Cisco Secure Network Server 3800 Series Appliance Hardware Installation Guide

Cisco Identity Services Engine
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1 Cisco Secure Network Server 3800 Series Appliances

Topics:

- Introduction to the Cisco Secure Network Server 3800 series appliance
- Cisco SNS 3800 series appliance hardware specifications
- External features
- Status LEDs and buttons
- Serviceable component locations
- Summary of server features

Introduction to the Cisco Secure Network Server 3800 series appliance

Describes the features and deployment options of Cisco Secure Network Server (SNS) 3800 series appliances.

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. They are suitable for larger deployments that require highly reliable system configurations. Cisco SNS 3895 is recommended for the 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

Lists the hardware specifications for Cisco SNS 3800 series appliances, including RAM, CPU cores, disk type, total disk capacity, and RAID configuration options for each model.

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 3800 series appliance	RAM	CPU cores	Number of hard disks	Total hard disk capacity	RAID
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

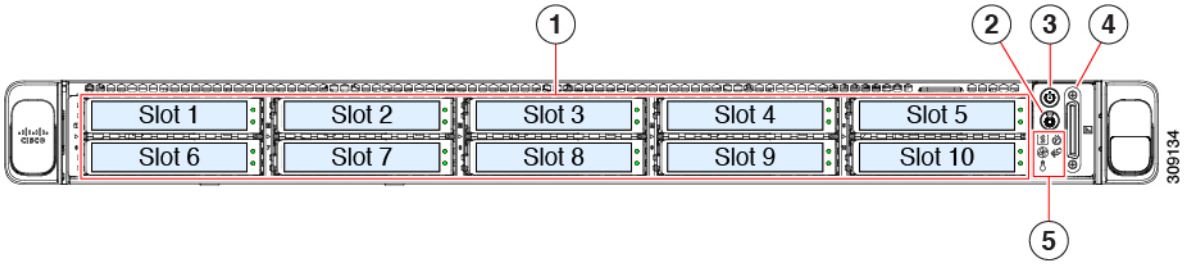
External features

Explains the external features of Cisco SNS 3800 series appliances, including key components and their functions.

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

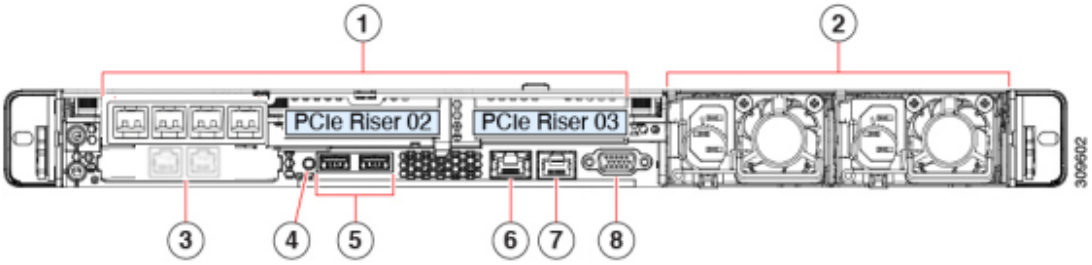


1	Supports Serial Attached SCSI (SAS) and Serial Advanced Technology Attachment (SATA) hard disk drives (HDDs) and solid-state drives (SSDs). Drive bays 1 to 4 are optimized for SSDs. Drive bays 5 to 10 are optimized for SAS or SATA HDDs. Not recommended for SSDs.	**2**	Unit identification button or LED
3	Power button or power status LED	**4**	KVM connector (used with a 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 1 supports SFP NIC card
  - Four Ethernet ports that are mapped to the following Cisco ISE GigabitEthernet interfaces:
    - GigabitEthernet 2 interface
    - GigabitEthernet 3 interface
    - GigabitEthernet 4 interface
    - GigabitEthernet 5 interface

> **Note**
>
> The interface labeling is from right to left.

- 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 Dual 1-Gb or 10-Gb Ethernet ports (LAN1 and LAN2):

- LAN1 (linked to Cisco ISE GigabitEthernet 0 interface)
- LAN2 (linked to Cisco ISE GigabitEthernet 1 interface)

> **Note**
>
> The interface labeling is from left to right.

4 System identification button or LED

5 Two USB 3.0 ports

6 Dedicated 1 GB Ethernet management port

7 COM port (RJ-45 connector)

8 VGA video port (DB-15 connector)

–

Status LEDs and buttons

Explains the function and interpretation of status LEDs.

Front panel LEDs

Lists and describes the functions and states of the front panel LEDs on the Cisco SNS 3800 series appliance.

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

Figure 3: Front panel LEDs

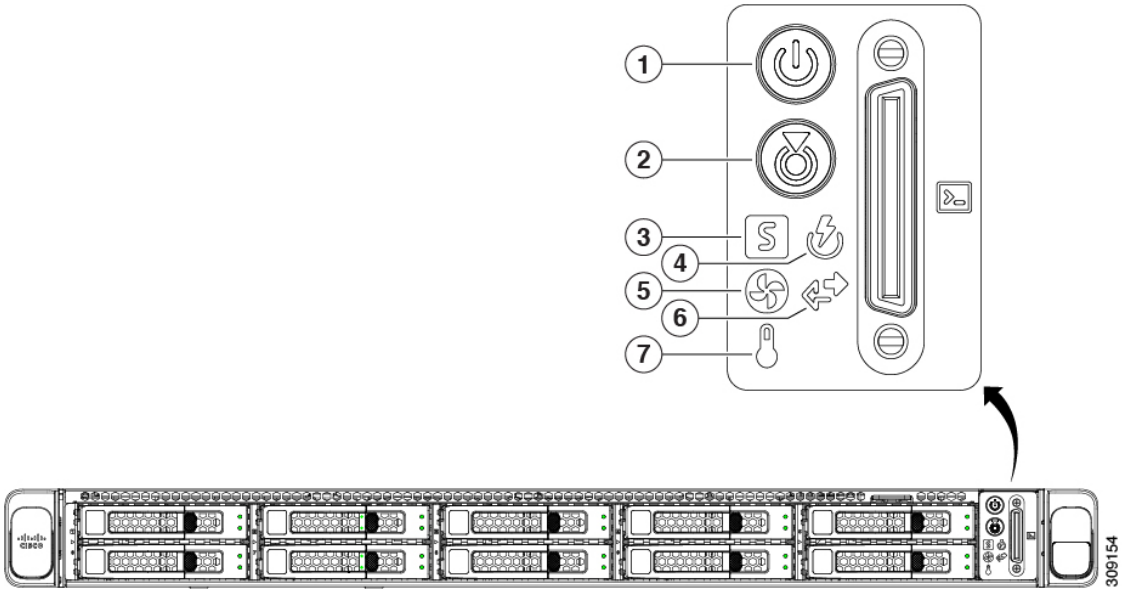


Table 2: Front panel LEDs

	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), such as:
		  • 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.

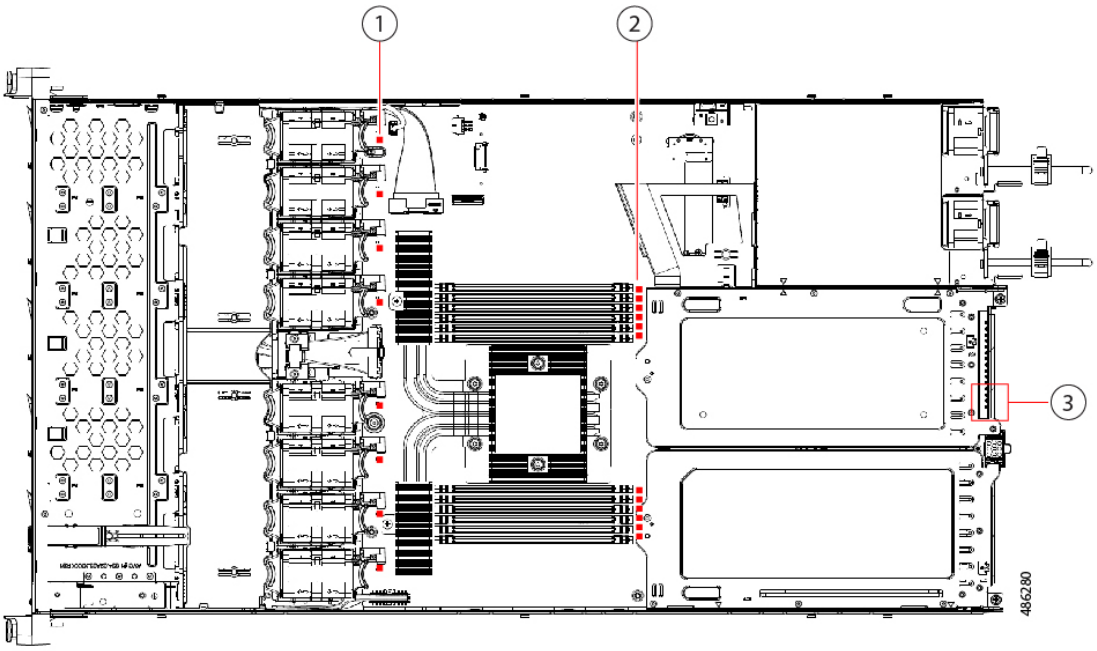
4	Power supply status ( )	• Green: All power supplies are operating normally. • Amber, steady: One or more power supplies are in a degraded operational state. • Amber, blinking: One or more power supplies are in a critical fault state.
5	Fan status ( )	• Green: All fan modules are operating properly. • Amber, blinking: One or more fan modules have 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 have breached the critical threshold. • Amber, blinking: One or more temperature sensors have breached the nonrecoverable threshold.

Internal diagnostic LEDs

Describes the internal diagnostic LEDs present in Cisco SNS 3800 series appliances.

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

Figure 4: Internal diagnostic LED locations



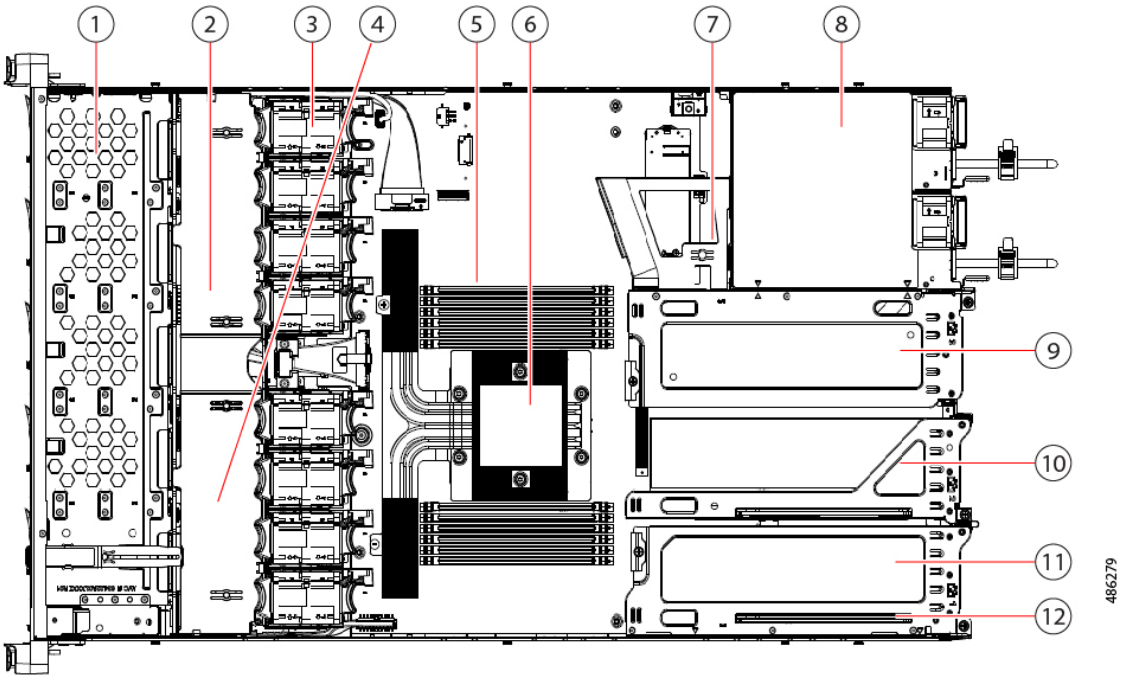
1	Fan module fault LEDs (one behind each fan connector on the motherboard) • Amber: Fan has a fault or is not fully seated. • Green: Fan is OK.	2	DIMM fault LEDs (one behind each DIMM socket on the motherboard) These LEDs operate only when the server is in standby power mode. • Amber: DIMM has a fault.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

Describes the locations and types of field-replaceable components and service-related items within the chassis.

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

Figure 5: Serviceable component locations



1	Front-loading drive bays 1 to 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

Describes the key hardware and management features supported by the server, including chassis specifications, error protection, video capabilities, I/O options, and power interfaces.

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 support the InfiniBand architecture.

Important

When you log in to Cisco IMC for the first time, the system time is displayed as November 2024. This is expected behavior because Cisco IMC requires a few minutes to synchronize with the BIOS clock. During this synchronization period, if a RAID controller is present, you may see the temporary alarm: "Storage controller MRAID inoperable: reset or replace the storage controller MRAID," with a time stamp that displays 2024. This alarm will clear automatically once the system time is fully synchronized. To speed up the synchronization process, you can reboot Cisco IMC. To ensure accurate timekeeping and prevent such alarms in the future, we recommend configuring an NTP server in Cisco IMC. For information on how to set up an NTP server, see Configuring Network Time Protocol Settings.

2 Install the Appliance

Topics:

- Installation warnings and guidelines
- Rack requirements
- Install the appliance in a rack
- Initial setup
- Set up the system with the Cisco IMC configuration utility
- Update the BIOS and Cisco IMC firmware
- Access the system BIOS
- Smart Access Serial support
- Configure baud rate for communication with serial devices
- Configure the RAID controller after replacing the HDD or SSD
- Enable drive security for SED
- Configure Network Time Protocol settings

Installation warnings and guidelines

Explains the essential guidelines and safety precautions for installing Cisco SNS 3800 series appliance.

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

Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Read the installation instructions before using, installing, or connecting the system to the power source. Use the statement number at the beginning of each warning statement to locate its translation in the translated safety warnings for this device.

SAVE THESE INSTRUCTIONS



Warning

This product relies on the building's installation for short-circuit (overcurrent) protection. To reduce risk of electric shock or fire, ensure that the protective device is rated not greater than:

Warning

This unit is intended for installation in restricted access areas. Only skilled, instructed, or qualified personnel can access a restricted access area.

Warning

To reduce risk of electric shock or fire, installation of the equipment must comply with local and national electrical codes.

> **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 them without 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 mounting your servers on rail kits during installation. The rails provide the minimal spacing needed between servers. No additional spacing between servers is required when you use rail kits to mount the units.

Follow these guidelines while installing the appliance:

- Ensure that there is adequate space around the server to access the server and allow for adequate air flow.
- Ensure that the air conditioning meets the thermal requirements listed in the Environmental specifications on page 33.
- Ensure that the cabinet or rack meets the requirements listed in Rack requirements on page 17.
- Ensure that the site power meets the power requirements listed in Power specifications on page 34.

Rack requirements

Explains the standard, dimensions, and requirements for racks used with Cisco SNS 3800 series appliances.

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

Explains how to install the appliance in a standard rack using the supported Cisco rail kit.

Warning

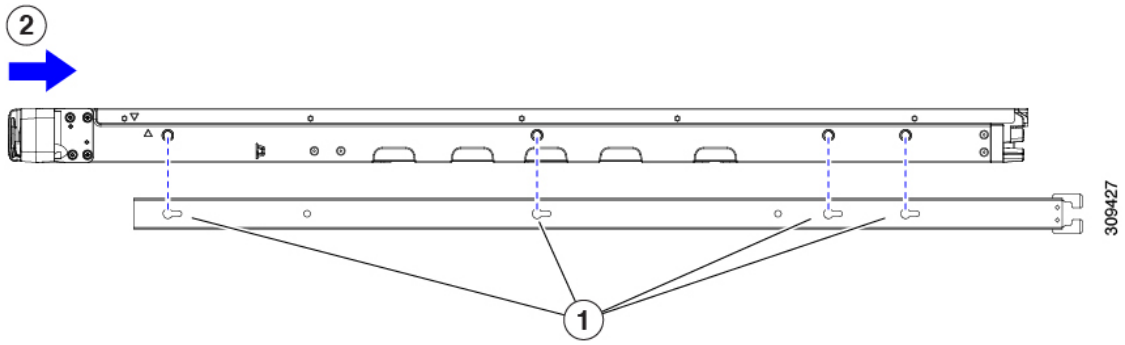
To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- 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.

Procedure

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 that align with the three pegs on the appliance side.
   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



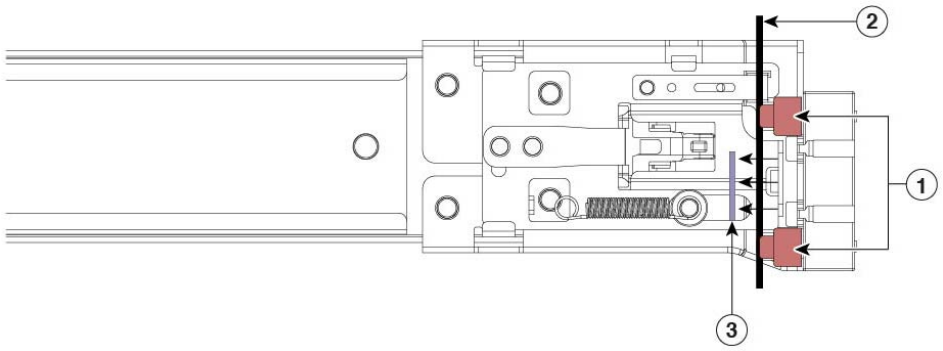
1	Keyed slots in rail	**2**	Front of appliance slides into keyed slots

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	**-**	–

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.

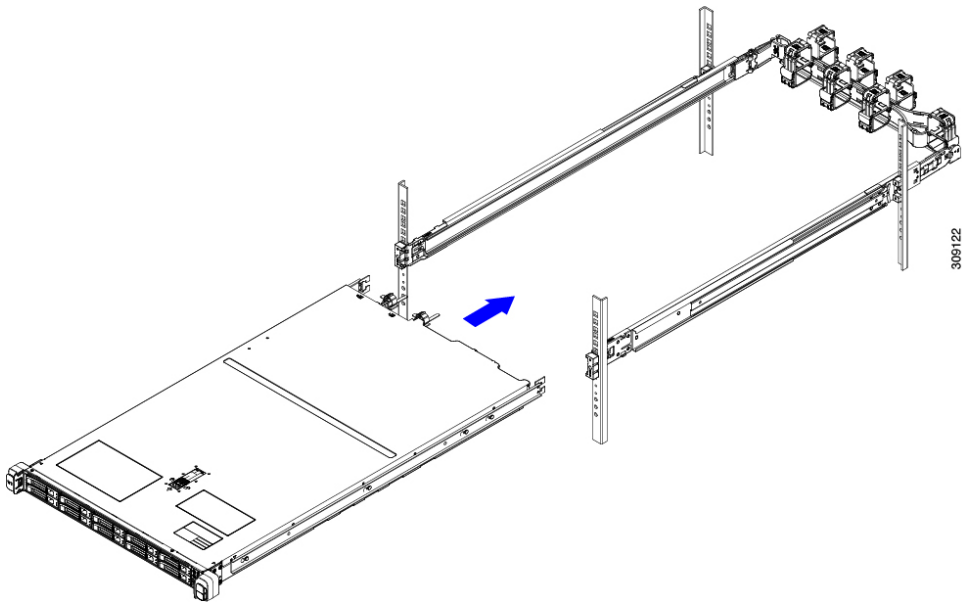
f) Pull the inner slide rails on each assembly toward the rack front until they hit the internal stops and lock in place.

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.

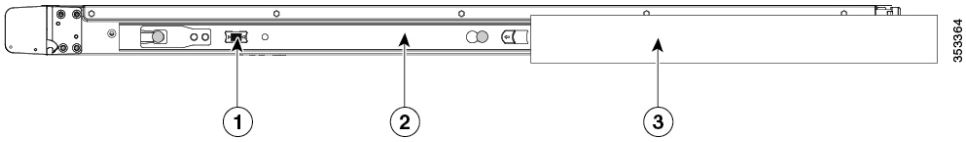
a) Align the rear ends of the inner rails that are attached to the appliance sides with the front ends of the empty slide rails on the rack.

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	**-**	–

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.

6. (Optional) If applicable, do this:

a) Attach the cable management arm. See Install the cable management arm on page 20.

b) Attach the locking bezel.

Install the cable management arm

Install the cable management arm (CMA) to secure and organize cables at the rear of your appliance.

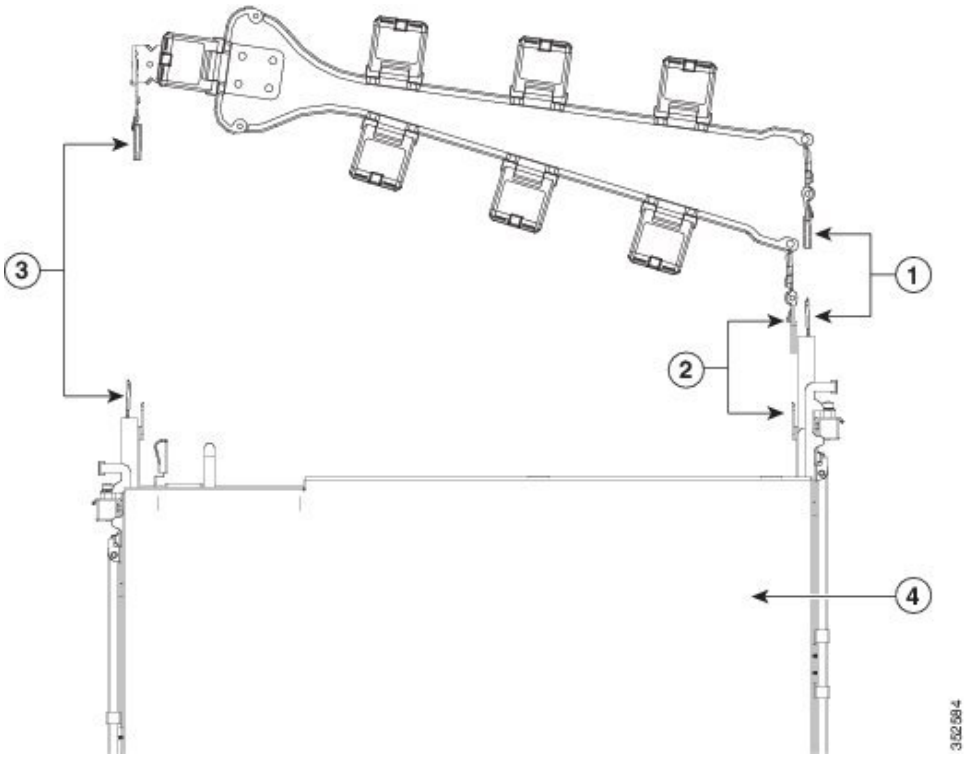
Note

The CMA is reversible from left to right. To reverse the CMA, see Reverse the cable management arm on page 22 before installation.

Procedure

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

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.
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.
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.
5. Open the hinged flap at the top of each plastic cable guide. Route your cables through the cable guides as required.

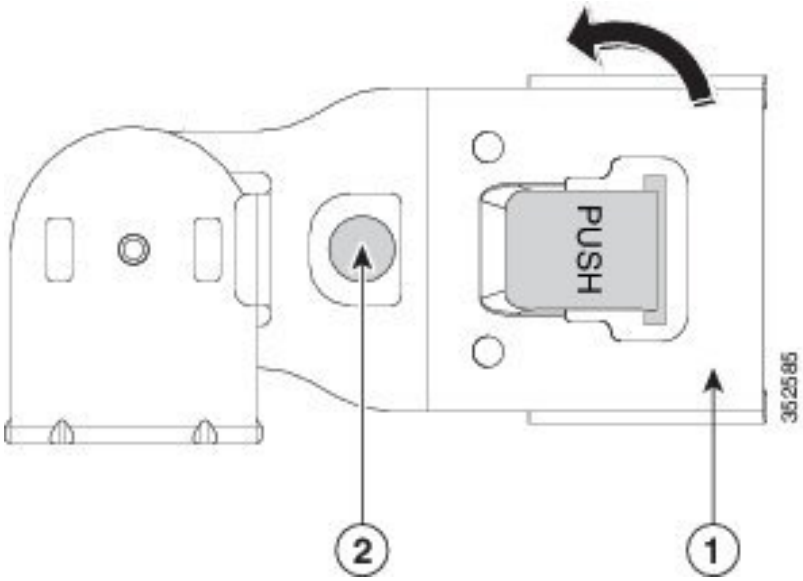
Reverse the cable management arm

Configure the CMA so that cables exit toward the rear of the appliance for optimal routing.

Procedure

1. Rotate the entire CMA assembly 180 degrees, from left to right. Ensure the plastic cable guides remain upright.
2. Flip the tabs at the ends of the CMA arms so that they point toward the rear of the appliance.
3. Pivot the tab at the end of the width-adjustment slider. Depress and hold the metal button on the outside of the tab. Pivot the tab 180 degrees until 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

Explains how to connect to the system for the initial setup, detailing default appliance settings and available connection methods.

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**.

  To use the dedicated management ports to access Cisco IMC, connect to the appliance and change the NIC mode by following the instructions in Set up the system with the Cisco IMC configuration utility on page 25.
- In **Dedicated** mode, NIC redundancy is set to **None**.
- DHCP is enabled.
- IPv4 and IPv6 are enabled.

Connection methods

You can connect to the system for initial setup using one of two methods:

- 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.

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 MAC address range 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

Configure the appliance for initial setup by connecting necessary peripherals and accessing the Cisco IMC configuration utility.

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

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

   Wait approximately two minutes while the appliance boots to standby power during the initial setup. Verify the power status by checking the Power Status LED on the front panel. The LED is amber when the system is in standby power mode.

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.

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 !, @, #, $, %, ^, &, *, -, _, =, “

4. Continue this procedure by following the instructions in Set up the system with the Cisco IMC configuration utility on page 25.

Connect to the appliance remotely for setup

Configure the system remotely by connecting to the appliance, assigning an IP address via DHCP, and accessing the Cisco IMC 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. The printed MAC address on the label indicates the first of six contiguous MAC addresses assigned to the Cisco IMC.

Procedure

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

   Wait approximately two minutes for the appliance to boot into standby power during 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.

2. Plug your management Ethernet cable into the dedicated management port on the rear panel.
3. Allow your preconfigured DHCP server to assign an IP address to the server node.
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*.

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

   A KVM console window opens.

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

   The system reboots.

7. Open the KVM console window.

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

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 !, @, #, $, %, ^, &, *, -, _, =, “

9. Continue this procedure by following the instructions in Set up the system with the Cisco IMC configuration utility on page 25.

Set up the system with the Cisco IMC configuration utility

Explains how to configure the network and management settings using 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

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 2 on page 25.
   - **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 2 on page 25.
   - **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 2 on page 25.
   - **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 2 on page 25.
   - **VIC Slot**: Only if you use the **Cisco Card** NIC mode, you must select this setting to match where your VIC is installed.
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.

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

   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).

4. (Optional) Configure VLAN settings.
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.

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.

     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.

     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.

7. Press **F5** to refresh the settings.
8. 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 when you boot the server.

Update the BIOS and Cisco IMC firmware

Describes how to use Cisco-provided utilities to simultaneously update BIOS and Cisco IMC firmware, maintaining compatibility and proper server operation.

> ⚠ **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

Describes how to configure, verify, and modify system-level settings using the BIOS Setup Utility.

Follow these steps to access and modify the system BIOS:

Procedure

1. Press the **F2** key when prompted during the initial setup to enter the BIOS Setup Utility.

   The version and build of the current BIOS are displayed on the main page of the utility.
2. Use the arrow keys to select the BIOS menu page.
3. Use the arrow keys to highlight the field to modify.
4. Press **Enter** to select the field that you want to change, and then modify the value in the field.
5. Press the right arrow key until the **Exit** menu screen is displayed.
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

Explains how Smart Access Serial features enable switching between host serial and Cisco IMC CLI, including requirements and session details.

The Smart Access Serial 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 baud rate for communication with serial devices

Explains how to configure the serial port baud rate to enable reliable communication between the Cisco SNS appliance and connected serial devices.

If the Cisco SNS appliance needs to communicate with other serial devices using the standard baud rate of 9600 bps, you must manually configure the baud rate in both the BIOS and Serial over LAN (SOL) settings.

Procedure

1. Log on to the Cisco Integrated Management Controller (CIMC) web user interface.
2. Navigate to **Administration > Communication Services > Serial over LAN**.
3. From the **Baud Rate** drop-down list, select **9600 bps** and click **Save**.
4. Navigate to **Compute > BIOS > BIOS Tokens > Server Management**.
5. From the **Baud Rate** drop-down list, select **9.6k** and click **Save**.

Note

The baud rate change in BIOS only takes effect after a system reboot.

Configure the RAID controller after replacing the HDD or SSD

Explains how to configure the RAID controller after you replace the hard disk (HDD) or solid-state drive (SSD) on Cisco SNS 3800 appliances.

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

1. Replace the existing HDD or SSD.
2. Configure RAID controller.

Replace the existing HDD or SSD

Replace the existing HDD or SSD in a Cisco SNS 3800 series appliance.

Follow these steps to replace the existing HDD or SSD.

Procedure

1. Log in to the appliance.
2. Click the Menu icon in the top-left corner.
3. Choose **Storage > Cisco RAID Controller > Controller Info**.

4. Click **Clear Boot Drive**.
5. Click **OK** to clear the boot drive.
6. Click **Virtual Drive Info**.
7. In the **Virtual Drives** window, select the virtual drive and click **Delete Virtual Drive**.
8. Click **Physical Drive Info**.
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

Configure a RAID controller to create and manage virtual drives for optimized storage performance.

To configure the RAID controller, follow these steps.

Procedure

1. Log in to the appliance and click the Menu icon in the top-left corner.
2. Choose **Storage > Controllers**.
3. Click the **Actions** drop-down list and select **Storage > Create Virtual Drive**.
4. Select **MRAID** controller for the RAID volume and click **Next**.
5. Select **From Unused Physical Drives** and click **Next**.
6. Select the appropriate RAID type from the drop-down list.

   For information about the RAID types supported for Cisco SNS 3800 series appliances, see Table 1: Cisco SNS 3800 series appliance hardware specifications on page 5.
7. Select the drives from the **Physical Drives** pane, move them to the **Drives and Spans** pane, and click **Next**.

   You can create different drive groups based on your requirements.
8. In the **VD Properties** pane, select these options and click **Next**:
   - From the **Read Policy** drop-down list, select **Always Read Ahead**.
   - From the **Write Policy** drop-down list, select **Write Back Good BBU**.
9. On the **Summary** page, click **Create** to complete the virtual drive creation.

   To verify task completion, click the **Tasks Collection** icon.

   After the task completes, verify the RAID configuration in the **Virtual Drive Info** tab.

Enable drive security for SED

Explains how to configure SED or SED-FIPS drives to use Remote Key Management and enable drive security.

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

Procedure

1. Click the Menu icon in the top left corner.
2. Choose **Admin > Security Management > Secure Key Management**.
3. Enter the Key Management Interoperability Protocol (KMIP) server details.

   Attach the root CA certificate, client certificate, and client private key certificate.
4. Check the **Enable Secure Key Management** check box.
5. Choose **Storage > Cisco 12G SAS RAID Controller > Controller Info**.
6. Click **Enable Drive Security**.
7. Click the **Remote Key Management** radio button and then click **Save**.
8. Click **Virtual Drive Info**.
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.

Configure Network Time Protocol settings

Describes how to configure Network Time Protocol (NTP) settings to ensure accurate system time and synchronization across network devices.

Before you begin

Perform this procedure to configure NTP settings. When you configure NTP, you cannot use the IPMI **Set SEL time** command.

You must log in with admin privileges to perform this task.

Procedure

1. In the **Navigation** pane, click the **Admin** menu.
2. In the **Admin** menu, click **Networking**.
3. In the **Networking** pane, click **NTP Setting**.
4. In the **NTP Properties** area, update these properties.

Name	Description
NTP Enabled check box	Check this box to enable the NTP service.
Server 1 field	Enter the IP address or DNS address of one of the four servers that act as an NTP server or a time source.
Server 2 field	Enter the IP address or DNS address of one of the four servers that act as an NTP server or a time source.
Server 3 field	Enter the IP address or DNS address of one of the four servers that act as an NTP server or a time source.

Server 4 field	Enter the IP address or DNS address of one of the four servers that act as an NTP server or a time source.
Status message	This field indicates whether or not the server is able to synchronize its time with the remote NTP server. This value is an 8-bit integer that shows the stratum level of the local clock. The status can be: • 0: Unspecified or invalid • 1: Primary server • 22–15: Secondary server (via NTP) • 16: Unsynchronized • 17–255: Reserved

5. Click **Save Changes**.

3 Appliance Specifications

Topics:

- Physical specifications
- Environmental specifications
- Power specifications
- Power cord specifications

Physical specifications

Lists the physical specifications for the appliance.

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

Lists the environmental requirements and specifications for the appliance.

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

Table 4: Environmental specifications

Description	Specification
Temperature, operating	10° C to 35° C (50° F to 95° F) with no direct sunlight. Decrease the maximum temperature by 1° C for each 984.2 feet (300 meters) increase in 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) The maximum rate of temperature change for operating and non-operating conditions is 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)	Less than 5% or more than 95%, and 33° C (91° F) maximum dew-point temperature in a 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

Lists the requirements for the server power supplies, including compatibility and safety considerations.

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

1200 W AC power supply

Provides the key technical specifications for the 1200 W AC power supply, including input/output values, efficiency ratings, and connector types.

This table lists the specifications for the 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

Lists the approved and supported power cords for Cisco appliances, including descriptions, lengths, connector types, and regions of availability.

Each power supply in the appliance uses a specific 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 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