



Migrating from a switchless cluster to a switched Cisco[®] Nexus 5596, Nexus 5020, or Nexus 5010 cluster environment

If you have a two-node switchless cluster, you can migrate nondisruptively to a two-node switched cluster that includes Cisco Nexus 5596UP or 5596T, Nexus 5020, or Nexus 5010 cluster network switches.

About this task

The procedure you use depends on whether you have two dedicated cluster network ports on each controller module or a single cluster port on each controller module.

Most systems require two dedicated cluster network ports on each controller module.

FAS22xx nodes allow a single cluster port on each controller module.

There are two migration options available:

- [Migrating from a switchless cluster to a two-node switched Cisco cluster environment](#) on page 1
- [Migrating from a switchless cluster \(FAS22xx systems with a single cluster network connection\)](#) on page 12

Migrating from a switchless cluster to a two-node switched Cisco[®] cluster environment

If you have an existing two-node switchless cluster environment, you can migrate to a two-node switched cluster environment using Cisco Nexus 5596UP or 5596T, Nexus 5020, or Nexus 5010 cluster network switches.

Before you begin

Two-node switchless configuration:

- The two-node switchless configuration must be properly set up and functioning.
- The nodes must be running ONTAP 8.2 or later.
- All cluster ports must be in the **up** state.
- All cluster logical interfaces (LIFs) must be in the **up** state and on their home ports.

Cisco Nexus 5596UP or 5596T, Nexus 5020, or Nexus 5010 cluster switch configuration:

- The Nexus 5596UP or 5596T, Nexus 5020, or Nexus 5010 cluster switch infrastructure must be redundant and fully functional on both switches.
The *Cisco Ethernet Switch* page contains information about the latest reference configuration files (RCF) and NX-OS versions on your switches.
- Both switches must have management network connectivity.
- There must be console access to the cluster switches.
- Nexus 5596UP or 5596T, Nexus 5020, or Nexus 5010 node-to-switch and switch-to-switch connections must use twinax or fiber cables.

The *Cisco Ethernet Switch* page contains more information about cabling.

- Initial customization of both switches in the cluster must be completed.
Any previous site customizations, such as SMTP, SNMP, and SSH should be copied to the new switches.

About this task

This procedure migrates nodes in a two-node switchless environment into a two-node switched environment.

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

- The names of the Nexus 5596UP or 5596T, 5020, or 5010 cluster switches are cs1 and cs2.
- The names of the LIFs are clus1 and clus2.
- The names of the SVMs are node1 and node2.
- The `cluster::*>` prompt indicates the name of the cluster.
- The cluster ports used in this procedure as examples are e1a and e2a.
The *Hardware Universe* contains the latest information about the actual cluster ports supported on your platforms.
- Cisco cluster switches support the following node connections:
 - Nexus 5596UP or 5596T: ports 1/1 through 1/30
 - Nexus 5020: ports 1/1 through 1/32
 - Nexus 5010: ports 1/1 through 1/12 without expansion module
 - Nexus 5010: ports 1/1 through 1/12 (and ports 2/1 through 2/6 if an expansion module is installed)
- Cisco cluster switches use the following inter-switch link (ISL) ports:
 - Nexus 5596UP or 5596T: ports 41 through 48
 - Nexus 5020: ports 33 through 40
 - Nexus 5010: ports 13 through 20 (whether an expansion module is present or not)

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

Steps

1. Change the privilege level to advanced, entering `y` when prompted to continue: **set -privilege advanced**
The advanced prompt (`*>`) appears.
2. 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.

Note: The AutoSupport message notifies technical support of this maintenance task so that automatic case creation is suppressed during the maintenance window.

Example

The following command suppresses automatic case creation for two hours:

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

3. Disable all of the node-facing ports on both new cluster switches cs1 and cs2.

You must not disable the ISL ports. The “About this task” section contains more information about the ports that are required to be disabled on your switches.

Example

The following example shows that ports 1 through 40 are disabled on the first Nexus 5596UP or 5596T cluster switch cs1:

```
(cs1)# configure
(cs1)(config)# interface ethernet 1/1-40
(cs1)(config-if-range)# shutdown
(cs1)(config-if-range)# exit
(cs1)(config)# exit
```

The following example shows that ports 1 through 40 are disabled on the second Nexus 5596UP or 5596T cluster switch cs2:

```
(cs2)# configure
(cs2)(config)# interface ethernet 1/1-40
(cs2)(config-if-range)# shutdown
(cs2)(config-if-range)# exit
(cs2)(config)# exit
```

4. Verify that the ISLs are operational: **show port-channel summary**

There should be a P after the Ethernet ports in the “Member Ports” column.

Example

The following example shows that the ISL connections are **up** on a 5596UP or 5596T switch named 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
        S - Switched     R - Routed
        U - Up (port-channel)
        M - Not in use. Min-links not met

-----
Group Port-      Type      Protocol  Member Ports
Channel
-----
1      Po1(SU)     Eth       LA        Eth1/41(P)  Eth1/42(P)  Eth1/43(P)
                                           Eth1/44(P)  Eth1/45(P)  Eth1/46(P)
                                           Eth1/47(P)  Eth1/48(P)
```

The following example shows that the ISL connections are **up** on a 5596UP or 5596T switch named 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
        S - Switched     R - Routed
        U - Up (port-channel)
        M - Not in use. Min-links not met

-----
Group Port-      Type      Protocol  Member Ports
Channel
-----
```

```

-----
1      Pol(SU)      Eth      LA      Eth1/41(P)  Eth1/42(P)  Eth1/43(P)
                                Eth1/44(P)  Eth1/45(P)  Eth1/46(P)
                                Eth1/47(P)  Eth1/48(P)
-----

```

5. Display the list of neighboring devices on the switch: **show cdp neighbors**

You should see eight Ethernet ports. There are no node-facing ports at this point.

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      Eth1/41      176    S I s      N5K-C5596UP Eth1/41
cs2      Eth1/42      176    S I s      N5K-C5596UP Eth1/42
cs2      Eth1/43      176    S I s      N5K-C5596UP Eth1/43
cs2      Eth1/44      176    S I s      N5K-C5596UP Eth1/44
cs2      Eth1/45      176    S I s      N5K-C5596UP Eth1/45
cs2      Eth1/46      176    S I s      N5K-C5596UP Eth1/46
cs2      Eth1/47      176    S I s      N5K-C5596UP Eth1/47
cs2      Eth1/48      176    S I s      N5K-C5596UP Eth1/48

```

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      Eth1/41      176    S I s      N5K-C5596UP Eth1/41
cs1      Eth1/42      176    S I s      N5K-C5596UP Eth1/42
cs1      Eth1/43      176    S I s      N5K-C5596UP Eth1/43
cs1      Eth1/44      176    S I s      N5K-C5596UP Eth1/44
cs1      Eth1/45      176    S I s      N5K-C5596UP Eth1/45
cs1      Eth1/46      176    S I s      N5K-C5596UP Eth1/46

```

cs1	Eth1/47	176	S I s	N5K-C5596UP	Eth1/47
cs1	Eth1/48	176	S I s	N5K-C5596UP	Eth1/48

- Verify that both ports on both nodes are connected properly before you begin the procedure: **run * cdpd show-neighbors**

Example

The following example shows that cluster ports e1a and e2a are connected to the corresponding port on their cluster partner node:

```
cluster::*> run * cdpd show-neighbors
2 entries were acted on.

Node: node1
Local Remote Remote Remote Hold Remote
Port Device Interface Platform Time Capability
-----
e1a node2 e1a FAS3270 137 H
e2a node2 e2a FAS3270 137 H

Node: node2
Local Remote Remote Remote Hold Remote
Port Device Interface Platform Time Capability
-----
e1a node1 e1a FAS3270 161 H
e2a node1 e2a FAS3270 161 H
```

- Verify that all of the cluster ports are up and operational: **network interface show -role cluster**
Each cluster LIF should display true in the “Is Home” column.

Example

```
cluster::*> network interface show -role cluster
Logical Status Network Current Current Is
Vserver Interface Admin/Oper Address/Mask Node Port Home
-----
node1
clus1 up/up 10.10.10.1/16 node1 e1a true
clus2 up/up 10.10.10.2/16 node1 e2a true
node2
clus1 up/up 10.10.11.1/16 node2 e1a true
clus2 up/up 10.10.11.2/16 node2 e2a true

4 entries were displayed.
```

- Verify that all cluster ports are up: **network port show -role cluster**

Example

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

Node Port Role Link MTU Auto-Negot Duplex Speed (Mbps)
Admin/Oper Admin/Oper Admin/Oper
-----
node1
e1a clus1 up 9000 true/true full/full auto/10000
```

```

node2      e2a      clus2      up      9000      true/true  full/full  auto/10000
           e1a      clus1      up      9000      true/true  full/full  auto/10000
           e2a      clus2      up      9000      true/true  full/full  auto/10000
4 entries were displayed.

```

9. Set the `auto revert` parameter to **false** on cluster LIFs `clus1` and `clus2` on both nodes: **network interface modify**

Note: The following modification and migration commands must be completed from the local node.

Example

```

cluster::*> network interface modify -vserver node1 -lif clus1 -auto-revert false
cluster::*> network interface modify -vserver node1 -lif clus2 -auto-revert false
cluster::*> network interface modify -vserver node2 -lif clus1 -auto-revert false
cluster::*> network interface modify -vserver node2 -lif clus2 -auto-revert false

```

10. Migrate `clus1` to port `e2a` on the console of each node: **network interface migrate**

Example

The following example shows the commands for migrating `clus1` to port `e2a` on `node1` and `node2`:

```

cluster::*> network interface migrate -vserver node1 -lif clus1 -source-node node1 -dest-node node1 -dest-port e2a
cluster::*> network interface migrate -vserver node2 -lif clus1 -source-node node2 -dest-node node2 -dest-port e2a

```

11. Verify that the migration took place: **network interface show -role cluster**

Example

The following example shows that `clus1` is migrated to port `e2a` on `node1` and `node2`:

```

cluster::*> network interface show -role cluster

```

Vserver	Logical Interface	Status Admin/Oper	Network Address/Mask	Current Node	Current Port	Is Home
node1	clus1	up/up	10.10.10.1/16	node1	e2a	false
	clus2	up/up	10.10.10.2/16	node1	e2a	true
node2	clus1	up/up	10.10.11.1/16	node2	e2a	false
	clus2	up/up	10.10.11.2/16	node2	e2a	true

```

4 entries were displayed.

```

12. Shut down the cluster port `e1a` on both nodes: **network port modify**

Example

The following commands shut down the port `e1a` on `node1` and `node2`:

```

cluster::*> network port modify -node node1 -port e1a -up-admin false
cluster::*> network port modify -node node2 -port e1a -up-admin false

```

13. Verify the port status: **network port show -role cluster**

Example

The following example shows that port e1a is **down** on node1 and node2:

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

Node	Port	Role	Link	MTU	Auto-Negot Admin/Oper	Duplex Admin/Oper	Speed (Mbps) Admin/Oper
node1	e1a	clus1	down	9000	true/true	full/full	auto/10000
	e2a	clus2	up	9000	true/true	full/full	auto/10000
node2	e1a	clus1	down	9000	true/true	full/full	auto/10000
	e2a	clus2	up	9000	true/true	full/full	auto/10000

4 entries were displayed.

14. Disconnect the cable from cluster port e1a on node1, and then connect e1a to port 1 on cluster switch cs1, using the appropriate cabling supported by Cisco switches.

Attention: When reconnecting any cables to a new Cisco cluster switch, the cables used must be either fiber cables or Cisco twinax cables.

15. Disconnect the cable from cluster port e1a on node2, and then connect e1a to port 2 on cluster switch cs1, using the appropriate cabling supported by Cisco switches.

16. Enable all of the node-facing ports on cluster switch cs1.

The “About this task” section contains more information about the correct ports that are required to be enabled on your switches.

Example

The following example shows that ports 1 through 40 are enabled on a 5596UP or 5596T cluster switch cs1.

```
(cs1)# configure
(cs1)(config)# interface ethernet 1/1-40
(cs1)(config-if-range)# no shutdown
(cs1)(config-if-range)# exit
(cs1)(config)# exit
```

17. Enable the first cluster port e1a on each node: **network port modify**

Example

The following example shows that port e1a is enabled on node1 and node2:

```
cluster::*> network port modify -node node1 -port e1a -up-admin true
cluster::*> network port modify -node node2 -port e1a -up-admin true
```

18. Verify on both nodes that all of the cluster ports are **up**: **network port show -role cluster**

Example

The following example shows that the cluster ports are **up** on node1 and node2:

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

Node	Port	Role	Link	MTU	Auto-Negot Admin/Oper	Duplex Admin/Oper	Speed (Mbps) Admin/Oper
------	------	------	------	-----	--------------------------	----------------------	----------------------------

```

-----
node1
  e1a   clus1   up    9000  true/true  full/full  auto/10000
  e2a   clus2   up    9000  true/true  full/full  auto/10000
node2
  e1a   clus1   up    9000  true/true  full/full  auto/10000
  e2a   clus2   up    9000  true/true  full/full  auto/10000

4 entries were displayed.

```

19. Revert clus1 (which was previously migrated) to e1a on both nodes: **network interface revert**

Example

The following commands revert clus1 to the port e1a on node1 and node2:

```

cluster::*> network interface revert -vserver node1 -lif clus1
cluster::*> network interface revert -vserver node2 -lif clus1

```

20. Verify that all of the cluster LIFs are up and operational: **network interface show**

Each cluster LIF should display true in the “Is Home” column.

Example

```

cluster::*> network interface show -role cluster

```

Vserver	Logical Interface	Status Admin/Oper	Network Address/Mask	Current Node	Current Port	Is Home
node1	clus1	up/up	10.10.10.1/16	node1	e1a	true
	clus2	up/up	10.10.10.2/16	node1	e2a	true
node2	clus1	up/up	10.10.11.1/16	node2	e1a	true
	clus2	up/up	10.10.11.2/16	node2	e2a	true

```

4 entries were displayed.

```

21. Display information about the status of the nodes in the cluster: **cluster show**

Example

The following example displays information about the health and eligibility of the nodes in the cluster:

```

cluster::*> cluster show

```

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

22. Migrate clus2 to port e1a on the console of each node: **network interface migrate**

Example

The following example shows the process for migrating clus2 to port e1a on node1 and node2:

```

cluster::*> network interface migrate -vserver node1 -lif clus2 -source-node node1 -dest-node node1 -dest-port e1a
cluster::*> network interface migrate -vserver node2 -lif clus2 -source-node node2 -dest-node node2 -dest-port e1a

```


23. Verify the cluster LIF status: `network interface show -role cluster`

Example

The following example shows that clus2 is migrated to port e1a on node1 and node2:

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

Vserver	Logical Interface	Status Admin/Oper	Network Address/Mask	Current Node	Current Port	Is Home
node1	clus1	up/up	10.10.10.1/16	node1	e1a	true
	clus2	up/up	10.10.10.2/16	node1	e1a	false
node2	clus1	up/up	10.10.11.1/16	node2	e1a	true
	clus2	up/up	10.10.11.2/16	node2	e1a	false

24. Shut down the cluster port e2a on both nodes: `network port modify`

Example

The following commands shut down the port e2a on node1 and node2:

```
cluster::*> network port modify -node node1 -port e2a -up-admin false
cluster::*> network port modify -node node2 -port e2a -up-admin false
```

25. Verify the port status: `network port show -role cluster`

Example

The following example shows that port e2a is **down** on node1 and node2:

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

Node	Port	Role	Link	MTU	Auto-Negot Admin/Oper	Duplex Admin/Oper	Speed (Mbps) Admin/Oper
node1	e1a	clus1	up	9000	true/true	full/full	auto/10000
	e2a	clus2	down	9000	true/true	full/full	auto/10000
node2	e1a	clus1	up	9000	true/true	full/full	auto/10000
	e2a	clus2	down	9000	true/true	full/full	auto/10000

4 entries were displayed.

26. Disconnect the cable from cluster port e2a on node1, and then connect e2a to port 1 on cluster switch cs2, using the appropriate cabling supported by the Cisco switches.

Attention: When reconnecting any cables to a new Cisco cluster switch, the cables used must be either fiber cables or Cisco twinax cables. The “About this task” section contains more information about cabling caveats.

27. Disconnect the cable from cluster port e2a on node2, and then connect e2a to port 2 on cluster switch cs2, using the appropriate cabling supported by the Cisco switches.

28. Enable all of the node-facing ports on cluster switch cs2.

The “About this task” section contains more information for the correct ports to enable for your switch model:

Example

The following example shows that ports 1 through 40 are enabled on a 5596UP or 5596T cluster switch cs2.

```
(cs2)# configure
(cs2)(config)# interface ethernet 1/1-40
(cs2)(config-if-range)# no shutdown
(cs2)(config-if-range)# exit
(cs2)(config)# exit
```

29. Enable the second cluster port e2a on each node: **network port modify**

Example

The following commands enable the port e2a on node1 and node2:

```
cluster::*> network port modify -node node1 -port e2a -up-admin true
cluster::*> network port modify -node node2 -port e2a -up-admin true
```

30. Verify that all of the cluster ports are up: **network port show -role cluster**

Example

The following example shows that all of the cluster ports are up on node1 and node2:

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

Node	Port	Role	Link	MTU	Auto-Negot Admin/Oper	Duplex Admin/Oper	Speed (Mbps) Admin/Oper
node1							
	e1a	clus1	up	9000	true/true	full/full	auto/10000
	e2a	clus2	up	9000	true/true	full/full	auto/10000
node2							
	e1a	clus1	up	9000	true/true	full/full	auto/10000
	e2a	clus2	up	9000	true/true	full/full	auto/10000

4 entries were displayed.

31. Revert clus2 (which was previously migrated) to e1a on both nodes: **network interface revert**

Example

The following commands revert clus2 to the port e1a on node 1 and node 2:

```
cluster::*> network interface revert -vserver node1 -lif clus2
cluster::*> network interface revert -vserver node2 -lif clus2
```

32. Verify that all of the cluster LIFs are up and operational: **network interface show**

Each cluster LIF should display true in the “Is Home” column:

Example

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

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

node1	clus1	up/up	10.10.10.1/16	node1	e1a	true
	clus2	up/up	10.10.10.2/16	node1	e2a	true
node2	clus1	up/up	10.10.11.1/16	node2	e1a	true
	clus2	up/up	10.10.11.2/16	node2	e2a	true

33. Verify that the first and second cluster ports on each node are connected to the corresponding port on both cluster switches:
run * cdpd show-neighbors

Example

The following example shows that cluster ports e1a and e2a are connected to the corresponding port on its cluster node:

```
cluster::*> run * cdpd show-neighbors

2 entries were acted on.

Node: node1

Local  Remote      Remote      Remote      Hold  Remote
Port   Device      Interface    Platform    Time  Capability
-----
e1a    cs1         0/1         NX5596      13    S
e2a    cs2         0/1         NX5596      15    S

Node: node2

Local  Remote      Remote      Remote      Hold  Remote
Port   Device      Interface    Platform    Time  Capability
-----
e1a    cs1         0/2         NX5596      12    S
e2a    cs2         0/2         NX5596      15    S
```

34. Display information about the devices in your configuration: **network device discovery show**
35. Disable the two-node switchless configuration settings on both nodes: **network options switchless-cluster modify**

Example

```
cluster::*> network options switchless-cluster modify -enabled false
```

36. Verify that the settings are disabled: **network options switchless-cluster show**

Example

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

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

37. Configure cluster LIFs clus1 and clus2 to auto revert on each node and confirm:

Example

```
cluster::*> network interface modify -vserver node1 -lif clus1 -auto-revert true
cluster::*> network interface modify -vserver node1 -lif clus2 -auto-revert true
cluster::*> network interface modify -vserver node2 -lif clus1 -auto-revert true
cluster::*> network interface modify -vserver node2 -lif clus2 -auto-revert true
```

38. Verify the status of the node members in the cluster: `cluster show`

Example

The following example displays information about the health and eligibility of the nodes in the cluster:

```
cluster::*> cluster show

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

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

Example

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

40. Change the privilege level back to admin: `set -privilege admin`

Related information

[Cisco Ethernet Switch description page](#)

[NetApp KB Article 1010449: How to suppress automatic case creation during scheduled maintenance windows](#)

Migrating to a two-node switched cluster in FAS22xx systems with a single cluster-network connection

If you have FAS22xx systems in an existing two-node switchless cluster in which each controller module has a single, back-to-back 10 GbE connection for cluster connectivity, you can use the switchless cluster networking option and replace the direct back-to-back connectivity with switch connections.

Before you begin

- Two cluster connections are required to migrate from a switchless configuration to a switched configuration.
- The cluster must be healthy and consist of two nodes connected with back-to-back connectivity.
- The nodes must be running ONTAP 8.2 or later.
- The switchless cluster feature cannot be used with more than two nodes.
- All cluster ports must be in the `up` state.

About this task

This procedure is a nondisruptive procedure that removes the direct cluster connectivity in a switchless environment and replaces each connection to the switch with a connection to the partner node.

Steps

1. Change the privilege level to advanced, entering **y** when prompted to continue: `set -privilege advanced`

The advanced prompt (***>**) appears.

2. Check the cluster status of the nodes at the system console of either node: `cluster show`

Example

The following example displays information about the health and eligibility of the nodes in the cluster:

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

2 entries were displayed.
```

3. Check the status of the HA pair at the system console of either node: `storage failover show`

Example

The following example shows the status of node1 and node2:

```
Node           Partner  Possible State Description
-----
node1          node2    true    Connected to node2
node2          node1    true    Connected to node1

2 entries were displayed.
```

4. 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.

Note: The message notifies technical support of this maintenance task so that automatic case creation is suppressed during the maintenance window.

Example

The following command suppresses automatic case creation for two hours:

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

5. Verify that the current state of the switchless cluster is **true**, and then disable the switchless cluster mode: `network options switchless-cluster modify -enabled false`

6. Take over the target node: `storage failover takeover -ofnode target_node_name`

It does not matter which node is the target node. When it is taken over, the target node automatically reboots and displays the `Waiting for giveback...` message.

The active node is now serving data for the partner (target) node that was taken over.

7. Wait for two minutes after takeover of the impaired node to confirm that the takeover was completed successfully.
8. With the target node showing the `Waiting for giveback...` message, shut it down.

The method you use to shut down the node depends on whether you use remote management through the node Service Processor (SP).

If SP	Then...
Is configured	Log in to the impaired node SP, and then power off the system: system power off
Is not configured	At the impaired node prompt, press Ctrl-C , and then respond y to halt the node.

9. On each controller module, disconnect the cable that connects the 10 GbE cluster port to the switchless cluster.
10. Connect the 10 GbE cluster port to the switch on both controller modules.
11. Verify that the 10 GbE cluster ports connected on the switch are configured to be part of the same VLAN.
If you plan to connect the cluster ports on each controller module to different switches, then you must verify that the ports on which the cluster ports are connected on each switch are configured for the same VLAN and that trunking is properly configured on both switches.
12. Give back storage to the target node: **storage failover giveback -ofnode node2**
13. Monitor the progress of the giveback operation: **storage failover show-giveback**
14. After the giveback operation is complete, confirm that the HA pair is healthy and takeover is possible: **storage failover show**

Example

The output should be similar to the following:

```

Node           Partner           Possible State Description
-----
node1          node2             true      Connected to node2
node2          node1             true      Connected to node1

2 entries were displayed.
```

15. Verify that the cluster port LIFs are operating correctly: **network interface show -role cluster**

Example

The following example shows that the LIFs are **up** on `node1` and `node2` and that the “Is Home” column results are **true**:

```

cluster::*> network interface show -role cluster
Logical   Status   Network   Current   Current   Is
Vserver  Interface Admin/Oper Address/Mask Node      Port     Home
-----
node1    clus1    up/up     192.168.177.121/24 node1     e1a     true
node2    clus1    up/up     192.168.177.123/24 node2     e1a     true

2 entries were displayed.
```

16. Check the cluster status of the nodes at the system console of either node: **cluster show**

Example

The following example displays information about the health and eligibility of the nodes in the cluster:

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

2 entries were displayed.
```

17. Ping the cluster ports to verify the cluster connectivity: `cluster ping-cluster local`

The command output should show connectivity between all of the cluster ports.

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

Example

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

19. Change the privilege level back to admin: `set -privilege admin`

Related information

[NetApp KB Article 1010449: How to suppress automatic case creation during scheduled maintenance windows](#)

How to send comments about documentation and receive update notifications

You can help us to improve the quality of our documentation by sending us your feedback. You can receive automatic notification when production-level (GA/FCS) documentation is initially released or important changes are made to existing production-level documents.

If you have suggestions for improving this document, send us your comments by email.

doccomments@netapp.com

To help us direct your comments to the correct division, include in the subject line the product name, version, and operating system.

If you want to be notified automatically when production-level documentation is released or important changes are made to existing production-level documents, follow Twitter account @NetAppDoc.

You can also contact us in the following ways:

- NetApp, Inc., 1395 Crossman Ave., Sunnyvale, CA 94089 U.S.
- Telephone: +1 (408) 822-6000
- Fax: +1 (408) 822-4501
- Support telephone: +1 (888) 463-8277

Trademark information

NETAPP, the NETAPP logo, and the marks listed on the NetApp Trademarks page are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.

<http://www.netapp.com/us/legal/netapptmlist.aspx>