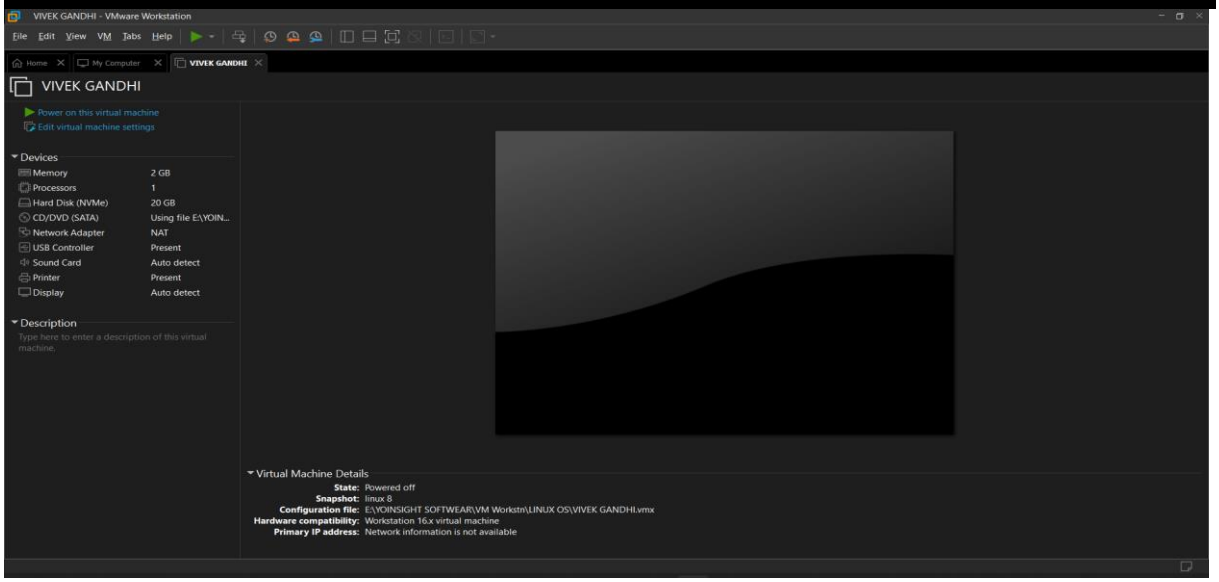
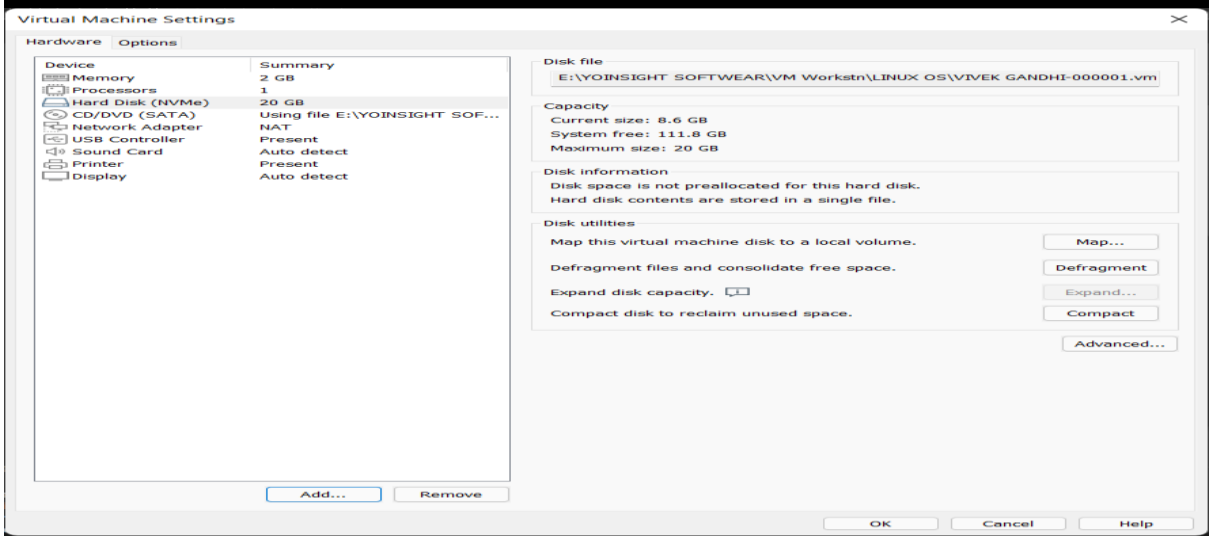
HOW TO CREATE DISK PARTITION

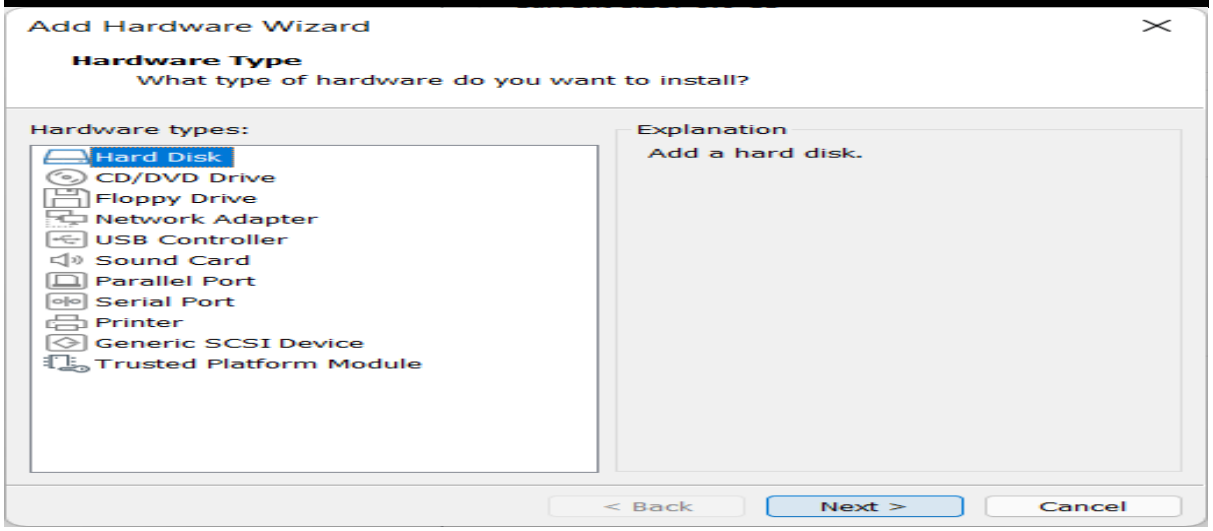
OPEN VM WARE



EDIT VIRTUAL MACHINE SETTINGS AND ADD DISK SPACE

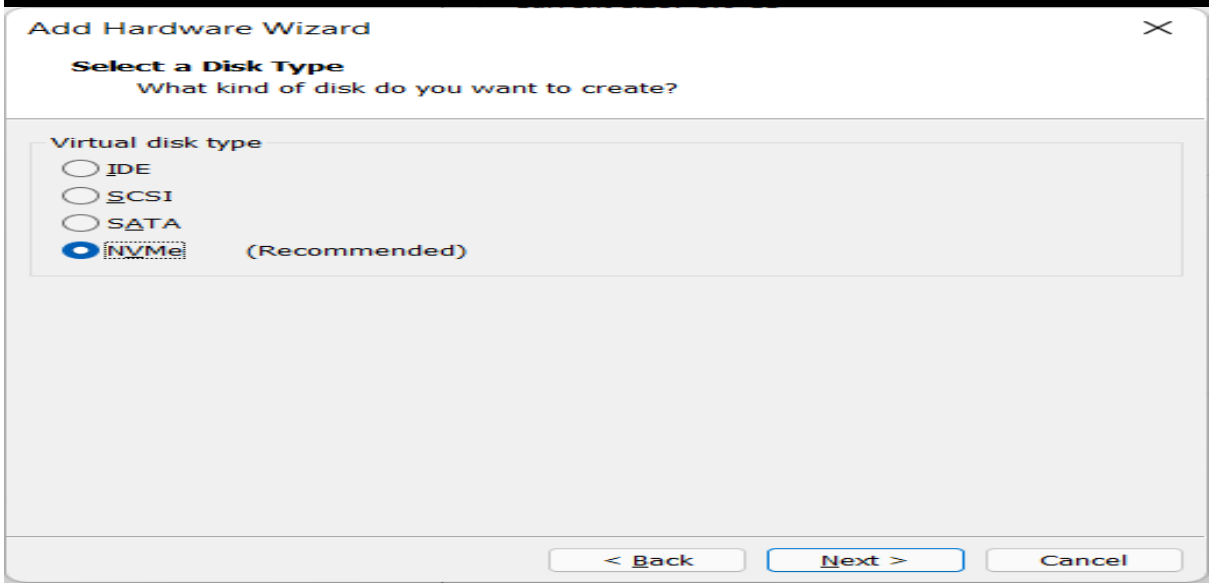


CLICK ADD BUTTON AND SELECT HARD DISK OPTION

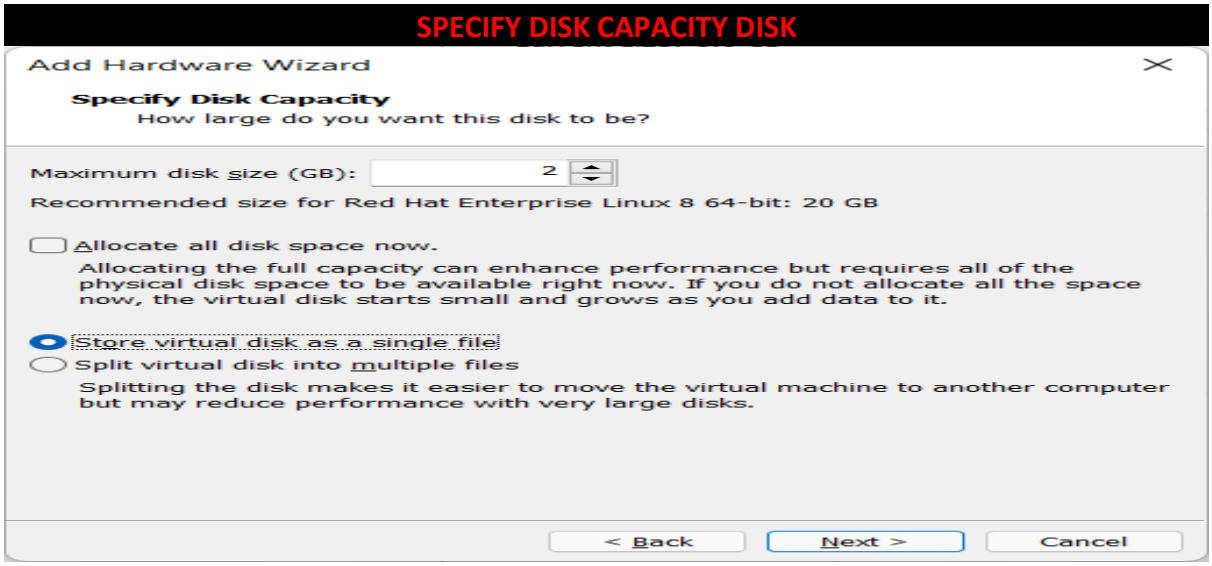


HOW TO CREATE DISK PARTITION

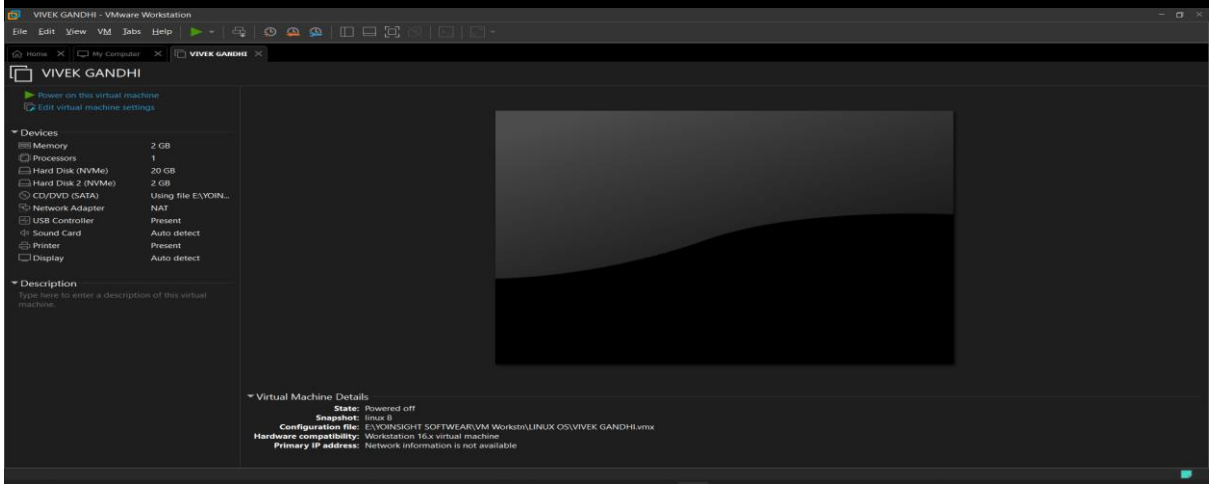
SELECT DISK TYPE



SPECIFY DISK CAPACITY DISK



CHECK ATTACHED ONE HARD DISK ADD



- **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
[root@localhost vgandhi]#
```

- **MAKE SURE ONE TIME REBOOT SYSTEM**

CREATING DISK PARTITIONS

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

Command (m for help): n

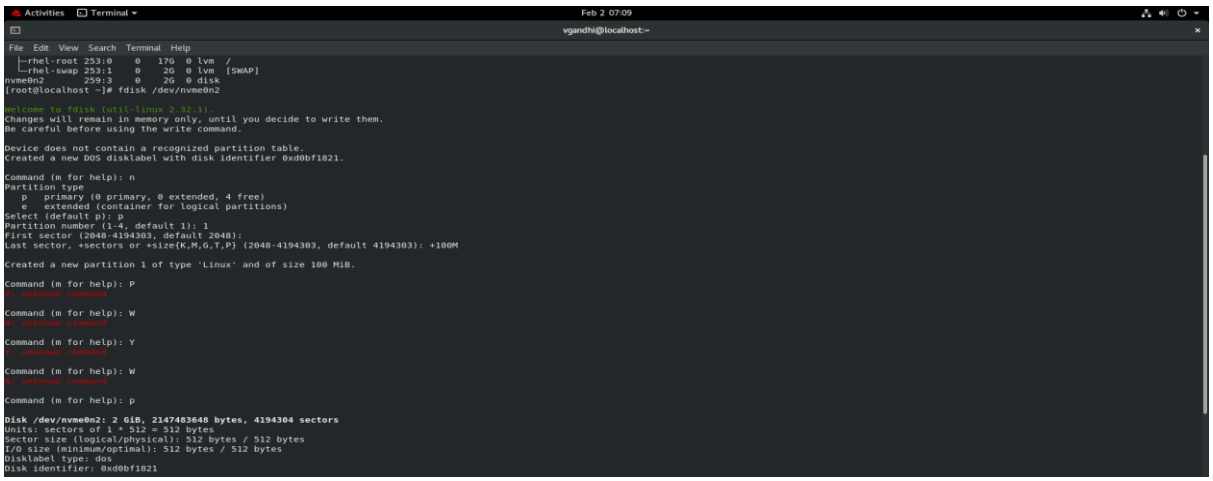
Select (default p): p

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

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

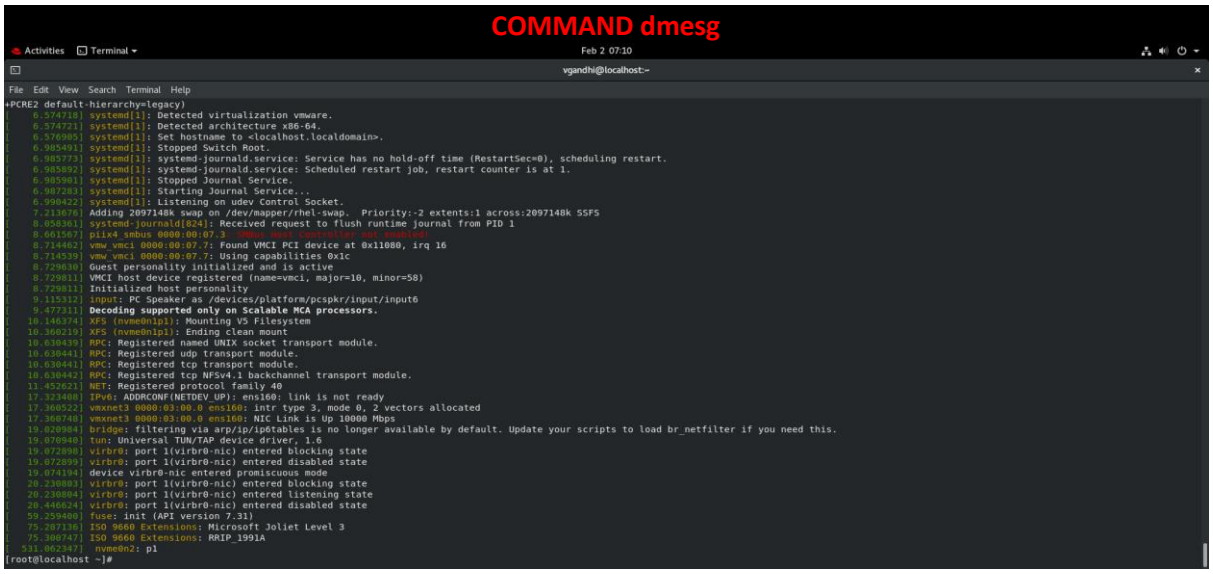
Command (m for help): p

Command (m for help): w



HOW TO CREATE DISK PARTITION

COMMAND dmesg



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: 'sfdisk'
[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 ~]#
```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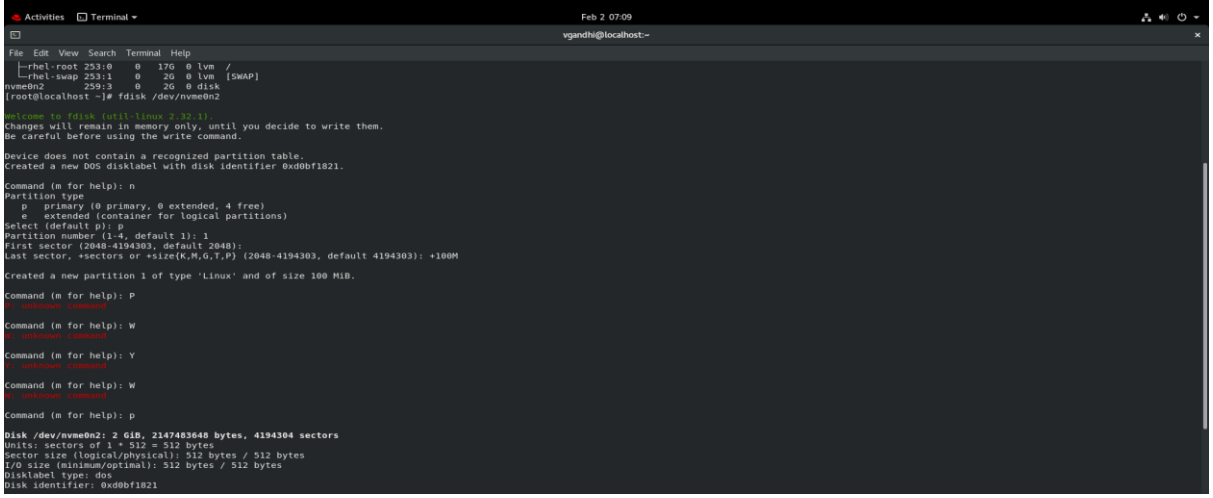
HOW TO CREATE DISK PARTITION

CREATING DISK PARTITIONS



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
```

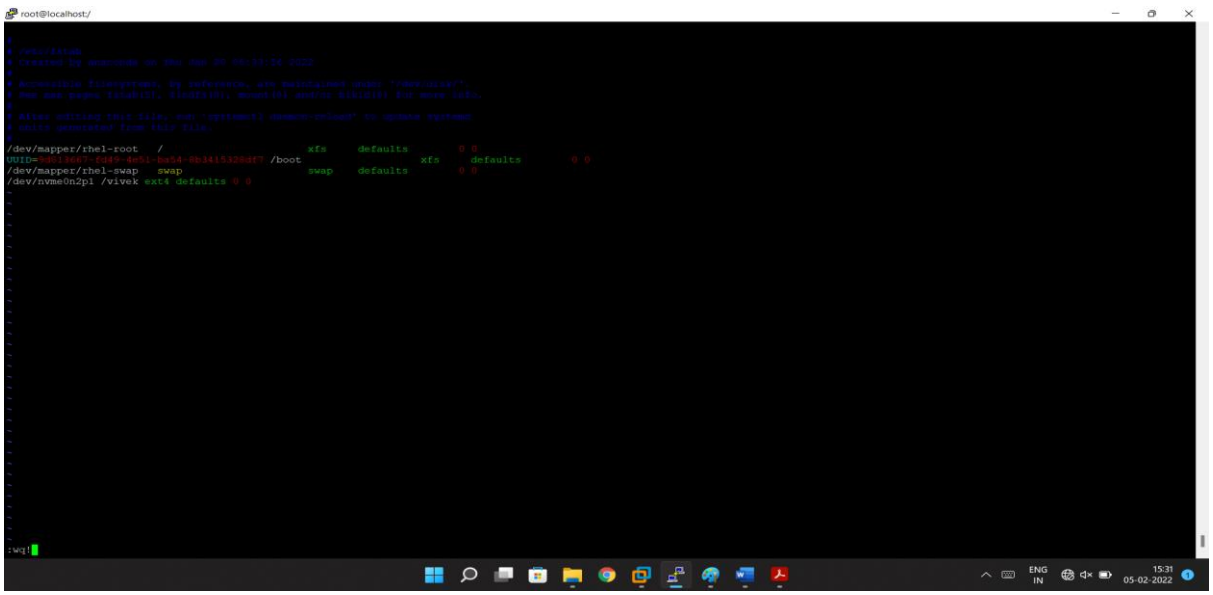
CREATE FOLDER AND MOUNT

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

Permanent Mounting:

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

Enter

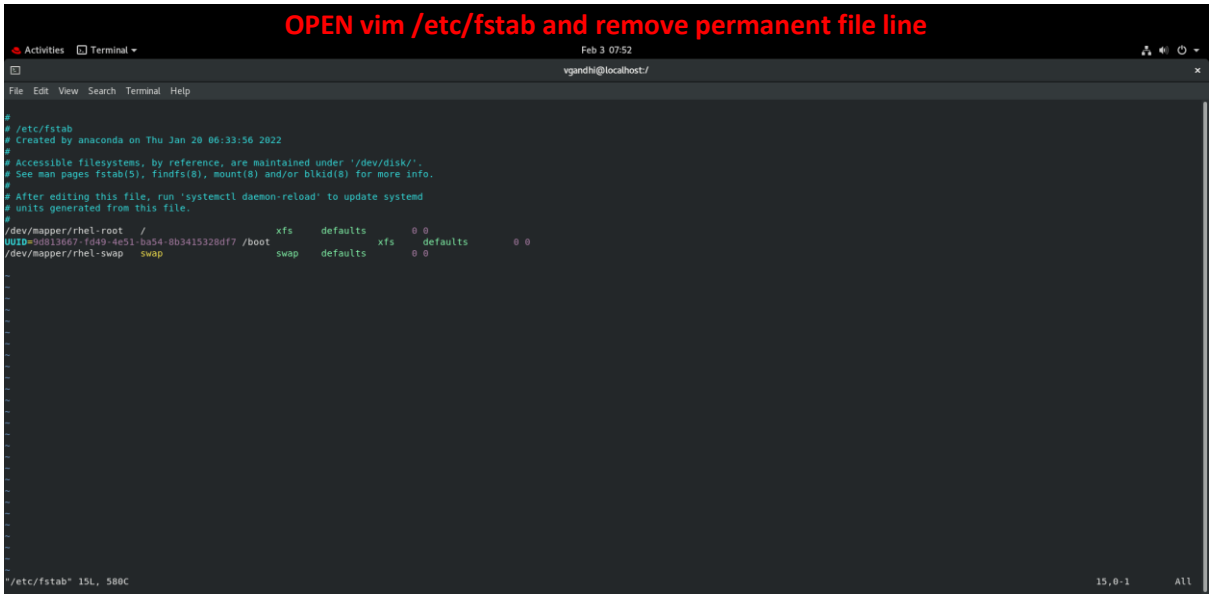


HOW TO CREATE DISK PARTITION

UNMOUNT PERMENENT DISK OPEN

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

OPEN vim /etc/fstab and remove permanent file line



Umount 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
```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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 /]#
```


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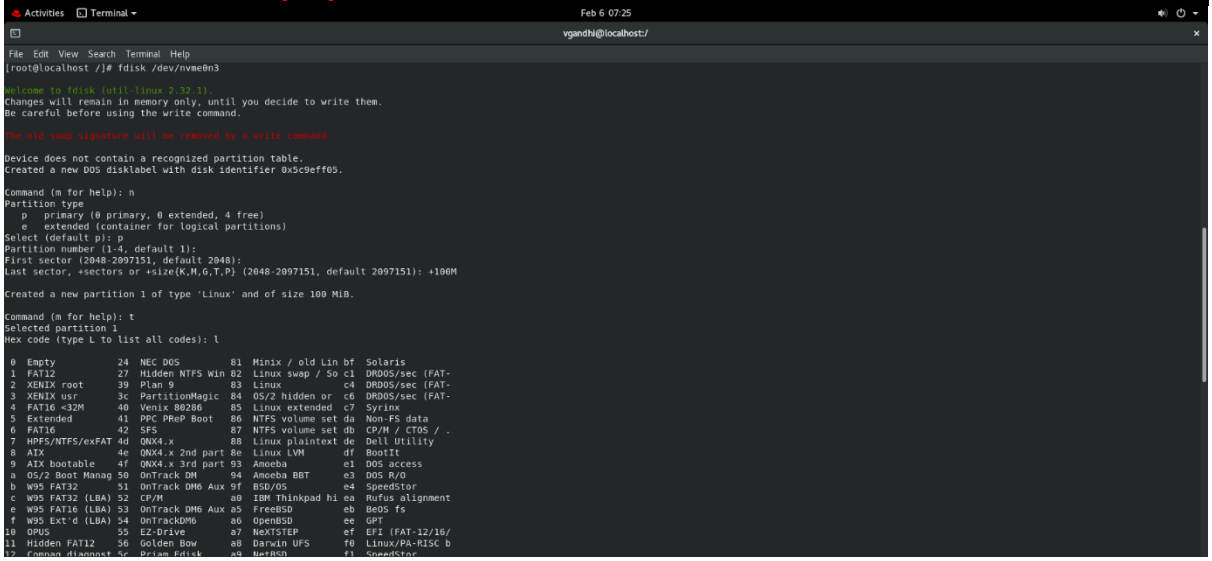
HOW TO CREATE DISK PARTITION

Partition for Swap Space



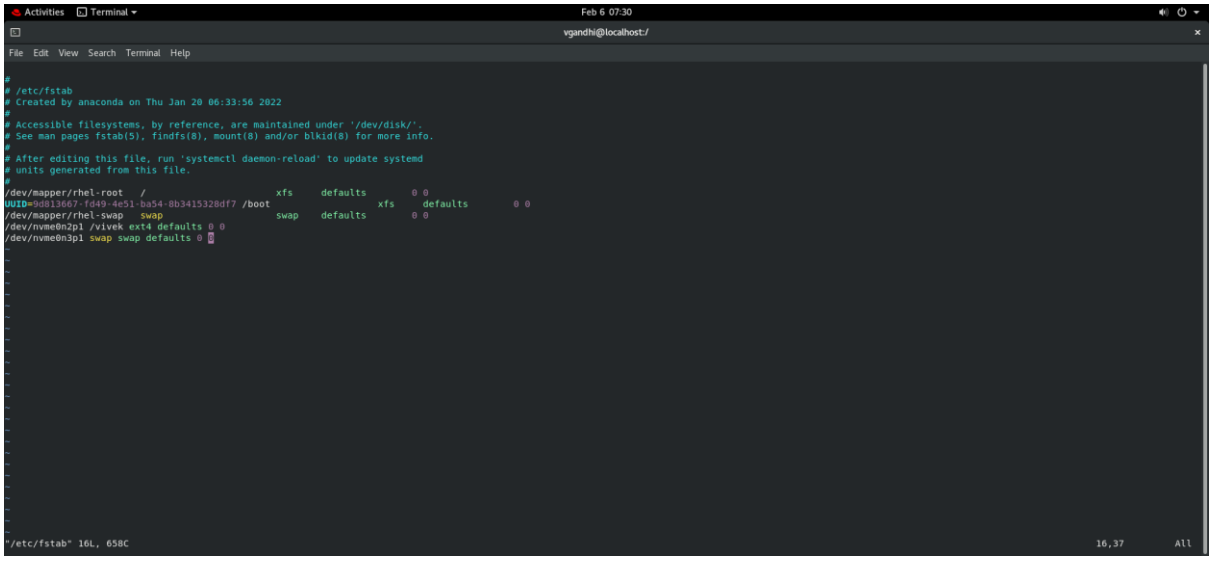

```
Hex code (type L to list all codes): 82
Changed type of partition 'Linux' to 'Linux swap / Solaris'.

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

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



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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
```

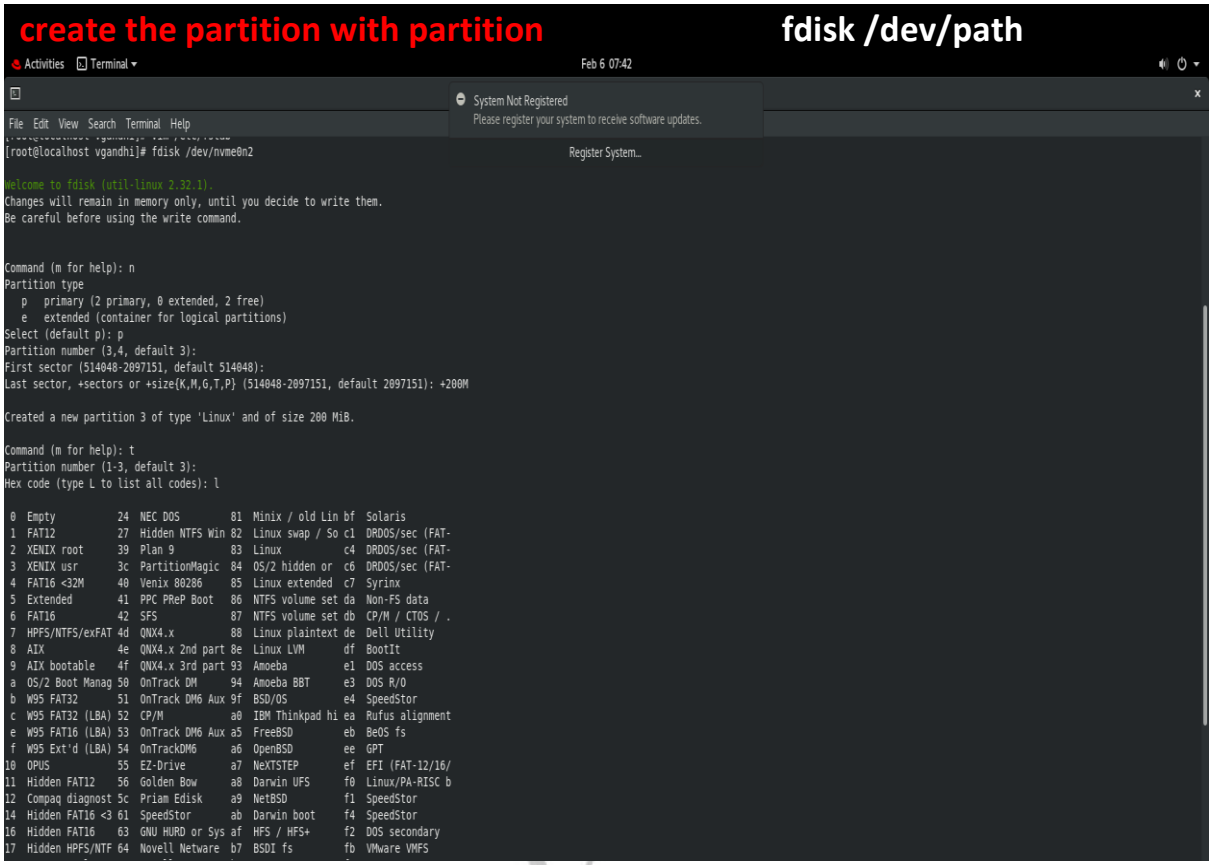
Verify whether the newly created swap area is available for your use.

```
[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**



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

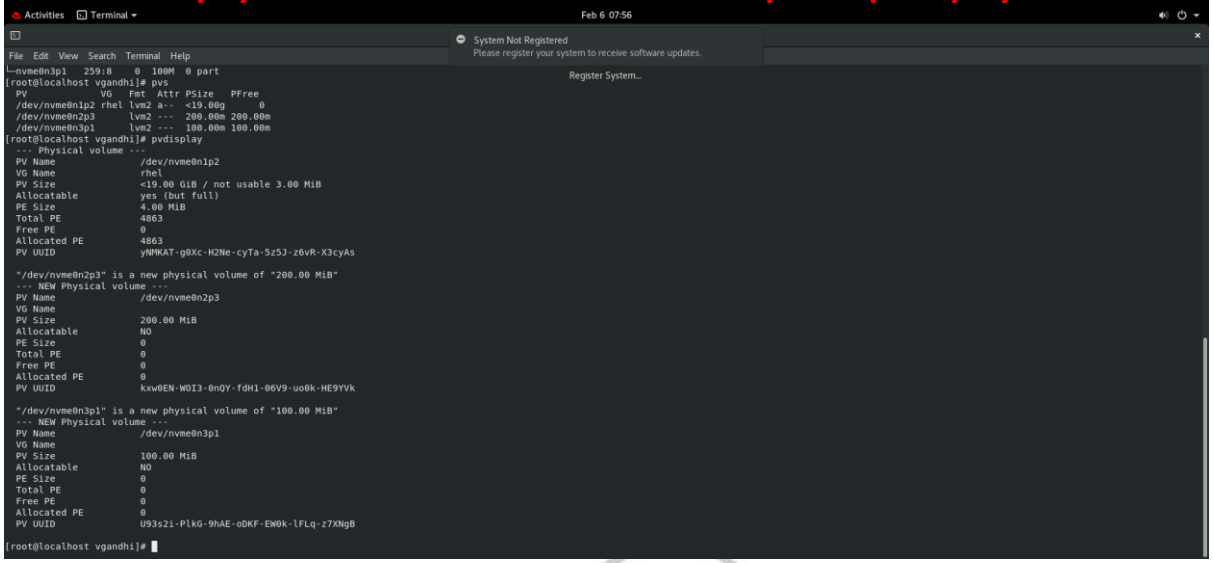
```
[root@localhost vgandhi]# lsblk
NAME           MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0             11:0    1  7.9G  0 rom  /run/media/vgandhi/RHEL-8-2-0-BaseOS-x86_64
nvme0n1        259:0    0   20G  0 disk
├─nvme0n1p1    259:1    0    1G  0 part /boot
└─nvme0n1p2    259:2    0   19G  0 part
  ├─rhel-root  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]# kpart /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



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                                    Register System...
  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
```


CREATED BY:- VIVEK GANDHI

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-lJSO-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"
```

mount the LV same like a normal partition

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

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


/dev/nvme0n2p2 swap     swap    defaults 0 0

/dev/vg/lv      /viveklvm       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
```

HOW TO CREATE DISK PARTITION

```
[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  /vivekLVM
[root@server /]# _
```


CREATED BY:- VIVEK GANDHI

HOW TO CREATE DISK PARTITION

How to remove a failed disk from a logical volume

Pvcreate path

Vgextend vg pv

Pvmove oldpath newpath

```
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 partion

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 archive]# ls
ifrwd_00000-284432955.vg   ifrwd_00002-2013867770.vg  ifrwd_00004-841990181.vg  ifrwd_00006-1485114251.vg  rhel_00000-1426307061.vg
ifrwd_00001-1465971320.vg  ifrwd_00003-997964154.vg   ifrwd_00005-415249894.vg  ifrwd_00007-1810129924.vg
[root@server archive]# ls -ltr
total 36
-rw-------. 1 root root 1731 May  8 23:48 rhel_00000-1426307061.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_00002-2013867770.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

```
  VG 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_00002-2013867770.vg
  VG 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
  VG 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 x2lGdp-sazb-nf0u-UFNc-lcHZ-UNa0-SjkWcf.
  VG 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
  VG 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
  VG 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
  VG name:       ifrwd
  Description:   Created *before* executing 'lvremove /dev/ifrwd/oradata'
  Backup Time:   Tue May 10 07:06:35 2022


  File:          /etc/lvm/backup/ifrwd
  VG name:       ifrwd
  Description:   Created *after* executing 'lvremove /dev/ifrwd/oradata'
  Backup Time:   Tue May 10 07:06:35 2022
```

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

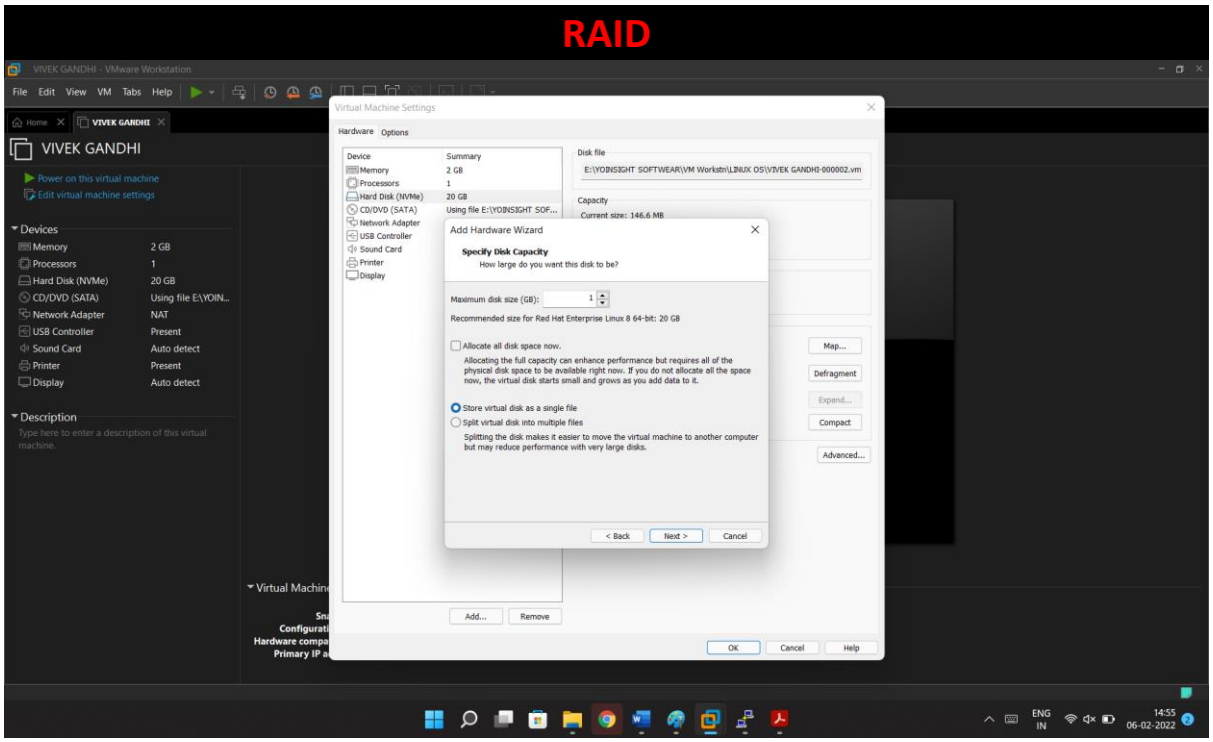
```
[root@server archive]# lvs
  LV      VG    Attr       LSize   Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
  newdata ifrwd -wi-a----- 100.00m
  oradata ifrwd -wi------- 200.00m
  root    rhel  -wi-ao---- <17.00g
  swap    rhel  -wi-ao----   2.00g
```

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 0xccfe619d.

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  Syrinx
 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/
18  AST SmartSleep  65  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

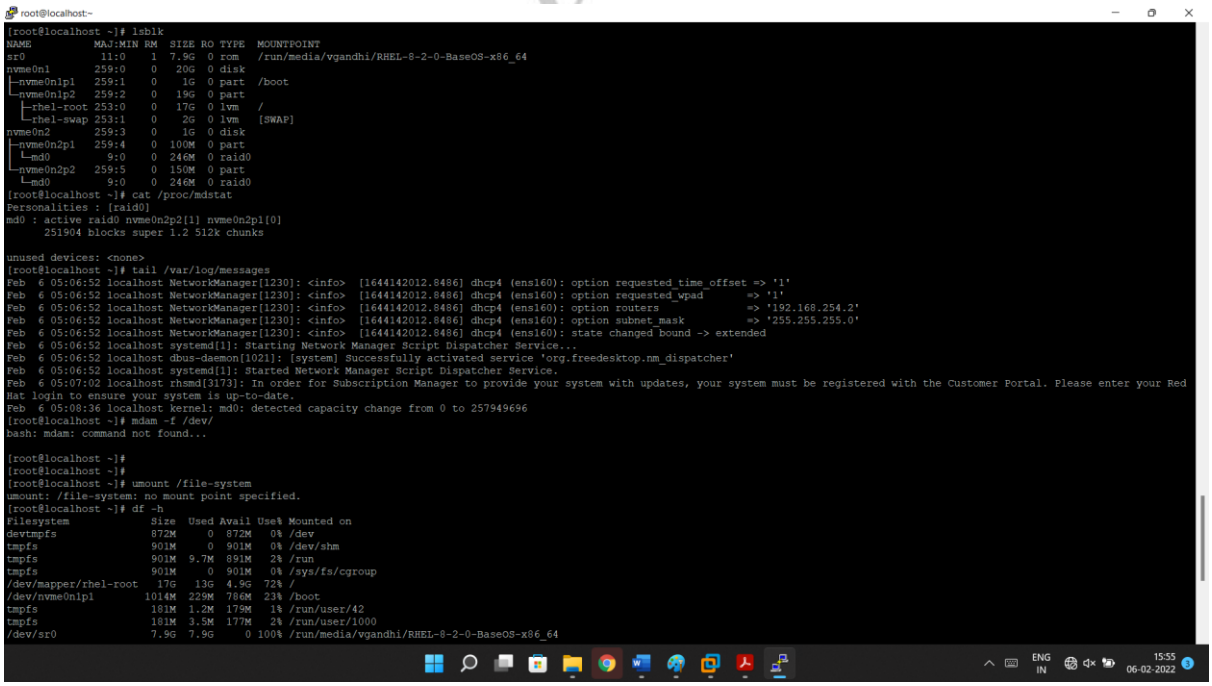
Check application install

```
[root@localhost ~]# rpm -qa mdadm
mdadm-4.1-13.el8.x86_64
```

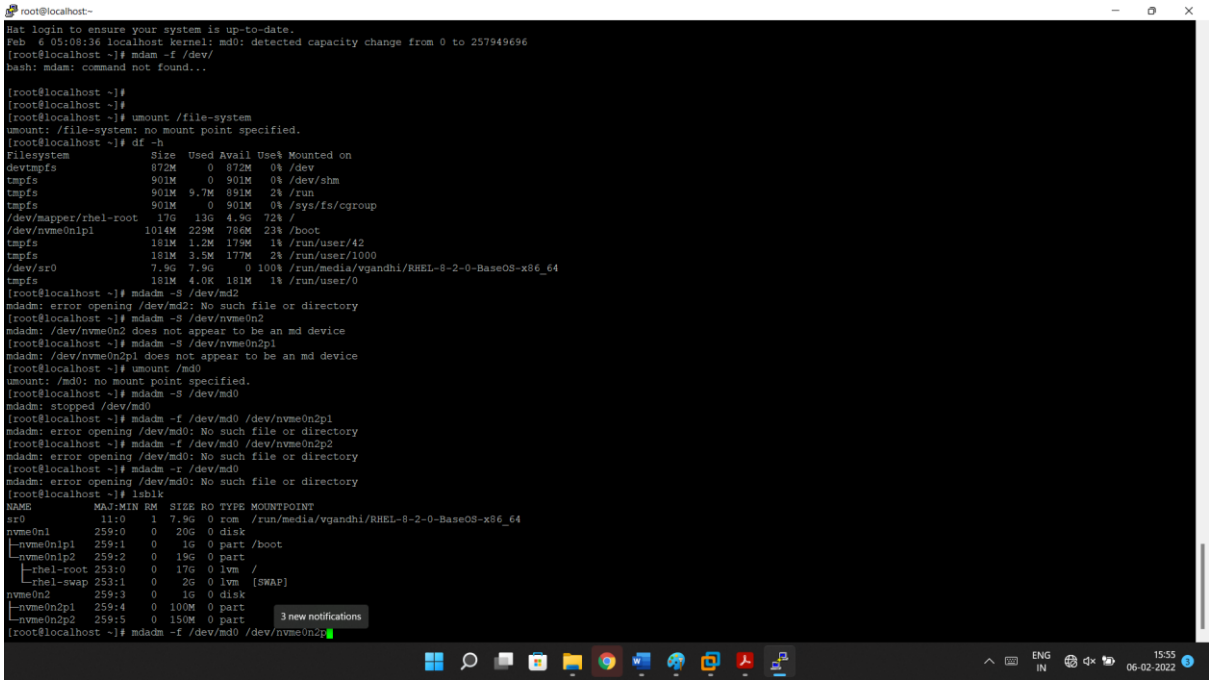
```
[root@localhost ~]# mdadm -C --verbose /dev/md0 --level=0 --raid-devices=2 /dev/nvme0n2p1 /dev/nvme0n2p2
mdadm: chunk size defaults to 512K
mdadm: Defaulting to version 1.2 metadata
mdadm: array /dev/md0 started.
```

```
[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
```



HOW TO CREATE DISK PARTITION



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 12:50:21 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=0.90
mdadm: /dev/nvme0n2p2 appears to be part of a raid array:
       level=raid0 devices=2 ctime=Wed May 11 12:50:21 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         9:0    0    9M  0 raid1
└─nvme0n2p2   259:7    0   10M  0 part
  └─md0         9:0    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         9:0    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/md0 /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       259:0    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
  └─md0         9:0    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/md0 /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       259:0    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         9:0    0    9M  0 raid1
└─nvme0n2p2   259:7    0   10M  0 part
  └─md0         9:0    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
mke2fs 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
mke2fs 1.45.4 (23-Sep-2019)
The file /dev/MD0 does not exist and no size was specified.
[root@server ~]# mkfs.ext4 /dev/md0
mke2fs 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 2304 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       259:0    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         9:0    0    9M  0 raid1
└─nvme0n2p2   259:7    0   10M  0 part
  └─md0         9:0    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  viveklvm
[root@server /]# mkdir raid
[root@server /]#
```

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


/dev/md0 /raid  ext4    defaults        0       0

~
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~
~
~
~
~
                                                                  17,32-49      All
```

```
[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   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         9:0    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   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         9:0    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

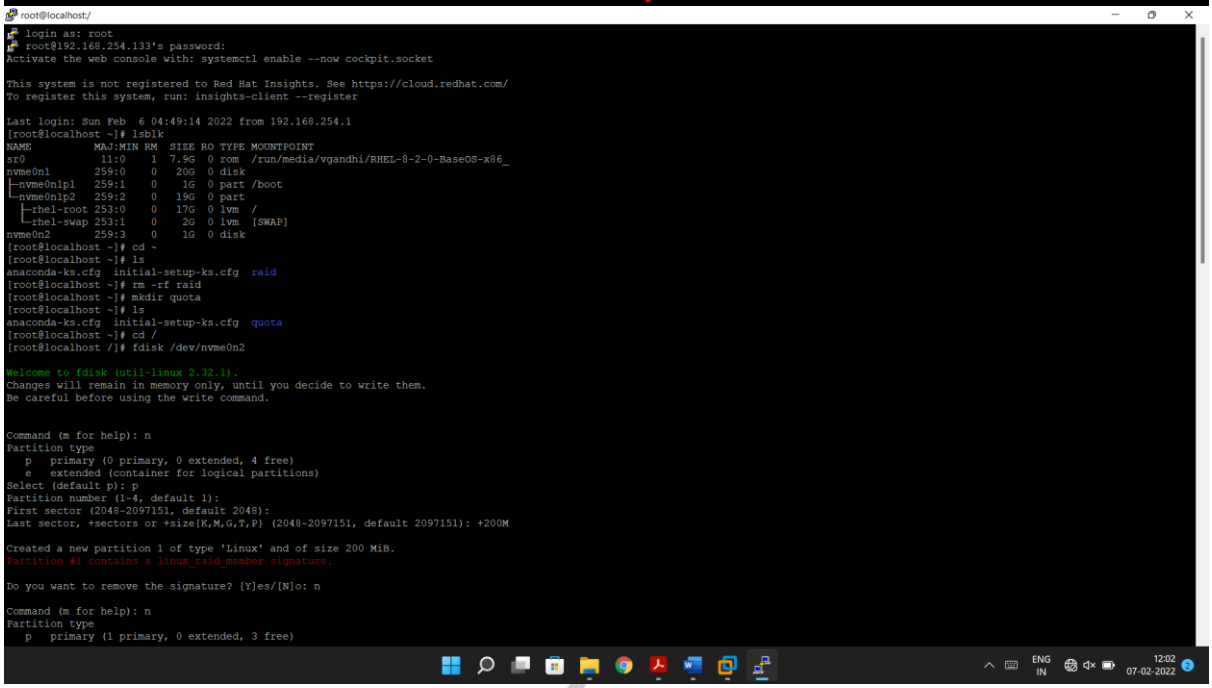
```
[root@server raid]# mdadm -r /dev/md0 /dev/nvme0n2p1
mdadm: hot removed /dev/nvme0n2p1 from /dev/md0
[root@server raid]# lsblk
NAME          MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINT
sr0            11:0    1  7.9G  0 rom
nvme0n1       259:0    0   20G  0 disk
├─nvme0n1p1   259:1    0    1G  0 part  /boot
└─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
  └─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]#
```

RAID -5

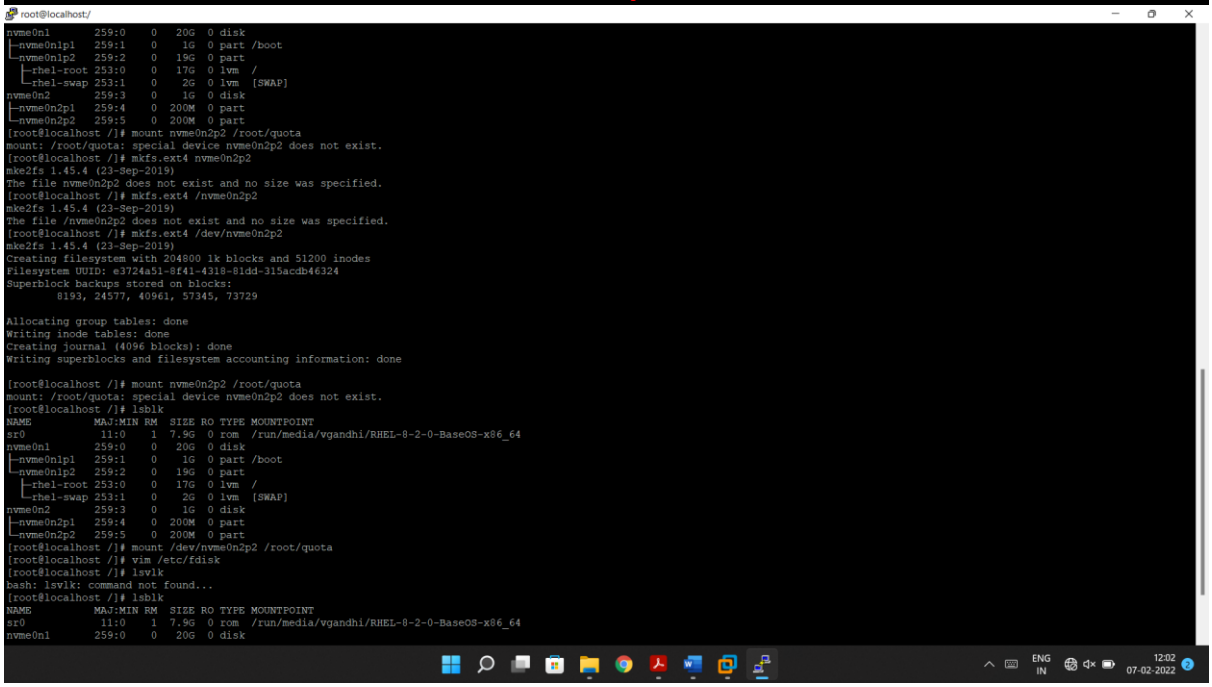
HOW TO CREATE DISK PARTITION

Disk Quotas

Create a new partition



Format the partition



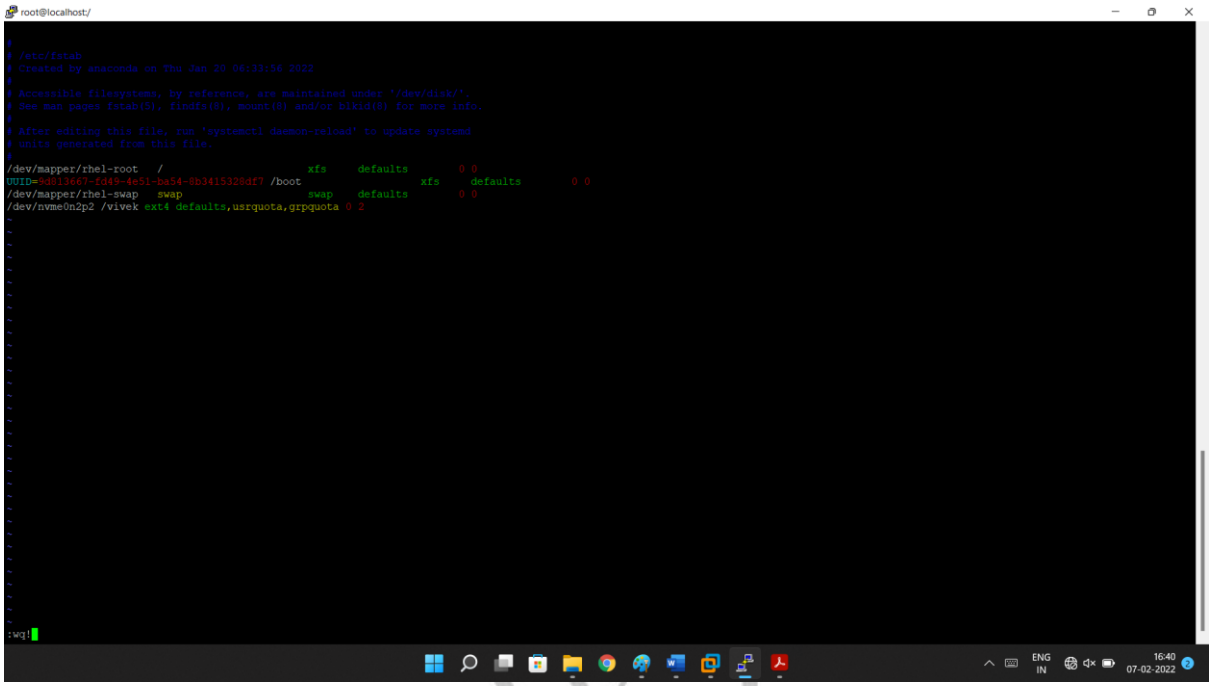
HOW TO CREATE DISK PARTITION

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
```



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 24
lrwxrwxrwx.   1 root root     7 Aug 12  2018 bin -> usr/bin
dr-xr-xr-x.   5 root root  4096 Jan 20 06:47 boot
drwxr-xr-x.  20 root root  3340 Feb  7 05:35 dev
drwxr-xr-x. 139 root root  8192 Feb  7 06:10 etc
drwxr-xr-x.   5 root root    44 Feb  7 04:08 home
lrwxrwxrwx.   1 root root     7 Aug 12  2018 lib -> usr/lib
lrwxrwxrwx.   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
lrwxrwxrwx.   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
```

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
```

```
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


[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
```

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              2     0     0
carry     +-   20000   18000   20000  6days       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              2     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              2     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
```