

Assignment 4 – Disk Partitioning, File System Creation, Management and Mounting

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

Ans- fdisk -l

Lsblk -l

```
ubuntu@ip-172-31-20-134:~$ lsblk -l
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/snapd/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
xvdb        202:16   0   20G   0 disk
xvda16      259:0    0  913M  0 part /boot
```

Fdisk /dev/xvda

n -> to create a new partition

P -> for primary partition

E -> extended partition

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
/dev/xvdb3		11720704	41943039	30222336	14.4G	5	Extended
/dev/xvdb5		11722752	23441407	11718656	5.6G	83	Linux
/dev/xvdb6		23443456	35162111	11718656	5.6G	83	Linux

c) Format all 4 partitions and create ext4 filesystem on that

Ans - sudo mkfs.ext4 /dev/xvdb1

sudo mkfs.ext4 /dev/xvdb2

sudo mkfs.ext4 /dev/xvdb5

sudo mkfs.ext4 /dev/xvdb6

```

ext4 1.0 100% 0ba0e00d-61c0-4c01-959c-710b0221b991 743.5M 9% /boot
vdb
-xvdb1
ext4 1.0 478b2ff7-0f7b-4793-abb2-56993c94ae5a
-xvdb2
ext4 1.0 80ff7458-306b-4937-a0f6-33258b07124e
-xvdb3
-xvdb5
ext4 1.0 04163a7a-0fb8-415c-bead-fd6d23555ef4
-xvdb6
ext4 1.0 b42260b9-b6fd-4d8c-817f-fc56d9f19d56
ubuntu@ip-172-31-20-134:~$

```

d) Create 4 folders inside root (/) folder name it as Data1, Data2, Data3, Data4

Ans - `mkdir data1 data2 data3 data4`

```

ubuntu@ip-172-31-20-134:~$ ls
data1 data2 data3 data4
ubuntu@ip-172-31-20-134:~$ ls -l
total 16
drwxrwxr-x 2 ubuntu ubuntu 4096 Oct  9 09:41 data1
drwxrwxr-x 2 ubuntu ubuntu 4096 Oct  9 09:41 data2
drwxrwxr-x 2 ubuntu ubuntu 4096 Oct  9 09:41 data3
drwxrwxr-x 2 ubuntu ubuntu 4096 Oct  9 09:41 data4
ubuntu@ip-172-31-20-134:~$

```

e) Mount all formatted partitions on the respective folders

Ans - `sudo mount /dev/xvdb1 /data1`

`Sudo mount /dev/xvdb2 /data2`

`Sudo mount /dev/xvdb5 /data3`

`Sudo mount /dev/xvdb6 /data4`

```

ubuntu@ip-172-31-20-134:~$ lsblk -l
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/snapd/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
xvdb        202:16    0   20G  0 disk
xvdb1       202:17    0  2.8G  0 part /data1
xvdb2       202:18    0  2.8G  0 part /data2
xvdb3       202:19    0    1K  0 part
xvdb5       202:21    0  5.6G  0 part /data3
xvdb6       202:22    0  5.6G  0 part /data4
xvda16      259:0     0 913M  0 part /boot

```

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"`

Ans -

Sudo fallocate -l +2GB /data1/file1

Dd if =/dev/zero of=/data2/file2 bs=1M count=4096

Dd if=/dev/zero of=/data3/file3 bs=1M count=4096

Dd if=/dev/zero of=/data4/file4 bs=1M count=4096

```
ubuntu@ip-172-31-20-134:~$ 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  892K  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  4.1G  1.2G  79% /data3
/dev/xvdb6        5.5G  4.1G  1.2G  79% /data4
```

g) Go inside /Data1 and run command - while(true); do sleep 5s;
done , do ctrl-z

Ans `cd /data1`

`While(true)`

`>do sleep 5s`

`>done`

`Ctrl+z`

```
ubuntu@ip-172-31-20-134:/data1$ while(true)
> do sleep 5s
> done
^Z
[1]+  Stopped                  sleep 5s
ubuntu@ip-172-31-20-134:/data1$
```

h) Check disk utilization of each mount point

Ans- **df -h**

```
ubuntu@ip-172-31-20-134:/data1$ 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  892K  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  4.1G  1.2G  79% /data3
/dev/xvdb6       5.5G  4.1G  1.2G  79% /data4
```

i) Unmount all partitions /Data1, /Data2, /Data3 and /Data4

Ans - **blkid**

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

```
LABEL=cloudimg-rootfs / ext4 discard,commit=30,errors=remount-ro 0 1
LABEL=BOOT /boot ext4 defaults 0 2
LABEL=UEFI /boot/efi vfat umask=0077 0 1
UUID="b42260b9-b6fd-4d8c-817f-fc56d9f19d56" /dev/xvdb6 ext4 657e768a-06 0 0
UUID="80ff7458-306b-4937-a0f6-33258b07124e" /dev/xvdb2 ext4 657e768a-02 0 0
UUID="04163a7a-0fb8-415c-bead-fd6d23555ef4" /dev/xvdb5 ext4 657e768a-05 0 0
UUID="58973ce4-ba19-47e0-a5ed-a2bf6e3497cb" /dev/xvdb1 ext4 657e768a-01 0 0
```