## **Docker**

## Docker is a container management service. The keywords of Docker are develop**,** ship and run anywhere. The whole idea of Docker is for developers to easily develop applications, ship them into containers which can then be deployed anywhere.

## **Features of Docker**

1.Docker has the ability to reduce the size of development by providing a smaller footprint of the operating system via containers.

2.With containers, it becomes easier for teams across different units, such as development, QA and Operations to work seamlessly across applications.

3.You can deploy Docker containers anywhere, on any physical and virtual machines and even on the cloud.

4.Since Docker containers are pretty lightweight, they are very easily scalable.

**Components of Docker**

**Docker for Mac** − It allows one to run Docker containers on the Mac OS.

**Docker for Linux** − It allows one to run Docker containers on the Linux OS.

**Docker for Windows** − It allows one to run Docker containers on the Windows OS.

**Docker Engine** − It is used for building Docker images and creating Docker containers.

**Docker Hub** − This is the registry which is used to host various Docker images.

**Docker Compose** − This is used to define applications using multiple Docker containers.

**Docker Hub**

Docker Hub is a registry service on the cloud that allows you to download Docker images that are built by other communities. You can also upload your own Docker built images to Docker hub.

**Docker - Images**

In Docker, everything is based on Images. An image is a combination of a file system and parameters. Let’s take an example of the following command in Docker.

docker run hello-world

* The Docker command is specific and tells the Docker program on the Operating System that something needs to be done.
* The **run** command is used to mention that we want to create an instance of an image, which is then called a **container**.
* Finally, "hello-world" represents the image from which the container is made.

Now let’s look at how we can use the CentOS image available in Docker Hub to run CentOS on our Ubuntu machine. We can do this by executing the following command on our Ubuntu machine −

sudo docker run -it centos /bin/bash

**Displaying Docker Images**

To see the list of Docker images on the system, you can issue the following command.

docker images

Containers are instances of Docker images that can be run using the Docker run command. The basic purpose of Docker is to run containers. Let’s discuss how to work with containers.

**Running a Container**

Running of containers is managed with the Docker run command. To run a container in an interactive mode, first launch the Docker container.

sudo docker run –it centos /bin/bash

**Listing of Containers**

One can list all of the containers on the machine via the **docker ps** command. This command is used to return the currently running containers.

docker ps

Syntax

docker ps

**Docker – Configuring**

Now,we will look at the different options to configure Docker.

service docker stop

This command is used to stop the Docker **daemon** process.

Syntax

service docker stop

**Docker Public Repositories**

Public repositories can be used to host Docker images which can be used by everyone else. An example is the images which are available in Docker Hub. Most of the images such as Centos, Ubuntu, and Jenkins are all publicly available for all. We can also make our images available by publishing it to the public repository on Docker Hub.

**Docker Private Registries**

You might have the need to have your own private repositories. You may not want to host the repositories on Docker Hub.

Use the Docker run command to download the private registry. This can be done using the following command.

sudo docker run –d –p 5000:5000 –-name registry registry:2