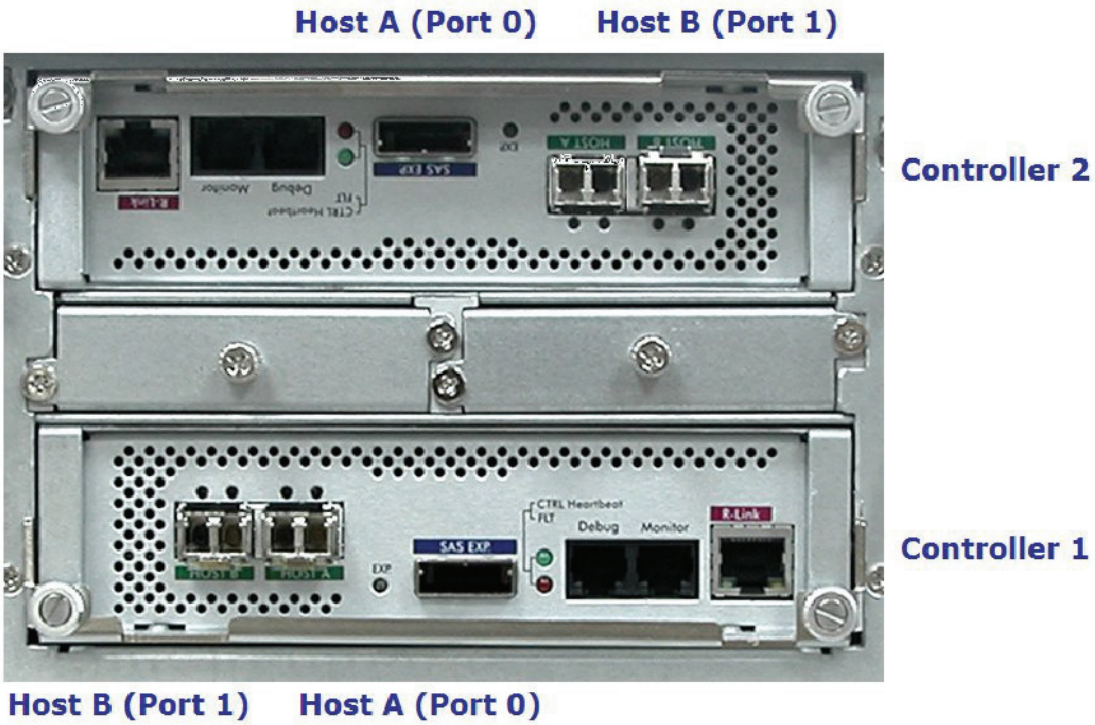
JetStor SAS 616F
Dual Controller RAID Subsystem
Volume Mapping and Ownership

Volume Mapping

In dual controller mode, the RAID subsystem has 2 Controllers, which operate in an Active/Standby-Standby/Active mode.

NOTE: In Dual Controller mode, when using SATA disk drives (with dongle boards) it is recommended that only a single Volume Set be created in a Raid Set (group of drives). If usingr SAS disk drives, there is no restriction on creating several Volume Sets per Raid Set.



Sample Dual Controller RAID Subsystem

NOTE: In Dual Controller mode, if Controller 1 fails, Controller 2 will take over all I/O operations. This fail over mode is called "Round Robin with Subset" (using Microsoft Windows terminology).

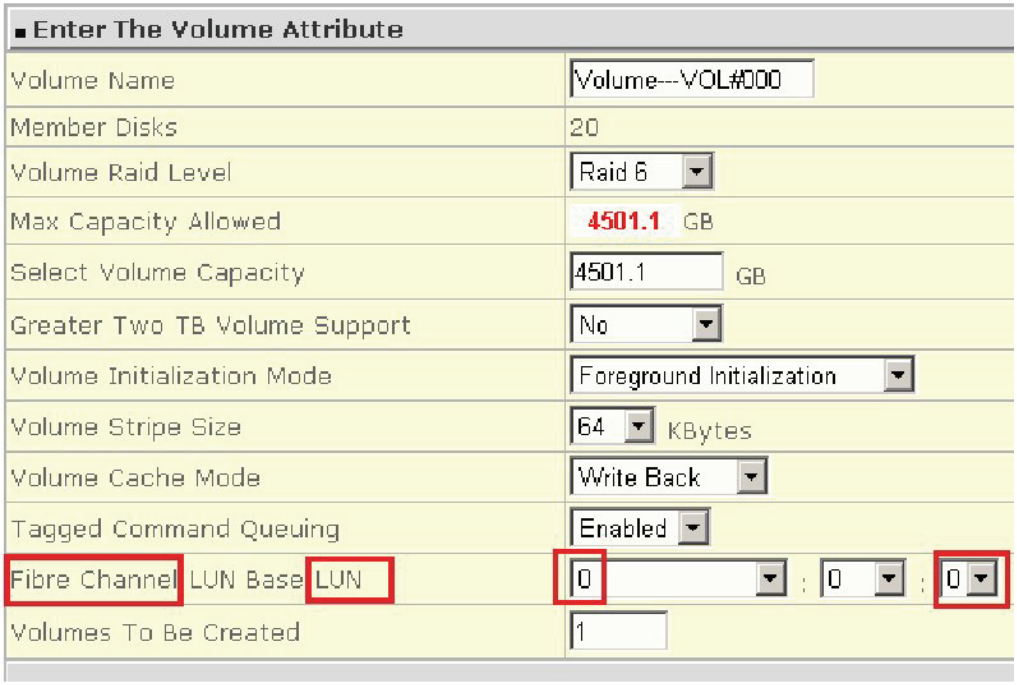
MPIO must be configured on the host system in order for redundant LUNs to appear as a single LUN.

Case 1: One Volume Set Mapped to Channel 0 LUN 0

When one Volume Set is created and mapped to Channel 0 LUN 0, the Volume Set is Active on Controller 1 Port 0 (Host A channel), and Standby on Controller 2.

Volume	Channel/LUN Mapping	Remarks
Volume Set #000	0/0	Channel 0 => Port 0 / LUN 0 => Controller 1

Example: Channel Mapping in Fibre Host Channel



NOTE: When Volume Sets are created, the first Volume Set created (for example: Volume Set #000) and assigned to LUN 0 will be Active in Controller 1 and Standby in Controller 2. The second Volume Set created (for example: Volume Set #001) and assigned to LUN 1 will be Active in Controller 2 and Standby in Controller 1. The third Volume Set assigned to LUN 2 will be Active in Controller 1, and the fourth Volume Set Assigned to LUN 3 will be Active in Controller 2.

In summary, all even numbered LUNs assigned to Volume Sets will be Active on Controller 1 and all odd numbered LUNs assigned to Volume Sets will be Active on Controller 2.

Case 2: One Volume Set Mapped to Channel 0&1 LUN 0

When one Volume Set is created and mapped to Channel 0&1 LUN 0, the Volume Set is Active in Controller 1 Ports 0 and 1 (Host A and Host B channels), and Standby in Controller 2.

In this case, Ports 0 and 1 in Controller 1 will be both active and Operate in a Load Balance mode.

Volume	Channel/LUN Mapping	Remarks
Volume Set #000	0&1 / 0	Channel 0&1 => Ports 0 and 1 / LUN 0 => Controller 1

Case 3: Two Volume Sets each Mapped to Channel 0

When a Volume Set is created and mapped to Channel 0 LUN 0, the Volume Set is Active in Controller 1 Port 0 (Host A channel), and Standby in Controller 2.

When a second Volume Set is created and mapped to Channel 0 LUN 1, this Volume Set is Active in Controller 2 Port 0 (Host A channel), and Standby in Controller 1.

Volume	Channel/LUN Mapping	Remarks
Volume Set #000	0/0	Channel 0 => Port 0 / LUN 0 => Controller 1
Volume Set #001	0/1	Channel 0 => Port 0 / LUN 1 => Controller 2

NOTE: All even numbered LUNs assigned to Volume Sets will be Active in Controller 1 and all odd number LUNs assigned to Volume Sets will be Active in Controller 2.

Case 4: Two Volume Sets each Mapped to Channel 0&1

When a Volume Set is created and mapped to Channel 0&1 LUN 0, the Volume Set is Active in Controller 1 Ports 0 and 1 (Host A and Host B channels), and Standby in Controller 2.

When a second Volume Set is created and mapped to Channel 0&1 LUN 1, the Volume Set is Active in Controller 2 Ports 0 and 1 (Host A and Host B channels), and Standby in Controller 1.

In this case, all 4 ports will be active when the host system does IO on the 2 LUNs. This mode is Load Balanced.

Volume	Channel/LUN Mapping	Remarks
Volume Set #000	0&1 / 0	Channel 0&1 => Ports 0 and 1 / LUN 0 => Controller 1
Volume Set #001	0&1 / 1	Channel 0&1 => Ports 0 and 1 / LUN 1 => Controller 2

NOTE: All even numbered LUNs assigned to Volume Sets will be Active in Controller 1 and all odd numbered LUNs assigned to Volume Sets will be Active in Controller 2.

Case 5: Four Volume Sets: 2 are Mapped to Channel 0, and 2 are mapped to Channel 1

When a Volume Set is created and mapped to Channel 0 LUN 0, the Volume Set is Active in Controller 1 Port 0 (Host A channel), and Standby in Controller 2.

When a second Volume Set is created and mapped to Channel 0 LUN 1, the Volume Set is Active in Controller 2 Port 0 (Host A channel), and Standby in Controller 1.

When a third Volume Set is created and mapped to Channel 1 LUN 0, the Volume Set is Active in Controller 1 Port 1 (Host B channel), and Standby in Controller 2.

When a fourth Volume Set is created and mapped to Channel 1 LUN 1, the Volume Set is Active in Controller 2 Port 1 (Host B channel), and Standby in Controller 1.

Volume	Channel/LUN Mapping	Remarks
Volume Set #000	0/0	Channel 0 => Port 0 / LUN 0 => Controller 1
Volume Set #001	0/1	Channel 0 => Port 0 / LUN 1 => Controller 2
Volume Set #002	1/0	Channel 1 => Port 1 / LUN 0 => Controller 1
Volume Set #003	1/1	Channel 1 => Port 1 / LUN 1 => Controller 2

NOTE: All even numbered LUNs assigned to Volume Sets will be Active in Controller 1 and all odd numbered LUNs assigned to Volume Sets will be Active in Controller 2.

Case 6: Four Volume Sets, each mapped to Channel 0&1

When a Volume Set is created and mapped to Channel 0&1 LUN 0, the Volume Set is Active in Controller 1 Ports 0 and 1 (Host A and Host B channels), and Standby in Controller 2.

When a second Volume Set is created and mapped to Channel 0&1 LUN 1, the Volume Set is Active in Controller 2 Ports 0 and 1 (Host A and Host B channels), and Standby in Controller 1.

When a third Volume Set is created and mapped to Channel 0&1 LUN 2, the Volume Set is Active in Controller 1 Ports 0 and 1 (Host A and Host B channels), and Standby in Controller 2.

When a fourth Volume Set is created and mapped to Channel 0&1 LUN 3, the Volume Set is Active in Controller 2 Ports 0 and 1 (Host A and Host B channels), and Standby in Controller 1.

In this case, all 4 ports will be active when the host does IO on the 4 LUNs. This mode is Load Balanced.

Volume	Channel/LUN Mapping	Remarks
Volume Set #000	0&1 / 0	Channel 0&1 => Ports 0 and 1 / LUN 0 => Controller 1
Volume Set #001	0&1 / 1	Channel 0&1 => Ports 0 and 1 / LUN 1 => Controller 2
Volume Set #001	0&1 / 2	Channel 0&1 => Ports 0 and 1 / LUN 2 => Controller 1
Volume Set #001	0&1 / 3	Channel 0&1 => Ports 0 and 1 / LUN 3 => Controller 2

NOTE: All even numbered LUNs assigned to Volume Sets will be Active in Controller 1 and all odd numbered LUNs assigned to Volume Sets will be Active in Controller 2.