

Partition and Volume Management..

classmate

Date _____

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Partition and volume management..



Partition management.

- 1) We use Partition because manage devies & files & folders it will not able to effect on different partition
 - 2) Divided a single hard drive into many logical drives using editor like fdisk parted tools
 - 3) Directories & files of different catagories can stored in different partition
 - 4) partition are represented by dives files located in /dev
- * Data transmission Type Pata & Sata &
4. Pata or (parallel Advanced Technology Attachment)

- Hda family type
- pata cables are use with internal drives (46 cm)
- Required large space for installation
- Replacement or addition of components to system on without stopping Shutting down or rebooting the system.

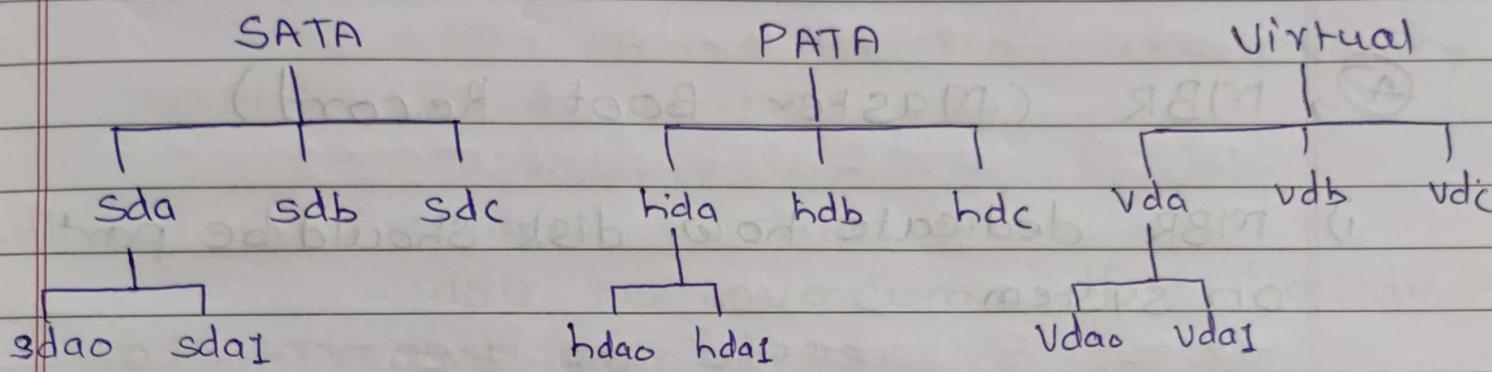
f) Sata (serial Advanced Technology Attachment)

- Rotary hard drive with spinning platter and a moving needle that writes data to consecutive sectors each platter
- Sda? family type
- 7 - conductor ribbon cables
- faster running process than pata supports hot swapping.

I) file system is organized structured way to data to holding for files + directors on storage devices

2) process of adding new file system into existing directory is called mounting + directory is called mounting point.

- ③ Types of hard disk & types of their partition are represents like



- ④ These file are called a block devices are store in /dev

- ⑤ The DISK partitioning is method of dividing hard drive into multiple logical storage

- ⑥ Hard Disk partition is going.

(A) MBR

(B) GPT

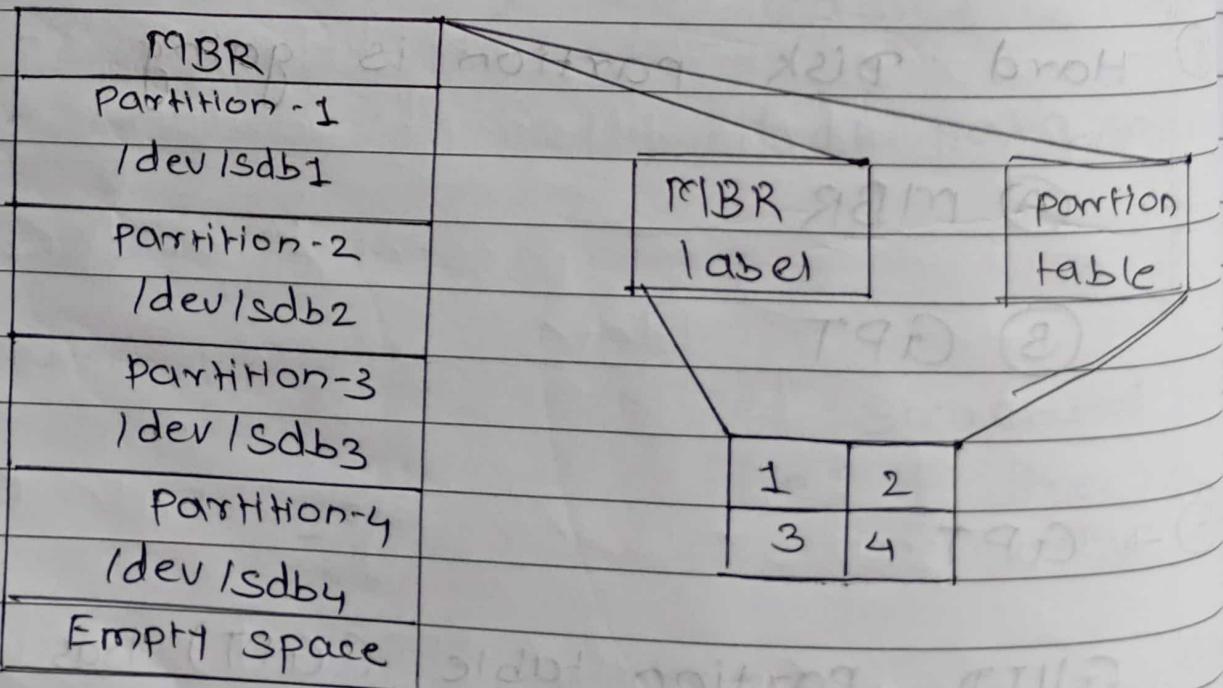
(B) → GPT

- 1) GUID partition table (GPT) has overcome from limitation of MBR partition
- 2) It has size limit 8 ZB

3) Marking more than four primary partition is also possible.

④ MBR (Master Boot Record)

- i) MBR dedicate how disk should be partitioned on system
- ii) MBR uses standard BIOS partition table limit 2 TB
- iii) MBR has 512 bytes of sectors
- iv) MBR supports maximum of 4 partitions (3 primary + 1 extended)



- Each disk can have up to three primary partition and one extended partition

(a) primary partition

- Any three partition are primary partition (use to store OS)

(b) Extended partition

- Way to overcome the limitation of primary partitions

- If you want to have than four partition you can put last a partitions inside

This partition is set by using 1 MB bar in any one of first four partition and logical P starts from 5 + number

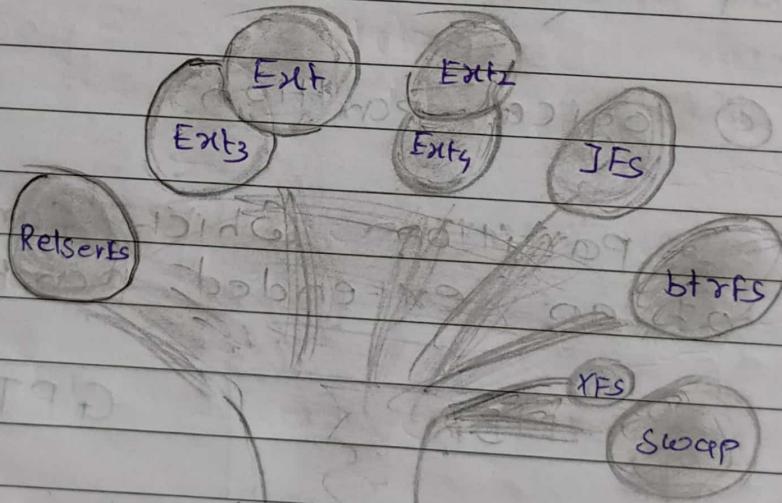
(c) logical partition

- Partition which can created inside of an extended partition.

	MBR	GPT
Maximum Partition Capacity	2 TB	9.4 ZB (^{1 ZB is 1 billion terabyte})
maximum partition number	4 partition (3 P + infinite number)	128 primary partition
firmware interface support	BIOS	UEFI

Linux file system

- A Linux file system is a structured collection of files on a disk drive or a partition.
- used to handle the data management of the storage.
- Helps to arrange the files on the disk storage.
- It manages the file name, file size, creation date & information about file.



Type of Linux file system



Create partition :-

Step

- I → i) off the server
- ii) create new virtual hard disk & attach to the server
- iii) Dynamically allocated at memory
- iv) start server
- v) # lsblk ... (cheaking disk will add or not)

Step

2 → fdisk /dev/sdb

-m Help

-n Add new partition

now press the enter for default setting
+2G

H save

Partprobe (update to the kernel from scratch that will update)

lsblk check block are created

→ step 3 Now Assigning the file system form one

blkid ... Check file system type

MKfs . ext4 /dev/sdb1 it will give file system

blkid ... check it

→ step 4 Now we do mounting the other file system to particular application directory.

mkdir /deployment

mount /dev/sdb1 to /deployment

cp -r /etc /deployment

du -sh /etc

df -hT ... check the mounting has

① unmount the your directory

umount /deployment

permanent mounting your /deployment directory

vim /etc/fstab

/dev/sdb1 /deployment ext4
defaucts 0 0

∴ save (wq!)

reboot

Note :- physical partition has limitation we can not increase or reduce & merge the size of partition we overcome this issue using logical volume management.

logical volume management :-

- 1) LVM is logical volume manager in linux kernel that manage disk drive & similar mass devices
- 2) LVM is another disk partition management tool for the linux

- 3) It is another mechanism for virtualizing disk
- 4) Here we can add one or more physical disk/drive → create group of all disk/volume → we use the space according to our own requirement from that pool disk volume group → in future we can also extend the size of disk → if we didn't required so we can revoke the size of disk as well

Features :-

- 1) We can add one or more physical disk & create virtualization of that disk with virtualization technology
- 2) Add & remove the size of disk according to our own requirement from that volume group
- 3) It gives flexibility to add & remove the disk space from pool
- 4) Resizing

Components of LVM

1) Physical volume (PV)

2) Volume group (VG)

3) Logical volume (LV)

Use Cases Scenario

1) Database Server

2) Company file server

3) Centralized log server

4) Even Home user want large partition for Game/music/video

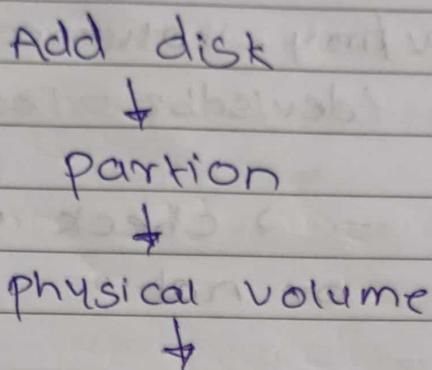
Logical Volume (LVM)
/dev/mynew-vg/vol1
400 MB

Logical Volume (LVM)
/dev/mynew-vg/vol2
1 GB

Free 3.6 GB

Volumegroup
Physical partition
/dev/sdb1 1.8 GB
Physical partition
/dev/sdb2 3.2 GB

Physical hard disk
/dev/sdb 5 GB



Volume group
+
LVM

* Add Disk & create partition

```

# Add new disk into server - 8 GB + 2 GB
# create partition 8/ → 4 GB + 3 GB + 2 / →
  1G (sdb1, sdb2 + sdc1)
# 1/1 gb remains for swap partition
  
```

* Create physical Partition

```

# pvdisplay . . . . . > Firstly check whether
  physical partition is created or not we
  don't have sdb1/2/ + sdc1
  
```

```

# pvcreate /dev/sdb1 /dev/sdb2 /dev/sdc1
# pvdisplay . . . . . > Show the created partition
  
```

* Create Volume group of physical partition

```

# vgdisplay . . . . . > firstly check Vg group is
  available or not? if not then create
  
```

vgcreate /dev/my-volume-group /dev/sd₁
/dev/sdb2 /dev/sdc1

vgdisplay - > check whether it created or not?

Now, We can take one chunkable volume 8 GB from the group & make it staging / production ready volume

Create one logical volume or bba

lvdisplay (....) Display logical volume

lvcreate --name logical-volume-test1
--size 3G /dev/my-volume-group

lvdisplay Check whether it is created

& Remove logical volume from scratch

firstly we need unmount the /product-app directory where logical volume has mounted.

- Step to remove logical volume

1. logical volume
2. Volume group
3. physical volume

lsblk

lvstatus

lvremove <logicalVol-name>

vgs

vgremove <volume-group-name>

lsblk

pvremove /dev/sdb1 /dev/sdb2 /dev/sde1

lsblk

Extend & reduce Volume group

Alternative command to create logical Volume :-

lvcreate -L +3G -n <full-logical-vol-name> + path

< /full - logical + group - name >

Volume group :- # Vgreduce < /dev / volume - group - name > ... to be reduced

4) To rename the Volume :-

logical volume rename :-

lvrename

lvrename < /dev / path - existing - logical - vol >
< new - logical - volume - name >

lvrename

Volume group :-

vgs

vg rename < /dev / path - existing - volume - group >
< new - volume - group - name >

vgs