



# Configuring Network-Related Settings

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This chapter includes the following sections:

- [Server NIC Configuration, page 1](#)
- [Common Properties Configuration, page 4](#)
- [Configuring IPv4, page 6](#)
- [Configuring IPv6, page 8](#)
- [Configuring the Server VLAN, page 10](#)
- [Connecting to a Port Profile, page 12](#)
- [Network Interface Configuration, page 13](#)
- [Network Security Configuration, page 15](#)
- [Network Time Protocol Configuration, page 16](#)
- [Pinging an IP address, page 17](#)

## Server NIC Configuration

### Server NICs

#### NIC Mode

The NIC mode setting determines which ports can reach the Cisco IMC. The following network mode options are available, depending on your platform:

- **Dedicated**—The management port that is used to access the Cisco IMC.
- **Shared LOM**—Any LOM (LAN on Motherboard) port that can be used to access Cisco IMC.
- **Shared LOM 10G**—Any 10G LOM port can be used to access the Cisco IMC.

- **Cisco Card**—Any port on the adapter card that can be used to access Cisco IMC. The Cisco adapter card has to be installed in a slot with Network the Communications Services Interface protocol support (NCSI).
- **Shared LOM Extended**—Any LOM port or adapter card port that can be used to access Cisco IMC. The Cisco adapter card has to be installed in a slot with NCSI support.




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**Note** **Shared LOM Extended** and **Shared LOM 10G** are available only on some UCS C-Series servers.

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### NIC Redundancy

The following NIC redundancy options are available, depending on the selected NIC mode and your platform:

- **none**—Each port that is associated with the configured NIC mode operates independently. The ports do not fail over if there is a problem.
- **active-active**—If supported, all ports that are associated with the configured NIC mode operate simultaneously. This feature increases throughput and provides multiple paths to Cisco IMC.




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**Note** When using **active-active**, do not configure a port-channel in the upstream switch for the member interfaces. A port-channel can be configured when using **active-standby**.

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- **active-standby**—If a port that is associated with the configured NIC mode fails, traffic fails over to one of the other ports associated with the NIC mode.




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**Note** If you choose this option, make sure that all ports associated with the configured NIC mode are connected to the same VLAN to ensure that traffic is secure regardless of which port is used.

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The available redundancy modes vary depending on the selected network mode and your platform. For the available modes, see the *Hardware Installation Guide* (HIG) for the type of server you are using. The C-Series HIGs are available at the following URL: [http://www.cisco.com/en/US/products/ps10493/prod\\_installation\\_guides\\_list.html](http://www.cisco.com/en/US/products/ps10493/prod_installation_guides_list.html)

## 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
<b>Step 1</b>	Server# <b>scope cimc</b>	Enters the Cisco IMC command mode.
<b>Step 2</b>	Server /cimc # <b>scope network</b>	Enters the Cisco IMC network command mode.
<b>Step 3</b>	Server /cimc/network # <b>set mode {dedicated   shared_lom   shared_lom_10g   shipping   cisco_card}</b>	<p>Sets the NIC mode to one of the following:</p> <ul style="list-style-type: none"> <li>• <b>Dedicated</b>—The management Ethernet port is used to access the Cisco IMC.</li> <li>• <b>Shared LOM</b>—The LAN On Motherboard (LOM) Ethernet host ports are used to access the Cisco IMC.  <b>Note</b> If you select Shared LOM, make sure that all host ports belong to the same subnet.</li> <li>• <b>Shared LOM 10G</b>—The 10G LOM Ethernet host ports are used to access the Cisco IMC.</li> <li>• <b>Shipping</b>—A limited configuration for initial connection. Select another mode for normal operation.</li> <li>• <b>Cisco card</b>—The ports on the adapter card are used to access the Cisco IMC.</li> </ul>
<b>Step 4</b>	Server /cimc/network # <b>set vic-slot {none   riser1   riser2   flex-lom}</b>	<p>VIC slot can be set to Cisco cards available in FLEX LOM or riser 1 or riser 2 slots.</p> <p>For C220 M4 servers, VIC slot options are as follows:</p> <ul style="list-style-type: none"> <li>• <b>Riser 1</b>—Slot 1 is selected.</li> <li>• <b>Riser 2</b>— Slot 2 is selected.</li> <li>• <b>FLEX LOM</b>—Slot 3 (MLOM) is selected.</li> </ul> <p>For C240 M4 servers, VIC slot options are as follows:</p> <ul style="list-style-type: none"> <li>• <b>Riser 1</b>—Slot 2 is the primary slot, but you can use slot 1.</li> <li>• <b>Riser 2</b>— Slot 5 is the primary slot, but you can use slot 4.</li> <li>• <b>FLEX LOM</b>—Slot 7 (MLOM) is selected.</li> </ul> <p><b>Important</b> VIC slot is applicable for Cisco cards and on some UCS C-Series servers only.</p>
<b>Step 5</b>	Server /cimc/network # <b>set redundancy {none   active-active   active-standby}</b>	<p>Sets the NIC redundancy mode when the NIC mode is Shared LOM. The redundancy mode can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>none</b>—The LOM Ethernet ports operate independently and do not fail over if there is a problem.</li> <li>• <b>active-active</b>—If supported, all LOM Ethernet ports are utilized.</li> </ul>

	Command or Action	Purpose
		<ul style="list-style-type: none"> <li>• <b>active-standby</b>—If one LOM Ethernet port fails, traffic fails over to another LOM port.</li> </ul>
<b>Step 6</b>	Server /cimc/network # <b>commit</b>	Commits the transaction to the system configuration.  <b>Note</b> 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.
<b>Step 7</b>	At the prompt, enter y to confirm.	Configures the server NIC.

This example configures the Cisco IMC network interface:

```
scope cimc
Server /cimc # scope network
Server /cimc/network # set mode cisco_card
Server /cimc/network # set vic-slot <flex-lom>
Server /cimc/network *# set redundancy <active-active>
Server /cimc/network *# commit
Changes to the network settings will be applied immediately.
You may lose connectivity to the Cisco IMC and may have to log in again.
Do you wish to continue? [y/N] y
Server /cimc/network #
```

## Common Properties Configuration

### Overview to Common Properties Configuration

#### Hostname

The Dynamic Host Configuration Protocol (DHCP) enhancement is available with the addition of the hostname to the DHCP packet, which can either be interpreted or displayed at the DHCP server side. The hostname, which is now added to the options field of the DHCP packet, sent in the DHCP DISCOVER packet that was initially sent to the DHCP server.

The default hostname of the server is changed from ucs-c2XX to CXXX-YYYYYY, where XXX is the model number and YYYYYY is the serial number of the server. This unique string acts as a client identifier, allows you to track and map the IP addresses that are leased out to Cisco IMC from the DHCP server. The default serial number is provided by the manufacturer as a sticker or label on the server to help you identify the server.

#### Dynamic DNS

Dynamic DNS (DDNS) is used to add or update the resource records on the DNS server from Cisco IMC. You can enable Dynamic DNS by using either the web UI or CLI. When you enable the DDNS option, the DDNS service records the current hostname, domain name, and the management IP address and updates the resource records in the DNS server from Cisco IMC.

**Note**

The DDNS server deletes the prior resource records (if any) and adds the new resource records to the DNS server if any one of the following DNS configuration is changed:

- Hostname
- Domain name in the LDAP settings
- When DDNS and DHCP are enabled, if the DHCP gets a new IP address or DNS IP or domain name due to a change in a network or a subnet.
- When DHCP is disabled and if you set the static IP address by using CLI or web UI.
- When you enter the **dns-use-dhcp** command.

**Dynamic DNS Update Domain**— You can specify the domain. The domain could be either main domain or any sub-domain. This domain name is appended to the hostname of the Cisco IMC for the DDNS update.

## 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
<b>Step 1</b>	Server# <b>scope cimc</b>	Enters Cisco IMC command mode.
<b>Step 2</b>	Server /cimc # <b>scope network</b>	Enters Cisco IMC network command mode.
<b>Step 3</b>	Server /cimc/network # <b>set hostname</b> <i>host-name</i>	Specifies the name of the host.  When you modify the hostname, you are prompted to confirm whether you want to create a new self-signed certificate with Common Name (CN) as the new hostname.  If you enter <b>y</b> at the prompt, a new self-signed certificate is created with CN as the new hostname.  If you enter <b>n</b> at the prompt, only the hostname is changed and no certificate will be generated.
<b>Step 4</b>	Server /cimc/network # <b>set ddns-enabled</b>	(Optional) Enables the DDNS service for Cisco IMC
<b>Step 5</b>	Server /cimc/network # <b>set ddns-update-domain</b> <i>value</i>	(Optional) Updates the selected domain or its subdomain.

	Command or Action	Purpose
<b>Step 6</b>	Server /cimc/network # <b>commit</b>	Commits the transaction to the system configuration.
<b>Step 7</b>	At the prompt, enter y to confirm.	Configures common properties.

This example shows how to configure the common properties:

```
Server# scope cimc
Server /cimc # scope network
Server /cimc/network # set hostname Server
Create new certificate with CN as new hostname? [y|N]
y
New certificate will be generated on committing changes.
All HTTPS and SSH sessions will be disconnected.
Server /cimc/network # set ddns-enabled
Server /cimc/network # set ddns-update-domain 1.2.3.4
Server /cimc/network *# commit
Changes to the network settings will be applied immediately.
You may lose connectivity to the Cisco IMC and may have to log in again.
Do you wish to continue? [y/N] y
Server /cimc/network #
```

### What to Do Next

Changes to the network are applied immediately. You might lose connectivity to Cisco IMC and have to log in again. Because of the new SSH session created, you may be prompted to confirm the host key.

## 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
<b>Step 1</b>	Server# <b>scope cimc</b>	Enters the Cisco IMC command mode.
<b>Step 2</b>	Server /cimc # <b>scope network</b>	Enters the Cisco IMC network command mode.
<b>Step 3</b>	Server /cimc/network # <b>set dhcp-enabled {yes   no}</b>	<p>Selects whether the Cisco IMC uses DHCP.</p> <p><b>Note</b> If DHCP is enabled, we recommend that the DHCP server be configured to reserve a single IP address for the Cisco IMC. If the Cisco IMC 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.</p>
<b>Step 4</b>	Server /cimc/network # <b>set v4-addr ipv4-address</b>	Specifies the IP address for the Cisco IMC.

	Command or Action	Purpose
<b>Step 5</b>	Server /cimc/network # <b>set v4-netmask</b> <i>ipv4-netmask</i>	Specifies the subnet mask for the IP address.
<b>Step 6</b>	Server /cimc/network # <b>set v4-gateway</b> <i>gateway-ipv4-address</i>	Specifies the gateway for the IP address.
<b>Step 7</b>	Server /cimc/network # <b>set dns-use-dhcp</b> {yes   no}	Selects whether the Cisco IMC retrieves the DNS server addresses from DHCP.
<b>Step 8</b>	Server /cimc/network # <b>set preferred-dns-server</b> <i>dns1-ipv4-address</i>	Specifies the IP address of the primary DNS server.
<b>Step 9</b>	Server /cimc/network # <b>set alternate-dns-server</b> <i>dns2-ipv4-address</i>	Specifies the IP address of the secondary DNS server.
<b>Step 10</b>	Server /cimc/network # <b>commit</b>	Commits the transaction to the system configuration.
<b>Step 11</b>	At the prompt, enter y to confirm.	Configures IPv4.
<b>Step 12</b>	Server /cimc/network # <b>show [detail]</b>	(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
Changes to the network settings will be applied immediately.
You may lose connectivity to the Cisco IMC and may have to log in again.
Do you wish to continue? [y/N] y
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
  IPv6 Enabled: no
  IPv6 Address: ::
  IPv6 Prefix: 64
  IPv6 Gateway: ::
  IPv6 Link Local: ::
  IPv6 SLAAC Address: ::
  IPV6 DHCP Enabled: no
  IPV6 Obtain DNS Server by DHCP: no
  IPV6 Preferred DNS: ::
  IPV6 Alternate DNS: ::
  VLAN Enabled: no
  VLAN ID: 1
  VLAN Priority: 0
  Port Profile:
  Hostname: C240-FCH1938V17L

```

```

MAC Address: E4:AA:5D:AD:19:81
NIC Mode: shared_lom_ext
NIC Redundancy: active-active
VIC Slot: riser1
Auto Negotiate: no
Admin Network Speed: NA
Admin Duplex: NA
Operational Network Speed: NA
Operational Duplex: NA

```

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

## Configuring IPv6

### Before You Begin

You must log in as a user with admin privileges to configure IPv6 network settings.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	Server# <b>scope cimc</b>	Enters the Cisco IMC command mode.
<b>Step 2</b>	Server /cimc # <b>scope network</b>	Enters the Cisco IMC network command mode.
<b>Step 3</b>	Server /cimc/network # <b>set v6-enabled</b> {yes   no}	Enables IPv6.
<b>Step 4</b>	Server /cimc/network # <b>set v6-dhcp-enabled</b> {yes   no}	Selects whether the Cisco IMC uses DHCP. <b>Note</b> If DHCP is enabled, we recommend that the DHCP server be configured to reserve a single IPv6 address for the Cisco IMC. If the Cisco IMC is reachable through multiple ports on the server, the single IPv6 address must be reserved for the full range of MAC addresses of those ports.
<b>Step 5</b>	Server /cimc/network # <b>set v6-addr</b> <i>ipv6-address</i>	Specifies the IP address for the Cisco IMC.
<b>Step 6</b>	Server /cimc/network # <b>set v6-prefix</b> <i>ipv6-prefix-length</i>	Specifies the prefix length for the IP address.
<b>Step 7</b>	Server /cimc/network # <b>set v6-gateway</b> <i>gateway-ipv6-address</i>	Specifies the gateway for the IP address.
<b>Step 8</b>	Server /cimc/network # <b>set v6-dns-use-dhcp</b> {yes   no}	Selects whether the Cisco IMC retrieves the DNS server addresses from DHCP. <b>Note</b> You can use this option only when DHCP enabled.
<b>Step 9</b>	Server /cimc/network # <b>set v6-preferred-dns-server</b> <i>dns1-ipv6-address</i>	Specifies the IP address of the primary DNS server.



	Command or Action	Purpose
<b>Step 10</b>	Server /cimc/network # <b>set v6-alternate-dns-server</b> <i>dns2-ipv6-address</i>	Specifies the IP address of the secondary DNS server.
<b>Step 11</b>	Server /cimc/network # <b>commit</b>	Commits the transaction to the system configuration.
<b>Step 12</b>	At the prompt, enter y to confirm.	Configures IPv6.
<b>Step 13</b>	Server /cimc/network # <b>show [detail]</b>	(Optional) Displays the IPv6 network settings.

This example enables static IPv6 and displays the IPv6 network settings:

```

Server# scope cimc
Server /cimc # scope network
Server /cimc/network # set v6-enabled yes
Server /cimc/network *# set v6-addr 2010:201::279
Server /cimc/network *# set v6-gateway 2010:201::1
Server /cimc/network *# set v6-prefix 64
Server /cimc/network *# set v6-dns-use-dhcp no
Server /cimc/network *# set v6-preferred-dns-server 2010:201::100
Server /cimc/network *# set v6-alternate-dns-server 2010:201::101
Changes to the network settings will be applied immediately.
You may lose connectivity to the Cisco IMC and may have to log in again.
Server /cimc/network *# commit
Changes to the network settings will be applied immediately.
You may lose connectivity to the Cisco IMC and may have to log in again.
Do you wish to continue? [y/N] y
Server /cimc/network # show detail
Network Setting:
  IPv4 Enabled: yes
  IPv4 Address: 10.106.145.76
  IPv4 Netmask: 255.255.255.0
  IPv4 Gateway: 10.106.145.1
  DHCP Enabled: yes
  DDNS Enabled: yes
  DDNS Update Domain: example.com
  Obtain DNS Server by DHCP: no
  Preferred DNS: 171.70.168.183
  Alternate DNS: 0.0.0.0
  IPv6 Enabled: yes
  IPv6 Address: 2010:201::279
  IPv6 Prefix: 64
  IPv6 Gateway: 2010:201::1
  IPv6 Link Local: fe80::523d:e5ff:fe9d:395d
  IPv6 SLAAC Address: 2010:201::523d:e5ff:fe9d:395d
  IPv6 DHCP Enabled: no
  IPv6 Obtain DNS Server by DHCP: no
  IPv6 Preferred DNS: 2010:201::100
  IPv6 Alternate DNS: 2010:201::101
  VLAN Enabled: no
  VLAN ID: 1
  VLAN Priority: 0
  Port Profile:
  Hostname: CIMC_C220
  MAC Address: 50:3D:E5:9D:39:5C
  NIC Mode: dedicated
  NIC Redundancy: none
  Network Speed: 100Mbps
  Duplex: full
  Auto Negotiate: no
  Admin Network Speed: NA
  Admin Duplex: NA

```

```
Operational Network Speed: NA
Operational Duplex: NA
```

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

This example enables DHCP for IPv6 and displays the IPv6 network settings:

```
Server# scope cimc
Server /cimc # scope network
Server /cimc/network # set v6-enabled yes
Server /cimc/network *# set v6-dhcp-enabled yes
Changes to the network settings will be applied immediately.
You may lose connectivity to the Cisco IMC and may have to log in again.
Server /cimc/network *# commit
Changes to the network settings will be applied immediately.
You may lose connectivity to the Cisco IMC and may have to log in again.
Do you wish to continue? [y/N] y
Server /cimc/network # show detail
Network Setting:
IPv4 Enabled: yes
IPv4 Address: 10.106.145.76
IPv4 Netmask: 255.255.255.0
IPv4 Gateway: 10.106.145.1
DHCP Enabled: yes
DDNS Enabled: yes
DDNS Update Domain: example.com
Obtain DNS Server by DHCP: no
Preferred DNS: 171.70.168.183
Alternate DNS: 0.0.0.0
IPv6 Enabled: yes
IPv6 Address: 2010:201::253
IPv6 Prefix: 64
IPv6 Gateway: fe80::222:dff:fec2:8000
IPv6 Link Local: fe80::523d:e5ff:fe9d:395d
IPv6 SLAAC Address: 2010:201::523d:e5ff:fe9d:395d
IPv6 DHCP Enabled: yes
IPv6 Obtain DNS Server by DHCP: no
IPv6 Preferred DNS: ::
IPv6 Alternate DNS: ::
VLAN Enabled: no
VLAN ID: 1
VLAN Priority: 0
Port Profile:
Hostname: CIMC_C220
MAC Address: 50:3D:E5:9D:39:5C
NIC Mode: dedicated
NIC Redundancy: none
Network Speed: 100Mbps
Duplex: full
Auto Negotiate: no
Admin Network Speed: NA
Admin Duplex: NA
Operational Network Speed: NA
Operational Duplex: NA
```

```
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
<b>Step 1</b>	Server# <b>scope cimc</b>	Enters the Cisco IMC command mode.
<b>Step 2</b>	Server /cimc # <b>scope network</b>	Enters the Cisco IMC network command mode.
<b>Step 3</b>	Server /cimc/network # <b>set vlan-enabled {yes   no}</b>	Selects whether the Cisco IMC is connected to a VLAN.
<b>Step 4</b>	Server /cimc/network # <b>set vlan-id id</b>	Specifies the VLAN number.
<b>Step 5</b>	Server /cimc/network # <b>set vlan-priority priority</b>	Specifies the priority of this system on the VLAN.
<b>Step 6</b>	Server /cimc/network # <b>commit</b>	Commits the transaction to the system configuration.
<b>Step 7</b>	At the prompt, enter y to confirm.	Configures the server LAN.
<b>Step 8</b>	Server /cimc/network # <b>show [detail]</b>	(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
Changes to the network settings will be applied immediately.
You may lose connectivity to the Cisco IMC and may have to log in again.
Do you wish to continue? [y/N] y
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
  IPv6 Enabled: no
  IPv6 Address: ::
  IPv6 Prefix: 64
  IPv6 Gateway: ::
  IPv6 Link Local: ::
  IPv6 SLAAC Address: ::
  IPV6 DHCP Enabled: no
  IPV6 Obtain DNS Server by DHCP: no
  IPV6 Preferred DNS: ::
  IPV6 Alternate DNS: ::
  VLAN Enabled: yes
  VLAN ID: 10
  VLAN Priority: 32
  Port Profile:
  Hostname: C240-FCH1938V17L
  MAC Address: E4:AA:5D:AD:19:81
  NIC Mode: shared_lom_ext
  NIC Redundancy: active-active
  VIC Slot: riser1

```

```

Auto Negotiate: no
Admin Network Speed: NA
Admin Duplex: NA
Operational Network Speed: NA
Operational Duplex: NA

```

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

## Connecting to a Port Profile



### Note

You can configure a port profile or a VLAN, but you cannot use both. If you want to use a port profile, make sure the **set vlan-enabled** command is set to **no**.

### Before You Begin

You must be logged in as admin to connect to a port profile.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	Server# <b>scope cimc</b>	Enters the Cisco IMC command mode.
<b>Step 2</b>	Server /cimc # <b>scope network</b>	Enters the Cisco IMC network command mode.
<b>Step 3</b>	Server /cimc/network # <b>set port-profile port_profile_name</b>	Specifies the port profile Cisco IMC should use to configure the management interface, the virtual Ethernet, and the VIF on supported adapter cards such as the Cisco UCS VIC 1225 Virtual Interface Card.  Enter up to 80 alphanumeric characters. You cannot use spaces or other special characters except for - (hyphen) and _ (underscore). In addition, the port profile name cannot begin with a hyphen.  <b>Note</b> The port profile must be defined on the switch to which this server is connected.
<b>Step 4</b>	Server /cimc/network # <b>commit</b>	Commits the transaction to the system configuration.
<b>Step 5</b>	At the prompt, enter y to confirm.	Connects to a port profile.
<b>Step 6</b>	Server /cimc/network # <b>show [detail]</b>	(Optional) Displays the network settings.

This example connects to port profile abcde12345:

```

Server# scope cimc
Server /cimc # scope network
Server /cimc/network # set port-profile abcde12345
Server /cimc/network *# commit
Changes to the network settings will be applied immediately.
You may lose connectivity to the Cisco IMC and may have to log in again.
Do you wish to continue? [y/N] y

```

```

Server /cimc/network # show detail
Network Setting:
  IPv4 Address: 10.193.66.174
  IPv4 Netmask: 255.255.248.0
  IPv4 Gateway: 10.193.64.1
  DHCP Enabled: no
  Obtain DNS Server by DHCP: no
  Preferred DNS: 0.0.0.0
  Alternate DNS: 0.0.0.0
  IPv6 Enabled: no
  IPv6 Address: ::
  IPv6 Prefix: 64
  IPv6 Gateway: ::
  IPv6 Link Local: ::
  IPv6 SLAAC Address: ::
  IPV6 DHCP Enabled: no
  IPV6 Obtain DNS Server by DHCP: no
  IPV6 Preferred DNS: ::
  IPV6 Alternate DNS: ::
  VLAN Enabled: no
  VLAN ID: 1
  VLAN Priority: 0
  Port Profile: abcde12345
  Hostname: C240-FCH1938V17L
  MAC Address: E4:AA:5D:AD:19:81
  NIC Mode: shared_lom_ext
  NIC Redundancy: active-active
  VIC Slot: riser1
  Auto Negotiate: no
  Admin Network Speed: NA
  Admin Duplex: NA
  Operational Network Speed: NA
  Operational Duplex: NA

Server /cimc/network #

```

# Network Interface Configuration

## Overview to Network Interface Configuration

This support is added to configure network speed and duplex mode for the Cisco IMC management port. Auto Negotiation mode can be set for dedicated mode only. When auto negotiation is enabled the network port speed and duplex settings are ignored by the system and Cisco IMC retains the speed at which the switch is configured. When auto negotiation is disabled, you can configure the network port speed (10 Mbps, 100 Mbps, or 1 Gbps) and set the duplex value at either full or half.

Port Properties can be managed in the following two modes:

- **Admin Mode**—You can configure the network speed and duplex values by disabling the **Auto Negotiation** option. The default value of the network speed in the admin mode is 100 Mbps and the duplex mode is set to Full. Before changing the network speed ensure that the switch you connected to has the same port speed.
- **Operation Mode**—Displays the operation network port speed and duplex values. If you enabled auto negotiation mode, the network port speed and duplex details of the switch are displayed. If unchecked, the network port speed and duplex values that you set at the **Admin Mode** are displayed.

When you reset Cisco IMC 1.5(x), 2.0(1), and 2.0(3) versions to factory defaults, **Shared LOM** mode is configured by default.

For C3160 servers, if you reset to factory defaults, **Dedicated** mode is configured to **Full** duplex mode with 100 Mbps speed by default.

## Configuring Interface Properties

The settings on the switch must match with the Cisco IMC settings to avoid any speed or duplex mismatch.



**Important** This action is available only on some UCS C-Series servers.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	Server # <b>scope cimc</b>	Enters the Cisco IMC command mode.
<b>Step 2</b>	Server/cimc # <b>scope network</b>	Enters the network command mode.
<b>Step 3</b>	Server/cimc/network* # <b>set mode dedicated</b>	Enters dedicated command mode.
<b>Step 4</b>	Server/cimc/network # <b>set auto-negotiate {yes   no}</b>	Enables or disables auto negotiation command mode. <ul style="list-style-type: none"> <li>• If you enter <b>yes</b>, the network port speed and duplex settings are ignored by the system and Cisco IMC retains the speed at which the switch is configured.</li> <li>• If you enter <b>no</b>, you can configure the network port speed and duplex values.</li> </ul>
<b>Step 5</b>	Server/cimc/network # <b>set net-speed {10 Mbps   100 Mbps   1 Gbps}</b>	Sets specified network port speed. <p><b>Note</b> This option is available only if <b>auto-negotiate</b> is set to <b>no</b>. Before changing the port speed, ensure that the switch you connected to has the same port speed. When <b>auto-negotiate</b> is set to <b>yes</b>, by default the network port speed is set to 100 Mbps.</p>
<b>Step 6</b>	Server/cimc/network* # <b>set duplex {full   half}</b>	Sets specified duplex mode type. By default, the duplex mode is set to <b>Full</b> . <p><b>Note</b> For network speed of 1 Gbps, only full duplex mode is allowed.</p>

This example shows how to configure the interface properties and commit the transaction:

```
Server # scope cimc
Server/cimc # scope network
Server/cimc/network* # set mode dedicated
Server/cimc/network # set auto-negotiate no
Warning: You have chosen to set auto-negotiate to no
Please set speed and duplex
If not set then a default speed of 100Mbps and duplex full will be applied
Server/cimc/network* # commit
Server/cimc/network* # set net-speed 100 Mbps
Server/cimc/network # set duplex full
```

```

Server/cimc/network* # commit
Changes to the network settings will be applied immediately.
You may lose connectivity to the Cisco IMC and may have to log in again.
Do you wish to continue? [y/N] y
Server/cimc/network #

```

# Network Security Configuration

## Network Security

The Cisco IMC 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. Cisco IMC 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
<b>Step 1</b>	Server# <b>scope cimc</b>	Enters the Cisco IMC command mode.
<b>Step 2</b>	Server /cimc # <b>scope network</b>	Enters the Cisco IMC network command mode.
<b>Step 3</b>	Server /cimc/network # <b>scope ipblocking</b>	Enters the IP blocking command mode.
<b>Step 4</b>	Server /cimc/network/ipblocking # <b>set enabled {yes   no}</b>	Enables or disables IP blocking.
<b>Step 5</b>	Server /cimc/network/ipblocking # <b>set fail-count</b> <i>fail-count</i>	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.  Enter an integer between 3 and 10.
<b>Step 6</b>	Server /cimc/network/ipblocking # <b>set fail-window</b> <i>fail-seconds</i>	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.

	Command or Action	Purpose
<b>Step 7</b>	Server /cimc/network/ipblocking # <b>set penalty-time</b> <i>penalty-seconds</i>	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.
<b>Step 8</b>	Server /cimc/network/ipblocking # <b>commit</b>	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 #
```

# Network Time Protocol Configuration

## Configuring Network Time Protocol Settings

By default, when Cisco IMC is reset, it synchronizes the time with the host. With the introduction of the NTP service, you can configure Cisco IMC to synchronize the time with an NTP server. The NTP server does not run in Cisco IMC by default. You must enable and configure the NTP service by specifying the IP/DNS address of at least one server or a maximum of four servers that function as NTP servers or time source servers. When you enable the NTP service, Cisco IMC synchronizes the time with the configured NTP server. The NTP service can be modified only through Cisco IMC.



### Note

To enable the NTP service, it is preferable to specify the IP address of a server rather than the DNS address.

### Before You Begin

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

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	Server# <b>scope cimc</b>	Enters the Cisco IMC command mode.
<b>Step 2</b>	Server /cimc # <b>scope network</b>	Enters network command mode.



	Command or Action	Purpose
<b>Step 3</b>	Server /cimc/network # <b>scope ntp</b>	Enters NTP service command mode.
<b>Step 4</b>	Server /cimc/network/ntp # <b>set enabled yes</b>	Enables the NTP service on the server.
<b>Step 5</b>	Server /cimc/network/ntp* # <b>commit</b>	Commits the transaction.
<b>Step 6</b>	Server /cimc/network/ntp # <b>set server-1 10.120.33.44</b>	Specifies the IP/DNS address of one of the four servers that act as an NTP server or the time source server.
<b>Step 7</b>	Server /cimc/network/ntp # <b>set server-2 10.120.34.45</b>	Specifies the IP/DNS address of one of the four servers that act as an NTP server or the time source server.
<b>Step 8</b>	Server /cimc/network/ntp # <b>set server-3 10.120.35.46</b>	Specifies the IP/DNS address of one of the four servers that act as an NTP server or the time source server.
<b>Step 9</b>	Server /cimc/network/ntp # <b>set server-4 10.120.36.48</b>	Specifies the IP/DNS address of one of the four servers that act as an NTP server or the time source server.
<b>Step 10</b>	Server /cimc/network/ntp # <b>commit</b>	Commits the transaction.

This example shows how to configure the NTP service:

```

Server # scope cimc
Server /cimc # scope network
Server /cimc/network # scope ntp
Server /cimc/network/ntp # set enabled yes
Warning: IPMI Set SEL Time Command will be
disabled if NTP is enabled.
Do you wish to continue? [y|N]
y
Server /cimc/network/ntp* # commit
Server /cimc/network/ntp # set server-1 10.120.33.44
Server /cimc/network/ntp* # set server-2 10.120.34.45
Server /cimc/network/ntp* # set server-3 10.120.35.46
Server /cimc/network/ntp* # set server-4 10.120.36.48
Server /cimc/network/ntp* # commit
Server /cimc/network/ntp #

```

## Pinging an IP address

Ping an IP address when you want to validate network connectivity with the IP address in the Cisco IMC.

### Before You Begin

You must log in as a user with administration privileges to ping an IP address.

**Procedure**

	Command or Action	Purpose
<b>Step 1</b>	Server# <b>scope cimc</b>	Enters the CIMC command mode.
<b>Step 2</b>	Server /cimc # <b>scope network</b>	Enters the CIMC network command mode.
<b>Step 3</b>	Server /cimc /network# <b>pingaddress</b> <i>IP address</i>   <b>retries</b> <i>number</i>   <b>timeout</b> <i>seconds</i>	Pings the IP address or host name for a specified number of times until timeout. <ul style="list-style-type: none"> <li>• <b>IP address/hostname</b> - The IP address or the host name of the server.</li> <li>• <b>Number of retries</b> - The number of times the system tries to connect to the server. Default value is 3. Valid range is from 1 to 10.</li> <li>• <b>Timeout</b> - The number of seconds the system waits before it stops pinging. Default maximum value is 20 seconds. Valid range is from 1 to 20 seconds.</li> </ul>
<b>Step 4</b>	Server /cimc/network # <b>commit</b>	Commits the transaction to the system configuration.
<b>Step 5</b>	At the prompt, enter y to confirm.	Pings the IP address.

This example pings an IP address:

```

Server# scope cimc
Server /cimc # scope network
Server /cimc/network # ping 10.10.10.10
Server /cimc/network *# commit
Changes to the network settings will be applied immediately.
You may lose connectivity to the Cisco IMC and may have to log in again.
Do you wish to continue? [y/N] y
Server /cimc/network #

```