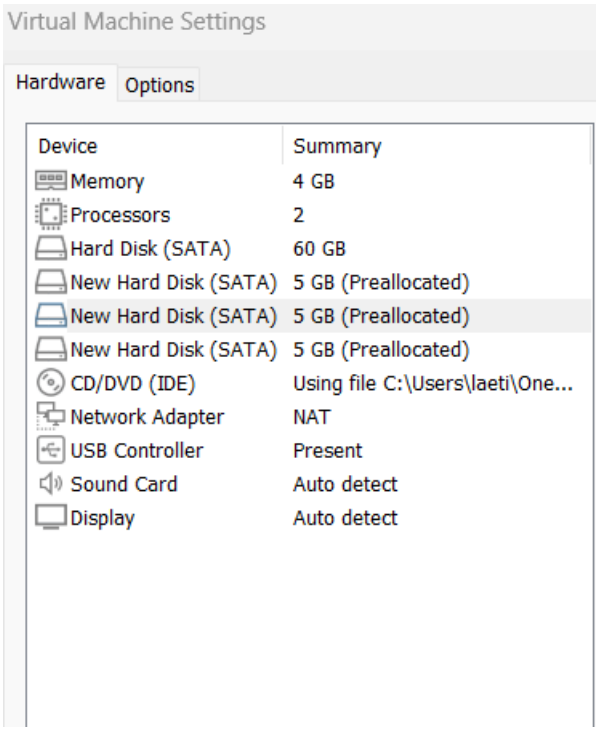
Exercise 1 – Disk Management with LVM

Tasks to Perform on AlmaLinux:

1. Add **three SATA** drives to your AlmaLinux virtual machine (**5 GB** each).



2. Open a Shell terminal and type the **sudo -su** command to work with the **root** account.

```
[lmohammed@server12 ~]$ sudo su -
[root@server12 ~]#
```

3. Check that all three disks are added.

```
[root@server12 ~]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda      8:0    0   60G  0 disk
├─sda1   8:1    0    2M  0 part
├─sda2   8:2    0    1G  0 part /boot
├─sda3   8:3    0    8G  0 part /var
├─sda4   8:4    0    1K  0 part
├─sda5   8:5    0    7G  0 part /home
├─sda6   8:6    0    4G  0 part [SWAP]
└─sda7   8:7    0   40G  0 part /
sdb      8:16   0    5G  0 disk
sdc      8:32   0    5G  0 disk
sdd      8:48   0    5G  0 disk
sr0     11:0    1 10.6G  0 rom  /run/media/lmohammed/AlmaLinux-9-5-x86_64-dvd
[root@server12 ~]#
```

4. For each disk, create a **physical volume** (total of **3 PV**).

```
[root@server12 ~]# pvcreate /dev/sdb /dev/sdc /dev/sdd
  Physical volume "/dev/sdb" successfully created.
  Physical volume "/dev/sdc" successfully created.
  Physical volume "/dev/sdd" successfully created.
  Creating devices file /etc/lvm/devices/system.devices
```

5. Check that the three physical volumes are created correctly.

```
[root@server12 ~]# pvdisplay
  "/dev/sdb" is a new physical volume of "5.00 GiB"
  --- NEW Physical volume ---
  PV Name               /dev/sdb
  VG Name
  PV Size               5.00 GiB
  Allocatable           NO
  PE Size               0
  Total PE              0
  Free PE               0
  Allocated PE          0
  PV UUID               T8hQiy-32Ys-obWa-jDE3-LMWG-6SH9-sLbXxi
```

```
  "/dev/sdc" is a new physical volume of "5.00 GiB"
  --- NEW Physical volume ---
  PV Name               /dev/sdc
  VG Name
  PV Size               5.00 GiB
  Allocatable           NO
  PE Size               0
  Total PE              0
  Free PE               0
  Allocated PE          0
  PV UUID               wo0Rjz-UwZ6-jp6m-x4An-wfrg-rMW7-GOdCzF
```

```
  "/dev/sdd" is a new physical volume of "5.00 GiB"
  --- NEW Physical volume ---
  PV Name               /dev/sdd
  VG Name
  PV Size               5.00 GiB
  Allocatable           NO
  PE Size               0
  Total PE              0
  Free PE               0
  Allocated PE          0
  PV UUID               ThTvfD-3S0k-NFmf-v4Jp-7HPc-TQwd-XoW94v

[root@server12 ~]#
```

6. Create a **Volume Group** using **only two physical volumes**, and name it **LAB4_VG**.

```
[root@server12 ~]# vgcreate LAB4_VG /dev/sdc /dev/sdd
  Volume group "LAB4_VG" successfully created
[root@server12 ~]#
```

7. Verify that the volume group **LAB4_VG** is created.

```
[root@server12 ~]# vgdisplay
  --- Volume group ---
  VG Name               LAB4_VG
  System ID
  Format                lvm2
  Metadata Areas        2
  Metadata Sequence No  1
  VG Access             read/write
  VG Status             resizable
  MAX LV                0
  Cur LV                0
  Open LV               0
  Max PV                0
  Cur PV                2
  Act PV                2
  VG Size               9.99 GiB
  PE Size               4.00 MiB
  Total PE              2558
  Alloc PE / Size       0 / 0
  Free  PE / Size       2558 / 9.99 GiB
  VG UUID               SEXOsL-vfp7-OTlW-tMLD-V31l-PsHW-3weNnF

[root@server12 ~]#
```

8. In the new volume group, create these **two logical volumes**:

```
[root@server12 ~]# lvcreate -L 6G -n LV1 LAB4_VG
  Logical volume "LV1" created.
[root@server12 ~]# lvcreate -L 3G -n LV2 LAB4_VG
  Logical volume "LV2" created.
[root@server12 ~]#
```

Name	Size
LV1	6 GB
LV2	3 GB

9. Check that the two logical volumes are created correctly.

```
  Logical volume "LV2" created.
[root@server12 ~]# lvdisplay
  --- Logical volume ---
  LV Path                /dev/LAB4_VG/LV1
  LV Name                LV1
  VG Name                LAB4_VG
  LV UUID                VOECMG-cNCm-fx14-dPg0-ectq-duvU-x1VQdK
  LV Write Access        read/write
  LV Creation host, time server12, 2025-03-27 15:10:01 -0400
  LV Status              available
  # open                 0
  LV Size                6.00 GiB
  Current LE             1536
  Segments               2
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     256
  Block device           253:0
```

```
  --- Logical volume ---
  LV Path                /dev/LAB4_VG/LV2
  LV Name                LV2
  VG Name                LAB4_VG
  LV UUID                94SsbX-JdTM-yoQG-yHRC-VQHL-eI2b-4akdjp
  LV Write Access        read/write
  LV Creation host, time server12, 2025-03-27 15:10:35 -0400
  LV Status              available
  # open                 0
  LV Size                3.00 GiB
  Current LE             768
  Segments               1
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     256
  Block device           253:1

[root@server12 ~]#
```

10. Format **LV1** and **LV2** as **ext4.**

```
[root@server12 ~]# mkfs.ext4 /dev/LAB4_VG/LV1
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 1572864 4k blocks and 393216 inodes
Filesystem UUID: f55bccdf-759d-44a8-aa60-e9d5c4bd9210
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

[root@server12 ~]# mkfs.ext4 /dev/LAB4_VG/LV2
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 786432 4k blocks and 196608 inodes
Filesystem UUID: 4675ebb2-5d3a-4f92-847c-51c1624d4270
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

[root@server12 ~]#
```

11. Check that the LV1 and LV2 are properly formatted.

```
[root@server12 ~]# lsblk -f
NAME  FSTYPE FSVER LABEL                   UUID                                 FSAVAIL FSUSE% MOUNTPOI
sda
├─sda1
│
├─sda2
│     xfs                                 90222ee6-c4ba-41c2-a37b-465794cef3fd    515.1M    46% /boot
├─sda3
│     xfs                                 943a2853-9000-4ff7-8eda-e920a6ef1239      6.6G    17% /var
├─sda4
│
├─sda5
│     xfs                                 15d8f854-6918-483b-8bcd-bb9a627706e4      6.9G     1% /home
├─sda6
│     swap   1                            e71b4f42-3f2a-4930-a689-332753407245                  [SWAP]
└─sda7
      xfs                                 1ce273b9-d261-40c5-a929-1c5e959765ec     35.5G    11% /
sdb   LVM2_m LVM2                        T8hQiy-32Ys-obWa-jDE3-LMWG-6SH9-sLbXxi
sdc   LVM2_m LVM2                        wo0Rjz-UwZ6-jp6m-x4An-wfrg-rMW7-GOdCzF
└─LAB4_VG-LV1
      ext4   1.0                         f55bccdf-759d-44a8-aa60-e9d5c4bd9210
sdd   LVM2_m LVM2                        ThTvfD-3S0k-NFmf-v4Jp-7HPc-TQwd-XoW94v
├─LAB4_VG-LV1
│     ext4   1.0                         f55bccdf-759d-44a8-aa60-e9d5c4bd9210
└─LAB4_VG-LV2
      ext4   1.0                         4675ebb2-5d3a-4f92-847c-51c1624d4270
sr0   iso966 Jolie AlmaLinux-9-5-x86_64-dvd
                                         2024-11-13-09-58-50-00                       0   100% /run/med
d
[root@server12 ~]#
```

12. Create the **/Docs** directory.

```
[root@server12 ~]# mkdir /Docs
[root@server12 ~]#
```

13. Create the **/home/*<your_user>*/volume** directory**.**

```
[root@server12 ~]# mkdir /home/lmohammed/volume
[root@server12 ~]#
```

14. Mount **LV1** in **/Docs**

```
[root@server12 ~]# mount /dev/LAB4_VG/LV1 /Docs
```

15. Mount **LV2** in **/home/*<your_user>*/volume.**

```
[root@server12 ~]# mount /dev/LAB4_VG/LV2 /home/lmohammed/volume
```

16. Check that the two logical volumes **LV1** and **LV2** are mounted correctly.

```
/dev/mapper/LAB4_VG-LV1  5.9G   24K  5.6G   1% /Docs
/dev/mapper/LAB4_VG-LV2  2.9G   24K  2.8G   1% /home/lmohammed/volume
```

17. Add the **3rd physical disk** to the **LAB4_VG volume group.**

```
[root@server12 ~]# vgextend LAB4_VG /dev/sdb
  Volume group "LAB4_VG" successfully extended
[root@server12 ~]# vgdisplay
  --- Volume group ---
  VG Name               LAB4_VG
  System ID
  Format                lvm2
  Metadata Areas        3
  Metadata Sequence No  4
  VG Access             read/write
  VG Status             resizable
  MAX LV                0
  Cur LV                2
  Open LV               2
  Max PV                0
  Cur PV                3
  Act PV                3
  VG Size               <14.99 GiB
  PE Size               4.00 MiB
  Total PE              3837
  Alloc PE / Size       2304 / 9.00 GiB
  Free  PE / Size       1533 / <5.99 GiB
  VG UUID               SEXOsL-vfp7-OTlW-tMLD-V31l-PsHW-3weNnF

[root@server12 ~]#
```

18. Extend the size of the **LV1** by **5 GB** more, for a total size of **11 GB.**

```
[root@server12 ~]#  lvresize--resizefs--size +5G /dev/LAB4_VG/LV1
bash: lvresize--resizefs--size: command not found...
[root@server12 ~]#  lvresize --resizefs --size +5G /dev/LAB4_VG/LV1
  Size of logical volume LAB4_VG/LV1 changed from 6.00 GiB (1536 extents) to 11.00 GiB (2816 extents).
  File system ext4 found on LAB4_VG/LV1 mounted at /Docs.
  Extending file system ext4 to 11.00 GiB (11811160064 bytes) on LAB4_VG/LV1...
resize2fs /dev/LAB4_VG/LV1
resize2fs 1.46.5 (30-Dec-2021)
Filesystem at /dev/LAB4_VG/LV1 is mounted on /Docs; on-line resizing required
old_desc_blocks = 1, new_desc_blocks = 2
The filesystem on /dev/LAB4_VG/LV1 is now 2883584 (4k) blocks long.

resize2fs done
  Extended file system ext4 on LAB4_VG/LV1.
  Logical volume LAB4_VG/LV1 successfully resized.
[root@server12 ~]#
```

19. Decrease the size of the **LV2** by **250 MB**.

```
[root@server12 ~]# lvresize --resizefs --size -250M /dev/LAB4_VG/LV2
  Rounding size to boundary between physical extents: 248.00 MiB.
  File system ext4 found on LAB4_VG/LV2 mounted at /home/lmohammed/volume.
  File system size (3.00 GiB) is larger than the requested size (<2.76 GiB).
  File system reduce is required using resize2fs.
  File system unmount is needed for reduce.
  File system fsck will be run before reduce.
Continue with ext4 file system reduce steps: unmount, fsck, resize2fs? [y/n]:Y
  Reducing file system ext4 to <2.76 GiB (2961178624 bytes) on LAB4_VG/LV2...
unmount /home/lmohammed/volume
unmount done
e2fsck /dev/LAB4_VG/LV2
/dev/LAB4_VG/LV2: 11/196608 files (0.0% non-contiguous), 31036/786432 blocks
e2fsck done
resize2fs /dev/LAB4_VG/LV2 2891776k
resize2fs 1.46.5 (30-Dec-2021)
Resizing the filesystem on /dev/LAB4_VG/LV2 to 722944 (4k) blocks.
The filesystem on /dev/LAB4_VG/LV2 is now 722944 (4k) blocks long.

resize2fs done
remount /dev/LAB4_VG/LV2 /home/lmohammed/volume
remount done
  Reduced file system ext4 on LAB4_VG/LV2.
  Size of logical volume LAB4_VG/LV2 changed from 3.00 GiB (768 extents) to <2.76 GiB (706 extents).
  Logical volume LAB4_VG/LV2 successfully resized.
[root@server12 ~]#
```

20. Check that the size of the **LV1** and **LV2** have changed.

```
  --- Logical volume ---
  LV Path                /dev/LAB4_VG/LV1
  LV Name                LV1
  VG Name                LAB4_VG
  LV UUID                VOECMG-cNCm-fx14-dPg0-ectq-duvU-x1VQdK
  LV Write Access        read/write
  LV Creation host, time server12, 2025-03-27 15:10:01 -0400
  LV Status              available
  # open                 1
  LV Size                11.00 GiB
  Current LE             2816
  Segments               4
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     256
  Block device           253:0

  --- Logical volume ---
  LV Path                /dev/LAB4_VG/LV2
  LV Name                LV2
  VG Name                LAB4_VG
  LV UUID                94SsbX-JdTM-yoQG-yHRC-VQHL-eI2b-4akdjp
  LV Write Access        read/write
  LV Creation host, time server12, 2025-03-27 15:10:35 -0400
  LV Status              available
  # open                 1
  LV Size                <2.76 GiB
  Current LE             706
  Segments               1
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     256
  Block device           253:1

[root@server12 ~]#
```

21. Delete the **LV2** logical volume**. *(Remember to unmount it the volume before).***

```
[root@server12 ~]# umount /home/lmohammed/volume
[root@server12 ~]# lvremove /dev/LAB4_VG/LV2
Do you really want to remove active logical volume LAB4_VG/LV2? [y/n]: Y
  Logical volume "LV2" successfully removed.
[root@server12 ~]#
```

22. Check that the logical volume **LV2** has been deleted.

```
[root@server12 ~]# lvdisplay
  --- Logical volume ---
  LV Path                /dev/LAB4_VG/LV1
  LV Name                LV1
  VG Name                LAB4_VG
  LV UUID                VOECMG-cNCm-fx14-dPg0-ectq-duvU-x1VQdK
  LV Write Access        read/write
  LV Creation host, time server12, 2025-03-27 15:10:01 -0400
  LV Status              available
  # open                 1
  LV Size                11.00 GiB
  Current LE             2816
  Segments               4
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     256
  Block device           253:0
```

```
[root@server12 ~]# lsblk
NAME          MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda             8:0    0   60G  0 disk
├─sda1          8:1    0    2M  0 part
├─sda2          8:2    0    1G  0 part /boot
├─sda3          8:3    0    8G  0 part /var
├─sda4          8:4    0    1K  0 part
├─sda5          8:5    0    7G  0 part /home
├─sda6          8:6    0    4G  0 part [SWAP]
└─sda7          8:7    0   40G  0 part /
sdb             8:16   0    5G  0 disk
└─LAB4_VG-LV1 253:0    0   11G  0 lvm  /Docs
sdc             8:32   0    5G  0 disk
└─LAB4_VG-LV1 253:0    0   11G  0 lvm  /Docs
sdd             8:48   0    5G  0 disk
└─LAB4_VG-LV1 253:0    0   11G  0 lvm  /Docs
sr0            11:0    1 10.6G  0 rom  /run/media/lmohammed/AlmaLinux-9-5-x86_64-dvd
[root@server12 ~]#
```

23. Unmount the **/Docs** directory.

```
[root@server12 ~]# umount /Docs
[root@server12 ~]# lsblk
NAME          MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda             8:0    0   60G  0 disk
├─sda1          8:1    0    2M  0 part
├─sda2          8:2    0    1G  0 part /boot
├─sda3          8:3    0    8G  0 part /var
├─sda4          8:4    0    1K  0 part
├─sda5          8:5    0    7G  0 part /home
├─sda6          8:6    0    4G  0 part [SWAP]
└─sda7          8:7    0   40G  0 part /
sdb             8:16   0    5G  0 disk
└─LAB4_VG-LV1 253:0    0   11G  0 lvm
sdc             8:32   0    5G  0 disk
└─LAB4_VG-LV1 253:0    0   11G  0 lvm
sdd             8:48   0    5G  0 disk
└─LAB4_VG-LV1 253:0    0   11G  0 lvm
sr0            11:0    1 10.6G  0 rom  /run/media/lmohammed/AlmaLinux-9-5-x86_64-dvd
[root@server12 ~]#
```

Exercise 2 – Limiting Storage Space Usage with Quotas

Tasks to Perform on AlmaLinux:

1. Continue working using the **root** account.

```
[root@server12 ~]#
```

2. Check that the **quota** system is installed on your machine

```
[root@server12 ~]# dnf list quota
Last metadata expiration check: 0:46:13 ago on Thu 27 Mar 2025 03:21:55 PM.
Installed Packages
quota.x86_64                                                1:4.09-2.el9
[root@server12 ~]#
```

3. Activate the **quota** system on the logical volume **/dev/LAB4_VG/LV1:**

mkfs.ext4 -O quota /dev/LAB4_VG/LV1

mount /dev/LAB4_VG/LV1 /Docs

```
[root@server12 ~]# mkfs.ext4 -O quota /dev/LAB4_VG/LV1
mke2fs 1.46.5 (30-Dec-2021)
/dev/LAB4_VG/LV1 contains a ext4 file system
        last mounted on Thu Mar 27 15:18:03 2025
Proceed anyway? (y,N) y
Creating filesystem with 2883584 4k blocks and 720896 inodes
Filesystem UUID: 81310dca-7a8d-434d-8801-02a913c4ed66
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208

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

[root@server12 ~]# mount /dev/LAB4_VG/LV1 /Docs
[root@server12 ~]# quotaon /Docs
[root@server12 ~]#
```

4.

5. Create the user **antoine** with the password **alma.**

```
[root@server12 ~]# useradd antoine
[root@server12 ~]# passwd antoine
Changing password for user antoine.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@server12 ~]#
```

6. Assign **antoine** as owner of the folder **/Docs.**

```
[root@server12 ~]# chown antoine /Docs
[root@server12 ~]#
```

7. Modify the quota of **antoine** on the **/Docs** directory with the following configuration:

```
Disk quotas for user antoine (uid 1001):
  Filesystem                   blocks       soft       hard     inodes     soft     hard
  /dev/mapper/LAB4_VG-LV1           4          0         50          1        0        0
~
```

soft Blocks	hard blocks	soft inode	hard Inode
0	**50**	0	**0**

8. Switch to user antoine: **su – antoine**

```
[root@server12 Docs]# su - antoine
[antoine@server12 ~]$
```

```
[root@server12 Docs]# quota -v antoine
Disk quotas for user antoine (uid 1001):
     Filesystem  blocks   quota   limit   grace   files   quota   limit   grace
/dev/mapper/LAB4_VG-LV1
                     4       0      50               1       0       0
[root@server12 Docs]#
```

9. Try to copy the **/etc/services** file to **/Docs.**

```
[antoine@server12 ~]$ cp /etc/services /Docs
dm-0: write failed, user block limit reached.
cp: error writing '/Docs/services': Disk quota exceeded
[antoine@server12 ~]$
```

10. Can you do that? Why?

    No. Since we gave Antoine a 50 kb hard limit, copying the entire services file exceeds his allocated disk space, as the file is 677k

```
-rw-r--r--.  1 root root    677K Jun 23  2020 services
```

11. List the **quota** used by the **antoine** user.

```
[antoine@server12 ~]$ quota -v antoine
Disk quotas for user antoine (uid 1001):
     Filesystem  blocks   quota   limit   grace   files   quota   limit   grace
/dev/mapper/LAB4_VG-LV1
                    48       0      50               2       0       0
[antoine@server12 ~]$
```

12. Did he exceed his quota?

    Not yet exceeded, but only 2 kb remaining

13. Return to your **root** session**: exit**

```
[antoine@server12 etc]$ su -
Password:
[root@server12 ~]#
```

14. View a **quota usage report**.

```
[root@server12 ~]# repquota -a
*** Report for user quotas on device /dev/mapper/LAB4_VG-LV1
Block grace time: 7days; Inode grace time: 7days
                        Block limits                File limits
User            used    soft    hard  grace    used  soft  hard  grace
----------------------------------------------------------------------
root      --      16       0       0              1     0     0
antoine   --      48       0      50              2     0     0
```

15. Modify again the quota of **antoine** on the **/Docs** directory with the following configuration:

```
Disk quotas for user antoine (uid 1001):
  Filesystem                   blocks       soft       hard     inodes     soft     hard
  /dev/mapper/LAB4_VG-LV1          48          0          0          2        0        8
```

Soft Blocks	Strict blocks	Soft inode	Strict Inode
0	**0**	0	**8**

16. Switch to user antoine: **su – antoine**

```
[root@server12 Docs]# su - antoine
[antoine@server12 ~]$
```

17. Create **5 files** in **/Docs**.

```
[antoine@server12 Docs]$ touch test1.txt
[antoine@server12 Docs]$ touch test2.txt test3.txt test4.txt test5.txt
```

18. Can you do that? Why?

    Yes. Because we allocated him 8 hard inodes, he will be able to create up to 8 files total.

19. Create **5 more files** in **/Docs**.

```
[antoine@server12 Docs]$ touch test6.txt
[antoine@server12 Docs]$ touch test7.txt
dm-0: write failed, user file limit reached.
touch: cannot touch 'test7.txt': Disk quota exceeded
[antoine@server12 Docs]$
```

20. Can you do that? Why?

    Can only create up to 6, as the limit is 8 and he already had 2 files to begin with.

21. List the **quota** used by the **antoine** user.

```
[antoine@server12 Docs]$ quota -v antoine
Disk quotas for user antoine (uid 1001):
     Filesystem  blocks   quota   limit   grace   files   quota   limit   grace
/dev/mapper/LAB4_VG-LV1
                    48       0       0              8*      0       8
[antoine@server12 Docs]$
```

22. Did **antoine** exceed his quota?

    He reached his limit of 8 files.

23. Return to the **root** session.

```
antoine@server12 Docs]$ su -
assword:
root@server12 ~]#
```

24. View a quota usage report of your system.

```
[root@server12 ~]# repquota -a
*** Report for user quotas on device /dev/mapper/LAB4_VG-LV1
Block grace time: 7days; Inode grace time: 7days
                        Block limits                File limits
User            used    soft    hard  grace    used  soft  hard  grace
----------------------------------------------------------------------
root      --      16       0       0              1     0     0
antoine   --      48       0       0              8     0     8
```

Exercise 3 – Delete Logical Volumes

1. Unmount the **/Docs** directory.

```
[root@server12 ~]# umount /Docs
[root@server12 ~]#
```

2. Delete logical volume **LV1**.

```
[root@server12 ~]# lvremove /dev/LAB4_VG/LV1
Do you really want to remove active logical volume LAB4_VG/LV1? [y/n]: y
  Logical volume "LV1" successfully removed.
[root@server12 ~]#
```

3. Delete the volume group **LAB4_VG**.

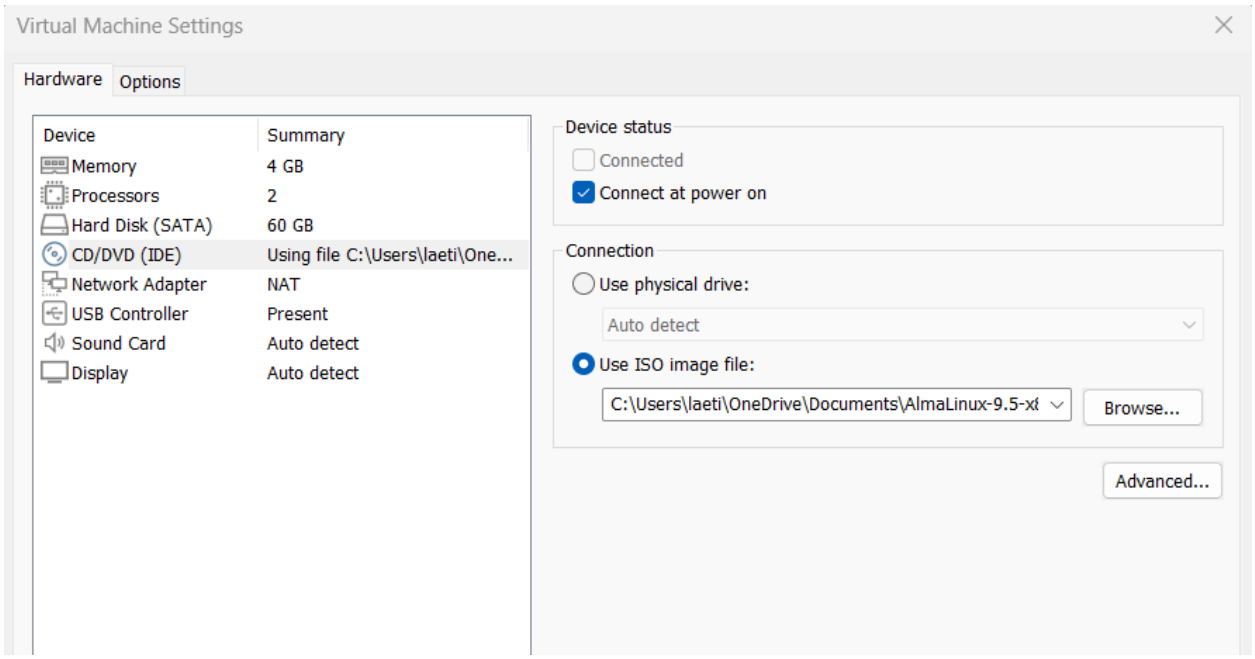
```
[root@server12 ~]#  vgremove LAB4_VG
  Volume group "LAB4_VG" successfully removed
[root@server12 ~]#
```

4. Delete the **three physical volumes**.

```
[root@server12 ~]#  pvremove /dev/sdb /dev/sdc /dev/sdd
  Labels on physical volume "/dev/sdb" successfully wiped.
  Labels on physical volume "/dev/sdc" successfully wiped.
  Labels on physical volume "/dev/sdd" successfully wiped.
[root@server12 ~]#
```

```
[root@server12 ~]# pvdisplay
[root@server12 ~]#
```

5. Shut down the virtual machine and remove the **three new disks from the VM.**


Virtual Machine Settings
Hardware
Options
Device
Summary
Memory
4 GB
Processors
2
Hard Disk (SATA)
60 GB
CD/DVD (IDE)
Using file C:\Users\laeti\One...
Network Adapter
NAT
USB Controller
Present
Sound Card
Auto detect
Display
Auto detect
Device status
Connected
Connect at power on
Connection
Use physical drive:
Auto detect
Use ISO image file:
C:\Users\laeti\OneDrive\Documents\AlmaLinux-9.5-x
Browse...
Advanced...