NetApp

Install or upgrade the RCF

Install and maintain

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Install or upgrade the RCF

Install or upgrade the Reference Configuration File (RCF) overview

You install the Reference Configuration File (RCF) after setting up the Nexus 9336C-FX2 storage switch for the first time. You upgrade your RCF version when you have an existing version of the RCF file installed on your switch.

See the Knowledge Base article How to clear configuration on a Cisco interconnect switch while retaining remote connectivity for further information when installing or upgrading your RCF.

Available RCF configurations

The following table describes the RCFs available for different configurations. Choose the RCF applicable to your configuration. See Cisco Ethernet Switches for more information.

For specific port and VLAN usage details, refer to the banner and important notes section in your RCF.

RCF name	Description
2-Cluster-HA-Breakout	Supports two ONTAP clusters with at least eight nodes, including nodes that use shared Cluster+HA ports.
4-Cluster-HA-Breakout	Supports four ONTAP clusters with at least four nodes, including nodes that use shared Cluster+HA ports.
1-Cluster-HA	All ports are configured for 40/100GbE. Supports shared cluster/HA traffic on ports. Required for AFF A320, AFF A250, and FAS500f systems. Additionally, all ports can be used as dedicated cluster ports.
1-Cluster-HA-Breakout	Ports are configured for 4x10GbE breakout, 4x25GbE breakout (RCF 1.6+ on 100GbE switches), and 40/100GbE. Supports shared cluster/HA traffic on ports for nodes that use shared cluster/HA ports: AFF A320, AFF A250, and FAS500f systems. Additionally, all ports can be used as dedicated cluster ports.
Cluster-HA-Storage	Ports are configured for 40/100GbE for Cluster+HA, 4x10GbE breakout for Cluster and 4x25GbE breakout for Cluster+HA, and 100GbE for each storage HA pair.
Cluster	Two flavors of RCF with different allocations of 4x10GbE ports (breakout) and 40/100GbE ports. All FAS and AFF nodes are supported, except for AFF A320, AFF A250, and FAS500f systems.
Storage	All ports are configured for 100GbE NVMe storage connections.

Available RCFs

The following table lists the available RCFs for 9336C-FX2 and 9336C-FX2-T switches. Choose the applicable

RCF version for your configuration. See Cisco Ethernet Switches for more information.

RCF name
Cluster-HA-Breakout RCF 1.*xx*
Cluster-HA-Storage RCF 1.*xx*
Storage RCF 1.*xx*
MultiCluster-HA RCF 1.*xx*

Suggested documentation

- Cisco Ethernet Switches

  Consult the switch compatibility table for the supported ONTAP and RCF versions on the NetApp Support Site. Note that there can be command dependencies between the command syntax in the RCF and the syntax found in specific versions of NX-OS.

- Cisco Nexus 9000 Series Switches

  Refer to the appropriate software and upgrade guides available on the Cisco website for complete documentation on the Cisco switch upgrade and downgrade procedures.

About the examples

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

- The names of the two Cisco switches are cs1 and cs2.
- The node names are node1-01, node1-02, node1-03, and node1-04.
- The cluster LIF names are node1-01_clus1, node1-01_clus2, node1-02_clus1, node1-02_clus2, node1-03_clus1, node1-03_clus2, node1-04_clus1, and node1-04_clus2.
- The `cluster1::*>` prompt indicates the name of the cluster.

See the Hardware Universe to verify the correct ports on your platform.

> ⓘ The command outputs might vary depending on different releases of ONTAP.

Commands used

The procedure requires the use of both ONTAP commands and Cisco Nexus 9000 Series Switches commands; ONTAP commands are used unless otherwise indicated.

What's next?

After you've reviewed the install RCF or upgrade RCF procedure, you can install the RCF or upgrade your RCF as needed.

Install the Reference Configuration File

You install the Reference Configuration File (RCF) after setting up the Nexus 9336C-FX2

and 9336C-FX2-T storage switches for the first time.

See the Knowledge Base article How to clear configuration on a Cisco interconnect switch while retaining remote connectivity for further information when installing your RCF.

Before you begin

Verify the following installations and connections:

- A console connection to the switch. The console connection is optional if you have remote access to the switch.
- Switch cs1 and switch cs2 are powered up and the initial switch setup is complete (the Management IP address and SSH is set up).
- The desired NX-OS version has been installed.
- ONTAP node cluster ports are not connected.

Step 1: Install the RCF on the switches

1. Login to switch cs1 using SSH or by using a serial console.

2. Copy the RCF to the bootflash of switch cs1 using one of the following transfer protocols: FTP, TFTP, SFTP, or SCP.

   For more information on Cisco commands, see the appropriate guide in the Cisco Nexus 9000 Series NX-OS Command Reference.

   Show example

   This example shows TFTP being used to copy an RCF to the bootflash on switch cs1:

   ```
   cs1# copy tftp: bootflash: vrf management
   Enter source filename: Nexus_9336C_RCF_v1.6-Storage.txt
   Enter hostname for the tftp server: 172.22.201.50
   Trying to connect to tftp server......Connection to Server
   Established.
   TFTP get operation was successful
   Copy complete, now saving to disk (please wait)...
   ```

3. Apply the RCF previously downloaded to the bootflash.

   For more information on Cisco commands, see the appropriate guide in the Cisco Nexus 9000 Series NX-OS Command Reference.

Show example

> This example shows the RCF `Nexus_9336C_RCF_v1.6-Storage.txt` being installed on switch cs1:

```
cs1# copy Nexus_9336C_RCF_v1.6-Storage.txt running-config echo-
commands
```

4. Examine the banner output from the `show banner motd` command. You must read and follow these instructions to ensure the correct configuration and operation of the switch.

Show example

```
cs1# show banner motd

**********************************************************************
**********
* NetApp Reference Configuration File (RCF)
*
* Switch    : Nexus N9K-C9336C-FX2
* Filename  : Nexus_9336C_RCF_v1.6-Storage.txt
* Date      : 10-23-2020
* Version   : v1.6
*
* Port Usage : Storage configuration
* Ports  1-36: 100GbE Controller and Shelf Storage Ports
**********************************************************************
**********
```

5. Verify that the RCF is the correct newer version:

   `show running-config`

   When you check the output to verify you have the correct RCF, make sure that the following information is correct:

   ◦ The RCF banner

   ◦ The node and port settings

   ◦ Customizations

   The output varies according to your site configuration. Check the port settings and refer to the release notes for any changes specific to the RCF that you have installed.

6. Record any custom additions between the current `running-config` file and the RCF file in use.

7. After you verify that the RCF versions and switch settings are correct, copy the `running-config` file to the `startup-config` file.

```
cs1# copy running-config startup-config
[########################################] 100% Copy complete
```

8. Save basic configuration details to the `write_erase.cfg` file on the bootflash.

```
cs1# show run | i "username admin password" > bootflash:write_erase.cfg

cs1# show run | section "vrf context management" >> bootflash:write_erase.cfg

cs1# show run | section "interface mgmt0" >> bootflash:write_erase.cfg

cs1# show run | section "switchname" >> bootflash:write_erase.cfg
```

9. When installing RCF version 1.12 and later, run the following commands:

```
cs1# echo "hardware access-list tcam region ing-racl 1024" >>
bootflash:write_erase.cfg

cs1# echo "hardware access-list tcam region egr-racl 1024" >>
bootflash:write_erase.cfg

cs1# echo "hardware access-list tcam region ing-l2-qos 1280" >>
bootflash:write_erase.cfg
```

See the Knowledge Base article How to clear configuration on a Cisco interconnect switch while retaining remote connectivity for further details.

10. Verify that the `write_erase.cfg` file is populated as expected:

`show file bootflash:write_erase.cfg`

11. Issue the `write erase` command to erase the current saved configuration:

```
cs1# write erase

Warning: This command will erase the startup-configuration.

Do you wish to proceed anyway? (y/n) [n] y
```

12. Copy the previously saved basic configuration into the startup configuration.

`cs1# copy bootflash:write_erase.cfg startup-config`

13. Reboot switch cs1.

`cs1# reload`

```
This command will reboot the system. (y/n)? [n] y
```

14. Repeat steps 1 through 13 on switch cs2.

15. Connect the cluster ports of all nodes in the ONTAP cluster to switches cs1 and cs2.

Step 2: Verify the switch connections

1. Verify that the switch ports connected to the cluster ports are **up**.

   ```
   show interface brief
   ```

Show example

```
cs1# show interface brief | grep up
mgmt0   --            up     <mgmt ip address>
1000    1500
Eth1/11          1       eth  trunk  up      none
100G(D) --
Eth1/12          1       eth  trunk  up      none
100G(D) --
Eth1/13          1       eth  trunk  up      none
100G(D) --
Eth1/14          1       eth  trunk  up      none
100G(D) --
Eth1/15          1       eth  trunk  up      none
100G(D) --
Eth1/16          1       eth  trunk  up      none
100G(D) --
Eth1/17          1       eth  trunk  up      none
100G(D) --
Eth1/18          1       eth  trunk  up      none
100G(D) --
Eth1/23          1       eth  trunk  up      none
100G(D) --
Eth1/24          1       eth  trunk  up      none
100G(D) --
Eth1/25          1       eth  trunk  up      none
100G(D) --
Eth1/26          1       eth  trunk  up      none
100G(D) --
Eth1/27          1       eth  trunk  up      none
100G(D) --
Eth1/28          1       eth  trunk  up      none
100G(D) --
Eth1/29          1       eth  trunk  up      none
100G(D) --
Eth1/30          1       eth  trunk  up      none
100G(D) --
```

2. Verify that the cluster nodes are in their correct cluster VLANs using the following commands:

```
show vlan brief
```

```
show interface trunk
```

```
cs1# show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- ---------
--------------------------------
1    default                          active    Po999
30   VLAN0030                         active    Eth1/1, Eth1/2,
Eth1/3, Eth1/4

                                                Eth1/5, Eth1/6,
Eth1/7, Eth1/8

                                                Eth1/9, Eth1/10,
Eth1/11

                                                Eth1/12, Eth1/13,
Eth1/14

                                                Eth1/15, Eth1/16,
Eth1/17

                                                Eth1/18, Eth1/19,
Eth1/20

                                                Eth1/21, Eth1/22,
Eth1/23

                                                Eth1/24, Eth1/25,
Eth1/26

                                                Eth1/27, Eth1/28,
Eth1/29

                                                Eth1/30, Eth1/31,
Eth1/32

                                                Eth1/33, Eth1/34,
Eth1/35

                                                Eth1/36

cs1# show interface trunk


--------------------------------------------------------
Port            Native  Status        Port
                Vlan                  Channel
--------------------------------------------------------
Eth1/1          1       trunking      --
Eth1/2          1       trunking      --
Eth1/3          1       trunking      --
Eth1/4          1       trunking      --
Eth1/5          1       trunking      --
Eth1/6          1       trunking      --
Eth1/7          1       trunking      --
Eth1/8          1       trunking      --
```

```
Eth1/9          1          trunking      --
Eth1/10         1          trunking      --
Eth1/11         1          trunking      --
Eth1/12         1          trunking      --
Eth1/13         1          trunking      --
Eth1/14         1          trunking      --
Eth1/15         1          trunking      --
Eth1/16         1          trunking      --
Eth1/17         1          trunking      --
Eth1/18         1          trunking      --
Eth1/19         1          trunking      --
Eth1/20         1          trunking      --
Eth1/21         1          trunking      --
Eth1/22         1          trunking      --
Eth1/23         1          trunking      --
Eth1/24         1          trunking      --
Eth1/25         1          trunking      --
Eth1/26         1          trunking      --
Eth1/27         1          trunking      --
Eth1/28         1          trunking      --
Eth1/29         1          trunking      --
Eth1/30         1          trunking      --
Eth1/31         1          trunking      --
Eth1/32         1          trunking      --
Eth1/33         1          trunking      --
Eth1/34         1          trunking      --
Eth1/35         1          trunking      --
Eth1/36         1          trunking      --


--------------------------------------------------------------------
------------
Port          Vlans Allowed on Trunk
--------------------------------------------------------------------
------------
Eth1/1          30
Eth1/2          30
Eth1/3          30
Eth1/4          30
Eth1/5          30
Eth1/6          30
Eth1/7          30
Eth1/8          30
Eth1/9          30
Eth1/10         30
Eth1/11         30
Eth1/12         30
```

```
Eth1/13        30
Eth1/14        30
Eth1/15        30
Eth1/16        30
Eth1/17        30
Eth1/18        30
Eth1/19        30
Eth1/20        30
Eth1/21        30
Eth1/22        30
Eth1/23        30
Eth1/24        30
Eth1/25        30
Eth1/26        30
Eth1/27        30
Eth1/28        30
Eth1/29        30
Eth1/30        30
Eth1/31        30
Eth1/32        30
Eth1/33        30
Eth1/34        30
Eth1/35        30
Eth1/36        30


--------------------------------------------------------------------
------------
Port           Vlans Err-disabled on Trunk
--------------------------------------------------------------------
------------
Eth1/1         none
Eth1/2         none
Eth1/3         none
Eth1/4         none
Eth1/5         none
Eth1/6         none
Eth1/7         none
Eth1/8         none
Eth1/9         none
Eth1/10        none
Eth1/11        none
Eth1/12        none
Eth1/13        none
Eth1/14        none
Eth1/15        none
Eth1/16        none
```

```
Eth1/17        none
Eth1/18        none
Eth1/19        none
Eth1/20        none
Eth1/21        none
Eth1/22        none
Eth1/23        none
Eth1/24        none
Eth1/25        none
Eth1/26        none
Eth1/27        none
Eth1/28        none
Eth1/29        none
Eth1/30        none
Eth1/31        none
Eth1/32        none
Eth1/33        none
Eth1/34        none
Eth1/35        none
Eth1/36        none


--------------------------------------------------------------------
------------
Port           STP Forwarding
--------------------------------------------------------------------
------------
Eth1/1         none
Eth1/2         none
Eth1/3         none
Eth1/4         none
Eth1/5         none
Eth1/6         none
Eth1/7         none
Eth1/8         none
Eth1/9         none
Eth1/10        none
Eth1/11        30
Eth1/12        30
Eth1/13        30
Eth1/14        30
Eth1/15        30
Eth1/16        30
Eth1/17        30
Eth1/18        30
Eth1/19        none
Eth1/20        none
```

```
Eth1/21       none
Eth1/22       none
Eth1/23       30
Eth1/24       30
Eth1/25       30
Eth1/26       30
Eth1/27       30
Eth1/28       30
Eth1/29       30
Eth1/30       30
Eth1/31       none
Eth1/32       none
Eth1/33       none
Eth1/34       none
Eth1/35       none
Eth1/36       none


-----------------------------------------------------------------------
------------
Port          Vlans in spanning tree forwarding state and not pruned
-----------------------------------------------------------------------
------------
Eth1/1        Feature VTP is not enabled
none
Eth1/2        Feature VTP is not enabled
none
Eth1/3        Feature VTP is not enabled
none
Eth1/4        Feature VTP is not enabled
none
Eth1/5        Feature VTP is not enabled
none
Eth1/6        Feature VTP is not enabled
none
Eth1/7        Feature VTP is not enabled
none
Eth1/8        Feature VTP is not enabled
none
Eth1/9        Feature VTP is not enabled
none
Eth1/10       Feature VTP is not enabled
none
Eth1/11       Feature VTP is not enabled
30
Eth1/12       Feature VTP is not enabled
30
```

```
Eth1/13        Feature VTP is not enabled
30
Eth1/14        Feature VTP is not enabled
30
Eth1/15        Feature VTP is not enabled
30
Eth1/16        Feature VTP is not enabled
30
Eth1/17        Feature VTP is not enabled
30
Eth1/18        Feature VTP is not enabled
30
Eth1/19        Feature VTP is not enabled
none
Eth1/20        Feature VTP is not enabled
none
Eth1/21        Feature VTP is not enabled
none
Eth1/22        Feature VTP is not enabled
none
Eth1/23        Feature VTP is not enabled
30
Eth1/24        Feature VTP is not enabled
30
Eth1/25        Feature VTP is not enabled
30
Eth1/26        Feature VTP is not enabled
30
Eth1/27        Feature VTP is not enabled
30
Eth1/28        Feature VTP is not enabled
30
Eth1/29        Feature VTP is not enabled
30
Eth1/30        Feature VTP is not enabled
30
Eth1/31        Feature VTP is not enabled
none
Eth1/32        Feature VTP is not enabled
none
Eth1/33        Feature VTP is not enabled
none
Eth1/34        Feature VTP is not enabled
none
Eth1/35        Feature VTP is not enabled
none
```

```
Eth1/36      Feature VTP is not enabled
none
```

> ⓘ For specific port and VLAN usage details, refer to the banner and important notes section in your RCF.

Step 3: Set up your ONTAP cluster

NetApp recommends that you use System Manager to set up new clusters.

System Manager provides a simple and easy workflow for cluster setup and configuration including assigning a node management IP address, initializing the cluster, creating a local tier, configuring protocols and provisioning initial storage.

Go to Configure ONTAP on a new cluster with System Manager for setup instructions.

What's next?

After you've installed your RCF, you can verify the SSH configuration

Upgrade your Reference Configuration File (RCF)

You upgrade your RCF version when you have an existing version of the RCF file installed on your operational switches.

Before you begin

Make sure you have the following:

- A current backup of the switch configuration.
- A fully functioning cluster (no errors in the logs or similar issues).
- The current RCF.
- If you are updating your RCF version, you need a boot configuration in the RCF that reflects the desired boot images.

  If you need to change the boot configuration to reflect the current boot images, you must do so before reapplying the RCF so that the correct version is instantiated on future reboots.

> ⓘ No operational inter-switch link (ISL) is needed during this procedure. This is by design because RCF version changes can affect ISL connectivity temporarily. To ensure non-disruptive cluster operations, the following procedure migrates all of the cluster LIFs to the operational partner switch while performing the steps on the target switch.

> ⚠ Before installing a new switch software version and RCFs, you must erase the switch settings and perform basic configuration. You must be connected to the switch using the serial console or have preserved basic configuration information before erasing the switch settings.

Step 1: Prepare for the upgrade

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
   ```

   Where *x* is the duration of the maintenance window in hours.

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

   ```
   set -privilege advanced
   ```

   The advanced prompt (*>) appears.

3. Display the ports on each node that are connected to the switches:

   ```
   network device-discovery show
   ```

   Show example

   ```
   cluster1::*> network device-discovery show
   Node/       Local  Discovered
   Protocol    Port   Device (LLDP: ChassisID) Interface       Platform
   ----------- ------ ------------------------ ---------------
   ---------
   node1-01/cdp
               e3a    cs1                      Ethernet1/7     N9K-
   C9336C
               e3b    cs2                      Ethernet1/7     N9K-
   C9336C
   node1-02/cdp
               e3a    cs1                      Ethernet1/8     N9K-
   C9336C
               e3b    cs2                      Ethernet1/8     N9K-
   C9336C
     .
     .
     .
   ```

4. Verify that all the storage ports are up with a healthy status:

   ```
   storage port show -port-type ENET
   ```

```
cluster1::*> storage port show -port-type ENET


                                 Speed
Node                 Port Type  Mode   (Gb/s) State     Status
------------------- ---- ----- ------- ------ -------- -----------
node1-01
                     e3a ENET   -        100   enabled  online
                     e3b ENET   -        100   enabled  online
                     e7a ENET   -        100   enabled  online
                     e7b ENET   -        100   enabled  online
node1-02
                     e3a ENET   -        100   enabled  online
                     e3b ENET   -        100   enabled  online
                     e7a ENET   -        100   enabled  online
                     e7b ENET   -        100   enabled  online
.
.
.
```

5. Disable auto-revert on the cluster LIFs.

```
network interface modify -vserver Cluster -lif * -auto-revert false
```

Step 2: Configure ports

1. On switch cs1, shut down the ports connected to all the ports of the nodes.

```
cs1> enable
cs1# configure
cs1(config)# interface eth1/1/1-2,eth1/7-8
cs1(config-if-range)# shutdown
cs1(config-if-range)# exit
cs1(config)# exit
```

> ⚠ Make sure to shutdown **all** connected ports to avoid any network connection issues. See the Knowledge Base article Node out of quorum when migrating cluster LIF during switch OS upgrade for further details.

2. Verify that the cluster LIFs have failed over to the ports hosted on switch cs1. This might take a few seconds.

```
network interface show -role cluster
```

Show example

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

          Logical          Status     Network                    Current
Current Is
Vserver     Interface       Admin/Oper Address/Mask       Node
Port    Home
----------- --------------- ---------- ------------------
----------- ------- ----
Cluster
          node1-01_clus1  up/up      169.254.36.44/16    node1-01
e7a     true
          node1-01_clus2  up/up      169.254.7.5/16      node1-01
e7b     true
          node1-02_clus1  up/up      169.254.197.206/16 node1-02
e7a     true
          node1-02_clus2  up/up      169.254.195.186/16 node1-02
e7b     true
          node1-03_clus1  up/up      169.254.192.49/16   node1-03
e7a     true
          node1-03_clus2  up/up      169.254.182.76/16   node1-03
e7b     true
          node1-04_clus1  up/up      169.254.59.49/16    node1-04
e7a     true
          node1-04_clus2  up/up      169.254.62.244/16   node1-04
e7b     true

8 entries were displayed.
```

3. Verify that the cluster is healthy:

```
cluster show
```

Show example

```
cluster1::*> cluster show
Node                Health  Eligibility   Epsilon
----------------    ------- ------------  -------
node1-01            true    true          false
node1-02            true    true          false
node1-03            true    true          true
node1-04            true    true          false

4 entries were displayed.
```

4. If you have not already done so, save a copy of the current switch configuration by copying the output of the following command to a text file:

   `show running-config`

   a. Record any custom additions between the current `running-config` and the RCF file in use (such as an SNMP configuration for your organization).

   b. For NX-OS 10.2 and later, use the `show diff running-config` command to compare with the saved RCF file in the bootflash. Otherwise, use a third-party diff or compare tool.

5. Save basic configuration details to the `write_erase.cfg` file on the bootflash.

   > Make sure to configure the following:
   >
   > ◦ Username and password
   >
   > ◦ Management IP address
   >
   > ◦ Default gateway
   >
   > ◦ Switch name

   ```
   cs1# show run | i "username admin password" > bootflash:write_erase.cfg

   cs1# show run | section "vrf context management" >> bootflash:write_erase.cfg

   cs1# show run | section "interface mgmt0" >> bootflash:write_erase.cfg

   cs1# show run | section "switchname" >> bootflash:write_erase.cfg
   ```

6. When upgrading to RCF version 1.12 and later, run the following commands: `cs1# echo "hardware access-list tcam region ing-racl 1024" >> bootflash:write_erase.cfg`

   ```
   cs1# echo "hardware access-list tcam region egr-racl 1024" >> bootflash:write_erase.cfg

   cs1# echo "hardware access-list tcam region ing-l2-qos 1280 >> bootflash:write_erase.cfg
   ```

See the Knowledge Base article How to clear configuration on a Cisco interconnect switch while retaining remote connectivity for further details.

7. Verify that the `write_erase.cfg` file is populated as expected:

   show file bootflash:write_erase.cfg

8. Issue the `write erase` command to erase the current saved configuration:

   ```
   cs1# write erase

   Warning: This command will erase the startup-configuration.

   Do you wish to proceed anyway? (y/n) [n] y
   ```

9. Copy the previously saved basic configuration into the startup configuration.

   ```
   cs1# copy bootflash:write_erase.cfg startup-config
   ```

10. Reboot the switch:

    ```
    cs1# reload

    This command will reboot the system. (y/n)? [n] y
    ```

11. After the management IP address is reachable again, log in to the switch through SSH.

    You might need to update host file entries related to the SSH keys.

12. Copy the RCF to the bootflash of switch cs1 using one of the following transfer protocols: FTP, TFTP, SFTP, or SCP.

    For more information on Cisco commands, see the appropriate guide in the Cisco Nexus 9000 Series NX-OS Command Reference guides.

    Show example

    This example shows TFTP being used to copy an RCF to the bootflash on switch cs1:

    ```
    cs1# copy tftp: bootflash: vrf management
    Enter source filename: Nexus_9336C_RCF_v1.6-Storage.txt
    Enter hostname for the tftp server: 172.22.201.50
    Trying to connect to tftp server......Connection to Server
    Established.
    TFTP get operation was successful
    Copy complete, now saving to disk (please wait)...
    ```

13. Apply the RCF previously downloaded to the bootflash.

    For more information on Cisco commands, see the appropriate guide in the Cisco Nexus 9000 Series NX-

OS Command Reference guides.

This example shows the RCF file `NX9336C-FX2-RCF-v1.13-1-Storage.txt` being installed on switch cs1:

```
cs1# copy Nexus_9336C_RCF_v1.6-Storage.txt running-config echo-commands
```

> ⚠️ Make sure to thoroughly read the **Installation notes**, **Important Notes**, and **banner** sections of your RCF. You must read and follow these instructions to ensure the proper configuration and operation of the switch.

14. Verify that the RCF file is the correct newer version:

```
show running-config
```

When you check the output to verify you have the correct RCF, make sure that the following information is correct:

- The RCF banner
- The node and port settings
- Customizations

The output varies according to your site configuration. Check the port settings and refer to the release notes for any changes specific to the RCF that you have installed.

15. Reapply any previous customizations to the switch configuration.

16. After you verify the RCF versions, custom additions, and switch settings are correct, copy the `running-config` file to the `startup-config` file.

For more information on Cisco commands, see the appropriate guide in the Cisco Nexus 9000 Series NX-OS Command Reference guides.

```
cs1# copy running-config startup-config
```

```
[] 100% Copy complete
```

17. Reboot switch cs1. You can ignore the "cluster switch health monitor" alerts and "cluster ports down" events reported on the nodes while the switch reboots.

```
cs1# reload
```

```
This command will reboot the system. (y/n)? [n] y
```

18. Verify that all the storage ports are up with a healthy status:

```
storage port show -port-type ENET
```

Show example

```
cluster1::*> storage port show -port-type ENET


                                   Speed
Node                  Port Type  Mode   (Gb/s) State    Status
------------------    ---- ----- ------ ------ -------- -----------
node1-01
                      e3a  ENET  -         100 enabled  online
                      e3b  ENET  -         100 enabled  online
                      e7a  ENET  -         100 enabled  online
                      e7b  ENET  -         100 enabled  online
node1-02
                      e3a  ENET  -         100 enabled  online
                      e3b  ENET  -         100 enabled  online
                      e7a  ENET  -         100 enabled  online
                      e7b  ENET  -         100 enabled  online
.
.
.
```

19. Verify that the cluster is healthy:

```
cluster show
```

Show example

```
cluster1::*> cluster show
Node                 Health   Eligibility   Epsilon
-----------------    -------- ------------- -------
node1-01             true     true          false
node1-02             true     true          false
node1-03             true     true          true
node1-04             true     true          false

4 entries were displayed.
```

20. Repeat steps 4 to 19 on switch cs2.

21. Enable auto-revert on the cluster LIFs.

```
network interface modify -vserver Cluster -lif * -auto-revert true
```

Step 3: Verify the cluster network configuration and cluster health

1. Verify that the switch ports connected to the cluster ports are **up**.

```
show interface brief
```

2. Verify that the expected nodes are still connected:

```
show cdp neighbors
```

3. Verify that the cluster nodes are in their correct cluster VLANs using the following commands:

```
show vlan brief
```

```
show interface trunk
```

4. Verify that the cluster LIFs have reverted to their home port:

```
network interface show -role cluster
```

If any cluster LIFs have not returned to their home ports, revert them manually from the local node:

```
network interface revert -vserver vserver_name -lif <lif-name>
```

5. Verify that the cluster is healthy:

```
cluster show
```

6. Verify the connectivity of the remote cluster interfaces:
   a. You can use the `network interface check cluster-connectivity show` command to display the details of an accessibility check for cluster connectivity:

   ```
   network interface check cluster-connectivity show
   ```

   b. Alternatively, you can use the `cluster ping-cluster -node <node-name>` command to check the connectivity:

   ```
   cluster ping-cluster -node <node-name>
   ```

What's next?

After you've upgraded your RCF, you can verify the SSH configuration.