# Installation

## Installation Overview

This chapter describes the tasks that you must perform to install software on your Business Edition 6000S server. It contains two main task flows that describe how to install software on the server.

For Customized deployments, use the tasks in this chapter to configure VMware and install application software on your server.

For Pre-configured deployments, or if your server was ordered via the Config To Order Portal, your server is already installed with VMware and UC applications.

## Preloaded File Types in the Datastore

In addition to pre-configured 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 deploy the VM, but do not include any application software. For those applications, there is an associated ISO file in the datastore (for example, `cucm_11.0_vmv8_v1.0.ova` and associated ISO file `Bootable_UCSInstall_UCOS_11.0.1.20000-2.sgn.iso`). For the installation, you must deploy the OVA template and install the software using the associated ISO file.

◦ Other OVA files deploy the VM and install the application software (for example, `cpc-provisioning-11.0.0-815-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.

# Installation Task Flow

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

**Procedure**

|  | Command or Action | Purpose |
|---|---|---|
| **Step 1** | Initial Configuration, on page 3 | Initial configuration of BE6000S server. |
| **Step 2** | Configure Cisco Integrated Management Controller, on page 3 | Configure CIMC for your Business Edition 6000 server. |
| **Step 3** | Configure ESXi Virtualization Hypervisor, on page 6 | Configure the ESXi Virtualization Hypervisor host on the Business Edition 6000 server. |
| **Step 4** | Delete Unused Pre-configured VMs, on page 12 | Delete any pre-configured VMs that you do not require. **Note** For servers ordered via the Config To Order Portal, you can skip this step. |
| **Step 5** | Deploy Virtual Machines, on page 13 | Deploy virtual machine OVAs for each UC application that you want to install. |
| **Step 6** | Customize VM for Cisco Unity Connection Installation, on page 14 | If your Business Edition 6000 deployment includes Cisco Unity Connection, customize the Unity Connection VM. |
| **Step 7** | Associate Application ISO Files to VM, on page 15 | For UC application installations that require an ISO file, mount the ISO file on the application VM. **Note** For a list of applications that use ISO installation files, see the Preload Summary for your server. |
| **Step 8** | Install UC Applications Using Touchless Installation, on page 16 | Optional. Use touchless installation to install any of the following core UC applications: <br>• Cisco Unified Communications Manager <br>• IM and Presence Service <br>• Cisco Unity Connection <br>• Cisco Unified Contact Center Express <br>**Note** If you prefer, you can use manual installation for these applications. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 9** | Install UC Applications Manually, on page 20 | Use the manual interactive process to install any remaining UC applications. |

# Initial Configuration

Cisco BE6000S ships with pre-configured applications that use addressing from the 172.27.199.0/26 network, as shown in the following diagram.
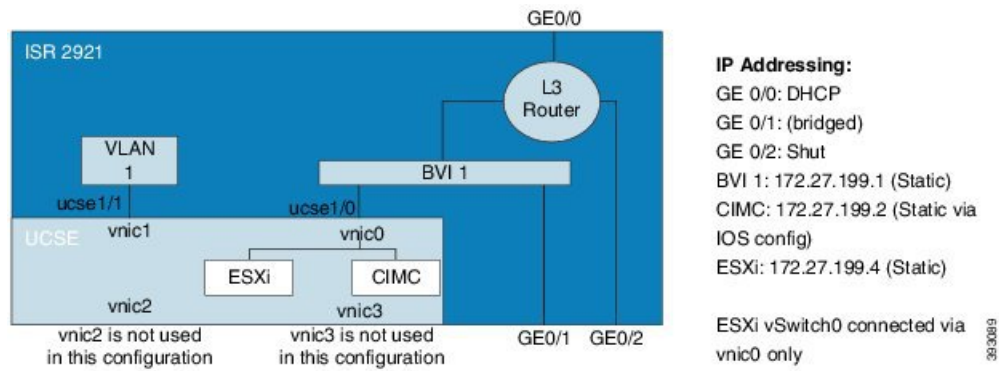


# Configure Cisco Integrated Management Controller

Cisco Integrated Management Controller (CIMC) is the management interface for the Cisco UCS Server. CIMC runs within the server, allowing remote administration, configuration, and monitoring of the server via web or SSH command line access.

Complete the following tasks to configure CIMC on a Business Edition 6000 server for customized and pre-configured deployments.

**Note** If you ordered your server via the Config To Order Portal, CIMC is already set up on your server. Skip to Configure ESXi Virtualization Hypervisor, on page 6.

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | Power On and Initial CIMC Setup, on page 4 | Power on the server and configure basic CIMC IP addressing details. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 2** | Complete the CIMC Configuration, on page 5 | Configure DNS and NTP settings for the CIMC interface. |

## Power On and Initial CIMC Setup

Use this procedure to power on the server and begin basic Cisco Integrated Management controller (CIMC) configuration.

### Before You Begin

Ensure that the BE6000 server has been rack-mounted, connected to a power supply, connected to the data network, and that a monitor and keyboard are connected to the server, as described in the *Quick Start Guide*.

### Procedure

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

**Step 2** Push the server power button and verify that it changes to green

**Step 3** Watch the boot process on the monitor.

**Step 4** When the blue Cisco logo appears, press **F8** to enter the CIMC configuration dialog.

*Figure 1: Press F8 at the CIMC Boot Screen*
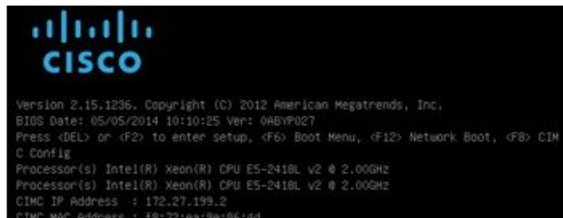


**Step 5** When prompted, enter the username `admin` and create a new password.

**Step 6** On the CIMC configuration screen, complete the following details:

- CIMC IP address
- Subnet mask

• Gateway IP address

**Figure 2: Enter the CIMC IP Address Details**



**Step 7**    When complete, press **F10** to save your changes and boot the system.

**What to Do Next**

## Complete the CIMC Configuration

Use this procedure to configure DNS and NTP settings in the CIMC interface.

**Procedure**

**Step 1**    In a web browser, enter the CIMC IP address and log in with the username `admin` and the password that you created in the previous task.

**Step 2**    From the left hand menu, select the **Admin** tab, and click **Network**.

**Step 3**    In the main screen, select the **Network Settings** tab.

**Step 4**    From **Common Properties**, change the **Hostname** setting to the CIMC hostname.

**Step 5**    From **IPv4 Properties**, change **Preferred DNS Server** to the IP address that you have specified for the DNS server.

**Step 6**    In the main screen, select the **NTP Settings** tab.

**Step 7**    Check the **Enable NTP** check box.

**Step 8**    In the **Server 1** field, enter the NTP server IP address.

**Step 9**    Select **Save Changes** from the bottom right hand corner of the page.

# Configure ESXi Virtualization Hypervisor

Complete the following tasks to set up ESXi Virtualization Hypervisor.

**Procedure**

|  | **Command or Action** | **Purpose** |
| --- | --- | --- |
| **Step 1** | Customize Virtualization Hypervisor Remote Access, on page 6 | Customize your Virtualization Hypervisor to allow remote access using vSphere client. |
| **Step 2** | Access and Configure Virtualization Hypervisor, on page 10 | Configure your Virtualization Hypervisor with NTP settings and fault tolerance. |

## Customize Virtualization Hypervisor Remote Access

Follow this procedure to customize the Virtualization Hypervisor (VMware vSphere Hypervisor) to enable remote access from your PC using the vSphere client.

**Note**    For servers ordered via the Config To Order Portal, skip to Step step 5.

**Procedure**

**Step 1**    When the hypervisor boots, the ESXi Direct Console User Interface displays on the monitor as shown in the following figure
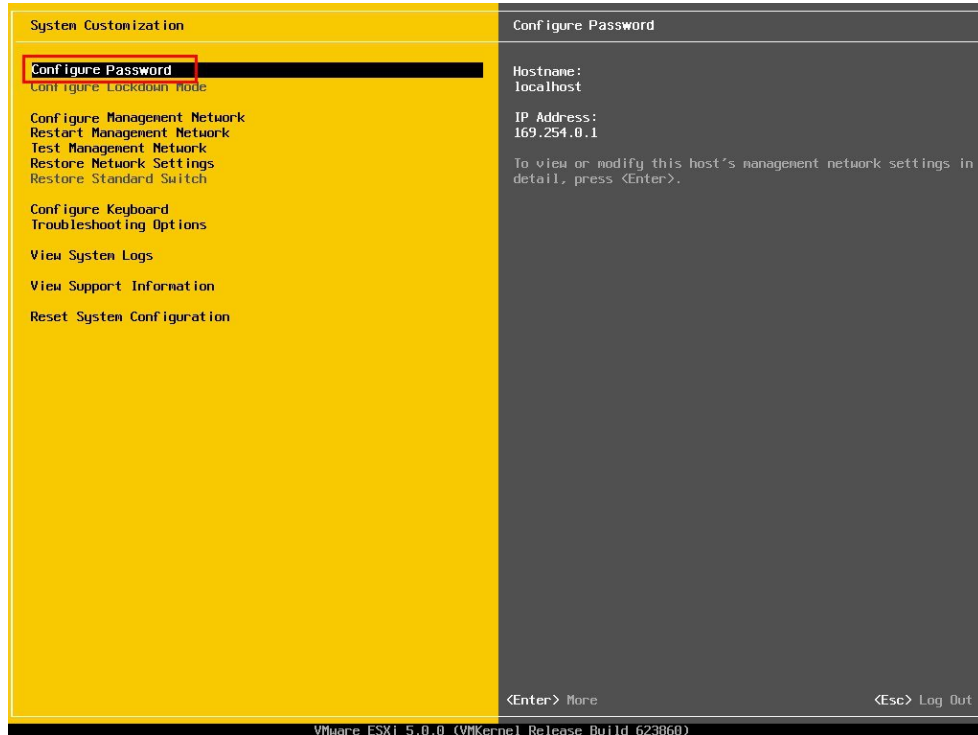
*Figure 3: Console Screen After ESXi Loads*

**Step 2** Press **F2** to enter the System Customization menu as shown in the following figure.

The default username is root and password is password.

*Figure 4: ESXi System Customization Menu*

**Step 3**    Choose **Configure Password** to change the password.
If your applications are preconfigured, skip to Step step 5.

**Step 4**    To assign a static IP address, select the **Configure Management Network** menu, and follow the instructions on screen to change "IP Configuration" as shown in the figure below.

*Figure 5: Assign Static IP Address to ESXi Host*
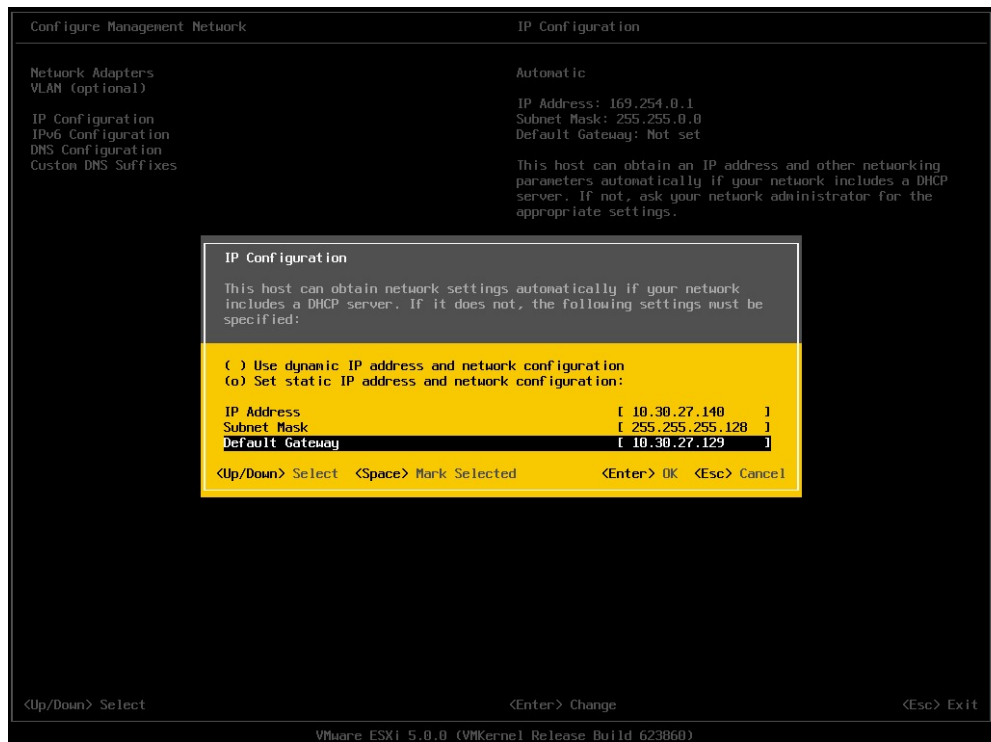
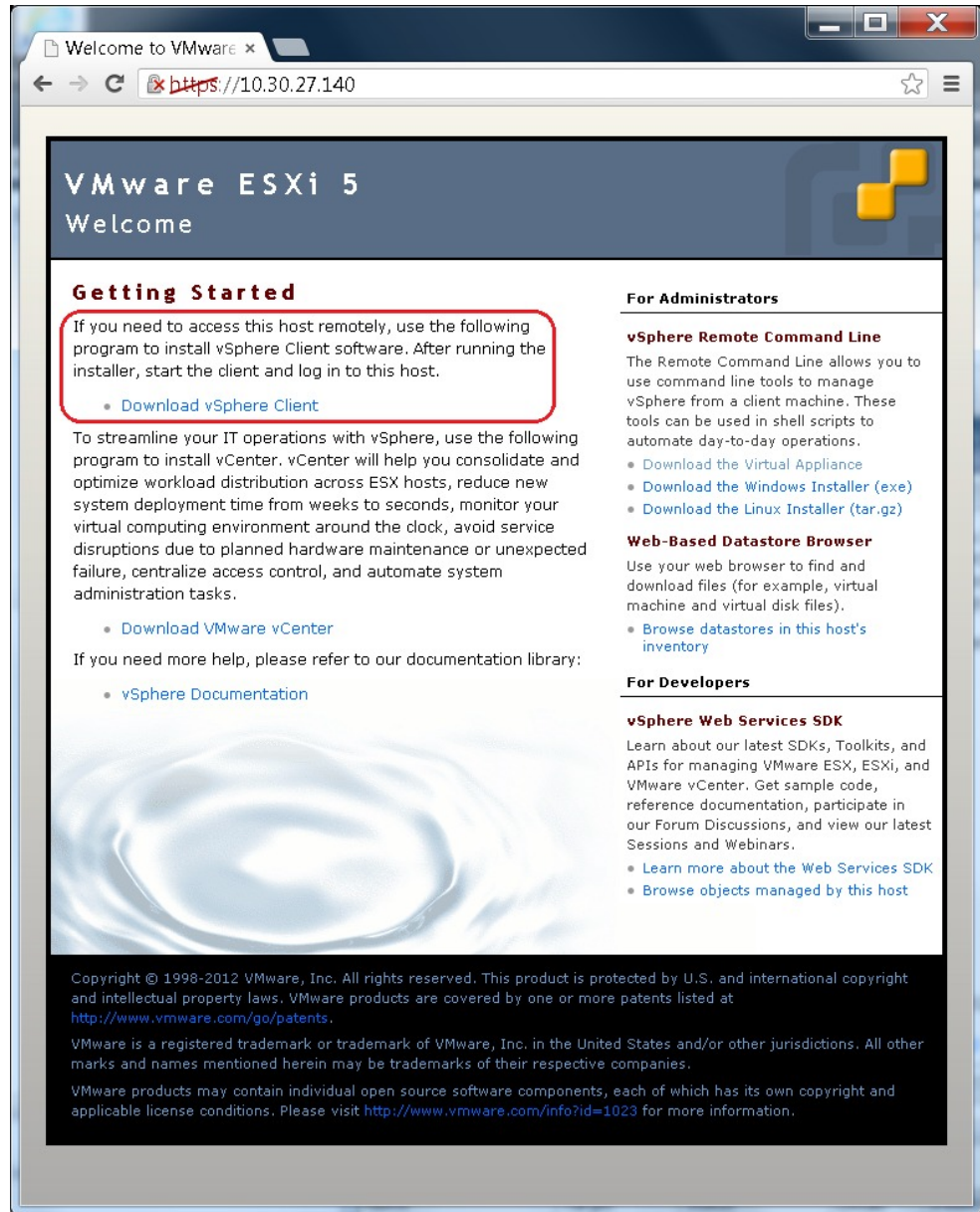**Step 5**  Connect your PC to the data network, and browse to the new hypervisor IP address. Verify the web page as shown in the figure below.

*Figure 6: Hypervisor Welcome Page*



**Step 6**  If not already installed on your PC, download and install the vSphere client.
The vSphere client can be downloaded from the internet, or accessed in the datastore.

**What to Do Next**

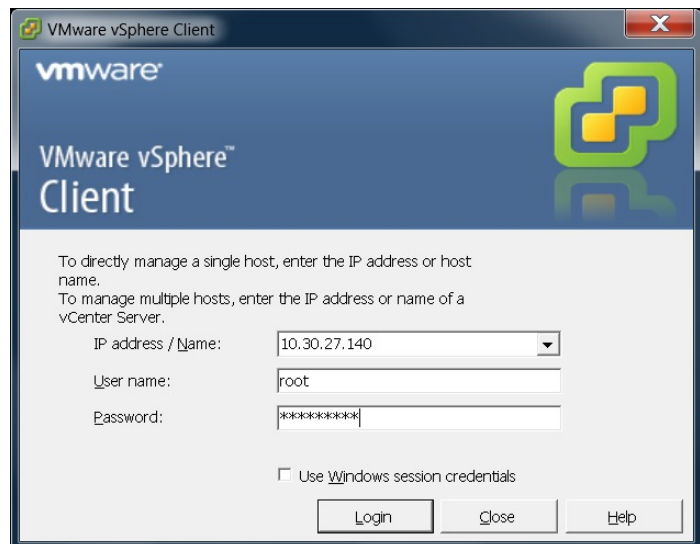Access and Configure Virtualization Hypervisor

## Access and Configure Virtualization Hypervisor

Some Business Edition applications require the host to have a valid time reference. Follow these steps to access the ESXi host to configure NTP as well as configure fault tolerance for network interface cards (NICs) using the NIC teaming feature, view preinstalled applications, and browse the datastore to verify the preloaded collaboration application software.

**Procedure**

**Step 1** Launch the vSphere client application and type the IP address of the Virtualization Hypervisor.

*Figure 7: Access Virtualization Hypervisor Using vSphere Client*

**Step 2** Use the login credentials that you previously configured.

**Step 3** (Optional) The BE6000 Virtualization Hypervisor license is preinstalled and is therefore ready for use on delivery. If you need to reapply or upgrade the license, follow these steps:

a) 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.

**Note** 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.

b) Navigate to **Configuration** > **Software** > **Licensed Features**, and click **Edit.**

c) Select **Assign a new license key to this host**.

d) Click **Enter Key...**.

e) Type in the Master serial number.

f) Click **OK** to close configuration dialogs and apply the license.

**Step 4** Configure NTP settings:

If your server was ordered via the Config To Order Portal, these settings will already have been configured.

a) Navigate to **Configuration** > **Software** > **Time Configuration**.

b) Click **Properties** to launch the **Time Configuration** screen.

c) Update the Time.

d) Click **Options...** .

e) Select **NTP Settings**.

f) Click **Add** and type the IP address of NTP server. Repeat this step to add multiple NTP servers.

g) Click **OK**.

h) Select **General** > **Start and Stop with Host**.

i) Click **Start** button. Click **OK** to close the configuration screens.

**Step 5** Optional. Configure fault tolerance by using the NIC teaming feature in VMware:

a) Navigate to **Configuration** > **Hardware** > **Networking**.

b) Click **Properties** for "Standard Switch: vSwitch0," as shown in the figure below.

c) In the configuration screen **vSwitch0 Properties,** select the tab **Network Adapters**.

d) Click **Add**… to add the NIC that is connected to data network.

e) Follow the interactive configuration dialogs and close the configuration screens until you see two or more NICs are added to vSwitch0, as shown in the figure below.

**Note** By default, only one NIC is enabled for the Hypervisor and identified as vmnic0.

**Note** If connecting teamed NICs to a Cisco switch channel-group, ensure that the NIC teaming load balancing policy is set to **Route based on IP hash**.

**Step 6** Browse the datastore:

a) Navigate to **Configuration** > **Hardware** > **Storage**.

b) Click **Datastore** to list the datastores in the Business Edition server.

c) Select datastore1, then right-click and select **Browse Datastore** as shown in the following figure. Preloaded software is stored in the /OVA-ISO directory.

*Figure 8: Browse Datastore to View Preloaded Collaboration Virtual Machines and Preloaded Software*
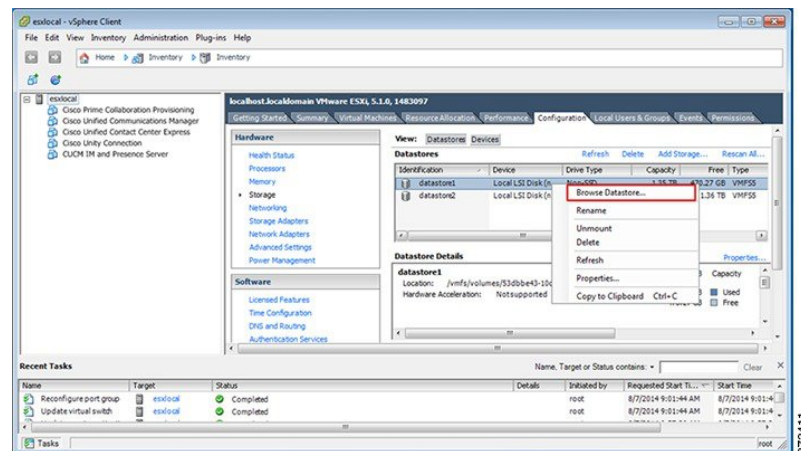
**Step 7**    (Optional) Cisco recommends that you archive the OVA-ISO directory locally. If a server fails, the replacement product does not include preloaded content.

**What to Do Next**

# Delete Unused Pre-configured VMs

If you want a custom install of a pre-configured application, you must delete the pre-configured image before you can install that application. Use this procedure to delete any pre-configured images that you are not using.

> **Note**    If your server was ordered via the Config To Order Portal, you can skip this step as your server does not have pre-configured images.

**Procedure**

**Step 1**    Log in to vSphere Client.

**Step 2**    Locate the pre-configured virtual machine that you wish to delete.

*Figure 9: Delete Any Pre-Configured VMs that you are not Using*
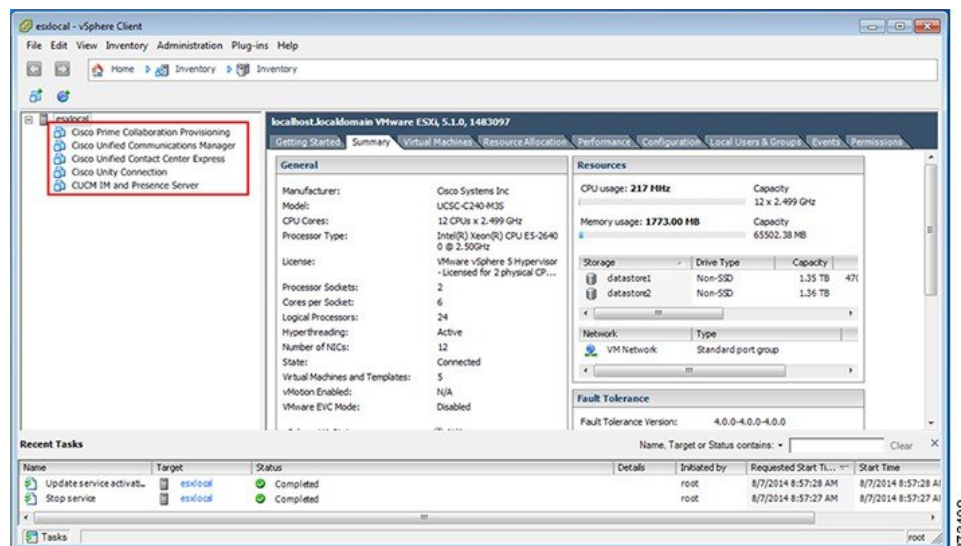


**Step 3**    If the VM has a green triangle, right-click the icon and select **Power** > **Power Off**.
The green arrow disappears as the VM powers off.

**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**

Deploy Virtual Machine OVAs

# Deploy Virtual Machines

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

**Note** If you are not custom installing any applications, you can skip to Customize VM for Cisco Unity Connection Installation, on page 14.

**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 10: Deployed Application VMs Viewed in VSphere Client**
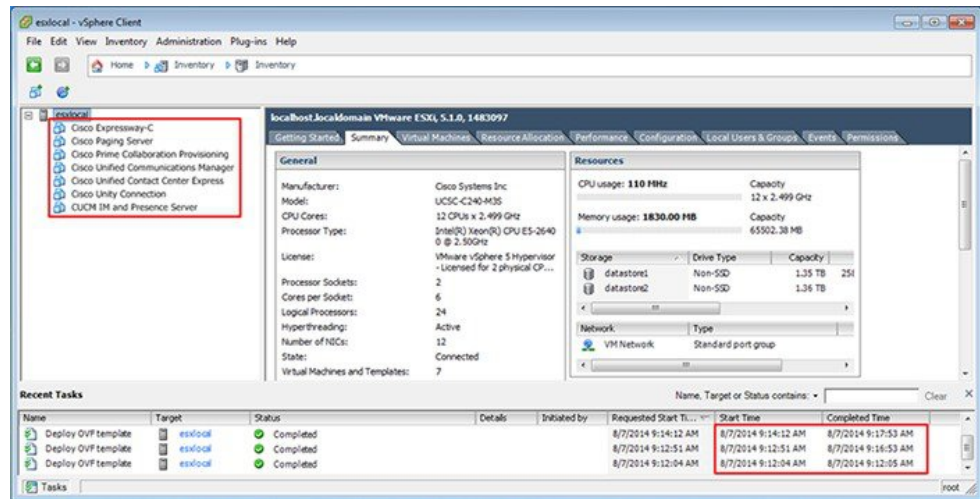


**Procedure**

**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 summaries here: 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.

**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 14.

Otherwise, Associate Application ISO Files to VM, on page 15.

# 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.

For Customized installations of Cisco Unity Connection, you must deploy the VM with high latency sensitivity and configure VM parameters. If the server is a BE6000S, you must also set your resource reservations.

For Pre-configured and Config To Order deployments, your Cisco Unity Connection VM has been deployed with a single virtual CPU for voicemail only. If you want to use Unified or Integrated Messaging, you must configure a second CPU.

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

**Procedure**

**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** Select the **Advanced** > **General** menu, and click **Configuration Parameters**.

**Step 4** Click **Add Row** and complete the following details:

    a) Enter **sched.cpu.latencySensitivity** in the **Name** column.

    b) Enter **High** in the **Value** column.

**Step 5** If you want to use Unity Connect Unified or Integrated Messaging, do the following:

    a) Select the **Hardware** tab.

b) Select the **CPUs** menu and set the number of virtual sockets to **2**.

c) Select the **Resources** tab.

d) Select the **CPU** menu and increase the **Reservation** to **3598MHz**.

**Step 6**  For customized installs, if you are installing Unity Connection with one CPU, do the following:

a) Select the **Resources** tab.

b) Select the **CPU** menu and decrease the **Reservation** to **1999MHz**.

**What to Do Next**

## 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.

• Cisco Unified Communications Manager

• IM and Presence Service

• Cisco Unity Connection

**Note**  For an up to date list of installation files for your server, see 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

**Procedure**

**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.

**What to Do Next**

Install your UC applications using either of the following procedures:

•

# 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.

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

Use touchless installation to install the following applications:

• Cisco Unified Communications Manager

• IM and Presence Service

• Cisco Unity Connection

**Procedure**

|  | Command or Action | Purpose |
|---|---|---|
| **Step 1** | Generate Answer Files, on page 16 | Generate answer files (AFG files) for UC applications. |
| **Step 2** | Create Virtual Floppy Images, on page 17 | Use your AFG files to create virtual floppy images. |
| **Step 3** | Upload Virtual Floppy Images to Datastore, on page 18 | Upload your virtual floppy images to the datastore. |
| **Step 4** | Mount Virtual Floppy on VM, on page 19 | Mount each virtual floppy on the corresponding UC application VM. |
| **Step 5** | Run Touchless Installation, on page 19 | 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**

**Step 1**  Go to the online answer file generator at: 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.

**What to Do Next**

## 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.

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

**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**

**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.

**What to Do Next**

## Upload Virtual Floppy Images 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 the `AFG` folder.

**Step 7**  At the **Upload/Download** warning, click **Yes**.

**Step 8**  Close the **Datastore Browser** window.

**What to Do Next**

## Mount Virtual Floppy on VM

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

### Procedure

**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** Repeat this procedure for each UC application for which you want to perform touchless installation.

### What to Do Next

## 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.

### Procedure

**Step 1** Right-click the VM and select **Edit Settings**.

**Step 2** Click the **Options** tab.

**Step 3** Under **Boot Options**, check **Force entry to BIOS**.

**Step 4** Click **OK**.

**Step 5** In vSphere client, right-click the VM and select Open Console.
A console window opens.

**Step 6** Click the **Power On** icon in the console toolbar to power on the virtual machine.

**Step 7** When the BIOS screen appears, configure the following boot order:

    a) CD-Rom

    b) Hard Drive

    c) Removable Devices

    d) Network

**Step 8** Save the settings and exit the console.
The UC application installation commences immediately.

**Step 9** Repeat these steps for each UC application that you want to install.

**Step 10** Once the installations are complete, remove the vFloppy configurations from the virtual machines.

**What to Do Next**

Use the manual method to install any remaining UC applications:

Install UC Applications Manually

# Install UC Applications Manually

Use this procedure to follow the interactive install process to install any UC applications that do not have a touchless install option such as Cisco Emergency Responder.

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

- Install Prime Collaboration Provisioning, on page 21

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

**Procedure**

**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.

# Complete Packed Virtual Machine (OVA) Installation

## Install Prime Collaboration Provisioning

Use this procedure to install Cisco Prime Collaboration Provisioning.

### Procedure

**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.