VirtualBox and Vagrant [14 Nov 2022 Homework]

The homework

- 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?

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?

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

1. Install the VirtualBox core packages

—λ sudo pacman virtualbox

2. Install host modules

Can use virtualbox-host-modules-arch for linux kernel

or can use virtualbox-host-dkms for other kernels

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La 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

Installing Vagrant

5. Install the Vagrant package

```
_λ sudo pacman vagrant
```

6. Validate install

```
Land vagrant -v
Vagrant 2.3.2
```

Using Vagrant

1. Start by exploring vagrant box subcommands

```
Lage: vagrant box
Usage: vagrant box <subcommand> [<args>]

Available subcommands:
   add
```

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```
list
   outdated
   prune
    remove
    repackage
   update
For help on any individual subcommand run `vagrant box <subcommand&gt; -h`
        --[no-]color
                                     Enable or disable color output
        --machine-readable
                                     Enable machine readable output
    -v, --version
                                     Display Vagrant version
        --debug
                                     Enable debug output
        --timestamp
                                     Enable timestamps on log output
        --debug-timestamp
                                     Enable debug output with timestamps
        --no-tty
                                     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

```
La 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.
```

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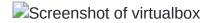
7. Stand the virtual machine

```
∟λ vagrant <mark>up</mark>
```

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%
O 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



10. To shutdown the virtual machine use

```
∟λ vagrant halt
```

11. To destroy the virtual machine use

```
_λ vagrant destroy
```

Considerations

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- 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
```

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