Computer Systems Servicing

11

Quarter 2

Self-Learning Module 2

Partitioning

Development Team of the Self-Learning Module

Writer: Ronald S. Bobis

Editor: Lerma I. Cantanero

Reviewers: Felix C. Vergara Jr.

Illustrator: Name

Layout Artist: Name

Management Team:

Ma. Evalou Concepcion A. Agustin
OIC-Schools Division Superintendent
Aurelio G. Alfonso EdD
OIC-Assistant Schools Division Superintendent
Victor M. Javeña EdD
Chief, School Governance and Operations Division and
OIC-Chief, Curriculum Implementation Division

Education Program Supervisors

Librada L. Agon EdD (EPP/TLE/TVL/TVE)
Liza A. Alvarez (Science/STEM/SSP)
Bernard R. Balitao (AP/HUMSS)
Joselito E. Calios (English/SPFL/GAS)
Norlyn D. Conde EdD (MAPEH/SPA/SPS/HOPE/A&D/Sports)
Wilma Q. Del Rosario (LRMS/ADM)
Ma. Teresita E. Herrera EdD (Filipino/GAS/Piling Larang)
Perlita M. Ignacio PhD (EsP)
Dulce O. Santos PhD (Kindergarten/MTB-MLE)
Teresita P. Tagulao EdD (Mathematics/ABM)

EXPECTATIONS

After completing this lesson, you should be able to:

A. define partitioning;
B. perform partitioning procedures during and after installation;
C. appreciate the importance of partitioning.

PRETEST

Directions: Read carefully the following questions. Choose the letter of the best answer and write it on your notebook.

1. the creation of one or more secondary storage areas, so that each region can be handled separately.
   A. Formatting
   B. Multiplying
   C. Partitioning
   D. Analyzing

2. The year where most new computers were using the partitioning scheme GUID Partition Table (GPT) instead.
   A. 2007
   B. 2008
   C. 2009
   D. 2010

3. Is a logical partition descriptor under the common partitioning system for DOS disk drives.
   A. Primary partition
   B. Extended partition
   C. Secondary partition
   D. Formatting

4. Defines a rule, or distribution scheme. Conceptually, a dimension defines a set of logical partitions.
   A. Partitioning scheme
   B. Partitioning info
   C. Partitioning edition
   D. Partitioning app

5. When a partition is deleted its entry will be removed from a table and the data will no longer be available.
   A. Partition Deleting
   B. Partition Recovery
   C. Partition Scheme
   D. Partition Slicing

RECAP

In the previous module, you have learned Operating Systems. Specifically, it discussed the different versions of Windows OS, MAC OS and Linux OS. You were made aware that Operating system (OS) of your computer manages all of the computer's software and hardware. Most of the time, there are several different computer programs running simultaneously and all of them need to access the central processing unit (CPU), memory, and storage of your computer. All of this is managed by the operating system to ensure each application gets what it wants. The most important software which runs on a computer is an operating system. This manages the memory, operations, and all of the computer's applications and hardware. It also allows you to communicate with the computer, without knowing how to speak the "language" of the computer. A computer is useless without an operating system. With these, you now know much about Operating Systems. This module is the second topic where you will know about Partitioning.

LESSON

Disc partitioning or **disk slicing** - is the creation of one or more secondary storage areas, so that each region can be handled separately. It is usually the first step before any file system is developed to prepare a newly built disk. The disk stores information on the locations and sizes of the partitions in an area known as the partition table read before any other part of the disk by the operating system. Then each partition appears as a distinct "logical" disk to the operating system that uses a part of the actual disk. System administrators use a partition editor program to create, resize, delete, and manipulate the partitions.

PC Partition Types

This section explains the Master Boot Record (MBR) partitioning process, as traditionally seen on PC-compatible operating systems in DOS, Microsoft Windows and Linux (among others). By the mid-2010s, most new computers were using the partitioning scheme GUID Partition Table (GPT) instead. See the general article on partition tables, for examples of other partitioning schemes.

A PC HDD 's total data storage space on which MBR partitioning is applied can include at most four primary partitions, or three primary partitions and an expanded partition, as an alternative. Situated in the master boot log, the Partition Table comprises 16-byte entries, each of which represents a partition.

- **Primary Partition** - A main partition has one file structure in it. Microsoft also wanted what it called the system partition to be the first partition of DOS and all early versions of Microsoft Windows systems. Both Windows operating

systems can be located on (almost) any partition from Windows 95 onwards, but the boot files (io.sys, bootmgr, ntldr, etc.) must be located on a primary partition. Certain variables, however, such as the BIOS of a PC (see Boot sequence on regular PC) can also enforce unique specifications as to which partition the primary OS may contain.
The partition style code for a primary partition that either refer to a file system stored within it (e.g. 0x07 means either an NTFS or an OS/2 HPFS file system) or imply a special usage of the partition (e.g. code 0x82 usually indicates a Linux swap partition). Due to the limitations of different versions of DOS and Windows OS, the FAT16 and FAT32 file systems made use of a number of partition type codes. While a Linux operating system can identify a variety of different file systems (ext4, ext3, ext2, ReiserFS, etc.), the same partition style code has been commonly used for all: 0x83 (Linux native file system).

- **Extended Partition** - or extended partition boot record (EPBR), is a logical partition descriptor under the common partitioning system for DOS disk drives. In this method, if an expanded partition is identified as one (and only one) partition record entry in the master boot record (MBR), then that partition may be subdivided into a number of logical partitions. One or more EBRs define the internal configuration of the extended partition, which are situated within the extended partition. The first (and sometimes only) EBR will always be located on the very first extension partition sector.

Partitioning Schemes- defines a rule, or distribution scheme. Conceptually, a dimension defines a set of logical partitions; afterwards each logical partition can be subdivided according to the rule of the next dimension. From left to right, dimensions are evaluated.

- **DOS, Windows, and OS/2 -** A standard practice for DOS, Microsoft Windows, and OS/2 is to use one main partition for the active file system that would include the operating system, the page / swap package, all programs, software, and user info. In most desktop computers in Windows, this primary partition is systematically given the drive letter C: There may be other partitions on the HDD that may or may not be visible as drives, such as partitions for recovery, or partitions with diagnostic tools or details. (Microsoft drive letters do not suit single-to-one partitions, and there may be more or less drive letters than partitions.)

  Microsoft Windows 2000, XP, Vista, and Windows 7 include a disk management program that allows the FAT and NTFS partitions to be created, deleted, and resized. In Windows Vista and Windows 7 the Windows Disk Manager uses a 1 MB partition configuration scheme which is inherently inconsistent with Windows 2000, XP, OS/2, DOS and many other operating systems.

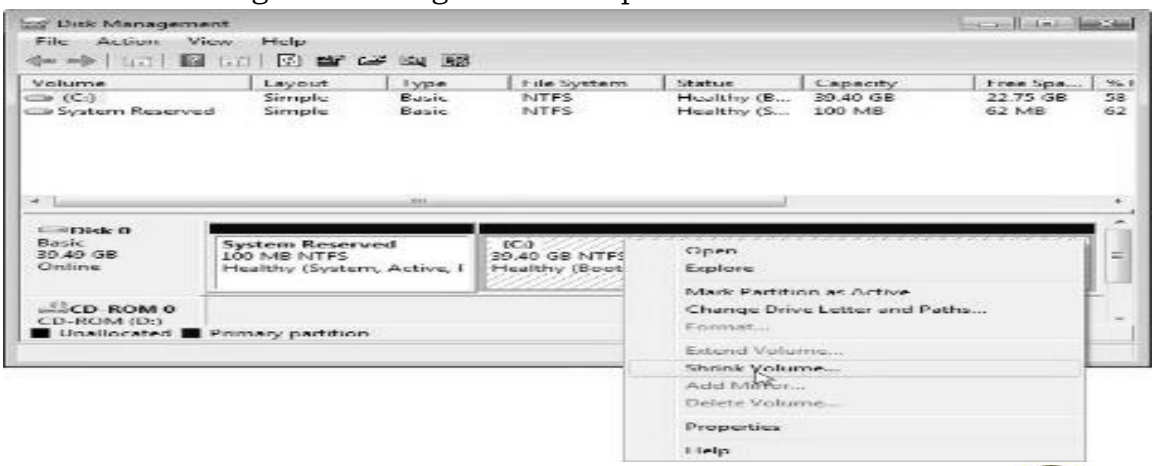
- **UNI-Like Systems -** Multiple partitions on a storage unit can be found on Unix-based and Unix-like operating systems such as Linux, macOS, BSD, and Solaris. You can format each partition for a file system, or as a swap partition. Using three partitions is a standard minimum setup for Linux systems: one holding machine files mounted on "/" (the root directory), one holding user configuration files and data mounted on /home (the home directory), and a swap partition.
  MacOS systems also use a single partition for the entire filesystem by default, and use a swap file inside the file system (like Windows) instead of a swap partition.
  In Solaris, partitions are sometimes referred to as slices. It is a hypothetical reference to multiple bits of a cake being cut in.
  In the FreeBSD operating system, the term "slice" is used to refer to Master Boot Record partitions, to avoid confusion with the FreeBSD own disk label-based partitioning scheme. GUID Partition Table partitions, however, are widely referred to as the "partition."

Partition Recovery- When a partition is deleted its entry will be removed from a table and the data will no longer be available. The data will remain on the disk until it is overwritten. Specialized recovery utilities may be able to locate lost file systems and recreate a partition table that includes entries for those file systems recovered. Some disk utilities can overwrite multiple starting sectors of a partition that they uninstall. Of example, if Windows Disk Manager (Windows 2000 / XP, etc.) is used to erase a partition, the first sector (relative sector 0) of the partition will be overwritten before deletion. If a backup boot sector is usable it may still be possible to restore a FAT or NTFS partition.

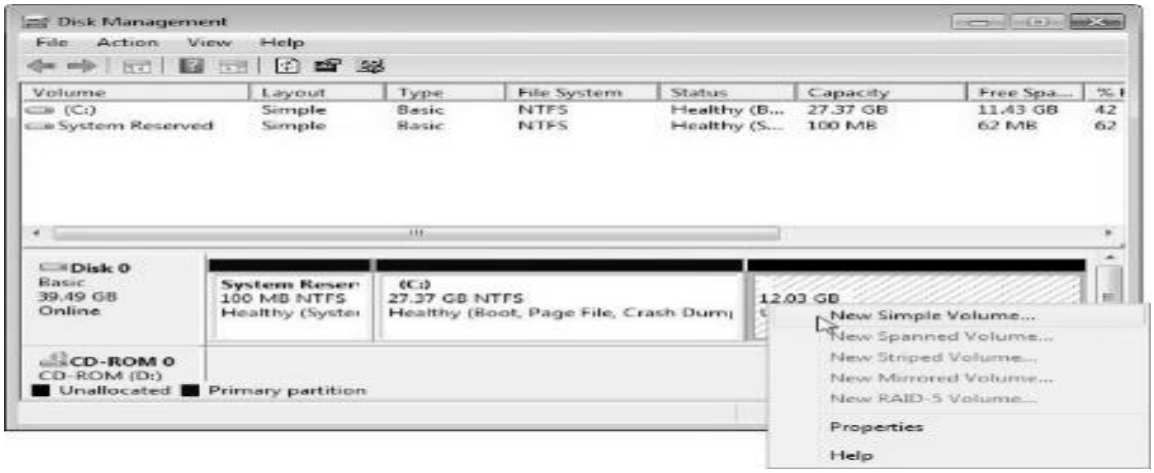
Steps in Partitioning a Hard Disk Drive

To create a partition from unpartitioned space follow these steps:

1. Make a full image backup of the entire drive if you don't already have one.
2. Make sure you have enough free space to install a new partition on the existing partition.
3. Open Disk Control feature, pick the disk that you want to create a partition from.
4. Shrink the existing Partition right-click the partition and select Shrink Volume.

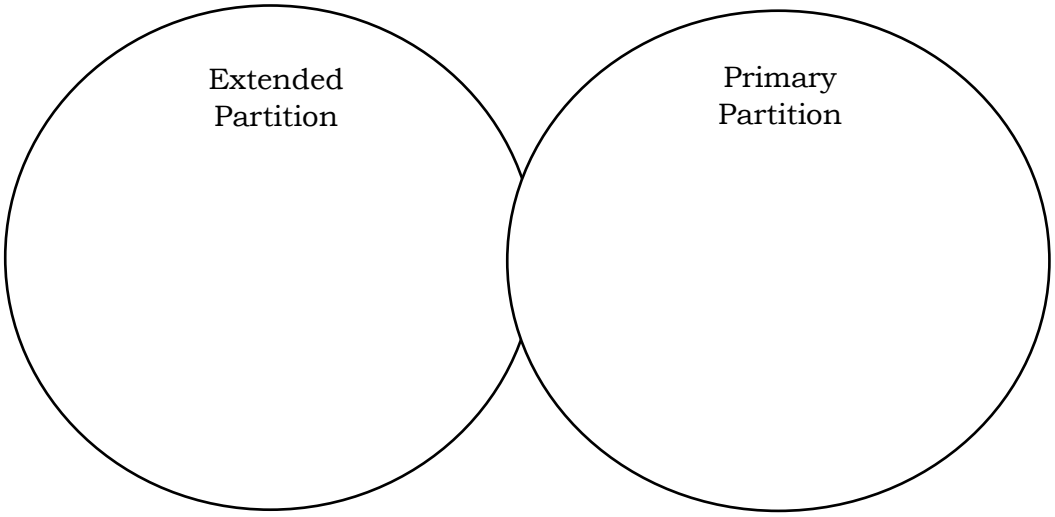


5. Create your new partition. When the resizing is done, right-click the physical drive's unallocated space and select *Simple New Volume.*



ACTIVITIES

A. Direction: Differentiate Extended Partition from Primary Partition Using Venn Diagram. write at least 3 each.



B. Direction: Enumerate the steps in Partitioning Hard Drive.

WRAP-UP

Direction: To assess yourself about the things you've learned from the lesson, fill in the details below.

Today I learned that _____

_____

_____

_____

_____

VALUING

DIRECTION: Read and answer the following questions carefully in two to three sentences each number.

1. How will you use the knowledge you acquired about Partitioning a Hard Drive?

_____
_____
_____

2. Cite a situation in which you can apply the knowledge of understanding Partitioning?

_____
_____
_____

POSTTEST

Direction: Write ***T*** on the line if the statement is correct and ***F*** if the statement is wrong.

___1. The disk stores information on the locations and sizes of the partitions in an area known as the partition table read before any other part of the disk by the operating system.

___2. By the mid-2010s, most new computers were using the partitioning scheme GUID Partition Table (GPT) instead.

___3. Situated in the master boot log, the Partition Table comprises 64-byte entries, each of which represents a partition.

___4. Due to the limitations of different versions of DOS and Windows OS, the FAT32 and FAT64 file systems made use of a number of partition type codes.

___5. Extended partition boot record (EPBR), is a logical partition descriptor under the common partitioning system for DOS disk drives.

KEY TO CORRECTION

Pretest key to correction

1. C
2. D
3. B
4. A
5. B

Posttest key to correction

1. T
2. T
3. F
4. F
5. T

References

- Google." *Update EUFI/BIOS on windows*" Accessed August 22, 2020 https://en.wikipedia.org/wiki/Disk_partitioning
- Google." *Update EUFI/BIOS on windows*" Accessed August 22, 2020 https://www.lifewire.com/how-to-partition-a-hard-drive-2626081
- Google." *Update EUFI/BIOS on windows*" Accessed August 23, 2020
- https://www.digitaltrends.com/computing/how-to-partition-a-hard-drive-in-windows/
- Google." *Update EUFI/BIOS on windows*" Accessed August 23, 2020 https://www.pcworld.com/article/2066191/how-to-partition-a-hard-drive.html