Start here - Choose your procedure

ONTAP MetroCluster

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Start here: Choose between controller upgrade, system refresh, or expansion

Depending on the scope of the equipment upgrade, you choose a controller upgrade procedure, a system refresh procedure, or an expansion procedure.

- Controller upgrade procedures apply only to the controller modules. The controllers are replaced with a new controller model.

  The storage shelf models are not upgraded.

  - In switchover and switchback procedures, the MetroCluster switchover operation is used to provide nondisruptive service to clients while the controller modules on the partner cluster are upgraded.
  - In an ARL-based controller upgrade procedure, the aggregate relocation operations are used to nondisruptively move data from the old configuration to the new, upgraded configuration.
- Refresh procedures apply to the controllers and the storage shelves.

  In the refresh procedures, new controllers and shelves are added to the MetroCluster configuration, creating a second DR group, and then data is nondisruptively migrated to the new nodes.

  The original controllers are then retired.
- Expansion procedures add additional controllers and shelves to the MetroCluster configuration without removing any.

  The procedure you use depends on the type of MetroCluster and number of existing controllers.

If SVM migration is in progress, wait until all migration processes are complete before initiating the controller upgrade or system refresh procedures. Don’t start new SVM migrate operations during the upgrade or refresh process.

Upgrade type	Go to…
Controller upgrade	Choose a controller upgrade procedure
System refresh	Choose a system refresh procedure
Expansion	• Two-node MetroCluster to four • Four-node MetroCluster FC to eight • Four-node MetroCluster IP to eight

Choose a controller upgrade procedure

The controller upgrade procedure you use depends on the platform model and type of MetroCluster configuration.

In an upgrade procedure, the controllers are replaced with a new controller model. The storage shelf models are not upgraded.

- In switchover and switchback procedures, the MetroCluster switchover operation is used to provide nondisruptive service to clients while the controller modules on the partner cluster are upgraded.
- In an ARL-based controller upgrade procedure, the aggregate relocation operations are used to nondisruptively move data from the old configuration to the new, upgraded configuration.

Supported controller upgrades

Learn about supported MetroCluster IP and FC controller upgrade combinations.

Supported MetroCluster IP controller upgrades using "system controller replace" commands

Refer to the table in Upgrade controllers in a four-node MetroCluster IP configuration using switchover and switchback with "system controller replace" commands (ONTAP 9.13.1 and later) for supported platforms.

All other supported MetroCluster IP controller upgrades

Find your **Source** platform from the MetroCluster controller upgrade tables in this section. If the intersection of the **Source** platform row and **Target** platform column is blank, the upgrade is not supported.

- If your platform is not listed, there is no supported controller upgrade combination.
- When you perform a controller upgrade, the old and the new platform type **must** match:
  - You can upgrade a FAS system to a FAS system, or an AFF A-Series to an AFF A-Series.
  - You cannot upgrade a FAS system to an AFF A-Series, or an AFF A-Series to an AFF C-Series.

    For example, if the platform you want to upgrade is a FAS8200, you can upgrade to a FAS9000. You cannot upgrade a FAS8200 system to an AFF A700 system.
- All nodes (old and new) in the MetroCluster configuration must be running the same ONTAP version. Refer to the Hardware universe for the minimum supported ONTAP version for your combination.

Supported AFF and FAS MetroCluster IP controller upgrades

The following tables show the supported platform combinations for upgrading an AFF or FAS system manually in a MetroCluster IP configuration, split into two groups.

- **Group 1** shows combinations for upgrades to AFF A150, AFF A20, FAS2750, AFF A220, FAS500f, AFF C250, AFF A250, FAS50, AFF C30, AFF A30, FAS8200, AFF A300, AFF A320, FAS8300, AFF C400, AFF A400, and FAS8700 systems.
- **Group 2** shows combinations for upgrades to AFF C60, AFF A50, FAS70, FAS9000, AFF A700, AFF A70, AFF C800, AFF A800, FAS9500, AFF A900, AFF C80, FAS90, AFF A90, and AFF A1K systems.

The following notes apply to both groups:

- Note 1: For this upgrade use the procedure Upgrade controllers from AFF A700/FAS9000 to AFF A900/FAS9500 in a MetroCluster IP configuration using switchover and switchback (ONTAP 9.10.1 or later)
- Note 2: Controller upgrades are supported on systems running ONTAP 9.13.1 or later.
- Note 3: The target platform cannot have internal drives until after the controller upgrade is complete. You can add the internal drives after the upgrade.

- Note 4: Upgrades of integrated systems (disk and controllers in the same chassis) require replacement of the controller modules while retaining the existing chassis and disks.
- Note 5: Requires IOM modules to convert the old controllers to an external SAS shelf. Refer to the Hardware Universe for supported IOM modules.

AFF and FAS combinations group 1

Review the supported combinations for upgrades to AFF A150, AFF A20, FAS2750, AFF A220, FAS500f, AFF C250, AFF A250, FAS50, AFF C30, AFF A30, FAS8200, AFF A300, AFF A320, FAS8300, AFF C400, AFF A400, and FAS8700 systems.

AFF and FAS		Target MetroCluster IP platform									
		AFF A150	AFF A20	FAS2750 AFF A220	FAS500f AFF C250 AFF A250	FAS50	AFF C30 AFF A30	FAS8200 AFF A300	AFF A320	FAS8300 AFF C400 AFF A400	FAS8700
Source MetroCluster IP platform	AFF A150		Note 5								
	AFF A20										
	FAS2750 AFF A220		Note 5								
	FAS500f AFF C250 AFF A250						Note 4				
	FAS50										
	AFF C30 AFF A30										
	FAS8200 AFF A300										
	AFF A320										
	FAS8300 AFF C400 AFF A400										
	FAS8700										
	AFF C60										
	AFF A50										
	FAS70										
	FAS9000 AFF A700										
	AFF A70										
	AFF C800 AFF A800										
	FAS9500 AFF A900										
	AFF C80										
	FAS90										
	AFF A90										
	AFF A1K										

AFF and FAS combinations group 2

Review the supported combinations for upgrades to AFF C60, AFF A50, FAS70, FAS9000, AFF A700, AFF A70, AFF C800, AFF A800, FAS9500, AFF A900, AFF C80, FAS90, AFF A90, and AFF A1K systems.

AFF and FAS		Target MetroCluster IP platform										
		AFF C60	AFF A50	FAS70	FAS9000 AFF A700	AFF A70	AFF C800 AFF A800	FAS9500 AFF A900	AFF C80	FAS90	AFF A90	AFF A1K
Source MetroCluster IP platform	AFF A150											
	AFF A20											
	FAS2750 AFF A220											
	FAS500f AFF C250 AFF A250											
	FAS50											
	AFF C30 AFF A30											
	FAS8200 AFF A300					Note 3		Note 2			Note 3	
	AFF A320											
	FAS8300 AFF C400 AFF A400					Note 3		Note 2	Note 3		Note 3	
	FAS8700							Note 2				
	AFF C60											
	AFF A50											
	FAS70											
	FAS9000 AFF A700					Note 3		Note 1			Note 3	
	AFF A70										Note 4	
	AFF C800 AFF A800								Note 4		Note 4	
	FAS9500 AFF A900										Note 3	
	AFF C80											
	FAS90											
	AFF A90											
	AFF A1K											

Supported ASA MetroCluster IP controller upgrades

The following table shows the supported platform combinations for upgrading an ASA system manually in a MetroCluster IP configuration:

ASA		Target MetroCluster IP platform							
		ASA A150	ASA C250	ASA A250	ASA C400	ASA A400	ASA C800	ASA A800	ASA A900
Source MetroCluster IP platform	ASA A150								
	ASA C250								
	ASA A250								
	ASA C400								
	ASA A400								Note 1
	ASA C800								
	ASA A800								
	ASA A900								

- Note 1: Controller upgrades are supported on systems running ONTAP 9.13.1 or later.

Supported MetroCluster FC controller upgrades

Find your **Source** platform from the MetroCluster controller upgrade tables in this section. If the intersection of the **Source** platform row and **Target** platform column is blank, the upgrade is not supported.

- If your platform is not listed, there is no supported controller upgrade combination.
- When you perform a controller upgrade, the old and the new platform type **must** match:
  - You can upgrade a FAS system to a FAS system, or an AFF A-Series to an AFF A-Series.
  - You cannot upgrade a FAS system to an AFF A-Series, or an AFF A-Series to an AFF C-Series.

    For example, if the platform you want to upgrade is a FAS8200, you can upgrade to a FAS9000. You cannot upgrade a FAS8200 system to an AFF A700 system.

- All nodes (old and new) in the MetroCluster configuration must be running the same ONTAP version. Refer to the Hardware universe for the minimum supported ONTAP version for your combination.

Supported AFF and FAS MetroCluster FC controller upgrades

The following table shows the supported platform combinations for upgrading an AFF or FAS system in a MetroCluster FC configuration:

FAS and AFF		Target MetroCluster FC platform									
		FAS80x0	AFF80x0	FAS8200	AFF A300	FAS8300	AFF A400	FAS9000	AFF A700	FAS9500	AFF A900
Source MetroCluster FC platform	FAS8020	Note 1		Note 1		Note 1		Note 1			
	AFF8020		Note 1		Note 1		Note 1		Note 1		
	FAS8040 FAS8060 FAS8080										
	AFF8040 AFF8060 AFF8080										
	FAS8200					Note 2		Note 2		Note 4	
	AFF A300						Note 2		Note 2		Note 4
	FAS8300									Note 4	
	AFF A400										Note 4
	FAS9000									Note 3	
	AFF A700										Note 3
	FAS9500										
	AFF A900										

- Note 1: For upgrading controllers when FCVI connections on existing FAS8020 or AFF8020 nodes use ports 1c and 1d, see the following Knowledge base article.
- Note 2: Controller upgrades from AFF A300 or FAS8200 platforms using onboard ports 0e and 0f as FC-VI connections are only supported on the following systems:
  - ONTAP 9.9.1 and earlier
  - ONTAP 9.10.1P9
  - ONTAP 9.11.1P5
  - ONTAP 9.12.1GA
  - ONTAP 9.13.1 and later

    For more information, review the Public Report.
- Note 3: For this upgrade refer to Upgrade controllers from AFF A700/FAS9000 to AFF A900/FAS9500 in a MetroCluster FC configuration using switchover and switchback (ONTAP 9.10.1 or later)
- Note 4: Controller upgrades are supported on systems running ONTAP 9.13.1 or later.

Supported ASA MetroCluster FC controller upgrades

The following table shows the supported platform combinations for upgrading an ASA system in a MetroCluster FC configuration:

Source MetroCluster FC platform	Destination MetroCluster FC platform	Supported?
ASA A400	ASA A400	Yes
	ASA A900	No
ASA A900	ASA A400	No
	ASA A900	Yes (see Note 1)

- Note 1: Controller upgrades are supported on systems running ONTAP 9.14.1 or later.

Choose a procedure that uses the switchover and switchback process

After reviewing the supported upgrade combinations, choose the correct controller upgrade procedure for your configuration.

MetroCluster type	Upgrade method	ONTAP version	Procedure
IP	Upgrade with 'system controller replace' commands	9.13.1 and later	Link to procedure
FC	Upgrade with 'system controller replace' commands	9.10.1 and later	Link to procedure
FC	Manual upgrade with CLI commands (AFF A700/FAS9000 to AFF A900/FAS9500 only)	9.10.1 and later	Link to procedure
IP	Manual upgrade with CLI commands (AFF A700/FAS9000 to AFF A900/FAS9500 only)	9.10.1 and later	Link to procedure
FC	Manual upgrade with CLI commands	9.8 and later	Link to procedure
IP	Manual upgrade with CLI commands	9.8 and later	Link to procedure

Choosing a procedure using aggregate relocation

In an ARL-based controller upgrade procedure, the aggregate relocation operations are used to nondisruptively move data from the old configuration to the new, upgraded configuration.

MetroCluster type	Aggregate relocation	ONTAP version	Procedure
FC	Using "system controller replace" commands to upgrade controller models in the same chassis	9.10.1 and later	Link to procedure
FC	Using `system controller replace` commands	9.8 and later	Link to procedure
FC	Using `system controller replace` commands	9.5 through 9.7	Link to procedure
FC	Using manual ARL commands	9.8	Link to procedure
FC	Using manual ARL commands	9.7 and earlier	Link to procedure

Choosing a system refresh method

The system refresh procedure you use depends on the platform model, and type of MetroCluster configuration. Refresh procedures apply to the controllers and the storage shelves. In the refresh procedures, new controllers and shelves are added to the MetroCluster configuration, creating a second DR group, and then data is nondisruptively migrated to the new nodes. The original controllers are then retired.

Supported MetroCluster IP tech refresh combinations

- You must complete the tech refresh procedure before adding a new load.
- All nodes in the MetroCluster configuration must be running the same ONTAP version. For example, if you have an eight-node configuration, all eight nodes must be running the same ONTAP version. Refer to the Hardware universe for the minimum supported ONTAP version for your combination.
- Do not exceed any object limits of the 'lower' of the platforms in the combination. Apply the lower object limit of the two platforms.
- If the target platform limits are lower than the MetroCluster limits, you must reconfigure the MetroCluster to be at, or below, the target platform limits before you add the new nodes.
- Refer to the Hardware universe for platform limits.

Supported AFF and FAS MetroCluster IP tech refresh combinations

The following table shows the supported platform combinations for refreshing an AFF or FAS system in a MetroCluster IP configuration. The tables are split into two groups:

- **Group 1** shows combinations for AFF A150, AFF A20, FAS2750, AFF A220, FAS500f, AFF C250, AFF A250, FAS50, AFF C30, AFF A30, FAS8200, AFF A300, AFF A320, FAS8300, AFF C400, AFF A400, and

FAS8700 systems.

- **Group 2** shows combinations for AFF C60, AFF A50, FAS70, FAS9000, AFF A700, AFF A70, AFF C800, AFF A800, FAS9500, AFF A900, AFF C80, FAS90, AFF A90, and AFF A1K systems.

The following notes apply to both groups:

- Note 1: This combination requires ONTAP 9.13.1 or later.

AFF and FAS combinations group 1

Review the system refresh combinations for AFF A150, AFF A20, FAS2750, AFF A220, FAS500f, AFF C250, AFF A250, FAS50, AFF C30, AFF A30, FAS8200, AFF A300, AFF A320, FAS8300, AFF C400, AFF A400, and FAS8700 systems.

AFF and FAS		Target MetroCluster IP platform									
		AFF A150	AFF A20	FAS2750 AFF A220	FAS500f AFF C250 AFF A250	FAS50	AFF C30 AFF A30	FAS8200 AFF A300	AFF A320	FAS8300 AFF C400 AFF A400	FAS8700
Source MetroCluster IP platform	AFF A150	Note 1		Note 1	Note 1					Note 1	Note 1
	AFF A20										
	FAS2750 AFF A220	Note 1		Note 1	Note 1					Note 1	Note 1
	FAS500f AFF C250 AFF A250				Note 1					Note 1	Note 1
	FAS50										
	AFF C30 AFF A30										
	FAS8200 AFF A300										
	AFF A320										
	FAS8300 AFF C400 AFF A400										
	FAS8700										
	AFF C60										
	AFF A50										
	FAS70										
	FAS9000 AFF A700										
	AFF A70										
	AFF C800 AFF A800										
	FAS9500 AFF A900										
	AFF C80										
	FAS90 AFF A90										
	AFF A1K										

AFF and FAS combinations group 2

Review the system refresh combinations for AFF C60, AFF A50, FAS70, FAS9000, AFF A700, AFF A70, AFF C800, AFF A800, FAS9500, AFF A900, AFF C80, FAS90, AFF A90, and AFF A1K systems.

AFF and FAS		Target MetroCluster IP platform									
		AFF C60	AFF A50	FAS70	FAS9000 AFF A700	AFF A70	AFF C800 AFF A800	FAS9500 AFF A900	AFF C80	FAS90 AFF A90	AFF A1K
Source MetroCluster IP platform	AFF A150				Note 1		Note 1	Note 1			
	AFF A20										
	FAS2750 AFF A220				Note 1		Note 1	Note 1			
	FAS500f AFF C250 AFF A250				Note 1		Note 1	Note 1			
	FAS50										
	AFF C30 Aff A30										
	FAS8200 AFF A300										
	AFF A320										
	FAS8300 AFF C400 AFF A400										
	FAS8700										
	AFF C60										
	AFF A50										
	FAS70										
	FAS9000 AFF A700										
	AFF A70										
	AFF C800 AFF A800										
	FAS9500 AFF A900										
	AFF C80										
	FAS90 AFF A90										
	AFF A1K										

Supported ASA MetroCluster IP tech refresh combinations

The following table shows the supported platform combinations for refreshing an ASA system in a MetroCluster IP configuration:

ASA		Target MetroCluster IP platform							
		ASA A150	ASA C250	ASA A250	ASA C400	ASA A400	ASA C800	ASA A800	ASA A900
Source MetroCluster IP platform	ASA A150								
	ASA C250								
	ASA A250								
	ASA C400								
	ASA A400								
	ASA C800								
	ASA A800								
	ASA A900								

Supported MetroCluster FC tech refresh combinations

- You must complete the tech refresh procedure before adding a new load.
- All nodes in the MetroCluster configuration must be running the same ONTAP version. For example, if you have an eight-node configuration, all eight nodes must be running the same ONTAP version. Refer to the Hardware universe for the minimum supported ONTAP version for your combination.
- Do not exceed any object limits of the 'lower' of the platforms in the combination. Apply the lower object limit of the two platforms.
- If the target platform limits are lower then the MetroCluster limits, you must reconfigure the MetroCluster to be at, or below, the target platform limits before you add the new nodes.

- Refer to the Hardware universe for platform limits.

Supported AFF and FAS MetroCluster FC tech refresh combinations

The following table shows the supported platform combinations for refreshing an AFF or FAS system in a MetroCluster FC configuration:

FAS and AFF		Destination MetroCluster FC platform							
		FAS8200	AFF A300	FAS8300	AFF A400	FAS9000	AFF A700	FAS9500	AFF A900
Source MetroCluster FC platform	FAS8200								
	AFF A300								
	FAS8300								
	AFF A400								
	FAS9000								
	AFF A700								
	FAS9500								
	AFF A900								

Supported ASA MetroCluster FC tech refresh combinations

The following table shows the supported platform combinations for refreshing an ASA system in a MetroCluster FC configuration:

Source MetroCluster FC platform	Destination MetroCluster FC platform	Supported?
ASA A400	ASA A400	Yes
	ASA A900	No
ASA A900	ASA A400	No
	ASA A900	Yes

Choose a refresh procedure

Choose the refresh procedure for your configuration from the following table:

Refresh method	Configuration type	ONTAP version	Procedure
• Method: Expand the MetroCluster configuration and then remove the old nodes	Four-node FC	9.6 and later	Link to procedure
• Method: Expand the MetroCluster configuration and then remove the old nodes	Four-node IP	9.8 and later	Link to procedure

Choose an expansion procedure

The expansion procedure you use depends on the type of MetroCluster configuration and

the ONTAP version.

An expansion procedure involves adding new controllers and storage to the MetroCluster configuration. The expansion must maintain an even number of controllers on each site and the procedure you use depends on the number of nodes in the original MetroCluster configuration.

Expansion method	Configuration type	ONTAP version	Procedure
Method: Expand a two-node MetroCluster FC to four	Two-node FC	ONTAP 9 and later (platforms must be supported in ONTAP 9.2 and later)	Link to procedure
Method: Expand a four-node MetroCluster FC to eight	Four-node FC	ONTAP 9 or later	Link to procedure
Method: Expand a four-node MetroCluster IP to eight	Four-node IP	ONTAP 9.9.1 and later	Link to procedure

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