

## **Replace switches**

Cluster and storage switches

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## **Replace switches**

## Replace a Cisco Nexus 3232C cluster switch

Follow these steps to replace a defective Cisco Nexus 3232C switch in a cluster. This is a non-disruptive procedure.

#### **Review requirements**

#### What you'll need

Make sure that the existing cluster and network configuration has the following characteristics:

• The Nexus 3232C cluster infrastructure are redundant and fully functional on both switches.

The Cisco Ethernet Switches page has the latest RCF and NX-OS versions on your switches.

- All cluster ports must be in the up state.
- Management connectivity must exist on both switches.
- All cluster logical interfaces (LIFs) are in the up state and are not migrated.

The replacement Cisco Nexus 3232C switch has the following characteristics:

- Management network connectivity is functional.
- Console access to the replacement switch is in place.
- The appropriate RCF and NX-OS operating system image is loaded onto the switch.
- Initial customization of the switch is complete.

#### For more information

See the following:

- Cisco Ethernet Switch description page
- Hardware Universe

#### **Replace the switch**

#### About this task

This replacement procedure describes the following scenario:

- The cluster initially has four nodes connected to two Nexus 3232C cluster switches, CL1 and CL2.
- You plan to replace cluster switch CL2 with C2 (steps 1 to 21):
  - On each node, you migrate the cluster LIFs connected to cluster switch CL2 to cluster ports connected to cluster switch CL1.
  - You disconnect the cabling from all ports on cluster switch CL2 and reconnect the cabling to the same ports on the replacement cluster switch C2.
  - $\,\circ\,$  You revert the migrated cluster LIFs on each node.

#### About the examples

This replacement procedure replaces the second Nexus 3232C cluster switch CL2 with the new 3232C switch C2.

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

- The four nodes are n1, n2, n3, and n4.
- n1\_clus1 is the first cluster logical interface (LIF) connected to cluster switch C1 for node n1.
- n1\_clus2 is the first cluster LIF connected to cluster switch CL2 or C2 for node n1.
- n1\_clus3 is the second LIF connected to cluster switch C2 for node n1.-
- n1\_clus4 is the second LIF connected to cluster switch CL1, 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 examples in this replacement procedure use four nodes. Two of the nodes use four 10 GB cluster interconnect ports: e0a, e0b, e0c, and e0d. The other two nodes use two 40 GB cluster interconnect ports: e4a and e4e. See the Hardware Universe to verify the correct cluster ports for your platform.

#### Step 1: Display and migrate the cluster ports to switch

 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
```

cluster::>	<b>network</b> Local	<b>device-discovery</b> s	how	
Node	Port	Device	Interface	Platform
				-
nl	/cdp			
	e0a	CL1	Ethernet1/1/1	N3K-C3232C
	e0b	CL2	Ethernet1/1/1	N3K-C3232C
	e0c	CL2	Ethernet1/1/2	N3K-C3232C
	e0d	CL1	Ethernet1/1/2	N3K-C3232C
n2	/cdp			
	e0a	CL1	Ethernet1/1/3	N3K-C3232C
	e0b	CL2	Ethernet1/1/3	N3K-C3232C
	e0c	CL2	Ethernet1/1/4	N3K-C3232C
	e0d	CL1	Ethernet1/1/4	N3K-C3232C
n3	/cdp			
	e4a	CL1	Ethernet1/7	N3K-C3232C
	e4e	CL2	Ethernet1/7	N3K-C3232C
n4	/cdp			
	e4a	CL1	Ethernet1/8	N3K-C3232C
	e4e	CL2	Ethernet1/8	N3K-C3232C

- 3. Determine the administrative or operational status for each cluster interface.
  - a. Display the network port attributes:

network port show -role cluster

```
cluster::*> network port show -role cluster
(network port show)
Node: n1
Ignore
                                  Speed(Mbps)
Health Health
Port IPspace Broadcast Domain Link MTU Admin/Oper
Status Status
_____
     Cluster Cluster
e0a
                          up 9000 auto/10000 -
eOb
                          up 9000 auto/10000 -
     Cluster
              Cluster
     Cluster Cluster
                          up 9000 auto/10000 -
e0c
     Cluster
                          up 9000 auto/10000 -
e0d
             Cluster
_
Node: n2
Ignore
                                  Speed(Mbps)
Health Health
Port IPspace Broadcast Domain Link MTU Admin/Oper
Status Status
_____
     Cluster Cluster
                          up 9000 auto/10000 -
e0a
e0b
                          up 9000 auto/10000 -
     Cluster
              Cluster
              Cluster
                          up 9000 auto/10000 -
e0c
     Cluster
e0d Cluster Cluster
                          up 9000 auto/10000 -
Node: n3
Ignore
                                  Speed (Mbps)
Health Health
Port IPspace Broadcast Domain Link MTU Admin/Oper
Status Status
_____ _ ___ ____
_____ ____
e4a Cluster Cluster up 9000 auto/40000 -
_
                          up 9000 auto/40000 -
e4e
    Cluster Cluster
```

```
-
Node: n4
Ignore
Speed(Mbps)
Health
Port IPspace Broadcast Domain Link MTU Admin/Oper
Status Status
------
e4a Cluster Cluster up 9000 auto/40000 -
e4e Cluster Up 9000 auto/40000 -
```

b. Display information about the logical interfaces (LIFs):

network interface show -role cluster

<pre>cluster::*&gt; network interface show -role cluster</pre>								
	Logical	Status	Network	Current				
Curren Vserve Port	t Is r Interface Home	Admin/Ope:	r Address/Mask	Node				
Cluste	r							
- 0 -	n1_clus1	up/up	10.10.0.1/24	nl				
eua	true n1 clus2	מוו/חוו	10 10 0 2/24	n 1				
e0b	true	սք/ սք	10.10.0.2/24	111				
	n1 clus3	up/up	10.10.0.3/24	n1				
eOc	true							
	n1_clus4	up/up	10.10.0.4/24	nl				
e0d	true	1		<u>_</u>				
~ <sup>0</sup> ~	n2_clus1	up/up	10.10.0.5/24	n2				
eva	n2 clus2	an/an	10.10.0.6/24	n2				
e0b	true		,					
	n2_clus3	up/up	10.10.0.7/24	n2				
eOc	true							
0.1	n2_clus4	up/up	10.10.0.8/24	n2				
eUd	true			n 2				
eOa	true	up/up	10.10.0.9/24	115				
cou	n3 clus2	up/up	10.10.0.10/24	n3				
e0e	true –							
	n4_clus1	up/up	10.10.0.11/24	n4				
e0a	true	,						
	n4_clus2	up/up	10.10.0.12/24	n4				
eve	Lrue							

c. Display the discovered cluster switches:

system cluster-switch show

The following output example displays the cluster switches:

```
cluster::> system cluster-switch show
Switch
                           Type
                                             Address
Model
_____
-----
                       cluster-network 10.10.1.101
CL1
NX3232C
       Serial Number: FOX000001
        Is Monitored: true
              Reason: None
    Software Version: Cisco Nexus Operating System (NX-OS)
Software, Version 7.0(3)I6(1)
      Version Source: CDP
CL2
                           cluster-network 10.10.1.102
NX3232C
       Serial Number: FOX00002
        Is Monitored: true
              Reason: None
     Software Version: Cisco Nexus Operating System (NX-OS)
Software, Version 7.0(3)I6(1)
      Version Source: CDP
```

- 4. Verify that the appropriate RCF and image are installed on the new Nexus 3232C switch and make any necessary site customizations.
  - a. Go to the NetApp Support Site.

mysupport.netapp.com

b. Go to the **Cisco Ethernet Switches** page and note the required software versions in the table.

**Cisco Ethernet Switches** 

- c. Download the appropriate version of the RCF.
- d. Click **CONTINUE** on the **Description** page, accept the license agreement, and then navigate to the **Download** page.
- e. Download the correct version of the image software from the **Cisco® Cluster and Management Network Switch Reference Configuration File Download** page.

Cisco® Cluster and Management Network Switch Reference Configuration File Download

5. Migrate the cluster LIFs to the physical node ports connected to the replacement switch C2:

network interface migrate -vserver vserver-name -lif lif-name -source-node node-name -destination-node node-name -destination-port port-name

#### Show example

You must migrate all the cluster LIFs individually as shown in the following example:

cluster::\*> network interface migrate -vserver Cluster -lif n1 clus2 -source-node n1 -destinationnode n1 -destination-port e0a cluster::\*> network interface migrate -vserver Cluster -lif n1 clus3 -source-node n1 -destinationnode n1 -destination-port e0d cluster::\*> network interface migrate -vserver Cluster -lif n2\_clus2 -source-node n2 -destinationnode n2 -destination-port e0a cluster::\*> network interface migrate -vserver Cluster -lif n2 clus3 -source-node n2 -destinationnode n2 -destination-port e0d cluster::\*> network interface migrate -vserver Cluster -lif n3 clus2 -source-node n3 -destinationnode n3 -destination-port e4a cluster::\*> network interface migrate -vserver Cluster -lif n4 clus2 -source-node n4 -destinationnode n4 -destination-port e4a

6. Verify the status of the cluster ports and their home designations:

network interface show -role cluster

<pre>cluster::*&gt; network interface show -role cluster</pre>								
(networ	k interiace sn							
<b>a</b>	Logical	Status	Network	Current				
Current	ls The C							
Vserver	Interface	Admin/Oper	Address/Mask	Node				
Port	Home							
Clustor								
CIUSCEI			10 10 0 1/24	n1				
<u>_</u>	III_CIUSI	սք/սք	10.10.0.1/24	111				
eua	rl alua?		10 10 0 2/24	n 1				
000	falso	սք/սք	10.10.0.2/24	111				
eva	n1 clue3	מוו/ מוו	10 10 0 3/24	nl				
eld	false	սք/ սք	10.10.0.3/24	111				
cou	n1 clus4	מוו/מוו	10 10 0 4/24	n1				
eOd	true	ap/ ap	10.10.0.1/21	111				
0004	n2 clus1	מנו/מנו	10.10.0.5/24	n2				
e0a	true	err, er	,					
	n2 clus2	up/up	10.10.0.6/24	n2				
e0a	false	1 1						
	n2 clus3	up/up	10.10.0.7/24	n2				
e0d	false							
	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				
e4a	false							
	n4_clus1	up/up	10.10.0.11/24	n4				
e4a	true							
	n4_clus2	up/up	10.10.0.12/24	n4				
e4a	false							

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

network port modify -node node-name -port port-name -up-admin false

The following example shows the cluster interconnect ports are 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
cluster::*> network port modify -node n3 -port e4e -up-admin false
cluster::*> network port modify -node n4 -port e4e -up-admin false
```

8. Ping the remote cluster interfaces and perform an RPC server check:

cluster ping-cluster -node node-name

The following example shows node n1 being pinged and the RPC status indicated afterward:

```
cluster::*> cluster ping-cluster -node n1
Host is n1 Getting addresses from network interface table...
Cluster n1 clus1 n1
                                10.10.0.1
                     e0a
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
                       e0b 10.10.0.6
e0c 10.10.0.7
Cluster n2 clus2 n2
Cluster n2 clus3 n2
                      e0d
e0a
Cluster n2 clus4 n2
                                10.10.0.8
Cluster n3 clus1 n4
                                10.10.0.9
                                10.10.0.10
Cluster n3 clus2 n3
                        e0e
                        e0a 10.10.0.11
Cluster n4 clus1 n4
Cluster n4 clus2 n4
                                10.10.0.12
                         e0e
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 10.10.0.9
10.10.0.10 10.10.0.11
10.10.0.12 Cluster Vserver Id = 4294967293 Ping status:
. . . .
Basic connectivity succeeds on 32 path(s)
Basic connectivity fails on 0 path(s) .....
Detected 9000 byte MTU on 32 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 10.10.0.1 to Remote 10.10.0.9
   Local 10.10.0.1 to Remote 10.10.0.10
   Local 10.10.0.1 to Remote 10.10.0.11
   Local 10.10.0.1 to Remote 10.10.0.12
   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 10.10.0.2 to Remote 10.10.0.9
   Local 10.10.0.2 to Remote 10.10.0.10
   Local 10.10.0.2 to Remote 10.10.0.11
   Local 10.10.0.2 to Remote 10.10.0.12
   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 10.10.0.3 to Remote 10.10.0.9 Local 10.10.0.3 to Remote 10.10.0.10 Local 10.10.0.3 to Remote 10.10.0.11 Local 10.10.0.3 to Remote 10.10.0.12 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 Local 10.10.0.4 to Remote 10.10.0.9 Local 10.10.0.4 to Remote 10.10.0.10 Local 10.10.0.4 to Remote 10.10.0.11 Local 10.10.0.4 to Remote 10.10.0.12 Larger than PMTU communication succeeds on 32 path(s) RPC status: 8 paths up, 0 paths down (tcp check) paths up, 0 paths down (udp check) 8

#### Step 2: Migrate ISLs to switch CL1 and C2

1. Shut down the ports 1/31 and 1/32 on cluster switch CL1.

For more information on Cisco commands, see the guides listed in the Cisco Nexus 3000 Series NX-OS Command References.

#### Show example

```
(CL1)# configure
(CL1) (Config) # interface e1/31-32
(CL1) (config-if-range) # shutdown
(CL1) (config-if-range) # exit
(CL1) (Config) # exit
(CL1) #
```

- 2. Remove all the cables attached to the cluster switch CL2 and reconnect them to the replacement switch C2 for all the nodes.
- 3. Remove the inter-switch link (ISL) cables from ports e1/31 and e1/32 on cluster switch CL2 and reconnect them to the same ports on the replacement switch C2.
- 4. Bring up ISL ports 1/31 and 1/32 on the cluster switch CL1.

For more information on Cisco commands, see the guides listed in the Cisco Nexus 3000 Series NX-OS Command References.

```
(CL1) # configure
(CL1) (Config) # interface e1/31-32
(CL1) (config-if-range) # no shutdown
(CL1) (config-if-range) # exit
(CL1) (Config) # exit
(CL1) #
```

5. Verify that the ISLs are up on CL1.

For more information on Cisco commands, see the guides listed in the Cisco Nexus 3000 Series NX-OS Command References.

Ports Eth1/31 and Eth1/32 should indicate (P), which means that the ISL ports are up in the port-channel:

Show example

6. Verify that the ISLs are up on cluster switch C2.

For more information on Cisco commands, see the guides listed in the Cisco Nexus 3000 Series NX-OS Command References.

Ports Eth1/31 and Eth1/32 should indicate (P), which means that both ISL ports are up in the portchannel.

7. On all nodes, bring up all the cluster interconnect ports connected to the replacement switch C2:

network port modify -node node-name -port port-name -up-admin true

Show example

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 cluster::\*> network port modify -node n3 -port e4e -up-admin true cluster::\*> network port modify -node n4 -port e4e -up-admin true

#### Step 3: Revert all LIFs to originally assigned ports

1. Revert all the migrated cluster interconnect LIFs on all the nodes:

network interface revert -vserver cluster -lif lif-name

You must revert all the cluster interconnect LIFs individually as shown in the following 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
Cluster::*> network interface revert -vserver cluster -lif n3_clus2
Cluster::*> network interface revert -vserver cluster -lif n4_clus2
```

2. Verify that the cluster interconnect ports are now reverted to their home:

network interface show

The following example shows that all the LIFs have been successfully reverted because the ports listed under the Current Port column have a status of true in the Is Home column. If a port has a value of false, the LIF has not been reverted.

<pre>cluster::*&gt; network interface show -role cluster  (network interface show)</pre>									
		Logical	Status	Network	Current				
Current Vserver Port	Is Home	Interface	Admin/Oper	Address/Mask	Node				
Cluster									
	+ 2012 0	n1_clus1	up/up	10.10.0.1/24	nl				
eua	true	n1_clus2	up/up	10.10.0.2/24	nl				
e0b	true	1 1 0	/	10 10 0 0 0 0 1	1				
eOc	true	n1_Clus3	up/up	10.10.0.3/24	nı				
		n1_clus4	up/up	10.10.0.4/24	nl				
e0d	true	n) alua1		10 10 0 5/04	- 0				
e0a	true	nz_ciusi	up/up	10.10.0.5/24	112				
		n2_clus2	up/up	10.10.0.6/24	n2				
e0b	true	n2 alua2		10 10 0 7/24	20				
e0c	true	IIZ_CIUSS	up/up	10.10.0.7/24	112				
		n2_clus4	up/up	10.10.0.8/24	n2				
e0d	true	n3 clus1	מוו/ מוו	10 10 0 9/24	n3				
e4a	true		սք/ սբ	10.10.0.9/24	115				
		n3_clus2	up/up	10.10.0.10/24	n3				
e4e	true	n4 clus1	מוו/מוו	10 10 0 11/24	n4				
e4a	true	01401	ab, ab	10.10.0.11/21					
4		n4_clus2	up/up	10.10.0.12/24	n4				
e4e	true								

3. Verify that the cluster ports are connected:

network port show -role cluster

```
cluster::*> network port show -role cluster
 (network port show)
Node: n1
Ignore
                                    Speed(Mbps) Health
Health
Port IPspace Broadcast Domain Link MTU Admin/Oper Status
Status
----- ---- ----- ----- ---- ---- ----
_____ _
                           up 9000 auto/10000 -
e0a
      Cluster Cluster
e0b
      Cluster
                            up 9000 auto/10000 -
               Cluster
               Cluster
      Cluster
                            up 9000 auto/10000 -
e0c
e0d Cluster
                            up 9000 auto/10000 -
               Cluster
_
Node: n2
Ignore
                                    Speed(Mbps) Health
Health
Port IPspace Broadcast Domain Link MTU Admin/Oper Status
Status
----- ---- ----- ----- ---- ----
_____ _
      Cluster Cluster
                           up 9000 auto/10000 -
e0a
                            up 9000 auto/10000 -
e0b
               Cluster
      Cluster
e0c
                            up 9000 auto/10000 -
               Cluster
      Cluster
e0d Cluster Cluster
                            up 9000 auto/10000 -
_
Node: n3
Ignore
                                    Speed(Mbps) Health
Health
Port IPspace Broadcast Domain Link MTU Admin/Oper Status
Status
_____ _
e4a
     Cluster Cluster up 9000 auto/40000 -
                            up 9000 auto/40000 -
e4e
      Cluster Cluster
Node: n4
```

```
IgnoreSpeed(Mbps) HealthHealthPortIPspaceBroadcast Domain Link MTUAdmin/OperStatus------Status------e4aClusterClusterup9000 auto/40000-e4eClusterClusterup9000 auto/40000--
```

4. Ping the remote cluster interfaces and perform an RPC server check:

cluster ping-cluster -node node-name

The following example shows node n1 being pinged and the RPC status indicated afterward:

```
cluster::*> cluster ping-cluster -node n1
Host is n1 Getting addresses from network interface table...
Cluster n1 clus1 n1
                                10.10.0.1
                       e0a
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
                        e0c
Cluster n2 clus3 n2
                                10.10.0.7
                      e0d
e0a
Cluster n2 clus4 n2
                                10.10.0.8
Cluster n3 clus1 n3
                                10.10.0.9
                                10.10.0.10
Cluster n3 clus2 n3
                        e0e
                        e0a 10.10.0.11
Cluster n4 clus1 n4
Cluster n4 clus2 n4
                                10.10.0.12
                         e0e
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 10.10.0.9
10.10.0.10 10.10.0.11 10.10.0.12
Cluster Vserver Id = 4294967293 Ping status:
. . . .
Basic connectivity succeeds on 32 path(s)
Basic connectivity fails on 0 path(s) .....
Detected 1500 byte MTU on 32 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 10.10.0.1 to Remote 10.10.0.9
   Local 10.10.0.1 to Remote 10.10.0.10
   Local 10.10.0.1 to Remote 10.10.0.11
   Local 10.10.0.1 to Remote 10.10.0.12
   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 10.10.0.2 to Remote 10.10.0.9
   Local 10.10.0.2 to Remote 10.10.0.10
   Local 10.10.0.2 to Remote 10.10.0.11
   Local 10.10.0.2 to Remote 10.10.0.12
   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 10.10.0.3 to Remote 10.10.0.9 Local 10.10.0.3 to Remote 10.10.0.10 Local 10.10.0.3 to Remote 10.10.0.11 Local 10.10.0.3 to Remote 10.10.0.12 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 Local 10.10.0.4 to Remote 10.10.0.9 Local 10.10.0.4 to Remote 10.10.0.10 Local 10.10.0.4 to Remote 10.10.0.11 Local 10.10.0.4 to Remote 10.10.0.12 Larger than PMTU communication succeeds on 32 path(s) RPC status: 8 paths up, 0 paths down (tcp check) paths up, 0 paths down (udp check) 8

#### Step 4: Verify all ports and LIF are correctly migrated

1. Display the information about the devices in your configuration by entering the following commands:

You can execute the following commands in any order:

- ° network device-discovery show
- $^{\circ}$  network port show -role cluster
- ° network interface show -role cluster
- ° system cluster-switch show

	Local	Dis	covered	5110					
Node	Port	Dev	ice		Inter	Eace		Platfo	orm
 n1	/cdp								
	e0a	C1		E	therne	et1/1,	/1 1	N3K-C32	232C
	e0b	C2		E	therne	et1/1,	/1 1	N3K-C32	232C
	e0c	C2		E	therne	et1/1,	/2 1	N3K-C32	232C
	e0d	C1		E	therne	et1/1,	/2 1	N3K-C32	232C
า2	/cdp								
	e0a	C1		E	therne	et1/1,	/3 1	N3K-C32	232C
	e0b	C2		E	therne	et1/1,	/3 1	N3K-C32	232C
	eOc	C2		E	therne	et1/1,	/4 1	N3K-C32	232C
	e0d	C1		E	therne	et1/1,	/4 1	N3K-C32	232C
n3	/cdp								
	e4a	C1		E	therne	et1/7	1	N3K-C32	232C
	e4e	C2		E	therne	et1/7	1	N3K-C32	232C
14	/cdp								
	e4a	C1		E	therne	et1/8	1	N3K-C32	232C
	e4e	C2		E	therne	et1/8	1	N3K-C32	232C
(netwo Jode: n1 Ignore Health Port	rk port sh IPspace	ow)	Broadcast	Domain	Link	MTU	Speed Admin,	(Mbps) /Oper	Healt
Status									
 e0a	 Cluster		Cluster		up	9000	auto/1	10000	_
e0b	Cluster		Cluster		up	9000	auto/2	10000	-
e0c	Cluster		Cluster		up	9000	auto/2	10000	-
e0d	Cluster		Cluster		up	9000	auto/2	10000	-
Node: n2									
Ignore									
							Speed	(Mbps)	Heal+

Port IPspace Broadcast Domain Link MTU Admin/Oper Status Status \_\_\_\_\_ \_\_\_ up 9000 auto/10000 -Cluster e0a Cluster e0b up 9000 auto/10000 -Cluster Cluster Cluster Cluster up 9000 auto/10000 e0c up 9000 auto/10000 e0d Cluster Cluster Node: n3 Ignore Speed(Mbps) Health Health Port IPspace Broadcast Domain Link MTU Admin/Oper Status Status \_\_\_\_\_ \_ e4a Cluster Cluster up 9000 auto/40000 e4e Cluster Cluster up 9000 auto/40000 -Node: n4 Ignore Speed(Mbps) Health Health Port IPspace Broadcast Domain Link MTU Admin/Oper Status Status \_\_\_\_\_ \_\_\_ \_\_\_\_ \_\_\_\_\_ \_\_\_\_ e4a Cluster Cluster up 9000 auto/40000 e4e Cluster Cluster up 9000 auto/40000 cluster::\*> network interface show -role cluster Logical Status Network Current Current Is Vserver Interface Admin/Oper Address/Mask Node Port Home \_\_\_\_\_ \_\_\_ Cluster nml 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	nl
e0c	true			
	n1_clus4	up/up	10.10.0.4/24	nl
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	,		
0	n2_clus3	up/up	10.10.0.7/24	n2
euc	true		10 10 0 0/04	- 2
00d	nz_cius4	up/up	10.10.0.8/24	112
eua	n3 clus1	מנו/ מנו	10 10 0 9/24	n3
e4a		սք/սք	10.10.0.9/24	115
Cia	n3 clus2	מנו/מנו	10 10 0 10/24	n3
e4e	true	սբ/ սբ	10.10.00.10/21	115
	n4 clus1	an/an	10.10.0.11/24	n4
e4a	true	T , T		
	n4 clus2	up/up	10.10.0.12/24	n4
e4e	true –			
cluste Switch Model 	r::*> system clu	Ister-swite Type	<b>ch show</b> e A	ddress
cluste Switch Model	r::*> <b>system cl</b> u	ister-swite Type	ch show e A	ddress
cluste Switch Model  CL1	r::*> system clu	Ister-swite Type	<b>ch show</b> e A  uster-network 1	ddress  0.10.1.101
cluste Switch Model  CL1 NX3232	r::*> system clu	Ister-swite Type  clu	ch show e A  uster-network 1	ddress  0.10.1.101
cluste Switch Model  CL1 NX3232	r::*> <b>system clu</b>  C Serial Nu Is Monit	umber: FOX	ch show e A  uster-network 1 000001	ddress  0.10.1.101
cluste Switch Model  CL1 NX3232	r::*> <b>system clu</b>  C Serial Nu Is Monit Re	unter: FOX tored: true	ch show e A  uster-network 1 000001 e e	ddress  0.10.1.101
cluste Switch Model  CL1 NX3232	r::*> <b>system clu</b>  C Serial Nu Is Monit Re Software Ver	umber: FOX cored: true eason: None	ch show e A  uster-network 1 000001 e e co Nexus Operatin	ddress  0.10.1.101 g System (NX-OS)
cluste Switch Model  CL1 NX3232 Softwa	r::*> <b>system clu</b>  C Serial Nu Is Monit Re Software Ver re, Version 7.0	Type Type clumber: FOX cored: true eason: None rsion: Cise (3) I6(1)	ch show e A uster-network 1 000001 e e co Nexus Operatin	ddress  0.10.1.101 g System (NX-OS)
cluste Switch Model  CL1 NX3232 Softwa	r::*> <b>system clu</b>  C Serial Nu Is Monit Re Software Ver re, Version 7.0 Version So	umber: FOX clumber: FOX cored: true eason: None rsion: Cise (3)I6(1) purce: CDP	ch show e A uster-network 1 000001 e e co Nexus Operatin	ddress  0.10.1.101 g System (NX-OS)
cluste Switch Model  CL1 NX3232 Softwa CL2	r::*> <b>system clu</b>  C Serial Nu Is Monit Re Software Ver re, Version 7.0 Version So	umber: FOX clumber: FOX cored: true eason: None rsion: Cise (3) I6(1) purce: CDP clu	ch show e A uster-network 1 000001 e e co Nexus Operatin uster-network 1	ddress  0.10.1.101 g System (NX-OS) 0.10.1.102
cluste Switch Model  CL1 NX3232 Softwa CL2 NX3232	r::*> <b>system clu</b>  C Serial Nu Is Monit Re Software Ver re, Version 7.0 Version Sc C	Type Type clumber: FOX cored: true eason: None rsion: Cise (3)I6(1) purce: CDP clu	ch show e A uster-network 1 000001 e e co Nexus Operatin uster-network 1	ddress  0.10.1.101 g System (NX-OS) 0.10.1.102
cluste Switch Model  CL1 NX3232 Softwa CL2 NX3232	r::*> <b>system clu</b>  C Serial Nu Is Monit Re Software Ver re, Version 7.0 Version Sc C Serial Nu	umber: FOX (3) I6 (1) Durce: CDP clumber: FOX	ch show e A uster-network 1 000001 e e co Nexus Operatin uster-network 1 000002	ddress  0.10.1.101 g System (NX-OS) 0.10.1.102
cluste Switch Model  CL1 NX3232 Softwa CL2 NX3232	r::*> <b>system clu</b>  C Serial Nu Is Monit Re Software Ver re, Version 7.0 Version Sc C Serial Nu Is Monit	umber: FOX clumber: FOX cored: true eason: None (3) I6(1) purce: CDP clumber: FOX cored: true	ch show e A uster-network 1 000001 e e co Nexus Operatin uster-network 1 000002 e	ddress  0.10.1.101 g System (NX-OS) 0.10.1.102
cluste Switch Model  CL1 NX3232 Softwa CL2 NX3232	r::*> <b>system clu</b>  C Serial Nu Is Monit Re Software Ver re, Version 7.0 Version Sc C Serial Nu Is Monit Re	umber: FOX clumber: FOX cored: true eason: None (3) I6 (1) ource: CDP clumber: FOX cored: true cored: true	ch show e A uster-network 1 000001 e e co Nexus Operatin uster-network 1 000002 e e	ddress  0.10.1.101 g System (NX-OS) 0.10.1.102
cluste Switch Model  CL1 NX3232 Softwa CL2 NX3232	r::*> <b>system clu</b> C C Serial Nu Is Monit Re Software Ver re, Version 7.0 Version Sc C Serial Nu Is Monit Re Software Ver	Ister-swite Type Clumber: FOX tored: true eason: None (3) I6 (1) purce: CDP clumber: FOX tored: true eason: None tored: true	ch show e A uster-network 1 000001 e e co Nexus Operatin uster-network 1 000002 e e co Nexus Operatin	ddress  0.10.1.101 g System (NX-OS) 0.10.1.102 g System (NX-OS)
cluste Switch Model  CL1 NX3232 Softwa CL2 NX3232 Softwa	r::*> system clu  C Serial Nu Is Monit Re Software Ver re, Version 7.0 Version Sc C Serial Nu Is Monit Re Software Ver re, Version 7.0	umber: FOX clumber: FOX cored: true eason: None rsion: Cise (3) I6(1) purce: CDP clumber: FOX cored: true eason: None rsion: Cise (3) I6(1)	ch show e A uster-network 1 000001 e e co Nexus Operatin uster-network 1 000002 e e co Nexus Operatin	ddress  0.10.1.101 g System (NX-OS) 0.10.1.102 g System (NX-OS)
cluste Switch Model  CL1 NX3232 Softwa CL2 NX3232	r::*> <b>system clu</b> C C Serial Nu Is Monit Re Software Ver re, Version 7.0 Version Sc C Serial Nu Is Monit Re Software Ver re, Version 7.0 Version Sc	Ister-swith Type Imber: FOXE Lored: true eason: None rsion: Cise (3) I6 (1) Durce: CDP clumber: FOXE Lored: true eason: None rsion: Cise (3) I6 (1) Durce: CDP	ch show e A uster-network 1 000001 e e co Nexus Operatin uster-network 1 000002 e e co Nexus Operatin	ddress  0.10.1.101 g System (NX-OS) 0.10.1.102 g System (NX-OS)
cluste Switch Model  CL1 NX3232 Softwa CL2 NX3232 Softwa	r::*> system clu  C Serial Nu Is Monit Re Software Ven re, Version 7.0 Version Sc C Serial Nu Is Monit Re Software Ven re, Version 7.0 Version Sc	Ister-swite Type clumber: FOXE tored: true eason: None rsion: Cise (3) I6 (1) ource: CDP clumber: FOXE tored: true eason: None rsion: Cise (3) I6 (1) ource: CDP clus	ch show e A uster-network 1 000001 e e co Nexus Operatin uster-network 1 000002 e e co Nexus Operatin ster-network 1	ddress  0.10.1.101 g System (NX-OS) 0.10.1.102 g System (NX-OS) 0.10.1.103
cluste Switch Model  CL1 NX3232 Softwa CL2 NX3232 Softwa C2 NX3232	r::*> <b>system clu</b> C Serial Nu Is Monit Re Software Ver re, Version 7.0 Version Sc C Serial Nu Is Monit Re Software Ver re, Version 7.0 Version Sc C	Ister-swite Type Clumber: FOX tored: true eason: None rsion: Cise (3) I6(1) purce: CDP clumber: FOX tored: true eason: None rsion: Cise (3) I6(1) purce: CDP clus	ch show e A uster-network 1 000001 e e co Nexus Operatin uster-network 1 000002 e e co Nexus Operatin ster-network 1	ddress  0.10.1.101 g System (NX-OS) 0.10.1.102 g System (NX-OS) 0.10.1.103

```
Is Monitored: true
Reason: None
Software Version: Cisco Nexus Operating System (NX-OS)
Software, Version 7.0(3)16(1)
```

Version Source: CDP 3 entries were displayed.

2. Delete the replaced cluster switch CL2 if it has not been removed automatically:

system cluster-switch delete -device cluster-switch-name

3. Verify that the proper cluster switches are monitored:

system cluster-switch show

#### Show example

The following example shows the cluster switches are monitored because the Is Monitored state is true.

```
cluster::> system cluster-switch show
Switch
                           Туре
                                              Address
Model
_____
CL1
                           cluster-network 10.10.1.101
NX3232C
           Serial Number: FOX000001
            Is Monitored: true
                  Reason: None
         Software Version: Cisco Nexus Operating System (NX-OS)
Software, Version 7.0(3)I6(1)
          Version Source: CDP
С2
                           cluster-network 10.10.1.103
NX3232C
           Serial Number: FOX00002
            Is Monitored: true
                  Reason: None
         Software Version: Cisco Nexus Operating System (NX-OS)
Software, Version 7.0(3)I6(1)
          Version Source: CDP
```

4. Enable the cluster switch health monitor log collection feature for collecting switch-related log files:

system cluster-switch log setup-password

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

```
cluster::*> system cluster-switch log setup-password
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
CL1
C2
cluster::*> system cluster-switch log setup-password
Enter the switch name: CL1
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>
cluster::*> system cluster-switch log setup-password
Enter the switch name: C2
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>
cluster::*> 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.
cluster::*>
```



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

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

### Replace a Cisco Nexus 3232C storage switch

Follow these steps to replace a defective Cisco Nexus 3232C storage switch. This is a non-disruptive procedure.

#### **Review requirements**

The existing network configuration must have the following characteristics:

- The Cisco Ethernet Switches page has the latest RCF and NX-OS versions on your switches.
- Management connectivity must exist on both switches.



Make sure that all troubleshooting steps have been completed to confirm that your switch needs replacing.

The replacement Cisco Nexus 3232C switch must have the following characteristics:

- Management network connectivity must be functional.
- · Console access to the replacement switch must be in place.
- The appropriate RCF and NX-OS operating system image must be loaded onto the switch.
- Initial customization of the switch must be complete.

#### **Replace the switch**

This procedure replaces the second Nexus 3232C storage switch S2 with the new 3232C switch NS2. The two nodes are node1 and node2.

#### Step 1: Confirm the switch to be replaced is S2

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. Check on the health status of the storage node ports to make sure that there is connection to storage switch S1:

storage port show -port-type ENET

<pre>storage::*&gt; storage port show -port-type ENET</pre>									
				Speed			VLAN		
Node	Port	Туре	Mode	(Gb/s)	State	Status	ID		
nodel									
	e3a	ENET	storage	100	enabled	online	30		
	e3b	ENET	storage	0	enabled	offline	30		
	e7a	ENET	storage	0	enabled	offline	30		
	e7b	ENET	storage	0	enabled	offline	30		
node2									
	e3a	ENET	storage	100	enabled	online	30		
	e3b	ENET	storage	0	enabled	offline	30		
	e7a	ENET	storage	0	enabled	offline	30		
	e7b	ENET	storage	0	enabled	offline	30		

3. Verify that storage switch S1 is available:

network device-discovery show

<pre>storage::*&gt;</pre>	networ	k device-discovery show		
Node/	Local	Discovered		
Protocol	Port	Device (LLDP: ChassisID	) Interface	
Platform				
				-
node1/cdp				
	e3a	S1	Ethernet1/1	
NX3232C				
	e4a	node2	e4a	AFF-
A700				
	e4e	node2	e4e	AFF-
A700				
node1/lldp				
	e3a	Sl	Ethernet1/1	-
	e4a	node2	e4a	-
	e4e	node2	e4e	-
node2/cdp				
	e3a	S1	Ethernet1/2	
NX3232C				
	e4a	nodel	e4a	AFF-
A700				
	e4e	node1	e4e	AFF-
A700				
node2/11dp				
	e3a	S1	Ethernet1/2	-
	e4a	nodel	e4a	-
	e4e	nodel	e4e	-

4. Run the show lldp neighbors command on the working switch to confirm that you can see both nodes and all shelves:

show lldp neighbors

```
Show example
```

```
S1# show lldp neighbors
Capability codes:
  (R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device
  (W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other
Device ID
                       Local Intf Hold-time Capability Port
ID
                       Eth1/1
node1
                                       121
                                                  S
                                                              e3a
                                                  S
node2
                       Eth1/2
                                       121
                                                              e3a
                       Eth1/5
SHFGD2008000011
                                       121
                                                  S
                                                              e0a
SHFGD2008000011
                       Eth1/6
                                       120
                                                  S
                                                              e0a
SHFGD2008000022
                       Eth1/7
                                       120
                                                  S
                                                              e0a
SHFGD2008000022
                       Eth1/8
                                                  S
                                       120
                                                              e0a
```

#### Step 2: Configure cabling

1. Verify the shelf ports in the storage system:

storage shelf port show -fields remote-device, remote-port

```
Show example
```

```
storage::*> storage shelf port show -fields remote-device, remote-
port
shelf id remote-port remote-device
_____ __ ___ _____
3.20
     0
         Ethernet1/5 S1
3.20 1
         _
                    _
3.20 2 Ethernet1/6 S1
3.20 3 -
                    _
3.30 0 Ethernet1/7 S1
3.20 1
         _
                    _
3.30 2 Ethernet1/8 S1
3.20 3
         _
                    _
```

- 2. Remove all cables attached to storage switch S2.
- 3. Reconnect all cables to the replacement switch NS2.

#### Step 3: Verify all device configurations on switch NS2

1. Verify the health status of the storage node ports:

<pre>storage::*&gt; storage port show -port-type ENET</pre>									
VLAN Node ID	Port	Туре	Mode	(Gb/s)	State	Status			
 node1									
30	e3a	ENET	storage	100	enabled	online			
30	e3b	ENET	storage	0	enabled	offline			
30	e7a	ENET	storage	0	enabled	offline			
30	e7b	ENET	storage	100	enabled	online			
node2	ega	ENET	storage	100	enabled	online			
30	e3h	ENET	storage	100	enabled	offline			
30	070	ENET	storage	0	onabled	offline			
30	e/a		storage	100		online			
30	erb	сис I	SLOLAGE	TOO	enabled	OUTTUE			

2. Verify that both switches are available:

network device-discovery show

<pre>storage::*&gt;</pre>	networ	k device-discovery show		
Node/	Local	Discovered		
Protocol	Port	Device (LLDP: ChassisID)	Interface	
Platform				
node1/cdp				
	e3a	Sl	Ethernet1/1	
NX3232C				
	e4a	node2	e4a	AFF-
A700				
	e4e	node2	e4e	AFF-
A700				
	e7b	NS2	Ethernet1/1	
NX3232C				
node1/lldp				
	e3a	S1	Ethernet1/1	-
	e4a	node2	e4a	-
	e4e	node2	e4e	-
	e7b	NS2	Ethernet1/1	-
node2/cdp				
	e3a	S1	Ethernet1/2	
NX3232C				
	e4a	nodel	e4a	AFF-
A700				
	e4e	nodel	e4e	AFF-
A700				
	e7b	NS2	Ethernet1/2	
NX3232C				
node2/11dp				
	e3a	Sl	Ethernet1/2	-
	e4a	node1	e4a	-
	e4e	node1	e4e	-
	e7b	NS2	Ethernet1/2	-

3. Verify the shelf ports in the storage system:

storage shelf port show -fields remote-device, remote-port

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

# **Replace Cisco Nexus 3232C cluster switches with switchless connections**

You can migrate from a cluster with a switched cluster network to one where two nodes are directly connected for ONTAP 9.3 and later.

#### **Review requirements**

#### Guidelines

Review the following guidelines:

- Migrating to a two-node switchless cluster configuration is a nondisruptive operation. Most systems have two dedicated cluster interconnect ports on each node, but you can also use this procedure for systems with a larger number of dedicated cluster interconnect ports on each node, such as four, six or eight.
- You cannot use the switchless cluster interconnect feature with more than two nodes.
- If you have an existing two-node cluster that uses cluster interconnect switches and is running ONTAP 9.3 or later, you can replace the switches with direct, back-to-back connections between the nodes.

#### What you'll need

- A healthy cluster that consists of two nodes connected by cluster switches. The nodes must be running the same ONTAP release.
- Each node with the required number of dedicated cluster ports, which provide redundant cluster interconnect connections to support your system configuration. For example, there are two redundant ports for a system with two dedicated cluster interconnect ports on each node.

#### **Migrate the switches**

#### About this task

The following procedure removes the cluster switches in a two-node cluster and replaces each connection to the switch with a direct connection to the partner node.



#### About the examples

The examples in the following procedure show nodes that are using "e0a" and "e0b" as cluster ports. Your nodes might be using different cluster ports as they vary by system.

#### Step 1: Prepare for migration

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

set -privilege advanced

The advanced prompt \*> appears.

2. ONTAP 9.3 and later supports automatic detection of switchless clusters, which is enabled by default.

You can verify that detection of switchless clusters is enabled by running the advanced privilege command:

network options detect-switchless-cluster show

#### Show example

The following example output shows if the option is enabled.

```
cluster::*> network options detect-switchless-cluster show
  (network options detect-switchless-cluster show)
Enable Switchless Cluster Detection: true
```

If "Enable Switchless Cluster Detection" is false, contact NetApp support.

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=<number of hours>h
```

where h is the duration of the maintenance window in hours. The message notifies technical support of this maintenance task so that they can suppress automatic case creation during the maintenance window.

In the following example, the command suppresses automatic case creation for two hours:

#### Show example

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

#### Step 2: Configure ports and cabling

- 1. Organize the cluster ports on each switch into groups so that the cluster ports in group1 go to cluster switch1 and the cluster ports in group2 go to cluster switch2. These groups are required later in the procedure.
- 2. Identify the cluster ports and verify link status and health:

network port show -ipspace Cluster

In the following example for nodes with cluster ports "e0a" and "e0b", one group is identified as "node1:e0a" and "node2:e0a" and the other group as "node1:e0b" and "node2:e0b". Your nodes might be using different cluster ports because they vary by system.



Verify that the ports have a value of up for the "Link" column and a value of healthy for the "Health Status" column.

```
cluster::> network port show -ipspace Cluster
Node: node1
Ignore
                                 Speed(Mbps) Health
Health
Port IPspace Broadcast Domain Link MTU Admin/Oper Status
Status
_____ _____
_____
eOa Cluster Cluster up 9000 auto/10000 healthy
false
eOb 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
_____ _____
_____
eOa Cluster Cluster up 9000 auto/10000 healthy
false
eOb Cluster Cluster up 9000 auto/10000 healthy
false
4 entries were displayed.
```

3. Confirm that all the cluster LIFs are on their home ports.

Verify that the "is-home" column is true for each of the cluster LIFs:

network interface show -vserver Cluster -fields is-home

```
cluster::*> net int show -vserver Cluster -fields is-home
(network interface show)
vserver lif is-home
------
Cluster node1_clus1 true
Cluster node1_clus2 true
Cluster node2_clus1 true
Cluster node2_clus1 true
A entries were displayed.
```

If there are cluster LIFs that are not on their home ports, revert those LIFs to their home ports:

network interface revert -vserver Cluster -lif \*

4. Disable auto-revert for the cluster LIFs:

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

5. Verify that all ports listed in the previous step are connected to a network switch:

network device-discovery show -port cluster port

The "Discovered Device" column should be the name of the cluster switch that the port is connected to.

#### Show example

The following example shows that cluster ports "e0a" and "e0b" are correctly connected to cluster switches "cs1" and "cs2".

```
cluster::> network device-discovery show -port e0a|e0b
 (network device-discovery show)
Node/ Local Discovered
Protocol Port Device (LLDP: ChassisID) Interface Platform
_____
node1/cdp
       e0a cs1
                                   0/11
                                          BES-53248
        e0b cs2
                                   0/12
                                          BES-53248
node2/cdp
        e0a cs1
                                   0/9 BES-53248
                                          BES-53248
        e0b cs2
                                   0/9
4 entries were displayed.
```

6. Verify the cluster connectivity:

cluster ping-cluster -node local

7. Verify that the cluster is healthy:

cluster ring show

All units must be either master or secondary.

8. Set up the switchless configuration for the ports in group 1.



To avoid potential networking issues, you must disconnect the ports from group1 and reconnect them back-to-back as quickly as possible, for example, **in less than 20 seconds**.

a. Disconnect all the cables from the ports in group1 at the same time.

In the following example, the cables are disconnected from port "e0a" on each node, and cluster traffic continues through the switch and port "e0b" on each node:



b. Cable the ports in group1 back-to-back.

In the following example, "e0a" on node1 is connected to "e0a" on node2:



9. The switchless cluster network option transitions from false to true. This might take up to 45 seconds. Confirm that the switchless option is set to true:

network options switchless-cluster show

The following example shows that the switchless cluster is enabled:

cluster::\*> network options switchless-cluster show Enable Switchless Cluster: true

10. Verify that the cluster network is not disrupted:

```
cluster ping-cluster -node local
```



Before proceeding to the next step, you must wait at least two minutes to confirm a working back-to-back connection on group 1.

11. Set up the switchless configuration for the ports in group 2.



To avoid potential networking issues, you must disconnect the ports from group2 and reconnect them back-to-back as quickly as possible, for example, **in less than 20 seconds**.

a. Disconnect all the cables from the ports in group2 at the same time.

In the following example, the cables are disconnected from port "e0b" on each node, and cluster traffic continues through the direct connection between the "e0a" ports:



b. Cable the ports in group2 back-to-back.

In the following example, "e0a" on node1 is connected to "e0a" on node2 and "e0b" on node1 is connected to "e0b" on node2:



#### Step 3: Verify the configuration

1. Verify that the ports on both nodes are correctly connected:

network device-discovery show -port cluster\_port

The following example shows that cluster ports "e0a" and "e0b" are correctly connected to the corresponding port on the cluster partner:

<pre>cluster::&gt;   (network</pre>	cer::> net device-discovery show -port e0a e0b etwork device-discovery show)								
Node/	Local	Discov	vered						
Protocol	Port	Device	e (LLDP:	ChassisID)	Interface	Platform			
node1/cdp									
	e0a	node2			e0a	AFF-A300			
	e0b	node2			e0b	AFF-A300			
node1/lldp									
	e0a	node2	(00:a0:	98:da:16:44)	e0a	-			
	e0b	node2	(00:a0:	98:da:16:44)	e0b	-			
node2/cdp									
	e0a	node1			e0a	AFF-A300			
	e0b	node1			e0b	AFF-A300			
node2/11dp									
	e0a	node1	(00:a0:	98:da:87:49)	e0a	-			
	e0b	node1	(00:a0:	98:da:87:49)	e0b	-			
8 entries	8 entries were displayed.								

2. Re-enable auto-revert for the cluster LIFs:

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

3. Verify that all LIFs are home. This might take a few seconds.

network interface show -vserver Cluster -lif lif name

The LIFs have been reverted if the "Is Home" column is true, as shown for node1\_clus2 and node2 clus2 in the following example:

```
cluster::> network interface show -vserver Cluster -fields curr-
port,is-home
vserver lif curr-port is-home
------
Cluster node1_clus1 e0a true
Cluster node1_clus2 e0b true
Cluster node2_clus1 e0a true
Cluster node2_clus2 e0b true
4 entries were displayed.
```

If any cluster LIFS have not returned to their home ports, revert them manually from the local node:

network interface revert -vserver Cluster -lif lif name

4. Check the cluster status of the nodes from the system console of either node:

cluster show

#### Show example

The following example shows epsilon on both nodes to be false:

```
Node Health Eligibility Epsilon
----- ----- ------
nodel true true false
node2 true true false
2 entries were displayed.
```

5. Confirm connectivity between the cluster ports:

cluster ping-cluster local

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

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

For more information, see NetApp KB Article 1010449: How to suppress automatic case creation during scheduled maintenance windows.

7. Change the privilege level back to admin:

set -privilege admin

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