Configuring Network-Related Settings

This chapter includes the following sections:

Server NIC Configuration

Server NICs

Two NIC modes are available for connection to the CIMC. In one mode, you can also choose an active-active or active-standby redundancy mode, depending on your platform.

NIC Mode

The CIMC network settings determine which ports can reach the CIMC. The following network mode options are available, depending on your platform:

- Cisco Card—A connection to the CIMC is available through an installed adapter card.
- Dedicated—A connection to the CIMC is available through the management Ethernet port or ports.
- Shared LOM—A connection to the CIMC is available only through the LAN On Motherboard (LOM) Ethernet host ports. In some platforms, a 10 Gigabit Ethernet LOM option is available.

Note In shared LOM mode, all host ports must belong to the same subnet.

- Shipping (if supported)—A connection to the CIMC is available through the management Ethernet port or ports using a limited factory default configuration.

Note Shipping mode is intended only for your initial connection to the CIMC. Configure another mode for operation.

NIC Redundancy

The CIMC network redundancy settings determine how NIC redundancy is handled:

- None—Redundancy is not available.
- Active-Active—All Ethernet ports operate simultaneously. This mode provides multiple paths to the CIMC.
- Active-Standby—One port fails over to the other.

The available redundancy modes vary depending on the selected network mode and your platform. For the available modes, see the server installation and service guide for your server. This guide is available from the *Cisco UCS C-Series Servers Documentation Roadmap* at http://www.cisco.com/go/unifiedcomputing/c-series-doc.

Configuring Server NICs

Configure a server NIC when you want to set the NIC mode and NIC redundancy.

Before You Begin

You must log in as a user with admin privileges to configure the NIC.

Procedure

	Command or Action	Purpose
Step 1	Server# **scope cimc**	Enters the CIMC command mode.
Step 2	Server /cimc # **scope network**	Enters the CIMC network command mode.
Step 3	Server /cimc/network # **set mode** {**dedicated** | **shared_lom** | **shared_lom_10g** | **shipping** | **cisco_card**}	Sets the NIC mode to one of the following: • Dedicated—The management Ethernet port is used to access the CIMC. • Shared LOM—The LAN On Motherboard (LOM) Ethernet host ports are used to access the CIMC. **Note** If you select Shared LOM, make sure that all host ports belong to the same subnet. • Shared LOM 10G—The 10G LOM Ethernet host ports are used to access the CIMC. • Shipping—A limited configuration for initial connection. Select another mode for normal operation. • Cisco card—The ports on the adapter card are used to access the CIMC.

	Command or Action	Purpose
Step 4	Server /cimc/network # **set redundancy** {**none** | **active-active** | **active-standby**}	Sets the NIC redundancy mode when the NIC mode is Shared LOM. The redundancy mode can be one of the following: • **none**—The LOM Ethernet ports operate independently and do not fail over if there is a problem. • **active-active**—If supported, all LOM Ethernet ports are utilized. • **active-standby**—If one LOM Ethernet port fails, traffic fails over to another LOM port.
Step 5	Server /cimc/network # **commit**	Commits the transaction to the system configuration. **Note** The available NIC mode and NIC redundancy mode options may vary depending on your platform. If you select a mode not supported by your server, an error message displays when you save your changes.

This example configures the CIMC network interface:

```
Server# scope cimc
Server /cimc # scope network
Server /cimc/network # set mode dedicated
Server /cimc/network *# commit
Server /cimc/network #
```

Configuring Common Properties

Use common properties to describe your server.

Before You Begin

You must log in as a user with admin privileges to configure common properties.

Procedure

	Command or Action	Purpose
Step 1	Server# **scope cimc**	Enters the CIMC command mode.
Step 2	Server /cimc # **scope network**	Enters the CIMC network command mode.
Step 3	Server /cimc/network # **set hostname** *host-name*	Specifies the name of the host.
Step 4	Server /cimc/network # **commit**	Commits the transaction to the system configuration.

This example configures the common properties:

```
Server# scope cimc
Server /cimc # scope network
```

```
Server /cimc/network # set hostname Server
Server /cimc/network *# commit
Server /cimc/network #
```

Configuring IPv4

Before You Begin

You must log in as a user with admin privileges to configure IPv4 network settings.

Procedure

	Command or Action	Purpose
Step 1	Server# **scope cimc**	Enters the CIMC command mode.
Step 2	Server /cimc # **scope network**	Enters the CIMC network command mode.
Step 3	Server /cimc/network # **set dhcp-enabled** {**yes** | **no**}	Selects whether the CIMC uses DHCP. **Note** If DHCP is enabled, we recommend that the DHCP server be configured to reserve a single IP address for the CIMC. If the CIMC is reachable through multiple ports on the server, the single IP address must be reserved for the full range of MAC addresses of those ports.
Step 4	Server /cimc/network # **set v4-addr** *ipv4-address*	Specifies the IP address for the CIMC.
Step 5	Server /cimc/network # **set v4-netmask** *ipv4-netmask*	Specifies the subnet mask for the IP address.
Step 6	Server /cimc/network # **set v4-gateway** *gateway-ipv4-address*	Specifies the gateway for the IP address.
Step 7	Server /cimc/network # **set dns-use-dhcp** {**yes** | **no**}	Selects whether the CIMC retrieves the DNS server addresses from DHCP.
Step 8	Server /cimc/network # **set preferred-dns-server** *dns1-ipv4-address*	Specifies the IP address of the primary DNS server.
Step 9	Server /cimc/network # **set alternate-dns-server** *dns2-ipv4-address*	Specifies the IP address of the secondary DNS server.
Step 10	Server /cimc/network # **commit**	Commits the transaction to the system configuration.
Step 11	Server /cimc/network # **show** [**detail**]	(Optional) Displays the IPv4 network settings.

This example configures and displays the IPv4 network settings:

```
Server# scope cimc
Server /cimc # scope network
Server /cimc/network # set dhcp-enabled yes
Server /cimc/network *# set v4-addr 10.20.30.11
```

```
Server /cimc/network *# set v4-netmask 255.255.248.0
Server /cimc/network *# set v4-gateway 10.20.30.1
Server /cimc/network *# set dns-use-dhcp-enabled no
Server /cimc/network *# set preferred-dns-server 192.168.30.31
Server /cimc/network *# set alternate-dns-server 192.168.30.32
Server /cimc/network *# commit
Server /cimc/network # show detail
Network Setting:
    IPv4 Address: 10.20.30.11
    IPv4 Netmask: 255.255.248.0
    IPv4 Gateway: 10.20.30.1
    DHCP Enabled: yes
    Obtain DNS Server by DHCP: no
    Preferred DNS: 192.168.30.31
    Alternate DNS: 192.168.30.32
    VLAN Enabled: no
    VLAN ID: 1
    VLAN Priority: 0
    Hostname: Server
    MAC Address: 01:23:45:67:89:AB
    NIC Mode: dedicated
    NIC Redundancy: none

Server /cimc/network #
```

Configuring the Server VLAN

Before You Begin

You must be logged in as admin to configure the server VLAN.

Procedure

	Command or Action	Purpose
Step 1	Server# **scope cimc**	Enters the CIMC command mode.
Step 2	Server /cimc # **scope network**	Enters the CIMC network command mode.
Step 3	Server /cimc/network # **set vlan-enabled** {**yes** | **no**}	Selects whether the CIMC is connected to a VLAN.
Step 4	Server /cimc/network # **set vlan-id** *id*	Specifies the VLAN number.
Step 5	Server /cimc/network # **set vlan-priority** *priority*	Specifies the priority of this system on the VLAN.
Step 6	Server /cimc/network # **commit**	Commits the transaction to the system configuration.
Step 7	Server /cimc/network # **show** [**detail**]	(Optional) Displays the network settings.

This example configures the server VLAN:

```
Server# scope cimc
Server /cimc # scope network
Server /cimc/network # set vlan-enabled yes
Server /cimc/network *# set vlan-id 10
Server /cimc/network *# set vlan-priority 32
Server /cimc/network *# commit
Server /cimc/network # show detail
Network Setting:
```

```
    IPv4 Address: 10.20.30.11
    IPv4 Netmask: 255.255.248.0
    IPv4 Gateway: 10.20.30.1
    DHCP Enabled: yes
    Obtain DNS Server by DHCP: no
    Preferred DNS: 192.168.30.31
    Alternate DNS: 192.168.30.32
    VLAN Enabled: yes
    VLAN ID: 10
    VLAN Priority: 32
    Hostname: Server
    MAC Address: 01:23:45:67:89:AB
    NIC Mode: dedicated
    NIC Redundancy: none

Server /cimc/network #
```

Network Security Configuration

Network Security

The CIMC uses IP blocking as network security. IP blocking prevents the connection between a server or website and certain IP addresses or ranges of addresses. IP blocking effectively bans undesired connections from those computers to a website, mail server, or other Internet servers.

IP banning is commonly used to protect against denial of service (DoS) attacks. CIMC bans IP addresses by setting up an IP blocking fail count.

Configuring Network Security

Configure network security if you want to set up an IP blocking fail count.

Before You Begin

You must log in as a user with admin privileges to configure network security.

Procedure

	Command or Action	Purpose
Step 1	Server# **scope cimc**	Enters the CIMC command mode.
Step 2	Server /cimc # **scope network**	Enters the CIMC network command mode.
Step 3	Server /cimc/network # **scope ipblocking**	Enters the IP blocking command mode.
Step 4	Server /cimc/network/ipblocking # **set enabled** {**yes** | **no**}	Enables or disables IP blocking.
Step 5	Server /cimc/network/ipblocking # **set fail-count** *fail-count*	Sets the number of times a user can attempt to log in unsuccessfully before the system locks that user out for a specified length of time. The number of unsuccessful login attempts must occur within the time frame specified in the IP Blocking Fail Window field.

	Command or Action	Purpose
		Enter an integer between 3 and 10.
Step 6	Server /cimc/network/ipblocking # **set fail-window** *fail-seconds*	Sets the length of time, in seconds, in which the unsuccessful login attempts must occur in order for the user to be locked out. Enter an integer between 60 and 120.
Step 7	Server /cimc/network/ipblocking # **set penalty-time** *penalty-seconds*	Sets the number of seconds the user remains locked out if they exceed the maximum number of login attempts within the specified time window. Enter an integer between 300 and 900.
Step 8	Server /cimc/network/ipblocking # **commit**	Commits the transaction to the system configuration.

This example configures IP blocking:

```
Server# scope cimc
Server /cimc # scope network
Server /cimc/network # scope ipblocking
Server /cimc/network/ipblocking # set enabled yes
Server /cimc/network/ipblocking *# set fail-count 5
Server /cimc/network/ipblocking *# set fail-window 90
Server /cimc/network/ipblocking *# set penalty-time 600
Server /cimc/network/ipblocking *# commit
Server /cimc/network/ipblocking #
```