

## Docker Task -3

### Task Description:

Create a custom docker image for nginx and deploy it using docker compose, where the volume bind mount should be at /var/opt/nginx location. Push the created custom docker image to your docker-hub.

### Techstacks needs to be used :

- AWS EC2
- Docker
- Docker Compose

### 1 Project Structure

```
mkdir custom-nginx && cd custom-nginx  
mkdir html  
touch Dockerfile docker-compose.yml html/index.html default.conf
```

```
ubuntu@ip-172-31-6-62:~$ mkdir custom-nginx  
ubuntu@ip-172-31-6-62:~$ cd custom-nginx/  
ubuntu@ip-172-31-6-62:~/custom-nginx$ mkdir html  
ubuntu@ip-172-31-6-62:~/custom-nginx$ touch Dockerfile docker-compose.yml html/index.html  
ubuntu@ip-172-31-6-62:~/custom-nginx$ ls  
Dockerfile docker-compose.yml html  
ubuntu@ip-172-31-6-62:~/custom-nginx$ |
```

### 2 Create Sample Website

```
GNU nano 7.2  
<!DOCTYPE html>  
<html>  
<head>  
    <title>Custom NGINX Docker</title>  
</head>  
<body>  
    <h1>Custom NGINX Image using Docker Compose</h1>  
    <h3>Volume Mounted at /var/opt/nginx</h3>  
</body>  
</html>
```

### 3 Create Custom Dockerfile

#### Dockerfile

```
GNU nano 7.2
FROM nginx:latest

# Remove default config
RUN rm -rf /usr/share/nginx/html/*

# Create mount directory
RUN mkdir -p /var/opt/nginx

# Copy custom nginx config
COPY default.conf /etc/nginx/conf.d/default.conf

WORKDIR /var/opt/nginx
```

### 4 Create Custom NGINX Config

#### default.conf

```
GNU nano 7.2
server {
    listen 80;
    server_name localhost;

    location / {
        root /var/opt/nginx;
        index index.html;
    }
}
```

### 5 Docker Compose File (docker-compose.yml)

```
ubuntu@ip-172-31-6-62:~/custom-nginx$ nano docker-compose.yml
ubuntu@ip-172-31-6-62:~/custom-nginx$ cat docker-compose.yml
version: '3.8'

services:
  web:
    image: sethuaws/custom-nginx:1.0
    container_name: custom_nginx_web
    ports:
      - "80:80"
    volumes:
      - ./html:/var/opt/nginx
ubuntu@ip-172-31-6-62:~/custom-nginx$
```

## 6 Build the Custom Image

```
docker build -t sethuaws/custom-nginx:1.0 .
```

```
ubuntu@ip-172-31-6-62:~/custom-nginx$ sudo docker build -t sethuaws/custom-nginx:1.0 .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
            Install the buildx component to build images with BuildKit:
            https://docs.docker.com/go/buildx/
Sending build context to Docker daemon 5.632kB
Step 1/5 : FROM nginx:latest
latest: Pulling from library/nginx
02d7611c4eae: Pulling fs layer
dcea87ab9c4a: Pulling fs layer
```

Verify: (sudo docker images)

```
ubuntu@ip-172-31-6-62:~/custom-nginx$ sudo docker images
REPOSITORY          TAG      IMAGE ID      CREATED       SIZE
sethuaws/custom-nginx  1.0      2f0525929b2e  47 seconds ago  152MB
nginx               latest    058f4935d1cb  7 days ago    152MB
hello-world         latest    1b44b5a3e06a  5 months ago   10.1kB
ubuntu@ip-172-31-6-62:~/custom-nginx$
```

## 7 Run using Docker Compose

Sudo docker compose up -d

```
ubuntu@ip-172-31-6-62:~/custom-nginx$ sudo docker compose up -d
WARN[0000] /home/ubuntu/custom-nginx/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please
| remove it to avoid potential confusion
WARN[0000] No services to build
[+] up 2/2
  ✓ Network custom-nginx_default Created
  ✓ Container custom_nginx_web   Created
                                         0.0s
                                         0.1s
ubuntu@ip-172-31-6-62:~/custom-nginx$
```

Access in browser:

<http://65.2.79.219>



# Custom NGINX Image using Docker Compose

Volume Mounted at /var/opt/nginx

## 8 Login to Docker Hub

docker login

```
ubuntu@ip-172-31-6-62:~$ sudo docker login
USING WEB-BASED LOGIN

Info → To sign in with credentials on the command line, use 'docker login -u <username>'

Your one-time device confirmation code is: TLXM-MRXL
Press ENTER to open your browser or submit your device code here: https://login.docker.com/activate

Waiting for authentication in the browser...

WARNING! Your credentials are stored unencrypted in '/root/.docker/config.json'.
Configure a credential helper to remove this warning. See
https://docs.docker.com/go/credential-store/

Login Succeeded
ubuntu@ip-172-31-6-62:~$ |
```

## 9 Push Image to Docker Hub

docker push sethuaws/custom-nginx:1.0

```
ubuntu@ip-172-31-6-62:~$ sudo docker push sethuaws/custom-nginx:1.0
The push refers to repository [docker.io/sethuaws/custom-nginx]
9c644feb7f1b: Pushed
dbfa55101d1a: Pushed
4fe681c7c7c3: Pushed
396214f7f8fc: Mounted from library/nginx
b1484d87e77a: Mounted from library/nginx
df20eaef6952: Mounted from library/nginx
f2ddb60a28da: Mounted from library/nginx
83eccd85c69c: Mounted from library/nginx
47eeda941886: Mounted from library/nginx
6a7f953ae30c: Mounted from library/nginx
1.0: digest: sha256:d610740dc423c4ed32ea6cc1cea732d38813d9f98311eaecd639d7aeeb903c6c size: 2400
ubuntu@ip-172-31-6-62:~$ |
```

## 10 Pull & Test from Another Machine (Additional)

docker pull sethuaws/custom-nginx:1.0

docker run -d -p 80:80 -v \$(pwd)/html:/var/opt/nginx sethuaws/custom-nginx:1.0

```
ubuntu@ip-172-31-33-68:~$ sudo docker pull sethuaws/custom-nginx:1.0
1.0: Pulling from sethuaws/custom-nginx
02d7611c4eae: Pull complete
dcea87ab9c4a: Pull complete
35df28ad1026: Pull complete
99ae2d6d05ef: Pull complete
a2b008488679: Pull complete
d03ca78f31fe: Pull complete
d6799cf0ce70: Pull complete
6ab3dcb55887: Pull complete
9e499b85aaaae: Pull complete
034f39de43aa: Pull complete
Digest: sha256:d610740dc423c4ed32ea6cc1cea732d38813d9f98311eaecd639d7aeeb903c6c
Status: Downloaded newer image for sethuaws/custom-nginx:1.0
```

```
ubuntu@ip-172-31-33-68:~$ sudo docker run -d -p 80:80 -v $(pwd)/html:/var/opt/nginx sethuaws/custom-nginx:1.0
0ff64e0bb1dc063eff6660707b7cf64a421a815fb736ee09cd9b7a6ccacd09db
ubuntu@ip-172-31-33-68:~$ docker ps
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar
%2Frun%2Fdocker.sock/v1.50/containers/json": dial unix /var/run/docker.sock: connect: permission denied
ubuntu@ip-172-31-33-68:~$ sudo docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS
NAMES
0ff64e0bb1dc        sethuaws/custom-nginx:1.0   "/docker-entrypoint..."   18 seconds ago    Up 17 seconds   0.0.0.0:80->80/tcp,
[::]:80->80/tcp   festive_brown
ubuntu@ip-172-31-33-68:~$
```