

Partitioning and Formatting Reference Guide

This guide provides simple guidelines for the initial setup of your hard disk drive using the most common methods and utilities available within the following operating systems:

- Windows XP
- Windows 2000
- Windows 9.x and DOS
- Linux (most distributions)
- Macintosh 8.x, 9.x, and 10.x

Be aware that there are also handling precautions, physical mounting and configuration prerequisites, and system limitations that must be addressed before you can successfully partition and format a drive. These prerequisites are beyond the scope of this document. For further information you may reference the appropriate documentation for your model drive



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Introduction to Partitioning and Formatting

In order for a hard drive to be accessible and usable in a computer it is necessary to write a partition table and a file format on the hard drive. This process is similar to organizing a filing cabinet. The drawers of the cabinet are comparable to a partition and the organization of the file folders (within the drawer) is comparable to the file format on the hard drive. The process organizes the logical layout of the hard drive so that the computer system can find the data that you choose to store on the hard drive. All hard drives need to be partitioned and formatted before they are ready for an operating system to be installed.

Warning:

Before attempting to install a hard drive with a capacity greater than the hard drive that came with your system, you should be aware that there may be limitations inherent in your hardware and operating system. Refer to your system or motherboard vendor and/or operating system vendor to clarify any limitations and acquire any necessary updates before attempting to setup a hard drive with a capacity greater than your original hard drive.

Installing a Hard Drive in Windows 2000 or XP

Note: An assumption is that the new hard drive is physically mounted and all hardware and system BIOS are correctly configured before attempting to partition and format the hard drive. If the hard drive is not mounted in the system, see the 'Simple Installation Guide' posted on - www.hgst.com/support.

Getting Started

There are two methods for setting up your hard drive for use during a Windows 2000 or XP installation:

- **Use Windows 2000 or XP CD-ROM.** Make sure the boot order in your BIOS is set to boot from CD-ROM first, then Hard Drive.
- **Use Windows 2000 or XP Boot Disks.** Start with Disk 1 and insert any subsequent disks as prompted.

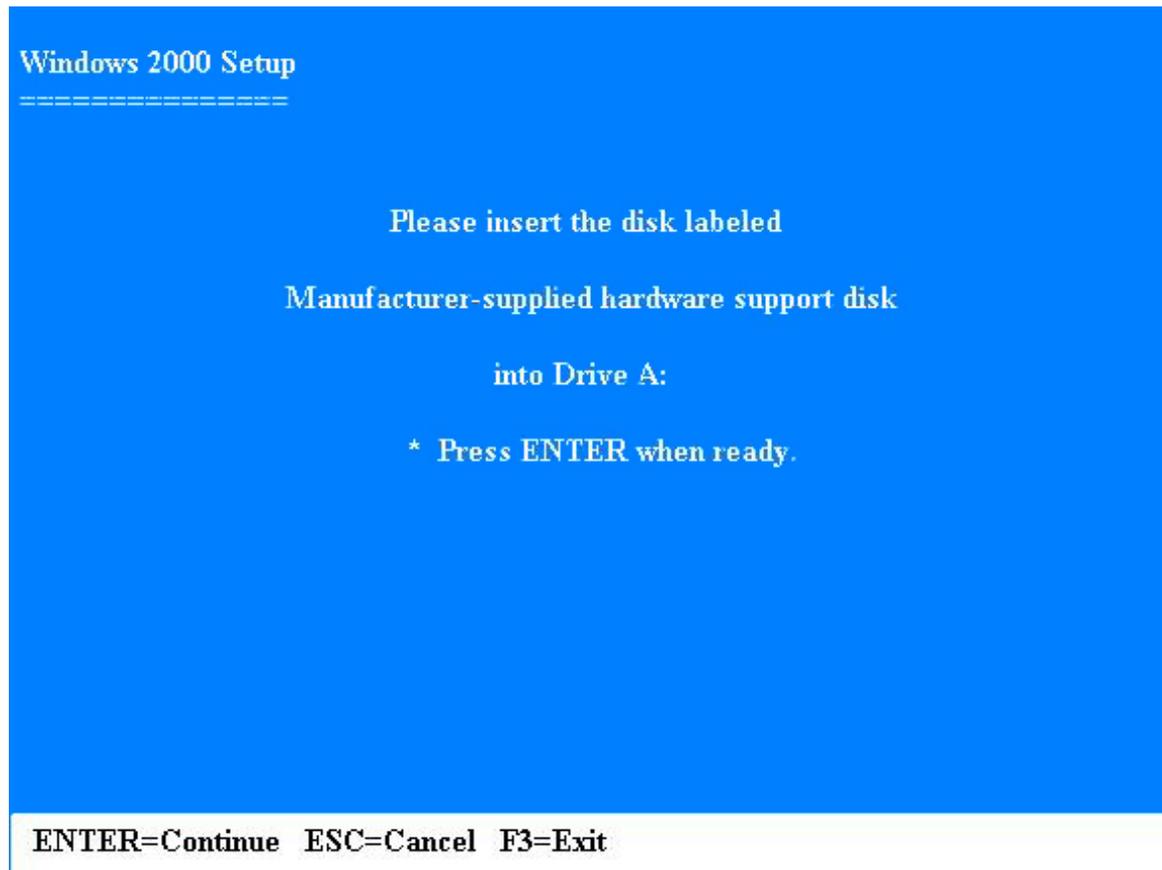
In order for Windows 2000 or XP to be installed, the hard drive must be partitioned and formatted. To start the process of partitioning and formatting, boot from the Windows 2000 or XP CD or the first setup diskette if your system does not support bootable CD ROM.

Hard disk controllers not natively supported by Windows 2000 or XP

If you have a system that has a hard disk controller not natively supported by Windows 2000 or XP, you must press F6 immediately after the install begins. If you are certain that your hard disk controller is supported by Windows 2000/XP, you can skip this step by pressing **enter** and proceed with the setup. After you press **F6**, the following screen will appear.

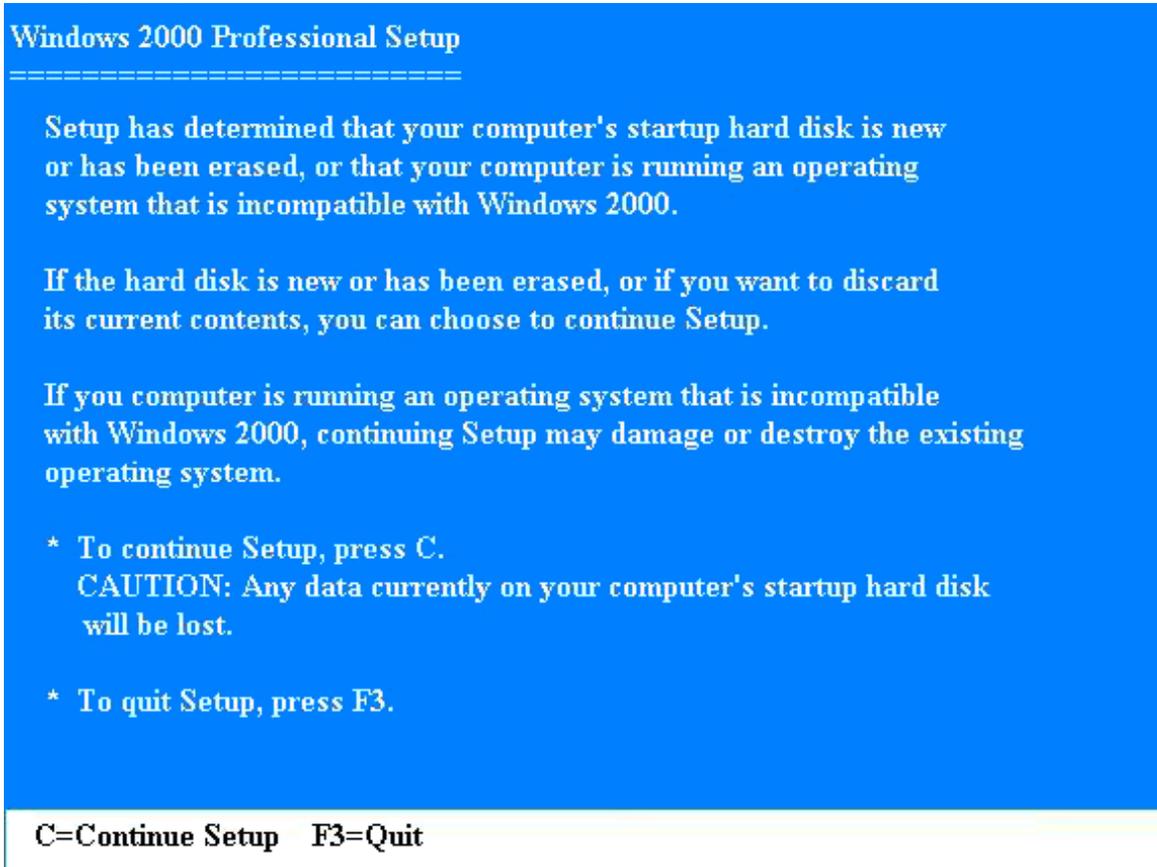


If your hard disk controller is not natively supported by Windows 2000 or XP, press **S** and the next screen will appear:



Insert the diskette provided with your hard disk controller or motherboard and press **enter**. If you need additional assistance with this step, please contact your third party hard disk controller or motherboard manufacturer.

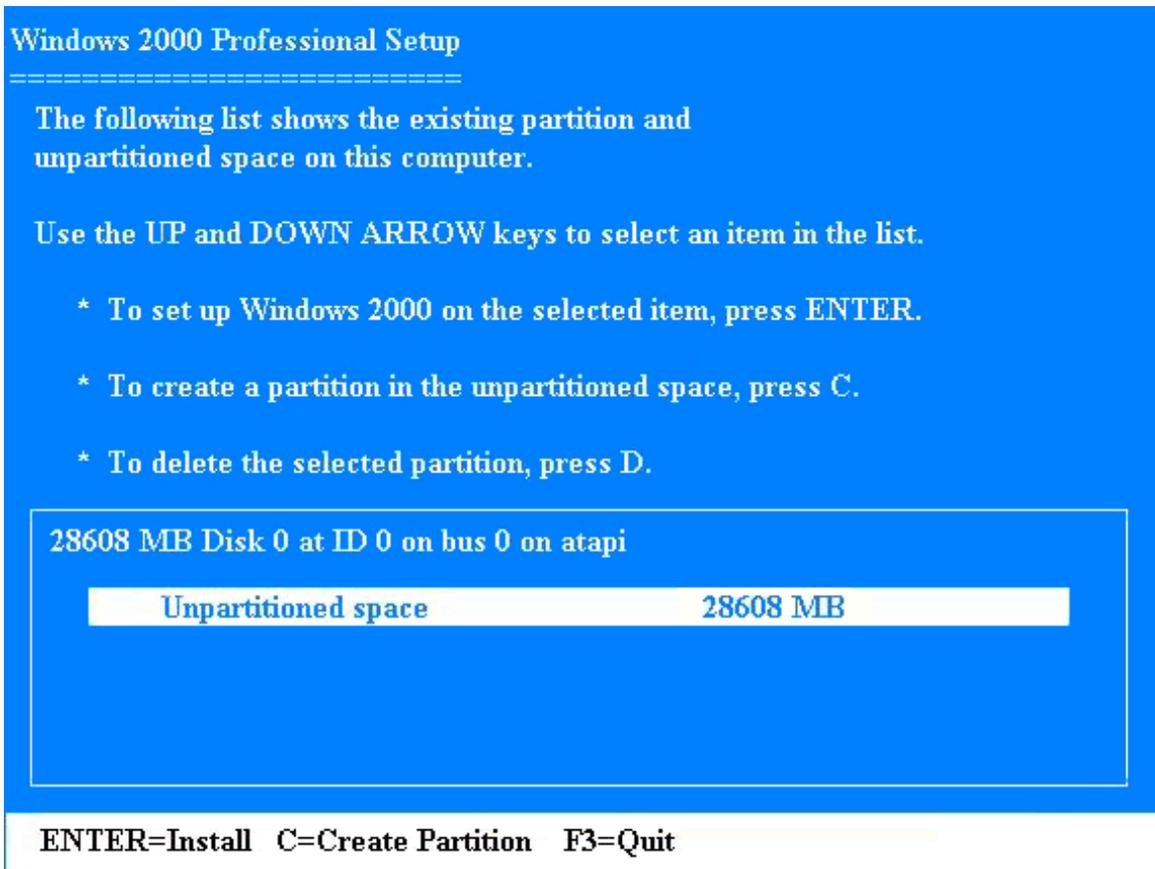
If this is a new hard drive, you will receive this screen at some point during the setup. It is for informational purposes only and does not indicate a problem.



Press **C** to continue setup at this point

Partitioning and Formatting

You will be prompted to create a partition on your hard drive on the following screens:



Press C to create a partition.

Windows 2000 Professional Setup

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You asked Setup to create a new partition on
28608 MB Disk 0 at id 0 on bus 0 on atapi.

- * To create the new partition, enter a size below and press ENTER.
- * To go back to the previous screen without creating the partition, press ESC.

The minimum size for the new partition is 8 megabytes (MB).
The maximum size for the new partition is 28600 megabytes (MB).
Create partition of size (in MB):

ENTER=Create ESC=Cancel

Choose the desired size for the partition (the default is the full capacity of the hard drive) and press **enter**

NOTE: If you wish to use the FAT32 file system instead of NTFS (Network Technology File System), the partition containing the system files must be less than 32GB.

You will now be prompted to format the hard drive with the desired file system. If your partition is over 32GB, NTFS will be your only choice.

The screenshot shows the Windows 2000 Professional Setup interface. At the top, it says "Windows 2000 Professional Setup" followed by a separator line. Below that, it informs the user that the following list shows existing partitions and unpartitioned space. It then provides instructions on how to use the arrow keys to navigate the list and what actions can be performed (ENTER to install, C to create a partition, D to delete a partition). A table lists the disk information: "28608 MB Disk 0 at ID 0 on bus 0 on atapi". The table has two rows: "C: New (Unformatted) 28600 MB" and "Unpartitioned space 8 MB". The first row is highlighted. At the bottom, a legend indicates "ENTER=Install C=Create Partition F3=Quit".

Windows 2000 Professional Setup
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The following list shows the existing partition and unpartitioned space on this computer.

Use the UP and DOWN ARROW keys to select an item in the list.

- * To set up Windows 2000 on the selected item, press ENTER.
- * To create a partition in the unpartitioned space, press C.
- * To delete the selected partition, press D.

28608 MB Disk 0 at ID 0 on bus 0 on atapi	
C: New (Unformatted)	28600 MB
Unpartitioned space	8 MB

ENTER=Install C=Create Partition F3=Quit

Highlight the partition that you just created and press **enter** to install the OS to the Partition

Windows 2000 Professional Setup

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The partition you selected is not formatted. Setup will now format the partition.

Use the UP and DOWN ARROW keys to select the file system you want, and then press ENTER.

If you want to select a different partition for Windows 2000, press ESC.

Format the partition using the NTFS file system

Format the partition using the FAT file system

ENTER=Continue ESC=Cancel

You should now have a progress indicator during the formatting process.

Windows 2000 Professional Setup

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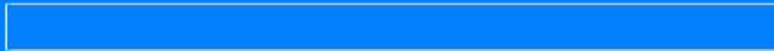
Please wait while Setup formats the partition

C: New (Unformatted) 28600MB

on 28608 MB Disk 0 at Id 0 on bus 0 on atapi.

Setup is formatting..

0%



Once this process completes, your hard drive is partitioned and formatted. Please refer to your operating system documentation or support center for further information regarding completing the installation of Windows 2000 or XP. Instructions for continuing the installation of the operating system will appear once the format is complete. For support related to installing the operating system, please refer to the operating system manufacturer.

Installing an Additional Hard Drive in Windows 2000

Note: An assumption is that the new hard drive is physically mounted and all hardware and system BIOS are correctly configured before attempting to partition and format the hard drive. If the hard drive is not mounted in the System, see the 'Simple Installation Guide' posted on - www.hgst.com/support.

Getting Started

You can use the Windows 2000 Disk Management tool to set up your hard disk and setup volumes or partitions on your hard disk. With Disk Management, you can create and delete partitions; format volumes using a FAT, FAT32, or NTFS file system; and setup more advanced disk subsystems. A hard drive must contain at least one formatted partition before it is usable.

Note: You should not attempt to make any changes to the partition from which the operating system was booted, the system files are located, or the active paging (swap) file is located.

To start Disk Management

- Right click on **My Computer** and select **Manage**.
- In the console tree, select **Disk Management**.

Note: You must be logged on as an Administrator or a member of the Administrators group in order to use the Disk Management utility.

Note: Before a new, un-partitioned disk can be used in Windows 2000 it must contain a disk signature. The first time that Disk Management is run after a new hard disk is installed, the **Disk Signature and Upgrade Disk Wizard** is started. If the wizard is cancelled, you may find that when you attempt to create a partition on the new hard disk, the **Create Partition** option is unavailable (appears dimmed). In this case a signature can be written on the drive by right clicking on the disk description window (lower pane, typically a red circle with a slash covering the hard drive icon) and selecting **Write Signature**.

To create a new partition or logical drive

In the Disk Management window

1. Right-click unallocated space on the basic disk where you want to create the partition, and then select **Create Partition**.
2. On the Welcome to the **Create Partition Wizard** page, select **Next**.
3. On the **Select Partition Type** page, select the type of partition that you want to create, and then select **Next**.
4. On the **Specify Partition Size** page, specify the size in megabytes (MB) of the partition that you want to create, and then select **Next**.
5. On the **Assign Drive Letter or Path** page, enter a drive letter or drive path, and then select **Next**.
6. On the **Format Partition** page, specify the formatting options that you want, and then select **Next**.
7. On the Completing the Create Partition Wizard page, verify that the options that you selected are correct, and then select **Finish**.

The new partition or logical drive is created and is displayed as the appropriate basic disk in the **Disk Management** window. Once the partition is created, you must format it.

To format a partition or logical drive

- In the **Disk Management** window, **right-click** the partition or logical drive that you want to format (or reformat) and then select **Format**.
- In the **Format** dialog box, specify the formatting options that you want, and then select **OK**.
- Select **OK** when you are prompted to format.

Once the partition is formatted, it is ready to be used and should show up in **My Computer** with a new hard drive letter assigned.

To delete a partition or logical drive:

In the **Disk Management** window, right-click the partition or logical drive that you want to delete, and then select Delete Partition or Delete Logical Drive.¹ Select **Yes** when you are prompted to delete the partition or drive.

1. When you delete a partition or logical drive, all data on that partition or logical drive is deleted along with the partition or logical drive itself. You cannot delete the system partition, boot partition or a partition that contains the active paging (swap) file. You cannot delete an extended partition unless the extended partition is empty. All logical drives must be deleted before you can delete an extended partition.

Installing an Additional Hard Drive in Windows XP

Note: An assumption is that the new hard drive is physically mounted and all hardware and system BIOS are correctly configured before attempting to partition and format the hard drive. If the hard drive is not mounted in the System, see the 'Simple Installation Guide' posted on - www.hgst.com/support.

Getting Started

You can use the Windows XP Disk Management tool to set up your hard disk and setup volumes or partitions on your hard disk. With Disk Management, you can create and delete partitions; format volumes using a FAT, FAT32, or NTFS file system; and setup more advanced disk subsystems. You can perform most disk-related tasks without needing to restart your computer because most configuration changes take effect immediately upon committing the changes. A hard drive must contain at least one formatted partition before it is usable.

Note: You should not attempt to make any changes to the partition from which the operating system was booted, the system files are located, or the active paging (swap) file is located. ²

To start Disk Management

1. Select **Start**, point to **Settings**, and then select **Control Panel**.
2. **Open Administrative Tools**, and then open **Computer Management**.
3. Alternatively, select **Start**, right click on **My Computer** and select **Manage**.
4. In the console tree, select **Disk Management**.

Note: You must be logged on as an Administrator or a member of the Administrators group in order to use the Disk Management utility.

Note: Before a new, un-partitioned disk can be used in Windows XP it must contain a **disk signature**. The first time that **Disk Management** is run after a new hard disk is installed, the **Disk Signature** and **Upgrade Disk Wizard** is started. If the wizard is cancelled, you may find that when you attempt to create a partition on the new hard disk, the **New Partition** option is unavailable (appears dimmed). In this case a signature can be written on the hard drive by right clicking on the disk description window (lower pane, typically a red circle with a white dash covering the hard drive icon) and selecting **Initialize Disk**.

To create a new partition or logical drive:

In the Disk Management window, do the following:

1. Right-click the free space within an extended partition where you want to create a logical drive, and then select **Logical Drive**.
2. On the Welcome to the Create Partition Wizard page, select **Next**.
3. On the Select Partition Type page, select the type of partition that you want to create, and then select **Next**.
4. On the Specify Partition Size page, specify the size in megabytes (MB) of the partition that you want to create, and then select **Next**.
5. On the Assign Drive Letter or Path page, enter a drive letter or drive path, and then select **Next**.
6. On the Format Partition page, specify the formatting options that you want, and then select **Next**.
7. On the Completing the Create Partition Wizard page, verify that the options that you selected are correct and then select **Finish**.

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2. It is a recommended practice to back up all data of value before making any system changes.

The new partition or logical drive is created and is displayed as the appropriate basic disk in the Disk Management window. If you chose to format the partition the process of formatting will start.

To format a partition, logical drive, or basic volume:

1. In the Disk Management window, right-click the partition, logical drive, or basic volume that you want to format (or reformat), and then select **Format**.
2. In the Format dialog box, specify the formatting options that you want, and then select **OK**.
3. Select **OK** when you are prompted to format.

To delete a partition or logical drive:

In the Disk Management window, right-click the partition or logical drive that you want to delete, and then select Delete Partition or Delete Logical Drive.³ Select **Yes** when you are prompted to delete the partition or drive.

³When you delete a partition or logical drive, all data on that partition or logical drive is deleted along with the partition or logical drive itself. You cannot delete the system partition, boot partition, or a partition that contains the active paging (swap) file. You cannot delete an extended partition unless the extended partition is empty. All logical drives must be deleted before you can delete an extended partition.

Installing a Hard Drive in Windows 9.x and DOS

Note: An assumption is that the new hard drive is physically mounted and all hardware and system BIOS are correctly configured before attempting to partition and format the hard drive. If the hard drive is not mounted in the System, see the 'Quick Installation Guide' posted for your hard drive model in the Technical Library - www.hgst.com/techlib.

This document describes the most common method of installing a hard drive using the MS DOS tool **FDISK**. Other tools have similar functionality but may differ in the sequence of operation. Please refer to your operating system or utility manual for additional information, enhanced functionality, additional features or differing nomenclature.

The Microsoft tool used to partition a hard drive in a DOS environment is a utility called **FDISK**. All versions of Windows through Millennium Edition (ME) are based on some version of DOS and use the same tool to setup and configure a hard disk drive (HDD). Earlier versions of **FDISK** supported the FAT12 and FAT16 file systems. Later versions added support for the FAT32 file system. We recommend using the version that comes with the operating system you intend to install in order to avoid any unforeseeable conflicts during the actual installation of the operating system. Please refer any questions concerning installing the actual operating system to your operating system vendor.

To partition a hard drive as a bootable device using FDISK:

1. Initiate the **FDISK** utility by booting to a startup diskette (supplied by your operating system vendor)
2. At the DOS prompt (usually a:\) type **fdisk** to start the utility⁴
3. If you have a single hard drive there will be four options on the main menu; if there is more than one hard drive there will be five options (the fifth option is to change current fixed disk drive)
4. Use option **5** (if available) to change to a different hard drive if necessary
5. Select option **1 Create DOS partition or logical disk drive** by pressing **Enter** or pressing **1**
6. On the next menu select option **1 Create primary DOS partition** by pressing **Enter** or pressing **1**
7. Assuming you wish to setup a single partition⁵ using the full capacity of the HDD press **Y**
8. Press the **<Esc>** key until you return to the main menu
9. Select option **4** to display the partition information (press **4**)
10. Your partition should appear using the full capacity of the hard drive and be set to "PRI DOS" and the status should be set to **A** (active)⁶
11. Press **<Esc>** to get back to the DOS prompt (usually a:\)
12. Reboot (restart) your computer and boot to the same startup disk as in step 1

To prepare a high level format of a drive/partition:

1. Continuing with step 12 (above) at the DOS prompt (usually a:\) type the command **format c:** (this assumes that the newly installed HDD is drive letter "c"... if not substitute the correct drive letter you wish to format)⁷

4. Later versions of the FDISK utility will prompt you to determine if you wish to enable large disk support; answering "Y" to this inquiry will force a FAT32 partition to be setup, answering "N" will force a FAT16 partition to be setup. If you setup a partition size of 512MB or less the utility will default the file type to FAT16.

5. This utility can be used to manage the HDD in additional ways. Please refer to the operating system documentation for using more advanced options.

6. In order to install a DOS based operating system onto a hard drive it must be setup as an active primary dos partition.

2. The utility will prompt you to proceed with the format. Press **Y** to format the drive/partition or press **"n"** to abort if you are uncertain.
3. You can now proceed with installing your operating system. For additional details or questions regarding this activity; please refer your inquiries to your operating system vendor.

To partition a drive as additional storage using FDISK:

1. Ensure that you are able to boot into your operating system normally.
2. Initiate the FDISK utility by booting to a startup diskette (supplied by your operating system vendor)
3. At the DOS prompt (usually a:\) type **fdisk** to start the utility
4. There will be five options on the main menu; select option 5 to change current fixed disk drive by pressing **5**.
5. On the subsequent dialogue screen select the drive you wish to setup (typically drive 2)
6. You will automatically return to the main menu (the "current fixed disk drive=" should indicate the drive number you wish to partition)
7. Select option 1 **Create DOS partition or logical disk drive** by pressing **Enter** or pressing **1**
8. On the next menu select option 1 **Create primary DOS partition** by pressing **Enter** or pressing **1**
9. Assuming you wish to setup a single partition using the full capacity of the HDD press **Y**
10. Press the **<Esc>** key until you return to the main menu
11. Select option 4 to display the partition information (press **4**)
12. Your partition should appear using the full capacity of the hard drive and be set to **PRI DOS** and the status should be blank (inactive)
13. Press **<Esc>** to get back to the DOS prompt (usually a:\)
14. Reboot (restart) your computer and boot to the same startup disk as in step 1

To prepare a high level format of a drive/partition:

1. Continuing with step 14 (above) at the DOS prompt (usually a:\) type the command **format c:** (this assumes that the newly installed HDD is drive letter **C...** if not substitute the correct drive letter you wish to format)
2. The utility will prompt you to proceed with the format. Press **Y** to format the drive/partition or press **N** to abort if you are uncertain.
3. The hard drive is now prepared to be used as additional storage within your operating system. Remove the startup diskette and boot normally into your current operating system

Addendum:

A. There is a cosmetic problem with some versions of FDISK. When you use FDISK.exe to partition a hard disk that is larger than 64GB (64 gigabytes, or 68,719,476,736 bytes) in capacity, FDISK does not report the correct size of the hard disk. The size that FDISK reports is the full size of the hard disk minus 64 GB. This is only a cosmetic problem; the utility will partition the hard drive correctly. However, Microsoft has released an update to address the issue.

The Microsoft description of the issue and the patch for the 64-GB cosmetic limitation of FDISK can be found at the following URL:

7.If you are uncertain please STOP (by pressing "n"); if you format the wrong drive letter all data on that drive/partition will be erased. It is strongly recommended that data of any value be backed up before you reconfigure a system.

<http://support.microsoft.com/default.aspx?scid=kb;en-us;263044>

B. The DOS operating systems have a specific order in which they will assign drive letters. This creates some confusion when a new hard drive is added into a system. The drive letter assignments may not follow the expected pattern; causing applications that specifically address a drive letter to no longer function correctly. The following is an explanation of the order in which a DOS based operating system assigns drive letters.

The first two drive letters (A & B) are reserved for floppy drives. Additional media are assigned drive letters in alphabetical order according to the following schema:

Primary partitions receive the next set of available drive letters. The operating system checks each physical drive mounted in the system for a primary partition and assigns drive letters to those partitions in the following order; first physical disk, second physical disk, third physical disk, etc. (up to eight physical disks are supported in DOS 5.0 and higher).

Next all logical partitions are assigned drive letters in the following order; all logical partitions on the first physical disk, all logical partitions on the second physical disk, all logical partitions on the third physical disk, etc.

Finally any storage devices that have drivers that need to be mounted via the config.sys will be assigned a drive letter in the order in which they are loaded. The sequence of appearance in the config.sys controls the drive letter assignment.

For further information please refer to the Microsoft Knowledge base article # 51978:
<http://support.microsoft.com/default.aspx?scid=kb;en-us;51978>

Installing a Hard Drive to an Existing Linux System

Note: An assumption is that the new hard drive is physically mounted and all hardware and system BIOS are correctly configured before attempting to partition and format the hard drive. If the hard drive is not mounted in the System, see the 'Simple Installation Guide' posted on - www.hgst.com/support.

When adding a hard drive to a system that already has Linux installed, there are two common Linux tools that can be used to partition and format it - **CFDISK** and **FDISK**.

Note: If you are unsure of the syntax or switches of a command, you can always run the "man" command. This will bring up the manual page for whatever command you specify.

Example: **man cfdisk**.

CFDISK

This utility is available in most Linux distributions; however, it was removed from RedHat 8.0.

CFDISK is run by using the following syntax at a console: (Note: The Linux command syntax is case sensitive)
cfdisk /dev/xxx (xxx = the hard drive designation with which you wish to work; Example: hda, hdb, sda, sdb)

The first screen you will see is one telling the capacity of the selected hard drive. Ensure that you are working with the intended hard drive.

To create a single partition

1. Choose **NEW** by pressing the N key or the **Right Arrow** key and press **Enter**.
2. Choose the type of partition. For example; choose **PRIMARY**.
3. Press **Enter** to use the entire capacity of the hard drive. (NOTE: using % is not an option)
4. Choose **WRITE** to save the changes.
5. No changes will take effect until you choose the **WRITE** option. Be sure you are working on the correct hard drive.
6. At the confirmation, you must type **YES** (a single "y" will not work).
7. If no partition was marked bootable a message will appear. If this is correct, the message can be ignored.
8. Choose **QUIT**.

To create multiple partitions

1. Choose **NEW** by pressing the N key or the **Right Arrow** key and press **Enter**.
2. Choose the type of partition, choose **PRIMARY**.
3. Enter the size of the partition you wish to create and press **Enter**.
4. Choose where you would like to place the partition, at the **BEGINNING** or the **END** of the hard drive. Now using the **UP** and **DOWN** arrows, choose the partition labeled **FREE SPACE**.
5. Choose **NEW**.
6. Choose **LOGICAL**
7. You do not need to create an extended partition as a prerequisite to a Logical Partition.
8. Enter the size you wish this partition to be.
9. Choose where you want the partition placed.

If more partitions are desired, repeat steps as necessary.

Advanced CFDISK

CFDISK gives you the choice of what file system (FS) you wish to use for your partitions. By default, the Linux native file system is used, this is EXT2. This is not compatible with Microsoft file systems (FAT16, FAT32, NTFS). However, if you wish to use **CFDISK** to create a DOS partition so that additional operating systems can access it, you may do so.

- Select which partition you wish to change and choose the TYPE option.
- Some common choices may be:

FAT16	BSD
HPFS/NTFS	NeXTSTEP
AIX	NTFS
Win95 FAT 32 (LBA)	
- Choose which option you wish to use and press **Enter**.

FDISK

FDISK is a more advanced utility used to partition a hard drive. **FDISK** is strictly console based and is not very user friendly. This utility is available in all distributions, with minor differences. The syntax in this example is current using Red Hat 8.0.

Command Syntax:

(fdisk /dev/xxx) (xxx = the drive designation with which you wish to work. Example: hda, hdb, sda, sdb)

Instructions for creating one partition using the entire capacity of the hard drive

1. Enter the above command with the correct device with which you wish to work.
2. Press **M** for a list of menu options.
3. Choose **P** to list the partitions on this drive.
4. Press **N** to create a new partition.
5. Enter **P** for Primary partition.
6. Enter **1** for the partition number.
7. Choose the cylinder you wish the partition to start on or press **Enter** for the default.
When specifying the size of the drive, you can enter it in terms of the last cylinder or the size in MB's or KB's. To use the entire drive, just press **Enter**.
9. Press **W** to write the changes.
10. Press **Q** to exit **FDISK**

Instructions for creating multiple partitions

1. Enter the command line to initiate the fdisk utility.
2. Press **N** to create a new partition.
3. Enter **N** to create a primary partition.
4. Choose **1** for the partition number.

5. Choose which cylinder you want to start the partition at or press "Enter" to select the default. Enter either the last cylinder of the partition or the size. When entering the size, use the following format: +<size>M or +<size>K
7. Press **N** to create another partition.
8. Choose **E** for extended.
9. Choose **2** for the partition number.
As with DOS, the extended partition should take up the remaining space on the drive. At this point, it is best to choose the default beginning cylinder.
10. Press **Enter** to choose the default end cylinder.
11. Press **n** to create another partition.
12. Press **l** to create a Logical partition within the extended partition.
13. Enter the first cylinder or press **Enter** to select the default.
14. Enter either the last cylinder of the partition or the size.

Repeat to use the remaining space on the drive. When you are finished, press **W** to write the changes and then **Q** to exit.

Formatting a hard drive

Before a hard drive can be used, it must be partitioned and formatted. In Dos or Windows, you format a hard drive as FAT16, FAT32, or NTFS. In Linux, the file system is called EXT2 (or EXT3).

To format a hard drive, use the following syntax:

mke2fs /dev/xxx (xxx = the hard drive designation you wish to work with. Example: hda, hdb, sda, sdb)

This will format the partition you specified, with a Linux format. As with the Windows "format" command, this will erase everything on the hard drive. Be sure you are formatting the correct drive.

NOTE: As with all Linux commands, you can view a detailed help file with the **man** command.

Adding a Mount Point

After formatting the hard drive, you have to designate a point on the hard drive that the system and user will use to access the hard drive. This is called a mount point. In the Microsoft world, it is comparable to a hard drive letter.

When adding a mount point for a hard drive, you have to first create a directory that you will use to access the new partition. This directory can be named anything, but it is important to remember where it is and what it is named.

To make a directory; navigate to the location where you want the directory and issue the following command:

mkdir newdrive

After pressing the **Enter** key, you can verify the directory was created by issuing the first command. This will give you a directory reading of your current location. The new directory should be listed.

After adding the mount point, you need to edit the fstab file. This is a file that will be read during boot and will automatically mount all devices listed. To edit this file, type the following command or use the editor of your choice (pico, emacs, vi, etc...):

pico /etc/fstab

Once in the file, you need to add the appropriate entries. For information on the different settings, use the **man fstab** command. Below is a summary of what you should see:

Column one:

The device location (/dev/hdc1)

Column two:

The mount point (/newdrive)

Column three:

The files system type of the partition being mounted (ext2, msdos, etc...)

Column four:

Any switches or variables you wish to add. Normally, you can just type default.

Column five:

The dump field. This determines which filesystems need to be dumped. The boot partition is normally set to 1, most others should be set to 0 (disabled)

Column six:

This will determine if fsck needs to be run on the mounted system and in what order. A 0 will disable fsck from being run on that filesystem.

After making the appropriate changes or entries, press **Ctrl-x**. Press **Y** when it asks if you want to save the file and **Enter** when it asks for the name (unless you want to change the name).

The mount point is created and the system knows to mount it at boot. You can now reboot the system and it will load the partition. You can now access that partition as a folder under the name you specified.

More information can be obtained from the following sources:

The Linux Documentation Project:

www.tldp.org

The official RedHat website:

www.redhat.com

Initializing an ATA hard drive in Macintosh OS 8.X thru 9.X

Note: An assumption is that the new hard drive is physically mounted and all hardware and system BIOS are correctly configured before attempting to partition and format the hard drive. If the hard drive is not mounted in the System, see the 'Simple Installation Guide' posted on - www.hgst.com/support.

- Go to the **Apple System Profiler** located under the Apple menu and Select **Devices and Volumes** tab.

Confirm that the new Hitachi hard drive is listed at the correct capacity. If the hard drive is not displayed, power down your system. Verify that the hard drive is properly installed and the jumper settings are correct. When the hard drive is detected properly, go to the System Folder, Utilities, and open **Drive Setup**.

1. Select the hard drive you want to initialize then select **Initialize** to proceed to the Initialize screen.
2. To create a single volume on the new hard drive, select **Initialize** to finish.
3. To create multiple volumes or specify an alternate file format, select Custom Setup. Choose the partition arrangement and file system you want to use then select **OK**. Select **Initialize** to finish.

Once the hard drive is initialized, a new volume icon will appear on your desktop and the hard drive will be ready for use. You can verify the partition information by going back to the **Apple System Profiler** and selecting the **Devices and Volumes** tab.

Initializing (Partitioning and Formatting) ATA hard drive in Macintosh OS 10.x

After physically installing the hard drive, boot off the OS install CD if you are replacing your original Apple drive or the main Macintosh hard drive volume if you are adding the Hitachi hard drive as additional storage. Verify that the new Hitachi hard drive is listed at the correct capacity.

1. Select **Go** from the Menu toolbar
2. Select **Applications**
3. Select **Utilities**
4. Select **Apple System Profiler**
5. Select **Devices and Volumes** tab. If the hard drive is not displayed, power down your system. Verify that the hard drive is properly installed and the jumper settings are correct.

When the hard drive is detected properly, you can use **Drive Setup** to configure your Hitachi drive.

1. Select **Go** from the Menu toolbar
2. Select **Applications**
3. Select **Utilities**
4. Select **Disk Utility**
5. Select **Drive Setup**
6. Select the hard drive you want to **initialize**
7. Select the **Partition** tab
8. Select your partition and file system choices if you want to modify the default settings.
9. Select **Partition** to finish initializing your Hitachi drive.

Once the hard drive is initialized, a new volume icon will appear on your desktop and the hard drive will be ready for use. You can verify the partition information by going back to the **Apple System Profiler** and selecting the **Devices and Volumes** tab.

NetCom Direct
3176 Pullman St.
Suite # 112
Costa Mesa, CA 92626
Produced in the United States

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