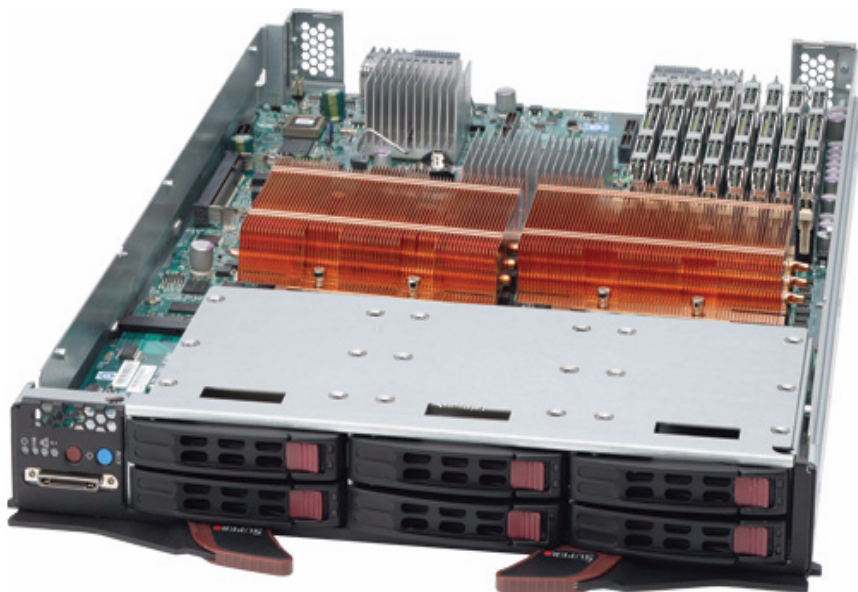


SUPERMICR[®]

SBI-7125W-S6 Blade Module



RAID Setup Procedure

Revision 1.0

SBI-7125W-S6 Blade Module RAID Setup Procedure

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Manual Revision 1.0

Release Date: March 31, 2008

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SBI-7125W-S6

RAID Setup Procedure

1. Installing the Operating System

An operating system (OS) must be installed on each blade module. Unlike most blade systems, blades with Microsoft Windows OS and blades with Linux OS can both occupy and operate within the same blade enclosure. Refer to the Supermicro web site for a complete list of supported operating systems.

There are several methods of installing an OS to the blade modules.

Installing with an External USB CD-ROM Drive

The most common method of installing the OS is with an external USB CD-ROM drive. Take the following steps to install the OS to a blade module:



WARNING: Installing the OS from an external CD-ROM drive may take several hours to complete.

1. Connect an SUV cable (Serial port/USB port/Video port cable) to the KVM connector on the front of the blade module. You will then need to attach a USB hub to the USB port on this cable to provide multiple USB ports.
2. Connect the external CD-ROM drive, a USB keyboard and a mouse to the USB hub. You will also need to connect a monitor to the video connector on the SUV cable. Turn on the blade module.
3. Insert the CD containing the OS into the CD-ROM drive.
4. Follow the prompts to begin the installation.

Installing via PXE Boot

PXE (Preboot Execution Environment) is used to boot a computer over a network. To install the OS via PXE, the following conditions must be met:

1. The PXE BOOT option in BIOS must be enabled.
2. A PXE server has been configured (this can be another blade in the system).
3. The PXE server must be connected over a network to the blade to be booted.
4. The blade has only non-partitioned/unformatted hard drives installed and no bootable devices attached to it.

Once these conditions are met, make sure the PXE server is running then turn on the blade you wish to boot and/or install the OS to. The BIOS in the blade will look at all bootable devices and finding none will connect to the PXE server to begin the boot/install.

Installing via Virtual Media (Drive Redirection)

You can install the OS via Virtual Media through either the IPMI or the Web-based Management utility. With this method, the OS is installed from an ISO image that resides on another system/blade. Refer to the appropriate Appendix in the *SuperBlade User's Guide* for the Virtual Media (CD-ROM or Drive Redirection) sections in either of the two utility programs.

2. Management Software

System management may be performed with either of two software packages: IPMI or a Web-based Management utility. Both are designed to provide an administrator with a comprehensive set of functions and monitored data to keep tabs on the system and perform management activities.

Refer to *Chapter 8, SuperBlade User's Guide* for details on the various functions provided by these management programs.

3. RAID Setup for the SBI-7125W-S6 Blade Module

RAID setup for the SBI-7125W-S6 blade module is done using the MegaRAID Storage Manager software utility.

MegaRAID Storage Manager software is a configuration and monitoring utility used with the Embedded MegaRAID Software. This section provides a brief overview of the MegaRAID Storage Manager software and explains how to install it on the supported operating systems.

4. MegaRAID Storage Manager Software Overview

MegaRAID Storage Manager software enables you to configure, monitor, and maintain storage configurations created under Embedded MegaRAID Software. The MegaRAID Storage Manager graphical user interface (GUI) makes it easy for you to create and manage storage configurations.



NOTE: MegaRAID Storage Manager software can be used to manage a wide range of MegaRAID controllers. Some MegaRAID Storage Manager software features are not applicable for Embedded MegaRAID Software.

Creating Storage Configurations

MegaRAID Storage Manager software enables you to easily configure the controllers, disk drives, and virtual disks on your workstation or server. The Configuration Wizard greatly simplifies the process of creating arrays and virtual disks.

You can use the Configuration Wizard Auto Configuration mode to automatically create the best possible configuration with the available hardware. You can use the Guided Configuration mode, which asks you a few brief questions about the configuration, and then creates it for you. Or you can use the Manual Configuration mode, which gives you complete control over all aspects of the storage configuration.

Monitoring Storage Devices

MegaRAID Storage Manager software displays the status of virtual disks, physical disks, and other storage devices on the workstation or server that you are monitoring. System errors and events are recorded in an event log file and are displayed on the screen. Special device icons appear on the screen to notify you of disk failures and other events that require immediate attention.

Maintaining Storage Configurations

You can use MegaRAID Storage Manager software to perform system maintenance tasks such as running consistency checks on arrays that support redundancy.

Hardware and Software Requirements

The hardware requirements for MegaRAID Storage Manager software are as follows:

- PC-compatible computer with an IA-32 (32-bit) Intel Architecture processor or an EM64T (64-bit) processor and at least 128 Mbytes of system memory (256 Mbytes recommended)
- Hard disk drive with at least 50 Mbytes available free space

The supported operating systems for the MegaRAID Storage Manager software are as follows:

- Microsoft Windows 2000, Microsoft Windows Server 2003, and Microsoft Windows XP.
- Red Hat Linux (3.0 or 4.0)
- SUSE SLES 9 with latest updates and service packs

Refer to your server documentation and to the operating system documentation for more information on hardware and operating system requirements.

5. MegaRAID Storage Manager Software Installation

This section explains how to install (or reinstall) MegaRAID Storage Manager software on your workstation or server.

This installation supports the following operating systems:

- Microsoft Windows
- Red Hat Linux
- SUSE Linux. 5.3.1

Installing MegaRAID Storage Manager for Microsoft Windows

Follow the below steps to install MegaRAID Storage Manager software on a system running Microsoft Windows 2000, Microsoft Windows Server 2003, or Microsoft Windows XP:

1. Insert the MegaRAID Storage Manager software installation CD in the CD-ROM drive. If necessary, find and double-click the *setup.exe* file to start the installation program.
2. When the WELCOME screen appears, click NEXT. If MegaRAID Storage Manager software is already installed on this system, the PROGRAM MAINTENANCE screen appears. Read the screen text and select MODIFY, REPAIR or REMOVE.
3. When the next screen appears, read and accept the user license, and click NEXT.

The CUSTOMER INFORMATION screen appears (Figure 1).

Figure 1. Customer Information Screen

Customer Information

Please enter your information.

User Name:
Administrator

Organization:
MegaComputer

Allow availability of this application for:

All users

Only for current user (Administrator)

InstallShield

< Back Next > Cancel

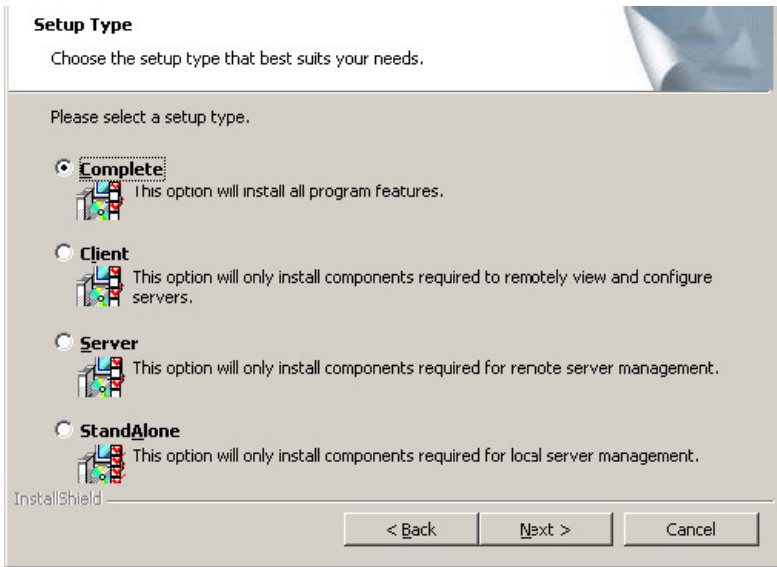
4. In the CUSTOMER INFORMATION screen enter your user name and organization name. In the bottom part of the screen select an installation option:
 - If you select ALL USERS, any user with administrative privileges can use this version of MegaRAID Storage Manager software to view or change storage configurations.
 - If you select ONLY FOR CURRENT USER (ADMINISTRATOR), the MegaRAID Storage Manager shortcuts and associated icons will be available only to the user with this user name.

Click NEXT to continue.

5. On the next screen, accept the default Destination Folder, or click CHANGE to select a different destination folder. Click NEXT to continue.

The SETUP TYPE screen appears (Figure 2).

Figure 2. Setup Type Screen



6. In the SETUP TYPE screen select one of the Setup options. The options are fully explained in the screen text.
 - Select COMPLETE if you are installing MegaRAID Storage Manager software on a server.
 - Select CLIENT if you are installing MegaRAID Storage Manager software on a PC that will be used to view and configure servers over a network.
 - Select SERVER to install only those components required for remote server management.
 - Select STANDALONE if you will use MegaRAID Storage Manager software to create and manage storage configurations on a standalone workstation.

Click NEXT to proceed.

7. Click INSTALL in the next screen to install the program.
8. Click FINISH when the final CONFIGURATION WIZARD screen appears.

If you select CLIENT installation for a PC used to monitor servers, and if there are no available servers with a registered framework on the local subnet (that is, servers with a complete installation of MegaRAID Storage Manager software), then you cannot connect to a remote server unless you first edit the *startupui.bat* file. Specifically, you must add the IP address of the remote server to the end of the *startupui.bat* file.

For example, to connect to a remote framework on server 192.168.0.10, add the IP address to the end of *startupui.bat* as shown in this example:

```
start JRE\bin\javaw -classpath .;GUI.jar
GUI.VivaldiStartupDialog ajsgyqkj=71244 192.168.0.10
```

Be sure to include a space in front of the IP address, as shown in the above example.

Installing MegaRAID Storage Manager for Linux

Follow the steps below if you need to install MegaRAID Storage Manager software on a system running Red Hat Linux or SUSE Linux:

1. Copy the *SSM_linux_installer...tar.gz* file to a temporary folder.
2. Untar the *SSM_linux_installer...tar.gz* file using the following command:

```
tar -zxvf SSM_linux_installer...tar.gz
```

A new disk directory is created.

3. Go to the new disk directory.
4. In the disk directory, find and read the *readme.txt* file.
5. To start the installation, enter the following command:

```
./install.sh
```

If you select Client installation for a PC used to monitor servers, and if there are no available servers with a registered framework on the local subnet (that is, servers with a complete installation of MegaRAID Storage Manager software), you cannot connect to a remote server unless you first edit the *startupui.sh* file. Specifically, you must add the IP address of the remote server to the end of the *startupui.sh* file.

For example, to connect to a remote framework on server 192.168.0.10, add the IP address to *startupui.sh* as shown in this example:

```
start JRE\bin\javaw -classpath .;GUI.jar GUI.VivaldiStartup-  
Dialog ajsgyqkj=71244 192.168.0.10
```

Be sure to include a space in front of the IP address, as shown in the above example.

Linux Error Messages

One or more of the following messages may appear while you are installing MegaRAID Storage Manager software on a Linux system:

- More than one copy of MegaRAID Storage Manager software has been installed.
This message indicates that the user has installed more than one copy of MegaRAID Storage Manager software. (This can be done by using the *rpm-force* command to install the *rpm* file directly, which is not recommended, instead of using the *install.sh* file.) In such cases, the user must uninstall all the *rpm* files manually before installing MegaRAID Storage Manager software with the procedure listed previously.
- The version is already installed.
This message indicates that the version of MegaRAID Storage Manager software you are trying to install is already installed on the system.
- The installed version is newer.
This message indicates that a version of MegaRAID Storage Manager software is already installed on the system, and it is a newer version than the version you are trying to install.
- Exiting installation.
This is the message that appears when the installation is complete.
- RPM installation failed.
This message indicates that the installation failed for some reason.

Additional message text explains the cause of the failure.

6. MegaRAID Storage Manager Window and Menus

This chapter explains how to start MegaRAID Storage Manager software and describes the MegaRAID Storage Manager window and menus.

Starting MegaRAID Storage Manager Software

Follow these steps to start MegaRAID Storage Manager software and view the main window:

1. Start the program using the method required for your operating system environment:
 - To start MegaRAID Storage Manager software on a Microsoft Windows system, select START→PROGRAMS→MEGARAID STORAGE MANAGER→STARTUPUI or double-click the MEGARAID STORAGE MANAGER shortcut on the desktop.

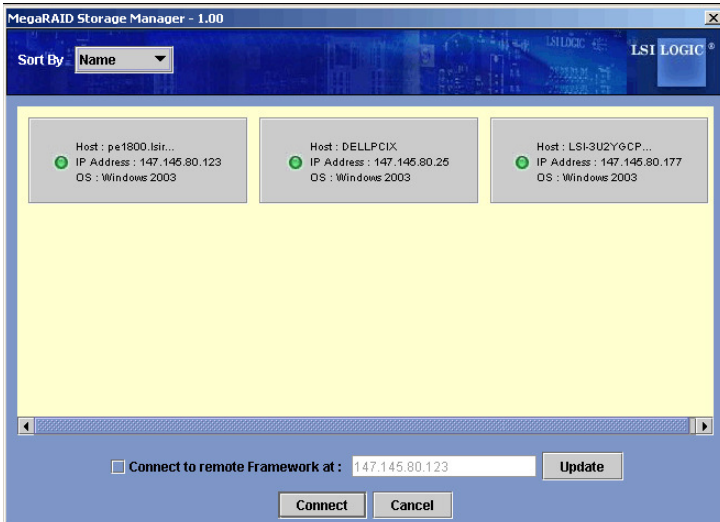


NOTE: If a warning appears stating that Windows Firewall has blocked some features of the program, click UNBLOCK to allow MegaRAID Storage Manager software to start. The Windows Firewall sometimes blocks the operation of programs that use Java.

- To start MegaRAID Storage Manager software on a Red Hat Linux system, select APPLICATIONS→SYSTEM TOOLS→MEGARAID STORAGE MANAGER STARTUPUI.
- To start MegaRAID Storage Manager software on a SUSE SLES 9 system, select START→SYSTEM→MORE PROGRAMS→MEGARAID STORAGE MANAGER.

When the program starts, the SELECT SERVER window appears ([Figure 3](#)).

Figure 3. Select Server Window



2. In the SELECT SERVER window if the circle in the server icon is yellow instead of green, it means that the server is running in a degraded state—for example, because a disk drive used in a virtual disk has failed. If the circle is red, the storage configuration in the server has failed.

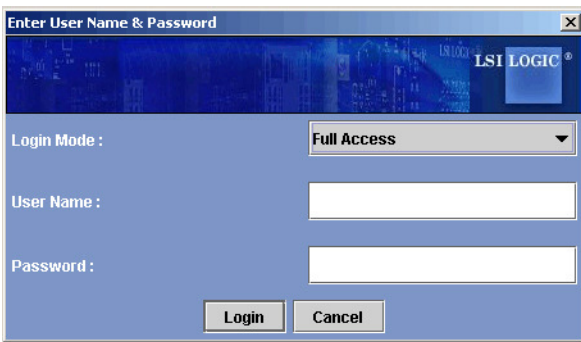


NOTE: To access servers on a different subnet, type in the box at the bottom of the screen the IP address of a server in the desired subnet where MegaRAID Storage Manager software is running, and click UPDATE. If you check the CONNECT TO REMOTE FRAMEWORK box, you can also access a standalone installation of MegaRAID Storage Manager software, if it has a network connection.

Double-click the icon of the server that you want to access.

The SERVER LOGIN WINDOW appears (Figure 4).

Figure 4. Server Login Window



3. In the SERVER LOGIN window do the following:
 - a. Select an access mode from the drop-down menu.
 - Select FULL ACCESS if you need to both view the current configuration and change the configuration.
 - Select VIEW ONLY if you need to only view and monitor the configuration.
 - b. Enter your user name and password, and click LOGIN.

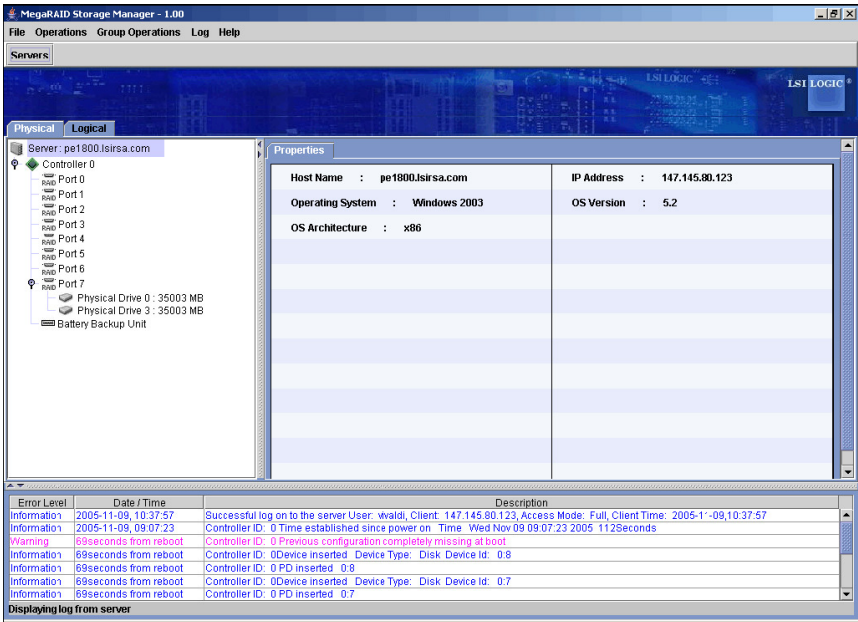


NOTE: If the computer is networked, this is the login to the computer itself, not the network login.

You must enter the root/administrator user name and password to use Full Access mode. If your user name and password are correct for the Login mode you have chosen, the main MEGARAID STORAGE MANAGER window appears (see Figure 5).

MegaRAID Storage Manager Window

Figure 5. MegaRAID Storage Manager Window



This section describes the MEGARAID STORAGE MANAGER window (Figure 5).

The following topics describe the panels and menu options that appear in this window.

Physical/Logical View Panel

The left panel of the MegaRAID Storage Manager window displays either the PHYSICAL view or the LOGICAL view of the system and the devices in it, depending on which tab is selected.

- The PHYSICAL view shows the hierarchy of physical devices in the system. At the top of the hierarchy is the system itself. One or more controllers are installed in the system. Each controller has one or more ports. Disk drives and other devices are attached to the ports.
- The LOGICAL view shows the hierarchy of controllers, virtual disks, and disk groups that are defined on the system. (Physical drives also appear in the LOGICAL view, so you can see which physical drives are used by each virtual disk.)

The following icons in the left panel represent the controllers, disk drives, and other devices:

- System
- Controller
- Port
- Array
- Virtual disk
- Physical drive

A red circle to the right of an icon indicates that the device has failed.

A yellow circle to the right of an icon indicates that a device is running in a degraded state.

Properties/Operations/Graphical View Panel

The right panel of the MegaRAID Storage Manager window has either two or three tabs, depending on what kind of device is selected in the left panel.

- The PROPERTIES tab displays information about the selected device. For example, if a controller icon is selected in the left panel, the PROPERTIES tab lists information such as the controller name and the device port count.
- The OPERATIONS tab lists the operations that can be performed on the device that is selected in the left panel. Some types of devices, such as arrays and ports, do not have operations associated with them.
- The GRAPHICAL VIEW tab can be selected in the right panel if a physical drive or virtual disk is selected in the left panel. In graphical view, the device's storage capacity is color coded according to the legend shown on the screen. For example, on a physical drive configured space is blue, available space is white, and reserved space is red.

Event Log Panel

The lower part of the MegaRAID Storage Manager window displays the system event log entries. New event log entries appear during the session. Each entry has a timestamp and date, an error level indicating the severity of the event, and a brief description of the event.

Menu Bar

Below are brief descriptions of the main selections on the MEGARAID STORAGE MANAGER menu bar's menus.

File Menu

The FILE menu has an EXIT option for exiting from the MegaRAID Storage Manager software. It also has a RESCAN option for updating the display in the MegaRAID Storage Manager window. (RESCAN is seldom required; the display normally updates automatically.)

Operations Menu

The OPERATIONS menu is available when a controller, physical drive, or logical drive is selected in the MEGARAID STORAGE MANAGER window. The OPERATIONS menu options vary depending on what type of device is selected in the left panel of the MEGARAID STORAGE MANAGER window. The options also vary depending on the current state of the selected device. For example, if you select an off line physical drive, the MAKE DRIVE ONLINE option appears in the OPERATIONS menu.

You can also view the Operations selections on the main window on the OPERATIONS tab in the right panel. If an operation requires user inputs before it can be executed, it appears in the OPERATIONS tab but not in the OPERATIONS menu. A device-specific OPERATIONS menu pops up if you right-click a device icon in the left panel.

An ADVANCED OPERATIONS submenu is also available. This is where you access the Configuration Wizard and other configuration-related commands. To access this menu, select OPERATIONS→ADVANCED OPERATIONS.

Group Operations Menu

The GROUP OPERATIONS menu options include CHECK CONSISTENCY, INITIALIZE, and SHOW PROGRESS.

Log Menu

The LOG menu includes options for saving and clearing the message log.

Help Menu

On the HELP menu you can select HELP to view the MegaRAID Storage Manager software online help file. You can select HELP, ABOUT to view version information for the MegaRAID Storage Manager software.



NOTE: When you use the MegaRAID Storage Manager software online help, you may see a warning message that Internet Explorer has restricted the file from showing active content. If this warning appears, click on the active content warning bar and enable the active content.

7. Configuration

You use MegaRAID Storage Manager software to create and modify storage configurations. RAID 0, RAID 1, RAID 5, RAID 6, RAID 10, RAID 50, and RAID 60 storage configurations are supported.



WARNING: LSI recommends that you do not use both SAS and SATA drives in the same array. Using different drive interfaces in this way could cause unpredictable behavior, decreased performance, an increased error count, and decreased MTBF.



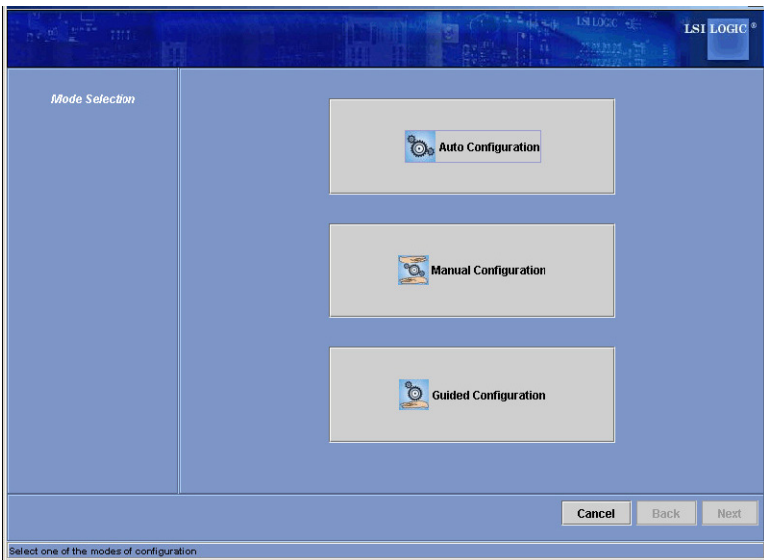
NOTE: You cannot create or modify a storage configuration unless you are logged on with administrator privileges.

Creating a New Storage Configuration

You can use the MegaRAID Storage Manager Configuration Wizard to create new storage configurations. To open the MegaRAID Storage Manager Configuration Wizard, select a controller in the left panel of the MEGARAID STORAGE MANAGER window and then select OPERATIONS→ADVANCED OPERATIONS→CONFIGURATION→CONFIGURATION WIZARD.

The CONFIGURATION WIZARD MODE SELECTION screen appears (Figure 6).

Figure 6. Configuration Wizard Mode Selection Screen



This screen lists three configuration modes that you can select from:

- **AUTO CONFIGURATION** automatically creates an optimal configuration from the available disk drives.
- **MANUAL CONFIGURATION** gives you the greatest level of control in creating a new virtual disk.
- **GUIDED CONFIGURATION** asks you a few simple questions about what kind of configuration you want and then automatically creates it from the available disk drives.



NOTE: You can use AUTO, GUIDED, or MANUAL CONFIGURATION mode to create a RAID 0 or RAID 1 configuration. However to create a RAID 10 configuration, you must use the MANUAL CONFIGURATION mode.

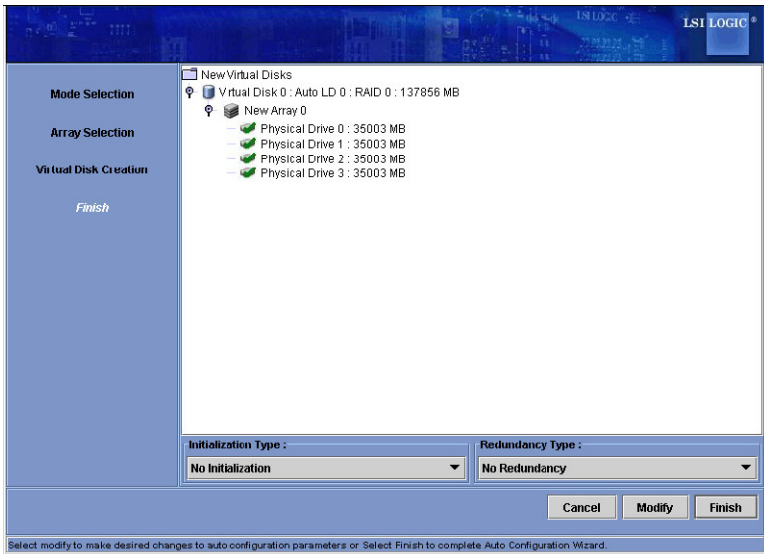
Understanding Virtual Disk Parameters

This section describes the Virtual Disk Parameters that you can set when you use the Guided Configuration or Manual Configuration modes of the Configuration Wizard. You should change these parameters only if you have a specific reason for doing so. It is usually best to leave them at their default settings.

- **Stripe Size:** A stripe size of 64 Kbytes is supported.
- **Disk Cache Policy:** Select a cache setting for this disk: Unchanged, Enabled or Disabled.
- **Init State**
 - **No Initialization:** The new configuration is not initialized and the existing data on the disks is not overwritten.
 - **Fast Initialization:** MegaRAID Storage Manager software quickly writes zeroes to the first and last 8 Mbyte regions of the new virtual disk.
 - **Full Initialization:** A complete initialization is done on the new configuration. This may take a long time if the disks are large.

Using Auto Configuration

Figure 7. Auto Configuration Screen



Selecting AUTO CONFIGURATION mode brings up the AUTO CONFIGURATION screen (Figure 7).

AUTO CONFIGURATION is the quickest and simplest way to create a new storage configuration. When you select AUTO CONFIGURATION mode on the CONFIGURATION WIZARD MODE SELECTION screen, the Configuration Wizard creates the best configuration possible using the available physical disks.

Follow these steps to create a new storage configuration in AUTO CONFIGURATION mode:

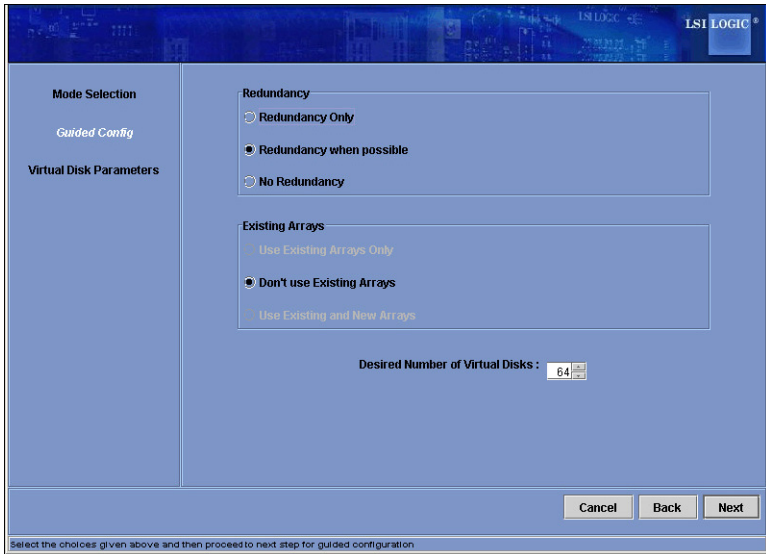
1. Select a redundancy option from the drop-down menu at the bottom of the AUTO CONFIGURATION screen:
 - **No Redundancy:** The new configuration will have no data redundancy (RAID 0). If a physical disk in the configuration fails, all data will be lost.
 - **With Redundancy:** The new configuration will have data redundancy via mirrored data (RAID 1) or via parity data (RAID 5). If a physical disk fails, data is still protected.
2. Select an initialization option from the drop-down menu at the bottom of the screen:
 - **No Initialization:** The new configuration is not initialized, and the existing data on the disks is not overwritten.
 - **Fast Initialization:** MegaRAID Storage Manager software quickly writes zeroes to the first and last 8 Mbyte regions of the new virtual disk.
 - **Full Initialization:** A complete initialization is done on the new configuration. This may take a long time if the disks are large.
3. (Optional) Click MODIFY if you want to switch to MANUAL CONFIGURATION mode so you can modify the suggested Auto Configuration.

When you click MODIFY, the VIRTUAL DISK CREATION screen () appears. Select the new virtual disk, and click RECLAIM. Then select the new array from the ARRAYS WITH FREE SPACE list, and change the virtual disk parameters as needed.

4. Click FINISH. The new storage configuration will be created and initialized (unless you selected NO INITIALIZATION).

Using Guided Configuration

Figure 8. Guided Configuration Screen



Selecting GUIDED CONFIGURATION mode brings up the GUIDED CONFIGURATION screen (Figure 8).

GUIDED CONFIGURATION provides an easy way to create a new storage configuration. Based on the information that is provided, the Configuration Wizard uses the available disk drives to create an optimal storage configuration.

Follow these steps to create a new storage configuration in GUIDED CONFIGURATION mode:

1. Select a redundancy option at the top of the GUIDED CONFIGURATION screen:
 - **Redundancy Only:** Create a configuration only if redundancy (RAID 1 or RAID 5) is possible.
 - **Redundancy when possible:** Create a redundant configuration if possible. Otherwise, create a non-redundant configuration.
 - **No Redundancy:** Create a non-redundant configuration.
2. Choose whether you want to use existing arrays in the new virtual disk. The options are:
 - **Use Existing Arrays Only**
 - **Don't Use Existing Arrays**
 - **Use Existing and New Arrays**

The first and third options are disabled if there are no available existing arrays.

3. Select a maximum number of virtual disks to be created. The Configuration Wizard may not be able to create as many virtual disks as you want, depending on the current configuration and the number of virtual disks that have already been created.
4. Click NEXT to continue to the next VIRTUAL DISK PARAMETERS screen (Figure 9).

Figure 9. Virtual Disk Parameters Screen

The screenshot shows the 'Virtual Disk Parameters' screen for a RAID 0 configuration. The interface includes a left-hand navigation pane with options: 'Mode Selection', 'Guided Config', 'Virtual Disk Parameters' (highlighted), and 'Finish'. The main content area is titled 'RAID 0' and contains the following fields and controls:

- Virtual Disk Count:** 64
- Total Capacity:** 100% (137,856 MB)
- Note:** The capacity mentioned will be used as an approximation while creating the virtual disks.
- Virtual Disk Parameters:**
 - Stripe Size:** 64 K
 - Read Policy:** No Read Ahead
 - Default Write Policy:** Write Through
 - IO Policy:** Direct IO
 - Access Policy:** Read Write
 - Disk Cache Policy:** Unchanged
 - Init State:** No Initialization

At the bottom right of the window, there are three buttons: 'Cancel', 'Back', and 'Next'.

5. Change the default volume parameters in the VIRTUAL DISK PARAMETERS screen, if needed. In the top section of the screen you can specify the number of virtual disks to create. You can also choose to use less than the full capacity of this array for the virtual disk(s).



NOTE: You could do this to leave capacity available for other virtual disks that you create later.

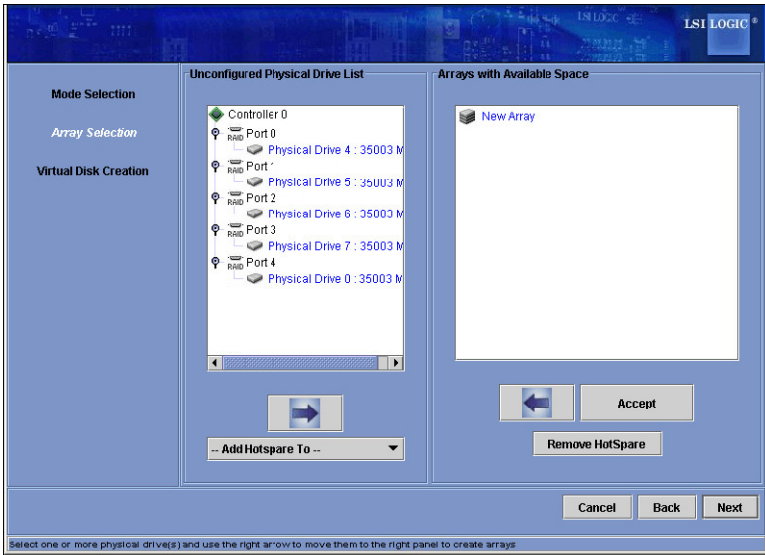
6. Click NEXT to continue to the next screen.
7. Check the configuration that you have just defined. If it is acceptable, click FINISH. If you want to change something, click BACK to return to the previous screens.

Using Manual Configuration: RAID 0

Follow these steps to create a RAID 0 storage configuration using the MANUAL CONFIGURATION mode of the Configuration Wizard.

Figure 10 shows the first, ARRAY SELECTION screen, that appears when you select MANUAL CONFIGURATION.

Figure 10. Array Selection Screen



1. In the ARRAY SELECTION screen, select two or more available drives in the left panel. Click the RIGHT ARROW button to move the selected drives to the right panel.



NOTE: MegaRAID Storage Manager software will not allow you to select the disk drive on which the operating system is installed or any other drives that are already part of a configuration.

2. Click ACCEPT to accept these drives for the new RAID 0 array.

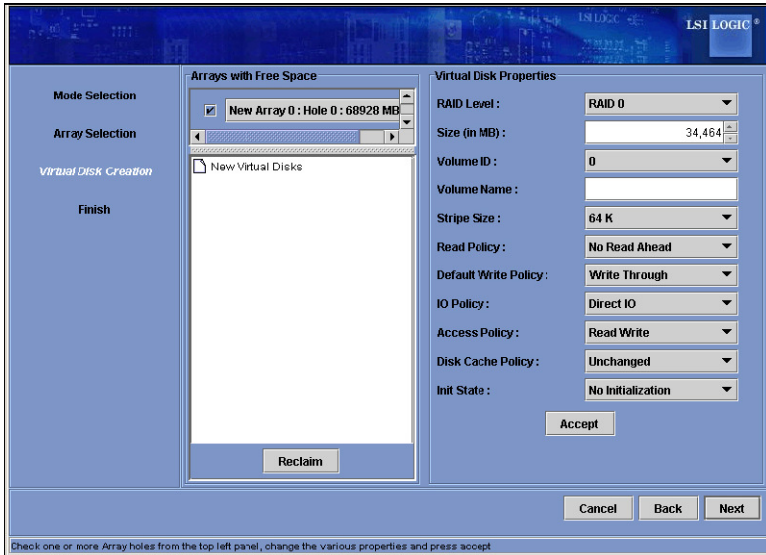


NOTE: To remove a single drive from a proposed new array, select the drive icon in the right panel and click the LEFT ARROW button.

3. Click NEXT.

The VIRTUAL DISK CREATION screen appears, as shown in Figure 11.

Figure 11. Virtual Disk Creation Screen



4. The ARRAYS WITH FREE SPACE menu lists the new array that you just defined, plus any existing arrays with holes (free space) that could be used for a new configuration.

From this menu, select the array to use for the new virtual disk.

5. In the right panel, select RAID 0 as the RAID level.
6. (Optional) Set SIZE (in MB) to a lower number if you do not want to use the entire available capacity for the new virtual disk.
7. (Optional) Change the other VIRTUAL DISK PROPERTIES, if necessary.
8. Click ACCEPT to accept the configuration of the new virtual disk.



NOTE: Click the RECLAIM button if you want to undo a virtual disk that you just defined.

9. Click NEXT to continue with the next configuration step. The VIRTUAL DISK SUMMARY screen appears.
10. Review the configuration shown in the VIRTUAL DISK SUMMARY screen. If you want to change something, click BACK and change the configuration parameters.
11. Click FINISH to accept the configuration and start the initialization process (unless you selected NO INITIALIZATION earlier).

Using Manual Configuration: RAID 1

Follow these steps to create a RAID 1 storage configuration using the MANUAL CONFIGURATION mode of the Configuration Wizard:

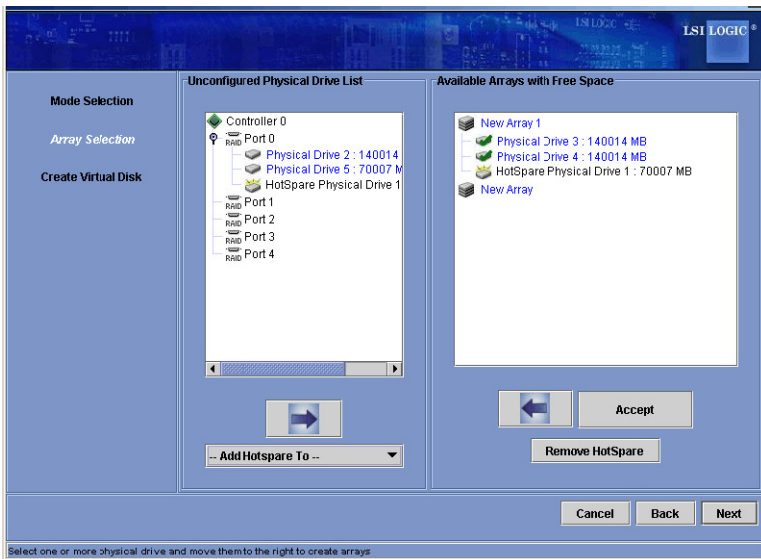
1. In the ARRAY SELECTION screen (Figure 10) select two available drives in the left panel. Click the RIGHT ARROW button to move the selected drives to the right panel.



NOTE: MegaRAID Storage Manager software will not allow you to select the disk drive on which the operating system is installed or any other drives that are already part of a configuration.

2. Click ACCEPT to accept these drives for the new RAID 1 array.
3. To add a hotspare to an array, select an available drive in the left panel. Select the array from the drop-down menu, and click ADD HOTSPARE TO, as shown in Figure 12.

Figure 12. Array Selection Screen – Adding a Hotspare



4. To remove a hotspare from an array, select it in the right panel and click REMOVE HOTSPARE.
5. Click NEXT.

The VIRTUAL DISK CREATION screen appears, as shown in Figure 11.

6. The **ARRAYS WITH FREE SPACE** menu lists the new array(s) that you just defined, plus any existing arrays with holes (free space) that could be used for a new configuration.

Select the array to use for the new virtual disk.

7. In the right panel, select RAID 1 as the RAID level.
8. (Optional) Set **SIZE** (in MB) to a lower number if you do not want to use the entire available capacity for the new virtual disk.
9. (Optional) Change the other **VIRTUAL DISK PROPERTIES**, if necessary.
10. Click **ACCEPT** to accept the configuration of the new virtual disk.



NOTE: Click the **RECLAIM** button if you want to undo a virtual disk that you just defined.

11. Click **NEXT** to continue with the next configuration step.

The **VIRTUAL DISK SUMMARY** window appears.

12. Review the configuration shown in the window. If you want to change something, click **BACK** and change the configuration parameters.
13. Click **FINISH** to accept the configuration and start the initialization process (unless you selected **NO INITIALIZATION** earlier).

Using Manual Configuration: RAID 5

Follow these steps to create a RAID 5 storage configuration using the **MANUAL CONFIGURATION** mode of the Configuration Wizard.

1. In the **ARRAY SELECTION** screen ([Figure 10](#)), select three available drives in the left panel. Click the **RIGHT ARROW** button to move the selected drives to the right panel.



NOTE: MegaRAID Storage Manager software will not allow you to select the disk drive on which the operating system is installed or any other drives that are already part of a configuration.

2. Click **ACCEPT** to accept these drives for the new RAID 5 array.



NOTE: To remove a single drive from a proposed new array, select the drive icon in the right panel and click the **Left Arrow** button.

3. Click **NEXT**.

The **VIRTUAL DISK CREATION** screen appears ([Figure 11](#)).

4. The **ARRAYS WITH FREE SPACE** menu lists the new array that you just defined, plus any existing arrays with holes (free space) that could be used for a new configuration.

From the **ARRAYS WITH FREE SPACE** menu, select the array to use for the new virtual disk.

5. In the right panel, select **RAID 5** as the RAID level.
6. (Optional) Set **SIZE** (in MB) to a lower number if you do not want to use the entire available capacity for the new virtual disk.
7. (Optional) Change the other **VIRTUAL DISK PROPERTIES**, if necessary.
8. Click **ACCEPT** to accept the configuration of the new virtual disk.



NOTE: Click the **RECLAIM** button if you want to undo a virtual disk that you just defined.

9. Click **NEXT** to continue with the next configuration step.
The **VIRTUAL DISK SUMMARY** window appears.
10. Review the configuration shown in the **VIRTUAL DISK SUMMARY** window. If you want to change something, click **BACK** and change the configuration parameters.
11. Click **FINISH** to accept the configuration and start the initialization process (unless you selected **NO INITIALIZATION** earlier).

Using Manual Configuration: RAID 10

Follow these steps to create a RAID 10 storage configuration using the **MANUAL CONFIGURATION** mode of the Configuration Wizard:

1. In the **ARRAY SELECTION** screen ([Figure 10](#)) select two available drives in the left panel. Click the **RIGHT ARROW** button to move the selected drives to the right panel.
2. Click **ACCEPT** to accept these drives for a new RAID 1 array.
3. Select two more drives for a second RAID 1 array, and click **ACCEPT**.
4. To add a hotspare, select an available drive in the left panel, select the array from the drop-down menu and click **ADD HOTSPARE TO**, as shown in [Figure 12](#).
5. To remove a hotspare from an array, select it in the right panel and click **REMOVE HOTSPARE**.
6. Click **NEXT**.

The **VIRTUAL DISK CREATION** screen appears ([Figure 11](#)).

7. The **ARRAYS WITH FREE SPACE** menu lists the new array that you just defined, plus any existing arrays with holes (free space) that could be used for a new configuration.

In the left panel, select the two RAID 1 arrays from the menu.

8. In the right panel, select RAID 10 as the RAID level.
9. Click ACCEPT to accept the configuration of the new virtual disk.



NOTE: Click the RECLAIM button if you want to undo a virtual disk that you just defined.

10. Click NEXT to continue with the next configuration step. The VIRTUAL DISK SUMMARY window appears.
11. Review the configuration shown in the window. If you want to change something, click BACK and change the configuration parameters.
12. Click FINISH to accept the configuration and start the initialization process (unless you selected NO INITIALIZATION earlier).

Using Manual Configuration: RAID 50

Follow these steps to create a RAID 50 storage configuration using the MANUAL CONFIGURATION mode of the Configuration Wizard:

1. In the ARRAY SELECTION screen ([Figure 10](#)) select two available drives in the left panel. Click the RIGHT ARROW button to move the selected drives to the right panel.
2. Click ACCEPT to accept these drives for a new RAID 5 array.
3. Select two more drives for a second RAID 5 array, and click ACCEPT.
4. To add a hotspare, select an available drive in the left panel. Select the array from the drop-down menu, and click Add Hotspare To, as shown in [Figure 6-7](#).
5. To add a hotspare, select an available drive in the left panel, select the array from the drop-down menu and click ADD HOTSPARE TO, as shown in [Figure 12](#).
6. To remove a hotspare from an array, select it in the right panel and click REMOVE HOTSPARE.
7. Click NEXT.

The VIRTUAL DISK CREATION screen appears ([Figure 11](#)).

8. The ARRAYS WITH FREE SPACE menu lists the new array that you just defined, plus any existing arrays with holes (free space) that could be used for a new configuration.

In the left panel, select the two RAID 5 arrays from the menu.

9. In the right panel, select RAID 50 as the RAID level.

For a RAID 10 array, the entire capacity of the array is automatically used for the new virtual disk. You cannot define another virtual disk on this array.

10. (Optional) Change the other VIRTUAL DISK PROPERTIES, if necessary. For more information, see "[Understanding Virtual Disk Parameters](#)".

Adding Hotspare Disks

Hotspares are disk drives that are available to automatically replace failed drives in a RAID 1, RAID 5, RAID 6 RAID 10, RAID 50, and RAID 60 virtual disk. Each virtual disk can have one dedicated hotspare.

For more information, see the LSI documentation and software Help file for more information.

To add a global hotspare disk, follow these steps:

1. In the left panel of the MegaRAID Storage Manager window, right click the icon of any unused disk drive.
2. Select MAKE GLOBAL HOTSPARE.

Changing Adjustable Task Rates

Follow these steps if you need to change the adjustable rates for rebuilds and other system tasks that run in the background:



NOTE: LSI recommends that you leave the adjustable task rates at their default settings to achieve the best system performance. If you raise the task rates above the defaults, foreground tasks will run more slowly and it may seem that the system is not responding. If you lower the task rates below the defaults, rebuilds and other background tasks may run very slowly and may not complete within a reasonable time. If you decide to change the values, record the original default value here so you can restore them later, if necessary:

- Rebuild Rate: _____
- Background Initialization (BGI) Rate: _____
- Check Consistency Rate: _____

1. Select the PHYSICAL VIEW tab in the left panel of the MEGARAID STORAGE MANAGER window, and select a controller icon.
2. In the right panel of the MEGARAID STORAGE MANAGER window, select the OPERATIONS tab, and select SET ADJUSTABLE TASK RATES.

The task rates appear in the right panel.

3. Enter changes, as needed, to the task rates for REBUILD RATE, BACKGROUND INITIALIZATION (BGI) RATE (for fast initialization), and CHECK CONSISTENCY RATE (for consistency checks).

Each task rate can be set from 0 to 100. The higher the number, the faster the activity will run in the background, possibly impacting other system tasks.

4. Click Go to accept the new task rates.
5. When the warning message appears, click OK to confirm that you want to change the task rates.

Changing Virtual Disk Properties

You can change a virtual disk's READ POLICY, WRITE POLICY, and other properties at any time after the virtual disk is created. To do this, follow these steps:

1. Select a virtual disk icon in the left panel of the MEGARAID STORAGE MANAGER window.
2. In the right panel, select the PROPERTIES tab, and then select SET VIRTUAL DISK PROPERTIES.

A list of VIRTUAL DISK PROPERTIES appears in the right panel.

3. Change the VIRTUAL DISK PROPERTIES as needed in the right panel. For information on these properties, see "[Understanding Virtual Disk Parameters](#)".



NOTE: Only the DISK WRITE CACHE and READ AHEAD functions are supported in Embedded MegaRAID Software.

4. Click GO to accept the changes.

Deleting a Virtual Disk



WARNING: Be sure to back up the data on the virtual disk before you delete it. Be sure that the operating system is not installed on this virtual disk.

You can delete virtual disks to rearrange the storage space. To delete a virtual disk, follow these steps:

1. Back up all user data that is on the virtual disk you intend to delete.
2. In the left panel of the MEGARAID STORAGE MANAGER window, select the LOGICAL tab, and click the icon of the virtual disk you want to delete.
3. In the right panel, select the OPERATIONS tab, and select DELETE VIRTUAL DISK.
4. Click Go.
5. When the warning message appears, click YES to confirm that you want to delete the virtual disk.

Saving a Storage Configuration to Disk

You can save an existing controller configuration to a file so you can apply it to another controller. To save a configuration file, follow these steps:

1. Select a controller icon in the left panel of the MEGARAID STORAGE MANAGER window.

2. On the menu bar, select OPERATIONS→ADVANCED OPERATIONS→CONFIGURATION
→SAVE CONFIGURATION

The SAVE dialog box appears.

3. In the SAVE dialog box, type a name for the configuration file, or accept the default name (*hostname.cfg*).
4. Click SAVE to save the configuration file.

Clearing a Storage Configuration from a Controller

You can use the ADD NEW CONFIGURATION option to add a new storage configuration while keeping the existing configuration. Alternatively, you can clear the existing storage configuration from a controller and then create a totally new configuration or load a previously saved configuration file.



WARNING: Before you clear a configuration, be sure to save any data that you want to keep. Clearing a configuration deletes all data from the disks of the existing configuration. Be sure that the operating system is not installed on this configuration.

To clear a configuration from a controller, follow these steps:

1. Select a controller icon in the left panel of the MEGARAID STORAGE MANAGER window.
2. On the menu bar, select OPERATIONS→ADVANCED OPERATIONS→CONFIGURATION
→CLEAR CONFIGURATION
A WARNING message appears.
3. Click YES to clear the configuration or NO to cancel the operation.

Adding a Saved Storage Configuration

When you replace a controller, or when you want to duplicate an existing storage configuration on a new controller, you can add a saved configuration to the controller.



WARNING: When you add a saved configuration to a replacement controller, be sure that the number and size of the physical disks connected to the controller are exactly the same as when the configuration was saved.

To add a saved configuration, follow these steps:

1. Select a controller icon in the left panel of the MEGARAID STORAGE MANAGER window.
2. On the menu bar, select OPERATIONS→ADVANCED OPERATIONS→CONFIGURATION
→ADD SAVED CONFIGURATION
A WARNING message appears.
3. Click YES.

4. When the OPEN dialog box appears, select the configuration file, and click OPEN.
5. View the configuration detail, then select APPLY.
6. Confirm the new configuration when prompted.

Notes