



Cisco Unified Communications Manager on Virtualized Servers

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This document presents the unique technical information that you need to run Cisco Unified Communications Manager on Virtualized Servers. This document contains the following topics:

- [Deployment of Cisco Unified Communications Manager on Virtualized Servers, page 1](#)
- [New Identity, page 2](#)
- [Installation, Upgrade, and Migration Options, page 4](#)
- [Cisco Unified Communications Manager on Virtualized Servers Licensing, page 38](#)
- [Downloading Virtual Machine Templates \(OVA Templates\), page 39](#)
- [Related Documentation, page 40](#)
- [Migrating to Cisco Unity Connection on a Virtual Machine, page 40](#)



Note

This document does not apply to Cisco Unified Communications Manager Business Edition 5000.

Deployment of Cisco Unified Communications Manager on Virtualized Servers

Cisco supports running Cisco Unified Communications Manager (Unified CM) under ESXi. For more information about running Unified CM under ESXi, see Unified Communications VMware Requirements on www.cisco.com/go/uc-virtualized.



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How to Run Cisco Unified Communications Manager

VMware Tools are specialized drivers for virtual hardware that is installed in the UC applications when they are running virtualized. It is very important that the VMware tools version running in the UC application be in sync with the version of ESXi being used. For information on how to upgrade the tools, see:

http://docwiki.cisco.com/wiki/VMware_Tools.

How to Disable LRO on the ESXi Host

For information on how to disable LRO on the ESXi Host, see:

http://docwiki.cisco.com/wiki/Disable_LRO.

New Identity

Cisco supports the New Identity process for use with Cisco Unified Communications Manager (Unified CM). The New Identity process is designed to start with a Unified CM application that is fully installed and configured with common settings. Often, the initial VM is saved as a VMware template and cloned as new Unified CM publisher nodes come online.

The New Identity process copies the VMware template and changes a set of primary settings, such as the IP address and hostname, to give a new VM a unique identity in the network.

How to Run the New Identity Process

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- Step 1** Create a new VM instance from the template of the deployed Unified CM application.
- Step 2** Run the CLI command **utils import config**. For more information about CLI commands, see the documentation at http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/cli_ref/8_5_1/cli_ref_851.html.
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New Identity Caveats

When you run the New Identity process, note the following:

- Although you can provide a new OS administrator user ID in the XML file, you cannot change the OS administrator user ID during the New Identity process.
- Each cloned VM has the same network configuration as the VMware template. The network must be functional during the New Identity process. If you run the cloned VMs on the same LAN there can be duplicate IP addresses. Ensure that you do not run the VMware template, or multiple VMs from the initial template, at the same time on the same LAN.
- The NTP server must be accessible before you can configure it on the Unified CM application. Ensure that the VM has access to the new NTP server.
- If DNS is used, DNS servers must be accessible when you run the New Identity process.
- For Cisco Unity Connection, you must set the SMTP domain address after you run the New Identity process.

- For Cisco Unified Presence, you must set the post-installation steps that configure the Unified CM system with which Cisco Unified Presence communicates after you run the New Identity process.
- The New Identity process can be run only on the primary (publisher) node and not on secondary (subscriber) nodes in a cluster.

Installation, Upgrade, and Migration Options

There are two main approaches to installing, upgrading, and migrating servers:

- Specs-based
- Tested reference configuration

For information relating to specs-based configuration, refer to the following section:

- [Cisco Unified Communications Manager on VMware Specs-Based Support, page 4](#)

For information on the tested reference configurations, refer to one of the following sections:

- [Cisco UCS B-Series Blade Servers, page 5](#)
- [Cisco UCS C260 M2 Rack-Mount Server Tested Reference Configuration 1, page 8](#)
- [Cisco UCS C210 Rack-Mount Servers, page 19](#)
- [Cisco UCS C200 Rack-Mount Servers, page 29](#)

Cisco Unified Communications Manager on VMware Specs-Based Support

If you want to use VMware Specs-based support with Cisco Unified Communications Manager, refer to the following:

http://docwiki.cisco.com/wiki/Specification-Based_Hardware_Support

The following sections describe the changes for installation, upgrade, and migration of VMware Specs-based support:

- [System requirements, page 5](#)
- [VMware feature support, page 5](#)
- [Migration, page 5](#)

System requirements

VMware feature system requirements are available from:

http://docwiki.cisco.com/wiki/Implementing_Virtualization_Deployments#Configuring_Hardware_Platforms

VMware feature support

VMware feature support is available from:

http://docwiki.cisco.com/wiki/Implementing_Virtualization_Deployments#VMware_Feature_Support

Migration

Migrating from an existing server to a VMware Specs-Based configuration follows a procedure that is very similar to replacing server hardware, which is described in the document *Replacing a Single Server or Cluster for Cisco Unified Communications Manager*.

For an overview of the migration process and references to other pertinent documentation, refer to the following sections:

- [Migrating To Cisco UCS B-Series Blade Servers](#), page 6
- [VM Installation and Configuration](#), page 16
- [Migrating To Cisco UCS C260 M2 Rack-Mount Server](#), page 17
- [Migrating To Cisco UCS C210 Rack-Mount Servers](#), page 26
- [Migrating To Cisco UCS C200 Rack-Mount Servers](#), page 35

Cisco UCS B-Series Blade Servers

Cisco supports running Cisco Unified Communications Manager on the Cisco UCS B-Series Blade Server. For more information about tested reference configurations for specific server models, see http://docwiki.cisco.com/wiki/Tested_Reference_Configurations_%28TRC%29.

The following sections describe the changes for installation, upgrade, and migration in Cisco UCS B-Series Blade Servers:

- [System Requirements](#), page 5
- [VMware Feature Support](#), page 6
- [Migrating To Cisco UCS B-Series Blade Servers](#), page 6
- [Cisco UCS B-Series Blade Servers External Media](#), page 8

System Requirements

To run the Cisco UCS B-Series Blade Server your system must meet the requirements listed in [Table 1](#) on page 6.

Table 1 **System Requirements**

| This parameter... | ...Must be this value to meet the Cisco supported configuration. |
|---|---|
| Supported Virtual Machine Configuration | Refer to the documentation at: http://www.cisco.com/go/uc-virtualized Use the Cisco-provided OVA template to create VMs, to ensure that the VMs are correctly configured. Refer to the “ Downloading Virtual Machine Templates (OVA Templates) ” section on page 39. For more information about virtual machine configurations, refer to the documentation at: http://docwiki.cisco.com/wiki/Unified_Communications_Virtualization_Downloads_%28including_OVA/OVF_Templates%29 . |
| IOPS per virtual machine (VM) | Refer to the documentation at: http://www.cisco.com/go/uc-virtualized |
| VM oversubscription per blade | None |
| VMware version | For vSphere ESXi version compatibility including minimum required version of vSphere ESXi, see http://docwiki.cisco.com/wiki/Unified_Communications_VMware_Requirements#Supported_Versions_of_VMware_vSphere_ESXi . |

VMware Feature Support

For current information about VMware feature support, refer to the documentation at:
http://docwiki.cisco.com/wiki/Unified_Communications_VMWare_Requirements

Migrating To Cisco UCS B-Series Blade Servers

Migrating from a Media Convergence Server (MCS server) to a Cisco UCS B-Series Blade Server follows a procedure that is very similar to replacing server hardware, which is described in the document *Replacing a Single Server or Cluster for Cisco Unified Communications Manager*.

[Table 2 on page 7](#) provides an overview of the migration process and references to other pertinent documentation.

Table 2 *Migrating to Cisco UCS B-Series Blade Servers Process Overview*

| Configuration Steps | Related Procedures and Topics |
|---|---|
| <p>Step 1 Review the document <i>Replacing a Single Server or Cluster for Cisco Unified Communications Manager</i>.</p> <p>This document describes how to replace server hardware, which is very similar to migrating from an MCS server to a Cisco UCS B-Series Blade Server. You should perform the document's pre-replacement and post-replacement tasks, and review the procedures for installing Cisco Unified Communications Manager and migrating data.</p> | <p><i>Replacing a Single Server or Cluster for Cisco Unified Communications Manager</i></p> |
| <p>Step 2 Upgrade the MCS server to Cisco Unified Communications Manager Release 8.0(2c) or later.</p> | <p><i>Cisco Unified Communications Operating System Administration Guide</i></p> |
| <p>Step 3 If the UCS VM will use a different IP address or hostname than the MCS server, change the IP address and hostname of the MCS server to the values that the UCS VM will use.</p> <p>This is required for DRS backup and restore to work.</p> | <p>Refer to the topic "Changing the Cluster IP Addresses for Publisher Servers That Are Defined by Host Name" in the <i>Changing the IP Address and Host Name for Cisco Unified Communications Manager</i> guide.</p> |
| <p>Step 4 Perform a DRS backup on the MCS server.</p> <p>Note Cisco UCS B-Series Blade Servers do not support tape drive as the backup media.</p> | <p><i>Disaster Recovery System Administration Guide</i></p> <p>Cisco UCS B-Series Blade Servers External Media, page 8</p> |
| <p>Step 5 Use the Answer File Generator to generate a license MAC for the Cisco UCS B-Series Blade Server. The license MAC is required to obtain licenses for the server.</p> <p>After you obtain the license MAC, you can rehost the licenses for your new server.</p> | <p>Customer Impact from New Licensing Procedures, page 38.</p> <p><i>Installing Cisco Unified Communications Manager</i></p> <p>Answer File Generator:</p> <p>http://www.cisco.com/web/cuc_afg/index.html</p> |
| <p>Step 6 Create the virtual machines (VMs) on the Cisco UCS B-Series Blade Server that will be used as the replacements for the MCS nodes.</p> | <p>Use the Cisco-provided OVA template to create VMs. Refer to the "Downloading Virtual Machine Templates (OVA Templates)" section on page 39.</p> |
| <p>Step 7 Install Cisco Unified Communications Manager Release 8.0(2c) or later on the Cisco UCS B-Series Blade Server.</p> <p>Note Cisco UCS B-Series Blade Servers do not support installation from a DVD.</p> <p>Note Cisco UCS B-Series Blade Servers do not support a hardware clock; you must use NTP. The option to configure a hardware clock is not available in the installation program.</p> | <p><i>Installing Cisco Unified Communications Manager</i></p> <p>Cisco UCS B-Series Blade Servers External Media, page 8</p> |
| <p>Step 8 Install Cisco Unified Communications Manager Release 8.0(2c) or later on the Cisco UCS B-Series Blade Server.</p> | <p><i>Cisco Unified Communications Operating System Administration Guide</i></p> |

Table 2 Migrating to Cisco UCS B-Series Blade Servers Process Overview (continued)

| Configuration Steps | Related Procedures and Topics |
|---|--|
| <p>Step 9 Perform a DRS restore to restore the data backed up from the MCS server to the Cisco UCS B-Series Blade Server.</p> <p>Note Cisco UCS B-Series Blade Servers do not support tape drive as the restore media.</p> | <p><i>Disaster Recovery System Administration Guide</i></p> <p>Cisco UCS B-Series Blade Servers External Media, page 8</p> |
| <p>Step 10 Upload the new licenses to the Cisco UCS B-Series Blade Server.</p> <p>If you did not obtain licenses for the new server already, you must request the licenses first.</p> <p>Note The previous license will no longer be valid. However, you have 30 additional days in which to use your previous license. Refer to “Obtaining Rehosted Licenses When You Change License MAC Parameters” section on page 39.</p> | <p>Cisco Unified Communications Manager on Virtualized Servers Licensing, page 38</p> <p><i>Cisco Unified Communications Operating System Administration Guide</i></p> |

Cisco UCS B-Series Blade Servers External Media

Cisco UCS B-Series Blade Servers use “soft media” such as ISO or FLP (virtual floppy) for procedures that require external media (such as installation and upgrade). Physical external devices such as USB drives are not supported.



Note Backup and restore are not supported on soft media.

The virtual USB interface is not supported on VMware. The following are examples of differences in external media support between MCS servers and Cisco UCS B-Series Blade Servers:

- Install logs cannot get dumped to a USB key. These logs get dumped to a file through the serial port of the VM.
- The answer file generated by the Answer File Generator (platformConfig.xml) cannot get read from a USB key to perform an unattended installation. Instead, you must put the answer file into a FLP image to be mounted in the floppy drive.
- USB tape drive backup is not supported. Use SFTP instead.
- Music On Hold through a USB connection is not supported. Use a Cisco 7800 Series Media Convergence Server instead.
- Cisco Messaging Interface (CMI) for Message Waiting Indication (MWI) is not supported over the serial port. Use a Cisco 7800 Series Media Convergence Server instead.

Cisco UCS C260 M2 Rack-Mount Server Tested Reference Configuration 1

Cisco supports running Cisco Unified Communications Manager on the Cisco UCS C260 M2 Rack-Mount Server with a specific configuration of direct attached storage (DAS).

The following sections describe the changes for installation, upgrade, and migration in Cisco UCS C260 M2 Rack-Mount Server:

- [System Requirements, page 9](#)
- [VMware Feature Support, page 10](#)
- [Installing Cisco UCS C260 M2 Rack-Mount Server, page 10](#)
- [Configuring CIMC, page 11](#)
- [Configuring RAID, page 12](#)
- [Configuring BIOS Boot Order, page 14](#)
- [Managing Disks on Cisco UCS C260 M2 Rack-Mount Servers, page 15](#)
- [ESXi Installation and Configuration, page 15](#)
- [VM Installation and Configuration, page 16](#)
- [Migrating To Cisco UCS C260 M2 Rack-Mount Server, page 17](#)
- [Performing Daily Operations on Cisco UCS C260 M2 Rack-Mount Server, page 18](#)

System Requirements

To run Cisco UCS C260 M2 Rack-Mount Server, your system must meet the requirements listed in [Table 3 on page 9](#).

Table 3 **System Requirement**

| This parameter... | ...Must be this value to meet the Cisco supported configuration. |
|---|--|
| Supported Virtual Machine Configuration | Refer to the documentation at: http://www.cisco.com/go/uc-virtualized Use the Cisco-provided OVA template to create VMs, to ensure that the VMs are correctly configured. Refer to the “ Downloading Virtual Machine Templates (OVA Templates) ” section on page 39 . For more information about virtual machine configurations, refer to the documentation at: http://docwiki.cisco.com/wiki/Unified_Communications_Virtualization_Downloads_%28including_OVA/OVF_Templates%29 . |
| IOPS per virtual machine (VM) | Refer to the documentation at: http://www.cisco.com/go/uc-virtualized |
| CPU and RAM oversubscription | None |
| VMware version | For vSphere ESXi version compatibility including minimum required version of vSphere ESXi, see http://docwiki.cisco.com/wiki/Unified_Communications_VMware_Requirements#Supported_Versions_of_VMware_vSphere_ESXi . |

To operate Cisco UCS C260 M2 Rack-Mount Server successfully, you should have the experience and skills to manage a host server running VMware ESXi. If you do not have this experience and want to obtain the required information quickly, consider using VMware GO, a Web-based application that facilitates VMware installations. For more information, refer to the VMware GO documentation.

**Note**

Even if you use VMware GO, you still need to use the supported VMware configuration on Cisco UCS C260 M2 Rack-Mount Server, which are documented at both <http://www.cisco.com/go/swonly> and <http://www.cisco.com/go/uc-virtualized>.

VMware Feature Support

For current information about VMware feature support, refer to the documentation at http://docwiki.cisco.com/wiki/Unified_Communications_VMWare_Requirements

Installing Cisco UCS C260 M2 Rack-Mount Server

The following sections describe how to perform a fresh installation of a Cisco UCS C260 M2 Rack-Mount Server:

- [Configuration Checklist for Installing and Configuring the Server, page 10](#)
- [Preparing To Install, page 11](#)

Configuration Checklist for Installing and Configuring the Server

[Table 4 on page 10](#) provides a checklist of the major steps required to install and configure a Cisco UCS C260 M2 Rack-Mount Server. The Related Documentation column contains references to documentation that is related to the step.

Table 4 Configuration Checklist for Installing and Configuring the Server

| | Configuration Steps | Related Documentation |
|---------------|--|--|
| Step 1 | Prepare to install the server. | Preparing To Install, page 11 <i>Cisco UCS C260 Installation and Service Guide</i> |
| Step 2 | Physically install and connect the server. | <i>Cisco UCS C260 Installation and Service Guide</i> |
| Step 3 | Power on the server and configure Cisco Integrated Management Controller (CIMC) for remote management. | Configuring CIMC, page 11 <i>Cisco UCS C260 Installation and Service Guide</i> |
| Step 4 | If you purchased the Cisco UCS C-Series Rack-Mount Server server separately from Cisco UCS C260 M2 Rack-Mount Servers, configure the RAID settings to the following specifications: <ul style="list-style-type: none"> • The first 8 drives are configured as a 7 + 1 RAID 5 array. • The remaining 8 drives are configured as a 7 + 1 RAID 5 array. | Configuring RAID, page 12 <i>Cisco UCS C260 Installation and Service Guide</i> |
| Step 5 | If you purchased the Cisco UCS C-Series Rack-Mount Server server separately from Cisco UCS C260 M2 Rack-Mount Servers, configure BIOS Boot Order. | Configuring BIOS Boot Order, page 14 <i>Cisco UCS C260 Installation and Service Guide</i> |

Table 4 Configuration Checklist for Installing and Configuring the Server

| | Configuration Steps | Related Documentation |
|---------------|---|--|
| Step 6 | Install and configure VMware ESXi. Refer to Table 6 on page 20 for the supported versions of VMware ESXi. | ESXi Installation and Configuration, page 15 <i>Cisco UCS C-Series Servers VMware Installation Guide</i> VMware ESXi documentation |
| Step 7 | Install and configure virtual machines (VMs). | VM Installation and Configuration, page 16 Downloading Virtual Machine Templates (OVA Templates), page 39 |
| Step 8 | Join the host to a Virtual Center (optional) | Installing Cisco Unified Communications Manager On a VM, page 25 |

Preparing To Install

This section describes how to prepare to install a Cisco UCS C260 M2 Rack-Mount Server server in a standalone configuration (it is not in a datacenter).

It is suggested that you allocate the following resources before installation:

- Space in a rack to receive a 2 RU Cisco UCS C260 M2 Rack-Mount Server. This rack needs to accommodate the "square mount" rails shipped with the Cisco UCS C260 M2 Rack-Mount Servers.
- 5 or 6 Ethernet ports on a switch close to the Cisco UCS C260 M2 Rack-Mount Server:
 - One standard Ethernet port for the dedicated CIMC management port, if desired
 - Four 802.1q trunked ports for the LOM NICs
- An IP address for CIMC management. If the dedicated port is used, it should be attached to the appropriate LAN
- A VLAN ID and IP address for the host. This is the Cisco UCS C260 M2 Rack-Mount Server's ESXi management address
- A hostname and configure DNS, if desired, for the hosts' hostname
- VLAN IDs and IP addresses for the VMs

Upon receipt of the Cisco UCS C260 M2 Rack-Mount Server you will:



- Install the C-260 M2 in the rack
- Attach the CIMC management port to the designated switch port
- Attach the LOM NICs to their designated, trunked switch ports
- Attach a VGA console, or a KVM to the VGA and keyboard ports. This is necessary until CIMC has been configured.

Configuring CIMC

Configuring the CIMC allows you to perform all subsequent configuration and installation using the CIMC console. In addition, the CIMC provides a measure of hardware monitoring.

Follow this procedure to configure CIMC:

Procedure

-
- Step 1** Attach a VGA console and keyboard directly to the server using
- A dedicated Ethernet management port on the Cisco UCS C260 M2 Rack-Mount Server. This requires no VLAN and is the simplest to configure. This is a single NIC and there is no redundancy for the CIMC using this configuration.
 - The LOM NICs. Although this option is available, it is not recommended.
- Step 2** During boot, hit **F8** to enter CIMC configuration.
- Step 3** In the CIMC configuration screen, under IPV4 (Basic):
- Clear the DHCP enabled check box using the spacebar
 - Enter values for the CIMC IP, Subnet mask, and Gateway.
- Step 4** Leave VLAN (Advanced) clear.
- Step 5** Under Default User (Basic), enter the default CIMC user, **admin** and a password.
-
-  **Note** The CIMC username is not configurable and is set to admin.
-
- Step 6** Once configured, the CIMC is accessible via http. Point a browser to the IP address configured above and login as admin, using the password configured above.
-
-  **Note** Cisco does not support or restrict customers to any specific version of BIOS. The current version is assumed to be compatible with latest release of ESXi. The same is true for the BIOS configuration. The default BIOS settings as shipped from the factory require no modification.
-

Configuring RAID




If you purchased the Cisco UCS C-Series Rack-Mount Server server separately from the Cisco UCS C260 M2 Rack-Mount Server, configure the RAID settings to the following specifications:

- The 16 drives present on the system are set up as two separate 8-drive RAID-5 logical volumes.
- With eight 300GB drives, this corresponds to a total storage capacity of 1.93 TB each, as seen by ESXi.

Follow this procedure to perform this task:

-
- Step 1** Check your current RAID configuration:
- During boot, the system asks you to enter either Ctrl-H or Ctrl-Y
 - To use the GUI to configure RAID, enter **Ctrl - H**.
 - To use the Preboot CLI to configure RAID, enter **CTRL-Y**.
 - Type the following command:
 - ldinfo -l0 -a0**
 - ldinfo -l0 -a1**

This command displays the number of drives, RAID level, and so forth for the specified logical drive. There should be 8 drives each in two separate RAID 5 arrays for logical drive 0 and 1.

- Step 2** Use the following sequence of commands to set the recommended RAID configuration; two RAID 5 volumes of 8 drives each:
- Enter **CTRL-Y** to enter the Preboot CLI when prompted during boot
 - Enter the following Preboot CLI command to clear configuration:
 - cfgclr -a0**
 - cfgclr -a1**
- Step 3** To determine the enclosure ID and drive numbering, which is required before you can configure RAID, run the following:
- encinfo -a0 -page 20**
 - encinfo -a1 -page 20**
-
-  **Note** This command can generate more than one page of output, so enter **-page 20** to look at 20 lines at a time. Look for the Device ID of the enclosure that has a non-zero Number of Physical Drives. Use this Device ID (also called Enclosure ID) in the following commands.
-
- Step 4** There is a single enclosure for Cisco UCS C260 M2 Rack-Mount Server. The enclosure ID is not predictable, so you need to substitute the Device ID acquired, above, for <encl> in the commands, below. When all drives are in a single enclosure, the slot numbering starts at zero. This may not be true in all cases, so verify the slot numbering with the following command:
- pdinfo -physdrv [<encl>:0] -a0**
- If this command generates meaningful output, the drives start at zero. If it generates an error, the drives start at one.
-
-  **Note** Please substitute your enclosure ID for <encl> in the commands, below. If you have determined your drives start at one, above, you need to start with drive one instead of zero
-
- Step 5** Use the following command to setup RAID 5 on the existing 8 drives on each RAID controller:
- cfgldadd -r5 [<encl>:0, <encl>:1, <encl>:2, <encl>:3, <encl>:4, <encl>:5, <encl>:6, <encl>:7] -a0**
 - cfgldadd -r5 [<encl>:0, <encl>:1, <encl>:2, <encl>:3, <encl>:4, <encl>:5, <encl>:6, <encl>:7] -a1**
-
-  **Note** To clear data on previously used drives and initialize a new array, use the **-ldinit -start -full -l0 -a0** command. Allow command to finish before exiting the Preboot CLI.
-
- Step 6** After you configure the logical volume, exit the Preboot CLI by entering **q**.
- Step 7** During the boot process, make sure that Quiet Boot is disabled, and press **Ctrl - H** at the LSI screen when prompted.
- This brings you to the MegaRAID BIOS Configuration utility. At this screen, you will see 2 LSI MegaRAID SAS adapters. Select **Adapter 0** to begin and click **Start**.
- Step 8** Select **New Configuration** and click **Next**.
- Step 9** Select **Manual Configuration**.

- Step 10** On the next screen, you need to add drives to a Drive Group. Select one drive and then select all others by holding down on Shift and the down arrow key. Click **Add to Array**.
- Step 11** Click **Accept DG**.
- Step 12** The drive group must be added to a span. Select **DG0** and click **Add to Span**.
- Step 13** Once the drive group is part of a span, you can configure RAID on it. Select **RAID 5** from the list of available options.
- Step 14** Select **Write Policy as Write Back with BBU**. This ensures that the battery cache controller is used for write back.



Note Not selecting the Select Write Policy as Write Back with BBU (Battery Backup Unit) option results in select write through, which does not use the battery-backed cache, and therefore results in severely degraded performance. This selection varies somewhat with RAID controllers. Please make the appropriate choice at the screen presented.

- Step 15** Click **Update Size** to finalize the RAID 5 volume and to determine the size of the resulting volume. It will work out to 1.903 TB.
- You are presented with a warning relating to BBU, as the BBU is used whenever possible, but with the understanding that if the BBU is discharged or undergoing a learning cycle, performance will be degraded. Click **Yes** if this is acceptable.
- Step 16** Click **Next** on the next screen to accept the Virtual Drive you just created (VD 0).
- Step 17** Click **Next**. At the next screen, you are presented with the option to initialize the array. Click:
- a. **Fast Initialize**
 - b. **Go**
 - c. **Set Boot Drive**
 - d. **Go**
- Step 18** The RAID configuration is now complete for the first RAID controller. Go back to the controller selection by clicking on **Controller selection**. This time, select Adapter 1.
- Step 19** Repeat all steps performed for Adapter 0 with this new Adapter to set up the second RAID 5 array.
-

Configuring BIOS Boot Order

The hard drive is not selectable in the BIOS Boot Order menu until the first logical volume has been defined. Once RAID has been configured, you need to make the second boot device the hard drive, as described in the following procedure:

Procedure

- Step 1** Press **F2** during boot to enter BIOS setup.
- Step 2** Move the cursor over to **Boot Options**.
- Step 3** Verify that the CD ROM is selected for Boot Option #1.
- Step 4** Verify that the hard drive (the RAID 5 Array) is selected for Boot Option #2.
- Step 5** Verify that VT is enabled in advanced CPU options.

- Step 6** Verify that VT I/O Redirection is disabled in the CPU options.
The server will now try to boot the CD ROM drive first and the hard drive second.
-

Managing Disks on Cisco UCS C260 M2 Rack-Mount Servers

The Cisco UCS C260 M2 Rack-Mount Server comes with 16 hard drives. These drives were configured into two logical volumes and require no further management at this point.

The disks are hot-swappable. This does not mean that you will be able to swap drives ad-hoc in the event of a failure. A process exists to swap drives. If a drive fails, you need to:

- Reboot and enter the Preboot CLI
- Mark the defective drive for removal using **-PdPrpRmv -physdrv [<encl>:<slot>] -a0**
- Replace the drive

The RAID array is rebuilt automatically when the replacement disk is inserted.



Note

Although a preboot CLI is recommended, it is also possible to perform this task through the LSI MegaRAID GUI, where you can swap drives out on the fly without having to power-cycle the server to get into the preboot CLI. However, this requires you to procure a separate machine (Windows or Linux) on the same subnet as the ESXi host, installed with the LSI MegaRAID utility.

ESXi Installation and Configuration

The following sections provide a sequence of steps for bringing ESXi into service at the customer site.

Preparation for ESXi Installation

Prior to installing ESXi, it is assumed that:

- The IPL order in the BIOS is configured to boot the CDROM first
- For the Cisco UCS C260 M2 Rack-Mount Server, the 16 drives are configured in two separate RAID-5 arrays.

These steps should have been performed by the factory prior shipping.

Installing ESXi

- ESXi 4.0, ESXi 4.1 and ESXi 5.0 are supported. To determine which ESXi version is required for the application you are intending to deploy, see: http://docwiki.cisco.com/wiki/Unified_Communications_VMware_Requirements#Supported_Versions_of_VMware_vSphere_ESXi
- Install ESXi on one of the RAID-5 arrays. Both RAID arrays are acceptable.
- ESXi installation takes less than 5 minutes. Once installation is complete, remove the install CD and reboot the machine.
- Following a reboot, a grey and yellow ESXi console is displayed with two options:
 - F2 to customize the system

- F12 to restart or halt the system
- At this point, press **F2** and configure the system in accordance with your network.

Installing vSphere Client

Once the host is on the network, you can browse to its IP address to bring up a web-based interface. The vSphere client is Windows-based, so the download and install must be performed from a Windows PC.

This install proceeds like any other Windows application install, and takes only a few minutes to perform. Once the vSphere client is installed, you can bring it up and log into the host using the host name or IP address, the root login ID, and the password configured above.

The host may also be joined to a vCenter if available and if you wish to manage the host through vCenter.

Configuring LOM NICs and Virtual Switches

The following options may be configured:

- Simple vSwitch0 (default VMware virtual switch)
- For larger data centers using vCenter, you can configure distributed virtual switches (for example: distributed vSwitch or the Nexus 1000V distributed virtual switch)
- For all options, you must define a port group for each VLAN running on the virtual switch. These port groups are selected when configuring a Virtual Machine's network adapter, to place the virtual machine on a given LAN.

VM Installation and Configuration

ISOs and VM Templates

ISOs are available on the media kit you receive with the Cisco UCS C260 M2 Rack-Mount Server, and the templates are posted on Cisco.com.

Using the vSphere Client to Create the VM

Cisco provides templates on a URL to download and transfer to a host. Use the following procedure to create the VM:

Procedure

-
- Step 1** Deploy the appropriate OVA template for their application using the Cisco.com URL as the source.
 - Step 2** Make the CDROM drive available to the newly deployed VM.
 - Step 3** Click on **Options > Boot Options > The next time the virtual machine boots, force entry into BIOS Setup Screen.**
 - Step 4** Insert the installation media (from the media kit) in the system CDROM drive.
 - Step 5** Power on the VM, select **Boot** and promote CD ROM to boot before the hard drive.
 - Step 6** Save BIOS settings and boot.

You should be in the normal install screen for your application at this point.

For more information on the Cisco UCS C-Series Rack-Mount Server, go to the following URL:

http://www.cisco.com/en/US/docs/unified_computing/ucs/c/sw/gui/config/guide/1.1.1/b_Cisco_UCS_C-Series_Servers_Integrated_Management_Controller_Configuration_Guide_1_1_1.html

To view the list of product installation and configuration guides for Cisco UCS C-Series Integrated Management Controller, go to the following URL:

http://www.cisco.com/en/US/products/ps10739/products_installation_and_configuration_guides_list.html

To view the list of product installation and configuration guides for Cisco UCS Manager, go to following URL:

http://www.cisco.com/en/US/products/ps10281/products_installation_and_configuration_guides_list.html

Migrating To Cisco UCS C260 M2 Rack-Mount Server

Migrating from a Media Convergence Server (MCS server) to a Cisco UCS C260 M2 Rack-Mount Server follows a procedure that is very similar to replacing server hardware, which is described in the document *Replacing a Single Server or Cluster for Cisco Unified Communications Manager*.

[Table 5 on page 17](#) provides an overview of the migration process and references to other pertinent documentation.

Table 5 *Migrating to Cisco UCS C260 M2 Rack-Mount Server Process Overview*

| Configuration Steps | | Related Procedures and Topics |
|---------------------|--|--|
| Step 1 | Review the document <i>Replacing a Single Server or Cluster for Cisco Unified Communications Manager</i> . This document describes how to replace server hardware, which is very similar to migrating from an MCS server to a Cisco UCS C260 M2 Rack-Mount Server server. You should perform the pre-replacement and post-replacement tasks described in this document, and review the procedures for installing Cisco Unified Communications Manager and migrating data. | <i>Replacing a Single Server or Cluster for Cisco Unified Communications Manager</i> |
| Step 2 | Upgrade the MCS server to Cisco Unified Communications Manager Release 8.0(2) or later. | <i>Cisco Unified Communications Operating System Administration Guide</i> |
| Step 3 | If the UCS VM will use a different IP address or hostname than the MCS server, change the IP address and hostname of the MCS server to the values that the UCS VM will use. This is required for DRS backup and restore to work. | Refer to the topic “Changing the Cluster IP Addresses for Publisher Servers That Are Defined by Host Name” in the <i>Changing the IP Address and Host Name for Cisco Unified Communications Manager</i> guide. |
| Step 4 | Perform a DRS backup on the MCS server. | <i>Disaster Recovery System Administration Guide</i> |

Table 5 Migrating to Cisco UCS C260 M2 Rack-Mount Server Process Overview (continued)

| Configuration Steps | Related Procedures and Topics |
|--|--|
| <p>Step 5 Use the Answer File Generator to generate a license MAC for the Cisco UCS C260 M2 Rack-Mount Server. The license MAC is required to obtain licenses for the server.</p> <p>After you obtain the license MAC, you can rehost the licenses for your new server.</p> | <p>Customer Impact from New Licensing Procedures, page 38.</p> <p><i>Installing Cisco Unified Communications Manager</i></p> |
| <p>Step 6 Create the virtual machine (VM) on the Cisco UCS C260 M2 Rack-Mount Server that will be used as the replacement for the MCS node.</p> | <p>Installing Cisco UCS C260 M2 Rack-Mount Server, page 10</p> |
| <p>Step 7 Install the same release of Cisco Unified Communications Manager on the Cisco UCS C260 M2 Rack-Mount Server that you installed on the MCS server.</p> | <p>Installing Cisco UCS C260 M2 Rack-Mount Server, page 10</p> <p><i>Installing Cisco Unified Communications Manager</i></p> |
| <p>Step 8 Perform a DRS restore to restore the data backed up from the MCS server to the Cisco UCS C260 M2 Rack-Mount Server.</p> | <p><i>Disaster Recovery System Administration Guide</i></p> |
| <p>Step 9 Upload the new licenses to the Cisco UCS C260 M2 Rack-Mount Server.</p> <p>If you did not obtain licenses for the new server already, you must request the licenses first.</p> <p>Note The previous license will no longer be valid. However, you have 30 additional days in which to use your previous license. Refer to “Obtaining Rehosted Licenses When You Change License MAC Parameters” section on page 39.</p> | <p>Cisco Unified Communications Manager on Virtualized Servers Licensing, page 38</p> <p><i>Cisco Unified Communications Operating System Administration Guide</i></p> |

Performing Daily Operations on Cisco UCS C260 M2 Rack-Mount Server

At this point, the application is installed and in operation. Daily operations from the application's viewpoint are no different from installation on a physical server, including:

- Application configuration and integration with other applications
- RTMT performance monitoring
- SNMP monitoring and alarms
- DRS backup and restore
- CDR collection
- Device, trunk, gateway configuration and monitoring.

The following sections describe how to perform these tasks:

- [Monitoring Hardware from the VM](#), page 19
- [Monitoring from CIMC](#), page 19
- [Monitoring from ESXi](#), page 19
- [Monitoring from vSphereClient and vCenter](#), page 19

Monitoring Hardware from the VM

Applications running in a VM have no ability to monitor the physical hardware. Any hardware monitoring must be done from the CIMC, ESXi plugins, vCenter or by physical inspection (for flashing LEDs, and so on).

Monitoring of hardware is the responsibility of the customer. It is assumed the customer is familiar with virtualized environments and has the know-how to manage hardware in these environments.

Monitoring from CIMC

The CIMC provides the following hardware monitoring:

- An overview of CPU, memory and power supply health
- An overview of hardware inventory, including CPUs, Memory, Power Supplies and Storage
- Monitoring of sensors for Power Supplies, Fans, Temperature, Voltage and Current
- A system event log that contains BIOS and Sensor entries
- LSI MegaRAID controller information, which includes physical and virtual drive layout and Battery Backup Unit information, from the Inventory -> Storage tab. This information was usually accessible for earlier UCS servers only by installing the MegaRAID plugin from ESXi.

Monitoring from ESXi

Monitoring server health from ESXi is possible by:

- Logging into the ESXi console and inspecting system /var/log/messages for telltale entries

Monitoring from vSphereClient and vCenter

The vSphere Client provides the following monitoring:

- Hardware and system alarms defined under the Alarms tab in the vSphere Client when logged into vCenter.
- VM resource usage under the Virtual Machines tab in the vSphere Client, as well as under the Performance tab for each VM
- Host performance and resource usage under the Performance tab for the Host.

Cisco UCS C210 Rack-Mount Servers

Cisco supports running Cisco Unified Communications Manager on the Cisco UCS C-Series Rack-Mount Server.

The following sections describe the changes for installation, upgrade, and migration in Cisco UCS C210 Rack-Mount Servers:

- [System Requirements, page 20](#)
- [VMware Feature Support, page 21](#)

- [Installing Cisco UCS C210 Rack-Mount Servers](#), page 21
- [Migrating To Cisco UCS C210 Rack-Mount Servers](#), page 26
- [VMware Support](#), page 27
- [Performing Daily Operations on Cisco UCS C210 Rack-Mount Servers](#), page 28

System Requirements

To run Cisco UCS C210 Rack-Mount Servers, your system must meet the requirements listed in [Table 6 on page 20](#).

Table 6 System Requirements

| This parameter... | ...Must be this value to meet the Cisco supported configuration. |
|---|---|
| Supported Virtual Machine Configuration | Refer to the documentation at: http://www.cisco.com/go/uc-virtualized Use the Cisco-provided OVA template to create VMs, to ensure that the VMs are correctly configured. Refer to the “ Downloading Virtual Machine Templates (OVA Templates) ” section on page 39. For more information about virtual machine configurations, refer to the documentation at: http://docwiki.cisco.com/wiki/Unified_Communications_Virtualization_Downloads_including_OVA/OVF_Templates . |
| IOPS per virtual machine (VM) | Refer to the documentation at: http://www.cisco.com/go/uc-virtualized |
| CPU and RAM oversubscription | None |
| VMware version | For vSphere ESXi version compatibility including minimum required version of vSphere ESXi, see http://docwiki.cisco.com/wiki/Unified_Communications_VMware_Requirements#Supported_Versions_of_VMware_vSphere_ESXi . |

To operate Cisco UCS C210 Rack-Mount Servers successfully, you should have the experience and skills to manage a host server running VMware ESXi. If you do not have this experience and want to obtain the required information quickly, consider using VMware GO, a Web-based application that facilitates VMware installations. For more information, refer to the VMware GO documentation.



Note

Even if you use VMware GO, you still need to use the supported VMware configuration on Cisco UCS C210 Rack-Mount Servers, which are documented at both <http://www.cisco.com/go/swonly> and <http://www.cisco.com/go/uc-virtualized>.

VMware Feature Support

For current information about VMware feature support, refer to the documentation at http://docwiki.cisco.com/wiki/Unified_Communications_VMWare_Requirements

Installing Cisco UCS C210 Rack-Mount Servers

The following sections describe how to perform a fresh installation of Cisco UCS C210 Rack-Mount Servers:

- [Configuration Checklist for Installing and Configuring the Server, page 21](#)
- [Preparing To Install, page 22](#)
- [Configuring RAID, page 23](#)
- [Installing vSphere Client, page 24](#)
- [Aligning the Datastore Used for VMs, page 24](#)
- [Creating Virtual Machines, page 25](#)
- [Installing Cisco Unified Communications Manager On a VM, page 25](#)

Configuration Checklist for Installing and Configuring the Server

[Table 7 on page 21](#) provides a checklist of the major steps required to install and configure Cisco UCS C210 Rack-Mount Servers. The Related Documentation column contains references to documentation that is related to the step.

Table 7 Configuration Checklist for Installing and Configuring the Server

| | Configuration Steps | Related Documentation |
|---------------|--|---|
| Step 1 | Prepare to install the server. | Preparing To Install, page 22 <i>Cisco UCS C210 Installation and Service Guide</i> |
| Step 2 | Physically install and connect the server. | <i>Cisco UCS C210 Installation and Service Guide</i> |
| Step 3 | Power on the server and Configure Cisco Integrated Management Controller (CIMC) for remote management. | <i>Cisco UCS C210 Installation and Service Guide</i> |
| Step 4 | If you purchased the Cisco UCS C-Series Rack-Mount Server server separately from Cisco UCS C210 Rack-Mount Servers, configure the RAID settings to the following specifications: <ul style="list-style-type: none"> • The first 2 drives are configured as a RAID 1 (mirrored) drive. This drive is for ESXi installation. • The remaining drives, if any exist, are configured as a RAID 5 array. This array is for Cisco Unified Communications Manager application VMs. | Configuring RAID, page 23 <i>Cisco UCS C210 Installation and Service Guide</i> |

Table 7 Configuration Checklist for Installing and Configuring the Server

| | Configuration Steps | Related Documentation |
|----------------|---|--|
| Step 5 | <p>If you purchased the Cisco UCS C-Series Rack-Mount Server server separately from Cisco UCS C210 Rack-Mount Servers, configure the BIOS to the following specifications:</p> <ul style="list-style-type: none"> • Disable Quiet Mode • Enable Enhanced SATA for CDROM access • Configure the following boot order: <ul style="list-style-type: none"> – SATA5:Optiarc DVD first – PCI Raid Adapter second | <i>Cisco UCS C210 Installation and Service Guide</i> |
| Step 6 | Install and configure VMware ESXi on the smaller of the two available disks. Refer to Table 6 on page 20 for the supported versions of VMware ESXi. | <i>Cisco UCS C-Series Servers VMware Installation Guide</i> VMware ESXi documentation |
| Step 7 | Install vSphere Client. | Installing vSphere Client, page 24 vSphere Client documentation |
| Step 8 | Align the datastores for the VMs. | Aligning the Datastore Used for VMs, page 24 |
| Step 9 | Install and configure virtual machines (VMs). | Creating Virtual Machines, page 25 Downloading Virtual Machine Templates (OVA Templates), page 39 |
| Step 10 | Install Cisco Unified Communications Manager on VMs. | Installing Cisco Unified Communications Manager On a VM, page 25 |

Preparing To Install

This section describes how to prepare to install a Cisco UCS C210 Rack-Mount Servers server in a standalone configuration, meaning that it is not in a datacenter.

You should allocate the following resources before installation:

- Space in a rack to receive a 2 RU Cisco UCS C-Series Rack-Mount Server
- 3 Ethernet ports on a switch close to the Cisco UCS C-Series Rack-Mount Server:
 - One port for the CIMC
 - Two ports for the LAN on motherboard (LOM) NICs
- Optionally, up to four IP addresses for the Broadcom NIC, if your server has it
- An IP address for the CIMC management port
- An IP address for the virtual host. This is the Cisco UCS C-Series Rack-Mount Server's IP address and is used by ESXi.
- A maximum of four IP addresses for the LAN on motherboard (LOM) NICs
- A hostname, and optionally configure DNS for the virtual hosts' hostname
- IP addresses for the VMs

Configuring RAID

If you purchased the Cisco UCS C-Series Rack-Mount Server server separately from Cisco UCS C210 Rack-Mount Servers, configure the RAID settings to the following specifications:

- The first 2 drives are configured as a RAID 1 (mirrored) drive. This drive is for ESXi installation.
- The remaining drives, if any exist, are configured as a RAID 5 drive. This drive is for Cisco Unified Communications Manager application VMs.

Follow this procedure to perform this task:

-
- Step 1** Make sure that Quiet Boot is disabled by following these steps:
- Boot the server and watch for the F2 prompt during bootup.
 - Press **F2** when prompted to enter the BIOS Setup utility.
 - On the Main page of the BIOS Setup utility, set Quiet Boot to **Disabled**. This allows non-default messages, prompts, and POST messages to display during bootup instead of the Cisco logo screen.
 - Press **F10** to save your changes and exit the utility.

Step 2 During server bootup, press Ctrl+Y to enter the preboot CLI.

Step 3 Enter the following commands to determine the current RAID configuration:

```
-ldinfo -l0 -a0
```

```
-ldinfo -l1 -a0
```

The required configuration is two drives in a RAID 1 array for logical drive 0, and for servers with more drives, the remaining drives in a RAID 5 array for Logical drive 1. If the RAID configuration is wrong, continue with this procedure.



Note Do not continue with this procedure if RAID is configured correctly.

Step 4 Enter the command **-cfgclr -a0** to clear the RAID configuration.



Caution

Clearing the RAID configuration deletes all data on the hard drives.

Step 5 Determine the Device ID of the enclosure that contains the disk drives by entering the command **-encinfo -a0 -page 20**.

If necessary, page through the output to find the Device ID of the enclosure that has a non-zero entry for Number of Physical Drives. Substitute this Device ID value where *deviceID* appears in the commands in this procedure.

Step 6 Determine the starting slot number in the enclosure that you identified by entering the command **-physdrv [deviceID:0] -a0**.

If this command generates meaningful output, the drives start at slot zero. If it generates an error, the drives start at slot one.

Step 7 Configure the first RAID array by entering one of the following commands, depending on the starting slot number:

- If your drives start at slot zero, run this command:
-cfgldadd -r1 [deviceID:0, deviceID:1] -a0
- If your drives start at slot one, run this command:

```
-cfdadd -r1 [deviceID:1, deviceID:2] -a0
```

Step 8 If your server contains 6 total disk drives, enter the following command to configure the second RAID array:

```
-cfdadd -r5 [deviceID:2, deviceID:3, deviceID:4 deviceID:5] -a0
```

Step 9 If your server contains 10 total disk drives, configure the second RAID array by entering one of the following commands, depending on the starting slot number:

- If your drives start at slot zero, run this command:

```
-cfdadd -r5 [deviceID:2, deviceID:3, deviceID:4 deviceID:5, deviceID:6, deviceID:7, deviceID:8, deviceID:9] -a0
```

- If your drives start at slot one, run this command:

```
-cfdadd -r5 [deviceID:3, deviceID:4 deviceID:5, deviceID:6, deviceID:7, deviceID:8, deviceID:9, deviceID:10] -a0
```

Step 10 If the hard drives did not have a RAID configuration previously, you are done configuring RAID. If the hard drives had a RAID configuration before, continue with this procedure.

Step 11 Enter the following commands to initialize the logical volumes.

```
-ldinit -start -full -l0 -a0 (l0 is the letter l and the number 0, not the number 10)
```

```
-ldinit -start -full -l1 -a0 (l1 is the letter l and the number 1, not the number 11)
```

This clears data on the drives and initializes the new array.

Step 12 Allow these commands to finish running before exiting the Preboot CLI. Enter the following commands to display the progress of the commands:

```
-ldinit -showprog -l0 -a0
```

```
-ldinit -showprog -l1 -a0
```

When both commands report that no initialization is running, it is safe to quit the Preboot CLI.

Step 13 After configuring the two logical volumes, you can exit the Preboot CLI by entering **q**.

Installing vSphere Client

When the virtual host is available on the network, you can browse to its IP address to bring up a web-based interface. The vSphere Client is Windows-based, so the download and install must be performed from a Windows PC.

Once the vSphere Client is installed, you can run it and log into the virtual host using the virtual host's name or IP address, the root login ID, and the password you configured.

You can join the host to a vCenter if you want to manage it through vCenter.

Aligning the Datastore Used for VMs



Note

This section does not apply to servers that contain only 2 disk drives. There is only one logical volume on such servers.

When you install VMWare ESXi, the second logical volume is automatically imported unaligned. VMs have better disk performance when all partitions (physical, ESXi and VM) start on the same boundary. This prevents disk blocks being fragmented across the different boundaries.

To ensure that the ESXi partition used for VMs will be aligned, you should delete the unaligned datastore (the larger disk partition), then recreate the datastore using vSphere client.

Creating Virtual Machines

Cisco provides a VM template for you to download and transfer to your virtual host. Use this template to create the VMs for Cisco UCS C210 Rack-Mount Servers installation.

Before you deploy the template and create VMs, you should have a hostname and IP address allocated for each new VM.

Follow these steps to create a VM and prepare to install Cisco UCS C210 Rack-Mount Servers on it:

-
- Step 1** Download the VM template for your application.
See the [“Downloading Virtual Machine Templates \(OVA Templates\)”](#) section on page 39 for more information.
- Step 2** Upload the template to a datastore on the Cisco UCS C-Series Rack-Mount Server.
It is recommended to use the smaller datastore (with ESXi installed on it) for this.
- Step 3** Make this template available to the Cisco UCS C-Series Rack-Mount Server.
- Step 4** Deploy the template file using vSphere Client. Enter the following information for the new VM:
- hostname
 - datastore—Select the larger datastore
- Step 5** Complete creating the VM.
At this point a new VM has been created with the correct amount of RAM, number of CPUs, size and number of disks for the intended application.
- Step 6** Install Cisco Unified Communications Manager on the VM. See the [“Installing Cisco Unified Communications Manager On a VM”](#) section on page 25 for more information.
-

Installing Cisco Unified Communications Manager On a VM

Follow this procedure to install Cisco Unified Communications Manager on a new VM:

-
- Step 1** In vSphere Client, edit the VM to force entry into BIOS setup the next time the VM reboots.
- Step 2** Make the Cisco Unified Communications Manager installation media available to the VM DVD-ROM drive.
- Step 3** Power on the VM, then in BIOS setup, promote CD ROM to boot before the hard drive.
- Step 4** Complete booting the VM.

The Cisco Unified Communications Manager installation program starts. For information about performing the installation, see the document *Installing Cisco Unified Communications Manager*.



Note

Cisco UCS C210 Rack-Mount Servers does not support a hardware clock; you must use NTP. The option to configure a hardware clock is not available in the installation program.

Migrating To Cisco UCS C210 Rack-Mount Servers

Migrating from a Media Convergence Server (MCS server) to a Cisco UCS C210 Rack-Mount Servers server follows a procedure that is very similar to replacing server hardware, which is described in the document *Replacing a Single Server or Cluster for Cisco Unified Communications Manager*.

[Table 8 on page 26](#) provides an overview of the migration process and references to other pertinent documentation.

Table 8 *Migrating to Cisco UCS C210 Rack-Mount Servers Process Overview*

| Configuration Steps | | Related Procedures and Topics |
|---------------------|--|--|
| Step 1 | <p>Review the document <i>Replacing a Single Server or Cluster for Cisco Unified Communications Manager</i>.</p> <p>This document describes how to replace server hardware, which is very similar to migrating from an MCS server to a Cisco UCS C210 Rack-Mount Servers server. You should perform the document's pre-replacement and post-replacement tasks, and review the procedures for installing Cisco Unified Communications Manager and migrating data.</p> | <i>Replacing a Single Server or Cluster for Cisco Unified Communications Manager</i> |
| Step 2 | Upgrade the MCS server to Cisco Unified Communications Manager Release 8.0(2) or later. | <i>Cisco Unified Communications Operating System Administration Guide</i> |
| Step 3 | <p>If the UCS VM will use a different IP address or hostname than the MCS server, change the IP address and hostname of the MCS server to the values that the UCS VM will use.</p> <p>This is required for DRS backup and restore to work.</p> | Refer to the topic "Changing the Cluster IP Addresses for Publisher Servers That Are Defined by Host Name" in the <i>Changing the IP Address and Host Name for Cisco Unified Communications Manager</i> guide. |
| Step 4 | Perform a DRS backup on the MCS server. | <i>Disaster Recovery System Administration Guide</i> |
| Step 5 | <p>Use the Answer File Generator to generate a license MAC for the Cisco UCS C210 Rack-Mount Servers server. The license MAC is required to obtain licenses for the server.</p> <p>After you obtain the license MAC, you can rehost the licenses for your new server.</p> | <p>Customer Impact from New Licensing Procedures, page 38.</p> <p><i>Installing Cisco Unified Communications Manager</i></p> |
| Step 6 | Create the virtual machine (VM) on the Cisco UCS C210 Rack-Mount Servers server that will be used as the replacement for the MCS node. | Installing Cisco UCS C210 Rack-Mount Servers, page 21 |
| Step 7 | Install the same release of Cisco Unified Communications Manager on the Cisco UCS C210 Rack-Mount Servers server that you installed on the MCS server. | <p>Installing Cisco UCS C210 Rack-Mount Servers, page 21</p> <p><i>Installing Cisco Unified Communications Manager</i></p> |

Table 8 *Migrating to Cisco UCS C210 Rack-Mount Servers Process Overview (continued)*

| Configuration Steps | | Related Procedures and Topics |
|---------------------|---|--|
| Step 8 | Perform a DRS restore to restore the data backed up from the MCS server to the Cisco UCS C210 Rack-Mount Servers server. | <i>Disaster Recovery System Administration Guide</i> |
| Step 9 | <p>Upload the new licenses to the Cisco UCS C210 Rack-Mount Servers server.</p> <p>If you did not obtain licenses for the new server already, you must request the licenses first.</p> <p>Note The previous license will no longer be valid. However, you have 30 additional days in which to use your previous license. Refer to “Obtaining Rehosted Licenses When You Change License MAC Parameters” section on page 39.</p> | <p>Cisco Unified Communications Manager on Virtualized Servers Licensing, page 38</p> <p><i>Cisco Unified Communications Operating System Administration Guide</i></p> |

VMware Support

Consider the following, when using Cisco UCS C210 Rack-Mount Servers:

- Install, upgrade, and recovery procedures now use “soft media” such as ISO or FLP (virtual floppy) if the server does not have a DVD drive.
- The answer file generated by the Answer File Generator (platformConfig.xml) cannot get read from a USB key to perform an unattended installation. Instead, you must put the answer file into a FLP image to be mounted in the floppy drive.
- Music On Hold external source and Cisco Messaging Interface requires a mixed MCS/UCS cluster.
- USB tape backup is not supported.
- NIC teaming is configured at the VMware virtual switch.
- Hardware SNMP and syslog move to VMware and UCS Manager.
- Install logs are written only to the virtual serial port.
- Unattended installs use virtual floppy instead of USB.
- Basic UPS Integration, as used with a Cisco 7800 Series Media Convergence Server, is not supported.
- Boot order is controlled by the BIOS of the VMware VM.
- Hardware BIOS, firmware, and drivers must be the required level and configured for compatibility with Cisco Unified Communications Manager-supported VMware product and version.
- Hardware MIBs are not supported.
- Hardware Failure alert and Hardware failure syslog messages are not available.
- CLI does not support hardware information.
- SNMP Hardware agent does not run on VMware.
- Real-Time Management Tool Client—Hardware alerts are not generated. The scope is limited to Virtual Machine and not to Physical Machine.
- CDP reports as a Virtual Machine.

- Certain kinds of Cisco UCS B-Series Blade Server and Cisco UCS C-Series Rack-Mount Server hardware alerts are only available via CIM alerting, and must be viewed in VMware vCenter or an equivalent CIM-compliant console. For more information, see the “[Related Documentation](#)” section on page 40.

For more information on the Cisco UCS C-Series Rack-Mount Server, go to the following URL:

http://www.cisco.com/en/US/docs/unified_computing/ucs/c/sw/gui/config/guide/1.1.1/b_Cisco_UCS_C-Series_Servers_Integrated_Management_Controller_Configuration_Guide_1_1_1.html

To view the list of product installation and configuration guides for Cisco UCS C-Series Integrated Management Controller, go to the following URL:

http://www.cisco.com/en/US/products/ps10739/products_installation_and_configuration_guides_list.html

To view the list of product installation and configuration guides for Cisco UCS Manager, go to following URL:

http://www.cisco.com/en/US/products/ps10281/products_installation_and_configuration_guides_list.html

Performing Daily Operations on Cisco UCS C210 Rack-Mount Servers

Daily operations for Cisco UCS C210 Rack-Mount Servers software applications are identical to when the application is installed on an MCS server.

There are some differences in hardware management and monitoring, because Cisco UCS C210 Rack-Mount Servers operates in a virtual environment. For more information, see the “[Related Documentation](#)” section on page 40.

The following sections describe how to perform these tasks:

- [Monitoring Hardware from the VM, page 28](#)
- [Monitoring from CIMC, page 28](#)
- [Monitoring from vSphere Client and vCenter, page 28](#)

Monitoring Hardware from the VM

Applications running in a VM have no ability to monitor the physical hardware. Any hardware monitoring must be done from the CIMC, ESXi plugins, vCenter, or by physical inspection (for flashing LEDs, etc.).

Monitoring from CIMC

The CIMC provides the following hardware monitoring:

- An overview of CPU, memory and power supply health
- An overview of hardware inventory, including CPUs, memory, power supplies and storage
- Monitoring of sensors for power supplies, fans, temperature and voltage
- A system event log that contains BIOS and sensor entries

Monitoring from vSphere Client and vCenter

The vSphere Client provides the following monitoring features:

- When you are logged into vCenter, the vSphere Client displays hardware and system alarms defined on the Alarms tab.
- VM resource usage displays on the Virtual Machines tab, and on the Performance tab for each VM.
- Host performance and resource usage display on the Performance tab for the Host.
- When ESXi is used standalone (without vCenter), hardware status and resource usage are available, but alarming is not possible.

Cisco UCS C200 Rack-Mount Servers

Cisco supports running Cisco UCS C200 Rack-Mount Servers.

The following sections describe the changes for installation, upgrade, and migration in Cisco UCS C200 Rack-Mount Servers:

- [System Requirements, page 29](#)
- [Cisco UCS C200 Rack-Mount Servers External Media, page 30](#)
- [Installing Cisco UCS C200 Rack-Mount Servers, page 31](#)
- [Migrating To Cisco UCS C200 Rack-Mount Servers, page 35](#)
- [VMware Support, page 36](#)
- [Performing Daily Operations on Cisco UCS C200 Rack-Mount Servers, page 37](#)

System Requirements

To run Cisco UCS C200 Rack-Mount Servers, your system must meet the requirements listed in [Table 9 on page 29](#).

Table 9 **System Requirements**

| This parameter... | ...Must be this value to meet the Cisco supported configuration. |
|---|---|
| Supported Virtual Machine Configuration | <p>Refer to the documentation at: http://www.cisco.com/go/uc-virtualized</p> <p>Use the Cisco-provided OVA template to create VMs, to ensure that the VMs are correctly configured. Refer to the “Downloading Virtual Machine Templates (OVA Templates)” section on page 39.</p> <p>For more information about virtual machine configurations, refer to the documentation at: http://docwiki.cisco.com/wiki/Unified_Communications_Virtualization_Downloads_%28including_OVA/OVF_Templates%29.</p> |
| IOPS per virtual machine (VM) | <p>Refer to the documentation at: http://www.cisco.com/go/uc-virtualized</p> |

Table 9 System Requirements (continued)

| This parameter... | ...Must be this value to meet the Cisco supported configuration. |
|------------------------------|--|
| CPU and RAM oversubscription | None |
| VMware version | <p>For vSphere ESXi version compatibility including minimum required version of vSphere ESXi, see http://docwiki.cisco.com/wiki/Unified_Communications_VMware_Requirements#Supported_Versions_of_VMware_vSphere_ESXi.</p> <p>Note Ensure that you use ESXi, rather than ESX, to run Cisco UCS C200 Rack-Mount Servers. However, the rack server can be part of a VMware vCenter that includes ESX hosts.</p> |

To operate Cisco UCS C200 Rack-Mount Servers successfully, you should have the experience and skills to manage a host server running VMware ESXi. If you do not have this experience and want to obtain the required information quickly, consider using VMware GO, a Web-based application that facilitates VMware installations. For more information, refer to the VMware GO documentation.

**Note**

Even if you use VMware GO, you still need to use the supported VMware configuration on Cisco UCS C200 Rack-Mount Servers, which are documented at both <http://www.cisco.com/go/swonly> and <http://www.cisco.com/go/uc-virtualized>.

Cisco UCS C200 Rack-Mount Servers External Media

Cisco UCS C200 Rack-Mount Servers uses “soft media” such as ISO or FLP (virtual floppy) for procedures that require external media (such as installation and upgrade). Physical external devices such as USB drives are not supported.



Note Backup and restore are not supported on soft media.

The virtual USB interface is not supported on VMware. The following are examples of differences in external media support between MCS servers and Cisco UCS C200 Rack-Mount Servers:

- Install logs cannot get dumped to a USB key. These logs get dumped to a file through the serial port of the VM.
- The answer file generated by the Answer File Generator (platformConfig.xml) cannot get read from a USB key to perform an unattended installation. Instead, you must put the answer file into a FLP image to be mounted in the floppy drive.
- USB tape drive backup is not supported. Use SFTP instead.
- Music On Hold through a USB connection is not supported. Use a Cisco 7800 Series Media Convergence Server instead.
- Cisco Messaging Interface (CMI) for Message Waiting Indication (MWI) is not supported over the serial port. Use a Cisco 7800 Series Media Convergence Server instead.

Installing Cisco UCS C200 Rack-Mount Servers

The following sections describe how to perform a fresh installation of Cisco UCS C200 Rack-Mount Servers:

- [Configuration Checklist for Installing and Configuring the Server, page 31](#)
- [Preparing To Install, page 32](#)
- [Configuring RAID, page 32](#)
- [Installing vSphere Client, page 34](#)
- [Creating Virtual Machines, page 34](#)
- [Installing Cisco Unified Communications Manager On a VM, page 34](#)

Configuration Checklist for Installing and Configuring the Server

[Table 10 on page 31](#) provides a checklist of the major steps required to install and configure Cisco UCS C200 Rack-Mount Servers. The Related Documentation column contains references to documentation that is related to the step.

Table 10 Configuration Checklist for Installing and Configuring the Server

| | Configuration Steps | Related Documentation |
|---------------|--|---|
| Step 1 | Prepare to install the server. | Preparing To Install, page 32 <i>Cisco UCS C200 Installation and Service Guide</i> |
| Step 2 | Physically install and connect the server. | <i>Cisco UCS C200 Installation and Service Guide</i> |
| Step 3 | Power on the server and Configure Cisco Integrated Management Controller (CIMC) for remote management. | <i>Cisco UCS C200 Installation and Service Guide</i> |
| Step 4 | If you purchased the Cisco UCS C-Series Rack-Mount Server server separately from Cisco UCS C200 Rack-Mount Servers, configure the RAID settings to the following specifications: <ul style="list-style-type: none"> • RAID 10 array for logical drive 0 • RAID 10 volume of 4 drives | Configuring RAID, page 32 <i>Cisco UCS C200 Installation and Service Guide</i> |
| Step 5 | If you purchased the Cisco UCS C-Series Rack-Mount Server server separately from Cisco UCS C200 Rack-Mount Servers, configure the BIOS to the following specifications: <ul style="list-style-type: none"> • Disable Quiet Mode • Enable Enhanced SATA for CDROM access • Configure the following boot order: <ul style="list-style-type: none"> – SATA5:Optiarc DVD first – PCI Raid Adapter second | <i>Cisco UCS C200 Installation and Service Guide</i> |
| Step 6 | Install and configure VMware ESXi. Refer to Table 9 on page 29 for the supported versions of VMware ESXi. | <i>Cisco UCS C-Series Servers VMware Installation Guide</i> VMware ESXi documentation |

Table 10 Configuration Checklist for Installing and Configuring the Server

| | Configuration Steps | Related Documentation |
|---------------|--|--|
| Step 7 | Install vSphere Client. | Installing vSphere Client, page 34 vSphere Client documentation |
| Step 8 | Install and configure virtual machines (VMs). | Creating Virtual Machines, page 34 Downloading Virtual Machine Templates (OVA Templates), page 39 |
| Step 9 | Install Cisco Unified Communications Manager on VMs. | Installing Cisco Unified Communications Manager On a VM, page 34 |

Preparing To Install

This section describes how to prepare to install a Cisco UCS C200 Rack-Mount Servers server in a standalone configuration, meaning that it is not in a datacenter.

You should allocate the following resources before installation:

- Space in a rack to receive a 2 RU Cisco UCS C-Series Rack-Mount Server
- 3 Ethernet ports on a switch close to the Cisco UCS C-Series Rack-Mount Server:
 - One port for the CIMC
 - Two ports for the LAN on motherboard (LOM) NICs
- Optionally, up to four IP addresses for the Broadcom NIC, if your server has it
- An IP address for the CIMC management port
- An IP address for the virtual host. This is the Cisco UCS C-Series Rack-Mount Server's IP address and is used by ESXi.
- A maximum of four IP addresses for the LAN on motherboard (LOM) NICs
- A hostname, and optionally configure DNS for the virtual hosts' hostname
- IP addresses for the VMs

Configuring RAID

If you purchased the Cisco UCS C-Series Rack-Mount Server server separately from Cisco UCS C200 Rack-Mount Servers, configure the RAID settings to the following specifications:

- RAID 10 array for logical drive 0
- RAID 10 volume of 4 drives

Follow this procedure to perform this task:

-
- Step 1** Boot the server and watch for the F2 prompt during bootup.
 - Step 2** Press F2 when prompted to enter the BIOS Setup utility.
 - Step 3** On the Main page of the BIOS Setup utility, verify or set Quiet Boot to Disabled. This allows non-default messages, prompts, and POST messages to display during bootup instead of the Cisco logo screen.
 - Step 4** Press F10 to save your changes and exit the utility.
 - Step 5** During server bootup, press Ctrl+Y to enter the preboot CLI.
 - Step 6** Enter the following commands to determine the current RAID configuration:

-ldinfo -l0 -a0

The required configuration is four drives in a RAID 10 array for logical drive 0. If the RAID configuration is wrong, continue with this procedure.



Note Do not continue with this procedure if RAID is configured correctly.

Step 7 Enter the command **-cfgclr -a0** to clear the RAID configuration.



Caution Clearing the RAID configuration deletes all data on the hard drives.

Step 8 Determine the Device ID of the enclosure that contains the disk drives by entering the command **-encinfo -a0 -page 20**.



Note For UCS C200 M2 Rack-Mount Servers with 4 drives, the Device ID is typically 252. If this is not the case, please use the Enclosure ID obtained from the output of **encinfo**.

Step 9 Determine the starting slot number in the enclosure that you identified by entering the command **-pdinfo -physdrv [deviceID:0] -a0**.

If this command generates meaningful output, the drives start at slot zero. If it generates an error, the drives start at slot one.



Note UCS C200 M2 Rack-Mount Servers with 4 drives, the drives start at slot zero.

Step 10 Configure the RAID array by entering the following command:

```
-CfgSpanAdd -r10 -Array0[enclosureID:0,enclosureID:1]
-Array1[enclosureID:2,enclosureID:3] -a0
```

Step 11 If the hard drives did not have a RAID configuration previously, you are done configuring RAID. If the hard drives had a RAID configuration before, continue with this procedure.

Step 12 Enter the following command to initialize the logical volumes.

-ldinit -start -full -l0 -a0 (l0 is the letter l and the number 0, not the number 10)

This clears data on the drives and initializes the new array. Allow this command to finish running before exiting the Preboot CLI.

Step 13 If you want to do so, you can enter the following command to display the progress of the command you entered in [Step 12](#):

-ldinit -showprog -l0 -a0

When the display command in [Step 13](#) reports that no initialization is running, it is safe to quit the Preboot CLI.

Step 14 After configuring the two logical volumes, you can exit the Preboot CLI by entering **q**.

**Tip**

If you can't get to the Preboot CLI even after Quiet Boot is disabled (in other words, if you have no Ctrl+Y option and that key sequence isn't working), you can configure RAID 10 by using the WebBios (Ctrl+H). To use the Web Bios, you must have a USB Keyboard and a USB mouse, rather than a PS2 keyboard and mouse. Use 2 drive groups (DGs) with DG0 containing Disks 0,1 and DG1 containing Disks 2,3.

Installing vSphere Client

When the virtual host is available on the network, you can browse to its IP address to bring up a web-based interface. The vSphere Client is Windows-based, so the download and install must be performed from a Windows PC.

Once the vSphere Client is installed, you can run it and log into the virtual host using the virtual host's name or IP address, the root login ID, and the password you configured.

You can join the host to a vCenter if you want to manage it through vCenter.

Creating Virtual Machines

Cisco provides a VM template for you to download and transfer to your virtual host. Use this template to create the VMs for Cisco UCS C200 Rack-Mount Servers installation.

Before you deploy the template and create VMs, you should have a hostname and IP address allocated for each new VM.

Follow these steps to create a VM and prepare to install Cisco UCS C200 Rack-Mount Servers on it:

-
- Step 1** Download the VM template for your application.
- See the [“Downloading Virtual Machine Templates \(OVA Templates\)”](#) section on page 39 for more information.
- Step 2** Upload the template to a datastore on the Cisco UCS C-Series Rack-Mount Server.
- Step 3** Make this template available to the Cisco UCS C-Series Rack-Mount Server.
- Step 4** Deploy the template file using vSphere Client. Enter the following information for the new VM:
- hostname
 - datastore—Select datastore
- Step 5** Complete creating the VM.
- At this point a new VM has been created with the correct amount of RAM, number of CPUs, size and number of disks for the intended application.
- Step 6** Install Cisco Unified Communications Manager on the VM. See the [“Installing Cisco Unified Communications Manager On a VM”](#) section on page 34 for more information.
-

Installing Cisco Unified Communications Manager On a VM

Follow this procedure to install Cisco Unified Communications Manager on a new VM:

- Step 1** In vSphere Client, edit the VM to force entry into BIOS setup the next time the VM reboots.
- Step 2** Make the Cisco Unified Communications Manager installation media available to the VM DVD-ROM drive.
- Step 3** Power on the VM, then in BIOS setup, promote CD ROM to boot before the hard drive.
- Step 4** Complete booting the VM.
- The Cisco Unified Communications Manager installation program starts. For information about performing the installation, see the document *Installing Cisco Unified Communications Manager*.

Migrating To Cisco UCS C200 Rack-Mount Servers

Migrating from a Media Convergence Server (MCS server) to a Cisco UCS C200 Rack-Mount Servers server follows a procedure that is very similar to replacing server hardware, which is described in the document *Replacing a Single Server or Cluster for Cisco Unified Communications Manager*.

[Table 11 on page 35](#) provides an overview of the migration process and references to other pertinent documentation.

Table 11 *Migrating to Cisco UCS C200 Rack-Mount Servers Process Overview*

| Configuration Steps | | Related Procedures and Topics |
|---------------------|--|--|
| Step 1 | <p>Review the document <i>Replacing a Single Server or Cluster for Cisco Unified Communications Manager</i>.</p> <p>This document describes how to replace server hardware, which is very similar to migrating from an MCS server to a Cisco UCS C200 Rack-Mount Servers server. You should perform the document's pre-replacement and post-replacement tasks, and review the procedures for installing Cisco Unified Communications Manager and migrating data.</p> | <i>Replacing a Single Server or Cluster for Cisco Unified Communications Manager</i> |
| Step 2 | Upgrade the MCS server to Cisco Unified Communications Manager Release 8.0(2c) or later. | <i>Cisco Unified Communications Operating System Administration Guide</i> |
| Step 3 | <p>If the UCS VM will use a different IP address or hostname than the MCS server, change the IP address and hostname of the MCS server to the values that the UCS VM will use.</p> <p>This is required for DRS backup and restore to work.</p> | Refer to the topic "Changing the Cluster IP Addresses for Publisher Servers That Are Defined by Host Name" in the <i>Changing the IP Address and Host Name for Cisco Unified Communications Manager</i> guide. |
| Step 4 | Perform a DRS backup on the MCS server. | <i>Disaster Recovery System Administration Guide</i> |
| Step 5 | <p>Use the Answer File Generator to generate a license MAC for the Cisco UCS C200 Rack-Mount Servers server. The license MAC is required to obtain licenses for the server.</p> <p>After you obtain the license MAC, you can rehost the licenses for your new server.</p> | <p>Customer Impact from New Licensing Procedures, page 38.</p> <p><i>Installing Cisco Unified Communications Manager</i></p> |
| Step 6 | Create the virtual machine (VM) on the Cisco UCS C200 Rack-Mount Servers server that will be used as the replacement for the MCS node. | Installing Cisco UCS C200 Rack-Mount Servers, page 31 |

Table 11 Migrating to Cisco UCS C200 Rack-Mount Servers Process Overview (continued)

| Configuration Steps | | Related Procedures and Topics |
|---------------------|--|---|
| Step 7 | Install the same release of Cisco Unified Communications Manager on the Cisco UCS C200 Rack-Mount Servers server that you installed on the MCS server. | Installing Cisco UCS C200 Rack-Mount Servers, page 31 <i>Installing Cisco Unified Communications Manager</i> |
| Step 8 | Perform a DRS restore to restore the data backed up from the MCS server to the Cisco UCS C200 Rack-Mount Servers server. | <i>Disaster Recovery System Administration Guide</i> |
| Step 9 | Upload the new licenses to the Cisco UCS C200 Rack-Mount Servers server. If you did not obtain licenses for the new server already, you must request the licenses first. Note The previous license will no longer be valid. However, you have 30 additional days in which to use your previous license. Refer to “ Obtaining Rehosted Licenses When You Change License MAC Parameters ” section on page 39. | Cisco Unified Communications Manager on Virtualized Servers Licensing, page 38 <i>Cisco Unified Communications Operating System Administration Guide</i> |

VMware Support

Consider the following, when using Cisco UCS C200 Rack-Mount Servers:

- For details about VMware feature support, refer to the documentation at http://docwiki.cisco.com/wiki/Unified_Communications_VMWare_Requirements#VMware_Infrastructure_Feature_Support
- Install, upgrade, and recovery procedures now use “soft media” such as ISO or virtual floppy (FLP) if the server does not have a DVD drive. For more information, refer to [Cisco UCS C200 Rack-Mount Servers External Media, page 30](#)
- NIC teaming is configured at the VMware virtual switch.
- Hardware SNMP and syslog move to VMware and UCS Manager.
- Install logs are written only to the virtual serial port.
- Basic UPS Integration, as used with a Cisco 7800 Series Media Convergence Server, is not supported.
- Boot order is controlled by the BIOS of the VMware VM.
- Hardware BIOS, firmware, and drivers must be the required level and configured for compatibility with Cisco Unified Communications Manager-supported VMware product and version.
- Hardware MIBs are not supported.
- Hardware Failure alert and Hardware failure syslog messages are not available.
- CLI does not support hardware information.
- SNMP Hardware agent does not run on VMware.
- Real-Time Management Tool Client—Hardware alerts are not generated. The scope is limited to Virtual Machine and not to Physical Machine.
- CDP reports as a Virtual Machine.

- Certain kinds of Cisco UCS C-Series Rack-Mount Server hardware alerts are only available via CIM alerting, and must be viewed in VMware vCenter or an equivalent CIM-compliant console. For more information, see the “[Related Documentation](#)” section on page 40.

For more information on the Cisco UCS C-Series Rack-Mount Server, go to the following URL:

http://www.cisco.com/en/US/docs/unified_computing/ucs/c/sw/gui/config/guide/1.1.1/b_Cisco_UCS_C-Series_Servers_Integrated_Management_Controller_Configuration_Guide_1_1_1.html

To view the list of product installation and configuration guides for Cisco UCS C-Series Integrated Management Controller, go to the following URL:

http://www.cisco.com/en/US/products/ps10739/products_installation_and_configuration_guides_list.html

To view the list of product installation and configuration guides for Cisco UCS Manager, go to following URL:

http://www.cisco.com/en/US/products/ps10281/products_installation_and_configuration_guides_list.html

Performing Daily Operations on Cisco UCS C200 Rack-Mount Servers

Daily operations for Cisco UCS C200 Rack-Mount Servers software applications are identical to when the application is installed on an MCS server.

There are some differences in hardware management and monitoring, because Cisco UCS C200 Rack-Mount Servers operates in a virtual environment. For more information, see the “[Related Documentation](#)” section on page 40.

The following sections describe how to perform these tasks:

- [Monitoring Hardware from the VM, page 37](#)
- [Monitoring from CIMC, page 37](#)
- [Monitoring from vSphere Client and vCenter, page 37](#)

Monitoring Hardware from the VM

Applications running in a VM have no ability to monitor the physical hardware. Any hardware monitoring must be done from the CIMC, ESXi plugins, vCenter, or by physical inspection (for flashing LEDs, etc.).

Monitoring from CIMC

The CIMC provides the following hardware monitoring:

- An overview of CPU, memory and power supply health
- An overview of hardware inventory, including CPUs, memory, power supplies and storage
- Monitoring of sensors for power supplies, fans, temperature and voltage
- A system event log that contains BIOS and sensor entries

Monitoring from vSphere Client and vCenter

The vSphere Client provides the following monitoring features:

- When you are logged into vCenter, the vSphere Client displays hardware and system alarms defined on the Alarms tab.

- VM resource usage displays on the Virtual Machines tab, and on the Performance tab for each VM.
- Host performance and resource usage display on the Performance tab for the Host.
- When ESXi is used standalone (without vCenter), hardware status and resource usage are available, but alarming is not possible.

Cisco Unified Communications Manager on Virtualized Servers Licensing

The following sections describe licensing for Cisco Unified Communications Manager on Virtualized Servers:

- [Customer Impact from New Licensing Procedures, page 38](#)
- [Supported Virtual Machine Configurations and Licensing, page 39](#)



Note

For more information about licensing of your operating system, see <http://www.vmware.com>.

Customer Impact from New Licensing Procedures

Cisco Unified Communications Manager on Virtualized Servers uses a different licensing model than Cisco Unified Communications Manager on an MCS server. The MAC address of the NIC card is no longer used to associate the license to the server.

Instead, the license gets associated to a license MAC, which is a 12 digit HEX value created by hashing the following parameters that you configure on the server:

- Time zone
- NTP server 1 (or “none”)
- NIC speed (or “auto”)
- Hostname
- IP Address (or “dhcp”)
- IP Mask (or “dhcp”)
- Gateway Address (or “dhcp”)
- Primary DNS (or “dhcp”)
- SMTP server (or “none”)
- Certificate Information (Organization, Unit, Location, State, Country)

The ways to obtain the license MAC are as follows:

- Before installation, use the Answer File Generator (http://www.cisco.com/web/cuc_afg/index.html). When you generate the answer file, you also get the license MAC.



Note

If you use this method, ensure that you enter the identical parameter values in the Answer File Generator and the Cisco Unified Communications Manager installation program, or the license will be invalid.

- After installation, navigate to **Show > System** in Cisco Unified Communications Manager Administration.
- After installation, use the CLI command **show status**.

Obtaining New Licenses

The process to redeem a Product Activation Key (PAK) for licenses at www.cisco.com/go/license is changed for a license MAC. When redeeming a PAK for a license MAC at this URL, you get prompted to select the type of license that you want to obtain:

- A physical MAC address — this is used when Cisco Unified Communications Manager will be installed on an MCS server.
- A license MAC address — this is used when Cisco Unified Communications Manager will be installed on Cisco Unified Communications Manager on Virtualized Servers.

After you make this selection, the generation and installation of the license file follows the same process.

Obtaining Rehosted Licenses When You Change License MAC Parameters

When you change any of the parameters that create the license MAC, the license that you obtained with it becomes invalid. You must request a rehosting of the license to obtain a valid license. The old license continues to work for a 30-day grace period.

To rehost your licenses, you must open a case with the licensing team to obtain a license for your replacement server. Contact the licensing team at licensing@cisco.com.

During the grace period, you can change the settings back to the licensed values to make your original license valid again. If you need more than 30 days of grace period, change your settings back to the licensed values, then change them back to the new values that you want to use. You will get another 30-day grace period.

Supported Virtual Machine Configurations and Licensing

The virtual machine configuration for running Cisco Unified Communications Manager on Virtualized Servers must match the stated specifications to get support from Cisco.

While Cisco Unified Communications Manager can be installed and licensed in other virtual machine configurations, Cisco does not support these configurations.

Downloading Virtual Machine Templates (OVA Templates)

The configuration of a Cisco Unified Communications Manager virtual machine must match a supported virtual machine template.

Perform the following procedure to obtain the virtual machine template for Cisco Unified Communications Manager on Virtualized Servers:

Procedure

-
- Step 1** Select this URL in your browser:
<http://tools.cisco.com/support/downloads/go/Redirect.x?mdfid=278875240>
- Step 2** If your browser prompts you to do so, type your Cisco.com **User Name:** and **Password:** in the text boxes, then click the **Log In** button.

- Step 3** Choose **IP Telephony > Call Control > Cisco Unified Communications Manager (CallManager) > Cisco Unified Communications Manager Version 8.0.**
- Step 4** Click the **Unified Communications Manager Virtual Machine Templates** link.
- Step 5** In the Latest Releases folder, click the **1.0(1)** link.
- Step 6** Click the **Download Now** button. Follow the prompts and provide the required information to download the software.
- Step 7** When the Download Cart window displays, click the “Readme” link to view the virtual machine template’s release information.
-

Related Documentation

- The *UCS RAID Controller SMI-S Reference Guide*, which describes Storage Management Initiative Specification (SMI-S) support in the Cisco UCS Servers, is available at the following URL:
http://www.cisco.com/en/US/docs/unified_computing/ucs/sw/utilities/raid/reference/guide/ucs_raid_smis_reference.html
- The official list of supported servers for Cisco Unified Communications Manager releases is available at the following URL:
http://www.cisco.com/en/US/prod/collateral/voicesw/ps6790/ps5748/ps378/prod_brochure0900aec8062a4f9.html
- Technical specifications of Cisco Unified Communications virtualized servers are available at the following URL:
http://www.cisco.com/en/US/prod/collateral/voicesw/ps6790/ps5748/ps378/solution_overview_c22-597556.html
- TCP and UDP ports for vCenter Server, ESX hosts, and other network components’ management access are listed in article 1012382 at the following URL:
<http://kb.vmware.com>
- The Cisco Unified Communications Virtualization wiki, which discusses deployment of other Cisco Unified Communications products on virtualized servers, is available at the following URL:
http://docwiki.cisco.com/wiki/Unified_Communications_Virtualization

Migrating to Cisco Unity Connection on a Virtual Machine

For information on migrating to Cisco Unity Connection on a virtual machine, see the “Migrating from a Cisco Unity Connection Physical Server to a Connection 8.x Virtual Machine” chapter in the applicable *Reconfiguration and Upgrade Guide for Cisco Unity Connection* at http://www.cisco.com/en/US/products/ps6509/prod_installation_guides_list.html.

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