



# DHCP Option 82 Configurable Circuit ID and Remote ID

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**Last Updated: December 20, 2011**

The Cisco DHCP Option 82 Configurable Circuit ID and Remote ID provides more naming choices in the Option 82 Remote ID and Option 82 Circuit ID suboptions. For example, you can use a switch-configured hostname or specify an ASCII text string for the remote ID, and you can configure an ASCII text string to override the circuit ID.



**Note**

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Refer to the configuration guide for your platform for information about configuring Dynamic Host Configuration Protocol (DHCP). See the “Configuring DHCP Snooping” section of the *Cisco 7600 Series Cisco IOS Software Configuration Guide, Release 12.2SR*, for information about configuring DHCP on Cisco 7600 series routers. See the “Additional References” section for sources of information about configuring DHCP on other Cisco platforms.

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## Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the Feature Information Table at the end of this document.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to [www.cisco.com/go/cfn](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.



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## Restrictions for DHCP Option 82 Configurable Circuit ID and Remote ID

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 Option 82 Configurable Circuit ID and Remote ID

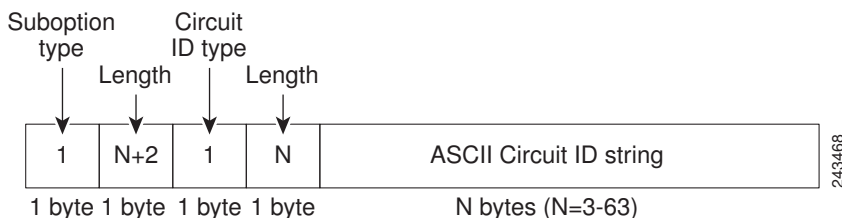
The DHCP Option 82 Configurable Circuit ID and Remote ID feature enhances validation security by allowing you to determine what information is provided in the Option 82 Remote ID and Option 82 Circuit ID suboptions.

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.

See the “DHCP Snooping Option-82 Data Insertion” section of the *Cisco 7600 Series Cisco IOS Software Configuration Guide* for information about using DHCP to centrally manage the IP address assignments for a large number of subscribers in residential, metropolitan Ethernet-access environments.

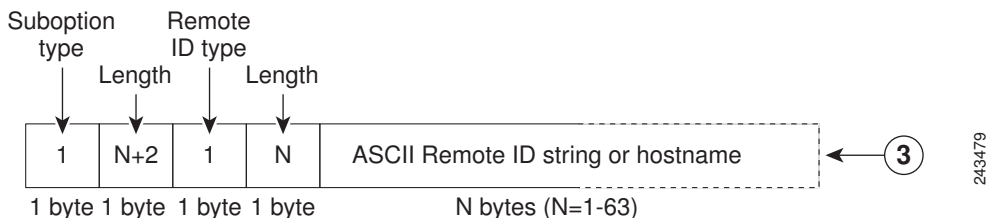
The figure below shows the packet format used when DHCP snooping is globally enabled and the **ip dhcp snooping information option** global configuration command is entered with the Circuit ID suboption.

**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**



# How to Configure DHCP Option 82 Configurable Circuit ID and Remote ID

- [Configuring DHCP Snooping on Private VLANs, page 3](#)

## 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.

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **vlan *vlan-id***
4. **private-vlan primary**
5. **private-vlan association *secondary-vlan-list***
6. **configure terminal**
7. **vlan *vlan\_ID***
8. **private-vlan isolated**
9. **configure terminal**
10. **interface vlan *primary-vlan\_id***
11. **ip unnumbered loopback**
12. **private-vlan mapping [*secondary-vlan-list* | **add** *secondary-vlan-list* | **remove** *secondary-vlan-list*]**
13. **configure terminal**
14. **ip dhcp snooping vlan *primary-vlan\_id***

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<p><b>enable</b></p> <p><b>Example:</b></p> <pre>Router&gt; enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>
Step 2	<p><b>configure terminal</b></p> <p><b>Example:</b></p> <pre>Router# configure terminal</pre>	<p>Enters global configuration mode.</p>
Step 3	<p><b>vlan <i>vlan-id</i></b></p> <p><b>Example:</b></p> <pre>Router(config)# vlan 70</pre>	<p>Enters VLAN configuration submode for the named private VLAN.</p>
Step 4	<p><b>private-vlan primary</b></p> <p><b>Example:</b></p> <pre>Router(config-vlan)# private-vlan primary</pre>	<p>Designates the VLAN as the primary private VLAN.</p>
Step 5	<p><b>private-vlan association <i>secondary-vlan-list</i></b></p> <p><b>Example:</b></p> <pre>Router(config-vlan)# private-vlan association 7</pre>	<p>Configures private VLANs (PVLANS) and the association between a PVLAN and a secondary VLAN.</p>
Step 6	<p><b>configure terminal</b></p> <p><b>Example:</b></p> <pre>Router# configure terminal</pre>	<p>Enters global configuration mode.</p>
Step 7	<p><b>vlan <i>vlan_ID</i></b></p> <p><b>Example:</b></p> <pre>Router(config)# vlan 7</pre>	<p>Enters VLAN configuration mode for the named private VLAN.</p> <ul style="list-style-type: none"> <li>In this example, the associated secondary VLAN, vlan 7.</li> </ul>

	Command or Action	Purpose
<b>Step 8</b>	<p><b>private-vlan isolated</b></p> <p><b>Example:</b></p> <pre>Router(config-vlan)# private-vlan isolated</pre>	Designates the VLAN as an isolated private VLAN.
<b>Step 9</b>	<p><b>configure terminal</b></p> <p><b>Example:</b></p> <pre>Router# configure terminal</pre>	Enters global configuration mode.
<b>Step 10</b>	<p><b>interface vlan <i>primary-vlan_id</i></b></p> <p><b>Example:</b></p> <pre>Router(config)# interface vlan 70</pre>	Creates a dynamic Switch Virtual Interface (SVI) on the primary VLAN.
<b>Step 11</b>	<p><b>ip unnumbered loopback</b></p> <p><b>Example:</b></p> <pre>Router(config)# ip unnumbered loopback1</pre>	Specifies IP unnumbered loopback.
<b>Step 12</b>	<p><b>private-vlan mapping</b> [<i>secondary-vlan-list</i>   <b>add</b> <i>secondary-vlan-list</i>] <b>remove</b> <i>secondary-vlan-list</i>]</p> <p><b>Example:</b></p> <pre>Router(config-vlan)# private-vlan mapping 7</pre>	Creates a mapping between the primary and the secondary VLANs so that they share the same primary VLAN SVI.
<b>Step 13</b>	<p><b>configure terminal</b></p> <p><b>Example:</b></p> <pre>Router# configure terminal</pre>	Enters global configuration mode.
<b>Step 14</b>	<p><b>ip dhcp snooping vlan <i>primary-vlan_id</i></b></p> <p><b>Example:</b></p> <pre>Router(config)# ip dhcp snooping vlan 70</pre>	Enables DHCP snooping on the primary and associated VLANs.

# Configuration Example for DHCP Option 82 Configurable Circuit ID and Remote ID

- [Mapping Private-VLAN Associations Example, page 6](#)

## Mapping Private-VLAN Associations Example

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.

```
interface GigabitEthernet9/0/1
switchport
switchport private-vlan host-association 70 7
switchport mode private-vlan host
no mls qos trust
spanning-tree portfast
ip dhcp snooping vlan 7 information option format-type circuit-id string aabb11
```

The following example shows how to define a DHCP class “C1” and specify the hex string of the corresponding class at the server by using the hex string that matches the circuit-ID value entered in the interface configuration example. That is, the hex string 006616162623131 mask ffffffff0000000000000000 matches the circuit ID aabb11.

```
ip dhcp class C1
relay agent information
relay-information hex 000000000000000000000000000000000000000000006616162623131 mask
ffffffff0000000000000000
```

## Additional References

### Related Documents

Related Topic	Document Title
Configuring DHCP on the Cisco 7600 series router	“Configuring DHCP Snooping” section of the <i>Cisco 7600 Series Cisco IOS Software Configuration Guide</i>
Configuring DHCP on the Cisco Catalyst 3550 multilayer switch	“ <a href="#">Configuring DHCP Features</a> ” section of the <i>Catalyst 3550 Multilayer Switch Software Configuration Guide</i>
Configuring DHCP on the Cisco Catalyst 2970 switch	“ <a href="#">Configuring DHCP Features</a> ” section of the <i>Catalyst 2970 Switch Software Configuration Guide</i>
Configuring DHCP on the Cisco Catalyst 3560 switch	“ <a href="#">Configuring DHCP Features and IP Source Guard</a> ” section of the <i>Catalyst 3560 Switch Software Configuration Guide</i>

Related Topic	Document Title
Configuring DHCP on the Cisco Catalyst 3750 switch	<a href="#">“Configuring DHCP Features and IP Source Guard”</a> section of the <i>Catalyst 3750 Switch Software Configuration Guide</i>
DHCP commands: complete command syntax, command mode command history, defaults, usage guidelines, and examples	<i>Cisco IOS IP Addressing Services Command Reference</i>
<b>Standards</b>	
Standard	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	--
<b>MIBs</b>	
MIB	MIBs Link
•	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a>
<b>RFCs</b>	
RFC	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	--
<b>Technical Assistance</b>	
Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

## Feature Information for DHCP Option 82 Configurable Circuit ID and Remote ID

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to [www.cisco.com/go/cfn](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

**Table 1** Feature Information for DHCP Option 82 Configurable Circuit ID and Remote ID

Feature Name	Releases	Feature Information
DHCP Option 82 Configurable Circuit ID and Remote ID	12.2(33)SRD1	Provides naming choices in the Option 82 Remote ID and Option 82 Circuit ID suboptions.  The following commands were introduced or modified: <b>ip dhcp snooping vlan</b> .

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