Configure the 32- and 56-Core Appliances Using the Browser-Based Wizard

- Appliance Configuration Overview, on page 1
- Configure an Appliance Using the Install Configuration Wizard, on page 2
- Configure the Primary Node Using the Advanced Install Configuration Wizard, on page 13
- Configure a Secondary Node Using the Advanced Install Configuration Wizard, on page 30
- Upgrade to the Latest Catalyst Center Release, on page 46

Appliance Configuration Overview

You can deploy the 32- or 56-core appliance in your network in one of the following modes:

- Standalone: As a single node offering all the functions. This option is usually preferred for initial or test deployments and in smaller network environments. If you choose the Standalone mode for your initial deployment, this will be your first, or primary, node. Note that you can add more appliances later to form a cluster.
- Cluster: As a node that belongs to a three-node cluster. In this mode, all the services and data are shared among the hosts. This is the preferred option for large deployments. If you choose the Cluster mode for your initial deployment, be sure to finish configuring the primary node before configuring the secondary nodes.

To proceed, first configure the primary node in your cluster. Then, if you have installed three appliances and want to add the second and third nodes to your cluster, configure the secondary nodes.

Browser-Based Configuration Wizards

Catalyst Center offers two browser-based wizards that you can use to configure your appliance. Read their descriptions to determine which of these wizards you should complete.

Important These wizards are available for use if you are configuring a new appliance that came with the latest 2.3.7.x release of Catalyst Center already installed. If you upgraded from a previous version and want to use these wizards, contact Cisco TAC for assistance.

Install Configuration Wizard

This wizard streamlines the appliance configuration process by setting default values for the Enterprise, Management, and Internet Access interfaces (which all reside on the appliance's Enterprise port) as well as the Intracluster interface. Use this wizard if you are okay with using the default interface settings and want to get your appliance up and running as quickly as possible. Note that you cannot use this wizard to configure a cluster's secondary nodes.

Advanced Install Configuration Wizard

This wizard provides access to all of the available appliance settings that you can modify. Use this wizard if you want to specify interface settings that are different from the default settings. Also use this wizard if you are configuring the second or third node in your cluster.

Browser-Based Wizard Prerequisites

To use either of the browser-based wizards and ensure that it configures your appliance properly, complete the following tasks:

- Designate the Enterprise interface on your appliance to use the IP address, subnet mask, and default gateway that a DHCP server assigns to it. When you configure this interface in the wizard, you will not be able to change the IP address or subnet mask that have been assigned to it. You will only be able to change its default gateway. The topics in this chapter assume that the Enterprise interface was chosen for this purpose.
- Confirm that the IP address assigned by the DHCP server is reachable by the machine from which you will complete the wizard.
- For the Enterprise and Intracluster interfaces, verify that both interfaces are connected and in the **UP** state.

If you want to specify your own IP address, subnet mask, and default gateway for your appliance's Enterprise interface (and not use the values assigned by a DHCP server), ensure that you complete the Static IP Address Settings screen.

Configure an Appliance Using the Install Configuration Wizard

Perform this procedure to configure either a three-node cluster's primary node or a standalone node using the Install configuration wizard. The wizard simplifies the configuration process by setting up the Enterprise, Management, and Internet interfaces on the same port using default settings. The following third-generation Catalyst Center appliances support configuration using this wizard:

- 32-core appliance: Cisco part number DN3-HW-APL
- 56-core appliance: Cisco part number DN3-HW-APL-L

Important

- You can only use this wizard to complete the initial configuration of a new Catalyst Center appliance. To reimage an appliance that's been configured previously, you will need to use the Maglev Configuration wizard (see Configure the Appliance Using the Maglev Wizard).
- You cannot use this wizard to configure the second or third appliance in a three-node cluster. To do so, complete the steps that are described in Configure a Secondary Node Using the Advanced Install Configuration Wizard, on page 30. Also, you cannot use this wizard to enable LACP mode on your appliance's Enterprise and Intracluster interfaces.
- Before you configure any of the appliances in a three-node cluster, ensure that you have logged out of those appliances. Otherwise, the Quick Start workflow (which you complete to discover your network's devices and enable telemetry) will not start after you have configured your cluster's appliances and log in to Catalyst Center for the first time.
- Ensure that all of the IP addresses you enter while completing this procedure are valid IPv4 addresses with valid IPv4 netmasks. Also make sure that the addresses and their corresponding subnets do not overlap. Service communication issues can result if they do.

Before you begin

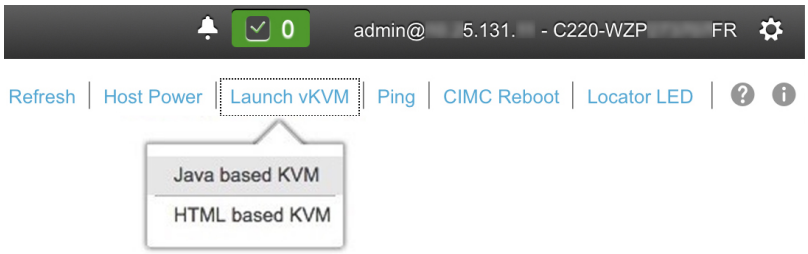
Ensure that you:

- Collected all of the information called for in Required IP Addresses and Subnets and Required Configuration Information.
- Installed the appliance, as described in Appliance Installation Workflow.
- Configured Cisco IMC browser access on this appliance, as described in Enable Browser Access to the Cisco Integrated Management Controller.
- Checked that the appliance's ports and the switches it uses are properly configured, as described in Execute Preconfiguration Tasks.
- Are using a browser that is compatible with Cisco IMC and Catalyst Center. For a list of compatible browsers, see the Release Notes for the version of Catalyst Center that you are installing.
- Enabled ICMP on the firewall between Catalyst Center and the DNS servers you will specify in the following procedure. This wizard uses Ping to verify the DNS server you specify. This ping can be blocked if there is a firewall between Catalyst Center and the DNS server and ICMP is not enabled on that firewall. When this happens, you will not be able to complete the wizard.

Step 1 Start the Install configuration wizard:

a) Point your browser to the Cisco IMC IP address you set during the Cisco IMC GUI configuration you performed, then log in to the Cisco IMC GUI as the Cisco IMC user (see Enable Browser Access to the Cisco Integrated Management Controller).

After successful login, the appliance displays the **Cisco Integrated Management Controller Chassis Summary** window, with a blue link menu at the upper right, as shown below.



b) From the blue link menu, choose **Launch KVM** and then choose either **Java based KVM** or **HTML based KVM**. If you choose the Java-based KVM, you will need to launch the Java startup file from your browser or file manager in order to view the KVM console in its own window. If you choose the HTML-based KVM, it will launch the KVM console in a separate browser window or tab automatically.

Irrespective of the KVM type you choose, use the KVM console to monitor the progress of the configuration and respond to Maglev Configuration Wizard prompts.

c) With the KVM displayed, reboot the appliance by making one of the following selections:

- In the main Cisco IMC GUI browser window: Choose **Host Power** > **Power Cycle**. Then switch to the KVM console to continue.
- In the KVM console, choose **Power** > **Power Cycle System (cold boot)**.

If asked to confirm your choice to reboot the appliance, click **OK**.

After displaying the reboot messages, the KVM console displays the **Static IP Configuration** screen.

Note the URL listed in the **Web Installation** field.

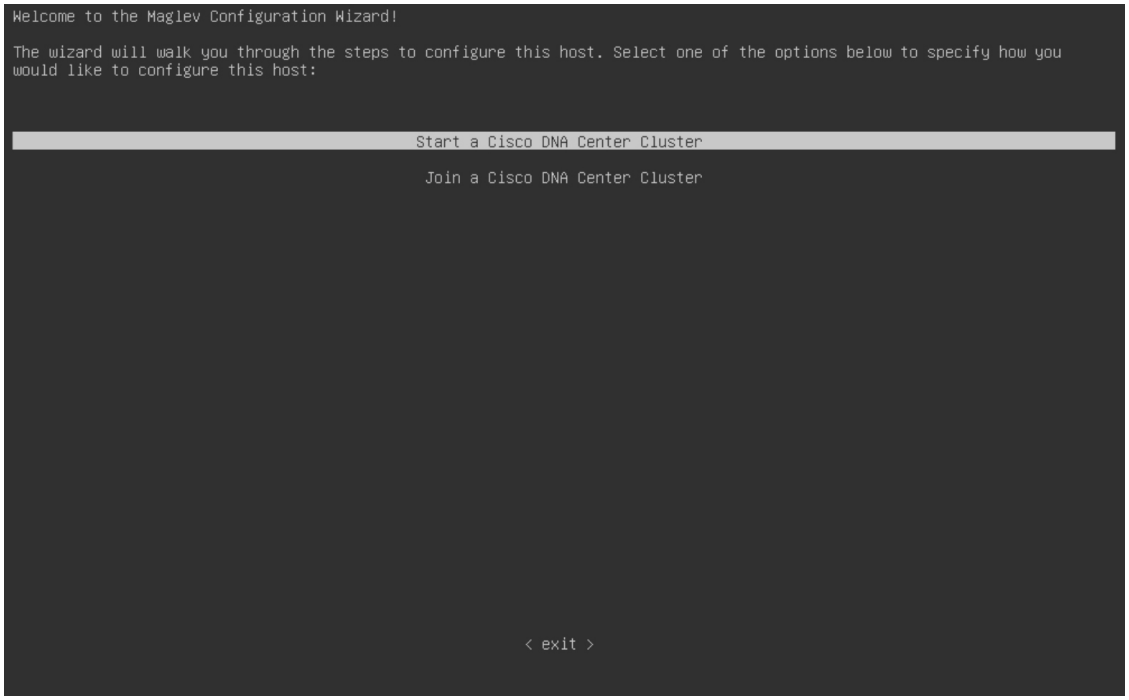
d) Do one of the following:

- If you want a DHCP server to assign an IP address, subnet mask, and default gateway to your appliance's Enterprise interface, click **Skip**.
- If you want to assign your own IP address, subnet mask, and default gateway to your appliance's Enterprise interface, enter the information described in the following table and then click **Configure**.

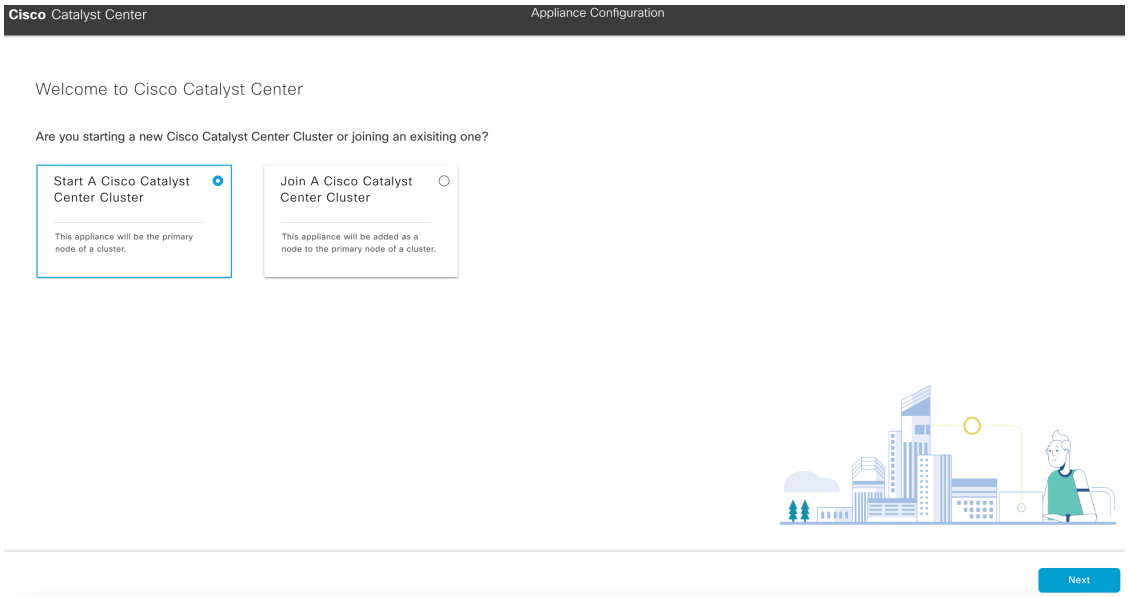
Note You only need to specify an IP address, subnet mask, and default gateway for your appliance's Enterprise interface.

IPv6 Mode check box	If you want to configure an IPv6 address, check this check box.
IP Address field	Enter the static IP address that you want to use.
Netmask field	Enter the netmask for the IP address you specified in the previous field: • If you entered an IPv4 address, you can enter either a netmask or CIDR address. • If you entered an IPv6 address, you can only enter a CIDR address.
Default Gateway Address field	Specify the default gateway that will be used to route traffic.
Static Routes field	Enter one or more static routes in the following format, separated by spaces: *<network>/<netmask>/<gateway>*. This is usually required on the Management port only.

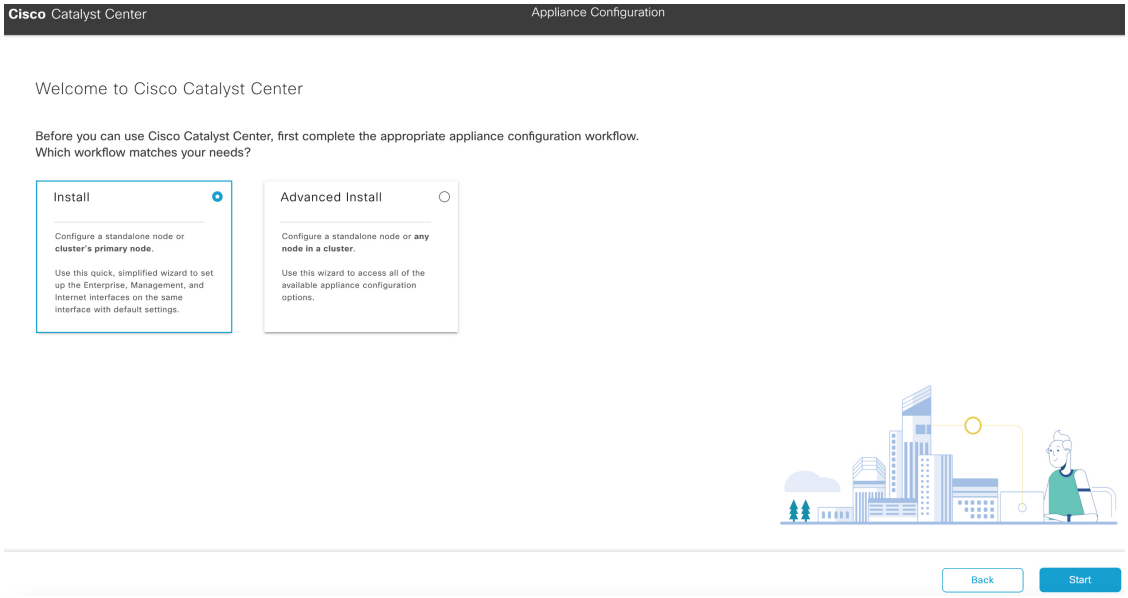
The KVM console displays the Maglev Configuration wizard welcome screen.



e) To bring up the **Appliance Configuration** screen, open the URL that was displayed in the **Static IP Configuration** screen.

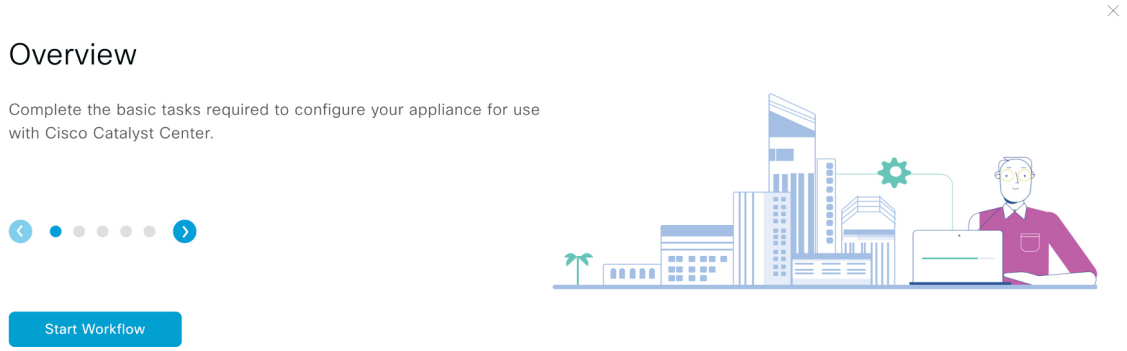


f) Click the **Start a Cisco Catalyst Center Cluster** radio button, then click **Next**.



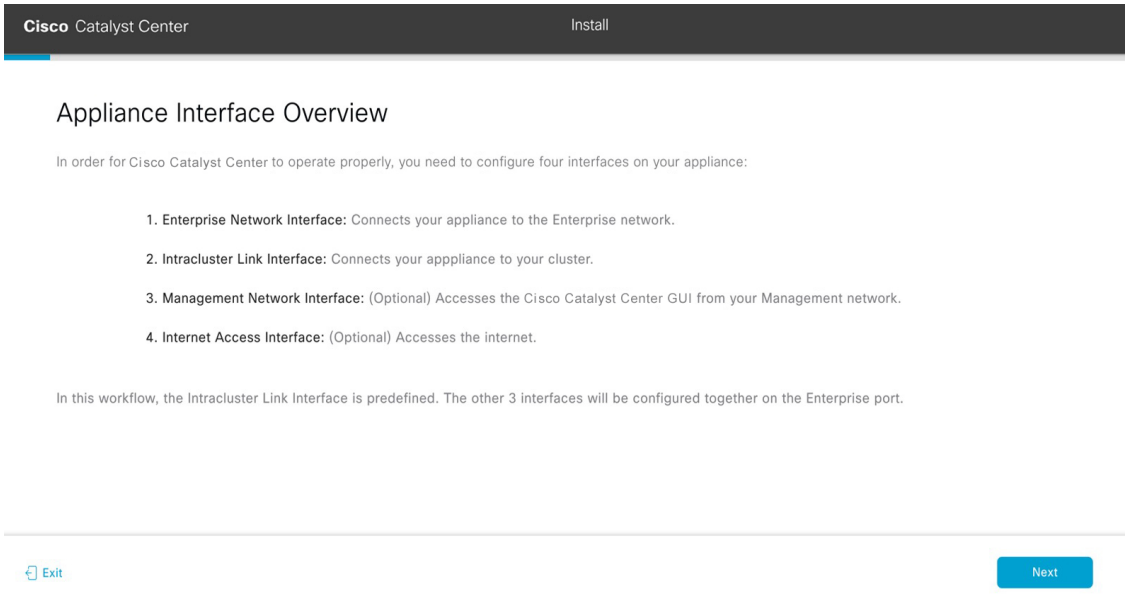
g) Click the **Install** radio button, then click **Start**.

The **Overview** slider opens. Click > to view a summary of the tasks that the wizard will help you complete.



h) Click **Start Workflow** to start the wizard.

The **Appliance Interface Overview** screen opens, providing a description of the four interfaces that are available on your Catalyst Center appliance:

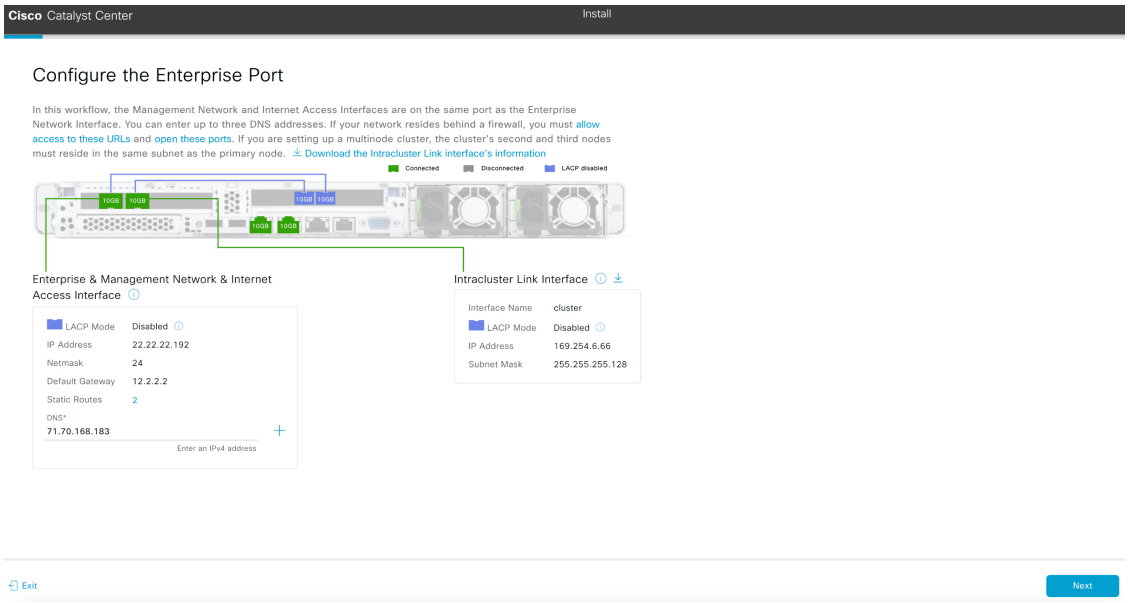


The wizard will help you configure the Enterprise and Intracluster ports, which are required for Catalyst Center functionality. If the wizard fails to display either or both of these ports in the next screen, they may be non-functional or disabled. If you discover that they are non-functional, choose **Exit** to exit the wizard immediately. Be sure you have completed all of the steps provided in Execute Preconfiguration Tasks before resuming configuration or contacting the Cisco Technical Assistance Center (TAC).

Step 2 Complete the Install configuration wizard:

a) Click **Next**.

The **Configure The Enterprise Port** screen opens.



The configuration wizard sets up the Enterprise, Management, and Internet Access interfaces on the Enterprise port. The wizard also prepopulates values for almost all of the listed parameters.

If your network resides behind a firewall, do the following:

- Click the **allow access to these URLs** link to view a pop-up window that lists the URLs that Catalyst Center must be able to access.
- Click the **open these ports** link to view a pop-up window that lists the network service ports that must be available for Catalyst Center to use.

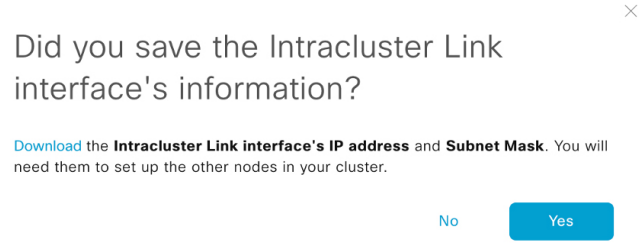
b) In the **DNS** field, enter the IP address of the preferred DNS server.

To enter additional DNS servers, click the **Add** (+) icon.

Important
- For each node in your cluster, configure a maximum of three DNS servers. Problems can occur if you configure more than three DNS servers for an appliance.
- For NTP, ensure port 123 (UDP) is open between Catalyst Center and your NTP server.

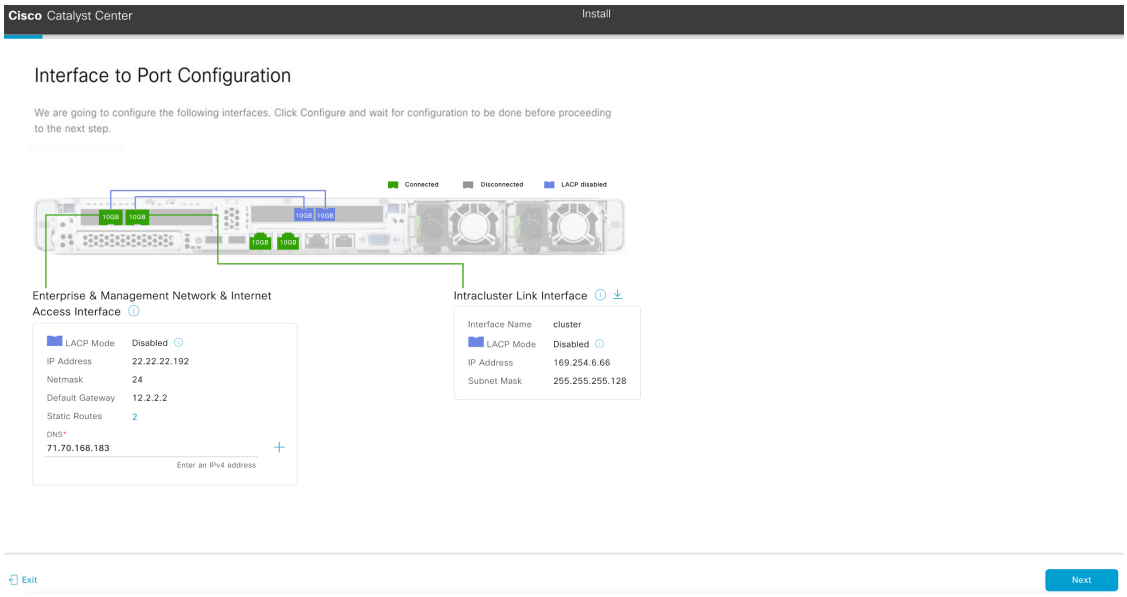
c) Click **Next**.

d) When prompted, click **Yes** to copy the Intracluster interface's IP address and subnet mask.



You'll need this information when you configure your cluster's secondary nodes.

The wizard validates the information you have entered, confirms that the port is up, and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid and the port is up, the wizard's **Interface to Port Configuration** screen opens.

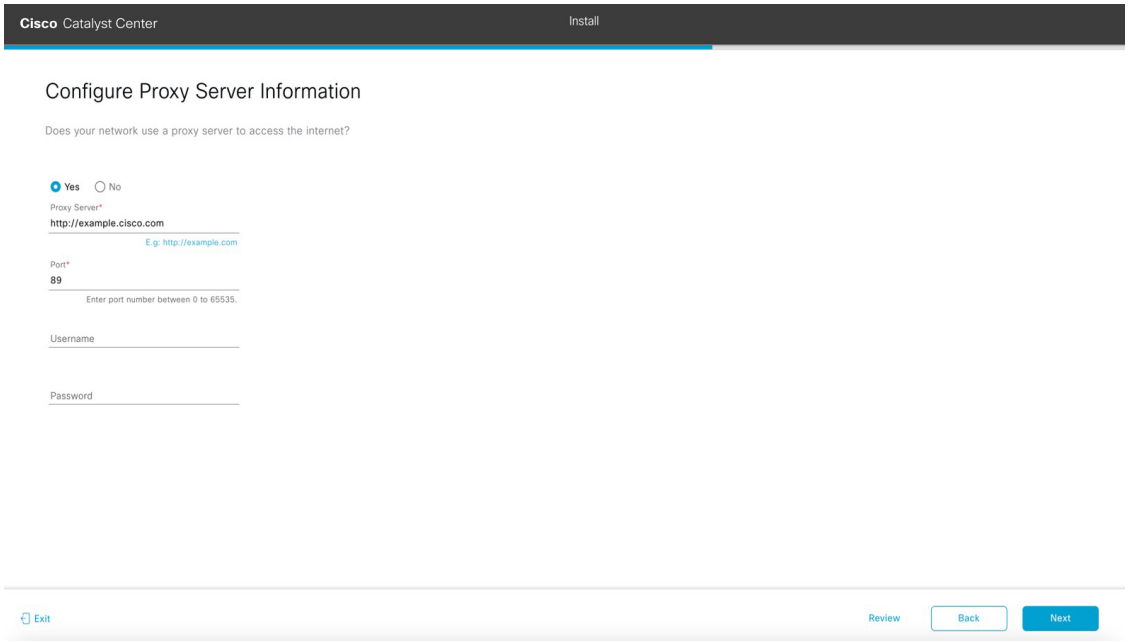


e) Click **Next**.

f) Review the interface settings that have been set, then click **Configure**.

g) After initial interface configuration has completed, click **Next** to proceed to the next wizard screen.

The **Configure Proxy Server Information** screen opens.



h) Do one of the following, then click **Next**:

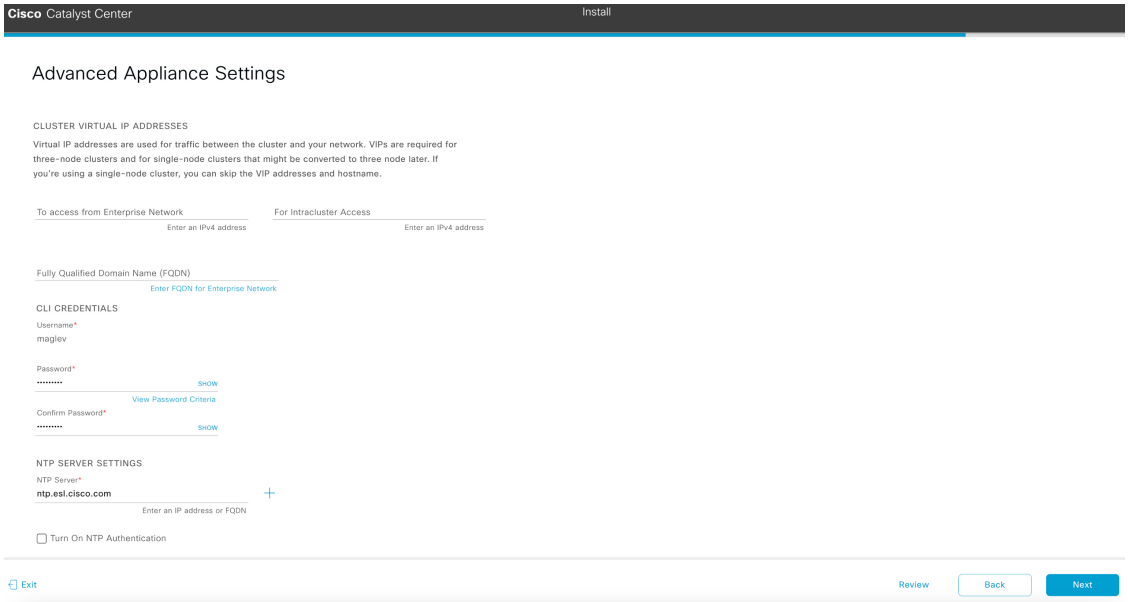
- If your network does *not* use a proxy server to access the internet, click the **No** radio button.

- If your network does use a proxy server to access the internet, enter the values described in the following table:

Table 1: Primary Node Entries for Proxy Server Settings

Proxy Server field	Enter the URL or host name of an HTTPS network proxy used to access the Internet. **Note** Connection from Catalyst Center to the HTTPS proxy is supported only via HTTP in this release.
Port field	Enter the port that your appliance used to access the network proxy.
Username field	Enter the username used to access the network proxy. If no proxy login is required, leave this field blank.
Password field	Enter the password used to access the network proxy. If no proxy login is required, leave this field blank.

The wizard validates the information that you entered and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid, the wizard's **Advanced Appliance Settings** screen opens.



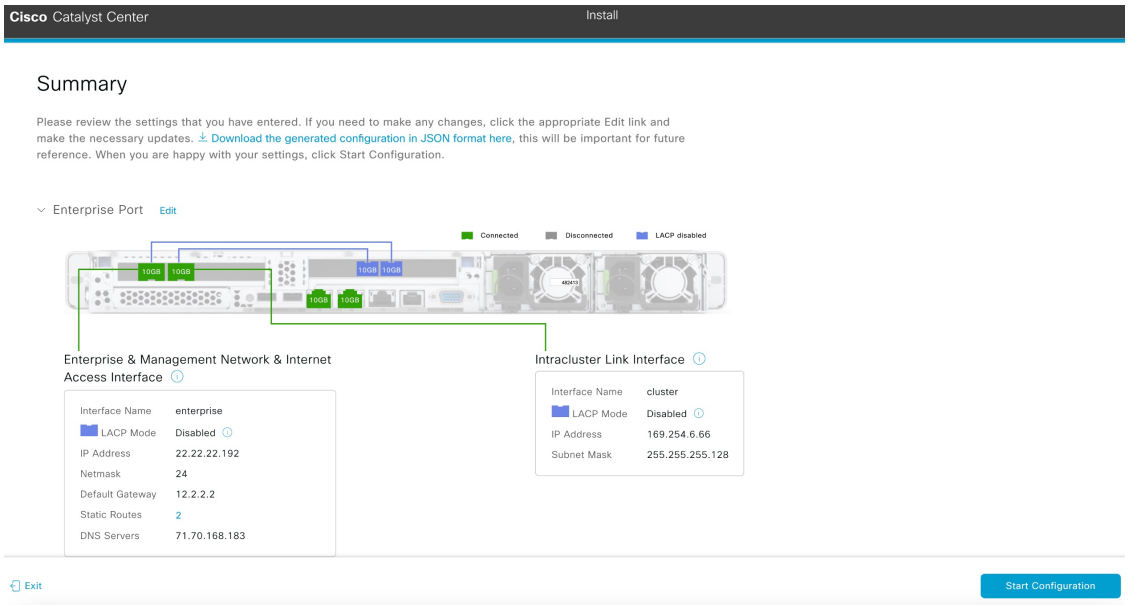
i) Enter configuration values for your cluster, then click **Next**.

Table 2: Primary Node Entries for Advanced Appliance Settings

Cluster Virtual IP Addresses

To access from Enterprise Network and For Intracluster Access fields	Enter the virtual IP address that will be used for traffic between the cluster and both the Enterprise and Intracluster interfaces on your appliance. This is required for single-node clusters that will be converted into a three-node cluster in the future. If you have a single-node cluster setup and don't plan to move to a three-node cluster setup, you can leave the fields in this section blank. **Important** If you choose to configure a virtual IP address, you must enter one for each configured network interface. You will not be able to complete the wizard unless you do so. These addresses are tied to the cluster link's status, which must be in the **UP** state.
Fully Qualified Domain Name (FQDN) field	Enter the fully qualified domain name (FQDN) for your cluster. Catalyst Center does the following with this hostname: • It uses this hostname to access your cluster's web interface and the Representational State Transfer (REST) APIs used by devices in the enterprise network that Catalyst Center manages. • In the Subject Alternative Name (SAN) field of Catalyst Center certificates, it uses the FQDN to the define the Plug and Play server that should be used for device provisioning.
CLI Credentials Enter and confirm the password for the `maglev` user.	
NTP Server Settings	
NTP Server field	Enter at least one NTP server address or hostname. To enter additional NTP server addresses or hostnames, click the **Add** (+) icon. For a production deployment, Cisco recommends that you configure a minimum of three NTP servers.
Turn On NTP Authentication check box	To enable the authentication of your NTP server before it's synchronized with Catalyst Center, check this check box and then enter the following information: • The NTP server's key ID. Valid values range between 1 and 4294967295 (2^32-1). This value corresponds to the key ID that's defined in the NTP server's key file. • The SHA-1 key value associated with the NTP server's key ID. This 40-character hex string resides in the NTP server's key file. **Note** Ensure that you enter a key ID and key value for each NTP server that you configured in the previous field.

The wizard validates the information you have entered and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you entered are valid, the wizard's **Summary** screen opens.

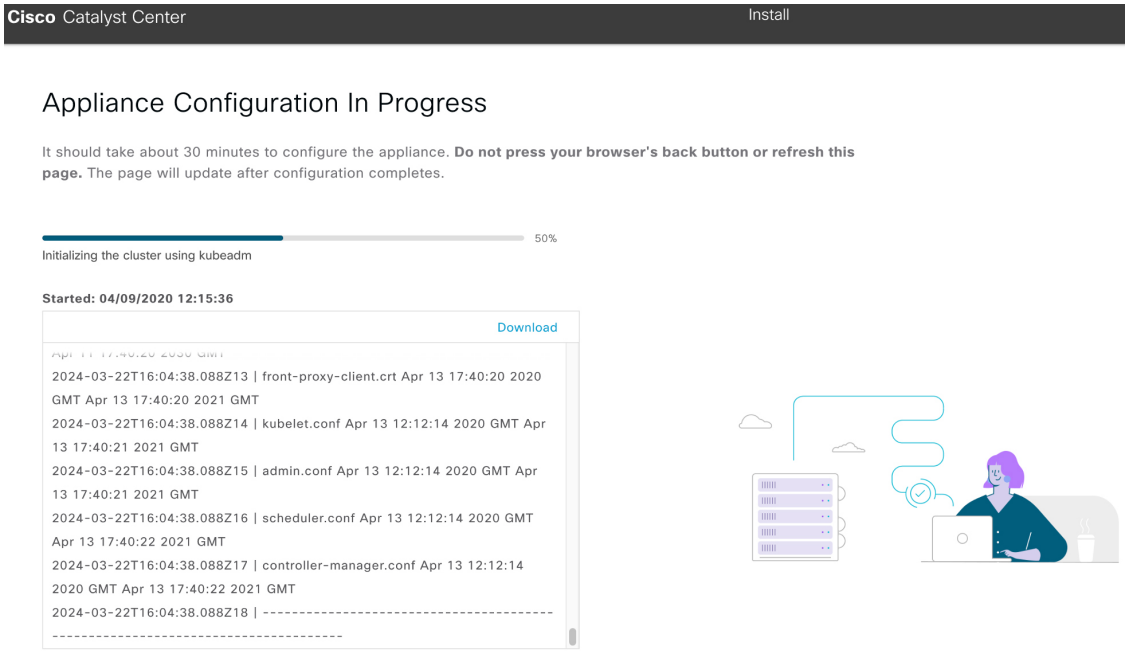


j) Scroll to the bottom of the screen and review all of the settings that you have entered while completing the wizard. If necessary, click the **Edit** link to open the wizard screen in which you can make updates.

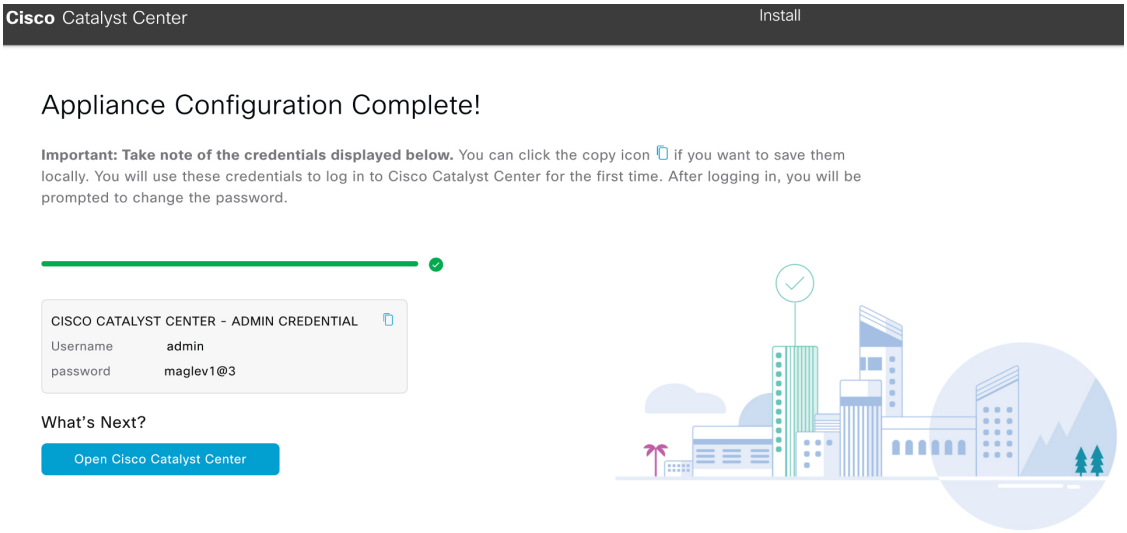
Note To download the appliance configuration as a JSON file, click the relevant link.

k) To complete the configuration of your Catalyst Center appliance, click **Start Configuration**.

The wizard screen continuously updates during the process, indicating the tasks that are currently being completed and their progress, as well as any errors that have occurred. To save a local copy of this information as a text file, click the **Download** link.



Step 3 After appliance configuration completes, click the copy icon in the **Cisco Catalyst Center - Admin Credential** area to copy the default admin superuser password.



Important Catalyst Center automatically sets this password when you complete the Install configuration wizard. Ensure that you click the copy icon before you proceed. Otherwise, you will not be able to log in to Catalyst Center for the first time.

Note As a security measure, you'll be prompted to change this password after you log in. For more information, see Complete the Quick Start Workflow.

What to do next

As you are deploying this appliance in standalone mode, continue by performing the first-time setup: First-Time Setup Workflow.

Configure the Primary Node Using the Advanced Install Configuration Wizard

Perform the following steps to configure the first installed appliance as the primary node using the Advanced Install configuration wizard. You must always configure the first appliance as the primary node, whether it will operate standalone or as part of a cluster.

Important

- The following third-generation Catalyst Center appliances support configuration using this wizard:
  - 32-core appliance: Cisco part number DN3-HW-APL
  - 56-core appliance: Cisco part number DN3-HW-APL-L
- You can only use this wizard to complete the initial configuration of a new Catalyst Center appliance. To reimage an appliance that's been configured previously, you will need to use the Maglev Configuration wizard (see Configure the Appliance Using the Maglev Wizard).
- Before you configure the appliances in a three-node cluster, ensure that you have logged out of those appliances. Otherwise, the Quick Start workflow (which you complete to discover your network's devices and enable telemetry) will not start after you have configured your cluster's appliances and log in to Catalyst Center for the first time.
- Ensure that all of the IP addresses you enter while completing this procedure are valid addresses with valid netmasks. Also make sure that the addresses and their corresponding subnets do not overlap. Service communication issues can result if they do.

If you are configuring the installed appliance as a secondary node for an existing cluster that already has a primary node, follow the steps in Configure a Secondary Node Using the Advanced Install Configuration Wizard, on page 30 instead.

Before you begin

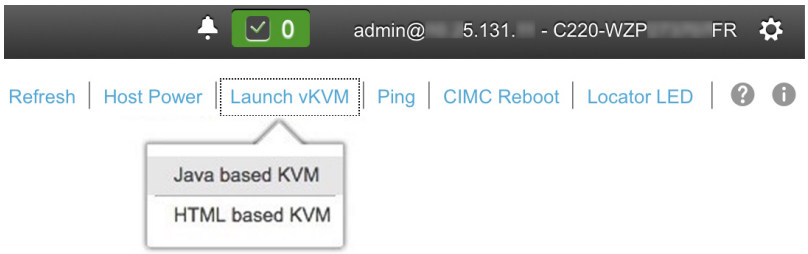
Ensure that you:

- Collected all of the information called for in Required IP Addresses and Subnets and Required Configuration Information.
- Installed the first appliance, as described in Appliance Installation Workflow.
- Configured Cisco IMC browser access on the primary node, as described in Enable Browser Access to the Cisco Integrated Management Controller.
- Checked that the primary node's ports and the switches it uses are properly configured, as described in Execute Preconfiguration Tasks.
- Are using a browser that is compatible with Cisco IMC and Catalyst Center. For a list of compatible browsers, see the Release Notes for the version of Catalyst Center you are installing.
- Enabled ICMP on the firewall between Catalyst Center and both the default gateway and the DNS server you specify in the following procedure. The wizard uses ping to verify the gateway and DNS server you specify. This ping might get blocked if a firewall is in place and ICMP is not enabled on that firewall. When this happens, you will not be able to complete the wizard.

Step 1 Start the Advanced Install configuration wizard:

a) Point your browser to the Cisco IMC IP address you set during the Cisco IMC GUI configuration you performed, then log in to the Cisco IMC GUI as the Cisco IMC user (see Enable Browser Access to the Cisco Integrated Management Controller).

After successful login, the appliance displays the **Cisco Integrated Management Controller Chassis Summary** window, with a blue link menu at the upper right, as shown below.



b) From the blue link menu, choose **Launch KVM** and then choose either **Java based KVM** or **HTML based KVM**. If you choose the Java-based KVM, you will need to launch the Java startup file from your browser or file manager in order to view the KVM console in its own window. If you choose the HTML-based KVM, it will launch the KVM console in a separate browser window or tab automatically.

   Irrespective of the KVM type you choose, use the KVM console to monitor the progress of the configuration and respond to Maglev Configuration Wizard prompts.

c) With the KVM displayed, reboot the appliance by making one of the following selections:

   - In the main Cisco IMC GUI browser window: Choose **Host Power** > **Power Cycle**. Then switch to the KVM console to continue.
   - In the KVM console: Choose **Power** > **Power Cycle System (cold boot)**.

   If asked to confirm your choice to reboot the appliance, click **OK**.

   After displaying reboot messages, the KVM console displays the **Static IP Configuration** screen.

Note the URL listed in the **Web Installation** field.

d) Do one of the following:

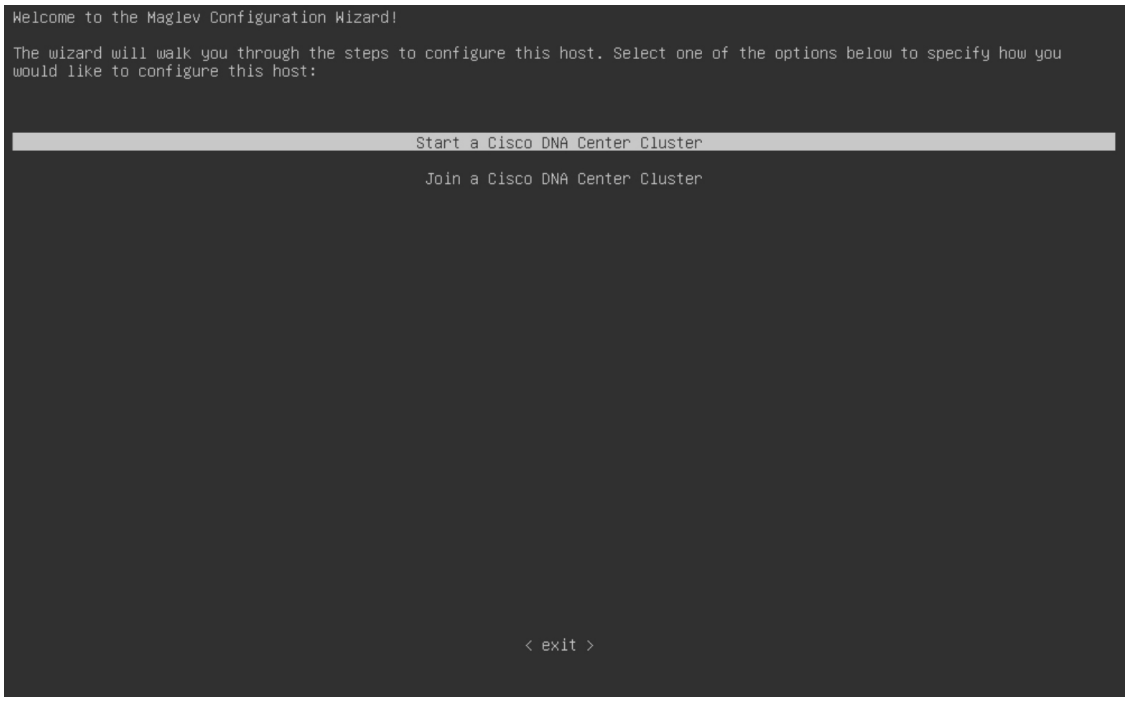
- If you want a DHCP server to assign an IP address, subnet mask, and default gateway to your appliance's Enterprise interface, click **Skip**.
- If you want to assign your own IP address, subnet mask, and default gateway to your appliance's Enterprise interface, enter the information described in the following table and then click **Configure**.

Note You only need to specify an IP address, subnet mask, and default gateway for your appliance's Enterprise interface.

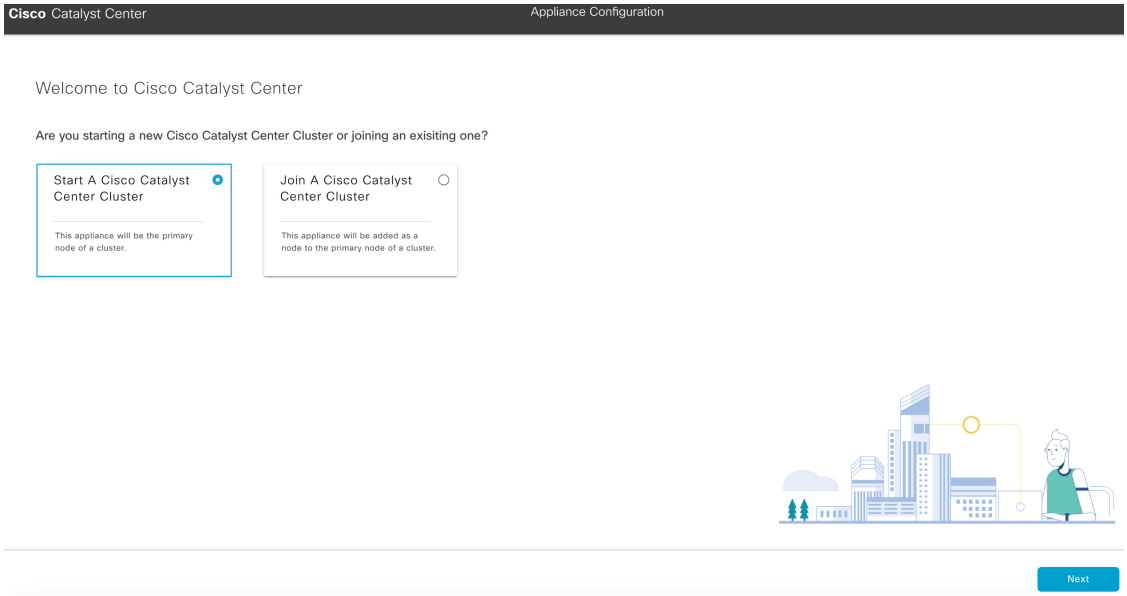
IPv6 Mode check box	If you want to configure an IPv6 address, check this check box.
IP Address field	Enter the static IP address that you want to use.
Netmask field	Enter the netmask for the IP address you specified in the previous field: • If you entered an IPv4 address, you can enter either a netmask or CIDR address. • If you entered an IPv6 address, you can only enter a CIDR address.
Default Gateway Address field	Specify the default gateway that will be used to route traffic.

Static Routes field	Enter one or more static routes in the following format, separated by spaces: *<network>/<netmask>/<gateway>*. This is usually required on the Management port only.

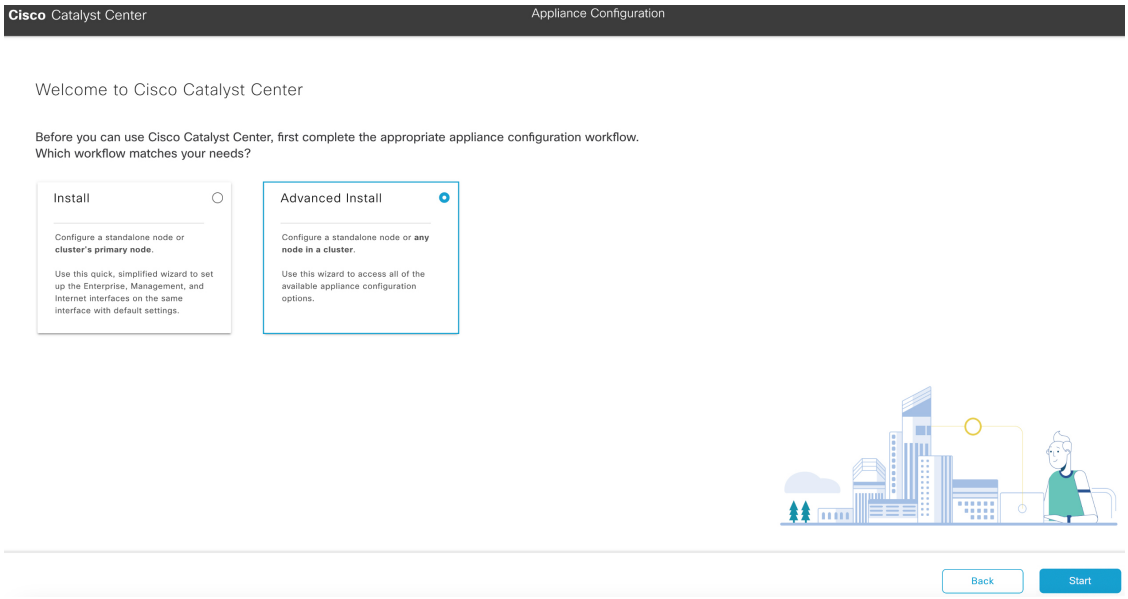
The KVM console displays the Maglev Configuration wizard welcome screen.



e) To bring up the **Appliance Configuration** screen, open the URL that was displayed in the **Static IP Configuration** screen.

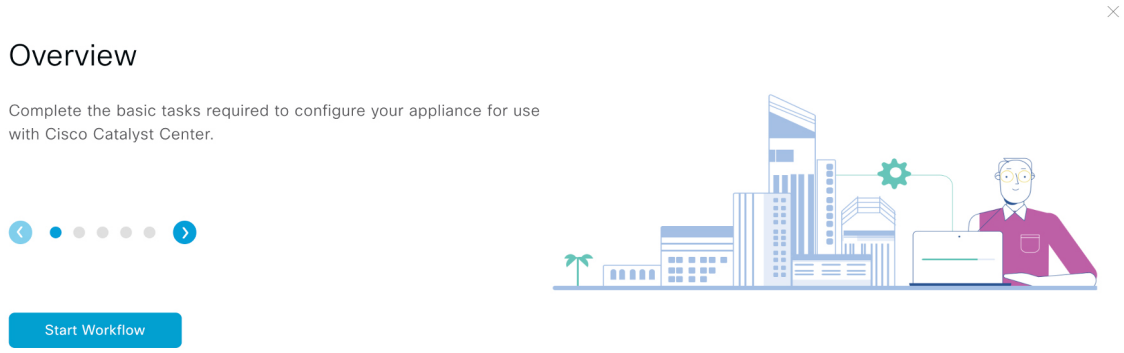


f) Click the **Start a Cisco Catalyst Center Cluster** radio button, then click **Next**.



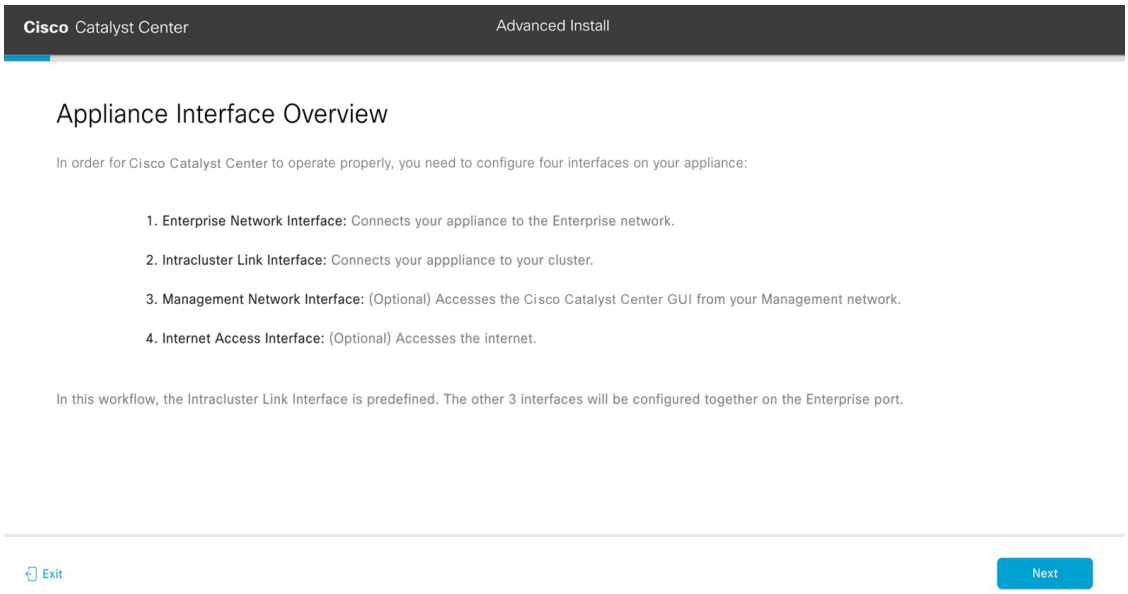
g) Click the **Advanced Install** radio button, then click **Start**.

The **Overview** slider opens. Click > to view a summary of the tasks that the wizard will help you complete.



h) Click **Start Workflow** to start the wizard.

The **Appliance Interface Overview** screen opens, providing a description of the four appliance interfaces that you can configure.

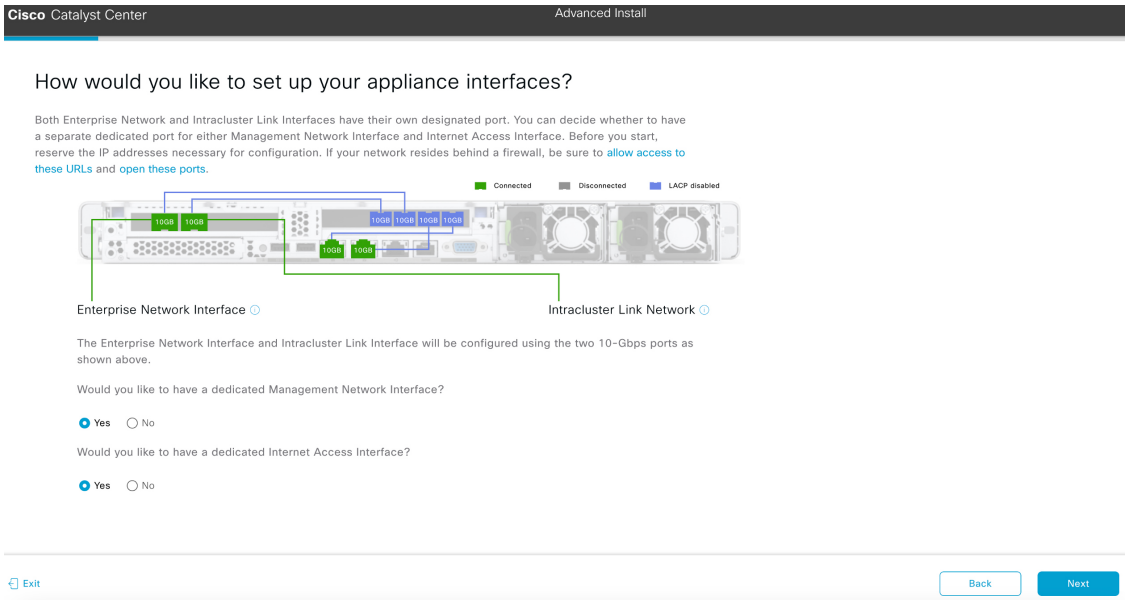


Important At a minimum, you must configure the interfaces on your appliance's Enterprise and Cluster ports, as they are required for Catalyst Center functionality. If the wizard fails to display either or both of these ports during the course of configuration, they may be non-functional or disabled. If you discover that they are non-functional, choose **Exit** to exit the wizard immediately. Be sure you have completed all of the steps provided in Execute Preconfiguration Tasks before resuming configuration or contacting the Cisco Technical Assistance Center (TAC).

Step 2 Complete the Advanced Install configuration wizard:

a) Click **Next**.

The **How would you like to set up your appliance interfaces?** screen opens.

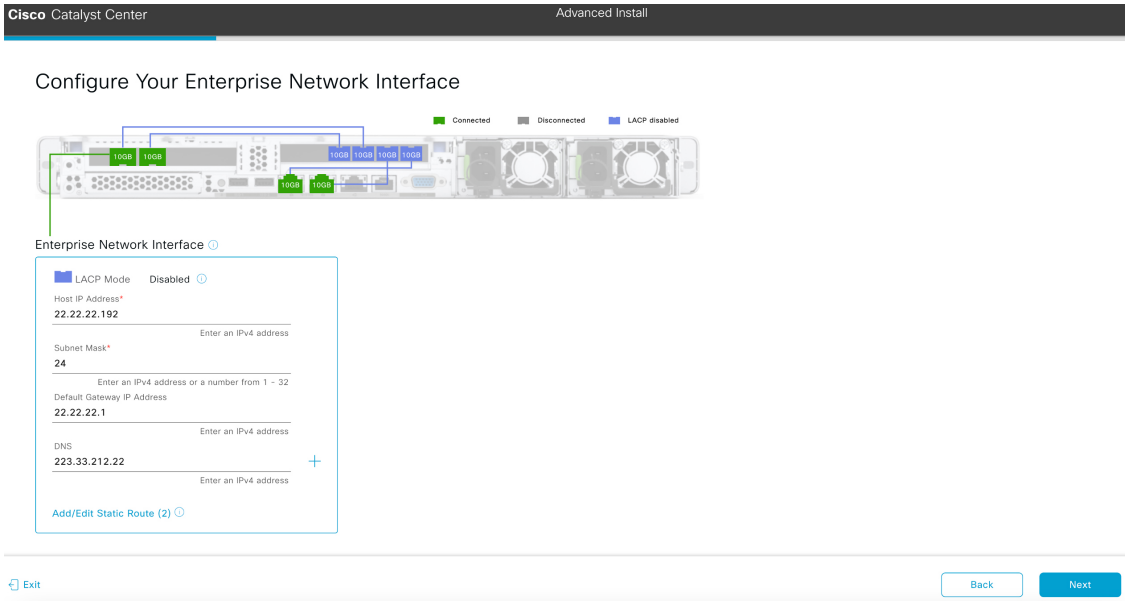


If your network resides behind a firewall, do the following:

- Click the **allow access to these URLs** link to view a pop-up window that lists the URLs that Catalyst Center must be able to access.
- Click the **open these ports** link to view a pop-up window that lists the network service ports that must be available for Catalyst Center to use.

b) Indicate whether you want to configure dedicated Management and Internet Access interfaces, then click **Next**.

The **Configure Your Enterprise Network Interface** screen opens.



c) Enter configuration values for the Enterprise interface, then click **Next**.

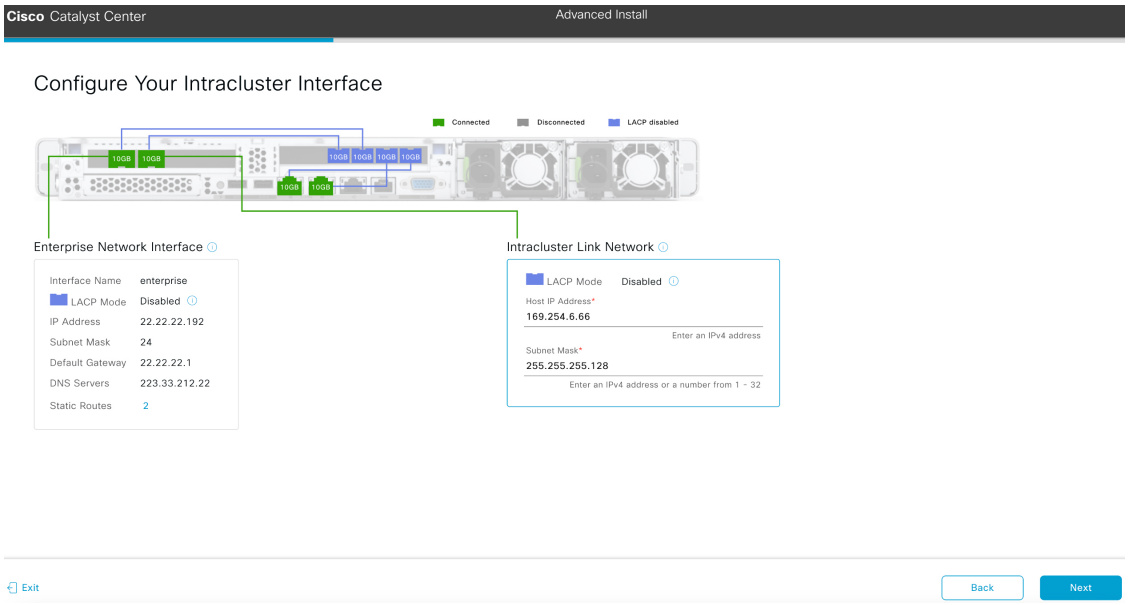
As explained in Interface Cable Connections, this is a required interface used to link the appliance to the enterprise network. See Required IP Addresses and Subnets and Required Configuration Information for a more detailed description of the values you need to enter.

Table 3: Primary Node Entries for the Enterprise Interface

LACP Mode slider	Choose one of the following network interface controller (NIC) bonding modes for the Enterprise interface: • **Active-Backup mode**: This mode provides fault tolerance by aggregating two Ethernet interfaces into a single logical channel. When the interface that's currently active goes down, the other interface takes its place and becomes active. • **LACP mode**: This mode aggregates two Ethernet interfaces that share the same speed and duplex settings into a single logical channel. This provides load balancing and higher bandwidth. For more information about Catalyst Center's implementation of NIC bonding, see NIC Bonding Overview.
Host IP Address field	Enter the IP address for the Enterprise port. This is required.

Subnet Mask field	Enter the netmask for the port's IP address. This is required.
Default Gateway IP Address field	Enter a default gateway IP address to use for the port. **Important** Ensure that you enter a default gateway IP address for at least one of your appliance's interfaces. Otherwise, you will not be able to complete the configuration wizard. **Note** You designated this interface to use the default gateway assigned to it by a DHCP server. Complete the following steps to specify a different gateway: 1. Delete the IP address that is currently listed in this field and then click **Exit**. This will bring you back to the first wizard screen. 2. Return to the Enterprise port's wizard screen and enter the gateway IP address you want to use.
DNS field	Enter the IP address of the preferred DNS server. To enter additional DNS servers, click the **Add** (+) icon. **Important** • For each node in your cluster, configure a maximum of three DNS servers. Problems can occur if you configure more than three DNS servers for an appliance. • For NTP, ensure port 123 (UDP) is open between Catalyst Center and your NTP server.

The wizard validates the information you have entered, confirms that the port is up, and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid and the port is up, the wizard's **Configure Your Intracluster Interface** screen opens.



d) Enter configuration values for your Intracluster interface, then click **Next**.

As explained in Interface Cable Connections, this required port is used to link the appliance to your cluster. See Required IP Addresses and Subnets and Required Configuration Information for a more detailed description of the values you need to enter.

Note

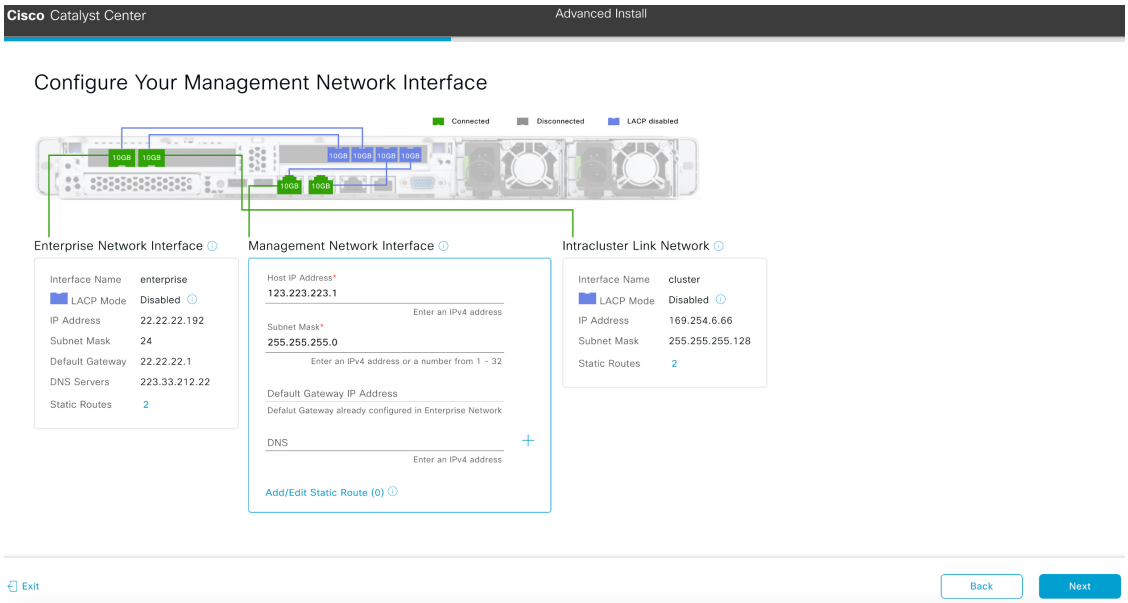
- If you opted to configure the Enterprise and Internet Access interfaces on the same port, complete this step and then proceed to Step 2e (which describes how to configure your Management interface).
- If you opted to configure the Enterprise and Management interfaces on the same port, complete this step and then skip ahead to Step 2f (which describes how to configure your Internet Access interface).
- If you opted to configure the Enterprise, Management, and Internet Access interfaces on the same port, complete this step and then skip ahead to Step 2g.

Table 4: Primary Node Entries for the Intracluster Interface

LACP Mode slider	Choose one of the following NIC bonding modes for the Intracluster interface: • **Active-Backup mode**: This mode provides fault tolerance by aggregating two Ethernet interfaces into a single logical channel. When the interface that's currently active goes down, the other interface takes its place and becomes active. • **LACP mode**: This mode aggregates two Ethernet interfaces that share the same speed and duplex settings into a single logical channel. This provides load balancing and higher bandwidth. For more information about Catalyst Center's implementation of NIC bonding, see NIC Bonding Overview.
Host IP Address field	Enter the IP address for the Cluster port. This is required. Note that you cannot change the address of the Cluster port later.

Subnet Mask field	Enter the netmask for the port's IP address. This is required.

The wizard validates the information you have entered, confirms that the port is up, and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid and the port is up, the wizard's **Configure Your Management Network Interface** screen opens.



e) (Optional) Enter configuration values for the Management port, then click **Next**.

As explained in Interface Cable Connections, this port is used to access the Catalyst Center GUI from your management network. If you chose to configure a dedicated Management interface, enter the information described in the following table. (See Required IP Addresses and Subnets and Required Configuration Information for a more detailed description of the values you need to enter.)

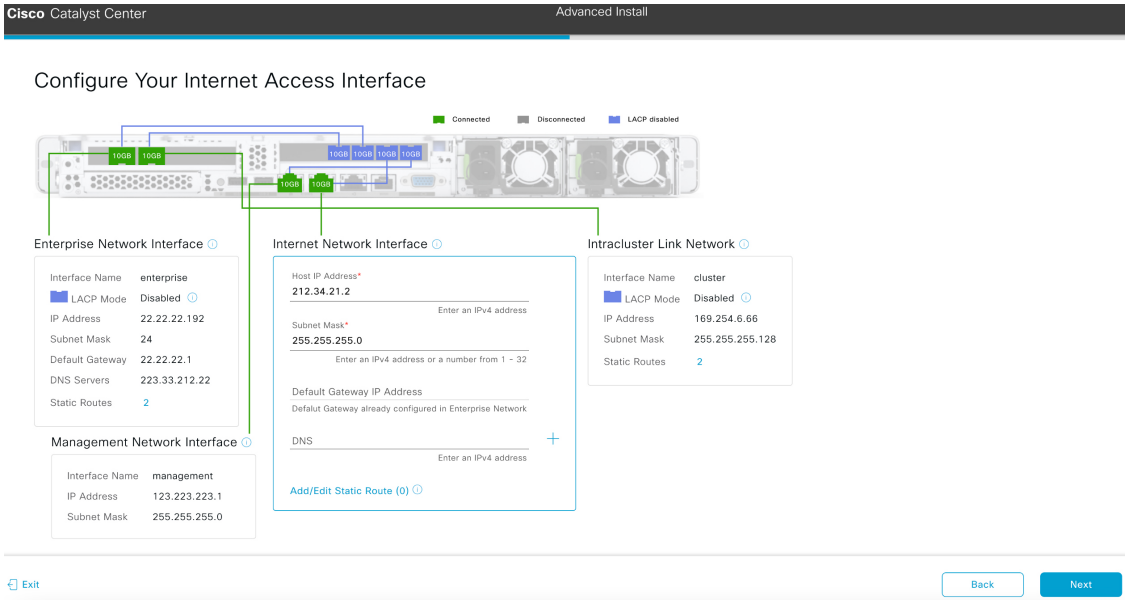
Note If you opted to configure the Enterprise and Internet Access interfaces on the same port, complete this step and then skip ahead to Step 2g.

Table 5: Primary Node Entries for the Management Port

Host IP Address field	Enter the IP address for the Management port.
Subnet Mask field	Enter the netmask for the port's IP address.
Default Gateway IP Address field	Enter a default gateway IP address to use for the port. **Important** Ensure that you enter a default gateway IP address for at least one of your appliance's interfaces. Otherwise, you will not be able to complete the configuration wizard.

DNS field	Enter the IP address of the preferred DNS server. To enter additional DNS servers, click the **Add** (+) icon. **Important** • For each node in your cluster, configure a maximum of three DNS servers. Problems can occur if you configure more than three DNS servers for an appliance. • For NTP, ensure port 123 (UDP) is open between Catalyst Center and your NTP server.

The wizard validates the information you have entered, confirms that the port is up, and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid and the port is up, the wizard's **Configure Your Internet Access Interface** screen opens.



f) (Optional) Enter configuration values for the Internet Access interface, then click **Next**.

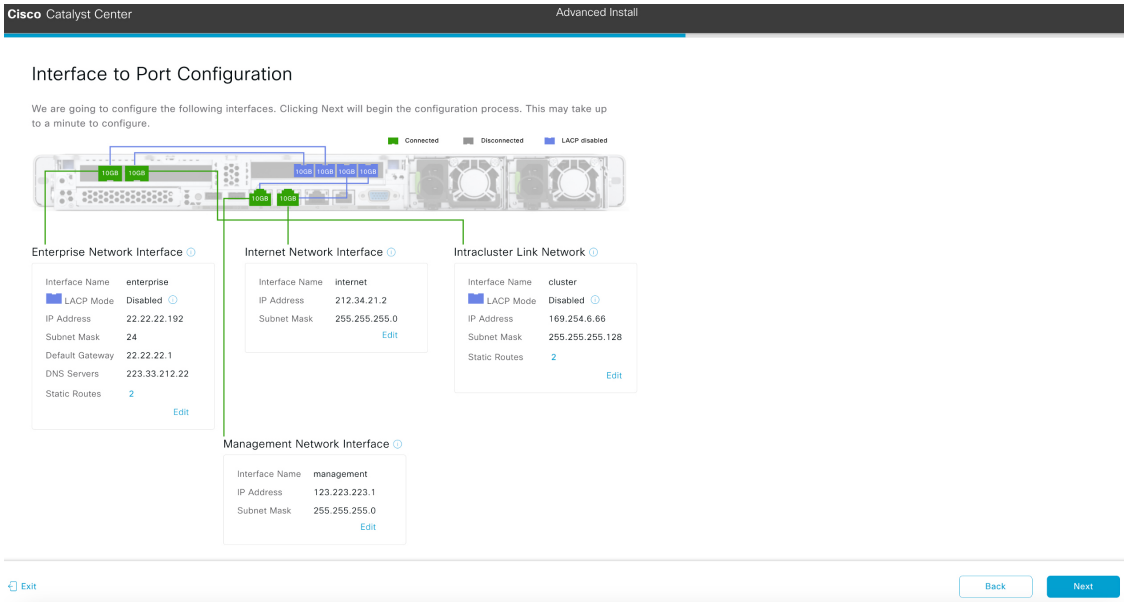
As explained in Interface Cable Connections, this is an optional port used to link the appliance to the Internet when you cannot do so through the Enterprise port. If you chose to configure a dedicated Internet Access interface, enter the information described in the following table. (See Required IP Addresses and Subnets and Required Configuration Information for a more detailed description of the values you need to enter.)

Table 6: Primary Node Entries for the Internet Access Port

Host IP Address field	Enter the IP address for the Internet Access port.
Subnet Mask field	Enter the netmask for the port's IP address. This is required if you entered an IP address in the previous field.
Default Gateway IP Address field	Enter a default gateway IP address to use for the port. **Important** Ensure that you enter a default gateway IP address for at least one of your appliance's interfaces. Otherwise, you will not be able to complete the configuration wizard.

DNS field	Enter the IP address of the preferred DNS server. To enter additional DNS servers, click the **Add** (+) icon. **Important** • For each node in your cluster, configure a maximum of three DNS servers. Problems can occur if you configure more than three DNS servers for an appliance. • For NTP, ensure port 123 (UDP) is open between Catalyst Center and your NTP server.

The wizard validates the information you have entered, confirms that the port is up, and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid and the port is up, the wizard's **Interface to Port Configuration** screen opens.

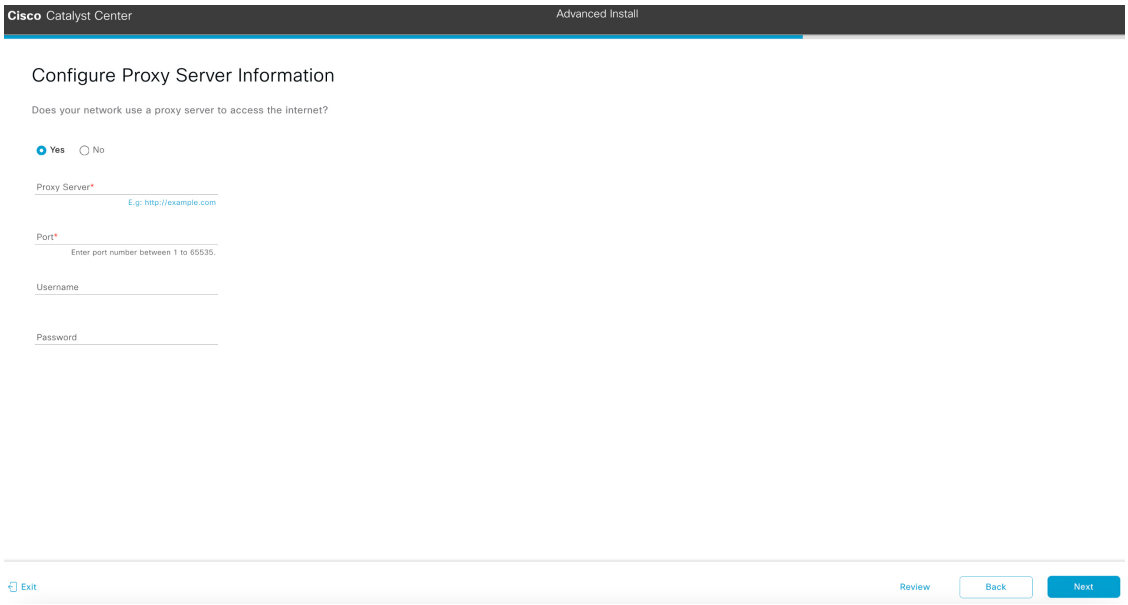


g) Review the settings that you have entered for the primary node's interfaces.

If you need to make any changes, click the **Edit** link for the relevant interface.

h) When you are happy with the interface settings, click **Next**.

After initial interface configuration has completed, the **Configure Proxy Server Information** screen opens.



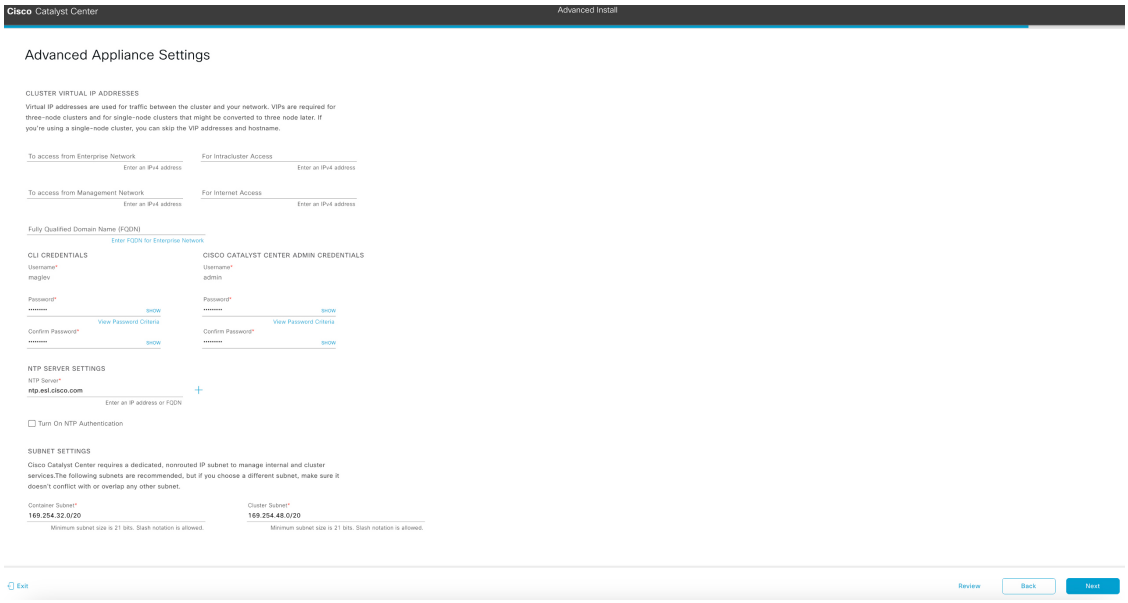
i) Do one of the following and then click **Next**:

- If your network does *not* use a proxy server to access the internet, click the **No** radio button.
- If your network does use a proxy server to access the internet, enter the values described in the following table:

Table 7: Primary Node Entries for Proxy Server Settings

Proxy Server field	Enter the URL or host name of an HTTPS network proxy used to access the Internet. **Note** Connection from Catalyst Center to the HTTPS proxy is supported only via HTTP in this release.
Port field	Enter the port your appliance used to access the network proxy.
Username field	Enter the user name used to access the network proxy. If no proxy login is required, leave this field blank.
Password field	Enter the password used to access the network proxy. If no proxy login is required, leave this field blank.

The wizard validates the information you have entered and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid and the port is up, the wizard's **Advanced Appliance Settings** screen opens.



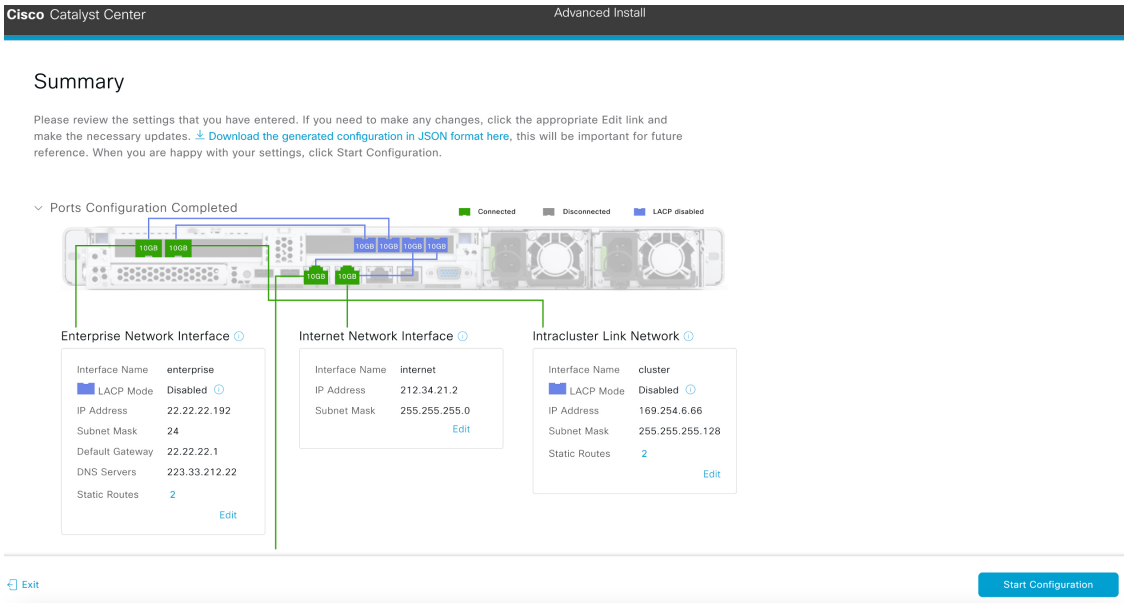
j) Enter configuration values for your cluster, then click **Next**.

Table 8: Primary Node Entries for Advanced Appliance Settings

Cluster Virtual IP Addresses	
To access from Enterprise Network, For Intracluster Access, To access from Management Network, and For Internet Access fields **Note** If you configured the Management or Internet Access interface on the same port as the Enterprise interface, its corresponding field is not displayed in this section.	Enter the virtual IP address that will be used for traffic between the cluster and the interfaces that you have configured on your primary node. This is required for both three-node clusters and single-node clusters that will be converted into a three-node cluster in the future. If you have a single-node cluster setup and don't plan to move to a three-node cluster setup, you can leave the fields in this section blank. **Important** If you choose to configure a virtual IP address, you must enter one for each configured network interface. You will not be able to complete the wizard unless you do so. These addresses are tied to the cluster link's status, which must be in the **UP** state.
Fully Qualified Domain Name (FQDN) field	Enter the fully qualified domain name (FQDN) for your cluster. Catalyst Center does the following with this hostname: • It uses this hostname to access your cluster's web interface and the Representational State Transfer (REST) APIs used by devices in the enterprise network that Catalyst Center manages. • In the Subject Alternative Name (SAN) field of Catalyst Center certificates, it uses the FQDN to the define the Plug and Play server that should be used for device provisioning.

CLI Credentials Enter and confirm the password for the `maglev` user.	
Cisco Catalyst Center Admin Credentials Enter a password for the default admin superuser, used to log in to Catalyst Center for the first time.	
NTP Server Settings	
NTP Server field	Enter at least one NTP server address or hostname. To enter additional NTP server addresses or hostnames, click the **Add** (+) icon. For a production deployment, Cisco recommends that you configure a minimum of three NTP servers.
Turn On NTP Authentication check box	To enable the authentication of your NTP server before it's synchronized with Catalyst Center, check this check box and then enter the following information: • The NTP server's key ID. Valid values range between 1 and 4294967295 (2^32-1). This value corresponds to the key ID that's defined in the NTP server's key file. • The SHA-1 key value associated with the NTP server's key ID. This 40-character hex string resides in the NTP server's key file. **Note** Ensure that you enter a key ID and key value for each NTP server that you configured in the previous field.
Subnet Settings	
Container Subnet field	A dedicated, non-routed IP subnet that Catalyst Center uses to manage internal services. By default, this is already set to **169.254.32.0/20**, and we recommend that you use this subnet.
Cluster Subnet field	A dedicated, non-routed IP subnet that Catalyst Center uses to manage internal cluster services. By default, this is already set to **169.254.48.0/20**, and we recommend that you use this subnet.

The wizard validates the information you have entered and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid, the wizard's **Summary** screen opens.

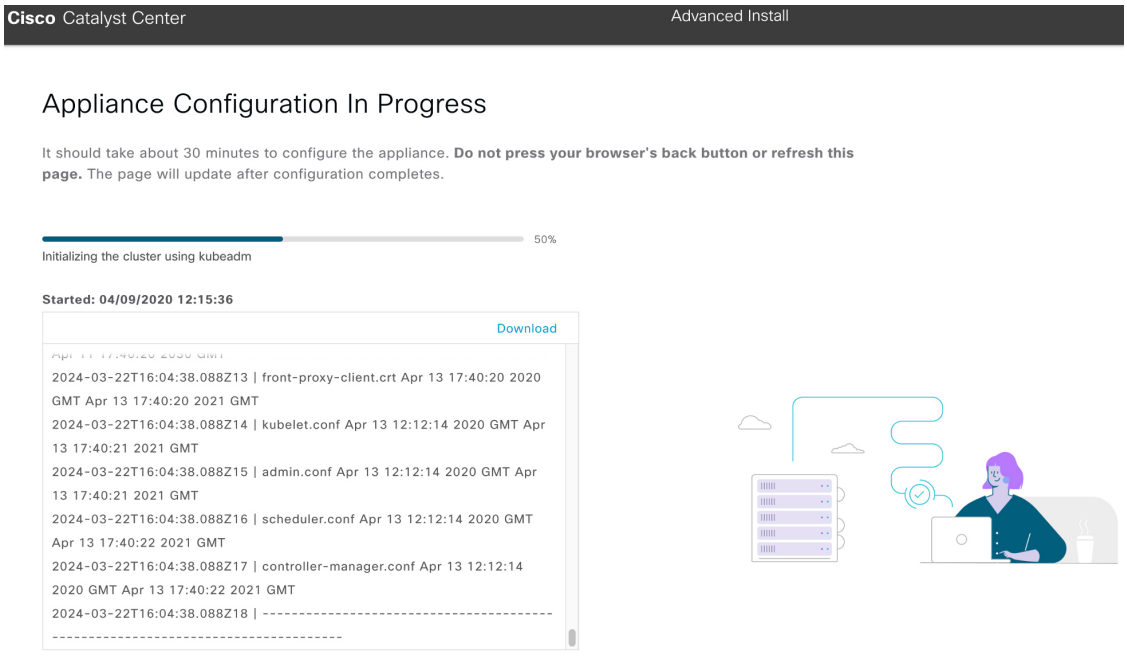


Note To download the appliance configuration as a JSON file, click the **here** link.

k) Review all of the settings that you have entered while completing the wizard. If necessary, click the appropriate **Edit** link to open the wizard screen in which you want to make updates.

l) To complete the configuration of your Catalyst Center appliance, click **Start Configuration**.

The wizard screen continuously updates during the process, indicating the tasks that are currently being completed and their progress, as well as any errors that have occurred. To save a local copy of this information as a text file, click the download icon.



What to do next

When this task is complete:

- If you are deploying this appliance in standalone mode only, continue by performing first-time setup: First-Time Setup Workflow.
- If you are deploying this appliance as the primary node in a cluster, configure the second and third installed appliances in the cluster: Configure a Secondary Node Using the Advanced Install Configuration Wizard, on page 30.

Configure a Secondary Node Using the Advanced Install Configuration Wizard

Perform the following steps to configure the second and third nodes in the cluster using the Advanced Install configuration wizard.

Important

- In order to build a three-node cluster, the same version of the **System** package must be installed on your three Catalyst Center appliances. Otherwise, unexpected behavior and possible downtime can occur.
- The following third-generation Catalyst Center appliances support configuration using the Advanced Install configuration wizard:
  - 32-core appliance: Cisco part number DN3-HW-APL
  - 56-core appliance: Cisco part number DN3-HW-APL-L
- You can only use this wizard to complete the initial configuration of a new Catalyst Center appliance. To reimage an appliance that's been configured previously, you will need to use the Maglev Configuration wizard (see Configure the Appliance Using the Maglev Wizard).
- Before you configure the appliances in a three-node cluster, ensure that you have logged out of those appliances. Otherwise, the Quick Start workflow (which you complete to discover your network's devices and enable telemetry) will not start after you have configured your cluster's appliances and log in to Catalyst Center for the first time.
- Ensure that all of the IP addresses you enter while completing this procedure are valid addresses with valid netmasks. Also make sure that the addresses and their corresponding subnets do not overlap. Service communication issues can result if they do.

When joining each new secondary nodes to the cluster, you must specify the first appliance in the cluster as the primary node. Note the following when joining secondary nodes to a cluster:

- Before adding a new node to the cluster, be sure that all installed packages are deployed on the primary node. You can check this by using Secure Shell to log in to the primary node's Catalyst Center Management port as the Linux user (*maglev*) and then running the command `maglev package status`. All installed packages should appear in the command output as `DEPLOYED`.

```
maglev-1 [main - https://kong-frontend.maglev-system.svc.cluster.local:443]
NAME                                DISPLAY_NAME                                DEPLOYED          AVAILABLE         STATUS                    PROGRESS
-------------------------------------------------------------------------------------------------------------------------------------------------
access-control-application          Access Control Application                  -                 2.1.369.60050     NOT_DEPLOYED
ai-network-analytics                AI Network Analytics                        -                 2.6.10.494        NOT_DEPLOYED
app-hosting                         Application Hosting                         -                 1.6.6.2201241723  NOT_DEPLOYED
application-policy                  Application Policy                          -                 2.1.369.170033    NOT_DEPLOYED
application-registry                Application Registry                        -                 2.1.369.170033    NOT_DEPLOYED
application-visibility-service      Application Visibility Service              -                 2.1.369.170033    NOT_DEPLOYED
assurance                           Assurance - Base                            2.2.2.485         -                 DEPLOYED
automation-core                     NCP - Services                              2.1.368.60015     2.1.369.60050     DEPLOYED
base-provision-core                 Automation - Base                           2.1.368.60015     2.1.369.60050     DEPLOYED
cloud-connectivity-contextual-content Cloud Connectivity - Contextual Content   1.3.1.364         -                 DEPLOYED
cloud-connectivity-data-hub         Cloud Connectivity - Data Hub               1.6.0.380         -                 DEPLOYED
cloud-connectivity-tethering        Cloud Connectivity - Tethering              2.12.1.2          -                 DEPLOYED
cloud-provision-core                Cloud Device Provisioning Application       -                 2.1.369.60050     NOT_DEPLOYED
command-runner                      Command Runner                              2.1.368.60015     2.1.369.60050     DEPLOYED
device-onboarding                   Device Onboarding                           2.1.368.60015     2.1.369.60050     DEPLOYED
disaster-recovery                   Disaster Recovery                           -                 2.1.367.360196    NOT_DEPLOYED
dna-core-apps                       Network Experience Platform - Core          2.1.368.60015     2.1.369.60050     DEPLOYED
dnac-platform                       Cisco DNA Center Platform                   1.5.1.180         1.5.1.182         DEPLOYED
dnac-search                         Cisco DNA Center Global Search              1.5.0.466         -                 DEPLOYED
endpoint-analytics                  AI Endpoint Analytics                       -                 1.4.375           NOT_DEPLOYED
group-based-policy-analytics        Group-Based Policy Analytics                -                 2.2.1.401         NOT_DEPLOYED
icap-automation                     Automation - Intelligent Capture            -                 2.1.369.60050     NOT_DEPLOYED
image-management                    Image Management                            2.1.368.60015     2.1.369.60050     DEPLOYED
machine-reasoning                   Machine Reasoning                           2.1.368.210017    2.1.369.210024    DEPLOYED
ncp-system                          NCP - Base                                  2.1.368.60015     2.1.369.60050     DEPLOYED
ndp-base-analytics                  Network Data Platform - Base Analytics      1.6.1028          1.6.1031          DEPLOYED
ndp-platform                        Network Data Platform - Core                1.6.596           -                 DEPLOYED
ndp-ui                              Network Data Platform - Manager             1.6.543           -                 DEPLOYED
network-visibility                  Network Controller Platform                 2.1.368.60015     2.1.369.60050     DEPLOYED
path-trace                          Path Trace                                  2.1.368.60015     2.1.369.60050     DEPLOYED
platform-ui                         Cisco DNA Center UI                         1.6.2.446         1.6.2.448         DEPLOYED
rbac-extensions                     RBAC Extensions                             2.1.368.1910001   2.1.369.1910003   DEPLOYED
rogue-management                    Rogue and aWIPS                             -                 2.2.0.51          NOT_DEPLOYED
sd-access                           SD Access                                   -                 2.1.369.60050     NOT_DEPLOYED
sensor-assurance                    Assurance - Sensor                          -                 2.2.2.484         NOT_DEPLOYED
sensor-automation                   Automation - Sensor                         -                 2.1.369.60050     NOT_DEPLOYED
ssa                                 Stealthwatch Security Analytics             2.1.368.1091226   2.1.369.1091317   DEPLOYED
system                              System                                      1.6.594           -                 DEPLOYED
system-commons                      System Commons                              2.1.368.60015     2.1.369.60050     DEPLOYED
umbrella                            Cisco Umbrella                              -                 2.1.368.592066    NOT_DEPLOYED
wide-area-bonjour                   Wide Area Bonjour                           -                 2.4.368.75006     NOT_DEPLOYED

[Wed Nov 30 15:45:08 UTC] maglev@192.0.2.1 (maglev-master-192.0.2.1) ~
```

- Be sure to join only a single node to the cluster at a time. Do not attempt to add multiple nodes at the same time, as doing so will result in unpredictable behavior.
- Expect some service downtime during the cluster attachment process for each secondary node. Services will need to be redistributed across the nodes and the cluster will be down for periods of time during that process.

Before you begin

Ensure that you:

- Configured the first appliance in the cluster, following the steps in Configure the Primary Node Using the Advanced Install Configuration Wizard, on page 13.
- Collected all of the information called for in Required IP Addresses and Subnets and Required Configuration Information.
- Installed the second and third appliances, as described in Appliance Installation Workflow.
- Have done the following:
  1. Ran the **maglev package status** command on the first appliance.

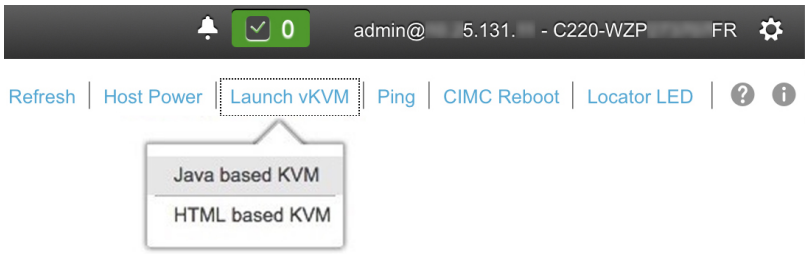
     You can also access this information from the Catalyst Center GUI by clicking the **Help** icon (?) and choosing **About** > **Packages**.
  2. Contacted the Cisco TAC, gave them the output of this command, and asked them to point you to the ISO that you should install on your second and third appliances.
- Configured Cisco IMC browser access on both secondary nodes, as described in Enable Browser Access to the Cisco Integrated Management Controller.
- Checked that both secondary nodes' ports and the switches they use are properly configured, as described in Execute Preconfiguration Tasks.

- Are using a compatible browser. For a list of compatible browsers, see the Release Notes for the version of Catalyst Center you are installing.
- Enabled ICMP on the firewall between Catalyst Center and both the default gateway and the DNS server you specify in the following procedure. The wizard uses ping to verify the gateway and DNS server you specify. This ping might get blocked if a firewall is in place and ICMP is not enabled on that firewall. When this happens, you will not be able to complete the wizard.

Step 1 Start the Advanced Install configuration wizard:

a) Point your browser to the Cisco IMC IP address you set during the Cisco IMC GUI configuration you performed, then log in to the Cisco IMC GUI as the Cisco IMC user (see Enable Browser Access to the Cisco Integrated Management Controller).

After successful login, the appliance displays the **Cisco Integrated Management Controller Chassis Summary** window, with a blue link menu at the upper right, as shown below.



b) From the blue link menu, choose **Launch KVM** and then choose either **Java based KVM** or **HTML based KVM**. If you choose the Java-based KVM, you will need to launch the Java startup file from your browser or file manager in order to view the KVM console in its own window. If you choose the HTML-based KVM, it will launch the KVM console in a separate browser window or tab automatically.

Irrespective of the KVM type you choose, use the KVM console to monitor the progress of the configuration and respond to Maglev Configuration Wizard prompts.

c) With the KVM displayed, reboot the appliance by making one of the following selections:

- In the main Cisco IMC GUI browser window: Choose **Host Power** > **Power Cycle**. Then switch to the KVM console to continue.
- In the KVM console: Choose **Power** > **Power Cycle System (cold boot)**.

If asked to confirm your choice to reboot the appliance, click **OK**.

After displaying reboot messages, the KVM console displays the **Static IP Configuration** screen.

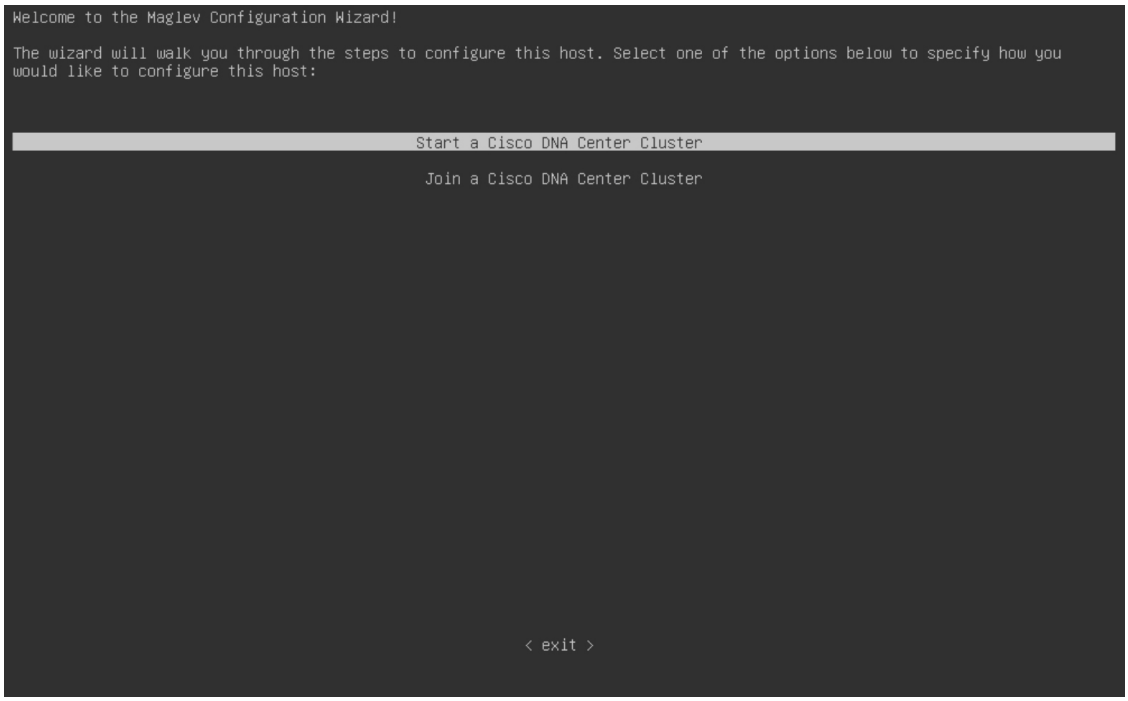
Note the URL listed in the **Web Installation** field.

d) Do one of the following:

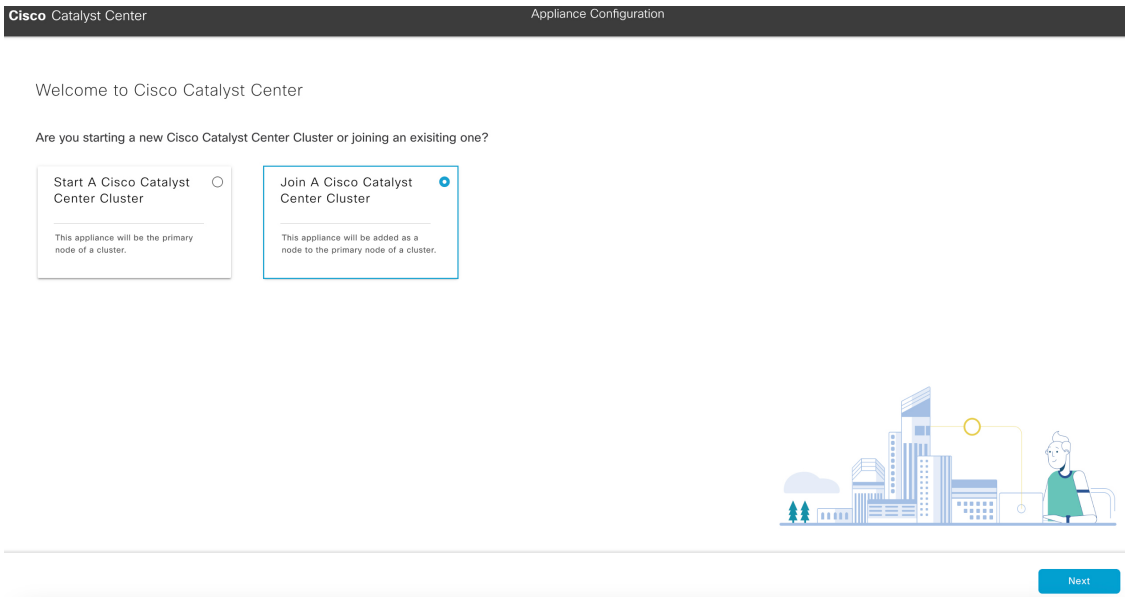
- If you want a DHCP server to assign an IP address, subnet mask, and default gateway to your appliance's Enterprise interface, click **Skip**.
- If you want to assign your own IP address, subnet mask, and default gateway to your appliance's Enterprise interface, enter the information described in the following table and then click **Configure**.

IPv6 Mode check box	If you want to configure an IPv6 address, check this check box.
IP Address field	Enter the static IP address you want to use.
Netmask field	Enter the netmask for the IP address you specified in the previous field: • If you entered an IPv4 address, you can enter either a netmask or CIDR address. • If you entered an IPv6 address, you can only enter a CIDR address.
Default Gateway Address field	Specify the default gateway that will be used to route traffic.
Static Routes field	Enter one or more static routes in the following format, separated by spaces: *<network>/<netmask>/<gateway>*. This is usually required on the Management port only.

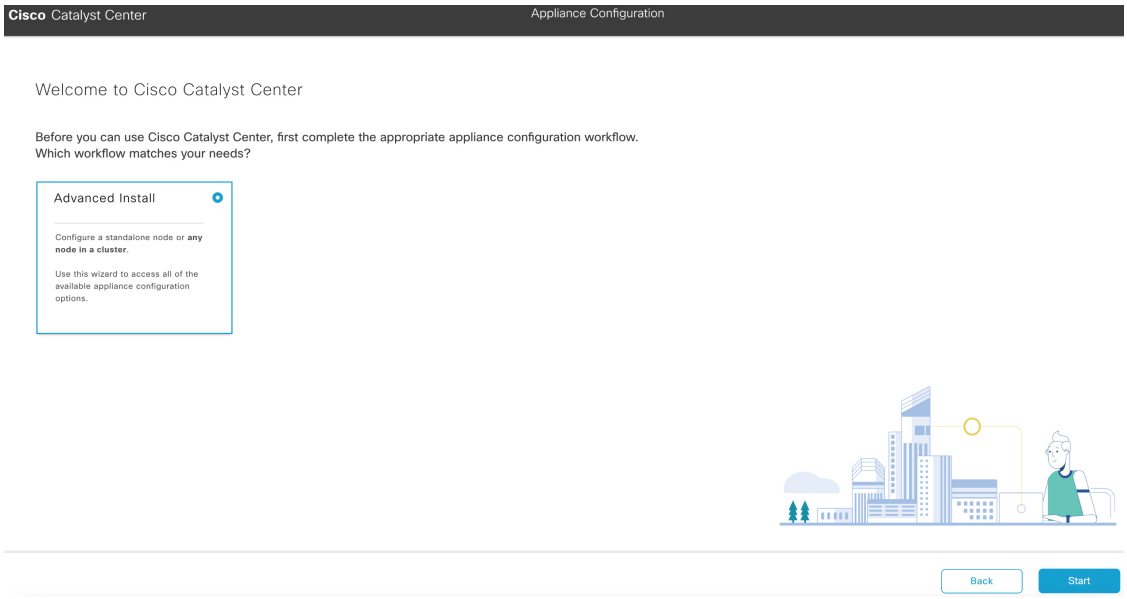
The KVM console displays the Maglev Configuration wizard welcome screen.



e) To bring up the **Appliance Configuration** screen, open the URL that was displayed in the **Static IP Configuration** screen.

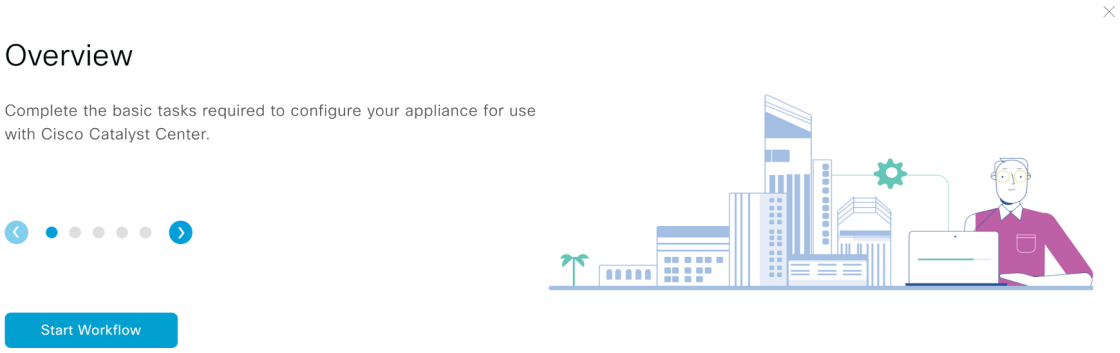


f) Click the **Join a Cisco Catalyst Center Cluster** radio button, then click **Next**.



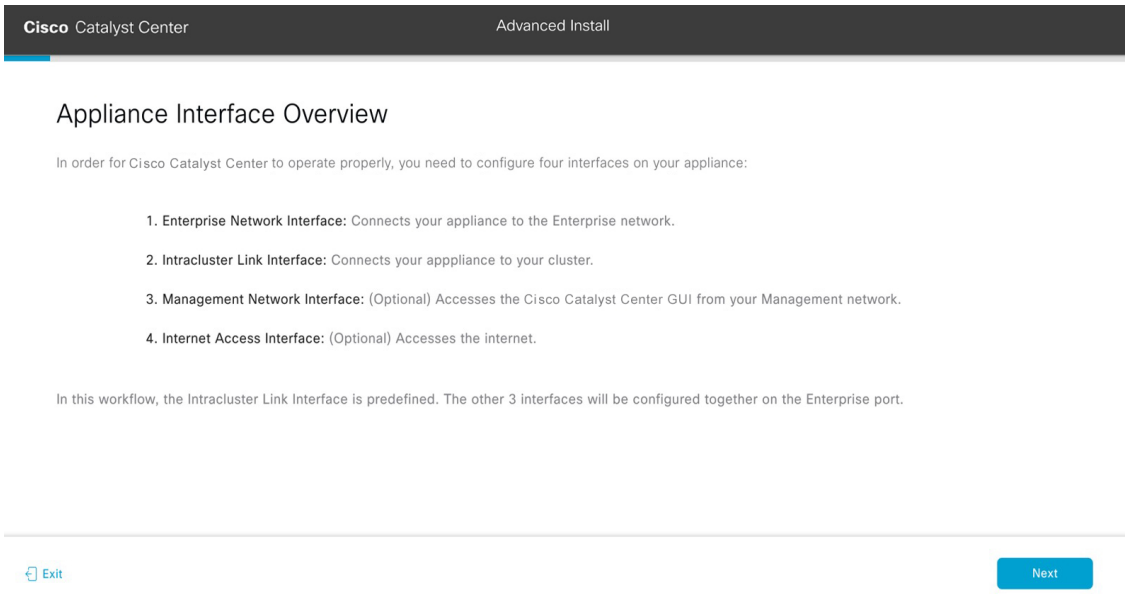
g) Click the **Advanced Install** radio button, then click **Start**.

The **Overview** slider opens. Click > to view a summary of the tasks that the wizard will help you complete.



h) Click **Start Workflow** to start the wizard.

The **Appliance Interface Overview** screen opens, providing a description of the four appliance interfaces that you can configure.

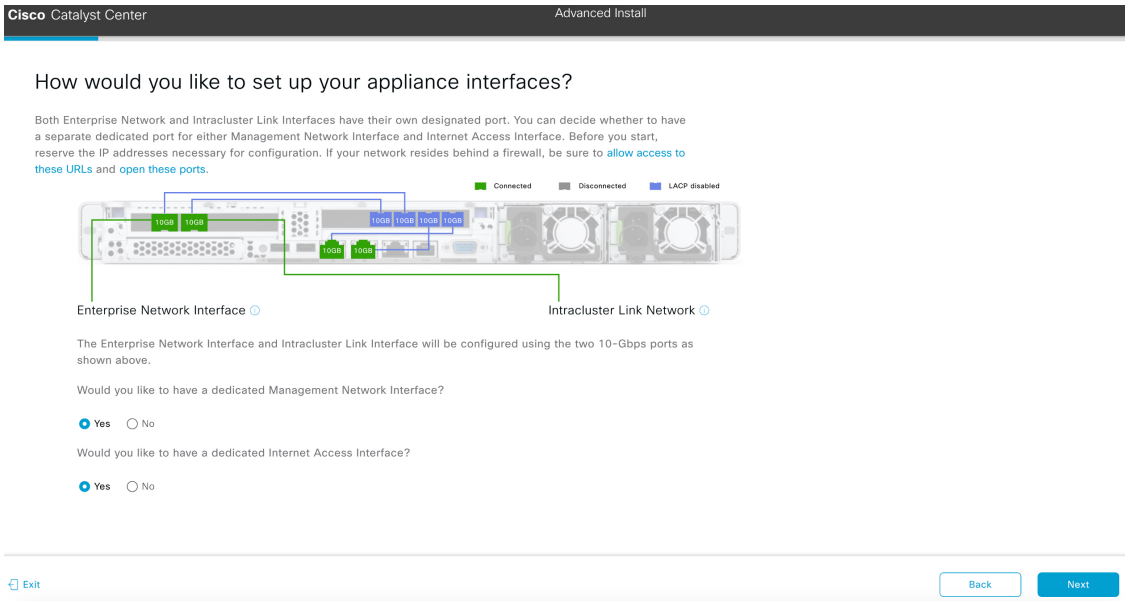


Important At a minimum, you must configure the interfaces on your appliance's Enterprise and Cluster ports, as they are required for Catalyst Center functionality. If the wizard fails to display either or both of these ports during the course of configuration, they may be non-functional or disabled. If you discover that they are non-functional, choose **Exit** to exit the wizard immediately. Be sure you have completed all of the steps provided in Execute Preconfiguration Tasks before resuming configuration or contacting the Cisco Technical Assistance Center (TAC).

Step 2 Complete the Advanced Install configuration wizard:

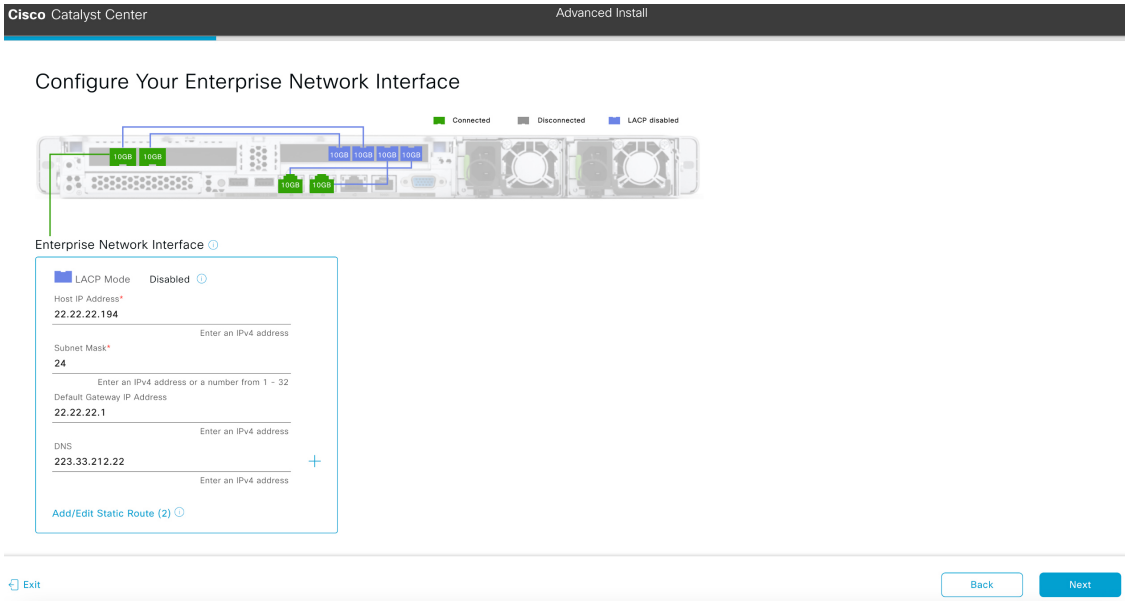
a) Click **Next**.

The **How would you like to set up your appliance interfaces?** screen opens.



b) Indicate whether you want to configure dedicated Management and Internet Access interfaces, then click **Next**.

The **Configure Your Enterprise Network Interface** screen opens.



c) Enter configuration values for the Enterprise interface, then click **Next**.

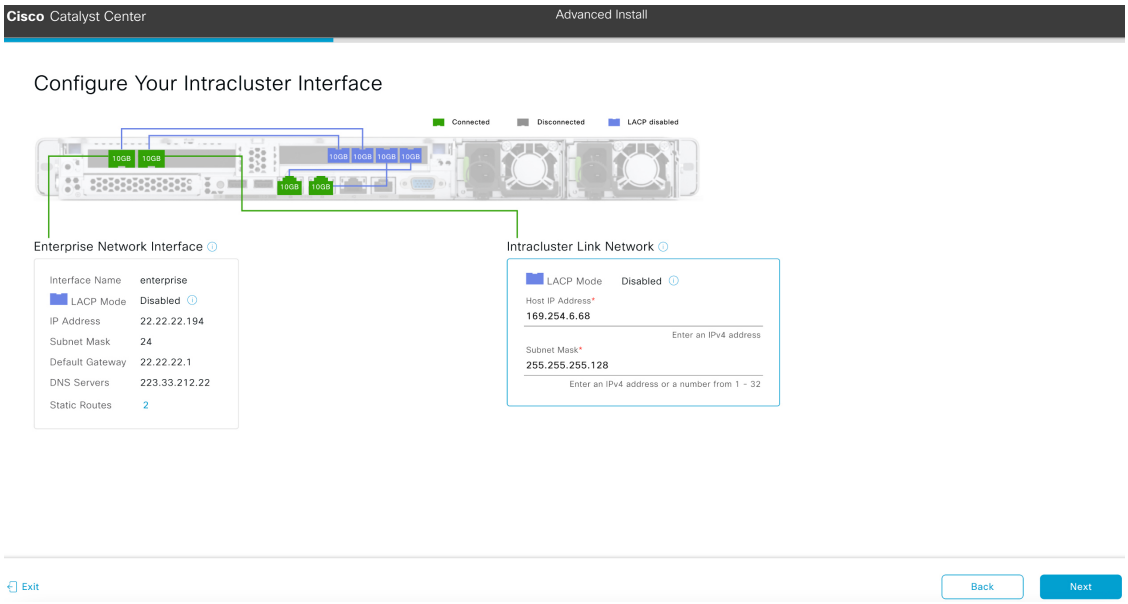
As explained in Interface Cable Connections, this is a required interface used to link the appliance to the enterprise network. See Required IP Addresses and Subnets and Required Configuration Information for a more detailed description of the values you need to enter.

Table 9: Secondary Node Entries for the Enterprise Interface

LACP Mode slider	Choose one of the following network interface controller (NIC) bonding modes for the Enterprise interface: • **Active-Backup mode**: This mode provides fault tolerance by aggregating two Ethernet interfaces into a single logical channel. When the interface that's currently active goes down, the other interface takes its place and becomes active. • **LACP mode**: This mode aggregates two Ethernet interfaces that share the same speed and duplex settings into a single logical channel. This provides load balancing and higher bandwidth. For more information about Catalyst Center's implementation of NIC bonding, see NIC Bonding Overview.
Host IP Address field	Enter the IP address for the Enterprise port. This is required.
Subnet Mask field	Enter the netmask for the port's IP address. This is required.

Default Gateway IP Address field	Enter a default gateway IP address to use for the port. **Important** Ensure that you enter a default gateway IP address for at least one of your appliance's interfaces. Otherwise, you will not be able to complete the configuration wizard. **Note** You designated this interface to use the default gateway assigned to it by a DHCP server. Complete the following steps to specify a different gateway: 1. Delete the IP address that is currently listed in this field and then click **Exit**. This will bring you back to the first wizard screen. 2. Return to the Enterprise port's wizard screen and enter the gateway IP address you want to use.
DNS field	Enter the IP address of the preferred DNS server. To enter additional DNS servers, click the **Add** (+) icon. **Important** • For each node in your cluster, configure a maximum of three DNS servers. Problems can occur if you configure more than three DNS servers for an appliance. • For NTP, ensure port 123 (UDP) is open between Catalyst Center and your NTP server.

The wizard validates the information you have entered, confirms that the port is up, and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid and the port is up, the wizard's **Configure Your Intracluster Interface** screen opens.



d) Enter configuration values for your Intracluster interface, then click **Next**.

As explained in Interface Cable Connections, this required port is used to link the appliance to your cluster. See Required IP Addresses and Subnets and Required Configuration Information for a more detailed description of the values you need to enter.

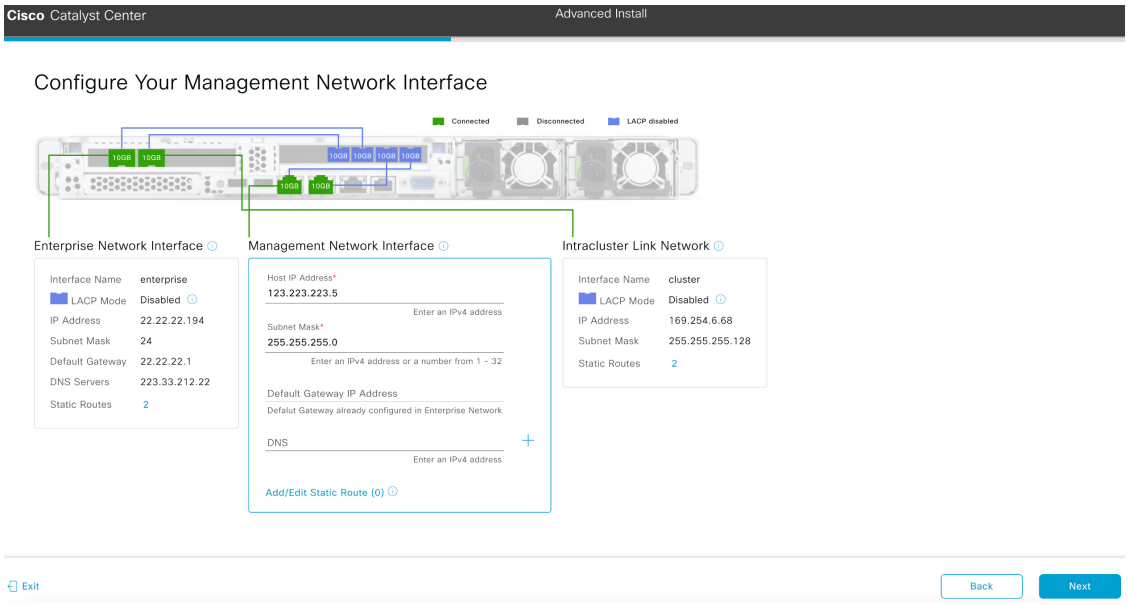
Note

- If you opted to configure the Enterprise and Internet Access interfaces on the same port, complete this step and then proceed to Step 2e (which describes how to configure your Management interface).
- If you opted to configure the Enterprise and Management interfaces on the same port, complete this step and then skip ahead to Step 2f (which describes how to configure your Internet Access interface).
- If you opted to configure the Enterprise, Management, and Internet Access interfaces on the same port, complete this step and then skip ahead to Step 2g.

Table 10: Secondary Node Entries for the Intracluster Interface

LACP Mode slider	Choose one of the following NIC bonding modes for the Intracluster interface: • **Active-Backup mode**: This mode provides fault tolerance by aggregating two Ethernet interfaces into a single logical channel. When the interface that's currently active goes down, the other interface takes its place and becomes active. • **LACP mode**: This mode aggregates two Ethernet interfaces that share the same speed and duplex settings into a single logical channel. This provides load balancing and higher bandwidth. For more information about Catalyst Center's implementation of NIC bonding, see NIC Bonding Overview.
Host IP Address field	Enter the IP address for the Cluster port. This is required. Note that you cannot change the address of the Cluster port later.
Subnet Mask field	Enter the netmask for the port's IP address. This is required.

The wizard validates the information you have entered, confirms that the port is up, and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid and the port is up, the wizard's **Configure Your Management Network Interface** screen opens.



e) (Optional) Enter configuration values for the Management port, then click **Next**.

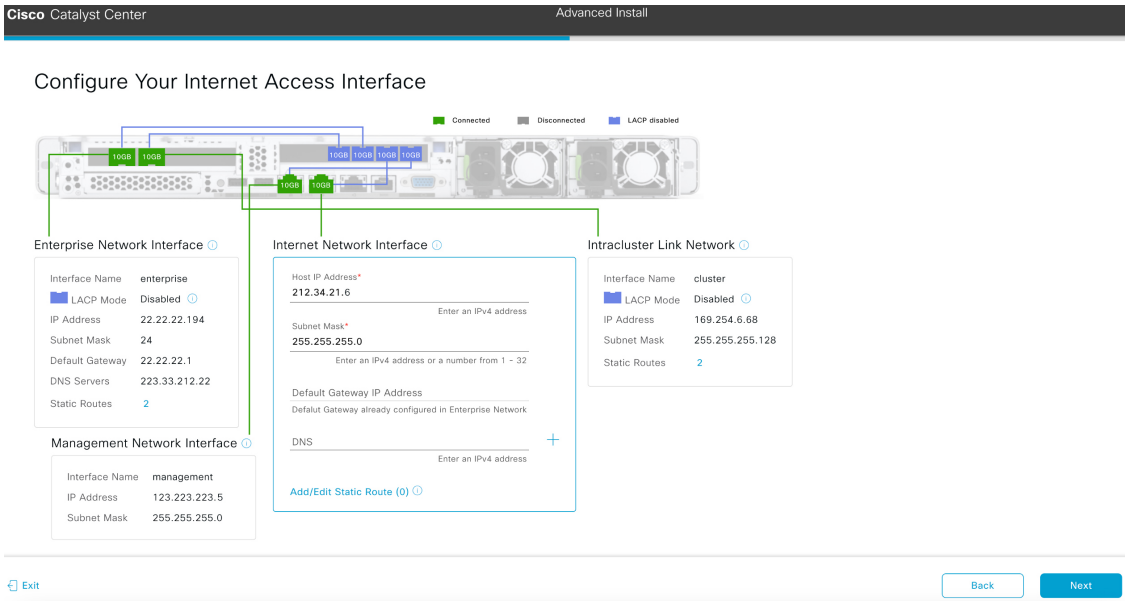
As explained in Interface Cable Connections, this port is used to access the Catalyst Center GUI from your management network. If you chose to configure a dedicated Management interface, enter the information described in the following table. (See Required IP Addresses and Subnets and Required Configuration Information for a more detailed description of the values you need to enter.)

Note If you opted to configure the Enterprise and Internet Access interfaces on the same port, complete this step and then skip ahead to Step 2g.

Table 11: Secondary Node Entries for the Management Port

Host IP Address field	Enter the IP address for the Management port. This is required.
Subnet Mask field	Enter the netmask for the port's IP address. This is required.
Default Gateway IP Address field	Enter a default gateway IP address to use for the port. **Important** Ensure that you enter a default gateway IP address for at least one of your appliance's interfaces. Otherwise, you will not be able to complete the configuration wizard.
DNS field	Enter the IP address of the preferred DNS server. To enter additional DNS servers, click the **Add** (+) icon. **Important** • For each node in your cluster, configure a maximum of three DNS servers. Problems can occur if you configure more than three DNS servers for an appliance. • For NTP, ensure port 123 (UDP) is open between Catalyst Center and your NTP server.

The wizard validates the information you have entered, confirms that the port is up, and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid and the port is up, the wizard's **Configure Your Internet Access Interface** screen opens.



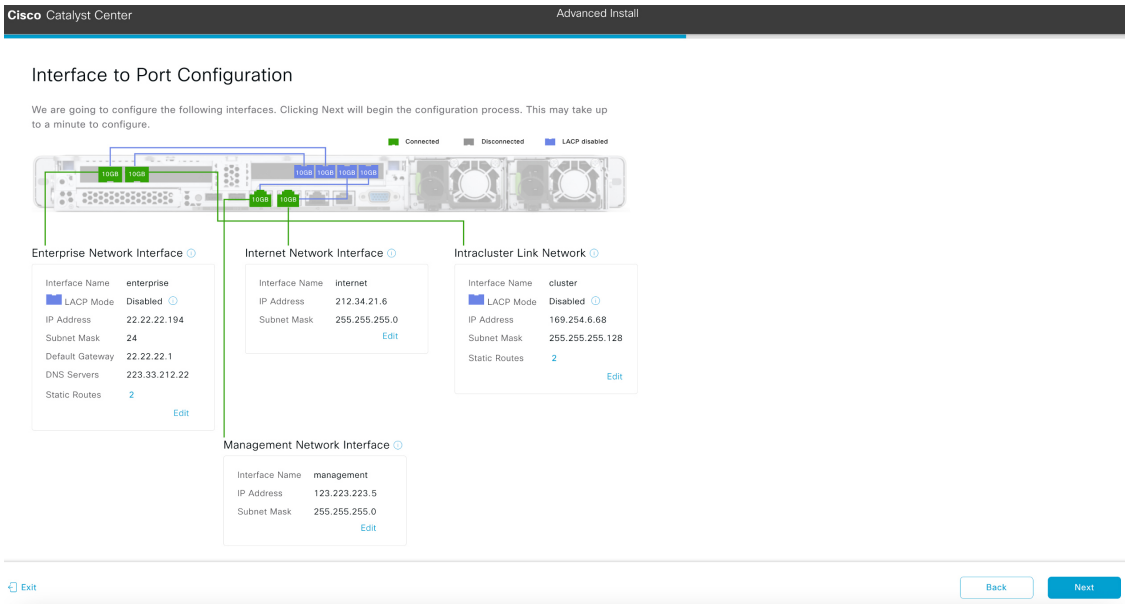
f) (Optional) Enter configuration values for the Internet Access interface, then click **Next**.

As explained in Interface Cable Connections, this is an optional port used to link the appliance to the Internet when you cannot do so through the Enterprise port. If you chose to configure a dedicated Internet Access interface, enter the information described in the following table. (See Required IP Addresses and Subnets and Required Configuration Information for a more detailed description of the values you need to enter.)

Table 12: Secondary Node Entries for the Internet Access Port

Host IP Address field	Enter the IP address for the Internet Access port.
Subnet Mask field	Enter the netmask for the port's IP address. This is required if you enter an IP address.
Default Gateway IP Address field	Enter a default gateway IP address to use for the port. **Important** Ensure that you enter a default gateway IP address for at least one of your appliance's interfaces. Otherwise, you will not be able to complete the configuration wizard.
DNS field	Enter the IP address of the preferred DNS server. To enter additional DNS servers, click the **Add** (+) icon. **Important** • For each node in your cluster, configure a maximum of three DNS servers. Problems can occur if you configure more than three DNS servers for an appliance. • For NTP, ensure port 123 (UDP) is open between Catalyst Center and your NTP server.

The wizard validates the information you have entered, confirms that the port is up, and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid and the port is up, the wizard's **Interface to Port Configuration** screen opens.

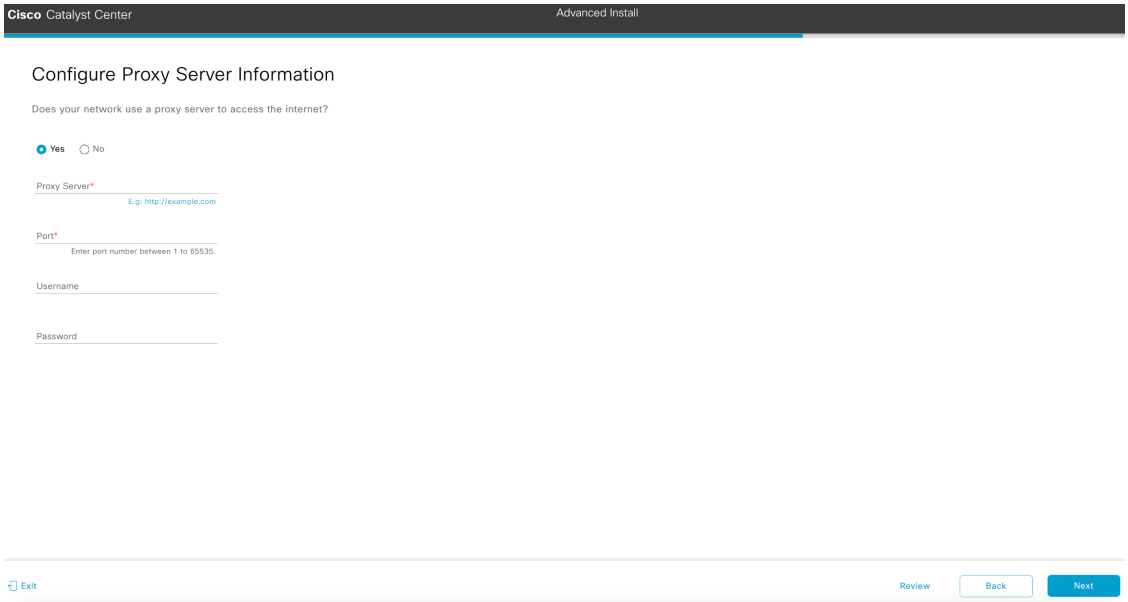


g) Review the settings that you have entered for the secondary node's interfaces.

If you need to make any changes, click the **Edit** link for the relevant interface.

h) When you are happy with the interface settings, click **Next**.

After initial interface configuration has completed, the **Configure Proxy Server Information** screen opens.



i) Do one of the following and then click **Next**:

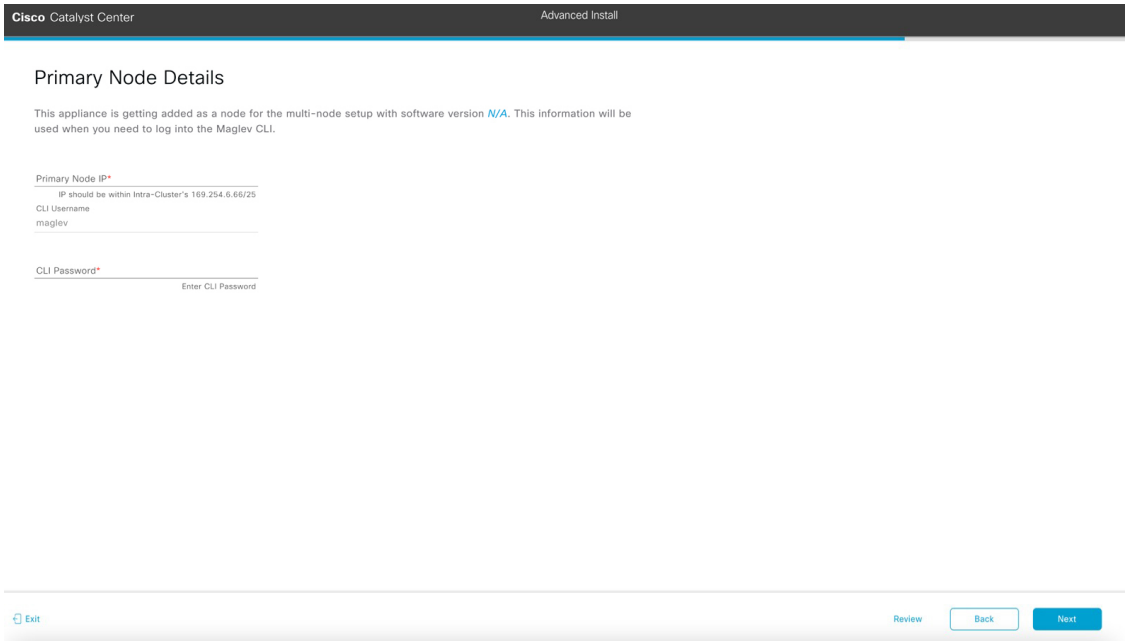
- If your network does *not* use a proxy server to access the internet, click the **No** radio button.

- If your network does use a proxy server to access the internet, enter the values described in the following table:

Table 13: Secondary Node Entries for Proxy Server Settings

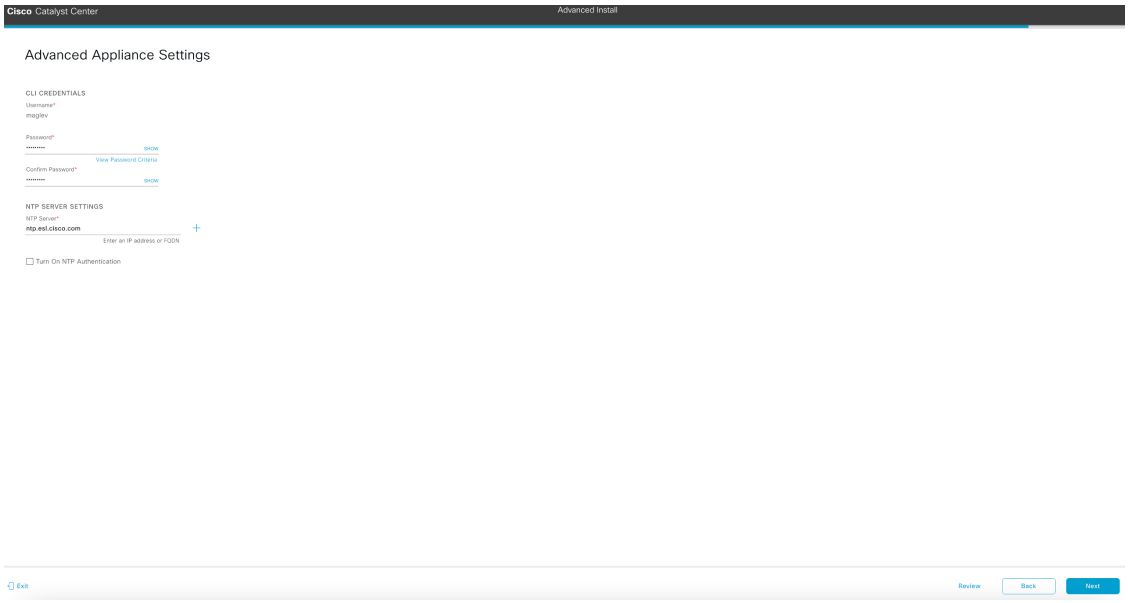
Proxy Server field	Enter the URL or host name of an HTTPS network proxy used to access the Internet. **Note** Connection from Catalyst Center to the HTTPS proxy is supported only via HTTP in this release.
Port field	Enter the port your appliance used to access the network proxy.
Username field	Enter the user name used to access the network proxy. If no proxy login is required, leave this field blank.
Password field	Enter the password used to access the network proxy. If no proxy login is required, leave this field blank.

The wizard validates the information you have entered and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid, the wizard's **Primary Node Details** screen opens.



j) To establish a connection with your cluster's primary node, enter its IP address and login credentials, and then click **Next**.

The **Advanced Appliance Settings** screen opens.

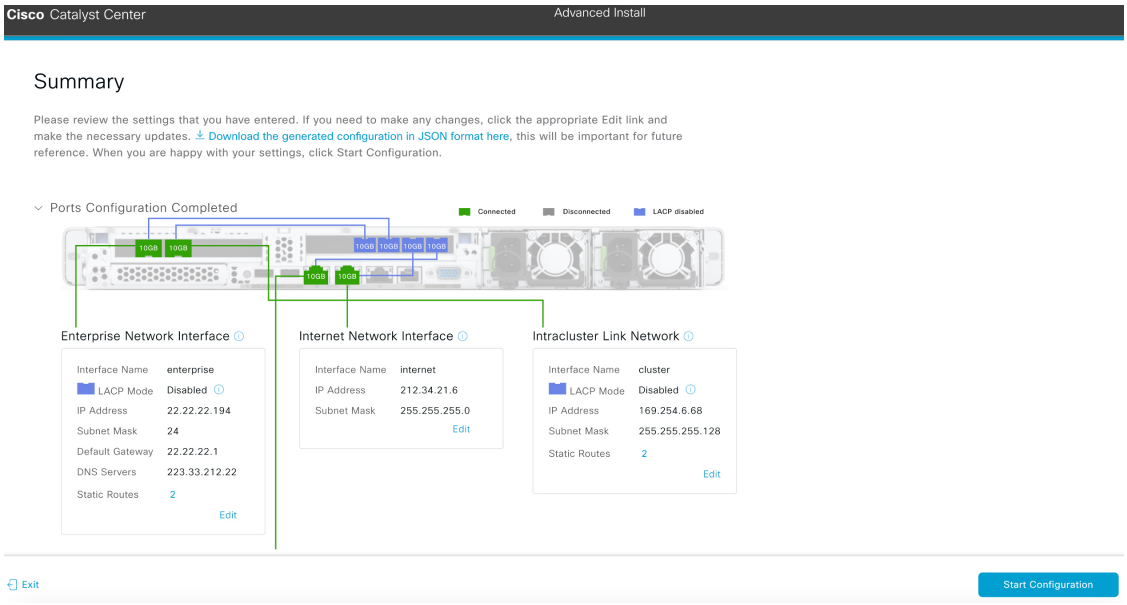


k) Enter configuration values for your cluster, then click **Next**.

Table 14: Secondary Node Entries for Advanced Appliance Settings

CLI Credentials Enter and confirm the password for the `maglev` user.	
NTP Server Settings	
NTP Server field	Enter at least one NTP server address or hostname. To enter additional NTP server addresses or hostnames, click the **Add** (+) icon. For a production deployment, Cisco recommends that you configure a minimum of three NTP servers.
Turn On NTP Authentication check box	To enable the authentication of your NTP server before it's synchronized with Catalyst Center, check this check box and then enter the following information: • The NTP server's key ID. Valid values range between 1 and 4294967295 (2^32-1). This value corresponds to the key ID that's defined in the NTP server's key file. • The SHA-1 key value associated with the NTP server's key ID. This 40-character hex string resides in the NTP server's key file. **Note** Ensure that you enter a key ID and key value for each NTP server that you configured in the previous field.

The wizard validates the information you have entered, confirms that the port is up, and notifies you of any settings that need to be changed before you can proceed with the wizard. If the settings you have entered are valid, the wizard's **Summary** screen opens.

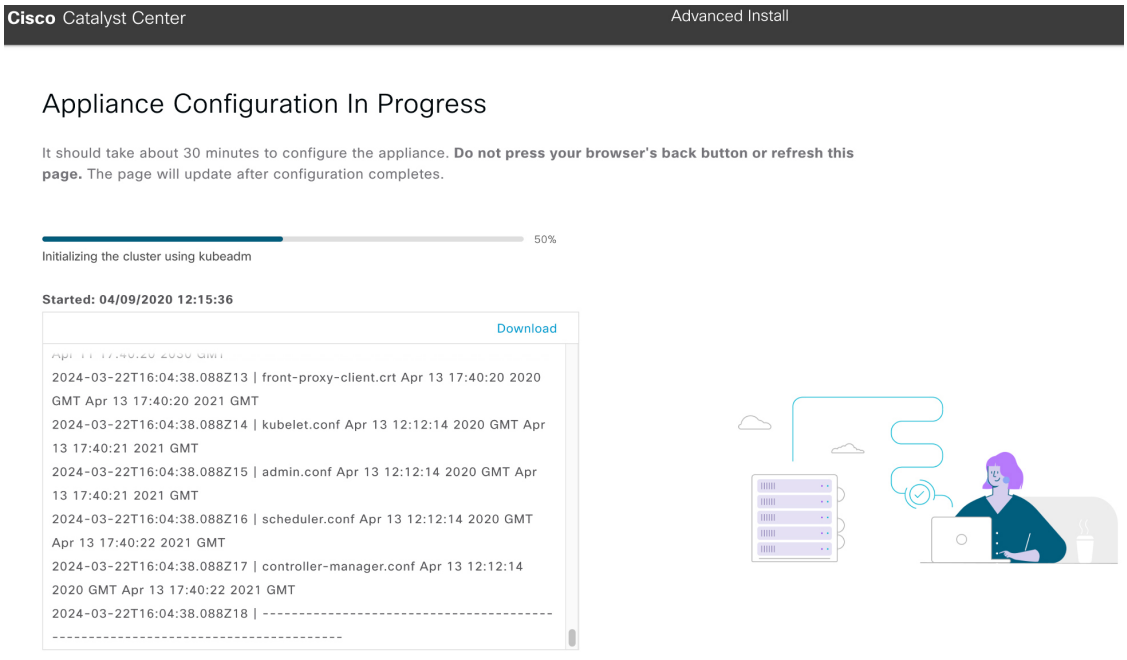


Note To download the appliance configuration as a JSON file, click the **here** link.

l) Review all of the settings that you have entered while completing the wizard. If necessary, click the appropriate **Edit** link to open the wizard screen in which you want to make updates.

m) To complete the configuration of your Catalyst Center appliance, click **Start Configuration**.

The wizard screen continuously updates during the process, indicating the tasks that are currently being completed and their progress, as well as any errors that have occurred. To save a local copy of this information as a text file, click the download icon.



What to do next

When this task is complete:

- If you have an additional appliance to deploy as the third and final node in the cluster, repeat this procedure.
- If you are finished adding nodes to the cluster, continue by performing first-time setup: First-Time Setup Workflow.

Upgrade to the Latest Catalyst Center Release

For information about upgrading your current release of Catalyst Center, see the *Cisco Catalyst Center Upgrade Guide*.