



Installation Tasks

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Installation Task Flows

Choose one of the following installation task flows:

Task Flow	Description
Cluster Installs	
Basic Installation Task Flow, on page 3	Use this method for basic installs of any of the following deployments: <ul style="list-style-type: none"> • Cisco Unified Communications Manager telephony cluster installs • Standard Deployments (Decentralized) for IM and Presence
Install IM and Presence Central Cluster (Basic Installation), on page 5	For Centralized Deployments of IM and Presence, use this task flow for basic installs of the IM and Presence central cluster.
Touchless Installation Task Flow, on page 18	Use this task flow to install a Unified Communications Manager or IM and Presence Service cluster dynamically without the need for manual intervention. Applies to either Centralized or Standard (Decentralized) IM and Presence deployments.
Install with Data Import, on page 24	Complete this tasks to install a Unified Communications Manager or IM and Presence Service cluster using the Install with Data Import .
Automated Installation using vApp properties and VMware OVF Tool, on page 25	Use this method to install a Unified Communications Manager or IM and Presence Service cluster using skip-install OVAs.

Task Flow	Description
Node Installs	
Add a New Node to an Existing Cluster, on page 22	Complete these tasks if you want to add a node to an existing Unified Communications Manager or IM and Presence Service cluster.



Note You can also use Cisco Prime Collaboration Deployment to install your cluster. For more information, see *Cisco Prime Collaboration Deployment Administration Guide*.

Before You Begin

Before you begin the installation, review the following information:

- Make sure that the subscriber nodes that you are installing can connect to the publisher node server during the installation.
- Make sure that all Unified Communications Manager servers in a cluster have the same software version. Make sure that all IM and Presence servers in a cluster have the same version of the released software. The only exception is during a cluster software upgrade, during which a temporary mismatch is allowed. If you are installing IM and Presence nodes, Unified Communications Manager and IM and Presence Service software versions must have the same major and minor release number.
- If you are installing on an existing cluster, do not attempt to perform any configuration tasks during the installation.
- Be aware that directory names and filenames that you enter while you are running the installation program are case-sensitive.
- For IM and Presence Service installations, make sure that you know whether you are installing IM and Presence Service in a Centralized Deployment or in a Standard Deployment (Decentralized). For details, see [Cluster Topology for IM and Presence](#).

Installation Wizard

The following table provides instructions on how to navigate within the installation wizard.

Table 1: Installation Wizard Navigation

To Do This	Press This
Move to the next field	Tab
Move to the previous field	Alt-Tab
Choose an option	Space bar or Enter
Scroll up or down in a list	Up or down arrow
Go to the previous window	Space bar or Enter to choose Back (when available)

To Do This	Press This
Get help information on a window	Space bar or Enter to choose Help (when available)



Note The installation wizard supports the following characters:

- alphanumeric: A-Z, a-z, and 0-9- spaces
- spaces and # (except as the first character)
- only the following special characters: \, - _ ; { } () []

all other characters are not supported.

Basic Installation Task Flow

Complete the following tasks to install Unified Communications Manager and IM and Presence Service cluster using the basic installation process:

- Installs of a Cisco Unified Communications Manager telephony cluster
- Installs of the IM and Presence Service in a Standard Deployment (Decentralized).



Note Depending on your installation scenario, you may not need to perform all of the tasks. For example, if you are installing the IM and Presence Service on an existing Unified Communications Manager cluster that is already in use, you only need to complete the tasks for installing the IM and Presence Service.

Before You Begin

[Preinstall Tasks for Unified Communications Manager](#)

[Preinstall Tasks for the IM and Presence Service](#)

	Cisco Unified Communications Manager	IM and Presence Service	Description
Step 1	Basic Installation, on page 6	—	Begin the install process for Unified Communications Manager.
Step 2	Enter Configuration Information for Preinstalled Servers, on page 7	—	Pre-installed servers only (e.g., Cisco Business Edition). Add pre-configured information to the installation. Otherwise, skip this task.

	Cisco Unified Communications Manager	IM and Presence Service	Description
Step 3	Optional. Complete either of the following tasks: <ul style="list-style-type: none"> • Upgrade Install Image from Local Source, on page 8 • Upgrade Install Image from Remote Server, on page 9 	—	Upgrade your install image to a newer version. This optional task is available for Unified Communications Manager installs only.
Step 4	Configure Basic Installation, on page 11	—	Continue with the Basic Installation process by configuring your installation.
Step 5	Configure the Unified Communications Manager Publisher, on page 13	—	Configure and install software on the publisher node.
Step 6	Add Subscriber Nodes, on page 16	—	Add subscriber nodes to the publisher node.
Step 7	Install Subscriber Nodes, on page 17	—	Install software on your Cisco Unified Communications Manager subscriber nodes.
Step 8	—	Basic Installation, on page 6	Begin the install process for the IM and Presence Service.
Step 9	—	Enter Configuration Information for Preinstalled Servers, on page 7	Pre-installed servers only (e.g., Cisco Business Edition). Add pre-configured information to the installation. Otherwise, skip this task.
Step 10	—	Configure Basic Installation, on page 11	Continue Basic Install process for IM and Presence by configuring the installation.
Step 11	—	Configure the IM and Presence Publisher, on page 16	Configure and complete the installation for the IM and Presence database publisher node.
Step 12	Add Subscriber Nodes, on page 16	—	On the Cisco Unified Communications Manager publisher node, add IM and Presence subscribers.

	Cisco Unified Communications Manager	IM and Presence Service	Description
Step 13	—	Install Subscriber Nodes, on page 17	Install software on your IM and Presence Service subscriber nodes.

Install IM and Presence Central Cluster (Basic Installation)

Complete these tasks to install an IM and Presence Service Centralized Deployment using Basic Installation.

- Unified CM Publisher (non-telephony)—The IM and Presence central cluster requires a local Unified Communications Manager publisher node within the central cluster for database and user provisioning. This node does not handle telephony. There is no need to install subscriber nodes.
- IM and Presence Central Cluster



Note For basic installation of IM and Presence Service in a Decentralized (Standard) deployment, follow the [Basic Installation Task Flow, on page 3](#) to install both the telephony and IM and Presence clusters.

	Unified CM Publisher (non-telephony)	IM and Presence Central Cluster	Description
Step 1	Basic Installation, on page 6		Begin the install process for the Unified CM publisher node.
Step 2	Configure Basic Installation, on page 11		Configure the Basic Installation.
Step 3	Configure the Unified Communications Manager Publisher, on page 13		Configure the Unified CM publisher node.
Step 4		Basic Installation, on page 6	Begin the install process for the IM and Presence central cluster.
Step 5		Configure Basic Installation, on page 11	Continue with the Basic Install process for IM and Presence by continuing the installation.
Step 6		Configure the IM and Presence Publisher, on page 16	Configure the IM and Presence database publisher node.
Step 7	Add Subscriber Nodes, on page 16		On the Unified CM publisher, add IM and Presence subscriber nodes.
Step 8		Install Subscriber Nodes, on page 17	Complete the installation on the IM and Presence subscribers.

Basic Installation

Use this procedure for Unified Communications Manager and IM and Presence Service installations to begin the basic install process. You can use this procedure if you are installing a cluster or adding a node to an existing cluster.

Procedure

-
- Step 1** If you are using a configuration file created by the Answer File Generator, ensure that virtual floppy image in a location where the virtual machine can access it.
- Note** If you have a Cisco Business Edition 6000/7000 appliance with the software pre-installed, you do not need to install from a DVD or ISO file, unless you want to re-image the server with a later product release. Go directly to the configure basic installation procedure to enter the configuration information. For more information, see *Installation Guide for Cisco Business Edition 6000* or *Installation Guide for Cisco Business Edition 7000*.
- Step 2** Perform one of the following:
- If you are installing from a DVD drive a VMware ESXi server host, insert the installation DVD into the tray and restart the virtual machine, so that it boots from the DVD.
 - If you are installing from a data store ISO file located on the local ESXi host or on a storage area network (SAN), edit the CD or DVD drive on the virtual machine to select the data store ISO file. Select the option to connect at power on, and restart the virtual machine. If you have configured the virtual machine to use the ISO at the same time that you created the virtual machine using the OVA file, skip this step and complete the rest of the procedure.
- After the server completes the boot sequence, the **DVD Found** window displays.
- Step 3** Click **Yes** to perform the media check. Or click **No** to skip the media check.
- The media check verifies the integrity of the DVD. If the DVD has passed the media check previously, choose to skip the media check.
- Step 4** If you click **Yes** to perform the media check, the **Media Check Result** window displays.
- a) If the **Media Check Result** displays **Pass**, click **OK** to continue the installation.
 - b) If the media check fails, either download another copy from cisco.com or obtain another DVD directly from Cisco.
- Step 5** In the **Product Deployment Selection** window, specify which product you want to install:
- Unified Communications Manager—Choose the product and click **OK**.
 - IM and Presence Service—Select **OK**.
 - Cisco Unity Connection—Select the product and click **OK**.
- Note** The window displays the products that are supported and not supported by your hardware. If only one product is supported, you do not choose which product to install.
- Step 6** If the software is currently installed on the server, the **Overwrite Hard Drive** window opens and displays the current software version on your hard drive, DVD or ISO file. Click **Yes** to continue with the installation or **No** to cancel.
- Caution** If you choose to continue with the installation, all existing data on your hard drive gets overwritten and destroyed.

The **Platform Installation Wizard** window displays.

Step 7 In the **Platform Installation Wizard** window, choose one of the following options:

- To continue with the basic installation process, choose **Proceed** and continue. Allows you to configure basic installation process.
- To continue with **Install with Data Import**, choose **Import** and continue.

Allows you to configure Unified Communications Manager and Instant Messaging and Presence Service installation with Data Import.

- If you have a preinstalled server (for example, a Cisco Business Edition server), configure the pre-installed software. Click **Skip** and go to [Enter Configuration Information for Preinstalled Servers, on page 7](#).
- If you want to install the software first and then configure it later, click **Skip**. The installation process installs the software and then prompts you to configure it after the installation is complete. This method may increase the total time for the installation.

Step 8 In the **Apply Additional Release** window, if you have a newer Unified Communications Manager version than your install image, you can elect to upgrade the installation to the newer release. This option is not available for the IM and Presence Service

- **Yes**—Choose this option to upgrade the Unified Communications Manager install image to a newer Service Release. Go to one of the following procedures:
 - [Upgrade Install Image from Local Source, on page 8](#)
 - [Upgrade Install Image from Remote Server, on page 9](#)
- **No**—Choose this option if you are installing the IM and Presence Service or if you are installing Unified Communications Manager and you do not want to upgrade the install image.

Step 9 In the **Basic Install** window, click **Continue** to install the software or configure the pre-installed software.

What to do next

For pre-installed servers, [Enter Configuration Information for Preinstalled Servers, on page 7](#).

To upgrade the Unified Communications Manager install image to a later release, perform any of the following procedures:

- [Upgrade Install Image from Local Source, on page 8](#)
- [Upgrade Install Image from Remote Server, on page 9](#)

To continue the basic install process, [Configure Basic Installation, on page 11](#)

Enter Configuration Information for Preinstalled Servers

Use this procedure if you have a server with the product pre-installed (for example, a Cisco Business Edition appliance). You can use a USB key or AFG file to enter your server's pre-configured information.

Before you begin

[Basic Installation, on page 6](#)

Procedure

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- Step 1** After the system restarts, the **Preexisting Installation Configuration** window displays.
- Step 2** If you have preexisting configuration information that the Answer File Generator created, that is stored on a USB key. Insert the USB key and choose **Continue**. The installation wizard reads the configuration information during the installation process.
- Note** If a popup window states that the system detected new hardware, press any key and then choose **Install** from the next window.
- Step 3** In the **Platform Installation Wizard** window, choose **Proceed**.
- Step 4** In the **Apply Additional Release** window, you can choose the option to upgrade Unified Communications Manager install file to a newer release. This option is not available for the IM and Presence Service.
- **Yes**—Choose this option to upgrade the Unified Communications Manager install image to a newer Service Release. Go to one of the following procedures:
 - > [Upgrade Install Image from Local Source, on page 8](#)
 - > [Upgrade Install Image from Remote Server, on page 9](#)
 - **No**—Choose this option if you are installing the IM and Presence Service or installing Unified Communications Manager and you do not want to upgrade the install image.
- Step 5** In the **Basic Install** window, choose **Continue**.
-

What to do next

To upgrade the Unified Communications Manager install image to a newer release, perform any of the following procedures:

- [Upgrade Install Image from Local Source, on page 8](#)
- [Upgrade Install Image from Remote Server, on page 9](#)

Otherwise, to continue the basic install process, [Configure Basic Installation, on page 11](#)

Upgrade Install Image from Local Source

Use this optional procedure for Unified Communications Manager installations if you have a newer version than your installation image and you want to upgrade your installation file to a newer version. This option is available for Unified Communications Manager installs only.



Note If you have placed your upgrade file on an FTP or SFTP server, refer to [Upgrade Install Image from Remote Server, on page 9](#).

Before you begin

Make sure to do the following:



Note To complete this procedure, you must have completed the Start Basic Installation procedure and have chosen to apply a patch via a LOCAL source.

- Start a basic installation. Choose the option to apply apatch via a LOCAL source. For details, see
- Download the appropriate patch file from Cisco.com. You must create an ISO image from the upgrade file and then either place it on a DVD or in the DVD drive of a virtual machine.

Procedure

- Step 1** When the **Local Patch Configuration** window displays, enter the patch directory and patch name, if required, and choose **OK**.
The **Install Upgrade Patch Selection Validation** window displays.
- Step 2** The window displays the patch file. To update the system with this patch, click **Continue**.
- Step 3** Choose the upgrade patch to install. The system installs the patch, then restarts the system with the upgraded software version running.
After the system restarts, the **Preexisting Configuration Information** window displays.
- Step 4** To continue the installation, choose **Proceed**.
The **Platform Installation Wizard** window displays.
- Step 5** To continue the installation, click **Proceed** or click **Cancel** to stop the installation.
If you click **Proceed**, the **Apply Patch** window displays. Continue with the next step.
If you click **Cancel**, the system halts, and you can safely power down the server.
- Step 6** When the **Apply Patch** window displays, choose **No**.
- Step 7** The **Upgrade** window displays.
- Step 8** Click **No** and perform the procedure to configure the basic installation.

What to do next

[Configure Basic Installation, on page 11](#)

Upgrade Install Image from Remote Server

Use this optional procedure for Unified Communications Manager installations if you have a newer version than your installation image on an FTP or SFTP server and you want to upgrade your installation file to a newer version. This option is available for Unified Communications Manager installs only.



Note If you have placed your upgrade file on an FTP or SFTP server, refer to [Upgrade Install Image from Local Source, on page 8](#).

Procedure

- Step 1** Configure the auto negotiation setting.
- To enable automatic negotiation, choose **Yes**. This option sets the speed and duplex settings of the Ethernet network interface card (NIC) by using automatic negotiation. The **MTU Configuration** window displays. Skip the next step and then continue.
- Note** To use this option, your hub or the Ethernet switch must support automatic negotiation.
- To disable automatic negotiation, choose **No**. The NIC Speed and Duplex Configuration window displays. Continue with the next step.
- Step 2** If you chose to disable automatic negotiation, manually choose the appropriate NIC speed and duplex settings now and choose **OK** to continue.
- The **MTU Configuration** window displays.
- Step 3** In the **MTU Configuration** window, you can change the MTU size from the operating system default.
- The maximum transmission unit (MTU) represents the largest packet, in bytes, that this host transmits on the network. If you are unsure of the MTU setting for your network, use the default value.
- Caution** If you configure the MTU size incorrectly, your network performance can be affected.
- To accept the default value (1500 bytes), choose **No**.
 - To change the MTU size from the operating system default, choose **Yes**, enter the new MTU size, and choose **OK**.
- The **DHCP Configuration** window displays.
- Step 4** For network configuration, you can choose to either set up static network IP addresses for the node and gateway or to use Dynamic Host Configuration Protocol (DHCP). Static IP addresses are recommended. If you use DHCP, use static DHCP.
- If you have a DHCP server that is configured in your network and want to use DHCP, choose **Yes**. The installation process attempts to verify network connectivity.
 - If you want to configure static IP addresses for the node, choose **No**. The Static Network Configuration window displays.
- Step 5** If you chose not to use DHCP, enter your static network configuration values and choose **OK**.
- The **DNS Client Configuration** window displays.
- Step 6** To enable DNS, choose **Yes**, enter your DNS client information, and choose **OK**.
- After the system configures the network and checks for connectivity, the Remote Patch Configuration window displays.

- Step 7** Enter the location and login information for the remote file server. The system connects to the remote server and retrieves a list of available upgrade patches.
- If the upgrade file is located on a Linux or Unix server, you must enter a forward slash at the beginning of the directory path. For example, if the upgrade file is in the patches directory, you must enter **/patches**.
- If the upgrade file is located on a Windows server, remember that you are connecting to an FTP or SFTP server, so use the appropriate syntax, including:
- Begin the path with a forward slash (/) and use forward slashes throughout the path.
 - The path must start from the FTP or SFTP root directory on the server, so you cannot enter a Windows absolute path, which starts with a drive letter (for example, C:).
- The **Install Upgrade Patch Selection** window displays.
- Step 8** Choose the upgrade patch to install. The system downloads, unpacks, and installs the patch and then restarts the system with the upgraded software version running.
- After the system restarts, the **Preexisting Configuration Information** window displays.
- Step 9** To continue the installation, choose **Proceed**.
- The **Platform Installation Wizard** window displays.
- Step 10** Choose **Proceed** or choose **Cancel** to stop the installation.
- If you choose **Proceed**, the **Apply Patch** window displays. Continue with the next step.
- If you choose **Cancel**, the system halts, and you can safely power down the server.
- Step 11** In the **Apply Patch** window displays, choose **No**.
- The **Windows Upgrade** window displays.
- Step 12** Choose **No** and perform the [Configure Attended Installation](#) procedure to configure the basic installation.
-

What to do next

[Configure Basic Installation, on page 11](#)

Configure Basic Installation

Use this procedure to configure Unified Communications Manager and IM and Presence Service basic installation.

Before you begin

[Basic Installation, on page 6](#)

Procedure

- Step 1** In the **Timezone Configuration** window, choose the appropriate time zone for the server and then choose **OK**.

The **Auto Negotiation Configuration** window is displayed.

Step 2 The installation process allows you to automatically set the speed and duplex settings of the Ethernet network interface card (NIC) by using automatic negotiation. You can change this setting after installation.

- To enable automatic negotiation, choose **Yes**.

The **MTU Configuration** window is displayed.

Note To use this option, your hub or Ethernet switch must support automatic negotiation.

- To disable automatic negotiation, choose **No** and continue with the next step.

The **NIC Speed and Duplex Configuration** window is displayed.

Step 3 If you chose to disable automatic negotiation, manually choose the appropriate NIC speed and duplex settings now and choose **OK** to continue.

The **MTU Configuration** window displays.

Step 4 In the **MTU Configuration** window, you can change the MTU size from the operating system default.

The maximum transmission unit (MTU) represents the largest packet, in bytes, that this host will transmit on the network. If you are unsure of the MTU setting for your network, use the default value, which is 1500 bytes.

Caution If you configure the MTU size incorrectly, your network performance can be affected.

- To accept the default value (1500 bytes), choose **No**.
- To change the MTU size from the operating system default, choose **Yes**, enter the new MTU size, and choose **OK**.

The **DHCP Configuration** window displays.

Step 5 For network configuration, you can choose to either set up a static network IP address for the node or to use Dynamic Host Configuration Protocol (DHCP). Static IP addresses are recommended. If you use DHCP, use static DHCP.

- If you have a DHCP server that is configured in your network and want to use DHCP, choose **Yes**. The network restarts, and the **Administrator Login Configuration** window is displayed.
- If you want to configure a static IP address for the node, choose **No**. The Static Network Configuration window displays.

Step 6 If you chose not to use DHCP, enter your static network configuration values and choose **OK**.

The **DNS Client Configuration** window is displayed.

Step 7 In the **DNS Client Configuration** window, click **Yes** to enable DNS and enter the DNS client information.

Step 8 Click **OK** and choose one of the following in the Basic Installation procedure:

- **Proceed:**
 - Click **Proceed** to restart the network using the new configuration. The **Administrator Login Configuration** window is displayed.
 - Enter Administrator login **User Name** and **Password**

Note Make sure that the **User Name** contains alphanumeric characters. Use the same login credentials to Cisco Unified Communications Operating System Administration, the Command Line Interface, and the Disaster Recovery System.

- **Software Location of Data to Import**

- Enter Remote Server Name or IP, Export Data Directory, Remote Login ID, Remote Password, and Confirm Password. Click **OK** to restart the network using the new configuration.

Step 9 The **Certificate Information** window is displayed.

Step 10 In **Certificate Information** window, enter your certificate signing request information and click **OK**.

Step 11 In the **First Node Configuration** window, choose how you want to assign this node:

- **Yes**—Choose this option to assign this node as the Cisco Unified Communications Manager publisher node.
- **No**—Choose this option to assign this node as a Cisco Unified Communications Manager subscriber node, or as an IM and Presence Service node.

What to do next

If you are installing the first node in the cluster, go to one of the following procedures, depending on whether you are installing Unified Communications Manager or the IM and Presence Service.:

- [Configure the Unified Communications Manager Publisher, on page 13](#)
- [Configure the IM and Presence Publisher, on page 16](#)

Otherwise, for subscriber node installs [Add Subscriber Nodes, on page 16](#).

Configure the Unified Communications Manager Publisher

Follow this procedure to configure the first server where you install Unified Communications Manager software as the publisher node for the cluster. Perform this procedure after you have completed the attended installation and configured the attended installation.



Note You can configure Smart Call Home on the publisher node only.

Procedure

Step 1 The **Network Time Protocol Client Configuration** window appears.

We recommend that you use an external NTP server to ensure accurate system time on the publisher node. Subscriber nodes in the cluster will get their time from the first node.

Step 2 Choose whether you want to configure an external NTP server or manually configure the system time.

- To set up an external NTP server, choose **Yes** and enter the IP address, NTP server name, or NTP server pool name for at least one NTP server. You can configure up to five NTP servers, and we recommend that you use at least three. Choose **Proceed** to continue with the installation.

The system contacts an NTP server and automatically sets the time on the hardware clock.

Note If the **Test** button appears, you can choose **Test** to check whether the NTP servers are accessible.

- To manually configure the system time, choose **No** and enter the appropriate date and time to set the hardware clock. Choose **OK** to continue with the installation.

The **Database Access Security Configuration** window appears.

Step 3 Enter the Security password from Required Installation Information.

Note The Security password must start with an alphanumeric character, be at least six characters long, and can contain alphanumeric characters, hyphens, and underscores. The system uses this password to authorize communications between nodes, and you must ensure this password is identical on all nodes in the cluster.

The **SMTP Host Configuration** window appears.

Step 4 If you want to configure an SMTP server, choose **Yes** and enter the SMTP server name. If you do not want to configure the SMTP server, choose **No**, which redirects to Smart Call Home page. To go to previous page, choose **Back** and to see the information about the SMTP configuration, choose **Help**.

Note You must configure an SMTP server to use certain platform features; however, you can also configure an SMTP server later by using the platform GUI or the command line interface.

Step 5 Choose **OK**.

Step 6 In the **SMART Call Home Enable** window, choose one of the following and click **OK**:

- **Enable Smart Call Home on System Start**
- **Enable Anonymous Call Home on System Start**
- **Remind me Later to configure Smart Call Home**—Select this option to configure the Smart Call Home feature service after installation using the Cisco Unified Serviceability interface.
- **Disable All Call Home on System Start**—Select this option to deactivate the Smart Call Home feature service. Please note that you can reactivate it after installation using the Cisco Unified Serviceability interface.

Step 7 If you have selected **Smart Call Home on System Start**, do the following:

- Select the method for sending data to the Cisco Technical Assistance Center.
 - **Secure Web (HTTPS)**
 - **Secure Web (HTTPS) through Proxy**—If you select this option, enter the Hostname or IP address of the proxy server where the Call Home info gets sent as well as the port number on which the server is enabled.
 - **Email**—If you select this option, you must have configured SMTP for any emails to be sent successfully.
- To send a copy of the Call Home messages to multiple email recipients, enter the email addresses separated with a comma. You can enter up to a maximum of 1024 characters.

- c) In the **Customer Contact Details** field, enter the customer's email address.
- d) Click **Continue** to proceed, or select **Back** to return to the previous menu.

If you click **Continue**, a message appears as Cisco Call Home includes reporting capabilities that allow Cisco to receive diagnostic and system information from your Unified Communications Manager cluster. Cisco may use this information for proactive debugging, product development or marketing purposes. To learn more about this feature, please visit: http://www.cisco.com/en/US/products/ps7334/serv_home.html.

Note If you have selected **Secure Web (HTTPS) through Proxy** and click **Continue**, the **Smart Call Home Proxy Configuration** window appears.

- e) Click **Confirm** to proceed with normal installation or select **Back** to return to the Smart Call Home Enable Page.

Step 8

If you have selected **Enable Anonymous Call Home on System Start**, do the following:

- a) Select the method for sending data to the Cisco Technical Assistance Center.
 - Secure Web (HTTPS)
 - Secure Web (HTTPS) through Proxy—If you select this option, enter the Hostname or IP address of the proxy server where the Call Home info gets sent as well as the port number on which the server is enabled.
 - Email—If you select this option, you must have configured SMTP for any emails to be sent successfully.
- b) To send a copy of the Call Home messages to multiple email recipients, enter the email addresses separated with a comma. You can enter up to a maximum of 1024 characters.
- c) Click **Continue** to proceed, or click **Back** to return to the previous menu.

When you click **Continue**, the following message appears.

To help improve the Unified Communications Manager experience, click **Confirm** to allow Cisco Systems to securely receive usage statistics from the server. This information will be used by Cisco to help understand how customers are using our product and ultimately drive product direction. If you prefer not to participate, you may choose to opt-out.

Note If you have selected **Secure Web (HTTPS) through Proxy** and clicked **Continue**, the **Anonymous Call Home Proxy Configuration** window appears.

- d) Click **Confirm** to proceed with normal installation or click **Back** to return to the Smart Call Home Enable Page.

Note If you choose **Install with Data Import** during basic installation the **Application User Configuration** window does not appear. Proceed to step 11 to complete the installation.

Step 9

Click **OK**. The **Application User Configuration** window appears.

Step 10

Enter the Application User name and password from and confirm the password by entering it again.

Step 11

Choose **OK**.

The Platform Configuration Confirmation window appears.

- Step 12** Choose **OK** to continue with the installation or choose **Back** to modify the platform configuration.
- The system installs and configures the software. The server reboots.
- When the installation process completes, you are prompted to log in by using the Administrator account and password.
-

What to do next

If you want to install subscriber nodes, [Add Subscriber Nodes, on page 16](#).

Configure the IM and Presence Publisher

Follow this procedure to configure the first server where you install IM and Presence Service software as the database publisher node for the IM and Presence cluster.

Procedure

Step 1 Install and configure the IM and Presence database publisher node.

Step 2 Verify that the following services are running:

- Cisco SIP Proxy
- Cisco Presence Engine
- Cisco XCP Connection Manager
- Cisco XCP Authentication Service

If you need to activate services, you can do it in Cisco Unified Serviceability at **Tools > Service Activation**.

What to do next

[Add Subscriber Nodes, on page 16](#)

Add Subscriber Nodes

Before you install software on your subscriber nodes, you must add the subscriber nodes to the Unified Communications Manager publisher node. You must complete this task before installing subscriber nodes for either Unified Communications Manager or the IM and Presence Service.

Procedure

Step 1 Log in to the Unified Communications Manager publisher node.

Step 2 From Cisco Unified CM Administration choose **System > Server**.

Step 3 Add your subscriber nodes:

- a) Click **Add New**.

- b) From the **Server Type** drop-down list, choose the node type that corresponds to the install that you are completing: Unified Communications Manager Voice/Video node, or IM and Presence Service node.
- c) Enter the **Fully Qualified Domain Name/IP Address** field with a FQDN or IPv4 Address.

Note Do not use single quotes (' ') in the Description field while adding the node details.

- d) Optional. If you are deploying IPv6, enter an **IPv6 Address**.
- e) Click **Save**.
- f) Repeat these steps for each subscriber node that you want to add.

Step 4 (IM and Presence Service only) Add your Presence Redundancy Groups in order to define your subclusters.

- a) From Cisco Unified CM Administration, choose **System > Presence Redundancy Groups**.
- b) Click **Add New**.
- c) Enter a **Name** and **Description** for the group.
- d) From the **Server** drop-down list, choose the IM and Presence Service nodes that you want to add to this group.
- e) Click **Save**.
- f) Repeat this procedure until you've created your groups. You can have up to three Presence Redundancy Groups in a cluster, with each group consisting of two IM and Presence Service nodes.

What to do next

Install Subscriber Nodes

Install Subscriber Nodes

Use this procedure if you want to install subscriber nodes for Unified Communications Manager or the IM and Presence Service.

Before you begin

Before you install software for either Unified Communications Manager or IM and Presence Service subscriber nodes, you must add the node to the Cisco Unified Communications Manager publisher node. For details, [Add Subscriber Nodes, on page 16](#).

Procedure

Step 1 If you have configured Network Time Protocol on the publisher node, ensure that it is synchronized with an NTP server before you install a subscriber node. From the Command Line Interface on the publisher node, enter **utils ntp status**. Ensure that the output indicates that the node is synchronized with an NTP server.

Note If the publisher node is not synchronized with an NTP server, installation of the subscriber node will fail.

Step 2 On the First Node Configuration window, read the Warning and make sure that you have correctly configured the first node as the publisher node. To continue with the installation of the subscriber node, click **OK**.
The Network Connectivity Test Configuration window displays.

Step 3 During installation of a subscriber node, the system checks to ensure that the subscriber node can connect to the publisher node.

- To pause the installation after the system successfully verifies network connectivity, choose **Yes**.
- To continue the installation with a pause, choose **No**.

The First Node Access Configuration window displays.

Step 4 Enter the publisher node connectivity information and choose **OK**.

The system checks for network connectivity.

If you chose to pause the system after the system successfully verifies network connectivity, the Successful Connection to First Node window displays. Choose **Continue**.

Note If the network connectivity test fails, the system always stops and allows you to go back and reenter the parameter information.

The **SMTP Host Configuration** window displays.

Step 5 If you want to configure an SMTP server, choose **Yes** and enter the SMTP server name.

Note To use certain operating system features, you must configure an SMTP server; however, you can also configure an SMTP server later by using the operating system GUI or the command line interface.

The Platform Configuration Confirmation window displays.

Step 6 Choose **OK** to start installing the software or choose **Back** to change the configuration.

Step 7 When the installation process completes, you get prompted to log in by using the Administrator account and password.

What to do next

If you have just installed a Unified Communications Manager cluster and you want to install the IM and Presence Service on the same cluster in a standard IM and Presence deployment (as opposed to a central IM and Presence cluster deployment), return to [Basic Installation, on page 6](#) in order to install the IM and Presence Service cluster.

Otherwise, proceed to the postinstallation tasks:

- [Postinstall Tasks for Cisco Unified Communications Manager](#)
- [Postinstall tasks for the IM and Presence Service](#)

Touchless Installation Task Flow

Complete these tasks to install your Unified Communications Manager and IM and Presence Service node or clusters in a single process via the touchless installation method.

Before you begin

[Preinstall Tasks for Unified Communications Manager](#)

Preinstall Tasks for the IM and Presence Service

Procedure

	Command or Action	Purpose
Step 1	Generate Answer Files for Touchless Install, on page 19	Use this procedure to generate the configuration files (clusterconfig.xml and platformconfig.xml) with your network settings. The touchless install process uses these files to install and configure a single node or the various cluster nodes.
Step 2	Generate Virtual Floppy Images, on page 20	Use this procedure to create virtual floppy images from the answer files. You use the virtual floppy images in your touchless installation.
Step 3	Upload Virtual Floppy Image to Datastore, on page 21	Use this procedure to upload the virtual floppy images to the datastore.
Step 4	Mount Floppy Image to VM, on page 21	Use this procedure to mount the UC application virtual floppy images on their corresponding VM.
Step 5	Run Touchless Install, on page 22	Begin the single node or cluster installation. You can kick off all node installations simultaneously.

Generate Answer Files for Touchless Install

Use this procedure to generate answer files for your touchless installation of your cluster. The answer files (clusterconfig.xml and platformconfig.xml) contain the configuration information that the install process installs and configures on each cluster node.

Before you begin

You must have already planned your network topology, including addresses for your Unified Communications Manager and IM and Presence Service cluster nodes.

Procedure

-
- Step 1** Log in to the Cisco Unified Communications Answer File Generator application at <https://www.cisco.com/en/us/applicat/content/cuc-afg/index.html>.
 - Step 2** In the **Hardware** section, choose **Virtual Machine**.
 - Step 3** From the **Product** section, select the product and version that you want to install.
 - Step 4** In the **Software Location of Data to Import** section, check the **Configure Software Location of Data to Import** check box to configure Remote SFTP server details only if you choose to install using the Fresh Install with Data Import. Else ignore this step and proceed to step 5. For more details, see **Install with Data Import** installation method.

By checking the **Configure Software Location of Data to Import** check box it disables, Administrator Credentials, Security Password, Application User Credentials fields. These details are imported from source node data during installation. Enter the following fields:

- **Remote Server Name or IP**—The Secure FTP (SFTP) server that stores the source cluster's exported data.
- **Export Data Directory**—Directory path of the server containing export data.
- **Remote Server Login ID**—Allows data retrieval of the remote SFTP server.
- **Remote Server Password**—Can contain alphanumeric characters, hyphens, and underscores.

- Step 5** Complete the remaining fields under **Clusterwide Configuration** with your cluster configuration details.
- Step 6** Complete the fields in the **Primary Node Configuration** with configuration details for the publisher node.
- Step 7** Check the **Dynamic Cluster Config Enable** check box and enter a value, in hours, for the Dynamic cluster Config Timer.
- Note** This check box must be checked if you want to install your full cluster in a single process. Otherwise, you will need to either configure this option later through the CLI, or add your subscriber nodes manually after the publisher node installs.
- Step 8** Under **Secondary Node Configuration**, enter the node details for your first subscriber node and click **Add Secondary Node**.
- Step 9** Add all your subscriber nodes.
- Step 10** Add all your cluster nodes and click **Generate Answer files**.
- Step 11** Download the answer files to your computer.
- Step 12** Repeat this procedure to generate answer files for the IM and Presence Service cluster.

What to do next

[Generate Virtual Floppy Images, on page 20](#)

Generate Virtual Floppy Images

Use this procedure to create virtual floppy images from the answer files. You will use the virtual floppy images in your touchless installation.



Note This procedure describes how to use Winimage to create virtual floppy images. You can download Winimage from <http://www.winimage.com/download.htm>. You can also use other tools, such as BFI, to create virtual floppy images.

Procedure

- Step 1** From Winimage, choose **File > New**.
- Step 2** From the Standard format, choose **1.44 MB** and click **OK**.

- Step 3** Navigate to the Menu Image, choose **Inject** and select the `platformConfig.xml` file.
- Step 4** When prompted to inject the file into Winimage, click **Yes**.
- Step 5** Choose **File > Save As**.
- Step 6** Save the file as a virtual floppy image (.flp file) using the following naming conventions:
- Unified Communications Manager—`ucm.flp`
 - IM and Presence Service—`imp.flp`
- Step 7** Repeat these steps for both the Unified Communications Manager cluster and the IM and Presence Service cluster.
-

What to do next

[Upload Virtual Floppy Image to Datastore, on page 21](#)

Upload Virtual Floppy Image to Datastore

Use this procedure to upload the virtual floppy images to the datastore.

Procedure

- Step 1** Start the vSphere client.
- Step 2** Select the **Configuration** tab.
- Step 3** Select **Storage**.
- Step 4** Right-click on a datastore and **Browse** the datastore.
- Step 5** Navigate to the destination directory and click the **Upload files to this datastore** icon.
- Step 6** Upload the vFloppy images to your local folder.
- Step 7** At the **Upload/Download** warning, click **Yes**.
- Step 8** Close the **Datastore Browser** window.
-

What to do next

[Mount Floppy Image to VM, on page 21](#)

Mount Floppy Image to VM

Use this procedure to mount the UC application virtual floppy images on their corresponding VM.

Procedure

- Step 1** In the vSphere client, choose the virtual machine.
- Step 2** Open VMware Remote Console (VMRC), and click the **Floppy drive**.

- Step 3** Select **Use existing floppy image in datastore**.
- Step 4** **Browse** to the datastore and locate the virtual floppy image.
- Step 5** Select the file and click **OK**.
- Step 6** Under **Device Status**, enable the **Connected and Connect at power on** option.
- Step 7** Click the **Options** tab. Under **Boot Options**, check **Force entry to BIOS** and click **OK**.
- Step 8** Repeat this procedure for each VM on which you want to install a node.

What to do next

[Run Touchless Install, on page 22](#)

Run Touchless Install

After you have mounted your virtual floppy drives to your application VMs, run the touchless installation process. You can install all nodes simultaneously.

Procedure

- Step 1** In vSphere client, right-click the **VM** and select **Open Console**. A console window opens.
- Step 2** Click the **Power On** icon in the console tool bar to power on the virtual machine.
- Step 3** When the BIOS screen appears, configure the following boot order:
 - a) CD-Rom
 - b) Hard Drive
 - c) Removable Devices
 - d) Network
- Step 4** Save the settings and exit from the console. The installation commences immediately.
- Step 5** Repeat these steps for each cluster node. All cluster nodes may install in parallel; you do not have to install them serially.
- Step 6** After to emphasise the completion of an activity, remove the vFloppy configurations from the virtual machines.

What to do next

[Postinstall Tasks for Cisco Unified Communications Manager](#)

[Postinstall tasks for the IM and Presence Service](#)

Add a New Node to an Existing Cluster

To add a new Unified Communications Manager or IM and Presence Service subscriber node to an existing cluster, you can use either the Basic Installation or Touchless Installation methods to add and install the node. Any new nodes that you add must be configured as subscriber nodes.

Basic Installation

For basic installations of additional Unified Communications Manager or IM and Presence Service cluster nodes, complete the following tasks:

	Procedure	Description
Step 1	Run a full backup of the cluster.	For details, see the "Manage Backups" chapter of the <i>Administration Guide for Cisco Unified Communications Manager</i> .
Step 2	Basic Installation, on page 6	Begin the install process.
Step 3	Configure Basic Installation, on page 11	Continue with the Basic Installation process by configuring your installation.
Step 4	Add Subscriber Nodes, on page 16	Add subscriber nodes to Unified Communications Manager publisher.
Step 5	Install Subscriber Nodes, on page 17	Install software on your subscriber nodes.

Touchless Installation

For Touchless installations of additional Unified Communications Manager or IM and Presence Service cluster nodes, complete these tasks:

	Procedure	Description
Step 1	Run a full backup of the cluster.	For details, see the "Manage Backups" chapter of the <i>Administration Guide for Cisco Unified Communications Manager</i> .
Step 2	Generate Answer Files for Touchless Install, on page 19	Generate answer files for your installation. The touchless install process uses answer files to install and configure the various cluster nodes.
Step 3	Generate Virtual Floppy Images, on page 20	Create a virtual floppy image from the answer file.
Step 4	Upload Virtual Floppy Image to Datastore, on page 21	Upload the virtual floppy to the datastore.
Step 5	Mount Floppy Image to VM, on page 21	Mount the virtual floppy to the virtual machine.
Step 6	Run Touchless Install, on page 22	Install the software.

Notes for Basic and Touchless Installs



Important

After you install a new node on an existing cluster, if you plan to utilize Cisco CallManager or Cisco TFTP services, we recommend that you restart all of the phones in your cluster to get the latest ITL file. If you are using a Certificate Trust List (CTL), you will also need to update this file manually by running the `utils ctl update CTLFile` CLI command (using Tokenless CTL) or by updating the file via the CTL Client (Legacy USB tokens). After you update the CTL file, you must restart phones so that they can download the latest CTL file. For additional details on the CTL File, see the “Cisco CTL Client Setup” chapter of the *Security Guide for Cisco Unified Communications Manager*.



Note

- You can collect the logs from RTMT of a new node added to the existing FQDN cluster, only when you restart the trace collection service. When you sign in to Unified RTMT without restarting the trace collection, the following error message is displayed: .

```
Could not connect to 'Server' <new node name>
```

- If you install a new node to an existing cluster where the IM and Presence server is not upgraded to the supported version or if the IM and Presence server has been decommissioned, the following error message is displayed:

```
"Add failed. Upgrade and migration for Cisco Unified IM & Presence Servers that are associated with this cluster appears to be pending (not complete). Please make sure upgrade and migration of all IM & Presence servers is completed successfully before adding servers to this cluster. Please check for any unused IM & Presence Application Servers and delete them".
```



Note

A touchless install cannot be used to simultaneously install multiple Unified Communications Manager and multiple IM and Presence Service nodes. The following scenarios are supported:

- Installing only multiple Unified Communications Manager nodes
- Installing only one Unified Communications Manager node (publisher) and multiple IM and Presence Service nodes

If you need to simultaneously install multiple Unified Communications Manager and IM and Presence Service nodes, you need to use one of the above scenarios and install additional nodes manually.

Install with Data Import

Use one of these steps to configure Unified Communications Manager and IM and Presence Service installation with data import from an older version of Unified CM.

**Important**

Fresh Install with Data Import does not support domain name changes. If DNS is enabled on the publisher node of the destination cluster, the domain name must match the source cluster. If the domain name needs to change, install the destination cluster on publisher without the DNS enabled and then enable DNS via the CLI after the installation is complete. The subscribers can be installed with the DNS enabled, but ensure that the **System > Server** entries on the publisher node are correct before installing the subscribers.

If you plan to change the hostname and/or IP address during the migration, the **System > Server** entries must be updated on the publisher node of the destination cluster prior to installing the subscribers.

Before you begin

Run the **utils system upgrade dataexport initiate** CLI command on each node of the desired source system to export the data which can be imported using this procedure. Your source version must be Release 10.5 or higher. If your source version is not Release 12.5(1) SU5 or higher, you must install the latest version of the "ciscocm.DataExport" COP file on each node of the source system.

Procedure

-
- Step 1** To configure Unified Communications Manager and IM and Presence Service with **Install with Data Import** follow the instructions as described in from steps 1 through 6. Then proceed with the following steps:
- a) In the **Platform Installation Wizard** window, click **Import** to import data from the SFTP server during the Unified Communications Manager and IM and Presence Service installation. The installation process starts with preinstallation and nodes are rebooted.
 - b) After reboot, click **OK** in **Import Upgrade Configuration Information** screen.
- To continue the basic install process, see .
- Step 2** To configure Unified Communications Manager and IM and Presence Service with **Install with Data Import** follow the instructions as described in [Touchless Installation Task Flow, on page 18](#) from steps 1 through 5.
- Step 3** To configure Unified Communications Manager and IM and Presence Service with **Install with Data Import** follow the instructions as described in [Touchless Installation Using VM Builder and VMware OVF Tools, on page 27](#) from steps 1 through 7.
-

Automated Installation using vApp properties and VMware OVF Tool

This feature uses a skip-install Open Virtual Archive (OVA) file containing an application that is installed up to the “skip” configuration point, where the application is ready to accept the configuration and complete installation. The VMware OVF Tool is used to deploy and inject the Unified CM and IM and Presence Service configuration parameters into the virtual machines using skip-install OVA and vApp properties without using Answer File Generator or vFloppy images.

Deployment vApp options are available for virtual machines that are deployed from VMware Open Virtualization Format Tool (OVF) Tool to the desktop or to the web server (Application available only on

vcenter). For a virtual machine with vApp options enabled, the vApp options are preserved when you export the virtual machine as an OVF template. Without manual intervention from the administrators, you just need the skip-install OVA image to install the entire Unified CM clusters. Using the vApp parameters, you simply need to define a template and set the values of vApp Properties and inject all the details during deployment of the skip-install OVA using the VMware OVF Tool that results in automated installation.

Fresh Install and Fresh Install with Data Import is supported using this method. You can deploy this installation in two ways:

- **Manual Installation Using vApp Options**—Deploy the skip-install OVA on each node in the cluster manually by logging into the respective VMware Embedded Host Client or vCenter Server, where the Unified CM server configurations can be entered.
- **Touchless Installation Using VM Builder and VMware OVF Tools**—Run the VM Builder tool (which is a VMware wrapper tool that is provided as part of the platform skip-install-ova rpm/tar) by passing the Unified CM configuration parameters, skip-install OVA, and VMware Embedded Host Client or vCenter Server details of each node in the cluster, which would perform the complete cluster installation without manual intervention.

Manual Installation Using vApp Options

This option allows you to deploy OVA manually in the VMware Embedded Host Client or vCenter Server where OVA needs to be placed either in the desktop or to the web server.



Note The OVA deployment from a web server is applicable only for vCenter.



Note While deploying skip-install OVA through vCenter, you will see additional terminologies in the **First Node Access Configuration (Set ONLY on SUBSCRIBERS)** field in the customization template. For example, *First Node Access Configuration (Set ONLY on 2 settings SUBSCRIBERS)*. We recommend that you ignore the term **2 settings** in this field as this term is parsed from the vCenter configuration settings.



Note This task is only supported with VMware Embedded Host Client or vCenter Server versions 6.7 and 7.0.

Procedure

- Step 1** Deploy skip-install OVA after obtaining it from **My Cisco Entitlements**.
- Step 2** From VMware Embedded Host Client or vCenter Server, deploy OVA from the desktop using the **Browse** button or enter a URL to download and install the OVA package from the Internet.
- Step 3** If the OVA is placed in a web server, enter the respective URL while deploying the OVA. For example, *http://10.xx.xx.xx/UCSInstall_UCOS_14.xxx.ova*.
- Step 4** Enter the required Unified CM configurations, skip-install OVA, VMware Embedded Host Client, or vCenter for each node in the cluster.

The configuration is different for publisher and subscriber nodes. See the Required Installation Information help page to fill the mandatory configuration details.

Note With this installation method, you can add up to 5 Unified Communication Manager subscriber nodes and 5 IM and Presence Service nodes in the user interface of Unified CM publisher. If we need to add more subscribers (Unified CM or IM and Presence Service), follow step 5 or step 6 depending on the deployment.

- Step 5** To perform touchless install on entire cluster including publisher, make sure to check the **Dynamic Cluster Config Enable** check box in user interface of the Unified Communication Manager publisher, and enter a value between 1-24 in the Dynamic cluster Config Timer field.
- Step 6** To install subscriber nodes in the cluster after the Unified CM publisher installation completes, perform any one of the following:
- Enable the Dynamic Cluster Config Timer option in Unified Communication Manager publisher using the CLI **set network cluster subscriber dynamic-cluster-configuration no-of-hours|default**. (OR)
 - Add your subscriber nodes manually from the user interface of the Unified CM publisher, after the Unified CM publisher node installation completes.
- Step 7** For installation using Fresh Install with Data Import, follow the instructions as described in [Basic Installation Task Flow, on page 3](#) from step 1 through 6 to export data from source node. See [Install with Data Import, on page 24](#).
- Step 8** Once the OVA image is deployed successfully into the virtual machine, power on the Virtual Machine.
- You will observe that the installation is in process. Repeat step 4 for each subscriber node in the cluster by providing the **IP Address** and **Host Name** of the Unified CM publisher nodes. Subscriber nodes can be installed parallelly by opening multiple VMware Embedded Host Clients.
- Note** If DHCP is enabled for OVA deployment, ensure that you go to the edit settings of the virtual machine and change the **MAC** option to manual (by default, this option is automatic) before powering-on the virtual machine. Enter the static MAC address mapped with the **IP Address** and **Host Name** for the Unified Communications Manager and IM and Presence Service nodes.

Touchless Installation Using VM Builder and VMware OVF Tools

This task allows to deploy skip-install OVA using the Cisco VM Builder tool, which is a wrapper tool to inject the configurations parameters.



Note This task is only supported with VMware Embedded Host Client or vCenter Server versions 6.7 and 7.0.

Before you begin

- Requires a Linux server to run Cisco VM Builder and VMware OVF Tool.

The Cisco VM Builder tool (VMware wrapper tool) and the dependent tool will be bundled and provided as .rpm file (platform-skip-install-ovftool-1.0.0.0-1.x86_64.rpm) or as a g-zipped tar file/tarball (platform-skip-install-ovftool_v1.0.tar.gz.) See the ReadMe guide for instructions on how to install .rpm/tar.

Procedure

- Step 1** Install the Cisco VM Builder tool on any Linux server. It can be an SFTP server as well.
- Step 2** Copy the Unified Communications Manager and IM and Presence Service OVA image to the same server.
- Step 3** Using the Cisco VM Builder tool, pass the required Unified CM configurations, skip-install OVA, and VMware Embedded Host Client or vCenter for each node in the cluster based on the type of Install. Install can be Fresh Install or Fresh Install with Data Import.
- Configurations differ for the publisher and subscriber nodes. Use the “vmbuilder--help” option to know more about the parameters to be used.
- Note** With this installation method, you can add up to 5 Unified Communication Manager subscriber nodes and 5 IM and Presence Service subscriber nodes in the Cisco VM Builder tool of the Unified CM publisher. If we need to add more subscribers (Unified CM or IM and Presence Service), follow step 4 or step 5 depending on the deployment.
- Step 4** To perform touchless install on entire cluster including publisher, make sure to pass the **Dynamic Cluster Config Enable** parameter as **True** and enter a value between 1-24, in the Dynamic cluster Config Timer in the Cisco VM Builder tool of the Unified CM publisher. For example, set the values of these parameters as: **guest.dynamic_cluster_config=True** and **guest.cluster_config_timer=24**.
- Step 5** To install subscriber nodes in the cluster after the Unified CM publisher installation completes, perform any one of the following:
- Enable the **Dynamic Cluster Config Enable** option in the user interface of the Unified Communication Manager publisher using the CLI **set network cluster subscriber dynamic-cluster-configuration no-of-hours|default**. (OR)
 - Add your subscriber nodes manually from the Unified CM user interface of the publisher, after the Unified CM publisher node installation completes.
- Step 6** The Cisco VM Builder tool validates the configuration values, deploys the OVA in the VMware Embedded Host Client or vCenter Server, automatically powers on the node, and starts the installation.
- See the “vmbuilder--help” option to know more about the mandatory parameters and other restrictions.
- Step 7** Repeat step 3 for each subscriber node in the cluster. Subscriber nodes can be installed parallelly by opening multiple SSH connections.
- Note** DHCP is not supported for touchless installation as the automated MAC can assign any **IP Address** and **Host Name** for the nodes.
-