

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
show ip dhcp relay	-	Displays all DHCP-Relay configuration information
show ip dhcp relay address	-	

Cisco_NX-OS/IOS_DHCP_Relay_Comparison

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