

Basic Linux exercises LVM

List all block devices.

```
[root@server ~]# lsblk | grep sd
sda      8:0  0  8G  0 disk
├─sda1   8:1  0  1G  0 part /boot
└─sda2   8:2  0  7G  0 part
sdb      8:16 0  1G  0 disk
sdc      8:32 0  1G  0 disk
sdd      8:48 0 16G  0 disk
└─sdd1   8:49 0 16G  0 part /repos/centos
sde      8:64 0  1G  0 disk
sdf      8:80 0  1G  0 disk
```

We use sdb and sdc to create physical volumes and group them in a volume group.

```
[root@server ~]# pvcreate /dev/sdb
Physical volume "/dev/sdb" successfully created.
[root@server ~]# pvcreate /dev/sdc
Physical volume "/dev/sdc" successfully created.
```

```
[root@server ~]# vgcreate datavg /dev/sdb /dev/sdc
Volume group "datavg" successfully created
```

We create a logical volume of 500MB in the volume group and create a file system in the volume, type ext4.

```
[root@server ~]# lvcreate -n datavol1 -L 500 datavg
Logical volume "datavol1" created.
```

```
[root@server ~]# mkfs -t ext4 /dev/datavg/datavol1
```

We create a Label in the file system, then we create a mountpoint and then we mount the volume using that Label.

```
[root@server ~]# tune2fs -L datavol1 /dev/datavg/datavol1
[root@server ~]# mkdir /datavol1
[root@server ~]# mount -L datavol1 /datavol1
```

We add a line to /etc/fstab for mounting at boot. And we test whether the line is ok.

```
[root@server ~]# echo "LABEL=datavol1 /datavol1 ext4 defaults 0 0" >> /etc/fstab
[root@server ~]# umount /datavol1
[root@server ~]# mount /datavol1
[root@server ~]# df -h | grep datavol1
/dev/mapper/datavg-datavol1 477M 2.3M 445M 1% /datavol1
```

We mirror the logical volume using lvconvert.

```
[root@server ~]# lvconvert -m 1 /dev/datavg/datavol1
Are you sure you want to convert linear LV datavg/datavol1
to raid1 with 2 images enhancing resilience? [y/n]: y
Logical volume datavg/datavol1 successfully converted.
```

Check the Free Physical Extents on sdb and sdc, these should be equal.

```
[root@server ~]# pvdisplay /dev/sdb|grep Free
Free PE          129
[root@server ~]# pvdisplay /dev/sdc|grep Free
Free PE          129
```

Resize the logical volume and file system in one go.

```
[root@server ~]# lvresize --size +200m /dev/datavg/datavol1
Extending 2 mirror images.
Size of logical volume datavg/datavol1 changed from 500.00 MiB (125 extents)
to 700.00 MiB (175 extents).
Logical volume datavg/datavol1 successfully resized.
```

Resize the file system.

```
[root@server ~]# resize2fs /dev/datavg/datavol1
resize2fs 1.42.9 (28-Dec-2013)
Filesystem at /dev/datavg/datavol1 is mounted on /datavol1; on-line resizing required
old_desc_blocks = 4, new_desc_blocks = 6
The filesystem on /dev/datavg/datavol1 is now 716800 blocks long.
```

Check that it has grown.

```
[root@server ~]# df -h | grep datavol1
/dev/mapper/datavg-datavol1 670M 2.5M 631M 1% /datavol1
```