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# DHCP-relay Snooping Configuration Commands

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## Chapter 1 DHCP-relay Snooping Configuration Commands

The DHCP-relay snooping configuration commands include:

- ip dhcp-relay snooping
- ip dhcp-relay snooping vlan
- ip dhcp-relay snooping database-agent
- ip dhcp-relay snooping db-file
- ip verify source vlan
- ip arp inspection vlan
- ip source binding
- arp inspection trust
- dhcp snooping trust
- ip-source trust
- show ip dhcp-relay snooping
- show ip dhcp-relay snooping binding
- debug ip dhcp-relay snooping
- debug ip dhcp-relay event
- debug ip dhcp-relay binding

### 1.1.1 ip dhcp-relay snooping

#### Syntax

To enable or disable the DHCP-relay snooping function in a VLAN, run ip dhcp-relay snooping. To resume the corresponding default settings, run no dhcp-relay snooping.

**ip dhcp-relay snooping**

**no ip dhcp-relay snooping**

#### Parameters

None

## Default Value

The dhcp-relay snooping function is disabled by default.

## Usage Guidelines

None

## Example

The following example shows how to enable the DHCP snooping function:

```
Switch_config#ip dhcp-relay snooping
Switch_config#
```

### 1.1.2 ip dhcp-relay snooping vlan

## Syntax

**ip dhcp-relay snooping vlan** *vlan\_id*

**no ip dhcp-relay snooping vlan** *vlan\_id*

## Parameters

| Parameters     | Description                                      |
|----------------|--|
| <i>vlan_id</i> | Stands for the ID of a VLAN. Value range: 1-4094 |

## Default Value

None

## Usage Guidelines

This command is used to configure the VLAN of DHCP snooping.

## Example

The following example shows how to enable snooping detection for DHCP packets on VLAN 2.

```
Switch_config#ip dhcp-relay snooping vlan 2
Switch_config#
```

### 1.1.3 ip dhcp-relay snooping vlan *vlan\_id* max-client

#### Syntax

**ip dhcp-relay snooping vlan *vlan\_id* max-client *number***

**no ip dhcp-relay snooping vlan *vlan\_id* max-client**

#### Parameters

| Parameters     | Description                                      |
|----------------|--|
| <i>vlan_id</i> | Stands for the ID of a VLAN. Value range: 1-4094 |
| <i>number</i>  | Allowable maximum number of users: 0-65535       |

#### Default Value

The default maximum number of users is 65535.

#### Usage Guidelines

You can use this command to set the maximum users in a VLNA of DHCP snooping. During this settings, the principle “first come and first be distributed” will be followed. When the number of users in the VLAN reaches the maximum value, new clients are then forbidden to distribute.

#### Example

The following example shows that snooping check will be conducted towards the DHCP packets in VLAN2 and the allowable maximum number of users is 3.

```
Switch_config#ip dhcp-relay snooping vlan 2 max-client 3
Switch_config#
```

### 1.1.4 ip dhcp-relay snooping database-agent

#### Syntax

To bind DHCP snooping to standby TFTP server, run ip dhcp-relay snooping database-agent A.B.C.D.

**ip dhcp-relay snooping database-agent *A.B.C.D***

**no ip dhcp-relay snooping database-agent *A.B.C.D***

## Parameters

| Parameters     | Description                              |
|----------------|--|
| <i>A.B.C.D</i> | Means the IP address of the TFTP server. |

## Default Value

There is no standby servers by default.

## Usage Guidelines

If the address of the TFTP server is not configured, the binding backup is not conducted.

## Example

The following example shows how to set the address of a server of backing up DHCP snooping binding to 192.168.1.1.

```
Switch_config#ip dhcp-relay snooping database-agent 192.168.1.1
Switch_config#
```

## 1.1.5 ip dhcp-relay snooping db-file

## Syntax

**ip dhcp-relay snooping db-file** *name* [*timestamp*]

**no ip dhcp-relay snooping db-file** [*timestamp*]

## Parameters

| Parameters       | Description   |
|------------------|---|
| <i>Name</i>      | File name which is saved during DHCP snooping binding backup. |
| <i>timestamp</i> | Timestamp which is the file name of the binding backup.       |

## Default Value

There is no file.

## Usage Guidelines

If the file name is not configured, the binding backup is not conducted.

## Example

The following example shows how to set the file name of binding backup to `dhcp_binding.txt`.

```
Switch_config#ip dhcp-relay snooping db-file dhcp_binding.txt
Switch_config#
```

### 1.1.6 ip dhcp-relay snooping write-time

#### Syntax

**ip dhcp-relay snooping write-time *num***

**no ip dhcp-relay snooping write-time**

#### Parameters

| Parameters | Description   |
|------------|---|
| <i>Num</i> | Stands for the interval of backing up the DHCP snooping binding (2-1440). |

#### Default Value

The default value of the interval is 30 minutes.

#### Usage Guidelines

The binding update will be checked during interval configuration. If the binding is updated, the binding information need be backed up.

## Example

The following example shows how to set the interval of backing up the binding to 60 minutes.

```
Switch_config#ip dhcp-relay snooping write-time 60
Switch_config#
```

### 1.1.7 ip dhcp-relay snooping write-immediately

#### Syntax

**ip dhcp-relay snooping write-immediately**

**no ip dhcp-relay snooping write-immediately**

### Parameters

None

### Default Value

None

### Usage Guidelines

If there is entry update, it will write into the entry database immediately. It is recommended that the function is not enabled when there is plenty of entries. Otherwise, the performance may be affected.

### Example

The following example shows how to backup the binding entry after the configuration is updated.

```
Switch_config#ip dhcp-relay snooping write-immediately
Switch_config#
```

## 1.1.8 ip dhcp-relay snooping log

### Syntax

```
ip dhcp-relay snooping log
no ip dhcp-relay snooping log
```

### Parameters

None

### Default Value

None

### Usage Guidelines

After the log function is enabled, the syslog will report if there is packets of dhcp server on non-trust port, which indicates that there is illegal dhcp server on the port reporting syslog.

### Example

The following example shows how to enable the DHCP-relay snooping function:



```
Switch_config#ip dhcp-relay snooping log
Switch_config#
```

### 1.1.9 ip dhcp-relay snooping rapid-refresh-bind

#### Syntax

To enable rapid update of DHCP snooping, run `ip dhcp-relay snooping rapid-refresh-bind`.

**ip dhcp-relay snooping rapid-refresh-bind**

**no ip dhcp-relay snooping rapid-refresh-bind**

#### Parameters

None

#### Default Value

None

#### Usage Guidelines

After this function is enabled, the DHCP attack of fake MAC will be closed; when the client is allowed to change the access port, the IP address can be directly acquired without waiting for the expiration of the IP lease.

If the client change the access port after the function is disabled, the device enabling snooping will take it as dhcp packet attack of fake mac and the dhcp packet will be dropped.

#### Example

None

### 1.1.10 dhcp-relay snooping information option

#### Syntax

**ip dhcp-relay snooping information option [ format snmp-ifindex | manual | hn-type [host] ]**

**no ip dhcp-relay snooping information option [ format snmp-ifindex | manual | hn-type [host] ]**

### Parameters

| Parameters                   | Description  |
|------------------------------|--|
| <b>format snmp-ifindex</b>   | Fills in option 82 in SNMP ifindex mode (optional).  |
| <b>format manual</b>         | Uses the manual configuration to fill in option82 (optional).  |
| <b>format hn-type [host]</b> | Uses the Cisco format to enter option82 (optional).<br>Host means the configuration device is the master switch. |

### Default Value

Option 82 will not be added to or removed from the report by default.

### Usage Guidelines

This command is used to set whether DHCP option82 can be handled when a switch is conducting DHCP snooping. If format snmp-ifindex is specified, you should use SNMP ifindex to fill in option82; if format manual is specified, you should use the character string, which is set by the command “dhcp snooping information circuit-id string” on all ports, to fill in the circuit-id option of option82; in other cases, fill in option82 according to the rules of RFC3046.

### Example

The following example shows how to fill in option 82 in SNMP ifindex mode.

```
Switch_config#ip dhcp-relay snooping
Switch_config#ip dhcp-relay snooping information option format snmp-ifindex
```

The following example shows how to fill in option 82 in manual mode.

```
Switch_config#ip dhcp-relay snooping
Switch_config#ip dhcp-relay snooping vlan [WORD] // [WORD] stands for the vlan
name for start up the snooping function.
Switch_config# ip dhcp-relay snooping information option format manual
```

## 1.1.11 ip verify source vlan

### Syntax

```
ip verify source vlan vlanid
no ip verify source vlan vlanid
```

## Parameters

| Parameters     | Description                                      |
|----------------|--|
| <i>vlan id</i> | Stands for the ID of a VLAN. Value range: 1-4094 |

## Default Value

None

## Usage Guidelines

This command is used to configure a VLAN for monitoring the source IP address. The “no” form of this command is used to cancel this VLAN. If the source IP address and source MAC address of the IP packet is not the client’s legal address, which is distributed by the DHCP server and listened by DHCP snooping, the vlan in which IP source address will take the kind of packets as illegal ones and drop them.

## Example

The following example shows how to conduct source IP address monitoring to the packets from all physical interfaces (except trusted interfaces) in VLAN2.

```
Switch_config#ip verify source vlan 2
Switch_config#
```

## 1.1.12 ip arp inspection vlan

## Syntax

**ip arp inspection vlan** *vlanid*

**no ip arp inspection vlan** *vlanid*

## Parameters

| Parameters    | Description                                      |
|---------------|--|
| <i>vlanid</i> | Stands for the ID of a VLAN. Value range: 1-4094 |

## Default Value

None

## Usage Guidelines

This command is used to configure a VLAN for monitoring the source address of the ARP packet. The “no” form of this command is used to cancel this VLAN. In the VLAN where monitoring the source address of the ARP packets is enabled, if SIP and

SMAC of a ARP packet, which correspond to the IP address and MAC address of the client that the DHCP server distributes to the client, are unsuitable, the ARP packet will be dropped.

### Example

The following example shows how to conduct source address monitoring to the ARP packets from all physical interfaces (except trusted interfaces) in VLAN2.

```
Switch_config#ip arp inspection vlan 2
Switch_config#
```

### 1.1.13 ip source binding

#### Syntax

To add MAC-to-IP binding to an interface, run `ip source binding xx-xx-xx-xx-xx-xx A.B.C.D interface name vlan vlan-id` A.B.C.D interface name.

**ip source binding** *xx:xx:xx:xx:xx:xx A.B.C.D interface name vlan vlan-id*

**no ip source binding** *xx:xx:xx:xx:xx:xx A.B.C.D vlan vlan-id*

#### Parameters

| Parameters               | Description                   |
|--------------------------|-------------------------------|
| <i>xx:xx:xx:xx:xx:xx</i> | MAC地址                         |
| <i>A.B.C.D</i>           | IP address                    |
| <i>Name</i>              | Means a name of an interface. |
| <i>vlan-id</i>           | Stands for VLAN ID.           |

#### Default Value

None

#### Usage Guidelines

None

### Example

The following example shows how to bind MAC address 08:00:3e:00:00:01 to IP address 192.168.1.2 on interface GigaEthernet0/1.

```
Switch_config#ip source binding 08:00:3e:00:00:01 192.168.1.2 interface GigaEthernet0/1
Switch_config#
```

### 1.1.14 arp inspection trust

#### Syntax

**arp inspection trust**

no arp inspection trust

#### Parameters

None

#### Default Value

The default interface is a distrusted one.

#### Usage Guidelines

The ARP monitoring is not conducted to the ARP-trusted interface. The “no” form of this command is used to configure the default value of this interface.

#### Example

The following example shows how to set interface GigaEthernet 0/1 to an ARP-trusted interface.

```
Switch_config_g0/1#arp inspection trust
```

### 1.1.15 dhcp snooping trust

#### Syntax

**dhcp snooping trust**

**no dhcp snooping trust**

#### Parameters

None

#### Default Value

The default interface is a distrusted one.

## Usage Guidelines

DHCP snooping is not conducted to the DHCP-trusted interface. The “no” form of this command is used to resume the default value of this interface.

## Example

The following example shows how to set interface GigaEthernet 0/1 to an DHCP-trusted interface.

```
Switch_config_g0/1#dhcp snooping trust
```

### 1.1.16 dhcp snooping deny

#### Syntax

**dhcp snooping deny**

**no dhcp snooping deny**

#### Parameters

None

#### Default Value

Snooping monitoring is allowed on the default interface.

## Usage Guidelines

After this command is configured, DHCP snooping trust, IP-sourcetrust and ARP inspection trust are automatically enabled. The “no” form of this command is used to configure the default value of this interface.

## Example

The following example shows how to disable DHCP snooping on interface GigaEthernet0/1.

```
Switch_config_g0/1#dhcp snooping deny
```

### 1.1.17 dhcp snooping information circuit-id

#### Syntax

**dhcp snooping information circuit-id {string *STRING* | hex *xx-xx-xx-xx-xx-xx*}**

#### Parameters

| Parameters                          | Description   |
|-------------------------------------|---|
| <b>string</b> <i>STRING</i>         | Stands for the character string carried by the sub-option of option82 circuit-id.             |
| <b>hex</b> <i>xx-xx-xx-xx-xx-xx</i> | Stands for the hexadecimal character string carried by the sub-option of option82 circuit-id. |

#### Default Value

None

#### Usage Guidelines

This command can be set on each port that connects the client. This command is used to configure option82 of the DHCP packet, which is sent by DHCP client to DHCP server and monitored by DHCP snooping. (the switch of manually set optio82 need be opened. See the command, ip dhcp-relay snooping information option format manual)

#### Example

The following example shows how to set option82 to group1 manually on interface g0/3, which belongs to interface g0/3.

```
Switch_config#ip dhcp-relay snooping
Switch_config#ip dhcp-relay snooping vlan 1
Switch_config#ip dhcp-relay snooping information option format manual
Switch_config#interface g0/3
Switch_config_g0/3#dhcp snooping information circuit-id string group1
```

### 1.1.18 dhcp snooping information remote-id string

#### Syntax

**dhcp snooping information remote-id {string *STRING* | hex *xx-xx-xx-xx-xx-xx*}**

## Parameters

| Parameters            | Description  |
|-----------------------|--|
| string STRING         | Stands for the character string carried by option82 remote-id.                               |
| hex xx-xx-xx-xx-xx-xx | Stands for the hexadecimal character string carried by the sub-option of option82 remote-id. |

## Default Value

None

## Usage Guidelines

This command can be set on each port that connects the client. This command is used to configure option82 of the DHCP packet, which is sent by DHCP client to DHCP server and monitored by DHCP snooping. (the switch of manually set optio82 need be opened. See the command, ip dhcp-relay snooping information option format manual)

## Example

The following example shows how to set option82 to group1 manually on interface g0/3, which belongs to interface g0/3.

```
Switch_config# ip dhcp-relay snooping
Switch_config# ip dhcp-relay snooping vlan 1
Switch_config#ip dhcp-relay snooping information option format manual
Switch_config#interface g0/3
Switch_config_g0/3# dhcp snooping information remote-id string group1
```

## 1.1.19 dhcp snooping information vendor-specific

## Syntax

```
dhcp snooping information vendor-specific { string STRING | hex  
xx-xx-xx-xx-xx-xx }
```

## Parameters

| Parameters                   | Description  |
|------------------------------|--|
| <b>string STRING</b>         | Stands for the character string carried by option82 vendor-specific. |
| <b>hex xx-xx-xx-xx-xx-xx</b> | Stands for the hexadecimal character string carried by the           |



|  |   |
|--|---|
|  | sub-option of option82 vendor-specific. |
|--|---|

### Default Value

None

### Usage Guidelines

This command can be set on each port that connects the client. This command is used to configure option82 of the DHCP packet, which is sent by DHCP client to DHCP server and monitored by DHCP snooping. (the switch of manually set optio82 need be opened. See the command, ip dhcp-relay snooping information option format manual)

### Example

The following example shows how to use the hexadecimal 00-00-00-09-0d-01-0b-78-69-61-6f-6d-69-6e-37-31-31-34 to set option82 option vendor-specific (suboption 9)

```
Switch_config# ip dhcp-relay snooping
```

```
Switch_config# ip dhcp-relay snooping vlan 1
```

```
Switch_config#ip dhcp-relay snooping information option format manual
```

```
Switch_config#interface g0/3
```

```
Switch_config_g0/3#    dhcp    snooping    information    vendor-specific    hex
00-00-00-09-0d-01-0b-78-69-61-6f-6d-69-6e-37-31-31-34
```

## 1.1.20 dhcp snooping information append

### Syntax

**dhcp snooping information append**

**dhcp snooping information append first-subop9-param { hex xx-xx-xx-xx-xx-xx | hostname | vlanip }**

**dhcp snooping information append second-subop9-param { hex xx-xx-xx-xx-xx-xx | hostname | vlanip }**

**no dhcp snooping information append**

**no dhcp snooping information append first-subop9-param**

**no dhcp snooping information append second-subop9-param**

## Parameters

| Parameters   | Description   |
|--|---|
| <b>first-subop9-param</b><br><b>hex [xx-xx-xx-xx-xx-xx]</b>  | Stands for the Hex system of the first parameter carried by option82 vendor-specific (suboption9).      |
| <b>second-subop9-param</b><br><b>hex [xx-xx-xx-xx-xx-xx]</b> | Stands for the Hex system of the second parameter carried by option82 vendor-specific (suboption9).     |
| <b>hostname</b>  | Option82 vendor-specific (suboption9) Stands for the parameter of the suboption is the host name        |
| <b>vlanip</b>  | Option82 vendor-specific (suboption9) Stands for the parameter of the suboption is IP of interface vlan |

## Default Value

None

## Usage Guidelines

This command can be set on each port that connects the client. This command is used to configure option82 of the DHCP packet, which is sent by DHCP client to DHCP server and monitored by DHCP snooping.

This command without parameters acts as a switch command. When append is enabled, the information of this command will be added to suboption9 of option82. The added information is first-subop9-param and second-subop9-param.

## Example

The following example shows how to enrich dhcp packets with option82 on interface g0/3 and set suboption 9 added parameter 1 with the hexadecimal 61-62-63-61-62-63.

```
Switch_config_g0/3# dhcp snooping information append
```

```
Switch_config_g0/3#dhcp snooping information append first-subop9-param hex 61-62-63-61-62-63
```

Here 61-62-63-61-62-63 is the Hex system of the to-be-added parameter.

## 1.1.21 dhcp snooping information drop

## Syntax

**dhcp snooping information drop**

**no dhcp snooping information drop**

## Parameters

None

### Default Value

None

### Usage Guidelines

This command can be set on each port that connects the client.

After this command is set, the request packets that contain option82 will be dropped on the stipulated port.

### Example

The following example shows how to drop dhcp packets with option82 on g0/3.

```
Switch_config_g0/3# dhcp snooping information drop
```

## 1.1.22 ip-source trust

### Syntax

**ip-source trust**

**no ip-source trust**

### Parameters

None

### Default Value

The default interface is a distrusted one.

### Usage Guidelines

Source IP address snooping is not conducted to the source-IP-trusted interface. The “no” form of this command is used to resume the default value of this interface.

### Example

The following example shows how to set interface GigaEthernet0/1 to a source-ip-trusted interface.

```
Switch_config_g0/1#ip-source trust
```

### 1.1.23 show ip dhcp-relay snooping

#### Syntax

**show ip dhcp-relay snooping**

#### Parameters

None

#### Default Value

None

#### Usage Guidelines

This command is used to display the information about DHCP-snooping configuration.

#### Example

The following example shows how to display the information about DHCP-relay snooping.

```
Switch_config#show ip dhcp-relay snooping
```

### 1.1.24 show ip dhcp-relay snooping binding

#### Syntax

**show ip dhcp-relay snooping binding [all]**

#### Parameters

None

#### Default Value

None

#### Usage Guidelines

This command is used to display the binding information about DHCP-relay snooping.

If the all parameter is in the command sentence, all binding information about DHCP-relay snooping will be displayed.

### Example

The following example shows how to display the information about DHCP-relay snooping binding.

```
Switch_config#show ip dhcp-relay snooping binding
```

## 1.1.25 debug ip dhcp-relay snooping

### Syntax

**debug ip dhcp-relay snooping**

**no debug ip dhcp-relay snooping**

### Parameters

None

### Default Value

None

### Usage Guidelines

This command is used to enable or disable the debugging switch of DHCP-relay snooping.

### Example

The following example shows how to enable the debugging switch of DHCP-relay snooping.

```
Switch#debug ip dhcp-relay snooping  
Switch#
```

## 1.1.26 debug ip dhcp-relay event

### Syntax

**debug ip dhcp-relay event**

**no debug ip dhcp-relay event**

### Parameters

None

### Default Value

None

### Usage Guidelines

This command is used to enable or disable the event debugging switch of DHCP-relay.

### Example

The following example shows how to enable the debugging switch of DHCP-relay event.

```
Switch#debug ip dhcp-relay event  
Switch#
```

## 1.1.27 debug ip dhcp-relay binding

### Syntax

```
debug ip dhcp-relay binding  
no debug ip dhcp-relay binding
```

### Parameters

None

### Default Value

None

### Usage Guidelines

This command is used to enable or disable the debugging switch of DHCP-relay snooping binding.

### Example

The following example shows how to enable the debugging switch of DHCP-relay snooping binding.

```
Switch#debug ip dhcp-relay binding
```

Switch#