



Installing FASTPATH software and RCFs running Data ONTAP 8.3.1 and later

For NetApp Cluster Switches

October 2020 | 215-10191_E0
doccomments@netapp.com

Contents

Installing FASTPATH software and RCFs on NetApp cluster switches running ONTAP 8.3.1 and later.....	3
Copyright and trademark.....	10
Copyright.....	10
Trademark.....	10

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
```

Node	Port	IPspace	Broadcast Domain	Link	MTU	Speed (Mbps) 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)
Vserver      Logical      Status      Network      Current      Current      Is
-----      -
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
Vserver      Logical      Status      Network      Current      Current      Is
-----      -
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
```

Node	Port	IPspace	Broadcast Domain	Link	MTU	Speed (Mbps) 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
```

```

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

Node	Port	IPspace	Broadcast Domain	Link	MTU	Speed (Mbps) 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
```

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

Copyright and trademark

Copyright

Copyright © 2020 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>