

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 dhcp-relay snooping

Syntax

ip dhcp-relay snooping

no ip dhcp-relay snooping

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**.

Parameter

None

Default value

The **dhcp-relay snooping** function is disabled by default.

Remarks

None

Example

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

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

1.1.2 dhcp-relay snooping vlan

Syntax

ip dhcp-relay snooping vlan *vlan_id*

no ip dhcp-relay snooping vlan *vlan_id*

Parameter

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

Default value

None

Remarks

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

Example

The following example shows how to conduct the snooping inspection to the DHCP packets in VLAN2.

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

1.1.3 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**

Parameter

Parameter	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.

Remarks

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 dhcp-relay snooping database-agent

Syntax

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

no ip dhcp-relay snooping database-agent

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

Parameter

Parameter	Description
<i>A.B.C.D</i>	Stands for the IP address of the TFTP server.

Default value

There is no standby servers by default.

Remarks

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 dhcp-relay snooping db-file

Syntax

ip dhcp-relay snooping db-file *name*

no ip dhcp-relay snooping db-file

Parameter

Parameter	Description
<i>Name</i>	File name which is saved during DHCP snooping binding backup.

Default value

There is no file.

Remarks

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 dhcp-relay snooping write

Syntax

ip dhcp-relay snooping write-time *num*

no ip dhcp-relay snooping write-time

Parameter

Parameter	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.

Remarks

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 60
Switch_config#
```

1.1.7 ip dhcp-relay snooping rapid-refresh-bind

Syntax

ip dhcp-relay snooping rapid-refresh-bind

no ip dhcp-relay snooping rapid-refresh-bind

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

Parameter

None

Default value

None

Remarks

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.

Example

None

1.1.8 dhcp-relay snooping information option

Syntax

ip dhcp-relay snooping information option [format snmp-ifindex / manual / hn-type]

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

Parameter

Parameter	Description
format snmp-ifindex	Fills in option 82 in SNMP ifindex mode (optional).
format manual	Uses the manual configuration to fill in option82 (optional).
format hn-type	Uses the Cisco format to enter option82 (optional).

Default value

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

Remarks

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
```

1.1.9 ip verify source vlan

Syntax

ip verify source vlan *vlanid*

no ip verify source vlan *vlanid*

Parameter

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

Default value

None

Remarks

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#
```

1.1.10 ip arp inspection vlan

Syntax

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

Parameter

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

Default value

None

Remarks

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#
```

1.1.11 ip vlan-translate vlan (requiring the device with support of this function)

Syntax

ip vlan-translate vlan *vlanid*
no ip vlan-translate vlan *vlanid*

Parameter

Parameter	Description
<i>vlanid</i>	Enables the destination VLAN of VLAN translation.

Default value

None

Remarks

After this function is enabled, it means that listening DHCP packets is allowed to conduct VLAN translation and multiple VLANs can be translated into the destination VLAN. Before this function is enabled, the global DHCP snooping must be opened.

Example

The following example shows how to set the destination VLAN, which executes the VLAN translation, to vlan2:

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

1.1.12 ip source binding

Syntax

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

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

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*.

Parameter

Parameter	Description
<i>xx-xx-xx-xx-xx-xx</i>	MAC address.
<i>A.B.C.D</i>	IP address.
<i>Name</i>	Means a name of an interface.

Default value

None

Remarks

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 **fastEthernet0/1**.

```
Switch_config#ip source binding 08-00-3e-00-00-01 192.168.1.2 interface fastEthernet0/1
Switch_config#
```

1.1.13 arp inspection trust

Syntax

arp inspection trust

Parameter

None

Default value

The default interface is a distrusted one.

Remarks

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 **fastEthernet 1/0** to an ARP-trusted interface.

```
Switch_config_f0/1#arp inspection trust
```

1.1.14 vlan-translate deny (requiring the support of VLAN translation)

Syntax

vlan-translate deny

Parameter

None

Default value

The default interface is not forbidden.

Remarks

VLAN translation is not conducted on those ports where VLAN translation is forbidden. You can use the negative form of this command to resume the default value on a port.

Example

The following example shows how to set interface **fastEthernet 0/1** to be an interface forbidding VLAN translation.

```
Switch_config_f0/1# vlan-translate deny
```

1.1.15 dhcp snooping trust

Syntax

dhcp snooping trust

Parameter

None

Default value

The default interface is a distrusted one.

Remarks

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 fastEthernet 0/1 to a DHCP-trusted interface.

```
Switch_config_f0/1#dhcp snooping trust
```

1.1.16 dhcp snooping deny

Syntax

dhcp snooping deny

Parameter

None

Default value

DHCP snooping is allowed on the default interface.

Remarks

After DHCP snooping is disabled on an interface, DHCP snooping trust, IP-source trust 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 fastEthernet0/1.

```
Switch_config_f0/1#dhcp snooping deny
```

1.1.17 dhcp snooping information circuit-id

Syntax

dhcp snooping information circuit-id string [STRING]

Parameter

Parameter	Description
string <i>STRING</i>	Stands for the character string carried by the sub-option of option82 circuit-id.

Default value

None

Remarks

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 f0/3, which belongs to interface f0/3.

```
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_f0/3# dhcp snooping information circuit-id string group1
```

1.1.18 dhcp snooping information remote-id string

Syntax

dhcp snooping information remote-id string [STRING]

Parameter

Parameter	Description
<i>STRING</i>	Stands for the character string carried by option82 remote-id.

Default value

None

Remarks

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 f0/3, which belongs to interface f0/3.

```
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_f0/3# dhcp snooping information remote-id string group1
```

1.1.19 dhcp snooping information vendor-specific

Syntax

dhcp snooping information vendor-specific hex [xx-xx-xx-xx-xx-xx]

Parameter

Parameter	Description
hex [xx-xx-xx-xx-xx-xx]	Stands for the Hex system of Option82 vendor-specific (suboption9).

Default value

None

Remarks

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 f0/3, which belongs to interface f0/3.

```
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_f0/3#      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]

dhcp snooping information append second-subop9-param hex [xx-xx-xx-xx-xx-xx]

Parameter

Parameter	Description
first-subop9-param hex [xx-xx-xx-xx-xx-xx]	Stands for the Hex system of the first parameter carried by option82 vendor-specific (suboption9).
second-subop9-param hex [xx-xx-xx-xx-xx-xx]	Stands for the Hex system of the second parameter carried by option82 vendor-specific (suboption9).

Default value

None

Remarks

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 opened, 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 set option82 to group1 manually on interface f0/3, which belongs to interface f0/3.

```
Switch_config_f0/3# dhcp snooping information append
```

```
Switch_config_f0/3#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

Parameter

None

Default value

None

Remarks

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 the request packet, which contains option82, on port f0/3.

```
Switch_config_f0/3# dhcp snooping information drop
```

1.1.22 ip-source trust

Syntax

ip-source trust

Parameter

None

Default value

The default interface is a distrusted one.

Remarks

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 fastEthernet 1/0 to a source-ip-trusted interface.

```
Switch_config_f0/1#ip-source trust
```

1.1.23 dhcp-relay agent (L2 switch)

Syntax

ip dhcp-relay agent

no ip dhcp-relay agent

To enable the forwarding of the DHCP packets on L2 switches, run **ip dhcp-relay agent**. This command is invalid on L3 switches.

Parameter

None

Default value

The **dhcp-relay agent** function is disabled by default.

Remarks

None

Example

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

```
Switch_config#ip dhcp-relay agent
Switch_config#
```

1.1.24 dhcp-relay snooping helper-address (L2 switch)

Syntax

ip dhcp-relay helper-address *address* **vlan** *vlan_id*

no ip dhcp-relay helper-address *address* **vlan** *vlan_id*

Parameter

Parameter	Description
<i>address</i>	Stands for the destination IP address of the DHCP-forwarded packets.
<i>vlan id</i>	Stands for the ID of a VLAN. Value range: 1-4094

Default value

None

Remarks

This command is used to configure the destination address and VLAN of the DHCP-forwarded packets of L2 switch.

Example

The following example shows how to conduct the snooping inspection to the DHCP packets in VLAN2.

```
Switch_config#ip dhcp-relay helper-address 1.1.1.1 vlan 1
Switch_config#
```

1.1.25 show ip dhcp-relay snooping

Syntax

show ip dhcp-relay snooping

Parameter

None

Default value

None

Remarks

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
```

1.1.26 show ip dhcp-relay snooping binding

Syntax

show ip dhcp-relay snooping binding [all]

Parameter

None

Default value

None

Remarks

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
```

1.1.27 debug ip dhcp-relay snooping

Syntax

debug ip dhcp-relay snooping

no debug ip dhcp-relay snooping

Parameter

None

Default value

None

Remarks

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

1.1.28 debug ip dhcp-relay event

Syntax

debug ip dhcp-relay eventr

no debug ip dhcp-relay event

Parameter

None

Default value

None

Remarks

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_config#debug ip dhcp-relay event
Switch_config#
```

1.1.29 debug ip dhcp-relay binding**Syntax**

debug ip dhcp-relay binding

no debug ip dhcp-relay binding

Parameter

None

Default value

None

Remarks

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_config#debug ip dhcp-relay binding
Switch_config#
```