



# **Cisco 92300YC switches**

## **ONTAP Systems Switches**

NetApp

February 22, 2022

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# Cisco 92300YC switches

## Switches supported by ONTAP

If you want to build ONTAP clusters with more than two nodes, you need two supported cluster network switches. You can use additional management switches, which are optional.

You can install the Cisco Nexus 92300YC switch (X190003/R) in a NetApp system cabinet or third-party cabinet with the standard brackets that are included with the switch.

The following table lists the part number and description for the 92300YC switch, fans, and power supplies:

Part number	Description
190003	Cisco 92300YC, CLSW, 48Pt10/25GB, 18Pt100G, PTSX (PTSX = Port Side Exhaust)
190003R	Cisco 92300YC, CLSW, 48Pt10/25GB, 18Pt100G, PSIN (PSIN = Port Side Intake)
X-NXA-FAN-35CFM-B	Fan, Cisco N9K port side intake airflow
X-NXA-FAN-35CFM-F	Fan, Cisco N9K port side exhaust airflow
X-NXA-PAC-650W-B	Power supply, Cisco 650W - port side intake
X-NXA-PAC-650W-F	Power supply, Cisco 650W - port side exhaust

Cisco Nexus 92300YC switch airflow details:

- Port-side exhaust airflow (standard air) --Cool air enters the chassis through the fan and power supply modules in the cold aisle and exhausts through the port end of the chassis in the hot aisle. Port-side exhaust airflow with blue coloring.
- Port-side intake airflow (reverse air) --Cool air enters the chassis through the port end in the cold aisle and exhausts through the fan and power supply modules in the hot aisle. Port-side intake airflow with burgundy coloring.

## Other supported Switches

- Nexus 3232C

You can install the Cisco Nexus 3232C switch (X190100) NetApp system cabinet with the custom brackets that come with the switch, or you can install it in a rack with the standard brackets that are also included with the switch.

- Nexus 3132Q-V

You can install the Cisco Nexus 3132Q-V switch (X190001) in a NetApp system cabinet or third-party

cabinet with the standard brackets that are included with the switch.

The following cluster switches are no longer available from NetApp, but will be supported by Cisco for a limited time:

- Nexus 5596UP/5596T

You can install the Cisco Nexus 5596UP switch (X1967-R6) or 5596T (X1989-R6) in a NetApp system cabinet with the custom brackets that come with the switch, or you can install it in a rack with the standard brackets that are also included with the switch.

The Nexus 5596UP switch also supports one or two 16-port expansion modules (X1988-R6).

The Nexus 5596T switch is only supported as a cluster interconnect switch for the FAS2520 and is intended to be used for performing nondisruptive hardware upgrades.

[End of Availability](#) details.

## Set up

### Sample and blank cabling worksheets

#### Cisco Nexus 5596UP and 5596T cabling worksheet

If you want to document the supported platforms, you must complete the blank cabling worksheet by using the completed sample cabling worksheet as a guide.

#### Sample cabling worksheet

Some platforms support more than one 10GbE cluster port connection per cluster interconnect switch. To support additional cluster connections, you can use ports 25 through 40, as well as ports 49 through 80 when expansion modules are installed.

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	Node port 1	1	Node port 1
2	Node port 2	2	Node port 2
3	Node port 3	3	Node port 3
4	Node port 4	4	Node port 4
5	Node port 5	5	Node port 5
6	Node port 6	6	Node port 6

Cluster switch A		Cluster switch B	
7	Node port 7	7	Node port 7
8	Node port 8	8	Node port 8
9	Node port 9	9	Node port 9
10	Node port 10	10	Node port 10
11	Node port 11	11	Node port 11
12	Node port 12	12	Node port 12
13	Node port 13	13	Node port 13
14	Node port 14	14	Node port 14
15	Node port 15	15	Node port 15
16	Node port 16	16	Node port 16
17	Node port 17	17	Node port 17
18	Node port 18	18	Node port 18
19	Node port 19	19	Node port 19
20	Node port 20	20	Node port 20
21	Node port 21	21	Node port 21
22	Node port 22	22	Node port 22
23	Node port 23	23	Node port 23
24	Node port 24	24	Node port 24
25 through 40	Reserved	25 through 40	Reserved
41	ISL to switch B port 41	41	ISL to switch A port 41
42	ISL to switch B port 42	42	ISL to switch A port 42
43	ISL to switch B port 43	43	ISL to switch A port 43

Cluster switch A		Cluster switch B	
44	ISL to switch B port 44	44	ISL to switch A port 44
45	ISL to switch B port 45	45	ISL to switch A port 45
46	ISL to switch B port 46	46	ISL to switch A port 46
47	ISL to switch B port 47	47	ISL to switch A port 47
48	ISL to switch B port 48	48	ISL to switch A port 48

### 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.



Switch ports 1 through 24 function as 10 GbE ports. Switch ports 41 through 48 are reserved for Inter-Switch Links (ISLs).

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	

Cluster switch A		Cluster switch B	
12		12	
13		13	
14		14	
15		15	
16		16	
17		17	
18		18	
19		19	
20		20	
21		21	
22		22	
23		23	
24		24	
25 through 40	Reserved	25 through 40	Reserved
41	ISL to switch B port 41	41	ISL to switch A port 41
42	ISL to switch B port 42	42	ISL to switch A port 42
43	ISL to switch B port 43	43	ISL to switch A port 43
44	ISL to switch B port 44	44	ISL to switch A port 44
45	ISL to switch B port 45	45	ISL to switch A port 45
46	ISL to switch B port 46	46	ISL to switch A port 46
47	ISL to switch B port 47	47	ISL to switch A port 47
48	ISL to switch B port 48	48	ISL to switch A port 48

# Install NX-OS software and RCF on Cisco Nexus 92300YC cluster switches

## Install NX-OS software and RCF on Cisco Nexus 92300YC cluster switches

The Cisco NX-OS software and reference configuration files (RCFs) must be installed on Cisco Nexus 92300YC cluster switches.

### What you'll need

The following conditions must exist before you install the NX-OS software and Reference Configurations Files (RCFs) on the cluster switch:

- The cluster must be fully functioning (there should be no errors in the logs or similar issues).
- You must have checked or set your desired boot configuration in the RCF to reflect the desired boot images if you are installing only NX-OS and keeping your current RCF version.
- If you need to change the boot configuration to reflect the current boot images, you must do so before reapplying the RCF so that the correct version is instantiated on future reboots.
- You must have consulted the switch compatibility table on the Cisco Ethernet switch page for the supported ONTAP, NX-OS, and RCF versions.

#### [Cisco Ethernet switch](#)

- There can be command dependencies between the command syntax in the RCF and that found in versions of NX-OS.
- You must have referred to the appropriate software and upgrade guides available on the Cisco web site for complete documentation on the Cisco switch upgrade and downgrade procedures on *Cisco Nexus 9000 Series Switches*.

#### [Cisco Nexus 9000 Series Switches](#)

- You must have the current RCF.

### About this tasks

The examples in this procedure use two nodes. These nodes use two 10GbE cluster interconnect ports e0a and e0b.

See the [Hardware Universe](#) to verify the correct cluster ports on your platforms.



The command outputs might vary depending on different releases of ONTAP.

The examples in this procedure use the following switch and node nomenclature:

- The names of the two Cisco switches are `cs1` and `cs2`.
- The node names are `node1` and `node2`.
- The cluster LIF names are `node1_clus1` and `node1_clus2` for `node1` and `node2_clus1` and `node2_clus2` for `node2`.
- The `cluster1: :*>` prompt indicates the name of the cluster.





The procedure requires the use of both ONTAP commands and Cisco Nexus 9000 Series Switches commands; ONTAP commands are used unless otherwise indicated.

## Steps

1. Change the privilege level to advanced, entering **y** when prompted to continue:

```
set -privilege advanced
```

The advanced prompt (**\*>**) appears.

2. If AutoSupport is enabled on this cluster, suppress automatic case creation by invoking an AutoSupport message:

```
system node autosupport invoke -node * -type all -message MAINT=x h
```

where **x** is the duration of the maintenance window in hours.



The AutoSupport message notifies technical support of this maintenance task so that automatic case creation is suppressed during the maintenance window.

The following command suppresses automatic case creation for two hours:

```
cluster1:> system node autosupport invoke -node * -type all -message MAINT=2h
```

3. Display how many cluster interconnect interfaces are configured in each node for each cluster interconnect switch: `network device-discovery show -protocol cdp`

```
cluster1::*> **network device-discovery show -protocol cdp**
```

Node/ Protocol	Local Port	Discovered Device (LLDP: ChassisID)	Interface	Platform
node2	/cdp			
	e0a	cs1	Eth1/2	N9K-
C92300YC				
	e0b	cs2	Eth1/2	N9K-
C92300YC				
node1	/cdp			
	e0a	cs1	Eth1/1	N9K-
C92300YC				
	e0b	cs2	Eth1/1	N9K-
C92300YC				

4 entries were displayed.

4. Check the administrative or operational status of each cluster interface.

a. Display the network port attributes: `network port show -ipspace Cluster`

```
cluster1::*> **network port show -ipspace Cluster**
```

Node: node2

Port	IPspace	Broadcast Domain	Link	MTU	Speed(Mbps) Admin/Oper	Health Status
e0a	Cluster	Cluster	up	9000	auto/10000	healthy
e0b	Cluster	Cluster	up	9000	auto/10000	healthy

Node: node1

Port	IPspace	Broadcast Domain	Link	MTU	Speed(Mbps) Admin/Oper	Health Status
e0a	Cluster	Cluster	up	9000	auto/10000	healthy
e0b	Cluster	Cluster	up	9000	auto/10000	healthy

4 entries were displayed.

b. Display information about the LIFs: `network interface show -vserver Cluster`

```
cluster1::*> **network interface show -vserver Cluster**
```

Current Is	Logical	Status	Network	Current
Vserver	Interface	Admin/Oper	Address/Mask	Node
Port	Home			
Cluster				
e0a	node1_clus1	up/up	169.254.209.69/16	node1
e0b	node1_clus2	up/up	169.254.49.125/16	node1
e0a	node2_clus1	up/up	169.254.47.194/16	node2
e0b	node2_clus2	up/up	169.254.19.183/16	node2

4 entries were displayed.

## 5. Ping the remote cluster LIFs:

```
cluster ping-cluster -node node-name
```

```
cluster1::*> **cluster ping-cluster -node node2**
Host is node2
Getting addresses from network interface table...
Cluster node1_clus1 169.254.209.69 node1      e0a
Cluster node1_clus2 169.254.49.125 node1      e0b
Cluster node2_clus1 169.254.47.194 node2      e0a
Cluster node2_clus2 169.254.19.183 node2      e0b
Local = 169.254.47.194 169.254.19.183
Remote = 169.254.209.69 169.254.49.125
Cluster Vserver Id = 4294967293
Ping status:

Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)

Detected 9000 byte MTU on 4 path(s):
    Local 169.254.19.183 to Remote 169.254.209.69
    Local 169.254.19.183 to Remote 169.254.49.125
    Local 169.254.47.194 to Remote 169.254.209.69
    Local 169.254.47.194 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)
```

## 6. Verify that the auto-revert command is enabled on all cluster LIFs:

```
network interface show -vserver Cluster -fields auto-revert
```

```
cluster1::*> **network interface show -vserver Cluster -fields auto-revert**
```

Vserver	Logical Interface	Auto-revert
Cluster	node1_clus1	true
	node1_clus2	true
	node2_clus1	true
	node2_clus2	true

4 entries were displayed.

7. For ONTAP 9.4 and later, enable the cluster switch health monitor log collection feature for collecting switch-related log files:

```
system cluster-switch log setup-password system cluster-switch log enable-collection
```

```

cluster1::*> **system cluster-switch log setup-password**
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
NBS-NIC-NXYC-01
NBS-NIC-NXYC-02

cluster1::*> **system cluster-switch log setup-password**

Enter the switch name: **NBS-NIC-NXYC-01
**RSA key fingerprint is e5:8b:c6:dc:e2:18:18:09:36:63:d9:63:dd:03:d9:cc
Do you want to continue? {y|n}::[n] **y**

Enter the password: <enter switch password>
Enter the password again: <enter switch password>

cluster1::*> **system cluster-switch log setup-password**

Enter the switch name: **NBS-NIC-NXYC-02**
RSA key fingerprint is 57:49:86:a1:b9:80:6a:61:9a:86:8e:3c:e3:b7:1f:b1
Do you want to continue? {y|n}:: [n] **y**

Enter the password: <enter switch password>
Enter the password again: <enter switch password>

cluster1::*> **system cluster-switch log enable-collection**

Do you want to enable cluster log collection for all nodes in the
cluster?
{y|n}: [n] **y**

Enabling cluster switch log collection.

cluster1::*>

```



If any of these commands return an error, contact NetApp support.

## Install the NX-OS software

You can use this procedure to install the NX-OS software on the Nexus 92300YC switch.

### Steps

1. Connect the cluster switch to the management network.
2. Use the `ping` command to verify connectivity to the server hosting the NX-OS software and the RCF.

This example verifies that the switch can reach the server at IP address 172.19.2.1:

```
cs2# **ping 172.19.2.1**
Pinging 172.19.2.1 with 0 bytes of data:

Reply From 172.19.2.1: icmp_seq = 0. time= 5910 usec.
```

### 3. Copy the NX-OS software and EPLD images to the Nexus 92300YC switch.

```
cs2# **copy sftp: bootflash: vrf management**
Enter source filename: **/code/nxos.9.2.2.bin**
Enter hostname for the sftp server: **172.19.2.1**
Enter username: **user1**

Outbound-ReKey for 172.19.2.1:22
Inbound-ReKey for 172.19.2.1:22
user1@172.19.2.1's password:
sftp> progress
Progress meter enabled
sftp> get /code/nxos.9.2.2.bin /bootflash/nxos.9.2.2.bin
/code/nxos.9.2.2.bin 100% 1261MB 9.3MB/s 02:15
sftp> exit
Copy complete, now saving to disk (please wait)...
Copy complete.

cs2# **copy sftp: bootflash: vrf management**
Enter source filename: **/code/n9000-epld.9.2.2.img**
Enter hostname for the sftp server: **172.19.2.1**
Enter username: **user1**

Outbound-ReKey for 172.19.2.1:22
Inbound-ReKey for 172.19.2.1:22
user1@172.19.2.1's password:
sftp> progress
Progress meter enabled
sftp> get /code/n9000-epld.9.2.2.img /bootflash/n9000-epld.9.2.2.img
/code/n9000-epld.9.2.2.img 100% 161MB 9.5MB/s 00:16
sftp> exit
Copy complete, now saving to disk (please wait)...
Copy complete.
```

### 4. Verify the running version of the NX-OS software:

```
cs2# **show version**
```

Cisco Nexus Operating System (NX-OS) Software

TAC support: <http://www.cisco.com/tac>

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#### Software

BIOS: version 05.31

NXOS: version 9.2(1)

BIOS compile time: 05/17/2018

NXOS image file is: bootflash:///nxos.9.2.1.bin

NXOS compile time: 7/17/2018 16:00:00 [07/18/2018 00:21:19]

#### Hardware

cisco Nexus9000 C92300YC Chassis

Intel(R) Xeon(R) CPU D-1526 @ 1.80GHz with 16337884 kB of memory.

Processor Board ID FDO220329V5

Device name: cs2

bootflash: 115805356 kB

Kernel uptime is 0 day(s), 4 hour(s), 23 minute(s), 11 second(s)

Last reset at 271444 usecs after Wed Apr 10 00:25:32 2019

Reason: Reset Requested by CLI command reload

System version: 9.2(1)

Service:

```
plugin
  Core Plugin, Ethernet Plugin

Active Package(s):

cs2#
```

## 5. Install the NX-OS image.

Installing the image file causes it to be loaded every time the switch is rebooted.

```
cs2# **install all nxos bootflash:nxos.9.2.2.bin**

Installer will perform compatibility check first. Please wait.
Installer is forced disruptive

Verifying image bootflash:/nxos.9.2.2.bin for boot variable "nxos".
[#####] 100% -- SUCCESS

Verifying image type.
[#####] 100% -- SUCCESS

Preparing "nxos" version info using image bootflash:/nxos.9.2.2.bin.
[#####] 100% -- SUCCESS

Preparing "bios" version info using image bootflash:/nxos.9.2.2.bin.
[#####] 100% -- SUCCESS

Performing module support checks.
[#####] 100% -- SUCCESS

Notifying services about system upgrade.
[#####] 100% -- SUCCESS


Compatibility check is done:
Module  bootable      Impact      Install-type  Reason
-----  -
1       yes             disruptive    reset         default upgrade is not
hitless

Images will be upgraded according to following table:
```



Module	Image	Running-Version (pri:alt)	New-Version
Upg-Required			
-----			
1	nxos		9.2(1)
9.2(2)	yes		
1	bios	v05.31(05/17/2018):v05.28(01/18/2018)	
v05.33(09/08/2018)	yes		

Switch will be reloaded for disruptive upgrade.

Do you want to continue with the installation (y/n)? [n] \*\*y\*\*

Install is in progress, please wait.

Performing runtime checks.

[#####] 100% -- SUCCESS

Setting boot variables.

[#####] 100% -- SUCCESS

Performing configuration copy.

[#####] 100% -- SUCCESS

Module 1: Refreshing compact flash and upgrading bios/loader/bootrom.

Warning: please do not remove or power off the module at this time.

[#####] 100% -- SUCCESS

2019 Apr 10 04:59:35 cs2 %\$ VDC-1 %\$ %VMAN-2-ACTIVATION\_STATE:

Successfully deactivated virtual service 'guestshell+'

Finishing the upgrade, switch will reboot in 10 seconds.

## 6. Verify the new version of NX-OS software after the switch has rebooted:

show version

```
cs2# **show version**
```

Cisco Nexus Operating System (NX-OS) Software

TAC support: <http://www.cisco.com/tac>

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<http://www.gnu.org/licenses/old-licenses/library.txt>.

#### Software

BIOS: version 05.33  
NXOS: version 9.2(2)  
BIOS compile time: 09/08/2018  
NXOS image file is: bootflash:///nxos.9.2.2.bin  
NXOS compile time: 11/4/2018 21:00:00 [11/05/2018 06:11:06]

#### Hardware

cisco Nexus9000 C92300YC Chassis  
Intel(R) Xeon(R) CPU D-1526 @ 1.80GHz with 16337884 kB of memory.  
Processor Board ID FDO220329V5

Device name: cs2  
bootflash: 115805356 kB  
Kernel uptime is 0 day(s), 0 hour(s), 3 minute(s), 52 second(s)

Last reset at 182004 usecs after Wed Apr 10 04:59:48 2019

Reason: Reset due to upgrade  
System version: 9.2(1)  
Service:

#### plugin

Core Plugin, Ethernet Plugin

Active Package(s):

## 7. Upgrade the EPLD image and reboot the switch.

```
cs2# **show version module 1 epld**
```

EPLD Device	Version
MI FPGA	0x7
IO FPGA	0x17
MI FPGA2	0x2
GEM FPGA	0x2
GEM FPGA	0x2
GEM FPGA	0x2
GEM FPGA	0x2

```
cs2# **install epld bootflash:n9000-epld.9.2.2.img module 1**
```

Compatibility check:

Module	Type	Upgradable	Impact	Reason
1	SUP	Yes	disruptive	Module Upgradable

Retrieving EPLD versions.... Please wait.

Images will be upgraded according to following table:

Module	Type	EPLD	Running-Version	New-Version	Upg-Required
1	SUP	MI FPGA	0x07	0x07	No
1	SUP	IO FPGA	0x17	0x19	Yes
1	SUP	MI FPGA2	0x02	0x02	No

The above modules require upgrade.

The switch will be reloaded at the end of the upgrade

Do you want to continue (y/n) ? [n] \*\*y\*\*

Proceeding to upgrade Modules.

Starting Module 1 EPLD Upgrade

Module 1 : IO FPGA [Programming] : 100.00% ( 64 of 64 sectors)

Module 1 EPLD upgrade is successful.

Module	Type	Upgrade-Result
1	SUP	Success

EPLDs upgraded.

Module 1 EPLD upgrade is successful.

8. After the switch reboot, log in again and verify that the new version of EPLD loaded successfully.

```
cs2# **show version module 1 epld**

EPLD Device                      Version
-----
MI  FPGA                        0x7
IO  FPGA                        0x19
MI  FPGA2                       0x2
GEM  FPGA                       0x2
GEM  FPGA                       0x2
GEM  FPGA                       0x2
GEM  FPGA                       0x2
```

## Install the Reference Configuration File (RCF)

You can install the RCF after setting up the Nexus 92300YC switch for the first time.

### Steps

1. Connect the cluster switch to the management network.
2. Use the ping command to verify connectivity to the server hosting the RCF.

This example verifies that the switch can reach the server at IP address 172.19.2.1:

```
cs2# **ping 172.19.2.1**
Pinging 172.19.2.1 with 0 bytes of data:

Reply From 172.19.2.1: icmp_seq = 0. time= 5910 usec.
```

3. Copy the RCF to the Nexus 92300YC switch:

```
cs2# **copy sftp: bootflash: vrf management**
Enter source filename: **/code/Nexus_92300YC_RCF_v1.0.2.txt**
Enter hostname for the sftp server: **172.19.2.1**
Enter username: **user1**

Outbound-ReKey for 172.19.2.1:22
Inbound-ReKey for 172.19.2.1:22
user1@172.19.2.1's password:
sftp> progress
Progress meter enabled
sftp> get    /code/Nexus_92300YC_RCF_v1.0.2.txt
/bootflash/nxos.9.2.2.bin
/code/Nexus_92300YC_R  100% 9687    530.2KB/s    00:00
sftp> exit
Copy complete, now saving to disk (please wait)...
Copy complete.
```

#### 4. Merge the RCF with the running-config of the switch:

```
cs2# **copy bootflash:Nexus_92300YC_RCF_v1.0.2.txt running-config**
```

Disabling ssh: as its enabled right now:

generating ecdsa key(521 bits).....

generated ecdsa key

Enabling ssh: as it has been disabled

this command enables edge port type (portfast) by default on all interfaces. You

should now disable edge port type (portfast) explicitly on switched ports leading to hubs,

switches and bridges as they may create temporary bridging loops.

Edge port type (portfast) should only be enabled on ports connected to a single

host. Connecting hubs, concentrators, switches, bridges, etc... to this

interface when edge port type (portfast) is enabled, can cause temporary bridging loops.

Use with CAUTION

Edge Port Type (Portfast) has been configured on Ethernet1/1 but will only

have effect when the interface is in a non-trunking mode.

...

Copy complete, now saving to disk (please wait)...

Copy complete.

5. Verify on the switch that the RCF has been merged successfully:

```
show running-config
```

```

cs2# **show running-config**
!Command: show running-config
!Running configuration last done at: Wed Apr 10 06:32:27 2019
!Time: Wed Apr 10 06:36:00 2019

version 9.2(2) Bios:version 05.33
switchname cs2
vdc cs2 id 1
  limit-resource vlan minimum 16 maximum 4094
  limit-resource vrf minimum 2 maximum 4096
  limit-resource port-channel minimum 0 maximum 511
  limit-resource u4route-mem minimum 248 maximum 248
  limit-resource u6route-mem minimum 96 maximum 96
  limit-resource m4route-mem minimum 58 maximum 58
  limit-resource m6route-mem minimum 8 maximum 8

feature lacp

no password strength-check
username admin password 5
$5$HY9Kk3F9$YdCZ8iQJlRtoiEFa0sKP5IO/LNG1k9C4lSJfi5kesl
6  role network-admin
ssh key ecdsa 521

banner motd #
*****
*****
*
*
*  Nexus 92300YC Reference Configuration File (RCF) v1.0.2 (10-19-2018)
*
*
*
*  Ports 1/1 - 1/48: 10GbE Intra-Cluster Node Ports
*
*  Ports 1/49 - 1/64: 40/100GbE Intra-Cluster Node Ports
*
*  Ports 1/65 - 1/66: 40/100GbE Intra-Cluster ISL Ports
*
*
*
*****
*****

```

6. Save the running configuration so that it becomes the startup configuration when you reboot the switch:

```
cs2# **copy running-config startup-config**

[#####] 100%
Copy complete, now saving to disk (please wait)...
Copy complete.
```

7. For ONTAP 9.6P8 and later, enable the CSHM ASUP log collection feature for collecting switch-related log files: `system cluster-switch log setup-password` and `system cluster-switch log enable-collection`

```
cs2# **system cluster-switch log setup-password**
** Output example required here
cs2# **system cluster-switch log enable-collection**
** Output example required here too
```

8. Reboot the switch and verify that the running configuration is correct:

```
reload
```

```
cs2# **reload**

This command will reboot the system. (y/n)? [n] **y**
```

## Configure a new Cisco Nexus 92300YC switch

### Configure a new Cisco Nexus 92300YC switch

You can configure a new Nexus 92300YC switch by completing the steps detailed in this chapter.

Installing the Nexus 92300YC switch on systems running ONTAP 9.6 and later, starts with setting up an IP address and configuration to allow the switch to communicate through the management interface. You can then install the NX-OS software and reference configuration file (RCF). This procedure is intended for preparing the Nexus 92300YC switch before controllers are added.

The examples in this procedure use the following switch and node nomenclature:

- The Nexus 92300YC switch names are `cs1` and `cs2`.
- The example used in this procedure starts the upgrade on the second switch, `*cs2*`.
- The cluster LIF names are `node1_clus1` and `node1_clus2` for `node1`, and `node2_clus1` and `node2_clus2` for `node2`.
- The IPspace name is `Cluster`.
- The `cluster1::*>` prompt indicates the name of the cluster.



- The cluster ports on each node are named e0a and e0b.

See the *Hardware Universe* for the actual cluster ports supported on your platform.

[NetApp Hardware Universe](#)

- The Inter-Switch Links (ISLs) supported for the Nexus 92300YC switches are ports 1/65 and 1/66.
- The node connections supported for the Nexus 92300YC switches are ports 1/1 through 1/66.
- The examples in this procedure use two nodes, but you can have up to 24 nodes in a cluster.

## Initial installation of the Cisco Nexus 92300YC switch

You can use this procedure to perform the initial installation of the Cisco Nexus 92300YC switch.

### About this task

You can download the applicable NetApp Cisco NX-OS software for your switches from the NetApp Support Site at [mysupport.netapp.com](https://mysupport.netapp.com)

NX-OS is a network operating system for the Nexus series of Ethernet switches and MDS series of Fibre Channel (FC) storage area network switches provided by Cisco Systems.

This procedure provides a summary of the process to install your switches and get them running:

### Steps

1. Connect the serial port to the host or serial port of your choice.
2. Connect the management port (on the non-port side of the switch) to the same network where your SFTP server is located.
3. At the console, set the host side serial settings:
  - 9600 baud
  - 8 data bits
  - 1 stop bit
  - parity: none
  - flow control: none
4. Booting for the first time or rebooting after erasing the running configuration, the Nexus 92300YC switch loops in a boot cycle. Interrupt this cycle by typing **yes** to abort Power on Auto Provisioning. You are then presented with the System Admin Account setup:

```
$ VDC-1 %$ %POAP-2-POAP_INFO:   - Abort Power On Auto Provisioning [yes
- continue with normal setup, skip - bypass password and basic
configuration, no - continue with Power On Auto Provisioning]
(yes/skip/no) [no]:
**yes**
Disabling POAP.....Disabling POAP
2019 Apr 10 00:36:17 switch %$ VDC-1 %$ poap: Rolling back, please
wait... (This may take 5-15 minutes)
```

```
---- System Admin Account Setup ----
```

```
Do you want to enforce secure password standard (yes/no) [y]:
```

5. Type **y** to enforce secure password standard:

```
Do you want to enforce secure password standard (yes/no) [y]: **y**
```

6. Enter and confirm the password for user admin:

```
Enter the password for "admin":  
Confirm the password for "admin":
```

7. Enter the Basic System Configuration dialog:

```
This setup utility will guide you through the basic configuration of  
the system. Setup configures only enough connectivity for management  
of the system.
```

```
Please register Cisco Nexus9000 Family devices promptly with your  
supplier. Failure to register may affect response times for initial  
service calls. Nexus9000 devices must be registered to receive  
entitled support services.
```

```
Press Enter at anytime to skip a dialog. Use ctrl-c at anytime  
to skip the remaining dialogs.
```

```
Would you like to enter the basic configuration dialog (yes/no):
```

8. Create another login account:

```
Create another login account (yes/no) [n]:
```

9. Configure read-only and read-write SNMP community strings:

```
Configure read-only SNMP community string (yes/no) [n]:
```

```
Configure read-write SNMP community string (yes/no) [n]:
```

10. Configure the cluster switch name:

```
Enter the switch name : **cs2**
```

11. Configure the out-of-band management interface:

```
Continue with Out-of-band (mgmt0) management configuration? (yes/no)
[y]: **y**
```

```
Mgmt0 IPv4 address : 172.22.133.216
```

```
Mgmt0 IPv4 netmask : 255.255.224.0
```

```
Configure the default gateway? (yes/no) [y]: **y**
```

```
IPv4 address of the default gateway : 172.22.128.1
```

12. Configure advanced IP options:

```
Configure advanced IP options? (yes/no) [n]: **n**
```

13. Configure Telnet services:

```
Enable the telnet service? (yes/no) [n]: **n**
```

14. Configure SSH services and SSH keys:

```
Enable the ssh service? (yes/no) [y]: **y**
```

```
    Type of ssh key you would like to generate (dsa/rsa) [rsa]:
**rsa**
```

```
    Number of rsa key bits <1024-2048> [1024]: **2048**
```

15. Configure other settings:

```
Configure the ntp server? (yes/no) [n]: **n**

Configure default interface layer (L3/L2) [L2]: **L2**

Configure default switchport interface state (shut/noshut) [noshut]:
**noshut**

Configure CoPP system profile (strict/moderate/lenient/dense)
[strict]: **strict**
```

16. Confirm switch information and save the configuration:

```
Would you like to edit the configuration? (yes/no) [n]: **n**

Use this configuration and save it? (yes/no) [y]: **y**

[#####] 100%
Copy complete, now saving to disk (please wait)...
Copy complete.
```

## Install the NX-OS software

You can use this procedure to install the NX-OS software on the Nexus 92300YC switch.

### Steps

1. Connect the cluster switch to the management network.
2. Use the `ping` command to verify connectivity to the server hosting the NX-OS software and the RCF.

This example verifies that the switch can reach the server at IP address 172.19.2.1:

```
cs2# **ping 172.19.2.1**
Pinging 172.19.2.1 with 0 bytes of data:

Reply From 172.19.2.1: icmp_seq = 0. time= 5910 usec.
```

3. Copy the NX-OS software and EPLD images to the Nexus 92300YC switch.

```

cs2# **copy sftp: bootflash: vrf management**
Enter source filename: **/code/nxos.9.2.2.bin**
Enter hostname for the sftp server: **172.19.2.1**
Enter username: **user1**

Outbound-ReKey for 172.19.2.1:22
Inbound-ReKey for 172.19.2.1:22
user1@172.19.2.1's password:
sftp> progress
Progress meter enabled
sftp> get /code/nxos.9.2.2.bin /bootflash/nxos.9.2.2.bin
/code/nxos.9.2.2.bin 100% 1261MB 9.3MB/s 02:15
sftp> exit
Copy complete, now saving to disk (please wait)...
Copy complete.

cs2# **copy sftp: bootflash: vrf management**
Enter source filename: **/code/n9000-epld.9.2.2.img**
Enter hostname for the sftp server: **172.19.2.1**
Enter username: **user1**

Outbound-ReKey for 172.19.2.1:22
Inbound-ReKey for 172.19.2.1:22
user1@172.19.2.1's password:
sftp> progress
Progress meter enabled
sftp> get /code/n9000-epld.9.2.2.img /bootflash/n9000-epld.9.2.2.img
/code/n9000-epld.9.2.2.img 100% 161MB 9.5MB/s 00:16
sftp> exit
Copy complete, now saving to disk (please wait)...
Copy complete.

```

#### 4. Verify the running version of the NX-OS software:

```

cs2# **show version**
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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<http://www.gnu.org/licenses/old-licenses/library.txt>.

#### Software

BIOS: version 05.31  
NXOS: version 9.2(1)  
BIOS compile time: 05/17/2018  
NXOS image file is: bootflash:///nxos.9.2.1.bin  
NXOS compile time: 7/17/2018 16:00:00 [07/18/2018 00:21:19]

#### Hardware

cisco Nexus9000 C92300YC Chassis  
Intel(R) Xeon(R) CPU D-1526 @ 1.80GHz with 16337884 kB of memory.  
Processor Board ID FDO220329V5

Device name: cs2  
bootflash: 115805356 kB

Kernel uptime is 0 day(s), 4 hour(s), 23 minute(s), 11 second(s)

Last reset at 271444 usecs after Wed Apr 10 00:25:32 2019

Reason: Reset Requested by CLI command reload

System version: 9.2(1)

Service:

#### plugin

Core Plugin, Ethernet Plugin

Active Package(s):

cs2#

## 5. Install the NX-OS image.

Installing the image file causes it to be loaded every time the switch is rebooted.

```
cs2# **install all nxos bootflash:nxos.9.2.2.bin**
```

```
Installer will perform compatibility check first. Please wait.  
Installer is forced disruptive
```

```
Verifying image bootflash:/nxos.9.2.2.bin for boot variable "nxos".  
[#####] 100% -- SUCCESS
```

```
Verifying image type.  
[#####] 100% -- SUCCESS
```

```
Preparing "nxos" version info using image bootflash:/nxos.9.2.2.bin.  
[#####] 100% -- SUCCESS
```

```
Preparing "bios" version info using image bootflash:/nxos.9.2.2.bin.  
[#####] 100% -- SUCCESS
```

```
Performing module support checks.  
[#####] 100% -- SUCCESS
```

```
Notifying services about system upgrade.  
[#####] 100% -- SUCCESS
```

```
Compatibility check is done:
```

Module	bootable	Impact	Install-type	Reason
1	yes	disruptive	reset	default upgrade is not hitless

```
Images will be upgraded according to following table:
```

Module	Image	Running-Version(pri:alt	New-Version
Upg-Required			
1	nxos	9.2(1)	
9.2(2)	yes		
1	bios	v05.31(05/17/2018):v05.28(01/18/2018)	
v05.33(09/08/2018)	yes		

```
Switch will be reloaded for disruptive upgrade.
```

```
Do you want to continue with the installation (y/n)? [n] **y**
```

```
Install is in progress, please wait.
```

```
Performing runtime checks.
```

```
[#####] 100% -- SUCCESS
```

```
Setting boot variables.
```

```
[#####] 100% -- SUCCESS
```

```
Performing configuration copy.
```

```
[#####] 100% -- SUCCESS
```

```
Module 1: Refreshing compact flash and upgrading bios/loader/bootrom.
```

```
Warning: please do not remove or power off the module at this time.
```

```
[#####] 100% -- SUCCESS
```

```
2019 Apr 10 04:59:35 cs2 %$ VDC-1 %$ %VMAN-2-ACTIVATION_STATE:
```

```
Successfully deactivated virtual service 'guestshell+'
```

```
Finishing the upgrade, switch will reboot in 10 seconds.
```

6. Verify the new version of NX-OS software after the switch has rebooted:

```
show version
```

```
cs2# **show version**
```

```
Cisco Nexus Operating System (NX-OS) Software
```

```
TAC support: http://www.cisco.com/tac
```

```
Copyright (C) 2002-2018, Cisco and/or its affiliates.
```

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```

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http://www.opensource.org/licenses/lgpl-2.1.php and  
http://www.gnu.org/licenses/old-licenses/library.txt.
```

#### Software

```
BIOS: version 05.33  
NXOS: version 9.2(2)  
BIOS compile time: 09/08/2018  
NXOS image file is: bootflash:///nxos.9.2.2.bin  
NXOS compile time: 11/4/2018 21:00:00 [11/05/2018 06:11:06]
```

#### Hardware

```
cisco Nexus9000 C92300YC Chassis  
Intel(R) Xeon(R) CPU D-1526 @ 1.80GHz with 16337884 kB of memory.  
Processor Board ID FDO220329V5
```

```
Device name: cs2  
bootflash: 115805356 kB  
Kernel uptime is 0 day(s), 0 hour(s), 3 minute(s), 52 second(s)
```

```
Last reset at 182004 usecs after Wed Apr 10 04:59:48 2019
```

```
Reason: Reset due to upgrade  
System version: 9.2(1)  
Service:
```

#### plugin

```
Core Plugin, Ethernet Plugin
```

```
Active Package(s):
```

7. Upgrade the EPLD image and reboot the switch.

```
cs2# **show version module 1 epld**
```

EPLD Device	Version
MI FPGA	0x7
IO FPGA	0x17
MI FPGA2	0x2
GEM FPGA	0x2
GEM FPGA	0x2
GEM FPGA	0x2
GEM FPGA	0x2

```
cs2# **install epld bootflash:n9000-epld.9.2.2.img module 1**
```

Compatibility check:

Module	Type	Upgradable	Impact	Reason
1	SUP	Yes	disruptive	Module Upgradable

Retrieving EPLD versions.... Please wait.

Images will be upgraded according to following table:

Module	Type	EPLD	Running-Version	New-Version	Upg-Required
1	SUP	MI FPGA	0x07	0x07	No
1	SUP	IO FPGA	0x17	0x19	Yes
1	SUP	MI FPGA2	0x02	0x02	No

The above modules require upgrade.

The switch will be reloaded at the end of the upgrade

Do you want to continue (y/n) ? [n] \*\*y\*\*

Proceeding to upgrade Modules.

Starting Module 1 EPLD Upgrade

Module 1 : IO FPGA [Programming] : 100.00% ( 64 of 64 sectors)

Module 1 EPLD upgrade is successful.

Module	Type	Upgrade-Result
1	SUP	Success

EPLDs upgraded.

Module 1 EPLD upgrade is successful.

8. After the switch reboot, log in again and verify that the new version of EPLD loaded successfully.

```
cs2# **show version module 1 epld**

EPLD Device                      Version
-----
MI  FPGA                        0x7
IO  FPGA                        0x19
MI  FPGA2                       0x2
GEM  FPGA                       0x2
GEM  FPGA                       0x2
GEM  FPGA                       0x2
GEM  FPGA                       0x2
```

## Install the Reference Configuration File (RCF)

You can install the RCF after setting up the Nexus 92300YC switch for the first time.

### Steps

1. Connect the cluster switch to the management network.
2. Use the ping command to verify connectivity to the server hosting the RCF.

This example verifies that the switch can reach the server at IP address 172.19.2.1:

```
cs2# **ping 172.19.2.1**
Pinging 172.19.2.1 with 0 bytes of data:

Reply From 172.19.2.1: icmp_seq = 0. time= 5910 usec.
```

3. Copy the RCF to the Nexus 92300YC switch:

```
cs2# **copy sftp: bootflash: vrf management**
Enter source filename: **/code/Nexus_92300YC_RCF_v1.0.2.txt**
Enter hostname for the sftp server: **172.19.2.1**
Enter username: **user1**

Outbound-ReKey for 172.19.2.1:22
Inbound-ReKey for 172.19.2.1:22
user1@172.19.2.1's password:
sftp> progress
Progress meter enabled
sftp> get    /code/Nexus_92300YC_RCF_v1.0.2.txt
/bootflash/nxos.9.2.2.bin
/code/Nexus_92300YC_R  100% 9687    530.2KB/s    00:00
sftp> exit
Copy complete, now saving to disk (please wait)...
Copy complete.
```

#### 4. Merge the RCF with the running-config of the switch:

```
cs2# **copy bootflash:Nexus_92300YC_RCF_v1.0.2.txt running-config**
```

Disabling ssh: as its enabled right now:

generating ecdsa key(521 bits).....

generated ecdsa key

Enabling ssh: as it has been disabled

this command enables edge port type (portfast) by default on all interfaces. You

should now disable edge port type (portfast) explicitly on switched ports leading to hubs,

switches and bridges as they may create temporary bridging loops.

Edge port type (portfast) should only be enabled on ports connected to a single

host. Connecting hubs, concentrators, switches, bridges, etc... to this

interface when edge port type (portfast) is enabled, can cause temporary bridging loops.

Use with CAUTION

Edge Port Type (Portfast) has been configured on Ethernet1/1 but will only

have effect when the interface is in a non-trunking mode.

...

Copy complete, now saving to disk (please wait)...

Copy complete.

5. Verify on the switch that the RCF has been merged successfully:

```
show running-config
```

```

cs2# **show running-config**
!Command: show running-config
!Running configuration last done at: Wed Apr 10 06:32:27 2019
!Time: Wed Apr 10 06:36:00 2019

version 9.2(2) Bios:version 05.33
switchname cs2
vdc cs2 id 1
    limit-resource vlan minimum 16 maximum 4094
    limit-resource vrf minimum 2 maximum 4096
    limit-resource port-channel minimum 0 maximum 511
    limit-resource u4route-mem minimum 248 maximum 248
    limit-resource u6route-mem minimum 96 maximum 96
    limit-resource m4route-mem minimum 58 maximum 58
    limit-resource m6route-mem minimum 8 maximum 8

feature lacp

no password strength-check
username admin password 5
$5$HY9Kk3F9$YdCZ8iQJlRtoiEFa0sKP5IO/LNG1k9C4lSJfi5kesl
6  role network-admin
ssh key ecdsa 521

banner motd #
*****
*****
*
*
*   Nexus 92300YC Reference Configuration File (RCF) v1.0.2 (10-19-2018)
*
*
*
*   Ports 1/1 - 1/48: 10GbE Intra-Cluster Node Ports
*
*   Ports 1/49 - 1/64: 40/100GbE Intra-Cluster Node Ports
*
*   Ports 1/65 - 1/66: 40/100GbE Intra-Cluster ISL Ports
*
*
*
*****
*****

```

6. Save the running configuration so that it becomes the startup configuration when you reboot the switch:

```
cs2# **copy running-config startup-config**

[#####] 100%
Copy complete, now saving to disk (please wait)...
Copy complete.
```

7. For ONTAP 9.6P8 and later, enable the CSHM ASUP log collection feature for collecting switch-related log files: `system cluster-switch log setup-password` and `system cluster-switch log enable-collection`

```
cs2# **system cluster-switch log setup-password**
** Output example required here
cs2# **system cluster-switch log enable-collection**
** Output example required here too
```

8. Reboot the switch and verify that the running configuration is correct:

`reload`

```
cs2# **reload**

This command will reboot the system. (y/n)? [n] **y**
```

## Replace a Cisco Nexus 92300YC switch

Replacing a defective Nexus 92300YC switch in a cluster network is a nondisruptive procedure (NDU).

### What you'll need

The following conditions must exist before performing the switch replacement in the current environment and on the replacement switch.

- Existing cluster and network infrastructure:
  - The existing cluster must be verified as completely functional, with at least one fully connected cluster switch.
  - All cluster ports must be up.
  - All cluster logical interfaces (LIFs) must be up and on their home ports.
  - The ONTAP cluster `ping-cluster -node node1` command must indicate that basic connectivity and larger than PMTU communication are successful on all paths.
- Nexus 92300YC replacement switch:
  - Management network connectivity on the replacement switch must be functional.
  - Console access to the replacement switch must be in place.

- The node connections are ports 1/1 through 1/64.
- All Inter-Switch Link (ISL) ports must be disabled on ports 1/65 and 1/66.
- The desired reference configuration file (RCF) and NX-OS operating system image switch must be loaded onto the switch.
- Initial customization of the switch must be complete, as detailed in:

#### [Configuring a new Cisco Nexus 92300YC switch](#)

Any previous site customizations, such as STP, SNMP, and SSH, should be copied to the new switch.

### About this task

You must execute the command for migrating a cluster LIF from the node where the cluster LIF is hosted.

The examples in this procedure use the following switch and node nomenclature:

- The names of the existing Nexus 92300YC switches are cs1 and cs2.
- The name of the new Nexus 92300YC switch is newcs2.
- The node names are node1 and node2.
- The cluster ports on each node are named e0a and e0b.
- The cluster LIF names are node1\_clus1 and node1\_clus2 for node1, and node2\_clus1 and node2\_clus2 for node2.
- The prompt for changes to all cluster nodes is cluster1::\*>



The following procedure is based on the following cluster network topology:

```
cluster1::*> **network port show -ip space Cluster**
```

```
Node: node1
```

```
Ignore
```

						Speed (Mbps)	Health
Health							
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
-----	-----	-----	----	----	----	-----	-----
e0a	Cluster	Cluster		up	9000	auto/10000	healthy
false							
e0b	Cluster	Cluster		up	9000	auto/10000	healthy
false							

```
Node: node2
```

```
Ignore
```

Speed (Mbps) Health



```

Health
Port      IPspace      Broadcast Domain Link MTU   Admin/Oper  Status
Status
-----
-----
e0a      Cluster      Cluster      up    9000   auto/10000 healthy
false
e0b      Cluster      Cluster      up    9000   auto/10000 healthy
false
4 entries were displayed.

cluster1::*> **network interface show -vserver Cluster**
          Logical      Status      Network      Current      Current
Is
Vserver   Interface  Admin/Oper Address/Mask      Node      Port
Home
-----
-----
Cluster
          node1_clus1  up/up      169.254.209.69/16  node1      e0a
true
          node1_clus2  up/up      169.254.49.125/16  node1      e0b
true
          node2_clus1  up/up      169.254.47.194/16  node2      e0a
true
          node2_clus2  up/up      169.254.19.183/16  node2      e0b
true
4 entries were displayed.

cluster1::*> **network device-discovery show -protocol cdp**
Node/      Local  Discovered
Protocol   Port   Device (LLDP: ChassisID)  Interface      Platform
-----
-----
node2      /cdp
          e0a    cs1                      Eth1/2          N9K-
C92300YC
          e0b    cs2                      Eth1/2          N9K-
C92300YC
node1      /cdp
          e0a    cs1                      Eth1/1          N9K-
C92300YC

```

```

e0b      cs2      Eth1/1      N9K-
C92300YC
4 entries were displayed.

cs1# **show cdp neighbors**

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater,
                  V - VoIP-Phone, D - Remotely-Managed-Device,
                  s - Supports-STP-Dispute

Device-ID          Local Intrfce  Hldtme  Capability  Platform      Port ID
node1              Eth1/1        144     H           FAS2980       e0a
node2              Eth1/2        145     H           FAS2980       e0a
cs2 (FDO220329V5) Eth1/65       176     R S I s     N9K-C92300YC  Eth1/65
cs2 (FDO220329V5) Eth1/66       176     R S I s     N9K-C92300YC  Eth1/66

Total entries displayed: 4

cs2# **show cdp neighbors**

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater,
                  V - VoIP-Phone, D - Remotely-Managed-Device,
                  s - Supports-STP-Dispute

Device-ID          Local Intrfce  Hldtme  Capability  Platform      Port ID
node1              Eth1/1        139     H           FAS2980       e0b
node2              Eth1/2        124     H           FAS2980       e0b
cs1 (FDO220329KU)  Eth1/65       178     R S I s     N9K-C92300YC  Eth1/65
cs1 (FDO220329KU)  Eth1/66       178     R S I s     N9K-C92300YC  Eth1/66

Total entries displayed: 4

```

## Steps

1. Install the appropriate RCF and image on the switch, newcs2, and make any necessary site preparations.

If necessary, verify, download, and install the appropriate versions of the RCF and NX-OS software for the new switch. If you have verified that the new switch is correctly set up and does not need updates to the RCF and NX-OS software, continue to step 2.

- a. Go to the *NetApp Cluster and Management Network Switches Reference Configuration File Description Page* on the NetApp Support Site.

- b. Click the link for the *Cluster Network and Management Network Compatibility Matrix*, and then note the required switch software version.
  - c. Click your browser's back arrow to return to the **Description** page, click **CONTINUE**, accept the license agreement, and then go to the **Download** page.
  - d. Follow the steps on the Download page to download the correct RCF and NX-OS files for the version of ONTAP software you are installing.
2. On the new switch, log in as admin and shut down all of the ports that will be connected to the node cluster interfaces (ports 1/1 to 1/64).

If the switch that you are replacing is not functional and is powered down, go to Step 4. The LIFs on the cluster nodes should have already failed over to the other cluster port for each node.

```
newcs2# **config**
Enter configuration commands, one per line. End with CNTL/Z.
newcs2(config)# **interface e1/1-64**
newcs2(config-if-range)# **shutdown**
```

3. Verify that all cluster LIFs have auto-revert enabled:

```
network interface show -vserver Cluster -fields auto-revert
```

```
cluster1::> **network interface show -vserver Cluster -fields auto-
revert**
```

Vserver	Logical Interface	Auto-revert
Cluster	node1_clus1	true
Cluster	node1_clus2	true
Cluster	node2_clus1	true
Cluster	node2_clus2	true

4 entries were displayed.

4. Verify that all the cluster LIFs can communicate:

```
cluster ping-cluster
```

```

cluster1::*> **cluster ping-cluster node1**

Host is node2
Getting addresses from network interface table...
Cluster node1_clus1 169.254.209.69 node1 e0a
Cluster node1_clus2 169.254.49.125 node1 e0b
Cluster node2_clus1 169.254.47.194 node2 e0a
Cluster node2_clus2 169.254.19.183 node2 e0b
Local = 169.254.47.194 169.254.19.183
Remote = 169.254.209.69 169.254.49.125
Cluster Vserver Id = 4294967293
Ping status:
....
Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)
.....
Detected 9000 byte MTU on 4 path(s):
Local 169.254.47.194 to Remote 169.254.209.69
Local 169.254.47.194 to Remote 169.254.49.125
Local 169.254.19.183 to Remote 169.254.209.69
Local 169.254.19.183 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)

```

5. Shut down the ISL ports 1/65 and 1/66 on the Nexus 92300YC switch cs1:

```

cs1# **configure**
Enter configuration commands, one per line. End with CNTL/Z.
cs1(config)# **interface e1/65-66**
cs1(config-if-range)# **shutdown**
cs1(config-if-range)#

```

6. Remove all of the cables from the Nexus 92300YC cs2 switch, and then connect them to the same ports on the Nexus 92300YC newcs2 switch.
7. Bring up the ISLs ports 1/65 and 1/66 between the cs1 and newcs2 switches, and then verify the port channel operation status.

Port-Channel should indicate Po1(SU) and Member Ports should indicate Eth1/65(P) and Eth1/66(P).

This example enables ISL ports 1/65 and 1/66 and displays the port channel summary on switch cs1:

```

cs1# **configure**
Enter configuration commands, one per line. End with CNTL/Z.
cs1(config)# **int e1/65-66**
cs1(config-if-range)# **no shutdown**

cs1(config-if-range)# show port-channel summary
Flags:  D - Down          P - Up in port-channel (members)
        I - Individual    H - Hot-standby (LACP only)
        s - Suspended     r - Module-removed
        b - BFD Session Wait
        S - Switched      R - Routed
        U - Up (port-channel)
        p - Up in delay-lacp mode (member)
        M - Not in use. Min-links not met
-----
-----
Group Port-          Type      Protocol  Member Ports
      Channel
-----
-----
1      Po1 (SU)      Eth      LACP      Eth1/65 (P)  Eth1/66 (P)

cs1(config-if-range)#

```

8. Verify that port e0b is up on all nodes:

```
network port show ipspace Cluster
```

The output should be similar to the following:

```
cluster1::*> **network port show -ipspace Cluster**
```

```
Node: node1
```

```
Ignore
```

						Speed(Mbps)	Health
Health							
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
-----	-----	-----	-----	-----	-----	-----	-----
e0a	Cluster	Cluster		up	9000	auto/10000	healthy
false							
e0b	Cluster	Cluster		up	9000	auto/10000	healthy
false							

```
Node: node2
```

```
Ignore
```

						Speed(Mbps)	Health
Health							
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
-----	-----	-----	-----	-----	-----	-----	-----
e0a	Cluster	Cluster		up	9000	auto/10000	healthy
false							
e0b	Cluster	Cluster		up	9000	auto/auto	-
false							

```
4 entries were displayed.
```

9. On the same node you used in the previous step, revert the cluster LIF associated with the port in the previous step by using the network interface revert command.

In this example, LIF node1\_clus2 on node1 is successfully reverted if the Home value is true and the port is e0b.

The following commands return LIF node1\_clus2 on node1 to home port e0a and displays information about the LIFs on both nodes. Bringing up the first node is successful if the Is Home column is true for both cluster interfaces and they show the correct port assignments, in this example e0a and e0b on node1.

```
cluster1::*> **network interface show -vserver Cluster**
```

Current Is	Logical	Status	Network	Current	
Vserver	Interface	Admin/Oper	Address/Mask	Node	Port
Home					
-----	-----	-----	-----	-----	
Cluster					
true	node1_clus1	up/up	169.254.209.69/16	node1	e0a
true	node1_clus2	up/up	169.254.49.125/16	node1	e0b
true	node2_clus1	up/up	169.254.47.194/16	node2	e0a
false	node2_clus2	up/up	169.254.19.183/16	node2	e0a

4 entries were displayed.

10. Display information about the nodes in a cluster:

```
cluster show
```

This example shows that the node health for node1 and node2 in this cluster is true:

```
cluster1::*> **cluster show**
```

Node	Health	Eligibility
-----	-----	-----
node1	false	true
node2	true	true

11. Verify that all physical cluster ports are up:

```
network port show ipspace Cluster
```

```
cluster1::*> **network port show -ipspace Cluster**
```

```
Node: node1
```

```
Ignore
```

						Speed(Mbps)	Health
Health							
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
-----	-----	-----	-----	-----	-----	-----	-----
e0a	Cluster	Cluster		up	9000	auto/10000	healthy
false							
e0b	Cluster	Cluster		up	9000	auto/10000	healthy
false							

```
Node: node2
```

```
Ignore
```

						Speed(Mbps)	Health
Health							
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
-----	-----	-----	-----	-----	-----	-----	-----
e0a	Cluster	Cluster		up	9000	auto/10000	healthy
false							
e0b	Cluster	Cluster		up	9000	auto/10000	healthy
false							

```
4 entries were displayed.
```

## 12. Verify that all the cluster LIFs can communicate:

```
cluster ping-cluster
```



```

cluster1::*> **cluster ping-cluster -node node2**
Host is node2
Getting addresses from network interface table...
Cluster node1_clus1 169.254.209.69 node1 e0a
Cluster node1_clus2 169.254.49.125 node1 e0b
Cluster node2_clus1 169.254.47.194 node2 e0a
Cluster node2_clus2 169.254.19.183 node2 e0b
Local = 169.254.47.194 169.254.19.183
Remote = 169.254.209.69 169.254.49.125
Cluster Vserver Id = 4294967293
Ping status:
....
Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)
.....
Detected 9000 byte MTU on 4 path(s):
Local 169.254.47.194 to Remote 169.254.209.69
Local 169.254.47.194 to Remote 169.254.49.125
Local 169.254.19.183 to Remote 169.254.209.69
Local 169.254.19.183 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)

```

### 13. Confirm the following cluster network configuration:

network port show

```

cluster1::*> **network port show -ipspace Cluster**
Node: node1

Ignore
Speed (Mbps)
Health
Port      IPspace      Broadcast Domain Link MTU   Admin/Oper Status
Status
-----
e0a       Cluster      Cluster      up    9000    auto/10000 healthy
false
e0b       Cluster      Cluster      up    9000    auto/10000 healthy
false

Node: node2

```

Ignore

		Speed (Mbps)				Health	
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
-----							
-----							
e0a	Cluster	Cluster		up	9000	auto/10000	healthy
false							
e0b	Cluster	Cluster		up	9000	auto/10000	healthy
false							

4 entries were displayed.

cluster1::\*> \*\*network interface show -vserver Cluster\*\*

		Logical	Status	Network	Current	
Current Is						
Vserver	Interface	Admin/Oper	Address/Mask	Node	Port	
-----						
-----						
Cluster						
	node1_clus1	up/up	169.254.209.69/16	node1	e0a	
true						
	node1_clus2	up/up	169.254.49.125/16	node1	e0b	
true						
	node2_clus1	up/up	169.254.47.194/16	node2	e0a	
true						
	node2_clus2	up/up	169.254.19.183/16	node2	e0b	
true						

4 entries were displayed.

cluster1::\*> \*\*network device-discovery show -protocol cdp\*\*

Node/	Local	Discovered			
Protocol	Port	Device (LLDP: ChassisID)	Interface		Platform
-----					
-----					
node2	/cdp				
	e0a	cs1	0/2		N9K-
C92300YC					
	e0b	newcs2	0/2		N9K-

```

C92300YC
node1      /cdp
           e0a      cs1                        0/1                N9K-
C92300YC
           e0b      newcs2                    0/1                N9K-
C92300YC

```

4 entries were displayed.

```
cs1# **show cdp neighbors**
```

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge  
 S - Switch, H - Host, I - IGMP, r - Repeater,  
 V - VoIP-Phone, D - Remotely-Managed-Device,  
 s - Supports-STP-Dispute

Device-ID Port ID	Local Intrfce	Hldtme	Capability	Platform	
node1	Eth1/1	144	H	FAS2980	e0a
node2	Eth1/2	145	H	FAS2980	e0a
newcs2 (FDO296348FU) Eth1/65	Eth1/65	176	R S I s	N9K-C92300YC	
newcs2 (FDO296348FU) Eth1/66	Eth1/66	176	R S I s	N9K-C92300YC	

Total entries displayed: 4

```
cs2# **show cdp neighbors**
```

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge  
 S - Switch, H - Host, I - IGMP, r - Repeater,  
 V - VoIP-Phone, D - Remotely-Managed-Device,  
 s - Supports-STP-Dispute

Device-ID ID	Local Intrfce	Hldtme	Capability	Platform	Port
node1	Eth1/1	139	H	FAS2980	e0b
node2	Eth1/2	124	H	FAS2980	e0b
cs1 (FDO220329KU) Eth1/65	Eth1/65	178	R S I s	N9K-C92300YC	
cs1 (FDO220329KU) Eth1/66	Eth1/66	178	R S I s	N9K-C92300YC	

Total entries displayed: 4

14. For ONTAP 9.4 and later, enable the cluster switch health monitor log collection feature for collecting switch-related log files:

```
system cluster-switch log setup-password system cluster-switch log enable-  
collection
```

```
cluster1::*> **system cluster-switch log setup-password**  
Enter the switch name: <return>  
The switch name entered is not recognized.  
Choose from the following list:  
NBS-NIC-NXYC-01  
NBS-NIC-NXYC-02  
  
cluster1::*> **system cluster-switch log setup-password**  
  
Enter the switch name: **NBS-NIC-NXYC-01  
**RSA key fingerprint is e5:8b:c6:dc:e2:18:18:09:36:63:d9:63:dd:03:d9:cc  
Do you want to continue? {y|n}::[n] **y**  
  
Enter the password: <enter switch password>  
Enter the password again: <enter switch password>  
  
cluster1::*> **system cluster-switch log setup-password**  
  
Enter the switch name: **NBS-NIC-NXYC-02**  
RSA key fingerprint is 57:49:86:a1:b9:80:6a:61:9a:86:8e:3c:e3:b7:1f:b1  
Do you want to continue? {y|n}:: [n] **y**  
  
Enter the password: <enter switch password>  
Enter the password again: <enter switch password>  
  
cluster1::*> **system cluster-switch log enable-collection**  
  
Do you want to enable cluster log collection for all nodes in the  
cluster?  
{y|n}: [n] **y**  
  
Enabling cluster switch log collection.  
  
cluster1::*>
```



If any of these commands return an error, contact NetApp support.

# Migrate to a two-node switched cluster with Cisco Nexus 92300YC switches

## Migrate to a two-node switched cluster with Cisco Nexus 92300YC switches

You must be aware of certain configuration information, port connections, and cabling requirements when you migrate a two-node switchless cluster, non-disruptively, to a cluster with Cisco Nexus 92300YC cluster switches. The procedure you use depends on whether you have two dedicated cluster-network ports on each controller or a single cluster port on each controller. The process documented works for all nodes using optical or twinax ports but is not supported on this switch if nodes are using onboard 10Gb BASE-T RJ45 ports for the cluster-network ports.

Most systems require two dedicated cluster-network ports on each controller.



After your migration completes, you might need to install the required configuration file to support the Cluster Switch Health Monitor (CSHM) for 92300YC cluster switches. See *Installing the Cluster Switch Health Monitor (CSHM) configuration file for 92300YC switches* in the [Setting up](#) guide.

## How to migrate to a two-node switched cluster with a Cisco Nexus 92300YC switch

If you have an existing two-node switchless cluster environment, you can migrate to a two-node switched cluster environment using Cisco Nexus 92300YC switches to enable you to scale beyond two nodes in the cluster.

### What you'll need

Two-node switchless configuration:

- The two-node switchless configuration must be properly set up and functioning.
- The nodes must be running ONTAP 9.6 and later.
- All cluster ports must be in the up state.
- All cluster logical interfaces (LIFs) must be in the up state and on their home ports.

Cisco Nexus 92300YC switch configuration:

- Both switches must have management network connectivity.
- There must be console access to the cluster switches.
- Nexus 92300YC node-to-node switch and switch-to-switch connections must use twinax or fiber cables.

The **Hardware Universe** contains more information about cabling.

[Hardware Universe - Switches](#)

- Inter-Switch Link (ISL) cables must be connected to ports 1/65 and 1/66 on both 92300YC switches.
- Initial customization of both the 92300YC switches must be completed. So that the:
  - 92300YC switches are running the latest version of software

- Reference Configuration Files (RCFs) have been applied to the switches Any site customization, such as SMTP, SNMP, and SSH must be configured on the new switches.

### About this task

The examples in this procedure use the following cluster switch and node nomenclature:

- The names of the 92300YC switches are cs1 and cs2.
- The names of the cluster SVMs are node1 and node2.
- The names of the LIFs are node1\_clus1 and node1\_clus2 on node 1, and node2\_clus1 and node2\_clus2 on node 2 respectively.
- The `cluster1::*>` prompt indicates the name of the cluster.
- The cluster ports used in this procedure are e0a and e0b.

The **Hardware Universe** contains the latest information about the actual cluster ports for your platforms.

### [Hardware Universe](#)

### Steps

1. Change the privilege level to advanced, entering `y` when prompted to continue:

```
set -privilege advanced
```

The advanced prompt (`*>`) appears.

2. If AutoSupport is enabled on this cluster, suppress automatic case creation by invoking an AutoSupport message:

```
system node autosupport invoke -node * -type all -message MAINT=xh
```

where `x` is the duration of the maintenance window in hours.



The AutoSupport message notifies technical support of this maintenance task so that automatic case creation is suppressed during the maintenance window.

The following command suppresses automatic case creation for two hours:

```
cluster1::*> **system node autosupport invoke -node * -type all -message  
MAINT=2h**
```

3. Disable all node-facing ports (not ISL ports) on both the new cluster switches cs1 and cs2.

You must not disable the ISL ports.

The following example shows that node-facing ports 1 through 64 are disabled on switch cs1:

```
cs1# **config**
Enter configuration commands, one per line. End with CNTL/Z.
cs1(config)# **interface e/1-64**
cs1(config-if-range)# **shutdown**
```

4. Verify that the ISL and the physical ports on the ISL between the two 92300YC switches cs1 and cs2 are up on ports 1/65 and 1/66:

```
show port-channel summary
```

The following example shows that the ISL ports are up on switch cs1:

```
cs1# **show port-channel summary**
```

```
Flags:  D - Down          P - Up in port-channel (members)
        I - Individual    H - Hot-standby (LACP only)
        s - Suspended    r - Module-removed
        b - BFD Session Wait
        S - Switched      R - Routed
        U - Up (port-channel)
        p - Up in delay-lACP mode (member)
        M - Not in use. Min-links not met
```

```
-----
-----
Group Port-      Type      Protocol  Member Ports
      Channel
-----
-----
1      Po1 (SU)    Eth       LACP      Eth1/65 (P)  Eth1/66 (P)
```

The following example shows that the ISL ports are up on switch cs2 :

```
(cs2)# **show port-channel summary**
```

```
Flags:  D - Down          P - Up in port-channel (members)
        I - Individual    H - Hot-standby (LACP only)
        s - Suspended     r - Module-removed
        b - BFD Session Wait
        S - Switched      R - Routed
        U - Up (port-channel)
        p - Up in delay-lACP mode (member)
        M - Not in use. Min-links not met
```

```
-----
-----
Group Port-          Type      Protocol  Member Ports
Channel
-----
-----
1      Po1 (SU)       Eth      LACP      Eth1/65 (P)  Eth1/66 (P)
```

##### 5. Display the list of neighboring devices:

```
show cdp neighbors
```

This command provides information about the devices that are connected to the system.

The following example lists the neighboring devices on switch cs1:

```
cs1# **show cdp neighbors**
```

```
Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater,
                  V - VoIP-Phone, D - Remotely-Managed-Device,
                  s - Supports-STP-Dispute
```

Device-ID ID	Local Intrfce	Hldtme	Capability	Platform	Port
cs2 (FDO220329V5) Eth1/65	Eth1/65	175	R S I s	N9K-C92300YC	
cs2 (FDO220329V5) Eth1/66	Eth1/66	175	R S I s	N9K-C92300YC	

```
Total entries displayed: 2
```

The following example lists the neighboring devices on switch cs2:



```
cs2# **show cdp neighbors**
```

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge  
S - Switch, H - Host, I - IGMP, r - Repeater,  
V - VoIP-Phone, D - Remotely-Managed-Device,  
s - Supports-STP-Dispute

Device-ID ID	Local Intrfce	Hldtme	Capability	Platform	Port
cs1(FDO220329KU) Eth1/65	Eth1/65	177	R S I s	N9K-C92300YC	
cs1(FDO220329KU) Eth1/66	Eth1/66	177	R S I s	N9K-C92300YC	

Total entries displayed: 2

#### 6. Verify that all cluster ports are up:

```
network port show -ipspace Cluster
```

Each port should display up for Link and healthy for Health Status.

```
cluster1::*> **network port show -ipspace Cluster**
```

Node: node1

Port	IPspace	Broadcast Domain	Link	MTU	Speed(Mbps) Admin/Oper	Health Status
e0a	Cluster	Cluster	up	9000	auto/10000	healthy
e0b	Cluster	Cluster	up	9000	auto/10000	healthy

Node: node2

Port	IPspace	Broadcast Domain	Link	MTU	Speed(Mbps) Admin/Oper	Health Status
e0a	Cluster	Cluster	up	9000	auto/10000	healthy
e0b	Cluster	Cluster	up	9000	auto/10000	healthy

4 entries were displayed.

#### 7. Verify that all cluster LIFs are up and operational:

```
network interface show -vserver Cluster
```

Each cluster LIF should display true for Is Home and have a Status Admin/Oper of up/up

```
cluster1::*> **network interface show -vserver Cluster**
```

	Logical	Status	Network	Current	
Current Is					
Vserver	Interface	Admin/Oper	Address/Mask	Node	Port
Home					
-----	-----	-----	-----	-----	-----
Cluster					
true	node1_clus1	up/up	169.254.209.69/16	node1	e0a
true	node1_clus2	up/up	169.254.49.125/16	node1	e0b
true	node2_clus1	up/up	169.254.47.194/16	node2	e0a
true	node2_clus2	up/up	169.254.19.183/16	node2	e0b

4 entries were displayed.

8. Verify that auto-revert is enabled on all cluster LIFs:

```
network interface show -vserver Cluster -fields auto-revert
```

```
cluster1::*> **network interface show -vserver Cluster -fields auto-revert**
```

	Logical	
Vserver	Interface	Auto-revert
Cluster		
	node1_clus1	true
	node1_clus2	true
	node2_clus1	true
	node2_clus2	true

4 entries were displayed.

9. Disconnect the cable from cluster port e0a on node1, and then connect e0a to port 1 on cluster switch cs1, using the appropriate cabling supported by the 92300YC switches.

The **Hardware Universe** contains more information about cabling.

[Hardware Universe - Switches](#)

10. Disconnect the cable from cluster port e0a on node2, and then connect e0a to port 2 on cluster switch cs1, using the appropriate cabling supported by the 92300YC switches.
11. Enable all node-facing ports on cluster switch cs1.

The following example shows that ports 1/1 through 1/64 are enabled on switch cs1:

```
cs1# **config**
Enter configuration commands, one per line. End with CNTL/Z.
cs1(config)# **interface e1/1-64**
cs1(config-if-range)# **no shutdown**
```

12. Verify that all cluster LIFs are up, operational, and display as true for Is Home:

```
network interface show -vserver Cluster
```

The following example shows that all of the LIFs are up on node1 and node2 and that Is Home results are true:

```
cluster1::*> **network interface show -vserver Cluster**
```

Is	Logical	Status	Network	Current	Current
Vserver	Interface	Admin/Oper	Address/Mask	Node	Port
Home					
-----	-----	-----	-----	-----	-----
----					
Cluster					
true	node1_clus1	up/up	169.254.209.69/16	node1	e0a
true	node1_clus2	up/up	169.254.49.125/16	node1	e0b
true	node2_clus1	up/up	169.254.47.194/16	node2	e0a
true	node2_clus2	up/up	169.254.19.183/16	node2	e0b

4 entries were displayed.

13. Display information about the status of the nodes in the cluster:

```
cluster show
```

The following example displays information about the health and eligibility of the nodes in the cluster:

```
cluster1::*> **cluster show**
```

Node	Health	Eligibility	Epsilon
node1	true	true	false
node2	true	true	false

```
2 entries were displayed.
```

14. Disconnect the cable from cluster port e0b on node1, and then connect e0b to port 1 on cluster switch cs2, using the appropriate cabling supported by the 92300YC switches.
15. Disconnect the cable from cluster port e0b on node2, and then connect e0b to port 2 on cluster switch cs2, using the appropriate cabling supported by the 92300YC switches.
16. Enable all node-facing ports on cluster switch cs2.

The following example shows that ports 1/1 through 1/64 are enabled on switch cs2:

```
cs2# **config**
Enter configuration commands, one per line. End with CNTL/Z.
cs2(config)# **interface e1/1-64**
cs2(config-if-range)# **no shutdown**
```

17. Verify that all cluster ports are up:

```
network port show -ipSpace Cluster
```

The following example shows that all of the cluster ports are up on node1 and node2:

```
cluster1::*> **network port show -ipspace Cluster**
```

Node: node1

Ignore

							Speed(Mbps)	Health
Health								
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status	
Status								
-----	-----	-----	-----	----	----	-----	-----	-----
e0a	Cluster	Cluster		up	9000	auto/10000	healthy	
false								
e0b	Cluster	Cluster		up	9000	auto/10000	healthy	
false								

Node: node2

Ignore

							Speed(Mbps)	Health
Health								
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status	
Status								
-----	-----	-----	-----	----	----	-----	-----	-----
e0a	Cluster	Cluster		up	9000	auto/10000	healthy	
false								
e0b	Cluster	Cluster		up	9000	auto/10000	healthy	
false								

4 entries were displayed.

18. Verify that all interfaces display true for Is Home:

```
network interface show -vserver Cluster
```



This might take several minutes to complete.

The following example shows that all LIFs are up on node1 and node2 and that Is Home results are true:

```
cluster1::*> **network interface show -vserver Cluster**
```

Is Vserver Home	Logical Interface	Status Admin/Oper	Network Address/Mask	Current Node	Current Port
-----	-----	-----	-----	-----	-----
Cluster					
true	node1_clus1	up/up	169.254.209.69/16	node1	e0a
true	node1_clus2	up/up	169.254.49.125/16	node1	e0b
true	node2_clus1	up/up	169.254.47.194/16	node2	e0a
true	node2_clus2	up/up	169.254.19.183/16	node2	e0b

4 entries were displayed.

19. Verify that both nodes each have one connection to each switch:

```
show cdp neighbors
```

The following example shows the appropriate results for both switches:

```
(cs1)# **show cdp neighbors**
```

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge  
S - Switch, H - Host, I - IGMP, r - Repeater,  
V - VoIP-Phone, D - Remotely-Managed-Device,  
s - Supports-STP-Dispute

Device-ID ID	Local Intrfce	Hldtme	Capability	Platform	Port
node1	Eth1/1	133	H	FAS2980	e0a
node2	Eth1/2	133	H	FAS2980	e0a
cs2 (FDO220329V5) Eth1/65	Eth1/65	175	R S I s	N9K-C92300YC	
cs2 (FDO220329V5) Eth1/66	Eth1/66	175	R S I s	N9K-C92300YC	

Total entries displayed: 4

```
(cs2)# **show cdp neighbors**
```

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge  
S - Switch, H - Host, I - IGMP, r - Repeater,  
V - VoIP-Phone, D - Remotely-Managed-Device,  
s - Supports-STP-Dispute

Device-ID ID	Local Intrfce	Hldtme	Capability	Platform	Port
node1	Eth1/1	133	H	FAS2980	e0b
node2	Eth1/2	133	H	FAS2980	e0b
cs1 (FDO220329KU) Eth1/65	Eth1/65	175	R S I s	N9K-C92300YC	
cs1 (FDO220329KU) Eth1/66	Eth1/66	175	R S I s	N9K-C92300YC	

Total entries displayed: 4

## 20. Display information about the discovered network devices in your cluster:

```
network device-discovery show -protocol cdp
```

```
cluster1::*> **network device-discovery show -protocol cdp**
```

Node/ Protocol	Local Port	Discovered Device (LLDP: ChassisID)	Interface	Platform
node2	/cdp			
	e0a	cs1	0/2	N9K-
C92300YC				
	e0b	cs2	0/2	N9K-
C92300YC				
node1	/cdp			
	e0a	cs1	0/1	N9K-
C92300YC				
	e0b	cs2	0/1	N9K-
C92300YC				

4 entries were displayed.

21. Verify that the settings are disabled:

```
network options switchless-cluster show
```



It might take several minutes for the command to complete. Wait for the '3 minute lifetime to expire' announcement.

The false output in the following example shows that the configuration settings are disabled:

```
cluster1::*> **network options switchless-cluster show**
Enable Switchless Cluster: false
```

22. Verify the status of the node members in the cluster:

```
cluster show
```

The following example shows information about the health and eligibility of the nodes in the cluster:

```
cluster1::*> **cluster show**
```

Node	Health	Eligibility	Epsilon
node1	true	true	false
node2	true	true	false

23. Ensure that the cluster network has full connectivity:



```
cluster ping-cluster -node node-name
```

```
cluster1::> cluster ping-cluster -node node2
Host is node2
Getting addresses from network interface table...
Cluster node1_clus1 169.254.209.69 node1 e0a
Cluster node1_clus2 169.254.49.125 node1 e0b
Cluster node2_clus1 169.254.47.194 node2 e0a
Cluster node2_clus2 169.254.19.183 node2 e0b
Local = 169.254.47.194 169.254.19.183
Remote = 169.254.209.69 169.254.49.125
Cluster Vserver Id = 4294967293
Ping status:

Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)

Detected 9000 byte MTU on 4 path(s):
Local 169.254.47.194 to Remote 169.254.209.69
Local 169.254.47.194 to Remote 169.254.49.125
Local 169.254.19.183 to Remote 169.254.209.69
Local 169.254.19.183 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)
```

24. If you suppressed automatic case creation, reenable it by invoking an AutoSupport message:

```
system node autosupport invoke -node * -type all -message MAINT=END
```

```
cluster1::*> **system node autosupport invoke -node * -type all -message
MAINT=END**
```

25. Change the privilege level back to admin:

```
set -privilege admin
```

26. For ONTAP 9.4 and later, enable the cluster switch health monitor log collection feature for collecting switch-related log files:

```
system cluster-switch log setup-password``system cluster-switch log enable-
collection
```

```

cluster1::*> **system cluster-switch log setup-password**
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
NBS-NIC-NXYC-01
NBS-NIC-NXYC-02

cluster1::*> **system cluster-switch log setup-password**

Enter the switch name: **NBS-NIC-NXYC-01
**RSA key fingerprint is e5:8b:c6:dc:e2:18:18:09:36:63:d9:63:dd:03:d9:cc
Do you want to continue? {y|n}::[n] **y**

Enter the password: <enter switch password>
Enter the password again: <enter switch password>

cluster1::*> **system cluster-switch log setup-password**

Enter the switch name: **NBS-NIC-NXYC-02**
RSA key fingerprint is 57:49:86:a1:b9:80:6a:61:9a:86:8e:3c:e3:b7:1f:b1
Do you want to continue? {y|n}:: [n] **y**

Enter the password: <enter switch password>
Enter the password again: <enter switch password>

cluster1::*> **system cluster-switch log enable-collection**

Do you want to enable cluster log collection for all nodes in the
cluster?
{y|n}: [n] **y**

Enabling cluster switch log collection.

cluster1::*>

```



If any of these commands return an error, contact NetApp support.

## Migrate from a Cisco switch to a Cisco Nexus 92300YC switch

### Migrate from a Cisco switch to a Cisco Nexus 92300YC switch

You must be aware of certain configuration information, port connections and cabling requirements when you are replacing some older Cisco Nexus cluster switches with

## Cisco Nexus 92300YC cluster switches.

- The following cluster switches are supported:
  - Nexus 92300YC
  - Nexus 5596UP
  - Nexus 5020
  - Nexus 5010
- The cluster switches use the following ports for connections to nodes:
  - Ports e1/1-48 (10/25 GbE), e1/49-64 (40/100 GbE): Nexus 92300YC
  - Ports e1/1-40 (10 GbE): Nexus 5596UP
  - Ports e1/1-32 (10 GbE): Nexus 5020
  - Ports e1/1-12, e2/1-6 (10 GbE): Nexus 5010 with expansion module
- The cluster switches use the following Inter-Switch Link (ISL) ports:
  - Ports e1/65-66 (100 GbE): Nexus 92300YC
  - Ports e1/41-48 (10 GbE): Nexus 5596UP
  - Ports e1/33-40 (10 GbE): Nexus 5020
  - Ports e1/13-20 (10 GbE): Nexus 5010
- The *Hardware Universe* contains information about supported cabling for all cluster switches.
- You have configured some of the ports on Nexus 92300YC switches to run at 10 GbE or 40 GbE.
- You have planned, migrated, and documented 10 GbE and 40 GbE connectivity from nodes to Nexus 92300YC cluster switches.
- The ONTAP and NX-OS versions supported in this procedure are on the *Cisco Ethernet Switches* page.

### [Cisco Ethernet Switches](#)



After your migration completes, you might need to install the required configuration file to support the Cluster Switch Health Monitor (CSHM) for 92300YC cluster switches. See *Installing the Cluster Switch Health Monitor (CSHM) configuration file for 92300YC switches* in the [Setting up](#) guide.

## How to migrate from a Cisco switch to a Cisco Nexus 92300YC switch

You can migrate nondisruptively older Cisco cluster switches for an ONTAP cluster to Cisco Nexus 92300YC cluster network switches.

### About this task

- The existing cluster must be properly set up and functioning.
- All cluster ports must be in the up state to ensure nondisruptive operations.
- The Nexus 92300YC cluster switches must be configured and operating under the proper version of NX-OS installed and reference configuration file (RCF) applied.
- The existing cluster network configuration must have the following:
  - A redundant and fully functional NetApp cluster using both older Cisco switches.

- Management connectivity and console access to both the older Cisco switches and the new switches.
- All cluster LIFs in the up state with the cluster LIFs are on their home ports.
- ISL ports enabled and cabled between the older Cisco switches and between the new switches.

The examples in this procedure use the following switch and node nomenclature:

- The existing Cisco Nexus 5596UP cluster switches are c1 and c2.
- The new Nexus 92300YC cluster switches are cs1 and cs2.
- The nodes are node1 and node2.
- The cluster LIFs are node1\_clus1 and node1\_clus2 on node 1, and node2\_clus1 and node2\_clus2 on node 2 respectively.
- Switch c2 is replaced by switch cs2 first and then switch c1 is replaced by switch cs1.
  - A temporary ISL is built on cs1 connecting c1 to cs1.
  - Cabling between the nodes and c2 are then disconnected from c2 and reconnected to cs2.
  - Cabling between the nodes and c1 are then disconnected from c1 and reconnected to cs1.
  - The temporary ISL between c1 and cs1 is then removed.

## Steps

1. Change the privilege level to advanced, entering **y** when prompted to continue:

```
set -privilege advanced
```

The advanced prompt (\*>) appears.

2. If AutoSupport is enabled on this cluster, suppress automatic case creation by invoking an AutoSupport message:

```
system node autosupport invoke -node * -type all -message MAINT=xh
```

where x is the duration of the maintenance window in hours.



The AutoSupport message notifies technical support of this maintenance task so that automatic case creation is suppressed during the maintenance window.

The following command suppresses automatic case creation for two hours:

```
cluster1::*> **system node autosupport invoke -node * -type all -message MAINT=2h**
```

3. Verify that auto-revert is enabled on all cluster LIFs:

```
network interface show -vserver Cluster -fields auto-revert
```

```
cluster1::*> **network interface show -vserver Cluster -fields auto-  
revert**
```

Vserver	Logical Interface	Auto-revert
-----	-----	-----
Cluster		
	node1_clus1	true
	node1_clus2	true
	node2_clus1	true
	node2_clus2	true

```
4 entries were displayed.
```

4. Determine the administrative or operational status for each cluster interface:

Each port should display up for Link and healthy for Health Status.

a. Display the network port attributes:

```
network port show -ipspace Cluster
```

```
cluster1::*> **network port show -ipspace Cluster**
```

```
Node: node1
```

```
Ignore
```

						Speed(Mbps)	Health
Health							
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
-----	-----	-----	-----	-----	-----	-----	-----
e0a	Cluster	Cluster		up	9000	auto/10000	healthy
false							
e0b	Cluster	Cluster		up	9000	auto/10000	healthy
false							

```
Node: node2
```

```
Ignore
```

						Speed(Mbps)	Health
Health							
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
-----	-----	-----	-----	-----	-----	-----	-----
e0a	Cluster	Cluster		up	9000	auto/10000	healthy
false							
e0b	Cluster	Cluster		up	9000	auto/10000	healthy
false							

```
4 entries were displayed.
```

b. Display information about the logical interfaces and their designated home nodes:

```
network interface show -vserver Cluster
```

Each LIF should display up/up for Status Admin/Oper and true for Is Home.

```
cluster1::*> **network interface show -vserver Cluster**
```

Current Is	Logical	Status	Network	Current
Vserver	Interface	Admin/Oper	Address/Mask	Node
Port	Home			
Cluster				
e0a	node1_clus1	up/up	169.254.209.69/16	node1
e0b	node1_clus2	up/up	169.254.49.125/16	node1
e0a	node2_clus1	up/up	169.254.47.194/16	node2
e0b	node2_clus2	up/up	169.254.19.183/16	node2

4 entries were displayed.

5. The cluster ports on each node are connected to existing cluster switches in the following way (from the nodes' perspective) using the command:

```
network device-discovery show -protocol cdp
```

```
cluster1::*> **network device-discovery show -protocol cdp**
```

Node/	Local	Discovered		
Protocol	Port	Device (LLDP: ChassisID)	Interface	Platform
node2	/cdp			
	e0a	c1	0/2	N5K-
C5596UP				
	e0b	c2	0/2	N5K-
C5596UP				
node1	/cdp			
	e0a	c1	0/1	N5K-
C5596UP				
	e0b	c2	0/1	N5K-
C5596UP				

4 entries were displayed.

6. The cluster ports and switches are connected in the following way (from the switches' perspective) using the command:

```
show cdp neighbors
```

```
c1# **show cdp neighbors**
```

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge  
S - Switch, H - Host, I - IGMP, r - Repeater,  
V - VoIP-Phone, D - Remotely-Managed-Device,  
s - Supports-STP-Dispute

Device-ID Port ID	Local Intrfce	Hldtme	Capability	Platform
node1 e0a	Eth1/1	124	H	FAS2750
node2 e0a	Eth1/2	124	H	FAS2750
c2 (FOX2025GEFC) Eth1/41	Eth1/41	179	S I s	N5K-C5596UP
c2 (FOX2025GEFC) Eth1/42	Eth1/42	175	S I s	N5K-C5596UP
c2 (FOX2025GEFC) Eth1/43	Eth1/43	179	S I s	N5K-C5596UP
c2 (FOX2025GEFC) Eth1/44	Eth1/44	175	S I s	N5K-C5596UP
c2 (FOX2025GEFC) Eth1/45	Eth1/45	179	S I s	N5K-C5596UP
c2 (FOX2025GEFC) Eth1/46	Eth1/46	179	S I s	N5K-C5596UP
c2 (FOX2025GEFC) Eth1/47	Eth1/47	175	S I s	N5K-C5596UP
c2 (FOX2025GEFC) Eth1/48	Eth1/48	179	S I s	N5K-C5596UP

Total entries displayed: 10

```
c2# **show cdp neighbors**
```

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge



S - Switch, H - Host, I - IGMP, r - Repeater,  
V - VoIP-Phone, D - Remotely-Managed-Device,  
s - Supports-STP-Dispute

Device-ID Port ID	Local Intrfce	Hldtme	Capability	Platform
node1 e0b	Eth1/1	124	H	FAS2750
node2 e0b	Eth1/2	124	H	FAS2750
c1 (FOX2025GEEX) Eth1/41	Eth1/41	175	S I s	N5K-C5596UP
c1 (FOX2025GEEX) Eth1/42	Eth1/42	175	S I s	N5K-C5596UP
c1 (FOX2025GEEX) Eth1/43	Eth1/43	175	S I s	N5K-C5596UP
c1 (FOX2025GEEX) Eth1/44	Eth1/44	175	S I s	N5K-C5596UP
c1 (FOX2025GEEX) Eth1/45	Eth1/45	175	S I s	N5K-C5596UP
c1 (FOX2025GEEX) Eth1/46	Eth1/46	175	S I s	N5K-C5596UP
c1 (FOX2025GEEX) Eth1/47	Eth1/47	176	S I s	N5K-C5596UP
c1 (FOX2025GEEX) Eth1/48	Eth1/48	176	S I s	N5K-C5596UP

7. Ensure that the cluster network has full connectivity using the command:

```
cluster ping-cluster -node node-name
```

```

cluster1::*> **cluster ping-cluster -node node2**
Host is node2
Getting addresses from network interface table...
Cluster node1_clus1 169.254.209.69 node1      e0a
Cluster node1_clus2 169.254.49.125 node1      e0b
Cluster node2_clus1 169.254.47.194 node2      e0a
Cluster node2_clus2 169.254.19.183 node2      e0b
Local = 169.254.47.194 169.254.19.183
Remote = 169.254.209.69 169.254.49.125
Cluster Vserver Id = 4294967293
Ping status:
....
Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)
.....
Detected 9000 byte MTU on 4 path(s):
    Local 169.254.19.183 to Remote 169.254.209.69
    Local 169.254.19.183 to Remote 169.254.49.125
    Local 169.254.47.194 to Remote 169.254.209.69
    Local 169.254.47.194 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)

```

8. Configure a temporary ISL on cs1 on ports e1/41-48, between c1 and cs1.

The following example shows how the new ISL is configured on c1 and cs1:

```
cs1# **configure**
Enter configuration commands, one per line. End with CNTL/Z.
cs1(config)# **interface e1/41-48**
cs1(config-if-range)# **description temporary ISL between Nexus 5596UP
and Nexus 92300YC**
cs1(config-if-range)# **no lldp transmit**
cs1(config-if-range)# **no lldp receive**
cs1(config-if-range)# **switchport mode trunk**
cs1(config-if-range)# **no spanning-tree bpduguard enable**
cs1(config-if-range)# **channel-group 101 mode active**
cs1(config-if-range)# **exit**
cs1(config)# **interface port-channel 101**
cs1(config-if)# **switchport mode trunk**
cs1(config-if)# **spanning-tree port type network**
cs1(config-if)# **exit**
cs1(config)# **exit**
```

9. Remove ISL cables from ports e1/41-48 from c2 and connect the cables to ports e1/41-48 on cs1.
10. Verify that the ISL ports and port-channel are operational connecting c1 and cs1:

```
show port-channel summary
```

The following example shows the Cisco show port-channel summary command being used to verify the ISL ports are operational on c1 and cs1:

```
c1# **show port-channel summary**
```

```
Flags:  D - Down          P - Up in port-channel (members)
        I - Individual    H - Hot-standby (LACP only)
        s - Suspended     r - Module-removed
        b - BFD Session Wait
        S - Switched      R - Routed
        U - Up (port-channel)
        p - Up in delay-lacp mode (member)
        M - Not in use. Min-links not met
```

```
-----
-----
Group Port-      Type      Protocol  Member Ports
Channel
```

```
-----
1      Po1(SU)    Eth       LACP      Eth1/41(P)  Eth1/42(P)
Eth1/43(P)
                        Eth1/44(P)  Eth1/45(P)
Eth1/46(P)
                        Eth1/47(P)  Eth1/48(P)
```

```
cs1# **show port-channel summary**
```

```
Flags:  D - Down          P - Up in port-channel (members)
        I - Individual    H - Hot-standby (LACP only)
        s - Suspended     r - Module-removed
        b - BFD Session Wait
        S - Switched      R - Routed
        U - Up (port-channel)
        p - Up in delay-lacp mode (member)
        M - Not in use. Min-links not met
```

```
-----
-----
Group Port-      Type      Protocol  Member Ports
Channel
```

```
-----
1      Po1(SU)    Eth       LACP      Eth1/65(P)  Eth1/66(P)
101    Po101(SU)  Eth       LACP      Eth1/41(P)  Eth1/42(P)
Eth1/43(P)
                        Eth1/44(P)  Eth1/45(P)
Eth1/46(P)
                        Eth1/47(P)  Eth1/48(P)
```

11. For node1, disconnect the cable from e1/1 on c2, and then connect the cable to e1/1 on cs2, using

appropriate cabling supported by Nexus 92300YC.

12. For node2, disconnect the cable from e1/2 on c2, and then connect the cable to e1/2 on cs2, using appropriate cabling supported by Nexus 92300YC.
13. The cluster ports on each node are now connected to cluster switches in the following way, from the nodes' perspective:

```
network device-discovery show -protocol cdp
```

```
cluster1::*> **network device-discovery show -protocol cdp**
```

Node/ Protocol	Local Port	Discovered Device (LLDP: ChassisID)	Interface	Platform
node2	/cdp			
	e0a	c1	0/2	N5K-
C5596UP				
	e0b	cs2	0/2	N9K-
C92300YC				
node1	/cdp			
	e0a	c1	0/1	N5K-
C5596UP				
	e0b	cs2	0/1	N9K-
C92300YC				

```
4 entries were displayed.
```

14. For node1, disconnect the cable from e1/1 on c1, and then connect the cable to e1/1 on cs1, using appropriate cabling supported by Nexus 92300YC.
15. For node2, disconnect the cable from e1/2 on c1, and then connect the cable to e1/2 on cs1, using appropriate cabling supported by Nexus 92300YC.
16. The cluster ports on each node are now connected to cluster switches in the following way, from the nodes' perspective:

```
network device-discovery show -protocol cdp
```

```
cluster1::*> **network device-discovery show -protocol cdp**
```

Node/ Protocol	Local Port	Discovered Device (LLDP: ChassisID)	Interface	Platform
node2	/cdp			
	e0a	cs1	0/2	N9K-
C92300YC				
	e0b	cs2	0/2	N9K-
C92300YC				
node1	/cdp			
	e0a	cs1	0/1	N9K-
C92300YC				
	e0b	cs2	0/1	N9K-
C92300YC				

4 entries were displayed.

17. Delete the temporary ISL between cs1 and c1.

```
cs1(config)# **no interface port-channel 10**1
cs1(config)# **interface e1/41-48**
cs1(config-if-range)# **lldp transmit**
cs1(config-if-range)# **lldp receive**
cs1(config-if-range)# **no switchport mode trunk**
cs1(config-if-range)# **no channel-group**
cs1(config-if-range)# **description 10GbE Node Port**
cs1(config-if-range)# **spanning-tree bpduguard enable**
cs1(config-if-range)# **exit**
cs1(config)# **exit**
```

18. Verify the final configuration of the cluster:

```
network port show -ipspace Cluster
```

Each port should display up for Link and healthy for Health Status.

```
cluster1::*> **network port show -ipspace Cluster**
```

Node: node1					Ignore		Speed(Mbps)		Health	
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status			

```

Status
-----
-----
e0a      Cluster      Cluster      up    9000    auto/10000 healthy
false
e0b      Cluster      Cluster      up    9000    auto/10000 healthy
false

Node: node2

Ignore

Speed(Mbps) Health
Health
Port      IPspace      Broadcast Domain Link MTU  Admin/Oper  Status
Status
-----
-----
e0a      Cluster      Cluster      up    9000    auto/10000 healthy
false
e0b      Cluster      Cluster      up    9000    auto/10000 healthy
false

4 entries were displayed.

cluster1::*> **network interface show -vserver Cluster**

Logical      Status      Network      Current
Current Is
Vserver      Interface  Admin/Oper  Address/Mask  Node      Port
Home
-----
-----
Cluster
node1_clus1  up/up      169.254.209.69/16  node1      e0a
true
node1_clus2  up/up      169.254.49.125/16  node1      e0b
true
node2_clus1  up/up      169.254.47.194/16  node2      e0a
true
node2_clus2  up/up      169.254.19.183/16  node2      e0b
true

4 entries were displayed.

```

```
cluster1::*> **network device-discovery show -protocol cdp**
```

Node/ Protocol	Local Port	Discovered Device (LLDP: ChassisID)	Interface	Platform
node2	/cdp			
	e0a	cs1	0/2	N9K-
C92300YC				
	e0b	cs2	0/2	N9K-
C92300YC				
node1	/cdp			
	e0a	cs1	0/1	N9K-
C92300YC				
	e0b	cs2	0/1	N9K-
C92300YC				

4 entries were displayed.

```
cs1# **show cdp neighbors**
```

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge  
S - Switch, H - Host, I - IGMP, r - Repeater,  
V - VoIP-Phone, D - Remotely-Managed-Device,  
s - Supports-STP-Dispute

Device-ID	Local Intrfce	Hldtme	Capability	Platform	Port
ID					
node1	Eth1/1	124	H	FAS2750	
e0a					
node2	Eth1/2	124	H	FAS2750	
e0a					
cs2 (FDO220329V5)	Eth1/65	179	R S I s	N9K-C92300YC	
Eth1/65					
cs2 (FDO220329V5)	Eth1/66	179	R S I s	N9K-C92300YC	
Eth1/66					

```
cs2# **show cdp neighbors**
```

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge  
S - Switch, H - Host, I - IGMP, r - Repeater,  
V - VoIP-Phone, D - Remotely-Managed-Device,  
s - Supports-STP-Dispute

Device-ID	Local Intrfce	Hldtme	Capability	Platform	Port
-----------	---------------	--------	------------	----------	------



ID				
node1	Eth1/1	124	H	FAS2750
e0b				
node2	Eth1/2	124	H	FAS2750
e0b				
cs1 (FDO220329KU)	Eth1/65	179	R S I S	N9K-C92300YC
Eth1/65				
cs1 (FDO220329KU)	Eth1/66	179	R S I S	N9K-C92300YC
Eth1/66				
Total entries displayed: 4				

19. Ensure that the cluster network has full connectivity:

```
cluster ping-cluster -node node-name
```

```

cluster1::*> **set -priv advanced**

Warning: These advanced commands are potentially dangerous; use them
only when
    directed to do so by NetApp personnel.
Do you want to continue? {y|n}: **y**

cluster1::*> **cluster ping-cluster -node node2**
Host is node2
Getting addresses from network interface table...
Cluster node1_clus1 169.254.209.69 node1      e0a
Cluster node1_clus2 169.254.49.125 node1      e0b
Cluster node2_clus1 169.254.47.194 node2      e0a
Cluster node2_clus2 169.254.19.183 node2      e0b
Local = 169.254.47.194 169.254.19.183
Remote = 169.254.209.69 169.254.49.125
Cluster Vserver Id = 4294967293
Ping status:
....
Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)
.....
Detected 9000 byte MTU on 4 path(s):
    Local 169.254.19.183 to Remote 169.254.209.69
    Local 169.254.19.183 to Remote 169.254.49.125
    Local 169.254.47.194 to Remote 169.254.209.69
    Local 169.254.47.194 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)

cluster1::*> **set -privilege admin**
cluster1::*>

```

20. For ONTAP 9.4 and later, enable the cluster switch health monitor log collection feature for collecting switch-related log files:

```

system cluster-switch log setup-password ystem cluster-switch log enable-
collection

```

```

cluster1::*> **system cluster-switch log setup-password**
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
NBS-NIC-NXYC-01
NBS-NIC-NXYC-02

cluster1::*> **system cluster-switch log setup-password**

Enter the switch name: **NBS-NIC-NXYC-01
**RSA key fingerprint is e5:8b:c6:dc:e2:18:18:09:36:63:d9:63:dd:03:d9:cc
Do you want to continue? {y|n}::[n] **y**

Enter the password: <enter switch password>
Enter the password again: <enter switch password>

cluster1::*> **system cluster-switch log setup-password**

Enter the switch name: **NBS-NIC-NXYC-02**
RSA key fingerprint is 57:49:86:a1:b9:80:6a:61:9a:86:8e:3c:e3:b7:1f:b1
Do you want to continue? {y|n}:: [n] **y**

Enter the password: <enter switch password>
Enter the password again: <enter switch password>

cluster1::*> **system cluster-switch log enable-collection**

Do you want to enable cluster log collection for all nodes in the
cluster?
{y|n}: [n] **y**

Enabling cluster switch log collection.

cluster1::*>

```



If any of these commands return an error, contact NetApp support.

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