



Parshvanath Charitable Trust's
A. P. SHAH INSTITUTE OF TECHNOLOGY
(Approved by AICTE New Delhi & Govt. of Maharashtra, Affiliated to University of Mumbai)
(Religious Jain Minority)

Department of Information Technology

Academic Year: 2021-22

Semester: V

Class / Branch: IT

Subject: DevOps Lab

Name of Instructor: Prof. Sonal Jain

Name of Student: Soham Dalvi

Student ID: 21104010

Date of Performance: 31/8/23

Date of Submission: 31/8/23

Experiment No. 8

Aim: To understand Docker Architecture and Container Life Cycle, install Docker and execute docker commands to manage images and interact with containers

Following command is used to get the currently installed version of docker

```
apsit@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:~$ sudo su
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker -v
Docker version 24.0.5, build ced0996
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit#
```

Following command is used to pull images from the docker repository(hub.docker.com)

```
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
b237fe92c417: Pull complete
Digest: sha256:ec050c32e4a6085b423d36ecd025c0d3ff00c38ab93a3d71a460ff1c44fa6d77
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit#
```

```

root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
cassandra      4.0       9c0f2b0bd2bc  2 weeks ago   356MB
cassandra      latest    448bb4351a80  2 weeks ago   356MB
ubuntu         latest    01f29b872827  3 weeks ago   77.8MB
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit#

```

Following command is used to create a container from an image

```

root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker run -it -d ubuntu
4a77081093c1562eac6b39595c38dfa75f1456c5976ab0c79d2e964b0bdccea
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit#

```

Following command is used to list the running containers

```

root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS          PORTS
4a77081093c1   ubuntu    "/bin/bash"             About a minute ago Up About a minute
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit#

```

Following command is used to show all the running and exited containers

```

root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker ps -a
CONTAINER ID   IMAGE           COMMAND                  CREATED          STATUS          PORTS          NAMES
4a77081093c1   ubuntu          "/bin/bash"             2 minutes ago   Up 2 minutes                    zen_yonath
6d169f4e2af2   cassandra:4.0   "docker-entrypoint.s..." 3 days ago     Exited (143) 3 days ago         cassandra-cassandra-1
67c2a1375821   cassandra       "docker-entrypoint.s..." 3 days ago     Exited (143) 3 days ago         cassandra-docker
4896495a1879   cassandra:latest "docker-entrypoint.s..." 3 days ago     Exited (130) 3 days ago         cass_cluster
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit#

```

Following command is used to access the running container

```
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker exec -it 4a77081093c1 bash
root@4a77081093c1:/#
```

Pulling mysql docker request

```
root@4a77081093c1:/# exit
exit
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker pull mysql
Using default tag: latest
latest: Pulling from library/mysql
b193354265ba: Pull complete
14a15c0bb358: Pull complete
02da291ad1e4: Pull complete
9a89a1d664ee: Pull complete
a24ae6513051: Pull complete
b85424247193: Pull complete
9a240a3b3d51: Pull complete
8bf57120f71f: Pull complete
c64090e82a0b: Pull complete
af7c7515d542: Pull complete
Digest: sha256:c0455ac041844b5e65cd08571387fa5b50ab2a6179557fd938298cab13acf0dd
Status: Downloaded newer image for mysql:latest
docker.io/library/mysql:latest
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit#
```

Running mysql docker instance

```
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker run --name sankalp -e MYSQL_USER=user -e MYSQL_PASSWORD=root -e MYSQL_DATABASE=first -e MYSQL_ROOT_PASSWORD=root -d mysql
7e930ae97e4edfccfe6b0bce996776976fb2d3359b1b0665cbbcc421e0f984e6
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit#
```

Checking the current running mysql docker instance

```
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                    NAMES
7e930ae97e4e   mysql    "docker-entrypoint.s..." 8 minutes ago  Up 8 minutes  3306/tcp, 33060/tcp      sankalp
4a77081093c1   ubuntu   "/bin/bash"              21 minutes ago Up 21 minutes                      zen_yonath
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker exec -it 7e930ae97e4e bash
bash-4.4# mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.1.0 MySQL Community Server - GPL

Copyright (c) 2000, 2023, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

Showing database in docker mysql

```
mysql> show databases;
+-----+
| Database |
+-----+
| first    |
| information_schema |
| mysql    |
| performance_schema |
| sys      |
+-----+
5 rows in set (0.00 sec)

mysql> 
```

exiting out of the mysql and then docker , stopping the docker

```
mysql> exit;
Bye
bash-4.4# exit
exit
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker stop 7e930ae97e4e
7e930ae97e4e
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS          NAMES
4a77081093c1   ubuntu    "/bin/bash"             27 minutes ago Up 27 minutes          zen_yonath
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit# docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS          NAMES
7e930ae97e4e   mysql     "docker-entrypoint.s..." 14 minutes ago Exited (0) 15 seconds ago          sankalp
4a77081093c1   ubuntu    "/bin/bash"             27 minutes ago Up 27 minutes          zen_yonath
6d169f4e2af2   cassandra:4.0 "docker-entrypoint.s..." 3 days ago     Exited (143) 3 days ago          cassandra-cassandra-1
67c2a1375821   cassandra "docker-entrypoint.s..." 3 days ago     Exited (143) 3 days ago          cassandra-docker
4896495a1879   cassandra:latest "docker-entrypoint.s..." 3 days ago     Exited (130) 3 days ago          cass_cluster
root@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/home/apsit#
```

Conclusion : Hence we studied how to work with Docker Architecture and Container Life Cycle, install Docker and execute docker commands to manage images and interact with containers.