

# Лабораторная работа 1

Настройка виртуальной машины, Git и Markdown

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2024 год

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## Цель работы

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

– Изучить идеологию и применение средств контроля версий. – Освоить умения по работе с git.

Научиться оформлять отчёты с помощью легковесного языка разметки Markdown.

## Выполнение

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```
The LTS Linux kernel and modules
1 extra/virtualbox 7.0.20-1 (42.5 MiB 182.0 MiB)
Powerful x86 virtualization for enterprise as well as home use
==> Packages to install (eg: 1 2 3, 1-3 or ^4)
==> 1
Sync Explicit (1): virtualbox-7.0.20-1
[sudo] password for danya:
resolving dependencies...
:: There are 2 providers available for VIRTUALBOX-HOST-MODULES:
:: Repository extra
   1) virtualbox-host-dkms  2) virtualbox-host-modules-arch

Enter a number (default=1):
looking for conflicting packages...

Packages (7) dkms-3.0.12-1  liblzf-3.6-5  libtptms-0.9.6-1  qt5-tools-5.15.14+kde+r4-2  sdl12-compat-1.2.68-2
               virtualbox-host-dkms-7.0.20-1  virtualbox-7.0.20-1

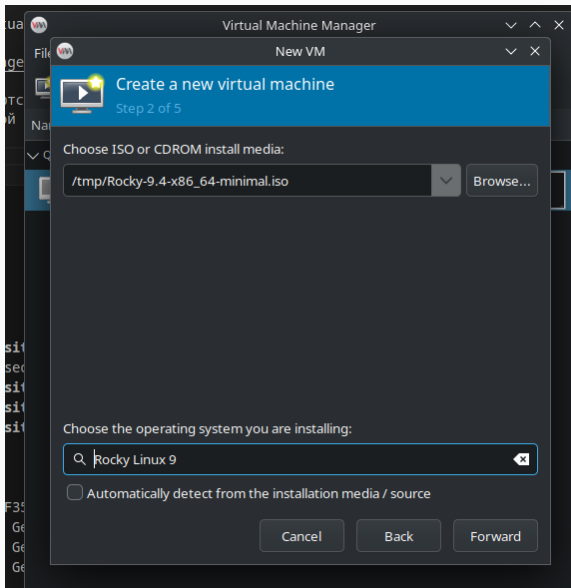
Total Download Size:   49.14 MiB
Total Installed Size: 210.18 MiB

:: Proceed with installation? [Y/n]
:: Retrieving packages...
dkms-3.0.12-1-any                38.4 KiB  16.7 KiB/s  00:02 [#####] 100%
liblzf-3.6-5-x86_64             17.0 KiB   7.36 KiB/s  00:02 [#####] 100%
sdl12-compat-1.2.68-2-x86_64    129.3 KiB  56.0 KiB/s  00:02 [#####] 100%
libtptms-0.9.6-1-x86_64         419.2 KiB  127 KiB/s  00:03 [#####] 100%
virtualbox-host-dkms-7.0.20-1-x86_64  757.2 KiB  226 KiB/s  00:03 [#####] 100%
qt5-tools-5.15.14+kde+r4-2-x86_64    5.3 MiB   600 KiB/s  00:09 [#####] 100%
virtualbox-7.0.20-1-x86_64        6.6 MiB   751 KiB/s  00:48 [#####] 15%
Total (6/7)                      13.2 MiB   760 KiB/s  00:48 [#####] 26%
```

Рис. 1: virtualbox

```
receiving objects: 100% (33/33), 18.81 KiB | 4.70 MiB/s, done.  
resolving deltas: 100% (1/1), done.  
anya@archlinux ~/Documents/university % cd study_2024-2025_infosec  
anya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] % ls  
HANGELOG.md COURSE LICENSE Makefile README.en.md README.git-flow.md README.md config package.json template  
anya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] % code .  
anya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] %  
30 danya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] % virtualbox  
ARNING: The vboxdrv kernel module is not loaded. Either there is no module  
available for the current kernel (6.10.6-arch1-1) or it failed to  
load. Please recompile the kernel module and install it by  
  
sudo /sbin/vboxconfig  
  
You will not be able to start VMs until this problem is fixed.  
C  
30 danya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] % sudo /sbin/vboxconfig  
sudo] password for danya:  
udo: /sbin/vboxconfig: command not found
```

Рис. 2: virtualbox error



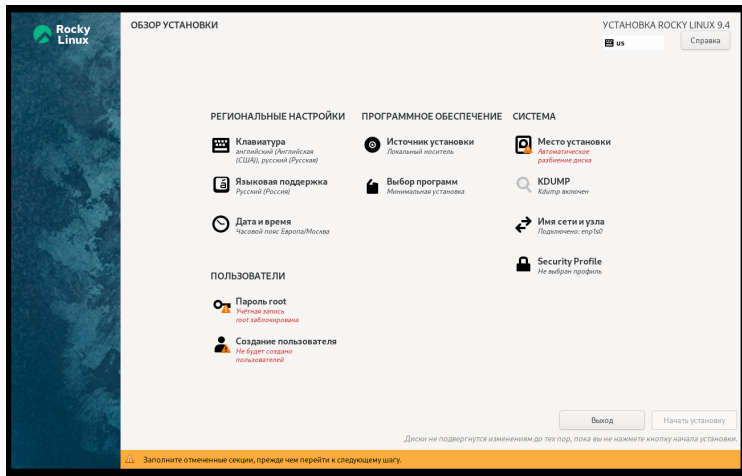


Рис. 4: rocky linux



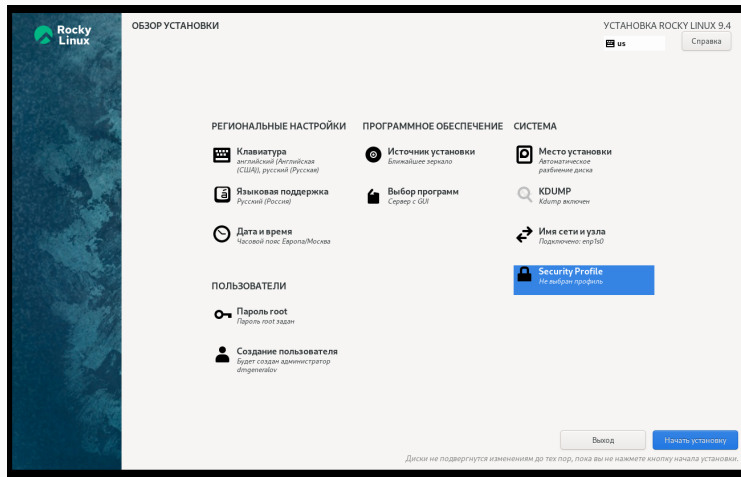
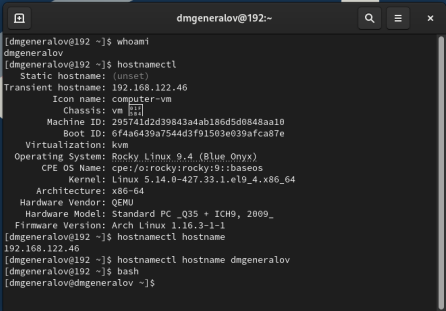
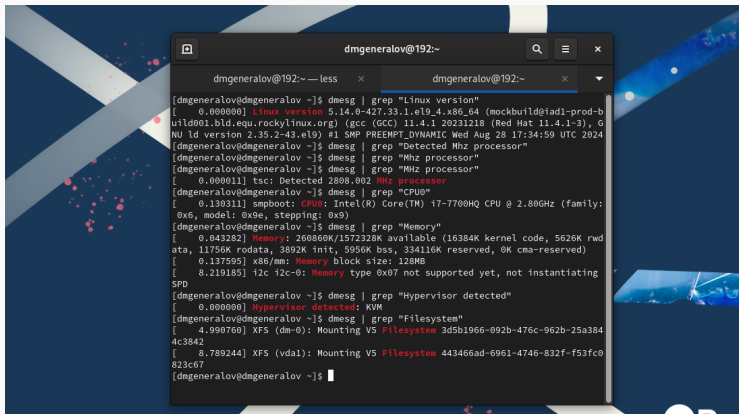


Рис. 5: rocky linux после настройки



```
dmgeneralov@192:~  
[dmgeneralov@192 ~]$ whoami  
dmgeneralov  
[dmgeneralov@192 ~]$ hostnamectl  
Static hostname: (unset)  
Transient hostname: 192.168.122.46  
Icon name: computer-vm  
Chassis: vm  
Machine ID: 295741d2d39843a4ab186d5d0848aa10  
Boot ID: 6f4a6439a7544d3f91503e039afca87e  
Virtualization: kvm  
Operating System: Rocky Linux 9.4 (Blue Onyx)  
CPE OS Name: cpe:/o:rocky:rocky:9::baseos  
Kernel: Linux 5.14.0-427.33.1.el9_4.x86_64  
Architecture: x86-64  
Hardware Vendor: QEMU  
Hardware Model: Standard PC _Q35 + ICH9, 2009_  
Firmware Version: Arch Linux 1.16.3-1-1  
[dmgeneralov@192 ~]$ hostnamectl hostname  
192.168.122.46  
[dmgeneralov@192 ~]$ hostnamectl hostname dmgeneralov  
[dmgeneralov@192 ~]$ bash  
[dmgeneralov@dmgeneralov ~]$
```

Рис. 6: rocky linux после установки



The image shows a terminal window titled 'dmgeneralov@192:~' with two tabs. The active tab shows the output of the 'dmesg' command filtered for 'Linux version', 'Detected Mhz processor', 'CPU', 'Memory', 'Hypervisor detected', and 'Filesystem'. The output provides detailed system information including kernel version (5.14.0-427.33.1.el9\_4.x86\_64), processor details (Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz), memory status (260860K/1572328K available), and filesystem mounting (XFS (dm-0) and XFS (vda1)).

```
dmgeneralov@192:~ -- less x dmgeneralov@192:~  
[dmgeneralov@dmgeneralov ~]$ dmesg | grep "Linux version"  
[ 0.000000] Linux version 5.14.0-427.33.1.el9_4.x86_64 (mockbuild@iad1-prod-b  
uild001.bld.equ.rockylinux.org) (gcc (GCC) 11.4.1 20231218 (Red Hat 11.4.1-3), G  
NU ld version 2.35.2-43.el9) #1 SMP PREEMPT_DYNAMIC Wed Aug 28 17:34:59 UTC 2024  
[dmgeneralov@dmgeneralov ~]$ dmesg | grep "Detected Mhz processor"  
[dmgeneralov@dmgeneralov ~]$ dmesg | grep "Mhz processor"  
[dmgeneralov@dmgeneralov ~]$ dmesg | grep "MHz processor"  
[ 0.000011] tsc: Detected 2808.002 MHz processor  
[dmgeneralov@dmgeneralov ~]$ dmesg | grep "CPU"  
[ 0.130311] smpboot: CPU0: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (family:  
0x6, model: 0x9e, stepping: 0x9)  
[dmgeneralov@dmgeneralov ~]$ dmesg | grep "Memory"  
[ 0.043282] Memory: 260860K/1572328K available (16384K kernel code, 5626K rwd  
ata, 11756K rodata, 3892K init, 5956K bss, 334116K reserved, 0K cma-reserved)  
[ 0.137595] x86/mm: Memory block size: 128MB  
[ 8.219185] i2c i2c-0: Memory type 0x07 not supported yet, not instantiating  
SPD  
[dmgeneralov@dmgeneralov ~]$ dmesg | grep "Hypervisor detected"  
[ 0.000000] Hypervisor detected: KVM  
[dmgeneralov@dmgeneralov ~]$ dmesg | grep "Filesystem"  
[ 4.990760] XFS (dm-0): Mounting V5 Filesystem 3d5b1966-092b-476c-962b-25a384  
4c3842  
[ 8.789244] XFS (vda1): Mounting V5 Filesystem 443466ad-6961-4746-832f-f53fc0  
823c67  
[dmgeneralov@dmgeneralov ~]$
```

Рис. 7: dmesg

```
• 1 danya@archlinux ~/nts/university/study_2024-2025_infosec (git)-[master] % gpg --list-keys
[keyboard]
-----
pub   rsa4096 2016-07-14 [SC]
      1D42756DEAA9E73718C073D2F35CD5A047207E34
uid     [ultimate] Danya Generalov <danya@danya02.ru>
uid     [ultimate] Danya Generalov (Gmail) <danugener@gmail.com>
uid     [ultimate] Danya Generalov (iCloud) <danya02@me.com>
sub     rsa4096 2016-07-14 [E]

pub   rsa4096 2024-03-16 [SC]
      EB95BAB7CB86EE3C8FC4E133C7AE6FA88ACB308C
uid     [ultimate] Danya Generalov <generalov@cryptopro.ru>
sub     rsa4096 2024-03-16 [E]

• danya@archlinux ~/nts/university/study_2024-2025_infosec (git)-[master] % git config user.signingkey "1D42756DEAA9E73718C073D2F35CD5A047207E34"
• danya@archlinux ~/nts/university/study_2024-2025_infosec (git)-[master] % git config --global user.signingkey "1D42756DEAA9E73718C073D2F35CD5A047207E34"
• danya@archlinux ~/nts/university/study_2024-2025_infosec (git)-[master] % git config --global commit.gpgsign true
• danya@archlinux ~/nts/university/study_2024-2025_infosec (git)-[master] % git config --global user.name "Danya Generalov"
• danya@archlinux ~/nts/university/study_2024-2025_infosec (git)-[master] % git config --global user.email "danya@danya02.ru"
• danya@archlinux ~/nts/university/study_2024-2025_infosec (git)-[master] %
```

Рис. 8: git

```
danya@archlinux ~/Documents/university % ls
danya@archlinux ~/Documents/university % git clone git@github.com:danya02/study_2024-2025_infosec.git
Cloning into 'study_2024-2025_infosec'...
remote: Enumerating objects: 33, done.
remote: Counting objects: 100% (33/33), done.
remote: Compressing objects: 100% (32/32), done.
remote: Total 33 (delta 1), reused 18 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (33/33), 18.81 KiB | 4.70 MiB/s, done.
Resolving deltas: 100% (1/1), done.
danya@archlinux ~/Documents/university % cd study_2024-2025_infosec
danya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] % ls
CHANGELOG.md COURSE LICENSE Makefile README.en.md README.git-flow.md README.md config package.json template
danya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] %
```

Рис. 9: github

```
danya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] % git submodule update template/presentation
Submodule path 'template/presentation' not initialized
Maybe you want to use 'update --init'?
danya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] % git submodule update --init template/presentation
Submodule 'template/presentation' (https://github.com/yamadharma/academic-presentation-markdown-template.git) registered for path 'template/presentation'...
Cloning into '/home/danya/Documents/university/study_2024-2025_infosec/template/presentation'...
Submodule path 'template/presentation': checked out 'c9b2712b4b2d431ad5086c9c72a02bd2fca1d4a6'
danya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] % git submodule update --init template
Submodule 'template/report' (https://github.com/yamadharma/academic-laboratory-report-template.git) registered for path 'template/report'...
Cloning into '/home/danya/Documents/university/study_2024-2025_infosec/template/report'...
Submodule path 'template/report': checked out 'c26e22effe7b3e0495707d82ef561ab185f5c748'
danya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] % echo infosec > COURSE
danya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] % make prepare
make: 'prepare' is up to date.
danya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] % make prepare
make: 'prepare' is up to date.
danya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] % make prepare
danya@archlinux ..nts/university/study_2024-2025_infosec (git)-[master] %
```

Рис. 10: git clone

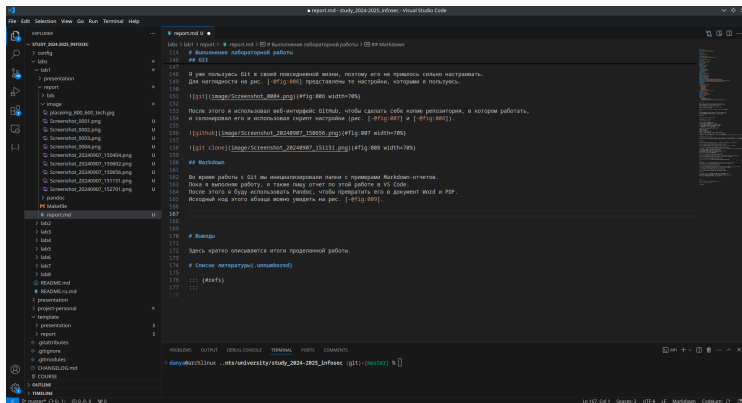


Рис. 11: markdown-vscode

## Выводы

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В рамках лабораторной работы мы настроили виртуальную машину для выполнения последующих работ – но не на VirtualBox, а на Qemu/KVM. Мы также создали репозиторий, в котором мы будем хранить отчеты, и написали данный отчет и презентацию в Markdown.