



Configure the 44/56-Core Appliance Using the Browser-Based Wizard

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Appliance Configuration Overview

You can deploy the 44 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 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 Cluster mode for your initial deployment, be sure to finish configuring the primary node before configuring the secondary nodes.

To proceed, complete the following tasks:

1. Configure the primary node in your cluster. See [Configure the Primary Node Using the Advanced Install Configuration Wizard, on page 2](#).
2. If you have installed three appliances and want to add the second and third nodes to your cluster, see [Configure a Secondary Node Using the Advanced Install Configuration Wizard, on page 19](#).

Browser-Based Wizard Prerequisites

To use the browser-based wizard and ensure that it configures your appliance properly, do the following:

- 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 Intracenter interfaces, verify that both interfaces are connected and in the **UP** state.

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 second generation Cisco DNA Center appliances support configuration using this wizard:

- 44-core appliance: Cisco part number DN2-HW-APL
- 44-core promotional appliance: Cisco part number DN2-HW-APL-U
- 56-core appliance: Cisco part number DN2-HW-APL-L
- 56-core promotional appliance: Cisco part number DN2-HW-APL-L-U

The first generation 44-core Cisco DNA Center appliance (Cisco part number DN1-HW-APL) *cannot* be configured using this wizard.

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 19](#) instead.



Important

You can only use this wizard to complete the initial configuration of a new Cisco DNA 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](#)).



Note

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.



Important 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 Cisco DNA Center for the first time.

Before you begin

Ensure that you:

- Installed the Cisco DNA Center software image onto your appliance, as described in [Reimage the Appliance](#).



Important This is only applicable if you are going to configure a promotional appliance, because the Cisco DNA Center software image is not preinstalled on the following appliances:

- 44-core promotional appliance (Cisco part number DN2-HW-APL-U)
 - 56-core promotional appliance: (Cisco part number DN2-HW-APL-L-U)
-
- 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 Cisco Integrated Management Controller](#).
 - Checked that the primary node's ports and the switches it uses are properly configured, as described in [Execute Preconfiguration Checks](#).
 - Are using a browser that is compatible with Cisco IMC and Cisco DNA Center. For a list of compatible browsers, see the [Release Notes](#) for the version of Cisco DNA Center you are installing.
 - Enabled ICMP on the firewall between Cisco DNA 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 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.



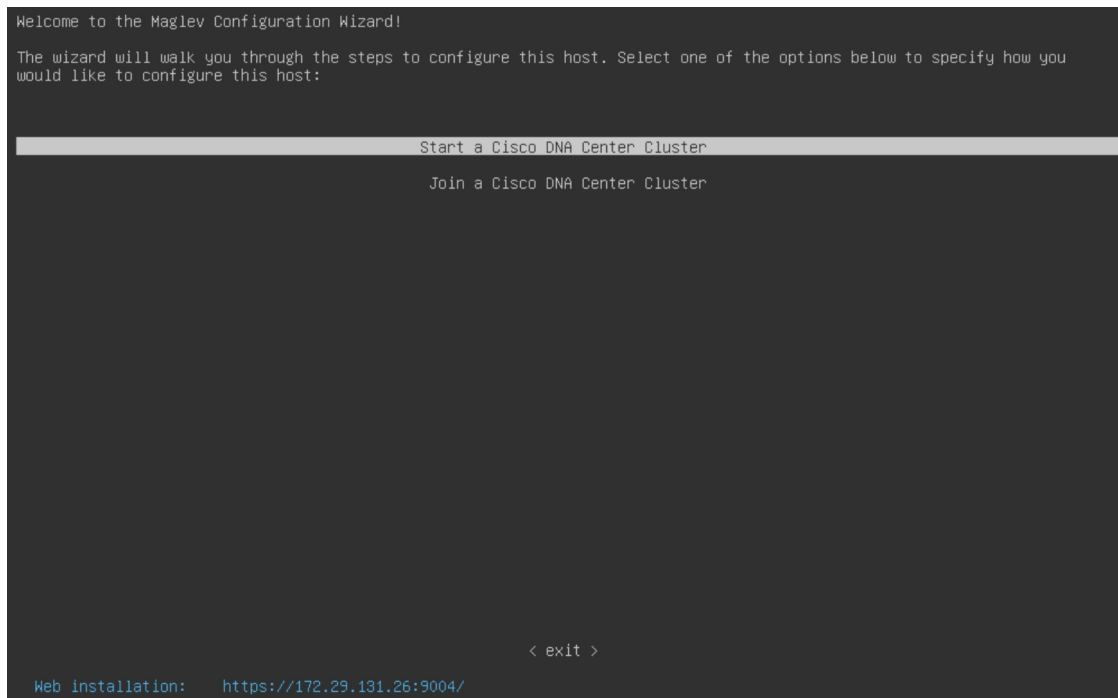
- b) From the blue link menu, choose **Launch KVM** and then select either **Java based KVM** or **HTML based KVM**. If you select the Java-based KVM, you will need to launch the Java startup file from your browser or file manager in order to view the KVM console in its own window. If you select the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

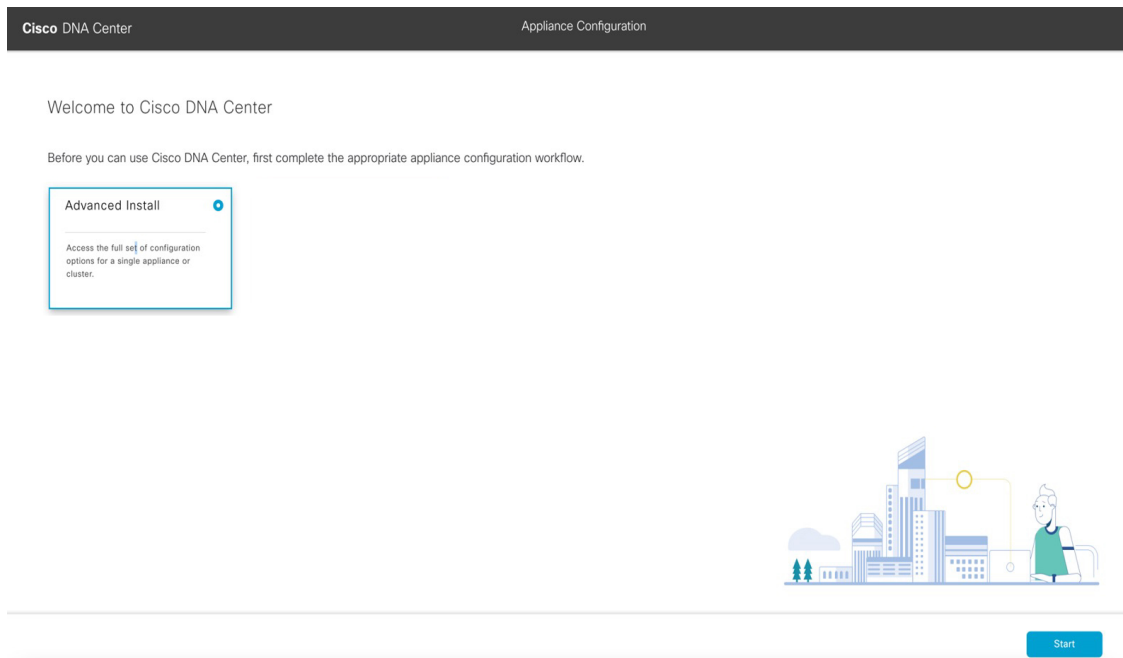
If asked to confirm your choice to reboot the appliance, click **OK**.

After displaying reboot messages, the KVM console displays the Maglev Configuration wizard welcome screen.



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

- d) Open this URL to bring up the **Appliance Configuration** screen.

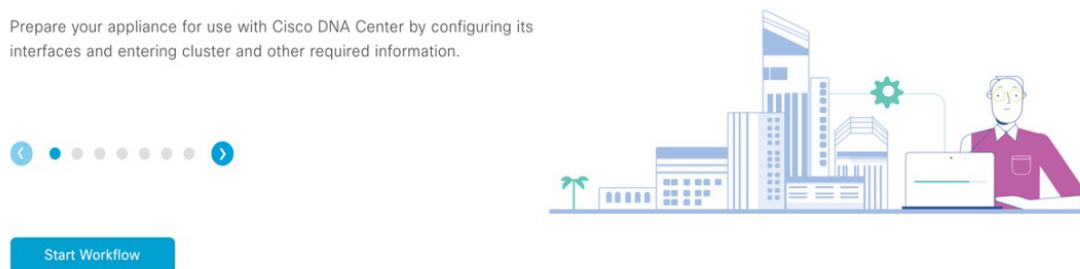


- e) With the **Advanced Install** radio button selected, click **Start**.

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

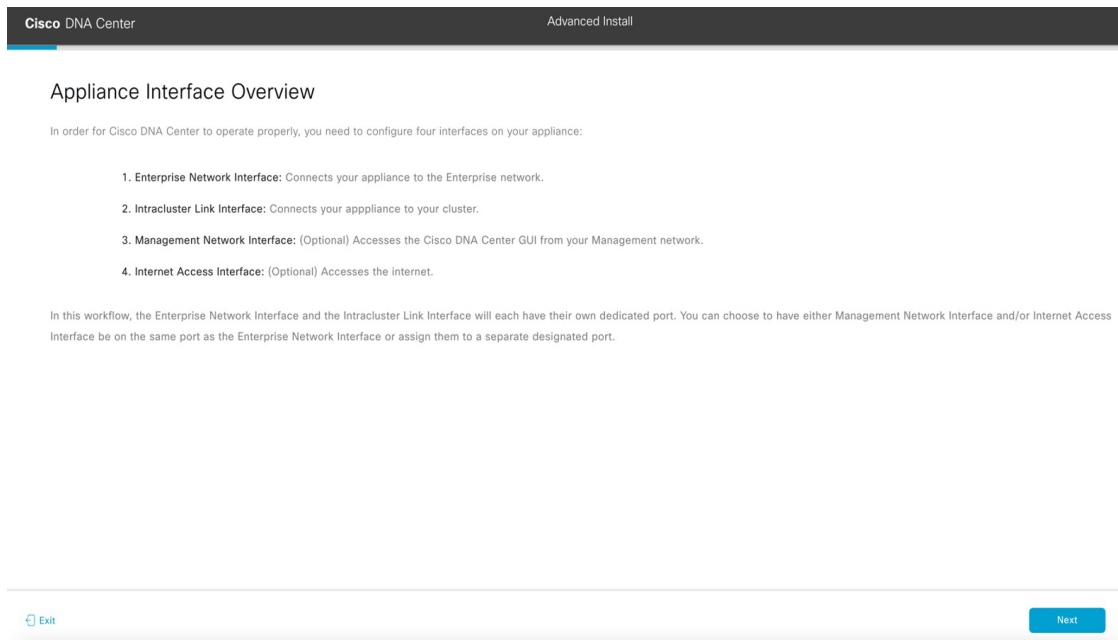
Advanced Install Overview

Prepare your appliance for use with Cisco DNA Center by configuring its interfaces and entering cluster and other required information.



- f) 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 Cisco DNA 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 Checks](#) before resuming configuration or contacting the Cisco Technical Assistance Center (TAC).

Step 2 Complete the Advanced Install configuration wizard:


a) Click **Next**.

The **Will this appliance join a cluster?** screen opens.

Cisco DNA Center Advanced Install

Will this appliance join a cluster?

This appliance is running on [software version] [N/A](#).



☐ Yes, This appliance will be added as a node to the primary node of a cluster.

☒ No, This appliance will be the primary node of a cluster.

[Exit](#) [Back](#) [Next](#)

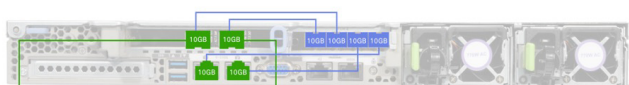
- b) Click the **No** radio button (as you are configuring your cluster's primary node), then click **Next**.



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

Cisco DNA Center Advanced Install

How would you like to set up your appliance interfaces?

Both Enterprise Network and Intracluster Link Interfaces have their own designated port. You can decide whether to have a separate dedicated port for either Management Network Interface and Internet Access Interface. Before you start, reserve the IP addresses necessary for configuration. If your network resides behind a firewall, be sure to [allow access to these URLs](#) and [open these ports](#).



Enterprise Network Interface  Intracluster Link Network 

The Enterprise Network Interface and Intracluster Link Interface will be configured using the two 10-Gbps ports as shown above.

Would you like to have a dedicated Management Network Interface?

☒ Yes ☐ No

Would you like to have a dedicated Internet Access Interface?

☒ Yes ☐ No

[Exit](#) [Back](#) [Next](#)

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

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

Configure the Primary Node Using the Advanced Install Configuration Wizard

- c) Indicate whether you want to configure dedicated Management and Internet Access interfaces, then click **Next**.
The **Configure Your Enterprise Network Interface** screen opens.

- d) Enter configuration values for the Enterprise interface.

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 1: Primary Node Entries for the Enterprise Interface

LACP Mode slider	<p>Choose one of the following network interface controller (NIC) bonding modes for the Enterprise interface:</p> <ul style="list-style-type: none"> • 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. <p>For more information about Cisco DNA Center's implementation of NIC bonding, see NIC Bonding Overview.</p>
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	<p>Enter a default gateway IP address to use for the port.</p> <p>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.</p> <p>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:</p> <ol style="list-style-type: none"> 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	<p>Enter the IP address of the preferred DNS server. To enter additional DNS servers, click the Add (+) icon.</p> <p>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.</p>
Add/Edit Static Route link	<p>To configure a static route, click this link and then do the following:</p> <ol style="list-style-type: none"> 1. Enter the route's network IP prefix, subnet mask, and nexthop IP address. To configure additional static routes, click +. 2. Click Add.

From here, do one of the following:

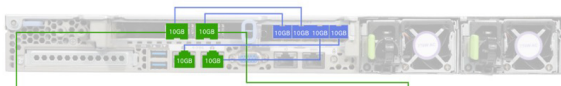
- To close the wizard, click **Exit**. A popup window appears, indicating that the settings you have entered up to this point will be saved. Click **Exit** again to confirm that you want to close the wizard. When you restart the wizard and return to this screen, the settings that you entered previously will already be populated.
- To return to the previous wizard screen, click **Back**.
- To proceed to the next wizard screen, click **Next**.

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.

Cisco DNA Center

Advanced Install

Configure Your Intracluster Interface



Enterprise Network Interface

Interface Nameenterprise
LACP ModeDisabled
IP Address10.106.172.47
Subnet Mask255.255.255.128
Default Gateway10.106.172.1
DNS Servers171.70.168.183
Static Routes2

Intracluster Link Network

☐ LACP Mode

Note: Make switch side changes accordingly

This mode provides fault tolerance features via active-backup policy.

Host IP Address*169.254.6.66

Subnet Mask*255.255.255.128

Exit

BackNext

e) Enter configuration values for your Intracluster interface.

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 2f (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 2g (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 2h.

Table 2: Primary Node Entries for the Intracluster Interface

LACP Mode slider	<div>Choose one of the following NIC bonding modes for the Intracluster interface:</div> <ul style="list-style-type: none">• 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. <div>For more information about Cisco DNA Center's implementation of NIC bonding, see NIC Bonding Overview.</div>
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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.

From here, do one of the following:

- To close the wizard, click **Exit**. A popup window appears, indicating that the settings you have entered up to this point will be saved. Click **Exit** again to confirm that you want to close the wizard. When you restart the wizard and return to this screen, the settings that you entered previously will already be populated.
- To return to the previous wizard screen, click **Back**.
- To proceed to the next wizard screen, click **Next**.

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.

- f) (Optional) Enter configuration values for the Management port.

As explained in [Interface Cable Connections](#), this port is used to access the Cisco DNA 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 2h.

Table 3: Primary Node Entries for the Management Port

Host IP Address field	Enter the IP address for the Management port. This is required.
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Subnet Mask field	Enter the netmask for the port's IP address. This is required.
Default Gateway IP Address field	<p>Enter a default gateway IP address to use for the port.</p> <p>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.</p>
DNS field	<p>Enter the IP address of the preferred DNS server. To enter additional DNS servers, click the Add (+) icon.</p> <p>Important</p> <ul style="list-style-type: none"> • For NTP, ensure port 123 (UDP) is open between Cisco DNA Center and your NTP server. • For each appliance in your cluster, configure a maximum of three DNS servers. Problems can occur if you configure more than three DNS servers for a node.
Add/Edit Static Route link	<p>To configure a static route, click this link and then do the following:</p> <ol style="list-style-type: none"> 1. Enter the route's network IP prefix, subnet mask, and nexthop IP address. To configure additional static routes, click +. 2. Click Add.

From here, do one of the following:

- To close the wizard, click **Exit**. A popup window appears, indicating that the settings you have entered up to this point will be saved. Click **Exit** again to confirm that you want to close the wizard. When you restart the wizard and return to this screen, the settings that you entered previously will already be populated.
- To return to the previous wizard screen, click **Back**.
- To proceed to the next wizard screen, click **Next**.

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.

Cisco DNA Center Advanced Install

Configure Your Internet Access Interface

Enterprise Network Interface

Interface Name: enterprise

LACP Mode: Disabled

IP Address: 10.106.172.47

Subnet Mask: 255.255.255.128

Default Gateway: 10.106.172.1

DNS Servers: 171.70.168.183

Static Routes: 2

Internet Network Interface

Host IP Address*: 11.21.31.41

Subnet Mask*: 255.255.255.0

Default Gateway IP Address: Default Gateway already configured in Enterprise Network

DNS:

Add/Edit Static Route (+)

Intracenter Link Network

Interface Name: cluster

LACP Mode: Disabled

IP Address: 169.254.6.66

Subnet Mask: 255.255.255.128

Static Routes: 2

Management Network Interface

Interface Name: management

IP Address: 10.20.30.40

Subnet Mask: 255.255.255.0

Exit Back Next

- g) (Optional) Enter configuration values for the Internet Access interface.

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 4: 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 enter an IP address.
Default Gateway IP Address field	<p>Enter a default gateway IP address to use for the port.</p> <p>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.</p>
DNS field	<p>Enter the IP address of the preferred DNS server. To enter additional DNS servers, click the Add (+) icon.</p> <p>Important For each appliance in your cluster, configure a maximum of three DNS servers. Problems can occur if you configure more than three DNS servers for a node.</p>

Add/Edit Static Route link	<p>To configure a static route, click this link and then do the following:</p> <ol style="list-style-type: none"> 1. Enter the route's network IP prefix, subnet mask, and nexthop IP address. To configure additional static routes, click +. 2. Click Add.
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From here, do one of the following:

- To close the wizard, click **Exit**. A popup window appears, indicating that the settings you have entered up to this point will be saved. Click **Exit** again to confirm that you want to close the wizard. When you restart the wizard and return to this screen, the settings that you entered previously will already be populated.
- To return to the previous wizard screen, click **Back**.
- To proceed to the next wizard screen, click **Next**.

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.

Cisco DNA Center Advanced Install

Interface to Port Configuration

We are going to configure the following interfaces. Click Configure and wait for configuration to be done before proceeding to the next step.

[Configure](#)

Enterprise Network Interface

Interface Name: enterprise

LACP Mode: Disabled

IP Address: 10.106.172.47

Subnet Mask: 255.255.255.128

Default Gateway: 10.106.172.1

DNS Servers: 171.70.168.183

Static Routes: 2

[Edit](#)

Internet Network Interface

Interface Name: internet

IP Address: 11.21.31.41

Subnet Mask: 255.255.255.0

[Edit](#)

Intracenter Link Network

Interface Name: cluster

LACP Mode: Disabled

IP Address: 169.254.6.66

Subnet Mask: 255.255.255.128

Static Routes: 2

[Edit](#)

Management Network Interface

Interface Name: management

IP Address: 10.20.30.40

Subnet Mask: 255.255.255.0

[Edit](#)

[Exit](#) [Back](#) [Next](#)

- 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.
- When you are happy with the interface settings, click **Configure**.
- After initial interface configuration has completed, click **Next**.

The wizard's **Configure Proxy Server Information** screen opens.

Cisco DNA Center Advanced Install

Configure Proxy Server Information

Does your network use a proxy server to access the internet?

☒ Yes ☐ No

Proxy Server*
<http://proxy.cisco.com>
E.g. http://example.com

Port*
 80
Enter port number between 0 to 65535.

Username

Password

[Exit](#) [Review](#) [Back](#) [Next](#)

k) Do one of the following:

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

Table 5: 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 Cisco DNA 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.

From here, do one of the following:

- To close the wizard, click **Exit**. A popup window appears, indicating that the settings you have entered up to this point will be saved. Click **Exit** again to confirm that you want to close the wizard. When you restart the wizard and return to this screen, the settings that you entered previously will already be populated.
- To return to the previous wizard screen, click **Back**.
- To proceed to the next wizard screen, click **Next**.

Configure the Primary Node Using the Advanced Install Configuration Wizard

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.

Cisco DNA Center

Advanced Install

Advanced Appliance Settings

CLUSTER VIRTUAL IP ADDRESSES

Virtual IP addresses are used for traffic between the cluster and your network. VIPs are required for three-node clusters and for single-node clusters that might be converted to three node later. If you're using a single-node cluster, you can skip the VIP addresses and hostname.

To access from Enterprise Network

To access from Management Network

IP should be within the range 10.106.172.47/26.

IP should be within the range 10.20.30.40/24.

For Internet Access

For Intracluster Access

IP should be within the range 11.21.31.41/24.

IP should be within the range 169.254.0.0/25.

Fully Qualified Domain Name (FQDN)

LINUX ADMIN CREDENTIALS

CISCO DNA CENTER ADMIN CREDENTIALS

Username*

Username*

maglev

admin

Password*

Password*

View Password Criteria

View Password Criteria

Confirm Password*

Confirm Password*

View Password Criteria

View Password Criteria

NTP SERVER SETTINGS

NTP Server*

ntp.esl.cisco.com

+

Enter IPv4

SUBNET SETTINGS

Cisco DNA Center requires a dedicated, nonrouted IP subnet to manage internal and cluster services. The following subnets are recommended, but if you choose a different subnet, make sure it doesn't conflict with or overlap any other subnet.

Container Subnet*

Cluster Subnet*

169.254.32.0/20

169.254.48.0/20

Minimum subnet size is 21 bits. Slash notation is allowed.

Minimum subnet size is 21 bits. Slash notation is allowed.

Exit

Review

Back

Next

1) Enter configuration values for your cluster.

Table 6: Primary Node Entries for Advanced Appliance Settings

Cluster Virtual IP Addresses	
<div>To access from Enterprise Network, To access from Management Network, For Internet Access, and For Intracluster Access fields</div> <div><div>Note</div><div>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.</div></div>	<div>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 plan to stick with it, you can leave the fields in this section blank.</div> <div><div>Important</div><div>You must enter one virtual IP address for each configured network interface. You will not be able to complete the wizard unless you do so. This address is tied to the cluster link's status, which must be in the UP state.</div></div>

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Fully Qualified Domain Name (FQDN) field	<p>Enter the fully qualified domain name (FQDN) for your cluster. Cisco DNA Center does the following with this hostname:</p> <ul style="list-style-type: none"> • 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 Cisco DNA Center manages. • In the Subject Alternative Name (SAN) field of Cisco DNA Center certificates, it uses the FQDN to define the Plug and Play server that should be used for device provisioning.
Linux Admin Credentials	
Password and Confirm Password fields	Enter and then confirm the password for the <code>maglev</code> user.
Cisco DNA Center Admin Credentials	
Password and Confirm Password fields	<p>Enter and then confirm the password for the default admin superuser, used to log in to Cisco DNA Center for the first time.</p> <p>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.</p>
NTP Server Settings	
NTP Server field	<p>Enter at least one NTP server address or hostname. To enter additional NTP server addresses or hostnames, click the Add (+) icon.</p> <p>For a production deployment, Cisco recommends that you configure a minimum of three NTP servers.</p>
Subnet Settings	
Container Subnet field	<p>A dedicated, non-routed IP subnet that Cisco DNA 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. If you choose to enter another subnet, ensure that it does not conflict with or overlap any other subnet used by the Cisco DNA Center internal network or an external network. For more information, see the Container Subnet description in Required IP Addresses and Subnets.</p>

Cluster Subnet field	A dedicated, non-routed IP subnet that Cisco DNA 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. If you choose to enter another subnet, ensure that it does not conflict with or overlap any other subnet used by the Cisco DNA Center internal network or an external network. For more information, see the Cluster Subnet description in Required IP Addresses and Subnets .
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From here, do one of the following:

- To close the wizard, click **Exit**. A popup window appears, indicating that the settings you have entered up to this point will be saved. Click **Exit** again to confirm that you want to close the wizard. When you restart the wizard and return to this screen, the settings that you entered previously will already be populated.
- To return to the previous wizard screen, click **Back**.
- To proceed to the next wizard screen, click **Next**.

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.

Cisco DNA Center
Advanced Install

Summary

Please review the settings that you have entered. If you need to make any changes, click the appropriate Edit link and make the necessary updates. You can download the generated configuration in JSON format from [here](#). When you are happy with your settings, click Start Configuration.

Ports Configuration Completed

Enterprise Network Interface

Interface Name: enterprise
LACP Mode: Disabled
IP Address: 10.106.172.47
Subnet Mask: 255.255.255.128
Default Gateway: 10.106.172.1
DNS Servers: 171.70.168.183
Static Routes: 2

Internet Network Interface

Interface Name: internet
IP Address: 11.21.31.41
Subnet Mask: 255.255.255.0

Intracluster Link Network

Interface Name: cluster
LACP Mode: Disabled
IP Address: 169.254.6.66
Subnet Mask: 255.255.255.128
Static Routes: 2

Management Network Interface

Interface Name: management
IP Address: 10.20.30.40
Subnet Mask: 255.255.255.0

Exit
Start Configuration

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

- 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.
- To complete the configuration of your Cisco DNA 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.

Cisco DNA Center Configuration

Application Configuration In Progress

It should take about 90 minutes to complete the configuration of your appliance. As you wait, you can view a video that explains the next steps in the Cisco DNA Center setup process.

Initializing the cluster using kubeadm 30%

ABOUT STARTING CISCO DNA CENTER

Started: 04/09/2020 12:15:36

```

2021-05-05T16:56:59.32524 | -----
2021-05-05T16:56:59.32525 | credentialmanager.pem Apr 13 16:49:52 2020 GMT Apr 13 16:49:52 2021 GMT
2021-05-05T16:56:59.32526 | kong.pem Apr 13 16:49:51 2020 GMT Apr 13 16:49:51 2021 GMT
2021-05-05T16:56:59.32527 | kube-admin.pem Apr 13 16:49:50 2020 GMT Apr 13 16:49:50 2021 GMT
2021-05-05T16:56:59.32528 | kube-worker-1.pem Apr 13 16:49:52 2020 GMT Apr 13 16:49:52 2021 GMT
2021-05-05T16:56:59.32529 | maglev-registry.pem Apr 13 16:49:52 2020 GMT Apr 13 16:49:52 2021 GMT
2021-05-05T16:56:59.325210 | apiserver.crt Apr 13 12:12:14 2020 GMT Apr 13 17:40:20 2021 GMT
2021-05-05T16:56:59.325211 | apiserver-kubelet-client.crt Apr 13 12:12:14 2020 GMT Apr 13 17:40:20 2021 GMT
2021-05-05T16:56:59.325212 | front-proxy-ca.crt Apr 13 17:40:20 2020 GMT Apr 13 17:40:20 2020 GMT
2021-05-05T16:56:59.325213 | front-proxy-client.crt Apr 13 17:40:20 2020 GMT Apr 13 17:40:20 2021 GMT
2021-05-05T16:56:59.325214 | kubelet.conf Apr 13 12:12:14 2020 GMT Apr 13 17:40:21 2021 GMT
2021-05-05T16:56:59.325215 | admin.conf Apr 13 12:12:14 2020 GMT Apr 13 17:40:21 2021 GMT
2021-05-05T16:56:59.325216 | scheduler.conf Apr 13 12:12:14 2020 GMT Apr 13 17:40:22 2021 GMT
2021-05-05T16:56:59.325217 | controller-manager.conf Apr 13 12:12:14 2020 GMT Apr 13 17:40:22 2021 GMT
2021-05-05T16:56:59.325218 | -----

```

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 19.

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 Cisco DNA Center appliances. Otherwise, unexpected behavior and possible downtime can occur.
- The following second generation Cisco DNA Center appliances support configuration using the Advanced Install configuration wizard:
 - 44-core appliance: Cisco part number DN2-HW-APL
 - 44-core promotional appliance: Cisco part number DN2-HW-APL-U
 - 56-core appliance: Cisco part number DN2-HW-APL-L
 - 56-core promotional appliance: Cisco part number DN2-HW-APL-L-U

The first generation 44-core Cisco DNA Center appliance (Cisco part number DN1-HW-APL) *cannot* be configured using this wizard.

**Important**

You can only use this wizard to complete the initial configuration of a new Cisco DNA 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](#)).

**Note**

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.

**Important**

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 Cisco DNA Center for the first time.

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 Cisco DNA 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`. In the following example, a few packages were not installed, such as the application-policy and sd-access packages. They are the only packages whose status is `NOT_DEPLOYED`. Your package status should look similar to this before configuring a secondary node.

```
[Thu Feb 04 17:07:37 UTC] maglev@192.192.192.224 (maglev-master-192.192.192.224) ~
$ maglev package status
[administration] password for 'admin':

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	-	2.1.310.61014	NOT_DEPLOYED	
application-policy	Application Policy	-	2.1.310.117202	NOT_DEPLOYED	
application-registry	Application Registry	-	2.1.310.117202	NOT_DEPLOYED	
assurance	Assurance - Base	2.2.1.243	-	DEPLOYED	
automation-core	NCP - Services	2.1.310.61014	-	DEPLOYED	
base-provision-core	Automation - Base	2.1.310.61014	-	DEPLOYED	
cloud-connectivity-data-hub	Cloud Connectivity - Data Hub	1.6.0.263	-	DEPLOYED	
cloud-connectivity-tethering	Cloud Connectivity - Tethering	2.1.1.37	-	DEPLOYED	
command-runner	Command Runner	2.1.310.61014	-	DEPLOYED	
device-onboarding	Device Onboarding	2.1.310.61014	-	DEPLOYED	
dna-core-apps	Network Experience Platform - Core	2.1.310.61014	-	DEPLOYED	
dnac-platform	Cisco DNA Center Platform	1.4.99.106	-	DEPLOYED	
dnac-search	Cisco DNA Center Global Search	1.4.0.11	-	DEPLOYED	
image-management	Image Management	2.1.310.61014	-	DEPLOYED	
machine-reasoning	Machine Reasoning	2.1.310.210298	-	DEPLOYED	
ncp-system	NCP - Base	2.1.310.61014	-	DEPLOYED	
ndp-base-analytics	Network Data Platform - Base Analytics	1.6.175	-	DEPLOYED	
ndp-platform	Network Data Platform - Core	1.6.259	-	DEPLOYED	
ndp-ui	Network Data Platform - Manager	1.6.129	-	DEPLOYED	
network-visibility	Network Controller Platform	2.1.310.61014	-	DEPLOYED	
path-trace	Path Trace	2.1.310.61014	-	DEPLOYED	
platform-ui	Cisco DNA Center UI	1.6.1.331	-	DEPLOYED	
rbac-extensions	RBAC Extensions	2.1.310.1900012	-	DEPLOYED	
sd-access	SD Access	-	2.1.310.61014	NOT_DEPLOYED	
sensor-automation	Automation - Sensor	-	2.1.310.61014	NOT_DEPLOYED	
ssa	Stealthwatch Security Analytics	2.1.310.1090254	-	DEPLOYED	
system	System	1.6.301	-	DEPLOYED	
system-commons	System Commons	2.1.310.61014	-	DEPLOYED	

- 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:

- Installed the Cisco DNA Center software image onto your appliance, as described in [Reimage the Appliance](#).



Important

This is only applicable if you are going to configure a promotional appliance, because the Cisco DNA Center software image is not preinstalled on the following appliances:

- 44-core promotional appliance (Cisco part number DN2-HW-APL-U)
- 56-core promotional appliance: (Cisco part number DN2-HW-APL-L-U)

- Configured the first appliance in the cluster, following the steps in [Configure the Primary Node Using the Advanced Install Configuration Wizard](#), on page 2.
- 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 Cisco DNA 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.

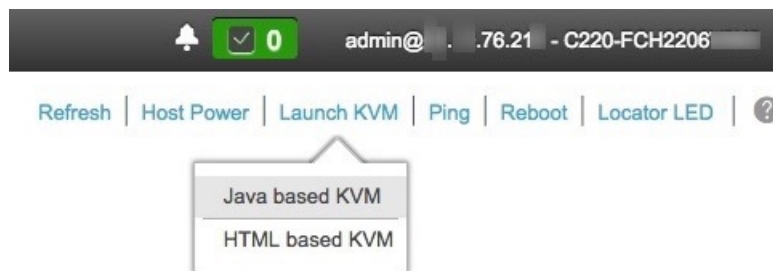
- Configured Cisco IMC browser access on both secondary nodes as described in [Enable Browser Access to Cisco IMC](#).
- Checked that both secondary nodes' ports and the switches they use are properly configured, as described in [Execute Preconfiguration Checks](#).
- Are using a compatible browser. For a list of compatible browsers, see the [Release Notes](#) for the version of Cisco DNA Center you are installing.
- Enabled ICMP on the firewall between Cisco DNA 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 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 select either **Java based KVM** or **HTML based KVM**. If you select 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 select 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 Maglev Configuration wizard welcome screen.

```
Welcome to the Maglev Configuration Wizard!

The wizard will walk you through the steps to configure this host. Select one of the options below to specify how you
would like to configure this host:

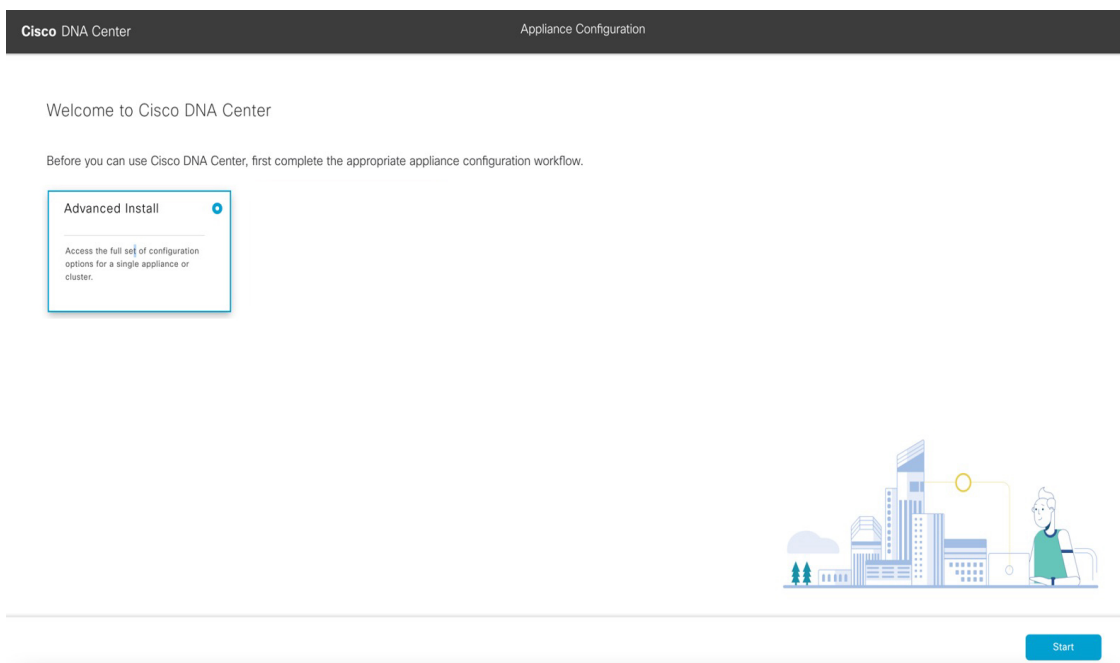
Start a Cisco DNA Center Cluster
Join a Cisco DNA Center Cluster

< exit >

Web installation: https://172.29.131.26:9004/
```

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

- d) Open this URL to bring up the **Appliance Configuration** screen.



- e) With the **Advanced Install** radio button selected, click **Start**.

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

Advanced Install Overview

Prepare your appliance for use with Cisco DNA Center by configuring its interfaces and entering cluster and other required information.



Start Workflow



- f) 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.

Cisco DNA Center
Advanced Install

Appliance Interface Overview

In order for Cisco DNA Center to operate properly, you need to configure four interfaces on your appliance:

1. **Enterprise Network Interface:** Connects your appliance to the Enterprise network.
2. **Intracenter Link Interface:** Connects your appliance to your cluster.
3. **Management Network Interface:** (Optional) Accesses the Cisco DNA Center GUI from your Management network.
4. **Internet Access Interface:** (Optional) Accesses the Internet.

In this workflow, the Enterprise Network Interface and the Intracenter Link Interface will each have their own dedicated port. You can choose to have either Management Network Interface and/or Internet Access Interface be on the same port as the Enterprise Network Interface or assign them to a separate designated port.

Exit
Next

Important At a minimum, you must configure the interfaces on your appliance's Enterprise and Cluster ports, as they are required for Cisco DNA 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 Checks](#) before resuming configuration or contacting the Cisco Technical Assistance Center (TAC).

Step 2 Complete the Advanced Install configuration wizard:


- a) Click **Next**.

The **Will this appliance join a cluster?** screen opens.

Cisco DNA Center
Advanced Install

Will this appliance join a cluster?

This appliance is running on [software version] [N/A](#).



☒ Yes, This appliance will be added as a node to the primary node of a cluster.
 ☐ No, This appliance will be the primary node of a cluster.

Exit
Back
Next


- b) Click the **Yes** radio button, then click **Next**.



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

Cisco DNA Center
Advanced Install

How would you like to set up your appliance interfaces?

Both Enterprise Network and Intracuster Link Interfaces have their own designated port. You can decide whether to have a separate dedicated port for either Management Network Interface and Internet Access Interface. Before you start, reserve the IP addresses necessary for configuration. If your network resides behind a firewall, be sure to [allow access to these URLs](#) and [open these ports](#).



Enterprise Network Interface  Intracuster Link Network 

The Enterprise Network Interface and Intracuster Link Interface will be configured using the two 10-Gbps ports as shown above.

Would you like to have a dedicated Management Network Interface?

☒ Yes
 ☐ No

Would you like to have a dedicated Internet Access Interface?

☒ Yes
 ☐ No

Exit
Back
Next

- c) Indicate whether you want to configure dedicated Management and Internet Access interfaces, then click **Next**. The **Configure Your Enterprise Network Interface** screen opens.

d) Enter configuration values for the Enterprise interface.

Table 7: Secondary Node Entries for the Enterprise Interface

26

Default Gateway IP Address field	<p>Enter a default gateway IP address to use for the port.</p> <p>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.</p> <p>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:</p> <ol style="list-style-type: none"> 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	<p>Enter the IP address of the preferred DNS server. To enter additional DNS servers, click the Add (+) icon.</p> <p>Important For each appliance in your cluster, configure a maximum of three DNS servers. Problems can occur if you configure more than three DNS servers for a node.</p>
Add/Edit Static Route link	<p>To configure a static route, click this link and then do the following:</p> <ol style="list-style-type: none"> 1. Enter the route's network IP prefix, subnet mask, and nexthop IP address. To configure additional static routes, click +. 2. Click Add.

From here, do one of the following:

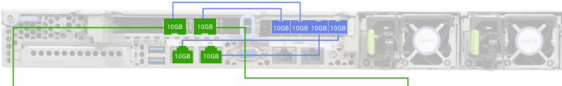
- To close the wizard, click **Exit**. A popup window appears, indicating that the settings you have entered up to this point will be saved. Click **Exit** again to confirm that you want to close the wizard. When you restart the wizard and return to this screen, the settings that you entered previously will already be populated.
- To return to the previous wizard screen, click **Back**.
- To proceed to the next wizard screen, click **Next**.

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.

Configure a Secondary Node Using the Advanced Install Configuration Wizard

Cisco DNA Center Advanced Install

Configure Your Intracluster Interface



Enterprise Network Interface

Interface Name	enterprise
LACP Mode	Disabled
IP Address	10.106.172.27
Subnet Mask	255.255.255.128
Default Gateway	10.106.172.1
DNS Servers	171.70.168.183
Static Routes	2

Intracluster Link Network

☒ LACP Mode

This mode provides fault tolerance features via active-backup policy.

Host IP Address*
169.254.6.64

Subnet Mask*
255.255.255.128

Exit Back Next

e) Enter configuration values for your Intracluster interface.

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 2f (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 2g (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 2h.

Table 8: Secondary Node Entries for the Intracluster Interface

LACP Mode slider	<p>Choose one of the following NIC bonding modes for the Intracluster interface:</p> <ul style="list-style-type: none"> • 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. <p>For more information about Cisco DNA Center's implementation of NIC bonding, see NIC Bonding Overview.</p>
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.

From here, do one of the following:

- To close the wizard, click **Exit**. A popup window appears, indicating that the settings you have entered up to this point will be saved. Click **Exit** again to confirm that you want to close the wizard. When you restart the wizard and return to this screen, the settings that you entered previously will already be populated.
- To return to the previous wizard screen, click **Back**.
- To proceed to the next wizard screen, click **Next**.

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.

Configure a Secondary Node Using the Advanced Install Configuration Wizard

f) (Optional) Enter configuration values for the Management port.

As explained in [Interface Cable Connections](#), this port is used to access the Cisco DNA 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 2h.

Table 9: 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	<p>Enter a default gateway IP address to use for the port.</p> <p>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.</p>

DNS field	<p>Enter the IP address of the preferred DNS server. To enter additional DNS servers, click the Add (+) icon.</p> <p>Important</p> <ul style="list-style-type: none"> • For NTP, ensure port 123 (UDP) is open between Cisco DNA Center and your NTP server. • For each appliance in your cluster, configure a maximum of three DNS servers. Problems can occur if you configure more than three DNS servers for a node.
Add/Edit Static Route link	<p>To configure a static route, click this link and then do the following:</p> <ol style="list-style-type: none"> 1. Enter the route's network IP prefix, subnet mask, and nexthop IP address. To configure additional static routes, click +. 2. Click Add.

From here, do one of the following:

- To close the wizard, click **Exit**. A popup window appears, indicating that the settings you have entered up to this point will be saved. Click **Exit** again to confirm that you want to close the wizard. When you restart the wizard and return to this screen, the settings that you entered previously will already be populated.
- To return to the previous wizard screen, click **Back**.
- To proceed to the next wizard screen, click **Next**.

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.

Configure a Secondary Node Using the Advanced Install Configuration Wizard

The screenshot shows the 'Configure Your Internet Access Interface' step in the Cisco DNA Center Advanced Install wizard. At the top, there's a network diagram showing a cluster of four nodes with various interfaces labeled. Below the diagram are three configuration panels:

- Enterprise Network Interface:** Interface Name: enterprise, LACP Mode: Disabled, IP Address: 10.106.172.27, Subnet Mask: 255.255.255.128, Default Gateway: 10.106.172.1, DNS Servers: 171.70.168.183, Static Routes: 2.
- Internet Network Interface:** Host IP Address*: 10.20.30.40, Subnet Mask*: 255.255.255.0, Default Gateway IP Address: (field with a note 'Default Gateway already configured in Enterprise Network'), DNS: (field with a '+' icon), and a link 'Add/Edit Static Route (0)'.
- Intracuster Link Network:** Interface Name: cluster, LACP Mode: Disabled, IP Address: 169.254.6.64, Subnet Mask: 255.255.255.128, Static Routes: 2.
- Management Network Interface:** Interface Name: management, IP Address: 11.22.33.44, Subnet Mask: 255.255.255.0.

At the bottom right, there are 'Back' and 'Next' buttons.

g) (Optional) Enter configuration values for the Internet Access interface.

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 10: 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 appliance in your cluster, configure a maximum of three DNS servers. Problems can occur if you configure more than three DNS servers for a node.

Add/Edit Static Route link	<p>To configure a static route, click this link and then do the following:</p> <ol style="list-style-type: none"> 1. Enter the route's network IP prefix, subnet mask, and nexthop IP address. To configure additional static routes, click +. 2. Click Add.
----------------------------	---

From here, do one of the following:

- To close the wizard, click **Exit**. A popup window appears, indicating that the settings you have entered up to this point will be saved. Click **Exit** again to confirm that you want to close the wizard. When you restart the wizard and return to this screen, the settings that you entered previously will already be populated.
- To return to the previous wizard screen, click **Back**.
- To proceed to the next wizard screen, click **Next**.


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.

Cisco DNA Center Advanced Install

Interface to Port Configuration

We are going to configure the following interfaces. Click Configure and wait for configuration to be done before proceeding to the next step.

[Configure](#)



Enterprise Network Interface

Interface Name: enterprise

LACP Mode: Disabled

IP Address: 10.106.172.27

Subnet Mask: 255.255.255.128

Default Gateway: 10.106.172.1

DNS Servers: 171.70.168.183

Static Routes: 2

[Edit](#)

Internet Network Interface

Interface Name: internet

IP Address: 10.20.30.40

Subnet Mask: 255.255.255.0

[Edit](#)

Intracluster Link Network

Interface Name: cluster

LACP Mode: Disabled

IP Address: 169.254.6.64

Subnet Mask: 255.255.255.128

Static Routes: 2

[Edit](#)

Management Network Interface

Interface Name: management

IP Address: 11.22.33.44

Subnet Mask: 255.255.255.0

[Edit](#)

[Exit](#) [Back](#) [Next](#)

- h) 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 to return to its wizard screen.

- i) When you are happy with the interface settings, click **Configure**.
- j) After initial interface configuration has completed, click **Next**.

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

The screenshot shows the 'Configure Proxy Server Information' screen in the Cisco DNA Center Advanced Install wizard. At the top, there's a header with 'Cisco DNA Center' and 'Advanced Install'. The main heading is 'Configure Proxy Server Information'. Below it, a question asks 'Does your network use a proxy server to access the internet?'. There are two radio buttons: 'Yes' (selected) and 'No'. Below the radio buttons, there's a 'Proxy Server*' field with a text input containing 'http://proxy.cisco.com' and a small example text 'E.g. http://example.com'. Below that is a 'Port*' field with a text input containing '80' and a small instruction 'Enter port number between 0 to 65535'. Below the port field are 'Username' and 'Password' fields, both with text inputs. At the bottom of the form, there are three buttons: 'Exit' (with a close icon), 'Review', and 'Next'.

k) Do one of the following:

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

Table 11: 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 Cisco DNA 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.

From here, do one of the following:

- To close the wizard, click **Exit**. A popup window appears, indicating that the settings you have entered up to this point will be saved. Click **Exit** again to confirm that you want to close the wizard. When you restart the wizard and return to this screen, the settings that you entered previously will already be populated.
- To return to the previous wizard screen, click **Back**.
- To proceed to the next wizard screen, click **Next**.

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 Cluster Details** screen opens.

The screenshot shows the 'Primary Cluster Details' screen in the Cisco DNA Center Advanced Install wizard. The header bar includes 'Cisco DNA Center' and 'Advanced Install'. The main title is 'Primary Cluster Details'. Below the title, a message states: 'This appliance is getting added as a node for the Multi Cluster Setup with software version N/A.' The form contains the following fields: 'Primary IP' with the value '169.254.6.67', a note 'IP should be within Intra-Cluster's 169.254.6.64/25', 'Username*' with the value 'admin', and 'Password*' with masked characters. There are 'SHOW' links for both the password and the username field. At the bottom, there are 'Exit', 'Review', 'Back', and 'Next' buttons.

- l) 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.

The screenshot shows the 'Advanced Appliance Settings' screen in the Cisco DNA Center Advanced Install wizard. The header bar includes 'Cisco DNA Center' and 'Advanced Install'. The main title is 'Advanced Appliance Settings'. Below the title, there are two sections: 'LINUX ADMIN CREDENTIALS' and 'NTP SERVER SETTINGS'. The 'LINUX ADMIN CREDENTIALS' section includes 'Username*' with the value 'maglev', 'Password*' with masked characters, a 'SHOW' link, a 'View Password Criteria' link, and 'Confirm Password*' with masked characters and a 'SHOW' link. The 'NTP SERVER SETTINGS' section includes 'NTP Server*' with the value 'ntp.esl.cisco.com' and a '+' icon. At the bottom, there are 'Exit', 'Review', 'Back', and 'Next' buttons.

- m) Enter configuration values for your cluster.

Table 12: Secondary Node Entries for Advanced Appliance Settings

Linux Admin Credentials	
Password and Confirm Password fields	Enter and then confirm the password for the <code>maglev</code> user.
NTP Server Settings	
NTP Server field	<p>Enter at least one NTP server address or hostname. To enter additional NTP server addresses or hostnames, click the Add (+) icon.</p> <p>For a production deployment, Cisco recommends that you configure a minimum of three NTP servers.</p>

From here, do one of the following:

- To close the wizard, click **Exit**. A popup window appears, indicating that the settings you have entered up to this point will be saved. Click **Exit** again to confirm that you want to close the wizard. When you restart the wizard and return to this screen, the settings that you entered previously will already be populated.
- To return to the previous wizard screen, click **Back**.
- To proceed to the next wizard screen, click **Next**.

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.

Cisco DNA Center
Advanced Install

Summary

Please review the settings that you have entered. If you need to make any changes, click the appropriate Edit link and make the necessary updates. You can download the generated configuration in JSON format from [here](#). When you are happy with your settings, click Start Configuration.

Ports Configuration Completed

Enterprise Network Interface
Interface Name: enterprise
LACP Mode: Disabled
IP Address: 10.106.172.27
Subnet Mask: 255.255.255.128
Default Gateway: 10.106.172.1
DNS Servers: 171.70.168.183
Static Routes: 2

Internet Network Interface
Interface Name: internet
IP Address: 10.20.30.40
Subnet Mask: 255.255.255.0

Intracuster Link Network
Interface Name: cluster
LACP Mode: Disabled
IP Address: 169.254.6.64
Subnet Mask: 255.255.255.128
Static Routes: 2

Management Network Interface
Interface Name: management
IP Address: 11.22.33.44
Subnet Mask: 255.255.255.0

Exit
Start Configuration

Note To download the appliance configuration as a JSON file, click the [here](#) link.

- n) 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.

- o) To complete the configuration of your Cisco DNA 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.

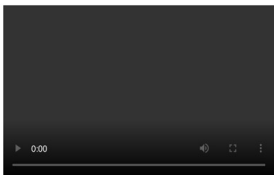
Cisco DNA Center
Configuration

Application Configuration In Progress

It should take about 90 minutes to complete the configuration of your appliance. As you wait, you can view a video that explains the next steps in the Cisco DNA Center setup process.

Initializing the cluster using kubeadm 30%

ABOUT STARTING CISCO DNA CENTER



Started: 04/09/2020 12:15:36

```

2021-05-05T17:10:27.76720 | kubernetesmanager.pem Apr 13 16:49:52 2020 GMT Apr 13 16:49:52 2021 GMT
2021-05-05T17:10:27.76726 | kong.pem Apr 13 16:49:51 2020 GMT Apr 13 16:49:51 2021 GMT
2021-05-05T17:10:27.76727 | kube-admin.pem Apr 13 16:49:50 2020 GMT Apr 13 16:49:50 2021 GMT
2021-05-05T17:10:27.76728 | kube-worker-1.pem Apr 13 16:49:52 2020 GMT Apr 13 16:49:52 2021 GMT
2021-05-05T17:10:27.76729 | maglev-registry.pem Apr 13 16:49:52 2020 GMT Apr 13 16:49:52 2021 GMT
2021-05-05T17:10:27.767210 | apiserver.crt Apr 13 12:12:14 2020 GMT Apr 13 17:40:20 2021 GMT
2021-05-05T17:10:27.767211 | apiserver-kubelet-client.crt Apr 13 12:12:14 2020 GMT Apr 13 17:40:20 2021 GMT
2021-05-05T17:10:27.767212 | front-proxy-ca.crt Apr 13 17:40:20 2020 GMT Apr 11 17:40:20 2030 GMT
2021-05-05T17:10:27.767213 | front-proxy-client.crt Apr 13 17:40:20 2020 GMT Apr 13 17:40:20 2021 GMT
2021-05-05T17:10:27.767214 | kubelet.conf Apr 13 12:12:14 2020 GMT Apr 13 17:40:21 2021 GMT
2021-05-05T17:10:27.767215 | admin.conf Apr 13 12:12:14 2020 GMT Apr 13 17:40:21 2021 GMT
2021-05-05T17:10:27.767216 | scheduler.conf Apr 13 12:12:14 2020 GMT Apr 13 17:40:22 2021 GMT
2021-05-05T17:10:27.767217 | controller-manager.conf Apr 13 12:12:14 2020 GMT Apr 13 17:40:22 2021 GMT
2021-05-05T17:10:27.767218 | -----
--

```

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 Cisco DNA Center Release

For information about upgrading your current release of Cisco DNA Center, see the [Cisco DNA Center Upgrade Guide](#).

