Installing the Appliance

This chapter describes how to install the appliance and includes the following sections:

- Installing the Cisco MDE 3100, page 2-1
- Installing the Cisco MDE 3125, page 2-13
- RAID, page 2-23
- Where to Go Next, page 2-42

Note
Before you install, operate, or service the system, see the Regulatory Compliance and Safety Information for the Cisco MDE Appliances for important safety information.

Warning
IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

Statement 1071

Warning
Only trained and qualified personnel must be allowed to install, replace, or service this equipment.

Statement 1030

Installing the Cisco MDE 3100

- Unpacking and Inspecting the Appliance, page 2-2
- Preparing for Installation, page 2-3
- Installing the Appliance Into a Rack, page 2-4
- Connecting and Powering On the Appliance, page 2-7
Unpacking and Inspecting the Appliance

Tip
Keep the shipping container in case the appliance requires shipping in the future.

Note
The chassis is thoroughly inspected before shipment. If any damage occurred during transportation or any items are missing, contact your customer service representative immediately.

To inspect the shipment:

Step 1
Remove the appliance from its cardboard container—save all packaging material.

Step 2
Compare the shipment to the equipment list provided by your customer service representative and Figure 2-1. Verify that you have all items.

Step 3
Check for damage and report any discrepancies or damage to your customer service representative. Have the following information ready:

- Invoice number of shipper (see the packing slip)
- Model and serial number of the damaged unit
- Description of damage
- Effect of damage on the installation
Preparing for Installation

This section includes the following topics:

- Installation Guidelines, page 2-3
- Rack Requirements, page 2-4
- Required Equipment, page 2-4

Installation Guidelines

When installing the appliance, follow these guidelines:

- Plan your site configuration and prepare the site before installing the appliance.
- Ensure that there is adequate space around the appliance to allow for servicing the appliance and for adequate airflow. The airflow in this appliance is from front to back.
- Ensure that the air-conditioning meets the thermal requirements listed in the “Technical Specifications” appendix.
• Ensure that the cabinet or rack meets the requirements listed in Rack Requirements, page 2-4.
• Ensure that the site power meets the power requirements listed in the “Technical Specifications” appendix. If available, you can use an uninterruptible power supply (UPS) to protect against power failures.
• Ensure that circuits are sized according to local and national codes. For North America, the power supply requires a 15-A circuit.

**Warning**
The plug-socket combination must be accessible at all times, because it serves as the main disconnecting device.
Statement 1019

**Caution**
Avoid UPS types that use ferroresonant technology. These UPS types can become unstable with systems such as the Cisco MDE, which can have substantial current draw fluctuations from fluctuating data traffic patterns.

**Caution**
To prevent loss of input power, ensure that the total maximum loads on the circuits supplying power to the appliance are within the current ratings for the wiring and breakers.

**Rack Requirements**
This section provides the requirements for the standard open racks, assuming an external ambient air temperature range of 32 to 95°F (0 to 35°C).
The rack must be of the following type:
• Standard 19-inch (48.3-cm) wide, four-post EIA rack, with mounting posts that conform to English universal hole spacing per section 1 of ANSI/EIA-310-D-1992.
• The rack post holes can be square or round when you use the supplied slide rails.
• The minimum vertical rack space per appliance must be two rack units (RUs), equal to 3.50 inches (8.89 cm).

**Required Equipment**
The slide rails supplied by Cisco Systems do not require any tools for installation, but you might want to use a tape measure and level to help level the slide rails during installation.
The slide rails include screws that you can optionally use to apply additional stability. These screws are not required.

**Installing the Appliance Into a Rack**
This section describes how to install the appliance into a rack.

**Caution**
If the rack has wheels, ensure that the brakes are engaged or that the rack is otherwise stabilized.
To install the slide rails and the appliance into a rack:

**Step 1**  
Install the slide rails into the rack:

Tip  
Use two people to help keep the slide rails and appliance level during installation. You can use a tape measure and level or count the holes in the rack posts to ensure that the slide rails and appliance are level.

a. Align the slide-rail assembly inside the rack posts with the length-adjustment bracket (item 4) toward the rear of the rack (see Figure 2-2).

b. Compress the length-adjustment bracket until the mounting pegs (item 6) and locking clips (item 5) on the slide-rail assembly engage the desired rack holes on the front and rear rack posts.

c. Pull the inner slide rails on each assembly out toward the rack front until they hit the internal stops and lock in place.

**Figure 2-2  Attaching a Slide-Rail Assembly**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>Front-left rack post</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>Rear-left rack post</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>Slide-rail assembly</td>
</tr>
<tr>
<td><strong>4</strong></td>
<td>Length-adjustment bracket</td>
</tr>
<tr>
<td><strong>5</strong></td>
<td>Locking clip (one on each end of assembly)</td>
</tr>
<tr>
<td><strong>6</strong></td>
<td>Mounting pegs (two on each end of assembly)</td>
</tr>
</tbody>
</table>

d. Attach the second slide-rail assembly to the opposite side of the rack. Ensure that the two slide-rail assemblies are level and at the same height with each other.

e. Pull the inner slide rails on each assembly out toward the rack front until they hit the internal stops and lock in place.

Tip  
You can optionally use the #2 Phillips screws that come with the slide rails to increase stability after installation. These screws can be installed on the front attachment bracket on each assembly, but are not required.

**Step 2**  
Attach mounting brackets to the appliance:

a. Set a mounting bracket (item 3) on the side of the appliance, aligning its keyed holes over the pegs on the appliance (item 2). The plastic installation release clip (item 5) on the bracket should be toward the appliance front. See Figure 2-3.
b. Push the mounting bracket toward the appliance rear until the locking clip clicks over the appliance peg.

c. Attach the remaining mounting bracket to the opposite side of the appliance.

Tip
You can optionally use the #1 Phillips screws that come with the slide rails to increase stability after installation. You can install two of these screws on each side of the appliance to more permanently attach the mounting brackets to each side of the appliance, but they are not required.

Figure 2-3 Attaching Mounting Brackets to the Appliance

Step 3
Insert the appliance into the slide rails:

Caution
This appliance weighs approximately 50 pounds (23 kilograms) when fully loaded with components. We recommend that you use a minimum of two people when lifting the appliance. Attempting this procedure alone could result in personal injury or equipment damage.

a. Align the mounting brackets that are attached to the appliance sides with the front of the empty slide rails.

b. Push the appliance into the slide rails until it stops at the internal stops.

c. Push the plastic installation release clip on each mounting bracket toward the appliance rear (see item 4 in Figure 2-3), and then continue pushing the appliance into the rack until its front flanges touch the rack posts.

d. Close the front-flange latches to secure the appliance to the front rack posts.

Step 4
Attach the (optional) cable management arm (CMA) to the rear of the slide rails:

Note
The orientation in these instructions refers to a view from the front of the appliance.

a. Slide the plastic clip on the right end of the CMA length-adjustment slider (item 2) into the rear of the right slide rail (item 1) until it clips onto the plastic retaining flange inside the slide rail. See Figure 2-4.
b. Expand the CMA length-adjustment slider (item 2) until its left end aligns with the rear of the left slide-rail assembly (item 3).

c. Slide the innermost CMA attachment clip (item 4) into the rear of the left slide rail (item 3) and clip it onto the CMA flange that is on the mounting bracket that is attached to the appliance.

d. Attach the two-hole slotted bracket (item 5) that is on the left end of the CMA length-adjustment slider to the left slide rail. Fit the two-hole slotted bracket over the two pegs inside the slide rail.

e. Attach the outermost CMA attachment clip (item 6) onto the CMA flange that is on the left slide rail.

![Figure 2-4 Attaching the Cable Management Arm](image)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rear of right slide rail (plastic retaining flange is inside the rail)</td>
</tr>
<tr>
<td>2</td>
<td>CMA length-adjustment slider</td>
</tr>
<tr>
<td>3</td>
<td>Rear of left slide rail assembly</td>
</tr>
<tr>
<td>4</td>
<td>Innermost CMA attachment clip</td>
</tr>
<tr>
<td>5</td>
<td>Two-hole slotted bracket on end of CMA length-adjustment slider</td>
</tr>
<tr>
<td>6</td>
<td>Outermost CMA attachment clip</td>
</tr>
</tbody>
</table>

**Step 5** Continue with the “Connecting and Powering On the Appliance” section on page 2-7.

## Connecting and Powering On the Appliance

This section describes how to power on the appliance and assign an IP address to the appliance management port, which allows you to connect to the Cisco Integrated Management Controller (CIMC).

By following this procedure, you can stage your appliance for deployment, deploy the hardware, and then remotely configure the ECDS first boot parameters.

See the *Cisco ECDS 2.5 Quick Start Guide* for information about configuring ECDS during first boot.

1. Attach the Cables to the Appliance, page 2-8.
4. Configuring the ECDS Management (Primary) Interface, page 2-12
5. Configuring the Streaming Interface (SE only), page 2-12

Attach the Cables to the Appliance

This section describes how to attach cables to your appliance.

**Step 1**
Attach a power cord to each power supply in your appliance, and then attach the power cord to a grounded AC power outlet. See the “Power Specifications” section on page A-2 for power specifications.

Power is supplied to the service processor in standby power mode. You can verify power status by looking at the Power Status LED on the front panel (see Figure 1-5):

- **Off**—The appliance is not receiving power. Check the power cord connections and the power source of the facility.
- **Amber**—The appliance is in standby power mode. Power is supplied only to the service processor and some motherboard functions.
- **Solid green**—The appliance is in main power mode. Power is supplied to all appliance components.

**Step 2**
Connect to your network by using the 10/100 Ethernet management port (see Figure 1-3).

**Step 3**
Connect to appliance management console using one of the following methods:

- The front panel KVM console connector using the supplied KVM cable. See the “KVM Cable” section on page B-1 for details.
- The rear panel VGA and USB ports.

**Note**
You cannot use the front panel console connector VGA and the rear panel VGA at the same time. If you are connected to one VGA connector and you then connect a video device to the other connector, the first VGA connector is disabled. You can then reactivate the first VGA connector only by rebooting the appliance.

- The rear panel serial connector (DB9) using a terminal emulation program (9600 baud, 8N1). If you later enable the Serial-over-LAN feature in CIMC, you will no longer be able to access the console through this connector.

Configure CIMC Network Settings and Password

**Caution**
DO NOT change the NIC mode or NIC redundancy settings. Changing these settings may cause severe performance degradation.

**Note**
Disconnect any external USB devices (such as drives and keyboards) before powering on the appliance. You appliance may not boot with USB devices connected to the external USB ports.

To configure CIMC network settings:

**Step 1**
Press and release the **Power** button to apply AC power and boot the appliance (see Figure 1-1).
Step 2  During bootup, press F8 when prompted to open the CIMC Configuration Utility. This utility allows you to make changes to the network settings and to reset the default CIMC password. See Figure 2-5.

Note Although you can use DHCP on the devices management interface, we recommend using a static IP address. To use DHCP, allow the appliance to boot and to obtain network settings from your DHCP server. The IP and MAC addresses are displayed on the Cisco logo screen during subsequent boots.

Figure 2-5  CIMC Configuration Utility

Step 3  To define static network settings, enter values in the following fields:
- DHCP Enabled—Remove the check mark from this box to use static settings.
- CIMC IP—Enter the IP address for the appliance in this field.
- Subnet Mask—Enter the subnet mask for the appliance in this field.
- Gateway—Enter the gateway for the appliance in this field.

Step 4  Change the default CIMC password:
- Use the Up/Down arrow keys to move the insertion point to Default password under Default User.
- Type the new password.
- Type the password again in the Reenter password field.

Step 5  Press F10 to save your changes and reboot the appliance.

Note Changes to the IP address take effect after approximately 30 seconds.
After the appliance has been assigned an IP address, you can use that address in a browser to access the CIMC GUI management system.

---

**Configure CIMC Remote Access Settings**

Enabling the remote access settings allows you to open an SSH session to the CIMC interface and access the device command line interface. You can also access the ECDS command line interface from the SSH session by entering the `connect host` command. This will enable you to remotely perform the initial configuration of your MDE.

Refer to the *Cisco ECDS 2.5 Quick Start Guide* for information about the initial configuration of ECDS.

To configure CIMC remote access settings:

**Step 1**

Access the CIMC GUI. Use the IP address you configured in the “Configure CIMC Network Settings and Password” section on page 2-8.

https://<cimc_ip_address>

**Step 2**

Login to the CIMC GUI.

The default username for the appliance is `admin`.

The default password for the appliance is `password` (unless you changed it in the “Configure CIMC Network Settings and Password” section on page 2-8).
Step 3  On the Server tab, click **Remote Presence**.
Step 4  Click the Serial over LAN tab.

![Remote Presence](image)

**Note**  Enabling Serial over LAN disables console access through the serial port on the rear of the appliance.

Step 5  Check the Enabled checkbox and choose 9600 bps from the Baud Rate list.

Step 6  Click Save Changes.

**Configuring the ECDS Management (Primary) Interface**

The Cisco MDE 3100 has 2 GigabitEthernet ports, GigabitEthernet 1/0 and GigabitEthernet 2/0, that can be used for the ECDS management interface. You can configure the ECDS management interfaces in the following ways:

- Use a single interface as the management interface.
- Configure the two GigabitEthernet ports as a portchannel interface.

See the [Cisco ECDS 2.5 Quick Start Guide](#) for information about configuring the streaming interface. The Quick Start Guide shows you how to configure a single interface as the ECDS management interface. You can later change this to a portchannel configuration.

**Configuring the Streaming Interface (SE only)**

The Cisco MDE 3100 has 4 Gigabit Ethernet ports, GigabitEthernet 3/0 through GigabitEthernet 6/0, that can be used for the streaming interface. You can configure the streaming interface in the following ways:

- Use a single interface for the streaming interface.
- Configure the 4 GigabitEthernet ports as a portchannel interface. This is the recommended configuration.

**Note**  Sharing the management interface with the streaming interface is not recommended for the Cisco MDE 3100.

See the [Cisco ECDS 2.5 Quick Start Guide](#) for information about configuring the streaming interface.
Installing the Cisco MDE 3125

This section describes how to install the Cisco MDE 3125 UCS server:

- Unpacking and Inspecting the Server, page 2-13
- Preparing for Installation, page 2-3
- Installing the Appliance Into a Rack, page 2-4
- Initially Setting up the Server, page 2-19
- Managing System BIOS and CIMC Firmware, page 2-22
- Updating the BIOS and CIMC Firmware, page 2-22
- Configuring RAID in MDE 3125, page 2-24

Note

Before you install, operate, or service a server, review the Regulatory Compliance and Safety Information for Cisco UCS C-Series Servers for important safety information.

Warning

IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS.

Unpacking and Inspecting the Server

Caution

When handling internal server components, wear an ESD strap and handle modules by the carrier edges only.

Tip

Keep the shipping container in case the server requires shipping in the future.

Note

The chassis is thoroughly inspected before shipment. If any damage occurred during transportation or any items are missing, contact your customer service representative immediately.

To inspect the shipment:

Step 1

Remove the server from its cardboard container and save all packaging material.

Step 2

Compare the shipment to the equipment list provided by your customer service representative and Figure 2-1. Verify that you have all items.
Step 3  Check for damage and report any discrepancies or damage to your customer service representative. Have the following information ready:

- Invoice number of shipper (see the packing slip)
- Model and serial number of the damaged unit
- Description of damage
- Effect of damage on the installation

Figure 2-6  Shipping Box Contents

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Server</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Power cord (optional, up to two)</td>
<td>4</td>
</tr>
</tbody>
</table>

Preparing for Server Installation

This section provides information about preparing for server installation, and it includes the following topics:

- Installation Guidelines, page 2-3
- Rack Requirements, page 2-4
- Equipment Requirements, page 2-15
- Slide Rail Adjustment Range, page 2-16

Installation Guidelines

Warning  To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 40° C (104° F).

Statement 1047
Warning

The plug-socket combination must be accessible at all times, because it serves as the main disconnecting device.

Statement 1019

Warning

This product relies on the building’s installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250 V, 15 A.

Statement 1005

Warning

Installation of the equipment must comply with local and national electrical codes.

Statement 1074

When you are installing a server, use the following guidelines:

- Plan your site configuration and prepare the site before installing the server. See the Cisco UCS Site Preparation Guide for the recommended site planning tasks.
- Ensure that there is adequate space around the server to allow for servicing the server and for adequate airflow. The airflow in this server is from front to back.
- Ensure that the air-conditioning meets the thermal requirements listed in the Server Specifications.
- Ensure that the cabinet or rack meets the requirements listed in the “Rack Requirements” section on page 2-4.
- Ensure that the site power meets the power requirements listed in the Server Specifications. If available, you can use an uninterruptible power supply (UPS) to protect against power failures.

Caution

Avoid UPS types that use ferroresonant technology. These UPS types can become unstable with systems such as the Cisco UCS, which can have substantial current draw fluctuations from fluctuating data traffic patterns.

Rack Requirements

This section provides the requirements for the standard open racks.

The rack must be of the following type:

- A standard 19-in. (48.3-cm) wide, four-post EIA rack, with mounting posts that conform to English universal hole spacing, per section 1 of ANSI/EIA-310-D-1992.
- The rack post holes can be square .38-inch (9.6 mm), round .28-inch (7.1 mm), #12-24 UNC, or #10-32 UNC when you use the supplied slide rails.
- The minimum vertical rack space per server must be one RU, equal to 1.75 in. (44.45 mm).

Equipment Requirements

The slide rails supplied by Cisco Systems for this server do not require tools for installation. The inner rails (mounting brackets) are pre-attached to the sides of the server.
Slide Rail Adjustment Range

The slide rails for this server have an adjustment range of 24 to 36 inches (610 to 914 mm).

Installing the Cisco MDE 3125 In a Rack

This section describes how to install the server in a rack.

⚠️ Warning

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

Statement 1006

To install the slide rails and the server into a rack:

---

Step 1

Open the front securing latch (see Figure 2-7). The end of the slide-rail assembly marked “FRONT” has a spring-loaded securing latch that must be open before you can insert the mounting pegs into the rack-post holes.

- a. On the rear side of the securing-latch assembly, hold open the clip marked “PULL.”
- b. Slide the spring-loaded securing latch away from the mounting pegs.
- c. Release the clip marked “PULL” to lock the securing latch in the open position.

---

Figure 2-7 Front Securing Latch

| 1 | Clip marked “PULL” on rear of assembly |
| 2 | Front mounting pegs                   |
| 3 | Spring-loaded securing latch on front of assembly |
Chapter

Step 2  Install the slide rails onto the rack:

a. Position a slide-rail assembly inside the two left-side rack posts (see Figure 2-2).
   Use the “FRONT” and “REAR” markings on the slide-rail assembly to orient the assembly correctly
   with the front and rear rack posts.

b. Position the front mounting pegs so that they enter the desired front rack-post holes from the front.

Note

The mounting pegs that protrude through the rack-post holes are designed to fit round or square holes,
or smaller #10-32 round holes when the mounting peg is compressed. If your rack has #10-32 rack-post
holes, align the mounting pegs with the holes and then compress the spring-loaded pegs to expose the
#10-32 inner peg.

c. Expand the length-adjustment bracket until the rear mounting pegs protrude through the desired
holes in the rear rack post.
   Use your finger to hold the rear securing latch open when you insert the rear mounting pegs to their
holes. When you release the latch, it wraps around the rack post and secures the slide-rail assembly.

Figure 2-8  Attaching a Slide-Rail Assembly

<table>
<thead>
<tr>
<th>1</th>
<th>Front-left rack post</th>
<th>4</th>
<th>Length-adjustment bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Front mounting pegs</td>
<td>5</td>
<td>Rear mounting pegs</td>
</tr>
<tr>
<td>3</td>
<td>Slide-rail assembly</td>
<td>6</td>
<td>Rear securing latch</td>
</tr>
</tbody>
</table>

d. Attach the second slide-rail assembly to the opposite side of the rack. Ensure that the two slide-rail
assemblies are level and at the same height with each other.

e. Pull the inner slide rails on each assembly out toward the rack front until they hit the internal stops
and lock in place.

Step 3  Insert the server into the slide rails:
The inner rails are pre-attached to the sides of the server at the factory. You can order replacement inner rails if these are damaged or lost (Cisco PID UCSC-RAIL1-I).

a. Align the inner rails that are pre-attached to the server sides with the front ends of the empty slide rails.

b. Push the server into the slide rails until it stops at the internal stops.

c. Push in the plastic release clip on each inner rail (labelled PUSH), and then continue pushing the server into the rack until its front latches engage the rack posts.

### Step 4
Attach the (optional) cable management arm (CMA) to the rear of the slide rails:

The CMA is designed for mounting on either the right or left slide rails. These instructions describe an installation to the rear of the right slide rails, as viewed from the rear of server.

a. Slide the plastic clip on the inner CMA arm over the flange on the mounting bracket that attached to the side of the server. See Figure 2-4.

b. Slide the plastic clip on the outer CMA arm over the flange on the slide rail. See Figure 2-4.

c. Attach the CMA retaining bracket to the left slide rail. Slide the plastic clip on the bracket over the flange on the end of the left slide rail. See Figure 2-4.

![Figure 2-9 Attaching the Cable Management Arm (Rear of Server Shown)](image)

<table>
<thead>
<tr>
<th>1</th>
<th>Flange on rear of outer left slide rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>CMA retaining bracket</td>
</tr>
<tr>
<td>3</td>
<td>Flange on rear of right mounting bracket</td>
</tr>
<tr>
<td>4</td>
<td>Flange on rear of outer right slide rail</td>
</tr>
<tr>
<td>5</td>
<td>Inner CMA arm attachment clip</td>
</tr>
<tr>
<td>6</td>
<td>“UP” orientation marking</td>
</tr>
<tr>
<td>7</td>
<td>Outer CMA arm attachment clip</td>
</tr>
</tbody>
</table>
Initially Setting up the Server

This section includes the following topics:

- Connecting and Powering On the Server (Standalone Mode), page 2-19
- Managing NIC Modes and NIC Redundancy Settings, page 2-21

Connecting and Powering On the Server (Standalone Mode)

This section describes how to power on the server, assign an IP address, and connect to server management when using the server in standalone mode.

**Note**
The server is shipped with a default NIC mode called *Shared LOM*, default NIC redundancy is active-active, and DHCP is enabled. Shared LOM mode enables the two 1-Gb Ethernet ports to access the Cisco Integrated Management Interface (CIMC). If you want to use the 1-Gb Ethernet dedicated management port, or a port on a Cisco UCS P81E Virtual Interface Card (VIC) to access the CIMC, you must first connect to the server and change the NIC mode as described in Step 3 of the following procedure. In that step, you can also change the NIC redundancy and set static IP settings.

To initially set up the server:

**Step 1**
Attach a supplied power cord to each power supply in your server, and then attach the power cord to a grounded AC power outlet. See the Power Specifications, page A-3 for power specifications.

Wait for approximately two minutes to let the server boot in standby power during the first bootup.

You can verify power status by looking at the Power Status LED (see Figure 1-1 on page 1-2):

- Off—There is no AC power present in the server.
- Amber—The server is in standby power mode. Power is supplied only to the CIMC and some motherboard functions.
- Green—The server is in main power mode. Power is supplied to all server components.

**Note**
During bootup, the server beeps once for each USB device that is attached to the server. Even if there are no external USB devices attached, there is a short beep for each virtual USB device such as a virtual floppy drive, CD/DVD drive, keyboard, or mouse. A beep is also emitted if a USB device is hot-plugged or hot-unplugged during BIOS power-on self test (POST), or while you are accessing the BIOS Setup utility or the EFI shell.

**Step 2**
Connect a USB keyboard and VGA monitor by using the supplied KVM cable connected to the KVM connector on the front panel (see Figure 1-1 on page 1-2).
Alternatively, you can use the VGA and USB ports on the rear panel. However, you cannot use the front panel VGA and the rear panel VGA at the same time. If you are connected to one VGA connector and you then connect a video device to the other connector, the first VGA connector is disabled.

**Step 3**

Set NIC mode, NIC redundancy, and choose whether to enable DHCP or set static network settings:

- a. Press the **Power** button to boot the server. Watch for the prompt to press F8.
- b. During bootup, press **F8** when prompted to open the BIOS CIMC Configuration Utility.

- c. Set the NIC mode to your choice for which ports to use to access the CIMC for server management (see Figure 1-3 on page 1-3 for port identification):
  - Dedicated—The 1-Gb Ethernet management port is used to access the CIMC. You must select NIC redundancy *None* and select IP settings.
  - Shared LOM (default)—The two 1-Gb Ethernet ports are used to access the CIMC. This is the factory default setting, along with Active-active NIC redundancy and DHCP enabled.
  - Cisco Card—The ports on an installed Cisco UCS P81E VIC are used to access the CIMC. You must select a NIC redundancy and IP setting.

- d. Use this utility to change the NIC redundancy to your preference. This server has three possible NIC redundancy settings:
  - None—The Ethernet ports operate independently and do not fail over if there is a problem.
  - Active-standby—If an active Ethernet port fails, traffic fails over to a standby port.
  - Active-active—All Ethernet ports are utilized simultaneously.

- e. Choose whether to enable DHCP for dynamic network settings, or to enter static network settings.
Before you enable DHCP, your DHCP server must be preconfigured with the range of MAC addresses for this server. The MAC address is printed on a label on the rear of the server. This server has a range of six MAC addresses assigned to the CIMC. The MAC address printed on the label is the beginning of the range of six contiguous MAC addresses.

f. (Optional) Use this utility to make VLAN settings, and to set a default CIMC user password.

Changes to the settings take effect after approximately 45 seconds. Refresh with F5 and wait until the new settings appear before you reboot the server in the next step.

g. Press F10 to save your settings and reboot the server.

If you chose to enable DHCP, the dynamically assigned IP and MAC addresses are displayed on the console screen during bootup.

Step 4
Connect to the CIMC for server management. Connect Ethernet cables from your LAN to the server, using the ports that you selected by your NIC Mode setting in Step 3. The Active-active and Active-passive NIC redundancy settings require you to connect to two ports.

Step 5
Use a browser and the IP address of the CIMC to connect to the CIMC Setup Utility. The IP address is based upon the settings that you made in Step 3 (either a static address or the address assigned by your DHCP server).

The default user name for the server is admin. The default password is password.

To manage the server, see the Cisco UCS C-Series Rack-Mount Server Configuration Guide or the Cisco UCS C-Series Rack-Mount Server CLI Configuration Guide for instructions on using those interfaces. The links to these documents are in the C-Series documentation roadmap: http://www.cisco.com/go/unifiedcomputing/c-series-doc

Managing NIC Modes and NIC Redundancy Settings

This server has the following NIC mode settings that you can choose from:

- Dedicated—The 1-Gb Ethernet dedicated management port is used to access the CIMC. You must select NIC redundancy None and select IP setting.
- Shared LOM (default)—The two 1-Gb Ethernet ports are used to access the CIMC. This is the factory default setting, along with Active-active NIC redundancy and DHCP enabled.
- Cisco Card—The ports on an installed Cisco UCS P81E VIC are used to access the CIMC. You must select a NIC redundancy and IP setting.

The Cisco Card NIC mode is currently supported only with a Cisco UCS P81E VIC (N2XX-ACPCI01) that is installed in PCIe slot 1. See also Special Considerations for Cisco UCS P81E Virtual Interface Card (N2XX-ACPCI01), page 3-33.
This server has the following NIC redundancy settings that you can choose from:

- None—The Ethernet ports operate independently and do not fail over if there is a problem.
- Active-standby—If an active Ethernet port fails, traffic fails over to a standby port.
- Active-active—All Ethernet ports are utilized simultaneously.

**Managing System BIOS and CIMC Firmware**

This section includes information about the system BIOS:

- Updating the BIOS and CIMC Firmware, page 2-22
- Accessing the System BIOS, page 2-23

**Updating the BIOS and CIMC Firmware**

**Caution**

When you upgrade the BIOS firmware, you must also upgrade the CIMC firmware to the same version or the server will not boot. Do not power off the server until the BIOS and CIMC firmware are matching or the server will not boot.

Cisco provides the Cisco Host Upgrade Utility to assist with simultaneously upgrading the BIOS, CIMC, and other firmware to compatible levels.

The server uses firmware obtained from and certified by Cisco. Cisco provides release notes with each firmware image. There are several methods for updating the firmware:

- **Recommended method for systems running firmware level 1.2 or later**: Use the Cisco Host Upgrade Utility to simultaneously upgrade the CIMC, BIOS, LOM, LSI storage controller, and Cisco UCS P81E VIC firmware to compatible levels.
  
  See the *Cisco Host Upgrade Utility Quick Reference Guide* for your firmware level at the documentation roadmap link below.

**Note**

Your system firmware must be at minimum level 1.2 to use the Cisco Host Upgrade Utility. If your firmware is prior to level 1.2, you must use the methods below to update the BIOS and CIMC firmware individually.

- You can upgrade the BIOS using the EFI interface, or upgrade from a Windows or Linux platform. See the *Cisco UCS C-Series Rack-Mount Server BIOS Upgrade Guide*.
- You can upgrade the CIMC and BIOS firmware by using the CIMC GUI interface. See the *Cisco UCS C-Series Rack-Mount Server Configuration Guide*.
- You can upgrade the CIMC and BIOS firmware by using the CIMC CLI interface. See the *Cisco UCS C-Series Rack-Mount Server CLI Configuration Guide*.

For links to the documents listed above, see the documentation roadmap at the following URL:

Accessing the System BIOS

To change the BIOS settings for your server:

**Tip** Detailed instructions are also printed on the BIOS screens.

**Step 1** Enter the BIOS setup utility by pressing the F2 key when prompted during bootup.

**Note** The version and build of the current BIOS are displayed on the Main page of the utility.

**Step 2** Use the arrow keys to select the BIOS menu page.

**Step 3** Highlight the field to be modified by using the arrow keys.

**Step 4** Press **Enter** to select the field that you want to change, and then modify the value in the field.

**Step 5** Press the right arrow key until the Exit menu screen is displayed.

**Step 6** Follow the instructions on the Exit menu screen to save your changes and exit the setup utility (or Press **F10**). Exit without saving changes by pressing **Esc**.

RAID

RAID (Redundant Array of Independent Disks) is a data storage virtualization technology that combines multiple disk drive components into a logical unit for the purposes of data redundancy and performance improvement.

Data is distributed across the drives in one of several ways, referred to as RAID levels, depending on the specific level of redundancy and performance required. The different schemes or architectures are named by the word RAID followed by a number (e.g. RAID 0, RAID 1). Each scheme provides a different balance between the key goals: reliability and availability, performance and capacity. RAID levels greater than RAID 0 provide protection against unrecoverable (sector) read errors, as well as whole disk failure.

**RAID 0**

RAID 0 comprises striping (but no parity or mirroring). This level provides no data redundancy nor fault tolerance, but improves performance through parallelism of read and write operations across multiple drives. RAID 0 has no error detection mechanism, so the failure of one disk causes the loss of all data on the array.

**RAID 1**

RAID 1 comprises mirroring (without parity or striping). Data are written identically to two (or more) drives, thereby producing a “mirrored set”. The read request is serviced by any of the drives containing the requested data. This can improve performance if data is read from the disk with the least seek latency and rotational latency. Conversely, write performance can be degraded because all drives must be updated; thus the write performance is determined by the slowest drive. The array continues to operate as long as at least one drive is functioning.
RAID 5
A RAID 5 comprises block-level striping with distributed parity. Unlike in RAID 0 and RAID 1, parity information is distributed among the drives. It requires that all drives but one be present to operate. Upon failure of a single drive, subsequent reads can be calculated from the distributed parity such that no data is lost. RAID 5 requires at least three disks.

Note
MDE Hardware [MDE-1125 and MDE-3125] only support Hardware RAID configuration. For configuring Hardware RAID level [0,1,5], refer the section Configuring RAID in MDE 3125.

This section contains:
- Configuring RAID in MDE 3125, page 2-24

Configuring RAID in MDE 3125

To configure RAID, refer the steps given below:

Step 1  Log in to the Cisco Integrated Management Controller (CIMC).

Step 2  Click the Launch KVM Console and Select Virtual Media in KVM Console Window.
Step 3  Click the **Power Cycle Server** to reboot the server.
**Step 4** After the server comes UP, wait for few minutes for the logs to appear.

*Figure 2-13  KVM Console Page*

**Step 5** Press CTRL+H or CTRL+Y to enable BIOS for RAID configuration.

*Figure 2-14  KVM Console Page*
Step 6  Click **Start** in the BIOS page and the Mega RAID BIOS config Utility appears.

*Figure 2-15  BIOS Page*

Step 7  Select the Configuration Wizard.

*Figure 2-16  BIOS Config Utility Configuration Wizard*
Step 8  Select Clear Configuration tab to clear the existing configuration and click Next.

*Figure 2-17  BIOS Config Utility Configuration Wizard*

Step 9  Click Yes to clear the existing configuration.

*Figure 2-18  BIOS Config Utility Confirm Page*
Step 10  Repeat Step 7.

Step 11  Select New Configuration and click Next.

**Figure 2-19  BIOS Config Utility Configuration Wizard**

Step 12  Repeat Step 9.

Step 13  Select Manual Configuration to manually create drive groups and virtual drives.
**Step 14** Select the required disks from left side and click **Add To Array**.

**Figure 2-21 Drive Group Definition Page**

**Step 15** After adding the disks, Click **Accept DG** and click **Next**.
Figure 2-22  Drive Group Definition Page

Step 16  Click Add to SPAN and click Next.

Figure 2-23  Span Definition Page

Step 17  Select Required RAID configuration from the drop-down list and click Update Size. For example, we can select the RAID 0, 1, and 5.
Step 18  After updating the size, check the size to confirm the total capacity of the storage. Click **Accept**.

**Step 19**  After completion of RAID configuration, Click **Yes** and click **Next** in the RAID configuration page.
Step 20  Click **Accept** to save the configuration.

Step 21  Click **Yes** to save the RAID configuration.
Step 22  Click Yes to initialize the RAID configuration.

Step 23  Click Home.
Step 24  Click **Exit** to exit from the RAID BIOS Config Utility.

**Figure 2-31  Virtual Configuration Page**

Step 25  Click **Yes** for exit confirmation.
Step 26  Before rebooting, follow the Steps 27 and 28.

Figure 2-33  Reset Page

Step 27  Click the Virtual Media and Click Add Image to browse the image that needs to be installed.
Step 28 Check the Check box to map the image.

Step 29 Reboot the box by repeating the Step 3.

Step 30 After the box comes UP, the KVM Console page appears. Press F6.
Step 31  Check the configured RAID from the logs.

Step 32  Select Cisco Virtual CD/DVD and press Enter.
Step 33  Log in to the CLI console using CIMC credentials. Select option 9 and erase the flash by entering 'yes'. Check whether model number is detected correctly.
Step 34  After erasing the flash, check whether flash have manufactured successfully. Check if cookies are installed successfully and the date. Select option 5 and install the image by selecting option 1. Enter 'yes' for writing the flash.

Figure 2-40  CLI Console

```
Flash manufactured successfully.
Date= '05/13/14'
Cookie installed successfully.

MODEL: MDE3125
FLASH: found, directory validated
COOKIE: valid
IMAGE: NONE
FLASHDEV: /dev/sdc

Installer Main Menu:
  1. Configure Network
  2. Manufacture flash
  3. Install flash cookie
  4. Install flash image from network
  5. Install flash image from cdrom
  6. Install flash image from disk
  7. Wipe out disks and install .bin image
  8. Exit (and reboot)
  9. Force manufacturing flash
Choice [0]: 5
Please select an image from the following list:
  1. CDS26.sysimg
  2. Return to Main Menu
Image [1]: 1
Installing CDS26.sysimg
Read 40842240 byte image file

Existing version in flash: NONE
New version to install: 2.6.1
Proceed with flash write? [y]: yes
```

Step 35  Check whether the flash is written successfully and correct image is displayed. Select option 7 and press Enter for installing .bin image. Enter 'yes' to wipe out all the disks. This will take time to install the .bin image after wiping out all the disks.
Step 36  After installing the .bin image, check whether the image is successfully installed and reboot the box.

Figure 2-42  CLI Console

Successfully installed product image.

MODEL: MDE3125
FLASH: found, directory validated
COOKIE: valid
IMAGE: 2.6.1
FLASHDEV: /dev/sdc

Installer Main Menu:
1. Configure Network
2. Manufacture Flash
3. Install Flash cookie
4. Install Flash image from network
5. Install Flash image from cdrom
6. Install Flash image from disk
7. Wipe out disks and install .bin image
8. Exit (and reboot)
9. Force manufacturing flash

Choice [0]: 8
Reboot? [n]: yes
Step 37  After rebooting, the login prompt will appear. Use default credentials to log in to the device.

Figure 2-43  CLI Console

Where to Go Next

Proceed to Chapter 3, “Operating and Maintaining the Appliance.”