Cisco Secure Network Server 3800 Series Appliance Hardware Installation Guide

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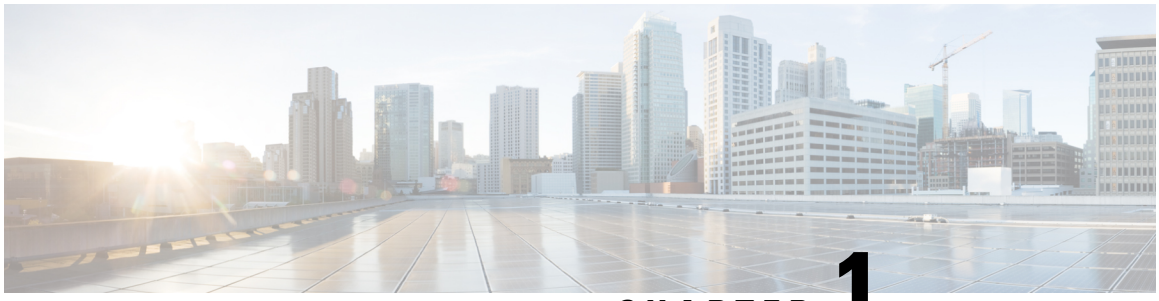


CHAPTER 1

Cisco Secure Network Server 3800 Series Appliances

- Introduction to the Cisco Secure Network Server 3800 series appliance, on page 1
- Cisco SNS 3800 series appliance hardware specifications, on page 2
- External features, on page 2
- Status LEDs and buttons, on page 4
- Serviceable component locations, on page 7
- Summary of server features, on page 8

Introduction to the Cisco Secure Network Server 3800 series appliance

The Cisco Secure Network Server (Cisco SNS) 3800 series appliances are based on the Cisco Unified Computing System (Cisco UCS) C225 M8 Rack Server and are configured specifically to support Cisco Identity Services Engine (Cisco ISE). Cisco SNS 3800 series appliances are designed to deliver high performance and efficiency for a wide range of workloads.

The Cisco SNS 3800 series appliances are available in these models:

- Cisco SNS 3815 (SNS-3815-K9)
- Cisco SNS 3855 (SNS-3855-K9)
- Cisco SNS 3895 (SNS-3895-K9)

The Cisco SNS 3815 appliance is ideal for small deployments. Cisco SNS 3855 and Cisco SNS 3895 appliances have several redundant components such as hard disks and power supplies and are suitable for larger deployments that require highly reliable system configurations. Cisco SNS 3895 is recommended for PAN and MnT personas.

Note The Cisco SNS 3855 appliance can be configured with one hard disk or four hard disks. We recommend that you enable only the PSN or pxGrid persona if your Cisco SNS 3855 appliance is configured with only one hard disk.

Cisco SNS 3800 series appliance hardware specifications

This table describes the hardware specifications for Cisco SNS 3800 series appliances.

Table 1: Cisco SNS 3800 series appliance hardware specifications

Cisco SNS 3800 series appliance	RAM	CPU cores	Number of hard disks	Total hard disk capacity	RAID
Cisco SNS-3815-K9	64 GB	16 cores, 32 threads	NVME-1	960 GB	NA
	64 GB	16 cores, 32 threads	SED-1	960 GB	RAID-0
	64 GB	16 cores, 32 threads	SED-FIPS-1	1.6 TB	RAID-0
Cisco SNS-3855-K9	128 GB	24 cores, 48 threads	NVME-1	960 GB	NA
	128 GB	24 cores, 48 threads	NVME-4	1.9 TB	RAID-10
	128 GB	24 cores, 48 threads	SED-1	960 GB	RAID-0
	128 GB	24 cores, 48 threads	SED-4	1.9 TB	RAID-10
	128 GB	24 cores, 48 threads	SED-FIPS-1	1.6 TB	RAID-0
	128 GB	24 cores, 48 threads	SED-FIPS-4	3.2 TB	RAID-10
Cisco SNS-3895-K9	256 GB	24 cores, 48 threads	NVME-8	3.8 TB	RAID-10
	256 GB	24 cores, 48 threads	SED-8	3.8 TB	RAID-10
	256 GB	24 cores, 48 threads	SED-FIPS-8	6.4 TB	RAID-10

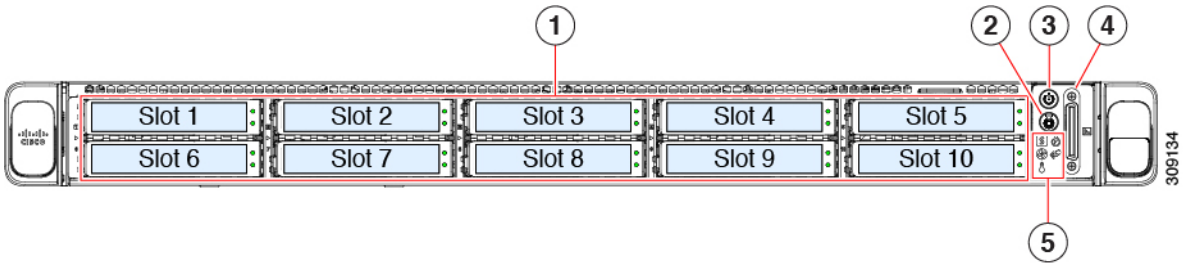
External features

This section describes the external features of a Cisco SNS 3800 series appliance.

Cisco SNS 3800 series appliance front panel features

This figure shows the front panel features of a Cisco SNS 3800 series appliance.

Figure 1: Cisco SNS 3800 series appliance front panel

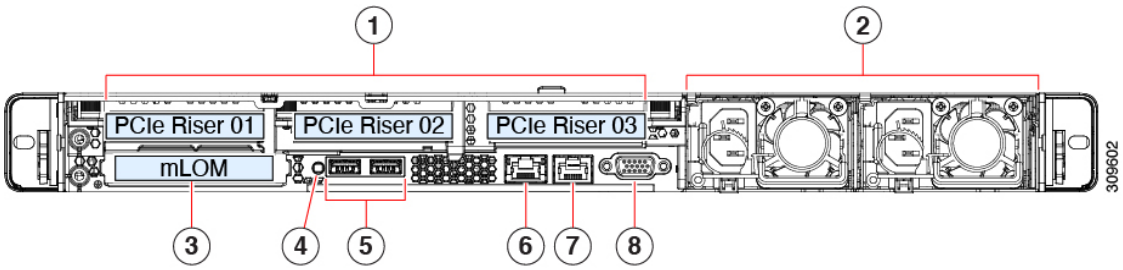


1	Supports Serial Attached SCSI (SAS) and Serial Advanced Technology Attachment (SATA) hard disk drives (HDDs) and solid-state drives (SSDs). Drive bays 1 – 4 optimized for SSDs. Drive bays 5 – 10 optimized for SAS/SATA HDDs. Not recommended for SSDs.	**2**	Unit identification button or LED
3	Power button or power status LED	**4**	KVM connector (used with KVM cable that provides one DB-15 VGA, one DB-9 serial, and two USB 2.0 connectors)
5	System LED cluster includes: • Fan status LED • System status LED • Power supply status LED • Network link activity LED • Temperature status LED		—

Cisco SNS 3800 series appliance rear panel features

This figure shows the rear panel features of a Cisco SNS 3800 series appliance.

Figure 2: Cisco SNS 3800 series appliance rear panel



1	• Riser 1: • Riser 1A (PCIe Gen4): Half-height, 3/4 length, x16, Network Controller Sideband Interface (NCSI), single wide Graphics Processing Unit (GPU). • Riser 1B (PCIe Gen5): Half-height, 3/4 length, x16, NCSI, single wide GPU. • Riser 2: • Riser 2A (PCIe Gen4): Half-height, 3/4 length, x16, single wide GPU. • Riser 2B (PCIe Gen5): Half-height, 3/4 length, x16, single wide GPU. • Riser 3: • Riser 3A (PCIe Gen4): Half-height, 3/4 length, x16, NCSI, single wide GPU.		
2	Power supply units	**3**	Modular LAN-on-motherboard (mLOM) card bay (x16 PCIe lane)
4	System identification button or LED	**5**	USB 3.0 ports (two)
6	Dedicated 1 GB Ethernet management port	**7**	COM port (RJ-45 connector)
8	VGA video port (DB-15 connector)		—

Status LEDs and buttons

This section contains information for interpreting LED states.

Front panel LEDs

This figure shows the front panel LEDs of a Cisco SNS 3800 series appliance.

Figure 3: Front panel LEDs

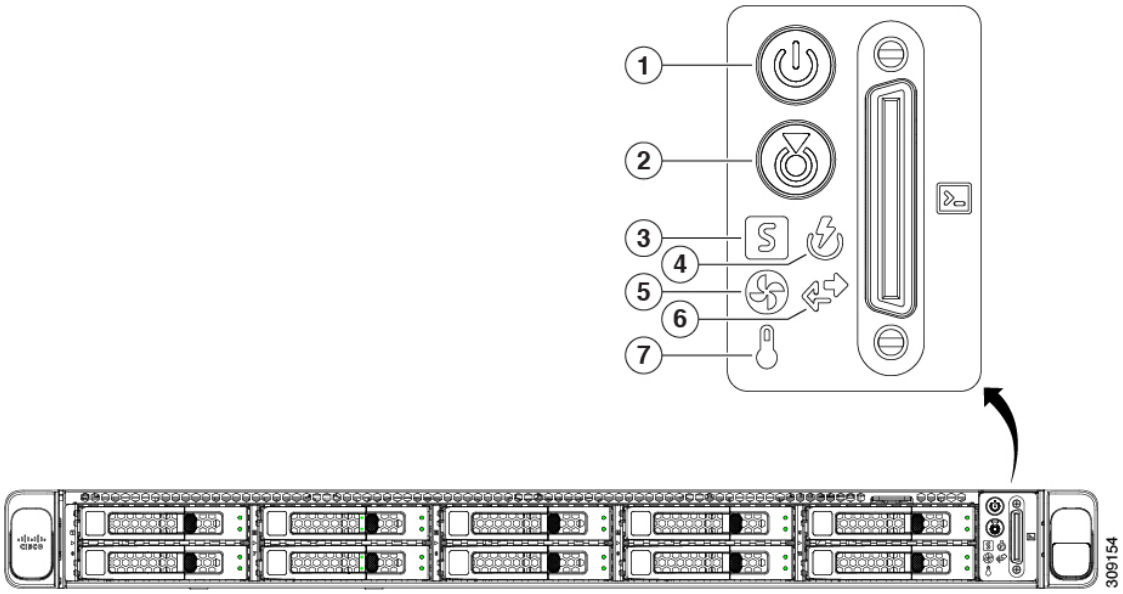


Table 2: Front panel LEDs

	LED name	States
1	Power button or LED ( )	• Off: There is no AC power to the server. • Amber: The server is in standby power mode. Power is supplied only to the Cisco Integrated Management Controller (Cisco IMC) and some motherboard functions. • Green: The server is in main power mode. Power is supplied to all server components.
2	Unit identification ( )	• Off: The unit identification function is not in use. • Blue, blinking: The unit identification function is activated.

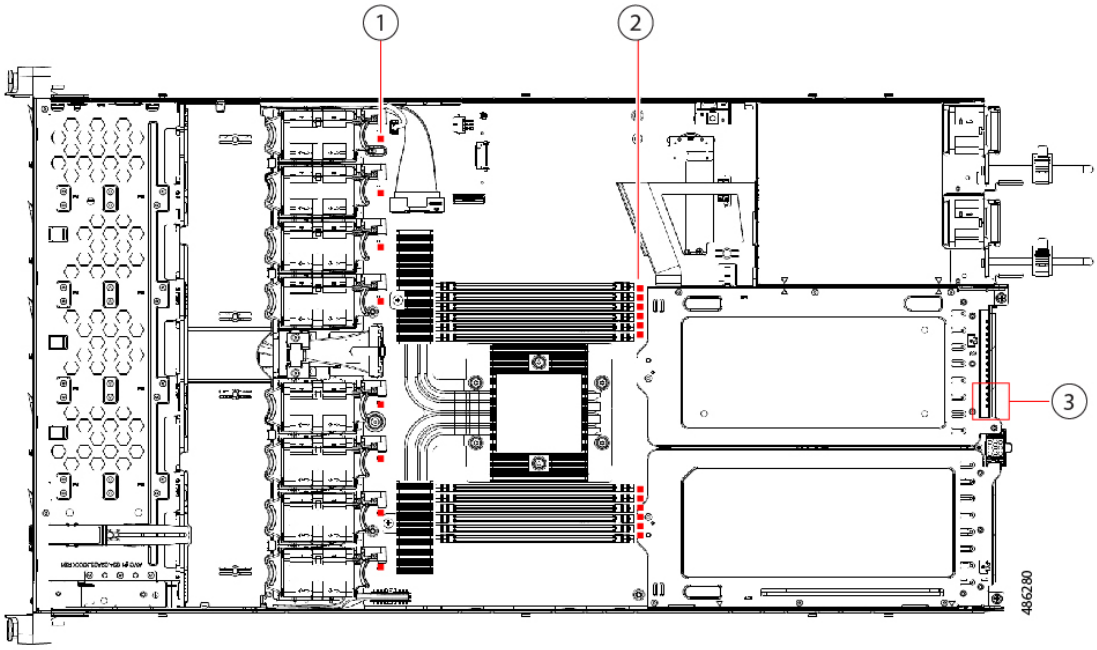
3	System health ( )	• Green: The server is running in normal operating condition.
		• Green, blinking: The server is performing system initialization and a memory check.
		• Amber, steady: The server is in a degraded operational state (minor fault). For example:
		  • Power supply redundancy is lost
		  • CPUs are mismatched
		  • At least one CPU is faulty
		  • At least one DIMM is faulty
		  • At least one drive in a RAID configuration failed
		• Amber, 2 blinks: There is a major fault with the system board.
		• Amber, 3 blinks: There is a major fault with the memory DIMMs.
		• Amber, 4 blinks: There is a major fault with the CPUs.

4	Power supply status ( )	• Green: All power supplies are operating normally. • Amber, steady: One or more power supplies are in a degraded operational state. • Amber, blinking: One or more power supplies are in a critical fault state.
5	Fan status ( )	• Green: All fan modules are operating properly. • Amber, blinking: One or more fan modules breached the nonrecoverable threshold.
6	Network link activity ( )	• Off: The Ethernet LOM port link is idle. • Green: One or more Ethernet LOM ports are link-active, but there is no activity. • Green, blinking: One or more Ethernet LOM ports are link-active, with activity.
7	Temperature status ( )	• Green: The server is operating at normal temperature. • Amber, steady: One or more temperature sensors breached the critical threshold. • Amber, blinking: One or more temperature sensors breached the non-recoverable threshold.

Internal diagnostic LEDs

This figure shows the internal diagnostic LEDs of a Cisco SNS 3800 series appliance.

Figure 4: Internal diagnostic LED locations

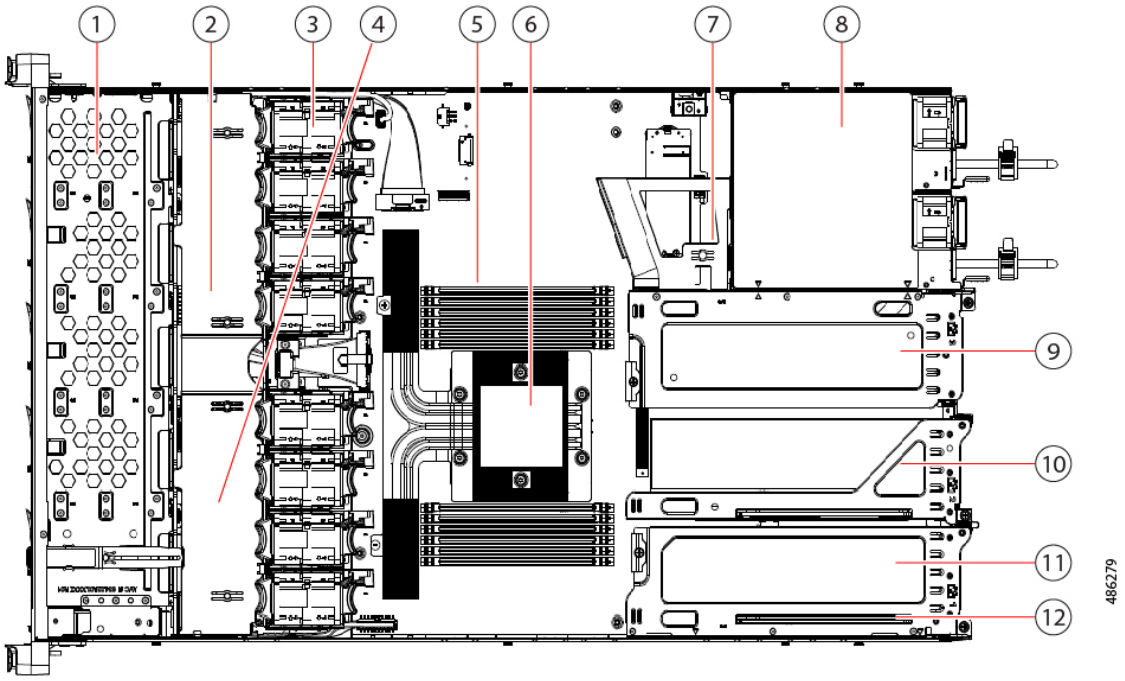


1	Fan module fault LEDs (one behind each fan connector on the motherboard) • Amber: Fan has a fault or is not fully seated. • Green: Fan is OK.	2	DIMM fault LEDs (one behind each DIMM socket on the motherboard) These LEDs operate only when the server is in standby power mode. • Amber: DIMM has a fault. • Off: DIMM is OK.
3	CPU fault LEDs These LEDs operate only when the server is in standby power mode. • Amber: CPU has a fault. • Off: CPU is OK.	-	—

Serviceable component locations

This figure shows the locations of the field-replaceable components and service-related items.

Figure 5: Serviceable component locations



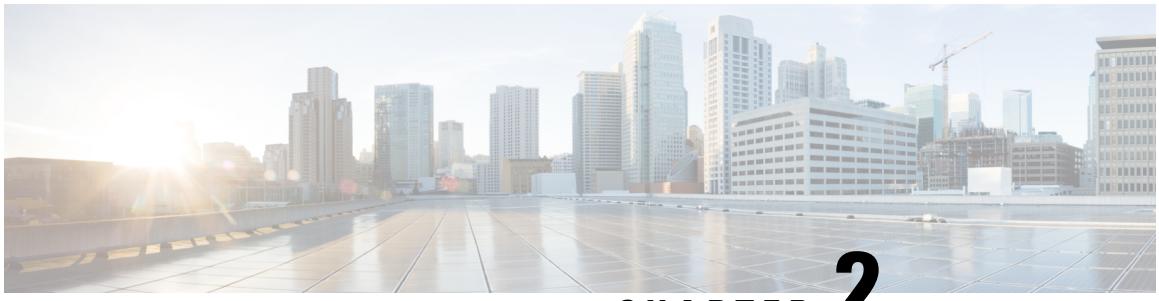
1	Front-loading drive bays 1–10 support SAS, SATA, and NVMe drives	**2**	Cisco M8 24G SAS RAID card or Cisco M8 24G SAS Host Bus Adapter (HBA) controller
3	Cooling fan modules	**4**	SuperCap module provides RAID write-cache backup
5	DIMM sockets on motherboard	**6**	Motherboard CPU socket
7	M.2 module connector Supports a boot-optimized RAID controller with connectors for up to two SATA M.2 SSDs.	**8**	Power supply units
9	PCIe riser slot 3	**10**	PCIe riser slot 2
11	PCIe riser slot 1	**12**	Modular LOM (mLOM) card bay on chassis floor (x16 PCIe lane)

Summary of server features

This table lists a summary of server features.

Feature	Description
Chassis	One rack-unit (1RU) chassis.
Multi-bit error protection	Multi-bit error protection is supported.

Feature	Description
Video	• Cisco IMC provides video using the Matrox G200e video or graphics controller. • Embedded DDR memory interface supports up to 512 MB of addressable memory. 8 MB is allocated by default to video memory. • Integrated 2D graphics core with hardware acceleration. • High-speed integrated 24-bit RAMDAC. • Single lane PCI-Express host interface running at Gen 1 speed.
Baseboard management	BMC, running Cisco IMC firmware. Depending on your Cisco IMC settings, Cisco IMC can be accessed through the 1-Gb dedicated management port or a Cisco virtual interface card.
Network and management I/O	Rear panel: • One 1-Gb Ethernet dedicated management port (RJ-45 connector) • One RS-232 serial port (RJ-45 connector) • One VGA video connector port (DB-15 connector) • Two USB 3.0 ports Front panel: • One KVM console connector (supplies two USB 2.0 connectors, one VGA DB15 video connector, and one serial port RJ45 connector)
Modular LOM or OCP3 3.0 slot	The dedicated modular LOM or OCP 3.0 slot on the motherboard can accommodate these cards: • Cisco virtual interface cards (VICs) • OCP 3.0 network interface card
Advanced configuration and power interface (ACPI)	The ACPI 4.0 standard is supported.
Front panel	The front panel controller provides status indications and control buttons.
Cooling	Eight hot-swappable fan modules for front-to-rear cooling.
InfiniBand	The PCIe bus slots in this server support the InfiniBand architecture.



CHAPTER 2

Install the Appliance

- Installation warnings and guidelines, on page 11
- Rack requirements, on page 12
- Install the appliance in a rack, on page 13
- Initial setup, on page 18
- Set up the system with the Cisco IMC configuration utility, on page 21
- Update the BIOS and Cisco IMC firmware, on page 23
- Access the system BIOS, on page 23
- Smart Access Serial support, on page 23
- Configure the RAID controller after replacing the HDD or SSD, on page 24
- Enable drive security for SED, on page 25

Installation warnings and guidelines

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

Warning **To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 35° C (95° 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

Warning **This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock, and key, or other means of security.**

Statement 1017

Caution To ensure proper airflow, it is necessary to rack the servers using rail kits. Physically placing the units on top of one another or stacking without the use of the rail kits blocks the air vents on top of the servers, which could result in overheating, higher fan speeds, and higher power consumption. We recommend that you mount your servers on rail kits when you are installing them into the rack because these rails provide the minimal spacing required between the servers. No additional spacing between the servers is required when you mount the units using rail kits.

Follow these guidelines while installing the appliance:

- Ensure that there is adequate space around the server to allow for accessing the server and for adequate airflow.
- Ensure that the air conditioning meets the thermal requirements listed in the Environmental specifications, on page 27.
- Ensure that the cabinet or rack meets the requirements listed in Rack requirements, on page 12.
- Ensure that the site power meets the power requirements listed in Power specifications, on page 28.

Rack requirements

The rack must be of this type:

- A 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 0.38-inch (9.6 mm), round 0.28-inch (7.1 mm), #12-24 UNC, or #10-32 UNC when you use the Cisco-supplied slide rails.
- The minimum vertical rack space per appliance must be one rack unit (RU), equal to 1.75 inch (44.45 mm).

Rack installation tools required

The slide rails sold by Cisco for this appliance do not require tools for installation.

Slide rail and cable management arm dimensions

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

The optional cable management arm (CMA) adds additional length requirements:

- The additional distance from the rear of the appliance to the rear of the CMA is 5.4 inches (137.4 mm).
- The total length of the appliance including the CMA is 35.2 inches (894 mm).

Install the appliance in a rack

This section describes how to install the appliance in a rack using the supported rail kit that is sold by Cisco.

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.**

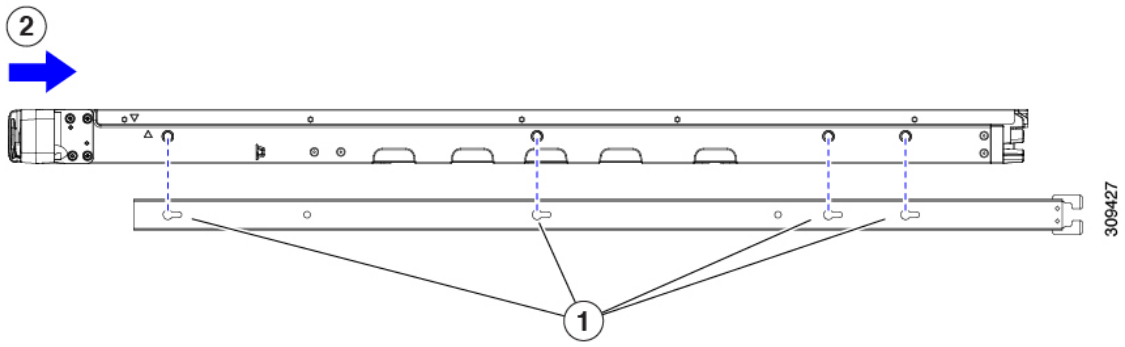
Statement 1006

Procedure

Step 1 Attach the inner rails to the sides of the appliance:

a) Align an inner rail with one side of the appliance so that the three keyed slots in the rail align with the three pegs on the side of the appliance.
b) Set the keyed slots over the pegs, and then slide the rail toward the front to lock it in place on the pegs.
c) Install the second inner rail to the opposite side of the appliance.

Figure 6: Attaching the inner rail to the side of the appliance



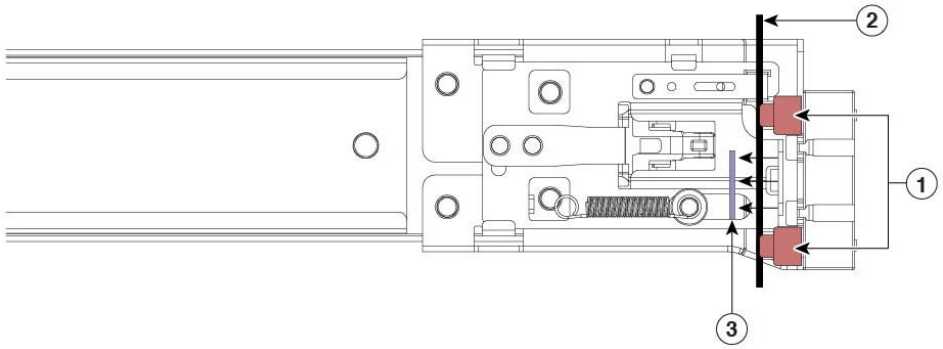
1	Keyed slots in rail	**2**	Front of appliance slides into keyed slots

Step 2 Open the front securing plate on both slide-rail assemblies.

The front end of the slide-rail assembly has a spring-loaded securing plate that must be open before you insert the mounting pegs into the rack-post holes.

Outside the assembly, push the green-arrow button toward the rear to open the securing plate.

Figure 7: Front securing mechanism, inside of front end



1	Front mounting pegs	**3**	Securing plate pulled back to the open position
2	Rack post between mounting pegs and opened securing plate	**-**	—

Step 3 Install the outer slide rails into the rack:

a) Align one slide-rail assembly front end with the front rack-post holes that you want to use.

The slide rail front-end wraps around the outside of the rack post and the mounting pegs enter the rack-post holes from the outside-front.

Note
The rack post must be between the mounting pegs and the open securing plate.

b) Push the mounting pegs into the rack-post holes from the outside-front.

c) Press the securing plate release button, marked **Push**. The spring-loaded securing plate closes to lock the pegs in place.

d) Adjust the slide-rail length, and then push the rear mounting pegs into the corresponding rear rack-post holes. The slide rail must be level front-to-rear.

   The rear mounting pegs enter the rear rack-post holes from the inside of the rack post.

e) Attach the second slide-rail assembly to the opposite side of the rack. Ensure that the two slide-rail assemblies are at the same height and are level front-to-back.

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

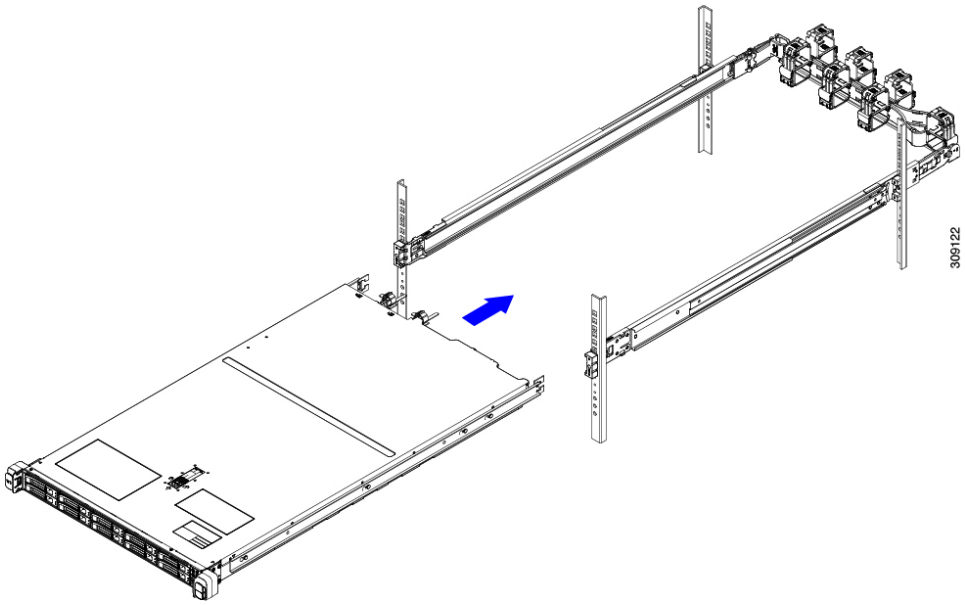
Step 4 Insert the appliance into the slide rails:

Caution

This appliance can weigh up to 60 pounds (27 kilograms) when fully loaded with components. We recommend that you use a minimum of two people or a mechanical lift when lifting the appliance. Attempting this procedure alone could result in personal injury or equipment damage.

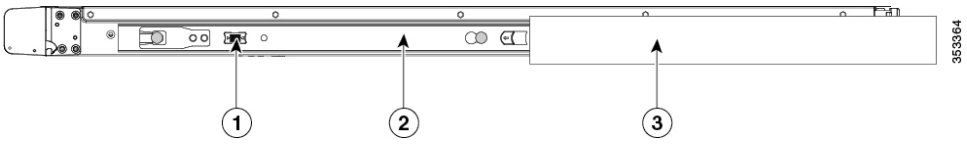
a) Align the rear ends of the inner rails that are attached to the appliance sides with the front ends of the empty slide rails on the rack.

b) Push the inner rails into the slide rails on the rack until they stop at the internal stops.



c) Slide the inner-rail release clip toward the rear on both inner rails, and then continue pushing the appliance into the rack until its front slam latches engage with the rack posts.

Figure 8: Inner-rail release clip



1	Inner-rail release clip	**3**	Outer slide rail attached to rack post
2	Inner rail attached to appliance and inserted into outer slide rail	**-**	—

Step 5 (Optional) Secure the appliance in the rack more permanently by using the two screws that are provided with the slide rails. Perform this step if you plan to move the rack with the appliance installed.

With the appliance fully pushed into the slide rails, open a hinged slam latch lever on the front of the appliance, and insert a screw through the hole that is under the lever. The screw threads into the static part of the rail on the rack post and prevents the appliance from being pulled out. Repeat for the opposite slam latch.

Step 6 (Optional) If applicable, do this:

a) Attach the cable management arm. See Install the cable management arm, on page 16.

b) Attach the locking bezel.

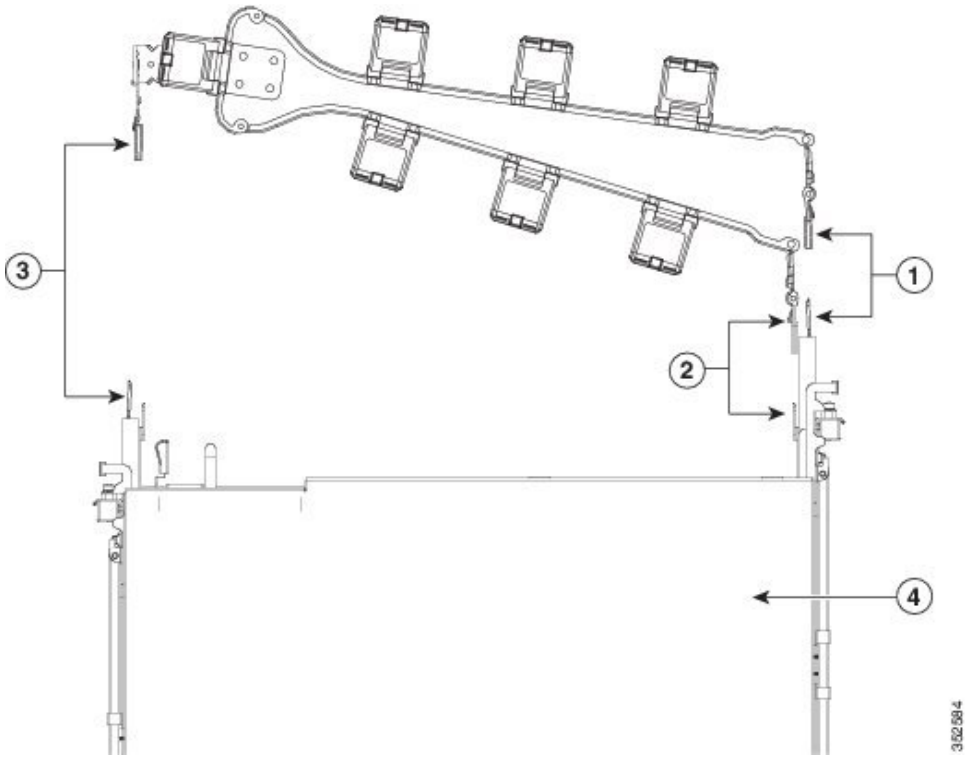
Install the cable management arm

Note The CMA is reversible left-to-right. To reverse the CMA, see Reverse the cable management arm, on page 17 before installation.

Procedure

Step 1 With the appliance pushed fully into the rack, slide the CMA tab of the CMA arm that is farthest from the appliance onto the end of the stationary slide rail that is attached to the rack post. Slide the tab over the end of the rail until it clicks and locks.

Figure 9: Attaching the CMA to the rear ends of the slide rails



1	CMA tab on arm farthest from appliance attaches to end of stationary outer slide rail	**3**	CMA tab on width-adjustment slider attaches to end of stationary outer slide rail
2	CMA tab on arm closest to the appliance attaches to end of inner slide rail attached to appliance	**4**	Rear of appliance

Step 2 Slide the CMA tab, which is closest to the appliance, over the end of the inner rail that is attached to the appliance. Slide the tab over the end of the rail until it clicks and locks.

Step 3 Pull out the width-adjustment slider that is at the opposite end of the CMA assembly until it matches the width of your rack.

Step 4 Slide the CMA tab that is at the end of the width-adjustment slider onto the end of the stationary slide rail that is attached to the rack post. Slide the tab over the end of the rail until it clicks and locks.

Step 5 Open the hinged flap at the top of each plastic cable guide and route your cables through the cable guides, as required.

Reverse the cable management arm

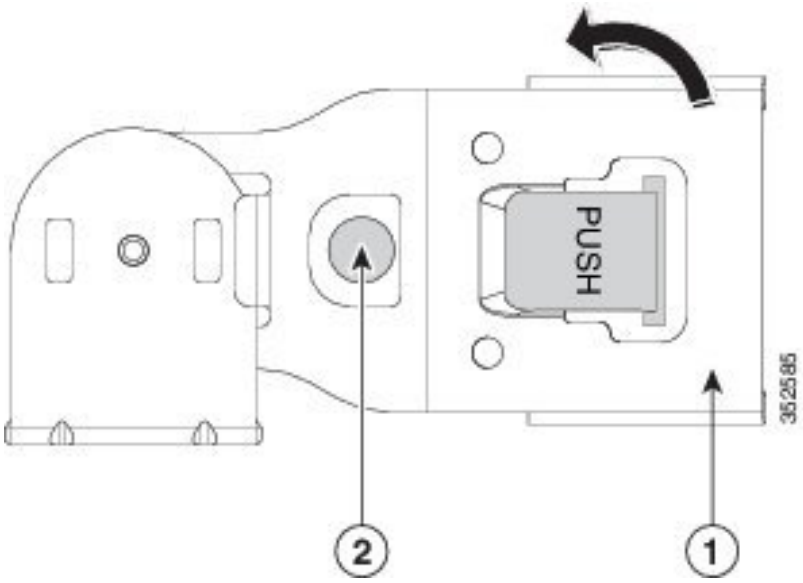
Procedure

Step 1 Rotate the entire CMA assembly 180 degrees, left-to-right. The plastic cable guides must remain pointing upward.

Step 2 Flip the tabs at the ends of the CMA arms so that they point toward the rear of the appliance.

Step 3 Pivot the tab that is at the end of the width-adjustment slider. Depress and hold the metal button on the outside of the tab and pivot the tab 180 degrees so that it points toward the rear of the appliance.

Figure 10: Reversing the CMA



1	CMA tab on end of width-adjustment slider	**2**	Metal button outside the tab

Initial setup

This section describes how to connect to the system for initial setup.

Appliance default settings

The appliance is shipped with these default settings:

- If the appliance does not have any VIC, the default NIC mode is **Dedicated**. If the appliance has a VIC, the default NIC mode is **OCP**.

  If you want to use the dedicated management ports to access Cisco IMC, you can connect to the appliance and change the NIC mode as described in Set up the system with the Cisco IMC configuration utility, on page 21.

- In **Dedicated** mode, NIC redundancy is set to **None**.
- DHCP is enabled.
- IPv4 and IPv6 are enabled.

Connection methods

There are two methods for connecting to the system for initial setup:

- Local setup: Use this method to connect a keyboard and monitor directly to the system for setup. This method uses the VGA and USB ports on the front of the appliance.
- Remote setup: Use this method to perform setup through your dedicated management LAN.

Note To configure the system remotely, you must have a DHCP appliance on the same network as the system. Your DHCP appliance must be preconfigured with the range of MAC addresses for this appliance node. The MAC address is printed on a label that is on the pull-out asset tag on the front panel. This appliance node has a range of six MAC addresses assigned to the Cisco IMC. The MAC address printed on the label is the beginning of the range of six contiguous MAC addresses.

Connect to the appliance locally for setup

This procedure requires this equipment:

- VGA monitor
- USB keyboard
- Either the supported Cisco KVM cable or a USB cable and a VGA DB-15 cable

Procedure

Step 1 Attach a power cord to each power supply in your appliance, and then attach each power cord to a grounded power outlet.

Wait for approximately two minutes for the appliance to boot to standby power during the initial setup. You can verify the system's power status by looking at the Power Status LED on the front panel. The system is in standby power mode when the LED is amber.

Step 2 Connect a USB keyboard and VGA monitor to the appliance using one of these methods:

- Connect an optional KVM cable to the KVM connector on the front panel. Connect your USB keyboard and VGA monitor to the KVM cable.
- Connect a USB keyboard and VGA monitor to the corresponding connectors on the rear panel.

Step 3 Open the Cisco IMC configuration utility and do these steps:

a) Press and hold the front panel power button for four seconds to boot the appliance.
b) When prompted, press **F8** to open the Cisco IMC configuration utility.

When you access the Cisco IMC configuration utility for the first time, you are prompted to change the default password, which is *password*.

The Strong Password feature is enabled by default. A strong password must:

- Contain from 8 to 14 characters.
- Not contain the username.
- Contain characters from three of these categories:

- English uppercase letters (A through Z)
- English lowercase letters (a through z)
- Base 10 digits (0 through 9)
- Nonalphabetic characters !, @, #, $, %, ^, &, *, -, _, =, “

Step 4 Continue this procedure by following the instructions in Set up the system with the Cisco IMC configuration utility, on page 21.

Connect to the appliance remotely for setup

Before you begin

To configure the system remotely, you must have a DHCP server on the same network as the system. Your DHCP server must be preconfigured with the range of MAC addresses for this server node. The MAC address is printed on a label that is on the pull-out asset tag on the front panel. This server node has a range of six MAC addresses assigned to the Cisco IMC. The MAC address printed on the label is the beginning of the range of six contiguous MAC addresses.

Procedure

Step 1 Attach a power cord to each power supply in your appliance, and then attach each power cord to a grounded power outlet.

Wait for approximately two minutes for the appliance to boot to standby power during the initial setup. You can verify the system's power status by looking at the Power Status LED on the front panel. The system is in standby power mode when the LED is amber.

Step 2 Plug your management Ethernet cable into the dedicated management port on the rear panel.

Step 3 Allow your preconfigured DHCP server to assign an IP address to the server node.

Step 4 Use the assigned IP address to access and log in to the Cisco IMC for the server node.

The default username for the server is *admin*. The default password is *password*.

Step 5 On the **Cisco IMC Server Summary** page, click **Launch KVM Console**.

A KVM console window opens.

Step 6 On the **Cisco IMC Summary** page, click **Power Cycle Server**.

The system reboots.

Step 7 Open the KVM console window.

Note
The KVM console window must be the active window for the keyboard actions to work.

Step 8 When prompted, press **F8** to enter the Cisco IMC configuration utility.

When you open the Cisco IMC configuration utility for the first time, you are prompted to change the default password. The default password is *password*.

A strong password must:

- Contain from 8 to 14 characters.
- Not contain the username.
- Contain characters from three of these categories:
  - English uppercase letters (A through Z)
  - English lowercase letters (a through z)
  - Base 10 digits (0 through 9)
  - Non-alphabetic characters !, @, #, $, %, ^, &, *, -, _, =, ‘‘

Step 9 Continue this procedure by following the instructions in Set up the system with the Cisco IMC configuration utility, on page 21.

Set up the system with the Cisco IMC configuration utility

Before you begin

Perform this procedure after you connect to the system and open the Cisco IMC configuration utility.

Procedure

Step 1 Set the NIC mode to choose the ports to use to access Cisco IMC for server management:

- **Shared LOM EXT** (default): This is the factory-default setting. In this mode, both the Shared LOM and Cisco Card interfaces are enabled. If you select this option, you must select the default **Active-Active** NIC redundancy setting in Step 2, on page 21.
- **Shared LOM**: The 1-Gb or 10-Gb Ethernet ports are used to access Cisco IMC. If you select this option, you must select the **Active-Active** or **Active-standby** NIC redundancy setting in Step 2, on page 21.
- **Dedicated**: The dedicated management port is used to access Cisco IMC. If you select this option, you must select the **None** NIC redundancy setting in Step 2, on page 21.
- **Cisco Card**: The VIC ports are used to access the Cisco IMC. If you select this option, you must select the **Active-Active** or **Active-standby** NIC redundancy setting in Step 2, on page 21.
- **VIC Slot**: Only if you use the **Cisco Card** NIC mode, you must select this setting to match where your VIC is installed.

Step 2 Choose one of these options for NIC redundancy:

- **None**: The Ethernet ports operate independently and do not fail over if there is a problem. This setting can be used only with the **Dedicated** NIC mode.
- **Active-standby**: If an active Ethernet port fails, traffic fails over to a standby port. Shared LOM and Cisco Card modes can use the **Active-standby** or **Active-active** settings.
- **Active-active** (default): All Ethernet ports are utilized simultaneously. You must use only this NIC redundancy setting if you have selected the Shared LOM EXT mode. Shared LOM and Cisco Card modes can use the **Active-standby** or **Active-active** settings.

Step 3 Choose whether to enable DHCP for dynamic network settings, or to enter static network settings.

Note
Before you enable DHCP, you must preconfigure your DHCP server 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 Cisco IMC. The MAC address printed on the label is the beginning of the range of six contiguous MAC addresses.

The **Static IPv4 and IPv6 Settings** include:

- **Cisco IMC IP address**: For IPv6, valid values are 1 to 127.
- **Gateway**: For IPv6, if you do not know the gateway, you can set it as none by entering :: (two colons).
- **Preferred DNS server address**: For IPv6, you can set this as none by entering :: (two colons).

Step 4 (Optional) Configure VLAN settings.

Step 5 Press **F1** to go to the second settings window, and then continue with the next step.

From the second window, you can press **F2** to switch back to the first window.

Step 6 Perform these steps, if required:

- (Optional) Set a hostname for the server.
- (Optional) Enable dynamic DNS (DDNS) and set a DDNS domain.
- (Optional) Set a default user password.

  Note
  The factory default username for the server is *admin*. The default password is *password*.

- (Optional) Enable auto-negotiation of port settings or set the port speed and duplex mode manually.

  Note
  Auto-negotiation is applicable only when you use the **Dedicated** NIC mode. Auto-negotiation sets the port speed and duplex mode automatically based on the switch port to which the server is connected. If you disable auto-negotiation, you must set the port speed and duplex mode manually.

- (Optional) Reset port profiles and the port name.

Step 7 Press **F5** to refresh the settings.

Step 8 Press **F10** to save your settings and reboot the server.

Note

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

Update the BIOS and Cisco IMC firmware

Caution When you upgrade the BIOS firmware, you must also upgrade the Cisco IMC firmware to the corresponding version. If you don't do this, the server will not boot.

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

The appliance uses the firmware obtained from and certified by Cisco. Cisco provides release notes with each firmware image.

You can upgrade the Cisco IMC and BIOS firmware by using the Cisco IMC GUI or CLI.

Access the system BIOS

Procedure

Step 1 Enter the BIOS Setup Utility by pressing the **F2** key when prompted during the initial setup.

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 Use the arrow keys to highlight the field to modify.

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**).

You can exit without saving the changes by pressing **Esc**.

Smart Access Serial support

This server supports the Smart Access Serial feature. This feature allows you to switch between host serial and Cisco IMC CLI.

- This feature has these requirements:
  - A serial cable connection, which can use either the RJ-45 serial connector on the server rear panel, or a DB-9 connection when using the KVM cable on the front-panel KVM console connector.

- Console redirection must be enabled in the server BIOS.
- Terminal type must be set to VT100+ or VTUFT8.
- Serial-over-LAN (SOL) must be disabled.

- To switch from host serial to Cisco IMC CLI, press **Esc+9**.

  You must enter your Cisco IMC credentials to authenticate the connection.
- To switch from Cisco IMC CLI to host serial, press **Esc+8**.

  You cannot switch to Cisco IMC CLI if the SOL feature is enabled.
- After a session is created, it is shown in the CLI or web GUI by the name `serial`.

Configure the RAID controller after replacing the HDD or SSD

Perform this procedure to configure the RAID controller cards after replacing the HDD or SSD.

Note Cisco SNS 3800 appliances are preloaded with Cisco ISE software.

Procedure

Step 1 Replace the existing HDD or SSD.

Step 2 Configure RAID controller.

Replace the existing HDD or SSD

Follow these steps to replace the existing HDD or SSD.

Procedure

Step 1 Log in to the appliance.

Step 2 Click the Menu icon in the top-left corner.

Step 3 Choose **Storage > Cisco RAID Controller > Controller Info**.

Step 4 Click **Clear Boot Drive**.

Step 5 Click **OK** to clear the boot drive.

Step 6 Click **Virtual Drive Info**.

Step 7 In the **Virtual Drives** window, select the virtual drive and click **Delete Virtual Drive**.

Step 8 Click **Physical Drive Info**.

Step 9 In the **Physical Drives** window, choose the physical drives and click **Prepare for Removal**.

Note
Cisco ISE is uninstalled when you delete the drives. You must reinstall Cisco ISE after replacing the HDD or SSD.

Configure the RAID controller

Follow these steps to configure the RAID controller.

Procedure

Step 1 Log in to the appliance.

Step 2 Click the Menu icon in the top-left corner.

Step 3 Choose **Storage > Cisco RAID Controller > Controller Info**.

Step 4 Click **Create Virtual Drive from Unused Physical Drives**.

Note
When the drives are inserted, they might appear as configured in Just a Bunch of Disks (JBOD) mode. You must unconfigure the drives before adding the drives to a virtual disk.

Step 5 From the **RAID Level** drop-down list, select the RAID for your appliance.

Step 6 In the **Create Drive Groups** section, select the drives to group together and move them to the **Drive Groups** pane.

You can create different groups based on your requirements.

Step 7 In the **Virtual Drive Properties** section, from the **Write Policy** drop-down list, choose **Write Back Good BBU**.

Step 8 Click **OK**.

You can verify whether the RAID configuration is successful in the **Virtual Drive Info** tab.

Step 9 Install Cisco ISE on the newly replaced HDD or SSD.

For more information, see "Configuring RAID Levels" in the Cisco UCS Server Configuration Utility User Guide.

Enable drive security for SED

If you are using SED or SED-FIPS drives, follow these steps to enable Remote Key Management.

Procedure

Step 1 Click the Menu icon in the top-left corner.

Step 2 Choose **Admin > Security Management > Secure Key Management**.

Step 3 Enter the Key Management Interoperability Protocol (KMIP) server details.

Attach the root CA certificate, client certificate, and client private key certificate.

Step 4 Check the **Enable Secure Key Management** check box.

Step 5 Choose **Storage > Cisco 12G SAS RAID Controller > Controller Info**.

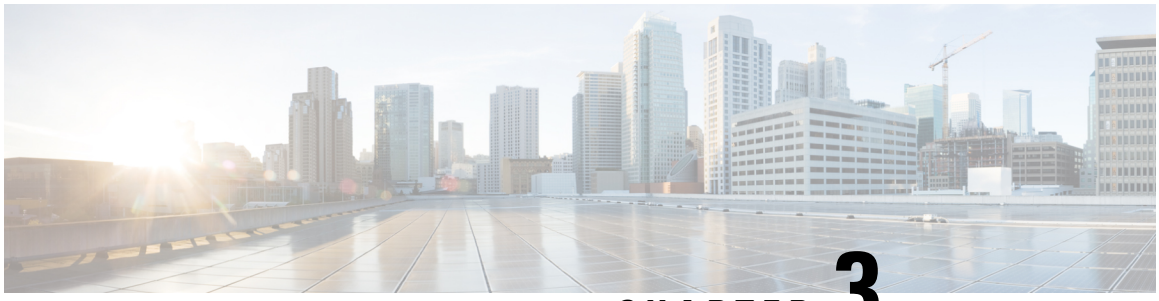
Step 6 Click **Enable Drive Security**.

Step 7 Click the **Remote Key Management** radio button and then click **Save**.

Step 8 Click **Virtual Drive Info**.

Step 9 In the **Virtual Drives** window, choose the virtual drive and click **Secure Virtual Drive**.

A lock icon appears in the **Virtual Drive Number** column for the drive for which drive security is enabled.



CHAPTER 3

Appliance Specifications

This chapter lists the physical, environmental, and power specifications for the appliance.

- Physical specifications, on page 27
- Environmental specifications, on page 27
- Power specifications, on page 28
- Power cord specifications, on page 29

Physical specifications

This table lists the physical specifications for the appliance.

Table 3: Physical specifications

Description	Specification
Height	1.7 in. (43.2 mm)
Width	16.9 in. (429.0 mm)
Depth (length)	Server only: 30 in. (762 mm) Server with slide rail: 31.5 in. (800.1 mm)
Weight	• Maximum: 42.43 lb (19.30 kg) • Minimum: 22.32 lb (10.13 kg)

Environmental specifications

This table lists the environmental requirements and specifications for the appliance.

Warning **To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 35°C (95°F).**

Statement 1047

Table 4: Environmental specifications

Description	Specification
Temperature, operating	10°C to 35°C (50°F to 95°F) with no direct sunlight. Derate the maximum temperature by 1°C per every 984.2 feet (300 meters) of altitude above sea level.
Temperature, non-operating (when the server is stored or transported)	Below -40°C or above 65°C (below -40°F or above 149°F) Maximum rate of change (operating and non-operating) 20°C/hr (36°F/hr)
Humidity (RH), operating	8 to 90% and 24°C (75°F) maximum dew-point temperature, non-condensing environment
Humidity (RH), non-operating (when the server is stored or transported)	Below 5% or above 95% and 33°C (91°F) maximum dew-point temperature, non-condensing environment
Altitude, operating	0 to 10,000 feet (3048 meters)
Altitude, non-operating (when the server is stored or transported)	0 to 40,000 feet (12192 meters)
Sound power level Measure A-weighted per ISO7779 LwAd (Bels) Operation at 73°F (23°C)	5.8
Sound pressure level Measure A-weighted per ISO7779 LpAm (dBA) Operation at 73°F (23°C)	43

Power specifications

Note Do not mix power supply types or wattages in the server. Both power supplies must be identical.

1200 W AC power supply

This section lists the specifications for 1200 W AC power supply.

Table 5: 1200 W AC power supply specifications

Description	Specification
AC input voltage	100 to 230 VAC
AC input frequency	50 to 60 Hz
Maximum AC input current	12.97 A at 100 VAC
Maximum input volt-amperes	1345 VA at 208 VAC
Maximum inrush current	20 A
Maximum hold-up time	12 ms at 1200 W
Maximum output power per PSU	1100 W at 100 – 120 VAC 1200 W at 208 – 230 VAC
Power supply output voltage	12 VDC
Power supply standby voltage	12 VDC
Efficiency rating	Climate Savers Platinum Efficiency (80Plus Titanium certified)
Form factor	RSP2
Input connector	IEC320 C14

Power cord specifications

Each power supply in the appliance has a power cord.

Note Only these approved power cords or jumper power cords are supported.

Table 6: Supported power cords

Description	Length (feet)	Length (meters)
CAB-48DC-40A-8AWG DC power cord, -48 VDC, 40 A, 8 AWG Three-socket mini-fit connector to three-wire	11.7	3.5

CAB-C13-C14-AC AC power cord, 10 A; C13 to C14, recessed receptacle	9.8	3.0
CAB-250V-10A-AR AC power cord, 250 V, 10 A Argentina	8.2	2.5
CAB-C13-C14-2M-JP AC power cord, C13 to C14 Japan PSE mark	6.6	2.0
CAB-9K10A-EU AC power cord, 250 V, 10 A; CEE 7/7 plug Europe	8.2	2.5
CAB-250V-10A-IS AC power cord, 250 V, 10 A Israel	8.2	2.5
CAB-250V-10A-CN AC power cord, 250 V, 10 A PR China	8.2	2.5
CAB-ACTW AC power cord, 250 V, 10 A Taiwan	7.5	2.3
CAB-C13-CBN AC cabinet jumper power cord, 250, 10 A C13 to C14	2.2	0.68
CAB-C13-C14-2M AC cabinet jumper power cord, 250 V, 10 A C13 to C14	6.6	2.0
CAB-9K10A-AU AC power cord, 250 V, 10 A, 3112 plug Australia	8.2	2.5
CAB-N5K6A-NA AC power cord, 200/240 V, 6 A North America	8.2	2.5

CAB-250V-10A-ID AC power cord, 250 V, 10 A India	8.2	2.5
CAB-9K10A-SW AC power cord, 250 V, 10 A, MP232 plug Switzerland	8.2	2.5
CAB-250V-10A-BR AC power cord, 250 V, 10 A Brazil	8.2	2.5
CAB-9K10A-UK AC power cord, 250 V, 10 A (13 A fuse), BS1363 plug United Kingdom	8.2	2.5
CAB-9K12A-NA AC power cord, 125 V, 13 A, NEMA 5-15 plug North America	8.2	2.5
CAB-AC-L620-C13 AC power cord, NEMA L6-20 to C13 connectors	6.6	2.0
CAB-9K10A-IT AC power cord, 250 V, 10 A, CEI 23-16/VII plug Italy	8.2	2.5
R2XX-DMYMPWRCORD No power cord; PID option for ordering appliance with no power cord	NA	NA