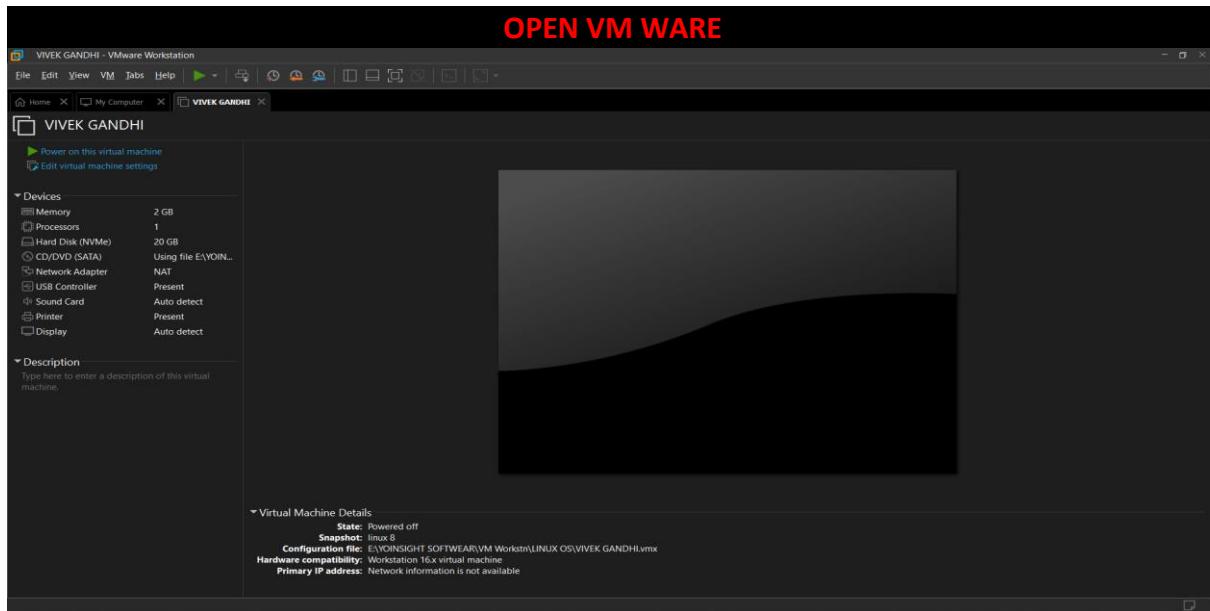
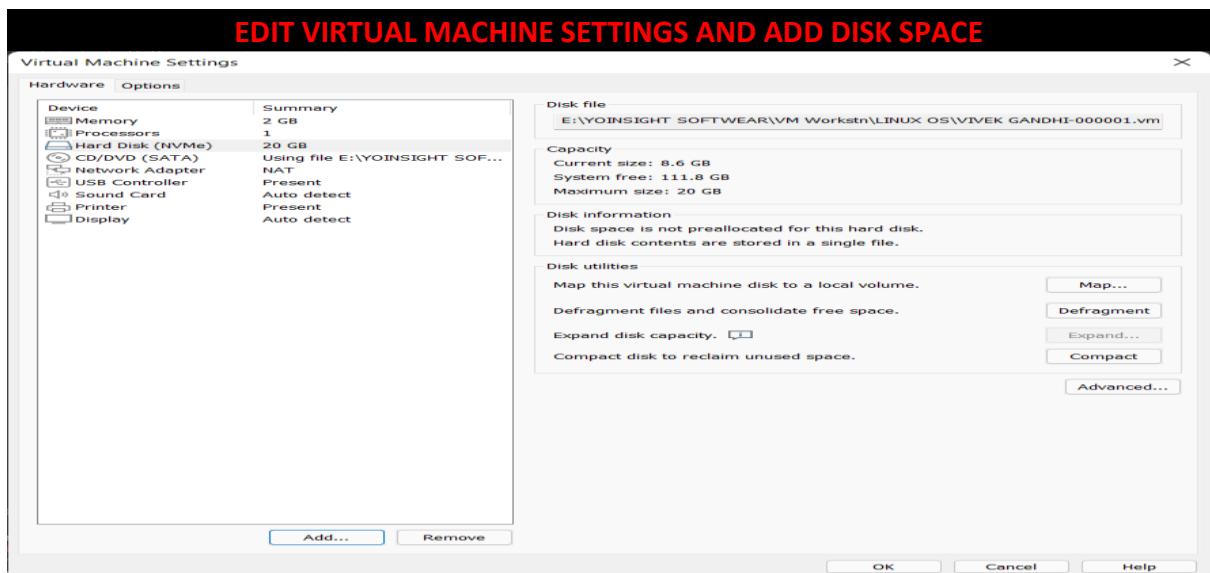


# HOW TO CREATE DISK PARTITION

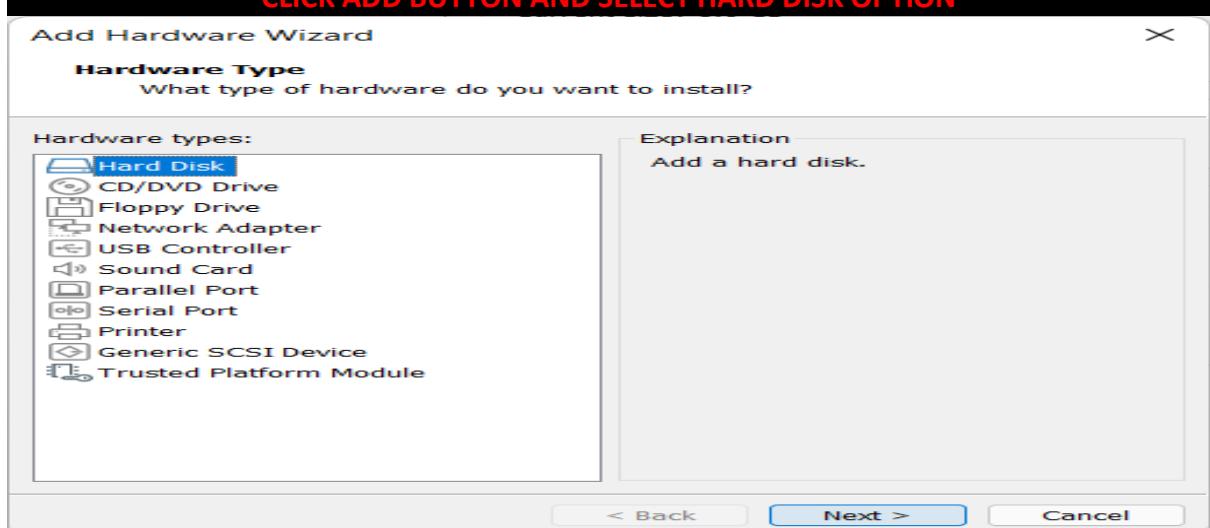
## OPEN VM WARE



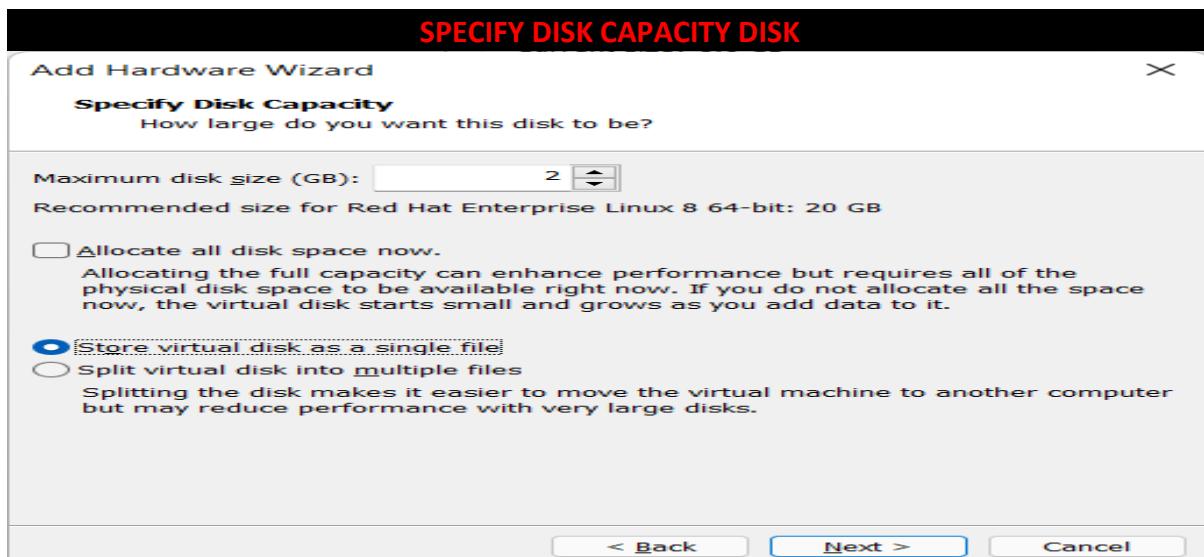
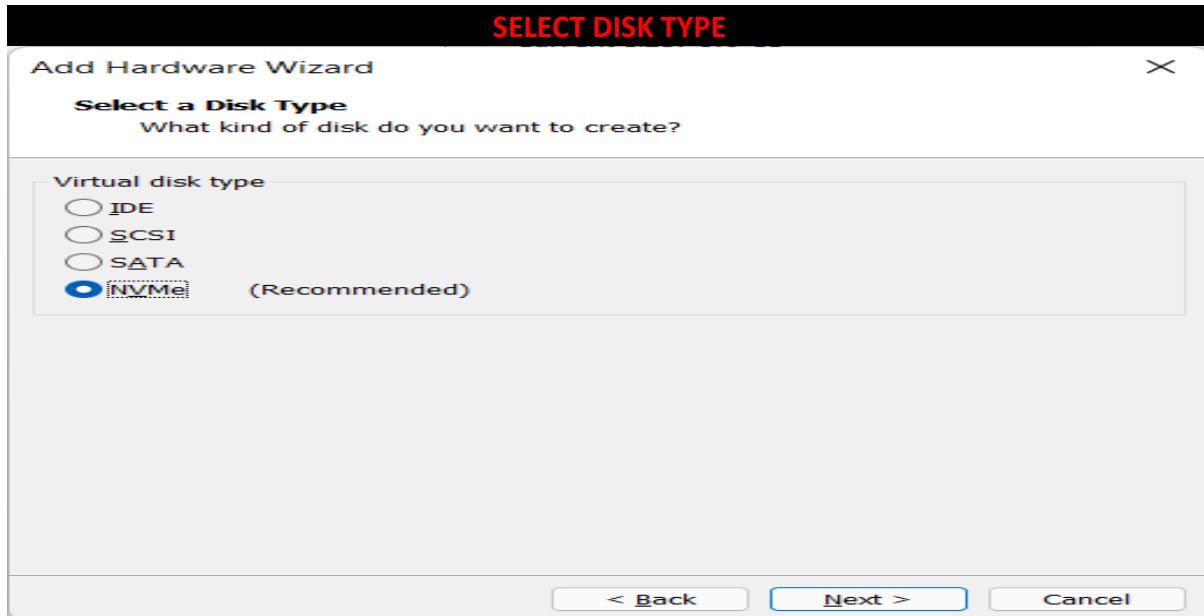
## EDIT VIRTUAL MACHINE SETTINGS AND ADD DISK SPACE



## CLICK ADD BUTTON AND SELECT HARD DISK OPTION



## HOW TO CREATE DISK PARTITION



- #### • POWER ON VM

# HOW TO CREATE DISK PARTITION

**ROOT LOGIN**

**SU -**

```
[vgandhi@localhost ~]$ su
```

Password:

```
[root@localhost vgandhi]# cd ~
```

**COMMAND ls -lh /dev/nv\* (nv= nvme, sd = ssd,scsi.. or hd = hdd,ide)**

**CHECK DISK**

**lsblk**

```
[root@localhost ~]# lsblk
```

**nvme0n2 259:3 0 2G 0 disk**

```
[vgandhi@localhost ~]$ su
Password:
[root@localhost vgandhi]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0        11:0    1   7.9G  0 rom  /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
nvme0n1    259:0    0   20G  0 disk 
└─nvme0n1p1 259:1    0   1G  0 part /boot
└─nvme0n1p2 259:2    0   19G  0 part 
  ├─rhel-root 253:0    0   17G  0 lvm  /
  └─rhel-swap 253:1    0   2G  0 lvm  [SWAP]
nvme0n2    259:3    0   2G  0 disk
```

- MAKE SURE ONE TIME REBOOT SYSTEM**

## **CREATING DISK PARTITIONS**

```
[root@localhost ~]# fdisk /dev/nvme0n2
```

**Command (m for help): n**

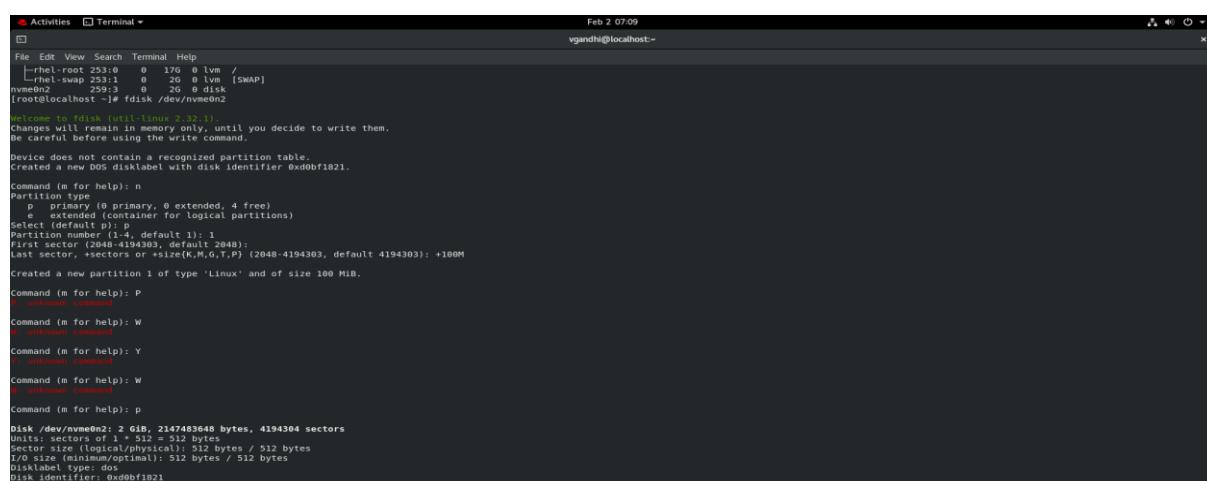
**Select (default p): p**

**Partition number (1-4, default 1): 1**

**Last sector, +sectors or +size{K,M,G,T,P} (2048-4194303, default 4194303): +100M**

**Command (m for help): p**

**Command (m for help): w**



```
Feb 2 07:09
vgandhi@localhost:~$ fdisk /dev/nvme0n2

Welcome to fdisk (util-linux 2.35.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0xd0bf1021.

Command (m for help): n
Partition type:
   p  primary (0 primary, 0 extended, 4 free)
   e  extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1): 1
First sector (2048-4194303, default 2048):
Last sector, +sectors or +size{K,M,G,T,P} (2048-4194303, default 4194303): +100M
Created a new partition 1 of type 'Linux' and of size 100 MiB.

Command (m for help): p
Disk /dev/nvme0n2: 2.14 GiB, 2147483648 bytes, 4194304 sectors
Disk model: NVMe SSD
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0xd0bf1021
```

# HOW TO CREATE DISK PARTITION

## COMMAND dmesg

```
Activities Terminal v
File Edit View Search Terminal Help
[PCRE2 default-hierarchy=legacy]
[574718] systemd[1]: Detected virtualization vmware.
[574721] systemd[1]: Detected architecture x86-64.
[578985] systemd[1]: get hostname from /etc/hostname.localdomain.
[580373] systemd[1]: Switch Root.
[585773] systemd[1]: systemd-journald.service: Service has no hold-off time (RestartSec=0), scheduling restart.
[585892] systemd[1]: systemd-journald.service: Scheduled restart job, restart counter is at 1.
[585981] systemd[1]: Stopped Journal Service.
[586001] systemd[1]: Starting Journal Service...
[590422] systemd[1]: Listening on udev Control Socket.
[213676] Adding 2097148k swap on /dev/mapper/rhel-swap. Priority:-2 extents:1 across::2097148k 55F
[595861] system-journal[924]: Received request to flush runtime journal from PID 1
[595861] pillar[1]: /etc/hostname.localdomain: Using capabilities 0x1
[5714462] vmm vnci 0000:00:07.7: Found VNCI PCI device at 0x110800, irq 16
[5714539] vmm vnci 0000:00:07.7: Using capabilities 0x1c
[5729811] VNCI personality initialized and is active
[5729811] VNCI personality device registered (name=vnci, major=10, minor=58)
[5729811] VNCI personality module registered
[5715172] input: PC Speaker as /devices/platform/pcspkr/input/input6
[4772111] Decoding supported only on Scalable MCA processors.
[10146374] XFS (nvme0n1): Mounting VS Filesystem
[10146374] XFS (nvme0n1): End of volume
[5729811] vmm vnci 0000:00:07.7: Unregistering VNCI PCI device
[5729811] vmm vnci 0000:00:07.7: Registered VNCI PCI device
[5729811] vmm vnci 0000:00:07.7: Registered VNCI TCP transport module
[5729811] vmm vnci 0000:00:07.7: Registered VNCI TCP transport module
[5729811] vmm vnci 0000:00:07.7: Registered VNCI blockchannel transport module
[5729811] vmm vnci 0000:00:07.7: Registered VNCI blockchannel transport module
[5729811] NET: Registered protocol family 40
[17123408] IPv6: ADDRCONF(NETDEV_UP): ens160: link is not ready
[17360922] vxnet3 0000:03:00.0 ens160: Intel type 3, mode 0, 2 vectors allocated
[17360740] vxnet3 0000:03:00.0 ens160: Intel type 3, mode 0, 2 vectors allocated
[17360922] vxnet3 0000:03:00.0 ens160: Link is up 1000 Mbps
[17360922] vxnet3 0000:03:00.0 ens160: No media present
[19876940] tun: Universal TUN/TAP device driver, 1.6
[19872890] virbr0: port 1(virbr0-nic) entered blocking state
[19872890] virbr0: port 1(virbr0-nic) entered disabled state
[19872890] virbr0: port 1(virbr0-nic) entered promiscuous state
[19872890] virbr0: port 1(virbr0-nic) entered no-state state
[202320804] virbr0: port 1(virbr0-nic) entered listening state
[2044624] virbr0: port 1(virbr0-nic) entered disabled state
[59235980] brctl: brctl 0.99.0 - APT version 7.31
[75386747] ISO 9660 Extensions: Microsoft Joliet Level 3
[75386747] ISO 9660 Extensions: Romeo_199A
[531462347] nvme0n2: p1
[root@localhost ~]#
```

## new partition table by using partprobe or kpartx command

```
[root@localhost ~]# partprobe /dev/nvme0n2
[root@localhost ~]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0        11:0    1  7.9G  0 rom
nvme0n1   259:0    0  20G  0 disk
└─nvme0n1p1 259:1    0   1G  0 part /boot
  └─nvme0n1p2 259:2    0  19G  0 part
    ├─rhel-root 253:0    0  17G  0 lvm  /
    └─rhel-swap 253:1    0   2G  0 lvm  [SWAP]
nvme0n2   259:3    0   1G  0 disk
└─nvme0n2p1 259:5    0 100M 0 part
[root@localhost ~]#
```

## Formate command: mkfs. ext4 /dev/file name

```
[root@localhost ~]# mkfs.ext4 /dev/nvme0n2p1
mke2fs 1.45.4 (23-Sep-2019)
Creating filesystem with 102400 1k blocks and 25688 inodes
Filesystem UUID: 755883bb-f067-4d04-afd2-fafa29dd30f3
Superblock backups stored on blocks:
          8193, 24577, 40961, 57345, 73729

Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done

[root@localhost ~]#
```

## Mounting - mkdir /vivek

```
[root@localhost ~]# mkdir /vivek
[root@localhost ~]# mount /dev/nvme0n2p1 /vivek
```

## Check mount folder - mount |grep /vivek

```
[root@localhost ~]# mount |grep /vivek
/dev/nvme0n2p1 on /vivek type ext4 (rw,relatime,seclabel)
```

# HOW TO CREATE DISK PARTITION

## Check disk path

```
[root@localhost ~]# cd /vivek
[root@localhost vivek]# ls
lost+found
[root@localhost vivek]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        872M    0  872M  0% /dev
tmpfs          901M    0  901M  0% /dev/shm
tmpfs          901M  9.7M  891M  2% /run
tmpfs          901M    0  901M  0% /sys/fs/cgroup
/dev/mapper/rhel-root  17G   13G  4.9G  72% /
/dev/nvme0n1p1    1014M  229M  786M  23% /boot
tmpfs          181M  1.2M  179M  1% /run/user/42
tmpfs          181M  4.6M  176M  3% /run/user/1000
/dev/sr0          7.9G  7.9G    0 100% /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
/dev/nvme0n2p1     93M   1.6M   85M  2% /vivek
[root@localhost vivek]#
```

## Make file - Touch 1 2 3 4

```
[root@localhost vivek]# touch 1 2 3 4
[root@localhost vivek]# ls
1  2  3  4  lost+found
```

## UNMOUNT COMMAND: umount /vivek

```
[root@localhost ~]# umount /vivek
[root@localhost ~]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0        11:0    1  7.9G  0 rom
nvme0n1    259:0    0   20G  0 disk
└─nvme0n1p1 259:1    0    1G  0 part /boot
  └─nvme0n1p2 259:2    0   19G  0 part
    ├─rhel-root 253:0    0   17G  0 lvm  /
    └─rhel-swap 253:1    0    2G  0 lvm  [SWAP]
nvme0n2    259:3    0    1G  0 disk
└─nvme0n2p1 259:5    0 100M  0 part
[root@localhost ~]#
```

## Remove fdisk command mbr

```
[root@localhost ~]# fsdisk /dev/nvme0n2
bash: fsdisk: command not found...
Similar command is: 'fdisk'
[root@localhost ~]# fdisk /dev/nvme0n2

Welcome to fdisk (util-linux 2.32.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Command (m for help): p
Disk /dev/nvme0n2: 1 GiB, 1073741824 bytes, 2097152 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x6d894874

Device        Boot Start     End Sectors  Size Id Type
/dev/nvme0n2p1       2048 206847   204800  100M 83 Linux

Command (m for help): d
Selected partition 1
Partition 1 has been deleted.

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

[root@localhost ~]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0        11:0    1  7.9G  0 rom
nvme0n1    259:0    0   20G  0 disk
└─nvme0n1p1 259:1    0    1G  0 part /boot
  └─nvme0n1p2 259:2    0   19G  0 part
    ├─rhel-root 253:0    0   17G  0 lvm  /
    └─rhel-swap 253:1    0    2G  0 lvm  [SWAP]
nvme0n2    259:3    0    1G  0 disk
[root@localhost ~]#
```

# HOW TO CREATE DISK PARTITION

## CREATING DISK PARTITIONS

```
Activities Terminal
Feb 2 07:09
vgandhi@localhost~>

File Edit View Search Terminal Help
[rhel-root 253:0 0 176 0 lvm /]
[rhel-swap 253:1 0 20 0 lvm [SWAP]]
nvme0n2 253:2 0 30 0 disk
[root@localhost ~]# fdisk /dev/nvme0n2

Welcome to fdisk (util-linux 2.34).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0xd0bf1821.

Command (m for help): n
Partition type:
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (1-4, default 1):
Partition number (1-4, default 1): 1
First sector (2048-4194303, default 2048):
Last sector, +sectors or +size(K,M,G,T,P) (2048-4194303, default 4194303): +100M
Created a new partition 1 of type 'Linux' and of size 100 MiB.

Command (m for help): P
P: unknown command
Command (m for help): W
W: unknown command
Command (m for help): Y
Y: unknown command
Command (m for help): W
W: unknown command
Command (m for help): p

Disk /dev/nvme0n2: 2 GiB, 2147483648 bytes, 4194304 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 Bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xd0bf1821
```

## FILE FORMATE

```
[root@localhost vgandhi]# mkfs.ext4 /dev/nvme0n2p1
mke2fs 1.45.4 (23-Sep-2019)
Creating filesystem with 102400 1k blocks and 25688 inodes
Filesystem UUID: 30b0022b-0ee0-4058-a274-90a94318c29b
Superblock backups stored on blocks:
      8193, 24577, 40961, 57345, 73729

Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done
```

## CREATE FOLDER AND MOUNT

```
[root@localhost ~]# mkdir /vivek
[root@localhost ~]# mount /dev/nvme0n2p1 /vivek
```

## Permanent Mounting:

```
[root@localhost vgandhi]# vi /etc/fstab
```

Enter

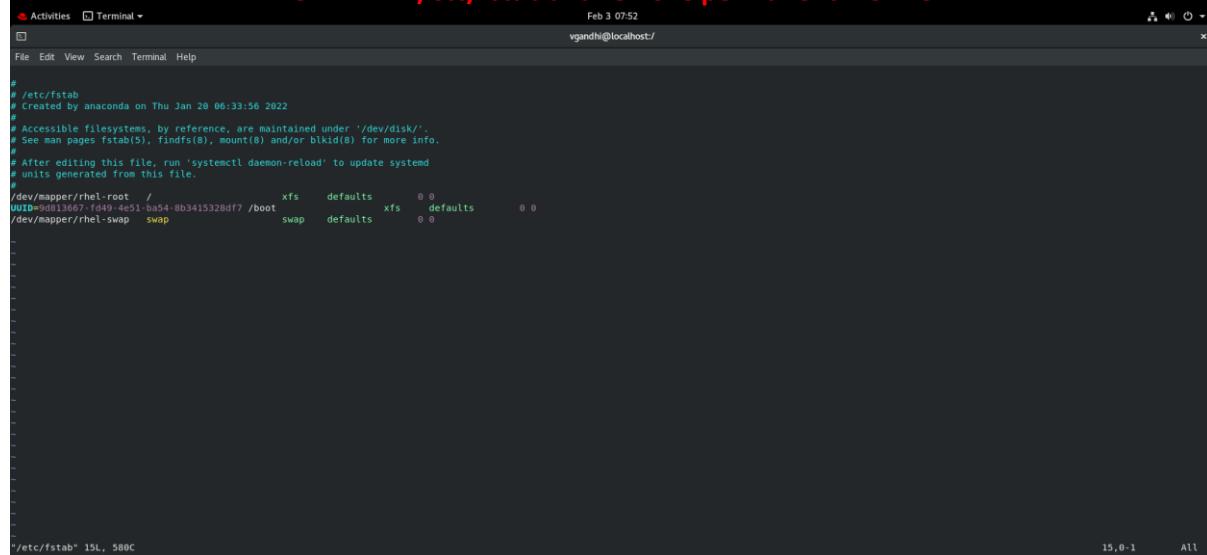
```
# /etc/fstab
# Created by anaconda on Mon Mar 29 00:23:54 2022
#
# The following lines were added automatically by the program "mkfs.fat".
# They are needed to mount the file system "nvme0n2p1" on node "/vivek".
#
# Please update these lines, and comment/uncomment as necessary.
#
# /etc/mtab is now mounted with the "noauto" option by default.
#
# /dev/mapper/rhel-root    /           xfs    defaults        0  0
#UUID=40314153200f7777  /boot       xfs    defaults        0  0
#dev/mapper/rhel-swap    swap       swap   defaults        0  0
/dev/nvme0n2p1 /vivek ext4 defaults 0 0
```

# HOW TO CREATE DISK PARTITION

## UNMOUNT PERMENENT DISK OPEN

```
[root@localhost ~]# vim /etc/fstab
```

OPEN vim /etc/fstab and remove permanent file line



```
# /etc/fstab
# Created by anaconda on Thu Jan 20 06:33:56 2022
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
#/dev/mapper/rhel-root    xfs    defaults    0 0
UUID=dd18a7f4-95e3-1054-8b34-15320d17 /boot    xfs    defaults    0 0
/dev/mapper/rhel-swap    swap   defaults    0 0

```

## Unmount command

```
[root@localhost ~]# umount /vivek
```

### Check unmount or not

### lsblk

```
[root@localhost ~]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0        11:0    1  7.9G  0 rom  /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
nvme0n1   259:0    0  20G  0 disk 
└─nvme0n1p1 259:1    0   1G  0 part /boot
  └─nvme0n1p2 259:2    0  19G  0 part 
    ├─rhel-root 253:0    0  17G  0 lvm  /
    └─rhel-swap 253:1    0   2G  0 lvm  [SWAP]
nvme0n2   259:3    0   1G  0 disk 
└─nvme0n2p1 259:5    0 100M  0 part 
nvme0n3   259:4    0   2G  0 disk
```

### mounted partition use df -h command

### df -h

```
[root@localhost ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        872M    0  872M  0% /dev
tmpfs          901M    0  901M  0% /dev/shm
tmpfs          901M  9.3M  892M  2% /run
tmpfs          901M    0  901M  0% /sys/fs/cgroup
/dev/mapper/rhel-root  17G  4.2G  13G  25% /
/dev/nvme0n1p1  1014M 229M  786M  23% /boot
tmpfs          181M  1.2M  179M  1% /run/user/42
tmpfs          181M  4.0K  181M  1% /run/user/0
/dev/nvme0n2p1   93M  1.6M   85M  2% /root/vivek
```

### view the size of a file or directory

### du -h <file or directory name.>

```
[root@localhost ~]# du -h /root/vivek
12K      /root/vivek/lost+found
13K      /root/vivek
```

# HOW TO CREATE DISK PARTITION

2. label wise

```
LABEL=ytdisk /yoinsights ext4 defaults 0 0
```

3. UUID wise create vim /dev/fstab exchange path to convert UUID OR LABEL

```
UUID=baf69ae7-0dd8-4f35-879c-80fb8c5703fa /yoinsights ext4 defaults 0 0
```

## CHECK BLOCK ID

```
[root@localhost ~]# blkid  
/dev/nvme0n1: PTUUID="860299b4" PTTYPE="dos"  
/dev/nvme0n1p1: UUID="9d813667-fd49-4e51-ba54-8b3415328df7" TYPE="xfs" PARTUUID="860299b4-01"  
/dev/nvme0n1p2: UUID="yNMKAT-g0Xc-H2Ne-cyTa-5z5J-z6vR-X3cyAs" TYPE="LVM2_member" PARTUUID="860299b4-02"  
/dev/nvme0n2: PTUUID="6d894874" PTTYPE="dos"  
/dev/nvme0n2p1: UUID="1010a28b-2fd5-4610-86b4-e1a5e8b51e21" TYPE="ext4" PARTUUID="6d894874-01"  
/dev/sr0: UUID="2020-04-04-08-21-15-00" LABEL="RHEL-8-2-0-BaseOS-x86_64" TYPE="iso9660" PTUUID="47055c33" PTTYPE="dos"  
/dev/mapper/rhel-root: UUID="f87daea9-bc41-4e3b-80a8-0465192f943b" TYPE="xfs"  
/dev/mapper/rhel-swap: UUID="e496ec62-14ac-4ed8-8206-aa8c183dccf2" TYPE="swap"
```

## To see the memory size and the swap space size free -m

```
[root@localhost /]# free -m  
total        used        free      shared  buff/cache   available  
Mem:       1800        1082       263        194        454       371  
Swap:      2047        616      1431  
[root@localhost /]#
```

## To display swap usage summary swapon -s

```
[root@localhost /]# swapon -s  
Filename                           Type      Size    Used    Priority  
/dev/dm-1                           partition 2097148 631296 -2
```

## To format the partition with swap file system mkswap partition name

```
[root@localhost /]# mkswap dev/nvme0n3  
Setting up swapspace version 1, size = 1024 MiB (1073737728 bytes)  
no label, UUID=52af0e11-269e-4a52-b5ec-ce2c498e6914  
[root@localhost /]#
```

## to enable all the swap space swapon -a

```
[root@localhost /]# swapon -a  
[root@localhost /]#
```

## To activate the swap space for specific disk or partition swapon file

```
[root@localhost /]# swapon /dev/nvme0n3  
[root@localhost /]# swapoff /dev/nvme0n3  
[root@localhost /]#
```

## To deactivate the swap space swapoff file

```
[root@localhost /]# swapon /dev/nvme0n3  
[root@localhost /]# swapoff /dev/nvme0n3  
[root@localhost /]#
```

# HOW TO CREATE DISK PARTITION

# Partition for Swap Space

```
Activities Terminal Feb 6 07:25
vgandhi@localhost:~$ fdisk /dev/nvme0n3

Welcome to fdisk (util-linux 2.32.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

The old swap signature will be removed by a write command.

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0x5c9eff05.

Command (m for help): n
Partition type
   p   primary (0 primary, 0 extended, 4 free)
   l   logical (number of logical partitions)
Select (default p): p
Partition number (1-4, default 1):
First sector (2048-2097151, default 2048):
Last sector, +sectors or +size(K,M,G,P) (2048-2097151, default 2097151): +100M

Created a new partition 1 of type 'Linux' and of size 100 MiB.

Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): l

Empty          24  NEC DOS      81  Minix / old Lin bf Solaris
FAT12         27  Hidden NTFS Win 82  Linux swap / So cl DRDOOS/sec (FAT-
XENIX root    39  Plan 9       83  Linux                 c4 DRDOOS/sec (FAT-
XENIX usr    3c  PartitionMagic 84  OS/2 hidden or e DRDOOS/sec (FAT-
AT&T <32M     40  Win95 FAT32  85  Linux ext2 / ext3 / ext4 extended  c7 System
AT&T >=32M    41  PPC PreP Boot 86  NTFS volume set da Non-FS data
FAT16         42  SFS           87  NTFS volume set db CP/M / CTOS /
FAT16         43  HPFS/NTFS/exFAT 88  Linux plaintext de Dell Utility
HPFS/NTFS/exFAT 4d  QNX4.x
AIX bootable  4e  QNX4.x - 2nd part be Linux,LVM 9f  BeOS
AIX bootable  4e  QNX4.x - 3rd part eb  BeOS
a 05/2 Root Monog 50  OnTrack DM 94  Amoeba BBT  e3  DOS R/O
b  W95 FAT32  51  OnTrack DM6 Aux 9f  BSD/OS  e4  SpeedStor
c  W95 FAT32 (LBA) 52  CP/M  a9  IBM Thinkpad hi ea Rufus alignment
d  W95 FAT16 (LBA) 53  OnTrack DM6 Aux a5  FreeBSD  eb  BeOS fs
f  FFS 54  OnTrack DM6 Aux a6  OpenBSD  e6  GRUB
f  FFS 55  EZ-Drive  a7  NextSTEP  ef  FFI (FAT-12/16/32)
OPUS          56  Golden Bow  a8  Darwin UFS  f0  Linux/PA-RISC b
Hidden FAT12  56  Golden Bow  a9  NetBSD  f1  Snowdust
Common diafragm 5c  Prism Edisk
                               8c  NeoBSD

Hex code (type L to list all codes): 82
Changed type of partition 'Linux' to 'Linux swap / Solaris'.

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.
```

**newly created partition as swap area**

## **Enable the swap partition for usage using swapon**

**swap space partition available even after the reboot**

# HOW TO CREATE DISK PARTITION

**Verify whether the newly created swap area is available for your use.**

```
[root@localhost /]# swapon -s
Filename                                Type      Size   Used   Priority
/dev/dm-1                               partition 2097148 627840  -2
/dev/nvme0n3                            partition 1048572 0       -3
```

**Verify whether the newly created swap area is available for your use.**

```
[root@localhost /]# cat /proc/swaps
Filename                                Type      Size   Used   Priority
/dev/dm-1                               partition 2097148 626816  -2
/dev/nvme0n3                            partition 1048572 0       -3
[root@localhost /]# swapon -s
Filename                                Type      Size   Used   Priority
/dev/dm-1                               partition 2097148 626816  -2
/dev/nvme0n3                            partition 1048572 0       -3
[root@localhost /]# free -k
              total     used      free    shared  buff/cache   available
Mem:      1843832  1132924  224656  199368  486252  355692
Swap:      3145720  626816  2518904
[root@localhost /]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0        11:0    1  7.9G  0 rom  /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
nvme0n1   259:0    0 20G  0 disk
└─nvme0n1p1 259:1  0   1G  0 part /boot
└─nvme0n1p2 259:2  0  19G  0 part
  └─rhel-root 253:0  0  17G  0 lvm /
  └─rhel-swap 253:1  0   2G  0 lvm [SWAP]
nvme0n2   259:3    0   1G  0 disk
└─nvme0n2p1 259:4  0 100M  0 part /vivek
└─nvme0n2p2 259:5  0 150M  0 part
nvme0n3   259:6    0   1G  0 disk [SWAP]
└─nvme0n3p1 259:8  0 100M  0 part
```



## HOW TO CREATE DISK PARTITION

### Logical Volume Manager-LVM

#### create the partition with partition

#### fdisk /dev/path

```

File Edit View Search Terminal Help
System Not Registered
Please register your system to receive software updates.
Register System...
[root@localhost vgandhi]# fdisk /dev/nvme0n2
Welcome to fdisk (util-linux 2.32.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Command (m for help): n
Partition type
   p   primary (2 primary, 0 extended, 2 free)
   e   extended (container for logical partitions)
Select (default p): p
Partition number (3,4, default 3):
First sector (514048-2097151, default 514048):
Last sector, +sectors or +size{K,M,G,T,P} (514048-2097151, default 2097151): +200M

Created a new partition 3 of type 'Linux' and of size 200 MiB.

Command (m for help): t
Partition number (1-3, default 3):
Hex code (type L to list all codes): l

0  Empty          24  NEC DOS      81  Minix / old Lin bf  Solaris
1  FAT12         27  Hidden NTFS Win 82  Linux swap / So c1  DRDOS/sec (FAT-
2  XENIX root    39  Plan 9       83  Linux          c4  DRDOS/sec (FAT-
3  XENIX usr     3c  PartitionMagic 84  OS/2 hidden or c6  DRDOS/sec (FAT-
4  FAT16 <32M    40  Venix 80286  85  Linux extended c7  Syrix
5  Extended       41  PPC PREP Boot 86  NTFS volume set da  Non-FS data
6  FAT16          42  SFS          87  NTFS volume set db  CP/M / CTOS /
7  HPFS/NTFS/exFAT 4d  QNX4.x     88  Linux plaintext de  Dell Utility
8  AIX           4e  QNX4.x 2nd part 8e  Linux LVM      df  BootIt
9  AIX bootable  4f  QNX4.x 3rd part 93  Amoeba        e1  DOS access
a  OS/2 Boot Manag 50  OnTrack DM  94  Amoeba BBT      e3  DOS R/O
b  W95 FAT32    51  OnTrack DM6 Aux 9f  BSD/OS      e4  SpeedStar
c  W95 FAT32 (LBA) 52  CP/M        a0  IBM Thinkpad hi ea  Rufus alignment
e  W95 FAT16 (LBA) 53  OnTrack DM6 Aux 95  FreeBSD      eb  BeOS fs
f  W95 Ext'd (LBA) 54  OnTrack DM6 Aux 96  OpenBSD      ee  GPT
10  OPUS          55  EZ-Drive      a7  NeXTSTEP      ef  EFI (FAT-12/16/
11  Hidden FAT12  56  Golden Bow   a8  Darwin UFS     f0  Linux/PA-RISC b
12  Compaq diagnost 5c  Priam Edisk a9  NetBSD      f1  SpeedStar
14  Hidden FAT16 <3 61  SpeedStar    ab  Darwin boot   f4  SpeedStar
16  Hidden FAT16  63  GNU HURD or Sys af  HFS / HFS+   f2  DOS secondary
17  Hidden HPFS/NTF 64  Novell Netware b7  BSDI fs      fb  VMware VMFS

```

#### reboot the system or use partprobe or partx or kpartx utility to update the partition table

```

[root@localhost vgandhi]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0        11:0    1  7.9G  0 rom  /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
nvme0n1   259:0    0  20G  0 disk
└─nvme0n1p1 259:1    0   1G  0 part /boot
└─nvme0n1p2 259:2    0  19G  0 part
  └─rhel-root 253:0    0  17G  0 lvm  /
    └─rhel-swap 253:1    0   2G  0 lvm  [SWAP]
nvme0n2   259:3    0   1G  0 disk
└─nvme0n2p1 259:4    0 100M  0 part /vivek
└─nvme0n2p2 259:5    0 150M  0 part
└─nvme0n2p3 259:8    0 200M  0 part
nvme0n3   259:6    0   1G  0 disk
└─nvme0n3p1 259:7    0 100M  0 part
[root@localhost vgandhi]# partprobe /dev/nvme0n2
[root@localhost vgandhi]# kpartx /dev/nvme0n2
bash: kpart: command not found...
Failed to search for file: /var/ftp/pub/red8v/AppStream was not found
[root@localhost vgandhi]# kpartx /dev/nvme0n2
nvme0n2p1 : 0 204800 /dev/nvme0n2 2048
nvme0n2p2 : 0 307200 /dev/nvme0n2 206848
nvme0n2p3 : 0 409600 /dev/nvme0n2 514048
[root@localhost vgandhi]# partx /dev/nvme0n2
NR  START   END SECTORS SIZE NAME UUID
 1  2048  206847 204800 100M  6d894874-01
 2 206848  514047 307200 150M  6d894874-02
 3 514048  923647 409600 200M  6d894874-03
[root@localhost vgandhi]#

```

# HOW TO CREATE DISK PARTITION

## create the physical volume by using pvcreate

```
Physical volume "/dev/nvme0n2p3" successfully created.  
[root@localhost vgandhi]# pvcreate /dev/nvme0n2p3 /dev/nvme0n3p1  
Physical volume "/dev/nvme0n2p3" successfully created.  
Physical volume "/dev/nvme0n3p1" successfully created.
```

## physical volume created or not used pvs or pvdisplay

```
File Edit View Search Terminal Help  
Activities Terminal Feb 6 07:56  
System Not Registered  
Please register your system to receive software updates.  
Register System...  
l-->nvme0n3p1 259:8 0 100M 0 part  
[root@localhost vgandhi]# pvs  
PV VG Fmt Attr PSize PFree  
/dev/nvme0n1c2 rhel lvm2 a-- <19.00g 0  
/dev/nvme0n2p3 lvm2 a-- 200.00m 200.00m  
/dev/nvme0n3p1 lvm2 a-- 100.00m 100.00m  
[root@localhost vgandhi]# pvdisplay  
--- Physical volume ---  
PV Name /dev/nvme0n1p2  
VG Name rhel  
PV Size <19.00 GiB / not usable 3.00 MiB  
Allocatable yes (but full)  
PE Size 4.00 MiB  
Total PE 4863  
Free PE 0  
Allocated PE 4863  
PV UUID yNMkAT-g0Xc-H2Ne-cyTa-5z5j-26vR-X3cyAs  
"/dev/nvme0n2p3" is a new physical volume of "200.00 MiB"  
--- NEW Physical volume ---  
PV Name /dev/nvme0n2p3  
VG Name  
PV Size 200.00 MiB  
Allocatable No  
PE Size 0  
Total PE 0  
Free PE 0  
Allocated PE 0  
PV UUID kxw0EN-WO13-0nQY-fdH1-06V9-uo0k-HE9YVK  
"/dev/nvme0n3p1" is a new physical volume of "100.00 MiB"  
--- NEW Physical volume ---  
PV Name /dev/nvme0n3p1  
VG Name  
PV Size 100.00 MiB  
Allocatable No  
PE Size 0  
Total PE 0  
Free PE 0  
Allocated PE 0  
PV UUID U93s21-P1kG-9hAE-oDKP-EW0k-lFLq-z7XNgB  
[root@localhost vgandhi]#
```

## After creating a PV, we have to create volume group (VG)

```
[root@localhost vgandhi]# vgcreate vg /dev/nvme0n2p3  
Volume group "vg" successfully created
```

## verify volume groups use vgs or vgdisplay commands

```
root@localhost vgandhi]# vgs  
VG #PV #LV #SN Attr VSize VFree  
rhel 1 2 0 wz--n- <19.00g 0  
vg 1 0 0 wz--n- 196.00m 196.00m  
[root@localhost vgandhi]# vgdisplay  
--- Volume group ---  
VG Name vg  
System ID  
Format lvm2  
Metadata Areas 1  
Metadata Sequence No 1  
VG Access read/write  
VG Status resizable  
MAX LV 0  
Cur LV 0  
Open LV 0  
Max PV 0  
Cur PV 1  
Act PV 1  
VG Size 196.00 MiB  
PE Size 4.00 MiB  
Total PE 49  
Alloc PE / Size 0 / 0  
Free PE / Size 49 / 196.00 MiB  
VG UUID Q4C5qr-D7WR-7E8E-DXfu-ndOs-0Dat-B9bYCI  
--- Volume group ---  
VG Name rhel  
System ID  
Format lvm2  
Metadata Areas 1  
Metadata Sequence No 3  
VG Access read/write  
VG Status resizable  
MAX LV 0  
Cur LV 2  
Open LV 2  
Max PV 0  
Cur PV 1  
Act PV 1  
VG Size <19.00 GiB  
PE Size 4.00 MiB  
Total PE 4863  
[root@localhost vgandhi]#
```

# HOW TO CREATE DISK PARTITION

## **creating Logical volumes from it by using “lvcreate”**

```
[root@localhost vgandhi]# lvcreate -L 120M -n lv vg
Logical volume "lv" created.
```

## **logical volumes use lvs or lvdisplay**

```
[root@localhost vgandhi]# lvs
  LV   VG Attr      LSize  Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
  root  rhel -wi-ao---- <17.00g
  swap  rhel -wi-ao----  2.00g
  lv    vg  -wi-a----- 120.00m
[root@localhost vgandhi]# lvdisplay
--- Logical volume ---
LV Path          /dev/vg/lv
LV Name          lv
VG Name          vg
LV UUID          IHXfzy-lJ50-noS3-sbE1-9FVd-C0me-Zt2Xft
LV Write Access  read/write
LV Creation host, time localhost.localdomain, 2022-02-06 08:04:11 -0500
LV Status        available
# open           0
LV Size          120.00 MiB
Current LE       30
Segments         1
Allocation       inherit
Read ahead sectors auto
- currently set to 8192
Block device     253:2
```

```
[root@localhost vgandhi]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0        11:0    1  7.9G  0 rom  /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
nvme0n1   259:0    0  20G  0 disk
└─nvme0n1p1 259:1    0   1G  0 part /boot
└─nvme0n1p2 259:2    0  19G  0 part
  └─rhel-root 253:0    0  17G  0 lvm  /
  └─rhel-swap 253:1    0   2G  0 lvm  [SWAP]
nvme0n2   259:3    0   1G  0 disk
└─nvme0n2p1 259:4    0 100M  0 part /vivek
└─nvme0n2p2 259:5    0 150M  0 part
└─nvme0n2p3 259:6    0 200M  0 part
  └─vg-lv    253:2    0 120M  0 lvm
nvme0n3   259:7    0   1G  0 disk
└─nvme0n3p1 259:8    0 100M  0 part
```

## **order to access LV**

```
[root@localhost vgandhi]# mkfs.ext4 /dev/vg/lv
mke2fs 1.45.4 (23-Sep-2019)
Creating filesystem with 122880 1k blocks and 30720 inodes
Filesystem UUID: b70beb71-1abc-4ac9-8bb0-c9c18b1226ab
Superblock backups stored on blocks:
      8193, 24577, 40961, 57345, 73729

Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done
```

## **Check UUID**

```
[root@localhost vgandhi]# blkid
/dev/nvme0n1: PTUUID="860299b4" PTTYPE="dos"
/dev/nvme0n1p1: UUID="9d813667-fd49-4e51-ba54-8b3415328df7" TYPE="xfs" PARTUUID="860299b4-01"
/dev/nvme0n1p2: UUID="yNMKAT-g0Xc-H2Ne-cyTa-5z5J-z6vR-X3cyAs" TYPE="LVM2_member" PARTUUID="860299b4-02"
/dev/nvme0n3:  PTUUID="6d804874" PTTYPE="dos"
```

## **mount the LV same like a normal partition**

```
[root@localhost ~]# vim /etc/fstab
[root@localhost ~]# lsblk
```

# HOW TO CREATE DISK PARTITION

```
# /etc/fstab
# Created by anaconda on Mon May  9 00:05:38 2022
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
/dev/mapper/rhel-root      xfs    defaults    0 0
UUID=b21d2963-1006-49ea-b22b-38a1170f76d9 /boot   xfs    defaults    0 0
/dev/mapper/rhel-swap      swap   defaults    0 0

/dev/nvme0n2p2 swap     swap   defaults 0 0
/dev/vg/lv     /vivekluM ext4   defaults 0 0
-
```

## Extend or resize the Volume Group

```
[root@localhost ~]# vgs
  VG #PV #LV #SN Attr   VSize   VFree
  rhel  1  2  0 wz--n- <19.00g      0
  vg   1  1  0 wz--n- 196.00m  76.00m
  vg1  1  1  0 wz--n- 396.00m 376.00m
[root@localhost ~]# vgextend vg1 /dev/nvme0n3p2
  Physical volume '/dev/nvme0n3p2' is already in volume group 'vg1'
  Unable to add physical volume '/dev/nvme0n3p2' to volume group 'vg1'
  /dev/nvme0n3p2: physical volume not initialized.
[root@localhost ~]# vgextend vg1 /dev/nvme0n3p1
  Volume group "vg1" successfully extended
[root@localhost ~]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0        11:0    1  7.9G  0 rom  /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
nvme0n1   259:0    0  20G  0 disk
└─nvme0n1p1 259:1    0   1G  0 part /boot
└─nvme0n1p2 259:2    0   19G  0 part
  └─rhel-root 253:0    0  17G  0 lvm  /
  └─rhel-swap 253:1    0   2G  0 lvm  [SWAP]
nvme0n2   259:3    0   1G  0 disk
└─nvme0n2p1 259:4    0 100M  0 part /vivek
└─nvme0n2p2 259:5    0 150M  0 part
└─nvme0n2p3 259:6    0 200M  0 part
  └─vg-lv    253:2    0 120M  0 lvm
nvme0n3   259:7    0   1G  0 disk
└─nvme0n3p1 259:8    0 100M  0 part
└─nvme0n3p2 259:9    0 400M  0 part
  └─vg1-lv1  253:3    0   20M  0 lvm
[root@localhost ~]# vgs
  VG #PV #LV #SN Attr   VSize   VFree
  rhel  1  2  0 wz--n- <19.00g      0
  vg   1  1  0 wz--n- 196.00m  76.00m
  vg1  2  1  0 wz--n- 492.00m 472.00m
```

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```
[root@localhost ~]# pvs
  PV          VG  Fmt Attr PSize   PFree
  /dev/nvme0n1p2  rhel  lvm2 a--  <19.00g     0
  /dev/nvme0n2p3  vg   lvm2 a--  196.00m  76.00m
  /dev/nvme0n3p1  vg1  lvm2 a--  96.00m  96.00m
  /dev/nvme0n3p2  vg1  lvm2 a--  396.00m 376.00m
[root@localhost ~]# pvdisplay
--- Physical volume ---
PV Name           /dev/nvme0n3p2
VG Name           vg1
PV Size           400.00 MiB / not usable 4.00 MiB
Allocatable       yes
PE Size           4.00 MiB
Total PE          99
Free PE           94
Allocated PE      5
PV UUID           JopVK9-Hb4q-5pvv-wNYt-tWue-t1c7-vWvKWQ

--- Physical volume ---
PV Name           /dev/nvme0n3p1
VG Name           vg1
PV Size           100.00 MiB / not usable 4.00 MiB
Allocatable       yes
PE Size           4.00 MiB
Total PE          24
Free PE           24
Allocated PE      0
PV UUID           U93s2i-PlkG-9hAE-oDKF-EW0k-lFLq-z7XNgB
```

## lvresize command

```
[root@localhost ~]# lvs
  LV   VG   Attr       LSize  Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
  root  rhel -wi-ao---- <17.00g
  swap  rhel -wi-ao----  2.00g
  lv    vg   -wi-a----- 120.00m
  lv1   vg1  -wi-a----- 36.00m
[root@localhost ~]# lvresize -L +15M /dev/vg1/lv1
Rounding size to boundary between physical extents: 16.00 MiB.
Size of logical volume vg1/lv1 changed from 36.00 MiB (9 extents) to 52.00 MiB (13 extents).
Logical volume vg1/lv1 successfully resized.
[root@localhost ~]# lvs
  LV   VG   Attr       LSize  Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
  root  rhel -wi-ao---- <17.00g
  swap  rhel -wi-ao----  2.00g
  lv    vg   -wi-a----- 120.00m
  lv1   vg1  -wi-a----- 52.00m
```

## Pv move

```
umount: /dev/nvme0n2p2: not mounted.
[root@server ~]# umount /dev/nvme0n2p1
umount: /dev/nvme0n2p1: not mounted.
[root@server ~]# mount -a
[root@server ~]# pvmove /dev/nvme0n2p1 /dev/nvme0n3p1
 /dev/nvme0n2p1: Moved: 100.00%
[root@server ~]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0        11:0    1  7.9G  0  rom
nvme0n1   259:0    0  20G  0  disk
└─nvme0n1p1 259:1    0   1G  0  part /boot
└─nvme0n1p2 259:2    0  19G  0  part
  └─rhel-root 253:0    0  17G  0  lvm /
  └─rhel-swap 253:1    0   2G  0  lvm [SWAP]
nvme0n2   259:3    0   5G  0  disk
└─nvme0n2p1 259:4    0 100M  0  part
└─nvme0n2p2 259:5    0  10M  0  part [SWAP]
nvme0n3   259:6    0   5G  0  disk
└─nvme0n3p1 259:7    0 100M  0  part
  └─vg-lv    253:2    0   8M  0  lvm /viveklu
```

# HOW TO CREATE DISK PARTITION

## How to remove a failed disk from a logical volume

Pvcreate path

Vgextend vg pv

Pvmove oldpath newpath

```
333  rm -rf /dev/nvme0n1p1
334  pvmove /dev/nvme0n3p1 /dev/nvme0n2p1
335  vim /etc/fstab
336  pvmove /dev/nvme0n2p1 /dev/nvme0n3p1
337  lsblk
338  vgreduce vg /dev/nvme0n2p1
339  pvremove /dev/nvme0n3p1
340  pvremove /dev/nvme0n2p1
341  lvremove lv
342  lsblk
343  lvremove /dev/vg/lv
344  umount /dev/vg/lv
345  lvremove /dev/vg/lv
346  cat /etc/lvm/archive/
347  cd /etc/lvm/archive/
348  ls
349  ls -ltr
350  lsblk
351  vgcfgrestore --list vg
352  vgcfgrestore -f /etc/lvm/archive/vg_00010-786104256.vg vg
353  lvs
354  lsblk
355  lvchange -ay lv
356  lvchange -ay vg
357  lsblk
```

## How to remove a failed disk from a logical volume

### Pv move

```
[root@server ~]# pvmove /dev/sdc1 /dev/sdd1
/dev/sdc1: Moved: 33.33%
/dev/sdc1: Moved: 66.67%
/dev/sdc1: Moved: 100.00%
```

### Pvs scan

```
[root@server ~]# pvs
PV          VG     Fmt  Attr PSize   PFree
/dev/sda2   rhel   lvm2 a--  <19.00g    0
/dev/sdc1    --     lvm2 ---    3.00g  3.00g
/dev/sdd1   ifrwd  lvm2 a--  <4.00g  3.70g
/dev/sdd2   ifrwd  lvm2 a--   96.00m 96.00m
```

### Vgreduce

```
[root@server ~]# vgreduce ifrwd /dev/sdc1
Removed "/dev/sdc1" from volume group "ifrwd"
```

### Pv remove step → pvremove /pv partition

# HOW TO CREATE DISK PARTITION

## How to recover deleted lv?

### Step 1 – unmount file system

```
[root@server ~]# umount /dev/ifrwd/oradata  
[root@server ~]# _
```

### Step 2 – lvmove

```
[root@server ~]# lvremove /dev/ifrwd/oradata  
Do you really want to remove active logical volume ifrwd/oradata? [y/n]: y  
Logical volume "oradata" successfully removed
```

### Step – 3 go to achieved stores path

```
[root@server ~]# cd /etc/lvm/archive/  
[root@server archive1]# ls  
ifrwd_00000-284432955.vg  ifrwd_00002-2813867770.vg  ifrwd_00004-841990181.vg  ifrwd_00006-1485114251.vg  rhel_00000-1426307861.vg  
ifrwd_00001-1465971320.vg  ifrwd_00003-997964154.vg  ifrwd_00005-415249894.vg  ifrwd_00007-1810129924.vg  
[root@server archive1]# ls -ltr  
total 36  
-rw----- 1 root root 1731 May  8 23:48 rhel_00000-1426307861.vg  
-rw----- 1 root root 1111 May 10 05:31 ifrwd_00000-284432955.vg  
-rw----- 1 root root 1110 May 10 05:33 ifrwd_00001-1465971320.vg  
-rw----- 1 root root 1528 May 10 05:35 ifrwd_00002-2813867770.vg  
-rw----- 1 root root 1916 May 10 06:08 ifrwd_00003-997964154.vg  
-rw----- 1 root root 2157 May 10 06:10 ifrwd_00004-841990181.vg  
-rw----- 1 root root 2316 May 10 06:18 ifrwd_00005-415249894.vg  
-rw----- 1 root root 2146 May 10 06:58 ifrwd_00006-1485114251.vg  
-rw----- 1 root root 1915 May 10 07:06 ifrwd_00007-1810129924.vg
```

### Step – 4 vgrestore command

```
[root@server archive]# vgcfgrestore --list ifrwd_
```

### output

```
UG name: ifrwd  
Description: Created *before* executing 'lvcreate -L 100M -n oradata ifrwd'  
Backup Time: Tue May 10 05:33:16 2022  
  
File:      /etc/lvm/archive/ifrwd_00002-2813867770.vg  
UG name: ifrwd  
Description: Created *before* executing 'lvcreate -L 100M -n newdata ifrwd'  
Backup Time: Tue May 10 05:35:28 2022  
  
File:      /etc/lvm/archive/ifrwd_00003-997964154.vg  
UG name: ifrwd  
Description: Created *before* executing 'vgextend ifrwd /dev/sdd2'  
Backup Time: Tue May 10 06:08:33 2022  
  
File:      /etc/lvm/archive/ifrwd_00004-841990181.vg  
Couldn't find device with uuid x21Gdp-sazb-nf0u-UFNc-1cHZ-UNa0-SjkWcf.  
UG name: ifrwd  
Description: Created *before* executing 'lvextend -L +100M /dev/ifrwd/oradata'  
Backup Time: Tue May 10 06:10:32 2022  
  
File:      /etc/lvm/archive/ifrwd_00005-415249894.vg  
UG name: ifrwd  
Description: Created *before* executing 'pvmove /dev/sdc1 /dev/sdd1'  
Backup Time: Tue May 10 06:18:38 2022  
  
File:      /etc/lvm/archive/ifrwd_00006-1485114251.vg  
UG name: ifrwd  
Description: Created *before* executing 'vgreduce ifrwd /dev/sdc1'  
Backup Time: Tue May 10 06:58:48 2022  
  
File:      /etc/lvm/archive/ifrwd_00007-1810129924.vg  
UG name: ifrwd  
Description: Created *before* executing 'lvremove /dev/ifrwd/oradata'  
Backup Time: Tue May 10 07:06:35 2022  
  
File:      /etc/lvm/backup/ifrwd  
UG name: ifrwd  
Description: Created *after* executing 'lvremove /dev/ifrwd/oradata'  
Backup Time: Tue May 10 07:06:35 2022
```

## HOW TO CREATE DISK PARTITION

### Step -5 vgrestore to archive file

```
[root@server archive]# vgcfgrestore -f /etc/lvm/archive/ifrwd_00007-1810129924.vg ifrwd
Volume group ifrwd has active volume: newdata.
WARNING: Found 1 active volume(s) in volume group "ifrwd".
Restoring VG with active LVs, may cause mismatch with its metadata.
Do you really want to proceed with restore of volume group "ifrwd", while 1 volume(s) are active? [y/n]: y
Restored volume group ifrwd
Scan of VG ifrwd from /dev/sdd1 found mda_checksum fb7d01a5 mda_size 1455 vs previous cd31ca52 1169
Scan of VG ifrwd from /dev/sdd2 found mda_checksum fb7d01a5 mda_size 1455 vs previous cd31ca52 1169
```

### Step -6 lv scan

```
[root@server archive]# lvs
  LV   VG Attr   LSize  Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
newdata  ifrwd -wi-a---- 100.00m
oradata  ifrwd -wi----- 200.00m
root     rhel  -wi-ao--- <17.00g
swap     rhel  -wi-ao---  2.00g
```

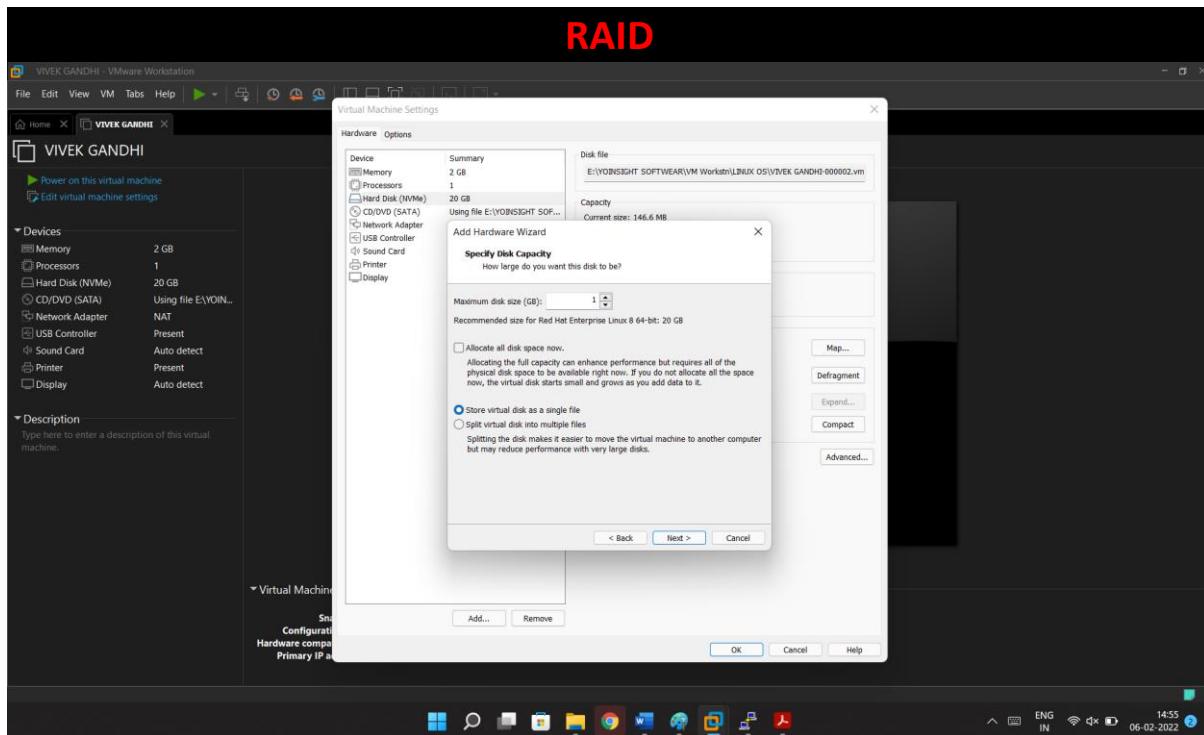
### Step- 7 lvchange to active lvm

```
[root@server archive]# lvchange -ay ifrwd
[root@server archive]# lvs
  LV   VG Attr   LSize  Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
newdata  ifrwd -wi-a---- 100.00m
oradata  ifrwd -wi-a---- 200.00m
root     rhel  -wi-ao--- <17.00g
swap     rhel  -wi-ao---  2.00g
```



# HOW TO CREATE DISK PARTITION

## RAID



### Change partition id to "fd" raid

```
[root@localhost ~]# mkdir raid
[root@localhost ~]# ls
anaconda-ks.cfg  initial-setup-ks.cfg  raid
[root@localhost ~]# fdisk /dev/nvme0n2

Welcome to fdisk (util-linux 2.32.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0xcccf619d.

Command (m for help): n
Partition type
  p  primary (0 primary, 0 extended, 4 free)
  e  extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1):
First sector (2048-2097151, default 2048):
Last sector, +sectors or +size(K,M,G,T,P) (2048-2097151, default 2097151): +100M

Created a new partition 1 of type 'Linux' and of size 100 MiB.

Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): l

 0  Empty          24  NEC DOS      81  Minix / old Lin bf  Solaris
 1  FAT12          27  Hidden NTFS Win 82  Linux swap / So c1  DRDOS/sec (FAT-
 2  XENIX root    39  Plan 9       83  Linux      c4  DRDOS/sec (FAT-
 3  XENIX usr     3c  PartitionMagic 84  OS/2 hidden or c6  DRDOS/sec (FAT-
 4  FAT16 <32M    40  Venix 80286  85  Linux extended c7  Syrix
 5  Extended       41  PPC PreP Boot  86  NTFS volume set da  Non-FS data
 6  FAT16          42  SFS          87  NTFS volume set db  CP/M / CTOS /
 7  HPFS/NTFS/exFAT 4d  QNX4.x     88  Linux plaintext de  Dell Utility
 8  AIX            4e  QNX4.x 2nd part 8e  Linux LVM      df  BootIt
 9  AIX bootable   4f  QNX4.x 3rd part 93  Amoeba      e1  DOS access
a  OS/2 Boot Manag 50  OnTrack DM   94  Amoeba BBT    e3  DOS R/O
b  W95 FAT32      51  OnTrack DM6 Aux 9f  BSD/OS      e4  SpeedStor
c  W95 FAT32 (LBA) 52  CP/M        a0  IBM Thinkpad hi ea  Rufus alignment
e  W95 FAT16 (LBA) 53  OnTrack DM6 Aux a5  FreeBSD      eb  BeOS fs
f  W95 Ext'd (LBA) 54  OnTrackDM6  a6  OpenBSD      ee  GPT
10 OPUS           55  EZ-Drive     a7  NeXTSTEP      ef  EFI (FAT-12/16/
11  W95 FAT32      57  Novell Netware b8  BSDI swap      fc  VMware VMKCORE
1b  Hidden W95 FAT3 70  DiskSecure Mult bb  Boot Wizard hid fd  Linux raid auto
1c  Hidden W95 FAT3 75  PC/IX       bc  Acronis FAT32 L fe  LANstep
1e  Hidden W95 FAT1 80  Old Minix    be  Solaris boot    ff  BBT
Hex code (type L to list all codes): fd
Changed type of partition 'Linux' to 'Linux raid autodetect'.

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.
```

# HOW TO CREATE DISK PARTITION

## Update partition table

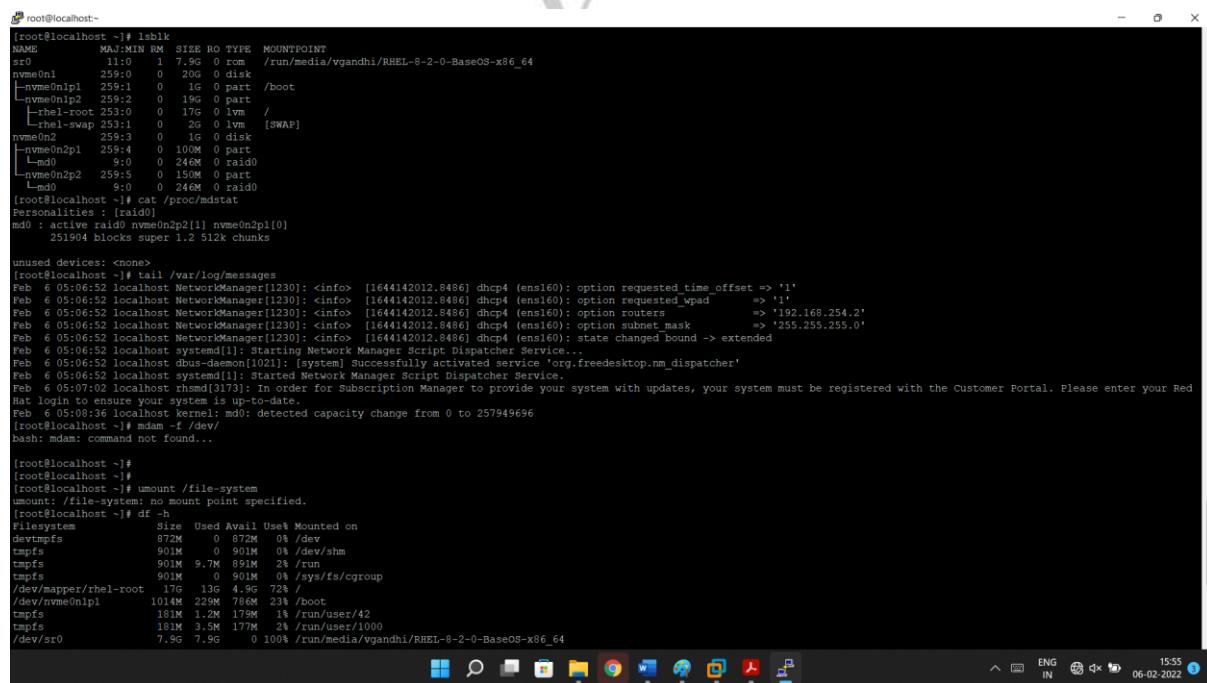
```
[root@localhost ~]# mount -a  
[root@localhost ~]# partprobe /dev/nvme0n2  
[root@localhost ~]# fdisk -l
```

## Use “mdadm” utility to create raid devices

Check application install

```
[root@localhost ~]# rpm -qa mdadm  
mdadm-4.1-13.el8.x86_64  
[root@localhost ~]#  
  
[root@localhost ~]# mdadm -C --verbose /dev/md0 --level=0 --raid-devices=2 /dev/nvme0n2p1 /dev/nvme0n2p2  
mdadm: chunk size defaults to 512K  
mdadm: Defaulting to version 1.2 metadata  
mdadm: array /dev/md0 started.
```

```
[root@localhost ~]# mdadm --detail /dev/md0  
/dev/md0:  
    Version : 1.2  
Creation Time : Sun Feb  6 05:08:36 2022  
    Raid Level : raid0  
    Array Size : 251904 (246.00 MiB 257.95 MB)  
    Raid Devices : 2  
    Total Devices : 2  
    Persistence : Superblock is persistent  
  
    Update Time : Sun Feb  6 05:08:36 2022  
    State : clean  
    Active Devices : 2  
    Working Devices : 2  
    Failed Devices : 0  
    Spare Devices : 0
```



```
[root@localhost ~]# lsblk  
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT  
sr0      11:0    1   7.9G  0 rom  /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64  
nvme0n1  259:0    0  20G  0 disk  
├─nvme0n1p1 259:1    0  1G  0 part /boot  
└─nvme0n1p2 259:2    0 19G  0 part  
  └─rhel-root 253:0    0 17G  0 lvm /  
    └─rhel-swap 253:1    0 2G  0 lvm [SWAP]  
nvme0n2  259:3    0  1G  0 disk  
└─nvme0n2p1 259:4    0 100M 0 part  
  └─L_d0d  9:0     0 24EM 0 raid0  
    └─nvme0n2p2 259:5    0 150M 0 part  
      └─L_d0d  9:0     0 24EM 0 raid0  
[root@localhost ~]# cat /proc/mdstat  
Personalities : [raid0]  
md0 : active raid0 nvme0n2p2[1] nvme0n2p1[0]  
      251904 blocks super 1.2 512K chunks  
  
unused devices: <none>  
[root@localhost ~]# tail /var/log/messages  
Feb  6 05:06:52 localhost NetworkManager[1230]: <info>  [1644142012.8486] dhcpc4 (ens160): option requested_time_offset => '1'  
Feb  6 05:06:52 localhost NetworkManager[1230]: <info>  [1644142012.8486] dhcpc4 (ens160): option requested_wpad_=> '1'  
Feb  6 05:06:52 localhost NetworkManager[1230]: <info>  [1644142012.8486] dhcpc4 (ens160): option routers => '192.168.254.2'  
Feb  6 05:06:52 localhost NetworkManager[1230]: <info>  [1644142012.8486] dhcpc4 (ens160): option subnet_mask => '255.255.255.0'  
Feb  6 05:06:52 localhost NetworkManager[1230]: <info>  [1644142012.8486] dhcpc4 (ens160): state changed bound -> extended  
Feb  6 05:06:52 localhost systemd[1]: Starting Network Manager Script Dispatcher Service...  
Feb  6 05:06:52 localhost systemd[1]: Started Network Manager Script Dispatcher Service.  
Feb  6 05:07:02 localhost rhdmd[3173]: In order for Subscription Manager to provide your system with updates, your system must be registered with the Customer Portal. Please enter your Red Hat login to ensure your system is up-to-date.  
Feb  6 05:08:36 localhost kernel: md0: detected capacity change from 0 to 257949696  
[root@localhost ~]# mdadm -f /dev/  
bash: mdadm: command not found...  
  
[root@localhost ~]#  
[root@localhost ~]#  
[root@localhost ~]# umount /file-system  
umount: /file-system: no mount point specified.  
[root@localhost ~]# df -h  
Filesystem      Size  Used Avail Use% Mounted on  
devtmpfs        872M   0  872M  0% /dev  
tmpfs          901M   0  901M  0% /dev/shm  
tmpfs          901M  9.7M  891M  2% /run  
tmpfs          901M   0  901M  0% /sys/fs/cgroup  
/dev/mapper/rhel-root  17G  13G  4.9G  72% /  
/dev/nvme0n1p1  144M  229M  786M  2% /boot  
tmpfs          181M  179M   18M  1% /run/user/1000  
tmpfs          181M  3.5M  177M  2% /run/user/1000  
/dev/sr0         7.9G  7.9G   0 100% /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
```

# HOW TO CREATE DISK PARTITION

```
root@localhost:~# 
Hit Login to ensure your system is up-to-date.
Feb  6 05:08:36 localhost kernel: md0: detected capacity change from 0 to 257949696
[root@localhost ~]# mdadm -f /dev/
mdadm: command not found..

[root@localhost ~]# 
[root@localhost ~]# 
[root@localhost ~]# umount /file-system
umount: /file-system: No such mount point specified.
[root@localhost ~]# df -h
Filesystem      Size   Used  Avail   Use%  Mounted on
devtmpfs        872M    0  872M   0%   /dev
tmpfs          901M    0  901M   0%   /dev/shm
tmpfs          901M  9.7M  891M   2%   /run
tmpfs          901M    0  901M   0%   /sys/fs/cgroup
/dev/mapper/rhel-root  17G  13G  4.9G  72% /
/dev/nvme0n1p1  103.2M 22.8M 78.4M  23% /boot
tmpfs          181M  3.2M  177M  2% /run/user/1000
/dev/sr0         7.9G  7.9G  0  100% /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
tmpfs          181M  4.0K  181M  1% /run/user/0
[root@localhost ~]# mdadm -S /dev/md2
mdadm: error opening /dev/md2: No such file or directory
[root@localhost ~]# mdadm -S /dev/nvme0n2
mdadm: /dev/nvme0n2 does not appear to be an md device
[root@localhost ~]# mdadm -S /dev/nvme0n2p1
mdadm: /dev/nvme0n2p1 does not appear to be an md device
[root@localhost ~]# umount /md0
umount: /md0: no mount point specified.
[root@localhost ~]# mdadm -S /dev/md0
mdadm: stopped /dev/md0
[root@localhost ~]# mdadm -f /dev/nvme0n2p1
mdadm: error opening /dev/md0: No such file or directory
[root@localhost ~]# mdadm -f /dev/md0 /dev/nvme0n2p2
mdadm: error opening /dev/md0: No such file or directory
[root@localhost ~]# mdadm -r /dev/md0
mdadm: error opening /dev/md0: No such file or directory
[root@localhost ~]# lsbphy
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0      11:0   1   7.9G  0 rom  /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
nvme0n1  259:0   0   20G  0 disk
└─nvme0n1p1 259:1   0   1G  0 part  /boot
└─nvme0n1p2 259:2   0   19G  0 part
└─rhel-root 253:0   0   17G  0 lvm  /
└─rhel-swap 253:1   0   2G  0 lvm  [SWAP]
nvme0n2  259:3   0   16G  0 disk
└─nvme0n2p1 259:6   0   10M  0 part
└─nvme0n2p2 259:7   0   10M  0 part
nvme0n3  259:4   0   5G  0 disk
└─nvme0n3p1 259:5   0   100M 0 part
└─vg-lv   253:2   0   8M  0 lvm
[root@localhost ~]# mdadm -f /dev/md0 /dev/nvme0n2p2
```

## RAID -1

```
[root@server ~]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0      11:0   1   7.9G  0 rom
nvme0n1  259:0   0   20G  0 disk
└─nvme0n1p1 259:1   0   1G  0 part  /boot
└─nvme0n1p2 259:2   0   19G  0 part
└─rhel-root 253:0   0   17G  0 lvm  /
└─rhel-swap 253:1   0   2G  0 lvm  [SWAP]
nvme0n2  259:3   0   5G  0 disk
└─nvme0n2p1 259:6   0   10M  0 part
└─nvme0n2p2 259:7   0   10M  0 part
nvme0n3  259:4   0   5G  0 disk
└─nvme0n3p1 259:5   0   100M 0 part
└─vg-lv   253:2   0   8M  0 lvm
[root@server ~]# mdadm --create --verbose /dev/md0 --level=1 --raid-devices=2 /dev/nvme0n2p1 /dev/nvme0n2p2
mdadm: /dev/nvme0n2p1 appears to be part of a raid array:
      level=raid0 devices=2 ctime=Wed May 11 12:58:21 2022
mdadm: partition table exists on /dev/nvme0n2p1 but will be lost or
      meaningless after creating array
mdadm: Note: this array has metadata at the start and
      may not be suitable as a boot device. If you plan to
      store '/boot' on this device please ensure that
      your boot-loader understands md/v1.x metadata, or use
      --metadata=0.98
mdadm: /dev/nvme0n2p2 appears to be part of a raid array:
      level=raid0 devices=2 ctime=Wed May 11 12:58:21 2022
mdadm: size set to 9216K
Continue creating array? y
mdadm: Defaulting to version 1.2 metadata
mdadm: array /dev/md0 started.
[root@server ~]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0      11:0   1   7.9G  0 rom
nvme0n1  259:0   0   20G  0 disk
└─nvme0n1p1 259:1   0   1G  0 part  /boot
└─nvme0n1p2 259:2   0   19G  0 part
└─rhel-root 253:0   0   17G  0 lvm  /
└─rhel-swap 253:1   0   2G  0 lvm  [SWAP]
nvme0n2  259:3   0   5G  0 disk
└─nvme0n2p1 259:6   0   10M  0 part
└─md0    9:8   0   9M  0 raid1
└─nvme0n2p2 259:7   0   10M  0 part
└─md0    9:8   0   9M  0 raid1
nvme0n3  259:4   0   5G  0 disk
└─nvme0n3p1 259:5   0   100M 0 part
└─vg-lv   253:2   0   8M  0 lvm
[root@server ~]#
```

# HOW TO CREATE DISK PARTITION

```
└─md0      9:8    0   9M 0 raid1
  └─nvme0n3 259:4  0   5G 0 disk
    └─nvme0n3p1 259:5  0 100M 0 part
      └─vg-lv  253:2  0   8M 0 lvm
[root@server ~]# mdadm --remove /dev/nvme0n2p1
mdadm: option -e not valid in manage mode
[root@server ~]# mdadm -r /dev/md0 /dev/nvme0n2p1
mdadm: hot removed /dev/nvme0n2p1 from /dev/md0
[root@server ~]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINT
sr0     11:0    1   7.9G 0 rom
nvme0n1 259:8    0   20G 0 disk
└─nvme0n1p1 259:1  0   16 0 part  /boot
└─nvme0n1p2 259:2  0   196 0 part
  └─rhel-root 253:8  0   17G 0 lvm  /
  └─rhel-swap 253:1  0   2G 0 lvm  [SWAP]
nvme0n2 259:3    0   5G 0 disk
└─nvme0n2p1 259:6  0 100M 0 part
└─nvme0n2p2 259:7  0 100M 0 part
  └─md0      9:8    0   9M 0 raid1
nvme0n3 259:4    0   5G 0 disk
└─nvme0n3p1 259:5  0 100M 0 part
      └─vg-lv  253:2  0   8M 0 lvm
[root@server ~]# cat /proc/mdstat
Personalities : (raid0) (raid1)
md0 : active raid1 nvme0n2p2[1]
      9216 blocks super 1.2 (2/1) [_U]

unused devices: <none>
[root@server ~]# mdadm --add /dev/nvme0n2p1
mdadm: added /dev/nvme0n2p1
[root@server ~]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINT
sr0     11:0    1   7.9G 0 rom
nvme0n1 259:8    0   20G 0 disk
└─nvme0n1p1 259:1  0   16 0 part  /boot
└─nvme0n1p2 259:2  0   196 0 part
  └─rhel-root 253:8  0   17G 0 lvm  /
  └─rhel-swap 253:1  0   2G 0 lvm  [SWAP]
nvme0n2 259:3    0   5G 0 disk
└─nvme0n2p1 259:6  0 100M 0 part
  └─md0      9:8    0   9M 0 raid1
└─nvme0n2p2 259:7  0 100M 0 part
  └─md0      9:8    0   9M 0 raid1
nvme0n3 259:4    0   5G 0 disk
└─nvme0n3p1 259:5  0 100M 0 part
      └─vg-lv  253:2  0   8M 0 lvm
[root@server ~]#
```

```
└─nvme0n3p1 259:5  0 100M 0 part
  └─vg-lv  253:2  0   8M 0 lvm
[root@server ~]# mkfs.ext4 /dev/nvme0n2
mkfs 1.45.4 (23-Sep-2019)
Found a dos partition table in /dev/nvme0n2
Proceed anyway? (y,N) y
/dev/nvme0n2 is apparently in use by the system; will not make a filesystem here!
[root@server ~]# mkfs.ext4 /dev/MD0
mkfs 1.45.4 (23-Sep-2019)
The file /dev/MD0 does not exist and no size was specified.
[root@server ~]# mkfs.ext4 /dev/md0
mkfs 1.45.4 (23-Sep-2019)
/dev/md0 contains a ext4 file system
      last mounted on Tue May 10 15:21:55 2022
Proceed anyway? (y,N) y
Creating filesystem with 9216 1k blocks and 2384 inodes
Filesystem UUID: 33ecf951-cc13-4cd4-9c17-79782b565c10
Superblock backups stored on blocks:
      8193

Allocating group tables: done
Writing inode tables: done
Creating journal (1024 blocks): done
Writing superblocks and filesystem accounting information: done

[root@server ~]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINT
sr0     11:0    1   7.9G 0 rom
nvme0n1 259:8    0   20G 0 disk
└─nvme0n1p1 259:1  0   16 0 part  /boot
└─nvme0n1p2 259:2  0   196 0 part
  └─rhel-root 253:8  0   17G 0 lvm  /
  └─rhel-swap 253:1  0   2G 0 lvm  [SWAP]
nvme0n2 259:3    0   5G 0 disk
└─nvme0n2p1 259:6  0 100M 0 part
  └─md0      9:8    0   9M 0 raid1
└─nvme0n2p2 259:7  0 100M 0 part
  └─md0      9:8    0   9M 0 raid1
nvme0n3 259:4    0   5G 0 disk
└─nvme0n3p1 259:5  0 100M 0 part
      └─vg-lv  253:2  0   8M 0 lvm
[root@server ~]# ls
anaconda-ks.cfg  initial-setup-ks.cfg
[root@server ~]# cd /
[root@server ~]# ls
bin  boot  dev  etc  home  lib  lib64  media  mnt  opt  pooja  proc  root  run  samba_share  sbin  smb.conf  srv  sys  tmp  usr  var  viveklum
[root@server ~]#
```

# HOW TO CREATE DISK PARTITION

```
# /etc/fstab
# Created by anaconda on Mon May  9 00:05:36 2022
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.

/dev/mapper/rhel-root  /          xfs    defaults        0 0
UUID=b21d2963-1806-49ea-b22b-38a1178f76d9 /boot      xfs    defaults        0 0
/dev/mapper/rhel-swap  swap      swap   defaults        0 0

/dev/md0 /raid  ext4    defaults        0        0


```

```

[root@server ~]# mount -a
[root@server ~]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINT
sr0      11:0    1  7.9G  0 rom
nvme0n1  259:0    0 28G  0 disk
└─nvme0n1p1 259:1    0  1G  0 part /boot
└─nvme0n1p2 259:2    0 19G  0 part
  └─rhel-root 253:0    0 17G  0 lvm /
  └─rhel-swap 253:1    0  2G  0 lvm [SWAP]
nvme0n2  259:3    0  5G  0 disk
└─nvme0n2p1 259:6    0 10M  0 part
  └─md0     9:0    0  9M  0 raid1 /raid
└─nvme0n2p2 259:7    0 10M  0 part
  └─md0     9:0    0  9M  0 raid1 /raid
nvme0n3  259:4    0  5G  0 disk
└─nvme0n3p1 259:5    0 100M 0 part
  └─vg_lv  253:2    0  8M  0 lvm
[root@server ~]# cd raid
[root@server raid]# touch 1 2 3
[root@server raid]#
[root@server raid]# mdadm -f /dev/md0 /dev/nvme0n2p1
[ 2458.631737] md/raid1:md0: Disk failure on nvme0n2p1, disabling device.
[ 2458.631737] md/raid1:md0: Operation continuing on 1 devices.
mdadm: set /dev/nvme0n2p1 faulty in /dev/md0
[root@server raid]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINT
sr0      11:0    1  7.9G  0 rom
nvme0n1  259:0    0 28G  0 disk
└─nvme0n1p1 259:1    0  1G  0 part /boot
└─nvme0n1p2 259:2    0 19G  0 part
  └─rhel-root 253:0    0 17G  0 lvm /
  └─rhel-swap 253:1    0  2G  0 lvm [SWAP]
nvme0n2  259:3    0  5G  0 disk
└─nvme0n2p1 259:6    0 10M  0 part
  └─md0     9:0    0  9M  0 raid1 /raid
└─nvme0n2p2 259:7    0 10M  0 part
  └─md0     9:0    0  9M  0 raid1 /raid
nvme0n3  259:4    0  5G  0 disk
└─nvme0n3p1 259:5    0 100M 0 part
  └─vg_lv  253:2    0  8M  0 lvm
[root@server raid]# ls
1 2 3  lost+found
[root@server raid]#

```

## HOW TO CREATE DISK PARTITION

```
[root@server raid]# mdadm -r /dev/md0 /dev/nvme0n2p1
mdadm: hot removed /dev/nvme0n2p1 from /dev/md0
[root@server raid]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINT
sr0      11:0    1  7.9G  0 rom
nvme0n1  259:0    0  28G  0 disk
└─nvme0n1p1 259:1    0   16G  0 part  /boot
└─nvme0n1p2 259:2    0   19G  0 part
  └─rhel-root 253:0    0   17G  0 lvm  /
  └─rhel-swap 253:1    0   2G  0 lvm  [SWAP]
nvme0n2  259:3    0   5G  0 disk
└─nvme0n2p1 259:6    0   18M  0 part
└─nvme0n2p2 259:7    0   18M  0 part
└─md0      9:8    0   9M  0 raid1 /raid
nvme0n3  259:4    0   5G  0 disk
└─nvme0n3p1 259:5    0   100M 0 part
  └─vg-lv  253:2    0   8M  0 lvm
[root@server raid]# ls
1 2 3  lost+found
[root@server raid]#
```

## RAID -5



# HOW TO CREATE DISK PARTITION

## Disk Quotas

### Create a new partition

```

root@localhost ~# lsblk
login as: root
root@192.168.254.133's password:
Activate the web console with: systemctl enable --now cockpit.socket

This system is not registered to Red Hat Insights. See https://cloud.redhat.com/
To register this system, run: insights-client --register

Last login: Sun Feb  6 04:49:14 2022 from 192.168.254.1
[root@localhost ~]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0      11:0    1  7.9G  0 rom  /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_
nvme0n1  259:0    0  200G  0 disk
└─nvme0n1p1 259:1    0   1G  0 part  /boot
nvme0n1p2 259:2    0   1G  0 part
└─nvme0n1p3 259:3    0   1G  0 part  /home
└─nvme0n1p4 259:4    0  196G 0 part
└─rhel-root 253:0    0 17G  0 lvm  /
└─rhel-swap 253:1    0   2G  0 lvm  [SWAP]
nvme0n2  259:5    0   1G  0 disk
[root@localhost ~]# cd ~
[root@localhost ~]# ls
anaconda-ks.cfg  initial-setup-ks.cfg  raid
[root@localhost ~]# rm -rf raid
[root@localhost ~]# rm -rf .dir quota
[root@localhost ~]# ls
anaconda-ks.cfg  initial-setup-ks.cfg  quota
[root@localhost ~]# cd /
[root@localhost /]# fdisk /dev/nvme0n2

Welcome to fdisk (util-linux 2.32.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Command (m for help): n
Partition type
  p primary (0 primary, 0 extended, 4 free)
  e extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1):
First sector (2048-2097151, default 2048):
First sector, +sectors or +size[K,M,G,T,P] (2048-2097151, default 2097151): +200M

Created a new partition 1 of type 'Linux' and of size 200 MiB.
Partition #1 contains a linux_raid_member signature.

Do you want to remove the signature? [Y]es/[N]o: n

Command (m for help): n
Partition type
  p primary (1 primary, 0 extended, 3 free)

```

### Format the partition

```

root@localhost /# lsblk
nvme0n1  259:0    0   20G  0 disk
└─nvme0n1p1 259:1    0   1G  0 part  /boot
nvme0n1p2 259:2    0   1G  0 part
└─rhel-root 253:0    0 17G  0 lvm  /
└─rhel-swap 253:1    0   2G  0 lvm  [SWAP]
nvme0n2  259:3    0   1G  0 disk
└─nvme0n2p1 259:4    0  200M 0 part
└─nvme0n2p2 259:5    0  200M 0 part
[root@localhost /]# mount nvme0n2p2 /root/quota
mount: /root/quota: special device nvme0n2p2 does not exist.
[root@localhost /]# mkfs.ext4 nvme0n2p2
mkfs 1.45.4 (23-Sep-2019)
The file nvme0n2p2 does not exist and no size was specified.
[root@localhost /]# mkfs.ext4 /nvme0n2p2
mkfs 1.45.4 (23-Sep-2019)
The file /nvme0n2p2 does not exist and no size was specified.
[root@localhost /]# mkfs.ext4 /dev/nvme0n2p2
mkfs 1.45.4 (23-Sep-2019)
Creating filesystem with 204800 1k blocks and 51200 inodes
Filesystem UUID: e3724a51-8f41-4318-81dd-315acd46324
Superblock backups stored on blocks:
  8193, 24577, 40961, 57345, 73729

Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done

[root@localhost /]# mount nvme0n2p2 /root/quota
mount: /root/quota: special device nvme0n2p2 does not exist.
[root@localhost /]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0      11:0    1  7.9G  0 rom  /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
nvme0n1  259:0    0  200G  0 disk
└─nvme0n1p1 259:1    0   1G  0 part  /boot
nvme0n1p2 259:2    0   1G  0 part
└─rhel-root 253:0    0 17G  0 lvm  /
└─rhel-swap 253:1    0   2G  0 lvm  [SWAP]
nvme0n2  259:3    0   1G  0 disk
└─nvme0n2p1 259:4    0  200M 0 part
└─nvme0n2p2 259:5    0  200M 0 part
[root@localhost /]# mount /dev/nvme0n2p2 /root/quota
[root@localhost /]# vim /etc/fstab
[root@localhost /]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0      11:0    1  7.9G  0 rom  /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
nvme0n1  259:0    0  200G  0 disk

```

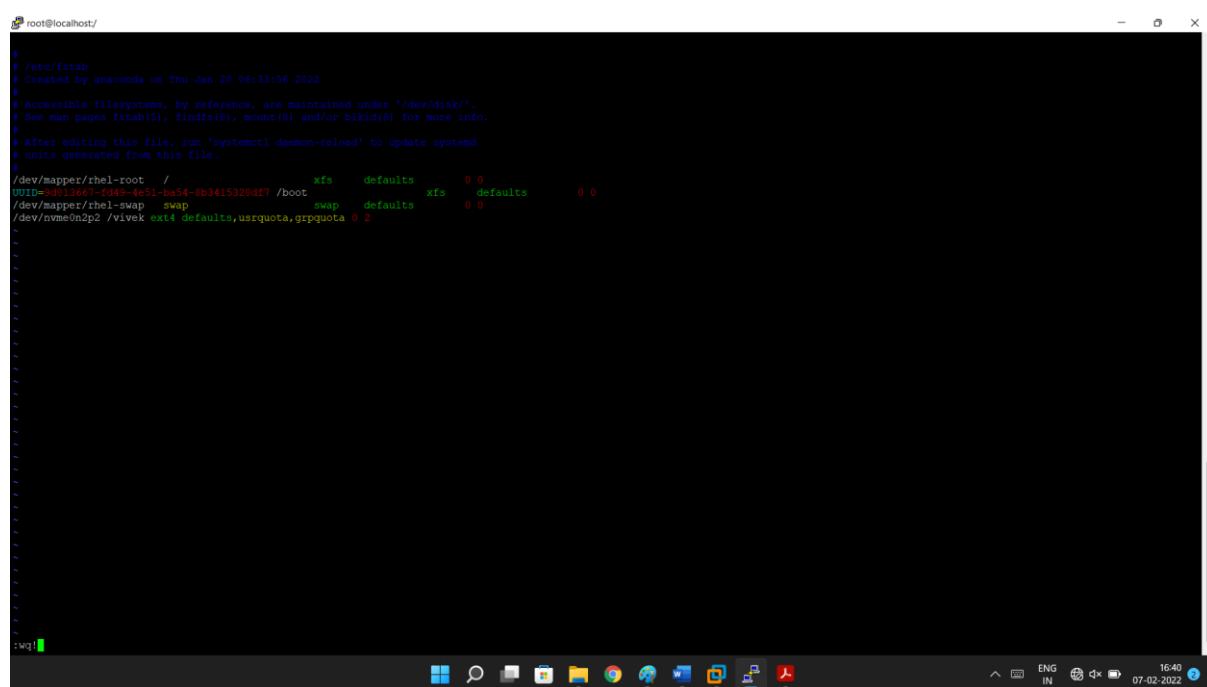
# HOW TO CREATE DISK PARTITION

## Create a directory

```
[root@localhost /]# mkdir vivek  
[root@localhost /]# ls  
bin boot dev etc home lib lib64 media mnt opt proc quota root run sbin srv sys tmp usr var vivek
```

## Mount the partition on the directory with quotas enabled

```
[root@localhost /]# vim /etc/fstab
```



```
# /etc/fstab  
# Created by anaconda on Thu Jan 20 06:39:56 2022  
#  
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.  
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.  
#  
# After editing this file, run 'systemctl daemon-reload' to update systemd  
# units generated from this file.  
  
/dev/mapper/rhel-root    /           xfs    defaults      0  0  
UUID=80136c7f-d9e4-e51-ba54-8b3415328df7 /boot   xfs    defaults      0  0  
/dev/mapper/rhel-swap    swap      swap    defaults      0  0  
/dev/nvme0n2p2/vivek ext4 defaults,usrquota,grpquota 0  2
```

## Update mount point

```
[root@localhost /]# mount -a  
[root@localhost /]# lsblk
```

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
sr0	11:0	1	7.9G	0	rom	
nvme0n1	259:0	0	20G	0	disk	
└nvme0n1p1	259:1	0	1G	0	part	/boot
└nvme0n1p2	259:2	0	19G	0	part	
└rhel-root	253:0	0	17G	0	lvm	/
└rhel-swap	253:1	0	2G	0	lvm	[SWAP]
nvme0n2	259:3	0	1G	0	disk	
└nvme0n2p1	259:4	0	200M	0	part	
└nvme0n2p2	259:5	0	200M	0	part	
└nvme0n2p3	259:6	0	120M	0	part	/vivek

## Give full permissions to the partition

```
[root@localhost /]# chmod -R 777 /vivek  
[root@localhost /]# ls -ll
```

total	1	root	root	7	Aug	12	2018	bin	->	usr/bin
24	1	root	root	4096	Jan	20	06:47	boot		
	dr-xr-xr-x.	5	root	root	3340	Feb	7	05:35	dev	
	drwxr-xr-x.	20	root	root	8192	Feb	7	06:10	etc	
	drwxr-xr-x.	139	root	root	44	Feb	7	04:08	home	
	drwxr-xr-x.	5	root	root	7	Aug	12	2018	lib	-> usr/lib
	drwxr-xr-x.	1	root	root	9	Aug	12	2018	lib64	-> usr/lib64
	drwxr-xr-x.	2	root	root	6	Aug	12	2018	media	
	drwxr-xr-x.	3	root	root	18	Jan	20	06:39	mnt	
	drwxr-xr-x.	2	root	root	6	Aug	12	2018	opt	
	dr-xr-xr-x.	267	root	root	0	Feb	7	05:35	proc	
	drwxr-xr-x.	2	root	root	6	Feb	7	01:57	quota	
	dr-xr-x---	6	root	root	256	Feb	7	06:10	root	
	drwxr-xr-x.	41	root	root	1180	Feb	7	05:35	run	
	drwxr-xr-x.	1	root	root	8	Aug	12	2018	sbin	-> usr/sbin
	drwxr-xr-x.	2	root	root	6	Aug	12	2018	srv	
	dr-xr-xr-x.	13	root	root	0	Feb	7	05:35	sys	
	drwxrwxrwt.	25	root	root	4096	Feb	7	05:45	tmp	
	drwxr-xr-x.	12	root	root	144	Jan	20	06:34	usr	
	drwxr-xr-x.	21	root	root	4096	Jan	20	06:46	var	
	drwxrwxrwx.	2	root	root	6	Feb	7	06:06	vivek	

# HOW TO CREATE DISK PARTITION

## create database file for user and group

```
[root@localhost /]# quotacheck -cvug /vivek
quotacheck: Your kernel probably supports journaled quota but you are not using it. Consider switching to journaled quota to a
quotacheck: Scanning /dev/nvme0n2p3 [/vivek] done
quotacheck: Cannot stat old user quota file /vivek/aquota.user: No such file or directory. Usage will not be subtracted.
quotacheck: Cannot stat old group quota file /vivek/aquota.group: No such file or directory. Usage will not be subtracted.
quotacheck: Cannot stat old user quota file /vivek/aquota.user: No such file or directory. Usage will not be subtracted.
quotacheck: Cannot stat old group quota file /vivek/aquota.group: No such file or directory. Usage will not be subtracted.
quotacheck: Checked 3 directories and 0 files
quotacheck: Old file not found.
quotacheck: Old file not found.
[root@localhost /]# cd vivek
[root@localhost vivek]# ls
aquota.group  aquota.user  lost+found
```

## activate the quota on the file system

```
[root@localhost /]# quotaon /vivek
```

## HOW TO CHECK BLK SIZE

```
[root@localhost /]# blockdev --getbsz /dev/nvme0n2p3
1024
[root@localhost /]#
```

## Assign the quotas to the users or groups

```
[root@localhost /]# edquota -u vgandhi
edquota: WARNING - /dev/nvme0n2p3: cannot change current block allocation
edquota: WARNING - /dev/nvme0n2p3: cannot change current inode allocation
[root@localhost /]#
```

Disk quotas for user carry (uid 1001):	Filesystem	blocks	soft	hard	inodes	soft	hard
	/dev/mapper/vg-newdata	0	18000	20000	0	100	150

## Configuring quota's on file systems with grace period

```
[root@localhost /]# edquota -t
```

```
Grace period before enforcing soft limits for users:
Time units may be: days, hours, minutes, or seconds
Filesystem          Block grace period      Inode grace period
/dev/nvme0n2p3        7days                  7days
~
~
```

## Quota reports

```
[root@localhost /]# repquota -u /vivek
*** Report for user quotas on device /dev/nvme0n2p3
Block grace time: 7days; Inode grace time: 7days
                                Block limits                               File limits
User           used     soft    hard   grace     used     soft    hard   grace
-----
root          --      13       0      0        2       0      0      0
```

```
[root@localhost /]# repquota -a
*** Report for user quotas on device /dev/nvme0n2p3
Block grace time: 7days; Inode grace time: 7days
                                Block limits                               File limits
User           used     soft    hard   grace     used     soft    hard   grace
-----
root          --      13       0      0        2       0      0      0
```

## To see specific information on just one user

## HOW TO CREATE DISK PARTITION

```
[root@localhost /]# quota vgandhi
Disk quotas for user vgandhi (uid 1000): no limited resources used
[root@localhost /]#
```

```
[[carry@client ~]$ dd if=/dev/zero of=/home/carry/2 bs=1M count=18000
dd: error writing '/home/carry/2': No space left on device
2319+0 records in
2318+0 records out
2430599168 bytes (2.4 GB, 2.3 GiB) copied, 1.29196 s, 1.9 GB/s
[[carry@client ~]$ ls -lh
total 2.3G
-rw-rw-r-- 1 carry carry 2.3G May 11 16:00 2
drwxrwxr-x 2 carry carry 6 May 11 15:49 45
drwxr-xr-x. 2 carry carry 6 Feb 7 15:23 Desktop
drwxr-xr-x. 2 carry carry 6 Feb 7 15:23 Documents
drwxr-xr-x. 2 carry carry 6 Feb 7 15:23 Downloads
drwxr-xr-x. 2 carry carry 6 Feb 7 15:23 Music
drwxr-xr-x. 2 carry carry 6 Feb 7 15:23 Pictures
drwxr-xr-x. 2 carry carry 6 Feb 7 15:23 Public
drwxr-xr-x. 2 carry carry 6 Feb 7 15:23 Templates
drwxr-xr-x. 2 carry carry 6 Feb 7 15:23 Videos
```

```
[[carry@client /]$ cd lvmdata
[[carry@client lvmdata]$ touch 3
[[carry@client lvmdata]$ dd if=/dev/zero of=/lvmdata bs=1M count=18000
dd: failed to open '/lvmdata': Is a directory
[[carry@client lvmdata]$ dd if=/dev/zero of=/lvmdata/3 bs=1M count=18000
dm-2: warning, user block quota exceeded.
dm-2: write failed, user block limit reached.
dd: error writing '/lvmdata/3': Disk quota exceeded
20+0 records in
19+0 records out
20480000 bytes (20 MB, 20 MiB) copied, 0.0611472 s, 335 MB/s
[[carry@client lvmdata]$ ll
total 20032
-rw-rw-r-- 1 carry carry 20480000 May 11 16:10 3
-rw----- 1 root root 7168 May 11 15:34 aquota.group
-rw----- 1 root root 7168 May 11 15:34 aquota.user
drwxrwxrwx 2 root root 16384 May 11 15:13 lost+found
[[carry@client lvmdata]$ ls -lh
total 20M
-rw-rw-r-- 1 carry carry 20M May 11 16:10 3
-rw----- 1 root root 7.0K May 11 15:34 aquota.group
-rw----- 1 root root 7.0K May 11 15:34 aquota.user
drwxrwxrwx 2 root root 16K May 11 15:13 lost+found
[[carry@client lvmdata]$ su -
>Password:
[[root@client ~]# repquota -a
*** Report for user quotas on device /dev/mapper/vg-newdata
Block grace time: 7days; Inode grace time: 7days
              Block limits          File limits
User        used    soft    hard   grace    used    soft    hard   grace
-----
root        --      20      0      0
carry      +-    20000  18000  20000  6days      2      0      0
                                         1    100    150
```

## HOW TO CREATE DISK PARTITION

```
[root@client ~]# repquota -u /lvmdata
*** Report for user quotas on device /dev/mapper/vg-newdata
Block grace time: 7days; Inode grace time: 7days
                                Block limits                      File limits
User          used    soft    hard grace      used    soft   hard grace
-----
root        --     20      0      0
carry      +-  20000  18000  20000  6days       1    100    150
```

```
[root@client ~]# repquota -u /lvmdata
*** Report for user quotas on device /dev/mapper/vg-newdata
Block grace time: 00:00; Inode grace time: 00:00
                                Block limits                      File limits
User          used    soft    hard grace      used    soft   hard grace
-----
root        --     20      0      0
carry      --  5120  18000  20000           1    100    150
```

```
[[carry@client lvmdata]$ dd if=/dev/zero of=/lvmdata/5 bs=1M count=5
5+0 records in
5+0 records out
5242880 bytes (5.2 MB, 5.0 MiB) copied, 0.0140721 s, 373 MB/s
[[carry@client lvmdata]$ ll
total 5152
-rw-rw-r-- 1 carry carry 5242880 May 11 16:22 5
-rw----- 1 root  root    7168 May 11 15:34 aquota.group
-rw----- 1 root  root    7168 May 11 15:34 aquota.user
drwxrwxrwx 2 root  root   16384 May 11 15:13 lost+found
[[carry@client lvmdata]$ ls -lh
total 5.1M
-rw-rw-r-- 1 carry carry 5.0M May 11 16:22 5
-rw----- 1 root  root  7.0K May 11 15:34 aquota.group
-rw----- 1 root  root  7.0K May 11 15:34 aquota.user
drwxrwxrwx 2 root  root   16K May 11 15:13 lost+found
```

```
[[carry@client lvmdata]$ dd if=/dev/zero of=/lvmdata/2 bs=1M count=12
dm-2: write failed, user block limit reached.
dd: error writing '/lvmdata/2': Disk quota exceeded
10+0 records in
9+0 records out
10240000 bytes (10 MB, 9.8 MiB) copied, 0.0275248 s, 372 MB/s
```