Guide to Intel Rapid Storage

Overview

Intel® Rapid Storage Technology provides new levels of protection, performance, and expandability for desktop and mobile platforms. Whether using one or multiple hard drives, users can take advantage of enhanced performance and lower power consumption. When using more than one drive, the user can have additional protection against data loss in the event of a hard drive failure.

Starting with version 9.5, a brand new user interface makes creating and managing your storage simple and intuitive. Combined with Intel® Rapid Recover Technology, setting up data protection can be accomplished easily with an external drive.

Valuable digital memories are protected against a hard drive failure when the system is configured for any one of three fault-tolerant RAID levels: RAID 1, RAID 5, and RAID 10. By seamlessly storing copies of data on one or more additional hard drives, any hard drive can fail without data loss or system downtime. When the failed drive is removed and a replacement hard drive is installed, data fault tolerance is easily restored.

Intel Rapid Storage Technology can also improve the performance of disk intensive retrieval applications such as editing home video. By combining from two to six drives in a RAID 0 configuration, data can be accessed on each drive simultaneously, speeding up response time on data-intensive applications. Also, due to drive load balancing, even systems with RAID 1 can take advantage of faster boot times and data reads.

Intel Rapid Storage Technology provides benefits to users of a single drive as well. Through AHCI, storage performance is improved through Native Command Queuing (NCQ). AHCI also delivers longer battery life with Link Power Management (LPM), which can reduce the power consumption of the chipset and Serial ATA (SATA) hard drive.

Installation Instructions

1. Download the Intel Rapid Storage Technology software from Intel website. Save the file to a known location on your computer's hard drive.
2. Locate the file on your hard drive and double-click it.
3. Click **Continue** (if needed) to launch the installation program.
4. Click **Next** at the Welcome screen.

5. Click **Next**.

6. Read the license agreement and click **Yes** to accept the terms and continue.

7. Click **Next**. The application files will now be installed.

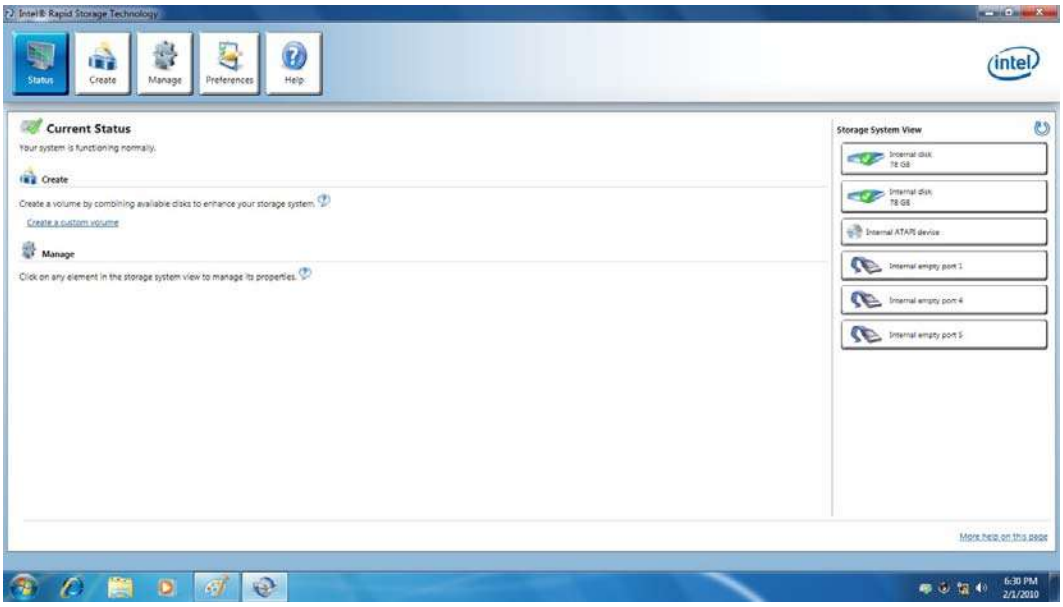
8. Click **Next**.

9. Click **Yes** to the restart option and then click **Finish** to restart your computer.

10. Restart your system. You will find the “Intel Rapid Storage Technology” icon on the Windows task bar.

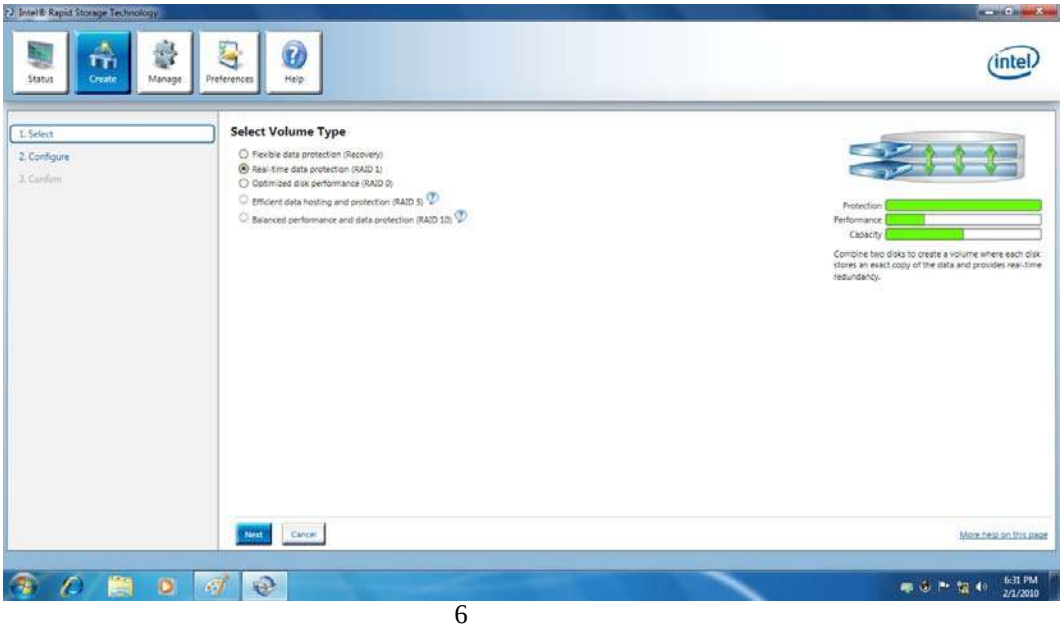
Create a RAID Array

1. Double-click “Intel Rapid Storage Technology” icon, then below main screen appears.

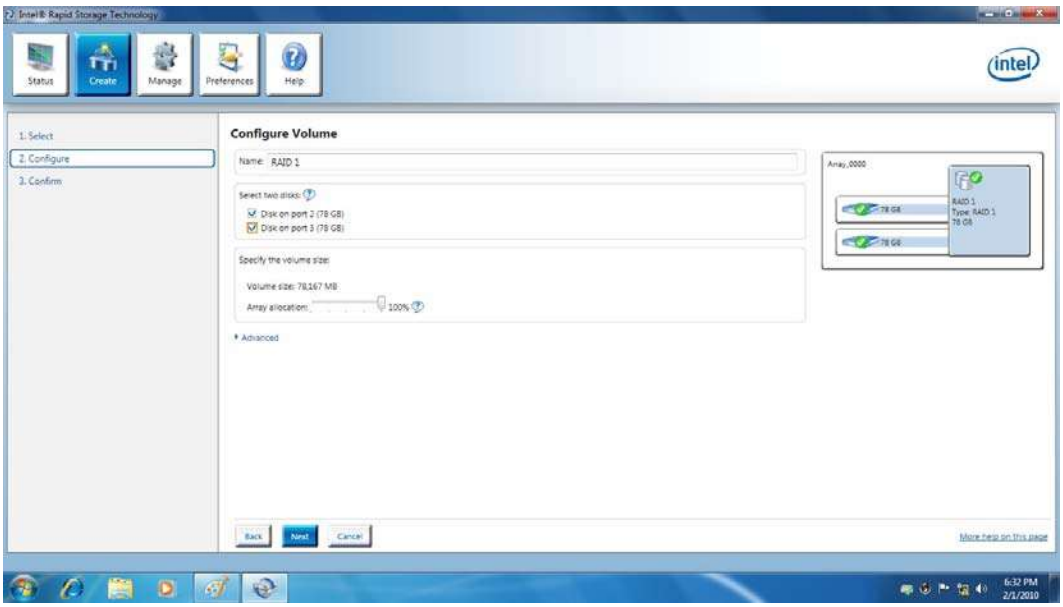


2. Click the “Create” icon to create a RAID array. Here we take RAID 1 for example.

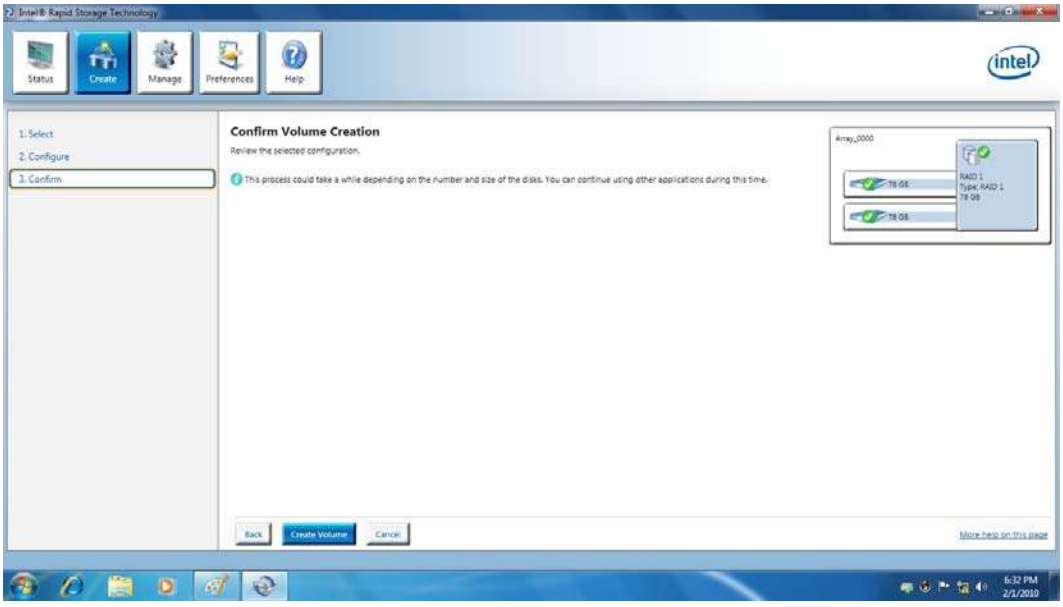
3. In “Select Volume Type”, click “Real-time data protection (RAID 1)”. Click “Next”.



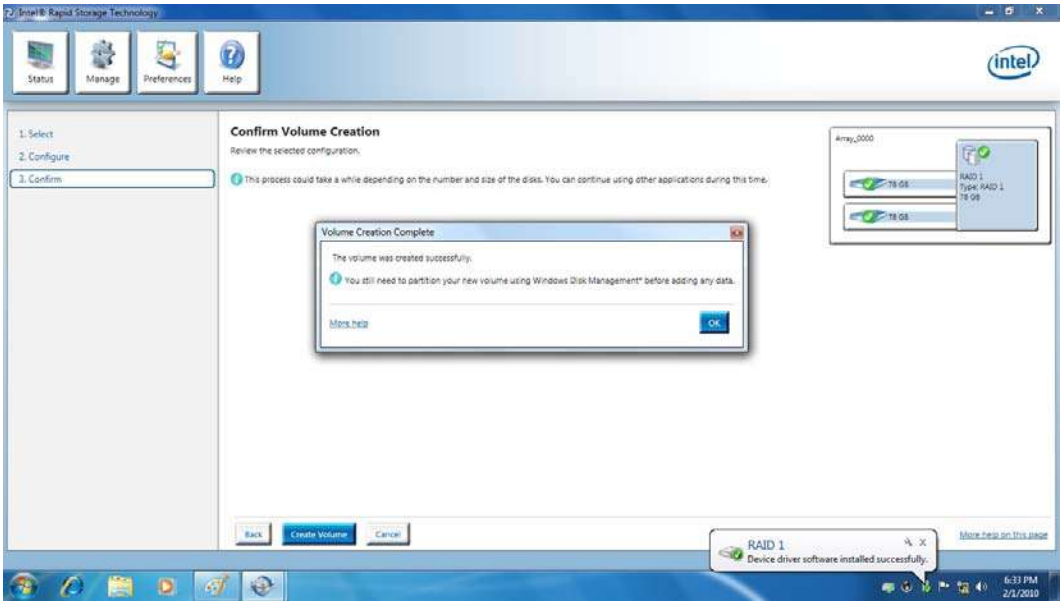
4. In “Configure Volume”, you need to key-in the Volume Name with 1-16 letters, select the RAID disks, and then specify the volume size. Click “Next”.



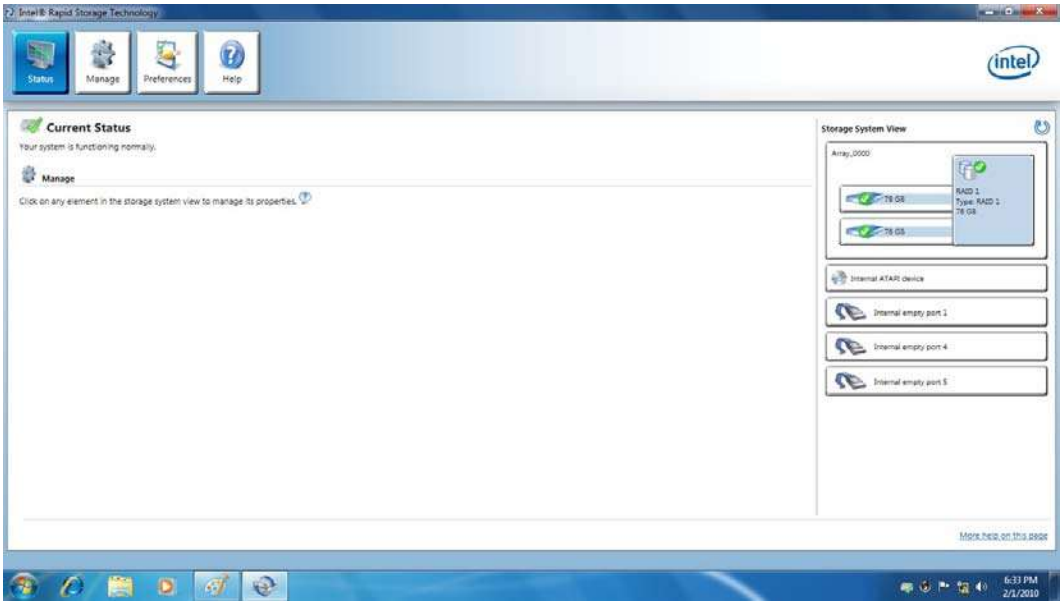
5. In “Confirm Volume Creation”, you may review the selected configuration. Then click “Create Volume”.



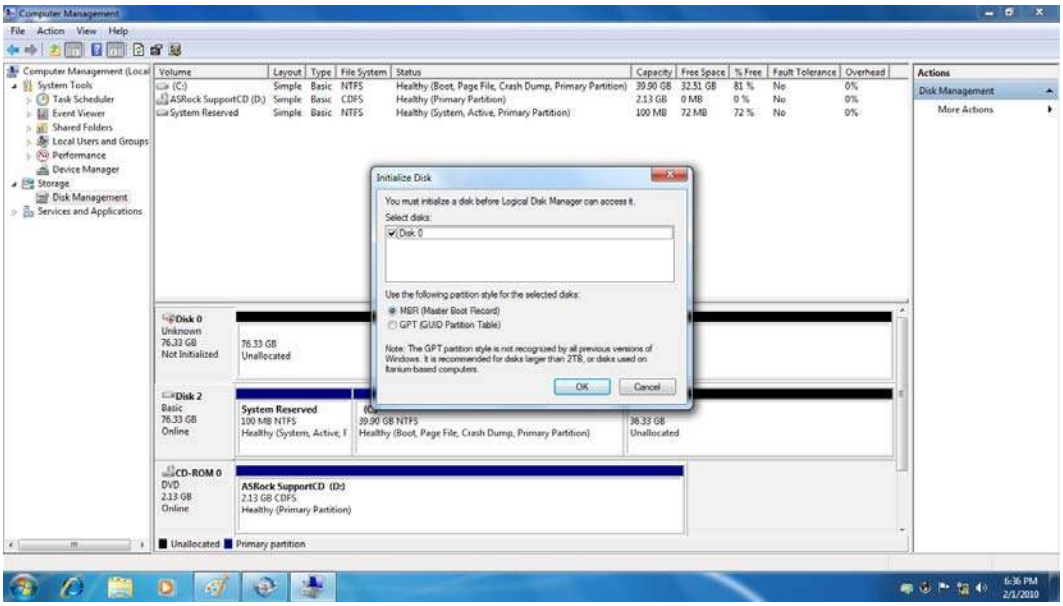
6. The volume is created successfully. But you still need to partition your new volume by using Windows Desk Management before adding any data. Click “OK”.



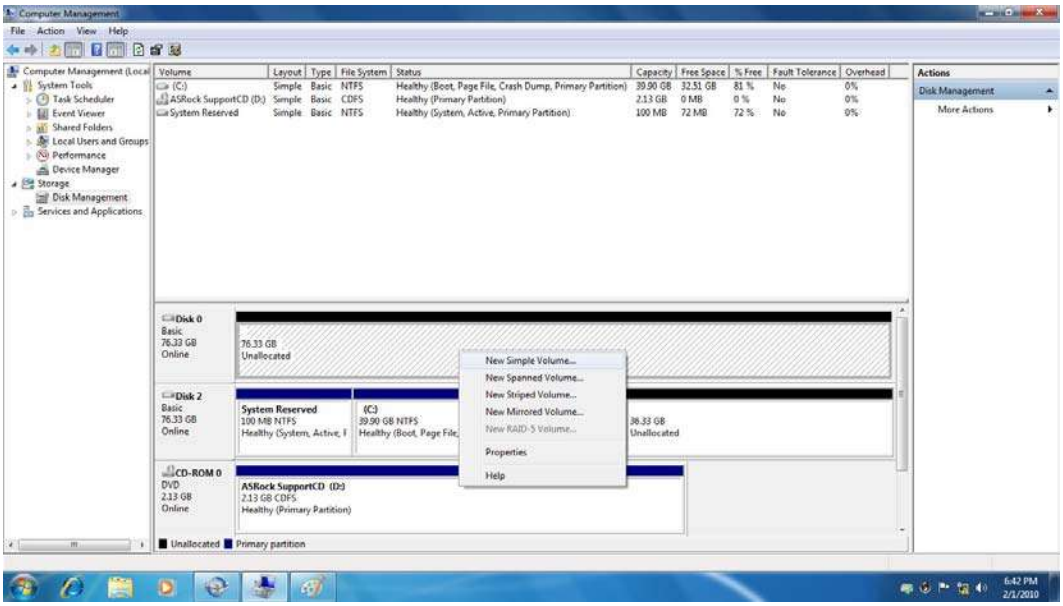
7. You will see the current status.



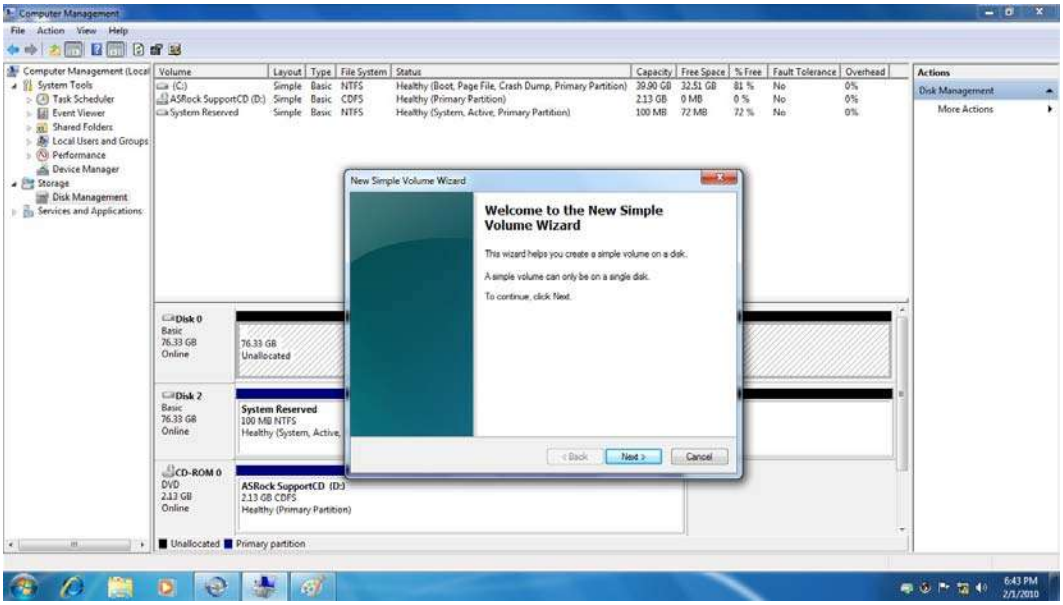
8. In Windows Desk Management, you need to initialize a disk before Logical Disk Management can access it. Click “OK”.



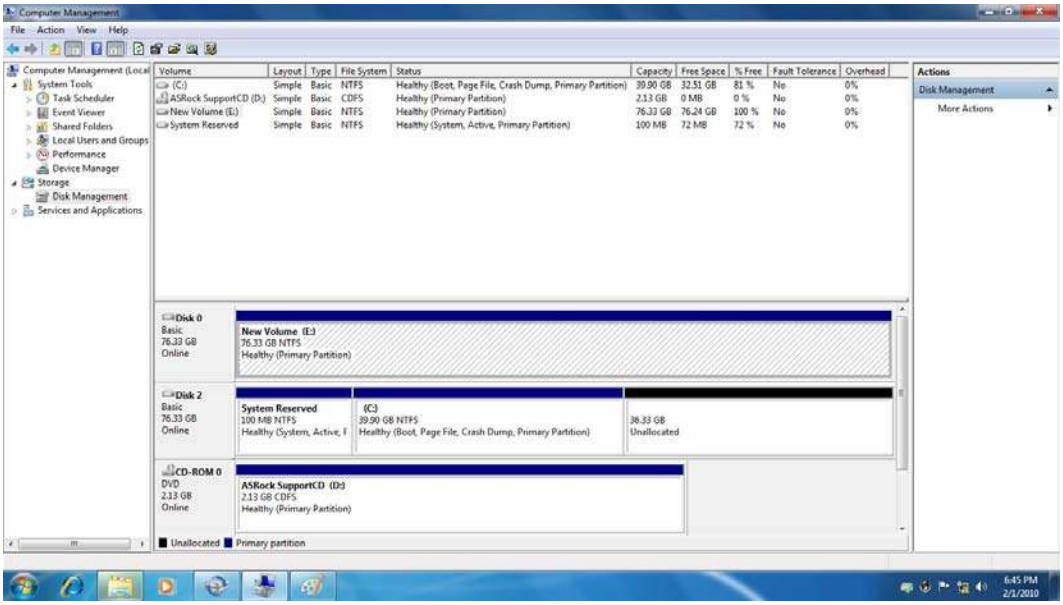
9. Right-click on Disk 0, click “New Simple Volume”.



10. Then follow the instructions on the New Simple Volume Wizard.

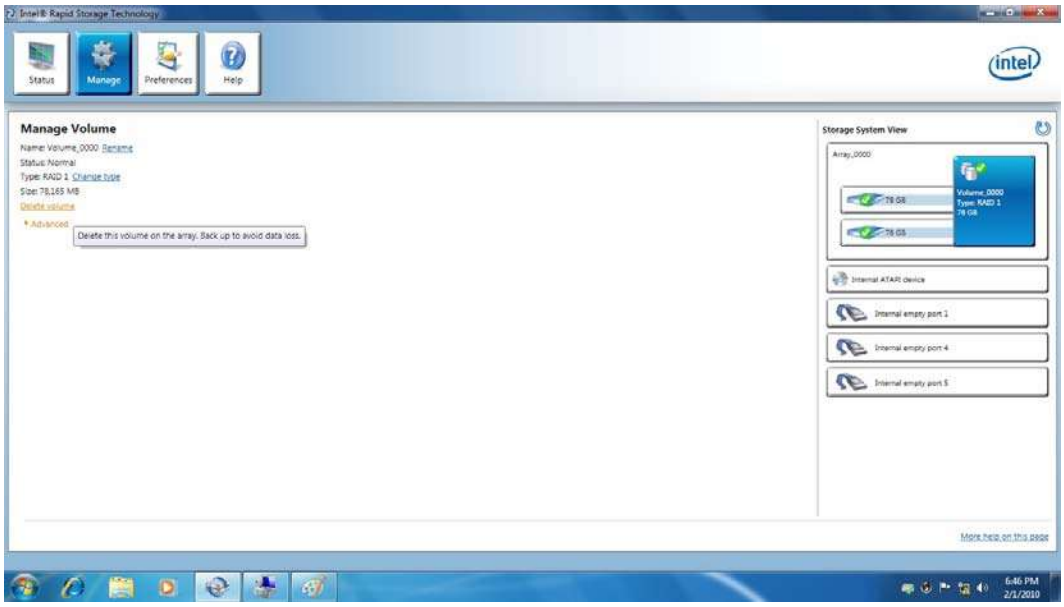


11. Finally you can start to use RAID 1 function.



Delete a RAID Array

You can also use this utility to delete the RAID array or configure other RAID functions.



How to install an operating system onto a RAID volume (F6 install method)

In order to install an operating system onto a RAID volume, the RAID option must be enabled in the system BIOS, a RAID volume must be created, and the F6 installation method must be used to load the Intel® Rapid Storage Technology driver during operating system setup.

Note The F6 installation method is not required for Microsoft Windows 7 or Microsoft Windows 8.

Enable RAID in System BIOS

Use the instructions included with your motherboard to enable RAID in the system BIOS.

1. Click **F2** or **Delete** to enter the BIOS Setup program after the Power-On-Self-Test (POST) memory test begins.
2. Enetr the **Advanced** menu.
3. Click the **Storage Configuration** menu.
4. Switch the **SATA Operation Mode** option to RAID.
5. Click **F10** to save the BIOS settings and exit the BIOS Setup program.

Create a RAID Volume

Use the following steps to create a RAID volume.

1. When the Intel Rapid Storage Technology option ROM status screen appears during POST, press **Ctrl** and **i** at the same time to enter the option ROM user interface.
2. Select **1: Create RAID Volume** and press **Enter**.
3. Use the up or down arrow keys to select the RAID level and press **Enter**.
4. Unless you have selected RAID 1, use the up or down arrow keys to select the strip size and press **Enter**.
5. Press **Enter** to select the physical disks.
6. Select the appropriate number of hard drives by using the up or down arrow keys to scroll through the list of hard drives and press **Space** to select the drive. When finished press **Enter**.

7. Select the volume size and press **Enter**.
8. Press **Enter** to create the volume.
9. At the prompt press **Y** to confirm volume creation.
10. Select **4: Exit** and press **Enter**.
11. Press **Y** to confirm your exit.

Install the RAID Driver Using the F6 Installation Method

Perform the following steps to install the Intel Rapid Storage Technology driver during operating system setup:

1. Press **F6** when you see a message in the status line that says, *Press F6 if you need to install a third party SCSI or RAID driver*. This message appears at the beginning of Windows setup (during text-mode phase).

Note Nothing will happen immediately after pressing F6. Setup will temporarily continue loading drivers. You will then be prompted with a screen asking you to load support for mass storage device(s).

2. Press **S** to **Specify Additional Device**.
3. When you see a prompt that says, *Please insert the disk labeled Manufacturer-supplied hardware support disk into Drive A:*, insert ;a floppy disk containing the following files: IAAHCI.INF, IAAHCI.CAT, IASTOR.INF, IASTOR.CAT, IASTOR.SYS, and TXTSETUP.OEM.

Note Use the Floppy Configuration Utility to create a floppy disk with the necessary files.

4. Press **Enter**.
5. Select your controller from the list of available SCSI adapters. Use the up and down arrow keys to scroll through the list as all controllers may not be visible.
6. Press **Enter** to confirm your controller and continue. At this point, you have successfully installed the driver and Windows setup should continue. Leave

the floppy disk in the floppy drive until the system reboots. Windows setup will need to copy the files again from the floppy to the Windows installation folders. Once Windows setup has copied these files again, remove the floppy disk so that Windows setup can reboot as needed.

7. During Windows setup, create a partition and file system on the RAID volume as you would on any physical disk.

Note If you wish to use the Intel Rapid Storage Technology user interface in Windows, you will need to install Intel Rapid Storage Technology by running the Setup.exe process after these steps have been completed and the operating system has been successfully installed.

What if I want to use RAID but my OS is already installed?

If your operating system is already installed, you can still use RAID as long as the following conditions are met:

- Your system has a RAID I/O controller hub (ICH).

Note If your system does not have a RAID ICH, you will not be able to use RAID without installing a third-party RAID controller card.

- Your RAID controller is enabled.

Warning If your RAID controller is not enabled, enabling the RAID controller is not recommended or supported when a SATA hard drive is the boot drive. Enabling the RAID controller may cause an immediate blue screen with an 0x0000007b error code, followed by a reboot. If you wish to enable it, you will need to reinstall the operating system.

If both of the above conditions are met, use the following steps to create a RAID volume.

1. Install Intel® Rapid Storage Technology.
2. Turn off the system and install one or more additional hard drives.
3. Turn on the system.
4. Use the Intel Rapid Storage Technology user interface to create a RAID volume. You can migrate the data from a single hard drive on your system to a RAID volume that includes that hard drive plus the newly added hard drive(s). You can also create a new RAID volume using the newly added hard drives.

How to load the driver during OS installation using F6 when in AHCI/RAID mode

In order to install an operating system onto a single Serial ATA hard drive when the system is in RAID mode or AHCI mode, the F6 installation method must be used to load the Intel® Rapid Storage Technology driver during operating system installation.

Note You do not need to use the F6 installation method to install a RAID driver on Microsoft Windows 7 and Microsoft Windows 8 because Intel provided a RAID driver as part of the final package.

Use the following steps to install the Intel® Rapid Storage Technology driver using the F6 installation method.

1. Press **F6** when you see a message in the status line that says, *Press F6 if you need to install a third party SCSI or RAID driver*. This message appears at the beginning of Windows setup (during text-mode phase).

   Note Nothing will happen immediately after pressing F6. Setup will temporarily continue loading drivers. You will then be prompted with a screen asking you to load support for mass storage device(s).

2. Press **S** to **Specify Additional Device**.
3. When you see a prompt that says, *Please insert the disk labeled Manufacturer-supplied hardware support disk into Drive A:*, insert a floppy disk containing the following files: IAAHCI.INF, IAAHCI.CAT, IASTOR.INF, IASTOR.CAT, IASTOR.SYS, and TXTSETUP.OEM.

   Note

   You can use the Floppy Configuration Utility to create a floppy disk with the necessary files.

   If you do not have a floppy drive on your system, you can use a USB floppy drive or create a slipstream version of the operating system.

4. Press **Enter**.
5. Select your controller from the list of available SCSI adapters. Use the up and down arrow keys to scroll through the list as all controllers may not be visible.
6. Press **Enter** to confirm your controller and continue. At this point, you have successfully installed the Intel Rapid Storage Technology driver and Windows setup should continue. Leave the floppy disk in the floppy drive until the system reboots. Windows setup will need to copy the files again from the floppy to the Windows installation folders. Once Windows setup has copied these files again, remove the floppy disk so that Windows setup can reboot as needed.

Note If you wish to use the Intel Rapid Storage Technology user interface within Windows, you will need to run Setup.exe from within Windows.