

Лабораторная работа №1

Дисциплина: Администрирование сетевых подсистем

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Раздел 1

1. Цель работы

1.1 Цель работы

- Приобретение практических навыков установки Rocky Linux на виртуальную машину с использованием Vagrant

Раздел 2

2. Выполнение лабораторной работы

2.1 Конфигурационные файлы

- Созданы каталоги C:\work\alkamal\packer и C:\work\alkamal\vagrant
- Подготовлена структура для сборки box-файла

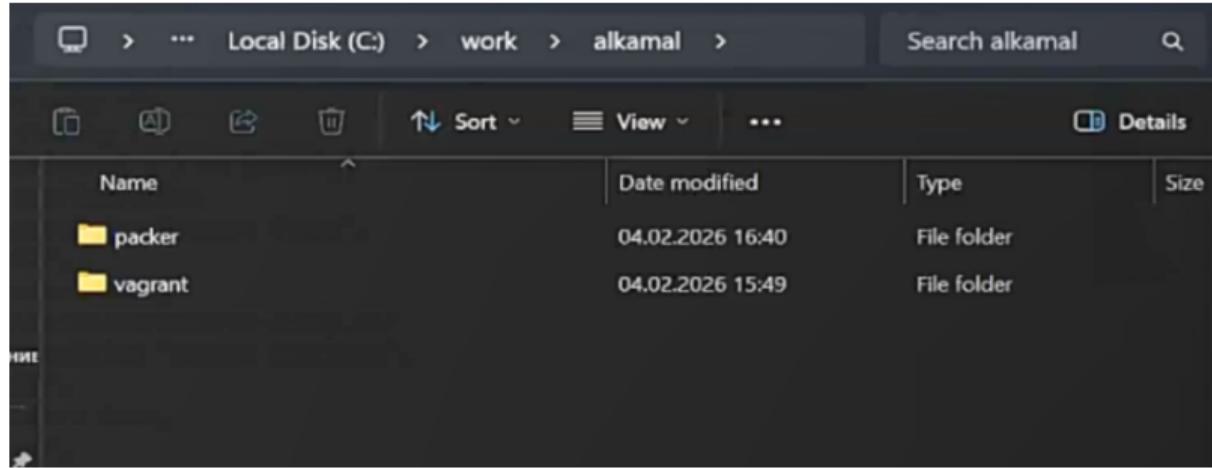


Рисунок 1: Структура рабочего каталога с подкаталогами packer и vagrant

- В каталоге packer размещены ISO-образ, packer.exe, HCL-файл и каталог http
- Структура соответствует требованиям проекта

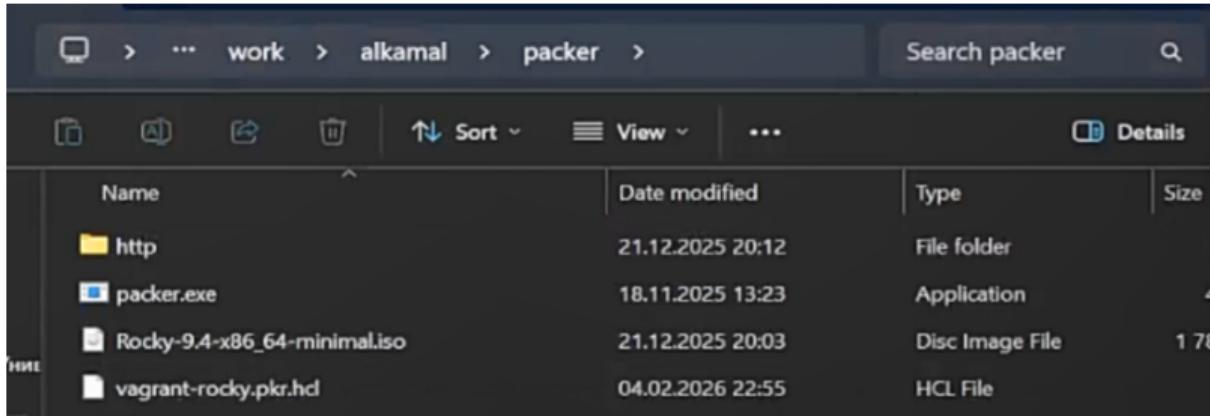


Рисунок 2: Содержимое каталога packer с ISO-образом и HCL-файлом

- Файл `vagrant-rocky.pkr.hcl` содержит блок `packer` и `required_plugins`
- Заданы переменные версии, диска, ISO, архитектуры и SSH
- В каталоге `http` размещён файл `ks.cfg`
- Определены параметры автоматической установки

```
C: > work > alkamal > packer > vagrant-rocky.pkr.hcl
1  packer {
2    required_plugins {
3      vagrant = {
4        source = "github.com/hashicorp/vagrant"
5        version = "~> 1"
6      }
7      virtualbox = {
8        version = "~> 1"
9        source = "github.com/hashicorp/virtualbox"
10       }
11     }
12   }
13   variable "artifact_description" {
14     type = string
15     default = "Rocky 9.4"
16   }
17   variable "artifact_version" {
18     type = string
19     default = "9.4"
20   }
21   variable "disk_size" {
22     type = string
23     default = "61440"
24   }
25   variable "iso_checksum" {
26     type = string
27     default = "ee3ac97fdffab58652421941599902012179c37535aece76824673105169c4a2"
28   }
29   variable "iso_checksum_type" {
30     type = string
31     default = "sha256"
32   }
33   variable "iso_url" {
```

```
C: > work > alkamal > packer > http > ks.cfg
 1  # System bootloader configuration
 2  bootloader --append="no_timer_check console=tty0 console=ttyS0,115200n8net.ifnames=0
 3  # Clear the Master Boot Record
 4  zerombr
 5  # Partition clearing information
 6  clearpart --all
 7  # Reboot after installation
 8  reboot
 9  # Use text mode install
10  text
11  # Keyboard layouts
12  keyboard --vckeymap=us,ru --xlayouts='us,ru'
13  # System language
14  lang en_US.UTF-8
15  # Network information
16  network --bootproto=dhcp --device=link --activate
17  # System authorization information
18  authselect select sssd with-sudo with-mkhomedir --force
19  authselect apply-changes
20  # Root password
21  rootpw vagrant
22  user --name=vagrant --password=vagrant
23  firstboot --disable
24  # Do not configure the X Window System
25  #skipx
26  # System services
27  services --enabled="NetworkManager,sshd,chrony"
28  # System timezone
29  timezone UTC --utc
30  user --name=vagrant --password=vagrant
31  # Disk partitioning information
32  part / --fstype="xfs" --size=10239
33  %post
34  # configure swap to a file
35  fallocate -l 2G /swapfile
36  chmod 600 /swapfile
37  mkswap /swapfile
38  echo "/swapfile none swap defaults 0 0" >> /etc/fstab
39  # sudo
40  echo "%vagrant ALL=(ALL) NOPASSWD: ALL" > /etc/sudoers.d/vagrant
41  chmod 0440 /etc/sudoers.d/vagrant
42  # Fix for https://github.com/CentOS/sig-cloud-instance-build/issues/38
43  cat > /etc/sysconfig/network-scripts/ifcfg-eth0 << EOF
44  DEVICE="eth0"
45  BOOTPROTO="dhcp"
46  ONBOOT="yes"
47  TYPE="Ethernet"
```



- В каталоге vagrant создан файл Vagrantfile
 - Определена VM server с box rocky9
 - Настроены IP 192.168.1.1 и параметры VirtualBox
 - Создан каталог provision с подкаталогами default, server, client

```
C: > work > alkalmal > vagrant > Vagrantfile
 1  # -*- mode: ruby -*-
 2  # vi: set ft=ruby :
 3  Vagrant.configure("2") do |config|
 4    ## Common configuration
 5    config.vm.provision "common dummy",
 6      type: "shell",
 7      preserve_order: true,
 8      path: "provision/default/01-dummy.sh"
 9    config.vm.provision "common hostname",
10      type: "shell",
11      preserve_order: true,
12      run: "always",
13      path: "provision/default/01-hostname.sh"
14    config.vm.provision "common user",
15      type: "shell",
16      preserve_order: true,
17      path: "provision/default/01-user.sh"
18
19    ## Server configuration
20    config.vm.define "server", autostart: false do |server|
21      server.vm.box = "rocky9"
22      server.vm.hostname = 'server'
23      server.vm.boot_timeout = 1440
24      server.ssh.insert_key = false
25      server.ssh.username = 'vagrant'
26      server.ssh.password = 'vagrant'
27      server.vm.network :private_network,
28        ip: "192.168.1.1",
29        virtualbox__intnet: true
30      server.vm.provision "server dummy",
31        type: "shell",
32        preserve_order: true,
33        path: "provision/server/01-dummy.sh"
34      server.vm.provider :virtualbox do |v|
35        v.linked_clone = true
36      # Customizing the amount of memory on the VM
37    end
38  end
```

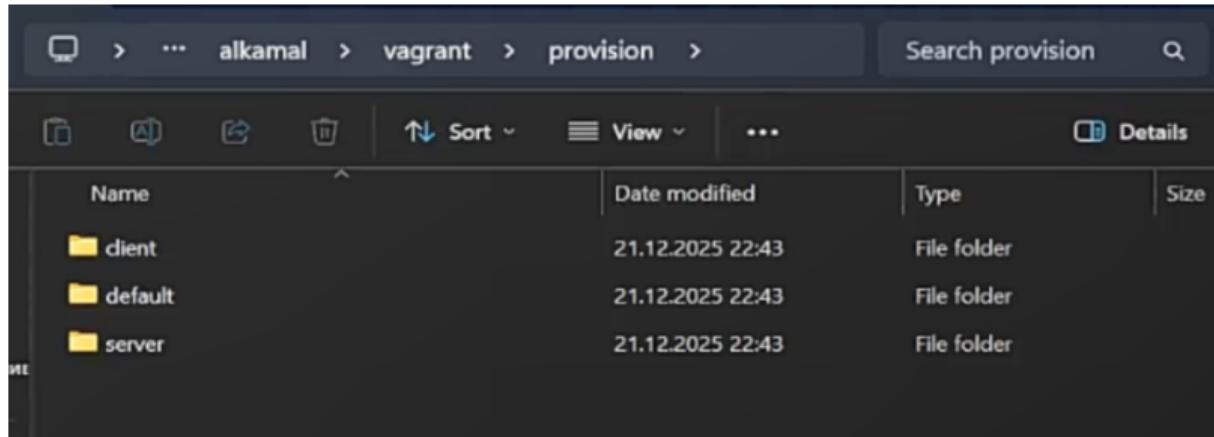
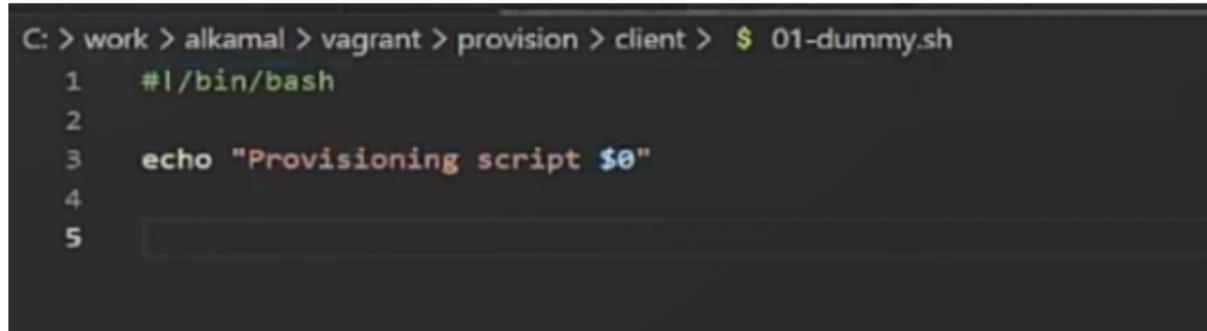


Рисунок 6: Структура каталога provision с подкаталогами default, server и client

- В каталогах размещены скрипты-заглушки 01-dummy.sh



```
C: > work > alkamal > vagrant > provision > client > $ 01-dummy.sh
1  #!/bin/bash
2
3  echo "Provisioning script $0"
4
5
```

Рисунок 7: Скрипты-заглушки 01-dummy.sh в каталогах default, server и client

```
C: > work > alkamal > vagrant > provision > default > $ 01-dummy.sh
1  #!/bin/bash
2
3  echo "Provisioning script $0"
4
```

Рисунок 8: Скрипты-заглушки 01-dummy.sh в каталогах default, server и client

```
C: > work > alkamal > vagrant > provision > server > $ 01-dummy.sh
1  #!/bin/bash
2
3  echo "Provisioning script $0"
4
```

Рисунок 9: Скрипты-заглушки 01-dummy.sh в каталогах default, server и client

- В default добавлен 01-user.sh
- Создание пользователя alkamal
- Добавление в группу wheel
- Настройка PS1

```
C: > work > alkamal > vagrant > provision > default > $ 01-user.sh
1  #!/bin/bash
2  echo "Provisioning script $0"
3  username=alkamal
4  userpassword=123456
5  encpassword=`openssl passwd -1 ${userpassword}`
6  id -u $username
7  if [[ $? ]]
8  then
9    adduser -G wheel -p ${encpassword} ${username}
10   homedir=`getent passwd ${username} | cut -d: -f6`
11   echo "export PS1='[\u@\H \W]\$\'' >> ${homedir}/.bashrc
12 fi
13
```

Рисунок 10: Скрипт 01-user.sh для создания пользователя и настройки окружения

- В default добавлен 01-hostname.sh
- Установка FQDN вида *.alkamal.net

```
C: > work > alkamal > vagrant > provision > default > $ 01-hostname.sh
1  #!/bin/bash
2
3  username=alkamal
4  hostnamectl set-hostname "${HOSTNAME%%.*}}.${username}.net
```

Рисунок 11: Скрипт 01-hostname.sh для установки доменного имени хоста

- В server размещён 02-forward.sh
- Включение IP-forwarding
- Настройка masquerading через firewalld

```
C: > work > alkamal > vagrant > provision > server > $ 02-forward.sh
1  #!/bin/bash
2  echo "Provisioning script $0"
3  echo "Enable forwarding"
4  echo "net.ipv4.ip_forward = 1" > /etc/sysctl.d/90-forward.conf
5  sysctl -w net.ipv4.ip_forward=1
6  echo "Configure masquerading"
7  firewall-cmd --add-masquerade --permanent
8  firewall-cmd --reload
9  restorecon -vR /etc
10
```

Рисунок 12: Скрипт 02-forward.sh для включения IP-forwarding и masquerading

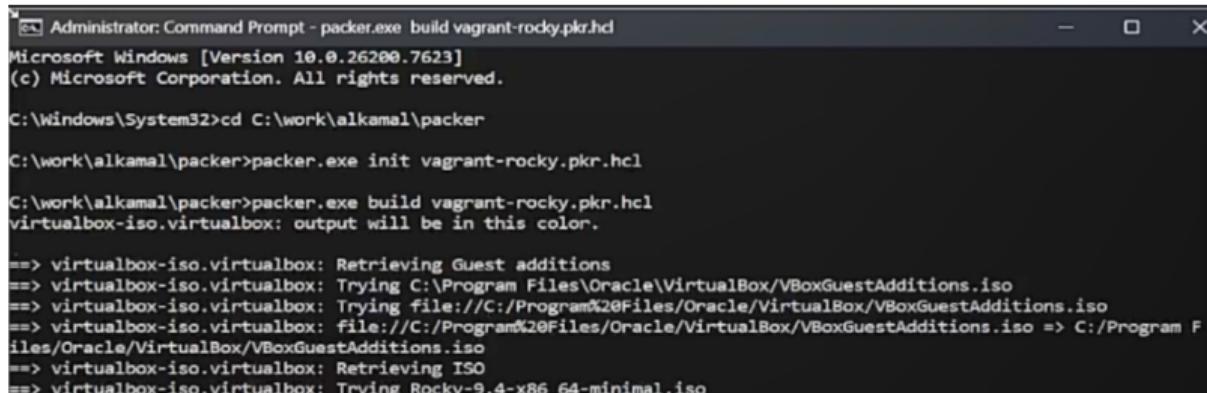
- В client размещён 01-routing.sh
- Настройка шлюза 192.168.1.1
- Конфигурация интерфейсов через nmcli

```
C: > work > alkamal > vagrant > provision > client > $ 01-routing.sh
1  !/bin/bash
2  echo "Provisioning script $0"
3  nmcli connection modify "System eth1" ipv4.gateway "192.168.1.1"
4  nmcli connection up "System eth1"
5  nmcli connection modify eth0 ipv4.never-default true
6  nmcli connection modify eth0 ipv6.never-default true
7  nmcli connection down eth0
8  nmcli connection up eth0
9
```

Рисунок 13: Скрипт 01-routing.sh для настройки маршрутизации клиента

2.2 Развёртывание лабораторного стенда на ОС Windows

- Выполнены packer.exe init и packer.exe build
- Произведена автоматическая установка Rocky Linux
- Сформирован box-файл



```
Administrator: Command Prompt - packer.exe build vagrant-rocky.pkr.hcl
Microsoft Windows [Version 10.0.26200.7623]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>cd C:\work\alkamal\packer

C:\work\alkamal\packer>packer.exe init vagrant-rocky.pkr.hcl
C:\work\alkamal\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 F
iles/Oracle/VirtualBox/VBoxGuestAdditions.iso
=> virtualbox-iso.virtualbox: Retrieving ISO
=> virtualbox-iso.virtualbox: Trying Rocky-9.4-x86_64-minimal.iso
```

Рисунок 14: Выполнение команд packer.exe init и packer.exe build

- Создан файл `vagrant-virtualbox-rocky-9-x86_64.box`
- Подтверждена корректная сборка образа

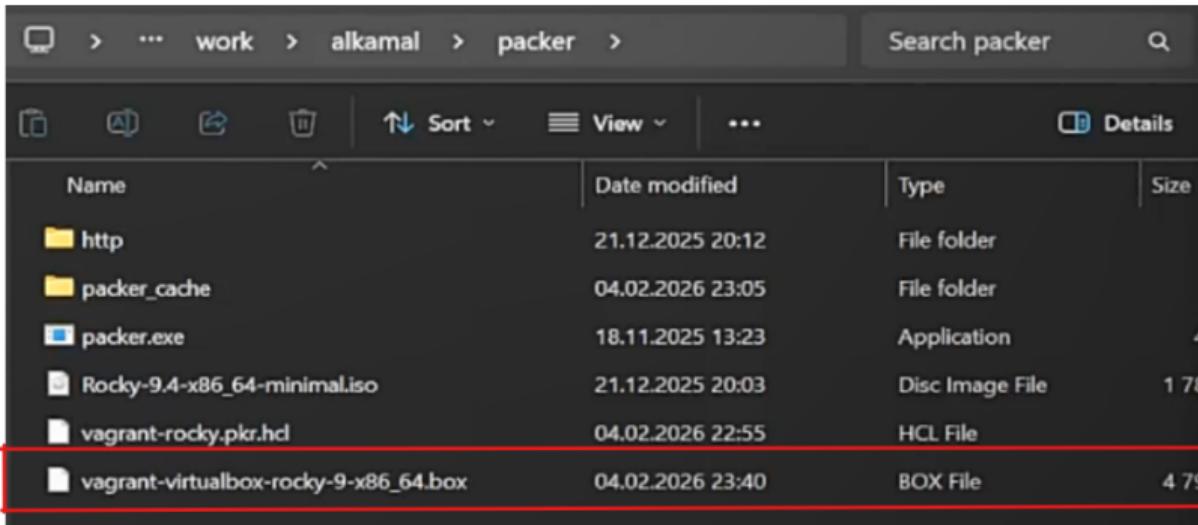


Рисунок 15: Сформированный box-файл `vagrant-virtualbox-rocky-9-x86_64.box`

- Выполнена регистрация box через vagrant box add rocky9
- Образ добавлен под именем rocky9

```
C:\work\alkamal\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: (amd64)
box: Unpacking necessary files from: file:///C:/work/alkamal/packer/vagrant-virtualbox-rocky-9-x86_64.box
box:
```

Рисунок 16: Регистрация box-файла в Vagrant

- Запуск vagrant up server
- Инициализация сети и provisioning

```
C:\work\alkamal\vagrant>vagrant up server
Bringing machine 'server' up with 'virtualbox' provider...
=> server: You assigned a static IP ending in ".1" or ":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" or ":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...
=> server: Waiting for machine to boot. This may take a few minutes...
server: SSH address: 127.0.0.1:2222
server: SSH username: vagrant
server: SSH auth method: password
=> server: Machine booted and ready!
=> server: Checking for guest additions in VM...
=> server: Setting hostname...
=> server: Configuring and enabling network interfaces...
=> server: Mounting shared folders...
server: C:/work/alkamal/vagrant => /vagrant
=> server: Machine already provisioned. Run 'vagrant provision' or use the '--provision'
=> server: flag to force provisioning. Provisioners marked to run always will still run.
=> server: Running provisioner: common_hostname (shell)...
server: Running: C:/Users/EBRAHIM/AppData/Local/Temp/vagrant-shell120260206-26712-p9lxpn.sh
```

Рисунок 17: Запуск виртуальной машины server через vagrant up

- Запуск vagrant up client
- Настройка сетевых адаптеров
- Подключение по SSH

```
C:\work\alkamal\vagrant>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...
-> client: Waiting for machine to boot. This may take a few minutes...
  client: SSH address: 127.0.0.1:2200
  client: SSH username: vagrant
  client: SSH auth method: password
-> client: Machine booted and ready!
-> client: Checking for guest additions in VM...
  client: No guest additions were detected on the base box for this VM! Guest
  client: additions are required for forwarded ports, shared folders, host only
  client: networking, and more. If SSH fails on this machine, please install
  client: the guest additions and repackage the box to continue.
  client:
    client: This is not an error message; everything may continue to work properly.
    client: in which case you may ignore this message.
-> client: Setting hostname...
-> client: Configuring and enabling network interfaces...
-> client: Mounting shared folders...
  client: C:/work/alkamal/vagrant => /vagrant
Vagrant was unable to mount VirtualBox shared folders. This is usually
because the filesystem "vboxsf" is not available. This filesystem is
made available via the VirtualBox Guest Additions and kernel module.
Please verify that these guest additions are properly installed in the
guest. This is not a bug in Vagrant and is usually caused by a faulty
Vagrant box. For context, the command attempted was:
```



- Обе ВМ успешно загружены в VirtualBox
- Выполнен вход под пользователем vagrant

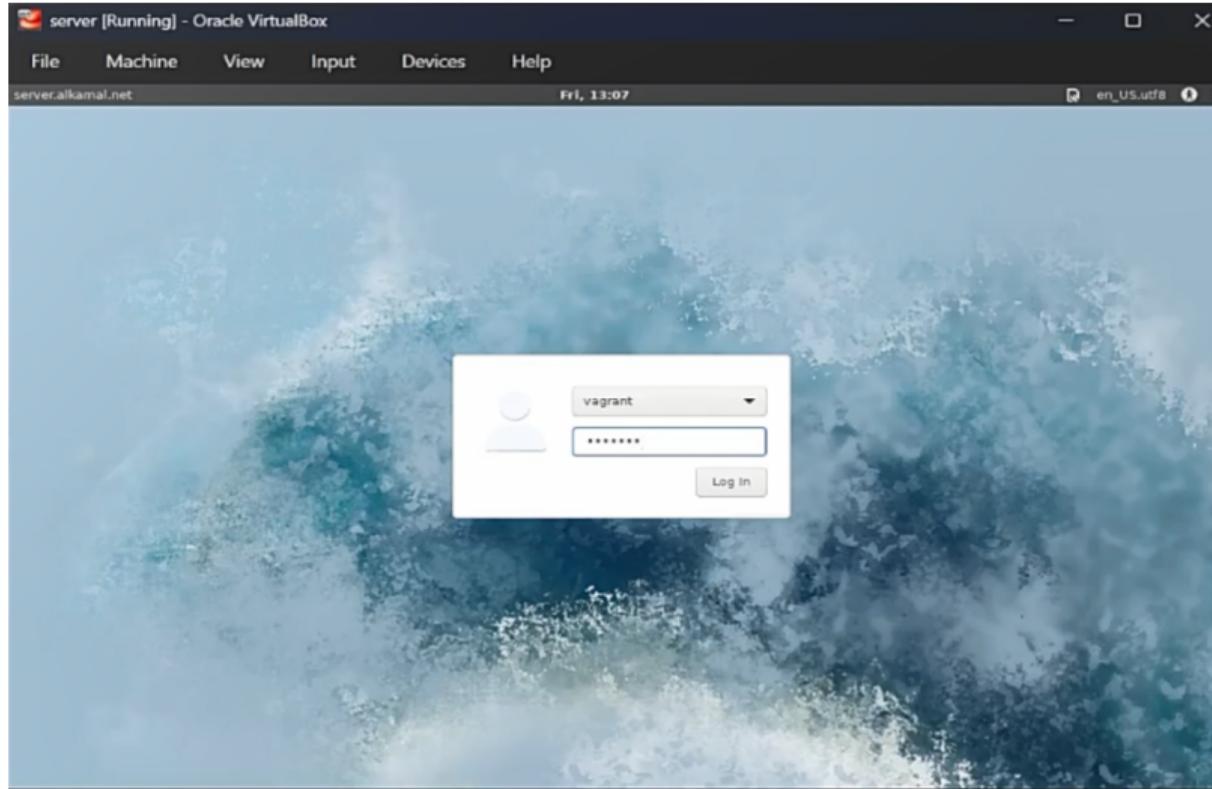


Рисунок 19: Графический вход в систему на виртуальной машине server

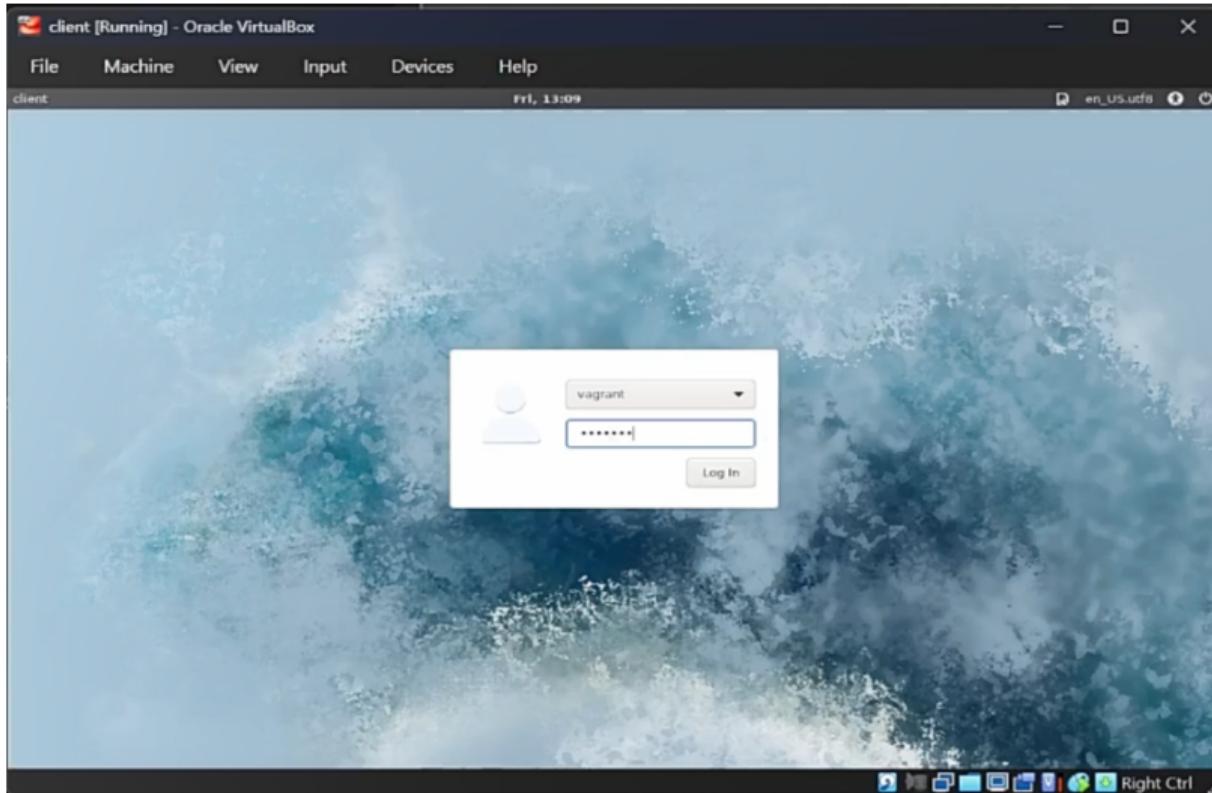


Рисунок 20: Графический вход в систему на виртуальной машине client

- Подключение через vagrant ssh server
- Переход к пользователю alkamal
- Аналогичное подключение к клиенту

```
C:\work\alkamal>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: Fri Feb  6 13:07:21 2026
[vagrant@server ~]$ su - alkamal
Password:
[alkamal@server.alkamal.net ~]$ logout
[vagrant@server ~]$ exit
logout
```

Рисунок 21: Подключение по SSH к server и переход к пользователю alkamal

```
C:\work\alkamal\vagrant>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: Fri Feb  6 13:29:46 2026
[vagrant@client ~]$ su - alkamal
Password:
[alkamal@client.alkamal.net ~]$ logout
[vagrant@client ~]$ su - alkamal
Password:
Last login: Fri Feb  6 13:31:20 UTC 2026 on pts/0
[alkamal@client.alkamal.net ~]$ logout
[vagrant@client ~]$ exit
logout
```

Рисунок 22: Подключение по SSH к client и переход к пользователю alkamal

- Выполнены `vagrant halt server` и `vagrant halt client`
- Корректное завершение работы ВМ

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

Рисунок 23: Остановка виртуальных машин `server` и `client`

2.3 Внесение изменений в настройки внутреннего окружения виртуальной машины

- В Vagrantfile добавлены блоки common user и common hostname
- Обеспечено выполнение 01-user.sh и 01-hostname.sh

```
C: > work > alkamal > vagrant > Vagrantfile
1  # -*- mode: ruby -*-
2  # vi: set ft=ruby :
3  Vagrant.configure("2") do |config|
4      ## Common configuration
5      config.vm.provision "common dummy",
6          type: "shell",
7          preserve_order: true,
8          path: "provision/default/01-dummy.sh"
9      config.vm.provision "common user",
10         type: "shell",
11         preserve_order: true,
12         path: "provision/default/01-user.sh"
13     config.vm.provision "common hostname",
14         type: "shell",
15         preserve_order: true,
16         run: "always",
17         path: "provision/default/01-hostname.sh"
18
```

Рисунок 24: Фрагмент Vagrantfile с блоками common user и common hostname

- Выполнены vagrant up --provision для server и client
- Повторный запуск provisioning
- Подтверждено существование пользователя alkamal

```
C:\work\alkamal\vagrant>vagrant up server --provision
Bringing machine 'server' up with 'virtualbox' provider...
==> server: You assigned a static IP ending in ".1" or ":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" or ":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...
==> server: Waiting for machine to boot. This may take a few minutes...
server: SSH address: 127.0.0.1:2222
server: SSH username: vagrant
server: SSH auth method: password
==> server: Machine booted and ready!
==> server: Checking for guest additions in VM...
==> server: Setting hostname...
==> server: Configuring and enabling network interfaces...
==> server: Mounting shared folders...
server: C:/work/alkamal/vagrant -> /vagrant
==> server: Running provisioner: common dummy (shell)...
server: Running: C:/Users/EBRAHIM/AppData/Local/Temp/vagrant-shell20260206-12488-1jrrnr.sh
server: Provisioning script /tmp/vagrant-shell
==> server: Running provisioner: common user (shell)...
server: Running: C:/Users/EBRAHIM/AppData/Local/Temp/vagrant-shell20260206-12488-52bde7.sh
server: Provisioning script /tmp/vagrant-shell
server: 100%
server: adduser: user 'alkamal' already exists
==> server: Running provisioner: common hostname (shell)...
server: Running: C:/Users/EBRAHIM/AppData/Local/Temp/vagrant-shell20260206-12488-ubwn21.sh
```

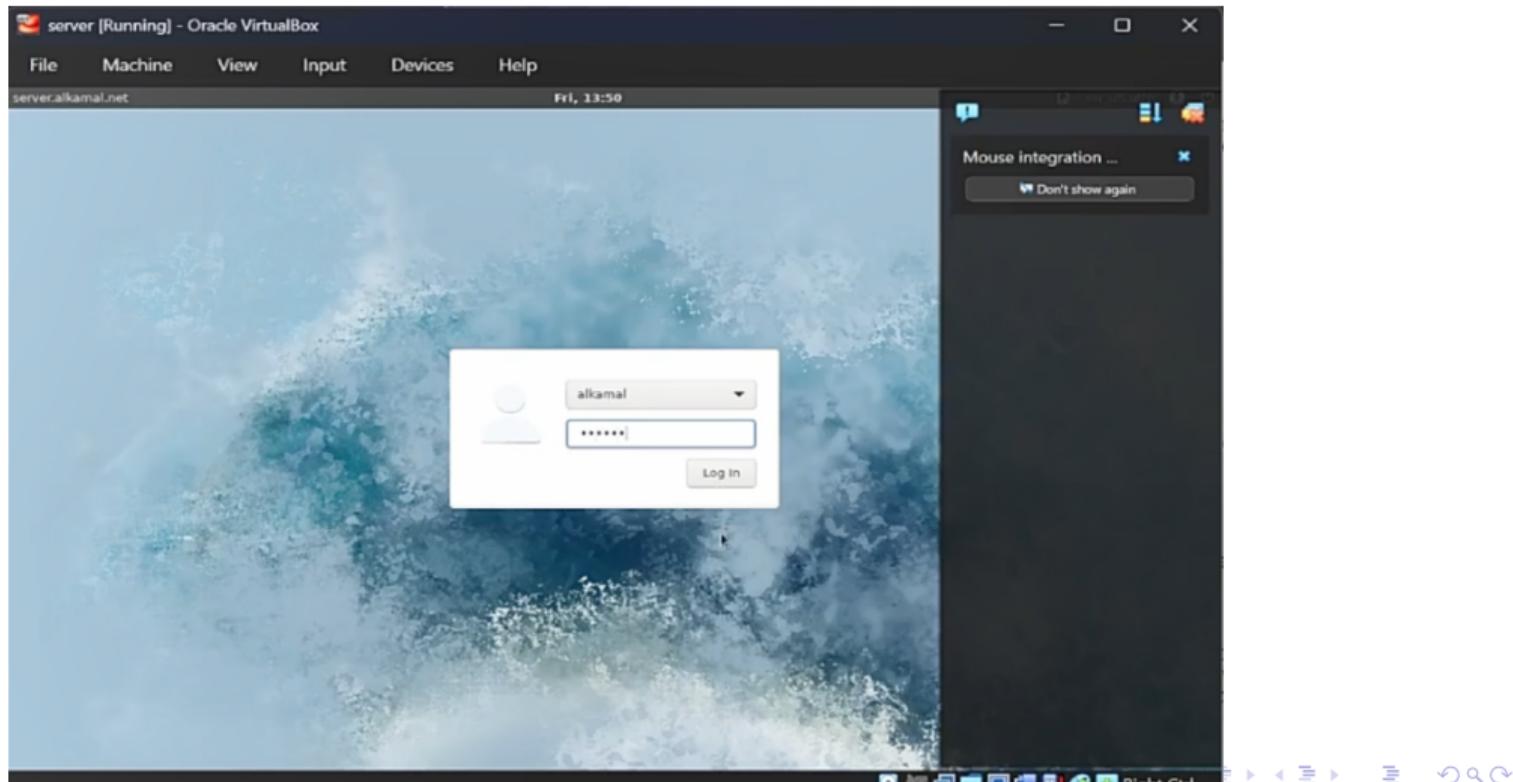


```
C:\work\alkamal\vagrant>vagrant up client --provision
Bringing machine `client` up with `virtualbox` provider...
--> client: Clearing any previously set forwarded ports...
--> client: Fixed port collision for 22 => 2222. Now on port 2200.
--> client: Clearing any previously set network interfaces...
--> 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...
--> client: Waiting for machine to boot. This may take a few minutes...
   client: SSH address: 127.0.0.1:2200
   client: SSH username: vagrant
   client: SSH auth method: password
   client: Warning: Remote connection disconnect. Retrying...
   client: Warning: Remote connection disconnect. Retrying...
--> client: Machine booted and ready!
--> client: Checking for guest additions in VM...
--> client: Setting hostname...
--> client: Configuring and enabling network interfaces...
--> client: Mounting shared folders...
   client: C:/work/alkamal/vagrant => /vagrant
--> client: Running provisioner: common dummy (shell)...
   client: Running: C:/Users/EBRAHIMI/AppData/Local/Temp/vagrant-shell20260206-21276-71b3n9.sh
   client: Provisioning script /tmp/vagrant-shell
--> client: Running provisioner: common user (shell)...
   client: Running: C:/Users/EBRAHIMI/AppData/Local/Temp/vagrant-shell20260206-21276-y7parv.sh
   client: Provisioning script /tmp/vagrant-shell
   client: 1001
   client: adduser: user 'alkamal' already exists
--> client: Running provisioner: common hostname (shell)...
   client: Running: C:/Users/EBRAHIMI/AppData/Local/Temp/vagrant-shell20260206-21276-kiwsr9.sh
--> client: Running provisioner: client dummy (shell)...
   client: Running: C:/Users/EBRAHIMI/AppData/Local/Temp/vagrant-shell20260206-21276-62xg2e.sh
   client: Provisioning script /tmp/vagrant-shell
--> client: Running provisioner: client routing (shell)...
   client: Running: C:/Users/EBRAHIMI/AppData/Local/Temp/vagrant-shell20260206-21276-d3ryhn.sh
   client: /tmp/vagrant-shell: line 1: !/bin/bash: No such file or directory
   client: Provisioning script /tmp/vagrant-shell
   client: Error: Failed to modify connection 'System eth1': ipv4.gateway: gateway cannot be set if there are no addresses configured
   client: Error: Connection activation failed: IP configuration could not be reserved (no available address, timeout, etc.
   client: Hint: use 'journalctl -xe NM_CONNECTION=9c92fad9-6ecb-3e6c-eb4d-8a47c6f50c04 + NM_DEVICE=eth1' to get more details
)
   client: Connection 'eth0' successfully deactivated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/0)
   client: Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/7)
```

Рисунок 26: Повторный запуск client с ключом –provision



- Выполнен вход под пользователем alkamal
- Проверено отображение FQDN в приглашении терминала
- Подтверждена корректная настройка hostname



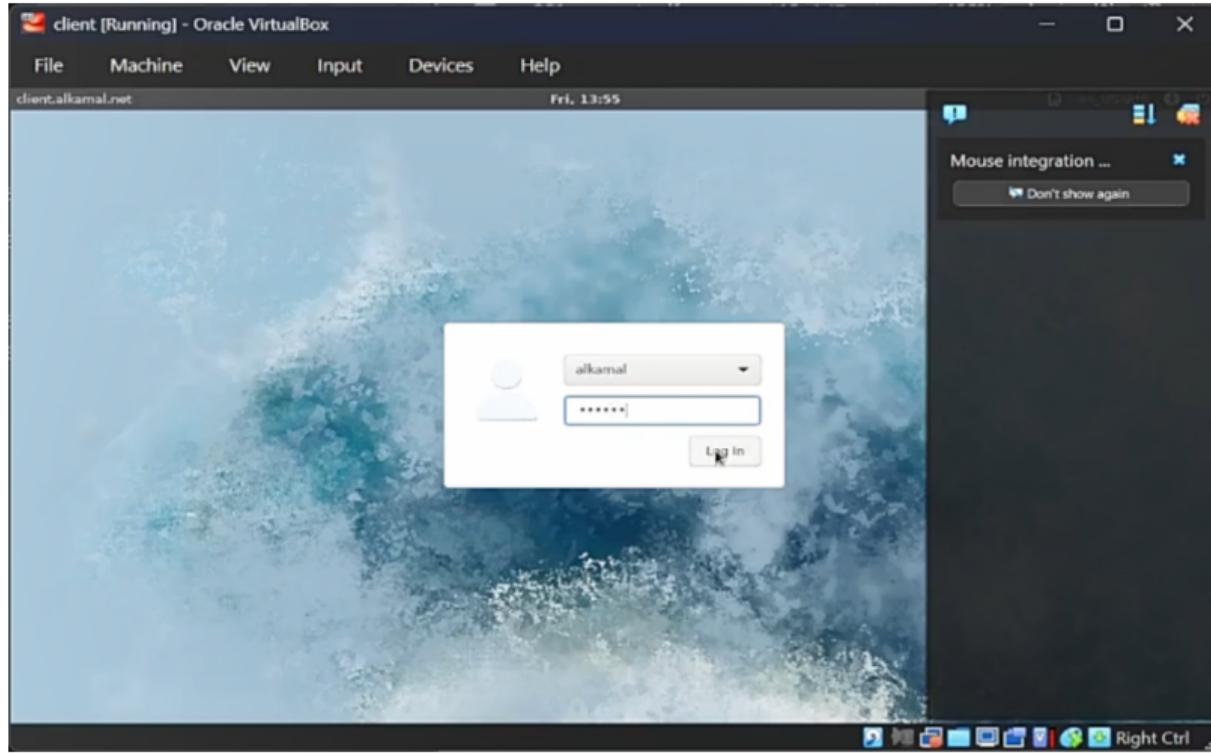


Рисунок 28: Графический вход под пользователем alkamal на клиенте

```
C:\work\alkamal\vagrant>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: Fri Feb  6 13:30:28 2026 from 10.0.2.2
[vagrant@server ~]$ su - alkamal
Password:
su: Authentication failure
[vagrant@server ~]$ su - alkamal
Password:
Last login: Fri Feb  6 13:50:24 UTC 2026 on :0
Last failed login: Fri Feb  6 13:55:32 UTC 2026 on pts/1
There was 1 failed login attempt since the last successful login.
[alkamal@server.alkamal.net ~]$ logout
[vagrant@server ~]$ exit
logout

C:\work\alkamal\vagrant>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 failed login: Fri Feb  6 13:54:52 UTC 2026 from 10.0.2.2 on ssh:netty
There were 432 failed login attempts since the last successful login.
Last login: Fri Feb  6 13:31:07 2026 from 10.0.2.2
[vagrant@client ~]$ su - alkamal
Password:
Last login: Fri Feb  6 13:55:11 UTC 2026 on :0
[alkamal@client.alkamal.net ~]$ logout
[vagrant@client ~]$ exit
logout
```

Рисунок 29: Проверка SSH-подключения и отображения приглашения пользователя

Раздел 3

3. Выводы

3.1 Выводы

- Выполнена автоматическая сборка box-файла Rocky Linux через Packer
- Зарегистрирован образ в Vagrant
- Развёрнуты виртуальные машины server и client
- Применены provisioning-скрипты
- Настроены пользователь и hostname
- Подтверждена работа SSH и сетевых параметров
- Лабораторный стенд успешно подготовлен к дальнейшей работе