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IP addressing commands

display ip interface

Use **display ip interface** to display IP configuration and statistics for Layer 3 interfaces.

Syntax

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

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type interface-number: Specifies an interface by its type and number. If you do not specify an interface, this command displays IP configuration and statistics for all Layer 3 interfaces.

Usage guidelines

Use the **display ip interface** command to display IP configuration and statistics for the specified Layer 3 interface. The statistics include the following information:

- The number of unicast packets, bytes, and multicast packets the interface has sent and received.
- The number of TTL-invalid packets and ICMP packets the interface has received.

The packet statistics helps you locate a possible attack on the network.

Examples

```
# Display IP configuration and statistics for VLAN-interface 10.
```

```
<Sysname> display ip interface vlan-interface 10
Vlan-interfacel0 current state : DOWN
Line protocol current state : DOWN
Internet Address is 1.1.1.1/8 Primary
Broadcast address : 1.255.255.255
The Maximum Transmit Unit : 1500 bytes
input packets : 0, bytes : 0, multicasts : 0
output packets : 0, bytes : 0, multicasts : 0
TTL invalid packet number:          0
ICMP packet input number:          0
  Echo reply:                        0
  Unreachable:                       0
  Source quench:                     0
  Routing redirect:                  0
  Echo request:                      0
  Router advert:                     0
  Router solicit:                    0
  Time exceed:                       0
```

```

IP header bad:                0
Timestamp request:           0
Timestamp reply:             0
Information request:         0
Information reply:           0
Netmask request:            0
Netmask reply:              0
Unknown type:               0

```

Table 1 Command output

Field	Description
current state	Physical link state of the interface: <ul style="list-style-type: none"> • Administrative 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). • UP—The interface is both administratively and physically up.
Line protocol current state	Data link layer state of the interface. <ul style="list-style-type: none"> • DOWN—The data link layer protocol is down. • 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.
Internet Address	IP address of an interface followed by: <ul style="list-style-type: none"> • Primary—A primary IP address. • Sub—A secondary IP address. • Unnumbered—An unnumbered IP address. • DHCP-Allocated—An IP address obtained through DHCP. • BOOTP-Allocated—An IP address obtained through BOOTP. • Mad—A MAD IP address.
Broadcast address	Broadcast address of the subnet attached to an interface.
The Maximum Transmit Unit	MTU of the interface, in bytes.
input packets, bytes, multicasts output packets, bytes, multicasts	All received and sent packets and bytes, and received and sent multicast packets on an interface (statistics start at the device startup).
TTL invalid packet number	Number of TTL-invalid packets received on the interface (statistics start at the device startup).
ICMP packet input number: Echo reply: Unreachable: Source quench: Routing redirect: Echo request: Router advert: Router solicit: Time exceed: IP header bad: Timestamp request:	Total number of ICMP packets received on the interface (statistics start at the device startup): <ul style="list-style-type: none"> • Echo reply packets. • Unreachable packets. • Source quench packets. • Routing redirect packets. • Echo request packets. • Router advertisement packets. • Router solicitation packets. • Time exceeded packets. • IP header bad packets. • Timestamp request packets.

Field	Description
Timestamp reply:	• Timestamp reply packets.
Information request:	• Information request packets.
Information reply:	• Information reply packets.
Netmask request:	• Netmask request packets.
Netmask reply:	• Netmask reply packets.
Unknown type:	• Unknown type packets.

Related commands

`display ip interface brief`

`ip address`

display ip interface brief

Use `display ip interface brief` to display brief IP configuration for Layer 3 interfaces.

Syntax

```
display ip interface [ interface-type [ interface-number ] ] brief
[ description ]
```

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type: Specifies an interface type. If you do not specify an interface type, this command displays brief IP configuration for all Layer 3 interfaces.

interface-number: Specifies an interface number. If you do not specify an interface number, this command displays brief IP configuration for all Layer 3 interfaces of the specified type.

description: Displays complete interface descriptions. If you do not specify this keyword, the command displays a maximum of 13 characters for each interface description. If the description is longer than 13 characters, the first 10 characters are displayed, followed by an ellipsis (...).

Usage guidelines

Information displayed by the command includes the state of the physical and link layer protocols, IP address, and interface descriptions.

Examples

Display brief IP configuration for VLAN interfaces.

```
<Sysname> display ip interface vlan-interface brief
*down: administratively down
(s): spoofing (l): loopback
Interface          Physical Protocol IP address    VPN instance Description
Vlan10             down      down      6.6.6.1      --          Link to Co...
Vlan2              down      down      7.7.7.1      vpn-first... --
```

Display brief IP configuration for VLAN interfaces, including complete interface descriptions.

```
<Sysname> display ip interface vlan-interface brief description
```

```

*down: administratively down
(s): spoofing (l): loopback
Interface          Physical Protocol IP address      VPN instance Description
Vlan10             down    down    6.6.6.1        --          Link to CoreR
                                   Outer
Vlan2              down    down    7.7.7.1        vpn-first-in --
                                   stance

```

Table 2 Command output

Field	Description
*down: administratively down	The interface is administratively shut down by using the shutdown command.
(s) : spoofing	Spoofing attribute of the interface. The link protocol state of the interface is up, but the link is temporarily established on demand or does not exist.
Interface	Interface name.
Physical	Physical state of the interface: <ul style="list-style-type: none"> • *down—The interface is administratively shut down by using the shutdown command. • down—The interface is administratively up but its physical state is down, possibly because of a connection or link failure. • up—Both the administrative and physical states of the interface are up.
Protocol	Link layer protocol state of the interface: <ul style="list-style-type: none"> • down—The protocol state of the interface is down. • down(l)—The protocol state of the interface is down (loopback). • up—The protocol state of the interface is up. • up(l)—The protocol state of the interface is up (loopback). • up(s)—The protocol state of the interface is up (spoofing).
IP address	IP address of the interface. If no IP address is configured, this field displays hyphens (--).
VPN instance	Name of the VPN instance to which the interface belongs. This field displays a maximum of 12 characters. If the VPN instance name is longer than 12 characters, the first 9 characters are displayed, followed by an ellipsis (...). If the interface does not belong to any VPN instance, this field displays hyphens (--).
Description	Description of the interface. This field displays a maximum of 13 characters. If the description is longer than 13 characters, the first 10 characters are displayed, followed by an ellipsis (...). If no description is configured, this field displays hyphens (--).

Related commands

```

display ip interface
ip address

```

ip address

Use **ip address** to assign an IP address to the interface.

Use **undo ip address** to remove the IP address from the interface.

Syntax

```

ip address ip-address { mask-length | mask } [ irf-member member-id | sub ]

```

```
undo ip address ip-address { mask-length | mask } [ irf-member member-id | sub ]
```

Default

No IP address is assigned to an interface.

Views

Interface view

Predefined user roles

network-admin

Parameters

ip-address: Specifies the IP address of the interface, in dotted decimal notation.

mask-length: Specifies the subnet mask length in the range of 1 to 31. For a loopback interface, the value range is 1 to 32.

mask: Specifies the subnet mask in dotted decimal notation.

irf-member *member-id*: Assigns an IP address to the management Ethernet port of the specified IRF member device. The *member-id* argument specifies an IRF member device by its member ID. The value range for the *member-id* argument is 1 to 10.

sub: Assigns a secondary IP address to the interface.

Usage guidelines

Use the command to assign a primary or secondary IP address to an interface.

An interface can have only one primary IP address. If you execute this command multiple times to specify different primary IP addresses on an interface, the most recent configuration takes effect. If the interface connects to multiple subnets, configure primary and secondary IP addresses on the interface so the subnets can communicate with each other through the interface.

You cannot assign secondary IP addresses to an interface that obtains an IP address through BOOTP IP unnumbered, or DHCP.

If you do not specify any parameters, the **undo ip address** command removes all IP addresses from the interface. The **undo ip address** *ip-address* { *mask* | *mask-length* } command removes the primary IP address. The **undo ip address** *ip-address* { *mask* | *mask-length* } **sub** command removes a secondary IP address.

The primary and secondary IP addresses assigned to the interface can be located on the same network segment. Different interfaces on your device must reside on different network segments.

If you assign IP addresses to the management Ethernet ports of IRF member devices, make sure the following requirements are met:

- The IP addresses must be in the same subnet if you assign them through the same management Ethernet port of the master device.
- The IP addresses must be in different subnets if you assign them through different management Ethernet ports of the master device.

In an IRF fabric, only the IP address assigned to the management Ethernet port of the master takes effect. Make sure no IP address conflict exists when you assign IP addresses to the management Ethernet ports of subordinates. The system does not warn of an IP address conflict because the IP addresses assigned to the management Ethernet ports of subordinates do not take effect. After an IRF fabric split, the IP addresses assigned to the management Ethernet ports of the new masters (original subordinates) take effect.

Examples

```
# Assign VLAN-interface 10 a primary IP address 129.12.0.1 and a secondary IP address
202.38.160.1, with subnet masks both 255.255.255.0.
<Sysname> system-view
[Sysname] interface vlan-interface 10
[Sysname-Vlan-interface10] ip address 129.12.0.1 255.255.255.0
[Sysname-Vlan-interface10] ip address 202.38.160.1 255.255.255.0 sub
```

Related commands

```
display ip interface
display ip interface brief
```

ip address unnumbered

Use **ip address unnumbered** to configure the current interface as IP unnumbered to borrow an IP address from the specified interface.

Use **undo ip address unnumbered** to restore the default.

Syntax

```
ip address unnumbered interface interface-type interface-number
undo ip address unnumbered
```

Default

The interface does not borrow IP addresses from other interfaces.

Views

Interface view

Predefined user roles

network-admin

Parameters

interface *interface-type interface-number*: Specifies an interface from which the current interface can borrow an IP address.

Usage guidelines

Typically, you assign an IP address to an interface either manually or through DHCP. If the IP addresses are not enough, or the interface is used only occasionally, you can configure an interface to borrow an IP address from other interfaces. This is called IP unnumbered, and the interface borrowing the IP address is called IP unnumbered interface.

Loopback interfaces cannot borrow IP addresses of other interfaces, but other interfaces can borrow IP addresses of loopback interfaces.

Multiple interfaces can use the same unnumbered IP address. If an interface has multiple manually configured IP addresses, only the primary IP address manually configured can be borrowed.

You cannot enable a dynamic routing protocol on the interface that has no IP address configured. To enable the interface to communicate with other devices, you must configure a static route to the peer device on the interface.

Examples

```
# Configure VLAN-interface 10 to borrow the IP address of VLAN-interface 100.
<Sysname> system-view
[Sysname] interface vlan-interface 10
```

```
[Sysname-Vlan-interface10] ip address unnumbered interface vlan-interface 100
```