SUPERO®

AOC-LPZCR2

All-In-One ZCR Card

USER'S GUIDE

Rev. 1.0

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Chapter 1 Introduction

This manual is written for system integrators, PC technicians and knowledgeable PC users who intend to integrate Supermicro's Second Generation Zero-Channel RAID solution into their RAID system. It provides detailed information for the installation and use of the AOC-LPZCR2 All-In-One card that supports SAS/SATA/SCSI configurations in a slim-size card. Outperforming our first generation ZCR cards, the Supermicro AOC-LPZCR2 offers an innovative, mature, complete and cost effective solution to the ever-increasing demands of disk density and data integrity of today's servers.

1.1 Overview

The AOC-LPZCR2 is a highly efficient, highly compatible and easy-to-use RAID card that allows the user to take advantage of the AMI MG9071/9072 Firmware and the Q-Logic GEM318/359 Firmware to configure RAID 0, RAID 1, RAID 5, RAID 10, JBOD*, and RAID50**. With Intel's 80321 600 MHz I/O Processor and 256 MB ECC DDR memory built-in, the AOC-LPZCR2 supports PCI-X speeds up to 100MHz and provides the user with a high-speed, space-saving, scalable and intelligent hardware RAID solutions. (Notes: *JBOD is available for SATA/SAS/SCSI only. **RAID 50 is available for SAS and SATA only.)

1.2 Introduction to SATA (Serial ATA) and SAS (Serial Attached SCSI)

Serial ATA(SATA) is a physical storage interface. It uses a single cable with a minimum of four wires to create a point-to-point connection between devices. It is a serial link which supports SATA transfer rates from 150MBps. Because the serial cables used in SATA are thinner than the traditional cables used in Parallel ATA (PATA), SATA systems provide more efficient system cooling, faster data transfer and better functionality than Parallel ATA.

With the functionality provided by the onboard SAS Firmware, the AOC-LPZCR2 offers unprecedented I/O throughput, reliability and scalability to the IT industry. In addition, with a dynamic serial-link transmission infrastructure built-in, the AOC-LPZCR2 supports both SATA and SAS without any bridging, providing the user with unparalleled data storage expansion and inter-connectivity capability.

1.3.1 SCSI Enclosure Services 2 (SES-2) and SCSI Accessed Fault Enclosure Management (SAF-TE)

The AOC-LPZCR2 offers the following SES-2 and SAF-TE advanced features:

- Supports SAF-TE Industry standard to interface with enclosed components
- Supports Disk Drive Failure Alarm and LED indicator
- Supports Disk Drive Rebuild LED Indicator
- Supports Disk Drive Hot Spare LED Indicator

- Provides temperature monitoring
- LED Indicators and Drive Failure Alarm help minimize human errors

1.3.2 Proper SAS Cable Configuration for the SES-2 Enclosure Management

For SES-2 to work properly, you will need to select the correct SAS cable for your system. There are two kinds of SAS cables that support Sideband Signals:

- Mini SAS 4i to 4 ports
- Mini SAS 4i to Mini SAS 4i

Please refer to the table below for proper cable configuration:

Cable Part #	Type	Length	Example
CBL-0097L-02	Mini SAS 4i to 4 ports	19.69" (50CM)	X6DH3-G2 to CSE-SAS-743TQ
CBL-0118L-02	Mini SAS 4i to 4 ports	9.06" (23CM)	X6DH3-G2 to CSE-SAS-822TQ, 6024H-32 (R), 7044H-32
CBL-0119L-02	Mini SAS 4i to 4 ports	5.19" (13CM)	X6DHR-3G2 to CSE-SAS-813TQ, 6014H-32
CBL-0108L-02	Mini SAS 4i to Mini SAS 4i	15.35" (39CM)	X6DHP-3G2 to CSE-SAS-816A, 6014P-32 (R)

1.4 Product Features

The AOC-LPZCR2 Series: (Low Profile Skyhawk ZCR RAID Card)

- Low profile Form Factor (2.5" H x 7.0" W) (65.0 mm H x 178.0 mm W)
- Intel's 80321 I/O Processor @ 600MHz built-in
- 256 MB onboard ECC DDR memory
- 1 amp@ 3.3V
- RAID 0, RAID 1, RAID 5, RAID 10, RAID 50* and JBOD** supported (*See Notes 1 & 2 Below.)

(a) SAS (-based on the AMI MG9071/9072 Firmware)

- Supports I^2C Interface
- Downward compatible with SATA disk drives
- Supports PCI-X up to 100 MHz in the green slot (*See Note3)

(b) SCSI (-based on the Q-Logic GEM318/GEM359 Firmware)

- Supports Q-Logic's GEM318 or GEM359 Firmware with I^2C Interface
- Supports PCI-X up to 100 MHz in the green slot (*See Note 3)

Operating Systems supported

* Windows 2000, Windows XP, and Windows 2003
* Linux: SuSE 9.0, SuSE 9.1, SuSE 9.2, Red Hat 3.0 and Red Hat 4.0
* Upgradable in the future.

(***Notes:** **Note 1: RAID 50 is available for SAS/SATA.**
Note 2: JBOD is available for SATA/SAS/SCSI.
Note 3: Please install the ZCR card in the green slot.)

Management support

* Adaptec's Storage Manager (ASM)
* Adaptec Flash Utility (AFU)
* Adaptec Configuration Utility (ACU)
* SES-2 (*SAS only)
* SAF-TE (*SCSI and SATA only)

Key RAID Features

* RAID detection, buildup, deletion, addition, and error detection
* Disk initialization, verification and repairing
* Hot-spare disk drive support for easy replacement
* Hot-spare disk drive support with automatic rebuild

1.5 CheckList

If your shipping package came with missing or damaged parts, please contact Supermicro's Tech. Support. Please refer to the following checklist when contacting us.

i. AOC-LPZCR2: 600MHz/256MB All-in-One PCI-X Zero-Channel RAID Card (Note 1),

ii. Brackets: One full-size bracket, one low-profile bracket and two screws,

iii. Jumper: One jumper on position J5 to enable the SATA mode as default (Note 2),

iv. CBL-0102: One SATA I^2C LED Cable (Note 3),

v. CDR-LPZCR2: One Installation CD,

vi. White Box with Correct Barcode Label (showing AOC-LPZCR2).

1.6 An Important Note to the User

The drawings and pictures shown in this manual were based on the latest PCB Revision available at the time of publishing of the manual. The AOC-LPZCR2 card you've received may or may not look exactly the same as the graphics shown in the manual.

***Notes**:

Note 1: For SES-2 to work properly, you will need to have a Supermicro's SAS Backplane that supports SES-2 installed in the system. In addition, you will need to use a proper cable as specified on the previous page. Please refer to Section 3.4 for more details.

Note 2: The AOC-LPZCR2 supports SCSI, SAS, and SATA. However, you will need to configure jumper settings for these functions to work properly. Please refer to Page 2-2 for jumper information.

Note 3: This cable is used for SATA LED only. Refer to the SAF-TE section on Page 2-4 for more information.

Note 4: RAID 50 is available for SAS/SATA only.

Note 5: JBOD is available for SATA/SAS/SCSI.

Note 6: Please install the ZCR card in the green slot.

1.7 Contacting Supermicro

Headquarters

Address: SuperMicro Computer, Inc.
980 Rock Ave.
San Jose, CA 95131 U.S.A.
Tel: +1 (408) 503-8000
Fax: +1 (408) 503-8008
Email: marketing@supermicro.com (General Information)
support@supermicro.com (Technical Support)
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Address: SuperMicro Computer B.V.
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's-Hertogenbosch, The Netherlands
Tel: +31 (0) 73-6400390
Fax: +31 (0) 73-6416525
Email: sales@supermicro.nl (General Information)
support@supermicro.nl (Technical Support)
rma@supermicro.nl (Customer Support)

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Address: SuperMicro, Taiwan
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Chung-Ho 235, Taipei Hsien, Taiwan, R.O.C.
Tel: +886-(2) 8226-3990
Fax: +886-(2) 8226-3991
Web Site: www.supermicro.com.tw

Technical Support:
Email: support@supermicro.com.tw

1.8 Product Compliance Information

The AOC-LPZCR2 is compliant with the following product standards/ requirements:

* USA: FCC 47 CFR, Part 15, subpart B

* European Union: EN 55022
EN 55024

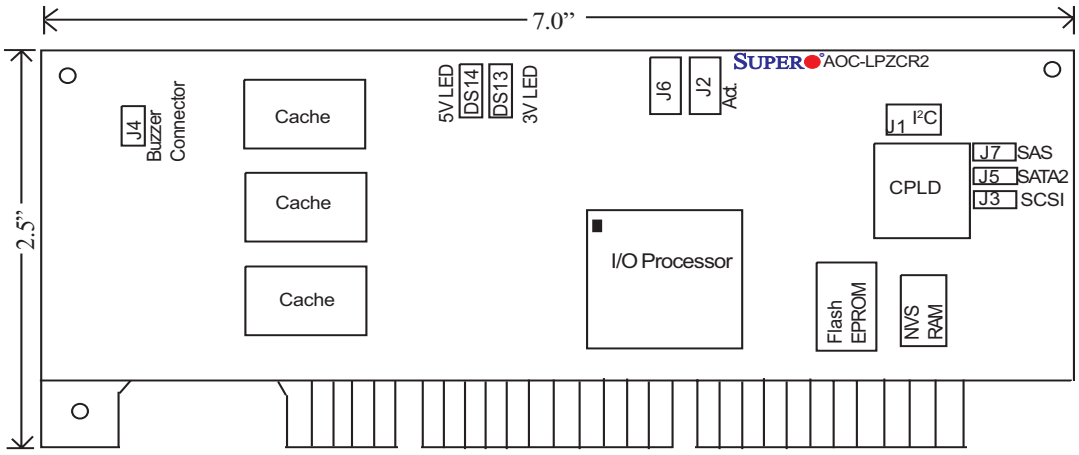
Notes

Chapter 2
Technical Specifications and Software Installation

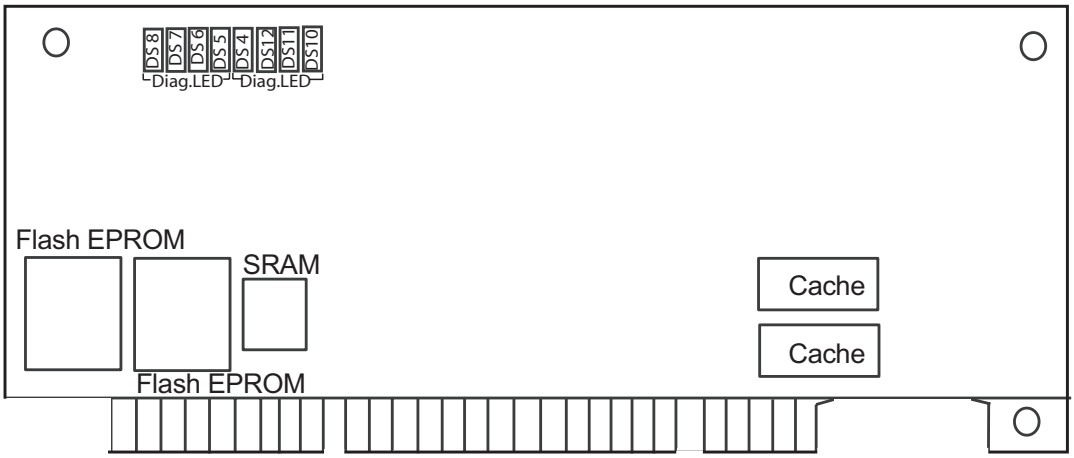
2.1 AOC-LPZCR2 Card Layout and Jumper Locations

SUPERMICRO AOC-LPZCR2 Card Layout and Jumper Locations

Front view



Rear view



2.2.1 Jumper and Connector Descriptions

Jumper	Description
J2	Activity LED Connector
J4	Buzzer Connector

Connector	Description
J1	System Management Bus (I^2C) (*See I^2C cable connection on the next page.)
J3	SCSI Mode (On: Enable)
J5	Serial ATA Mode (SATA 2) Mode (On: Enable)
J7	SAS Mode (On: Enable)
(DS10-12, DS4),(DS5-8)	Diagnostic LED Indicators

2.2.2 Connectors and LED Indicators

Activity LED Indicator

Activity LED Indicator (J2), located on the front side of the AOC-LPZCR2 card, indicates the activity status of the AOC-LPZCR2 card. See the table on the right for pin definitions.

Activity LED
Pin Definitions (J2)

Pin#	Pin Definitions
Pin1	-(Negtive) or Cathod
Pin2	+(Positive) or Anode

Buzzer Connector

Buzzer Connector (J4), located on the front side of the AOC-LPZCR2 card, provides a connection for the onboard buzzer. See the table on the right for pin definitions.

Buzzer Connector
Pin Definitions (J4)

Pin#	Definitions
Pin1	+(Positive)
Pin2	-(Negtive)

SMB (I^2C)

A System Management Bus header is located at J1. Connect the I^2C cable here to utilize SMB on your add-on card (*See below). See the table on the right for pin definitions.

SMB (I^2C)
Pin Definitions (J1)

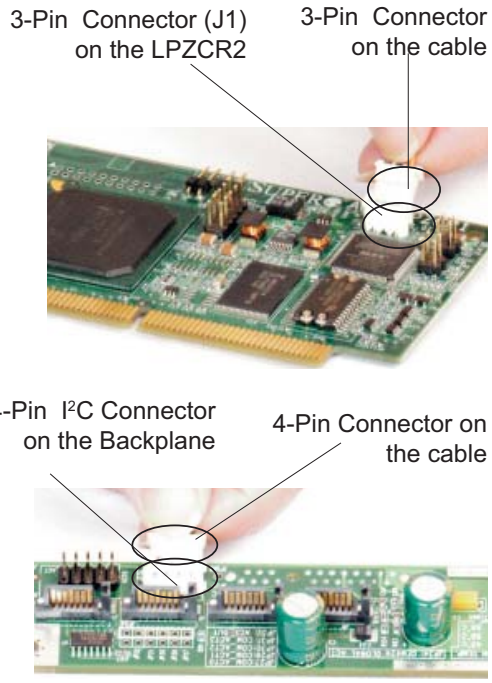
Pin Number	Definition
1	Data
2	Ground
3	Clock

I^2C Cable Connection

1. The I^2C Cable has a 3-pin connector on one end, and a 4-pin connector on the other end.

2. Connect the 3-pin connector of the cable to the 3-pin I^2C Connector (J1) on the AOC-LPZCR2 card as shown on the right.

3. Connect the 4-pin connector of the cable to the 4-pin I^2C Connector on the backplane as shown on the right.



(*Note: Refer to the layout on Page 2-1 for the locations of the Connectors and LED Indicators.

2.3 Intelligent Interface Management: SAF-TE

The AOC-LPZCR2 offers the feature of SAF-TE. SAF-TE, (-SCSI Accessed Fault-Tolerant Enclosures Interface Specification), is a set of SCSI commands used to monitor hot-swap drives and inform the user of the status of these drives through LED indicators. Refer to the table below for details on SAF-TE LED Indicators.

(***See the Note below**.)

LED Indicator		**Buzzer**	**Drive Status**
Name	**Signal**		
All SAF-TE (RED) LEDs	On (about 5 seconds)	On (about 5 seconds)	Normal Power-On/bootup
SAF-TE (RED) LED	On (until the disk is rebuilt)	On (until the disk is rebuilt)	Disk Drive Failure
SAF-TE (RED) LED	Constant Blinking	Off	RAID Rebuilding
SAF-TE (RED) LED	Continuous Blinking: 2-long + pause	Off	Hot Spare Drive
SAF-TE Availability	SCSI, Hercules II		

***Note:** SAF-TE in the SATA Mode is available for OEM only. To support SAF-TE, you will need to have a Supermicro's SATA backplane with the Q-Logic GEM-424 Enclosure Management Controller pre-installed. By default, this function is disabled.

2.4 Safety Guidelines

To avoid personal injury and property damage, please carefully follow all the safety steps listed below when accessing your system or handling the components:

ESD Safety Guidelines

Electric Static Discharge (ESD) can damage electronic components. To prevent damage to your system. it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the RAID card by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the RAID card.
- Use only the correct type of bracket for the chassis. Please use a full-height bracket for a 1U, 3U, 4U, Tower, or a Pedestal system. Use a low-profile bracket for a 2U or some of the proprietary chassis. Make sure to secure the bracket in the host system cabinet. (*Note: When used in a 1U system, the full-height bracket is mounted into the riser card.)
- Disconnect the power cable before removing the Extended LED cable, data cable or I^2C cable from the riser card.
- Make sure that the riser card is securely seated in the PCI slot to prevent damage to the system due to power shortage.
- Do not force a cable connector onto the controller or a drive.

2.5 Installing the Controller Driver

2.5.1 Creating the Driver Floppy Disk:

*A CD-ROM that contains the drivers for the Windows OS, the Linux Red Hat/SuSE OS, and the Controller BIOS is included in the shipping package. Please locate the CD-ROM before installing the driver. (*Note: this CD-ROM does not perform Auto-boot or auto-play.)*

For the Windows 32-bit Operating System:

- Copy all files from the folder: \Drive\Windows into a blank, formatted floppy disk. (The folder is saved in the CDROM that came with your shipment.)

For the Red Hat/SuSE Operating System:

- Make the floppy disk by using the diskette image file at \Drive\Linux, which is stored in the CD-ROM.

2.5.2 Adding the Driver into an Existing System

*(*Note: An existing system is a system that has an operating system already installed and the AOC-LPZCR2 driver is being installed as a Secondary Controller.)*

For the Windows Operating System

a. Install the controller and make sure that its BIOS appears in POST.

b. Start the Windows OS. The Windows OS will launch the "Found New Hardware Wizard" and search for the installer driver.

c. Insert the driver floppy disk that you've created into the computer, select the floppy drive as the source, and press the <Enter> key.

d. Continue clicking <Next> until the driver is successfully installed.

e. Remove the driver disk from the FDD drive and restart the system to complete the installation process.

For the Red Hat/SuSE Operating System

a. Start the Red Hat/SuSE OS.

b. Insert and mount the RPM driver Floppy or CD.

c. Type: "rpm -Uvh filename.rpm" at the prompt, and then, follow the instructions given on the screen to install the driver. (*Note: filename=the file name of the RPM driver that appears on your screen.)

d. Run fdisk, mkfs, and create a mount point for the new driver.

2.5.3 Installing the Driver into a New System

*(*Note: A new system is a system that has no operating system installed yet, and the AOC-LPZCR2 driver installation is a part of the OS installation.)*

For the Windows Operating System

a. Install the controller and make sure that its BIOS appears in POST.

b. Insert the Windows Setup CD and boot from it.

c. When prompted at the bottom of the screen to install a third party driver, press the <F6> key. (*Note: You have only 5 seconds to press <F6>. If you miss it, you will need to restart the system and repeat this step again.)

d. Insert the driver disk into the computer, and wait until you are prompted to install a driver. Press <S> to specify that the driver is included in an additional device--the floppy disk, and press <Enter>. (Refer to Page 2-6.)

e. When the Adaptec's driver disk--"Adaptec RAID Controller" is located, press <Enter>.

f. Press <Enter> again to continue with the Windows OS installation.

For the Red Hat Operating System

a. Install the controller and make sure that its BIOS appears in POST.

b. Boot from the Linux CD.

c. Type: "linux dd" at the prompt, and follow the instructions given on the screen to install the driver.

d. Remove the driver disk from the computer, and, then, restart the system to complete the installation.

For the SuSE Operating System

a. Install the controller and make sure that its BIOS appears in POST.

b. Boot from the Linux CD.

c. While the kernel is booting, press <Alt>.

d. When prompted, insert the Driver Floppy Disk to the floppy drive and press <Enter>.

e. Remove the driver disk from the computer, and, then, restart the system to complete the installation.

Notes

Chapter 3
RAID Configuration

After all the hardware has been installed in your system, you must first configure the Adaptec Embedded RAID Driver before you install the Windows operating system. The necessary drivers are all included on the Supermicro bootable CDs that came with your card.

*(*Note: For the Adaptec RAID Configuration Utility to function properly, you will need to correctly setup the jumper settings of your add-on card first before using the Utility)*

Configuring Jumper Settings

To properly configure the jumper settings, please follow the table listed below before using the Adaptec RAID Configuration Utility. For more detailed information on jumper settings and locations, please refer to Chapter 2. (*Note 1)

SATA/SCSI Jumper Settings for the AOC-LPZCR2

Jumper/Function	J5	J3	J7
To enable SATA based on Hercules II	On		
To enable SCSI		On	
To enable SAS			On

Minimal Hard Drive Required for RAID Configurations

The AOC-LPZCR2 supports RAID 0, RAID 1, RAID 5, RAID 10 and RAID 50. (*Note 2) Refer to the table below for the minimum of hard drives required for each RAID setting.

RAID Setting	Minimal Hard Drives Required
RAID 0	2 Hard Drives
RAID 1	2 Hard Drives
RAID 5	3 Hard Drives
RAID 10	4 Hard Drives
RAID 50	6 Hard Drives

***Notes**:
1. Refer to Page 2-1 for jumper locations.
2. RAID 50 is for SATA, SAS only.

3.1 Using the Adaptec Array Configuration Utility

The Adaptec RAID Configuration Utility includes the following major components:

1. Array Configuration Utility: this utility allows the user to create and manage arrays. You can also use this utility to initialize and scan disk drives.

2. SCSISelect Unity (or Serial/SATASelect): this utility allows the user to configure the control settings for disk drives.

3. Disk Utility: this utility allows the user to format and verify disk drives.

To Use the Adaptec RAID Configuration Utility

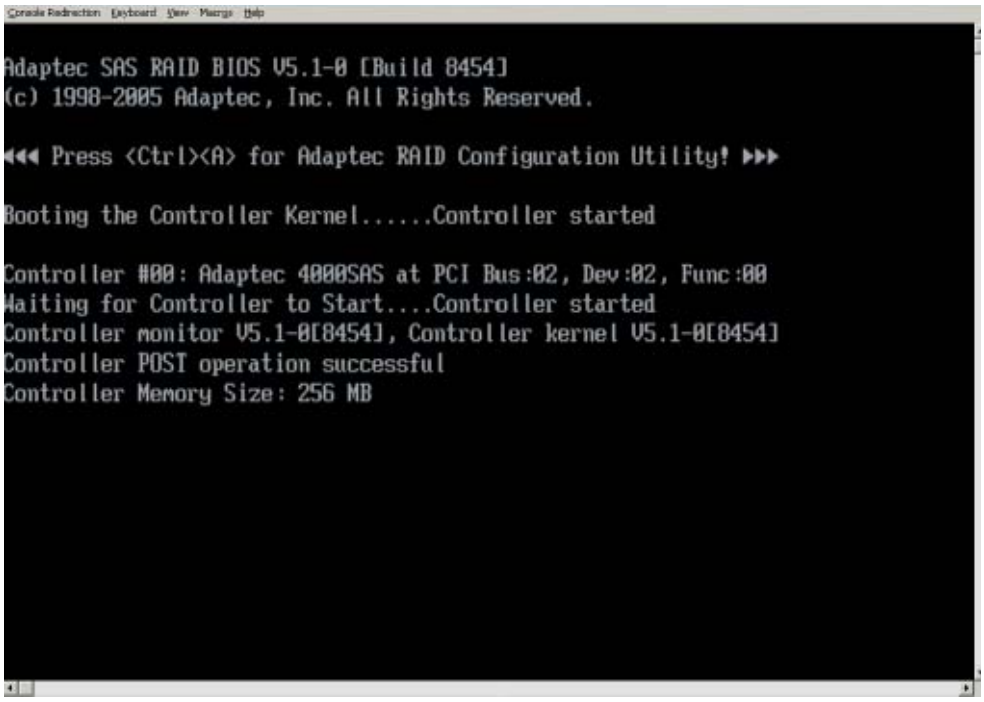
(*Note: the configuration procedures listed below are applicable to SAS, SATA and SCSI settings.)

To use the Adaptec RAID Configuration Utility, please follow the steps listed below.

1. Properly configure the jumper settings of your add-on card as indicated on page 3-1.

2. Enable the RAID function in the system BIOS. (*Please refer to the User's Guide that came with your system for system BIOS configuration.)

3. Turn on your computer. The BIOS screen as shown below will display during system bootup:



4. At the prompt, press the <Ctrl> and <A> keys simultaneously to enter the Adaptec RAID Configuration Utility. The RAID Configuration Utility Main Menu (as shown below) will appear:

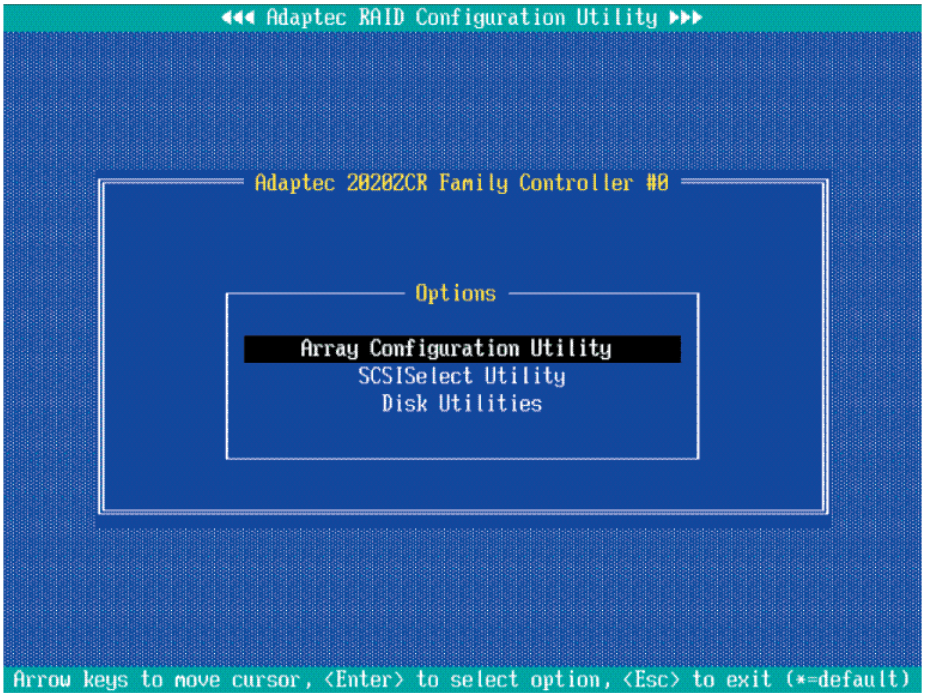


Figure 3.1 The RAID Configuration Utility Main Menu

The Purpose of Using the Array Configuration Utility

The Array Configuration Utility allows you to create, manage, delete arrays and specify hot spare disk drives.

1. Select "Array Configuration Utility" from the RAID Configuration Main Menu (Figure 3.1 on Page 3-3), and press <Enter>. The Array Configuration Main Menu will display as shown on the next page:

***Note:** You can use the arrow keys to highlight an item and then press the <Enter> key to select it. To return to the previous menu, press the <ESC> key.

Figure 3.2 The Array Configuration Utility Main Menu

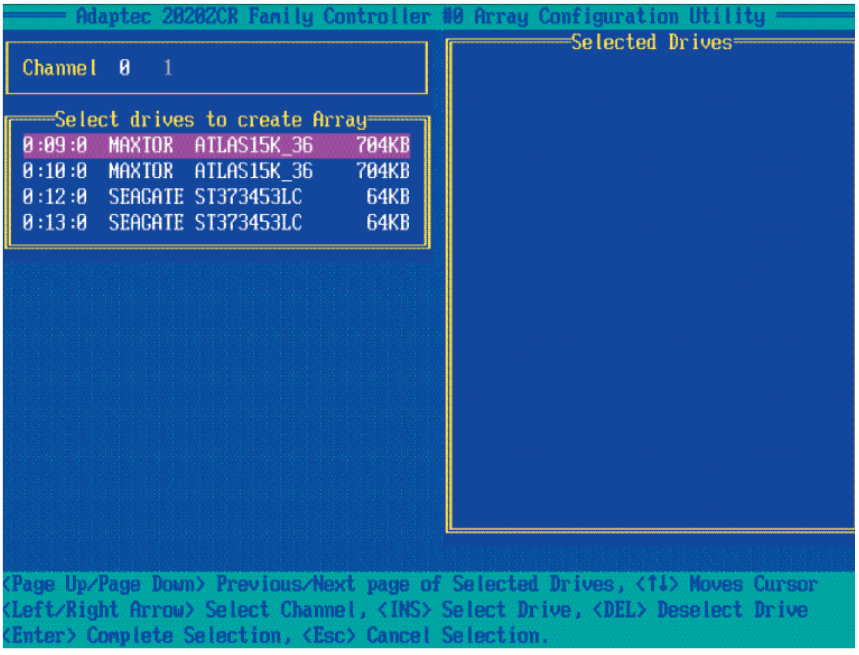
To Create Arrays

(***Note:** Make sure that the disks you want to use for the arrays are connected to your system and are initialized. A disk shown in the gray area is not initialized or it can be a member of an array already, so it cannot be used for an array at this point. Please refer to the section "Initializing Disk Drives" for disk initialization.)

1. Turn on your computer. When prompted, press <Ctrl> and <A> to access the Adaptec RAID Utility.

2. From the RAID Configuration Menu (Figure 3.1 on Page 3-3), select "Array Configuration Utility" and press <Enter>. The Array Configuration Utility Main Menu (Figure 3.2) will display.

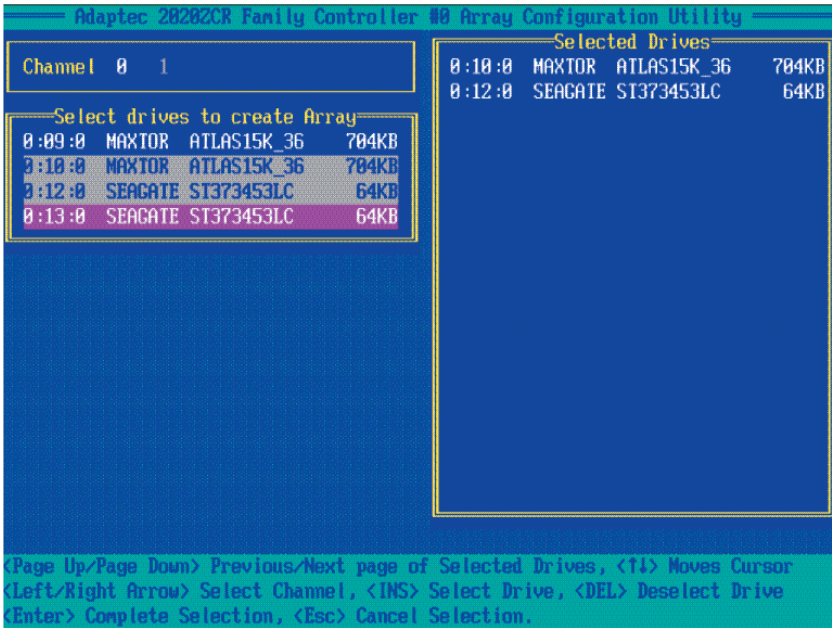
3. Select "Create Array" and hit <Enter> as shown above. The Create Array submenu will display as shown on the next page.



4. Use the arrow keys to highlight the channel(-the disk drive) you wish to create a new array, and press <Insert>.

(***Note**: To de-select any disk, highlight the disk and press **<**Del>.)

5. The disk drive that you've selected to create a new array will appear in the "Selected Drives" dialogue box as shown below.



6. Once you've selected all the disk drives for new arrays, and all the drives selected have appeared in the "Selected Drives" dialogue box, press <Enter>. Then, a dialogue box showing array properties will display.

To assign properties to the new array

7. In the "Array Properties" dialogue box, select the item you want to configure and follow the instructions given on the screen to configure the settings for the selected item.

(For the RAID type--you can select Volume, RAID 0, RAID 1, RAID 5, RAID 10, or RAID 50. Please refer to the table below for the minimum of hard drives required for each RAID setting. Select "Volume" to configure a disk drive as an independent unit.)

RAID Setting	Minimal Hard Drives Required
RAID 0	2 Hard Drives
RAID 1	2 Hard Drives
RAID 5	3 Hard Drives
RAID 10	4 Hard Drives
RAID 50	6 Hard Drives

8. Under "Arrays Label," you type in the name you wish to identify a disk drive, and press <Enter>.

9. For RAID 0, select the desired stripe size. (You can select: 16, 32, 64, 128, 256, 512, 1024 KB. The default setting is 256 KB. Please do not change the default setting.)

10. You can also use the item "Create RAID via" to select the different methods under RAID 0, RAID 1, RAID 5, RAID 10 and RAID 50.

11. Press <Esc> to return to the previous menu.

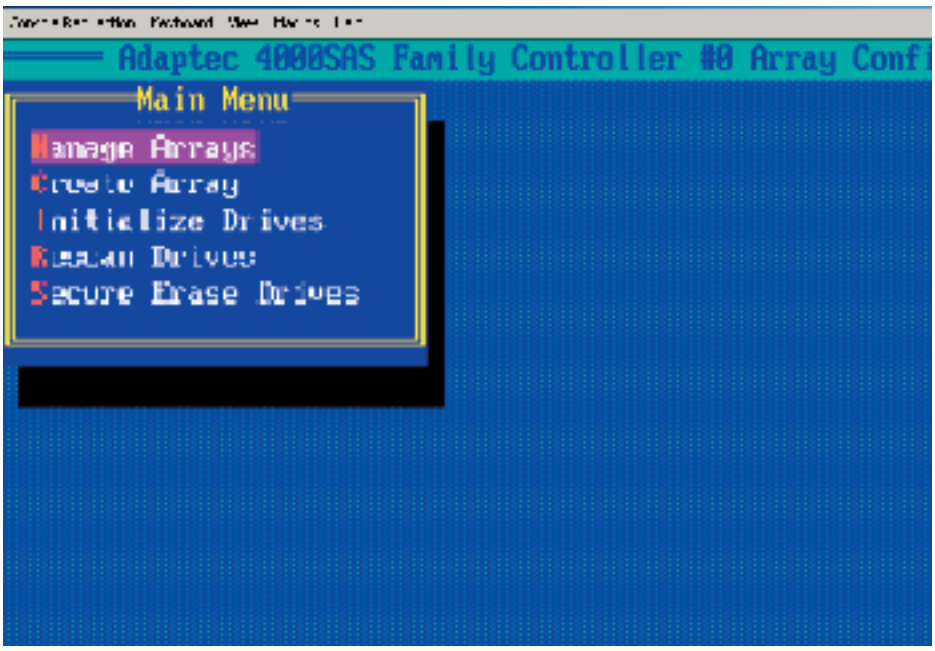
(*Note: Once the array is created and its properties are assigned, you cannot change the properties by using Array Configuration Utility.)

To Manage Arrays

The item "Manage Arrays" allows you to view, delete, set a boot array and create hot spare drives.

1. Turn on your computer. When prompted, press <Ctrl> and <A> to access the Adaptec RAID Utility.

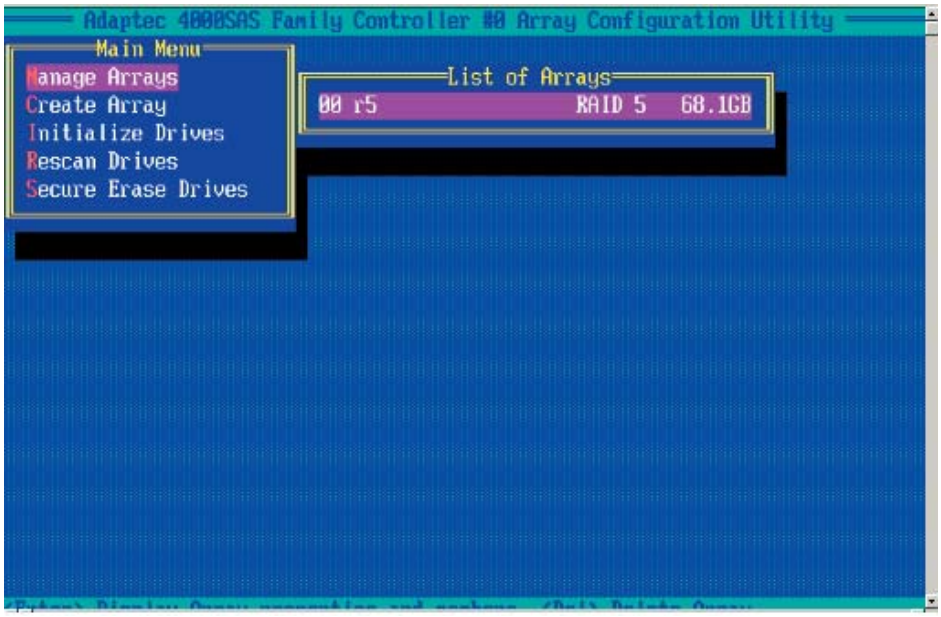
2. From the RAID Configuration Menu (Figure 3.1 on Page 3-3), select "Array Configuration Utility" and press <Enter>. The Array Configuration Utility Main Menu displays as shown below.



3. From the Main Menu, select "Manage Arrays" and press <Enter> to access the Manage Arrays submenu as shown below.

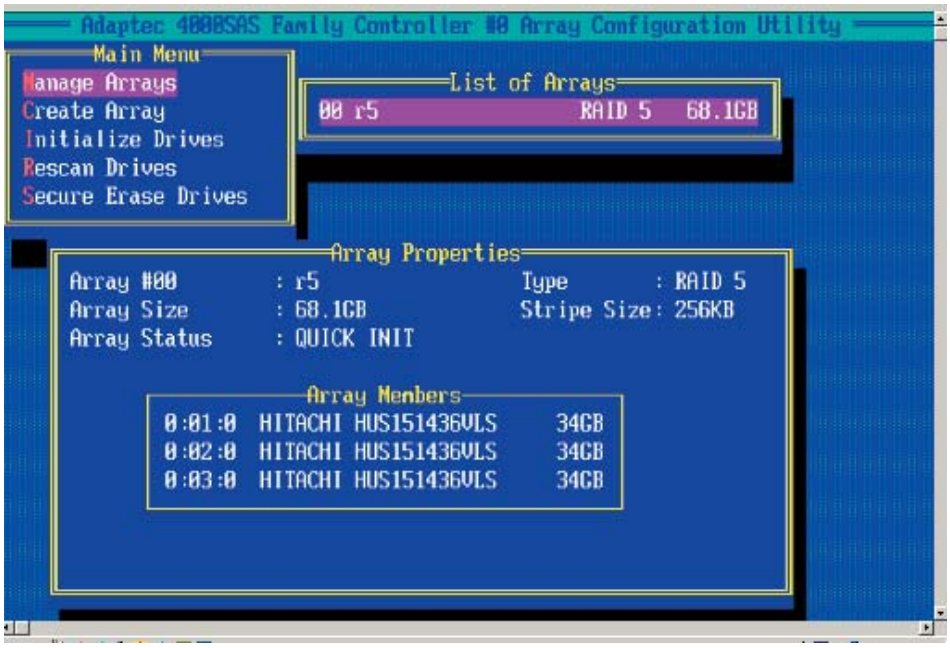
To View the properties of Existing Arrays

4. A dialogue box showing a List of Arrays will display on the right. Select the array you want to view as shown below.



5. Press <Enter>, and the "Array Properties" dialogue box will display, showing detailed information. The physical disks associated with the array will also be displayed as shown in the screen below.

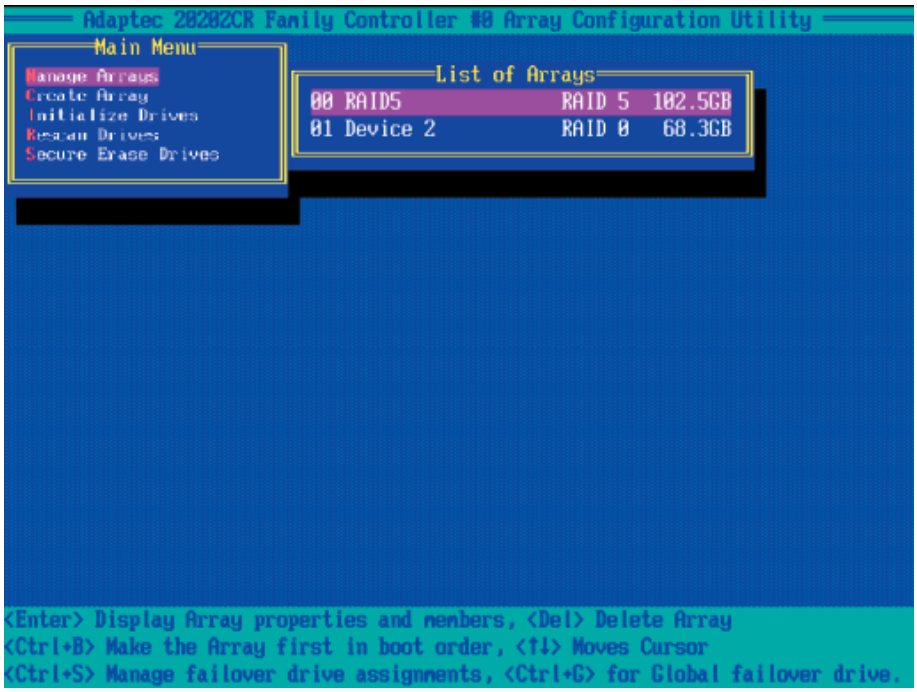
6. Press <Esc> to return to the previous menu.



Deleting Arrays

Warning: To prevent data loss, please back-up your data before deleting arrays. You cannot restore a deleted array.

1. On the Array Configuration Main Menu, select "Manage Arrays" and press <Enter> to access the submenu as shown below.



2. From the "List of Arrays" dialogue box (on the right), select the array you wish to delete and press <Del>.

3. The "Array Properties" dialogue box displays. In the "Properties" dialogue box, select <Delete> and press <Enter>. The following warning message will display:

Warning!! Deleting the array will erase all data from the Array. Do you want to continue? (Yes/No):

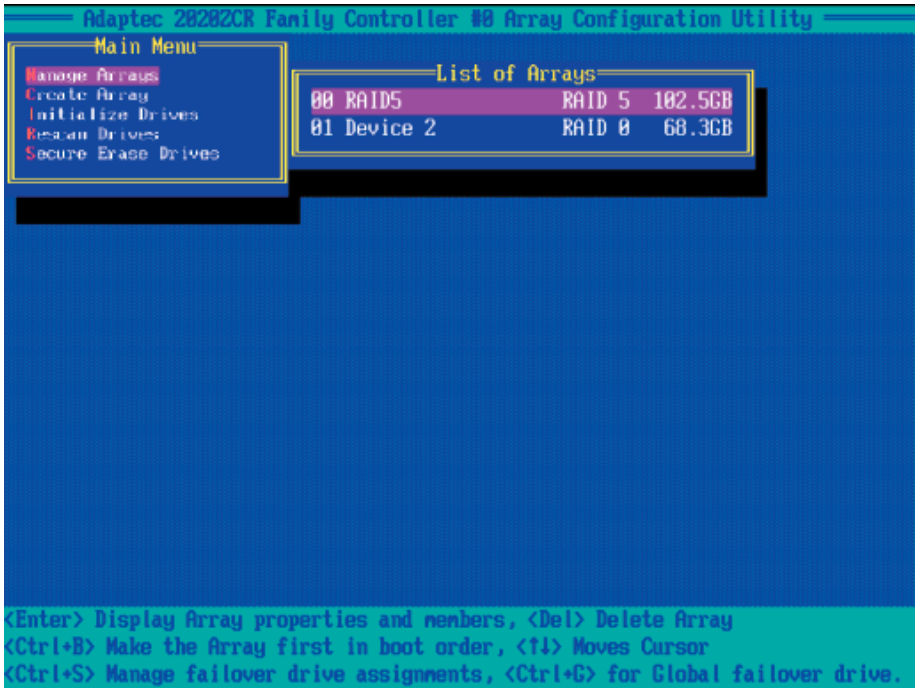
(*Note: you cannot delete arrays that have valid partitions. You need to remove partitions before deleting an array.)

4. Press <Yes> to delete the array, or press <No> to cancel the selection.

5. Press <Esc> to return to the previous menu.

Setting a Bootable Array

1. From the Array Configuration Main Menu, select "Manage Arrays" and press <Enter> to access the submenu as shown below.



2. From the List of Arrays dialogue box (on the right), highlight and select the array you want to make as the first bootable, and press <Ctrl> and <B> simultaneously.

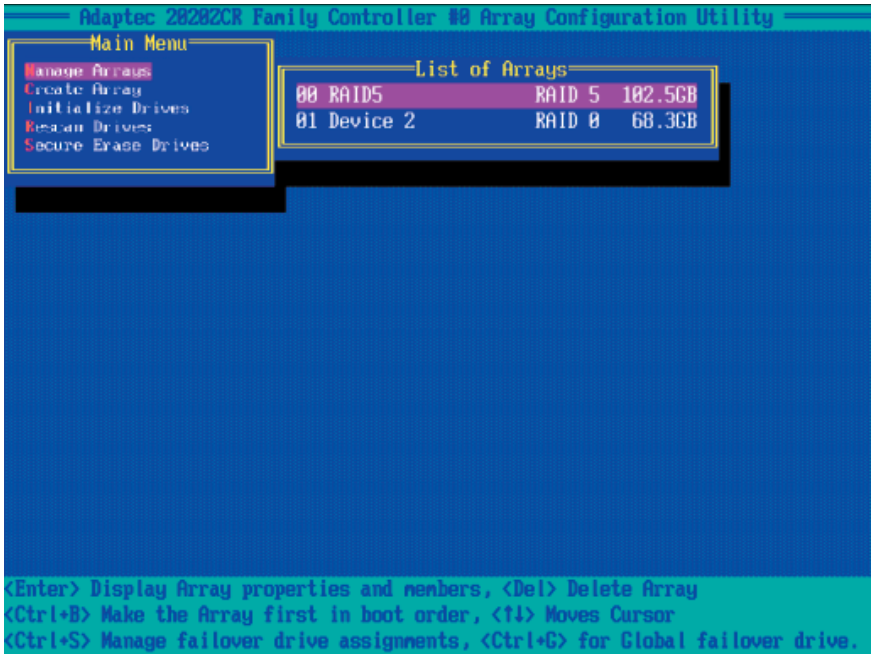
3. The array selected as the 1st bootable array will appear on the top (-the first) of the List.

4. To re-assign the 1st boot array to another disk drive, select the array you wish to configure, and press <Ctrl> and <B> simultaneously. The new 1st bootable array will appear on the top of the list.

5. Press <Esc> to return to the previous menu.

Adding a Hotspare Disk Drive

1. From the Array Configuration Utility Main Menu, select "Manage Arrays" and press <Enter> to access the submenu as shown below.



2. In the "List of Arrays" dialogue box (on the right), select the array you wish to configure as a hot spare and press <Ctrl> and <S> simultaneously.

3. A "Hotspares" dialogue box displays, showing the drives that can be configured as Hotspares.

4. Select the drive you wish to configure as a hotspare and press <Insert>. The drive selected will appear in the Assigned Hotspares List. Then, press <Enter>.

5. When prompted by a message, asking you if you want to confirm the selection, press <Yes> and <Enter> to configure the selected drive as a hotspare.

Deleting a Hotspare Disk Drive

1. From the Array Configuration Utility Main Menu, select "Manage Arrays" and press <Enter>.

2. In the "List of Arrays" dialogue box (on the right), select the Hotspare array you wish to delete and press <Ctrl> and <S> simultaneously.

3. The "Hotspares" dialogue box displays, showing the drives that have been configured as Hotspares.

4. From the Assigned Hotspare List, select the drive you want to remove and press <Delete>.

5. The drive selected will appear in the Assigned Hotspares List. Then, press <Enter>.

6. When prompted by a message, asking you to confirm the selection, press <Yes> to delete the hotspare drive.

Initializing Disk Drives

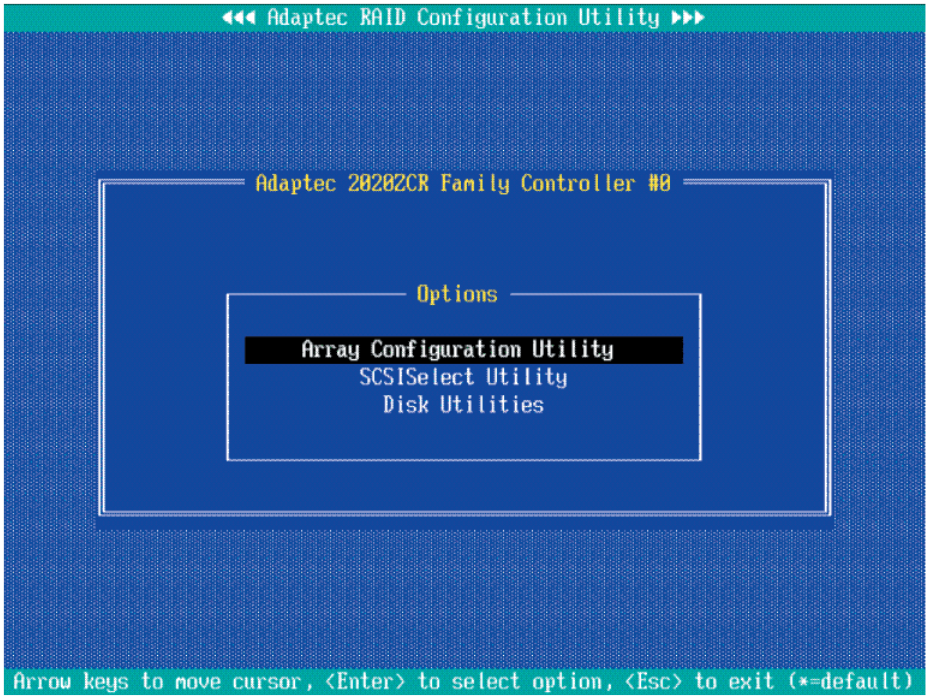
Please be sure to initialize a disk drive before creating an array.

Caution: Initializing a disk will overwrite the partition table on the disk, making any data on the disk inaccessible. If the drive is used in an array, you may not be able to use the array again. You will also need to initialize a disk drive that is attached to a controller before using the disk drive in an array.
Do not initialize a disk that is part of a boot array since disk initialization will overwrite the data stored inside the disk. Refer to the item "*Viewing Array Properties" to* determine which disks are associated with a particular array.

To initialize Disk drives

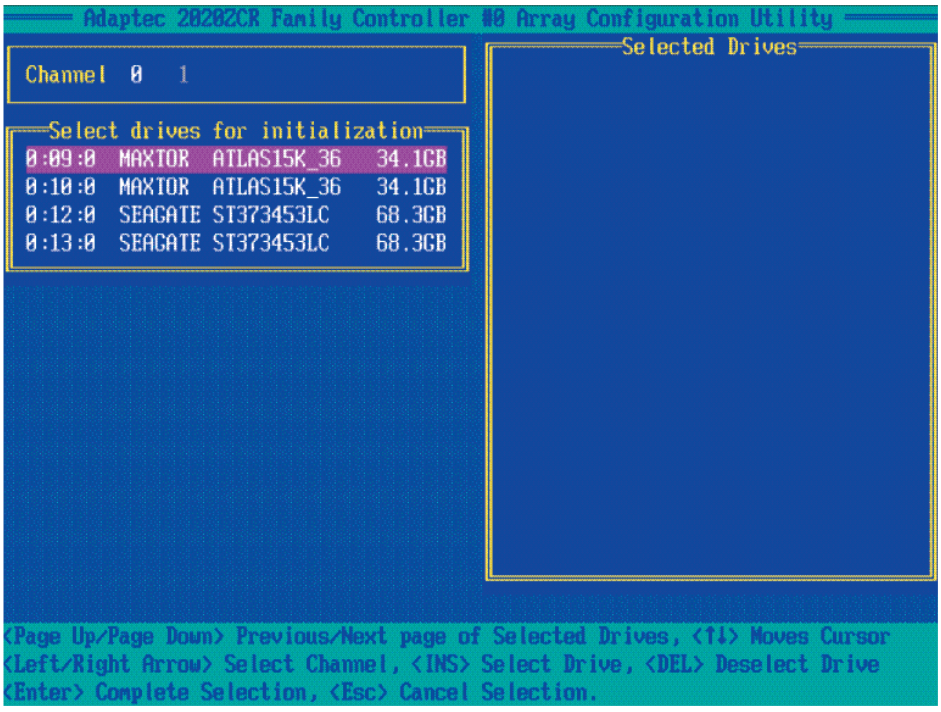
1. Turn on your computer. When prompted, press <Ctrl> and <A> to access the Adaptec RAID Utility.

***Note**: you cannot initialize a disk that has valid partitions in it.

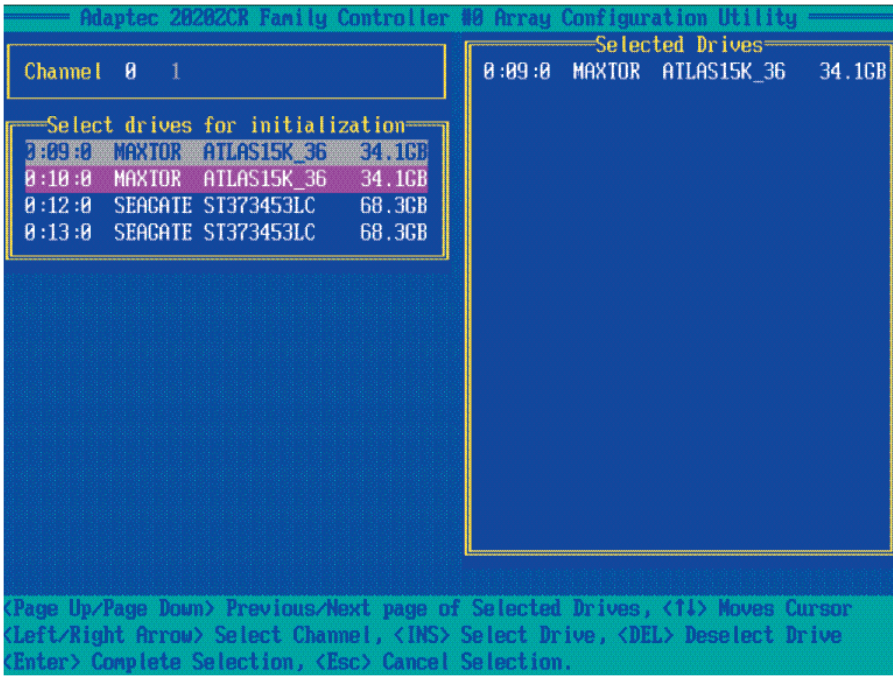


2. From the RAID Configuration Menu (Figure 3.1 on Page 3-3), select "Array Configuration Utility" and press <Enter>. The Array Configuration Utility Main Menu (as shown above) will display.

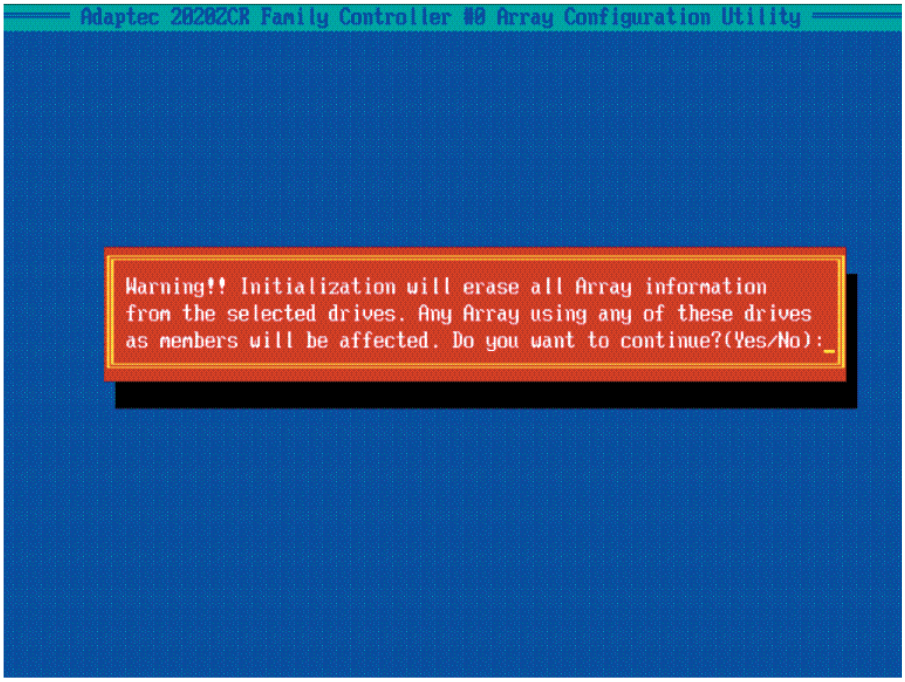
3. From the Array Configuration Utility Main Menu, select: "Initialize Drives" (as shown above) and press <Enter>. The following screen will display:



4. From the list of drives (on the left), select the disk drive you wish to initialize and press <Insert>. The drive will appear in the "Selected Drives" dialogue box as show on the next page.



5. Repeat the step above to select all the drives you wish to initialize. When all the drives to be initialized are selected, press <Enter>, and a warning message will display as shown below.



6. Make sure that you have selected the correct disk drives to initialize. If correct, type <Y> to proceed with the disk drive initialization. Type <N> to return to the previous menu.

Rebuilding Arrays

Note: If there is an interruption during array building, you can rebuild the array again. You can only configure RAID 1, RAID 5, RAID 10 and RAID 50 for array rebuild. (Please refer to Page 3-1 for the Minimum Hard Drives Requirement for each RAID setting.) If a hard disk fails and there is no hot spare array available, you will need to create a hot spare drive first before creating an array. (Refer to "Creating HotSpare Drives" for more information.)

To Rebuild an array:

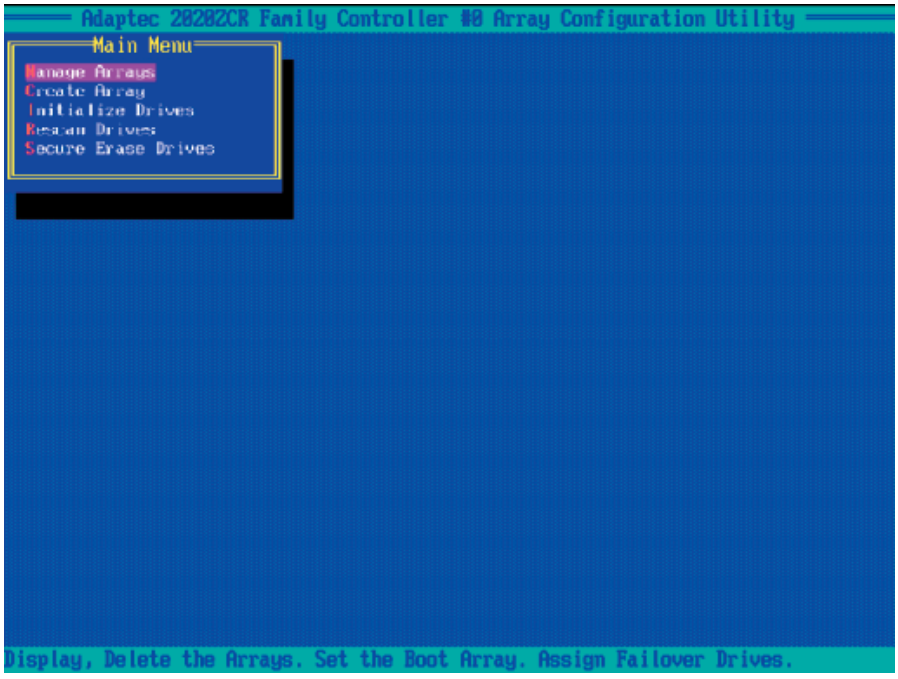
1. From the Main Menu, select Manage Arrays. From the list of arrays, select the array you want to rebuild.

2. Press <Ctrl> and <R> simultaneously to rebuild an array.

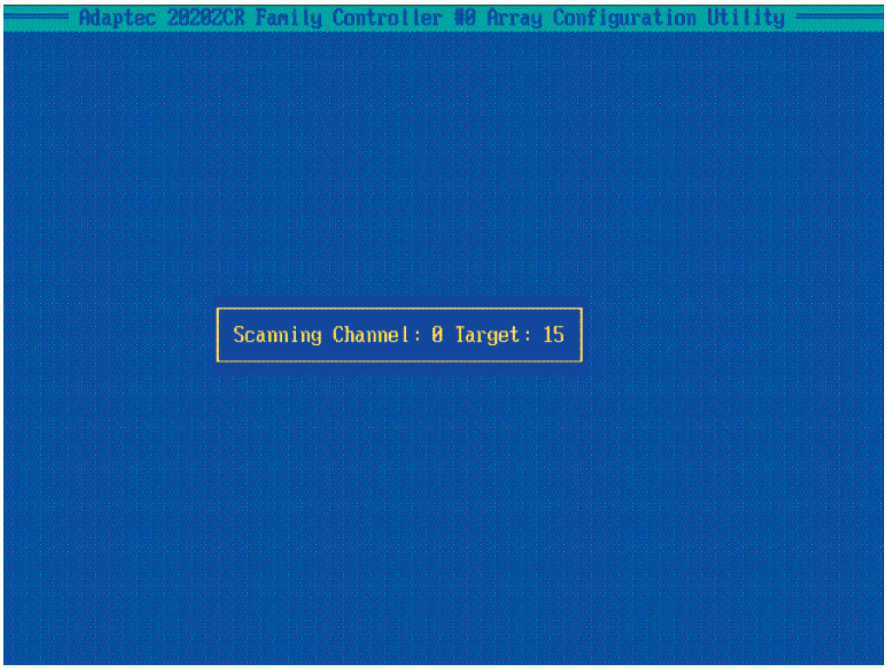
To Rescan Disk drives

1. Power on your system. When prompted, press <Ctrl> and <A> simultaneously to access the Array Configuration Utility.

2. When the Array Configuration Utility Main Menu appears, select "Array Configuration Utility" and press <Enter>. The following screen will display:



3. From the Array Configuration Main Menu appears, select "Rescan Drives" and press <Enter>. The Array Configuration Utility starts to rescan the selected disk drives as shown in the screen on the next page.



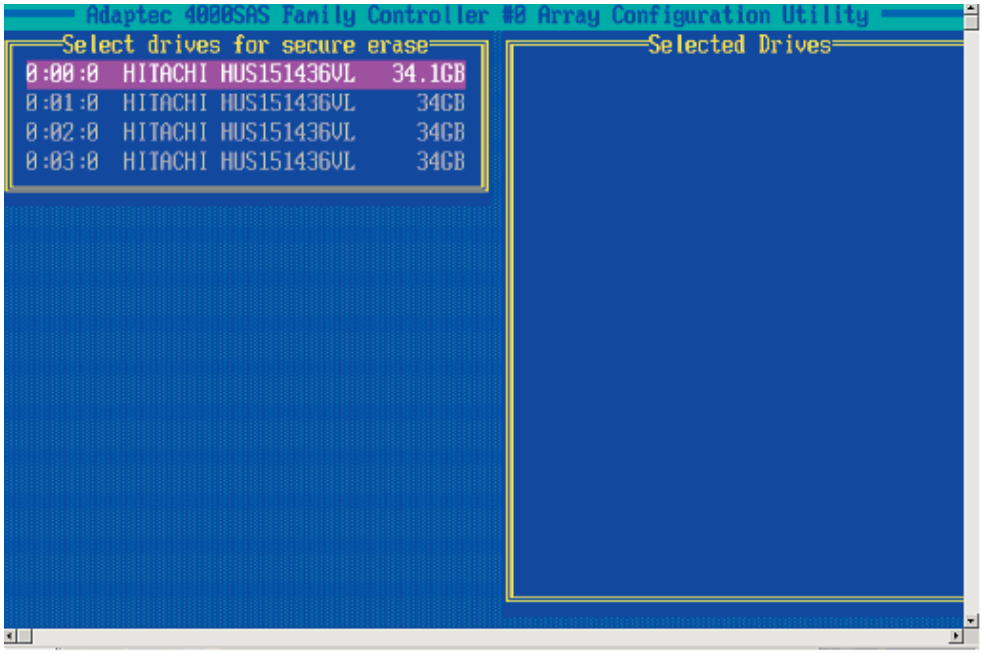
4. When finished, press <Esc> to return to the previous menu.

To Secure Erase Drives

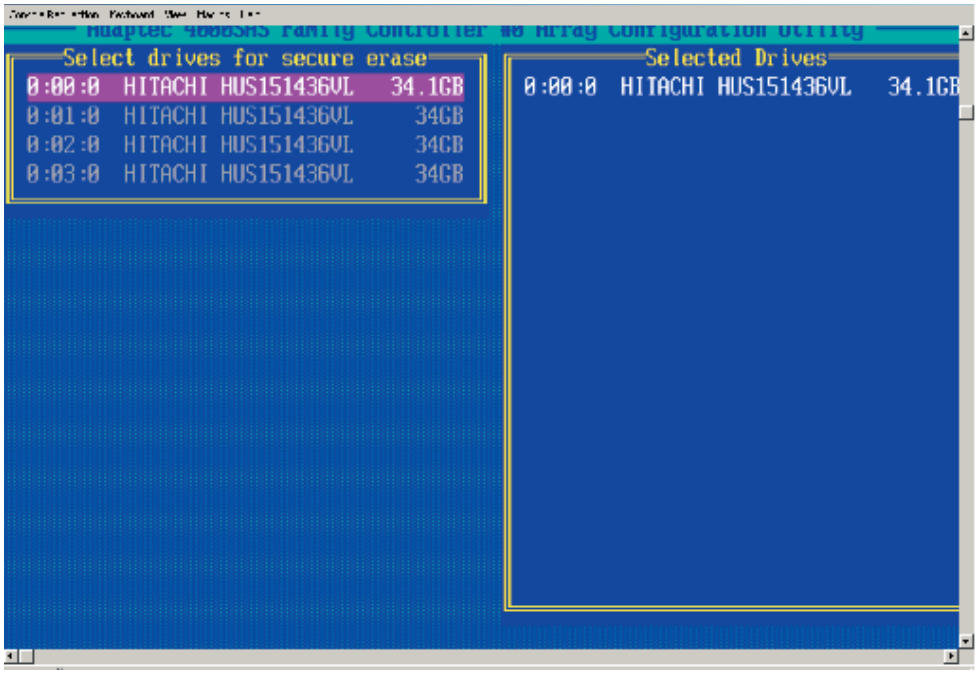
1. Power on your system. When prompted, press <Ctrl> and <A> simultaneously to access the Array Configuration Utility.

2. When the Array Configuration Utility Main Menu appears, select "Array Configuration Utility" and press <Enter>. The following screen will display:

3. From the Main Menu, select "Secure Erase Drives" and press <Enter>. The following screen will appear:



4. Use the up and down arrows to select the drive you wish to erase and press <Insert>. The following screen displays:



5. Make sure that the drive selected is the correct one; then, press <Enter>.

6. The following message displays: "Warning! Secure Erase will erase all information from the selected drive. Do you really want to continue?" Press <Y> to erase the drive. Press <N> to abort the procedure and return to the Main Menu.

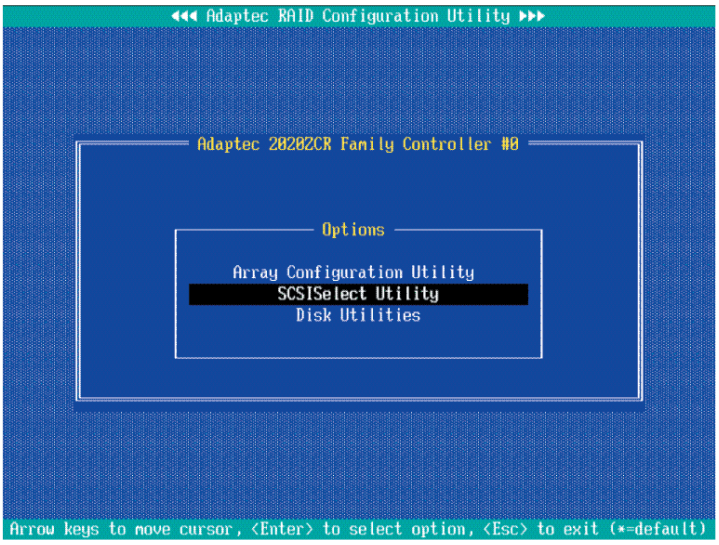
(***Note**: Secure Erasing can take up to several hours. The time required for the process depends on the disk size. Please do not interrupt the process once it starts.)

3.2.1 Using Adaptec's SCSISelect Utility

(*Please refer to Page 3-1 for SCSI Jumper Configuration before using the SCSISelect Utility. Please refer to Section 3.2.2 for SATA and Section 3.23 for SAS Utility Configuration settings.)

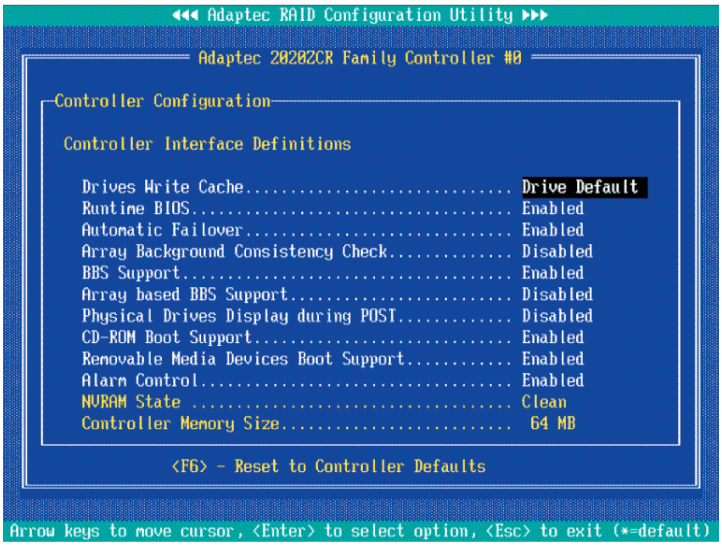
1. Turn on your computer. When prompted, press <Ctrl> and <A> to access the Adaptec RAID Utility.

2. From the RAID Configuration Menu, select "SCSISelect Utility" and press <Enter> as shown below.



Using the Controller Configuration Utility

3. To configure the RAID Controller or view Controller settings, select "Controller Configuration" from the SCSISelect submenu and press <Enter>. The Controller Configuration will be displayed as shown below.



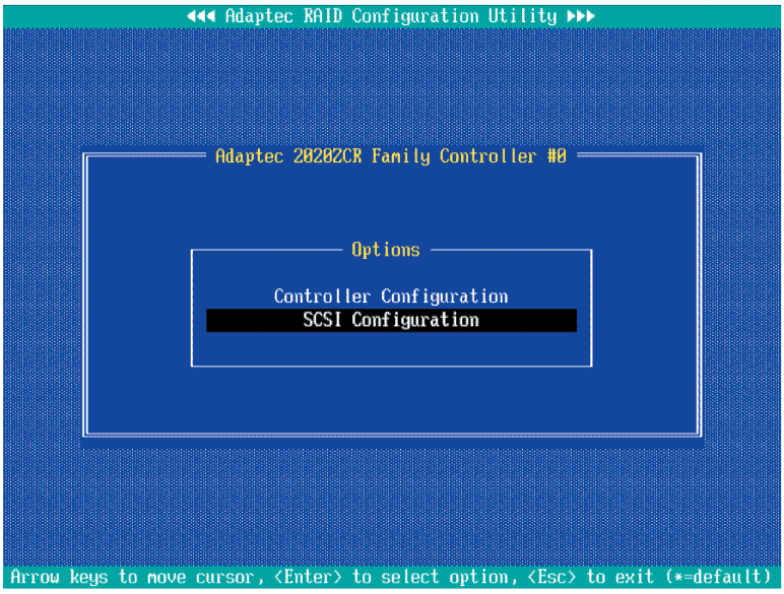
4. Use the arrow keys to select the item to configure and press <Enter>. A dialogue box showing the controller interface definition appears.

5. Select the desired option in the dialogue box and press <Enter>.

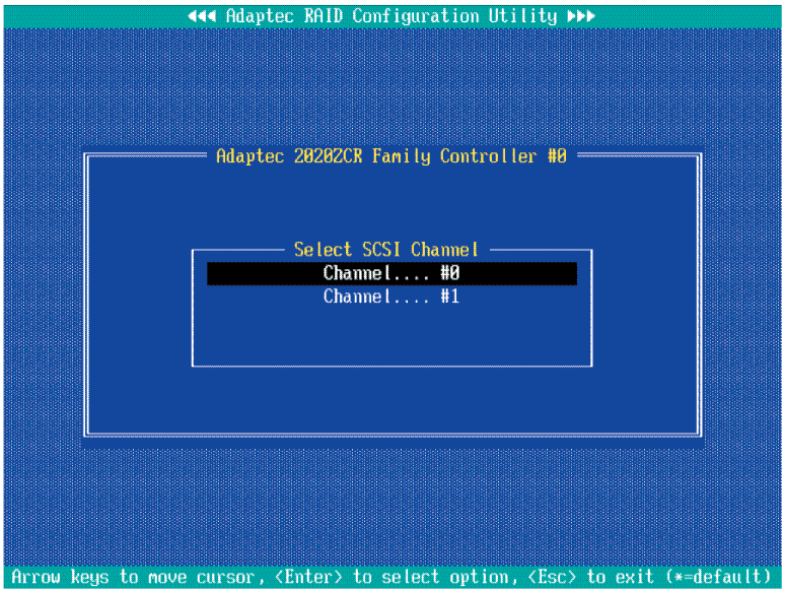
6. Press <F6> to restore the default setting. Press <Esc> to return to the previous menu.

Using the SCSI Configuration Utility

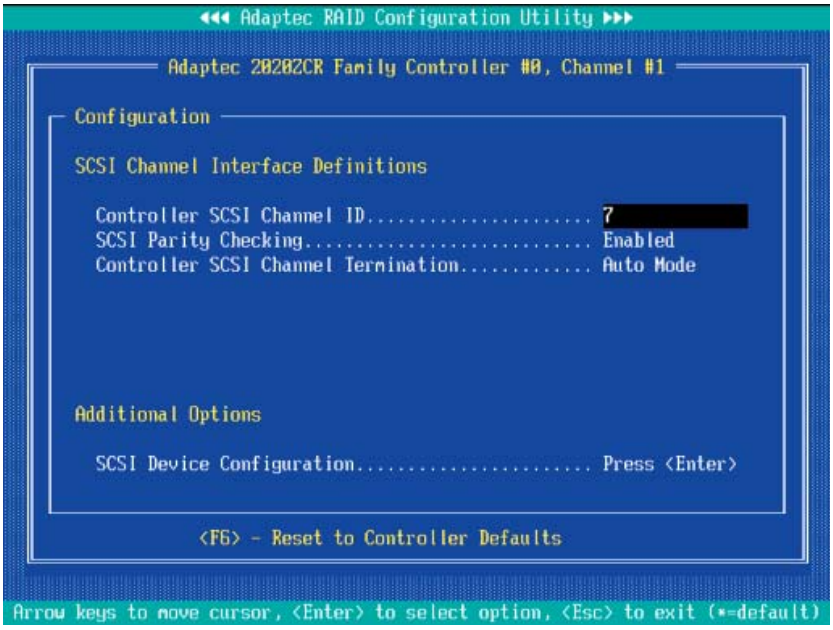
1. From the Array Configuration Utility Main Menu, select "SCSISelect Utility" and press <Enter>.



2. From the SCSISelect submenu, select SCSI Configuration (as shown above) and press <Enter> to access the submenu as shown below.

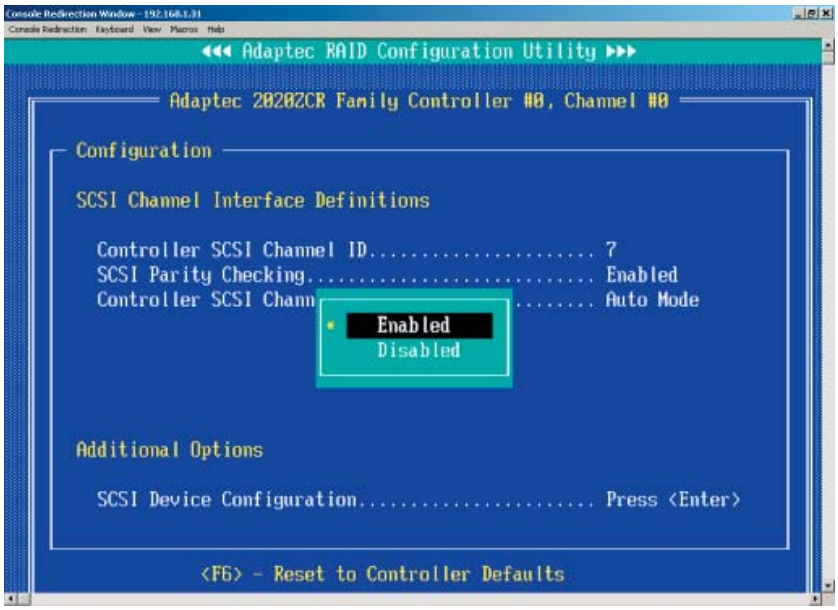


3. Use the arrow keys to select the item and press <Enter>. The status of the selected channel displays as shown on the next page.

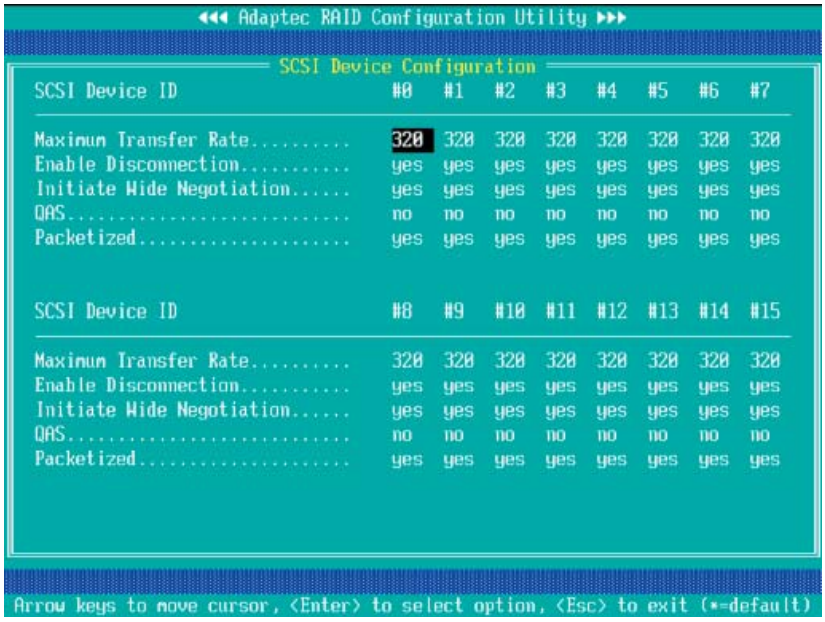


4. To configure an item, use the arrow keys to select the item and press <Enter>. A dialogue box will appear, showing the status of the item.

5. Use the arrow keys to select the desired option and press <Enter> to change the setting of an item. The following screen serves as an example:



6. To view the status of the SCSI drives or to configure SCSI drives, use the arrow keys to select SCSI Device Configuration (under "Additional Options"), and press <Enter>. The current settings of the selected drive will be displayed as shown on the next page.



7. To change the setting of an item, use the arrow keys to select the item and press <Enter> in the menu as shown above. (*Please refer to the table below for detailed information.)

Setting	Description	Default
Maximum Transfer Rate	Defines the maximum transfer rate for the SCSI channel	N/A
Enable Disconnection	Determines if the SCSI device can be disconnected from the SCSI Channel	Yes
Initial Wide Negotiation	Determines if the data transfer rate for the SCSI channel shall be 16-bit instead of 8-bit	Yes
QAS (Quick Arbitration & Selection)	Determines if QAS shall be used to minimize overhead and to speed up data transfers on the SCSI bus.	No
Packetized (Encapsulation)	Determines if SCSI Packetized shall be used to minimize overhead and speed up data transfer. If so, SCSI Packetized will allow command and status information will be transferred at the maximum rate.	Yes

8. To restore the default setting, press <F6>. Press <Esc> to return to the previous menu.

3.2.2 Using Adaptec's SATASelect Utility

(*Please refer to Page 3-1 for SATA Jumper Configuration before using the SATASelect Utility. Please refer to Section 3.2.1 for SCSI and Section 3.2.3 for SAS Utility Configuration settings.)

To Use the SATASelect Utility

1. Turn on your computer. When prompted, press <Ctrl> and <A> to access the Adaptec RAID Configuration Utility.

2. From the RAID Configuration Main Menu (Figure 3.1 on Page 3-3), select "SATASelect Utility" and press <Enter>.

Using the Controller Configuration Utility

3. To configure the SATA RAID Controller or view the settings, select "Controller Configuration" from the submenu and press <Enter>.

4. To configure an item on the submenu, use the arrow keys to select the item and press <Enter>. A dialogue box will appear.

5. Select the desired setting in the dialogue box and press <Enter> to select the option.

6. Press <F6> to restore the default setting. Press <Esc> to return to the previous menu.

Using the SATA Configuration Utility

1. Turn on your computer. When prompted, press <Ctrl> and <A> to access the Adaptec RAID Configuration Utility.

2. From the RAID Configuration Main Menu (Figure 3.1 on Page 3-3), select "SATASelect Utility" and press <Enter>.

Using the Controller Configuration Utility

3. From the SATASelect submenu, select SATA Configuration and press <Enter>. The status of SATA Device Configuration will display.

4. Use the arrow keys to select the item you wish to configure and press <Enter>. An option dialogue box will display.

5. Use the arrow keys to select the desired setting and press <Enter>.

6. Press <F6> to load the default setting. To return to the previous menu, press <Esc>.

(***Note**: Refer to Section 3.2.4 on Page 3-25 for Physical Configuration Settings.)

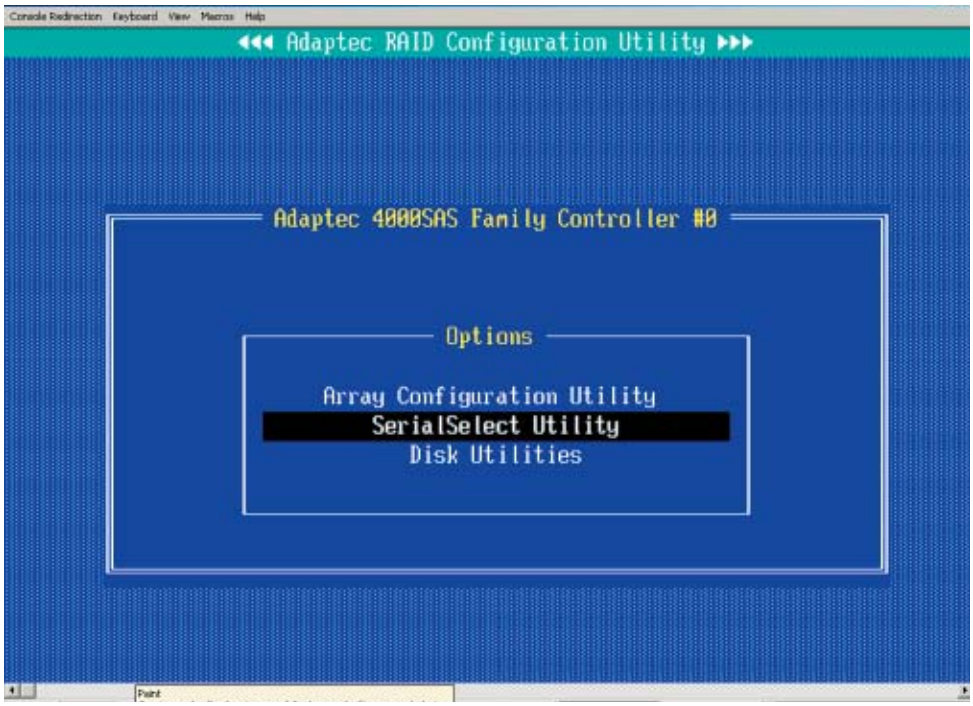
3.2.3 Using Adaptec's SerialSelect Utility

(*Please refer to Page 3-1 for SAS Jumper Configuration before using the SerialSelect Utility. Please refer to Section 3.2.1 for SCSI and Section 3.2.3 for SAS Utility Configuration settings.)

To Use the SerialSelect Utility

1. Turn on your computer. When prompted, press <Ctrl> and <A> to access the Adaptec RAID Configuration Utility.

2. From the RAID Configuration Main Menu, select "SerialSelect Utility" (as shown below,) and press <Enter>.



Using the Controller Configuration Utility

3. To configure the SAS RAID Controller or view the settings, select "Controller Configuration" from the submenu and press <Enter>.

4. To configure an item on the submenu, use the arrow keys to select the item and press <Enter>. A dialogue box will appear.

5. Select the desired setting in the dialogue box and press <Enter> to select the option.

6. Press <F6> to restore the default setting. Press <Esc> to return to the previous menu.

Using the SerialSelect Configuration Utility to Configure SAS Settings

1. Turn on your computer. When prompted, press <Ctrl> and <A> to access the Adaptec RAID Configuration Utility.

2. From the RAID Configuration Main Menu (Figure 3.1 on Page 3-3), select "SerialSelect Utility" and press <Enter>.

Using the Controller Configuration Utility

3. From the SerialSelect submenu, select SAS Configuration and press <Enter>. The status of SAS Device Configuration will display.

4. Use the arrow keys to select the item you wish to configure and press <Enter>. A option dialogue box will display.

5. Use the arrow keys to select the desired setting and press <Enter>.

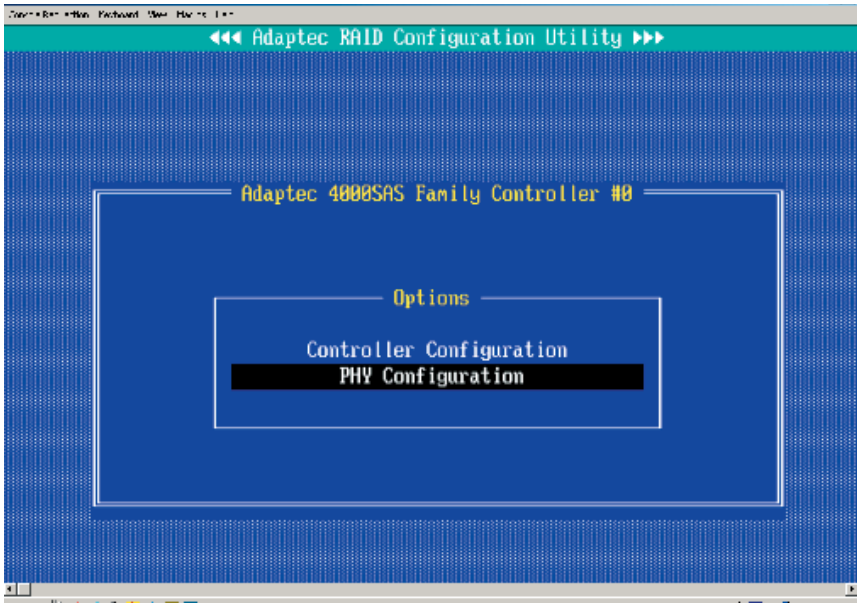
6. Press <F6> to load the default setting. To return to the previous menu, press <Esc>.

(*__Note__: Refer to Section 3.2.4 on Page 3-25 for Physical Configuration Settings.)

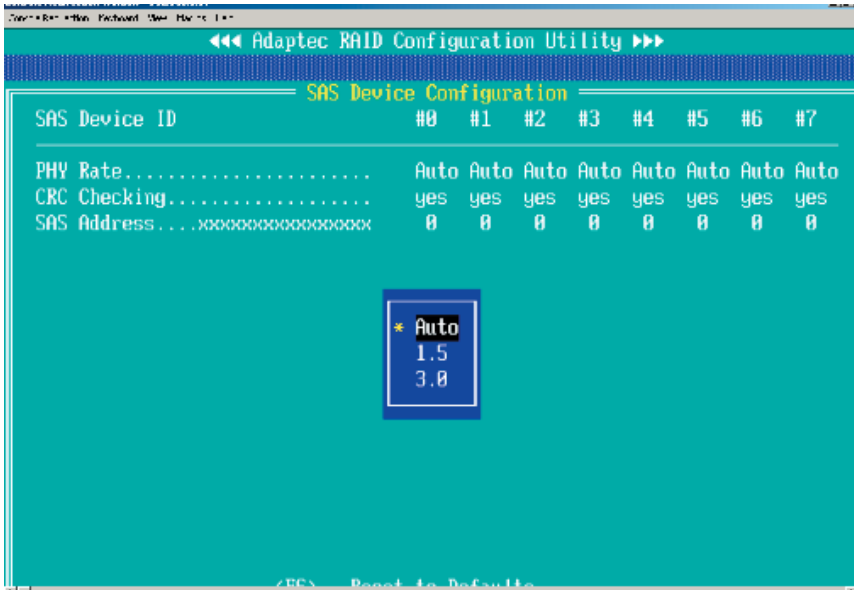
3.2.4 Using Physical Configuration Utility

1. Power on your computer. When prompted, press the <Ctrl> and <A> keys simultaneously to enter the RAID Configuration Utility.

From the RAID Configuration Main Menu, select "SerialSelect Utility" and press <Enter> to access the Physical Configuration submenu as shown below.



2. Select "Physical Configuration" and press <Enter> to access SAS/SATA Device Configuration submenu.



3. Use the arrow keys to select an item. Press <Enter> to see the configuration settings of the item selected as shown in the screen above.

4. Use the up/down arrow keys to highlight the setting you wish to configure and press <Enter>. (*Note: To load default settings, press <F6>.)

5. Press <Esc> to return to the previous menu and to exit the utility.

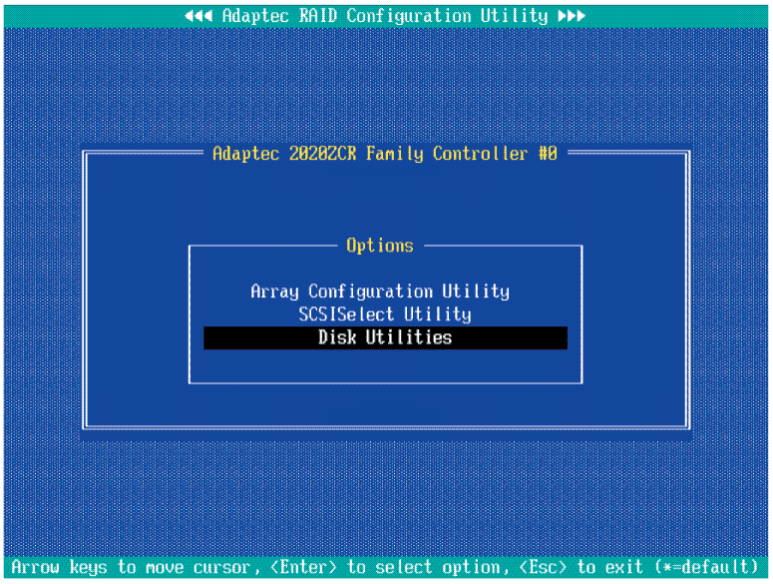
3.3 Using Disk Utilities

The Disk Utilities enable you to format or to verify the integrity of your Hard Drive Disks and to determine if there is any defect. (*Note: Formatting a disk will overwrite data stored in the disk. Please backup your data before formatting a disk.)

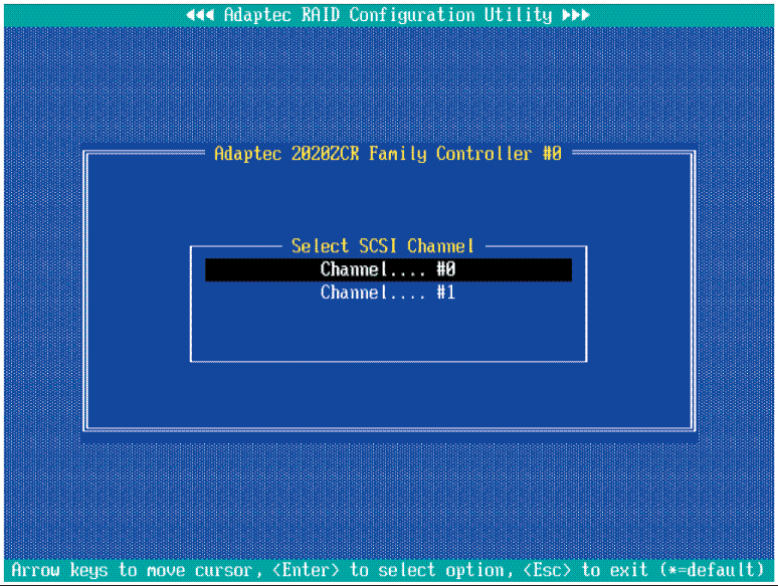
3.3.1 To Use Disk Utilities (*for SCSI only)

(*Note: Please refer to Page 3-1 for SCSI Jumper configuration before using "Disk Utilities". Please refer to Section 3.3.2 for SAS and SATA Disk Utilities.)

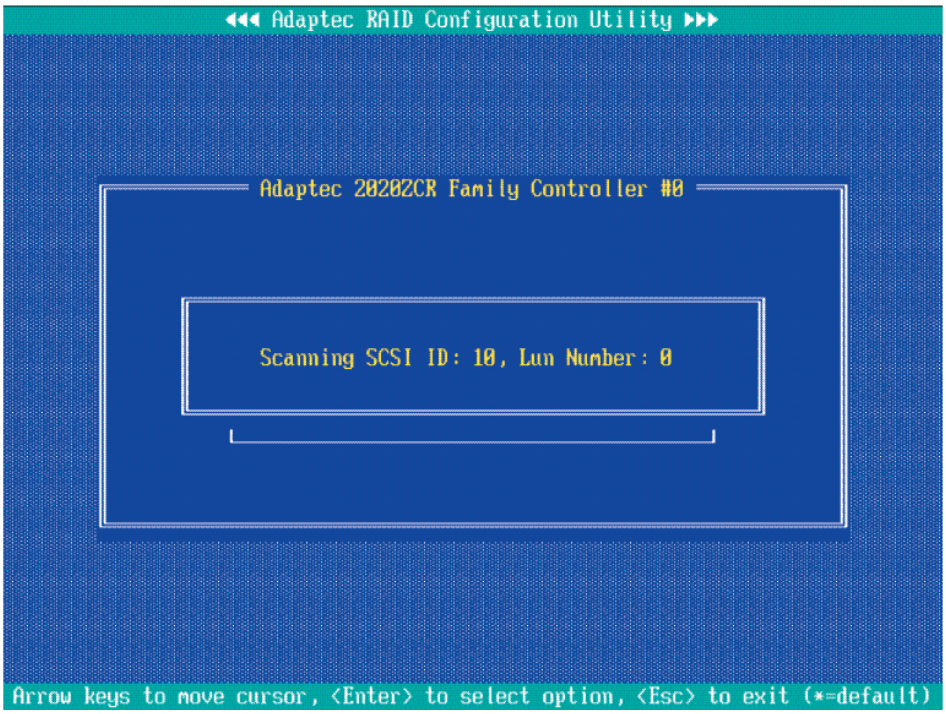
1. Power on your computer. When prompted, press the <Ctrl> and <A> keys simultaneously to enter the RAID Configuration Utility. From the RAID Configuration Main Menu, select "Disk Utilities" as shown below.



2. Select "Disk Utilities" and press <Enter>. The Disk Utilities submenu appears. From the submenu select the Channel (-the disk drive) you wish to format or to scan.



3. Once the disk drive is selected, press <Enter>. The Adaptec RAID Utility starts re-scanning the selected drive and a screen will display as below.



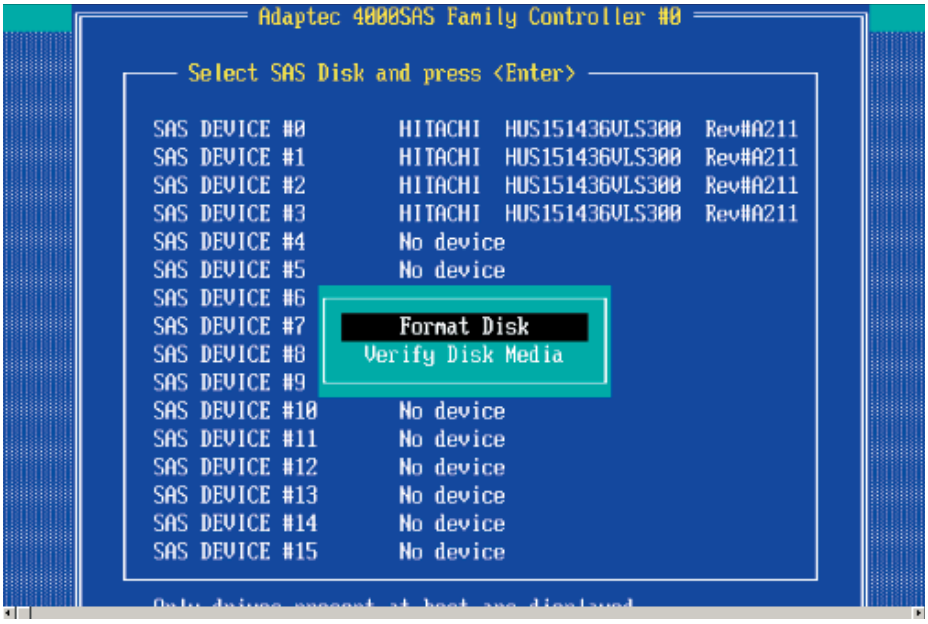
(*Note: Please refer to the following section for SAS and SATA Disk Utilities.)

3.3.2 Using Disk Utilities (*for SATA and SAS only)

(*Note: Please refer to Page 3-1 for SATA and SAS Jumper Settings before using "Disk Utilities". Please refer to the previous section for SCSI Disk Utilities.)

3.3.2.1 To Format a Disk Drive

1. Power on your computer. When prompted, press the <Ctrl> and <A> keys simultaneously to enter the Adaptec RAID Configuration Utility. From the RAID Configuration Main Menu, select "Disk Utilities" and press <Enter>. After disk scan, the following screen displays:



2. When a dialogue box as shown above displays, prompting you to make a selection, select the disk you wish to format and press <Enter>.

3. Then, select "Format Disk" from the displayed dialogue box and press <Enter>.

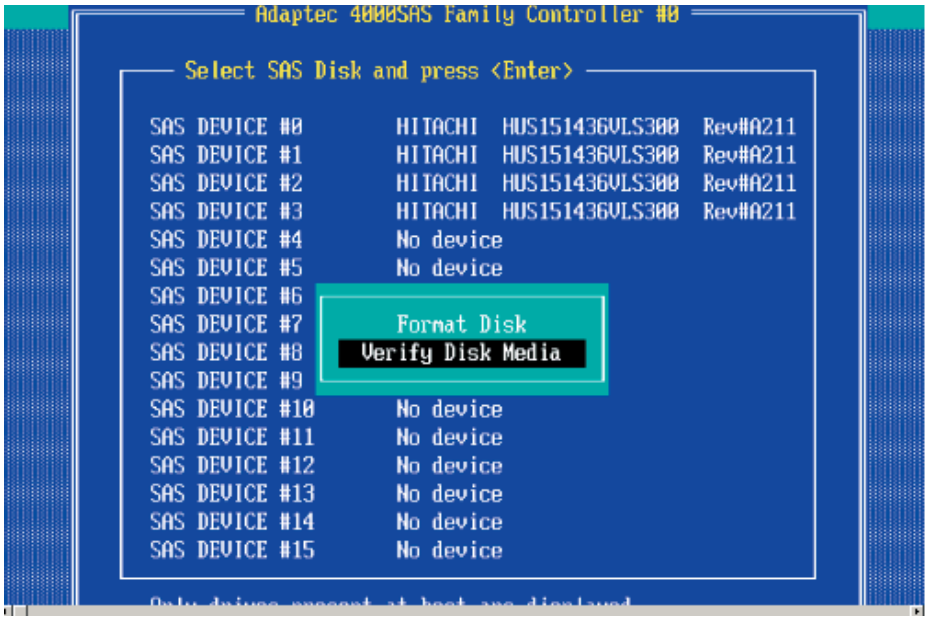
4. A warning message will display, warning you that the drive is about to be formatted and all data in the drive will be erased.

5. Press <Yes> to continue with disk formatting. Press <No> to return to the previous menu.

(*Note: Formatting a disk can take up to several hours. The time required for the process depends on the disk size.)

3.3.2.2 To Verify Disk Media

1. Power on your computer. When prompted, press the <Ctrl> and <A> keys simultaneously to access the Adaptec RAID Configuration Utility. From the RAID Configuration Main Menu, select "Disk Utilities" and press <Enter>. After disk scan, the following screen displays:



2. When a dialogue box as shown above displays, prompting you to make a selection, select the disk you wish to verify and press <Enter>.

3. Then, select "Verify Disk Media" from the displayed dialogue box and press <Enter>.

4. A dialogue box appears, showing you the status of the disk drive, and warning you that the disk drive selected will be scanned for media defects, and all recoverable defects will be remapped.

5. Press <Yes> to continue with disk drive verification. Press <No> to return to the previous menu.

(*Note: This procedure can take up to several hours. The time required for the process depends on the disk size.)

3.4 To Exit the Adaptec RAID Configuration Utility

Once you have finished configuring RAID array disk drives, press <Esc> to return to the Exit Menu. Select Yes and press <Enter> to exit the Adaptec RAID Configuration Utility.

3.5 Using the Adaptec Storage Manager (ASM) to Configure SES-2 RAID Settings

(I) Introduction

Before using the Adaptec Storage Management (ASM) to configure the RAID setting, please verify the following conditions:

1. Make sure that you have a backplane that supports SES-2,
2. Make sure that you have either the AMI MG-9071 (for a 4-hard-drive system) or the AMI MG-9072 (for an 8-hard-drive system) installed,
3. Make sure that you have the Adaptec Storage Management Utility installed,
4. Make sure that you have the most current SES-2 Driver installed,
5. Make sure that the Adaptec ASM version you have is compatible with your version of the SES-2 Driver,
6. Make sure that you have the Administrator's privileges and a password is pre-keyed in the system for you already.

Where to Obtain the SES-2 Driver

You can obtain a copy of the SES-2 driver from:

1. The CD that came with your shipping package,
2. Downloading from Supermicro's FTP site.

Purposes of Using the SES-2 Driver

You can use the SES-2 for the following purposes:

1. To monitor the functionality of LED and Alarm for the attached devices,
2. To indicate disk drive failure with an audible alarm and an LED Indicator,
3. To indicate disk drive rebuilding through LED,
4. To indicate disk drive hot spares through LED,
5. To eliminate human errors, such as pulling out wrong disk drives,
6. To monitor temperature and system overheat.

(II) Using the Adaptec Storage Management Utility in the Window OS Environment

Once you've obtained and installed the SES-2 driver and the ASM Utility in your system, you can use the ASM Utility for RAID configuration.

Three Setup Types for the Adaptec Storage Management (ASM)

There are three setup options for the ASM RAID Configuration:

1. Internal RAID: Use this option to configure the RAID settings for the devices installed in your chassis.

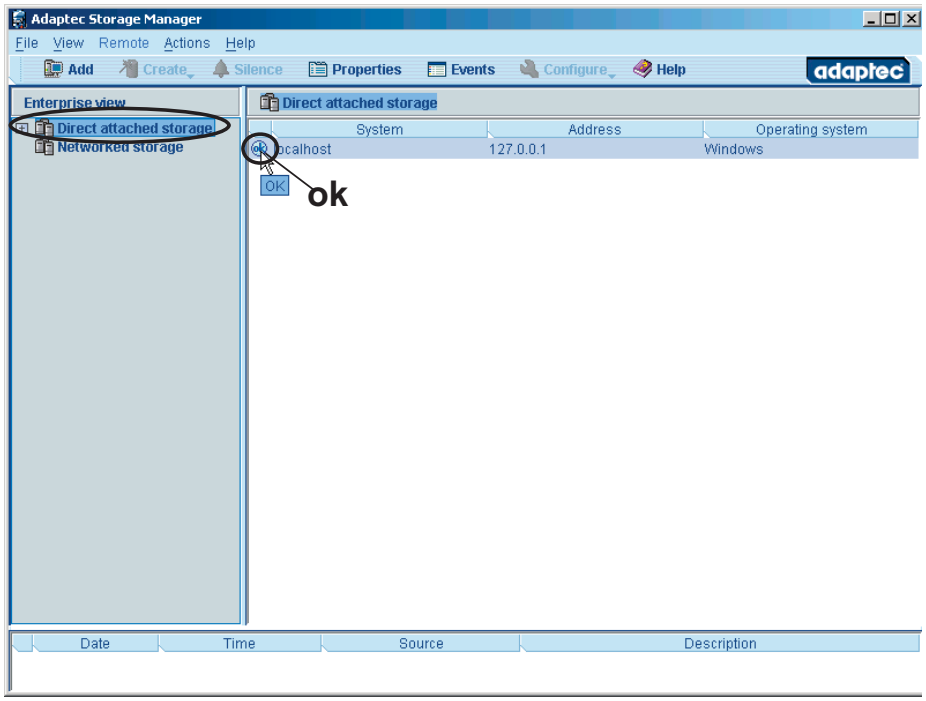
2. External RAID: Use this option to configure the RAID settings for the devices connected to an external RAID enclosure. (*Note: This option is recommended for experienced users only.)

3. Customized RAID: Use this option to customize your own RAID setting.

The default setting is Internal RAID. The default setting for "Special" is External RAID.

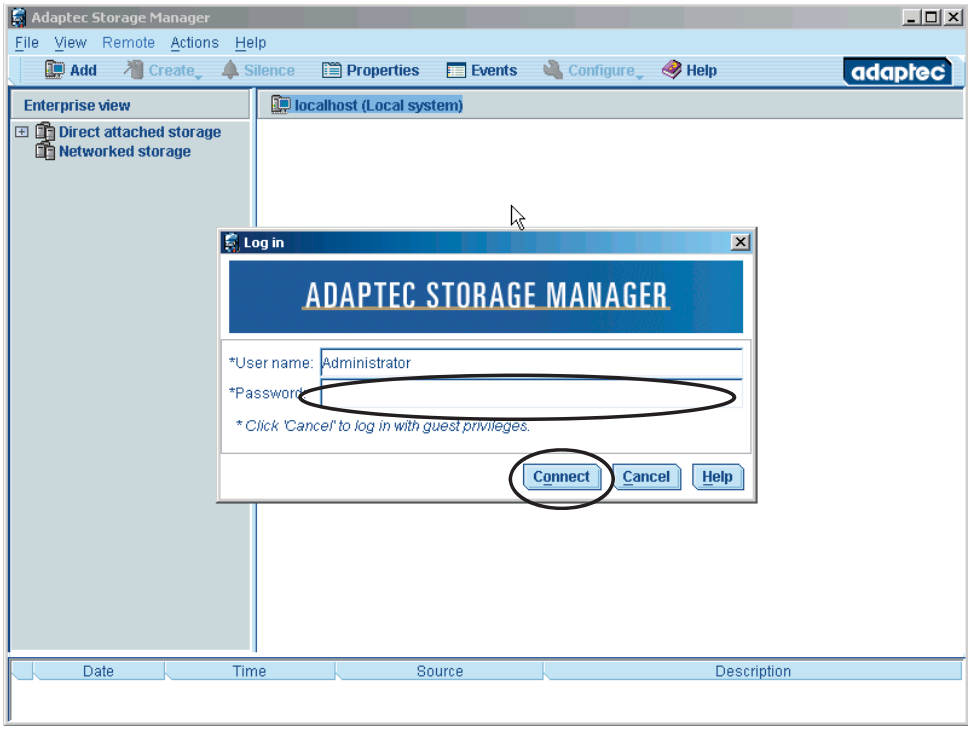
Using the ASM Utility for RAID Configuration in the Windows 2003 Server Environment

1. After the ASM Utility is installed, reboot the system.
2. Locate the Adaptec Storage Manager (ASM) in the Windows Start Menu, and click ASM to activate the utility as shown below.



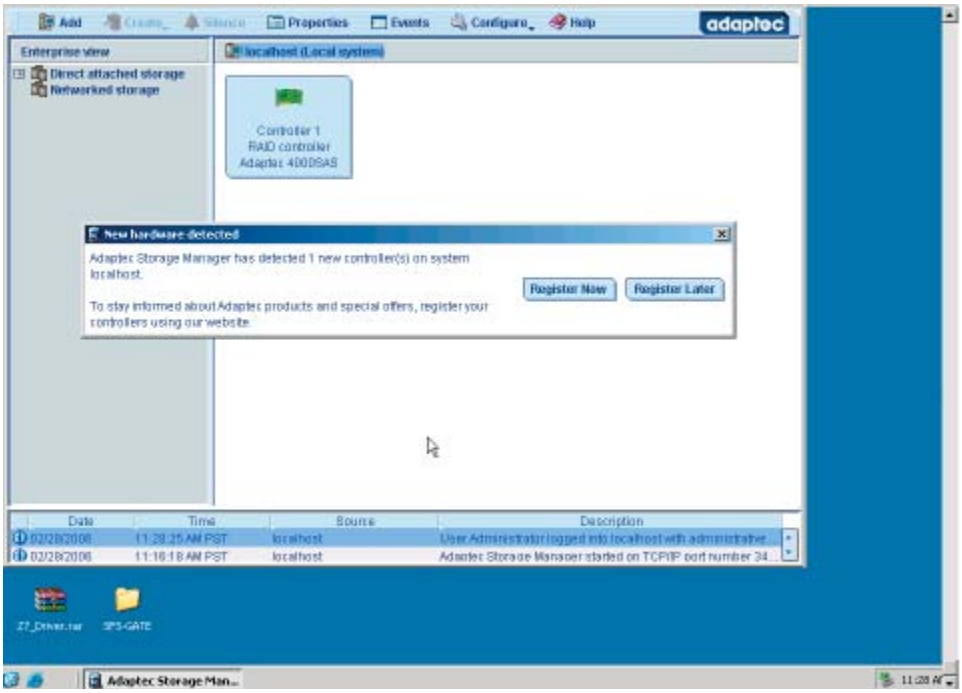
(**Notes**: 1. If the SES-2 driver and the ASM Utility are successfully installed, "ok" will appear next to the device. **If not, check if your version of the SES-2 driver and your version of the ASM Utility is compatible.** 2. Select Networked Storage in the Enterprise View on the right for a networking server environment. Otherwise, select Direct attached storage in the Enterprise View.)

3. Double-click ok to activate the log-in screen as shown below.

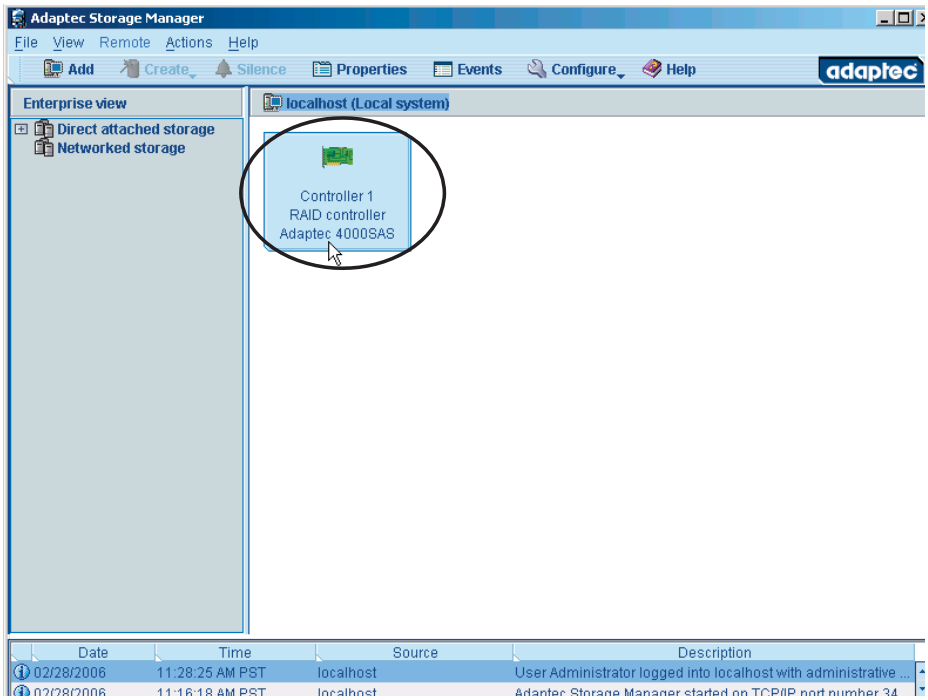


4. In the User's name field (above), key in "Administrator," and in the Password field, enter the password that has been pre-set for you. (*Note: you will need to have the Administrator privileges and a password that has already been set in the ASM for you to log in.)

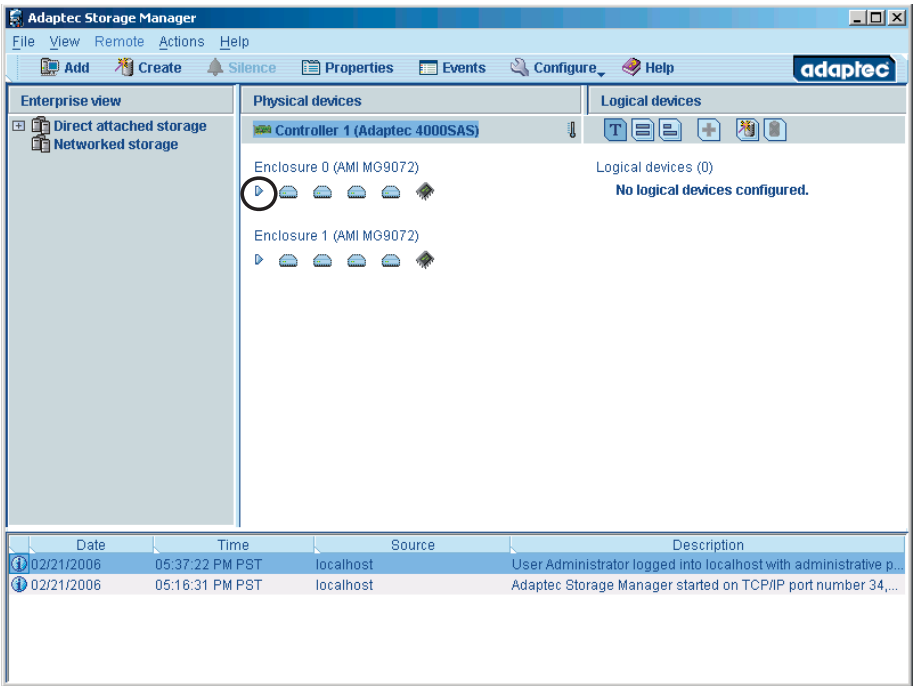
5. After you've keyed in the User's name and the Password, click "Connect" and hit <Enter> as shown above. Then, the Adaptec's Registration Screen will display as shown below.



6. After finishing with the Registration Screen, hit <Enter> to enter the Adaptec Storage Manager Utility as shown below.



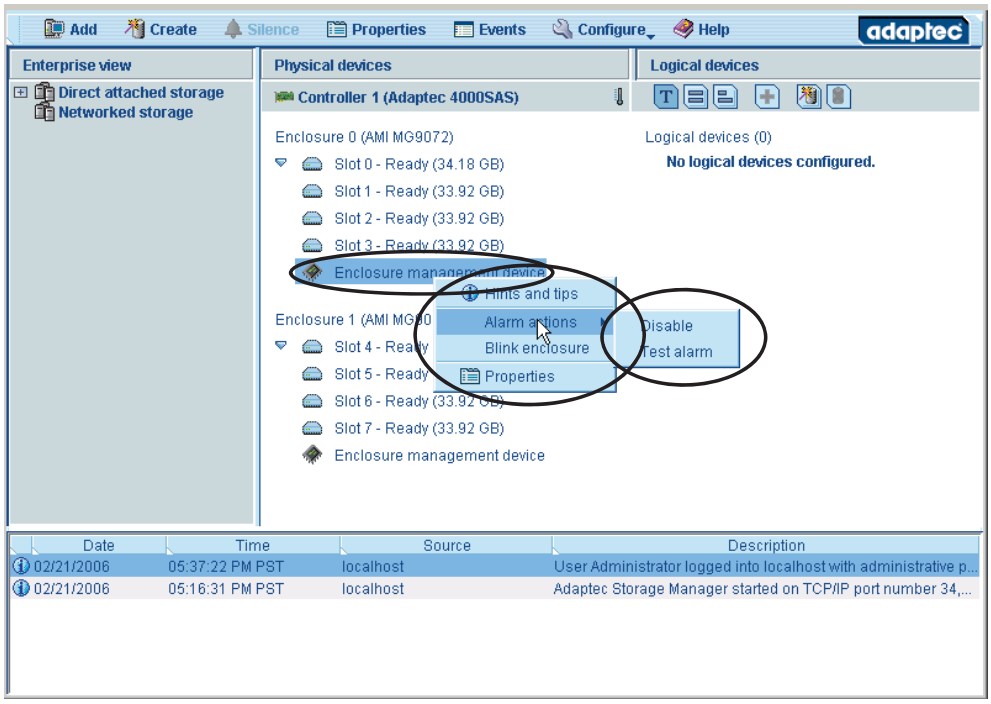
7. Double-click on the ASM Controller Icon (above) to display the ASM status screen as shown below.



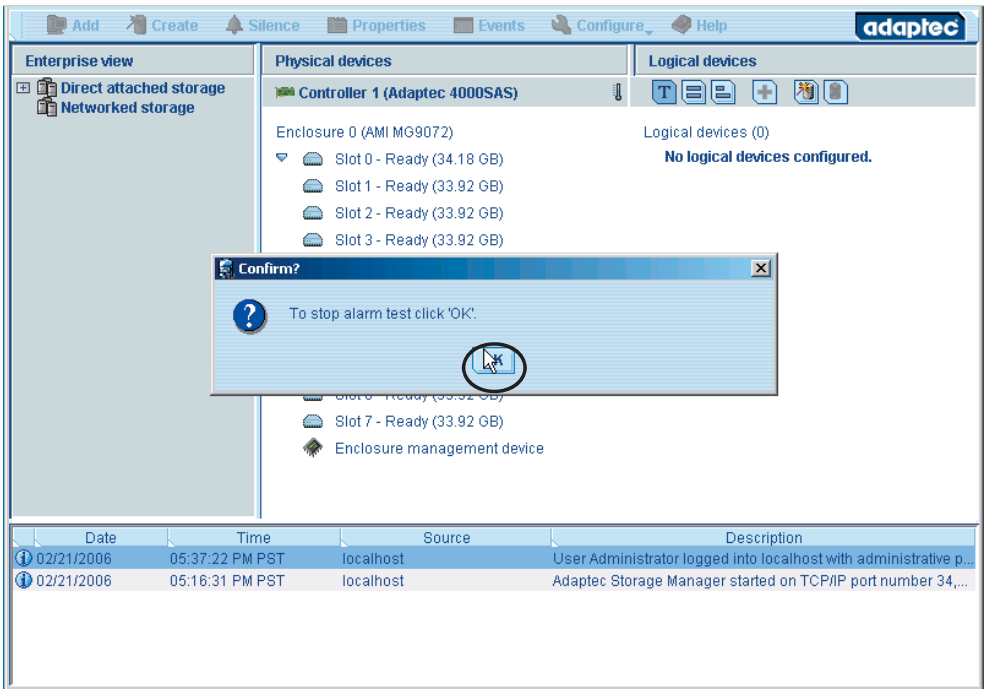
*Notes: 1. If the AMI MG-9072 Firmware is used, two enclosures with eight HDDs will be displayed. If the AMI MG-9071 is used, only one enclosure with 4 HDDs will be available. 2. If the triangle icon appears, the Enclosure Management Devices are properly installed. If the triangle icon does not display, please check: a. If you have an add-on card that supports SES-2, b. If the Side Band of the add-on card is properly installed (eg: pin 1 to pin 1), c. If your ASM version is compatible with your Storage Driver Version.)

To Test the Alarm for an Enclosure

8. To check if SES-2 works properly, right-click on the triangle icon to activate the pop-up menus as mentioned on the previous page. Then, you can right-click on Alarm actions to enable/disable the alarm or to test the alarm as shown below.



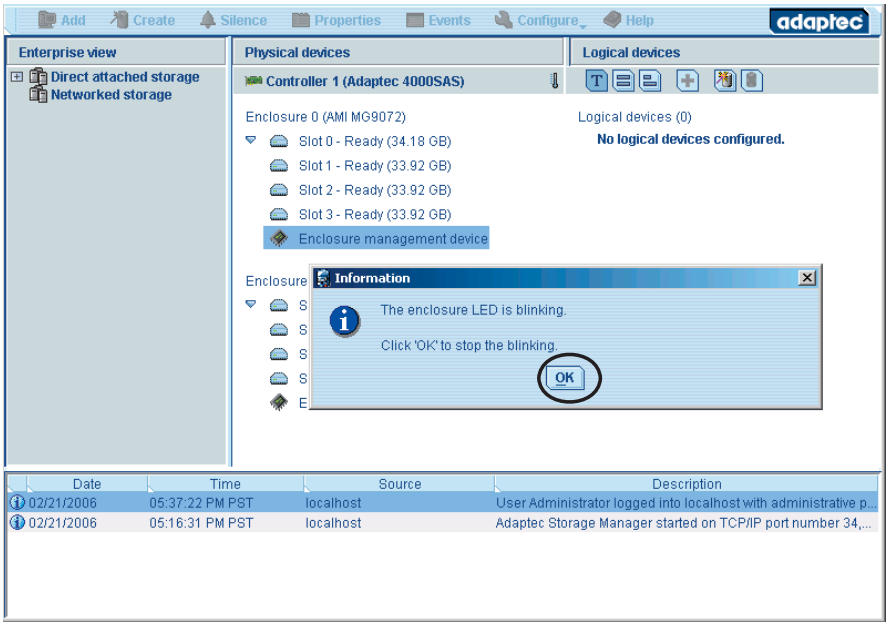
9. To stop the alarm testing, click OK when you are prompted to do so as shown in the following screen:



To Test the LED Indicators for an Enclosure

10. You can also test the LED indicators for the enclosure by right-clicking on Blink Enclosure on the screen as shown in the first graphic on the previous page.

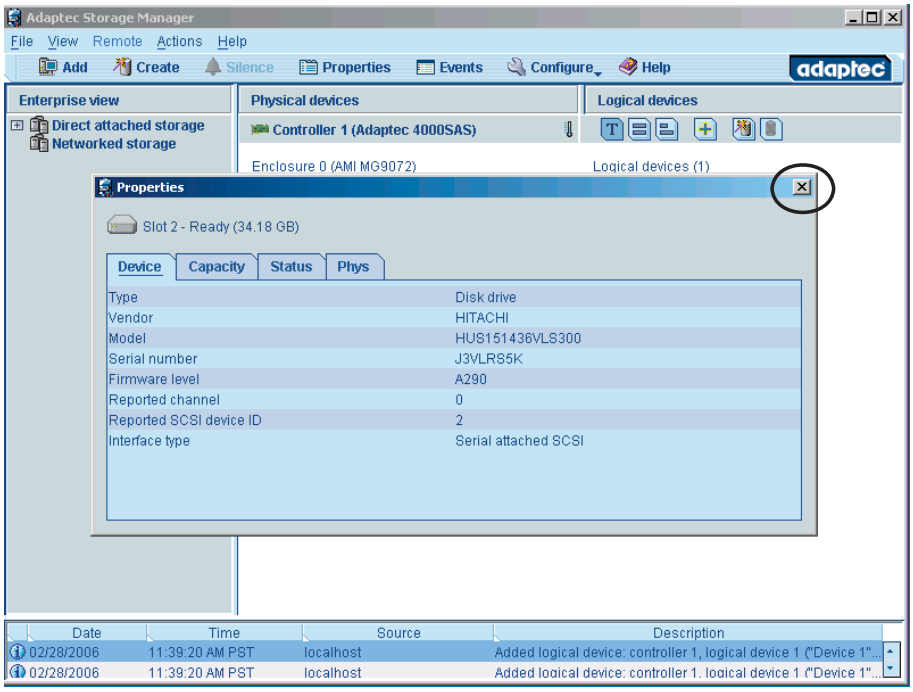
11. To stop the LED blinking test, simply click OK when prompted to do so as shown below.



To Display the Property for an Enclosure

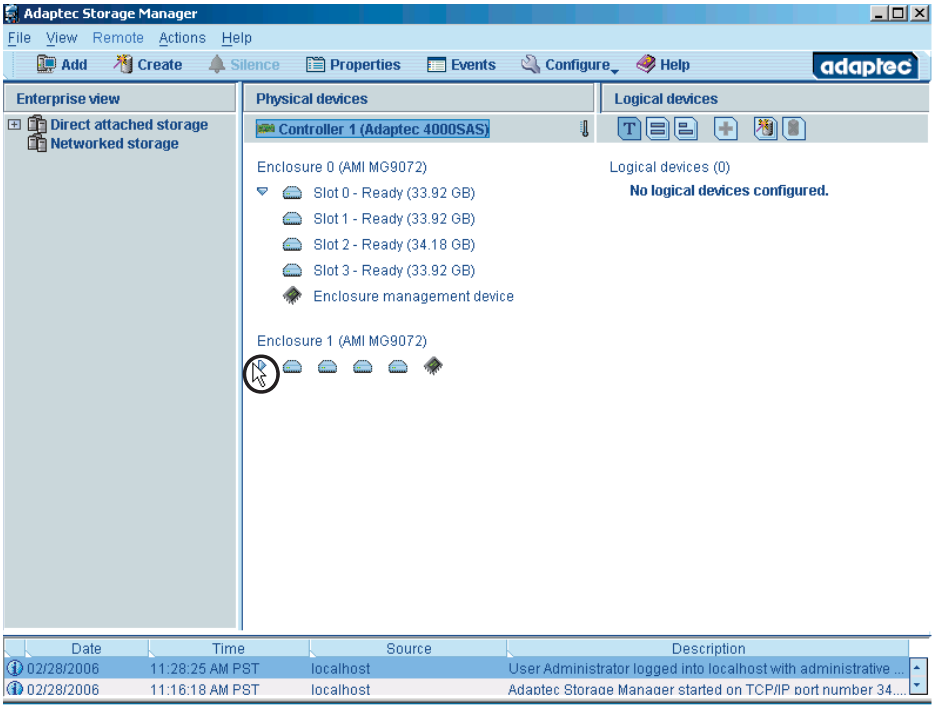
12. You can also display the property for the enclosure by right-clicking on "Property" on the screen as shown in the first graphic on Page 3-34.

13. Double-click on "Property" to display the property of the selected device. The following screen appears. Click X at the upright corner to close this window.



To Create Arrays

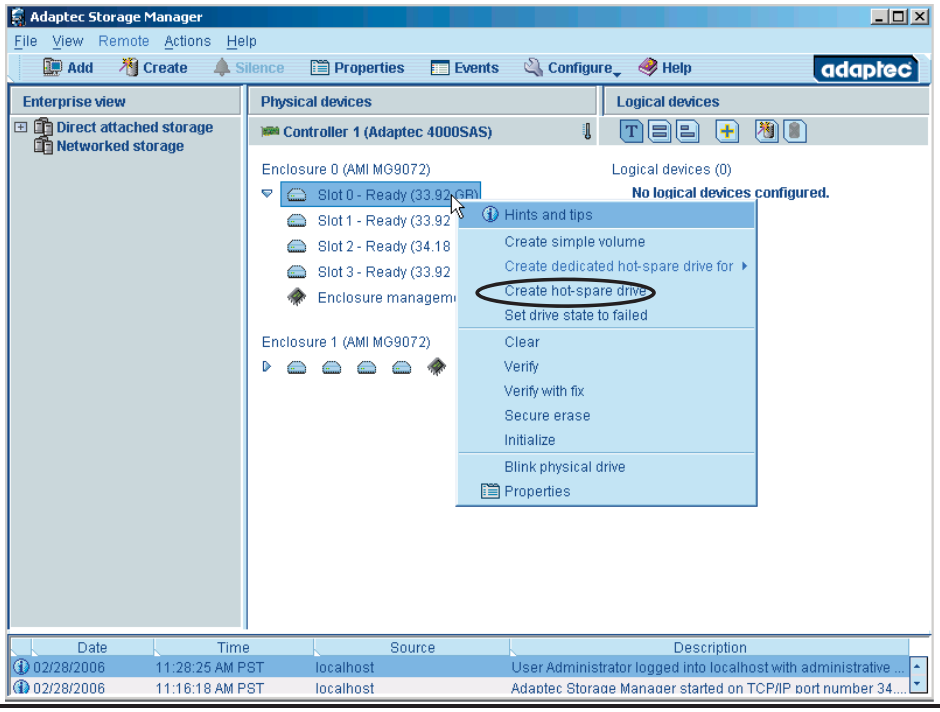
1. Double-click the triangle icon to display the hard drives included in the enclosure as shown below.



To Create a Hot Spare Drive

2. Right-click on a device that you wish to create as a Hot Spare Drive to activate the pop-up menu as show below.

3. From the pop-up menu, select Create a Hot Spare Drive and hit <Enter>.



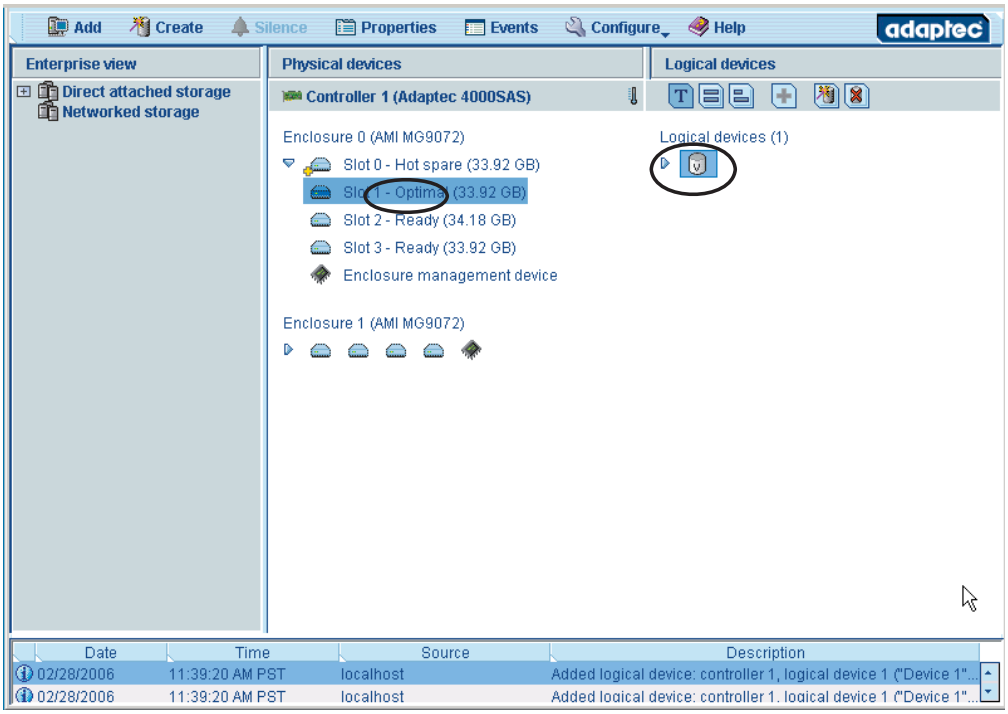
4. Once you've created the selected drive as a hot spare drive, a yellow plus (+) sign will appear to the left of the drive icon as shown below.

To Create a Single Volume

2. Right-click on a device that you wish to create as a Single Volume to activate the pop-up menu as shown in the second picture on Page 3-36.

3. From the pop-up menu as shown, select Create a Single Volume and hit <Enter>.

4. The word "Optimal" will appear on the device that you've just created as a single volume HDD and a device icon will appear on the right as shown below.



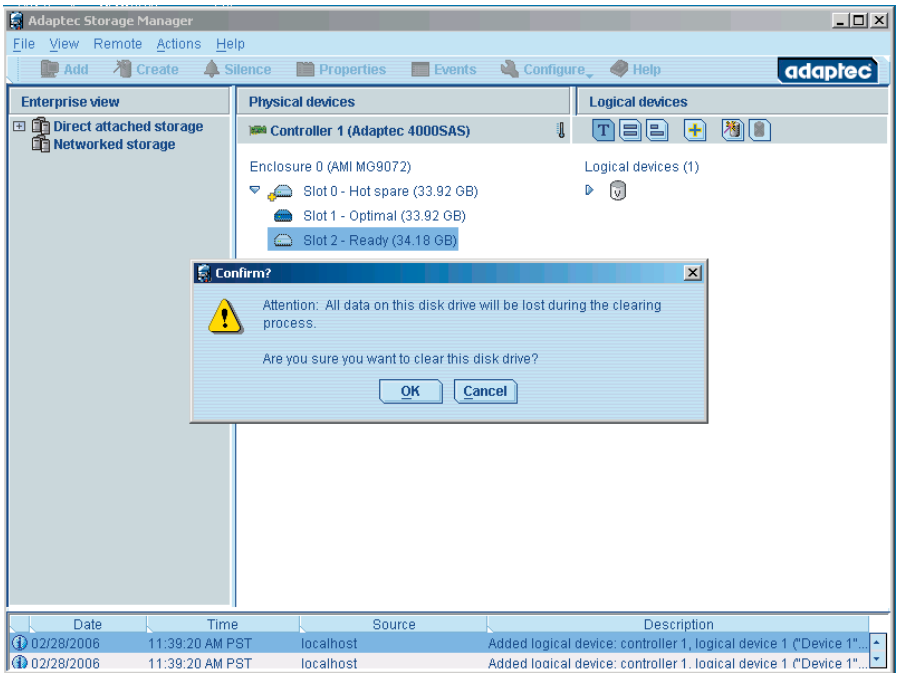
To Clear the Arrays

2. Right-click on a device that you wish to clear the array to activate the pop-up menu as shown in the second picture on Page 3-36.

3. From the pop-up menu, select Clear and hit <Enter>.

4. A warning message will appear. Click OK if you want to clear arrays. Click cancel if you are not sure if you want to erase all data stored in the HDD.

(* Note: Take Caution!! The option of "Clear Arrays" will erase all data stored in the device.)



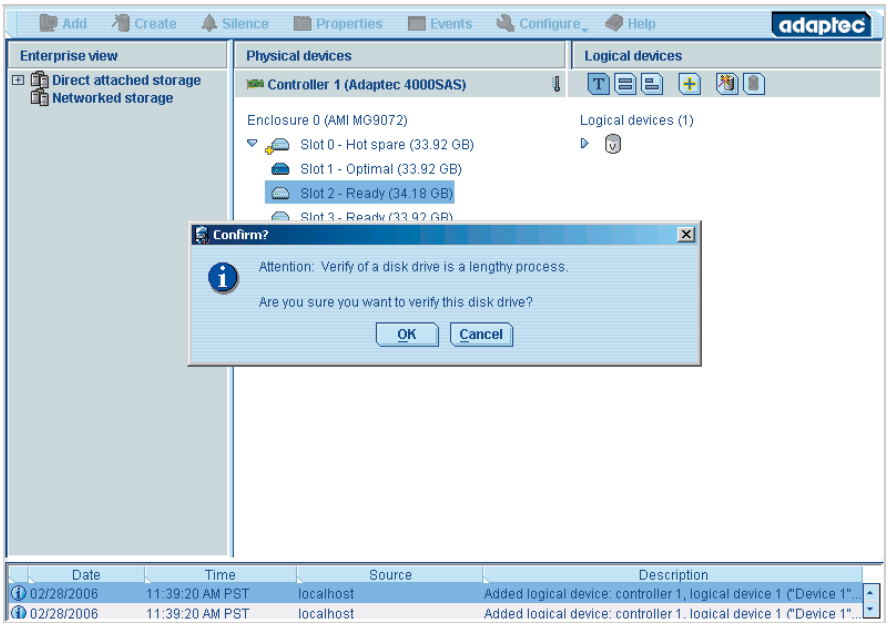
To Verify the Status of a Device

2. Right-click on a device that you wish to verify the status to activate the pop-up menu as shown in the second picture on Page 3-36.

3. From the pop-up menu, select Verify and hit <Enter>.

4. A warning message will appear. Click OK if you want to continue with the verifying process. Click cancel to cancel the procedure.

(Note: It is a lengthy process to verify the status of a device.)

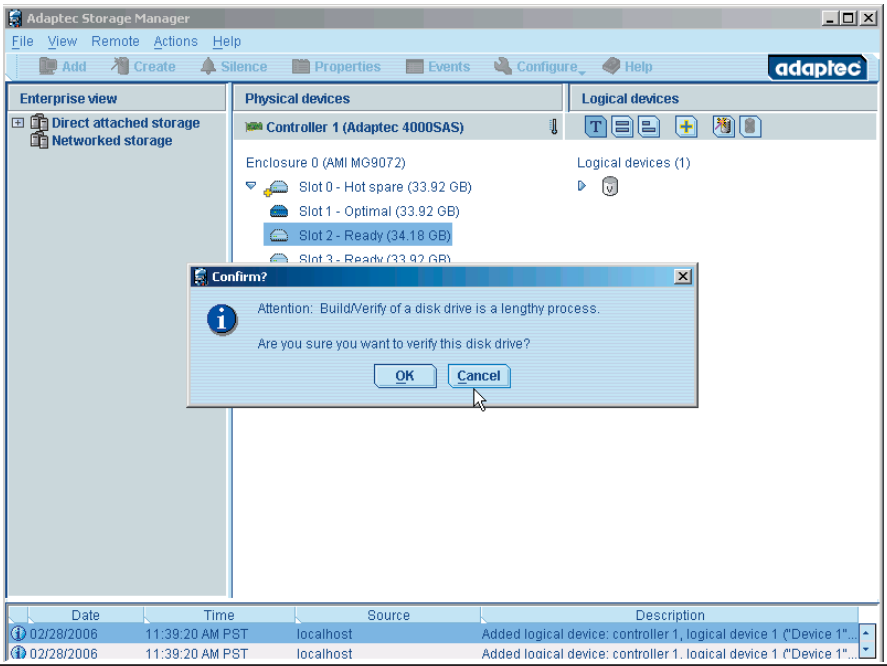


To Verify/Fix an Array

2. Right-click on a device that you wish to verify and rebuild the array to activate the pop-up menu as shown in the second picture on Page 3-36.

3. From the pop-up menu, select Verify/Fix and hit <Enter>. This function will verify the device selected and attempt to rebuild the array if it is damaged.

4. A warning message will appear. Click OK if you want to continue with the procedure. (Note: It is a lengthy process to verify/fix the status of a device.)

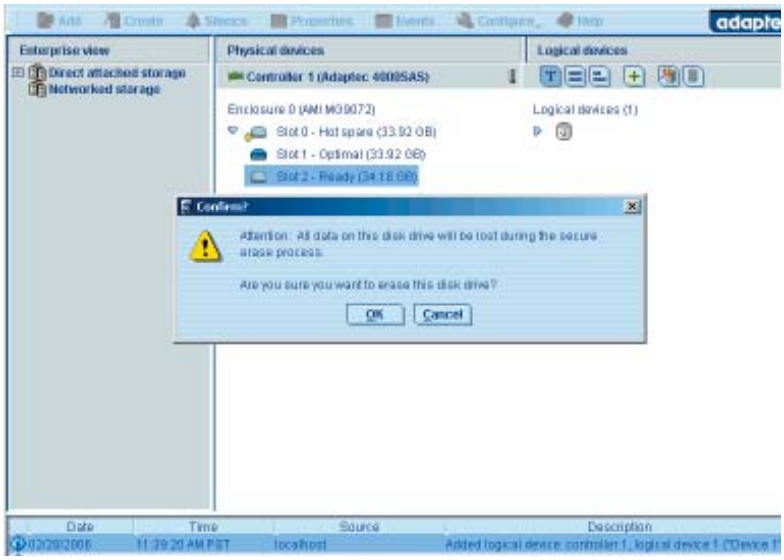


To Securely Erase a Device

2. Right-click on a device that you wish to securely erase the array to activate the pop-up menu as shown in the second picture on Page 3-36.

3. From the pop-up menu, select Secure Erase and hit <Enter>. Note: This function will erase all data stored in the device.

4. A warning message will appear. Click OK if you want to continue with the procedure. Click cancel to cancel the procedure. (**Warning**: Secure Erasing is a long, time consuming process. It depends on the HDD size.)

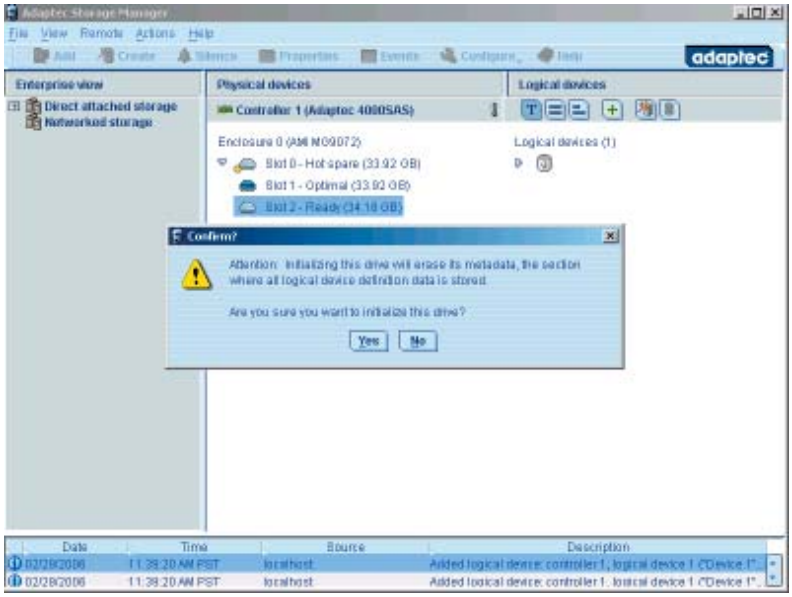


To Initialize a Drive

2. Right-click on a device that you wish to reformat to activate the pop-up menu as shown in the second picture on Page 3-36.

3. From the pop-up menu, select Initialize and hit <Enter>. This function will reformat the drive and erase all data stored in the device.

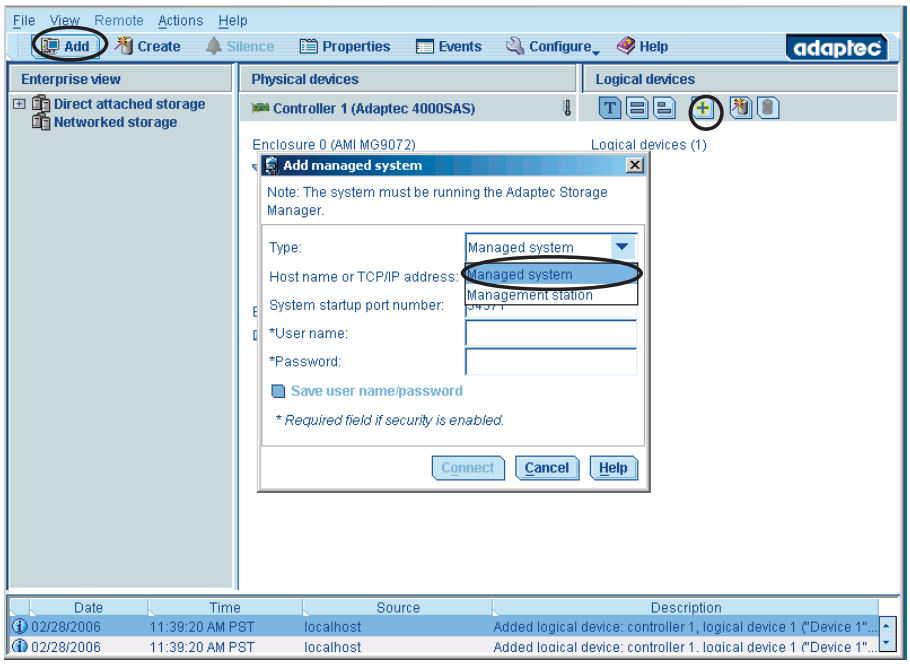
4. A warning message will appear. Click OK if you want to continue with the procedure. Click No to cancel the procedure. (Note: Initializing a device will erase all data stored in the device.)



To Add a Managed System or Management Station

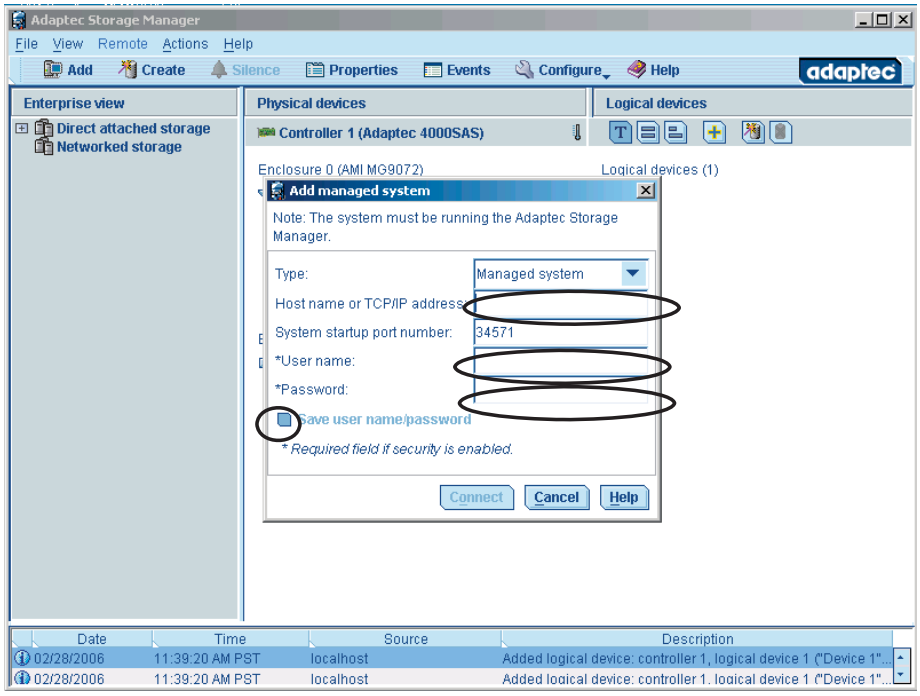
1. Double-click on the first icon on the tool bar to activate a pop-up screen as shown below .

2. Right-click on the triangle to activate the pop-up menu. Select Managed System or Management Station and hit <Enter> as shown below. (*For a desktop user, select Managed System.)



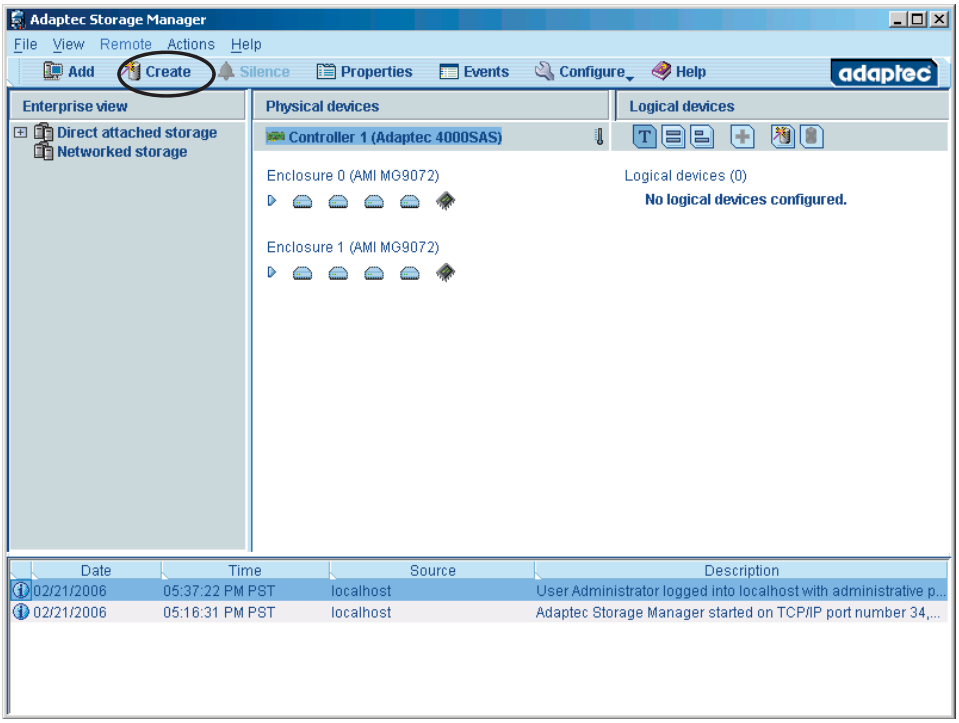
3. Type in the fields "Host name/IP address," "User name," and "Password," and click the box "save the password" if desired.

4. Click Connect and hit <Enter> to add the selected item into the Adaptec Storage Manager.

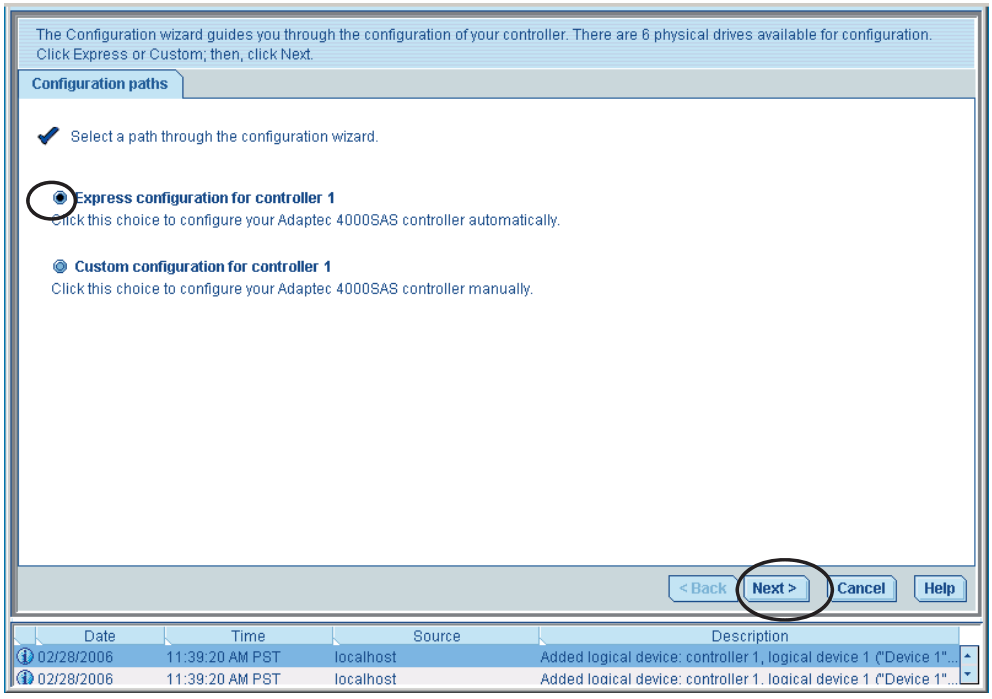


To Create RAID Arrays

You can use this feature to configure RAID 0, RAID 1, RAID 5, RAID 10 and RAID 50 for disk drives.



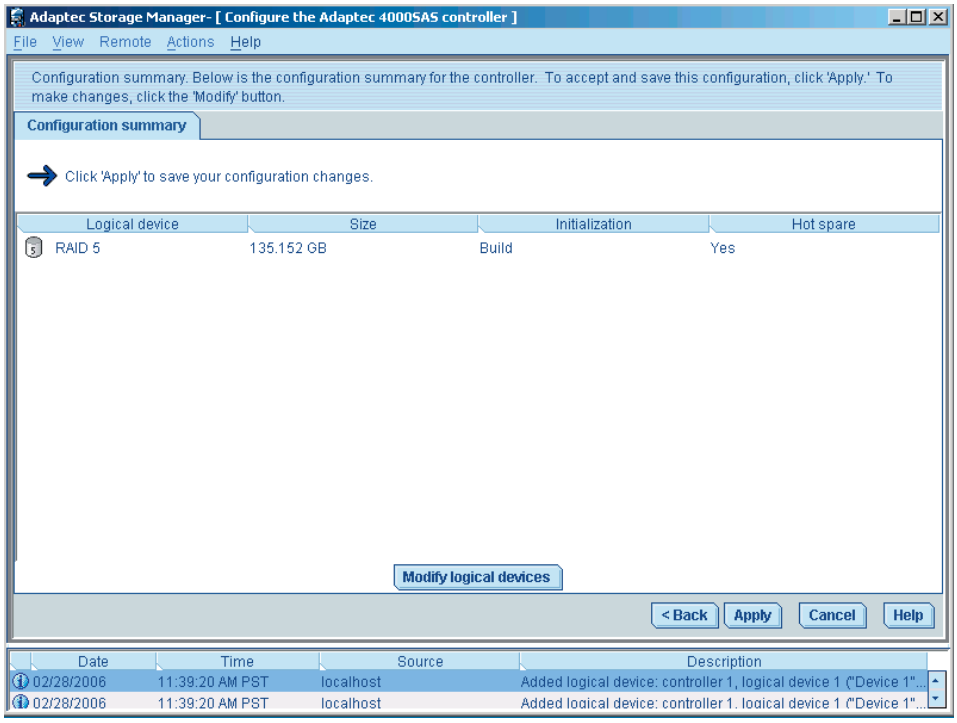
1. Double-click on the second icon "Create" on the tool bar and hit <Enter> as shown above. The following screen will appear. You can select "Express configuration" to use manufacturer default configuration to configure RAID arrays or select "Custom Configuration" to customize your own RAID configuration settings.



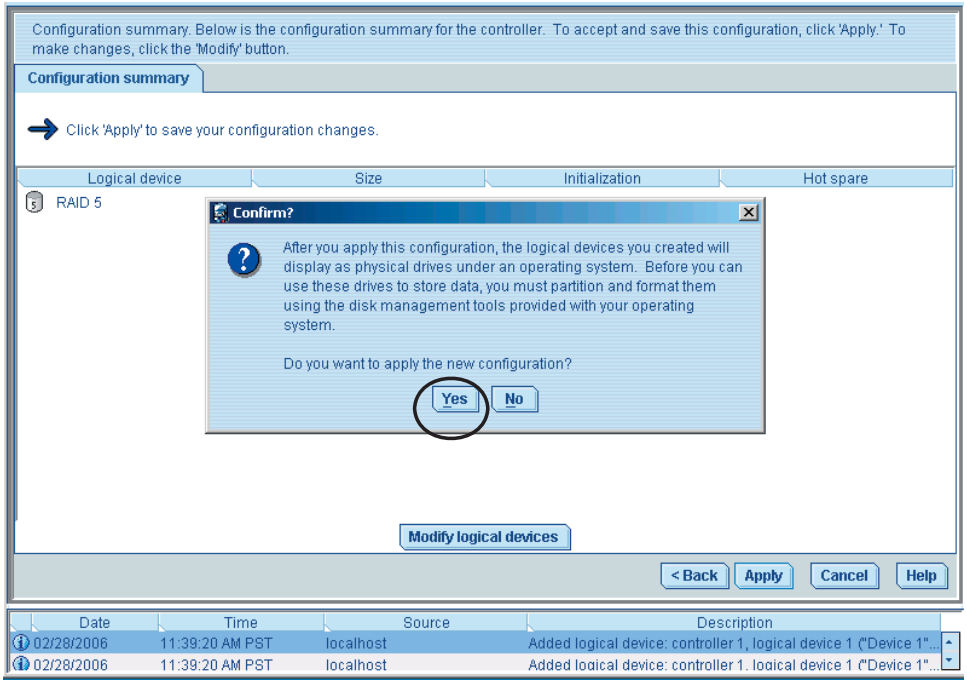
Using "Express Configuration" to Configure RAID Arrays

2. Select "Express Configuration" and click "Next" on the bottom screen as shown on the previous page. The following screen appears. (Note: ASM will select the best configuration for your storage setup. In the following case, RAID 5 is chosen.)

To Configure a Default RAID Setting (as assigned by the ASM)

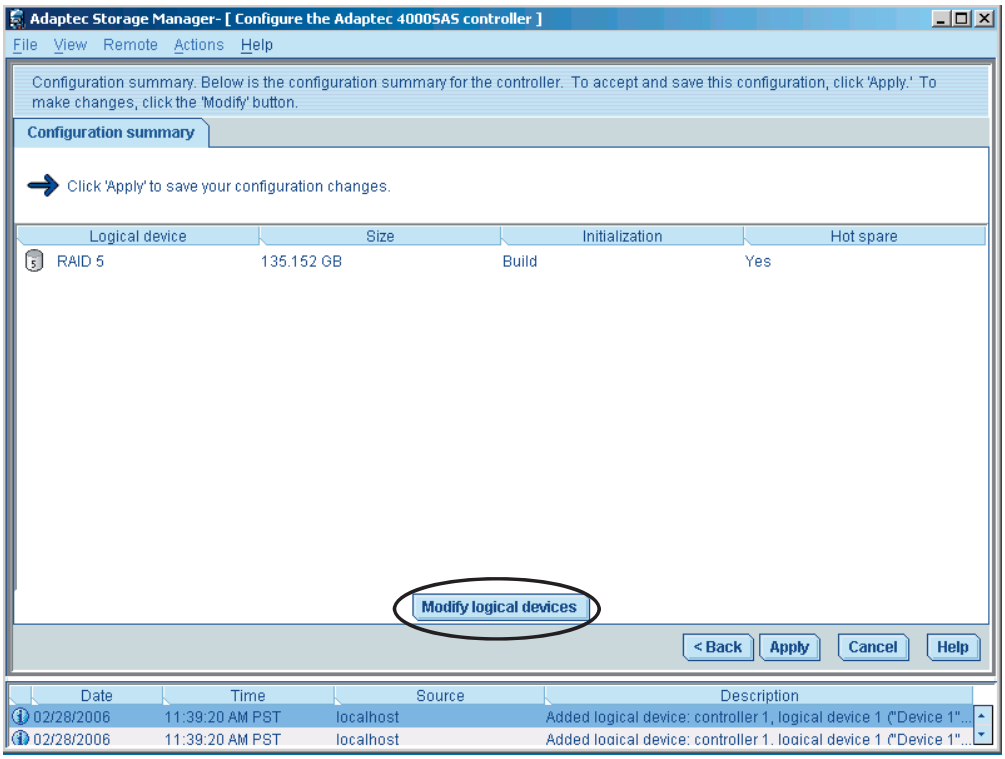


3. To select the RAID configuration as assigned, click on Apply. The following message appears as shown below.

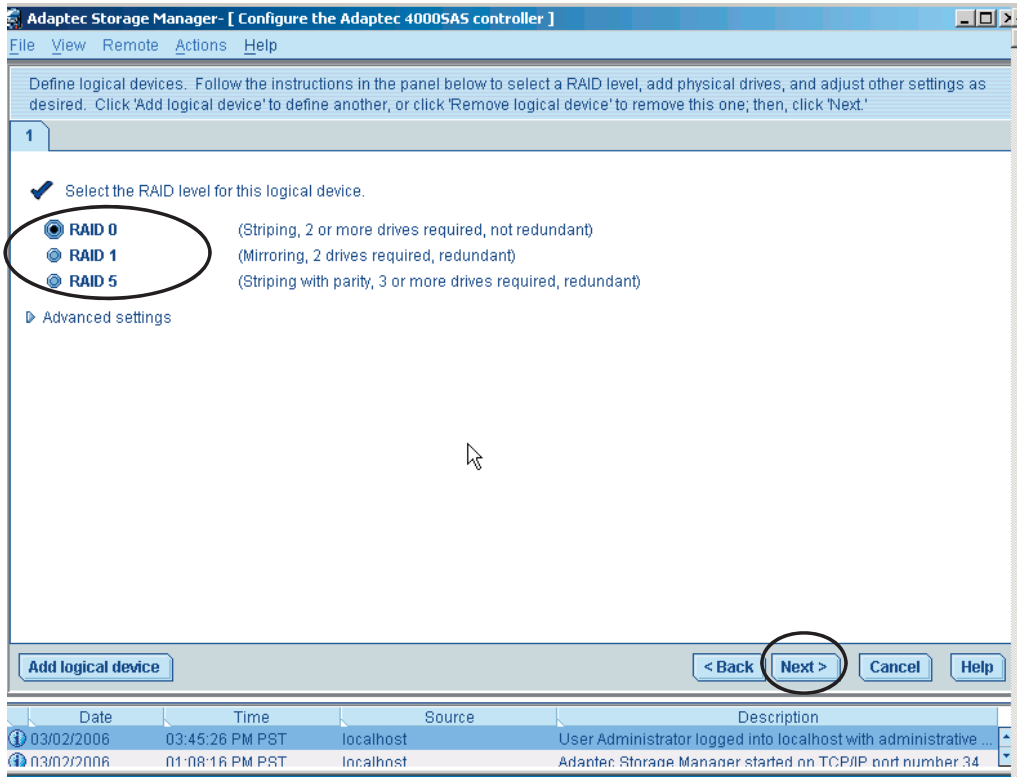


4. Click Apply to configure the RAID setting as selected.

To Modify a RAID Setting

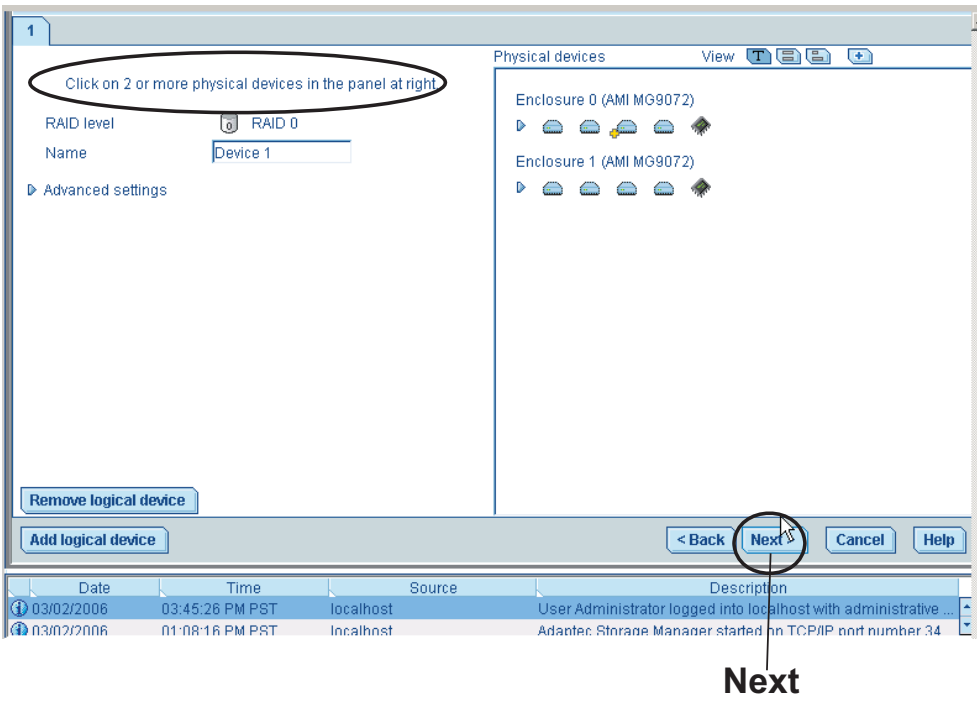


3. To change the default RAID configuration to another setting, double-click "Modify logical devices" as shown above and the following screen will appear:

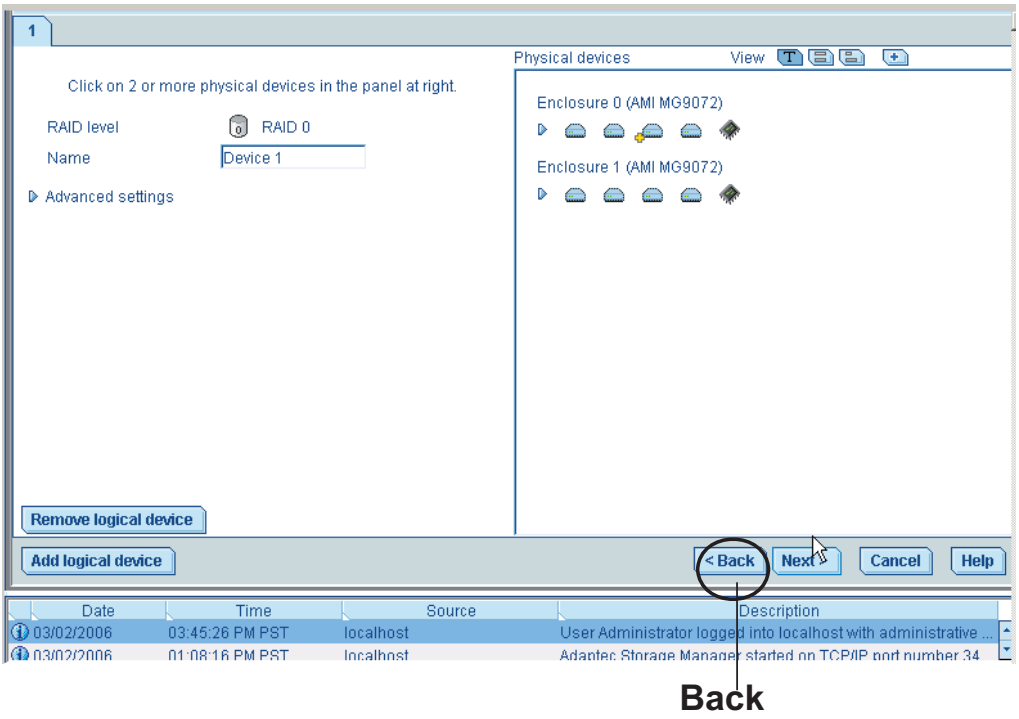


4. Click on the RAID setting of your choice to select it and then double-click "Next" to configure the RAID setting of your choice.

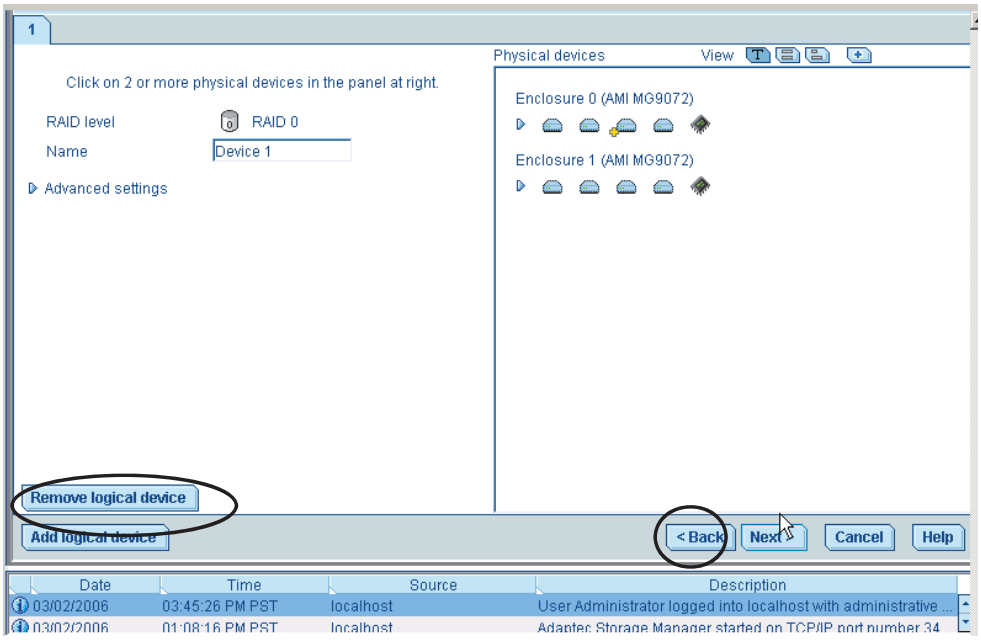
5. Follow the instructions given on the screen and click "Next" until you complete the RAID configuration. An example is shown below.



6. You can click "Back" to return to the previous screen as shown below.

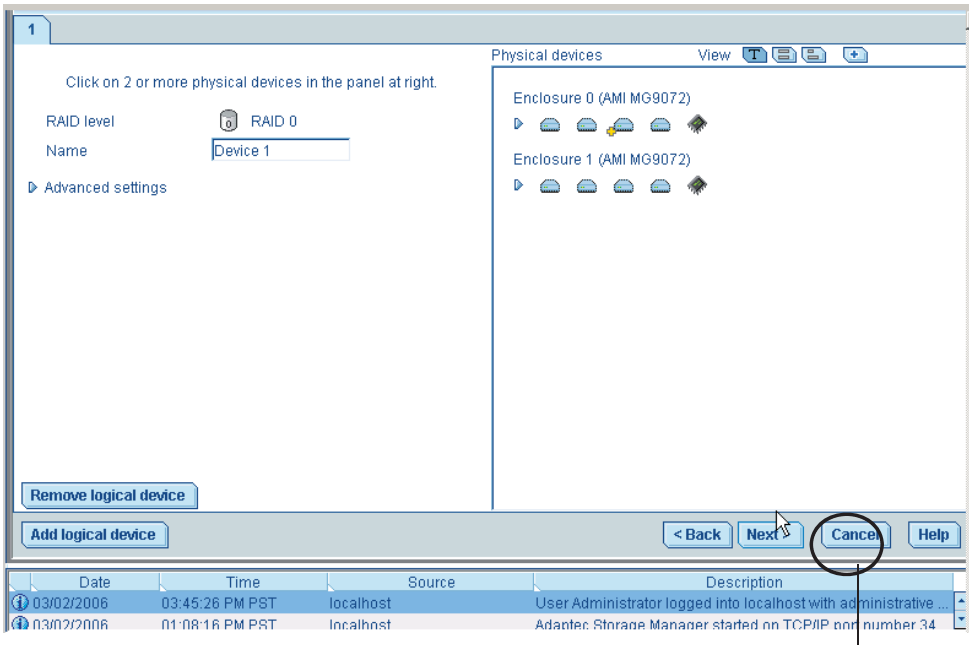


To Remove a Logical Device: To Cancel RAID Configuration Selection



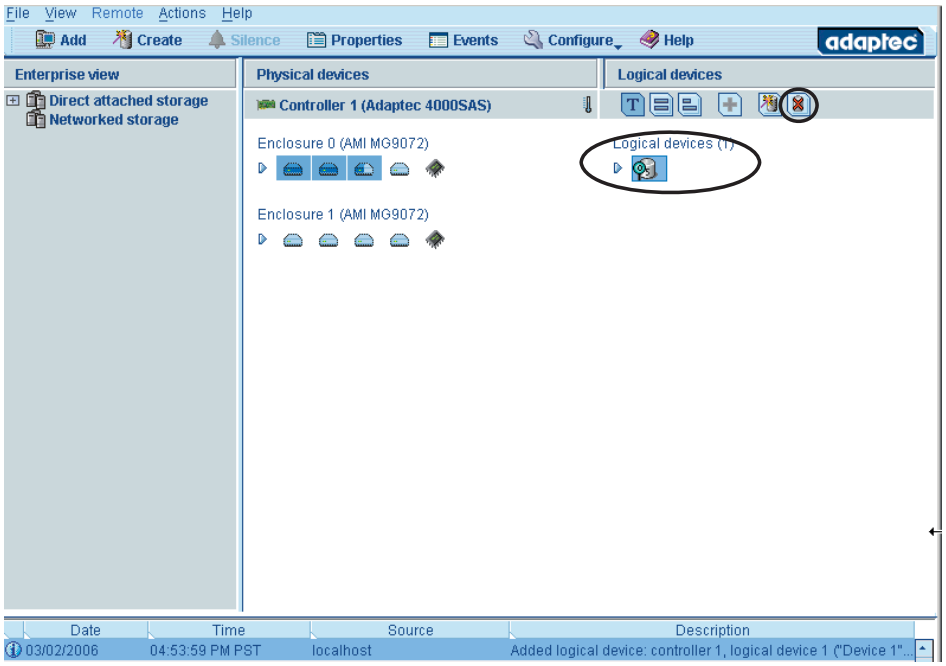
1. If you've selected a RAID configuration, and would like to cancel the operation, you can click "Remove logical device" and then click "Next" on the screen as shown above to cancel the configuration selection.

To Exit the RAID Configuration Completely

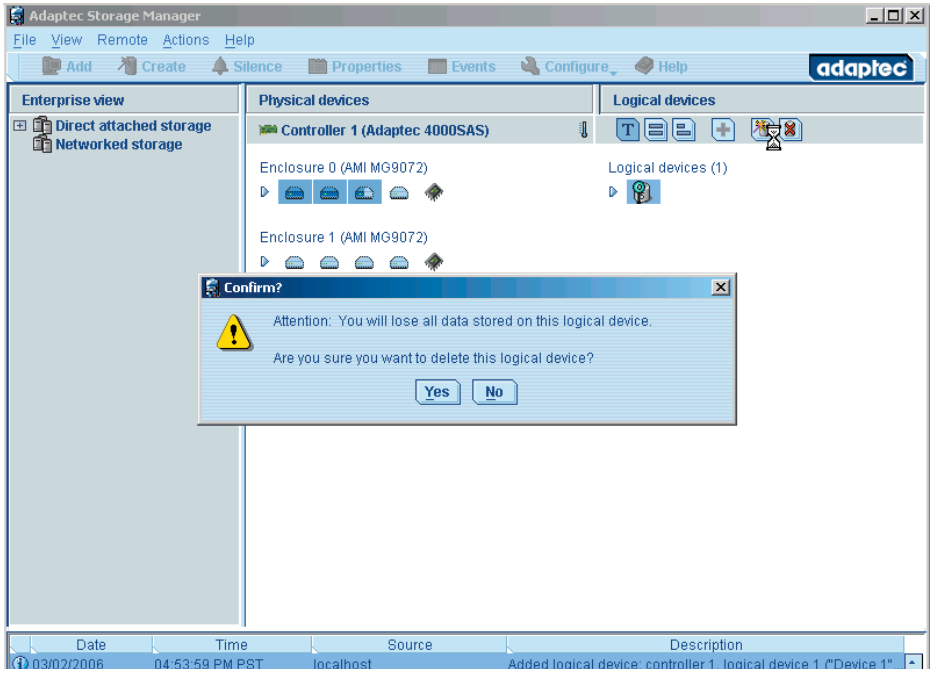


1. To exit the RAID Configuration Utility, click "Cancel" on the screen as shown above.

To Delete an Array

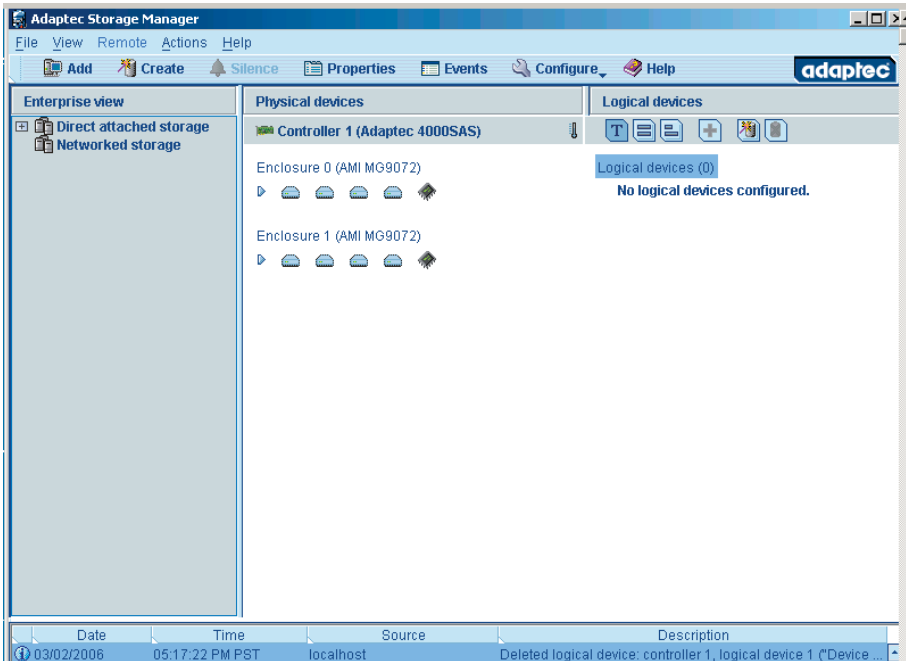


1. Select an Array you want to delete and click the Crossed-out HDD icon on the tool bar and hit <Enter> as shown above. The following screen will appear:



2. A warning message appears, indicating that you will lose all data stored in the original device if the array is deleted. Click Yes to continue. Click No to return to the previous screen.

3. Once an array is deleted, the following screen appears:



(***Note**: When the grayed-out HDD icon  appears, it indicated that there are no more logical devices to be deleted.)

Chapter 4
Troubleshooting

1. Problem: The AOC-LPZCR2 BIOS does not show up in POST.

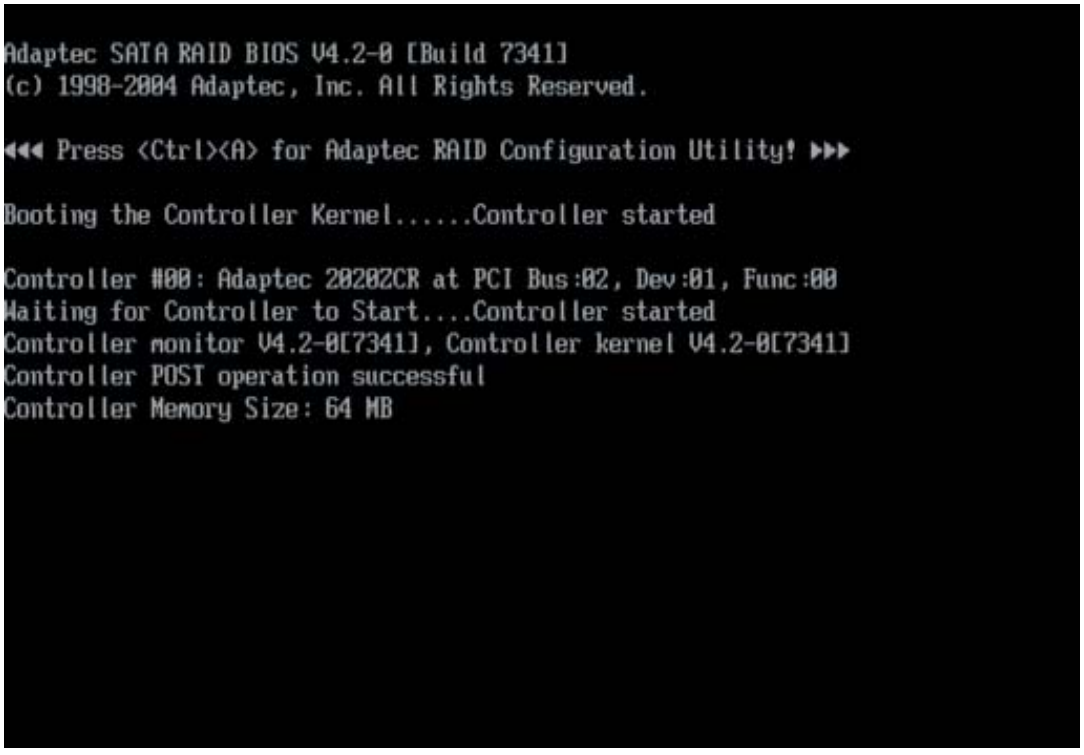
Recommended Solutions:

- Make sure that the system has enough expansion ROM to initialize the card. Remove other add-in cards if possible.
- Make sure that the card is properly and fully seated in the PCI green slot.
- Check if the motherboard's BIOS is updated. (You can download a updated BIOS from our web site at: www.supermicro.com.)

2. Problem: I cannot see the card in the operating system.

Recommended Solutions:

- Make sure that the card is shown in POST. If the card is shown in POST, a screen shown below will display. If it is not shown in POST, please find out the root cause of the problem by following the steps listed above.
- Make sure that the driver for the card is installed in the system.



3. Problem: I cannot see the hard drives that are connected to the controller.

Recommended Solutions:

- Make sure that there is power supply to the hard drives.
- Check the SAS, SATA or SCSI cable to make sure that there are no loose connections between the card and the hard drives.
- If the hard drives are connected through a SAS, SATA or SCSI back panel, make sure that there is power supply to the back panel, and there are no loose connections between the back panel and the controller. Also make sure that the hard drives are properly seated in the drive bay.
- If possible, swap the drives around to determine if the drive connections or the controller is bad.

4. I cannot create software RAID in the operating system.

Recommended Solutions:

- Make sure that the operating system supports software RAID. If not sure, please check with the software company that produces the OS.
- Make sure that more than one drives are seen by the OS.

Contacting Supermicro's Technical Support:

If you still have problems after trying out all the recommended solutions, please contact our Tech. Support @ (408)503-8000 or visit our web site @ www.supermicro.com/support/.