

**РОССИЙСКИЙ УНИВЕРСИТЕТ ДРУЖБЫ НАРОДОВ**

**Факультет физико-математических и естественных наук  
Кафедра прикладной информатики и теории вероятностей**

**ЛАБОРАТОРНАЯ РАБОТА №1**

дисциплина: *Операционные системы*

**Студент: Бровкин Александр**

**Группа: НБИбд-01-21**

**Ст. билет №: 1032215006**

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](#)

**News Flash**

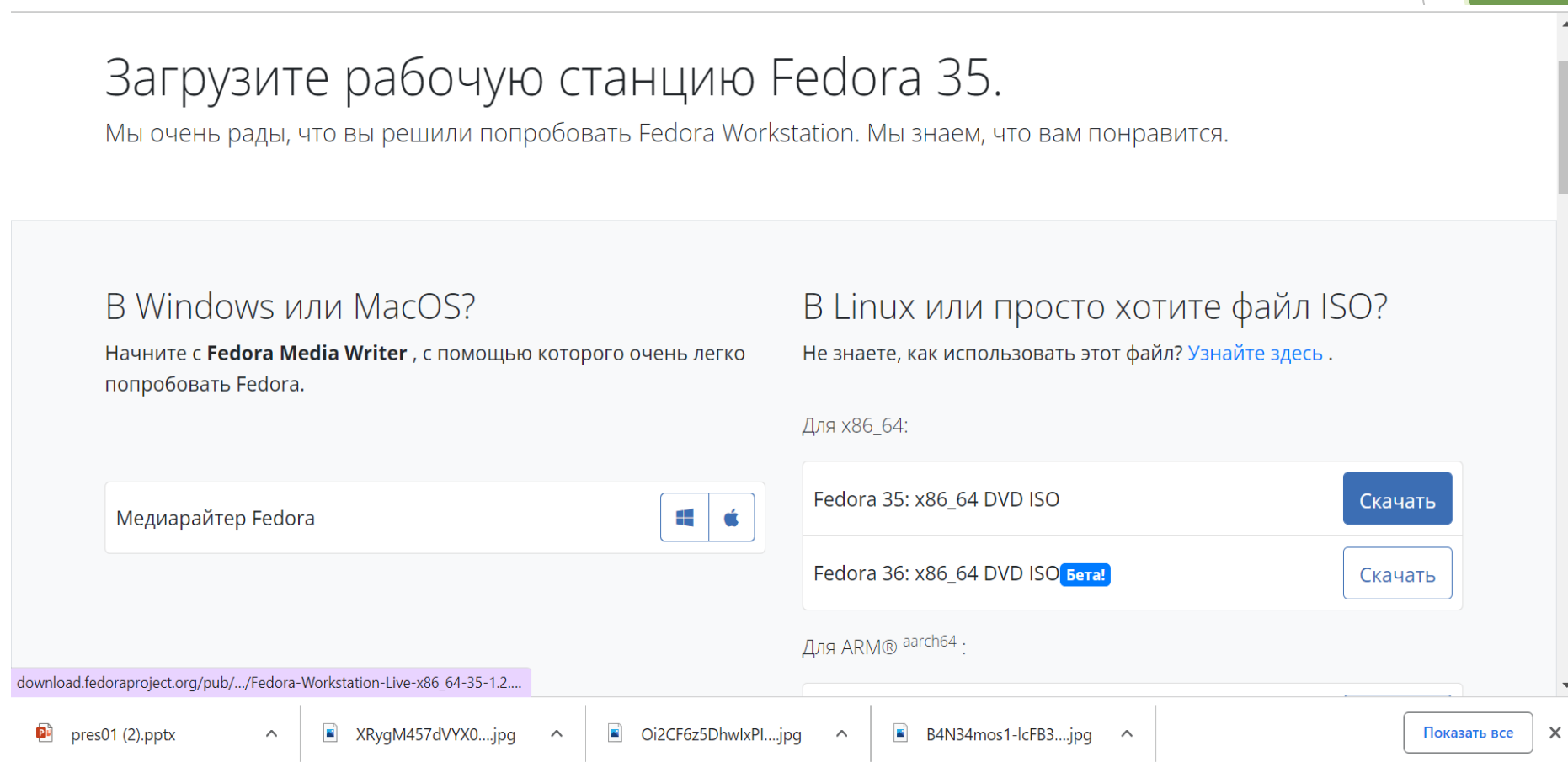
- **New April 29th, 2021**  
**VirtualBox 6.1.22 released!**  
Oracle today released a 6.1 maintenance release which improves stability and fixes regressions. See the [Changelog](#) for details.
- **New April 20th, 2021**  
**VirtualBox 6.1.20 released!**  
Oracle today released a 6.1 maintenance release 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!**

**ORACLE**

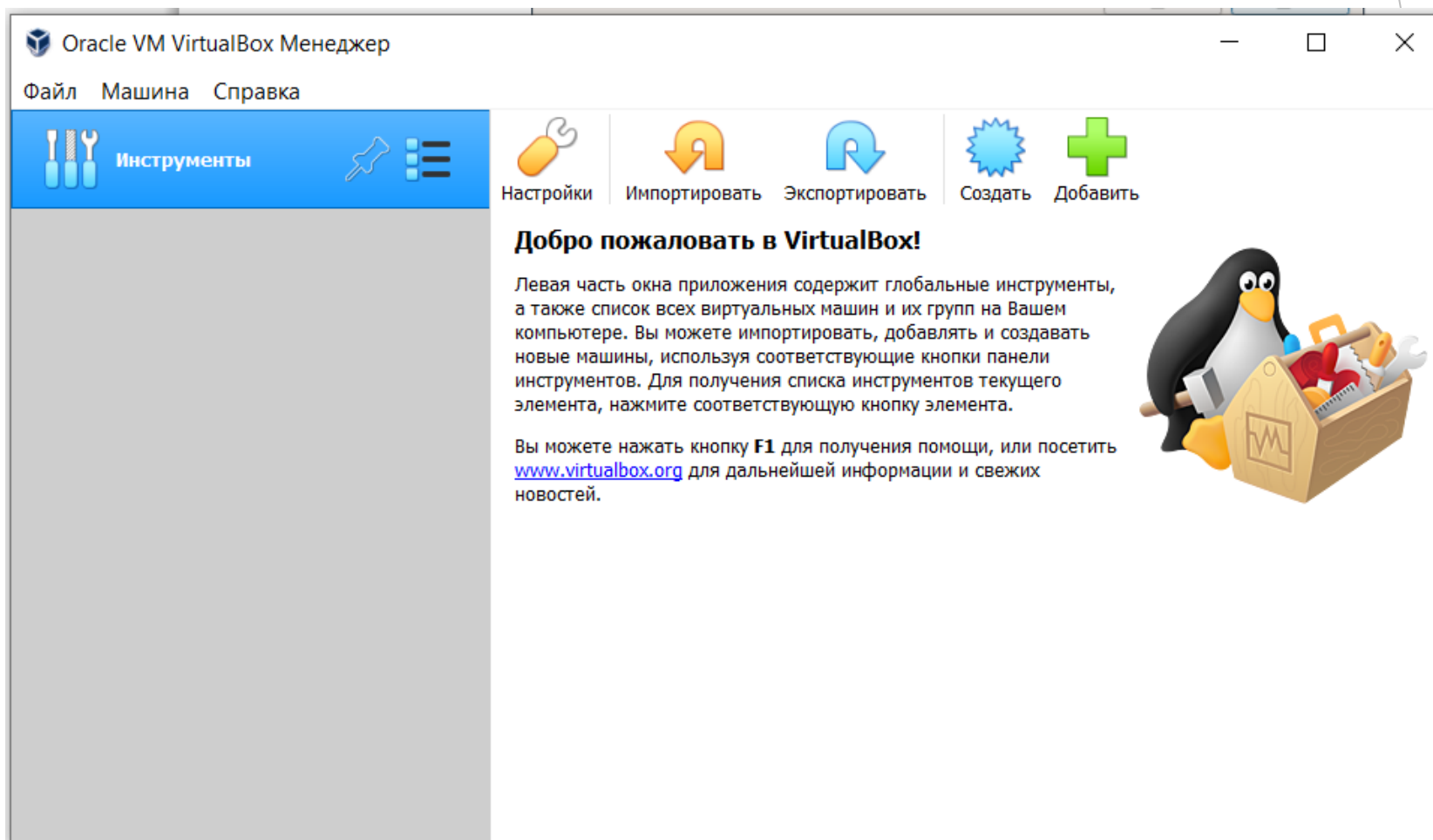
[Contact](#) - [Privacy policy](#) - [Terms of Use](#)

<https://www.virtualbox.org/wiki/Downloads>

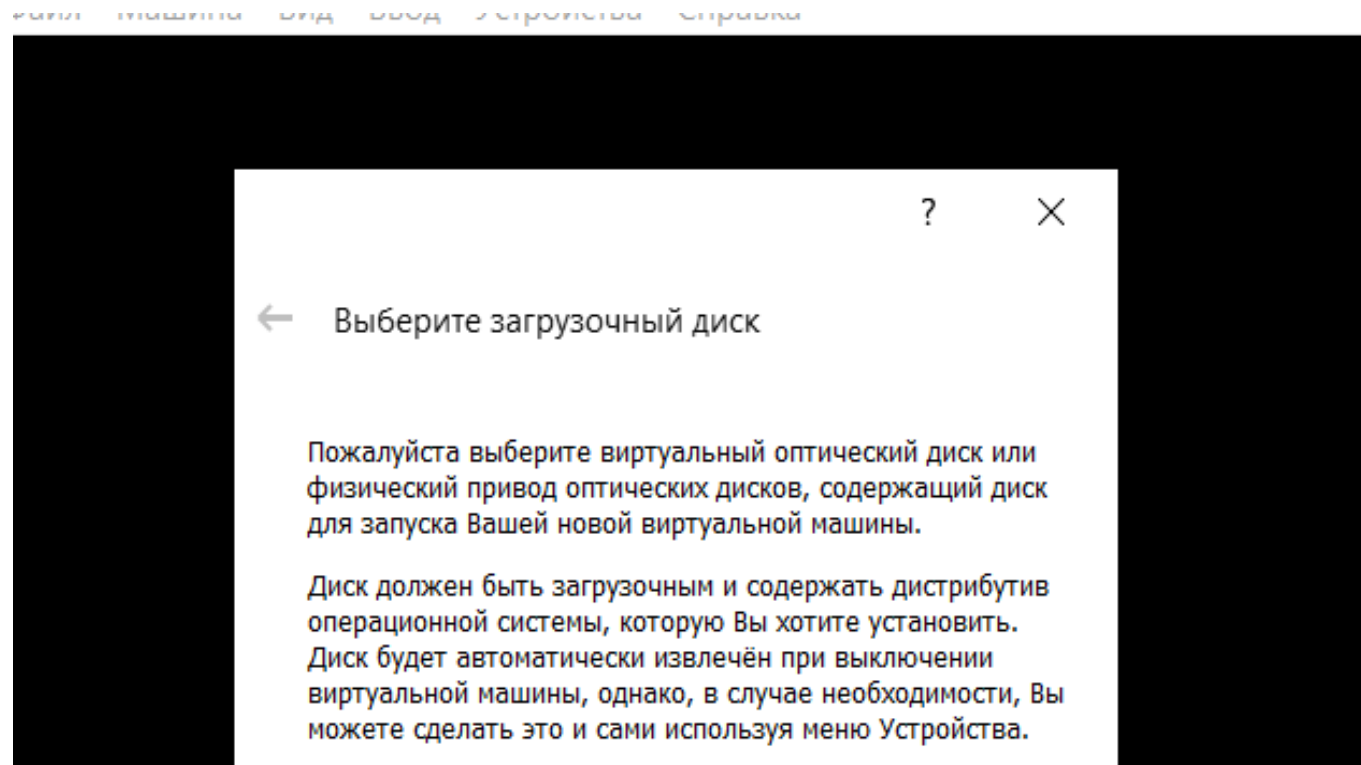
Также скачиваем дистрибутив Linux Fedora 35 (можно скачать на сайте <https://wiki.centos.org>).



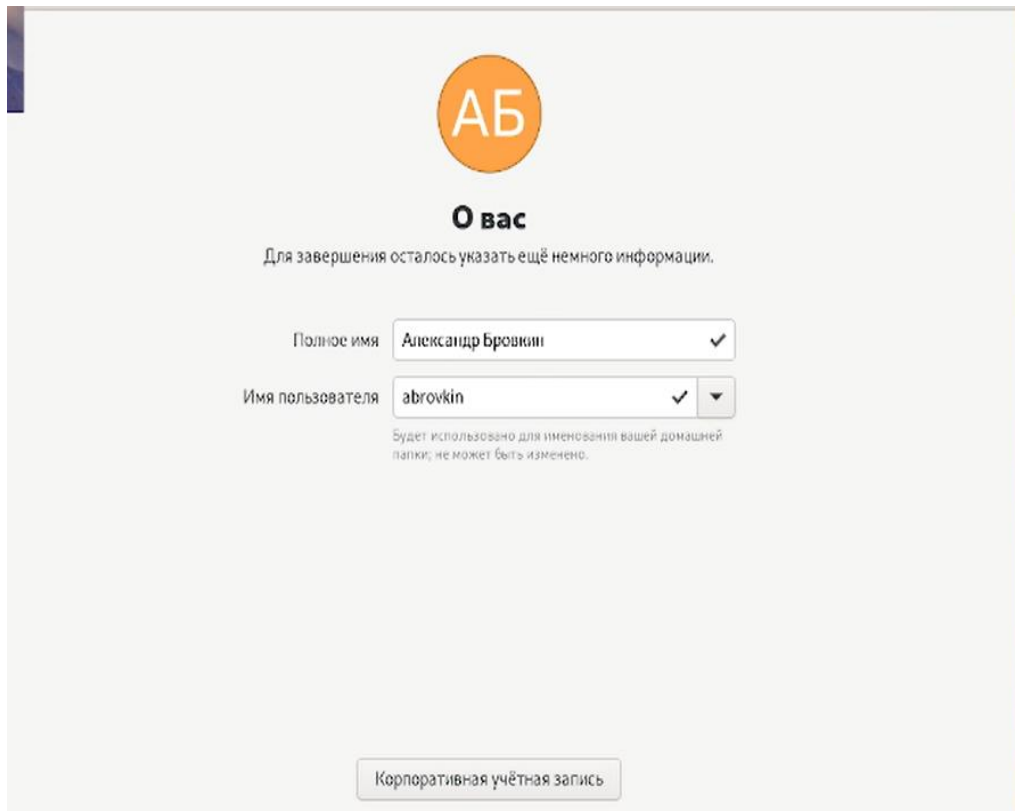
Запускаем виртуальную машину и проверяем месторасположения каталога для виртуальных машин. Затем переходим к созданию новой виртуальной машины. Для этого в VirtualBox мы выбираем Машина – Создать, создаю виртуальную машину и задаю все необходимые параметры.



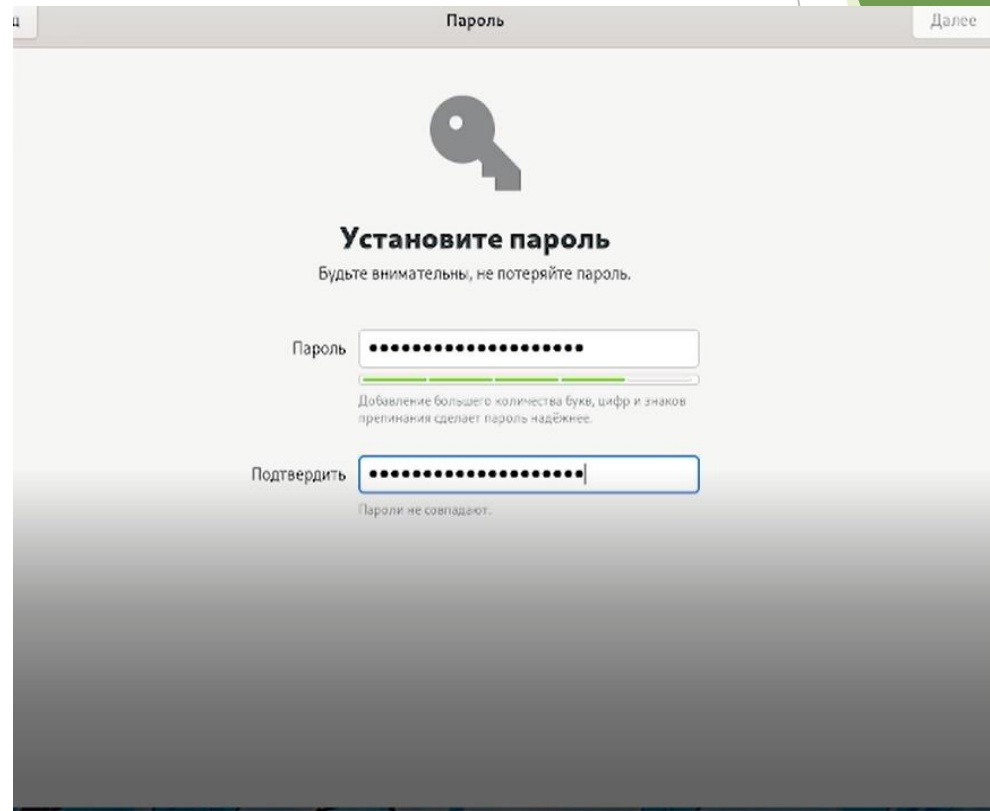
Запускаем виртуальную машину. Заходим в Свойства - Носители в виртуальной машине и добавляем новый привод оптических дисков. Выбираем образ, который мы ранее скачали на наш компьютер-Fedora



Продолжаем и устанавливаем язык интерфейса, ввожу имя пользователя, а также придумываю пароль.

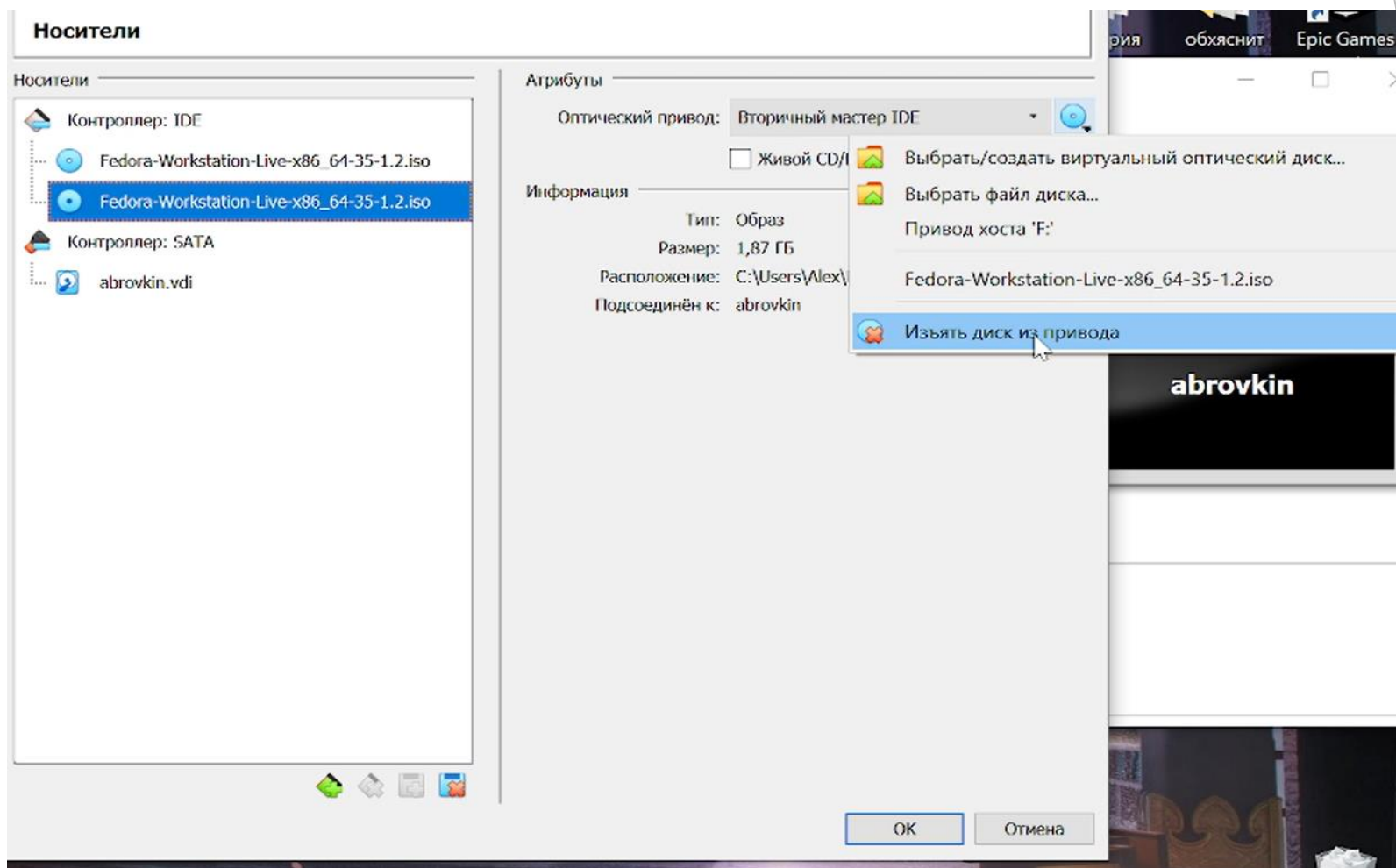


The screenshot shows a user creation interface. At the top, there is an orange circle with the letters 'АБ'. Below it, the heading 'О вас' (About you) is displayed. A subtext reads: 'Для завершения осталось указать ещё немного информации.' (To complete, you still need to specify a little more information). There are two input fields: 'Полное имя' (Full name) with the value 'Александр Бровкин' and a checkmark, and 'Имя пользователя' (Username) with the value 'abrovkin' and a checkmark. A note below the username field states: 'Будет использовано для именования вашей домашней папки; не может быть изменено.' (Will be used for naming your home folder; cannot be changed). At the bottom, there is a button labeled 'Корпоративная учётная запись' (Corporate account).



The screenshot shows a password creation interface. At the top, there is a key icon. Below it, the heading 'Установите пароль' (Set password) is displayed. A subtext reads: 'Будьте внимательны, не потеряйте пароль.' (Be careful, do not lose your password). There are two input fields: 'Пароль' (Password) and 'Подтвердить' (Confirm). The 'Пароль' field has a strength indicator bar below it with the text: 'Добавление большего количества букв, цифр и знаков препинания сделает пароль надёжнее.' (Adding more letters, numbers and punctuation will make the password stronger). The 'Подтвердить' field has a message below it: 'Пароли не совпадают.' (Passwords do not match). At the top right, there is a 'Далее' (Next) button.

Входим под заданной при установке учетной записью. А в меню устройства в в носителях изъят 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.fedoraproject.org) (gcc (GCC) 11.2.1 20210728 (Red Hat 11.2.1-1), GNU ld version 2.37-18.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 0000:00:00:00:00:00:00:00:00 (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) i3-1125G4 @ 2.00GHz (family: 0x6, model: 0x6c, stepping: 0x1)
abrovkin@fedora:~$ dmesg | grep -i "Memory"
[ 0.000014] ACPI: Reserving FACP 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 0x000a0000-0x000aefff]
[ 0.035910] PM: hibernation: Registered nosave memory: [mem 0x000f0000-0x000fffff]
[ 0.078513] Memory: 2829292K/2971192K available (16393K kernel code, 3531K rwdata, 18388K rodata, 2872K init, 4968K bss, 141640K reserved, 0K cma-reserve)
[ 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: 1908K
[ 0.945494] Freeing unused kernel image (rodata/data gap) memory: 1908K
[ 1.831097] [TTM] Zone kernel: Available graphics memory: 1435188 KiB
[ 1.831272] [TTM] Zone kernel: Available graphics memory: 1435188 KiB
```

```
abrovkin@fedora:~$ dmesg | grep -i "hypervisor detected"
[ 0.000000] Hypervisor detected: KVM
abrovkin@fedora:~$ dmesg | grep -i "filesystem"
[ 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 "filesystem"
[ 1.831271] [drm] Max dedicated hypervisor surface memory is 507904 KiB
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.
```

## **Выводы**

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

Спасибо за внимание!