LVM - Creation of first physical volume, volume group and logical group.

Author does not take any responsibilities on the guide below.

Create new physical volume, volume group and logical group.

Mount it to freshly created directory.

Add to fstab for automatic mount during boot process.

```
apt install \
    lvm2

dnf install
    lvm2
```

Define variable

```
hostname
export host="$(hostname)"

lsblk

export dev="/dev/sdc"
export size="9.9G"
```

Understand which is filesystem type mainly used on the system

```
df -hT
```

```
[13:12:26 Sun Mar 15] @gcp1mx1 ~# df -hT
Filesystem     Type      Size  Used Avail Use% Mounted on
udev           devtmpfs  977M     0  977M   0% /dev
tmpfs          tmpfs     198M  680K  197M   1% /run
/dev/sda1      ext4       99G   63G   32G  67% /
tmpfs          tmpfs     989M  2.3M  986M   1% /dev/shm
tmpfs          tmpfs     5.0M     0  5.0M   0% /run/lock
/dev/sda15     vfat      124M   12M  113M  10% /boot/efi
tmpfs          tmpfs     198M     0  198M   0% /run/user/1002
```

In my case it is 'ext4', I shall continue in similarity to this. Redhat family distros might want to use 'xfs'

```
export fs="ext4"
# export fs="xfs"

pvcreate ${dev}

vgcreate vg-${host}-data ${dev}

lvcreate -L ${size} -n lv-${host}-data vg-${host}-data

lvscan
```

```
[13:15:59 Sun Mar 15] @gcp1mx1 ~# export fs="ext4"
[13:15:59 Sun Mar 15] @gcp1mx1 ~# pvcreate ${dev}
  Physical volume "/dev/sdc" successfully created.
[13:16:04 Sun Mar 15] @gcp1mx1 ~# vgcreate vg-${host}-data ${dev}
  Volume group "vg-gcp1mx1-data" successfully created
[13:16:11 Sun Mar 15] @gcp1mx1 ~# lvcreate -L ${size} -n lv-${host}-data vg-${host}-data
  Rounding up size to full physical extent 9.90 GiB
  Logical volume "lv-gcp1mx1-data" created.
[13:16:17 Sun Mar 15] @gcp1mx1 ~# lvscan
  ACTIVE            '/dev/vg-gcp1mx1-data/lv-gcp1mx1-data' [9.90 GiB] inherit
[13:16:22 Sun Mar 15] @gcp1mx1 ~#
```

```
mkfs.${fs} /dev/vg-${host}-data/lv-${host}-data
mkdir -p /mnt/${host}-data
mount /dev/vg-${host}-data/lv-${host}-data /mnt/${host}-data
df -h
```

```
[13:16:48 Sun Mar 15] @gcp1mx1 ~# mkfs.${fs} /dev/vg-${host}-data/lv-${host}-data
mke2fs 1.47.0 (5-Feb-2023)
Discarding device blocks: done
Creating filesystem with 2595840 4k blocks and 648960 inodes
Filesystem UUID: c450ff0f-f073-4faa-8e56-cce7195f0514
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632

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

[13:16:48 Sun Mar 15] @gcp1mx1 ~# mkdir -p /mnt/${host}-data
[13:16:54 Sun Mar 15] @gcp1mx1 ~# mount /dev/vg-${host}-data/lv-${host}-data /mnt/${host}-data
[13:16:59 Sun Mar 15] @gcp1mx1 ~# df -h
Filesystem                                      Size  Used Avail Use% Mounted on
udev                                            977M     0  977M   0% /dev
tmpfs                                           198M  684K  197M   1% /run
/dev/sda1                                        99G   63G   32G  67% /
tmpfs                                           989M  2.3M  986M   1% /dev/shm
tmpfs                                           5.0M     0  5.0M   0% /run/lock
/dev/sda15                                      124M   12M  113M  10% /boot/efi
tmpfs                                           198M     0  198M   0% /run/user/1002
/dev/mapper/vg--gcp1mx1--data-lv--gcp1mx1--data  9.7G   24K  9.2G   1% /mnt/gcp1mx1-data
```

```
#TODO: add into /fstab with oneliner
echo "add me to fstab"
mount | grep ${host}
nano /etc/fstab
```

```
/dev/mapper/vg--host--data-lv--host--data /mnt/host-data ext4 defaults 0 1
```

```
  GNU nano 7.2                                                    /etc/fstab *
# /etc/fstab: static file system information
UUID=[redacted] / ext4 rw,discard,errors=remount-ro,x-systemd.growfs 0 1
UUID=[redacted] /boot/efi vfat defaults 0 0
/dev/mapper/vg--gcp1mx1--data-lv--gcp1mx1--data /mnt/gcp1mx1-data ext4 defaults 0 1
```

Reload fstab and remount all drives. New drive must be mounted.

```
systemctl daemon-reload
mount -a
```

```
[13:19:18 Sun Mar 15] @gcp1mx1 ~# nano /etc/fstab
[13:20:05 Sun Mar 15] @gcp1mx1 ~# systemctl daemon-reload
[13:20:10 Sun Mar 15] @gcp1mx1 ~# mount -a
[13:20:12 Sun Mar 15] @gcp1mx1 ~# df -h
Filesystem                                        Size  Used Avail Use% Mounted on
udev                                              977M     0  977M   0% /dev
tmpfs                                             198M  688K  197M   1% /run
/dev/sda1                                          99G   63G   32G  67% /
tmpfs                                             989M  2.3M  986M   1% /dev/shm
tmpfs                                             5.0M     0  5.0M   0% /run/lock
/dev/sda15                                        124M   12M  113M  10% /boot/efi
tmpfs                                             198M     0  198M   0% /run/user/1002
/dev/mapper/vg--gcp1mx1--data-lv--gcp1mx1--data  9.7G   24K  9.2G   1% /mnt/gcp1mx1-data
[13:20:40 Sun Mar 15] @gcp1mx1 ~#
```

When possible, test VM restart to ensure disk will be mounted

```
shutdown -r now
```

Revision #7
Created 13 February 2025 12:45:17 by Anton
Updated 15 March 2026 11:22:27 by Anton