SATARAID5™ Serial ATA RAID5 Management Software

Home Edition



Preliminary Draft Subject to Change Without Notice

05/7/04

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1 Welcome

Silicon Image's SATARAID5TM software provides Serial ATA RAID0 (Striping), RAID1 (Mirroring), RAID 5 (Parity RAID), RAID10 (Striping and Mirroring), and JBOD (just a bunch of disks) functionality to enhance the industry's leading PCI-to-SATA host controller products. Two major challenges facing the storage industry today are keeping pace with the increasing performance demands of computer systems by improving disk I/O throughput and providing data accessibility in the face of hard disk failures while utilizing full disk capacity. With Silicon Image Serial ATA host controller and SATARAID5, both of these problems are solved.

SATARAID5 software provides a Graphical User Interface (GUI) for easy-to-use configurations of the RAID Groups.

1.1 SATARAID5 Features

- RAID 0, RAID 1, RAID 5, RAID 10, and JBOD Groups are supported.
- Supported OS: Win2000/XP/Server 2003.
- RAID Groups can be created and deleted without exiting Windows.
- Hot Spare and On-line Rebuilding. The spare policy supports testing periodically for a health check of the spare disk. Spare drive can be global or dedicated to a specific RAID group.
- Supports Auto and Manual rebuild policy for a RAID group.
- System GUI Monitoring Utility:
 - Displays/Logs/Alerts Users to Vital RAID Group Information.
 - Manages RAID Group Functions (configures, rebuilds, etc.,).
- Supports the ability to partition and map a segment of disk to a virtual LUN or disk.
- Supports up to two RAID groups. Any excess capacity on disk drives can be formatted as independent logical drives.
- Adjustable Stripe Size for RAID 0, RAID 5, and RAID10.
- Uses the Self-Monitoring, Analysis, and Reporting Technology (SMART) feature in the attached drives for automatic notification of imminent drive failures.
- Employ RAID recovery algorithms to maintain data integrity in the event of a disk failure including bad block management.
- Automatically Selects Highest Available Transfer Speed for All SATA Devices. Supports the following:
 - Data transfer rate up to 150MB/Sec (Sil3114, Sil3124-1), and 300MB/Sec (Sil3124-2)
 - Support up to 4 SATA devices connected to a single controller.
 - ACPI, SATA 1.0 (Sil3114, Sii3124-1), and SATA 2.0 (Sil3124-2)
- Supports drive roaming capability allowing drives from one controller to be moved to another without loss of data.
- Employs a task manager for the scheduling of any RAID or disk management operations including RAID group creation, rebuild, and test.

1.2 For SATARaid Users

If you plan to upgrade to RAID5 driver and/or BIOS, read this section carefully before upgrading BIOS and/or RAID driver. Otherwise, you might get unexpected results.

We do not recommend downgrading from RAID5 driver to the previous (non-RAID5) RAID driver.

1.2.1 RAID Function List for Different Versions of BIOS and RAID Driver

The following list shows possible BIOS and RAID driver combination and RAID functions supported by each combination.

- 1. Old BIOS with Old RAID Driver
 - Non-RAID Hard Disk
 - Legacy RAID 0 group
 - Legacy RAID 1 group
 - Legacy RAID10 group
 - Legacy spare drive
- 2. Old BIOS with New RAID Driver
 - Legacy RAID 0 group
 - Legacy RAID 1 group
 - Legacy RAID 10 group
 - Legacy spare drive
 - New RAID 0 group (BIOS will not recognize this)

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- New RAID 1 group (BIOS will not recognize this)
- New RAID 5 group (BIOS will not recognize this)
- New RAID 10 group (BIOS will not recognize this)
- New spare drive (BIOS will not recognize this)
- JBOD (BIOS will not recognize this)
- 3. RAID5 BIOS with Old RAID Driver
 - Legacy RAID 0 group
 - Legacy RAID 1 group
 - Legacy RAID 10 group
 - Legacy spare drive
- 4. RAID5 BIOS with New RAID Driver
 - Legacy RAID 0 group
 - Legacy RAID 1 group
 - Legacy RAID 10 group
 - Legacy spare drive
 - New RAID 0 group
 - New RAID 1 group
 - New RAID 5 group
 - New RAID 10 group
 - New spare drive
 - JBOD

1.2.2 Upgrade BIOS and RAID Driver

If you upgrade from old BIOS and old RAID driver to a newer version of BIOS and/or RAID drive, you may lose some functions. Also, non-RAID drives may not be recognized by the new driver. If you are upgrading the software driver from the previous non-RAID5 version, the following is a list of precautions users should realize before upgrading BIOS and RAID driver to a newer version.

- 1. If you're upgrading to RAID5 driver only:
 - If the boot drive is a non-RAID drive, the system will not boot.
 - No non-RAID drive support.
 - When creating RAID groups through GUI, only those RAID groups created in legacy mode will be recognized by BIOS.
 - The existing RAID 0 or RAID 10 groups (created with previous version of BIOS or GUI) with 4 KB stripe size will not work.
- 2. If you're upgrading to RAID5 BIOS only:
 - If the boot drive is a non-RAID drive, the system will not boot.
 - No non-RAID drive support.
 - RAID driver will not recognize JBOD and RAID 5 group created by BIOS.
- 3. If you're upgrading to RAID5 BIOS and RAID5 driver
 - If the boot drive is a non-RAID drive, the system will not boot.
 - No non-RAID drive support.
 - The existing RAID 0 or RAID 10 groups (created with previous version of BIOS or GUI) with 4 KB strip size will not work.

2 An Introduction to RAID

RAID - Redundant Array of Independent Disks

RAID technology manages multiple disk drives to enhance I/O performance and provide redundancy in order to withstand the failure of any individual member, without the loss of data. There are many different methods of implementation for RAID, with each having advantages and disadvantages. Raid levels or set types are given a numerical designator that defines its implementation such as RAID 0 or RAID 1. SATARAID5 provides support for three RAID Group types: Striped (RAID 0), Mirrored (RAID 1), and RAID 10 Mirrored/Striped. Other RAID types are not supported by SATARAID5 software and thus are not discussed.

2.1 Disk Striping (RAID 0)

Striping is a performance-oriented, non-redundant data mapping technique. While Striping is discussed as a RAID Group type, it is does not provide any fault tolerance. With modern SATA and ATA bus mastering technology, multiple I/O operations can be performed in parallel, enhancing data throughput. Striping arrays use multiple disks to form a larger virtual disk. The figure below illustrates a three-disk stripe set. Stripe one is written to disk one, stripe two to disk two, and so forth. RAID 0 sets can be comprised of two, three, or four drives.

\frown		\frown
Stripe0	Stripe1	Stripe2
Stripe3	Stripe4	Stripe5
Stripe6	Stripe7	Stripe8
Stripe9	Stripe10	Stripe11

2.2 Disk Mirroring (RAID 1)

Disk mirroring creates an identical twin for a selected disk by having the data simultaneously written to two disks. This redundancy provides instantaneous protection from a single disk failure. If a read failure occurs on one drive, the system reads the data from the other drive. RAID 1 sets are comprised of two drives. A third drive can be allocated as a spare in case one of the drives in the set fails.

\sim	
	Block 0
	Block 1
Block 0	Block 2
Block 1	Block 3
Block 2	
Block 3	

2.3 Disk Mirroring and Striping (RAID 10)

RAID 10 combines the features of both RAID 0 and RAID 1. Performance is provided through the use of Striping (RAID 0), while adding the fault tolerance of Mirroring (RAID 1). The implementation of RAID 10 requires four drives. The drives are assigned as two sets of striped pairs.



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The data is written to RAID Group A, which is striped (RAID 0). This allows maximum speed. The data is then mirrored to another RAID 0 striped set, which is Set B in the figure above. This provides data redundancy (RAID 1), and thus increased data security.

Under certain circumstances, a RAID 10 set can sustain multiple simultaneous drive failures.

2.4 Parity RAID (RAID 5)

Parity or RAID 5 adds fault tolerance to Disk Striping by including parity information with the data. Parity RAID dedicates the equivalent of one disk for storing parity stripes. The data and parity information is arranged on the disk array so that parity is written to different disks. There are at least 3 members to a Parity RAID set. The following example illustrates how the parity is rotated from disk to disk.



Parity RAID uses less capacity for protection and is the preferred method to reduce the cost per megabyte for larger installations. Mirroring requires 100% increase in capacity to protect the data whereas the above example only requires a 50% increase. The required capacity decreases as the number of disks in the group increases.

2.5 JBOD (Just Bunch of Disks)

The JBOD is a virtual disk that can either be an entire disk drive or a segment of a single disk drive. For home edition, JBOD function only supports one disk.

3 Installing Drivers

Before installing the SATARAID5 software, Silicon Image Serial ATA host adapter driver must be installed. When Windows detects the newly installed SATA host adapter, it will open a Driver Installation Wizard. Click on the Next buttons until the wizard prompts for the location of the driver. Insert the Silicon Image SATA host adapter driver CD into the computer's CD-ROM drive and click on the Browse button. Select the directory on the CD in which the driver resides and click OK.

Browse for Folder	? ×
Select the folder that contains driver information (.INF file) for this device.	or
Desktop My Computer My Computer Signature Development (C:) Development (C:) Data (E:) Data (E:)	

Click the Next button. A window will be displayed to verify proper installation of the host adapter driver. Click Finish. When prompted to restart the computer, click Yes.

4 JAVA 2 Runtime Environment Installation

The Java 2 Runtime Environment is required for the SATARAID5 GUI. The Java 2 Runtime Installer and executable package must be downloaded from the Sun Microsystems website at http://java.sun.com/j2se/downloads.html. The computer must have an Internet connection set up before installation can proceed.

Save the installer file to a known location, such as the My Documents folder. Using Windows Explorer or by clicking on the My Computer icon on the desktop, select the installation file and open it. The installation will begin. The installer program will download the needed files from the Internet.



When a window appears asking for acceptance the license agreement, select *I accept the terms of this license agreement* and click Next.

🚰 Java 2 Runtime Environment, 5E v1.4.2 - License	×
License Agreement Please read the following license agreement carefully.	4
Sun Microsystems, Inc. Binary Code License Agreement	1
for the	
JAVA™ 2 RUNTIME ENVIRONMENT (J2RE), STANDARD EDITION, VERSION 1.4.2_X	
SUN MICROSYSTEMS, INC. ("SUN") IS WILLING TO LICENSE THE SOFTWARE IDENTIFIED BELOW TO YOU ONLY UPON	•
 I accept the terms in the license agreement I do not accept the terms in the license agreement 	
InstallShield Cance	

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Choose the Typical setup type and click Next.

🙀 Java 2 Runti	me Environment, SE v1.4.2 - Setup Type	
Setup Type Choose the s	etup type that best suits your needs.	
Please select	a setup type.	
• Typical	All recommended features will be installed.	
Custom Specify the installation directory and choose which program features to install. You can change your choice of features after installation by using the Add/Remove Programs utility in the Control Panel. Recommended for advanced users.		
InstallShield ——	< <u>B</u> ack <u>N</u> ext > Cancel	

When the installation completes, click Finish. Restart the computer when prompted.

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5 SATARAID5 GUI Installation

Insert the Silicon Image SATARAID5 Installation CD into the computer's CD-ROM drive. Using Windows Explorer or by clicking on the My Computer icon on the desktop, display the contents of the CD-ROM. The SATARAID5 GUI Installation program is named SATARAID5.exe. Select this file and open it. The installation will begin.

Click the Next button when the Welcome window appears.



Click the Next button to install the SATARAID5 program in the default directory (recommended). An alternate directory may be selected if desired.

InstallShield Wizard	×
Choose Destination Location Select folder where Setup will install files.	
Setup will install Sam in the following folder.	
To install to this folder, click Next. To install to another folder.	a different folder, click Browse and select
Destination Folder C:\Program Files\Silicon Image\Sam	Browse
	< <u>B</u> ack <u>Next</u> Cancel

Click the Finish button to complete the installation.

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6 Creating and Deleting Legacy RAID Groups with BIOS Utility

Legacy RAID sets can be created and managed by either the BIOS utility or the SATARAID5 GUI. New RAID groups must be created and managed by the SATARAID5 GUI. See section 8 SATARAID5 GUI Overview for information on configuring RAID Groups using the SATARAID5 GUI.

During boot up, a screen similar to that below will appear for about 5 seconds. Press CTRL+S or the F4 key to enter the BIOS RAID utility.



The RAID Utility menu screen will be displayed. A brief description of each section is presented on the next page.



Main Menu

The Main Menu in the upper left corner is used to choose the operation to be performed. The selections are:

Create RAID Group Delete RAID Group Rebuild RAID1 Set Resolve Conflicts Low Level Format Logical Drive Info

Create RAID Group is used to create a new legacy RAID Set or for allocating legacy spare drives.

Delete RAID Group is used to delete a legacy RAID Set or to deallocate a legacy spare drive.

Rebuild RAID1 Set is used to initiate the rebuild of a RAID 1 set after, for example, a drive in the Group has been replaced.

Resolve Conflicts is used to automatically find the member drives of a RAID set which has been disrupted (physical drives swapped around, for example) and restore the Set to proper operation.

Low Level Format allows a single drive to have its data completely wiped out. Drives assigned to Sets or allocated as spares cannot be low level formatted.

Logical Drive Info shows the current configuration of each RAID set, allocated spare, and unallocated physical drive attached to the SATA host adapter.

These operations are detailed in the pages that follow.

Help Window

This window displays context-sensitive help and status messages.

Physical Drive Information

This window displays the model number and capacities of the drives physically attached to the SATA host adapter.

Logical Drive Information

This window displays a list of devices reported to the system BIOS.

Command Line

The bottom line of the display lists the currently active command keys:

Up and Down arrows select the menu item or action

ESC takes the user to the previous menu

Enter selects the highlighted choice

Ctrl-E exits the utility

Other keys may be active depending upon the currently selected action.

6.1 Creating RAID Groups

As previously discussed, the Silicon Image SATA host adapter supports RAID 0, 1, 5, 10, and JBOD configurations. The selection of the RAID level to be used should be based upon factors including performance, data security, and number of drives available. It is best to carefully consider the long-term role of the system and plan the data storage strategy appropriately.

Silicon Image has made the creation of RAID sets very simple. They can be created either automatically or to allow the greatest flexibility, manually.

- 1. Select "Create RAID set"
- 2. Choose a RAID0 Striped, a RAID1 Mirrored, a RAID5 Parity, or a RAID10 combination set.
- 3. Select Automatically or Manually configuration of the RAID Set.
- 4. If manual configuration is selected, the chunk size of Striped Sets can be selected. For Mirrored Sets, the Source and Target drives can be selected.
- 5. The message "Are You Sure?" will display before completing the configuration. Answer "N" to abort the creation of the new RAID set, or "Y" to proceed with the RAID set creation.

RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2004			
MAIN MENU — — — — — — — — — — — — — — — — — — —	———— HELP ————————————————————————————————————		
Create RAID set Delete RAID set Rebuild Raid1 set Resolve Conflicts Low Level Format Logical Drive Info	RAID5=Parity		
PHYSICAL DRIVE	LOGICAL DRIVE		
0 IC35L020AVER07-0 19092MB 1 Maxtor 4R080L3 78167MB 2 ST330013AS 28629MB 3 Maxtor 4G120H6 117246MB	IC 35L0 20RVER0 7-0 19092MB Maxtor 4R0 80L3 78167MB ST 3300 13RS 28629MB Maxtor 4G120H6 117246MB		

The Create RAID set option is also used to allocate a spare drive or a virtual drive (JBOD). The spare drive can be allocated to the set in the event of a failure of one of the drives in the set. To allocate a spare drive or JBOD, follow the procedure outlined above, choosing "SPARE DRIVE" or "JBOD" for the set type.

6.2 Deleting RAID Groups

- 1. To remove one or more RAID sets, select "Delete RAID set"
- 2. Select the desired set and press Enter.
- 3. Press "Y" when asked, "Are You Sure?"
- 4. The drives will be returned to the selection of logical drives from which a new RAID set can be created.

6.3 Rebuild RAID1 Set

This menu selection is used to initiate the copying of data from an existing drive to a replacement drive that has been installed in a RAID 1 set after the failure of one of the members.

- 1. Select "Rebuild RAID1 set"
- 2. Select the desired set and press Enter.
- 3. Press "Y" when asked, "Are You Sure?"
- 4. The set will be rebuilt. The status of the rebuild is displayed in the MAIN MENU window.

RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2004	
MAIN MENU HELP	
Create RAID set Press "Enter" to select	
Delete RAID set raid1 set to rebuild	
Rebuild Raid1 set	
Resolve Conflicts	
Logical Drive Info	
Copying / 05% done	
PHYSICAL DRIVE ELOGICAL DRIVE	
0 IC35L020AVER07-0 19092MB SiI Raid1 Set 19091MB	
1 Maxtor 4R080L3 78167MB Maxtor 4G120H6 117246MB	
2 ST330013AS 28629MB	
5 Maxtur 4612006 117240Mb INVallu Kalu urive	
TV:Select Menu ESC:Previous Menu Enter:Select Ctrl-E:Exit	

6.4 Resolving Conflicts

When a RAID set is created, the metadata written to the disk includes drive connection information including the channel on the host adapter to which it is connected. If after a disk failure the replacement disk was previously part of a RAID set or used in another system, it may have conflicting metadata, specifically in reference to the drive connection information. If so, this will prohibit the RAID set from being either created or rebuilt. In order for the RAID set to function properly, this old metadata must be first overwritten with the new metadata. To correct this, select "Resolve Conflict" and the correct metadata, including the correct drive connection information, will automatically be written to the replacement disk.

1. Select "Resolve Conflicts" and press Enter.



2. Select the "Conflict" entry in the Logical Drive Status window and press Enter.



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3. Note that some conflict resolutions may result in the drive letter assignment changing; for example the RAID set may have been drive D: but after the conflict resolution, it may become drive E. Be aware of this when performing a conflict resolution. To maintain the same drive lettering, the SATA cables connected to the drives may need to be swapped, or in the case of a SATA-based removable drive unit, the order of the drives within the chassis made need to be changed. Press 'Y' to accept the change and resolve the conflict.

RAID Configuration Utility - Silicon Im	nage Inc. Copyright (C) 2004
MAIN MENU — — — — — — — — — — — — — — — — — — —	
Create RAID set Delete RAID set Desidi en	Press "Enter" to select the set
Resolve Conflicts Low Level Format	
Logical Drive Info	
The drive letter might be changed ! Are You Sure (Y/N) ?	
PHYSICAL DRIVE [L06]	ICAL DRIVE
0 IC35L020AVER07-0 19092MB Sil	[Raid1 Set 19091MB ctor 4612006 117246MB
2 ST330013AS 28629MB 3 Maxtor 4G120H6 117246MB	uflict
↑↓:Select Menu ESC:Previous Menu Enter:Sel	Lect Ctrl-E:Exit

4. The conflict will be resolved. The RAID Set will appear in the Logical Drive window.

RAID Configuration Utility - Silicon I	mage Inc. Copyright (C) 2004
MAIN MENU — — — — — — — — — — — — — — — — — — —] [НЕLP]
Create RAID set	Help for resolving
Delete RAID set	conflicts
Rebuild Raid1 se	
Resolve Conflicts	
Low Level Format	
Logical print into	
	J []
	TAN BRID
FRISICAL DRIVE [100	ICAL DRIVE
0 IC35L020AVER07-0 19092MB ST	330013AS 28629MB
1 Maxtor 4R080L3 78167MB Si	I Raid1 Set 19091MB
2 ST330013AS 28629MB Ma	xtor 4G120H6 117246MB
3 Maxtor 4G12OH6 117246MB	
↑↓:Select Menu ESC:Previous Menu Enter:Se	lect Ctrl-E:Exit

6.5 Low Level Formatting

The Low Level Format menu selection allows the complete erasure of data on a hard drive. This is not an action, which typically needs to be performed as formatting the drive under Windows is usually sufficient to prepare the drive for use.

6.6 Logical Drive Information

This menu item allows the display of the assignment of physical drives within a logical set (RAID set, RAID 1 spare, or unassigned). It is a display-only function. Use the up and down arrow keys to scroll between the drives in the Logical Drive Properties window. Press the ESC key when done viewing logical drive information.

MAIN MENU HELP Create RAID set Press "Enter" and select Delete RAID set Digical drive to display Rebuild Raid1 se Resolve Conflicts Low Level Format Information in detail 0 IC 35L020 AVER07-0 19092MB 1 Maxtor 4R080L3 78167MB 2 S11 Raid10 Set S11 Raid10 Set Addition Utility - S11con Image Inc. Copyright (C) 2004 MAIN MENU Press 74 for logical drive information or press ESC to exit Delete RAID set Press 74 for logical drive information or press ESC to exit PHYSICAL DRIVE LOGICAL DRIVE LOGICAL CHIVE Test 74 for logical drive information or press ESC to exit Delete RAID set Delete RAID set Press 74 for logical drive information or press ESC to exit Press 10 prive Tofo S11 Raid10 Set Press 10 prive Tofo S11 Raid10 Set Press 12 prive Tofo S11 Raid10 Set Press 14 for logical drive information or press ESC to exit S11 Raid10 Set Press 12 prive Tofo S14 / CURRENT S11 Raid10 Set S13 Maxtor 4G120H6 G4K / CURRENT S11 Raid	RAID Configuration Utility - Sil	icon Image Inc. Copyright (C) 2004
PHYSICAL DRIVE LOGICAL DRIVE 0 IC335L020AVER07-0 1909220B 1 Maxtor 4R080L3 781670B 2 SIJ Raid10 Set SIJ Raid10 Set 3 Maxtor 46120H6 117246MB 4 Select Menu ESC:Previous Menu Enter:Select Ctrl-E:Exit RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2004 Main MENU Press 74 for logical drive information or press ESC to exit Delete RAID set Press 74 for logical drive information or press ESC to exit Logical Drive Info LOGICAL DRIVE 9 HYSICAL DRIVE LOGICAL DRIVE 0 IC35L020 AVER07-0 64K/CURRENT SIT Raid10 Set 1 Maxtor 4G120H6 64K/CURRENT SIT Raid10 Set	MAIN MENU = Create RAID set Delete RAID set Rebuild Raid1 se Resolve Conflicts Low Level Format Logical Drive Info	HELP = and select logical drive to display information in detail
14:Select Menu ESC:Previous Menu Enter:Select Ctrl-E:Exit RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2004 MAIN MENU	PHYSICAL DRIVE 0 IC 35L020AVER07-0 19092MB 1 Maxtor 4R080L3 78167MB 2 ST 330013AS 28629MB 3 Maxtor 4G120H6 117246MB	LOGICAL DRIVE
RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2004 MAIN MENU	↑↓:Select Menu ESC:Previous Menu En	ter:Select Ctrl-E:Exit
MAIN MENU - HELP - Create RAID set Press 14 for logical drive information or press ESC to exit Resolve Conflicts Low Level Format Logical Drive Info Info PHYSICAL DRIVE - LOGICAL DRIVE 0 IC 35L020 AVER07-0 64K/CURRENT 1 Maxtor 4R080L3 64K/CURRENT 3 Maxtor 46120H6	RAID Configuration Utility - Sil	icon Image Inc. Copyright (C) 2004
PHYSICAL DRIVE = LOGICAL DRIVE = 0 IC35L020AVER07-0 64K/CURRENT Sil Raid10 Set 1 Maxtor 4R080L3 64K/CURRENT Sil Raid10 Set 2 ST330013AS 64K/CURRENT 3 Maxtor 4G120H6 64K/CURRENT Image: Comparison of the set of	MAIN MENU = Create RAID set Delete RAID set Rebuild Raid1 se Resolve Conflicts Low Level Format Logical Drive Info	HELP == Press 1↓ for logical drive information or press ESC to exit
	PHYSICAL DRIVE = 0 IC 35L020 AVER07-0 64K/CURRENT 1 Maxtor 4R080L3 64K/CURRENT 2 ST 330013AS 64K/CURRENT 3 Maxtor 4G120H6 64K/CURRENT	LOGICAL DRIVE

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7 Allocating Partitions in Windows

After the Raid groups have been created either using BIOS RAID utility or SATARAID5 GUI, the Raid group must have a partition defined on it, then the Raid group must be formatted in preparation for use under Windows.

Windows XP, 2000, and Server 2003 use the Disk Management utility that is part of the Operating System. There are enough nuances that make it important to follow the procedure specific to the Operating System.

7.1 Windows Server 2003 & XP & 2000

Before creating any partitions, RAID groups must first be created using the BIOS RAID Utility or the SATARAID5 GUI. Once the sets have been created, allow the system to load Windows. Once Windows is running, open the Disk Management window located at:

Control Panel> Administrative Tools> Computer Management> Storage> Disk Management

A window similar to the following should appear:

📮 Computer Management										<u>_ ×</u>
🛛 Action View 🗍 🖙 🔿 🔃 🔃	😫 🛛 🔂 😭 🛛	5								
Tree	Volume Lay	out Type	File System	Status	Capacity	Free Space	% Free	Fault Tolerance	Overhead	
Computer Management (Local) System Tools System Tools System Information Shared Folders Shared Folders Device Manager Storage Storage Storage		ition Basic	NTF5	Healthy (System)	7.87 GB	6.26 GB	79 %	no	0%	
Bisk Defragmenter Jogical Drives Berry Berry Services and Applications	CPDisk 0 Basic 7.87 GB Online 2 CPDisk 1 Basic	(C:) 7.87 GB N Healthy (S	TFS jystem)	3⁄						
	37.28 GB Online	37.28 GB Unallocate	ed							
	Contemporary Conte	27.95 GB Unallocate	ed							
	CDRom 0 DVD (D:) Online									
	Unallocated	Primary Pa	tition							
	<u></u>									

This window has three main sections:

- 1) System listing of all formatted and available disks/RAID Groups.
- 2) Report of physical connection of disks/RAID Groups.
- 3) Report of partition status, disk letter, and volume name.

In the physical connection window, every disk should report as:

Basic

Disk Size (the actual available disk space will be reported here) Online

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Instead of "Basic," a disk may also report as either "Unknown" or "Dynamic." If the disk reports as "Unknown" right-click on the disk icon and click "Write Signature." A window will appear with the disk in question (all "Unknown" disks may appear in this window). Make sure the box next to each disk is checked, and then click OK. The disk should now report as "Basic."

If a disk reports as "Dynamic," right-click on the icon of that disk, and click on "Revert to Basic Disk..." Within seconds the disk should report as Basic.

7.1.1 Creating the Partitions

In the Report of physical connection of disks/RAID Groups section, the order in which the drives are displayed corresponds directly to the order the Sets appear in the BIOS. Therefore, the first Unallocated Partition represents Set 1, and so on.

1. In this example, there are two disks with unallocated partitions. Right-click on the partition of the first disk and click on "Create Partition..."

CPDisk 0 Basic 7.87 GB Online	(C:) 7.87 GB NTFS Healthy (System)
CPDisk 1 Basic 37.28 GB Online	37.28 GB Unallocated Properties
CPDisk 2 Basic 27.95 GB Online	Help 27.95 GB Unallocated
DVD (D:)	
Unallocated	Primary Partition

- 2. The "Create Partition Wizard" should appear. The first window is an introductory window to the Wizard. Click Next.
- 3. The second window designates the partition type. Choose primary partition and click Next.

Create Partition Wizard	×
Select Partition Type You can specify what type of partition to create.	
Select the type of partition you want to create:	
Erimary partition	
C Extended partition	
C Logical drive	
C Description	
A primary partition is a volume you create using free space on a basic disk. Windows 2000 and other operating systems can start from a primary partition. You can create up to four primary partitions on a basic disk, or you can make three primary partitions and an extended partition.	
< <u>B</u> ack <u>N</u> ext>	Cancel

4. The third window designates the partition size. Since this is a Striped RAID set utilizing 2 disk drives, the size of the partition will be approximately twice the size of the smallest single disk drive. Click Next.

Create Partition Wizard	×
Specify Partition Size How big do you want the partition	to be?
Choose a partition size that is smal	ler than the maximum disk space.
Maximum disk space:	38178 MB
Minimum disk space:	7 MB
Amount of disk space to use:	38178 📩 MB
	< <u>B</u> ack <u>N</u> ext > Cancel

5. The fourth window designates the drive letter of the partition. Change the drive letter if desired. Click Next.

Create Partition Wizard
Assign Drive Letter or Path You can assign a drive letter or drive path to a partition.
 Assign a drive letter Mount this volume at an empty folder that supports drive paths: Browse Do not assign a drive letter or drive path
< <u>B</u> ack <u>N</u> ext > Cancel

6. The next window allows the volume label to be set and selection of the type of formatting to take place upon the creation of the partition. Make sure the *Format this partition*. . ." radio button is selected. Name the volume as desired (suggestions are generic names such as STRIPED SET or something specific to use such as FINANCIAL, CRITICAL, MISCELLANEOUS, etc.). It is recommended to use the default NTFS for the file system. Click Next.

Create Partition Wizard
Format Partition You can customize the formatting of the partition.
Specify whether you want to format this partition.
Do not format this partition
• Format this partition with the following settings:
Formatting File system to use: NTFS Allocation unit size: Default Volume label: Raid 0 Set Perform a Quick Format Enable file and folder compression
< <u>B</u> ack <u>N</u> ext > Cancel

7. The last window is a summary window listing all of the selections made. After verifying that everything is correct, click Finish.

Create Partition Wizard		×
	Completing the Create Partition Wizard You have successfully completed the Create Partition Wizard. You specified the following settings: Partition type: Primary Partition Disks Selected: Disk 1 Partition size: 38178 MB Drive letter or path: E: File System: NTFS Allocation Unit Size: Default Volume Label: Baid 0 Set To close this wizard, click Finish.	
	< <u>B</u> ack Finish Can	cel

The status of the newly created partition in the Disk Management window should change to Formatting and the percentage complete will be displayed. Depending upon the size of the partition, the format process may take several minutes. When complete, the status will change to "Healthy" and the name and drive letter will be updated. Once the disk reports Healthy, it appears in the listing in System Listing section with all of its pertinent information as well.

📮 Computer Management										- D ×
🛛 Action View 🗍 🖙 🔿 🔃 🔃	😫 🛛 🖸 🗙 🖆	🚅 🔍 [1							
Tree	Volume Layout	Туре	File System	Status	Capacity	Free Space	% Free	Fault Tolerance	Overhead	
Computer Management (Local) System Tools Computer Viewer System Information Computer Viewer Shared Folders Could Users and Alerts Could Users and Groups Storage Storage Storage Storage Storage	(C:) Partitic (F:) Partitic Raid Partitic	n Basic n Basic n Basic	NTFS NTFS	Healthy (System) Formatting : (9 Healthy	7.87 GB 27.95 GB 37.28 GB	6.26 GB 27.95 GB 37.22 GB	79 % 100 % 99 %	no no no	0% 0% 0%	
	Contraction Contra	(C:) 7.87 GB N Healthy ()	ITFS System)							
	Basic 37.28 GB Online	Raid 0 5 37.28 GB Healthy	et (E:) NTFS							
	Contraction Contractic Con	(F:) 27.95 GB Formattin	g : (93%)							
	CDRom 0 DVD (D:) Online									
	Primary Partition	1								
									1	

Repeat the above procedure as needed for any other partitions. Close the Data Management window by clicking on the small boxed "X" in the top right corner of the window. Click on the "My Computer" icon on the Desktop. The new drives will be visible and properly named. The new disks are available for use.

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8 SATARAID5 GUI Overview

The SATARAID5 GUI Installation program configures the SATARAID5 GUI to automatically start when Windows is started. If the SATARAID5 GUI does not automatically start or is closed by the user, choose the SATARAID5 program from the Start Menu to launch the GUI.

The SATARAID5 GUI monitors the system's RAID Group. The main window will display:



8.1 RAID Groups and Device Configuration Windows

The RAID Groups window identifies SATA host adapters and configured RAID groups. Selecting each RAID group in the RAID Groups window, members consisting of the RAID group will be highlighted in the Device Configuration window.

Right clicking on each node in the RAID Group window, a popup menu will be displayed to let user select action to be performed for the selected controller or RAID group.

The Device Configuration window identifies all physical drives and their partitions. A physical drive can be partitioned to several portions and each portion can be a RAID group member, a spare drive, or a virtual drive.

The following is another example of the main window showing different configuration. One RAID 10 (mirrored-striped) group, one RAID 1 (mirrored) group, and one global spare drive are configured.

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8.2 SATARAID5 Menu Commands

The Main menu commands are shown below

File	Device	RAID Group	Window	Legacy Support	Help
Exit	Create Spare	Create RAID Group	Task Manager	Create Legacy RAID Group	Help Topics
	Delete Spare	Rebuild RAID Group	Event Log	Rebuild Legacy RAID Group	About
	Delete Member	Delete RAID Group	I/O Statistics	Delete Legacy RAID Group	
	Delete Orphan	RAID Group Summary	Resources	Convert Legacy RAID Group	
	Device Summary			Create Legacy Spare	
				Delete Legacy Spare	
				Convert Legacy Spare	

The commands are documented on the pages that follow.

8.2.1 Exit

This command terminates the SATARAID5 program.

8.2.2 Create Spare

This command displays a dialog box to let user create Spare Drive, user needs to select the following parameters:

Spare Type:	Global	ystem.			
	Dedicated	the spare drive is dedicated to the specified R	AID group.		
RAID Group:	Select the RAI Dedicated spa	D group to which this spare drive is dedicated. are type is selected.	This parameter is enabled only when		
Capacity:	Select from a list of spare drive size, current options are from 128 MB to 100 GB and MAX.				
Device:	Select one dev	device segment from the available device segment list			

Cro	eate Spar	e				×	
	Parameters						
	Spare T	Гуре:	Globa	I	-		
	RAID Group:		0 💌		~		
	Capaci	ty:	1 GB		-		
	Device	Capa	icity	Starting L	BN		
	0	56.26	GB	00200000			
	1	75.33	GB	00200000			
	2	26.95	GB	00200000			
	3	26.95	GB	00200000			
		Cr <u>e</u> ate	•	Close			

8.2.3 Delete Spare

This command displays a dialog box to let user choose one or more Spare Drives to delete.

De	Delete Spare							
	8	Gelect Spare(s):						
	Device	Туре	RAID Group	Starting LBN	Capacity			
	0	Global Spare		00200000	4.0 GB			
		D	elete Ca	ncel				

8.2.4 Delete Member

This command displays a dialog box to let user choose RAID groups' members to delete. Since RAID 0 is not fault-tolerant, RAID 0 members will not be shown in the list.

Note: delete RAID group member will reduce the RAID group to be a non-fault-tolerant RAID group.

De	elete RAID Group Member							
	Select Member(s) to Delete:							
	Device	RAID Group	Member	Capacity	Starting LBN	Ī		
	0	0	0	1.0 GB	00000000			
	1	0	1	1.0 GB	00000000			
	2	0	2	1.0 GB	00800000			
	2	1	0	4.0 GB	00000000			
	3	0	3	1.0 GB	00800000			
	3	1	1	4.0 GB	00000000			
	,							
		Delet	te C	ancel				

8.2.5 Delete Orphan

An orphan device segment is part of a RAID group that cannot access another device segment within the same RAID group. When a member of a RAID group fails in a sever manner (such as a loss of power or a complete hard disk failure), it becomes an orphan.

This command displays the Delete Orphan Segment window to show all orphan segments and allow user to delete selected orphan segments.

De	Delete Orphan Segment						
	Sele	ct Orphan(s):					
	Device	Capacity	Ī				
	3	682.67 MB	00000000				
	,	1	1				
	<u> </u>	Delete	<u>C</u> ancel				

8.2.6 Device Summary

This command displays the Segment Summary window to show all physical devices' segments.

😽 Segment Summary									
File Options									
Device	Status	Capacity	Starting LBN						
0	Available	57.26 GB	00000000						
1	Available	76.33 GB	00000000						
2	Available	27.95 GB	00000000						
3	Available	27.95 GB	00000000						
Device	Count 0								
Device (Jount. 0								
🍇 Segn	ent Summary								
File Op	tions								

File Options							
Dev	Raid G	Status	Capa	Starting			
0		Available	52.6 GB	00955580			
0		Global Sp	4.0 GB	00155580			
0	0	Member	682.68	00000000			
1		Available	75.66	00155580			
1	0	Member	682.68	00000000			
2		Available	23.29	00955580			
2	1	Member	4.0 GB	00155580			
2	0	Member	682.68	00000000			
3		Available	23.95	00800000			
3	1	Member	4.0 GB	00000000			
Device Count: 0							

The Segment Summary window has it's own menu bar. All options available via the menu bar are shown below

File Options

Exit Sorting... Fields...

Exit

This command closes the Task Summary window.

Sorting

Not implemented yet.

Fields

This command displays a dialog box to let user choose which fields will be shown in the Segment Summary window.

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Fields		×
Available Fields:		Displayed Fields:
Raid Group	Add	Device
	Remove	Status Capacity Starting LBN
<u>0</u> K	Apply	<u>C</u> ancel

8.2.7 Create RAID Group

This command displays a dialog box to let user create RAID group, user needs to specify the following parameters:

RAID Group Label:	Provide a name for the RAID group					
RAID Group:	Select a group ID from the available ID list. Since the maximum number of RAID groups is limited to 8 so group ID can be from 0 to 7.					
Configuration:	Contiguous (for virtual disk)					
	Striped (for RAID 0)					
	Mirrored (for RAID 1)					
	Mirrored Striped (for RAID 10)					
	Parity RAID (for RAID 5)					
Capacity:	Select from a list of RAID group size, current options are from 256 MB to 100 GB, and MAX.					
Chunk Size:	Select one from the available list: 8, 16, 32, 64, 128 (KB). RAID 1 set and virtual disk do not require this.					
Rebuild Priority:	Select one from the available list: 1 to 10. RAID 0 set and virtual disk do not require this.					
Devices:	Select RAID member devices from the available device segment list					

Create RAID Group	X	[Cre	ate RAID G	iroup	×
Parameters			Parameter	's	
RAID Group Label:	Volume A		RAID Gro	up Label:	Volume A
RAID Group:	0 💌		RAID Gro	up:	0 💌
Configuration:	Striped		Configura	ation:	Mirrored Striped 💌
Capacity:	2 GB		Capacity:		2 GB 💌
Chunk Size:	32 KB		Chunk Siz	ze:	32 KB 💌
Rebuild Priority: 10			Rebuild F	Priority:	8
Device Capacity	Starting LBN	l r	Device	Capacity	Starting LBN
0 57.26 GB	0000000		0	57.26 GB	0000000
1 76.33 GB	0000000		1	76.33 GB	0000000
2 27.95 GB	00000000		2	27.95 GB	0000000
3 27.85 68			3	27.95 GB	0000000
Cr <u>e</u> ate	Close			Cr <u>e</u> ate	Close

8.2.8 Rebuild RAID Group

This command displays a dialog box to let user choose a replacement segment to rebuild a non-fault tolerant RAID group.

Re	Rebuild RAID Group								
Select a Member to Rebuild: Select a Replacement Segment:									
	RAID Group	Member	Status	Capacity		Device	Status	Capacity	Ĩ
	1	1	Failed	4.0 GB		0	Available	56.26 GB	
						1	Available	75.33 GB	
						2	Available	23.95 GB	
						3	Available	27.95 GB	
					ļ				
	<u>R</u> ebuild <u>C</u> ancel								

8.2.9 Delete RAID Group

This command displays a dialog box to let user choose RAID groups to delete.

De	Delete RAID Group									
	Select RAID Groups(s):									
	Raid Group	Configu	iration	Status						
	0	Striped		Online						
	1	Mirrored		Online						
,	D	elete	Cance							

8.2.10 RAID Group Summary

This command displays a dialog box to show all RAID groups' group ID, configuration, and status.

🧏 RAID Group Summary			
<u>File</u> Options			
RAID Group	Label	Configuration	Status
0	Volume A	Striped	Online
1	Volume B	Mirrored	Online
RAID Group C	Count: 2		

The RAID Group Summary window has it's own menu bar. All options available via the menu bar are shown below SATARaid User's Manual Copyright © 2003 Silicon Image Inc.

File	Options
Exit	Sorting
	Fields

Exit

This command closes the RAID Group Summary window.

Sorting

This command displays a dialog box to let user choose up to 3 items to sort RAID group items in the RAID Group list.

Sort	×
Sort items by	
RAID Group	 Ascending Descending
Then by	
Label	 Ascending Descending
Then by	
Configuration	 Ascending Descending
<u>Q</u>	<u>Cancel</u>

Fields

This command displays a dialog box to let user choose which fields will be shown in the RAID Group Summary window.



8.2.11 Task Manager

This command displays the Task Manager window. The Task Manager window lists all RAID and disk management tasks that have been started and/or done. This window provides user the ability to schedule any RAID and disk management operations including RAID group creation, rebuild, and test.

🍓 Task Summary				×
<u>File Options T</u> ask				
Operation	Parameters	Start Time	End Time	
Create RAID Group	Raid Group 0	4/7/04 2:25:32 PM	4/7/04 2:25:32 PM	
Create Spare	Raid Group 0	4/7/04 2:26:38 PM	4/7/04 2:26:38 PM	
Delete RAID Group	Raid Group 0	4/7/04 2:27:34 PM	4/7/04 2:27:34 PM	
Delete Spare	Raid Group 0	4/7/04 2:27:39 PM	4/7/04 2:27:39 PM	
Create RAID Group	Raid Group 0	4/7/04 2:30:31 PM	4/7/04 2:30:31 PM	
Delete RAID Group	Raid Group 0	4/7/04 2:32:21 PM	4/7/04 2:32:21 PM	
Create RAID Group	Raid Group 0	4/7/04 2:34:31 PM	4/7/04 2:34:31 PM	
Delete RAID Group	Raid Group 0	4/7/04 2:34:48 PM	4/7/04 2:34:48 PM	
Create RAID Group	Raid Group 0	4/7/04 2:40:53 PM	4/7/04 2:40:54 PM	
Create Spare	Raid Group 0	4/7/04 2:41:59 PM	4/7/04 2:41:59 PM	
Delete RAID Group	Raid Group 0	4/7/04 2:42:34 PM	4/7/04 2:42:34 PM	
Delete Spare	Raid Group 0	4/7/04 2:42:45 PM	4/7/04 2:42:45 PM	
Create RAID Group	Raid Group 0	4/7/04 2:43:02 PM	4/7/04 2:43:02 PM	
Create Spare	Raid Group 0	4/7/04 2:43:40 PM	4/7/04 2:43:40 PM	
Delete Spare	Raid Group 0	4/7/04 2:44:24 PM	4/7/04 2:44:24 PM	1
Delete RAID Group	Raid Group 0	4/7/04 2:44:30 PM	4/7/04 2:44:30 PM	1
Create RAID Group	Raid Group 0	4/7/04 2:46:08 PM	4/7/04 2:46:08 PM	1
Create RAID Group	Raid Group 1	4/7/04 2:46:35 PM	4/7/04 2:46:35 PM	1
Create Spare	Raid Group 0	4/7/04 2:48:09 PM	4/7/04 2:48:09 PM	1
Delete RAID Group	Raid Group 0	4/7/04 2:48:59 PM	4/7/04 2:48:59 PM	1
Delete RAID Group	Raid Group 0	4/7/04 2:48:59 PM	4/7/04 2:48:59 PM	1
Delete Spare	Raid Group 0	4/7/04 2:49:05 PM	4/7/04 2:49:05 PM	1
Create RAID Group	Raid Group 0	4/7/04 2:52:01 PM	4/7/04 2:52:01 PM	
Create RAID Group	Raid Group 1	4/7/04 2:52:36 PM	4/7/04 2:52:36 PM	-
Task Count: 44				

The Task Manager window has it's own menu bar. All options available via the menu bar are shown below

File	Options	Task
Open	Sorting	Modify
Save	Fields	Suspend
Print		Resume
Exit		Cancel
		Delete

Open

Not implemented yet.

Save

Not implemented yet.

Print

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Not implemented yet.

Exit

This command closes the Task Summary window.

Sorting

This command displays a dialog box to let user choose up to 3 items to sort task items in the task list.

Sort		×
Sort items by	• Ascend	ing
Then by	C Descen	ding
Start Time	C Ascend O Descend	ing ding
Then by Operation	 Ascend Descend 	ing ding
	<u>o</u> k <u>c</u> a	incel

Fields

This command displays a dialog box to let user choose which fields will be shown in the task list.

Fields		×
Available Fields:		Displayed Fields:
Priority	Add	Operation
Remaining	Remove	Progress Status Task Parameters Start Time End Time
<u>0</u> K	Apply	<u>C</u> ancel

Modify

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🙀 Task Summary						
File Options Task						
Operation	Status	Parameters		Start Time		End Time
Create RAID Group	Complet	Raid Group 0		4/30/04 9:51	1:03 AM	4/30/04 9:51:03 AM
Create RAID Group	Complet	Raid Group 1		4/30/04 9:51	1:15 AM	4/30/04 9:51:15 AM
Create RAID Group	Complet	Raid Group 2		4/30/04 10:0	00:56 AM	4/30/04 10:00:56 AM
Delete RAID Group	Complet	Raid Group 0		4/30/04 10:0	01:06 AM	4/30/04 10:01:06 AM
Delete RAID Group Me	Complet	Raid Group 0		4/30/04 10:0	04:04 AM	4/30/04 10:04:04 AM
Delete RAID Group Me	Failed	Raid Group 0		4/30/04 10:0	14-04, AM	4/30/04 10:04:04 AM
Create RAID Group	(Modify Ta	isk Parameters			🗡 AM	4/30/04 10:22:43 AM
Delete RAID Group	(AM	4/30/04 10:23:49 AM
Delete RAID Group	C _Task	Parameters —			AM	4/30/04 10:23:57 AM
Delete RAID Group			10		AM	4/30/04 10:23:57 AM
Create RAID Group	C Dyn	amic Priority:	10		AM	4/30/04 10:24:11 AM
Create RAID Group					AM	4/30/04 10:24:21 AM
Delete RAID Group Me	(AM	4/30/04 10:24:50 AM
Rebuild RAID Group	(-	1	AM I	4/30/04 10:33:06 AM
Delete RAID Group Me	(OK	Cance	AM AM	4/30/04 10:53:36 AM
Rebuild RAID Group					AM	4/30/04 10:54:48 AM
Rebuild RAID Group	Active	Raid Group 1		4/30/04 10:5	58:49 AM	
Task Count: 17						

This command allows user to modify parameters of the selected task items. The following is an example of changing rebuild priority for a rebuild task.

Suspend

This command allows user to suspend the selected task items.

Resume

This command allows user to resume the suspended task items.

Cancel

This command allows user to cancel the selected task items.

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🙀 Task Summary				
File Options Task				
Operation	Parameters	Start Time	End Time	
Create RAID Group	Raid Group 0	4/30/04 9:51:03 AM	4/30/04 9:51:03 AM	
Create RAID Group	Raid Group 1	4/30/04 9:51:15 AM	4/30/04 9:51:15 AM	
Create RAID Group	Raid Group 2	4/30/04 10:00:56 AM	4/30/04 10:00:56 AM	
Delete RAID Group	Raid Group 0	4/30/04 10:01:06 AM	4/30/04 10:01:06 AM	
Delete RAID Group Memb	Raid Group 0	4/30/04 10:04:04 AM	4/30/04 10:04:04 AM	
Delete RAID Group Memb	Raid Group 0	4/30/04 10:04:04 AM	4/30/04 10:04:04 AM	
Create RAID Group	Raid Group 1	4/30/04 10:22:43 AM	4/30/04 10:22:43 AM	
Delete RAID Group	Cancel Task Verification		4/30/04 10:23:49 AM	
Delete RAID Group	concer rusk vermeation		4/30/04 10:23:57 AM	
Delete RAID Group	\bigcirc		4/30/04 10:23:57 AM	
Create RAID Group	Are you sure you wa	ant to cancel this task?	4/30/04 10:24:11 AM	
Create RAID Group	·		4/30/04 10:24:21 AM	
Delete RAID Group Memb	Yes	No	4/30/04 10:24:50 AM	
Rebuild RAID Group			4/30/04 10:33:06 AM	
Delete RAID Group Memb	Raid Group U	4/30/04 10:53:36 AM	4/30/04 10:53:36 AM	
Rebuild RAID Group	Raid Group 1	4/30/04 10:54:03 AM		
Task Count: 16				

Delete

This command displays a dialog box to let user delete the selected task items from the task list in Task Summary window. The following dialog box will pop up to get confirmation from the user.



8.2.12 Event Log

This command displays the Event Log window. The Event Log window displays SATA device-related events that occur while SATARAID5 is running.

Fvent Log			
File Options			
Event	EventType	EventLevel	EventMessage
0	Application	Normal	Database initialized
1	Controller	Normal	4/6/04 12:31:52 PM Begin gro
2	Controller	Normal	4/6/04 12:31:52 PM Initializatio
3	Controller	Normal	4/6/04 12:31:52 PM Initializatio
4	Device	Normal	4/6/04 3:24:06 PM Segment cr
5	Device	Normal	4/6/04 3:24:06 PM Segment cr
6	RAID	Normal	4/6/04 3:24:06 PM_Start Creat
7	Raid	Normal	4/6/04 3:24:06 PM Configure
8	Raid	Normal	4/6/04 3:31:19 PM Delete RAI
9	RAID	Warning	4/6/04 3:31:19 PM_Globals: M
10	Device	Normal	4/6/04 3:31:19 PM Segment d
11	RAID	Warning	4/6/04 3:31:19 PM_Globals: M
12	Device	Normal	4/6/04 3:31:19 PM Segment d
13	RAID	Warning	4/6/04 3:31:19 PM_Globals: Gr
14	Controller	Normal	4/7/04 9:04:26 AM Begin grou
15	Controller	Normal	4/7/04 9:04:26 AM Initialization
16	Controller	Normal	4/7/04 9:04:26 AM Initialization
17	Device	Normal	4/7/04 2:25:32 PM Segment cr
18	Device	Normal	4/7/04 2:25:32 PM Segment cr
19	RAID	Normal	4/7/04 2:25:32 PM_Start Creat
20	Raid	Normal	4/7/04 2:25:32 PM Configure
21	Raid	Normal	4/7/04 2:25:33 PM Configure
22	XML	Warning	4/7/04 2:25:33 PM_XML SYNTA
23	Device	Normal	4/7/04 2:26:38 PM Segment cr 💌
Event Count: 11	4		

The Event Log window has it's own menu bar. All options available via the menu bar are shown below

File	Options
Exit	Sorting
	Fields

Exit

This command closes the Event Log window.

Sorting

This command displays a dialog box to let user choose up to 3 items to sort event items in the event log.

Sort		×
Sort items by		
Event		Ascending
		C Descending
Then by		
EventType		Ascending
		C Descending
Then by		
Eventi evel		Ascending
	_	C Descending
	<u> </u>	<u>C</u> ancel

Fields

This command displays a dialog box to let user choose which fields will be shown in the event log.

Fields	×
Available Fields:	Add Event Remove EventLevel EventMessage
<u>O</u> K <u>Apply</u>	, <u>C</u> ancel

8.2.13 I/O Statistics

Not implemented yet.

8.2.14 Resources

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Resource (File Display	Information	
Resource	Current	Maximum
DSRB	-26	32
QSRB	9	40
TDB	0	64
DSD	8	160
DBD	1	32
	A	ctive

8.2.15 Create Legacy RAID Group

This command displays a dialog box to let user create legacy RAID group. This item is disabled if new RAID groups exist. User needs to select the following parameters:

RAID Group:	Select a group ID from the available ID list
Configuration:	Striped (for RAID 0)
	Mirrored (for RAID 1)
	Mirrored Striped (for RAID 10)
	Parity RAID (for RAID 5)
Capacity:	Select from a list of RAID group size, current options are from 256 MB to 100 GB, and MAX.
Chunk Size:	Select one from the available list: 8, 16, 32, 64, 128 (KB). RAID 1 set does not require this.
Devices:	Select RAID member devices from the available device segment list

Cro	eate Lega	y RAID 6	Group		X
	Paramete	ers			
	RAID Gr	oup:	0		-
	Configu	ration:	Strip	•	
	Capacity	<i>r</i> .	2 G	3	•
	Chunk Size:		161	<b< th=""><th>•</th></b<>	•
	Rebuild	Priority:	10		•
	L				
	Device	Capacit	y Starting LE		3N
	0	57.26 G	в	00000000	
	1	76.33 G	В	00000000	
	2	27.95 G	В	00000000	
	3	27.95 G	В	00000000	
		Cr <u>e</u> ate		Close	

8.2.16 Rebuild Legacy RAID Group

This command displays a dialog box to let user choose a replacement segment to rebuild a non-fault tolerant legacy RAID group.

Re	ebuild Legacy RAID Group						×		
	Select a Mer	nber to Re	build:			Select a	Replacement Se	egment:	
	RAID Group	Member	Status	Capacity		Device	Status	Capacity	T
	0	0	Failed	2.0 GB		0	Available	57.26 GB	
						2	Available	27.95 GB	
						3	Available	27.95 GB	
				<u>R</u> ebuild	<u>c</u>	ancel			

8.2.17 Delete Legacy RAID Group

This command displays a dialog box to let user choose legacy RAID groups to delete. This item is disabled if no legacy RAID groups exist.

De	Delete Legacy RAID Group						
	Select RAID Groups(s):						
	Raid Group	Configu	iration	Status	Ī		
	0	Striped		Online			
	ļ 			-			
	D	elete	Cancel				

8.2.18 Convert Legacy RAID Group

This command displays a dialog box to let user choose legacy RAID groups to convert to new RAID groups of the same RAID type (configuration). This item is disabled if no legacy RAID groups exist.

Co	onvert Legacy RAID Group						
	Select RAID) Groups	(s):				
	Raid Group	Configu	iration	Status	Ī		
	0	Striped		Online			
	Co	nvert	Cance	i			

8.2.19 Create Legacy Spare

This command displays a dialog box to let user create legacy spare drive. This item is disabled if new RAID groups exist.

Cr	Create Legacy Spare 🛛 🔀							
	Parameters							
	Capacity: 1 GB							
	Device Capacity Starting LBN							
	2	27.95 GB	00000000					
	3	27.95 GB	00000000					
		Cr <u>e</u> ate	Close					

8.2.20 Delete Legacy Spare

This command displays a dialog box to let user delete legacy spare drive. This item is disabled if no legacy spare drive exists.

De	Delete Legacy Spare							
	Se	lect Spare(s):						
	Device	Туре	Starting LBN	Capacity	Ī			
	1	Legacy Spare	00000000	1.0 GB				
		Delete	Cancel					

8.2.21 Convert Legacy Spare

This command displays a dialog box to let user choose legacy spare drives to convert to new spare drives. This item is disabled if no legacy spare drives exist.

Co	Convert Legacy Spare							
	Select Spare(s):							
	Device	Туре	Starting LBN	Capacity				
	0	Legacy Spare	00000000	2.0 GB]			
		Convert	Cancel					

8.2.22 Help Topics

This command opens an interactive help dialog using the standard Windows help interface.

Not implemented yet.

8.2.23 About

This command displays a dialog box with more information about the SATARAID5 program, including the revision level.

