



CHAPTER 2

Installation and Initial Configuration

This chapter describes how to initially install and configure your Cisco 3355 Mobility Services Engine.

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Note

For configuration details beyond initial installation, refer to the appropriate mobility services configuration guide at:

http://www.cisco.com/en/US/products/ps9742/tsd_products_support_series_home.html

Required Tools and Information

This section lists the required hardware and other information that you need to install and setup the mobility services engine.

Required Hardware

You need this equipment to install a mobility services engine in an Electronics Industries Alliance (EIA) rack:

- A mobility services engine
- Network cables
- One rack unit (RU) free space in an EIA-standard rack
- Rack mounting kit (included with the Cisco 3355 Mobility Services Engine shipment)
- A serial console cable



Note If you are installing this unit in a threaded-hole rack, you must supply screws that fit the threaded-hole rack and the appropriate screwdriver or Torx driver for those screws.

CLI Console Requirements

You need this equipment to connect to the mobility services engine console:

- ANSI or VT-100 terminal emulator application on a laptop, desktop, or palmtop



Note

Please refer to the latest *Release Notes for Cisco 3300 Series Mobility Services Engine* for compatibility by release between the mobility services engine and Cisco Prime Infrastructure and controller releases at: http://www.cisco.com/en/US/products/ps9742/prod_release_notes_list.html

System Configuration Parameters

Obtain these parameters from your network administrator:

- A host name for the mobility services engine
- A broadcast address for the mobility services engine
- An IP address for the Ethernet-0 (eth0) port (located on the mobility services engine chassis back panel)
- A net mask for the eth0 IP address
- An IP address for the eth0 default gateway
- An IP address for the Ethernet-1 (eth1) port (located on the mobility services engine chassis back panel) (This is optional.)
- A net mask for the eth1 IP address (only required if eth1 is configured and enabled)
- An IP address for the eth1 default gateway (only required if eth1 is configured and enabled)

**Note**

Either the Ethernet-0 or Ethernet-1 port can be used to transmit location updates to Cisco Prime Infrastructure. However, the Ethernet-0 port is generally configured to communicate with Cisco Prime Infrastructure, and the Ethernet-1 port is generally used for out-of-band management. Both ports are configured as part of the installation script described in the [“Configuring the Mobility Services Engine” section on page 2-29](#). Another approach, especially for high traffic networks, is to dedicate Ethernet-0 for communication with the Wireless LAN Controllers and use Ethernet-1 for communication with Prime Infrastructure and other applications.

Choosing a Physical Location for the Cisco 3355 Mobility Services Engine

For maximum safety and reliability, mount the mobility services engine using the following guidelines.

General Precautions

To reduce the risk of personal injury or damage to the mobility services engine:

- Place the product away from radiators, heat registers, stoves, amplifiers, or other products that produce heat.
- Never use the product in a wet location.
- Avoid inserting foreign objects through openings in the product.
- To reduce risk of injury from electric shock hazards, do not open the product enclosure.

Laser Devices

Laser devices are used within the DVD of the mobility services engine. The DVD has no defined use at the customer site.

To reduce the risk of exposure to hazardous radiation:

- Do not try to open the laser device enclosure. There are no user-serviceable components inside.
- Do not operate controls, make adjustments, or perform procedures to the laser device other than those specified herein.
- Allow only Cisco authorized service technicians to repair the laser device.

Space and Airflow Requirements

Install the mobility services engine in a EIA-standard rack. One rack unit is required for each mobility services engine.

Ensure that you can reach the mobility services engine and all cables.

- Ensure that the mobility services engine is within 328 ft (100 m) equivalent distance from any equipment connected to the 10/100/1000BASE-T ports.
- Ensure that the power cord can reach a 110 or 220 VAC grounded electrical outlet.

Ensure that there is sufficient room at the back of the mobility services engine for all cables and connectors.

- Leave a minimum clearance of 63.5 cm (25 in.) in front of the rack.
- Leave a minimum clearance of 76.2 cm (30 in.) behind the rack.
- Leave a minimum clearance of 121.9 cm (48 in.) from the back of the rack to the back of another rack or row of racks.

**Caution**

To prevent improper cooling and damage to the equipment, do not block the ventilation openings.

**Caution**

Always use blanking panels to fill empty vertical spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

**Caution**

When selecting a rack to use, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: (1) Front and rear doors—If the 42U rack includes closing front and rear doors, you must allow 5,350 sq. cm (830 sq. in.) of holes evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). (2) Side—The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 in.).

Temperature Requirements

To ensure continued safe and reliable equipment operation, install or position the system in a well ventilated, climate-controlled environment.

Ensure that the ambient operating temperature remains between 10 and 35° C (50 and 95° F), taking into account the elevated temperatures that occur when equipment is installed in a rack.

**Caution**

To reduce the risk of damage to the equipment when installing third-party options: (1) Do not permit optional equipment to impede airflow around the mobility services engine or to increase the internal rack temperature beyond the maximum allowable limits. (2) Do not exceed the manufacturer's maximum recommended ambient temperature (TMRA).

Power Requirements

Installation of this equipment must comply with local and regional electrical regulations governing the installation of information technology equipment by licensed electricians. This equipment is designed to operate in installations covered by NFPA 70, 1999 Edition (National Electric Code) and NFPA 75, 1992 (code for Protection of Electronic Computer/Data Processing Equipment). For electrical power ratings on options, refer to the product rating label or the user documentation supplied with that option.

**Caution**

Protect the mobility services engine from power fluctuations and temporary interruptions with a regulating uninterruptible power supply (UPS). This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.

When installing more than one mobility services engine, you may need to use additional power distribution devices (PDUs) to safely provide power to all devices. Observe the following guidelines:

- Balance the mobility services engine power load among available AC supply branch circuits.
- Do not allow the overall system AC current load to exceed 80 percent of the branch circuit AC current rating.
- Do not use common power outlet strips for this equipment.
- Provide a separate electrical circuit for the mobility services engine.

Power Supplies on the Mobility Services Engine

The mobility services engine has two power supplies.

**Warning**

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit. Statement 1028

**Caution**

Verify that the external power source connected to the mobility services engine matches the type of power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your Cisco authorized reseller or local power company.

Batteries

The mobility services engine might include a real-time clock battery or coin cell battery that might contain perchlorate and might require special handling when recycled or disposed of in California.

Refer to the following link for disposal information.

<http://www.dtsc.ca.gov/hazardouswaste/perchlorate>

**Caution**

Do not dispose of batteries with the general household waste. Recycle them using the public collection system.

Electrical Grounding Requirements

The mobility services engine must be grounded properly for proper operation and safety. In the United States, you must install the equipment in accordance with NFPA 70, 1999 Edition (National Electric Code), Article 250, as well as any local and regional building codes. In Canada, you must install the equipment in accordance with Canadian Standards Association, CSA C22.1, Canadian Electrical Code. In all other countries, you must install the equipment in accordance with any regional or national electrical wiring codes, such as the International Electrotechnical Commission (IEC) Code 364, parts 1 through 7.

Furthermore, you must verify that all power distribution devices used in the installation, such as branch wiring and receptacles, are listed or certified grounding-type devices. Because of the high ground-leakage currents associated with multiple systems connected to the same power source, Cisco recommends the use of a PDU that is either permanently wired to the building's branch circuit or includes a nondetachable cord that is wired to an industrial-style plug. NEMA locking-style plugs or those complying with IEC 60309 are considered suitable for this purpose. Using common power outlet strips for the mobility services engine is not recommended.

Rack Warnings



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: (1) This unit should be mounted at the bottom of the rack if it is the only unit in the rack. (2) 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. (3) If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack. Statement 1006.



Caution

To reduce the risk of personal injury or equipment damage when unloading a rack, at least two people are needed to safely unload the rack from the pallet.



Caution

To prevent damage, ensure that water or excessive moisture cannot get into the mobility services engine.

Unpacking the Mobility Services Engine

Follow these steps to unpack the mobility services engine.

-
- Step 1** Open the shipping container and carefully remove the contents.
 - Step 2** Return all packing materials to the shipping container and save it.
 - Step 3** Ensure that all items listed in the “[Package Contents](#)” section are included in the shipment.
 - Step 4** Check each item for damage. If any item is damaged or missing, notify your authorized Cisco sales representative.
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Package Contents

Each mobility services engine package contains the following items:

- One Cisco 3355 Mobility Services Engine
- One rack mount kit
- Two power cords
- This guide, the *Cisco 3355 Mobility Services Engine Getting Started Guide*

Mounting the Cisco 3355 Mobility Services Engine in a Rack

**Warning**

Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

**Caution**

The mobility services engine is heavy (35 lbs, 15.9 kgs).

To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the mobility services engine during installation or removal is recommended, especially when the system is not fastened to the rails.
- Use caution when installing the mobility services engine in or removing it from the rack; it is unstable when not fastened to the rails.
- Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first and continue to populate the rack from the bottom to the top.

The mobility services engine comes with a universal rack mount kit that can be installed in a square-hole rack, round-hole rack, or a threaded-hole rack. You can order replacement universal rack mount kits from Cisco. The replacement part PID is AIR-SRVR-URMK=.

**Note**

You must provide the threaded-hole screws to secure the mounting rails to the rack. Threaded-hole screws are not shipped with the system.

Installing the Mobility Services Engine Into the Rack Cabinet Using Universal Rack Mount Kit

Review the documentation that comes with the rack cabinet for safety and cabling information. Before you install the mobility services engine in a rack cabinet, review the following guidelines:

- Two or more people are required to install devices 2U or larger in a rack cabinet.
- Make sure that the room air temperature is below 35° C (95° F).
- Do not block any air vents; usually 15 cm (6 in.) of space provides proper airflow.
- Do not leave open spaces above or below an installed mobility services engine in your rack cabinet. To help prevent damage to mobility services engine components, always install a blank filler panel to cover the open space and to help ensure proper air circulation.
- Install the mobility services engine only in a rack cabinet with perforated doors.
- Plan the device installation starting from the bottom of the rack cabinet.
- Install the heaviest device in the bottom of the rack cabinet.
- Do not extend more than one device out of the rack cabinet at the same time.
- Remove the rack doors and side panels to provide easier access during installation.
- Connect the mobility services engine to a properly grounded outlet.

- Do not overload the power outlet when you install multiple devices in the rack cabinet.
- Install the mobility services engine in a rack that meets the following requirement:
 - Minimum depth of 70 mm (2.76 in.) between the front mounting flange and inside of the front door.

**Caution**

Use safe practices when lifting.



≥ 18 kg (39.7 lb.)



≥ 32 kg (70.5 lb.)



≥ 55 kg (121.2 lb.)

**Caution**

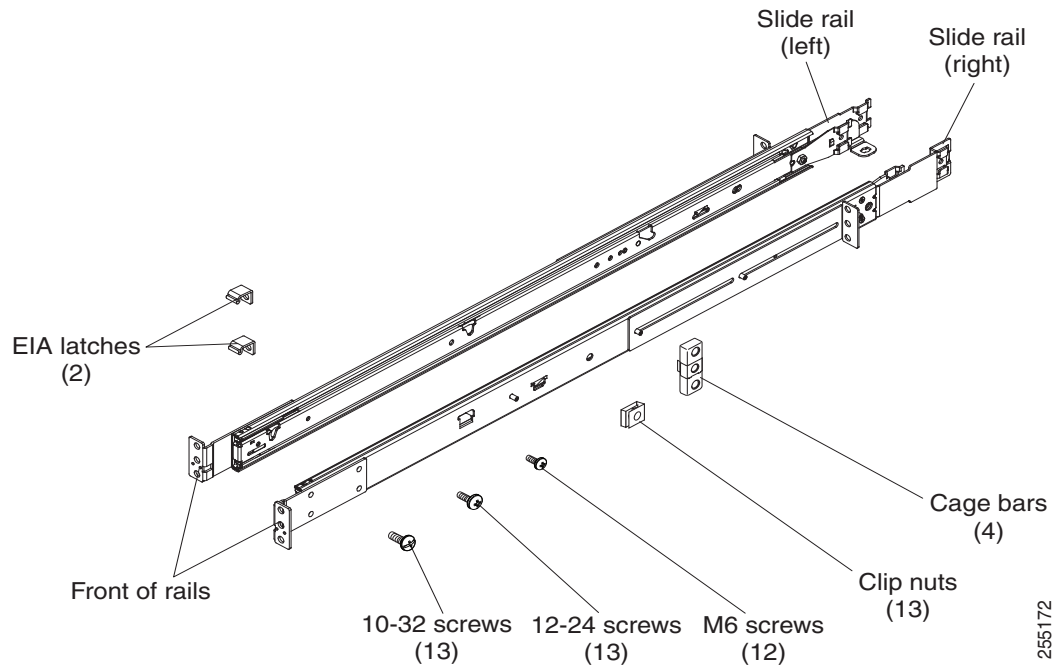
Do not place any object on top of rack-mounted devices.



The following illustration shows the items that you need to install the mobility services engine in the rack cabinet. If any items are missing or damaged, contact your place of purchase.

**Note**

Some items come with the mobility services engine, not in the rack installation kit.

**Note**

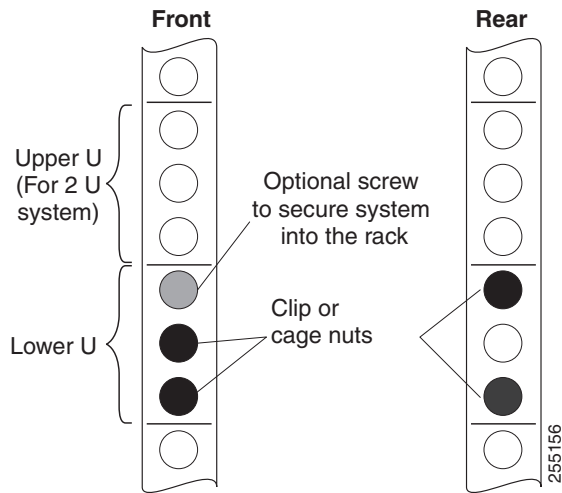
Use cage bars with square-holed racks, clip nuts with round-holed racks, and your own screws or the screws provided in this kit with threaded-hole racks.

**Note**

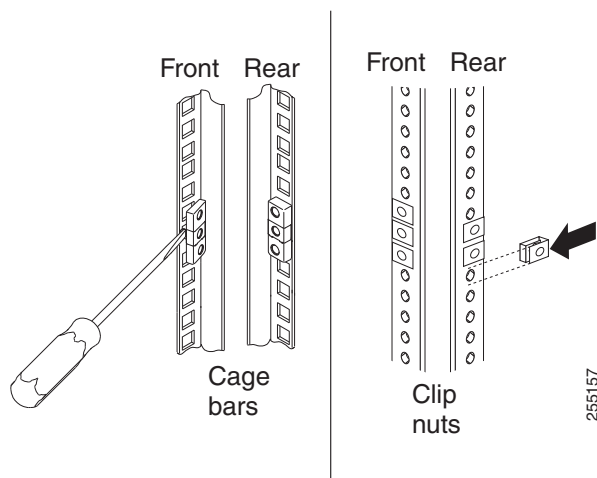
If the slide rails in your rack installation kit came with shipping thumbscrews, remove them before you begin the following installation procedure.

Step 1

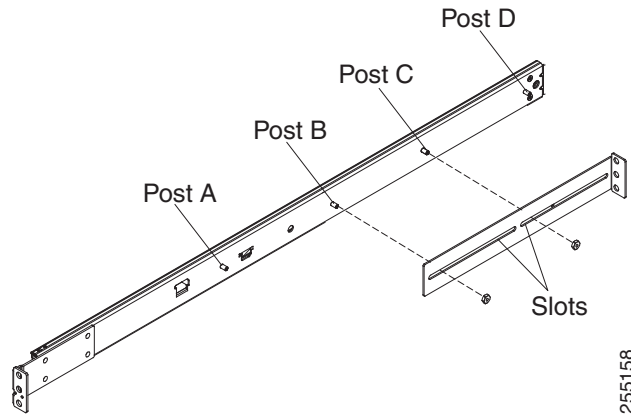
Select an available 1 U or 2 U space (depending on the mobility services engine you are installing) in your rack to install your mobility services engine. If you have either a round-holed or square-holed rack, install cage bars or clip nuts in the middle and the bottom (optional for the upper) holes of the lower U on each side of the front of the rack. Then, install cage bars or clip nuts in the upper and the bottom holes of the lower U on each side of the rear of the rack.



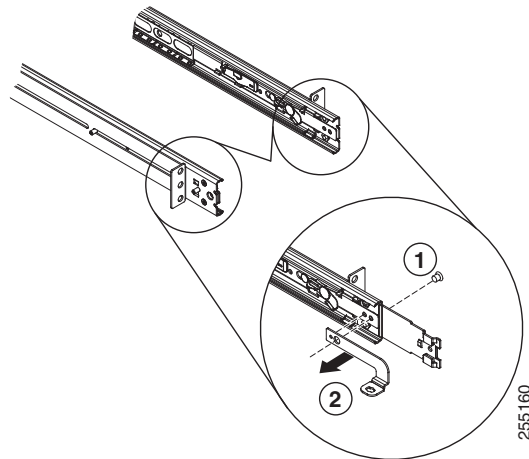
- Step 2** Use a screwdriver to install the cage bars or the clip nuts on the inside of the mounting rail, as required for your rack, into the selected holes.



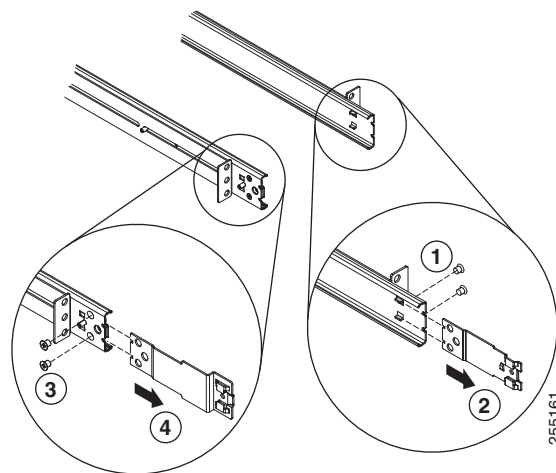
- Step 3** The rail depth can be adjusted from 17 in (432 mm) to 31.25 in (794 mm). To adjust the depth, you can loosen the nuts on the posts and slide the bracket until the distance between the front and rear slide rail flanges matches the distance between the front and rear EIA rails of the rack cabinet. If you need further adjustment, remove the nuts, move the bracket to the appropriate set of posts (A, B, C, and D) to obtain the appropriate slide rail depth, then reinstall and tighten the nuts.



Step 4 To remove the support bracket, remove the screw (1) and remove the bracket (2) from the rear of the slide rail.



Step 5 To remove the mounting brackets, remove the screws (1) and (3). Slide out the brackets (2) and (4) from the rear of the slide rail.



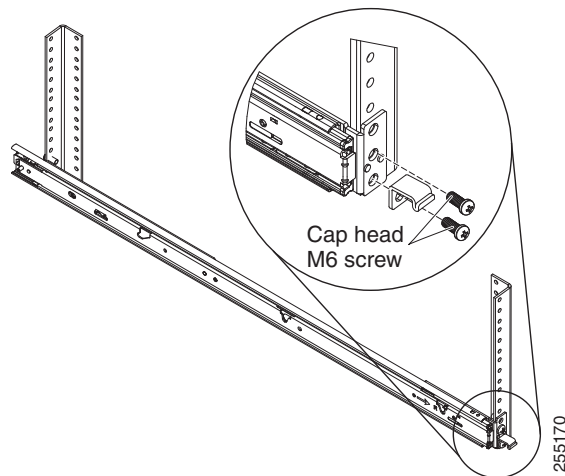
- Step 6** Attach the front of the slide rail and EIA latch to the front of the rack cabinet by installing a screw in the bottom hole of the lower U; then, install another screw in the middle hole of the lower U to attach the front of the slide rail to the front of the rack cabinet.



Note When you fasten the slides to the rack, ensure the screws are engaged but the flange can move slightly. You will use a screwdriver to fully tighten them in [Step 9](#).

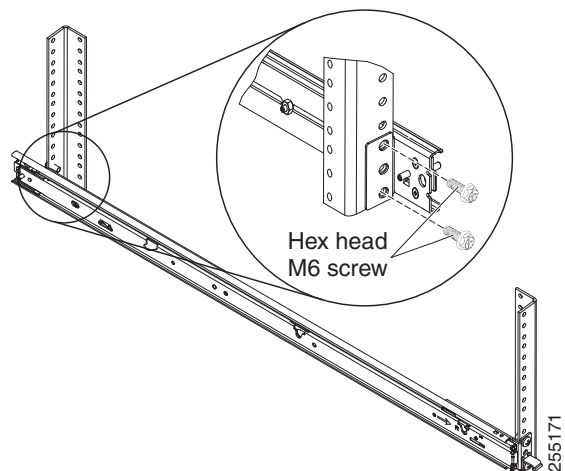


Note Use 12-24 screws (not hex head M6 screws) on the front mounting bracket if you are installing this system into a rack with round or square holes (i.e., not threaded holes).



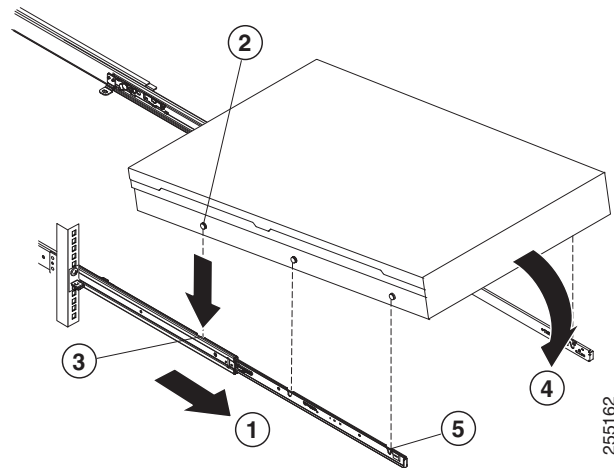
- Step 7** Use two screws to attach the rear of the slide rail to the rear of the rack cabinet in the upper and the bottom holes of the lower U.

Repeat [Step 3](#) through [Step 7](#) to install the other slide rail into the rack.



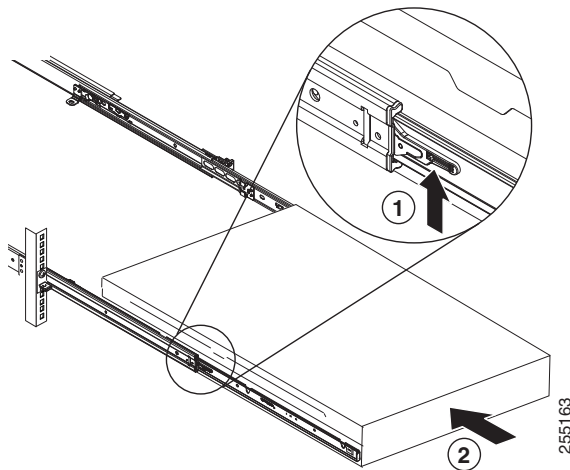
- Step 8** Pull the slide rails forward (1) until they click, two times, into place. Carefully lift the mobility services engine and tilt it into position over the slide rails so that the rear nail heads (2) on the mobility services engine line up with the rear slots (3) on the slide rails. Slide the mobility services engine down until the

rear nail heads slip into the two rear slots, and then slowly lower the front of the mobility services engine (4) until the other nail heads slip into the other slots on the slide rails. Make sure that the front latch (5) slides over the nail heads.



Step 9 Lift the locking levers (1) on the slide rails and push the mobility services engine (2) all the way into the rack until it clicks into place.

Slide the system in and out twice to make sure the system slides correctly. Push the system inwards to the rack as close as possible but able to access the screws with a screwdriver. Then tighten the screws with a screwdriver.

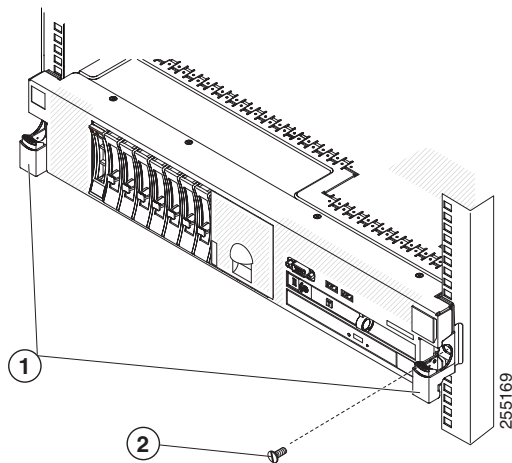


Step 10 Slide the mobility services engine into the rack until it snaps into place. To slide the mobility services engine out of the rack, press on the release latches (1).



Note

When you move the rack cabinet, or if you install the rack cabinet in a vibration-prone area, insert the optional M6 screws (2) in the front of the mobility services engine.



To remove the mobility services engine from the rack, reverse these instructions. Store this information with your mobility services engine documentation for future use.

Front and Rear Panel

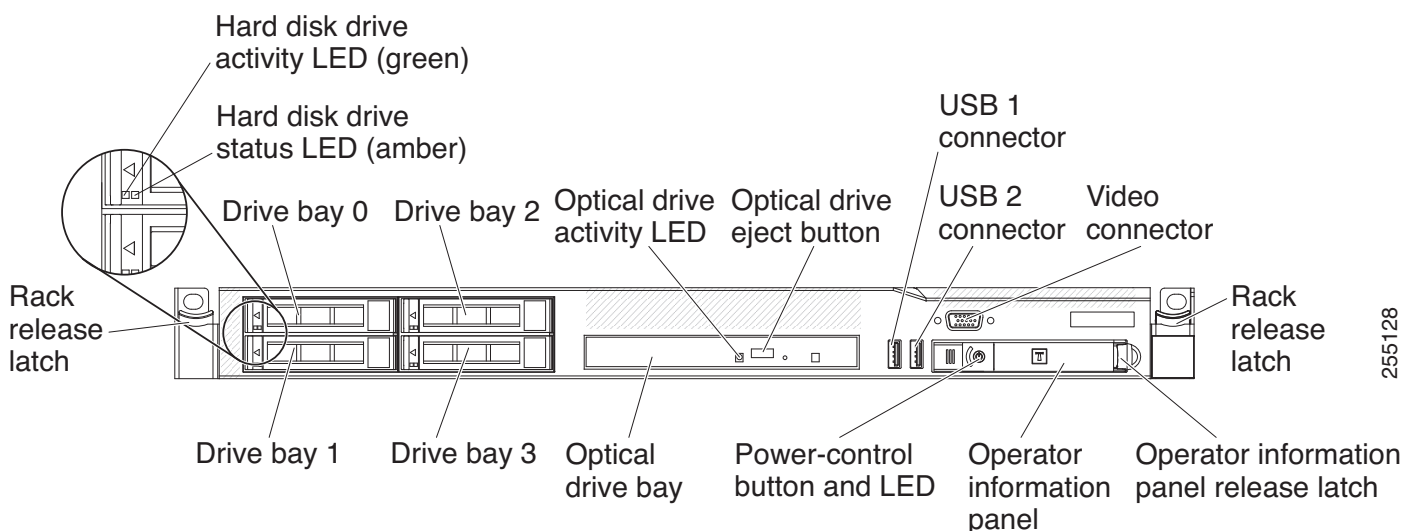
This section describes the controls and light-emitting diodes (LEDs) and how to turn the Cisco 3355 Mobility Services Engine on and off.

Front Panel

Figure 2-1 shows the controls, LEDs, and connectors the front panel of the Cisco 3355 Mobility Services Engine.

Figure 2-2 shows a detailed view of the operator information panel.

Figure 2-1 Cisco 3355 Mobility Services Engine Front Panel



Front Panel Components

- **Rack release latches:** Press the latches on each front side of the mobility services engine to remove it from the rack.
- **Hard disk drive status LEDs:** This LED is used to indicate the status of the SAS hard disk drives. When this LED is lit, it indicates that the drive has failed. When this LED is flashing slowly (one flash per second), it indicates that the drive is being rebuilt. When the LED is flashing rapidly (three flashes per second), it indicates that the controller is identifying the drive.
- **Hard disk drive activity LEDs:** Each hot-swap hard disk drive has an activity LED, and when this LED is flashing, it indicates that the drive is in use.
- **Optical drive eject button:** Press this button to release a DVD or CD from the DVD drive.
- **Optical drive activity LED:** When this LED is lit, it indicates that the DVD drive is in use.
- **Operator information panel:** This panel contains controls and LEDs that provide information about the status of the mobility services engine. For information about the controls and LEDs on the operator information panel, see [Operator Information Panel, page 2-15](#).
- **Operator information panel release latch:** Slide the blue release latch to the left to pull out the light path diagnostics panel and view the light path diagnostics LEDs and buttons. See [Light Path Diagnostics Panel, page 2-16](#) for more information about the light path diagnostics.
- **Video connector:** Connect a monitor to this connector. The video connectors on the front and rear of the mobility services engine can be used simultaneously.



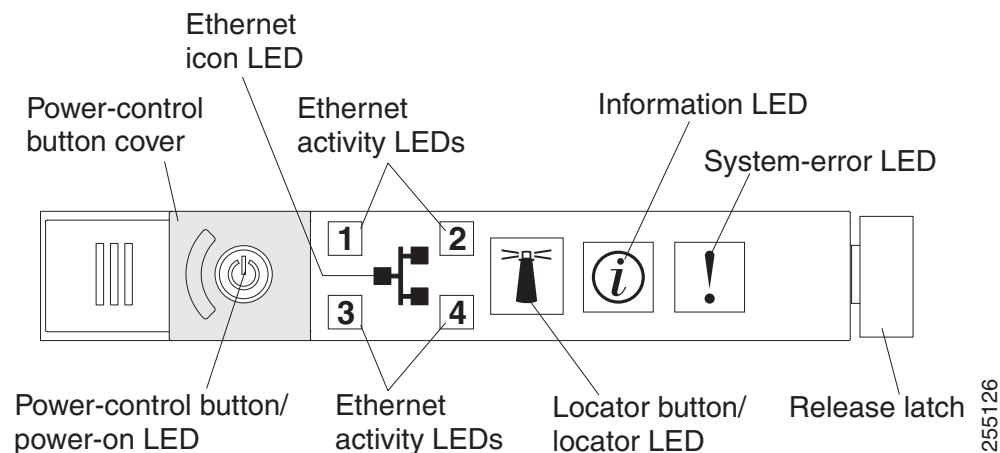
Note The maximum video resolution is 1600 x 1200 at 75 Hz.

- **USB connectors:** Connect a USB device, such as a USB mouse or keyboard, to any of these connectors.

Operator Information Panel

Figure 2-2 shows a detailed view of the controls and LEDs on the operator information panel.

Figure 2-2 Close Up of Cisco 3355 Operator Information Panel



Operator Information Panel Components

- **Power-control button and power-on LED:** Press this button to turn the mobility services engine on and off manually or to wake it from a reduced-power state. The states of the power-on LED are as follows:
 - **Off:** Power is not present, or the power supply or the LED itself has failed.
 - **Flashing rapidly (4 times per second):** The mobility services engine is turned off and is not ready to be turned on. The power-control button is disabled. This will last approximately 20 to 40 seconds.
 - **Flashing slowly (once per second):** The mobility services engine is turned off and is ready to be turned on. You can press the power-control button to turn on the mobility services engine.
 - **Lit:** The mobility services engine is turned on.
 - **Fading on and off:** The mobility services engine is in a reduced-power state. To wake the mobility services engine, press the power-control button or use the IMM Web interface. See the *Integrated Management Module User's Guide* for information on logging on to the IMM Web interface.
- **Ethernet activity LEDs:** When any of these LEDs is lit, they indicate that the mobility services engine is transmitting to or receiving signals from the Ethernet LAN that is connected to the Ethernet port that corresponds to that LED.
- **System-locator button/LED:** Use this blue LED to visually locate the mobility services engine among other servers. This LED is also used as a presence detection button. This LED is controlled by the IMM. When you press the System-locator button, the LED will blink and it will continue to blink until you press it again to turn it off. The locator button is pressed to visually locate the mobility services engine among the other servers.
- **System-information LED:** When this amber LED is lit, it indicates that a noncritical event has occurred. The IMM can be used to diagnose and correct the problem.
- **System-error LED:** When this amber LED is lit, it indicates that a system error has occurred. A system-error LED is also on the rear of the mobility services engine. An LED on the light path diagnostics panel on the operator information panel is also lit to help isolate the error. This LED is controlled by the IMM.

Light Path Diagnostics Panel

The light path diagnostics panel is on the top of the operator information panel, as shown in [Figure 2-3](#). For additional information about the LEDs on the light path diagnostics panel, see [Table 2-1](#).

To access the light path diagnostics panel, slide the blue release button on the operator information panel to the left. Pull forward on the unit until the hinge of the operator panel is free of the chassis. Then pull down on the unit, so that you can view the light path diagnostics panel information.



Note

When you slide the light path diagnostics panel out of the mobility services engine to check the LEDs or checkpoint codes, do not run the mobility services engine continuously with the light path diagnostics panel outside of the mobility services engine. The panel should only be outside of the mobility services engine a short time. The light path diagnostics panel must remain in the mobility services engine when it is running to ensure proper cooling.

Figure 2-3 Light Path Diagnostics Panel

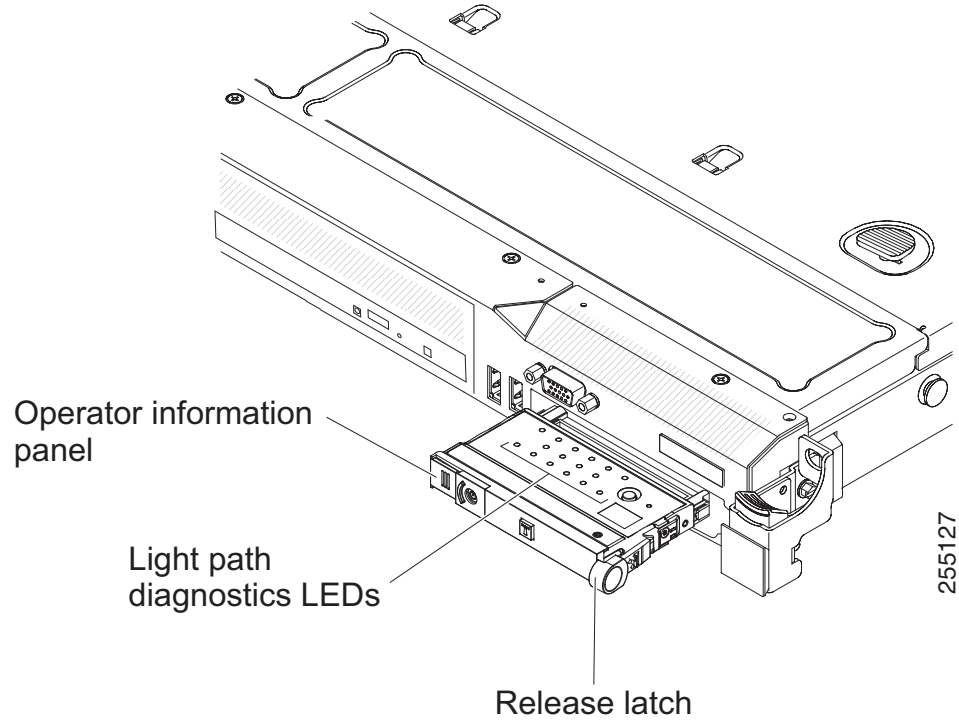
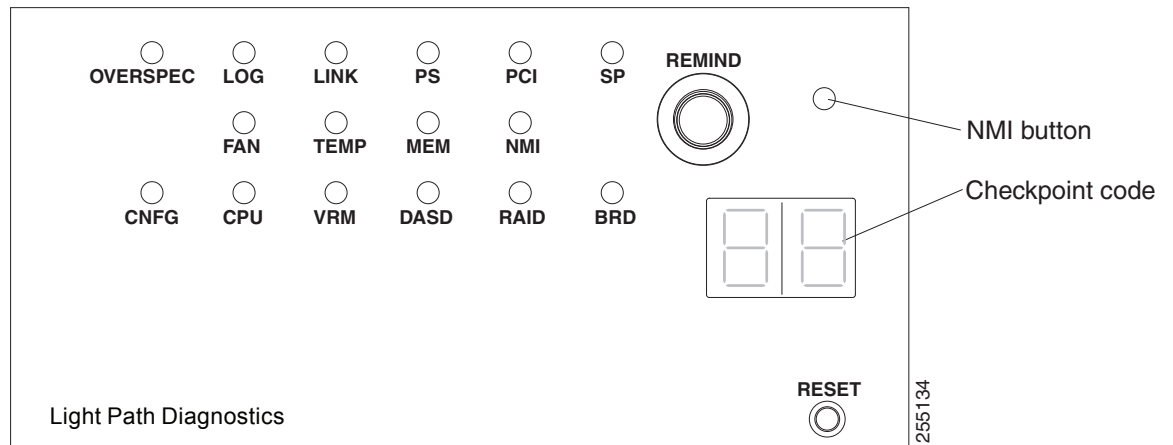


Figure 2-4 shows the LEDs and controls on the light path diagnostics panel.

Figure 2-4 Light Path Diagnostics Panel Components



Light Path Diagnostics Panel Components

- Remind button:** This button places the system-error LED on the front panel into Remind mode. In Remind mode, the system-error LED flashes once every 2 seconds until the problem is corrected, the mobility services engine is restarted, or a new problem occurs.

By placing the system-error LED indicator in Remind mode, you acknowledge that you are aware of the last failure but will not take immediate action to correct the problem. The Remind function is controlled by the IMM.

- **NMI button:** This button is used to force a nonmaskable interrupt to the microprocessor. This button is not currently used by the Cisco 3355 Mobility Services Engine. Press this button only when directed by the Cisco TAC personnel.
- **Checkpoint code display:** This display provides a checkpoint code that indicates the point at which the system stopped during the boot block and POST. A checkpoint code is either a byte or a word value that is produced by UEFI. The display does not provide error codes or suggest components to be replaced.
- **Reset button:** Press this button to reset the mobility services engine and run the power-on self-test (POST). You might have to use a pen or the end of a straightened paper clip to press the button. The Reset button is in the lower-right corner of the light path diagnostics panel.

Table 2-1 Light path diagnostics panel LEDs

Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
LED	Description	Action
None, but the system error LED is lit.	An error occurred and cannot be isolated. The error is not represented by a path.	Contact Cisco TAC for assistance.
OVER SPEC	The power supplies are using more power than their maximum rating.	Contact Cisco TAC for assistance.
LOG	An error occurred.	Check the IMM system event log and the system-error log for information about the error and then determine the next steps. If needed, contact Cisco TAC.
LINK	Reserved.	
PS	Power supply 1 or 2 has failed.	<ol style="list-style-type: none"> 1. Check the power supply that has a lit amber LED (see Power-supply LEDs, page 2-22). 2. Make sure that the power supplies are seated correctly. 3. Remove one of the power supplies to isolate the failed power supply. 4. Replace the failed power supply.
PCI	An error has occurred on a PCI bus or on the system board. An additional LED is lit next to a failing PCI slot.	Contact Cisco TAC for assistance.
SP	A service processor error has been detected.	<ol style="list-style-type: none"> 1. Shut down the system and remove the power cords from the mobility services engine; then, reconnect the mobility services engine to power and restart it. 2. If the problem does not go away, contact Cisco TAC for assistance.

Table 2-1 Light path diagnostics panel LEDs (continued)

Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.

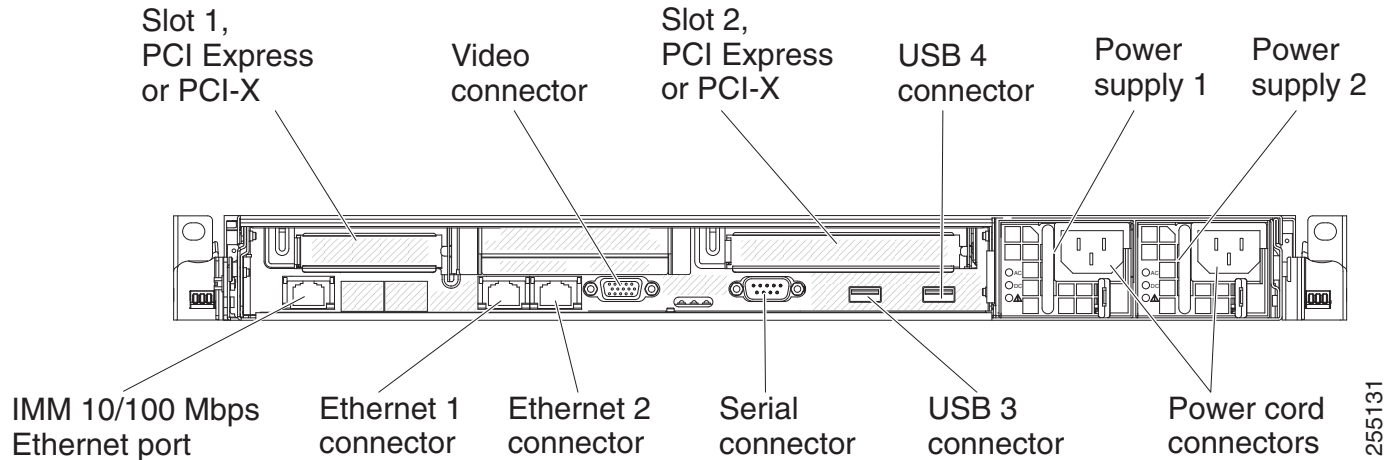
LED	Description	Action
FAN	A fan has failed, is operating too slowly, or has been removed. The TEMP LED might also be lit.	Contact Cisco TAC to replace your Cisco 3355 Mobility Services Engine and for further assistance.
TEMP	The system temperature has exceeded a threshold level. A failing fan can cause the TEMP LED to be lit.	Contact Cisco TAC for assistance.
MEM	When only the MEM LED is lit, a memory error has occurred. When both the MEM and CNFG LEDs are lit, the memory configuration is invalid or the PCI Option ROM is out of resource.	Contact Cisco TAC for assistance.
NMI	A nonmaskable interrupt has occurred, or the NMI button was pressed.	Check the system-error log for information about the error. Contact Cisco TAC if further assistance is needed.
CNFG	A hardware configuration error has occurred.	Contact Cisco TAC for assistance.
CPU	An invalid microprocessor configuration or a microprocessor has failed (both the CPU LED and the CNFG LED might be lit).	Contact Cisco TAC for assistance.
VRM	Reserved.	
DASD	A hard disk drive has failed or is missing.	<ol style="list-style-type: none"> 1. Check the LEDs on the hard disk drives for the drive with a lit status LED and reseal the hard disk drive. 2. If reseating the drive does not resolve the issue, then the failed hard disk drive must be replaced. Contact Cisco TAC for assistance.
RAID	Reserved.	
BRD	An error has occurred on the system board.	Contact Cisco TAC for assistance.

Rear Panel

Figure 2-5 shows details of the rear panel for the Cisco 3355 Mobility Services Engine.

Figure 2-6 shows the Cisco 3355 Mobility Services Engine back panel LEDs.

Figure 2-5 Cisco 3355 Mobility Services Engine Rear Panel



Rear Panel Components

- **PCI slot 1:** Cisco 3355 Mobility Services Engine does not use this slot.
- **PCI slot 2:** Cisco 3355 Mobility Services Engine does not use this slot.
- **Power connector:** Connect the power cord to this connector.



Note

Power supply 1 is the default/primary power supply. If power supply 1 fails, you must replace it immediately.

- **Video connector:** Connect a monitor to this connector. The video connectors on the front and rear of the mobility services engine can be used simultaneously.



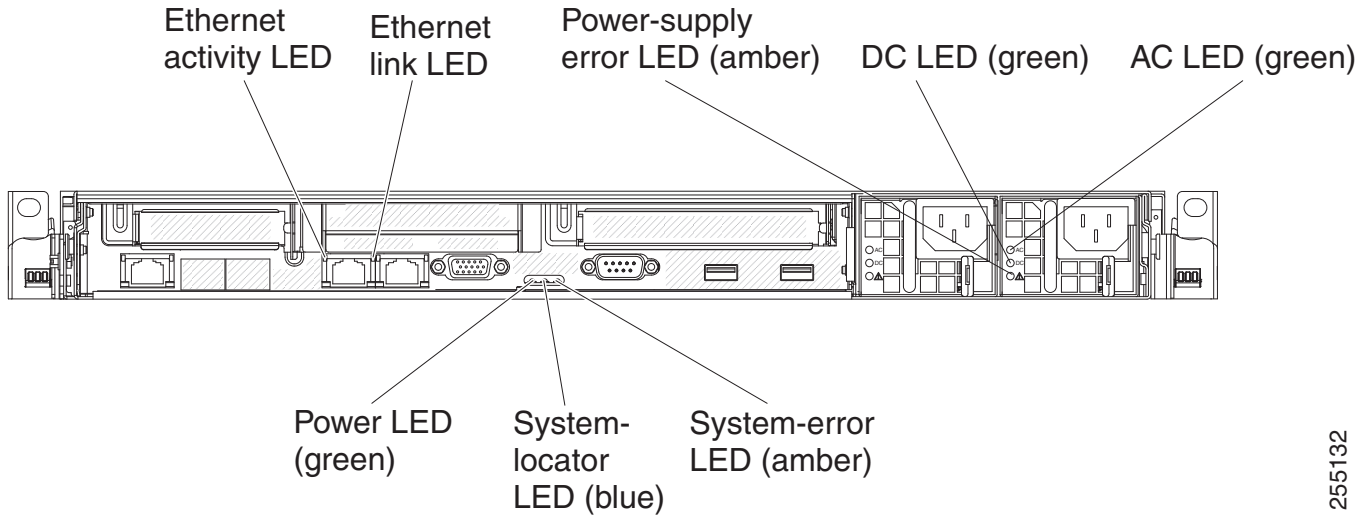
Note

The maximum video resolution is 1600 x 1200 at 75 Hz.

- **Serial connector:** Connect the serial console cable to this connector.
- **USB connectors:** Connect a USB device, such as a USB mouse or keyboard to any of these connectors.
- **IMM 10/100 Mbps Ethernet port:** Use this port to manage the mobility services engine, using a dedicated management network. If you use this connector, the IMM cannot be accessed directly from production network. A dedicated management network provides additional security by physically separating the management network traffic from the production network. You can use the `immconfig` script provided with the mobility services engine to configure it to use a dedicated systems management network or a shared network.
- **Ethernet connectors:** Use either of these connectors to connect the mobility services engine to a network. When you use the Ethernet 1 connector, the network can be shared with the IMM through a single network cable. See additional notes about the IMM configuration and access for details.

Figure 2-6 shows the LEDs on the rear of the mobility services engine.

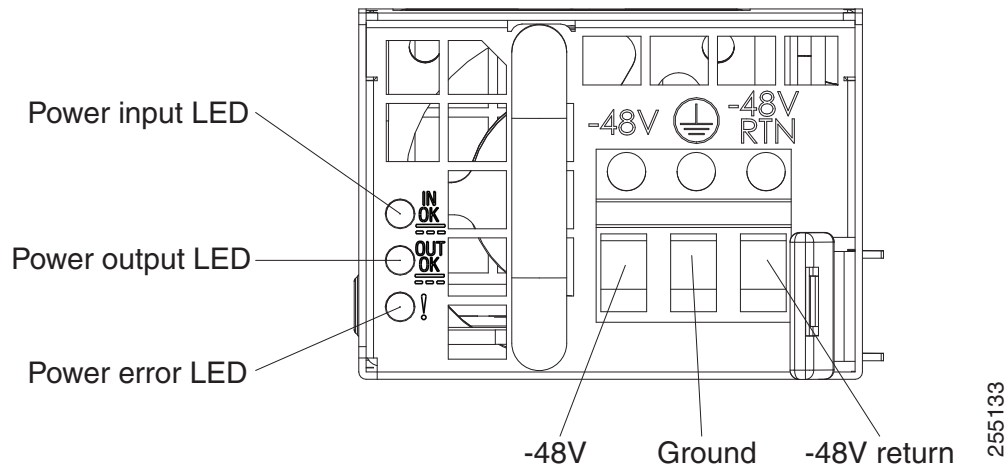
Figure 2-6 Cisco 3355 Mobility Services Engine Rear Panel LEDs



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Figure 2-7 shows a detailed view of the LEDs on a dc power supply.

Figure 2-7 Close Up of Cisco 3355 Mobility Services Engine DC Power Supply LEDs



255133

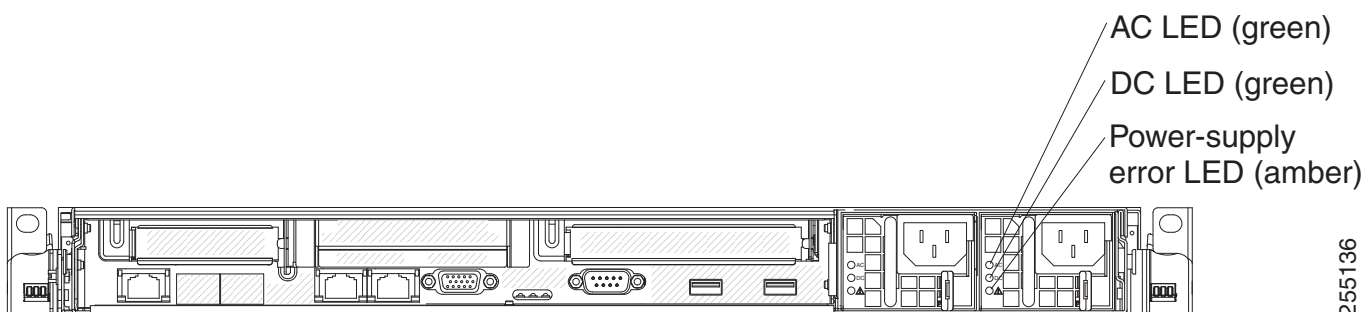
- **Ethernet activity LEDs:** When these LEDs are lit, they indicate that the mobility services engine is transmitting to or receiving signals from the Ethernet LAN that is connected to the Ethernet port.
- **Ethernet link LEDs:** When these LEDs are lit, they indicate that there is an active link connection on the 10BASE-T, 100BASE-TX, or 1000BASE-TX interface for the Ethernet port.
- **AC power LED:** Each hot-swap power supply has an ac power LED and a dc power LED. When the ac power LED is lit, it indicates that sufficient power is coming into the power supply through the power cord. During typical operation, both the ac and dc power LEDs are lit.
- **IN OK power LED:** Each hot-swap dc power supply has an IN OK power LED and an OUT OK power LED. When the IN OK power LED is lit, it indicates that sufficient power is coming into the power supply through the power cord. During typical operation, both the IN OK and OUT OK power LEDs are lit.

- **DC power LED:** Each hot-swap power supply has a dc power LED and an ac power LED. When the dc power LED is lit, it indicates that the power supply is supplying adequate dc power to the system. During typical operation, both the ac and dc power LEDs are lit.
- **OUT OK power LED:** Each hot-swap dc power supply has an IN OK power LED and an OUT OK power LED. When the OUT OK power LED is lit, it indicates that the power supply is supplying adequate dc power to the system. During typical operation, both the IN OK and OUT OK power LEDs are lit.
- **System-error LED:** When this LED is lit, it indicates that a system error has occurred. An LED on the light path diagnostics panel is also lit to help isolate the error.
- **Power-on LED:** When this LED is lit and not flashing, it indicates that the mobility services engine is turned on. The states of the power-on LED are as follows:
 - **Off:** Power is not present, or the power supply or the LED itself has failed.
 - **Flashing rapidly (4 times per second):** The mobility services engine is turned off and is not ready to be turned on. The power-control button is disabled. This will last approximately 20 to 40 seconds.
 - **Flashing slowly (once per second):** The mobility services engine is turned off and is ready to be turned on. You can press the power-control button to turn on the mobility services engine.
 - **Lit:** The mobility services engine is turned on.
 - **Fading on and off:** The mobility services engine is in a reduced-power state. To wake the mobility services engine, press the power-control button or use the IMM Web interface. See the *Integrated Management Module User's Guide* for information on logging on to the IMM Web interface.
- **System-locator LED:** Use this LED to visually locate the mobility services engine among other servers. You can use the *Integrated Management Module User's Guide* to light this LED remotely.

Power-supply LEDs

Figure 2-8 shows the location of the power-supply LEDs on the rear of the Cisco 3355 Mobility Services Engine. See Table 2-2 for additional information about solving power-supply problems.

Figure 2-8 Location of Cisco 3355 Mobility Services Engine Power Supply LEDs



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Table 2-2 describes the problems that are indicated by various combinations of the power-supply LEDs on an ac power supply and suggested actions to correct the detected problems.

Table 2-2 Cisco 3355 Mobility Services Engine AC Power Supply Troubleshooting

AC power-supply LEDs			Description	Action	Notes
AC	DC	Error (!)			
On	On	Off	Normal operation		
Off	Off	Off	No AC power to the mobility services engine or a problem with the AC power source.	<ol style="list-style-type: none"> 1. Check the AP power to the mobility services engine. 2. Make sure that the power cord is connected to a functioning power source. 3. Restart the mobility services engine. If the error remains, check the power supply LEDs. 4. Replace the power supply. 	This is a normal condition when no AC power is present.
Off	Off	On	No AC power to the mobility services engine or a problem with the AC power source and the power supply had detected an internal problem.	<ol style="list-style-type: none"> 1. Make sure that the power cord is connected to a functioning power source. 2. Replace the power supply. 	This happens only when a second power supply is providing power to the mobility services engine.
Off	On	Off	Faulty power supply	Replace the power supply.	
Off	On	On	Faulty power supply	Replace the power supply.	
On	Off	Off	Power supply not fully seated, faulty system board, or faulty power supply	<ol style="list-style-type: none"> 1. Reseat the power supply. 2. If this action does not resolve the problem, replace the power supply. If replacing the power supply does not resolve the issue, contact Cisco TAC for assistance. 	Typically indicates a power supply is not fully seated.
On	Off	On	Faulty power supply	Replace the power supply.	
On	On	On	Power supply is faulty but still operational	Replace the power supply.	

Cisco 3355 Mobile Services Engine Power Features

Specific steps to power-on the Cisco 3355 Mobility Services Engine are provided in [Powering On the Mobility Services Engine, page 2-28](#).

When the mobility services engine is connected to an ac power source but is not turned on, the operating system does not run, and all core logic except for the service processor (the Integrated Management Module) is shut down; however, the mobility services engine can respond to requests to the service processor, such as a remote request to turn on the mobility services engine. The power-on LED flashes to indicate that the mobility services engine is connected to power but is not turned on.

Turning on the Cisco 3355 Mobility Services Engine

Approximately 5 seconds after the mobility services engine is connected to power, one or more fans might start running to provide cooling while the system is connected to power, and the power-on button LED will blink quickly. Approximately 20 to 40 seconds after the mobility services engine is connected to power, the power-control button becomes active (the power-on LED will blink slowly), and one or more fans might start running to provide cooling while the mobility services engine is connected to power. You can turn on the mobility services engine by pressing the power-control button.

If a power failure occurs while the mobility services engine is turned on, the system will restart automatically when power is restored.

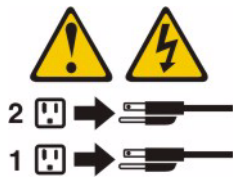
Turning off the Cisco 3355 Mobility Services Engine

When you turn off the mobility services engine and leave it connected to power, it can respond to requests to the service processor, such as a remote request to turn on the mobility services engine. While the mobility services engine remains connected to power, one or more fans might continue to run. To remove all power from the mobility services engine, you must disconnect it from the power source.



Caution

The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

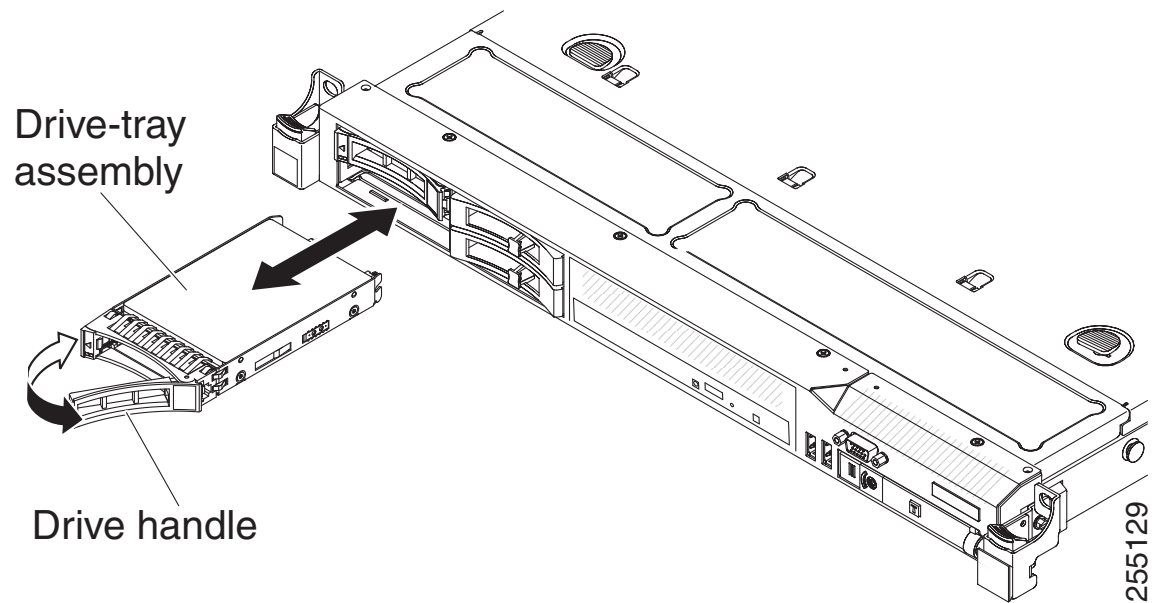


The integrated management module (IMM) can turn off the mobility services engine as an automatic response to a critical system failure.

Replacing a Failed Hot-Swap Hard Disk Drive

To replace a 2.5-inch hot-swap SAS hard disk drive, complete the following steps.

You can order replacement hard disk drives from Cisco. The replacement part PID is AIR-SRVR-146GB-HD=.



-
- Step 1** Read the safety information in [Safety Considerations and Translated Safety Warnings, page A-1](#).
- Step 2** Touch the static-protective package that contains the drive to any unpainted metal surface on the mobility services engine; then, remove the drive from the package and place it on a static-protective surface.
- Step 3** Ensure that the drive you are replacing has failed before pulling it out of the drive slot. Press on the tray handle to unlock the drive. Pull on the tray handle to remove the drive.
- Step 4** Install the hard disk drive in the drive bay:
- a. Make sure that the tray handle is in the open (unlocked) position.
 - b. Align the drive assembly with the guide rails in the bay.
 - c. Gently push the drive assembly into the bay until the drive stops.
 - d. Rotate the tray handle to the closed (locked) position.
 - e. Check the hard disk drive status LED to verify that the hard disk drive is operating correctly. If the amber hard disk drive status LED for a drive is lit continuously, that drive is faulty and must be replaced. If the green hard disk drive activity LED is flashing, the drive is being accessed.
-

Replacing a Hot-Swap AC Power Supply

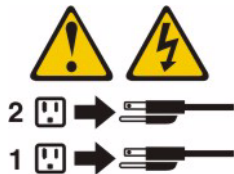
The following section describes the type of ac power supply that the server supports and other information that you must consider when you replace a failed power supply:

- The Cisco 3355 Mobility Services Engine comes with two 675-watt hot-swap 12-volt output power supplies that connect to power supply bays 1 and 2. The input voltage is 110 V ac or 220 V ac auto-sensing.
- Power supply 1 is the default/primary power supply. If power supply 1 fails, you must replace the power supply immediately.

- You can order replacement power supplies from Cisco. The replacement part PID is AIR-SRVR-PWR=.
- These power supplies are designed for parallel operation. In the event of a power-supply failure, the redundant power supply continues to power the system.

**Caution**

The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

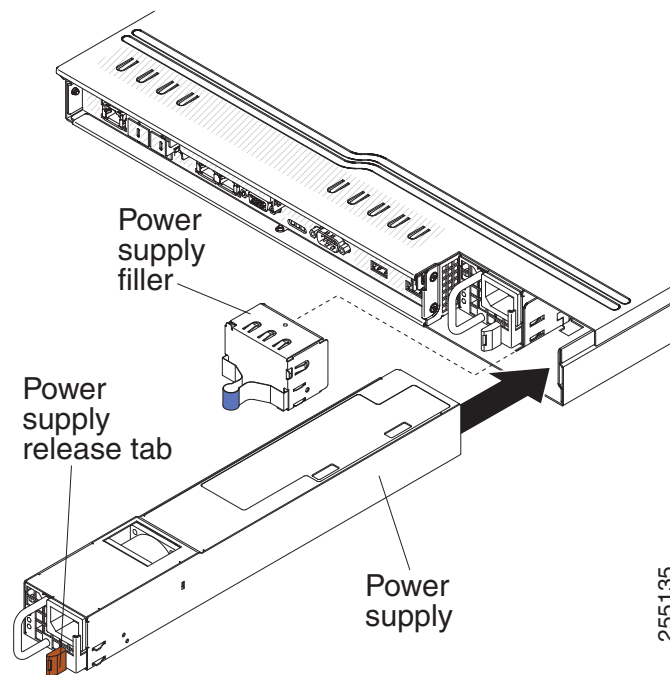
**Caution**

Never remove the cover on a power supply or any part that has the following label attached. Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.



To install a hot-swap power supply, complete the following steps.

- Step 1** Read the safety information in [Safety Considerations, page A-2](#).
- Step 2** Touch the static-protective package that contains the hot-swap power supply to any unpainted metal surface on the mobility services engine; then, remove the power supply from the package and place it on a static-protective surface.
- Step 3** Remove the failed power supply first. Grasp the handle on the rear of the power supply and slide the power supply out from the chassis.



- Step 4** Grasp the handle on the rear of the power supply and slide the power supply forward into the power-supply bay until it clicks. Make sure that the power supply connects firmly into the power-supply connector.
- Step 5** Route the power cord through the handle so that it does not accidentally become unplugged.
- Step 6** Connect the power cord for the new power supply to the power-cord connector on the power supply.
- Step 7** Connect the other end of the power cord to a properly grounded electrical outlet.
- Step 8** Make sure that the ac power LED and the dc power LED on the ac power supply are lit, indicating that the power supply is operating correctly. The two green LEDs are to the right of the power-cord connector.

Connecting the Cables

Figure 2-9 shows the locations of the input and output connectors on the front of the server.

Figure 2-9 Front of Cisco 3355 Mobility Services Engine

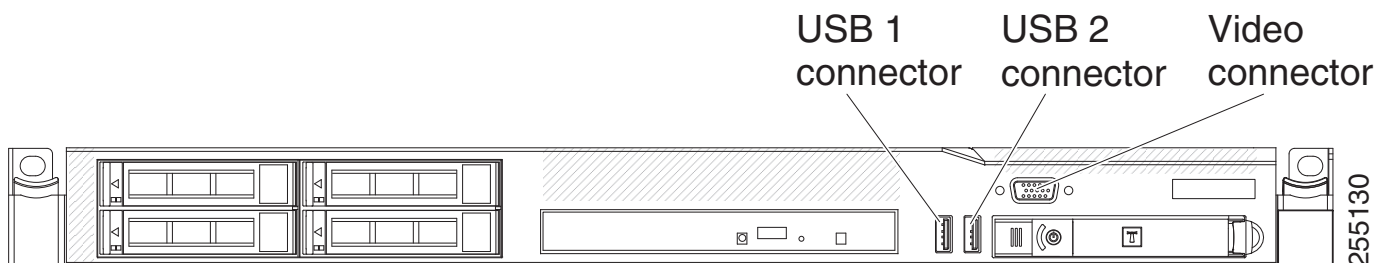
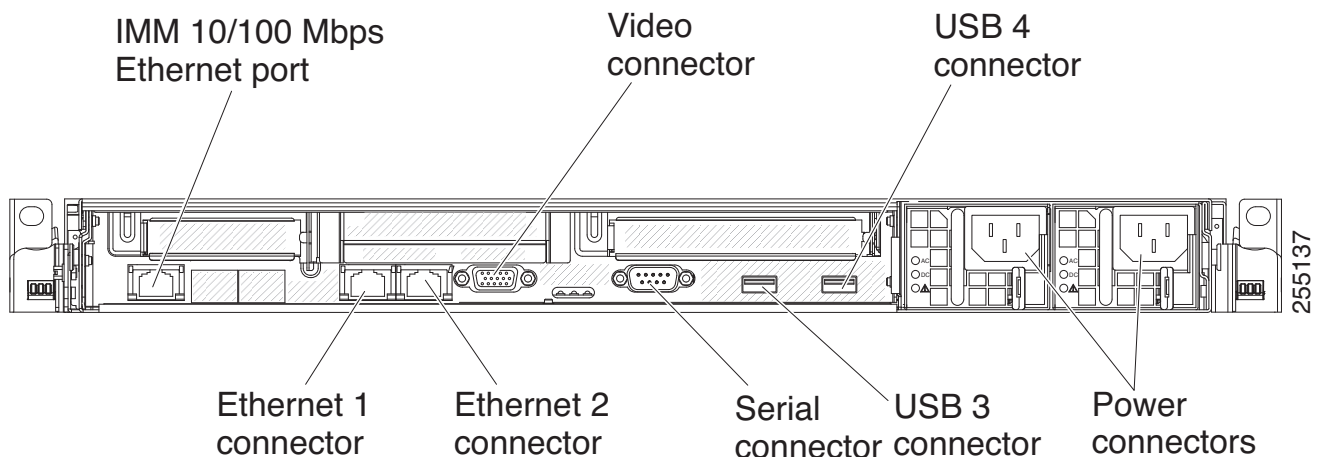


Figure 2-10 shows the locations of the input and output connectors on the rear of the server.

Figure 2-10 Rear of Cisco 3355 Mobility Services Engine



Connecting and Using the CLI Console

For initial system configuration, use the command-line interface (CLI) console. The CLI console connects to the mobility services engine back-panel DB9 console port. [Figure 2-5 on page 2-20](#) shows the console port on the back panel of the mobility services engine. Back panel components are described in [Rear Panel Components, page 2-20](#).

Use these terminal emulator settings for the CLI console session:

- 9600 baud
- 8 data bits
- no flow control
- 1 stop bit
- no parity

Powering On the Mobility Services Engine

When you apply AC power to a mobility services engine, the bootup script initializes the operating system and its stored configurations. You are prompted to enter a user ID and password and enter key configuration details.

Follow these steps to power up the mobility services engine.

-
- Step 1** Plug an AC power cord into the back of the two power supplies ([Figure 2-5 on page 2-20](#)). If only one power supply is connected to a power source, the system will still function correctly but the monitoring components of the mobility services engine will detect the absence of the second power supply and send an alert to Prime Infrastructure. Connect the other end to a grounded 100 to 240 VAC 50/60 Hz electrical outlet.

The end of the power cord that plugs into the mobility services engine conforms with the IEC 320 standard.

Step 2 Use the front-panel Power On/Standby button, located in the operator information panel, to turn the mobility services engine on ([Figure 2-2 on page 2-15](#)).

Step 3 At the login prompt, enter the mobility services engine operating user ID and password. The default user ID is *root* and the default password is *password*.

The user ID and password are case sensitive.

You are now logged into the mobility services engine operating system.

Continue to the [“Configuring the Mobility Services Engine” section on page 2-29](#).

Configuring the Mobility Services Engine

Minimal configuration is done for the mobility services engine as part of installation using the console. All configuration beyond the initial setup using the automatic installation is done with Cisco Prime Infrastructure. For details on automatic installation refer to the [“Automatic Installation Script” section on page 2-29](#).

**Note**

You must change the default root password during initial configuration of the mobility services engine to ensure optimum network security.

- You are prompted to change the password during the automatic setup script.
 - You can also change the password using the Linux command, **passwd**.
-

Automatic Installation Script

**Note**

It is highly recommended that all relevant items be configured during initial setup to ensure optimum operation of the mobility services engine in your network. The hostname and either the Ethernet-0 (eth0) or the Ethernet-1 (eth1) port *must* always be configured during the automatic installation.

**Note**

You can rerun the automatic installation script at any time to add or change parameters. There is no need to re-enter values that you do not want changed during one of these updates.

**Note**

If you do not want to configure an item, enter **skip** and you are prompted for the next configuration step. Any setting skipped is retained and not modified.

The automatic installation script that displays to the screen is shown below along with descriptive text.

Example text: Indicates the installation script that displays to the console.

Body text: Provides additional information to the user about steps within the script.

Enter the login *root*.

localhost.localdomain login:

Enter the password *password*.

Password:

Enter whether you would like to set up the initial parameters manually or via the setup wizard.

Setup parameters via Setup Wizard (yes/no) [yes]: **yes**

Enter **Yes** if you want to use the setup wizard or **No** if you want to manually set the parameters. Only experienced Linux system administrators should opt to configure the system using the setup script. The option in square brackets is the default. You can press **Enter** to choose that default.

When you enter **Yes**, the following displays on the console.

```
-----
Welcome to the Cisco Mobility Services Engine Appliance setup.
```

```
You may exit the setup at any time by typing <Ctrl+C>.
```

```
-----
Would you like to configure MSE using :
```

1. Menu mode
2. Wizard mode

```
Choose 1 or 2 : 2
```

```
-----
Mobility Services Engine Setup
```

```
Please select a configuration option below and enter the
requested information. You may exit the setup at any time
by typing <Ctrl+C>.
```

```
You will be prompted to choose whether you wish to configure a
parameter, skip it, or reset it to its initial default value.
Skipping a parameter will leave it unchanged from its current
value.
```

```
Please note that the following parameters are mandatory
and must be configured at least once.
```

- > Hostname
- > Network interface eth0
- > Timezone settings
- > Root password
- > Prime Infrastructure Password

```
You must select option 24 to verify and apply any change made during this session.
```

```
-----
Changes made will only be applied to the system once all the
information is entered and verified.
-----
```

```
Current Hostname=[mse-vm42]
Configure Hostname? (Y)es/(S)kip/(U)se default [Skip]: s

Current eth0 interface IP address=[172.19.28.97]
Current eth0 interface netmask=[255.255.254.0]
Current IPv4 gateway address=[172.19.28.3]
Configure eth0 interface parameters? (Y)es/(S)kip/(U)se default [Skip]: s

Current Timezone=[America/Los_Angeles]
Configure Timezone? (Y)es/(S)kip/(U)se default [Skip]: s

Root password has not been configured.
Configure root password? (Y)es/(S)kip/(U)se default [Skip]: s

Network Time Protocol (NTP) Setup.

If you choose to enable NTP, the system time will be
configured from NTP servers that you select. Otherwise,
you will be prompted to enter the current date and time.

NTP is currently enabled.
Current NTP server 1=[172.19.28.250]
A second NTP server has not been defined.
Configure NTP related parameters? (Y)es/(S)kip/(U)se default [Skip]: s

Cisco Prime Infrastructure communication password has not been configured.
Configure Prime Infrastructure password? (Y)es/(S)kip/(U)se default [Skip]: s
Configuration of mandatory parameters is complete. Do you want to continue with remaining
parameters ? (Y)es/(N)o/(U)se default [no]: y

Current domain=[cisco.com]
Configure domain name? (Y)es/(S)kip/(U)se default [Skip]: s

Current High Availability role=[Primary]
Configure High Availability? (Y)es/(S)kip/(U)se default [Skip]: s

The second network interface eth1 is currently disabled.
Configure eth1 interface parameters? (Y)es/(S)kip/(U)se default [Skip]: s

Domain Name Service (DNS) Setup
DNS is currently enabled.
Current DNS server 1=[171.70.168.183]
Configure DNS related parameters? (Y)es/(S)kip/(U)se default [Skip]: s

MSE can be configured to restart a year from now (or 6 months
under DoD mode) on a given day and time
Future Restart Time is configured, MSE will be restarted on Saturday,Aug,09,2014 at 2:00
Configure future MSE restart day and time? (Y)es/(S)kip [Skip]: s

A Remote Syslog Server has not been configured.
Configure Remote Syslog Server Configuration parameters? (Y)es/(S)kip/(U)se default
[Skip]: s

Host access control is currently not configured.
Configure Host access control settings? (Y)es/(S)kip [Skip]: s

Audit daemon reads audit data from the kernel and logs them to files.
Audit rules are not defined.
Configure audit rules and enable Audit daemon? (Y)es/(S)kip/(U)se default [Skip]: s

Current Login Banner = [Cisco Mobility Service Engine]
Configure Login Banner (Y)es/(S)kip/(U)se default [Skip]: s

System console is not restricted.
```

Configure system console restrictions? (Y)es/(S)kip/(U)se default [Skip]: s

SSH root access is currently enabled.

Configure SSH access for root? (Y)es/(S)kip/(U)se default [Skip]: s

Single user mode password check is currently disabled.

Configure single user mode password check (Y)es/(S)kip/(U)se default [Skip]: s

Login and password strength related parameter setup.

Maximum number of days a password may be used : 99999

Minimum number of days allowed between password changes : 0

Minimum acceptable password length : 7

Login delay after failed login : 5 seconds

Checking for strong passwords is currently enabled.

Configure login/password related parameters? (Y)es/(S)kip/(U)se default [Skip]: s

GRUB password is not currently configured.

Configure GRUB password (Y)es/(D)isable/(S)kip/(U)se default [Skip]: s

Enabling Root Access Control will

a) disable SSH access.

b) change root password to have it hidden from end user.

c) create an admin user for non-root access to MSE.

d) terminate all active SSH sessions, when changes are applied with "Verify and apply changes" option.

Thus access will be restricted to admin user through serial console only.

*** IMPORTANT *** :

First 3 actions mentioned above will take effect immediately after enabling Root Access Control, even before executing "Verify and Apply changes".

Configure Root Access Control? (Y)es/(S)kip/(U)se default [Skip]: s

Enabling this will start MSE service automatically whenever system boots up.

Current MSE Auto start setting: enabled

Auto start MSE after boot up (Y)es/(D)isable/(S)kip/(U)se default [Skip]: s

Please verify the following setup information.

-----BEGIN-----

No changes were made to the existing setup. All setup parameters will be left as they are.

-----END-----

You may enter "yes" to proceed with configuration, "no" to make more changes, or "^" to go back to the previous step.

Is the above information correct (yes, no, or ^):



Note

If you want to make changes the parameters mentioned above, please choose Yes and enter Y. The default option is Skip (S).



Note

See the mandatory parameters in the following section [Mandatory Parameters](#).

New Installation of Mobility Services Engine

To install the Mobility Services Engine (MSE) in console mode, follow these steps:

Go to the installers directory by entering `cd /opt/installers`.

To show the list of all the installers files enter `ls`.

Choose the 8.0 installer file.

```
[root@mse-vm42 installers]# ./CISCO-MSE-L-K9-8-0-1-75-64bit.bin

Preparing to install...
Extracting the JRE from the installer archive...
Unpacking the JRE...
Extracting the installation resources from the installer archive...
Configuring the installer for this system's environment...

Launching installer...

Preparing CONSOLE Mode Installation...

=====
Cisco Mobility Services Engine      (created with InstallAnywhere by Macrovision)
-----

=====
Introduction
-----

InstallAnywhere will guide you through the installation of Cisco Mobility
Services Engine (MSE)

It is strongly recommended that you quit all programs and applications before
continuing with this installation.

Respond to each prompt to proceed to the next step in the installation.  If you
want to change something on a previous step, type 'back'.

PRESS <ENTER> TO CONTINUE:

=====

Installing MSE version: 8.0.1.75

=====

High Availability Role
-----

Select a high availability role for this server
```

```
->1- Primary
    2- Secondary
```

```
ENTER THE NUMBER FOR YOUR CHOICE, OR PRESS <ENTER> TO ACCEPT THE DEFAULT:
: 1
```

```
=====
Auto Startup
-----
```

The Cisco MSE is configured to startup automatically at system boot up.
You can modify this setting using setup.sh after installation is completed.

```
=====
Installing...
-----
```

```
[-----|-----|-----|-----]
[-----|-----|-----|-----]
```

```
=====
Database Installation
-----
```

The installer will now install the database. This may take a long time
(up to 30 minutes). Do not cancel the installer during this step.

Installing Database files

```
Step 1/3 - Installing Database files
Step 1/3 Completed
Step 2/3 - Configuring Database
Step 2/3 Completed
Step 3/3 - Updating patches
Step 3/3 Completed
```

Installation of database completed

```
=====
Post Installation
-----
```

Running Post-install scripts

```
Step 1/2 - Installing Packages
Step 1/2 Completed
Step 2/2 - Configuring System Settings
Step 2/2 Completed
```

Completed Post install scripts

```
=====
Upgrade/Install Analytics Service
-----
```

This might take a while depending on the size of data on the system

Running Analytics install scripts

```

Step 1/2 - Installing Analytics server
Step 1/2 Completed
Step 2/2 - Applying System Settings
Step 2/2 Completed
Analytics Install completed

```

```

=====
Installation Complete
-----

```

Congratulations. Cisco Mobility Services Engine has been successfully installed at:

```
/opt/mse
```

```
!!!! IMPORTANT NOTE !!!!
```

The system is minimally configured right now. It is strongly recommended that you run the setup script under `/opt/mse/setup/setup.sh` to configure all appliance related parameters immediately after installation is complete.

```
PRESS <ENTER> TO EXIT THE INSTALLER: [root@mse-vm42 installers]#
```

Upgrade of Mobility Services Engine



Note

During Analytics Service Upgrade, the installer deletes the database backups from the flash recovery area using RMAN (Recovery Manager). Please copy the database backups to other location before the upgrade.

To upgrade the Mobility Services Engine (MSE) installation in console mode, follow these steps:

Go to the installers directory by entering `cd /opt/installers`.

To show the list of all the installers files, enter `ls`.

Choose the 8.0 installer file.

```

[root@mse-vm42 installers]# ./CISCO-MSE-L-K9-8-0-1-75-64bit.bin

Preparing to install...
Extracting the JRE from the installer archive...
Unpacking the JRE...
Extracting the installation resources from the installer archive...
Configuring the installer for this system's environment...

Launching installer...

Preparing CONSOLE Mode Installation...

```

```

=====
Cisco Mobility Services Engine      (created with InstallAnywhere by Macrovision)
-----

=====
Introduction
-----

InstallAnywhere will guide you through the installation of Cisco Mobility
Services Engine (MSE)

It is strongly recommended that you quit all programs and applications before
continuing with this installation.

Respond to each prompt to proceed to the next step in the installation.  If you
want to change something on a previous step, type 'back'.

PRESS <ENTER> TO CONTINUE:

=====

Installing MSE version: 8.0.1.75

=====
Installation Check
-----

Cisco MSE upgrade procedure may take 30-50 minutes to complete, depending on
the amount of data on the system.
System reboot is required after upgrade is complete.

During the upgrade process, please ensure that the session to the MSE is not
terminated.  User action is needed at the end of the installation process.

The system appears to have a Cisco Mobility Services Engine already installed.
If you choose "Continue", all currently installed components will be removed
permanently (only database and license files will be preserved).

->1- Exit
   2- Continue

ENTER THE NUMBER OF THE DESIRED CHOICE, OR PRESS <ENTER> TO ACCEPT THE
DEFAULT: 2

=====
MSE backup
-----

It is strongly recommended to take a backup of the MSE before proceeding with
the upgrade.
Have you completed a successful MSE backup?

->1- Yes
   2- No

ENTER THE NUMBER OF THE DESIRED CHOICE, OR PRESS <ENTER> TO ACCEPT THE
DEFAULT: 1

=====
Aeroscout Check

```

```

-----

The system appears to have Aeroscout Engine installed.
If you choose "Continue", the Aeroscout Engine and licenses will be removed.
Tags will continue to be tracked using the Cisco Tag Engine.

->1- Exit
   2- Continue

ENTER THE NUMBER OF THE DESIRED CHOICE, OR PRESS <ENTER> TO ACCEPT THE
DEFAULT: 2

=====
Current Role - Primary
-----

High Availability Role is set to Primary from previous installation.
To change role to Secondary or re-configure high availability settings, please
execute setup.sh after installation is completed.

=====
Auto Startup
-----

The Cisco MSE is configured to startup automatically at system boot up.
You can modify this setting using setup.sh after installation is completed.

=====
Installing...
-----

[=====|=====|=====|=====]
[-----|-----|-----|-----]

=====
Database Installation
-----

The installer will now install the database. This may take a long time
(up to 30 minutes). Do not cancel the installer during this step.

Installing Database files

Step 1/3 - Installing Database files
Step 1/3 Completed
Step 2/3 - Configuring Database
Step 2/3 Completed
Step 3/3 - Updating patches
Step 3/3 Completed

Installation of database completed

=====
Post Installation
-----

Running Post-install scripts

Step 1/2 - Installing Packages
Step 1/2 Completed
Step 2/2 - Configuring System Settings

```

```

Step 2/2 Completed

Completed Post install scripts

=====
Upgrade/Install Analytics Service
-----

This might take a while depending on the size of data on the system

Step 1 - Installing 7_5 PATCH
7_5 PATCH installed
Step 2 - Installing LIQUIBASE PATCH
LIQUIBASE PATCH installed
Step 3 - Installing AGGREGATION PATCH
Starting AGGREGATION PATCH at 22:57
AGGREGATION PATCH completed at 22:59
Analytics upgrade is Complete

=====
Installation complete for upgrade
-----

Congratulations. Cisco Mobility Services Engine has been successfully installed
at:

/opt/mse

!!!! IMPORTANT NOTE !!!!

The system is minimally configured right now. It is strongly recommended that
you run the setup script under /opt/mse/setup/setup.sh to configure all
appliance related parameters immediately after installation is complete.

Reboot the system after the successful upgrade to the MSE.

System components have been updated during installation.
Do you want to reboot now or later?

->1- Now
   2- Later

ENTER THE NUMBER OF THE DESIRED CHOICE, OR PRESS <ENTER> TO ACCEPT THE
DEFAULT: 1
Rebooting system now....

Broadcast message from root (Thu Jul 24 23:11:52 2014):

The system is going down for reboot NOW!

```

Mandatory Parameters

Configure the host name

```

Current hostname=[mse]
Configure hostname? (Y)es/(S)kip/(U)se default [Yes]:Y

```

The host name should be a unique name that can identify the device on the network. The hostname should start with a letter, end with a letter or number, and contain only letters, numbers, and dashes.

```
Enter a host name [mse]: mse-j05
```

Enter a domain name for the network domain to which this device belongs. The domain name should start with a letter, and it should end with a valid domain name suffix such as *.com*. It must contain only letters, numbers, dashes, and dots.

```
Current domain=[]
Configure domain name? (Y)es/(S)kip/(U)se default [Yes]: s
```

```
Current IP address=[1.1.1.10]
Current eth0 netmask=[255.255.255.0]
Current gateway address=[1.1.1.1]
Configure eth0 interface parameters? (Y)es/(S)kip/(U)se default [Yes]: y
```

Enter **Yes** if you want to provide information for Ethernet-0 (eth0) interface.



Note A network administrator can provide you with the IP address, network mask, and default gateway address for the prompts that follow.

Enter an IP address for first ethernet interface of this machine.

```
Enter eth0 IP address [1.1.1.10]: 172.19.35.236
```

Enter the network mask for IP address 172.19.35.236.

```
Enter network mask [255.255.255.0]: 255.255.254.0
```

Enter a default gateway address for this machine.

Note that the default gateway must be reachable from the first ethernet interface.

```
Enter default gateway address [1.1.1.1]:172.19.34.1
```

The second ethernet interface is currently disabled for this machine.

```
Configure eth1 interface parameters? (Y)es/(S)kip/(U)se default [Yes]:s
```

Enter **Yes** if you want to provide information for a second ethernet (eth1) interface.



Note Entry of a second ethernet interface (eth1) can be skipped by entering **skip**.

Enter DNS information.

```
Domain Name Service (DNS) Setup
DNS is currently enabled.
No DNS servers currently defined
Configure DNS related parameters? (Y)es/(S)kip/(U)se default [Yes]: s
```

Enter time zone information.



Note Communications between the mobility services engine, Cisco Prime Infrastructure, and the controller are in universal time code (UTC). Local time zones are configured on the mobility services engine to assist network operations center personnel in locating events within logs. Configuring NTP on each system provides devices with the UTC time.

```
Current timezone=[America/New_York]
Configure timezone? (Y)es/(S)kip/(U)se default [Yes]: y
```

Enter the current date and time.

Please identify a location so that time zone rules can be set correctly.
Please select a continent or ocean.

- 1) Africa
- 2) Americas
- 3) Antarctica
- 4) Arctic Ocean
- 5) Asia
- 6) Atlantic Ocean
- 7) Australia
- 8) Europe
- 9) Indian Ocean
- 10) Pacific Ocean
- 11) UTC - I want to use Coordinated Universal Time.
- 12) Return to previous setup step (^).

#? **2**

Please select a country.

- | | |
|------------------------|-----------------------------|
| 1) Anguilla | 27) Honduras |
| 2) Antigua & Barbuda | 28) Jamaica |
| 3) Argentina | 29) Martinique |
| 4) Aruba | 30) Mexico |
| 5) Bahamas | 31) Montserrat |
| 6) Barbados | 32) Netherlands Antilles |
| 7) Belize | 33) Nicaragua |
| 8) Bolivia | 34) Panama |
| 9) Brazil | 35) Paraguay |
| 10) Canada | 36) Peru |
| 11) Cayman Islands | 37) Puerto Rico |
| 12) Chile | 38) St Barthelemy |
| 13) Colombia | 39) St Kitts & Nevis |
| 14) Costa Rica | 40) St Lucia |
| 15) Cuba | 41) St Martin (French part) |
| 16) Dominica | 42) St Pierre & Miquelon |
| 17) Dominican Republic | 43) St Vincent |
| 18) Ecuador | 44) Suriname |
| 19) El Salvador | 45) Trinidad & Tobago |
| 20) French Guiana | 46) Turks & Caicos |
| 21) Greenland | 47) United States |
| 22) Grenada | 48) Uruguay |
| 23) Guadeloupe | 49) Venezuela |
| 24) Guatemala | 50) Virgin Islands (UK) |
| 25) Guyana | 51) Virgin Islands (US) |
| 26) Haiti | |

#? **47**

Please select one of the following time zone regions.

- 1) Eastern Time
- 2) Eastern Time - Michigan - most locations
- 3) Eastern Time - Kentucky - Louisville area
- 4) Eastern Time - Kentucky - Wayne County
- 5) Eastern Time - Indiana - most locations
- 6) Eastern Time - Indiana - Daviess, Dubois, Knox & Martin Counties
- 7) Eastern Time - Indiana - Pulaski County


```

8) Eastern Time - Indiana - Crawford County
9) Eastern Time - Indiana - Pike County
10) Eastern Time - Indiana - Switzerland County
11) Central Time
12) Central Time - Indiana - Perry County
13) Central Time - Indiana - Starke County
14) Central Time - Michigan - Dickinson, Gogebic, Iron & Menominee Counties
15) Central Time - North Dakota - Oliver County
16) Central Time - North Dakota - Morton County
17) Mountain Time
18) Mountain Time - south Idaho & east Oregon
19) Mountain Time - Navajo
20) Mountain Standard Time - Arizona
21) Pacific Time
22) Alaska Time
23) Alaska Time - Alaska panhandle
24) Alaska Time - Alaska panhandle neck
25) Alaska Time - west Alaska
26) Aleutian Islands
27) Hawaii
#? 21

```

The following information has been given:

```

United States
Pacific Time

```

```

Therefore TZ='America/Los_Angeles' will be used.
Local time is now:      Fri Feb 25 13:22:18 PST 2011.
Universal Time is now:  Fri
Is the above information OK?
1) Yes
2) No
#? y
Please enter 1 for Yes, or 2 for No.
#? 1

```

Enter NTP server information.



Note The mobility services engine and its associated controllers must be mapped to the same NTP server and the same Cisco Prime Infrastructure server. An NTP server is required to automatically synchronize time between the controller, Cisco Prime Infrastructure, and the mobility services engine.

Network Time Protocol (NTP) Setup.

If you choose to enable NTP, the system time will be configured from NTP servers that you select. Otherwise, you will be prompted to enter the current date and time.

NTP is currently disabled.

```
Configure NTP related parameters? (Y)es/(S)kip/(U)se default [Yes]: s
```

```
Current timeofday=[Fri Feb 25 13:22:29 PST 2011]
```

```
Configure time of day? (Y)es/(S)kip [Skip]: s
```

```
Enable NTP (yes/no) [no]: y
```

```
Default NTP server 1=[time.nist.gov]
```

```
Enter NTP server name or address:
```

```
NTP server address must be in the form #.#.#.3, where # is 0 to 255 hexadecimal :
separated v6 address.
```

```

Enter NTP server name or [time.nist.gov]:
Enter another NTP server IP address (or none) [none]:
Configure NTP Authentication ? (Y)es/(S)kip/(U)se default [Skip]: y
Enter NTP Auth key Number [1]:
Enter NTP Auth key Value (String) [Secret]:
Do you want to continue (yes/no) [no]: y

```



Note There is warning ‘Server is already configured’, if NTP server address given by you is reachable and then you enter the same address as NTP server 2.



Note If you enter the server name while configuring NTP settings and DNS is not configured, then there is warning ‘Please configure DNS and then reconfigure NTP settings’. The configuration exits to the main menu list.

A login banner appears when a user logs in through the console or SSH. This example shows the default banner. You can change the text that appears in this banner in the steps below. The banner is usually used to warn users that they are entering a private system.

```

Current Login Banner = [Cisco Mobility Services Engine]
Configure login banner (Y)es/(S)kip/(U)se default [Yes]: s

```

```

System console is not restricted.
Configure system console restrictions? (Y)es/(S)kip/(U)se default [Yes]: s

```

```

SSH root access is currently enabled.
Configure ssh access for root (Y)es/(S)kip/(U)se default [Yes]: s

```

```

Single user mode password check is currently disabled.
Configure single user mode password check (Y)es/(S)kip/(U)se default [Yes]: s

```

```

Configure root password? (Y)es/(S)kip/(U)se default [Yes]: s
Changing password for user root.

```

You can now choose the new password.

A valid password should be a mix of upper and lower case letters, digits, and other characters. You can use an 8 character long password with characters from at least 3 of these 4 classes or a 7 character long password containing characters from all the classes. An upper case letter that begins the password and a digit that ends it do not count towards the number of character classes used.

```

Enter new password:
Re-type new password:
passwd: all authentication tokens updated successfully.

```

```

Login and password strength related parameter setup
Maximum number of days a password may be used : 99999
Minimum number of days allowed between password changes : 0
Minimum acceptable password length : 8
Login delay after failed login : 5
Checking for strong passwords is currently enabled.

```

```

Configure login/password related parameters? (Y)es/(S)kip/(U)se default [Yes]: s

```

You can also configure a *strong* (Grand Unified Bootloader [GRUB]) password. A strong password must have a minimum of nine characters and must include two lowercase letters, two digits and two special characters (such as \$ and #). An error message displays if you enter an inadequate password.

**Caution**

If you forget the GRUB password, you cannot login and you will need to contact TAC to arrange for a Return Materials Authorization (RMA).

**Note**

If a *strong* password is not enabled, a password can be of any length.

**Note**

Passwords defined *before* a strong password is set are not affected by the *strong* password setting. Only those passwords that are set *after* the strong password is set are affected. For example, *strong* passwords will be required for passwords set later in this script, such as the Prime Infrastructure password (as noted in example below) and as passwords expire.

```
GRUB password is not currently configured.
Configure GRUB password (Y)es/(D)isable/(S)kip/(U)se default [Yes]: s
```

GRUB is the Linux bootloader. Setting a password for the GRUB loader means that each time the appliance is powered up, you will be prompted for the GRUB password you configure here.

```
*****
!! WARNING !!
```

If the GRUB password is forgotten, the appliance will be unusable as it cannot be booted up successfully. Do not configure this option unless it is required.

```
*****
Enter GRUB Password:
Confirm GRUB Password:
```

You can configure the Prime Infrastructure Communication username and password using the mobility services engine setup.sh script file.

Scenarios that you might encounter while configuring the Prime Infrastructure username and password are as follows:

- If you configure a new Prime Infrastructure username and password, the password provided is applicable for the new Prime Infrastructure username created.
- If you configure only a Prime Infrastructure username without configuring the Prime Infrastructure password, then the default password *admin* is applied to the configured username.
- If you configure only a Prime Infrastructure password without configuring the Prime Infrastructure username, then the password for the admin user is changed.
- If you configure an existing user name for the Prime Infrastructure username and also configure the password, then the password for that existing user is changed.



Note These users are API users, and they do not have corresponding OS users on the mobility services engine appliance.

Enter **Y** to enable and define a *Prime Infrastructure password*.



Note This password does not define an individual user password for access to the Cisco Prime Infrastructure GUI. This password is used for SOAP/XML authentication between systems (such as mobility services engines) and Cisco Prime Infrastructure.

```
Configure Prime Infrastructure communication username? (Y)es/(S)kip/(U)se default [Yes]: s
```

```
Configure Prime Infrastructure communication password? (Y)es/(S)kip/(U)se default [Yes]: s
```



Note It is recommended that you set a BIOS password to prevent unauthorized BIOS access.

All of the information that was entered into the install script appears on the screen.

```
Please verify the following setup information.
```

```
-----
Host name= mse-j05
Eth0 IP address=172.19.35.236, Eth0 network mask=255.255.254.0
Default gateway=171.19.34.1
Time zone=America/Los_Angeles
-----
```

```
You may enter "yes" to proceed with configuration, "no" to make
more changes, or "^" to go back to the previous step.
```

After the script configuration appears on the screen, you are asked to verify all the setup information you provided. You can enter **Yes** to proceed with the configuration, **No** to make more changes, or **^** to go back to the previous step.

```
Is the above information correct (yes, no, or ^):
```

If you enter **yes**, the configuration information is applied. Cisco recommends that you reboot the system when prompted to ensure that the changes are applied.



Note The message “***Configuration successful***” appears on the screen when the configuration is complete.

The next time you log in using *root*, only the Linux shell prompt appears and not the setup script. You can rerun the setup script at any time to change settings by logging in as *root* and running **/opt/mse/setup/setup.sh**.

The setup script generates a log file that can be found at **/opt/mse/setup/setup.log**.

Configuring an NTP Server

You can configure NTP servers to set up the time and date of the mobility services engine.

**Note**

You are automatically prompted to enable NTP and enter NTP server IP addresses as part of the automatic installation script. For more details on the automatic installation script, refer to the [“Configuring the Mobility Services Engine” section on page 2-29](#).

**Note**

If you need to add or change an NTP server installation after a mobility services engine install, rerun the automatic installation script. You can configure the NTP server without adjusting the other values by tabbing through the script. To rerun the automatic script, log in as *root* and run `/opt/mse/setup/setup.sh`.

**Note**

For more information on the NTP configuration, consult the Linux configuration guide.

Launching the Mobility Services Engine

To configure a mobility services engine to automatically launch after bootup, enter:

```
[root@mse-server1]# chkconfig msed on
```

To start the image manually, enter: `/etc/init.d/msed start`

Verifying the Mobility Services Engine Software State

You can verify the mobility services engine software state at any time. In the mobility services engine CLI interface, enter: `/etc/init.d/msed status`.

If the mobility services engine is running, the command output looks like this example:

```
-----
Server Config
-----
Product name: Cisco Mobility Services Engine
Version: x.x.x.x
Hw Version: none
Hw Product Identifier: none
Hw Serial Number: none
Use HTTPS: true
HTTPS Port: 443
Use HTTP: false
HTTP Port: 80
Legacy HTTPS: false
Legacy Port: 8001
Session timeout in mins: 30
DB backup in days: 0

-----
Server Monitor
-----
Start time: Wed Sept 30 15:24:36 EDT 2008
Server current time: Fri May 30 19:08:15 EDT 2008
Server timezone: America/New_York
Server timezone offset: -18000000
-----
Service Engine (1):
```

```

-----
NAME: Location Service
VERSION: x.x.x.x
-----
Location Service Monitor
-----
Log Modules: 262143
Log Level: INFO
Days to keep events: 2
Keep absent data in mins: 1440
Restarts: 1
Used Memory (bytes): 129851856
Allocated Memory (bytes): 3087007744
Max Memory (bytes): 3087007744
DB virtual memory (kbytes): 0
DB virtual memory limit (bytes): 256000000
DB disk memory (bytes): 4128768
DB free size (kbytes): 2856
Active Elements: 0
Active Clients: 0
Active Tags: 0
Active Rogues: 0
Active Elements Limit: 18000
Active Sessions: 0
Clients Not Tracked due to the limiting: 0
Tags Not Tracked due to the limiting: 0
Rogues Not Tracked due to the limiting: 0
Total Elements Not Tracked due to the limiting: 0

```

If the mobility services engine is not running, the command output looks like this example:

```
MSE Platform is down
```

Manually Stopping Mobility Services Engine Software

The mobility services engine software automatically runs after initial configuration and after each reboot.

Follow these steps to manually stop and restart the software:

-
- Step 1** To stop the software, enter `/etc/init.d/msed stop`.
 - Step 2** To check status, enter `/etc/init.d/msed status`.
 - Step 3** To start the software, enter `/etc/init.d/msed start`.
-

Manually Restarting a Running Mobility Services Engine

-
- Step 1** To restart a running mobility services engine, enter `/etc/init.d/msed restart`.
-

Updating Mobility Services Engine Software

You can update the mobility services engine using the Cisco Prime Infrastructure or manually download the software using a console port connected to the mobility services engine.

**Note**

If MSE is unreachable on Prime Infrastructure soon after an upgrade, you must reboot the MSE using this command as root user on the MSE: `run reboot linux`.

**Note**

For the latest Cisco Prime Infrastructure and mobility services engine compatibility and installation notes for a given release, refer to the appropriate release note at the following link: http://www.cisco.com/en/US/products/ps9742/tsd_products_support_series_home.html

Before downloading and updating software on the mobility services engine, note the following:

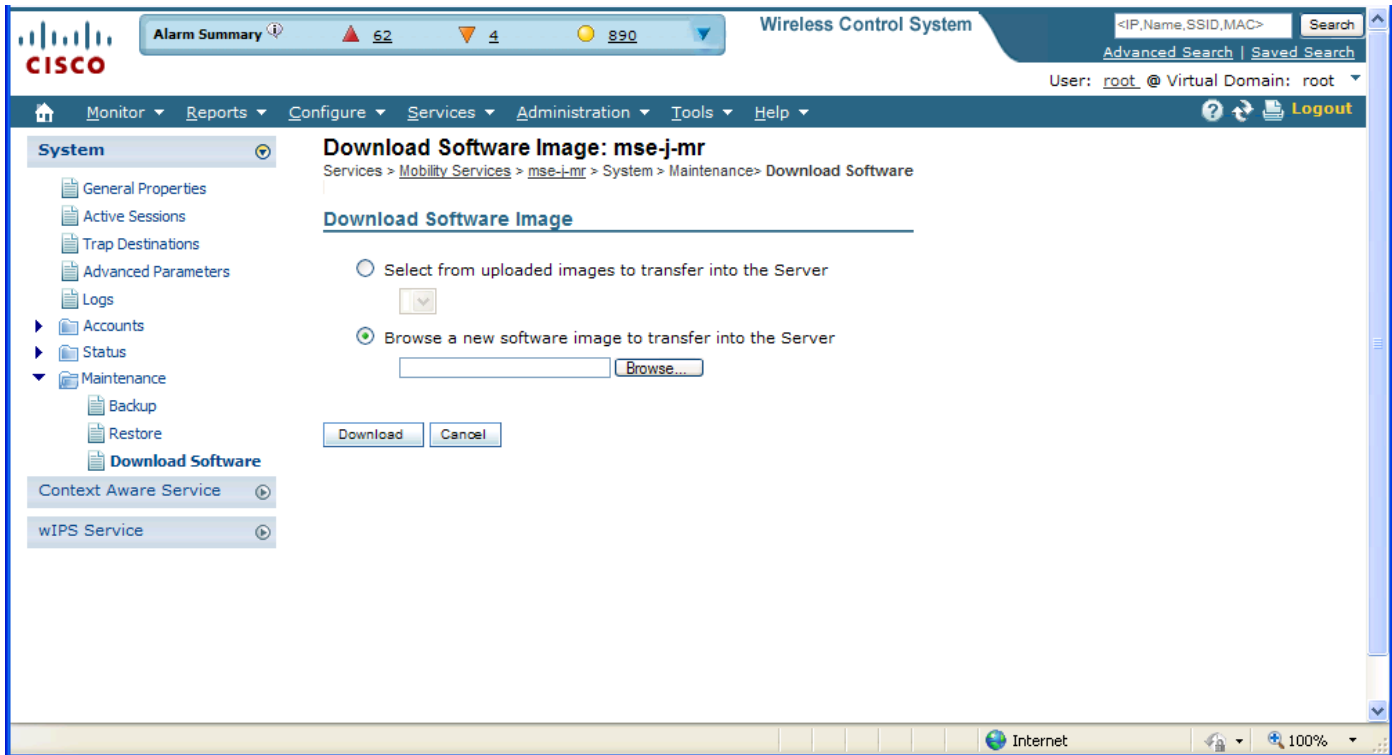
- The mobility services engine (server) image is compressed. The software image automatically decompresses during its download from Cisco Prime Infrastructure.
- Approximately 5 minutes are required for the newly loaded mobility services engine software version to appear on the Cisco Prime Infrastructure **Services > Mobility Services** window (Figure 2-11). Cisco Prime Infrastructure queries for mobility services engine connectivity and database updates every 5 minutes by default.

Downloading Software Using Cisco Prime Infrastructure

To download software to a mobility services engine using Cisco Prime Infrastructure, follow these steps:

- Step 1** Verify that you can ping the mobility services engine from Cisco Prime Infrastructure or an external FTP server, whichever you are going to use for the image download.
- Step 2** In Cisco Prime Infrastructure, choose **Services > Mobility Services** (Figure 2-11).
- Step 3** Click the name of the mobility services engine to which you want to download software.
- Step 4** Choose **Maintenance** (left panel).
- Step 5** Choose **Download Software**.

Figure 2-11 Mobility Services Window



Step 6 To download software, do one of the following:

- To download software listed in the Cisco Prime Infrastructure directory, select **Select from uploaded images to transfer into the Server**. Then, choose a binary image from the drop-down menu.

Cisco Prime Infrastructure downloads the binary images listed in the drop-down menu into the FTP server directory you have specified during the Cisco Prime Infrastructure installation.

- To use downloaded software available locally or over the network, select the **Browse a new software image to transfer into the Server** and click **Browse**. Locate the file and click **Open**.

Step 7 Click **Download** to send the software to the `/opt/installers` directory on the mobility services engine.

Step 8 After the image has been transferred to the mobility service engine, log in to the mobility services engine CLI and run the installer image from the `/opt/installers` directory by entering the `./image-name` command.

Step 9 To run the software, enter `/etc/init.d/msed start`.

Step 10 To stop the software, enter `/etc/init.d/msed stop` and to check status enter `/etc/init.d/msed status`.

Manually Downloading Software

If you do not want to automatically update the mobility services engine software using Cisco Prime Infrastructure, follow these steps to upgrade the software manually using a local (console) or remote (SSH) connection.

- Step 1** Transfer the new mobility services engine image onto the hard drive.
- Log in as root and use the binary setting to send the software image from an external FTP server root directory.

An example software image file name is *CISCO-MSE-L-K9-x-x-x-x-64bit.bin.gz*, and it changes with each release.



Note The mobility services engine image is compressed at this point.



Note The default login name for the FTP server is *ftp-user*.

Your entries should look like this example:

```
# cd /opt/installers
# ftp <FTP Server IP address>
Name: <login>
Password: <password>
binary
get CISCO-MSE-L-K9-x-x-x-x-64bit.bin.gz
<CTRL-Z>
#
```

- Verify that the image (*CISCO-MSE-L-K9-x-x-x-x-64bit.bin.gz*) is in the mobility services engine `/opt/installers` directory.
- To decompress (unzip) the image file enter:

```
gunzip CISCO-MSE-L-K9-x-x-x-x-64bit.bin.gz
```

The decompression yields a *bin* file.

- Make sure that the *CISCO-MSE-L-K9-x-x-x-x.bin* file has execute permissions for the root user. If not, enter:

```
chmod 755 CISCO-MSE-L-K9-x-x-x-x.bin
```

- Step 2** To manually stop the mobility services engine, login as *root* and enter:

```
/etc/init.d/mse stop
```

- Step 3** To install the new mobility services engine image, enter:

```
/opt/installers/CISCO-MSE-L-K9-x-x-x-x.bin
```

- Step 4** To start the new mobility services software, by enter:

```
/etc/init.d/mse start
```



Caution Do not complete the next step, which uninstalls the script files, unless the system instructs you to do so. Removing the files unnecessarily erases your historical data.

- Step 5** To uninstall the mobility services engine's script files, enter:

```
/opt/mse/uninstall
```

Recovering a Lost Root Password

If you lose or forget the root password for a mobility services engine, follow these steps below.


Note

The following steps must be done via a connection over the console port, not by connecting a keyboard, mouse and monitor to the unit.

Step 1

When the GRUB screen comes up, press **Esc** to enter the boot menu.

If you do not see the GRUB menu on your serial console, go to [Step 4](#).


Caution

If you forget the GRUB password, you cannot login and you will need to contact TAC to arrange for an RMA.

Step 2

Press **e** to edit.

Step 3

Navigate to the line beginning with "kernel," and press **e**.

If there is no "rhgb quiet console=ttys0,9600" string on the line, at the end of the line, enter a space and enter "rhgb quiet console=ttys0,9600". Then enter a space and the number one (1).

Press **Enter** to save this change.

Step 4

When you connect to the MSE via serial console and reboot, if the GRUB screen does not show up, complete the following steps:

- a. Connect a monitor and keyboard to the MSE and reboot.
- b. Once you see the GRUB screen on the attached monitor, press **Esc** to enter the boot menu.
- c. Press **e** to edit
- d. Navigate to the line beginning with "kernel," and press **e**.

Enter a space and the number one (1). The modified line should appear as follows:

```
/vmlinuz-2.6.18-53.el5 ro root=/dev/VolGroup00/LogVol100 1
```

Press **Enter** to save your changes. Continue your interaction using the monitor and keyboard.

Step 5

Press **b** to begin boot sequence.

At the end of the boot sequence, a shell prompt appears.


Note

The shell prompt does not appear if you have set up a single user mode password.

Step 6

You can change the root password by entering the **passwd** command.

Step 7

Enter and confirm the new password.

Step 8

Restart the machine.