

**РОССИЙСКИЙ УНИВЕРСИТЕТ ДРУЖБЫ НАРОДОВ**

**Факультет физико-математических и естественных наук**

**Кафедра прикладной информатики и теории вероятностей**

**ЛАБОРАТОРНАЯ РАБОТА №1**

дисциплина: *Операционные системы*

**Студент: Арсоева Залина**

**Группа: НБИбд-01-21**

Москва

2022 г.

## **Цель работы**

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

Скачиваем и устанавливаем VirtualBox, которая необходима для запуска виртуальных машин (скачать можно на сайте <https://www.virtualbox.org>).



# VirtualBox

## Welcome to VirtualBox.org!

VirtualBox is a powerful x86 and AMD64/Intel64 [virtualization](#) product for enterprise as well as home use. Not only is VirtualBox an extremely feature rich, high performance product for enterprise customers, it is also the only professional solution that is freely available as Open Source Software under the terms of the GNU General Public License (GPL) version 2. See "[About VirtualBox](#)" for an introduction.

Presently, VirtualBox runs on Windows, Linux, Macintosh, and Solaris hosts and supports a large number of [guest operating systems](#) including but not limited to Windows (NT 4.0, 2000, XP, Server 2003, Vista, Windows 7, Windows 8, Windows 10), DOS/Windows 3.x, Linux (2.4, 2.6, 3.x and 4.x), Solaris and OpenSolaris, OS/2, and OpenBSD.

VirtualBox is being actively developed with frequent releases and has an ever growing list of features, supported guest operating systems and platforms it runs on. VirtualBox is a community effort backed by a dedicated company: everyone is encouraged to contribute while Oracle ensures the product always meets professional quality criteria.

### Download

# VirtualBox 6.1

**Hot picks:**

- Pre-built virtual machines for developers at [Oracle Tech Network](#)
- **Hyperbox** Open-source Virtual Infrastructure Manager [project site](#)
- **phpVirtualBox** AJAX web interface [project site](#)

**ORACLE**

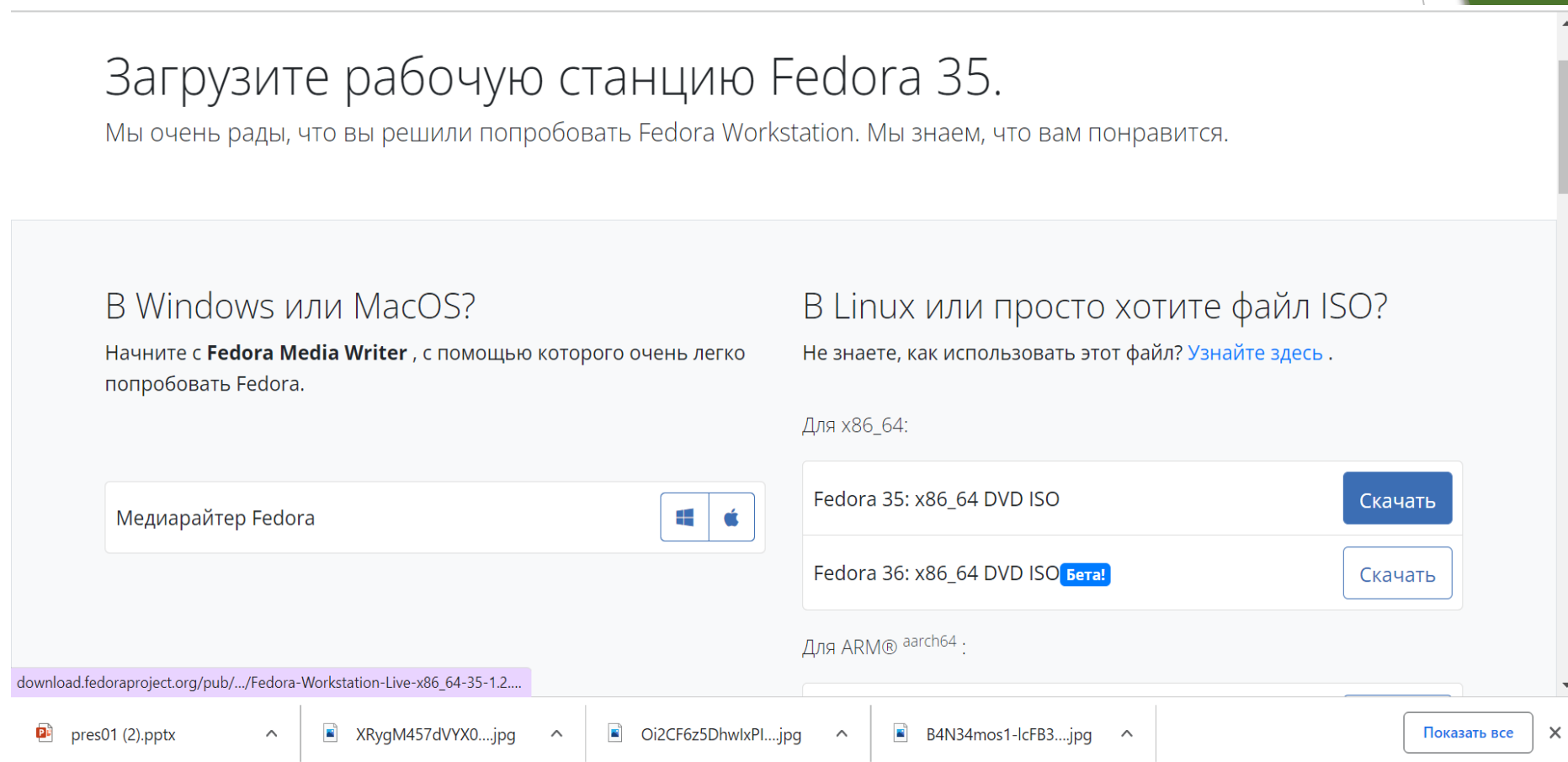
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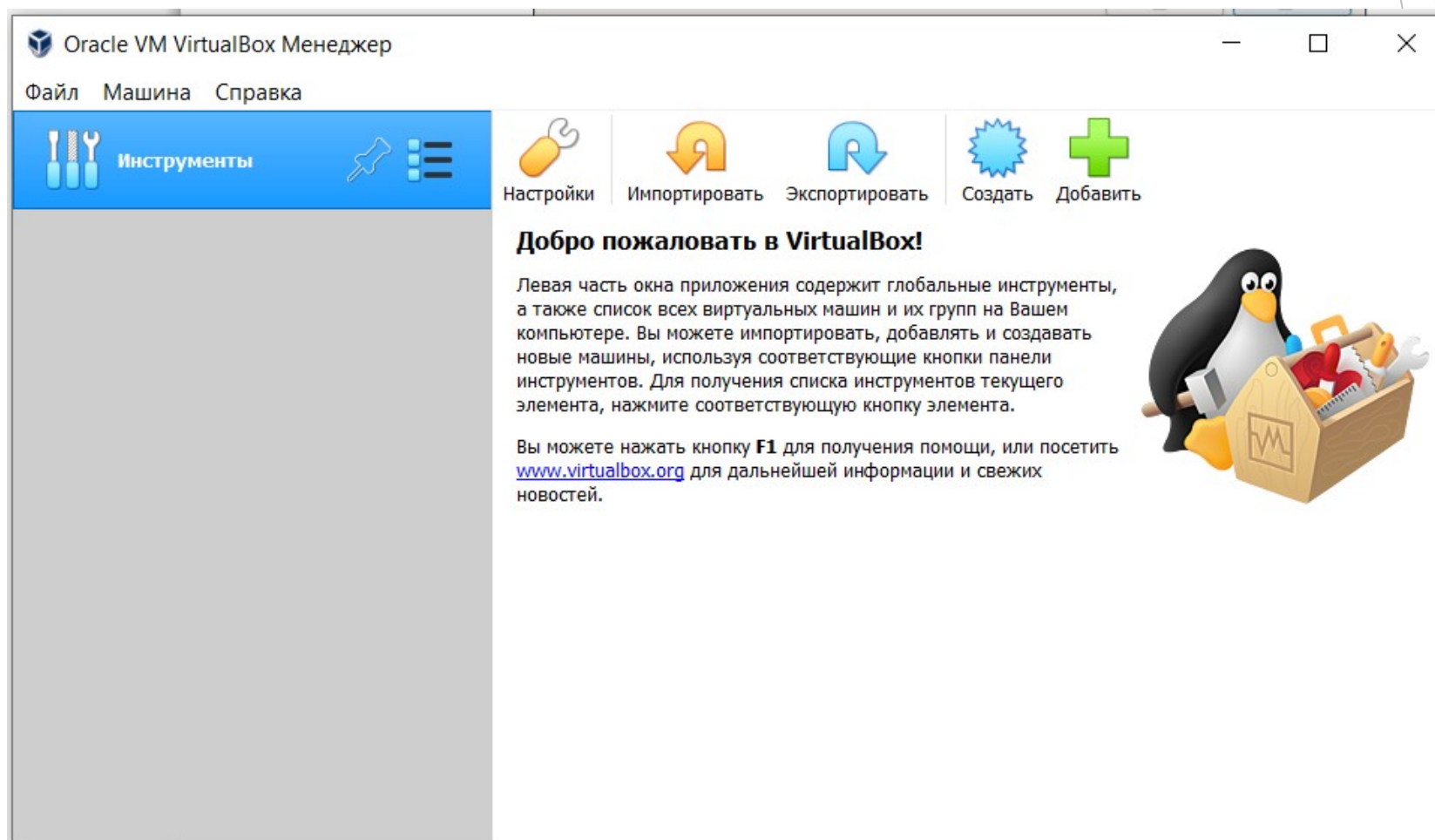
#### News Flash

- **New April 29th, 2021**  
**VirtualBox 6.1.22 released!**  
Oracle today released a 6.1 maintenance release which improves stability and fixes regressions. See the [Changelog](#) for details.
- **New April 20th, 2021**  
**VirtualBox 6.1.20 released!**  
Oracle today released a 6.1 maintenance release which improves stability and fixes regressions. See the [Changelog](#) for details.
- **New January 19th, 2021**  
**VirtualBox 6.1.18 released!**  
Oracle today released a 6.1 maintenance release which improves stability and fixes regressions. See the [Changelog](#) for details.
- **Important November 16th, 2020**  
**We're hiring!**  
Looking for a new challenge? We're hiring a [VirtualBox senior developer in 3D area \(Europe/Russia/India\)](#).
- **New October 20th, 2020**  
**VirtualBox 6.1.16 released!**  
Oracle today released a 6.1 maintenance release which improves stability and fixes regressions. See the [Changelog](#) for details.
- **New September 4th, 2020**  
**VirtualBox 6.1.14 released!**  
Oracle today released a 6.1 maintenance release which improves stability and fixes regressions. See the [Changelog](#) for details.
- **New July 14th, 2020**  
**VirtualBox 6.1.12 released!**

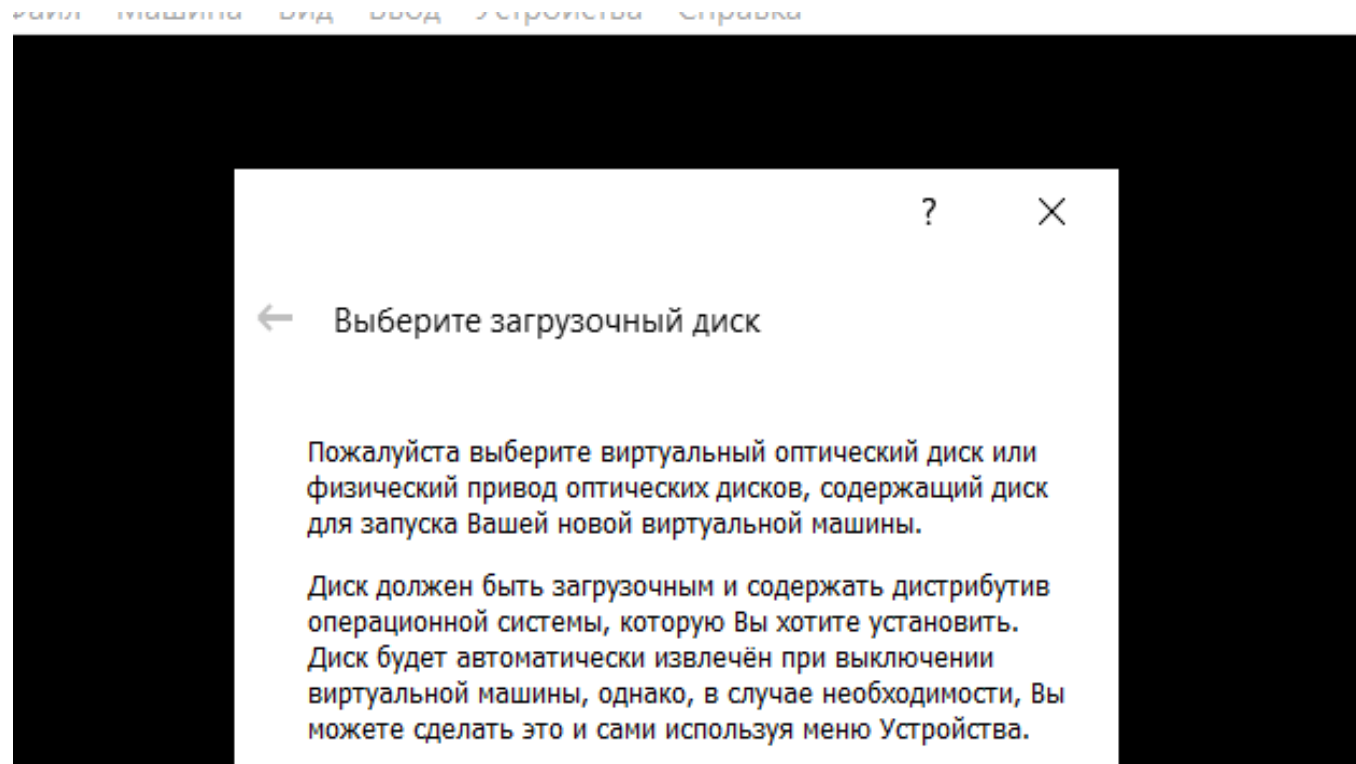
Также скачиваем дистрибутив Linux Fedora 35 (можно скачать на сайте <https://wiki.centos.org>).



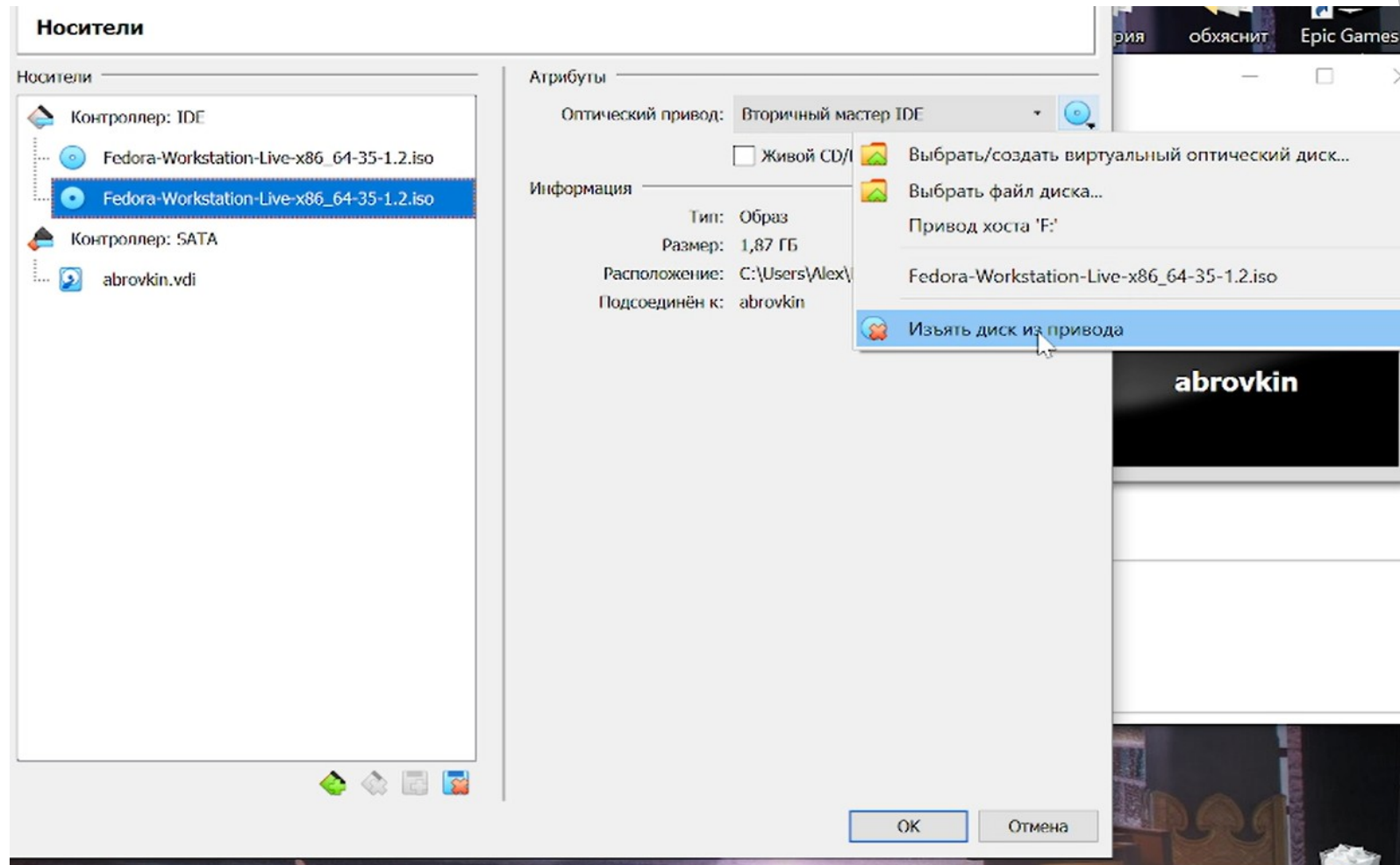
Запускаем виртуальную машину и проверяем месторасположения каталога для виртуальных машин. Затем переходим к созданию новой виртуальной машины. Для этого в VirtualBox мы выбираем Машина – Создать, создаю виртуальную машину и задаю все необходимые параметры.



Запускаем виртуальную машину. Заходим в Свойства - Носители в виртуальной машине и добавляем новый привод оптических дисков. Выбираем образ, который мы ранее скачали на наш компьютер-Fedora



Входим под заданной при установке учетной записью. А в меню устройства в в носителях изъясл диск из привода, для корректной работы Fedora





Открываю терминал и ввожу все необходимые команды для выполнения домашней работы-

Получите следующую информацию

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.(filesystem)
7. Последовательность монтирования файловых систем.(mount).

```
abrovkin@fedora:~$ dmesg | grep -i "Linux version"
[ 0.000000] Linux version 5.14.10-300.fc35.x86_64 (mockbuild@kernel181.fad2.fedoraproject.org) (gcc (GCC) 11.2.1 20210728 (Red Hat 11.2.1-1), GNU ld vers
ion 2.37-10.fc35) #1 SMP Thu Oct 7 20:48:44 UTC 2021
abrovkin@fedora:~$ dmesg | grep -i "Mhz processor"
[ 0.000000] tsc: Detected 1996.884 Mhz processor
abrovkin@fedora:~$ dmesg | grep -i "Mhz"
[ 0.000000] tsc: Detected 1996.884 Mhz processor
[ 2.137460] e1000 0000:00:00:00:00:00 eth0: (PCI:33MHz:32-bit) 00:00:27:70:fe:db
abrovkin@fedora:~$ dmesg | grep -i "CPU0"
[ 0.217990] smpboot: CPU0: 11th Gen Intel(R) Core(TM) i3-112564 @ 2.00GHz (family: 0x6, model: 0x8c, stepping: 0x1)
abrovkin@fedora:~$ dmesg | grep -i "Memory"
[ 0.000014] ACPI: Reserving EACP table memory at [mem 0xb55f00f0-0xb55f01a3]
[ 0.000016] ACPI: Reserving DSDT table memory at [mem 0xb55f0470-0xb55f2794]
[ 0.000016] ACPI: Reserving FACS table memory at [mem 0xb55f0200-0xb55f023f]
[ 0.000017] ACPI: Reserving FACS table memory at [mem 0xb55f0200-0xb55f023f]
[ 0.000017] ACPI: Reserving APIC table memory at [mem 0xb55f0240-0xb55f0293]
[ 0.000018] ACPI: Reserving SSDT table memory at [mem 0xb55f02a0-0xb55f046b]
[ 0.028845] Early memory node ranges
[ 0.035908] PM: hibernation: Registered nosave memory: [mem 0x00000000-0x00000fff]
[ 0.035909] PM: hibernation: Registered nosave memory: [mem 0x0000f000-0x0000ffff]
[ 0.035910] PM: hibernation: Registered nosave memory: [mem 0x000a0000-0x000a0fff]
[ 0.035910] PM: hibernation: Registered nosave memory: [mem 0x000f0000-0x000f0fff]
[ 0.078513] Memory: 2829292K/2971192K available (16393K kernel code, 3531K rdata, 10380K rodata, 2872K init, 4908K bss, 141640K reserved, 0K cma-reserve
d)
[ 0.115506] Freeing SMP alternatives memory: 44K
[ 0.217998] x86/mm: Memory block size: 128MB
[ 0.493996] Non-volatile memory driver v1.3
[ 0.918722] Freeing initrd memory: 31936K
[ 0.943608] Freeing unused decrypted memory: 2036K
[ 0.943885] Freeing unused kernel image (initmem) memory: 2872K
[ 0.945288] Freeing unused kernel image (text/rodata gap) memory: 2036K
[ 0.945494] Freeing unused kernel image (rodata/data gap) memory: 1900K
[ 1.831097] [TTM] Zone kernel: Available graphics memory: 1435188 KiB
[ 1.831272] [drm] Max dedicated hypervisor surface memory is 507904 KiB
[ 1.831272] [drm] Maximum display memory size is 16384 KiB
```

```
abrovkin@fedora:~$ dmesg | grep -i "Hypervisor detected"
[ 0.000000] Hypervisor detected: KVM
abrovkin@fedora:~$ dmesg | grep -i "Hypervisor"
[ 0.000000] Hypervisor detected: KVM
[ 1.831271] [drm] Max dedicated hypervisor surface memory is 507904 KiB
abrovkin@fedora:~$ dmesg | grep -i "Filesystem"
[ 3.977583] EXT4-fs (sda1): mounted filesystem with ordered data mode. Opts: (null). Quota mode: none.
abrovkin@fedora:~$ dmesg | grep -i "mount"
[ 0.106029] Mount-cache hash table entries: 8192 (order: 4, 65536 bytes, linear)
[ 0.106037] Mountpoint-cache hash table entries: 8192 (order: 4, 65536 bytes, linear)
[ 2.995009] systemd[1]: Set up automount Arbitrary Executable File Formats File System Automount Point.
[ 3.001211] systemd[1]: Mounting Huge Pages File System...
[ 3.002227] systemd[1]: Mounting POSIX Message Queue File System...
[ 3.003173] systemd[1]: Mounting Kernel Debug File System...
[ 3.006455] systemd[1]: Mounting Kernel Trace File System...
[ 3.051335] systemd[1]: Starting Remount Root and Kernel File Systems...
[ 3.083513] systemd[1]: Mounted Huge Pages File System.
[ 3.083958] systemd[1]: Mounted POSIX Message Queue File System.
[ 3.084110] systemd[1]: Mounted Kernel Debug File System.
[ 3.085465] systemd[1]: Mounted Kernel Trace File System.
[ 3.977583] EXT4-fs (sda1): mounted filesystem with ordered data mode. Opts: (null). Quota mode: none.
```

```
abrovkin@fedora:~$ dmesg | grep -i "Hypervisor detected"
[ 0.000000] Hypervisor detected: KVM
abrovkin@fedora:~$ dmesg | grep -i "Hypervisor"
[ 0.000000] Hypervisor detected: KVM
[ 1.831271] [drm] Max dedicated hypervisor surface memory is 507904 KiB
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[ 3.977583] EXT4-fs (sda1): mounted filesystem with ordered data mode. Opts: (null). Quota mode: none.
abrovkin@fedora:~$ dmesg | grep -i "mount"
[ 0.106029] Mount-cache hash table entries: 8192 (order: 4, 65536 bytes, linear)
[ 0.106037] Mountpoint-cache hash table entries: 8192 (order: 4, 65536 bytes, linear)
[ 2.995009] systemd[1]: Set up automount Arbitrary Executable File Formats File System Automount Point.
[ 3.001211] systemd[1]: Mounting Huge Pages File System...
[ 3.002227] systemd[1]: Mounting POSIX Message Queue File System...
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[ 3.085465] systemd[1]: Mounted Kernel Trace File System.
[ 3.977583] EXT4-fs (sda1): mounted filesystem with ordered data mode. Opts: (null). Quota mode: none.
```



## **Выводы**

В процессе работы я приобрела некоторые практические навыки установки операционной системы на виртуальную машину, настройки минимально необходимых для дальнейшей работы сервисов. Также научилась пользоваться консолью в целях получения информации об установленном ос. Вспомнила необходимые для работы с терминалом линукса команды.