

Основы информационной безопасности. Лабораторная работа №1

Установка операционной системы на виртуальную машину”

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Информация

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Вводная часть

Целью данной работы является приобретение практических навыков установки операционной системы на виртуальную машину, и базовая настройка системы

Ход работы

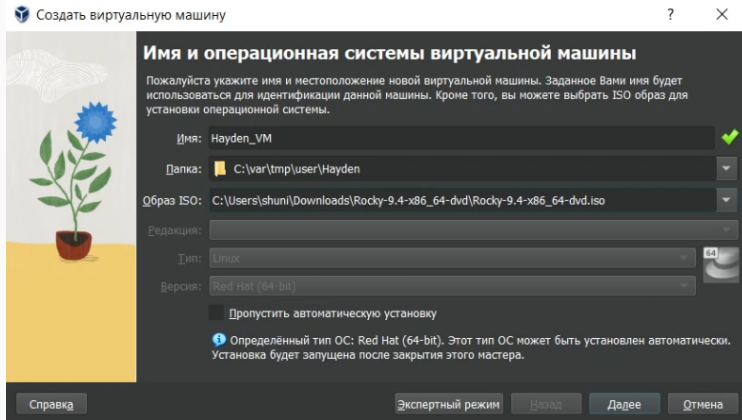


Figure 1: Имя и Операционная система VM

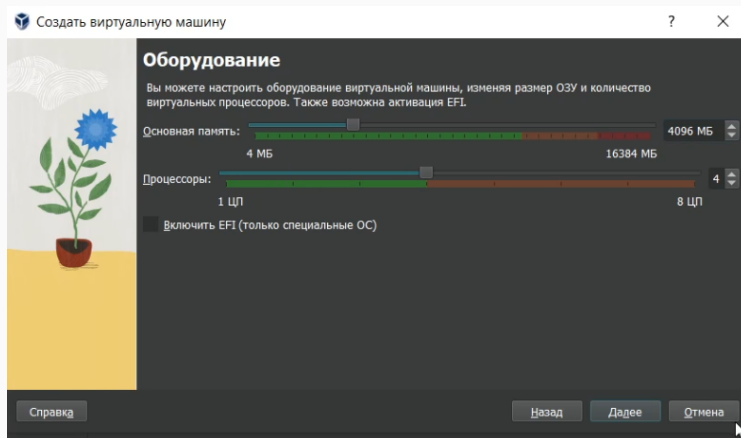


Figure 2: Окно «Имя машины и тип ОС»

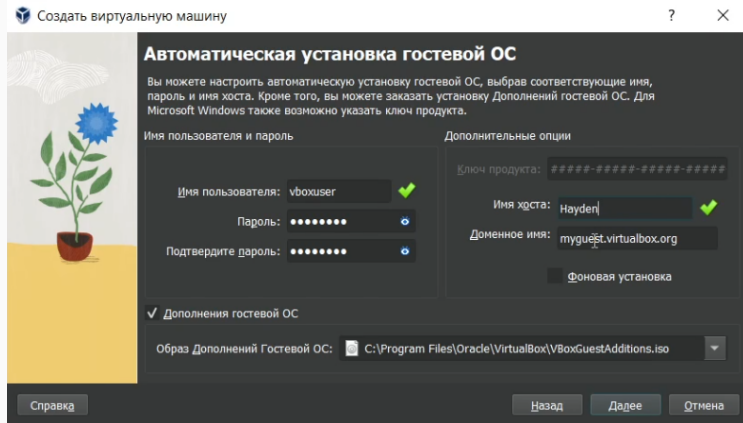


Figure 3: Окно «Автоматическая установка гостевой ОС»

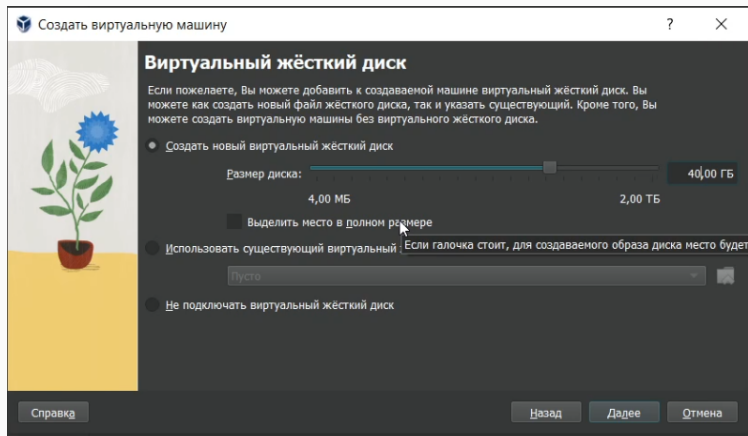


Figure 4: Окно подключения или создания жёсткого диска на виртуальной машине

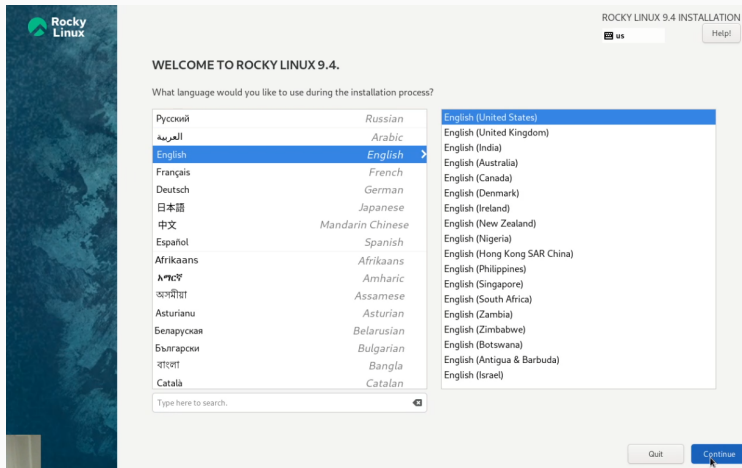


Figure 5: Установка языка интерфейса ОС

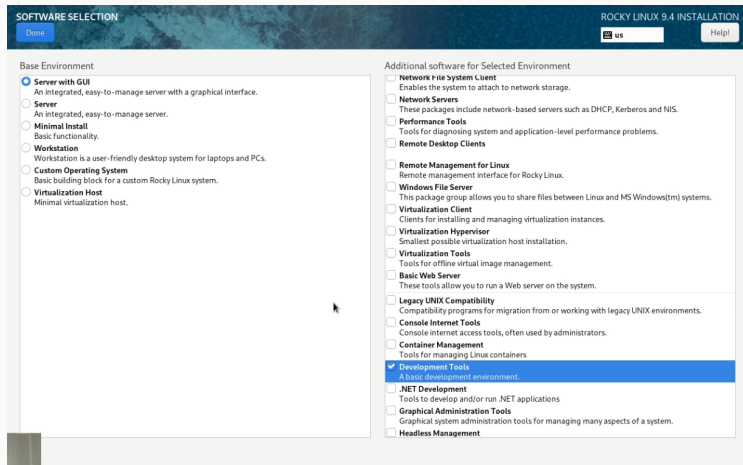


Figure 6: Окно настройки установки: выбор программ

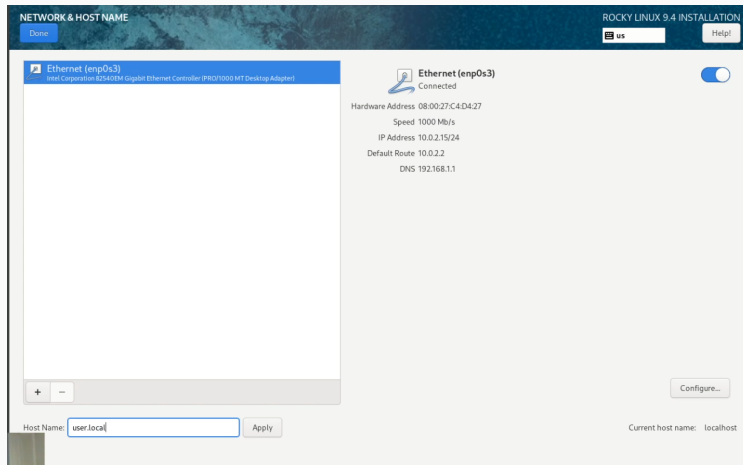
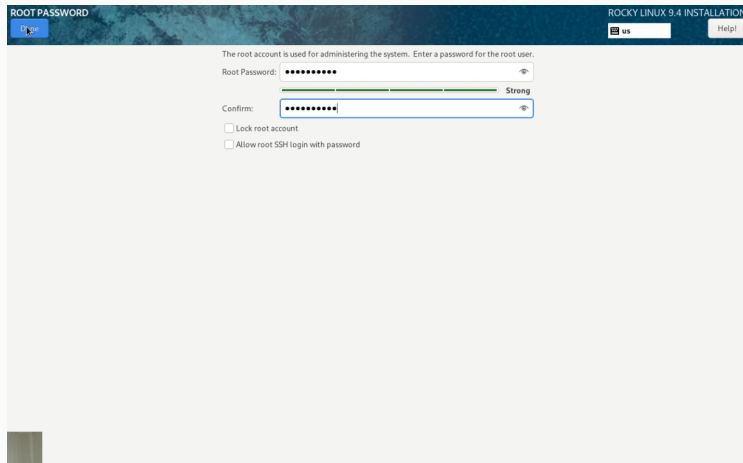


Figure 7: Окно настройки установки: сеть и имя узла



The screenshot shows the 'ROOT PASSWORD' screen in the Rocky Linux 9.4 installation process. The title bar at the top left says 'ROOT PASSWORD' and the top right says 'ROCKY LINUX 9.4 INSTALLATION'. Below the title bar, there is a blue button labeled 'Done' on the left and a 'Help!' button on the right. The main text reads: 'The root account is used for administering the system. Enter a password for the root user.' Below this, there are two password input fields. The first is labeled 'Root Password:' and contains a series of dots. Below it is a strength indicator bar that is mostly green and ends with the word 'Strong'. The second field is labeled 'Confirm:' and also contains a series of dots. Below these fields are two checkboxes: 'Lock root account' and 'Allow root SSH login with password', both of which are currently unchecked.

ROOT PASSWORD

ROCKY LINUX 9.4 INSTALLATION

Done

Help!

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

Figure 8: Установка пароля для root

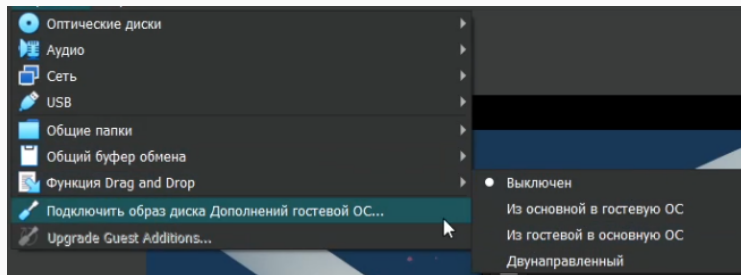
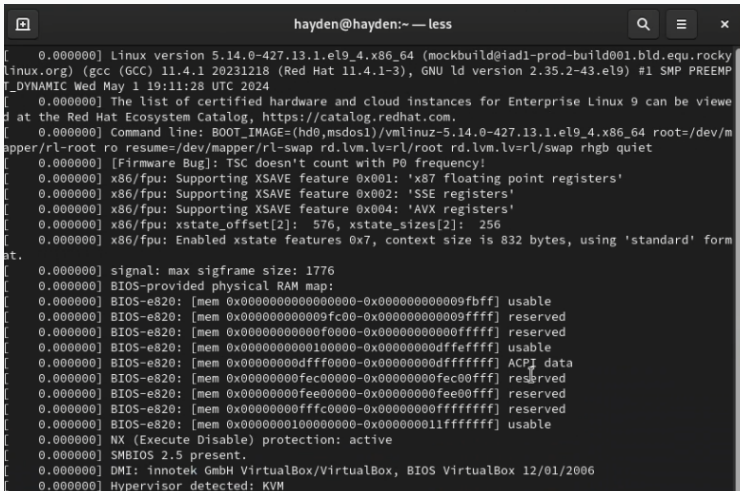


Figure 9: Подключение образа диска дополнений

В окне терминала проанализируем последовательность загрузки системы, выполнив команду `dmesg` (рис. fig. 10):

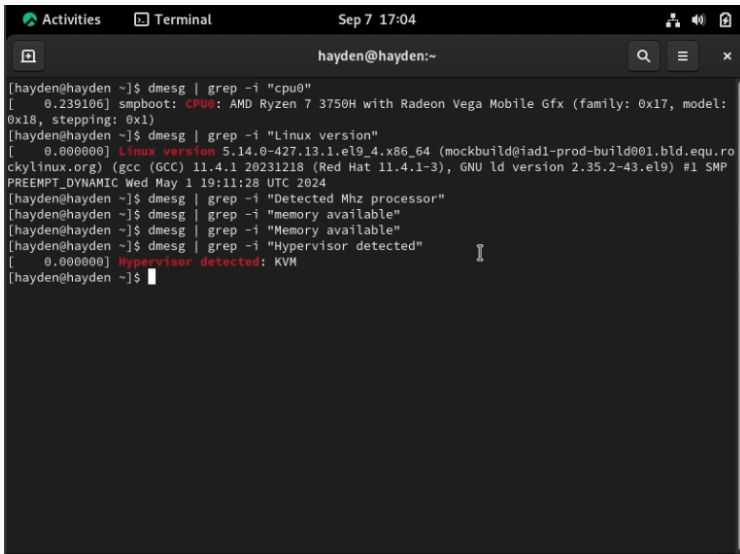


```
hayden@hayden:~ — less
[    0.000000] Linux version 5.14.0-427.13.1.el9_4.x86_64 (mockbuild@iad1-prod-build001.bld.equ.rocky
linux.org) gcc (GCC) 11.4.1 20231218 (Red Hat 11.4.1-3), GNU ld version 2.35.2-43.el9) #1 SMP PREEMP
_DYNAMIC Wed May 1 19:11:28 UTC 2024
[    0.000000] The list of certified hardware and cloud instances for Enterprise Linux 9 can be viewe
d at the Red Hat Ecosystem Catalog, https://catalog.redhat.com.
[    0.000000] Command line: BOOT_IMAGE=(hd0,msdos1)/vmlinuz-5.14.0-427.13.1.el9_4.x86_64 root=/dev/m
apper/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' form
at.
[    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 0x00000000000f0000-0x00000000000ffff] reserved
[    0.000000] BIOS-e820: [mem 0x0000000000100000-0x0000000000dffff] usable
[    0.000000] BIOS-e820: [mem 0x00000000dfff0000-0x00000000dfffffff] ACPI data
[    0.000000] BIOS-e820: [mem 0x00000000fec00000-0x00000000fec00fff] reserved
[    0.000000] BIOS-e820: [mem 0x00000000fee00000-0x00000000fee00fff] reserved
[    0.000000] BIOS-e820: [mem 0x00000000fffc0000-0x00000000ffffffff] reserved
[    0.000000] BIOS-e820: [mem 0x0000000100000000-0x000000011fffffff] usable
[    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
```


Домашнее задание

Получим следующую информацию при помощи команды `grep`(рис. fig. 9):

1. Версия ядра Linux (Linux version).
2. Модель процессора (CPU0).
3. Объем доступной оперативной памяти (Memory available).
4. Тип обнаруженного гипервизора (Hypervisor detected).



A terminal window titled "Terminal" with the username "hayden@hayden:~". The window shows the output of several `dmesg | grep` commands. The first command filters for "cpu0", showing smpboot information for an AMD Ryzen 7 3750H. The second command filters for "Linux version", showing kernel version 5.14.0-427.13.1.el9_4.x86_64. The third command filters for "Detected Mhz processor". The fourth and fifth commands filter for "memory available". The sixth command filters for "Hypervisor detected", showing "Hypervisor detected: KVM".

```
hayden@hayden:~$ dmesg | grep -i "cpu0"
[    0.239106] smpboot: CPU0: AMD Ryzen 7 3750H with Radeon Vega Mobile Gfx (family: 0x17, model: 0x18, stepping: 0x1)
hayden@hayden ~]$ 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
hayden@hayden ~]$ dmesg | grep -i "Detected Mhz processor"
hayden@hayden ~]$ dmesg | grep -i "memory available"
hayden@hayden ~]$ dmesg | grep -i "Memory available"
hayden@hayden ~]$ dmesg | grep -i "Hypervisor detected"
[    0.000000] Hypervisor detected: KVM
hayden@hayden ~]$
```

Figure 11: Вывод нужной информации о системе из файла диагностики

Заключение

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