

# Лабораторная работа 1

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## Цель работы

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

## Задание

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3. Внесите изменения в настройки загрузки образов виртуальных машин server и client, добавив пользователя с правами администратора и изменив названия хостов (см. раздел 1.4.4).

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4. Скопируйте необходимые для работы с Vagrant файлы и box-файлы виртуальных машин на внешний носитель. Используя эти файлы, вы можете попробовать развернуть виртуальные машины на другом компьютере.



## Выполнение

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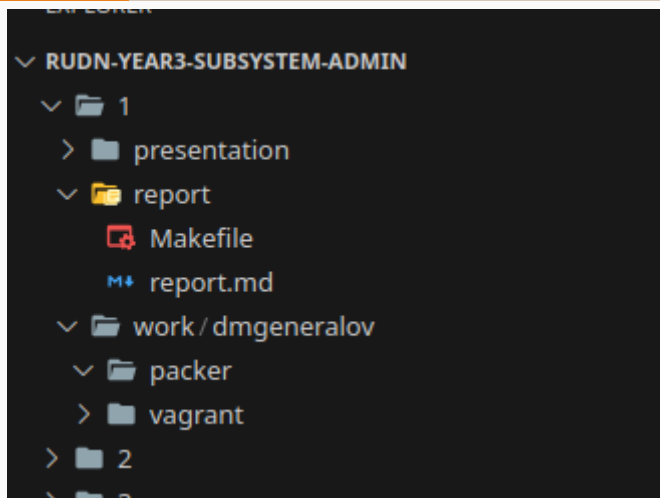


Рис. 1: git

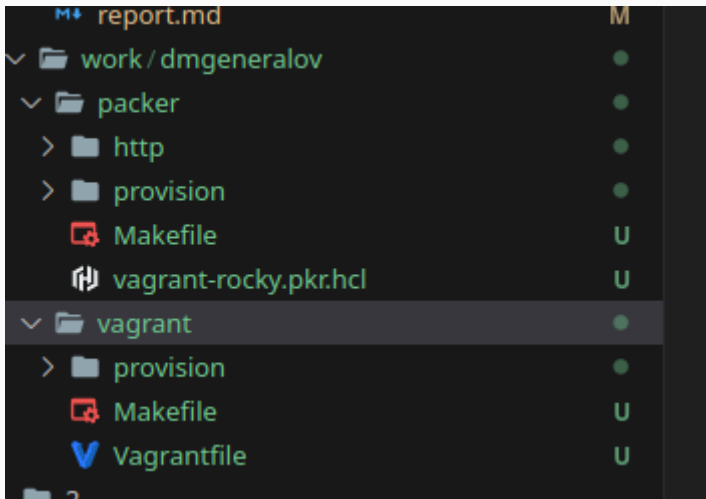


Рис. 2: git

```
[danya@archlinux packer]$ make init
Installed plugin github.com/hashicorp/vagrant v1.1.1 in "/home/danya/Documents/university/rudn-year3-subsystem-admin/1/work/dmgeneralov/packer/.config/packer/plugins/github.com/hashicorp/vagrant/packer-plugin-vagrant_v1.1.1_x5.0_linux_amd64"
[danya@archlinux packer]$ make box
Warning: Bundled plugins used

This template relies on the use of plugins bundled into the Packer binary.
The practice of bundling external plugins into Packer will be removed in an
upcoming version.

To remove this warning, add the following section to your template:

packer {
  required_plugins {
    vagrant = {
      source   = "github.com/hashicorp/vagrant"
      version  = "~> 1"
    }
  }
}

Then run 'packer init' to manage installation of the plugins

Error: failed loading shell

on vagrant-rocky.pkr.hcl line 101:
(source code not available)

Unrecognized remote plugin message: Error starting plugin server: listen unix
/home/danya/Documents/university/rudn-year3-subsystem-admin/1/work/dmgeneralov/packer/packer-plugin2922764540:
bind: invalid argument

make: *** [Makefile:12: box] Error 1
[danya@archlinux packer]$
```

Ln 5, Col 23 Spaces: 2

Рис. 3: packer

```
[pid 16182] +++ exited with 1 +++
[pid 16181] +++ exited with 1 +++
+++ exited with 1 +++
[danya@archlinux packer]$ cd ..
[danya@archlinux dmgeneralov]$ cp -R packer/ /tmp
[danya@archlinux dmgeneralov]$ cd /tmp/packer/
[danya@archlinux packer]$ ls
http Makefile packer-plugin-3759899976.zip provision Rocky-9.2-x86_64-minimal.iso vagrant-rocky.pkr.hcl
[danya@archlinux packer]$ make box
Warning: Bundled plugins used
```

This template relies on the use of plugins bundled into the Packer binary.  
The practice of bundling external plugins into Packer will be removed in an upcoming version.

To remove this warning, add the following section to your template:

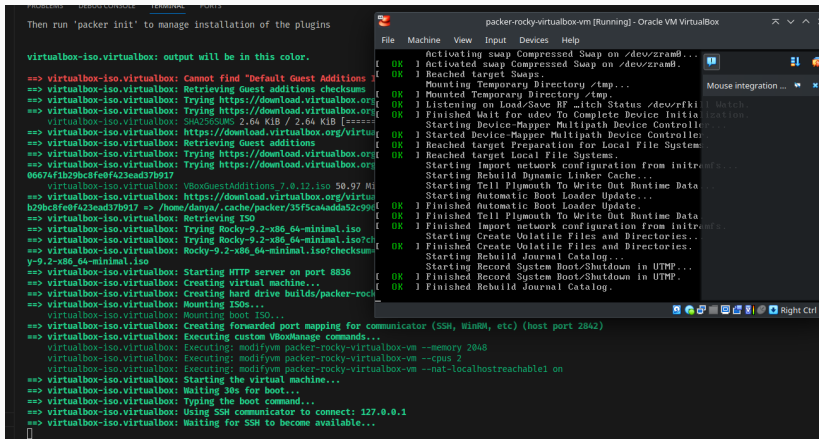
```
packer {
  required_plugins {
    vagrant = {
      source = "github.com/hashicorp/vagrant"
      version = "~> 1"
    }
  }
}
```

Then run 'packer init' to manage installation of the plugins

**virtualbox-iso.virtualbox: output will be in this color.**

```
==> virtualbox-iso.virtualbox: Cannot find "Default Guest Additions ISO" in vboxmanage output (or it is empty)
==> virtualbox-iso.virtualbox: Retrieving Guest additions checksums
==> virtualbox-iso.virtualbox: Trying https://download.virtualbox.org/virtualbox/7.0.12/SHA256SUMS
==> virtualbox-iso.virtualbox: Trying https://download.virtualbox.org/virtualbox/7.0.12/SHA256SUMS
```

Рис. 4: packer



```
Then run 'packer init' to manage installation of the plugins

virtualbox-iso.virtualbox: output will be in this color.

==> virtualbox-iso.virtualbox: Cannot find 'Default Guest Additions'
==> virtualbox-iso.virtualbox: Retrieving Guest additions checksums
==> virtualbox-iso.virtualbox: Trying https://download.virtualbox.org/
==> virtualbox-iso.virtualbox: Trying https://download.virtualbox.org/
virtualbox-iso.virtualbox: SHA256SUMS 2.64 KiB / 2.64 KiB [=====]
==> virtualbox-iso.virtualbox: https://download.virtualbox.org/virtualbox/
==> virtualbox-iso.virtualbox: Retrieving Guest additions
==> virtualbox-iso.virtualbox: Trying https://download.virtualbox.org/
==> virtualbox-iso.virtualbox: Trying https://download.virtualbox.org/
06674f1b29bc8fe0f423ead37b917
virtualbox-iso.virtualbox: VBoxGuestAdditions 7.0.12.iso 50.97 Mi
==> virtualbox-iso.virtualbox: https://download.virtualbox.org/virtualbox/
b29bc8fe0f423ead37b917 => /home/danya/.cache/packer/35f5ca4adda52c99e0
==> virtualbox-iso.virtualbox: Retrieving ISO
==> virtualbox-iso.virtualbox: Trying Rocky-9.2-x86_64-minimal.iso
==> virtualbox-iso.virtualbox: Trying Rocky-9.2-x86_64-minimal.iso7ch
==> virtualbox-iso.virtualbox: Rocky-9.2-x86_64-minimal.iso7checksum
y-9.2-x86_64-minimal.iso
==> virtualbox-iso.virtualbox: Starting HTTP server on port 8836
==> virtualbox-iso.virtualbox: Creating virtual machine...
==> virtualbox-iso.virtualbox: Creating hard drive builds/packer-rocky
==> virtualbox-iso.virtualbox: Mounting ISOs...
virtualbox-iso.virtualbox: Mounting boot ISO...
==> virtualbox-iso.virtualbox: Creating forwarded port mapping for communicator (SSH, WinRM, etc) (host port 2842)
==> virtualbox-iso.virtualbox: Executing custom VBoxManage commands...
virtualbox-iso.virtualbox: Executing: modifyvm packer-rocky-virtualbox-vm --memory 2048
virtualbox-iso.virtualbox: Executing: modifyvm packer-rocky-virtualbox-vm --cpus 2
virtualbox-iso.virtualbox: Executing: modifyvm packer-rocky-virtualbox-vm --nat-localhostreachable1 on
==> virtualbox-iso.virtualbox: Starting the virtual machine...
==> virtualbox-iso.virtualbox: Waiting 30s for boot...
==> virtualbox-iso.virtualbox: Typing the boot command...
==> virtualbox-iso.virtualbox: Using SSH communicator to connect: 127.0.0.1
==> virtualbox-iso.virtualbox: Waiting for SSH to become available...
```

Рис. 5: virtualbox

```
Verifying xfsprogs.x86_64 (320/324)
Verifying xz.x86_64 (321/324)
Verifying xz-libs.x86_64 (322/324)
Verifying yum.noarch (323/324)
Verifying zlib.x86_64 (324/324)
.
Installing boot loader
..
Performing post-installation setup tasks
.
Configuring installed system
.....
Writing network configuration
.
Creating users
.....
Configuring addons
.
Generating initramfs
....
Storing configuration files and kickstarts
.
Running post-installation scripts
```

```
[anaconda11:main* 2:shell 3:log 4:storage-log >Switch tab: Alt+Tab |
```



```
==> virtualbox-iso.virtualbox: Cannot find "Default Guest Additions"
==> virtualbox-iso.virtualbox: Retrieving Guest additions checksums
==> virtualbox-iso.virtualbox: Trying https://download.virtualbox.org/virtualbox/7.0.12/VBoxGuestAdditions_7.0.12.iso
==> virtualbox-iso.virtualbox: Trying https://download.virtualbox.org/virtualbox/7.0.12/VBoxGuestAdditions_7.0.12.iso
==> virtualbox-iso.virtualbox: SHA256SUMS 2.64 KiB / 2.64 KiB [=====]
==> virtualbox-iso.virtualbox: https://download.virtualbox.org/virtualbox/7.0.12/VBoxGuestAdditions_7.0.12.iso
==> virtualbox-iso.virtualbox: Retrieving Guest additions
==> virtualbox-iso.virtualbox: Trying https://download.virtualbox.org/virtualbox/7.0.12/VBoxGuestAdditions_7.0.12.iso
==> virtualbox-iso.virtualbox: Trying https://download.virtualbox.org/virtualbox/7.0.12/VBoxGuestAdditions_7.0.12.iso
06674f1b29bc8fe0f423ead37b917
virtualbox-iso.virtualbox: VBoxGuestAdditions_7.0.12.iso 50.97 MiB
==> virtualbox-iso.virtualbox: https://download.virtualbox.org/virtualbox/7.0.12/VBoxGuestAdditions_7.0.12.iso
b29bc8fe0f423ead37b917 => /home/danya/.cache/packer/35f5ca4adda52c9906674f1b29bc8fe0f423ead37b917
==> virtualbox-iso.virtualbox: Retrieving ISO
==> virtualbox-iso.virtualbox: Trying Rocky-9.2-x86_64-minimal.iso
==> virtualbox-iso.virtualbox: Trying Rocky-9.2-x86_64-minimal.iso?checksum=sha256:b29bc8fe0f423ead37b917
==> virtualbox-iso.virtualbox: Rocky-9.2-x86_64-minimal.iso?checksum=sha256:b29bc8fe0f423ead37b917
y-9.2-x86_64-minimal.iso
==> virtualbox-iso.virtualbox: Starting HTTP server on port 8836
==> virtualbox-iso.virtualbox: Creating virtual machine...
==> virtualbox-iso.virtualbox: Creating hard drive builds/packer-rocky-9.2-x86_64-minimal.vdi
==> virtualbox-iso.virtualbox: Mounting ISOs...
virtualbox-iso.virtualbox: Mounting boot ISO...
==> virtualbox-iso.virtualbox: Creating forwarded port mapping for guest VM
==> virtualbox-iso.virtualbox: Executing custom VBoxManage commands...
virtualbox-iso.virtualbox: Executing: modifyvm packer-rocky-virtualbox --usb3
virtualbox-iso.virtualbox: Executing: modifyvm packer-rocky-virtualbox --usb3
virtualbox-iso.virtualbox: Executing: modifyvm packer-rocky-virtualbox --nat1only --nat1only
==> virtualbox-iso.virtualbox: Starting the virtual machine...
==> virtualbox-iso.virtualbox: Waiting 30s for boot...
==> virtualbox-iso.virtualbox: Typing the boot command...
==> virtualbox-iso.virtualbox: Using SSH communicator to connect: 127.0.0.1
==> virtualbox-iso.virtualbox: Waiting for SSH to become available...
==> virtualbox-iso.virtualbox: Connected to SSH!
==> virtualbox-iso.virtualbox: Uploading VirtualBox version info (7.0.12)
==> virtualbox-iso.virtualbox: Uploading VirtualBox guest additions ISO...
==> virtualbox-iso.virtualbox: Provisioning with shell script: /tmp/packer/packer-shell3858776556
```

Рис. 7: packer



```
virtualbox-iso.virtualbox (vagrant): Copying from artifact: builds/packer-rocky-virtualbox-vm-disk01.vmdk
virtualbox-iso.virtualbox (vagrant): Copying from artifact: builds/packer-rocky-virtualbox-vm.mf
virtualbox-iso.virtualbox (vagrant): Copying from artifact: builds/packer-rocky-virtualbox-vm.ovf
virtualbox-iso.virtualbox (vagrant): Renaming the OVF to box.ovf...
virtualbox-iso.virtualbox (vagrant): Compressing: Vagrantfile
virtualbox-iso.virtualbox (vagrant): Compressing: box.ovf
virtualbox-iso.virtualbox (vagrant): Compressing: metadata.json
virtualbox-iso.virtualbox (vagrant): Compressing: packer-rocky-virtualbox-vm-disk001.vmdk
virtualbox-iso.virtualbox (vagrant): Compressing: packer-rocky-virtualbox-vm.mf
Build 'virtualbox-iso.virtualbox' finished after 29 minutes 8 seconds.

==> Wait completed after 29 minutes 8 seconds

==> Builds finished. The artifacts of successful builds are:
--> virtualbox-iso.virtualbox: 'virtualbox' provider box: vagrant-virtualbox-rocky-9-x86_64.box
o [danya@archlinux packer]$
```

Рис. 8: packer

```
[danya@archlinux rudn-year3-subsystem-admin]$ cd 1/work/dmgeneralov/vagrant/
[danya@archlinux vagrant]$ vagrant box add rocky9 ../packer/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:///home/danya/Documents/university/rudn-year3-subsystem-admin/1/work/dmgeneralov/packer/vagrant-virtualbox-rocky-9-x86_64.box
==> box: Successfully added box 'rocky9' (v0) for ''!
[danya@archlinux 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'...
Progress: 10%
```

Рис. 9: vagrant

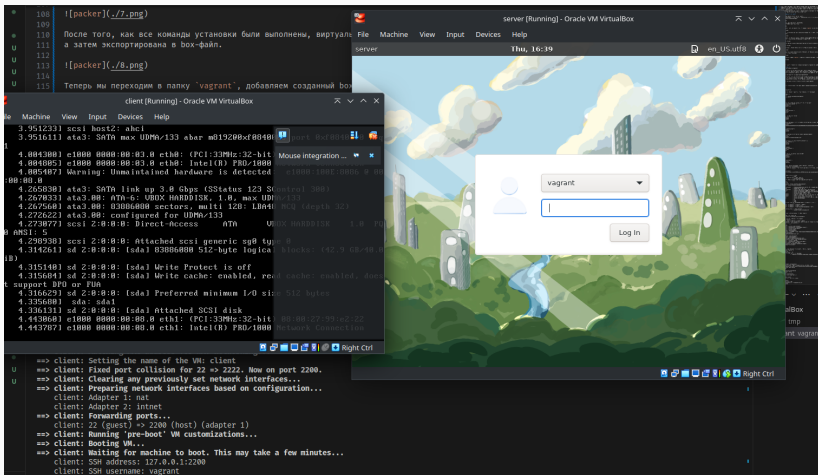


Рис. 10: vagrant

## Выводы

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Я получил опыт работы с Packer для создания box-файлов и Vagrant для запуска их.