

### Objective

This tech note outlines the main differences in Dynamic Host Configuration Protocol (DHCP) Relay support between Cisco® NX-OS Software and Cisco IOS® Software. Sample configurations are included for Cisco NX-OS and Cisco IOS Software to demonstrate the similarities and differences. Please refer to the [NX-OS documentation on Cisco.com](#) for a complete list of supported features.

### DHCP Relay Overview

The DHCP Relay feature was designed to forward DHCP broadcast requests as unicast packets to a configured DHCP server or servers for redundancy.

### Important Cisco NX-OS and Cisco IOS Software Differences

In Cisco NX-OS:

- DHCP command-line interface (CLI) configuration and verification commands are not available until you enable the DHCP feature with the **feature dhcp** command.
- The DHCP service is not enabled by default, whereas it is enabled by default in Cisco IOS Software.
- The DHCP-Relay command **ip dhcp relay address** is equivalent to the **ip helper-address** command in Cisco IOS Software.
- Only packets destined to User Datagram (UDP) port 67 (Bootps) and 68 (Bootpc) are forwarded by the relay, whereas Cisco IOS Software forwards additional protocols (Trivial File Transfer Protocol [TFTP], Domain Name System [DNS], Time, NetBios, and Neighbor Discovery).
- The Cisco NX-OS cannot act as a DHCP server.
- VRF-Aware (Inter-VRF) DHCP-Relay can be configured to forward DHCP requests to DHCP servers located in a specific VRF instance that is different than the interface VRF instance. The Cisco IOS Software does not support VRF-Aware DHCP-Relay.

### Things You Should Know

The following list provides some additional facts about Cisco NX-OS that should be helpful when designing, configuring, and maintaining networks with the DHCP-Relay feature.

- If you remove the **feature dhcp** command, all relevant DHCP configuration information is also removed.
- Prior to NX-OS 4.2(1), the **service dhcp** command enabled the DHCP Relay feature. In NX-OS 4.2(1) the command was changed to **ip dhcp relay**.
- Sixteen DHCP Relay addresses can be configured per interface.
- Assign a DHCP Relay to every interface that may have a client, even if the server resides in the same Layer-2 broadcast domain (VLAN). - This has been fixed in 4.2(1) software.
- DHCP Option 82 information can be configured with the **ip dhcp relay information option** global command.
- The DHCP Relay configuration can be verified with the **show ip dhcp relay** command.

### Configuration Comparison

## Cisco\_NX-OS/IOS\_DHCP\_Relay\_Comparison

The following sample code shows configuration similarities and differences between the Cisco NX-OS and Cisco IOS Software CLIs. There are two significant differences: in Cisco NX-OS, the DHCP feature must be enabled, and the DHCP relay service is not enabled by default.

### *Cisco IOS CLI*

### *Cisco NX-OS CLI*

#### Enabling the DHCP Feature

```
feature dhcp
```

#### Enabling the DHCP Service

```
ip dhcp relay
```

#### Configuring Option 82 Information

```
ip dhcp relay information option
```

#### Configuring DHCP Relay on an Interface

```
interface ethernet 1/1
```

```
ip address 192.168.10.1/24
```

```
ip dhcp relay address 1.1.1.1
```

#### Configuring Inter-VRF DHCP-Relay on an Interface

```
ip dhcp relay information option
```

```
ip dhcp relay information option vpn
```

```
interface ethernet 1/1
```

```
ip address 192.168.10.1/24
```

```
ip dhcp relay address 10.10.10.10 use-vrf  
common-services
```

#### Verification Command Comparison

The following table compares some useful **show** commands for verifying and troubleshooting the DHCP-Relay feature.

Cisco NX-OS DHCP-Relay	Cisco IOS Software DHCP-Relay	Command Description
<code>show ip dhcp relay</code>	-	Displays all DHCP-Relay configuration information
<code>show ip dhcp relay address</code>	-	

### Cisco\_NX-OS/IOS\_DHCP\_Relay\_Comparison

		Displays a list of DHCP-Relay(s) configured for all interfaces
<b>show ip dhcp relay address interface</b>	-	Displays the DHCP-Relay(s) configured for a specific interface