Computer Preparing (Partitioning)

What is a partition or volume?

The hard drive is an important part of computer parts, a storage device that provides always saving data even after the power supply interrupted. A ***partition*** is *an area of a hard disk that can be formatted and assigned a drive letter*, (The terms volume and partition are often used interchangeably). Your system partition is typically labeled with the letter C. Letters A and B are reserved for removable drives or floppy disk drives. Some computers have hard disks that are partitioned as a single partition, so your whole hard disk is represented by the letter C. Other computers might have an additional partition that contains recovery tools, in case the information on your C partition becomes damaged or unusable.

How do I create more partitions?

To create a partition or more partitions on a hard disk, you must be logged in as an administrator, and there *must be either:*

- **unallocated disk space**(unformatted space that is not part of an existing partition or volume) *or*
- **free space within an extended partition** on the hard disk.

If there is no unallocated disk space, you can create some by shrinking an existing partition to create unallocated space.

A ***boot partition*** is a *partition that contains the files for the Windows operating system (OS folder)*. If you want to install a second operating system on your computer (called a dual-boot or multiboot configuration), you need to create another partition on the hard disk, and then install the additional operating system on the new partition. Your hard disk would then have ***one system partition*** and ***two boot partitions***.

A *system partition* is a *primary partition that contains the* **hardware-related files** *and the Boot folder (the boot loader, a piece of software responsible for booting the OS.),* **these tell the computer where to look to start Windows.**

With Disk Management, you can create a maximum of three primary partitions on a hard disk. If you are installing different versions of Windows, you must install the earliest version first. If you don't do this, your computer may become inoperable.

If we want to use the hard drive we must divide it (at least to the one partition) and formatting these partitions.

In fact there are three types of partitioning: the essential **Primary**, **Extended** and **Logical**. The total data storage space of a PC HDD can contain at most **four** *primary partitions*, or alternatively **three primary partitions** and an **extended partition.** The Primary and Extended are the basic divisions (partitions) of the hard disk, later this extended can be divided into any number of logical partitions.
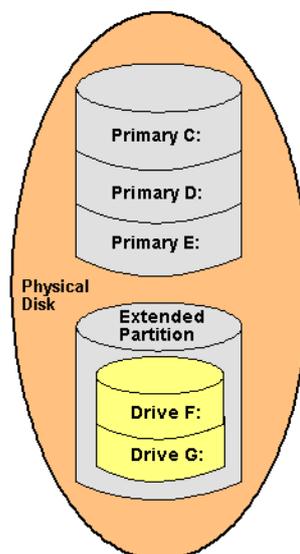
Primary Partition:

The primary partition *contains the used operating system (such as Windows) in addition to any files or other data (such as My documents, Program files), a primary partition is in which an Operating System can be installed*, hard disk may contain a maximum of 4

primary partitions, primary partition must be formatted with appropriate file system before install the operating system, only primary partition can be set as active.

Extended Partition:

Extended partition *can not be used directly unless partition it to multiple logical drives. We can consider the extended section as the container that contains several logical partitions, and can not use the extended section for data storing, but it must be divided into a number of logical partitions that are used for data storing*.

Logical Partition:

Logical partitions *can not exist unless within the extended partition, and logical partitions can contain ordinary files and data, logical drive cannot be set as active*.

You can use several programs to partition your hard drive, such as the Fdisk and partition magic.

Create and format a new partition (volume)

1. Open Computer Management. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.
2. In the left pane, under Storage, click Disk Management.
3. Right-click an *unallocated* region on your hard disk, and then click New Simple Volume.
4. In the New Simple Volume Wizard, click Next.
5. Type the size of the volume you want to create in megabytes (MB) or accept the maximum default size, and then click Next.
6. Accept the default drive letter or choose a different drive letter to identify the partition, and then click Next.
7. In the Format Partition dialog box, do one of the following:
o   If you don't want to format the volume right now, click Do not format this volume, and then click Next.

- o To format the volume with the default settings, click Next.
8. Review your choices, and then click Finish.

Repartitioning hard disk

You can *repartition your hard disk by using the Shrink feature in Disk Management*. You can *shrink an existing partition or volume to create unallocated disk space*, from which you can create a new partition or volume. If you have multiple partitions on your hard disk, you can delete and create partitions from the resulting unallocated space. When you delete a partition, all data on the partition is erased.

Activate a primary partition

An **active/system partition** is a *primary partition on a hard drive set as the bootable partition that contains the boot loader to load operating systems from a disk*. Any one of the 4 primary partitions can be set as active partition. Since there can be 4 primary partitions with 4 different Operating Systems installed, *one of the partition that is marked active is used for the initial booting. Only one partition on each hard drive can be set as an active partition or bootable partition.* For example, if you are using Microsoft Windows the partition that contains Windows is the active partition.

Marking a partition as active is an advanced task that should only be performed by advanced users. *Marking a partition as active on a basic disk means* that **the computer will use the loader (an operating system tool) on that partition to start the operating system.** If we mark a partition that doesn't contain the loader for an operating system as active, our computer will stop working.

1. Open Computer Management. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.
2. On the left, under Storage, click Disk Management.
3. Right-click the primary partition that you want to make active, click Mark Partition as Active, and then click Yes.

- You can't make a <u>logical drive</u> or an <u>extended partition</u> active. Only a <u>primary partition</u> can be made active.

- There can be <u>only one active partition per physical hard disk</u>.

- If you have <u>multiple hard disks</u> installed on your computer, it's possible for <u>each hard disk to have a partition set as active</u>. However, the active partition on the first hard disk that your computer's BIOS detects is the one that will start the computer.