

Interface Configuration

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Chapter 1 Overview

This overview provides the information about supported interface types by our switch products guideline for looking up configuration information for different interface types.

For details about the usage of interface command in this section, refer to section “Interface Configuration Command”. If you want to look up the information about other commands that appear in this chapter, refer to other sections of this manual.

It includes the general information applied to all types of interfaces as the following:

1.1 Supported Interface Types

More information about the specified interface types, you can refer to the following table.

TYPE	Task	Reference
Ethernet interface	Configure Ethernet interface Configure Fast Ethernet interface Configure Gigabit Ethernet interfaces	“Configuring Ethernet interface”
Logical interface	Loopback interface Null interface Aggregate interface VLAN interface	“Configuring logical interface”

There are two kinds of interface types supported on our switch: Ethernet interface and logical interface. Types of Ethernet interfaces on a device depend on standard-based communication interface, interface card or interface module mounted on the switch. The Logical interfaces, which are created manually, do not have corresponding physical devices on the switch.

Ethernet interfaces supported on our switch:

- Ethernet
- Fast Ethernet
- Gigabit Ethernet interface

Logical interfaces supported on our switch:

- Loopback interface
- Null interface

- Aggregate interface
- VLAN interface

1.2 Interface Configuration Introduction

The following description is applicable to all interfaces configuration. Use the following steps to configure interfaces in global configuration mode:

- 1) Use **interface** to enter interface configuration, then switch prompt is changed into "config_" followed by interface abbreviation which you would like to configure. Use these interfaces according to interface numbers. These numbers are assigned during devices mounted or interface cards being added to system. Use **show interface** to display these interfaces. Each interface supported by the switch can provide its own status as follow:

```
Switch#show interface
GigaEthernet1/1 is down, line protocol is down
  Hardware is Fast Ethernet, Address is 0009.7cf7.7dc1
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Auto-duplex, Auto-speed
  input flow-control is off, output flow-control is off
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input never, output 17:52:52, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue :0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute input rate 0 bits/sec, 0 packets/sec
    1 packets input, 64 bytes, 0 no buffer
  Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 watchdog, 0 multicast, 0 pause input
  0 input packets with dribble condition detected
  1 packets output, 64 bytes, 0 underruns
  0 output errors, 0 collisions, 1 interface resets
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier, 0 PAUSE output
  0 output buffer failures, 0 output buffers swapped out
```

To configure fast Gigabit Ethernet interface g1/1, input the following command:
interface GigaEthernet0/1

The switch prompts “config_g1/1” message at this moment.

Note:

It is not necessary to add spaces between the interface type and the interface number. For example, both g1/1 and g 1/1 can be interpreted and executed by the switch.

- 2) In interface configuration mode, you can configure the interface configuration command corresponding to current interface. These commands define the protocols and applications which are running on the interface; it is always available until system exits from configuration mode or switch to another interface.
- 3) Once an interface is configured, use **show** to test interface status, which is described in section “**Monitoring and Maintaining interface**”.

Chapter 2 Interface Configuration

2.1 Configuring Public Interface Attributes

It describes commands based on any types of interface as follow. Use these commands to configure public interface attributes. The following public interface attributes are capable of being configured:

2.1.1 Adding Description

By adding description to an interface, it makes easier to remember the interface related information. The description is only used as the interface commentary to make it easy to identify interface function, but without any other influence. Use `show running-config` and `show interface` to display the description. To add a description to any interfaces, use the following command in interface configuration mode.

Command	Purpose
description <i>string</i>	Add description to current interface configuration.

About adding interface description example, please refer to Section “Interface Description Example”.

2.1.2 Setting Bandwidth

Upper layer protocol makes manipulation decision based on bandwidth allocation. In interface configuration mode, use the **bandwidth** command to set the bandwidth value for an interface:

Command	Purpose
bandwidth <i>kilobps</i>	Setup delay for the current interface.

Bandwidth setting is only a routing parameter, it will not change the communication rate of a physical port.

2.1.3 Setting Delay

Upper layer protocol makes manipulation decision based on delay value. In interface configuration mode, use the follow commands to set the delay value for an interface:

Command	Purpose
delay <i>tensofmicroseconds</i>	Setupdelay for current interface configuration.

Delay setting only sets the information parameter. You can not use **delay** command to adjust the real delay value of a physical port.

2.2 Monitoring and Maintaining Interface

Use the following tasks to monitor and maintain interface:

Checking interface status

Initializing or deleting an interface

Closing or restarting an interface

2.2.1 Checking Interface Status

There are several supported commands that you can use to display interface related information, including software version, hardware version and interface status. Some of these interface monitoring commands are listed in the following table. Refer to detailed descriptions on section “Interface Configuration Command”

Use the following command to check interface status:

Command	Purpose
show interface [type [slot port]]	Display interface status.
show running-config	Display current configuration.
show version	Display the information about hardware configuration, software version, configuration file name, source and boot image.

2.2.2 Initializing or Deleting Interface

Logical interfaces can be created or deleted dynamically by users. For these sub-interfaces and channelized interfaces, you can also delete them dynamically. For these physical ports which can not be deleted dynamically, you can only restore it to default settings. Use these commands as follow to initialize or delete interfaces in global configuration mode:

Command	Purpose
no interface type [slot port]	initialize physical or delete virtual interface.

2.2.3 Closing or Restarting Interface

If an interface is forbidden, all the functions based on this interface will be forbidden at the same time. After that, this interface will be marked unavailable when using any monitoring command to display the interface status. Then this message is sent to other

switches by dynamic routing protocol. The modification of any routes will not involve in this forbidden interface. For serial ports, DTR signal will be lowed if an interface is stopped.

Use **shutdown** command to stop an interface and use **no shutdown** command to restart it.

Command	Purpose
shutdown	Stop an interface.
no shutdown	Restart an interface.

To check an interface whether it is stopped, use **show interface** and **show running-config**. In **show interface**, a **stopped interface is displayed as “administratively down”**. Refer to the examples in the following “Stop Interface examples”.

2.3 Configuring logic Interface

This section describes how to configure logical interface, which includes the following content:

Configuring null interface

Configuring loopback interface

Configuring aggregate interface

Configuring VLAN interface

2.3.1 Configuring Null Interface

Only one null interface is supported totally. The functionality of the null interface is similar to that of the null device which is applied in most of operation system. This interface is always valid but never transmits or receives message. The only interface configuration command which can be used on a null interface is **no ip unreachable**. An optional communication filtering method is provided, which can route unexpected network communication to a null interface and work as an access control list.

To specify a null interface, use the following command in global configuration mode:

Command	Description
interface null 0	Enter null interface configuration.

A null interface is available to any command which use interface type as a parameter.

In the following example, a null interface is configured for IP route 192.168.20.0 .

```
ip route 192.168.20.0 255.255.255.0 null 0
```


2.3.2 Configuring Loopback Interface

Loopback interface is a logical interface with permanent validity. Even though the outward interface is closed, the BGP session on the loopback is always kept alive. In the case of BGP session, loopback interface may be used as terminal address. When the other switch attempts to reach this loopback interface, a dynamic routing protocol should be configured to transmit routes with loopback address. The packets arrived at loopback interface is re-routed back to switch and received locally. These arrived packets without destination address to loopback interface will be thrown away. Therefore a loopback interface can also be used as a null interface.

To specify a loopback interface and enter interface configuration, use the command as follow in global configuration mode:

Command	Description
interface loopback <i>number</i>	Enter loopback interface configuration.

2.3.3 Configuring Aggregate Interface

The aggregate interface is created to solve the problem that a single Ethernet interface is lack of bandwidth. It can bind together several full-duplex interfaces with the same speed, so that efficiency of bandwidth utility will be improved highly.

Use the following command to define an aggregate interface:

Command	Purpose
Interface port-aggregator <i>number</i>	Configure aggregate interface

2.3.4 Configuring VLAN Interface

VLAN interface is a kind of internal route interface of switch. In global configuration mode, you can only use VLAN related command to add layer 2 VLAN to the system. It is not described that how to process these packets with destination address pointed at switch itself via VLAN. If there is no VLAN interface, such packets will be thrown away.

Use the following command to define a VLAN interface:

Command	Purpose
Interface vlan <i>number</i>	Configure VLAN Interface

2.3.5 Configuring Super VLAN Interface

Super VLAN technology provides one mechanism: hosts in different VLANs of the same switch can be assigned to the same Ipv4 sub network and use the same default gateway. This can save a great number of IP addresses. Super VLAN technology assigns several different VLANs to one group and this group uses the same management interface. Hosts in the group use the same IPv4 network segment and gateway. The VLAN that belongs to Super VLAN is called SubVLAN. Any SubVlan cannot own management interface through configuring IP address.

Use the following commands to configure super VLAN interface:

Command	Description
[no] interface supervlan <i>index</i>	Enter interface configuration mode of a specified super VLAN interface. If no Super VLAN, system will create super VLAN interface. index: the index of super VLAN interface, valid range: 1~32. no (prefix): delete this super VLAN interface.
[no] subvlan [<i>setstr</i>] [add <i>addstr</i>] [remove <i>remstr</i>]	Configure Sub VLAN in a specified Super VLAN. The added Sub VLAN is without management interface and not belonging to other Super VLAN. No any Sub VLAN in Super VLAN in initial condition. Setstr: configure Sub VLAN list. Eg. List 2, 4-6, means VLAN 2, 4, 5, 6. add: add new VLAN list into original Sub VLAN list. addstr: list character stream, the format is the same as above. remove: delete VLAN list from original Sub VLAN list. remstr: list character stream. The format is the same as above. no: delete all Sub VLAN in this Super VLAN. no command can't be used along with other sub-command at the same time.

User can configure IP address to Super VLAN.

Super VLAN is one type of routing interface, so any configuration for routing interface is valid.

Chapter 3 Interface Configuration Example

3.1 Configuring Public Interface Attributes

3.1.1 Interface Description Example

The following example indicates how to add an interface description entry which will appear in configuration file and interface display command.

```
interface vlan 1  
interface vlan 1  
ip address 192.168.1.23 255.255.255.0  
ip address 192.168.1.23 255.255.255.0
```

3.1.2 Stopping Interface Example

The following example shows how to stop the Ethernet interface on port 1.

```
interface GigaEthernet0/1  
shutdown
```

The following example shows how to restart an interface.

```
interface GigaEthernet0/1  
no shutdown
```