



Migrate from a Cisco switch to a Cisco Nexus 9336C-FX2 cluster switch

ONTAP Systems Switches

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Migrate from a Cisco switch to a Cisco Nexus 9336C-FX2 cluster switch

Migrate from a Cisco switch to a Cisco Nexus 9336C-FX2 cluster switch

You must be aware of certain configuration information, port connections and cabling requirements when you are replacing some older Cisco Nexus cluster switches with Cisco Nexus 9336C-FX2 cluster switches.

- The following cluster switches are supported:
 - Nexus 9336C-FX2
 - Nexus 92300YC
 - Nexus 5596UP
 - Nexus 5020
 - Nexus 5010
- The cluster switches use the following ports for connections to nodes:
 - Nexus 9336C-FX2:
 - Ports 1- 3: Breakout mode (4x10G) Intra-Cluster Ports, int e1/1/1-4, e1/2/1-4, e1/3/1-4
 - Ports 4- 6: Breakout mode (4x25G) Intra-Cluster/HA Ports, int e1/4/1-4, e1/5/1-4, e1/6/1-4
 - Ports 7-34: 40/100GbE Intra-Cluster/HA Ports, int e1/7-34
 - Nexus 92300YC:
 - Ports e1/1-48 (10/25 GbE) e1/49-64 (40/100 GbE)
 - Nexus 5596UP:
 - Ports e1/1-40 (10 GbE)
 - Nexus 5020:
 - Ports e1/1-32 (10 GbE)
 - Nexus 5010 with expansion:
 - Ports e1/1-12, e2/1-6 (10 GbE)
- The cluster switches use the following Inter-Switch Link (ISL) ports:
 - Ports int e1/35-36: Nexus 9336C-FX2
 - Ports e1/65-66 (100 GbE): Nexus 92300YC
 - Ports e1/41-48 (10 GbE): Nexus 5596UP
 - Ports e1/33-40 (10 GbE): Nexus 5020
 - Ports e1/13-20 (10 GbE): Nexus 5010
- The *Hardware Universe* contains information about supported cabling for all cluster switches.
- You have configured some of the ports on Nexus 9336C-FX2 switches to run at 10 GbE or 40 GbE.
- You have planned, migrated, and documented 10 GbE and 40 GbE connectivity from nodes to Nexus

9336C-FX2 cluster switches.

- The ONTAP and NX-OS versions supported in this procedure are on the *Cisco Ethernet Switches* page.

[Cisco Ethernet Switches](#)

How to migrate from a Cisco switch to a Cisco Nexus 9336C-FX2 cluster switch

You can migrate nondisruptively older Cisco cluster switches for an ONTAP cluster to Cisco Nexus 9336C-FX2 cluster network switches.

- The existing cluster must be properly set up and functioning.
- All cluster ports must be in the up state to ensure nondisruptive operations.
- The Nexus 9336C-FX2 cluster switches must be configured and operating under the proper version of NX-OS installed and reference configuration file (RCF) applied.
- The existing cluster network configuration must have the following:
 - A redundant and fully functional NetApp cluster using both older Cisco switches.
 - Management connectivity and console access to both the older Cisco switches and the new switches.
 - All cluster LIFs in the up state with the cluster LIFs are on their home ports.
 - ISL ports enabled and cabled between the older Cisco switches and between the new switches.

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

- The existing Cisco Nexus 5596UP cluster switches are c1 and c2.
- The new Nexus 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.
- Switch c2 is replaced by switch cs2 first and then switch c1 is replaced by switch cs1.
 - A temporary ISL is built on cs1 connecting c1 to cs1.
 - Cabling between the nodes and c2 are then disconnected from c2 and reconnected to cs2.
 - Cabling between the nodes and c1 are then disconnected from c1 and reconnected to cs1.
 - The temporary ISL between c1 and cs1 is then removed.

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.

3. Verify that auto-revert is enabled on all cluster LIFs: `network interface show -vserver Cluster -fields auto-revert`

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

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

```
4 entries were displayed.
```

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

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

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

```

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

Node: node1

Ignore

Health      Health
Port        IPspace    Broadcast Domain Link MTU  Admin/Oper
Status      Status

-----

e0a         Cluster   Cluster           up   9000  auto/10000
healthy    false

e0b         Cluster   Cluster           up   9000  auto/10000
healthy    false

Node: node2

Ignore

Health      Health
Port        IPspace    Broadcast Domain Link MTU  Admin/Oper
Status      Status

-----

e0a         Cluster   Cluster           up   9000  auto/10000
healthy    false

e0b         Cluster   Cluster           up   9000  auto/10000
healthy    false

4 entries were displayed.

```

- b. Display information about the logical interfaces and their designated home nodes: `network interface show -vserver Cluster`

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

```

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

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

4 entries were displayed.

```

5. The cluster ports on each node are connected to existing cluster switches in the following way (from the nodes' perspective) using the command: `network device-discovery show -protocol cdp`

```

cluster1::*> **network device-discovery show -protocol cdp**
Node/      Local  Discovered
Protocol   Port   Device (LLDP: ChassisID)  Interface
Platform
-----
-----
node2      /cdp
          e0a    c1                        0/2
N5K-C5596UP
          e0b    c2                        0/2
N5K-C5596UP
node1      /cdp
          e0a    c1                        0/1
N5K-C5596UP
          e0b    c2                        0/1
N5K-C5596UP

4 entries were displayed.

```

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

using the command: show cdp neighbors

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

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

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

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

```
Total entries displayed: 10
```

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

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

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

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


```

node1          Eth1/1          124    H          FAS2750
e0b
node2          Eth1/2          124    H          FAS2750
e0b
c1            Eth1/41         175    S I s      N5K-C5596UP
Eth1/41
c1            Eth1/42         175    S I s      N5K-C5596UP
Eth1/42
c1            Eth1/43         175    S I s      N5K-C5596UP
Eth1/43
c1            Eth1/44         175    S I s      N5K-C5596UP
Eth1/44
c1            Eth1/45         175    S I s      N5K-C5596UP
Eth1/45
c1            Eth1/46         175    S I s      N5K-C5596UP
Eth1/46
c1            Eth1/47         176    S I s      N5K-C5596UP
Eth1/47
c1            Eth1/48         176    S I s      N5K-C5596UP
Eth1/48

```

7. Ensure that the cluster network has full connectivity using the command: `cluster ping-cluster -node node-name`

```

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

```

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

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

```
cs1# **configure**
Enter configuration commands, one per line. End with CNTL/Z.
cs1(config)# **interface e1/41-48**
cs1(config-if-range)# **description temporary ISL between Nexus
5596UP and Nexus 9336C**
cs1(config-if-range)# **no lldp transmit**
cs1(config-if-range)# **no lldp receive**
cs1(config-if-range)# **switchport mode trunk**
cs1(config-if-range)# **no spanning-tree bpduguard enable**
cs1(config-if-range)# **channel-group 101 mode active**
cs1(config-if-range)# **exit**
cs1(config)# **interface port-channel 101**
cs1(config-if)# **switchport mode trunk**
cs1(config-if)# **spanning-tree port type network**
cs1(config-if)# **exit**
cs1(config)# **exit**
```

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

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

```

c1# **show port-channel summary**
Flags:  D - Down          P - Up in port-channel (members)
        I - Individual    H - Hot-standby (LACP only)
        s - Suspended     r - Module-removed
        b - BFD Session Wait
        S - Switched     R - Routed
        U - Up (port-channel)
        p - Up in delay-lacp mode (member)
        M - Not in use. Min-links not met
-----
-----
Group Port-          Type      Protocol  Member Ports
  Channel
-----
-----
1      Po1(SU)        Eth       LACP      Eth1/41(P)  Eth1/42(P)
Eth1/43(P)
                                           Eth1/44(P)  Eth1/45(P)
Eth1/46(P)
                                           Eth1/47(P)  Eth1/48(P)

```

```

cs1# **show port-channel summary**
Flags:  D - Down          P - Up in port-channel (members)
        I - Individual    H - Hot-standby (LACP only)
        s - Suspended     r - Module-removed
        b - BFD Session Wait
        S - Switched     R - Routed
        U - Up (port-channel)
        p - Up in delay-lacp mode (member)
        M - Not in use. Min-links not met
-----
-----
Group Port-          Type      Protocol  Member Ports
  Channel
-----
-----
1      Po1(SU)        Eth       LACP      Eth1/35(P)  Eth1/36(P)
101   Po101(SU)      Eth       LACP      Eth1/41(P)  Eth1/42(P)
Eth1/43(P)
                                           Eth1/44(P)  Eth1/45(P)
Eth1/46(P)
                                           Eth1/47(P)  Eth1/48(P)

```

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

appropriate cabling supported by Nexus 9336C-FX2.

12. For node2, disconnect the cable from e1/2 on c2, and then connect the cable to e1/2 on cs2, using appropriate cabling supported by Nexus 9336C-FX2.
13. The cluster ports on each node are now connected to cluster switches in the following way, from the nodes' perspective: `network device-discovery show -protocol cdp`

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

Node/          Local  Discovered
Protocol      Port   Device (LLDP: ChassisID)  Interface
Platform
-----
node2         /cdp
              e0a    c1                        0/2
N5K-C5596UP
              e0b    cs2                       0/2
N9K-C9336C
node1         /cdp
              e0a    c1                        0/1
N5K-C5596UP
              e0b    cs2                       0/1
N9K-C9336C

4 entries were displayed.
```

14. For node1, disconnect the cable from e1/1 on c1, and then connect the cable to e1/1 on cs1, using appropriate cabling supported by Nexus 9336C-FX2.
15. For node2, disconnect the cable from e1/2 on c1, and then connect the cable to e1/2 on cs1, using appropriate cabling supported by Nexus 9336C-FX2.
16. The cluster ports on each node are now connected to cluster switches in the following way, from the nodes' perspective: `network device-discovery show -protocol cdp`

```

cluster1::*> **network device-discovery show -protocol cdp**
Node/          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.

```

17. Delete the temporary ISL between cs1 and c1.

```

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

```

18. Verify the final configuration of the cluster: network port show -ipospace Cluster
Each port should display up for Link and healthy for Health Status.

```

cluster1::*> **network port show -ipospace Cluster**

Node: nodel

Ignore

Health      Health
Port        IPspace    Broadcast Domain Link MTU   Admin/Oper
Status      Status

Speed (Mbps)

```

```

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

```

Node: node2

Ignore

```

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

```

```

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

```

4 entries were displayed.

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

```

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

```

```

Cluster
          node1_clus1  up/up      169.254.209.69/16  node1
e0a      true
          node1_clus2  up/up      169.254.49.125/16  node1
e0b      true
          node2_clus1  up/up      169.254.47.194/16  node2
e0a      true
          node2_clus2  up/up      169.254.19.183/16  node2
e0b      true

```

4 entries were displayed.

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

```

Node/      Local  Discovered
Protocol   Port   Device (LLDP: ChassisID)  Interface
Platform
-----
node2      /cdp
           e0a    cs1                        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.

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

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

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

```

Device-ID      Local Intrfce  Hldtme  Capability  Platform
Port ID
node1          Eth1/1        124     H           FAS2750
e0a
node2          Eth1/2        124     H           FAS2750
e0a
cs2            Eth1/35       179     R S I s     N9K-C9336C
Eth1/35
cs2            Eth1/36       179     R S I s     N9K-C9336C
Eth1/36

```

```
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	124	H	FAS2750
node2 e0b	Eth1/2	124	H	FAS2750
cs1 Eth1/35	Eth1/35	179	R S I s	N9K-C9336C
cs1 Eth1/36	Eth1/36	179	R S I s	N9K-C9336C

Total entries displayed: 4

19. Ensure that the cluster network has full connectivity: `cluster ping-cluster -node node-name`

```

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

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

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

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

```

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

```

cluster1::*> **system switch ethernet log setup-password**
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
cs1
cs2

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

Enter the switch name: **cs1**
RSA key fingerprint is
e5:8b:c6:dc:e2:18:18:09:36:63:d9:63:dd:03:d9:cc
Do you want to continue? {y|n}::[n] **y**

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

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

Enter the switch name: **cs2**
RSA key fingerprint is
57:49:86:a1:b9:80:6a:61:9a:86:8e:3c:e3:b7:1f:b1
Do you want to continue? {y|n}:: [n] **y**

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

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

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

Enabling cluster switch log collection.

cluster1::*>

```



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

21. For ONTAP releases 9.5P16, 9.6P12, and 9.7P10 and later patch releases, enable the Ethernet switch health monitor log collection feature for collecting switch-related log files, using the commands: `system cluster-switch log setup-password`system cluster-switch log enable-collection`

```

cluster1::*> **system cluster-switch log setup-password**
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
cs1
cs2

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

Enter the switch name: **cs1**
RSA key fingerprint is
e5:8b:c6:dc:e2:18:18:09:36:63:d9:63:dd:03:d9:cc
Do you want to continue? {y|n}::[n] **y**

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

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

Enter the switch name: **cs2**
RSA key fingerprint is
57:49:86:a1:b9:80:6a:61:9a:86:8e:3c:e3:b7:1f:b1
Do you want to continue? {y|n}:: [n] **y**

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

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

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

Enabling cluster switch log collection.

cluster1::*>

```



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

22. If you suppressed automatic case creation, reenable it by invoking an AutoSupport message:
`system node autosupport invoke -node * -type all -message MAINT=END`

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