

Презентация по лабораторной работе №15

Управление логическими томами

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Цель работы

Основная цель

Получить практические навыки работы с LVM: - создание физических томов; - формирование групп томов; - создание и расширение логических томов; - изменение размеров файловых систем; - постоянное монтирование томов.

Создание физического тома

Разметка диска /dev/sdb

```
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): +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@aradzhigalieva:/home/aradzhigalieva# partprobe /dev/sdb  
root@aradzhigalieva:/home/aradzhigalieva# pvcreate /dev/sdb1
```

```
Physical volume "/dev/sdb1" successfully created.
```

```
root@aradzhigalieva:/home/aradzhigalieva# pvs  
PV          VG      Fmt Attr PSize   PFree  
/dev/sda3    rl_vbox lvm2 a--  <39.00g     0  
/dev/sdb1        lvm2 ---  300.00m 300.00m  
root@aradzhigalieva#
```

Создание PV

```
root@aradzhigalieva:/home/aradzhigalieva# pvs
PV      VG      Fmt Attr PSize  PFree
/dev/sda3  rl_vbox lvm2 a--  <39.00g    0
/dev/sdb1          lvm2 ---  300.00m 300.00m
root@aradzhigalieva:/home/aradzhigalieva# vgcreate vgdata /dev/sdb1
Volume group "vgdata" successfully created
root@aradzhigalieva:/home/aradzhigalieva# 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@aradzhigalieva:/home/aradzhigalieva# 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@aradzhigalieva:/home/aradzhigalieva#
```

Рис. 2: Создание PV и проверка pvs

Создание VG и LV

Создание группы томов vgdata

```
root@aradzhigalieva:/home/aradzhigalieva# lvcreate -n lvdata -l 50%FREE vgdata
Logical volume "lvdata" created.
root@aradzhigalieva:/home/aradzhigalieva# 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@aradzhigalieva:/home/aradzhigalieva# mkfs.ext4 /dev/vg
vga_arbiter vgdata/
root@aradzhigalieva:/home/aradzhigalieva# mkfs.ext4 /dev/vgdata/lvdata
mke2fs 1.47.1 (20-May-2024)
Creating filesystem with 151552 1k blocks and 37848 inodes
Filesystem UUID: 484f21c9-8aac-4eb4-aec5-b3344e467c61
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@aradzhigalieva:/home/aradzhigalieva# mkdir -p /mnt/data
root@aradzhigalieva:/home/aradzhigalieva#
```

Рис. 3: Создание VG и LV

Создание файловой системы

```
#  
# /etc/fstab  
# Created by anaconda on Fri Sep  5 07:48:31 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=979ff020-2464-4c10-8441-bb10b43fea61 /          xfs    defaults      0 0  
UUID=2de57be3-2ddc-4d5c-a9ee-5384ed3b992f /boot      xfs    defaults      0 0  
UUID=37baf132-ff2d-40d2-8971-0a34fda074d8 none      swap   defaults      0 0  
/dev/vgdata/lvdata        /mnt/data      ext4   defaults      1 2  
#  
#UUID=0d101af8-6094-44d3-bc04-a693a75a14da /mnt/data xfs defaults 1 2  
#UUID=567fad0-365a-483a-bdbc-c58a907e370b /mnt/data-ext ext4 defaults 1 2  
#UUID=6b3e562c-2d15-4528-b304-8c8a391e775b none swap defaults 0 0
```

Рис. 4: Создание FS и запись в fstab

Монтирование

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

Рис. 5: Проверка монтирования

Расширение группы томов

Добавление /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: 0xdc88dc5
```

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@aradzhigalieva:/home/aradzhigalieva#
```

Расширение VG и LV

```
root@aradzhigalieva:/home/aradzhigalieva# 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@aradzhigalieva:/home/aradzhigalieva# vgextend vgdata /dev/sdb2
Volume group "vgdata" successfully extended
root@aradzhigalieva:/home/aradzhigalieva# vgs
  VG     #PV #LV #SN Attr   VSize   VFree
  rl_vbox  1   2   0 w--n- <39.00g      0
  vgdata   2   1   0 w--n- 592.00m 444.00m
root@aradzhigalieva:/home/aradzhigalieva# 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@aradzhigalieva:/home/aradzhigalieva# df -h
Filesystem            Size  Used Avail Use% Mounted on
/dev/mapper/rl_vbox-root 35G  29G  6.1G  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 148K  366M  1% /run/user/1000
/dev/sr0               59M   59M   0 100% /run/media/aradzhigalieva/VBox_GAs_7.1.12
tmpfs                 366M 60K   366M  1% /run/user/0
/dev/mapper/vgdata-lvdata 134M  14K  123M  1% /mnt/data
root@aradzhigalieva#
```

Рис. 7: Расширение VG/LV и проверка

lvextend и расширение FS

```
root@aradzhigalieva:/home/aradzhigalieva#
root@aradzhigalieva:/home/aradzhigalieva# 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@aradzhigalieva:/home/aradzhigalieva# 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@aradzhigalieva:/home/aradzhigalieva# 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 148K  366M  1% /run/user/1000
/dev/sr0                59M   59M    0 100% /run/media/aradzhigalieva/VBox_GAs_7.1.12
tmpfs                 366M  60K  366M  1% /run/user/0
/dev/mapper/vgdata-lvdata 344M  14K  324M  1% /mnt/data
root@aradzhigalieva:/home/aradzhigalieva#
```

lvreduce и проверка

```
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@aradzhigalieva:/home/aradzhigalieva# 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
root@aradzhigalieva:/home/aradzhigalieva# 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 148K  366M   1% /run/user/1000
/dev/sr0                59M   59M    0 100% /run/media/aradzhigalieva/VBox_GAs_7.1.12
tmpfs                 366M  60K  366M   1% /run/user/0
/dev/mapper/vgdata-lvdata 298M  14K  280M   1% /mnt/data
root@aradzhigalieva:/home/aradzhigalieva#
```

Рис. 9: Уменьшение LV и проверка размеров

Самостоятельная работа

Создание LV lvgroup

```
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: 0xbd313901

Device      Boot Start      End Sectors  Size Id Type
/dev/sdc1        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.

root@aradzhigalieva:/home/aradzhigalieva# mkdir -p /mnt/groups
root@aradzhigalieva:/home/aradzhigalieva#
```

Создание PV, VG и LV

```
root@aradzhigalieva:/home/aradzhigalieva# pvcreate /dev/sdc1
Physical volume "/dev/sdc1" successfully created.
root@aradzhigalieva:/home/aradzhigalieva# vgcreate vgggroup /dev/sdc1
Volume group "vggroup" successfully created.
root@aradzhigalieva:/home/aradzhigalieva# lvcreate -n lvgroup vgggroup
No command with matching syntax recognised. Run 'lvcreate --help' for more information.
root@aradzhigalieva:/home/aradzhigalieva# lvcreate -n lvgroup -l 100%FREE vgggroup
Logical volume "lvgroup" created.
root@aradzhigalieva:/home/aradzhigalieva# 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@aradzhigalieva:/home/aradzhigalieva# 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@aradzhigalieva:/home/aradzhigalieva# 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@aradzhigalieva:/home/aradzhigalieva# █
```

Рис. 11: Создание PV/VG/LV

Форматирование XFS

```
root@aradzhigalieva:/home/aradzhigalieva#  
root@aradzhigalieva:/home/aradzhigalieva# 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 nrext64=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@aradzhigalieva:/home/aradzhigalieva#
```

Рис. 12: Форматирование XFS

Запись в fstab

```
#  
# /etc/fstab  
# Created by anaconda on Fri Sep  5 07:48:31 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=979ff020-2464-4c10-8441-bb10b43fea61 /          xfs    defaults      0 0  
UUID=2de57be3-2ddc-4d5c-a9ee-5384ed3b992f /boot       xfs    defaults      0 0  
UUID=37baf132-ff2d-40d2-8971-0a34fda074d8 none       swap   defaults      0 0  
/dev/vgdata/lvdata        /mnt/data       ext4  defaults      1 2  
/dev/vggroup/lvgroup      /mnt/groups     xfs   defaults      1 2  
#  
#UUID=0d101af8-6094-44d3-bc04-a693a75a14da /mnt/data xfs defaults 1 2  
#UUID=567fadcc0-365a-483a-bdbc-c58a907e370b /mnt/data-ext ext4 defaults 1 2  
#UUID=6b3e562c-2d15-4528-b304-8c8a391e775b none swap defaults 0 0
```

Рис. 13: fstab

Проверка монтирования

```
root@aradzhigalieva:/home/aradzhigalieva# mount | grep mnt
/dev/mapper/vggroup-lvgroup on /mnt/groups type xfs (rw,relatime,seclabel,attr2,inode64,logbufs=8,logbsize=32k,noquota)
/dev/mapper/vgdata-lvdata on /mnt/data type ext4 (rw,relatime,seclabel)
root@aradzhigalieva:/home/aradzhigalieva# 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/vggroup-lvgroup 532M   41M  492M   8% /mnt/groups
/dev/sdb2                  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/aradzhigalieva/VBox_GAs_7.1.12
tmpfs                      366M   60K  366M   1% /run/user/0
root@aradzhigalieva:/home/aradzhigalieva#
```

Рис. 14: mount после загрузки

Добавление /dev/sdc2

```
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/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: 0xbd313901

Device      Boot   Start     End Sectors  Size Id Type
/dev/sdc1          2048 1230847 1228800  600M 8e Linux LVM
/dev/sdc2        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.

root@aradzhigalieva:/home/aradzhigalieva#
```

Увеличение LV и XFS-grow

```
root@aradzhigalieva:/home/aradzhigalieva#
root@aradzhigalieva:/home/aradzhigalieva# pvcreate /dev/sdc2
Physical volume "/dev/sdc2" successfully created.
root@aradzhigalieva:/home/aradzhigalieva# vgextend vgggroup /dev/sdc2
Volume group "vggroup" successfully extended
root@aradzhigalieva:/home/aradzhigalieva# lvextend -r -l +100%FREE /dev/vgggroup/lvgroup
File system xfs found on vgggroup/lvgroup mounted at /mnt/groups.
Size of logical volume vgggroup/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 vgggroup/lvgroup...
xfs_growfs /dev/vgggroup/lvgroup
meta-data=/dev/mapper/vgggroup-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 vgggroup/lvgroup.
Logical volume vgggroup/lvgroup successfully resized.
root@aradzhigalieva:/home/aradzhigalieva#
```

Рис. 16: Расширение LV/XFS

Проверка

```
root@aradzhigalieva:/home/aradzhigalieva# pvs
PV          VG      Fmt Attr PSize  PFree
/dev/sda1   vgdata  lvm2 a--  296.00m    0
/dev/sda2   vgdata  lvm2 a--  296.00m 268.00m
/dev/sdb3   rl_vbox lvm2 a--  <39.00g    0
/dev/sdc1   vgggroup lvm2 a--  596.00m    0
/dev/sdc2   vgggroup lvm2 a--  448.00m    0
root@aradzhigalieva:/home/aradzhigalieva# 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-ao---- <1.02g
root@aradzhigalieva:/home/aradzhigalieva# 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     2   1   0 wz--n- <1.02g    0
root@aradzhigalieva:/home/aradzhigalieva#
root@aradzhigalieva:/home/aradzhigalieva# 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/sdb2                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/aradzhigalieva/VBox_GAs_7.1.12
tmpfs                 366M  60K  366M  1% /run/user/0
root@aradzhigalieva:/home/aradzhigalieva#
```

Заключение

В ходе выполнения работы я освоила основные операции LVM: - создание физических томов, VG и LV; - изменение размеров логических томов; - управление файловыми системами ext4 и XFS; - автоматическое монтирование через fstab.