Installing FASTPATH software and RCFs running Data ONTAP 8.3.1 and later

For NetApp Cluster Switches

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Contents

Installing FASTPATH software and RCFs on NetApp cluster switches running ONTAP 8.3.1 and later

The installation steps are the same for both NetApp CN1601 management switches and CN1610 cluster switches running ONTAP 8.3.1 or later. However, the two models require different software and RCFs.

Before you begin

- The cluster must be a fully functioning cluster.
- There must be no defective cluster NICs, and all connected ports on both cluster switches 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 be using supported FASTPATH, RCF, and ONTAP versions.
  There can be command dependencies between command syntax in the RCF and FASTPATH versions. The switch compatibility page lists the supported versions.
  NetApp CN1601 and CN1610 Switches

About this task

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

- The two NetApp switch names are cs1 and cs2.
- The cluster logical interface (LIF) names are node1_clus1 and node1_clus2 for node1, and node2_clus1 and node2_clus2 for node2.
- The storage virtual machine (SVM) name is Cluster.
- The `cluster1::*>` prompt indicates the name of the cluster.
- The cluster ports on each node are named e0a and e0b.
  The *Hardware Universe* contains the actual cluster ports supported on your platform.
- The Inter-Switch Links (ISLs) supported for the NetApp cluster switches are ports 0/13 through 0/16.
- The node connections supported for the NetApp cluster switches are ports 0/1 through 0/12.
- The example in this procedure begins the upgrade on the second switch, *cs2*.
- The examples in this procedure use two nodes, but you can have up to 24 nodes in a cluster.
- The examples and outputs might vary depending on different releases of FASTPATH, RCF, and ONTAP.

Steps

1. Display information about the network ports on the cluster:

`network port show -ipspace cluster`

The following example shows the type of output from the command:

```
cluster1::> network port show -ipspace cluster
                                                             Speed (Mbps)
Node   Port      IPspace      Broadcast Domain Link   MTU    Admin/Oper
------ --------- ------------ ---------------- ----- ------- ------------
node1
       e0a       Cluster      Cluster          up       9000  auto/10000
       e0b       Cluster      Cluster          up       9000  auto/10000
node2
       e0a       Cluster      Cluster          up       9000  auto/10000
```

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

2. Display information about the LIFs on the cluster:

   network interface show *-role cluster*

   The following example shows the logical interfaces on the cluster. In this example the `-role` parameter displays information about the LIFs that are associated with cluster ports:

```
cluster1::> network interface show -role cluster
  (network interface show)
            Logical    Status     Network            Current       Current Is
Vserver     Interface  Admin/Oper Address/Mask       Node          Port    Home
----------- ---------- ---------- ------------------ ------------- ------- ----
Cluster
            node1_clus1  up/up    10.254.66.82/16    node1         e0a     true
            node1_clus2  up/up    10.254.206.128/16  node1         e0b     true
            node2_clus1  up/up    10.254.48.152/16   node2         e0a     true
            node2_clus2  up/up    10.254.42.74/16    node2         e0b     true
4 entries were displayed.
```

3. On each respective node, using a node management LIF, migrate node1_clus2 to e0a on node1 and node2_clus2 to e0a on node2:

   network interface migrate

   You must enter the commands on the controller consoles that own the respective cluster LIFs.

```
cluster1::> network interface migrate -vserver Cluster -lif node1_clus2 -destination-node node1
-destination-port e0a
cluster1::> network interface migrate -vserver Cluster -lif node2_clus2 -destination-node node2
-destination-port e0a
```

   Note: For this command, the name of the cluster is case-sensitive and the command should be run on each node. It is not possible to run this command in the general cluster LIF.

4. Verify that the migration took place by using the `network interface show` command on a node.

   The following example shows that clus2 has migrated to port e0a on nodes node1 and node2:

```
cluster1::> network interface show -role cluster
            Logical    Status     Network            Current       Current Is
Vserver     Interface  Admin/Oper Address/Mask       Node          Port    Home
----------- ---------- ---------- ------------------ ------------- ------- ----
Cluster
            node1_clus1  up/up    10.254.66.82/16    node1         e0a     true
            node1_clus2  up/up    10.254.206.128/16  node1         e0a     false
            node2_clus1  up/up    10.254.48.152/16   node2         e0a     true
            node2_clus2  up/up    10.254.42.74/16    node2         e0a     false
4 entries were displayed.
```

5. Change the privilege level to advanced, entering y when prompted to continue:

   set -privilege advanced

   The advanced prompt (*>) appears.

6. Shut down cluster port e0b on both nodes:

   network port modify -node *node_name* -port *port_name* -up-admin false

   You must enter the commands on the controller consoles that own the respective cluster LIFs.

   The following example shows the commands to shut down port e0b on all nodes:

```
cluster1::*> network port modify -node node1 -port e0b -up-admin false
cluster1::*> network port modify -node node2 -port e0b -up-admin false
```

7. Verify that port e0b is shut down on both nodes:

network port show

```
cluster1::*> network port show -role cluster

                                                                 Speed (Mbps)
Node   Port      IPspace      Broadcast Domain Link   MTU    Admin/Oper
------ --------- ------------ ---------------- ----- ------- ------------
node1
       e0a       Cluster      Cluster          up       9000  auto/10000
       e0b       Cluster      Cluster          down     9000  auto/10000
node2
       e0a       Cluster      Cluster          up       9000  auto/10000
       e0b       Cluster      Cluster          down     9000  auto/10000
4 entries were displayed.
```

8. Shut down the Inter-Switch Link (ISL) ports on cs1.

```
(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
```

9. 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     1.1.0.5     1.1.0.3            1.1.0.5            1.1.0.5

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

10. Verify the running version of the FASTPATH software.

```
(cs2) # show version

Switch: 1

System Description..............................  NetApp CN1610, 1.1.0.5, Linux
                                                  2.6.21.7
Machine Type....................................  NetApp CN1610
Machine Model...................................  CN1610
Serial Number...................................  20211200106
Burned In MAC Address...........................  00:A0:98:21:83:69
Software Version................................  1.1.0.5
Operating System................................  Linux 2.6.21.7
Network Processing Device.......................  BCM56820_B0
Part Number.....................................  111-00893

--More-- or (q)uit
```

```
Additional Packages..... FASTPATH QOS
                         FASTPATH IPv6 Management
```

11. 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 sftp://root@10.22.201.50//tftpboot/NetApp_CN1610_1.2.0.7.stk active
Remote Password:********

Mode........................................... SFTP
Set Server IP.................................. 10.22.201.50
Path........................................... /tftpboot/
Filename....................................... NetApp_CN1610_1.2.0.7.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
SFTP Code transfer starting...


File transfer operation completed successfully.
```

12. Confirm the current and next-active boot image versions:

show bootvar

```
(cs2) #show bootvar

Image Descriptions

 active :
 backup :


 Images currently available on Flash

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

    1     1.1.0.8     1.1.0.8            1.1.0.8            1.2.0.7
```

13. Install the compatible RCF for the new image version to the switch.

If the RCF version is already correct, skip to step *18* to bring up the ISL ports.

```
(cs2) #copy tftp://10.22.201.50//CN1610_CS_RCF_v1.2.txt nvram:script
CN1610_CS_RCF_v1.2.scr

Mode........................................... TFTP
Set Server IP.................................. 10.22.201.50
Path........................................... /
Filename....................................... CN1610_CS_RCF_v1.2.txt
Data Type...................................... Config Script
Destination Filename........................... CN1610_CS_RCF_v1.2.scr

File with same name already exists.
WARNING:Continuing with this command will overwrite the existing file.


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


Validating configuration script...
```

```
[the script is now displayed line by line]

Configuration script validated.
File transfer operation completed successfully.
```

Note: The `.scr` extension must be set as part of the file name before invoking the script. This extension is for the FASTPATH operating system.

The switch validates the script automatically as it is downloaded to the switch. The output goes to the console.

14. Verify that the script was downloaded and saved to the file name you gave it.

```
(cs2) #script list

Configuration Script Name        Size(Bytes)
-------------------------------- -----------
CN1610_CS_RCF_v1.2.scr                  2191

1 configuration script(s) found.
2541 Kbytes free.
```

15. Apply the script to the switch.

```
(cs2) #script apply CN1610_CS_RCF_v1.2.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_v1.2.scr' applied.
```

16. Verify that the changes have been applied to the switch, and then save them:

```
show running-config
```

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

17. Save the running configuration so it becomes the startup configuration when you reboot the switch.

```
(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!
```

18. Reboot the switch.

```
(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!
```

19. Log in again, and then verify that the switch is running the new version of the FASTPATH software.

```
(cs2) #show version

Switch: 1

System Description..............................  NetApp CN1610, 1.2.0.7,Linux
```

```
                                                3.8.13-4ce360e8
Machine Type................................... NetApp CN1610
Machine Model.................................. CN1610
Serial Number.................................. 20211200106
Burned In MAC Address.......................... 00:A0:98:21:83:69
Software Version............................... 1.2.0.7
Operating System............................... Linux 3.8.13-4ce360e8
Network Processing Device...................... BCM56820_B0
Part Number.................................... 111-00893
CPLD version................................... 0x5


Additional Packages............................ FASTPATH QOS
                                                FASTPATH IPv6 Management
```

After the reboot completes, you must log in to verify the image version, view the running configuration, and look for the description on interface 3/64, which is the version label for the RCF.

20. 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
```

21. Verify that the ISLs are operational:

`show port-channel 3/1`

The Link State field should indicate Up.

```
(cs1) #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  False
       partner/long
0/16   actor/long    10G Full  True
       partner/long
```

22. Bring up cluster port e0b on all nodes:

`network port modify`

You must enter the commands on the controller consoles that own the respective cluster LIFs.

The following example shows port e0b being brought up on node1 and node2:

```
cluster1::*> network port modify -node node1 -port e0b -up-admin true
cluster1::*> network port modify -node node2 -port e0b -up-admin true
```

23. Verify that the port e0b is up on all nodes:

`network port show -ipspace cluster`

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

                                                                 Speed (Mbps)
Node   Port      IPspace      Broadcast Domain Link   MTU    Admin/Oper
------ --------- ------------ ---------------- ----- ------- ------------
node1
       e0a       Cluster      Cluster          up       9000  auto/10000
       e0b       Cluster      Cluster          up       9000  auto/10000
node2
       e0a       Cluster      Cluster          up       9000  auto/10000
       e0b       Cluster      Cluster          up       9000  auto/10000
4 entries were displayed.
```

24. Verify that the LIF is now home (**true**) on both nodes:

network interface show *-role cluster*

```
cluster1::*> network interface show -role cluster

            Logical    Status     Network            Current       Current Is
Vserver     Interface  Admin/Oper Address/Mask       Node          Port    Home
----------- ---------- ---------- ------------------ ------------- ------- ----
Cluster
            node1_clus1  up/up    169.254.66.82/16   node1         e0a     true
            node1_clus2  up/up    169.254.206.128/16 node1         e0b     true
            node2_clus1  up/up    169.254.48.152/16  node2         e0a     true
            node2_clus2  up/up    169.254.42.74/16   node2         e0b     true
4 entries were displayed.
```

25. Show the status of the node members:

cluster show

```
cluster1::*> cluster show

Node                 Health  Eligibility   Epsilon
-------------------- ------- ------------  ------------
node1                true    true          false
node2                true    true          false
2 entries were displayed.
```

26. Return to the admin privilege level:

set -privilege admin

27. Repeat the steps *1* through *18* to upgrade the FASTPATH software and RCF on the other switch, cs1.

If you...	Then...
Do not need to install the RCF	Go to Step *18* to finish the installation.
Need to install the RCF	Go to Step *13*.

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