Installation and Configuration

⚠ Caution The Extra-Small TRC (UCS E160D M2 TRC1), Small TRCs (UCS C220 M3S TRC2, UCS C240 M4S TRC1) and the Small Plus TRCs (UCS C220 M3S TRC3, UCS C220 M4S TRC2) are preloaded with software if purchased as a Cisco Business Edition 6000 appliance.

Certain Medium TRCs (UCS C240 M3S TRC2, UCS C240 M4S2 TRC1) and Large TRCs (UCS C240 M4SX TRC1) are preloaded with software if purchased as a Cisco Business Edition 7000 appliance.

HyperFlex TRC (HX240cM4SX TRC1) is preloaded with virtualization and HyperFlex software.

Install Cisco UCS B-Series Tested Reference Configurations

Procedure

Step 1 Ensure that your UCS Mini or Fabric Interconnect Switches, Blade Server Chassis, and Fabric Extenders are installed in the rack.

Step 2 Ensure that the network connections of your UCS Mini or Fabric Interconnect Switches are connected to their designated, trunked, switch ports.

Step 3 Ensure that your Fabric Interconnect Switches are properly connected to your Fabric Extenders.

Step 4 Ensure that you are able to access the blade remotely using UCS Manager software.

Step 5 For the remaining server installation, see Cisco documentation at http://www.cisco.com/go/ucs.

Install Cisco UCS C-Series and E-Series Tested Reference Configurations

Perform the following tasks to install and configure a virtual machine on a Cisco UCS server.

Before you begin

Review the "Preparation" chapter in this guide for the installation requirements for your server.

Procedure

	Command or Action	Purpose
Step 1	Install Cisco UCS C-Series or E-Series Server , on page 3	Install the Cisco UCS Server.
Step 2	Configure Cisco Integrated Management Controller, on page 3	Power on the server and configure Cisco Integrated Management Controller (CIMC) for remote management.
Step 3	Configure RAID using one of the following procedures: • Configure RAID with Preboot CLI (UCS C-Series M2 or M3 Servers) , on page 7 • Configure RAID with GUI (UCS C-Series M3 Servers), on page 11 • Configure RAID with GUI (UCS C-Series M4 Servers), on page 12 • Configure RAID with GUI (UCS E-Series M2 Servers), on page 14 • Configure RAID with GUI (UCS C-Series M3 Servers), on page 11 • Configure RAID with CIMC RAID Configuration Utility (UCS C-Series M5), on page 13	Configure the RAID settings on your server using either the Preboot CLI or GUI indicated above.
Step 4	Configure BIOS, on page 15	Configure the BIOS boot order.
Step 5	Install and Configure VMware ESXi , on page 16	Install and configure the VMware ESXi and the vSphere client.
Step 6	Download Virtual Machine Templates (OVA Templates), on page 18	Download an OVA for collaboration application software, such as Cisco Unified Communications Manager, onto your virtual machine.
Step 7	Use vSphere to create the VM on the server: • Use vSphere to Create the VM for Servers with Optical Drives, on page 19	Use vSphere to create the VM on the server. Map the OVA to the VM.

	Command or Action	Purpose
	• Use vSphere to Create the VM for Servers Without Optical Drives, on page 19	
Step 8	Install Cisco Collaboration Applications on VMs, on page 20	Install Collaboration applications such as Cisco Unified Communications Manager on the virtual machine.

Install Cisco UCS C-Series or E-Series Server

Procedure

Step 1	If UCS C-Series, install the server in the rack. If UCS E-Series, install the Cisco ISR in the rack and installe the UCS E-Series blade server into the ISR
Step 2	Attach the Cisco Integrated Management Controller (Cisco IMC) of the Cisco UCS C-Series or E-Series management port to the designated switch port.
Step 3	Attach the UCS C-Series LAN on Motherboard (LOM) or NIC ports (or the UCS E-Series external ethernet ports if used instead of internal ethernet ports) to their designated, trunked switch ports
Step 4	Attach a VGA console, or a KVM to the VGA and keyboard ports. This step is necessary until Cisco IMC is configured.
Step 5	Attach UCS C server or Cisco ISR for UCS E server to power supply

What to do next

Configure Cisco Integrated Management Controller, on page 3

Configure Cisco Integrated Management Controller

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

Note Virtualized Collaboration Applications does not prescribe any specific version of BIOS. The current version is assumed to be compatible with the latest release of ESXi. Business Edition appliances ship with BIOS version, configuration and settings that are compatible with the factory-preloaded release of ESXi at time of appliance build. Non-appliance servers, or appliances that have been in the field for extended period of time, may require modification of these settings. See the UCS Release, CIMC version or firmware package in UCS Interoperability Matrix as well as UCS OS drivers for ESXi.

Before you begin

Install Cisco UCS C-Series or E-Series Server , on page 3

Procedure

Step 1	Power on server.
Step 2	During boot, press indicated function key (e.g. **F8** for a UCS C-Series) to enter Cisco IMC configuration.
Step 3	In the Cisco IMC configuration screen, under IPV4 (Basic):

  a)   Uncheck the DHCP enabled check box using the spacebar.

  b)   Enter values for the Cisco IMC IP, Subnet mask, and Gateway.

Step 4	Leave VLAN (Advanced) unchecked.
Step 5	Under Default User (Basic), enter the default Cisco IMC user, **admin**, and a password.

  Note   The Cisco IMC username is not configurable and the setting is "admin."

Step 6	Press indicated function key (e.g. **F10** for a UCS C-Series) to save your settings.
Step 7	After it is configured, the Cisco IMC is accessible using http. Point a browser to the IP address configured above and log in as admin, using the password configured above.

What to do next

Review the table in RAID Configuration, on page 4

Configure RAID using one of the following methods:

- Configure RAID with Preboot CLI (UCS C-Series M2 or M3 Servers) , on page 7

- Configure RAID with GUI (UCS C-Series M3 Servers), on page 11

- Configure RAID with GUI (UCS C-Series M4 Servers), on page 12

- Configure RAID with CIMC RAID Configuration Utility (UCS C-Series M5), on page 13

- Configure RAID with GUI (UCS E-Series M2 Servers), on page 14

RAID Configuration

⚠

Caution   To be supported as a Tested Reference Configuration instead of UCS Specs-based, the RAID must be set up exactly as indicated below. Do not change the RAID configuration on a server ordered as Cisco Business Edition 6000 or Cisco Business Edition 7000.

Refer to the following table for the RAID specifications for the type of virtual machine that you want to configure.

TRC	Information
UCS C220 M5SX TRC1 (Small TRC / BE6000M M5)	• One virtual drive with a RAID-5 array • Six 300-GB hard drives

TRC	Information
UCS C220 M5SX TRC2 (Small Plus TRC / BE6000H M5)	• One virtual drive with RAID-5 • Eight 300-GB hard drives
UCS C240 M5SX TRC1 (Medium TRC / BE7000M M5)	• Two virtual drives (VDs) with RAID-5 • Each VD has seven 300-GB hard drives
UCS C240 M5SX TRC2 (Large TRC / BE7000H M5)	• Four virtual drives (VD) with RAID-5 • Each VD has six 300-GB hard drives.
UCS C220 M4S TRC1 (Small TRC / BE6000M M4)	• One virtual drive with a RAID-5 array • Six 300-GB hard drives
UCS C220 M4S TRC2 (Small Plus TRC / BE6000H M4)	• One virtual drive with RAID-5 • Eight 300-GB hard drives
UCS C240 M4S2 TRC1 (Medium TRC / BE7000M M4)	• Two virtual drives (VDs) with RAID-5 • Each VD has six 300-GB hard drives
UCS C240 M4SX TRC1 (Large TRC / BE7000H M4)	• Four virtual drives (VD) with RAID-5 • Each VD has five 300-GB hard drives.
(End of Sale) UCS C240 M3S TRC1 (Large TRC)	• Two virtual drives (VD) with RAID-5 arrays • Eight 300 GB hard drives for each VD
(End of Sale) UCS C240 M3S TRC2 (Medium TRC / BE7000M M3)	• Two virtual drives (VD) with RAID-5 arrays • Six 300-GB hard drives for each VD
(End of Sale) UCS C220 M3S (Medium TRC)	• One virtual drive with a RAID-5 array • Eight 300-GB hard drives
(End of Sale) UCS C220 M3S TRC3 (Small Plus TRC / BE6000H M3)	• One virtual drive with a RAID-5 array • Eight 300-GB hard drives
(End of Sale) UCS C220 M3S TRC2 (Small TRC / BE6000M M3)	• One virtual drive with a RAID-10 array • Four 500-GB hard drives
UCS E160S M3 TRC1 (Extra-Small TRC)	• One virtual drive with a RAID-1 array- Two 900-GB hard drives

TRC	Information
(End of Sale) UCS E160D M2 TRC1 (Extra-Small TRC / BE6000S M2)	• One virtual drive with a RAID-5 array • Three 600-GB hard drives
(End of Sale) UCS C260 M2 TRC1 (Extra-Large TRC)	• Two virtual drives (VD) with RAID-5 arrays • Eight 300 GB hard drives for each VD
(End of Sale) UCS C210 M2/M1 TRCs (Medium TRC)	• First 2 drives are RAID-1 (mirrored) drives with the ESXi installation. • Remaining drives are RAID-5 with UC application VMs.
(End of Sale) UCS C200 M2 TRC1 (Small TRC / BE6000M M2)	• One virtual drive with a RAID-10 array • Four 1 TB hard drives

Important If required, use the following settings for the Read and Write policies:

If UCS C-Series, do these settings:

- Set Read Policy to **read ahead = always**.

- Set Write Policy to one of the following:

  - **write back with bbu** – if you are using a RAID card with SuperCap (for example, RAID-9266CV).

    Note This write policy is not available on the C240 M3 rack-mount server TRC2.

  - **always write back** – if you are using a RAID card with legacy Battery Backup (BBU) instead of SuperCap (for example, RAID-9266). This option helps prevent a UC application performance impact if the BBU goes into learning mode or the battery dies. Whenever possible, use the new RAID cards with SuperCap and make sure the UCS is attached to an Uninterruptible Power Supply (UPS).

If UCS E-Series M3, do these settings:

- Strip Size = 64KB

- Drives per Span = 2 (due to E160S M3 TRC1 shipping with two physical disks)

- Span Depth = 1 (due to E160S M3 TRC1 using single LV, 2-disk RAID1)

- Access Policy = Read-Write

- Cache Policy = Direct

- Read Ahead Policy = None

- Requested Write Cache Policy = Write Through
- Current Write Cache Policy = Write Through
- Disk Cache Policy = Unchanged
- Allow Background Init = true
- Auto Snapshot = false
- Auto Delete Oldest = true

Configure RAID with Preboot CLI (UCS C-Series M2 or M3 Servers)

Follow this procedure to configure a RAID array using the preboot CLI for M2 or M3 servers.

Before you begin

Procedure

Step 1 Check your current RAID configuration:

- To use the Preboot CLI to configure RAID, enter **Ctrl-Y**.
- Type the following commands:

	TRC	Command
a)	End of Sale UCS C260 M2 TRC1 (Extra-Large TRC)	• **-ldinfo -l0 -a0** • **-ldinfo -l1 -a0**
	End of Sale UCS C240 M3S TRC1 (Large TRC)	• **-ldinfo -l0 -a0** • **-ldinfo -l1 -a0**
	End of Sale UCS C240 M3S TRC2 (Medium TRC / BE7000M M3)	
	End of Sale UCS C220 M3S TRC1 (Medium TRC)	**-ldinfo -l0 -a0**
	End of Sale UCS C220 M3S TRC3 (Small Plus TRC / BE6000H M3)	
	End of Sale UCS C220 M3S TRC2 (Small TRC / BE6000M M3)	
	End of Sale UCS C210 M2/M1 TRCs (Medium TRC)	
	End of Sale UCS C200 M2 TRC1 (Small TRC / BE6000M M2)	

This command displays the number of drives, RAID level, and so forth for the specified logical drive.

Step 2 Use the following sequence of commands to set the recommended RAID configuration:

a) Enter **CTRL-Y** to enter the Preboot CLI when prompted during boot

b) Enter the following Preboot CLI command to clear configuration:

TRC	Command
End of Sale UCS C260 M2 TRC1 (Extra-Large TRC)	**-cfgclr -l0**
End of Sale UCS C240 M3S TRC1 (Large TRC)	**-cfgclr -a0**
End of Sale UCS C240 M3S TRC2 (Medium TRC / BE7000M M3)	
End of Sale UCS C220 M3S TRC1 (Medium TRC)	
End of Sale UCS C220 M3S TRC3 (Small Plus TRC / BE6000H M3)	
End of Sale UCS C220 M3S TRC2 (Small TRC / BE6000M M3)	
End of Sale UCS C210 M2/M1 TRCs (Medium TRC)	
End of Sale UCS C200 M2 TRC1 (Small TRC / BE6000M M2)	

Step 3 To determine the enclosure ID and drive numbering, which is required before you can configure RAID, run the following commands:

TRC	Command
End of Sale UCS C260 M2 TRC1 (Extra-Large TRC)	**-encinfo -l0 -page 20**

TRC	Command
End of Sale UCS C240 M3S TRC1 (Large TRC)	**-encinfo -a0 -page 20**
End of Sale UCS C240 M3S TRC2 (Medium TRC / BE7000M M3)	
End of Sale UCS C220 M3S TRC1 (Medium TRC)	
End of Sale UCS C220 M3S TRC3 (Small Plus TRC / BE6000H M3)	
End of Sale UCS C220 M3S TRC2 (Small TRC / BE6000M M3)	
End of Sale UCS C210 M2/M1 TRCs (Medium TRC)	
End of Sale UCS C200 M2 TRC1 (Small TRC / BE6000M M2)	

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 nonzero Number of Physical Drives. Use this Device ID (also called Enclosure ID) in the following commands.

Step 4   The Cisco UCS Rack-Mount Server 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.

Step 5   Use the following command to set up RAID on the existing drives on each RAID controller:

TRC	Command
End of Sale UCS C260 M2 TRC1 (Extra-Large TRC)	**-cfgldadd -r5 [<encl>:1 <encl>:2, <encl>:3, <encl>:4, <encl>:5, <encl>:6, <encl>:7, <encl>:8 -a0** **-cfgldadd -r5 [<encl>:9 <encl>:10, <encl>:11, <encl>:12, <encl>:13, <encl>:14, <encl>:15, <encl>:16 -a0**
End of Sale UCS C240 M3S TRC1 (Large TRC)	**-cfgldadd -r5 [<encl>:0, <encl>:1, <encl>:2, <encl>:3, <encl>:4, <encl>:5, <encl>:6, <encl>:7] -a0**
End of Sale UCS C240 M3S TRC2 (Medium TRC / BE7000M M3)	**–cfgldadd –r5 [<encl>:9, <encl>:10, <encl>:11, <encl>:12, <encl>:13, <encl>:14, <encl>:15, <encl>:16] –a0**

TRC	Command
End of Sale UCS C220 M3S TRC1 (Medium TRC)	**-cfgldadd -r5 [<encl>:0, <encl>:1, <encl>:2, <encl>:3, <encl>:4, <encl>:5, <encl>:6, <encl>:7] -a0**
End of Sale UCS C220 M3S TRC3 (Small Plus TRC / BE6000H M3)	
End of Sale UCS C220 M3S TRC2 (Small TRC / BE6000M M3)	
End of Sale UCS C210 M2/M1 TRCs (Medium TRC)	• 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: **-cfgldadd -r1 [deviceID:1, deviceID:2] -a0** • If your server contains 6 total disk drives, enter the following command to configure the second RAID array: **-cfgldadd -r5 [deviceID:2, deviceID:3, deviceID:4, deviceID:5] -a0** • 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: **-cfgldadd -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: **-cfgldadd -r5 [deviceID:3, deviceID:4, deviceID:5, deviceID:6, deviceID:7, deviceID:8, deviceID:9, deviceID:10] -a0**
End of Sale UCS C200 M2 TRC1 (Small TRC / BE6000M M2)	**-CfgSpanAdd -r10 -Array0[enclosureID:0,enclosureID:1] -Array1[enclosureID:2,enclosureID:3] -a0**

Note To clear data on previously used drives and initialize a new array, use the **-ldinit -start -full -l0** command. Allow command to finish before exiting the Preboot CLI.

Step 6 Set the Strip Size to 128 KB with the following command-line option on **-cfgldadd** command lines in step 5 above : **-strpsz 128**. Also set required Read Policy and Write Policy described above via appropriate command line options. E.g. **-cfgldadd** -r5 [26:1, 26:2, 26:3, 26:4, 26:5, 26:6, 26:7, 26:8] WB RA Cached NoCachedBadBBU -strpsz 128 -a0.

Step 7 The following commands are not necessary for new drives that have not been used.

• Use the **-ldinit -start -l0 -a0** and **–ldinit –start –l1 –a0** commands to perform a *fast* initialize.
• To clear data on previously used drives and to *slow* (or *full*) initialize a new array, use the **-ldinit -start -full -l0 -a0** and **-ldinit -start -full -l1 -a0** commands. Allow the commands to finish before exiting the

Preboot CLI. When both commands, **–ldinit –showprog –l0 –a0** and **–ldinit –showprog –l1 –a0**, show that initialization is not running, it is safe to exit the Preboot CLI.

Note We have noticed that a *slow* initialize can take up to 95 minutes or more to fully complete for array sizes of 1 TB+ that are used in a UCS C240 M3 Rack-Mount Server TRC1 deployment.

Step 8 After you configure the logical volume, exit the Preboot CLI by entering **q**.

Note The LSI adapter has factory default values for the drive rebuild rate, patrol read rate, and other settings. Cisco recommends leaving the default values unchanged.

What to do next

Configure RAID with GUI (UCS C-Series M3 Servers)

Use this procedure to configure a RAID array for a virtual drive on M3 servers. For servers with more than one virtual drive, perform these steps for each virtual drive.

Before you begin

Procedure

Step 1 During the boot process, ensure that Quiet Boot is disabled, and press **Ctrl-H** at the LSI screen when prompted. The MegaRaid BIOS Configuration utility opens and displays the LSI MegaRAID SAS adapters. Select **Adapter 0** to begin and click **Start.**

Step 2 Select **New Configuration** and click **Next**.

Step 3 Select **Manual Configuration**.

Step 4 On the next screen, you need to add drives to a Drive Group. Select one drive and then select all others by holding down `Shift` and the Down Arrow key. Click **Add to Array**.

Step 5 Click **Accept DG**.

Step 6 Add the drive group to a span. Select **DG0** and click **Add to Span**.

Step 7 After the drive group is part of a span, you can configure RAID on it.

a) Select **RAID 5** or **RAID 10** from the list of available options.

b) Cisco recommends that you select 128KB from the Strip Size drop-down list.

Step 8 Set **Read Policy** to **read ahead = always**.

Step 9 Set **Write Policy** to one of the following:

- - **write back with bbu**–if you are using a RAID card with SuperCap (RAID-9266CV), for example.

- - **always write back**–if you are using a RAID card with legacy Battery Backup (BBU) instead of SuperCap (for example, RAID-9266). This option helps prevent a UC application performance impact if the BBU goes into learning mode or the battery dies.

> **Note**   When possible, use the new RAID cards with SuperCap and make sure the UCS is attached to an Uninterruptible Power Supply (UPS).

Step 10   Click **Update Size** to finalize the RAID 5 volume and to determine the size of the resulting volume. A warning relating to BBU appears. Click **Yes** to accept a possible performance degradation if the BBU is over-tasked.

Step 11   Click **Next** on the next screen to accept the Virtual Drive you just created (VD 0).

Step 12   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 13   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 14   Repeat all the steps that you performed for Adapter 0 with this new Adapter to set up the second RAID 5 array.

What to do next

Configure RAID with GUI (UCS C-Series M4 Servers)

Use this procedure if you have an M4 server and want to configure a RAID 5 Array on a virtual drive. For servers with more than one virtual drive, perform these steps for each virtual drive.

Before you begin

Procedure

Step 1   At the LSI screen, press **CTRL-R**.
The **Virtual Drive Management** screen displays the list of unconfigured hard drives for the virtual drive.

Step 2   Under Virtual Drive Management screen, highlight the controller, and press **F2** for Operations.

Step 3   If the drives are unconfigured (and the **Create Virtual Drive** option is not selectable), perform the following from the F2 menu:

> **Note**   You can skip this step if the **Create Virtual Drive** option is selectable.

a) Select **Clear Configuration**, then press **Yes** to clear the configuration.
b) Select **Make JBOD** (Just a Bunch Of Drives).
c) Select **Make Unconfigured Good**.

Step 4   Select **Create Virtual Drive** and press **Enter**.

Step 5   For the **RAID Level** option, select **RAID 5**.

Step 6   Tab to the Drives area. For each hard drive that you want to add to this virtual drive, select the hard drive by pressing the space bar.

When the drive is selected, an **X** appears in the ID box.

Step 7 Enter any name for the RAID.

Step 8 Select **Advanced**.

Step 9 Set **Read Policy** to **read ahead = always**.

Step 10 For the **Write Policy**, select **Write Back with BBU**.

We recommend that you select 128-KB from the **Strip Size** drop-down list.

Step 11 For the **I/O Policy**, select **Cached**.

Step 12 For the **Disk Cache Policy**, select **Enable**.

Step 13 Tab to the **Initialize** option and select the option by pressing the space bar.
An X displays in the **Initialize** box.

Step 14 Select **OK**. Press **Enter**.
When the Initialization is complete, a popup appears.

Step 15 Select **OK** and press **Enter**.
The Virtual Drive Management screen appears.

Step 16 Press **Ctrl-N** twice to go to **Ctrl Mgmt** tab.

Step 17 Press TAB, until the **Boot Device** field is selected, then press **Enter**.

Step 18 Select the drive that you want to use to boot the virtual drive.

Step 19 Press TAB multiple times to highlight **Apply**, then press **Enter**.
The Back Initialization process begins. It may take several minutes to initialize the virtual drive.

Step 20 Press **Ctrl-N** until the **VD Mgmt** screen is displayed.

Step 21 If your server has more than one virtual drive, repeat this process for each virtual drive.

What to do next

Configure RAID with CIMC RAID Configuration Utility (UCS C-Series M5)

Use this procedure if you have an M5 server and want to configure a RAID 5 Array on a virtual drive.

Before you begin

Procedure

Step 1 Login to Cisco Integrated Management Controller.

Step 2 From the navigation bar, choose **Cisco 12G Modular RAID controller**.

Step 3 Select **Physical Drive Info** from the menu.

Step 4 Select all drives and mark them as unconfigured good.

Step 5 Select the **Controller Info** menu.

Step 6 Perform the following for each virtual drive in BE6M/H and BE7M/H.

Note   BE6M and BE6H have only one virtual drive, whereas BE7M and BE7H has 2 and 4 virtual drives respectively.

a) Select the **Create Virtual Drive from Unused Physical Drives** link.

b) Select the RAID level as **RAID 5**.

c) (Optional) Update the RAID name.

d) Select the number of drives from the available physical drives.

- BE6M M5- all 6

- BE6H M5- all 8

- BE7M M5- for each of the 2 virtual drives, 7 disks

- BE7H M5- for each of the 4 virtual drives, 6 disks

e) Set Access policy as **Read Write**.

f) Set Read policy as **Always Read ahead**.

g) Set Cache policy as **Cached IO**.

h) Set Disk Cache policy as **Enabled**.

i) Set Write policy as **Write Back Good BBU**.

j) Select **OK**.

k) Select the **Virtual Drive Info** menu.

l) Choose the created virtual drive and select **Initialize** button.

m) Choose the first virtual drive and select **Set as Boot Drive** button.

What to do next

Configure BIOS, on page 15

Configure RAID with GUI (UCS E-Series M2 Servers)

Use this procedure if you have an M2 server and want to configure a RAID 5 Array on a virtual drive.

Configure the UCS E160D M2 for RAID5. At the time of this writing, follow the instructions in the GUI Configuration Guide for Cisco UCS E-Series Servers and the Cisco UCS E-Series Network Compute Engine Integrated Management Controller located at http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/e/3-1-1/sw/gui/config/guide/b_3_1_1_GUI_Config_Guide/b_3_x_GUI_Config_Guide_chapter_0100.html#task_2F69DDBC07194A419240DD1B09A8689B

Before you begin

Configure Cisco Integrated Management Controller, on page 3

Procedure

Step 1   In the **Integrated Management Controller** Navigation pane, click the **Server** tab.

Step 2   2. On the Server tab, click **RAID**.

Step 3   3. In the tabbed menu of the Storage Cards area, click the **Virtual Drive Info** tab.

Step 4   4. In the Actions area of the **Virtual Drive Info** tab, click **Create**.

Step 5   5. Complete the following fields:

a) Click and drag all 3 disk drives from Available Drives table to Selected Drives table. If you don't have three disk drives, your hardware configuration does not match the Tested Reference Configuration.

b) In RAID Level drop-down list, select RAID 5.

c) Set Strip Size to 64 KB.

d) Set Drive Cache to Disable.

e) Set Access Policy to Read-Write.

f) Check/enable Set this Virtual Drive Bootable.

g) Uncheck/disable Use the Remaining Drive as Hot Spare.

Configure BIOS

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

Before you begin

Configure RAID with one of the following methods:

Procedure

Step 1   Press indicated function key (e.g. **F2** for a UCS C-Series) during boot to enter BIOS setup.

Step 2   Move the cursor to **Boot Options**.

Step 3   Verify that the CD ROM, or Cisco Virtual CD/DVD (Virtual CD/DVD drive), 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 virtual threading 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.

What to do next

Install Cisco HyperFlex HX-Series Tested Reference Configurations

An example deployment including physical node placement, cabling, VLAN/subnet/IP address planning, and VM placement is available at http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/uc_system/ virtualization/virtualization-collaboration-storage-design-requirements.html#hyperflex.

Note This TRC setup process assumes HX Release 3.0 and VMware vSphere ESXi 6.5 U2.

Before you begin

Also refer to the Preinstallation Checklist for Cisco HX Data Platform and Cisco HyperFlex Systems Installation Guide for VMware ESXi, Release 3.0, available at https://www.cisco.com/c/en/us/support/ hyperconverged-systems/hyperflex-hx-data-platform-software/products-installation-guides-list.html

Perform the following tasks to install and configure a virtual machine on a Cisco HyperFlex TRC node.

Procedure

Step 1 **Verify installation readiness, set up your Fabric Interconnect Switches, and prepare for HyperFlex node installation.**

Follow instructions in Cisco HyperFlex Systems Installation Guide for VMware ESXi, Release 3.0, at https://www.cisco.com/c/en/us/support/hyperconverged-systems/hyperflex-hx-data-platform-software/ products-installation-guides-list.html

Step 2 **Set up each HyperFlex node.** Follow instructions in the *Cisco HX220c M5 HyperFlex Node (Hybrid and All-Flash Models) Installation Guide* at https://www.cisco.com/c/en/us/support/hyperconverged-systems/ hyperflex-hx-series/products-installation-guides-list.html.

Step 3 Complete procedure Download Virtual Machine Templates (OVA Templates), on page 18.

Step 4 Download an OVA for collaboration application software, such as Cisco Unified CM onto your virtual machine.

Step 5 Use vSphere to create the VM on the server:

   a) Use vSphere to Create the VM for Servers Without Optical Drives, on page 19.

Step 6 Install Cisco Collaboration Applications on VMs, on page 20.

Step 7 Install Collaboration applications such as Cisco Unified CM on the virtual machine.

Install and Configure VMware ESXi

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

Preparation for ESXi Installation

Before you install ESXi , make sure these tasks are completed:

- The BIOS boot order is configured to boot the CD-ROM or virtual CD/DVD first..

- Each virtual drives on your servers has been configured with a RAID array. For RAID configuration details for your, see RAID Configuration, on page 4

For additional information about ESXi storage configurations, see https://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/uc_system/virtualization/collaboration-virtualization-hardware.html.

For servers ordered as Cisco Business Edition 6000 or Cisco Business Edition 7000, these steps have been performed by the factory prior to shipping.

Install ESXi

- To determine which ESXi version is required for the application you are intending to deploy, see https://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/uc_system/virtualization/virtualization-software-requirements.html

- Install ESXi on one of the RAID arrays. If there are multiple RAID arrays, any is acceptable but we recommend that you install ESXi on the first.

> **Note** You can install ESXi on the first RAID array. It is not required that you install ESXi on both arrays.

- ESXi Installation takes less than 5 minutes. After installation is complete, remove the install CD or the virtual DVD and reboot the machine.

- Following a reboot, a gray 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.

Install 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 installation proceeds like any other Windows application installation, and takes only a few minutes to perform. After the vSphere client is installed, you can bring it up and log into the host using the hostname 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 LAN on Motherboard (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 network adapter, to place the virtual machine on a given LAN.

What to Do Next

Download Virtual Machine Templates (OVA Templates)

The configuration of a Cisco Collaboration application virtual machine must match a supported virtual machine template.

Note There is a known issue with VMware Embedded Host Client for VMware vSphere ESXi 6.5 on BE6000 and BE7000 appliances. You require Embedded Host Client update v1.24.0, to select individual VM configurations from the Cisco-provided OVA. This file is currently available only from VMware at https://labs.vmware.com/flingsas a Fling. To download the "esxui-signed-7119706.vib" Fling file, see the https://labs.vmware.com/flings/esxi-embedded-host-client and follow the VMware instructions to install the same.

Before you begin

Procedure

To download OVAs for Cisco Collaboration applications, go to https://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/uc_system/virtualization/cisco-collaboration-virtualization.html.

What to do next

Create the VM for your server type:

-

-

ISO and VM Template Delivery

Depending on the servers and virtualization licenses that you purchase, virtualization software and Cisco application software can be delivered either physically or electronically.

Use vSphere to Create the VM for Servers with Optical Drives

Cisco provides templates on a URL to download and transfer to a host. Use the following procedure to use vSphere create the VM for servers with optical drives.

Before you begin

Download Virtual Machine Templates (OVA Templates), on page 18

Procedure

Step 1 Deploy a blank virtual machine from the OVA template for your application using the Cisco.com URL as the source.

Step 2 Make the CD-ROM 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 application installation DVD from the media kit in the system CD-ROM drive.

Step 5 Power on the VM, select **Boot** and promote CD-ROM to boot before the hard drive.

Step 6 Save the BIOS settings and boot.
The installation screens for your application appear at this point.

What to do next

Install Cisco Collaboration Applications on VMs, on page 20

Use vSphere to Create the VM for Servers Without Optical Drives

Cisco provides templates on a URL to download and transfer to a host. Use the following procedure to use vSphere create the VM for servers without optical drives.

Before you begin

Download Virtual Machine Templates (OVA Templates), on page 18

Procedure

Step 1 Deploy a blank virtual machine from the appropriate OVA template for your application using the cisco.com URL as the source.

Step 2 Associate the bootable application installation ISO file with the newly deployed VM.

Step 3 Set up the BIOS boot order. For instructions, see the release notes for the OVA that you are deploying.

Step 4 Map the ISO-format application installer file from the media kit to the physical or virtual CD/DVD drive..

Step 5 Save the BIOS settings and boot.

The normal installation screen for your application opens.

What to do next

Install Cisco Collaboration Applications on VMs

Installing Cisco Unified Communications Manager

For details on how to install Cisco Unified Communications Manager, refer to the *Installation Guide for Cisco Unified Communications Manager* at the following URL:

http://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/products-installation-guides-list.html

Installing Cisco Business Edition 6000

For details on how to install Cisco Business Edition 6000, refer to the *Installation Guide for Cisco Business Edition 6000* at the following URL:

https://www.cisco.com/c/en/us/support/unified-communications/business-edition-6000/products-installation-guides-list.html

Installing Cisco Business Edition 7000

For details on how to install Cisco Business Edition 7000, refer to the *Installation Guide for Cisco Business Edition 7000* at the following URL:

https://www.cisco.com/c/en/us/support/unified-communications/business-edition-7000/products-installation-guides-list.html