



Port assignments for FC switches when using AFF A900 systems

ONTAP MetroCluster

NetApp
July 12, 2022

This PDF was generated from https://docs.netapp.com/us-en/ontap-metrocluster/install-fc/concept_AFF_A900_brocade_port_config.html on July 12, 2022. Always check docs.netapp.com for the latest.

Table of Contents

- Port assignments for FC switches when using AFF A900 or FAS9500 systems 1
 - Overall cabling guidelines 1
 - Brocade port usage for AFF A900 or FAS9500 controllers in a MetroCluster configuration running ONTAP 9.10.1 or later 1
 - AFF A900 or FAS9500 - Brocade port usage for ISLs in an MetroCluster configuration running ONTAP 9.10.1 or later 8
 - Cisco port usage for AFF A900 or FAS9500 controllers in a MetroCluster configuration running ONTAP 9.10.1 or later 9
 - AFF A900 or FAS9500 - Cisco port usage for ISLs in an eight-node configuration in a MetroCluster configuration running ONTAP 9.10.1 or later 11

Port assignments for FC switches when using AFF A900 or FAS9500 systems

You need to verify that you are using the specified port assignments when you cable the FC switches when using ONTAP 9.10.1 and later.

Ports that are not used for attaching initiator ports, FC-VI ports, or ISLs can be reconfigured to act as storage ports. However, if the supported RCFs are being used, the zoning must be changed accordingly.

If the supported RCFs are used, ISL ports might not connect to the same ports shown and might need to be reconfigured manually.

If you configured your switches using the port assignments for ONTAP 9, you can continue to use the older assignments. However, new configurations running ONTAP 9.1 or later releases should use the port assignments shown here.

Overall cabling guidelines

You should be aware of the following guidelines when using the cabling tables:

- AFF A900 or FAS9500 storage systems require eight FC-VI ports. If you are using an AFF A900 or FAS9500, you need to use the eight port configuration. If the configuration includes the other storage system models, use the cabling shown in the tables but ignore the cabling for unneeded FC-VI ports.
- If you have two MetroCluster configurations sharing ISLs, use the same port assignments as that for an eight-node MetroCluster cabling.
- The number of ISLs you cable may vary depending on site's requirements.
- See the section on ISL considerations.


[Considerations for ISLs](#)

Brocade port usage for AFF A900 or FAS9500 controllers in a MetroCluster configuration running ONTAP 9.10.1 or later

The following tables show port usage on Brocade switches. The tables show the maximum supported configuration, with eight controller modules in four DR groups. AFF A900 and FAS9500 systems have eight FC-VI ports (a, b, c, and d for FC-VI-1 and FC-VI-2)

| Configurations using FibreBridge 7500N or 7600N using both FC ports (FC1 and FC2) | | | | | | |
|---|------|---------------------------|------|------------|--------------|-------------------|
| MetroCluster 1 or DR Group 1 | | | | | | |
| Component | Port | Brocade switch model | | | | |
| | | Connects to FC_switc h... | 6510 | 6505, G610 | G620, G620-1 | G630, G630-1 G720 |

| | | | | | | | |
|----------------|-------------------|---|----|----|----|----|----|
| controller_x_1 | FC-VI-1 port a | 1 | 0 | 0 | 0 | 0 | 0 |
| | FC-VI-1 port b | 2 | 0 | 0 | 0 | 0 | 0 |
| | FC-VI-1 port c | 1 | 1 | 1 | 1 | 1 | 1 |
| | FC-VI-1 port d | 2 | 1 | 1 | 1 | 1 | 1 |
| | FC-VI-2 port a | 1 | 20 | 16 | 16 | 16 | 2 |
| | FC-VI-2 port b | 2 | 20 | 16 | 16 | 16 | 2 |
| | FC-VI-2 port c | 1 | 21 | 17 | 17 | 17 | 3 |
| | FC-VI-2 port d | 2 | 21 | 17 | 17 | 17 | 3 |
| | HBA port a | 1 | 2 | 2 | 2 | 2 | 8 |
| | HBA port b | 2 | 2 | 2 | 2 | 2 | 8 |
| | HBA port c | 1 | 3 | 3 | 3 | 3 | 9 |
| | HBA port d | 2 | 3 | 3 | 3 | 3 | 9 |
| controller_x_2 | FC-VI-1 port a | 1 | 4 | 4 | 4 | 4 | 4 |
| | FC-VI-1 port b | 2 | 4 | 4 | 4 | 4 | 4 |
| | FC-VI-1 port c | 1 | 5 | 5 | 5 | 5 | 5 |
| | FC-VI-1 port d | 2 | 5 | 5 | 5 | 5 | 5 |
| | FC-VI-2 port a | 1 | 22 | 18 | 20 | 20 | 6 |
| | FC-VI-2 port b | 2 | 22 | 18 | 20 | 20 | 6 |
| | FC-VI-2 port c | 1 | 23 | 19 | 21 | 21 | 7 |
| | FC-VI-2 port d | 2 | 23 | 19 | 21 | 21 | 7 |
| | HBA port a | 1 | 6 | 6 | 6 | 6 | 12 |
| | HBA port b | 2 | 6 | 6 | 6 | 6 | 12 |
| | HBA port c | 1 | 7 | 7 | 7 | 7 | 13 |
| | HBA port d | 2 | 7 | 7 | 7 | 7 | 13 |

| | | | | | | | | |
|--|-----------------|-----|---|----|----|----|----|----|
| Stack 1 | bridge_x_1 a | FC1 | 1 | 8 | 8 | 8 | 8 | 10 |
| | | FC2 | 2 | 8 | 8 | 8 | 8 | 10 |
| | bridge_x_1 b | FC1 | 1 | 9 | 9 | 9 | 9 | 11 |
| | | FC2 | 2 | 9 | 9 | 9 | 9 | 11 |
| Stack 2 | bridge_x_2 a | FC1 | 1 | 10 | 10 | 10 | 10 | 14 |
| | | FC2 | 2 | 10 | 10 | 10 | 10 | 14 |
| | bridge_x_2 b | FC1 | 1 | 11 | 11 | 11 | 11 | 15 |
| | | FC2 | 2 | 11 | 11 | 11 | 11 | 15 |
| Stack 3 | bridge_x_3 a | FC1 | 1 | 12 | 12 | 12 | 12 | 16 |
| | | FC2 | 2 | 12 | 12 | 12 | 12 | 16 |
| | bridge_x_3 b | FC1 | 1 | 13 | 13 | 13 | 13 | 17 |
| | | FC2 | 2 | 13 | 13 | 13 | 13 | 17 |
| Stack y | bridge_x_y a | FC1 | 1 | 14 | 14 | 14 | 14 | 20 |
| | | FC2 | 2 | 14 | 14 | 14 | 14 | 20 |
| | bridge_x_y b | FC1 | 1 | 15 | 15 | 15 | 15 | 21 |
| | | FC2 | 2 | 15 | 15 | 15 | 15 | 21 |
| <div><div></div><div>Additional bridges can be cabled to ports 16-19 in 6510 switches.</div></div> | | | | | | | | |

| Configurations using FibreBridge 7500N or 7600N using both FC ports (FC1 and FC2) | | | | | | | |
|---|------|----------------------------|------|------------|--------------|--------------|------|
| MetroCluster 2 or DR Group 2 | | | | | | | |
| Component | Port | Brocade switch model | | | | | |
| | | Connects to FC_switch h... | 6510 | 6505, G610 | G620, G620-1 | G630, G630-1 | G720 |
| | | | | | | | |

| | | | | | | | |
|----------------|-------------------|---|----|---|----|----|----|
| controller_x_3 | FC-VI-1 port a | 1 | 24 | - | 18 | 18 | 18 |
| | FC-VI-1 port b | 2 | 24 | - | 18 | 18 | 18 |
| | FC-VI-1 port c | 1 | 25 | - | 19 | 19 | 19 |
| | FC-VI-1 port d | 2 | 25 | - | 19 | 19 | 19 |
| | FC-VI-2 port a | 1 | 36 | - | 36 | 36 | 24 |
| | FC-VI-2 port b | 2 | 36 | - | 36 | 36 | 24 |
| | FC-VI-2 port c | 1 | 37 | - | 37 | 37 | 25 |
| | FC-VI-2 port d | 2 | 37 | - | 37 | 37 | 25 |
| | HBA port a | 1 | 26 | - | 24 | 24 | 26 |
| | HBA port b | 2 | 26 | - | 24 | 24 | 26 |
| | HBA port c | 1 | 27 | - | 25 | 25 | 27 |
| | HBA port d | 2 | 27 | - | 25 | 25 | 27 |
| controller_x_4 | FC-VI-1 port a | 1 | 28 | - | 22 | 22 | 22 |
| | FC-VI-1 port b | 2 | 28 | - | 22 | 22 | 22 |
| | FC-VI-1 port c | 1 | 29 | - | 23 | 23 | 23 |
| | FC-VI-1 port d | 2 | 29 | - | 23 | 23 | 23 |
| | FC-VI-2 port a | 1 | 38 | - | 38 | 38 | 28 |
| | FC-VI-2 port b | 2 | 38 | - | 38 | 38 | 28 |
| | FC-VI-2 port c | 1 | 39 | - | 39 | 39 | 29 |
| | FC-VI-2 port d | 2 | 39 | - | 39 | 39 | 29 |
| | HBA port a | 1 | 30 | - | 28 | 28 | 30 |
| | HBA port b | 2 | 30 | - | 28 | 28 | 30 |
| | HBA port c | 1 | 31 | - | 29 | 29 | 31 |
| | HBA port d | 2 | 31 | - | 29 | 29 | 31 |

| | | | | | | | | |
|---|------------------|-----|---|----|---|----|----|----|
| Stack 1 | bridge_x_5 1a | FC1 | 1 | 32 | - | 26 | 26 | 32 |
| | | FC2 | 2 | 32 | - | 26 | 26 | 32 |
| | bridge_x_5 1b | FC1 | 1 | 33 | - | 27 | 27 | 33 |
| | | FC2 | 2 | 33 | - | 27 | 27 | 33 |
| Stack 2 | bridge_x_5 2a | FC1 | 1 | 34 | - | 30 | 30 | 34 |
| | | FC2 | 2 | 34 | - | 30 | 30 | 34 |
| | bridge_x_5 2b | FC1 | 1 | 35 | - | 31 | 31 | 35 |
| | | FC2 | 2 | 35 | - | 31 | 31 | 35 |
| Stack 3 | bridge_x_5 3a | FC1 | 1 | - | - | 32 | 32 | 36 |
| | | FC2 | 2 | - | - | 32 | 32 | 36 |
| | bridge_x_5 3b | FC1 | 1 | - | - | 33 | 33 | 37 |
| | | FC2 | 2 | - | - | 33 | 33 | 37 |
| Stack y | bridge_x_5 ya | FC1 | 1 | - | - | 34 | 34 | 38 |
| | | FC2 | 2 | - | - | 34 | 34 | 38 |
| | bridge_x_5 yb | FC1 | 1 | - | - | 35 | 35 | 39 |
| | | FC2 | 2 | - | - | 35 | 35 | 39 |
|  MetroCluster 2 or DR 2 only supports two (2) bridge stacks with 6510 switches. | | | | | | | | |
|  MetroCluster 2 or DR 2 is not supported with 6505, G610 switches. | | | | | | | | |

| Configurations using FibreBridge 7500N or 7600N using both FC ports (FC1 and FC2) | | | |
|---|------|-----------------------------|--------------|
| MetroCluster 3 or DR Group 3 | | | |
| Component | Port | Brocade switch model | |
| | | Connects to FC_switch... | G630, G630-1 |

| | | | | |
|----------------|-------------|----------------|---|----|
| controller_x_5 | | FC-VI-1 port a | 1 | 48 |
| | | FC-VI-1 port b | 2 | 48 |
| | | FC-VI-1 port c | 1 | 49 |
| | | FC-VI-1 port d | 2 | 49 |
| | | FC-VI-2 port a | 1 | 64 |
| | | FC-VI-2 port b | 2 | 64 |
| | | FC-VI-2 port c | 1 | 65 |
| | | FC-VI-2 port d | 2 | 65 |
| | | HBA port a | 1 | 50 |
| | | HBA port b | 2 | 50 |
| | | HBA port c | 1 | 51 |
| | | HBA port d | 2 | 51 |
| controller_x_6 | | FC-VI-1 port a | 1 | 52 |
| | | FC-VI-1 port b | 2 | 52 |
| | | FC-VI-1 port c | 1 | 53 |
| | | FC-VI-1 port d | 2 | 53 |
| | | FC-VI-2 port a | 1 | 68 |
| | | FC-VI-2 port b | 2 | 68 |
| | | FC-VI-2 port c | 1 | 69 |
| | | FC-VI-2 port d | 2 | 69 |
| | | HBA port a | 1 | 54 |
| | | HBA port b | 2 | 54 |
| | | HBA port c | 1 | 55 |
| | | HBA port d | 2 | 55 |
| Stack 1 | bridge_x_1a | FC1 | 1 | 56 |
| | | FC2 | 2 | 56 |
| | bridge_x_1b | FC1 | 1 | 57 |
| | | FC2 | 2 | 57 |
| Stack 2 | bridge_x_2a | FC1 | 1 | 58 |
| | | FC2 | 2 | 58 |
| | bridge_x_2b | FC1 | 1 | 59 |
| | | FC2 | 2 | 59 |

| | | | | |
|---------|-------------|-----|---|----|
| Stack 3 | bridge_x_3a | FC1 | 1 | 60 |
| | | FC2 | 2 | 60 |
| | bridge_x_3b | FC1 | 1 | 61 |
| | | FC2 | 2 | 61 |
| Stack y | bridge_x_ya | FC1 | 1 | 62 |
| | | FC2 | 2 | 62 |
| | bridge_x_yb | FC1 | 1 | 63 |
| | | FC2 | 2 | 63 |

Configurations using FibreBridge 7500N or 7600N using both FC ports (FC1 and FC2)

MetroCluster 4 or DR Group 4

| Component | Port | Brocade switch model | |
|----------------|----------------|-----------------------------|--------------|
| | | Connects to FC_switch... | G630, G630-1 |
| controller_x_7 | FC-VI-1 port a | 1 | 66 |
| | FC-VI-1 port b | 2 | 66 |
| | FC-VI-1 port c | 1 | 67 |
| | FC-VI-1 port d | 2 | 67 |
| | FC-VI-2 port a | 1 | 84 |
| | FC-VI-2 port b | 2 | 84 |
| | FC-VI-2 port c | 1 | 85 |
| | FC-VI-2 port d | 2 | 85 |
| | HBA port a | 1 | 72 |
| | HBA port b | 2 | 72 |
| | HBA port c | 1 | 73 |
| | HBA port d | 2 | 73 |

| | | | | |
|----------------|--------------|----------------|---|----|
| controller_x_8 | | FC-VI-1 port a | 1 | 70 |
| | | FC-VI-1 port b | 2 | 70 |
| | | FC-VI-1 port c | 1 | 71 |
| | | FC-VI-1 port d | 2 | 71 |
| | | FC-VI-2 port a | 1 | 86 |
| | | FC-VI-2 port b | 2 | 86 |
| | | FC-VI-2 port c | 1 | 87 |
| | | FC-VI-2 port d | 2 | 87 |
| | | HBA port a | 1 | 76 |
| | | HBA port b | 2 | 76 |
| | | HBA port c | 1 | 77 |
| | | HBA port d | 2 | 77 |
| Stack 1 | bridge_x_51a | FC1 | 1 | 74 |
| | | FC2 | 2 | 74 |
| | bridge_x_51b | FC1 | 1 | 75 |
| | | FC2 | 2 | 75 |
| Stack 2 | bridge_x_52a | FC1 | 1 | 78 |
| | | FC2 | 2 | 78 |
| | bridge_x_52b | FC1 | 1 | 79 |
| | | FC2 | 2 | 79 |
| Stack 3 | bridge_x_53a | FC1 | 1 | 80 |
| | | FC2 | 2 | 80 |
| | bridge_x_53b | FC1 | 1 | 81 |
| | | FC2 | 2 | 81 |
| Stack y | bridge_x_5ya | FC1 | 1 | 82 |
| | | FC2 | 2 | 82 |
| | bridge_x_5yb | FC1 | 1 | 83 |
| | | FC2 | 2 | 83 |

AFF A900 or FAS9500 - Brocade port usage for ISLs in an MetroCluster configuration running ONTAP 9.10.1 or later

The following table shows ISL port usage for the Brocade switches in a AFF A900 or FAS9500 system.



AFF A900 and FAS9500 systems support eight ISLs. Eight ISLs are supported on the Brocade 6510, G620, G620-1, and G720 switches.

| Switch model | ISL port | Switch port |
|--------------------------|----------|-------------|
| 6510, G620, G620-1, G720 | ISL1 | 40 |
| | ISL2 | 41 |
| | ISL3 | 42 |
| | ISL4 | 43 |
| | ISL5 | 44 |
| | ISL6 | 45 |
| | ISL7 | 46 |
| | ISL8 | 47 |
| 6505,G610 | ISL1 | 20 |
| | ISL2 | 21 |
| | ISL3 | 22 |
| | ISL4 | 23 |

Cisco port usage for AFF A900 or FAS9500 controllers in a MetroCluster configuration running ONTAP 9.10.1 or later

The tables show the maximum supported configurations, with eight AFF A900 or FAS9500 controller modules in a DR group.



- The following table shows systems with eight FC-VI ports. AFF A900 and FAS9500 have eight FC-VI ports (a, b, c, and d for FC-VI-1 and FC-VI-2).
- MetroCluster 2 or DR 2 is not supported with 9132T switches.

| Configurations using FibreBridge 7500N or 7600N using both FC ports (FC1 and FC2) | | | | |
|---|------|--------------------------|----------------|----------------|
| MetroCluster 1 or DR Group 1 | | | | |
| Component | Port | Cisco switch model | | |
| | | Connects to FC_switch... | 9132T (1x LEM) | 9132T (2x LEM) |

| | | | | | |
|----------------|-------------|----------------|---|---------|---------|
| controller_x_1 | | FC-VI-1 port a | 1 | LEM1-1 | LEM1-1 |
| | | FC-VI-1 port b | 2 | LEM1-1 | LEM1-1 |
| | | FC-VI-1 port c | 1 | LEM1-2 | LEM1-2 |
| | | FC-VI-1 port d | 2 | LEM1-2 | LEM1-2 |
| | | FC-VI-2 port a | 1 | LEM1-3 | LEM1-3 |
| | | FC-VI-2 port b | 2 | LEM1-3 | LEM1-3 |
| | | FC-VI-2 port c | 1 | LEM1-4 | LEM1-4 |
| | | FC-VI-2 port d | 2 | LEM1-4 | LEM1-4 |
| | | HBA port a | 1 | LEM1-5 | LEM1-5 |
| | | HBA port b | 2 | LEM1-5 | LEM1-5 |
| | | HBA port c | 1 | LEM1-6 | LEM1-6 |
| | | HBA port d | 2 | LEM1-6 | LEM1-6 |
| controller_x_2 | | FC-VI-1 port a | 1 | LEM1-7 | LEM1-7 |
| | | FC-VI-1 port b | 2 | LEM1-7 | LEM1-7 |
| | | FC-VI-1 port c | 1 | LEM1-8 | LEM1-8 |
| | | FC-VI-1 port d | 2 | LEM1-8 | LEM1-8 |
| | | FC-VI-2 port a | 1 | LEM1-9 | LEM1-9 |
| | | FC-VI-2 port b | 2 | LEM1-9 | LEM1-9 |
| | | FC-VI-2 port c | 1 | LEM1-10 | LEM1-10 |
| | | FC-VI-2 port d | 2 | LEM1-10 | LEM1-10 |
| | | HBA port a | 1 | LEM1-11 | LEM1-11 |
| | | HBA port b | 2 | LEM1-11 | LEM1-11 |
| | | HBA port c | 1 | LEM1-12 | LEM1-12 |
| | | HBA port d | 2 | LEM1-12 | LEM1-12 |
| Stack 1 | bridge_x_1a | FC1 | 1 | LEM1-13 | LEM1-13 |
| | | FC2 | 2 | LEM1-13 | LEM1-13 |
| | bridge_x_1b | FC1 | 1 | LEM1-14 | LEM1-14 |
| | | FC2 | 2 | LEM1-14 | LEM1-14 |
| Stack 2 | bridge_x_2a | FC1 | 1 | - | LEM1-15 |
| | | FC2 | 2 | - | LEM1-15 |
| | bridge_x_2b | FC1 | 1 | - | LEM1-16 |
| | | FC2 | 2 | - | LEM1-16 |

| | | | | | |
|---------|-------------|-----|---|---|--------|
| Stack 3 | bridge_x_3a | FC1 | 1 | - | LEM2-1 |
| | | FC2 | 2 | - | LEM2-1 |
| | bridge_x_3b | FC1 | 1 | - | LEM2-2 |
| | | FC2 | 2 | - | LEM2-2 |
| Stack y | bridge_x_ya | FC1 | 1 | - | LEM2-3 |
| | | FC2 | 2 | - | LEM2-3 |
| | bridge_x_yb | FC1 | 1 | - | LEM2-4 |
| | | FC2 | 2 | - | LEM2-4 |



- Additional bridges can be cabled to ports LEM2-5 through LEM2-8 in 9132T switches with 2x LEM Modules.
- Only one (1) bridge stack is supported using 9132T switches with 1x LEM Module.

AFF A900 or FAS9500 - Cisco port usage for ISLs in an eight-node configuration in a MetroCluster configuration running ONTAP 9.10.1 or later

The following table shows ISL port usage. ISL port usage is the same on all switches in the configuration.

| Switch model | ISL port | Switch port |
|-------------------------|----------|-------------|
| Cisco 9132T with 1x LEM | ISL1 | LEM1-15 |
| | ISL2 | LEM1-16 |
| Cisco 9132T with 2x LEM | ISL1 | LEM2-9 |
| | ISL2 | LEM2-10 |
| | ISL3 | LEM2-11 |
| | ISL4 | LEM2-12 |
| | ISL5 | LEM2-13 |
| | ISL6 | LEM2-14 |
| | ISL7 | LEM2-15 |
| | ISL8 | LEM2-16 |

Copyright Information

Copyright © 2022 NetApp, Inc. All rights reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means-graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system- without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

RESTRICTED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

Trademark Information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.