# Solution M6: FHS, Disks, Filesystems, and Archives

One possible solution could be:

1. Create the **tar + xz** compressed archive

[lsauser@centos ~]$ **time sudo tar cJvf etc.tar.xz /etc**

1. Create the **tar + bzip2** compressed archive

[lsauser@centos ~]$ **time sudo tar cjvf etc.tar.bzip /etc**

1. Create the **tar + gzip** compressed archive

[lsauser@centos ~]$ **time sudo tar czvf etc.tar.gzip /etc**

1. Export the results

[lsauser@centos ~]$ **ls -alhSr etc\* > compression-test.txt**

1. Create the disk layout

[lsauser@centos ~]$ **sudo gdisk /dev/sdb**

* 1. **n, 1, 2048, +700M, 8300**
  2. **n, 2, 1435648, +200M, 8200**
  3. **n, 3, 1845248, +300M, 8300**
  4. **n, 4, 2459648, +100M, 8e00**
  5. **n, 5, 2664448, +300M, 8e00**
  6. **n, 6, 3278848, +300M, 8e00**

1. Create the mount points

[lsauser@centos ~]$ **sudo mkdir -p /addon/{xfs,ext4,lvm}**

1. For the **xfs** part we can do:
   1. Create the filesystem

[lsauser@centos ~]$ **sudo mkfs -t xfs /dev/sdb1**

* 1. Mount it

[lsauser@centos ~]$ **sudo mount -t xfs /dev/sdb1 /addon/xfs**

* 1. Get its **UUID** string

[lsauser@centos ~]$ **sudo blkid /dev/sdb1**

* 1. Then open **/etc/fstab** with **vi** and add for example:

**UUID=d8caa1ac-8502-4eb4-b7d1-9f1e40a08d26 /addon/xfs xfs defaults 0 0**

* 1. Then save and exit

1. For the **swap** part we can do:
   1. Initialize the swap

[lsauser@centos ~]$ **sudo mkswap /dev/sdb2**

* 1. Turn it on

[lsauser@centos ~]$ **sudo swapon /dev/sdb2**

* 1. If we haven’t copied the **UUID** after the **mkswap** command, then we can issue

[lsauser@centos ~]$ **sudo blkid /dev/sdb2**

* 1. Then open **/etc/fstab** with **vi** and add for example:

**UUID=5ec6cb11-c153-4e73-84ab-fe39719ac70e swap swap defaults 0 0**

* 1. Then save and exit

1. For the **ext4** part we can do:
   1. Create the filesystem

[lsauser@centos ~]$ **sudo mkfs -t ext4 /dev/sdb3**

* 1. Mount it

[lsauser@centos ~]$ **sudo mount -t ext4 /dev/sdb3 /addon/ext4**

* 1. Get its **UUID** string

[lsauser@centos ~]$ **sudo blkid /dev/sdb3**

* 1. Then open **/etc/fstab** with **vi** and add for example:

**UUID=dfaf9d7e-99a4-4f8c-821b-3170c482bb04 /addon/ext4 ext4 defaults 0 0**

* 1. Then save and exit

1. Create the physical volumes:

[lsauser@centos ~]$ **sudo pvcreate /dev/sdb4**

[lsauser@centos ~]$ **sudo pvcreate /dev/sdb5**

[lsauser@centos ~]$ **sudo pvcreate /dev/sdb6**

1. Create the volume group

[lsauser@centos ~]$ **sudo vgcreate vg\_addon /dev/sdb4 /dev/sdb5 /dev/sdb6**

1. Create the logical volume

[lsauser@centos ~]$ **sudo lvcreate -n lv\_addon -L 400m vg\_addon**

1. For the **ext4** filesystem on **lvm** we can do:
   1. Create the filesystem

[lsauser@centos ~]$ **sudo mkfs -t ext4 /dev/vg\_addon/lv\_addon**

* 1. Mount it

[lsauser@centos ~]$ **sudo mount -t ext4 /dev/vg\_addon/lv\_addon /addon/lvm**

* 1. Get its **UUID** string

[lsauser@centos ~]$ **sudo blkid /dev/vg\_addon/lv\_addon**

* 1. Then open **/etc/fstab** with **vi** and add for example:

**UUID=eadc923c-bc2a-4200-b870-04498fec12ec /addon/lvm ext4 defaults 0 0**

* 1. Then save and exit

1. Extend the logical volume

[lsauser@centos ~]$ **sudo lvextend -l +100%FREE /dev/vg\_addon/lv\_addon**

1. Resize the filesystem

[lsauser@centos ~]$ **sudo resize2fs /dev/vg\_addon/lv\_addon**

1. We can do:
   1. **reboot**
   2. Then login
   3. Then check with **mount**
   4. And then with **lsblk**

*Self-check Script Output:*

[lsauser@centos ~]$ **curl -s https://courses.zahariev.pro/m6.sh | sudo bash**

\* Working on RHEL-based machine (BIOS)

\* Testing if ~/etc.tar.xz file exists ...

... PASS

\* Testing if ~/etc.tar.bzip file exists ...

... PASS

\* Testing if ~/etc.tar.gzip file exists ...

... PASS

\* Testing the ~/compression-test.txt file ...

... PASS

\* Testing the /dev/sdb disk layout ...

... PASS

\* Testing partition #1 of /dev/sdb disk ...

... PASS

\* Testing partition #2 of /dev/sdb disk ...

... PASS

\* Testing partition #3 of /dev/sdb disk ...

... PASS

\* Testing partition #4 of /dev/sdb disk ...

... PASS

\* Testing partition #5 of /dev/sdb disk ...

... PASS

\* Testing partition #6 of /dev/sdb disk ...

... PASS

\* Testing mount folder structure ...

... PASS

\* Testing partition #1 for filesystem and mount point ...

... PASS

\* Testing partition #2 for filesystem and mount point ...

... PASS

\* Testing partition #3 for filesystem and mount point ...

... PASS

\* Testing that partitions #4, #5, and #6 are initialized as PVs ...

... PASS

\* Testing that all three PVs are included in a VG ...

... PASS

\* Testing that LV is created on top of the VG ...

... PASS

\* Testing that LV is resized to 100% of the VG and mounted ...

... PASS

\* Testing that LV registed in the /etc/fstab file ...

... PASS

{"message":"Your solution report is available here: https:\/\/courses.zahariev.pro\/check.php?202201221029515nrYjUkLHM","status":true}