

Lab1 : Mariam Khaled Saad

Using Loop devices, create 4 PVs

```
mariam@ubuntu22:~$ sudo dd if=/dev/zero of=/pv1.img bs=512M count=5
[sudo] password for mariam:
Sorry, try again.
[sudo] password for mariam:
5+0 records in
5+0 records out
2684354560 bytes (2.7 GB, 2.5 GiB) copied, 8.44149 s, 318 MB/s
mariam@ubuntu22:~$ sudo dd if=/dev/zero of=/pv2.img bs=512M count=5
5+0 records in
5+0 records out
2684354560 bytes (2.7 GB, 2.5 GiB) copied, 5.30226 s, 506 MB/s
mariam@ubuntu22:~$ sudo dd if=/dev/zero of=/pv3.img bs=512M count=5
5+0 records in
5+0 records out
2684354560 bytes (2.7 GB, 2.5 GiB) copied, 4.36558 s, 615 MB/s
mariam@ubuntu22:~$ sudo dd if=/dev/zero of=/pv4.img bs=512M count=5
5+0 records in
5+0 records out
2684354560 bytes (2.7 GB, 2.5 GiB) copied, 5.81105 s, 462 MB/s
mariam@ubuntu22:~$
```

```
mariam@ubuntu22:~$ sudo losetup -f /pv1.img
mariam@ubuntu22:~$ sudo losetup -f /pv2.img
mariam@ubuntu22:~$ sudo losetup -f /pv3.img
mariam@ubuntu22:~$ sudo losetup -f /pv4.img
mariam@ubuntu22:~$ sudo losetup
```

NAME	SIZE	LIMIT	OFFSET	AUTOCLEAR	RO	BACK-FILE	DIO	LOG-SEC
/dev/loop1	0	0	0	1	1	/var/lib/snapd/snaps/core20_1587.snap	0	512
/dev/loop19	0	0	0	0	0	/pv4.img	0	512
/dev/loop17	0	0	0	0	0	/pv2.img	0	512
/dev/loop8	0	0	0	1	1	/var/lib/snapd/snaps/snap-store_582.snap	0	512
/dev/loop15	0	0	0	0	0	/pv1.img	0	512
/dev/loop6	0	0	0	1	1	/var/lib/snapd/snaps/gnome-3-38-2004_119.snap	0	512
/dev/loop13	0	0	0	1	1	/var/lib/snapd/snaps/snapd-desktop-integration_49.snap	0	512
/dev/loop4	0	0	0	1	1	/var/lib/snapd/snaps/firefox_2356.snap	0	512
/dev/loop11	0	0	0	1	1	/var/lib/snapd/snaps/snapd_18357.snap	0	512
/dev/loop2	0	0	0	1	1	/var/lib/snapd/snaps/core20_1822.snap	0	512
/dev/loop0	0	0	0	1	1	/var/lib/snapd/snaps/bare_5.snap	0	512
/dev/loop18	0	0	0	0	0	/pv3.img	0	512
/dev/loop9	0	0	0	1	1	/var/lib/snapd/snaps/snap-store_638.snap	0	512
/dev/loop16	0	0	0	0	0	/pv1.img	0	512
/dev/loop7	0	0	0	1	1	/var/lib/snapd/snaps/gtk-common-themes_1535.snap	0	512
/dev/loop14	0	0	0	0	0	/tmp/disk.img	0	512
/dev/loop5	0	0	0	0	0		0	512

create VG and add 3 on PVs to it

```
mariam@ubuntu22:~$ sudo vgcreate vg1 /dev/loop19 /dev/loop17 /dev/loop15
Physical volume "/dev/loop19" successfully created.
Physical volume "/dev/loop17" successfully created.
Physical volume "/dev/loop15" successfully created.
Volume group "vg1" successfully created
mariam@ubuntu22:~$
```

create LV which has size of 250M

```
mariam@ubuntu22:~$ sudo lvcreate -L 500M -n lv0 vg1
WARNING: Not using device /dev/loop16 for PV u67DKx-h6lo-3VZx-uzPd-fvNr-hdy1-2iRrQT.
WARNING: Not using device /dev/loop20 for PV u67DKx-h6lo-3VZx-uzPd-fvNr-hdy1-2iRrQT.
WARNING: PV u67DKx-h6lo-3VZx-uzPd-fvNr-hdy1-2iRrQT prefers device /dev/loop15 because device was seen first.
WARNING: PV u67DKx-h6lo-3VZx-uzPd-fvNr-hdy1-2iRrQT prefers device /dev/loop15 because device was seen first.
Logical volume "lv0" created.
```

format LV using ext4

```
mariam@ubuntu22:~$ sudo mkfs.ext4 /dev/vg1/lv0
mke2fs 1.46.5 (30-Dec-2021)
Discarding device blocks: done
Creating filesystem with 128000 4k blocks and 128000 inodes
Filesystem UUID: e02bb61b-740b-48ab-a443-9c0a30a4eedd
Superblock backups stored on blocks:
    32768, 98304

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

mount LV into /mnt directory

```
mariam@ubuntu22:~$ sudo mkdir /mnt/mylv
mariam@ubuntu22:~$ sudo mkdir /mnt/lv0^C
mariam@ubuntu22:~$ sudo mkdir /mnt/lv0
mariam@ubuntu22:~$ sudo mount /dev/vg1/lv0 /mnt/lv0
mariam@ubuntu22:~$
```

extend VG with the remaining PV

```

maria@ubuntu22:~$ sudo vgextend vg1 /dev/loop18
WARNING: Not using device /dev/loop16 for PV u67DKx-h6lo-3VZx-uzPd-fvNr-hdy1-2iRrQT.
WARNING: Not using device /dev/loop20 for PV u67DKx-h6lo-3VZx-uzPd-fvNr-hdy1-2iRrQT.
WARNING: PV u67DKx-h6lo-3VZx-uzPd-fvNr-hdy1-2iRrQT prefers device /dev/loop15 because device was seen first.
WARNING: PV u67DKx-h6lo-3VZx-uzPd-fvNr-hdy1-2iRrQT prefers device /dev/loop15 because device was seen first.
Physical volume "/dev/loop18" successfully created.
Volume group "vg1" successfully extended
maria@ubuntu22:~$ sudo resize2fs /dev/vg1/lv0 +50M
resize2fs 1.46.5 (30-Dec-2021)
Filesystem at /dev/vg1/lv0 is mounted on /mnt/lv0; on-line resizing required
resize2fs: On-line shrinking not supported

```

extend LV with +50M

```

maria@ubuntu22:~$ sudo lvextend /dev/vg1/lv0 -L +50M
WARNING: Not using device /dev/loop16 for PV u67DKx-h6lo-3VZx-uzPd-fvNr-hdy1-2iRrQT.
WARNING: Not using device /dev/loop20 for PV u67DKx-h6lo-3VZx-uzPd-fvNr-hdy1-2iRrQT.
WARNING: PV u67DKx-h6lo-3VZx-uzPd-fvNr-hdy1-2iRrQT prefers device /dev/loop15 because device was seen first.
WARNING: PV u67DKx-h6lo-3VZx-uzPd-fvNr-hdy1-2iRrQT prefers device /dev/loop15 because device was seen first.
Rounding size to boundary between physical extents: 52.00 MiB.
Size of logical volume vg1/lv0 changed from 500.00 MiB (125 extents) to 552.00 MiB (138 extents).
Logical volume vg1/lv0 successfully resized.
maria@ubuntu22:~$

```

resize2fs LV with the 50M extra

```

maria@ubuntu22:~$ sudo umount /dev/vg1/lv0
maria@ubuntu22:~$ sudo e2fsck -f /dev/vg1/lv0
e2fsck 1.46.5 (30-Dec-2021)
Pass 1: Checking inodes, blocks, and sizes
Pass 2: Checking directory structure
Pass 3: Checking directory connectivity
Pass 4: Checking reference counts
Pass 5: Checking group summary information
/dev/vg1/lv0: 11/128000 files (0.0% non-contiguous), 12302/128000 blocks
maria@ubuntu22:~$ sudo resize2fs /dev/vg1/lv0 +50M
resize2fs 1.46.5 (30-Dec-2021)
Resizing the filesystem on /dev/vg1/lv0 to 12800 (4k) blocks.
The filesystem on /dev/vg1/lv0 is now 12800 (4k) blocks long.
maria@ubuntu22:~$

```

Display the network interface information using

ip command

```

mariam@mariam-IdeaPad-L340-15IRH-Gaming:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp7s0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc fq_codel state DOWN group default qlen 1000
    link/ether 98:fa:9b:26:9f:f8 brd ff:ff:ff:ff:ff:ff
3: wlp0s20f3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether d0:ab:d5:67:6b:fa brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.11/24 brd 192.168.1.255 scope global dynamic noprefixroute wlp0s20f3
        valid_lft 86247sec preferred_lft 86247sec
    inet6 fdc8:cc8:5534:ec00:5c18:142a:7610:6627/64 scope global temporary dynamic
        valid_lft 7050sec preferred_lft 3450sec
    inet6 fdc8:cc8:5534:ec00:41f6:864c:140f:b13e/64 scope global dynamic mngtmpaddr noprefixroute
        valid_lft 7050sec preferred_lft 3450sec
    inet6 fe80::d80d:2ecf:6e2b:7316/64 scope link noprefixroute
        valid_lft forever preferred_lft forever

```

Display currently active TCP connections on your OS using netstat command

```

mariam@mariam-IdeaPad-L340-15IRH-Gaming:~$ netstat -t
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 mariam-IdeaPad-L3:45566 carpaccio.canonic:https ESTABLISHED
tcp        0      0 mariam-IdeaPad-L3:44710 server-52-222-144:https TIME_WAIT
tcp        0      0 mariam-IdeaPad-L3:47578 mrs09s16-ln-f2.1e:https TIME_WAIT
tcp        0      0 mariam-IdeaPad-L3:43668 a95-101-22-192.de:https ESTABLISHED
tcp        0      0 mariam-IdeaPad-L3:38040 server-52-84-44-3:https ESTABLISHED
tcp        0      0 mariam-IdeaPad-L3:36922 mrs09s16-ln-f3.1e:https TIME_WAIT
tcp        0      0 mariam-IdeaPad-L3:48516 104.26.2.70:https      TIME_WAIT
tcp        0      0 mariam-IdeaPad-L3:53218 172.66.43.12:https     ESTABLISHED
tcp        0      0 mariam-IdeaPad-L3:40202 104.16.86.20:https     TIME_WAIT
tcp        0      0 mariam-IdeaPad-L3:57434 server-54-230-112:https TIME_WAIT
tcp        0      0 mariam-IdeaPad-L3:56570 213.19.162.31:https    TIME_WAIT
tcp        0      0 mariam-IdeaPad-L3:43714 ec2-35-165-212-27:https ESTABLISHED
tcp        0 46      0 mariam-IdeaPad-L3:37136 ec2-35-174-124-14:https ESTABLISHED
tcp        0      0 mariam-IdeaPad-L3:48178 145.40.89.200:https     ESTABLISHED
tcp        0      0 mariam-IdeaPad-L3:52516 lhr35s06-ln-f2.1e:https TIME_WAIT
tcp        0      0 mariam-IdeaPad-L3:33850 server-52-84-39-1:https TIME_WAIT
tcp        0      0 mariam-IdeaPad-L3:37306 185.64.190.77:https     ESTABLISHED
tcp        0      0 mariam-IdeaPad-L3:45230 104.26.7.139:https     TIME_WAIT
tcp        0      0 mariam-IdeaPad-L3:33854 server-52-84-39-1:https TIME_WAIT
tcp        0      0 mariam-IdeaPad-L3:36580 mrs09s07-ln-f2.1e:https TIME_WAIT
tcp        0      0 mariam-IdeaPad-L3:56826 ec2-52-59-172-134:https ESTABLISHED
tcp        0      0 mariam-IdeaPad-L3:56574 213.19.162.31:https     ESTABLISHED
tcp        0      0 mariam-IdeaPad-L3:54840 194.23.211.130.bc:https TIME_WAIT

```

Display currently open ports on your system using nmap command

```

mariam@mariam-IdeaPad-L340-15IRH-Gaming:~$ netstat -a -n|grep ESTABLISHED
tcp        0      0 192.168.1.11:43714      35.165.212.27:443      ESTABLISHED
udp        0      0 192.168.1.11:68        192.168.1.1:67         ESTABLISHED

```