EXPERIMENT 3

Aim: Configuration of Docker and starting its container in vagrant.

1) Add the GPG key for the official Docker repository to your system.

2) Add the Docker repository to APT sources

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

4) Install from the Docker repo instead of the default Ubuntu 16.04 repo

```
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 3 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 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:3 https://download.docker.com/linux/ubuntu xenial/stable amd64 docker-ce amd64 5:19.03.13~3-0~ubuntu-xenial [22.5 MB]
Get:4 http://archive.ubuntu.com/ubuntu xenial/universe amd64 pigz amd64 2.3.1-2 [61.1 kB]
Get:5 http://archive.ubuntu.com/ubuntu xenial/universe amd64 aufs-tools amd64 1:3.2+20130722-1.1ubuntu1 [92.9 kB]
Get:6 http://archive.ubuntu.com/ubuntu xenial/universe amd64 cgroupfs-mount all 1.2 [4,970 B]
Get:7 http://archive.ubuntu.com/ubuntu xenial/main amd64 libltdl7 amd64 2.4.6-0.1 [38.3 kB]
Fetched 91.2 MB in 26s (3,465 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) ...
Selecting previously unselected package aufs-tools.
```

5) Checking and doing the configuration

```
vagrant@ubuntu-xenial: ~                                                                                    -    □    X
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 2020-11-03 17:20:22 UTC; 36s ago
     Docs: https://docs.docker.com
 Main PID: 3861 (dockerd)
   CGroup: /system.slice/docker.service
           └─3861 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Nov 03 17:20:22 ubuntu-xenial dockerd[3861]: time="2020-11-03T17:20:22.414875555Z" level=warning msg="Your kernel does not support swap memory limit"
Nov 03 17:20:22 ubuntu-xenial dockerd[3861]: time="2020-11-03T17:20:22.415581032Z" level=warning msg="Your kernel does not support cgroup rt period"
Nov 03 17:20:22 ubuntu-xenial dockerd[3861]: time="2020-11-03T17:20:22.415962976Z" level=warning msg="Your kernel does not support cgroup rt runtime"
Nov 03 17:20:22 ubuntu-xenial dockerd[3861]: time="2020-11-03T17:20:22.416533961Z" level=info msg="Loading containers: start."
Nov 03 17:20:22 ubuntu-xenial dockerd[3861]: time="2020-11-03T17:20:22.519000102Z" level=info msg="Default bridge (docker0) is assigned with an IP address 172.17.0.0/16. Daemon option --bip can be used to set a
Nov 03 17:20:22 ubuntu-xenial dockerd[3861]: time="2020-11-03T17:20:22.556669957Z" level=info msg="Loading containers: done."
Nov 03 17:20:22 ubuntu-xenial dockerd[3861]: time="2020-11-03T17:20:22.602657825Z" level=info msg="Docker daemon" commit=4484c46d9d graphdriver(s)=overlay2 version=19.03.13
Nov 03 17:20:22 ubuntu-xenial dockerd[3861]: time="2020-11-03T17:20:22.603497792Z" level=info msg="Daemon has completed initialization"
Nov 03 17:20:22 ubuntu-xenial dockerd[3861]: time="2020-11-03T17:20:22.623147056Z" level=info msg="API listen on /var/run/docker.sock"
Nov 03 17:20:22 ubuntu-xenial systemd[1]: Started Docker Application Container Engine.
```

6) Pulling Ubuntu

```
vagrant@ubuntu-xenial: ~
vagrant@ubuntu-xenial:~$ docker run ubuntu
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
6a5697faee43: Pull complete
ba13d3bc422b: Pull complete
a254829d9e55: Pull complete
Digest: sha256:fff16eea1a8ae92867721d90c59a75652ea66d29c05294e6e2f898704bdb8cf1
Status: Downloaded newer image for ubuntu:latest
vagrant@ubuntu-xenial:~$ docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS               NAMES
vagrant@ubuntu-xenial:~$ docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS                    PORTS               NAMES
55621f3f90d3        ubuntu              "/bin/bash"         18 seconds ago      Exited (0) 16 seconds ago                     inspiring_johnson
vagrant@ubuntu-xenial:~$
```

```
vagrant@ubuntu-xenial:~$ su - ${USER}
Password:
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker username
usermod: user 'username' does not exist
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker vagrant
vagrant@ubuntu-xenial:~$ docker run ubuntu
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
6a5697faee43: Pull complete
ba13d3bc422b: Pull complete
a254829d9e55: Pull complete
Digest: sha256:fff16eea1a8ae92867721d90c59a75652ea66d29c05294e6e2f898704bdb8cf1
Status: Downloaded newer image for ubuntu:latest
vagrant@ubuntu-xenial:~$ docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS               NAMES
vagrant@ubuntu-xenial:~$ docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS                   PORTS               NAMES
55621f3f90d3        ubuntu              "/bin/bash"         18 seconds ago      Exited (0) 16 seconds ago                        inspiring_johnson
vagrant@ubuntu-xenial:~$ docker run -it ubuntu
root@831f8ab2164d:/# ls
bin  boot  dev  etc  home  lib  lib32  lib64  libx32  media  mnt  opt  proc  root  run  sbin  srv  sys  tmp  usr  var
root@831f8ab2164d:/# exit
exit
vagrant@ubuntu-xenial:~$ exit
logout
vagrant@ubuntu-xenial:~$ exit
logout
Connection to 127.0.0.1 closed.
```