

Preface

Notice

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About this Manual

Thank you for choosing the ExaSAN solution. This manual takes you step by step through the installation and configuration of the ExaSAN product kit.

PART ONE: Introduction

- Chapter 1: Introduces the features of ExaSAN.
- Chapter 2: Detailed list of package contents.
- Chapter 3: Definition of ExaSAN components.

PART TWO: Hardware Installation

- Chapter 4: Instructions for ExaSAN installation.

PART THREE: Connections

- Chapter 5: Instructions for making connections and powering on.

PART FOUR: RAID Configuration

- Chapter 6: Instructions for configuring arrays.

PART FIVE: Software Installation

- Chapter 7: Instructions for software installation on Windows.
- Chapter 8: Instructions for software installation on Mac.
- Chapter 9: Introduces the G2 PCIe Switch Graphic User Interface.

PART SIX: Appendices

- Appendix A: Instructions for Xsan settings.
- Appendix B: Instructions for Final Cut Pro installation.
- Appendix C: Instructions for enabling root authority.
- Appendix D: Contact details of Accusys business units around the world.

Guide to Conventions

Important information that users should be aware of is indicated with the following icons:



Caution

This icon indicates the existence of a potential hazard that could result in personal injury, damage to your equipment or loss of data if the safety instruction is not observed.



Note

This icon indicates useful tips on getting the most from your ExaSAN Kit.

Important terms, commands and programs are put in **Boldface** font.

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PART ONE

Introduction

Chapter 1

Overview

This chapter introduces the features and capabilities of ExaSAN.

The ExaSAN series provide superior functionality and performance for multiple video editing and simultaneous High-Definition video playback. The ExaSAN series offer the following product kits:

- | | |
|--------------|---------------------------------------------------------------------------------------------------------------------------|
| Kit 1 | Package of one G1 PCIe switch, one 6-port G2 PCIe switch, four NT redrive cards, and four PCIe optical cables (30m). |
| Kit 2 | Package of one G1 PCIe switch, one 12-port G2 PCIe switch, eight NT redrive cards, and eight PCIe optical cables (30m). |
| Kit 3 | Package of two G1 PCIe switches, one 12-port G2 PCIe switch, eight NT redrive cards, and eight PCIe optical cables (30m). |

ExaSAN series product kits are designed for multiple and non-linear High-Definition video editing applications, meeting extreme bandwidth demands and providing sustained read throughput for in-time playback.

ExaSAN series provide a total PCI Express SAN (Storage-Attached-Network) turnkey solution, bundling the HBA card, switch, and RAID system. ExaSAN enables PCIe switch linkage to support up to 12 host servers, 28 storage ports, and 14 Dual-Independent ExaRAID HD RAID systems.




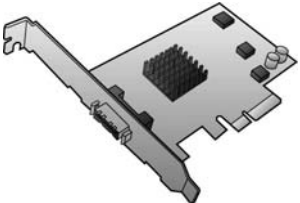
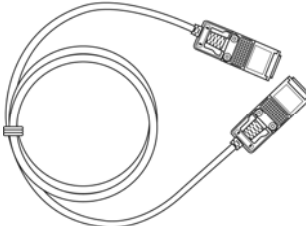
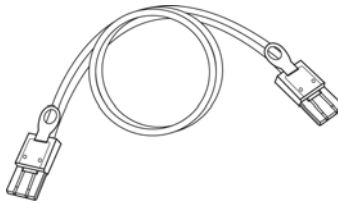
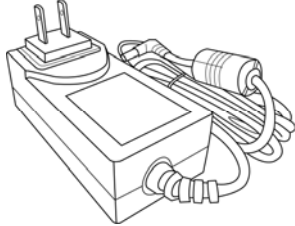

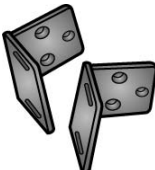
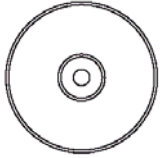


In this document you will find detailed introductions to ExaSAN components, and instructions for installing the hardware and software for your ExaSAN system.

Chapter 2

Package Contents

This chapter provides a checklist for ExaSAN package contents. You will find a detailed list for each product kit, as well as other items you will need for installation.

Depending on the model you purchased, the contents of your package may vary.

		
G1 PCIe Switch	G2 PCIe Switch (6-port)	G2 PCIe Switch (12-port)
		
NT redrive card	PCIe optical cable (30m)	External PCIe x8 Cable
		
Power adaptor	Rack mounting brackets	Rack mounting ears
		
Installation CD-ROM	G1 QSG	G2 QSG

Kit 1

ExaSAN Kit1 includes the following contents:

Item	Qty
G1 PCIe switch	1
G2 PCIe switch (6-port)	1
NT (Non-Transparent) redrive card	4
PCIe optical cable (30m)	4
External PCIe x8 Cable	1
Power adaptor	2
Rack mounting brackets (set of 2)	2
Racking mounting ears (set of 2)	2
Installation CD-ROM	1
G1 QSG	1
G2 QSG	1

Kit 2

ExaSAN Kit2 include the following contents:

Item	Qty
G1 PCIe switch	1
G2 PCIe switch (12-port)	1
NT (Non-Transparent) redrive card	8
PCIe optical cable (30m)	8
External PCIe x8 Cable	1
Power adaptor	2
Rack mounting brackets (set of 2)	2
Racking mounting ears (set of 2)	2
Installation CD-ROM	1
G1 QSG	1
G2 QSG	1

Kit 3

ExaSAN Kit3 include the following contents:

Item	Qty
G1 PCIe switch	2
G2 PCIe switch (12-port)	1
NT (Non-Transparent) redrive card	8
PCIe optical cable (30m)	8
External PCIe x8 Cable	2
Power adaptor	3
Rack mounting brackets (set of 2)	3
Racking mounting ears (set of 2)	3
Installation CD-ROM	1
G1 QSG	1
G2 QSG	1

Optional Items

- 19" rack for mounting the switch.
- Screwdriver for connecting the rack mounting brackets and ears.

What Else You Need

- Host servers with a spare PCIe x4, x8, or x16 slot.
- ExaRAID HD RAID systems.
- Ethernet switch and cable for SAN environment.
- SAN software (Xsan 2.0 and metaSAN recommended).
- Static grounding strap or electrostatic discharge (ESD) safe work area.



Caution

The PCIe slots on some motherboards are for graphics cards only. Check with the motherboard vendor for compatibility.

Chapter 3

Components

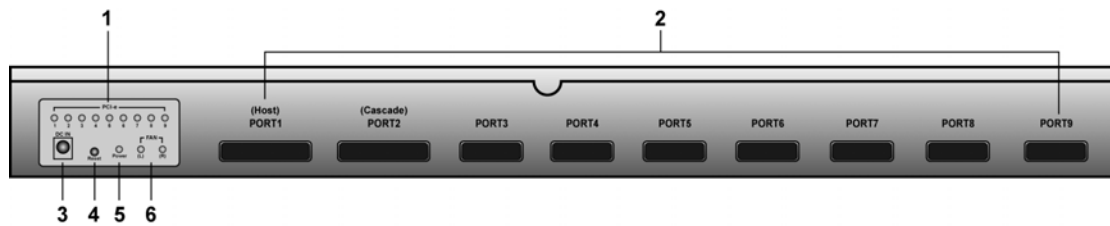
This chapter provides a comprehensive guide to the G1 and G2 PCIe switches, and the NT redrive card.

G1 Front View



No.	Name	Description
1	Reset button	Press with a pen tip or similar to reboot the switch.
2	Power LED	Lit when there is power.
3	Fan LEDs	Lit when the corresponding fan fails.
4	Port LEDs	Lit when a port is connected, and flashes when a port is accessed.

G1 Back View



No.	Name	Description
1	Port LEDs	Lit when a port is connected, and flashes when a port is accessed.
2	Ports 1-9	Connect PCIe connector cables.
3	DC connector	Connect to the power adaptor.
4	Reset button	Press with a pen tip or similar to reboot the switch.
5	Power LED	Lit when there is power.
6	Fan LEDs	Lit when the corresponding fan fails.

G1 Port Configurations

The G1 PCIe switch has one PCIe (x8) upstream port to connect to the redrive card in the host server, one cascade port to connect to another G1 PCIe switch, and seven PCIe (x4) downstream ports to connect to ExaRAID HD RAID systems.

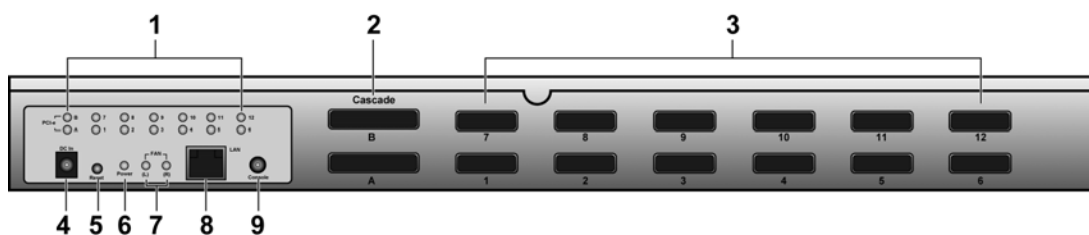
Port	Description
1	PCIe (x8) upstream port to connect to the redrive card in the host server.
2	PCIe (x8) cascade port to connect to PORT1 (Host) of another ExaSAN G1 PCIe switch.
3-9	PCIe (x4) downstream ports to connect to ExaRAID HD RAID systems.

G2 Front View



No.	Name	Description
1	Reset button	Press with a pen tip or similar to reboot the switch.
2	Power LED	Lit when there is power.
3	Fan LEDs	Lit when the corresponding fan fails.
4	Port LEDs	Lit when a port is connected, and flashes when a port is accessed.

G2 Back View



No.	Name	Description
1	Port LEDs	Lit when a port is connected, and flashes when a port is accessed.
2	Cascade ports	Connect to ExaSAN G1 PCIe switch(es) (port B only available for 12-port model).
3	Ports 1-12	Connect to host server(s) (ports 7-12 only available for 12-port model).
4	DC connector	Connect to the power adaptor.
5	Reset button	Press with a pen tip or similar to reboot the switch.
6	Power LED	Lit when there is power.
7	Fan LEDs	Lit when the corresponding fan fails.
8	LAN port	Connect to an RJ-45 cable for firmware upgrades and GUI access from the host server(s).
9	Console	Used for factory repair.

G2 Port Configurations

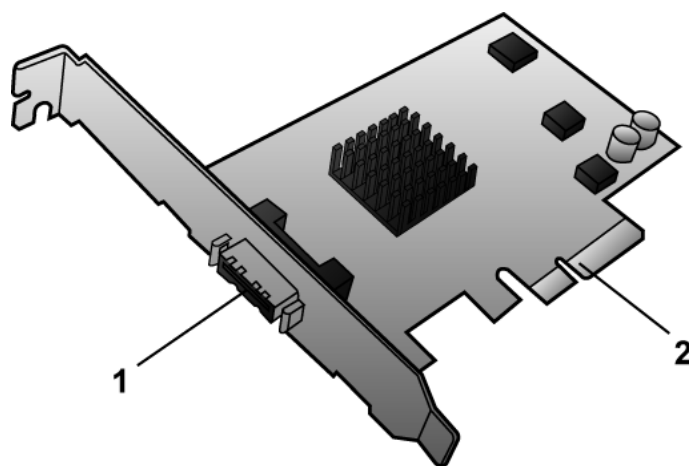
The 6-port G2 PCIe switch has one cascade port to connect to a G1 PCIe switch, and six Infiniband upstream ports to connect to the NT redrive cards in host servers.

The 12-port G2 PCIe switch has two cascade ports to connect to G1 PCIe switches, and twelve Infiniband upstream ports to connect to the NT redrive cards in host servers.

Port	Description
Cascade A and B	PCIe (x8) cascade port to connect to PORT1 (Host) of ExaSAN G1 PCIe switch(es) (Cascade port B only available for 12-port model).
1-12	Infiniband upstream port to connect to the NT redrive card in the host server(s) (ports 7-12 only available for 12-port model).

NT redrive card

The NT redrive card is installed in the host server, and provides the interface for managing the PCIe switches and disk arrays.



No.	Name	Description
1	External PCIe x4 port	Connects to the PCIe optical cable and the G2 PCIe switch.
2	PCIe x4 connector	Connects to the motherboard of the host server.

PART TWO

Hardware Installation

Chapter 4**ExaSAN Installation**

This chapter provides instructions for installing necessary components of the ExaSAN system.

Before the ExaSAN system is ready to be connected and powered on, you must do the following:

- Mount the ExaSAN and ExaRAID HD RAID systems in a rack.
- Install the hard disk drives with AA-MUX tray boards into the ExaRAID HD RAID systems.
- Install the NT redrive cards in the MacPro host servers.

**Note**

Enterprise level SATAII drives with 7200rpm and 32MB cache are recommended. The recommended disk model is WD1002FBYS.

Pre-installation Notices



Caution

Before starting any kind of hardware installation, please ensure that all power switches have been turned off and all power cords disconnected to prevent personal injury and damage to the hardware.



Caution

To avoid overheating, ExaSAN should be installed in a well-ventilated area and in such a way that sufficient airflow is maintained across the card chips.



Caution

Static electricity can damage electronic components. To guard against such damage:

Work in a static-free environment.

Wear a grounded anti-static wrist strap.

Store uninstalled components in anti-static bags.

Handle PCBs by their edges and avoid touching chips and connectors.



Caution

Operating parameters

Operating temperature: 0°C to 40°C (32°F to 104°F)

Storage temperature: -40°C to 70°C (-40°F to 158°F)

Operating humidity: 5-85%, non-condensing

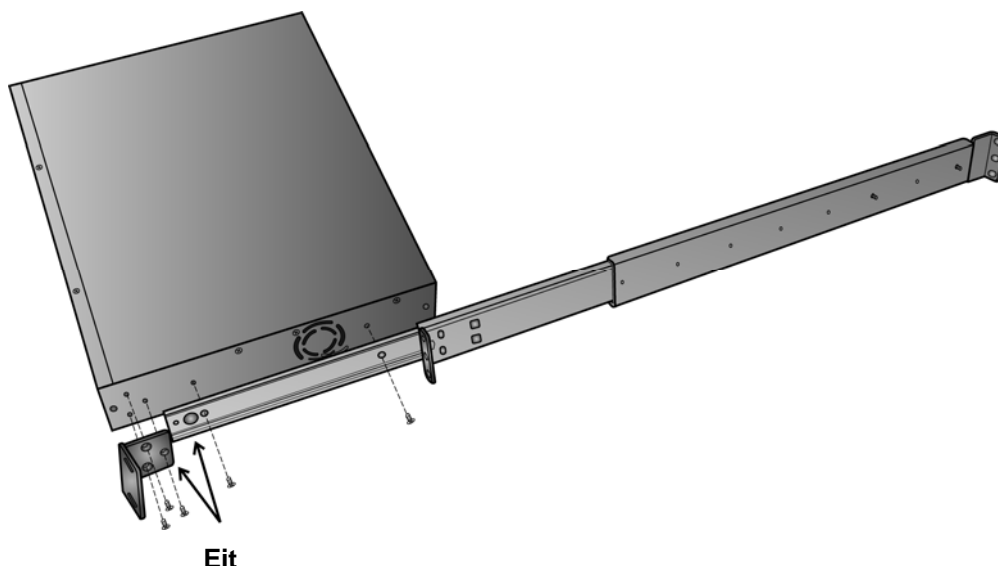
Storage humidity: 0-95%, non-condensing

Mounting the ExaSAN system

The ExaSAN system is designed to be mounted in a standard 19-inch rack. It is recommended that you mount the ExaSAN system before making cable connections.

To mount the PCIe switches in a rack:

1. Attach the rack mounting brackets or ears to the side of the switch as shown below.



2. Secure the switch into a 19" rack using the fixtures provided.



Note

The rack mounting ears are only available for the G2 PCIe switch.

For instructions on mounting the ExaRAID HD RAID system, see "ExaRAID HD User's Manual".

Installing the Hard Disk Drives

For instructions on installing the hard disk drives, see “ExaRAID HD User’s Manual”.

Installing the NT redrive card

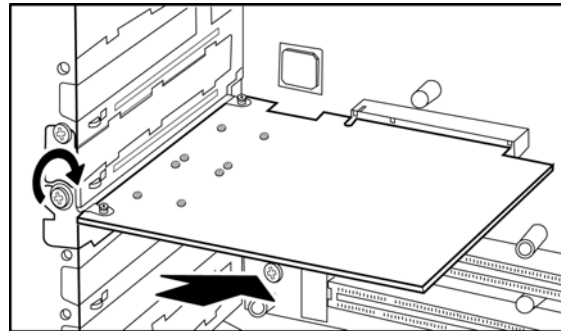
The NT redrive card is compatible with PCI Express slots x4, x8, and x16. It is recommended to install the NT redrive card in the fastest PCIe bus (x16 PCIe bus is preferred).



Caution

Read the pre-installation notices earlier in this chapter before proceeding.

1. Make sure the host server is turned off.
2. Open the server case.
3. Remove the blanking plate from the PCIe slot.
4. Position the connector of the card over the PCIe slot.
5. Press the connector of the card gently but firmly into the PCIe slot until it is correctly and securely seated.
6. Secure the metal bracket of the card to the system case with a screw.



Note

Many motherboards only come with one PCI Express interface. Before installation, make sure there is one free.

PART THREE

Connections

Chapter 5

Connections

This chapter provides instructions for making connections and powering on the ExaSAN system.

After you have installed the necessary components, the ExaSAN system is ready to be connected and powered on. Before powering on, you must do the following:

- Connect the G1 PCIe switch(es) to ExaRAID HD RAID systems.
- Connect the G2 PCIe switch to the G1 PCIe switch(es).
- Connect the G2 PCIe switch to host servers.

Once basic connections are made, you can also connect additional G1 PCIe switches for maximum storage expansion. The ExaSAN system supports up to four G1 PCIe switches for additional switch linkage.

Basic connections

To connect the G1 PCIe switch to ExaRAID HD RAID systems:

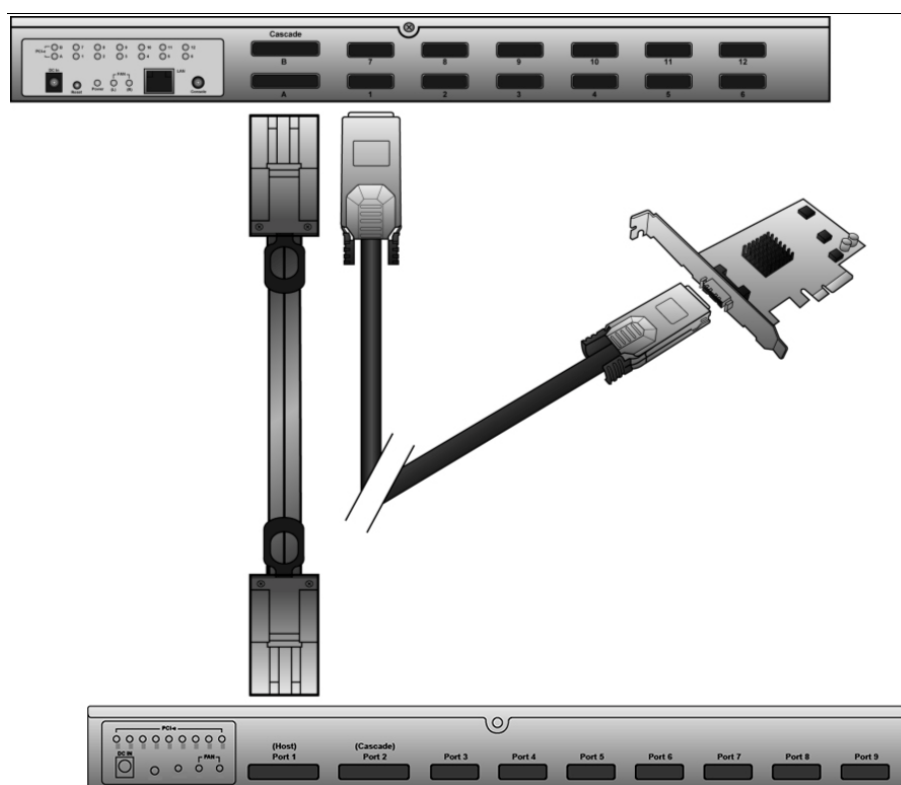
1. With the pull tabs facing up, insert one end of the PCIe (x4) cable into a port (3-9) on the back of the G1 PCIe switch.
2. Insert the other end into the back of an ExaRAID HD RAID system.

To connect the G2 PCIe switch to the G1 PCIe switch:

1. With the pull tabs facing up, insert one end of the PCIe (x8) cable into Cascade port A or B on the back of the G2 PCIe switch. Cascade ports A and B can each support switch linkage up to two G1 PCIe switches.
2. Insert the other end into PORT1 (Host) of G1 PCIe switch.

To connect the G2 PCIe switch to the host servers:

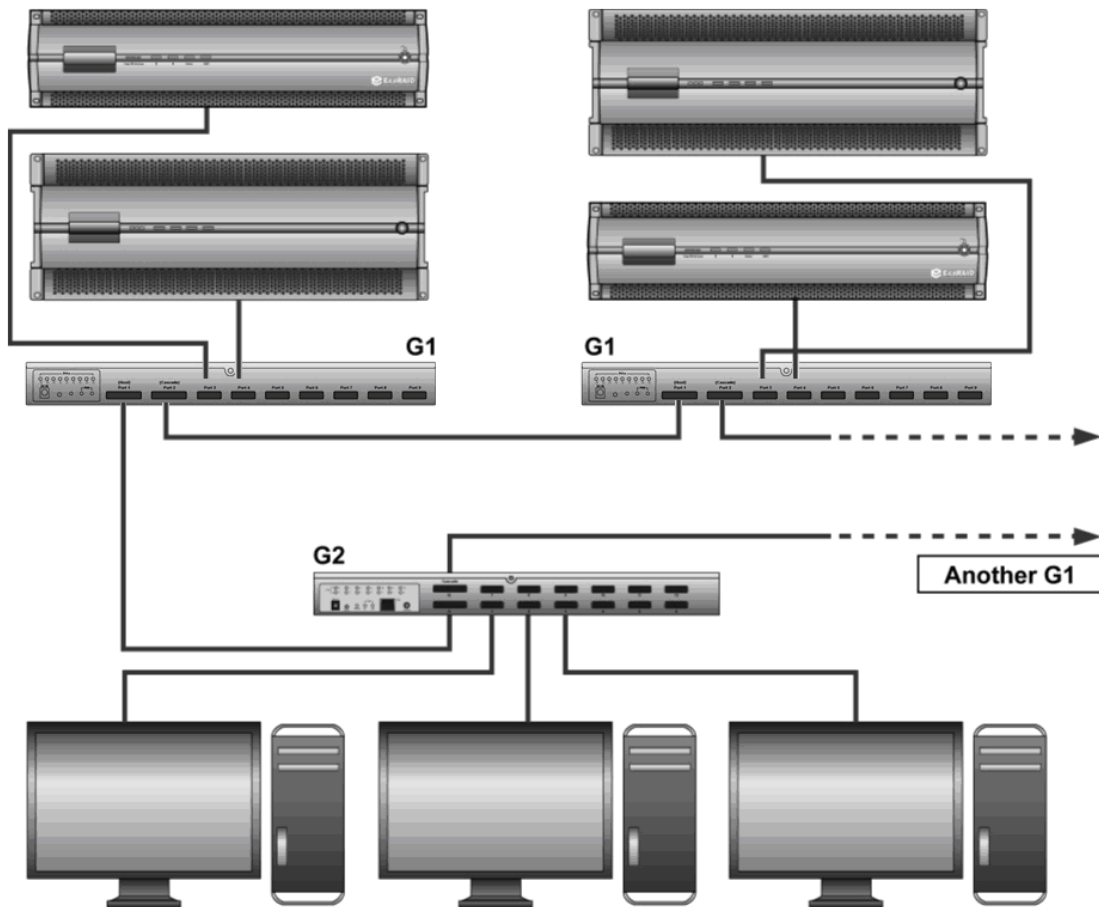
1. Insert one end of the PCIe optical cable into a port (1-12) on the back of the G2 PCIe switch.
2. Insert the other end into the NT redrive card installed in host server.
3. Connect all PCIe optical cables between the G2 PCIe switch and host servers.



Additional switch linkage

For additional switch linkage, you can connect the currently used G1 PCIe switch to another G1 PCIe switch:

1. With the pull tabs facing up, insert one end of the PCIe (x8) cable into PORT2 (Cascade) on the back of the G1 PCIe switch already connected to the G2 PCIe switch.
2. Insert the other end into PORT1 (Host) of another G1 PCIe switch.



Removing the External PCIe x4 Cable

To remove the external PCIe x4 cable, put your finger into the ring of the external PCIe x4 cable connector and pull gently to release it.



Caution

Do **NOT** remove the external PCIe x4 cable forcibly in any other way, as this will damage the cable.

Connecting to a Power Source and Powering On

1. Plug the power cables into the back of the ExaRAID HD RAID systems, and connect the other end to a power source.
2. Press the power switch on the back of the ExaRAID HD RAID systems.
3. Plug the power adaptor(s) into the DC connector(s) on the back of the G1 PCIe switch(es), and connect the other end to a power source. The G1 PCIe switch(es) automatically powers on.
4. Plug the power adaptors into the DC connector on the back of the G2 PCIe switch, and connect the other end to a power source. The G2 PCIe switch automatically powers on.
5. When the LEDs for Cascade ports A and B on the G2 PCIe switch are lit (Cascade port B only available for 12-port model), power on the host servers.



Caution

Before powering on, make sure the hard disk drives, NT redrive cards, external PCIe cables, PCIe optical cables and power cables are properly installed and connected.



Caution

Do **NOT** remove the cables when in use as this will cause data loss.



Note

PCIe optical cables connected to the G2 PCIe switch and host servers support the hot-plug function. Always reboot the host servers after hot plugging.



Note

*PCIe cables connected to the G1 PCIe switch and host servers do **NOT** support the hot-plug function.*

Powering Off

1. Power off the host servers.
2. Unplug the power adaptor of the G2 PCIe switch from the power source. The G2 PCIe switch automatically powers off.
3. Unplug the power adaptor(s) of the G1 PCIe switch(es) from the power source. The G1 PCIe switch(es) automatically powers off.
4. Press the power switch on the back of the ExaRAID HD RAID systems.



Caution

Unplugging the G2 PCIe switch before the host servers are powered off causes kernel panic.

PART FOUR

RAID Configuration

Chapter 6

RAID Configuration

This chapter provides instructions for creating the first disk array with RAIDGuardX, mapping the array to Lun, and selecting the setting for optimal performance.

Creating Arrays

Administrators can choose how best to distribute the available hard disk drives. Once an array has been created, it can be further administered in the **Options** section.

Creating an Array

When the RAID controller is first configured, an array needs to be set up. This array tells the controller how many disks to use and what their function should be. The Accusys PCIe controllers support RAID levels 0, 1, 5, 6, 0+1 and JBOD.

Follow the steps below to create an array:

- Step 1:** Select the RAID level from the drop down menu. Available levels are: 0, 1, 5, 6, 0+1 and JBOD. Each level has a minimum disk requirement and this is shown in the information to the right of the drop down list.
- Step 2:** Select the stripe size from the drop down menu. Available stripe sizes are: 8-256KB. The greater the stripe size, the faster the I/O output for each drive. This speeds up disk access.
- Select the sector size from the drop down menu. Available sector sizes are 512 bytes (default) and 4096 bytes. The sector size 4096 bytes is only supported by Windows 2000/XP, and over 2 Terabyte function is used. For another OS, please select 512 bytes (default).
- Step 3:** Click on the drives to be added to the array. You can also click on **Select all spare drivers**.



Note

The image displayed will vary depending on which controller is being used.

Optional: From the drop down menu, select either On the fly initialization or Performance evaluation.

On the fly initialization – The default setting is for normal use. The data and parity will be initialized automatically. The performance will degrade to some degree during the initialization process.

Performance evaluation – Select to evaluate the performance of the target array. Data and parity are not initialized. **(No data protection when this mode is on)**

Assign LUN automatically

Check this box to automatically assign a LUN.

Click **Create Array** to complete the process.

1 Select a RAID level

RAID Level 5 RAID 5 RAID 5 provides data error correction information and offers the mix of excellent performance and good fault tolerance. Requires a minimum of 3 drives.

2 Raid Level Description

Stripe size: 256 KB Stripe size is a chunk of continuous data on the drives, measured in 512 bytes. Generally, use larger stripe size for many large files and vice versa.

Sector size: 512 Bytes Default. Support 512 bytes per sector. For Windows 2003/Vista, Linux and Mac OSX.

3 Select drives Select all spare drivers

Diagram showing a RAID array configuration with 8 drives. The first 4 drives are marked with red 'X' (inactive), and the next 4 drives are marked with green '1' (active).

Initialization type

On the fly initialization Select this option for normal use. The data and parity will be initialized automatically. The performance will degrade to some degree during the initialization process.

☒ Assign LUN automatically

Summary
Array 2 will be created.

Create Array Cancel

SAN Performance Equalization Mode

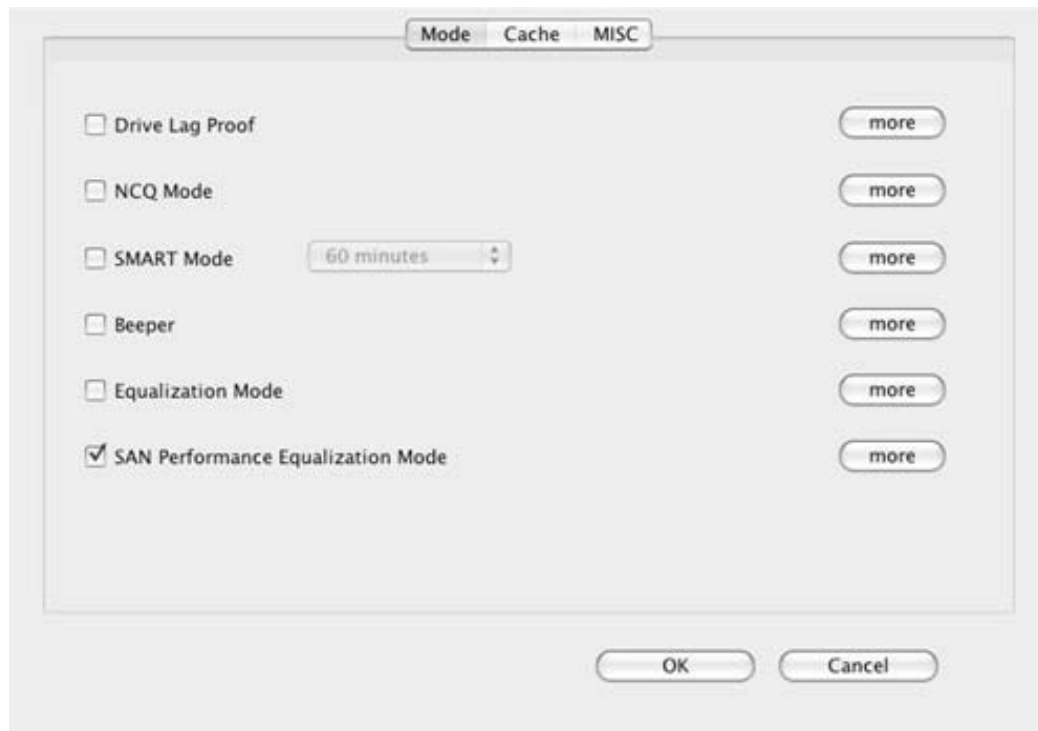
Enable this mode for maximum stability and performance in a SAN environment.

Follow the steps below to enable SAN Performance Equalization Mode:

Step 1: Select the **Preferences** menu, and click on the **Mode** tab.

Step 2: Check the box for **SAN Performance Equalization Mode**.

Step 3: Click **OK** to confirm.



For more details, see “RAIDGuardX User’s Manual”.

PART FIVE

Software Installation

Chapter 7

Installing the driver and RAIDGuard X on Windows

This chapter details the installation, setup and configuration process for RAIDGuard X on a Windows operating system. RAIDGuard X Server must be installed on the host server. RAIDGuard X Client must be installed on each computer that will monitor or administer the RAID controller(s).

Windows driver & RAIDGuard X Installation

1. Insert the CD-ROM into the CD-ROM drive of the server or PC.
2. Execute "CD-ROM/../../../../ AccusysNTSW_IP_Win_xxx_1.00.exe".
3. Follow the onscreen instructions.
4. When installing on the host server, select **Complete** to install the Server and Client.
5. When installing on a remote computer, select **Custom** to choose which applications (Client or Server) to install.
6. Click **Finish** to complete the installation.
7. Restart the computers.



Note

Storport and miniport are new storage drivers created by Microsoft for Windows Server 2003 and future Windows® operating systems.

Chapter 8

Installing the driver and RAIDGuard X on MAC OS

This chapter details the installation, setup and configuration process for RAIDGuard X on the Mac operating system. RAIDGuard X Server must be installed on the host server. RAIDGuard X Client must be installed on each computer that will monitor or administer the RAID controller(s).

Mac driver & RAIDGuard X Installation

1. Insert the CD-ROM into the CD-ROM drive of the MAC.
2. Execute "CD-ROM/xxx/xxx/ AccusysNTSW_IP_MAC_1.00.mpkg".
3. Follow the onscreen instructions.
4. When installing on the host server, select **Complete** to install the Server and Client.
5. When installing on a remote computer, select **Custom** to choose which applications (Client or Server) to install.
6. Click **Finish** to complete the installation.
7. Restart the computers.

Chapter 9

Graphic User Interface

This chapter introduces the G2 PCIe Switch GUI (Graphic User Interface).

View Settings

In the GUI, the front and back of the G2 PCIe switch are displayed.

The G2 PCIe switch GUI uses the following settings:

Default address: <https://192.168.0.1>.

Default user name: admin

Default password: 0000



To view detailed information, click on the G2 PCIe switch. To display configurations of a port in an independent window, click on an Infiniband port (ports 1 to 12) on the back of the switch.



Update Firmware

You can update the firmware of the G2 switch in the Graphic User Interface.

1. In the Login information panel, enter "admin" in the Username field, and enter "0000" in the Password field.
2. Click the **Login** button to enter Config Mode.
3. Select "Firmware Update", and select the firmware type (System F/W or Boot Code).



4. Click **Browse**, and then select the path for the correct file.
5. Click **Apply** to begin the firmware update.



Note

Power off the host servers before updating the firmware. Once the firmware update is complete, the G2 PCIe switch reboots. When the LEDs for Cascade ports A and B on the G2 PCIe switch are lit (Cascade port B only available for 12-port model), power on the host servers again.

PART SIX

Appendices

Appendix A

Xsan Settings

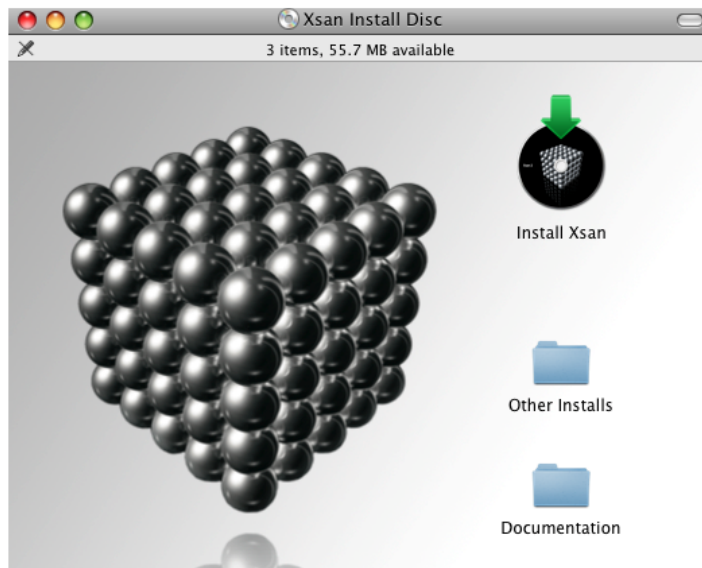
Xsan2.0 software enables volume sharing and allows each host server to access and configure the RAID storage volume. This section provides instructions for utilizing a SAN environment with Xsan2.0 management.

Download Xsan

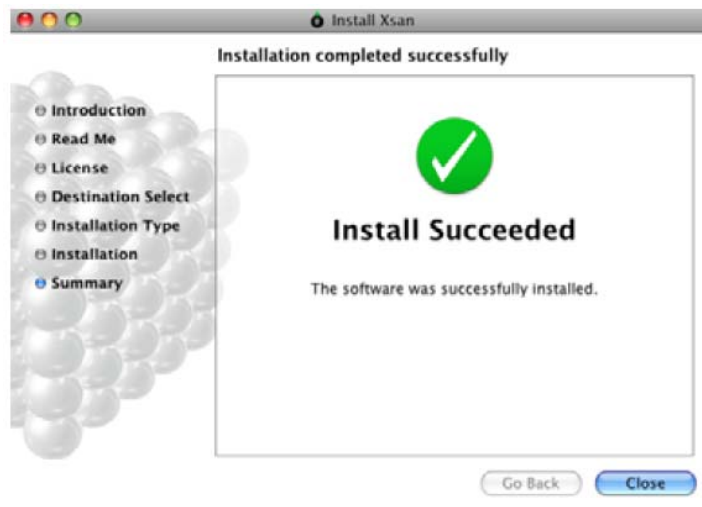
Xsan2.0 software and trial license can be downloaded from Apple website by a registered ADC account. For more information, see <http://developer.apple.com/mac/>.

Install Xsan2

1. Insert Xsan2 CD into DVD-ROM. The install window will pop-up.
2. Press the **Install Xsan** icon, and follow the onscreen instructions.

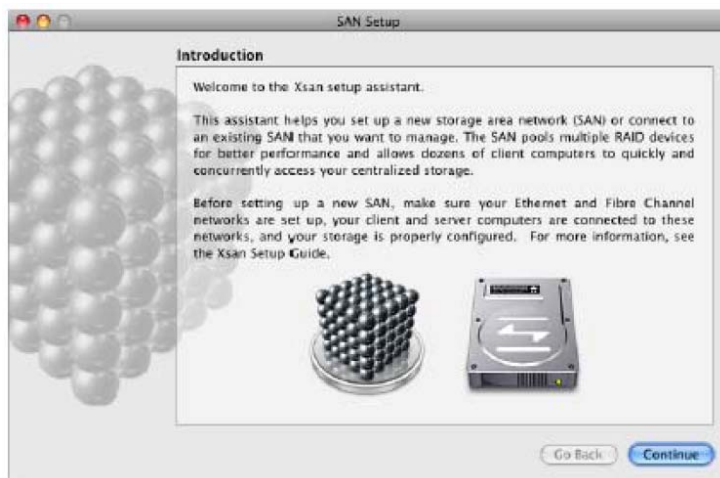


3. Once installation is complete, press **Close** to exit the application.



Create new SAN

1. Double click **Xsan admin** in the folder Applications/server. The setup console is opened.



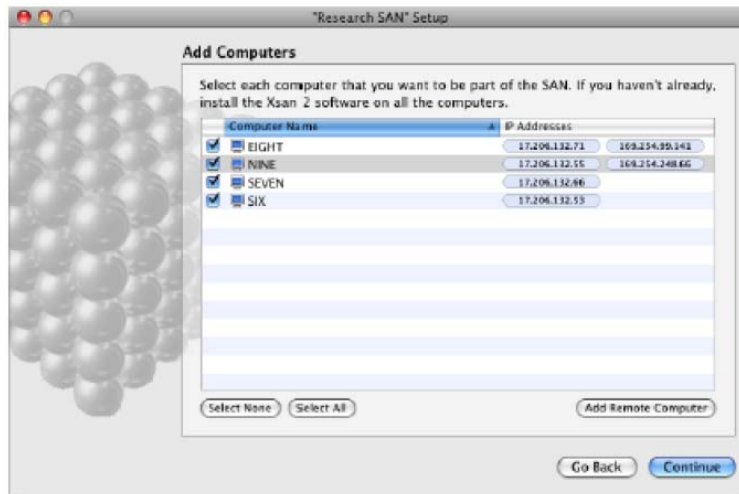
2. Select "Create new SAN".



3. Type a name for the SAN, and then enter the SAN administrator's name and email address.



4. In the Add Computers pane, make sure all the computers that you want to be in the SAN are selected.



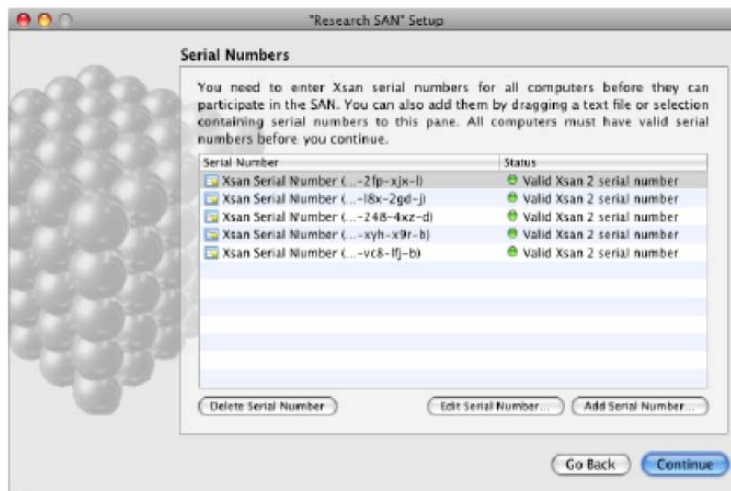
Note

If a computer you want to include isn't listed, make sure you have installed Xsan on that computer, check that it is connected to both Ethernet networks, and check the network settings in the computer's Network preferences. You can also click Add Remote Computer to add computers manually.

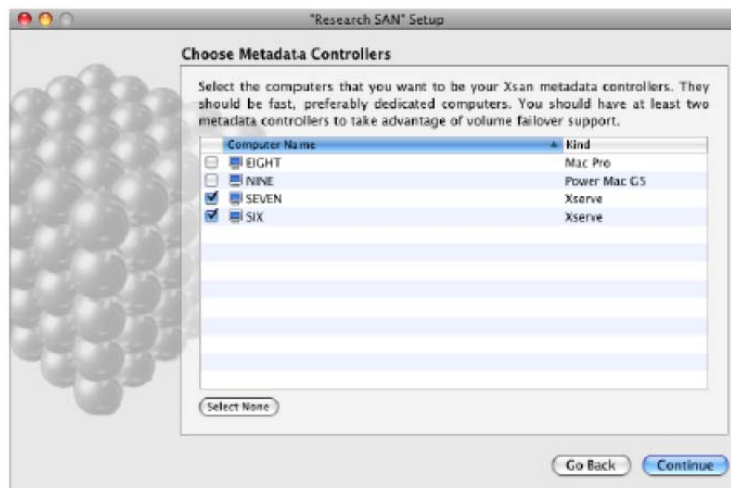
5. In the Authenticate SAN Computers pane, select "Use same authentication information for all SAN Computers" and enter the user account name and password you entered on the clients and the metadata controller.



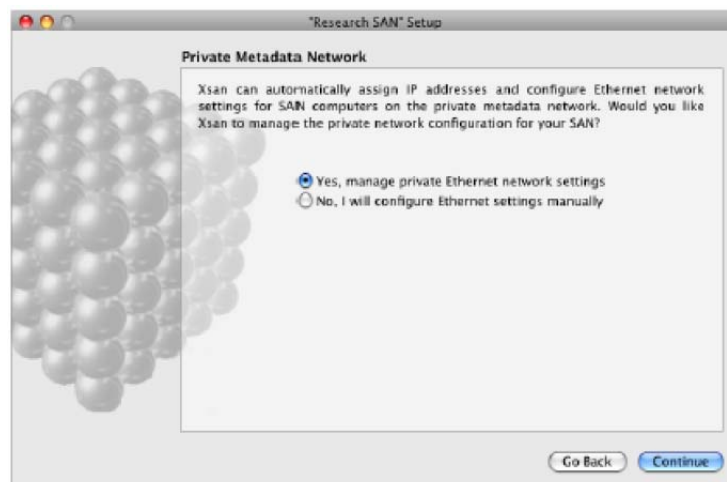
6. In the Serial Numbers pane, enter your Xsan serial numbers. You can click **Add Serial Number** and type a number, or drag a text file containing serial numbers to the list.



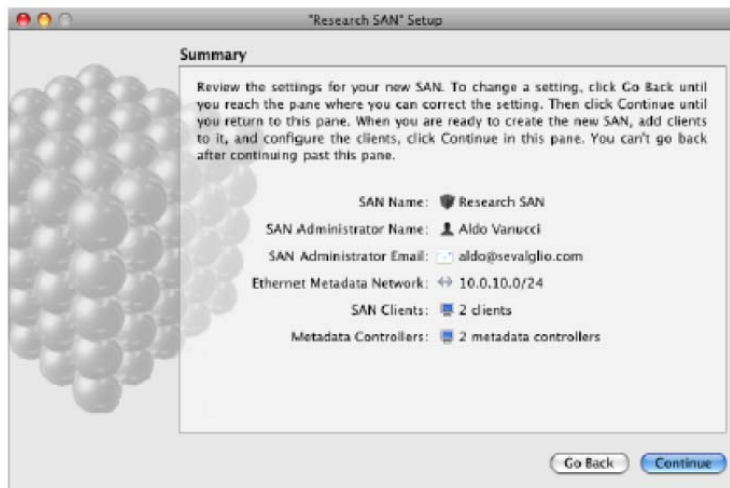
7. In the Choose Metadata Controllers pane, select only your metadata controllers. Deselect any client-only computers that appear in the list.



8. In the Private Metadata Network pane, select "Yes, manage private Ethernet network settings".



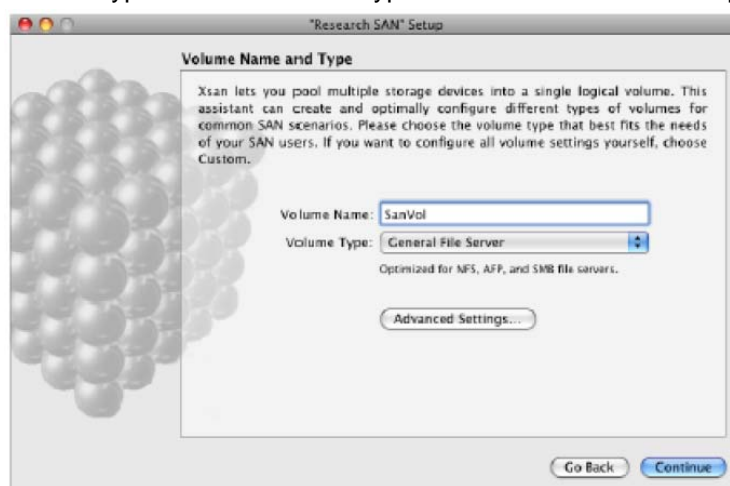
9. Review the Summary pane. If all settings are correct, click **Continue**.



10. In the Create Volume pane, select "Create a volume now" and click **Continue**.



11. In the Volume Name and Type pane, type a name for the volume and choose a volume type that matches the type of work the volume will support.



Volume Name: MyVolume2

Block Allocation Size: **4 KB**

Allocation Strategy: Round Robin

Alternate through available storage pools of similar size.

Spotlight: ☐ Enable on this volume

Access Control Lists: ☒ Enable on this volume
Enabling Access Control Lists requires all computers to use a common directory domain.

Windows ID Mapping: Generate IDs from GUID
Generate UUIDs and GIDs from Active Directory records.

► Allocation Settings

► Cache Settings

Cancel OK



Note

1. Click **Advanced Setting** to enter the setting menu, and change "block allocation size" to 4KB to get best performance for multiple video playback.
2. If the Label LUNs pane appears, select "Automatically label all unlabeled LUNs with prefix" and click **Continue**. When the list of labeled LUNs appears, verify the LUN labels and click **Continue**.

12. In the Configure Volume Affinities pane, drag LUNs from the left column to the corresponding affinity tag in the right column. For the correct Meta-volume and DATA volume configurations, see p.44, "Kit1 RAID system settings" and p.45, "Kit2/Kit3 RAID system settings". When you finish, click **Continue**.

"Research SAN" Setup

Configure Volume Affinities

Assign LUNs to the volume SanVol by dragging them from the left to affinity tags on the right. Xsan Admin will determine the optimal number of storage pools to create for this General File Server volume based on how you assign LUNs.

LUN Label	Size	Affinity Tag	Size
XsanLUN4	152.65 GB	Meta	115.02 GB
XsanLUN5	152.65 GB	XsanLUN1	115.02 GB
		Data1	460.12 GB
		XsanLUN2	230.06 GB
		XsanLUN3	230.06 GB
		Data2	0 bytes

LUN Details Identify Settings New Affinity Tag

Go Back Continue

13. In the Setup Complete pane, click **Continue**. Xsan Admin displays a summary of your SAN configuration and the new data volumes (ExaSAN) are mounted and ready to use on all clients and meta server.

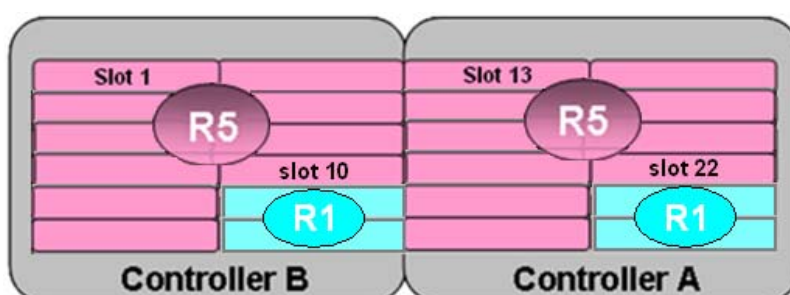


Kit1 RAID system settings

These are the recommended RAID system settings for ExaSAN Kit1 in a SAN environment.

RAID system	Controller	Disk	RAID Level	Slice	LUN	Size	SAN/DLP
ExaRAID HD 24 bays	B	1~10	5	Array1 Slice0	0	9TB	Enable
		11, 12	1	Array2 Slice0	1	1TB	Enable
	A	1~10	5	Array1 Slice0	0	9TB	Enable
		11, 12	1	Array2 Slice0	1	1TB	Enable

-RAID configuration table-



-Array setting layout-

Volume Name	Xsan Volume	Array Volume	Capacity
ExaSAN	Data	R5 R5	9+9=18TB
	Meta	R1 R1	1+1=2TB

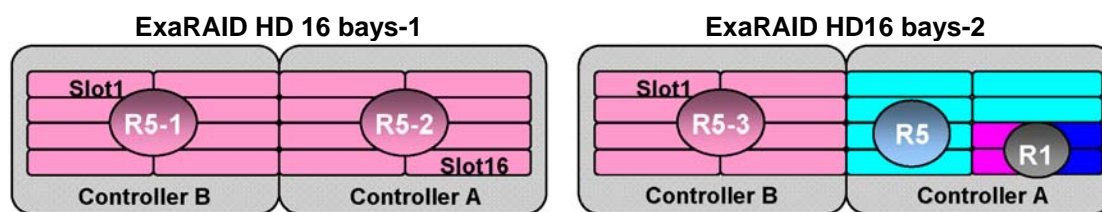
-Xsan volume setting-

Kit2/Kit3 RAID system settings

These are the recommended RAID system settings for ExaSAN Kit2/Kit3 in a SAN environment.

RAID system	Controller	Disk	RAID Level	Slice	LUN	Size	SAN/DLP
ExaRAID HD 16 bays-1	B	1~8	5	Array1 Slice0	0	7TB	Enable
	A	1~8	5	Array1 Slice0	0	7TB	Enable
ExaRAID HD16 bays-2	B	1~8	5	Array1 Slice0	0	7TB	Enable
	A	1~6	5	Array1 Slice0	0	5TB	Enable
		7, 8	1	Array2 Slice0	1	500GB	Enable
				Array2 Slice1	2	500GB	Enable

-RAID configuration table-



-Array setting layout-

Volume Name	Xsan Volume	Array Volume	Capacity
ExaSAN-H	Data-1	R5-1 R5-2 R5-3	7+7+7=21TB
	Meta-1	R1	1/2=500GB
ExaSAN-L	Data-2	R5	5TB
	Meta-2	R1	1/2=500GB

-Xsan volume setting

Appendix B

Final Cut Pro

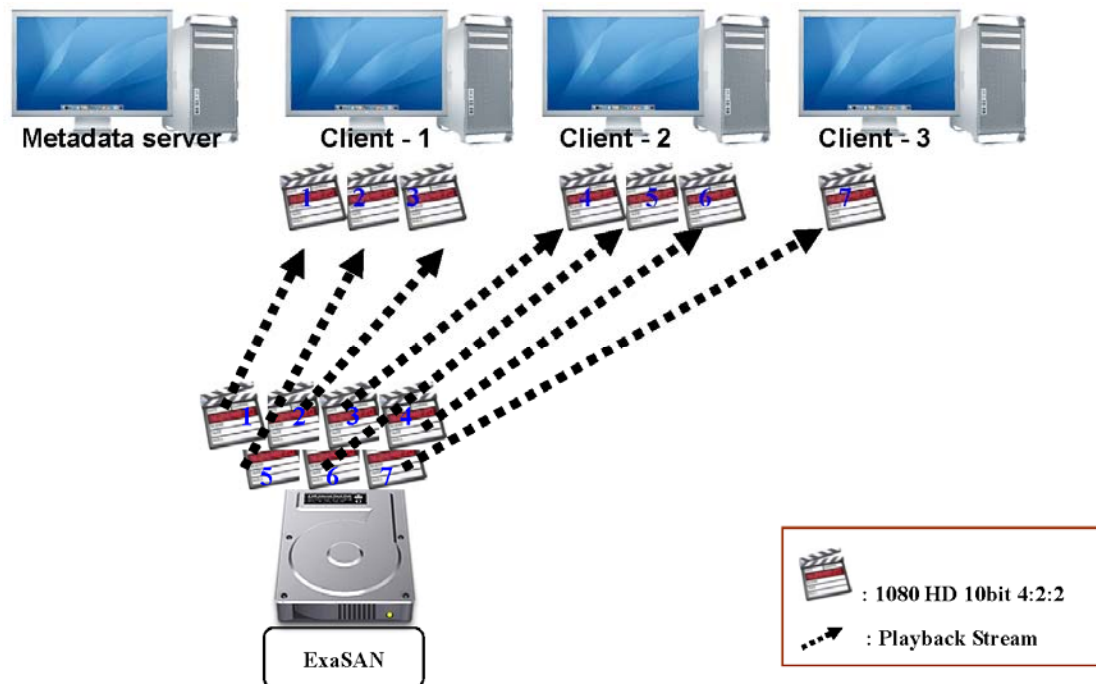
Final Cut Pro enables non-linear editing from multiple host servers and delivers real-time performance. You can use Final Cut Pro for video editing in larger workgroups and simultaneous HD video playback.

Install Final Cut Pro

1. Insert the Final Cut Studio installation disc into your computer's DVD drive.
2. Double-click the **Install Final Cut Studio** icon, and then follow the onscreen instructions.
3. In the User Information pane, enter your first and last name (entering an organization name is optional) and enter a valid serial number.



Once installation is complete, you can use Final Cut Pro for simultaneous HD video playback, as demonstrated below.

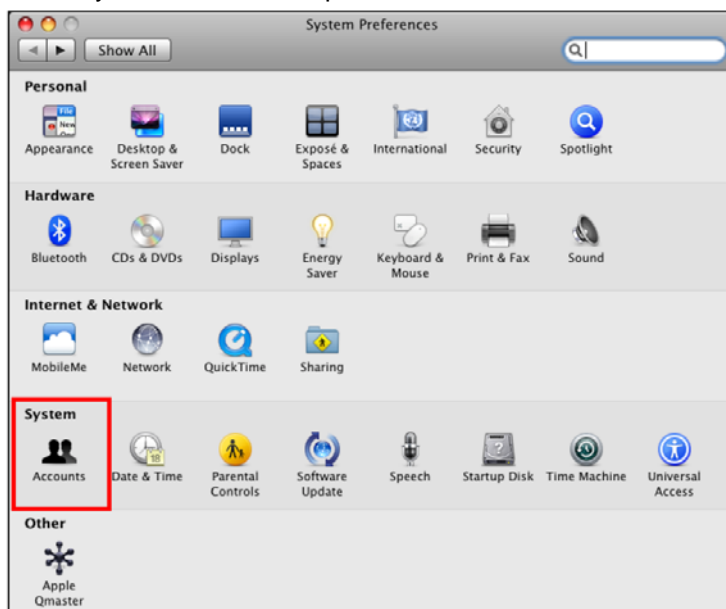


Appendix C

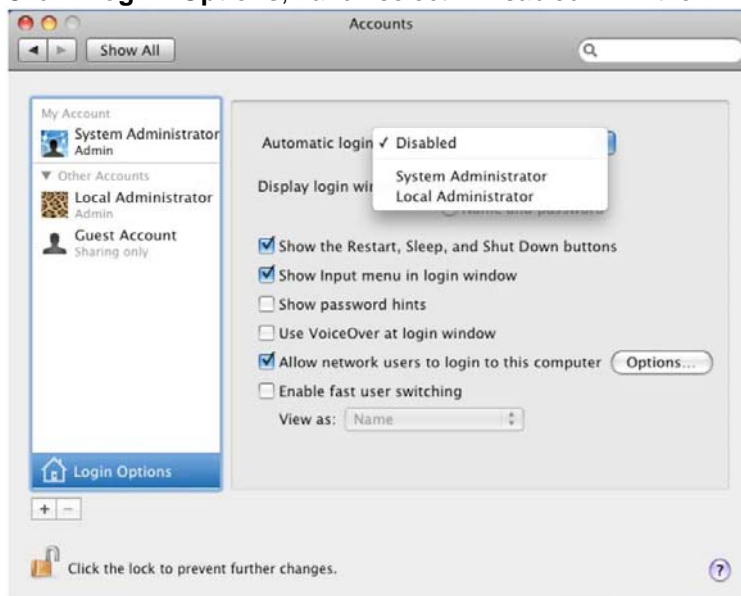
Enable Root Authority

To enable root authority:

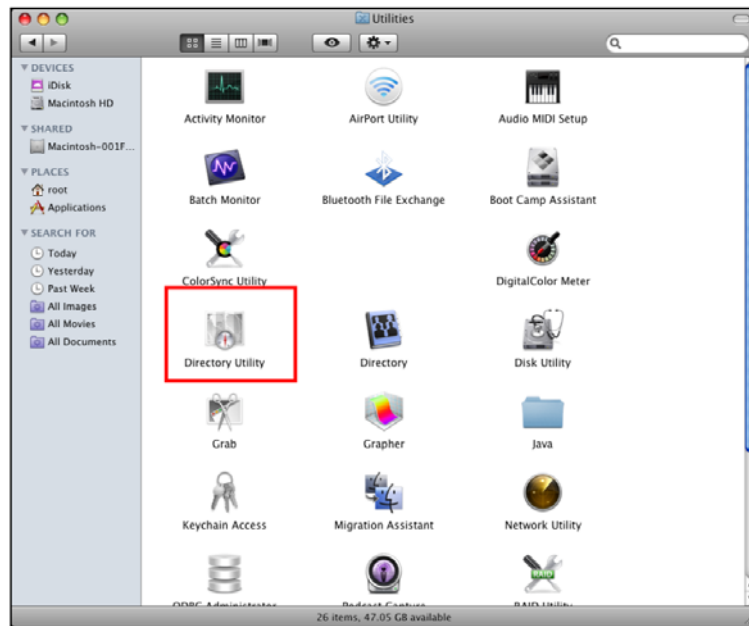
1. In the System Preferences pane, select "Accounts".



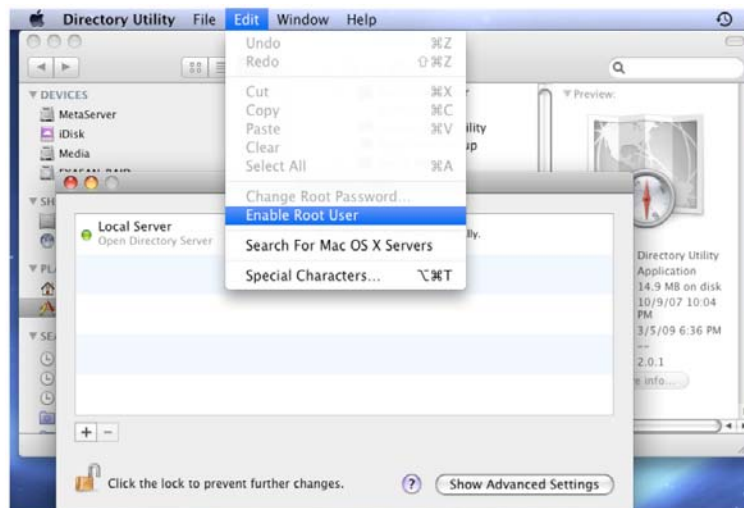
2. Click **Login Options**, and select "Disabled" in the "Automatic login" field.



3. In the Utilities pane, select "Directory Utility".



4. In the menu bar, select "Edit" and "Enable Root User".



5. Login again to root account.

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