



Broadcom®-supported Switches

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

For Broadcom-supported BES-53248 switches

July 2019 | 215-14062_B0
doccomments@netapp.com

Contents

Migrating CN1610 cluster switches to Broadcom-supported BES-53248 cluster switches	4
How to migrate CN1610 cluster switches to BES-53248 cluster switches	4
Copyright	13
Trademark	14
How to send comments about documentation and receive update notifications	15
Index	16

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

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
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.

- a. 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.

- b. 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

```

8 | Migrating CN1610 cluster switches to BES-53248 cluster switches

```
(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
    
```

14. 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
    
```

15. 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.
    
```

16. 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
-----
    
```

10 | Migrating CN1610 cluster switches to BES-53248 cluster switches

```
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  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.
```

- 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](#)

Copyright

Copyright © 2019 NetApp, Inc. All rights reserved. Printed in the U.S.

No part of this document covered by copyright may be reproduced in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system—without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

Data contained herein pertains to a commercial item (as defined in FAR 2.101) and is proprietary to NetApp, Inc. The U.S. Government has a non-exclusive, non-transferrable, non-sublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b).

Trademark

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>

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*](mailto: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

Index

B

BES-53248 switches
replacing with [4](#)

C

CN1610
BES-53248 switch [4](#)
replacing [4](#)
comments
how to send feedback about documentation [15](#)

D

documentation
how to receive automatic notification of changes to [15](#)
how to send feedback about [15](#)

F

feedback

how to send comments about documentation [15](#)

I

information
how to send feedback about improving
documentation [15](#)

S

steps to replace CN1610 switch [4](#)
suggestions
how to send feedback about documentation [15](#)

T

Twitter
how to receive automatic notification of
documentation changes [15](#)