**11 Aug**

Docker:

1. Install docker- Apt install docker.io –y
2. Systemctl enable docker
3. Check status – systemctl status docker
4. Pull an image and create a container and run it simultaneously – docker run hello-world
5. Pull an image – docker pull Ubuntu
6. Check images- docker images
7. Check created (running or terminated)container – dokcer ps –a
8. Check latest container created – docker ps –l
9. Check info of docker – docker info
10. Launch a container interactively: docker run –it hello-world /bin/bash
11. Connect to existing container interactively: docker exec -it 6d7e06c3a7468491de84e8c14afaff8539cf0db88012ff805be387b72c0f87de /bin/bash
12. Pull an image with old tag: docker pull tomcat:9.0.93-jre21-temurin-jammy
13. Pull Jenkins image: docker pull Jenkins/Jenkins

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**Create Docker Swarm:**

1. docker swarm init --advertise-addr MANAGER\_IP . COMMAND RUN IN MASTER

root@master:/home/ubuntu# docker swarm init --advertise-addr 13.60.172.72

Swarm initialized: current node (qwp5hnczp38782f63ossq7ofz) is now a manager.

1. Command run in node

docker swarm join --token SWMTKN-1-5v25ty7f5lu8n2rlr5mxdeedrc434rig48o1hmd0hklqptz9dg-4izlv3a2sk89hny2ulhu0n75p 13.60.172.72:2377

1. Check if nodes setup correctly

root@master:/home/ubuntu# docker node ls

ID HOSTNAME STATUS AVAILABILITY MANAGER STATUS ENGINE VERSION

qwp5hnczp38782f63ossq7ofz \* master Ready Active Leader 24.0.7

nrndyup25jcghu1v5np2zxc7t worker Ready Active 24.0.7

root@master:/home/ubuntu#

1. To know the join command as manager or node:

docker swarm join-token worker/manager -> it will return the command to run on any server after setting up ssh

1. Create replica (or containers) of service:

docker service create --replicas 5 -p 80:80 --name web nginx

1. Check how many replicas are ready

root@master:/home/ubuntu# docker service ls

ID NAME MODE REPLICAS IMAGE PORTS

o3m55uqu47d3 web replicated 5/5 nginx:latest \*:80->80/tcp

1. To check where each replica is running

Docker service ps web

root@master:/home/ubuntu# docker service ps web

ID NAME IMAGE NODE DESIRED STATE CURRENT STATE ERROR PORTS

o2rzndedfeqr web.1 nginx:latest master Running Running 2 minutes ago

qp6jf9t448o4 web.2 nginx:latest master Running Running 2 minutes ago

w9pu1cbblczz web.3 nginx:latest worker Running Running 2 minutes ago

2o11sdtw2q76 web.4 nginx:latest master Running Running 2 minutes ago

3e3txdts4oxa web.5 nginx:latest worker Running Running 2 minutes ago

1. To check containers running on current server only:

root@master:/home/ubuntu# docker ps

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

9be00c4fadef nginx:latest "/docker-entrypoint.…" 3 minutes ago Up 3 minutes 80/tcp web.2.qp6jf9t448o49vb3kocmnkbqj

4d082b15818b nginx:latest "/docker-entrypoint.…" 3 minutes ago Up 3 minutes 80/tcp web.4.2o11sdtw2q76ofnbwidxgx5vw

91fca8d5c81e nginx:latest "/docker-entrypoint.…" 3 minutes ago Up 3 minutes 80/tcp web.1.o2rzndedfeqrchw7f82bg5moj

1. To scale up/down the number of containers

root@master:/home/ubuntu# docker service scale web=6

1. To install monitoring tool:

sudo wget https://github.com/bcicen/ctop/releases/download/v0.7.1/ctop-0.7.1-linux-amd64 -O /usr/local/bin/ctop

sudo chmod +x /usr/local/bin/ctop

1. Run ctop command:

ctop - 11:48:41 UTC 3 containers

NAME CID CPU MEM NET RX/TX IO R/W PIDS

◉ web.1.o2rzndedfeqrchw7… 91fca8d5c81e 0% 6M / 914M 1K / 0B 0B / 0B 3

◉ web.2.qp6jf9t448o49vb3… 9be00c4fadef 0% 5M / 914M 1K / 142B 0B / 0B 3

◉ web.4.2o11sdtw2q76ofnb… 4d082b15818b 0% 4M / 914M 1K / 0B 0B / 0B 3

1. Create own Docker registry:

docker run -d -p 50000:5000 --restart always --name my-registry registry

check if registry is created : docker ps -a

check if registry is accessible: <http://13.60.172.72:50000/v2/_catalog>

Push Own image to local registry:

1. Tag an image and push to dockerhub

root@master:/home/ubuntu# docker tag hello-world:latest abhi2086/test:v1

root@master:/home/ubuntu# docker push abhi2086/test:v1

The push refers to repository [docker.io/abhi2086/test]

ac28800ec8bb: Pushed

v1: digest: sha256:d37ada95d47ad12224c205a938129df7a3e52345828b4fa27b03a98825d1e2e7 size: 524

you will need to login: docker login –u abhi2086

generate access token from settings and use it as password

1. Exporting a container (NEED TO CHECK)

root@master:/home/ubuntu# docker export 51c4cf8a079b>hello.tar

scp hello.tar 13.60.247.7:/home/Ubuntu

root@w1:/home/ubuntu# docker import hello.tar

sha256:64fbb25865a1ebb9881d6638fd5d2a6fd56b6eabb1a100ad88ce9378412ca0ca

root@w1:/home/ubuntu# docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

<none> <none> 64fbb25865a1 9 seconds ago 13.3kB

***root@w1:/home/ubuntu# docker run hello:v1***

***docker: Error response from daemon: No command specified.***

***See 'docker run --help'.***

1. Docker stop a container

Docker stop containerid

**Q. What happens if leader is disabled in docker swarm.**

root@worker:/home/ubuntu# docker node ps

Error response from daemon: This node is not a swarm manager. Worker nodes can't be used to view or modify cluster state. Please run this command on a manager node or promote the current node to a manager.

root@ip-172-31-42-152:/home/ubuntu# docker node ls

ID HOSTNAME STATUS AVAILABILITY MANAGER STATUS ENGINE VERSION

qwp5hnczp38782f63ossq7ofz \* ip-172-31-42-152 Ready Active Leader 24.0.7

pbye6hqlo03p760edw15xh9so w2 Down Active 24.0.7

nrndyup25jcghu1v5np2zxc7t worker Down Active 24.0.7

**Q. Where is docker log path and docker home path?**

Docker log: /var/lib/docker/containers

Docker home path:

root@ip-172-31-42-152:/var/lib/docker/containers# docker info | grep "Docker Root Dir"

Docker Root Dir: /var/lib/docker

**Q. Where is image reference maintained once image is downloaded in docker?**

/var/lib/docker/image/overlay2