

Лабораторная работа № 1.

**Установка и конфигурация операционной системы на виртуальную
машину**

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1 Цель работы

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

2 Выполнение лабораторной работы

1. Следует создать новую виртуальную машину. Для этого в VirtualBox выбираем: машина -> создать. Указываем имя виртуальной машины тип операционной системы – Linux, RedHat (64-bit), а также размер оперативной памяти, конфигурацию жесткого диска и его размер.

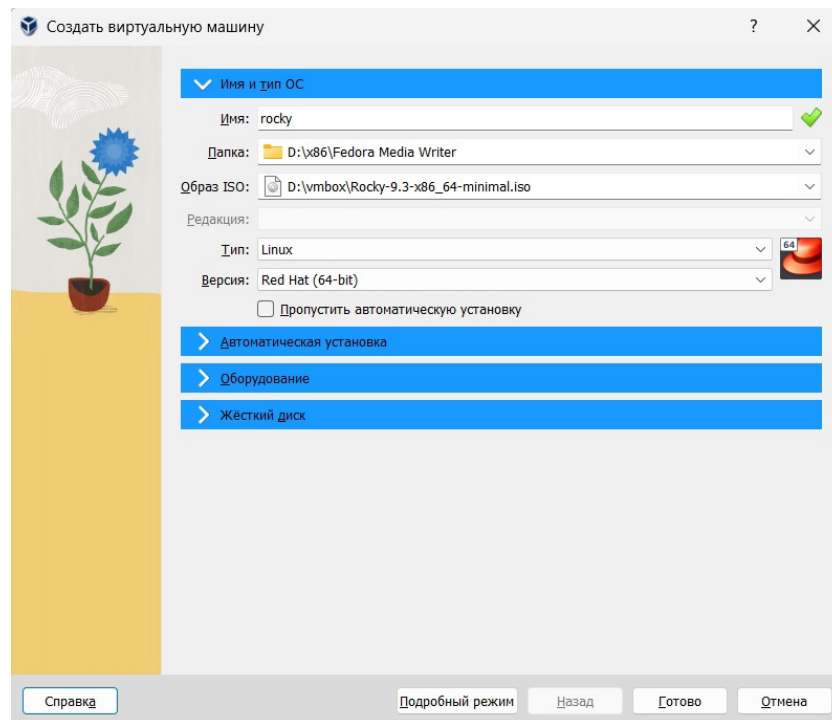


Рис. 2.1: рисунок 1

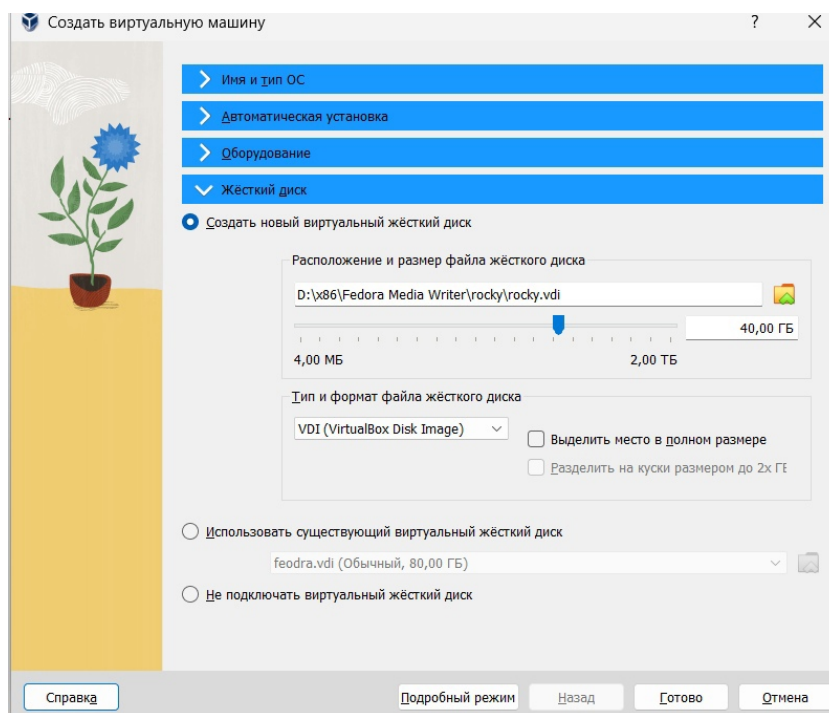


Рис. 2.2: рисунок 2

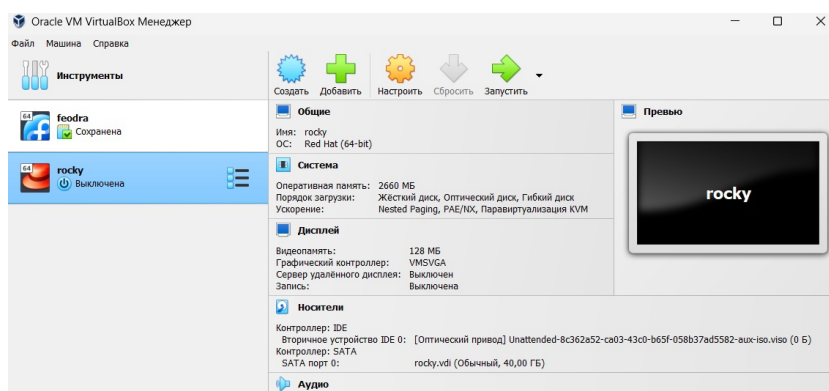


Рис. 2.3: рисунок 3

- Следующим шагом следует запустить виртуальную машину, выбрать English в качестве языка интерфейса и перейти к настройкам установки операционной системы

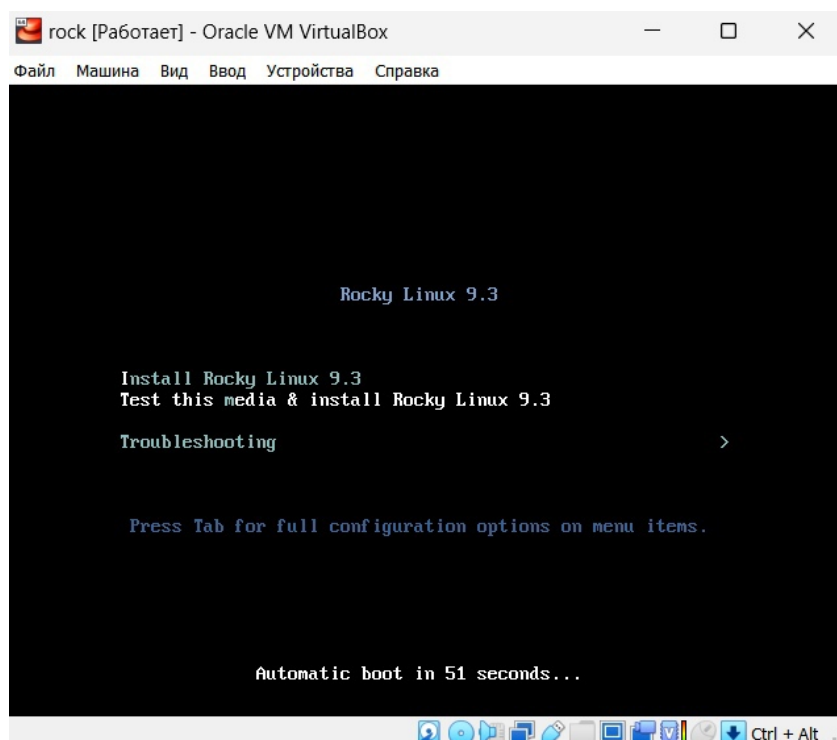


Рис. 2.4: рисунок 4

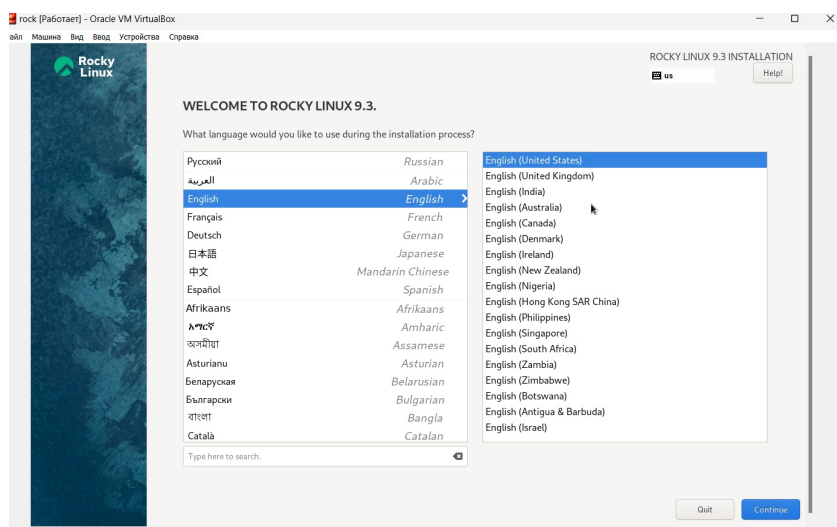


Рис. 2.5: рисунок 5

3. В разделе выбора программ указываем в качестве базового окружения “Server with GUI”, а в качестве дополнения — “Development Tools”

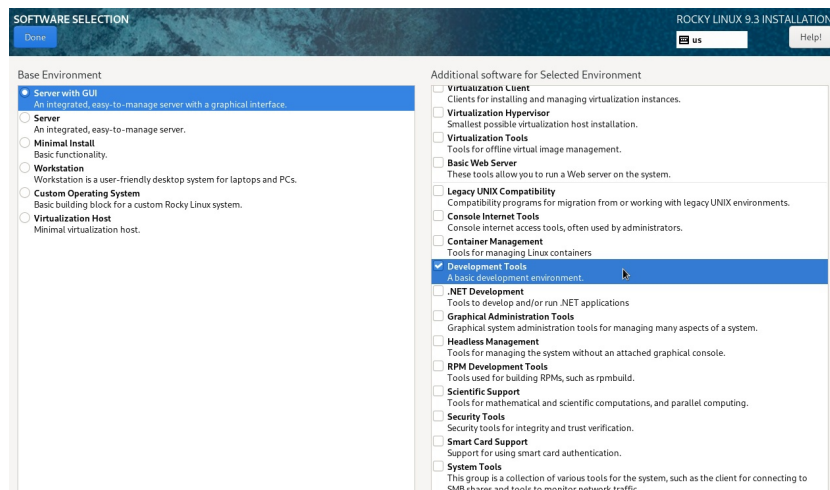


Рис. 2.6: рисунок 7

4. Включаем сетевое соединение и в качестве имени узла указываем user.localdomain

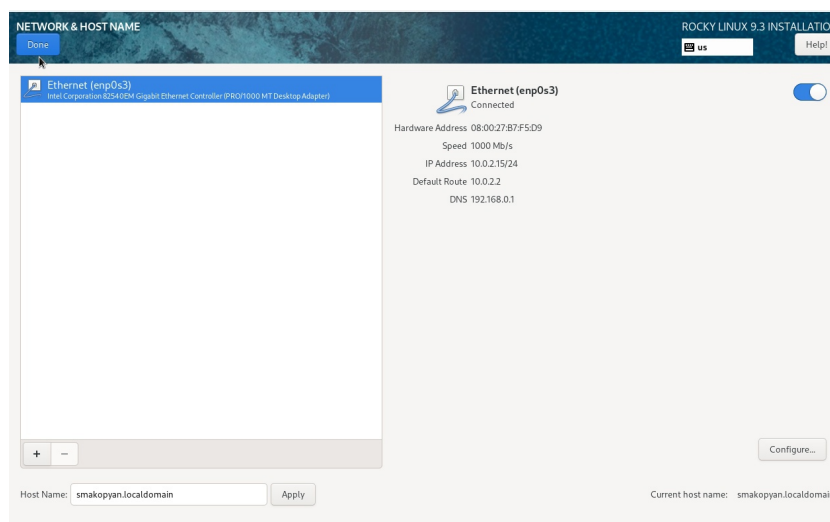


Рис. 2.7: рисунок 8

5. Устанавливаем пароль для root и пользователя с правами администратора.

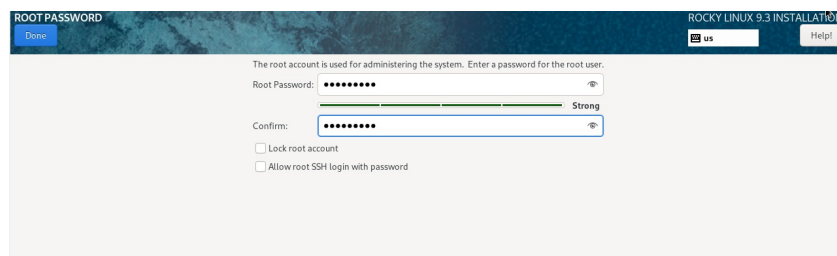


Рис. 2.8: рисунок 9

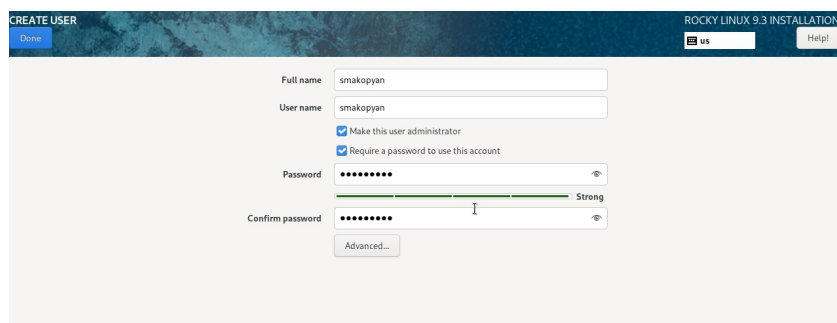
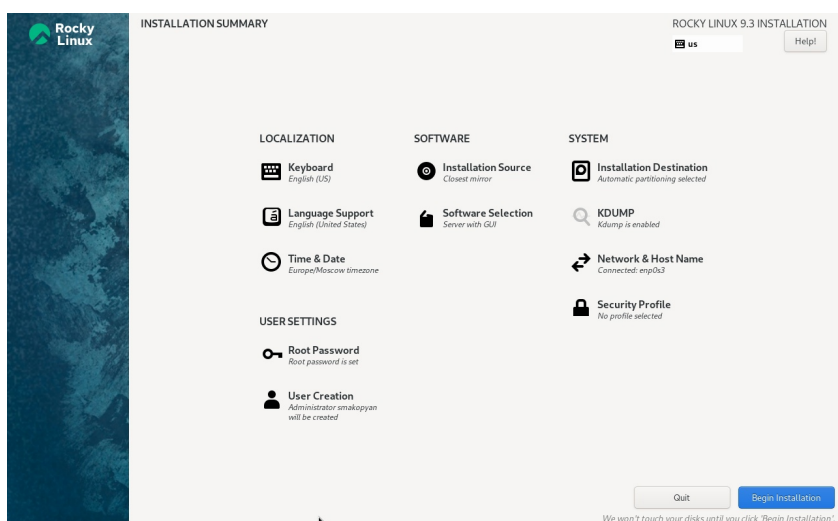


Рис. 2.9: рисунок 10



6. После завершения установки операционной системы следует корректно перезапустить виртуальную машину

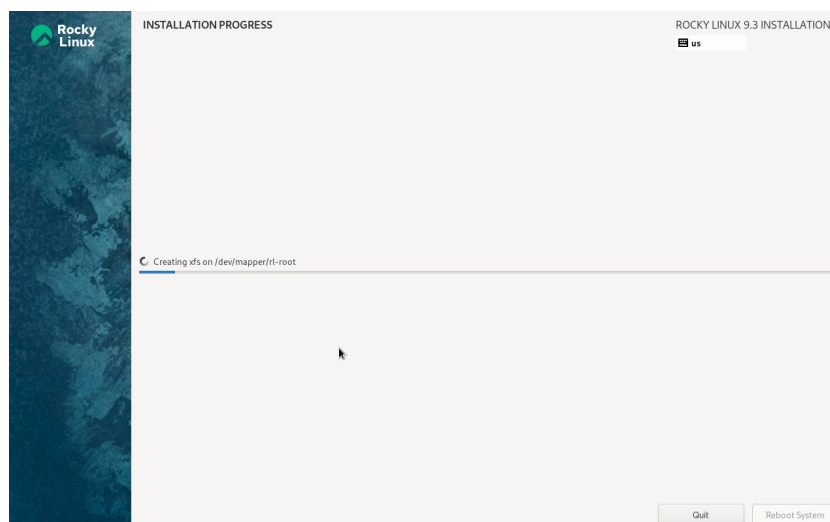


Рис. 2.10: рисунок 12

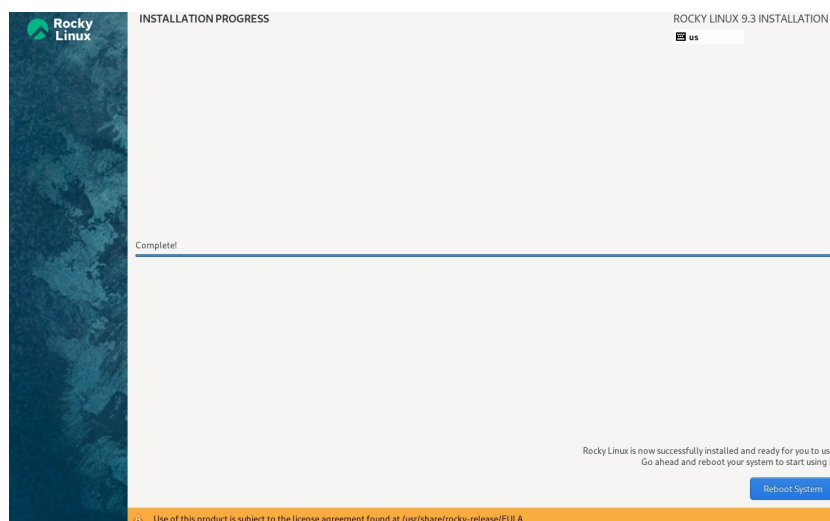


Рис. 2.11: рисунок 13

7. Заходим в ОС под заданной при установке учётной записью. В меню Устройства виртуальной машины подключаем образ диска дополнений гостевой ОС

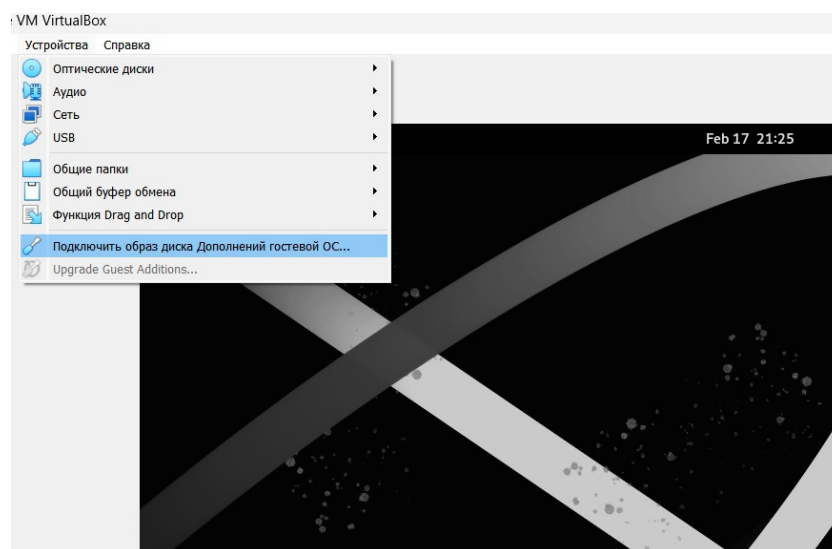
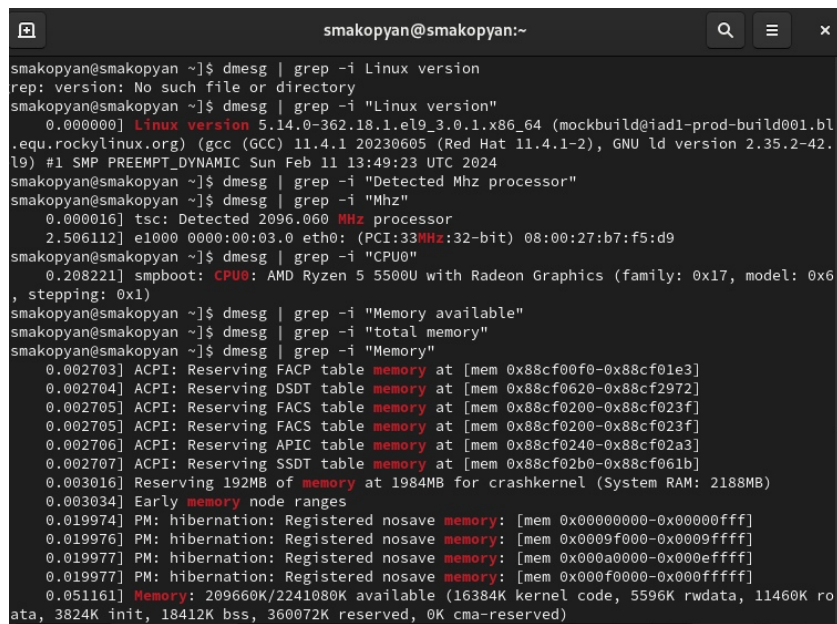


Рис. 2.12: рисунок 14

3 Домашнее задание

Получите следующую информацию. 1. Версия ядра Linux (Linux version).



```
smakopyan@smakopyan:~$ dmesg | grep -i Linux version
rep: version: No such file or directory
smakopyan@smakopyan ~]$ dmesg | grep -i "Linux version"
0.000000] Linux version 5.14.0-362.18.1.el9_3.0.1.x86_64 (mockbuild@iad1-prod-build001.bl
.equ.rockylinux.org) (gcc (GCC) 11.4.1 20230605 (Red Hat 11.4.1-2), GNU ld version 2.35.2-42.
19) #1 SMP PREEMPT_DYNAMIC Sun Feb 11 13:49:23 UTC 2024
smakopyan@smakopyan ~]$ dmesg | grep -i "Detected Mhz processor"
smakopyan@smakopyan ~]$ dmesg | grep -i "Mhz"
0.000016] tsc: Detected 2096.060 MHz processor
2.506112] e1000 0000:00:03:0 eth0: (PCI:33MHz:32-bit) 08:00:27:b7:f5:d9
smakopyan@smakopyan ~]$ dmesg | grep -i "CPU0"
0.208221] smpboot: CPU0: AMD Ryzen 5 5500U with Radeon Graphics (family: 0x17, model: 0x6
, stepping: 0x1)
smakopyan@smakopyan ~]$ dmesg | grep -i "Memory available"
smakopyan@smakopyan ~]$ dmesg | grep -i "total memory"
smakopyan@smakopyan ~]$ dmesg | grep -i "Memory"
0.002703] ACPI: Reserving FACP table memory at [mem 0x88cf00f0-0x88cf01e3]
0.002704] ACPI: Reserving DSDT table memory at [mem 0x88cf0620-0x88cf2972]
0.002705] ACPI: Reserving FACS table memory at [mem 0x88cf0200-0x88cf023f]
0.002705] ACPI: Reserving FACS table memory at [mem 0x88cf0200-0x88cf023f]
0.002706] ACPI: Reserving APIC table memory at [mem 0x88cf0240-0x88cf02a3]
0.002707] ACPI: Reserving SSDT table memory at [mem 0x88cf02b0-0x88cf061b]
0.003016] Reserving 192MB of memory at 1984MB for crashkernel (System RAM: 2188MB)
0.003034] Early memory node ranges
0.019974] PM: hibernation: Registered nosave memory: [mem 0x00000000-0x00000fff]
0.019976] PM: hibernation: Registered nosave memory: [mem 0x0009f000-0x0009ffff]
0.019977] PM: hibernation: Registered nosave memory: [mem 0x000a0000-0x000aefff]
0.019977] PM: hibernation: Registered nosave memory: [mem 0x000f0000-0x000fffff]
0.051161] Memory: 209660K/2241080K available (16384K kernel code, 5596K rwddata, 11460K ro
ata, 3824K init, 18412K bss, 360072K reserved, 0K cma-reserved)
```

Рис. 3.1: рисунок 17

2. Частота процессора (Detected Mhz processor).

```
smakopyan@smakopyan:~$ dmesg | grep -i Linux version
rep: version: No such file or directory
smakopyan@smakopyan ~]$ dmesg | grep -i "Linux version"
0.000000] Linux version 5.14.0-362.18.1.el9_3.0.1.x86_64 (mockbuild@iad1-prod-build001.bl
.equ.rockylinux.org) (gcc (GCC) 11.4.1 20230605 (Red Hat 11.4.1-2), GNU ld version 2.35.2-42.
19) #1 SMP PREEMPT_DYNAMIC Sun Feb 11 13:49:23 UTC 2024
smakopyan@smakopyan ~]$ dmesg | grep -i "Detected Mhz processor"
smakopyan@smakopyan ~]$ dmesg | grep -i "Mhz"
0.000016] tsc: Detected 2096.060 MHz processor
2.506112] e1000 0000:00:03:0 eth0: (PCI:33MHz:32-bit) 08:00:27:b7:f5:d9
smakopyan@smakopyan ~]$ dmesg | grep -i "CPU0"
0.208221] smpboot: CPU0: AMD Ryzen 5 5500U with Radeon Graphics (family: 0x17, model: 0x6
, stepping: 0x1)
smakopyan@smakopyan ~]$ dmesg | grep -i "Memory available"
smakopyan@smakopyan ~]$ dmesg | grep -i "total memory"
smakopyan@smakopyan ~]$ dmesg | grep -i "Memory"
0.002703] ACPI: Reserving FACP table memory at [mem 0x88cf00f0-0x88cf01e3]
0.002704] ACPI: Reserving DSDT table memory at [mem 0x88cf0620-0x88cf2972]
0.002705] ACPI: Reserving FACS table memory at [mem 0x88cf0200-0x88cf023f]
0.002705] ACPI: Reserving FACS table memory at [mem 0x88cf0200-0x88cf023f]
0.002706] ACPI: Reserving APIC table memory at [mem 0x88cf0240-0x88cf02a3]
0.002707] ACPI: Reserving SSDT table memory at [mem 0x88cf02b0-0x88cf061b]
0.003016] Reserving 192MB of memory at 1984MB for crashkernel (System RAM: 2188MB)
0.003034] Early memory node ranges
0.019974] PM: hibernation: Registered nosave memory: [mem 0x00000000-0x00000fff]
0.019976] PM: hibernation: Registered nosave memory: [mem 0x0009f000-0x0009ffff]
0.019977] PM: hibernation: Registered nosave memory: [mem 0x000a0000-0x000aefff]
0.019977] PM: hibernation: Registered nosave memory: [mem 0x000f0000-0x000fffff]
0.051161] Memory: 209660K/2241080K available (16384K kernel code, 5596K rwddata, 11460K ro
ata, 3824K init, 18412K bss, 360072K reserved, 0K cma-reserved)
```

Рис. 3.2: рисунок 17

3. Модель процессора (CPU0).

```
smakopyan@smakopyan:~$ dmesg | grep -i Linux version
rep: version: No such file or directory
smakopyan@smakopyan ~]$ dmesg | grep -i "Linux version"
0.000000] Linux version 5.14.0-362.18.1.el9_3.0.1.x86_64 (mockbuild@iad1-prod-build001.bl
.equ.rockylinux.org) (gcc (GCC) 11.4.1 20230605 (Red Hat 11.4.1-2), GNU ld version 2.35.2-42.
19) #1 SMP PREEMPT_DYNAMIC Sun Feb 11 13:49:23 UTC 2024
smakopyan@smakopyan ~]$ dmesg | grep -i "Detected Mhz processor"
smakopyan@smakopyan ~]$ dmesg | grep -i "Mhz"
0.000016] tsc: Detected 2096.060 MHz processor
2.506112] e1000 0000:00:03:0 eth0: (PCI:33MHz:32-bit) 08:00:27:b7:f5:d9
smakopyan@smakopyan ~]$ dmesg | grep -i "CPU0"
0.208221] smpboot: CPU0: AMD Ryzen 5 5500U with Radeon Graphics (family: 0x17, model: 0x6
, stepping: 0x1)
smakopyan@smakopyan ~]$ dmesg | grep -i "Memory available"
smakopyan@smakopyan ~]$ dmesg | grep -i "total memory"
smakopyan@smakopyan ~]$ dmesg | grep -i "Memory"
0.002703] ACPI: Reserving FACP table memory at [mem 0x88cf00f0-0x88cf01e3]
0.002704] ACPI: Reserving DSDT table memory at [mem 0x88cf0620-0x88cf2972]
0.002705] ACPI: Reserving FACS table memory at [mem 0x88cf0200-0x88cf023f]
0.002705] ACPI: Reserving FACS table memory at [mem 0x88cf0200-0x88cf023f]
0.002706] ACPI: Reserving APIC table memory at [mem 0x88cf0240-0x88cf02a3]
0.002707] ACPI: Reserving SSDT table memory at [mem 0x88cf02b0-0x88cf061b]
0.003016] Reserving 192MB of memory at 1984MB for crashkernel (System RAM: 2188MB)
0.003034] Early memory node ranges
0.019974] PM: hibernation: Registered nosave memory: [mem 0x00000000-0x00000fff]
0.019976] PM: hibernation: Registered nosave memory: [mem 0x0009f000-0x0009ffff]
0.019977] PM: hibernation: Registered nosave memory: [mem 0x000a0000-0x000aefff]
0.019977] PM: hibernation: Registered nosave memory: [mem 0x000f0000-0x000fffff]
0.051161] Memory: 209660K/2241080K available (16384K kernel code, 5596K rwddata, 11460K ro
ata, 3824K init, 18412K bss, 360072K reserved, 0K cma-reserved)
```

Рис. 3.3: рисунок 17

4. Объем доступной оперативной памяти (Memory available).

```
smakopyan@smakopyan:~$ dmesg | grep -i Linux version
rep: version: No such file or directory
smakopyan@smakopyan ~]$ dmesg | grep -i "Linux version"
0.000000] Linux version 5.14.0-362.18.1.el9_3.0.1.x86_64 (mockbuild@iad1-prod-build001.bl
.equ.rockylinux.org) (gcc (GCC) 11.4.1 20230605 (Red Hat 11.4.1-2), GNU ld version 2.35.2-42.
19) #1 SMP PREEMPT_DYNAMIC Sun Feb 11 13:49:23 UTC 2024
smakopyan@smakopyan ~]$ dmesg | grep -i "Detected Mhz processor"
smakopyan@smakopyan ~]$ dmesg | grep -i "Mhz"
0.000016] tsc: Detected 2096.060 MHz processor
2.506112] e1000 0000:00:03:0 eth0: (PCI:33MHz:32-bit) 08:00:27:b7:f5:d9
smakopyan@smakopyan ~]$ dmesg | grep -i "CPU0"
0.208221] smpboot: CPU0: AMD Ryzen 5 5500U with Radeon Graphics (family: 0x17, model: 0x6
, stepping: 0x1)
smakopyan@smakopyan ~]$ dmesg | grep -i "Memory available"
smakopyan@smakopyan ~]$ dmesg | grep -i "total memory"
smakopyan@smakopyan ~]$ dmesg | grep -i "Memory"
0.002703] ACPI: Reserving FACP table memory at [mem 0x88cf00f0-0x88cf01e3]
0.002704] ACPI: Reserving DSDT table memory at [mem 0x88cf0620-0x88cf2972]
0.002705] ACPI: Reserving FACS table memory at [mem 0x88cf0200-0x88cf023f]
0.002705] ACPI: Reserving FACS table memory at [mem 0x88cf0200-0x88cf023f]
0.002706] ACPI: Reserving APIC table memory at [mem 0x88cf0240-0x88cf02a3]
0.002707] ACPI: Reserving SSDT table memory at [mem 0x88cf02b0-0x88cf061b]
0.003016] Reserving 192MB of memory at 1984MB for crashkernel (System RAM: 2188MB)
0.003034] Early memory node ranges
0.019974] PM: hibernation: Registered nosave memory: [mem 0x00000000-0x00000fff]
0.019976] PM: hibernation: Registered nosave memory: [mem 0x0009f000-0x0009ffff]
0.019977] PM: hibernation: Registered nosave memory: [mem 0x000a0000-0x000aefff]
0.019977] PM: hibernation: Registered nosave memory: [mem 0x000f0000-0x000fffff]
0.051161] Memory: 209660K/2241080K available (16384K kernel code, 5596K rwddata, 11460K ro
ata, 3824K init, 18412K bss, 360072K reserved, 0K cma-reserved)
```

Рис. 3.4: рисунок 17

5. Тип обнаруженного гипервизора (Hypervisor detected).

```
smakopyan@smakopyan:~$ dmesg | grep -i "Memory available"
smakopyan@smakopyan ~]$ dmesg | grep -i "total memory"
smakopyan@smakopyan ~]$ dmesg | grep -i "Memory"
0.002703] ACPI: Reserving FACP table memory at [mem 0x88cf00f0-0x88cf01e3]
0.002704] ACPI: Reserving DSDT table memory at [mem 0x88cf0620-0x88cf2972]
0.002705] ACPI: Reserving FACS table memory at [mem 0x88cf0200-0x88cf023f]
0.002705] ACPI: Reserving FACS table memory at [mem 0x88cf0200-0x88cf023f]
0.002706] ACPI: Reserving APIC table memory at [mem 0x88cf0240-0x88cf02a3]
0.002707] ACPI: Reserving SSDT table memory at [mem 0x88cf02b0-0x88cf061b]
0.003016] Reserving 192MB of memory at 1984MB for crashkernel (System RAM: 2188MB)
0.003034] Early memory node ranges
0.019974] PM: hibernation: Registered nosave memory: [mem 0x00000000-0x00000fff]
0.019976] PM: hibernation: Registered nosave memory: [mem 0x0009f000-0x0009ffff]
0.019977] PM: hibernation: Registered nosave memory: [mem 0x000a0000-0x000aefff]
0.019977] PM: hibernation: Registered nosave memory: [mem 0x000f0000-0x000fffff]
0.051161] Memory: 209660K/2241080K available (16384K kernel code, 5596K rwddata, 11460K ro
ata, 3824K init, 18412K bss, 360072K reserved, 0K cma-reserved)
0.101370] Freeing SMP alternatives memory: 36K
0.224552] x86/mm: Memory block size: 128MB
0.488885] Non-volatile memory driver v1.3
1.175815] Freeing initrd memory: 55264K
1.378637] Freeing unused decrypted memory: 2036K
1.380139] Freeing unused kernel image (initmem) memory: 3824K
1.485868] Freeing unused kernel image (rodata/data gap) memory: 828K
2.263693] vmwgfx 0000:00:02.0: [drm] Legacy memory limits: VRAM = 131072 kB, FIFO = 2048
kB, surface = 393216 kB
2.263699] vmwgfx 0000:00:02.0: [drm] Maximum display memory size is 131072 kiB
smakopyan@smakopyan ~]$ dmesg | grep -i "hypervisor detected"
smakopyan@smakopyan ~]$ dmesg | grep -i "Hypervisor detected"
```

Рис. 3.5: рисунок 18

4 Выводы

В результате данной лабораторной работы я приобрела практические навыки установки операционной системы на виртуальную машину, настройки минимально необходимых для дальнейшей работы сервисов.

Список литературы