name.
Link	Physical link state of the interface: <ul style="list-style-type: none"> • UP—The interface is physically up. • DOWN—The interface is physically down. • ADM—The interface has been shut down by using the shutdown command. To restore the physical state of the interface, use the undo shutdown command. • Stby—The interface is a backup interface in standby state.
Protocol	Data link layer protocol state of the interface: <ul style="list-style-type: none"> • UP—The data link layer protocol of the interface is up. • DOWN—The data link layer protocol of the interface is down. • UP(s)—The data link layer protocol of the interface is up, but the link is an on-demand link or does not exist. The (s) attribute represents the spoofing flag. This value is typical of null interfaces, loopback interfaces, and InLoopback interfaces.
InUsage	Inbound bandwidth usage within the most recent statistics polling interval. It is calculated by this formula: Average inbound speed of the interface within the most recent statistics polling interval/interface bandwidth. To set the statistics polling interval, use the flow-interval command.
OutUsage	Outbound bandwidth usage within the most recent statistics polling interval. It is calculated by this formula: Average outbound speed of the interface within the most recent statistics polling interval/interface bandwidth. To set the statistics polling interval, use the flow-interval command.
InErrs	Number of error packets received.
OutErrs	Number of error packets sent.
Overflow: More than 7 digits.	The data length of a statistical item value is greater than 7 decimal digits.
--: Not supported.	A hyphen (-) indicates that the corresponding statistical item is not supported.

Related commands

flow-interval

display interface main

Use **display interface main** to display operating status and information of all interfaces except subinterfaces.

Syntax

```
display interface [ interface-type ] [ brief [ description | down ] ] main
```

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type: Specifies an interface type. If you do not specify this argument, the command displays information about interfaces of all types.

brief: Displays brief interface information. If you do not specify this keyword, the command displays detailed interface information.

description: Displays complete interface descriptions. If you do not specify this keyword, the command displays only the first 27 characters of each interface description.

down: Displays information about interfaces in down state and the causes. If you do not specify this keyword, the command displays information about interfaces in all states.

Examples

Display operating status and information of all interfaces except subinterfaces.

```
<Sysname> display interface main
Ten-GigabitEthernet1/0/1
Current state: Administratively DOWN
Line protocol state: DOWN
IP packet frame type: Ethernet II, hardware address: 4005-6538-0100
Description: Ten-GigabitEthernet1/0/1 Interface
Bandwidth: 1000000 kbps
Loopback is not set
Unknown-speed mode, unknown-duplex mode
Link speed type is autonegotiation, link duplex type is autonegotiation
Flow-control is not enabled
Maximum frame length: 9216
Allow jumbo frames to pass
Broadcast max-ratio: 100%
Multicast max-ratio: 100%
Unicast max-ratio: 100%
PVID: 1
MDI type: Automdix
Port link-type: Access
    Tagged VLANs:    None
    Untagged VLANs: 1
Port priority: 2
Last link flapping: Never
Last clearing of counters: Never
Current system time:2018-04-11 10:20:24
Last time when physical state changed to up:-
Last time when physical state changed to down:2018-04-11 09:11:09
    Peak input rate: 0 bytes/sec, at 00-00-00 00:00:00
    Peak output rate: 0 bytes/sec, at 00-00-00 00:00:00
    Last 300 seconds input: 0 packets/sec 0 bytes/sec -%
    Last 300 seconds output: 0 packets/sec 0 bytes/sec -%
Input (total):  0 packets, 0 bytes
                0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses
Input (normal): 0 packets, 0 bytes
                0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses
```

Input: 0 input errors, 0 runts, 0 giants, 0 throttles
0 CRC, 0 frame, 0 overruns, 0 aborts
0 ignored, 0 parity errors
Output (total): 0 packets, 0 bytes
0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses
Output (normal): 0 packets, 0 bytes
0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses
Output: 0 output errors, 0 underruns, 0 buffer failures
0 aborts, 0 deferred, 0 collisions, 0 late collisions
0 lost carrier, 0 no carrier

Ten-GigabitEthernet1/0/2

Current state: Administratively DOWN

Line protocol state: DOWN

Description: Ten-GigabitEthernet1/0/2 Interface

Bandwidth: 1000000 kbps

Flow-control is not enabled

Maximum transmission unit: 1500

Allow jumbo frames to pass

Broadcast max-ratio: 100%

Multicast max-ratio: 100%

Unicast max-ratio: 100%

Internet protocol processing: Disabled

IP packet frame type: Ethernet II, hardware address: 4005-6538-0107

IPv6 packet frame type: Ethernet II, hardware address: 4005-6538-0107

Output queue - Urgent queuing: Size/Length/Discards 0/100/0

Output queue - Protocol queuing: Size/Length/Discards 0/500/0

Output queue - FIFO queuing: Size/Length/Discards 0/75/0

Last link flapping: Never

Last clearing of counters: Never

Current system time:2018-04-11 10:20:24

Last time when physical state changed to up:-

Last time when physical state changed to down:2018-04-11 09:33:52

Peak input rate: 0 bytes/sec, at 00-00-00 00:00:00

Peak output rate: 0 bytes/sec, at 00-00-00 00:00:00

Last 300 seconds input: 0 packets/sec 0 bytes/sec -%

Last 300 seconds output: 0 packets/sec 0 bytes/sec -%

Input (total): 0 packets, 0 bytes

0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses

Input (normal): 0 packets, 0 bytes

0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses

Input: 0 input errors, 0 runts, 0 giants, 0 throttles

0 CRC, 0 frame, 0 overruns, 0 aborts

0 ignored, 0 parity errors

Output (total): 0 packets, 0 bytes

0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses

Output (normal): 0 packets, 0 bytes

0 unicasts, 0 broadcasts, 0 multicasts, 0 pauses

```

Output: 0 output errors, 0 underruns, 0 buffer failures
        0 aborts, 0 deferred, 0 collisions, 0 late collisions
        0 lost carrier, 0 no carrier

```

Display brief information of all interfaces except subinterfaces.

```

<Sysname> display interface brief main
Brief information on interfaces in route mode:
Link: ADM - administratively down; Stby - standby
Protocol: (s) - spoofing

```

Interface	Link	Protocol	Primary IP	Description
XGE1/0/1	DOWN	DOWN	--	
Loop0	UP	UP(s)	2.2.2.9	
NULL0	UP	UP(s)	--	
Vlan1	UP	DOWN	--	
Vlan999	UP	UP	192.168.1.42	

```

Brief information on interfaces in bridge mode:
Link: ADM - administratively down; Stby - standby
Speed: (a) - auto

```

```

Duplex: (a)/A - auto; H - half; F - full
Type: A - access; T - trunk; H - hybrid

```

Interface	Link	Speed	Duplex	Type	PVID	Description
XGE1/0/2	DOWN	auto	A	A	1	

Display brief information about all interfaces, including the complete interface descriptions.

```

<Sysname> display interface brief description main
Brief information on interfaces in bridge mode:
Link: ADM - administratively down; Stby - standby
Speed: (a) - auto
Duplex: (a)/A - auto; H - half; F - full
Type: A - access; T - trunk; H - hybrid

```

Interface	Link	Speed	Duplex	Type	PVID	Description
XGE1/0/3	UP	auto	F(a)	A	1	aa aa

Display information about interfaces in DOWN state and the causes.

```

<Sysname> display interface brief down main
Brief information on interfaces in route mode:
Link: ADM - administratively down; Stby - standby

```

Interface	Link	Cause
XGE1/0/1	DOWN	Not connected
Vlan2	DOWN	Not connected

```

Brief information on interfaces in bridge mode:
Link: ADM - administratively down; Stby - standby

```

Interface	Link	Cause
XGE1/0/2	DOWN	Not connected

For description on the **display interface main** command output, see [Table 4](#) and [Table 5](#).

duplex

Use **duplex** to set the duplex mode for an Ethernet interface.

Use **undo duplex** to restore the default.

Syntax

```
duplex { auto | full | half }  
undo duplex
```

Default

Ethernet interfaces operate in autonegotiation mode.

Views

Ethernet interface view

Predefined user roles

network-admin

Parameters

auto: Configures the interface to autonegotiate the duplex mode with the peer.

full: Configures the interface to operate in full duplex mode. In this mode, the interface can receive and transmit packets simultaneously.

half: Configures the interface to operate in half duplex mode. In this mode, the interface can only receive or transmit packets at a given time. Only 100-Mbps copper ports support this keyword.

Examples

```
# Configure Ten-GigabitEthernet 1/0/1 to operate in full duplex mode.
```

```
<Sysname> system-view
```

```
[Sysname] interface ten-gigabitethernet 1/0/1
```

```
[Sysname-Ten-GigabitEthernet1/0/1] duplex full
```

flow-control

Use **flow-control** to enable TxRx-mode generic flow control on an Ethernet interface.

Use **undo flow-control** to disable TxRx-mode generic flow control on the Ethernet interface.

Syntax

```
flow-control  
undo flow-control
```

Default

TxRx-mode generic flow control is disabled on an Ethernet interface.

Views

Ethernet interface view

Predefined user roles

network-admin

Usage guidelines

With TxRx-mode generic flow control configured, an interface can both send and receive flow control frames:

- When congested, the interface sends a flow control frame to its peer.
- Upon receiving a flow control frame from the peer, the interface suspends sending packets.

To implement flow control on a link, enable generic flow control at both ends of the link.

Examples

```
# Enable TxRx-mode generic flow control on Ten-GigabitEthernet 1/0/1.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] flow-control
```

flow-control receive enable

Use **flow-control receive enable** to enable Rx-mode generic flow control on an Ethernet port.

Use **undo flow-control** to disable Rx-mode generic flow control on an Ethernet port.

Syntax

```
flow-control receive enable
undo flow-control
```

Default

Rx-mode generic flow control is disabled on Ethernet interfaces.

Views

Ethernet interface view

Predefined user roles

network-admin

Usage guidelines

With Rx-mode flow control enabled, an interface can receive but cannot send flow control frames.

- When the interface receives a flow control frame from its peer, it suspends sending packets to the peer.
- When traffic congestion occurs on the interface, it cannot send flow control frames to the peer.

To handle unidirectional traffic congestion on a link, configure the **flow-control receive enable** command at one end, and the **flow-control** command at the other. To enable both ends of the link to handle traffic congestion, configure the **flow-control** command at both ends.

Examples

```
# Enable Rx-mode generic flow control on Ten-GigabitEthernet 1/0/1.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-ten-gigabitethernet 1/0/1] flow-control receive enable
```

Related commands

```
flow-control
```

flow-interval

Use **flow-interval** to set the statistics polling interval.

Use **undo flow-interval** to restore the default.

Syntax

```
flow-interval interval
undo flow-interval
```

Default

The statistics polling interval is 300 seconds.

Views

Ethernet interface view

Predefined user roles

network-admin

Parameters

interval: Sets the statistics polling interval in seconds. The interval is in the range of 5 to 300 and must be a multiple of 5.

Examples

```
# Set the statistics polling interval to 100 seconds on Ten-GigabitEthernet 1/0/1.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] flow-interval 100
```

interface

Use **interface** to enter interface view, create a subinterface and enter its view, or enter the view of an existing subinterface.

Syntax

```
interface      interface-type      {      interface-number      |
interface-number.subnumber }
```

Views

System view

Predefined user roles

network-admin

Parameters

interface-type: Specifies an interface type.

interface-number: Specifies an interface number.

interface-number.subnumber: Specifies a subinterface number. The *interface-number* argument is an interface number. The *subnumber* argument is the number of a subinterface created under the interface. The value range for the *subnumber* argument is 1 to 4094.

Examples

```
# Enter the view of Ten-GigabitEthernet 1/0/1.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1]

# Create Ethernet subinterface Ten-GigabitEthernet 1/0/1.1 and enter its view.
<Sysname> system-view
```

```
[Sysname] interface ten-gigabitethernet 1/0/1.1
[Sysname-Ten-GigabitEthernet1/0/1.1]
```

jumboframe enable

Use **jumboframe enable** to allow jumbo frames within the specified length to pass through.

Use **undo jumboframe enable** to prevent jumbo frames from passing through.

Use **undo jumboframe enable** *size* to restore the default.

Syntax

```
jumboframe enable [ size ]
undo jumboframe enable [ size ]
```

Default

The device allows jumbo frames within 10000 bytes to pass through.

Views

Layer 2 Ethernet interface view

Layer 3 Ethernet interface view

Predefined user roles

network-admin

Parameters

size: Sets the maximum length (in bytes) of Ethernet frames that are allowed to pass through. The value range for this argument is 1536 to 10000.

Usage guidelines

If you execute this command multiple times, the most recent configuration takes effect.

Examples

```
# Allow jumbo frames to pass through Ten-GigabitEthernet 1/0/1.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] jumboframe enable
```

link-delay

Use **link-delay** to set the physical state change suppression interval on an Ethernet interface.

Use **undo link-delay** to restore the default.

Syntax

```
link-delay { down | up } [ msec ] delay-time
undo link-delay { down | up }
```

Default

Each time the physical link of a port goes up or comes down, the interface immediately reports the change to the CPU.

Views

Ethernet interface view

Predefined user roles

network-admin

Parameters

down: Suppresses link-down events.

up: Suppresses link-up events.

msec: Enables the physical state change suppression interval to be accurate to milliseconds. If you do not specify this keyword, the suppression interval is accurate to seconds.

delay-time: Sets the physical state change suppression interval on the Ethernet interface. A value of 0 means that physical state changes are immediately reported to the CPU and are not suppressed.

- If you do not specify the **msec** keyword, the value range is 0 to 120 seconds.
- If you specify the **msec** keyword, the value range is 0 to 10000 milliseconds, and the value must be a multiple of 100.

Usage guidelines

You can configure this feature to suppress only link-down events, only link-up events, or both. If an event of the specified type still exists when the suppression interval expires, the system reports the event.

When you configure this feature, follow these guidelines:

- To suppress link-down events, configure the **link-delay down** command.
- To suppress link-up events, configure the **link-delay up** command.

On an interface, you can configure different suppression intervals for link-up and link-down events. If you execute the **link-delay** command multiple times on an interface, the following rules apply:

- You can configure the suppression intervals for link-up and link-down events separately.
- If you configure the suppression interval multiple times for link-up or link-down events, the most recent configuration takes effect.

Do not execute this command on an interface that has RRPP, spanning tree protocols, or Smart Link enabled.

This command and the **dampening** command are mutually exclusive on an Ethernet interface.

Examples

```
# Set the link-down event suppression interval to 8 seconds on Ten-GigabitEthernet 1/0/1.
```

```
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] link-delay down 8
```

```
# Set the link-up event suppression interval to 800 milliseconds on Ten-GigabitEthernet 1/0/1.
```

```
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] link-delay up msec 800
```

Related commands

dampening

loopback

Use **loopback** to enable loopback testing on an Ethernet interface.

Syntax

```
loopback { external | internal }
```

Default

Loopback testing is disabled on an Ethernet interface.

Views

Ethernet interface view

Predefined user roles

network-admin

Parameters

external: Enables external loopback testing on the Ethernet interface.

internal: Enables internal loopback testing on the Ethernet interface.

Usage guidelines

An Ethernet interface in a loopback test cannot correctly forward data packets.

You cannot perform a loopback test on the following Ethernet interfaces:

- Ethernet interfaces manually brought down (displayed as in **ADM** or **Administratively DOWN** state).
- Ethernet interfaces configured with the **port up-mode** command.

The **speed**, **duplex**, and **shutdown** commands cannot be configured on an Ethernet interface in a loopback test.

Smartrate-Ethernet interfaces do not support external loopback testing.

Examples

```
# Enable internal loopback testing on Ten-GigabitEthernet 1/0/1.
```

```
<Sysname> system-view
```

```
[Sysname] interface ten-gigabitethernet 1/0/1
```

```
[Sysname-Ten-GigabitEthernet1/0/1] loopback internal
```

multicast-suppression

Use **multicast-suppression** to enable multicast storm suppression and set the multicast storm suppression threshold.

Use **undo multicast-suppression** to disable multicast storm suppression.

Syntax

```
multicast-suppression { ratio | pps max-pps | kbps max-kbps }
```

```
undo multicast-suppression
```

Default

Ethernet interfaces do not suppress multicast traffic.

Views

Ethernet interface view

Predefined user roles

network-admin

Parameters

ratio: Sets the multicast suppression threshold as a percentage of the interface bandwidth. The value range for this argument (in percentage) is 0 to 100. A smaller value means that less multicast traffic is allowed to pass through.

pps *max-pps*: Specifies the maximum number of multicast packets that the interface can forward per second. The value range for the *max-pps* argument (in pps) is 0 to 1.4881 × the interface bandwidth.

kbps *max-kbps*: Specifies the maximum number of kilobits of multicast traffic that the Ethernet interface can forward per second. The value range for this argument (in kbps) is 0 to the interface bandwidth.

Usage guidelines

The multicast storm suppression feature limits the size of multicast traffic to a threshold on an interface. When the multicast traffic on the interface exceeds this threshold, the system drops packets until the traffic drops below this threshold.

Both the **storm-constrain** command and the **multicast-suppression** command can suppress multicast storms on a port. The **multicast-suppression** command uses the chip to physically suppress multicast traffic. It has less influence on the device performance than the **storm-constrain** command, which uses software to suppress multicast traffic.

For the traffic suppression result to be determined, do not configure both the **storm-constrain** **multicast** command and the **multicast-suppression** command on an interface.

When you configure the suppression threshold in kbps, the actual suppression threshold might be different from the configured one as follows:

- If the configured value is smaller than 64, the value of 64 takes effect.
- If the configured value is greater than 64 but not an integer multiple of 64, the integer multiple of 64 that is greater than and closest to the configured value takes effect.

To determine the suppression threshold that takes effect, see the prompts on the switch.

Examples

```
# Set the multicast storm suppression threshold to 10000 kbps on Ten-GigabitEthernet 1/0/1.
```

```
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] multicast-suppression kbps 10000
The actual value is 10048 on port Ten-GigabitEthernet1/0/1 currently.
```

The output shows that the value that takes effect is 10048 kbps (157 times of 64), because the chip only supports step 64.

Related commands

```
broadcast-suppression
unicast-suppression
```

port link-mode

Use **port link-mode** to change the link mode of an Ethernet interface.

Use **undo port link-mode** to restore the default.

Syntax

```
port link-mode { bridge | route }
undo port link-mode
```

Default

Interfaces operate in bridge mode.

Views

Ethernet interface view

Predefined user roles

network-admin

Parameters

bridge: Specifies the Layer 2 mode.

route: Specifies the Layer 3 mode.

Usage guidelines

Interfaces on the device can operate either as Layer 2 or Layer 3 Ethernet interfaces.

You can use commands to set the link mode to bridge or route.

Changing the link mode of an Ethernet interface also restores all commands (except **shutdown**) on the Ethernet interface to their defaults in the new link mode.

Examples

```
# Configure Ten-GigabitEthernet 1/0/1 to operate in Layer 2 mode.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] port link-mode bridge
```

port up-mode

Use **port up-mode** to forcibly bring up a fiber Ethernet port.

Use **undo port up-mode** to restore the default.

Syntax

```
port up-mode
undo port up-mode
```

Default

A fiber Ethernet port is not forcibly brought up. The physical state of a fiber port depends on the physical state of the fibers.

Views

Ethernet interface view

Predefined user roles

network-admin

Usage guidelines

This command forcibly brings up a fiber Ethernet port and enables the port to forward packets unidirectionally over a single link. In this way, transmission links are well utilized.

The **shutdown** and **port up-mode** commands are mutually exclusive.

A fiber Ethernet port does not support this command if the port is shut down by a protocol or by using the **shutdown** command.

A fiber Ethernet port does not support this command if the port joins an aggregate group.

Examples

```
# Forcibly bring up fiber port Ten-GigabitEthernet 1/0/1.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] port up-mode
```

reset counters interface

Use **reset counters interface** to clear the interface statistics.

Syntax

```
reset counters interface [ interface-type [ interface-number |
interface-number.subnumber ] ]
```

Views

User view

Predefined user roles

network-admin

Parameters

interface-type: Specifies an interface type.

interface-number: Specifies an interface number.

interface-number.subnumber: Specifies a subinterface number. The *interface-number* argument is an interface number. The *subnumber* argument is the number of a subinterface created under the interface. The value range for the *subnumber* argument is 1 to 4094.

Usage guidelines

Use this command to clear history statistics if you want to collect traffic statistics for a specific time period.

If you do not specify an interface type, this command clears statistics for all interfaces.

If you specify an interface type but do not specify an interface number, this command clears statistics for all interfaces of the specified type.

Examples

```
# Clear the statistics for Ten-GigabitEthernet 1/0/1.
<Sysname> reset counters interface ten-gigabitethernet 1/0/1
```

Related commands

```
display counters interface
```

```
display counters rate interface
```

```
display interface
```

reset ethernet statistics

Use **reset ethernet statistics** to clear the Ethernet module statistics.

Syntax

```
reset ethernet statistics [ slot slot-number ]
```

Views

User view

Predefined user roles

network-admin

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify a member device, this command clears statistics for all IRF member devices.

Examples

```
# Clear the Ethernet module statistics for the specified slot.
<Sysname> reset ethernet statistics slot 1
```

Related commands

```
display ethernet statistics
```

shutdown

Use **shutdown** to shut down an Ethernet interface or subinterface.

Use **undo shutdown** to bring up an Ethernet interface or subinterface.

Syntax

```
shutdown
```

```
undo shutdown
```

Default

Ethernet interfaces and subinterfaces are in up state.

Views

Ethernet interface view

Ethernet subinterface view

Predefined user roles

network-admin

Usage guidelines

Some interface configurations might require an interface restart before taking effect.

The **shutdown** and **port up-mode** commands are mutually exclusive.

The **shutdown** command cannot be configured on an interface in a loopback test.

Examples

```
# Shut down and then bring up Ten-GigabitEthernet 1/0/1.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] shutdown
[Sysname-Ten-GigabitEthernet1/0/1] undo shutdown

# Shut down and then bring up Ten-GigabitEthernet 1/0/1.1.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1.1
[Sysname-Ten-GigabitEthernet1/0/1.1] shutdown
```

```
[Sysname-Ten-GigabitEthernet1/0/1.1] undo shutdown
```

speed

Use **speed** to set the speed of an Ethernet interface.

Use **undo speed** to restore the default.

Syntax

```
speed { 10 | 100 | 1000 | 2500 | 5000 | 10000 | 25000 | 40000 | 100000 | auto }  
undo speed
```

Default

An Ethernet interface negotiates a speed with its peer.

Views

Ethernet interface view

Predefined user roles

network-admin

Parameters

10: Sets the interface speed to 10 Mbps.

100: Sets the interface speed to 100 Mbps.

1000: Sets the interface speed to 1000 Mbps.

2500: Sets the interface speed to 2500 Mbps.

5000: Sets the interface speed to 5000 Mbps.

10000: Sets the interface speed to 10000 Mbps.

25000: Sets the interface speed to 25000 Mbps.

40000: Sets the interface speed to 40000 Mbps.

100000: Sets the interface speed to 100000 Mbps.

auto: Enables the interface to negotiate a speed with its peer.

Usage guidelines

For an Ethernet copper port, use the **speed** command to set its speed to match the speed of the peer interface.

For a fiber port, use the **speed** command to set its speed to match the rate of a transceiver module.

Support of an interface for the keywords depends on the interface type. For more information, use the **speed ?** command in interface view.

Interfaces on an LSWM4SP2PM or LSWM2XGT2PM interface card installed in an S6520X-SI switch can operate only at 10 Gbps.

When you configure 25-GE interfaces on the LSWM2ZSP8P interface module, follow these restrictions and guidelines:

- Interfaces 1 through 4 are in the same group, and interfaces 5 through 8 are in the same group. Interfaces in the same group must be configured with the same speed and all have the 10G or 25G transceiver modules or cables installed. When interfaces have 25G transceiver modules or cables installed, the interfaces can operate only at 25 Gbps.

- These interfaces do not support speed or duplex mode autonegotiation. You must execute the **speed** and **duplex** commands to manually configure the same speed and duplex mode for interfaces at both ends of a link. For an interface to come up, make sure the speed configured for the interface matches the speed of the transceiver module or cable installed.
- When the speed of an interface is different from the speed of the transceiver module or cable installed, perform the following tasks:
 - a. Execute the **shutdown** command to shut down the interface.
 - b. Execute the **speed** command to configure the speed of the interface as the speed of the transceiver module or cable installed.
 - c. Execute the **undo shutdown** command to bring up the interface.

Examples

```
# Configure Ten-GigabitEthernet 1/0/1 to autonegotiate the speed.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] speed auto
```

unicast-suppression

Use **unicast-suppression** to enable unknown unicast storm suppression and set the unknown unicast storm suppression threshold.

Use **undo unicast-suppression** to disable unknown unicast storm suppression.

Syntax

```
unicast-suppression { ratio | pps max-pps | kbps max-kbps }
undo unicast-suppression
```

Default

Ethernet interfaces do not suppress unknown unicast traffic.

Views

Ethernet interface view

Predefined user roles

network-admin

Parameters

ratio: Sets the unknown unicast suppression threshold as a percentage of the interface bandwidth. The value range for this argument (in percentage) is 0 to 100. A smaller value means that less unknown unicast traffic is allowed to pass through.

pps *max-pps*: Specifies the maximum number of unknown unicast packets that the interface can forward per second. The value range for the *max-pps* argument (in pps) is 0 to 1.4881 × the interface bandwidth.

kbps *max-kbps*: Specifies the maximum number of kilobits of unknown unicast traffic that the Ethernet interface can forward per second. The value range for this argument (in kbps) is 0 to the interface bandwidth.

Usage guidelines

The unknown unicast storm suppression feature limits the size of unknown unicast traffic to a threshold on an interface. When the unknown unicast traffic on the interface exceeds this threshold, the system discards packets until the unknown unicast traffic drops below this threshold.

Both the **storm-constrain** command and the **unicast-suppression** command can suppress unknown unicast storms on a port. The **unicast-suppression** command uses the chip to physically suppress unknown unicast traffic. It has less influence on the device performance than the **storm-constrain** command, which uses software to suppress unknown unicast traffic.

For the unknown unicast traffic suppression result to be determined, do not configure both the **storm-constrain unicast** command and the **unicast-suppression** command on an interface.

When you configure the suppression threshold in kbps, the actual suppression threshold might be different from the configured one as follows:

- If the configured value is smaller than 64, the value of 64 takes effect.
- If the configured value is greater than 64 but not an integer multiple of 64, the integer multiple of 64 that is greater than and closest to the configured value takes effect.

To determine the suppression threshold that takes effect, see the prompts on the switch.

Examples

```
# Set the unknown unicast storm suppression threshold to 10000 kbps on Ten-GigabitEthernet 1/0/1.
```

```
<Sysname> system-view
```

```
[Sysname] interface ten-gigabitethernet 1/0/1
```

```
[Sysname-Ten-GigabitEthernet1/0/1] unicast-suppression kbps 10000
```

```
The actual value is 10048 on port Ten-GigabitEthernet1/0/1 currently.
```

The output shows that the value that takes effect is 10048 kbps (157 times of 64), because the chip only supports step 64.

Related commands

broadcast-suppression

multicast-suppression

using fortygige

Use **using fortygige** to combine 10-GE breakout interfaces split from a 40-GE interface into a 40-GE interface.

Syntax

```
using fortygige
```

Default

The 10-GE breakout interfaces are not combined and operate as single interfaces.

Views

10-GE breakout interface view

Predefined user roles

network-admin

Usage guidelines

If you need higher bandwidth on a single interface, you can combine four 10-GE breakout interfaces split from a 40-GE interface into a 40-GE interface. To do so, execute this command on any of these 10-GE breakout interfaces.

After executing this command, you do not need to reboot the device. To view information about the 40-GE interface, execute the **display interface brief** command.

Examples

```
# Combine Ten-GigabitEthernet 1/0/1:1 through Ten-GigabitEthernet 1/0/1:4 into a 40-GE interface.
<System> system-view
[System] interface ten-gigabitethernet1/0/1:1
[System-Ten-GigabitEthernet1/0/1:1] using fortygige
The interfaces Ten-GigabitEthernet1/0/1:1 through Ten-GigabitEthernet1/0/1:4 will be
deleted. Continue? [Y/N]:y
```

Related commands

using tengige

using hundredgige

Use **using hundredgige** to combine 10-GE or 25-GE breakout interfaces split from a 100-GE interface into a 100-GE interface.

Syntax

using hundredgige

Default

The 10-GE or 25-GE breakout interfaces are not combined and operate as single interfaces.

Views

10-GE breakout interface view

25-GE breakout interface view

Predefined user roles

network-admin

Usage guidelines

If you need higher bandwidth on a single interface, you can combine four 25-GE breakout interfaces split from a 100-GE interface into a 100-GE interface. To do so, execute this command on any of these 25-GE breakout interfaces.

Device reboot is not required for this command to take effect. You can view the split or combined interface by using the **display interface brief** command.

Examples

```
# Combine Twenty-FiveGigE 1/0/1:1 through Twenty-FiveGigE 1/0/1:4 into a 100-GE interface.
<Sysname> system-view
[Sysname] interface twenty-fivegige 1/0/1:1
[Sysname-Twenty-FiveGigE1/0/1:1] using hundredgige
The interfaces Twenty-FiveGigE 1/0/1:1 through Twenty-FiveGigE 1/0/1:4 will be deleted.
Continue? [Y/N]:y
```

Related commands

using fiftygige

using twenty-fivegige

using tengige

Use **using tengige** to split a high bandwidth interface into multiple 10-GE breakout interfaces.

Syntax

`using tengige`

Default

A high bandwidth interface is not split and operates as a single interface.

Views

40-GE interface view

Predefined user roles

network-admin

Usage guidelines

To improve port density, reduce costs, and improve network flexibility, you can split a high bandwidth interface into multiple 10-GE breakout interfaces. For example, split a 40-GE interface FortyGigE 1/0/1 into four 10-GE breakout interfaces Ten-GigabitEthernet 1/0/1:1 through Ten-GigabitEthernet 1/0/1:4.

The 10-GE breakout interfaces cannot act as IRF physical interfaces.

After executing this command, you do not need to reboot the device. To view information about the 10-GE breakout interfaces, execute the `display interface brief` command.

Examples

Split FortyGigE 1/0/1 into four 10-GE breakout interfaces.

```
<System> system-view
```

```
[System] interface fortygige 1/0/1
```

```
[System-FortyGigE1/0/1] using tengige
```

```
The interface FortyGigE1/0/1 will be deleted. Continue? [Y/N]:y
```

Related commands

`using fortygige`

using twenty-fivegige

Use `using twenty-fivegige` to split a 100-GE interface into four 25-GE breakout interfaces.

Syntax

`using twenty-fivegige`

Default

A 100-GE interface is not split and operates as a single interface.

Views

100-GE interface view

Predefined user roles

network-admin

Usage guidelines

To improve port density, reduce costs, and improve network flexibility, you can split a 100-GE interface into four 25-GE breakout interfaces. For example, you can split the 100-GE interface HundredGigE 1/0/1 into four 25-GE breakout interfaces Twenty-FiveGigE 1/0/1:1 through Twenty-FiveGigE 1/0/1:4.

After executing this command, you do not need to reboot the device. To view information about the 25-GE breakout interfaces, execute the **display interface brief** command. The 25-GE breakout interfaces cannot act as IRF physical interfaces

Examples

```
# Split HundredGigE 1/0/1 into four 25-GE breakout interfaces.
<Sysname> system-view
[Sysname] interface hundredgige 1/0/1
[Sysname-HundredGigE1/0/1] using twenty-fivegige
The interface HundredGigE1/0/1 will be deleted. Continue? [Y/N]:y
```

Related commands

using hundredgige

Layer 2 Ethernet interface commands

display storm-constrain

Use **display storm-constrain** to display storm control settings and statistics.

Syntax

```
display storm-constrain [ broadcast | multicast | unicast ] [ interface
interface-type interface-number ]
```

Views

Any view

Predefined user roles

network-admin
network-operator

Parameters

broadcast: Displays broadcast storm control settings and statistics.

multicast: Displays multicast storm control settings and statistics.

unicast: Displays unknown unicast storm control settings and statistics.

interface *interface-type interface-number*: Specifies an interface by its type and number. If you do not specify this option, the command displays storm control settings and statistics for all storm control-enabled interfaces.

Usage guidelines

If you do not specify any keywords, this command displays all storm control settings on all storm control-enabled interfaces.

Examples

```
# Display the storm control settings on all storm control-enabled ports.
<Sysname> display storm-constrain
  Abbreviation: BC - broadcast; MC - multicast; UC - unknown unicast;
                KNUC - known unicast; FW - forwarding
  Flow Statistic Interval: 5 (in seconds)
Port           Type Lower   Upper   Unit  Mode   Status  Trap Log StateChg
-----
```

Table 7 Command output

Field	Description
Flow Statistic Interval	Traffic polling interval (in seconds) of the storm control module.
Port	Abbreviated interface name.
Type	Type of traffic subjected to storm control: <ul style="list-style-type: none"> • BC—Broadcast packets. • MC—Multicast packets. • UC—Unknown unicast packets. • KNUC—Known unicast packets. This field is not supported in the current software version.
Lower	Lower storm control threshold, in pps, kbps, or percentage.
Upper	Upper storm control threshold, in pps, kbps, or percentage.
Unit	Storm control threshold unit: <ul style="list-style-type: none"> • pps. • kbps. • percentage.
Mode	Action (block or shutdown) taken on the interface when the upper threshold is reached. N/A indicates that no action is configured.
Status	Packet forwarding status: <ul style="list-style-type: none"> • FW—The port is forwarding traffic correctly. • shutdown—The port has been shut down. • block—The port drops the type of traffic.
Trap	Status of the storm control threshold event trap switch: <ul style="list-style-type: none"> • on—The port sends threshold event traps. • off—The port does not send threshold event traps.
Log	Status of the storm control threshold event log switch: <ul style="list-style-type: none"> • on—The port sends threshold event log messages. • off—The port does not send threshold event log messages.
StateChg	Number of forwarding state changes of the interface. When the StateChg field reaches 65535, it resets automatically.

port bridge enable

Use `port bridge enable` to enable bridging on an Ethernet interface.

Use `undo port bridge enable` to disable bridging on an Ethernet interface.

Syntax

```
port bridge enable
```

```
undo port bridge enable
```

Default

Bridging is disabled on an Ethernet interface.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Usage guidelines

By default, the device drops packets whose outgoing interface and incoming interface are the same.

To enable the device to forward such packets rather than drop them, execute this command in Ethernet interface view. After the device receives a broadcast or unknown unicast packet, the device forwards the packet through all interfaces in the VLAN to which the incoming interface of the packet belongs.

Do not add interfaces configured with this command to an aggregation group.

Examples

```
# Enable bridging on Ten-GigabitEthernet 1/0/1.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] port bridge enable
```

port ip-forwarding enable

Use **port ip-forwarding enable** to enable Layer 3 forwarding on an interface.

Use **undo port ip-forwarding enable** to disable Layer 3 forwarding on an interface.

Syntax

```
port ip-forwarding enable
undo port ip-forwarding enable
```

Default

Layer 3 forwarding is enabled on an interface.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Usage guidelines

This command is available in Release 6320 and later.

By default, when a Layer 2 Ethernet interface receives a Layer 3 unicast protocol packet, it delivers the packet to the CPU. With this command executed, a Layer 2 Ethernet interface floods such a packet in the VLAN to which the packet belongs instead of delivering the packet to the CPU.

On a network where a firewall is attached to the device for transparent packet inspection, execute this command on Layer 2 Ethernet interfaces on the device. In this way, the device will forward Layer 3 unicast protocol packets to the firewall for packet inspection and the firewall forwards only packets that pass packet inspection back to the device for further forwarding.

Examples

```
# Enable Layer 3 forwarding on Ten-GigabitEthernet 1/0/1.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] port ip-forwarding enable
```

storm-constrain

Use **storm-constrain** to enable storm control and set thresholds for broadcast, multicast, or unknown unicast packets on an Ethernet interface.

Use **undo storm-constrain** to disable storm control for broadcast, multicast, unknown unicast, or all types of traffic.

Syntax

```
storm-constrain { broadcast | multicast | unicast } { pps | kbps | ratio }  
upperlimit lowerlimit
```

```
undo storm-constrain { all | broadcast | multicast | unicast }
```

Default

Traffic storm control is disabled.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Parameters

all: Disables storm control for all types of traffic: broadcast, multicast, and unknown unicast.

broadcast: Enables or disables broadcast storm control.

multicast: Enables or disables multicast storm control.

unicast: Enables or disables unknown unicast storm control.

pps: Sets storm control thresholds in pps.

kbps: Sets storm control thresholds in kbps.

ratio: Sets storm control thresholds as a percentage of the transmission capacity of the interface.

upperlimit: Sets the upper threshold, in pps, kbps, or percentage.

- If you specify the **pps** keyword, the value range for the *upperlimit* argument is 0 to 1.4881 x the interface bandwidth.
- If you specify the **kbps** keyword, the value range for the *upperlimit* argument is 0 to the interface bandwidth.
- If you specify the **ratio** keyword, the value range for the *upperlimit* argument is 0 to 100.

lowerlimit: Sets the lower threshold, in pps, kbps, or percentage.

- If you specify the **pps** keyword, the value range for the *lowerlimit* argument is 0 to 1.4881 x the interface bandwidth.
- If you specify the **kbps** keyword, the value range for the *lowerlimit* argument is 0 to the interface bandwidth.
- If you specify the **ratio** keyword, the value range for the *lowerlimit* argument is 0 to 100.

Usage guidelines

After you configure storm control for a type of traffic, the device collects the statistics for the type of traffic at the interval configured by using the **storm-constrain interval** command. When the type of traffic exceeds its upper threshold, the interface takes an action configured by using the **storm-constrain control** command.

The **storm-constrain**, **broadcast-suppression**, **multicast-suppression**, and **unicast-suppression** commands can suppress storms on an interface. The **broadcast-suppression**, **multicast-suppression**, and **unicast-suppression** commands use the chip to physically suppress traffic. They have less influence on the device performance than the **storm-constrain** command, which uses software to suppress traffic.

For the traffic suppression result to be determined, do not configure both storm control and storm suppression for the same type of traffic.

When configuring this command, make sure *upperlimit* is greater than *lowerlimit*.

Examples

Enable unknown unicast storm control on Ten-GigabitEthernet 1/0/1 and set the upper and lower thresholds to 200 pps and 150 pps, respectively.

```
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] storm-constrain unicast pps 200 150
```

Enable broadcast storm control on Ten-GigabitEthernet 1/0/2, and set the upper and lower thresholds to 2000 kbps and 1500 kbps, respectively.

```
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/2
[Sysname-Ten-GigabitEthernet1/0/2] storm-constrain broadcast kbps 2000 1500
```

Enable multicast storm control on Ten-GigabitEthernet 1/0/3, and set the upper and lower thresholds to 80% and 15%, respectively.

```
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/3
[Sysname-Ten-GigabitEthernet1/0/3] storm-constrain multicast ratio 80 15
```

Related commands

storm-constrain control

storm-constrain interval

storm-constrain control

Use **storm-constrain control** to set the action to take on an Ethernet interface when a type of traffic (unknown unicast, multicast, or broadcast) exceeds the upper storm control threshold.

Use **undo storm-constrain control** to restore the default.

Syntax

```
storm-constrain control { block | shutdown }
```

```
undo storm-constrain control
```

Default

No action is taken on an Ethernet interface when a type of traffic exceeds the upper storm control threshold.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Parameters

block: Blocks this type of traffic and forwards other types of traffic. Even though the interface does not forward the blocked traffic, it still counts the traffic. When the blocked traffic drops below the lower threshold, the port begins to forward the traffic.

shutdown: Goes down automatically. The interface goes down automatically and stops forwarding any traffic. When the blocked traffic drops below the lower threshold, the interface does not forward the traffic. To bring up the interface, use the **undo shutdown** command or disable storm control on the interface.

Examples

```
# Configure Ten-GigabitEthernet 1/0/1 to block a specific type of traffic when the type of traffic exceeds the upper storm control threshold.
```

```
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] storm-constrain control block
```

Related commands

```
storm-constrain
storm-constrain control
```

storm-constrain enable log

Use **storm-constrain enable log** to enable an Ethernet interface to output log messages when it detects storm control threshold events.

Use **undo storm-constrain enable log** to disable an Ethernet interface from outputting log messages for storm control threshold events.

Syntax

```
storm-constrain enable log
undo storm-constrain enable log
```

Default

An Ethernet interface outputs log messages when monitored traffic exceeds the upper threshold or drops below the lower threshold from a value above the upper threshold.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Examples

```
# Enable Ten-GigabitEthernet 1/0/1 to output log messages when it detects storm control threshold events.
```

```
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] storm-constrain enable log
```

storm-constrain enable trap

Use **storm-constrain enable trap** to enable an Ethernet interface to send storm control threshold event traps.

Use **undo storm-constrain enable trap** to disable an Ethernet interface from sending storm control threshold event traps.

Syntax

```
storm-constrain enable trap
undo storm-constrain enable trap
```

Default

An interface sends out storm control threshold event traps when monitored traffic exceeds the upper threshold or drops below the lower threshold from a value above the upper threshold.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Examples

```
# Enable Ten-GigabitEthernet 1/0/1 to send traps when it detects storm control threshold events.
<Sysname> system-view
[Sysname] interface ten-gigabitethernet 1/0/1
[Sysname-Ten-GigabitEthernet1/0/1] storm-constrain enable trap
```

storm-constrain interval

Use **storm-constrain interval** to set the traffic polling interval of the storm control module.

Use **undo storm-constrain interval** to restore the default.

Syntax

```
storm-constrain interval interval
undo storm-constrain interval
```

Default

The storm control module polls traffic statistics every 10 seconds.

Views

System view

Predefined user roles

network-admin

Parameters

interval: Sets the traffic polling interval of the storm control module. The value range is 1 to 300 seconds. To ensure network stability, as a best practice, do not use a traffic polling interval shorter than 10 seconds.

Usage guidelines

The traffic polling interval set by using the **storm-constrain interval** command is specific to storm control. To set the statistics polling interval of an interface, use the **flow-interval** command.

Examples

```
# Set the traffic statistics polling interval of the storm control module to 60 seconds.
<Sysname> system-view
```

```
[Sysname] storm-constrain interval 60
```

Related commands

```
storm-constrain
```

```
storm-constrain control
```

Layer 3 Ethernet interface or subinterface commands

mtu

Use **mtu** to set the MTU for an Ethernet interface or subinterface.

Use **undo mtu** to restore the default.

Syntax

```
mtu size
```

```
undo mtu
```

Default

The MTU of an Ethernet interface or subinterface is 1500 bytes.

Views

Layer 3 Ethernet interface view

Layer 3 Ethernet subinterface view

Predefined user roles

network-admin

Parameters

size: Sets the MTU in bytes. The value range for this argument is 128 to 1560.

Usage guidelines

The MTU configured on an interface takes effect only on packets sent to the CPU for software forwarding. Configure the MTU as appropriate for interfaces in the network to avoid fragmentation.

If an interface supports both the **mtu** and **ip mtu** commands, the device fragments an IPv4 packet based on the MTU set by using the **ip mtu** command. For more information about the **ip mtu** command, see *Layer 3—IP Services Command Reference*.

Examples

```
# Set the MTU to 1430 bytes for Ten-GigabitEthernet 1/0/1.
```

```
<Sysname> system-view
```

```
[Sysname] interface ten-gigabitethernet 1/0/1
```

```
[Sysname-Ten-GigabitEthernet1/0/1] mtu 1430
```

```
# Set the MTU to 1430 bytes for Ten-GigabitEthernet 1/0/1.1.
```

```
<Sysname> system-view
```

```
[Sysname] interface ten-gigabitethernet 1/0/1.1
```

```
[Sysname-Ten-GigabitEthernet1/0/1.1] mtu 1430
```