



UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM & ENERGY STUDIES

College of Engineering Studies Dehradun

LAB FILE

Experiment 2

Programme : B. Tech in Computer Science and Engineering with Specialization in DevOps

Course : Application Containerization Lab

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Faculty : Dr. Hitesh Kumar Sharma

Submitted By:

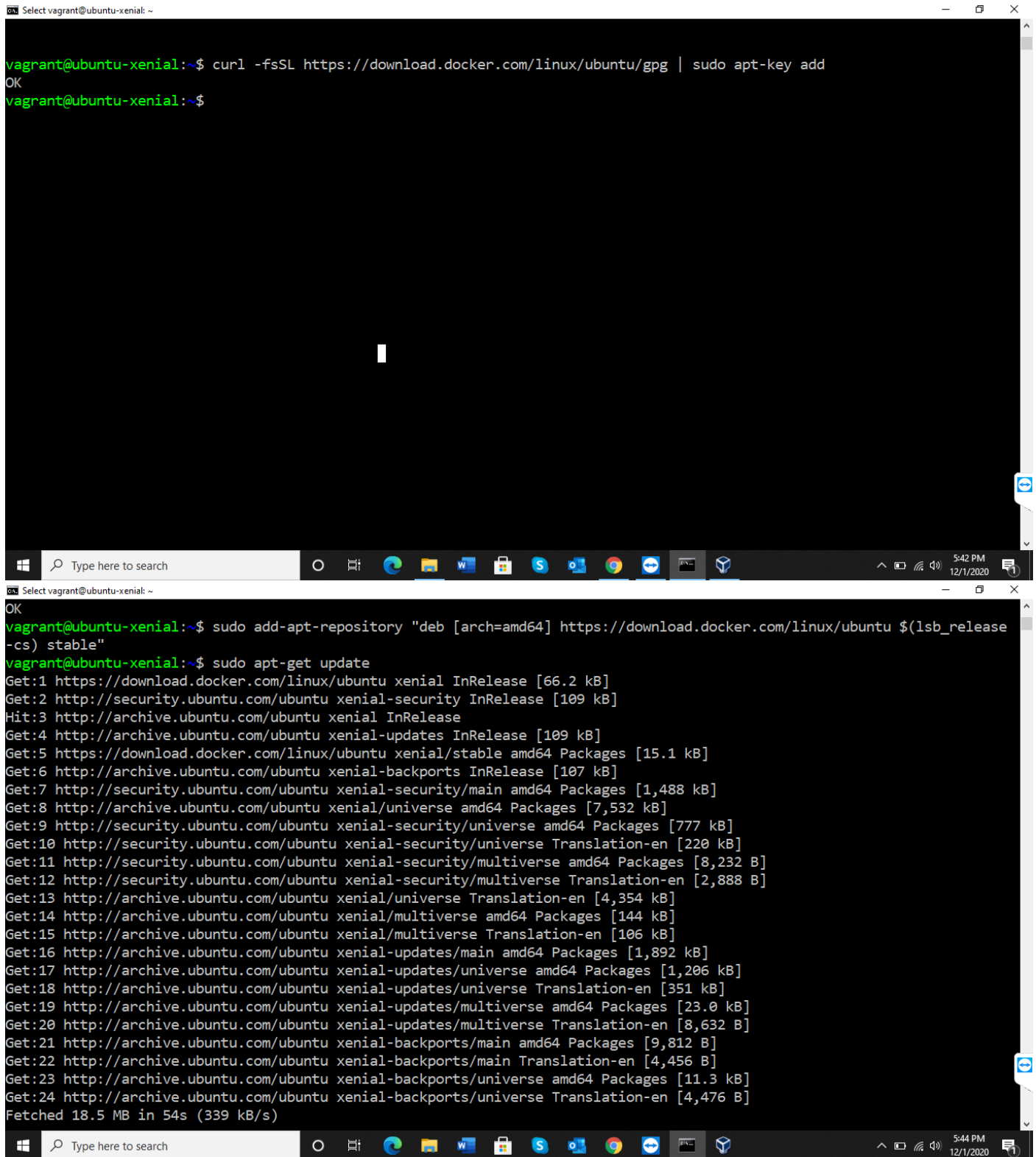
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Understanding vagrant file - Configuration - CPU, RAM, Storage, Provisioning (Shell Script).

Screenshots



The image shows two screenshots of a terminal window running on a virtual machine named 'vagrant@ubuntu-xenial'. The window has a title bar that says 'Select vagrant@ubuntu-xenial: ~'. The terminal output shows the following commands and their results:

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

The first screenshot shows the command to add the Docker GPG key. The second screenshot shows the command to add the Docker repository and then update the package list:

```
vagrant@ubuntu-xenial:~$ sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable"
vagrant@ubuntu-xenial:~$ sudo apt-get update
Get:1 https://download.docker.com/linux/ubuntu xenial InRelease [66.2 kB]
Get:2 http://security.ubuntu.com/ubuntu xenial-security InRelease [109 kB]
Hit:3 http://archive.ubuntu.com/ubuntu xenial InRelease
Get:4 http://archive.ubuntu.com/ubuntu xenial-updates InRelease [109 kB]
Get:5 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages [15.1 kB]
Get:6 http://archive.ubuntu.com/ubuntu xenial-backports InRelease [107 kB]
Get:7 http://security.ubuntu.com/ubuntu xenial-security/main amd64 Packages [1,488 kB]
Get:8 http://archive.ubuntu.com/ubuntu xenial/universe amd64 Packages [7,532 kB]
Get:9 http://security.ubuntu.com/ubuntu xenial-security/universe amd64 Packages [777 kB]
Get:10 http://security.ubuntu.com/ubuntu xenial-security/universe Translation-en [220 kB]
Get:11 http://security.ubuntu.com/ubuntu xenial-security/multiverse amd64 Packages [8,232 B]
Get:12 http://security.ubuntu.com/ubuntu xenial-security/multiverse Translation-en [2,888 B]
Get:13 http://archive.ubuntu.com/ubuntu xenial/universe Translation-en [4,354 kB]
Get:14 http://archive.ubuntu.com/ubuntu xenial/multiverse amd64 Packages [144 kB]
Get:15 http://archive.ubuntu.com/ubuntu xenial/multiverse Translation-en [106 kB]
Get:16 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 Packages [1,892 kB]
Get:17 http://archive.ubuntu.com/ubuntu xenial-updates/universe amd64 Packages [1,206 kB]
Get:18 http://archive.ubuntu.com/ubuntu xenial-updates/universe Translation-en [351 kB]
Get:19 http://archive.ubuntu.com/ubuntu xenial-updates/multiverse amd64 Packages [23.0 kB]
Get:20 http://archive.ubuntu.com/ubuntu xenial-updates/multiverse Translation-en [8,632 B]
Get:21 http://archive.ubuntu.com/ubuntu xenial-backports/main amd64 Packages [9,812 B]
Get:22 http://archive.ubuntu.com/ubuntu xenial-backports/main Translation-en [4,456 B]
Get:23 http://archive.ubuntu.com/ubuntu xenial-backports/universe amd64 Packages [11.3 kB]
Get:24 http://archive.ubuntu.com/ubuntu xenial-backports/universe Translation-en [4,476 B]
Fetched 18.5 MB in 54s (339 kB/s)
```

The terminal window also shows the Windows taskbar at the bottom with various application icons and the system clock showing 5:42 PM on 12/1/2020.

Select vagrant@ubuntu-xenial: ~

```

Fetched 18.5 MB in 54s (339 kB/s)
Reading package lists... Done
vagrant@ubuntu-xenial:~$ apt-cache policy docker-ce
docker-ce:
  Installed: (none)
  Candidate: 5:19.03.13~3-0~ubuntu-xenial
  Version table:
   5:19.03.13~3-0~ubuntu-xenial 500
     500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.12~3-0~ubuntu-xenial 500
     500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.11~3-0~ubuntu-xenial 500
     500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.10~3-0~ubuntu-xenial 500
     500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.9~3-0~ubuntu-xenial 500
     500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.8~3-0~ubuntu-xenial 500
     500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.7~3-0~ubuntu-xenial 500
     500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.6~3-0~ubuntu-xenial 500
     500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.5~3-0~ubuntu-xenial 500
     500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.4~3-0~ubuntu-xenial 500
     500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.3~3-0~ubuntu-xenial 500
     500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
```

Type here to search

vagrant@ubuntu-xenial: ~

```

500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
17.03.0~ce-0~ubuntu-xenial 500
500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
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 2 not upgraded.
Need to get 90.5 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 1.3.9-1 [23.7 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 90.5 MB in 18s (4,815 kB/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) ...
```

Type here to search

vagrant@ubuntu-xenial: ~

Setting up aufs-tools (1:3.2+20130722-1.1ubuntu1) ...

Setting up cgroupfs-mount (1.2) ...

Setting up containerd.io (1.3.9-1) ...

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:~\$ sudo systemctl status docker

● docker.service - Docker Application Container Engine

Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)

Active: active (running) since Tue 2020-12-01 12:17:03 UTC; 19s ago

Docs: <https://docs.docker.com>

Main PID: 3851 (dockerd)

CGroup: /system.slice/docker.service

└─3851 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Dec 01 12:17:01 ubuntu-xenial dockerd[3851]: time="2020-12-01T12:17:01.891997807Z" level=warning msg="Your kernel does not

Dec 01 12:17:01 ubuntu-xenial dockerd[3851]: time="2020-12-01T12:17:01.892071412Z" level=warning msg="Your kernel does not

Dec 01 12:17:01 ubuntu-xenial dockerd[3851]: time="2020-12-01T12:17:01.892089294Z" level=warning msg="Your kernel does not

Dec 01 12:17:01 ubuntu-xenial dockerd[3851]: time="2020-12-01T12:17:01.893134300Z" level=info msg="Loading containers: sta

Dec 01 12:17:02 ubuntu-xenial dockerd[3851]: time="2020-12-01T12:17:02.906797396Z" level=info msg="Default bridge (docker0

Dec 01 12:17:03 ubuntu-xenial dockerd[3851]: time="2020-12-01T12:17:03.106923474Z" level=info msg="Loading containers: don

Dec 01 12:17:03 ubuntu-xenial dockerd[3851]: time="2020-12-01T12:17:03.560820073Z" level=info msg="Docker daemon" commit=4

Dec 01 12:17:03 ubuntu-xenial dockerd[3851]: time="2020-12-01T12:17:03.562053242Z" level=info msg="Daemon has completed in

Dec 01 12:17:03 ubuntu-xenial systemd[1]: Started Docker Application Container Engine.

Dec 01 12:17:03 ubuntu-xenial dockerd[3851]: time="2020-12-01T12:17:03.649267204Z" level=info msg="API listen on /var/run/

vagrant@ubuntu-xenial:~\$

vagrant@ubuntu-xenial: ~

See 'docker run --help'.

vagrant@ubuntu-xenial:~\$ sudo docker run ubuntu

Unable to find image 'ubuntu:latest' locally

latest: Pulling from library/ubuntu

da7391352a9b: Pull complete

14428a6d4bcd: Pull complete

2c2d948710f2: Pull complete

Digest: sha256:c95a8e48bf88e9849f3e0f723d9f49fa12c5a00cfc6e60d2bc99d87555295e4c

Status: Downloaded newer image for ubuntu:latest

vagrant@ubuntu-xenial:~\$

```
vagrant@ubuntu-xenial: ~  
Got permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get http://%2Fvar%2Frun%2Fdocker.sock/v1.40/containers/json?all=1: dial unix /var/run/docker.sock: connect: permission denied  
vagrant@ubuntu-xenial:~$ sudo docker ps -a  
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS  
4c46a86342b1       ubuntu             "/bin/bash"        30 seconds ago     Exited (0) 28 seconds ago  
happy_hellman  
vagrant@ubuntu-xenial:~$
```

```
root@0db1857c43a3: /  
p://%2Fvar%2Frun%2Fdocker.sock/v1.40/containers/create: dial unix /var/run/docker.sock: connect: permission denied.  
See 'docker run --help'.  
vagrant@ubuntu-xenial:~$ sudo docker run -it ubuntu  
root@0db1857c43a3:/# ls  
bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys tmp usr var  
root@0db1857c43a3:/# mkdir test  
root@0db1857c43a3:/# ls  
bin dev home lib32 libx32 mnt proc run srv test usr  
boot etc lib lib64 media opt root sbin sys tmp var  
root@0db1857c43a3:/#
```