Installing FASTPATH software and RCFs

For NetApp Cluster Switches

NetApp®

Contents

Installing FASTPATH software and RCFs on a NetApp cluster switch

You must install the FASTPATH software and reference configuration files (RCFs) on a NetApp CN1610 cluster switch.

Before you begin

- The cluster must be a fully functioning cluster.
- There must be no defective cluster network interface cards (NICs), and all connected ports on the cluster switch must be functional.
- All cluster ports must be up.
- All cluster logical interfaces (LIFs) must be up and must not have been migrated.
- The ONTAP (privilege: advanced) `cluster ping-cluster -node node1` command must indicate that `larger than PMTU communication` is successful on all paths.
- You must consult the switch compatibility table on the *NetApp CN1601 and CN1610 Switches* page for the supported FASTPATH, RCF, and ONTAP versions.
  NetApp CN1601 and CN1610 Switches
  There can be command dependencies between command syntax in the RCF and FASTPATH versions.

  Note: In RCF version 1.2, support for Telnet has been explicitly disabled because of security concerns. To avoid connectivity issues while installing RCF 1.2, you must verify that Secure Shell (SSH) is enabled. The *NetApp® CN1610 Switch Administrator's Guide* has more information about SSH.

NetApp® CN1610 Switch Administrator's Guide

About this task

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

- The procedures in this document use the clustered Data ONTAP 8.2 syntax. As a result, the cluster Vserver, LIF names, and CLI output will be different than those in Data ONTAP 8.3.
- The two NetApp switches are cs1 and cs2.
- The two cluster LIFs are clus1 and clus2.
- The Vservers are vs1 and vs2.
- The `cluster::*>` prompt indicates the name of the cluster.
- The cluster ports on each node are named e1a and e2a.
  The *Hardware Universe* has more information about the actual cluster ports that are supported on your platform.
- The Inter-Switch Links (ISLs) that are supported for the NetApp cluster switch are ports 0/13 through 0/16.
- The node connections that are supported for the NetApp cluster switch are ports 0/1 through 0/12.

This procedure has two parts:

- *Installing FASTPATH software* describes how to install the FASTPATH software.
- *Installing an RCF on a CN1610 switch* describes how to install RCFs.

Installing FASTPATH software

When you install the FASTPATH software on your NetApp switches, you must begin the upgrade with the second switch, *cs2*.

Steps

1. If AutoSupport is enabled on this cluster, suppress automatic case creation by invoking an AutoSupport message:

    system node autosupport invoke -node * -type all - message MAINT=xh

    x is the duration of the maintenance window in hours.

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

2. Log into the switch as admin. There is no password by default. At the `(cs2) #` prompt, enter the `enable` command. Again, there is no password by default. This gives you access to Privileged EXEC mode, which allows you to configure the network interface.

    ```
    (cs2) # enable
    Password (Enter)
    (cs2) #
    ```

3. On the console of each node, migrate clus2 to port e1a: **network interface migrate**

    ```
    cluster::*> network interface migrate -vserver vs1 -lif clus2 -source-node node1 -destnode
    node1 -dest-port e1a
    cluster::*> network interface migrate -vserver vs2 -lif clus2 -source-node node2 -destnode
    node2 -dest-port e1a
    ```

4. On the console of each node, verify that the migration took place: **network interface show**

    The following example shows that clus2 has migrated to port e1a on both nodes:

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

              Logical     Status     Network         Current  Current  Is
    Vserver   Interface   Admin/Open Address/Mask    Node     Port     Home
    --------  ----------  ---------- --------------  -------- -------  ----
    vs1
              clus1       up/up      10.10.10.1/16   node1    e1a      true
              clus2       up/up      10.10.10.2/16   node1    e1a      false
    vs2
              clus1       up/up      10.10.10.1/16   node2    e1a      true
              clus2       up/up      10.10.10.2/16   node2    e1a      false
    ```

5. Shut down cluster port e2a on both nodes: **network port modify**

    The following example shows port e2a being shut down on both nodes:

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

6. Verify that port e2a is shut down on both nodes: **network port show**

    ```
    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   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
```

7. Shut down the Inter-Switch Link (ISL) ports on cs1, the active NetApp switch:

```
(cs1) # configure
(cs1)(config) # interface 0/13-0/16
(cs1)(Interface 0/13-0/16) # shutdown
(cs1)(Interface 0/13-0/16) # exit
(cs1)(config) # exit
```

8. Back up the current active image on cs2.

```
(cs2) # show bootvar

 Image Descriptions   .

  active:
  backup:

 Images currently available on Flash


 -------------------------------------------------------------------
  unit       active       backup     current-active       next-active
 -------------------------------------------------------------------

    1        1.1.0.3      1.1.0.1        1.1.0.3            1.1.0.3

(cs2) # copy active backup
Copying active to backup
Copy operation successful

(cs2) #
```

9. Download the image file to the switch.
Copying the image file to the active image means that when you reboot, that image
establishes the running FASTPATH version. The previous image remains available as a
backup.

```
(cs2) # copy tftp://10.0.0.1/NetApp_CN1610_1.1.0.5.stk active


Mode...................................... TFTP
Set Server IP............................. 10.0.0.1
Path...................................... ./
Filename.................................. NetApp_CN1610_1.1.0.5.stk
Data Type................................. Code
Destination Filename...................... active

Management access will be blocked for the duration of the transfer
Are you sure you want to start? (y/n) y
TFTP Code transfer starting...


File transfer operation completed successfully.
```

10. Verify the running version of the FASTPATH software.

```
(cs2) # show version

Switch: 1

System Description.................. Broadcom Scorpion 56820
                                     Development System - 16 TENGIG,
                                     1.1.0.3, Linux 2.6.21.7
Machine Type....................... Broadcom Scorpion 56820
                                     Development System - 16TENGIG
Machine Model...................... BCM-56820
Serial Number...................... 10611100004
```

```
FRU Number...........................
Part Number.......................... BCM56820
Maintenance Level.................... A
Manufacturer......................... 0xbc00
Burned In MAC Address................ 00:A0:98:4B:A9:AA
Software Version..................... 1.1.0.3
Operating System..................... Linux 2.6.21.7
Network Processing Device............ BCM56820_B0
Additional Packages.................. FASTPATH QOS
                                      FASTPATH IPv6 Management
```

11. View the boot images for the active and backup configuration.

```
(cs2) # show bootvar

Image Descriptions

 active :
 backup :

 Images currently available on Flash


 --------------------------------------------------------------------
 unit        active        backup      current-active       next-active
 --------------------------------------------------------------------

    1         1.1.0.3       1.1.0.3        1.1.0.3             1.1.0.5
```

12. Reboot the switch.

```
(cs2) # reload

Are you sure you would like to reset the system? (y/n)  y

System will now restart!
```

13. Log in again, and verify the new version of the FASTPATH software.

```
(cs2) # show version

Switch: 1

System Description................... Broadcom Scorpion 56820
                                      Development System - 16 TENGIG,
                                      1.1.0.5, Linux 2.6.21.7
Machine Type......................... Broadcom Scorpion 56820
                                      Development System - 16TENGIG
Machine Model........................ BCM-56820
Serial Number........................ 10611100004
FRU Number...........................
Part Number.......................... BCM56820
Maintenance Level.................... A
Manufacturer......................... 0xbc00
Burned In MAC Address................ 00:A0:98:4B:A9:AA
Software Version..................... 1.1.0.5
Operating System..................... Linux 2.6.21.7
Network Processing Device............ BCM56820_B0
Additional Packages.................. FASTPATH QOS
                                      FASTPATH IPv6 Management
```

14. Bring up the ISL ports on cs1, the active switch.

```
(cs1) # configure
(cs1) (config) # interface 0/13-0/16
(cs1) (Interface 0/13-0/16) # no shutdown
(cs1) (Interface 0/13-0/16) # exit
(cs1) (config) # exit
```

15. Verify that the ISLs are operational: show port-channel 3/1

The Link State field should indicate **Up**.

```
(cs2) # 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     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
```

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

```
(cs2) # 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 .

Configuration Saved!
```

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

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

18. Revert clus2 that is associated with port e2a: **network interface revert**

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

```
cluster::*> network interface revert -vserver Cluster -lif n1_clus2
cluster::*> network interface revert -vserver Cluster -lif n2_clus2
```

19. Verify that the LIF is now home (**true**) on both nodes: **network interface show -role cluster**

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

          Logical    Status     Network        Current  Current Is
Vserver   Interface  Admin/Oper Address/Mask   Node     Port    Home
--------  ---------- ---------- -------------- -------- ------- ----
vs1
          clus1      up/up      10.10.10.1/24  node1    e1a     true
          clus2      up/up      10.10.10.2/24  node1    e2a     true
vs2
          clus1      up/up      10.10.10.1/24  node2    e1a     true
          clus2      up/up      10.10.10.2/24  node2    e2a     true
```

20. View the status of the nodes: **cluster show**

```
cluster::> cluster show

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

21. Repeat step *1* through step *18* to upgrade the FASTPATH software on the other switch, cs1.

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

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

Installing a Reference Configuration File on a CN1610 switch

When you are installing a reference configuration file (RCF), you must first migrate the cluster LIFs away from switch cs2. After the RCF is installed and validated, the LIFs can be migrated back.

Before you begin

You must have saved the configuration that is currently running on your switch.

Steps

1. Save your current switch configuration information: **write memory**
   The following example shows the current switch configuration being saved to the startup configuration (startup-config) file on switch cs2:

   ```
   (cs2) # 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.

   Configuration Saved!
   ```

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

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

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

3. On the console of each node, verify that the migration occurred: **network interface
   show -role cluster**
   The following example shows that clus2 has migrated to port e1a on both nodes:

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

           Logical     Status      Network          Current  Current Is
   Vserver Interface   Admin/Open  Address/Mask     Node     Port    Home
   -------- ---------- ---------- --------------- -------- ------- ----
   vs1
           clus1       up/up       10.10.10.1/16    node1    e1a     true
           clus2       up/up       10.10.10.2/16    node1    e1a     false
   vs2
           clus1       up/up       10.10.10.1/16    node2    e1a     true
           clus2       up/up       10.10.10.2/16    node2    e1a     false
   ```

4. Shut down port e2a on both nodes: **network port modify**
   The following example shows port e2a being shut down on both 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 port e2a is shut down on both nodes: **network port show**

```
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   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
```

6. Shut down the ISL ports on cs1, the active NetApp switch.

```
(cs1) # configure
(cs1) (config) # interface 0/13-0/16
(cs1) (interface 0/13-0/16) # shutdown
(cs1) (interface 0/13-0/16) # exit
(cs1) (config) # exit
```

7. Copy the RCF to the switch.

> **Note:** You must set the .scr extension as part of the file name before invoking the script. This extension is the extension for the FASTPATH operating system.

The switch will validate the script automatically as it is downloaded to the switch, and the output will go to the console.

```
(cs2) # copy tftp://10.10.0.1/CN1610_CS_RCF_v1.1.txt nvram:script
CN1610_CS_RCF_v1.1.scr

[the script is now displayed line by line]
Configuration script validated.
File transfer operation completed successfully.
```

8. Verify that the script was downloaded and saved with the file name that you gave it.

```
(cs2) # script list
Configuration Script Name        Size(Bytes)
-------------------------------- -----------
running-config.scr                6960
CN1610_CS_RCF_v1.1.scr            2199

2 configuration script(s) found.
6038 Kbytes free.
```

9. Validate the script.

> **Note:** The script is validated during the download to verify that each line is a valid switch command line.

```
(cs2) # script validate CN1610_CS_RCF_v1.1.scr
[the script is now displayed line by line]
Configuration script 'CN1610_CS_RCF_v1.1.scr' validated.
```

10. Apply the script to the switch.

```
(cs2) #script apply CN1610_CS_RCF_v1.1.scr

Are you sure you want to apply the configuration script? (y/n) y
[the script is now displayed line by line]...

Configuration script 'CN1610_CS_RCF_v1.1.scr' applied.
```

11. Verify that your changes have been implemented on the switch.

```
(cs2) # show running-config
```

The example displays the running-config file on the switch. You must compare the file to the RCF to verify that the parameters that you set are as you expect.

12. Save the changes.

13. Set the running-config file to be the standard one.

```
(cs2) # 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.
```

14. Reboot the switch and verify that the running-config file is correct.

After the reboot completes, you must log in, view the running-config file, and then look for the description on interface 3/64, which is the version label for the RCF.

```
(cs2) # reload

The system has unsaved changes.
Would you like to save them now? (y/n) y


Config file 'startup-config' created successfully.
Configuration Saved!
System will now restart!
```

15. Bring up the ISL ports on cs1, the active switch.

```
(cs1) # configure
(cs1) (config)# interface 0/13-0/16
(cs1) (Interface 0/13-0/16)# no shutdown
(cs1) (Interface 0/13-0/16)# exit
(cs1) (config)# exit
```

16. Verify that the ISLs are operational: show port-channel 3/1

The Link State field should indicate Up.

```
(cs2) # 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      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
```

17. Bring up cluster port e2a on both nodes: network port modify
The following example shows port e2a being brought up 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
```

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

```
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
```

19. On both nodes, revert clus2 that is associated with port e2a: **network interface revert**

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

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

20. Verify that the LIF is now home (**true**) on both nodes: **network interface show -role cluster**

```
cluster::*>

network interface show -role cluster


        Logical    Status     Network         Current  Current Is
Vserver Interface  Admin/Oper Address/Mask    Node     Port    Home
------- ---------- ---------- -------------- -------- ------- ----
vs1
        clus1      up/up      10.10.10.1/24   node1    e1a     true
        clus2      up/up      10.10.10.2/24   node1    e2a     true
vs2
        clus1      up/up      10.10.10.1/24   node2    e1a     true
        clus2      up/up      10.10.10.2/24   node2    e2a     true
```

21. View the status of the node members: **cluster show**

```
cluster::> cluster show

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

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

```
(cs2) # 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.

Configuration Saved!
```

23. Repeat step *1* through step *22* to upgrade the RCF on the other switch, cs1.

Related information

NetApp Support

Copyright, trademark, and machine translation

Copyright

Trademark

Machine translation