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Vagrant & Docker Lab File

Docker--

Step-1: Install the docker using following steps

First, in order to ensure the downloads are valid, add the GPG key for the official Docker repository to your system:

```
$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg |  
sudo apt-key add -
```

Add the Docker repository to APT sources:

```
$ sudo add-apt-repository "deb [arch=amd64]  
https://download.docker.com/linux/ubuntu $(lsb_release -cs)  
stable"
```

Next, update the package database with the Docker packages from the newly added repo:

```
$ sudo apt-get update
```

Make sure you are about to install from the Docker repo instead of the default Ubuntu 16.04 repo:

```
$ apt-cache policy docker-ce
```

[illegible]

Finally, install Docker:

```
$ sudo apt-get install -y docker-ce
```

```
$ sudo apt-get install -y docker-ce
```

```

vagrant@ubuntu-xenial:~$ sudo apt-get install -y docker-ce
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  aufs-tools cgroupfs-mount containerd.io docker-ce-cli libltdl7 pigz
Suggested packages:
  mountall
The following NEW packages will be installed:
  aufs-tools cgroupfs-mount containerd.io docker-ce docker-ce-cli libltdl7 pigz
0 upgraded, 7 newly installed, 0 to remove and 0 not upgraded.
Need to get 91.2 MB of archives.
After this operation, 410 MB of additional disk space will be used.
Get:1 https://download.docker.com/linux/ubuntu xenial/stable amd64 containerd.io amd64 1.3.7-1 [24.3 MB]
Get:2 http://archive.ubuntu.com/ubuntu xenial/universe amd64 pigz amd64 2.3.1-2 [61.1 kB]
Get:3 http://archive.ubuntu.com/ubuntu xenial/universe amd64 aufs-tools amd64 1:3.2+20130722-1.1ubuntu1 [92.9 kB]
Get:4 http://archive.ubuntu.com/ubuntu xenial/universe amd64 cgroupfs-mount all 1.2 [4,970 B]
Get:5 http://archive.ubuntu.com/ubuntu xenial/main amd64 libltdl7 amd64 2.4.6-0.1 [38.3 kB]
Get:6 https://download.docker.com/linux/ubuntu xenial/stable amd64 docker-ce-cli amd64 5:19.03.13-3-0-ubuntu-xenial [44.2 MB]
Get:7 https://download.docker.com/linux/ubuntu xenial/stable amd64 docker-ce amd64 5:19.03.13-3-0-ubuntu-xenial [22.5 MB]
Fetched 91.2 MB in 5s (15.4 MB/s)
Selecting previously unselected package pigz.
(Reading database ... 54328 files and directories currently installed.)
Preparing to unpack .../pigz_2.3.1-2_amd64.deb ...
Unpacking pigz (2.3.1-2) ...
Selecting previously unselected package aufs-tools.
Preparing to unpack .../aufs-tools_1x3a3,2+20130722-1.1ubuntu1_amd64.deb ...
Unpacking aufs-tools (1:3.2+20130722-1.1ubuntu1) ...
Selecting previously unselected package cgroupfs-mount.
Preparing to unpack .../cgroupfs-mount_1.2_all.deb ...
Unpacking cgroupfs-mount (1.2) ...
Selecting previously unselected package containerd.io.
Preparing to unpack .../containerd.io_1.3.7-1_amd64.deb ...
Unpacking containerd.io (1.3.7-1) ...
Selecting previously unselected package docker-ce-cli.
Preparing to unpack .../docker-ce-cli_5x3a19.03.13-3-0-ubuntu-xenial_amd64.deb ...
Unpacking docker-ce-cli (5:19.03.13-3-0-ubuntu-xenial) ...
Selecting previously unselected package docker-ce.
Preparing to unpack .../docker-ce_5x3a19.03.13-3-0-ubuntu-xenial_amd64.deb ...
Unpacking docker-ce (5:19.03.13-3-0-ubuntu-xenial) ...
Selecting previously unselected package libltdl7:amd64.
Preparing to unpack .../libltdl7_2.4.6-0.1_amd64.deb ...
Unpacking libltdl7:amd64 (2.4.6-0.1) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for systemd (229-4ubuntu21.29) ...
Setting up pigz (2.3.1-2) ...
Setting up aufs-tools (1:3.2+20130722-1.1ubuntu1) ...
Setting up cgroupfs-mount (1.2) ...
Setting up containerd.io (1.3.7-1) ...
Setting up docker-ce-cli (5:19.03.13-3-0-ubuntu-xenial) ...
Setting up docker-ce (5:19.03.13-3-0-ubuntu-xenial) ...
Setting up libltdl7:amd64 (2.4.6-0.1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for systemd (229-4ubuntu21.29) ...
vagrant@ubuntu-xenial:~$

```

Step-2: Executing the Docker Command Without Sudo

If you want to avoid typing sudo whenever you run the docker command, add your username to the docker group:

```
$ sudo usermod -aG docker ${USER}
```

To apply the new group membership, you can log out of the server and back in, or you can type the following:

```
$ su - ${USER}
```

You will be prompted to enter your user's password to continue. Afterwards, you can confirm that your user is now added to the docker group by typing:

If you need to add a user to the docker group that you're not logged in as, declare that username explicitly using:

```
$ sudo usermod -aG docker username
```

Check the version of the docker

```
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker ${USER}
vagrant@ubuntu-xenial:~$ su - ${USER}
Password:
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker vagrant
vagrant@ubuntu-xenial:~$ ls
vagrant@ubuntu-xenial:~$ docker --version
Docker version 19.03.13, build 4484c46d9d
vagrant@ubuntu-xenial:~$
```

Step-3: Type **docker run -it ubuntu**. Create a new directory in ubuntu docker container and list the directory using command line.

```
vagrant@ubuntu-xenial:~$ docker run -it ubuntu
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
6a5697faee43: Pull complete
ba13d3bc422b: Pull complete
a254829d9e55: Pull complete
Digest: sha256:ffff16eea1a8ae92867721d90c59a75652ea66d29c05294e6e2f898704bdb8cf1
Status: Downloaded newer image for ubuntu:latest
root@1514ed739ea3:/# mkdir vm1
root@1514ed739ea3:/# cd vm1
root@1514ed739ea3:/vm1# cd ..
root@1514ed739ea3:/# ls
bin  boot  dev  etc  home  lib  lib32  lib64  libx32  media  mnt  opt  proc  root  run  sbin  srv  sys  tmp  usr  var  vm1
root@1514ed739ea3:/# cd vm1
root@1514ed739ea3:/vm1# ls
root@1514ed739ea3:/vm1#
```

VAGRANT--

1]. Vagrant init

```
Select Command Prompt
Microsoft Windows [Version 10.0.18362.1139]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\dell>cd Documents

C:\Users\dell\Documents>mkdir vagrant

C:\Users\dell\Documents>cd vagrant

C:\Users\dell\Documents\vagrant>Vagrant init

C:\Users\dell\Documents\vagrant>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.

C:\Users\dell\Documents\vagrant>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' (v20201102.0.0) for provider: virtualbox
    default: Downloading: https://vagrantcloud.com/ubuntu/boxes/xenial64/versions/20201102.0.0/providers/virtualbox.box
Download redirected to host: cloud-images.ubuntu.com
    default:
==> default: Successfully added box 'ubuntu/xenial64' (v20201102.0.0) for 'virtualbox'!
==> default: Importing base box 'ubuntu/xenial64'...
==> default: Matching MAC address for NAT networking...
==> default: Checking if box 'ubuntu/xenial64' version '20201102.0.0' is up to date...
==> default: Setting the name of the VM: vagrant_default_1604386585286_73849
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

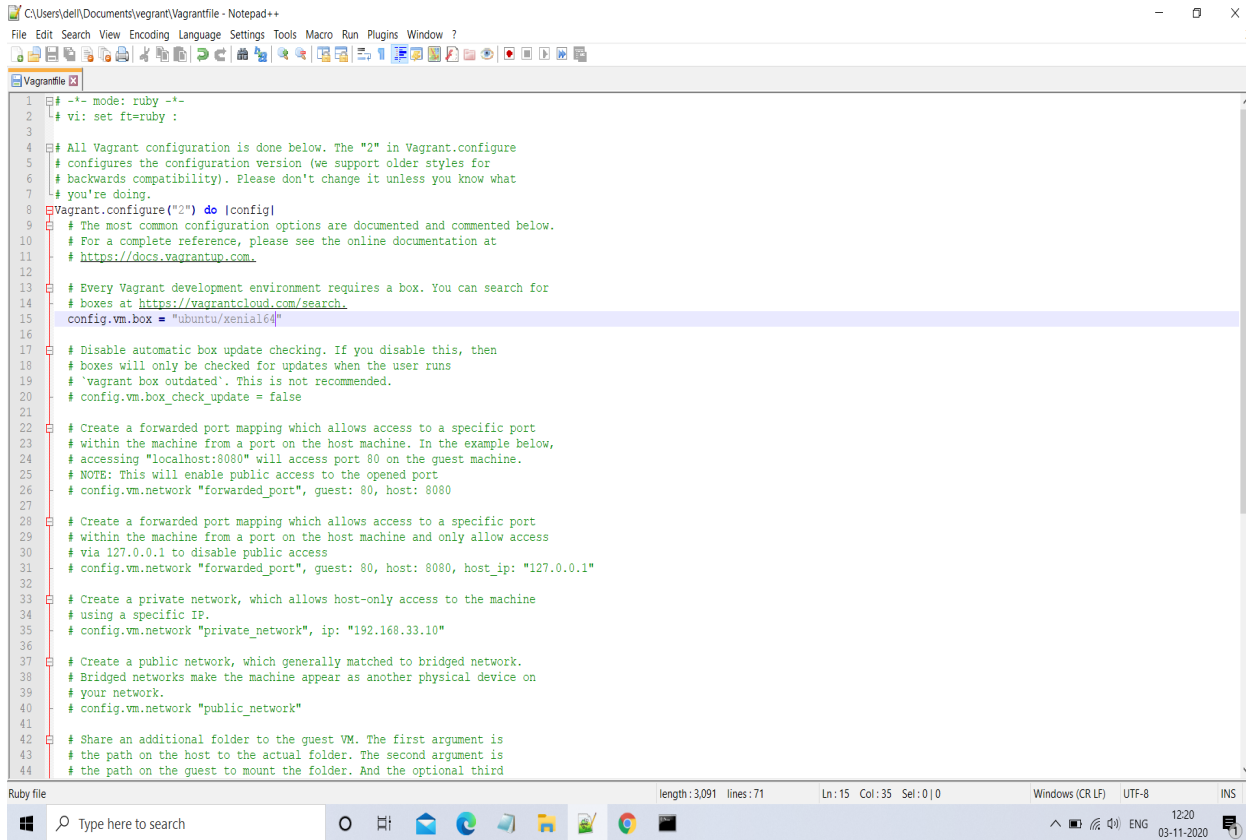
This option can be disabled globally with an environment variable:

    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
```

Edit vagrantfile



```
1 # -*- mode: ruby -*-
2 # vi: set ft=ruby :
3
4 # All Vagrant configuration is done below. The "2" in Vagrant.configure
5 # configures the configuration version (we support older styles for
6 # backwards compatibility). Please don't change it unless you know what
7 # you're doing.
8 Vagrant.configure("2") do |config|
9 # The most common configuration options are documented and commented below.
10 # For a complete reference, please see the online documentation at
11 # https://docs.vagrantup.com.
12
13 # Every Vagrant development environment requires a box. You can search for
14 # boxes at https://vagrantcloud.com/search.
15 config.vm.box = "ubuntu/xenial64"
16
17 # Disable automatic box update checking. If you disable this, then
18 # boxes will only be checked for updates when the user runs
19 # 'vagrant box outdated'. This is not recommended.
20 # config.vm.box_check_update = false
21
22 # Create a forwarded port mapping which allows access to a specific port
23 # within the machine from a port on the host machine. In the example below,
24 # accessing "localhost:8080" will access port 80 on the guest machine.
25 # NOTE: This will enable public access to the opened port
26 # config.vm.network "forwarded_port", guest: 80, host: 8080
27
28 # Create a forwarded port mapping which allows access to a specific port
29 # within the machine from a port on the host machine and only allow access
30 # via 127.0.0.1 to disable public access
31 # config.vm.network "forwarded_port", guest: 80, host: 8080, host_ip: "127.0.0.1"
32
33 # Create a private network, which allows host-only access to the machine
34 # using a specific IP.
35 # config.vm.network "private_network", ip: "192.168.33.10"
36
37 # Create a public network, which generally matched to bridged network.
38 # Bridged networks make the machine appear as another physical device on
39 # your network.
40 # config.vm.network "public_network"
41
42 # Share an additional folder to the guest VM. The first argument is
43 # the path on the host to the actual folder. The second argument is
44 # the path on the guest to mount the folder. And the optional third
```

2]. Vagrant up

```
Select Command Prompt
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(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\dell>cd Documents

C:\Users\dell\Documents>mkdir vagrant

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C:\Users\dell\Documents\vagrant>Vagrant init

C:\Users\dell\Documents\vagrant>Vagrant init
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Bringing machine 'default' up with 'virtualbox' provider...
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    default: Box Provider: virtualbox
    default: Box Version: >= 0
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    default: URL: https://vagrantcloud.com/ubuntu/xenial64
==> default: Adding box 'ubuntu/xenial64' (v20201102.0.0) for provider: virtualbox
    default: Downloading: https://vagrantcloud.com/ubuntu/boxes/xenial64/versions/20201102.0.0/providers/virtualbox.box
Download redirected to host: cloud-images.ubuntu.com
    default:
==> default: Successfully added box 'ubuntu/xenial64' (v20201102.0.0) for 'virtualbox'!
==> default: Importing base box 'ubuntu/xenial64'...
==> default: Matching MAC address for NAT networking...
==> default: Checking if box 'ubuntu/xenial64' version '20201102.0.0' is up to date...
==> default: Setting the name of the VM: vagrant_default_1604386585286_73849
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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

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    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
```


3]. vagrant ssh

```
Select vagrant@ubuntu-xenial: ~
package      packages a running vagrant environment into a box
plugin       manages plugins: install, uninstall, update, etc.
port         displays information about guest port mappings
powershell   connects to machine via powershell remoting
provision     provisions the vagrant machine
push         deploys code in this environment to a configured destination
rdp          connects to machine via RDP
reload       restarts vagrant machine, loads new Vagrantfile configuration
resume       resume a suspended vagrant machine
snapshot     manages snapshots: saving, restoring, etc.
ssh          connects to machine via SSH
ssh-config   outputs OpenSSH valid configuration to connect to the machine
status       outputs status of the vagrant machine
suspend      suspends the machine
up           starts and provisions the vagrant environment
upload       upload to machine via communicator
validate     validates the Vagrantfile
version      prints current and latest Vagrant version
winrm       executes commands on a machine via WinRM
winrm-config outputs WinRM configuration to connect to the machine

For help on any individual command run 'vagrant COMMAND -h'

Additional subcommands are available, but are either more advanced
or not commonly used. To see all subcommands, run the command
'vagrant list-commands'.

--[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

C:\Users\dell\Documents\vagrant>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:~$
```

FOLDER :-

