

Лабораторная работа №11

Управление загрузкой системы

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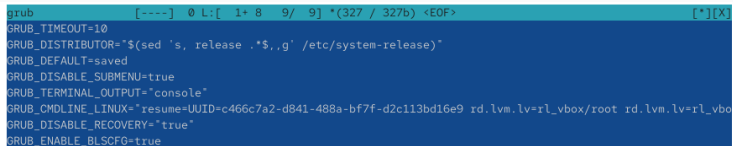
27 октября 2025

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Цель работы

Получить навыки работы с загрузчиком системы **GRUB2**.

Ход выполнения работы



```
grub [----] 0 L:[ 1+ 8 9/ 9] *(327 / 327b) <EOF> [*][X]
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=c466c7a2-d841-488a-bf7f-d2c113bd16e9 rd.lvm.lv=rl_vbox/root rd.lvm.lv=rl_vbo"
GRUB_DISABLE_RECOVERY="true"
GRUB_ENABLE_BLSCFG=true
```

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



Рис. 2: Меню GRUB с вариантами загрузки Rocky Linux

```
GRUB version 2.12

load_video
set gfxpayload=keep
insmod gzio
linux ($root)/vmlinuz-6.12.0-55.37.1.el10_0.x86_64 root=/dev/mapper/rl_vbox\
-root ro resume=UUID=c466c7a2-d841-488a-bf7f-d2c113bd16e9 rd.lvm.lv=rl_vbox\
/root rd.lvm.lv=rl_vbox/swap systemd.unit=rescue.target
initrd ($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. 3: Редактирование строки загрузки с параметром rescue.target

Режим восстановления (rescue mode)

```
systemd-journald.socket      loaded active running
systemd-udevd-control.socket loaded active running
systemd-udevd-kernel.socket  loaded active running
dev-disk-by\x2duuid-c466c7a2\x2dd841\x2d488a\x2dbf7f\x2dd2c113bd16e9.swap loaded active active
cryptsetup.target            loaded active active
integritysetup.target         loaded active active
local-fs-pre.target           loaded active active
local-fs.target               loaded active active
network-pre.target            loaded active active
rescue.target                  loaded active active
sound.target                   loaded active active
swap.target                    loaded active active
sysinit.target                 loaded active active
veritysetup.target            loaded active 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@haoladar:~# 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@haoladar:~#
```

Рис. 4: Работа системы в rescue-режиме


```
GRUB version 2.12

load_video
set gfxpayload=keep
insmod gzio
linux ($root)/vmlinuz-6.12.0-55.37.1.el10_0.x86_64 root=/dev/mapper/rl_vbox\
-root ro resume=UUID=c466c7a2-d841-488a-bf7f-d2c113bd16e9 rd.lvm.lv=rl_vbox\
/root rd.lvm.lv=rl_vbox/swap systemd.unit=emergency.target
initrd ($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. 5: Редактирование строки загрузки с параметром emergency.target

Аварийный режим (emergency mode)

```
• sys-devices-pci0000:00-0000:00:00-0-ata3-host2-target2:0-0-2:0:0-0-block-sda-sda2.device loaded activating
• sys-devices-pci0000:00-0000:00:00-0-ata3-host2-target2:0-0-2:0:0-0-block-sda-sda3.device loaded activating
• sys-devices-pci0000:00-0000:00:00-0-ata3-host2-target2:0-0-2:0:0-0-block-sda-sda4.device loaded activating
• sys-devices-platform-serial18250-serial18250:0-serial18250:0-0-tty-tyt89.device loaded activating
• sys-devices-platform-serial18250-serial18250:0-serial18250:0-1-tty-tyt81.device loaded activating
• sys-devices-platform-serial18250-serial18250:0-serial18250:0-2-tty-tyt82.device loaded activating
• sys-devices-platform-serial18250-serial18250:0-serial18250:0-3-tty-tyt83.device loaded activating
• sys-devices-virtual-block-dmxx2d8.device loaded active
• sys-devices-virtual-block-dmxx2d1.device loaded active
• sys-module-configfs.device loaded activating
• sys-module-fuse.device loaded activating
~.mount loaded active
sys-kernel-config.mount loaded active
init.scope loaded active
emergency.service loaded active
plymouth-start.service loaded active
systemd-journald.service loaded active
~.slice loaded active
system-modprobe.slice loaded active
system.slice loaded active
systemd-journald-dev-log.socket loaded active
systemd-journald.socket loaded active
emergency.target loaded active

Legend: LOADED → 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@hmo1adar:~#
```

Рис. 6: Работа системы в emergency-режиме

Сброс пароля root

```
GRUB version 2.12

load_video
set gfxpayload=keep
insmod gzio
linux ($root)/vmlinuz-6.12.0-55.37.1.el10_0.x86_64 root=/dev/mapper/rl_vbox\
-root ro resume=UUID=c466c7a2-d841-488a-bf7f-d2c113bd16e9 rd.lvm.lv=rl_vbox\
/root rd.lvm.lv=rl_vbox/swap rd.break
initrd ($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. 7: Добавление параметра rd.break для сброса пароля

Попытка сброса пароля

```
Generating "/run/initramfs/rdsosreport.txt"

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
o after mounting them and attach it to a bug report.
r
Y Give root password for maintenance
P (or press Control-D to continue):
ash-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. 8: Попытка выполнения сброса пароля в initramfs

Итоги работы

В ходе работы были изучены методы модификации параметров загрузчика **GRUB2**, отработка режимов восстановления и аварийной загрузки, а также выполнен сброс пароля пользователя **root**.