

Презентация по лабораторной работе №15

Управление логическими томами (LVM)

Анна Саенко

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Российский университет дружбы народов, Москва, Россия

Цели и задачи работы

Цель лабораторной работы

Получить практические навыки:

- создания физических томов;
- формирования групп томов;
- управления логическими томами;
- изменения размера LVM и файловых систем.

1. Подготовить диски и создать физические тома
2. Создать VG и LV
3. Сформировать файловую систему и настроить монтирование
4. Расширить группу томов и логический том
5. Проверить корректность изменений
6. Выполнить самостоятельное задание по созданию и расширению LV

Ход выполнения

Подготовка диска /dev/sdb

```
Command (m for help): n
Partition type
  p  primary (0 primary, 0 extended, 4 free)
  e  extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1): 1
First sector (2048-3145727, default 2048):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (2048-3145727, default 3145727): +300M
```

```
Created a new partition 1 of type 'Linux' and of size 300 MiB.
Partition #1 contains a xfs signature.
```

```
Do you want to remove the signature? [Y]es/[N]o: Y
```

```
The signature will be removed by a write command.
```

```
Command (m for help): t
Selected partition 1
Hex code or alias (type L to list all): 8e
Changed type of partition 'Linux' to 'Linux LVM'.
```

```
Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.
```

```
root@aasaenko:/home/aasaenko# partprobe /dev/sdb
root@aasaenko:/home/aasaenko# pvcreate /dev/sdb1
  Physical volume "/dev/sdb1" successfully created.
root@aasaenko:/home/aasaenko# pvs
PV          VG      Fmt Attr PSize  PFree
/dev/sda3   rl_vbox lvm2  a--  <39.00g    0
/dev/sdb1     lvm2   ---  300.00m 300.00m
root@aasaenko:/home/aasaenko#
```

Создание физического тома

```
pvcreate /dev/sdb1
```

```
root@aasaenko:/home/aasaenko#
root@aasaenko:/home/aasaenko# pvs
  PV          VG      Fmt  Attr PSize   PFree
  /dev/sda3    rl_vbox lvm2 a--  <39.00g       0
  /dev/sdb1        vgdata lvm2 ---  300.00m 300.00m
root@aasaenko:/home/aasaenko# vgcreate vgdata /dev/sdb1
  Volume group "vgdata" successfully created
root@aasaenko:/home/aasaenko# vgs
  VG      #PV #LV #SN Attr   VSize   VFree
  rl_vbox  1   2   0 wz--n- <39.00g       0
  vgdata   1   0   0 wz--n- 296.00m 296.00m
root@aasaenko:/home/aasaenko# pvs
  PV          VG      Fmt  Attr PSize   PFree
  /dev/sda3    rl_vbox lvm2 a--  <39.00g       0
  /dev/sdb1    vgdata  lvm2 a--  296.00m 296.00m
root@aasaenko:/home/aasaenko#
```

Рис. 2: Проверка PV

Создание VG и LV

```
root@aasaenko:~# lvcreate -n lvdata -l 50%FREE vgdata
Logical volume "lvdata" created.
root@aasaenko:~# lvs
  LV      VG     Attr       LSize   Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
  root    rl_vbox -wi-ao---- 35.05g
  swap    rl_vbox -wi-ao---- <3.95g
  lvdata  vgdata  -wi-a---- 148.00m
root@aasaenko:~# mkfs.ext4 /dev/vgdata/lvdata
mke2fs 1.47.1 (20-May-2024)
Creating filesystem with 151552 1k blocks and 37848 inodes
Filesystem UUID: a1c06e58-f943-409a-b19c-ea3118c5eb3d
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@aasaenko:~# mkdir -p /mnt/data
root@aasaenko:~#
```

Рис. 3: Создание VG и LV

Настройка автомонтирования

```
GNU nano 8.1                               /etc/fstab

#
# /etc/fstab
# Created by anaconda on Tue Sep  9 17:07:12 2025
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
UUID=d83390cc-2d84-4fc0-bd05-ca91de963a39 /          xfs    defaults      0 0
UUID=d9debe2a-1f0b-4b38-9b19-869a45d892f1 /boot       xfs    defaults      0 0
UUID=410f9eed-3ac0-4e21-a5aa-32b986aae5a0 none        swap   defaults      0 0
/dev/vgdata/lvdata           /mnt/data      ext4  defaults      1 2

#UUID=1c1cab63-3081-41d8-af2c-137661cbe1d9  /mnt/data      xfs    defaults      1 2
#UUID=d6d2a497-accc-4b14-844a-25daaeb6123a  /mnt/data-ext  ext4  defaults      1 2
#UUID=904e0395-6ea3-4257-aceb-955c098ab5f2  none     swap   defaults      0 0
```

Рис. 4: Настройка fstab

Проверка монтирования

```
root@aasaenko:/home/aasaenko#  
root@aasaenko:/home/aasaenko# mount -a  
mount: (hint) your fstab has been modified, but systemd still uses  
the old version; use 'systemctl daemon-reload' to reload.  
root@aasaenko:/home/aasaenko# mount | grep mnt  
/dev/mapper/vgdata-lvdata on /mnt/data type ext4 (rw,relatime,seclabel)  
root@aasaenko:/home/aasaenko#
```

Рис. 5: Проверка монтирования

Создание второго раздела /dev/sdb2

```
Using default response p.  
Partition number (2-4, default 2):  
First sector (616448-3145727, default 616448):  
Last sector, +/-sectors or +/-size{K,M,G,T,P} (616448-3145727, default 3145727): +300M
```

```
Created a new partition 2 of type 'Linux' and of size 300 MiB.
```

```
Command (m for help): t  
Partition number (1,2, default 2):  
Hex code or alias (type L to list all): 8e
```

```
Changed type of partition 'Linux' to 'Linux LVM'.
```

```
Command (m for help): p  
Disk /dev/sdb: 1.5 GiB, 1610612736 bytes, 3145728 sectors  
Disk model: VBOX HARDDISK  
Units: sectors of 1 * 512 = 512 bytes  
Sector size (logical/physical): 512 bytes / 512 bytes  
I/O size (minimum/optimal): 512 bytes / 512 bytes  
Disklabel type: dos  
Disk identifier: 0x34d537ef
```

Device	Boot	Start	End	Sectors	Size	Id	Type
/dev/sdb1		2048	616447	614400	300M	8e	Linux LVM
/dev/sdb2		616448	1230847	614400	300M	8e	Linux LVM

```
Command (m for help): w  
The partition table has been altered.  
Syncing disks.
```

```
root@aasaenko:/home/aasaenko#
```

Расширение VG

```
root@aasaenko:/home/aasaenko#
root@aasaenko:/home/aasaenko# pvcreate /dev/sdb2
WARNING: dos signature detected on /dev/sdb2 at offset 510. Wipe it? [y/n]: y
Wiping dos signature on /dev/sdb2.
Physical volume "/dev/sdb2" successfully created.
root@aasaenko:/home/aasaenko# vgextend vgdata /dev/sdb2
Volume group "vgdata" successfully extended
root@aasaenko:/home/aasaenko# vgs
  VG     #PV #LV #SN Attr   VSize   VFree
  rl_vbox  1   2   0 wz--n- <39.00g        0
  vgdata   2   1   0 wz--n- 592.00m  444.00m
root@aasaenko:/home/aasaenko# lvs
  LV   VG     Attr       LSize  Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
  root  rl_vbox -wi-ao---- 35.05g
  swap  rl_vbox -wi-ao---- <3.95g
  lvdata vgdata -wi-ao---- 148.00m
root@aasaenko:/home/aasaenko# df -h
Filesystem           Size  Used Avail Use% Mounted on
/dev/mapper/rl_vbox-root  35G  6.2G  29G  18% /
devtmpfs              4.0M    0  4.0M   0% /dev
tmpfs                 1.8G   84K  1.8G   1% /dev/shm
tmpfs                 731M   9.3M  722M   2% /run
tmpfs                 1.0M    0  1.0M   0% /run/credentials/systemd-journald.service
/dev/sda2              960M  377M  584M  40% /boot
tmpfs                 366M  144K  366M   1% /run/user/1000
/dev/sr0                59M   59M    0 100% /run/media/aasaenko/VBox_GAs_7.1.12
tmpfs                 366M   60K  366M   1% /run/user/0
/dev/mapper/vgdata-lvdata 134M  14K  123M   1% /mnt/data
root@aasaenko:/home/aasaenko#
```

Рис. 7: Расширение VG

Увеличение LV и файловой системы

```
root@aasaenko:/home/aasaenko# lvextend -r -l +50%FREE /dev/vgdata/lvdata
File system ext4 found on vgdata/lvdata mounted at /mnt/data.
Size of logical volume vgdata/lvdata changed from 148.00 MiB (37 extents) to 372.00 MiB (93 extents).
Extending file system ext4 to 372.00 MiB (390070272 bytes) on vgdata/lvdata...
resize2fs /dev/vgdata/lvdata
resize2fs 1.47.1 (20-May-2024)
Filesystem at /dev/vgdata/lvdata is mounted on /mnt/data; on-line resizing required
old_desc_blocks = 2, new_desc_blocks = 3
The filesystem on /dev/vgdata/lvdata is now 380928 (1k) blocks long.

resize2fs done
Extended file system ext4 on vgdata/lvdata.
Logical volume vgdata/lvdata successfully resized.
root@aasaenko:/home/aasaenko# lvs
  LV      VG      Attr       LSize   Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
  root    rl_vbox -wi-ao----  35.05g
  swap    rl_vbox -wi-ao----  <3.95g
  lvdata  vgdata -wi-ao---- 372.00m
root@aasaenko:/home/aasaenko# df -h
Filesystem              Size  Used Avail Use% Mounted on
/dev/mapper/rl_vbox-root 35G  6.2G  29G  18% /
devtmpfs                 4.0M  0     4.0M  0% /dev
tmpfs                     1.8G  84K  1.8G  1% /dev/shm
tmpfs                     731M  9.3M  722M  2% /run
tmpfs                     1.0M  0     1.0M  0% /run/credentials/systemd-journald.service
/dev/sda2                960M 377M  584M  40% /boot
tmpfs                     366M  144K  366M  1% /run/user/1000
/dev/sr0                  59M   59M   0  100% /run/media/aasaenko/VBox_GAs_7.1.12
tmpfs                     366M  60K  366M  1% /run/user/0
/dev/mapper/vgdata-lvdata 344M  14K  324M  1% /mnt/data
root@aasaenko:#
```

Рис. 8: Увеличение LV

Уменьшение LV

```
Resizing the filesystem on /dev/vgdata/lvdata to 331776 (1k) blocks.
The filesystem on /dev/vgdata/lvdata is now 331776 (1k) blocks long.

resize2fs done
remount /dev/vgdata/lvdata /mnt/data
mount: (hint) your fstab has been modified, but systemd still uses
      the old version; use 'systemctl daemon-reload' to reload.
remount done
Reduced file system ext4 on vgdata/lvdata.
Size of logical volume vgdata/lvdata changed from 372.00 MiB (93 extents) to 324.00 MiB (81 extents).
Logical volume vgdata/lvdata successfully resized.
root@aasaenko:/home/aasaenko# lvs
  LV   VG   Attr   LSize  Origin  Data%  Meta%  Move Log Cpy%Sync Convert
  root  rl_vbox -wi-ao---- 35.05g
  swap  rl_vbox -wi-ao---- <3.95g
  lvdata vgdata -wi-ao---- 324.00m
root@aasaenko:/home/aasaenko# df -h
Filesystem           Size  Used Avail Use% Mounted on
/dev/mapper/rl_vbox-root  35G  29G  29G  18% /
devtmpfs              4.0M     0  4.0M  0% /dev
tmpfs                 1.8G  84K  1.8G  1% /dev/shm
tmpfs                 731M  9.3M  722M  2% /run
tmpfs                 1.0M     0  1.0M  0% /run/credentials/systemd-journald.service
/dev/sda2              960M  377M  584M  40% /boot
tmpfs                 366M  144K  366M  1% /run/user/1000
/dev/sr0                59M    59M  0 100% /run/media/aasaenko/VBox_GAs_7.1.12
tmpfs                 366M  60K  366M  1% /run/user/0
/dev/mapper/vgdata-lvdata 298M  14K  280M  1% /mnt/data
root@aasaenko:/home/aasaenko#
```

Рис. 9: Уменьшение LV

Самостоятельная работа

Создание LV на другом диске

```
Command (m for help): n
Partition type
  p  primary (0 primary, 0 extended, 4 free)
  e  extended (container for logical partitions)
Select (default p):

Using default response p.
Partition number (1-4, default 1):
First sector (2048-3145727, default 2048):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (2048-3145727, default 3145727): +600M

Created a new partition 1 of type 'Linux' and of size 600 MiB.

Command (m for help): t
Selected partition 1
Hex code or alias (type L to list all): 8e
Changed type of partition 'Linux' to 'Linux LVM'.

Command (m for help): p
Disk /dev/sdc: 1.5 GiB, 1610612736 bytes, 3145728 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x12eb6085

Device      Boot Start     End Sectors  Size Id Type
/dev/sdcl        2048 1230847 1228800  600M 8e Linux LVM

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.
```

Формирование PV, VG и LV

```
root@aasaenko:/home/aasaenko# pvcreate /dev/sdc1
Physical volume "/dev/sdc1" successfully created.
root@aasaenko:/home/aasaenko# vgcreate vggroup /dev/sdc1
Volume group "vggroup" successfully created
root@aasaenko:/home/aasaenko# lvcreate -n lvgroup -l 100%FREE vggroup
Logical volume "lvgroup" created.
root@aasaenko:/home/aasaenko# mkfs.xfs /dev/vggroup/lvgroup
meta-data=/dev/vggroup/lvgroup  isize=512    agcount=4, agsize=38144 blks
                                =                      sectsz=512  attr=2, projid32bit=1
                                =                      crc=1     finobt=1, sparse=1, rmapbt=1
                                =                      reflink=1   bigtime=1 inobtcount=1 nnext64=1
                                =                      exchange=0
data      =                      bsize=4096   blocks=152576, imaxpct=25
          =                      sunit=0     swidth=0 blks
naming    =version 2           bsize=4096   ascii-ci=0, ftype=1, parent=0
log       =internal log       bsize=4096   blocks=16384, version=2
          =                      sectsz=512  sunit=0 blks, lazy-count=1
realtime =none                extsz=4096   blocks=0, rtextents=0
root@aasaenko:/home/aasaenko# mkdir -p /mnt/groups
root@aasaenko:/home/aasaenko#
```

Рис. 11: Создание PV, VG и LV

Проверка состояния LVM

```
root@aasaenko:/home/aasaenko#  
root@aasaenko:/home/aasaenko# pvs  
PV      VG     Fmt Attr PSize  PFree  
/dev/sda3  rl_vbox lvm2 a-- <39.00g    0  
/dev/sdb1  vgdata  lvm2 a-- 296.00m    0  
/dev/sdb2  vgdata  lvm2 a-- 296.00m 268.00m  
/dev/sdc1  vgggroup lvm2 a-- 596.00m    0  
root@aasaenko:/home/aasaenko# vgs  
VG      #PV #LV #SN Attr  VSize   VFree  
rl_vbox  1   2   0 wz--n- <39.00g    0  
vgdata   2   1   0 wz--n- 592.00m 268.00m  
vggroup  1   1   0 wz--n- 596.00m    0  
root@aasaenko:/home/aasaenko# lvs  
LV      VG     Attr    LSize   Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert  
root    rl_vbox -wi-ao---- 35.05g  
swap    rl_vbox -wi-ao---- <3.95g  
lvdata  vgdata  -wi-ao---- 324.00m  
lvgroup vgggroup -wi-a----- 596.00m  
root@aasaenko:/home/aasaenko#
```

Рис. 12: Проверка ТОМОВ

Добавление записи в fstab

```
GNU nano 8.1                               /etc/fstab

#
# /etc/fstab
# Created by anaconda on Tue Sep  9 17:07:12 2025
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
UUID=d83390cc-2d84-4fc0-bd05-ca91de963a39 /          xfs    defaults      0 0
UUID=d9debe2a-1f0b-4b38-9b19-869a45d892f1 /boot       xfs    defaults      0 0
UUID=410f9eed-3ac0-4e21-a5aa-32b986aae5a0 none        swap   defaults      0 0
/dev/vgdata/lvdata           /mnt/data       ext4  defaults      1 2
/dev/vggroup/lvgroup         /mnt/groups     xfs   defaults      1 2
#
#UUID=1c1cab63-3081-41d8-af2c-137661cb1d9  /mnt/data       xfs    defaults      1 2
#UUID=d6d2a497-accc-4b14-844a-25daaeb6123a  /mnt/data-ext   ext4  defaults      1 2
#UUID=904e0395-6ea3-4257-aceb-955c098ab5f2  none    swap   defaults      0 0
```

Рис. 13: fstab

Проверка монтирования

```
root@aasaenko:/home/aasaenko#
root@aasaenko:/home/aasaenko# mount -a
mount: (hint) your fstab has been modified, but systemd still uses
      the old version; use 'systemctl daemon-reload' to reload.
root@aasaenko:/home/aasaenko# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/mapper/rl_vbox-root   35G  6.1G  29G  18% /
devtmpfs        4.0M     0  4.0M   0% /dev
tmpfs          1.8G  84K  1.8G   1% /dev/shm
tmpfs          731M  9.3M  722M   2% /run
tmpfs          1.0M     0  1.0M   0% /run/credentials/systemd-journald.service
/dev/sda2       960M  377M  584M  40% /boot
tmpfs          366M  144K  366M   1% /run/user/1000
/dev/sr0         59M    59M     0 100% /run/media/aasaenko/VBox_GAs_7.1.12
tmpfs          366M  60K  366M   1% /run/user/0
/dev/mapper/vgdata-lvdata   298M   14K  280M   1% /mnt/data
/dev/mapper/vggroup-lvgroup  532M   41M  492M   8% /mnt/groups
root@aasaenko:/home/aasaenko# mount | grep mnt
/dev/mapper/vgdata-lvdata on /mnt/data type ext4 (rw,relatime,seclabel)
/dev/mapper/vggroup-lvgroup on /mnt/groups type xfs (rw,relatime,seclabel,attr2,inode64,logbufs=8,logbsize=32k,noquo
ta)
root@aasaenko:/home/aasaenko# █
```

Рис. 14: Монтирование

Создание нового раздела /dev/sdb2

```
Do you want to remove the signature? [Y]es/[N]o: Y
```

```
The signature will be removed by a write command.
```

```
Command (m for help): t
```

```
Partition number (1,2, default 2):
```

```
Hex code or alias (type L to list all): 8e
```

```
Changed type of partition 'Linux' to 'Linux LVM'.
```

```
Command (m for help): p
```

```
Disk /dev/sdb: 1.5 GiB, 1610612736 bytes, 3145728 sectors
```

```
Disk model: VBOX HARDDISK
```

```
Units: sectors of 1 * 512 = 512 bytes
```

```
Sector size (logical/physical): 512 bytes / 512 bytes
```

```
I/O size (minimum/optimal): 512 bytes / 512 bytes
```

```
Disklabel type: dos
```

```
Disk identifier: 0x12eb6085
```

Device	Boot	Start	End	Sectors	Size	Id	Type
--------	------	-------	-----	---------	------	----	------

/dev/sdb1		2048	1230847	1228800	600M	8e	Linux LVM
-----------	--	------	---------	---------	------	----	-----------

/dev/sdb2		1230848	2152447	921600	450M	8e	Linux LVM
-----------	--	---------	---------	--------	------	----	-----------

```
Filesystem/RAID signature on partition 2 will be wiped.
```

```
Command (m for help): w
```

```
The partition table has been altered.
```

```
Syncing disks.
```

Расширение VG и LV

```
root@aasaenko:/home/aasaenko# pvcreate /dev/sdb2
Physical volume "/dev/sdb2" successfully created.
root@aasaenko:/home/aasaenko# vgextend vggpup /dev/sdb2
Volume group "vggpup" successfully extended
root@aasaenko:/home/aasaenko# lvextend -r -l +100%FREE /dev/vggpup/lvgroup
File system xfs found on vggpup/lvgroup mounted at /mnt/groups.
Size of logical volume vggpup/lvgroup changed from 596.00 MiB (149 extents) to <1.02 GiB (261 extents).
Extending file system xfs to <1.02 GiB (1094713344 bytes) on vggpup/lvgroup...
xfs_growfs /dev/vggpup/lvgroup
meta-data=/dev/mapper/vggpup-lvgroup isize=512    agcount=4, agsize=38144 blks
          =                      sectsz=512  attr=2, projid32bit=1
          =                      crc=1    finobt=1, sparse=1, rmapbt=1
          =                      reflink=1 bigtime=1 inobtcount=1 nnext64=1
          =                      exchange=0
data      =                      bsize=4096   blocks=152576, imaxpct=25
          =                      sunit=0    swidth=0 blks
naming    =version 2           bsize=4096   ascii-ci=0, ftype=1, parent=0
log       =internal log        bsize=4096   blocks=16384, version=2
          =                      sectsz=512  sunit=0 blks, lazy-count=1
realtime  =none                extsz=4096   blocks=0, rtextents=0
data blocks changed from 152576 to 267264
xfs_growfs done
Extended file system xfs on vggpup/lvgroup.
Logical volume vggpup/lvgroup successfully resized.
root@aasaenko:/home/aasaenko#
```

Рис. 16: Расширение VG и LV

Итоговая проверка размеров

```
root@aasaenko:/home/aasaenko# pvs
  PV        VG  Fmt Attr PSize   PFree
  /dev/sda3  rl_vbox lvm2 a-- <39.00g     0
  /dev/sdb1  vgggroup lvm2 a-- 596.00m     0
  /dev/sdb2  vgggroup lvm2 a-- 448.00m     0
  /dev/sdc1  vgdata   lvm2 a-- 296.00m     0
  /dev/sdc2  vgdata   lvm2 a-- 296.00m 268.00m
root@aasaenko:/home/aasaenko# vgs
  VG      #PV #LV #SN Attr   VSize   VFree
  rl_vbox    1   2   0 wz--n- <39.00g     0
  vgdata     2   1   0 wz--n- 592.00m 268.00m
  vgggroup   2   1   0 wz--n- <1.02g     0
root@aasaenko:/home/aasaenko# lvs
  LV      VG      Attr       LSize   Pool Origin Data%  Meta% Move Log Cpy%Sync Convert
  root    rl_vbox -wi-ao---- 35.05g
  swap    rl_vbox -wi-ao---- <3.95g
  lvdata  vgdata  -wi-ao---- 324.00m
  lvgroupl vgggroup -wi-ao---- <1.02g
root@aasaenko:/home/aasaenko# df -h
Filesystem              Size  Used Avail Use% Mounted on
/dev/mapper/rl_vbox-root 35G  6.1G  29G  18% /
devtmpfs                 4.0M   0  4.0M  0% /dev
tmpfs                     1.8G  84K  1.8G  1% /dev/shm
tmpfs                     731M 9.3M 722M  2% /run
tmpfs                     1.0M   0  1.0M  0% /run/credentials/systemd-journald.service
/dev/mapper/vgggroup-lvgroup 980M  50M 931M  6% /mnt/groups
/dev/sda2                  960M 377M 584M 40% /boot
/dev/mapper/vgdata-lvdata  298M  14K 280M  1% /mnt/data
tmpfs                     366M 140K 366M  1% /run/user/1000
/dev/sr0                   59M   59M   0 100% /run/media/aasaenko/VBox_GAs_7.1.12
tmpfs                     366M  60K 366M  1% /run/user/0
root@aasaenko:/home/aasaenko#
```

Рис. 17: Проверка размеров

Выводы по проделанной работе

Основные результаты

В ходе лабораторной работы были освоены:

- создание физических томов (PV);
- формирование групп томов (VG);
- создание и управление логическими томами (LV);
- настройка файловых систем и монтирования;
- изменение размера LVM и online-расширение файловых систем;
- проверка конфигурации с помощью pvs, vgs, lvs, df.