Упражнения из методички

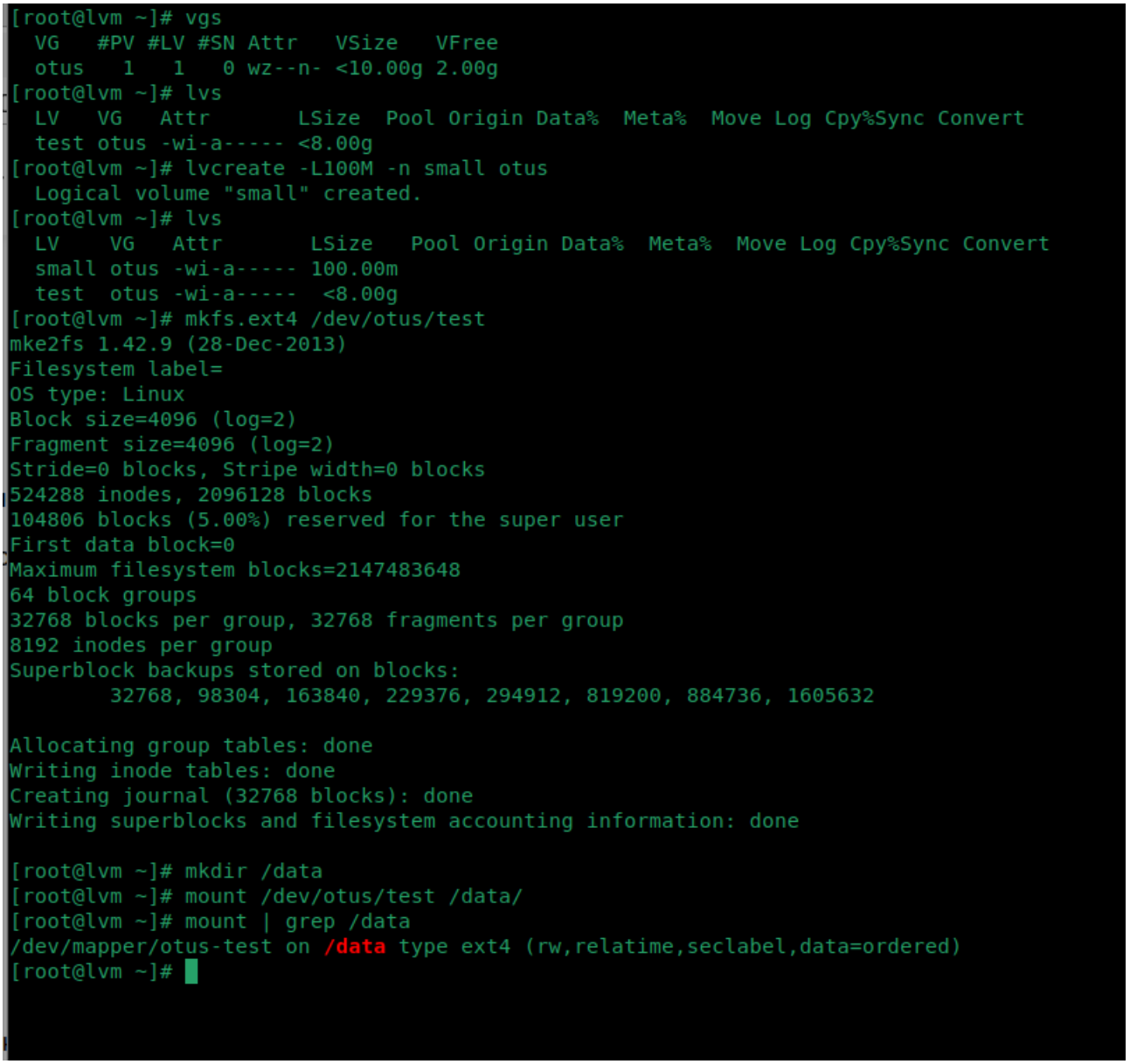
Базовый стенд создан с помощью Vagrant.

1. Подключение к стенду через ssh
2. Создание vg otus, lv test

```
[root@lvm ~]# vgdisplay otus
  --- Volume group ---
  VG Name               otus
  System ID
  Format                lvm2
  Metadata Areas        1
  Metadata Sequence No  2
  VG Access             read/write
  VG Status             resizable
  MAX LV                0
  Cur LV                1
  Open LV               0
  Max PV                0
  Cur PV                1
  Act PV                1
  VG Size               <10.00 GiB
  PE Size               4.00 MiB
  Total PE              2559
  Alloc PE / Size       2047 / <8.00 GiB
  Free  PE / Size       512 / 2.00 GiB
  VG UUID               DUJJ7k-p3pb-Hw34-9auX-VMG3-Qde0-Oh5zun
```

```
[root@lvm ~]# lvdisplay /dev/otus/test
  --- Logical volume ---
  LV Path                /dev/otus/test
  LV Name                test
  VG Name                otus
  LV UUID                01SwMx-xgpx-dBcD-WvGY-CP7D-o8l1-KxeGKA
  LV Write Access        read/write
  LV Creation host, time lvm, 2024-11-28 16:54:38 +0000
  LV Status              available
  # open                 0
  LV Size                <8.00 GiB
  Current LE             2047
  Segments               1
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     8192
  Block device           253:0
```

3. Форматирование /dev/otus/test, монтирование



4. Уменьшение размера lv

```
[root@lvm ~]# vgs -o +lv_size,lv_name | grep test
  otus   2   3   1 wz--n- 11.99g <1.41g  10.00g test
  otus   2   3   1 wz--n- 11.99g <1.41g 500.00m test-snap
[root@lvm ~]# lsblk
NAME                  MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                     8:0    0   40G  0 disk
└─sda1                  8:1    0   40G  0 part /
sdb                     8:16   0   10G  0 disk
├─otus-small          253:1    0  100M  0 lvm
└─otus-test-real      253:2    0   10G  0 lvm
  ├─otus-test         253:0    0   10G  0 lvm  /data
  └─otus-test--snap   253:4    0   10G  0 lvm
sdc                     8:32   0    2G  0 disk
├─otus-test-real      253:2    0   10G  0 lvm
│ ├─otus-test         253:0    0   10G  0 lvm  /data
│ └─otus-test--snap   253:4    0   10G  0 lvm
└─otus-test--snap-cow 253:3    0  500M  0 lvm
  └─otus-test--snap   253:4    0   10G  0 lvm
sdd                     8:48   0    1G  0 disk
sde                     8:64   0    1G  0 disk
[root@lvm ~]# mkdir /data-snap
[root@lvm ~]# mount /dev/otus/test-snap /data-snap/
[root@lvm ~]# ll /data-snap
total 8068564
drwx------. 2 root root      16384 Nov 28 17:24 lost+found
-rw-r--r--. 1 root root 8262189056 Nov 28 17:28 test.log
```

```
[root@lvm ~]# df -Th /data
Filesystem            Type  Size  Used Avail Use% Mounted on
/dev/mapper/otus-test ext4   11G  7.8G  2.6G  76% /data
[root@lvm ~]# umount /data/
[root@lvm ~]# e2fsck -fy /dev/otus/test
e2fsck 1.42.9 (28-Dec-2013)
Pass 1: Checking inodes, blocks, and sizes
Pass 2: Checking directory structure
Pass 3: Checking directory connectivity
Pass 4: Checking reference counts
Pass 5: Checking group summary information
/dev/otus/test: 12/729088 files (0.0% non-contiguous), 2105907/2914304 blocks
[root@lvm ~]# resize2fs /dev/otus/test 10G
resize2fs 1.42.9 (28-Dec-2013)
Resizing the filesystem on /dev/otus/test to 2621440 (4k) blocks.
The filesystem on /dev/otus/test is now 2621440 blocks long.

[root@lvm ~]# lvreduce /dev/otus/test -L 10G
  WARNING: Reducing active logical volume to 10.00 GiB.
  THIS MAY DESTROY YOUR DATA (filesystem etc.)
Do you really want to reduce otus/test? [y/n]: y
  Size of logical volume otus/test changed from <11.12 GiB (2846 extents) to 10.
  Logical volume otus/test successfully resized.
[root@lvm ~]# mount /dev/otus/test /data/
[root@lvm ~]# df -Th /data
Filesystem            Type  Size  Used Avail Use% Mounted on
/dev/mapper/otus-test ext4  9.8G  7.8G  1.6G  84% /data
[root@lvm ~]# lvs /dev/otus/test
  LV   VG   Attr       LSize  Pool Origin Data%  Meta%  Move Log Cpy%Sync Conver
  test otus -wi-ao---- 10.00g
[root@lvm ~]# lvcreate -L 500M -s -n test-snap /dev/otus/test
  Logical volume "test-snap" created.
```

5. Работа со shapshot

```
[root@lvm ~]# cd /data
[root@lvm data]# ls
lost+found  test.log
[root@lvm data]# rm /data/test.log
rm: remove regular file ‘/data/test.log’? y
[root@lvm data]# ll /data
total 16
drwx------. 2 root root 16384 Nov 28 17:24 lost+found
[root@lvm data]# umount /data
umount: /data: target is busy.
        (In some cases useful info about processes that use
         the device is found by lsof(8) or fuser(1))
[root@lvm data]# cd ~
[root@lvm ~]# umount /data
[root@lvm ~]# lvconvert --merge /dev/otus/test-snap
  Merging of volume otus/test-snap started.
  otus/test: Merged: 99.94%
  otus/test: Merged: 100.00%
[root@lvm ~]# mount /dev/otus/test /data
[root@lvm ~]# ll /data
total 8068564
drwx------. 2 root root      16384 Nov 28 17:24 lost+found
-rw-r--r--. 1 root root 8262189056 Nov 28 17:28 test.log
[root@lvm ~]# pvcreate /dev/sd{d,e}
  Physical volume "/dev/sdd" successfully created.
  Physical volume "/dev/sde" successfully created.
[root@lvm ~]# vgcreate vg0 /dev/sd{d,e}
  Volume group "vg0" successfully created
```

6. Создание mirror тома

```
[root@lvm ~]# cd /data
[root@lvm data]# ls
lost+found  test.log
[root@lvm data]# rm /data/test.log
rm: remove regular file ‘/data/test.log’? y
[root@lvm data]# ll /data
total 16
drwx------. 2 root root 16384 Nov 28 17:24 lost+found
[root@lvm data]# umount /data
umount: /data: target is busy.
        (In some cases useful info about processes that use
         the device is found by lsof(8) or fuser(1))
[root@lvm data]# cd ~
[root@lvm ~]# umount /data
[root@lvm ~]# lvconvert --merge /dev/otus/test-snap
  Merging of volume otus/test-snap started.
  otus/test: Merged: 99.94%
  otus/test: Merged: 100.00%
[root@lvm ~]# mount /dev/otus/test /data
[root@lvm ~]# ll /data
total 8068564
drwx------. 2 root root      16384 Nov 28 17:24 lost+found
-rw-r--r--. 1 root root 8262189056 Nov 28 17:28 test.log
[root@lvm ~]# pvcreate /dev/sd{d,e}
  Physical volume "/dev/sdd" successfully created.
  Physical volume "/dev/sde" successfully created.
[root@lvm ~]# vgcreate vg0 /dev/sd{d,e}
  Volume group "vg0" successfully created
[root@lvm ~]# lvcreate l+80%FREE -m1 -n mirror vg0
  No command with matching syntax recognised.  Run 'lvcreate --help' for more information.
  Nearest similar command has syntax:
  lvcreate -m|--mirrors Number -L|--size Size[m|UNIT] VG
  Create a raid1 or mirror LV (infers --type raid1|mirror).

[root@lvm ~]# lvcreate -l+80%FREE -m1 -n mirror vg0
  Logical volume "mirror" created.
[root@lvm ~]# lvs
  LV     VG   Attr       LSize   Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
  small  otus -wi-a----- 100.00m
  test   otus -wi-ao----  10.00g
  mirror vg0  rwi-a-r--- 816.00m                                    50.06
[root@lvm ~]# lsblk
NAME                  MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                     8:0    0   40G  0 disk
└─sda1                  8:1    0   40G  0 part /
sdb                     8:16   0   10G  0 disk
├─otus-test           253:0    0   10G  0 lvm  /data
└─otus-small          253:1    0  100M  0 lvm
sdc                     8:32   0    2G  0 disk
└─otus-test           253:0    0   10G  0 lvm  /data
sdd                     8:48   0    1G  0 disk
├─vg0-mirror_rmeta_0  253:2    0    4M  0 lvm
│ └─vg0-mirror        253:6    0  816M  0 lvm
└─vg0-mirror_rimage_0 253:3    0  816M  0 lvm
  └─vg0-mirror        253:6    0  816M  0 lvm
sde                     8:64   0    1G  0 disk
├─vg0-mirror_rmeta_1  253:4    0    4M  0 lvm
│ └─vg0-mirror        253:6    0  816M  0 lvm
└─vg0-mirror_rimage_1 253:5    0  816M  0 lvm
  └─vg0-mirror        253:6    0  816M  0 lvm
[root@lvm ~]#
```

```
[root@lvm ~]# lsblk
NAME                  MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                     8:0    0   40G  0 disk
└─sda1                  8:1    0   40G  0 part /
sdb                     8:16   0   10G  0 disk
├─otus-test           253:0    0   10G  0 lvm
└─otus-small          253:1    0  100M  0 lvm
sdc                     8:32   0    2G  0 disk
└─otus-test           253:0    0   10G  0 lvm
sdd                     8:48   0    1G  0 disk
├─vg0-mirror_rmeta_0  253:2    0    4M  0 lvm
│ └─vg0-mirror        253:6    0  816M  0 lvm
└─vg0-mirror_rimage_0 253:3    0  816M  0 lvm
  └─vg0-mirror        253:6    0  816M  0 lvm
sde                     8:64   0    1G  0 disk
├─vg0-mirror_rmeta_1  253:4    0    4M  0 lvm
│ └─vg0-mirror        253:6    0  816M  0 lvm
└─vg0-mirror_rimage_1 253:5    0  816M  0 lvm
  └─vg0-mirror        253:6    0  816M  0 lvm
[root@lvm ~]# lvremove /dev/otus/test
Do you really want to remove active logical volume otus/test? [y/n]: y
  Logical volume "test" successfully removed
[root@lvm ~]# lvremove /dev/otus/small
Do you really want to remove active logical volume otus/small? [y/n]: y
  Logical volume "small" successfully removed
[root@lvm ~]# lsblk
NAME                  MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                     8:0    0   40G  0 disk
└─sda1                  8:1    0   40G  0 part /
sdb                     8:16   0   10G  0 disk
sdc                     8:32   0    2G  0 disk
sdd                     8:48   0    1G  0 disk
├─vg0-mirror_rmeta_0  253:2    0    4M  0 lvm
│ └─vg0-mirror        253:6    0  816M  0 lvm
└─vg0-mirror_rimage_0 253:3    0  816M  0 lvm
  └─vg0-mirror        253:6    0  816M  0 lvm
sde                     8:64   0    1G  0 disk
├─vg0-mirror_rmeta_1  253:4    0    4M  0 lvm
│ └─vg0-mirror        253:6    0  816M  0 lvm
└─vg0-mirror_rimage_1 253:5    0  816M  0 lvm
  └─vg0-mirror        253:6    0  816M  0 lvm
[root@lvm ~]#
```