



# Installation

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- [Installation Overview, page 1](#)

## Installation Overview

This chapter describes the tasks required to install software on your Business Edition 6000S server for custom installations. If your server has been prepared using CTOP, you can skip this section, and go to the post-installation section directly.

## Default Configuration

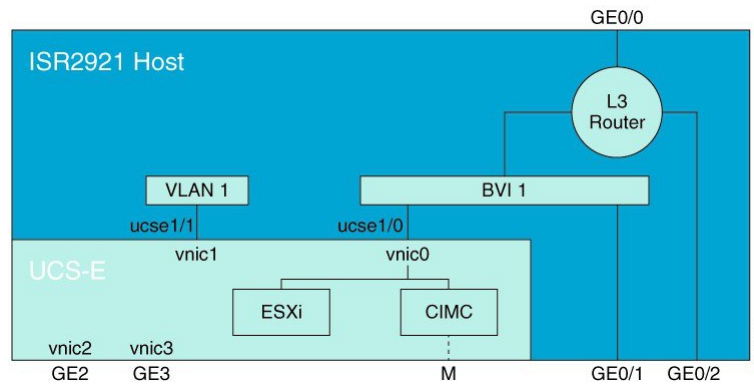
The Cisco BE6000S ships with default configurations for the host router platform, the server module Cisco Integrated Management Controller (CIMC) and the VMware ESXi Hypervisor. These settings provide you with simple access to the product and a prepared environment in which to install your applications. If you would prefer to use different settings and addressing, follow the steps in the installation section to make your changes.

The default configuration accommodates two connectivity options:

- **Routed:** When you connect the BE6000S to your network via GE0/0, the applications reside in a dedicated IP subnet within the appliance. To access the applications, your network will need to be configured to route traffic to the dedicated subnet via a static address that you assign to GE0/0.
- **Bridged:** When you connect your BE6000S to your network via GE0/1, your applications reside directly on your Ethernet network. You will use your own IP addressing to configure the applications and will need to reconfigure interface BV11 with an address from your subnet to provide access to the voice

interface ports. Use this default configuration and switch connected to port GE0/1 to create a small standalone solution.

**Figure 1: Default Configuration - Connectivity Options**



### Default System Behavior

**GE0/0:** Configured as a DHCP client to connect to an existing network for routed access to server subnet. Reconfigure with a static address if handsets will be connected within the existing network.

**GE0/1:** Bridged access to server subnet. Access to router is available via BVI1. When connecting to this interface, clients will receive an IP address from the integrated DHCP server running from BVI1.

**BVI1:** Internal bridged interface connecting the router to the server module network and external networks via GE0/1. Default IP address 172.27.199.1/26

**CIMC:** Default IP address 172.27.199.2/26 configured via IOS.

**ESXi:** Default IP address 172.27.199.4/26 connected internally to the router via ESXi vnic0

Additional default services:

- **DHCP:** Offers addresses in the range 172.27.199.32 to 172.27.199.63 to DHCP clients connecting via GE0/1.
- **DNS Server:** Bound to internal address 172.27.199.5 to resolve names from the ciscolocal.com domain.

## Preloaded File Types in the Datastore

In addition to pre-deployed virtual machines, Cisco Business Edition servers are shipped with selected Collaboration application software that is pre-loaded on the datastore. Following is a breakdown of the file types for application installs:

- **ISO Files**—An ISO file is a DVD image containing application install files (for example, `Bootable_UCSInstall_UCOS_11.0.1.20000-2.sgn.iso`). An ISO file is present for a UC application only if the OVA file for that application does not include the application software.
- **OVA Files**—Each UC application has an associated Open Virtualization Archive (OVA) file, which is used to package and deploy the virtual machine. There are two types of OVAs for Business Edition servers:

- Some OVAs are templates that define the VM, but do not include any application software. For those applications, there is an associated ISO file in the datastore (for example, `cucm_11.5_vmv8_v1.0.ova` and associated ISO file `Bootable_UCSInstall_UCOS_11.0.5.10000-6.sgn.iso`). For the installation, you must deploy the OVA template and install the software using the associated ISO file.
- Other OVA files define the VM and include the application software (for example, `cpc-provisioning-11.2.0-523-small.ova`). For these applications, there is no ISO file. You can deploy the VM and install the software using the OVA file.

For information on which ISO and OVA files are pre-loaded in your server's datastore, refer to the preload summary for your server at <http://www.cisco.com/c/en/us/support/unified-communications/business-edition-6000/products-release-notes-list.html>.

**Note**

Cisco recommends that you archive the OVA-ISO directory locally. If a server fails, the replacement product will not include pre-loaded content.

## Installation Task Flow

Perform the following tasks to install software on your Cisco Business Edition 6000S server.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<a href="#">Power on the Server, on page 4</a>	Power on the BE6000S server.
<b>Step 2</b>	<a href="#">Modify Default Configuration, on page 4</a>	Modify the appliance default configuration before installing your applications.
<b>Step 3</b>	<a href="#">Delete VMs, on page 7</a>	Delete any pre-deployed VMs that you do not require.
<b>Step 4</b>	<a href="#">Deploy Virtual Machines, on page 8</a>	Deploy virtual machine OVAs for each UC application that you want to install.
<b>Step 5</b>	<a href="#">Customize VM for Cisco Unity Connection Installation, on page 10</a>	If your Business Edition 6000 deployment includes Cisco Unity Connection, customize the Unity Connection VM.
<b>Step 6</b>	<a href="#">Associate Application ISO Files to VM, on page 10</a>	For UC application installations that require an ISO file, mount the ISO file on the application VM.  <b>Note</b> For a list of applications that use ISO installation files, see the <a href="#">Preload Summary</a> for your server.
<b>Step 7</b>	<a href="#">Install UC Applications Using Touchless Installation, on page 11</a>	Optional. Use touchless installation to install any of the following core UC applications: <ul style="list-style-type: none"> <li>• Cisco Unified Communications Manager</li> <li>• IM and Presence Service</li> <li>• Cisco Unity Connection</li> </ul>

	Command or Action	Purpose
		<ul style="list-style-type: none"> <li>• Cisco Unified Contact Center Express</li> </ul>
		<b>Note</b> If you prefer, you can use manual installation for these applications.
<b>Step 8</b>	<a href="#">Install UC Applications Manually, on page 15</a>	Use the manual interactive process to install any remaining UC applications.

## Power on the Server

Use this procedure to power on the server module.

### Before You Begin

Ensure that the BE6000S appliance has been rack-mounted and connected to a power supply and the data network as described in the Quick Start Guide.

### Procedure

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**Step 1** Verify that power is connected and that the server module power button LED is orange.

**Step 2** Push to the server module power button and verify that it changes to green.  
The UCS-E server module will not power on automatically with the router if it was previously powered down gracefully.

Always power down the server module gracefully before removing power from the appliance to avoid data loss.

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### What to Do Next

[Modify Default Configuration, on page 4](#)

## Modify Default Configuration

If you wish to modify the appliance default configuration, the following steps are recommended before installing your applications.

## Procedure

- Step 1** Connect a PC or laptop to interface GE0/1.
- Step 2** If you need to install vSphere client, use a browser to download the installer from <https://172.27.199.4/folder/OVA-ISO/VMware?dcPath=ha%252ddatacenter&dsName=datastore1> using the default username *root* and password *password*.
- Step 3** Use vSphere client to access ESXi at address 172.27.199.4 using the default username *root* and password *password*. Change the following settings as required:

Option	Description
Password for root access	It is recommended that you change the default credentials for accessing the hypervisor. From the Inventory view, ensure that the host is selected at the top of the left hand inventory list, then select the <b>Users</b> tab. Right-click <b>root</b> , select <b>edit...</b> , and then enter the new password.
Add additional user names and passwords	While still at the <b>Users</b> tab, you may add additional users if required. Right-click in the <b>Users</b> page, and select <b>Add...</b> . Enter the details for as many new users as required.
Update hypervisor license	<p>The BE6000 Virtualization Hypervisor license is pre-installed and is therefore ready for use on delivery.</p> <p><b>Note</b> Note: If you have ordered a license upgrade, refer to the documentation provided with your order to obtain the license key. If using the Virtualization Hypervisor license, this is the Master Serial Number that is shipped with the server. The Master Serial Number is pre-activated. You do not need to register it. The serial number is hardcoded for a two-CPU system. You cannot combine, change, or register it with other licenses.</p> <p>If you need to reapply or upgrade the license, follow these steps:</p> <ol style="list-style-type: none"> <li>1 From the <b>Configuration</b> tab, select <b>Licensed Features</b> from the <b>Software</b> menu , and then click <b>Edit</b>.</li> <li>2 Select <b>Assign a new license key to this host</b>.</li> <li>3 Click <b>Enter Key...</b>, and then type in the Master serial number.</li> </ol>

Option	Description
Modify NTP Settings	<p>As some Collaboration applications require the host to have a valid time reference, you should configure ESXi to use NTP with the following steps.</p> <ol style="list-style-type: none"> <li>1 From the <b>Configuration</b> tab, select <b>Time Configuration</b> from the <b>Software</b> menu.</li> <li>2 Click <b>Properties</b> to launch the <b>Time Configuration</b> page.</li> <li>3 Click <b>Options...</b> , then select <b>NTP Settings</b>.</li> <li>4 Click <b>Add</b> and type the IP address of NTP server. Repeat this step to add multiple NTP servers. Click <b>OK</b>.</li> <li>5 Select <b>General &gt; Start and Stop with Host</b> .</li> <li>6 Click the <b>Start</b> button. Click <b>OK</b> to close the configuration pages.</li> <li>7 Verify that the NTP client is running and that the correct time is displayed at the <b>Time Configuration</b> page.</li> </ol>
Modify Domain, DNS, and Default Gateway Settings	<p>From the <b>Configuration</b> tab, select <b>DNS and Routing</b> from the <b>Software</b> menu, then select <b>Properties...</b> to adjust the network settings to suit your requirements.</p>
Modify ESXi IP Address	<p><b>Note</b> After making this change vSphere client will lose access to the hypervisor until the IOS configuration is updated later in this section.</p> <p>From the <b>Configuration</b> tab, select <b>Networking</b> from the <b>Hardware</b> menu, then select <b>Properties...</b> for <b>vSwitch0</b>. In the switch properties window, select <b>Management Network</b> and then <b>Edit...</b> Adjust the address configuration in the <b>IP Settings</b> tab.</p>

**Step 4** With a telnet or SSH client, access the router IOS command line at 172.27.199.1 using the default username admin and password password. Before making any other change to the configuration, you must update the authentication configuration as follows:

- a) Enter configuration mode: `config t`
- b) Add credentials: `username myusername privilege 15 secret mypassword`
- c) Save configuration: `do copy run start`
- d) Continue with other configuration changes. You may wish to consider modifying the following aspects of the configuration:

DHCP Server settings
DNS settings, Domain Name and host configurations
NTP settings
Voice port settings and dial plan
GE0/0 static IP addressing and static/dynamic routing - if using routed access.
CIMC configuration via interface ucse1/0

BVI1 addressing. After changing this address, you will need to renew your client IP address and re-establish contact with the router. Save your configuration before moving on to the next section.

- Step 5** Complete CIMC Configuration. Use the following procedure to update settings for the server module CIMC.
- In a web browser, enter the CIMC IP address configured through IOS in step 4, and log in with the username **admin** and the default password password.
  - From the menu bar on the left, click the **Admin** tab, and then click **User Management**.
  - Click on the **admin** user row and check **Change Password**. Enter the new password and select **Save Changes**.
  - From the menu bar on the left, click the **Admin** tab, and then click **Network**. In the new page that appears, select the **Network Settings** tab.
  - From **Common Properties**, update the **Hostname** and **Domain** settings.
  - From IPv4 Properties, update **DNS Server** addresses as required. In the new page that appears, select the **NTP Settings** tab.
  - Select the **Enable NTP** check box and enter the NTP Server addresses. Select **Save Changes**.
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### What to Do Next

[Delete VMs, on page 7](#)

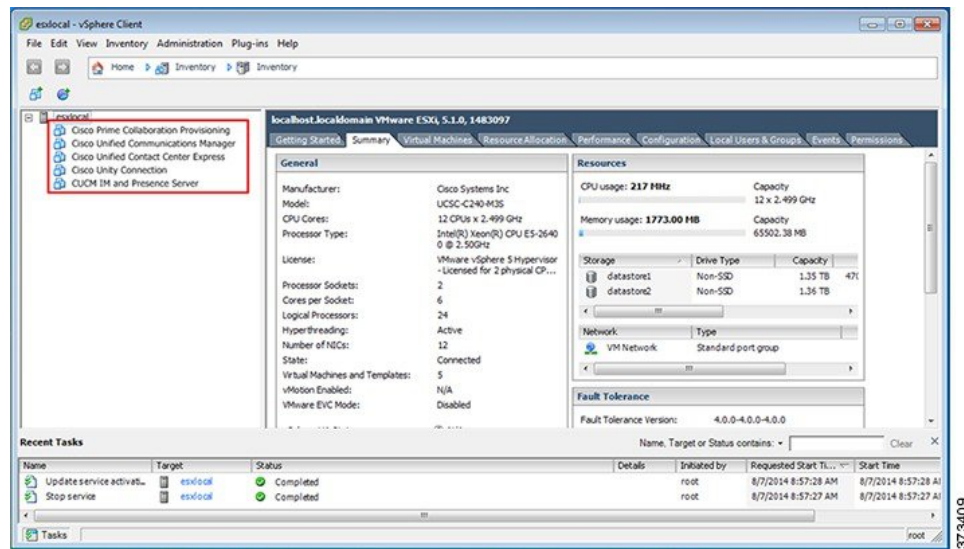
## Delete VMs

If you want to use a different application version to those that have been pre-deployed, delete these virtual machines from the vSphere inventory and install the preferred version.

## Procedure

- Step 1** Log in to vSphere Client.
- Step 2** Locate the virtual machine that you wish to delete.

**Figure 2: Delete Any VMs that you are not Using**



- Step 3** If the VM has a green triangle, right-click the icon and select **Power > Power Off**. The green arrow disappears as the VM powers off.
- Step 4** Right-click the VM and select **Delete From Disk**.
- Step 5** Repeat this procedure for each virtual machine that you wish to remove.

## What to Do Next

See the next section to deploy Virtual Machines.

## Deploy Virtual Machines

For each application that you want to install, deploy the appropriate virtual machine OVA file.



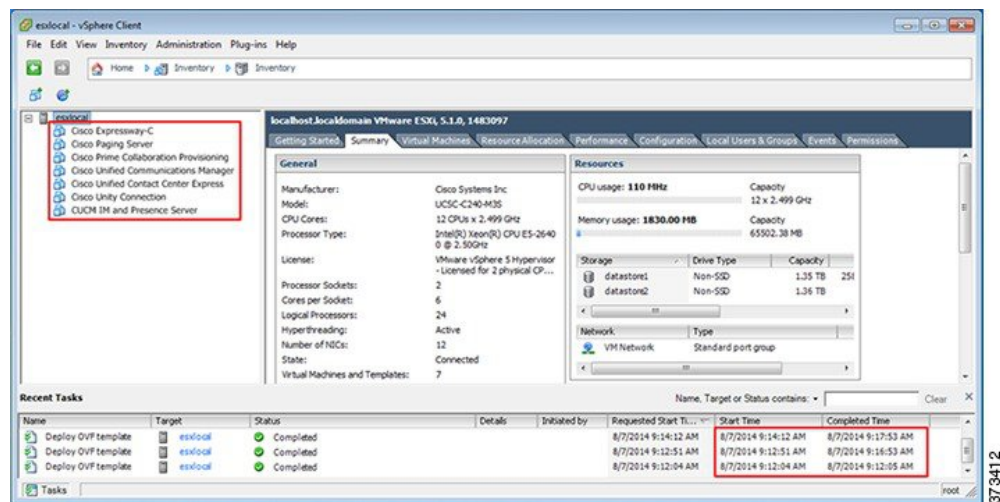
**Note** If you are not using the default pre-deployed virtual machines, you can skip to [Customize VM for Cisco Unity Connection Installation](#), on page 10.



**Note**

The OVA template file defines the virtual machine for specific applications. OVA templates are deployed in seconds, while a packaged OVA may take longer minutes to deploy.

**Figure 3: Deployed Application VMs Viewed in vSphere Client**

**Procedure**

- Step 1** On the vSphere Client, navigate to **File > Deploy OVF Template**. The Deploy OVF Template screen is launched.
- Step 2** Browse and select the source OVA template file on your PC. For application and filename mapping, see the Build Summary PDF in the datastore OVA-ISO directory, or download from: <http://www.cisco.com/c/en/us/support/unified-communications/business-edition-6000/products-release-notes-list.html>.
- Step 3** If prompted to accept license agreements, continue to click **Next**.
- Step 4** Specify a meaningful name for the virtual machine.
- Step 5** Select the appropriate virtual machine size for your deployment, if prompted.
- Step 6** Set the remaining parameters, as required.
- Step 7** If prompted for the **Disk Format**, specify **Thick Provision Lazy Zero**.
- Step 8** Deploy VMs for all of your UC applications before proceeding to the next task.

**What to Do Next**

If your system includes Cisco Unity Connection, [Customize VM for Cisco Unity Connection Installation](#), on page 10.

Otherwise, [Associate Application ISO Files to VM](#), on page 10.

## Customize VM for Cisco Unity Connection Installation

For Customized installations, use this procedure to configure your Cisco Unity Connection virtual machine settings to ensure optimum performance.



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**Note** If using two CPUs for Unity Connection, you must disable, or not use one of the other supported applications. The total number of CPUs used by active virtual machines must not exceed six.

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### Procedure

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- Step 1** From the virtual machine inventory in the vSphere client, right click the **Unity Connection** entry and select **Edit Settings**.
- Step 2** Click the **Options** tab.
- Step 3** If installing a version earlier than 11.5, select the **Advanced > General** menu, and click **Configuration Parameters**. Click **Add Row** and complete the following details:
- Enter **sched.cpu.latencySensitivity** in the **Name** column.
  - Enter **High** in the **Value** column.
- Step 4** If you want to use Unity Connection, Unified or Integrated Messaging, do the following:
- Select the **Hardware** tab.
  - Select the **CPUs** menu and set the number of virtual sockets to **2**.
  - Select the **Resources** tab.
  - Select the **CPU** menu and increase the **Reservation** to **3598MHz**.
- Step 5** For customized installs, if you are installing Unity Connection 11.0 or earlier with one CPU, do the following:
- Select the **Resources** tab.
  - Select the **CPU** menu and decrease the **Reservation** to **1950MHz**.
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### What to Do Next

[Associate Application ISO Files to VM, on page 10](#)

## Associate Application ISO Files to VM

If you have deployed a new VM template for any of the following applications, use this procedure to associate the ISO installation files that will be used to complete the installation. Otherwise, you can proceed to the installation tasks.



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**Note** This is not required for default pre-deployed VMs.

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- Cisco Unified Communications Manager
- IM and Presence Service

- Cisco Unity Connection



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**Note** For an up to date list of installation files for your server, see the *Preload Summary* for your server in the datastore OVA-ISO directory or at: <http://www.cisco.com/c/en/us/support/unified-communications/business-edition-6000/products-release-notes-list.html>

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### Procedure

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- Step 1** In the vSphere client, select the UC application virtual machine.
  - Step 2** Select **Inventory > Virtual Machine > Edit Settings**.
  - Step 3** From the **Hardware** tab, select **CD/DVD Drive**.
  - Step 4** Select **Datastore ISO File**.
  - Step 5** **Browse** to the datastore and locate the application ISO file.
  - Step 6** Select the file and click **OK**.
  - Step 7** Under **Device Status**, enable the **Connected and Connect at power on** option.
  - Step 8** Repeat this procedure for each application that you want to install that includes an ISO file.
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### What to Do Next

Install your UC applications using either of the following procedures:

- [Install UC Applications Using Touchless Installation, on page 11](#)
- [Install UC Applications Manually, on page 15](#)

## Install UC Applications Using Touchless Installation

Touchless installation allows you to install multiple UC applications simultaneously, across hosts if required, without having to interact with the system while the install process runs. While you must prepare the system, touchless installation can save time, particularly if you want to install multiple applications. If you are installing only one or two applications, you may prefer to follow the manual procedure in the following section.



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**Note** If you are not custom installing any applications, you can skip this section.

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Use touchless installation to install the following applications:

- Cisco Unified Communications Manager
- IM and Presence Service
- Cisco Unity Connection

**Procedure**

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 1</b>	<a href="#">Generate Answer Files, on page 12</a>	Generate answer files (AFG files) for UC applications.
<b>Step 2</b>	<a href="#">Create Virtual Floppy Images, on page 13</a>	Use your AFG files to create virtual floppy images.
<b>Step 3</b>	<a href="#">Upload Virtual Floppy Images to Datastore, on page 13</a>	Upload your virtual floppy images to the datastore.
<b>Step 4</b>	<a href="#">Mount Virtual Floppy on VM and Set Boot Option, on page 14</a>	Mount each virtual floppy on the corresponding UC application VM.
<b>Step 5</b>	<a href="#">Run Touchless Installation, on page 14</a>	Run the touchless installation of your UC applications. We recommend that you run your installations simultaneously.

**Generate Answer Files**

Use this procedure to generate answer files for the touchless installation of your UC applications.

**Tip**

We recommend that you create application-specific folders (for example, UCM, IMP, CUC) in which to save the generated files so that you do not get the files mixed up.

**Procedure**

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- Step 1** Go to the online answer file generator at: [www.cisco.com/web/cuc\\_afg/](http://www.cisco.com/web/cuc_afg/).
- Step 2** From the **Product** drop-down menu, select the UC application for which you want to generate answer files.
- Step 3** Select the **Version** that you want to install.
- Step 4** Complete the remaining fields with the installation details that you want to configure on the server. For example, you can assign items such as passwords, IP addressing, and DNS settings.
- Step 5** Click **Generate Answer Files** to generate the `platformConfig.xml` file for that UC application. Each UC application generates a `platformConfig.xml` file. Cisco Unified Communications Manager also generates a `clusterConfig.xml` file.
- Step 6** Save the generated answer files as follows:
- For Cisco Unified Communications Manager, save both the `platformConfig.xml` and `clusterConfig.xml` files in the UCM folder.
  - For other UC applications, save the `platformConfig.xml` file in the relevant application folder.
- Step 7** Repeat these steps for each UC application for which you want to use touchless installation.
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## What to Do Next

[Create Virtual Floppy Images, on page 13](#)

### Create 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.



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**Tip** We recommend that you follow the recommended naming conventions for your `.flp` files.

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#### Before You Begin

You can use Winimage to create the 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

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- Step 1** In Winimage, select **File > New**.
  - Step 2** From the **Standard format**, select **1.44 MB** and click **OK**.
  - Step 3** Drag the `platformConfig.xml` file for the UC application onto the Winimage window.
  - Step 4** When prompted to inject the file into Winimage, click **Yes**.
  - Step 5** Cisco Unified Communications Manager only. Drag the `clusterConfig.xml` file onto the Winimage window.
  - Step 6** Select **File > Save As**.
  - Step 7** Save the file as a virtual floppy image (`.flp` file) using the following naming conventions:
    - Cisco Unified Communications Manager—`ucm.flp`
    - IM and Presence Service—`imp.flp`
    - Cisco Unity Connection—`cuc.flp`
  - Step 8** Repeat this procedure for each UC application for which you want to use touchless installation.
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## What to Do Next

[Upload Virtual Floppy Images to Datastore, on page 13](#)

### Upload Virtual Floppy Images to Datastore

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

## Procedure

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- 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 the AFG folder.
  - Step 7** At the **Upload/Download** warning, click **Yes**.
  - Step 8** Close the **Datastore Browser** window.
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## What to Do Next

[Mount Virtual Floppy on VM and Set Boot Option, on page 14](#)

## Mount Virtual Floppy on VM and Set Boot Option

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

This step is not required for pre-deployed VMs as they are already configured.

## Procedure

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- Step 1** In the vSphere client, select the UC application virtual machine.
  - Step 2** Select **Inventory > Virtual Machine > Edit Settings**.
  - Step 3** From the **Hardware** tab, select **Floppy drive**.
  - Step 4** Select **Use existing floppy image in datastore**.
  - Step 5** **Browse** to the datastore and locate the virtual floppy image.
  - Step 6** Select the file and click **OK**.
  - Step 7** Under **Device Status**, enable the **Connected and Connect at power on** option.
  - Step 8** Click the **Options** tab. Under **Boot Options**, check **Force entry to BIOS**, and then click **OK**.
  - Step 9** Repeat this procedure for each UC application for which you want to perform touchless installation.
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## What to Do Next

[Run Touchless Installation, on page 14](#)

## Run Touchless Installation

After you have mounted your virtual floppy drives to your application VMs, run the touchless installation process. It's recommended that you run all of your touchless installations simultaneously.




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**Note** If your VM is pre-deployed, you need to perform step 6 only.

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### Procedure

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- 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 the console.  
The UC application installation commences immediately.
- Step 5** Repeat these steps for each UC application that you want to install.
- Step 6** Once the installations are complete, remove the vFloppy configurations from the virtual machines.
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### What to Do Next

Use the manual method to install any remaining UC applications in the next section.

## Install UC Applications Manually

Use this procedure to follow the interactive install process to install any UC applications.




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**Note** For details specific to Cisco Prime Collaboration Provisioning, refer to:

- [Install Prime Collaboration Provisioning, on page 16](#)

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**Note** If you want to use this method to install both Cisco Unified Communications Manager and IM and Presence Service, you must complete the installation of the Unified Communications Manager publisher first.

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### Procedure

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- Step 1** In vSphere Client, power on the VM for the application that you want to install.
- Step 2** Right-click the VM, and choose **Open Console**.

A console window appears.

**Step 3** Follow the screen prompts to install the application from the console.

**Step 4** If you are using the manual method to install both Cisco Unified Communications Manager and IM and Presence Service, once the Cisco Unified Communications Manager publisher node installation completes, do the following:

- a) From the vSphere console, log in to the Cisco Unified Communications Manager CLI.
- b) Run the `set network cluster subscriber dynamic-cluster-configuration 24` command.
- c) Open a vSphere console window for the IM and Presence or subscriber virtual machine.
- d) **Power On** the virtual machine.
- e) Enter the configuration information for the application to complete the installation.

**Step 5** Repeat this procedure for each UC application that you want to install.

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## Complete Packed Virtual Machine (OVA) Installation

### Install Prime Collaboration Provisioning

Use this procedure to install Cisco Prime Collaboration Provisioning.

#### Procedure

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**Step 1** In vSphere client, power on the VM that you deployed for Prime Collaboration Provisioning.

**Step 2** Right-click the VM and choose **Open Console**.  
A console window appears.

**Step 3** At the login prompt, type **setup**.

**Step 4** At the prompts, enter each network configuration detail, and press **Enter**.

**Step 5** At the Installation Mode prompt, enter **1** for Standard Prime Collaboration Provisioning.

**Step 6** Follow the prompts to complete the installation.

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