

Application Note

Infortrend[®]

Application Note: Deploying Apple[®] Xsan2[®] with EonStor[®] S16F Series

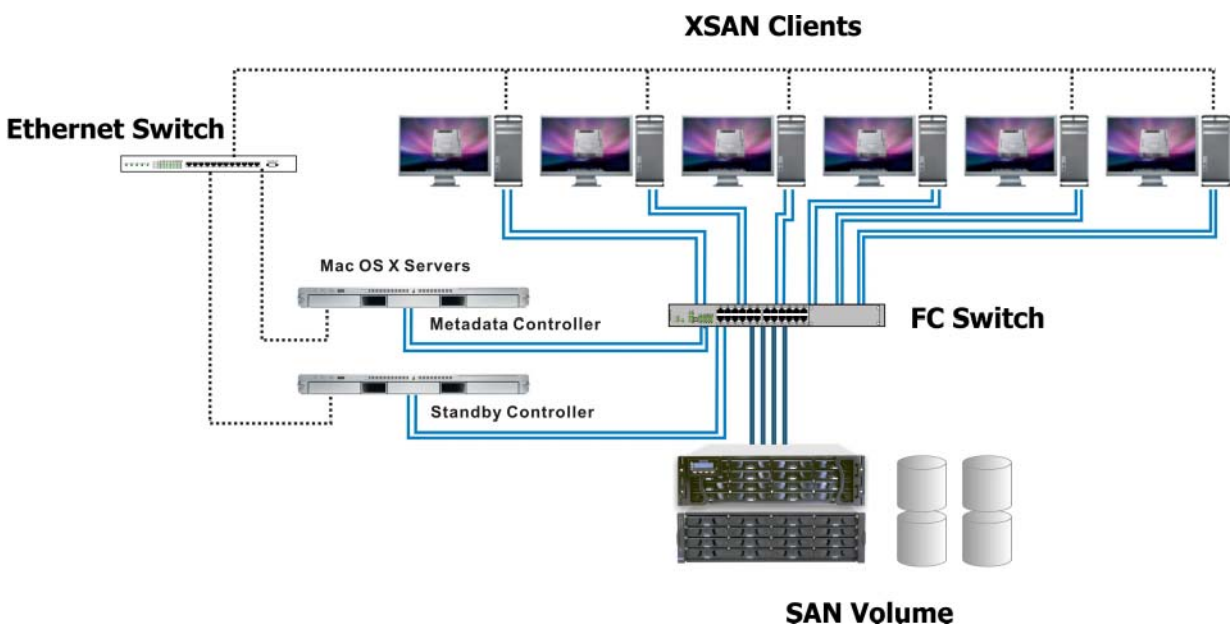
Purpose

This document guides users how to deploy EonStor S16F-R1430 storage systems with Apple's Xsan 2 cluster file system. Special considerations have been included to optimize performance for Audio/Video editing environments.

Introduction

You can deploy one S16F-R1430 system and attach one or more expansion JBODs if the need arises for massive capacity. The Xsan 2 file system enables simultaneous access and sharing of massive storage volumes for workstations over high-speed Fibre Channel instead of Ethernet.

Following the steps below, you can easily deploy the S16F in a video editing environment managed by the Xsan 2.



Components Used in the Environment

- Storage system: EonStor S16F-R1430 (FW 3.63A35 AV-optimized version)
- JBOD: EonStor S16S-J1000-R
- FC switch: Brocade Silkworm 5600
- HBA: 4Gb/s LSI7204EP-LC
- Mac OS: X Server 10.5.4 running on Xserve and Mac Pro machines

Configuration on the EonStor

Prerequisites: With Infotrend's A/V optimized firmware, multiple high-definition video streams can be played back simultaneously from one 16

bay FC-SATA unit with 2GB data cache using FinalCutPro 6.0 on the Apple Mac platform using the LSI or Atto Celerity 4G Fibre Channel host adapter cards.

Note that with the A/V-optimized firmware, cache coherency across controllers is disabled, therefore controller failover is not supported in this configuration.

To comply with the Xsan 2 requirements, you need 5 or more storage volumes: 1 for the MetadataAndJournal volume, the others for data.

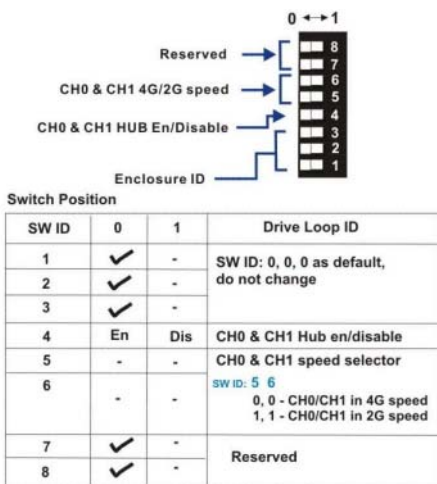
Typical data volumes look like the following:

One 8 disk RAID5 (default stripe size = 128k) mapped to lun0 on channel 0 assigned to controller A; One 8 disk RAID5 (default stripe size = 128k) mapped to lun0 on channel 1 assigned to controller B. In the sample configuration, we put metadata volume on another RAID system, and 4 volumes as data volumes.

Controller Settings:

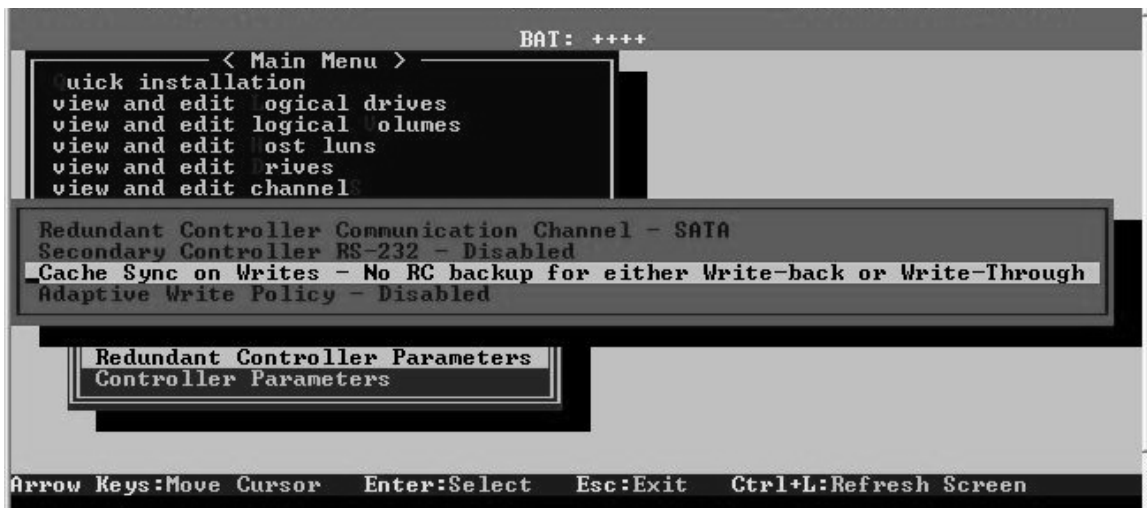
Access the firmware-embedded text-based utility via the terminal emulation over serial port or telnet connection via Ethernet.

- Step 1.** Disable the onboard hub via the rear panel DIP switches. Details can be found in the S16F Hardware Manual.

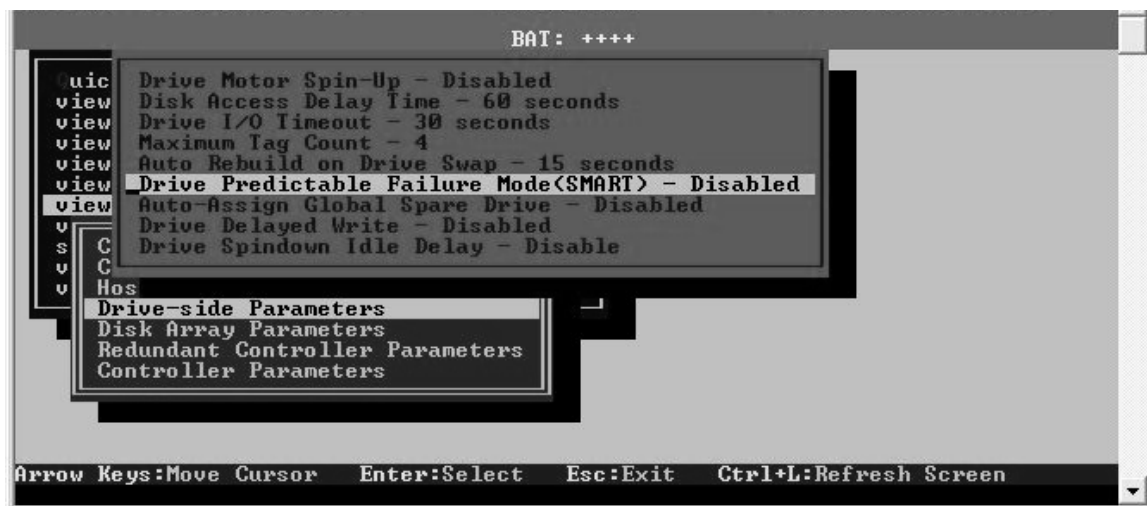


- Step 2.** With A/V-optimized firmware, change the "Cache Sync on Writes"

option to “No RC backup for either Write-back or Write-Through.” This can be found in “View and Edit Configuration Parameters” -> “Controller Parameters.” This disables cache coherency between partner RAID controllers and speeds up write operations.



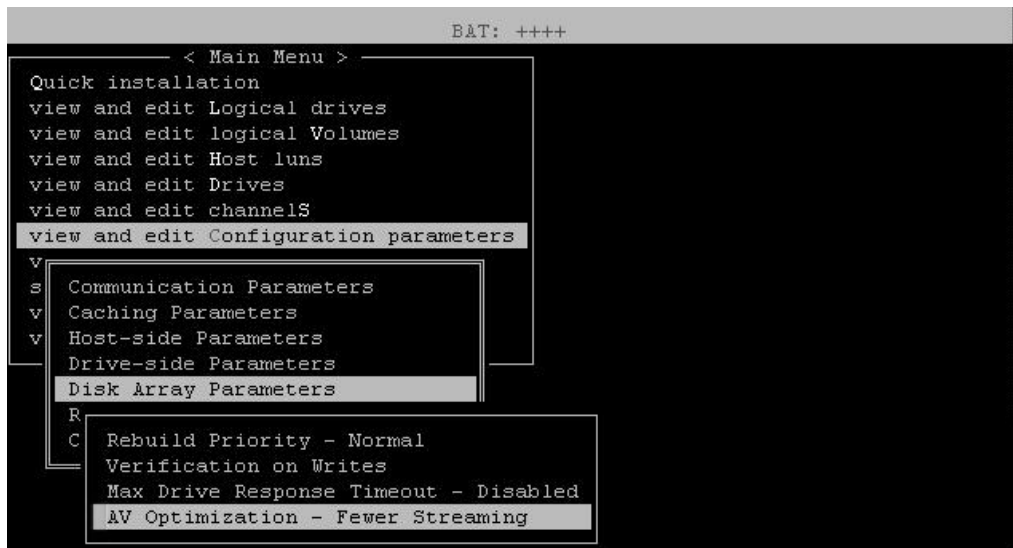
Step 3. Disable the SMART detection option in “Drive-side Parameters.”



Step 4. Enable the Write Cache buffer on disk drives. (This will require a controller restart.)
Note that data in the disk buffer will not protected in case of power failure.



Step 5. Set the AV Optimization option to “**HD OPT mode 3**” in “Disk Array Parameters.” This enables the read-ahead algorithms for video playback.



Step 6. Configure logical drives using 7 or 8 disk drives each. Equally assign them either to controller A or the controller B, so that work load can be shared.

BAT: ++++

LG	ID	LU	RAID	Size(MB)	Status	1	2	3	0	C	#LN	#SB	#FL	NAME
A0	6FBAA041	NA	RAID5	3336753	GOOD					7	B	8	0	0
B1	AB7F7D8	NA	RAID5	3336753	GOOD					7	B	8	0	0
2														
3														
4														
5														
6														
7														

Arrow Keys:Move Cursor Enter:Select Esc:Exit Ctrl+L:Refresh Screen

Step 7. Map each Logical Drive to IDs on host channels.

BAT: ++++

LUN	LU/LD	DRU	Partition	Size(MB)	RAID
0	LD	0	0	7866584	RAID5
1					
2					
3					
4					
5					
6					
7					

Arrow Keys:Move Cursor Enter:Select Esc:Exit Ctrl+L:Refres

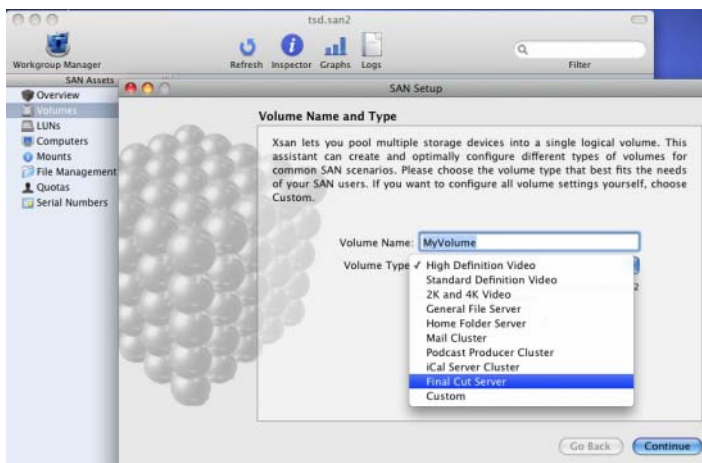
Step 8. The Xsan operating system automatically handles multi-path and stripe LUNs under the same Affinity Tag. Therefore, configure LUNs of the same size if you prefer to include them in the same Xsan volume. If a larger LUN is combined into an Xsan volume with smaller LUNs, its capacity will be compromised.

LUN mapping can be flexible, you can create multi-path access by mapping LDs to IDs on different host channels. A sample is listed below:

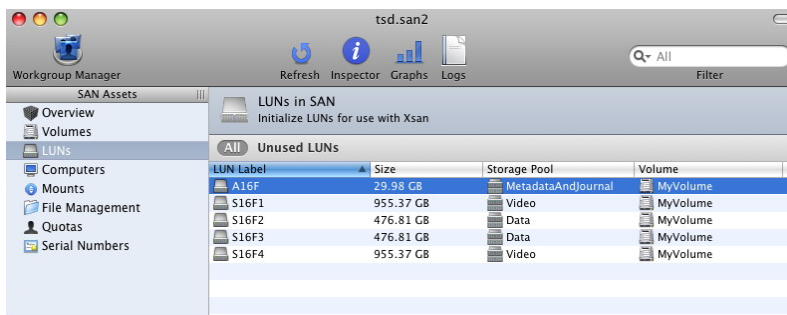
- LD0 (assigned to controller A) -> CH0 AID112 & CH1 AID112
- LD1 (assigned to controller B) -> CH0 BID113 & CH1 BID113
- LD2 (assigned to controller A) -> CH0 AID114 & CH1 AID114
- LD3 (assigned to controller B) -> CH0 BID115 & CH1 BID115

Xsan Volume Configuration:

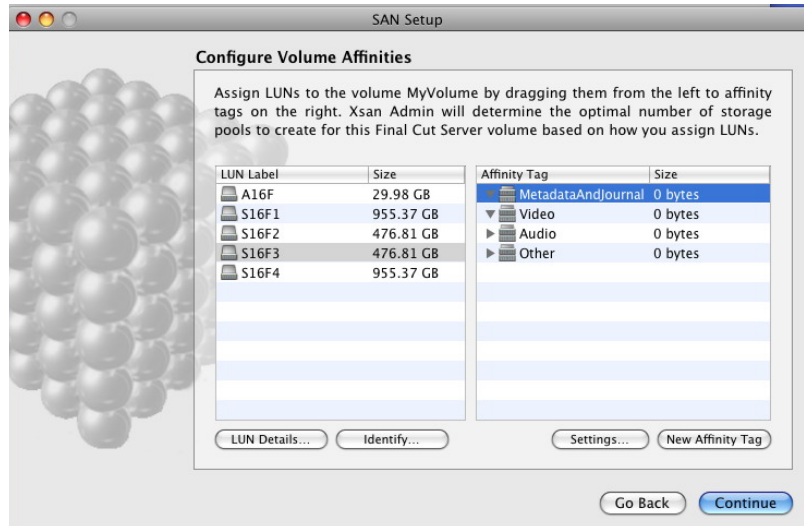
- Step 1.** Install Xsan following the instructions by the Xsan 2 Administrator's Guide. This document does not cover the details of setting Xsan-related network, such as those for the Private Metadata Network.
- Step 2.** You should be prompted to create an Xsan volume during the installation. You can also change the volume setting in the Xsan Admin window, select volumes and then use the "+" button.
- Step 3.** The first panel of the SAN Setup process is "Volume Name and Type." Configure the volume name and select the volume type that best fits the type of video you will be using.



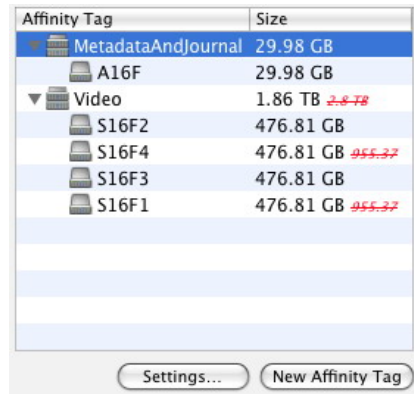
- Step 4.** Click "Continue."
- Step 5.** On the next pane, "Label LUNs," you can either manually apply names for the RAID arrays your previously configured or select the automatic labels. The RAID arrays should appear like this:



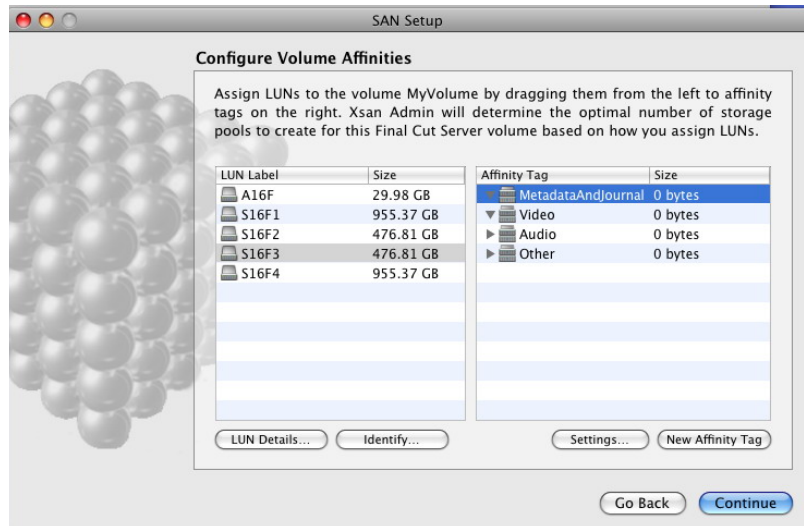
- Step 6.** Click Continue until the "Configure Volume Affinities" screen appears.



Step 7. LUNs should appear in the LUN Label column on the left side. Drag and drop the first LUN for the meta server. Drag and drop the remaining LUNs to the Affinity Tag named “Video.”

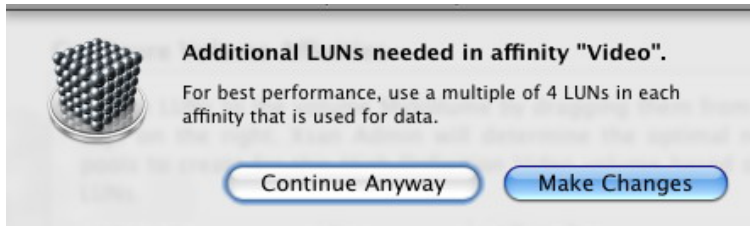


Step 8. You may then remove unused tags.



Step 9. Click Continue. The below message will prompt if you configured a non-optimal number of LUNs in a given Affinity Tag. The default is four LUNs for application types such “Uncompressed High Definition Video” and “Standard Definition Video.” Click “Make

Changes” or “Continue Away” to proceed with the rest of the procedure.

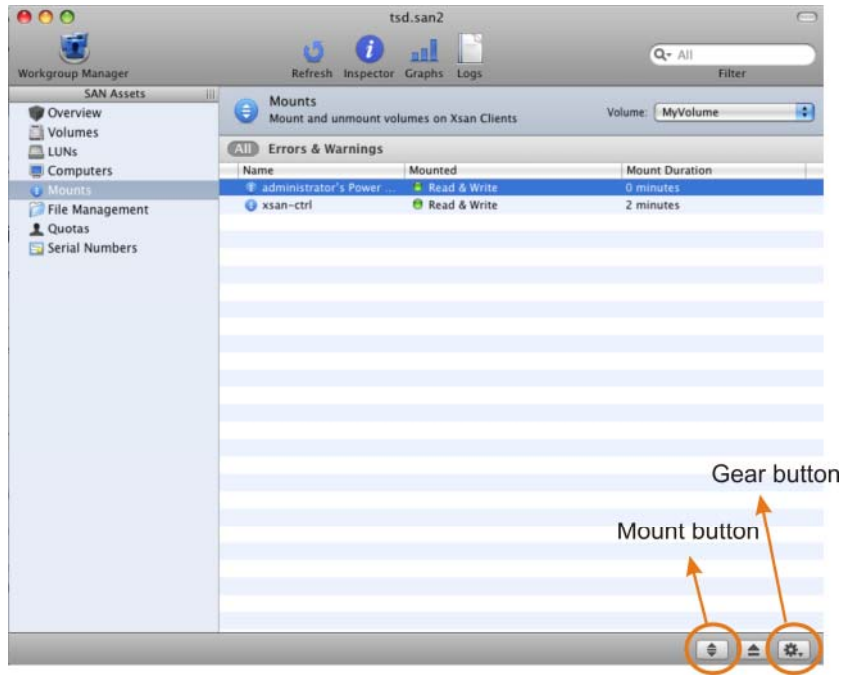


Step 10. This way, you have configured a Storage Pool called Video. You may then continue to create an Affinity Folder that will be associated with the Video Affinity Tag. Create affinity folders so that I/Os can always be directed to a specific pool if you have multiple storage pools and some are faster or slower. You can find the option in Xsan Admin -> File Management -> and Xsan Volume. Use the Gear button on the lower right of the screen and click Create.

Click the Gear button again to “Set Affinity,” and then click OK.



Step 11. Move to the Mounts panel by a single click on the SAN Assets list. Mount your SAN volume using the “Mount” button or the Gear button.



This completes the configuration of the S16F systems with Xsan.