

# **DHCP Options Support**

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# **Restrictions for DHCP Options Support**

When DHCP snooping is configured on a primary VLAN, you cannot configure snooping with different settings on any of its secondary VLANs. You must configure DHCP snooping for all associated VLANs on the primary VLAN. If DHCP snooping is not configured on the primary VLAN and you try to configure it on the secondary VLAN, for example, VLAN 200, this message appears:

2w5d:%DHCP\_SNOOPING-4-DHCP\_SNOOPING\_PVLAN\_WARNING:DHCP Snooping configuration may not take effect

on secondary vlan 200. DHCP Snooping configuration on secondary vlan is derived from its primary vlan.

You can use the **show ip dhcp snooping** command to display all VLANs, both primary and secondary, that have DHCP snooping enabled.

# **Information About DHCP Options Support**

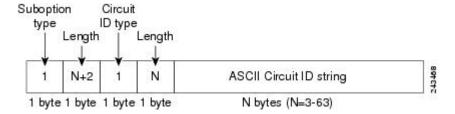
#### **DHCP Option 82 Configurable Circuit ID and Remote ID Overview**

The DHCP Option 82 Configurable Circuit ID and Remote ID feature enhances validation security by allowing you to determine what information is provided in the Option 82 Remote ID and Option 82 Circuit ID suboptions.

You can enable DHCP snooping on private VLANs. When DHCP snooping is enabled, the configuration is propagated to both a primary VLAN and its associated secondary VLANs. When DHCP snooping is enabled on a primary VLAN, it is also enabled on its secondary VLANs.

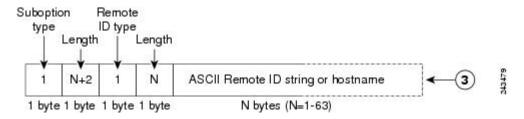
The figure below shows the packet format used when DHCP snooping is globally enabled and the **ip dhcp snooping information option** global configuration command is entered with the Circuit ID suboption.

Figure 1: Suboption Packet Formats, Circuit ID Specified



The figure below shows the packet format used when DHCP snooping is globally enabled and the **ip dhcp snooping information option** global configuration command is entered with the Remote ID suboption.

Figure 2: Suboption Packet Formats, Remote ID Specified



#### **DHCP Client Option 12**

The DHCP Client Option12 feature specifies the hostname of the client. While acquiring an IP address for an interface from the Dynamic Host Configuration Protocol (DHCP) server, if the client device receives the DHCP Hostname option inside the response, the hostname from that option is set. DHCP is used by DHCP clients to obtain configuration information for operation in an IP network.

Configuration parameters and other control information are carried in tagged data items that are stored in the options field of a DHCP message. The DHCP client provides flexibility by allowing Option 12 to be configured for a DHCP client.

Option 12 specifies the name of the client. The name might or might not be qualified with the local domain.

# **How to Configure DHCP Options Support**

### **Configuring DHCP Snooping on Private VLANs**

Perform these tasks to configure DHCP snooping on private primary and secondary VLANs:

- Configure a private, primary VLAN.
- · Associate with it an isolated VLAN.
- Create an SVI interface for the primary VLAN, and associate it with the appropriate loopback IP and helper address.
- Enable DHCP snooping on the primary VLAN, which also enables it on the associated VLAN.



Note

You must also configure a server to assign the IP address, a DHCP pool, and a relay route so that snooping can be effective.

#### **Procedure**

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode.
	Example:	Enter your password if prompted.
	Device> enable	
Step 2	configure terminal	Enters global configuration mode.
	Example:	
	Device# configure terminal	
Step 3	vlan vlan-id	Enters VLAN configuration mode for the named private VLAN.
	Example:	
	Device(config)# vlan 70	
Step 4	private-vlan primary	Designates the VLAN as the primary private VLAN.
	Example:	
	Device(config-vlan)# private-vlan primary	
Step 5	private-vlan association secondary-vlan-list	Configures private VLANs (PVLANs) and the association between a PVLAN and a secondary VLAN.
	Example:	
	Device(config-vlan)# private-vlan association 7	
Step 6	exit	Exits VLAN configuration mode and returns to global configuration mode.
	Example:	
	Device(ocnfig-vlan)# exit	
Step 7	vlan vlan_ID	Enters VLAN configuration mode for the named private VLAN.  • In this example, the associated secondary VLAN is vlan 7.
	Example:	
	Device(config)# vlan 7	
Step 8	private-vlan isolated	Designates the VLAN as an isolated private VLAN.
	Example:	

	Command or Action	Purpose	
	Device(config-vlan)# private-vlan isolated		
Step 9	exit	Exits VLAN configuration mode and returns to global configuration mode.	
	Example:		
	Device(config-vlan)# exit		
Step 10	interface vlan primary-vlan_id	Creates a dynamic Switch Virtual Interface	
	Example:	(SVI) on the primary VLAN, and enters interface configuration mode.	
	Device(config)# interface vlan 70		
Step 11	ip unnumbered loopback	Specifies IP unnumbered loopback.	
	Example:		
	Device(config-if)# ip unnumbered loopback1		
Step 12	private-vlan mapping [secondary-vlan-list   add secondary-vlan-list  remove secondary-vlan-list]	Creates a mapping between the primary and the secondary VLANs so that they share the same primary VLAN SVI.	
	Example:		
	Device(config-if)# private-vlan mapping	ī	
Step 13	exit	Exits interface configuration mode and returns	
	Example:	to global configuration mode.	
	Device(config-if)# exit		
Step 14	ip dhcp snooping vlan primary-vlan_id	Enables DHCP snooping on the primary and	
	Example:	associated VLANs.	
	Device(config)# ip dhcp snooping vlan 70		
Step 15	end	Exits global configuration mode and returns	
	Example:	to privileged EXEC mode.	
	Device(config)# end		

# **Configuration Examples for DHCP Options Support**

#### **Example: Mapping Private-VLAN Associations**

The following interface configuration example shows how to map the private-VLAN associations. The user-configurable circuit ID "aabb11" is inserted on the secondary VLAN, vlan 7.

```
Device> enable
Device# configure terminal
Device(config-if)# interface GigabitEthernet 9/0/1
Device(config-if)# switchport
Device(config-if)# switchport private-vlan host-association 70 7
Device(config-if)# switchport mode private-vlan host
Device(config-if)# no mls qos trust
Device(config-if)# spanning-tree portfast
Device(config-if)# exit
Device(config)# ip dhcp snooping vlan 7 information option format-type circuit-id string aabb11
Device(config)# end
```

# **Feature History for DHCP Options Support**

This table provides release and related information for the features explained in this module.

These features are available in all the releases subsequent to the one they were introduced in, unless noted otherwise.

Release	Feature	Feature Information
Cisco IOS XE Fuji 16.8.1a	DHCP Client Option 12	The DHCP Client Option 12 feature specifies the hostname of the client. While acquiring an IP address for an interface from the Dynamic Host Configuration Protocol (DHCP) server, if the client device receives the DHCP Hostname option inside the response, the hostname from that option is set. DHCP is used by DHCP clients to obtain configuration information for operation in an IP network.
	DHCP Option 82 Configurable Circuit ID and Remote ID	Provides naming choices in the Option 82 Remote ID and Option 82 Circuit ID suboptions.

Use the Cisco Feature Navigator to find information about platform and software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn.