

---

## Installing and setting up the system

You can choose from different content formats to guide you through the installation and setup of your new system.

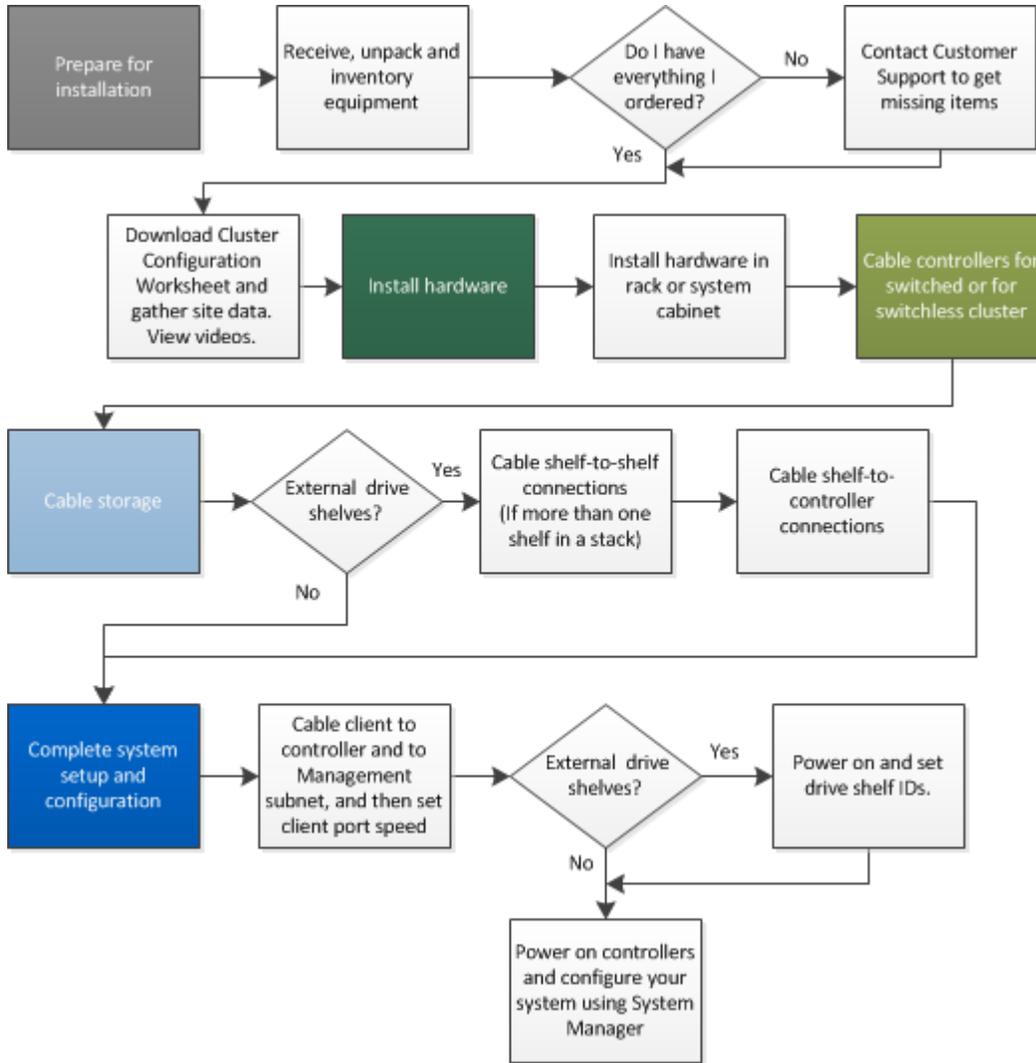
**Note:** If needed, before you begin the installation and setup of your new system, you can familiarize yourself with the process by reviewing the *Installation and setup high-level workflow*.

[Installation and setup high-level workflow](#) on page 2

	Installation and setup PDF poster Step-by-step instructions with live links to additional content. <a href="#">Installation and setup PDF poster</a> on page 2
	Installation and setup videos Procedure overviews for system cabling and System Manager Guided Setup. <a href="#">Installation and setup videos</a> on page 3
	Installation and setup guide Step-by-step instructions with live links to additional content, animated cabling and searchable content. <a href="#">Installation and setup guide</a> on page 3

# Installation and setup high-level workflow

Before you begin the installation and setup of your new system, you can familiarize yourself with the installation process.



## Installation and setup PDF poster

You can use the PDF poster to install and set up your new system. The PDF poster provides step-by-step instructions with live links to additional content.

Access the *Installation and Setup Instructions* PDF poster:

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

# Installation and setup videos

You can watch these videos for an overview of the installation and setup of your new system.

## Video one of two: Hardware installation and cabling

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

*[NetApp video: AFF C190 Installation and setup](#)*

## 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](#)*

# Installation and setup guide

You can use this guide to install and setup your new system. The procedures in this guide provide step-by-step instructions with live links to additional content, and animated cabling.

## Steps

1. [Preparing for installation](#) on page 3
2. [Installing the hardware](#) on page 5
3. [Cabling controllers to your network](#) on page 5
4. [Completing system setup and configuration](#) on page 13

# Preparing for installation

To install your AFF C190 system, you need to create an account, register the 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.

## Before you begin

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](#)*

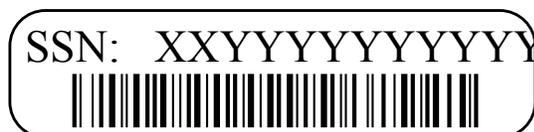
*[Find the Release Notes for your version of ONTAP 9](#)*

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

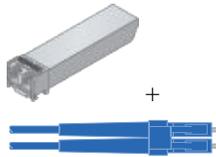
1. Unpack the contents of all boxes.
2. Record the system serial number from the controllers.



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](#)
  - c. Get your license keys.  
[NetApp Software License Search](#)
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 X6566B-2-R6 (112-00299), 2m		Cluster interconnect network
	X6566B-2-R6 (112-00299), 2m X6566B-3-R6 (112-00300), 3m X6566B-5-R6 (112-00301), 5m		Data
Optical network cables (order dependent)	X6553-R6 (112-00188), 2m X6536-R6 (112-00090), 5m X6554-R6(112-00189), 15m		SFP + FC host network
Cat 6, RJ-45 (order dependant)	X6585-R6 (112-00291), 3m X6562-R6 (112-00196), 5m		Ethernet host and management network

Type of cable...	Part number and length	Connector type	For...
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

- Download and complete the *Cluster configuration worksheet*.

[Cluster Configuration Worksheet](#)

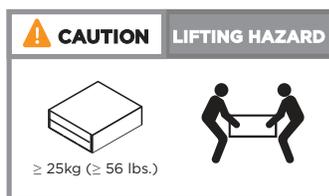
## Installing the hardware

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

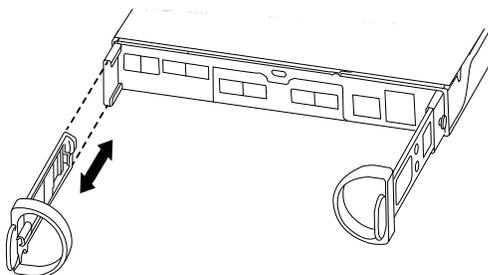
### Steps

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

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



- Attach cable management devices (as shown).



- Place the bezel on the front of the system.

## Cabling 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.

## Choices

- [Cabling a two node switchless cluster, unified configuration](#) on page 6
- [Cabling switched cluster, unified configuration](#) on page 8
- [Cabling a two node switchless cluster, Ethernet configuration](#) on page 10
- [Cabling a switched cluster, Ethernet configuration](#) on page 12

## Cabling a two node switchless cluster, unified configuration

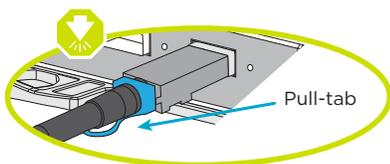
UTA2 ports and management ports on the controller modules are connected to switches. The cluster interconnect ports are cabled on both controller modules.

### Before you begin

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

### About this task

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

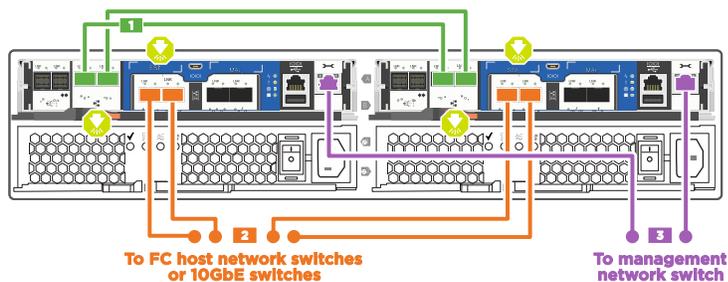


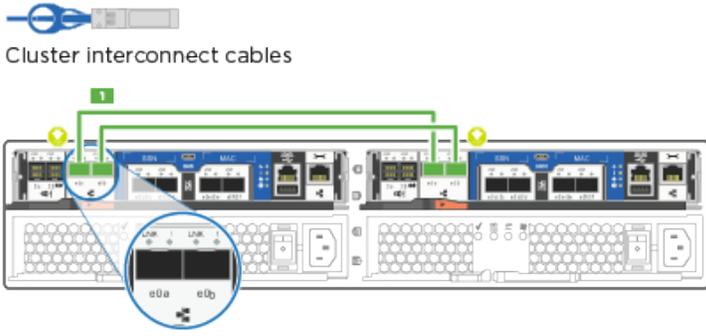
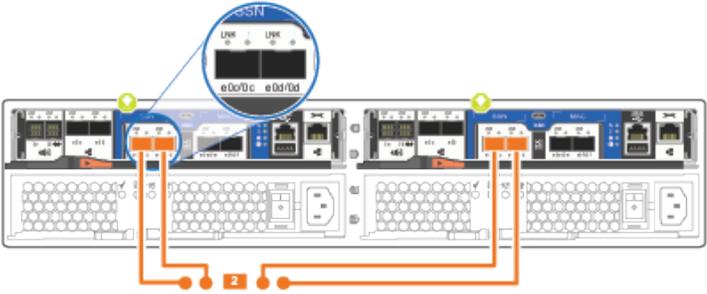
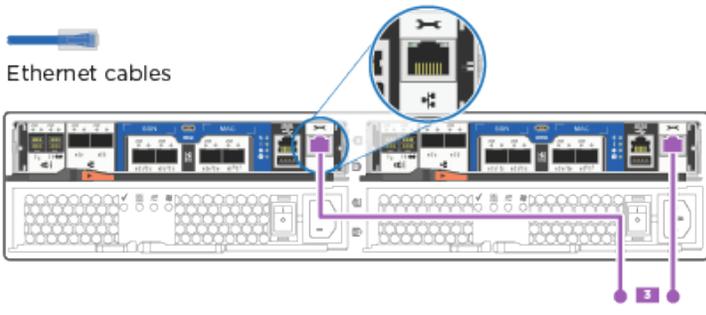
**Note:** As you insert the connector, you should feel it click into place; if you do not feel it click, remove it, turn it around and try again.

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

### Steps

1. You can 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
<p><b>1</b></p>	<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>
<p><b>2</b></p>	<p>Use one of the following cable types to cable the e0c/0c and e0d/0d <b>or</b> e0e/0e and e0f/0f data ports to your host network:</p>  <p>Optical network cables      SFP for optical cables      10GbE network cables</p>
<p><b>3</b></p>	<p>Cable the e0M ports to the management network switches with the RJ45 cables:</p>  <p>Ethernet cables</p>
	<p>DO NOT plug in the power cords at this point.</p>

2. To complete setting up your system, see *Completing system setup and configuration* on page 13

## Cabling switched cluster, unified configuration

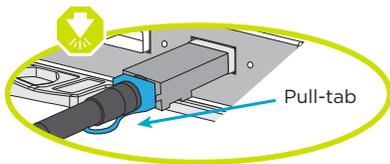
UTA2 ports and management ports on the controller modules are connected to switches. The cluster interconnect ports are cabled to the cluster interconnect switches.

### Before you begin

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

### About this task

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

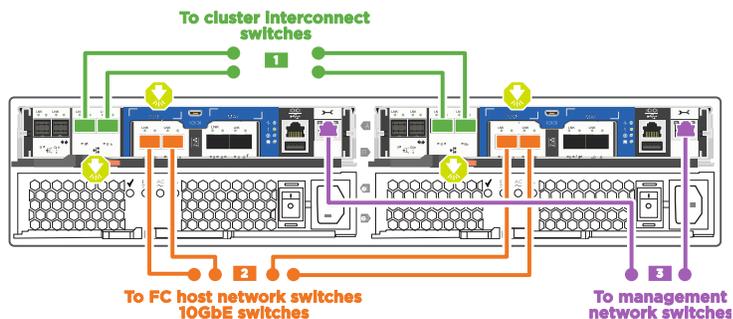


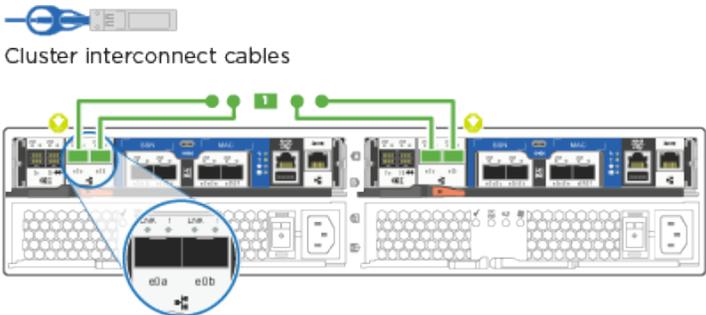
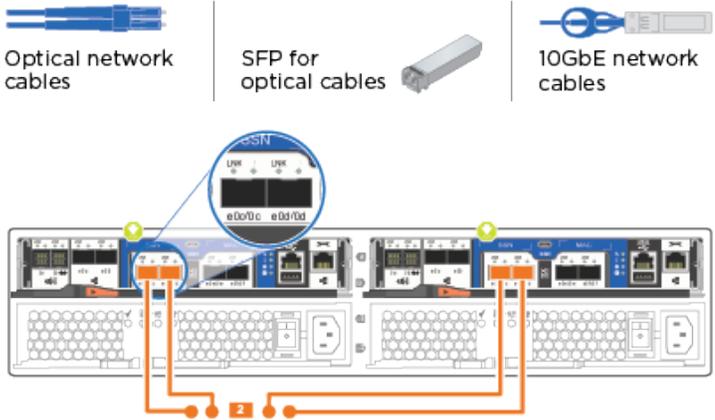
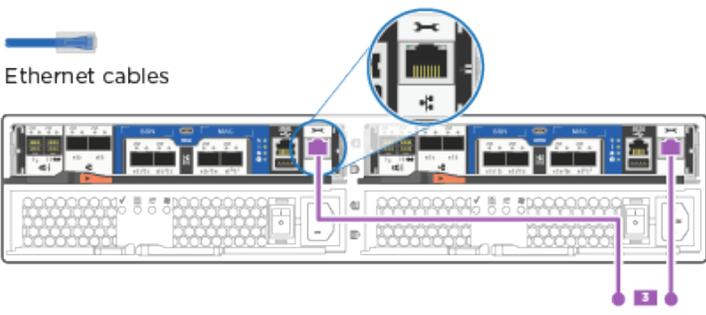
**Note:** As you insert the connector, you should feel it click into place; if you do not feel it click, remove it, turn it around and try again.

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

### Steps

1. You can 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>  <p>Cluster interconnect cables</p>
2	<p>Use one of the following cable types to cable the e0c/0c and e0d/0d <b>or</b> e0e/0e and e0f/0f data ports to your host network:</p>  <p>Optical network cables      SFP for optical cables      10GbE network cables</p>
3	<p>Cable the e0M ports to the management network switches with the RJ45 cables:</p>  <p>Ethernet cables</p>
	<p>DO NOT plug in the power cords at this point.</p>

2. To complete setting up your system, see [Completing system setup and configuration](#) on page 13

## Cabling a two node switchless cluster, Ethernet configuration

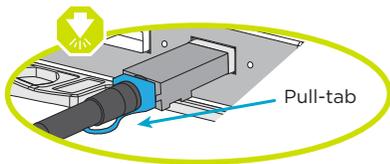
RJ45 ports and management ports on the controller modules are connected to switches. The cluster interconnect ports are cabled on both controller modules.

### Before you begin

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

### About this task

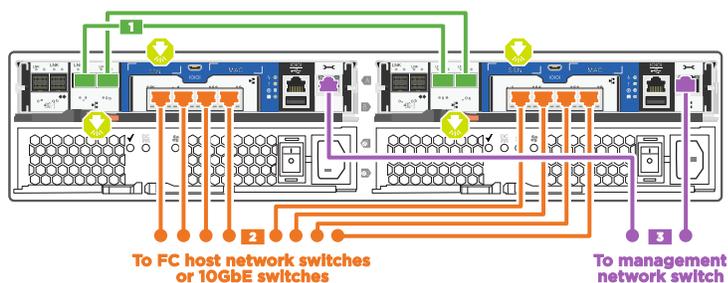
Be sure to check the illustration arrow for the proper cable connector pull-tab orientation.

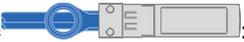
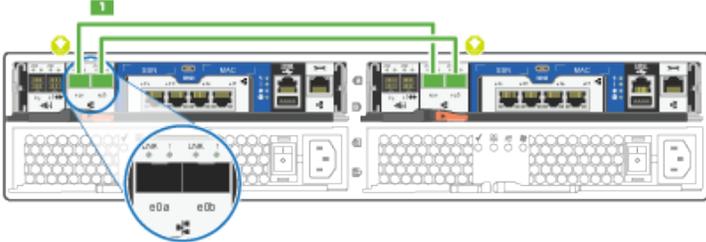
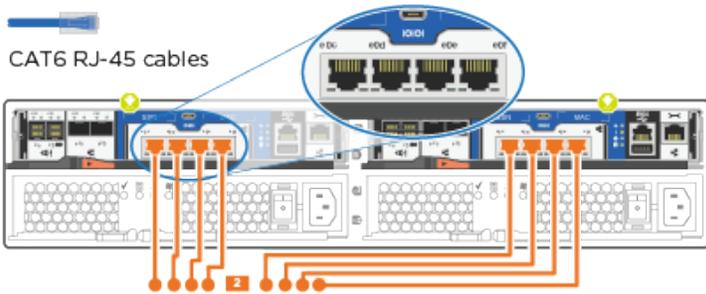
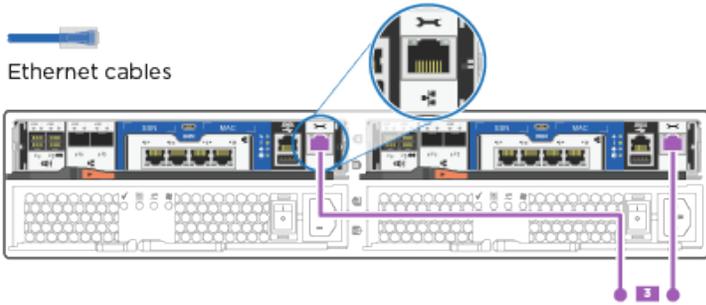


**Note:** As you insert the connector, you should feel it click into place; if you do not feel it click, remove it, turn it around and try again.

### Steps

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



Step	Perform on each controller
<p><b>1</b></p>	<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> 
<p><b>2</b></p>	<p>Use the Cat 6 RJ45 cable to cable the e0c through e0f ports to your host network:</p> 
<p><b>3</b></p>	<p>Cable the e0M ports to the management network switches with the RJ45 cables .</p> 
	<p>DO NOT plug in the power cords at this point.</p>

2. To complete setting up your system, see [Completing system setup and configuration](#) on page 13

## Cabling a switched cluster, Ethernet configuration

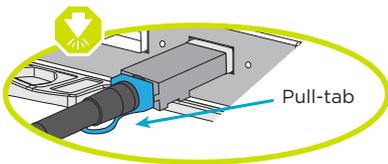
RJ45 ports and management ports on the controller modules are connected to switches. The cluster interconnect ports are cabled to the cluster interconnect switches.

### Before you begin

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

### About this task

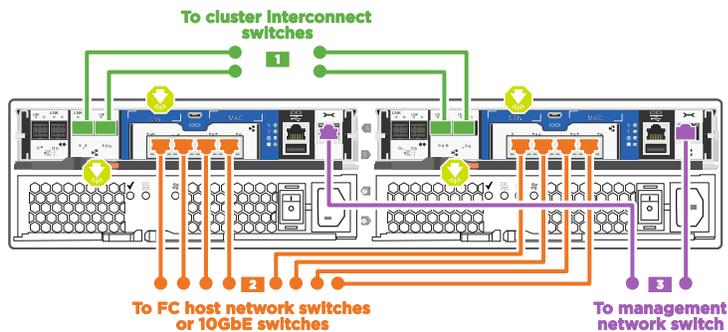
Be sure to check the illustration arrow for the proper cable connector pull-tab orientation.

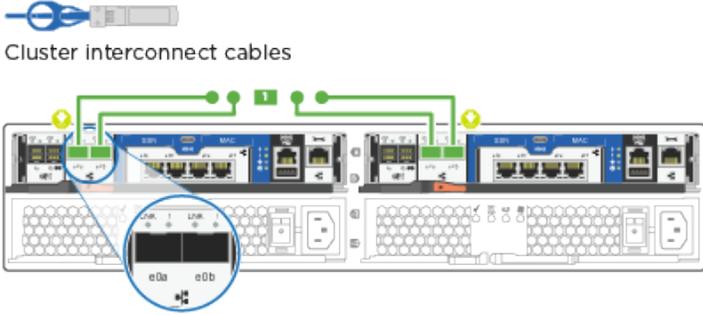
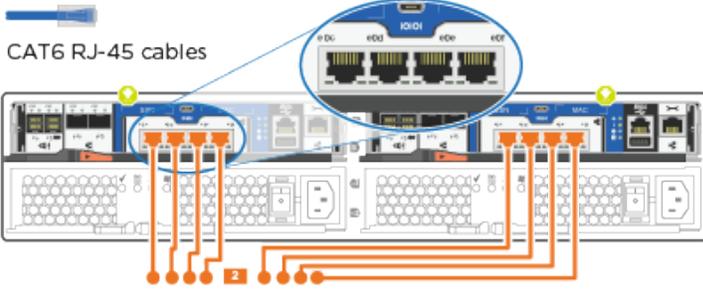
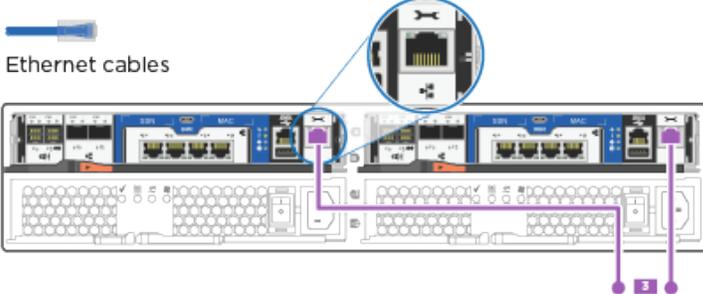


**Note:** As you insert the connector, you should feel it click into place; if you do not feel it click, remove it, turn it around and try again.

### Steps

1. You can use the 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>  <p>Cluster interconnect cables</p>
2	<p>Use the Cat 6 RJ45 cable to cable the e0c through e0f ports to your host network:</p>  <p>CAT6 RJ-45 cables</p>
3	<p>Cable the e0M ports to the management network switches with the RJ45 cables:</p>  <p>Ethernet cables</p>
	<p>DO NOT plug in the power cords at this point.</p>

- To complete setting up your system, see [Completing system setup and configuration](#) on page 13

## Completing 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.

### Choices

- [Completing system setup and configuration using a Windows or Mac laptop](#) on page 14

- [Completing system setup and configuration if you are not using a Windows or Mac laptop](#) on page 15

## Completing system setup and configuration using a Windows or Mac laptop

If you are using a Windows or Mac-based laptop or console, you can complete system setup and configuration using automatic cluster discovery.

### Steps

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



**Note:** Initial booting may take up to eight minutes.

3. Make sure that your laptop has network discovery enabled.  
See your laptop's online help for more information.
4. Connect your laptop to the Management switch.



5. Go to network devices, and then double-click the ONTAP icon.

**Note:** XXXXXX 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 *Cluster configuration worksheet*.

[Cluster Configuration Worksheet](#)

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

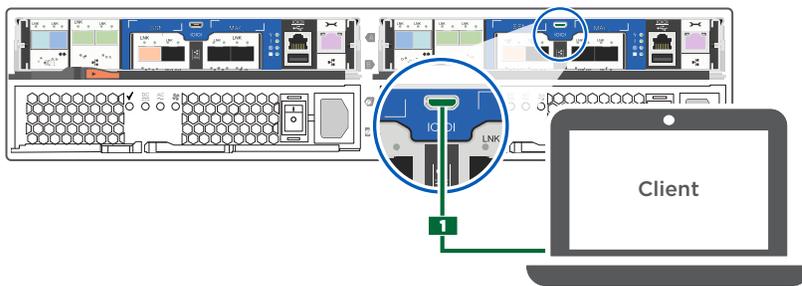
**Note:** The default port configuration for Unified configuration systems is CNA mode; if connecting to an FC host network, you have to modify the ports for FC mode.

## Completing system setup and configuration if you are not using a Windows or Mac laptop

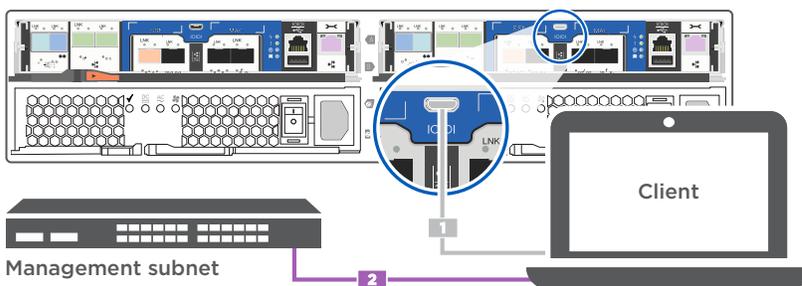
If you are not using a Windows or Mac-based laptop or console, you must complete the configuration and setup using this task.

### 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.  
**Note:** 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.



**Note:** 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.
Not configured	<p>a. Open a console session using PuTTY, a terminal server, or the equivalent for your environment.</p> <p><b>Note:</b> Check your laptop or console's online help if you do not know how to configure PuTTY.</p> <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 (from Step 5).

**Note:** The format for the address is `https://x.x.x.x`.

- b. Configure the system using the data you collected in the *Cluster configuration worksheet*.

[Cluster Configuration Worksheet](#)

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

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

**Note:** 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.

## Copyright

Copyright © 2019 NetApp, Inc. All rights reserved. Printed in the U.S.

No part of this document covered by copyright may be reproduced in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system—without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER

IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

Data contained herein pertains to a commercial item (as defined in FAR 2.101) and is proprietary to NetApp, Inc. The U.S. Government has a non-exclusive, non-transferrable, non-sublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b).

## Trademark

NETAPP, the NETAPP logo, and the marks listed on the NetApp Trademarks page are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.

<http://www.netapp.com/us/legal/netapptmlist.aspx>

## How to send comments about documentation and receive update notifications

You can help us to improve the quality of our documentation by sending us your feedback. You can receive automatic notification when production-level (GA/FCS) documentation is initially released or important changes are made to existing production-level documents.

If you have suggestions for improving this document, send us your comments by email.

[doccomments@netapp.com](mailto:doccomments@netapp.com)

To help us direct your comments to the correct division, include in the subject line the product name, version, and operating system.

If you want to be notified automatically when production-level documentation is released or important changes are made to existing production-level documents, follow Twitter account @NetAppDoc.

You can also contact us in the following ways:

- NetApp, Inc., 1395 Crossman Ave., Sunnyvale, CA 94089 U.S.
- Telephone: +1 (408) 822-6000
- Fax: +1 (408) 822-4501
- Support telephone: +1 (888) 463-8277