

DOCKER Session

1. Set the base image to Ubuntu

- Add File Author / Maintainer
- Install Nginx
- Install necessary tools: vim wget curl net-tools
- Remove the default Nginx configuration file
- Copy a configuration file from the current directory
- Expose ports (80)
- Set the default command to execute Nginx when creating a new container

```
FROM ubuntu
MAINTAINER Jay Patel <jay.patel@tothenew.com>
RUN apt-get update
RUN apt-get install -y nginx vim wget curl net-tools
RUN rm -v /etc/nginx/sites-enabled/default
COPY xyz /etc/nginx/sites-available
COPY index.html /var/www/html
RUN ln -s /etc/nginx/sites-available/xyz /etc/nginx/sites-enabled/
EXPOSE 80
CMD ["nginx" , "-g" , "daemon off;"]
```

```

jay@Jay-Patel:docker1 $ sudo docker build -t nginx1:v1.1 .
Sending build context to Docker daemon  4.096kB
Step 1/10 : FROM ubuntu
--> 72300a873c2c
Step 2/10 : MAINTAINER Jay Patel <jay.patel@tothenew.com>
--> Using cache
--> 366921f9a42d
Step 3/10 : RUN apt-get update
--> Using cache
--> 43b6847e12ad
Step 4/10 : RUN apt-get install -y nginx vim wget curl net-tools
--> Using cache
--> 27a7f7bb7f1a
Step 5/10 : RUN rm -v /etc/nginx/sites-enabled/default
--> Using cache
--> c0569fa7b201
Step 6/10 : COPY xyz /etc/nginx/sites-available
--> Using cache
--> 9b4a27e35526
Step 7/10 : COPY index.html /var/www/html
--> Using cache
--> 7752a2ed05b0
Step 8/10 : RUN ln -s /etc/nginx/sites-available/xyz /etc/nginx/sites-enabled/
--> Using cache
--> 1547169530ff
Step 9/10 : EXPOSE 80
--> Using cache
--> e55379ef13a3
Step 10/10 : CMD ["nginx" , "-g" , "daemon off;"]
--> Using cache
--> 7fdc968e8c0b
Successfully built 7fdc968e8c0b
Successfully tagged nginx1:v1.1
jay@Jay-Patel:docker1 $ █

```

```

jay@Jay-Patel:docker1 $ sudo docker run -itd nginx1:v1.1
892585bdfa63b21713ceb9e50ec7b7e0e0d36d4f03229a8b4f32292c6d381775
jay@Jay-Patel:docker1 $ sudo docker ps -a

```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
892585bdfa63	nginx1:v1.1	"nginx -g 'daemon of..."	7 seconds ago	Up 6 seconds	80/tcp	optimistic_kare

```

jay@Jay-Patel:docker1 $ curl 172.17.0.2
<h1> xyz </h1>
jay@Jay-Patel:docker1 $ █

```

2.What is the difference between 'RUN', 'CMD', & 'ENTRYPOINT' in dockerfile?

RUN executes the command(s) that you give in a new layer and creates a new image.This is mainly used for installing a new package.

CMD is the default command to be run by the entrypoint. It sets default command and/or parameters, however, we can overwrite those commands or pass in and bypass the default parameters from the command line when docker runs

ENTRYPOINT is the program to run the given command. It is used when you want to run a container as an executable.

3.How to connect docker client to docker daemon running on other host?

```
ubuntu@ip-10-0-1-24:~$ sudo mkdir -p /etc/systemd/system/docker.service.d
ubuntu@ip-10-0-1-24:~$ sudo nano /etc/systemd/system/docker.service.d/options.conf

ubuntu@ip-10-0-1-24:~$ sudo systemctl daemon-reload
ubuntu@ip-10-0-1-24:~$ sudo systemctl restart docker
ubuntu@ip-10-0-1-24:~$ docker run -itd nginx
docker: Got permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Post http://%2Fvar%2Frun%2Fdocker.sock/v1.40/containers/create: dial unix /var/run/docker.sock: connect: permission denied.
See 'docker run --help'.
ubuntu@ip-10-0-1-24:~$ sudo docker run -itd nginx
Unable to find image 'nginx:latest' locally
latest: Pulling from library/nginx
c499e6d256d6: Pull complete
74cda408e262: Pull complete
ffadb415ab7: Pull complete
Digest: sha256:282530fcb7cd19f3848c7b611043f82ae4be3781cb00105a1d593d7e6286b596
Status: Downloaded newer image for nginx:latest
34a6261f16397f690484f6227b4262ac9b742b81079edb21435101d436ec307f
ubuntu@ip-10-0-1-24:~$ docker ps -a
Got permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get http://%2Fvar%2Frun%2Fdocker.sock/v1.40/containers/json?all=1: dial unix /var/run/docker.sock: connect: permission denied
ubuntu@ip-10-0-1-24:~$ sudo docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
34a6261f1639        nginx              "nginx -g 'daemon of..." 34 seconds ago      Up 33 seconds      80/tcp             ecstatic_payne
ubuntu@ip-10-0-1-24:~$ sudo cat /etc/systemd/system/docker.service.d/options.conf
[Service]
ExecStart=
ExecStart=/usr/bin/dockerd -H unix:/// -H tcp://0.0.0.0:2375
ubuntu@ip-10-0-1-24:~$
```

Configuration done on EC2 instance to use remote docker daemon

```
jay@Jay-Patel:Videos $ echo "export DOCKER_HOST=tcp://35.153.105.198:2375" >> ~/.bashrc && source ~/.bashrc
jay@Jay-Patel:Videos $
```

```
Network: bridge host ipvlan macvlan null overlay
Log: awslogs fluentd gcplogs gelf journald json-file local logentries splunk syslog
Swarm: inactive
Runtimes: runc
Default Runtime: runc
Init Binary: docker-init
containerd version:
runc version:
init version:
Security Options:
  apparmor
  seccomp
   Profile: default
Kernel Version: 4.15.0-1065-aws
Operating System: Ubuntu 18.04.3 LTS
OSType: linux
Architecture: x86_64
CPUs: 1
Total Memory: 983.7MiB
Name: ip-192-168-108-175
ID: QEELA:2DOG:KLZH:WXQM:UB7G:G6V2:47H5:EV4V:QKAV:RXAV:J2H3:MWMT
Docker Root Dir: /var/lib/docker
Debug Mode: false
Registry: https://index.docker.io/v1/
Labels:
Experimental: false
Insecure Registries:
  127.0.0.0/8
Live Restore Enabled: false
```

Remote docker daemon details using sudo docker info on my local machine