

Лабораторная работа №1

Администрирование сетевых подсистем

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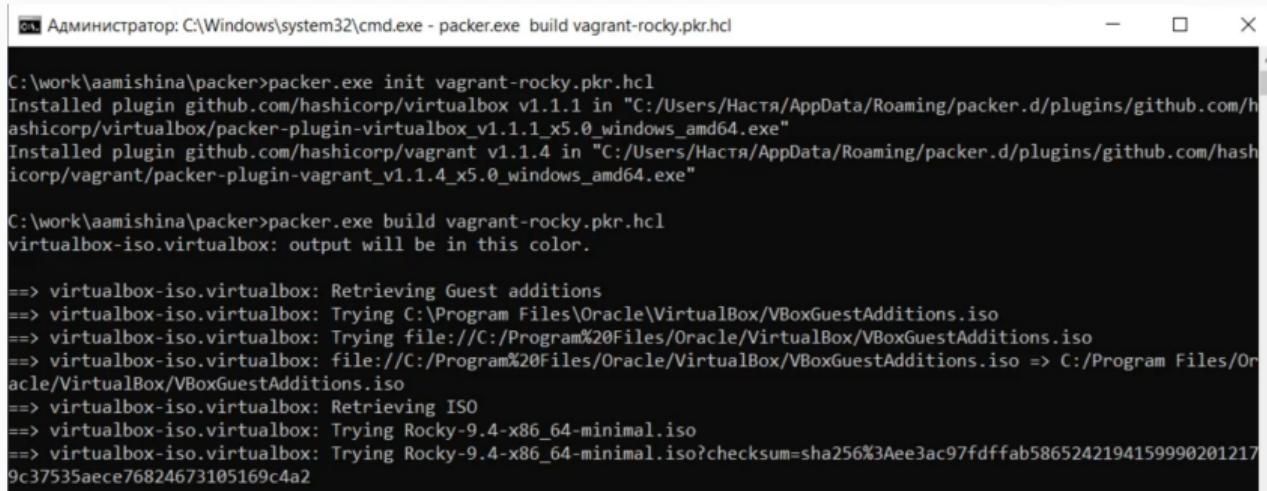
7 сентября 2024

- Целью данной работы является приобретение практических навыков установки Rocky Linux на виртуальную машину с помощью инструмента Vagrant.

Выполнение лабораторной работы

Развёртывание лабораторного стенда на ОС Windows

Rocky и box-файл



```
Administrator: C:\Windows\system32\cmd.exe - packer.exe build vagrant-rocky.pkr.hcl

C:\work\aaamishina\packer>packer.exe init vagrant-rocky.pkr.hcl
Installed plugin github.com/hashicorp/virtualbox v1.1.1 in "C:/Users/Настя/AppData/Roaming/packer.d/plugins/github.com/hashicorp/virtualbox/packer-plugin-virtualbox_v1.1_x5.0_windows_amd64.exe"
Installed plugin github.com/hashicorp/vagrant v1.1.4 in "C:/Users/Настя/AppData/Roaming/packer.d/plugins/github.com/hashicorp/vagrant/packer-plugin-vagrant_v1.1.4_x5.0_windows_amd64.exe"

C:\work\aaamishina\packer>packer.exe build vagrant-rocky.pkr.hcl
virtualbox-iso.virtualbox: output will be in this color.

==> virtualbox-iso.virtualbox: Retrieving Guest additions
==> virtualbox-iso.virtualbox: Trying C:\Program Files\Oracle\VirtualBox\VBoxGuestAdditions.iso
==> virtualbox-iso.virtualbox: Trying file:///C:/Program%20Files/Oracle/VirtualBox/VBoxGuestAdditions.iso
==> virtualbox-iso.virtualbox: file:///C:/Program%20Files/Oracle/VirtualBox/VBoxGuestAdditions.iso => C:/Program Files/Oracle/VirtualBox/VBoxGuestAdditions.iso
==> virtualbox-iso.virtualbox: Retrieving ISO
==> virtualbox-iso.virtualbox: Trying Rocky-9.4-x86_64-minimal.iso
==> virtualbox-iso.virtualbox: Trying Rocky-9.4-x86_64-minimal.iso?checksum=sha256%3Aee3ac97fdffab58652421941599902012179c37535aece76824673105169c4a2
```

Рис. 1: Установка образа Rocky в Virtualbox и формирование box-файла

box-файл

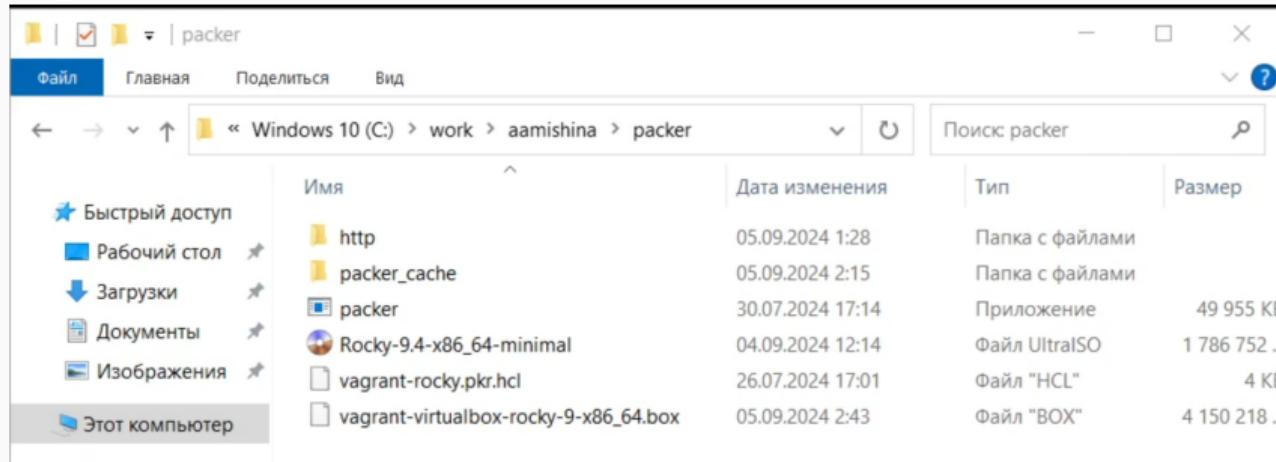


Рис. 2: box-файл с дистрибутивом Rocky для Virtualbox

Образ VM

```
C:\work\aaamishina\packer>vagrant box add rocky9 vagrant-virtualbox-rocky-9-x86_64.box
==> box: Box file was not detected as metadata. Adding it directly...
==> box: Adding box 'rocky9' (v0) for provider:
    box: Unpacking necessary files from: file:///C:/work/aaamishina/packer/vagrant-virtualbox-rocky-9-x86_
64.box
    box:
The box you're attempting to add already exists. Remove it before
adding it again or add it with the `--force` flag.

Name: rocky9
Provider: virtualbox
Version: 0

C:\work\aaamishina\packer>
```

Рис. 3: Регистрация образа виртуальной машины в vagrant

Запуск

```
C:\work\aaamishina\vagrant>vagrant up server
Bringing machine 'server' up with 'virtualbox' provider...
==> server: You assigned a static IP ending in ".1" to this machine.
==> server: This is very often used by the router and can cause the
==> server: network to not work properly. If the network doesn't work
==> server: properly, try changing this IP.
==> server: Preparing master VM for linked clones...
    server: This is a one time operation. Once the master VM is prepared,
    server: it will be used as a base for linked clones, making the creation
    server: of new VMs take milliseconds on a modern system.
==> server: Importing base box 'rocky9'...
==> server: Cloning VM...
==> server: Matching MAC address for NAT networking...
==> server: You assigned a static IP ending in ".1" to this machine.
==> server: This is very often used by the router and can cause the
==> server: network to not work properly. If the network doesn't work
==> server: properly, try changing this IP.
-
```

Рис. 4: Запуск виртуальной машины Server

Запуск

```
C:\work\aaamishina>vagrant up client
Bringing machine 'client' up with 'virtualbox' provider...
==> client: Cloning VM...
==> client: Matching MAC address for NAT networking...
==> client: Setting the name of the VM: client
==> client: Fixed port collision for 22 => 2222. Now on port 2200.
==> client: Clearing any previously set network interfaces...
==> client: Preparing network interfaces based on configuration...
    client: Adapter 1: nat
    client: Adapter 2: intnet
==> client: Forwarding ports...
    client: 22 (guest) => 2200 (host) (adapter 1)
==> client: Running 'pre-boot' VM customizations...
==> client: Booting VM...
-
```

Рис. 5: Запуск виртуальной машины Client

Логин

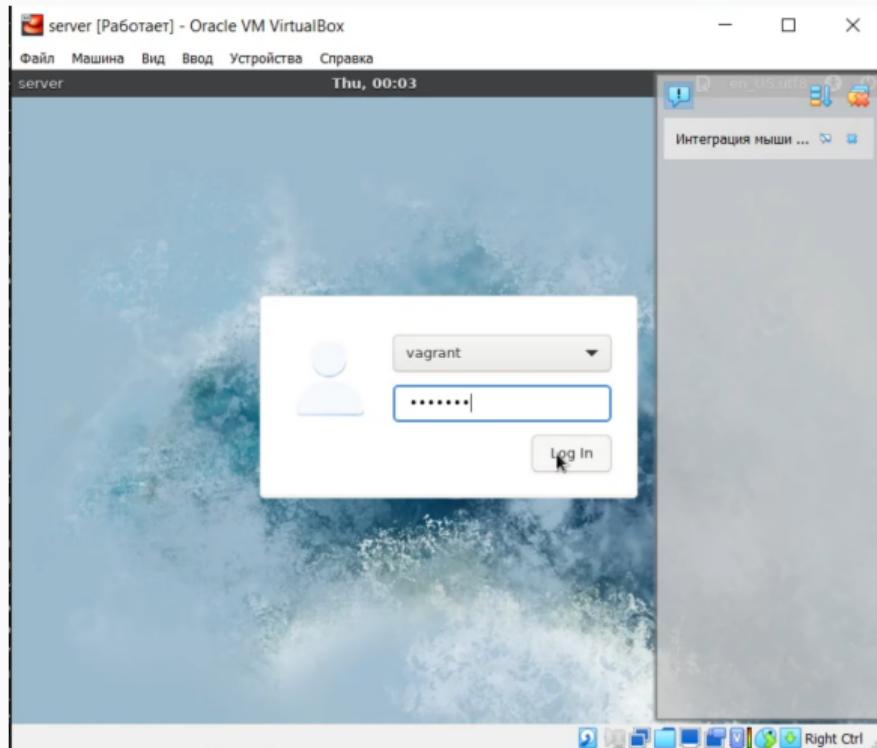


Рис. 6: Логинимся в ВМ Server

Логин

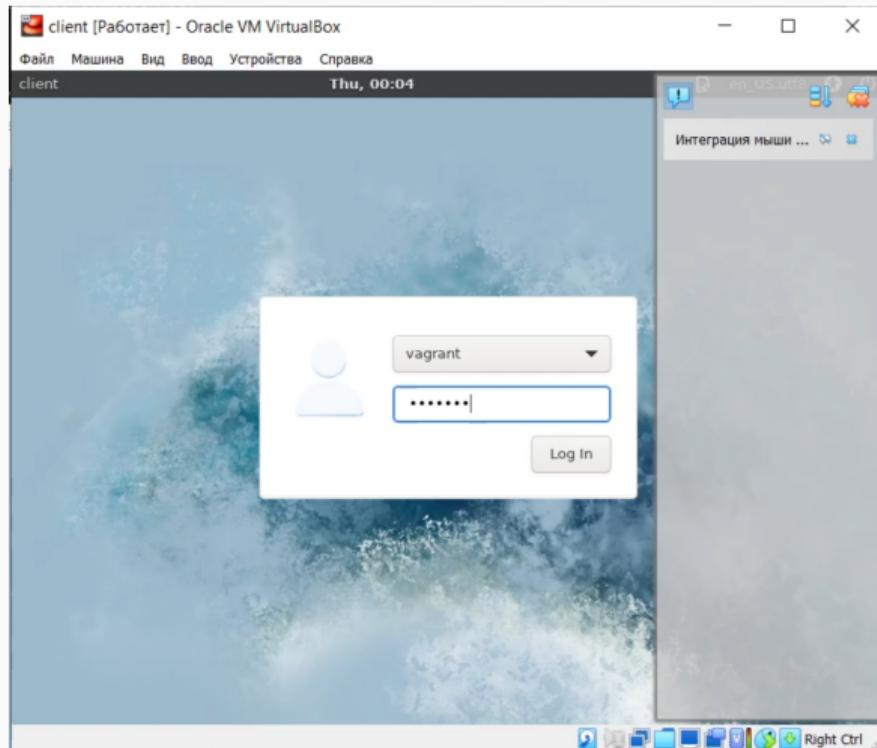


Рис. 7: Логинимся в VM Client

Переход к пользователю

```
C:\work\aaamishina>vagrant ssh server
==> server: The machine you're attempting to SSH into is configured to use
==> server: password-based authentication. Vagrant can't script entering the
==> server: password for you. If you're prompted for a password, please enter
==> server: the same password you have configured in the Vagrantfile.
vagrant@127.0.0.1's password:
Last login: Thu Sep  5 14:16:24 2024 from 10.0.2.2
[vagrant@server ~]$ su - aaamishina
su: user aaamishina does not exist or the user entry does not contain all the required fields
[vagrant@server ~]$ logout
Connection to 127.0.0.1 closed.

C:\work\aaamishina>vagrant ssh client
==> client: The machine you're attempting to SSH into is configured to use
==> client: password-based authentication. Vagrant can't script entering the
==> client: password for you. If you're prompted for a password, please enter
==> client: the same password you have configured in the Vagrantfile.
vagrant@127.0.0.1's password:
Last login: Thu Sep  5 01:03:21 2024
[vagrant@client ~]$ su - aaamishina
su: user aaamishina does not exist or the user entry does not contain all the required fields
[vagrant@client ~]$ logout
Connection to 127.0.0.1 closed.

C:\work\aaamishina>vagrant halt server
==> server: Attempting graceful shutdown of VM...

C:\work\aaamishina>vagrant halt client
==> client: Attempting graceful shutdown of VM...

C:\work\aaamishina>vagrant>
```

Рис. 8: Подключение к серверу и клиенту, переход к пользователю, отключение ВМ

Внесение изменений в настройки внутреннего окружения виртуальной машины

Изменения для внутренних настроек VM

```
C:\work\aaamishina\vagrant>vagrant up server --provision
Bringing machine 'server' up with 'virtualbox' provider...
==> server: You assigned a static IP ending in ".1" to this machine.
==> server: This is very often used by the router and can cause the
==> server: network to not work properly. If the network doesn't work
==> server: properly, try changing this IP.
==> server: You assigned a static IP ending in ".1" to this machine.
==> server: This is very often used by the router and can cause the
==> server: network to not work properly. If the network doesn't work
==> server: properly, try changing this IP.
==> server: Clearing any previously set forwarded ports...
==> server: Clearing any previously set network interfaces...
==> server: Preparing network interfaces based on configuration...
      server: Adapter 1: nat
      server: Adapter 2: intnet
==> server: Forwarding ports...
      server: 22 (guest) => 2222 (host) (adapter 1)
==> server: Running 'pre-boot' VM customizations...
==> server: Booting VM...
-
```

Рис. 9: Фиксируем изменения в VM Server

Изменения для внутренних настроек ВМ

```
C:\work\aaamishina\vagrant>vagrant up client --provision
Bringing machine 'client' up with 'virtualbox' provider...
==> client: Clearing any previously set forwarded ports...
==> client: Fixed port collision for 22 => 2222. Now on port 2200.
==> client: Clearing any previously set network interfaces...
==> client: Preparing network interfaces based on configuration...
      client: Adapter 1: nat
      client: Adapter 2: intnet
==> client: Forwarding ports...
      client: 22 (guest) => 2200 (host) (adapter 1)
==> client: Running 'pre-boot' VM customizations...
==> client: Booting VM...
```

Рис. 10: Фиксируем изменения в ВМ Client

Логин

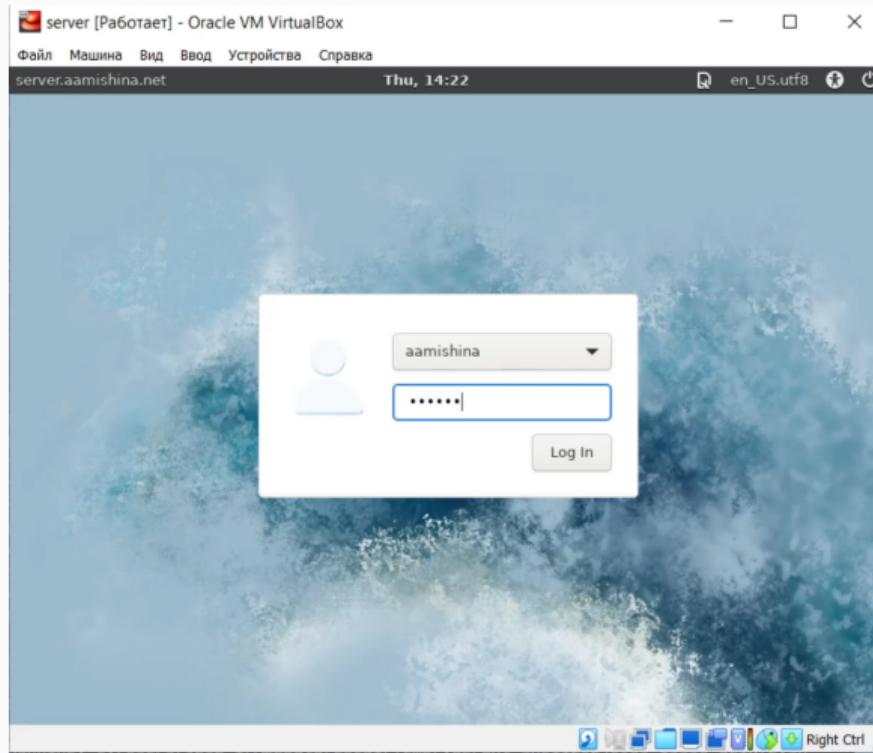


Рис. 11: Логинимся в ВМ Server

Логин

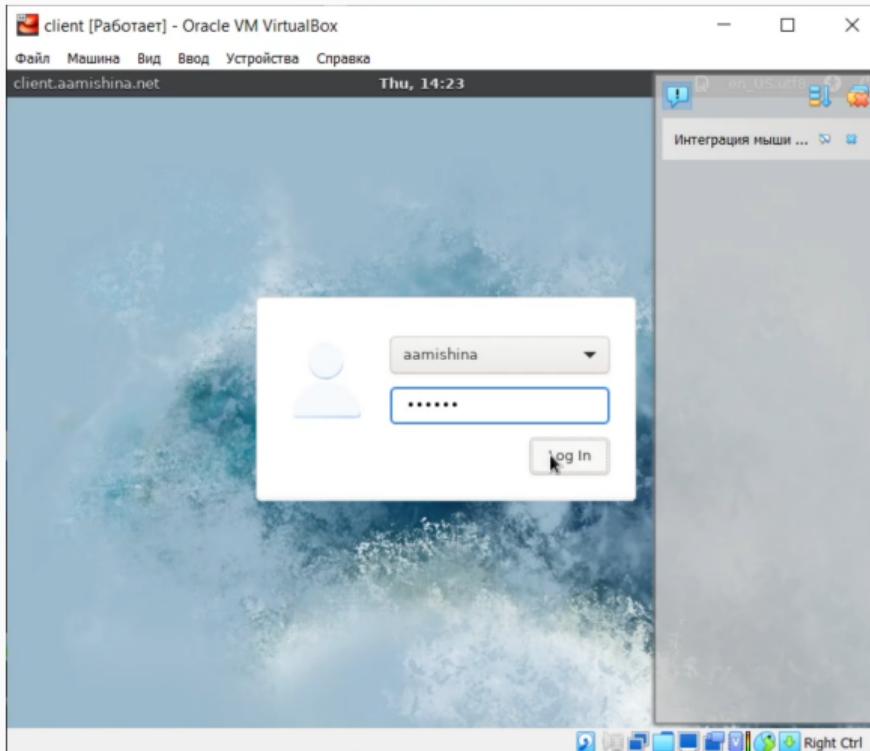


Рис. 12: Логинимся в BM Client

Проверка приглашений

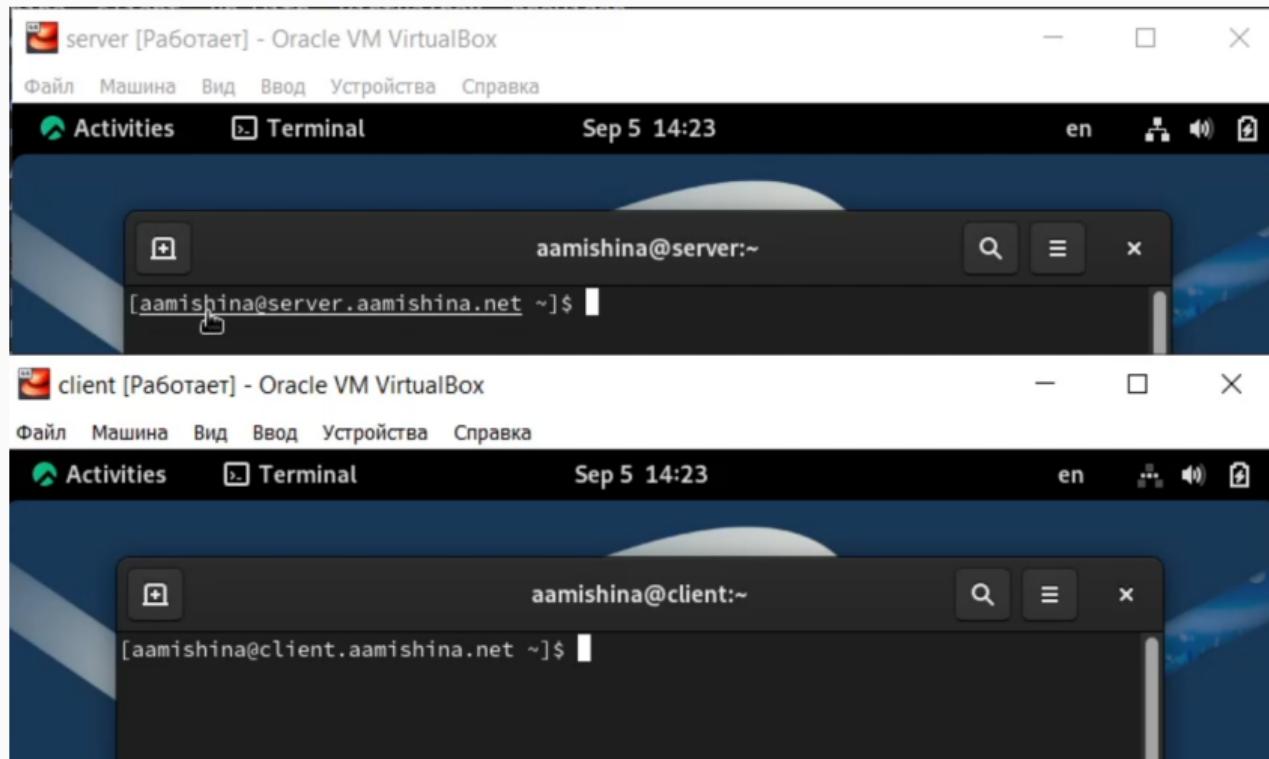


Рис. 13: Приглашения в терминале

Выключение ВМ

```
C:\work\aaamishina\vagrant>vagrant halt server  
==> server: Attempting graceful shutdown of VM...  
  
C:\work\aaamishina\vagrant>vagrant halt client  
==> client: Attempting graceful shutdown of VM...  
  
C:\work\aaamishina\vagrant>
```

Рис. 14: Выключение виртуальных машин

Копирование файлов

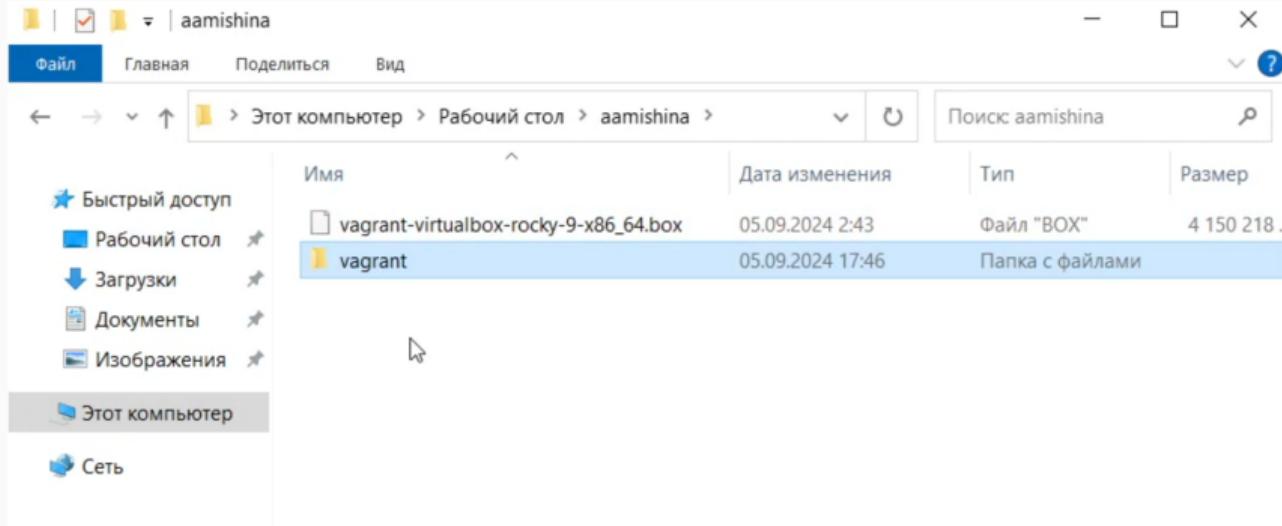


Рис. 15: Копирование файлов

Вывод

- В ходе выполнения данной лабораторной работы я приобрела практические навыки установки Rocky Linux на виртуальную машину с помощью инструмента Vagrant.