



## DHCP Option82

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### Information About DHCP Option 82

DHCP Option 82 is organized as a single DHCP option that contains information known by the relay agent. This feature provides additional security when DHCP is used to allocate network addresses, and enables the Cisco controller to act as a DHCP relay agent to prevent DHCP client requests from untrusted sources.

The controller can be configured to add Option 82 information to DHCP requests from clients before forwarding the requests to a DHCP server. The DHCP server can then be configured to allocate IP addresses to the wireless client based on the information present in DHCP Option 82.

DHCP provides a framework for passing configuration information to hosts on a TCP/IP network. Configuration parameters and other control information are carried in tagged data items that are stored in the Options field of the DHCP message. The data items themselves are also called options. Option 82 contains information known by the relay agent.

The Relay Agent Information option is organized as a single DHCP option that contains one or more suboptions that convey information known by the relay agent. Option 82 was designed to allow a DHCP Relay Agent to insert circuit-specific information into a request that is being forwarded to a DHCP server. This option works by setting two suboptions:

- Circuit ID
- Remote ID

The Circuit ID suboption includes information that is specific to the circuit the request came in on. This suboption is an identifier that is specific to the relay agent. Thus, the circuit that is described will vary depending on the relay agent.

The Remote ID suboption includes information on the remote host-end of the circuit. This suboption usually contains information that identifies the relay agent. In a wireless network, this would likely be a unique identifier of the wireless access point.



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**Note** All valid Remote ID combinations are separated with a colon (:) as the delimiter.

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You can configure the following DHCP Option 82 options in a controller :

- DHCP Enable
- DHCP Opt82 Enable
- DHCP Opt82 Ascii
- DHCP Opt82 RID
- DHCP Opt Format
- DHCP AP MAC
- DHCP SSID
- DHCP AP ETH MAC
- DHCP AP NAME
- DHCP Site Tag
- DHCP AP Location
- DHCP VLAN ID



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**Note** The controller includes the SSID in ASCII and the VLAN-ID in hexadecimal format within the remote-ID sub-option of option 82 in the outgoing DHCP packets to the server for the following configurations:

```
ipv4 dhcp opt82 format ssid  
ipv4 dhcp opt82 format vlan-id
```

However, if *ipv4 dhcp opt82 ascii* configuration is also present, the controller adds VLAN-ID and SSID in ASCII format.

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For Cisco Catalyst 9800 Series Configuration Best Practices, see the following link: <https://www.cisco.com/c/en/us/products/collateral/wireless/catalyst-9800-series-wireless-controllers/guide-c07-743627.html>

# Configuring DHCP Option 82 Global Interface

## Configuring DHCP Option 82 Globally Through Server Override (CLI)

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b> <b>Example:</b> Device# <code>configure terminal</code>	Enters global configuration mode.
<b>Step 2</b>	<b>ip dhcp-relay information option server-override</b> <b>Example:</b> Device(config)# <code>ip dhcp-relay information option server-override</code>	Inserts global server override and link selection suboptions.

## Configuring DHCP Option 82 Through Server Override (CLI)

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b> <b>Example:</b> Device# <code>configure terminal</code>	Enters global configuration mode.
<b>Step 2</b>	<b>ip dhcp compatibility suboption server-override [cisco   standard]</b> <b>Example:</b> Device(config)# <code>ip dhcp compatibility suboption server-override cisco</code>	Configures the server override suboption to an RFC or Cisco specific value.
<b>Step 3</b>	<b>ip dhcp compatibility suboption link-selection [cisco   standard]</b> <b>Example:</b> Device(config)# <code>ip dhcp compatibility suboption link-selection cisco</code>	Configures the link-selection suboption to an RFC or Cisco specific value.

## Configuring DHCP Option 82 Globally Through Different SVIs (GUI)

### Procedure

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- Step 1** Choose **Configuration > VLAN**.
- Step 2** Choose a VLAN from the drop-down list.  
The **Edit SVI** window appears.
- Step 3** Click the **Advanced** tab.
- Step 4** Choose an option from the **IPv4 Inbound ACL** drop-down list.
- Step 5** Choose an option from the **IPv4 Outbound ACL** drop-down list.
- Step 6** Choose an option from the **IPv6 Inbound ACL** drop-down list.
- Step 7** Choose an option from the **IPv6 Outbound ACL** drop-down list.
- Step 8** Enter an IP address in the **IPv4 Helper Address** field.
- Step 9** Set the status to **Enabled** if you want to enable the **Relay Information Option** setting.
- Step 10** Enter the **Subscriber ID**.
- Step 11** Set the status to **Enabled** if you want to enable the **Server ID Override** setting.
- Step 12** Set the status to **Enabled** if you want to enable the **Option Insert** setting.
- Step 13** Choose an option from the **Source-Interface Vlan** drop-down list.
- Step 14** Click **Update & Apply to Device**.
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## Configuring DHCP Option 82 Globally Through Different SVIs (CLI)

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b>  <b>Example:</b>  Device# <code>configure terminal</code>	Enters global configuration mode.
<b>Step 2</b>	<b>ip dhcp-relay source-interface vlan <i>vlan-id</i></b>  <b>Example:</b>  Device(config)# <code>ip dhcp-relay source-interface vlan 74</code>	Sets global source interface for relayed messages.

# Configuring DHCP Option 82 Format

## Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b> <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 2</b>	<b>wireless profile policy <i>policy-name</i></b> <b>Example:</b> Device (config) # <b>wireless profile policy pp3</b>	Enables configuration for the specified profile policy.
<b>Step 3</b>	<b>shutdown</b> <b>Example:</b> Device (config-wireless-policy) # <b>shutdown</b>	Shuts down the profile policy.
<b>Step 4</b>	<b>vlan <i>vlan-name</i></b> <b>Example:</b> Device (config-wireless-policy) # <b>vlan 72</b>	Assigns the profile policy to a VLAN.
<b>Step 5</b>	<b>session-timeout <i>value-btwn-20-86400</i></b> <b>Example:</b> Device (config-wireless-policy) # <b>session-timeout 300</b>	(Optional) Sets the session timeout value in seconds. The range is between 20-86400.
<b>Step 6</b>	<b>idle-timeout <i>value-btwn-15-100000</i></b> <b>Example:</b> Device (config-wireless-policy) # <b>idle-timeout 15</b>	(Optional) Sets the idle timeout value in seconds. The range is between 15-100000.
<b>Step 7</b>	<b>central switching</b> <b>Example:</b> Device (config-wireless-policy) # <b>central switching</b>	Enables central switching.
<b>Step 8</b>	<b>ipv4 dhcp opt82</b> <b>Example:</b> Device (config-wireless-policy) # <b>ipv4 dhcp opt82</b>	Enables DHCP Option 82 for the wireless clients.
<b>Step 9</b>	<b>ipv4 dhcp opt82 ascii</b> <b>Example:</b>	(Optional) Enables ASCII on the DHCP Option 82 feature.

	Command or Action	Purpose
	Device(config-wireless-policy)# <b>ipv4 dhcp opt82 ascii</b>	
<b>Step 10</b>	<b>ipv4 dhcp opt82 rid</b>  <b>Example:</b> Device(config-wireless-policy)# <b>ipv4 dhcp opt82 rid</b>	(Optional) Supports the addition of Cisco 2 byte Remote ID (RID) for the DHCP Option 82 feature.
<b>Step 11</b>	<b>ipv4 dhcp opt82 format</b> { <b>ap-dmac ap-hcain apmac apname policy sg sid vlan-id</b> }  <b>Example:</b> Device(config-wireless-policy)# <b>ipv4 dhcp opt82 format apmac</b>	Enables DHCP Option 82 on the corresponding AP.  For information on the various options available with the command, see <a href="#">Cisco Catalyst 9800 Series Wireless Controller Command Reference</a> .
<b>Step 12</b>	<b>no shutdown</b>  <b>Example:</b> Device(config-wireless-policy)# <b>no shutdown</b>	Enables the profile policy.

## Configuring DHCP Option82 Through a VLAN Interface

### Configuring DHCP Option 82 Through Option-Insert Command (CLI)

#### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b>  <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 2</b>	<b>interface vlan <i>vlan-id</i></b>  <b>Example:</b> Device(config)# <b>interface vlan 72</b>	Configures a VLAN ID.
<b>Step 3</b>	<b>ip dhcp relay information option-insert</b>  <b>Example:</b> Device(config-if)# <b>ip dhcp relay information option-insert</b>	Inserts relay information in BOOTREQUEST.
<b>Step 4</b>	<b>ip address <i>ip-address</i></b>  <b>Example:</b>	Configures the IP address for the interface.

	Command or Action	Purpose
	Device(config-if)# <b>ip address 9.3.72.38 255.255.255.0</b>	
<b>Step 5</b>	<b>ip helper-address <i>ip-address</i></b> <b>Example:</b> Device(config-if)# <b>ip helper-address 9.3.72.1</b>	Configures the destination address for UDP broadcasts.
<b>Step 6</b>	<b>[no] mop enabled</b> <b>Example:</b> Device(config-if)# <b>no mop enabled</b>	Disables the MOP for an interface.
<b>Step 7</b>	<b>[no] mop sysid</b> <b>Example:</b> Device(config-apgroup)# <b>[no] mop sysid</b>	Disables the task of sending MOP periodic system ID messages.

## Configuring DHCP Option 82 Through the server-ID-override Command (CLI)

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b> <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 2</b>	<b>ip dhcp compatibility suboption server-override cisco</b> <b>Example:</b> Device(config)# <b>ip dhcp compatibility suboption server-override cisco</b>	Configures the server-id override suboption to an RFC or Cisco specific value.
<b>Step 3</b>	<b>ip dhcp compatibility suboption link-selection cisco</b> <b>Example:</b> Device(config)# <b>ip dhcp compatibility suboption link-selection cisco</b>	Configures the link-selection suboption to an RFC or Cisco specific value.
<b>Step 4</b>	<b>interface vlan <i>vlan-id</i></b> <b>Example:</b> Device(config)# <b>interface vlan 72</b>	Configures a VLAN ID.
<b>Step 5</b>	<b>ip dhcp relay information option server-id-override</b> <b>Example:</b>	Inserts the server id override and link selection suboptions.

	Command or Action	Purpose
	Device(config-if)# <b>ip dhcp relay information option server-id-override</b>	
<b>Step 6</b>	<b>ip address</b> <i>ip-address</i>  <b>Example:</b> Device(config-if)# <b>ip address 9.3.72.38 255.255.255.0</b>	Configures the IP address for the interface.
<b>Step 7</b>	<b>ip helper-address</b> <i>ip-address</i>  <b>Example:</b> Device(config-if)# <b>ip helper-address 9.3.72.1</b>	Configures the destination address for UDP broadcasts.
<b>Step 8</b>	<b>[no] mop enabled</b>  <b>Example:</b> Device(config-if)# <b>no mop enabled</b>	Disables MOP for an interface.
<b>Step 9</b>	<b>[no] mop sysid</b>  <b>Example:</b> Device(config-if)# <b>[no] mop sysid</b>	Disables the task of sending MOP periodic system ID messages.

## Configuring DHCP Option 82 Through a Subscriber-ID (CLI)

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b>  <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 2</b>	<b>interface vlan</b> <i>vlan-id</i>  <b>Example:</b> Device(config)# <b>interface vlan 72</b>	Configures a VLAN ID.
<b>Step 3</b>	<b>ip dhcp relay information option subscriber-id</b> <i>subscriber-id</i>  <b>Example:</b> Device(config-if)# <b>ip dhcp relay information option subscriber-id test10</b>	Inserts the subscriber identifier suboption.
<b>Step 4</b>	<b>ip address</b> <i>ip-address</i>  <b>Example:</b>	Configures the IP address for the interface.



	Command or Action	Purpose
	Device(config-if)# ip address 9.3.72.38 255.255.255.0	
<b>Step 5</b>	<b>ip helper-address</b> <i>ip-address</i>  <b>Example:</b> Device(config-if)# ip helper-address 9.3.72.1	Configures the destination address for UDP broadcasts.
<b>Step 6</b>	<b>[no] mop enabled</b>  <b>Example:</b> Device(config-if)# no mop enabled	Disables MOP for an interface.
<b>Step 7</b>	<b>[no] mop sysid</b>  <b>Example:</b> Device(config-apgroup)# [no] mop sysid	Disables the task of sending MOP periodic system ID messages.

## Configuring DHCP Option 82 Through server-ID-override and subscriber-ID Commands (CLI)

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b>  <b>Example:</b> Device# configure terminal	Enters global configuration mode.
<b>Step 2</b>	<b>interface vlan</b> <i>vlan-id</i>  <b>Example:</b> Device(config)# interface vlan 72	Configures a VLAN ID.
<b>Step 3</b>	<b>ip dhcp relay information option</b> <b>server-id-override</b>  <b>Example:</b> Device(config-if)# ip dhcp relay information option server-id-override	Inserts server ID override and link selection suboptions.
<b>Step 4</b>	<b>ip dhcp relay information option</b> <b>subscriber-id</b> <i>subscriber-id</i>  <b>Example:</b> Device(config-if)# ip dhcp relay information option subscriber-id test10	Inserts the subscriber identifier suboption.

	Command or Action	Purpose
<b>Step 5</b>	<b>ip address</b> <i>ip-address</i>  <b>Example:</b> Device(config-if) # <b>ip address 9.3.72.38</b> 255.255.255.0	Configures the IP address for the interface.
<b>Step 6</b>	<b>ip helper-address</b> <i>ip-address</i>  <b>Example:</b> Device(config-if) # <b>ip helper-address</b> 9.3.72.1	Configures the destination address for UDP broadcasts.
<b>Step 7</b>	<b>[no] mop enabled</b>  <b>Example:</b> Device(config-if) # <b>no mop enabled</b>	Disables the MOP for an interface.
<b>Step 8</b>	<b>[no] mop sysid</b>  <b>Example:</b> Device(config-apgroup) # <b>[no] mop sysid</b>	Disables the task of sending MOP periodic system ID messages.

## Configuring DHCP Option 82 Through Different SVIs (CLI)

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b>  <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 2</b>	<b>interface vlan</b> <i>vlan-id</i>  <b>Example:</b> Device(config) # <b>interface vlan 72</b>	Configures a VLAN ID.
<b>Step 3</b>	<b>ip dhcp relay source-interface vlan</b> <i>vlan-id</i>  <b>Example:</b> Device(config-if) # <b>ip dhcp relay</b> <b>source-interface vlan 74</b>	Configures a source interface for relayed messages on a VLAN ID.
<b>Step 4</b>	<b>ip address</b> <i>ip-address</i>  <b>Example:</b> Device(config-if) # <b>ip address 9.3.72.38</b> 255.255.255.0	Configures the IP address for the interface.

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 5</b>	<b>ip helper-address</b> <i>ip-address</i> <b>Example:</b> Device(config-if)# <b>ip helper-address</b> 9.3.72.1	Configure the destination address for UDP broadcasts.
<b>Step 6</b>	<b>[no] mop enabled</b> <b>Example:</b> Device(config-if)# <b>no mop enabled</b>	Disables the MOP for an interface.
<b>Step 7</b>	<b>[no] mop sysid</b> <b>Example:</b> Device(config-apgroup)# <b>[no] mop sysid</b>	Disables the task of sending MOP periodic system ID messages.

