



# CHAPTER 13

## Dynamic Host Configuration Protocol

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Dynamic Host Configuration Protocol (DHCP) server enables Cisco Unified IP Phones, connected to either the customer data or voice Ethernet network, to dynamically obtain their IP addresses and configuration information. It uses Domain Name System (DNS) to resolve host names both within and outside the cluster. For information on configuring DHCP servers and subnets see “[DHCP Server Configuration](#)” in the *Cisco Unified Communications Manager Administration Guide*.

This section covers the following topics:

- [DHCP Server, page 13-1](#)
- [Domain Name System, page 13-2](#)
- [Understanding How Devices Identify the TFTP Server, page 13-3](#)
- [Migration, page 13-3](#)
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## DHCP Server



### Tip

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If your network uses IPv6, see “[Internet Protocol Version 6 \(IPv6\)](#)” in the *Cisco Unified Communications Manager Features and Services Guide* for information on DHCPv6.

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Only one DHCP server per Cisco Unified Communications Manager cluster should exist. Different clusters can share one DHCP server, if the Cisco Unified Communications Manager clusters are not geographically separated. In the later case, it may need one DHCP server per location. If the DHCP server is shared, some Cisco Unified Communications Manager clusters may have no DHCP servers.

Because DHCP server is a standalone server, no backup server exists in case the Cisco Unified Communications Manager that is configured as DHCP server fails.

Cisco Unified Communications Manager administrator configures the DHCP servers and subnets. You can configure one server for each node and multiple subnets for each server.



### Note

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You must update the DNS server with the appropriate Cisco Unified Communications Manager name and address information before using that information to configure the Cisco Unified Communications Manager server.

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For Cisco Unified Communications Manager, you must reboot the node if an IP address changes. As long as the node is up, it will keep refreshing the lease period for which the DHCP server provides an IP address, and hence retain the same IP address. However, hostname of the node must remain the same, even if the IP address changes.

#### Additional Information

See the “[Where to Find More Information](#)” section on page 13-4.

## Domain Name System

Two types of implementations exist for DNS.

- Corporate DNS, if available
- Internal DDNS service transparent to the user

The Cisco Unified Communications Manager Administration provides support to configure different scopes for the DHCP server. For each scope, you can enter a range of IP addresses and subnet masks and you can also configure options.

For configuring DNS with Corporate DNS, the corporate DNS infrastructure is used, and default DNS configuration will act as a cache only service to this corporate DNS service.

When no corporate DNS service exists, Dynamic Domain Name System (DDNS) service, a service that allows dynamic updates to hostname and IP addresses, is used to implement a clusterwide DNS infrastructure. This also serves other devices on the network that are interacting with the cluster. Each node has DNS running on it. These DNS servers get configured with hostname and IP address information for all the nodes and any other devices in the cluster. The DNS on the first node in the cluster gets configured as primary DNS, while all other nodes get configured as secondary nodes.

When any change to DNS configuration occurs to the first node of Cisco Unified Communications Manager, the change automatically gets transferred to other nodes. Other devices in the network can point to any of the nodes in the cluster for the DNS lookups.



#### Note

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Any change to the host name of a node will require the node to be reinserted in the cluster. Before you change the host name of a node, review the document, *Changing the IP Address and Host Name for Cisco Unified Communications Manager Release 8.5(1)*.

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When nodes are being configured using by DHCP, the DHCP client on the node will get configured to dynamically update DDNS.

Whenever nodes are configured by using DHCP, one the following events occurs:

- The corporate DNS can accept dynamic updates.
- DNS gets updated within the cluster
- DHCP configuration for the nodes gets tied with their MAC addresses of the node for which you are requesting an IP address. If the node requests an IP address again, DHCP matches the MAC address to the previous request and provides the same IP address.

You must update the DNS server with the appropriate Cisco Unified Communications Manager name and address information before using that information to configure the Cisco Unified Communications Manager server.

**Caution**

You can provision your DNS server for IPv6 prior to upgrading from Cisco Unified Communications Manager Release 7.0(x) to Release 8.5(1). However, do not configure the DNS records for Cisco Unified Communications Manager for IPv6 until after you upgrade to Release 8.5(1). Configuring the DNS records for Cisco Unified Communications Manager for IPv6 prior to upgrading to Release 8.5(1) causes the upgrade to fail and causes your system to become nonfunctional after you reboot.

If the AAAA record or A record do not map correctly, calls may fail.

**Additional Information**

See the [“Where to Find More Information”](#) section on page 13-4.

## DHCP Server Configuration Process

Use the following steps to configure DHCP Process:

1. Enable the DHCP functionality from the serviceability window.
2. Verify the DHCP monitor process is started on the node where the DHCP is enabled.
3. Use Cisco Unified Communications Manager Administration to configure the scopes and options.
4. Verify that configuration is captured in the `/etc/dhcpd.conf` file of targeted Cisco Unified Communications Manager.
5. Verify the DHCP server daemon is running with new configuration.
6. Make sure DHCP monitor process logs at the specific trace settings.
7. Make sure the error alarm is raised when the DHCP daemon is stopped and the info alarm is raised when the daemon is restarted.

**Additional Information**

See the [“Where to Find More Information”](#) section on page 13-4.

## Understanding How Devices Identify the TFTP Server

For information on how devices identify the TFTP server, see the [“Understanding How Devices Identify the TFTP Server”](#) section on page 10-9 (in the [“Cisco TFTP”](#) chapter).

**Additional Information**

See the [“Where to Find More Information”](#) section on page 13-4.

## Migration

Because no migration is provided from Window 2000 based DHCP configuration to the DHCP configuration, the administrator must reconfigure the system.

**Additional Information**

See the [“Where to Find More Information”](#) section on page 13-4.

## Alarms

Two alarms get generated for DHCP.

- CiscoDhcpdFailure
- CiscoDhcpdRestarted

See the *Cisco Unified Serviceability Administration Guide* for more information on alarms.

**Additional Information**

See the [“Where to Find More Information”](#) section on page 13-4.

## Where to Find More Information

- [Cisco TFTP](#), page 10-1
- [Internet Protocol Version 6 \(IPv6\)](#), *Cisco Unified Communications Manager Features and Services Guide*
- [DHCP Server Configuration](#), *Cisco Unified Communications Manager Administration Guide*
- [DHCP Subnet Configuration](#), *Cisco Unified Communications Manager Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Security Guide*
- *Changing the IP Address and Host Name for Cisco Unified Communications Manager Release 8.5(1)*