

# Lab: Containerizing and Deploying a React Application to EC2

## Part 1: Create the React Application



```
vijayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ npm run build
```

```
> my-devops-app@0.1.0 build
> react-scripts build
```

```
Creating an optimized production build...
Compiled successfully.
```

File sizes after gzip:

```
60.96 kB  build/static/js/main.01ddcef5.js
1.77 kB   build/static/js/453.f668bc1d.chunk.js
515 B     build/static/css/main.f855e6bc.css
```

The project was built assuming it is hosted at `/`.  
You can control this with the `homepage` field in your `package.json`.

The `build` folder is ready to be deployed.  
You may serve it with a static server:

```
npm install -g serve
serve -s build
```

Find out more about deployment here:

<https://cra.link/deployment>

```
vijayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app/build$ ls -la
```

```
total 52
drwxr-xr-x 3 vijayagagla vijayagagla 4096 Feb  4 15:14 .
drwxr-xr-x 7 vijayagagla vijayagagla 4096 Feb  4 15:13 ..
-rw-r--r-- 1 vijayagagla vijayagagla  605 Feb  4 15:14 asset-manifest.json
-rw-r--r-- 1 vijayagagla vijayagagla 3870 Feb  4 15:13 favicon.ico
-rw-r--r-- 1 vijayagagla vijayagagla  644 Feb  4 15:14 index.html
-rw-r--r-- 1 vijayagagla vijayagagla 5347 Feb  4 15:13 logo192.png
-rw-r--r-- 1 vijayagagla vijayagagla 9664 Feb  4 15:13 logo512.png
-rw-r--r-- 1 vijayagagla vijayagagla  492 Feb  4 15:13 manifest.json
-rw-r--r-- 1 vijayagagla vijayagagla   67 Feb  4 15:13 robots.txt
drwxr-xr-x 5 vijayagagla vijayagagla 4096 Feb  4 15:14 static
```

Part 2: Create the Dockerfile

```
viyayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ docker build -t my-devops-app:v1.0
```


```
Successfully built f740fd434d35
Successfully tagged my-devops-app:v1.0
```

```
viyayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ docker images | grep my-devops-app
my-devops-app          v1.0          f740fd434d35   About a minute ago
63.1MB
```

```
viyayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ docker run -d -p 5050:80 --name react-test my-devops-app:v1.0
c25803564de1487ab9e37b7ae33dd586f640f4c811f4e7d3aaff879325c08200
```

localhost:5050

Letter/in - ITIT-Proje... GitHub Flow Git » A successful Git bra... PMP Practice Exam... GitHub - danielboh... Catalina(Tomcat) Cu... Apache Tomcat Har... redirect - Tomcat is...



## DevOps React Application

Successfully deployed with Docker to EC2!

Hostname: localhost

Environment: Production

PROBLEMS OUTPUT PORTS TERMINAL DEBUG CONSOLE

```
viyayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ docker stop react-test
react-test
viyayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ docker rm react-test
react-test
viyayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$
```

#### Part 4: Publish to Docker Hub

```
viyayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ docker tag my-devops-app:v1.0 viyayagagla123/my-devops-app:v1.0
```

```
viyayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ docker tag my-devops-app:v1.0 viyayagagla123/my-devops-app:latest
```

```
vijayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ docker push vijayagagla123/my-devops-app:v1.0
The push refers to repository [docker.io/vijayagagla123/my-devops-app]
c0ccf18d801b: Pushed
8475f4ed18d2: Pushed
af820b247205: Pushed
8b4b77877dd1: Mounted from library/nginx
06d5972670c6: Mounted from library/nginx
e22da3f459ae: Mounted from library/nginx
536851695bd2: Mounted from library/nginx
14b08f05bc0a: Mounted from library/nginx
2f3eeb9b695d: Mounted from library/nginx
ae33d91d45a6: Mounted from library/nginx
989e799e6349: Mounted from library/nginx
v1.0: digest: sha256:6aa6665b8e7111034cf5ff9b8447d2981018be77f965fb9e612d413fd61fc7e2 size: 2613
vijayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ docker push vijayagagla123/my-devops-app:latest
The push refers to repository [docker.io/vijayagagla123/my-devops-app]
c0ccf18d801b: Layer already exists
8475f4ed18d2: Layer already exists
af820b247205: Layer already exists
8b4b77877dd1: Layer already exists
06d5972670c6: Layer already exists
e22da3f459ae: Layer already exists
536851695bd2: Layer already exists
14b08f05bc0a: Layer already exists
2f3eeb9b695d: Layer already exists
ae33d91d45a6: Layer already exists
989e799e6349: Layer already exists
latest: digest: sha256:6aa6665b8e7111034cf5ff9b8447d2981018be77f965fb9e612d413fd61fc7e2 size: 2613
```

## Part 5: Deploy to EC2

```
vijayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ ssh -i docker-compose-lab-key-vijaya.pem ubuntu@3.75.141.163
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-1018-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Wed Feb  4 16:07:15 UTC 2026

System load:  0.01               Processes:            114
Usage of /:   35.0% of 6.71GB    Users logged in:     0
Memory usage: 28%               IPv4 address for enx0: 172.31.42.230
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

74 updates can be applied immediately.
37 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

1 additional security update can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

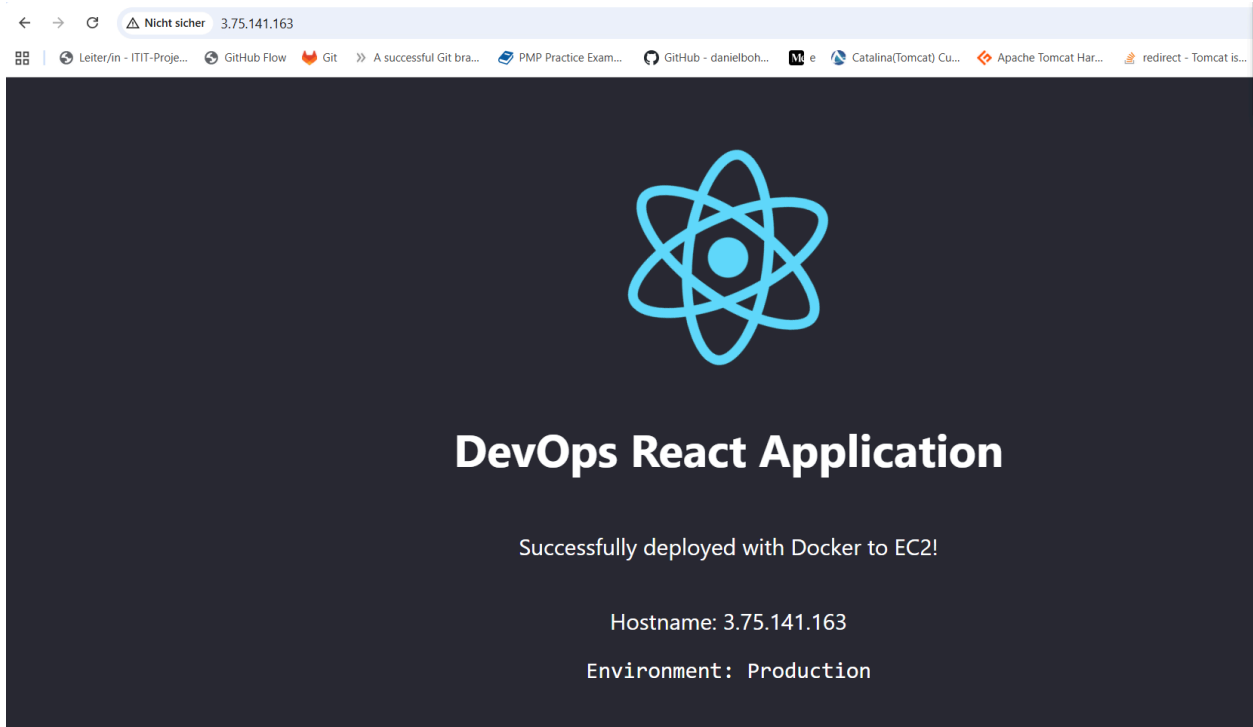
Last login: Wed Feb  4 16:01:17 2026 from 149.224.53.254
ubuntu@ip-172-31-42-230:~$
```

```
ubuntu@ip-172-31-42-230:~$ sudo apt-get update
sudo apt-get install -y docker.io
sudo systemctl start docker
sudo systemctl enable docker
sudo usermod -aG docker ubuntu
newgrp docker
```

```
ubuntu@ip-172-31-42-230:~$ docker pull vijayagagla123/my-devops-app:latest
latest: Pulling from vijayagagla123/my-devops-app
589002ba0eae: Pull complete
9331cd6029cb: Pull complete
211bae00ea56: Pull complete
9739627526d7: Pull complete
6c2f4c63521d: Pull complete
76fc765fd3b0: Pull complete
cd835559902a: Pull complete
55cbbd6285fe: Pull complete
8f54926584fa: Pull complete
8e95ef444ca0: Pull complete
604ae6e3b967: Pull complete
Digest: sha256:6aa6665b8e7111034cf5ff9b8447d2981018be77f965fb9e612d413fd61fc7e2
Status: Downloaded newer image for vijayagagla123/my-devops-app:latest
docker.io/vijayagagla123/my-devops-app:latest
```

```
ubuntu@ip-172-31-42-230:~$ docker run -d \
  --name my-devops-app \
  --restart unless-stopped \
  -p 80:80 \
  vijayagagla123/my-devops-app:latest
b0ebf30e4d4907015a50e4c0872f45c87a9455e12eb4dd4f16a3ecbf712e2d69
ubuntu@ip-172-31-42-230:~$
```

```
ubuntu@ip-172-31-42-230:~$ docker run -d \
  --name my-devops-app \
  --restart unless-stopped \
  -p 80:80 \
  vijayagagla123/my-devops-app:latest
b0ebf30e4d4907015a50e4c0872f45c87a9455e12eb4dd4f16a3ecbf712e2d69
ubuntu@ip-172-31-42-230:~$ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED
STATUS        PORTS          NAMES
b0ebf30e4d49   vijayagagla123/my-devops-app:latest "/docker-entrypoint...." 38 seco
nds ago       Up 37 seconds  0.0.0.0:80->80/tcp, [::]:80->80/tcp  my-devops-app
ubuntu@ip-172-31-42-230:~$ docker logs my-devops-app
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform co
nfiguration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/defa
ult.conf
10-listen-on-ipv6-by-default.sh: info: /etc/nginx/conf.d/default.conf differs from th
e packaged version
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2026/02/04 16:09:25 [notice] 1#1: using the "epoll" event method
2026/02/04 16:09:25 [notice] 1#1: nginx/1.29.4
2026/02/04 16:09:25 [notice] 1#1: built by gcc 15.2.0 (Alpine 15.2.0)
2026/02/04 16:09:25 [notice] 1#1: OS: Linux 6.14.0-1018-aws
2026/02/04 16:09:25 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2026/02/04 16:09:25 [notice] 1#1: start worker processes
2026/02/04 16:09:25 [notice] 1#1: start worker process 29
ubuntu@ip-172-31-42-230:~$
```



## Part 6: Container Management

```
ubuntu@ip-172-31-42-230:~$ docker logs my-devops-app
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: /etc/nginx/conf.d/default.conf differs from the packaged version
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: /etc/nginx/conf.d/default.conf differs from the packaged version
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2026/02/04 16:09:25 [notice] 1#1: using the "epoll" event method
2026/02/04 16:09:25 [notice] 1#1: nginx/1.29.4
2026/02/04 16:09:25 [notice] 1#1: built by gcc 15.2.0 (Alpine 15.2.0)
2026/02/04 16:09:25 [notice] 1#1: OS: Linux 6.14.0-1018-aws
2026/02/04 16:09:25 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2026/02/04 16:09:25 [notice] 1#1: start worker processes
2026/02/04 16:09:25 [notice] 1#1: start worker process 29
149.224.53.254 - - [04/Feb/2026:16:11:04 +0000] "GET / HTTP/1.1" 200 390 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/144.0.0.0 Safari/537.36" "-"
149.224.53.254 - - [04/Feb/2026:16:11:04 +0000] "GET /static/js/main.01ddcef5.js HTTP/1.1" 200 71639 "http://3.75.141.163/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/144.0.0.0 Safari/537.36" "-"
149.224.53.254 - - [04/Feb/2026:16:11:04 +0000] "GET /static/css/main.f855e6bc.css HTTP/1.1" 200 530 "http://3.75.141.163/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/144.0.0.0 Safari/537.36" "-"
149.224.53.254 - - [04/Feb/2026:16:11:04 +0000] "GET /static/media/logo.6ce24c58023cc2f8fd88fe9d219db6c6.svg HTTP/1.1" 200 2632 "http://3.75.141.163/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/144.0.0.0 Safari/537.36" "-"
149.224.53.254 - - [04/Feb/2026:16:11:05 +0000] "GET /favicon.ico HTTP/1.1" 200 3870 "http://3.75.141.163/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/144.0.0.0 Safari/537.36" "-"
```

```

^Cubuntu@ip-172-31-42-230:~$ docker exec -it my-devops-app sh
/ # ls /usr/share/nginx/html
asset-manifest.json  index.html          logo512.png          robots.txt
favicon.ico          logo192.png         manifest.json        static
/ # cat /etc/nginx/conf.d/default.conf
server {
    listen 80;
    server_name _;
    root /usr/share/nginx/html;
    index index.html;

    location / {
        try_files $uri $uri/ /index.html;
    }

    # Enable gzip compression
    gzip on;
    gzip_vary on;
    gzip_types text/plain text/css application/json application/javascript text/xml
application/xml application/xml+rss text/javascript;
}
/ # exit
ubuntu@ip-172-31-42-230:~$

```

```

ubuntu@ip-172-31-42-230:~$ docker stop my-devops-app
my-devops-app
ubuntu@ip-172-31-42-230:~$ docker rm my-devops-app
my-devops-app
ubuntu@ip-172-31-42-230:~$ docker pull vijayagagla123/my-devops-app:latest
latest: Pulling from vijayagagla123/my-devops-app
Digest: sha256:6aa6665b8e7111034cf5ff9b8447d2981018be77f965fb9e612d413fd61fc7e2
Status: Image is up to date for vijayagagla123/my-devops-app:latest
docker.io/vijayagagla123/my-devops-app:latest
ubuntu@ip-172-31-42-230:~$ docker run -d \
    --name my-devops-app \
    --restart unless-stopped \
    -p 80:80 \
    vijayagagla123/my-devops-app:latest
b45c41c371b957f22de822dad7e69e1818686e1bea91fa21c16fb409140dfdd1
ubuntu@ip-172-31-42-230:~$

```

Cleanup



```

ubuntu@ip-172-31-42-230:~$ docker stop my-devops-app
docker rm my-devops-app
my-devops-app
my-devops-app
ubuntu@ip-172-31-42-230:~$ docker images
REPOSITORY          TAG         IMAGE ID      CREATED        SIZE
vijayagagla123/my-devops-app  latest     55601a1a7acc  36 minutes ago  63.1MB
ubuntu@ip-172-31-42-230:~$ ^C
ubuntu@ip-172-31-42-230:~$ docker rmi vijayagagla123/my-devops-app:latest
Untagged: vijayagagla123/my-devops-app:latest
Untagged: vijayagagla123/my-devops-app@sha256:6aa6665b8e7111034cf5ff9b8447d2981018be77f965fb9e612d413fd61fc7e2
Deleted: sha256:55601a1a7acc5e22ac6b26d3773a10cda7d487844c1df79b52e16f5c1b788146
Deleted: sha256:bf23b857c8e5fbcfcc9f05107cf4b6ba2c510e27f373cff1a1c9048efae4b823
Deleted: sha256:3c63a03b107958037aecb46c49f4ef4de4f79860834daecc31de20416f61be51
Deleted: sha256:e67e52f64bd8362709bfc33659c31d3f7b87e1c2f964d2c381a9b5995da30d15
Deleted: sha256:ebe1b7ac8c860ce51c852bd1333ac2bb49ef54a2af57517ef1684202d05d1df3
Deleted: sha256:bad170219b4234284a18bfb6ad8998d70a818f09c133c95d8bfeefc38c1a02cb
Deleted: sha256:5b4d37fb62dbae255ea62b228ea0142a53fba05b85920e59ccc3c2ed69547fc2
Deleted: sha256:9f6e34003138c117804f71e85e6b1d359a9548e90d2ab4a75f9b486377be4025
Deleted: sha256:9fda47bb4cf4ff5f643f7e9d4de82f2b138a3078ba5b79c1fbc1f0b8ae05da95
Deleted: sha256:0785b5259ff0275515cdb109e663502f5e323ef1f669af71ad3112cd24d8cf48
Deleted: sha256:4c6d79669e7c8af6a1034cba0975ac1e13a390faed682069204603fa5175746d
Deleted: sha256:989e799e634906e94dc9a5ee2ee26fc92ad260522990f26e707861a5f52bf64e
ubuntu@ip-172-31-42-230:~$ docker system prune -a
WARNING! This will remove:
- all stopped containers
- all networks not used by at least one container
- all images without at least one container associated to them
- all build cache

Are you sure you want to continue? [y/N] y
Total reclaimed space: 0B

```

```

vijayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ docker rmi vijayagagla123/my-devops-app:v1.0
Untagged: vijayagagla123/my-devops-app:v1.0
vijayagagla@DESKTOP-FP40P26:~/Docker/my-devops-app$ docker rmi vijayagagla123/my-devops-app:latest
Untagged: vijayagagla123/my-devops-app:latest
Untagged: vijayagagla123/my-devops-app@sha256:6aa6665b8e7111034cf5ff9b8447d2981018be77f965fb9e612d413fd61fc7e2
Deleted: sha256:55601a1a7acc5e22ac6b26d3773a10cda7d487844c1df79b52e16f5c1b788146
Deleted: sha256:6bf1bc2061191ec7486696e266c5b814472c016a899429c98182bdb56193da1e
Deleted: sha256:8d7a24666f368aedef722467dcfcbd4351e04c6e8f37258c018abea22f5a94643
Deleted: sha256:bf23b857c8e5fbcfcc9f05107cf4b6ba2c510e27f373cff1a1c9048efae4b823
Deleted: sha256:99d68605a06848a605ea76ce12818822ba9a3f756db7efc0abb52bdfa53c55dc
Deleted: sha256:3c63a03b107958037aecb46c49f4ef4de4f79860834daecc31de20416f61be51
Deleted: sha256:21dc284c1763144b171a98cdd87abc74da1158905d72dcc6ba25678c6b53f79a
Deleted: sha256:e67e52f64bd8362709bfc33659c31d3f7b87e1c2f964d2c381a9b5995da30d15

```

