

Защита лабораторной работы №7

Информационная безопасность

Докладчик

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Российский университет дружбы народов

Цель лабораторной работы

- Освоить на практике применение режима однократного гаммирования.

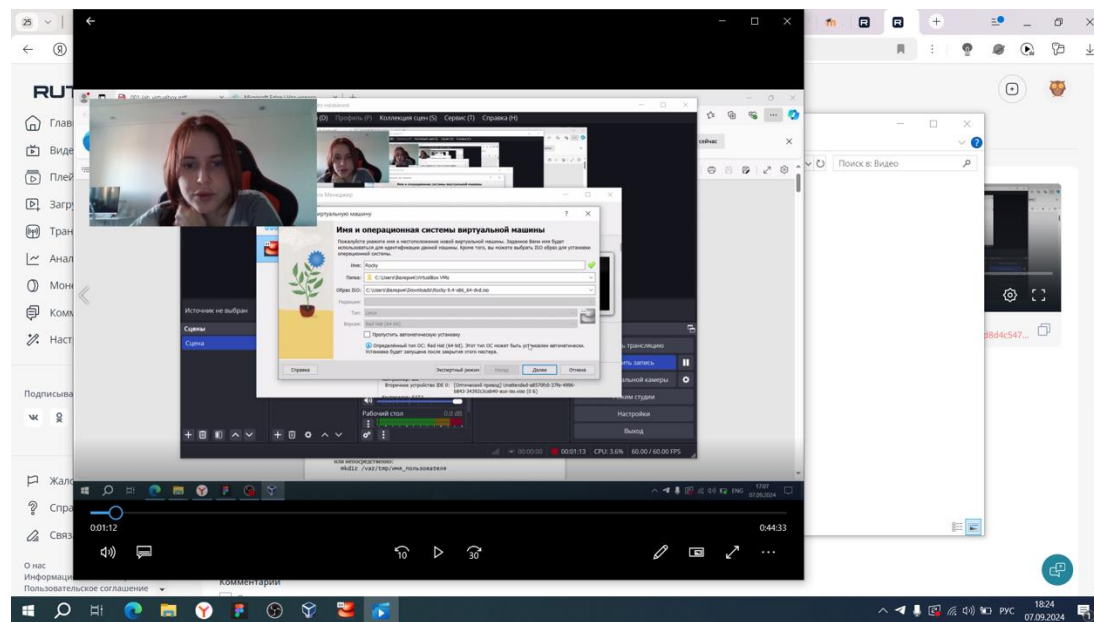
- **Теоретическое введение**

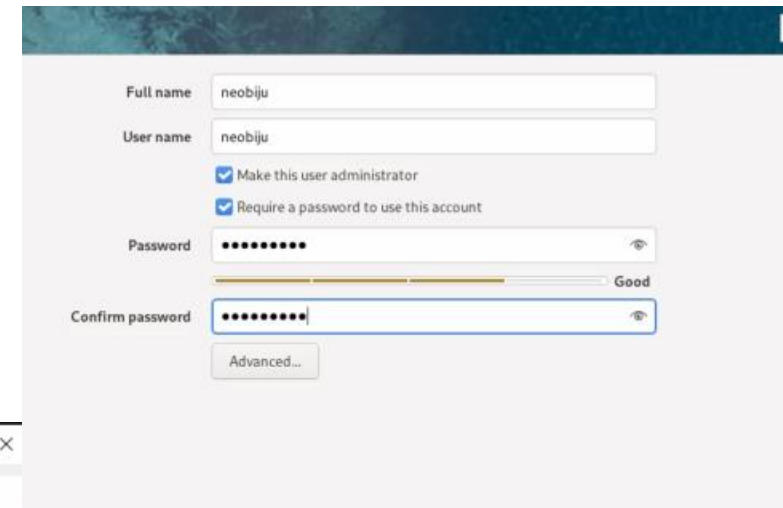
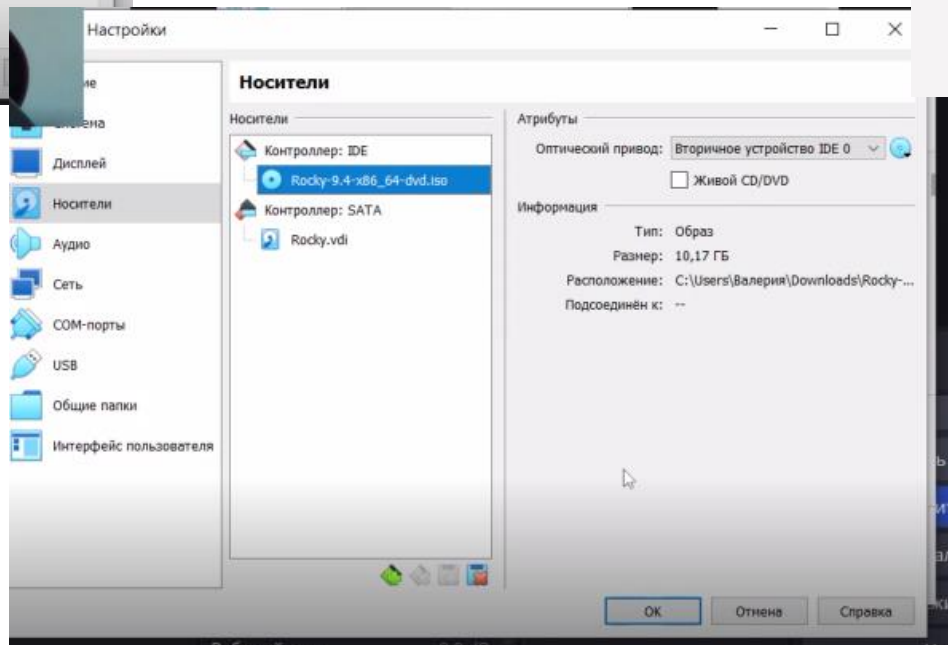
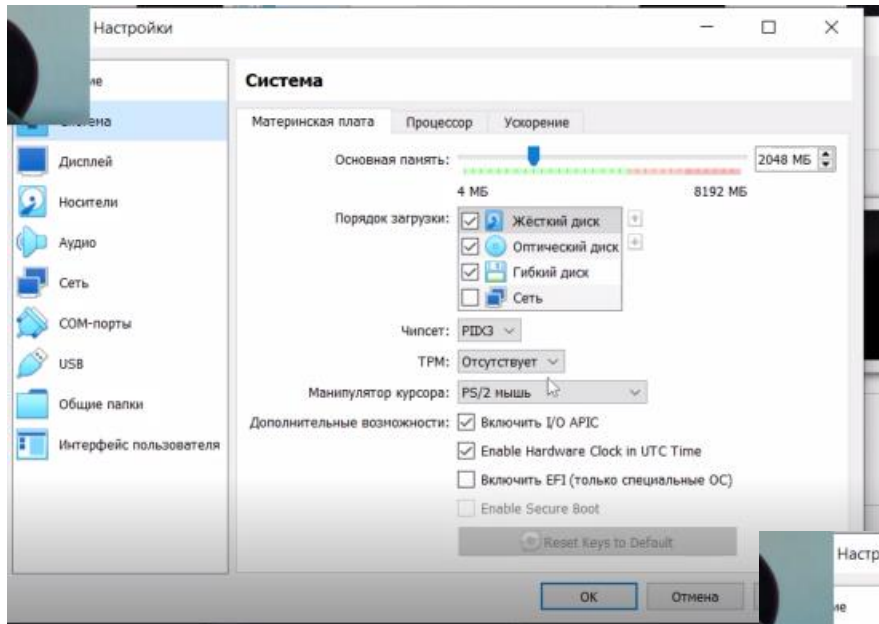
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- Программа VirtualBox предоставляет широкий спектр возможностей для работы с виртуальными машинами. Это решение подходит для тестирования новых операционных систем, запуска старых приложений или изоляции потенциально опасного программного обеспечения. Благодаря интуитивно понятному интерфейсу и богатому функционалу, VirtualBox стал выбором многих пользователей по всему миру

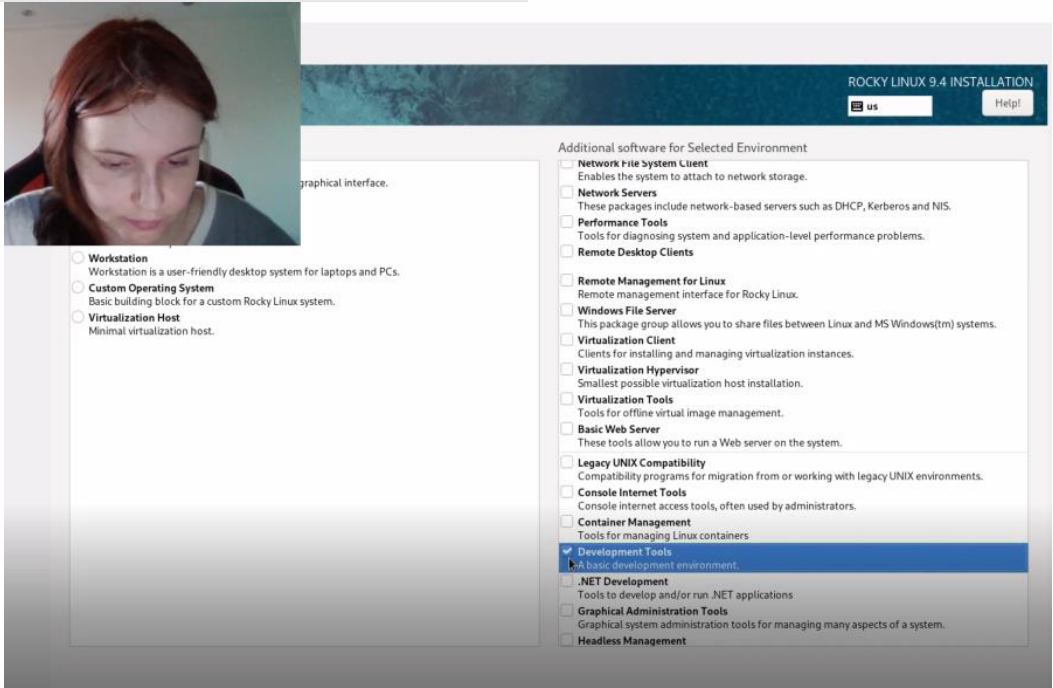
Выполнение работы

Написала функцию для генерации рандомного ключа(состоит из случайно последовательности символов).





Host Name:



ROCKY LINUX 9.4 INSTALLATION

☐ 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

☐ Network File System Client

Enables the system to attach to network storage.

☐ Network Servers

These packages include network-based servers such as DHCP, Kerberos and NIS.

☐ Performance Tools

Tools for diagnosing system and application-level performance problems.

☐ Remote Desktop Clients

☐ Remote Management for Linux

Remote management interface for Rocky Linux.

☐ Windows File Server

This package group allows you to share files between Linux and MS Windows(tm) systems.

☐ Virtualization Client

Clients for installing and managing virtualization instances.

☐ Virtualization Hypervisor

Smallest possible virtualization host installation.

☐ 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.

☐ 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

COME TO ROCKY LINUX 9.4.

language would you like to use during the installation process?

Русский

Russian

العربية

Arabic

English

English

Français

French

Deutsch

German

日本語

Japanese

中文

Mandarin Chinese

Español

Spanish

Afrikaans

Afrikaans

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Amharic

অসমীয়া

Assamese

Asturianu

Asturian

Беларуская

Belarusian

Български

Bulgarian

বাংলা

Bangla

Català

Catalan

English (United States)

English (United Kingdom)

English (India)

English (Australia)

English (Canada)

English (Denmark)

English (Ireland)

English (New Zealand)

English (Nigeria)

English (Hong Kong SAR China)

English (Philippines)

English (Singapore)

English (South Africa)

English (Zambia)

English (Zimbabwe)

English (Botswana)

English (Antigua & Barbuda)

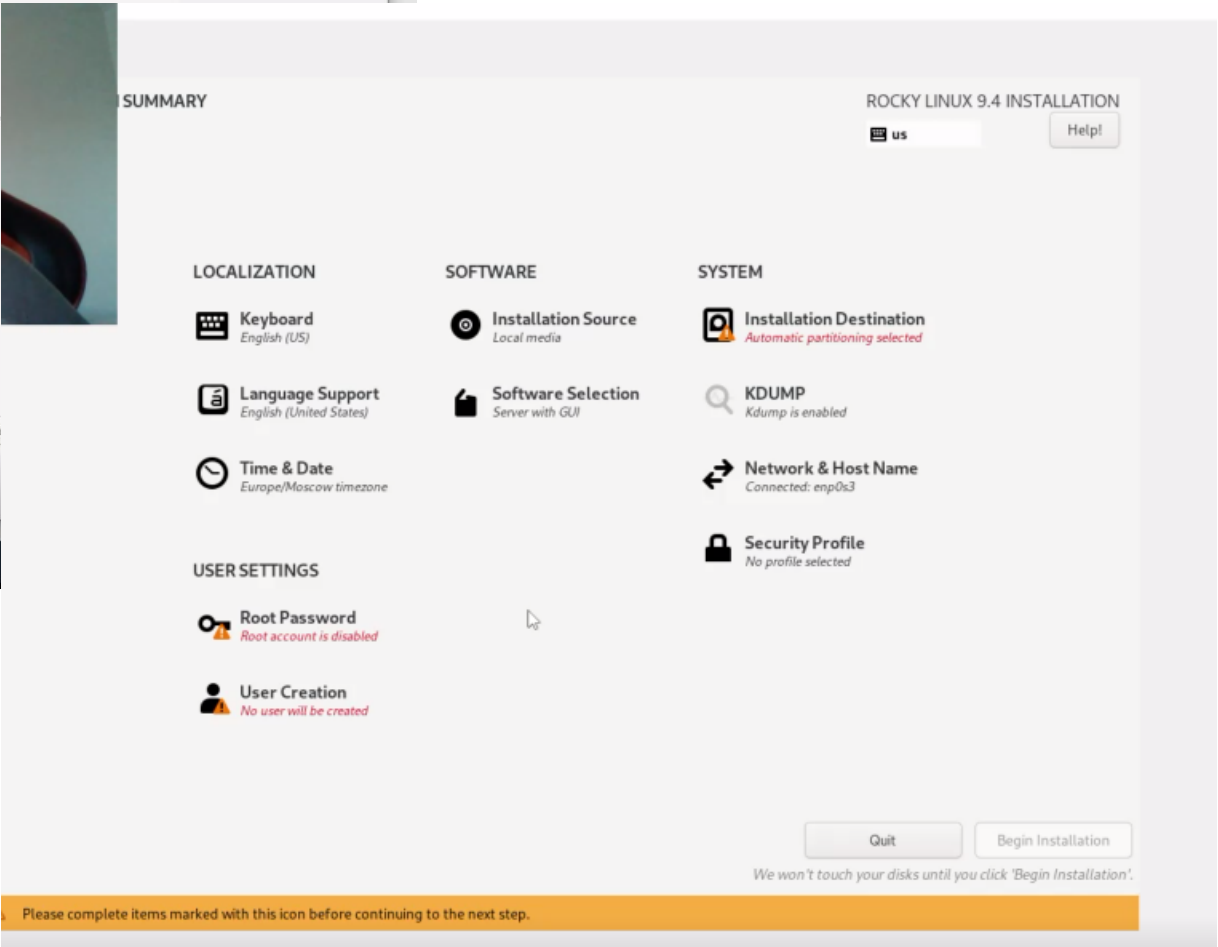
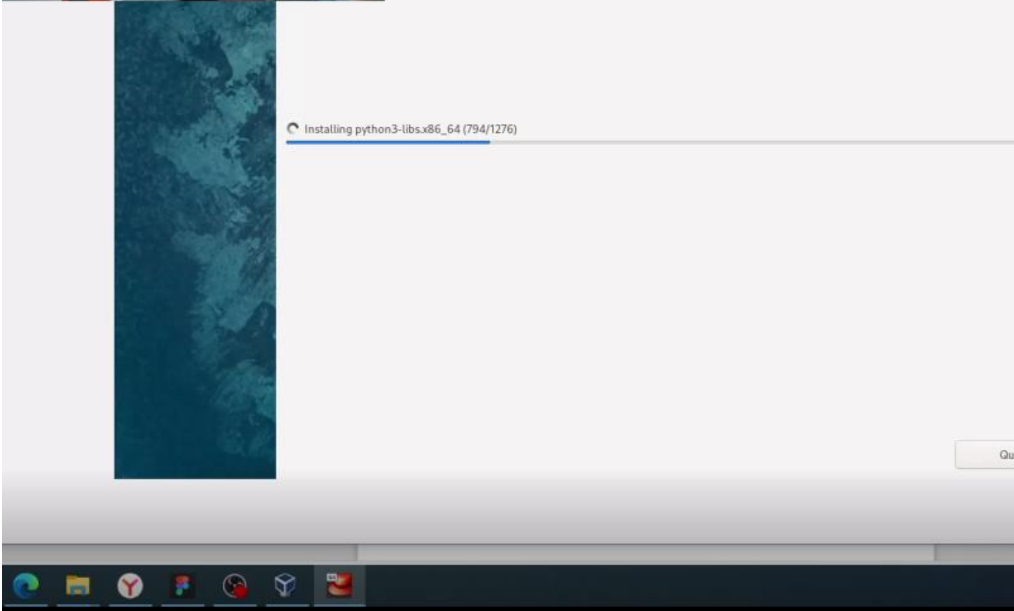
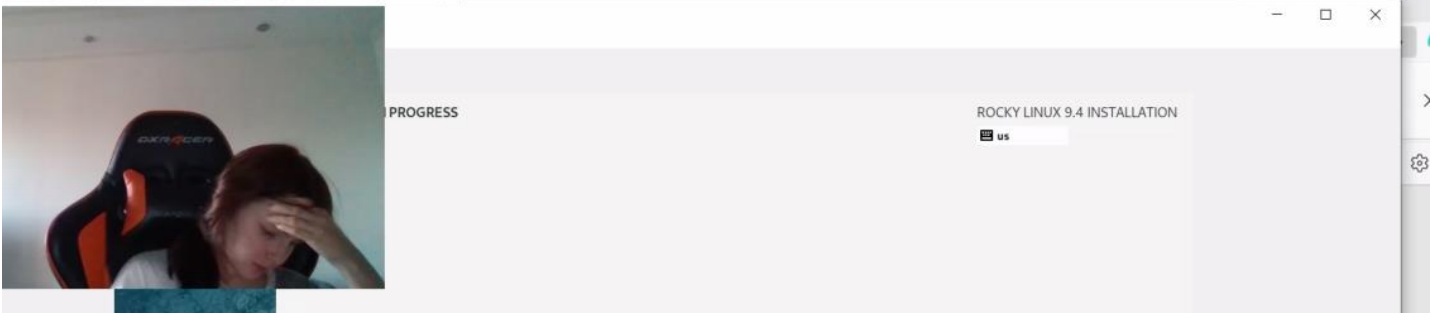
English (Israel)

Type here to search.

Quit

Continue

mkdir /var/tmp/имя_пользователя



1. Версия ядра Linux (Linux version).
2. Частота процессора (Detected Mhz processor).
3. Модель процессора (CPU0).
4. Объем доступной оперативной памяти (Memory available).
5. Тип обнаруженного гипервизора (Hypervisor detected).
6. Тип файловой системы корневого раздела.
7. Последовательность монтирования файловых

```
[neobiju@neobiju ~]$ dmesg
bash: dmesg: command not found...
Similar command is: 'dmesg'
[neobiju@neobiju ~]$ dmesg
[ 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
[ 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.redha
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 resume=/dev/mapper/rl-swap rd.lvm.lv=rl/
root rd.lvm.lv=rl/swap rhgb quiet
[ 0.000000] [Firmware Bug]: TSC doesn't count with P0 frequency!
[ 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 0x0000000000000000-0x000000000009fbff] usable
[ 0.000000] BIOS-e820: [mem 0x000000000009fc00-0x000000000009ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000000f0000-0x00000000000fffff] reserved
[ 0.000000] BIOS-e820: [mem 0x0000000000100000-0x00000000007ffeffff] usable
[ 0.000000] BIOS-e820: [mem 0x00000000007fff0000-0x00000000007fffffff] ACPI data
[ 0.000000] BIOS-e820: [mem 0x00000000fec00000-0x00000000fec0ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000fee00000-0x00000000fee0ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000fffc0000-0x00000000ffffffff] 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
[ 0.000002] kvm-clock: using sched offset of 5052300954 cycles
[ 0.000004] clocksource: kvm-clock: mask: 0xffffffffffffffff max_cycles: 0x1cd42e4dffb, max_idle_ns: 881590591483 ns
[ 0.000006] tsc: Detected 2096.064 MHz processor
[ 0.001092] e820: update [mem 0x00000000-0x00000fff] usable ==> reserved
[ 0.001094] e820: remove [mem 0x000a0000-0x000fffff] usable
[ 0.001098] last_pfn = 0x7fff0 max_arch_pfn = 0x40000000
[ 0.001115] MTRRs disabled by BIOS
[ 0.001119] x86/PAT: Configuration [0-7]: WB WC UC- UC WB WP UC- WT
[ 0.001187] found SMP MP-table at [mem 0x0009fff0-0x0009ffff]
```

```
Activities Terminal Sep 7 18:04 en neobiju@neobiju:~
neobiju@neobiju:~
[ 49.918758] rfkill: input handler disabled
neobiju@neobiju ~]$ dmesg | less
neobiju@neobiju ~]$ 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
neobiju@neobiju ~]$ dmesg | grep -i "Detected Mhz processor"
neobiju@neobiju ~]$ dmesg | grep -i "Detected"
[ 0.000000] Hypervisor detected: KVM
[ 0.000006] tsc: Detected 2096.064 MHz processor
[ 0.508512] hub 1-0:1.0: 12 ports detected
[ 0.517254] hub 2-0:1.0: 12 ports detected
[ 1.341502] systemd[1]: Detected virtualization oracle.
[ 1.341505] systemd[1]: Detected architecture x86-64.
[ 2.113599] Warning: Unmaintained driver is detected: e1000
[ 4.005154] systemd[1]: Detected virtualization oracle.
[ 4.005162] systemd[1]: Detected architecture x86-64.
[ 9.469945] Warning: Unmaintained driver is detected: ip_set
neobiju@neobiju ~]$ dmesg | grep -i "CPU0"
[ 0.047404] CPU0: Hyper-Threading is disabled
[ 0.172895] smpboot: CPU0: AMD Ryzen 5 5500U with Radeon Graphics (family: 0x17, model: 0x68, stepping: 0x1)
neobiju@neobiju ~]$ dmesg | grep -i "available"
[ 0.001843] On node 0, zone DMA: 1 pages in unavailable ranges
[ 0.001913] On node 0, zone DMA: 97 pages in unavailable ranges
[ 0.002868] On node 0, zone DMA32: 16 pages in unavailable ranges
[ 0.003330] [mem 0x80000000-0xfebfffff] available for PCI devices
[ 0.013661] Memory: 260860K/2096696K available (16384K kernel code, 5626K rdata, 11748K rodata, 3892K init, 5956K bss, 145300K reserved,
[ 0.173230] Performance Events: PMU not available due to virtualization, using software events only.
[ 2.502883] vmwgfx 0000:00:02.0: [drm] Available shader model: Legacy.
neobiju@neobiju ~]$ dmesg | grep -i "Hypervisor detected"
[ 0.000000] Hypervisor detected: KVM
neobiju@neobiju ~]$ df -Th
Filesystem Type Size Used Avail Use% Mounted on
devtmpfs devtmpfs 4.0M 0 4.0M 0% /dev
tmpfs tmpfs 984M 0 984M 0% /dev/shm
tmpfs tmpfs 394M 6.1M 388M 2% /run
/dev/mapper/rl-root xfs 37G 5.9G 32G 16% /
/dev/sda1 xfs 960M 272M 689M 29% /boot
tmpfs tmpfs 197M 120K 197M 1% /run/user/1000
neobiju@neobiju ~]$
```

```
Activities Terminal Sep 7 18:04 en neobiju@neobiju:~
neobiju@neobiju:~
tmpfs tmpfs 984M 0 984M 0% /dev/shm
tmpfs tmpfs 394M 6.1M 388M 2% /run
/dev/mapper/rl-root xfs 37G 5.9G 32G 16% /
/dev/sda1 xfs 960M 272M 689M 29% /boot
tmpfs tmpfs 197M 120K 197M 1% /run/user/1000
neobiju@neobiju ~]$ findmnt
TARGET SOURCE FSTYPE OPTIONS
/ /dev/mapper/rl-root xfs rw,relatime,seclabel,attr2,inode64,logbufs=8,logbsize=32k,noquota
-/proc /proc proc rw,nosuid,nodev,noexec,relatime
-/proc/sys/fs/binfmt_misc systemd-1 autofs rw,relatime,fd=29,pgrp=1,timeout=0,minproto=5,maxproto=5,direct,pipe_ino=18806
-/sys sysfs sysfs rw,nosuid,nodev,noexec,relatime,seclabel
-/sys/kernel/security securityfs securityfs rw,nosuid,nodev,noexec,relatime
-/sys/fs/cgroup cgroup2 cgroup2 rw,nosuid,nodev,noexec,relatime,seclabel,nsdelegate,memory_recursiveprot
-/sys/fs/pstore pstore pstore rw,nosuid,nodev,noexec,relatime,seclabel
-/sys/fs/bpf bpf bpf rw,nosuid,nodev,noexec,relatime,mode=700
-/sys/fs/selinux selinuxfs selinuxfs rw,nosuid,noexec,relatime
-/sys/kernel/debug debugfs debugfs rw,nosuid,nodev,noexec,relatime,seclabel
-/sys/kernel/tracing tracefs tracefs rw,nosuid,nodev,noexec,relatime,seclabel
-/sys/fs/fuse/connections fusectl fusectl rw,nosuid,nodev,noexec,relatime
-/sys/kernel/config configfs configfs rw,nosuid,nodev,noexec,relatime
-/dev devtmpfs devtmpfs rw,nosuid,seclabel,size=4096k,nr_inodes=243929,mode=755,inode64
-/dev shm tmpfs tmpfs rw,nosuid,nodev,seclabel,inode64
-/dev/pts devpts devpts rw,nosuid,noexec,relatime,seclabel,gid=5,mode=620,ptmxmode=000
-/dev/mqueue mqueue mqueue rw,nosuid,nodev,noexec,relatime,seclabel
-/dev/hugepages hugetlbfs hugetlbfs rw,relatime,seclabel,pagesize=2M
-/run run tmpfs tmpfs rw,nosuid,nodev,seclabel,size=402992k,nr_inodes=819200,mode=755,inode64
-/run/credentials/systemd-sysctl.service none ramfs ro,nosuid,nodev,noexec,relatime,seclabel,mode=700
-/run/credentials/systemd-tmpfiles-setup-dev.service none ramfs ro,nosuid,nodev,noexec,relatime,seclabel,mode=700
-/run/credentials/systemd-sysusers.service none ramfs ro,nosuid,nodev,noexec,relatime,seclabel,mode=700
-/run/credentials/systemd-tmpfiles-setup.service none ramfs ro,nosuid,nodev,noexec,relatime,seclabel,mode=700
-/run/user/1000 none ramfs ro,nosuid,nodev,noexec,relatime,seclabel,mode=700
-/run/user/1000/gvfs tmpfs gvfsd-fuse rw,nosuid,nodev,relatime,seclabel,size=201496k,nr_inodes=50374,mode=700,uid=1000,gid=1000,inode64
-/boot gvfsd-fuse gvfsd-fuse rw,nosuid,nodev,relatime,user_id=1000,group_id=1000
-/boot /dev/sda1 xfs rw,relatime,seclabel,attr2,inode64,logbufs=8,logbsize=32k,noquota
neobiju@neobiju ~]$
```

Вывод

- Приобрели практические навыки установки операционной системы на виртуальную машину, настроили минимально необходимые для дальнейшей работы сервисы.

