ASUS
IN SEARCH OF INCREDIBLE

PIKE II 3008 Series

PIKE II 3008-8i
PIKE II 3008-4i4e

E9225
First Edition
July 2014

Contents

About this guide

This user guide contains the information you need when installing and configuring the server management board.

How this guide is organized

This guide contains the following parts:

- **Chapter 1: Product introduction**

  This chapter offers the PIKE II 3008 SAS RAID card features and the new technologies it supports.

- **Chapter 2: RAID configuration**

  This chapter provides instructions on setting up, creating, and configuring RAID sets using the available utilities.

- **Chapter 3: Driver installation**

  This chapter provides instructions for installing the RAID drivers on different operating systems.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. **ASUS websites**

   The ASUS website provides updated information on ASUS hardware and software products. Refer to the ASUS contact information.

2. **Optional documentation**

   Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Conventions used in this guide

To make sure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task.

IMPORTANT: Instructions that you MUST follow to complete a task.

NOTE: Tips and additional information to help you complete a task.

Typography

Bold text	Indicates a menu or an item to select.
Italics	Used to emphasize a word or a phrase.
<Key>	Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key. Example: <Enter> means that you must press the Enter or Return key.
<Key1+Key2+Key3>	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: <Ctrl+Alt+D>
`Command`	Means that you must type the command exactly as shown, then supply the required item or value enclosed in brackets. Example: At the DOS prompt, type the command line: `format a:`

PIKE II 3008 Series specifications summary

	PIKE II 3008-8i	PIKE II 3008-4i4e
Controller	LSISAS3008 Controller	
Interface	PCI-E Gen3	
Ports	8 SAS 12Gb/s Ports (2 Mini-SAS HD SFF-8643)	8 SAS 12Gb/s Ports (1 Mini-SAS HD SFF-8643 + 1 Mini-SAS HD SFF-8644)
Devices Supported	12, 6, 3 Gb/s SAS 6, 3 Gb/s SATA	
RAID level	RAID 0/1/10/1E	
Form factor	147.65 mm X 68.9 mm (5.81 in. x 2.71 in.)	

*** The exact OS support would base on the OS support list of the motherboard.**

**** Specifications are subject to change without notice.**

Product introduction

1

This chapter offers the PIKE II 3008 SAS RAID card features and the new technologies it supports.

1.1 Welcome!

Thank you for buying an ASUS® PIKE II 3008 Series SAS RAID card!

The ASUS PIKE II 3008 Series SAS RAID card supports 12 Gb/s SAS Technology and allows you to create RAID 0, RAID 1, RAID 1E, and RAID 10 sets from SATA II/SATA III/SAS/SAS II/SAS III hard disk drives connected to the SAS connectors on the card.

Before you start installing the RAID card, check the items in your package with the list below.

1.2 Package contents

Check your package for the following items:

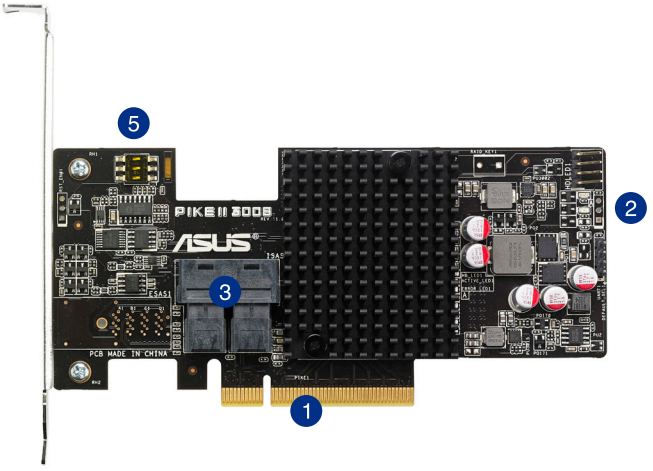
- ASUS PIKE II 3008 Series SAS RAID card
- Support DVD

If any of the above items is damaged or missing, contact your retailer.

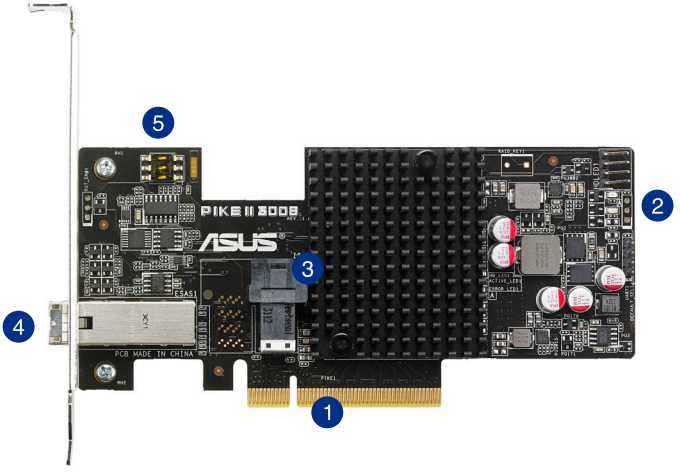
1.3 Card layout

The illustration below shows the major components of the RAID card.

PIKE II 3008-8i



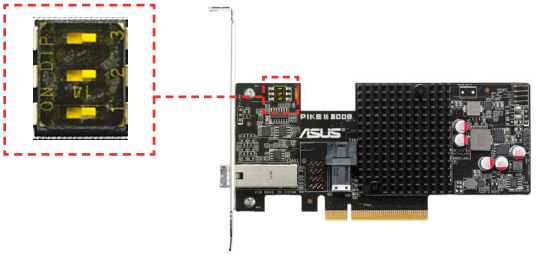
PIKE II 3008-4i4e



1. PCI-E x8 interface
2. Heartbeat LED and Activity LED. This Activity LED blinks to indicate that system is accessing the SAS ports.
3. Internal mini-SAS HD connectors
4. External mini-SAS HD connector
5. Switch* (for more than one card)

1.3.1 Switch settings

When using more than one PIKE II card on your system, ensure to manually set the pin settings on the Switch on each of the PIKE II cards to ensure that the system detects all the cards installed. You can refer to the following table for the pin settings.



PIKE II card Switch pin settings and recommended configuration:

PIKE 3008	Switch	Pin name	Pin value
1	SW1	[1:2:3]	111
2	SW1	[1:2:3]	110
3	SW1	[1:2:3]	101
4	SW1	[1:2:3]	100
5	SW1	[1:2:3]	011
6	SW1	[1:2:3]	010
7	SW1	[1:2:3]	001
8	SW1	[1:2:3]	000

1.4 System requirements

Before you install the PIKE II 3008 Series RAID card, check if the system meets the following requirements:

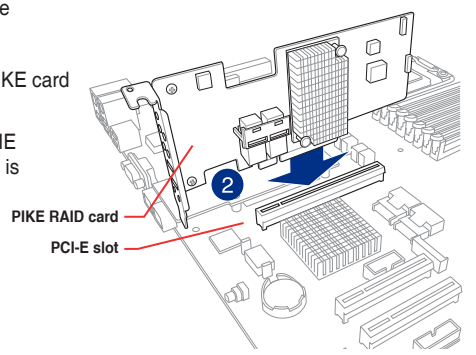
- **ASUS Server motherboard**
- **PCI-E Gen3 slot**
- **SAS or SATA hard disk drives**
- **Mini-SAS HD cable**
- **Supported operating system:**
  - Windows® and Linux operating systems (refer to website for details)
- **Other requirements:**
  - Appropriate thermal solution
  - Certified power supply module

Ensure to update your BIOS to the latest version before using PIKE II 3008 series on ASUS Z9 or P9 series platform.

1.5 Card installation

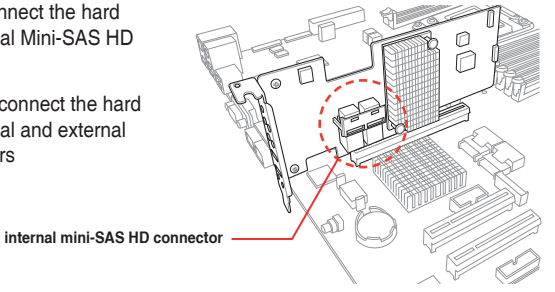
To install the RAID card on your motherboard:

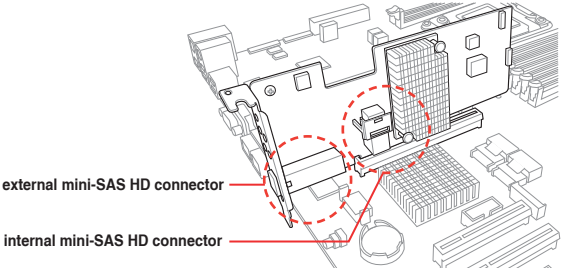
1. Locate the PCIE Gen3 slot on the motherboard.
2. Align the golden fingers of the PIKE card with the PCIE Gen3 card slot.
3. Insert the RAID card into the PCIE Gen3 card slot. Ensure the card is completely seated in place.



4. For PIKE II 3008-8i, connect the hard disk drives to the internal Mini-SAS HD connectors.

   For PIKE II 3008-4i4e, connect the hard disk drives to the internal and external Mini-SAS HD connectors





RAID Configuration

2

This chapter provides instructions on setting up, creating, and configuring RAID sets using the available utilities.

2.1 Setting up RAID

The RAID card supports RAID 0, RAID 1, RAID 1E, and RAID 10.

2.1.1 RAID definitions

RAID 0 *(Data striping)* optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. Two hard disks perform the same work as a single drive but at a sustained data transfer rate, double that of a single disk alone, thus improving data access and storage. Use of at least two new identical hard disk drives is required for this setup.

RAID 1 *(Data mirroring)* copies and maintains an identical image of data from one drive to a second drive. If one drive fails, the disk array management software directs all applications to the surviving drive as it contains a complete copy of the data in the other drive. This RAID configuration provides data protection and increases fault tolerance to the entire system. Use two new drives or use an existing drive and a new drive for this setup. The new drive must be of the same size or larger than the existing drive.

RAID 1E *(Enhanced RAID 1)* has a striped layout with each stripe unit having a secondary (or alternate) copy stored on a different disk. You can use three or more hard disk drives for this configuration.

RAID 10 is a striped configuration with RAID 1 segments whose segments are RAID 1 arrays. This configuration has the same fault tolerance as RAID 1, and has the same overhead for fault-tolerance as mirroring alone. RAID 10 achieves high input/output rates by striping RAID 1 segments. In some instances, a RAID 10 configuration can sustain multiple simultaneous drive failure. A minimum of four hard disk drives is required for this setup.

If you want to boot the system from a hard disk drive included in a created RAID set, copy first the RAID driver from the support CD to a floppy disk before you install an operating system to the selected hard disk drive.

2.1.2 Installing hard disk drives

The RAID card supports SAS for RAID set configuration. For optimal performance, install identical drives of the same model and capacity when creating a disk array.

To install the SAS hard disks for RAID configuration:

1. Install the SAS hard disks into the drive bays following the instructions in the system user guide.
2. Connect a mini-SAS HD cable to the connector on the back plane and to the mini-SAS HD connector on the card.
3. Connect a power cable to the power connector on each drive or on the back plane.

2.2 LSI Corporation MPT Setup Utility

The LSI Corporation MPT Setup Utility is an integrated RAID solution that allows you to create the following RAID sets from SAS hard disk drives supported by the LSI SAS 3008 Series controller: RAID 0, RAID 1, RAID 1E, and RAID 10.

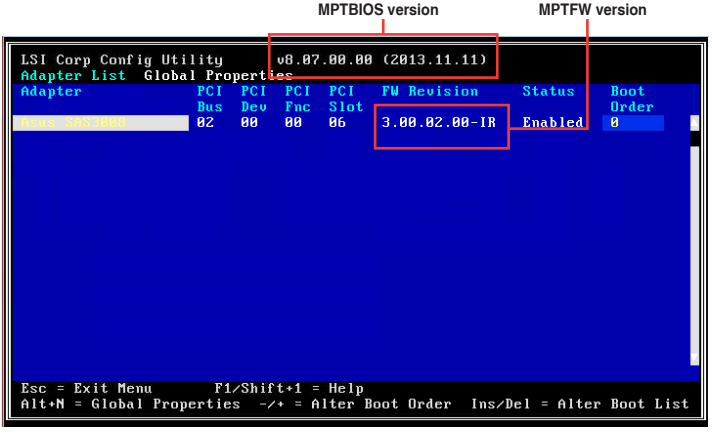
- You may use disks of different sizes in one volume; however, the size of the smallest disk determines the “logical” size of each member disk.
- DO NOT combine Serial ATA and SAS disk drives in one volume.

- The RAID setup screens shown in this section are for reference only and may not exactly match the items on your screen due to the controller version difference.
- The adapter name shown on the setup screens differs according to the installed SAS RAID card.

MPTFW and MPTBIOS version of the SAS RAID card

Take note of the MPTFW and MPTBIOS version of your SAS RAID card. You will need it if you request support from the ASUS Technical Support team.

You can get the MPTFW and MPTBIOS version of your SAS RAID card from the main screen (the **Adapter List** screen) of the the SAS configuration utility.



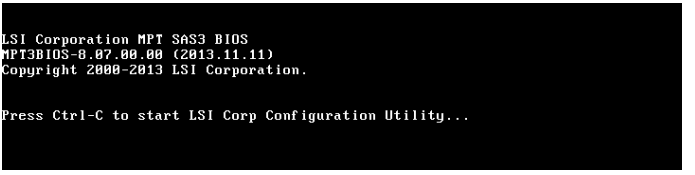
2.2.1 RAID 1 volume

The RAID 1 feature supports simultaneous mirrored volumes with two disks.

The RAID 1 feature supports hot swap capability, so when a disk in an RAID 1 volume fails, you can easily restore the volume, and the swapped disk is automatically re-mirrored.

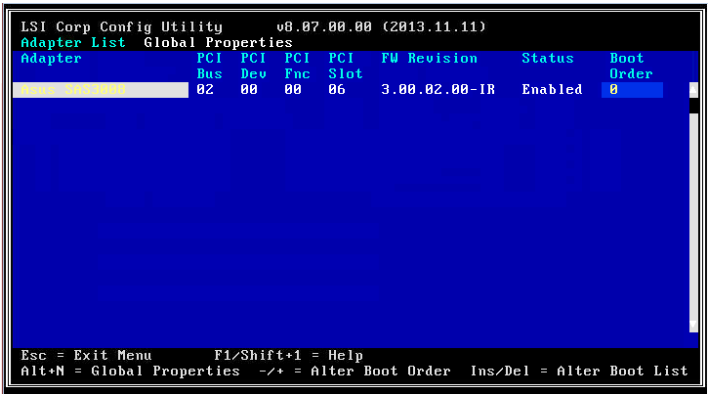
To create a RAID 1 volume:

1. Turn on the system after installing all SAS hard disk drives.
2. During POST, press <Ctrl>+<C> to enter the SAS configuration utility.



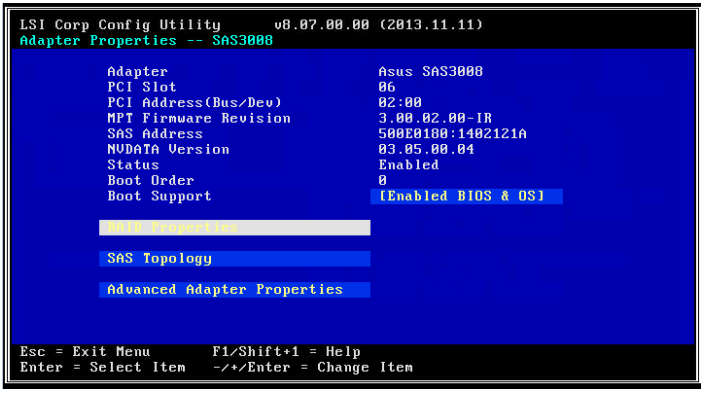
To avoid data loss, do not turn off the system when rebuilding.

3. From the **Adapter List** screen, select the controller and press <Enter>.

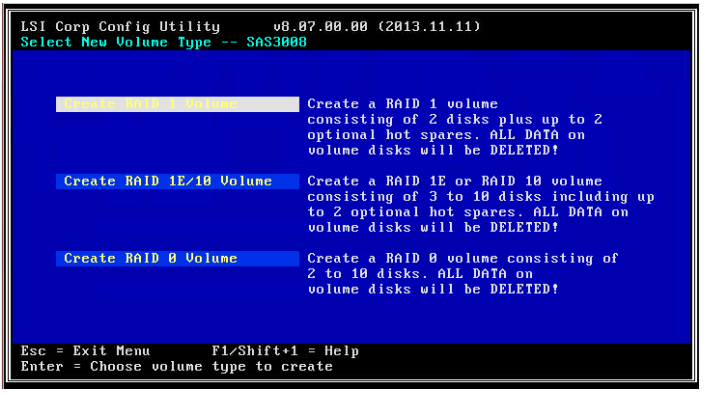


The number of items displayed depends on the controller.

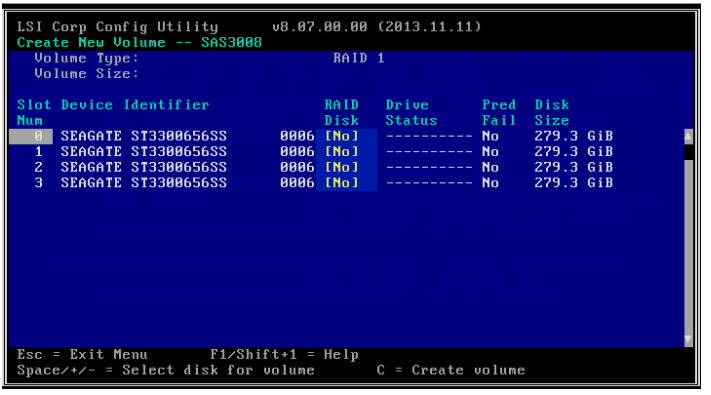
4. From the **Adapter Properties** screen, use the arrow keys to select **RAID Properties** then press <Enter>.



5. From the **Select New Volume Type** screen, use the arrow keys to select **Create RAID 1 Volume** then press <Enter>.



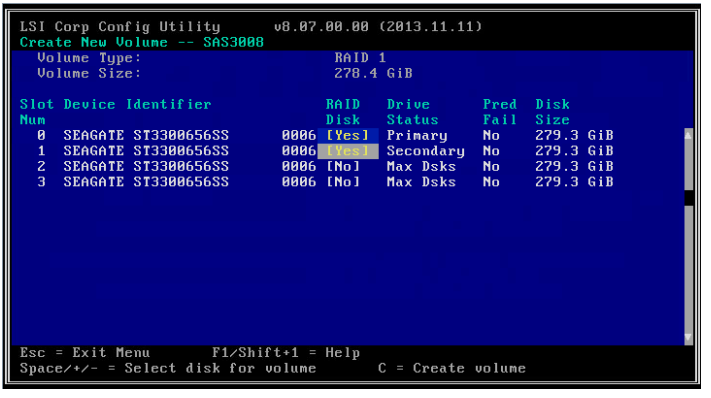
6. From the **Create New Volume** screen, move the cursor to the **RAID Disk** column of an available disks then press <+>, <->, or <Space> to include the disks into an array.



By default, the **RAID Disk** field shows **No** before volume creation. This field is grayed out under the following conditions:

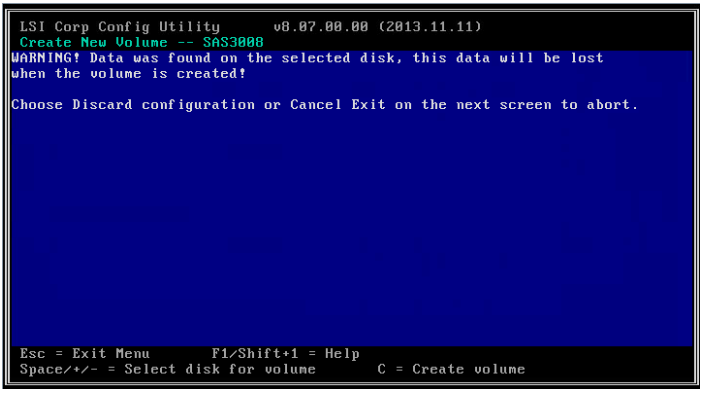
- The disk does not meet the minimum requirements for use in a RAID volume.
- The disk is not large enough to mirror existing data on the primary drive.
- The disk is already part of another volume.

7. If a selected disk contains no files or data, the utility adds the disk to the array.

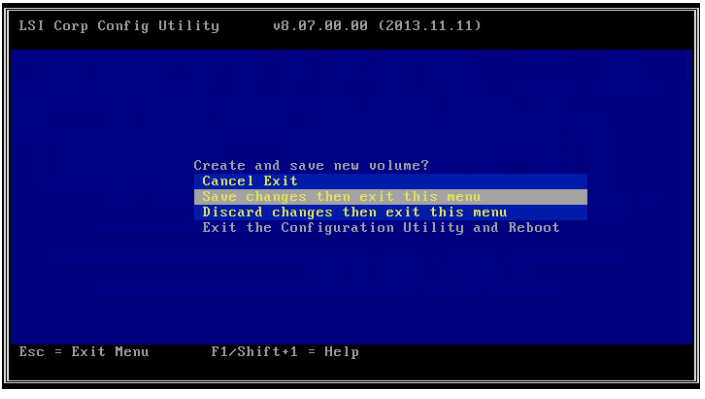


If the disks that you selected contains files or data, the following message appears on the screen. To proceed, perform either of the following:

- Click any key to continue.
- Press <M> to keep existing data on the first disk. If you choose this option, data on the first disk will be mirrored on the second disk that you will add to the volume later. Ensure the data you want to mirror is on the first disk.
- Press <D> to overwrite any data and create the new IM array on the selected disks.

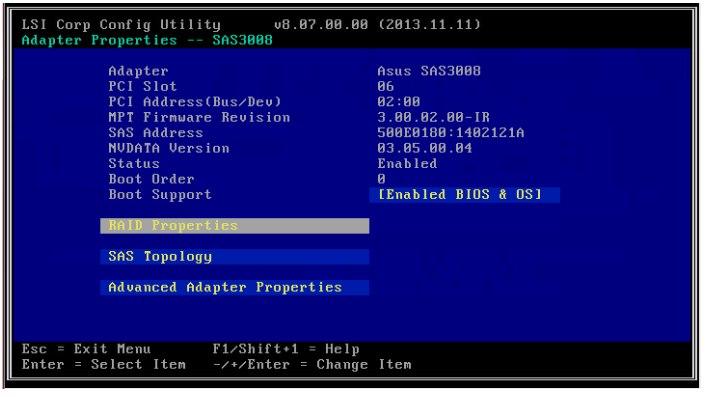


8. Repeat step 6 - 7 to add another disk to the volume.
9. When done, press <C> to proceed with the creation of the new volume.
10. Select **Save changes then exit this menu**.

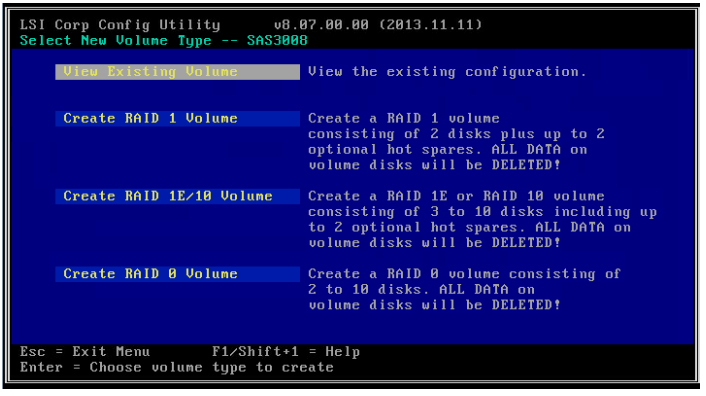


11. Wait while utility creates the volume.

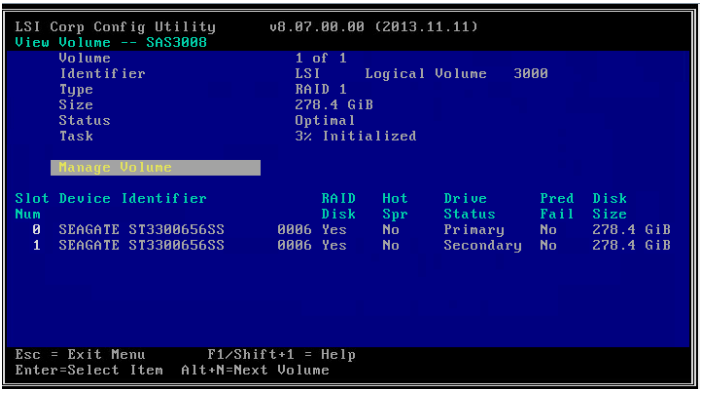
12. When done, the utility displays the **Adapter Properties** screen. From this screen, click **RAID Properties**.



13. From **the Select New Volume Type** screen, click **View Existing Volume**.



14. From the **View Volume** screen, the utility displays the new volume you created.



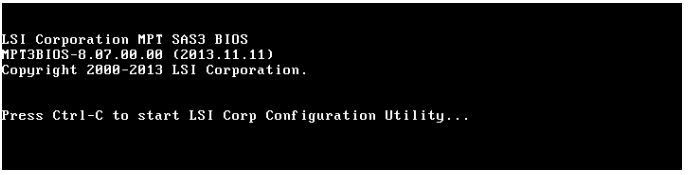
2.2.2 RAID 1E/10 volume

The RAID 1E/10 supports three to ten disks, or seven mirrored disks plus two hot spare disks.

Use odd numbers of hard disk drives to create a RAID 1E volume; use even numbers of hard disk drives to create a RAID 10 volume.

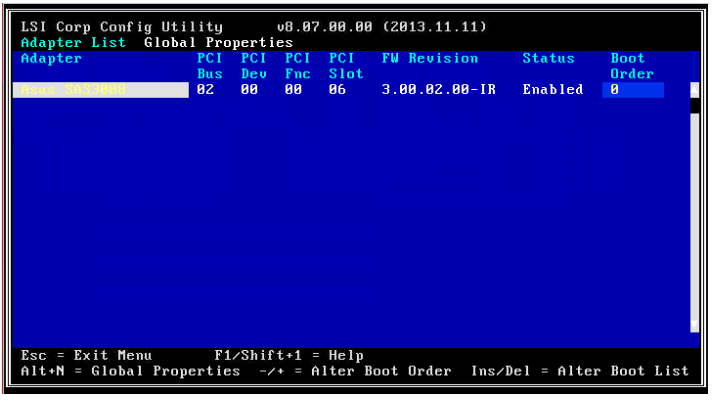
To create a RAID 1E/10 volume:

1. Turn on the system after installing all SAS hard disk drives.
2. During POST, press <Ctrl>+<C> to enter the SAS configuration utility.



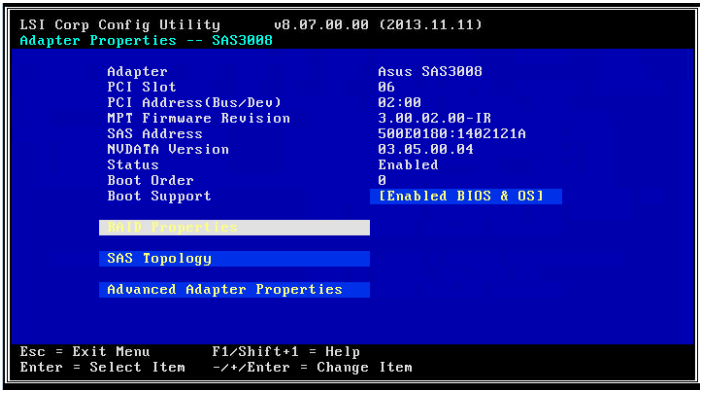
To avoid data loss, do not turn off the system when rebuilding.

3. From the Adapter List screen, select an item and press <Enter>.

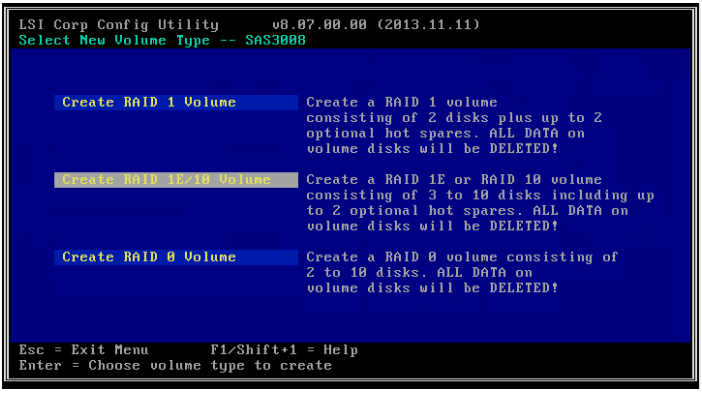


The number of items displayed depends on the controller.

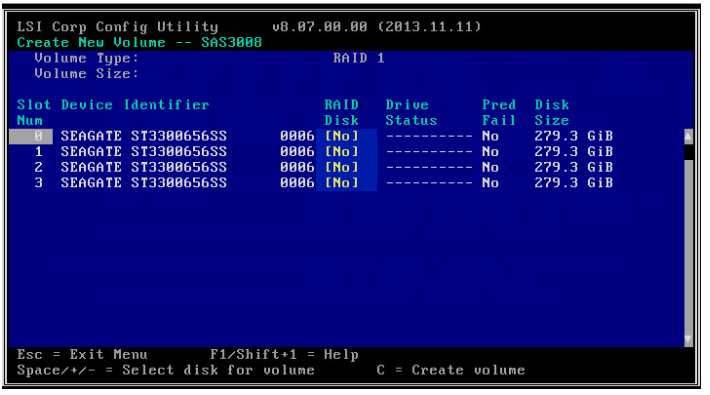
4. From the **Adapter Properties** screen, use the arrow keys to select **RAID Properties**, then press <Enter>.



5. From the **Select New Volume Type** screen, use the arrow keys to select **Create RAID 1E/10 Volume** then press <Enter>.



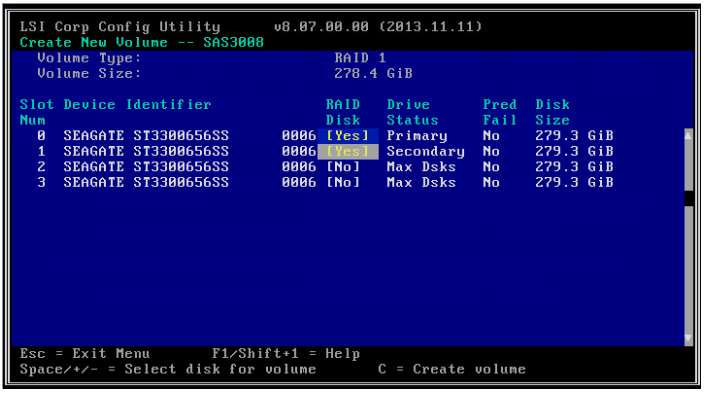
6. From the **Create New Volume** screen, move the cursor to the **RAID Disk** column of an available disks then press <+>, <->, or <Space> to include the disks into the array.



By default, the **RAID Disk** field shows **No** before volume creation. This field is grayed out under the following conditions:

- The disk does not meet the minimum requirements for use in a RAID volume.
- The disk is not large enough to mirror existing data on the primary drive.
- The disk is already part of another volume.

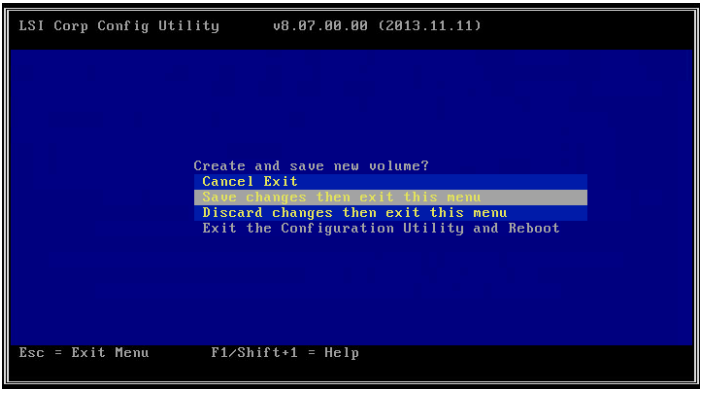
7. If a selected disk contains no files or data, the utility adds the disk to the array.



If a selected disk contains files or data, the following message appears on the screen. To proceed, do either of the following:

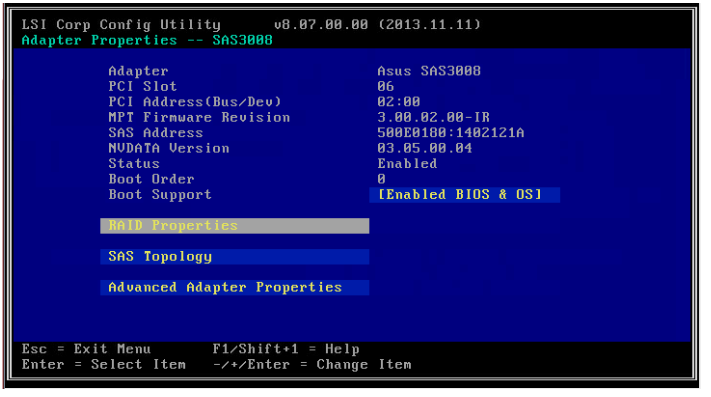
- Click any key to continue.
- Press <M> to keep existing data on the first disk. If you choose this option, data on the first disk will be mirrored on the second disk that you will add to the volume later. Ensure the data you want to mirror is on the first disk.
- Press <D> to overwrite any data and create the new IM array on the selected disks.

8. Repeat step 6 - 7 to add the other disks to the array.
9. When done, press <C> to continue with the creation of the new volume.
10. Select **Save changes then exit this menu** to create the volume.

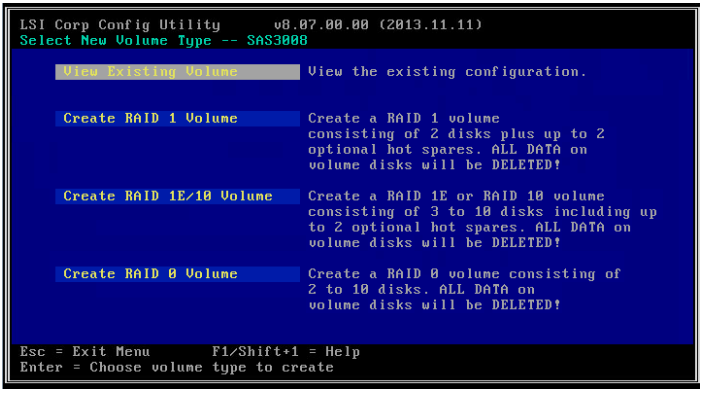


11. Wait while utility creates the volume.

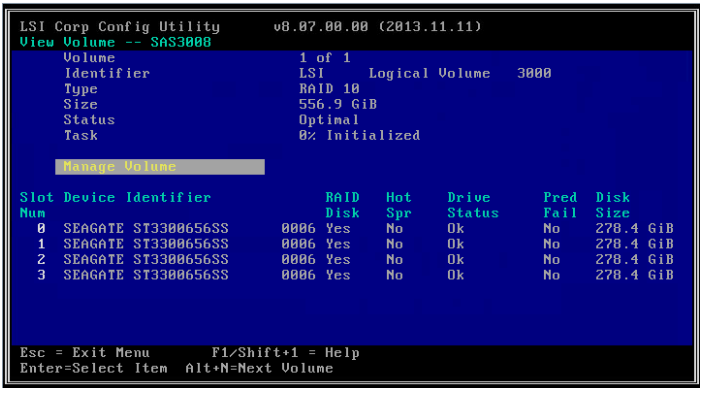
12. When done, the utility displays the **Adapter Properties** screen. To check the new volume you created, click **RAID Properties**.



13. From the **Select New Volume Type** screen, click **View Existing Volume**.



14. From the **View Volume** screen, the utility displays new volume you created.

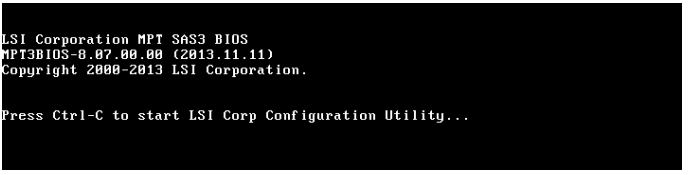


2.2.3 RAID 0 volume

The RAID 0 feature supports volumes with two to ten disks. You may combine an RAID 0 volume with an RAID 1 or RAID 1E/10 volume.

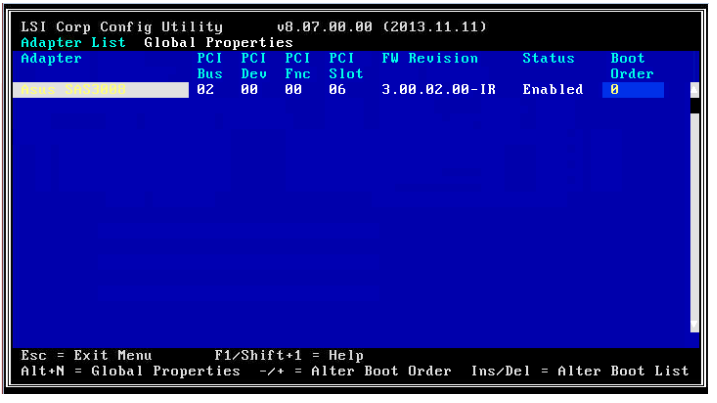
To create a RAID 0 volume:

1. Turn on the system after installing all SAS hard disk drives.
2. During POST, press <Ctrl>+<C> to enter the SAS configuration utility.



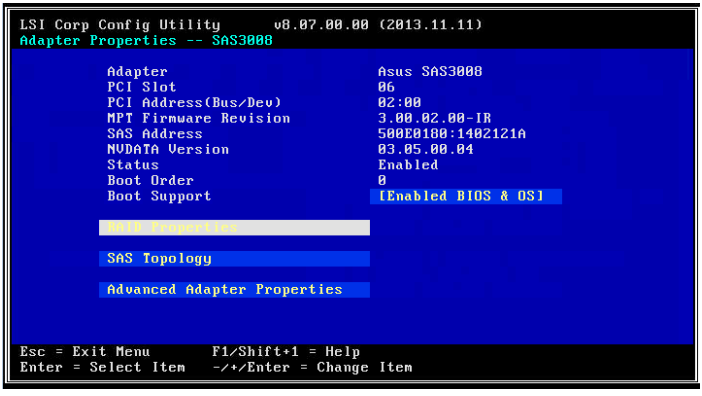
To avoid data loss, do not turn off the system when rebuilding.

3. From the Adapter List screen, select an item and press <Enter>.

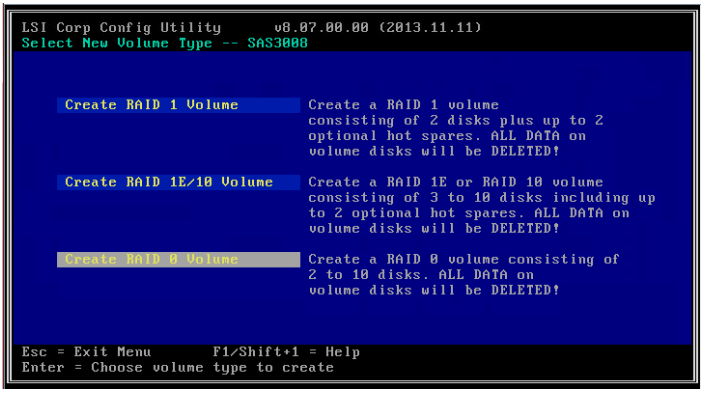


The number of items displayed depends on the controller.

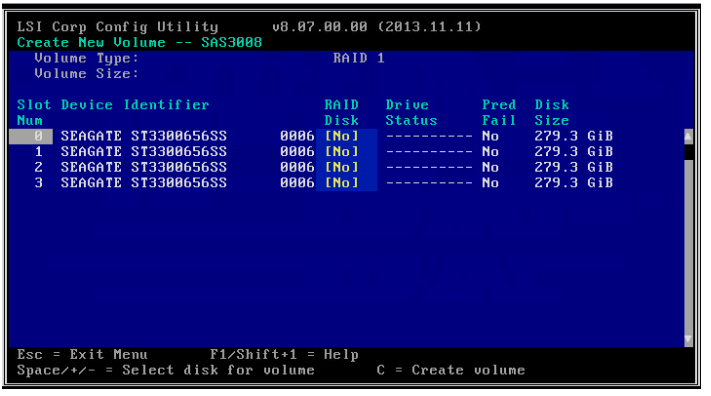
4. From the **Adapter Properties** screen, use the arrow keys to select **RAID Properties**, then press <Enter>.



5. From the **Select New Volume Type** screen, use the arrow keys to select **Create RAID 0 Volume** then press <Enter>.



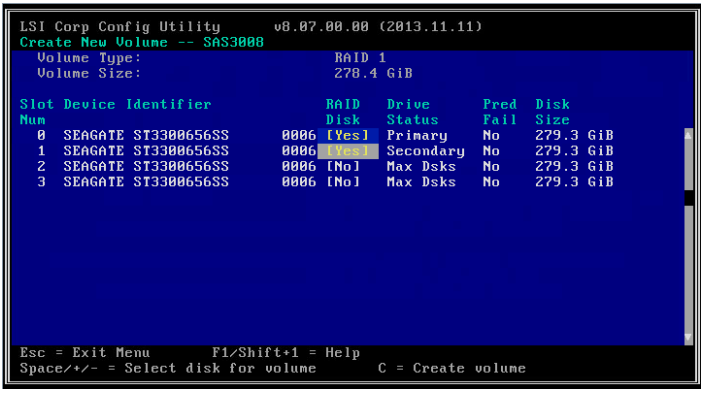
6. From the **Create New Volume** screen, move the cursor to the **RAID Disk** column of an available disks then press <+>, <->, or <Space> to include the disks into the array.



By default, the **RAID Disk** field shows **No** before volume creation. This field is grayed out under the following conditions:

- The disk does not meet the minimum requirements for use in a RAID volume.
- The disk is not large enough to mirror existing data on the primary drive.
- The disk is already part of another volume.

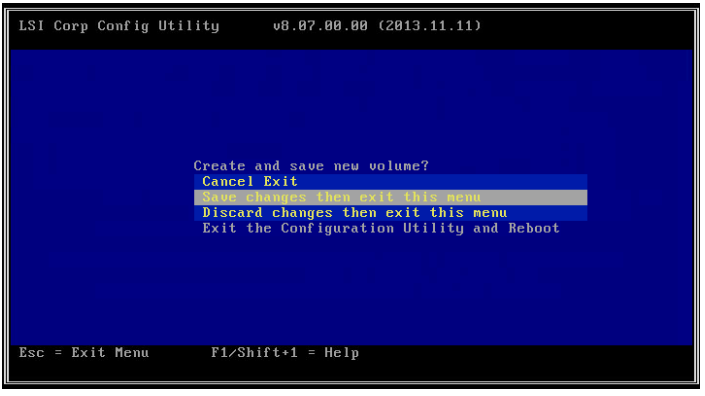
7. If a selected disk contains no files or data, the utility adds the disk to the array.



If a selected disk contains files or data, the following message appears on the screen. To proceed, do either of the following:

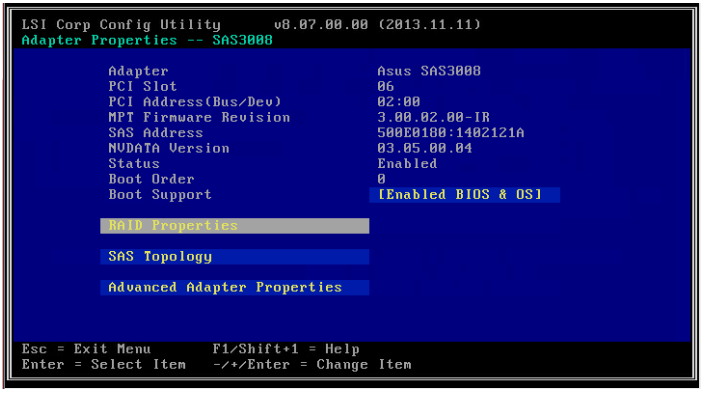
- Click any key to continue.
- Press <M> to keep existing data on the first disk. If you choose this option, data on the first disk will be mirrored on the second disk that you will add to the volume later. Ensure the data you want to mirror is on the first disk.
- Press <D> to overwrite any data and create the new IM array on the selected disks.

8. Repeat step 6 - 7 to add the other disks to the array.
9. When done, press <C> to continue with the creation of the new volume.
10. Select **Save changes then exit this menu** to create the volume.

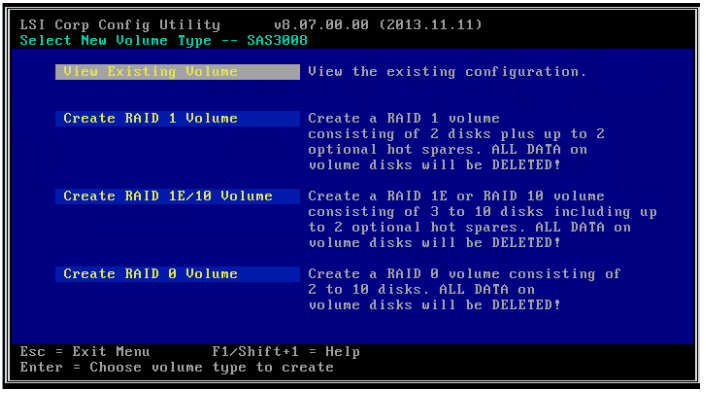


11. Wait while utility creates the volume.

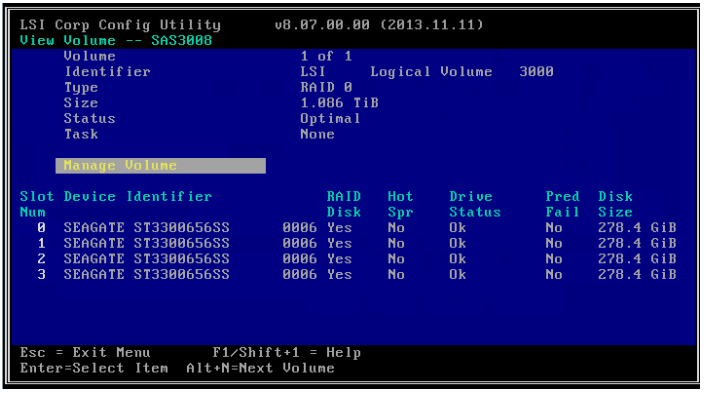
12. When done, the utility displays the **Adapter Properties** screen. To check the new volume you created, click **RAID Properties**.



13. From the **Select New Volume Type** screen, click **View Existing Volume**.



14. From the **View Volume** screen, the utility displays new volume you created.



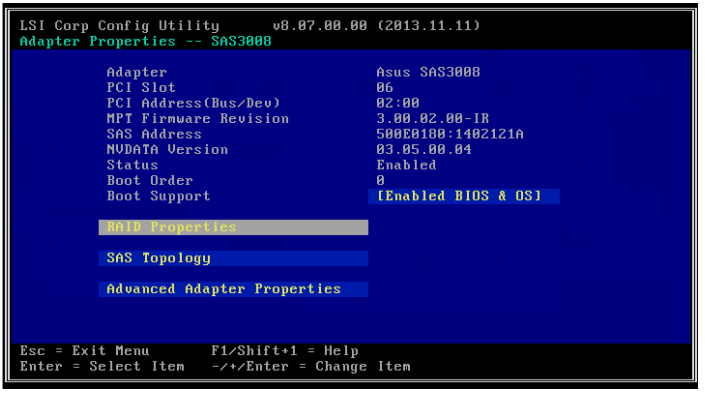
2.2.4 Managing the RAID Volumes

This section shows how to view volume properties, manage hot spare disk, perform volume consistency check, activate the volume, delete volume, and expand the volume capacity using the utility.

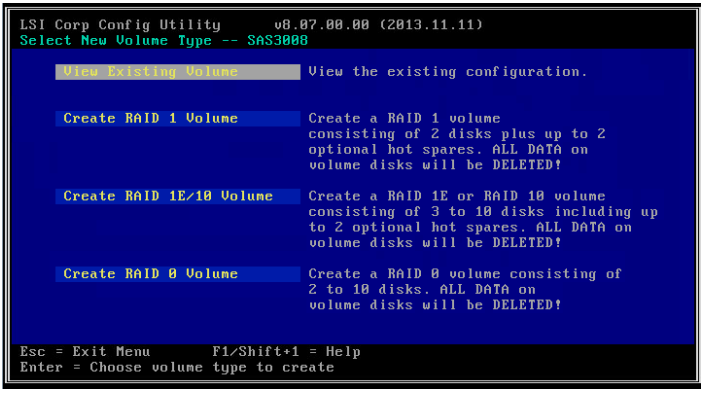
Viewing volume properties

To view volume properties:

1. From the **Adapter Properties** screen, use the arrow keys to select **RAID Properties**, then press <Enter>.

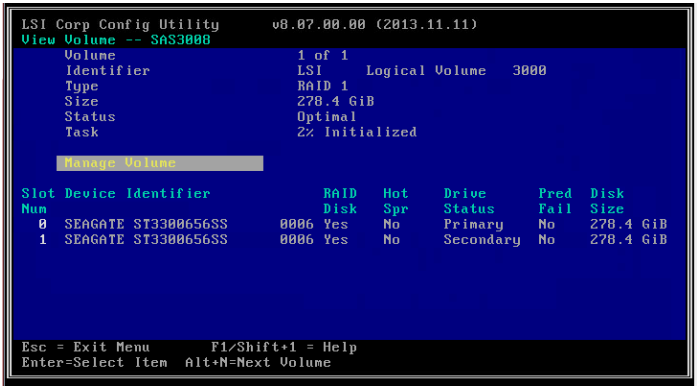


2. From the **Select New Volume Type** screen, click **View Existing Volume**.



3. From the **View Volume** screen, you can view properties of the RAID volume(s) you created. If you have configured a hot spare for a volume, it will also be listed.

If you created more than one volume, you can view the next volume by pressing <Alt+N>.



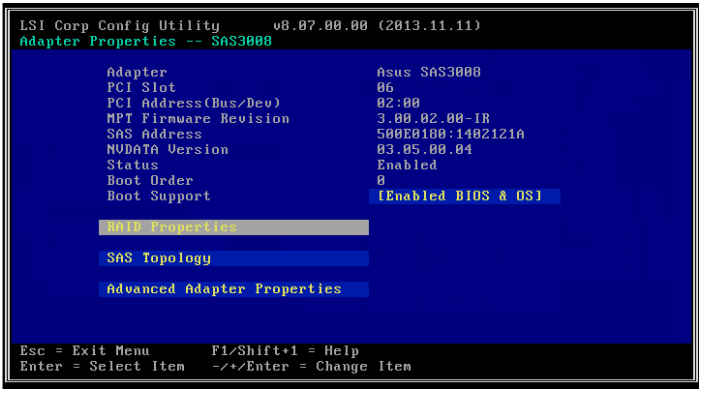
Managing hot spares

You may configure one disk as a global hot spare to protect critical data on the RAID 1/1E/10 volume(s). You can create the hot spare disk at the same time you create the RAID 1/1E/10 volume. Refer to this section when adding a hot spare disk on an existing volume.

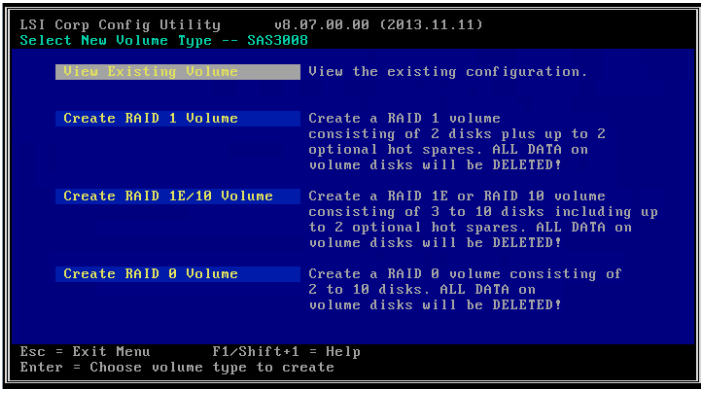
If a disk on an RAID 1/1E/10 volume fails, the utility automatically rebuilds the failed disk data on the hot spare. When the failed disk is replaced, the utility assigns the replacement as the new hot spare.

To create a hot spare:

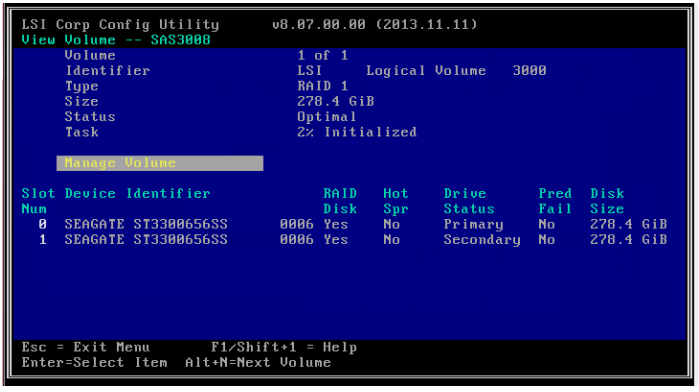
1. From the **Adapter Properties** screen, use the arrow keys to select **RAID Properties**, then press <Enter>.



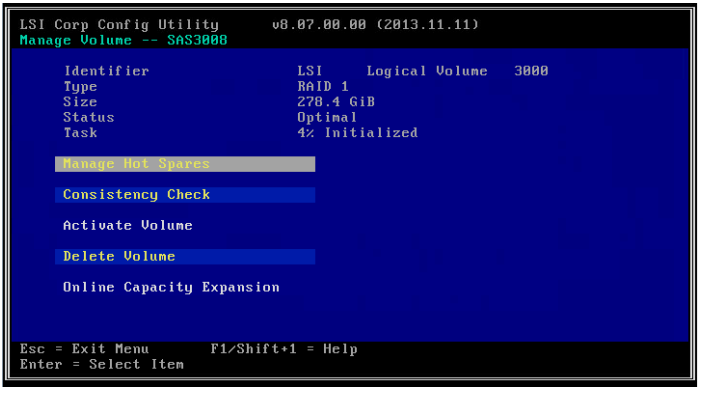
2. From the **Select New Volume Type** screen, click **View Existing Volume**.



3. From the **View Volume** screen, click Manage Volume.

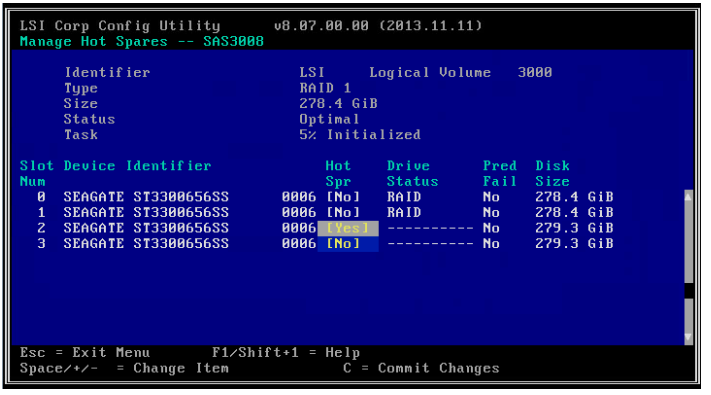


4. From the **Manage Volume** screen, select **Manage Hot Spares** then press <Enter>.

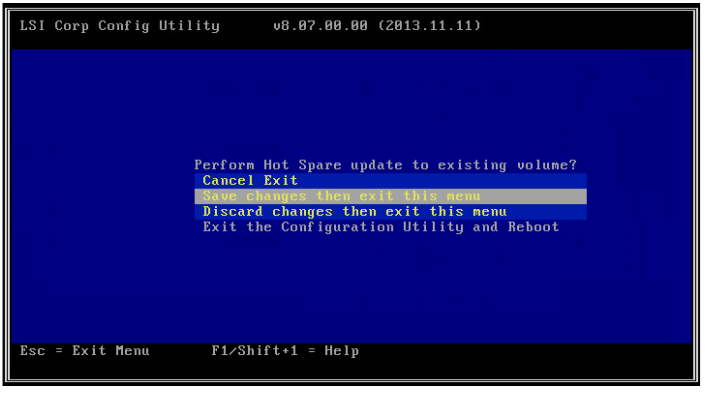


5. From the **Manage Hot Spares** screen, use the arrow keys to select the disk you want to configure as hot spare. Move the cursor to the **Hot Spr** column then press <+>, <->, or <Space>.

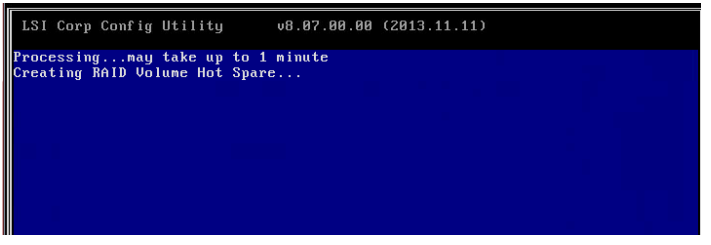
7. Press <C> to commit the changes.



8. Select **Save changes then exit this menu** to create the the hot spare.



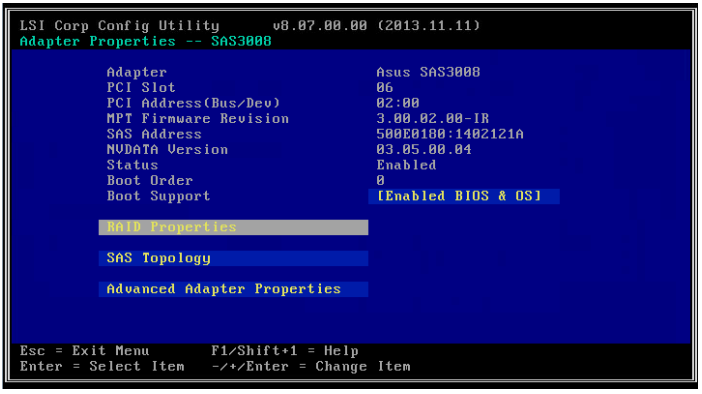
9. Wait for the utility to finish.



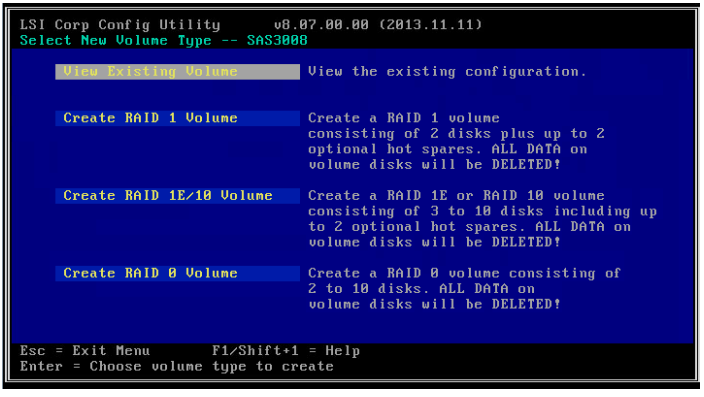
Running a consistency check

To run a consistency check on the RAID volume:

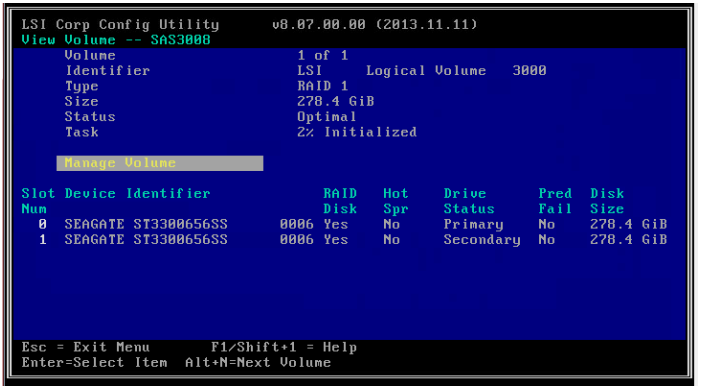
1. From the **Adapter Properties** screen, use the arrow keys to select **RAID Properties**, then press <Enter>.



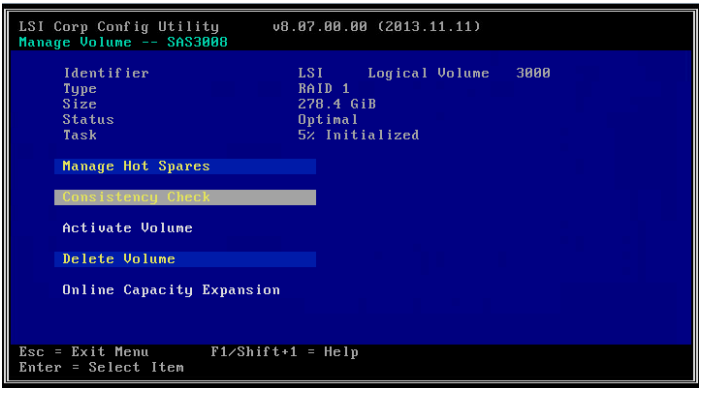
2. From the **Select New Volume Type** screen, click **View Existing Volume**.



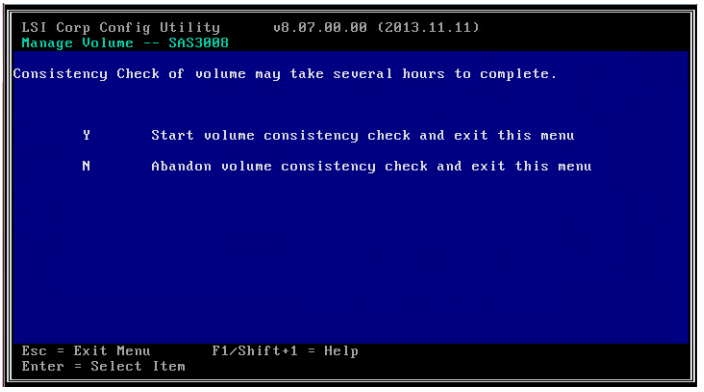
3. From the **View Volume** screen, click Manage Volume.



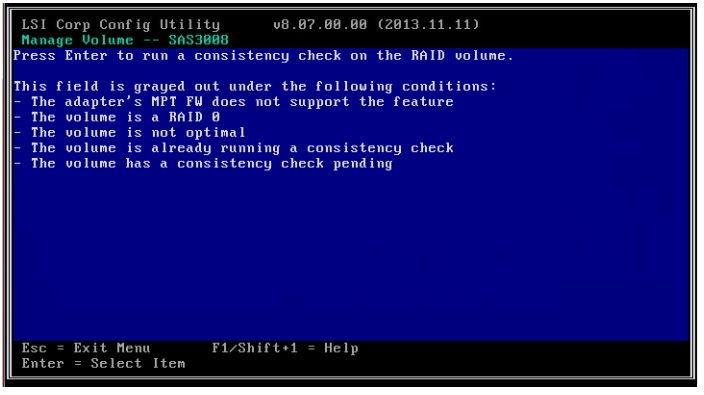
4. From the **Manage Volume** screen, select **Consistency Check** then press <Enter>.



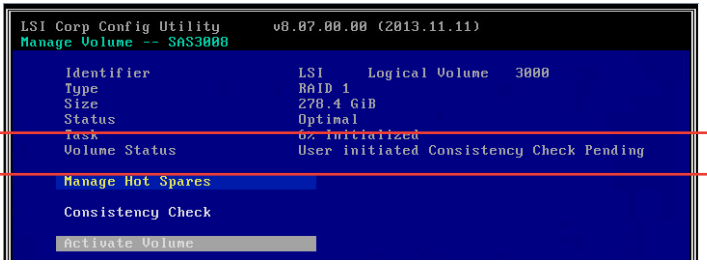
5. Press <Y> to proceed with the volume consistency check.



If you see a screen similar to the one shown below, press <Enter> to proceed with the volume consistency check.



To check the status, go to the **Manage Volume** screen and look at the information displayed on the **Volume Status** field.

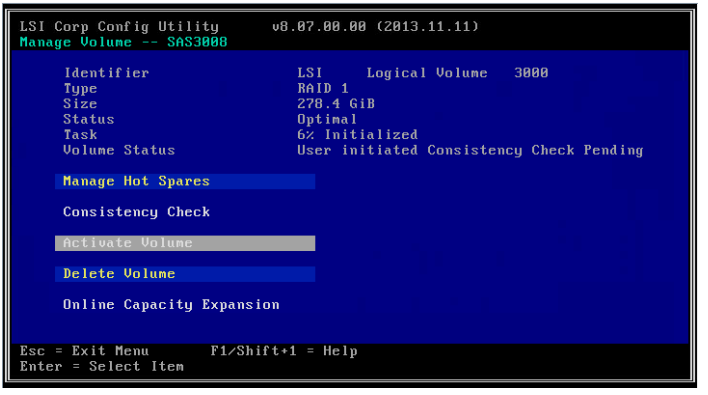


Activating a volume

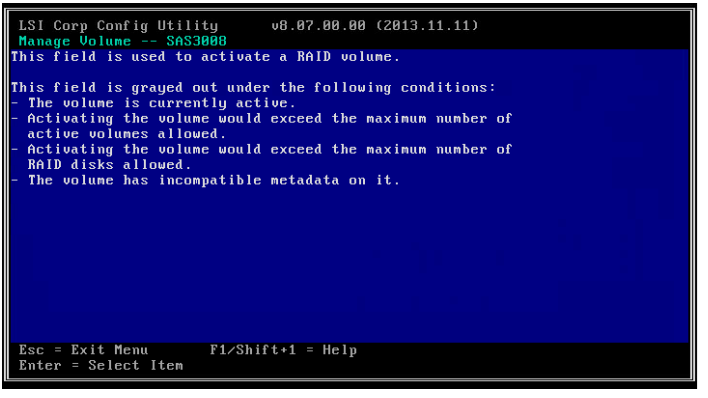
If a volume is removed from one controller/computer or moved to another, the volume is considered inactive. To add the volume back to the system, you need to reactivate the volume.

To activate the volume:

1. Go to the **Manage Volume** screen, select **Activate Volume** then press <Enter>.



2. Press <Enter> to activate the inactive RAID volume.

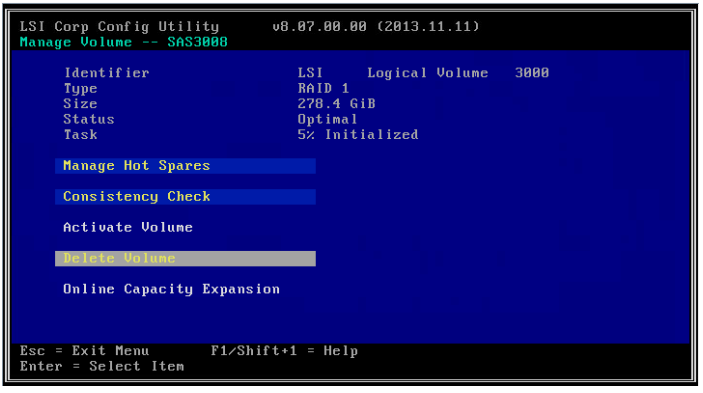


Deleting a volume

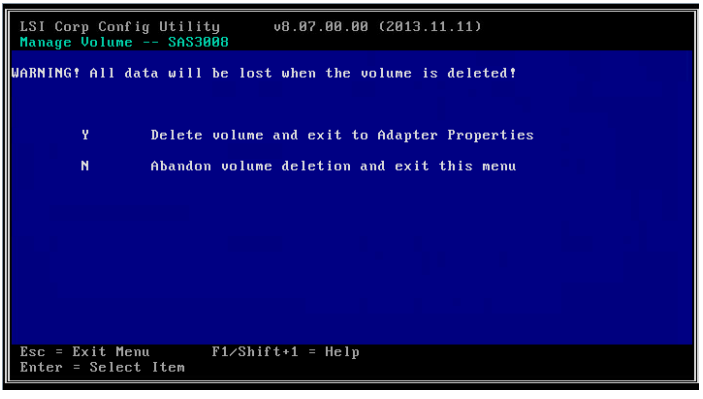
- You cannot recover lost data if you delete a volume. Ensure you back up important data before deleting a volume.
- The hot spare disk that you configured for a volume is also be deleted when you delete the volume.
- If you delete a RAID 1 volume, the data is preserved on the primary disk.

To delete a volume:

1. Go to the **Manage Volume** screen, select **Delete Volume** then press <Enter>.



2. Press <Y> to delete.



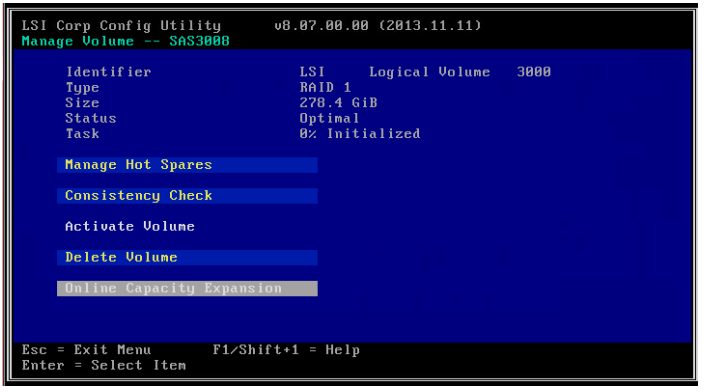
Expanding the volume capacity

You may use two new hard disk drives to replace the existing one, and expand the capacity of the RAID volume.

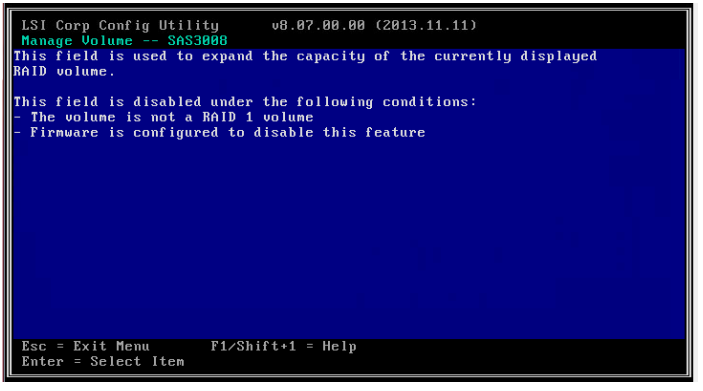
- The capactiy of th new hard disk drives should be 50GB larger than the existing one.
- This function is available only when the RAID 1 volume is optimal.

To expand the capacity of the currently displayed RAID volume:

1. Go to the **Manage Volume** screen, select **Online Capacity Expansion** then press <Enter>.



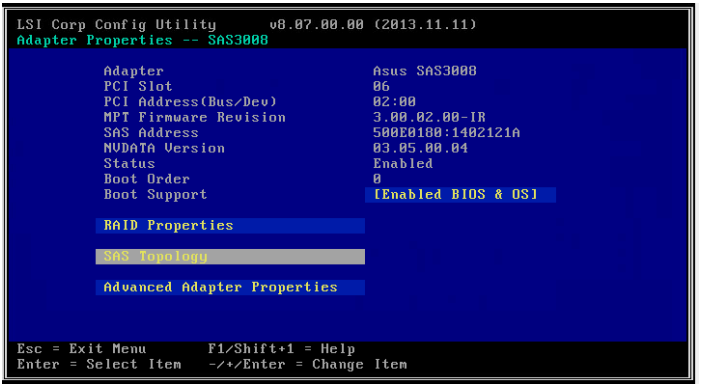
2. Press <Enter> to proceed with the online capacity expansion.



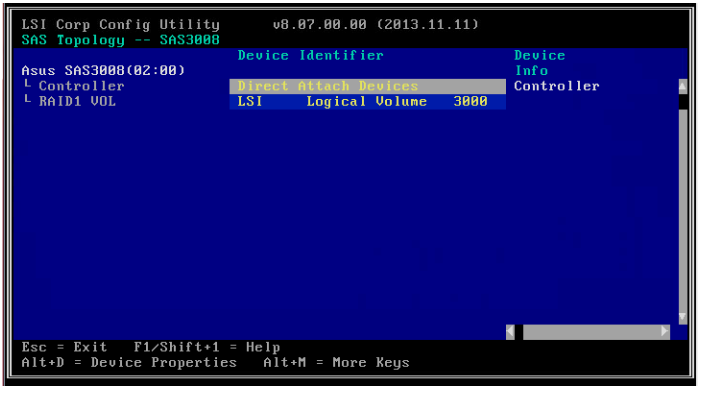
2.2.5 Viewing SAS topology

To view the SAS Topology:

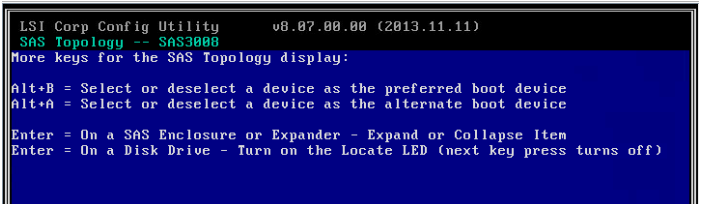
1. Go to the **Adapter Properties** screen, select **SAS Topology** then press <Enter>.



Information about the volume and its member disks are displayed.



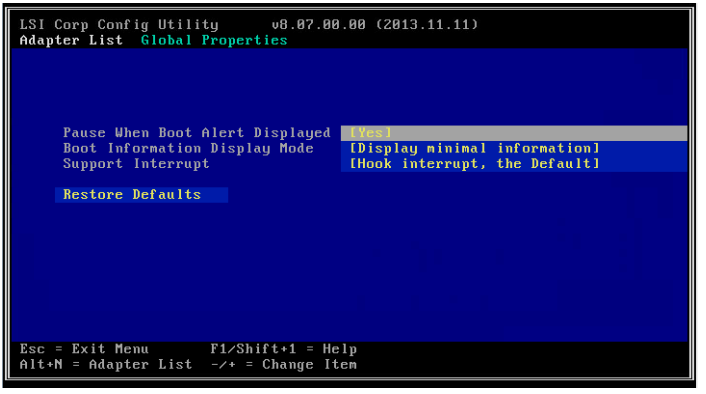
2. Press <Alt>+<D> to display device properties, or <Alt>+<M> to display more keys.



2.2.6 Global Properties

To access the Global Properties menu:

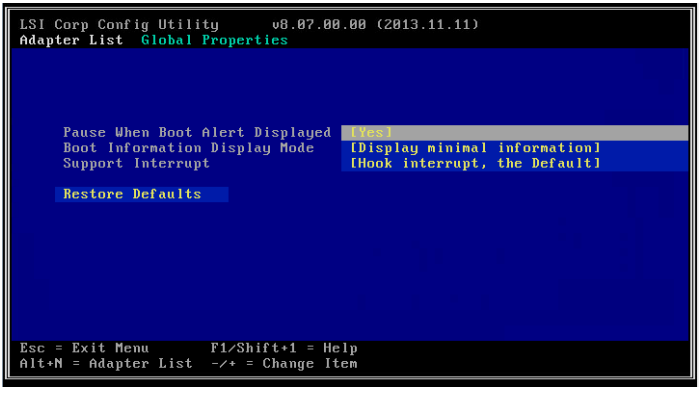
Go to the **Adapter List** screen, then press <Alt>+<N>.



From **Global Properties** menu, you can change the following settings:

A. Pause When Boot Alert Displayed

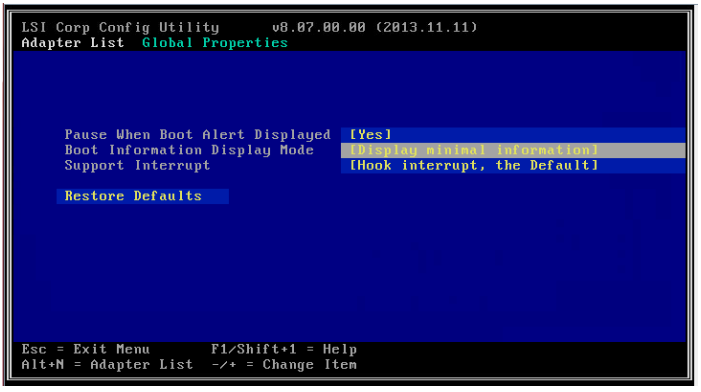
Sets whether to pause or not when the boot alert displays.
Configuration options: [Yes] [No]



B. Boot Information Display Mode

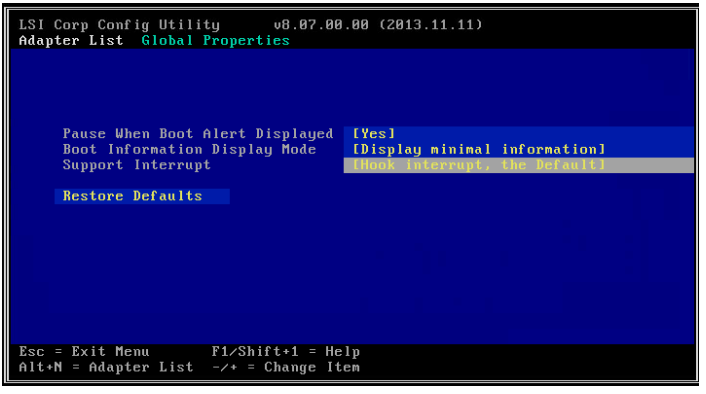
Sets the disk information display mode.

Configuration options: [Display adapters & installed devices] [Display adapters only] [Display adapters and all devices] [Display minimal information]



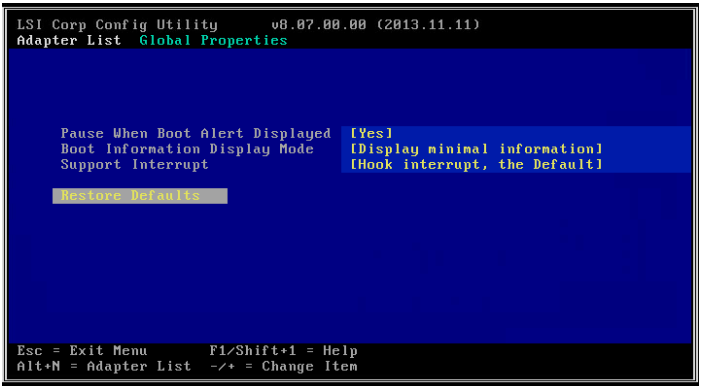
C. Support Interrupt

Configuration options: [Hook interrupt, the Default] [Bypass interrupt hook]



D. Restore Defaults

This option allows you to discard the selections you made and restore the system defaults.



2.3 MegaRAID Storage Manager

MegaRAID Storage Manager software enables you to configure, monitor, and maintain storage configurations on LSI SAS controllers. The MegaRAID Storage Manager graphical user interface (GUI) makes it easy for you to create and manage storage configurations.

2.3.1 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)
- Disk drive with at least 50 Mbytes available free space

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

2.3.2 Installing MegaRAID Storage Manager Sofware on Microsoft Windows OS

Follow these steps if you need to install MegaRAID Storage Manager software on a system running Microsoft Windows OS:

1. Insert the MegaRAID Storage Manager software installation CD in the CD-ROM drive.

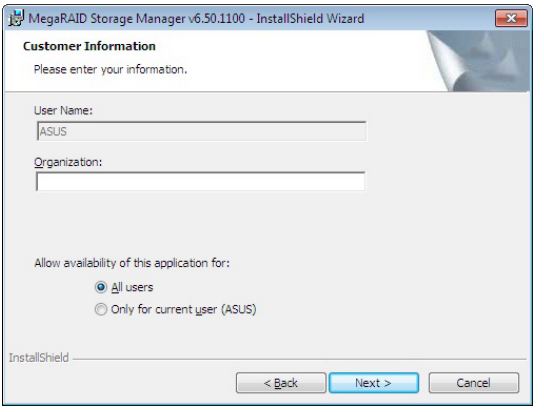
   If necessary, find and double-click the setup.exe file to start the installation program.

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**.

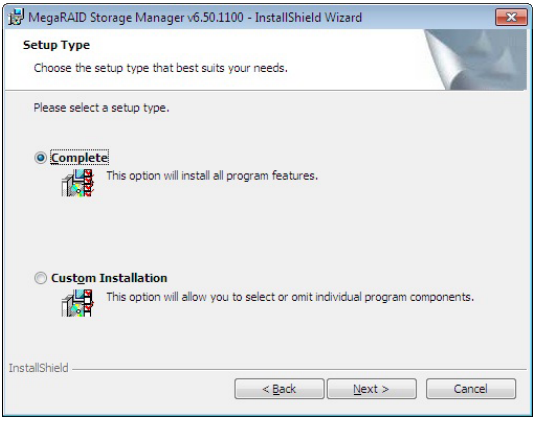
3. When the next screen appears, read and accept the user license, and click **Next**.

   The Customer Information screen appears, as shown in the following figure.



4. 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**, the MegaRAID Storage Manager shortcuts and associated icons will be available only to the user with this user name.
5. Click **Next** to continue.
6. On the next screen, accept the default Destination Folder, or click **Change** to select a different destination folder. Click **Next** to continue.

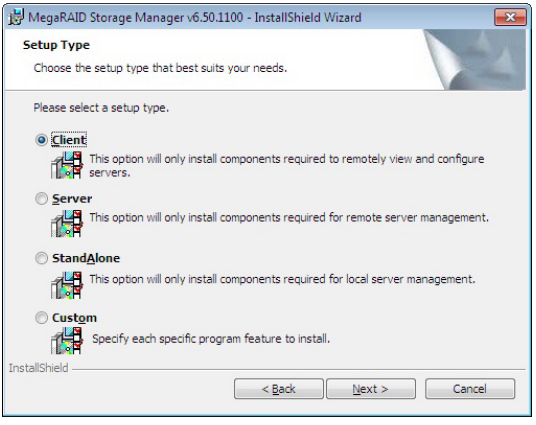
   The Setup Type screen appears, as shown in the following figure.



7. Select one of the Setup options. The options are fully explained in the screen text.
   - Normally, you would select **Complete** if you are installing MegaRAID Storage Manager software on a server.
   - Select **Custom Installation** if you want to select individual program components.
8. Click **Next** to continue.

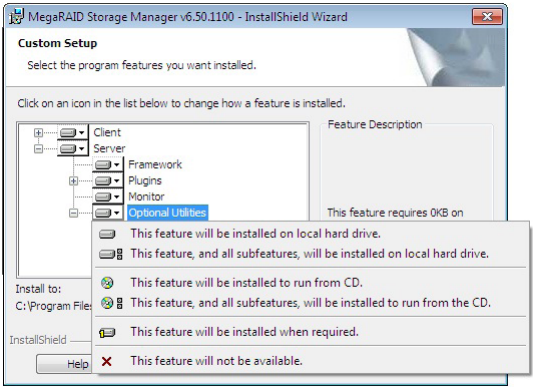
   If you selected **Custom Installation** as your setup option, the second Setup Type screen appears, as shown in the following figure.

   If you select **Complete** as your setup option, the Installation Wizard is ready to install MSM. To begin installation, click on Install on the next screen that appears.



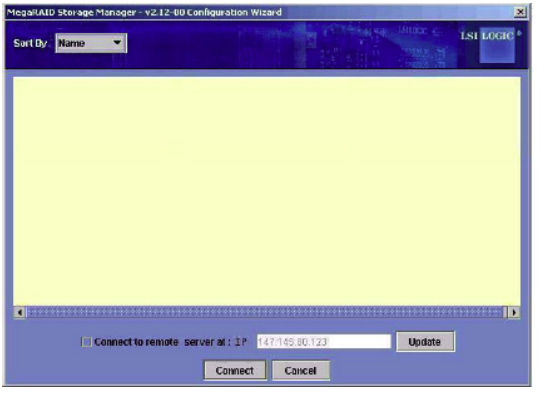
9. Select one of the custom setup options. The options are fully explained in the screen text.
   - Select **Client** if you are installing MegaRAID Storage Manager software on a PC that will be used to view and configure servers over a network. To begin installation, click on **Install** on the next screen that appears.
   - Select **Server** to install only those components required for remote server management. To begin installation, click on **Install** on the next screen that appears.
   - Select **StandAlone** if you will use MegaRAID Storage Manager software to create and manage storage configurations on a standalone workstation. To begin installation, click on **Install** on the next screen that appears.
   - Select **Custom** if you want to specify individual program features to install.

If you select **Custom**, a window listing the installation features appears, as shown in the following figure. Select the features you want on this screen.



10. Click **Next** to proceed.
11. Click **Install** to install the program.
12. When the final Configuration Wizard screen appears, click **Finish**.

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), the server screen will appear, as shown in the following figure. The server screen will not list any servers. You can use this screen to manage systems remotely.



2.3.3 Installing MegaRAID Storage Manager Sofware for Linux

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

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

   tar -zxvf MSM_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:

   csh install.sh -a

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), the server screen appears. The server screen does not list any servers. You can use this screen to manage systems remotely.

2.3.4 Linux Error Messages

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.

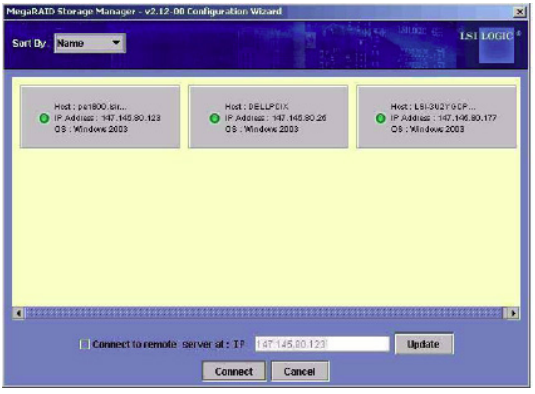
2.3.5 Starting MegaRAID Storage Manager Software

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.

   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.)

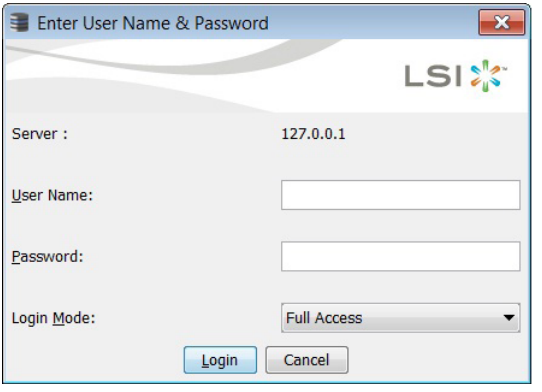
   - To start MegaRAID Storage Manager software on a Red Hat Linux system, select **Applications > System Tools > MegaRAID Storage Manager StartupUI**.
   - To start MegaRAID Storage Manager software on a SUSE SLES system, select **Start > System > More Programs > MegaRAID Storage Manager**.
2. When the program starts, the Select Server window appears, as shown in the following figure.



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.

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 the MegaRAID Storage Manager software is running, and click **Update**. If you check the **Connect to remote server at: IP** address box, you can also access a standalone (remote) installation of MegaRAID Storage Manager software, if it has a network connection.

3. Double-click the icon of the server that you want to access. The Server Login window appears, as shown in the following figure.



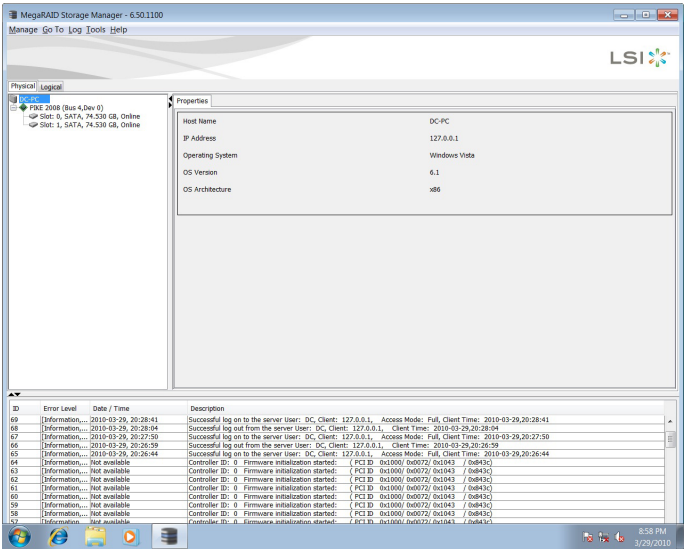
4. Select an access mode from the drop-down menu.
   - Select **Full Access** if you need to both view the current configuration and change the configuration.
   - Select **View Only** if you need to only view and monitor the configuration.
5. Enter your user name and password, and click **Login**.

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.

2.3.6 MegaRAID Storage Manager Window

This section describes the MegaRAID Storage Manager window, which is shown in the following figure.



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. The controller label identifies the MegaRAID controller, such as the ASUS PIKE II 3008 Series controller, so that you can easily differentiate between multiple controllers. 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 

- Volume 
- Virtual disk 

- Physical drive 

A red circle to the right of an icon indicates that the device has failed. For example, this icon indicates that a physical drive has failed:  .

A yellow circle to the right of an icon indicates that a device is running in a degraded state. For example, this icon indicates that a virtual disk is running in a degraded state because a disk drive has failed:  .

Properties View Panel

The right panel of the MegaRAID Storage Manager window has the **Properties** tab that 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, NVRAM size, and device port count.

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 an ID, a timestamp and date, an error level indicating the severity of the event, and a brief description of the event.

Menu Bar

Here are brief descriptions of the main selections on the MegaRAID Storage Manager menu bar.

Manage Menu

The **Manager** menu has an **Exit** option for exiting from the MegaRAID Storage Manager software. It also has a **Refresh** option for updating the display in the MegaRAID Storage Manager window. (Refresh is seldom required; the display normally updates automatically.) The Manage menu options also include **Check Consistency**, **Initialize**, and **Show Progress**.

Go To Menu

The **Go To** menu is available when a controller, physical drive, or virtual disk is selected in the MegaRAID Storage Manager window. The **Go To** menu options vary depending on what type of device is selected in the left panel of the MegaRAID Storage Manager window. For example, the **Scan Foreign Configuration** option is available only when a controller is selected. The options also vary depending on the current state of the selected device. For example, if you select an offline physical drive, the **Make Drive Online** option will be available in the **Go To** menu.

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

Tools Menu
On the Tools menu you can select **Configure Alerts** to access the Event Configuration Notification screen, which you can use to set the alert delivery rules, event severity levels, exceptions, and email settings.

Help Menu
On the Help menu you can select **Help > Contents** to view the MegaRAID Storage Manager online help file. You can select **Help > About MegaRAID Storage Manager** to view version information for the MegaRAID Storage Manager software.

- When you use the MegaRAID Storage Manager 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.
- If you are using the Linux operating system, you must install Firefox® or Mozilla® for the MegaRAID Storage Manager online help to display.

Driver installation

3

This chapter provides instructions for installing the RAID card driver on different operating systems.

3.1 RAID driver installation

After creating the RAID sets for your server system, you are now ready to install an operating system to the independent hard disk drive or bootable array. This part provides instructions on how to install or update the RAID card drivers.

The RAID card driver might be included in the Linux OS installation CD, and could be loaded automatically during OS installation. However, we recommend using the RAID driver packaged in the RAID card support CD for better reliability.

3.1.1 Windows® Server 2012 R2 OS

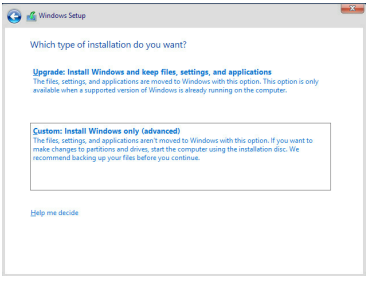
During Windows® Server 2012 R2 OS installation

To install the RAID card driver when installing Windows® Server 2012 R2 OS:

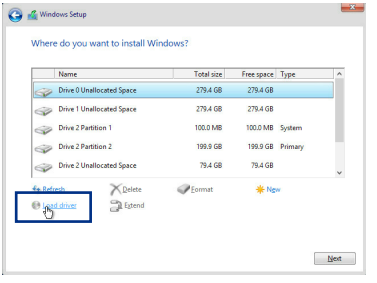
1. Boot the computer using the Windows® Server 2012 R2 OS installation CD to start the **Windows® Setup** process.
2. Follow onscreen installation.

Ensure to choose **Windows 2012 R2 Data center (Server with a GUI) when asked to sel**ect the type of operating system you want to install.

3. From the Windows Setup window, click **Custom: Install Windows only (Advanced)**.

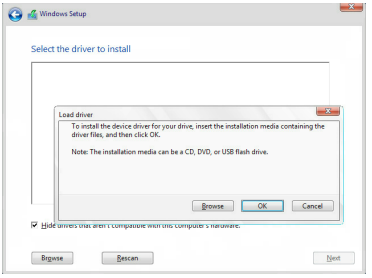


4. Select and click **Load Driver**.

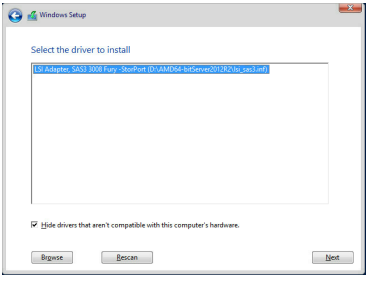


5. Remove the installation DVD on the disc drive and replace it with the bundled support DVD that contains the RAID driver.

6. Click **Browse** and locate the driver on the support DVD.



7. Select the driver from the list then click **Next**.

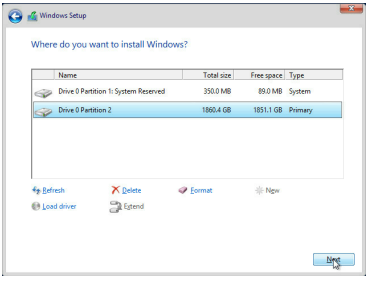


8. Wait for the driver installation to finish.

9. When done, remove the support DVD and replace it with the installation DVD

10. Continue installing the operating system and follow onscreen instructions to complete the installation.

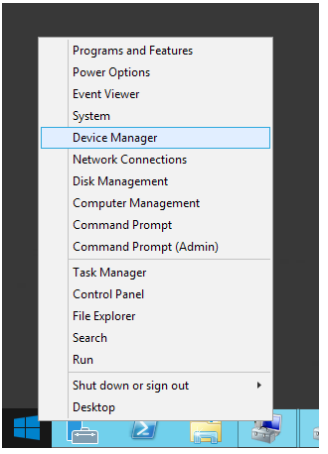
11. (**optional**) Restart the computer.



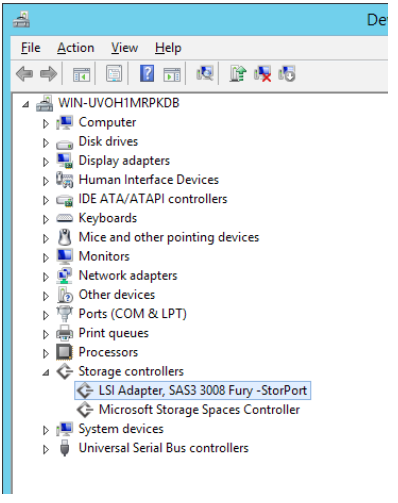
After Windows® Server 2012 R2 OS installation

To update the RAID card driver after installing Windows® Server 2012 R2 OS:

1. Insert the support DVD that is bundled with your PIKE 3008 Series card into the disc drive.
2. Right-click on the Start button then click **Device Manager**.

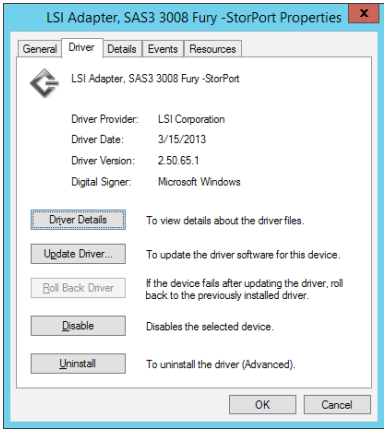


3. Go to **Storage Controllers** then select **LSI Adapter, SAS 3008 Fury-StorPort**.
4. Double-click **LSI Adapter, SAS3 3008 Fury-StorPort**.

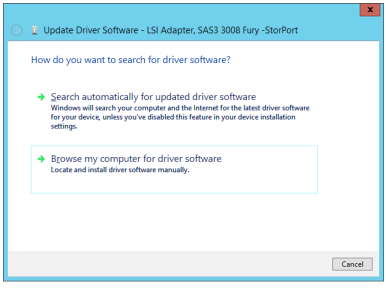


The controller name differs according to the installed SAS RAID card.

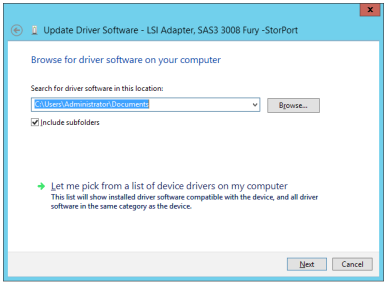
5. Go to the **Driver** tab then click on **Update Driver**.



6. Click **Browse my computer for driver software**.



7. Click **Browse,** locate the installer on the support DVD, click **OK** when done, and then click **Next**.



8. Wait for the driver installation to finish.
9. When done, click **Close**.
10. Restart the system.

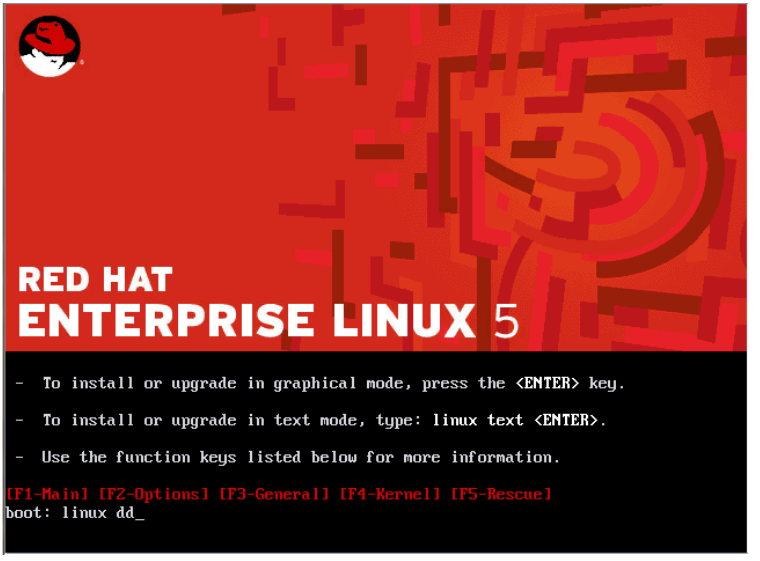
3.1.2 Red Hat® Enterprise Linux OS 5.x

To install the RAID card driver when installing Red Hat® Enterprise OS:

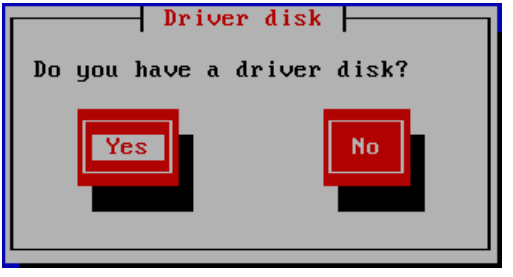
1. Copy or unzip the **dd.iso** file to a USB storage device then connect the USB storage device to your system.

> To get the **dd.iso** from the support CD, go to **Driver > Linux > mpt3sas-release\rhel5 > disks-1.**To download **dd.iso** from the ASUS website, visit www.asus.com.

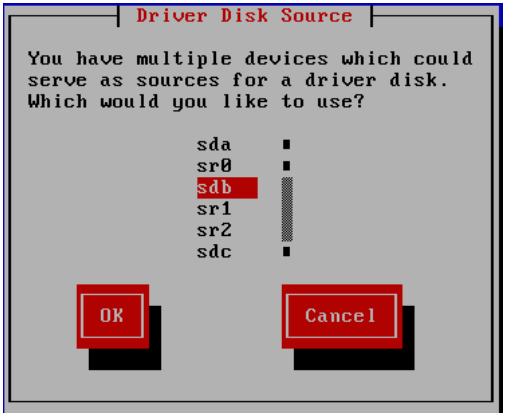
2. Boot the system from the Red Hat® OS installation CD.
3. Key in **`linux dd`**, then press <Enter>.



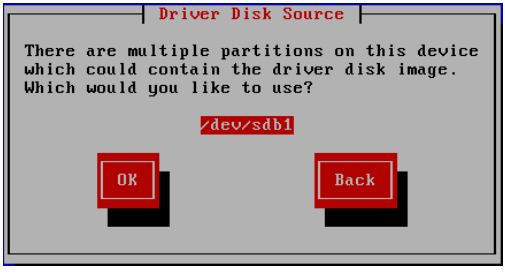
4. Using the <Tab> key, select **Yes** then press <Enter>.



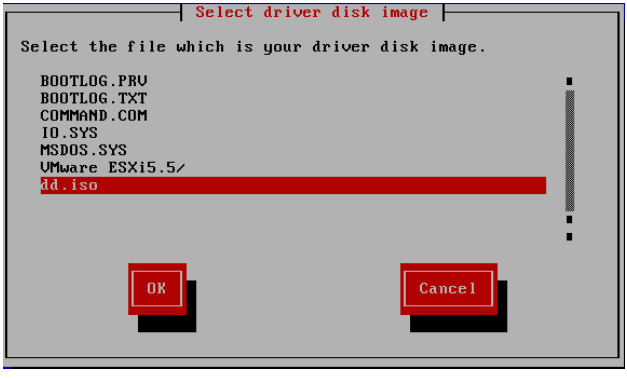
5. From the Driver Disk Source window, select **sdb** from the list, select **OK**, then press <Enter>.



6. Select **OK** to continue.



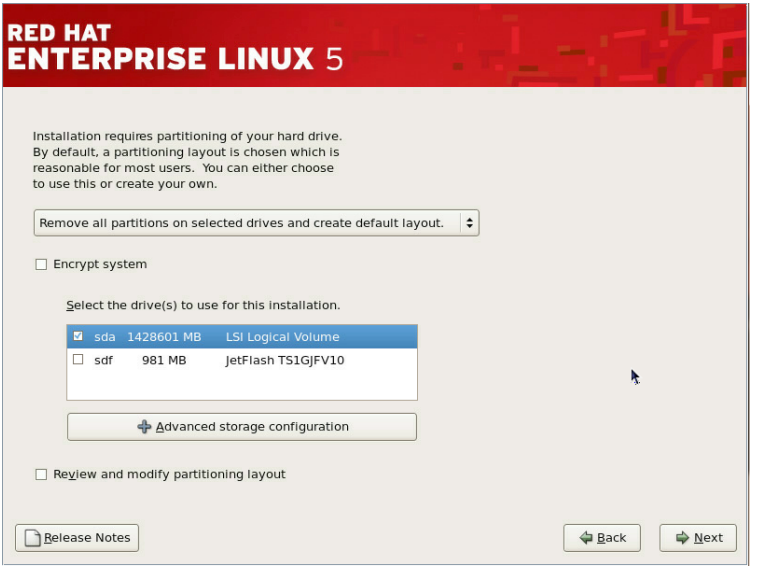
7. Select **dd.iso** from the list, select **OK**, then press <Enter>.



8. If you want to install another driver, select **Yes** then press <Enter>. Otherwise, select **No** then press <Enter>.

9. Follow on-screen instructions to continue with the installation.

   When you reach the part to select storage devices, the system should detect the PIKE card and the RAID volume if the driver is loaded successfully. The system may display a screen similar to the one shown below.



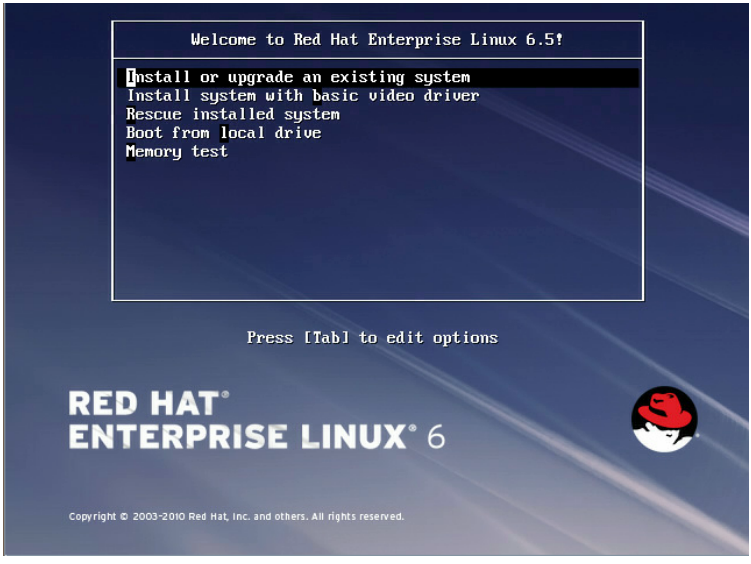
3.1.3 Red Hat® Enterprise Linux OS 6.x

To install the RAID card driver when installing Red Hat® Enterprise OS:

1. Copy or unzip the **dd.iso** file to a USB storage device then connect the USB storage device to your system.

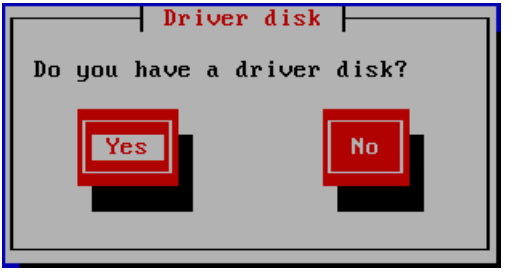
> To get the **dd.iso** from the support CD, go to **Driver > Linux > mpt3sas-release\rhel6 > disks-1.**To download **dd.iso** from the ASUS website, visit www.asus.com.

2. Boot the system from the Red Hat® OS installation CD.
3. From the initial installation page, use the arrow keys to select the instalation method then press <Esc> to enter the boot option.

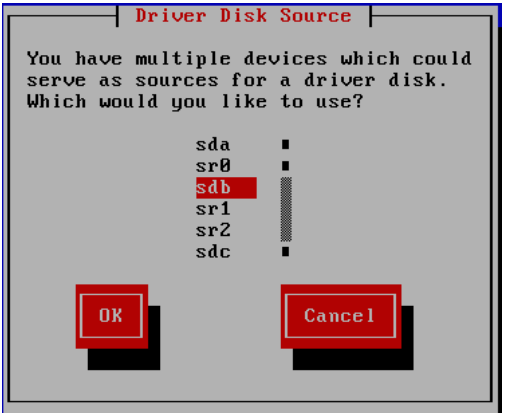


4. After the boot option, key in **linux dd**, then press <Enter>.

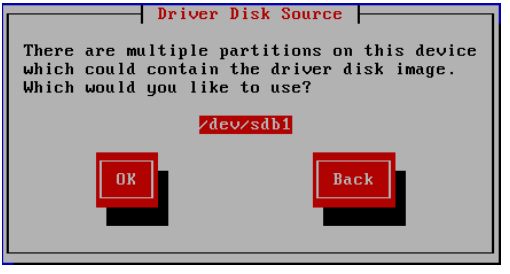
5. Using the <Tab> key, select **Yes** then press <Enter>.



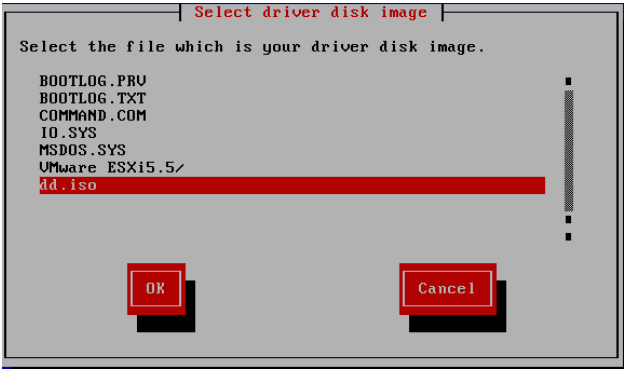
5. From the Driver Disk Source window, select **sdb** from the list, select **OK**, then press <Enter>.



6. Select **OK** to continue.



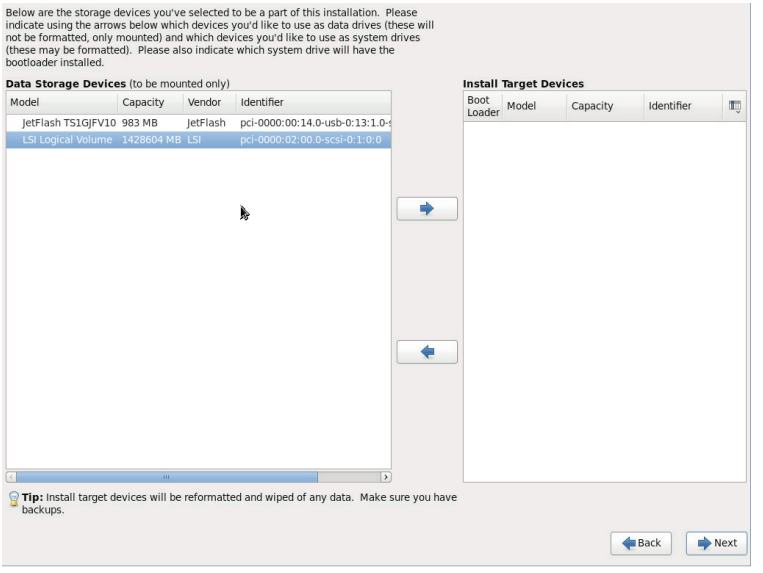
7. Select **dd.iso** from the list, select **OK**, then press <Enter>.



8. If you want to install another driver, select **Yes** then press <Enter>. Otherwise, select **No** then press <Enter>.

9. Follow on-screen instructions to continue with the installation.

When you reach the part to select storage devices, the system should detect the PIKE card and the RAID volume if the driver is loaded successfully. The system may display a screen similar to the one shown below.

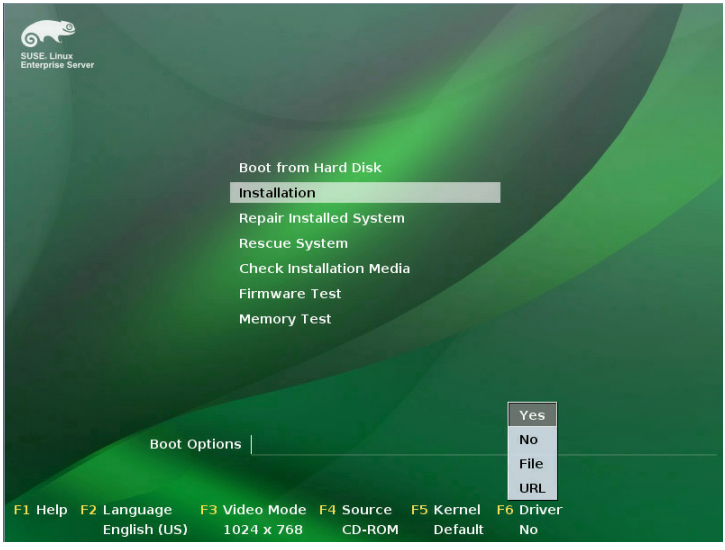


3.1.3 SUSE Linux OS 11

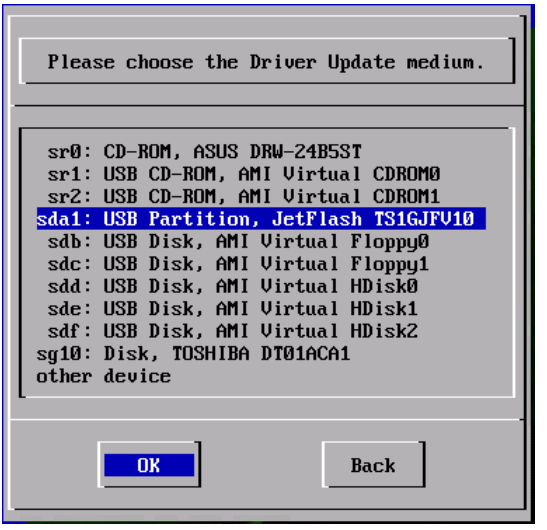
1. Copy or unzip the **dd.iso** file to a USB storage device then connect the USB storage device to your system.

To get the **dd.iso** from the support CD, go to **Driver > Linux > mpt3sas-release\sles11 > disks-1.**To download **dd.iso** from the ASUS website, visit www.asus.com.

2. Boot the system from the SUSE OS installation CD.
3. From the initial installation page, press F6 and select Yes to load the driver.

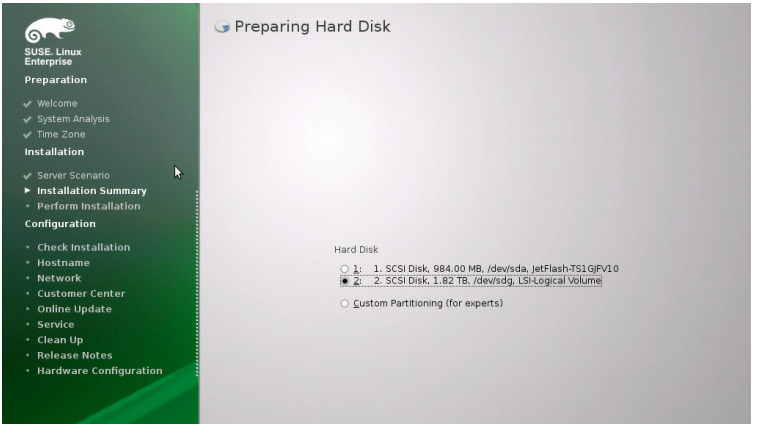


4. Select USB storage device from the list, select **OK**, then press <Enter>.



5. Follow on-screen instructions to continue with the installation.

   When you reach the part to select storage devices, the system should detect the PIKE card and the RAID volume if the driver is loaded successfully. The system may display a screen similar to the one shown below.



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Technical Support

Telephone	008-800-100-ASUS (008-800-100-2787)
Online Support	http://vip.asus.com/eservice/techserv.aspx?SLanguage=ru

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)

Responsible Party Name: **Asus Computer International**

Address: **800 Corporate Way, Fremont, CA 94539.**

Phone/Fax No: **(510)739-3777/(510)608-4555**

hereby declares that the product

Product Name : PIKE Card

Model Number : PIKE II 3008-4i4e , PIKE II 3008-8i

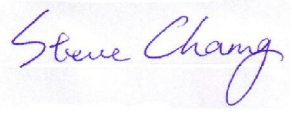
Conforms to the following specifications:

☒ FCC Part 15, Subpart B, Unintentional Radiators

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Representative Person's Name : **Steve Chang / President**



Signature :

Date : **Apr. 29, 2014**

Ver. 140331

EC Declaration of Conformity

We, the undersigned,

Manufacturer:	ASUSTeK COMPUTER INC.
Address:	4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN
Authorized representative in Europe:	ASUS COMPUTER GmbH
Address, City:	HARKORT STR. 21-23, 40880 RATINGEN
Country:	GERMANY

declare the following apparatus:

Product name :	**PIKE Card**
Model name :	**PIKE II 3008-4i4e , PIKE II 3008-8i**

conform with the essential requirements of the following directives:

☒**2004/108/EC-EMC Directive**

☒ EN 55022:2010+AC:2011	☒ EN 55024:2010
☒ EN 61000-3-2:2006+A2:2009	☒ EN 61000-3-3:2008
☐ EN 55013:2001+A1:2003+A2:2006	☐ EN 55020:2007+A11:2011

☐**1999/5/EC-R&TTE Directive**

☐ EN 300 328 V1.7.1(2006-10)	☐ EN 301 489-1 V1.9.2(2011-09)
☐ EN 300 440-1 V1.6.1(2010-08)	☐ EN 301 489-3 V1.4.1(2002-08)
☐ EN 300 440-2 V1.4.1(2010-08)	☐ EN 301 489-4 V1.4.1(2009-05)
☐ EN 301 511 V9.0.2(2003-03)	☐ EN 301 489-7 V1.3.1(2005-11)
☐ EN 301 908-1 V5.2.1(2011-05)	☐ EN 301 489-9 V1.4.1(2007-11)
☐ EN 301 908-2 V5.2.1(2011-07)	☐ EN 301 489-17 V2.2.1(2012-09)
☐ EN 301 893 V1.6.1(2011-11)	☐ EN 301 489-24 V1.5.1(2010-09)
☐ EN 302 544-2 V1.1.1(2009-01)	☐ EN 302 326-2 V1.2.2(2007-06)
☐ EN 302 623 V1.1.1(2009-01)	☐ EN 302 326-3 V1.3.1(2007-09)
☐ EN 50360:2001	☐ EN 301 357-2 V1.4.1(2008-11)
☐ EN 62479:2010	☐ EN 302 291-1 V1.1.1(2005-07)
☐ EN 50385:2002	☐ EN 302 291-2 V1.1.1(2005-07)
☐ EN 62311:2008	

☒**2006/95/EC-LVD Directive**

☒ EN 60950-1 / A12:2011	☐ EN 60065:2002 / A12:2011

☐**2009/125/EC-ErP Directive**

☐ Regulation (EC) No. 1275/2008	☐ Regulation (EC) No. 278/2009
☐ Regulation (EC) No. 642/2009	☐ Regulation (EC) No. 617/2013

☒**2011/65/EU-RoHS Directive** Ver. 140331

☒**CE marking**

CE (EC conformity marking)

Position : **CEO**

Name : **Jerry Shen**

Declaration Date: 29/04/2014

Year to begin affixing CE marking: 2014

Signature : _____