



**Broadcom®-supported Switches**

# **Migrating CN1610 Cluster Switches to Broadcom-supported BES-53248 Cluster Switches**

For Broadcom-supported BES-53248 switches

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## Migrating CN1610 cluster switches to Broadcom-supported BES-53248 cluster switches

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You must be aware of certain configuration information, port connections, and cabling requirements when you migrate CN1610 cluster switches to Broadcom-supported BES-53248 cluster switches.

- The following cluster switches are supported:
  - CN1610
  - BES-53248
- The cluster switches support the following node connections:
  - NetApp CN1610: ports 0/1 through 0/12 (10 GbE)
  - BES-53248: ports 0/1-0/16 (10/25 GbE)
    - Note:** Additional ports can be activated by purchasing port licenses.
- The cluster switches use the following inter-switch link (ISL) ports:
  - NetApp CN1610: ports 0/13 through 0/16 (10 GbE)
  - BES-53248: ports 0/55-0/56 (100 GbE)
- The Hardware Universe contains information about supported cabling to BES-53248 switches.
- The appropriate ISL cabling is as follows:
  - Beginning: For CN1610 to CN1610 (SFP+ to SFP+), four SFP+ optical fiber or copper direct-attach cables.
  - Interim: For CN1610 to BES-53248 (SFP+ to SFP28), four 10G SFP+ optical transceiver/fiber or copper direct-attach cables.
  - Final: For BES-53248 to BES-53248 (QSFP28 to QSFP28), two QSFP28 optical transceivers/fiber or copper direct-attach cables.

**Note:** After your migration completes, you might need to install the required configuration file to support the Cluster Switch Health Monitor (CSHM) for BES-53248 cluster switches.

See *Installing the Cluster Switch Health Monitor (CSHM) configuration file* in the [Setting up and configuring](#) guide.

## How to migrate CN1610 cluster switches to BES-53248 cluster switches

To replace the existing CN1610 cluster switches in a cluster with Broadcom-supported BES-53248 cluster switches, you must perform a specific sequence of tasks.

### About this task

The examples in this procedure use two nodes, each deploying two 10 GbE cluster interconnect ports: *e0a* and *e0b*.

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

- The command outputs might vary depending on different releases of ONTAP software.
- The CN1610 switches to be replaced are *CL1* and *CL2*.
- The BES-53248 switches to replace the CN1610 switches are *cs1* and *cs2*.
- The nodes are *node1* and *node2*.
- The switch CL1 is replaced by *cs1* first, followed with CL2 by *cs2*.
- The BES-53248 switches are pre-loaded with the supported versions of Reference Configuration File (RCF) and Ethernet Fabric OS (EFOS) with ISL cables connected on ports 55 and 56.
- The cluster LIF names are *node1\_clus1* and *node1\_clus2* for *node1*, and *node2\_clus1* and *node2\_clus2* for *node2*.

This procedure covers the following scenario:

- The cluster starts with two nodes connected to two CN1610 cluster switches.
- Cluster switch CL1 is replaced by switch *cs1*:
  - Disconnect the cables from all cluster ports on all nodes connected to CL1, and then use supported cables to reconnect the ports to the new cluster switch *cs1*.
  - Disconnect the cables between ISL ports CL1 and CL2, and then use supported cables to reconnect the ISL ports from CL2 to *cs1*.
- Cluster switch CL2 is replaced by switch *cs2*:
  - Disconnect the cables from all cluster ports on all nodes connected to CL2, and then use supported cables to reconnect the ports to the new cluster switch *cs2*.
  - Disconnect the cables between ISL ports 13 to 16 between *cs1* and CL2.

### 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
```

where *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:

```
cluster1::*> system node autosupport invoke -node * -type all -message MAINT=2h
```

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

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

**Example**

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

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

**Example**

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

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

| Node/Protocol | Local Port | Discovered Device (LLDP: ChassisID) | Interface | Platform |
|---------------|------------|-------------------------------------|-----------|----------|
| node2         | /cdp       |                                     |           |          |
|               | e0a        | CL1                                 | 0/2       | CN1610   |
|               | e0b        | CL2                                 | 0/2       | CN1610   |
| node1         | /cdp       |                                     |           |          |
|               | e0a        | CL1                                 | 0/1       | CN1610   |
|               | e0b        | CL2                                 | 0/1       | CN1610   |

4 entries were displayed.

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

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

**Example**

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

Node: node1

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

Node: node2

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

4 entries were displayed.

- Display information about the logical interfaces:

```
network port show -vserver Cluster
```

**Example**

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

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

```

6. Verify that the appropriate RCF and image are installed on the new BES-53248 switches as necessary for your requirements, and make any essential site customizations, such as users and passwords, network addresses, and so on.
7. Ping the remote cluster interfaces:

**cluster ping-cluster -node node-name**

### Example

The following example shows how to ping the remote cluster interfaces:

```

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 169.254.47.194 to Remote 169.254.209.69
  Local 169.254.47.194 to Remote 169.254.49.125
  Local 169.254.19.183 to Remote 169.254.209.69
  Local 169.254.19.183 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)

RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)

```

8. Shut down the ISL ports 13 through 16 on the active CN1610 switch CL2:

**shutdown**

### Example

The following example shows how to shut down ISL ports 13 through 16 on the CN1610 switch CL2:

```

(CL2)# configure
(CL2)(Config)# interface 0/13-0/16
(CL2)(Interface 0/13-0/16)# shutdown
(CL2)(Interface 0/13-0/16)# exit
(CL2)(Config)# exit
(CL2)#

```

9. Build a temporary ISL between CN1610 CL2 and new BES-53248 cs1. The ISL will only be defined on cs1 as the existing ISL on CL2 can be reused.

### Example

The following example builds a temporary ISL on cs1 (ports 13-16) to be connected to the existing ISL on CL2 (ports 13-16):

```

(cs1) # configure
(cs1) (Config)# port-channel name 1/2 temp-isl-cn1610
(cs1) (Config)# interface 0/13-0/16
(cs1) (Interface 0/13-0/16)# no spanning-tree edgeport
(cs1) (Interface 0/13-0/16)# addport 1/2

```

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```
(cs1) (Interface 0/13-0/16)# exit
(cs1) (Config)# interface lag 2
(cs1) (Interface lag 2)# mtu 9216
(cs1) (Interface lag 2)# port-channel load-balance 7
(cs1) (Config)# exit

(cs1) # show port-channel 1/2
Local Interface..... 1/2
Channel Name..... temp-isl-cn1610
Link State..... Down
Admin Mode..... Enabled
Type..... Static
Port-channel Min-links..... 1
Load Balance Option..... 7
(Enhanced hashing mode)

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

10. On all nodes, remove the cables that are attached to the CN1610 switch CL1.  
You must then reconnect the disconnected ports on all nodes to the new BES-53248 switch cs1. Refer to the *Hardware Universe* for approved cabling options.
11. Remove four ISL cables from ports 13 to 16 on the CN1610 switch CL1.  
You must attach appropriate approved cabling connecting port 0/13 to 0/16 on the new BES-53248 switch cs1, to ports 13 to 16 on existing CN1610 switch CL2.
12. Bring up ISLs 13 through 16 on the active CN1610 switch CL2.

### Example

The following example illustrates the process of bringing up ISL ports 13 through 16 on CL2:

```
(CL2)# configure
(CL2)(Config)# interface 0/13-0/16
(CL2)(Interface 0/13-0/16,3/1)# no shutdown
(CL2)(Interface 0/13-0/16,3/1)# exit
(CL2)(Config)# exit
(CL2)#
```

13. Verify that the ISLs are **up** on the CN1610 switch CL2:

```
show port-channel
```

### Example

The Link State should be **Up**, Type should be **Static**, and Port Active should be **True** for ports 0/13 to 0/16:

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

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



```

0/15    actor/long    10 Gb Full  True
        partner/long
0/16    actor/long    10 Gb Full  True
        partner/long
    
```

- Verify that the ISL ports are up on the BES-53248 switch:

**show port-channel**

**Example**

```

(cs1) # show port-channel 1/2

Local Interface..... 1/2
Channel Name..... temp-isl-cn1610
Link State..... Up
Admin Mode..... Enabled
Type..... Static
Port-channel Min-links..... 1
Load Balance Option..... 7

(Src/Dest MAC, VLAN, EType, incoming port)

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

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

**network interface show -vserver Cluster**

**Example**

```

cluster1::*> network interface show -vserver Cluster

Vserver      Logical      Status      Network      Current      Current      Is
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.
    
```

- Verify that all of the cluster ports are connected:

**network port show -ipspace Cluster**

**Example**

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

```

cluster1::*> network port show -ipspace Cluster

Node: node1

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

Node: node2

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

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```
e0a      Cluster      Cluster      up  9000  auto/10000 healthy  false
e0b      Cluster      Cluster      up  9000  auto/10000 healthy  false
4 entries were displayed.
```

17. Ping the remote cluster interfaces:

```
cluster ping-cluster -node node-name
```

### Example

The following example shows how to ping the remote cluster interfaces:

```
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  eob
Local = 169.254.47.194 169.254.19.183
Remote = 169.254.209.69 169.254.49.125
Cluster Vserver Id = 4294967293
Ping status:
....
Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)
.....
Detected 9000 byte MTU on 4 path(s):
  Local 169.254.47.194 to Remote 169.254.209.69
  Local 169.254.47.194 to Remote 169.254.49.125
  Local 169.254.19.183 to Remote 169.254.209.69
  Local 169.254.19.183 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)
```

18. On all nodes, remove the cables that are attached to the CN1610 switch CL2.  
You must then reconnect the disconnected ports on all nodes to the new BES-53248 switch cs2. Refer to the *Hardware Universe* for approved cabling options.
19. Remove four ISL cables from ports 13 to 16 on BES-53248 switch cs1.
20. Remove the temporary port-channel 2 on cs1.

### Example

The following example removes port-channel 2 and copies the running-configuration file to the startup-configuration file:

```
(cs1) # configure
(cs1) (Config)# deleteport 1/2 all
(cs1) (Config)# exit
(cs1) # write memory

This operation may take a few minutes.
Management interfaces will not be available during this time.

Are you sure you want to save? (y/n) y

Config file 'startup-config' created successfully .
```

21. Verify the status of the cluster node port:

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

### Example

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

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

Node: node1

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

Node: node2

Port      IPspace      Broadcast Domain Link MTU      Speed(Mbps) Health Ignore
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.
```

- 22. Verify that the interface is now home:

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

**Example**

The following example shows the status of cluster interconnect interfaces are **up** and **Is** home for node1 and node2:

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

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

4 entries were displayed.
```

- 23. Ping the remote cluster interfaces and then perform a remote procedure call server check:

```
cluster ping-cluster -node node-name
```

**Example**

The following example shows how to ping the remote cluster interfaces:

```
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 169.254.47.194 to Remote 169.254.209.69
  Local 169.254.47.194 to Remote 169.254.49.125
  Local 169.254.19.183 to Remote 169.254.209.69
  Local 169.254.19.183 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)
```

- 24. Display the information about the devices in your configuration:

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

**Example**

The following examples show node1 and node2 have been migrated from CN1610 CL1 and CL2 to BES-53248 cs1 and cs2:

```
cluster1::*> network device-discovery show -protocol cdp
Node/      Local  Discovered
Protocol  Port   Device (LLDP: ChassisID)  Interface  Platform
-----
node1     /cdp
          e0a    cs1                       0/1        BES-53248
          e0b    cs2                       0/1        BES-53248
node2     /cdp
          e0a    cs1                       0/2        BES-53248
          e0b    cs2                       0/2        BES-53248

4 entries were displayed.
```

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

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

**Example**

The following example shows how to remove the CN1610 switches:

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

26. If you suppressed automatic case creation, re-enable 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
```

**Related information**

[Hardware Universe](#)

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