



# **IP switch maintenance and replacement**

## **ONTAP MetroCluster**

NetApp  
February 22, 2022

This PDF was generated from [https://docs.netapp.com/us-en/ontap-metrocluster/maintain/task\\_replace\\_an\\_ip\\_switch.html](https://docs.netapp.com/us-en/ontap-metrocluster/maintain/task_replace_an_ip_switch.html) on February 22, 2022. Always check docs.netapp.com for the latest.

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# IP switch maintenance and replacement

## Replacing an IP switch

You might need to replace a failed switch, or upgrade or downgrade a switch. 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).

If you want to replace a failed switch with the same type of switch, you only need to replace the failed switch. If you want to upgrade or downgrade a switch, you need to adjust two switches that are in the same network. Two switches are in the same network if 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. Network 2 includes IP\_switch\_A\_2 and IP\_switch\_B\_2 as shown in the diagram below:



This procedure is for Cisco or Broadcom switches. If you want to change the switch vendor, further steps are required.

If you upgrade or downgrade the networks, you must repeat this procedure for the second network.

### 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 | Group | Cluster   | Node     | Configuration State | DR      | 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 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
```

4. Disconnect the ISL connections from the remote switch that connect to the old switch.

You should disconnect the ISL connections from the ports on the `IP_switch_A_1` that connect to `IP_switch_B_1`.

5. Power off the switch, remove the cables and physically remove `IP_switch_B_1`.

6. Install the new switch.

Cable the new switch first (including the ISLs) according to the steps in the *Cabling the IP switches* section in the [MetroCluster IP installation and configuration](#).



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.

#### 7. 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.

#### 8. 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.

## Upgrading firmware on MetroCluster IP switches

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

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

### Steps

#### 1. Check the health of the configuration.

- 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
```

- Check that mirroring is enabled on each node:

```
metrocluster node show
```

```
cluster_A::> metrocluster node show
```

| DR | Group | Cluster   | Node     | Configuration | DR | Mirroring | Mode   |
|----|-------|-----------|----------|---------------|----|-----------|--------|
|    |       |           |          | State         |    |           |        |
|    | ----- |           |          | -----         |    | -----     |        |
| 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. 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 of the *MetroCluster IP Installation and Configuration* information depending on whether the switch type is Broadcom or Cisco:

- [Downloading and installing the Broadcom switch EFOS software](#)
- [Downloading and installing the Cisco switch NX-OS 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 an RCF file on a MetroCluster IP switch. For example, an ONTAP upgrade or a switch firmware upgrade both require a new RCF file.

### Ensure that the RCF file is supported

If you are changing the ONTAP version running on the switches, you should ensure that you have an RCF file that is supported for that version. If you use the RCF generator, the correct RCF file will be generated for you.

#### Steps

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

| From this switch... | Issue this command...            |
|---------------------|----------------------------------|
| Brocade switch      | (IP_switch_A_1) # show clibanner |
| Cisco switch        | IP_switch_A_1# show banner motd  |

For either switch, find the line in the output that indicates the version of the RCF file. For example, the following output is from a Cisco switch, which indicates the RCF file 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. If you can generate the RCF file 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](#)

### Upgrade RCF files

If you are installing new switch firmware, you must install the switch firmware before upgrading the RCF file.

#### About this task

This procedure disrupts traffic on the switch where the RCF file is upgraded. Traffic will resume once the new RCF file is applied.

#### 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

Last Checked On: 4/7/2019 21:15:05

Component          Result
-----
nodes              ok
lifs               ok
config-replication ok
aggregates         warning
clusters           ok
connections        not-applicable
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:

- [Resetting the Broadcom IP switch to factory defaults](#)
- [Resetting the Cisco IP switch to factory defaults](#)

3. Download and install the IP RCF file, depending on your switch vendor:

- [Downloading and installing the Broadcom IP RCF files](#)
- [Downloading and installing the Cisco IP RCF files](#)

Update the switches in the following order:

- a. Switch\_A\_1
- b. Switch\_B\_1
- c. Switch\_A\_2
- d. Switch\_B\_2

## Renaming a Cisco IP switch

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

In the examples in this task, the switch name is changed from `myswitch` to `IP_switch_A_1`.

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 fabric, 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/<br>Protocol<br>Platform | Local<br>Port | Discovered<br>Device                    | Interface        |      |
|-------------------------------|---------------|---|------------------|------|
| -----                         |               |   |                  |      |
| 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.

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