# Install hardware

## Install and maintain

NetApp
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# Install hardware

## Hardware install workflow for Cisco Nexus 92300YC switches

To install and configure the hardware for a 92300YC cluster switch, follow these steps:

1. **Complete the cabling worksheet**

The sample cabling worksheet provides examples of recommended port assignments from the switches to the controllers. The blank worksheet provides a template that you can use in setting up your cluster.

2. **Install the switch**

Install the 92300YC switch.

3. **Install the switch in a NetApp cabinet**

Install the 92300YC switch and pass-through panel in a NetApp cabinet as required.

4. **Review cabling and configuration**

Review support for NVIDIA Ethernet ports.

## Complete Cisco Nexus 92300YC cabling worksheet

If you want to document the supported platforms, download a PDF of this page and complete the cabling worksheet.

The sample cabling worksheet provides examples of recommended port assignments from the switches to the controllers. The blank worksheet provides a template that you can use in setting up your cluster.

### Sample cabling worksheet

The sample port definition on each pair of switches is as follows:

| **Cluster switch A** | | **Cluster switch B** | |
|---|---|---|---|
| Switch port | Node and port usage | Switch port | Node and port usage |
| 1 | 10/25 GbE node | 1 | 10/25 GbE node |
| 2 | 10/25 GbE node | 2 | 10/25 GbE node |
| 3 | 10/25 GbE node | 3 | 10/25 GbE node |

| Cluster switch A | | Cluster switch B | |
|---|---|---|---|
| 4 | 10/25 GbE node | 4 | 10/25 GbE node |
| 5 | 10/25 GbE node | 5 | 10/25 GbE node |
| 6 | 10/25 GbE node | 6 | 10/25 GbE node |
| 7 | 10/25 GbE node | 7 | 10/25 GbE node |
| 8 | 10/25 GbE node | 8 | 10/25 GbE node |
| 9 | 10/25 GbE node | 9 | 10/25 GbE node |
| 10 | 10/25 GbE node | 10 | 10/25 GbE node |
| 11 | 10/25 GbE node | 11 | 10/25 GbE node |
| 12 | 10/25 GbE node | 12 | 10/25 GbE node |
| 13 | 10/25 GbE node | 13 | 10/25 GbE node |
| 14 | 10/25 GbE node | 14 | 10/25 GbE node |
| 15 | 10/25 GbE node | 15 | 10/25 GbE node |
| 16 | 10/25 GbE node | 16 | 10/25 GbE node |
| 17 | 10/25 GbE node | 17 | 10/25 GbE node |
| 18 | 10/25 GbE node | 18 | 10/25 GbE node |
| 19 | 10/25 GbE node | 19 | 10/25 GbE node |
| 20 | 10/25 GbE node | 20 | 10/25 GbE node |
| 21 | 10/25 GbE node | 21 | 10/25 GbE node |
| 22 | 10/25 GbE node | 22 | 10/25 GbE node |
| 23 | 10/25 GbE node | 23 | 10/25 GbE node |
| 24 | 10/25 GbE node | 24 | 10/25 GbE node |
| 25 | 10/25 GbE node | 25 | 10/25 GbE node |

| Cluster switch A | | Cluster switch B | |
|---|---|---|---|
| 26 | 10/25 GbE node | 26 | 10/25 GbE node |
| 27 | 10/25 GbE node | 27 | 10/25 GbE node |
| 28 | 10/25 GbE node | 28 | 10/25 GbE node |
| 29 | 10/25 GbE node | 29 | 10/25 GbE node |
| 30 | 10/25 GbE node | 30 | 10/25 GbE node |
| 31 | 10/25 GbE node | 31 | 10/25 GbE node |
| 32 | 10/25 GbE node | 32 | 10/25 GbE node |
| 33 | 10/25 GbE node | 33 | 10/25 GbE node |
| 34 | 10/25 GbE node | 34 | 10/25 GbE node |
| 35 | 10/25 GbE node | 35 | 10/25 GbE node |
| 36 | 10/25 GbE node | 36 | 10/25 GbE node |
| 37 | 10/25 GbE node | 37 | 10/25 GbE node |
| 38 | 10/25 GbE node | 38 | 10/25 GbE node |
| 39 | 10/25 GbE node | 39 | 10/25 GbE node |
| 40 | 10/25 GbE node | 40 | 10/25 GbE node |
| 41 | 10/25 GbE node | 41 | 10/25 GbE node |
| 42 | 10/25 GbE node | 42 | 10/25 GbE node |
| 43 | 10/25 GbE node | 43 | 10/25 GbE node |
| 44 | 10/25 GbE node | 44 | 10/25 GbE node |
| 45 | 10/25 GbE node | 45 | 10/25 GbE node |
| 46 | 10/25 GbE node | 46 | 10/25 GbE node |
| 47 | 10/25 GbE node | 47 | 10/25 GbE node |

| Cluster switch A | | Cluster switch B | |
|---|---|---|---|
| 48 | 10/25 GbE node | 48 | 10/25 GbE node |
| 49 | 40/100 GbE node | 49 | 40/100 GbE node |
| 50 | 40/100 GbE node | 50 | 40/100 GbE node |
| 51 | 40/100 GbE node | 51 | 40/100 GbE node |
| 52 | 40/100 GbE node | 52 | 40/100 GbE node |
| 53 | 40/100 GbE node | 53 | 40/100 GbE node |
| 54 | 40/100 GbE node | 54 | 40/100 GbE node |
| 55 | 40/100 GbE node | 55 | 40/100 GbE node |
| 56 | 40/100 GbE node | 56 | 40/100 GbE node |
| 57 | 40/100 GbE node | 57 | 40/100 GbE node |
| 58 | 40/100 GbE node | 58 | 40/100 GbE node |
| 59 | 40/100 GbE node | 59 | 40/100 GbE node |
| 60 | 40/100 GbE node | 60 | 40/100 GbE node |
| 61 | 40/100 GbE node | 61 | 40/100 GbE node |
| 62 | 40/100 GbE node | 62 | 40/100 GbE node |
| 63 | 40/100 GbE node | 63 | 40/100 GbE node |
| 64 | 40/100 GbE node | 64 | 40/100 GbE node |
| 65 | 100 GbE ISL to switch B port 65 | 65 | 100 GbE ISL to switch A port 65 |
| 66 | 100 GbE ISL to switch B port 66 | 66 | 100 GbE ISL to switch A port 65 |

## Blank cabling worksheet

You can use the blank cabling worksheet to document the platforms that are supported as nodes in a cluster. The *Supported Cluster Connections* section of the Hardware Universe defines the cluster ports used by the

platform.

| **Cluster switch A** | | **Cluster switch B** | |
|---|---|---|---|
| Switch port | Node/port usage | Switch port | Node/port usage |
| 1 | | 1 | |
| 2 | | 2 | |
| 3 | | 3 | |
| 4 | | 4 | |
| 5 | | 5 | |
| 6 | | 6 | |
| 7 | | 7 | |
| 8 | | 8 | |
| 9 | | 9 | |
| 10 | | 10 | |
| 11 | | 11 | |
| 12 | | 12 | |
| 13 | | 13 | |
| 14 | | 14 | |
| 15 | | 15 | |
| 16 | | 16 | |
| 17 | | 17 | |
| 18 | | 18 | |
| 19 | | 19 | |
| 20 | | 20 | |

| Cluster switch A | | Cluster switch B | |
|---|---|---|---|
| 21 | | 21 | |
| 22 | | 22 | |
| 23 | | 23 | |
| 24 | | 24 | |
| 25 | | 25 | |
| 26 | | 26 | |
| 27 | | 27 | |
| 28 | | 28 | |
| 29 | | 29 | |
| 30 | | 30 | |
| 31 | | 31 | |
| 32 | | 32 | |
| 33 | | 33 | |
| 34 | | 34 | |
| 35 | | 35 | |
| 36 | | 36 | |
| 37 | | 37 | |
| 38 | | 38 | |
| 39 | | 39 | |
| 40 | | 40 | |
| 41 | | 41 | |
| 42 | | 42 | |

| Cluster switch A | | Cluster switch B | |
|---|---|---|---|
| 43 | | 43 | |
| 44 | | 44 | |
| 45 | | 45 | |
| 46 | | 46 | |
| 47 | | 47 | |
| 48 | | 48 | |
| 49 | | 49 | |
| 50 | | 50 | |
| 51 | | 51 | |
| 52 | | 52 | |
| 53 | | 53 | |
| 54 | | 54 | |
| 55 | | 55 | |
| 56 | | 56 | |
| 57 | | 57 | |
| 58 | | 58 | |
| 59 | | 59 | |
| 60 | | 60 | |
| 61 | | 61 | |
| 62 | | 62 | |
| 63 | | 63 | |
| 64 | | 64 | |

| Cluster switch A | | Cluster switch B | |
|---|---|---|---|
| 65 | ISL to switch B port 65 | 65 | ISL to switch A port 65 |
| 66 | ISL to switch B port 66 | 66 | ISL to switch A port 66 |

**What's next**

After you've completed your cabling worksheets, you can install the switch.

# Install the 92300YC cluster switch

Follow this procedure to set up and configure the Cisco Nexus 92300YC switch.

**Before you begin**

Make sure you have the following:

- Access to an HTTP, FTP, or TFTP server at the installation site to download the applicable NX-OS and Reference Configuration File (RCF) releases.
- Applicable NX-OS version, downloaded from the Cisco Software Download page.
- Applicable licenses, network and configuration information, and cables.
- Completed cabling worksheets.
- Applicable NetApp cluster network and management network RCFs downloaded from the NetApp Support Site at mysupport.netapp.com. All Cisco cluster network and management network switches arrive with the standard Cisco factory-default configuration. These switches also have the current version of the NX-OS software but do not have the RCFs loaded.
- Required switch and ONTAP documentation.

**Steps**

1. Rack the cluster network and management network switches and controllers.

| If you are installing the… | Then… |
|---|---|
| Cisco Nexus 92300YC in a NetApp system cabinet | See the *Installing a Cisco Nexus 92300YC cluster switch and pass-through panel in a NetApp cabinet* guide for instructions to install the switch in a NetApp cabinet. |
| Equipment in a Telco rack | See the procedures provided in the switch hardware installation guides and the NetApp installation and setup instructions. |

2. Cable the cluster network and management network switches to the controllers using the completed cabling worksheets.
3. Power on the cluster network and management network switches and controllers.

**What's next?**

Optionally, you can install a Cisco Nexus 3223C switch in a NetApp cabinet. Otherwise, go to Review cabling and configuration.

# Install a Cisco Nexus 92300YC cluster switch in a NetApp cabinet

Depending on your configuration, you might need to install the Cisco Nexus 92300YC cluster switch and pass-through panel in a NetApp cabinet with the standard brackets that are included with the switch.

**Before you begin**

- The initial preparation requirements, kit contents, and safety precautions in the Cisco Nexus 9000 Series Hardware Installation Guide.
- For each switch, the eight 10-32 or 12-24 screws and clip nuts to mount the brackets and slider rails to the front and rear cabinet posts.
- Cisco standard rail kit to install the switch in a NetApp cabinet.

> The jumper cords are not included with the pass-through kit and should be included with your switches. If they were not shipped with the switches, you can order them from NetApp (part number X1558A-R6).

**Steps**

1. Install the pass-through blanking panel in the NetApp cabinet.

   The pass-through panel kit is available from NetApp (part number X8784-R6).

   The NetApp pass-through panel kit contains the following hardware:

   - One pass-through blanking panel
   - Four 10-32 x .75 screws
   - Four 10-32 clip nuts

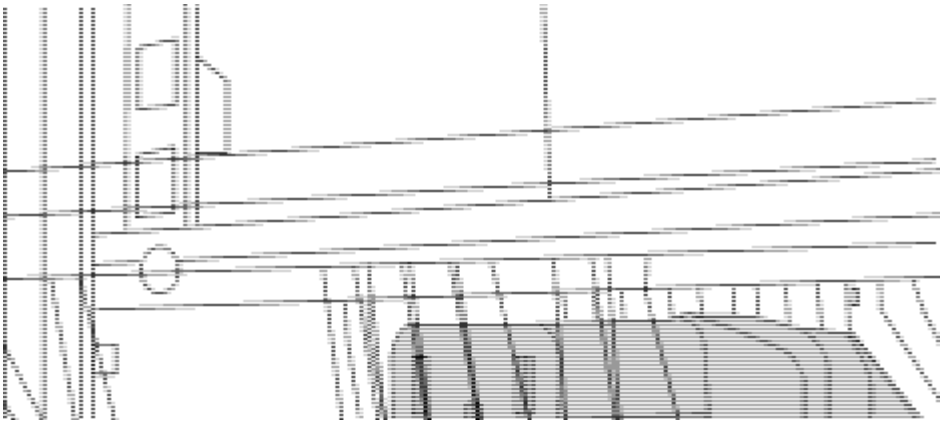
     a. Determine the vertical location of the switches and blanking panel in the cabinet.

        In this procedure, the blanking panel will be installed in U40.

     b. Install two clip nuts on each side in the appropriate square holes for front cabinet rails.

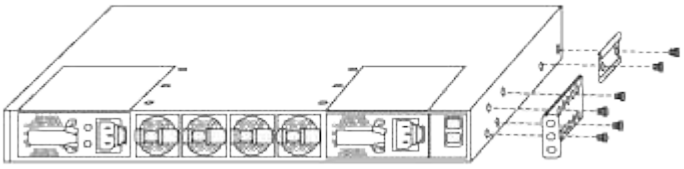
     c. Center the panel vertically to prevent intrusion into adjacent rack space, and then tighten the screws.

     d. Insert the female connectors of both 48-inch jumper cords from the rear of the panel and through the brush assembly.

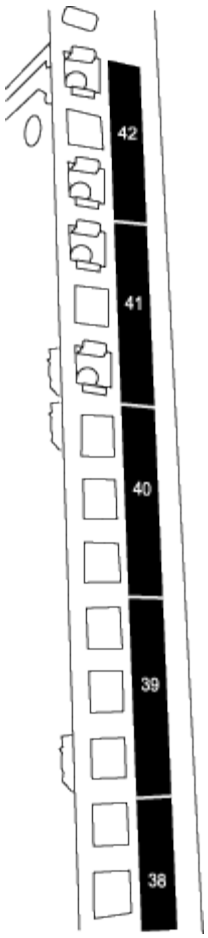


*(1) Female connector of the jumper cord.*

1. Install the rack-mount brackets on the Nexus 92300YC switch chassis.
   a. Position a front rack-mount bracket on one side of the switch chassis so that the mounting ear is aligned with the chassis faceplate (on the PSU or fan side), and then use four M4 screws to attach the bracket to the chassis.

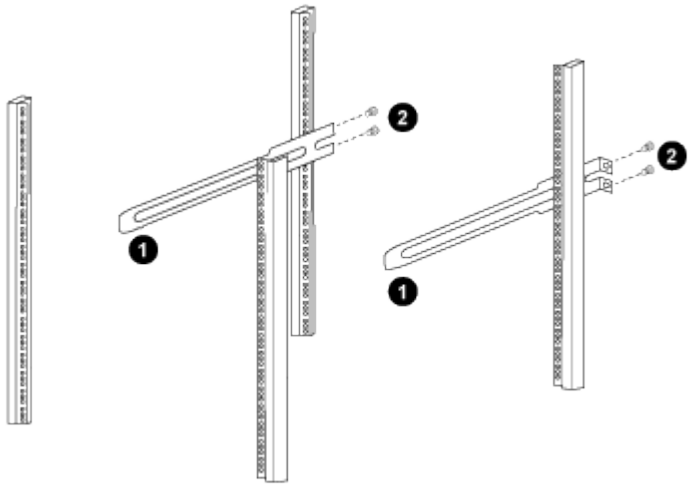


   b. Repeat step 2a with the other front rack-mount bracket on the other side of the switch.
   c. Install the rear rack-mount bracket on the switch chassis.
   d. Repeat step 2c with the other rear rack-mount bracket on the other side of the switch.
2. Install the clip nuts in the square hole locations for all four IEA posts.




The two 92300YC switches will always be mounted in the top 2U of the cabinet RU41 and 42.

3. Install the slider rails in the cabinet.
   a. Position the first slider rail at the RU42 mark on the back side of the rear left post, insert screws with the matching thread type, and then tighten the screws with your fingers.




*(1) As you gently slide the slider rail, align it to the screw holes in the rack.*
*(2) Tighten the screws of the slider rails to the cabinet posts.*

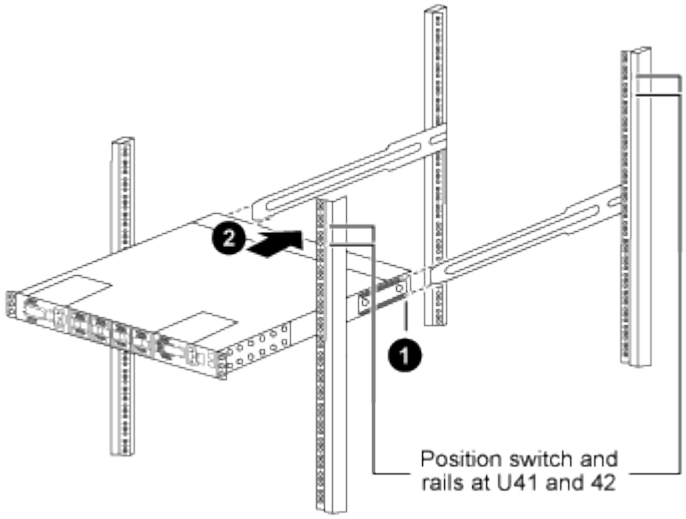
   b. Repeat step 4a for the right side rear post.

c. Repeat steps 4a and 4b at the RU41 locations on the cabinet.

4. Install the switch in the cabinet.

> This step requires two people: one person to support the switch from the front and another to guide the switch into the rear slider rails.

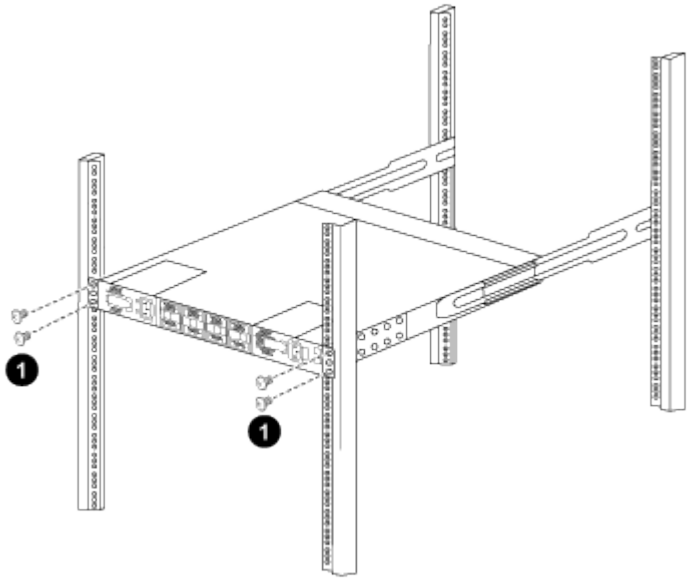
a. Position the back of the switch at RU41.




*(1) As the chassis is pushed toward the rear posts, align the two rear rack-mount guides with the slider rails.*

*(2) Gently slide the switch until the front rack-mount brackets are flush with the front posts.*

b. Attach the switch to the cabinet.




*(1) With one person holding the front of the chassis level, the other person should fully tighten the four rear screws to the cabinet posts.*

c. With the chassis now supported without assistance, fully tighten the front screws to the posts.

d. Repeat steps 5a through 5c for the second switch at the RU42 location.

> By using the fully installed switch as a support, it is not necessary to hold the front of the second switch during the installation process.

5. When the switches are installed, connect the jumper cords to the switch power inlets.
6. Connect the male plugs of both jumper cords to the closest available PDU outlets.

> To maintain redundancy, the two cords must be connected to different PDUs.

7. Connect the management port on each 92300YC switch to either of the management switches (if ordered) or connect them directly to your management network.

   The management port is the upper-right port located on the PSU side of the switch. The CAT6 cable for each switch needs to be routed through the pass-through panel after the switches are installed to connect to the management switches or management network.

**What's next**

After you've installed the switches in the NetApp cabinet, you can configure the switch.

# Review cabling and configuration considerations

Before configuring your Cisco 92300YC switch, review the following considerations.

## Support for NVIDIA CX6, CX6-DX, and CX7 Ethernet ports

If connecting a switch port to an ONTAP controller using NVIDIA ConnectX-6 (CX6), ConnectX-6 Dx (CX6-DX), or ConnectX-7 (CX7) NIC ports, you must hard-code the switch port speed.

```
(cs1)(config)# interface Ethernet1/19
For 100GbE speed:
(cs1)(config-if)# speed 100000
For 40GbE speed:
(cs1)(config-if)# speed 40000
(cs1)(config-if)# no negotiate auto
(cs1)(config-if)# exit
(cs1)(config)# exit
Save the changes:
(cs1)# copy running-config startup-config
```

See the Hardware Universe for more information on switch ports. See What additional information do I need to install my equipment that is not in HWU? for more information about switch installation requirements.

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