

# Build and Deploy Dockerized React JS Application with AWS CI-CD and Elastic Beanstalk

## React Sample File and Dockerfile Creation:

```
MINGW64/c/Users/Swetha/my-react-app
SwethaBLAPTOP-UBF20HAY MINGW64 ~ (master)
$ npx create-react-app my-react-app
Creating a new React app in C:\Users\Swetha\my-react-app.
Installing packages. This might take a couple of minutes.
Installing react, react-dom, and react-scripts with cra-template...

added 1494 packages in 56s
258 packages are looking for funding
  run `npm fund` for details
Installing template dependencies using npm...
added 67 packages, and changed 1 package in 10s
262 packages are looking for funding
  run `npm fund` for details
Removing template package using npm...

removed 1 package, and audited 1561 packages in 3s
262 packages are looking for funding
  run `npm fund` for details
8 vulnerabilities (2 moderate, 6 high)
To address all issues (including breaking changes), run:
  npm audit fix --force
Run `npm audit` for details.
Success! Created my-react-app at C:\Users\Swetha\my-react-app
Inside that directory, you can run several commands:

  npm start
    Starts the development server.

  npm run build
    Bundles the app into static files for production.

  npm test
    Starts the test runner.

  npm run eject
    Removes this tool and copies build dependencies, configuration files
    and scripts into the app directory. If you do this, you can't go back!

We suggest that you begin by typing:

  cd my-react-app
  npm start

Happy hacking!
```

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We suggest that you begin by typing:

  cd my-react-app
  npm start

Happy hacking!

SwethaBLAPTOP-UBF20HAY MINGW64 ~ (master)
$ cd my-react-app
SwethaBLAPTOP-UBF20HAY MINGW64 ~/my-react-app (master)
$ vi Dockerfile
SwethaBLAPTOP-UBF20HAY MINGW64 ~/my-react-app (master)
$ ls
Dockerfile  node_modules/  package.json  src/
README.md  package-lock.json  public/
SwethaBLAPTOP-UBF20HAY MINGW64 ~/my-react-app (master)
$ vi Dockerfile
SwethaBLAPTOP-UBF20HAY MINGW64 ~/my-react-app (master)
$ |
```

```

ubuntu__unix@LAPTOP-UBF20HAV:~/my-react-app$ cat Dockerfile
# Use official Node.js image as the base image
FROM node:14-alpine

# Set working directory
WORKDIR /app

# Copy package.json and package-lock.json to the working directory
COPY package*.json ./

# Install dependencies
RUN npm install

# Copy the rest of the application code to the working directory
COPY . .

EXPOSE 3000

# Command to run the application
CMD ["npm", "start"]

```

## Code Storage (CodeCommit):

```

ubuntu__unix@LAPTOP-UBF20HAV:~/my-react-app$ git commit -m "Initial commit"
[master (root-commit) d3eal32] Initial commit
19 files changed, 18776 insertions(+)
create mode 100644 .gitignore
create mode 100644 Dockerfile
create mode 100644 README.md
create mode 100644 package-lock.json
create mode 100644 package.json
create mode 100644 public/favicon.ico
create mode 100644 public/index.html
create mode 100644 public/logo192.png
create mode 100644 public/logo512.png
create mode 100644 public/manifest.json
create mode 100644 public/robots.txt
create mode 100644 src/App.css
create mode 100644 src/App.js
create mode 100644 src/App.test.js
create mode 100644 src/index.css
create mode 100644 src/index.js
create mode 100644 src/logo.svg
create mode 100644 src/reportWebVitals.js
create mode 100644 src/setupTests.js

ubuntu__unix@LAPTOP-UBF20HAV:~/my-react-app$ aws configure
AWS Access Key ID [*****EW43]: AKIAZQ3DOMO2LTMR24R2
AWS Secret Access Key [*****k+PJ]: 2ZRKLmRcSADkjWlkt6dkqI3L6XCi6+E+hhkQa+nu1
Default region name [us-east-1]:
Default output format [json]:
ubuntu__unix@LAPTOP-UBF20HAV:~/my-react-app$ aws codecommit create-repository --repository-name my-react-app

An error occurred (RepositoryNameExistsException) when calling the CreateRepository operation: Repository named my-react-app already exists
ubuntu__unix@LAPTOP-UBF20HAV:~/my-react-app$ git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/ubuntu__unix/my-react-app/.git/
ubuntu__unix@LAPTOP-UBF20HAV:~/my-react-app$ git branch -m master
ubuntu__unix@LAPTOP-UBF20HAV:~/my-react-app$ git init
Reinitialized existing Git repository in /home/ubuntu__unix/my-react-app/.git/
ubuntu__unix@LAPTOP-UBF20HAV:~/my-react-app$ git remote add origin https://git-codecommit.us-east-1.amazonaws.com/v1/repos/my-react-app
ubuntu__unix@LAPTOP-UBF20HAV:~/my-react-app$ git add .
ubuntu__unix@LAPTOP-UBF20HAV:~/my-react-app$ git commit -m "Initial commit"
[master (root-commit) d3eal32] Initial commit
19 files changed, 18776 insertions(+)
create mode 100644 .gitignore
create mode 100644 Dockerfile
create mode 100644 README.md
create mode 100644 package-lock.json
create mode 100644 package.json
create mode 100644 public/favicon.ico
create mode 100644 public/index.html
create mode 100644 public/logo192.png
create mode 100644 public/logo512.png
create mode 100644 public/manifest.json
create mode 100644 public/robots.txt
create mode 100644 src/App.css
create mode 100644 src/App.js

```

```
ubuntu__unix@LAPTOP-UBF20HAV:~/my-react-app$ git push
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 4 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 460 bytes | 460.00 KiB/s, done.
Total 4 (delta 3), reused 0 (delta 0), pack-reused 0
remote: Validating objects: 100%
To https://git-codecommit.us-east-1.amazonaws.com/v1/repos/my-react-app
ce69795..31b2dd0 master -> master
```

The screenshot shows the AWS CodeCommit console. The left sidebar contains a navigation menu with options like Source, Build, Deploy, Pipeline, and Settings. The main content area is titled 'Repositories' and shows a table with one repository, 'my-react-app'. The repository details include its name, description, last modified time (31 minutes ago), clone URLs (HTTPS, SSH, HTTPS [GRC]), and the AWS KMS Key.

Name	Description	Last modified	Clone URL	AWS KMS Key
my-react-app		31 minutes ago	<a href="#">HTTPS</a> <a href="#">SSH</a> <a href="#">HTTPS [GRC]</a>	arn:aws:kms:us-east-1:654654202804:key/ff794526-dc19-47c9-ba32-d0bc49a85349

The screenshot shows the AWS CodeCommit console for the 'my-react-app' repository. The left sidebar contains a navigation menu with options like Source, Build, Deploy, Pipeline, and Settings. The main content area is titled 'my-react-app' and shows a list of files and folders. The 'README.md' file is selected, and its content is displayed below the file list.

**my-react-app**

Files and folders:

- public
- src
- .gitignore
- buildspec.yml
- Dockerfile
- Dockerfile.aws.json
- package-lock.json
- package.json
- README.md

**README.md**

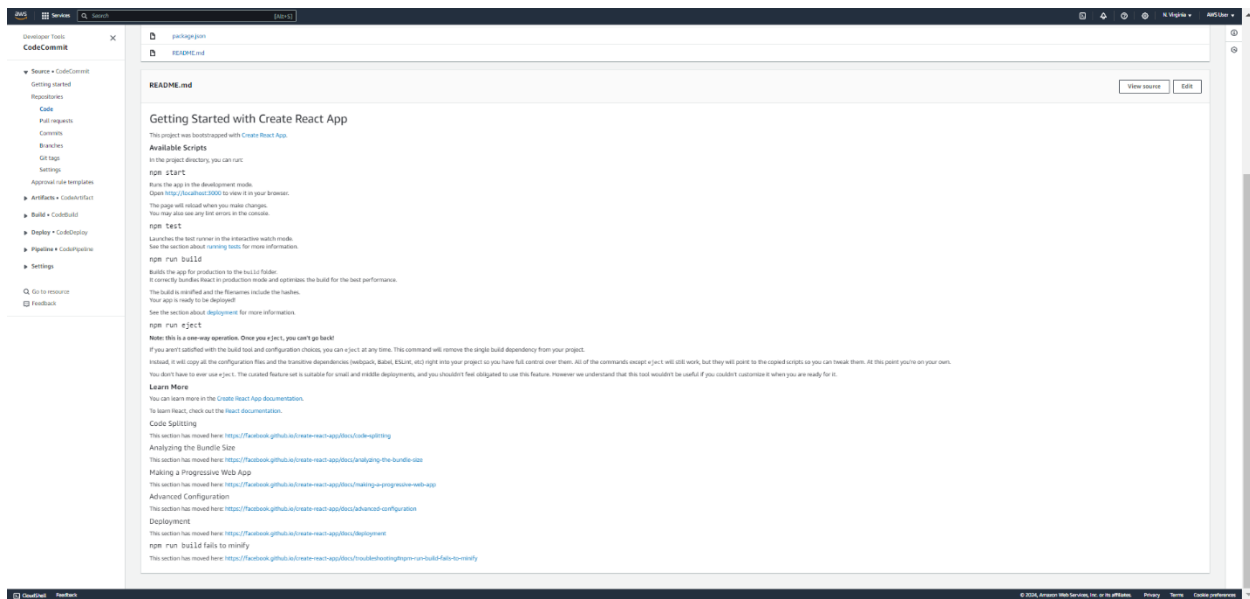
Getting Started with Create React App

This project was bootstrapped with [Create React App](#).

**Available Scripts**

In the project directory, you can run:

```
npm start
```



## Docker Build (CodeBuild):

```
ubuntu__unix@LAPTOP-UBF20HAV:~/my-react-app$ cat buildspec.yml
version: 0.2

phases:
  pre_build:
    commands:
      # Authenticate Docker with Docker Hub credentials
      - echo "dckr_pat_10od684ziqqbd7ivfGiqR1lg8Nw" | docker login -u "swetha1003" --password-stdin

  build:
    commands:
      # Build the Docker image
      - docker build -t my-react-app .

  post_build:
    commands:
      # Push the Docker image to Docker Hub
      - docker tag my-react-app swetha1003/my-react-app:latest
      - docker push swetha1003/my-react-app:latest

artifacts:
  files:
    - '**/*'
```

us-east-1.console.aws.amazon.com/codesuite/codebuild/projects?region=us-east-1&projects-meta=eyJmlp7InRleHQ0OiIlCjZaGfYzWQOmZhbHNlSwicy6eyhcm9wZXI0eSt6kxBU...

Developer Tools **CodeBuild**

- Source • CodeCommit
- Artifacts • CodeArtifact
- Build • CodeBuild
  - Getting started
  - Build projects
  - Build history
  - Report groups
  - Report history
  - Compute fleets
  - Account metrics
- Related integrations
  - Jenkins
  - GitHub Actions
- Deploy • CodeDeploy
- Pipeline • CodePipeline
- Settings
- Go to resource
- Feedback

Build projects info

Actions Create trigger View details Start build Create project

Your projects < 1 >

Name	Source provider	Repository	Latest build status	Description	Last Modified
my-react-app	AWS CodeCommit	my-react-app	Succeeded	-	5 hours ago

us-east-1.console.aws.amazon.com/codesuite/codebuild/654654202804/projects/my-react-app/build/my-react-app%3Abba2814f-0cb2-4f42-9969-194d0a3e097b?region=us-east-1

Developer Tools **CodeBuild**

- Source • CodeCommit
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- Settings
- Go to resource
- Feedback

my-react-app:bba2814f-0cb2-4f42-9969-194d0a3e097b

Stop build Retry build

Build status

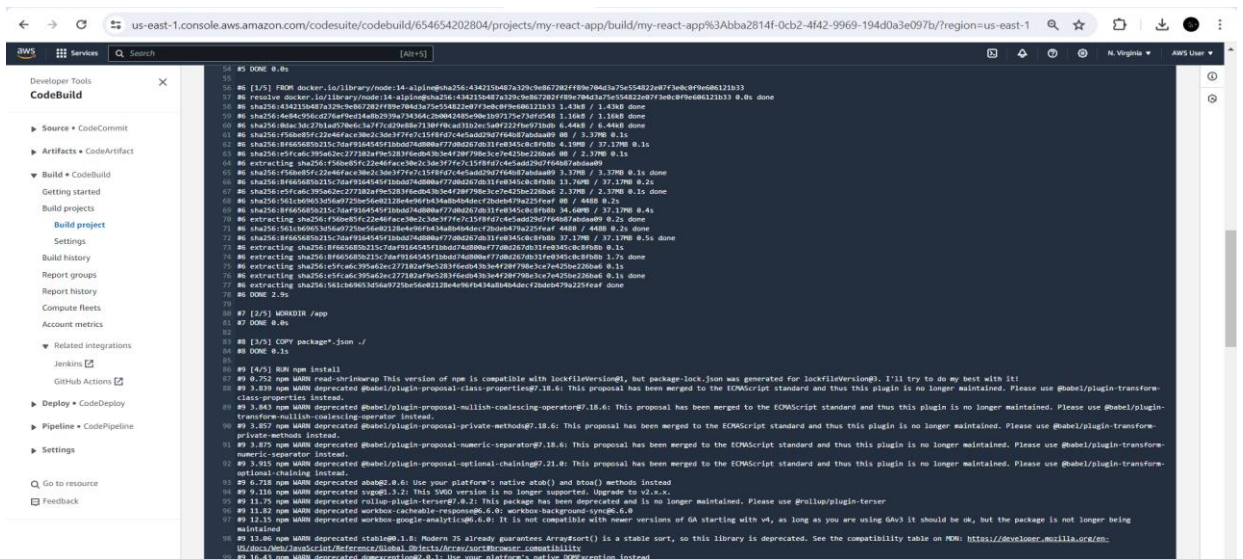
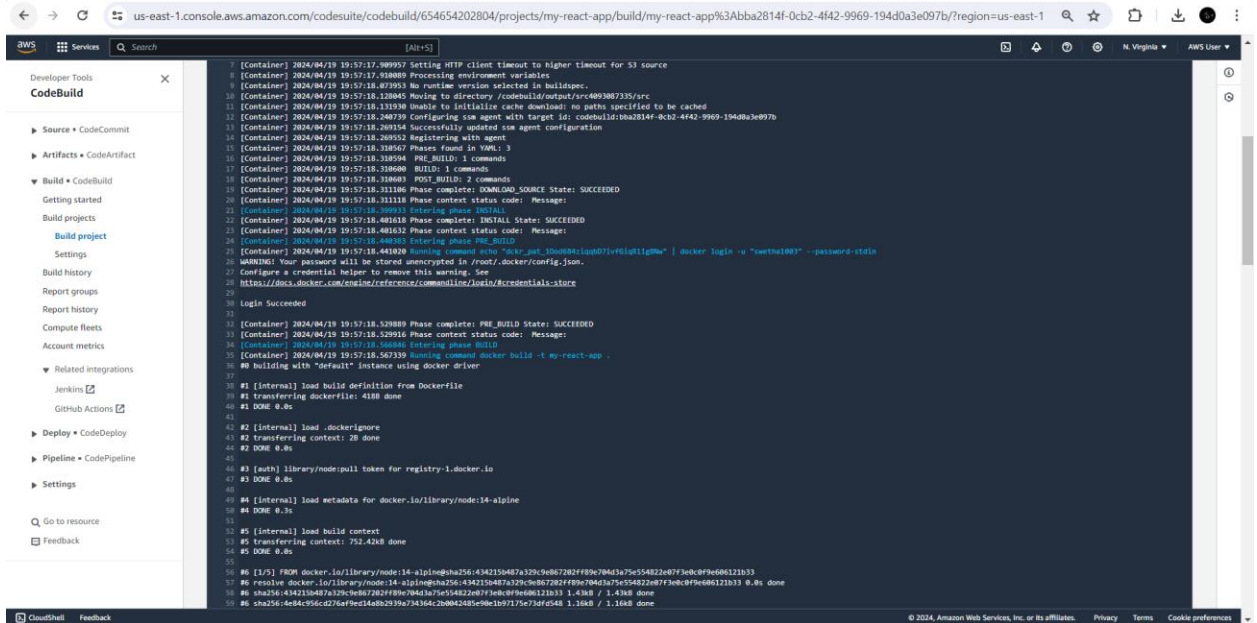
Status Succeeded	Initiator codepipeline/my-react-app	Build ARN arn:aws:codebuild:us-east-1:654654202804:build/my-react-app:bba2814f-0cb2-4f42-9969-194d0a3e097b	Resolved source version fa8ab2f5cd76a52f7490464fdab3cbe77bc0efa
Start time Apr 20, 2024 1:27 AM (UTC+5:30)	End time Apr 20, 2024 1:28 AM (UTC+5:30)	Build number 8	

Build logs Phase details Reports Environment variables Build details Resource utilization

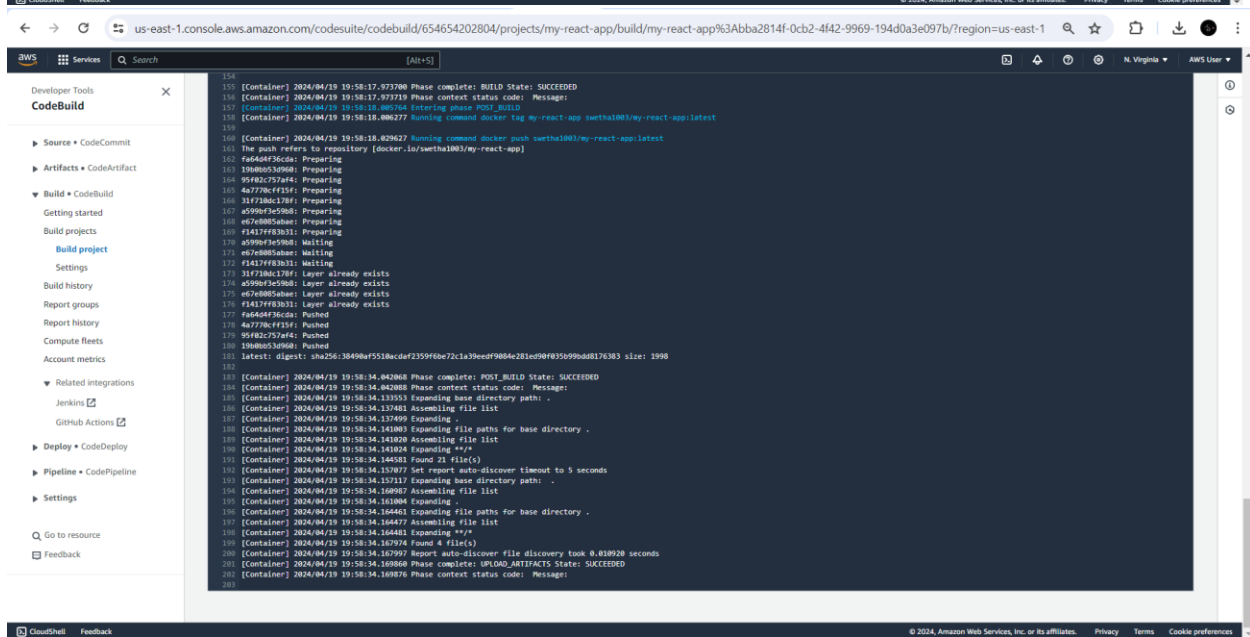
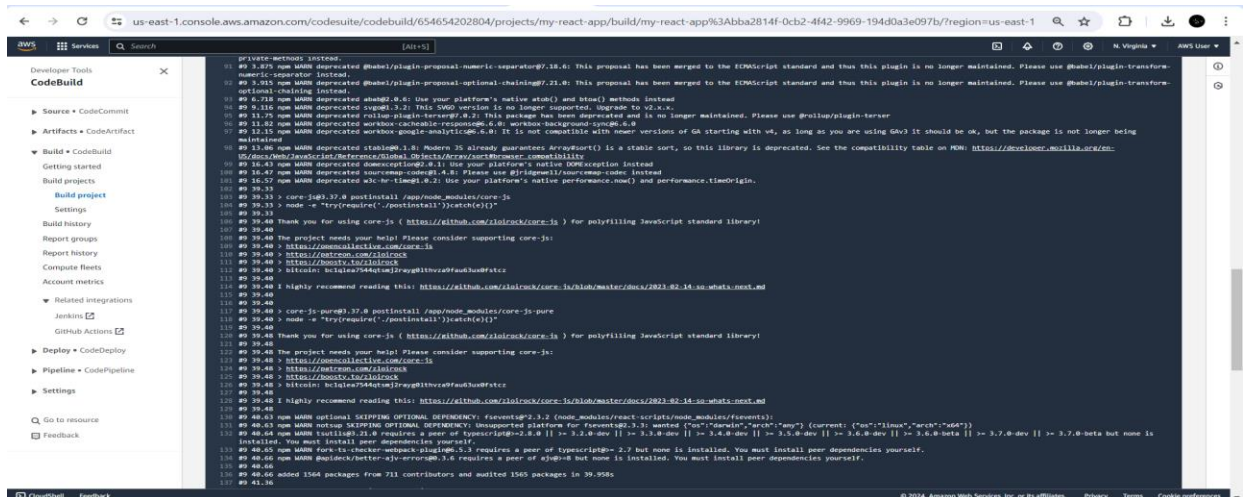
Showing the last 202 lines of the build log. View entire log Tail logs

No previous logs

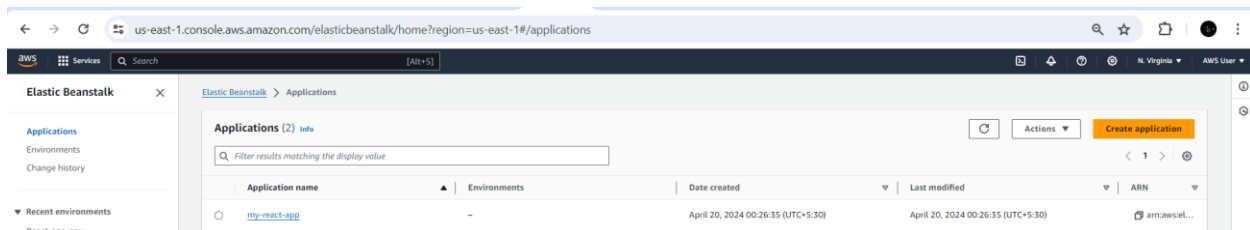
```
1 [Container] 2024/04/19 19:57:16.554964 Running on CodeBuild On-demand
2 [Container] 2024/04/19 19:57:16.555105 Waiting for agent ping
3 [Container] 2024/04/19 19:57:16.757185 Waiting for DOWNLOAD_SOURCE
4 [Container] 2024/04/19 19:57:17.986693 Phase is DOWNLOAD_SOURCE
5 [Container] 2024/04/19 19:57:17.987645 CODEBUILD_SRC_DIR=/codebuild/output/src4893887335/src
6 [Container] 2024/04/19 19:57:17.988235 YML location is /codebuild/output/src4893887335/src/buildspec.yml
7 [Container] 2024/04/19 19:57:17.989057 Setting HTTP client timeout to higher timeout for JS source
8 [Container] 2024/04/19 19:57:17.918809 Processing environment variables
9 [Container] 2024/04/19 19:57:18.473953 No runtime version selected in buildspec
10 [Container] 2024/04/19 19:57:18.128045 Moving to directory /codebuild/output/src4893887335/src
11 [Container] 2024/04/19 19:57:18.111938 Unable to initialize cache download: no paths specified to be cached
12 [Container] 2024/04/19 19:57:18.240739 Configuring ssh agent with target id: codebuild:bba2814f-0cb2-4f42-9969-194d0a3e097b
13 [Container] 2024/04/19 19:57:18.269154 Successfully updated ssh agent configuration
14 [Container] 2024/04/19 19:57:18.269552 Registering with agent
15 [Container] 2024/04/19 19:57:18.318567 Phases found in YML: 3
16 [Container] 2024/04/19 19:57:18.318594 PRE_BUILD: 1 commands
17 [Container] 2024/04/19 19:57:18.318680 BUILD: 1 commands
18 [Container] 2024/04/19 19:57:18.318689 POST_BUILD: 2 commands
19 [Container] 2024/04/19 19:57:18.311186 Phase complete: DOWNLOAD_SOURCE State: SUCCEEDED
20 [Container] 2024/04/19 19:57:18.311118 Phase context status code: Pessner:
```







## Continuous Deployment (ElasticBeanstalk):



us-east-1.console.aws.amazon.com/elasticbeanstalk/home?region=us-east-1#/application/overview?applicationName=react-app

**Elastic Beanstalk**

Applications  
Environments  
Change history

▼ Application: react-app  
Application versions  
Saved configurations

▼ Recent environments  
React-app-env  
my-react-app-env

**Application react-app environments (1)** info

Filter environments

Environment name	Health	Date created	Domain	Running versions	Platform	Platform state
React-app-env	Ok	April 20, 2024 00:39:54 (UTC...	React-app-env.eba-rmvf35u...	code-pipeline-171355673122...	Docker running on 64bit Ama...	Supported

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us-east-1.console.aws.amazon.com/elasticbeanstalk/home?region=us-east-1#/environment/dashboard?applicationName=react-app&environmentId=e-kqin62gmb6

**Elastic Beanstalk**

Applications  
Environments  
Change history

▼ Application: react-app  
Application versions  
Saved configurations

▼ Environment: React-app-env  
Go to environment  
Configuration  
Events  
Health  
Logs  
Monitoring  
Alarms  
Managed updates  
Tags

▼ Recent environments  
React-app-env  
my-react-app-env

**React-app-env** info

Environment overview

Health: Ok

Environment ID: e-kqin62gmb6

Domain: React-app-env.eba-rmvf35u-us-east-1.elasticbeanstalk.com

Application name: react-app

Platform

Platform: Docker running on 64bit Amazon Linux 2023/4.3.0

Running version: code-pipeline-1713556731229-BuildArtifact-e40f8644-2c1f-4e5d-9770-f6e78c063240

Platform state: Supported

Events (40) info

Filter events by text, property or value

Time	Type	Details
April 20, 2024 01:43:40 (UTC+5:30)	INFO	Deleted log fragments for this environment.
April 20, 2024 01:36:31 (UTC+5:30)	INFO	Deleted log fragments for this environment.
April 20, 2024 01:36:24 (UTC+5:30)	INFO	Deleted log fragments for this environment.
April 20, 2024 01:31:22 (UTC+5:30)	INFO	Environment health has transitioned from Info to Ok. Application update completed 52 seconds ago and took 79 seconds.
April 20, 2024 01:30:22 (UTC+5:30)	INFO	Environment health has transitioned from Degraded to Info. Application update in progress. 1 out of 1 instance completed (running for 52 seconds).
April 20, 2024 01:30:17 (UTC+5:30)	INFO	Environment update completed successfully.
April 20, 2024 01:30:17 (UTC+5:30)	INFO	New application version was deployed to running EC2 instances.





## Deployed React App:

