

РОССИЙСКИЙ УНИВЕРСИТЕТ ДРУЖБЫ НАРОДОВ
Факультет физико-математических и естественных наук
Кафедра прикладной информатики и теории вероятностей

ЛАБОРАТОРНАЯ РАБОТА №1
дисциплина: Операционные системы

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Ст. билет №: 1032212957

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.

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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](#)

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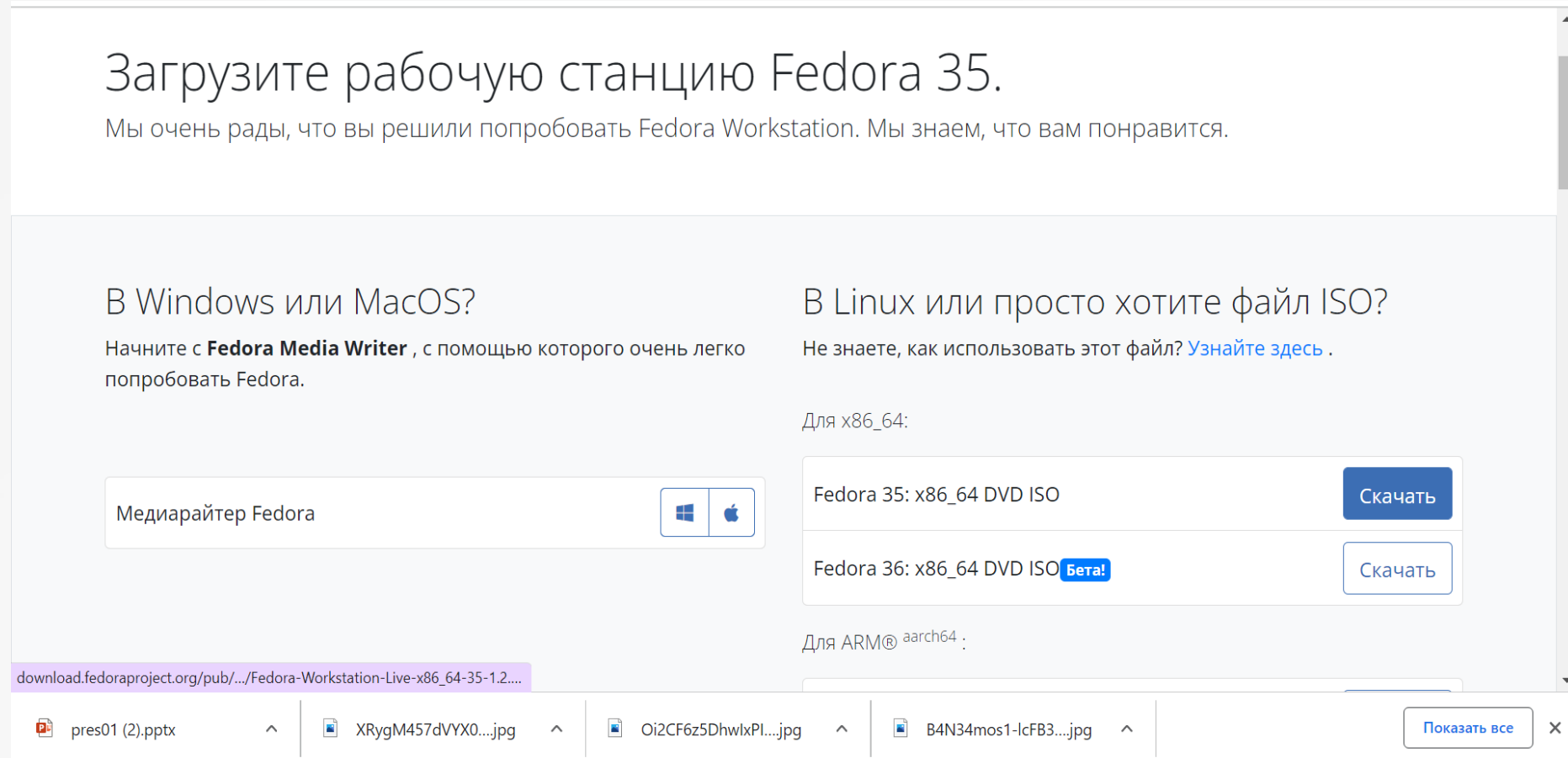
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News Flash

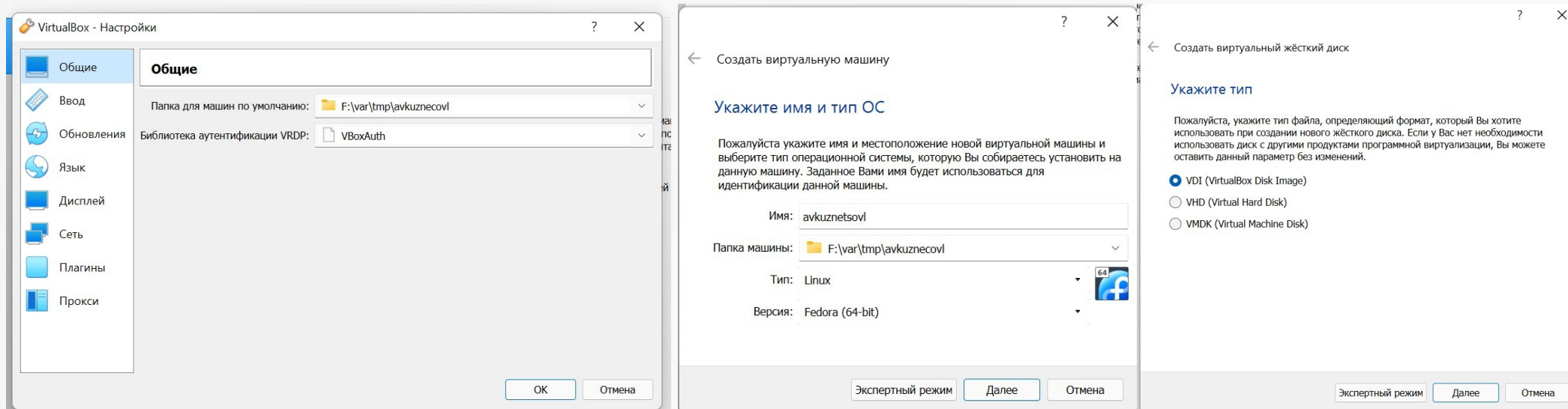
- **New April 29th, 2021**
VirtualBox 6.1.22 released!
Oracle today released a 6.1 maintenance release which improves stability and fixes regressions. See the [Changelog](#) for details.
- **New April 20th, 2021**
VirtualBox 6.1.20 released!
Oracle today released a 6.1 maintenance release which improves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

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

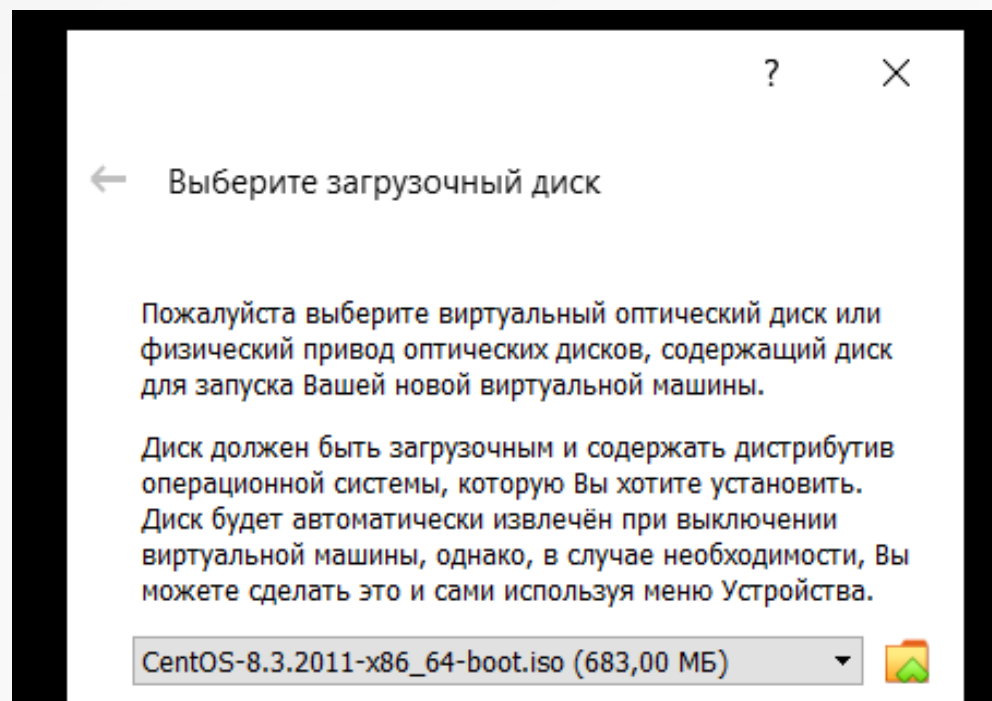
Также скачиваем дистрибутив Linux Fedora 35 (можно скачать на сайте <https://wiki.centos.org>).



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



Так как забыл при установке установить необходимые логин и пароль, изменяю их в терминале

```
[root@localhost-live ~]# hostname set-hostname avkuznecovl
Usage: hostname [-b] {hostname|-F file}      set host name (from file)
        hostname [-a|-A|-d|-f|-i|-I|-s|-y]    display formatted name
        hostname                               display host name

        {yp,nis,}domainname {nisdomain|-F file} set NIS domain name (from file)
        {yp,nis,}domainname                  display NIS domain name

        dnsdomainname                        display dns domain name

        hostname -V|--version|-h|--help      print info and exit

Program name:
        {yp,nis,}domainname=hostname -y
        dnsdomainname=hostname -d

Program options:
        -a, --alias                alias names
        -A, --all-fqdns            all long host names (FQDNs)
        -b, --boot                 set default hostname if none available
        -d, --domain               DNS domain name
        -f, --fqdn, --long         long host name (FQDN)
        -F, --file                 read host name or NIS domain name from given file
        -i, --ip-address           addresses for the host name
        -I, --all-ip-addresses    all addresses for the host
        -s, --short                short host name
        -y, --yp, --nis           NIS/YP domain name

Description:
        This command can get or set the host name or the NIS domain name. You can
        also get the DNS domain or the FQDN (fully qualified domain name).
        Unless you are using bind or NIS for host lookups you can change the
        FQDN (Fully Qualified Domain Name) and the DNS domain name (which is
        part of the FQDN) in the /etc/hosts file.

[root@localhost-live ~]# hostnamectl
Static hostname: localhost-live
        Icon name: computer-vm
        Chassis: vm
        Machine ID: 11ac455fdd53497a8201ce4deeae152
        Boot ID: 1909dcc2e4fc4be183e388720d555b63
Virtualization: oracle
Operating System: Fedora Linux 35 (Workstation Edition)
        CPE OS Name: cpe:/o:fedoraproject:fedora:35
        Kernel: Linux 5.14.10-300.fc35.x86_64
        Architecture: x86-64
        Hardware Vendor: innotek GmbH
        Hardware Model: VirtualBox
[root@localhost-live ~]# SSS
```

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).

```
[avkuznecov@localhost-live ~]$ dmesg | grep -i "Linux version"
[ 0.000000] Linux version 5.14.10-300.fc35.x86_64 (mockbuild@bkernel01.iad2.fedoraproject.org) (gcc (GCC) 11.2.1 20210728 (Red Hat 11.2.1-1), GNU ld version 2.37-10.fc35) #1 SMP Thu Oct 7 20:48:44 UTC 2021
[avkuznecov@localhost-live ~]$ ^C
[avkuznecov@localhost-live ~]$ dmesg | grep -i "Detected Mhz processor"
[avkuznecov@localhost-live ~]$ dmesg | grep -i "Detected Mhz processor"
[avkuznecov@localhost-live ~]$ dmesg | grep -i "CPU0"
[ 0.075595] CPU0: Hyper-Threading is disabled
[ 0.184160] smpboot: CPU0: AMD Ryzen 5 3600X 6-Core Processor (family: 0x17, model: 0x71, stepping: 0x0)
[avkuznecov@localhost-live ~]$ dmesg | grep -i "Memory available"
[avkuznecov@localhost-live ~]$ dmesg | grep -i "Memory"
[ 0.001265] ACPI: Reserving FACP table memory at [mem 0xdfff00f0-0xdfff01e3]
[ 0.001266] ACPI: Reserving DSDT table memory at [mem 0xdfff0470-0xdfff2794]
[ 0.001267] ACPI: Reserving FACS table memory at [mem 0xdfff0200-0xdfff023f]
[ 0.001267] ACPI: Reserving FACS table memory at [mem 0xdfff0200-0xdfff023f]
[ 0.001268] ACPI: Reserving APIC table memory at [mem 0xdfff0240-0xdfff0293]
[ 0.001269] ACPI: Reserving SSDT table memory at [mem 0xdfff02a0-0xdfff046b]
[ 0.016725] Early memory node ranges
[ 0.025592] PM: hibernation: Registered nosave memory: [mem 0x00000000-0x00000fff]
[ 0.025594] PM: hibernation: Registered nosave memory: [mem 0x0009f000-0x0009ffff]
[ 0.025595] PM: hibernation: Registered nosave memory: [mem 0x000a0000-0x000aeffff]
[ 0.025596] PM: hibernation: Registered nosave memory: [mem 0x000f0000-0x000fffff]
[ 0.025596] PM: hibernation: Registered nosave memory: [mem 0xdfff0000-0xdfff0fff]
[ 0.025597] PM: hibernation: Registered nosave memory: [mem 0xe0000000-0xfefbffff]
[ 0.025598] PM: hibernation: Registered nosave memory: [mem 0xfec00000-0xfec0ffff]
[ 0.025598] PM: hibernation: Registered nosave memory: [mem 0xfec01000-0xfedfffff]
[ 0.025599] PM: hibernation: Registered nosave memory: [mem 0xfec00000-0xfec0ffff]
[ 0.025599] PM: hibernation: Registered nosave memory: [mem 0xfec01000-0xfefbffff]
[ 0.025600] PM: hibernation: Registered nosave memory: [mem 0xffff0000-0xffffffff]
[ 0.053096] Memory: 5946968K/6238776K available (16393K kernel code, 3531K rwdata, 10388K rodata, 2872K init, 4908K bss, 291548K reserved, 0K cma-reserved)
[ 0.081434] Freeing SMP alternatives memory: 44K
[ 0.184834] x86/mm: Memory block size: 128MB
[ 0.371735] Non-volatile memory driver v1.3
[ 2.712334] Freeing initrd memory: 58176K
[ 2.728172] memory memory43: hash matches
[ 2.729370] Freeing unused decrypted memory: 2036K
[ 2.729885] Freeing unused kernel image (initmem) memory: 2872K
[ 2.732270] Freeing unused kernel image (text/rodata gap) memory: 2036K
[ 2.732452] Freeing unused kernel image (rodata/data gap) memory: 1900K
[ 17.667805] [ITM] Zone kernel: Available graphics memory: 3007146 KiB
[ 17.667808] [ITM] Zone dma32: Available graphics memory: 2097152 KiB
[ 17.668031] [drm] Max dedicated hypervisor surface memory is 507994 KiB
[ 17.668032] [drm] Maximum display memory size is 16384 KiB
[avkuznecov@localhost-live ~]$ dmesg | grep -i "Hypervisor detected"
[ 0.000000] Hypervisor detected: KVM
[avkuznecov@localhost-live ~]$
```


Вывод

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!