

## Loopback Detection Configuration Commands

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# Chapter 1 Loopback Detection Configuration Commands

Loopback Detection Configuration Commands include:

- loopback-detection
- loopback-detection enable
- loopback-detection vlan-control
- loopback-detection hello-time
- loopback-detection recovery-time
- loopback-detection control
- loopback-detection dest-mac
- loopback-detection existence
- loopback-detection frames-threshold
- loopback-detection frames-monitor
- show loopback-detection
- show loopback-detection interface

## 1.1 loopback-detection

### Syntax

To enable global loopback detection, run the following command. To return to the default setting, use the no form of this command.

[no] loopback-detection

### Parameters

None

### Default Value

Loopback detection is globally disabled by default.

Command Mode

Global configuration mode

Usage Guidelines

None

Example

```
Switch#config
Switch_config#
Switch_config#loopback-detection
```

1.2 loopback-detection enable

Syntax

To enable or disable loopback detection on a port, run the following command.

**[no] loopback-detection enable**

Parameters

None

Default Value

Loopback detection is disabled on a port by default.

Command Mode

Port configuration mode

Usage Guidelines

This command can be used to enable or disable loopback detection on a specified port. However, this settings takes effect only after loopback detection is enabled globally.

Example

```
Switch_config#
Switch_config#interface g0/1
Switch_config_g0/1#loopback-detection enable
```

1.3 loopback-detection vlan-control

Syntax

To set a port to perform loopback detection toward a specified VLAN, run the following command.

## **[no] loopback-detection vlan-control *vlan-list***

### Parameters

Parameters	Description
<i>vlan-list</i>	Stands for a VLAN specified by a port. It ranges from 1 to 4094, and up to 10 VLANs can be specified.

### Default Value

None

Command Mode

Port configuration mode

Usage Guidelines

After loopback detection is configured on a specified VLAN, the port transmits multiple detection packets of specified VLAN tag regularly and the number of these detection packets transmitted by this port can be up to 10.

Example

```
Switch_config#interface g0/1
```

```
Switch_config_g0/1#loopback-detection vlan-control 1-5
```

## 1.4 loopback-detection hello-time

### Syntax

To set the transmission period of loopback detection packets, run the following command.

## **[no] loopback-detection hello-time *hello-time***

### Parameters

Parameters	Description
<i>hello-time</i>	Stands for the transmission period of loopback packets, whose unit is second.

### Default Value

3 seconds

Command Mode

Port configuration mode

## Usage Guidelines

None

### Example

None

## 1.5 loopback-detection recovery-time

### Syntax

To set the recovery time of a port after being controlled, run the following command.

**[no] loopback-detection recovery-time *recovery-time***

## Parameters

Parameters	Description
<i>recovery-time</i>	Stands for the recovery time of a port after being controlled, whose unit is second.

## Default Value

10 seconds

### Command Mode

Port configuration mode

### Usage Guidelines

None

### Example

None

## 1.6 loopback-detection control

### Syntax

To set a port to be controlled, run the following command.

**[no] loopback-detection control { **block**|**learning**|**shutdown**}**

## Parameters

Parameters	Description
<i>block</i>	Sets a port to be blocked.
<i>learning</i>	Sets a port to be learning.
<i>shutdown</i>	Sets a port to be shutdown.

Default Value

None

Command Mode

Port configuration mode

Usage Guidelines

When a port detects loopback exists in its network, you can perform corresponding control actions to this port by setting control functions. The controlled states of a port include block, nolearn, shutdown and trap. When a controlled state is configured and loopback exists on a port, the trap message be transmitted. It is not configured by default.

After loopback detection is enabled globally, the port on which loopback detection is enabled transmits the loopback detection packets and receives the already transmitted loopback detection packets. Four control actions are conducted on the port:

**block** : This means to block the port. When loopback is found, this port will be isolated from other ports and the packets going into this port cannot be forwarded to other ports. This port is then in protocol down state and its MAC address table ages.

**nolearn**: This means forbidding this port to learn MAC addresses. Upon the discovery of loopback on a port, this port will not learn MAC addresses and at the same time age its MAC address table.

**Shutdown**: Disable the port. When detecting the loopback, the port forwards trap warning information, ages the MAC address table and automatically disables the port (error-disable). Thus, the port cannot forward the packet until the error-disable-recover time.

**trap**: It means that the port only reports alarms. When loopback is discovered, the port will only report alarms and age its MAC address table.

When a port is blocked, the packets entering into this port cannot be forwarded by this port and this port will go on transmitting loopback detection packets at the same time; when loopback disappears, the port will recover itself automatically. Loopback disappearance takes place if the port has not received loopback detection packets within 10 seconds. In block state

the port protocol is down, while in shutdown state the port's link is down directly.

Example

```
Switch#config
Switch_config#interface g0/1
Switch_config_g0/1#loopback-detection control block
```

## 1.7 loopback-detection dest-mac

Syntax

To set the destination MAC address of loopback detection packets on a port, run the following

command.

**[no] loopback-detection dest-mac** *mac-addr*

#### Parameters

Parameters	Description
<i>mac-addr</i>	Stands for the MAC address that corresponds to a MAC VLAN entry.

#### Default Value

The default destination MAC address is 01-80-C2-00-00-0a.

#### Command Mode

Port configuration mode

#### Usage Guidelines

None

#### Example

```
Switch_config#interface g0/1
```

```
Switch_config_g0/1#loopback-detection dest-mac 1111.1111.1111
```

### 1.8 loopback-detection existence

#### Syntax

To set a standard to judge whether loopback exists on a port when this port is enabled or its link state is UP, run the following command.

**[no] loopback-detection existence**

#### Parameters

None

#### Default Value

Loopback is nonexistent by default.

#### Command Mode

Port configuration mode

#### Usage Guidelines

This command is mainly used to solve the problem that loopback exists on a port or not when this port is up and its loopback detection function takes effect. When the controlled



action of this port is set to shutdown, it is improper to regard that loopback exists on this port for a shutdown port has already not forwarded packets. There is no loopback by default.

#### Example

None

#### 1.9 loopback-detection frames-threshold

##### Syntax

To configure the upper threshold the loop detection frame received every minute, run the following command.

```
[no] loopback-detection frames-threshold frames-threshold
```

##### Parameters

Parameters	Description
<i>frames-threshold</i>	The upper threshold the loop detection frame received every minute (100-200)

##### Default Value

The default upper threshold is 10.

##### Command Mode

Port configuration mode

##### Usage Guidelines

None

#### Example

```
Switch_config#interface g0/1
```

```
Switch_config_g0/1#loopback-detection frames-threshold 20
```

#### 1.10 loopback-detection frames-monitor

##### Syntax

To configure enable or disable frame number detection function, run the following commands.

```
[no] loopback-detection frames-monitor
```

## Parameters

None

Default Value

Disabled.

Command Mode

Port configuration mode

Usage Guidelines

None

## Example

```
Switch#config
Switch_config#interface g0/1
Switch_config_g0/1#loopback-detection frames-monitor
```

## 1.11 show loopback-detection

### Syntax

To display the configuration details of loopback detection, run the following command.

```
show loopback-detection
```

## Parameters

None

Default Value

None

Command Mode

EXEC mode, Global configuration mode or interface mode

Usage Guidelines

This command is used to display the global or port's loopback detection configurations and port status.

## Example

```
Switch#show loopback-detection
Loopback-detection is enable
```

## Interface state information

Port	Status	dest MacAddress	Control	VLAN
G0/1	UP	1234.5678.9abc	BLOCK	1-5
G0/2	UP	0180.c200.000a	WARNING	
G0/3	UP	0180.c200.000a	BLOCK	
G0/4	UP	0180.c200.000a	WARNING	
G0/5	UP	0180.c200.000a	WARNING	
G0/6	UP	0180.c200.000a	WARNING	1-8
G0/7	UP	0180.c200.000a	WARNING	
G0/8	UP	0180.c200.000a	WARNING	
G0/9	UP	0180.c200.000a	WARNING	
G0/10	UP	0180.c200.000a	WARNING	
G0/11	UP	0180.c200.000a	WARNING	
G0/12	UP	0180.c200.000a	WARNING	
G0/13	UP	0180.c200.000a	WARNING	
G0/14	UP	0180.c200.000a	WARNING	
G0/15	UP	0180.c200.000a	WARNING	
G0/16	UP	0180.c200.000a	WARNING	

## 1.12 show loopback-detection

## Syntax

To display the information about the loopback detection port, run the following command.

```
show loopback-detection intf-id
```

## Parameters

Parameters	Description
Interface <i>Intf-id</i>	Displays the designated port.

## Default Value

None

## Command Mode

EXEC mode, Global configuration mode or interface mode

## Usage Guidelines

This command is mainly used to display the status of the loopback detection port.

### Example

```
Switch#show loopback-detection interface g0/1
```

```
Receive Packets :0
```

```
Transmit Packets: 20
```

```
Discard Packets:0
```

```
HelloTimeOut:10
```

```
RecoverTimeOut:26
```