IP switch maintenance and replacement

ONTAP MetroCluster

NetApp
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IP switch maintenance and replacement

Replace an IP switch or change the use of existing MetroCluster IP switches

You might need to replace a failed switch, upgrade or downgrade a switch, or change the use of existing MetroCluster IP switches.

About this task

This procedure applies when you are using NetApp-validated switches. If you are using MetroCluster-compliant switches, refer to the switch vendor.

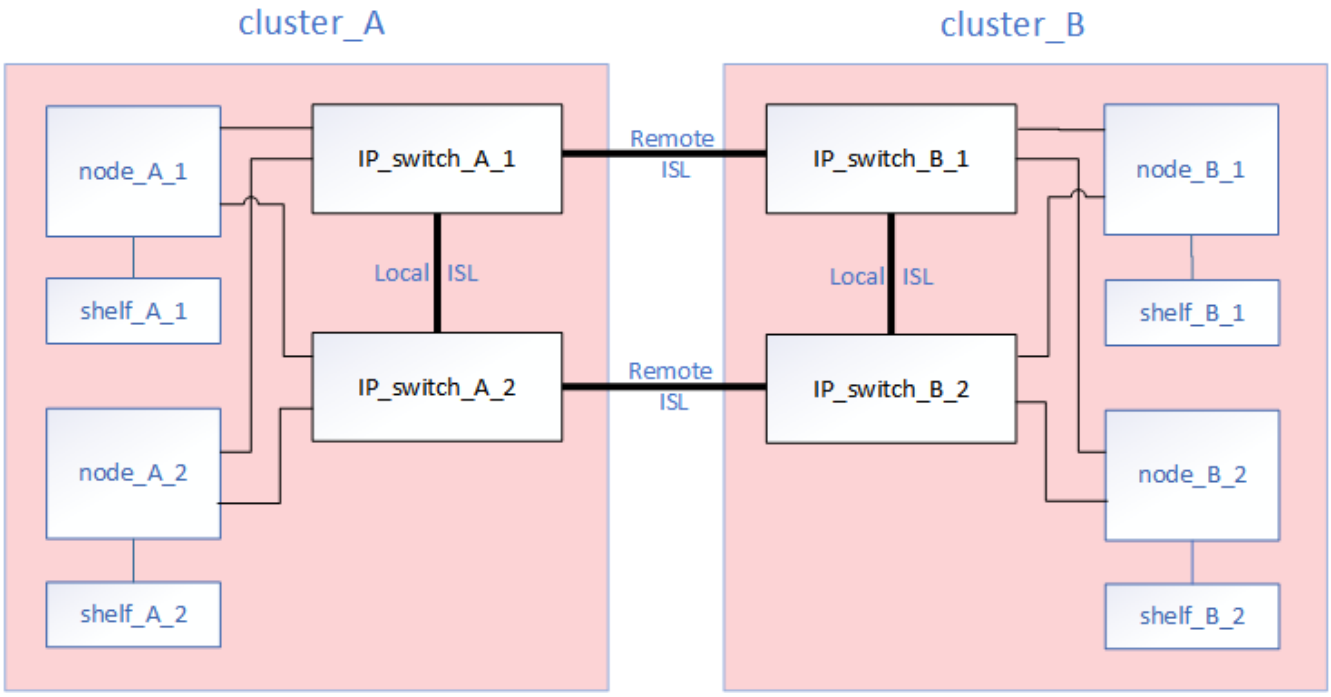
Enable console logging before performing this task.

This procedure supports the following conversions:

- Changing the switch vendor, type, or both. The new switch can be the same as the old switch when a switch has failed, or you can change the switch type (upgrade or downgrade the switch).

  For example, to expand a MetroCluster IP configuration from a single four-node configuration using AFF A400 controllers and BES-53248 switches to an eight-node configuration using AFF A400 controllers, you must change the switches to a supported type for the configuration because BES-53248 switches are not supported in the new configuration.

  If you want to replace a failed switch with the same type of switch, you only replace the failed switch. If you want to upgrade or downgrade a switch, you must adjust two switches that are in the same network. Two switches are in the same network when they are connected with an inter-switch link (ISL) and are not located at the same site. For example, Network 1 includes IP_switch_A_1 and IP_switch_B_1, and Network 2 includes IP_switch_A_2 and IP_switch_B_2, as shown in the diagram below:



If you replace a switch or upgrade to different switches, then you can pre-configure the switches by installing the switch firmware and RCF file.

- Convert a MetroCluster IP configuration to a MetroCluster IP configuration using shared storage MetroCluster switches.

  For example, if you have a regular MetroCluster IP configuration using AFF A700 controllers and you want to reconfigure the MetroCluster to connect NS224 shelves to the same switches.

  - If you are adding or removing shelves in a MetroCluster IP configuration using shared storage MetroCluster IP switches, follow the steps in Adding shelves to a MetroCluster IP using shared storage MetroCluster switches
  - Your MetroCluster IP configuration might already directly connect to NS224 shelves or to dedicated storage switches.

Port usage worksheet

The following is an example worksheet for converting a MetroCluster IP configuration to a shared storage configuration connecting two NS224 shelves using the existing switches.

Worksheet definitions:

- Existing configuration: The cabling of the existing MetroCluster configuration.
- New configuration with NS224 shelves: The target configuration where the switches are shared between storage and the MetroCluster.

The highlighted fields in this worksheet indicate the following:

- Green: You do not need to change the cabling.
- Yellow: You must move ports with the same or a different configuration.
- Blue: Ports that are new connections.

PORT USAGE OVERVIEW Example of expanding an existing 4Node MetroCluster with 2x NS224 shelves and changing the ISL's from 10G to 40/100G							
Switch port	Existing configuration				New configuration with NS224 shelves		
	Port use	IP_switch_x_1	IP_switch_x_2		Port use	IP_switch_x_1	IP_switch_x_2
1	MetroCluster 1, Local Cluster Interface	Cluster Port 'A'	Cluster Port 'B'		MetroCluster 1, Local Cluster Interface	Cluster Port 'A'	Cluster Port 'B'
2		Cluster Port 'A'	Cluster Port 'B'			Cluster Port 'A'	Cluster Port 'B'
3							
4							
5					Storage shelf 1 (9)	NSM-A, e0a	NSM-A, e0b
6						NSM-B, e0a	NSM-B, e0b
7	ISL, Local Cluster native speed / 100G	ISL, Local Cluster			ISL, Local Cluster native speed / 100G	ISL, Local Cluster	
8							
9	MetroCluster 1, MetroCluster interface	Port 'A'	Port 'B'		MetroCluster 1, MetroCluster interface	Port 'A'	Port 'B'
10		Port 'A'	Port 'B'			Port 'A'	Port 'B'
11							
12							
13					ISL, MetroCluster, native speed 40G / 100G breakout mode 10G	Remote ISL, 2x 40/100G	Remote ISL, 2x 40/100G
14							
15							
16							
17					MetroCluster 1, Storage Interface	Storage Port 'A'	Storage Port 'B'
18						Storage Port 'A'	Storage Port 'B'
19							
20							
21	ISL, MetroCluster breakout mode 10G	Remote ISL, 10G	Remote ISL, 10G		Storage shelf 2 (8)	NSM-A, e0a	NSM-A, e0b
22						NSM-B, e0a	NSM-B, e0b
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							

Steps

1. Check the health of the configuration.

   a. Check that the MetroCluster is configured and in normal mode on each cluster: **`metrocluster show`**

```
cluster_A::> metrocluster show
Cluster                   Entry Name          State
------------------------- ------------------- -----------
 Local: cluster_A         Configuration state configured
                          Mode                normal
                          AUSO Failure Domain auso-on-cluster-
disaster
Remote: cluster_B         Configuration state configured
                          Mode                normal
                          AUSO Failure Domain auso-on-cluster-
disaster
```

   b. Check that mirroring is enabled on each node: **`metrocluster node show`**

```
cluster_A::> metrocluster node show
DR                           Configuration  DR
Group Cluster Node           State          Mirroring Mode
----- ------- -------------- -------------- ---------
--------------------
1     cluster_A
              node_A_1       configured     enabled   normal
      cluster_B
              node_B_1       configured     enabled   normal
2 entries were displayed.
```

   c. Check that the MetroCluster components are healthy: **`metrocluster check run`**

```
cluster_A::> metrocluster check run

Last Checked On: 10/1/2014 16:03:37

Component           Result
------------------- ---------
nodes               ok
lifs                ok
config-replication  ok
aggregates          ok
4 entries were displayed.

Command completed. Use the "metrocluster check show -instance"
command or sub-commands in "metrocluster check" directory for
detailed results.
To check if the nodes are ready to do a switchover or switchback
operation, run "metrocluster switchover -simulate" or "metrocluster
switchback -simulate", respectively.
```

d. Check that there are no health alerts: **`system health alert show`**

2. Configure the new switch before installation.

   If you are reusing existing switches, go to Step 4.

   > If you are upgrading or downgrading the switches, you must configure all the switches in the network.

   Follow the steps in the section *Configuring the IP switches* in the MetroCluster IP installation and configuration.

   Make sure that you apply the correct RCF file for switch _A_1, _A_2, _B_1 or _B_2. If the new switch is the same as the old switch, you need to apply the same RCF file.

   If you upgrade or downgrade a switch, apply the latest supported RCF file for the new switch.

3. Run the port show command to view information about the network ports:

   `network port show`

   a. Modify all cluster LIFs to disable auto-revert:

   ```
   network interface modify -vserver <vserver_name> -lif <lif_name>
   -auto-revert false
   ```

4. Disconnect the connections from the old switch.

> You only disconnect connections that are not using the same port in the old and new configurations. If you are using new switches, you must disconnect all connections.

Remove the connections in the following order:

a. Disconnect the local cluster interfaces

b. Disconnect the local cluster ISLs

c. Disconnect the MetroCluster IP interfaces

d. Disconnect the MetroCluster ISLs

In the example Port usage worksheet, the switches do not change. The MetroCluster ISLs are relocated and must be disconnected. You do not need to disconnect the connections marked in green on the worksheet.

5. If you are using new switches, power off the old switch, remove the cables, and physically remove the old switch.

If you are reusing existing switches, go to Step 6.

> Do **not** cable the new switches except for the management interface (if used).

6. Configure the existing switches.

If you have pre-configured the switches already, you can skip this step.

To configure the existing switches, follow the steps to install and upgrade the firmware and RCF files:

- Upgrading firmware on MetroCluster IP switches
- Upgrade RCF files on MetroCluster IP switches

7. Cable the switches.

You can follow the steps in the *Cabling the IP switches* section in MetroCluster IP installation and configuration.

Cable the switches in the following order (if required):

a. Cable the ISLs to the remote site.

b. Cable the MetroCluster IP interfaces.

c. Cable the local cluster interfaces.

> - The used ports might be different from those on the old switch if the switch type is different. If you are upgrading or downgrading the switches, do **NOT** cable the local ISLs. Only cable the local ISLs if you are upgrading or downgrading the switches in the second network and both switches at one site are the same type and cabling.
> - If you are upgrading Switch-A1 and Switch-B1, you must perform steps 1 to 6 for switches Switch-A2 and Switch-B2.

8. Finalize the local cluster cabling.

a. If the local cluster interfaces are connected to a switch:

i. Cable the local cluster ISLs.

b. If the local cluster interfaces are **not** connected to a switch:

i. Use the Migrate to a switched NetApp cluster environment procedure to convert a switchless cluster to a switched cluster. Use the ports indicated in MetroCluster IP installation and configuration or the RCF cabling files to connect the local cluster interface.

9. Power up the switch or switches.

   If the new switch is the same, power up the new switch. If you are upgrading or downgrading the switches, then power up both switches. The configuration can operate with two different switches at each site until the second network is updated.

10. Verify that the MetroCluster configuration is healthy by repeating Step 1.

    If you are upgrading or downgrading the switches in the first network, you might see some alerts related to local clustering.

    If you upgrade or downgrade the networks, then repeat all of the steps for the second network.

11. Modify all cluster LIFs to re-enable auto-revert:

```
network interface modify -vserver <vserver_name> -lif <lif_name> -auto
-revert true
```

12. Revert all cluster LIFs that are not currently on their home ports to their home ports:

```
network interface revert -vserver * -lif *
```

13. Optionally, move the NS224 shelves.

    If you are reconfiguring a MetroCluster IP configuration that does not connect NS224 shelves to the MetroCluster IP switches, use the appropriate procedure to add or move the NS224 shelves:

    - Adding shelves to a MetroCluster IP using shared storage MetroCluster switches
    - Migrate from a switchless cluster with direct-attached storage
    - Migrate from a switchless configuration with switch-attached storage by reusing the storage switches

Online or offline MetroCluster IP interface ports

When you perform maintenance tasks, you might need to bring a MetroCluster IP interface port offline or online.

About this task

Enable console logging before performing this task.

Steps

You can use the following steps to bring a MetroCluster IP interface port online or take it offline.

1. Set the privilege level to advanced.

```
set -privilege advanced
```

Example output

```
Cluster A_1::> set -privilege advanced
Warning: These advanced commands are potentially dangerous; use them
only when
         directed to do so by NetApp personnel.
Do you want to continue? {y|n}: y
```

2. Take the MetroCluster IP interface port offline.

```
system ha interconnect link off -node <node_name> -link <link_num, 0 or
1>
```

Example output

```
Cluster_A1::*> system ha interconnect link off -node node-a1 -link 0
```

a. Verify the MetroCluster IP interface is offline.

```
Cluster_A1::*> system ha interconnect port show
```

Example output

```
Cluster_A1::*> system ha interconnect port show
                                Physical  Link
               Link             Layer     Layer      Physical
Physical  Active
Node            Monitor  Port  State     State       Link Up  Link
Down  Link
--------------  -------  ----  --------  ---------  --------
---------  ------
node-a1        off
                              0  disabled  down              4
3  false
                              1  linkup    active            4
2  true
node-a2        off
                              0  linkup    active            4
2  true
                              1  linkup    active            4
2  true
2 entries were displayed.
```

3. Bring the MetroCluster IP interface port online.

```
system ha interconnect link on -node <node_name> -link <link_num, 0 or
1>
```

Example output

```
Cluster_A1::*> system ha interconnect link on -node node-a1 -link 0
```

a. Verify the MetroCluster IP interface port is online.

```
Cluster_A1::*> system ha interconnect port show
```

Example output

```
Cluster_A1::*> system ha interconnect port show
                                Physical  Link
                Link            Layer     Layer      Physical
Physical  Active
Node            Monitor  Port   State     State       Link Up  Link
Down  Link
--------------  -------  ----  --------  ---------  --------
---------  ------
node-a1         off
                              0  linkup    active             5
3   true
                              1  linkup    active             4
2   true
node-a2         off
                              0  linkup    active             4
2   true
                              1  linkup    active             4
2   true
2 entries were displayed.
```

Upgrade firmware on MetroCluster IP switches

You might need to upgrade the firmware on a MetroCluster IP switch.

Verify that the RCF is supported

When you change ONTAP version or the switch firmware version, you should verify that you have a reference configuration file (RCF) that is supported for that version. If you use the RcfFileGenerator tool, the correct RCF is generated for your configuration.

Steps

1. Use the following commands from the switches to verify the version of the RCF:

From this switch…	Issue this command…
Broadcom switch	`(IP_switch_A_1) # show clibanner`
Cisco switch	`IP_switch_A_1# show banner motd`
NVIDIA SN2100 switch	`cumulus@mcc1:mgmt:~$ nv config find message`

Locate the line in the command output that indicates the RCF version. For example, the following output from a Cisco switch indicates that the RCF version is “v1.80”.

```
Filename : NX3232_v1.80_Switch-A2.txt
```

2. To check which files are supported for a specific ONTAP version, switch, and platform, use the RcfFileGenerator for MetroCluster IP. If you can generate the RCF for the configuration that you have or that you want to upgrade to, then it is supported.
3. To verify that the switch firmware is supported, refer to the following:
   - Hardware Universe
   - NetApp Interoperability Matrix

Upgrade the switch firmware

About this task

You must repeat this task on each of the switches in succession.

Enable console logging before performing this task.

Steps

1. Check the health of the configuration.
   a. Check that the MetroCluster is configured and in normal mode on each cluster:

      `metrocluster show`

      ```
      cluster_A::> metrocluster show
      Cluster                   Entry Name          State
      ------------------------- ------------------- -----------
       Local: cluster_A         Configuration state configured
                                Mode                normal
                                AUSO Failure Domain auso-on-cluster-
      disaster
      Remote: cluster_B         Configuration state configured
                                Mode                normal
                                AUSO Failure Domain auso-on-cluster-
      disaster
      ```

   b. Check that mirroring is enabled on each node:

      `metrocluster node show`

```
cluster_A::> metrocluster node show
DR                           Configuration  DR
Group Cluster Node           State          Mirroring Mode
----- ------- -------------- -------------- ---------
--------------------
1     cluster_A
              node_A_1       configured     enabled   normal
      cluster_B
              node_B_1       configured     enabled   normal
2 entries were displayed.
```

c. Check that the MetroCluster components are healthy:

`metrocluster check run`

```
cluster_A::*> metrocluster check run
```

The operation runs in the background.

d. After the `metrocluster check run` operation completes, run:

`metrocluster check show`

After approximately five minutes, the following results are displayed:

```
cluster_A:::*> metrocluster check show

Component           Result
------------------- ---------
nodes               ok
lifs                ok
config-replication  ok
aggregates          ok
clusters            ok
connections         ok
volumes             ok
7 entries were displayed.
```

e. Check that there are no health alerts:

`system health alert show`

2. Install the software on the first switch.

You must install the switch software on the switches in the following order: switch_A_1, switch_B_1, switch_A_2, switch_B_2.

Follow the steps for installing switch software in the relevant topic depending on whether the switch type is Broadcom, Cisco, or NVIDIA:

- Download and install the Broadcom switch EFOS software
- Download and install the Cisco switch NX-OS software
- Download and install the NVIDIA SN2100 switch Cumulus software

3. Repeat the previous step for each of the switches.
4. Repeat Step 1 to check the health of the configuration.

Upgrade RCF files on MetroCluster IP switches

You might need to upgrade a reference configuration file (RCF) file on a MetroCluster IP switch. For example, if the RCF version that you are running on the switches is not supported by the ONTAP version, the switch firmware version, or both.

Before you begin

- If you are installing new switch firmware, you must install the switch firmware before upgrading the RCF file.
- Before you upgrade the RCF, verify that the RCF is supported.
- Enable console logging before performing this task.

About this task

- This procedure disrupts traffic on the switch where the RCF file is upgraded. Traffic resumes when the new RCF file is applied.
- Perform the steps on one switch at a time, in the following order: Switch_A_1, Switch_B_1, Switch_A_2, Switch_B_2.

Steps

1. Verify the health of the configuration.

   a. Verify that the MetroCluster components are healthy:

   `metrocluster check run`

   ```
   cluster_A::*> metrocluster check run
   ```

   The operation runs in the background.

   a. After the `metrocluster check run` operation completes, run `metrocluster check show` to view the results.

   After approximately five minutes, the following results are displayed:

```
-----------
::*> metrocluster check show

Component           Result
------------------- ---------
nodes               ok
lifs                ok
config-replication  ok
aggregates          ok
clusters            ok
connections         ok
volumes             ok
7 entries were displayed.
```

b. Check the status of the running MetroCluster check operation:

```
metrocluster operation history show -job-id 38
```

c. Verify that there are no health alerts:

```
system health alert show
```

2. Prepare the IP switches for the application of the new RCF files.

   Follow the steps for your switch vendor:

   - Reset the Broadcom IP switch to factory defaults
   - Reset the Cisco IP switch to factory defaults
   - Reset the NVIDIA IP SN2100 switch to factory defaults

3. Download and install the IP RCF file, depending on your switch vendor.
   - Download and install the Broadcom IP RCF files
   - Download and install the Cisco IP RCF files
   - Download and install the NVIDIA IP RCF files

> If you have an L2 shared or L3 network configuration, you might need to adjust the ISL ports on the intermediate/customer switches. The switchport mode might change from 'access' to 'trunk' mode. Only proceed to upgrade the second switch pair (A_2, B_2) if the network connectivity between switches A_1 and B_1 is fully operational and the network is healthy.

Upgrade RCF files on Cisco IP switches using CleanUpFiles

You might need to upgrade an RCF file on a Cisco IP switch. For example, an ONTAP upgrade or a switch firmware upgrade both require a new RCF file.

About this task

- Beginning with RcfFileGenerator version 1.4a, there is a new option to change (upgrade, downgrade, or replace) the switch configuration on Cisco IP switches without the need to perform a 'write erase'.
- Enable console logging before performing this task.
- The Cisco 9336C-FX2 switch has two different switch storage types that are named differently in the RCF. Use the following table to determine the correct Cisco 9336C-FX2 storage type for your configuration:

If you are connecting the following storage…	Choose the Cisco 9336C-FX2 storage type…	Sample RCF file banner/MOTD
• Directly connected SAS shelves • Directly connected NVMe shelves • NVMe shelves connected to dedicated storage switches	9336C-FX2 – Direct Storage only	`* Switch : NX9336C (direct storage, L2 Networks, direct ISL)`
• Directly connected SAS shelves • NVMe shelves connected to the MetroCluster IP switches ⓘ At least one Ethernet connected NVMe shelf is required	9336C-FX2 – SAS and Ethernet storage	`* Switch : NX9336C (SAS and Ethernet storage, L2 Networks, direct ISL)`

Before you begin

You can use this method if your configuration meets the following requirements:

- The standard RCF configuration is applied.
- The RcfFileGenerator must be able to create the same RCF file that is applied, with the same version and configuration (platforms, VLANs).
- The RCF file that is applied was not provided by NetApp for a special configuration.
- The RCF file was not altered before it was applied.
- The steps to reset the switch to factory defaults were followed before applying the current RCF file.
- No changes were made to the switch(port) configuration after the RCF was applied.

If you do not meet these requirements, then you cannot use the CleanUpFiles that are created when generating the RCF files. However, you can leverage the function to create generic CleanUpFiles — the cleanup using this method is derived from the output of `show running-config` and is best practice.

ⓘ You must update the switches in the following order: Switch_A_1, Switch_B_1, Switch_A_2, Switch_B_2. Or, you can update the switches Switch_A_1 and Switch_B_1 at the same time followed by switches Switch_A_2 and Switch_B_2.

Steps

1. Determine the current RCF file version, and which ports and VLANs are used: `IP_switch_A_1# show banner motd`

   You need to get this information from all four switches and complete the following information table.

```
* NetApp Reference Configuration File (RCF)
*
* Switch : NX9336C (SAS storage, L2 Networks, direct ISL)
* Filename : NX9336_v1.81_Switch-A1.txt
* Date : Generator version: v1.3c_2022-02-24_001, file creation time:
2021-05-11, 18:20:50
*
* Platforms : MetroCluster 1 : FAS8300, AFF-A400, FAS8700
*              MetroCluster 2 : AFF-A320, FAS9000, AFF-A700, AFF-A800
* Port Usage:
* Ports 1- 2: Intra-Cluster Node Ports, Cluster: MetroCluster 1, VLAN
111
* Ports 3- 4: Intra-Cluster Node Ports, Cluster: MetroCluster 2, VLAN
151
* Ports 5- 6: Ports not used
* Ports 7- 8: Intra-Cluster ISL Ports, local cluster, VLAN 111, 151
* Ports 9-10: MetroCluster 1, Node Ports, VLAN 119
* Ports 11-12: MetroCluster 2, Node Ports, VLAN 159
* Ports 13-14: Ports not used
* Ports 15-20: MetroCluster-IP ISL Ports, VLAN 119, 159, Port Channel 10
* Ports 21-24: MetroCluster-IP ISL Ports, VLAN 119, 159, Port Channel
11, breakout mode 10gx4
* Ports 25-30: Ports not used
* Ports 31-36: Ports not used
*

#
IP_switch_A_1#
```

   From this output, you must collect the information shown in the following two tables.

Generic information	MetroCluster	Data
RCF file version		1.81
Switch type		NX9336
Network typology		L2 Networks, direct ISL
Storage type		SAS storage

Platforms	1	AFF A400
	2	FAS9000

VLAN information	Network	MetroCluster configuration	Switchports	Site A	Site B
VLAN local cluster	Network 1	1	1, 2	111	222
		2	3, 4	151	251
	Network 2	1	1, 2	111	222
		2	3, 4	151	251
VLAN MetroCluster	Network 1	1	9, 10	119	119
		2	11, 12	159	159
	Network 2	1	9, 10	219	219
		2	11, 12	259	259

2. Create the RCF files and CleanUpFiles, or create generic CleanUpFiles for the current configuration.

   If your configuration meets the requirements outlined in the prerequisites, select **Option 1**. If your configuration does **not** meet the requirements outlined in the prerequisites, select **Option 2**.

Option 1: Create the RCF files and CleanUpFiles

Use this procedure if the configuration meets the requirements.

Steps

a. Use the RcfFileGenerator 1.4a (or later) to create the RCF files with the information that you retrieved in Step 1. The new version of the RcfFileGenerator creates an additional set of CleanUpFiles that you can use to revert some configuration and prepare the switch to apply a new RCF configuration.

b. Compare the banner motd with the RCF files that are currently applied. The platform types, switch type, port and VLAN usage must be the same.

> ⓘ You must use the CleanUpFiles from the same version as the RCF file and for the exact same configuration. Using any CleanUpFile will not work and might require a full reset of the switch.

> ⓘ The ONTAP version the RCF file is created for is not relevant. Only the RCF file version is important.

> ⓘ The RCF file (even it is the same version) might list fewer or more platforms. Make sure that your platform is listed.

Option 2: Create generic CleanUpFiles

Use this procedure if the configuration does **not** meet all the requirements.

Steps

a. Retrieve the output of `show running-config` from each switch.

b. Open the RcfFileGenerator tool and click 'Create generic CleanUpFiles' at the bottom of the window

c. Copy the output that you retrieved in Step 1 from 'one' switch into the upper window. You can remove or leave the default output.

d. Click 'Create CUF files'.

e. Copy the output from the lower window into a text file (this file is the CleanUpFile).

f. Repeat Steps c, d, and e for all switches in the configuration.

At the end of this procedure, you should have four text files, one for each switch. You can use these files in the same way as the CleanUpFiles that you can create by using Option 1.

3. Create the 'new' RCF files for the new configuration. Create these files in the same way that you created the files in the previous step, except choose the respective ONTAP and RCF file version.

After completing this step you should have two sets of RCF files, each set consisting of twelve files.

4. Download the files to the bootflash.

a. Download the CleanUpFiles that you created in Create the RCF files and CleanUpFiles, or create generic CleanUpFiles for the current configuration

This CleanUpFile is for the current RCF file that is applied and **NOT** for the new RCF that you want to upgrade to.

Example CleanUpFile for Switch-A1: `Cleanup_NX9336_v1.81_Switch-A1.txt`

b. Download the 'new' RCF files that you created in Create the 'new' RCF files for the new configuration.

Example RCF file for Switch-A1: `NX9336_v1.90_Switch-A1.txt`

c. Download the CleanUpFiles that you created in Create the 'new' RCF files for the new configuration. This step is optional — you can use the file in future to update the switch configuration. It matches the currently applied configuration.

Example CleanUpFile for Switch-A1: `Cleanup_NX9336_v1.90_Switch-A1.txt`

You must use the CleanUpFile for the correct (matching) RCF version. If you use a CleanUpFile for a different RCF version, or a different configuration then the cleanup of the configuration might not work correctly.

The following example copies the three files to the bootflash:

```
IP_switch_A_1# copy sftp://user@50.50.50.50/RcfFiles/NX9336-direct-
SAS_v1.81_MetroCluster-
IP_L2Direct_A400FAS8700_xxx_xxx_xxx_xxx/Cleanup_NX9336_v1.81_Switch-
A1.txt bootflash:
IP_switch_A_1# copy sftp://user@50.50.50.50/RcfFiles/NX9336-direct-
SAS_v1.90_MetroCluster-
IP_L2Direct_A400FAS8700A900FAS9500_xxx_xxx_xxx_xxxNX9336_v1.90//NX933
6_v1.90_Switch-A1.txt bootflash:
IP_switch_A_1# copy sftp://user@50.50.50.50/RcfFiles/NX9336-direct-
SAS_v1.90_MetroCluster-
IP_L2Direct_A400FAS8700A900FAS9500_xxx_xxx_xxx_xxxNX9336_v1.90//Clean
up_NX9336_v1.90_Switch-A1.txt bootflash:
```

You are prompted to specify Virtual Routing and Forwarding (VRF).

5. Apply the CleanUpFile or generic CleanUpFile.

Some of the configuration is reverted and switchports go 'offline'.

a. Confirm that there are no pending changes to the startup configuration: `show running-config diff`

```
IP_switch_A_1# show running-config diff
IP_switch_A_1#
```

6. If you see system output, save the running configuration to the startup configuration: `copy running-`

`config startup-config`

> System output indicates that the startup configuration and running configuration are different and pending changes. If you do not save the pending changes, you are unable to roll back using a reload of the switch.

a. Apply the CleanUpFile:

```
IP_switch_A_1# copy bootflash:Cleanup_NX9336_v1.81_Switch-A1.txt
running-config

IP_switch_A_1#
```

> The script might take a while to return to the switch prompt. No output is expected.

7. View the running configuration to verify that the configuration is cleared: `show running-config`

   The current configuration should show:

   - No class maps and IP access lists are configured
   - No policy maps are configured
   - No service policies are configured
   - No port-profiles are configured
   - All Ethernet interfaces (except mgmt0 which should not show any configuration, and only VLAN 1 should be configured).

     If you find that any of the above items are configured, you might not be able to apply a new RCF file configuration. However, you can revert to the previous configuration by reloading the switch **without** saving the running configuration to the startup configuration. The switch will come up with the previous configuration.

8. Apply the RCF file and verify that the ports are online.

   a. Apply the RCF files.

```
IP_switch_A_1# copy bootflash:NX9336_v1.90-X2_Switch-A1.txt running-
config
```

> Some warning messages appear while applying the configuration. Error messages are generally not expected. However, if you are logged in using SSH, you might receive the following error: `Error: Can't disable/re-enable ssh:Current user is logged in through ssh`

   b. After the configuration is applied, verify that the cluster and MetroCluster ports are coming online with one of the following commands, `show interface brief`, `show cdp neighbors`, or `show lldp neighbors`

If you changed the VLAN for the local cluster and you upgraded the first switch at the site, then cluster health monitoring might not report the state as 'healthy' because the VLANs from the old and new configurations do not match. After the second switch is updated, the state should return to healthy.

If the configuration is not applied correctly, or you do not want to keep the configuration, you can revert to the previous configuration by reloading the switch **without** saving the running configuration to startup configuration. The switch will come up with the previous configuration.

9. Save the configuration and reload the switch.

```
IP_switch_A_1# copy running-config startup-config

IP_switch_A_1# reload
```

Renaming a Cisco IP switch

You might need to rename a Cisco IP switch to provide consistent naming throughout your configuration.

About this task

- In the examples in this task, the switch name is changed from `myswitch` to `IP_switch_A_1`.
- Enable console logging before performing this task.

Steps

1. Enter global configuration mode:

   `configure terminal`

   The following example shows the configuration mode prompt. Both prompts show the switch name of `myswitch`.

   ```
   myswitch# configure terminal
   myswitch(config)#
   ```

2. Rename the switch:

   `switchname new-switch-name`

   If you are renaming both switches in the network, use the same command on each switch.

   The CLI prompt changes to reflect the new name:

   ```
   myswitch(config)# switchname IP_switch_A_1
   IP_switch_A_1(config)#
   ```

3. Exit configuration mode:

   exit

   The top-level switch prompt is displayed:

   ```
   IP_switch_A_1(config)# exit
   IP_switch_A_1#
   ```

4. Copy the current running configuration to the startup configuration file:

   copy running-config startup-config

5. Verify that the switch name change is visible from the ONTAP cluster prompt.

   Note that the new switch name is shown, and the old switch name (`myswitch`) does not appear.

   a. Enter advanced privilege mode, pressing **y** when prompted:
   set -privilege advanced

   b. Display the attached devices:
   network device-discovery show

   c. Return to admin privilege mode:
   set -privilege admin

   The following example shows that the switch appears with the new name, `IP_switch_A_1`:

```
cluster_A::storage show> set advanced

Warning: These advanced commands are potentially dangerous; use them
only when directed to do so by NetApp personnel.
Do you want to continue? {y|n}: y

cluster_A::storage show*> network device-discovery show
Node/       Local  Discovered
Protocol    Port   Device                    Interface
Platform
----------- ------ ------------------------ ----------------
----------------
node_A_2/cdp
            e0M    LF01-410J53.mycompany.com(SAL18516DZY)
                                             Ethernet125/1/28  N9K-
C9372PX
            e1a    IP_switch_A_1(FOC21211RBU)
                                             Ethernet1/2       N3K-
C3232C
            e1b    IP_switch_A_1(FOC21211RBU)
                                             Ethernet1/10      N3K-
C3232C
.
.
.                                             Ethernet1/18      N9K-
C9372PX
node_A_1/cdp
            e0M    LF01-410J53.mycompany.com(SAL18516DZY)
                                             Ethernet125/1/26  N9K-
C9372PX
            e0a    IP_switch_A_2(FOC21211RB5)
                                             Ethernet1/1       N3K-
C3232C
            e0b    IP_switch_A_2(FOC21211RB5)
                                             Ethernet1/9       N3K-
C3232C
            e1a    IP_switch_A_1(FOC21211RBU)
.
.
.
16 entries were displayed.
```

Add, remove, or change ISL ports nondisruptively on Cisco IP switches

You might need to add, remove, or change ISL ports on Cisco IP switches. You can convert dedicated ISL ports to shared ISL ports, or change the speed of ISL ports on a Cisco IP switch.

About this task

If you are converting dedicated ISL ports to shared ISL ports, ensure the new ports meet the Requirements for shared ISL ports.

You must complete all the steps on both switches to ensure ISL connectivity.

The following procedure assumes you are replacing a 10-Gb ISL connected at switch port Eth1/24/1 with two 100-Gb ISLs that are connected to switch ports 17 and 18.

> If you are using a Cisco 9336C-FX2 switch in a shared configuration connecting NS224 shelves, changing the ISLs might require a new RCF file. You do not require a new RCF file if your current and new ISL speed is 40Gbps and 100Gbps. All other changes to ISL speed requires a new RCF file. For example, changing the ISL speed from 40Gbps to 100Gbps does not require a new RCF file, but changing the ISL speed from 10Gbps to 40Gbps requires a new RCF file.

Before you begin

Refer to the **Switches** section of the NetApp Hardware Universe to verify the supported transceivers.

Enable console logging before performing this task.

Steps

1. Disable the ISL ports of the ISLs on both switches in the fabric that you want to change.

   > You only need to disable the current ISL ports if you are moving them to a different port, or the speed of the ISL is changing. If you are adding an ISL port with the same speed as the existing ISLs, go to Step 3.

   You must enter only one configuration command for each line and press Ctrl-Z after you have entered all the commands, as shown in the following example:

```
switch_A_1# conf t
switch_A_1(config)# int eth1/24/1
switch_A_1(config-if)# shut
switch_A_1(config-if)#
switch_A_1#

switch_B_1# conf t
switch_B_1(config)# int eth1/24/1
switch_B_1(config-if)# shut
switch_B_1(config-if)#
switch_B_1#
```

2. Remove the existing cables and transceivers.
3. Change the ISL port as required.

> If you are using Cisco 9336C-FX2 switches in a shared configuration connecting NS224 shelves, and you need to upgrade the RCF file and apply the new configuration for the new ISL ports, follow the steps to upgrade the RCF files on MetroCluster IP switches.

Option	Step
To change the speed of an ISL port…	Cable the new ISLs to the designated ports according to their speeds. You must ensure that these ISL ports for your switch are listed in the *MetroCluster IP Installation and Configuration*.
To add an ISL…	Insert QFSPs into the ports you are adding as ISL ports. Ensure they are listed in the *MetroCluster IP Installation and Configuration* and cable them accordingly.

4. Enable all ISL ports (if not enabled) on both switches in the fabric beginning with the following command:

```
switch_A_1# conf t
```

You must enter only one configuration command per line and press Ctrl-Z after you have entered all the commands:

```
switch_A_1# conf t
switch_A_1(config)# int eth1/17
switch_A_1(config-if)# no shut
switch_A_1(config-if)# int eth1/18
switch_A_1(config-if)# no shut
switch_A_1(config-if)#
switch_A_1#
switch_A_1# copy running-config startup-config

switch_B_1# conf t
switch_B_1(config)# int eth1/17
switch_B_1(config-if)# no shut
switch_B_1(config-if)# int eth1/18
switch_B_1(config-if)# no shut
switch_B_1(config-if)#
switch_B_1#
switch_B_1# copy running-config startup-config
```

5. Verify that the ISLs and port channels for the ISLs are established between both switches:

```
switch_A_1# show int brief
```

You should see the ISL interfaces in the command output as shown in the following example:

```
Switch_A_1# show interface brief
--------------------------------------------------------------------------------
--------
Ethernet        VLAN    Type Mode   Status  Reason                   Speed
Port
Interface
Ch #
--------------------------------------------------------------------------------
--------
Eth1/17         1       eth  access down    XCVR not inserted
auto(D) --
Eth1/18         1       eth  access down    XCVR not inserted
auto(D) --

--------------------------------------------------------------------------------
------------------
Port-channel VLAN    Type Mode   Status  Reason
Speed   Protocol
Interface
--------------------------------------------------------------------------------
------------------
Po10         1       eth  trunk  up      none
a-100G(D)  lacp
Po11         1       eth  trunk  up      none
a-100G(D)  lacp
```

6. Repeat the procedure for fabric 2.

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