

# Презентация по лабораторной работе №11

Управление загрузкой системы

---

Амина Аджигалиева

26 октября 2025

Российский университет дружбы народов, Москва, Россия

## Цели и задачи работы

---

Получить навыки работы с загрузчиком системы GRUB2: его настройкой, изменением параметров загрузки, устранением неполадок и восстановлением доступа к системе.

## Ход выполнения работы

---

# Модификация параметров GRUB2



```
aradzhigalieva@aradzhigalieva:/home/aradzhigalieva - nano /etc/default/grub
GNU nano 8.1 /etc/default/grub Modified
GRUB_TIMEOUT=10
GRUB_DISTRIBUTOR=$(sed 's, release .*$,g' /etc/system-release)
GRUB_DEFAULT=saved
GRUB_DISABLE_SUBMENU=true
GRUB_TERMINAL_OUTPUT="console"
GRUB_CMDLINE_LINUX="resume=UUID=37baf132-ff2d-40d2-8971-0a34fda074d8 rd.lvm.lv=rl_vbox/root rd.lvm.lv=rl_vbox/swap"
GRUB_DISABLE_RECOVERY="true"
GRUB_ENABLE_BLSCFG=true
```

Рис. 1: Редактирование файла /etc/default/grub

```
aradzhigalieva@aradzhigalieva:~$ su
Password:
root@aradzhigalieva:/home/aradzhigalieva#
root@aradzhigalieva:/home/aradzhigalieva# nano /etc/default/grub
root@aradzhigalieva:/home/aradzhigalieva# grub2-mkconfig > /boot/grub2/grub.cfg
Generating grub configuration file ...
Adding boot menu entry for UEFI Firmware Settings ...
done
root@aradzhigalieva:/home/aradzhigalieva# grub2-mkconfig -o /boot/grub2/grub.cfg
Generating grub configuration file ...
Adding boot menu entry for UEFI Firmware Settings ...
done
root@aradzhigalieva:/home/aradzhigalieva# █
```

Рис. 2: Генерация нового файла конфигурации GRUB



Рис. 3: Меню загрузки GRUB

```
GRUB version 2.12

load_video
set gfxpayload=keep
insmod gzio
linux ($root)/vmlinuz-6.12.0-55.37.1.el10_0.x86_64 root=/dev/mapper/rl_vbox\
-root ro resume=UUID=37baf132-ff2d-40d2-8971-0a34fda074d8 rd.lvm.lv=rl_vbox\
/root rd.lvm.lv=rl_vbox/swap systemd.unit=rescue.target
initrd ($root)/initramfs-6.12.0-55.37.1.el10_0.x86_64.img $tuned_initrd

Minimum Emacs-like screen editing is supported. TAB lists
completions. Press Ctrl-x or F10 to boot, Ctrl-c or F2 for
a command-line or ESC to discard edits and return to the GRUB menu.
```

Рис. 4: Редактирование параметров загрузки для rescue.target



```
dm-event.socket                                loaded active
lvm2-lvmpolld.socket                          loaded active
systemd-journald-dev-log.socket               loaded active
systemd-journald.socket                      loaded active
systemd-udev-control.socket                  loaded active
systemd-udev-kernel.socket                  loaded active
dev-disk-by\x2duuid-37baf132\x2dff2d\x2d40d2\x2d8971\x2d0a34fda074d8.swap loaded active
cryptsetup.target                             loaded active
integritysetup.target                        loaded active
local-fs-pre.target                          loaded active
local-fs.target                              loaded active
network-pre.target                           loaded active
rescue.target                                loaded active
sound.target                                 loaded active
swap.target                                  loaded active
sysinit.target                               loaded active
veritysetup.target                           loaded active

Legend: LOAD   + Reflects whether the unit definition was properly loaded.
          ACTIVE + The high-level unit activation state, i.e. generalization of SUB.
          SUB    + The low-level unit activation state, values depend on unit type.

69 loaded units listed. Pass --all to see loaded but inactive units, too.
To show all installed unit files use 'systemctl list-unit-files'.
root@aradzhigalieva:~# systemctl show-environment
LANG=en_US.UTF-8
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin
XDG_DATA_DIRS=/var/lib/flatpak/exports/share:/usr/local/share:/usr/share/
root@aradzhigalieva:~#
```

Рис. 5: Работа в режиме восстановления, просмотр загруженных модулей

```
GRUB version 2.12

load_video
set gfxpayload=keep
insmod gzio
linux ($root)/vmlinuz-6.12.0-55.37.1.el10_0.x86_64 root=/dev/mapper/rl_vbox\
-root ro resume=UUID=37baf132-ff2d-40d2-8971-0a34fda074d8 rd.lvm.lv=rl_vbox\
/root rd.lvm.lv=rl_vbox/swap systemd.unit=emergency.target
initrd ($root)/initramfs-6.12.0-55.37.1.el10_0.x86_64.img $tuned_initrd

Minimum Emacs-like screen editing is supported. TAB lists
completions. Press Ctrl-x or F10 to boot, Ctrl-c or F2 for
a command-line or ESC to discard edits and return to the GRUB menu.
```

Рис. 6: Редактирование параметров загрузки для emergency.target

## Минимальная загрузочная среда

```
sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0:0-block-sda.device
• sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0:0-block-sda-sda1.device
• sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0:0-block-sda-sda2.device
• sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0:0-block-sda-sda3.device
• sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0:0-block-sda.device
• sys-devices-platform-serial18250-serial18250:0-serial18250:0.0-tty-ttyS0.device
• sys-devices-platform-serial18250-serial18250:0-serial18250:0.1-tty-ttyS1.device
• sys-devices-platform-serial18250-serial18250:0-serial18250:0.2-tty-ttyS2.device
• sys-devices-platform-serial18250-serial18250:0-serial18250:0.3-tty-ttyS3.device
sys-devices-virtual-block-dm\x2d0.device
sys-devices-virtual-block-dm\x2d1.device
• sys-module-configfs.device
• sys-module-fuse.device
- .mount
sys-kernel-config.mount
init.scope
emergency.service
plymouth-start.service
systemd-journald.service
- .slice
system-modprobe.slice
system.slice
systemd-journald-dev-log.socket
systemd-journald.socket
emergency.target

Legend: LOAD   → Reflects whether the unit definition was properly loaded.
        ACTIVE → The high-level unit activation state, i.e. generalization of SUB.
        SUB    → The low-level unit activation state, values depend on unit type.

68 loaded units listed. Pass --all to see loaded but inactive units, too.
To show all installed unit files use 'systemctl list-unit-files'.
root@aradzhigalieva:~#
```

Рис. 7: Работа в аварийном режиме. список модулей

```
GRUB version 2.12

load_video
set gfxpayload=keep
insmod gzio
linux ($root)/vmlinuz-6.12.0-55.37.1.el10_0.x86_64 root=/dev/mapper/r1_vbox\
-root ro resume=UUID=37baf132-ff2d-40d2-8971-0a34fda074d8 rd.lvm.lv=r1_vbox\
/root rd.lvm.lv=r1_vbox/swap rd.break
initrd ($root)/initramfs-6.12.0-55.37.1.el10_0.x86_64.img $tuned_initrd

Minimum Emacs-like screen editing is supported. TAB lists
completions. Press Ctrl-x or F10 to boot, Ctrl-c or F2 for
a command-line or ESC to discard edits and return to the GRUB menu.
```

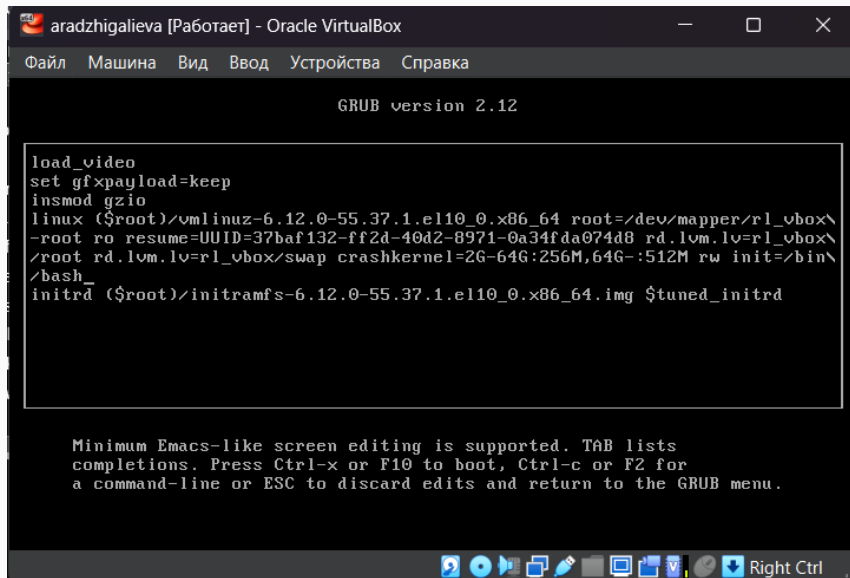
Рис. 8: Добавление параметра rd.break в GRUB

```
yGenerating "/run/initramfs/rdsosreport.txt"
p
a
Entering emergency mode. Exit the shell to continue.
Type "journalctl" to view system logs.
You might want to save "/run/initramfs/rdsosreport.txt" to a USB stick or /boot
after mounting them and attach it to a bug report.

Give root password for maintenance
(or press Control-D to continue):
sh-5.2# mount -o remount,rw /sysroot
sh-5.2# chroot /sysroot
sh: chroot: command not found
sh-5.2# passwd
sh: passwd: command not found
sh-5.2#
```

Рис. 9: Попытка сброса пароля root в initramfs

## Повторная попытка сброса пароля root



```
aradzhigalieva [Работает] - Oracle VirtualBox
Файл  Машина  Вид  Ввод  Устройства  Справка

GRUB version 2.12

load_video
set gfxpayload=keep
insmod gzio
linux ($root)/vmlinuz-6.12.0-55.37.1.el10_0.x86_64 root=/dev/mapper/rl_vbox\
-root ro resume=UUID=37baf132-ff2d-40d2-8971-0a34fda074d8 rd.lvm.lv=rl_vbox\
/root rd.lvm.lv=rl_vbox/swap crashkernel=2G-64G:256M,64G-:512M rw init=/bin\
/bash
initrd ($root)/initramfs-6.12.0-55.37.1.el10_0.x86_64.img $tuned_initrd

Minimum Emacs-like screen editing is supported. TAB lists
completions. Press Ctrl-x or F10 to boot, Ctrl-c or F2 for
a command-line or ESC to discard edits and return to the GRUB menu.
```

## Повторная попытка сброса пароля root

```
[ OK ] Stopped systemd-mpfiles-setup-dev.service - Create Static Device Nodes in /dev.
[ OK ] Stopped systemd-sysusers.service - Create System Users.
[ OK ] Stopped systemd-tmpfiles-setup-dev-early.service - Create Static Device Nodes in /dev gracefully.
[ OK ] Stopped kmod-static-nodes.service - Create List of Static Device Nodes.
[ 2.221641] systemd-journald[282]: Received SIGTERM from PID 1 (systemd).
bash-5.2# touch /.autorelabel
bash-5.2# passwd
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
bash-5.2# _
```

Рис. 11: Успешный сброс пароля root

## Итоги работы

---



В ходе лабораторной работы №11 были освоены принципы настройки и восстановления загрузчика GRUB2.

Были изучены режимы восстановления (**rescue.target**), аварийной загрузки (**emergency.target**) и методы сброса пароля root.

Полученные навыки позволяют администрировать процесс загрузки Linux и устранять неполадки при запуске системы.