Docker : Docker is an open source platform which help to create containerization application. Using docker we can build and ship the application with help of image to deploy on different machine.

Docker also known as Adv virtualization.

Virtualization

If we want to run any application software we need system software OS. Window, Linux, Unix or Mac.

In one machine we can run multi OS.

Limitation of we can only one OS at time.

VW ware software

Oracle virtual box.

Running the OS with help of VM ware software is known virtualization.

Virtualization running the OS in abstract mode. Virtualization support abstract version of an OS.

If my base machine contains 16 RAM 1TG hard disk.

In Virtualization we need to share resources to guest OS or VM OS.

Like RAM or external memory

In Containerization we are creating abstract version of an application.

If we want to run any application like c or c++ or java or python in my machine I need run time environment for that application.

Using docker with help of Docker image, we can run the application without installing or with run time environment we can run the application.



Docker commands

Check the version of the docker

docker --version

docker images : docker images is read only template file which is responsible to run the application with help of docker container.

docker images this command is use to check all images present in local or VM machine or lab machine.

docker pull imageName

example

docker pull hello-world this command is use to pull the image.

docker run imageName/imageId

docker run hello-world this command is use to run the image in our machine.

Docker hub : Docker hub is an open source registry. Which help to pub or publish as well as pull different images.

Docker hub is like a Github. In Git hub we can push any type of file.

But in Docker hub we can push or pull docker images. Those images created using Dockerfile.

Dockerfile: it contains set of instruction which help to run some application with their dependencies.

Once we run docker image which created with help of Dockerfile. The container start that container responsible to up the application.

Container : run time environment.

Docker container : Docker container responsible to run the application with their dependencies with help of Docker image.

Hello-world is a pre defined images responsible to run the C program. This image internally use Debian or busybox OS images.

Creating docker image to display simple message.

In docker play lab

vim Dockerfile

it will open the editor

then hit i(insert mode)

FROM busybox

CMD [“echo”,”Welcome to Docker image created your name”]

esc

wq! Save the file and exit

check the file contents

cat Dockerfile to read the content of file

docker images to check your

docker build -t my-busybox . -f Dockerfile

docker images to check your

creating image to run the java program

public class Demo {

public static void main(String args[]) {

System.out.println(“Java Program running using Docker”);

}

}

pwd to check current path for terminal

mkdir java\_images it is use to create the folder

cd java\_images it is use to move inside folder

touch Demo.java empty file created

touch Dockerfile empty file created

old version we were depending upon os image and installing java software in that OS and copy our java code in that OS image and compile and run.

openjdk:11 open source image which provide us jdk features.

Dockerfile

FROM openjdk:11

COPY Demo.java .

RUN javac Demo.java

CMD [“java”,”Demo”]

Updated command to run Java Program using docker image

java program

public class Demo {

public static void main(String args[]) {

System.out.println("Java Program running using Docker");

}

}

Dockerfile

FROM openjdk:11

COPY Demo.java .

RUN javac Demo.java

CMD ["java","Demo"]

cat Demo.java

cat Dockerfile

docker build -t my-java . -f Dockerfile

docker images

docker run my-java