

# What is a Partition?

- Partitioning is means to divide a single hard drive into many logical drives.
- A partition is a contiguous set of blocks on a drive that are treated as an independent disk.
- A partition table is an index that relates sections of the hard drive to partitions.

# Why have multiple partitions?

→ Reduce the risk of system failure in case a partition becomes full. Runaway processes or maniacal users can consume so much disk space that the operating system no longer has room on the hard drive for its bookkeeping operations. This will lead to disaster. By segregating space, you ensure that things other than the operating system die when allocated disk space is exhausted.

→ Encapsulate your data. Since file system corruption is local to a partition, you stand to lose only some of your data if an accident occurs.

# Partition Fields

- **Device:** This field displays the partition's device name.
- **Start:** This field shows the sector on your hard drive where the partition begins.
- **End:** This field shows the sector on your hard drive where the partition ends.
- **Size:** This field shows the partition's size (in MB).
- **Type:** This field shows the partition's type (for example, ext2, ext3, or vfat).
- **Mount Point:** A mount point is the location within the directory hierarchy at which a volume exists; the volume is "mounted" at this location. This field indicates where the partition will be mounted.

# DISK Label:

→ Master Boot Record (MBR)

→ supports disks up to 2tb size

→ supports up to 4 primary partitions

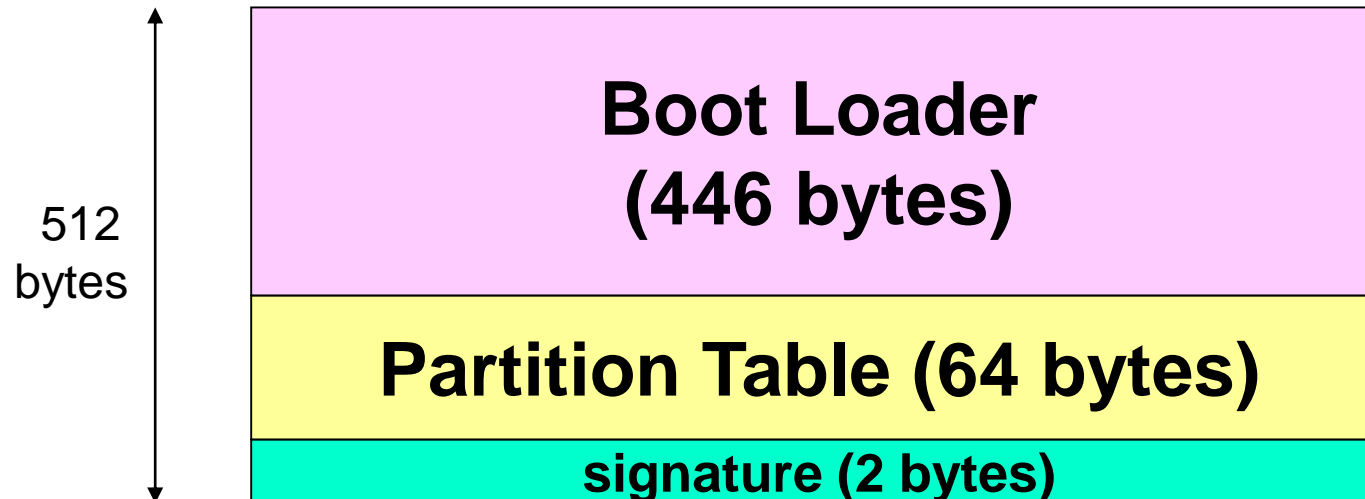
→ Guid Partition Table (GPT)

→ supports disks of much large size

→ supports more primary partitions (up to 128)

# Format of the MBR

- ▶ The MBR is subdivided into three areas:
  - ▶ The boot loader program (e.g., GRUB)
  - ▶ The 'partition table' data-structure
  - ▶ The MBR signature (i.e., 0x55, 0xAA)



# Master Boot Record (MBR)

- ▶ MBR: total 4 primary partition max
- ▶ Primary=3
- ▶ Extended=1
- ▶ Logical=15

## Partition Scheme:

- Standard Partition
- LVM

# Filesystem Types:

- ▶ xfs:
- ▶ ext\*
- ▶ btrfs
- ▶ ntfs
- ▶ vfat
- ▶ swap

# Disk Partition

## ► IDE Disk/Partition Naming:

→ **/dev/hda [Primary Master Disk]**

→ /dev/hda1 [First Primary Partition]

→ /dev/hda2 [Second Primary Partition]

→ **/dev/hdb [Primary Slave Disk]**

→ /dev/hdb1 [First Primary Partition]

→ **/dev/hdc (Secondary Master Disk)**

→ /dev/hdc1 [First Primary Partition]



# Disk Partition

- ▶ **SCSI/SATA/SAS/SSD Disk/Partitions Naming**

- ▶ **/dev/sd(X)**

- **/dev/sda [Fist Device]**

- /dev/sda1 [First Primary Partition]

- /dev/sda2 [Second Primary Partition]

- **/dev/sdb [Second Device ]**

- /dev/sdb1 [First Primary Partition]

- **/dev/sdc (Third Device)**

- /dev/sdc1 [First Primary Partition]

# Virtual Disk Partition

- ▶ **For Virtual Disk:**
- ▶ **/dev/vd(X)**
  - **/dev/vda [First Device]**
    - /dev/vda1 [First Primary Partition]
    - /dev/vda2 [Second Primary Partition]
  - **/dev/vdb [Second Device]**
    - /dev/vdb1 [First Primary Partition]
  - **/dev/vdc [Third Device]**
    - /dev/vdc1 [First Primary Partition]