VAGRANT Guide

We will be needing an Ubuntu 16.04 environment for us to be able to perform our task. If you are currently working on a machine with a different environment, you can use Vagrant to easily set up our needed environment using a virtual machine. Vagrant is a tool which makes building and managing virtual machines easier.

Pre-installation
1. **Provider**. Vagrant needs a so-called *provider* to run the virtual machine, such as AWS, VMWare, and VirtualBox. We will be using the latter, since it's **FREE**! You can download it here.
2. **SSH Client.** Later on, SSH sessions will be used to interact with your virtual machine. If you are working on Windows, you can install Git Bash (preferred) or PuTTY. If you are on Windows 10, you can also install Bash (and then install ssh using aptitude) by following the instructions here. (**NOTE:** When you choose to install Git Bash, make sure to tick or choose the last option shown below so that SSH will be available in your command line.)
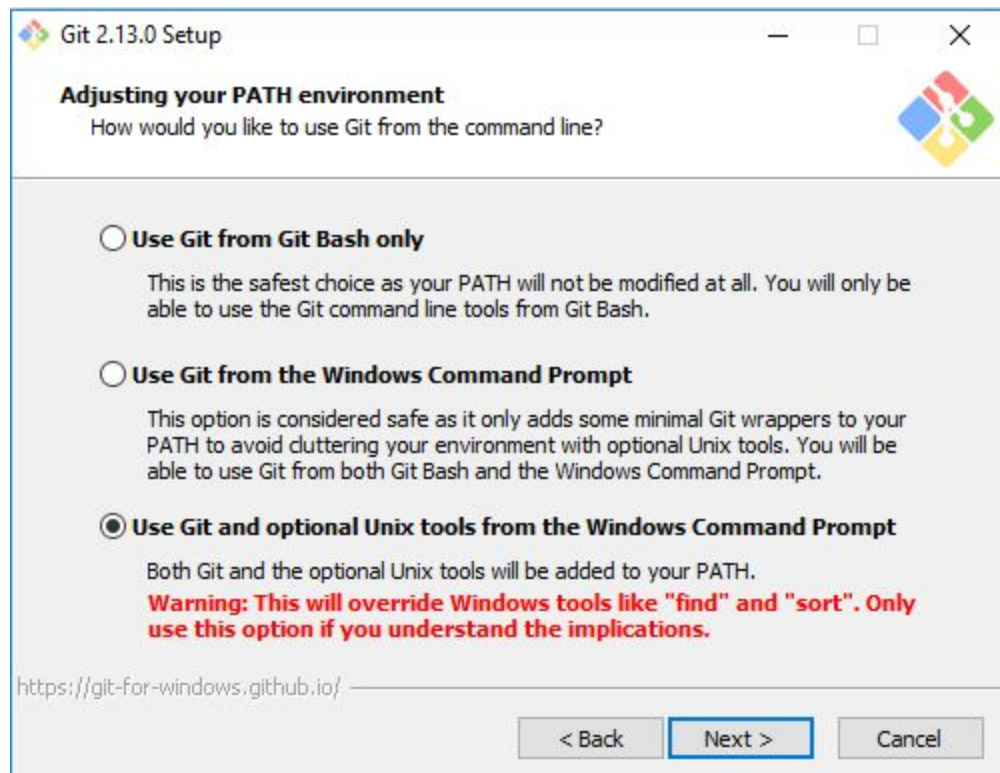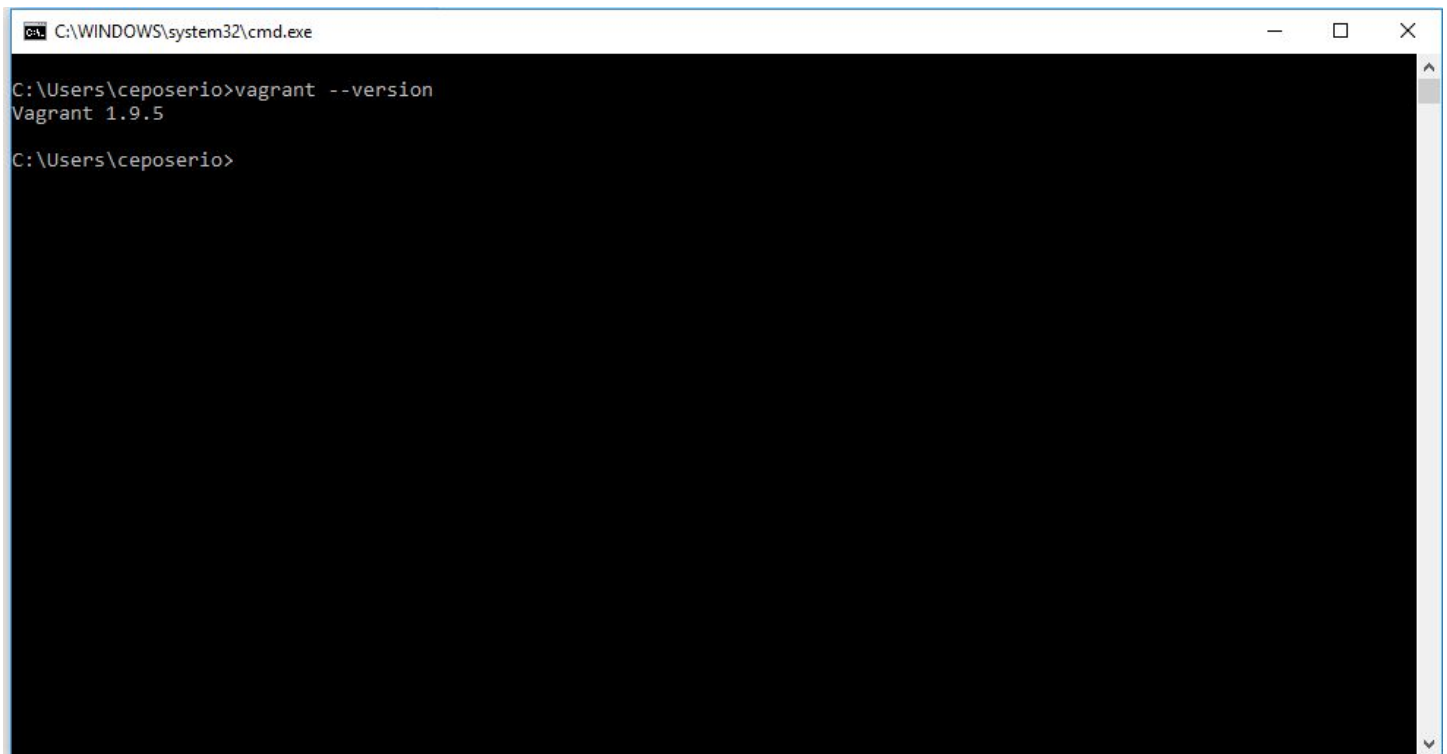3. Internet connection is needed for the most parts of the tutorial.

Figure 0. Choosing this option will add optional Unix tools such as SSH to your path.

Installation

1. Download the latest version of Vagrant appropriate for your OS and architecture here and install it.
2. After installing Vagrant, verify your installation by opening a console/command prompt/powershell and checking if the **`vagrant`** command is available.
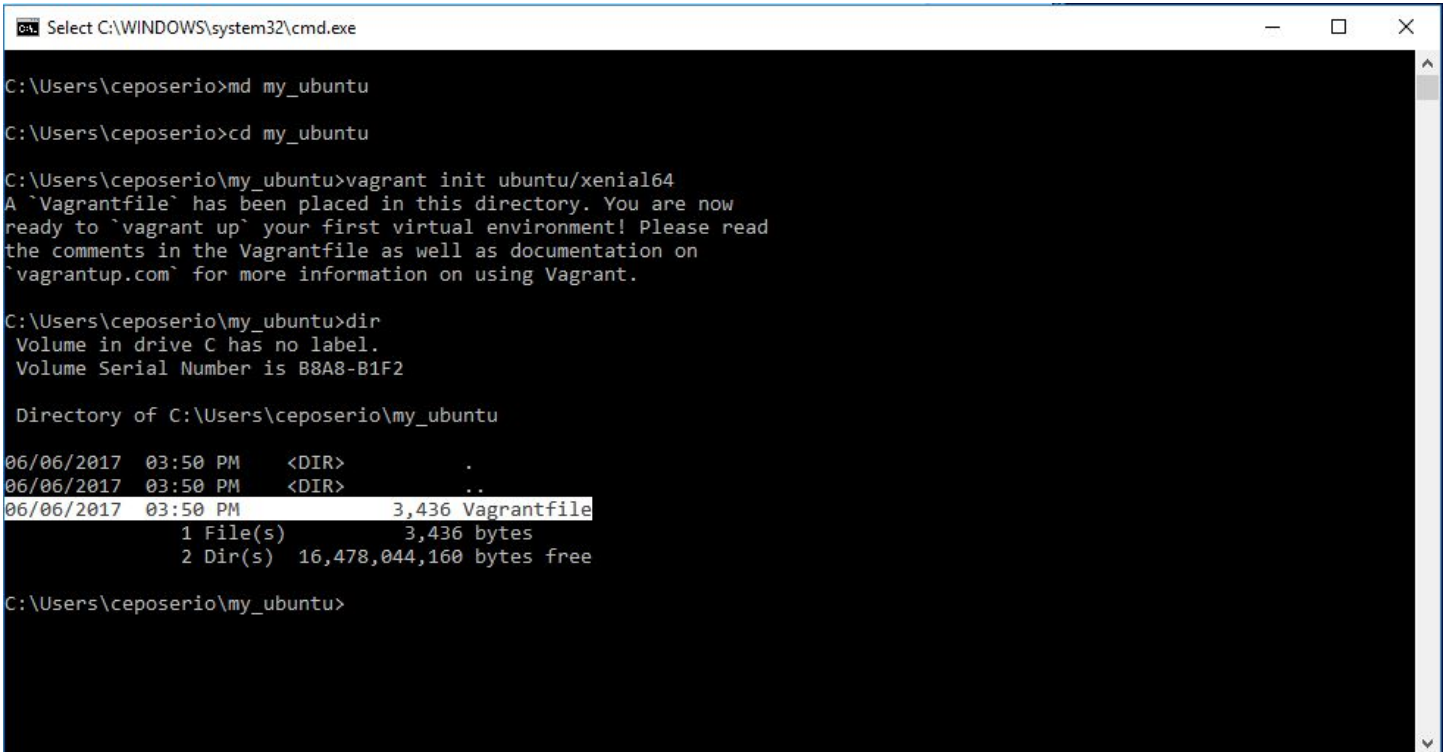
Figure 1. The Vagrant version installed in the machine displayed using the `vagrant` command.

Environment Setup

Now, we are ready to create and configure your Ubuntu 16.04 using vagrant.
1. Create a directory for your environment. This will be considered as the *root directory* of your Vagrant environment which will be used as basis for several configuration options.
2. Create a Vagrantfile (vagrant config file) by running: **vagrant init**.

```
C:\WINDOWS\system32\cmd.exe                                                    —   □   ✕

C:\Users\ceposerio>md my_ubuntu

C:\Users\ceposerio>cd my_ubuntu

C:\Users\ceposerio\my_ubuntu>vagrant init ubuntu/xenial64
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.

C:\Users\ceposerio\my_ubuntu>dir
 Volume in drive C has no label.
 Volume Serial Number is B8A8-B1F2

 Directory of C:\Users\ceposerio\my_ubuntu

06/06/2017  03:50 PM    <DIR>          .
06/06/2017  03:50 PM    <DIR>          ..
06/06/2017  03:50 PM             3,436 Vagrantfile
               1 File(s)          3,436 bytes
               2 Dir(s)  16,478,044,160 bytes free

C:\Users\ceposerio\my_ubuntu>
```
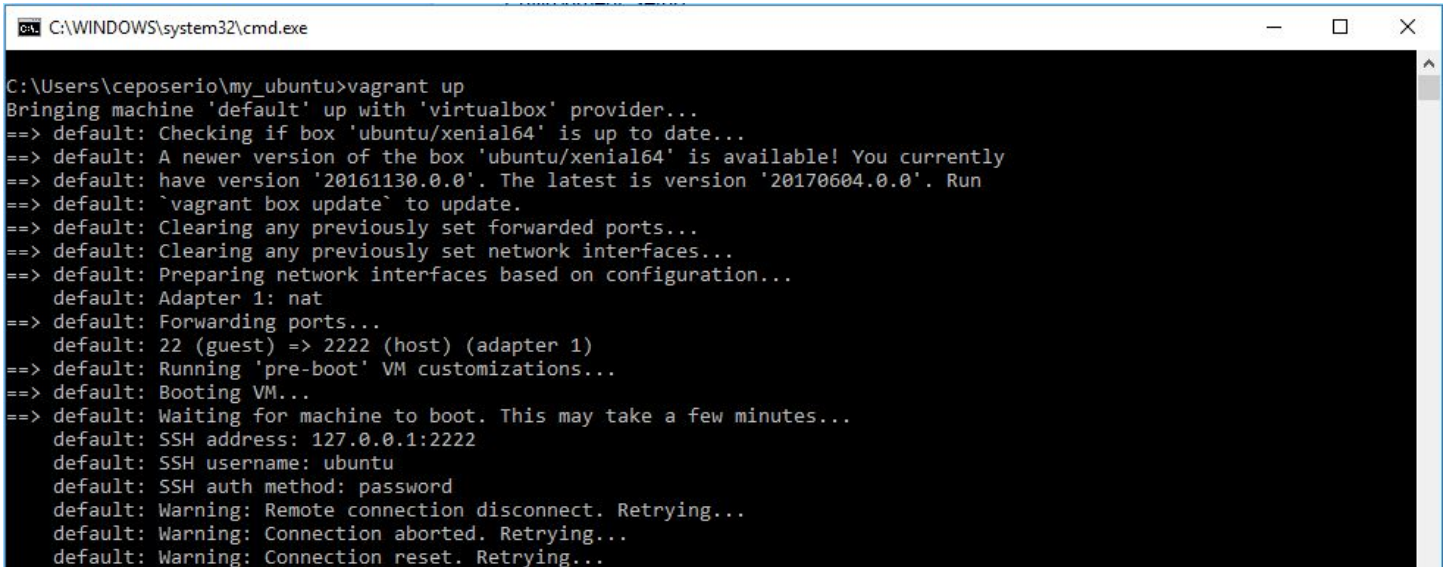
Figure 2. Vagrantfile successfully created using `vagrant init` command.

3. The command earlier will produce a generic Vagrantfile. Fortunately, we do not have to set up our own Vagrantfile, since it is already prepared by Sir JACH. Just download (or clone) https://github.com/srg-ics-uplb/cnsec2017.git. The repository contains three files - a `Vagrantfile`, a `.sh` file, and a `.sql` file. Make sure to extract all these files to your environment directory. Check also if the generated Vagrantfile is replaced with the new Vagrantfile (from the downloaded repository).
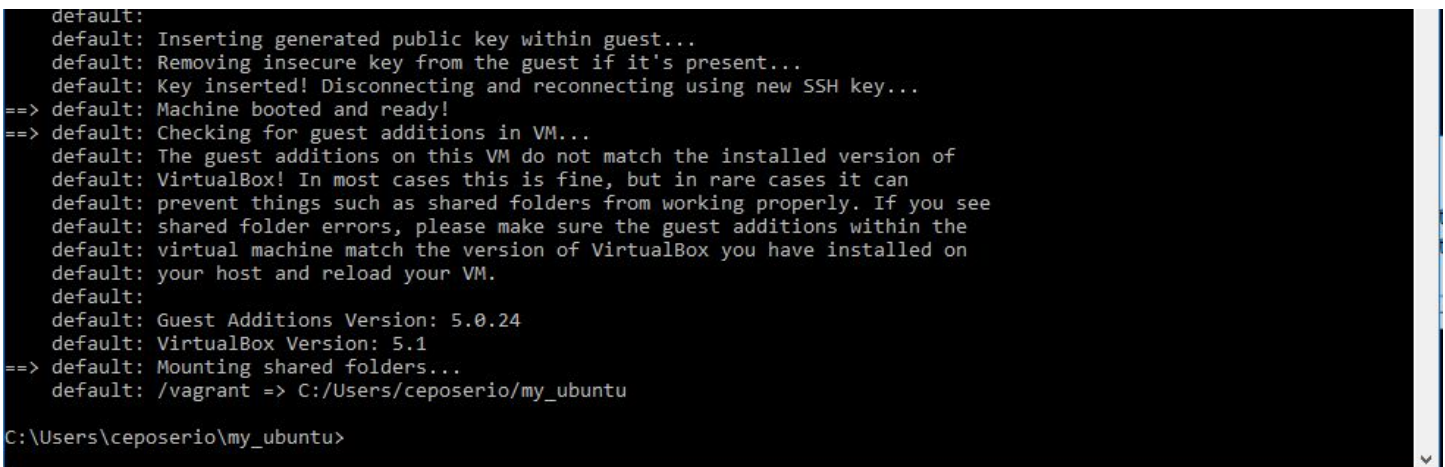
4. Start up the virtual machine using the command: **vagrant up**. This will take a few minutes or longer depending on your internet connection on first run of the command since it will download the so-called *vagrant box* - that is,ubuntu/xenial64 a.k.a Ubuntu 16.04 64-bit, which is specified on the Vagrantfile. This will also run the shell file downloaded earlier, which will set up the Ubuntu environment.

Figure 3.a. Vagrant checks the availability of the box and powers it up.

Figure 3.b. Vagrant also prepares our virtual machine for an SSH connection.

5. Connect to the virtual machine using the command **vagrant ssh**. If you have a ssh available in your command line, this command will give you an ssh session with your virtual machine. Otherwise, SSH authentication info will be displayed.

```
C:\Users\ceposerio\my_ubuntu>vagrant ssh
Welcome to Ubuntu 16.04.1 LTS (GNU/Linux 4.4.0-51-generic x86_64)

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

  Get cloud support with Ubuntu Advantage Cloud Guest:
    http://www.ubuntu.com/business/services/cloud

0 packages can be updated.
0 updates are security updates.


ubuntu@ubuntu-xenial:~$
```
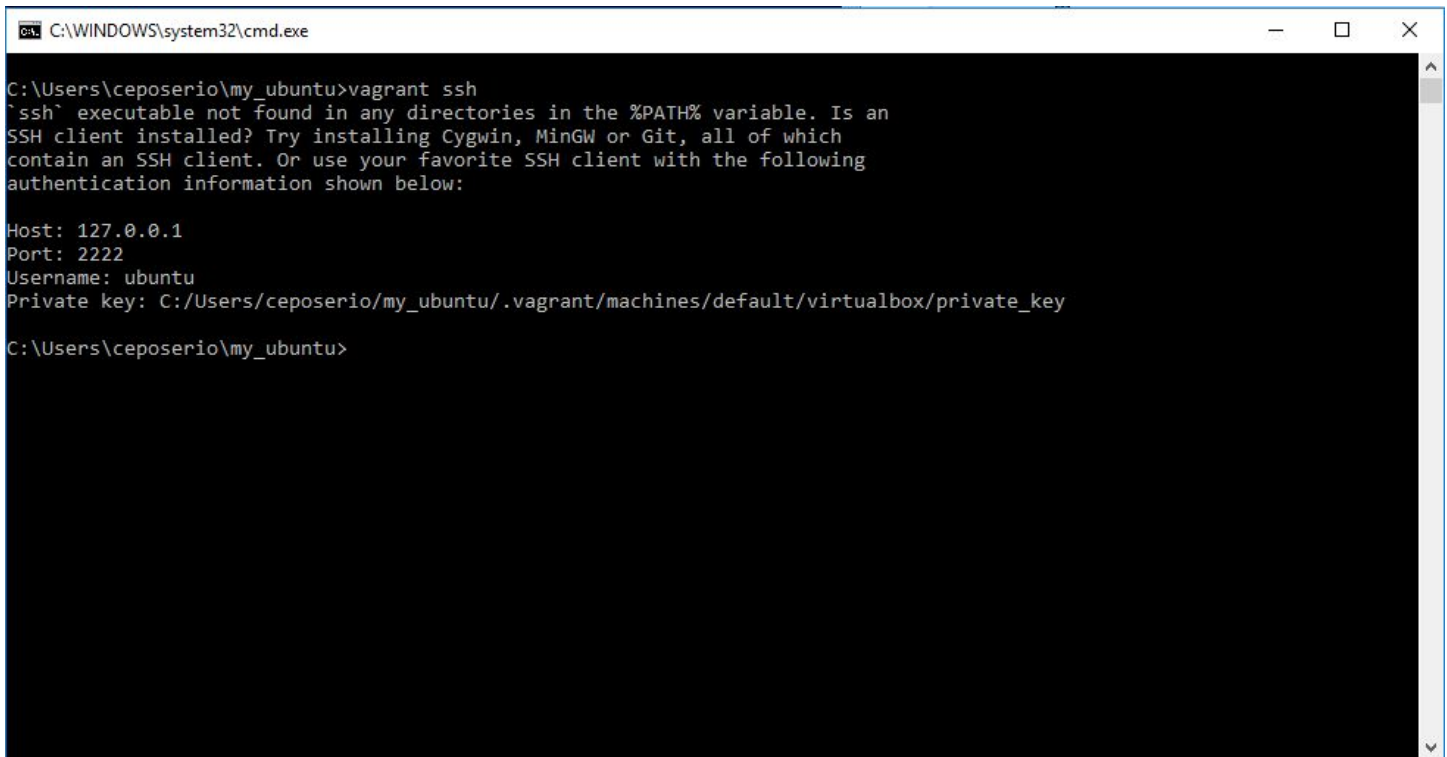
Figure 4.a. A successful SSH connection to your virtual machine.


```
C:\Users\ceposerio\my_ubuntu>vagrant ssh
`ssh` executable not found in any directories in the %PATH% variable. Is an
SSH client installed? Try installing Cygwin, MinGW or Git, all of which
contain an SSH client. Or use your favorite SSH client with the following
authentication information shown below:

Host: 127.0.0.1
Port: 2222
Username: ubuntu
Private key: C:/Users/ceposerio/my_ubuntu/.vagrant/machines/default/virtualbox/private_key

C:\Users\ceposerio\my_ubuntu>
```

Figure 4.b. SSH authentication info will be displayed if you do not have ssh available in your command line.
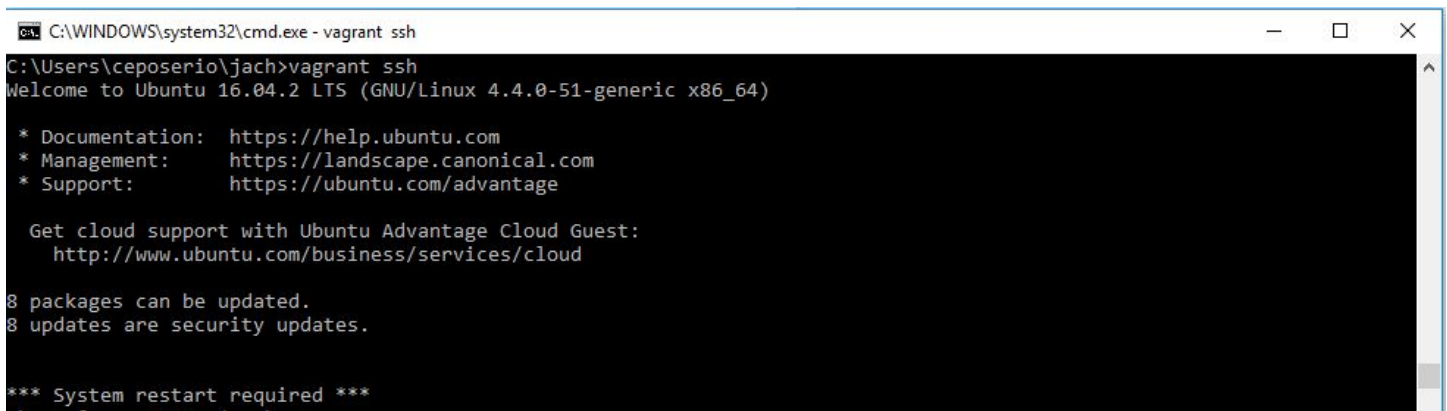Use the given information to connect using other tools like PuTTY or Windows 10 Bash.
(Example: ssh ubuntu@127.0.0.1 -p 2222 -i /path/to/private/key)

6. Now that you have a session with your virtual machine, do what you have to do. :)

TO DOs for the workshop:

Most of the things needed for setting up are already in the shell file. Possibly, the only thing you need to do is restart the VM and reconnect to it.

Figure 5. Virtual machine requires a restart after your first "vagrant up"

For future…

If you want to use Vagrant for your projects, you can visit their website for a more detailed tutorial :)