



# **Install and setup**

## **ONTAP Systems**

NetApp  
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# Install and setup

## Start here: Choose your installation and setup experience

You can choose from different content formats to guide you through installing and setting up your new storage system.

- [Quick steps](#)

A printable PDF of step-by-step instructions with live links to additional content.

- [Video steps](#)

Video step-by-step instructions.

- [Detailed steps](#)

Online step-by-step instructions with live links to additional content.

## Quick guide - AFF C190

This guide gives graphic instructions for a typical installation of your system from racking and cabling, through initial system bring-up. Use this guide if you are familiar with installing NetApp systems.

Access the *Installation and Setup Instructions* PDF poster:

[AFF C190 Systems Installation and Setup Instructions](#)

## Videos - AFF C190

There are two videos; one showing how to rack and cable your system and one showing an example of using the System Manager Guided Setup to perform initial system configuration.

### Video one of two: Hardware installation and cabling

The following video shows how to install and cable your new system.

[Installation and Setup of an AFF C190](#)

### Video two of two: Performing end-to-end software configuration

The following video shows end-to-end software configuration for systems running ONTAP 9.2 and later.

[NetApp video: Software configuration for vSphere NAS datastores for FAS/AFF systems running ONTAP 9.2](#)

# Detailed guide - AFF C190

This guide gives detailed step-by-step instructions for installing a AFF C190 system.

## Step 1: Prepare for installation

To install your AFF C190 system, you need to create an account and register the system. You also need to inventory the appropriate number and type of cables for your system and collect specific network information.

You need to have access to the Hardware Universe for information about site requirements as well as additional information on your configured system. You might also want to have access to the Release Notes for your version of ONTAP for more information about this system.

[NetApp Hardware Universe](#)

[Find the Release Notes for your version of ONTAP 9](#)

You need to provide the following at your site:

- Rack space for the storage system
- Phillips #2 screwdriver
- Additional networking cables to connect your system to your network switch and laptop or console with a Web browser
- A laptop or console with an RJ-45 connection and access to a Web browser

### Steps

1. Unpack the contents of all boxes.
2. Record the system serial number from the controllers.



3. Set up your account:
  - a. Log in to your existing account or create an account.

[NetApp Support Registration](#)

- b. Register your system.

[NetApp Product Registration](#)


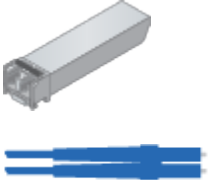



4. Download and install Config Advisor on your laptop.

[NetApp Downloads: Config Advisor](#)

5. Inventory and make a note of the number and types of cables you received.

The following table identifies the types of cables you might receive. If you receive a cable not listed in the table, see the Hardware Universe to locate the cable and identify its use.

[NetApp Hardware Universe](#)

Type of cable...	Part number and length	Connector type	For...
10 GbE cable (order dependent)	X6566B-05-R6 (112-00297), 0.5m		Cluster interconnect network
	X6566B-2-R6 (112-00299), 2m		
	X6566B-2-R6 (112-00299), 2m		Data
	X6566B-3-R6 (112-00300), 3m		
	X6566B-5-R6 (112-00301), 5m		
Optical network cables (order dependent)	X6553-R6 (112-00188), 2m		SFP + FC host network
	X6536-R6 (112-00090), 5m		
	X6554-R6(112-00189), 15m		
Cat 6, RJ-45 (order dependent)	X6585-R6 (112-00291), 3m		Ethernet host and management network
	X6562-R6 (112-00196), 5m		
Micro-USB console cable	Not applicable		Console connection during software setup on non-Windows or Mac laptop/console
Power cables	Not applicable		Powering up the system

6. Download and complete the *Cluster configuration worksheet*.

[Cluster Configuration Worksheet](#)

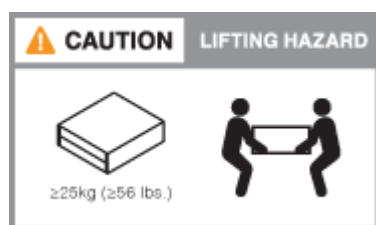
## Step 2: Install the hardware

You need to install your system in a 4-post rack or NetApp system cabinet, as applicable.

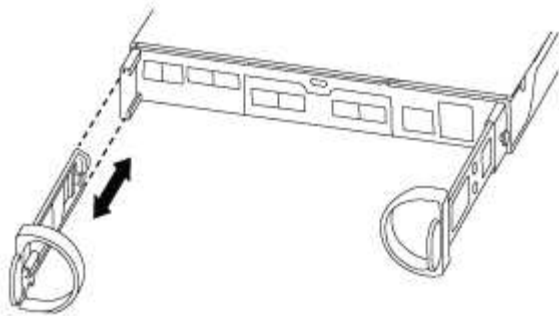
1. Install the rail kits, as needed.
2. Install and secure your system using the instructions included with the rail kit.



You need to be aware of the safety concerns associated with the weight of the system.



3. Attach cable management devices (as shown).



4. Place the bezel on the front of the system.

### Step 3: Cable controllers to your network

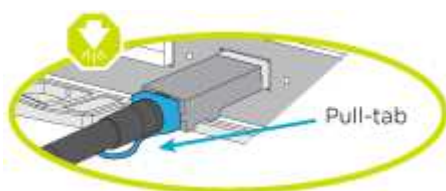
You can cable the controllers to your network by using the two-node switchless cluster method or by using the cluster interconnect network.

#### Option 1: Cable a two node switchless cluster, unified configuration

UTA2 ports and management ports on the controller modules are connected to switches. The cluster interconnect ports are cabled on both controller modules.

Contact your network administrator for information about connecting the system to the switches.

Be sure to check the illustration arrow for the proper cable connector pull-tab orientation.

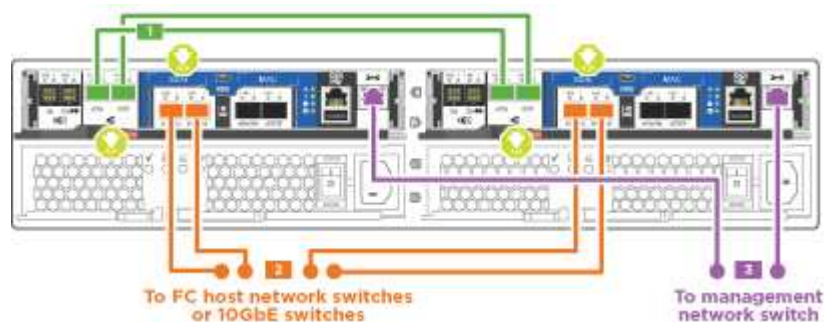


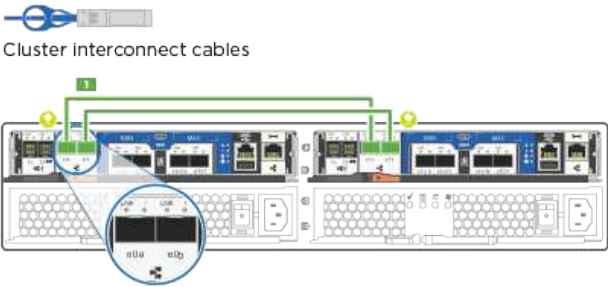

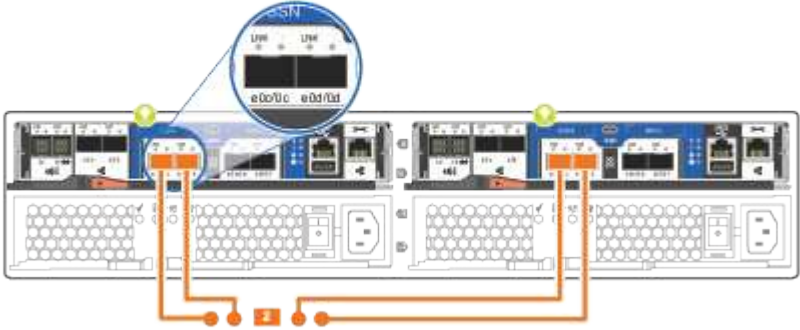
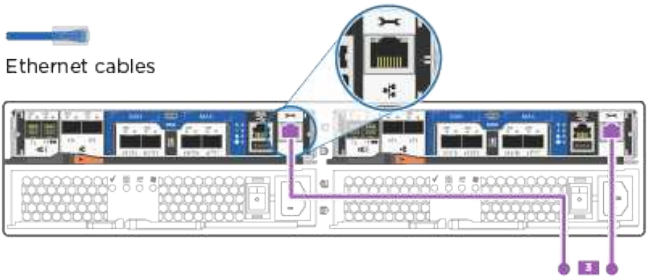
As you insert the connector, you should feel it click into place; if you do not feel it click, remove it, turn it around and try again.




If connecting to an optical switch, insert the SFP into the controller port before cabling to the port.

1. Use the animation or the step-by step instructions to complete the cabling between the controllers and to the switches:



Step	Perform on each controller
<div data-bbox="181 151 246 197" data-label="Text">1</div>	<p data-bbox="620 155 1425 222">Cable the cluster interconnect ports to each other with the cluster interconnect cable:</p> <ul data-bbox="646 256 802 340" style="list-style-type: none"> <li>• e0a to e0a</li> <li>• e0b to e0b</li> </ul> <div data-bbox="776 361 1380 646">  <p data-bbox="776 394 1026 420">Cluster interconnect cables</p> <p>The diagram shows two server racks. On each rack, two green cables are connected to the e0a and e0b ports. A circular inset provides a close-up view of the e0a and e0b ports on the front panel of the server.</p> </div>
<div data-bbox="181 718 246 764" data-label="Text">2</div>	<p data-bbox="620 718 1458 785">Use one of the following cable types to cable the e0c/0c and e0d/0d or e0e/0e and e0f/0f data ports to your host network:</p> <div data-bbox="626 844 1425 953">  <div data-bbox="626 894 821 949">Optical network cables</div> <div data-bbox="889 894 1166 949">SFP for optical cables</div> <div data-bbox="1224 894 1425 949">10GbE network cables</div> </div> <div data-bbox="630 991 1425 1318">  <p>The diagram shows two server racks. Orange lines represent connections from the e0c/0c, e0d/0d, e0e/0e, and e0f/0f ports on the front panel to a host network. A circular inset shows a close-up of the e0c/0c and e0d/0d ports.</p> </div>
<div data-bbox="181 1390 246 1436" data-label="Text">3</div>	<p data-bbox="620 1390 1445 1457">Cable the e0M ports to the management network switches with the RJ45 cables:</p> <div data-bbox="734 1528 1377 1801">  <p data-bbox="734 1579 889 1604">Ethernet cables</p> <p>The diagram shows two server racks. Purple lines represent connections from the e0M ports on the front panel to management network switches. A circular inset shows a close-up of the e0M port on the front panel.</p> </div>

Step	Perform on each controller
	DO NOT plug in the power cords at this point.

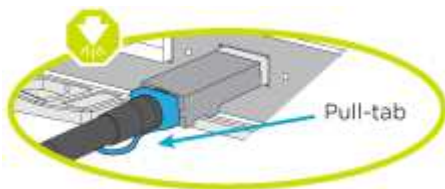
- To complete setting up your system, see [Step4: Completing system setup and configuration](#).

## Option 2: Cable switched cluster, unified configuration

UTA2 ports and management ports on the controller modules are connected to switches. The cluster interconnect ports are cabled to the cluster interconnect switches.

Contact your network administrator for information about connecting the system to the switches.

Be sure to check the illustration arrow for the proper cable connector pull-tab orientation.

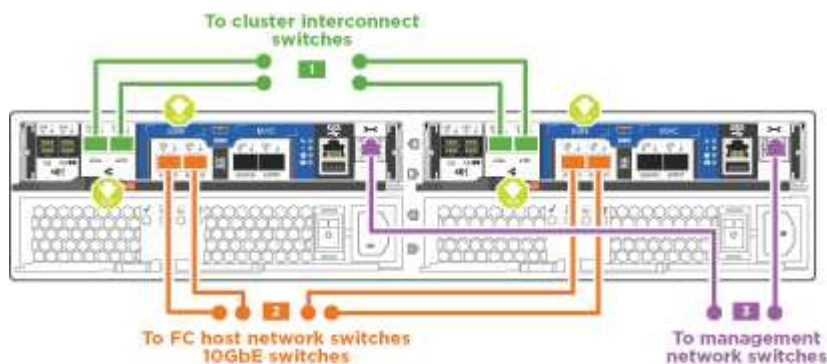


As you insert the connector, you should feel it click into place; if you do not feel it click, remove it, turn it around and try again.



If connecting to an optical switch, insert the SFP into the controller port before cabling to the port.

- Use the animation or the step-by step instructions to complete the cabling between the controllers and the switches:





Step	Perform on each controller module
<div data-bbox="183 153 245 195" data-label="Text">1</div>	<p data-bbox="621 159 1404 222">Cable e0a and e0b to the cluster interconnect switches with the cluster interconnect cable:</p> <div data-bbox="732 289 1373 579" data-label="Image"> <p>The diagram shows two controller modules. A callout box labeled 'Cluster interconnect cables' points to the e0a and e0b ports on the left module. Green lines indicate the connection of these ports to the cluster interconnect switches.</p> </div>
<div data-bbox="183 651 245 693" data-label="Text">2</div>	<p data-bbox="621 657 1458 720">Use one of the following cable types to cable the e0c/0c and e0d/0d or e0e/0e and e0f/0f data ports to your host network:</p> <div data-bbox="626 783 1425 1255" data-label="Image"> <p>The diagram shows two controller modules. A callout box labeled 'e0c/0c e0d/0d' points to the data ports on the left module. Orange lines indicate the connection of these ports to the host network. Above the diagram, three cable types are shown: 'Optical network cables', 'SFP for optical cables', and '10GbE network cables'.</p> </div>
<div data-bbox="183 1323 245 1365" data-label="Text">3</div>	<p data-bbox="621 1329 1446 1392">Cable the e0M ports to the management network switches with the RJ45 cables:</p> <div data-bbox="732 1465 1373 1743" data-label="Image"> <p>The diagram shows two controller modules. A callout box labeled 'Ethernet cables' points to the e0M ports on the left module. Purple lines indicate the connection of these ports to the management network switches.</p> </div>
<div data-bbox="183 1827 245 1900" data-label="Image"> </div>	<p data-bbox="621 1827 1182 1858">DO NOT plug in the power cords at this point.</p>

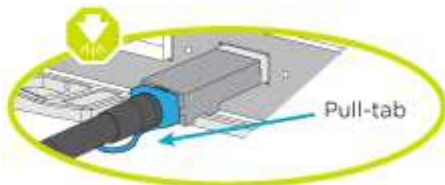
2. To complete setting up your system, see [Step4: Completing system setup and configuration](#).

### Option 3: Cable a two node switchless cluster, Ethernet configuration

RJ45 ports and management ports on the controller modules are connected to switches. The cluster interconnect ports are cabled on both controller modules.

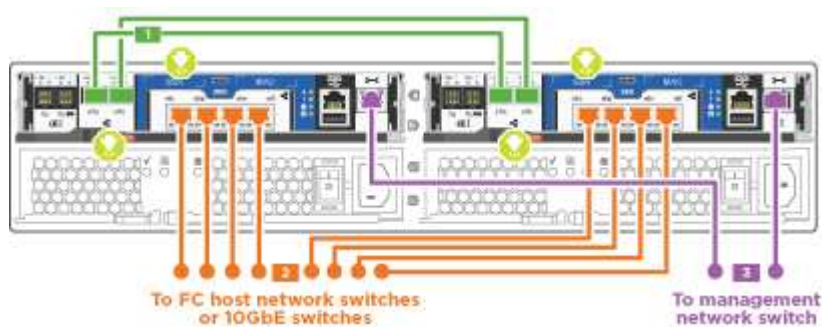
Contact your network administrator for information about connecting the system to the switches.




Be sure to check the illustration arrow for the proper cable connector pull-tab orientation.




As you insert the connector, you should feel it click into place; if you do not feel it click, remove it, turn it around and try again.

1. Use the animation or the step-by step instructions to complete the cabling between the controllers and to the switches:



Step	Perform on each controller
1	<p>Cable the cluster interconnect ports to each other with the cluster interconnect cable  :</p> <ul style="list-style-type: none"><li>• e0a to e0a</li><li>• e0b to e0b</li></ul> <p> Cluster interconnect cables</p> 

Step	Perform on each controller
<div data-bbox="183 153 245 195" data-label="Text">2</div>	<p data-bbox="621 159 1458 222">Use the Cat 6 RJ45 cable to cable the e0c through e0f ports to your host network:</p> <div data-bbox="732 289 1373 548" data-label="Image"> <p>The diagram shows two network controllers side-by-side. Orange lines representing CAT6 RJ-45 cables connect the e0c, e0d, e0e, and e0f ports on each controller to a common host network bus at the bottom. A callout provides a close-up of the RJ45 ports on the controller faceplate.</p> </div>
<div data-bbox="183 621 245 663" data-label="Text">3</div>	<p data-bbox="621 627 1446 690">Cable the e0M ports to the management network switches with the RJ45 cables .</p> <div data-bbox="732 751 1373 1026" data-label="Image"> <p>The diagram shows two network controllers. Purple lines representing Ethernet cables connect the e0M ports on each controller to management network switches at the bottom. A callout shows a close-up of the e0M port on the controller faceplate.</p> </div>
<div data-bbox="183 1108 245 1171" data-label="Image"> </div>	<p data-bbox="621 1104 1182 1136">DO NOT plug in the power cords at this point.</p>

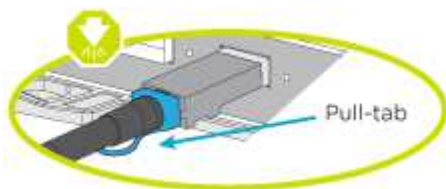
2. To complete setting up your system, see [Step4: Completing system setup and configuration](#).

#### Option 4: Cable a switched cluster, Ethernet configuration

RJ45 ports and management ports on the controller modules are connected to switches. The cluster interconnect ports are cabled to the cluster interconnect switches.

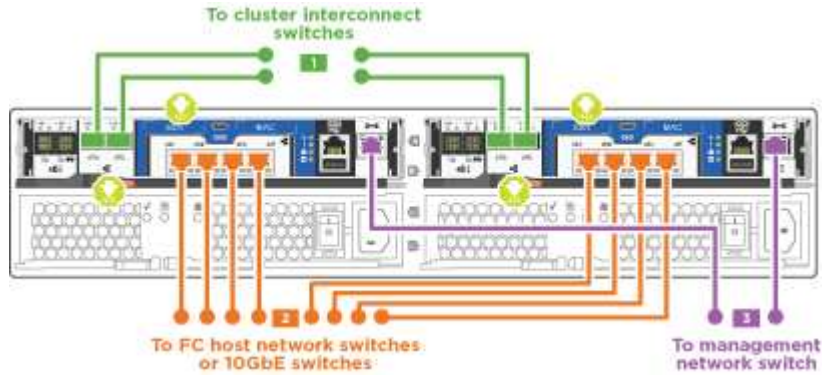
Contact your network administrator for information about connecting the system to the switches.

Be sure to check the illustration arrow for the proper cable connector pull-tab orientation.

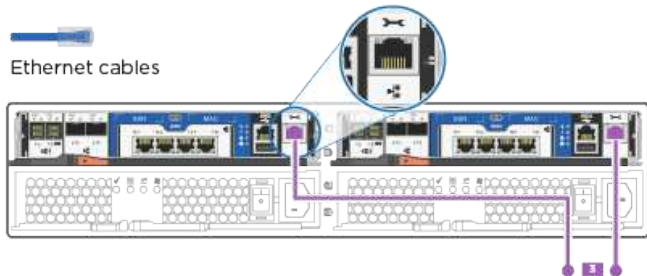



As you insert the connector, you should feel it click into place; if you do not feel it click, remove it, turn it around and try again.

1. Use the animation or the step-by step instructions to complete the cabling between the controllers and the switches:



Step	Perform on each controller module
1	<p>Cable e0a and e0b to the cluster interconnect switches with the cluster interconnect cable:</p>
2	<p>Use the Cat 6 RJ45 cable to cable the e0c through e0f ports to your host network:</p>

Step	Perform on each controller module
3	<p>Cable the e0M ports to the management network switches with the RJ45 cables:</p> 
	DO NOT plug in the power cords at this point.

- To complete setting up your system, see [Step4: Completing system setup and configuration](#).

## Step 4: Complete system setup and configuration

Complete the system setup and configuration using cluster discovery with only a connection to the switch and laptop, or by connecting directly to a controller in the system and then connecting to the management switch.

### Option 1: Complete system setup and configuration if network discovery is enabled

If you have network discovery enabled on your laptop, you can complete system setup and configuration using automatic cluster discovery.

- Plug the power cords into the controller power supplies, and then connect them to power sources on different circuits.
- Turn on the power switches to both nodes.



Initial booting may take up to eight minutes.

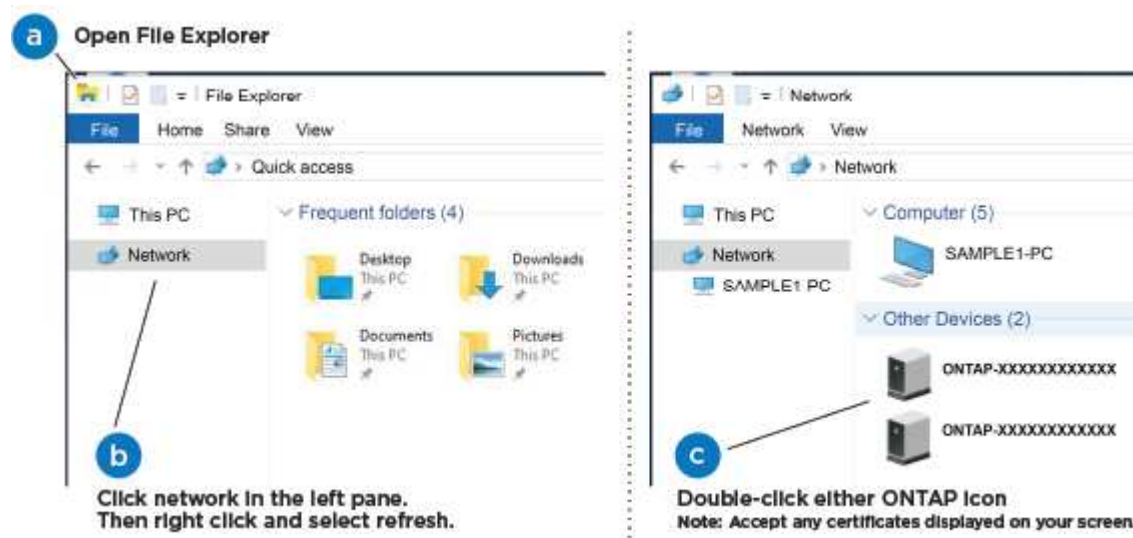
- Make sure that your laptop has network discovery enabled.

See your laptop's online help for more information.

4. Use the following animation to connect your laptop to the Management switch.

#### [Connecting your laptop to the Management switch](#)

5. Select an ONTAP icon listed to discover:



- a. Open File Explorer.
- b. Click network in the left pane.
- c. Right click and select refresh.
- d. Double-click either ONTAP icon and accept any certificates displayed on your screen.



XXXXX is the system serial number for the target node.

System Manager opens.

6. Use System Manager guided setup to configure your system using the data you collected in the *NetApp ONTAP Configuration Guide*.

#### [ONTAP Configuration Guide](#)

7. Verify the health of your system by running Config Advisor.
8. After you have completed the initial configuration, go to the [ONTAP & ONTAP System Manager Documentation Resources](#) page for information about configuring additional features in ONTAP.



The default port configuration for Unified configuration systems is CNA mode; if connecting to an FC host network, you have to modify the ports for FC mode.

### **Option 2: Complete system setup and configuration if network discovery is not enabled**

If network discovery is not enabled on your laptop, you must complete the configuration and setup using this task.

1. Cable and configure your laptop or console:

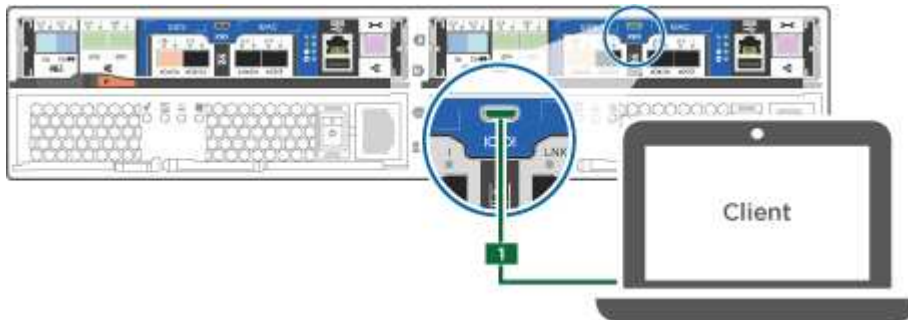


a. Set the console port on the laptop or console to 115,200 baud with N-8-1.



See your laptop or console's online help for how to configure the console port.

b. Connect the console cable to the laptop or console, and connect the console port on the controller using the console cable that came with your system.



c. Connect the laptop or console to the switch on the management subnet.



d. Assign a TCP/IP address to the laptop or console, using one that is on the management subnet.


2. Plug the power cords into the controller power supplies, and then connect them to power sources on different circuits.
3. Turn on the power switches to both nodes.



Initial booting may take up to eight minutes.

4. Assign an initial node management IP address to one of the nodes.

If the management network has DHCP...	Then...
Configured	Record the IP address assigned to the new controllers.

If the management network has DHCP...	Then...
Not configured	<p>a. Open a console session using PuTTY, a terminal server, or the equivalent for your environment.</p> <div>  <p>Check your laptop or console's online help if you do not know how to configure PuTTY.</p> </div> <p>b. Enter the management IP address when prompted by the script.</p>

5. Using System Manager on your laptop or console, configure your cluster:

- a. Point your browser to the node management IP address.



The format for the address is https://x.x.x.x.

- b. Configure the system using the data you collected in the [NetApp ONTAP Configuration Guide](#).

6. Verify the health of your system by running Config Advisor.

7. After you have completed the initial configuration, go to the [ONTAP & ONTAP System Manager Documentation Resources](#) page for information about configuring additional features in ONTAP.



The default port configuration for Unified configuration systems is CNA mode; if connecting to an FC host network, you have to modify the ports for FC mode.



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