2- List all disks using **lsblk**

```
Calling ioctl() to re-read partition table.
Syncing disks.

[root@www ~]# lsblk
NAME        MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
sda           8:0    0    20G  0 disk
├─sda1        8:1    0     1G  0 part /boot
└─sda2        8:2    0    19G  0 part
  ├─cs-root 253:0    0    17G  0 lvm  /
  └─cs-swap 253:1    0     2G  0 lvm  [SWAP]
sdb           8:16   0    20G  0 disk
sr0          11:0    1 100.6M  0 rom
sr1          11:1    1   8.1G  0 rom
[root@www ~]#
```

3-partitioning using parted

```
(parted) mkpart primary ext4 0% 40%
(parted) print
Model: VMware, VMware Virtual S (scsi)
Disk /dev/sdb: 21.5GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number  Start   End     Size    File system  Name     Flags
 1      1049kB  8590MB  8589MB  ext4         primary
```

4-verify the partitions

You can verify the partition by printing the current partitions

```
(parted) mkpart primary ext4 0% 40%
(parted) print
Model: VMware, VMware Virtual S (scsi)
Disk /dev/sdb: 21.5GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number  Start   End     Size    File system  Name     Flags
 1      1049kB  8590MB  8589MB  ext4         primary
```

5- format the partition

Formatting the sdb1 partition to ext4 file system

```
The file dev/sdb1 does not exist and no size was specified.
[root@www ~]# mkfs.ext4 /dev/sdb1
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 2096896 4k blocks and 524288 inodes
Filesystem UUID: f6bf3fb2-a749-4fd8-b0ae-756d967f3094
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done
```

6- mount the partition

```
[root@www ~]# mount sdb1 /media
mount: /media: special device sdb1 does not exist.
[root@www ~]# mount /dev/sdb1 /media
[root@www ~]# df -h
```

7- verify the mount

```
[root@www ~]# df -h
Filesystem            Size  Used Avail Use% Mounted on
devtmpfs              4.0M     0  4.0M   0% /dev
tmpfs                 1.4G     0  1.4G   0% /dev/shm
tmpfs                 549M  8.2M  541M   2% /run
/dev/mapper/cs-root    17G  9.5G  7.6G  56% /
/dev/sda1            1014M  361M  654M  36% /boot
tmpfs                 275M   52K  275M   1% /run/user/42
tmpfs                 275M   36K  275M   1% /run/user/0
/dev/sdb1             7.8G   24K  7.4G   1% /media
[root@www ~]#
```

8- make the mount on startup

```
[root@www ~]# lsblk -o NAME,FSTYPE,UUID,MOUNTPOINT
NAME        FSTYPE      UUID                                   MOUNTPOINT
sda
├─sda1      xfs         b83ffa43-60a8-4b5a-8547-3d72cc5f8a68   /boot
└─sda2      LVM2_member fe7szu-ji5G-AjGt-Ut0B-bUQi-zWHt-DRN14C
  ├─cs-root xfs         232b2aeb-f310-469c-b010-a82aa1bbdaa0   /
  └─cs-swap swap        a6593b4b-5683-4e68-87b6-84d6a2a8cf7f   [SWAP]
sdb
└─sdb1      ext4        f6bf3fb2-a749-4fd8-b0ae-756d967f3094   /media
sr0         iso9660     2024-12-20-13-19-39-00
sr1         iso9660     2022-07-26-14-17-20-00
[root@www ~]#
```

Find the uuid of media by lsblk -o uuid

```
UUID=f6bf3fb2-a749-4fd8-b0ae-756d967f3094 /media                ext4    defaults
        0 2
~
~
~
~
~
~
"/etc/fstab" 15L, 648B                                        15,67-90      All
```

Then save and type mount -a

```
[root@www ~]# mount -a
[root@www ~]#
```

9- Create a swap partition

```
(parted) mkpart
Partition name?  []? swap2
File system type?  [ext2]? linux-swap
Start? 40%
End? 80%
(parted) print
Model: VMware, VMware Virtual S (scsi)
Disk /dev/sdb: 21.5GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number  Start   End     Size    File system     Name     Flags
 1      1049kB  8590MB  8589MB  ext4            primary
 2      8590MB  17.2GB  8590MB  linux-swap(v1)  swap2    swap

(parted)
```

10-enabling swap partition

```
sdb           8:16   0    20G  0 disk
├─sdb1        8:17   0     8G  0 part /media
└─sdb2        8:18   0     8G  0 part
sr0          11:0    1 100.6M  0 rom
sr1          11:1    1   8.1G  0 rom
[root@www ~]# mkswap /dev/sdb2
Setting up swapspace version 1, size = 8 GiB (8589930496 bytes)
no label, UUID=3405b0f7-850f-44b4-b0c8-9c620dee83e2
[root@www ~]# swapon --show
NAME      TYPE      SIZE USED PRIO
/dev/dm-1 partition   2G   0B   -2
[root@www ~]# swapon /dev/sdb2
[root@www ~]# swapon --show
```

11- verify swap partition

```
[root@www ~]# swapon --show
NAME      TYPE      SIZE USED PRIO
/dev/dm-1 partition   2G   0B   -2
/dev/sdb2 partition   8G   0B   -3
[root@www ~]#
```

12- add swap to /etc/fstab and save

```
UUID=3405b0f7-850f-44b4-b0c8-9c620dee83e2       none    swap    defaults
0 0
~
```

13- create a swap file

```
For more details see fallocate(1).
[root@www ~]# fallocate -l 2G /swapfile
```

14- add the swap partition

```
[root@www ~]# fallocate -l 2G /swapfile
[root@www ~]# sudo mkswap /swapfile
mkswap: /swapfile: insecure permissions 0644, fix with: chmod 0600 /swapfile
Setting up swapspace version 1, size = 2 GiB (2147479552 bytes)
no label, UUID=ee54cce0-af96-412a-b742-b76467531ba9
[root@www ~]# chmod 0600 /swapfile
[root@www ~]# sudo mkswap /swapfile
mkswap: /swapfile: warning: wiping old swap signature.
Setting up swapspace version 1, size = 2 GiB (2147479552 bytes)
no label, UUID=a545bf58-7077-45ef-8db8-5dec387b7866
[root@www ~]#
```

```
[root@www ~]# swapon /swapfile
```

15- verify the swap partition

```
[root@www ~]# swapon --show
NAME      TYPE      SIZE USED PRIO
/dev/dm-1 partition   2G   0B   -2
/dev/sdb2 partition   8G   0B   -3
/swapfile file        2G   0B   -4
[root@www ~]#
```

16- add swap to the /etc/fstab

```
UUID=a545bf58-7077-45ef-8db8-5dec387b7866       none    swap    defaults 0 0
~
~
~
```

17- create a physical volume

```
[root@www ~]# sudo pvcreate /dev/sdb
WARNING: gpt signature detected on /dev/sdb at offset 512. Wipe it? [y/n]: y
  Wiping gpt signature on /dev/sdb.
WARNING: gpt signature detected on /dev/sdb at offset 21474835968. Wipe it? [y/n
]: y
  Wiping gpt signature on /dev/sdb.
WARNING: PMBR signature detected on /dev/sdb at offset 510. Wipe it? [y/n]: y
  Wiping PMBR signature on /dev/sdb.
  Physical volume "/dev/sdb" successfully created.
```

18- verify the physical volume

Listing physical volumes

```
[root@www ~]# pvs
  PV         VG Fmt  Attr PSize   PFree
  /dev/sda2  cs lvm2 a--  <19.00g     0
  /dev/sdb      lvm2 ---   20.00g 20.00g
[root@www ~]#
```

19- create a volume group

```
  Error opening device /dev/sda1 for reading at 0 length 4096.
  Cannot use /dev/sda1: device has a signature
[root@www ~]# vgcreate myvg /dev/sdb
  Volume group "myvg" successfully created
[root@www ~]#
```

20- verify the volume group

```
[root@www ~]# pvdisplay /dev/sdb
  --- Physical volume ---
  PV Name               /dev/sdb
  VG Name               myvg
  PV Size               20.00 GiB / not usable 4.00 MiB
  Allocatable           yes
  PE Size               4.00 MiB
  Total PE              5119
  Free PE               5119
  Allocated PE          0
  PV UUID               Wg0cBe-VgVl-kxEN-Hpe3-NCoy-KHtH-zM5sDy
```

21-create logical volume

```
[root@www ~]# lvcreate -L 10G -n mylv myvg
WARNING: ext4 signature detected on /dev/myvg/mylv at offset 1080. Wi
]: y
  Wiping ext4 signature on /dev/myvg/mylv.
  Logical volume "mylv" created.
```

22- verify logical volume

```
root@www ~]# lvdisplay /dev/myvg/mylv
 --- Logical volume ---
 LV Path                /dev/myvg/mylv
 LV Name                mylv
 VG Name                myvg
 LV UUID                yOQVe1-F2yt-kScf-TV0Z-gWbL-4d38-S4dHwx
 LV Write Access        read/write
 LV Creation host, time www.za3bola.com, 2025-02-02 01:37:45 +0200
 LV Status              available
 # open                 0
 LV Size                10.00 GiB
 Current LE             2560
 Segments               1
 Allocation             inherit
 Read ahead sectors     auto
 - currently set to     256
 Block device           253:2
```

23- format logical volume

```
[root@www ~]# mkfs.ext4 /dev/myvg/mylv
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 2621440 4k blocks and 655360 inodes
Filesystem UUID: 5bc0c415-f84f-49b1-aee7-0a948f32a9f6
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done
```

24- mount logical volume

```
[root@www ~]# mount /dev/myvg/mylv /media
mount: (hint) your fstab has been modified, but systemd still uses
       the old version; use 'systemctl daemon-reload' to reload.
[root@www ~]# systemctl daemon-reload
[root@www ~]# lsblk
NAME        MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
sda           8:0    0    20G  0 disk
├─sda1        8:1    0     1G  0 part /boot
└─sda2        8:2    0    19G  0 part
  ├─cs-root 253:0    0    17G  0 lvm  /
  └─cs-swap 253:1    0     2G  0 lvm  [SWAP]
sdb           8:16   0    20G  0 disk
└─myvg-mylv 253:2    0    10G  0 lvm  /media
sr0          11:0    1 100.6M  0 rom
sr1          11:1    1   8.1G  0 rom
[root@www ~]#
```

25- extend the logical volume

```
[root@www ~]# lvextend -L +5G /dev/myvg/mylv
  Size of logical volume myvg/mylv changed from 10.00 GiB (2560 extents) to 15.0
0 GiB (3840 extents).
  Logical volume myvg/mylv successfully resized.
```

26- verify the extension

```
[root@www ~]# lsblk
NAME        MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
sda           8:0    0    20G  0 disk
├─sda1        8:1    0     1G  0 part /boot
└─sda2        8:2    0    19G  0 part
  ├─cs-root 253:0    0    17G  0 lvm  /
  └─cs-swap 253:1    0     2G  0 lvm  [SWAP]
sdb           8:16   0    20G  0 disk
└─myvg-mylv 253:2    0    15G  0 lvm  /media
sr0          11:0    1 100.6M  0 rom
sr1          11:1    1   8.1G  0 rom
[root@www ~]#
```

27- reduce the logical volume

```
[root@www ~]# lvreduce --resizefs --size -5G /dev/myvg/mylv
  File system ext4 found on myvg/mylv mounted at /media.
  File system size (15.00 GiB) is larger than the requested size (10.00 GiB).
  File system reduce is required using resize2fs.
  File system unmount is needed for reduce.
  File system fsck will be run before reduce.
Continue with ext4 file system reduce steps: unmount, fsck, resize2fs? [y/n]:y
```

28- verify the logical volume

```
[root@www ~]# lsblk
NAME          MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
sda             8:0    0    20G  0 disk
├─sda1          8:1    0     1G  0 part /boot
└─sda2          8:2    0    19G  0 part
  ├─cs-root   253:0    0    17G  0 lvm  /
  └─cs-swap   253:1    0     2G  0 lvm  [SWAP]
sdb             8:16   0    20G  0 disk
└─myvg-mylv   253:2    0    10G  0 lvm
sr0            11:0    1 100.6M  0 rom
sr1            11:1    1   8.1G  0 rom
[root@www ~]#
```

29- check the firewalld service

```
● firewalld.service - firewalld - dynamic firewall daemon
     Loaded: loaded (/usr/lib/systemd/system/firewalld.service; enabled; preset: enabled)
     Active: active (running) since Sun 2025-02-02 00:25:29 EET; 40min ago
       Docs: man:firewalld(1)
   Main PID: 888 (firewalld)
      Tasks: 2 (limit: 17167)
     Memory: 45.5M
        CPU: 3.221s
     CGroup: /system.slice/firewalld.service
             └─888 /usr/bin/python3 -s /usr/sbin/firewalld --nofork --nopid

Feb 02 00:25:37 www.za3bola.com firewalld[888]: WARNING: COMMAND_FAILED: '/usr/sbin/ip6tables -w10 -t nat -F DOCKER
Feb 02 00:25:37 www.za3bola.com firewalld[888]: WARNING: COMMAND_FAILED: '/usr/sbin/ip6tables -w10 -t nat -X DOCKER
Feb 02 00:25:37 www.za3bola.com firewalld[888]: WARNING: COMMAND_FAILED: '/usr/sbin/ip6tables -w10 -t filter -F DOC
Feb 02 00:25:37 www.za3bola.com firewalld[888]: WARNING: COMMAND_FAILED: '/usr/sbin/ip6tables -w10 -t filter -X DOC
Feb 02 00:25:37 www.za3bola.com firewalld[888]: WARNING: COMMAND_FAILED: '/usr/sbin/ip6tables -w10 -t filter -F DOC
Feb 02 00:25:37 www.za3bola.com firewalld[888]: WARNING: COMMAND_FAILED: '/usr/sbin/ip6tables -w10 -t filter -X DOC
Feb 02 00:25:37 www.za3bola.com firewalld[888]: WARNING: COMMAND_FAILED: '/usr/sbin/ip6tables -w10 -t filter -F DOC
Feb 02 00:25:37 www.za3bola.com firewalld[888]: WARNING: COMMAND_FAILED: '/usr/sbin/ip6tables -w10 -t filter -X DOC
Feb 02 00:25:37 www.za3bola.com firewalld[888]: WARNING: COMMAND_FAILED: '/usr/sbin/ip6tables -w10 -t filter -F DOC
```

30- which zones are currently active

```
[root@www ~]# firewall-cmd --get-active-zones
docker
  interfaces: br-67b772a270e9 br-fb3a58fa0b1d docker0
public
  interfaces: ens33
[root@www ~]#
```

31- change the default zone to home

```
success
[root@www ~]# firewall-cmd --set-default-zone=home
success
[root@www ~]# firewall-cmd --get-default-zone
home
[root@www ~]#
```

32-add service http to public

```
[root@www ~]# firewall-cmd --add-service=http --zone=public
Warning: ALREADY_ENABLED: 'http' already in 'public'
success
[root@www ~]# firewall-cmd --add-service=http --zone=public
3. List all allowed services and ports in the public zone.
```

33- list ports and services allowed on default

```
vices
[root@www ~]# firewall-cmd --list-services
cockpit dhcpv6-client http https ssh
[root@www ~]# firewall-cmd --list-ports
22/tcp
[root@www ~]#
```