



MegaRAID[®] SAS Device Driver Installation

User Guide

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Chapter 1

Overview

This chapter provides an overview of the drivers for the MegaRAID® SAS RAID controllers and contains the following sections:

- [Section 1.1, Driver Description](#)
- [Section 1.2, Driver Names](#)

Subsequent chapters in this manual provide detailed installation instructions for the operating systems. Use the latest updates provided by the operating system manufacturer and review the `readme` file that accompanies the driver for any updated information.

1.1 Driver Description

You can install the MegaRAID SAS controller in any IBM AT-compatible computer that has a PCI Express local bus. The RAID controller can run under various operating systems.

To use the controller with these operating systems, you must install software drivers. LSI provides software drivers for the following operating systems:

- Microsoft® Windows® 2000, Windows XP, Windows XP x64, Windows Server 2003 (x86), Windows Server 2003 (x64), and Windows Vista
- Novell® NetWare®
- Red Hat® Linux™
- SuSE® SLES
- SCO® OpenServer® and SCO UnixWare®
- FreeBSD®
- Solaris®

1.1.1 Driver Functions

MegaRAID provides drivers for the MegaRAID SAS RAID controllers, which bring up to 6.0 Gb/s Serial Attached SCSI and 3.0 Gb/s SATA II performance to host adapter, workstation, and server designs. The controllers support internal and external storage devices, which allows you to use a system that supports enterprise-class SAS and desktop-class SATA II drives.

The SAS controllers integrate eight high-performance SAS/SATA II PHYs and a PCI Express bus master DMA core. Each of the eight PHYs is capable of 6.0 Gb/s SAS link rates, and 3.0 Gb/s SATA II link rates.

The SAS RAID controllers support the SAS protocol as described in the *Serial Attached SCSI Standard, version 1.1*. The controllers also support the Serial ATA II (SATA II) protocol defined by the *Serial ATA specification, version 1.0a*. SATA II is an extension to SATA 1.0a.

The drivers do the following:

- Support the PCI Express protocol
- Support multiple RAID Storage Adapters (RSAs)
- Provide the ability to see newly configured logical drives in the configuration software utility without rebooting the system
- Allow random deletion of logical drives created using the MegaRAID Storage Manager (see the **MegaRAID SAS Software User Guide** for more information)
- Support use of the remaining array capacity by MegaRAID Storage Manager

1.1.2 Driver Updates

Because LSI regularly updates device drivers, there might be a feature added to your driver that is not included in the most recent manual publication. If you have a question about a feature, consult the **readme** file that accompanies the driver, or contact your MegaRAID support representative. Be sure to use the latest Service Packs provided by the operating system manufacturer.

You can download the latest drivers and software on the LSI website at <http://lsi.com/cm/DownloadSearch.do>. Under the Download tab, select your product from the pull-down menu to display the latest drivers available for download.

1.2 Driver Names

Table 1 lists the device driver files for MegaRAID controllers. The driver files are available on the *Universal Driver Suite* CD that accompanied your MegaRAID controller. LSI updates the MegaRAID device drivers frequently. To ensure you have the current version of this driver, download the driver from the LSI web site: <http://www.lsi.com>. See the `readme` file that accompanies the driver for any updated information.

To make a driver diskette, extract the files from the *Universal Driver Suite* CD to a blank floppy diskette, or download the driver files from the LSI website and extract them to an empty floppy diskette. Label the diskette as the MegaRAID driver diskette for the given operating system.

Table 1: MegaRAID Device Driver Files

| Operating System | Device Driver Filenames | Installation Reference |
|-----------------------------|--|------------------------|
| Windows 2000 | megasas.cat megasas.sys NODEV.INF OEMSETUP.INF TXTSETUP.OEM | Chapter 2 |
| Windows XP | megasas.cat megasas.sys NODEV.INF OEMSETUP.INF TXTSETUP.OEM | |
| Windows XP x64 | megasas.cat megasas.sys NODEV.INF OEMSETUP.INF TXTSETUP.OEM | |
| Windows Server 2003 (x86) | msas2k3.cat msas2k3.sys NODEV.INF OEMSETUP.INF TXTSETUP.OEM | |
| Windows Server 2003 (x64) | msas2k3.cat msas2k3.sys NODEV.INF OEMSETUP.INF TXTSETUP.OEM | |
| Windows Vista (x64 and x86) | megasas.cat megasas.sys NODEV.INF OEMSETUP.INF TXTSETUP.OEM | |
| Novell NetWare | mega_sas.ddi mega_sas.ham | |
| Red Hat Linux 3 | megaraid_sas.o | Chapter 4 |
| Red Hat Linux 4 | megaraid_sas.ko | |
| Red Hat Linux 5 | megaraid_sas.ko | |
| Red Hat Linux 6 | megaraid_sas.ko | |

Table 1: MegaRAID Device Driver Files

| Operating System | Device Driver Filenames | Installation Reference |
|---------------------------------|--|---------------------------|
| SuSE Linux Enterprise Server 9 | megaraid_sas.ko | Chapter 5 |
| SuSE Linux Enterprise Server 10 | megaraid_sas.ko | |
| SuSE Linux Enterprise Server 11 | megaraid_sas.ko | |
| SCO OpenServer SCO UnixWare | driver.o | Chapter 6 |
| FreeBSD | mfi.ko Makefile build.sh mfi.c mfireg.h mfivar.h mfi_cam.c mfi_debug.c mfi_disk.c mfi_ioctl.h mfi_linux.c mfi_pci.c | Chapter 7 |
| Solaris 10 | Gen1 82XX, 83XX, and 84XX SAS RAID controllers: mega_sas (32-bit) mega_sas (64-bit) mega_sas.conf Gen2 87XX, 88XX, 96XX, and 98XX SAS RAID controllers: mr_sas (32-bit) mr_sas (64-bit) mr_sas.conf Gen2 SandySprings (MegaRAID Entry controllers): mrentry_sas (32-bit) mrentry_sas (64-bit) mrentry_sas.conf | Chapter 8 |

Chapter 2

Windows Driver Installation

This chapter describes the installation of the following Windows operating systems: Windows 2000, Windows XP, Windows XP x64, Windows Server 2003 (x86), Windows Server 2003 (x64), and Windows Vista. This chapter consists of the following sections:

- [Section 2.1, *Installing the Windows System Driver in a New Windows System*](#)
- [Section 2.2, *Installing or Updating the MegaRAID Driver in an Existing Windows System*](#)

NOTE: When you connect an Engenio[®] DM1300 to a SAS RAID controller and boot up the system to a Windows operating system, a message displays asking for a driver for the DM1300. You need to install the SES processor in the DM1300 by pointing to the same location where the MegaRAID driver package is located, the file **Nodev.inf**.

The **Nodev.inf** file (in the driver package) has the entries required to install the processor correctly. This file supports the following enclosure IDs:

```
EnclosureLSILOGIC____SYM3600-SAS  
EnclosureIBM-ESXSEXP3000_____
```

2.1 Installing the Windows System Driver in a New Windows System

Perform the following steps to install the MegaRAID device driver in a new Windows operating system. The Windows operating system automatically adds the driver to the registry and copies the driver to the appropriate directory.

1. Start the Windows installation by booting from the appropriate Windows CD-ROM.

The system BIOS must support booting from a CD-ROM. BIOS settings might require changes to allow CD-ROM booting. See your system documentation.

2. Press F6 when the following displays at the bottom of the screen, unless you are installing Windows Vista:

```
"Press F6 if you need..."
```

NOTE: For the system to recognize the new driver for Windows 2000, Windows XP, and Windows Server 2003, you must press F6. If you are installing Windows Vista, you do not need to press F6. For Windows Vista, after the first installation screen, an option displays to allow you to load the driver from either a floppy diskette or a USB key. Otherwise, it will load the default driver from the DVD.

3. Select "S" to specify an additional device when the screen displays:

```
"Setup could not determine the type of one or more
mass storage devices..."
```

The system prompts for the manufacturer-supplied hardware support disk.

NOTE: If the screen does not display this message after you press F6, then the setup program did not recognize the F6 command. Reboot the system, and return to [step 2](#).

4. Insert the driver diskette containing the Windows device driver and press ENTER.
5. Select the appropriate MegaRAID adapter from the menu by using the arrow key to highlight it, and then press ENTER to proceed.
6. Press ENTER again to proceed.
7. Return to the Windows Setup screen.
8. Windows displays a "Welcome to Setup" window.
9. Press ENTER to continue.
10. Press C to continue the Microsoft Windows installation procedure.
11. Follow the Windows installation procedure.
12. Repeat this process for all the adapters on your system.

2.2 Installing or Updating the MegaRAID Driver in an Existing Windows System

Perform the following steps to install or update the MegaRAID device driver in an existing Windows system:

1. Boot the Windows operating system.

The Found New Hardware Wizard starts.

2. Click the Next button and insert the driver diskette into the A:\ drive.
3. Click the Search for a Suitable Driver... button, and click Next.
4. Click the Next button.

In some cases, a message displays saying that this driver is not digitally signed. This message informs you that a nonsigned driver is being installed. If this message displays, click Continue Anyway.

5. Select Floppy only, and then click the Next button in the Driver Files Search Results window.
6. Click the Finish button to complete the driver installation, and then repeat this process for all the adapters on your system.

Chapter 3

Novell NetWare Driver Installation

This chapter provides installation instructions for the MegaRAID Novell NetWare driver and consists of the following sections:

- [Section 3.1, *Novell NetWare Driver Files*](#)
- [Section 3.2, *Installing the NetWare Driver in a New NetWare System*](#)
- [Section 3.3, *Installing or Updating the NetWare Driver in an Existing NetWare System*](#)

3.1 Novell NetWare Driver Files

The MegaRAID Novell NetWare driver and utilities support logical drives configured on the MegaRAID controller. This driver supports up to 12 MegaRAID controllers.

NOTE: The logical drives configured on the host adapter are registered with the operating system as separate logical units.

[Table 2](#) describes the MegaRAID Novell NetWare driver files.

Table 2: MegaRAID Novell NetWare Driver Files

| File | Description |
|---------------------|--|
| mega_sas.ham | The MegaRAID host adapter module (HAM). This driver supports the NPA Diagnostics option by using the NWDIAG flag, which is specified on the command line when the driver loads. The driver is a re-entrant module. It registers one adapter when you issue the Novell NetWare LOAD command to load the driver. |
| mega_sas.ddi | The device driver installation file. It is needed to install the MegaRAID HAM driver. |

All utilities and ASPI drivers expect the MegaRAID driver to pass the requests to the adapter.

3.2 Installing the NetWare Driver in a New NetWare System

Follow the instructions in the *Novell NetWare Installation Guide* to install Novell NetWare in the server. Perform the following steps to install Novell NetWare using the MegaRAID controller as a primary adapter:

1. Boot from Novell NetWare.
2. Follow the instructions on the screen until you reach the Device Driver screen, which is used to modify drivers.
3. Select Modify, and press ENTER.
4. Select Storage Adapters on the Storage Driver Support screen, and press ENTER.
5. Delete any existing MegaRAID adapter listings.
6. Press INSERT to add unlisted drivers.
7. Press INSERT again.
A path displays.
8. Press F3.
9. Insert the driver diskette into the floppy drive, and press ENTER.
The system finds the **.HAM** driver.
10. Press TAB.
11. Select the Driver Summary screen, and press ENTER.
12. Continue the Novell NetWare installation procedure.

3.3 Installing or Updating the NetWare Driver in an Existing NetWare System

Perform the following steps to add the Novell NetWare driver to an existing installation:

1. Type the following command at the root prompt:
nwconfig
The Configuration Options screen displays.
2. Select Drive Options, and press ENTER.
A window displays.
3. Select Configure Disk and Storage Device Options, and press ENTER.
4. Select one of the following options displayed in the window:
 - Discover and Load an Additional Driver
If you select Discover and Load an Additional Driver, the system discovers the extra unit. The system prompts you to select a driver from the list. Press INSERT to insert the driver. This completes the procedure.
 - Select an Additional Driver
If you select Select an Additional Driver, the Select a Driver screen displays. Press INSERT. Follow the instructions that appear.
Insert a floppy diskette into the floppy drive, and press ENTER.
The system finds the driver and installs it.

Chapter 4

Red Hat Linux Driver Installation

This chapter describes how to install the device driver for Red Hat Linux 3.0, 4.0, 5.0, and 6.0, and how to update the Red Hat Linux driver on an existing Red Hat Linux system. This chapter consists of the following sections:

- [Section 4.1, *Installing the Driver in a New Red Hat Linux System*](#)
- [Section 4.2, *Adding the Red Hat Linux 4.0, 5.0, or 6.0 Driver to an Existing Installation*](#)
- [Section 4.3, *Updating the Red Hat Linux System Driver*](#)

Refer to the release notes that accompanied the driver for information on an existing Red Hat Linux system.

4.1 Installing the Driver in a New Red Hat Linux System

You can install the driver in a new Red Hat Linux 6 system from the Red Hat Linux installation CD. In addition, you can install the driver in a new Red Hat Linux 3.0, 4.0, 5.0, or 6.0 system from a driver update diskette.

4.1.1 Installing from CD

To install the MegaSAS device driver in a new Red Hat Linux 6.0 system from the Red Hat Linux installation CD, perform the following steps:

1. Insert the Red Hat Linux installation CD in the CD drive.
2. Follow the installation procedure for Red Hat Linux 6.0.

4.1.2 Installing from a Driver Update Diskette

To install the MegaRAID device driver in a new Red Hat Linux 3.0, 4.0, 5.0, or 6.0 system from a driver update diskette, create the diskette using the Linux driver image on the Red Hat Linux installation CD. Perform the following steps:

1. Boot to CD-ROM with Disk 1.
2. Type:

```
linux dd
```

3. Insert the driver diskette.

The utility locates and loads the driver for your device.

4. Press ALT+CTRL+F4 to verify the driver is loaded.
5. Follow the Red Hat Linux installation procedure to complete the installation.

4.2 Adding the Red Hat Linux 4.0, 5.0, or 6.0 Driver to an Existing Installation

Perform the following steps to add the Red Hat Linux 4.0, 5.0, or 6.0 driver to an existing installation:

1. Turn on the power to the system.

The system initializes the hardware. The then system detects the controller and invokes Kudzu, the Red Hat Linux hardware configuration utility.

The following RAID controller is added to your system:

```
LSI Logic / Symbios Logic MegaSAS
```

2. Select one of the following options:

- Configure the device.

- Ignore the device.

No configuration will be added, but you will not be prompted if the device is detected on subsequent reboots.

- Do nothing.

No configuration will be added, and the device will show up as new if it is detected on subsequent reboots.

3. Highlight the Configure tab, and press ENTER.

The system configures the controller and installs the appropriate driver in the kernel.

4. The system boots and displays the devices connected or configured on the controller.

4.3 Updating the Red Hat Linux System Driver

Perform the following procedure to update to the latest version of the driver:

1. Boot the system.
2. Go to Console (your terminal GUI).
3. Run Dynamic Kernel Module Support (DKMS) and follow the update instructions on the screen.

NOTE: You might need to download the DKMS package online.

4. Run RPM (package manager) and follow the on-screen instructions.

Chapter 5

SUSE Linux Enterprise Server (SLES) 9.0, 10.0, 11.0 Driver Installation

This chapter describes how to install the SUSE Linux Enterprise Server (SLES) 9.0, 10.0, and 11.0 driver in the RAID-configured drives and consists of the following sections:

- [Section 5.1, *Installing the Driver in a New SuSE SLES Linux System*](#)
- [Section 5.2, *Updating the SuSE SLES 9.0, 10.0, or 11.0 Driver*](#)

5.1 Installing the Driver in a New SuSE SLES Linux System

NOTE: If you use Service Pack (SP) 1 or SP 2, you need to load the driver. If you use SP 3 RC 2, the MegaSAS driver is already on the SuSE SLES Linux CD.

You can install the MegaRAID device driver in a new SuSE SLES Linux 10.0 or 11.0 system from the SuSE SLES Linux CD. In addition, you can install the MegaRAID device driver in a new SuSE SLES Linux 9.0, 10.0, or 11.0 system from a floppy diskette.

5.1.1 Installing from CD

To install the driver in a new SuSE SLES Linux 10.0 or 11.0 system from the SLES Linux installation CD, perform the following steps:

1. Boot the server with the SLES SP CD-ROM Disk 1.

The system BIOS must support booting from a CD-ROM. BIOS settings might require changes to allow CD-ROM booting. See your system documentation.

2. At the installation message, press ENTER.

The driver is installed from the CD.

5.1.2 Installing from a Driver Update Diskette

To install the driver in a new SuSE SLES Linux 9.0, 10.0, or 11.0 system from a driver update diskette, perform the following steps:

1. Boot the server with the SLES SP CD-ROM Disk 1.

The system BIOS must support booting from a CD-ROM. BIOS settings might require changes to allow CD-ROM booting. See your system documentation.

2. At the installation message, do one of the following:
 - a. Press F6 for SLES 9.0.
 - b. Press F5 for SLES 10.0.
 - c. Press F6 for SLES 11.0.
3. Select **Installation** and press ENTER.

NOTE: Follow screen instructions to switch between operating system CDs and operating system CD service packs.

4. Put the driver update diskette in the drive bay, and install normally.

The installation process will pick up the new driver from the floppy diskette.

5. Press ALT+CTRL+F4 to see whether the driver is loaded.

5.2 Updating the SuSE SLES 9.0, 10.0, or 11.0 Driver

Perform the following procedure to update to the latest version of the SuSE SLES 9.0, 10.0, or 11.0 driver:

1. Boot the system.
2. Go to Console (your terminal GUI).
3. Run Dynamic Kernel Module Support (DKMS) and follow the update instructions on the screen.

NOTE: You might need to download the DKMS package online.

4. Run RPM (package manager) and follow the update instructions on the screen.

Chapter 6

SCO OpenServer 6 and SCO UnixWare 7 Driver Installation

This chapter describes the installation of the SCO OpenServer 6 driver and the SCO UnixWare 7 driver and consists of the following sections:

- [Section 6.1, *Installing the Driver in a New SCO OpenServer 6 or SCO UnixWare 7 System*](#)
- [Section 6.2, *Upgrading the Driver on an Existing OpenServer 6 or UnixWare 7 System*](#)

6.1 Installing the Driver in a New SCO OpenServer 6 or SCO UnixWare 7 System

When you install the SCO OpenServer 6 operating system or the SCO UnixWare 7 operating system, insert the megasas Driver Supplement media before you insert any HBA drivers supplied with your media kit.

Use the following steps on a SCO OpenServer 6 system or a SCO UnixWare 7 system to create an HBA driver diskette from the HBA diskette image file.

1. Go to the root directory, and create a new directory by typing the following command:

```
$ su
Password: <type your root password>
# mkdir /tmp/hba
# cd /tmp/hba
```

2. Download the **megasas_sco.image** file to the newly created /tmp/hba directory on your system.
3. Make a megasas HBA diskette from the image file by typing the following command:

```
# dd if=megasas_sco.image of=/dev/dsk/f0t obs=36b
```

4. Use the megasas HBA diskette during system installation.

Use the following steps on a SCO OpenServer 6 system or a SCO UnixWare 7 system to create an HBA CD from the HBA ISO image file.

1. Go to the root directory and create a new directory by typing the following command:

```
$ su
Password: <type your root password>
# mkdir /tmp/hba
# cd /tmp/hba
```

2. Download the **megasas_sco.iso** file to the newly created /tmp/hba directory on your machine.

3. Make a megasas HBA CD from the ISO file:

```
# cdrecord -v -dev=c,b,t -dao -driveropts=burnfree  
-speed=99 megasas_sco.iso
```

where `c,b,t` is taken from the output of the `cdrecord --scanbus` command.

4. Use the megasas HBA CD during system installation.

6.2 Upgrading the Driver on an Existing OpenServer 6 or UnixWare 7 System

The following procedure updates the megasas device driver in an existing SCO OpenServer or SCO UnixWare system. You can use the megasas HBA diskette to upgrade the megasas driver on your system by using the following step.

1. Insert the HBA driver diskette, and type the following command:

```
# pkgadd -d diskette1 all
```

or

```
# pkgadd -d diskette1 megasas
```

You can use the megasas HBA CD to upgrade the megasas driver on your system using the following step.

2. Insert the HBA driver CD, and type the following command:

```
# pkgadd -d cdrom1 all
```

or

```
# pkgadd -d cdrom1 megasas
```

Chapter 7

FreeBSD Driver Installation

This chapter describes the installation of the FreeBSD driver and consists of the following section:

- [Section 7.1, Upgrading the Driver on an Existing FreeBSD System](#)

NOTE: Currently, the FreeBSD driver is supported only on 32-bit FreeBSD.

NOTE: The FreeBSD release for FreeBSD 7.x has forward compatibility with all OS 7.x and higher, including 8.x.

7.1 Upgrading the Driver on an Existing FreeBSD System

When the FreeBSD operating system is already installed, the kernel image has to be updated on the new driver module. Perform the following steps to install the FreeBSD driver.

1. Make sure that the kernel source has been installed on the system. If the kernel source has been installed, the `/usr/src/sys` directory exists.
2. Move to the `arch/conf` directory and copy the GENERIC configuration file to a new file. The new file will be the kernel configuration file. Here is an example:

```
# cd /usr/src/sys/i386/conf
# cp GENERIC MYKERNEL
```

3. Enter # at the beginning of the following line in the MYKERNEL file:

```
device      cbb      #cardbus (yenta) bridge
device      mfi     #LSI MegaRAID SAS
```

4. To compile the kernel, add the following line to the `/usr/src/sys/conf/files` file:

```
make buildkernel KERNCONF=MYKERNEL
```

5. To install the new kernel, type:

```
make installkernel KERNCONF=MYKERNEL
```

The new kernel is copied to the `/boot/kernel` directory as `/boot/kernel/kernel` and the old kernel is moved to `/boot/kernel.old/kernel`.

6. Reboot the system to use the new kernel.

NOTE: Add this line next to the line that has:

```
dev/mfi/mfi_cam.c optional mfi.
```

7. Copy the zip file (**mfi.zip**) to the `/usr/src/sys/dev` directory.

Before you proceed to the next step, make sure that the `mfi` directory does not exist in the `/usr/src/sys/dev/` directory. If the `mfi` directory already exists, move the directory to a different folder. For example:

```
mv /usr/src/sys/dev/mfi /root/mfibackup.
```

8. Go to the directory `/usr/src/sys/dev` and run the following command to unzip the source:

```
tar -x -f mfi.zip
```

9. Go to the directory `/usr/src/sys/dev/mfi` and run the following command to compile the driver:

```
make clean all
```

10. Run the following command to load the compiled driver:

```
Kldload ./mfi.ko
```

7.2 Limitations

The FreeBSD operating system does not support supplying Driver Update Disks (DUDs) at installation time. The kernel that comes with the installation CD has the driver statically linked in it but not as a module. Hence, it is not possible to override the driver binary that is part of the kernel with the new driver module.

Chapter 8

Solaris 10 x86 and Solaris Express x86 Driver Installation

This chapter explains how to install the Solaris 10 x86 driver and the Solaris Express x86 driver in RAID-configured drives in a new Solaris 10 x86 system or a new Solaris Express x86 system. This chapter also explains how to upgrade the driver where the Solaris operating system has been already installed. You can proceed with the installation of the operating system and later follow the steps to upgrade the driver.

This chapter consists of the following sections:

- [Section 8.1, Supported Installations of Solaris Operating Systems on a Virtual Drive](#)
- [Section 8.2, Installing the Driver in a New Solaris 10 x86 or Solaris Express x86](#)
- [Section 8.3, Updating the Driver on a Solaris 10 x86 or a Solaris Express x86](#)

NOTE: Currently, LSI supports 32-bit and x64-bit on Solaris.

8.1 Supported Installations of Solaris Operating Systems on a Virtual Drive

The following table gives the list of operating system versions which support installation of a Solaris operating system on a virtual drive.

Table 3: Solaris Operating System Release Support

| Solaris OS Release | Gen2 | MegaRAID Entry |
|--------------------|--|----------------|
| 6.3 | No | No |
| 6.4 | No | No |
| 7.0 | No | No |
| 7.1 | Yes (the operating system can be installed on a virtual drive) | No |
| 7.2 | Yes (the operating system can be installed on a virtual drive) | No |

8.2 Installing the Driver in a New Solaris 10 x86 or Solaris Express x86

8.2.1 Installing the Driver Update (Install-Time-Update) from a CD or a Diskette

If you use Solaris 10 Update 6 or later, the MegaRAID SAS driver is part of the operating system installation DVD/CD.

NOTE: If you use Solaris 10 Update 5 or earlier, you need the driver update.

To install the operating system from the Solaris 10 or Solaris Express installation CD on a drive attached to the MegaRAID SAS controller, in a new Solaris system, perform the following steps.

1. Create a driver image CD from the **.iso** image file provided.
2. Boot the server with the Solaris DVD/CD.
3. Select the `Solaris` installation at grub boot menu.

After the message `Configuring devices` appears on the screen, a menu appears for you to continue the installation process.

4. Select the option `Apply Driver Updates` from the menu.
This prompts the next menu.
5. On the menu, select the device (CD, floppy, or USB device) from which to update the driver.
6. As the driver update is on CD/DVD, eject the Solaris installation DVD and insert the driver update CD/DVD created in [step 1](#).
7. Select the option `Driver installation from CD/DVD to apply the driver update`.
This updates the driver.
8. After the driver is updated, press `E` on the keyboard and re-insert the Solaris operating system installation CD/DVD to continue installing the Solaris operating system.

8.2.2 Installing the Driver Update (Install-Time-Update) from Floppy Diskette

To install the driver on a drive attached to a MegaRAID SAS controller, in a new Solaris system from Solaris 10 or Solaris Express installation CD, perform the following steps.

1. Create a floppy driver image from the **.img** image file provided.
2. Boot the server with the Solaris DVD/CD.
3. Select the `Solaris` installation at grub boot menu.

After you pass the message `Configuring devices`, a menu appears for you to continue the installation process.

4. Choose the option `Apply Driver Updates` from the menu.

The `Apply Driver` option updates the menu and prompts the next menu where you can select the device (CD, floppy, USB device) from which the driver can be updated.

5. As the driver update is on a floppy created in [step 1](#), choose the option `installation from floppy to apply the driver update`.

This updates the driver.

6. After the driver is updated, press **␣** and continue the Solaris operating system installation.

8.3 Updating the Driver on a Solaris 10 x86 or a Solaris Express x86

A package has been provided to update or install the driver on systems where the Solaris operating system has been already installed. You have to use the **pkgadd** operating system utility to add the package and the **pkgrm** operating system utility to remove the package.

The following information applies to the Gen1 82XX, 83XX, and 84XX SAS RAID controllers:

- Reboot the system after patch installation.
- Before you install this patch, un-install the previously installed driver. The previous driver was installed either through the package (megasas, MEGasas, or SUNWmegasas) or install scripts (**install.sh** or **install32.sh**).
- A **readme** file is provided along with each package which you can refer to install or uninstall the package. In addition, you can refer to the operating system documentation to obtain more information about the **pkgadd** and **pkgrm** operating system utilities.

The following information applies to the Gen2 87XX, 88XX, 96XX, and 98XX SAS RAID controllers:

- Reboot the system after patch installation.
- Before you install this patch, un-install the previously installed driver. The previous driver was installed either through the package mrsas or SUNWmrsas.
- A **readme** file is provided along with each package which you can refer to install or uninstall the package. In addition, you can refer to the operating system documentation to obtain more information about the **pkgadd** and **pkgrm** operating system utilities.

The following information applies to the MegaRAID Entry SAS RAID controllers:

- Reboot the system after patch installation.
- Before you install this patch, un-install the previously installed driver. The previous driver was installed either through the package **mrentrysas**.

Table 4: Solaris Driver Names and Descriptions

| Driver Name | Description | Available as Part of the Operating System CD | Package Name on LSI Web Site |
|--------------------|---|---|--|
| mega_sas | Driver For Gen1 MegaRAID controllers: 82XX, 83XX, and 84XX SAS RAID controllers | Yes. The Package name is SUNWmegasas . | Yes. The package name is megasas . |
| mr_sas | Driver For Gen2 MegaRAID controllers: 87XX, 88XX, 96XX, and 98XX SAS RAID controllers | MR controllers Yes. The Package name is SUNWmrsas . | Yes. The package name is mrsas . |
| mrentry_sas | Driver For MegaRAID Entry controllers | No. | Yes. The package name is mrentrysas . |

On the Solaris system, if you have a Gen1-MR controller, a Gen2-MR controller, and a MegaRAID Entry controller, all the drivers are installed and they work in parallel.

Appendix A

Customer Feedback

This appendix provides a form you can fill out to help us improve our documentation. We would appreciate your feedback on this document. Please copy the following page, add your comments, and fax it to us at the number shown.

If appropriate, please also fax copies of any marked-up pages from this document.

NOTE: Please include your name, phone number, fax number, and company address so that we can contact you directly for clarification or additional information.

Thank you for your help in improving the quality of our documents.

A.1 Reader's Comments

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Please tell us how you rate this document: **MegaRAID SAS Device Driver Installation User Guide**. Place a check mark in the appropriate blank for each category.

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|--|-----------|------|---------|------|------|
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