

# Основы информационной безопасности. Лабораторная работа №1

Установка и конфигурация операционной системы на виртуальную машину”

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## Информация

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## Вводная часть

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**Целью** данной работы является приобретение практических навыков установки операционной системы на виртуальную машину, настройки минимально необходимых для дальнейшей работы сервисов.

### **Задачи:**

- Установить Kali Linux на VirtualBox
- Провести первоначальную настройку ОС

**Инструмент:** VirtualBox

## Выполнение лабораторной работы

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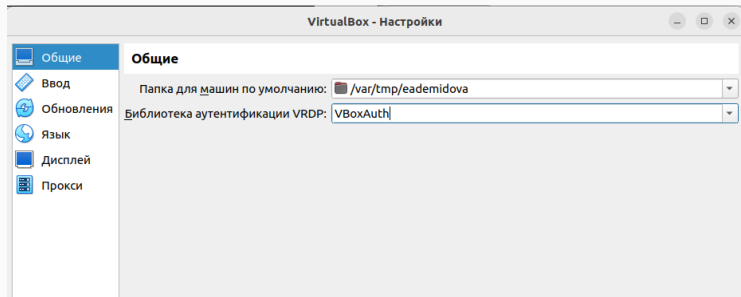


Рис. 1: Окно «Свойства» VirtualBox

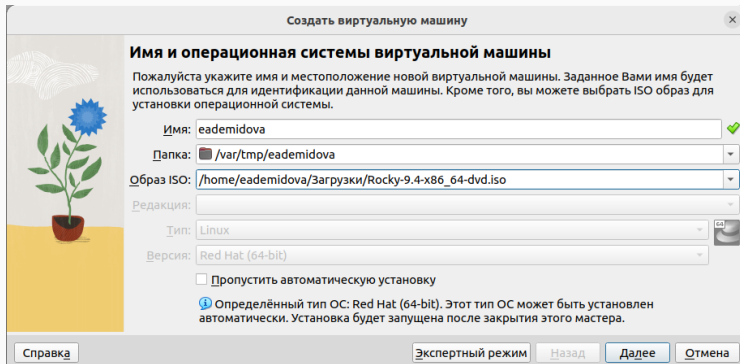


Рис. 2: Окно «Имя машины и тип ОС»



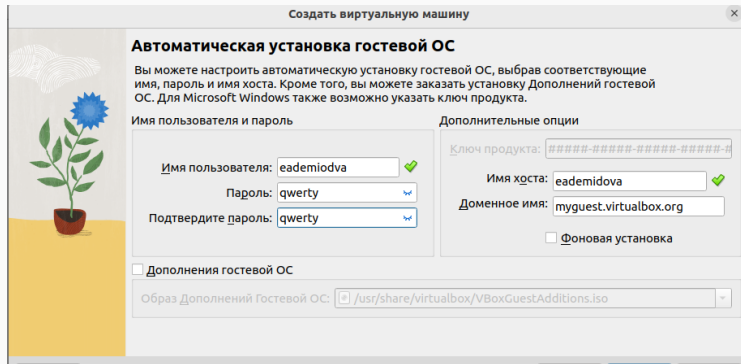


Рис. 3: Окно «Автоматическая установка гостевой ОС»

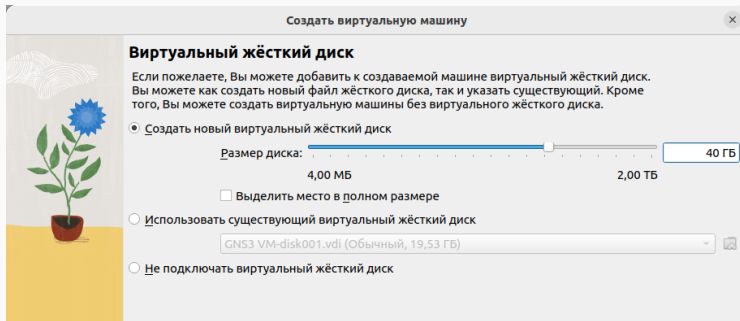


Рис. 4: Окно подключения или создания жёсткого диска на виртуальной машине

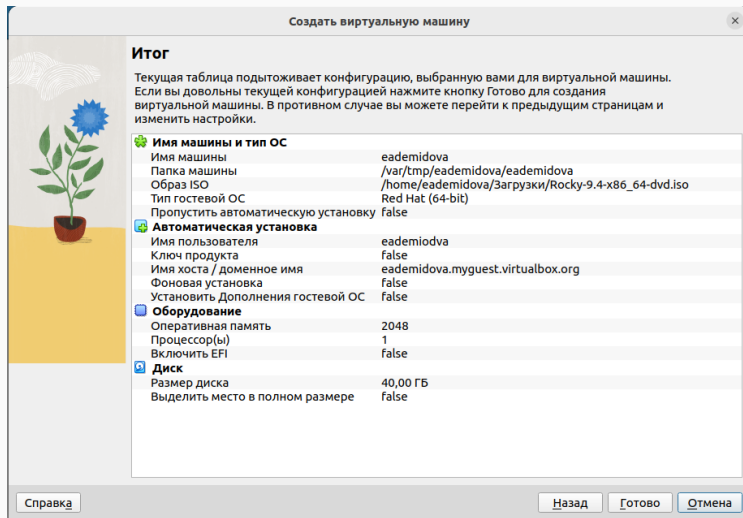


Рис. 5: Окно итоговых параметров устанавливаемой виртуальной машины

# Установка и настройка ОС

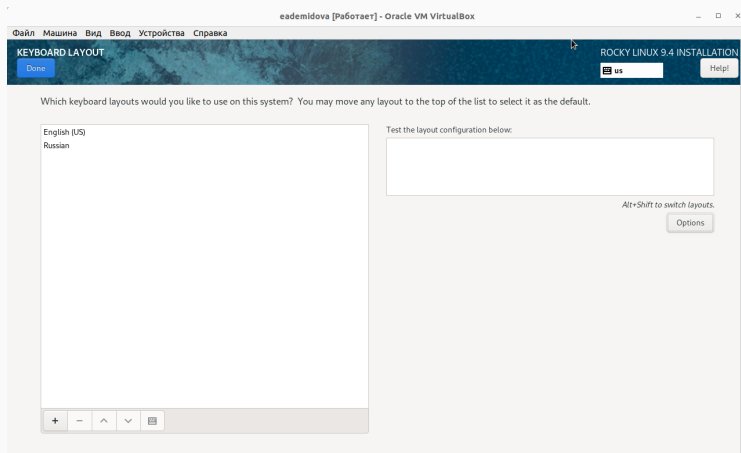


Рис. 6: Установка английского языка интерфейса ОС

# Установка и настройка ОС

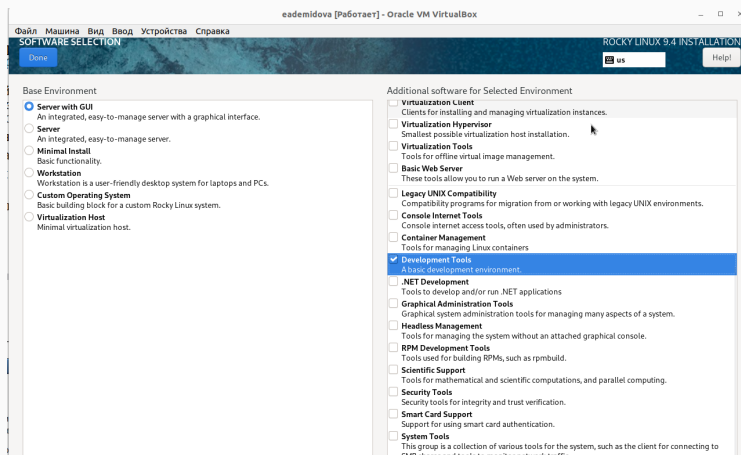


Рис. 7: Окно настройки установки: выбор программ

# Установка и настройка ОС

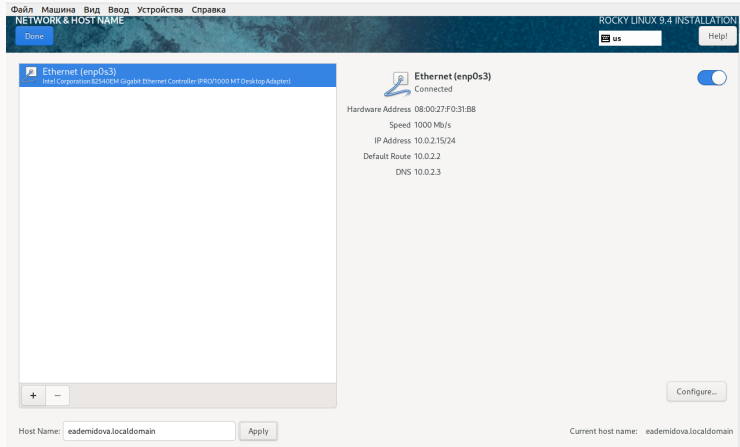


Рис. 8: Окно настройки установки: сеть и имя узла

# Установка и настройка ОС

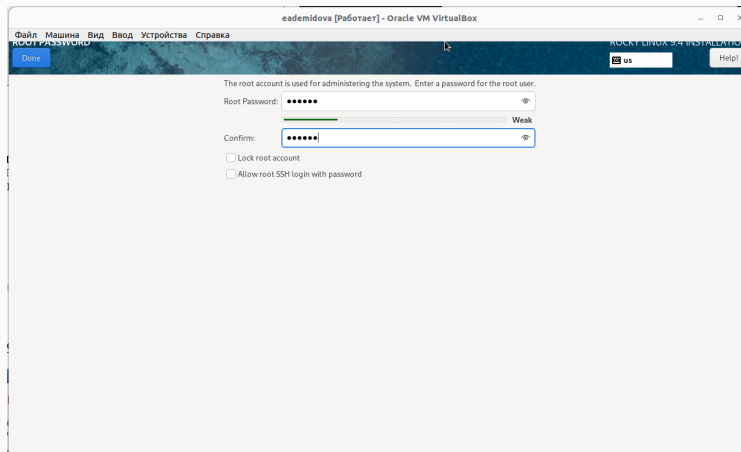


Рис. 9: Установка пароля для root

# Установка и настройка ОС

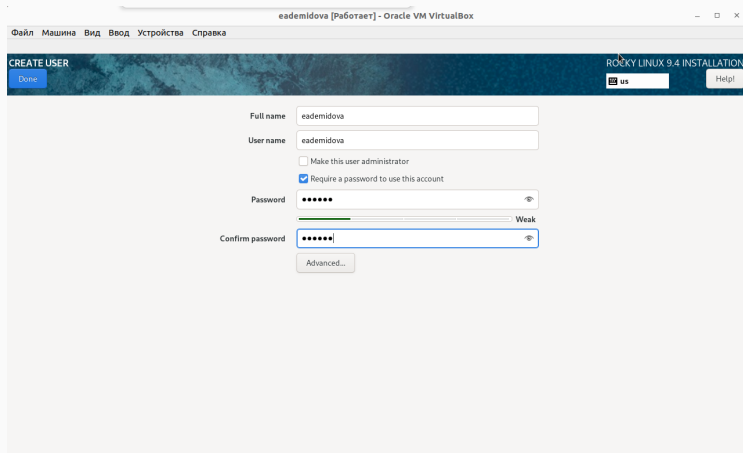
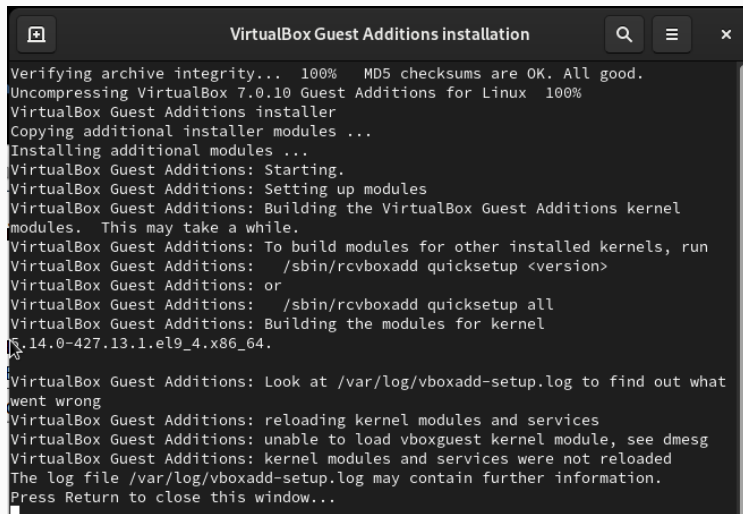


Рис. 10: Установка пароля для пользователя с правами администратора

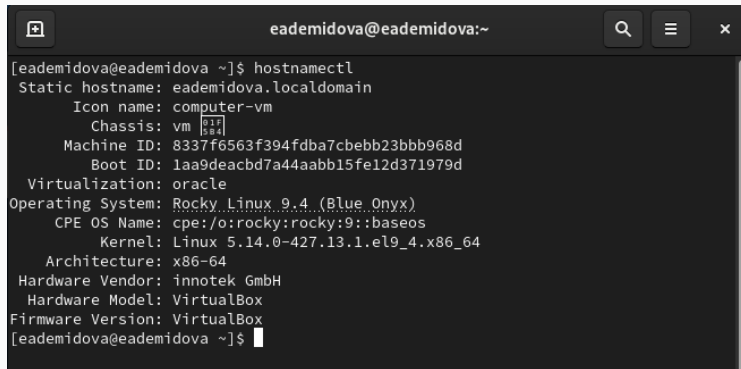




```
VirtualBox Guest Additions installation

Verifying archive integrity... 100% MD5 checksums are OK. All good.
Uncompressing VirtualBox 7.0.10 Guest Additions for Linux 100%
VirtualBox Guest Additions installer
Copying additional installer modules ...
Installing additional modules ...
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
5.14.0-427.13.1.el9_4.x86_64.
VirtualBox Guest Additions: Look at /var/log/vboxadd-setup.log to find out what
went wrong
VirtualBox Guest Additions: reloading kernel modules and services
VirtualBox Guest Additions: unable to load vboxguest kernel module, see dmesg
VirtualBox Guest Additions: kernel modules and services were not reloaded
The log file /var/log/vboxadd-setup.log may contain further information.
Press Return to close this window...
```

Рис. 11: Подключение образа диска дополнений



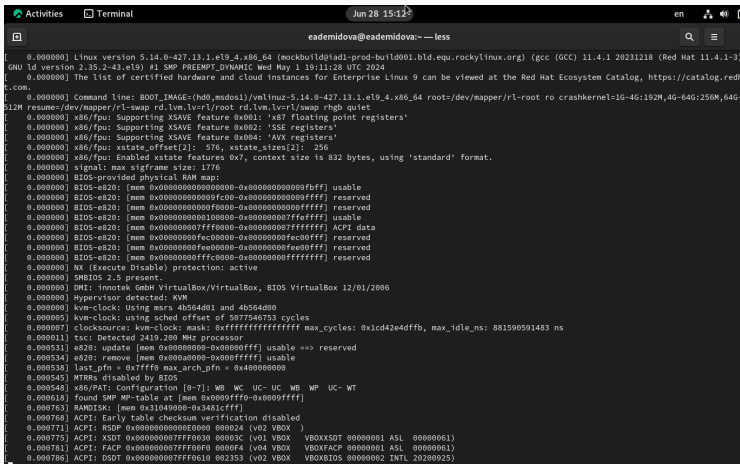
```
eademidova@eademidova:~  
[eademidova@eademidova ~]$ hostnamectl  
Static hostname: eademidova.localdomain  
Icon name: computer-vm  
Chassis: vm [01F  
584]  
Machine ID: 8337f6563f394fdb7cbebb23bbb968d  
Boot ID: 1aa9deacbd7a44aabb15fe12d371979d  
Virtualization: oracle  
Operating System: Rocky Linux 9.4 (Blue Onyx)  
CPE OS Name: cpe:/o:rocky:rocky:9::baseos  
Kernel: Linux 5.14.0-427.13.1.el9_4.x86_64  
Architecture: x86-64  
Hardware Vendor: innotek GmbH  
Hardware Model: VirtualBox  
Firmware Version: VirtualBox  
[eademidova@eademidova ~]$
```

Рис. 12: Информарция про имя хоста

## Домашнее задание

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# Домашнее задание



```
Activities Terminal Jun 28 15:12 en
eademidova@eademidova:~ — less
[ 0.000000] Linux version 5.14.0-427.13.1.el9_4.x86_64 (mockbuild@adi-prod-build001.bld.equ.rockylinux.org) (gcc (GCC) 11.4.1 20231218 (Red Hat 11.4.1-3),
GNU ld version 2.35.2-42.el9) #1 SMP PREEMPT_DYNAMIC Wed May 1 19:11:28 UTC 2024
[ 0.000000] The list of certified hardware and cloud instances for Enterprise Linux 9 can be viewed at the Red Hat Ecosystem Catalog, https://catalog.redhat
t.com.
[ 0.000000] Command line: BOOT_IMAGE=(hd0,msdos1)/vmlinuz-5.14.0-427.13.1.el9_4.x86_64 root=/dev/mapper/rl-root ro crashkernel=16-46:192M,46-64:256M,64-
312M resume=/dev/mapper/rl-swap rd.lvm.lv=rl/root rd.lvm.lv=rl/swap rhgb quiet
[ 0.000000] x86/fpu: Supporting XSAVE feature 0x001: 'x87 floating point registers'
[ 0.000000] x86/fpu: Supporting XSAVE feature 0x002: 'SSE registers'
[ 0.000000] x86/fpu: Supporting XSAVE feature 0x004: 'AVX registers'
[ 0.000000] x86/fpu: xstate_offset[2]: 576, xstate_sizes[2]: 256
[ 0.000000] x86/fpu: Enabled xstate features 0x7, context size is 832 bytes, using 'standard' format.
[ 0.000000] signal: max sigframe size: 1776
[ 0.000000] BIOS-provided physical RAM map:
[ 0.000000] BIOS-e820: [mem 0x0000000000000000-0x0000000000000bfff] usable
[ 0.000000] BIOS-e820: [mem 0x0000000000000fc00-0x0000000000000ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x0000000000000f000-0x0000000000000ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x0000000001000000-0x0000000007ffff] usable
[ 0.000000] BIOS-e820: [mem 0x0000000007ffff000-0x0000000007ffff] ACPI data
[ 0.000000] BIOS-e820: [mem 0x00000000fec00000-0x00000000fec00fff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000fee00000-0x00000000fee00fff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000ffff0000-0x00000000ffff] reserved
[ 0.000000] NX (Execute Disable) protection: active
[ 0.000000] SMBIOS 2.5 present.
[ 0.000000] DMI: innotek GmbH VirtualBox/VirtualBox, BIOS VirtualBox 12/01/2006
[ 0.000000] Hypervisor detected: KVM
[ 0.000000] kvm-clock: Using msrs 4b564d01 and 4b564d00
[ 0.000000] kvm-clock: using sched offset of 5877546753 cycles
[ 0.000000] clocksource: kvm-clock: mask: 0xffffffffffffffff max_cycles: 0x1cd42e4dffb, max_idle_ns: 881590591483 ns
[ 0.000111] tsc: Detected 2419.289 MHz processor
[ 0.000531] e820: update [mem 0x00000000-0x000000fff] usable ==> reserved
[ 0.000534] e820: remove [mem 0x00000000-0x000000fff] usable
[ 0.000538] last_pfn = 0x7ffff max_arch_pfn = 0x400000000
[ 0.000545] MTRRs disabled by BIOS
[ 0.000548] x86/PAT: Configuration [0-7]: WB WC UC- UC WB WP UC- WT
[ 0.000618] found SMP MP-table at [mem 0x00000000-0x000000fff]
[ 0.000763] RAMDISK: [mem 0x31049000-0x3481cfff]
[ 0.000768] ACPI: Early table checksum verification disabled
[ 0.000771] ACPI: RSDP 0x000000000000E000 000024 (v02 VBOX )
[ 0.000775] ACPI: XSDT 0x000000007FFF0030 00003C (v01 VBOX VBOXXSDT 00000001 ASL 00000001)
[ 0.000781] ACPI: FACP 0x000000007FFF00F0 0000F4 (v04 VBOX VBOXFACP 00000001 ASL 00000001)
[ 0.000786] ACPI: DSDT 0x000000007FFF0610 002353 (v02 VBOX VBOXBIOS 00000002 INTL 20200925)
```

Рис. 13: Вывод информации о загрузке системы

```
eademidova@eademidova ~]$ dmesg | grep -i "Linux version"
[ 0.000000] Linux version 5.14.0-427.13.1.el9_4.x86_64 (mockbuild@iad1-prod-build001.bld.equ.rockylinux.org) (gcc (GCC) 11.4.1 20231218 (Red Hat 11.4.1-3),
GNU ld version 2.35.2-43.el9) #1 SMP PREEMPT_DYNAMIC Wed May 1 19:11:28 UTC 2024
eademidova@eademidova ~]$ dmesg | grep -i "Mhz"
[ 0.000011] tsc: Detected 2419.200 MHz processor
[ 2.723836] e1000 0000:00:03:0 eth0: (PCI:33MHz:32-bit) 08:00:27:f0:31:b8
eademidova@eademidova ~]$ dmesg | grep -i "CPU0"
[ 0.176422] smpboot: CPU0: 11th Gen Intel(R) Core(TM) i5-1135G7 @ 2.40GHz (family: 0x6, model: 0x8c, stepping: 0x1)
eademidova@eademidova ~]$ dmesg | grep "Memory:"
[ 0.016295] Memory: 268860K/2696696K available (16384K kernel code, 5626K rwdata, 11748K rodata, 3892K init, 5956K bss, 34208K reserved, 0K cma-reserved)
eademidova@eademidova ~]$ dmesg | grep "Hypervisor"
[ 0.000000] Hypervisor detected: KVM
eademidova@eademidova ~]$ dmesg | grep -i "filesystem"
[ 3.148148] XFS (dm-0): Mounting V5 Filesystem f68131c2-cf0e-45bc-ac55-0829bffb2350
[ 5.211469] XFS (sdal): Mounting V5 Filesystem f181c04c-bc75-4726-8b96-4f97cb978c44
eademidova@eademidova ~]$ dmesg | grep -i "File System"
[ 1.341895] systemd[1]: Reached target Initrd /usr File System.
[ 3.778606] systemd[1]: Set up automount Arbitrary Executable File Formats File System Automount Point.
[ 3.778751] systemd[1]: Stopped target Initrd File Systems.
[ 3.778774] systemd[1]: Stopped target Initrd Root File System.
[ 3.778843] systemd[1]: Reached target Remote File Systems.
[ 3.791576] systemd[1]: Mounting Huge Pages File System...
[ 3.792865] systemd[1]: Mounting POSIX Message Queue File System...
[ 3.793719] systemd[1]: Mounting Kernel Debug File System...
[ 3.794897] systemd[1]: Mounting Kernel Trace File System...
[ 3.826630] systemd[1]: Stopped File System Check on Root Device.
[ 3.865554] systemd[1]: Starting Remount Root and Kernel File Systems...
[ 3.895272] systemd[1]: Mounted Huge Pages File System.
```

Рис. 14: Вывод нужной информации о системе из файла диагностики

## Заключение

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В результате выполнения работы были приобретены практические навыки установки операционной системы на виртуальную машину, настройки минимально необходимых для дальнейшей работы сервисов.

1. VirtualBox [Электронный ресурс]. Oracle, 2024. URL: <https://www.virtualbox.org/>.
2. Rocky Linux [Электронный ресурс]. Red Hat, Inc., 2024. URL: <https://rockylinux.org>.