



```
Latifa@esprit-virtual-machine:~$ sudo fdisk -l
[sudo] password for Latifa:
Disk /dev/loop0: 4 KiB, 4096 bytes, 8 sectors
```

```
Disk /dev/sdb: 5 GiB, 5368709120 bytes, 10485760 sectors
Disk model: VMware Virtual S
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/sdc: 10 GiB, 10737418240 bytes, 20971520 sectors
Disk model: VMware Virtual S
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
```

```
Latifa@esprit-virtual-machine:~$ sudo apt install lvm2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
lvm2 is already the newest version (2.03.11-2.1ubuntu4).
The following packages were automatically installed and are no longer required:
  libreoffice-ogltrans pure-ftpd-common systemd-hwe-hwdb
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 126 not upgraded.
Latifa@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine:~$ sudo pvcreate /dev/sdb /dev/sdc
Physical volume "/dev/sdb" successfully created.
Physical volume "/dev/sdc" successfully created.
Latifa@esprit-virtual-machine:~$ sudo vgcreate vg1 /dev/sdb /dev/sdc
Volume group "vg1" successfully created
Latifa@esprit-virtual-machine:~$ sudo lvcreate -n lv1 -L +4G vg1
Logical volume "lv1" created.
Latifa@esprit-virtual-machine:~$ sudo lvcreate -n lv2 -L +6G vg1
Logical volume "lv2" created.
Latifa@esprit-virtual-machine:~$ sudo lvcreate -n lv3 -L +4G vg1
Logical volume "lv3" created.
Latifa@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine:~$ sudo vgdisplay vg1
--- Volume group ---
VG Name                vg1
System ID
Format                 lvm2
Metadata Areas         2
Metadata Sequence No   4
VG Access               read/write
VG Status               resizable
MAX LV                 0
Cur LV                 3
Open LV                 0
Max PV                 0
Cur PV                 2
Act PV                 2
VG Size                 14.99 GiB
PE Size                 4.00 MiB
Total PE                3838
Alloc PE / Size        3584 / 14.00 GiB
Free PE / Size          254 / 1016.00 MiB
VG UUID                fN1dL0-suLm-UyfH-0FtE-u1hD-w1kP-zIJZFa

Latifa@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine:~$ sudo lvscan
ACTIVE                /dev/vg1/lv1 [4.00 GiB] inherit
ACTIVE                /dev/vg1/lv2 [6.00 GiB] inherit
ACTIVE                /dev/vg1/lv3 [4.00 GiB] inherit
Latifa@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine:~$ sudo fdisk -l
```

```
Disk /dev/mapper/vg1-lv1: 4 GiB, 4294967296 bytes, 8388608 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mapper/vg1-lv2: 6 GiB, 6442450944 bytes, 12582912 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mapper/vg1-lv3: 4 GiB, 4294967296 bytes, 8388608 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Latifa@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine:~$ sudo mkfs -t ext2 /dev/vg1/lv1
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 1048576 4k blocks and 262144 inodes
Filesystem UUID: 6ddd5f65-5b9b-4f6e-9008-d373c1367a41
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736

Allocating group tables: done
Writing inode tables: done
Writing superblocks and filesystem accounting information: done
```



```
Latifa@esprit-virtual-machine:~$ sudo mkfs -t ext4 /dev/vg1/lv2
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 1572864 4k blocks and 393216 inodes
Filesystem UUID: 85439b33-4469-436d-b443-1a78e19b4f8c
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

Latifa@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine:~$ sudo mkfs -t ext3 /dev/vg1/lv3
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 1048576 4k blocks and 262144 inodes
Filesystem UUID: 574c7e52-ec9a-446d-95dd-44fb3484a450
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

Latifa@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine:~$ sudo tune2fs -j /dev/vg1/lv1
tune2fs 1.46.5 (30-Dec-2021)
Creating journal inode: done
Latifa@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine:~$ sudo mkdir /mylog /myhome /mytmp
Latifa@esprit-virtual-machine:~$ sudo mount /dev/vg1/lv1 /mylog
```

```
Latifa@esprit-virtual-machine:~$ sudo mount /dev/vg1/lv2 /myhome
```

```
Latifa@esprit-virtual-machine:~$ sudo mount /dev/vg1/lv3 /mytmp
Latifa@esprit-virtual-machine:~$ mount -a
Latifa@esprit-virtual-machine:~$
Latifa@esprit-virtual-machine:~$ df -h
```

Filesystem	Size	Used	Avail	Use%	Mounted on
tmpfs	389M	2.1M	387M	1%	/run
/dev/sda3	24G	13G	10G	57%	/
tmpfs	1.9G	0	1.9G	0%	/dev/shm
tmpfs	5.0M	4.0K	5.0M	1%	/run/lock
/dev/sda2	512M	5.3M	507M	2%	/boot/efi
tmpfs	389M	2.4M	387M	1%	/run/user/1014
/dev/sr1	3.6G	3.6G	0	100%	/media/Latifa/Ubuntu 22.04.1 LTS amd64
/dev/sr0	127M	127M	0	100%	/media/Latifa/CDROM
/dev/mapper/vg1-lv1	3.9G	92K	3.7G	1%	/mylog
/dev/mapper/vg1-lv2	5.9G	24K	5.6G	1%	/myhome
/dev/mapper/vg1-lv3	3.9G	92K	3.7G	1%	/mytmp

```

Latifa@esprit-virtual-machine: ~
# /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a
# device; this may be used with UUID= as a more robust way to name devices
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point> <type> <options> <dump> <pass>
# / was on /dev/sda3 during installation
UUID=48c47d3e-2a69-4299-a2af-b9e6ace9bc63 / ext4 errors=remount-ro 0 1
# /boot/efi was on /dev/sda2 during installation
UUID=4025-B56D /boot/efi vfat umask=0077 0 1
/swapfile none swap sw 0 0
/dev/fd0 /media/floppy0 auto rw,user,noauto,exec,utf8 0 0
/dev/vg1/lv1 /mylog ext3 defaults 0 0
/dev/vg1/lv2 /myhome ext4 defaults 0 0
/dev/vg1/lv3 /mytmp ext3 noexec 0 0

```

```

Latifa@esprit-virtual-machine:~$ sudo groupadd users

```

```

Latifa@esprit-virtual-machine:~$ sudo useradd -g users -d /myhome/user1 user1
Latifa@esprit-virtual-machine:~$ sudo useradd -g users -d /myhome/user2 user2
Latifa@esprit-virtual-machine:~$

```

```

Latifa@esprit-virtual-machine:~$ sudo groupadd admins

```

```

Latifa@esprit-virtual-machine:~$ sudo useradd -g admins -d /myhome/admin1 admin1
Latifa@esprit-virtual-machine:~$ sudo useradd -g admins -d /myhome/admin2 admin2
Latifa@esprit-virtual-machine:~$

```

```

Latifa@esprit-virtual-machine:~$ sudo dpkg --get-architecture | grep quota
ii quota 4.06-1build2 amd64 disk quota management tools
Latifa@esprit-virtual-machine:~$

```

```

Latifa@esprit-virtual-machine: ~
# /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a
# device; this may be used with UUID= as a more robust way to name devices
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point> <type> <options> <dump> <pass>
# / was on /dev/sda3 during installation
UUID=48c47d3e-2a69-4299-a2af-b9e6ace9bc63 / ext4 errors=remount-ro 0 1
# /boot/efi was on /dev/sda2 during installation
UUID=4025-B56D /boot/efi vfat umask=0077 0 1
/swapfile none swap sw 0 0
/dev/fd0 /media/floppy0 auto rw,user,noauto,exec,utf8 0 0
/dev/vg1/lv1 /mylog ext3 defaults 0 0
/dev/vg1/lv2 /myhome ext4 defaults,usrquota,grpquota 0 0
/dev/vg1/lv3 /mytmp ext3 noexec 0 0

```

```

Latifa@esprit-virtual-machine:~$ sudo vi /etc/fstab
Latifa@esprit-virtual-machine:~$ sudo mount -o remount /myhome
Latifa@esprit-virtual-machine:~$ sudo quotacheck -cug /myhome
Latifa@esprit-virtual-machine:~$

```

```
Latifa@esprit-virtual-machine: ~
GNU nano 6.2 /tmp//EdP.ahSTwDB *
Disk quotas for user user1 (uid 1019):
Filesystem blocks soft hard inodes soft hard
/dev/mapper/vg1-lv2 0 0 0 0 20 25
```

```
S-4-02
Latifa@esprit-virtual-machine:~$ sudo ls -l /myhome
total 32
drwxr-x--- 2 admin1 admins 4096 18:25 3 ديسمبير admin1
drwxr-x--- 2 admin2 admins 4096 18:26 3 ديسمبير admin2
-rw----- 1 root root 6144 17:56 3 ديسمبير aquota.group
-rw----- 1 root root 6144 17:56 3 ديسمبير aquota.user
drwxr-x--- 2 user1 users 4096 18:23 3 ديسمبير user1
drwxr-x--- 2 user2 users 4096 18:23 3 ديسمبير user2
Latifa@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine:~$ sudo edquota user1
Latifa@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine:~$ sudo edquota -T user1
Latifa@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine: ~
GNU nano 6.2 /tmp//EdP.aS9L3yN *
times to enforce softlimit for user user1 (uid 1019):
Time units may be: days, hours, minutes, or seconds
Filesystem block grace inode grace
/dev/mapper/vg1-lv2 unset 3days
```

```
Latifa@esprit-virtual-machine:~$ sudo su - user1
user1@esprit-virtual-machine:~$ pwd
/myhome/user1
user1@esprit-virtual-machine:~$ touch file{1..30}
touch: cannot touch 'file25': Disk quota exceeded
touch: cannot touch 'file26': Disk quota exceeded
touch: cannot touch 'file27': Disk quota exceeded
touch: cannot touch 'file28': Disk quota exceeded
touch: cannot touch 'file29': Disk quota exceeded
touch: cannot touch 'file30': Disk quota exceeded
user1@esprit-virtual-machine:~$ ls
file1 file11 file13 file15 file17 file19 file20 file22 file24 file4 file6 file8
file10 file12 file14 file16 file18 file2 file21 file23 file3 file5 file7 file9
user1@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine:~$ sudo edquota user1
Latifa@esprit-virtual-machine:~$
```

```
GNU nano 6.2 /tmp//EdP.ayTOH92
Disk quotas for user user1 (uid 1019):
Filesystem blocks soft hard inodes soft hard
/dev/mapper/vg1-lv2 4 0 0 25 20 25
```

```
Latifa@esprit-virtual-machine:~$ sudo edquota -g admins
Latifa@esprit-virtual-machine:~$
```

```
Latifa@esprit-virtual-machine: ~
GNU nano 6.2 /tmp//EdP.af28nfs *
Disk quotas for group admins (gid 1024):
Filesystem blocks soft hard inodes soft hard
/dev/mapper/vg1-lv2 0 366211 488282 0 0 0
```



```

Latifa@esprit-virtual-machine:~$ sudo su - admin1
admin1@esprit-virtual-machine:~$ pwd
/myhome/admin1
admin1@esprit-virtual-machine:~$ dd if=/dev/zero of=file bs=100M count=10
10+0 records in
10+0 records out
1048576000 bytes (1.0 GB, 1000 MiB) copied, 1.96683 s, 533 MB/s
admin1@esprit-virtual-machine:~$ dd if=/dev/zero of=file1 bs=100M count=5
5+0 records in
5+0 records out
524288000 bytes (524 MB, 500 MiB) copied, 8.62332 s, 60.8 MB/s
admin1@esprit-virtual-machine:~$ dd if=/dev/zero of=file2 bs=100M count=5
dd: error writing 'file2': Disk quota exceeded
5+0 records in
4+0 records out
475123712 bytes (475 MB, 453 MiB) copied, 4.34404 s, 109 MB/s
admin1@esprit-virtual-machine:~$ ls -lh
total 2.0G
-rw-r--r-- 1 admin1 admins 1000M 19:27 3 ديسمبر file
-rw-r--r-- 1 admin1 admins 500M 19:27 3 ديسمبر file1
-rw-r--r-- 1 admin1 admins 454M 19:28 3 ديسمبر file2
admin1@esprit-virtual-machine:~$

```

```

Latifa@esprit-virtual-machine:~$ sudo repquota -ug /myhome
*** Report for user quotas on device /dev/mapper/vg1-lv2
Block grace time: 7days; Inode grace time: 7days

```

User	used	Block limits		grace	File limits			
		soft	hard		used	soft	hard	grace
root	-- 4	0	0		1	0	0	
user1	-- 4	0	0		25	20	25	6days
admin1	-- 2000004	0	0		4	0	0	

```

*** Report for group quotas on device /dev/mapper/vg1-lv2
Block grace time: 7days; Inode grace time: 7days

```

Group	used	Block limits		grace	File limits			
		soft	hard		used	soft	hard	grace
root	-- 4	0	0		1	0	0	
users	-- 4	0	0		25	0	0	
admins	+ 2000004 15000000 2000000				4	0	0	

```

Latifa@esprit-virtual-machine:~$

```