

Lab 1

- Using Loop devices, create 4 PVs.

```
mint@mint: /tmp
File Edit View Search Terminal Help

mint@mint:/tmp$ dd if=/dev/zero of=disk1.disk bs=1024 count=100000.
dd: invalid number: '100000.'
mint@mint:/tmp$ dd if=/dev/zero of=disk1.disk bs=1024 count=100000
100000+0 records in
100000+0 records out
102400000 bytes (102 MB, 98 MiB) copied, 0.512822 s, 200 MB/s
mint@mint:/tmp$ dd if=/dev/zero of=disk2.disk bs=1024 count=100000
100000+0 records in
100000+0 records out
102400000 bytes (102 MB, 98 MiB) copied, 0.608373 s, 168 MB/s
mint@mint:/tmp$ dd if=/dev/zero of=disk3.disk bs=1024 count=100000
100000+0 records in
100000+0 records out
102400000 bytes (102 MB, 98 MiB) copied, 0.628988 s, 163 MB/s
mint@mint:/tmp$ dd if=/dev/zero of=disk4.disk bs=1024 count=100000
100000+0 records in
100000+0 records out
102400000 bytes (102 MB, 98 MiB) copied, 0.62903 s, 163 MB/s
mint@mint:/tmp$ sudo losetup -f
/dev/loop1
mint@mint:/tmp$ sudo losetup /dev/loop1 disk1.disk
mint@mint:/tmp$ sudo losetup /dev/loop2 disk1.disk
mint@mint:/tmp$ sudo losetup /dev/loop3 disk1.disk
mint@mint:/tmp$ sudo losetup /dev/loop4 disk1.disk
```

```
mint@mint: /tmp
File Edit View Search Terminal Help

mint@mint:/tmp$ sudo losetup /dev/loop2 disk1.disk
mint@mint:/tmp$ sudo losetup /dev/loop3 disk1.disk
mint@mint:/tmp$ sudo losetup /dev/loop4 disk1.disk
mint@mint:/tmp$ sudo losetup -f /tmp/disk1.disk
mint@mint:/tmp$ sudo losetup -f /tmp/disk2.disk
mint@mint:/tmp$ sudo losetup -f /tmp/disk3.disk
mint@mint:/tmp$ sudo losetup -f /tmp/disk4.disk
mint@mint:/tmp$ sudo losetup | grep tmp
/dev/loop1      0      0      0 0 /tmp/disk1.disk      0
512
/dev/loop17     0      0      0 0 /tmp/disk4.disk      0
512
/dev/loop6      0      0      0 0 /tmp/disk2.disk      0
512
/dev/loop4      0      0      0 0 /tmp/disk1.disk      0
512
/dev/loop2      0      0      0 0 /tmp/disk1.disk      0
512
/dev/loop7      0      0      0 0 /tmp/disk3.disk      0
512
/dev/loop5      0      0      0 0 /tmp/disk1.disk      0
512
/dev/loop3      0      0      0 0 /tmp/disk1.disk      0
512
mint@mint:/tmp$ sudo apt-get install lvm2
```

- create VG and add 3 on PVs to it

```
512
mint@mint:/tmp$ sudo apt-get install lvm2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
lvm2 is already the newest version (2.03.11-2.lubuntu4).
0 upgraded, 0 newly installed, 0 to remove and 19 not upgraded.
mint@mint:/tmp$ sudo pvcreate /dev/loop1
Physical volume "/dev/loop1" successfully created.
```

```
mint@mint:/tmp$ sudo vgcreate VG1 /dev/loop17 /dev/loop6 /dev/loop7
WARNING: Not using device /dev/loop2 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: Not using device /dev/loop3 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: Not using device /dev/loop4 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: Not using device /dev/loop5 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was seen first.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was seen first.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was seen first.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was seen first.
Volume group "VG1" successfully created
```

- create LV which has size of 250M.

```
mint@mint:/tmp$ sudo lvcreate -L 250 VG1
WARNING: Not using device /dev/loop2 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: Not using device /dev/loop3 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: Not using device /dev/loop4 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: Not using device /dev/loop5 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was
Rounding up size to full physical extent 252.00 MiB
Logical volume "lvol0" created.
```

```
mint@mint:/tmp$ sudo lvdisplay
WARNING: Not using device /dev/loop2 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: Not using device /dev/loop3 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: Not using device /dev/loop4 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: Not using device /dev/loop5 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was seen first.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was seen first.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was seen first.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was seen first.
--- Logical volume ---
LV Path                /dev/VG1/lvol0
LV Name                 lvol0
VG Name                 VG1
LV UUID                 8geKtl-9Deo-aF0S-sM30-I683-i01b-iyVpP8
LV Write Access         read/write
LV Creation host, time  mint, 2023-03-28 17:23:23 +0000
LV Status                available
# open                   0
LV Size                  252.00 MiB
Current LE               63
Segments                 3
Allocation                inherit
Read ahead sectors        auto
- currently set to       256
Block device             253:0
```

- format LV using ext4.

```
mint@mint:/tmp$ sudo mkfs.ext4 /dev/VG1/lvol0
mke2fs 1.46.5 (30-Dec-2021)
Discarding device blocks: done
Creating filesystem with 64512 4k blocks and 64512 inodes
Filesystem UUID: 0367a8b6-3d08-4f4f-8a66-7d92418f6ad6
Superblock backups stored on blocks:
    32768

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

```
mint@mint:/tmp$ sudo mount /dev/VG1/lvol0 /mnt
mint@mint:/tmp$ sudo df -h /mnt
Filesystem              Size  Used Avail Use% Mounted on
/dev/mapper/VG1-lvol0  220M   24K  203M   1% /mnt
mint@mint:/tmp$
```

- extend VG with the remaining PV

```
mint@mint:/tmp$ lvextend -l +50M /dev/VG1/lvol0
WARNING: Running as a non-root user. Functionality may be unavailable.
Invalid argument for --extents: +50M
Error during parsing of command line.
mint@mint:/tmp$
```

- resize2fs LV with the 50M extra

```
mint@mint:/tmp$ sudo lvextend -L +50M /dev/VG1/lvol0
WARNING: Not using device /dev/loop2 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: Not using device /dev/loop3 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: Not using device /dev/loop4 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: Not using device /dev/loop5 for PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was seen first.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was seen first.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was seen first.
WARNING: PV gGYjhe-NqG5-1pID-Yco6-hluj-zb3d-DXogsc prefers device /dev/loop1 because device was seen first.
Rounding size to boundary between physical extents: 52.00 MiB.
Insufficient free space: 13 extents needed, but only 9 available
mint@mint:/tmp$
```

- resize2fs LV with the 50M extra.

```
op1 because device was seen first.
Size of logical volume VG1/lvol0 changed from 252.00 MiB (63 extents) to 272.00 MiB (68 extents).
Logical volume VG1/lvol0 successfully resized.
mint@mint:/tmp$
```

- Display the network interface information using ip command.

```
mint@mint:/tmp$ ip addr
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: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:e5:89:b2 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 85022sec preferred_lft 85022sec
    inet6 fe80::4acf:fb1d:777e:5d85/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
```

- Display currently active TCP connections on your OS using netstat command.

```
mint@mint:/tmp$ sudo apt install net-tools
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
net-tools is already the newest version (1.60+git20181103.0eebece-1ubuntu5)
.
0 upgraded, 0 newly installed, 0 to remove and 19 not upgraded.
mint@mint:/tmp$ snap install nmap # version 7.93
```

- Display currently open ports on your system using nmap command (install it using apt).

```
mint@mint:/tmp$ nmap 10.0.2.15
```