



# **Cable the MetroCluster IP switches**

## **ONTAP MetroCluster**

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# Cable the MetroCluster IP switches

## Using the port tables with the RcfFileGenerator tool or multiple MetroCluster configurations

You must understand how to use the information in the port tables to correctly generate your RCF files.

### Before you begin

Review these considerations before using the tables:

- The following tables show the port usage for site A. The same cabling is used for site B.
- The switches cannot be configured with ports of different speeds (for example, a mix of 100 Gbps ports and 40 Gbps ports).
- Keep track of the MetroCluster port group (MetroCluster 1, MetroCluster 2, etc.). You will need this information when using the RcfFileGenerator tool as described later in this configuration procedure.
- The [RcfFileGenerator for MetroCluster IP](#) also provides a per-port cabling overview for each switch. Use this cabling overview to verify your cabling.

## Cabling eight-node MetroCluster configurations

For MetroCluster configuration running ONTAP 9.8 and earlier, some procedures that are performed to transition an upgrade require the addition of a second four-node DR group to the configuration to create a temporary eight-node configuration. Beginning with ONTAP 9.9.1, permanent 8-node MetroCluster configurations are supported.

### About this task

For such configurations, you use the same method as described above. Instead of a second MetroCluster, you are cabling an additional four-node DR group.

For example, your configuration includes the following:

- Cisco 3132Q-V switches
- MetroCluster 1: FAS2750 platforms
- MetroCluster 2: AFF A700 platforms (these platforms are being added as a second four-node DR group)

### Steps

1. For MetroCluster 1, cable the Cisco 3132Q-V switches using the table for the FAS2750 platform and the rows for MetroCluster 1 interfaces.
2. For MetroCluster 2 (the second DR group), cable the Cisco 3132Q-V switches using the table for the AFF A700 platform and the rows for MetroCluster 2 interfaces.

## Platform port assignments for Cisco 3132Q-V switches

The port usage in a MetroCluster IP configuration depends on the switch model and platform type.

## Port usage for FAS2750 or AFF A220 systems and a Cisco 3132Q-V switch

| Cabling an AFF A220 or FAS2750 to a Cisco 3132Q-V switch     |                    |               |             |
|--|--------------------|---------------|-------------|
| Port use   | FAS2750. AFF A220  |               | Switch Port |
|  | IP_switch_x_1      | IP_switch_x_2 |             |
| Unused   | -                  |               | 1           |
|  |                    |               | 2           |
|  |                    |               | 3           |
|  |                    |               | 4           |
|  |                    |               | 5           |
|  |                    |               | 6           |
| ISL, Local Cluster<br>native speed / 40G / 100G              | ISL, Local Cluster |               | 7           |
|  |                    |               | 8           |
| MetroCluster 1, Shared Cluster and<br>MetroCluster interface | e0a                | e0b           | 9/1         |
|  | disabled           |               | 9/2-4       |
|  | e0a                | e0b           | 10/1        |
|  | disabled           |               | 10/2-4      |
| MetroCluster 2, Shared Cluster and<br>MetroCluster interface | e0a                | e0b           | 11/1        |
|  | disabled           |               | 11/2-4      |
|  | e0a                | e0b           | 12/1        |
|  | disabled           |               | 12/2-4      |
| MetroCluster 3, Shared Cluster and<br>MetroCluster interface | e0a                | e0b           | 13/1        |
|  | disabled           |               | 13/2-4      |
|  | e0a                | e0b           | 14/1        |
|  | disabled           |               | 14/2-4      |
| ISL, MetroCluster<br>native speed<br>40G                     | ISL, MetroCluster  |               | 15 - 20     |
| ISL, MetroCluster<br>breakout mode<br>10G                    | ISL, MetroCluster  |               | 21/1-4      |
|  |                    |               | 22/1-4      |
|  |                    |               | 23/1-4      |
|  |                    |               | 24/1-4      |
| Unused   | -                  |               | 25 - 32     |

## Port usage for FAS9000, AFF A700 and a Cisco 3132Q-V switch

| Cabling an AFF A700 or FAS9000 to a Cisco 3132Q-V switch |  |               |                     |
|--|--|---------------|---------------------|
| Port use   | FAS9000, AFF A700                            |               | Switch port<br>Port |
|  | IP_switch_x_1                                | IP_switch_x_2 |                     |
| MetroCluster 1<br>Local Cluster interface                | See Hardware Universe<br>for available ports |               | 1                   |
|  |  |               | 2                   |
| MetroCluster 2<br>Local Cluster interface                |  |               | 3                   |
|  |  |               | 4                   |
| MetroCluster 3<br>Local Cluster interface                |  |               | 5                   |
|  |  |               | 6                   |
| ISL, Local Cluster<br>native speed / 40G / 100G          | ISL, Local Cluster                           |               | 7                   |
|  |  |               | 8                   |
| MetroCluster 1<br>MetroCluster interface                 | e5a  | e5b           | 9                   |
|  | e5a  | e5b           | 10                  |
| MetroCluster 2<br>MetroCluster interface                 | e5a  | e5b           | 11                  |
|  | e5a  | e5b           | 12                  |
| MetroCluster 3<br>MetroCluster interface                 | e5a  | e5b           | 13                  |
|  | e5a  | e5b           | 14                  |
| ISL, MetroCluster<br>native speed<br>40G                 | ISL, MetroCluster                            |               | 15                  |
|  |  |               | 16                  |
|  |  |               | 17                  |
|  |  |               | 18                  |
|  |  |               | 19                  |
|  |  |               | 20                  |
| ISL, MetroCluster<br>breakout mode<br>10G                | ISL, MetroCluster                            |               | 21/1-4              |
|  |  |               | 22/1-4              |
|  |  |               | 23/1-4              |
|  |  |               | 24/1-4              |
| Unused   | -  |               | 25 - 32             |

### Port usage for AFF A800 and a Cisco 3132Q-V switch

| Cabling an AFF A800 to a Cisco 3132Q-V switch   |  |               |             |
|---|--|---------------|-------------|
| Port use  | AFF A800                                     |               | Switch Port |
|   | IP_switch_x_1                                | IP_switch_x_2 |             |
| MetroCluster 1<br>Local Cluster interface       | See Hardware Universe<br>for available ports |               | 1           |
|   |  |               | 2           |
| MetroCluster 2<br>Local Cluster interface       |  |               | 3           |
|   |  |               | 4           |
| MetroCluster 3<br>Local Cluster interface       |  |               | 5           |
|   |  |               | 6           |
| ISL, Local Cluster<br>native speed / 40G / 100G | ISL, Local Cluster                           |               | 7           |
|   |  |               | 8           |
| MetroCluster 1<br>MetroCluster interface        | e0b  | e1b           | 9           |
|   | e0b  | e1b           | 10          |
| MetroCluster 2<br>MetroCluster interface        | e0b  | e1b           | 11          |
|   | e0b  | e1b           | 12          |
| MetroCluster 3<br>MetroCluster interface        | e0b  | e1b           | 13          |
|   | e0b  | e1b           | 14          |
| ISL, MetroCluster<br>native speed<br>40G        | ISL, MetroCluster                            |               | 15          |
|   |  |               | 16          |
|   |  |               | 17          |
|   |  |               | 18          |
|   |  |               | 19          |
|   |  |               | 20          |
| ISL, MetroCluster<br>breakout mode<br>10G       | ISL, MetroCluster                            |               | 21/1-4      |
|   |  |               | 22/1-4      |
|   |  |               | 23/1-4      |
|   |  |               | 24/1-4      |
| Unused  | -  |               | 25 - 32     |

## Platform port assignments for Cisco 3232C or Cisco 9336C switches

The port usage in a MetroCluster IP configuration depends on the switch model and platform type.

Review these considerations before using the tables:

- The following tables show the port usage for site A. The same cabling is used for site B.
- The switches cannot be configured with ports of different speeds (for example, a mix of 100 Gbps ports and 40 Gbps ports).
- If you are configuring a single MetroCluster with the switches, use the **MetroCluster 1** port group.

Keep track of the MetroCluster port group (MetroCluster 1, MetroCluster 2, or MetroCluster 3). You will need it when using the RcfFileGenerator tool as described later in this configuration procedure.

- The RcfFileGenerator for MetroCluster IP also provides a per-port cabling overview for each switch.

Use this cabling overview to verify your cabling.

## Cabling two MetroCluster configurations to the switches

When cabling more than one MetroCluster configuration to a Cisco 3132Q-V switch, then cable each MetroCluster according to the appropriate table. For example, if cabling a FAS2750 and an A700 to the same Cisco 3132Q-V switch. Then you cable the FAS2750 as per 'MetroCluster 1' in Table 1, and the A700 as per 'MetroCluster 2' or 'MetroCluster 3' in Table 2. You cannot physically cable both the FAS2750 and A700 as 'MetroCluster 1'.

## Cabling a FAS2750 or AFF A220 system to a Cisco 3232C or Cisco 9336C switch

| Cabling an AFF A220 or FAS2750 to a Cisco 3232C or Cisco 9336C switch |                    |               |             |
|---|--------------------|---------------|-------------|
| Port use  | FAS2750, AFF A220  |               | Switch port |
|   | IP_switch_x_1      | IP_switch_x_2 |             |
| Unused  | -                  |               | 1 - 6       |
| ISL, Local Cluster<br>native speed / 100G                             | ISL, Local Cluster |               | 7           |
|   |                    |               | 8           |
| MetroCluster 1, Shared Cluster<br>and MetroCluster interface          | e0a                | e0b           | 9/1         |
|   | disabled           |               | 9/2-4       |
|   | e0a                | e0b           | 10/1        |
|   | disabled           |               | 10/2-4      |
| MetroCluster 2, Shared Cluster<br>and MetroCluster interface          | e0a                | e0b           | 11/1        |
|   | disabled           |               | 11/2-4      |
|   | e0a                | e0b           | 12/1        |
|   | disabled           |               | 12/2-4      |
| MetroCluster 3, Shared Cluster<br>and MetroCluster interface          | e0a                | e0b           | 13/1        |
|   | disabled           |               | 13/2-4      |
|   | e0a                | e0b           | 14/1        |
|   | disabled           |               | 14/2-4      |
| ISL, MetroCluster<br>native speed<br>40G / 100G                       | ISL, MetroCluster  |               | 15          |
|   |                    |               | 16          |
|   |                    |               | 17          |
|   |                    |               | 18          |
|   |                    |               | 19          |
|   |                    |               | 20          |
| ISL, MetroCluster<br>breakout mode<br>10G                             | ISL, MetroCluster  |               | 21/1-4      |
|   |                    |               | 22/1-4      |
|   |                    |               | 23/1-4      |
|   |                    |               | 24/1-4      |
| Unused  | -                  |               | 25 - 32     |

## **Cabling a AFF A300 or FAS8200 to a Cisco 3232C or Cisco 9336C switch**



| Cabling a AFF A300 or FAS8200 to a Cisco 3232C or Cisco 9336C switch |  |               |             |
|--|--|---------------|-------------|
| Port use   | FAS8200, AFF A300                            |               | Switch port |
|  | IP_switch_x_1                                | IP_switch_x_2 |             |
| MetroCluster 1<br>Local Cluster interface                            | See Hardware Universe<br>for available ports |               | 1/1         |
|  |  |               | 1/2 - 4     |
|  |  |               | 2/1         |
|  |  |               | 2/2 - 4     |
| MetroCluster 2<br>Local Cluster interface                            |  |               | 3/1         |
|  |  |               | 3/2 - 4     |
|  |  |               | 4/1         |
|  |  |               | 4/2 - 4     |
| MetroCluster 3<br>Local Cluster interface                            |  |               | 5/1         |
|  |  |               | 5/2 - 4     |
|  |  |               | 6/1         |
|  |  |               | 6/2 - 4     |
| ISL, Local Cluster<br>native speed / 100G                            | ISL, Local Cluster                           |               | 7           |
|  |  |               | 8           |
| MetroCluster 1<br>MetroCluster interface                             | e1a  | e1b           | 9/1         |
|  | disabled                                     |               | 9/2-4       |
|  | e1a  | e1b           | 10/1        |
|  | disabled                                     |               | 10/2-4      |
| MetroCluster 2<br>MetroCluster interface                             | e1a  | e1b           | 11/1        |
|  | disabled                                     |               | 11/2-4      |
|  | e1a  | e1b           | 12/1        |
|  | disabled                                     |               | 12/2-4      |
| MetroCluster 3<br>MetroCluster interface                             | e1a  | e1b           | 13/1        |
|  | disabled                                     |               | 13/2-4      |
|  | e1a  | e1b           | 14/1        |
|  | disabled                                     |               | 14/2-4      |
| ISL, MetroCluster  | ISL, MetroCluster                            |               | 15 - 20     |
| ISL, MetroCluster<br>breakout mode<br>10G                            | ISL, MetroCluster                            |               | 21/1-4      |
|  |  |               | 22/1-4      |
|  |  |               | 23/1-4      |
|  |  |               | 24/1-4      |
| MetroCluster 4<br>MetroCluster interface                             | e1a  | e1b           | 25/1        |
|  | disabled                                     |               | 25/2-4      |
|  | e1a  | e1b           | 26/1        |
|  | disabled                                     |               | 26/2-4      |
| Unused   | -  |               | 27 - 28     |
| MetroCluster 4<br>Local Cluster interface                            | See Hardware Universe                        |               | 29/1        |
|  | disabled                                     |               | 29/2-4      |
|  | See Hardware Universe                        |               | 30/1        |
|  | disabled                                     |               | 30/2-4      |
| Unused   | -  |               | 31 - 32     |

## Cabling a AFF A250 or FAS500f to a Cisco 3232C or Cisco 9336C switch

| Cabling an AFF A250 or FAS500f to a Cisco 3232C or Cisco 9336C switch |                    |               |             |
|---|--------------------|---------------|-------------|
| Port use  | FAS500f, AFF A250  |               | Switch port |
|   | IP_switch_x_1      | IP_switch_x_2 |             |
| Unused  | -                  |               | 1 - 6       |
| ISL, Local Cluster<br>native speed / 100G                             | ISL, Local Cluster |               | 7           |
|   |                    |               | 8           |
| MetroCluster 1, Shared<br>Cluster and MetroCluster<br>interface       | e0c                | e0d           | 9/1         |
|   | disabled           |               | 9/2-4       |
|   | e0c                | e0d           | 10/1        |
|   | disabled           |               | 10/2-4      |
| MetroCluster 2, Shared<br>Cluster and MetroCluster<br>interface       | e0c                | e0d           | 11/1        |
|   | disabled           |               | 11/2-4      |
|   | e0c                | e0d           | 12/1        |
|   | disabled           |               | 12/2-4      |
| MetroCluster 3, Shared<br>Cluster and MetroCluster<br>interface       | e0c                | e0d           | 13/1        |
|   | disabled           |               | 13/2-4      |
|   | e0c                | e0d           | 14/1        |
|   | disabled           |               | 14/2-4      |
| ISL, MetroCluster<br>native speed<br>40G / 100G                       | ISL, MetroCluster  |               | 15          |
|   |                    |               | 16          |
|   |                    |               | 17          |
|   |                    |               | 18          |
|   |                    |               | 19          |
|   |                    |               | 20          |
| ISL, MetroCluster<br>breakout mode<br>10G                             | ISL, MetroCluster  |               | 21/1-4      |
|   |                    |               | 22/1-4      |
|   |                    |               | 23/1-4      |
|   |                    |               | 24/1-4      |
| Unused  | -                  |               | 25 - 32     |

## Cabling a AFF A320 to a Cisco 3232C or Cisco 9336C switch

| Cabling a AFF A320 to a Cisco 3232C or Cisco 9336C switch |  |               |             |
|---|--|---------------|-------------|
| Port use  | AFF A320                                     |               | Switch port |
|   | IP_switch_x_1                                | IP_switch_x_2 |             |
| MetroCluster 1,<br>Local Cluster interface                | See Hardware Universe<br>for available ports |               | 1           |
|   |  |               | 2           |
| MetroCluster 2,<br>Local Cluster interface                |  |               | 3           |
|   |  |               | 4           |
| MetroCluster 3,<br>Local Cluster interface                |  |               | 5           |
|   |  |               | 6           |
| ISL, Local Cluster<br>native speed / 100G                 | ISL, Local Cluster                           |               | 7           |
|   |  |               | 8           |
| MetroCluster 1,<br>MetroCluster interface                 | e0g  | e0h           | 9           |
|   | e0g  | e0h           | 10          |
| MetroCluster 2,<br>MetroCluster interface                 | e0g  | e0h           | 11          |
|   | e0g  | e0h           | 12          |
| MetroCluster 3,<br>MetroCluster interface                 | e0g  | e0h           | 13          |
|   | e0g  | e0h           | 14          |
| ISL, MetroCluster<br>native speed<br>40G / 100G           | ISL, MetroCluster                            |               | 15          |
|   |  |               | 16          |
|   |  |               | 17          |
|   |  |               | 18          |
|   |  |               | 19          |
|   |  |               | 20          |
| ISL, MetroCluster<br>breakout mode<br>10G                 | ISL, MetroCluster                            |               | 21/1-4      |
|   |  |               | 22/1-4      |
|   |  |               | 23/1-4      |
|   |  |               | 24/1-4      |
| Unused  | -  |               | 25          |
|   |  |               | 26          |
|   |  |               | 27          |
|   |  |               | 28          |
|   |  |               | 29          |
|   |  |               | 30          |
|   |  |               | 31          |
|   |  |               | 32          |

## Cabling an AFF A400, FAS8300 or FAS8700 to a Cisco 3232C or Cisco 9336C switch

| Cabling a AFF A400, FAS8300 or FAS8700<br>to a Cisco 3232C or Cisco 9336C switch |  |               |             |
|--|--|---------------|-------------|
| Port use   | FAS8300, FAS8700, AFF A400                   |               | Switch port |
|  | IP_switch_x_1                                | IP_switch_x_2 |             |
| MetroCluster 1,<br>Local Cluster interface                                       | See Hardware Universe<br>for available ports |               | 1           |
|  |  |               | 2           |
| MetroCluster 2,<br>Local Cluster interface                                       |  |               | 3           |
|  |  |               | 4           |
| MetroCluster 3,<br>Local Cluster interface                                       |  |               | 5           |
|  |  |               | 6           |
| ISL, Local Cluster<br>native speed / 100G  | ISL, Local Cluster                           |               | 7           |
|  |  |               | 8           |
| MetroCluster 1,<br>MetroCluster interface  | e1a  | e1b           | 9           |
|  | e1a  | e1b           | 10          |
| MetroCluster 2,<br>MetroCluster interface  | e1a  | e1b           | 11          |
|  | e1a  | e1b           | 12          |
| MetroCluster 3,<br>MetroCluster interface  | e1a  | e1b           | 13          |
|  | e1a  | e1b           | 14          |
| ISL, MetroCluster<br>native speed<br>40G / 100G                                  | ISL, MetroCluster                            |               | 15          |
|  |  |               | 16          |
|  |  |               | 17          |
|  |  |               | 18          |
|  |  |               | 19          |
|  |  |               | 20          |
| ISL, MetroCluster<br>breakout mode<br>10G  | ISL, MetroCluster                            |               | 21/1-4      |
|  |  |               | 22/1-4      |
|  |  |               | 23/1-4      |
|  |  |               | 24/1-4      |
| Unused   | -  |               | 25          |
|  |  |               | 26          |
|  |  |               | 27          |
|  |  |               | 28          |
|  |  |               | 29          |
|  |  |               | 30          |
|  |  |               | 31          |
|  |  |               | 32          |

## Cabling a AFF A700 or FAS9000 to a Cisco 3232C or Cisco 9336C switch

| Cabling a AFF A700 or FAS9000 to a Cisco 3232C or Cisco 9336C switch |  |               |             |
|--|--|---------------|-------------|
| Port use   | FAS9000, AFF A700                            |               | Switch port |
|  | IP_switch_x_1                                | IP_switch_x_2 |             |
| MetroCluster 1,<br>Local Cluster interface                           | See Hardware Universe<br>for available ports |               | 1           |
|  |  |               | 2           |
| MetroCluster 2,<br>Local Cluster interface                           |  |               | 3           |
|  |  |               | 4           |
| MetroCluster 3,<br>Local Cluster interface                           |  |               | 5           |
|  |  |               | 6           |
| ISL, Local Cluster<br>native speed / 100G                            | ISL, Local Cluster                           |               | 7           |
|  |  |               | 8           |
| MetroCluster 1,<br>MetroCluster interface                            | e5a  | e5b           | 9           |
|  | e5a  | e5b           | 10          |
| MetroCluster 2,<br>MetroCluster interface                            | e5a  | e5b           | 11          |
|  | e5a  | e5b           | 12          |
| MetroCluster 3,<br>MetroCluster interface                            | e5a  | e5b           | 13          |
|  | e5a  | e5b           | 14          |
| ISL, MetroCluster<br>native speed<br>40G / 100G                      | ISL, MetroCluster                            |               | 15          |
|  |  |               | 16          |
|  |  |               | 17          |
|  |  |               | 18          |
|  |  |               | 19          |
|  |  |               | 20          |
| ISL, MetroCluster<br>breakout mode<br>10G                            | ISL, MetroCluster                            |               | 21/1-4      |
|  |  |               | 22/1-4      |
|  |  |               | 23/1-4      |
|  |  |               | 24/1-4      |
| Unused   | -  |               | 25          |
|  |  |               | 26          |
|  |  |               | 27          |
|  |  |               | 28          |
|  |  |               | 29          |
|  |  |               | 30          |
|  |  |               | 31          |
|  |  |               | 32          |

### Cabling a AFF A800 to a Cisco 3232C or Cisco 9336C switch

| Cabling an AFF A800 to a Cisco 3232C or Cisco 9336C switch |  |               |             |
|--|--|---------------|-------------|
| Port use   | AFF A800                                     |               | Switch port |
|  | IP_switch_x_1                                | IP_switch_x_2 |             |
| MetroCluster 1,<br>Local Cluster interface                 | See Hardware Universe<br>for available ports |               | 1           |
|  |  |               | 2           |
| MetroCluster 2,<br>Local Cluster interface                 |  |               | 3           |
|  |  |               | 4           |
| MetroCluster 3,<br>Local Cluster interface                 |  |               | 5           |
|  |  |               | 6           |
| ISL, Local Cluster<br>native speed / 100G                  | ISL, Local Cluster                           |               | 7           |
|  |  |               | 8           |
| MetroCluster 1,<br>MetroCluster interface                  | e0b  | e1b           | 9           |
|  | e0b  | e1b           | 10          |
| MetroCluster 2,<br>MetroCluster interface                  | e0b  | e1b           | 11          |
|  | e0b  | e1b           | 12          |
| MetroCluster 3,<br>MetroCluster interface                  | e0b  | e1b           | 13          |
|  | e0b  | e1b           | 14          |
| ISL, MetroCluster<br>native speed<br>40G / 100G            | ISL, MetroCluster                            |               | 15          |
|  |  |               | 16          |
|  |  |               | 17          |
|  |  |               | 18          |
|  |  |               | 19          |
|  |  |               | 20          |
| ISL, MetroCluster<br>breakout mode<br>10G                  | ISL, MetroCluster                            |               | 21/1-4      |
|  |  |               | 22/1-4      |
|  |  |               | 23/1-4      |
|  |  |               | 24/1-4      |
| Unused   | -  |               | 25          |
|  |  |               | 26          |
|  |  |               | 27          |
|  |  |               | 28          |
|  |  |               | 29          |
|  |  |               | 30          |
|  |  |               | 31          |
|  |  |               | 32          |

## Cabling an AFF A900 or FAS9500 to a Cisco 3232C or Cisco 9336C switch



You have the option to use ports e5a and e7a as intercluster LIFs in a MetroCluster IP configuration.

| Cabling a FAS9500 or AFF A900 to a Cisco 3232C or Cisco 9336C-FX2 switch |   |               |             |
|--|---|---------------|-------------|
| Port use   | FAS9500 / A900  |               | Switch Port |
|  | IP_switch_x_1   | IP_switch_x_2 |             |
| MetroCluster 1, Local Cluster interface                                  | See <a href="#">Hardware Universe</a> for available ports |               | 1           |
|  |   |               | 2           |
| MetroCluster 2, Local Cluster interface                                  |   |               | 3           |
|  |   |               | 4           |
| MetroCluster 3, Local Cluster interface                                  |   |               | 5           |
| Ports for Transition (10/40/100Gbps)                                     |   |               | 6           |
| ISL, Local Cluster native speed / 100G                                   | ISL, Local Cluster  |               | 7           |
|  |   |               | 8           |
| MetroCluster 1, MetroCluster interface                                   | e5b   | e7b           | 9           |
|  | e5b   | e7b           | 10          |
| MetroCluster 2, MetroCluster interface                                   | e5b   | e7b           | 11          |
|  | e5b   | e7b           | 12          |
| MetroCluster 3, MetroCluster interface                                   | e5b   | e7b           | 13          |
|  | e5b   | e7b           | 14          |
| ISL, MetroCluster native speed 40G / 100G                                | ISL, MetroCluster   |               | 15          |
|  |   |               | 16          |
|  |   |               | 17          |
|  |   |               | 18          |
|  |   |               | 19          |
|  |   |               | 20          |
| ISL, MetroCluster breakout mode 10G                                      | ISL, MetroCluster   |               | 21/1-4      |
|  |   |               | 22/1-4      |
|  |   |               | 23/1-4      |
|  |   |               | 24/1-4      |
| Unused   | Unused  |               | 25          |
|  |   |               | 26          |
|  |   |               | 27          |
|  |   |               | 28          |
|  |   |               | 29          |
|  |   |               | 30          |
|  |   |               | 31          |
|  |   |               | 32          |
| 9336C-FX2 only: Ports disabled   | 9336C-FX2 only: Ports disabled                            |               | 33          |
|  |   |               | 34          |
|  |   |               | 35          |
|  |   |               | 36          |



## Cabling an AFF A320, AFF A400, AFF A700 or AFF A800 to a Cisco 9336C-FX2 shared switch

| Cabling an AFF A320, A400, A700, and A800 to a Cisco 9336C-FX2 shared switch |  |                   |    |
|--|--|-------------------|----|
| MetroCluster 1,<br>Local Cluster Interface                                   | See Hardware Universe<br>for available ports |                   | 1  |
|  |  |                   | 2  |
| MetroCluster 2,<br>Local Cluster Interface                                   |  |                   | 3  |
|  |  |                   | 4  |
| Storage shelf 1 (9)  | NSM-A, e0a                                   | NSM-A, e0b        | 5  |
|  | NSM-B, e0a                                   | NSM-B, e0b        | 6  |
| ISL, Local Cluster<br>native speed / 100G                                    | ISL, Local Cluster                           |                   | 7  |
|  |  |                   | 8  |
| MetroCluster 1,<br>MetroCluster interface                                    | Port 'A'                                     | Port 'B'          | 9  |
|  | Port 'A'                                     | Port 'B'          | 10 |
| MetroCluster 2,<br>MetroCluster interface                                    | Port 'A'                                     | Port 'B'          | 11 |
|  | Port 'A'                                     | Port 'B'          | 12 |
| ISL, MetroCluster,<br>native speed 40G / 100G<br>breakout mode 10G           | ISL, MetroCluster                            | ISL, MetroCluster | 13 |
|  |  |                   | 14 |
|  |  |                   | 15 |
|  |  |                   | 16 |
| MetroCluster 1,<br>Storage Interface   | See Hardware Universe<br>for available ports |                   | 17 |
|  |  |                   | 18 |
| MetroCluster 2,<br>Storage Interface   |  |                   | 19 |
|  |  |                   | 20 |
| Storage shelf 2 (8)  | NSM-A, e0a                                   | NSM-A, e0b        | 21 |
|  | NSM-B, e0a                                   | NSM-B, e0b        | 22 |
| Storage shelf 3 (7)  | NSM-A, e0a                                   | NSM-A, e0b        | 23 |
|  | NSM-B, e0a                                   | NSM-B, e0b        | 24 |
| Storage shelf 4 (6)  | NSM-A, e0a                                   | NSM-A, e0b        | 25 |
|  | NSM-B, e0a                                   | NSM-B, e0b        | 26 |
| Storage shelf 5 (5)  | NSM-A, e0a                                   | NSM-A, e0b        | 27 |
|  | NSM-B, e0a                                   | NSM-B, e0b        | 28 |
| Storage shelf 6 (4)  | NSM-A, e0a                                   | NSM-A, e0b        | 29 |
|  | NSM-B, e0a                                   | NSM-B, e0b        | 30 |
| Storage shelf 7 (3)  | NSM-A, e0a                                   | NSM-A, e0b        | 31 |
|  | NSM-B, e0a                                   | NSM-B, e0b        | 32 |
| Storage shelf 8 (2)  | NSM-A, e0a                                   | NSM-A, e0b        | 33 |
|  | NSM-B, e0a                                   | NSM-B, e0b        | 34 |
| Storage shelf 9 (1)  | NSM-A, e0a                                   | NSM-A, e0b        | 35 |
|  | NSM-B, e0a                                   | NSM-B, e0b        | 36 |



| MetroCluster interfaces per platform |          |          |
|--------------------------------------|----------|----------|
| Platform                             | Port 'A' | Port 'B' |
| AFF A320                             | e0g      | e0h      |
| AFF A400                             | e1a      | e1b      |
| AFF A700                             | e5a      | e5b      |
| AFF A800                             | e0b      | e1b      |

## Platform port assignments for Broadcom supported BES-53248 IP switches

The port usage in a MetroCluster IP configuration depends on the switch model and platform type.

The switches cannot be used with remote ISL ports of different speeds (for example, a 25 Gbps port connected to a 10 Gbps ISL port).

### Notes for the tables below:

1. For some platforms, you can use ports 49 - 54 for MetroCluster ISLs or MetroCluster interface connections.

These ports require an additional license.

2. Only a single four-node MetroCluster using A320 systems can be connected to the switch.

Features that require a switched cluster are not supported in this configuration, including MetroCluster FC to IP transition and tech refresh procedures.

3. AFF A320 systems configured with Broadcom BES-53248 switches might not support all features.

Any configuration or feature that requires that the local cluster connections are connected to a switch is not supported. For example, the following configurations and procedures are not supported:

- Eight-node MetroCluster configurations
  - Transitioning from MetroCluster FC to MetroCluster IP configurations
  - Refreshing a four-node MetroCluster IP configuration (ONTAP 9.8 and later)
4. If you connect two MetroCluster configurations and both use the same controller type, then you must use MetroCluster port groups 3 and 4. If the controllers are different, then you must use either MetroCluster port groups 3 and 4 for one type and MetroCluster port groups 1 and 2 for the other.
    - For example, if you connect:
      - Two MetroCluster configurations consisting of FAS2750/AFF A220 only, or FAS500f/AFF A250 only, you must select MetroCluster port groups 3 and 4.
      - Two MetroCluster configurations where one MetroCluster is type FAS2750/AFF A220 and the other is FAS500f/AFF A250, you must select port groups 3 and 4 for one, and port groups 1 and 2 for the other. In the [RcfFileGenerator for MetroCluster IP](#), drop-down fields 1 and 2 only populate with the supported platform after you select platforms in drop-down fields 3 and 4. Refer to [Using the port tables with the RcfFileGenerator tool or multiple MetroCluster configurations](#) for more information on how to use the port tables.

## Switch port usage for AFF A220 or FAS2750 systems

| Cabling a AFF A220 or FAS2750 to a Broadcom BES-53248 switch |                    |               |             |
|--|--------------------|---------------|-------------|
| Port use   | FAS2750, A220      |               | Switch port |
|  | IP_switch_x_1      | IP_switch_x_2 |             |
| Unused   | -                  |               | 1-6         |
| MetroCluster 3, Shared Cluster and MetroCluster interface    | e0a                | e0b           | 9           |
|  | e0a                | e0b           | 10          |
| MetroCluster 4, Shared Cluster and MetroCluster interface    | e0a                | e0b           | 11          |
|  | e0a                | e0b           | 12          |
| ISL, MetroCluster native speed<br>10G / 25G                  | ISL, MetroCluster  |               | 13          |
|  |                    |               | 14          |
|  |                    |               | 15          |
|  |                    |               | 16          |
| Unused   | -                  |               | 17 - 52     |
| ISL, MetroCluster, native speed<br>40G / 100G (see note 1)   | ISL, MetroCluster  |               | 53          |
|  |                    |               | 54          |
| ISL, Local Cluster native speed / 100G                       | ISL, Local Cluster |               | 55          |
|  |                    |               | 56          |

## Switch port usage for AFF A250 or FAS500f systems

| Cabling a AFF A250 or FAS500f to a Broadcom BES-53248 switch |                    |               |             |
|--|--------------------|---------------|-------------|
| Port use   | FAS500f, A250      |               | Switch port |
|  | IP_switch_x_1      | IP_switch_x_2 |             |
| Unused   | -                  |               | 1-6         |
| MetroCluster 3, Shared Cluster and MetroCluster interface    | e0c                | e0d           | 9           |
|  | e0c                | e0d           | 10          |
| MetroCluster 4, Shared Cluster and MetroCluster interface    | e0c                | e0d           | 11          |
|  | e0c                | e0d           | 12          |
| ISL, MetroCluster native speed<br>10G / 25G                  | ISL, MetroCluster  |               | 13          |
|  |                    |               | 14          |
|  |                    |               | 15          |
|  |                    |               | 16          |
| Unused   | -                  |               | 17 - 52     |
| ISL, MetroCluster, native speed<br>40G / 100G (see note 1)   | ISL, MetroCluster  |               | 53          |
|  |                    |               | 54          |
| ISL, Local Cluster native speed / 100G                       | ISL, Local Cluster |               | 55          |
|  |                    |               | 56          |

## Switch port usage for combined use of AFF A250 or FAS500f and AFF A220 or FAS2750 systems

| Cabling a AFF A220 or FAS2750 and a AFF A250 or FAS500f to a Broadcom BES-53248 switch |                    |               |                    |               |             |
|--|--------------------|---------------|--------------------|---------------|-------------|
| Port use   | FAS2750, AFF A220  |               | FAS500f, AFF A250  |               | Switch port |
|  | IP_switch_x_1      | IP_switch_x_2 | IP_switch_x_1      | IP_switch_x_2 |             |
| Unused   | -                  |               | -                  |               | 1-4         |
| MetroCluster 1, Shared Cluster and MetroCluster interface (see note 4)                 | e0a                | e0b           | e0c                | e0d           | 5           |
|  | e0a                | e0b           | e0c                | e0d           | 6           |
| MetroCluster 2, Shared Cluster and MetroCluster interface (see note 4)                 | e0a                | e0b           | e0c                | e0d           | 7           |
|  | e0a                | e0b           | e0c                | e0d           | 8           |
| MetroCluster 3, Shared Cluster and MetroCluster interface (see note 4)                 | e0a                | e0b           | e0c                | e0d           | 9           |
|  | e0a                | e0b           | e0c                | e0d           | 10          |
| MetroCluster 4, Shared Cluster and MetroCluster interface (see note 4)                 | e0a                | e0b           | e0c                | e0d           | 11          |
|  | e0a                | e0b           | e0c                | e0d           | 12          |
| ISL, MetroCluster native speed 10G / 25G   | ISL, MetroCluster  |               | ISL, MetroCluster  |               | 13          |
|  |                    |               |                    |               | 14          |
|  |                    |               |                    |               | 15          |
|  |                    |               |                    |               | 16          |
| Unused   | -                  |               | -                  |               | 17 - 52     |
| ISL, MetroCluster, native speed 40G / 100G (see note 1)                                | ISL, MetroCluster  |               | ISL, MetroCluster  |               | 53          |
|  |                    |               |                    |               | 54          |
| ISL, Local Cluster native speed / 100G   | ISL, Local Cluster |               | ISL, Local Cluster |               | 55          |
|  |                    |               |                    |               | 56          |

## Switch port usage for AFF A300 or FAS8200 systems

| Cabling a AFF A300 or FAS8200 to a Broadcom BES-53248 switch |  |               |             |
|--|--|---------------|-------------|
| Port use   | FAS8200, AFF A300                            |               | Switch port |
|  | IP_switch_x_1                                | IP_switch_x_2 |             |
| MetroCluster 1, Local Cluster interface                      | See Hardware Universe<br>for available ports |               | 1           |
|  |  |               | 2           |
| MetroCluster 2, Local Cluster interface                      |  |               | 3           |
|  |  |               | 4           |
| MetroCluster 1, MetroCluster interface                       | e1a  | e1b           | 5           |
|  | e1a  | e1b           | 6           |
| MetroCluster 2, MetroCluster interface                       | e1a  | e1b           | 7           |
|  | e1a  | e1b           | 8           |
| Unused   | -  |               | 9           |
|  |  |               | 10          |
|  |  |               | 11          |
|  |  |               | 12          |
| ISL, MetroCluster<br>native speed<br>10G / 25G               | ISL, MetroCluster                            |               | 13          |
|  |  |               | 14          |
|  |  |               | 15          |
|  |  |               | 16          |
| Unused   | -  |               | 17 - 52     |
| ISL, MetroCluster, native speed<br>40G / 100G (see note 1)   | ISL, MetroCluster                            |               | 53          |
|  |  |               | 54          |
| ISL, Local Cluster<br>native speed / 100G                    | ISL, Local Cluster                           |               | 55          |
|  |  |               | 56          |

| Cabling a AFF A320 to a Broadcom BES-53248 switch          |                   |               |             |
|--|-------------------|---------------|-------------|
| Port use   | AFF A320          |               | Switch port |
|  | IP_switch_x_1     | IP_switch_x_2 |             |
| Ports not used   | Ports not used    |               | 1 - 12      |
| ISL, MetroCluster<br>native speed<br>10G / 25G             | ISL, MetroCluster |               | 13          |
|  |                   |               | 14          |
|  |                   |               | 15          |
|  |                   |               | 16          |
| Ports not licensed (17 - 52)                               |                   |               | ..          |
| ISL, MetroCluster, native speed<br>40G / 100G (see note 1) | ISL, MetroCluster |               | 53          |
|  |                   |               | 54          |
| MetroCluster 1, MetroCluster interface<br>(see note 2)     | e0g               | e0h           | 55          |
|  | e0g               | e0h           | 56          |

## Switch port usage for AFF A400, FAS8300 or FAS8700 systems

| Cabling a FAS8300, A400 or FAS8700 to a Broadcom BES-53248 switch |  |               |             |
|---|--|---------------|-------------|
| Port use  | FAS8300,FAS8700, A400                        |               | Switch port |
|   | IP_switch_x_1                                | IP_switch_x_2 |             |
| Unused  | -  |               | 1 - 12      |
| ISL, MetroCluster<br>native speed<br>10G / 25G                    | ISL, MetroCluster                            |               | 13          |
|   |  |               | 14          |
|   |  |               | 15          |
|   |  |               | 16          |
| Unused  | -  |               | 17 - 48     |
| MetroCluster 5, Local Cluster interface<br>(see note 1)           | See Hardware Universe<br>for available ports |               | 49          |
|   |  |               | 50          |
| MetroCluster 5, MetroCluster interface<br>(see note 1)            | e1a  | e1b           | 51          |
|   | e1a  | e1b           | 52          |
| ISL, MetroCluster, native speed<br>40G / 100G (see note 1)        | ISL, MetroCluster                            |               | 53          |
|   |  |               | 54          |
| ISL, Local Cluster<br>native speed / 100G                         | ISL, Local Cluster                           |               | 55          |
|   |  |               | 56          |

## Platform port assignments for NVIDIA supported SN2100 IP switches

The port usage in a MetroCluster IP configuration depends on the switch model and platform type.

### Supported configurations

The following platforms are currently supported:

- FAS500f / AFF A250
- FAS8300 / AFF A400
- FAS8700
- FAS9000 / AFF A700
- AFF A800

The following platforms and configurations are not currently supported:

- MetroCluster FC-to-IP Transition
- An eight-node MetroCluster configuration

### Review these considerations before using the configuration tables

If you cable multiple MetroCluster configurations then follow the respective table. For example:

- If you cable two four-node MetroCluster configurations of type AFF A700, then connect the first MetroCluster shown as 'MetroCluster 1', and the second MetroCluster shown as 'MetroCluster 2' in the AFF A700 table.



Ports 13 and 14 can be used in native speed mode supporting 40 Gbps and 100 Gbps, or in breakout mode to support 4 × 25 Gbps or 4 × 10 Gbps. If they use native speed mode they are represented as port 13 and 14. If they use breakout mode, either 4 × 25 Gbps or 4 × 10 Gbps, then they are represented as 13s0-3 and 14s0-3.

The following sections describe the physical cabling outline. You can also refer to the [RcfFileGenerator](#) for detailed cabling information.

### Switch port usage for AFF A250 or FAS500f systems

| Port use  | FAS500f, A250      |               | Switch port |
|---|--------------------|---------------|-------------|
|   | IP_Switch_x_1      | IP_Switch_x_2 |             |
| Ports not used  | -                  |               | 1 - 6       |
| MetroCluster 1, Shared Cluster and MetroCluster interface | e0c                | e0d           | 7s0         |
|   | disabled           |               | 7s1-3       |
|   | e0c                | e0d           | 8s0         |
|   | disabled           |               | 8s1-3       |
| MetroCluster 2, Shared Cluster and MetroCluster interface | e0c                | e0d           | 9s0         |
|   | disabled           |               | 9s1-3       |
|   | e0c                | e0d           | 10s0        |
|   | disabled           |               | 10s1-3      |
| MetroCluster 3, Shared Cluster and MetroCluster interface | e0c                | e0d           | 11s0        |
|   | disabled           |               | 11s1-3      |
|   | e0c                | e0d           | 12s0        |
|   | disabled           |               | 12s1-3      |
| MetroCluster ISL<br>40/100G or 4 × 25G or 4 × 10G         | ISL, MetroCluster  |               | 13/13s0-3   |
|   |                    |               | 14/14s0-3   |
| ISL, Local Cluster<br>100G                                | ISL, Local Cluster |               | 15          |
|   |                    |               | 16          |

### Switch port usage for AFF A400, FAS8300 or FAS8700 systems

| Port use  | FAS8300, A400, FAS8700            |               | Switch port |
|---|-----------------------------------|---------------|-------------|
|   | IP_Switch_x_1                     | IP_Switch_x_2 |             |
| MetroCluster 1,<br>Local Cluster interface        | Local Cluster ports<br>as per HWU |               | 1           |
|   |                                   |               | 2           |
| MetroCluster 2,<br>Local Cluster interface        | Local Cluster ports<br>as per HWU |               | 3           |
|   |                                   |               | 4           |
| MetroCluster 3,<br>Local Cluster interface        | Local Cluster ports<br>as per HWU |               | 5           |
|   |                                   |               | 6           |
| MetroCluster 1,<br>MetroCluster interface         | e1a                               | e1b           | 7           |
|   | e1a                               | e1b           | 8           |
| MetroCluster 2,<br>MetroCluster interface         | e1a                               | e1b           | 9           |
|   | e1a                               | e1b           | 10          |
| MetroCluster 3,<br>MetroCluster interface         | e1a                               | e1b           | 11          |
|   | e1a                               | e1b           | 12          |
| MetroCluster ISL<br>40/100G or 4 × 25G or 4 × 10G | ISL, MetroCluster                 |               | 13/13s0-3   |
|   |                                   |               | 14/14s0-3   |
| ISL, Local Cluster<br>100G                        | ISL, Local Cluster                |               | 15          |
|   |                                   |               | 16          |

### Switch port usage for AFF A700 or FAS9000

| Port use  | FAS9000, A700                     |               | Switch port |
|---|-----------------------------------|---------------|-------------|
|   | IP_Switch_x_1                     | IP_Switch_x_2 |             |
| MetroCluster 1,<br>Local Cluster interface        | Local Cluster ports<br>as per HWU |               | 1           |
|   |                                   |               | 2           |
| MetroCluster 2,<br>Local Cluster interface        | Local Cluster ports<br>as per HWU |               | 3           |
|   |                                   |               | 4           |
| MetroCluster 3,<br>Local Cluster interface        | Local Cluster ports<br>as per HWU |               | 5           |
|   |                                   |               | 6           |
| MetroCluster 1,<br>MetroCluster interface         | e5a                               | e5b           | 7           |
|   | e5a                               | e5b           | 8           |
| MetroCluster 2,<br>MetroCluster interface         | e5a                               | e5b           | 9           |
|   | e5a                               | e5b           | 10          |
| MetroCluster 3,<br>MetroCluster interface         | e5a                               | e5b           | 11          |
|   | e5a                               | e5b           | 12          |
| MetroCluster ISL<br>40/100G or 4 × 25G or 4 × 10G | ISL, MetroCluster                 |               | 13/13s0-3   |
|   |                                   |               | 14/14s0-3   |
| ISL, Local Cluster<br>100G                        | ISL, Local Cluster                |               | 15          |
|   |                                   |               | 16          |

### Switch port usage for AFF A800

| Port use  | A800                              |               | Switch port |
|---|-----------------------------------|---------------|-------------|
|   | IP_Switch_x_1                     | IP_Switch_x_2 |             |
| MetroCluster 1,<br>Local Cluster interface        | Local Cluster ports<br>as per HWU |               | 1           |
|   |                                   |               | 2           |
| MetroCluster 2,<br>Local Cluster interface        | Local Cluster ports<br>as per HWU |               | 3           |
|   |                                   |               | 4           |
| MetroCluster 3,<br>Local Cluster interface        | Local Cluster ports<br>as per HWU |               | 5           |
|   |                                   |               | 6           |
| MetroCluster 1,<br>MetroCluster interface         | e0b                               | e1b           | 7           |
|   | e0b                               | e1b           | 8           |
| MetroCluster 2,<br>MetroCluster interface         | e0b                               | e1b           | 9           |
|   | e0b                               | e1b           | 10          |
| MetroCluster 3,<br>MetroCluster interface         | e0b                               | e1b           | 11          |
|   | e0b                               | e1b           | 12          |
| MetroCluster ISL<br>40/100G or 4 × 25G or 4 × 10G | ISL, MetroCluster                 |               | 13/13s0-3   |
|   |                                   |               | 14/14s0-3   |
| ISL, Local Cluster<br>100G                        | ISL, Local Cluster                |               | 15          |
|   |                                   |               | 16          |



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