

# VirtualBox and Vagrant [14 Nov 2022 Homework]

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## The homework

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- Virtualization
  - i. Install VirtualBox in your machine
  - ii. Install Vagrant in your machine
  - iii. Stand up Fedora 35 VM Server
  - iv. Stand up Ubuntu 20.04.x Server LTS VM
- Concepts
  - Investigate: What is software architecture and how it is related to Enterprise Architecture

## What is VirtualBox?

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VirtualBox is a hypervisor used to run operating systems in a special environment, called a virtual machine, on top of the existing operating system.

## What is Vagrant?

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Vagrant is an open-source software product for building and maintaining portable virtual software development environments. Vagrant **IS NOT** a virtual machine provider so the user needs to have a provider as **VirtualBox**, **Hyper-V**, **Docker** or **VMware** to work with.

## Installing VirtualBox in Arch Based Linux

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1. Install the [VirtualBox](#) core packages

```
└─$ sudo pacman virtualbox
```

2. Install host modules

Can use [virtualbox-host-modules-arch](#) for linux kernel

```
└─$ sudo pacman virtualbox-host-modules-arch
```

or can use [virtualbox-host-dkms](#) for other kernels

```
↳λ sudo pacman virtualbox-host-dkms
```

### 3. Install the appropriate headers package for the kernel

Example: For linux-lts kernel can use [linux-lts-headers](#)

```
↳λ sudo pacman linux-lts-headers
```

### 4. Validate install

```
↳λ virtualbox -h
Oracle VM VirtualBox VM Selector v7.0.2
Copyright (C) 2005-2022 Oracle and/or its affiliates

No special options.

If you are looking for --startvm and related options, you need to use VirtualBoxVM.</pre>
```

## Installing Vagrant

### 5. Install the [Vagrant](#) package

```
↳λ sudo pacman vagrant
```

### 6. Validate install

```
↳λ vagrant -v
Vagrant 2.3.2</pre>
```

## Using Vagrant

### 1. Start by exploring vagrant box subcommands

```
↳λ vagrant box
Usage: vagrant box <subcommand> [<args>]

Available subcommands:
  add
```

```
list
outdated
prune
remove
repackage
update
```

For help on any individual subcommand run ``vagrant box <subcommand> -h``

<code>--[no-]color</code>	Enable <b>or</b> disable color output
<code>--machine-readable</code>	Enable machine readable output
<code>-v, --version</code>	Display Vagrant version
<code>--debug</code>	Enable debug output
<code>--timestamp</code>	Enable timestamps on log output
<code>--debug-timestamp</code>	Enable debug output with timestamps
<code>--no-tty</code>	Enable non-interactive output

2. Search for the box needed. It's possible to find many templates here

<https://app.vagrantup.com/boxes/search>

3. After you find the template add it to vagrant. Using ubuntu/focal64 as example

```
↳λ vagrant box add ubuntu/focal64
```

4. It can list all the local boxes ready to be mount in Vagrant using the following command

```
↳λ vagrant box list
generic/fedora35 (virtualbox, 4.2.2)
ubuntu/focal64 (virtualbox, 20221107.0.0)
```

5. Create a dir to store the config file for the box

```
↳λ mkdir ubuntu-vagrant-test
↳λ cd ubuntu-vagrant-test
```

6. In created dir intialize vagrant

```
↳λ vagrant init ubuntu/focal64
```

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**.

## 7. Stand the virtual machine

```
↳λ vagrant up
```

## 8. Get inside command line of virtual machine

```
↳λ vagrant ssh
Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.4.0-131-generic x86_64)

- Documentation: https://help.ubuntu.com
- Management: https://landscape.canonical.com
- Support: https://ubuntu.com/advantage

System information as of Tue Nov 15 14:38:11 UTC 2022

System load: 0.0 Processes: 121
Usage of /: 3.5% of 38.70GB Users logged in: 0
Memory usage: 20% IPv4 address for enp0s3: 10.0.2.15
Swap usage: 0%

0 updates can be applied immediately.

The list of available updates is more than a week old.
To check for new updates run: sudo apt update
New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

vagrant@ubuntu-focal:~
```

## 9. Open VirtualBox to watch it running

 Screenshot of virtualbox

## 10. To shutdown the virtual machine use

```
↳λ vagrant halt
```

## 11. To destroy the virtual machine use

```
↳λ vagrant destroy
```

# Considerations

1. Be sure **Safe Virtual Machine** mode is enabled in your motherboard and OS

2. In case of finding this error:

The private key to connect to the machine via SSH must be owned by the user running Vagrant. This is a strict requirement from SSH itself. Please fix the following key to be owned by the user running Vagrant:

```
/mnt/specific_dir/.vagrant/machines/default/virtualbox/private_key
```

- If using NTFS format on file system, SSH won't work so it can be disabled on Vagrantfile adding this lines:

```
config.ssh.insert_key=false
```

- If using a Linux file system check status with:

```
stat /mnt/specific_dir/.vagrant/machines/default/virtualbox/private_key
```

Check actual user with:

```
id
```

Set owner with

```
chown '[username]' /mnt/specific_dir/.vagrant/machines/default/virtualbox/private
```