Installing the 16-port Cisco unified port expansion module in Nexus 5596 cluster switches

Before you install the 16-port Cisco unified port expansion module (X1988-R6) in Nexus 5596 cluster interconnect switches, you must ensure that your system meets specific conditions.

Before you begin

- The cluster must be fully functioning.

- You must have consulted the switch compatibility table on the *Cisco Ethernet Switch* page for the supported Data ONTAP, NX-OS, and RCF versions.
  There can be command dependencies between command syntax in the RCF and NX-OS versions.

- You must have referred to the appropriate software and upgrade guides available on the Cisco web site for complete documentation on the Cisco expansion module, switch upgrade, and switch downgrade procedures.
  Install and Upgrade Guides

About this task

The examples in the procedures for hot-inserting and cold-inserting the expansion model use the following switch and node nomenclature:

- The names of the two Cisco switches are cs1 and cs2.

- clus1 and clus2 are the cluster logical interfaces (LIFs) corresponding to cluster ports, for example, e1a and e2a.
  The *Hardware Universe* lists the cluster ports supported on your platform.

- The node names are node1 and node2.

- The Storage Virtual Machine (SVM, formerly known as Vserver) names are vs1 and vs2 for node1 and node2, respectively.

- The `cluster::*>` prompt indicates the name of the cluster.

- The Inter-Switch Links (ISLs) supported for the Nexus 5596 cluster switches are ports e1/41 through e1/48.

- With one expansion module installed, the node connections supported for the Nexus 5596 cluster switches are ports e1/1 through e1/40, and e3/1 through e3/16.

- With two expansion modules installed, the additional node connections include e2/1 through e2/16.

   Note: NetApp supports up to two expansion modules for Nexus 5596 switches.

Hot-inserting the expansion module

A hot insertion describes the installation of a module into an active working network, where the equipment remains powered on so as not to disrupt network traffic. You can perform a hot insertion of one or two 16-port Cisco unified port expansion modules into a Nexus 5596 cluster switch.

About this task

This procedure includes the following general tasks:

- Save the current switch configuration (Steps 1 through 2).

- Insert the expansion module or modules (Steps 3 through 5).

- Apply the RCF and verify it (Steps 6 through 11).

Steps

1. Save the current switch configuration information on cs2, the second 5596 switch in the cluster.

```
cs2# copy running-config startup-config
[####################################] 100%
Copy complete, now saving to disk (please wait)...
```

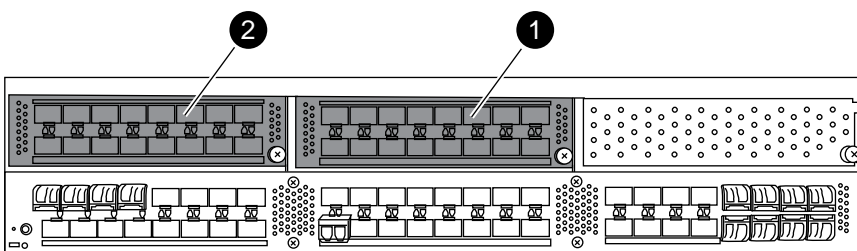2. Display the current hardware information on the cs2 switch: **show module**.

Example

The following example shows sample output for cs2:

```
cs2# show module
Mod Ports Module-Type                        Model            Status
--- ----- ------------------------------ ---------------- ------------
1   48    O2 48X10GE/Modular Supervisor  N5K-C5596UP-SUP  active *

Mod  Sw            Hw      World-Wide-Name(s) (WWN)
---  ------------  ------  ------------------------------
1    5.2(1)N1(1)   1.0     --

Mod  MAC-Address(es)                      Serial-Num
---  ------------------------------------ ----------
1    547f.ee73.2b88 to 547f.ee73.2bb7     FOC16034PR6
```

3. On switch cs2, insert the first expansion module into slot 3, the upper middle slot, as shown in the following figure.

   If you want to install a second module, you must insert it in slot 2 in the upper left slot.

Location	Modules	Slots
1.	First Expansion module	Slot 3 (Upper middle slot)
2.	Second Expansion module	Slot 2 (Upper left slot)

The Cisco documentation contains more information on installing the expansion module in the 5596 cluster switch.

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After installing the expansion module, LED status of the module should be green.

4. Display the information about your module settings after the expansion module is installed in slot 3: **show module**.

Example

The following output shows one expansion module installed:

```
cluster::*> show module
Mod Ports Module-Type                      Model                Status
--- ----- ------------------------------- -------------------- --------
1   48    O2 48X10GE/Modular Supervisor   N5K-C5596UP-SUP      active *
3   16    O2 16 port flexible GEM         N55-M16UP            ok

Mod  Sw              Hw      World-Wide-Name(s) (WWN)
---  --------------  ------  -------------------------
1    5.2(1)N1(1)     1.0     --
3    5.2(1)N1(1)     1.0     --

Mod  MAC-Address(es)                        Serial-Num
---  -------------------------------------  ----------
1    547f.ee73.2b88 to 547f.ee73.2bb7       FOC16034PR6
3    547f.eef9.85e0 to 547f.eef9.85ef       FOC17056B7P
```

The following output shows two expansion modules installed:

```
cs2# show module
Mod Ports Module-Type                      Model                Status
--- ----- ------------------------------- ----------------- --------
1   48    O2 48X10GE/Modular Supervisor   N5K-C5596UP-SUP      active *
2   16    O2 16 port flexible GEM         N55-M16UP            ok
3   16    O2 16 port flexible GEM         N55-M16UP            ok

Mod  Sw              Hw      World-Wide-Name(s) (WWN)
---  --------------  ------  ------------------------------
1    5.2(1)N1(1)     1.0     --
2    5.2(1)N1(1)     1.0     --
3    5.2(1)N1(1)     1.0     --

Mod  MAC-Address(es)                        Serial-Num
---  -------------------------------------  ----------
1    547f.ee73.2b88 to 547f.ee73.2bb7       FOC16034PR6
2    002a.6a1e.f2c0 to 002a.6a1e.f2cf       FOC171146MR
3    547f.eef9.85e0 to 547f.eef9.85ef       FOC17056B7P
```

5. Display the revised information about the switch: `show running-config`.

> **Note:** If you have trouble adding the module to the switch or encounter any errors powering it up, you must remove the module and reinsert it. If reinserting the module does not resolve the issue, you can perform the cold insertion procedure. If the problem persists, you must contact Cisco's SMARTNET for a replacement module (part number N55-M16UP). The Cisco documentation contains more information about SMARTNET.

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Example

The following example shows a portion of the output from the show running-config command:

```
cs2# show running-config
...
interface Ethernet2/1
interface Ethernet2/2
interface Ethernet2/3
interface Ethernet2/4
interface Ethernet2/5
interface Ethernet2/6
interface Ethernet2/7
```

```
interface Ethernet2/8
interface Ethernet2/9
interface Ethernet2/10
interface Ethernet2/11
interface Ethernet2/12
interface Ethernet2/13
interface Ethernet2/14
interface Ethernet2/15
interface Ethernet2/16
interface Ethernet3/1
interface Ethernet3/2
interface Ethernet3/3
interface Ethernet3/4
interface Ethernet3/5
interface Ethernet3/6
interface Ethernet3/7
interface Ethernet3/8
interface Ethernet3/9
interface Ethernet3/10
interface Ethernet3/11
interface Ethernet3/12
interface Ethernet3/13
interface Ethernet3/14
interface Ethernet3/15
interface Ethernet3/16
```

The expansion module should be functioning normally in the switch.

6. Verify the current content of the bootflash on cs2 switch: **dir bootflash**.

   If there is not enough space for the RCF, you must use the delete bootflash:*filename* command to remove any unnecessary files.

   See the Cisco documentation for more information on this command.

   Example

   The following example shows the contents of the bootflash file system, the amount of space used for the RCF, and the remaining space. The size of an RCF is typically less than 5 KB.

   ```
   cs2# dir bootflash:
   .
   .
   .
    31646720   Jul 16 18:18:51 2012 n5000-uk9-kickstart.5.2.1.N1.1.bin
   173087826   Jul 16 19:00:17 2012 n5000-uk9.5.2.1.N1.1.bin

   Usage for bootflash://sup-local
     922243072 bytes used
     726380544 bytes free
    1648623616 bytes total
   ```

7. Copy the RCF to the switch bootflash using a transfer protocol such as FTP, TFTP, SFTP, or SCP and then verify the content.

   Example

   The following example shows TFTP being used to copy the files to the switch bootflash on a 5596 switch. The dir bootflash: command is used to verify that the copy is successful:

   ```
   cs2# copy tftp: bootflash: vrf management
   Enter source filename: NX5596_RCF_v1.3-64p.txt
   Enter hostname for the tftp server: 10.99.201.102
   Trying to connect to tftp server......
   Connection to Server Established.
   TFTP get operation was successful
   ```

```
Copy complete, now saving to disk (please wait)...

cs2# dir bootflash:
    11131  Jun 05 11:42:42 2013  NX5596_RCF_v1.3-64p.txt
 31646720  Jul 16 18:18:51 2012  n5000-uk9-kickstart.5.2.1.N1.1.bin
173087826  Jul 16 19:00:17 2012  n5000-uk9.5.2.1.N1.1.bin

Usage for bootflash://sup-local
  922255360 bytes used
  726368256 bytes free
 1648623616 bytes total
```

Note: The previous example shows the RCF, **NX5596_RCF_v1.3-64p.txt**, which is used for installation of a single 16-port expansion module. If you install a second module, you must use the RCF, **NX5596_RCF_v1.3-80p.txt**.

8. Apply the RCF previously downloaded to the bootflash: `copy bootflash`.

Example

The following example shows the RCF NX5596_RCF_v1.3-64p.txt being installed on the cs2 switch:

```
cs2# copy bootflash:NX5596_RCF_v1.3-64p.txt running-config

Warning: this command enables edge port type (portfast) by default
 on all interfaces. You should now disable edge port type (portfast)
 explicitly on switched ports leading to hubs, switches and bridges
 as they may create temporary bridging loops.

Warning: Edge port type (portfast) should only be enabled on ports
 connected to a single host. Connecting hubs, concentrators,
 switches, bridges, etc... to this interface  when edge port type
 (portfast) is enabled, can cause temporary bridging loops.
 Use with CAUTION
```

9. Verify the RCF version by checking the RCF's banner, and then ensure that the node and the port settings are correct. Also, ensure that your site customization is implemented: `show running-config`.

10. Ensure that your RCF is applied to the interfaces on the expansion module (3/1 through 3/16).

You must use the version of RCF v1.3-64p for one expansion module and use the version 1.3-80p for two expansion modules.

Example

The following example shows a portion of the output from the show running-config command with RCF v1.3-64p:

```
cs2# show running-config
. . .
banner motd # Nexus 5596 NetApp Reference Configuration File (RCF) version v1.3-64p
(2014-10-1)
. . .

interface Ethernet3/1
  description Node Port 3/1
  no lldp transmit
  no lldp receive
  spanning-tree port type edge
  spanning-tree bpduguard enable
.
.
.
interface Ethernet3/16
  description Node Port 3/16
```

```
  no lldp transmit
  no lldp receive
  spanning-tree port type edge
  spanning-tree bpduguard enable
```

Your output varies depending on your site configuration. You must check the port settings and then refer to the release notes for any changes specific to the RCF that you have installed.

11. Copy the `running-config` file to the `startup-config` file when you are satisfied with the software versions and switch settings.

```
cs2# copy running-config startup-config
[########################################] 100%
Copy complete, now saving to disk (please wait)...
```

After you finish

Repeat this procedure to install expansion modules and upgrade the RCF for switch cs1.

Cold-inserting the expansion module

A "cold insertion" describes the installation of a module into a new network installation when the equipment is powered off. You can perform a cold insertion of one or two 16-port Cisco unified port expansion modules in a Nexus 5596 cluster switch, and then install the RCF.

About this task

This procedure includes the following general tasks:

- Migrate the Logical Interface Files (LIFs) away from switch cs2 (Steps 1 through 9).

- Power down cs2 and insert the expansion module or modules (Step 10).

- Power up cs2 and verify its status (Steps 11 through 13).

- Apply the RCF and verify it (Steps 14 through 17).

- Migrate LIFs back to cs2 (Steps 18 through 23).

Steps

1. Display the cluster port attributes of the nodes on the cluster: **network port show -role cluster**.

Example

```
cluster::*> network port show -role cluster
                                  Auto-Negot  Duplex      Speed (Mbps)
Node    Port  Role      Link MTU  Admin/Oper  Admin/Oper Admin/Oper
------  ----- --------  ---- ----  ----------- ---------- ------------
node1
        e1a   cluster   up   9000  true/true   full/full   auto/10000
        e2a   cluster   up   9000  true/true   full/full   auto/10000
node2
        e1a   cluster   up   9000  true/true   full/full   auto/10000
        e2a   cluster   up   9000  true/true   full/full   auto/10000
    4 entries were displayed.
```

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

Example

The following example shows clus2 being migrated to port e1a on the console of each node:

```
cluster::*> network interface migrate -vserver vs1 -source-node node1 -destination-node
node1 -destination-port e1a -lif clus2

cluster::*> network interface migrate -vserver vs2 -source-node node2 -destination-node
node2 -destination-port e1a -lif clus2
```

3. Verify that the e2a ports are down on the console of each node: **network interface show**.

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      11.0.0.1/24    node1   e1a     true
          clus2      up/up      11.0.0.2/24    node1   e1a     false
node2
          clus1      up/up      11.0.0.3/24    node2   e1a     true
          clus2      up/up      11.0.0.4/24    node2   e1a     false

4 entries were displayed
```

4. Shut down the port e2a on both the nodes: **network port modify**.

Example

The following example shuts down port e2a on both the nodes:

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

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

5. Verify that the e2a ports are down: **network port show**.

Example

```
cluster::*> network port show

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

4 entries were displayed.
```

6. Shut down ISL ports 41 through 48 on cs1 (cs2 is the 5596 cluster switch being upgraded).

Example

```
cs1 # configure
Enter configuration commands, one per line.  End with CNTL/Z.
cs1(config)#
cs1(config)# interface ethernet 1/41-48
cs1(config)# shut
cs1(config)#
```

7. Verify that the ISLs are shut down: **show port-channel summary**.

   You should see D the Ethernet ports in the Member Ports column.

   Example

   The following example shows that the port channel members 41 through 48 are down (D) on 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     Po1(SD)  Eth   LACP      Eth1/41(D) Eth1/42(D) Eth1/43(D)
                                Eth1/44(D) Eth1/45(D) Eth1/46(D)
                                Eth1/47(D) Eth1/48(D)
```

8. Save the current switch configuration information on cs2, the second 5596 switch in the cluster.

   Example

```
cs2# copy running-config startup-config
[#################################] 100%
Copy complete, now saving to disk (please wait)...
```

9. Display the current hardware information on the switch cs2: **show module**.

   Example

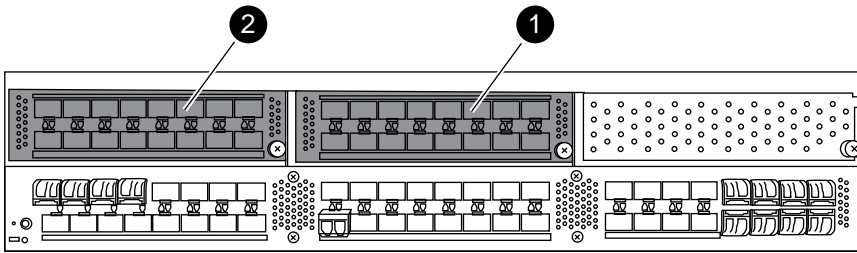   The following example shows sample output for cs2:

```
cs2# show module
Mod Ports Module-Type                     Model            Status
--- ----- ------------------------------- ---------------- --------
1   48    O2 48X10GE/Modular Supervisor   N5K-C5596UP-SUP  active *

Mod  Sw            Hw      World-Wide-Name(s) (WWN)
---  ------------- ------  --------------------------
1    5.2(1)N1(1)   1.0     --

Mod  MAC-Address(es)                    Serial-Num
---  --------------------------------- ----------
1    547f.ee73.2b88 to 547f.ee73.2bb7   FOC16034PR6
```

10. On switch cs2, insert the first expansion module into slot 3, the upper middle slot, as shown in the following figure.

    If you want to install a second module, you must insert the second expansion module in slot 2 in the upper left slot.

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Location	Modules	Slots
1.	First Expansion module	Slot 3 (Upper middle slot)
2.	Second Expansion module	Slot 2 (Upper left slot)

The Cisco documentation contains more information about this command on installing the expansion module into the 5596 cluster switch.

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After installing the expansion module, LED status of the module should be green.

11. Apply power to the switch cs2.

After a minute, LED status of the newly installed expansion module should be green.

12. Display the information about your module settings after the expansion module is installed in slot 3: `show module`.

Example

The following output shows one expansion module installed:

```
cluster::*> show module
Mod Ports Module-Type                   Model            Status
--- ----- ----------------------------- ---------------- --------
1   48    O2 48X10GE/Modular Supervisor  N5K-C5596UP-SUP  active *
3   16    O2 16 port flexible GEM        N55-M16UP        ok

Mod  Sw             Hw      World-Wide-Name(s) (WWN)
---  -------------- ------  -----------------------------
1    5.2(1)N1(1)    1.0     --
3    5.2(1)N1(1)    1.0     --

Mod  MAC-Address(es)                     Serial-Num
---  ----------------------------------- ----------
1    547f.ee73.2b88 to 547f.ee73.2bb7    FOC16034PR6
3    547f.eef9.85e0 to 547f.eef9.85ef    FOC17056B7P
```

The following output shows two expansion modules installed:

```
cs2# show module
Mod Ports Module-Type                   Model            Status
--- ----- ----------------------------- ---------------- --------
1   48    O2 48X10GE/Modular Supervisor  N5K-C5596UP-SUP  active *
2   16    O2 16 port flexible GEM        N55-M16UP        ok
3   16    O2 16 port flexible GEM        N55-M16UP        ok

Mod  Sw             Hw      World-Wide-Name(s) (WWN)
---  -------------- ------  -----------------------------
1    5.2(1)N1(1)    1.0     --
2    5.2(1)N1(1)    1.0     --
3    5.2(1)N1(1)    1.0     --
```

```
Mod   MAC-Address(es)                     Serial-Num
---   --------------------------------    ----------
1     547f.ee73.2b88 to 547f.ee73.2bb7    FOC16034PR6
2     002a.6a1e.f2c0 to 002a.6a1e.f2cf    FOC171146MR
3     547f.eef9.85e0 to 547f.eef9.85ef    FOC17056B7P
```

13. Display the revised information about the switch after the module is installed:

show running-config

.

Example

The following example shows a portion of the output from the `show running-config` command:

```
cs2# show running-config
...
interface Ethernet2/1
interface Ethernet2/2
interface Ethernet2/3
interface Ethernet2/4
interface Ethernet2/5
interface Ethernet2/6
interface Ethernet2/7
interface Ethernet2/8
interface Ethernet2/9
interface Ethernet2/10
interface Ethernet2/11
interface Ethernet2/12
interface Ethernet2/13
interface Ethernet2/14
interface Ethernet2/15
interface Ethernet2/16
interface Ethernet3/1
interface Ethernet3/2
interface Ethernet3/3
interface Ethernet3/4
interface Ethernet3/5
interface Ethernet3/6
interface Ethernet3/7
interface Ethernet3/8
interface Ethernet3/9
interface Ethernet3/10
interface Ethernet3/11
interface Ethernet3/12
interface Ethernet3/13
interface Ethernet3/14
interface Ethernet3/15
interface Ethernet3/16
```

The expansion module should be functioning normally in the switch.

> **Note:** If you have trouble adding the module to the switch or encounter any errors powering it up, you must remove the module, reinsert it, and reboot the switch. If the problem persists, contact Cisco's SMARTNET for a replacement module (part number N55-M16UP). The Cisco documentation contains more information about SMARTNET.

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14. Verify the current contents of the bootflash: **dir bootflash**.

If there is not enough space for the RCF, you must use the `delete bootflash:filename` command to remove any unnecessary files. The Cisco documentation contains more information about this command.

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Example

The following example shows the contents of the bootflash file system, the amount of space used for the RCF, and the remaining space. The size of an RCF is typically less than 5 KB.

```
cs2# dir bootflash:
.
.
.
 31646720  Jul 16 18:18:51 2012  n5000-uk9-kickstart.5.2.1.N1.1.bin
173087826  Jul 16 19:00:17 2012  n5000-uk9.5.2.1.N1.1.bin

Usage for bootflash://sup-local
  922243072 bytes used
  726380544 bytes free
 1648623616 bytes total
```

15. Copy the RCF to the switch bootflash using a transfer protocol such as FTP, TFTP, SFTP, or SCP and then verify the contents.

Example

The following example shows TFTP being used to copy the files to the switch bootflash on a 5596 switch. The `dir bootflash:` command is used to verify that the copy was successful:

```
cs2# copy tftp: bootflash: vrf management
Enter source filename: NX5596_RCF_v1.3-64p.txt
Enter hostname for the tftp server: 10.99.201.102
Trying to connect to tftp server......
Connection to Server Established.
TFTP get operation was successful
Copy complete, now saving to disk (please wait)...

cs2# dir bootflash:
     11131  Jun 05 11:42:42 2013 NX5596_RCF_v1.3-64p.txt
  31646720  Jul 16 18:18:51 2012 n5000-uk9-kickstart.5.2.1.N1.1.bin
 173087826  Jul 16 19:00:17 2012 n5000-uk9.5.2.1.N1.1.bin
Usage for bootflash://sup-local
  922255360 bytes used
  726368256 bytes free
 1648623616 bytes total
```

Note: The previous example shows the RCF, **NX5596_RCF_v1.3-64p.txt**, which is used for installation of a single 16-port expansion module. If you install a second module, you must use the RCF, **NX5596_RCF_v1.3-80p.txt**.

16. Apply the RCF previously downloaded to the bootflash: **copy bootflash.**

Example

The following example shows the RCF NX5596_RCF_v1.3-64p.txt being installed on the cs2 switch:

```
cs2# copy bootflash:NX5596_RCF_v1.3-64p.txt running-config

Warning: this command enables edge port type (portfast) by default
 on all interfaces. You should now disable edge port type (portfast)
 explicitly on switched ports leading to hubs, switches and bridges
 as they may create temporary bridging loops.

Warning: Edge port type (portfast) should only be enabled on ports
 connected to a single host. Connecting hubs, concentrators,
 switches, bridges, etc... to this interface  when edge port type
 (portfast) is enabled, can cause temporary bridging loops.
 Use with CAUTION
```

17. Verify the RCF version by checking the RCF's banner: **show running-config**.

You must see that the node and port settings are correct, and that your site customization is implemented.

You must ensure that your RCF is applied to the interfaces on the expansion module (3/1 through 3/16). You must use version RCF v1.3-64p for one expansion module and use version v1.3-80p for two expansion modules.

Example

The following example shows a portion of the output from the `show running-config` command with RCF v1.3-64p:

```
cs2# show running-config
. . .
banner motd # Nexus 5596 NetApp Reference Configuration File (RCF) version 1.3-64p
(2014-10-1)
. . .

interface Ethernet3/1
  description Node Port 3/1
  no lldp transmit
  no lldp receive
  spanning-tree port type edge
  spanning-tree bpduguard enable
.
.
.
interface Ethernet3/16
  description Node Port 3/16
  no lldp transmit
  no lldp receive
  spanning-tree port type edge
  spanning-tree bpduguard enable
```

Your output varies depending on your site configuration. You must check the port settings and then refer to the release notes for any changes specific to the RCF that you have installed.

18. Bring up the ISL ports 41 through 48 on cs1, the active switch.

Example

The following example shows ISL ports 41 through 48 being brought up on switch cs1:

```
cs1# config
Enter configuration commands, one per line.  End with CNTL/Z.
cs1(config)# interface ethernet 1/41-48
cs1(config-if-range)# no shutdown
cs1#
```

19. Verify that the ISLs are operational on cs2 switch: **show port-channel summary**.

You should see a `(P)` after the Ethernet ports in the Member Ports column.

Example

The following example shows that the port-channel members 41 through 48 are up `(P)` on 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     Po1(SU)  Eth    LACP       Eth1/41(P) Eth1/42(P) Eth1/43(P)
                                 Eth1/44(P) Eth1/45(P) Eth1/46(P)
                                 Eth1/47(P) Eth1/48(P)
```

20. Verify that the ISLs are operational on cs1 switch: **show port-channel summary**.

   You should see a P after the Ethernet ports in the Member Ports column.

   Example

   The following example shows that the port-channel members 41 through 48 are up (P) on 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    LACP       Eth1/41(P) Eth1/42(P) Eth1/43(P)
                                 Eth1/44(P) Eth1/45(P) Eth1/46(P)
                                 Eth1/47(P) Eth1/48(P)
```

21. Bring up the cluster port e2a on all the nodes:**network port modify**.

   Example

   The following example shows the cluster port e2a being brought up on all the nodes:

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

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

22. Verify that port e2a is up on all nodes: **network port show -role cluster**.

   Example

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

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

4 entries were displayed.
```

23. Verify that the LIF is now listed as (true) in the Home column on all the nodes: **network interface show -role cluster**.

   The LIF might revert automatically, depending on your version of Data ONTAP.

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      11.0.0.1/24   node1    e1a     true
          clus2      up/up      11.0.0.2/24   node1    e2a     true
node2
          clus1      up/up      11.0.0.3/24   node2    e1a     true
          clus2      up/up      11.0.0.4/24   node2    e2a     true

4 entries were displayed.
```

24. If the cluster LIF does not show **Is Home** as true, then manually revert the cluster LIF's to their home port.

Example

```
cluster::*> network interface revert –vserver Cluster –lif *
```

25. Verify that the LIF is now listed as true in the **Home** column on all the nodes, after manually reverting the LIFs.

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      11.0.0.1/24   node1    e1a     true
          clus2      up/up      11.0.0.2/24   node1    e2a     true
node2
          clus1      up/up      11.0.0.3/24   node2    e1a     true
          clus2      up/up      11.0.0.4/24   node2    e2a     true

4 entries were displayed.
```

26. Display the status of the node members: **cluster show**.

Example

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

2 entries were displayed.
```

After you finish

Repeat Steps 1 through 26 for switch cs1.

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