

# Interface Configuration

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## Chapter 1 Introduction

This section helps user to learn various kinds of interface that our switch supports and consult configuration information about different interface types.

For detailed description of all interface commands used in this section, refer to *Interface configuration command*. For files of other commands appeared in this section, refer to other parts of the manual.

The introduction includes communication information that can be applied to all interface types.

### 1.1 Supported Interface Types

For information about interface types, please refer to the following table.

Interface Type	Task	Reference
Ethernet interface	Configures fast Ethernet interface. Configures gigabit Ethernet interface.	<i>Configuring Ethernet Interface</i>
Logical Interface	Aggregation interface VLAN interface	<i>Configuring Logistical Interface</i>

The two supported kinds of interface: Ethernet interface and logical interface. The Ethernet interface type depends on one device depends on the standard communication interface and the interface card or interfaced module installed on the switch. The logical interface is the interface without the corresponding physical device, which is established by user manually.

The supported Ethernet interfaces of our switch include:

- Fast Ethernet interface
- Gigabit Ethernet interface

The supported logical interface of our switch include:

- aggregation interface
- VLAN interface

### 1.2 Interface Configuration Introduction

The following description applies to the configuration process of all interfaces. Take the following steps to perform interface configuration in global configuration mode.

- (1) Run the **interface** command to enter the interface configuration mode and start configuring interface. At this time, the switch prompt becomes 'config\_' plus the

shortened form of the interface to be configured. Use these interfaces in terms of their numbers. Numbers are assigned during installation(exworks) or when an interface card are added to the system. Run the **show interface** command to display these interfaces. Each interface that the device supports provides its own state as follows:

```
Switch_config#show interface g0/2
GigaEthernet0/2 is administratively down, line protocol is down
  Hardware is Giga-Combo-FX, address is 00e0.0f8d.e0e1 (bia 00e0.0f8d.e0e1)
  MTU 1500 bytes, BW 10000 kbit, DLY 10 usec
  Encapsulation ARPA
  port info 1 0 2 1
  Auto-duplex,   Auto-speed
  flow-control off
    Received 0 packets, 0 bytes
    0 broadcasts, 0 multicasts
    0 discard, 0 error, 0 PAUSE
    0 align, 0 FCS, 0 symbol
    0 jabber, 0 oversize, 0 undersize
    0 carriersense, 0 collision, 0 fragment
    0 L3 packets, 0 discards, 0 Header errors
  Transmitted 0 packets, 0 bytes
    0 broadcasts, 0 multicasts
    0 discard, 0 error, 0 PAUSE
    0 sqettest, 0 deferred
    0 single, 0 multiple, 0 excessive, 0 late
    0 L3 forwards
```

**Note:**

There is no need to add blank between interface type and interface number. For example, in the above line, g0/2 or g 0/2 is both right.

- (2) You can configure the interface configuration commands in interface configuration mode. Various commands define protocols and application programs to be executed on the interface. These commands will stay until user exits the interface configuration mode or switches to another interface.
- (3) Once the interface configuration has been completed, use the show command in the following chapter 'Monitoring and Maintaining Interface' to test the interface state.

## Chapter 2 Interface Configuration

### 2.1 Configuring Interface Common Attribute

The following content describes the command that can be executed on an interface of any type and configures common attributes of interface. The common attributes of interface that can be configured include: interface description, bandwidth and delay and so on.

#### 2.1.1 Adding Description

Adding description about the related interface helps to memorize content attached to the interface. This description only serves as the interface note to help identify uses of the interface and has no effect on any feature of the interface. This description will appear in the output of the following commands: **show running-config** and **show interface**. Use the following command in interface configuration mode if user wants to add a description to any interface.

Command	Description
<b>description</b> <i>string</i>	Adds description to the currently-configured interface.

For examples relevant to adding interface description, please refer to the following section 'Interface Description Example'.

#### 2.1.2 Configuring Bandwidth

The upper protocol uses bandwidth information to perform operation decision. Use the following command to configure bandwidth for the interface:

Command	Description
<b>bandwidth</b> <i>kilobps</i>	Configures bandwidth for the currently configured interface.

The bandwidth is just a routing parameter, which doesn't influence the communication rate of the actual physical interface.

#### 2.1.3 Configuring Time Delay

The upper protocol uses time delay information to perform operation decision. Use the following command to configure time delay for the interface in the interface configuration mode.

Command	Description
<b>delay</b> <i>tensofmicroseconds</i>	Configures time delay for the currently configured interface.

The configuration of time delay is just an information parameter. Use this command cannot adjust the actual time delay of an interface.

## 2.2 Monitoring and Maintaining Interface

The following tasks can monitor and maintain interface:

- Checking interface state
- Initializing and deleting interface
- Shutting down and enabling interface

### 2.2.1 Checking Interface State

Our switch supports displaying several commands related to interface information, including version number of software and hardware, interface state. The following table lists a portion of interface monitor commands. For the description of these commands, please refer to 'Interface configuration command'.

Use the following commands:

Command	Description
<b>show interface</b> [type [slot port]]	Displays interface state.
<b>show running-config</b>	Displays current configuration.
<b>show version</b>	Displays memory configuration, software version, start-up image and so on.

### 2.2.2 Initializing and Deleting Interface

You can dynamically establish and delete logical interfaces. This also applies to the sub interface and channalized interface. Use the following command to initialize and delete interface in global configuration mode:

Command	Description
<b>no interface</b> [type [slot port]]	Initializes physical interface or deletes virtual interface.

### 2.2.3 Shutting down and Enabling Interface

When an interface is shut down, all features of this interface are disabled, and also this interface is marked as unavailable interface in all monitor command displays. This information can be transmitted to other switches via dynamic routing protocol.

Use the following command to shutdown or enable an interface in the interface configuration mode:

Command	Description
<b>shutdown</b>	Shuts down an interface.
<b>no shutdown</b>	Enables an interface.

You can use the **show interface** command and the **show running-config** command to check whether an interface has been shut down. An interface that has been shut down is displayed as 'administratively down' in the **show interface** command display. For more details, please refer to the following example in 'Interface Shutdown Example'.

## 2.3 Setting the Ethernet Interface

In this section the procedure of setting the Ethernet interface will be described. The detailed configuration includes the following steps, among which step 1 is obligatory while other steps are optional.

### 2.3.1 Choosing an Ethernet Interface

Run the following command in global configuration mode to enter the Ethernet interface configuration mode:

Command	Purpose
<b>interface</b> <b>gigaethernet</b> [ <i>slot/port</i> ]	Enters the gigabit-Ethernet interface configuration mode.

The **show interface gigaethernet** [*slot/port*] command can be used to show the state of the gigabit-Ethernet interface.

### 2.3.2 Configuring the Rate

The Ethernet rate can be realized not only through auto-negotiation but also through interface configuration.

Command	Purpose
<b>show interface gigaethernet</b> [ <i>slot/port</i> ]	Sets the rate of fast Ethernet to 10M, 100M, 1000M or auto-negotiation.
<b>show interface gigaethernet</b> [ <i>slot/port</i> ]	Resumes the default settings. The rate is auto-negotiation

**Note:**

The speed of the optical interface varies according to the model. For example, the speed of GE-FX is 1000M, but it can also be specified as 100M through configuration. The speed of FE-FX is 100M. If there is auto parameter after the speed command of the optical interface, the interface can enable the automatic negotiation function. Otherwise, The speed of the optical interface is fixed and cannot negotiate. The gigabit port can support 10,100,1000 mode in auto mode. The specific configuration is subject to the prompt from each port.

### 2.3.3 Configuring the Duplex Mode of an Interface

By default, Ethernet interfaces can automatically negotiate whether to be half duplex or full duplex. The duplex mode for the gigabit interface is always auto.

Command	Purpose
<b>duplex</b> {full half auto}	Sets the duplex mode of an Ethernet interface.
<b>No duplex</b>	Resumes the default settings. The duplex mode is auto-negotiation.

### 2.3.4 Configuring Flow Control on an Interface

When an interface is in full duplex mode, flow control is realized through the 802.3X-defined PAUSE frame. In half duplex mode, it is implemented by back pressure.

Command	Purpose
<b>flow-control</b> on/off /auto	Enables or disables flow control on an interface.
<b>no flow-control</b>	Resumes the default settings, that is, there is no flow control on an interface.

## 2.4 Configuring Logistical Interface

This section describes how to configure a logical interface. The contents are as follows:

- Configuring aggregation interface
- Configuring VLAN interface

### 2.4.1 Configuring Aggregation Interface

The inadequate bandwidth of a single Ethernet interface gives rise to the birth of the aggregation interface. It can bind several full-duplex interface with the same rate together, greatly improving the bandwidth.

Run the following command to define the aggregation interface:

Command	Description
<b>Interface port-aggregator</b> <i>number</i>	Configures the aggregation interface

### 2.4.2 Configuring VLAN Interface

V VLAN interface is the routing interface in switch. The VLAN command in global configuration mode only adds layer 2 VLAN to system without defining how to deal with the IP packet whose destination address is itself in the VLAN. If there is no VLAN interface, this kind of packets will be dropped.

Run the following command to define VLAN interface:

Command	Description
<b>Interface vlan</b> <i>number</i>	Configures VLAN interface.

## Chapter 3 Interface Configuration Example

### 3.1 Configuring Public Attribute of Interface

#### 3.1.1 Interface Description Example

The following example shows how to add description related to an interface. This description appears in the configuration file and interface command display.

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

#### 3.1.2 Interface Shutdown Example

The following example shows how to shut down the Ethernet interface 0/1:

```
interface GigaEthernet0/1
shutdown
```

The following example shows how to enable the interface:

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