



Configure a new Cisco Nexus 92300YC switch

Cluster and storage switches

NetApp
November 15, 2022

Table of Contents

- Configure a new Cisco Nexus 92300YC switch. 1
 - Configure a new Cisco Nexus 92300YC switch. 1
 - Initial installation of the Cisco Nexus 92300YC switch. 1
- Install the NX-OS software 4
- Install the Reference Configuration File (RCF) 12

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.

- 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.

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]: *y*
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]:
```

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

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

2. Enter and confirm the password for user admin:

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

3. 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):

4. Create another login account:

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

5. 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]:

6. Configure the cluster switch name:

Enter the switch name : **cs2**

7. 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

8. Configure advanced IP options:

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

9. Configure Telnet services:

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

10. 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
```

11. 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
```

12. 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
Copyright (C) 2002-2018, Cisco and/or its affiliates.
All rights reserved.
The copyrights to certain works contained in this software are
owned by other third parties and used and distributed under their own
licenses, such as open source.  This software is provided "as is," and
unless
otherwise stated, there is no warranty, express or implied, including

```


but not
limited to warranties of merchantability and fitness for a particular
purpose.

Certain components of this software are licensed under
the GNU General Public License (GPL) version 2.0 or
GNU General Public License (GPL) version 3.0 or the GNU
Lesser General Public License (LGPL) Version 2.1 or
Lesser General Public License (LGPL) Version 2.0.

A copy of each such license is available at
<http://www.opensource.org/licenses/gpl-2.0.php> and
<http://opensource.org/licenses/gpl-3.0.html> and
<http://www.opensource.org/licenses/lgpl-2.1.php> and
<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.
```

```
All rights reserved.
```

```
The copyrights to certain works contained in this software are  
owned by other third parties and used and distributed under their own  
licenses, such as open source. This software is provided "as is," and  
unless
```

```
otherwise stated, there is no warranty, express or implied, including  
but not
```

```
limited to warranties of merchantability and fitness for a particular  
purpose.
```

```
Certain components of this software are licensed under  
the GNU General Public License (GPL) version 2.0 or  
GNU General Public License (GPL) version 3.0 or the GNU  
Lesser General Public License (LGPL) Version 2.1 or  
Lesser General Public License (LGPL) Version 2.0.
```

```
A copy of each such license is available at
```

```
http://www.opensource.org/licenses/gpl-2.0.php and
```

```
http://opensource.org/licenses/gpl-3.0.html and  
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. You can also use this procedure to upgrade your RCF version.

About this task

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`, `node1_clus2`, `node2_clus1`, and `node2_clus2`.
- The `cluster1::*>` prompt indicates the name of the cluster.



- The procedure requires the use of both ONTAP commands and [Cisco Nexus 9000 Series Switches](#); ONTAP commands are used unless otherwise indicated.
- Before you perform this procedure, make sure that you have a current backup of the switch configuration.

Steps

1. Display the cluster ports on each node that are connected to the cluster switches: `network device-discovery show`

```

cluster1::*> network device-discovery show
Node/          Local  Discovered
Protocol       Port   Device (LLDP: ChassisID)  Interface      Platform
-----
node1/cdp
C92300YC       e0a    cs1                      Ethernet1/1/1   N9K-
C92300YC       e0b    cs2                      Ethernet1/1/1   N9K-
node2/cdp
C92300YC       e0a    cs1                      Ethernet1/1/2   N9K-
C92300YC       e0b    cs2                      Ethernet1/1/2   N9K-
C92300YC
cluster1::*>

```

2. Check the administrative and operational status of each cluster port.
 - a. Verify that all the cluster ports are up with a healthy status: `network port show -ip space Cluster`

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

```
Node: node1
```

```
Ignore
```

						Speed(Mbps)	Health
Health							
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
-----	-----	-----	-----	----	----	-----	
-----	-----						
e0c	Cluster	Cluster		up	9000	auto/100000	
healthy	false						
e0d	Cluster	Cluster		up	9000	auto/100000	
healthy	false						

```
Node: node2
```

```
Ignore
```

						Speed(Mbps)	Health
Health							
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
-----	-----	-----	-----	----	----	-----	
-----	-----						
e0c	Cluster	Cluster		up	9000	auto/100000	
healthy	false						
e0d	Cluster	Cluster		up	9000	auto/100000	
healthy	false						

```
cluster1::*>
```

- b. Verify that all the cluster interfaces (LIFs) are on the home port: `network interface show -vserver Cluster`


```

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	169.254.3.4/23	node1
e0c	true			
	node1_clus2	up/up	169.254.3.5/23	node1
e0d	true			
	node2_clus1	up/up	169.254.3.8/23	node2
e0c	true			
	node2_clus2	up/up	169.254.3.9/23	node2
e0d	true			
cluster1::*>				

- c. Verify that the cluster displays information for both cluster switches: `system cluster-switch show -is-monitoring-enabled-operational true`

```
cluster1::*> system cluster-switch show -is-monitoring-enabled
-operational true
```

Switch	Type	Address	Model
cs1	cluster-network	10.233.205.92	N9K-
C92300YC			
Serial Number: FOXXXXXXXXGS			
Is Monitored: true			
Reason: None			
Software Version: Cisco Nexus Operating System (NX-OS) Software,			
Version			
9.3(4)			
Version Source: CDP			
cs2	cluster-network	10.233.205.93	N9K-
C92300YC			
Serial Number: FOXXXXXXXXGD			
Is Monitored: true			
Reason: None			
Software Version: Cisco Nexus Operating System (NX-OS) Software,			
Version			
9.3(4)			
Version Source: CDP			

2 entries were displayed.

3. Disable auto-revert on the cluster LIFs.

```
cluster1::*> network interface modify -vserver Cluster -lif * -auto
-revert false
```

4. On cluster switch cs2, shut down the ports connected to the cluster ports of the nodes.

```
cs2(config)# interface e1/1-64
cs2(config-if-range)# shutdown
```

5. Verify that the cluster ports have migrated to the ports hosted on cluster switch cs1. This might take a few seconds.
network interface show -vserver Cluster

```
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	169.254.3.4/23	node1
e0c	true			
	node1_clus2	up/up	169.254.3.5/23	node1
e0c	false			
	node2_clus1	up/up	169.254.3.8/23	node2
e0c	true			
	node2_clus2	up/up	169.254.3.9/23	node2
e0c	false			

```
cluster1::*>
```

6. Verify that the cluster is healthy: `cluster show`

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

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

```
cluster1::*>
```

7. If you do not already have a current backup of the switch, you can save the current switch configuration by copying the output of the following command to a log file:

```
show running-config
```

8. Clean the configuration on switch cs2 and perform a basic setup.

- a. Clean the configuration. This step requires a console connection to the switch.

```
cs2# write erase
Warning: This command will erase the startup-configuration.
Do you wish to proceed anyway? (y/n) [n] y
cs2# reload
This command will reboot the system. (y/n)? [n] y
cs2#
```

- b. Perform a basic setup of the switch.

9. Copy the RCF to the bootflash of switch cs2 using one of the following transfer protocols: FTP, TFTP, SFTP, or SCP. For more information on Cisco commands, see the appropriate guide in the [Cisco Nexus 9000 Series Switches](#) guides.

This example shows TFTP being used to copy an RCF to the bootflash on switch cs2:

```
cs2# copy tftp: bootflash: vrf management
Enter source filename: /code/Nexus_92300YC_RCF_v1.0.2.txt
Enter hostname for the tftp 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:
tftp> progress
Progress meter enabled
tftp> 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
tftp> exit
Copy complete, now saving to disk (please wait)...
Copy complete.
```

10. Apply the RCF previously downloaded to the bootflash.

For more information on Cisco commands, see the appropriate guide in the [Cisco Nexus 9000 Series Switches](#) guides.

This example shows the RCF file `Nexus_92300YC_RCF_v1.0.2.txt` being installed on switch cs2:

```
cs2# copy Nexus_92300YC_RCF_v1.0.2.txt running-config echo-commands
```

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.

11. 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
*
*
*

```



When applying the RCF for the first time, the **ERROR: Failed to write VSH commands** message is expected and can be ignored.

12. Verify that the RCF file is the correct newer version: `show running-config`

When you check the output to verify you have the correct RCF, make sure that the following information is correct:

- The RCF banner
- The node and port settings
- Customizations The output varies according to your site configuration. Check the port settings and refer to the release notes for any changes specific to the RCF that you have installed.

13. After you verify the RCF versions and switch settings are correct, copy the running-config file to the startup-config file.

For more information on Cisco commands, see the appropriate guide in the [Cisco Nexus 9000 Series Switches](#) guides.

```
cs2# copy running-config startup-config  
[] 100% Copy complete
```

14. Reboot switch cs2. You can ignore the "cluster ports down" events reported on the nodes while the switch reboots.

```
cs2# reload  
This command will reboot the system. (y/n)? [n] y
```

15. Verify the health of the cluster ports on the cluster.

- a. Verify that e0d ports are up and healthy across all nodes in the cluster: `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							

- b. Verify the switch health from the cluster (this might not show switch cs2, since LIFs are not homed on e0d).


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

Node/	Local	Discovered		
Protocol	Port	Device (LLDP: ChassisID)	Interface	
Platform				

node1/cdp				
	e0a	cs1	Ethernet1/1	N9K-
C92300YC				
	e0b	cs2	Ethernet1/1	N9K-
C92300YC				
node2/cdp				
	e0a	cs1	Ethernet1/2	N9K-
C92300YC				
	e0b	cs2	Ethernet1/2	N9K-
C92300YC				

```
cluster1::*> system cluster-switch show -is-monitoring-enabled  
-operational true
```

Switch	Type	Address	Model

cs1	cluster-network	10.233.205.90	N9K-
C92300YC			
Serial Number: FOXXXXXXXXGD			
Is Monitored: true			
Reason: None			
Software Version: Cisco Nexus Operating System (NX-OS) Software,			
Version			
9.3(4)			
Version Source: CDP			
cs2	cluster-network	10.233.205.91	N9K-
C92300YC			
Serial Number: FOXXXXXXXXGS			
Is Monitored: true			
Reason: None			
Software Version: Cisco Nexus Operating System (NX-OS) Software,			
Version			
9.3(4)			
Version Source: CDP			

```
2 entries were displayed.
```

You might observe the following output on the cs1 switch console depending on the RCF version previously loaded on the switch



```
2020 Nov 17 16:07:18 cs1 %$ VDC-1 %$ %STP-2-
UNBLOCK_CONSIST_PORT: Unblocking port port-channel1 on
VLAN0092. Port consistency restored.
2020 Nov 17 16:07:23 cs1 %$ VDC-1 %$ %STP-2-BLOCK_PVID_PEER:
Blocking port-channel1 on VLAN0001. Inconsistent peer vlan.
2020 Nov 17 16:07:23 cs1 %$ VDC-1 %$ %STP-2-BLOCK_PVID_LOCAL:
Blocking port-channel1 on VLAN0092. Inconsistent local vlan.
```

16. On cluster switch cs1, shut down the ports connected to the cluster ports of the nodes.

The following example uses the interface example output from step 1:

```
cs1(config)# interface e1/1-64
cs1(config-if-range)# shutdown
```

17. Verify that the cluster LIFs have migrated to the ports hosted on switch cs2. This might take a few seconds.
`network interface show -vserver Cluster`

```
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	169.254.3.4/23	node1
e0d	false			
	node1_clus2	up/up	169.254.3.5/23	node1
e0d	true			
	node2_clus1	up/up	169.254.3.8/23	node2
e0d	false			
	node2_clus2	up/up	169.254.3.9/23	node2
e0d	true			

```
cluster1::*>
```

18. Verify that the cluster is healthy: `cluster show`

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

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

```
cluster1::*>
```

19. Repeat Steps 7 to 14 on switch cs1.
20. Enable auto-revert on the cluster LIFs.

```
cluster1::*> network interface modify -vserver Cluster -lif * -auto
-revert True
```

21. Reboot switch cs1. You do this to trigger the cluster LIFs to revert to their home ports. You can ignore the "cluster ports down" events reported on the nodes while the switch reboots.

```
cs1# reload
This command will reboot the system. (y/n)? [n] y
```

22. Verify that the switch ports connected to the cluster ports are up.

```
cs1# show interface brief | grep up
```

.					
.					
Ethernet1/1	1	eth	access	up	none
10G(D) --					
Ethernet1/2	1	eth	access	up	none
10G(D) --					
Ethernet1/3	1	eth	trunk	up	none
100G(D) --					
Ethernet1/4	1	eth	trunk	up	none
100G(D) --					
.					
.					

23. Verify that the ISL between cs1 and cs2 is functional: `show port-channel summary`

```
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      Pol (SU)      Eth      LACP      Eth1/65 (P)  Eth1/66 (P)
```

```
cs1#
```

24. Verify that the cluster LIFs have reverted to their home port: `network interface show -vserver Cluster`

```
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	169.254.3.4/23	node1
e0d	true			
	node1_clus2	up/up	169.254.3.5/23	node1
e0d	true			
	node2_clus1	up/up	169.254.3.8/23	node2
e0d	true			
	node2_clus2	up/up	169.254.3.9/23	node2
e0d	true			

```
cluster1::*>
```

25. Verify that the cluster is healthy: `cluster show`

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

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

26. Ping the remote cluster interfaces to verify connectivity: `cluster ping-cluster -node local`

```
cluster1::*> cluster ping-cluster -node local
Host is node1
Getting addresses from network interface table...
Cluster node1_clus1 169.254.3.4 node1 e0a
Cluster node1_clus2 169.254.3.5 node1 e0b
Cluster node2_clus1 169.254.3.8 node2 e0a
Cluster node2_clus2 169.254.3.9 node2 e0b
Local = 169.254.1.3 169.254.1.1
Remote = 169.254.1.6 169.254.1.7 169.254.3.4 169.254.3.5 169.254.3.8
169.254.3.9
Cluster Vserver Id = 4294967293
Ping status:
.....
Basic connectivity succeeds on 12 path(s)
Basic connectivity fails on 0 path(s)
.....
Detected 9000 byte MTU on 12 path(s):
  Local 169.254.1.3 to Remote 169.254.1.6
  Local 169.254.1.3 to Remote 169.254.1.7
  Local 169.254.1.3 to Remote 169.254.3.4
  Local 169.254.1.3 to Remote 169.254.3.5
  Local 169.254.1.3 to Remote 169.254.3.8
  Local 169.254.1.3 to Remote 169.254.3.9
  Local 169.254.1.1 to Remote 169.254.1.6
  Local 169.254.1.1 to Remote 169.254.1.7
  Local 169.254.1.1 to Remote 169.254.3.4
  Local 169.254.1.1 to Remote 169.254.3.5
  Local 169.254.1.1 to Remote 169.254.3.8
  Local 169.254.1.1 to Remote 169.254.3.9
Larger than PMTU communication succeeds on 12 path(s)
RPC status:
6 paths up, 0 paths down (tcp check)
6 paths up, 0 paths down (udp check)
```

For ONTAP 9.8 and later

For ONTAP 9.8 and later, enable the cluster switch health monitor log collection feature for collecting switch-related log files, using the commands: `system switch ethernet log setup-password` and `system switch ethernet log enable-collection`

Enter: `system switch ethernet log setup-password`

```
cluster1::*> system switch ethernet log setup-password
```

```
Enter the switch name: <return>
```

```
The switch name entered is not recognized.
```

```
Choose from the following list:
```

```
cs1
```

```
cs2
```

```
cluster1::*> system switch ethernet log setup-password
```

```
Enter the switch name: cs1
```

```
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 switch ethernet log setup-password
```

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

```
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>
```

Followed by: `system switch ethernet log enable-collection`

```
cluster1::*> system switch ethernet 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::*>
```

For ONTAP 9.4 and later

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

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

Enter: `system cluster-switch log setup-password`

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

```
Enter the switch name: <return>
```

```
The switch name entered is not recognized.
```

```
Choose from the following list:
```

```
cs1
```

```
cs2
```

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

```
Enter the switch name: cs1
```

```
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: cs2
```

```
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>
```

Followed by: `system cluster-switch log enable-collection`

```
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.

Copyright information

Copyright © 2022 NetApp, Inc. All Rights Reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system—without prior written permission of the copyright owner.

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

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

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

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

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

Trademark information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.