**DOCKER**

**Docker Setup**

* **Launch EC2 instance**
  1. **Give any name like 🡪 Docker Server**
  2. **Use Ubuntu 18.0 Image**
  3. **Use Instance type** 🡪 **t2.micro**
  4. **Create security group**
  5. **Allow all traffic from anywhere**
  6. **Create a key pair**
  7. **Launch EC2 instance**
* **Go to** [**https://get.docker.com/**](https://get.docker.com/)
* **Use below commands to quick install Docker for Ubuntu machines**
* $ curl -fsSL https://get.docker.com -o get-docker.sh
* $ sh get-docker.sh
* **Give permissions for user “Ubuntu” to execute Docker commands**
  + You can check the Docker group 🡪 sudo vim /etc/group
  + You can give user “ubuntu” for docker group or you can use usermod command 🡪 **sudo usermod -aG docker ubuntu**
  + Check it 🡪 $ **id ubuntu**
  + Now you can run the docker commands

**Docker Image**

**A Docker image is a combination of bin/libs that are necessary for a software application to work. Initially all the software’s of docker are available in the form of docker images.**

**You can refer the Docker repository where you will find all kinds of docker images**

[**https://hub.docker.com/**](https://hub.docker.com/)

**Docker Container**

**A running instance of an image is called as a docker container**

**Docker Host**

**The server where docker is installed is called docker host**

**Docker Client**

**This is the CLI of docker where the user can execute the docker commands. The docker client accepts these commands and passes them to a background process called "docker daemon"**

**Docker daemon**

**This process accepts the commands coming from the docker client and routes them to work on docker images or containers or the docker registry**

**Docker Registries**

* **Storage for Docker Images**
* **Dockerhub is a default Registry**
* **Cloud based Registries**
  + - **DockerHub**
    - **GCR (Google Container Registry)**
    - **ACR (Azure Container Registry)**
    - **Amazon ECR (Elastic Container Registry)**
* **InHouse or Local Registries**
  + - **Nexus 3+**
    - **Jfrog Artifactory**
    - **DTR (Docker Trusted Registry)**

**Docker Importance Commands**

1. **$ docker images 🡪 List all the images locally**
2. **$ docker run 🡪 Creates new container**
3. **$ docker ps 🡪 List running containers**
4. **$ docker ps -a 🡪 List all the containers**
5. **$ docker exec 🡪 Execute commands on containers**
6. **$ docker start/stop/restart container\_id / container\_name**
7. **$ docker rmi image\_name / image\_id 🡪 Remove docker images locally**
8. **$ docker rmi -f image\_name / image\_id 🡪 Forcibly remove the docker image associated with a running container**
9. **$ docker inspect (docker image inspect image\_name) 🡪 Detail of Container & Image**
10. **$ docker pull 🡪 Pull the docker images from Docker Repository**
11. **$ docker system prune -af 🡪 To delete all images**
12. **$ docker rm container\_name / container\_id 🡪 To remove the container**
13. **$ docker rm -f container\_name / container\_id 🡪 To remove forcibly a running container**
14. **$ docker stop $(docker ps -aq) 🡪 To stop all the running containers**
15. **$ docker rm $(docker ps -aq) 🡪 To delete all the stopped containers**
16. **$ docker rm -f $(docker ps -aq) 🡪 To delete all the running containers**
17. **ctrl+p,ctrl+q 🡪 To come outside of the container safely**

**Examples:**

1. $ docker run –name myweb nginx
2. $ docker run –name myweb -d nginx
3. $ docker run –name myweb -d -p 8080:80
   1. Here 8080 🡪 is host port
   2. And 80 🡪 is container port
4. $ docker stop container\_name / container\_id
5. $ docker start containr\_name / container\_id
6. $ docker exec container\_name ls /
7. $ docker exec -it container\_name /bin/bash
   1. We can run commands inside container
   2. Run “ps” command
   3. You can install it “apt update” 🡪 “apt install procps -y”
   4. Run “ps -ef”
8. $ docker rmi nginx:tag\_name
9. $ docker run -it ubuntu /bin/bash