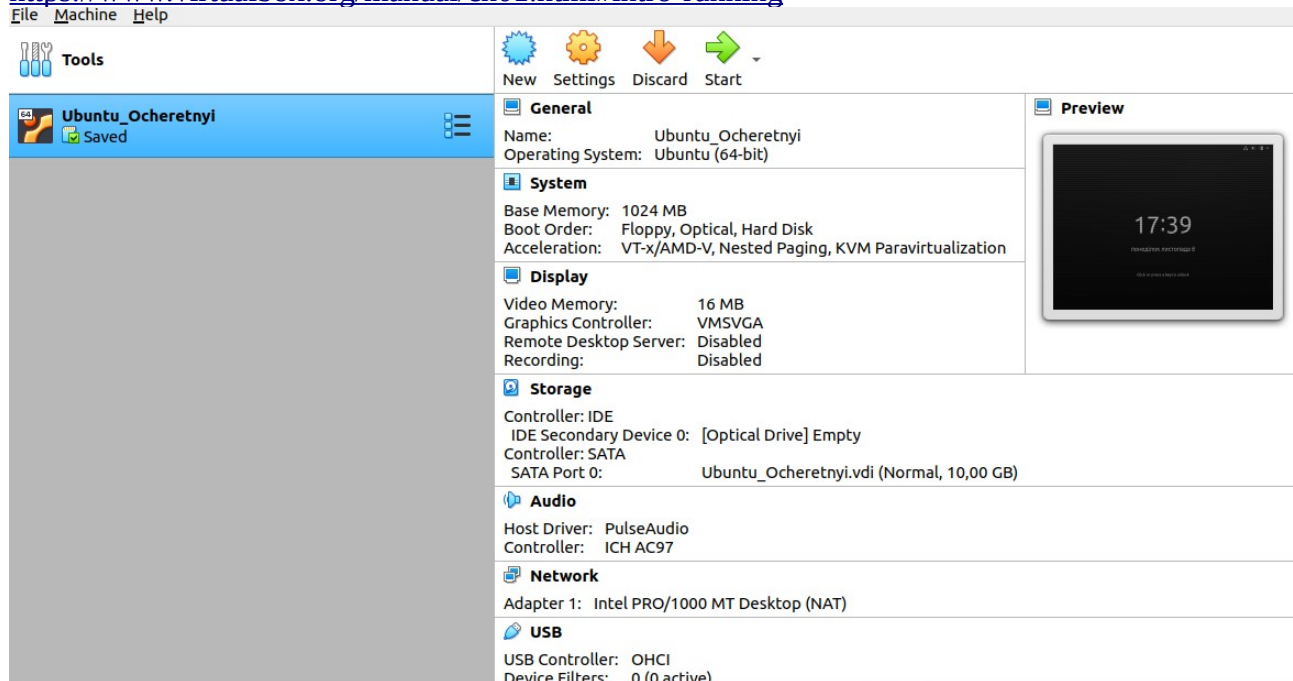
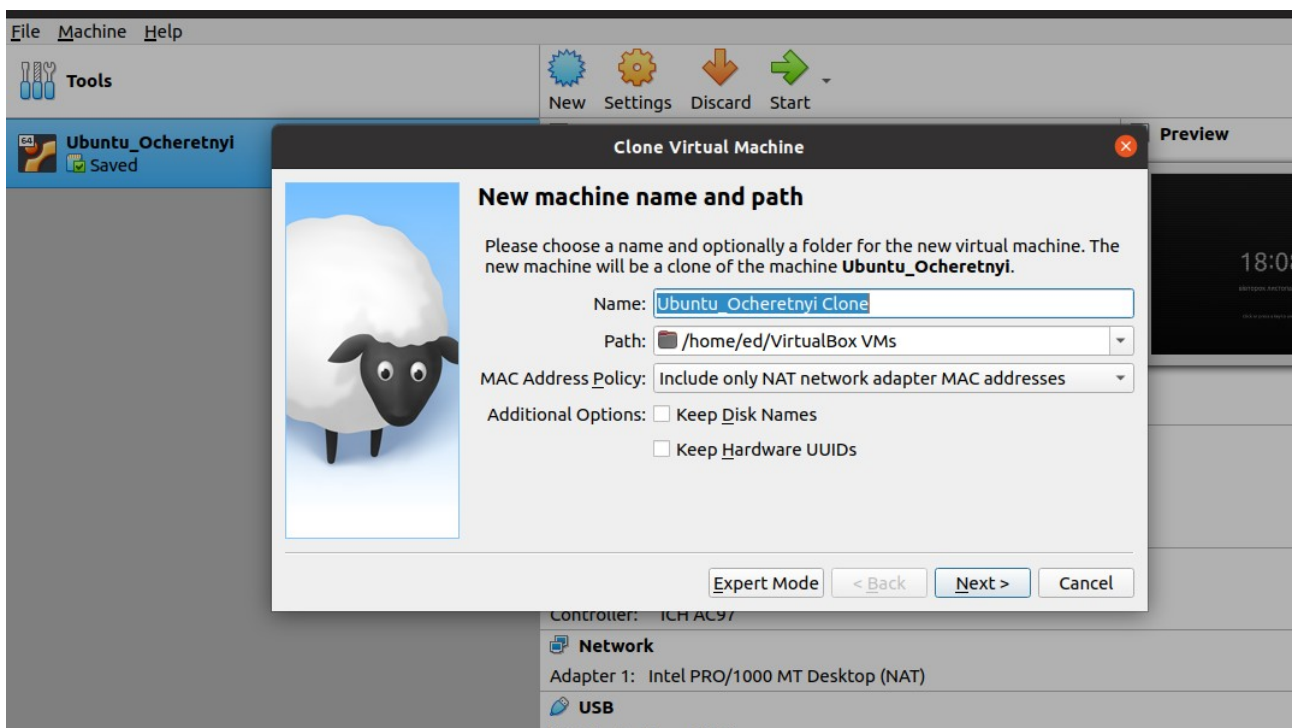
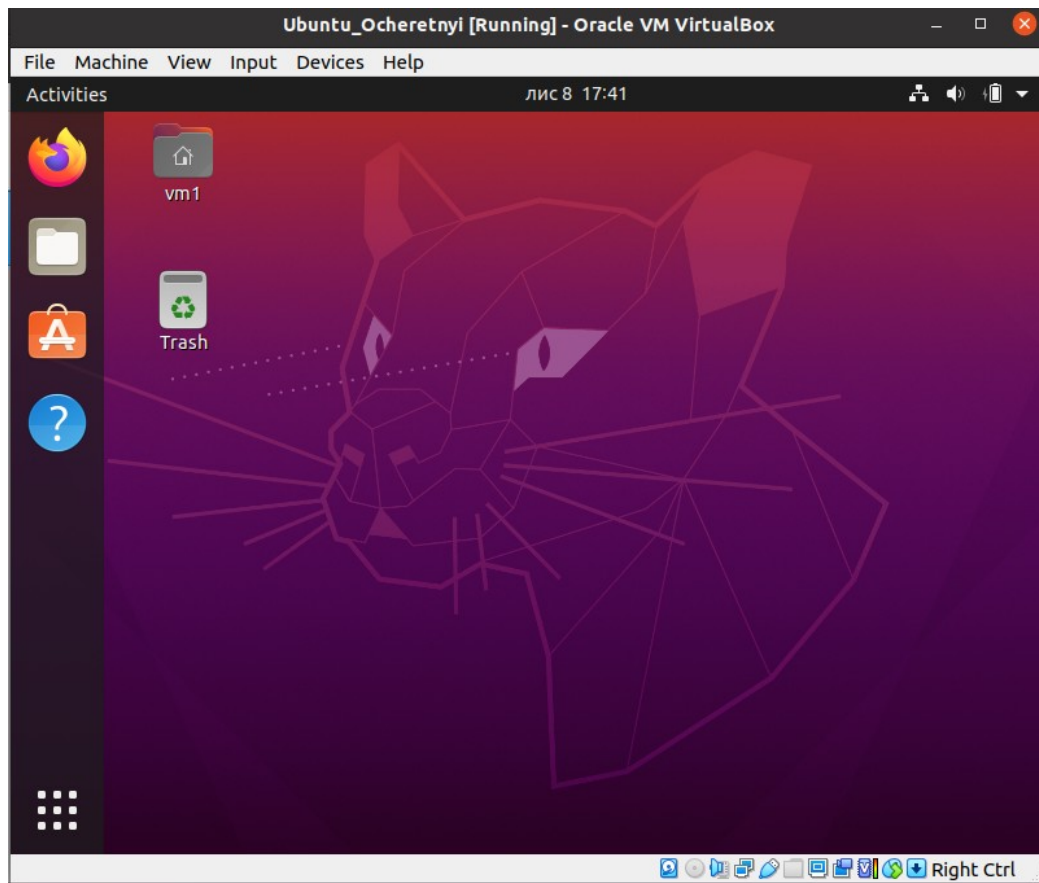


I. Virtual Box

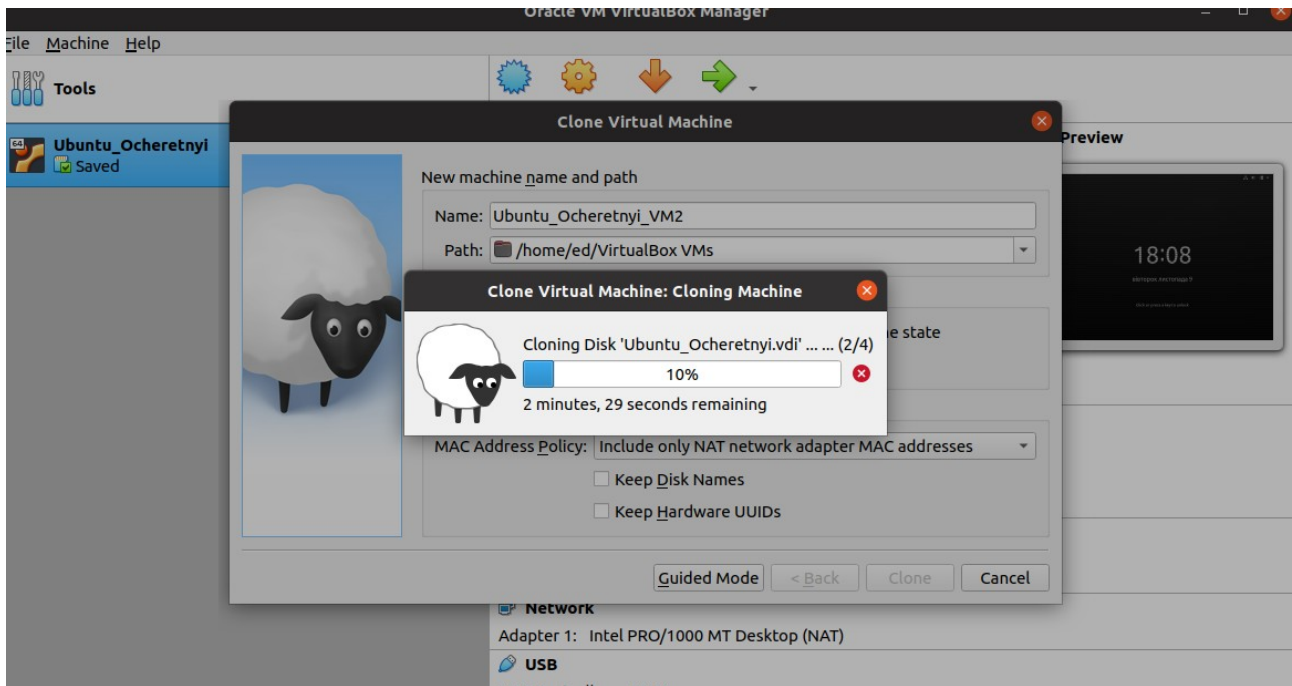
1. Grab Virtual box Linux version from https://www.virtualbox.org/wiki/Linux_Downloads and install it.
2. Download .deb package of ubuntu desktop
3. Create VM and install Ubuntu , using instruction from <https://www.virtualbox.org/manual/ch01.html#intro-running>



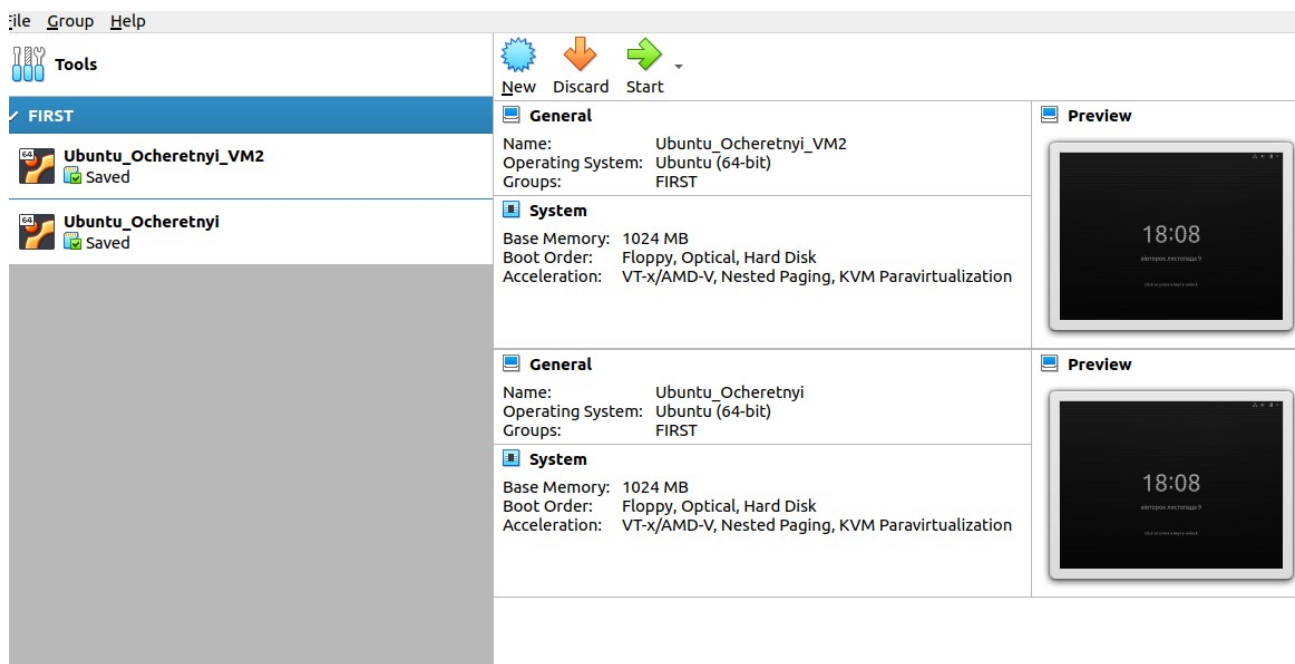
4. Start , stop, reboot, save state VM



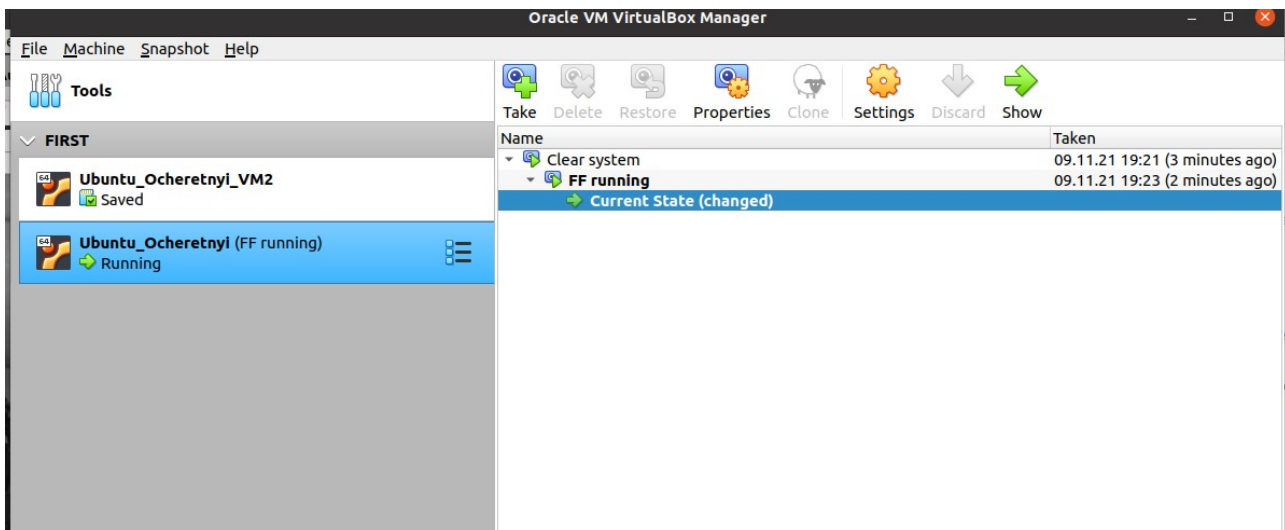
5. Clone VM based on existed VM



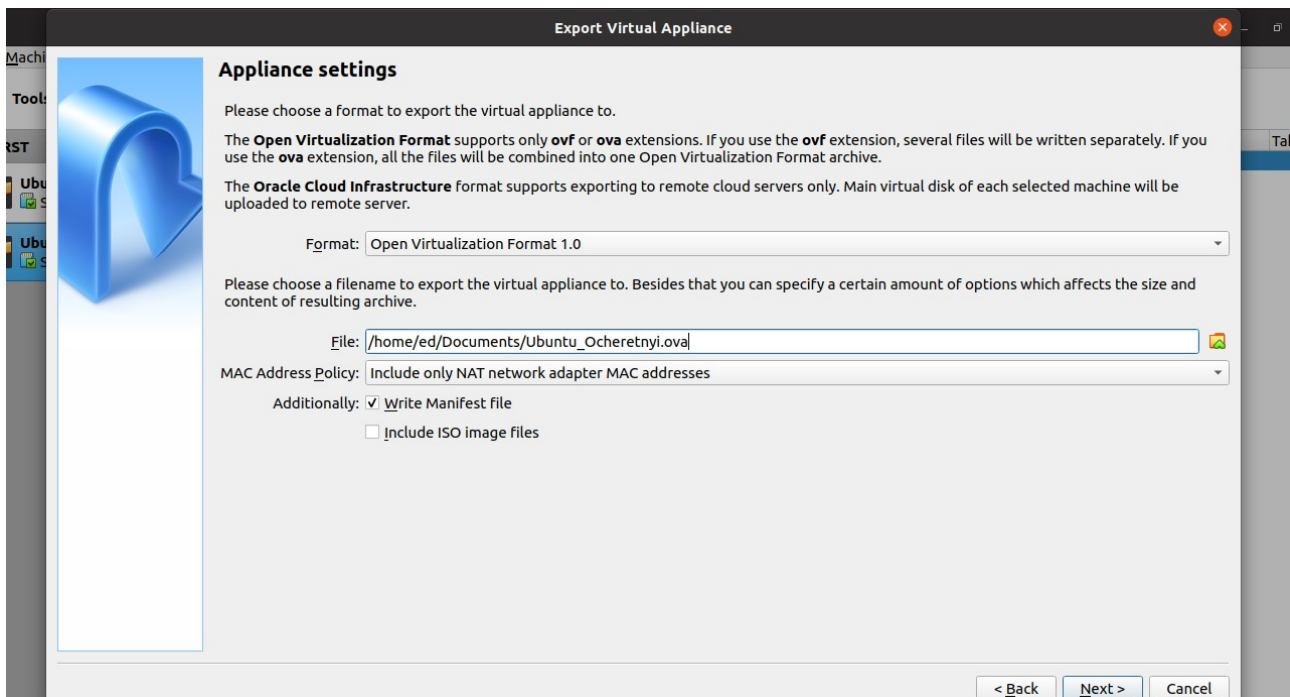
6. Create a group of 2 machines

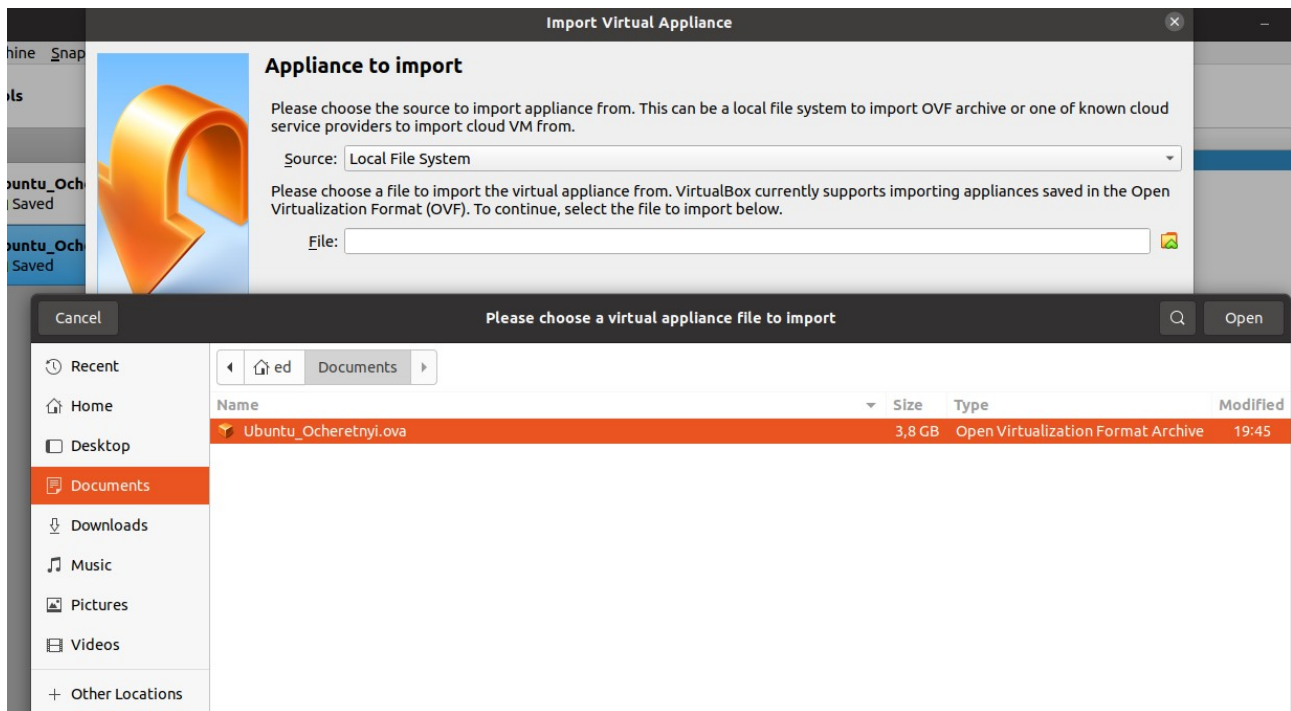


7. Working with snapshots, creating snapshot tree

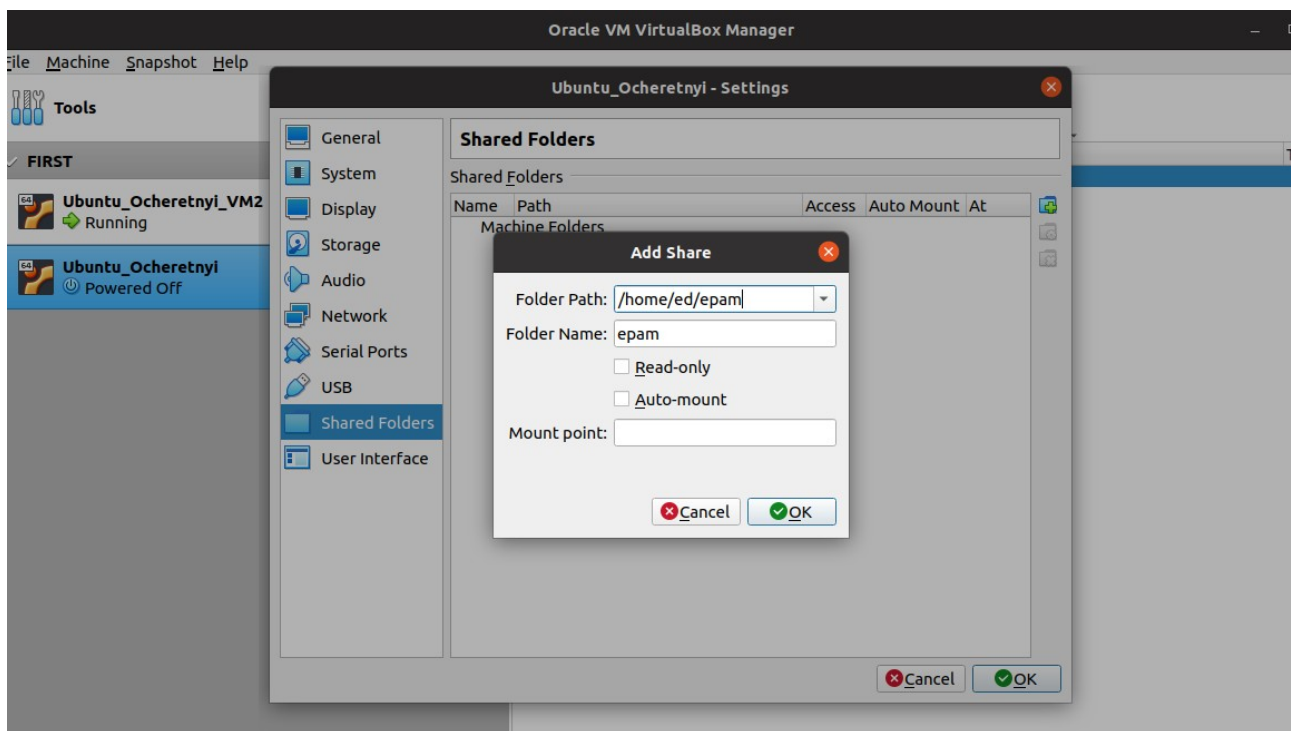


8. Export / Import VM into/from .ova file





9. Create shared folder as connection VM with host



10. Configure different network modes

10.1 NAT

Ping router

```
vm1@vm1-VirtualBox:~$ ping 192.168.1.1
PING 192.168.1.1 (192.168.1.1) 56(84) bytes of data.
64 bytes from 192.168.1.1: icmp_seq=1 ttl=63 time=6.37 ms
64 bytes from 192.168.1.1: icmp_seq=2 ttl=63 time=13.8 ms
64 bytes from 192.168.1.1: icmp_seq=3 ttl=63 time=6.96 ms
64 bytes from 192.168.1.1: icmp_seq=4 ttl=63 time=13.9 ms
64 bytes from 192.168.1.1: icmp_seq=5 ttl=63 time=17.3 ms
```

Ping google

```
vm1@vm1-VirtualBox:~$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=63 time=30.7 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=63 time=17.7 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=63 time=19.7 ms
```

Ping host

```
vm1@vm1-VirtualBox:~$ ping 192.168.1.137
PING 192.168.1.137 (192.168.1.137) 56(84) bytes of data.
64 bytes from 192.168.1.137: icmp_seq=1 ttl=63 time=0.747 ms
64 bytes from 192.168.1.137: icmp_seq=2 ttl=63 time=0.596 ms
64 bytes from 192.168.1.137: icmp_seq=3 ttl=63 time=0.629 ms
64 bytes from 192.168.1.137: icmp_seq=4 ttl=63 time=0.728 ms
```

11. Work with VboxManage via CLI

showvminfo

```
vm1@vm1-VirtualBox:~$ ping 192.168.1.137
PING 192.168.1.137 (192.168.1.137) 56(84) bytes of data.
64 bytes from 192.168.1.137: icmp_seq=1 ttl=63 time=0.747 ms
64 bytes from 192.168.1.137: icmp_seq=2 ttl=63 time=0.596 ms
64 bytes from 192.168.1.137: icmp_seq=3 ttl=63 time=0.629 ms
64 bytes from 192.168.1.137: icmp_seq=4 ttl=63 time=0.728 ms
```

createvm

```
ed@deik:~$ VBoxManage createvm --name "UBUNTU_OCh_VBM"
Virtual machine 'UBUNTU_OCh_VBM' is created.
UUID: 007a37e7-fca1-4a0f-adc9-5e9a65d69f0a
Settings file: '/home/ed/VirtualBox VMs/UBUNTU_OCh_VBM/UBUNTU_OCh_VBM.vbox'
```

startvm


```
ed@deik:~$ VBoxManage startvm "Ubuntu_Ocheretnyi" --type headless
Waiting for VM "Ubuntu_Ocheretnyi" to power on...
VM "Ubuntu_Ocheretnyi" has been successfully started.
```

controlvm

```
ed@deik:~$ VBoxManage controlvm "Ubuntu_Ocheretnyi" poweroff
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
```

snapshot

```
ed@deik:~$ VBoxManage snapshot "Ubuntu_Ocheretnyi_VM2" take "123"
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
Snapshot taken. UUID: 375194b3-b8bf-4ff7-b936-9f9d4c2dbaee
```

```
ed@deik:~$ VBoxManage snapshot "Ubuntu_Ocheretnyi_VM2" delete "123"
Deleting snapshot '123' (375194b3-b8bf-4ff7-b936-9f9d4c2dbaee)
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
```

clonevm

```
[--snapshot=snapshot-name] [--uuid=uuid]
ed@deik:~$ VBoxManage clonevm "Ubuntu_Ocheretnyi"
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
Machine has been successfully cloned as "Ubuntu_Ocheretnyi Clone"
ed@deik:~$
```

II. VAGRANT

1. vagrant init, vagrant up

```
ed@deik:~/epam/DevOps_online_Kiev_2021Q4/m2/task2.1/eduard_ocheretnyi$ vagrant init hashicorp/bionic64
```

A `Vagrantfile` has been placed in this directory. You are now ready to `vagrant up` your first virtual environment! Please read the comments in the Vagrantfile as well as documentation on `vagrantup.com` for more information on using Vagrant.

```
ed@deik:~/epam/DevOps_online_Kiev_2021Q4/m2/task2.1/eduard_ocheretnyi$ vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
```

```
==> default: Box 'hashicorp/bionic64' could not be found. Attempting to find and install...
```

```
default: Box Provider: virtualbox
```

```
default: Box Version: >= 0
```

```
==> default: Loading metadata for box 'hashicorp/bionic64'
```

```
default: URL: https://vagrantcloud.com/hashicorp/bionic64
```

```
==> default: Adding box 'hashicorp/bionic64' (v1.0.282) for provider: virtualbox
```

default: Downloading: <https://vagrantcloud.com/hashicorp/boxes/bionic64/versions/1.0.282/providers/virtualbox.box>
==> default: Box download is resuming from prior download progress
default: Download redirected to host: vagrantcloud-files-production.s3-accelerate.amazonaws.com
==> default: Successfully added box 'hashicorp/bionic64' (v1.0.282) for 'virtualbox'!
==> default: Importing base box 'hashicorp/bionic64'...
==> default: Matching MAC address for NAT networking...
==> default: Checking if box 'hashicorp/bionic64' version '1.0.282' is up to date...
==> default: Setting the name of the VM: eduard_ocheretnyi_default_1636632754045_31011
Vagrant is currently configured to create VirtualBox synced folders with the `SharedFoldersEnableSymlinksCreate` option enabled. If the Vagrant guest is not trusted, you may want to disable this option. For more information on this option, please refer to the VirtualBox manual:

<https://www.virtualbox.org/manual/ch04.html#sharedfolders>

This option can be disabled globally with an environment variable:

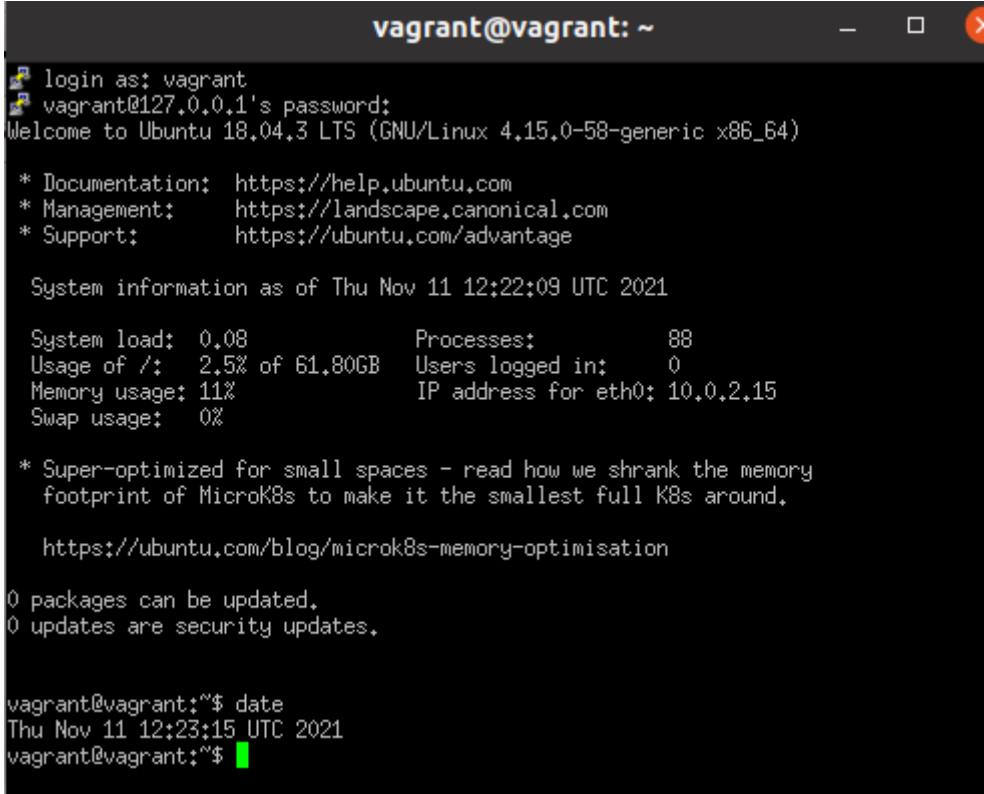
VAGRANT_DISABLE_VBOXSYMLINKCREATE=1

or on a per folder basis within the Vagrantfile:

config.vm.synced_folder '/host/path', '/guest/path', SharedFoldersEnableSymlinksCreate: false
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
default: Adapter 1: nat
==> default: Forwarding ports...
default: 22 (guest) => 2222 (host) (adapter 1)
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
default: SSH address: 127.0.0.1:2222
default: SSH username: vagrant
default: SSH auth method: private key
default: Warning: Connection reset. Retrying...
default: Warning: Remote connection disconnect. Retrying...
default:
default: Vagrant insecure key detected. Vagrant will automatically replace
default: this with a newly generated keypair for better security.
default:
default: Inserting generated public key within guest...
default: Removing insecure key from the guest if it's present...
default: Key inserted! Disconnecting and reconnecting using new SSH key...
==> default: Machine booted and ready!
==> default: Checking for guest additions in VM...
default: The guest additions on this VM do not match the installed version of
default: VirtualBox! In most cases this is fine, but in rare cases it can
default: prevent things such as shared folders from working properly. If you see
default: shared folder errors, please make sure the guest additions within the
default: virtual machine match the version of VirtualBox you have installed on
default: your host and reload your VM.
default:

default: Guest Additions Version: 6.0.10
default: VirtualBox Version: 6.1
==> default: Mounting shared folders...
default: /vagrant =>
/home/ed/epam/DevOps_online_Kiev_2021Q4/m2/task2.1/eduard_ocheretnyi

2. PuTTY



```
vagrant@vagrant: ~  
login as: vagrant  
vagrant@127.0.0.1's password:  
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-58-generic x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/advantage  
  
System information as of Thu Nov 11 12:22:09 UTC 2021  
  
System load:  0.08          Processes:            88  
Usage of /:   2.5% of 61.80GB Users logged in:       0  
Memory usage: 11%          IP address for eth0: 10.0.2.15  
Swap usage:   0%  
  
* Super-optimized for small spaces - read how we shrank the memory  
  footprint of MicroK8s to make it the smallest full K8s around.  
  
https://ubuntu.com/blog/microk8s-memory-optimisation  
  
0 packages can be updated.  
0 updates are security updates.  
  
vagrant@vagrant:~$ date  
Thu Nov 11 12:23:15 UTC 2021  
vagrant@vagrant:~$
```

3. vagrant halt, vagrant destroy

```
ed@deik:~/epam/DevOps_online_Kiev_2021Q4/m2/task2.1/eduard_ocheretnyi$ vagrant halt  
==> default: Attempting graceful shutdown of VM...  
ed@deik:~/epam/DevOps_online_Kiev_2021Q4/m2/task2.1/eduard_ocheretnyi$ vagrant destroy  
default: Are you sure you want to destroy the 'default' VM? [y/N] y  
==> default: Destroying VM and associated drives...  
ed@deik:~/epam/DevOps_online_Kiev_2021Q4/m2/task2.1/eduard_ocheretnyi$
```

4. Created my vagrant box using WebUI interfaces

<https://app.vagrantup.com/o4edik/boxes/task2.1/versions/1.0>