Overview

Important Use this Getting Started Guide if the E-Series Server is installed in the Cisco 4000 Series Integrated Services Router. If the E-Series Server is installed in the Cisco 2900 or 3900 ISR G2, use the *Getting Started Guide for Cisco UCS E-Series Servers, Release 1.0.*

This chapter includes the following sections:

Cisco UCS E-Series Servers and the Cisco UCS E-Series Network Compute Engine Overview

The Cisco UCS E-Series Servers (E-Series Servers) and Cisco UCS E-Series Network Compute Engine (NCE) are a family of size-, weight-, and power-efficient blade servers that are housed within the Generation 2 Cisco Integrated Services Routers (Cisco ISR G2) and the Cisco ISR 4000 series. These servers provide a general purpose compute platform for branch-office applications deployed either as bare-metal on operating systems, such as Microsoft Windows or Linux, or as virtual machines on hypervisors, such as VMware vSphere Hypervisor, Microsoft Hyper-V, or Citrix XenServer.

The E-Series Servers are purpose-built with powerful Intel Xeon processors for general purpose compute. They come in two form factors: single-wide and double-wide. The single-wide E-Series Server fits into one service module (SM) slot, and the double-wide E-Series Server fits into two SM slots.

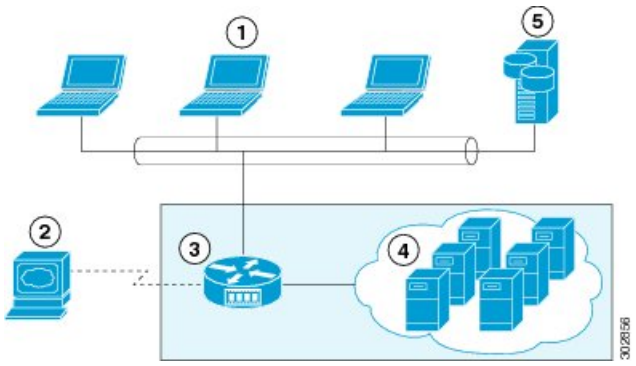
The NCEs are price-to-power optimized modules that are built to host Cisco network applications and other lightweight general-purpose applications. They come in three form factors: SM, NIM, and EHWIC. The SM E-Series NCE fits into one SM slot, the NIM E-Series NCE fits into one NIM slot, and the EHWIC E-Series NCE fits into two EHWIC slots.

Note

- The EHWIC E-Series NCE can be installed in the the Cisco ISR G2 only.
- The NIM E-Series NCE can be installed in the Cisco ISR 4000 series only.
- The Cisco ISR 4331 has one SM slot. The Cisco ISR 4321 and the Cisco ISR 4431 have no SM slots.
- Citrix XenServer is supported on the E-Series Servers only.
- Cisco UCS-E160S-M3/K9, UCS-E180D-M3/K9, and UCS-E1120D-M3/K9 servers are supported on the ISR 4000 series only.
- CIMC 3.2.x is not supported on EHWIC NCEs.

The following figure shows an example of an E-Series Server or NCE hypervisor deployment.

Figure 1: Example of an E-Series Server or NCE Hypervisor Deployment



1	Client devices	4	Virtual machines hosted on the E-Series Server or the NCE (applicable only if a hypervisor is running on the E-Series Server or NCE)
2	E-Series Server or NCE management console	5	Enterprise storage device
3			

Note For information about the supported E-Series Servers and NCE, and the maximum number of servers that can be installed per router, see the "Hardware Requirements" section in the *Hardware Installation Guide for Cisco UCS E-Series Servers and the Cisco UCS E-Series Network Compute Engine*.

Server Software

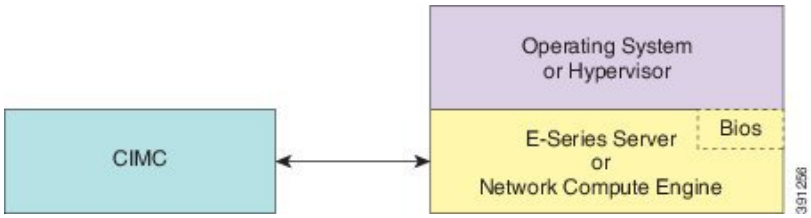
E-Series Servers and NCE require three major software systems:

- CIMC firmware

- BIOS firmware
- Operating system or hypervisor

The following figure shows how the software interacts with the server.

Figure 2: Server Software



CIMC Firmware

Cisco Integrated Management Controller (CIMC) is a separate management module built into the motherboard of the E-Series Server or NCE. A dedicated ARM-based processor, separate from the main server CPU, runs the CIMC firmware. The system ships with a running version of the CIMC firmware. You can update the CIMC firmware, but no initial installation is needed.

CIMC is the management service for the E-Series Servers and NCE. You can use a web-based GUI or SSH-based CLI to access, configure, administer, and monitor the server.

BIOS Firmware

BIOS initializes the hardware in the system, discovers bootable devices, and boots them in the provided sequence. It boots the operating system and configures the hardware for the operating system to use. BIOS manageability features allow you to interact with the hardware and use it. In addition, BIOS provides options to configure the system, manage firmware, and create BIOS error reports.

The system ships with a running version of the BIOS firmware. You can update the BIOS firmware, but no initial installation is needed.

Operating System or Hypervisor

The main server CPU runs on an operating system, such as Microsoft Windows or Linux; or on a hypervisor. You can purchase an E-Series Server or NCE with a preinstalled Microsoft Windows Server or VMware vSphere Hypervisor, or you can install your own platform.

Note For information about the platforms that have been tested on the E-Series Servers or NCE, see the "Software Requirements" section in the *Release Notes for Cisco UCS E-Series Servers and the Cisco UCS E-Series Network Compute Engine*.

Managing E-Series Servers and the NCE

The following table lists the management interfaces used by the E-Series Server and the NCE.

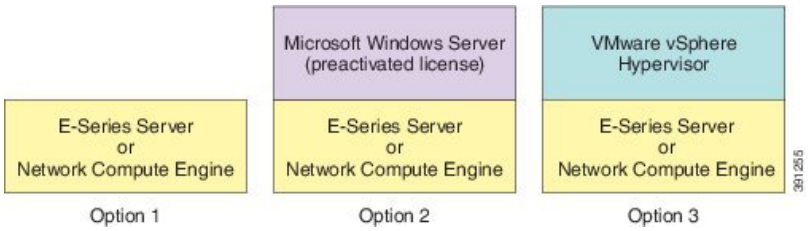
Table 1: E-Series Server and NCE Management Interfaces

Management Interface	Description
Cisco IOS CLI	CLI used to configure the host router and the E-Series Server or the NCE.
CIMC GUI	Web-based GUI used to access, configure, administer, and monitor the E-Series Server and NCE.
CIMC CLI	SSH-based CLI used to access, configure, administer, and monitor the E-Series Server and the NCE.
SNMP	Simple Network Management Protocol (SNMP) traps that allow you to view server configuration and status, and send fault and alert information.

E-Series Server and NCE Options

The following figure shows the E-Series Server and NCE options.

Figure 3: E-Series Server or NCE Options



- Option 1—E-Series Server or NCE without a preinstalled operating system or hypervisor
- Option 2—E-Series Server or NCE with a preinstalled Microsoft Windows Server

  At the time of purchase, you can choose the appropriate RAID option that you want enabled on the E-Series Server.

  Note If you purchase this option, the Microsoft Windows Server license is preactivated.

- Option 3—E-Series Server or NCE with a preinstalled VMware vSphere Hypervisor

  At the time of purchase, you can choose the appropriate RAID option that you want enabled on the E-Series Server.

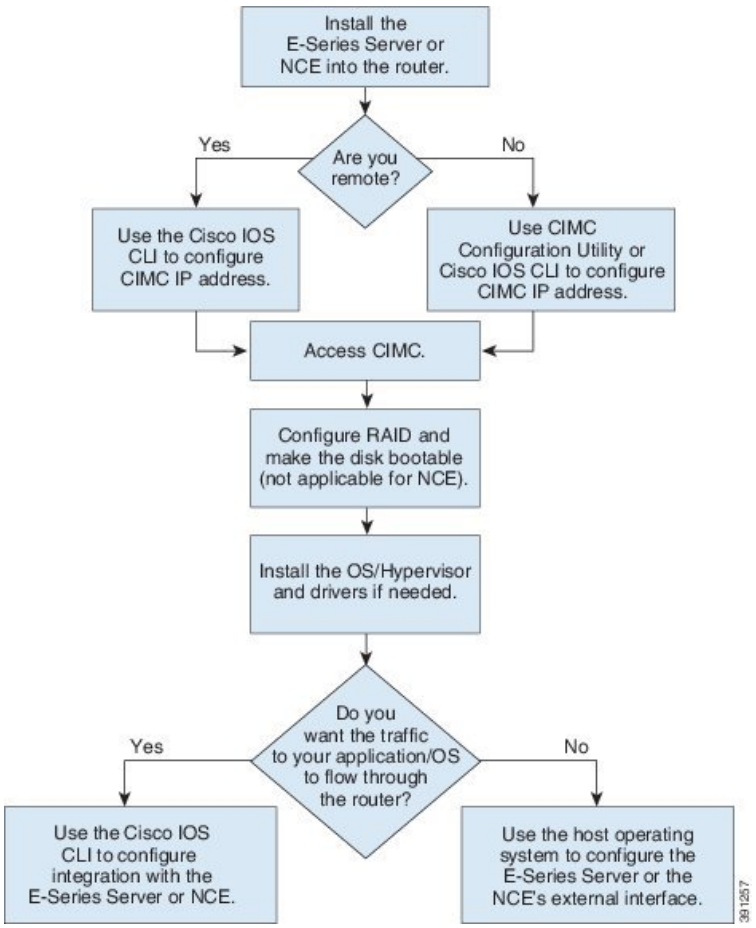
  Note The default username for the preinstalled VMware vSphere Hypervisor is **root**, which cannot be changed, and the default password is **password**. After you log in, we recommend that you change the password.

Important The RAID feature is applicable to E-Series Servers and the SM E-Series NCE. The RAID feature is not applicable to the EHWIC E-Series NCE and the NIM E-Series NCE.

Basic Workflow for Option 1—E-Series Server or NCE Without a Preinstalled Operating System or Hypervisor

The following figure shows the basic workflow for Option 1—E-Series Server or NCE without a preinstalled operating system or hypervisor.

Figure 4: Basic Workflow—Option 1



Note The CIMC Configuration Utility is not applicable to the EHWIC E-Series NCE and the NIM E-Series NCE.

Note The RAID feature is applicable to E-Series Servers and the SM E-Series NCE. The RAID feature is not applicable to the EHWIC E-Series NCE and the NIM E-Series NCE.

The following procedure provides the references for the tasks that you must perform when you purchase Option 1—hardware only (E-Series Server or NCE without a preinstalled operating system or hypervisor).

Procedure

	Command or Action	Purpose
Step 1	Install the E-Series Server or NCE into the router.	See Installing the E-Series Server or NCE into the Router.
Step 2	Configure the CIMC IP address for CIMC access.	See Configuring Access to the Management Firmware.
Step 3	Access CIMC.	See Accessing the Management Firmware.
Step 4	Configure RAID and make the disk drive bootable.	See Managing Storage Using RAID. **Important** The RAID feature is applicable to E-Series Servers and the SM E-Series NCE. The RAID feature is not applicable to the EHWIC E-Series NCE and the NIM E-Series NCE.
Step 5	Install the operating system, and if needed, install the drivers.	See Installing the Operating System or Hypervisor.
Step 6	Configure an internal connection between the router and the E-Series Server or NCE.	Depending on whether you want the traffic to flow through the router or not, do one of the following: • If you *do not want* the traffic to your application or operating system to flow through the router, use the server's host operating system to configure the E-Series Server's or NCE's external interface. • If you *want* the traffic to your application or operating system to flow through the router, use the Cisco IOS CLI to configure an internal connection between the router and the E-Series Server or NCE. See Configuring a Connection Between the Router and the E-Series Server or NCE.

Basic Workflow for Option 2—E-Series Server or NCE With a Preinstalled Microsoft Windows Server

The following procedure provides the references for the tasks that you must perform when you purchase Option 2—E-Series Server or NCE with a preinstalled Microsoft Windows Server.

Procedure

	Command or Action	Purpose
Step 1	Install the E-Series Server or NCE into the router.	See Installing the E-Series Server or NCE into the Router.
Step 2	Configure the CIMC IP address for CIMC access.	See Configuring Access to the Management Firmware.
Step 3	Configure an internal connection between the router and the E-Series Server or NCE.	Depending on whether you want the traffic to flow through the router or not, do one of the following: • If you *do not want* the traffic to your application or operating system to flow through the router, use the server's host operating system to configure the E-Series Server's or NCE's external interface. • If you *want* the traffic to your application or operating system to flow through the router, use the Cisco IOS CLI to configure an internal connection between the router and the E-Series Server or NCE. See Configuring a Connection Between the Router and the E-Series Server or NCE.
Step 4	Access CIMC, and then access the Microsoft Windows Server from CIMC.	See Accessing the Management Firmware.

Basic Workflow for Option 3—E-Series Server or NCE With a Preinstalled VMware vSphere Hypervisor

The following procedure provides the references for the tasks that you must perform when you purchase Option 3—E-Series Server or NCE with a preinstalled VMware vSphere Hypervisor.

Procedure

	Command or Action	Purpose
Step 1	Install the E-Series Server or NCE into the router.	See Installing the E-Series Server or NCE into the Router.

	Command or Action	Purpose
Step 2	Configure the CIMC IP address for CIMC access.	See Configuring Access to the Management Firmware.
Step 3	Configure an internal connection between the router and the E-Series Server or NCE.	Depending on whether you want the traffic to flow through the router or not, do one of the following: • If you *do not want* the traffic to your application or operating system to flow through the router, use the server's host operating system to configure the E-Series Server's or NCE's external interface. • If you *want* the traffic to your application or operating system to flow through the router, use the Cisco IOS CLI to configure an internal connection between the router and the E-Series Server or NCE. See Configuring a Connection Between the Router and the E-Series Server or NCE.
Step 4	Access CIMC, and then access the VMware vSphere Hypervisor from CIMC.	See Accessing the Management Firmware.

Common Terms Used in This Guide

Table 2: Common Terms

Term	Description
BMC	Board Management Controller. BMC is used in the Cisco IOS commands to configure CIMC.
CIMC	Cisco Integrated Management Controller. CIMC is the management service for the E-Series Server. CIMC runs within the server. You can use CIMC to access, configure, administer, and monitor the server.
CLI	Command-line interface.
IMC	Integrated Management Controller. IMC is used in the Cisco IOS commands to configure CIMC.
LOM	LAN on Motherboard. Shared LOM interfaces are used to configure CIMC access.
RAID	Redundant Array of Inexpensive Disks. RAID is used to store E-Series Server data files.