Configuring Access to the Management Firmware

This chapter provides an overview of the E-Series Server and NCE interfaces and provides procedures to configure access to the CIMC management firmware when the E-Series Server or NCE is installed in the router. It contains the following sections:

Configuring CIMC Access

If you are a remote user, use the Cisco IOS CLI to configure CIMC access.

If you are a local user, use one of the following methods:

- Connect a keyboard and monitor to the front panel of the E-Series Server, and then use the CIMC Configuration Utility to configure CIMC access.

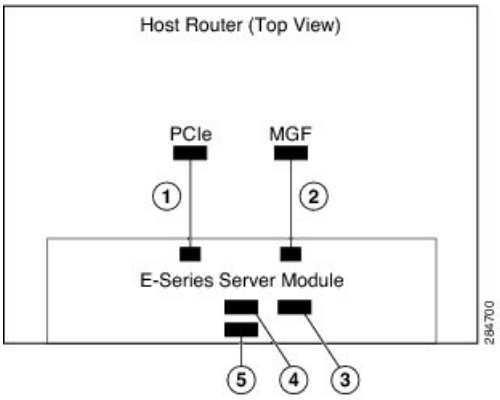
Note The CIMC Configuration Utility is not applicable to the EHWIC E-Series NCE and the NIM E-Series NCE.

- Use the Cisco IOS CLI to configure CIMC access. See one of the following as appropriate:
  - CIMC Access Configuration Options—Cisco ISR G2, on page 3
  - CIMC Access Configuration Options—Cisco ISR 4000 Series, on page 16
  - CIMC Access Configuration Options—EHWIC E-Series NCE, on page 29
  - CIMC Access Configuration Options—NIM E-Series NCE, on page 38

Understanding the Interfaces in an E-Series Server and the Cisco ISR G2

The following figure shows the interfaces in a double-wide E-Series Server and the Cisco ISR G2 host router.

Figure 1: Interfaces in a Double-Wide E-Series Server



	Interface	Interface Location	Description
1	Router's PCIe *slot*/**0** Interface	Internal Interface	Also called Console interface. This interface connects the router's PCIe interface to the E-Series Server. The PCIe interface provides an internal Layer 3 GE link between the router and the E-Series Server. It can be used both for CIMC configuration and for host operating system configuration.
2	Router's MGF *slot*/**1** VLAN Interface	Internal Interface	Used to access CIMC over a high-speed backplane switch. The MGF VLAN interface provides an internal Layer 2 GE link between the router and the E-Series Server. This interface can be used both for CIMC configuration and for host operating system configuration.
3	Management (Dedicated) Interface	External Interface	Used for CIMC configuration and management.
4	GE3 Interface	External Interface	Used as a primary interface or as a backup interface. This interface can be used both for CIMC configuration and for host operating system configuration. **Note** The GE3 interface is only available on the double-wide E-Series Servers.

5	GE2 Interface	External Interface	Used as a primary interface or as a backup interface. This interface can be used both for CIMC configuration and for host operating system configuration.

CIMC Access Configuration Options—Cisco ISR G2

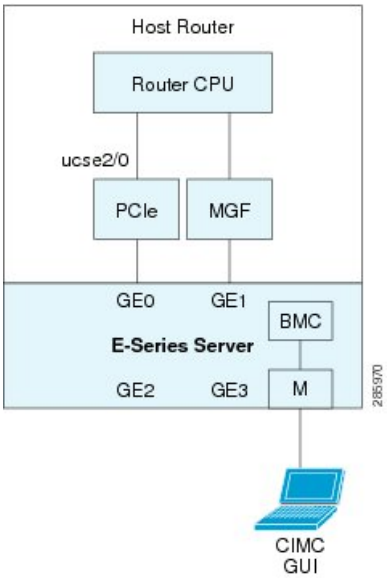
Depending on whether you are a remote user or a local user, do one of the following to configure CIMC access.

- If you are a remote user, use either the external Management (dedicated) interface or one of the following shared LOM interfaces to configure CIMC access:
  - Router's internal PCIe *slot*/**0** Console interface
  - Router's internal MGF *slot*/**1** VLAN interface
  - E-Series Server's external GE2 or GE3 interface
- If you are a local user, use the Cisco IOS CLI or the CIMC Configuration Utility to configure CIMC access.

Configuring CIMC Access Using the E-Series Server's External Management (Dedicated) Interface—Cisco ISR G2

See the following figure and the procedure that follows to configure CIMC access using the E-Series Server's external Management (dedicated) interface.

Figure 2: Configuring CIMC Access Using the E-Series Server's External Management (Dedicated) Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.

- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **interface ucse** *slot/port*	Enters interface configuration mode for the slot and port where the E-Series Server is installed.
Step 4	Router (config-if)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.
Step 5	Router (config-if)# **imc access-port dedicated**	Configures CIMC access through the server's external Management (dedicated) interface. See # 3 in Understanding the Interfaces in an E-Series Server and the Cisco ISR G2.
Step 6	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 7	Router (config-if)# **end**	Exits interface configuration mode.

Example

This example shows how to configure CIMC access using the server's external IMC dedicated interface:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# interface ucse 2/0
Router(config-if)# imc ip address 10.0.0.1 255.0.0.0 default-gateway 10.0.0.2
Router(config-if)# imc access-port dedicated
Router(config-if)# no shut
Router(config-if)# end
```

Configuring CIMC Access Using Shared LOM—Cisco ISR G2

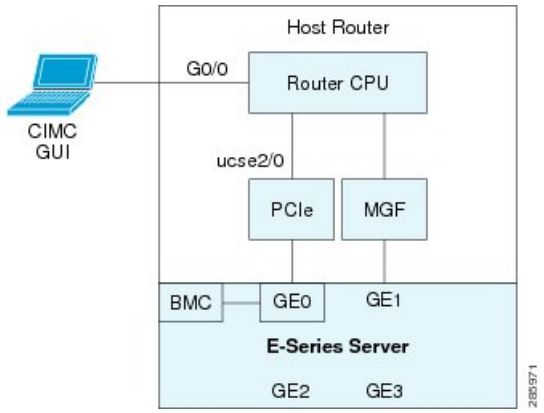
Use one of the following shared LOM interfaces to configure CIMC access:

- Router's internal PCIe *slot*/**0** Console interface
- Router's internal MGF *slot*/**1** VLAN interface
- E-Series Server's external GE2 or GE3 interface

Configuring CIMC Access Using the Router's Internal PCIe slot/0 Console Interface—Cisco ISR G2

See the following figure and the procedure that follows to configure CIMC access using the router's internal PCIe *slot*/**0** Console interface.

Figure 3: Configuring CIMC Access Using the Router's Internal PCIe slot/0 Console Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **interface GigabitEthernet0/0**	Enters interface configuration mode for Gigabit Ethernet 0/0.
Step 4	Router (config-if)# **ip address** *ip-address subnet-mask*	Specifies the IP address and subnet mask of the interface.

	Command or Action	Purpose
Step 5	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 6	Router (config-if)# **end**	Exits interface configuration mode.
Step 7	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 8	Router (config)# **interface ucse** *slot/port*	Enters interface configuration mode for the slot and port where the E-Series Server is installed.
Step 9	Router (config-if)# **ip unnumbered** *type number*	The **ip unnumbered** command enables IP processing on an interface without assigning an explicit IP address to that interface. • *type*—Type of interface on which the router has an assigned IP address. • *number*—Number of the interface and subinterface on which the router has an assigned IP address. **Note** The unnumbered interface must be unique. It cannot be another unnumbered interface. When you use the **ip unnumbered** command, you must use the **ip route** command to create a static route. **Caution** The **ip unnumbered** and **ipv6 unnumbered** commands create a point-to-point interface between devices. Broadcasting is not supported.
Step 10	Router (config-if)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.
Step 11	Router (config-if)# **imc access-port shared-lom console**	Configures CIMC access using the router's PCIe slot/0 (console) interface. See # 1 in

	Command or Action	Purpose
		Understanding the Interfaces in an E-Series Server and the Cisco ISR G2.
Step 12	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 13	Router (config-if)# **end**	Exits interface configuration mode.
Step 14	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 15	Router (config)# **ip route** *cimc-ip-address subnet-mask* **ucse** *slot/port*	Creates a static route. • *cimc-ip-address*—IP address of CIMC. • *slot/port*—Slot and port where the E-Series Server is installed.
Step 16	Router (config-if)# **end**	Exits interface configuration mode.
Step 17	Router# **ping** *cimc-ip-address*	Verifies connection from the router to CIMC through the router's internal PCIe *slot*/**0** console interface.

Example

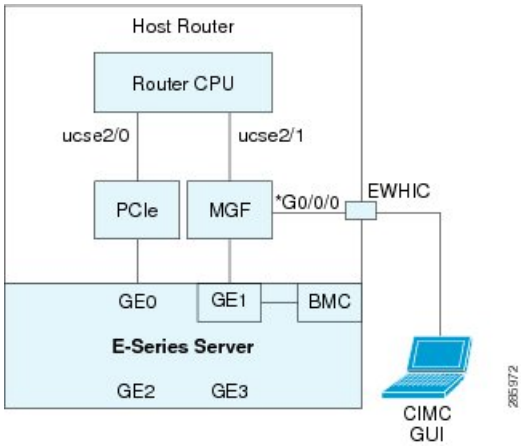
This example shows how to configure CIMC access using the server's internal PCIe *slot*/**0** console interface:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# interface GigabitEthernet0/0
Router(config-if)# ip address 10.0.0.1 255.0.0.0
Router(config-if)# no shut
Router(config-if)# end

Router# configure terminal
Router(config)# interface ucse 2/0
Router(config)# ip unnumbered GigabitEthernet0/0
Router(config-if)# imc ip address 10.0.0.2 255.0.0.0 default-gateway 10.0.0.1
Router(config-if)# imc access-port shared-lom console
Router(config-if)# no shut
Router(config)# end

Router# configure terminal
Router(config)# ip route 10.0.0.2 255.255.255.255 ucse 2/0
Router(config)# end

Router# ping 10.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

Configuring CIMC Access Using the Router's Internal MGF slot/1 VLAN Interface—Cisco ISR G2

See the following figure and the procedure that follows to configure CIMC access using the router's internal MGF *slot*/**1** VLAN interface.

Figure 4: Configuring CIMC Access Using the Router's Internal MGF slot/1 VLAN Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **show vlan-switch**	Displays VLANs.
Step 3	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 4	Router (config)# **interface vlan** *vlan-number*	Enters VLAN configuration mode for the specified VLAN number.
Step 5	Router (config-if)# **ip address** *vlan-ip-address subnet-mask*	Specifies the IP address for the VLAN. • *vlan-ip-address*—IP address of the VLAN. • *subnet-mask*—Subnet mask to append to the IP address.

	Command or Action	Purpose
Step 6	Router (config-if)# **end**	Exits interface configuration mode.
Step 7	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 8	Router (config)# **interface ucse** *slot/port*	Enters interface configuration mode for the slot and port where the E-Series Server is installed.
Step 9	Router (config-if)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.
Step 10	Router (config-if)# **imc access-port shared-lom GE1**	Configures CIMC access using the router's internal *slot*/**1** MGF VLAN interface. See # 2 in Understanding the Interfaces in an E-Series Server and the Cisco ISR G2.
Step 11	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 12	Router (config-if)# **end**	Exits interface configuration mode.
Step 13	Router# **ping** *cimc-ip-address*	Verifies connection from the router to CIMC through the router's internal MGF *slot*/**1** VLAN interface.

Example

This example shows how to configure CIMC access using the router's internal MGF *slot*/**1** VLAN interface:

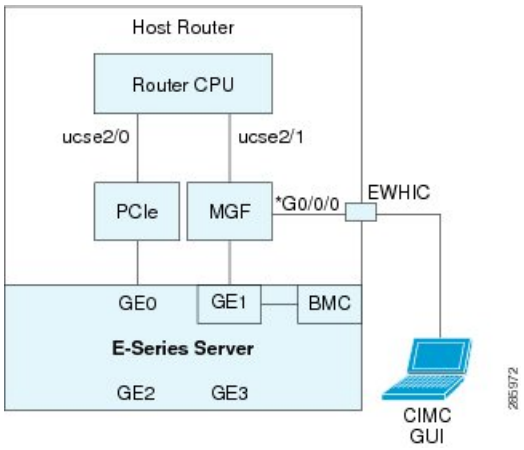
```
Router> enable
Router> password
Router> show vlan-switch
VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Gi0/0/0, Gi0/0/1, Gi0/0/2
                                                Gi0/0/3, uc2/1

Router# configure terminal
Router(config)# interface vlan 1
Router(config-if)# ip address 10.0.0.1 255.0.0.0
Router(config-if)# end

Router# configure terminal
```

```
Router(config)# interface ucse 2/0
Router(config-if)# imc ip address 10.0.0.2 255.0.0.0 default-gateway 10.0.0.1
Router(config-if)# imc access-port shared-lom GE1
Router(config-if)# no shut
Router(config-if)# end

Router# ping 10.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

Configuring CIMC Access Using the Router's Internal MGF slot/1 Interface Using a Non-Native VLAN—Cisco ISR G2

See the following figure and the procedure that follows to configure CIMC access using the router's internal MGF *slot*/**1** interface using a non-native VLAN.

Figure 5: Configuring CIMC Access Using the Router's Internal MGF slot/1 Interface Using a Non-Native VLAN



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **show vlan-switch**	Displays VLANs.
Step 3	Router# **configure terminal**	Enters global configuration mode on the host router.

	Command or Action	Purpose
Step 4	Router (config)# **vlan** *vlan-number*	Configures the specified VLAN.
Step 5	Router (config)# **end**	Exits VLAN configuration.
Step 6	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 7	Router (config)# **interface vlan** *vlan-number*	Enters VLAN configuration mode for the specified VLAN number.
Step 8	Router (config-if)# **ip address** *vlan-ip-address subnet-mask*	Specifies the IP address for the VLAN. • *vlan-ip-address*—IP address of the VLAN. • *subnet-mask*—Subnet mask to append to the IP address.
Step 9	Router (config-if)# **end**	Exits interface configuration mode.
Step 10	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 11	Router (config)# **interface ucse** *slot/port*	Enters interface configuration mode for the slot and port where the E-Series Server is installed.
Step 12	Router (config)# **imc vlan** *vlan-id*	Configures the specified VLAN ID for CIMC.
Step 13	Router (config-if)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.
Step 14	Router (config-if)# **imc access-port shared-lom GE1**	Configures CIMC access using the router's internal *slot*/**1** MGF VLAN interface. See # 2 in Understanding the Interfaces in an E-Series Server and the Cisco ISR G2.
Step 15	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 16	Router (config-if)# **end**	Exits interface configuration mode.
Step 17	Router# **configure terminal**	Enters global configuration mode on the host router.

	Command or Action	Purpose
Step 18	Router (config)# **interface ucse** *slot*/**1**	Enters interface configuration mode for the router's MGF *slot*/**1** VLAN interface.
Step 19	Router (config-if)# **switchport mode trunk**	Puts the port into permanent trunking mode. The default configuration is access mode.
Step 20	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 21	Router (config-if)# **end**	Exits interface configuration mode.
Step 22	Router# **ping** *cimc-ip-address*	Verifies connection from the router to CIMC through the router's internal MGF *slot*/**1** VLAN interface.

Example

This example shows how to configure CIMC access using the router's internal MGF *slot*/**1** interface using a non-native VLAN:

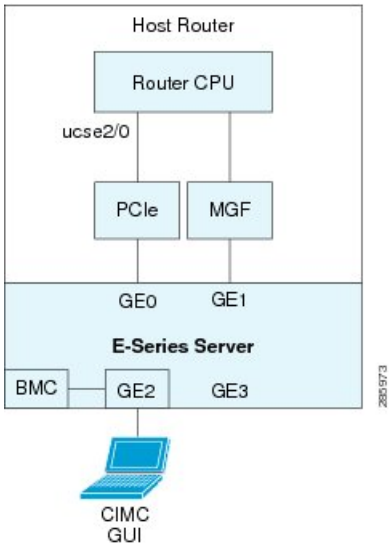
```
Router> enable
Router> password
Router> show vlan-switch
VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Gi0/0/0, Gi0/0/1, Gi0/0/2
                                                Gi0/0/3, uc2/1

Router# configure terminal
Router(config)# vlan 2
Router(config)# end

Router# configure terminal
Router(config)# interface vlan 2
Router(config-if)# ip address 10.0.0.1 255.0.0.0
Router(config-if)# end

Router# configure terminal
Router(config)# interface ucse 2/0
Router(config-if)# imc vlan 2
Router(config-if)# imc ip address 10.0.0.2 255.0.0.0 default-gateway 10.0.0.1
Router(config-if)# imc access-port shared-lom GE1
Router(config-if)# no shut
Router(config-if)# end

Router# configure terminal
Router(config)# interface ucse 2/1
Router(config-if)# switchport mode trunk
Router(config-if)# no shut
Router(config-if)# end

Router# ping 10.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

Configuring CIMC Access Using the E-Series Server's External GE2 or GE3 Interface—Cisco ISR G2

See the following figure and the procedure that follows to configure CIMC access using the E-Series Server's external GE2 or GE3 interface.

Note This figure shows how to configure CIMC access using the E-Series Server's external GE2 interface.

Figure 6: Configuring CIMC Access Using the E-Series Server's External GE2 Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **interface ucse** *slot/port*	Enters interface configuration mode for the slot and port where the E-Series Server is installed.

	Command or Action	Purpose
Step 4	Router (config-if)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.
Step 5	Router (config-if)# **imc access-port shared-lom** {**GE2** | **GE3**}	Configures CIMC access through the E-Series Server's external GE2 or GE3 interface. See # 4 and 5 in Understanding the Interfaces in an E-Series Server and the Cisco ISR G2.
Step 6	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 7	Router (config-if)# **end**	Exits interface configuration mode.

Example

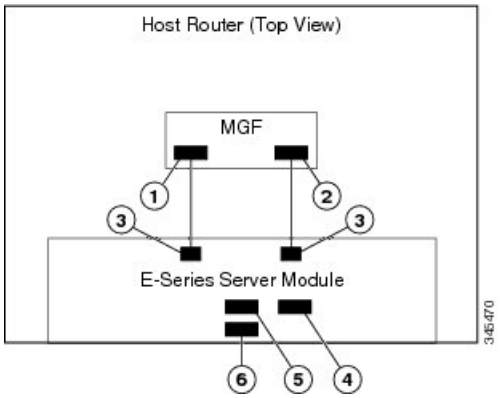
This example shows how to configure CIMC access using the server's external GE2 interface:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# interface ucse 2/0
Router(config-if)# imc ip address 10.0.0.1 255.0.0.0 default-gateway 10.0.0.2
Router(config-if)# imc access-port shared-lom GE2
Router(config-if)# no shut
Router(config-if)# end
```

Understanding the Interfaces in an E-Series Server and the Cisco ISR 4000 Series

The following figure shows the interfaces in a double-wide E-Series Server and the Cisco ISR 4000 series host router.

Figure 7: Interfaces in a Double-Wide E-Series Server



	Interface	Interface Location	Description
1	Router's **ucse** *slot*/**0/0** Interface	Internal Interface	Used to access CIMC over a high-speed backplane switch. The MGF interface provides an internal Layer 2 GE link between the router and the E-Series Server. This interface can be used both for CIMC configuration and for host operating system configuration. **Note** This interface is used to access the E-Series Server's internal GE0 interface.
2	Router's **ucse** *slot*/**0/1** Interface	Internal Interface	Used to access CIMC over a high-speed backplane switch. The MGF interface provides an internal Layer 2 GE link between the router and the E-Series Server. This interface can be used both for CIMC configuration and for host operating system configuration. **Note** This interface is used to access the E-Series Server's internal GE1 interface.
3	GE0 and GE1 Interfaces	Internal Interfaces	E-Series Server's internal NIC interfaces.
4	Management (Dedicated) Interface	External Interface	Used for CIMC configuration and management.

5	GE3 Interface	External Interface	Can be used both for CIMC configuration and for host operating system configuration. **Note** The GE3 interface is only available on the double-wide E-Series Servers.
6	GE2 Interface	External Interface	Can be used both for CIMC configuration and for host operating system configuration.

CIMC Access Configuration Options—Cisco ISR 4000 Series

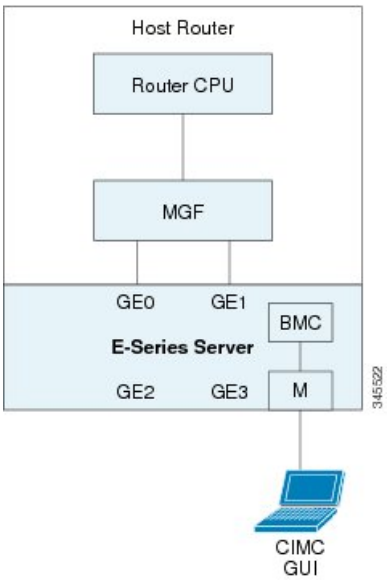
Depending on whether you are a remote user or a local user, do one of the following to configure CIMC access.

- If you are a remote user, use the Cisco IOS CLI to configure CIMC access by using one of the following interfaces:
  - CIMC Management (dedicated) interface
  - E-Series Server’s internal GE0 and the router's **ucse** *slot*/**0/0** interface
  - E-Series Server’s internal GE1 interface and the router's **ucse** *slot*/**0/1** interface
  - E-Series Server’s external GE2 or GE3 interface
- If you are a local user, use the CIMC Configuration Utility or the Cisco IOS CLI (mentioned above) to configure CIMC access.

Configuring CIMC Access Using the E-Series Server's External Management (Dedicated) Interface—Cisco ISR 4000 Series

See the following figure and the procedure that follows to configure CIMC access using the E-Series Server's external Management (dedicated) interface.

Figure 8: Configuring CIMC Access Using the E-Series Server's External Management (Dedicated) Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **ucse subslot** *slot/subslot*	Enters ucse interface configuration mode for the slot and subslot where the E-Series Server is installed.
Step 4	Router (config-ucse)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router.

	Command or Action	Purpose
		• *cimc-gateway-ip-address*—IP address for the default gateway.
Step 5	Enter one of the following commands: • Router (config-ucse)# **imc access-port mgmt** • Router (config-ucse)# **imc access-port dedicated**	Configures CIMC access through the server's external Management (dedicated) interface. See # 4 in Understanding the Interfaces in the NIM E-Series NCE and the Cisco ISR 4000 Series, on page 37. • Use the **imc access-port mgmt** command if you installed the Cisco IOS XE Release 3.9S. • Use the **imc access-port dedicated** command if you installed the Cisco IOS XE Release 3.10S and later versions.
Step 6	Router (config-ucse)# **end**	Returns to privileged EXEC mode on the host router.

Example

This example shows how to configure CIMC access using the server's external management interface—Applicable only with Cisco IOS XE Release 3.9S:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# ucse subslot 1/0
Router(config-ucse)# imc ip address 10.0.0.1 255.0.0.0 default-gateway 10.0.0.2
Router(config-ucse)# imc access-port mgmt
Router(config-ucse)# end
```

This example shows how to configure CIMC access using the server's external dedicated interface—Applicable with Cisco IOS XE Release 3.10S and later versions:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# ucse subslot 1/0
Router(config-ucse)# imc ip address 10.0.0.1 255.0.0.0 default-gateway 10.0.0.2
Router(config-ucse)# imc access-port dedicated
Router(config-ucse)# end
```

Configuring CIMC Access Using the E-Series Server's NIC Interfaces—Cisco ISR 4000 Series

Use one of the following E-Series Server's NIC interfaces to access CIMC:

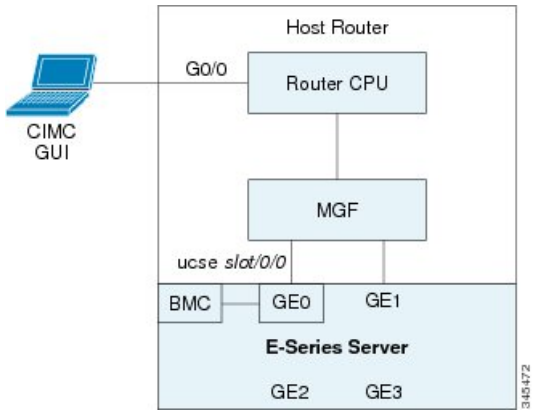
- E-Series Server's internal GE0 and the router's **ucse** *slot*/**0/0** interface

- E-Series Server’s internal GE1 interface and the router's **ucse** *slot*/**0/1** interface
- E-Series Server’s external GE2 or GE3 interface

*Configuring CIMC Access Using the E-Series Server's Internal GE0 Interface and the Cisco ISR 4000 Series ucse slot/**0/0** Interface*

See the following figure and the procedure that follows to configure CIMC access using the E-Series Server's internal GE0 interface and the router's ucse *slot*/**0/0** interface.

Figure 9: Configuring CIMC Access Using the E-Series Server's Internal GE0 Interface and the Router's ucse slot/0/0 Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **interface GigabitEthernet 0/0/0**	Enters interface configuration mode for Gigabit Ethernet interface 0/0/0.
Step 4	Router (config-if)# **ip address** *ip-address subnet-mask*	Specifies the IP address and subnet mask of the interface.
Step 5	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 6	Router (config-if)# **exit**	Exits interface configuration mode.

	Command or Action	Purpose
Step 7	Router (config)# **interface ucse** *slot*/**0/0**	Enters ucse interface configuration mode for the slot, subslot, and port where the E-Series Server is installed.
Step 8	Router (config-if)# **ip unnumbered** *type number*	The **ip unnumbered** command enables IP processing on an interface without assigning an explicit IP address to that interface. • *type*—Type of interface on which the router has an assigned IP address. • *number*—Number of the interface and subinterface on which the router has an assigned IP address. **Note** The unnumbered interface must be unique. It cannot be another unnumbered interface. When you use the **ip unnumbered** command, you must use the **ip route** command to create a static route. **Caution** The **ip unnumbered** and **ipv6 unnumbered** commands create a point-to-point interface between devices. Broadcasting is not supported.
Step 9	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 10	Router (config-if)# **exit**	Exits interface configuration mode.
Step 11	Router (config)# **ucse subslot** *slot*/*subslot*	Enters ucse interface configuration mode for the slot and subslot where the E-Series Server is installed.
Step 12	Router (config-ucse)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.

	Command or Action	Purpose
Step 13	Enter one of the following commands: • Router (config-ucse)# **imc access-port ge0** • Router (config-ucse)# **imc access-port shared-lom console**	Configures CIMC access using the E-Series Server's internal GE0 or console interface. See # 3 in Understanding the Interfaces in an E-Series Server and the Cisco ISR 4000 Series, on page 14. • Use the **imc access-port ge0** command if you installed the Cisco IOS XE Release 3.9S. • Use the **imc access-port shared-lom console** command if you installed the Cisco IOS XE Release 3.10S and later versions.
Step 14	Router (config-ucse)# **exit**	Exits ucse interface configuration mode.
Step 15	Router (config)# **ip route** *cimc-ip-address subnet-mask* **ucse** *slot/subslot/port*	Creates a static route. • *cimc-ip-address*—IP address of CIMC. • *slot/subslot/port*—Slot, subslot, and port where the E-Series Server is installed.
Step 16	Router (config)# **end**	Exits configuration mode.
Step 17	Router# **ping** *cimc-ip-address*	Verifies the connection from the router to CIMC through the **ucse** *slot*/**0/0** interface.

Example

This example shows how to configure CIMC access using the E-Series Server's internal GE0 interface and the router's ucse *slot*/**0/0** interface—Applicable only with Cisco IOS XE Release 3.9S:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# interface GigabitEthernet0/0/0
Router(config-if)# ip address 10.0.0.1 255.0.0.0
Router(config-if)# no shut
Router(config-if)# exit

Router(config)# interface ucse 1/0/0
Router(config-if)# ip unnumbered GigabitEthernet0/0/0
Router(config-if)# no shut
Router(config-if)# exit

Router(config)# ucse subslot 1/0
Router(config-ucse)# imc ip address 10.0.0.2 255.0.0.0 default-gateway 10.0.0.1
Router(config-ucse)# imc access-port ge0
Router(config-ucse)# exit
```

```
Router(config)# ip route 10.0.0.2 255.255.255.255 ucse 1/0/0
Router(config)# end

Router# ping 10.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

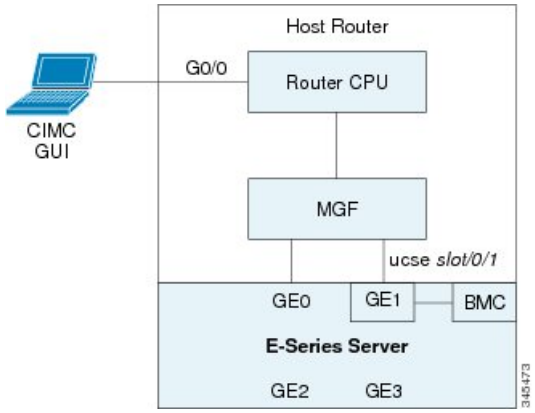
This example shows how to configure CIMC access using the E-Series Server's internal console interface and the router's ucse *slot*/**0/0** interface—Applicable with Cisco IOS XE Release 3.10S and later versions:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# interface GigabitEthernet0/0/0
Router(config-if)# ip address 10.0.0.1 255.0.0.0
Router(config-if)# no shut
Router(config-if)# exit

Router(config)# interface ucse 1/0/0
Router(config-if)# ip unnumbered GigabitEthernet0/0/0
Router(config-if)# no shut
Router(config-if)# exit

Router(config)# ucse subslot 1/0
Router(config-ucse)# imc ip address 10.0.0.2 255.0.0.0 default-gateway 10.0.0.1
Router(config-ucse)# imc access-port shared-lom console
Router(config-ucse)# exit

Router(config)# ip route 10.0.0.2 255.255.255.255 ucse 1/0/0
Router(config)# end

Router# ping 10.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

*Configuring CIMC Access Using the E-Series Server's Internal GE1 Interface and the Cisco ISR 4000 Series ucse slot/**0/1** Interface*

See the following figure and the procedure that follows to configure CIMC access using the E-Series Server's internal GE1 interface and the router's ucse *slot*/**0/1** interface.

Figure 10: Configuring CIMC Access Using the E-Series Server's Internal GE1 Interface and the Router's ucse slot/0/1 Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **interface GigabitEthernet 0/0/0**	Enters interface configuration mode for Gigabit Ethernet interface 0/0/0.
Step 4	Router (config-if)# **ip address** *ip-address subnet-mask*	Specifies the IP address and subnet mask of the interface.
Step 5	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 6	Router (config-if)# **exit**	Exits interface configuration mode.
Step 7	Router (config)# **interface ucse** *slot*/**0/1**	Enters ucse interface configuration mode for the slot, subslot, and port where the E-Series Server is installed.
Step 8	Router (config-if)# **ip unnumbered** *type number*	The **ip unnumbered** command enables IP processing on an interface without assigning an explicit IP address to that interface.

	Command or Action	Purpose
		• *type*—Type of interface on which the router has an assigned IP address. • *number*—Number of the interface and subinterface on which the router has an assigned IP address. **Note** The unnumbered interface must be unique. It cannot be another unnumbered interface. When you use the **ip unnumbered** command, you must use the **ip route** command to create a static route. **Caution** The **ip unnumbered** and **ipv6 unnumbered** commands create a point-to-point interface between devices. Broadcasting is not supported.
Step 9	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 10	Router (config-if)# **exit**	Exits interface configuration mode.
Step 11	Router (config)# **ucse subslot** *slot/subslot*	Enters ucse interface configuration mode for the slot and subslot where the E-Series Server is installed.
Step 12	Router (config-ucse)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.
Step 13	Enter one of the following commands: • Router (config-ucse)# **imc access-port ge1** • Router (config-ucse)# **imc access-port shared-lom ge1**	Configures CIMC access using the E-Series Server's internal GE1 interface. See # 3 in Understanding the Interfaces in an E-Series Server and the Cisco ISR 4000 Series, on page 14. • Use the **imc access-port ge1** command if you installed the Cisco IOS XE Release 3.9S.

	Command or Action	Purpose
		• Use the **imc access-port shared-lom ge1** command if you installed the Cisco IOS XE Release 3.10S and later versions.
Step 14	Router (config-ucse)# **exit**	Exits ucse interface configuration mode.
Step 15	Router (config)# **ip route** *cimc-ip-address subnet-mask* **ucse** *slot/subslot/port*	Creates a static route. • *cimc-ip-address*—IP address of CIMC. • *slot/subslot/port*—Slot, subslot, and port where the E-Series Server is installed.
Step 16	Router (config)# **end**	Exits configuration mode.
Step 17	Router# **ping** *cimc-ip-address*	Verifies the connection from the router to CIMC through the **ucse** *slot*/**0/1** interface.

Example

This example shows how to configure CIMC access using the E-Series Server's internal GE1 interface and the router's ucse *slot*/**0/1** interface—Applicable only with Cisco IOS XE Release 3.9S:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# interface GigabitEthernet0/0/0
Router(config-if)# ip address 10.0.0.1 255.0.0.0
Router(config-if)# no shut
Router(config-if)# exit

Router(config)# interface ucse 1/0/1
Router(config-if)# ip unnumbered GigabitEthernet0/0/0
Router(config-if)# no shut
Router(config-if)# exit

Router(config)# ucse subslot 1/0
Router(config-ucse)# imc ip address 10.0.0.2 255.0.0.0 default-gateway 10.0.0.1
Router(config-ucse)# imc access-port ge1
Router(config-ucse)# exit

Router(config)# ip route 10.0.0.2 255.255.255.255 ucse 1/0/1
Router(config)# end

Router# ping 10.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

This example shows how to configure CIMC access using the E-Series Server's internal GE1 interface and the router's ucse *slot*/**0/1** interface—Applicable with Cisco IOS XE Release 3.10S and later releases:

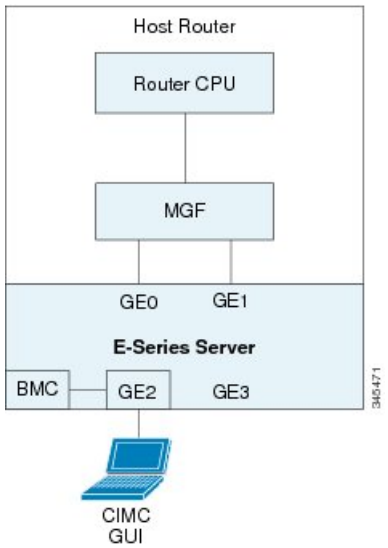
```
Router> enable
Router> password
Router# configure terminal

Router(config)# interface GigabitEthernet0/0/0
Router(config-if)# ip address 10.0.0.1 255.0.0.0
Router(config-if)# no shut
Router(config-if)# exit

Router(config)# interface ucse 1/0/1
Router(config-if)# ip unnumbered GigabitEthernet0/0/0
Router(config-if)# no shut
Router(config-if)# exit

Router(config)# ucse subslot 1/0
Router(config-ucse)# imc ip address 10.0.0.2 255.0.0.0 default-gateway 10.0.0.1
Router(config-ucse)# imc access-port shared-lom ge1
Router(config-ucse)# exit

Router(config)# ip route 10.0.0.2 255.255.255.255 ucse 1/0/1
Router(config)# end

Router# ping 10.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

Configuring CIMC Access Using the E-Series Server's External GE2 or GE3 Interface—Cisco ISR 4000 Series

See the following figure and the procedure that follows to configure CIMC access using the E-Series Server's external GE2 or GE3 interface.

Note This figure shows how to configure CIMC access using the E-Series Server's external GE2 interface.

Figure 11: Configuring CIMC Access Using the E-Series Server's External GE2 Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot and port number of the E-Series Server.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **ucse subslot** *slot/subslot*	Enters ucse interface configuration mode for the slot and subslot where the E-Series Server is installed.
Step 4	Router (config-ucse)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.
Step 5	Router (config-ucse)# **imc access-port** {**GE2** | **GE3**} or Router (config-ucse)# **imc access-port shared-lom** {**GE2** | **GE3**}	Configures CIMC access through the E-Series Server's external GE2 or GE3 interface. See # 5 and 6 in Understanding the Interfaces in an E-Series Server and the Cisco ISR 4000 Series, on page 14. • Use the **imc access-port** {**GE2** | **GE3**} command if you installed the Cisco IOS XE Release 3.9S. • Use the **imc access-port shared-lom** {**GE2** | **GE3**} command if you installed the Cisco IOS XE Release 3.10S and later versions.
Step 6	Router (config-ucse)# **end**	Returns to privileged EXEC mode on the host router.

Example

This example shows how to configure CIMC access using the server's external GE2 interface—Applicable only with Cisco IOS XE Release 3.9S:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# ucse subslot 1/0
Router(config-ucse)# imc ip address 10.0.0.1 255.0.0.0 default-gateway 10.0.0.2
Router(config-ucse)# imc access-port GE2
Router(config-ucse)# no shut
Router(config-ucse)# end
```

This example shows how to configure CIMC access using the server's external GE2 interface—Applicable with Cisco IOS XE Release 3.10S and later releases:

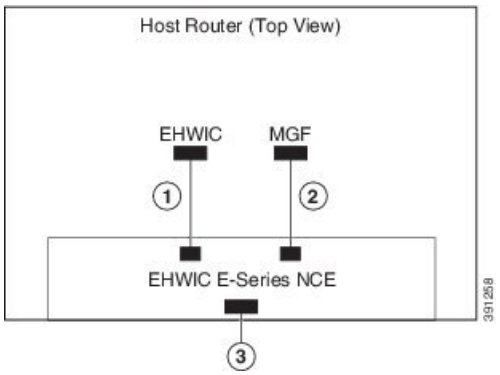
```
Router> enable
Router> password
Router# configure terminal

Router(config)# ucse subslot 1/0
Router(config-ucse)# imc ip address 10.0.0.1 255.0.0.0 default-gateway 10.0.0.2
Router(config-ucse)# imc access-port shared-lom GE2
Router(config-ucse)# no shut
Router(config-ucse)# end
```

Understanding the Interfaces in the EHWIC E-Series NCE and the Cisco ISR G2

Note This section is applicable to the EHWIC E-Series NCE. This section is not applicable to the SM E-Series NCE.

The following figure shows the interfaces in the EHWIC E-Series NCE and the Cisco ISR G2 host router.

Figure 12: Interfaces in the EHWIC E-Series NCE and the Cisco ISR G2 Host Router



	Interface	Interface Location	Description
1	Router's EHWIC **0**/*subslot*/**0** Interface	Internal Interface	Also called Console interface. This interface connects the router's EHWIC interface to the EHWIC E-Series NCE. The EHWIC interface provides an internal Layer 3 GE link between the router and the EHWIC E-Series NCE. It can be used both for CIMC configuration and for host operating system configuration.
2	Router's MGF **0**/*subslot*/**1** VLAN Interface	Internal Interface	Used to access CIMC over a high-speed backplane switch. The MGF VLAN interface provides an internal Layer 2 GE link between the router and the EHWIC E-Series NCE. This interface can be used both for CIMC configuration and for host operating system configuration. **Note** This interface is not applicable to the Cisco 1921 ISR G2.
3	GE2 Interface	External Interface	Used as a primary interface or as a backup interface. This interface can be used both for CIMC configuration and for host operating system configuration.

CIMC Access Configuration Options—EHWIC E-Series NCE

Do one of the following to configure CIMC access.

- Use one of the following shared LOM interfaces to configure CIMC access:
  - Router's internal EHWIC **0**/*subslot*/**0** Console interface
  - Router's internal MGF **0**/*subslot*/**1** VLAN interface

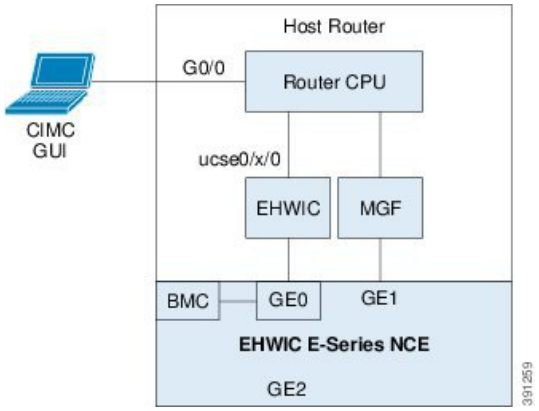
Note This interface is not applicable to the Cisco ISR 1921.

  - NCE's external GE2 interface
- Use the Cisco IOS CLI to configure CIMC access.

Configuring CIMC Access Using the Router's Internal EHWIC 0/subslot/0 Console Interface—EHWIC E-Series NCE

See the following figure and the procedure that follows to configure CIMC access using the router's internal EHWIC **0**/*subslot*/**0** console interface.

Figure 13: Configuring CIMC Access Using the Router's Internal EHWIC 0/subslot/0 Console Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **interface GigabitEthernet0/0**	Enters interface configuration mode for Gigabit Ethernet 0/0.
Step 4	Router (config-if)# **ip address** *ip-address subnet-mask*	Specifies the IP address and subnet mask of the interface.
Step 5	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 6	Router (config-if)# **end**	Exits interface configuration mode.
Step 7	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 8	Router (config)# **interface ucse 0**/*subslot*/*port*	Enters interface configuration mode for the subslot and port where the NCE is installed.
Step 9	Router (config-if)# **ip unnumbered** *type number*	The **ip unnumbered** command enables IP processing on an interface without assigning an explicit IP address to that interface.

	Command or Action	Purpose
		• *type*—Type of interface on which the router has an assigned IP address. • *number*—Number of the interface and subinterface on which the router has an assigned IP address. **Note** The unnumbered interface must be unique. It cannot be another unnumbered interface. When you use the **ip unnumbered** command, you must use the **ip route** command to create a static route. **Caution** The **ip unnumbered** and **ipv6 unnumbered** commands create a point-to-point interface between devices. Broadcasting is not supported.
Step 10	Router (config-if)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.
Step 11	Router (config-if)# **imc access-port shared-lom console**	Configures CIMC access using the router's EHWIC **0**/*slot*/**0** (console) interface. See # 1 in Understanding the Interfaces in the EHWIC E-Series NCE and the Cisco ISR G2, on page 28.
Step 12	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 13	Router (config-if)# **end**	Exits interface configuration mode.
Step 14	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 15	Router (config)# **ip route** *cimc-ip-address subnet-mask* **ucse 0**/*subslot*/*port*	Creates a static route. • *cimc-ip-address*—IP address of CIMC. • *subslot/port*—Subslot and port where the NCE is installed.

	Command or Action	Purpose
Step 16	Router (config-if)# **end**	Exits interface configuration mode.
Step 17	Router# **ping** *cimc-ip-address*	Verifies connection from the router to CIMC through the router's internal EHWIC **0**/*subslot*/**0** console interface.

Example

This example shows how to configure CIMC access using the server's internal EHWIC **0**/*subslot*/**0** console interface:

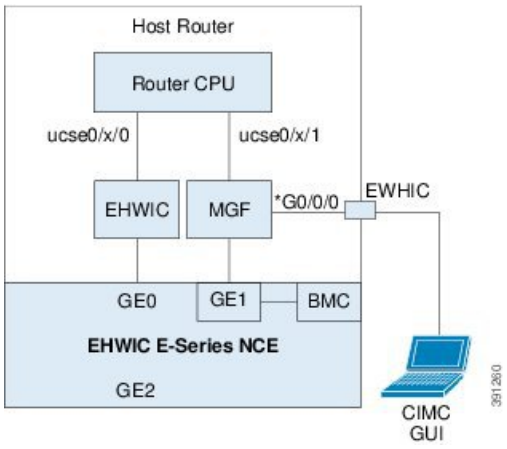
```
Router> enable
Router> password
Router# configure terminal

Router(config)# interface GigabitEthernet0/0
Router(config-if)# ip address 10.0.0.1 255.0.0.0
Router(config-if)# no shut
Router(config-if)# end

Router# configure terminal
Router(config)# interface ucse 0/3/0
Router(config)# ip unnumbered GigabitEthernet0/0
Router(config-if)# imc ip address 10.0.0.2 255.0.0.0 default-gateway 10.0.0.1
Router(config-if)# imc access-port shared-lom console
Router(config-if)# no shut
Router(config)# end

Router# configure terminal
Router(config)# ip route 10.0.0.2 255.255.255.255 ucse 0/3/0
Router(config)# end

Router# ping 10.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

Configuring CIMC Access Using the Router's Internal MGF 0/subslot/1 VLAN Interface—EHWIC E-Series NCE

Important This procedure is not applicable to the Cisco 1921 ISR G2.

See the following figure and the procedure that follows to configure CIMC access using the router's internal MGF **0**/*subslot*/**1** VLAN interface.

Figure 14: Configuring CIMC Access Using the Router's Internal MGF 0/subslot/1 VLAN Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **show vlan-switch**	Displays VLANs.
Step 3	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 4	Router (config)# **interface vlan** *vlan-number*	Enters interface configuration mode for the specified VLAN number.
Step 5	Router (config-if)# **ip address** *vlan-ip-address subnet-mask*	Specifies the IP address for the VLAN. • *vlan-ip-address*—IP address of the VLAN. • *subnet-mask*—Subnet mask to append to the IP address.
Step 6	Router (config-if)# **end**	Exits interface configuration mode.
Step 7	Router# **configure terminal**	Enters global configuration mode on the host router.

	Command or Action	Purpose
Step 8	Router (config)# **interface ucse 0/***subslot***/0**	Enters ucse interface configuration mode for the subslot and port where the NCE is installed.
Step 9	Router (config-if)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.
Step 10	Router (config-if)# **imc access-port shared-lom GE1**	Configures CIMC access using the router's internal **0/***subslot***/1** MGF VLAN interface. See # 2 in Understanding the Interfaces in the EHWIC E-Series NCE and the Cisco ISR G2, on page 28.
Step 11	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 12	Router (config-if)# **end**	Exits interface configuration mode.
Step 13	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 14	Router (config)# **interface ucse 0/***subslot***/1**	Enters ucse interface configuration mode for the subslot and port where the NCE is installed.
Step 15	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 16	Router (config-if)# **end**	Exits interface configuration mode.
Step 17	Router# **ping** *cimc-ip-address*	Verifies connection from the router to CIMC through the router's internal MGF **0/***subslot***/1** VLAN interface.

Example

This example shows how to configure CIMC access using the router's internal MGF **0/***subslot***/1** VLAN interface:

```
Router> enable
Router> password
Router> show vlan-switch
VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Gi0/0/0, Gi0/0/1, Gi0/0/2
                                                Gi0/0/3, uc0/3/1
```

```
Router# configure terminal
Router(config)# interface vlan 1
Router(config-if)# ip address 10.0.0.1 255.0.0.0
Router(config-if)# end

Router# configure terminal
Router(config)# interface ucse 0/3/0
Router(config-if)# imc ip address 10.0.0.2 255.0.0.0 default-gateway 10.0.0.1
Router(config-if)# imc access-port shared-lom GE1
Router(config-if)# no shut
Router(config-if)# end

Router# configure terminal
Router(config)# interface ucse 0/3/1
Router(config-if)# no shut
Router(config-if)# end

Router# ping 10.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

Configuring CIMC Access Using the EHWIC E-Series NCE's External GE2 Interface

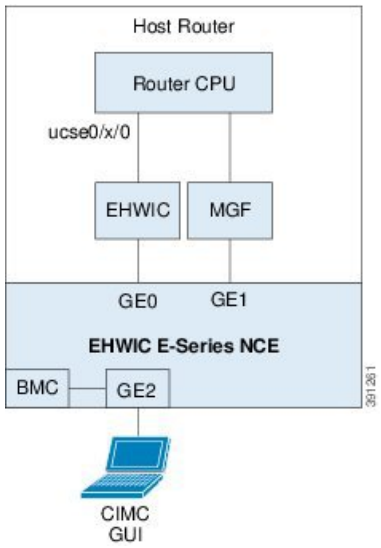
Important If you are using the external GE2 interface on an EHWIC E-Series NCE or the NIM E-Series NCE to configure CIMC access, to configure CIMC access, you might lose connectivity with CIMC during server reboot. This is expected behavior. If you must maintain connectivity with CIMC during a reboot, we recommend that you use one of the other network interfaces to configure CIMC access. See CIMC Access Configuration Options—EHWIC E-Series NCE, on page 29.

If you want to use the external GE2 interface to configure CIMC access, we recommend that you use the **spanning-tree portfast** command. For details, see the CSCup50049 caveat in the *Release Notes for Cisco UCS E-Series Servers and the Cisco UCS E-Series Network Compute Engine*

See the following figure and the procedure that follows to configure CIMC access using the EHWIC E-Series NCE's external GE2 interface.

Note This figure shows how to configure CIMC access using the EHWIC E-Series NCE's external GE2 interface.

Figure 15: Configuring CIMC Access Using the EHWIC E-Series NCE's External GE2 Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **interface ucse 0/***subslot/port*	Enters ucse interface configuration mode for the subslot and port where the NCE is installed.
Step 4	Router (config-if)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.

	Command or Action	Purpose
Step 5	Router (config-if)# **imc access-port shared-lom GE2**	Configures CIMC access through the EHWIC E-Series NCE's external GE2 interface. See # 3 in Understanding the Interfaces in the EHWIC E-Series NCE and the Cisco ISR G2, on page 28.
Step 6	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 7	Router (config-if)# **end**	Exits interface configuration mode.

Example

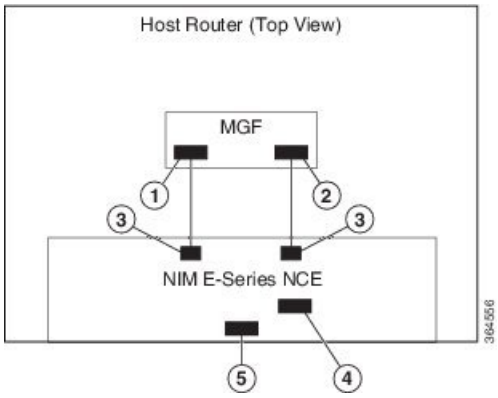
This example shows how to configure CIMC access using the EHWIC E-Series NCE external GE2 interface:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# interface ucse 0/3/0
Router(config-if)# imc ip address 10.0.0.1 255.0.0.0 default-gateway 10.0.0.2
Router(config-if)# imc access-port shared-lom GE2
Router(config-if)# no shut
Router(config-if)# end
```

Understanding the Interfaces in the NIM E-Series NCE and the Cisco ISR 4000 Series

The following figure shows the interfaces in a NIM E-Series NCE and the Cisco ISR 4000 series host router.

Figure 16: Interfaces in a NIM E-Series NCE



	Interface	Interface Location	Description

1	Router's **ucse 0**/*subslot*/**0** Interface	Internal Interface	Used to access CIMC over a high-speed backplane switch. The MGF interface provides an internal Layer 2 GE link between the router and the NIM E-Series NCE. This interface can be used both for CIMC configuration and for host operating system configuration. **Note** This interface is used to access the NIM E-Series NCE's internal GE0 interface.
2	Router's **ucse 0**/*subslot*/**1** Interface	Internal Interface	Used to access CIMC over a high-speed backplane switch. The MGF interface provides an internal Layer 2 GE link between the router and the NIM E-Series NCE. This interface can be used both for CIMC configuration and for host operating system configuration. **Note** This interface is used to access the NIM E-Series NCE's internal GE1 interface.
3	GE0 and GE1 Interfaces	Internal Interfaces	NIM E-Series NCE's internal NIC interfaces.
4	Management (Dedicated) Interface	External Interface	Used for CIMC configuration and management.
5	GE2 Interface	External Interface	Can be used both for CIMC configuration and for host operating system configuration.

CIMC Access Configuration Options—NIM E-Series NCE

Depending on whether you are a remote user or a local user, do one of the following to configure CIMC access.

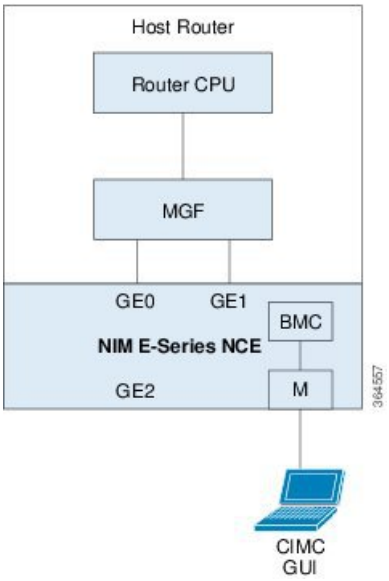
- If you are a remote user, use the Cisco IOS CLI to configure CIMC access by using one of the following interfaces:
  - CIMC Management (dedicated) interface
  - NIM E-Series NCE's internal GE0 and the router's ucse **0**/*subslot*/**0** interface
  - NIM E-Series NCE's internal GE1 interface and the router's ucse **0**/*subslot*/**1** interface
  - NIM E-Series NCE's external GE2 interface

- If you are a local user, use the CIMC Configuration Utility or the Cisco IOS CLI (mentioned above) to configure CIMC access.

Configuring CIMC Access Using the NIM E-Series NCE's External Management (Dedicated) Interface—Cisco ISR 4000 Series

See the following figure and the procedure that follows to configure CIMC access using the NIM E-Series NCE's external Management (dedicated) interface.

Figure 17: Configuring CIMC Access Using the NIM E-Series NCE's External Management (Dedicated) Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **ucse subslot** *slot/subslot*	Enters ucse interface configuration mode for the slot and subslot where the NIM E-Series NCE is installed.

	Command or Action	Purpose
Step 4	Router (config-ucse)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.
Step 5	Router (config-ucse)# **imc access-port dedicated**	Configures CIMC access through the server's external Management (dedicated) interface. See # 4 in Understanding the Interfaces in the NIM E-Series NCE and the Cisco ISR 4000 Series, on page 37.
Step 6	Router (config-ucse)# **end**	Returns to privileged EXEC mode on the host router.

Example

This example shows how to configure CIMC access using the server's external dedicated interface:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# ucse subslot 0/1
Router(config-ucse)# imc ip address 10.0.0.1 255.0.0.0 default-gateway 10.0.0.2
Router(config-ucse)# imc access-port dedicated
Router(config-ucse)# end
```

Configuring CIMC Access Using the NIM E-Series NCE's NIC Interfaces—Cisco ISR 4000 Series

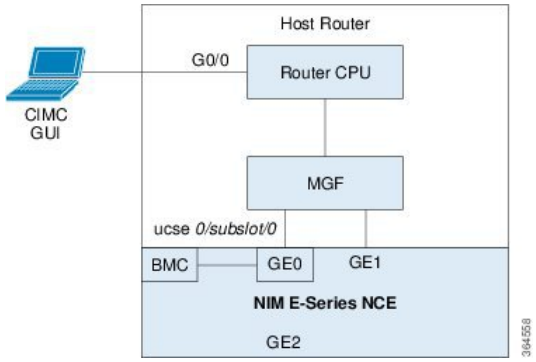
Use one of the following NIM E-Series NCE's NIC interfaces to access CIMC:

- NIM E-Series NCE's internal GE0 and the router's **ucse 0**/*subslot*/**0** Interface interface
- NIM E-Series NCE's internal GE1 interface and the router's **ucse 0**/*subslot*/**1** interface
- NIM E-Series NCE's external GE2 interface

Configuring CIMC Access Using the NIM E-Series NCE's Internal GE0 Interface and the Cisco ISR 4000 Series ucse 0/*subslot*/0 Interface

See the following figure and the procedure that follows to configure CIMC access using the NIM E-Series NCE's internal GE0 interface and the router's ucse **0**/*subslot*/**0** interface.

Figure 18: Configuring CIMC Access Using the NIM E-Series NCE's Internal GE0 Interface and the Router's ucse 0/subslot/0 Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **interface GigabitEthernet 0/0/0**	Enters interface configuration mode for Gigabit Ethernet interface 0/0/0.
Step 4	Router (config-if)# **ip address** *ip-address subnet-mask*	Specifies the IP address and subnet mask of the interface.
Step 5	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 6	Router (config-if)# **exit**	Exits interface configuration mode.
Step 7	Router (config)# **interface ucse 0/***subslot***/0**	Enters ucse interface configuration mode for the slot, subslot, and port where the NIM E-Series NCE is installed.
Step 8	Router (config-if)# **ip unnumbered** *type number*	The **ip unnumbered** command enables IP processing on an interface without assigning an explicit IP address to that interface. • *type*—Type of interface on which the router has an assigned IP address.

	Command or Action	Purpose
		• *number*—Number of the interface and subinterface on which the router has an assigned IP address. **Note** The unnumbered interface must be unique. It cannot be another unnumbered interface. When you use the **ip unnumbered** command, you must use the **ip route** command to create a static route. **Caution** The **ip unnumbered** and **ipv6 unnumbered** commands create a point-to-point interface between devices. Broadcasting is not supported.
Step 9	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 10	Router (config-if)# **exit**	Exits interface configuration mode.
Step 11	Router (config)# **ucse subslot** *slot/subslot*	Enters ucse interface configuration mode for the slot and subslot where the NIM E-Series NCE is installed.
Step 12	Router (config-ucse)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.
Step 13	Router (config-ucse)# **imc access-port shared-lom console**	Configures CIMC access using the NIM E-Series NCE's internal GE0 interface. See # 3 in Understanding the Interfaces in the NIM E-Series NCE and the Cisco ISR 4000 Series, on page 37.
Step 14	Router (config-ucse)# **exit**	Exits ucse interface configuration mode.
Step 15	Router (config)# **ip route** *cimc-ip-address subnet-mask* **ucse** *slot/subslot/port*	Creates a static route. • *cimc-ip-address*—IP address of CIMC. • *slot/subslot/port*—Slot, subslot, and port where the NIM E-Series NCE is installed.

	Command or Action	Purpose
Step 16	Router (config)# **end**	Exits configuration mode.
Step 17	Router# **ping** *cimc-ip-address*	Verifies the connection from the router to CIMC through the **ucse 0**/*subslot*/**0** interface.

Example

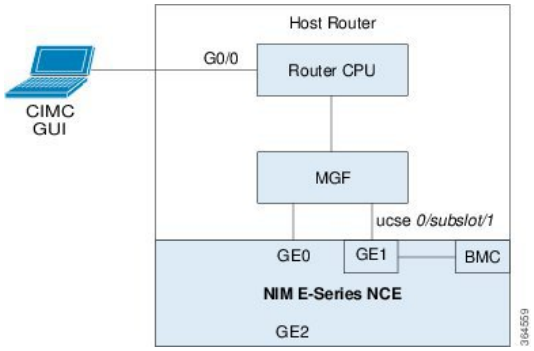
This example shows how to configure CIMC access using the NIM E-Series NCE's internal console interface and the router's **ucse 0**/*subslot*/**0** interface:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# interface GigabitEthernet0/0/0
Router(config-if)# ip address 10.0.0.1 255.0.0.0
Router(config-if)# no shut
Router(config-if)# exit

Router(config)# interface ucse 0/1/0
Router(config-if)# ip unnumbered GigabitEthernet0/0/0
Router(config-if)# no shut
Router(config-if)# exit

Router(config)# ucse subslot 0/1
Router(config-ucse)# imc ip address 10.0.0.2 255.0.0.0 default-gateway 10.0.0.1
Router(config-ucse)# imc access-port shared-lom console
Router(config-ucse)# exit

Router(config)# ip route 10.0.0.2 255.255.255.255 ucse 0/1/0
Router(config)# end

Router# ping 10.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

Configuring CIMC Access Using the NIM E-Series NCE's Internal GE1 Interface and the Cisco ISR 4000 Series ucse 0/*subslot*/1 Interface

See the following figure and the procedure that follows to configure CIMC access using the NIM E-Series NCE's internal GE1 interface and the router's ucse **0**/*subslot*/**1** interface.

Figure 19: Configuring CIMC Access Using the NIM E-Series NCE's Internal GE1 Interface and the Router's ucse 0/subslot/1 Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **interface GigabitEthernet 0/0/0**	Enters interface configuration mode for Gigabit Ethernet interface 0/0/0.
Step 4	Router (config-if)# **ip address** *ip-address subnet-mask*	Specifies the IP address and subnet mask of the interface.
Step 5	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 6	Router (config-if)# **exit**	Exits interface configuration mode.
Step 7	Router (config)# **interface ucse 0/***subslot***/1**	Enters ucse interface configuration mode for the slot, subslot, and port where the NIM E-Series NCE is installed.
Step 8	Router (config-if)# **ip unnumbered** *type number*	The **ip unnumbered** command enables IP processing on an interface without assigning an explicit IP address to that interface. • *type*—Type of interface on which the router has an assigned IP address.

	Command or Action	Purpose
		• *number*—Number of the interface and subinterface on which the router has an assigned IP address. **Note** The unnumbered interface must be unique. It cannot be another unnumbered interface. When you use the **ip unnumbered** command, you must use the **ip route** command to create a static route. **Caution** The **ip unnumbered** and **ipv6 unnumbered** commands create a point-to-point interface between devices. Broadcasting is not supported.
Step 9	Router (config-if)# **no shut**	Causes the interface to be administratively up.
Step 10	Router (config-if)# **exit**	Exits interface configuration mode.
Step 11	Router (config)# **ucse subslot** *slot/subslot*	Enters ucse interface configuration mode for the slot and subslot where the NIM E-Series NCE is installed.
Step 12	Router (config-ucse)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router. • *cimc-gateway-ip-address*—IP address for the default gateway.
Step 13	Router (config-ucse)# **imc access-port shared-lom ge1**	Configures CIMC access using the NIM E-Series NCE's internal GE1 interface. See # 3 in Understanding the Interfaces in the NIM E-Series NCE and the Cisco ISR 4000 Series, on page 37.
Step 14	Router (config-ucse)# **exit**	Exits ucse interface configuration mode.
Step 15	Router (config)# **ip route** *cimc-ip-address subnet-mask* **ucse** *slot/subslot/port*	Creates a static route. • *cimc-ip-address*—IP address of CIMC. • *slot/subslot/port*—Slot, subslot, and port where the NIM E-Series NCE is installed.

	Command or Action	Purpose
Step 16	Router (config)# **end**	Exits configuration mode.
Step 17	Router# **ping** *cimc-ip-address*	Verifies the connection from the router to CIMC through the **ucse 0**/*subslot*/**1** interface.

Example

This example shows how to configure CIMC access using the NIM E-Series NCE's internal GE1 interface and the router's ucse **0**/*subslot*/**1** interface:

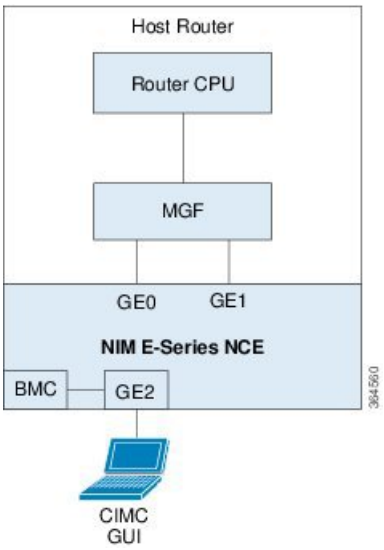
```
Router> enable
Router> password
Router# configure terminal

Router(config)# interface GigabitEthernet0/0/0
Router(config-if)# ip address 10.0.0.1 255.0.0.0
Router(config-if)# no shut
Router(config-if)# exit

Router(config)# interface ucse 0/1/1
Router(config-if)# ip unnumbered GigabitEthernet0/0/0
Router(config-if)# no shut
Router(config-if)# exit

Router(config)# ucse subslot 0/1
Router(config-ucse)# imc ip address 10.0.0.2 255.0.0.0 default-gateway 10.0.0.1
Router(config-ucse)# imc access-port shared-lom ge1
Router(config-ucse)# exit

Router(config)# ip route 10.0.0.2 255.255.255.255 ucse 0/1/1
Router(config)# end

Router# ping 10.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

Configuring CIMC Access Using the NIM E-Series NCE's External GE2 Interface—Cisco ISR 4000 Series

See the following figure and the procedure that follows to configure CIMC access using the NIM E-Series NCE's external GE2 interface.

Note This figure shows how to configure CIMC access using the NIM E-Series NCE's external GE2 interface.

Figure 20: Configuring CIMC Access Using the NIM E-Series NCE's External GE2 Interface



Before you begin

Make sure that you have the following information:

- IP address of CIMC.
- Username and password for logging in to the router.
- Slot or subslot and port number of the E-Series Server or NCE.

Procedure

	Command or Action	Purpose
Step 1	Router> **enable**	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	Router# **configure terminal**	Enters global configuration mode on the host router.
Step 3	Router (config)# **ucse subslot** *slot/subslot*	Enters ucse interface configuration mode for the slot and subslot where the NIM E-Series NCE is installed.
Step 4	Router (config-ucse)# **imc ip address** *cimc-ip-address subnet-mask* **default-gateway** *cimc-gateway-ip-address*	Specifies the IP address of CIMC and the IP address of the default gateway that CIMC must use. • *cimc-ip-address*—IP address of CIMC. • *subnet-mask*—Subnet mask used to append to the IP address; must be in the same subnet as the host router.

	Command or Action	Purpose
		• *cimc-gateway-ip-address*—IP address for the default gateway.
Step 5	Router (config-ucse)# **imc access-port shared-lom** {**GE2**}	Configures CIMC access through the NIM E-Series NCE's external GE2 interface. See # 5 and 6 in Understanding the Interfaces in the NIM E-Series NCE and the Cisco ISR 4000 Series, on page 37.
Step 6	Router (config-ucse)# **end**	Returns to privileged EXEC mode on the host router.

Example

This example shows how to configure CIMC access using the server's external GE2 interface:

```
Router> enable
Router> password
Router# configure terminal

Router(config)# ucse subslot 0/1
Router(config-ucse)# imc ip address 10.0.0.1 255.0.0.0 default-gateway 10.0.0.2
Router(config-ucse)# imc access-port shared-lom GE2
Router(config-ucse)# no shut
Router(config-ucse)# end
```

Configuring CIMC Access Using the CIMC Configuration Utility

Note This procedure is applicable to E-Series Servers and the SM E-Series NCE. This procedure is not applicable to the EHWIC E-Series NCE and the NIM E-Series NCE.

If you are a local user, you can use either the Cisco IOS CLI or the CIMC Configuration Utility to configure CIMC access.

Note When you use the CIMC Configuration Utility to configure CIMC access, the configuration is not reflected as a Cisco IOS configuration. In other words, if you execute the **show running-config** command from the Cisco IOS CLI, the changes that you made using the CIMC Configuration Utility are not reflected.

Procedure

Step 1 Power on the router.

Step 2 Connect a keyboard and monitor to the front panel of the E-Series Server.

Step 3 Press the **Power** button to boot the E-Series Server. During bootup, watch for the prompt to press **F8**.

Step 4 When you see the prompt, press **F8**.

The **CIMC Configuration Utility** appears.

Step 5 Use the CIMC configuration Utility to set the NIC mode and NIC redundancy, and to choose whether to enable DHCP or set static network settings.

a) From the **NIC mode** area, choose a port to access CIMC. Options are:

- Dedicated—The 10/100 IMC port is used to access CIMC.
- Shared LOM (default)—The four 1Gb Ethernet ports are used to access the CIMC. This is the factory default setting.

b) From the **NIC redundancy** area, choose the NIC redundancy. Options are:

- None—The Ethernet ports operate independently and do not fail over if there is a problem.
- Active-standby—If an active Ethernet port fails, the traffic falls over to a standby port. This is the factory default setting.

c) From the **IPV4 (Basic)** area, do one of the following:

- DHCP Enabled—Select this option to enable DHCP for dynamic network settings. Before you enable DHCP, your DHCP server must be preconfigured with the range of MAC addresses for this server. The MAC address is printed on a label on the rear of the server. This server has a range of six MAC addresses assigned to CIMC. The MAC address printed on the label is the beginning of the range of six contiguous MAC addresses.
- CIMC IP—IP address of CIMC.

  Subnet Mask—Enter the subnet mask to append to the CIMC IP address; must be in the same subnet as the host router.

  Gateway—IP address of the default gateway router.

d) (Optional) From the **VLAN (Advanced)** area, configure VLAN settings.

e) Press **F5** to refresh the page and have the new settings appear.

The page refresh takes approximately 45 seconds.

f) Press **F10** to save your settings and reboot the server.

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

Step 6 Using the ports that you selected for the NIC Mode settings in Step 5, substep a, connect Ethernet cables from your LAN to the E-Series Server.

Step 7 In your web browser, enter the IP address that you configured to access CIMC. The CIMC IP address is based upon the settings that you configured in Step 5, substep c (either a static IP address or the IP address assigned by your DHCP server).

The default username to log in to CIMC is **admin**, and the default password is **password**.

Step 8 Use the CIMC GUI or CIMC CLI to manage and monitor the server.

See the *GUI Configuration Guide for Cisco UCS E-Series Servers and the Cisco UCS E-Series Network Compute Engine* or the *CLI Configuration Guide for Cisco UCS E-Series Servers and the Cisco UCS E-Series Network Compute Engine*.

Defining Network Static Settings Using a Script File

Use this procedure to define static network settings for multiple servers by automating the configuration process with a script file.

Procedure

Step 1 Use a text editor to create a file named **network.cfg**.

Step 2 Create the contents of **network.cfg** in the following format by using only the tags that you want to set:

```
dhcp-enabled:
v4-addr:
v4-netmask:
v4-gateway:
vlan-enabled:
vlan-id:
vlan-priority:
password:
mode:
redundancy:
```

For example, to disable DHCP, set the IP address, subnet mask, gateway, and user password, use the following sample values:

```
dhcp-enabled: 0
v4-addr: 10.193.70.102
v4-netmask: 255.255.255.0
v4-gateway: 10.193.70.1
password: nonpasswd
mode:
redundancy:
```

Step 3 Use a text editor to create a file named **startup.nsh** with the following contents:

```
fs0:
cimcconfig
```

Step 4 Copy your **network.cfg** file and your **startup.nsh** file to a USB thumb drive.

Step 5 Insert the USB thumb drive into a USB port on the server.

Step 6 Press and release the **Power** button to boot the server.

Step 7 Observe the booting process and press **F6** when prompted to enter the BIOS Boot Manager.

Step 8 Select EFI as the boot device and then press **Enter**.

The server power-cycles and launches the configuration utility, which runs the **startup.nsh** file. Any errors are displayed on the screen and on an **errors.txt** file.

Step 9 Remove the USB thumb drive, alter the **network.cfg** file with your next IP address, and then insert the USB thumb drive into the next server that you want to configure.

Step 10 After the server has been assigned an IP address, you can use that address to access the service processor's GUI or CLI management system.

What to Do Next

Do one of the following as appropriate:

- If you purchased an E-Series Server or NCE Option 1 (E-Series Server or NCE without a preinstalled operating system or hypervisor), log in to the CIMC GUI or the CIMC CLI to access CIMC. See Accessing the Management Firmware.
- If you purchased an E-Series Server or NCE Option 2 (E-Series Server or NCE with a preinstalled Microsoft Windows Server) or Option 3 (E-Series Server or NCE with a preinstalled VMware vSphere Hypervisor), configure an internal connection between the router and the E-Series Server or NCE. 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.

What to Do Next