



# **CN1610 switch migration**

## **Cluster and storage switches**

NetApp

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# CN1610 switch migration

## Migrate from CN1610 switches to Nexus 3132Q-V switches workflow

Follow these workflow steps to migrate your CN1610 switches to Cisco Nexus 3132Q-V switches.

1

### Migration requirements

Review the requirements and example switch information for the migration process.

2

### Prepare for migration

Prepare your CN1610 switches for migration to Nexus 3132Q-V switches.

3

### Configure your ports

Configure your ports for migration to the new Nexus 3132Q-V switches.

4

### Complete your migration

Complete your migration to the new Nexus 3132Q-V switches.

## Migration requirements

Cisco Nexus 3132Q-V switches can be used as cluster switches in your AFF or FAS cluster. Cluster switches allow you to build ONTAP clusters with more than two nodes.



The procedure requires the use of both ONTAP commands and Cisco Nexus 3000 Series Switches commands; ONTAP commands are used unless otherwise indicated.

For more information, see:

- [NetApp CN1601 and CN1610 description page](#)
- [Cisco Ethernet Switch description page](#)
- [Hardware Universe](#)

## CN1610 requirements

The following cluster switches are supported:

- NetApp CN1610
- Cisco Nexus 3132Q-V

The cluster switches support the following node connections:

- NetApp CN1610: ports 0/1 through 0/12 (10 GbE)
- Cisco Nexus 3132Q-V: ports e1/1-30 (40/100 GbE)

The cluster switches use the following inter-switch link (ISL) ports:

- NetApp CN1610: ports 0/13 through 0/16 (10 GbE)
- Cisco Nexus 3132Q-V: ports e1/31-32 (40/100 GbE)

The [Hardware Universe](#) contains information about supported cabling to Nexus 3132Q-V switches:

- Nodes with 10 GbE cluster connections require QSFP to SFP+ optical fiber breakout cables or QSFP to SFP+ copper breakout cables
- Nodes with 40/100 GbE cluster connections require supported QSFP/QSFP28 optical modules with optical fiber cables or QSFP/QSFP28 copper direct-attach cables

The appropriate ISL cabling is as follows:

- Beginning: For CN1610 to CN1610 (SFP+ to SFP+), four SFP+ optical fiber or copper direct-attach cables
- Interim: For CN1610 to Nexus 3132Q-V (QSFP to four SFP+ breakout), one QSFP to SFP+ optical fiber or copper breakout cable
- Final: For Nexus 3132Q-V to Nexus 3132Q-V (QSFP28 to QSFP28), two QSFP28 optical fiber or copper direct-attach cables

NetApp twinax cables are not compatible with Cisco Nexus 3132Q-V switches.

If your current CN1610 configuration uses NetApp twinax cables for cluster-node-to-switch connections or ISL connections and you want to continue using twinax in your environment, you need to procure Cisco twinax cables. Alternatively, you can use optical fiber cables for both the ISL connections and the cluster-node-to-switch connections.

### About the examples used

The examples in this procedure describe replacing CN1610 switches with Cisco Nexus 3132Q-V switches. You can use these steps (with modifications) for other older Cisco switches.

The procedure also uses the following switch and node nomenclature:

- The command outputs might vary depending on different releases of ONTAP.
- The CN1610 switches to be replaced are **CL1** and **CL2**.
- The Nexus 3132Q-V switches to replace the CN1610 switches are **C1** and **C2**.
- **n1\_clus1** is the first cluster logical interface (LIF) connected to cluster switch 1 (CL1 or C1) for node **n1**.
- **n1\_clus2** is the first cluster LIF connected to cluster switch 2 (CL2 or C2) for node **n1**.
- **n1\_clus3** is the second LIF connected to cluster switch 2 (CL2 or C2) for node **n1**.
- **n1\_clus4** is the second LIF connected to cluster switch 1 (CL1 or C1) for node **n1**.
- The number of 10 GbE and 40/100 GbE ports are defined in the reference configuration files (RCFs) available on the [Cisco® Cluster Network Switch Reference Configuration File Download](#) page.
- The nodes are **n1**, **n2**, **n3**, and **n4**.

The examples in this procedure use four nodes:

- Two nodes use four 10 GbE cluster interconnect ports: **e0a**, **e0b**, **e0c**, and **e0d**.
- The other two nodes use two 40 GbE cluster interconnect ports: **e4a** and **e4e**.

The [Hardware Universe](#) lists the actual cluster ports on your platforms.

### What's next?

[Prepare for migration.](#)

## Prepare for migration from CN1610 switches to 3132Q-V switches

Follow these steps to prepare your CN1610 switches for migration to Cisco Nexus 3132Q-V switches.

### Steps

1. 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
```

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.

2. Display information about the devices in your configuration:

```
network device-discovery show
```

### Show example

The following example displays how many cluster interconnect interfaces have been configured in each node for each cluster interconnect switch:

```
cluster::> network device-discovery show
```

Node	Local Port	Discovered Device	Interface	Platform
n1	/cdp			
	e0a	CL1	0/1	CN1610
	e0b	CL2	0/1	CN1610
	e0c	CL2	0/2	CN1610
	e0d	CL1	0/2	CN1610
n2	/cdp			
	e0a	CL1	0/3	CN1610
	e0b	CL2	0/3	CN1610
	e0c	CL2	0/4	CN1610
	e0d	CL1	0/4	CN1610

```
8 entries were displayed.
```

3. Determine the administrative or operational status for each cluster interface.

a. Display the cluster network port attributes:

```
network port show
```

## Show example

The following example displays the network port attributes on a system:

```
cluster::*> network port show -role Cluster
(network port show)

Node: n1

Port  IPspace  Broadcast  Link  MTU  Speed (Mbps)  Health  Ignore
Status  Domain    Status      Admin/Open  Status Health
-----  -
e0a   cluster  cluster    up     9000  auto/10000    -      -
e0b   cluster  cluster    up     9000  auto/10000    -      -
e0c   cluster  cluster    up     9000  auto/10000    -      -
e0d   cluster  cluster    up     9000  auto/10000    -      -

Node: n2

Port  IPspace  Broadcast  Link  MTU  Speed (Mbps)  Health  Ignore
Status  Domain    Status      Admin/Open  Status Health
-----  -
e0a   cluster  cluster    up     9000  auto/10000    -      -
e0b   cluster  cluster    up     9000  auto/10000    -      -
e0c   cluster  cluster    up     9000  auto/10000    -      -
e0d   cluster  cluster    up     9000  auto/10000    -      -

8 entries were displayed.
```

b. Display information about the logical interfaces: + network interface show

## Show example

The following example displays the general information about all of the LIFs on your system:

```
cluster::*> network interface show -role Cluster
(network interface show)

      Logical      Status      Network      Current      Current
Is
Vserver Interface Admin/Oper Address/Mask Node      Port
Home
-----
Cluster
true      n1_clus1    up/up      10.10.0.1/24  n1      e0a
true      n1_clus2    up/up      10.10.0.2/24  n1      e0b
true      n1_clus3    up/up      10.10.0.3/24  n1      e0c
true      n1_clus4    up/up      10.10.0.4/24  n1      e0d
true      n2_clus1    up/up      10.10.0.5/24  n2      e0a
true      n2_clus2    up/up      10.10.0.6/24  n2      e0b
true      n2_clus3    up/up      10.10.0.7/24  n2      e0c
true      n2_clus4    up/up      10.10.0.8/24  n2      e0d

8 entries were displayed.
```

c. Display information about the discovered cluster switches:

```
system cluster-switch show
```



### Show example

The following example displays the cluster switches that are known to the cluster, along with their management IP addresses:

```
cluster::> system cluster-switch show

Switch                               Type                Address
Model                               -----
-----
CL1                                  cluster-network    10.10.1.101
CN1610
    Serial Number: 01234567
    Is Monitored: true
    Reason:
    Software Version: 1.2.0.7
    Version Source: ISDP

CL2                                  cluster-network    10.10.1.102
CN1610
    Serial Number: 01234568
    Is Monitored: true
    Reason:
    Software Version: 1.2.0.7
    Version Source: ISDP

2 entries were displayed.
```

4. Set the `-auto-revert` parameter to `false` on cluster LIFs `clus1` and `clus4` on both nodes:

```
network interface modify
```

### Show example

```
cluster::*> network interface modify -vserver node1 -lif clus1 -auto
-revert false
cluster::*> network interface modify -vserver node1 -lif clus4 -auto
-revert false
cluster::*> network interface modify -vserver node2 -lif clus1 -auto
-revert false
cluster::*> network interface modify -vserver node2 -lif clus4 -auto
-revert false
```

5. Verify that the appropriate RCF and image are installed on the new 3132Q-V switches as necessary for your requirements, and make any essential site customizations, such as users and passwords, network addresses, and so on.

You must prepare both switches at this time. If you need to upgrade the RCF and image, follow these steps:

- a. See the [Cisco Ethernet Switches](#) page on NetApp Support Site.
- b. Note your switch and the required software versions in the table on that page.
- c. Download the appropriate version of the RCF.
- d. Select **CONTINUE** on the **Description** page, accept the license agreement, and then follow the instructions on the **Download** page to download the RCF.
- e. Download the appropriate version of the image software.

[Cisco® Cluster and Management Network Switch Reference Configuration File Download](#)

6. Migrate the LIFs associated with the second CN1610 switch to be replaced:

```
network interface migrate
```



You must migrate the cluster LIFs from a connection to the node, either through the service processor or node management interface, which owns the cluster LIF being migrated.

#### Show example

The following example shows n1 and n2, but LIF migration must be done on all the nodes:

```
cluster::*> network interface migrate -vserver Cluster -lif n1_clus2
-destination-node n1 -destination-port e0a
cluster::*> network interface migrate -vserver Cluster -lif n1_clus3
-destination-node n1 -destination-port e0d
cluster::*> network interface migrate -vserver Cluster -lif n2_clus2
-destination-node n2 -destination-port e0a
cluster::*> network interface migrate -vserver Cluster -lif n2_clus3
-destination-node n2 -destination-port e0d
```

7. Verify the cluster's health:

```
network interface show
```

## Show example

The following example shows the result of the previous `network interface migrate` command:

```
cluster::*> network interface show -role Cluster
(network interface show)
```

Vserver	Logical Interface	Status Admin/Oper	Network Address/Mask	Current Node	Current Port	Is Home
-----	-----	-----	-----	-----	-----	-----
Cluster						
true	n1_clus1	up/up	10.10.0.1/24	n1	e0a	
false	n1_clus2	up/up	10.10.0.2/24	n1	e0a	
false	n1_clus3	up/up	10.10.0.3/24	n1	e0d	
true	n1_clus4	up/up	10.10.0.4/24	n1	e0d	
true	n2_clus1	up/up	10.10.0.5/24	n2	e0a	
false	n2_clus2	up/up	10.10.0.6/24	n2	e0a	
false	n2_clus3	up/up	10.10.0.7/24	n2	e0d	
true	n2_clus4	up/up	10.10.0.8/24	n2	e0d	

8 entries were displayed.

8. Shut down the cluster interconnect ports that are physically connected to switch CL2:

```
network port modify
```

### Show example

The following commands shut down the specified ports on n1 and n2, but the ports must be shut down on all nodes:

```
cluster::*> network port modify -node n1 -port e0b -up-admin false
cluster::*> network port modify -node n1 -port e0c -up-admin false
cluster::*> network port modify -node n2 -port e0b -up-admin false
cluster::*> network port modify -node n2 -port e0c -up-admin false
```

9. Verify the connectivity of the remote cluster interfaces:

## ONTAP 9.9.1 and later

You can use the `network interface check cluster-connectivity` command to start an accessibility check for cluster connectivity and then display the details:

```
network interface check cluster-connectivity start and network interface check cluster-connectivity show
```

```
cluster1::*> network interface check cluster-connectivity start
```

**NOTE:** Wait for a number of seconds before running the show command to display the details.

```
cluster1::*> network interface check cluster-connectivity show
```

Node	Date		Source LIF	Destination LIF	Packet Loss
n1					
	3/5/2022 19:21:18 -06:00		n1_clus2	n1_clus1	none
	3/5/2022 19:21:20 -06:00		n1_clus2	n2_clus2	none
n2					
	3/5/2022 19:21:18 -06:00		n2_clus2	n1_clus1	none
	3/5/2022 19:21:20 -06:00		n2_clus2	n1_clus2	none

## All ONTAP releases

For all ONTAP releases, you can also use the `cluster ping-cluster -node <name>` command to check the connectivity:

```
cluster ping-cluster -node <name>
```

```

cluster::*> cluster ping-cluster -node n1
Host is n1
Getting addresses from network interface table...
Cluster n1_clus1 n1      e0a    10.10.0.1
Cluster n1_clus2 n1      e0b    10.10.0.2
Cluster n1_clus3 n1      e0c    10.10.0.3
Cluster n1_clus4 n1      e0d    10.10.0.4
Cluster n2_clus1 n2      e0a    10.10.0.5
Cluster n2_clus2 n2      e0b    10.10.0.6
Cluster n2_clus3 n2      e0c    10.10.0.7
Cluster n2_clus4 n2      e0d    10.10.0.8

Local = 10.10.0.1 10.10.0.2 10.10.0.3 10.10.0.4
Remote = 10.10.0.5 10.10.0.6 10.10.0.7 10.10.0.8
Cluster Vserver Id = 4294967293
Ping status:
....
Basic connectivity succeeds on 16 path(s)
Basic connectivity fails on 0 path(s)
.....
Detected 1500 byte MTU on 16 path(s):
  Local 10.10.0.1 to Remote 10.10.0.5
  Local 10.10.0.1 to Remote 10.10.0.6
  Local 10.10.0.1 to Remote 10.10.0.7
  Local 10.10.0.1 to Remote 10.10.0.8
  Local 10.10.0.2 to Remote 10.10.0.5
  Local 10.10.0.2 to Remote 10.10.0.6
  Local 10.10.0.2 to Remote 10.10.0.7
  Local 10.10.0.2 to Remote 10.10.0.8
  Local 10.10.0.3 to Remote 10.10.0.5
  Local 10.10.0.3 to Remote 10.10.0.6
  Local 10.10.0.3 to Remote 10.10.0.7
  Local 10.10.0.3 to Remote 10.10.0.8
  Local 10.10.0.4 to Remote 10.10.0.5
  Local 10.10.0.4 to Remote 10.10.0.6
  Local 10.10.0.4 to Remote 10.10.0.7
  Local 10.10.0.4 to Remote 10.10.0.8

Larger than PMTU communication succeeds on 16 path(s)
RPC status:
4 paths up, 0 paths down (tcp check)
4 paths up, 0 paths down (udp check)

```

10. Shut down the ISL ports 13 through 16 on the active CN1610 switch CL1:

shutdown

### Show example

The following example shows how to shut down ISL ports 13 through 16 on the CN1610 switch CL1:

```
(CL1)# configure
(CL1)(Config)# interface 0/13-0/16
(CL1)(Interface 0/13-0/16)# shutdown
(CL1)(Interface 0/13-0/16)# exit
(CL1)(Config)# exit
(CL1)#
```

## 11. Build a temporary ISL between CL1 and C2:

### Show example

The following example builds a temporary ISL between CL1 (ports 13-16) and C2 (ports e1/24/1-4):

```
C2# configure
C2(config)# interface port-channel 2
C2(config-if)# switchport mode trunk
C2(config-if)# spanning-tree port type network
C2(config-if)# mtu 9216
C2(config-if)# interface breakout module 1 port 24 map 10g-4x
C2(config)# interface e1/24/1-4
C2(config-if-range)# switchport mode trunk
C2(config-if-range)# mtu 9216
C2(config-if-range)# channel-group 2 mode active
C2(config-if-range)# exit
C2(config-if)# exit
```

### What's next?

[Configure your ports.](#)

## Configure your ports for migration from CN1610 switches to 3132Q-V switches

Follow these steps to configure your ports for migration from the CN1610 switches to the new Nexus 3132Q-V switches.

### Steps

1. On all nodes, remove the cables that are attached to the CN1610 switch CL2.

With supported cabling, you must reconnect the disconnected ports on all of the nodes to the Nexus 3132Q-V switch C2.

2. Remove four ISL cables from ports 13 to 16 on the CN1610 switch CL1.

You must attach appropriate Cisco QSFP to SFP+ breakout cables connecting port 1/24 on the new Cisco 3132Q-V switch C2, to ports 13 to 16 on existing CN1610 switch CL1.



When reconnecting any cables to the new Cisco 3132Q-V switch, you must use either optical fiber or Cisco twinax cables.

3. To make the ISL dynamic, configure the ISL interface 3/1 on the active CN1610 switch to disable the static mode:  
`no port-channel static`

This configuration matches with the ISL configuration on the 3132Q-V switch C2 when the ISLs are brought up on both switches in step 11.

#### Show example

The following example shows the configuration of the ISL interface 3/1 using the `no port-channel static` command to make the ISL dynamic:

```
(CL1)# configure
(CL1)(Config)# interface 3/1
(CL1)(Interface 3/1)# no port-channel static
(CL1)(Interface 3/1)# exit
(CL1)(Config)# exit
(CL1)#
```

4. Bring up ISLs 13 through 16 on the active CN1610 switch CL1.

#### Show example

The following example illustrates the process of bringing up ISL ports 13 through 16 on the port-channel interface 3/1:

```
(CL1)# configure
(CL1)(Config)# interface 0/13-0/16,3/1
(CL1)(Interface 0/13-0/16,3/1)# no shutdown
(CL1)(Interface 0/13-0/16,3/1)# exit
(CL1)(Config)# exit
(CL1)#
```

5. Verify that the ISLs are up on the CN1610 switch CL1:

```
show port-channel
```



The "Link State" should be Up, "Type" should be Dynamic, and the "Port Active" column should be True for ports 0/13 to 0/16:

**Show example**

```
(CL1)# show port-channel 3/1
Local Interface..... 3/1
Channel Name..... ISL-LAG
Link State..... Up
Admin Mode..... Enabled
Type..... Dynamic
Load Balance Option..... 7
(Enhanced hashing mode)

Mbr      Device/      Port      Port
Ports   Timeout     Speed     Active
-----
0/13    actor/long   10 Gb Full  True
        partner/long
0/14    actor/long   10 Gb Full  True
        partner/long
0/15    actor/long   10 Gb Full  True
        partner/long
0/16    actor/long   10 Gb Full  True
        partner/long
```

6. Verify that the ISLs are up on the 3132Q-V switch C2:

```
show port-channel summary
```

### Show example

Ports Eth1/24/1 through Eth1/24/4 should indicate (P), meaning that all four ISL ports are up in the port-channel. Eth1/31 and Eth1/32 should indicate (D) as they are not connected:

```
C2# 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
        S - Switched      R - Routed
        U - Up (port-channel)
        M - Not in use. Min-links not met

-----
-----
Group Port-          Type      Protocol  Member Ports
Channel
-----
-----
1      Po1(SU)        Eth       LACP      Eth1/31(D)  Eth1/32(D)
2      Po2(SU)        Eth       LACP      Eth1/24/1(P) Eth1/24/2(P)
Eth1/24/3(P)
                                   Eth1/24/4(P)
```

7. Bring up all of the cluster interconnect ports that are connected to the 3132Q-V switch C2 on all of the nodes:

```
network port modify
```

### Show example

The following example shows how to bring up the cluster interconnect ports connected to the 3132Q-V switch C2:

```
cluster::*> network port modify -node n1 -port e0b -up-admin true
cluster::*> network port modify -node n1 -port e0c -up-admin true
cluster::*> network port modify -node n2 -port e0b -up-admin true
cluster::*> network port modify -node n2 -port e0c -up-admin true
```

8. Revert all of the migrated cluster interconnect LIFs that are connected to C2 on all of the nodes:

```
network interface revert
```

### Show example

```
cluster::*> network interface revert -vserver Cluster -lif n1_clus2
cluster::*> network interface revert -vserver Cluster -lif n1_clus3
cluster::*> network interface revert -vserver Cluster -lif n2_clus2
cluster::*> network interface revert -vserver Cluster -lif n2_clus3
```

9. Verify that all of the cluster interconnect ports are reverted to their home ports:

```
network interface show
```

## Show example

The following example shows that the LIFs on clus2 are reverted to their home ports, and shows that the LIFs are successfully reverted if the ports in the "Current Port" column have a status of `true` in the "Is Home" column. If the Is Home value is `false`, then the LIF is not reverted.

```
cluster::*> network interface show -role cluster
(network interface show)
```

Vserver Home	Logical Interface	Status Admin/Oper	Network Address/Mask	Current Node	Current Port	Is
-----	-----	-----	-----	-----	-----	-----
Cluster						
true	n1_clus1	up/up	10.10.0.1/24	n1	e0a	
true	n1_clus2	up/up	10.10.0.2/24	n1	e0b	
true	n1_clus3	up/up	10.10.0.3/24	n1	e0c	
true	n1_clus4	up/up	10.10.0.4/24	n1	e0d	
true	n2_clus1	up/up	10.10.0.5/24	n2	e0a	
true	n2_clus2	up/up	10.10.0.6/24	n2	e0b	
true	n2_clus3	up/up	10.10.0.7/24	n2	e0c	
true	n2_clus4	up/up	10.10.0.8/24	n2	e0d	

8 entries were displayed.

10. Verify that all of the cluster ports are connected:

```
network port show
```

## Show example

The following example shows the result of the previous `network port modify` command, verifying that all of the cluster interconnects are up:

```
cluster::*> network port show -role Cluster
(network port show)

Node: n1

Port IPspace Broadcast Link MTU Speed (Mbps) Health Ignore
Status Domain Status Health
-----
-----
e0a cluster cluster up 9000 auto/10000 - -
e0b cluster cluster up 9000 auto/10000 - -
e0c cluster cluster up 9000 auto/10000 - -
e0d cluster cluster up 9000 auto/10000 - -

Node: n2

Port IPspace Broadcast Link MTU Speed (Mbps) Health Ignore
Status Domain Status Health
-----
-----
e0a cluster cluster up 9000 auto/10000 - -
e0b cluster cluster up 9000 auto/10000 - -
e0c cluster cluster up 9000 auto/10000 - -
e0d cluster cluster up 9000 auto/10000 - -

8 entries were displayed.
```

11. Verify the connectivity of the remote cluster interfaces:

### ONTAP 9.9.1 and later

You can use the `network interface check cluster-connectivity` command to start an accessibility check for cluster connectivity and then display the details:

```
network interface check cluster-connectivity start and network interface check cluster-connectivity show
```

```
cluster1::*> network interface check cluster-connectivity start
```

**NOTE:** Wait for a number of seconds before running the show command to display the details.

```
cluster1::*> network interface check cluster-connectivity show
```

Node	Date		Source LIF	Destination LIF	Packet Loss
n1					
	3/5/2022 19:21:18 -06:00		n1_clus2	n1_clus1	none
	3/5/2022 19:21:20 -06:00		n1_clus2	n2_clus2	none
n2					
	3/5/2022 19:21:18 -06:00		n2_clus2	n1_clus1	none
	3/5/2022 19:21:20 -06:00		n2_clus2	n1_clus2	none

### All ONTAP releases

For all ONTAP releases, you can also use the `cluster ping-cluster -node <name>` command to check the connectivity:

```
cluster ping-cluster -node <name>
```

```

cluster::*> cluster ping-cluster -node n1
Host is n1
Getting addresses from network interface table...
Cluster n1_clus1 n1      e0a    10.10.0.1
Cluster n1_clus2 n1      e0b    10.10.0.2
Cluster n1_clus3 n1      e0c    10.10.0.3
Cluster n1_clus4 n1      e0d    10.10.0.4
Cluster n2_clus1 n2      e0a    10.10.0.5
Cluster n2_clus2 n2      e0b    10.10.0.6
Cluster n2_clus3 n2      e0c    10.10.0.7
Cluster n2_clus4 n2      e0d    10.10.0.8

Local = 10.10.0.1 10.10.0.2 10.10.0.3 10.10.0.4
Remote = 10.10.0.5 10.10.0.6 10.10.0.7 10.10.0.8
Cluster Vserver Id = 4294967293
Ping status:
....
Basic connectivity succeeds on 16 path(s)
Basic connectivity fails on 0 path(s)
.....
Detected 1500 byte MTU on 16 path(s):
  Local 10.10.0.1 to Remote 10.10.0.5
  Local 10.10.0.1 to Remote 10.10.0.6
  Local 10.10.0.1 to Remote 10.10.0.7
  Local 10.10.0.1 to Remote 10.10.0.8
  Local 10.10.0.2 to Remote 10.10.0.5
  Local 10.10.0.2 to Remote 10.10.0.6
  Local 10.10.0.2 to Remote 10.10.0.7
  Local 10.10.0.2 to Remote 10.10.0.8
  Local 10.10.0.3 to Remote 10.10.0.5
  Local 10.10.0.3 to Remote 10.10.0.6
  Local 10.10.0.3 to Remote 10.10.0.7
  Local 10.10.0.3 to Remote 10.10.0.8
  Local 10.10.0.4 to Remote 10.10.0.5
  Local 10.10.0.4 to Remote 10.10.0.6
  Local 10.10.0.4 to Remote 10.10.0.7
  Local 10.10.0.4 to Remote 10.10.0.8

Larger than PMTU communication succeeds on 16 path(s)
RPC status:
4 paths up, 0 paths down (tcp check)
4 paths up, 0 paths down (udp check)

```

12. On each node in the cluster, migrate the interfaces that are associated with the first CN1610 switch CL1,

to be replaced:

```
network interface migrate
```

### Show example

The following example shows the ports or LIFs being migrated on nodes n1 and n2:

```
cluster::*> network interface migrate -vserver Cluster -lif n1_clus1
-destination-node n1 -destination-port e0b
cluster::*> network interface migrate -vserver Cluster -lif n1_clus4
-destination-node n1 -destination-port e0c
cluster::*> network interface migrate -vserver Cluster -lif n2_clus1
-destination-node n2 -destination-port e0b
cluster::*> network interface migrate -vserver Cluster -lif n2_clus4
-destination-node n2 -destination-port e0c
```

### 13. Verify the cluster status:

```
network interface show
```



## Show example

The following example shows that the required cluster LIFs have been migrated to the appropriate cluster ports hosted on cluster switch C2:

```
cluster::*> network interface show -role Cluster
(network interface show)

      Logical   Status   Network   Current   Current   Is
Vserver  Interface Admin/Oper Address/Mask Node       Port      Home
-----  -
Cluster
false    n1_clus1   up/up    10.10.0.1/24  n1        e0b
true     n1_clus2   up/up    10.10.0.2/24  n1        e0b
true     n1_clus3   up/up    10.10.0.3/24  n1        e0c
false    n1_clus4   up/up    10.10.0.4/24  n1        e0c
false    n2_clus1   up/up    10.10.0.5/24  n2        e0b
true     n2_clus2   up/up    10.10.0.6/24  n2        e0b
true     n2_clus3   up/up    10.10.0.7/24  n2        e0c
false    n2_clus4   up/up    10.10.0.8/24  n2        e0c

8 entries were displayed.
```

14. Shut down the node ports that are connected to CL1 on all of the nodes:

```
network port modify
```

### Show example

The following example shows how to shut down the specified ports on nodes n1 and n2:

```
cluster::*> network port modify -node n1 -port e0a -up-admin false
cluster::*> network port modify -node n1 -port e0d -up-admin false
cluster::*> network port modify -node n2 -port e0a -up-admin false
cluster::*> network port modify -node n2 -port e0d -up-admin false
```

15. Shut down the ISL ports 24, 31, and 32 on the active 3132Q-V switch C2:

```
shutdown
```

### Show example

The following example shows how to shut down ISLs 24, 31, and 32 on the active 3132Q-V switch C2:

```
C2# configure
C2(config)# interface ethernet 1/24/1-4
C2(config-if-range)# shutdown
C2(config-if-range)# exit
C2(config)# interface ethernet 1/31-32
C2(config-if-range)# shutdown
C2(config-if-range)# exit
C2(config)# exit
C2#
```

16. Remove the cables that are attached to the CN1610 switch CL1 on all of the nodes.

With supported cabling, you must reconnect the disconnected ports on all of the nodes to the Nexus 3132Q-V switch C1.

17. Remove the QSFP cables from Nexus 3132Q-V C2 port e1/24.

You must connect ports e1/31 and e1/32 on C1 to ports e1/31 and e1/32 on C2 using supported Cisco QSFP optical fiber or direct-attach cables.

18. Restore the configuration on port 24 and remove the temporary port-channel 2 on C2, by copying the running-configuration file to the startup-configuration file.

### Show example

The following example copies the running-configuration file to the startup-configuration file:

```
C2# configure
C2(config)# no interface breakout module 1 port 24 map 10g-4x
C2(config)# no interface port-channel 2
C2(config-if)# interface e1/24
C2(config-if)# description 40GbE Node Port
C2(config-if)# spanning-tree port type edge
C2(config-if)# spanning-tree bpduguard enable
C2(config-if)# mtu 9216
C2(config-if-range)# exit
C2(config)# exit
C2# copy running-config startup-config
[#####] 100%
Copy Complete.
```

19. Bring up ISL ports 31 and 32 on C2, the active 3132Q-V switch:

no shutdown

### Show example

The following example shows how to bring up ISLs 31 and 32 on the 3132Q-V switch C2:

```
C2# configure
C2(config)# interface ethernet 1/31-32
C2(config-if-range)# no shutdown
C2(config-if-range)# exit
C2(config)# exit
C2# copy running-config startup-config
[#####] 100%
Copy Complete.
```

### What's next?

[Complete your migration.](#)

## Complete your migration from CN1610 switches to Nexus 3132Q-V switches

Complete the following steps to finalize the CN1610 switches migration to Nexus 3132Q-

## V switches.

### Steps

1. Verify that the ISL connections are up on the 3132Q-V switch C2:

```
show port-channel summary
```

Ports Eth1/31 and Eth1/32 should indicate (P), meaning that both the ISL ports are up in the port-channel.

### Show example

```
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
        S - Switched     R - Routed
        U - Up (port-channel)
        M - Not in use. Min-links not met

-----
-----
Group Port-          Type      Protocol  Member Ports
  Channel
-----
-----
1      Pol(SU)       Eth      LACP      Eth1/31(P)  Eth1/32(P)
```

2. Bring up all of the cluster interconnect ports connected to the new 3132Q-V switch C1 on all of the nodes:

```
network port modify
```

### Show example

The following example shows how to bring up all of the cluster interconnect ports connected to the new 3132Q-V switch C1:

```
cluster::*> network port modify -node n1 -port e0a -up-admin true
cluster::*> network port modify -node n1 -port e0d -up-admin true
cluster::*> network port modify -node n2 -port e0a -up-admin true
cluster::*> network port modify -node n2 -port e0d -up-admin true
```

3. Verify the status of the cluster node port:

```
network port show
```

## Show example

The following example verifies that all of the cluster interconnect ports on n1 and n2 on the new 3132Q-V switch C1 are up:

```
cluster::*> network port show -role Cluster
(network port show)

Node: n1

```

Port	IPspace	Broadcast Domain	Link	MTU	Speed (Mbps) Admin/Open	Health Status	Ignore Health
e0a	cluster	cluster	up	9000	auto/10000	-	-
e0b	cluster	cluster	up	9000	auto/10000	-	-
e0c	cluster	cluster	up	9000	auto/10000	-	-
e0d	cluster	cluster	up	9000	auto/10000	-	-

```
Node: n2

```

Port	IPspace	Broadcast Domain	Link	MTU	Speed (Mbps) Admin/Open	Health Status	Ignore Health
e0a	cluster	cluster	up	9000	auto/10000	-	-
e0b	cluster	cluster	up	9000	auto/10000	-	-
e0c	cluster	cluster	up	9000	auto/10000	-	-
e0d	cluster	cluster	up	9000	auto/10000	-	-

```
8 entries were displayed.
```

4. Revert all of the migrated cluster interconnect LIFs that were originally connected to C1 on all of the nodes:

```
network interface revert
```

## Show example

The following example shows how to revert the migrated cluster LIFs to their home ports:

```
cluster::*> network interface revert -vserver Cluster -lif n1_clus1
cluster::*> network interface revert -vserver Cluster -lif n1_clus4
cluster::*> network interface revert -vserver Cluster -lif n2_clus1
cluster::*> network interface revert -vserver Cluster -lif n2_clus4
```

5. Verify that the interface is now home:

```
network interface show
```

## Show example

The following example shows the status of cluster interconnect interfaces is up and Is home for n1 and n2:

```
cluster::*> network interface show -role Cluster
(network interface show)
```

Vserver Home	Logical Interface	Status Admin/Oper	Network Address/Mask	Current Node	Current Port	Is
-----	-----	-----	-----	-----	-----	-----
Cluster						
true	n1_clus1	up/up	10.10.0.1/24	n1	e0a	
true	n1_clus2	up/up	10.10.0.2/24	n1	e0b	
true	n1_clus3	up/up	10.10.0.3/24	n1	e0c	
true	n1_clus4	up/up	10.10.0.4/24	n1	e0d	
true	n2_clus1	up/up	10.10.0.5/24	n2	e0a	
true	n2_clus2	up/up	10.10.0.6/24	n2	e0b	
true	n2_clus3	up/up	10.10.0.7/24	n2	e0c	
true	n2_clus4	up/up	10.10.0.8/24	n2	e0d	

8 entries were displayed.

6. Verify the connectivity of the remote cluster interfaces:

## ONTAP 9.9.1 and later

You can use the `network interface check cluster-connectivity` command to start an accessibility check for cluster connectivity and then display the details:

```
network interface check cluster-connectivity start and network interface check cluster-connectivity show
```

```
cluster1::*> network interface check cluster-connectivity start
```

**NOTE:** Wait for a number of seconds before running the show command to display the details.

```
cluster1::*> network interface check cluster-connectivity show
```

Node	Date		Source LIF	Destination LIF	Packet Loss
n1					
	3/5/2022 19:21:18 -06:00		n1_clus2	n1_clus1	none
	3/5/2022 19:21:20 -06:00		n1_clus2	n2_clus2	none
n2					
	3/5/2022 19:21:18 -06:00		n2_clus2	n1_clus1	none
	3/5/2022 19:21:20 -06:00		n2_clus2	n1_clus2	none

## All ONTAP releases

For all ONTAP releases, you can also use the `cluster ping-cluster -node <name>` command to check the connectivity:

```
cluster ping-cluster -node <name>
```



```

cluster::*> cluster ping-cluster -node n1
Host is n1
Getting addresses from network interface table...
Cluster n1_clus1 n1      e0a    10.10.0.1
Cluster n1_clus2 n1      e0b    10.10.0.2
Cluster n1_clus3 n1      e0c    10.10.0.3
Cluster n1_clus4 n1      e0d    10.10.0.4
Cluster n2_clus1 n2      e0a    10.10.0.5
Cluster n2_clus2 n2      e0b    10.10.0.6
Cluster n2_clus3 n2      e0c    10.10.0.7
Cluster n2_clus4 n2      e0d    10.10.0.8

Local = 10.10.0.1 10.10.0.2 10.10.0.3 10.10.0.4
Remote = 10.10.0.5 10.10.0.6 10.10.0.7 10.10.0.8
Cluster Vserver Id = 4294967293
Ping status:
....
Basic connectivity succeeds on 16 path(s)
Basic connectivity fails on 0 path(s)
.....
Detected 1500 byte MTU on 16 path(s):
  Local 10.10.0.1 to Remote 10.10.0.5
  Local 10.10.0.1 to Remote 10.10.0.6
  Local 10.10.0.1 to Remote 10.10.0.7
  Local 10.10.0.1 to Remote 10.10.0.8
  Local 10.10.0.2 to Remote 10.10.0.5
  Local 10.10.0.2 to Remote 10.10.0.6
  Local 10.10.0.2 to Remote 10.10.0.7
  Local 10.10.0.2 to Remote 10.10.0.8
  Local 10.10.0.3 to Remote 10.10.0.5
  Local 10.10.0.3 to Remote 10.10.0.6
  Local 10.10.0.3 to Remote 10.10.0.7
  Local 10.10.0.3 to Remote 10.10.0.8
  Local 10.10.0.4 to Remote 10.10.0.5
  Local 10.10.0.4 to Remote 10.10.0.6
  Local 10.10.0.4 to Remote 10.10.0.7
  Local 10.10.0.4 to Remote 10.10.0.8

Larger than PMTU communication succeeds on 16 path(s)
RPC status:
4 paths up, 0 paths down (tcp check)
4 paths up, 0 paths down (udp check)

```

7. Expand the cluster by adding nodes to the Nexus 3132Q-V cluster switches.

8. Display the information about the devices in your configuration:

- `network device-discovery show`
- `network port show -role cluster`
- `network interface show -role cluster`
- `system cluster-switch show`

## Show example

The following examples show nodes n3 and n4 with 40 GbE cluster ports connected to ports e1/7 and e1/8, respectively on both the Nexus 3132Q-V cluster switches, and both nodes have joined the cluster. The 40 GbE cluster interconnect ports used are e4a and e4e.

```
cluster::*> network device-discovery show
```

Node	Local Port	Discovered Device	Interface	Platform
n1	/cdp			
	e0a	C1	Ethernet1/1/1	N3K-C3132Q-V
	e0b	C2	Ethernet1/1/1	N3K-C3132Q-V
	e0c	C2	Ethernet1/1/2	N3K-C3132Q-V
	e0d	C1	Ethernet1/1/2	N3K-C3132Q-V
n2	/cdp			
	e0a	C1	Ethernet1/1/3	N3K-C3132Q-V
	e0b	C2	Ethernet1/1/3	N3K-C3132Q-V
	e0c	C2	Ethernet1/1/4	N3K-C3132Q-V
	e0d	C1	Ethernet1/1/4	N3K-C3132Q-V
n3	/cdp			
	e4a	C1	Ethernet1/7	N3K-C3132Q-V
	e4e	C2	Ethernet1/7	N3K-C3132Q-V
n4	/cdp			
	e4a	C1	Ethernet1/8	N3K-C3132Q-V
	e4e	C2	Ethernet1/8	N3K-C3132Q-V

```
12 entries were displayed.
```

```
cluster::*> network port show -role cluster
(network port show)
```

```
Node: n1
```

Ignore	Port	IPspace	Domain	Link	MTU	Admin/Open	Speed (Mbps)	Health	Status
	e0a	cluster	cluster	up	9000	auto/10000		-	-
	e0b	cluster	cluster	up	9000	auto/10000		-	-
	e0c	cluster	cluster	up	9000	auto/10000		-	-
	e0d	cluster	cluster	up	9000	auto/10000		-	-

Node: n2

		Broadcast			Speed (Mbps)	Health	
Ignore							
Port	IPspace	Domain	Link	MTU	Admin/Open	Status	
Health	Status						
-----	-----	-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----	-----	-----
e0a	cluster	cluster	up	9000	auto/10000	-	-
e0b	cluster	cluster	up	9000	auto/10000	-	-
e0c	cluster	cluster	up	9000	auto/10000	-	-
e0d	cluster	cluster	up	9000	auto/10000	-	-

Node: n3

		Broadcast			Speed (Mbps)	Health	
Ignore							
Port	IPspace	Domain	Link	MTU	Admin/Open	Status	
Health	Status						
-----	-----	-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----	-----	-----
e4a	cluster	cluster	up	9000	auto/40000	-	-
e4e	cluster	cluster	up	9000	auto/40000	-	-

Node: n4

		Broadcast			Speed (Mbps)	Health	
Ignore							
Port	IPspace	Domain	Link	MTU	Admin/Open	Status	
Health	Status						
-----	-----	-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----	-----	-----
e4a	cluster	cluster	up	9000	auto/40000	-	-
e4e	cluster	cluster	up	9000	auto/40000	-	-

12 entries were displayed.

```
cluster::*> network interface show -role Cluster
(network interface show)
```

Is	Logical	Status	Network	Current	Current
Vserver	Interface	Admin/Oper	Address/Mask	Node	Port
Home					
-----	-----	-----	-----	-----	-----
-----					
Cluster					
	n1_clus1	up/up	10.10.0.1/24	n1	e0a
true					
	n1_clus2	up/up	10.10.0.2/24	n1	e0b
true					
	n1_clus3	up/up	10.10.0.3/24	n1	e0c
true					
	n1_clus4	up/up	10.10.0.4/24	n1	e0d
true					
	n2_clus1	up/up	10.10.0.5/24	n2	e0a
true					
	n2_clus2	up/up	10.10.0.6/24	n2	e0b
true					
	n2_clus3	up/up	10.10.0.7/24	n2	e0c
true					
	n2_clus4	up/up	10.10.0.8/24	n2	e0d
true					
	n3_clus1	up/up	10.10.0.9/24	n3	e4a
true					
	n3_clus2	up/up	10.10.0.10/24	n3	e4e
true					
	n4_clus1	up/up	10.10.0.11/24	n4	e4a
true					
	n4_clus2	up/up	10.10.0.12/24	n4	e4e
true					

```
12 entries were displayed.
```

```
cluster::> system cluster-switch show
```

```
Switch                               Type                Address             Model
-----
C1                                   cluster-network    10.10.1.103
NX3132V
  Serial Number: FOX000001
  Is Monitored: true
  Reason:
  Software Version: Cisco Nexus Operating System (NX-OS)
  Software, Version
                        7.0(3)I4(1)
  Version Source: CDP

C2                                   cluster-network    10.10.1.104
NX3132V
  Serial Number: FOX000002
  Is Monitored: true
  Reason:
  Software Version: Cisco Nexus Operating System (NX-OS)
  Software, Version
                        7.0(3)I4(1)
  Version Source: CDP

CL1                                   cluster-network    10.10.1.101        CN1610
  Serial Number: 01234567
  Is Monitored: true
  Reason:
  Software Version: 1.2.0.7
  Version Source: ISDP

CL2                                   cluster-network    10.10.1.102
CN1610
  Serial Number: 01234568
  Is Monitored: true
  Reason:
  Software Version: 1.2.0.7
  Version Source: ISDP

4 entries were displayed.
```

9. Remove the replaced CN1610 switches if they are not automatically removed:

```
system cluster-switch delete
```

### Show example

The following example shows how to remove the CN1610 switches:

```
cluster::> system cluster-switch delete -device CL1
cluster::> system cluster-switch delete -device CL2
```

10. Configure clusters clus1 and clus4 to `-auto-revert` on each node and confirm:

### Show example

```
cluster::*> network interface modify -vserver nodel -lif clus1 -auto
-revert true
cluster::*> network interface modify -vserver nodel -lif clus4 -auto
-revert true
cluster::*> network interface modify -vserver node2 -lif clus1 -auto
-revert true
cluster::*> network interface modify -vserver node2 -lif clus4 -auto
-revert true
```

11. Verify that the proper cluster switches are monitored:

```
system cluster-switch show
```

## Show example

```
cluster::> system cluster-switch show

Switch                               Type                               Address
Model
-----
C1                                   cluster-network                   10.10.1.103
NX3132V
  Serial Number: FOX000001
  Is Monitored: true
  Reason:
  Software Version: Cisco Nexus Operating System (NX-OS) Software,
Version
                        7.0(3)I4(1)
  Version Source: CDP

C2                                   cluster-network                   10.10.1.104
NX3132V
  Serial Number: FOX000002
  Is Monitored: true
  Reason:
  Software Version: Cisco Nexus Operating System (NX-OS) Software,
Version
                        7.0(3)I4(1)
  Version Source: CDP

2 entries were displayed.
```

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

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

## What's next?

[Configure switch health monitoring.](#)



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