PW-01. INSTALLING VIRTUAL MACHINES FOR ORACLE VIRTUALBOX.

1. TARGET OF THE WORK

Get the initial skills of working with Oracle VirtualBox Virtual Environment. Learn how to launch and log in to UNIX/Linux.

Other Popular Virtual Environments: QUEMI, VMWare ESX, Microsoft Hyper-V, XEN.

The Linux/UNIX console commands are used: **pwd, date, ping, tracepath, ifconfig, sudo, exit, logout, shutdown, apt, mc.**

2. TASKS FOR WORK

2.1. Install and test Oracle **VirtualBox** Virtual Environment. (Do only for your home Windows/Mac computer).

2.2. Install and test pre-built VM **UbuntuMini.OVA** from sys.academy.lv.

2.3. Select, install and test Linux VM from osboxes.org (for example, **Lubuntu18.04** VM).

2.4. Install and test Linux on Windows Subsystem for Linux (**WSL**) from Microsoft Store (Optional, do only for funs)

3. REPORT

The report is provided electronic form with Report Blank Form (docx).

The report includes **Screeshots 1-5**.

4. GUIDELINES

4.1. INSTALLING VIRTUALBOX

Remark. Do only for your home Windows/Mac computer if VirtualBox is not already installed!

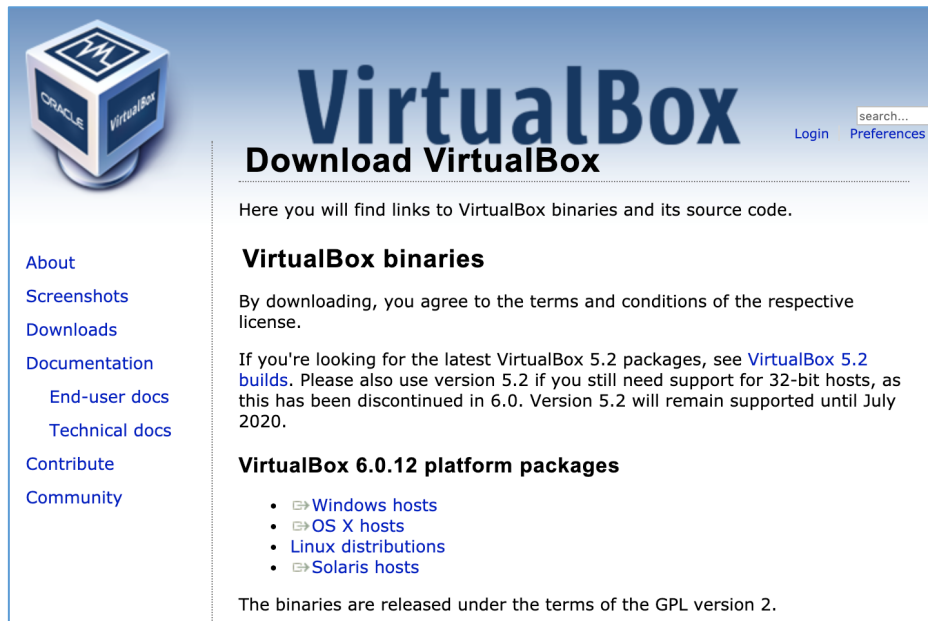**4.1.1. Read** the article: https://m.wikihow.com/Install-Ubuntu-on-VirtualBox.
Virtual Box support OVA and VDI files.
- **OVA** – Open Virtualization Format Archive, which includes virtual machine settings – CPU, RAM, NET, other.
- **VDI** – default VirtualBox Disk Image format. VMDK – VM Ware disk (can split big file). VHD – Microsoft disk.

4.1.2. Download VirtualBox and Extensions Pack from here http://www.virtualbox.org/wiki/Downloads

4.1.3. Install VirtualBox, read help on site http://help.ubuntu.ru/wiki/virtualbox

After installing Virtual Box make a Screenshot 1 include: your computer IP, current date and date of creation (Look example on next page).

Screenshot 1a Example for Windows

include: your computer IP, current date and date of creation
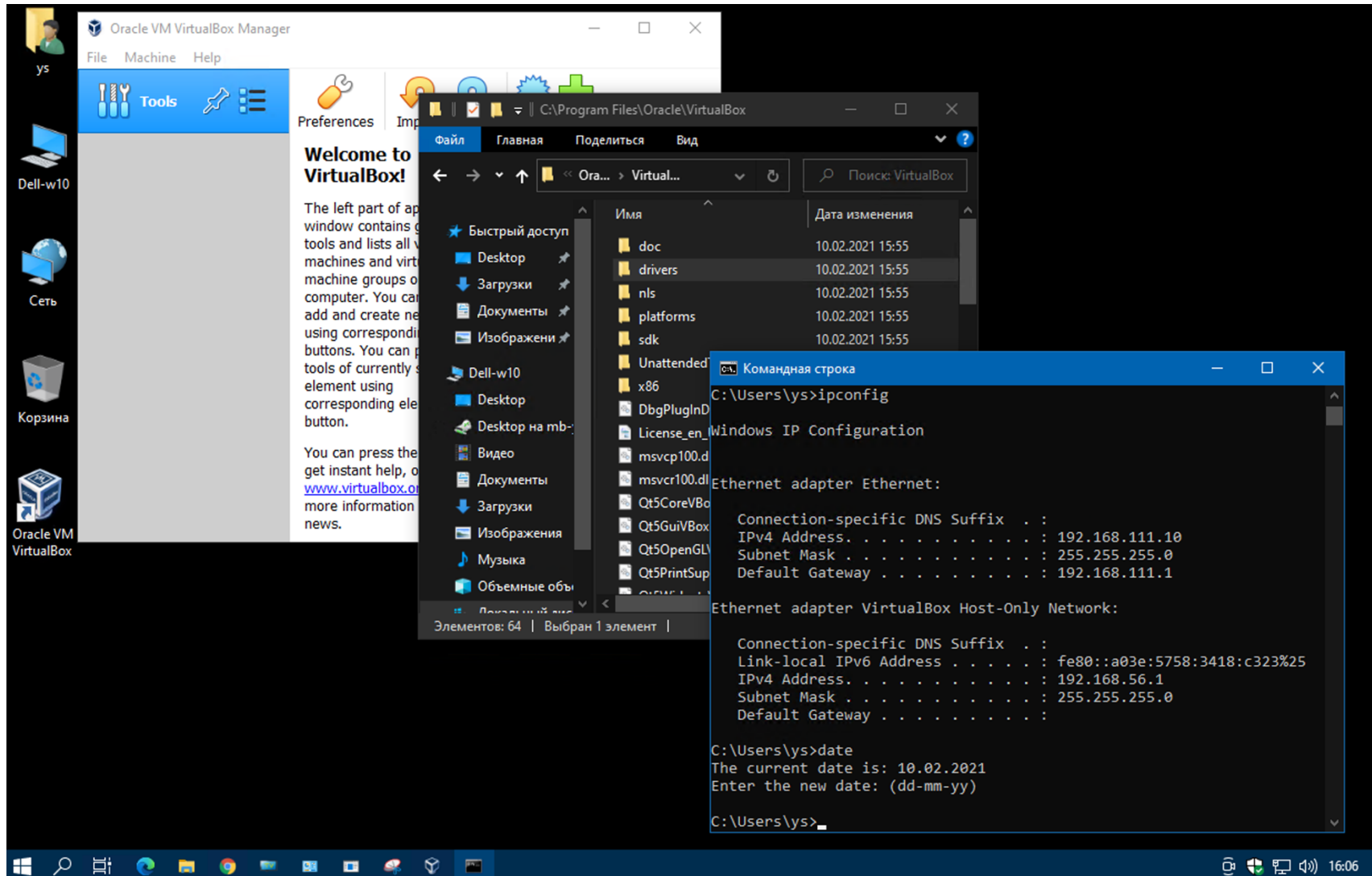
Screenshot 1b Example for Mac.

include: your computer IP, current date and date of creation

4.2. INSTALLING PRE-BUILT VM UBUNTUMINI.OVA FROM SYS.ACADEMY.LV

4.2.1. Download Pre-built UbuntuMini.ova [750 MiB] VM* from https://sys.academy.lv/labwork.php.

4.2.2. Copy UbuntuMini.ova file to your folder on Desktop (or on your USB FlashDrive).

4.2.3. Start VirtualBox, run File → **Import Appliance** and select UbuntuMini.ova file for import this Virtual Machine to VirtualBox.

4.2.4. Modify the base folder to folder on your USB FlashDrive (example, create directory "myVMs" on FlashDrive) Look →.
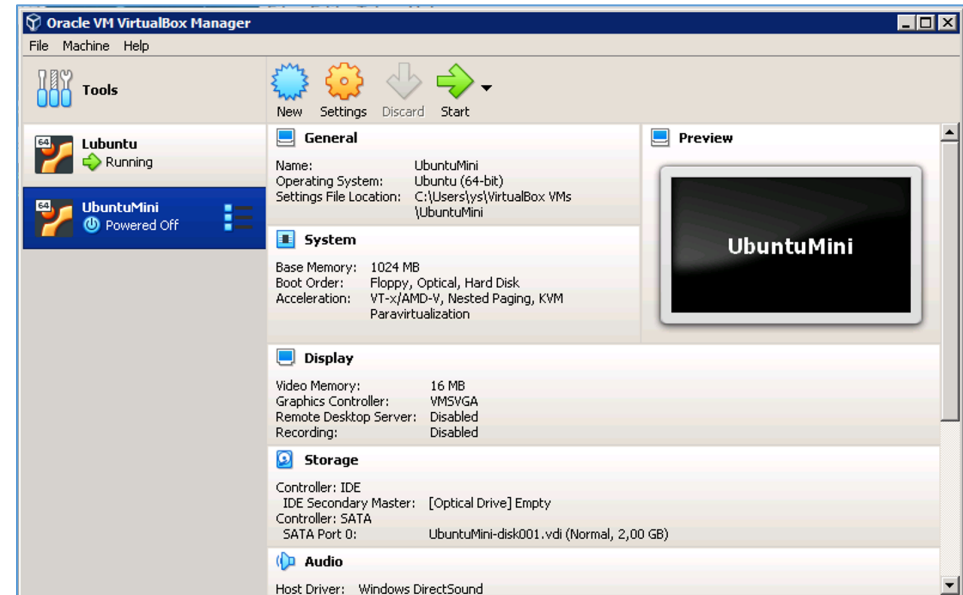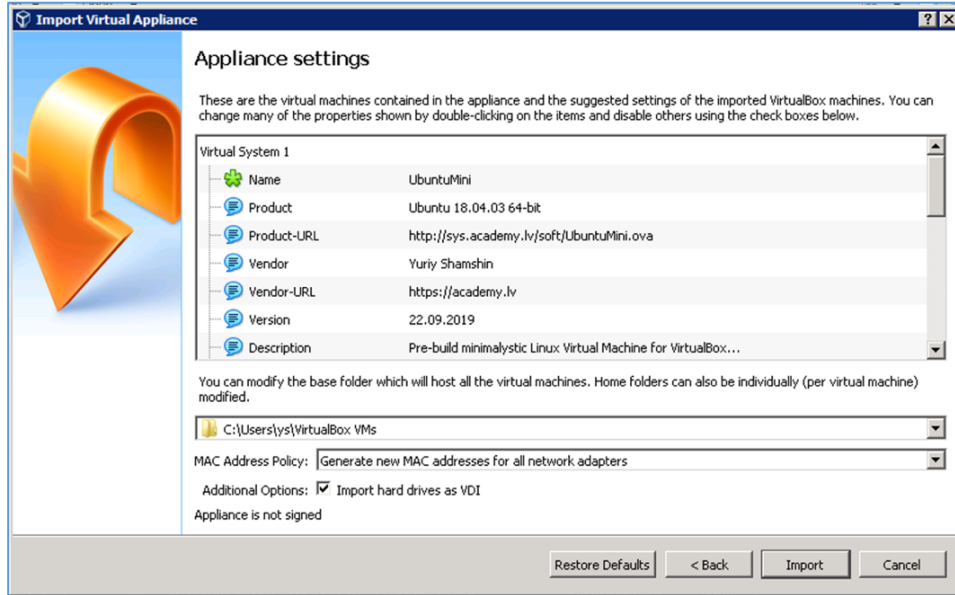
4.2.5. Start UbuntuMini VM with username "student" and password "student".

To run as root use "sudo command" for one bash command execution; for change full working session use "sudo -i" or "su".

4.2.6. Test UbuntuMini VM:

```
$ uname -a
…
$ date
…
$ ping academy.lv        //Press [Ctrl]+[C] for end after 3-5 pings.
…
$ tracepath academy.lv
…
```

After test Virtual Machine make a Screenshot 2 include Linux screen content

```
student@ubuntumini:~$ uname -a
Linux ubuntumini 4.15.0-64-generic #73-Ubuntu SMP Thu Sep 12 13:16:13 UTC 2019 x86_64 x86_64 x86_64
GNU/Linux
student@ubuntumini:~$ date
Thu Apr 15 11:16:59 EEST 2021
student@ubuntumini:~$ ping academy.lv
PING academy.lv (83.99.169.65) 56(84) bytes of data.
64 bytes from balticom-169-65.balticom.lv (83.99.169.65): icmp_seq=1 ttl=63 time=3.72 ms
64 bytes from balticom-169-65.balticom.lv (83.99.169.65): icmp_seq=2 ttl=63 time=3.25 ms
64 bytes from balticom-169-65.balticom.lv (83.99.169.65): icmp_seq=3 ttl=63 time=3.19 ms
^C
--- academy.lv ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2004ms
rtt min/avg/max/mdev = 3.194/3.392/3.729/0.243 ms
student@ubuntumini:~$ tracepath www.lv
 1?: [LOCALHOST]                      pmtu 1500
 1:  _gateway                                              0.433ms
 1:  _gateway                                              0.266ms
 2:  192.168.111.1                                         1.590ms asymm 64
 3:  10.49.183.254                                         2.385ms asymm 63
 4:  te-2401-29-72-65.balticom.lv                          2.274ms asymm 62
 5:  r01-69-193.balticom.lv                                1.906ms asymm 61
 6:  balticom-193-72-111.balticom.lv                       2.725ms asymm 60
 7:  te-2403-32-72-100.balticom.lv                         4.193ms asymm 59
 8:  SIGMANET.smile-ixp.net                                4.121ms asymm 58
 9:  85.254.196.214                                        4.542ms asymm 57
10:  92.240.66.25                                          3.439ms reached
     Resume: pmtu 1500 hops 10 back 56
student@ubuntumini:~$
```

4.2.7. Install and test mc (Midnight Commander) on your VM:

$ sudo apt install mc
…
Do you want to continue? [Y/n]   //type "y" and <Enter>
…
$ mc   //look the mc interface and move between directories
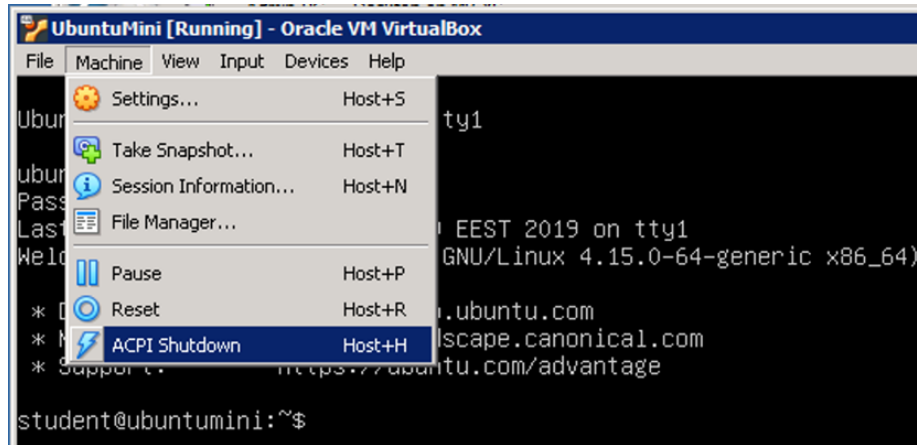…

After test Midnight Commander make a Screenshot 3 include Linux and mc screen content

$ exit   // exit from mc

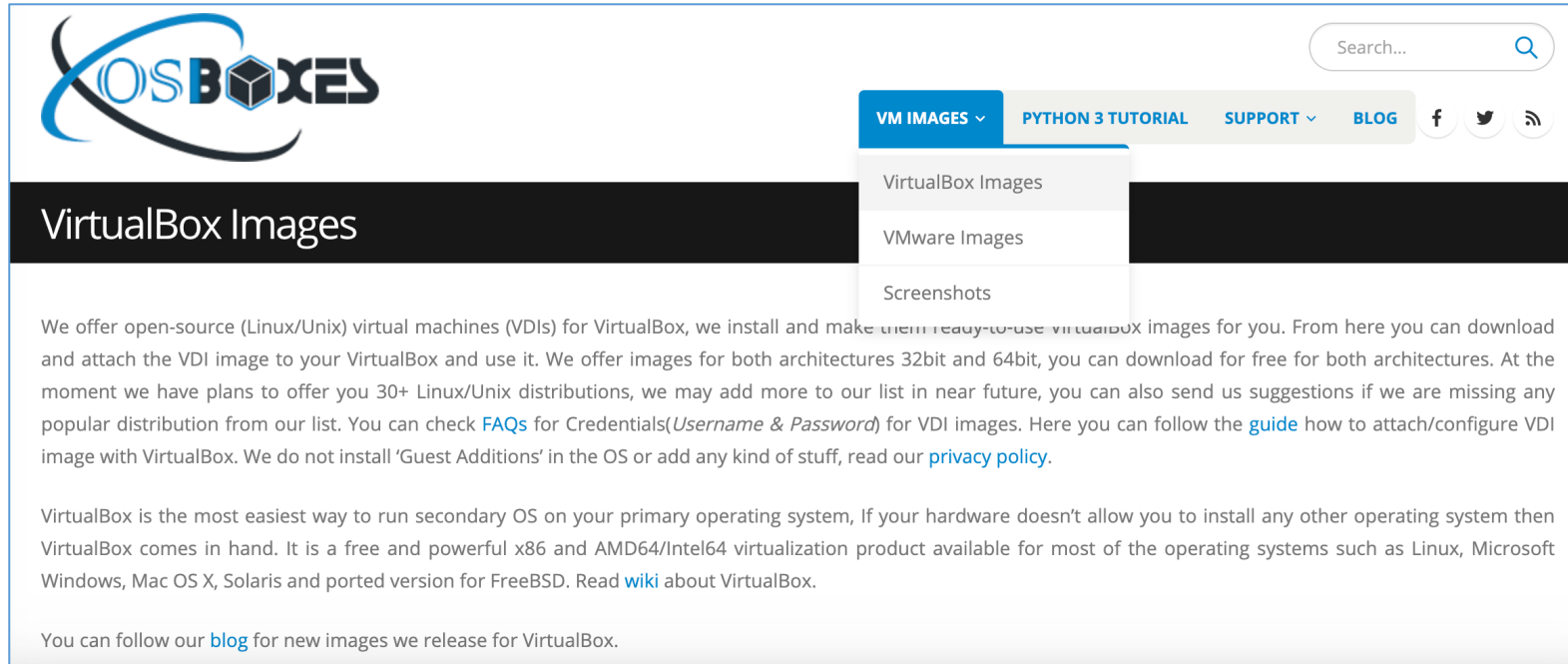**4.2.8. Shutdown** UbuntuMini VM with command:

    $ sudo shutdown   //enter the password for shutdown

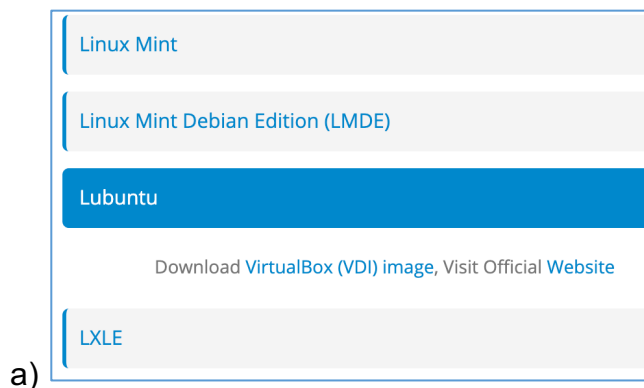   or from VirtualBox menu select "Machine → ACPI Shutdown"

4.3. SELECTING, INSTALLING AND TESTING LINUX VM FROM OSBOXES.ORG

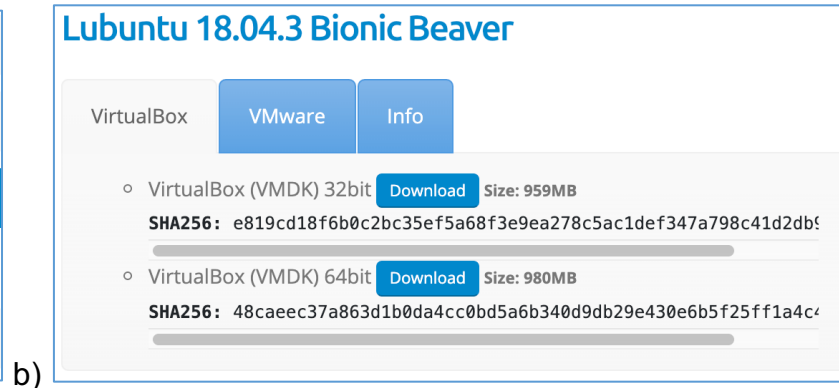**4.3.1. Look, select and download** any Linux virtual machine here https://www.osboxes.org/virtualbox-images/.

4.3.2. For example, choose Lubuntu 18.04.VDI (small image for light GUI edition) https://www.osboxes.org/lubuntu/#lubuntu-18-04-vbox

a)

b)

c)

4.3.3. Uncompressing the VM.7z file.

4.3.4. Add a VM to VirtualBox.
Choose "New", then select Type: Linux and select Version: Your-Distributive (32-bit) or Your-Distributive (64-bit).
Then, when asked for hard drive, choose "existing" and point to the unpacked VDI file (VDI - Virtual Disk Image).
If need, then modify Machine folder to you USB Flash Drive "myVMs" directory.
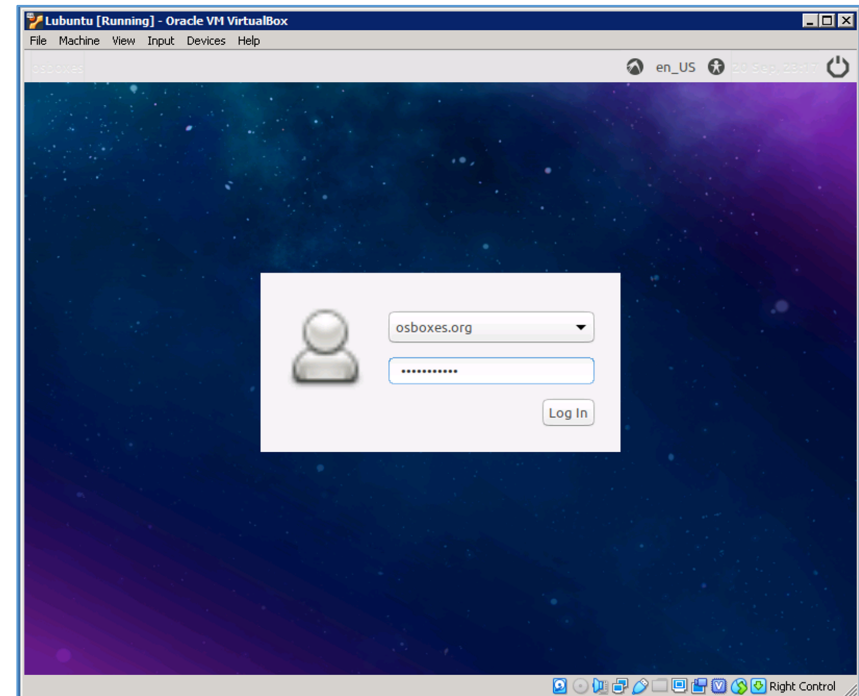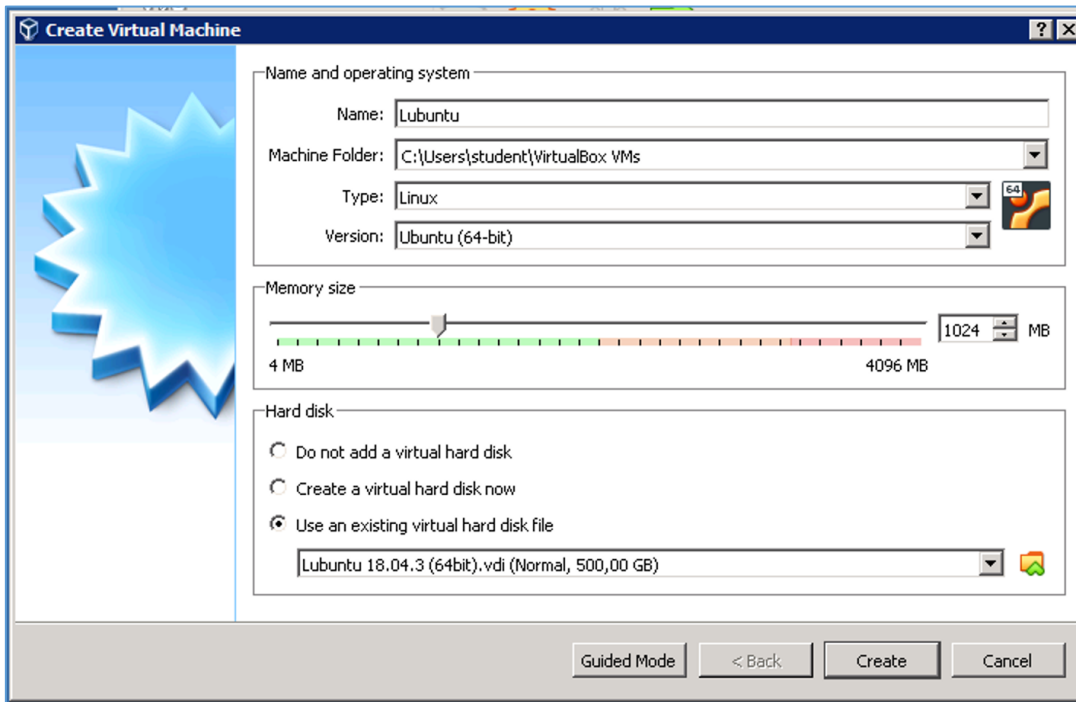
4.3.5. Start the VM. The username and password for the VM have on Your Concrete Distributive description on the site (example for Lubuntu 18.04 Username: osboxes.org and Password: osboxes.org).

4.3.6. Install and test mc (Midnight Commander) on your VM.

     Install Midnight Commander: Start → System Tools → Software → Utilities → Midnight Commander → Install.
     Test Midnight Commander: Start → Other → Midnight Commander.

4.3.7. Test Your VM. Get to know about your system. Start Applications: Midnight Commander, Terminal, File Manager, Browser, Package Manager.

Make a Screenshot 4 include workspace with many apps window.

Example of Lubuntu work space Screenshot:
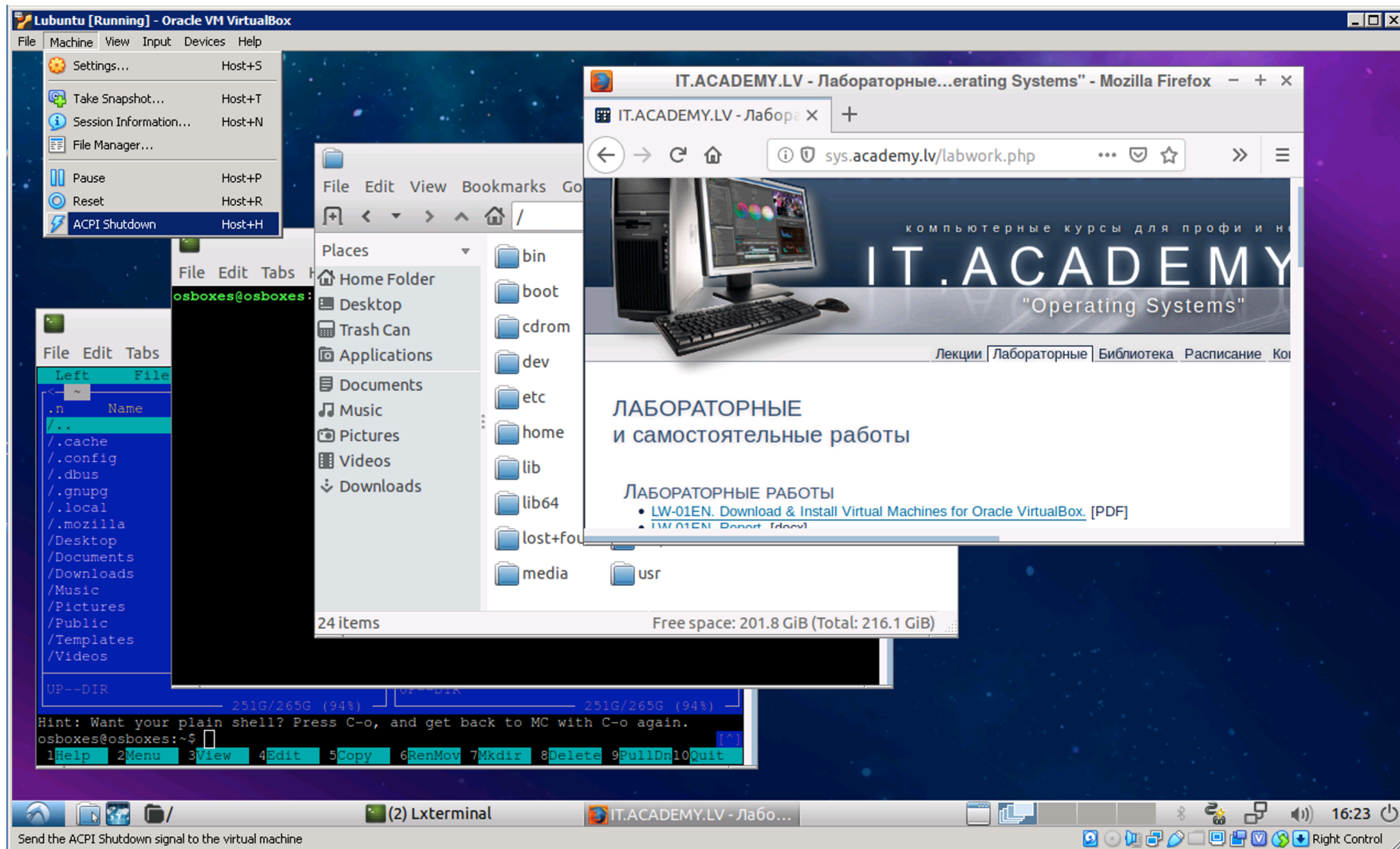
4.3.8. Shutdown your VM: or select Start → Logout → Shutdown, or on VirtualBox menu select Machine → ACPI Shutdown.
4.3.9. If You have problem with selected distributive, then install my pre-built VM Lubuntu18-64.ova [1.7 GiB] (login:password - student:student) from https://sys.academy.lv/labwork.php.

4.4. WINDOWS SUBSYSTEM FOR LINUX (WSL) INSTALLATION GUIDE (FOR WINDOWS FUNS ONLY)

Follow the instruction from https://learn.microsoft.com/en-us/windows/wsl/install to install Windows Subsystem for Linux.

4.4.1. Enable the Windows Subsystem for Linux
1. Before installing any Linux distros for WSL, you must ensure that the "Windows Subsystem for Linux" optional feature is enabled. Open PowerShell as Administrator and run PowerShell command:
   Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Windows-Subsystem-Linux
2. Restart your computer when prompted.

4.4.2. Install your Linux Distribution of Choice
1. Download and install from the Microsoft Store: choose your favorite Linux distribution and select "Get" →

2. Download and install from the Command-Line/Script (read the manual installation instructions - https://docs.microsoft.com/en-us/windows/wsl/install-manual)
3. Download and manually unpack and install (for Windows Server - instructions here https://docs.microsoft.com/en-us/windows/wsl/install-on-server)

4.4.3. Complete initialization of your distro
1. You must initialize your new Linux distro instance once, before it can be used https://docs.microsoft.com/en-us/windows/wsl/initialize-distro

4.4.4. Test
Open "Bash on Linux on Windows", and run the following commands:
sudo apt-get update sudo apt-get install -y mc

Make a Screenshot 5 include workspace Linux on Windows.