



Lab Experiment – 1

Installing Vagrant and Creating basic vagrant box using VirtualBox virtualization

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COURSE – B. Tech CSE- DevOps Batch 1

SUBJECT – Application Containerization

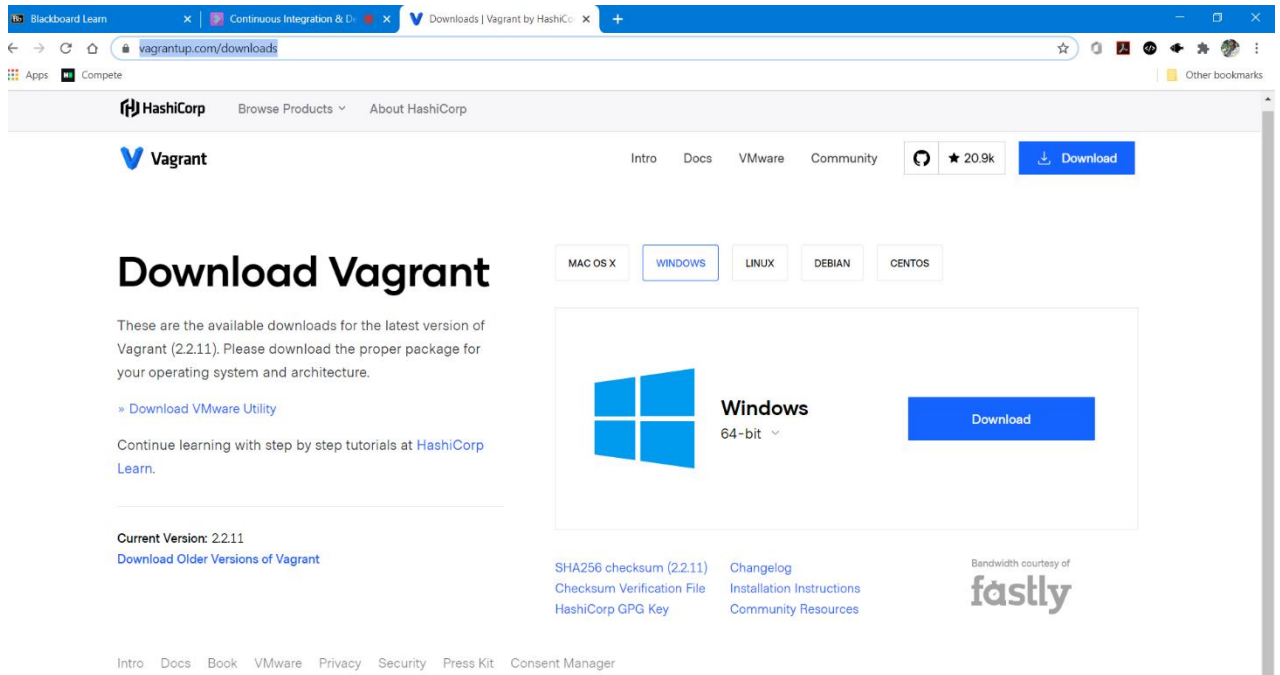
SEMESTER – 6th semester

Submitted To:

Dr. Hitesh Kumar Sir

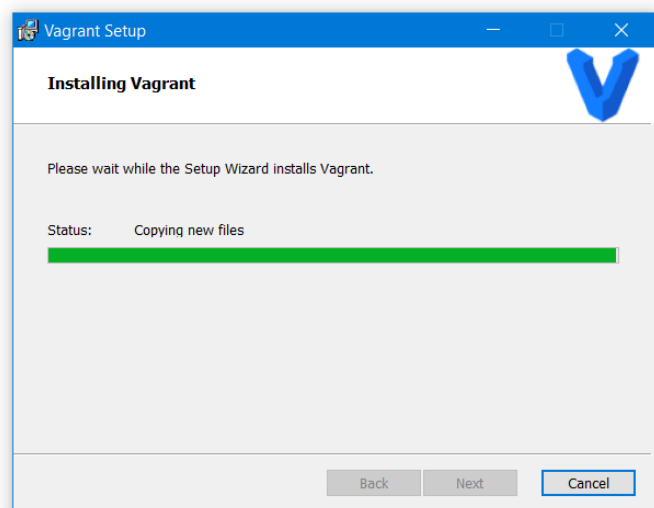
Experiment for demonstrating Installation of Vagrant and Creating basic vagrant box using VirtualBox virtualization

- Go to the browser and go to the website <https://www.vagrantup.com/downloads> and download Vagrant for your desired operating system.



- After download, you will see a “msi” file. Double click and install Vagrant using this file.

Name	Date modified	Type	Size
Maven	06-10-2020 12:18	File folder	
Slave	11-09-2020 12:01	File folder	
vagrant_2.2.11_x86_64.msi	06-11-2020 11:36	Windows Installer ...	2,41,768 KB



- After successful installation, restart your machine and you will find some additions in the location where you installed Vagrant. Create a new folder, in this case “VM2”, either by command prompt or directly through GUI.

Name	Date modified	Type	Size
bin	06-11-2020 11:44	File folder	
embedded	06-11-2020 11:43	File folder	
Maven	06-10-2020 12:18	File folder	
Slave	11-09-2020 12:01	File folder	
VM2	06-11-2020 11:52	File folder	
vagrant_2.2.11_x86_64.msi	06-11-2020 11:36	Windows Installer ...	2,41,768 KB

- Go to the location of that folder and run the command “vagrant init” to initialize a new Vagrantfile.

```
F:\CI_CD_lab>dir
Volume in drive F is Documents and files
Volume Serial Number is 9AF2-2A66

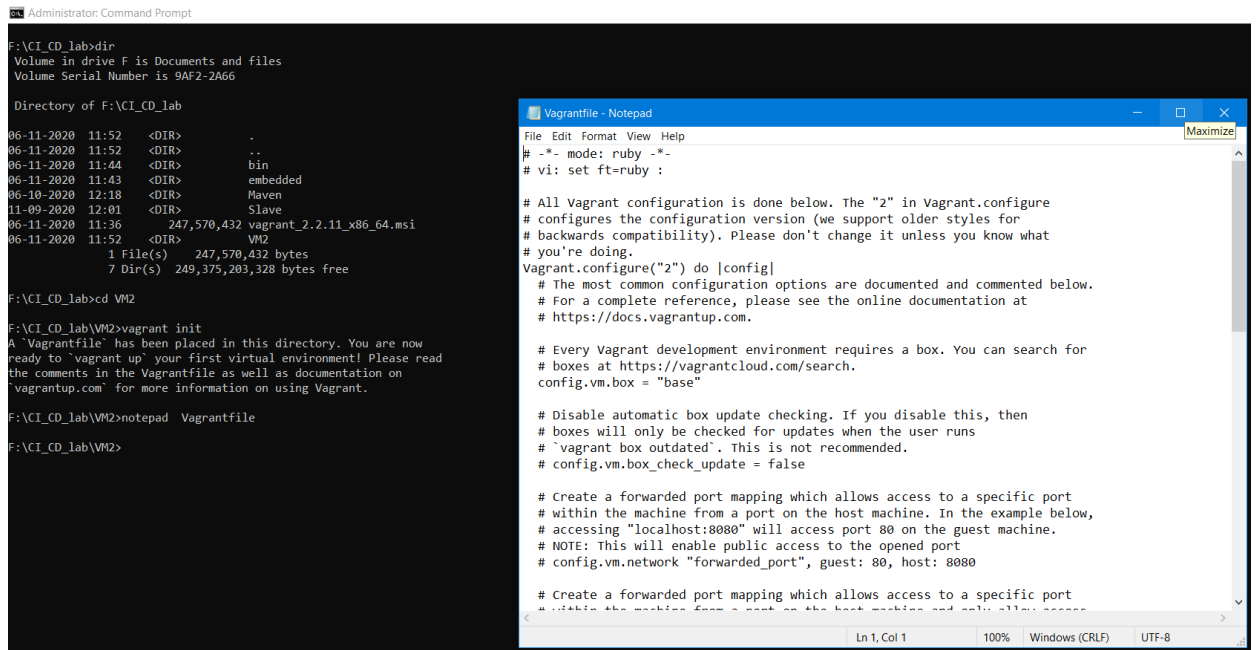
Directory of F:\CI_CD_lab

06-11-2020  11:52    <DIR>          .
06-11-2020  11:52    <DIR>          ..
06-11-2020  11:44    <DIR>          bin
06-11-2020  11:43    <DIR>          embedded
06-10-2020  12:18    <DIR>          Maven
11-09-2020  12:01    <DIR>          Slave
06-11-2020  11:36      247,570,432  vagrant_2.2.11_x86_64.msi
06-11-2020  11:52    <DIR>          VM2
               1 File(s)      247,570,432 bytes
               7 Dir(s)  249,375,203,328 bytes free

F:\CI_CD_lab>cd VM2

F:\CI_CD_lab\VM2>vagrant init
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.
```

- You can open the Vagrantfile, read the comments and make adjustments according to your needs, in this case we changed **config.vm.box = "ubuntu/xenial64"**.



```
Administrator: Command Prompt
F:\CI_CD_lab>dir
Volume in drive F is Documents and files
Volume Serial Number is 9AF2-2A66

Directory of F:\CI_CD_lab

06-11-2020  11:52  <DIR>      .
06-11-2020  11:52  <DIR>      ..
06-11-2020  11:44  <DIR>      bin
06-11-2020  11:43  <DIR>      embedded
06-10-2020  12:18  <DIR>      Maven
11-09-2020  12:01  <DIR>      Slave
06-11-2020  11:36      247,570,432 vagrant_2.2.11_x86_64.msi
06-11-2020  11:52  <DIR>      VM2
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F:\CI_CD_lab\VM2>vagrant init
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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.

F:\CI_CD_lab\VM2>notepad Vagrantfile
F:\CI_CD_lab\VM2>
```

```
Vagrantfile - Notepad
File Edit Format View Help
# -*- mode: ruby -*-
# vi: set ft=ruby :

# All Vagrant configuration is done below. The "2" in Vagrant.configure
# configures the configuration version (we support older styles for
# backwards compatibility). Please don't change it unless you know what
# you're doing.
Vagrant.configure("2") do |config|
  # The most common configuration options are documented and commented below.
  # For a complete reference, please see the online documentation at
  # https://docs.vagrantup.com.

  # Every Vagrant development environment requires a box. You can search for
  # boxes at https://vagrantcloud.com/search.
  config.vm.box = "base"

  # Disable automatic box update checking. If you disable this, then
  # boxes will only be checked for updates when the user runs
  # 'vagrant box outdated'. This is not recommended.
  # config.vm.box_check_update = false

  # Create a forwarded port mapping which allows access to a specific port
  # within the machine from a port on the host machine. In the example below,
  # accessing "localhost:8080" will access port 80 on the guest machine.
  # NOTE: This will enable public access to the opened port
  # config.vm.network "forwarded_port", guest: 80, host: 8080

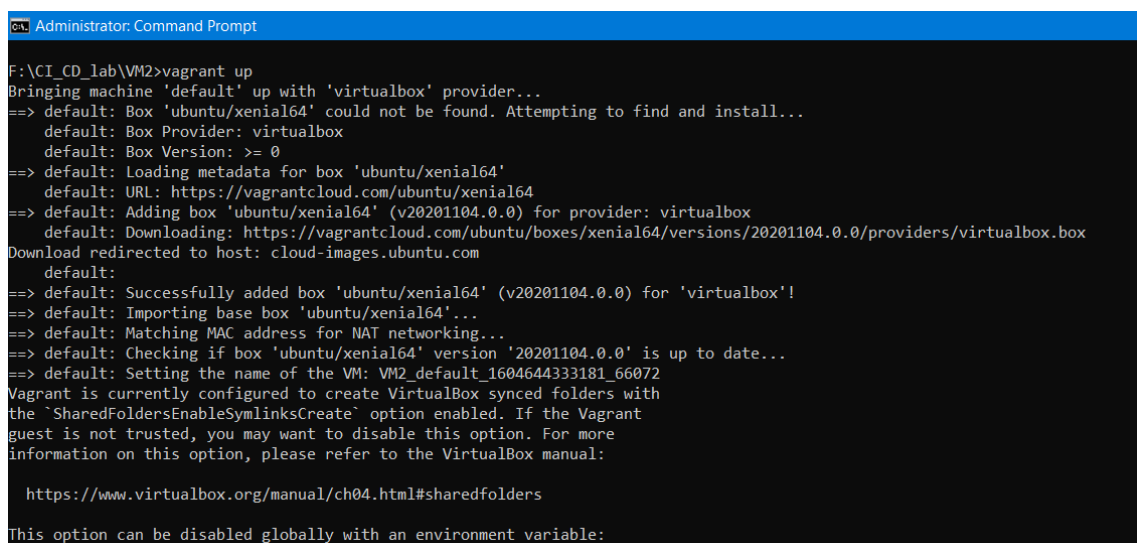
  # Create a forwarded port mapping which allows access to a specific port
  # within the machine from a port on the host machine and only allow access
  # to the machine from a port on the host machine and only allow access
```

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Vagrant.configure("2") do |config|
  # The most common configuration options are documented and commented below.
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  # https://docs.vagrantup.com.

  # Every Vagrant development environment requires a box. You can search for
  # boxes at https://vagrantcloud.com/search.
  config.vm.box = "ubuntu/xenial64"
```

- Now save the file and run the command “vagrant up”.



```
Administrator: Command Prompt
F:\CI_CD_lab\VM2>vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Box 'ubuntu/xenial64' could not be found. Attempting to find and install...
      default: Box Provider: virtualbox
      default: Box Version: >= 0
==> default: Loading metadata for box 'ubuntu/xenial64'
      default: URL: https://vagrantcloud.com/ubuntu/xenial64
==> default: Adding box 'ubuntu/xenial64' (v20201104.0.0) for provider: virtualbox
      default: Downloading: https://vagrantcloud.com/ubuntu/boxes/xenial64/versions/20201104.0.0/providers/virtualbox.box
Download redirected to host: cloud-images.ubuntu.com
      default:
==> default: Successfully added box 'ubuntu/xenial64' (v20201104.0.0) for 'virtualbox'!
==> default: Importing base box 'ubuntu/xenial64'...
==> default: Matching MAC address for NAT networking...
==> default: Checking if box 'ubuntu/xenial64' version '20201104.0.0' is up to date...
==> default: Setting the name of the VM: VM2_default_1604644333181_66072
Vagrant is currently configured to create VirtualBox synced folders with
the 'SharedFoldersEnableSymlinksCreate' option enabled. If the Vagrant
guest is not trusted, you may want to disable this option. For more
information on this option, please refer to the VirtualBox manual:

  https://www.virtualbox.org/manual/ch04.html#sharedfolders

This option can be disabled globally with an environment variable:
```

```
Administrator: Command Prompt
==> default: Checking if box 'ubuntu/xenial64' version '20201104.0.0' is up to date...
==> default: Setting the name of the VM: VM2_default_1604644333181_66072
Vagrant is currently configured to create VirtualBox synced folders with
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information on this option, please refer to the VirtualBox manual:

  https://www.virtualbox.org/manual/ch04.html#sharedfolders



This option can be disabled globally with an environment variable:

  VAGRANT_DISABLE_VBOXSYMLINKCREATE=1

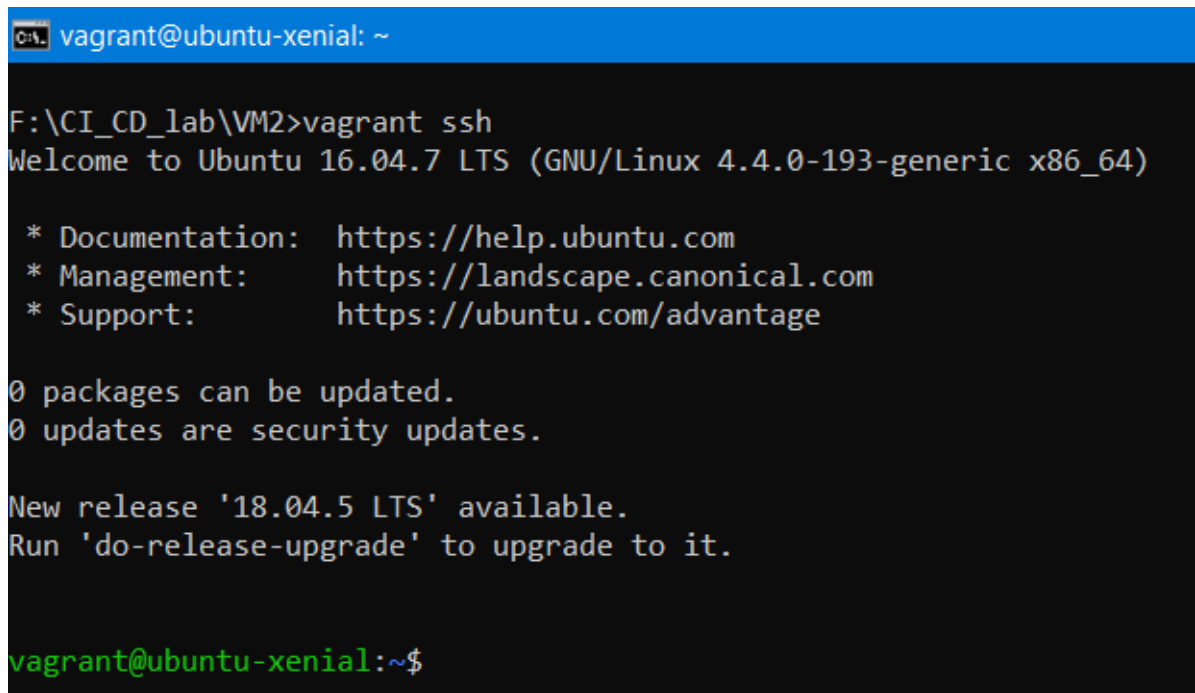
or on a per folder basis within the Vagrantfile:

  config.vm.synced_folder '/host/path', '/guest/path', SharedFoldersEnableSymlinksCreate: false
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
  default: Adapter 1: nat
==> default: Forwarding ports...
  default: 22 (guest) => 2222 (host) (adapter 1)
==> default: Running 'pre-boot' VM customizations...
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
  default: SSH address: 127.0.0.1:2222
  default: SSH username: vagrant
  default: SSH auth method: private key
  default: Warning: Connection reset. Retrying...
  default: Warning: Connection aborted. Retrying...
  default:
  default: Vagrant insecure key detected. Vagrant will automatically replace
  default: this with a newly generated keypair for better security.
  default:
  default: Inserting generated public key within guest...
  default: Removing insecure key from the guest if it's present...
  default: Key inserted! Disconnecting and reconnecting using new SSH key...
==> default: Machine booted and ready!
==> default: Checking for guest additions in VM...
  default: The guest additions on this VM do not match the installed version of
  default: VirtualBox! In most cases this is fine, but in rare cases it can
  default: prevent things such as shared folders from working properly. If you see
  default: shared folder errors, please make sure the guest additions within the
  default: virtual machine match the version of VirtualBox you have installed on
  default: your host and reload your VM.
  default:
  default: Guest Additions Version: 5.1.38
  default: VirtualBox Version: 6.1
==> default: Mounting shared folders...
  default: /vagrant => F:/CI_CD_lab/VM2
```

- Now you will see that a VM is running in the oracle VirtualBox, in this case it is VM2_default_1604644333181_66072.

 Rhel8_hadoopslave Powered Off	SATA Port 0: RedHat 8_2.vdi (Nori) SATA Port 1: RedHat 8_2-disk1.vd
 VM2_default_1604644333181_66072 Running	Audio Host Driver: Windows DirectSound Controller: ICH AC97
	Network Adapter 1: Intel PRO/1000 MT Desktop (Bridg

- Now for running commands or programs we can remotely login to this VM using the command “`vagrant ssh`”.



```
❯ vagrant@ubuntu-xenial: ~  
  
F:\CI_CD_lab\VM2>vagrant ssh  
Welcome to Ubuntu 16.04.7 LTS (GNU/Linux 4.4.0-193-generic x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/advantage  
  
0 packages can be updated.  
0 updates are security updates.  
  
New release '18.04.5 LTS' available.  
Run 'do-release-upgrade' to upgrade to it.  
  
vagrant@ubuntu-xenial:~$
```

- The green coloured command prompt indicates that this is the terminal of Linux, in this case ubuntu OS.