



# **Install and setup**

## **Install and maintain**

NetApp  
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# Install and setup

## Start here: Choose your installation and setup experience

For most configurations, you can choose from different content formats.

- [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.

If your system is in a MetroCluster IP configuration, see the [Install MetroCluster IP Configuration](#) instructions.

## Quick guide - AFF A220

This page 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 A220/FAS2700 Systems Installation and Setup Instructions](#)

## Video steps - AFF A220

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

 | <https://img.youtube.com/vi/5g-34qxG9HA?/maxresdefault.jpg>

## Detailed guide - AFF A220

This page gives detailed step-by-step instructions for installing a typical NetApp system.

### Step 1: Prepare for installation

To install your AFF A220 system, you need to create an account on the NetApp Support Site, register your system, and get license keys. 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.

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.
  - 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		
10 GbE cable (order dependent)	Part number X6566B-2-R6 (112-00299), 2m		Data
	or X6566B-3-R6 (112-00300), 3m		
	X6566B-5-R6 (112-00301), 5m		

Type of cable...	Part number and length	Connector type	For...
Optical network cables (order dependent)	X6553-R6 (112-00188), 2m X6536-R6 (112-00090), 5m X6554-R6(112-00189), 15m		FC host network
Cat 6, RJ-45 (order dependent)	Part numbers X6585-R6 (112-00291), 3m X6562-R6 (112-00196), 5m		Management network and Ethernet data
Storage (order dependent)	Part number X66030A (112-00435), 0.5m X66031A (112-00436), 1m X66032A (112-00437), 2m X66033A (112-00438), 3m		Storage
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

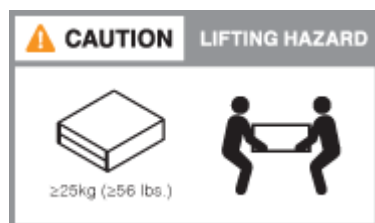
You need to install your system in a 4-post rack or NetApp system cabinet, as applicable.

### Steps

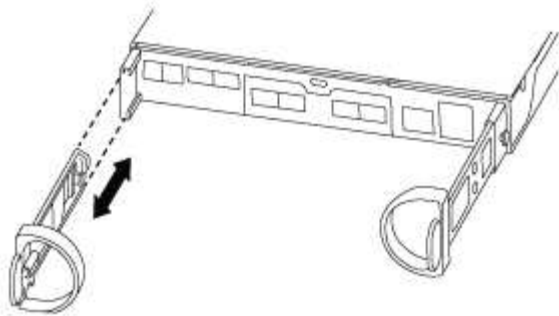
1. Install the rail kits, as needed.
2. Install and secure your system using the instructions included with the rail kit.



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

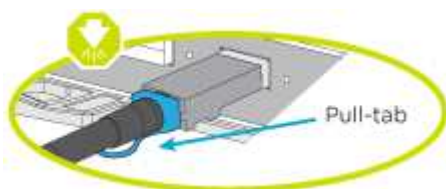
You can cable the controllers to your network by using the two-node switchless cluster method or by using the cluster interconnect network.

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

Management network, UTA2 data network, and management ports on the controllers are connected to switches. The cluster interconnect ports are cabled on both controllers.

You must have contacted your network administrator for information about connecting the system to the switches.

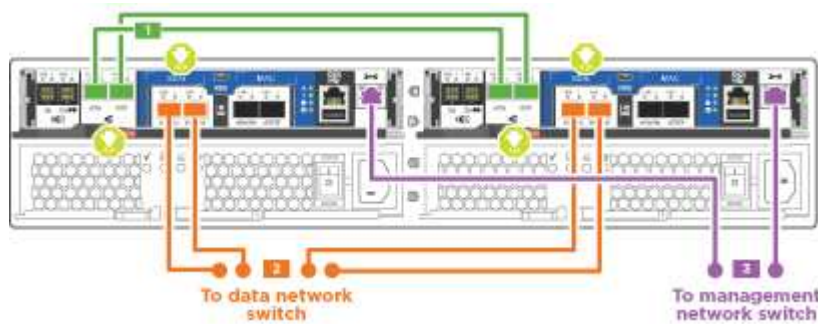
Be sure to check the illustration arrow for the proper cable connector pull-tab orientation.



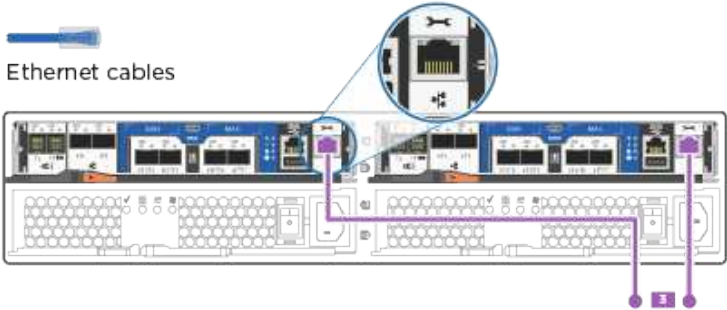

As you insert the connector, you should feel it click into place; if you do not feel it click, remove it, turn it around and try again.

#### Steps

1. You can use the graphic 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="183 153 245 195" data-label="Text">1</div>	<p data-bbox="513 159 1485 222">Cable the cluster interconnect ports to each other with the cluster interconnect cable:</p> <ul data-bbox="537 260 691 338" style="list-style-type: none"> <li>• e0a to e0a</li> <li>• e0b to e0b</li> </ul> <div data-bbox="678 365 1365 684" data-label="Image"> <p data-bbox="683 407 963 428">Cluster interconnect cables</p> </div>
<div data-bbox="183 756 245 798" data-label="Text">2</div>	<p data-bbox="513 762 1485 825">Use one of the following cable types to cable the UTA2 data ports to your host network:</p> <p data-bbox="513 863 654 894">An FC host</p> <ul data-bbox="537 932 829 1108" style="list-style-type: none"> <li>• 0c and 0d</li> <li>• <b>or</b> 0e and 0f A 10GbE</li> <li>• e0c and e0d</li> <li>• <b>or</b> e0e and e0f</li> </ul> <div data-bbox="545 1178 597 1234" data-label="Image"> </div> <p data-bbox="659 1157 1442 1251">You can connect one port pair as CNA and one port pair as FC, or you can connect both port pairs as CNA or both port pairs as FC.</p> <div data-bbox="516 1329 1317 1797" data-label="Image"> <p data-bbox="516 1377 711 1430">Optical network cables</p> <p data-bbox="781 1377 951 1430">SFP for optical cables</p> <p data-bbox="1117 1377 1300 1430">10GbE network cables</p> </div>

Step	Perform on each controller
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.

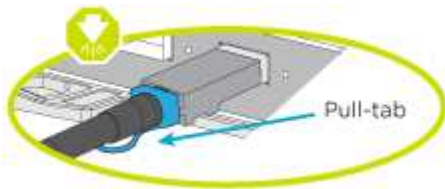
2. To cable your storage, see [Step 4: Cable controllers to drive shelves](#)

### Option 2: Cable a switched cluster, unified network configuration

Management network, UTA2 data network, and management ports on the controllers are connected to switches. The cluster interconnect ports are cabled to the cluster interconnect switches.

You must have contacted 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.

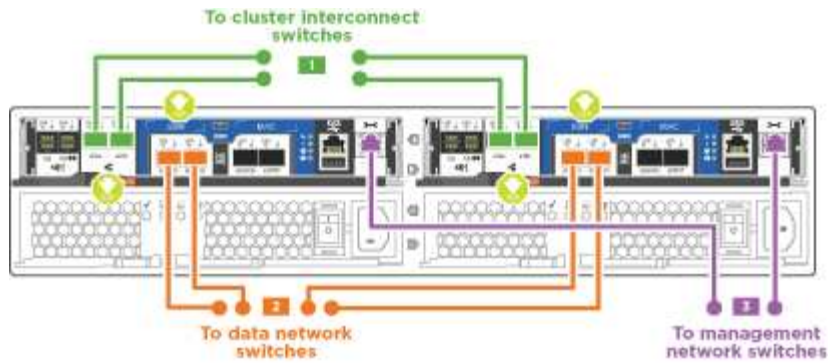


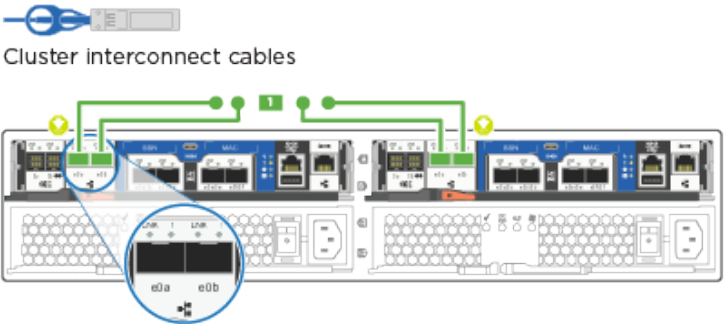
As you insert the connector, you should feel it click into place; if you do not feel it click, remove it, turn it around and try again.




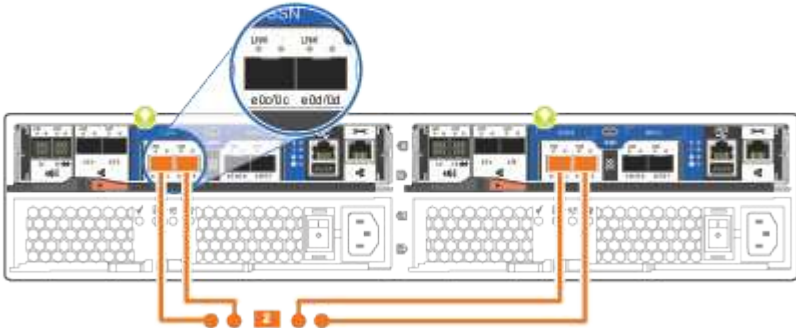

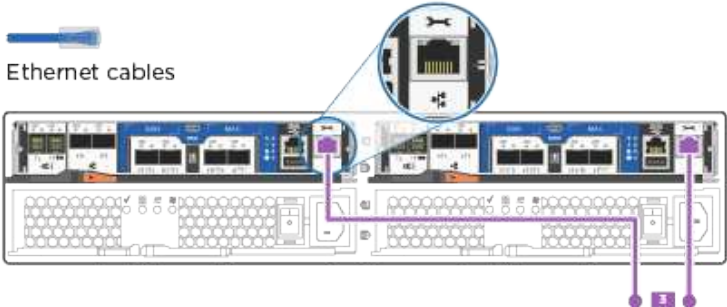
### Steps


1. You can use the graphic 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>  <p>Cluster interconnect cables</p>

Step	Perform on each controller module
<div data-bbox="183 153 245 195" data-label="Text">2</div>	<p data-bbox="513 159 1485 226">Use one of the following cable types to cable the UTA2 data ports to your host network:</p> <p data-bbox="513 260 654 289">An FC host</p> <ul data-bbox="537 323 716 407" style="list-style-type: none"> <li>• 0c and 0d</li> <li>• <b>or</b> 0e and 0f</li> </ul> <p data-bbox="513 441 625 470">A 10GbE</p> <ul data-bbox="537 504 745 588" style="list-style-type: none"> <li>• e0c and e0d</li> <li>• <b>or</b> e0e and e0f</li> </ul> <div data-bbox="545 657 597 709" data-label="Image"></div> <p data-bbox="659 632 1442 730">You can connect one port pair as CNA and one port pair as FC, or you can connect both port pairs as CNA or both port pairs as FC.</p> <div data-bbox="516 804 711 905">  <p data-bbox="516 852 711 905">Optical network cables</p> </div> <div data-bbox="781 852 951 905"> <p data-bbox="781 852 951 905">SFP for optical cables</p>  </div> <div data-bbox="1117 804 1312 905">  <p data-bbox="1117 852 1312 905">10GbE network cables</p> </div> 
<div data-bbox="183 1344 245 1386" data-label="Text">3</div>	<p data-bbox="513 1350 1409 1417">Cable the e0M ports to the management network switches with the RJ45 cables:</p> <div data-bbox="643 1518 813 1577">  <p data-bbox="643 1549 813 1577">Ethernet cables</p> </div> 

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

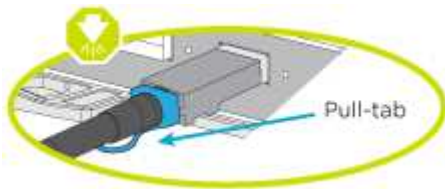
- To cable your storage, see [Step 4: Cable controllers to drive shelves](#)

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

Management network, Ethernet data network, and management ports on the controllers are connected to switches. The cluster interconnect ports are cabled on both controllers.

You must have contacted your network administrator for information about connecting the system to the switches.

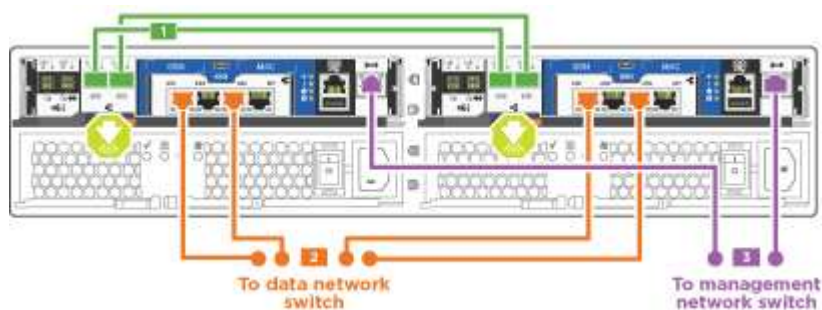
Be sure to check the illustration arrow for the proper cable connector pull-tab orientation.



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.

### Steps

- You can use the graphic 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="183 153 245 195" data-label="Text">1</div>	<p data-bbox="513 159 1471 222">Cable the cluster interconnect ports to each other with the cluster interconnect cable:</p> <ul data-bbox="537 260 691 338" style="list-style-type: none"> <li>• e0a to e0a</li> <li>• e0b to e0b</li> </ul> <div data-bbox="678 369 1365 688" data-label="Image"> <p data-bbox="683 411 959 432">Cluster interconnect cables</p> </div>
<div data-bbox="183 762 245 804" data-label="Text">2</div>	<p data-bbox="513 768 1406 831">Use the Cat 6 RJ45 cable to cable the e0c through e0f ports to your host network:</p> <div data-bbox="638 898 1360 1192" data-label="Image"> <p data-bbox="643 940 846 961">CAT6 RJ-45 cables</p> </div>
<div data-bbox="183 1274 245 1316" data-label="Text">3</div>	<p data-bbox="513 1281 1406 1344">Cable the e0M ports to the management network switches with the RJ45 cables:</p> <div data-bbox="638 1409 1360 1717" data-label="Image"> <p data-bbox="643 1461 813 1482">Ethernet cables</p> </div>
<div data-bbox="183 1797 245 1860" data-label="Image"> </div>	<p data-bbox="513 1793 1073 1824">DO NOT plug in the power cords at this point.</p>

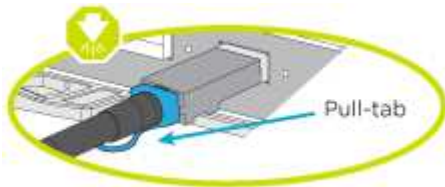
2. To cable your storage, see [Step 4: Cable controllers to drive shelves](#)

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

Management network, Ethernet data network, and management ports on the controllers are connected to switches. The cluster interconnect ports are cabled to the cluster interconnect switches.

You must have contacted your network administrator for information about connecting the system to the switches.

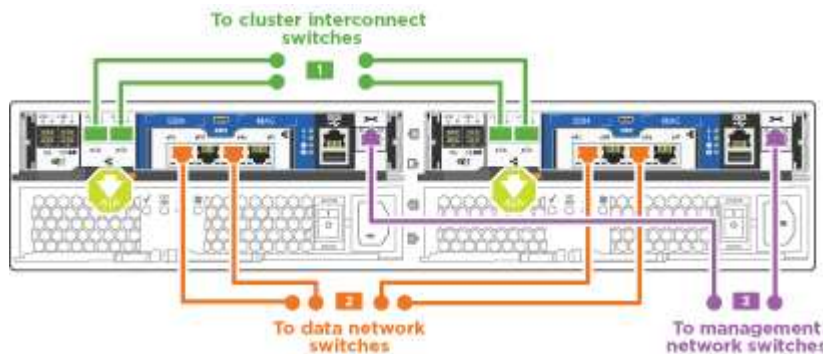
Be sure to check the illustration arrow for the proper cable connector pull-tab orientation.



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.

#### Steps

1. You can use the graphic or the step-by step instructions to complete the cabling between the controllers and the switches:



#### Step

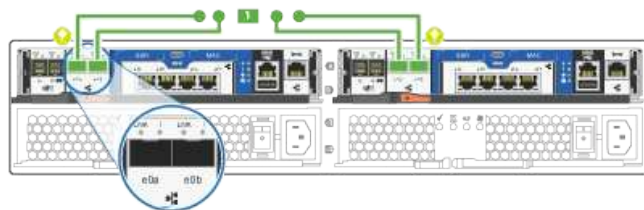
1

#### Perform on each controller module

Cable e0a and e0b to the cluster interconnect switches with the cluster interconnect cable:



Cluster interconnect cables



Step	Perform on each controller module
<div data-bbox="183 153 245 195" data-label="Text">2</div>	<p data-bbox="621 159 1484 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 controller modules side-by-side. Orange lines representing CAT6 RJ-45 cables connect the e0c, e0d, e0e, and e0f ports on each module to a common set of ports at the bottom. A circular inset provides a close-up view of the RJ-45 ports on the top of the modules.</p> </div>
<div data-bbox="183 625 245 667" data-label="Text">3</div>	<p data-bbox="621 632 1484 695">Cable the e0M ports to the management network switches with the RJ45 cables:</p> <div data-bbox="732 751 1373 1031" data-label="Image"> <p>The diagram shows two controller modules side-by-side. Purple lines representing Ethernet cables connect the e0M ports on each module to a common set of ports at the bottom. A circular inset provides a close-up view of the e0M port on the top of the modules.</p> </div>
<div data-bbox="183 1108 245 1178" data-label="Image"> </div>	<p data-bbox="621 1104 1183 1136">DO NOT plug in the power cords at this point.</p>

2. To cable your storage, see [Step 4: Cable controllers to drive shelves](#)

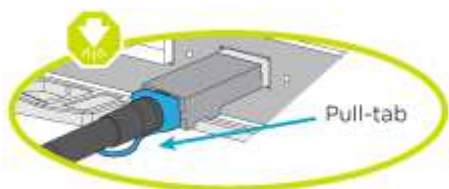
## Step 4: Cable controllers to drive shelves

You must cable the controllers to your shelves using the onboard storage ports. NetApp recommends MP-HA cabling for systems with external storage. If you have a SAS tape drive, you can use single-path cabling. If you have no external shelves, MP-HA cabling to internal drives is optional (not shown) if the SAS cables are ordered with the system.

### Option 1: Cable storage on an HA pair with external drive shelves

You must cable the shelf-to-shelf connections, and then cable both controllers to the drive shelves.

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



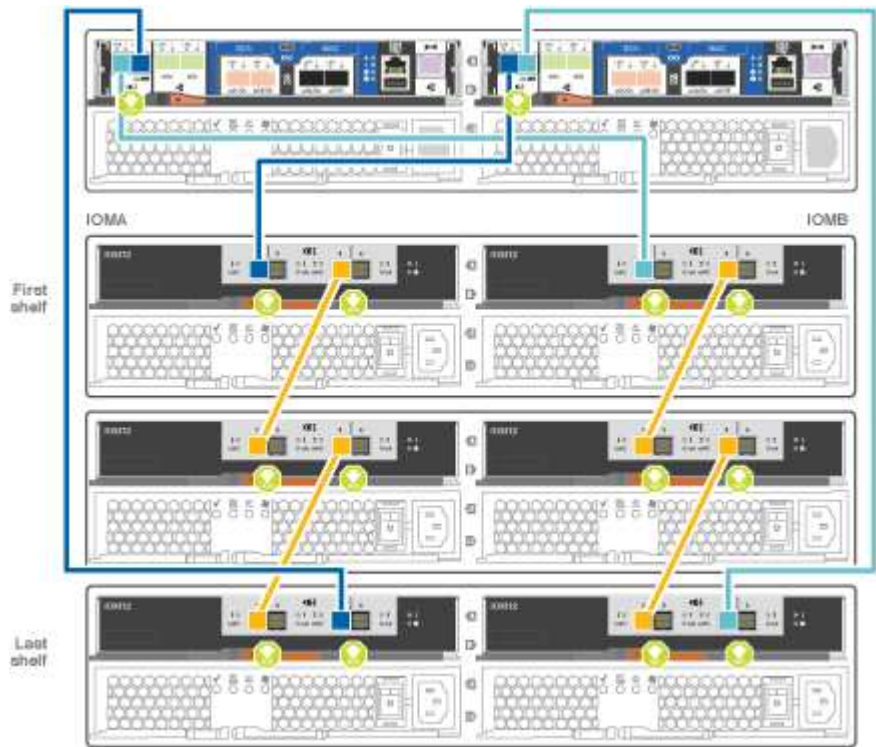





Steps

1. Cable the HA pair with external drive shelves:



The example uses DS224C. Cabling is similar with other supported drive shelves.



Step	Perform on each controller
1	<p>Cable the shelf-to-shelf ports.</p> <ul style="list-style-type: none"><li>• Port 3 on IOM A to port 1 on the IOM A on the shelf directly below.</li><li>• Port 3 on IOM B to port 1 on the IOM B on the shelf directly below.</li></ul>  mini-SAS HD to mini-SAS HD cables
2	<p>Connect each node to IOM A in the stack.</p> <ul style="list-style-type: none"><li>• Controller 1 port 0b to IOM A port 3 on last drive shelf in the stack.</li><li>• Controller 2 port 0a to IOM A port 1 on the first drive shelf in the stack.</li></ul>  mini-SAS HD to mini-SAS HD cables
3	<p>Connect each node to IOM B in the stack</p> <ul style="list-style-type: none"><li>• Controller 1 port 0a to IOM B port 1 on first drive shelf in the stack.</li><li>• Controller 2 port 0b to IOM B port 3 on the last drive shelf in the stack.</li></ul>  mini-SAS HD to mini-SAS HD cables

If you have more than one drive shelf stack, see the *Installation and Cabling Guide* for your drive shelf type.

2. To complete setting up your system, see [Step 5: Complete system setup and configuration](#)

## Step 5: Complete system setup and configuration

You can 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 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.

#### Steps

1. Use the following animation to set one or more drive shelf IDs

[Animation - Set drive shelf IDs](#)

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. Make sure that your laptop has network discovery enabled.

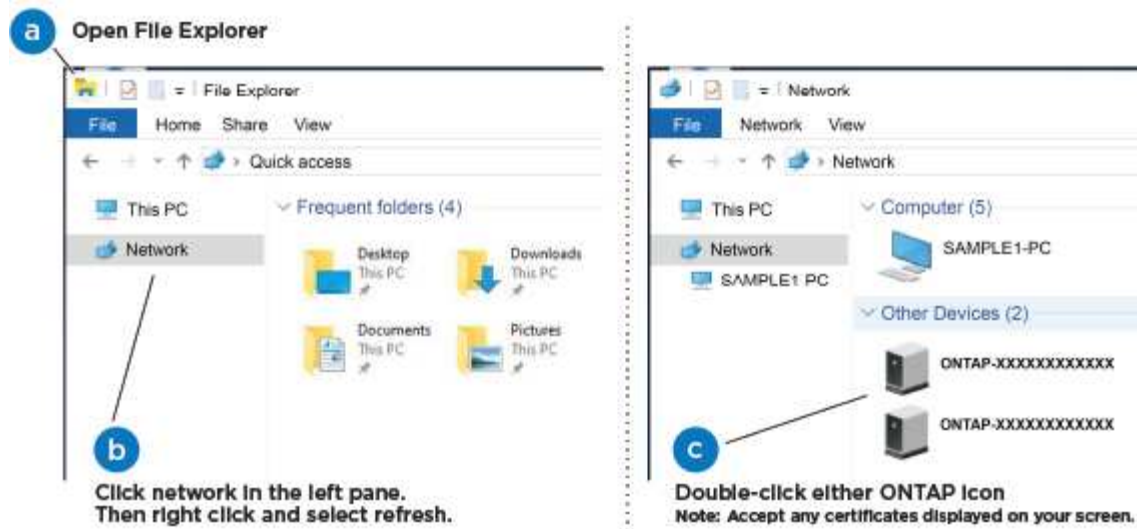
See your laptop's online help for more information.

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

[Animation - Connect your laptop to the Management switch](#)

6. 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.

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

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

8. Verify the health of your system by running Config Advisor.
9. 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.

### **Option 2: Completing 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.

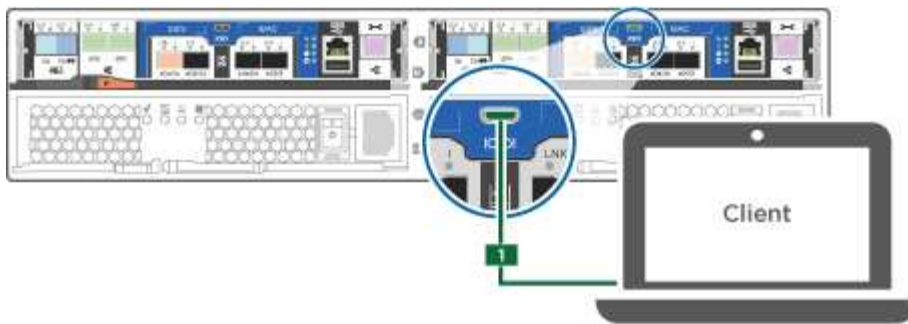
#### **Steps**

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.

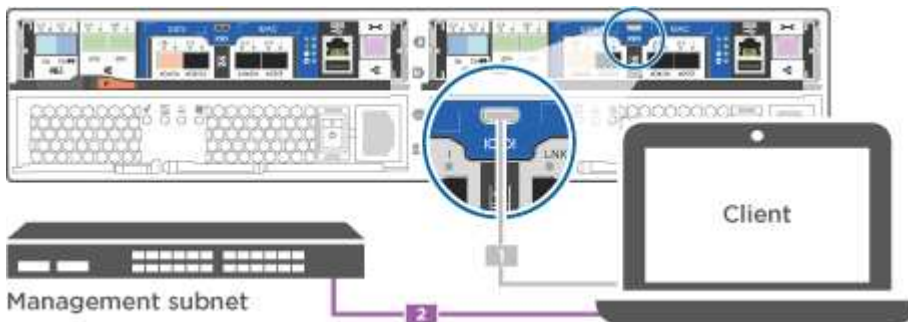


See your laptop or console's online help for how to configure the console port.

- 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. Use the following animation to set one or more drive shelf IDs:

[Animation - Set drive shelf IDs](#)


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



Initial booting may take up to eight minutes.

5. 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>

6. 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*.

[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.

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