

# Macintosh Beep Codes

Explains a few beep codes for legacy Mac computers.

If a fault is detected during the test, you will not hear a normal startup chime. Instead, the system will beep as explained below. If you experience one of these beeps, you should call your Apple-authorized service provider for additional troubleshooting assistance.

- 1 beep = No RAM installed/detected
- 2 beeps = Incompatible RAM type installed (for example, EDO)
- 3 beeps = No RAM banks passed memory testing
- 4 beeps = Bad checksum for the remainder of the boot ROM
- 5 beeps = Bad checksum for the ROM boot block"

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## Troubleshooting Master/Slave Problems with ATA hard drives

ATA drives are configured at the factory for a cable select setting and is the recommend configuration on most computer setups. This allows the drive to assume the proper role of master or slave based on the connector used on the cable. For the cable select setting to work properly, the cables you are using must support the cable select feature. Current UltraATA cables with the 3 colored connectors do support this feature.

Setting master or slave is an alternate method to cable select. Depending on your computer and the existing hard drive, setting master/slave may be useful. One ATA (IDE) drive on the ribbon cable is referred to as a single drive. Two ATA drives physically plugged into the same 40-

pin/80-conductor ribbon cable are paired in a master/slave set up. The drive jumpered as the boot drive is the C: or master drive. The drive jumpered as the non-boot drive is the slave drive. It is usually designated as the D: drive. Two ATA drives physically on two separate ribbon cables are not master/slave and are jumpered independently.

Determine which drive is the master and make sure it is jumpered correctly. Set the jumpers on the other drive to the slave setting. If one of your drives was made by another manufacturer, you will need to contact that manufacturer for master/slave jumper settings on that drive. The ATA ribbon cable has a marking along one edge. That marking or coloration marks pin 1. Make sure pin 1 on the ribbon cable is pointing towards pin 1 on both hard drives and also on the ATA controller card connector. Both hard drives will need a DC power connection.

Normally the newer drive will need to be the master. Different BIOSs and ATA controllers can impact this. If you have determined that both ATA drives are jumpered correctly for master/slave and they still do not work, try to bring the new drive up as a stand alone or single drive. If the new drive works fine as a stand alone and fails as a slave, try bringing it up as the master with the original drive as the slave. Jumper changes will be necessary on both drives.

If the drives work in this configuration, there is a decision to be made. You can leave the drives in the working configuration and transfer the necessary data from the original drive (now slave) to the new master drive. If the reverse configuration is preferred, then you will need to purchase a PCI Ultra ATA controller.

## Large SATA drives (above 1.1 TB) will not completely format

As new disk drives are released with higher capacities, occasionally the capacity limits are seen. There is a capacity limit at 1.1 TB with some older SATA drives. If the motherboard is using an NVidia chipset, then [updating the drivers](#) can resolve the issue.

Seagate now has several large drives more than 1.1 TB in size. Compatibility testing has revealed that an older NVIDIA driver for Windows Vista has a limit of 1.1 TB. NVIDIA drivers for Windows XP don't have this limit.

If you know which chipset your motherboard uses, [check the list below](#) to see if this issue applies to your motherboard. If it does, then [a drivers update from NVidia](#) should resolve the issue.

If you don't know the model of your motherboard, you can use the tool on [this NVidia page](#) to discover if the motherboard uses an NVidia chipset, and if there is a driver update available.

### Symptoms:

- When building a new Windows Vista system, you are unable to partition and format the full 1.5 TB capacity on NVIDIA chipsets. During the format, Windows Vista hangs with the message that it cannot continue the drive format.

- When adding a second drive to an existing Windows Vista system, you are unable to partition and format the full 1.5 TB capacity on NVIDIA chipsets. It may hang at a certain percentage (70% for 1.5 TB drives or around 55% for 2 TB drives) or it may only allow you to partition the drive up to 1.1 TB.

**List of nForce systems that may have used the older drivers.**

<b>15.23 (NO GPU Driver included)</b>	<b>15.24 (GPU Driver included)</b>
nForce 790i Ultra SLI	nForce 780a
nForce 790i SLI	nForce 750a
nForce 780i SLI	nForce 730a / GeForce 8200
nForce 750i SLI	nForce 720a / GeForce 8100
nForce 680i SLI	nForce 710a
nForce 680a SLI	nForce 630i/GeForce 7150
nForce 680i LT SLI	nForce 630i/GeForce 7150
nForce 650i SLI	nForce 630i/GeForce 7100
nForce 650i Ultra	nForce 630a/GeForce 7050 PV
nForce 590 SLI Intel	nForce 630a/GeForce 7025
nForce 590 SLI AMD	nForce 610i/GeForce 7050
nForce 570 SLI Intel	nForce 430/GeForce 6150
nForce 570 SLI AMD	nForce 430/GeForce 6150LE
nForce 570 Ultra AMD	nForce 430/GeForce 6150SE
nForce 560	nForce 430/GeForce 6100
nForce 550	nForce 420/GeForce 6100
nForce 520	nForce 410/GeForce 6150LE
nForce4 SLI X16 Intel	nForce 410/GeForce 6100
nForce4 SLI X16 AMD	nForce 405/GeForce 6100
nForce4 SLI Intel	nForce 400/GeForce 6100
nForce4 SLI AMD	
nForce4 SLI XE Intel	
nForce4 Ultra Intel	
nForce4 Ultra AMD	
nForce4 AMD	

NVIDIA has released an updated driver for Windows Vista that supports the capacity.

Version 15.23 - XP32, XP64, Vista32, Vista64 - NO Video (GPU) Driver included

Version 15.24 - XP32 , XP64, Vista32, Vista64 - Video (GPU) Driver included (GPU has the integrated graphics.)

[Version 15.23 - XP32 - NO GPU Driver included](#)

[Version 15.23 - XP64 - NO GPU Driver included](#)

[Version 15.23 -Vista32 - NO GPU Driver included](#)

[Version 15.23 -Vista64 - NO GPU Driver included](#)

(GPU has the integrated graphics.)

[Version 15.24 - XP32 - GPU Driver included](#)

[Version 15.24 - XP64 - GPU Driver included](#)

[Version 15.24 -Vista32 - GPU Driver included](#)

[Version 15.24 -Vista64 - GPU Driver included](#)

## The BIOS does not detect or recognize the ATA / SATA hard drive

There are six main reasons why a system BIOS will not detect the presence of an internal hard drive. Here is a list of them. They are not in any particular order, but you can follow these steps one by one to troubleshoot this problem:

1. [Drive not enabled in the BIOS](#)
2. [Serial ATA drivers are not properly installed](#)
3. [Faulty or unplugged data cable](#)
4. [Drive is not spinning up](#)
5. [Incorrect jumper settings on the drive](#)
6. [Faulty hard drive](#)

**Note:** Sections 3, 4,5 and 6 pertain to PC or Mac systems. Sections 1 and 2 pertain only to PC systems.

After verifying that your ATA or SATA port is set to Auto-Detect or is enabled, if you find that your disk drive is not being detected (auto-detected) by the system BIOS, try the following steps to try and isolate/troubleshoot the problem.

### 1. Drive not enabled in the BIOS

Most personal computers display a brief message about entering System Setup soon after the power is turned on. System Setup is also called the "system BIOS" or sometimes the "CMOS Setup" - each is a name for the same thing.

For example, on Dell systems you will see "F2=Setup" in the upper right hand corner during the computer boot-up. This means to press the F2 key to enter Setup (the BIOS). Different computer manufactures have different methods to enter Setup, so please check your system documentation for specifics.

If your drive is not detected it may be because it is turned OFF in System Setup. Some motherboard manufactures disable unused ports in the BIOS by default. You will need to enter the the BIOS setup in order to verify their current state.

When you add a second drive to the system, it may be need to be enabled by turning it ON in System Setup.

## 2. **The Serial ATA motherboard drivers are not properly loaded.**

When you install older versions of Windows on a drive that will be the boot drive (ie, the C: drive), when it comes time to install Windows, the drive may not be detected. You might need to update the driver for your computer storage controller.

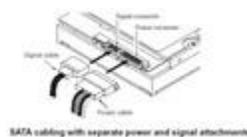
Windows 2000 and XP required additional drivers to be loaded.

**Note: These drivers do not come from Seagate;** they come from the motherboard manufacturer.

## 3. **Faulty or Unplugged Data Cable**

- Always inspect the motherboard and hard disk connections for bent or misaligned pins. Folding, crimping, pinching, or creasing data cables can cause the wires to break inside the insulation, leaving the exterior of the cable looking normal. When in doubt of data cable condition, replace it.
- For SATA cables, Seagate recommends using cables shorter than 39.37 inches (1 meter). For further information, please see [Document ID: 182453](#).

Here are some images of Serial ATA cables. Click to expand.



- The BIOS will not detect a hard disk if the data cable is damaged or the connection is incorrect. Serial ATA cables, in particular, can sometimes fall out of their connection. Be

sure to check your SATA cables are tightly connected to the SATA port connection.

- The easiest way to test a cable is to replace it with another cable. If the problem persists, then the cable was not the cause of the problem.
- For ATA drives, Seagate recommends using UDMA cabling with a maximum length of 18 inches. UDMA cables have color coded connections which require proper orientation when connecting.

See this image:

(Click to expand)



- Blue connector - always connects to the motherboard.
- Grey (middle) connector - is used for slave devices on the cable.
- Black connector - is used for master device connection.

#### 4. Drive is not spinning up

If the drive is not receiving power or receiving an incorrect level of power, it will not spin up. To check to see if this is the cause of the BIOS not detecting the hard drive, follow these steps:

1. Power off the computer.
2. Open the computer case and remove the data cable from the hard drive. This will stop any power saving commands from being sent.
3. Turn on the system. Check to see if the hard drive is spinning. If you touch the **side** of the drive you should feel a slight vibration. If you **do not** hear or feel the hard drive spinning, the drive did not start.

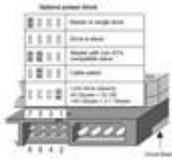
If you cannot determine whether the drive is spinning:

1. Boot the computer and listen carefully.
2. Shut the computer down.
3. Disconnect the power cord from the computer itself.
4. Disconnect the power cable from the hard drive in question.
5. Reconnect the power cord to the computer itself.
6. Boot the computer up to see if the drive sound was audible before. And,
7. Then repeat, only reconnect the hard drive and listen for it to spin up.
8. Switch power cables with a device like a CDROM or DVDROM drive, so that you are using a known-good power cable.

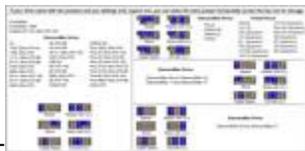
9. Check the power supply on your computer to determine whether it is providing sufficient electrical power to operate the drives and devices you have in your computer.
10. If the drive is still not spinning, connect it in another computer if possible.
11. Connect the drive in a SATA-USB enclosure or something similar if possible.
12. If the drive does not spin up after all of these steps, please visit the [Warranty page](#) to begin a warranty replacement order.

## 5. Incorrect jumper settings on the drive

**ATA:** It is recommended that all Seagate ATA hard disks supporting the Cable Select jumper option be configured as Cable Select. If your computer system was built prior to October 1998 and does not support UDMA 66 or greater you will be required to use the Master/Slave jumper settings.



-- (Click to expand) Jumper settings for Seagate ATA drives



-- (Click to expand) Jumper settings for Maxtor-brand ATA drives

When using Cable Select jumper settings on your ATA drive, all devices connected to the UDMA cable must also use the Cable Select setting. The cable decides master/slave device detection when the cable select jumper settings are used.

## 6. Faulty Hard Drive

If you have completed the above checks and procedures and the drive is still not properly detected, please attempt to use [SeaTools for DOS](#) (see [the tutorial here](#)) to test the drive. If SeaTools does not detect the drive after the steps followed above, or [an error code that signifies drive failure displays](#), please proceed to the [our Warranty Services page](#) to begin a warranty replacement order.

# My internal drive is not displayed in My Computer or Windows Explorer

New internal Seagate brand drives are not partitioned or formatted from the factory. Only external drives are sold pre-formatted.

If your additional drive is new or completely erased, then to be visible in (My) Computer / This PC, it must be partitioned. In Windows you may use the Disk Management Utility to partition the drive.

Here is the order of actions, and we will expand on these below.

- Connect and install secondary drive.
- Boot into Windows.
- Open Computer Management and select Disk Management.
- Initialize, Partition and Format the drive.

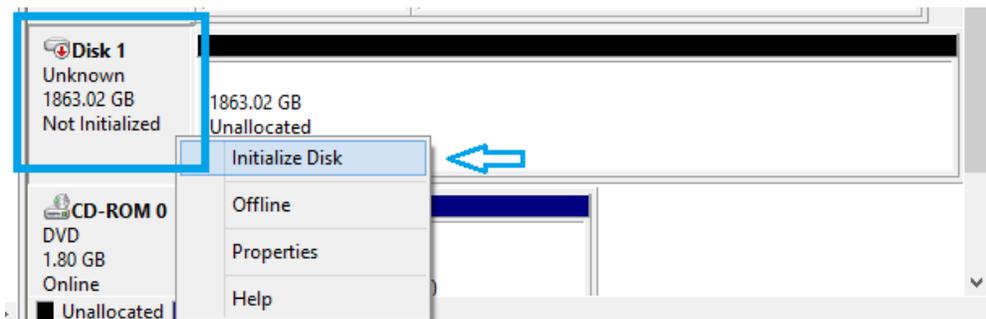
**Note:** Even though you can see the drive in Disk Management it will not be visible in Windows Explorer until it has been initialized and partitioned.

## Initializing and partitioning a drive:

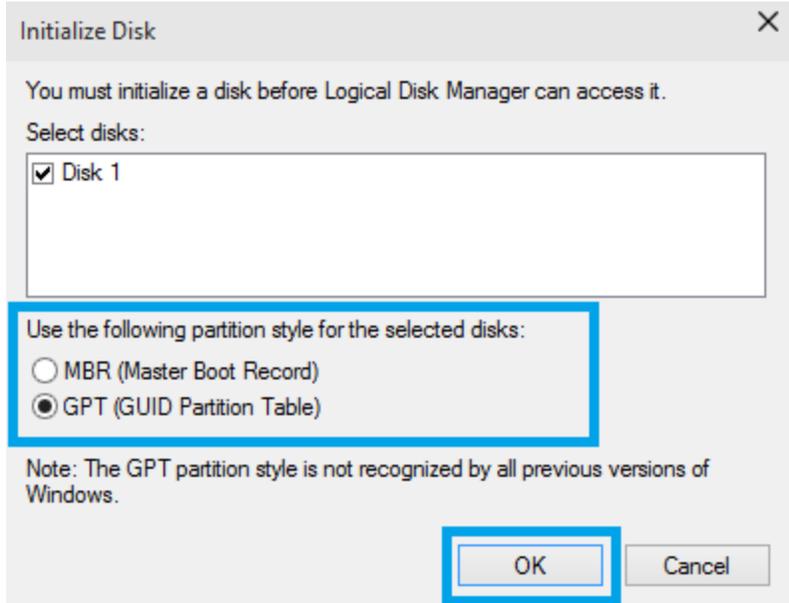
1. On your keyboard press the Windows key () + R
2. Type **compmgmt.msc** and press enter.
3. The **Computer Management** window will open.
4. Choose **Disk Management** under the Storage category.

**Note:** Windows will normally see the **uninitialized** drive when you open Disk Management and start the wizard to initialize the disk for you. In case the “Initialize Disk” wizard doesn’t start you may follow the instructions to manually initialize your disk:

5. Right-click on the Disk that needs to be initialized.
6. From the menu select **Initialize Disk**.

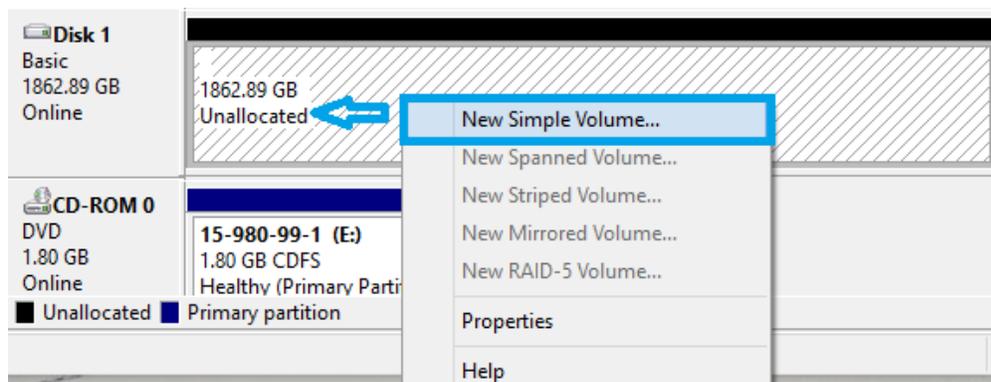


7. Select the appropriate **partition style**, MBR or GPT.

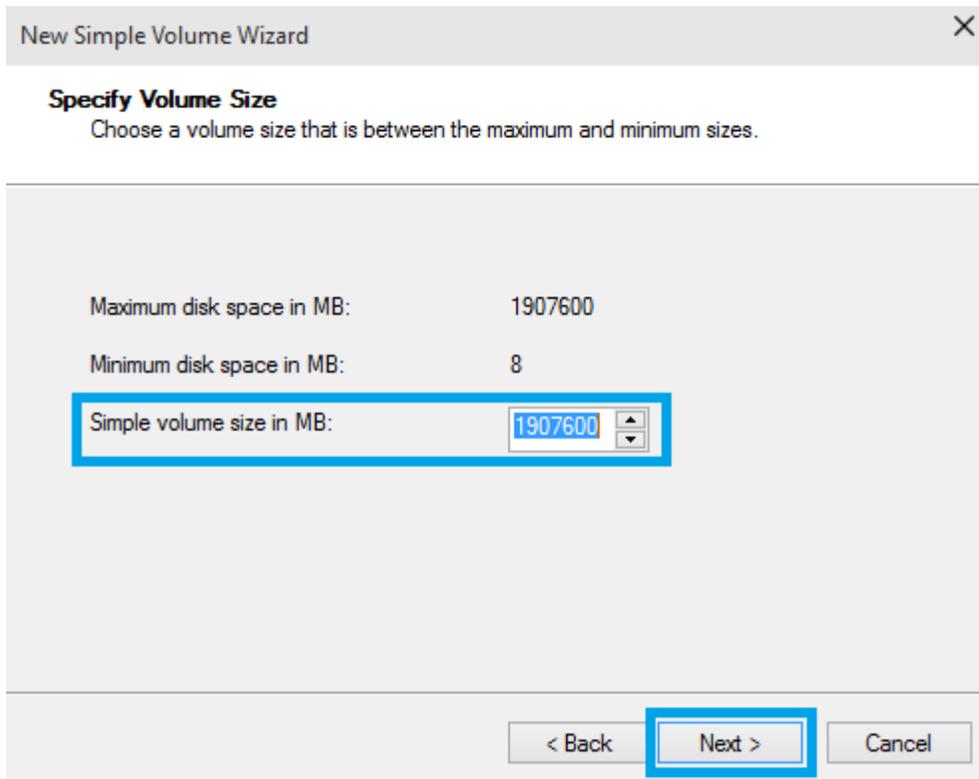


**Note:** The MBR Partitions can define a disk drive capacity up to 2.2TB. Windows operating systems that boot from an MBR are therefore limited to 2.2TB per MBR. The MBR Partitions can define a disk drive capacity up to 2.2TB. Windows operating systems that boot from an MBR are therefore limited to 2.2TB per MBR. GUID Partition Tables (GPT) can define drives larger than 2.2TB.

8. Once the disk is initialized, the partition will show **Unallocated**.
9. Right-click somewhere on the **Unallocated partition**.
10. From the menu select **New Simple Volume**.



11. The New Simple Volume Wizard will prompt.
12. Click **Next**.
13. Specify **Partition size in MB** and click **Next**.



**Note:** If you want to create multiple partitions, change the **Simple volume size** in MB to the size of the partition you'd like to create.

**14. Assign a Drive Letter then click Next.**

## **NTLDR is Missing' error message during Windows boot.**

The "NTLDR is Missing" error can sometimes occur when users boot their Windows system.

The error can be caused by many different factors. Mainly this error occurs when trying to install Windows NT/2000/XP/Vista/7. Other times this error may occur when a partition is corrupt or the system can't find the boot file on the drive.

**If the NTLDR error occurred when trying to do a fresh install of Windows NT, 2000, XP, Vista, or Windows 7, then:**

- Please see [Microsoft help](#) for a list of possible solutions.

**If the NTLDR error occurred when there were no changes made, then:**

- Boot to the Windows setup CD or diskettes. In the installation option you will want to perform the "Repair" option. If the Windows repair function does not work and you still receive the errors then you may want to refer to some Microsoft documents on the "NTLDR is missing" error:
  - Microsoft Article [318728](#)
  - Microsoft Article [314057](#)
  - Microsoft Article [927392](#)

**If the NTLDR error occurred when you moved the boot drive to an ATA or SATA PCI controller, then:**

- You will need to change the BIOS boot sequence to boot to SCSI. The system recognizes the ATA PCI card as a SCSI device so setting the BIOS to boot to SCSI should resolve the issue.

**If the NTLDR error occurred when you changed cabling and jumper settings of existing internal drives, or added an additional internal drive to your system, then:**

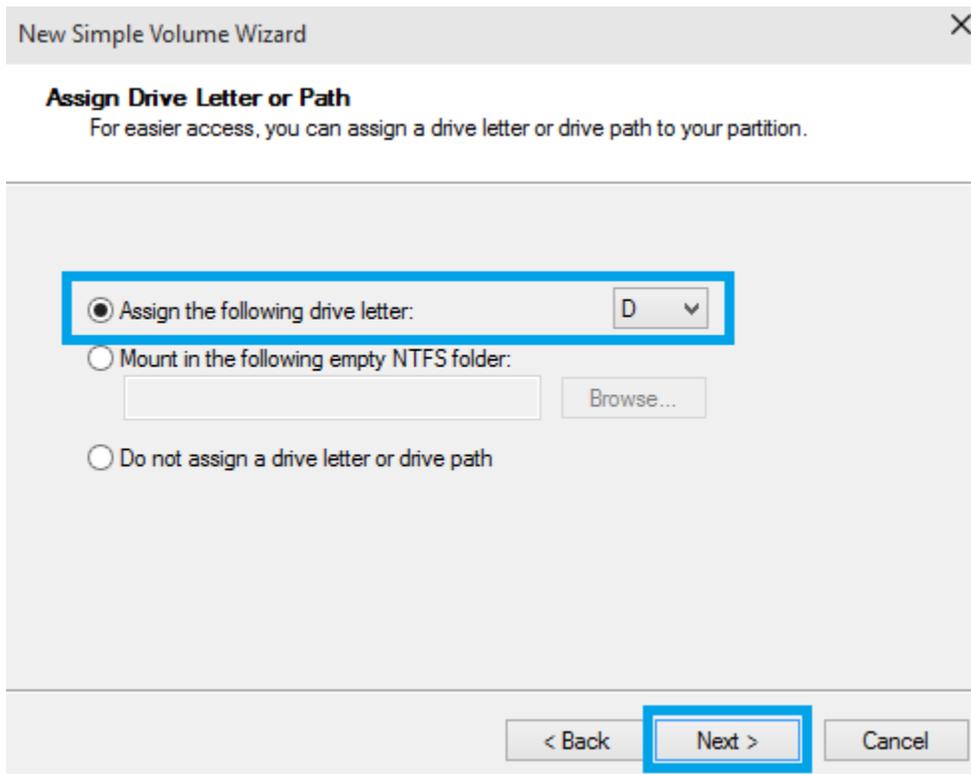
- You may have set the jumpers or connected the data cable to your drives incorrectly. For example, if your boot drive is a primary ATA drive and you have connected a secondary ATA drive to the same cable, it needs to be connected to the middle slave connector on the ATA cable. If you connected on the end master connector instead, the BIOS will recognize it first and be unable to boot to your original hard drive.
- Your system's BIOS' boot priority may need to be corrected, especially if the error occurred after installing a SATA drive on a system that had only ATA hard drives, or an ATA hard drive on a system that only had SATA hard drives. Your computer may be trying to boot to the new hard drive, and receiving the error before recognizing the drive that has the operating system installed.

**If the NTLDR error occurred when you added a USB drive to your system, then:**

- Your system's BIOS may be configured to boot from an external USB device. Consult your computer's or motherboard's documentation for further information on disabling this feature.

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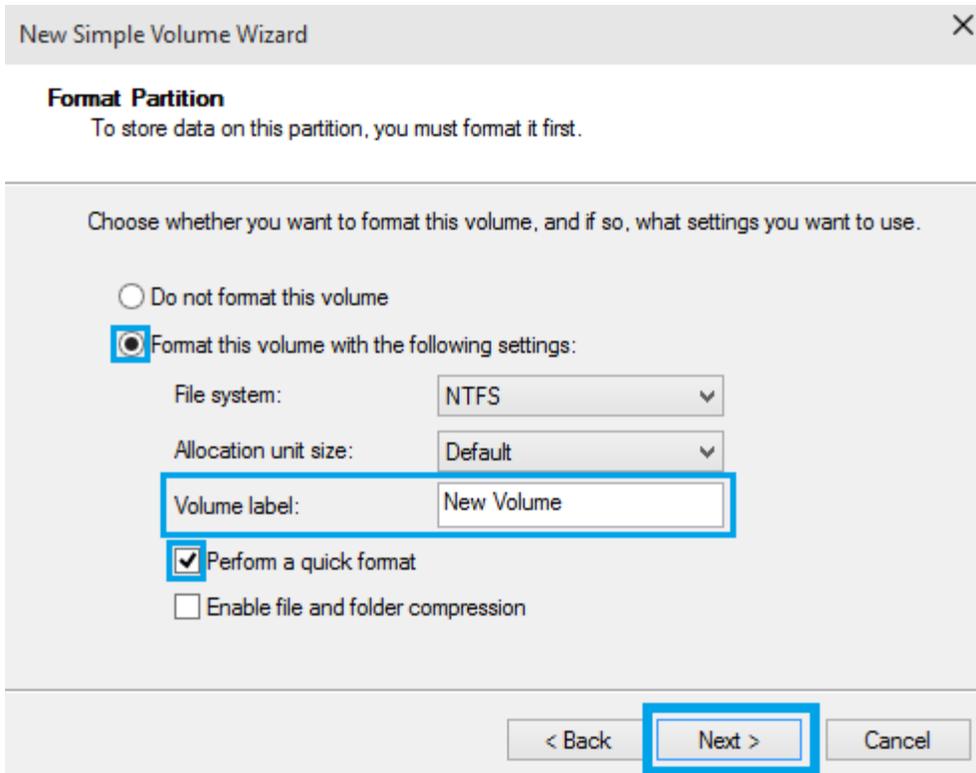
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15. Specify the formatting **options** you want to use:

- File System
- Volume label

16. Click **Next**.



17. Confirm that the options selected are correct, and then click **Finish**.
18. Once you have clicked on the **Finish** button, the New Partition Wizard will close. In a few seconds, the "Unallocated" partition will say "Formatting". When the drive has completed formatting it will display as a healthy drive with the size and type of partition below the volume name and drive letter.

### **Additional information about Drives beyond 2.2 TB:**

Most legacy systems built before 2011 have a traditional PC BIOS. This type of BIOS uses a Master Boot Record (MBR). The MBR Partitions can define a disk drive capacity up to 2.2TB. Windows operating systems that boot from an MBR are therefore limited to 2.2TB per MBR. A 3TB disk drive in a legacy BIOS and Window system will need a DiscWizard device driver to access the full capacity of a 3TB disk drive. Two partitions will be necessary because of the MBR limitation. The device driver mounts the capacity above 2.2TB with another MBR which looks to the system as a second virtual "physical" device.

GUID Partition Tables (GPT) can define drives larger than 2.2TB. You can use GPT today on any Windows 10 / 8 / 7 and Vista system as a non-booting data drive. Windows can only boot a GPT partition on a new type of BIOS called UEFI.

UEFI BIOS desktop systems are new since 2011. Windows 10/ 8 / 7 and Vista 64-bit operating systems support booting from UEFI and GPT without the need of a non-Microsoft device driver. This is the Windows native solution for booting a 3TB drive to a single partition.

# The drive is larger than 32GB, but the operating system only recognizes 32GB.

, BIOS or DiscWizard can only recognize 32 GB of the drive it may be caused by one of the following:

1. **Drive Jumpers:** Applies to Mac and Window users. On drives that are larger than 32 GB there is a Capacity Limitation Jumper (CLJ), also known as the Limit Capacity Jumper or the Alternate Capacity (AC) Jumper setting. This jumper will limit the capacity of the drive to 32 GB and should only be used when the BIOS hangs when trying to auto-detect the drive. If you have two jumpers shunts on the drive you will need to remove the CLJ or AC jumper.

If you format the drive with the CLJ or AC jumper then the drive capacity will be limited to 32GB. After removing the CLJ or AC jumper the drive will still be recognized as 32GB. You must reformat the drive without the CLJ or AC jumper to gain the full capacity of the drive. The other option is to create a second partition with the remaining unallocated disc space.

2. **BIOS:** On older systems (pre- November 1998) the BIOS may not support drives that are larger than 32 GB. In the BIOS setup please set the drive type to AUTO detect. If the BIOS detects the full capacity of the drive then the BIOS will support the capacity of the drive. If not please perform one of the following:
  1. Check with the system or motherboard manufacturer for any BIOS upgrades for the system.
  2. (Recommended) Purchase a PCI ATA controller card that will support the capacity of the drive. The two benefits of ATA controller cards are:
    - The ability to support large capacity drives
    - The ability to support the faster transfer rates of the drive.
3. **Operating System:** Windows have a 32 GB format limitation for FAT 32. That means if you formatted the drive in FAT 32 with Windows, the largest partition supported is 32 GB. You will need to format the drive in NTFS if you want to partition the drive larger than 32 GB. The other option is to create a second partition with the remaining unallocated disc space.
4. **Incorrect Reporting to the BIOS:** The drive itself may be reporting the incorrect size to the BIOS. In order to correct this, you will need to [download SeaTools for DOS](#), boot into the SeaTools disc, and run the Set Capacity utility.

 **Note** It is recommended that you only have the hard drive reporting the incorrect capacity connected to your system while performing the following steps. Any other hard drives should be disconnected.

 **Note** It is recommended that you back up any important data on the hard drive before using SeaTools to set the drive size. This is a potentially data destructive procedure. Seagate is not responsible for any lost data.

After correcting the drive capacity, the drive may still show a partition size of 32GB but with unallocated space. You must delete its current partition then repartition and format the drive to gain the full capacity of the drive. The other option is to create a second partition with the remaining unallocated disc space.

1. Insert the SeaTools for DOS CD or floppy disc into the appropriate drive, and restart your computer. When SeaTools boots up, carefully read the license agreement, and press **Y** if you accept it.
2. Select the correct drive from the list using the mouse or keyboard.
3. Choose Advanced Features .
4. Choose Set Capacity to Max Native.
5. Once the capacity has been set SeaTools has returned to the main screen, take the SeaTools disc out of the drive and **completely power down the system**. The system needs to be shut down so any cached information is cleared. If you simply reboot or reset your computer without completely powering it down first, the corrected capacity setting will not take effect.

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