Port assignments for FC switches when using ONTAP 9.1 or later

ONTAP MetroCluster

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Port assignments for FC switches when using ONTAP 9.1 or later

You need to verify that you are using the specified port assignments when you cable the FC switches when using ONTAP 9.1 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:

- The Brocade and Cisco switches use different port numbering:
  - On Brocade switches, the first port is numbered 0.
  - On Cisco switches, the first port is numbered 1.
- The cabling is the same for each FC switch in the switch fabric.
- AFF A300 and FAS8200 storage systems can be ordered with one of two options for FC-VI connectivity:
  - Onboard ports 0e and 0f configured in FC-VI mode.
  - Ports 1a and 1b on an FC-VI card in slot 1.
- AFF A700 and FAS9000 storage systems require four FC-VI ports. The following tables show cabling for the FC switches with four FC-VI ports on each controller except for the Cisco 9250i switch.

  For other storage systems, use the cabling shown in the tables but ignore the cabling for FC-VI ports c and d.

  You can leave those ports empty.
- AFF A400 and FAS8300 storage systems use ports 2a and 2b for FC-VI connectivity.
- 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.

Brocade port usage for controllers in a MetroCluster configuration running ONTAP 9.1 or later

The following tables show port usage on Brocade switches. The tables show the maximum supported

configuration, with eight controller modules in two DR groups. For smaller configurations, ignore the rows for the additional controller modules. Note that eight ISLs are supported only on the Brocade 6510, Brocade DCX 8510-8, G620, G630, G620-1, G630-1, and G720 switches.

- Port usage for the Brocade 6505 and Brocade G610 switches in an eight-node MetroCluster configuration is not shown. Due to the limited number of ports, port assignments must be made on a site-by-site basis depending on the controller module model and the number of ISLs and bridge pairs in use.
- The Brocade DCX 8510-8 switch can use the same port layout as the 6510 switch ***or*** the 7840 switch.

Configurations using FibreBridge 6500N bridges or FibreBridge 7500N or 7600N using one FC port (FC1 or FC2) only				
MetroCluster 1 or DR Group 1				
Component	**Port**	**Brocade switch models 6505, 6510, 6520, 7810, 7840, G610, G620, G620-1, G630, G630-1 and DCX 8510-8**		**Brocade switch model G720**
		Connects to FC switch…	**Connects to switch port…**	**Connects to switch port…**
controller_x_1	FC-VI port a	1	0	0
	FC-VI port b	2	0	0
	FC-VI port c	1	1	1
	FC-VI port d	2	1	1
	HBA port a	1	2	8
	HBA port b	2	2	8
	HBA port c	1	3	9
	HBA port d	2	3	9

controller_x_2	FC-VI port a	1	4	4
	FC-VI port b	2	4	4
	FC-VI port c	1	5	5
	FC-VI port d	2	5	5
	HBA port a	1	6	12
	HBA port b	2	6	12
	HBA port c	1	7	13
	HBA port d	2	7	13

Configurations using FibreBridge 6500N bridges or FibreBridge 7500N or 7600N using one FC port (FC1 or FC2) only				
MetroCluster 1 or DR Group 1				
Component	**Port**	**Brocade switch models 6505, 6510, 6520, 7810, 7840, G610, G620, G620-1, G630, G630-1 and DCX 8510-8**		**Brocade switch model G720**
		Connects to FC switch…	**Connects to switch port…**	**Connects to switch port…**
Stack 1	bridge_x_1a	1	8	10
	bridge_x_1b	2	8	10
Stack 2	bridge_x_2a	1	9	11
	bridge_x_2b	2	9	11
Stack 3	bridge_x_3a	1	10	14
	bridge_x_4b	2	10	14
Stack y	bridge_x_ya	1	11	15
	bridge_x_yb	2	11	15

- On G620, G630, G620-1 and G630-1 switches, additional bridges can be cabled to ports 12 - 17, 20 and 21.
- On G610 switches, additional bridges can be cabled to ports 12 - 19.
- On G720 switches, additional bridges can be cabled to ports 16 - 17, 20 and 21.

Configurations using FibreBridge 6500N bridges or FibreBridge 7500N or 7600N using one FC port (FC1 or FC2) only							
MetroCluster 2 or DR Group 2							
			Brocade switch model				
Component	**Port**	**Connects to FC_switch …**	**6510, DCX 8510-8**	**6520**	**7840, DCX 8510-8**	**G620, G620-1, G630, G630-1**	**G720**
controller_x_3	FC-VI port a	1	24	48	12	18	18
	FC-VI port b	2	24	48	12	18	18
	FC-VI port c	1	25	49	13	19	19
	FC-VI port d	2	25	49	13	19	19
	HBA port a	1	26	50	14	24	26
	HBA port b	2	26	50	14	24	26
	HBA port c	1	27	51	15	25	27
	HBA port d	2	27	51	15	25	27

controller_x_4	FC-VI port a	1	28	52	16	22	22
	FC-VI port b	2	28	52	16	22	22
	FC-VI port c	1	29	53	17	23	23
	FC-VI port d	2	29	53	17	23	23
	HBA port a	1	30	54	18	28	30
	HBA port b	2	30	54	18	28	30
	HBA port c	1	31	55	19	29	31
	HBA port d	2	32	55	19	29	31
Stack 1	bridge_x_51a	1	32	56	20	26	32
	bridge_x_51b	2	32	56	20	26	32
Stack 2	bridge_x_52a	1	33	57	21	27	33
	bridge_x_52b	2	33	57	21	27	33
Stack 3	bridge_x_53a	1	34	58	22	30	34
	bridge_x_54b	2	34	58	22	30	34
Stack y	bridge_x_ya	1	35	59	23	31	35
	bridge_x_yb	2	35	59	23	31	35

- On G720 switches, additional bridges can be cabled to ports 36-39.

Configurations using FibreBridge 7500N or 7600N using both FC ports (FC1 and FC2)
MetroCluster 1 or DR Group 1

Component		Port	Brocade switch models 6505, 6510, 6520, 7810, 7840, G610, G620, G620-1, G630, G630-1, and DCX 8510-8		Brocade switch G720
			Connects to FC_switch…	Connects to switch port…	Connects to switch port…
Stack 1	bridge_x_1a	FC1	1	8	10
		FC2	2	8	10
	bridge_x_1B	FC1	1	9	11
		FC2	2	9	11
Stack 2	bridge_x_2a	FC1	1	10	14
		FC2	2	10	14
	bridge_x_2B	FC1	1	11	15
		FC2	2	11	15
Stack 3	bridge_x_3a	FC1	1	12*	16
		FC2	2	12*	16
	bridge_x_3B	FC1	1	13*	17
		FC2	2	13*	17
Stack y	bridge_x_ya	FC1	1	14*	20
		FC2	2	14*	20
	bridge_x_yb	FC1	1	15*	21
		FC2	2	15*	21

* Ports 12 through 15 are reserved for the second MetroCluster or DR group on the Brocade 7840 switch.

Additional bridges can be cabled to ports 16, 17, 20 and 21 in G620, G630, G620-1 and G630-1 switches.

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…	**6510, DCX 8510-8**	**6520**	**7840, DCX 8510-8**	**G620, G620-1, G630, G630-1**	**G720**
controller_x_3	FC-VI port a	1	24	48	12	18	18
	FC-VI port b	2	24	48	12	18	18
	FC-VI port c	1	25	49	13	19	19
	FC-VI port d	2	25	49	13	19	19
	HBA port a	1	26	50	14	24	26
	HBA port b	2	26	50	14	24	26
	HBA port c	1	27	51	15	25	27
	HBA port d	2	27	51	15	25	27

controller_x_4		FC-VI port a	1	28	52	16	22	22
		FC-VI port b	2	28	52	16	22	22
		FC-VI port c	1	29	53	17	23	23
		FC-VI port d	2	29	53	17	23	23
		HBA port a	1	30	54	18	28	30
		HBA port b	2	30	54	18	28	30
		HBA port c	1	31	55	19	29	31
		HBA port d	2	31	55	19	29	31
Stack 1	bridge_x_51a	FC1	1	32	56	20	26	32
		FC2	2	32	56	20	26	32
	bridge_x_51b	FC1	1	33	57	21	27	33
		FC2	2	33	57	21	27	33
Stack 2	bridge_x_52a	FC1	1	34	58	22	30	34
		FC2	2	34	58	22	30	34
	bridge_x_52b	FC1	1	35	59	23	31	35
		FC2	2	35	59	23	31	35

Stack 3	bridge_x_53a	FC1	1	36	60	-	32	36
		FC2	2	36	60	-	32	36
	bridge_x_53b	FC1	1	37	61	-	33	37
		FC2	2	37	61	-	33	37
Stack y	bridge_x_5ya	FC1	1	38	62	-	34	38
		FC2	2	38	62	-	34	38
	bridge_x_5yb	FC1	1	39	63	-	35	39
		FC2	2	39	63	-	35	39
Additional bridges can be cabled to ports 36 to 39 in G620, G630, G620-1, and G630-1 switches.								

Brocade port usage for ISLs in a MetroCluster configuration running ONTAP 9.1 or later

The following table shows ISL port usage for the Brocade switches.

AFF A700 or FAS9000 systems support up to eight ISLs for improved performance. Eight ISLs are supported on the Brocade 6510 and G620 switches.

Switch model	ISL port	Switch port
Brocade 6520	ISL port 1	23
	ISL port 2	47
	ISL port 3	71
	ISL port 4	95
Brocade 6505	ISL port 1	20
	ISL port 2	21
	ISL port 3	22
	ISL port 4	23

Switch model	ISL port	Switch port
Brocade 6510 and Brocade DCX 8510-8	ISL port 1	40
	ISL port 2	41
	ISL port 3	42
	ISL port 4	43
	ISL port 5	44
	ISL port 6	45
	ISL port 7	46
	ISL port 8	47
Brocade 7810	ISL port 1	ge2 (10-Gbps)
	ISL port 2	ge3(10-Gbps)
	ISL port 3	ge4 (10-Gbps)
	ISL port 4	ge5 (10-Gbps)
	ISL port 5	ge6 (10-Gbps)
	ISL port 6	ge7 (10-Gbps)
Brocade 7840 **Note**: The Brocade 7840 switch supports either two 40 Gbps VE-ports or up to four 10 Gbps VE-ports per switch for the creation of FCIP ISLs.	ISL port 1	ge0 (40-Gbps) or ge2 (10-Gbps)
	ISL port 2	ge1 (40-Gbps) or ge3 (10-Gbps)
	ISL port 3	ge10 (10-Gbps)
	ISL port 4	ge11 (10-Gbps)
Brocade G610	ISL port 1	20
	ISL port 2	21
	ISL port 3	22
	ISL port 4	23

Switch model	ISL port	Switch port
Brocade G620, G620-1, G630, G630-1, G720	ISL port 1	40
	ISL port 2	41
	ISL port 3	42
	ISL port 4	43
	ISL port 5	44
	ISL port 6	45
	ISL port 7	46
	ISL port 8	47

Cisco port usage for controllers in a MetroCluster configuration running ONTAP 9.4 or later

The tables show the maximum supported configurations, with eight controller modules in two DR groups. For smaller configurations, ignore the rows for the additional controller modules.

Cisco 9396S			
Component	**Port**	**Switch 1**	**Switch 2**
controller_x_1	FC-VI port a	1	-
	FC-VI port b	-	1
	FC-VI port c	2	-
	FC-VI port d	-	2
	HBA port a	3	-
	HBA port b	-	3
	HBA port c	4	-
	HBA port d	-	4

controller_x_2	FC-VI port a	5	-
	FC-VI port b	-	5
	FC-VI port c	6	-
	FC-VI port d	-	6
	HBA port a	7	-
	HBA port b	-	7
	HBA port c	8	
	HBA port d	-	8
controller_x_3	FC-VI port a	49	
	FC-VI port b	-	49
	FC-VI port c	50	-
	FC-VI port d	-	50
	HBA port a	51	-
	HBA port b	-	51
	HBA port c	52	
	HBA port d	-	52

controller_x_4	FC-VI port a	53	-
	FC-VI port b	-	53
	FC-VI port c	54	-
	FC-VI port d	-	54
	HBA port a	55	-
	HBA port b	-	55
	HBA port c	56	-
	HBA port d	-	56

Cisco 9148S			
Component	**Port**	**Switch 1**	**Switch 2**
controller_x_1	FC-VI port a	1	
	FC-VI port b	-	1
	FC-VI port c	2	-
	FC-VI port d	-	2
	HBA port a	3	-
	HBA port b	-	3
	HBA port c	4	-
	HBA port d	-	4

controller_x_2	FC-VI port a	5	-
	FC-VI port b	-	5
	FC-VI port c	6	-
	FC-VI port d	-	6
	HBA port a	7	-
	HBA port b	-	7
	HBA port c	8	-
	HBA port d	-	8
controller_x_3	FC-VI port a	25	
	FC-VI port b	-	25
	FC-VI port c	26	-
	FC-VI port d	-	26
	HBA port a	27	-
	HBA port b	-	27
	HBA port c	28	-
	HBA port d	-	28

controller_x_4	FC-VI port a	29	-
	FC-VI port b	-	29
	FC-VI port c	30	-
	FC-VI port d	-	30
	HBA port a	31	-
	HBA port b	-	31
	HBA port c	32	-
	HBA port d	-	32

Cisco 9132T			
MDS module 1			
Component	**Port**	**Switch 1**	**Switch 2**
controller_x_1	FC-VI port a	1	-
	FC-VI port b	-	1
	FC-VI port c	2	-
	FC-VI port d	-	2
	HBA port a	3	-
	HBA port b	-	3
	HBA port c	4	-
	HBA port d	-	4

controller_x_2	FC-VI port a	5	-
	FC-VI port b	-	5
	FC-VI port c	6	-
	FC-VI port d	-	6
	HBA port a	7	-
	HBA port b	-	7
	HBA port c	8	-
	HBA port d	-	8
MDS module 2			
Component	Port	Switch 1	Switch 2
controller_x_3	FC-VI port a	1	-
	FC-VI port b	-	1
	FC-VI port c	2	-
	FC-VI port d	-	2
	HBA port a	3	-
	HBA port b	-	3
	HBA port c	4	-
	HBA port d	-	4

controller_x_4	FC-VI port a	5	-
	FC-VI port b	-	5
	FC-VI port c	6	-
	FC-VI port d	-	6
	HBA port a	7	-
	HBA port b	-	7
	HBA port c	8	-
	HBA port d	-	8

The following table shows systems with two FC-VI ports. AFF A700 and FAS9000 systems have four FC-VI ports (a, b, c, and d). If using an AFF A700 or FAS9000 system, the port assignments move along by one position. For example, FC-VI ports c and d go to switch port 2 and HBA ports a and b go to switch port 3.

Cisco 9250i **Note: The Cisco 9250i switch is not supported for eight-node MetroCluster configurations.**			
Component	**Port**	**Switch 1**	**Switch 2**
controller_x_1	FC-VI port a	1	-
	FC-VI port b	-	1
	HBA port a	2	-
	HBA port b	-	2
	HBA port c	3	-
	HBA port d	-	3

controller_x_2	FC-VI port a	4	-
	FC-VI port b	-	4
	HBA port a	5	-
	HBA port b	-	5
	HBA port c	6	-
	HBA port d	-	6
controller_x_3	FC-VI port a	7	-
	FC-VI port b	-	7
	HBA port a	8	-
	HBA port b	-	8
	HBA port c	9	-
	HBA port d	-	9
controller_x_4	FC-VI port a	10	-
	FC-VI port b	-	10
	HBA port a	11	-
	HBA port b	-	11
	HBA port c	13	-
	HBA port d	-	13

Cisco port usage for FC-to-SAS bridges in a MetroCluster configuration running ONTAP 9.1 or later

Cisco 9396S			
FibreBridge 7500 using two FC ports	**Port**	**Switch 1**	**Switch 2**

bridge_x_1a	FC1	9	-
	FC2	-	9
bridge_x_1b	FC1	10	-
	FC2	-	10
bridge_x_2a	FC1	11	-
	FC2	-	11
bridge_x_2b	FC1	12	-
	FC2	-	12
bridge_x_3a	FC1	13	-
	FC2	-	13
bridge_x_3b	FC1	14	-
	FC2	-	14
bridge_x_4a	FC1	15	-
	FC2	-	15
bridge_x_4b	FC1	16	-
	FC2	-	16

Additional bridges can be attached using ports 17 through 40 and 57 through 88 following the same pattern.

Cisco 9148S			
FibreBridge 7500 using two FC ports	**Port**	**Switch 1**	**Switch 2**
bridge_x_1a	FC1	9	-
	FC2	-	9

bridge_x_1b	FC1	10	-
	FC2	-	10
bridge_x_2a	FC1	11	-
	FC2	-	11
bridge_x_2b	FC1	12	-
	FC2	-	12
bridge_x_3a	FC1	13	-
	FC2	-	13
bridge_x_3b	FC1	14	-
	FC2	-	14
bridge_x_4a	FC1	15	-
	FC2	-	15
bridge_x_4b	FC1	16	-
	FC2	-	16

Additional bridges for a second DR group or second MetroCluster configuration can be attached using ports 33 through 40 following the same pattern.

Cisco 9132T			
FibreBridge 7500 using two FC ports	**Port**	**Switch**	**Switch 2**
bridge_x_1a	FC1	9	-
	FC2	-	9
bridge_x_1b	FC1	10	-
	FC2	-	10

bridge_x_2a	FC1	11	-
	FC2	-	11
bridge_x_2b	FC1	12	-
	FC2	-	12

Additional bridges for a second DR group or second MetroCluster configuration can be attached using the same port numbers on the second MDS module.

Cisco 9250i			
FibreBridge 7500 using two FC ports	**Port**	**Switch 1**	**Switch 2**
bridge_x_1a	FC1	14	-
	FC2	-	14
bridge_x_1b	FC1	15	-
	FC2	-	15
bridge_x_2a	FC1	17	-
	FC2	-	17
bridge_x_2b	FC1	18	-
	FC2	-	18
bridge_x_3a	FC1	19	-
	FC2	-	19
bridge_x_3b	FC1	21	-
	FC2	-	21
bridge_x_4a	FC1	22	-
	FC2	-	22

bridge_x_4b	FC1	23	-
	FC2	-	23

Additional bridges for a second DR group or second MetroCluster configuration can be attached using ports 25 through 48 following the same pattern.

The following tables show bridge port usage when using FibreBridge 6500 bridges or FibreBridge 7500 bridges using one FC port (FC1 or FC2) only. For FibreBridge 7500 bridges using one FC port, either FC1 or FC2 can be cabled to the port indicated as FC1. Additional bridges can be attached using ports 25-48.

FibreBridge 6500 bridges or FibreBridge 7500 bridges using one FC port			
FibreBridge 6500 bridge or FibreBridge 7500 using one FC port	**Port**	**Cisco 9396S**	
		Switch 1	**Switch 2**
bridge_x_1a	FC1	9	-
bridge_x_1b	FC1	-	9
bridge_x_2a	FC1	10	-
bridge_x_2b	FC1	-	10
bridge_x_3a	FC1	11	-
bridge_x_3b	FC1	-	11
bridge_x_4a	FC1	12	-
bridge_x_4b	FC1	-	12
bridge_x_5a	FC1	13	-
bridge_x_5b	FC1	-	13
bridge_x_6a	FC1	14	-
bridge_x_6b	FC1	-	14
bridge_x_7a	FC1	15	-
bridge_x_7b	FC1	-	15
bridge_x_8a	FC1	16	-

bridge_x_8b	FC1	-	16

Additional bridges can be attached using ports 17 through 40 and 57 through 88 following the same pattern.

FibreBridge 6500 bridges or FibreBridge 7500 bridges using one FC port			
Bridge	**Port**	**Cisco 9148S**	
		Switch 1	**Switch 2**
bridge_x_1a	FC1	9	-
bridge_x_1b	FC1	-	9
bridge_x_2a	FC1	10	-
bridge_x_2b	FC1	-	10
bridge_x_3a	FC1	11	-
bridge_x_3b	FC1	-	11
bridge_x_4a	FC1	12	-
bridge_x_4b	FC1	-	12
bridge_x_5a	FC1	13	-
bridge_x_5b	FC1	-	13
bridge_x_6a	FC1	14	-
bridge_x_6b	FC1	-	14
bridge_x_7a	FC1	15	-
bridge_x_7b	FC1	-	15
bridge_x_8a	FC1	16	-
bridge_x_8b	FC1	-	16

Additional bridges for a second DR group or second MetroCluster configuration can be attached using ports 25 through 48 following the same pattern.

Cisco 9250i

FibreBridge 6500 bridge or FibreBridge 7500 using one FC port	Port	Switch 1	Switch 2
bridge_x_1a	FC1	14	-
bridge_x_1b	FC1	-	14
bridge_x_2a	FC1	15	-
bridge_x_2b	FC1	-	15
bridge_x_3a	FC1	17	-
bridge_x_3b	FC1	-	17
bridge_x_4a	FC1	18	-
bridge_x_4b	FC1	-	18
bridge_x_5a	FC1	19	-
bridge_x_5b	FC1	-	19
bridge_x_6a	FC1	21	-
bridge_x_6b	FC1	-	21
bridge_x_7a	FC1	22	-
bridge_x_7b	FC1	-	22
bridge_x_8a	FC1	23	-
bridge_x_8b	FC1	-	23

Additional bridges can be attached using ports 25 through 48 following the same pattern.

Cisco port usage for ISLs in an eight-node configuration in a MetroCluster configuration running ONTAP 9.1 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 9396S	ISL 1	44
	ISL 2	48
	ISL 3	92
	ISL 4	96
Cisco 9250i with 24 port license	ISL 1	12
	ISL 2	16
	ISL 3	20
	ISL 4	24
Cisco 9148S	ISL 1	20
	ISL 2	24
	ISL 3	44
	ISL 4	48
Cisco 9132T	ISL 1	MDS module 1 port 13
	ISL 2	MDS module 1 port 14
	ISL 3	MDS module 1 port 15
	ISL 4	MDS module 1 port 16