

# **Module 7: Advanced File system management**

## **Assignment**

### **1 – Create two logical volumes inside an extended partition**

```
root@akmtir-ThinkPad-T400:/home/akmtir#
```

```
root@akmtir-ThinkPad-T400:/home/akmtir# fdisk -l /dev/mmcbk0
```

```
Disk /dev/mmcbk0: 1977 MB, 1977614336 bytes
```

```
4 heads, 16 sectors/track, 60352 cylinders, total 3862528 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 identifier: 0x91d7fd22
```

Device	Boot	Start	End	Blocks	Id	System
/dev/mmcbk0p1		2048	392672	195312+	83	Linux
/dev/mmcbk0p2		392673	1369235	488281+	83	Linux
/dev/mmcbk0p3		1369236	3862527	1246646	5	Extended
/dev/mmcbk0p5		1371284	1957221	292969	83	Linux
/dev/mmcbk0p6		1959270	2154582	97656+	83	Linux
/dev/mmcbk0p7		2156631	2449599	146484+	83	Linux

```
root@akmtir-ThinkPad-T400:/home/akmtir#
```

```
root@akmtir-ThinkPad-T400:/home/akmtir# lsblk /dev/mmcbk0
```

```
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
```

```
mmcbk0    179:0  0  1.9G  0 disk
```

```
├─mmcbk0p1 179:1  0 190.8M  0 part
├─mmcbk0p2 179:2  0 476.9M  0 part
├─mmcbk0p3 179:3  0   1K  0 part
├─mmcbk0p5 179:5  0 286.1M  0 part
├─mmcbk0p6 179:6  0  95.4M  0 part
└─mmcbk0p7 179:7  0 143.1M  0 part
```

```
root@akmtir-ThinkPad-T400:/home/akmtir#
```

```
root@akmtir-ThinkPad-T400:/home/akmtir# pvcreate /dev/mmcbk0p5 /dev/mmcbk0p6
```

```
Physical volume "/dev/mmcbk0p5" successfully created
```

```
Physical volume "/dev/mmcbk0p6" successfully created
```

```
root@akmtir-ThinkPad-T400:/home/akmtir#
```

```
root@akmtir-ThinkPad-T400:/home/akmtir# pvdisk /dev/mmcbk0p5
```

```
"/dev/mmcbk0p5" is a new physical volume of "286.10 MiB"
```

```
--- NEW Physical volume ---
```

```
PV Name      /dev/mmcbk0p5
```

```
VG Name
```

```
PV Size      286.10 MiB
```

```

Allocatable      NO
PE Size          0
Total PE         0
Free PE          0
Allocated PE     0
PV UUID          KMiHxD-YIka-mpQM-Y04p-4Tt7-8adu-FGXX5e

```

```
root@akmtir-ThinkPad-T400:/home/akmtir# pvs
```

```

PV      VG  Fmt Attr PSize  PFree
/dev/mmcblk0p5  lvm2 a-- 286.10m 286.10m
/dev/mmcblk0p6  lvm2 a-- 95.37m 95.37m

```

```
root@akmtir-ThinkPad-T400:/home/akmtir#
```

```
root@akmtir-ThinkPad-T400:/home/akmtir# vgcreate vg1 /dev/mmcblk0p5 /dev/mmcblk0p6
```

```
Volume group "vg1" successfully created
```

```
root@akmtir-ThinkPad-T400:/home/akmtir#
```

```
root@akmtir-ThinkPad-T400:/home/akmtir# vgdisplay vg1
```

```

--- Volume group ---
VG Name          vg1
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          376.00 MiB
PE Size          4.00 MiB
Total PE         94
Alloc PE / Size  0 / 0
Free PE / Size   94 / 376.00 MiB
VG UUID          T9blyq-7cRZ-vrri-HIAi-np6O-qfRm-rjIT8G

```

```
root@akmtir-ThinkPad-T400:/home/akmtir# vgdisplay -v vg1
```

```
Using volume group(s) on command line
```

```
Finding volume group "vg1"
```

```

--- Volume group ---
VG Name          vg1
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        376.00 MiB
PE Size        4.00 MiB
Total PE       94
Alloc PE / Size 0 / 0
Free PE / Size  94 / 376.00 MiB
VG UUID        T9blyq-7cRZ-vrri-HIAi-np6O-qfRm-rjIT8G

```

--- Physical volumes ---

```

PV Name        /dev/mmcblk0p5
PV UUID        KMiHxD-YIka-mpQM-Y04p-4Tt7-8adu-FG XK5e
PV Status      allocatable
Total PE / Free PE 71 / 71

```

```

PV Name        /dev/mmcblk0p6
PV UUID        hObb3l-rBLP-xSqD-cKa3-2ENQ-tnOO-yglkhg
PV Status      allocatable
Total PE / Free PE 23 / 23

```

```

root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# vgs
  VG   #PV #LV #SN Attr   VSize  VFree
vg1    2  0  0 wz--n- 376.00m 376.00m
root@akmtir-ThinkPad-T400:/home/akmtir# lvcreate -L 150M -n lvm1 vg1
Rounding up size to full physical extent 152.00 MiB
Logical volume "lvm1" created
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# lvcreate -L 150M -n lvm2 vg1
Rounding up size to full physical extent 152.00 MiB
Logical volume "lvm2" created
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# lvs
  LV   VG   Attr   LSize  Pool Origin Data%  Move Log Copy%  Convert
lvm1  vg1  -wi-a---- 152.00m
lvm2  vg1  -wi-a---- 152.00m
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# ls -l /dev/vg1/
total 0
lrwxrwxrwx 1 root root 7 May 16 00:10 lvm1 -> ../dm-0
lrwxrwxrwx 1 root root 7 May 16 00:10 lvm2 -> ../dm-1
root@akmtir-ThinkPad-T400:/home/akmtir# ls -l /dev | grep dm-

```

```
brw-rw---- 1 root disk    252,  0 May 16 00:10 dm-0
brw-rw---- 1 root disk    252,  1 May 16 00:10 dm-1
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# mkfs.ext4 /dev/vg1/lvm1
mke2fs 1.42.9 (4-Feb-2014)
Discarding device blocks: done
Filesystem label=
OS type: Linux
Block size=1024 (log=0)
Fragment size=1024 (log=0)
Stride=0 blocks, Stripe width=0 blocks
38912 inodes, 155648 blocks
7782 blocks (5.00%) reserved for the super user
First data block=1
Maximum filesystem blocks=67371008
19 block groups
8192 blocks per group, 8192 fragments per group
2048 inodes per group
Superblock backups stored on blocks:
    8193, 24577, 40961, 57345, 73729
```

```
Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done
```

```
root@akmtir-ThinkPad-T400:/home/akmtir# mkdir lvm1
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# mount -t ext4 /dev/vg1/lvm1 lvm1/
root@akmtir-ThinkPad-T400:/home/akmtir# ls -lah lvm1/
total 33K
drwxr-xr-x 3 root  root  1.0K May 16 00:17 .
drwx----- 54 akmtir akmtir 20K May 16 00:18 ..
drwx----- 2 root  root  12K May 16 00:17 lost+found
root@akmtir-ThinkPad-T400:/home/akmtir#
```

## **2 – Create a softlink for the file /software/sample**

```
[root@server1 softLinks]#
[root@server1 softLinks]# pwd
/home/akmtir/softLinks
[root@server1 softLinks]# ls -lhi /software/sample
161627 -rw-r--r--. 1 root root 0 May 15 18:21 /software/sample
[root@server1 softLinks]#
[root@server1 softLinks]# ln -s /software/sample soft-link-sample
```

```
[root@server1 softLinks]# ls -lhi
total 0
480009 lrwxrwxrwx. 1 root root 16 May 15 18:22 soft-link-sample -> /software/sample
[root@server1 softLinks]#
```

### **3 – Set hostname for your system as LinuxAdmin**

```
[root@server1 ~]#
[root@server1 ~]# hostname
server1.example.com
[root@server1 ~]#
[root@server1 ~]# hostnamectl set-hostname LinuxAdmin.example.com
[root@server1 ~]#
[root@server1 ~]# hostname
linuxadmin.example.com
[root@server1 ~]#
```

### **4 – Set an IP address and gateway for your system (CentOS7)**

```
[root@server1 ~]#
[root@server1 ~]# vi /etc/sysconfig/network-scripts/ifcfg-enp0s3
[root@server1 ~]#
[root@server1 ~]# cat /etc/sysconfig/network-scripts/ifcfg-enp0s3
TYPE="Ethernet"
BOOTPROTO="static"
DEFROUTE="yes"
IPV4_FAILURE_FATAL="no"
IPV6INIT=no
IPV6_AUTOCONF="yes"
IPV6_DEFROUTE="yes"
IPV6_PEERDNS="yes"
IPV6_PEERROUTES="yes"
IPV6_FAILURE_FATAL="no"
IPV6_ADDR_GEN_MODE="stable-privacy"
NAME="enp0s3"
UUID="242dafd8-331e-49ec-bc24-e4e4bdeed4ae"
DEVICE="enp0s3"
ONBOOT="yes"
PEERDNS=yes
PEERROUTES=yes
IPADDR=192.168.1.22
NETMASK=255.255.255.0
GATEWAY=192.168.1.1
DNS1=8.8.8.8
[root@server1 ~]#
[root@server1 ~]#
```

```
[root@server1 ~]# ip a s enp0s3
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether 08:00:27:c0:3a:57 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.22/24 brd 192.168.1.255 scope global enp0s3
        valid_lft forever preferred_lft forever
[root@server1 ~]#
```

```
[root@server1 ~]#
[root@server1 ~]# dig www.edureka.co

; <<>> DiG 9.9.4-RedHat-9.9.4-37.el7 <<>> www.edureka.co
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 36276
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags::; udp: 512
;; QUESTION SECTION:
;www.edureka.co.                IN      A

;; ANSWER SECTION:
www.edureka.co.                59      IN      A      52.10.187.101

;; Query time: 64 msec
;; SERVER: 8.8.8.8#53(8.8.8.8)
;; WHEN: Mon May 15 18:11:25 CEST 2017
;; MSG SIZE rcvd: 59

[root@server1 ~]#
```

## **5 – List out the packages required for quotas and install it**

```
[root@server1 ~]#
[root@server1 ~]# rpm -qa | grep quota
quota-4.01-14.el7.x86_64
quota-nls-4.01-14.el7.noarch
[root@server1 ~]#
```