

ASSIGNMENT ON DISK PARTITION

Launch virtual machine in the cloud, attach 20 GB EBS volume

Important Note:- Do not try partition, filesystem creation on your local desktop or laptop instead use virtual machine to do practice. These operations are destructive, chances of system crash. Work carefully.

Create partition on newly attached disk as per below instructions -

- a) Create 2 primary partitions of 3 GB each
- b) Create 2 logical partitions of 6 GB each
- c) Format all 4 partitions and create ext4 filesystem on that
- d) Create 4 folders inside root (/) folder name it as Data1, Data2, Data3, Data4
- e) Mount all formatted partitions on the respective folders
- f) Create empty file inside each folders of size 2 GB, 2GB, 4 GB and 4 GB respectively using command - `dd - "convert and copy a file"`
- g) Go inside /Data1 and run command - `while(true); do sleep 5s; done , do ctrl-z`
- h) Check disk utilization of each mount point
- i) Unmount all partitions /Data1, /Data2, /Data3 and /Data4

Note:- All partitions should be automatically mounted post reboot.

```

ubuntu@ip-172-31-37-94:~$ lsblk
NAME        MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
loop0         7:0    0  25.2M  1 loop /snap/amazon-ssm-agent/7993
loop1         7:1    0  55.7M  1 loop /snap/core18/2829
loop2         7:2    0  38.8M  1 loop /snap/snaped/21759
xvda         202:0    0    8G  0 disk
├─xvda1       202:1    0    7G  0 part /
├─xvda14      202:14   0    4M  0 part
├─xvda15      202:15   0   106M  0 part /boot/efi
└─xvda16      259:0    0   913M  0 part /boot
xvdb         202:16   0   20G  0 disk
ubuntu@ip-172-31-37-94:~$ sudo fdisk /dev/xvdb

Welcome to fdisk (util-linux 2.39.3).
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 (MBR) disklabel with disk identifier 0x4ae8e9da.

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 (2048-41943039, default 2048):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (2048-41943039, default 41943039): +3GB

Created a new partition 1 of type 'Linux' and of size 2.8 GiB.

Command (m for help): p
Disk /dev/xvdb: 20 GiB, 21474836480 bytes, 41943040 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: 0x4ae8e9da

Device      Boot Start      End Sectors  Size Id Type
/dev/xvdb1   2048 5861375 5859328  2.8G 83 Linux

Command (m for help): n
Partition type
   p   primary (1 primary, 0 extended, 3 free)
   e   extended (container for logical partitions)
Select (default p): p
Partition number (2-4, default 2):
First sector (5861376-41943039, default 5861376):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (5861376-41943039, default 41943039): +3GB

Created a new partition 2 of type 'Linux' and of size 2.8 GiB.

Command (m for help): p
Disk /dev/xvdb: 20 GiB, 21474836480 bytes, 41943040 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: 0x4ae8e9da

Device      Boot Start      End Sectors  Size Id Type
/dev/xvdb1   2048 5861375 5859328  2.8G 83 Linux
/dev/xvdb2   5861376 11720703 5859328  2.8G 83 Linux

Command (m for help): n

```

```

Partition type
  p   primary (2 primary, 0 extended, 2 free)
  e   extended (container for logical partitions)
Select (default p): e
Partition number (3,4, default 3):
First sector (11720704-41943039, default 11720704):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (11720704-41943039, default 41943039):

Created a new partition 3 of type 'Extended' and of size 14.4 GiB.

Command (m for help): n
All space for primary partitions is in use.
Adding logical partition 5
First sector (11722752-41943039, default 11722752):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (11722752-41943039, default 41943039): +6GB

Created a new partition 5 of type 'Linux' and of size 5.6 GiB.

Command (m for help): n
All space for primary partitions is in use.
Adding logical partition 6
First sector (23443456-41943039, default 23443456):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (23443456-41943039, default 41943039): +6GB

Created a new partition 6 of type 'Linux' and of size 5.6 GiB.

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

```

```

ubuntu@ip-172-31-37-94:~$ lsblk -p
NAME                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
/dev/loop0           7:0      0  25.2M  1 loop /snap/amazon-ssm-agent/7993
/dev/loop1           7:1      0  55.7M  1 loop /snap/core18/2829
/dev/loop2           7:2      0  38.8M  1 loop /snap/snapd/21759
/dev/xvda            202:0     0    8G   0 disk
├─/dev/xvda1          202:1     0    7G   0 part /
├─/dev/xvda14         202:14    0    4M   0 part
├─/dev/xvda15         202:15    0  106M  0 part /boot/efi
└─/dev/xvda16         259:0     0  913M  0 part /boot
/dev/xvdb            202:16    0   20G  0 disk
├─/dev/xvdb1          202:17    0  2.8G  0 part
├─/dev/xvdb2          202:18    0  2.8G  0 part
├─/dev/xvdb3          202:19    0    1K  0 part
├─/dev/xvdb5          202:21    0  5.6G  0 part
└─/dev/xvdb6          202:22    0  5.6G  0 part
ubuntu@ip-172-31-37-94:~$ sudo mkfs.ext4 /dev/xvdb1
mke2fs 1.47.0 (5-Feb-2023)
Creating filesystem with 732416 4k blocks and 183264 inodes
Filesystem UUID: 15812275-263e-46eb-95cb-3026e14887e4
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912

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

```

```

ubuntu@ip-172-31-37-94:~$ sudo mkfs.ext4 /dev/xvdb2
mke2fs 1.47.0 (5-Feb-2023)
Creating filesystem with 732416 4k blocks and 183264 inodes
Filesystem UUID: dc19e544-4187-445c-9acb-7d3eee0647c4
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912

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

ubuntu@ip-172-31-37-94:~$ sudo mkfs.ext4 /dev/xvdb5
mke2fs 1.47.0 (5-Feb-2023)
Creating filesystem with 1464832 4k blocks and 366480 inodes
Filesystem UUID: c6a1a85b-99f0-4b4c-bf38-97a0311913a8
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736

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

ubuntu@ip-172-31-37-94:~$ sudo mkfs.ext4 /dev/xvdb6
mke2fs 1.47.0 (5-Feb-2023)
Creating filesystem with 1464832 4k blocks and 366480 inodes
Filesystem UUID: 8de2f5d3-605e-49af-afed-ee482fde561d
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736

Allocating group tables: done

```

```

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

ubuntu@ip-172-31-37-94:~$ sudo mkdir /data1 /data2 /data3 /data4
ubuntu@ip-172-31-37-94:~$ sudo mount /dev/xvdb1 /data1
ubuntu@ip-172-31-37-94:~$ sudo mount /dev/xvdb2 /data2
ubuntu@ip-172-31-37-94:~$ sudo mount /dev/xvdb5 /data3
ubuntu@ip-172-31-37-94:~$ sudo mount /dev/xvdb6 /data4
ubuntu@ip-172-31-37-94:~$ df -h

```

Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/root	6.8G	1.6G	5.2G	24%	/
tmpfs	479M	0	479M	0%	/dev/shm
tmpfs	192M	900K	191M	1%	/run
tmpfs	5.0M	0	5.0M	0%	/run/lock
/dev/xvda16	881M	76M	744M	10%	/boot
/dev/xvda15	105M	6.1M	99M	6%	/boot/efi
tmpfs	96M	12K	96M	1%	/run/user/1000
/dev/xvdb1	2.7G	24K	2.6G	1%	/data1
/dev/xvdb2	2.7G	24K	2.6G	1%	/data2
/dev/xvdb5	5.5G	24K	5.2G	1%	/data3
/dev/xvdb6	5.5G	24K	5.2G	1%	/data4

```

ubuntu@ip-172-31-37-94:~$ sudo fallocate -l +2GB /data1/file1
ubuntu@ip-172-31-37-94:~$ sudo fallocate -l +2GB /data2/file2
ubuntu@ip-172-31-37-94:~$ sudo fallocate -l +4GB /data3/file3
ubuntu@ip-172-31-37-94:~$ sudo fallocate -l +4GB /data4/file4
ubuntu@ip-172-31-37-94:~$ df -h

```

```

Filesystem      Size  Used Avail Use% Mounted on
/dev/root        6.8G  1.6G  5.2G  24% /
tmpfs            479M    0  479M   0% /dev/shm
tmpfs            192M  900K  191M   1% /run
tmpfs            5.0M    0   5.0M   0% /run/lock
/dev/xvda16      881M   76M  744M  10% /boot
/dev/xvda15      105M   6.1M   99M   6% /boot/efi
tmpfs            96M   12K   96M   1% /run/user/1000
/dev/xvdb1       2.7G  1.9G  678M  74% /data1
/dev/xvdb2       2.7G  1.9G  678M  74% /data2
/dev/xvdb5       5.5G  3.8G  1.4G  73% /data3
/dev/xvdb6       5.5G  3.8G  1.4G  73% /data4
ubuntu@ip-172-31-37-94:~$ sudo umount /data1
ubuntu@ip-172-31-37-94:~$ sudo umount /data2
ubuntu@ip-172-31-37-94:~$ sudo umount /data3
ubuntu@ip-172-31-37-94:~$ sudo umount /data4
ubuntu@ip-172-31-37-94:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        6.8G  1.6G  5.2G  24% /
tmpfs            479M    0  479M   0% /dev/shm
tmpfs            192M  900K  191M   1% /run
tmpfs            5.0M    0   5.0M   0% /run/lock
/dev/xvda16      881M   76M  744M  10% /boot
/dev/xvda15      105M   6.1M   99M   6% /boot/efi
tmpfs            96M   12K   96M   1% /run/user/1000
ubuntu@ip-172-31-37-94:~$ echo "if you reboot the VM it will not be r
if you reboot the VM it will not be mounted again so to lets do this

```

```

ubuntu@ip-172-31-37-94:~$ sudo vim /etc/fstab
ubuntu@ip-172-31-37-94:~$ sudo mount -a
mount: /Data1: mount point does not exist.
dmesg(1) may have more information after failed mount system call.
mount: (hint) your fstab has been modified, but systemd still uses
the old version; use 'systemctl daemon-reload' to reload.
mount: /Data2: mount point does not exist.
dmesg(1) may have more information after failed mount system call.
mount: /Data3: mount point does not exist.
dmesg(1) may have more information after failed mount system call.
mount: /Data4: mount point does not exist.
dmesg(1) may have more information after failed mount system call.
ubuntu@ip-172-31-37-94:~$ sudo reboot

Broadcast message from root@ip-172-31-37-94 on pts/1 (Mon 2024-10-07 18:36:20 UTC):

The system will reboot now!

ubuntu@ip-172-31-37-94:~$ Connection to ec2-54-255-212-207.ap-southeast-1.compute.amazonaws.com closed by remote host.
Connection to ec2-54-255-212-207.ap-southeast-1.compute.amazonaws.com closed.

C:\Users\LENOVO\Downloads>ssh -i "window.pem" ubuntu@ec2-54-255-212-207.ap-southeast-1.compute.amazonaws.com
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1016-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Mon Oct  7 18:36:42 UTC 2024

System load:  0.79          Processes:            129
Usage of /:   23.2% of 6.71GB Users logged in:        0
Memory usage: 24%          IPv4 address for enX0: 172.31.37.94

```

The list of available updates is more than a week old.
To check for new updates run: `sudo apt update`

Last login: Mon Oct 7 18:25:37 2024 from 27.7.133.127

`ubuntu@ip-172-31-37-94:~$ df -h`

Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/root	6.8G	1.6G	5.2G	24%	/
tmpfs	479M	0	479M	0%	/dev/shm
tmpfs	192M	908K	191M	1%	/run
tmpfs	5.0M	0	5.0M	0%	/run/lock
/dev/xvdb1	2.7G	1.9G	678M	74%	/Data1
/dev/xvdb2	2.7G	1.9G	678M	74%	/Data2
/dev/xvdb5	5.5G	3.8G	1.4G	73%	/Data3
/dev/xvdb6	5.5G	3.8G	1.4G	73%	/Data4
/dev/xvda16	881M	76M	744M	10%	/boot
/dev/xvda15	105M	6.1M	99M	6%	/boot/efi
tmpfs	96M	12K	96M	1%	/run/user/1000

`ubuntu@ip-172-31-37-94:~$ |`

`/dev/xvdb1 /Data1 ext4 defaults 0 0`

```
|      |      |      |      |      |
|      |      |      |      |      |  - fsck order (0 means no check)
|      |      |      |      |      |  - dump (0 means no backup)
|      |      |      |      |      |  - options (defaults: rw, suid, dev, exec, auto, nouser, and async)
|      |      |      |      |      |  - filesystem type (ext4 in your case)
|      |      |      |      |      |  - mount point (/Data1, /Data2, etc.)
- partition device (/dev/xvdb1, /dev/xvdb2, etc.)
```

`- backup device (\qel\xlqps' \qel\xlqps' etc.)`

`- backup device (\qel\xlqps' \qel\xlqps' etc.)`