



Migrate switches

Cluster and storage switches

NetApp

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Migrate switches

Migrate from a NetApp CN1610 cluster switch to a Cisco 9336C-FX2 cluster switch

You can migrate NetApp CN1610 cluster switches for an ONTAP cluster to Cisco 9336C-FX2 cluster switches. This is a nondisruptive procedure.

Review requirements

You must be aware of certain configuration information, port connections and cabling requirements when you are replacing NetApp CN1610 cluster switches with Cisco 9336C-FX2 cluster switches. Also, verify the switch serial number to ensure that the correct switch is migrated.

Supported switches

The following cluster switches are supported:

- NetApp CN1610
- Cisco 9336C-FX2

For details of supported ports and their configurations, see the [Hardware Universe](#).

What you'll need

Verify that your configuration meets the following requirements:

- The existing cluster is correctly set up and functioning.
- All cluster ports are in the **up** state to ensure nondisruptive operations.
- The Cisco 9336C-FX2 cluster switches are configured and operating under the correct version of NX-OS installed with the reference configuration file (RCF) applied.
- The existing cluster network configuration has the following:
 - A redundant and fully functional NetApp cluster using NetApp CN1610 switches.
 - Management connectivity and console access to both the NetApp CN1610 switches and the new switches.
 - All cluster LIFs in the up state with the cluster LIFs are on their home ports.
- Some of the ports are configured on Cisco 9336C-FX2 switches to run at 40GbE or 100GbE.
- You have planned, migrated, and documented 40GbE and 100GbE connectivity from nodes to Cisco 9336C-FX2 cluster switches.

Migrate the switches

About the examples

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

- The existing CN1610 cluster switches are *C1* and *C2*.
- The new 9336C-FX2 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.
- The `cluster1::*>` prompt indicates the name of the cluster.
- The cluster ports used in this procedure are *e3a* and *e3b*.

About this task

This procedure covers the following scenario:

- Switch C2 is replaced by switch cs2 first.
 - Shut down the ports to the cluster nodes. All ports must be shut down simultaneously to avoid cluster instability.
 - All cluster LIFs fail over to the new switch cs2.
 - The cabling between the nodes and C2 is then disconnected from C2 and reconnected to cs2.
- Switch C1 is replaced by switch cs1.
 - Shut down the ports to the cluster nodes. All ports must be shut down simultaneously to avoid cluster instability.
 - All cluster LIFs fail over to the new switch cs1.
 - The cabling between the nodes and C1 is then disconnected from C1 and reconnected to cs1.



No operational inter-switch link (ISL) is needed during this procedure. This is by design because RCF version changes can affect ISL connectivity temporarily. To ensure non-disruptive cluster operations, the following procedure fails over all of the cluster LIFs to the operational partner switch while performing the steps on the target switch.

Step 1: Prepare for migration

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
```

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

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

```
set -privilege advanced
```

The advanced prompt (**>*) appears.

3. Disable auto-revert on the cluster LIFs.

By disabling auto-revert for this procedure, the cluster LIFs will not automatically move back to their home port. They remain on the current port while it continues to be up and operational.

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

Step 2: Configure ports and cabling

1. 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
```

Show example

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

Node: node1

Ignore

Health      Health      Speed (Mbps)
Port        IPspace     Broadcast Domain Link MTU  Admin/Oper
Status      Status
-----
e3a         Cluster     Cluster      up    9000  auto/100000
healthy    false
e3b         Cluster     Cluster      up    9000  auto/100000
healthy    false

Node: node2

Ignore

Health      Health      Speed (Mbps)
Port        IPspace     Broadcast Domain Link MTU  Admin/Oper
Status      Status
-----
e3a         Cluster     Cluster      up    9000  auto/100000
healthy    false
e3b         Cluster     Cluster      up    9000  auto/100000
healthy    false
```

- b. Display information about the LIFs 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.

Show example

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

Current Is	Logical	Status	Network	Current
Vserver	Interface	Admin/Oper	Address/Mask	Node
Port	Home			

Cluster				
e3a	node1_clus1	up/up	169.254.209.69/16	node1
e3b	node1_clus2	up/up	169.254.49.125/16	node1
e3a	node2_clus1	up/up	169.254.47.194/16	node2
e3b	node2_clus2	up/up	169.254.19.183/16	node2

- 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
```

Show example

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

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

node1	/cdp			
	e3a	C1 (6a:ad:4f:98:3b:3f)	0/1	-
	e3b	C2 (6a:ad:4f:98:4c:a4)	0/1	-
node2	/cdp			
	e3a	C1 (6a:ad:4f:98:3b:3f)	0/2	-
	e3b	C2 (6a:ad:4f:98:4c:a4)	0/2	-

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

```
show cdp neighbors
```

Show example



```
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 e3a	Eth1/1	124	H	AFF-A400
node2 e3a	Eth1/2	124	H	AFF-A400
C2 0/13	0/13	179	S I s	CN1610
C2 0/14	0/14	175	S I s	CN1610
C2 0/15	0/15	179	S I s	CN1610
C2 0/16	0/16	175	S I s	CN1610

```
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 e3b	Eth1/1	124	H	AFF-A400
node2 e3b	Eth1/2	124	H	AFF-A400
C1 0/13	0/13	175	S I s	CN1610
C1 0/14	0/14	175	S I s	CN1610
C1 0/15	0/15	175	S I s	CN1610
C1 0/16	0/16	175	S I s	CN1610

4. 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
```

Packet	Source	Destination
Node	LIF	LIF
Date		
Loss		
node1		
3/5/2022 19:21:18 -06:00	node1_clus2	node2-clus1
node		
3/5/2022 19:21:20 -06:00	node1_clus2	node2_clus2
node2		
3/5/2022 19:21:18 -06:00	node2_clus2	node1_clus1
node		
3/5/2022 19:21:20 -06:00	node2_clus2	node1_clus2
node		

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>
```

```

cluster1::*> cluster ping-cluster -node local
Host is node2
Getting addresses from network interface table...
Cluster node1_clus1 169.254.209.69 node1      e3a
Cluster node1_clus2 169.254.49.125 node1      e3b
Cluster node2_clus1 169.254.47.194 node2      e3a
Cluster node2_clus2 169.254.19.183 node2      e3b
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)

```

5. On switch C2, shut down the ports connected to the cluster ports of the nodes in order to fail over the cluster LIFs.

```

(C2)# configure
(C2) (Config)# interface 0/1-0/12
(C2) (Interface 0/1-0/12)# shutdown
(C2) (Interface 0/1-0/12)# exit
(C2) (Config)# exit

```

6. Move the node cluster ports from the old switch C2 to the new switch cs2, using appropriate cabling supported by Cisco 9336C-FX2.
7. Display the network port attributes:

```

network port show -ipSpace Cluster

```

Show example

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

```
Node: node1
```

```
Ignore
```

Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Speed (Mbps)	Health	Status
------	---------	-----------	--------	------	-----	------------	--------------	--------	--------

e3a	Cluster	Cluster		up	9000	auto/100000		healthy	false
e3b	Cluster	Cluster		up	9000	auto/100000		healthy	false

```
Node: node2
```

```
Ignore
```

Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Speed (Mbps)	Health	Status
------	---------	-----------	--------	------	-----	------------	--------------	--------	--------

e3a	Cluster	Cluster		up	9000	auto/100000		healthy	false
e3b	Cluster	Cluster		up	9000	auto/100000		healthy	false

8. 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
```

Show example

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

Node/ Protocol Platform	Local Port	Discovered Device (LLDP: ChassisID)	Interface	
node1 CN1610	/cdp e3a	C1 (6a:ad:4f:98:3b:3f)	0/1	
C9336C-FX2	e3b	cs2 (b8:ce:f6:19:1a:7e)	Ethernet1/1/1	N9K-
node2 CN1610	/cdp e3a	C1 (6a:ad:4f:98:3b:3f)	0/2	
C9336C-FX2	e3b	cs2 (b8:ce:f6:19:1b:96)	Ethernet1/1/2	N9K-

9. On switch cs2, verify that all node cluster ports are up:

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

Show example

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

Current Is Vserver Port	Logical Interfac Home	Status Admin/Oper	Network Address/Mask	Current Node
Cluster	node1_clus1	up/up	169.254.3.4/16	node1
e0b	false			
	node1_clus2	up/up	169.254.3.5/16	node1
e0b	true			
	node2_clus1	up/up	169.254.3.8/16	node2
e0b	false			
	node2_clus2	up/up	169.254.3.9/16	node2
e0b	true			

10. On switch C1, shut down the ports connected to the cluster ports of the nodes in order to fail over the cluster LIFs.

```
(C1) # configure
(C1) (Config) # interface 0/1-0/12
(C1) (Interface 0/1-0/12) # shutdown
(C1) (Interface 0/1-0/12) # exit
(C1) (Config) # exit
```

11. Move the node cluster ports from the old switch C1 to the new switch cs1, using appropriate cabling supported by Cisco 9336C-FX2.
12. Verify the final configuration of the cluster:

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

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

Show example

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

```
Node: node1
```

```
Ignore
```

						Speed (Mbps)	Health
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							

```
-----  
-----  
e3a      Cluster  Cluster      up    9000  auto/100000  
healthy  false  
e3b      Cluster  Cluster      up    9000  auto/100000  
healthy  false
```

```
Node: node2
```

```
Ignore
```

						Speed (Mbps)	Health
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							

```
-----  
-----  
e3a      Cluster  Cluster      up    9000  auto/100000  
healthy  false  
e3b      Cluster  Cluster      up    9000  auto/100000  
healthy  false
```

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
```

Show example

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

Node/ Protocol Platform	Local Port	Discovered Device (LLDP: ChassisID)	Interface	
node1	/cdp			
C9336C-FX2	e3a	cs1 (b8:ce:f6:19:1a:7e)	Ethernet1/1/1	N9K-
C9336C-FX2	e3b	cs2 (b8:ce:f6:19:1b:96)	Ethernet1/1/2	N9K-
node2	/cdp			
C9336C-FX2	e3a	cs1 (b8:ce:f6:19:1a:7e)	Ethernet1/1/1	N9K-
C9336C-FX2	e3b	cs2 (b8:ce:f6:19:1b:96)	Ethernet1/1/2	N9K-

14. On switches cs1 and cs2, verify that all node cluster ports are up:

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


Show example

```
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
```

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

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

Show example

The following example shows the appropriate results for both switches:

```
cluster1::*> network device-discovery show -protocol cdp
Node/          Local  Discovered
Protocol      Port   Device (LLDP: ChassisID)  Interface
Platform
-----
-----
node1         /cdp
              e0a    cs1 (b8:ce:f6:19:1b:42)   Ethernet1/1/1   N9K-
C9336C-FX2
              e0b    cs2 (b8:ce:f6:19:1b:96)   Ethernet1/1/2   N9K-
C9336C-FX2
node2         /cdp
              e0a    cs1 (b8:ce:f6:19:1b:42)   Ethernet1/1/1   N9K-
C9336C-FX2
              e0b    cs2 (b8:ce:f6:19:1b:96)   Ethernet1/1/2   N9K-
C9336C-FX2
```

Step 3: Verify the configuration

1. Enable auto-revert on the cluster LIFs:

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

2. Verify that all cluster network LIFs are back on their home ports:

```
network interface show
```

Show example

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

Current Is	Logical	Status	Network	Current
Vserver	Interface	Admin/Oper	Address/Mask	Node
Port	Home			

Cluster				
e3a	node1_clus1	up/up	169.254.209.69/16	node1
e3b	true			
e3a	node1_clus2	up/up	169.254.49.125/16	node1
e3b	true			
e3a	node2_clus1	up/up	169.254.47.194/16	node2
e3b	true			
e3a	node2_clus2	up/up	169.254.19.183/16	node2
e3b	true			

3. Change the privilege level back to admin:

```
set -privilege admin
```

4. If you suppressed automatic case creation, re-enable it by invoking an AutoSupport message:

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

What's next?

[Configure switch health monitoring.](#)

Migrate from an older Cisco switch to a Cisco Nexus 9336C-FX2 switch

You can perform a nondisruptive migration from an older Cisco cluster switch to a Cisco Nexus 9336C-FX2 cluster network switch.

Review requirements

Ensure that:

- You have verified the switch serial number to ensure that the correct switch is migrated.
- Some of the ports on Nexus 9336C-FX2 switches are configured to run at 10GbE or 40GbE.
- The 10GbE and 40GbE connectivity from nodes to Nexus 9336C-FX2 cluster switches have been planned, migrated, and documented.

- The cluster is fully functioning (there should be no errors in the logs or similar issues).
- Initial customization of the Cisco Nexus 9336C-FX2 switches is complete, so that:
 - 9336C-FX2 switches are running the latest recommended version of software.
 - Reference Configuration Files (RCFs) have been applied to the switches.
 - Any site customization, such as DNS, NTP, SMTP, SNMP, and SSH, are configured on the new switches.
- You have access to the switch compatibility table on the [Cisco Ethernet Switches](#) page for the supported ONTAP, NX-OS, and RCF versions.
- You have reviewed the appropriate software and upgrade guides available on the Cisco web site for the Cisco switch upgrade and downgrade procedures at [Cisco Nexus 9000 Series Switches Support](#) page.



If you are changing the port speed of the e0a and e1a cluster ports on AFF A800 or AFF C800 systems, you might observe malformed packets being received after the speed conversion. See [Bug 1570339](#) and the Knowledge Base article [CRC errors on T6 ports after converting from 40GbE to 100GbE](#) for guidance.

Migrate the switches

About the examples

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.

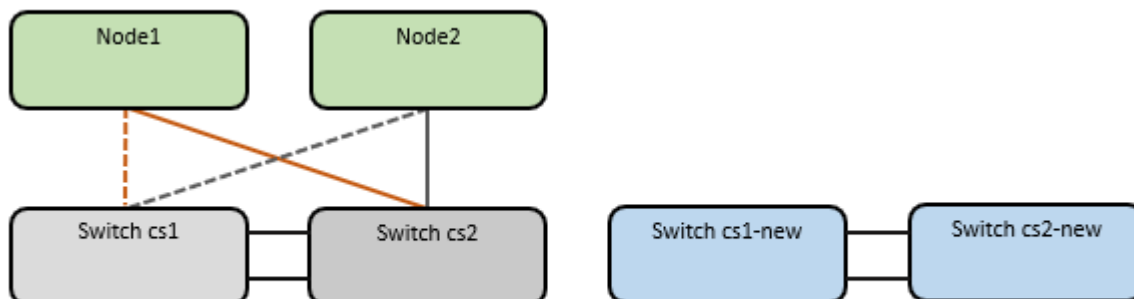


The command outputs might vary depending on the different releases of ONTAP.

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

- The names of the existing two Cisco switches are **cs1** and **cs2**
- The new Nexus 9336C-FX2 cluster switches are **cs1-new** and **cs2-new**.
- The node names are **node1** and **node2**.
- The cluster LIF names are **node1_clus1** and **node1_clus2** for node 1, and **node2_clus1** and **node2_clus2** for node 2.
- The **cluster1::>*** prompt indicates the name of the cluster.

During this procedure, refer to the following example:



About this task

The procedure requires the use of both ONTAP commands and [Nexus 9000 Series Switches](#) commands; ONTAP commands are used, unless otherwise indicated.

This procedure covers the following scenario:

- Switch cs2 is replaced by switch cs2-new first.
 - Shut down the ports to the cluster nodes. All ports must be shut down simultaneously to avoid cluster instability.
 - All cluster LIFs fail over to the new switch cs2-new.
 - Cabling between the nodes and cs2 are then disconnected from cs2 and reconnected to cs2-new.
- Switch cs1 is replaced by switch cs1-new.
 - Shut down the ports to the cluster nodes. All ports must be shut down simultaneously to avoid cluster instability.
 - All cluster LIFs fail over to the new switch cs1-new.
 - Cabling between the nodes and cs1 are then disconnected from cs1 and reconnected to cs1-new.



No operational inter-switch link (ISL) is needed during this procedure. This is by design because RCF version changes can affect ISL connectivity temporarily. To ensure non-disruptive cluster operations, the following procedure fails over all of the cluster LIFs to the operational partner switch while performing the steps on the target switch.

Step 1: Prepare for migration

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`

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.

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

```
set -privilege advanced
```

The advanced prompt (`*>`) appears.

Step 2: Configure ports and cabling

1. On the new switches, confirm that the ISL is cabled and healthy between the switches cs1-new and cs2-new:

```
show port-channel summary
```

Show example

```
cs1-new# 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      Eth1/35(P)  Eth1/36(P)

cs2-new# 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      Eth1/35(P)  Eth1/36(P)
```

2. Display the cluster ports on each node that are connected to the existing cluster switches:

```
network device-discovery show
```

Show example

```
cluster1::*> network device-discovery show -protocol cdp
Node/          Local  Discovered
Protocol      Port   Device (LLDP: ChassisID)  Interface
Platform
-----
-----
node1         /cdp
              e0a    cs1                        Ethernet1/1      N5K-
C5596UP
              e0b    cs2                        Ethernet1/2      N5K-
C5596UP
node2         /cdp
              e0a    cs1                        Ethernet1/1      N5K-
C5596UP
              e0b    cs2                        Ethernet1/2      N5K-
C5596UP
```

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

a. Verify that all the cluster ports are up with a healthy status:

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

Show example

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

Node: node1

Ignore

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

Node: node2

Ignore

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

- b. Verify that all the cluster interfaces (LIFs) are on their home ports:

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


Show example

```
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	true			
e0a	node1_clus2	up/up	169.254.49.125/16	node1
e0b	true			
e0a	node2_clus1	up/up	169.254.47.194/16	node2
e0b	true			
e0a	node2_clus2	up/up	169.254.19.183/16	node2
e0b	true			

c. Verify that the cluster displays information for both cluster switches:

```
system cluster-switch show -is-monitoring-enabled-operational true
```

Show example

```
cluster1::*> system cluster-switch show -is-monitoring-enabled
-operational true
Switch                                     Type                                     Address
Model
-----
cs1                                         cluster-network                         10.233.205.92
N5K-C5596UP
  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
N5K-C5596UP
  Serial Number: FOXXXXXXXXGD
  Is Monitored: true
  Reason: None
  Software Version: Cisco Nexus Operating System (NX-OS)
Software, Version
  9.3(4)
  Version Source: CDP
```

4. Disable auto-revert on the cluster LIFs.

By disabling auto-revert for this procedure, the cluster LIFs will not automatically move back to their home port. They remain on the current port while it continues to be up and operational.

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



Disabling auto-revert ensures ONTAP only fails over the cluster LIFs when the switch ports are shutdown later.

5. On cluster switch cs2, shut down the ports connected to the cluster ports of **all** the nodes in order to fail over the cluster LIFs:

```
cs2(config)# interface eth1/1-1/2
cs2(config-if-range)# shutdown
```

6. Verify that the cluster LIFs have failed over to the ports hosted on cluster switch cs1. This might take a few

seconds.

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

Show example

```
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	169.254.3.4/16	node1
e0a	true			
	node1_clus2	up/up	169.254.3.5/16	node1
e0a	false			
	node2_clus1	up/up	169.254.3.8/16	node2
e0a	true			
	node2_clus2	up/up	169.254.3.9/16	node2
e0a	false			

7. Verify that the cluster is healthy:

```
cluster show
```

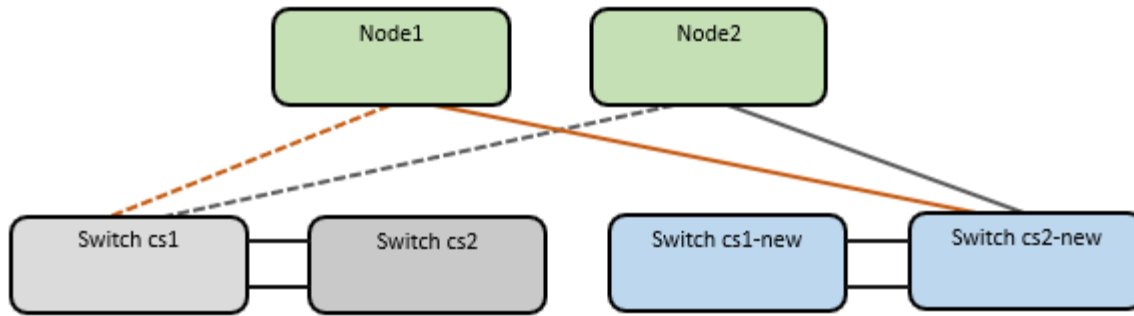
Show example

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

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

8. Move all cluster node connection cables from the old cs2 switch to the new cs2-new switch.

Cluster node connection cables moved to the cs2-new switch



9. Confirm the health of the network connections moved to cs2-new:

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

Show example

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

```
Node: node1
```

```
Ignore
```

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

```
Node: node2
```

```
Ignore
```

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

All cluster ports that were moved should be up.

10. Check neighbor information on the cluster ports:

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

Show example

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

Node/ Protocol	Local Port	Discovered Device (LLDP: ChassisID)	Interface	Platform
node1	/cdp			
	e0a	cs1	Ethernet1/1	N5K-
C5596UP				
	e0b	cs2-new	Ethernet1/1/1	N9K-
C9336C-FX2				
node2	/cdp			
	e0a	cs1	Ethernet1/2	N5K-
C5596UP				
	e0b	cs2-new	Ethernet1/1/2	N9K-
C9336C-FX2				

Verify that the moved cluster ports see the cs2-new switch as the neighbor.

11. Confirm the switch port connections from switch cs2-new's perspective:

```
cs2-new# show interface brief
cs2-new# show cdp neighbors
```

12. On cluster switch cs1, shut down the ports connected to the cluster ports of **all** the nodes in order to fail over the cluster LIFs.

```
cs1(config)# interface eth1/1-1/2
cs1(config-if-range)# shutdown
```

All cluster LIFs fail over to the cs2-new switch.

13. Verify that the cluster LIFs have failed over to the ports hosted on switch cs2-new. This might take a few seconds:

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

Show example

```
cluster1::*> network interface show -vserver Cluster
          Logical      Status      Network      Current
Current Is
Vserver   Interfac   Admin/Oper  Address/Mask  Node
Port      Home
-----
Cluster
          node1_clus1  up/up      169.254.3.4/16  node1
e0b       false
          node1_clus2  up/up      169.254.3.5/16  node1
e0b       true
          node2_clus1  up/up      169.254.3.8/16  node2
e0b       false
          node2_clus2  up/up      169.254.3.9/16  node2
e0b       true
```

14. Verify that the cluster is healthy:

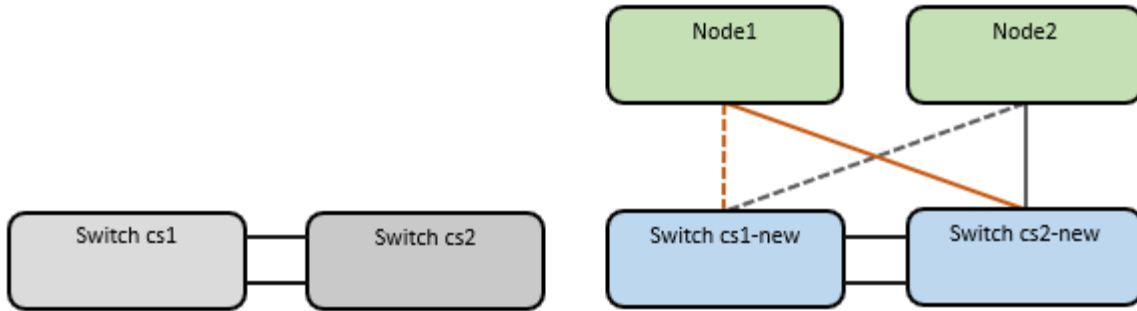
```
cluster show
```

Show example

```
cluster1::*> cluster show
Node      Health  Eligibility  Epsilon
-----
node1     true    true         false
node2     true    true         false
```

15. Move the cluster node connection cables from cs1 to the new cs1-new switch.

Cluster node connection cables moved to the cs1-new switch



16. Confirm the health of the network connections moved to cs1-new:

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

Show example

```

cluster1::*> network port show -ipspace Cluster

Node: node1

Ignore

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

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
  
```

All cluster ports that were moved should be up.

17. Check neighbor information on the cluster ports:

```
network device-discovery show
```

Show example

```
cluster1::*> network device-discovery show -protocol cdp
Node/          Local  Discovered
Protocol       Port   Device (LLDP: ChassisID)  Interface
Platform
-----
node1          /cdp
               e0a    cs1-new                    Ethernet1/1/1  N9K-
C9336C-FX2
               e0b    cs2-new                    Ethernet1/1/2  N9K-
C9336C-FX2
node2          /cdp
               e0a    cs1-new                    Ethernet1/1/1  N9K-
C9336C-FX2
               e0b    cs2-new                    Ethernet1/1/2  N9K-
C9336C-FX2
```

Verify that the moved cluster ports see the cs1-new switch as the neighbor.

18. Confirm the switch port connections from switch cs1-new's perspective:

```
cs1-new# show interface brief
cs1-new# show cdp neighbors
```

19. Verify that the ISL between cs1-new and cs2-new is still operational:

```
show port-channel summary
```


Show example

```
cs1-new# 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      Eth1/35(P)  Eth1/36(P)

cs2-new# 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      Eth1/35(P)  Eth1/36(P)
```

Step 3: Verify the configuration

1. Enable auto-revert on the cluster LIFs.

```
network interface modify -vserver Cluster -lif * -auto-revert true
```

2. Verify that the cluster LIFs have reverted to their home ports (this might take a minute):

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

If the cluster LIFs have not reverted to their home port, manually revert them:

```
network interface revert -vserver Cluster -lif *
```

3. Verify that the cluster is healthy:

```
cluster show
```

4. 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
```

Packet	Source	Destination
Node	Date	LIF
Loss		LIF
node1	3/5/2022 19:21:18 -06:00	node1_clus2
node2	3/5/2022 19:21:18 -06:00	node2_clus2
node1	3/5/2022 19:21:20 -06:00	node1_clus2
node2	3/5/2022 19:21:20 -06:00	node2_clus2
node1	3/5/2022 19:21:18 -06:00	node2_clus1
node2	3/5/2022 19:21:18 -06:00	node1_clus1
node1	3/5/2022 19:21:20 -06:00	node2_clus2
node2	3/5/2022 19:21:20 -06:00	node1_clus2

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>
```

```

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)

```

5. 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.](#)

Migrate to two-node switched cluster

If you have an existing two-node *switchless* cluster environment, you can migrate to a two-node *switched* cluster environment using Cisco Nexus 9336C-FX2 switches.

The migration process 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.

Review requirements

What you'll need

- For the two-node switchless configuration:
 - The two-node switchless configuration is properly set up and functioning.

- All cluster ports are in the **up** state.
- All cluster logical interfaces (LIFs) are in the **up** state and on their home ports.
- See [Hardware Universe](#) for all supported ONTAP versions.
- For the Cisco Nexus 9336C-FX2 switch configuration:
 - Both switches have management network connectivity.
 - There is console access to the cluster switches.
 - Nexus 9336C-FX2 node-to-node switch and switch-to-switch connections use Twinax or fiber cables.

See [Hardware Universe](#) for more information about cabling.

- Inter-Switch Link (ISL) cables are connected to ports 1/35 and 1/36 on both 9336C-FX2 switches.
- Initial customization of both the 9336C-FX2 switches are completed, so that:
 - 9336C-FX2 switches are running the latest version of software.
 - Reference Configuration Files (RCFs) are applied to the switches. Any site customization, such as SMTP, SNMP, and SSH, is configured on the new switches.

About the examples

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

- The names of the 9336C-FX2 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.

See [Hardware Universe](#) for information about the cluster ports for your platforms.

Migrate the switches

Step 1: Prepare for migration

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
```

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.

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

```
set -privilege advanced
```

The advanced prompt (`*>`) appears.

Step 2: Configure ports and cabling

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

Do not disable the ISL ports.

Show example

The following example shows that node-facing ports 1 through 34 are disabled on switch cs1:

```
cs1# config
Enter configuration commands, one per line. End with CNTL/Z.
cs1(config)# interface e1/1/1-4, e1/2/1-4, e1/3/1-4, e1/4/1-4,
e1/5/1-4, e1/6/1-4, e1/7-34
cs1(config-if-range)# shutdown
```

2. Verify that the ISL and the physical ports on the ISL between the two 9336C-FX2 switches cs1 and cs2 are up on ports 1/35 and 1/36:

```
show port-channel summary
```

Show example

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      Eth1/35 (P)  Eth1/36 (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      Eth1/35 (P)  Eth1/36 (P)
```

3. Display the list of neighboring devices:

```
show cdp neighbors
```

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

Show example

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          Local Intrfce  Hldtme  Capability  Platform
Port ID
cs2                 Eth1/35       175     R S I s     N9K-C9336C
Eth1/35
cs2                 Eth1/36       175     R S I s     N9K-C9336C
Eth1/36

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          Local Intrfce  Hldtme  Capability  Platform
Port ID
cs1                 Eth1/35       177     R S I s     N9K-C9336C
Eth1/35
cs1                 Eth1/36       177     R S I s     N9K-C9336C
Eth1/36

Total entries displayed: 2
```


4. Verify that all cluster ports are up:

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

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

Show example

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

Node: node1

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

4 entries were displayed.
```

5. 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.

Show example

```
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
	true			
e0b	node1_clus2	up/up	169.254.49.125/16	node1
	true			
e0a	node2_clus1	up/up	169.254.47.194/16	node2
	true			
e0b	node2_clus2	up/up	169.254.19.183/16	node2
	true			

4 entries were displayed.

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

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

Show example

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

Vserver	Logical	Auto-revert
Interface		

Cluster		
	node1_clus1	true
	node1_clus2	true
	node2_clus1	true
	node2_clus2	true

4 entries were displayed.

7. 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 9336C-FX2 switches.

The [Hardware Universe - Switches](#) contains more information about cabling.

Hardware Universe - Switches

8. 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 9336C-FX2 switches.
9. Enable all node-facing ports on cluster switch cs1.

Show example

The following example shows that ports 1/1 through 1/34 are enabled on switch cs1:

```
cs1# config
Enter configuration commands, one per line. End with CNTL/Z.
cs1(config)# interface e1/1/1-4, e1/2/1-4, e1/3/1-4, e1/4/1-4,
e1/5/1-4, e1/6/1-4, e1/7-34
cs1(config-if-range)# no shutdown
```

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

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

Show example

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
```

Current Is Home	Logical Interface	Status Admin/Oper	Network Address/Mask	Current Node	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.

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

```
cluster show
```

Show example

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.

12. 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 9336C-FX2 switches.

13. 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 9336C-FX2 switches.
14. Enable all node-facing ports on cluster switch cs2.

Show example

The following example shows that ports 1/1 through 1/34 are enabled on switch cs2:

```
cs2# config
Enter configuration commands, one per line. End with CNTL/Z.
cs2(config)# interface e1/1/1-4, e1/2/1-4, e1/3/1-4, e1/4/1-4,
e1/5/1-4, e1/6/1-4, e1/7-34
cs2(config-if-range)# no shutdown
```

15. Verify that all cluster ports are up:

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

Show example

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

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

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.
```

Step 3: Verify the configuration

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

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



This might take several minutes to complete.

Show example

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
```

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
true	node2_clus2	up/up	169.254.19.183/16	node2	e0b

4 entries were displayed.

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

```
show cdp neighbors
```

Show example

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 Port ID	Local Intrfce	Hldtme	Capability	Platform
node1 e0a	Eth1/1	133	H	FAS2980
node2 e0a	Eth1/2	133	H	FAS2980
cs2 Eth1/35	Eth1/35	175	R S I s	N9K-C9336C
cs2 Eth1/36	Eth1/36	175	R S I s	N9K-C9336C

```
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 Port ID	Local Intrfce	Hldtme	Capability	Platform
node1 e0b	Eth1/1	133	H	FAS2980
node2 e0b	Eth1/2	133	H	FAS2980
cs1 Eth1/35	Eth1/35	175	R S I s	N9K-C9336C
cs1 Eth1/36	Eth1/36	175	R S I s	N9K-C9336C

```
Total entries displayed: 4
```


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

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

Show example

```
cluster1::*> network device-discovery show -protocol cdp
Node/          Local   Discovered
Protocol       Port   Device (LLDP: ChassisID)  Interface
Platform
-----
node2          /cdp
               e0a    cs1                       0/2          N9K-
C9336C
               e0b    cs2                       0/2          N9K-
C9336C
node1          /cdp
               e0a    cs1                       0/1          N9K-
C9336C
               e0b    cs2                       0/1          N9K-
C9336C

4 entries were displayed.
```

4. 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.

Show example

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

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

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

```
cluster show
```

Show example

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

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
```

Packet	Source	Destination
Node	LIF	LIF
Date		
Loss		
node1		
3/5/2022 19:21:18 -06:00	node1_clus2	node2-clus1
node		
3/5/2022 19:21:20 -06:00	node1_clus2	node2_clus2
node2		
3/5/2022 19:21:18 -06:00	node2_clus2	node1_clus1
node		
3/5/2022 19:21:20 -06:00	node2_clus2	node1_clus2
node		

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>
```

```

cluster1::*> cluster ping-cluster -node local
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)

```

7. Change the privilege level back to admin:

```
set -privilege admin
```

8. 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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