

Лабораторная работа № 1.

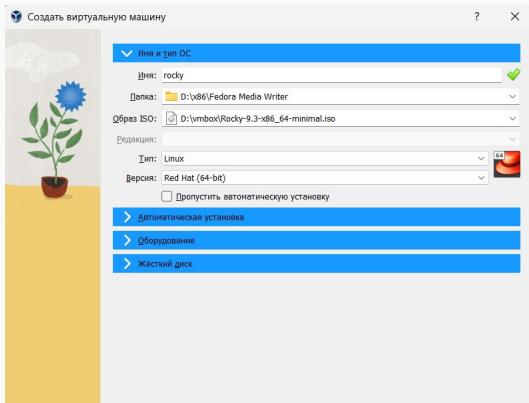
Установка и конфигурация

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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.



Выполнение лабораторной работы

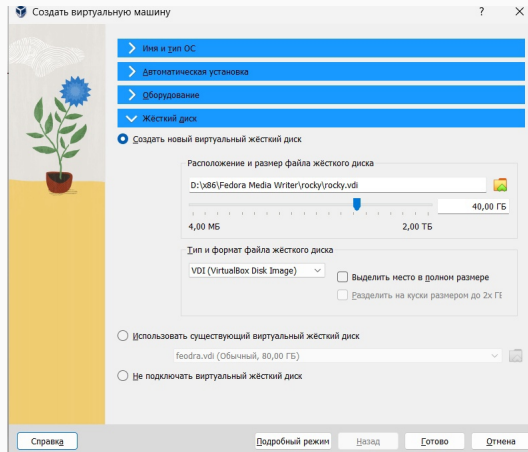


Рис. 2: рисунок 2

Выполнение лабораторной работы

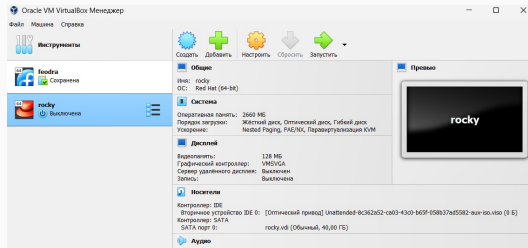
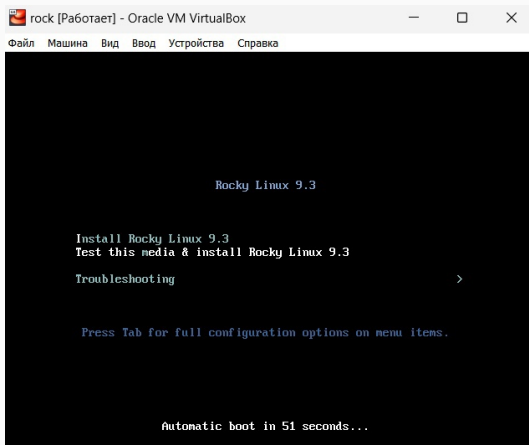


Рис. 3: рисунок 3

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



Выполнение лабораторной работы

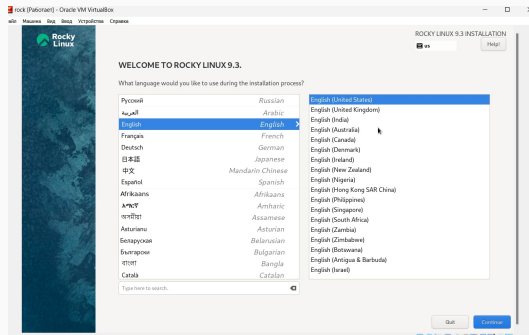


Рис. 5: рисунок 5

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

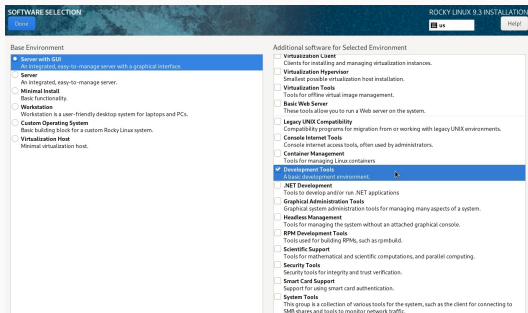


Рис. 6: рисунок 7

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

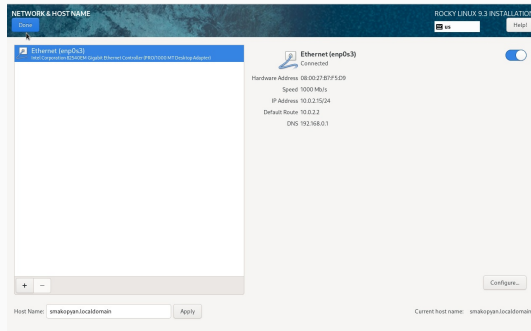
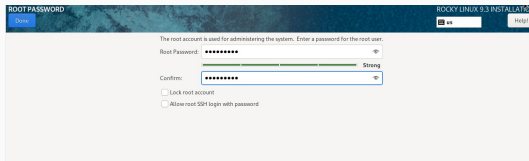


Рис. 7: рисунок 8

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



ROOT PASSWORD

ROCKY LINUX 9.3 INSTALLATION

The root account is used for administering the system. Enter a password for the root user.

Root Password: [password field] Strong

Confirm: [password field]

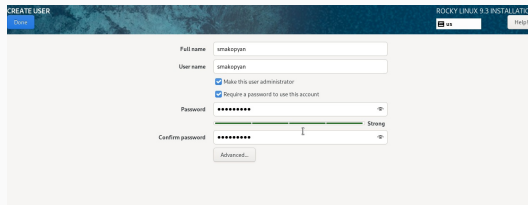
☐ Lock root account

☐ Allow root SSH login with password

Done Help!

Рис. 8: рисунок 9

Выполнение лабораторной работы



The image shows the 'CREATE USER' screen in the Rocky Linux 9.3 installation environment. The header bar is dark blue with 'CREATE USER' on the left and 'ROCKY LINUX 9.3 INSTALLATION' on the right. Below the header, there are two buttons: 'Done' (blue) and 'Help' (white). The main form area is light gray and contains the following fields and options:

- Full name:** A text input field containing 'smakopyan'.
- User name:** A text input field containing 'smakopyan'.
- Make this user administrator:** A checked checkbox.
- Require a password to use this account:** A checked checkbox.
- Password:** A password input field showing 10 dots. Below it is a strength indicator bar that is mostly green and ends with the word 'Strong'.
- Confirm password:** A password input field showing 10 dots.
- Advanced...:** A button located below the confirm password field.

Рис. 9: рисунок 10

Выполнение лабораторной работы

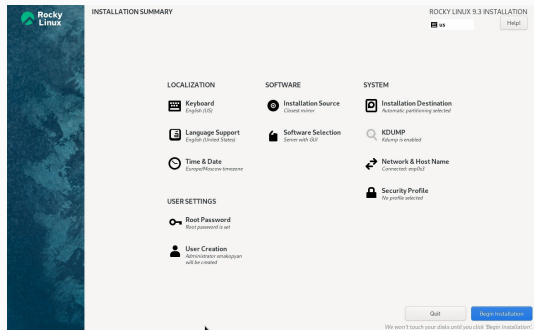


Рис. 10: рисунок 11

- После завершения установки операционной системы следует корректно перезапустить виртуальную машину

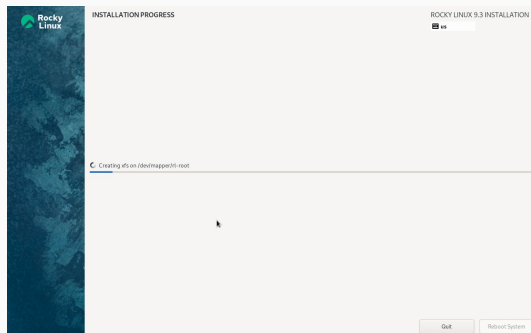


Рис. 11: рисунок 12



Рис. 12: рисунок 13

Выполнение лабораторной работы

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

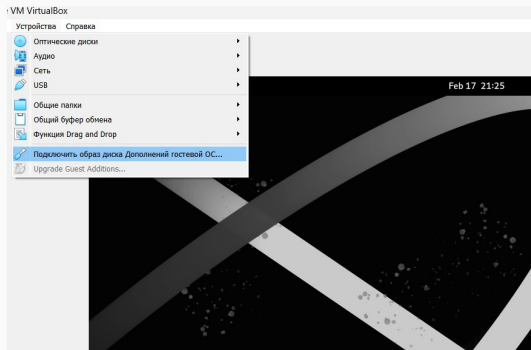
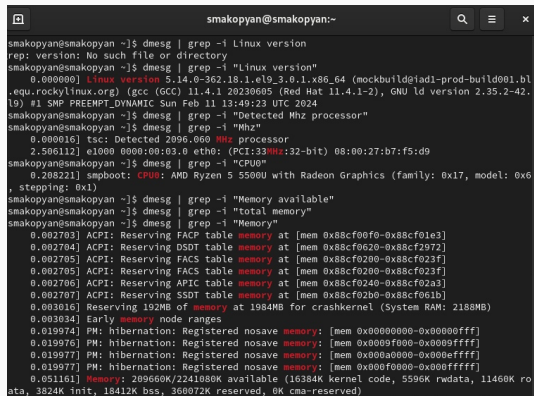


Рис. 13: рисунок 14

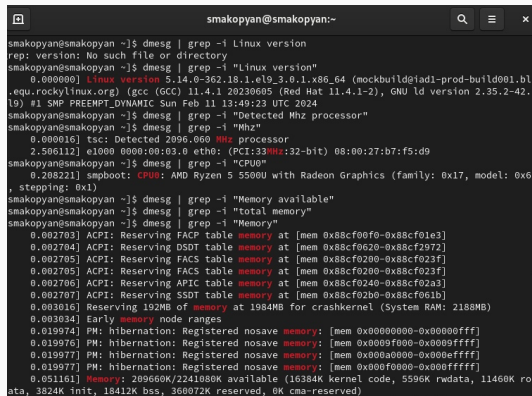
Получите следующую информацию. 1. Версия ядра Linux (Linux version).



```
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.
l9) #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 rdata, 11460K ro
ata, 3824K init, 18412K bss, 360072K reserved, 0K cma-reserved)
```

Рис. 14: рисунок 17

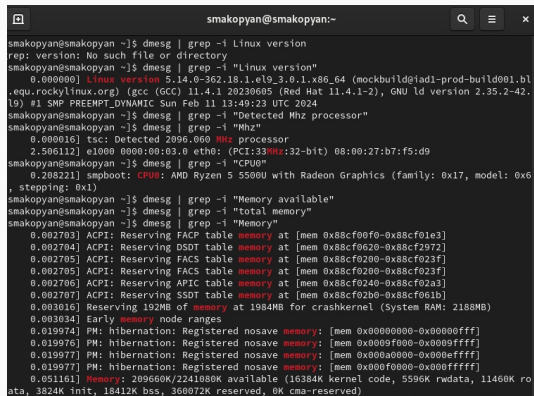
2. Частота процессора (Detected Mhz processor).



```
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.
l9) #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 rdata, 11460K ro
ata, 3824K init, 18412K bss, 360072K reserved, 0K cma-reserved)
```

Рис. 15: рисунок 17

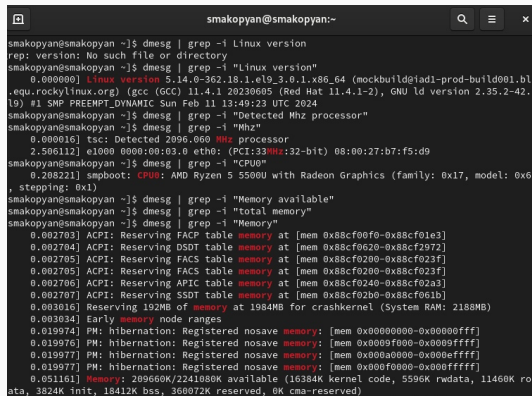
3. Модель процессора (CPU0).

A terminal window titled 'smakopyan@smakopyan:~' showing the output of several 'dmesg | grep' commands. The commands and their outputs are: 1. 'dmesg | grep -i Linux version' returns 'rep: version: No such file or directory'. 2. 'dmesg | grep -i "Linux version"' returns '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.l...l9) #1 SMP PREEMPT_DYNAMIC Sun Feb 11 13:49:23 UTC 2024'. 3. 'dmesg | grep -i "Detected Mhz processor"' returns '0.000016] tsc: Detected 2096.060 MHz processor'. 4. 'dmesg | grep -i "CPU0"' returns '2.506112] e1000 0000:00:03:0 eth0: (PCI:33MHz:32-bit) 08:00:27:b7:f5:d9' and '0.208221] smpboot: CPU0: AMD Ryzen 5 5500U with Radeon Graphics (family: 0x17, model: 0x6, stepping: 0x1)'. 5. 'dmesg | grep -i "Memory available"' returns '0.002703] ACPI: Reserving FACP table memory at [mem 0x88cf00f0-0x88cf01e3]'. 6. 'dmesg | grep -i "total memory"' returns '0.002704] ACPI: Reserving DSDT table memory at [mem 0x88cf0620-0x88cf2972]'. 7. 'dmesg | grep -i "Memory"' returns multiple lines for ACPI table reservations (FACS, FACS, APIC, SSDT) and hibernation memory ranges, ending with '0.051161] Memory: 209660K/2241080K available (16384K kernel code, 5596K rwdara, 11460K ro ata, 3824K init, 18412K bss, 360072K reserved, 0K cma-reserved)'.

```
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.l...
l9) #1 SMP PREEMPT_DYNAMIC Sun Feb 11 13:49:23 UTC 2024
smakopyan@smakopyan:~$ dmesg | grep -i "Detected Mhz processor"
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 rwdara, 11460K ro
ata, 3824K init, 18412K bss, 360072K reserved, 0K cma-reserved)
```

Рис. 16: рисунок 17

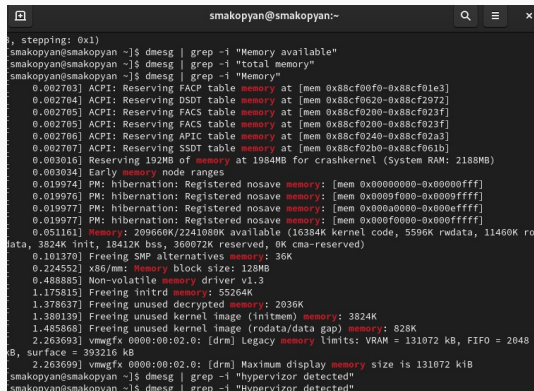
4. Объем доступной оперативной памяти (Memory available).



```
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.
l9) #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 0x000a0000-0x000aeffff]
0.019977] PM: hibernation: Registered nosave memory: [mem 0x000f0000-0x000fffff]
0.051161] Memory: 209660K/2241080K available (16384K kernel code, 5596K rdata, 11460K ro
ata, 3824K init, 18412K bss, 360072K reserved, 0K cma-reserved)
```

Рис. 17: 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 rdata, 11460K ro
data, 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 kB
smakopyan@smakopyan:~$ dmesg | grep -i "hypervisor detected"
smakopyan@smakopyan:~$ dmesg | grep -i "Hypervisor detected"
```

Рис. 18: рисунок 18

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