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# VLAN commands

## Basic VLAN 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

VLAN interface 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 to 10000 kbps for VLAN-interface 1.
```

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

```
[Sysname] interface vlan-interface 1
```

```
[Sysname-Vlan-interface1] bandwidth 10000
```

### default

Use **default** to restore the default settings for a VLAN interface.

#### Syntax

```
default
```

#### Views

VLAN interface 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 impact of this command when you use it on a live network.

---

This command might fail to restore the default settings for some commands for reasons such as command dependencies or system restrictions. Use the `display this` command in interface view to identify these commands, and then 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 resolve the problem.

## Examples

```
# Restore the default settings for VLAN-interface 1.
<Sysname> system-view
[Sysname] interface vlan-interface 1
[Sysname-Vlan-interface1] default
```

## description

Use `description` to configure the description of a VLAN or VLAN interface.

Use `undo description` to restore the default.

## Syntax

```
description text
undo description
```

## Default

For a VLAN, the description is **VLAN *vlan-id***. The *vlan-id* argument specifies the VLAN ID in a four-digit format. If the VLAN ID has fewer than four digits, leading zeros are added. For example, the default description of VLAN 100 is **VLAN 0100**.

For a VLAN interface, the description is the name of the interface. For example, **Vlan-interface1 Interface**.

## Views

VLAN view

VLAN interface view

## Predefined user roles

network-admin

## Parameters

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

## Usage guidelines

To manage VLANs and VLAN interfaces efficiently, configure descriptions for them based on their functions or connections.

## Examples

```
# Configure the description of VLAN 2 as sales-private.
<Sysname> system-view
[Sysname] vlan 2
[Sysname-vlan2] description sales-private
```

```
# Configure the description of VLAN-interface 2 as linktoPC56.
<Sysname> system-view
[Sysname] vlan 2
[Sysname-vlan2] quit
[Sysname] interface vlan-interface 2
[Sysname-Vlan-interface2] description linktoPC56
```

### Related commands

```
display interface vlan-interface
display vlan
```

## display interface vlan-interface

Use **display interface vlan-interface** to display VLAN interface information.

### Syntax

```
display interface vlan-interface [ interface-number ] [ brief
[ description | down ] ]
```

### Views

Any view

### Predefined user roles

```
network-admin
network-operator
```

### Parameters

**vlan-interface** *interface-number*: Specifies a VLAN interface number. If you do not specify this argument, the command displays information about all VLAN interfaces.

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

### Examples

```
# Display information about VLAN-interface 10.
<Sysname> display interface vlan-interface 10
Vlan-interface10
Current state: UP
Line protocol state: UP
Description: Vlan-interface10 Interface
Bandwidth: 100000 kbps
Maximum transmission unit: 1500
Internet Address is 192.168.1.54/24 Primary
IP packet frame type: Ethernet II, hardware address: 0023-89b6-d613
IPv6 packet frame type: Ethernet II, hardware address: 0023-89b6-d613
Last clearing of counters: Never

# Display brief information about VLAN-interface 2.
```

```

<Sysname> display interface vlan-interface 2 brief
Brief information on interfaces in route mode:
Link: ADM - administratively down; Stby - standby
Protocol: (s) - spoofing
Interface          Link Protocol Primary IP      Description
Vlan2              DOWN DOWN      --

```

**Table 1 Command output**

Field	Description
Vlan-interface2	VLAN interface name.
Current state	Physical link state of the VLAN interface: <ul style="list-style-type: none"> <li>• <b>Administratively DOWN</b>—The interface has been shut down by using the <b>shutdown</b> command.</li> <li>• <b>DOWN</b>—The interface is administratively up, but its physical state is down. The VLAN of this VLAN interface does not contain any physical ports in up state. The ports might not be connected correctly or the links might have failed.</li> <li>• <b>UP</b>—The interface is both administratively and physically up.</li> </ul>
Line protocol state	Data link layer state of the VLAN interface: <ul style="list-style-type: none"> <li>• <b>DOWN</b>—The link layer protocol state of the interface is down.</li> <li>• <b>UP</b>—The link layer protocol state of the interface is up.</li> </ul>
Description	Description of the VLAN interface.
Bandwidth	Expected bandwidth of the VLAN interface.
Maximum transmission unit	MTU of the VLAN interface.
Internet protocol processing : Disabled	The VLAN interface is not assigned an IP address and cannot process IP packets.
Internet Address	IP address of the VLAN interface. The <b>primary</b> attribute indicates that the address is the primary IP address.
IP packet frame type	IPv4 packet framing format.
hardware address	MAC address of the VLAN interface.
IPv6 packet frame type	IPv6 packet framing format.
Last clearing of counters	The most recent time that the <b>reset counters interface vlan-interface</b> command was executed. This field displays <b>Never</b> if you have never executed this command.
Brief information on interfaces in route mode	Brief information about Layer 3 interfaces.
Interface	Abbreviated interface name.
Link	Physical link state of the interface: <ul style="list-style-type: none"> <li>• <b>UP</b>—The interface is physically up.</li> <li>• <b>DOWN</b>—The interface is physically down.</li> <li>• <b>ADM</b>—The interface has been shut down by using the <b>shutdown</b> command. To restore the physical state of the interface, use the <b>undo shutdown</b> command.</li> <li>• <b>Stby</b>—The interface is a backup interface in standby state. To see the primary interface, use the <b>display</b></li> </ul>

Field	Description
	<code>interface-backup state</code> command.
Protocol	Data link layer protocol state of the interface: <ul style="list-style-type: none"> <li>• <b>UP</b>—The data link layer protocol state of the interface is up.</li> <li>• <b>DOWN</b>—The data link layer protocol state of the interface is down.</li> <li>• <b>UP(s)</b>—The data link layer protocol of the interface is up, but the link is an on-demand link or does not exist. The <b>(s)</b> attribute represents the spoofing flag.</li> </ul>
Primary IP	Primary IP address of the interface.

## Related commands

`reset counters interface vlan-interface`

## display vlan

Use `display vlan` to display VLAN information.

### Syntax

`display vlan [ vlan-id1 [ to vlan-id2 ] | all | dynamic | reserved | static ]`

### Views

Any view

### Predefined user roles

network-admin

network-operator

### Parameters

*vlan-id1*: Specifies a VLAN by its ID in the range of 1 to 4094.

*vlan-id1 to vlan-id2*: Specifies a VLAN ID range. Both the *vlan-id1* and the *vlan-id2* arguments are in the range of 1 to 4094. The value for the *vlan-id2* argument must be equal to or greater than the value for the *vlan-id1* argument.

**all**: Specifies all VLANs except the reserved VLANs.

**dynamic**: Specifies dynamic VLANs. If you specify this keyword, the command displays the total number of dynamic VLANs and each dynamic VLAN ID. Dynamic VLANs are generated through MVRP or assigned by a RADIUS server.

**reserved**: Specifies reserved VLANs. Protocol modules determine which VLANs are reserved according to function implementation. The reserved VLANs provide services for protocol modules. You cannot configure reserved VLANs.

**static**: Specifies static VLANs. If you specify this keyword, the command displays the total number of static VLANs and each static VLAN ID. Static VLANs are manually created.

### Examples

```
# Display information about VLAN 2.
<Sysname> display vlan 2
VLAN ID: 2
VLAN type: Static
Route interface: Not configured
```

```

Description: VLAN 0002
Name: VLAN 0002
Tagged ports:  None
Untagged ports:
    GigabitEthernet1/0/1  GigabitEthernet1/0/2  GigabitEthernet1/0/3

```

### # Display information about VLAN 3.

```

<Sysname> display vlan 3
VLAN ID: 3
VLAN type: static
Route interface: Configured
IPv4 address: 1.1.1.1
IPv4 subnet mask: 255.255.255.0
Description: VLAN 0003
Name: VLAN 0003
Tagged ports:  None
Untagged ports: None

```

**Table 2 Command output**

Field	Description
VLAN type	VLAN type, static or dynamic.
Route interface	Whether the VLAN interface is configured for the VLAN. <ul style="list-style-type: none"> <li>Not configured.</li> <li>Configured.</li> </ul>
Description	Description of the VLAN.
Name	VLAN name.
IP address	Primary IPv4 address of the VLAN interface. This field is displayed only when an IPv4 address is configured for the VLAN interface. When the VLAN interface is also configured with secondary IPv4 addresses, you can view them by using one of the following commands: <ul style="list-style-type: none"> <li><b>display interface vlan-interface.</b></li> <li><b>display this</b> (VLAN interface view).</li> </ul>
Subnet mask	Subnet mask of the primary IP address. This field is available only when an IP address is configured for the VLAN interface.
Tagged ports	Tagged members of the VLAN.
Untagged ports	Untagged members of the VLAN.

### Related commands

`vlan`

## display vlan brief

Use `display vlan brief` to display brief VLAN information.

### Syntax

`display vlan brief`



## Views

Any view

## Predefined user roles

network-admin

network-operator

## Examples

# Display brief VLAN information.

```
<Sysname> display vlan brief
```

Brief information about all VLANs:

Supported Minimum VLAN ID: 1

Supported Maximum VLAN ID: 4094

Default VLAN ID: 1

VLAN ID	Name	Port
1	VLAN 0001	GE1/0/1 GE1/0/2 GE1/0/3 GE1/0/4 GE1/0/5 GE1/0/6 GE1/0/7 GE1/0/8 GE1/0/9 GE1/0/10 GE1/0/11 GE1/0/12 GE1/0/13 GE1/0/14 GE1/0/15 GE1/0/16 GE1/0/17 GE1/0/18 GE1/0/19 GE1/0/20 GE1/0/21 GE1/0/22 GE1/0/23 GE1/0/24 GE1/0/25 GE1/0/26 GE1/0/27 GE1/0/28 GE1/0/29 GE1/0/30 GE1/0/31 GE1/0/32 GE1/0/33 GE1/0/34 GE1/0/35 GE1/0/36 GE1/0/37 GE1/0/38 GE1/0/39 GE1/0/40 GE1/0/41 GE1/0/42 GE1/0/43 GE1/0/44 GE1/0/45 GE1/0/46 GE1/0/47 GE1/0/48
2	VLAN 0002	
3	VLAN 0003	

**Table 3 Command output**

Field	Description
Default VLAN ID	System default VLAN ID.
Name	VLAN name.
Port	Ports that allow packets from the VLAN to pass through.

## interface vlan-interface

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

Use **undo interface vlan-interface** to delete a VLAN interface.

## Syntax

```
interface vlan-interface interface-number  
undo interface vlan-interface interface-number
```

## Default

No VLAN interfaces exist.

## Views

System view

## Predefined user roles

network-admin

## Parameters

*interface-number*: Specifies a VLAN interface number in the range of 1 to 4094.

## Usage guidelines

Create the VLAN before you create the VLAN interface for a VLAN.

You cannot create VLAN interfaces for sub-VLANs.

You cannot create VLAN interfaces for secondary VLANs that meet the following requirements:

- Associated with the same primary VLAN.
- Enabled with Layer 3 communication in VLAN interface view of the primary VLAN interface.

## Examples

# Create VLAN-interface 2, and enter its view.

```
<Sysname> system-view  
[Sysname] vlan 2  
[Sysname-vlan2] quit  
[Sysname] interface vlan-interface 2  
[Sysname-Vlan-interface2]
```

## Related commands

```
display interface vlan-interface
```

# mtu

Use **mtu** to set the MTU for a VLAN interface.

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

## Syntax

```
mtu size  
undo mtu
```

## Default

The MTU of a VLAN interface is 1500 bytes.

## Views

VLAN interface view

## Predefined user roles

network-admin

## Parameters

*size*: Sets the MTU in bytes. The value range for this argument is 128 to 1500.

## Usage guidelines

If you configure both the `mtu` and `ip mtu` commands on a VLAN interface, the MTU set by the `ip mtu` command is used for fragmentation. For more information about the `ip mtu` command, see *Layer 3—IP Services Command Reference*.

## Examples

```
# Set the MTU to 1492 bytes for VLAN-interface 1.
<Sysname> system-view
[Sysname] interface vlan-interface 1
[Sysname-Vlan-interface1] mtu 1492
```

## Related commands

`display interface vlan-interface`

## name

Use `name` to assign a name to a VLAN.

Use `undo name` to restore the default.

## Syntax

```
name text
undo name
```

## Default

The name of a VLAN is **VLAN** *vlan-id*. The *vlan-id* argument specifies the VLAN ID in a four-digit format. If the VLAN ID has fewer than four digits, leading zeros are added. For example, the name of VLAN 100 is **VLAN 0100**.

## Views

VLAN view

## Predefined user roles

network-admin

## Parameters

*text*: Specifies a VLAN name, a case-sensitive string of 1 to 32 characters.

## Usage guidelines

For 802.1X or MAC authentication, you can specify authorization VLANs by their names or IDs. If a large number of VLANs are configured, use VLAN names to identify them.

## Examples

```
# Assign the name test vlan to VLAN 2.
<Sysname> system-view
[Sysname] vlan 2
[Sysname-vlan2] name test vlan
```

## Related commands

`display vlan`

# reset counters interface vlan-interface

Use `reset counters interface vlan-interface` to clear statistics on a VLAN interface.

## Syntax

```
reset counters interface vlan-interface [ interface-number ]
```

## Views

User view

## Predefined user roles

network-admin

## Parameters

**vlan-interface** *interface-number*: Specifies a VLAN interface by its number. If you do not specify the *interface-number* argument, this command clears statistics on all VLAN interfaces.

## Usage guidelines

Use this command to clear the history statistics before you collect statistics within a time period.

## Examples

```
# Clear statistics on VLAN-interface 2.  
<Sysname> reset counters interface vlan-interface 2
```

## Related commands

```
display interface vlan-interface
```

# shutdown

Use `shutdown` to shut down a VLAN interface.

Use `undo shutdown` to bring up a VLAN interface.

## Syntax

```
shutdown  
undo shutdown
```

## Default

A VLAN interface is not manually shut down, and the following guidelines apply to the interface state:

- The VLAN interface is down if all ports in the VLAN are down.
- The VLAN interface is up if one or more ports in the VLAN are up.

## Views

VLAN interface view

## Predefined user roles

network-admin

## Usage guidelines

When you use this command to shut down a VLAN interface, the VLAN interface remains in DOWN (Administratively) state. In this case, the VLAN interface state is not affected by the state of the ports in the VLAN.

Before you configure parameters for a VLAN interface, use this command to shut it down to prevent the configuration from affecting the network. After you complete the VLAN interface configuration, use the **undo shutdown** command to make the settings take effect.

To troubleshoot a failed VLAN interface, you can use the **shutdown** command and then the **undo shutdown** command on the interface to see whether it recovers.

In a VLAN, the state of each Ethernet port is independent of the state of the VLAN interface.

## Examples

```
# Shut down VLAN-interface 2, and then bring it up.
```

```
<Sysname> system-view
[Sysname] interface vlan-interface 2
[Sysname-Vlan-interface2] shutdown
[Sysname-Vlan-interface2] undo shutdown
```

## vlan

Use **vlan** *vlan-id-list* to create VLANs in batches, except reserved VLANs.

Use **vlan all** to create VLANs 1 through 4094.

Use **undo vlan** to delete the specified VLANs.

## Syntax

```
vlan { vlan-id-list | all }
undo vlan { vlan-id-list | all }
```

## Default

VLAN 1 (system default VLAN) exists.

## Views

System view

## Predefined user roles

network-admin

## Parameters

*vlan-id-list*: Specifies a space-separated list of up to 32 VLAN items. Each item specifies a VLAN or a range of VLANs in the form of *vlan-id1* [ **to** *vlan-id2* ]. The value for *vlan-id2* must be equal to or greater than the value for *vlan-id1*. The value range for the *vlan-id* argument is 1 to 4094.

**all**: Specifies all VLANs except reserved VLANs. The keyword is not supported when the maximum number of VLANs that can be created on a device is less than 4094.

## Usage guidelines

You cannot create or delete the system default VLAN (VLAN 1) or reserved VLANs.

Before you delete a dynamic VLAN or a VLAN locked by an application, you must first remove the configuration from the VLAN.

## Examples

```
# Create VLAN 2 and enter its view.
```

```
<Sysname> system-view
[Sysname] vlan 2
[Sysname-vlan2]
```

```
# Create VLAN 2 and VLANs 4 through 100.
<Sysname> system-view
[Sysname] vlan 2 4 to 100
```

### Related commands

```
display vlan
```

## Port-based VLAN commands

### display port

Use `display port` to display information about hybrid or trunk ports.

#### Syntax

```
display port { hybrid | trunk }
```

#### Views

Any view

#### Predefined user roles

```
network-admin
network-operator
```

#### Parameters

**hybrid**: Specifies hybrid ports.

**trunk**: Specifies trunk ports.

#### Examples

# Display information about hybrid ports.

```
<Sysname> display port hybrid
Interface          PVID  VLAN Passing
GE1/0/1            100   Tagged:  1000, 1002, 1500, 1600-1611, 2000,
                2555-2558, 3000, 4000
                Untagged:1, 10, 15, 18, 20-30, 44, 55, 67, 100,
                150-160, 200, 255, 286, 300-302
```

# Display information about trunk ports.

```
<Sysname> display port trunk
Interface          PVID  VLAN Passing
GE1/0/2            2     1-4, 6-100, 145, 177, 189-200, 244, 289, 400,
                555, 600-611, 1000, 2006-2008
```

**Table 4 Command output**

Field	Description
Interface	Interface name.
PVID	Port VLAN ID.
VLAN Passing	Existing VLANs allowed on the port.
Tagged	VLANs from which the port sends packets without removing VLAN tags.
Untagged	VLANs from which the port sends packets after removing VLAN tags.

## port

Use **port** to assign the specified access ports to a VLAN.

Use **undo port** to remove the specified access ports from a VLAN.

### Syntax

```
port interface-list
undo port interface-list
```

### Default

All ports are in VLAN 1.

### Views

VLAN view

### Predefined user roles

network-admin

### Parameters

*interface-list*: Specifies a space-separated list of up to 10 Ethernet interface items. Each item specifies an Ethernet interface or a range of Ethernet interfaces in the form of *interface-type interface-number1 to interface-type interface-number2*. The value for the *interface-number2* argument must be equal to or greater than the value for the *interface-number1* argument.

### Usage guidelines

This command is applicable only to access ports. This command is not supported in the view of VLAN 1.

By default, all ports are access ports. You can manually configure the port link type. For more information, see "[port link-type](#)."

### Examples

```
# Assign GigabitEthernet 1/0/1 through GigabitEthernet 1/0/3 to VLAN 2.
<Sysname> system-view
[Sysname] vlan 2
[Sysname-vlan2] port gigabitethernet 1/0/1 to gigabitethernet 1/0/3
```

### Related commands

```
display vlan
```

## port access vlan

Use **port access vlan** to assign an access port to the specified VLAN.

Use **undo port access vlan** to restore the default.

### Syntax

```
port access vlan vlan-id
undo port access vlan
```

## Default

All access ports belong to VLAN 1.

## Views

Layer 2 aggregate interface view

Layer 2 Ethernet interface view

## Predefined user roles

network-admin

## Parameters

*vlan-id*: Specifies a VLAN by its ID in the range of 1 to 4094.

## Usage guidelines

By default, all access ports belong to VLAN 1. Therefore, this command cannot be used to assign access ports to VLAN 1. To move an access port to VLAN 1, execute the **undo port access vlan** command on the access port.

Before assigning an access port to a VLAN, make sure the VLAN has been created.

## Examples

```
# Assign GigabitEthernet 1/0/1 to VLAN 3.
<Sysname> system-view
[Sysname] vlan 3
[Sysname-vlan3] quit
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] port access vlan 3
```

# port hybrid pvid

Use **port hybrid pvid** to set the PVID of a hybrid port.

Use **undo port hybrid pvid** to set the PVID of a hybrid port to 1.

## Syntax

```
port hybrid pvid vlan vlan-id
undo port hybrid pvid
```

## Default

The PVID of a hybrid port is the ID of the VLAN to which the port belongs when its link type is **access**.

## Views

Layer 2 aggregate interface view

Layer 2 Ethernet interface view

## Predefined user roles

network-admin

## Parameters

*vlan-id*: Specifies a VLAN by its ID in the range of 1 to 4094.



## Usage guidelines

You can use a nonexistent VLAN as the PVID of a hybrid port. When you delete the PVID of a hybrid port by using the **undo vlan** command, the PVID setting of the port does not change.

For correct packet transmission, set the same PVID for a local hybrid port and its peer.

To enable a hybrid port to transmit packets from its PVID, you must assign the hybrid port to the PVID by using the **port hybrid vlan** command.

## Examples

```
# Configure GigabitEthernet 1/0/1 as a hybrid port, set its PVID to VLAN 100, and assign it to VLAN 100 as an untagged member.
```

```
<Sysname> system-view
[Sysname] vlan 100
[Sysname-vlan100] quit
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] port link-type hybrid
[Sysname-GigabitEthernet1/0/1] port hybrid pvid vlan 100
[Sysname-GigabitEthernet1/0/1] port hybrid vlan 100 untagged
```

## Related commands

```
port hybrid vlan
port link-type
```

# port hybrid vlan

Use **port hybrid vlan** to assign a hybrid port to the specified VLANs.

Use **undo port hybrid vlan** to remove a hybrid port from the specified VLANs.

## Syntax

```
port hybrid vlan vlan-id-list { tagged | untagged }
undo port hybrid vlan vlan-id-list
```

## Default

A hybrid port is an untagged member of the VLAN to which the port belongs when its link type is **access**.

## Views

Layer 2 aggregate interface view

Layer 2 Ethernet interface view

## Predefined user roles

network-admin

## Parameters

*vlan-id-list*: Specifies a space-separated list of up to 32 VLAN items. Each item specifies a VLAN ID or a range of VLAN IDs in the form of *vlan-id1* to *vlan-id2*. The value range for VLAN IDs is 1 to 4094. The value for the *vlan-id2* argument must be equal to or greater than the value for the *vlan-id1* argument. The specified VLANs must already exist on the device.

**tagged**: Configures the port as a tagged member of the specified VLANs. A tagged member of a VLAN sends packets from the VLAN without removing VLAN tags.

**untagged:** Configures the port as an untagged member of the specified VLANs. An untagged member of a VLAN sends packets from the VLAN after removing VLAN tags.

## Usage guidelines

A hybrid port can allow multiple VLANs. If you execute this command multiple times on a hybrid port, the hybrid port allows all the specified VLANs.

## Examples

```
# Configure GigabitEthernet 1/0/1 as a hybrid port, and assign it to VLAN 2, VLAN 4, and VLAN 50 through VLAN 100 as a tagged member.
```

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] port link-type hybrid
[Sysname-GigabitEthernet1/0/1] port hybrid vlan 2 4 50 to 100 tagged
```

## Related commands

```
port link-type
```

# port link-type

Use **port link-type** to set the link type of a port.

Use **undo port link-type** to restore the default link type of a port.

## Syntax

```
port link-type { access | hybrid | trunk }
undo port link-type
```

## Default

Each port is an access port.

## Views

Layer 2 aggregate interface view

Layer 2 Ethernet interface view

## Predefined user roles

```
network-admin
```

## Parameters

**access:** Sets the port link type to access.

**hybrid:** Sets the port link type to hybrid.

**trunk:** Sets the port link type to trunk.

## Usage guidelines

To change the link type of a port from trunk to hybrid or vice versa, first set the link type to access.

## Examples

```
# Configure GigabitEthernet 1/0/1 as a trunk port.
```

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] port link-type trunk
```

## port trunk permit vlan

Use `port trunk permit vlan` to assign a trunk port to the specified VLANs.

Use `undo port trunk permit vlan` to remove a trunk port from the specified VLANs.

### Syntax

```
port trunk permit vlan { vlan-id-list | all }  
undo port trunk permit vlan { vlan-id-list | all }
```

### Default

A trunk port allows packets only from VLAN 1 to pass through.

### Views

Layer 2 aggregate interface view

Layer 2 Ethernet interface view

### Predefined user roles

network-admin

### Parameters

*vlan-id-list*: Specifies a space-separated list of up to 32 VLAN items. Each item specifies a VLAN ID or a range of VLAN IDs in the form of *vlan-id1* to *vlan-id2*. The value range for VLAN IDs is 1 to 4094. The value for the *vlan-id2* argument must be equal to or greater than the value for the *vlan-id1* argument.

**all**: Specifies all VLANs. To prevent unauthorized VLAN users from accessing restricted resources through the port, use the `port trunk permit vlan all` command with caution.

### Usage guidelines

A trunk port can allow multiple VLANs. If you execute this command multiple times on a trunk port, the trunk port allows all the specified VLANs.

On a trunk port, packets only from the PVID can pass through untagged.

### Examples

```
# Configure GigabitEthernet 1/0/1 as a trunk port, and assign it to VLAN 2, VLAN 4, and VLAN 50 through VLAN 100.
```

```
<Sysname> system-view  
[Sysname] interface gigabitethernet 1/0/1  
[Sysname-GigabitEthernet1/0/1] port link-type trunk  
[Sysname-GigabitEthernet1/0/1] port trunk permit vlan 2 4 50 to 100
```

### Related commands

```
port link-type
```

## port trunk pvid

Use `port trunk pvid` to set the PVID for a trunk port.

Use `undo port trunk pvid` to restore the default.

### Syntax

```
port trunk pvid vlan vlan-id  
undo port trunk pvid
```

## Default

The PVID of a trunk port is VLAN 1.

## Views

Layer 2 aggregate interface view

Layer 2 Ethernet interface view

## Predefined user roles

network-admin

## Parameters

*vlan-id*: Specifies a VLAN by its ID in the range of 1 to 4094.

## Usage guidelines

You can use a nonexistent VLAN as the PVID for a trunk port. When you delete the PVID of a trunk port by using the **undo vlan** command, the PVID setting of the port does not change.

For correct packet transmission, set the same PVID for a local trunk port and its peer.

To enable a trunk port to transmit packets from its PVID, you must assign the trunk port to the PVID by using the **port trunk permit vlan** command.

## Examples

# Configure GigabitEthernet 1/0/1 as a trunk, set its PVID to VLAN 100, and assign it to VLAN 100.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] port link-type trunk
[Sysname-GigabitEthernet1/0/1] port trunk pvid vlan 100
[Sysname-GigabitEthernet1/0/1] port trunk permit vlan 100
```

## Related commands

**port link-type**

**port trunk permit vlan**

# MAC-based VLAN commands

## display mac-vlan

Use **display mac-vlan** to display MAC-to-VLAN entries.

## Syntax

```
display mac-vlan { all | dynamic | mac-address mac-address [ mask mac-mask ]
| static | vlan vlan-id }
```

## Views

Any view

## Predefined user roles

network-admin

network-operator

## Parameters

**all**: Specifies all MAC-to-VLAN entries.

**dynamic:** Specifies dynamically configured MAC-to-VLAN entries.

**mac-address** *mac-address*: Specifies the MAC address in the MAC-to-VLAN entry. The format of the *mac-address* argument is H-H-H.

**mask** *mac-mask*: Specifies the mask for matching MAC addresses in MAC-to-VLAN entries. For the *mac-mask* argument, the high-order bits must be consecutive 1s in binary notation or consecutive Fs in hexadecimal notation. The default value is ffff-ffff-ffff.

**static:** Specifies statically configured MAC-to-VLAN entries.

**vlan** *vlan-id*: Specifies the VLAN in MAC-to-VLAN entries. The value range for the *vlan-id* argument is 1 to 4094.

## Examples

# Display all MAC-to-VLAN entries.

```
<Sysname> display mac-vlan all
```

The following MAC VLAN entries exist:

State: S - Static, D - Dynamic

MAC address	Mask	VLAN ID	Dot1q	State
0008-0001-0000	ffff-ff00-0000	5	3	S
0002-0001-0000	ffff-ffff-ffff	5	3	S&D

Total MAC VLAN entries count: 2

**Table 5 Command output**

Field	Description
S - Static	Statically configured MAC-to-VLAN entries.
D - Dynamic	Dynamically configured MAC-to-VLAN entries.
MAC address	MAC address of the MAC-to-VLAN entry.
Mask	MAC address mask of the MAC-to-VLAN entry.
VLAN ID	VLAN ID of the MAC-to-VLAN entry.
Dot1q	802.1p priority of the VLAN in the MAC-to-VLAN entry.
State	State of a MAC-to-VLAN entry: <ul style="list-style-type: none"><li>• <b>S</b>—The MAC-to-VLAN entry is configured statically.</li><li>• <b>D</b>—The MAC-to-VLAN entry is dynamically issued by the authentication server.</li><li>• <b>S&amp;D</b>—The MAC-to-VLAN entry is configured both statically and dynamically.</li></ul>

## Related commands

**mac-vlan mac-address**

## display mac-vlan interface

Use **display mac-vlan interface** to display all ports that are enabled with the MAC-based VLAN feature.

## Syntax

**display mac-vlan interface**

## Views

Any view

## Predefined user roles

network-admin

network-operator

## Examples

# Display all ports that are enabled with the MAC-based VLAN feature.

```
<Sysname> display mac-vlan interface
```

MAC VLAN is enabled on following ports:

```
GigabitEthernet1/0/1 GigabitEthernet1/0/2 GigabitEthernet1/0/3
```

## Related commands

**mac-vlan enable**

# mac-vlan enable

Use **mac-vlan enable** to enable the MAC-based VLAN feature on a port.

Use **undo mac-vlan enable** to disable the MAC-based VLAN feature on a port.

## Syntax

**mac-vlan enable**

**undo mac-vlan enable**

## Default

The MAC-based VLAN feature is disabled on a port.

## Views

Layer 2 Ethernet interface view

## Predefined user roles

network-admin

## Examples

# Enable the MAC-based VLAN feature on GigabitEthernet 1/0/1.

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

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

```
[Sysname-GigabitEthernet1/0/1] mac-vlan enable
```

## Related commands

**display mac-vlan interface**

# mac-vlan mac-address

Use **mac-vlan mac-address** to configure a MAC-to-VLAN entry.

Use **undo mac-vlan** to delete the specified MAC-to-VLAN entries.

## Syntax

**mac-vlan mac-address** *mac-address* [ **mask** *mac-mask* ] **vlan** *vlan-id* [ **dot1q** *priority* ]

```
undo mac-vlan { all | mac-address mac-address [ mask mac-mask ] | vlan
vlan-id }
```

## Default

No MAC-to-VLAN entries exist.

## Views

System view

## Predefined user roles

network-admin

## Parameters

**mac-address** *mac-address*: Specifies a MAC address in the format of H-H-H. The MAC address cannot be a multicast MAC address or all 0s. When you configure a MAC address, leading zeros in each H section can be omitted. For example, to configure a MAC address 000f-00e2-0001, you can enter only **f-e2-1**.

**mask** *mac-mask*: Specifies the MAC address mask. For the *mac-mask* argument, the high-order bits must be consecutive 1s in binary notation or consecutive Fs in hexadecimal notation. The default value is ffff-ffff-ffff.

**vlan** *vlan-id*: Specifies a VLAN ID in the range of 1 to 4094.

**dot1q** *priority*: Specifies the 802.1p priority of the VLAN specific to the MAC-to-VLAN entry. The value range for the *priority* argument is 0 to 7, and the default value is 0. The higher the value, the higher the 802.1p priority.

**all**: Specifies all static MAC-to-VLAN entries.

## Usage guidelines

For successful dynamic MAC-based VLAN assignment, use static VLANs when you create MAC-to-VLAN entries.

Different types of MAC-to-VLAN entries are created depending on whether you specify the **mask** keyword.

- When you specify this keyword, the created MAC-to-VLAN entry describes the relationship among a group of MAC addresses, a VLAN, and the 802.1p priority for the VLAN.
- When you do not specify this keyword, the created MAC-to-VLAN entry describes the relationship among a MAC address, a VLAN, and the 802.1p priority for the VLAN.

These different types of MAC-to-VLAN entries are stored separately in two tables. The system updates the two tables according to the configuration.

## Examples

```
# Associate the MAC address 0000-0001-0001 with VLAN 100, and set the 802.1p priority to 7 for
VLAN 100 in this entry.
```

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

```
[Sysname] mac-vlan mac-address 0-1-1 vlan 100 dot1q 7
```

```
# Associate VLAN 100 with MAC addresses whose six high-order bits are 121122, and set the
802.1p priority to 4 for VLAN 100 in this entry.
```

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

```
[Sysname] mac-vlan mac-address 1211-2222-3333 mask ffff-ff00-0000 vlan 100 dot1q 4
```

## Related commands

```
display mac-vlan
```

## mac-vlan trigger enable

Use **mac-vlan trigger enable** to enable dynamic MAC-based VLAN assignment on a port.

Use **undo mac-vlan trigger enable** to disable dynamic MAC-based VLAN assignment on a port.

### Syntax

```
mac-vlan trigger enable
undo mac-vlan trigger enable
```

### Default

Dynamic MAC-based VLAN assignment is disabled on a port.

### Views

Layer 2 Ethernet interface view

### Predefined user roles

network-admin

### Usage guidelines

VLAN assignment for a port is triggered only when the source MAC address of its received packet exactly matches the MAC address in a MAC-to-VLAN entry.

### Examples

```
# Enable dynamic MAC-based VLAN assignment on GigabitEthernet 1/0/1.
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] mac-vlan trigger enable
```

### Related commands

```
mac-vlan mac-address
port pvid forbidden
```

## port pvid forbidden

Use **port pvid forbidden** to disable a port from forwarding packets that fail the exact MAC address match in its PVID.

Use **undo port pvid forbidden** to restore the default.

### Syntax

```
port pvid forbidden
undo port pvid forbidden
```

### Default

When a port receives packets whose source MAC addresses fail the exact MAC address match, the port forwards them in its PVID.

### Views

Layer 2 Ethernet interface view

### Predefined user roles

network-admin



## Usage guidelines

Use this feature only with dynamic MAC-based VLAN assignment.

## Examples

```
# Disable GigabitEthernet 1/0/1 from forwarding packets that fail the exact MAC address match in its PVID.
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] port pvid forbidden
```

## Related commands

**mac-vlan trigger enable**

# vlan precedence

Use **vlan precedence** to set the VLAN matching order.

Use **undo vlan precedence** to restore the default.

## Syntax

```
vlan precedence { mac-vlan | ip-subnet-vlan }
undo vlan precedence
```

## Default

A port matches VLANs based on MAC addresses preferentially.

## Views

Layer 2 Ethernet interface view

## Predefined user roles

network-admin

## Parameters

**mac-vlan**: Matches VLANs based on MAC addresses preferentially.

**ip-subnet-vlan**: Matches VLANs based on IP subnets preferentially.

## Usage guidelines

This command takes effect only on MAC-based VLANs and IP subnet-based VLANs.

When you enable dynamic MAC-based VLAN assignment, configure the **vlan precedence mac-vlan** command as a best practice to ensure the priority of MAC-based VLAN matching. If you execute the **vlan precedence ip-subnet-vlan** command, the command does not take effect.

## Examples

```
# Configure GigabitEthernet 1/0/1 to match VLANs based on MAC addresses preferentially.
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] vlan precedence mac-vlan
```

## Related commands

**mac-vlan trigger enable**

# IP subnet-based VLAN commands

## display ip-subnet-vlan interface

Use `display ip-subnet-vlan interface` to display IP subnet-based VLANs that are associated with the specified ports.

### Syntax

```
display ip-subnet-vlan interface { interface-type interface-number1 [ to  
interface-type interface-number2 ] | all }
```

### Views

Any view

### Predefined user roles

network-admin

network-operator

### Parameters

`interface-type interface-number1 to interface-type interface-number2`: Specifies an interface range. Both the `interface-type interface-number1` argument and the `interface-type interface-number2` argument represent the interface type and interface number. The value for the `interface-number2` argument must be greater than or equal to the value for the `interface-number1` argument.

`all`: Specifies all ports.

### Examples

# Display IP subnet-based VLANs on GigabitEthernet 1/0/1.

```
<Sysname> display ip-subnet-vlan interface gigabitethernet 1/0/1
Interface: GigabitEthernet1/0/1
  VLAN ID   Subnet index   IP address      Subnet mask      Status
  ---
  3         0              192.168.1.0     255.255.255.0    Active
  4         N/A           N/A             N/A              Inactive
  4094      65535         172.16.1.1     255.255.0.0     Inactive
```

**Table 6 Command output**

Field	Description
VLAN ID	ID of the IP subnet-based VLAN.
Subnet index	Index of the IP subnet. This field displays <b>N/A</b> if no IP subnet-based VLAN is configured.
IP address	IP address of the subnet. It can be an IP address or a subnet address. This field displays <b>N/A</b> if no IP subnet address is configured for the VLAN.
Subnet mask	Mask of the IP subnet. This field displays <b>N/A</b> if no subnet mask is configured for the VLAN.
Status	Whether the IP subnet-based VLAN has taken effect on the port: <ul style="list-style-type: none"><li>• <b>Active</b>—The IP subnet-based VLAN has taken effect.</li><li>• <b>Inactive</b>—The IP subnet-based VLAN has not taken effect. For example, this field displays <b>Inactive</b> in one of the following conditions:</li></ul>

Field	Description
	<ul style="list-style-type: none"> <li>○ The configuration of the IP subnet-based VLAN is not complete.</li> <li>○ The port does not allow the IP subnet-based VLAN.</li> </ul>

### Related commands

```
display ip-subnet-vlan vlan
ip-subnet-vlan
port hybrid ip-subnet-vlan
```

## display ip-subnet-vlan vlan

Use `display ip-subnet-vlan vlan` to display information about IP subnet-based VLANs.

### Syntax

```
display ip-subnet-vlan vlan { vlan-id1 [ to vlan-id2 ] | all }
```

### Views

Any view

### Predefined user roles

```
network-admin
network-operator
```

### Parameters

*vlan-id1*: Specifies an IP subnet-based VLAN by its VLAN ID in the range of 1 to 4094.

*vlan-id1* to *vlan-id2*: Specifies an IP subnet-based VLAN ID range. Both the *vlan-id1* and the *vlan-id2* arguments are in the range of 1 to 4094. The value for the *vlan-id2* argument must be equal to or greater than the value for the *vlan-id1* argument.

**all**: Specifies all IP subnet-based VLANs.

### Examples

# Display information about all IP subnet-based VLANs.

```
<Sysname> display ip-subnet-vlan vlan all
VLAN ID: 3
Subnet index      IP address      Subnet mask
0                 192.168.1.0    255.255.255.0
```

**Table 7 Command output**

Field	Description
VLAN ID	ID of the IP subnet-based VLAN.
Subnet index	Index of the IP subnet.
IP address	IP address of the subnet. It can be an IP address or a subnet address.
Subnet mask	Mask of the IP subnet.

### Related commands

```
display ip-subnet-vlan interface
ip-subnet-vlan
```

```
port hybrid ip-subnet-vlan
```

## ip-subnet-vlan

Use `ip-subnet-vlan` to associate a VLAN with the specified IP subnet or IP address.

Use `undo ip-subnet-vlan` to disassociate a VLAN from the specified IP subnet or IP address.

### Syntax

```
ip-subnet-vlan [ ip-subnet-index ] ip ip-address [ mask ]  
undo ip-subnet-vlan { ip-subnet-index [ to ip-subnet-end ] | all }
```

### Default

A VLAN is not associated with an IP subnet or IP address.

### Views

VLAN view

### Predefined user roles

network-admin

### Parameters

*ip-subnet-index*: Specifies a beginning IP subnet index in the range of 0 to 65535. The value can be configured by users. It can also be automatically numbered by the system based on the order in which the IP subnets or IP addresses are associated with the VLAN.

*ip ip-address [ mask ]*: Specifies the source IP address or network address that is associated with the VLAN. The *ip-address* argument specifies the source IP address or network address in dotted decimal notation. The *mask* argument is the subnet mask of the source IP address or network address, in dotted decimal notation with a default value of 255.255.255.0.

*to ip-subnet-end*: Specifies an end IP subnet index of an IP subnet index range, in the range of 0 to 65535. The value for the *ip-subnet-end* argument must be greater than or equal to the beginning IP subnet index.

*all*: Specifies all IP subnets or IP addresses that are associated with the VLAN.

### Usage guidelines

The IP subnet or IP address cannot be a multicast network segment or a multicast address.

### Examples

```
# Configure VLAN 3 as an IP subnet-based VLAN and associate it with the subnet 192.168.1.0/24.  
<Sysname> system-view  
[Sysname] vlan 3  
[Sysname-vlan3] ip-subnet-vlan ip 192.168.1.0 255.255.255.0
```

### Related commands

```
display ip-subnet-vlan interface  
display ip-subnet-vlan vlan  
port hybrid ip-subnet-vlan
```

## port hybrid ip-subnet-vlan

Use `port hybrid ip-subnet-vlan` to associate a port with the specified IP subnet-based VLAN.

Use `undo port hybrid ip-subnet-vlan` to disassociate a port from the specified IP subnet-based VLAN.

## Syntax

```
port hybrid ip-subnet-vlan vlan vlan-id
undo port hybrid ip-subnet-vlan { vlan vlan-id | all }
```

## Default

A port is not associated with an IP subnet-based VLAN.

## Views

Layer 2 Ethernet interface view  
Layer 2 aggregate interface view

## Predefined user roles

network-admin

## Parameters

**vlan** *vlan-id*: Specifies a VLAN by its ID in the range of 1 to 4094.  
**all**: Specifies all VLANs.

## Usage guidelines

For this command to take effect, perform the following tasks:

1. Create a VLAN and associate it with the specified IP subnet or IP address.
2. Set the port link type to hybrid.
3. Configure the port to allow the IP subnet-based VLAN to pass through.

## Examples

# Associate GigabitEthernet 1/0/1 with IP subnet-based VLAN 3.

```
<Sysname> system-view
[Sysname] vlan 3
[Sysname-vlan3] ip-subnet-vlan ip 192.168.1.0 255.255.255.0
[Sysname-vlan3] quit
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] port link-type hybrid
[Sysname-GigabitEthernet1/0/1] port hybrid vlan 3 untagged
[Sysname-GigabitEthernet1/0/1] port hybrid ip-subnet-vlan vlan 3
```

# Associate Layer 2 aggregate interface Bridge-Aggregation 1 with IP subnet-based VLAN 3.

```
<Sysname> system-view
[Sysname] vlan 3
[Sysname-vlan3] ip-subnet-vlan ip 192.168.1.0 255.255.255.0
[Sysname-vlan3] quit
[Sysname] interface bridge-aggregation 1
[Sysname-Bridge-Aggregation1] port link-type hybrid
[Sysname-Bridge-Aggregation1] port hybrid vlan 3 untagged
[Sysname-Bridge-Aggregation1] port hybrid ip-subnet-vlan vlan 3
```

## Related commands

```
display ip-subnet-vlan interface
display ip-subnet-vlan vlan
```

# Protocol-based VLAN commands

## display protocol-vlan interface

Use `display protocol-vlan interface` to display protocol-based VLANs that are associated with the specified ports.

### Syntax

```
display protocol-vlan interface { interface-type interface-number1 [ to
interface-type interface-number2 ] | all }
```

### Views

Any view

### Predefined user roles

network-admin

network-operator

### Parameters

*interface-type interface-number1 to interface-type interface-number2*: Specifies an interface range. Both the *interface-type interface-number1* argument and the *interface-type interface-number2* argument represent the interface type and interface number. The value for the *interface-number2* argument must be greater than or equal to the value for the *interface-number1* argument.

**all**: Specifies all ports.

### Examples

# Display protocol-based VLAN information on GigabitEthernet 1/0/1.

```
<Sysname> display protocol-vlan interface gigabitethernet 1/0/1
Interface: GigabitEthernet1/0/1
  VLAN ID  Protocol index  Protocol type          Status
  ---  ---  ---  ---
  2       0             IPv6                   Active
  2       1             N/A                    Inactive
  4094    65535          IPv4                   Inactive
```

**Table 8 Command output**

Field	Description
VLAN ID	ID of the protocol-based VLAN.
Protocol index	Protocol template index.
Protocol type	Protocol type specified by the protocol template. This field displays <b>N/A</b> if the protocol type is not specified.
Status	Whether the protocol-based VLAN has taken effect: <ul style="list-style-type: none"> <li><b>Active</b>—The protocol-based VLAN has taken effect.</li> <li><b>Inactive</b>—The protocol-based VLAN has not taken effect.</li> </ul>

### Related commands

`display protocol-vlan vlan`

```
port hybrid protocol-vlan
protocol-vlan
```

## display protocol-vlan vlan

Use `display protocol-vlan vlan` to display information about protocol-based VLANs.

### Syntax

```
display protocol-vlan vlan { vlan-id1 [ to vlan-id2 ] | all }
```

### Views

Any view

### Predefined user roles

```
network-admin
network-operator
```

### Parameters

*vlan-id1*: Specifies a protocol-based VLAN ID in the range of 1 to 4094.

*vlan-id1* to *vlan-id2*: Specifies a protocol-based VLAN ID range. Both the *vlan-id1* and the *vlan-id2* arguments are in the range of 1 to 4094. The value for the *vlan-id2* argument must be equal to or greater than the value for the *vlan-id1* argument.

**all**: Specifies all protocol-based VLANs.

### Examples

# Displays information about all protocol-based VLANs.

```
<Sysname> display protocol-vlan vlan all
```

```
VLAN ID: 2
```

```
Protocol index  Protocol type
0               IPv4
65535          IPv6
```

```
VLAN ID: 3
```

```
Protocol index  Protocol type
0               IPv4
65535          LLC DSAP 0x11 SSAP 0x22
```

**Table 9 Command output**

Field	Description
VLAN ID	ID of the protocol-based VLAN.
Protocol index	Protocol template index.
Protocol type	Protocol type or encapsulation format specified by the protocol template.

### Related commands

```
display protocol-vlan interface
port hybrid protocol-vlan
protocol-vlan
```

# port hybrid protocol-vlan

Use **port hybrid protocol-vlan** to associate a port with the specified protocol-based VLAN.

Use **undo port hybrid protocol-vlan** to disassociate a port from the specified protocol-based VLAN.

## Syntax

```
port hybrid protocol-vlan vlan vlan-id { protocol-index [ to protocol-end ]  
| all }  
undo hybrid protocol-vlan { vlan vlan-id { protocol-index [ to protocol-end ]  
| all } | all }
```

## Default

A port is not associated with a protocol-based VLAN.

## Views

Layer 2 Ethernet interface view

Layer 2 aggregate interface view

## Predefined user roles

network-admin

## Parameters

**vlan** *vlan-id*: Specifies a VLAN by its ID in the range of 1 to 4094.

*protocol-index*: Specifies a beginning protocol template index in the range of 0 to 65535.

**to** *protocol-end*: Specifies an end protocol template index of a protocol template range, in the range of 0 to 65535. The value for this argument must be greater than or equal to the beginning protocol template index.

**all**: Specifies all protocol templates.

## Usage guidelines

For this command to take effect, perform the following tasks:

1. Create a VLAN and associate it with the specified protocol templates.
2. Set the port link type to hybrid.
3. Configure the port to allow the protocol-based VLAN to pass through.

When you execute the **undo port hybrid protocol-vlan** command on a port, follow these guidelines:

- If you specify both the *vlan-id* argument and the **all** keyword, this command disassociates the port from all protocol templates of the specified VLAN.
- If you specify only the **all** keyword, this command disassociates the port from all protocol templates of all VLANs.

## Examples

# Configure GigabitEthernet 1/0/1 as a hybrid port, assign it to VLAN 2 as an untagged member, and associated it with protocol template 1 in VLAN 2.

```
<Sysname> system-view  
[Sysname] vlan 2  
[Sysname-vlan2] protocol-vlan 1 ipv4  
[Sysname-vlan2] quit  
[Sysname] interface gigabitethernet 1/0/1
```



```

[Sysname-GigabitEthernet1/0/1] port link-type hybrid
[Sysname-GigabitEthernet1/0/1] port hybrid vlan 2 untagged
[Sysname-GigabitEthernet1/0/1] port hybrid protocol-vlan vlan 2 1

# Configure Layer 2 aggregate interface Bridge-Aggregation 1 as a hybrid port, assign it to VLAN 2
as an untagged member, and associated it with protocol template 1 in VLAN 2.

<Sysname> system-view
[Sysname] vlan 2
[Sysname-vlan2] protocol-vlan 1 ipv4
[Sysname-vlan2] quit
[Sysname] interface bridge-aggregation 1
[Sysname-Bridge-Aggregation1] port link-type hybrid
[Sysname-Bridge-Aggregation1] port hybrid vlan 2 untagged
[Sysname-Bridge-Aggregation1] port hybrid protocol-vlan vlan 2 1

```

## protocol-vlan

Use **protocol-vlan** to associate a VLAN with the specified protocol template.

Use **undo protocol-vlan** to disassociate a VLAN from the specified protocol template.

### Syntax

```

protocol-vlan [ protocol-index ] { at | ipv4 | ipv6 | ipx { ethernetii | llc |
raw | snap } | mode { ethernetii etype etype-id | llc { dsap dsap-id [ ssap
ssap-id ] | ssap ssap-id } | snap etype etype-id } }

undo protocol-vlan { protocol-index [ to protocol-end ] | all }

```

### Default

A VLAN is not associated with a protocol template.

### Views

VLAN view

### Predefined user roles

network-admin

### Parameters

**at**: Specifies the AppleTalk-based VLAN.

**ipv4**: Specifies the IPv4-based VLAN.

**ipv6**: Specifies the IPv6-based VLAN.

**ipx**: Specifies the IPX-based VLAN. The keywords **ethernetii**, **llc**, **raw**, and **snap** specify IPX encapsulation formats.

**mode**: Configures a user-defined protocol template for the VLAN. The keywords **ethernetii**, **llc**, and **snap** specify the available encapsulation formats.

**ethernetii** **etype** *etype-id*: Matches the Ethernet II encapsulation format and the specified protocol type ID. The *etype-id* argument specifies the protocol type ID of inbound packets, in the range of 600 to ffff in hexadecimal notation, excluding 800, 86dd, 809b, and 8137.

**llc**: Matches the LLC encapsulation format.

**dsap** *dsap-id*: Specifies the destination service access point in hexadecimal notation, in the range of 0 to ff.

**ssap** *ssap-id*: Specifies the source service access point in hexadecimal notation, in the range of 0 to ff.

**snap etype** *etype-id*: Matches the SNAP encapsulation format and the specified protocol type value. The *etype-id* argument specifies the Ethernet type of inbound packets, in the range of 600 to ffff in hexadecimal notation, excluding 8137.

*protocol-index*: Specifies a protocol template index that is associated with the VLAN. The value range for this argument is 0 to 65535. The system will automatically assign an index if you do not specify this argument.

**to** *protocol-end*: Specifies an end protocol template index of a protocol template range, in the range of 0 to 65535. The value for the *protocol-end* argument must be greater than or equal to the value for the *protocol-index* argument.

**a11**: Specifies all protocols associated with the VLAN.

## Usage guidelines

### CAUTION:

IP uses ARP for address resolution in Ethernet. To prevent communication failures, configure the IP and ARP templates in the same VLAN and associate them with the same port.

When you use the **mode** keyword to configure a protocol template, follow these restrictions and guidelines:

- Do not set the *etype-id* argument in the **ethernetii etype** *etype-id* option to the following hexadecimal values:
  - **800**—Specifies the IPv4 protocol in Ethernet II encapsulation.
  - **809b**—Specifies the AppleTalk protocol in Ethernet II encapsulation.
  - **8137**—Specifies the IPX protocol in Ethernet II encapsulation.
  - **86dd**—Specifies the IPv6 protocol in Ethernet II encapsulation.
- Do not set both the *dsap-id* and *ssap-id* arguments to any of the following hexadecimal values:
  - **e0**—Specifies the 802.2 LLC encapsulation format for IPX packets.
  - **ff**—Specifies the 802.3 raw encapsulation format for IPX packets.
  - **aa**—Specifies the 802.2 SNAP encapsulation format.

When either of the *dsap-id* and *ssap-id* arguments is configured, the system assigns the hexadecimal value **aa** to the other argument.

- Do not set the *etype-id* argument in the **snap etype** *etype-id* option to the hexadecimal value 8137. Otherwise, the template format will be the same as that of the IPX protocol. You can set the *etype-id* argument to the hexadecimal value 800, 809b, or 86dd. The hexadecimal values 800, 809b, and 86dd correspond to IPv4, AppleTalk, and IPv6, respectively.

## Examples

```
# Assign ARP packets in Ethernet II encapsulation and IPv4 packets to VLAN 3 for transmission.
(The protocol type ID for ARP is 0806 in hexadecimal notation.)
```

```
<Sysname> system-view
[Sysname] vlan 3
[Sysname-vlan3] protocol-vlan 1 ipv4
[Sysname-vlan3] protocol-vlan 2 mode ethernetii etype 0806
```

## Related commands

**display protocol-vlan interface**

```
display protocol-vlan vlan
port protocol-vlan
```

## VLAN group commands

### display vlan-group

Use `display vlan-group` to display VLAN group information.

#### Syntax

```
display vlan-group [ group-name ]
```

#### Views

Any view

#### Predefined user roles

```
network-admin
network-operator
```

#### Parameters

*group-name*: Specifies a VLAN group by its name, a case-sensitive string of 1 to 31 characters. The first character must be an alphabetical character. If you do not specify this argument, the command displays information about all VLAN groups.

#### Examples

# Display information about VLAN group **test001**.

```
<Sysname> display vlan-group test001
VLAN group: test001
    VLAN list: 2-4 100 200
```

# Display information about all VLAN groups.

```
<Sysname> display vlan-group
VLAN group: test001
    VLAN list: 2-4 100 200
VLAN group: rnd
    VLAN list: Null
```

**Table 10 Command output**

Field	Description
VLAN group	Name of the VLAN group.
VLAN list	VLAN list in the VLAN group.

#### Related commands

```
vlan-group
vlan-list
```

# vlan-group

Use **vlan-group** to create a VLAN group and enter its view, or enter the view of an existing VLAN group.

Use **undo vlan-group** to delete a VLAN group.

## Syntax

```
vlan-group group-name
```

```
undo vlan-group group-name
```

## Default

No VLAN groups exist.

## Views

System view

## Predefined user roles

network-admin

## Parameters

*group-name*: Specifies a VLAN group by its name, a case-sensitive string of 1 to 31 characters. The first character must be an alphabetical character.

## Usage guidelines

A VLAN group includes a set of VLANs. You can add multiple VLAN lists to a VLAN group.

## Examples

```
# Create a VLAN group named test001 and enter VLAN group view.
```

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

```
[Sysname] vlan-group test001
```

```
[Sysname-vlan-group-test001]
```

## Related commands

```
vlan-list
```

# vlan-list

Use **vlan-list** to add VLANs to a VLAN group.

Use **undo vlan-list** to remove VLANs from a VLAN group.

## Syntax

```
vlan-list vlan-id-list
```

```
undo vlan-list vlan-id-list
```

## Default

No VLANs exist in a VLAN group.

## Views

VLAN group view

## Predefined user roles

network-admin

## Parameters

*vlan-id-list*: Specifies a space-separated list of up to 10 VLAN items. Each item specifies a VLAN ID or a range of VLAN IDs in the form of *vlan-id1* to *vlan-id2*. The value range for VLAN IDs is 1 to 4094. The value for the *vlan-id2* argument must be equal to or greater than the value for the *vlan-id1* argument.

## Examples

# Add VLAN 2 through VLAN 4, VLAN 100, and VLAN 200 to VLAN group **test001**.

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

```
[Sysname] vlan-group test001
```

```
[Sysname-vlan-group-test001] vlan-list 2 to 4 100 200
```

## Related commands

**vlan-group**

# Super VLAN commands

## display supervlan

Use **display supervlan** to display information about super VLANs and their associated sub-VLANs.

### Syntax

```
display supervlan [ supervlan-id ]
```

### Views

Any view

### Predefined user roles

network-admin

network-operator

### Parameters

*supervlan-id*: Specifies a super VLAN ID in the range of 1 to 4094. If you do not specify a super VLAN ID, this command displays information about all super VLANs and their associated sub-VLANs.

### Examples

```
# Display information about super VLAN 2 and its associated sub-VLANs.
```

```
<Sysname> display supervlan 2
  Super VLAN ID: 2
  Sub-VLAN ID: 3-5

  VLAN ID: 2
  VLAN type: Static
  It is a super VLAN.
  Route interface: Configured
  IPv4 address: 10.153.17.41
  IPv4 subnet mask: 255.255.252.0
  IPv6 global unicast addresses:
    2001::1, subnet is 2001::/64 [TENTATIVE]
  Description: VLAN 0002
  Name: VLAN 0002
  Tagged ports: None
  Untagged ports: None

  VLAN ID: 3
  VLAN type: Static
  It is a sub VLAN.
  Route interface: Configured
  IPv4 address: 10.153.17.41
  IPv4 subnet mask: 255.255.252.0
  IPv6 global unicast addresses:
    2001::1, subnet is 2001::/64 [TENTATIVE]
```

Description: VLAN 0003  
 Name: VLAN 0003  
 Tagged ports: None  
 Untagged ports:  
     GigabitEthernet1/0/3

VLAN ID: 4  
 VLAN type: Static  
 It is a sub VLAN.  
 Route interface: Configured  
 IPv4 address: 10.153.17.41  
 IPv4 subnet mask: 255.255.252.0  
 IPv6 global unicast addresses:  
     2001::1, subnet is 2001::/64 [TENTATIVE]  
 Description: VLAN 0004  
 Name: VLAN 0004  
 Tagged ports: None  
 Untagged ports:  
     GigabitEthernet1/0/4

**Table 11 Command output**

Field	Description
VLAN type	VLAN type, dynamic or static.
Route interface	Whether a VLAN interface is configured for the VLAN.
IPv4 address	Primary IPv4 address of the VLAN interface. This field is displayed only when an IPv4 address is configured for the VLAN interface. When the VLAN interface is also configured with secondary IPv4 addresses, you can view them by using one of the following commands: <ul style="list-style-type: none"> <li>• <b>display interface vlan-interface.</b></li> <li>• <b>display this</b> (VLAN interface view).</li> </ul>
IPv4 subnet mask	Subnet mask for the primary IPv4 address of the VLAN interface. This field is displayed only when an IPv4 address is configured for the VLAN interface.
IPv6 global unicast addresses	Global unicast IPv6 address of the VLAN interface. This field is not displayed when no IPv6 address is configured for the VLAN interface. The IPv6 address states are as follows: <ul style="list-style-type: none"> <li>• <b>TENTATIVE</b>—Initial state. DAD is being performed or is to be performed on the address. An address in this state cannot be used as the source address or destination address of packets.</li> <li>• <b>DUPLICATE</b>—DAD has been completed for the address. The address is not unique on the link and cannot be used.</li> <li>• <b>PREFERRED</b>—The address is preferred and can be used as the source or destination address of a packet. If an address is in this state, the command does not display the address state.</li> <li>• <b>DEPRECATED</b>—The address is beyond the preferred lifetime but within the valid lifetime. It is valid, but it cannot be used as the source address for a new connection. Packets destined to the address are processed correctly.</li> </ul>
Description	VLAN description.
Name	VLAN name.

Field	Description
Tagged ports	Tagged members of the VLAN.
Untagged ports	Untagged members of the VLAN.

## Related commands

**subvlan**  
**supervlan**

## subvlan

Use **subvlan** to associate a super VLAN with the specified sub-VLANs.

Use **undo subvlan** to dissociate sub-VLANs from a super VLAN.

## Syntax

```
subvlan vlan-id-list
undo subvlan [ vlan-id-list ]
```

## Default

A super VLAN is not associated with any sub-VLANs.

## Views

VLAN view

## Predefined user roles

network-admin

## Parameters

*vlan-id-list*: Specifies a space-separated list of up to 10 sub-VLAN items. Each item specifies a sub-VLAN ID or a range of sub-VLAN IDs in the form of *vlan-id1* to *vlan-id2*. The value range for sub-VLAN IDs is 1 to 4094. The value for the *vlan-id2* argument must be equal to or greater than the value for the *vlan-id1* argument.

## Usage guidelines

Make sure sub-VLANs already exist before you associate them with a super VLAN.

You can add ports to and remove ports from a sub-VLAN that is already associated with a super VLAN.

When you use the **undo subvlan** command, follow these guidelines:

- If you do not specify the *vlan-id-list* argument, this command dissociates all sub-VLANs from the current super VLAN.
- If you specify the *vlan-id-list* argument, this command dissociates the specified sub-VLANs from the current super VLAN.

## Examples

```
# Associate super VLAN 10 with sub-VLANs 3, 4, and 5.
<Sysname> system-view
[Sysname] vlan 3 to 5
[Sysname] vlan 10
[Sysname-vlan10] supervlan
[Sysname-vlan10] subvlan 3 to 5
```



## Related commands

```
display supervlan  
supervlan
```

# supervlan

Use `supervlan` to configure a VLAN as a super VLAN.

Use `undo supervlan` to restore the default.

## Syntax

```
supervlan  
undo supervlan
```

## Default

A VLAN is not a super VLAN.

## Views

VLAN view

## Predefined user roles

network-admin

## Usage guidelines

You cannot configure a VLAN as both a super VLAN and a guest VLAN, Auth-Fail VLAN, or critical VLAN. For more information about guest VLANs, Auth-Fail VLANs, and critical VLANs, see *Security Configuration Guide*.

As a best practice, do not configure VRRP for a super VLAN interface, because the configuration affects network performance.

Layer 2 multicast configuration for super VLANs does not take effect because they do not have physical ports.

## Examples

```
# Configure VLAN 2 as a super VLAN.
```

```
<Sysname> system-view  
[Sysname] vlan 2  
[Sysname-vlan2] supervlan
```

## Related commands

```
display supervlan  
subvlan
```

# Private VLAN commands

## display private-vlan

Use `display private-vlan` to display information about primary VLANs and their associated secondary VLANs.

### Syntax

```
display private-vlan [ primary-vlan-id ]
```

### Views

Any view

### Predefined user roles

network-admin

network-operator

### Parameters

*primary-vlan-id*: Specifies a primary VLAN ID in the range of 1 to 4094. If you do not specify a primary VLAN ID, this command displays information about all primary VLANs and their associated secondary VLANs.

### Examples

# Display information about primary VLANs and their associated secondary VLANs.

```
<Sysname> display private-vlan
Primary VLAN ID: 2
Secondary VLAN ID: 3-4

VLAN ID: 2
VLAN type: Static
Private VLAN type: Primary
Route interface: Configured
IPv4 address: 1.1.1.1
IPv4 subnet mask: 255.255.255.0
IPv6 global unicast addresses:
    2001::1, subnet is 2001::/64 [TENTATIVE]
Description: VLAN 0002
Name: VLAN 0002
Tagged ports:    None
Untagged ports:
    GigabitEthernet1/0/2
    GigabitEthernet1/0/3
    GigabitEthernet1/0/4

VLAN ID: 3
VLAN type: Static
Private VLAN type: Secondary
Route interface: Not configured
Description: VLAN 0003
```

Name: VLAN 0003  
 Tagged ports: None  
 Untagged ports:  
     GigabitEthernet1/0/2  
     GigabitEthernet1/0/3

VLAN ID: 4  
 VLAN type: Static  
 Private VLAN type: Secondary  
 Route interface: Not configured  
 Description: VLAN 0004  
 Name: VLAN 0004  
 Tagged ports: None  
 Untagged ports:  
     GigabitEthernet1/0/2  
     GigabitEthernet1/0/4

**Table 12 Command output**

Field	Description
VLAN type	VLAN type, dynamic or static.
Private VLAN type	Private VLAN type: <ul style="list-style-type: none"> <li>• <b>Primary</b>—Primary VLAN.</li> <li>• <b>Secondary</b>—Secondary VLAN.</li> <li>• <b>Isolated secondary</b>—Secondary VLAN configured with port isolation at Layer 2.</li> </ul>
Route interface	Whether a VLAN interface is created for the VLAN: <ul style="list-style-type: none"> <li>• Configured.</li> <li>• Not configured.</li> </ul>
IPv4 address	Primary IPv4 address of the VLAN interface. This field is displayed only when an IPv4 address is configured for the VLAN interface. When the VLAN interface is also configured with secondary IPv4 addresses, you can view them by using one of the following commands: <ul style="list-style-type: none"> <li>• <b>display interface vlan-interface.</b></li> <li>• <b>display this</b> (VLAN interface view).</li> </ul>
IPv4 subnet mask	Subnet mask for the primary IPv4 address of the VLAN interface. This field is displayed only when an IPv4 address is configured for the VLAN interface.
IPv6 global unicast addresses	Global unicast IPv6 address of the VLAN interface. This field is not displayed when no IPv6 address is configured for the VLAN interface. The IPv6 address states are as follows: <ul style="list-style-type: none"> <li>• <b>TENTATIVE</b>—Initial state. DAD is being performed or is to be performed on the address. An address in this state cannot be used as the source address or destination address of packets.</li> <li>• <b>DUPLICATE</b>—DAD has been completed for the address. The address is not unique on the link and cannot be used.</li> <li>• <b>PREFERRED</b>—The address is preferred and can be used as the source or destination address of a packet. If an address is in this state, the command does not display the address state.</li> <li>• <b>DEPRECATED</b>—The address is beyond the preferred lifetime but within the valid lifetime. It is valid, but it cannot be used as the source address for a new connection. Packets destined to the</li> </ul>

Field	Description
	address are processed correctly.
Description	VLAN description.
Name	VLAN name.
Tagged ports	Tagged members of the VLAN.
Untagged ports	Untagged members of the VLAN.

## Related commands

`private-vlan` (VLAN view)

`private-vlan primary`

## port private-vlan host

Use `port private-vlan host` to configure a port as a host port.

Use `undo port private-vlan` to restore the default.

## Syntax

`port private-vlan host`

`undo port private-vlan`

## Default

A port is not a host port.

## Views

Layer 2 Ethernet interface view

Layer 2 aggregate interface view

## Predefined user roles

network-admin

## Usage guidelines

If the port has been assigned to a secondary VLAN, the command assigns the port to the primary VLAN associated with the secondary VLAN. Also, the following events occur:

- For an access port, the device performs the following operations:
  - Changes the port link type to hybrid.
  - Configures the secondary VLAN as the PVID.
  - Assigns the port to the primary VLAN as an untagged member.
- For a trunk port, the device does not change the port link type or PVID.
- For a hybrid port, the device does not change the port link type or PVID.
  - If the hybrid port has been a tagged or untagged member of the primary VLAN, this member attribute remains in the primary VLAN.
  - If the hybrid port does not allow the primary VLAN, the device assigns the port to the primary VLAN as an untagged member.

You can assign the port to a secondary VLAN before or after you execute this command.

The `undo port private-vlan` command does not change the VLAN attributes (allowed VLANs, port link type, and PVID) of the port.

The **port private-vlan host** command is mutually exclusive with the **port private-vlan trunk promiscuous** and **port private-vlan trunk secondary** commands.

## Examples

In this example, VLAN 20 is a secondary VLAN and is associated with primary VLAN 2.

# Configure GigabitEthernet 1/0/1 as a host port, and then verify the configuration.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] port private-vlan host
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
  port private-vlan host
#
return
```

The output show that GigabitEthernet 1/0/1 is operating in bridge mode and is a host port.

# Assign GigabitEthernet 1/0/1 to VLAN 20, and then verify the configuration.

```
[Sysname-GigabitEthernet1/0/1] port access vlan 20
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
  port private-vlan host
  port link-type hybrid
  undo port hybrid vlan 1
  port hybrid vlan 2 20 untagged
  port hybrid pvid vlan 20
#
return
```

The output shows that:

- GigabitEthernet 1/0/1 is an untagged member of secondary VLAN 20 and primary VLAN 2.
- The port link type of GigabitEthernet 1/0/1 is hybrid and its PVID is VLAN 20.

## Related commands

```
port private-vlan promiscuous
port private-vlan trunk promiscuous
port private-vlan trunk secondary
private-vlan (VLAN view)
private-vlan primary
```

## port private-vlan promiscuous

Use **port private-vlan promiscuous** to configure a port as a promiscuous port of the specified VLAN and assign the port to the VLAN.

Use **undo port private-vlan** to restore the default.

## Syntax

```
port private-vlan vlan-id promiscuous
undo port private-vlan
```

## Default

A port is not a promiscuous port of any VLANs.

## Views

Layer 2 Ethernet interface view

Layer 2 aggregate interface view

## Predefined user roles

network-admin

## Parameters

*vlan-id*: Specifies a VLAN ID in the range of 1 to 4094. Though VLAN 1 is in the valid value range, it cannot be configured in the command.

## Usage guidelines

If the specified VLAN is a primary VLAN that has been associated with secondary VLANs, the command assigns the port to the associated secondary VLANs. Also, the following events occur:

- For an access port, the device performs the following operations:
  - Changes the port link type to hybrid.
  - Configures the primary VLAN as the PVID.
  - Assigns the port to the primary VLAN and its associated secondary VLANs as an untagged member.
- For a trunk port, the device does not change the port link type or PVID.
- For a hybrid port, the device does not change the port link type or PVID.
  - If the hybrid port has been a tagged or untagged member of the primary VLAN and part of its associated secondary VLANs, this member attribute remains in these VLANs. The device assigns the hybrid port to the rest of the associated secondary VLANs as an untagged member.
  - If the hybrid port does not allow any of the primary VLAN and its associated secondary VLANs, the command assigns the port to these VLANs as an untagged member.

If you execute this command on a promiscuous port multiple times, the most recent configuration takes effect.

The **undo port private-vlan** command does not change the VLAN attributes (allowed secondary VLANs, link type, and PVID) of the port. When you execute the **undo port private-vlan** command on a promiscuous port of a VLAN, the command removes the port from the VLAN.

You can configure the VLAN as a primary VLAN before or after you execute the **port private-vlan promiscuous** command.

This command is mutually exclusive with the **port private-vlan trunk promiscuous** and **port private-vlan trunk secondary** commands.

## Examples

In this example, VLAN 2 is a primary VLAN, and it is associated with secondary VLAN 20.

```
# Display information about GigabitEthernet 1/0/1.
```

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

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

```
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
#
return

# Configure GigabitEthernet 1/0/1 as a promiscuous port of VLAN 2, and then verify the
configuration.
[Sysname-GigabitEthernet1/0/1] port private-vlan 2 promiscuous
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
  port link-type hybrid
  port private-vlan 2 promiscuous
  undo port hybrid vlan 1
  port hybrid vlan 2 20 untagged
  port hybrid pvid vlan 2
#
return
```

The output shows that:

- GigabitEthernet 1/0/1 is a promiscuous port of VLAN 2.
- GigabitEthernet 1/0/1 is an untagged member of primary VLAN 2 and secondary VLAN 20.
- The port link type of GigabitEthernet 1/0/1 is hybrid and its PVID is VLAN 2.

# Execute the **undo port private-vlan** command on GigabitEthernet 1/0/1, and then verify the configuration.

```
[Sysname-GigabitEthernet1/0/1] undo port private-vlan
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
  port link-type hybrid
  undo port hybrid vlan 1
  port hybrid vlan 20 untagged
  port hybrid pvid vlan 2
#
return
```

The output shows that:

- GigabitEthernet 1/0/1 is removed from primary VLAN 2.
- GigabitEthernet 1/0/1 is an untagged member of VLAN 20.
- The link type and PVID of GigabitEthernet 1/0/1 do not change.

## Related commands

```
port private-vlan host
port private-vlan trunk promiscuous
port private-vlan trunk secondary
```

`private-vlan` (VLAN view)

`private-vlan primary`

## port private-vlan trunk promiscuous

Use `port private-vlan trunk promiscuous` to configure a port as a trunk promiscuous port of the specified VLANs and assign the port to these VLANs.

Use `undo port private-vlan trunk promiscuous` to cancel the trunk promiscuous attribute of a port in the specified VLANs.

### Syntax

```
port private-vlan vlan-id-list trunk promiscuous
```

```
undo port private-vlan vlan-id-list trunk promiscuous
```

### Default

A port is not a trunk promiscuous port of any VLANs.

### Views

Layer 2 Ethernet interface view

Layer 2 aggregate interface view

### Predefined user roles

network-admin

### Parameters

*vlan-id-list*: Specifies a space-separated list of up to 10 primary VLAN items. Each item specifies a primary VLAN ID or a range of primary VLAN IDs in the form of *vlan-id1* to *vlan-id2*. The value range for primary VLAN IDs is 1 to 4094. The value for the *vlan-id2* argument must be equal to or greater than the value for the *vlan-id1* argument. Though the system default VLAN (VLAN 1) is in the valid value range, it cannot be configured in the command.

### Usage guidelines

If the specified VLANs are primary VLANs that have been associated with secondary VLANs, the command assigns the port to the associated secondary VLANs. Also, the following events occur:

- For an access port, the device performs the following operations:
  - Changes the port link type to hybrid. The PVID of the port does not change.
  - Assigns the port to the primary VLANs and the associated secondary VLANs as a tagged member.
- For a trunk port, the device does not change the port link type or PVID.
- For a hybrid port, the device does not change the port link type or PVID.
  - If the hybrid port has been a tagged or untagged member of part of the primary VLANs and their associated secondary VLANs, this member attribute remains in these VLANs. The device assigns the hybrid port to the rest of the primary VLANs and their associated secondary VLANs as a tagged member.
  - If the hybrid port does not allow any of the primary VLANs and their associated secondary VLANs, the device assigns the port to these VLANs as a tagged member.

The `undo` form of this command does not change the VLAN attributes (allowed secondary VLANs, port link type, and PVID) of the port.

If you execute the `undo` form of this command on a trunk promiscuous port, the command removes the port from the VLANs specified by the *vlan-id-list* argument.



You can configure the specified VLANs as primary VLANs before or after you execute this command. This command is mutually exclusive with the **port private-vlan host**, **port private-vlan promiscuous** and **port private-vlan trunk secondary** commands.

For an uplink port to permit multiple primary VLANs, use the **port private-vlan trunk promiscuous** command to assign the port to these VLANs. The port can then transmit packets from these primary VLANs with VLAN tags. For an uplink port to permit only one primary VLAN, use the **port private-vlan promiscuous** command to assign the port to the VLAN. The port can then transmit packets from the primary VLAN without VLAN tags.

## Examples

In this example, VLANs 2 and 3 are primary VLANs. VLAN 2 is associated with secondary VLAN 20. VLAN 3 is associated with secondary VLAN 30.

# Display information about GigabitEthernet 1/0/1.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
#
return
```

# Configure GigabitEthernet 1/0/1 as a trunk promiscuous port of VLANs 2 and 3, and then verify the configuration.

```
[Sysname-GigabitEthernet1/0/1] port private-vlan 2 3 trunk promiscuous
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
  port link-type hybrid
  port private-vlan 2 3 trunk promiscuous
  port hybrid vlan 2 3 20 30 tagged
  port hybrid vlan 1 untagged
#
return
```

The output shows that:

- GigabitEthernet 1/0/1 is a trunk promiscuous port of VLANs 2 and 3.
- GigabitEthernet1/0/1 is a tagged member of VLANs 2, 3, 20, and 30.
- The port link type of GigabitEthernet 1/0/1 is hybrid.

# Execute the **undo port private-vlan trunk promiscuous** command on GigabitEthernet 1/0/1, and then verify the configuration.

```
[Sysname-GigabitEthernet1/0/1] undo port private-vlan 2 3 trunk promiscuous
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
  port link-type hybrid
  port hybrid vlan 20 30 tagged
  port hybrid vlan 1 untagged
```

```
#  
return
```

The output shows that:

- GigabitEthernet 1/0/1 is removed from VLANs 2 and 3.
- GigabitEthernet 1/0/1 is a tagged member of VLANs 20 and 30.
- The port link type and PVID of GigabitEthernet 1/0/1 do not change.

### Related commands

```
port private-vlan host  
port private-vlan promiscuous  
port private-vlan trunk secondary  
private-vlan (VLAN view)  
private-vlan primary
```

## port private-vlan trunk secondary

Use `port private-vlan trunk secondary` to configure a port as a trunk secondary port of the specified VLANs and assign the port to these VLANs.

Use `undo port private-vlan trunk secondary` to cancel the trunk secondary attribute of a port in the specified VLANs.

### Syntax

```
port private-vlan vlan-id-list trunk secondary  
undo port private-vlan vlan-id-list trunk secondary
```

### Default

A port is not a trunk secondary port of any VLANs.

### Views

Layer 2 Ethernet interface view  
Layer 2 aggregate interface view

### Predefined user roles

network-admin

### Parameters

*vlan-id-list*: Specifies a space-separated list of up to 10 secondary VLAN items. Each item specifies a secondary VLAN ID or a range of secondary VLAN IDs in the form of *vlan-id1* to *vlan-id2*. The value range for secondary VLAN IDs is 1 to 4094. The value for the *vlan-id2* argument must be equal to or greater than the value for the *vlan-id1* argument. Though the system default VLAN (VLAN 1) is in the valid value range, it cannot be configured in the command.

### Usage guidelines

If the specified VLANs are secondary VLANs that have been associated with primary VLANs, the command also assigns the port to the associated primary VLANs. Also, the following events occur:

- For an access port, the device performs the following operations:
  - Changes the port link type to hybrid. The PVID of the port does not change.
  - Assigns the port to the secondary VLANs and the associated primary VLANs as a tagged member.

- For a trunk port, the device does not change the port link type or PVID.
- For a hybrid port, the device does not change the port link type or PVID.
  - If the port has been an untagged or tagged member of part of the secondary VLANs and their associated primary VLANs, this member attribute remains in these VLANs. The device assigns the port to the rest of the secondary VLANs and their associated primary VLANs as a tagged member.
  - If the hybrid port does not allow any of the secondary VLANs and their associated primary VLANs, the device assigns the port to these VLANs as a tagged member.

A trunk secondary port can join only one secondary VLAN among all secondary VLANs associated with a primary VLAN. However, it can join multiple secondary VLANs that are associated with different primary VLANs.

The **undo** form of this command does not change the VLAN attributes (allowed primary VLANs, port link type, and PVID) of the port.

When you execute the **undo** form of this command on a trunk secondary port of the VLANs specified by the *vlan-id-list* argument, one of the following events occurs:

- If the port is an access port, the device does not change the VLAN configuration of the port.
- If the port is a trunk or hybrid port, the device removes the port from the specified VLANs.

You can associate the specified VLANs with their respective primary VLANs before or after you execute this command.

This command does not take effect on the specified VLAN if any of the following conditions applies:

- The specified VLAN does not exist.
- The specified VLAN is not a secondary VLAN and is used for other purposes.
- The specified VLAN shares the same primary VLAN with other secondary VLANs, and the current port has been configured as a trunk secondary port in one of the other secondary VLANs.

This command is mutually exclusive with the **port private-vlan host**, **port private-vlan promiscuous** and **port private-vlan trunk promiscuous** commands.

For a downlink port to permit multiple secondary VLANs associated with different primary VLANs, use the **port private-vlan trunk secondary** command to assign the port to these secondary VLANs. The port can then transmit packets from these secondary VLANs with VLAN tags. For a downlink port to permit only one secondary VLAN, use the **port private-vlan host** command to assign the port to the secondary VLAN. The port can then transmit packets from the secondary VLAN without VLAN tags.

## Examples

- In this example, VLANs 2 and 3 are primary VLANs. VLAN 2 is associated with secondary VLAN 20. VLAN 3 is associated with secondary VLAN 30.
 

```
# Display information about GigabitEthernet 1/0/1.
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
#
return
# Configure GigabitEthernet 1/0/1 as a trunk secondary port of VLANs 20 and 30, and then
verify the configuration.
[Sysname-GigabitEthernet1/0/1] port private-vlan 20 30 trunk secondary
```

```
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
  port link-type hybrid
  port hybrid vlan 2 3 20 30 tagged
  port hybrid vlan 1 untagged
  port private-vlan 20 30 trunk secondary
#
return
```

The output shows that:

- GigabitEthernet 1/0/1 is a trunk secondary port of VLANs 20 and 30.
- GigabitEthernet 1/0/1 is a tagged member of VLANs 2, 3, 20, and 30.
- The port link type of GigabitEthernet 1/0/1 is hybrid.

# Execute the **undo port private-vlan trunk secondary** command on GigabitEthernet 1/0/1, and then verify the configuration.

```
[Sysname-GigabitEthernet1/0/1] undo port private-vlan 20 30 trunk secondary
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
  port link-type hybrid
  port hybrid vlan 2 3 tagged
  port hybrid vlan 1 untagged
#
return
```

The output shows that:

- GigabitEthernet 1/0/1 is removed from VLANs 20 and 30.
  - GigabitEthernet 1/0/1 is a tagged member of VLANs 2 and 3.
  - The port link type and PVID of GigabitEthernet 1/0/1 do not change.
- In this example, VLAN 10 is not a secondary VLAN.

# Display information about GigabitEthernet 1/0/1.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
#
return
```

# Configure GigabitEthernet 1/0/1 as a trunk secondary port of VLAN 10, and then verify the configuration.

```
[Sysname-GigabitEthernet1/0/1] port private-vlan 10 trunk secondary
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
  port link-mode bridge
```

```

port link-type hybrid
port hybrid vlan 10 tagged
port hybrid vlan 1 untagged
port private-vlan 10 trunk secondary
#
return

```

The output shows that:

- o GigabitEthernet 1/0/1 is a trunk secondary port of VLAN 10.
- o GigabitEthernet 1/0/1 is a tagged member of VLAN 10.
- o The port link type of GigabitEthernet 1/0/1 is hybrid.

# Execute the **undo port private-vlan trunk secondary** command on GigabitEthernet1/0/1, and then verify the configuration.

```

[Sysname-GigabitEthernet1/0/1] undo port private-vlan 10 trunk secondary
[Sysname-GigabitEthernet1/0/1] display this
#
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type hybrid
port hybrid vlan 1 untagged
#
return

```

The output shows that:

- o GigabitEthernet 1/0/1 is removed from VLAN 10.
- o The port link type and PVID of GigabitEthernet 1/0/1 do not change.

## Related commands

```

port private-vlan host
port private-vlan promiscuous
port private-vlan trunk promiscuous
private-vlan (VLAN view)
private-vlan isolated
private-vlan primary

```

## private-vlan (VLAN interface view)

Use **private-vlan secondary** to enable Layer 3 communication between secondary VLANs that are associated with a primary VLAN.

Use **undo private-vlan** to cancel the Layer 3 communication configuration for secondary VLANs that are associated with a primary VLAN.

### Syntax

```

private-vlan secondary vlan-id-list
undo private-vlan [ secondary vlan-id-list ]

```

### Default

Secondary VLANs are isolated at Layer 3.

## Views

VLAN interface view

## Predefined user roles

network-admin

## Parameters

*vlan-id-list*: Specifies a space-separated list of up to 10 secondary VLAN items. Each item specifies a secondary VLAN ID or a range of secondary VLAN IDs in the form of *vlan-id1* to *vlan-id2*. The value range for secondary VLAN IDs is 1 to 4094. The value for the *vlan-id2* argument must be equal to or greater than the value for the *vlan-id1* argument.

## Usage guidelines

This command takes effect only when the following conditions exist:

- This command is executed in VLAN interface view of the primary VLAN interface.
- Secondary VLANs are associated with the primary VLAN.
- No VLAN interfaces are created for secondary VLANs.
- An IP address is assigned to the primary VLAN interface.
- Local proxy ARP or ND is enabled on the primary VLAN interface.

You can create VLAN interfaces for secondary VLANs that are not enabled with Layer 3 communication. If secondary VLANs are enabled with Layer 3 communication, do not create VLAN interfaces for them.

When you execute this command in the same primary VLAN interface view multiple times, all the specified secondary VLANs are interoperable at Layer 3.

When you execute the **undo private-vlan** command, follow these guidelines:

- If you specify the **secondary** *vlan-id-list* option, this command cancels the Layer 3 communication configuration only for the specified secondary VLANs.
- If you do not specify the **secondary** *vlan-id-list* option, this command cancels the Layer 3 communication configuration for all secondary VLANs of the primary VLAN.

## Examples

This example shows how to meet the following requirements:

- VLAN 4 is a secondary VLAN, and it is associated with primary VLAN 2.
- The uplink port (GigabitEthernet 1/0/2) is a promiscuous port of VLAN 2.
- Downlink ports GigabitEthernet 1/0/3 and GigabitEthernet 1/0/4 are host ports of VLANs 3 and 4, respectively.
- Secondary VLANs 3 and 4 can communicate at Layer 3.

# Configure VLAN 2 as a primary VLAN and associate it with secondary VLANs 3 and 4.

```
<Sysname> system-view
[Sysname] vlan 3 to 4
[Sysname] vlan 2
[Sysname-vlan2] private-vlan primary
[Sysname-vlan2] private-vlan secondary 3 to 4
[Sysname-vlan2] quit
```

# Configure the uplink port (GigabitEthernet 1/0/2) as a promiscuous port of VLAN 2.

```
[Sysname] interface gigabitethernet 1/0/2
[Sysname-GigabitEthernet1/0/2] port private-vlan 2 promiscuous
[Sysname-GigabitEthernet1/0/2] quit
```

```

# Assign downlink port GigabitEthernet 1/0/3 to VLAN 3 and configure the port as a host port.
[Sysname] interface gigabitethernet 1/0/3
[Sysname-GigabitEthernet1/0/3] port access vlan 3
[Sysname-GigabitEthernet1/0/3] port private-vlan host
[Sysname-GigabitEthernet1/0/3] quit

# Assign downlink port GigabitEthernet 1/0/4 to VLAN 4 and configure the port as a host port.
[Sysname] interface gigabitethernet 1/0/4
[Sysname-GigabitEthernet1/0/4] port access vlan 4
[Sysname-GigabitEthernet1/0/4] port private-vlan host
[Sysname-GigabitEthernet1/0/4] quit

# Create VLAN-interface 2 and enable Layer 3 communication between secondary VLANs 3 and 4.
[Sysname] interface vlan-interface 2
[Sysname-Vlan-interface2] private-vlan secondary 3 to 4

# Assign an IP address to VLAN-interface 2.
[Sysname-Vlan-interface2] ip address 192.168.1.1 255.255.255.0

# Enable local proxy ARP on VLAN-interface 2.
[Sysname-Vlan-interface2] local-proxy-arp enable

```

## Related commands

```

private-vlan (VLAN view)
private-vlan primary

```

## private-vlan (VLAN view)

Use **private-vlan** to associate a primary VLAN with the specified secondary VLANs.

Use **undo private-vlan** to dissociate a primary VLAN from the specified secondary VLANs.

### Syntax

```

private-vlan secondary vlan-id-list
undo private-vlan [ secondary vlan-id-list ]

```

### Default

A primary VLAN is not associated with any secondary VLANs.

### Views

VLAN view

### Predefined user roles

network-admin

### Parameters

**secondary *vlan-id-list***: Specifies a space-separated list of up to 10 secondary VLAN items. Each item specifies a secondary VLAN ID or a range of secondary VLAN IDs in the form of *vlan-id1* to *vlan-id2*. The value range for secondary VLAN IDs is 1 to 4094. The value for the *vlan-id2* argument must be equal to or greater than the value for the *vlan-id1* argument. Though the system default VLAN (VLAN 1) is in the valid value range, it cannot be configured in the command.

## Usage guidelines

A primary VLAN can be associated with multiple secondary VLANs. When you execute this command in the same VLAN view multiple times, all the specified secondary VLANs are associated with the primary VLAN.

The configuration synchronization is triggered based on the interface configuration when the following conditions exist:

- This command is configured for a primary VLAN.
- Ports on the device are promiscuous, trunk promiscuous, or host ports.

When you execute the **undo private-vlan** command, follow these guidelines:

- If you specify the **secondary** *vlan-id-list* option, this command dissociates the primary VLAN from the specified secondary VLANs.
- If you do not specify the **secondary** *vlan-id-list* option, this command dissociates the primary VLAN from all secondary VLANs.

## Examples

```
# Associate primary VLAN 2 with secondary VLANs 3 and 4.
```

```
<Sysname> system-view
[Sysname] vlan 3 to 4
[Sysname] vlan 2
[Sysname-vlan2] private-vlan primary
[Sysname-vlan2] private-vlan secondary 3 to 4
```

## Related commands

```
port private-vlan host
port private-vlan promiscuous
port private-vlan trunk promiscuous
port private-vlan trunk secondary
primary-vlan primary
```

# private-vlan community

Use **private-vlan community** to enable Layer 2 communication between ports in a secondary VLAN.

## Syntax

```
private-vlan community
```

## Default

Ports in the same secondary VLAN can communicate with each other at Layer 2.

## Views

VLAN view

## Predefined user roles

network-admin

## Usage guidelines

This command and the **undo private-vlan isolated** command have the same function.

When you use the **save** command to save the configuration, the **private-vlan community** command is not saved into the configuration file.



## Examples

This example shows how to meet the following requirements:

- VLAN 4 is a secondary VLAN, and it is associated with primary VLAN 2.
- GigabitEthernet 1/0/1 is a promiscuous port of VLAN 2.
- GigabitEthernet 1/0/2 and GigabitEthernet 1/0/3 are host ports.
- GigabitEthernet 1/0/2 and GigabitEthernet 1/0/3 can communicate at Layer 2 in secondary VLAN 4.

# Configure VLAN 2 as a primary VLAN and associate it with secondary VLAN 4.

```
<Sysname> system-view
[Sysname] vlan 4
[Sysname-vlan4] quit
[Sysname] vlan 2
[Sysname-vlan2] private-vlan primary
[Sysname-vlan2] private-vlan secondary 4
[Sysname-vlan2] quit
```

# Configure GigabitEthernet 1/0/1 as a promiscuous port of VLAN 2.

```
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] port private-vlan 2 promiscuous
[Sysname-GigabitEthernet1/0/1] quit
```

# Assign GigabitEthernet 1/0/2 to VLAN 4 and configure the port as a host port.

```
[Sysname] interface gigabitethernet 1/0/2
[Sysname-GigabitEthernet1/0/2] port access vlan 4
[Sysname-GigabitEthernet1/0/2] port private-vlan host
[Sysname-GigabitEthernet1/0/2] quit
```

# Assign GigabitEthernet 1/0/3 to VLAN 4 and configure the port as a host port.

```
[Sysname] interface gigabitethernet 1/0/3
[Sysname-GigabitEthernet1/0/3] port access vlan 4
[Sysname-GigabitEthernet1/0/3] port private-vlan host
[Sysname-GigabitEthernet1/0/3] quit
```

# Enable Layer 2 communication in secondary VLAN 4.

```
[Sysname] vlan 4
[Sysname-vlan4] private-vlan community
```

## Related commands

**private-vlan isolated**

## private-vlan isolated

Use **private-vlan isolated** to isolate ports in a secondary VLAN at Layer 2.

Use **undo private-vlan isolated** to restore the default.

## Syntax

**private-vlan isolated**

**undo private-vlan isolated**

## Default

Ports in the same secondary VLAN can communicate with each other at Layer 2.

## Views

VLAN view

## Predefined user roles

network-admin

## Usage guidelines

This command takes effect when the following conditions exist:

- The secondary VLAN is associated with a primary VLAN.
- The ports are configured as host ports or trunk secondary ports of the secondary VLAN.

This command is mutually exclusive with the primary VLAN, super VLAN, and sub-VLAN configuration commands.

## Examples

This example shows how to meet the following requirements:

- VLAN 4 is a secondary VLAN, and it is associated with primary VLAN 2.
- GigabitEthernet 1/0/1 is a promiscuous port of VLAN 2.
- GigabitEthernet 1/0/2 and GigabitEthernet 1/0/3 are host ports.
- GigabitEthernet 1/0/2 and GigabitEthernet 1/0/3 are isolated at Layer 2 in secondary VLAN 4.

# Configure VLAN 2 as a primary VLAN and associate it with secondary VLAN 4.

```
<Sysname> system-view
[Sysname] vlan 4
[Sysname-vlan4] quit
[Sysname] vlan 2
[Sysname-vlan2] private-vlan primary
[Sysname-vlan2] private-vlan secondary 4
[Sysname-vlan2] quit
```

# Configure GigabitEthernet 1/0/1 as a promiscuous port of VLAN 2.

```
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] port private-vlan 2 promiscuous
[Sysname-GigabitEthernet1/0/1] quit
```

# Assign GigabitEthernet 1/0/2 to VLAN 4 and configure the port as a host port.

```
[Sysname] interface gigabitethernet 1/0/2
[Sysname-GigabitEthernet1/0/2] port access vlan 4
[Sysname-GigabitEthernet1/0/2] quit
[Sysname-GigabitEthernet1/0/2] port private-vlan host
```

# Assign GigabitEthernet 1/0/3 to VLAN 4 and configure the port as a host port.

```
[Sysname] interface gigabitethernet 1/0/3
[Sysname-GigabitEthernet1/0/3] port access vlan 4
[Sysname-GigabitEthernet1/0/3] port private-vlan host
```

# Configure port isolation at Layer 2 in secondary VLAN 4.

```
[Sysname] vlan 4
[Sysname-vlan4] private-vlan isolated
```

## Related commands

**private-vlan** (VLAN view)

**private-vlan community**

```
private-vlan primary
```

## private-vlan primary

Use `private-vlan primary` to configure a VLAN as a primary VLAN.

Use `undo private-vlan primary` to restore the default.

### Syntax

```
private-vlan primary
undo private-vlan primary
```

### Default

A VLAN is not a primary VLAN.

### Views

VLAN view

### Predefined user roles

network-admin

### Usage guidelines

The configuration synchronization is triggered based on the interface configuration when the following conditions exist:

- This command is configured for a VLAN that has been associated with secondary VLANs.
- Ports on the device are promiscuous, trunk promiscuous, host, or trunk secondary ports.

### Examples

```
# Configure VLAN 5 as a primary VLAN.
<Sysname> system-view
[Sysname] vlan 5
[Sysname-vlan5] private-vlan primary
```

### Related commands

```
port private-vlan host
port private-vlan promiscuous
port private-vlan trunk promiscuous
port private-vlan trunk secondary
private-vlan primary
```

# Voice VLAN commands

## display voice-vlan mac-address

Use `display voice-vlan mac-address` to display the OUI addresses supported on the device.

### Syntax

```
display voice-vlan mac-address
```

### Views

Any view

### Predefined user roles

network-admin

network-operator

### Examples

# Display the OUI addresses supported on the device.

```
<Sysname> display voice-vlan mac-address
```

```
OUI Address      Mask              Description
0001-e300-0000   ffff-ff00-0000   Siemens phone
0003-6b00-0000   ffff-ff00-0000   Cisco phone
0004-0d00-0000   ffff-ff00-0000   Avaya phone
000f-e200-0000   ffff-ff00-0000   H3C Aolynk phone
0060-b900-0000   ffff-ff00-0000   Philips/NEC phone
00d0-1e00-0000   ffff-ff00-0000   Pingtel phone
00e0-7500-0000   ffff-ff00-0000   Polycom phone
00e0-bb00-0000   ffff-ff00-0000   3Com phone
```

**Table 13 Command output**

Field	Description
OUI Address	OUI address allowed on the device.
Mask	Mask of the OUI address.
Description	Description of the OUI address.

### Related commands

```
voice-vlan mac-address
```

## display voice-vlan state

Use `display voice-vlan state` to display voice VLAN information.

### Syntax

```
display voice-vlan state
```

### Views

Any view

## Predefined user roles

network-admin  
network-operator

## Examples

# Display voice VLAN information.

```
<Sysname> display voice-vlan state
Current voice VLANs: 1
Voice VLAN security mode: Security
Voice VLAN aging time: 1440 minutes
Voice VLAN enabled ports and their modes:
Port                VLAN      Mode      CoS      DSCP
GE1/0/1             111      Auto      6        46
```

**Table 14 Command output**

Field	Description
Current Voice VLANs	Number of existing voice VLANs.
Voice VLAN security mode	Voice VLAN mode: <ul style="list-style-type: none"><li>• Security.</li><li>• Normal.</li></ul>
Voice VLAN aging time	Voice VLAN aging timer. <b>No aging</b> indicates that the voice VLAN does not age out.
Voice VLAN enabled ports and their modes	Voice VLAN-enabled ports and their voice VLAN assignment modes.
Port	Name of the voice VLAN-enabled port.
VLAN	ID of the voice VLAN enabled on the port.
Mode	Voice VLAN assignment mode of the port: <ul style="list-style-type: none"><li>• Manual.</li><li>• Automatic.</li></ul>

## Related commands

**voice-vlan aging**  
**voice-vlan enable**  
**voice-vlan mode auto**  
**voice-vlan security enable**

## voice-vlan aging

Use **voice-vlan aging** to set the voice VLAN aging timer.

Use **undo voice-vlan aging** to restore the default.

## Syntax

**voice-vlan aging** *minutes*  
**undo voice-vlan aging**

## Default

The voice VLAN aging timer is 1440 minutes (24 hours).

## Views

System view

## Predefined user roles

network-admin

## Parameters

*minutes*: Sets the voice VLAN aging timer to 0 minutes or a value in the range of 5 to 43200 minutes. If you set the voice VLAN aging timer to 0 minutes, the voice VLAN does not age out.

## Usage guidelines

In automatic voice VLAN assignment mode, the device starts an aging timer for a voice VLAN when assigning a port to the voice VLAN. If no voice packets are received on the port before the timer expires, the device removes the port from the voice VLAN.

The aging period for a voice VLAN equals the sum of the voice VLAN aging timer and the aging timer for its dynamic MAC address entry. For more information about the aging timer for dynamic MAC address entries, see MAC address table configuration in *Layer 2—LAN Switching Configuration Guide*.

Set the voice VLAN aging timer only when the voice VLAN assignment mode is automatic.

## Examples

```
# Set the voice VLAN aging timer to 100 minutes.
```

```
<Sysname> system-view  
[Sysname] voice-vlan aging 100
```

## Related commands

```
display voice-vlan state
```

# voice-vlan enable

Use **voice-vlan enable** to enable the voice VLAN feature on a port.

Use **undo voice-vlan enable** to disable the voice VLAN feature on a port.

## Syntax

```
voice-vlan vlan-id enable  
undo voice-vlan [ vlan-id ] enable
```

## Default

The voice VLAN feature is disabled on ports.

## Views

Layer 2 Ethernet interface view

## Predefined user roles

network-admin

## Parameters

*vlan-id*: Specifies a voice VLAN ID in the range of 2 to 4094.

## Usage guidelines

Use this command only on a hybrid or trunk port operating in automatic voice VLAN assignment mode.

Before you execute this command, make sure the specified VLAN already exists.

## Examples

```
# Enable the voice VLAN feature on GigabitEthernet 1/0/1.
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] voice-vlan 2 enable
```

## Related commands

```
display voice-vlan state
voice-vlan mode auto
```

## voice-vlan mac-address

Use **voice-vlan mac-address** to configure the OUI address information for voice packet identification.

Use **undo voice-vlan mac-address** to delete an OUI address.

## Syntax

```
voice-vlan mac-address mac-address mask oui-mask [ description text ]
undo voice-vlan mac-address oui
```

## Default

System default OUI addresses exist.

**Table 15 System default OUI addresses**

Number	OUI address	Vendor
1	0001-e300-0000	Siemens phone
2	0003-6b00-0000	Cisco phone
3	0004-0d00-0000	Avaya phone
4	000f-e200-0000	H3C Aolynk phone
5	0060-b900-0000	Philips/NEC phone
6	00d0-1e00-0000	Pingtel phone
7	00e0-7500-0000	Polycom phone
8	00e0-bb00-0000	3Com phone

## Views

System view

## Predefined user roles

network-admin

## Parameters

*mac-address*: Specifies a source MAC address of voice traffic, in the format of H-H-H. For example, 1234-1234-1234.

**mask** *oui-mask*: Specifies the valid length of the OUI address by using a mask in the format of H-H-H. The mask contains consecutive 1s and 0s. For example, fff-0000-0000. To match the voice devices of a vendor, set the mask to fff-ff00-0000.

**description** *text*: Specifies the OUI address description, a case-sensitive string of 1 to 30 characters.

*oui*: Specifies an OUI address to delete, in the format of H-H-H. For example, 1234-1200-0000. An OUI address is the logical AND result of the *mac-address* and *oui-mask* arguments. It cannot be a broadcast address, a multicast address, or an all-zero address.

## Usage guidelines

You can manually delete or add the system default OUI addresses.

The device supports a maximum of 128 OUI addresses.

## Examples

# Add OUI address **1234-1200-0000** by specifying the MAC address as 1234-1234-1234 and the mask as fff-ff00-0000. Configure the OUI address description as **PhoneA**.

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

```
[Sysname] voice-vlan mac-address 1234-1234-1234 mask ffff-ff00-0000 description PhoneA
```

## Related commands

```
display voice-vlan mac-address
```

# voice-vlan mode auto

Use **voice-vlan mode auto** to configure a port to operate in automatic voice VLAN assignment mode.

Use **undo voice-vlan mode auto** to configure a port to operate in manual voice VLAN assignment mode.

## Syntax

```
voice-vlan mode auto
```

```
undo voice-vlan mode auto
```

## Default

A port operates in automatic voice VLAN assignment mode.

## Views

Layer 2 Ethernet interface view

## Predefined user roles

network-admin

## Usage guidelines

To make a voice VLAN take effect on a port operating in manual mode, you must manually assign the port to the voice VLAN.

## Examples

# Configure GigabitEthernet 1/0/1 to operate in manual voice VLAN assignment mode.

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

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

```
[Sysname-GigabitEthernet1/0/1] undo voice-vlan mode auto
```



## Related commands

`display voice-vlan state`

# voice-vlan security enable

Use `voice-vlan security enable` to enable the voice VLAN security mode.

Use `undo voice-vlan security enable` to disable the voice VLAN security mode.

## Syntax

`voice-vlan security enable`

`undo voice-vlan security enable`

## Default

The voice VLAN security mode is enabled.

## Views

System view

## Predefined user roles

network-admin

## Usage guidelines

In security mode, a voice VLAN transmits only voice packets whose source MAC addresses match the OUI addresses of the device.

In normal mode, a voice VLAN transmits voice packets and non-voice packets.

## Examples

```
# Disable the voice VLAN security mode.
```

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

```
[Sysname] undo voice-vlan security enable
```

## Related commands

`display voice-vlan state`

# voice-vlan track lldp

Use `voice-vlan track lldp` to enable LLDP for automatic IP phone discovery.

Use `undo voice-vlan track lldp` to disable LLDP for automatic IP phone discovery.

## Syntax

`voice-vlan track lldp`

`undo voice-vlan track lldp`

## Views

System view

## Default

LLDP for automatic IP phone discovery is disabled.

## Predefined user roles

network-admin

## Examples

```
# Enable LLDP for automatic IP phone discovery.  
<Sysname> system-view  
[Sysname] voice-vlan track lldp
```