

Лабораторная работа №1

Установка и конфигурация операционной системы на виртуальную машину

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Цель работы

Приобрести практические навыки установки операционной системы на виртуальную машину и настройки минимально необходимых для дальнейшей работы сервисов.

Ход выполнения работы

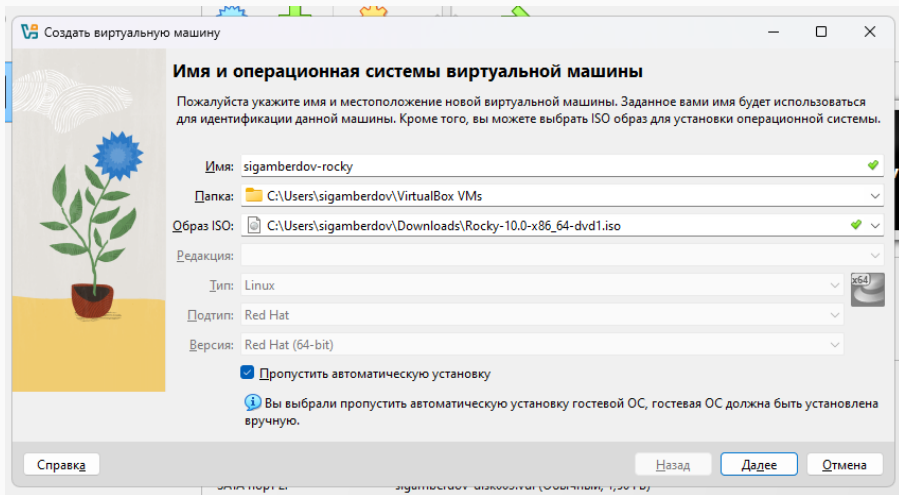


Рис. 1: Создание виртуальной машины и выбор ISO-образа

Базовые параметры виртуальной машины

Общие

Имя: sigamberdov-rocky
ОС: Red Hat (64-bit)

Система

Оперативная память: 4096 МБ
Процессоры: 2
Порядок загрузки: Гибкий диск, Оптический диск, Жёсткий диск
Ускорение: Nested Paging, PAE/NX, Паравиртуализация KVM

Дисплей

Видеопамять: 16 МБ
Графический контроллер: VMSVGA
Сервер удалённого дисплея: Выключен
Запись: Выключена

Носители

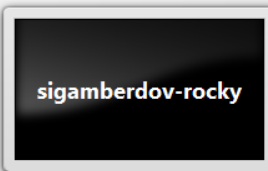
Контроллер: IDE
Вторичное устройство IDE 0: [Оптический привод] Rocky-10.0-x86_64-dvd1.iso (7,13 ГБ)
Контроллер: SATA
SATA порт 0: sigamberdov-rocky.vdi (Обычный, 50,00 ГБ)

Аудио

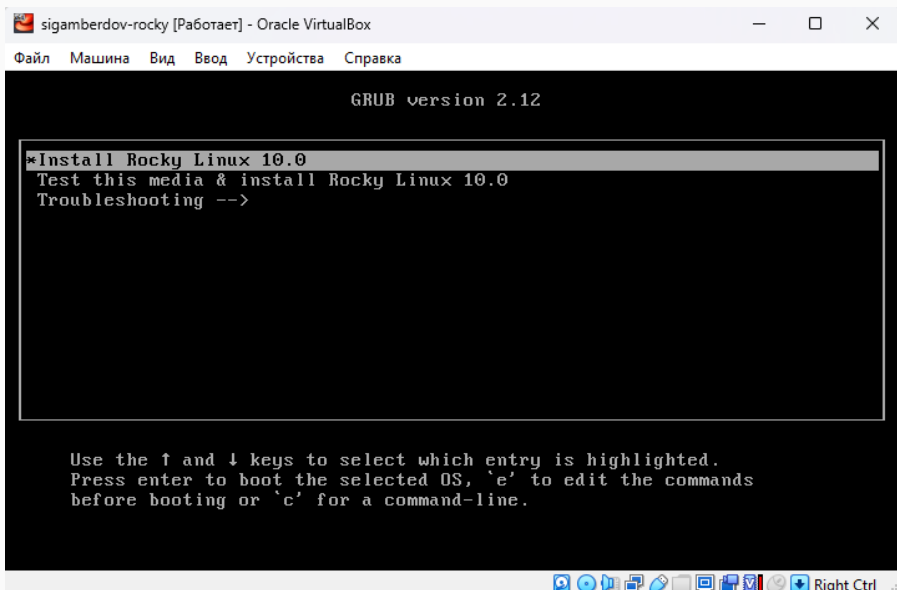
Аудиодрайвер: По умолчанию
Аудиоконтроллер: ICH AC97

Сеть

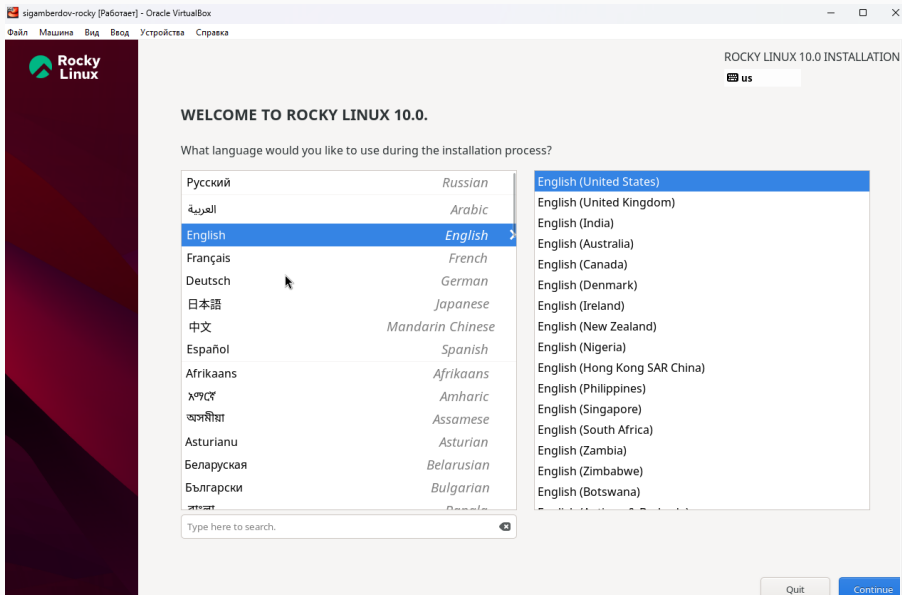
Превью



Запуск установщика через GRUB



Выбор языка установки



Выбор программного окружения

SOFTWARE SELECTION

Done

ROCKY LINUX 10.0 INSTALLATION

us

Base Environment

☒ **Server with GUI**
An integrated, easy-to-manage server with a graphical interface.

☐ **Server**
An integrated, easy-to-manage server.

☐ **Minimal Install**
Basic functionality.

☐ **Workstation**
Workstation is a user-friendly desktop system for laptops and PCs.

☐ **Custom Operating System**
Basic building block for a custom Rocky Linux system.

☐ **Virtualization Host**
Minimal virtualization host.

Additional software for Selected Environment

☐ **Virtualization Tools**
Tools for offline virtual image management.

☐ **Basic Web Server**
These tools allow you to run a Web server on the system.

☐ **Legacy UNIX Compatibility**
Compatibility programs for migration from or working with legacy UNIX environments.

☐ **Smart Card Support**
Support for using smart card authentication.

☐ **Console Internet Tools**
Console internet access tools, often used by administrators.

☐ **Container Management**
Tools for managing Linux containers

☒ **Development Tools**
A basic development environment.

☐ **.NET Development**
Tools to develop and/or run .NET applications

☐ **Graphical Administration Tools**
Graphical system administration tools for managing many aspects of a system.

☐ **Headless Management**
Tools for managing the system without an attached graphical console.

☐ **RPM Development Tools**
Tools used for building RPMs, such as rpmbuild.

☐ **Scientific Support**
Tools for mathematical and scientific computations, and parallel computing.

☐ **Security Tools**
Security tools for integrity and trust verification.

☐ **System Tools**
This group is a collection of various tools for the system, such as the client for connecting to SMB shares and tools to monitor network traffic.

Настройка сети и имени хоста

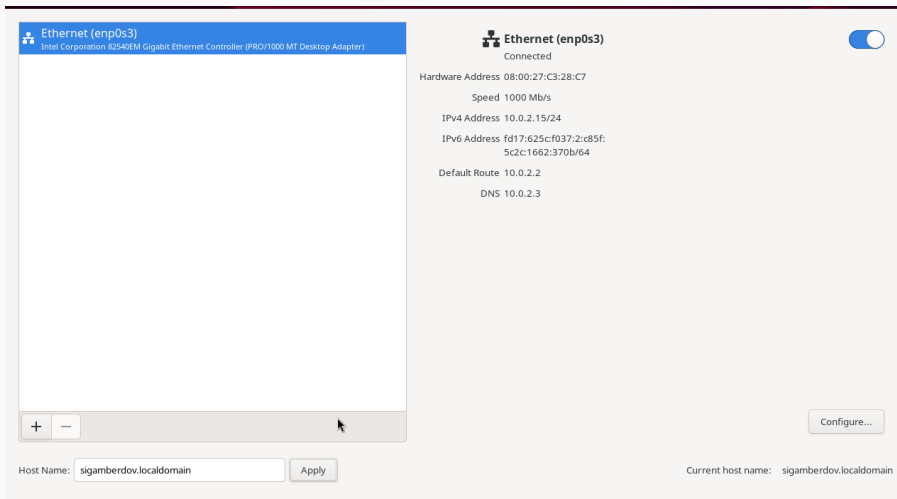


Рис. 6: Настройка сети и имени хоста

Настройка учётной записи root

The root account is used for administering the system.

The root user (also known as super user) has complete access to the entire system. For this reason, logging into this system as the root user is best done only to perform system maintenance or administration.

☐ **Disable root account**

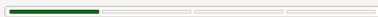
Disabling the root account will lock the account and disable remote access with root account. This will prevent unintended administrative access to the system.

☒ **Enable root account**

Enabling the root account will allow you to set a root password and optionally enable remote access to root account on this system.

Root Password:

●●●●●●



Weak

Confirm:

●●●●●●



Allow root SSH login with password

Создание пользователя с правами администратора

The screenshot displays the Windows user creation interface. It includes input fields for 'Full name' and 'User name', both containing 'sigamberdov'. Below these are two checked checkboxes: 'Add administrative privileges to this user account (wheel group membership)' and 'Require a password to use this account'. The 'Password' field is masked with dots, and a strength indicator below it shows a green bar and the label 'Weak'. The 'Confirm password' field is also masked and currently empty. An 'Advanced...' button is located at the bottom of the form.

Full name: sigamberdov

User name: sigamberdov

☒ Add administrative privileges to this user account (wheel group membership)

☒ Require a password to use this account

Password: [masked] Weak

Confirm password: [masked]

Advanced...

Рис. 8: Создание пользователя с административными правами

Проверка сводки параметров и старт установки

INSTALLATION SUMMARY

ROCKY LINUX 10.0 INSTALLATION

 us

LOCALIZATION


 **Keyboard**
English (US), Russian

 **Language Support**
English (United States)

 **Time & Date**
Europe/Moscow timezone

USER SETTINGS

 **Root Account**
Root password is set

 **User Creation**
Administrator sigamberdov will
be created

SOFTWARE

 **Installation Source**
Auto-detected source

 **Software Selection**
Server with GUI

SYSTEM

 **Installation Destination**
Automatic partitioning selected

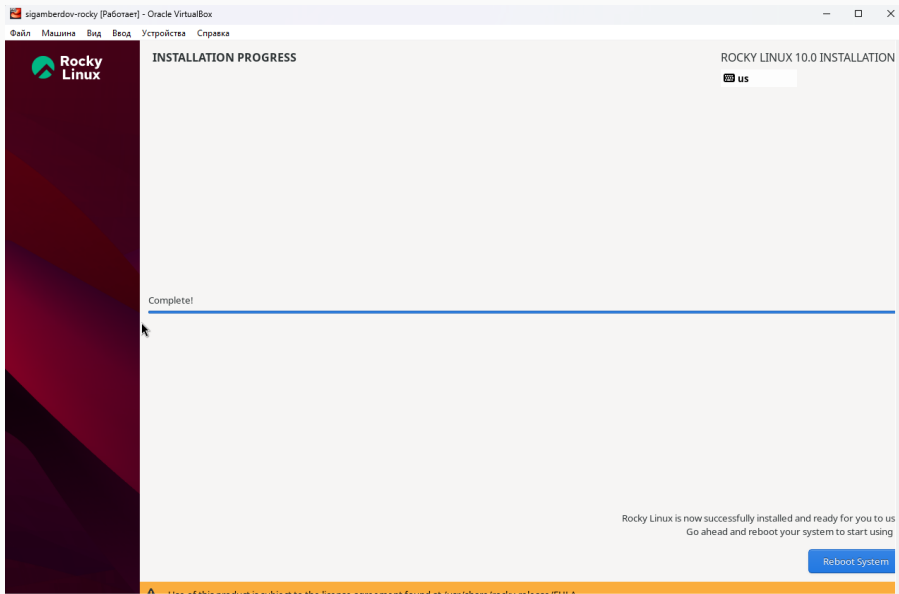
 **KDUMP**
Kdump is disabled

 **Network & Host Name**
Connected: enp0s3

Quit

Begin Installation

Завершение установки и перезагрузка



Установка VirtualBox Guest Additions

```
root@sigamberdov:/run/media/sigamberdov/VBox_GAs_7.1.12...  
root@sigamberdov:/run/media/sigamberdov/VBox_GAs_7.1.12# ./VBoxLinuxAdditions.run  
Verifying archive integrity... 100% MD5 checksums are OK. All good.  
Uncompressing VirtualBox 7.1.12 Guest Additions for Linux 100%  
VirtualBox Guest Additions installer  
VirtualBox Guest Additions: Starting.  
VirtualBox Guest Additions: Setting up modules  
VirtualBox Guest Additions: Building the VirtualBox Guest Additions kernel  
modules. This may take a while.  
VirtualBox Guest Additions: To build modules for other installed kernels, run  
VirtualBox Guest Additions: /sbin/rcvboxadd quicksetup <version>  
VirtualBox Guest Additions: or  
VirtualBox Guest Additions: /sbin/rcvboxadd quicksetup all  
VirtualBox Guest Additions: Building the modules for kernel  
6.12.0-55.12.1.el10_0.x86_64.  
grep: warning: stray \ before /  
grep: warning: stray \ before /  
grep: warning: stray \ before /  
VirtualBox Guest Additions: reloading kernel modules and services  
VirtualBox Guest Additions: kernel modules and services 7.1.12 r169651 reloaded  
VirtualBox Guest Additions: NOTE: you may still consider to re-login if some  
user session specific services (Shared Clipboard, Drag and Drop, Seamless or  
Guest Screen Resize) were not restarted automatically  
root@sigamberdov:/run/media/sigamberdov/VBox_GAs_7.1.12#
```

Анализ загрузки и файловых систем

```
root@sigamberdov:/run/media/sigamberdov/VBox_GAs_7.1.12# dmesg | grep "Linux ver"
[ 0.000000] Linux version 6.12.0-55.12.1.el10_0.x86_64 (mockbuild@iad1-prod-build001.bld.equ.rockylinux.org) (gcc (GCC) 14.2.1 20250110 (Red Hat 14.2.1-7), GNU ld version 2.41-53.el10) #1 SMP PREEMPT_DYNAMIC Fri May 23 17:41:02 UTC 2025
root@sigamberdov:/run/media/sigamberdov/VBox_GAs_7.1.12# dmesg | grep "MHz"
[ 0.000005] tsc: Detected 3187.204 MHz processor
[ 6.622474] e1000 0000:00:03:0 eth0: (PCI:33MHz:32-bit) 08:00:27:c3:28:c7
root@sigamberdov:/run/media/sigamberdov/VBox_GAs_7.1.12# dmesg | grep "avail"
[ 0.004354] On node 0, zone DMA: 1 pages in unavailable ranges
[ 0.004367] On node 0, zone DMA: 97 pages in unavailable ranges
[ 0.007744] On node 0, zone Normal: 16 pages in unavailable ranges
[ 0.007996] [mem 0xe0000000-0xfebfffff] available for PCI devices
[ 0.149966] Memory: 3962368K/4193848K available (18432K kernel code, 5782K rwddata, 14104K rodata, 4320K init, 6792K bss, 227572K reserved, 0K cma-reserved)
root@sigamberdov:/run/media/sigamberdov/VBox_GAs_7.1.12# dmesg | grep "Hyper"
[ 0.000000] Hypervisor detected: KVM
root@sigamberdov:/run/media/sigamberdov/VBox_GAs_7.1.12# df -h
Filesystem                Size      Used Avail Use% Mounted on
/dev/mapper/rl_vbox-root  45G        6.3G   39G   14% /
devtmpfs                   4.0M         0  4.0M    0% /dev
tmpfs                      2.0G        84K   2.0G    1% /dev/shm
tmpfs                      782M        9.3M   773M    2% /run
tmpfs                      1.0M         0    1.0M    0% /run/credentials/systemd-journald.service
/dev/sda2                  960M       283M   678M   30% /boot
tmpfs                      391M       164K   391M    1% /run/user/1000
tmpfs                      391M        60K   391M    1% /run/user/0
/dev/sr0                    59M        59M     0 100% /run/media/sigamberdov/VBox_GAs_7.1.12
root@sigamberdov:/run/media/sigamberdov/VBox_GAs_7.1.12#
```

108 × 35

Итоги работы

Операционная система Rocky Linux 10.0 установлена на виртуальную машину Oracle VirtualBox, выполнена базовая настройка (сеть, root, пользователь с административными правами). Установлены VirtualBox Guest Additions и проведён анализ параметров загрузки системы, что подтверждает корректную установку и готовность системы к дальнейшей эксплуатации.