Port assignments for FC switches

ONTAP MetroCluster

NetApp
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Port assignments for FC switches

You need to verify that you are using the specified port assignments when you cable the FC switches. The port assignments are different between ONTAP 9.0 and later versions of ONTAP.

Port assignments for systems using two initiator ports

You can configure FAS8020, AFF8020, FAS8200, and AFF A300 systems using a single initiator port for each fabric and two initiator ports for each controller.

You can follow the cabling for the FibreBridge 6500N bridge or FibreBridge 7500N or 7600N bridge using only one FC port (FC1 or FC2). Instead of using four initiators, connect only two initiators and leave the other two that are connected to the switch port empty.

You must apply the correct RCF file for the FibreBridge 6500N bridge's configuration.

If zoning is performed manually, then follow the zoning used for a FibreBridge 6500N or a FibreBridge 7500N or 7600N bridge using one FC port (FC1 or FC2). In this scenario, one initiator port rather than two is added to each zone member per fabric.

You can change the zoning or perform an upgrade from a FibreBridge 6500 to a FibreBridge 7500 using the procedure *Hot-swapping a FibreBridge 6500N bridge with a FibreBridge 7500N or 7600N bridge* from the MetroCluster Maintenance Guide.

The following table shows port assignments for FC switches when using ONTAP 9.1 and later.

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, 7840, G620, G610, and DCX 8510-8	
		Connects to FC switch…	Connects to switch port…

Configurations using FibreBridge 6500N bridges or FibreBridge 7500N or 7600N using one FC port (FC1 or FC2) only			
controller_x_1	FC-VI port a	1	0
	FC-VI port b	2	0
	FC-VI port c	1	1
	FC-VI port d	2	1
	HBA port a	1	2
	HBA port b	2	2
	HBA port c	-	-
	HBA port d	-	-
Stack 1	bridge_x_1a	1	8
	bridge_x_1b	2	8
Stack y	bridge_x_ya	1	11
	bridge_x_yb	2	11

The following table shows port assignments for FC switches when using ONTAP 9.0.

MetroCluster two-node configuration			
Component	Port	Brocade 6505, 6510, or DCX 8510-8	
		FC_switch_x_1	FC_switch_x_2
controller_x_1	FC-VI port a	0	-
	FC-VI port b	-	0
	HBA port a	1	-
	HBA port b	-	1
	HBA port c	2	-
	HBA port d	-	2

Port assignments for FC switches when using ONTAP 9.0

You need to verify that you are using the specified port assignments when you cable the FC switches. The port assignments are different between ONTAP 9.0 and later versions of ONTAP.

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 RCF files are used, ISL ports may not connect to the same ports shown here and may need to be reconfigured manually.

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.

Brocade port usage for controller connections in an eight-node MetroCluster configuration running ONTAP 9.0

The cabling is the same for each FC switch in the switch fabric.

The following table shows controller port usage on Brocade models Brocade 6505, 6510, or DCX 8510-8:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_8n_fc_cabling_brocade_6505_6510_dcx8510-8_90.csv[]

Brocade port usage for FC-to-SAS bridge connections in an eight-node MetroCluster configuration running ONTAP 9.0

The following table shows bridge port usage when using FibreBridge 7500 bridges:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_8n_fc_cabling_brocade_7500N_90.csv[]

The following table shows bridge port usage when using FibreBridge 6500 bridges with Brocade 6505, 6510, or DCX 8510-8 switches:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_8n_fc_cabling_brocade_6500N_90.csv[]

Brocade port usage for ISLs in an eight-node MetroCluster configuration running ONTAP 9.0

The following table shows ISL port usage for Brocade 6505, 6510, or DCX 8510-8 switches:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_8n_fc_cabling_brocade_isls_90.csv[]

Brocade port usage for controllers in a four-node MetroCluster configuration running ONTAP 9.0

The cabling is the same for each FC switch in the switch fabric. The following table shows usage for the Brocade 6505, 6510, and DCX 8510-8 switches.

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_4n_fc_cabling_brocade_6505_6510_dcx8510-8_90.csv[]

Brocade port usage for bridges in a four-node MetroCluster configuration running ONTAP 9.0

The cabling is the same for each FC switch in the switch fabric.

The following table shows bridge port usage up to port 17 when using FibreBridge 7500 bridges. Additional bridges can be cabled to ports 18 through 23.

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_4n_fc_cabling_brocade_7500N_90.csv[]

The following table shows bridge port usage when using FibreBridge 6500 bridges:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_4n_fc_cabling_brocade_6500N_90.csv[]

Brocade port usage for ISLs in a four-node MetroCluster configuration running ONTAP 9.0

The following table shows ISL port usage:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_4n_fc_cabling_brocade_isls_90.csv[]

Brocade port usage for controllers in a two-node MetroCluster configuration running ONTAP 9.0

The cabling is the same for each FC switch in the switch fabric. The following table shows the cabling for Brocade 6505, 6510, and DCX 8510-8 switches.

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_2n_fc_cabling_brocade_6505_6510_dcx8510-8_90.csv[]

Brocade port usage for bridges in a two-node MetroCluster configuration running ONTAP 9.0

The cabling is the same for each FC switch in the switch fabric.

The following table shows bridge port usage up to port 17 when using FibreBridge 7500 bridges with Brocade 6505, 6510, and DCX 8510-8 switches. Additional bridges can be cabled to ports 18 through 23.

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_2n_fc_cabling_brocade_7500N_90.csv[]

The following table shows bridge port usage when using FibreBridge 6500 bridges with Brocade 6505, 6510, and DCX 8510-8 switches:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_2n_fc_cabling_brocade_6500N_90.csv[]

Brocade port usage for ISLs in a two-node MetroCluster configuration running ONTAP 9.0

The following table shows ISL port usage for Brocade 6505, 6510, and DCX 8510-8 switches:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_2n_fc_cabling_brocade_isls_90.csv[]

Cisco port usage for controllers in an eight-node MetroCluster configuration running ONTAP 9.0

The following table shows controller port usage on Cisco 9148 and 9148S switches:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_8n_fc_cabling_cisco_9148_90.csv[]

Cisco port usage for FC-to-SAS bridges in an eight-node MetroCluster configuration running ONTAP 9.0

The following table shows bridge port usage up to port 23 when using FibreBridge 7500 bridges when using Cisco 9148 or 9148S switches. Additional bridges can be attached using ports 25 through 48.

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_8n_fc_cabling_cisco_7500N_90.csv[]

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

The following table shows bridge port usage up to port 23 when using FibreBridge 6500 bridges with Cisco 9148 or 9148S switches. Additional bridges can be attached using ports 25-48.

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_8n_fc_cabling_cisco_6500N_90.csv[]

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

Cisco port usage for ISLs in an eight-node MetroCluster configuration running ONTAP 9.0

The following table shows ISL port usage for Cisco 9148 and 9148S switches:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_8n_fc_cabling_cisco_isls_90.csv[]

Cisco port usage for controllers in a four-node MetroCluster configuration

The cabling is the same for each FC switch in the switch fabric.

The following table shows controller port usage on Cisco 9148, 9148S, and 9250i switches:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_4n_fc_cabling_cisco_9148_90.csv[]

Cisco port usage for FC-to-SAS bridges in a four-node MetroCluster configuration running ONTAP 9.0

The following table shows bridge port usage up to port 14 when using FibreBridge 7500 bridges with Cisco 9148, 9148S, or 9250i switches. Additional bridges can be attached to ports 15 through 32 following the same pattern.

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_4n_fc_cabling_cisco_7500N_90.csv[]

The following table shows bridge port usage when using FibreBridge 6500 bridges up to port 14 on Cisco 9148, 9148S, or 9250i switches. Additional bridges can be attached to ports 15 through 32 following the same pattern.

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_4n_fc_cabling_cisco_6500N_90.csv[]

Additional bridges can be attached to ports 15 through 32 following the same pattern.

Cisco 9148 and 9148S port usage for ISLs on a four-node MetroCluster configuration running ONTAP 9.0

The cabling is the same for each FC switch in the switch fabric.

The following table shows ISL port usage for Cisco 9148 and 9148S switches:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_4n_fc_cabling_cisco_isls_90.csv[]

Cisco 9250i port usage for ISLs on a four-node MetroCluster configuration running ONTAP 9.0

The Cisco 9250i switch uses the FCIP ports for the ISL.

Ports 40 through 48 are 10 GbE ports and are not used in the MetroCluster configuration.

Cisco port usage for controllers in a two-node MetroCluster configuration

The cabling is the same for each FC switch in the switch fabric.

The following table shows controller port usage on Cisco 9148, 9148S, and 9250i switches:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_2n_fc_cabling_cisco_9148O_9250i_90.csv[]

Cisco port usage for FC-to-SAS bridges in a two-node MetroCluster configuration running ONTAP 9.0

The following table shows bridge port usage up to port 14 when using FibreBridge 7500 bridges with Cisco 9148, 9148S, and 9250i switches. Additional bridges can be attached to ports 15 through 32 following the same pattern.

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_2n_fc_cabling_cisco_7500N_90.csv[]

The following table shows bridge port usage when using FibreBridge 6500 bridges up to port 14 on Cisco 9148, 9148S, or 9250i switches. Additional bridges can be attached to ports 15 through 32 following the same pattern.

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_2n_fc_cabling_cisco_6500N_90.csv[]

Additional bridges can be attached to ports 15 through 32 following the same pattern.

Cisco 9148 or 9148S port usage for ISLs on a two-node MetroCluster configuration running ONTAP 9.0

The cabling is the same for each FC switch in the switch fabric.

The following table shows ISL port usage for Cisco 9148 or 9148S switches:

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_0.adoc - include::_include/mc_2n_fc_cabling_cisco_isls_90.csv[]

Cisco 9250i port usage for ISLs on a two-node MetroCluster configuration running ONTAP 9.0

The Cisco 9250i switch uses the FCIP ports for the ISL.

Ports 40 through 48 are 10 GbE ports and are not used in the MetroCluster configuration.

Port assignments for FC switches when using ONTAP 9.1 or later

Unresolved directive in maintain/concept_port_assignments_for_fc_switches_when_using_ontap_9_1_and_later.adoc - include::_include/port_usage_fc_switches_91_and_later.adoc[]