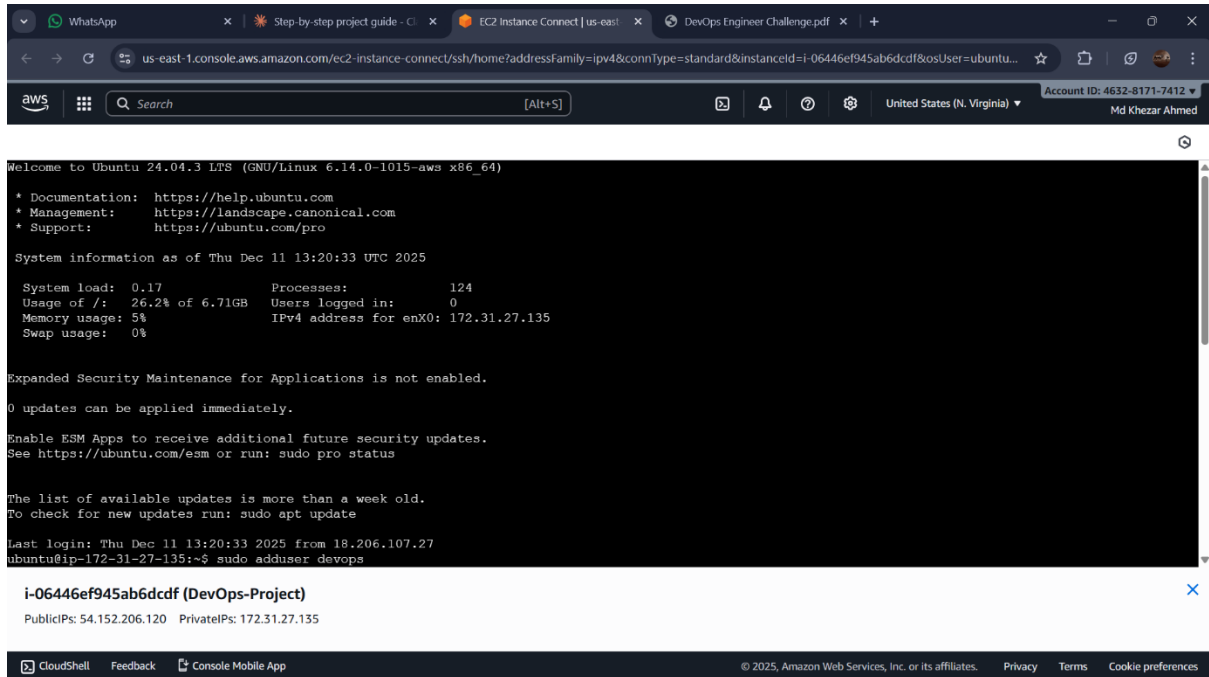


Part 1: Create a sudo user in Ubuntu

- Log in to Linux and create a new user called “DevOps”



```
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-1015-aws x86_64)

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

System information as of Thu Dec 11 13:20:33 UTC 2025

System load:  0.17          Processes:    124
Usage of /:   26.2% of 6.71GB  Users logged in:  0
Memory usage: 5%           IPv4 address for enX0: 172.31.27.135
Swap usage:  0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

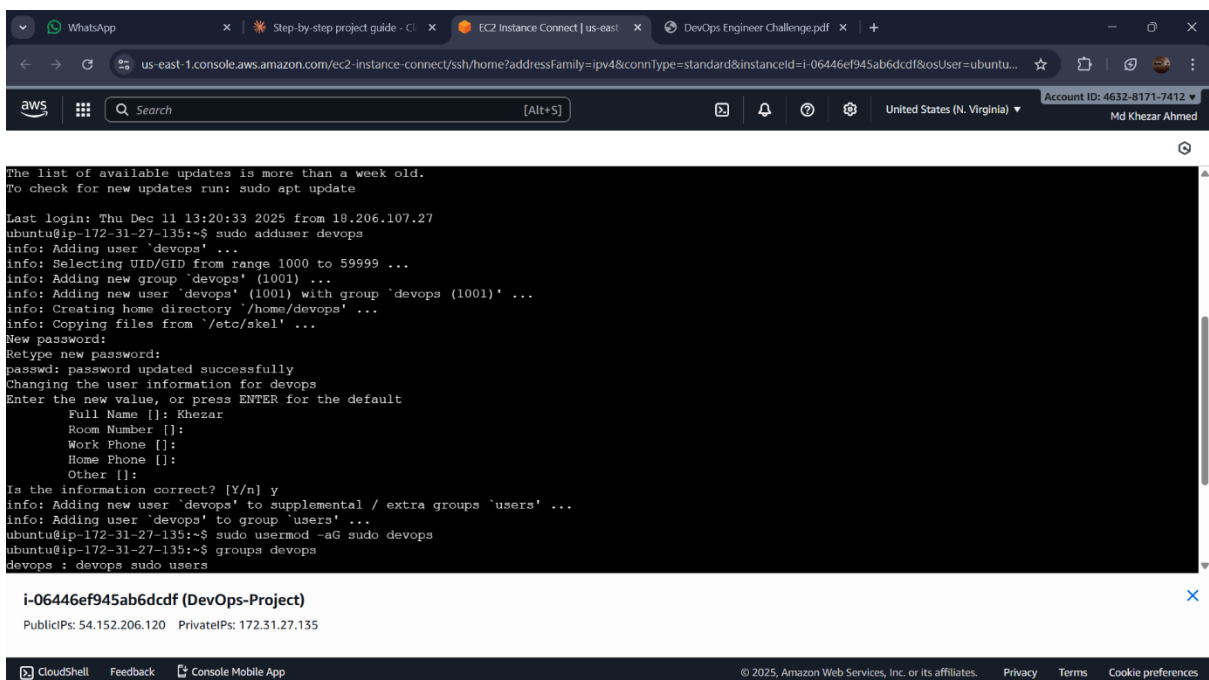
Enable ESMA Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Thu Dec 11 13:20:33 2025 from 18.206.107.27
ubuntu@ip-172-31-27-135:~$ sudo adduser devops
```

i-06446ef945ab6dcdcf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

- Add a DevOps user to the sudo group



```
The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Thu Dec 11 13:20:33 2025 from 18.206.107.27
ubuntu@ip-172-31-27-135:~$ sudo adduser devops
info: Adding user 'devops' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'devops' (1001) ...
info: Adding new user 'devops' (1001) with group 'devops (1001)' ...
info: Creating home directory '/home/devops' ...
info: Copying files from '/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for devops
Enter the new value, or press ENTER for the default
  Full Name []: Khezar
  Room Number []:
  Work Phone []:
  Home Phone []:
  Other []:
Is the information correct? [Y/n] y
info: Adding new user 'devops' to supplemental / extra groups 'users' ...
info: Adding user 'devops' to group 'users' ...
ubuntu@ip-172-31-27-135:~$ sudo usermod -aG sudo devops
ubuntu@ip-172-31-27-135:~$ groups devops
devops : devops sudo users
```

i-06446ef945ab6dcdcf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

```
us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceld=i-06446ef945ab6dcd&osUser=ubuntu...
Account ID: 4632-8171-7412
Md Khezar Ahmed

New password:
Retype new password:
passwd: password updated successfully
Changing the user information for devops
Enter the new value, or press ENTER for the default
  Full Name []: Khezar
  Room Number []:
  Work Phone []:
  Home Phone []:
  Other []:
Is the information correct? [Y/n] y
info: Adding new user 'devops' to supplemental / extra groups 'users' ...
info: Adding user 'devops' to group 'users' ...
ubuntu@ip-172-31-27-135:~$ sudo usermod -s /devops devops
ubuntu@ip-172-31-27-135:~$ groups devops
devops : devops sudo users
ubuntu@ip-172-31-27-135:~$ su - devops
Password:
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

devops@ip-172-31-27-135:~$ sudo whoami
[sudo] password for devops:
root
devops@ip-172-31-27-135:~$ exit
logout
ubuntu@ip-172-31-27-135:~$
```

i-06446ef945ab6dcd (DevOps-Project)
PublicIps: 54.152.206.120 PrivateIps: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Part 2: Checkout, Build, and Deploy a React Project

- Install NodeJS & npm, package manager

```
us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceld=i-06446ef945ab6dcd&osUser=ubuntu...
Account ID: 4632-8171-7412
Md Khezar Ahmed

Pending kernel upgrade!
Running kernel version:
  6.14.0-1018-aws
Diagnostics:
  The currently running kernel version is not the expected kernel version 6.14.0-1018-aws.

Restarting the system to load the new kernel will not be handled automatically, so you should consider rebooting.

Restarting services...

Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart networkd-dispatcher.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
ubuntu @ user manager service: systemd[1346]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-27-135:~$ node --version
v18.20.8
ubuntu@ip-172-31-27-135:~$ npm --version
10.8.2
ubuntu@ip-172-31-27-135:~$
```

i-06446ef945ab6dcd (DevOps-Project)
PublicIps: 54.152.206.120 PrivateIps: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

- Clone/checkout project from the below URL (<https://github.com/riyanuddin17/DevOps-Challenge.git>) into "/opt/checkout/chat-app"

```

systemctl restart networkd-dispatcher.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
ubuntu @ user manager service: systemd[1346]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-27-135:~$ node --version
v18.20.8
ubuntu@ip-172-31-27-135:~$ git --version
git version 2.43.0
ubuntu@ip-172-31-27-135:~$ sudo mkdir -p /opt/checkout
ubuntu@ip-172-31-27-135:~$ sudo git clone https://github.com/riyanuddin17/DevOps-Challenge.git /opt/checkout/chat-app
Cloning into '/opt/checkout/chat-app'...
remote: Enumerating objects: 66, done.
remote: Counting objects: 100% (29/29), done.
remote: Compressing objects: 100% (22/22), done.
remote: Total 66 (delta 14), reused 7 (delta 7), pack-reused 37 (from 1)
Receiving objects: 100% (66/66), 104.56 KiB | 11.62 MiB/s, done.
Resolving deltas: 100% (18/18), done.
ubuntu@ip-172-31-27-135:~$ sudo chown -R $USER:$USER /opt/checkout/chat-app
ubuntu@ip-172-31-27-135:~$ cd /opt/checkout/chat-app
ubuntu@ip-172-31-27-135:~/opt/checkout/chat-app$

```

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

- Build the react project by running the “npm install” and then the “npm run build” command to generate the “dist” folder

```

Cloning into '/opt/checkout/chat-app'...
remote: Enumerating objects: 66, done.
remote: Counting objects: 100% (29/29), done.
remote: Compressing objects: 100% (22/22), done.
remote: Total 66 (delta 14), reused 7 (delta 7), pack-reused 37 (from 1)
Receiving objects: 100% (66/66), 104.56 KiB | 11.62 MiB/s, done.
Resolving deltas: 100% (18/18), done.
ubuntu@ip-172-31-27-135:~$ sudo chown -R $USER:$USER /opt/checkout/chat-app
ubuntu@ip-172-31-27-135:~$ cd /opt/checkout/chat-app
ubuntu@ip-172-31-27-135:~/opt/checkout/chat-app$ ls -la
total 288
drwxr-xr-x 5 ubuntu ubuntu 4096 Dec 11 13:28 .
drwxr-xr-x 3 root root 4096 Dec 11 13:28 ..
-rw-r--r-- 1 ubuntu ubuntu 12 Dec 11 13:28 .dockerignore
-rw-r--r-- 1 ubuntu ubuntu 526 Dec 11 13:28 .eslintrc.cjs
drwxr-xr-x 9 ubuntu ubuntu 4096 Dec 11 13:28 .git
-rw-r--r-- 1 ubuntu ubuntu 253 Dec 11 13:28 .gitignore
-rw-r--r-- 1 ubuntu ubuntu 202 Dec 11 13:28 Acornfile
-rw-r--r-- 1 ubuntu ubuntu 52 Dec 11 13:28 README.md
-rw-r--r-- 1 ubuntu ubuntu 381 Dec 11 13:28 index.html
-rw-r--r-- 1 ubuntu ubuntu 148699 Dec 11 13:28 package-lock.json
-rw-r--r-- 1 ubuntu ubuntu 864 Dec 11 13:28 package.json
drwxr-xr-x 3 ubuntu ubuntu 4096 Dec 11 13:28 public
drwxr-xr-x 4 ubuntu ubuntu 4096 Dec 11 13:28 src
-rw-r--r-- 1 ubuntu ubuntu 181 Dec 11 13:28 vite.config.js
-rw-r--r-- 1 ubuntu ubuntu 86139 Dec 11 13:28 yarn.lock
ubuntu@ip-172-31-27-135:~/opt/checkout/chat-app$ npm install

```

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-06446ef945ab6dcdf&osUser=u...

```
98 packages are looking for funding
  run `npm fund` for details

9 vulnerabilities (1 low, 5 moderate, 3 high)

To address all issues, run:
  npm audit fix

Run `npm audit` for details.
npm notice
npm notice New major version of npm available! 10.8.2 -> 11.7.0
npm notice Changelog: https://github.com/npm/cli/releases/tag/v11.7.0
npm notice To update run: npm install -g npm@11.7.0
npm notice
ubuntu@ip-172-31-27-135:/opt/checkout/chat-app$ npm run build

> i18n-tutorial@0.0.0 build
> vite build

vite v5.0.10 building for production...
/ 67 modules transformed.
dist/index.html          0.48 kB | gzip: 0.31 kB
dist/assets/index-xzd4obSc.css  0.59 kB | gzip: 0.34 kB
dist/assets/index-vNmJavtl.js 230.53 kB | gzip: 72.33 kB
/ built in 1.47s
ubuntu@ip-172-31-27-135:/opt/checkout/chat-app$
```

i-06446ef945ab6dcdf (DevOps-Project)

PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-06446ef945ab6dcdf&osUser=u...

```
vite v5.0.10 building for production...
/ 67 modules transformed.
dist/index.html          0.48 kB | gzip: 0.31 kB
dist/assets/index-xzd4obSc.css  0.59 kB | gzip: 0.34 kB
dist/assets/index-vNmJavtl.js 230.53 kB | gzip: 72.33 kB
/ built in 1.47s
ubuntu@ip-172-31-27-135:/opt/checkout/chat-app$ ls -la
total 304
drwxr-xr-x  7 ubuntu ubuntu  4096 Dec 11 13:30 .
drwxr-xr-x  3 root   root   4096 Dec 11 13:28 ..
-rw-r--r--  1 ubuntu ubuntu   12 Dec 11 13:28 .dockerignore
-rw-r--r--  1 ubuntu ubuntu  526 Dec 11 13:28 .eslintrc.cjs
drwxr-xr-x  8 ubuntu ubuntu  4096 Dec 11 13:28 .git
-rw-r--r--  1 ubuntu ubuntu  253 Dec 11 13:28 .gitignore
-rw-r--r--  1 ubuntu ubuntu  202 Dec 11 13:28 Acornfile
-rw-r--r--  1 ubuntu ubuntu   52 Dec 11 13:28 README.md
drwxrwxr-x  4 ubuntu ubuntu  4096 Dec 11 13:30 dist
-rw-r--r--  1 ubuntu ubuntu   381 Dec 11 13:28 index.html
drwxrwxr-x 234 ubuntu ubuntu 12288 Dec 11 13:30 node_modules
-rw-r--r--  1 ubuntu ubuntu 148699 Dec 11 13:30 package-lock.json
-rw-r--r--  1 ubuntu ubuntu   864 Dec 11 13:28 package.json
drwxr-xr-x  3 ubuntu ubuntu  4096 Dec 11 13:28 public
drwxr-xr-x  4 ubuntu ubuntu  4096 Dec 11 13:28 src
-rw-r--r--  1 ubuntu ubuntu   181 Dec 11 13:28 vite.config.js
-rw-r--r--  1 ubuntu ubuntu  86406 Dec 11 13:30 yarn.lock
ubuntu@ip-172-31-27-135:/opt/checkout/chat-app$
```

i-06446ef945ab6dcdf (DevOps-Project)

PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

WhatsApp Step-by-step project guide - C EC2 Instance Connect | us-east-1 DevOps Engineer Challenge.pdf

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-06446ef945ab6dcd8&rootUser=ubuntu

Account ID: 4632-8171-7412 Md Khezar Ahmed

```

[PM2] Spawning PM2 daemon with pm2_home=/home/ubuntu/.pm2
[PM2] PM2 Successfully daemonized
6.0.14
ubuntu@ip-172-31-27-135:/opt/checkout/chat-app$ sudo npm install -g serve
added 86 packages in 4s
25 packages are looking for funding
  run `npm fund` for details
ubuntu@ip-172-31-27-135:/opt/checkout/chat-app$ cd /opt/deployment/react
ubuntu@ip-172-31-27-135:/opt/deployment/react$ pm2 start "serve -s . -l 5000" --name chat-app
[PM2] Starting /usr/bin/bash in fork_mode (1 instance)
[PM2] Done.

```

id	name	namespace	version	mode	pid	uptime	↑	status	cpu	mem	user	watching
0	chat-app	default	N/A	fork	14060	0s	0	online	0%	31.9mb	ubuntu	disabled

```

ubuntu@ip-172-31-27-135:/opt/deployment/react$ pm2 save
[PM2] Saving current process list...
[PM2] Successfully saved in /home/ubuntu/.pm2/dump.pm2
ubuntu@ip-172-31-27-135:/opt/deployment/react$ pm2 startup
[PM2] Init System found: systemd
[PM2] To setup the Startup Script, copy/paste the following command:
sudo env PATH=$PATH:/usr/bin /usr/lib/node_modules/pm2/bin/pm2 startup systemd -u ubuntu --hp /home/ubuntu
ubuntu@ip-172-31-27-135:/opt/deployment/react$

```

i-06446ef945ab6dcd8 (DevOps-Project)

PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

WhatsApp Step-by-step project guide - C EC2 Instance Connect | us-east-1 DevOps Engineer Challenge.pdf

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-06446ef945ab6dcd8&rootUser=ubuntu

Account ID: 4632-8171-7412 Md Khezar Ahmed

```

added 86 packages in 4s
25 packages are looking for funding
  run `npm fund` for details
ubuntu@ip-172-31-27-135:/opt/checkout/chat-app$ cd /opt/deployment/react
ubuntu@ip-172-31-27-135:/opt/deployment/react$ pm2 start "serve -s . -l 5000" --name chat-app
[PM2] Starting /usr/bin/bash in fork_mode (1 instance)
[PM2] Done.

```

id	name	namespace	version	mode	pid	uptime	↑	status	cpu	mem	user	watching
0	chat-app	default	N/A	fork	14060	0s	0	online	0%	31.9mb	ubuntu	disabled

```

ubuntu@ip-172-31-27-135:/opt/deployment/react$ pm2 save
[PM2] Saving current process list...
[PM2] Successfully saved in /home/ubuntu/.pm2/dump.pm2
ubuntu@ip-172-31-27-135:/opt/deployment/react$ pm2 startup
[PM2] Init System found: systemd
[PM2] To setup the Startup Script, copy/paste the following command:
sudo env PATH=$PATH:/usr/bin /usr/lib/node_modules/pm2/bin/pm2 startup systemd -u ubuntu --hp /home/ubuntu
ubuntu@ip-172-31-27-135:/opt/deployment/react$ pm2 status

```

id	name	namespace	version	mode	pid	uptime	↑	status	cpu	mem	user	watching
0	chat-app	default	N/A	fork	14060	41s	0	online	0%	62.3mb	ubuntu	disabled

```

ubuntu@ip-172-31-27-135:/opt/deployment/react$

```

i-06446ef945ab6dcd8 (DevOps-Project)

PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

WhatsApp Step-by-step project guide - C EC2 Instance Connect | us-east-1 DevOps Engineer Challenge.pdf

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-06446ef945ab6dcd8&rootUser=ubuntu

Account ID: 4632-8171-7412 Md Khezar Ahmed

```

[PM2] Starting /usr/bin/bash in fork_mode (1 instance)
[PM2] Done.

```

id	name	namespace	version	mode	pid	uptime	↑	status	cpu	mem	user	watching
0	chat-app	default	N/A	fork	14060	0s	0	online	0%	31.9mb	ubuntu	disabled

```

ubuntu@ip-172-31-27-135:/opt/deployment/react$ pm2 save
[PM2] Saving current process list...
[PM2] Successfully saved in /home/ubuntu/.pm2/dump.pm2
ubuntu@ip-172-31-27-135:/opt/deployment/react$ pm2 startup
[PM2] Init System found: systemd
[PM2] To setup the Startup Script, copy/paste the following command:
sudo env PATH=$PATH:/usr/bin /usr/lib/node_modules/pm2/bin/pm2 startup systemd -u ubuntu --hp /home/ubuntu
ubuntu@ip-172-31-27-135:/opt/deployment/react$ pm2 status

```

id	name	namespace	version	mode	pid	uptime	↑	status	cpu	mem	user	watching
0	chat-app	default	N/A	fork	14060	41s	0	online	0%	62.3mb	ubuntu	disabled

```

ubuntu@ip-172-31-27-135:/opt/deployment/react$ pm2 logs chat-app
[TAILING] Tailing last 15 lines for [chat-app] process (change the value with --lines option)
/home/ubuntu/.pm2/logs/chat-app-error.log last 15 lines:
/home/ubuntu/.pm2/logs/chat-app-out.log last 15 lines:
[chat-app] | INFO Accepting connections at http://localhost:5000

```

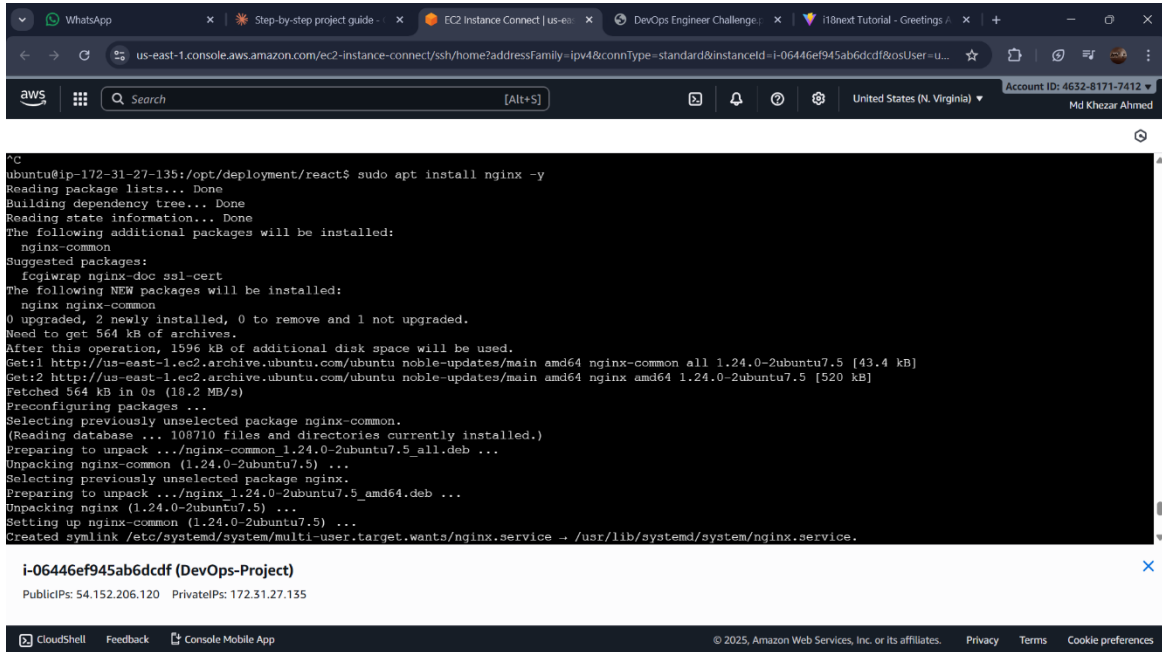
i-06446ef945ab6dcd8 (DevOps-Project)

PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

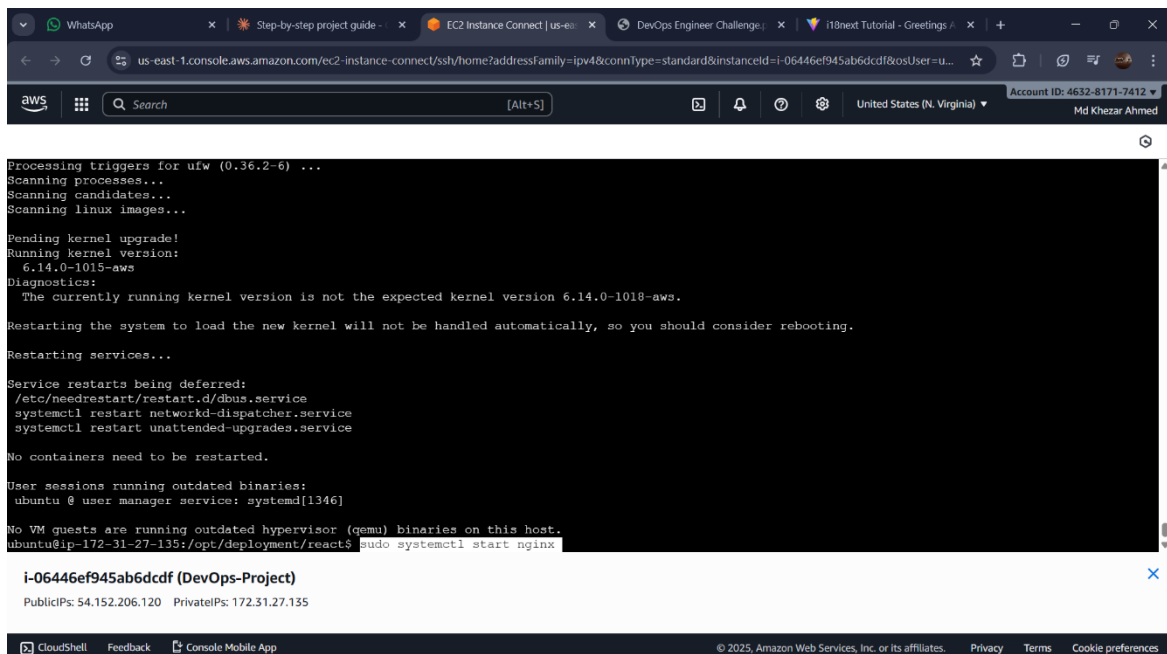
Part 3: Serve the Project

- Set up Nginx proxy and proxy all requests to react project



```
ubuntu@ip-172-31-27-135:/opt/deployment/react$ sudo apt install nginx -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  nginx-common
Suggested packages:
  fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
  nginx nginx-common
0 upgraded, 2 newly installed, 0 to remove and 1 not upgraded.
Need to get 564 kB of archives.
After this operation, 1596 kB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx-common all 1.24.0-2ubuntu7.5 [43.4 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx amd64 1.24.0-2ubuntu7.5 [520 kB]
Fetched 564 kB in 0s (18.2 MB/s)
Preconfiguring packages ...
Selecting previously unselected package nginx-common.
(Reading database ... 108710 files and directories currently installed.)
Preparing to unpack .../nginx-common_1.24.0-2ubuntu7.5_all.deb ...
Unpacking nginx-common (1.24.0-2ubuntu7.5) ...
Selecting previously unselected package nginx.
Preparing to unpack .../nginx_1.24.0-2ubuntu7.5_amd64.deb ...
Unpacking nginx (1.24.0-2ubuntu7.5) ...
Setting up nginx-common (1.24.0-2ubuntu7.5) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /usr/lib/systemd/system/nginx.service.
```

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135



```
Processing triggers for ufw (0.36.2-6) ...
Scanning processes...
Scanning candidates...
Scanning linux images...

Pending kernel upgrade!
Running kernel version:
 6.14.0-1015-aws
Diagnostics:
 The currently running kernel version is not the expected kernel version 6.14.0-1018-aws.

Restarting the system to load the new kernel will not be handled automatically, so you should consider rebooting.

Restarting services...

Service restarts being deferred:
 /etc/needrestart/restart.d/dbus.service
 systemctl restart networkd-dispatcher.service
 systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
 ubuntu @ user manager service: systemd[1346]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-27-135:/opt/deployment/react$ sudo systemctl start nginx
```

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

```
No containers need to be restarted.
User sessions running outdated binaries:
ubuntu @ user manager service: systemd[1346]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-27-135:/opt/deployment/react$ sudo systemctl start nginx
ubuntu@ip-172-31-27-135:/opt/deployment/react$ sudo systemctl enable nginx
Synchronizing state of nginx.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable nginx
ubuntu@ip-172-31-27-135:/opt/deployment/react$ sudo systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
   Active: active (running) since Thu 2025-12-11 13:45:51 UTC; 1min 0s ago
     Docs: man:nginx(8)
    Main PID: 14354 (nginx)
      Tasks: 3 (limit: 4667)
     Memory: 2.4M (peak: 5.3M)
        CPU: 22ms
    CGroup: /system.slice/nginx.service
            └─14354 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
              └─14356 "nginx: worker process"
                └─14357 "nginx: worker process"

Dec 11 13:45:51 ip-172-31-27-135 systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Dec 11 13:45:51 ip-172-31-27-135 systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
ubuntu@ip-172-31-27-135:/opt/deployment/react$
```

i-06446ef945ab6dcdf (DevOps-Project) PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

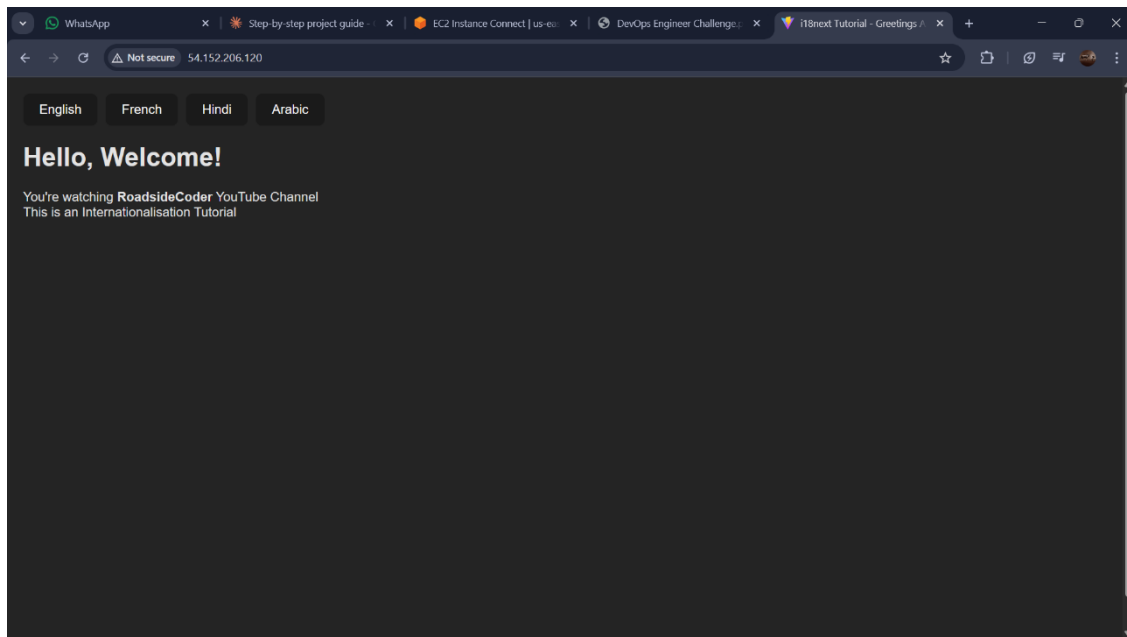
CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

```
Job for nginx.service failed.
See "systemctl status nginx.service" and "journalctl -xeu nginx.service" for details.
ubuntu@ip-172-31-27-135:/opt/deployment/react$ sudo nano /etc/nginx/sites-available/chat-app
ubuntu@ip-172-31-27-135:/opt/deployment/react$ sudo rm /etc/nginx/sites-enabled/default
rm: cannot remove '/etc/nginx/sites-enabled/default': No such file or directory
ubuntu@ip-172-31-27-135:/opt/deployment/react$ sudo ln -s /etc/nginx/sites-available/chat-app /etc/nginx/sites-enabled/
ln: failed to create symbolic link '/etc/nginx/sites-enabled/chat-app': File exists
ubuntu@ip-172-31-27-135:/opt/deployment/react$ sudo nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
ubuntu@ip-172-31-27-135:/opt/deployment/react$ sudo systemctl reload nginx
ubuntu@ip-172-31-27-135:/opt/deployment/react$ curl http://localhost
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <link rel="icon" type="image/svg+xml" href="/vite.svg" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <title>i18next Tutorial - Greetings App</title>
  <script type="module" crossorigin src="/assets/index-vNmJavtl.js"></script>
  <link rel="stylesheet" crossorigin href="/assets/index-xzd4obSc.css">
</head>
<body>
  <div id="root"></div>
</body>
</html>
ubuntu@ip-172-31-27-135:/opt/deployment/react$
```

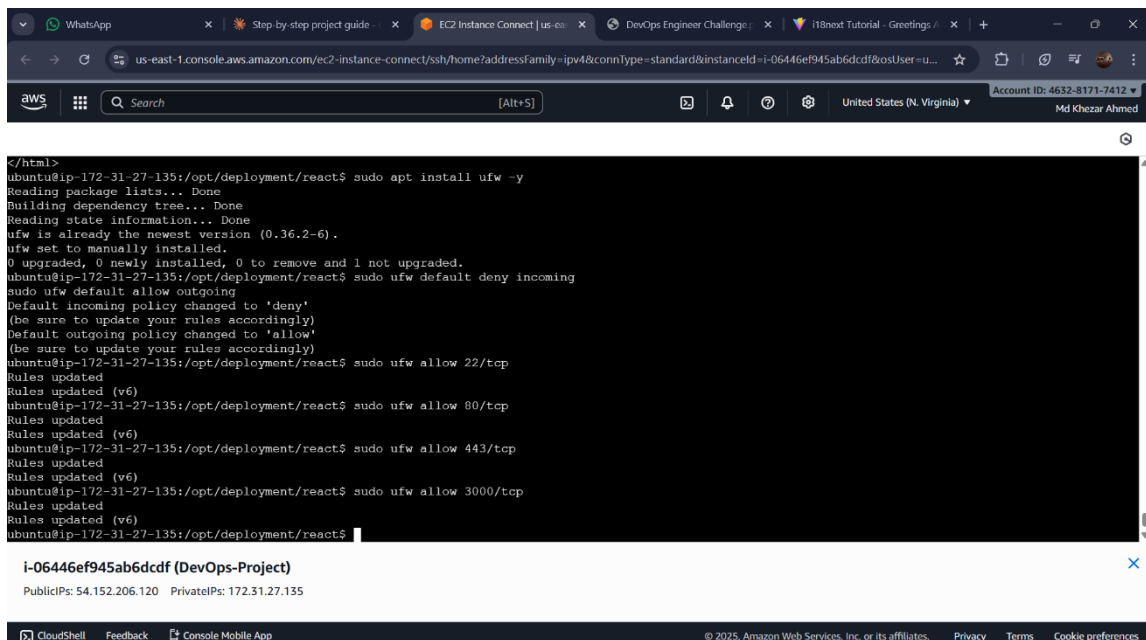
i-06446ef945ab6dcdf (DevOps-Project) PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

- Access `HTTP:<IP_address>` from the browser it should display the chat app

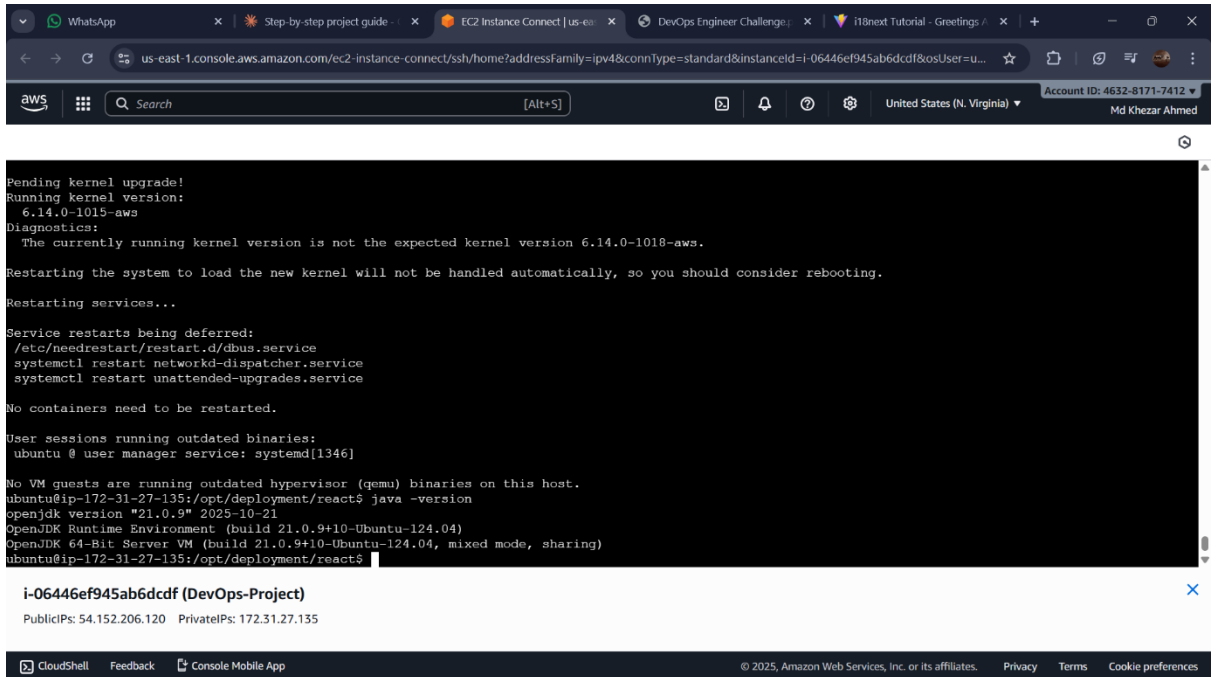


- Ensure all ports except 80 (HTTP), 443 (HTTPS), 3000 (custom port for docker container) and 22 (SSH) are blocked using UFW



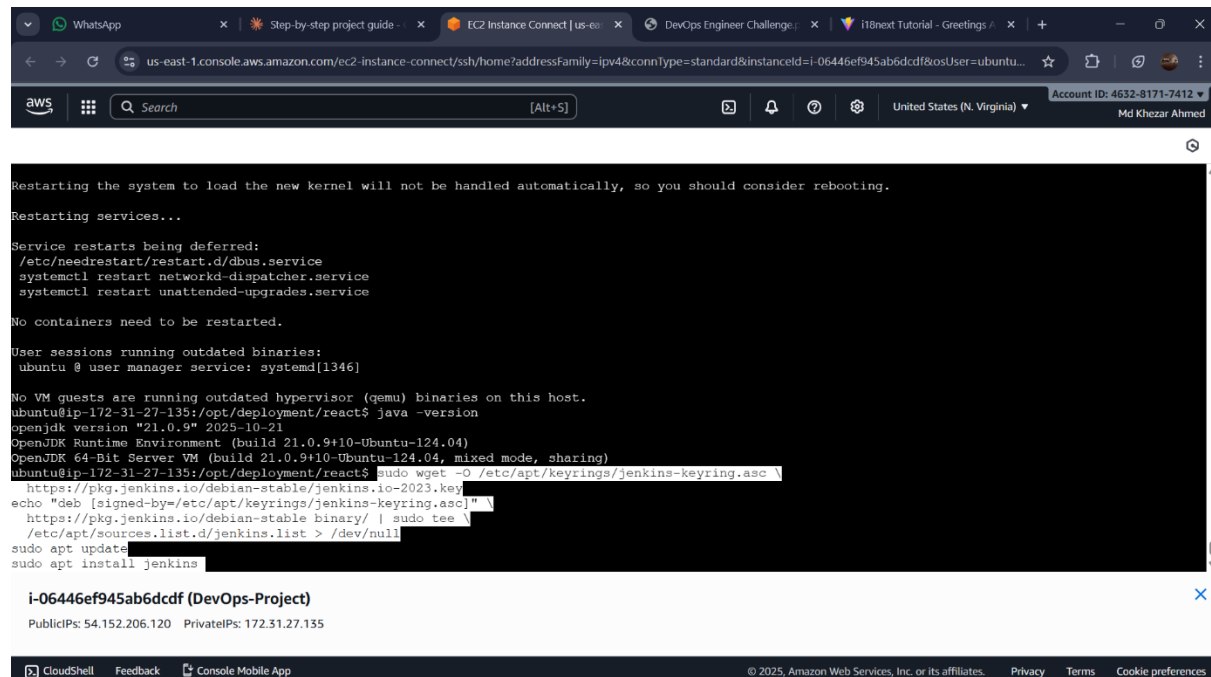
Part 4: CICD

- Setup/install Jenkins, Access HTTP://<IP_ADDRESS>:8080 Jenkins and setup admin password



```
us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-06446ef945ab6dcdf&osUser=...
Pending kernel upgrade!
Running kernel version:
 6.14.0-1015-aws
Diagnostics:
 The currently running kernel version is not the expected kernel version 6.14.0-1018-aws.
Restarting the system to load the new kernel will not be handled automatically, so you should consider rebooting.
Restarting services...
Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart networkd-dispatcher.service
systemctl restart unattended-upgrades.service
No containers need to be restarted.
User sessions running outdated binaries:
ubuntu @ user manager service: systemd[1346]
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-27-135:/opt/deployment/react$ java -version
openjdk version "21.0.9" 2025-10-21
OpenJDK Runtime Environment (build 21.0.9+10-Ubuntu-124.04)
OpenJDK 64-Bit Server VM (build 21.0.9+10-Ubuntu-124.04, mixed mode, sharing)
ubuntu@ip-172-31-27-135:/opt/deployment/react$
```

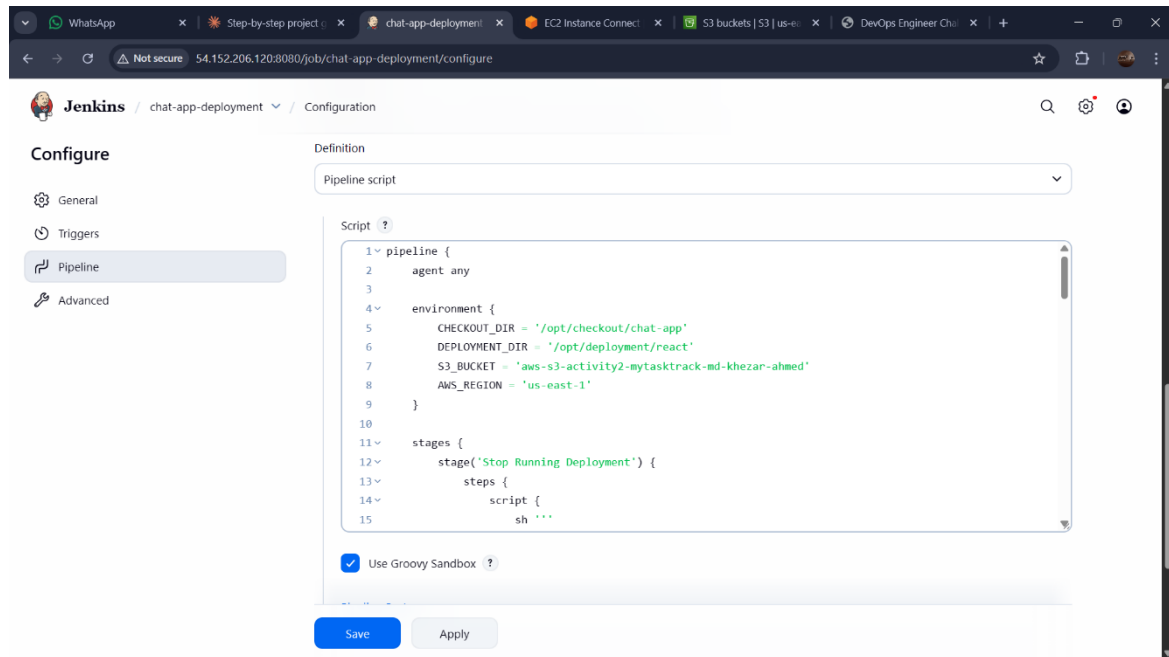
i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135



```
us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-06446ef945ab6dcdf&osUser=ubuntu...
Restarting the system to load the new kernel will not be handled automatically, so you should consider rebooting.
Restarting services...
Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart networkd-dispatcher.service
systemctl restart unattended-upgrades.service
No containers need to be restarted.
User sessions running outdated binaries:
ubuntu @ user manager service: systemd[1346]
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-27-135:/opt/deployment/react$ java -version
openjdk version "21.0.9" 2025-10-21
OpenJDK Runtime Environment (build 21.0.9+10-Ubuntu-124.04)
OpenJDK 64-Bit Server VM (build 21.0.9+10-Ubuntu-124.04, mixed mode, sharing)
ubuntu@ip-172-31-27-135:/opt/deployment/react$ sudo wget -O /etc/apt/keyrings/jenkins-keyring.asc
https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
echo "deb [signed-by=/etc/apt/keyrings/jenkins-keyring.asc]"
https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
/etc/apt/sources.list.d/jenkins.list > /dev/null
sudo apt update
sudo apt install jenkins
```

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

- Create a Jenkins Pipeline job to a) stop running deployment; b) pull fresh code from git to "/opt/checkout/chat-app"; c) dist to "/opt/deployment/react" ; d) deploy using pm2
- Select and install a Jenkins plugin to upload files to s3
- Update the Jenkins pipeline job - add step e) upload dist to s3 using the share s3 credentials



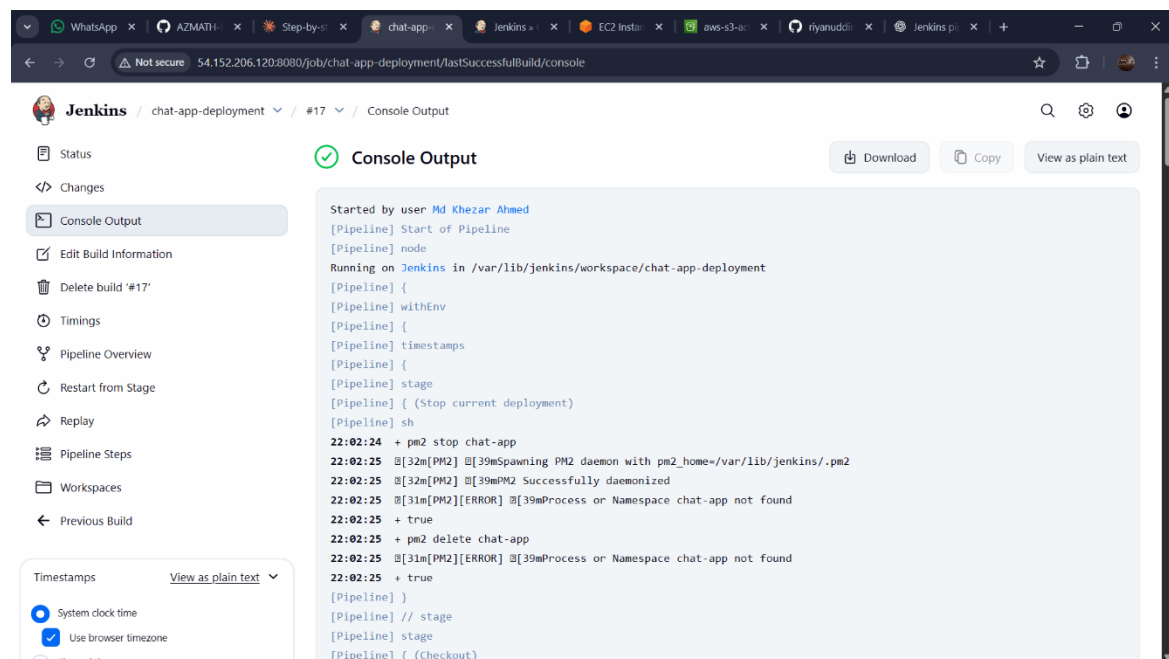
The screenshot shows the Jenkins configuration page for a pipeline job named 'chat-app-deployment'. The 'Definition' is set to 'Pipeline script'. The 'Script' field contains the following Groovy code:

```

1 pipeline {
2   agent any
3
4   environment {
5     CHECKOUT_DIR = '/opt/checkout/chat-app'
6     DEPLOYMENT_DIR = '/opt/deployment/react'
7     S3_BUCKET = 'aws-s3-activity2-mytasktrack-md-khezar-ahmed'
8     AWS_REGION = 'us-east-1'
9   }
10
11  stages {
12    stage('Stop Running Deployment') {
13      steps {
14        script {
15          sh ...

```

Below the script field, the 'Use Groovy Sandbox' checkbox is checked. At the bottom, there are 'Save' and 'Apply' buttons.



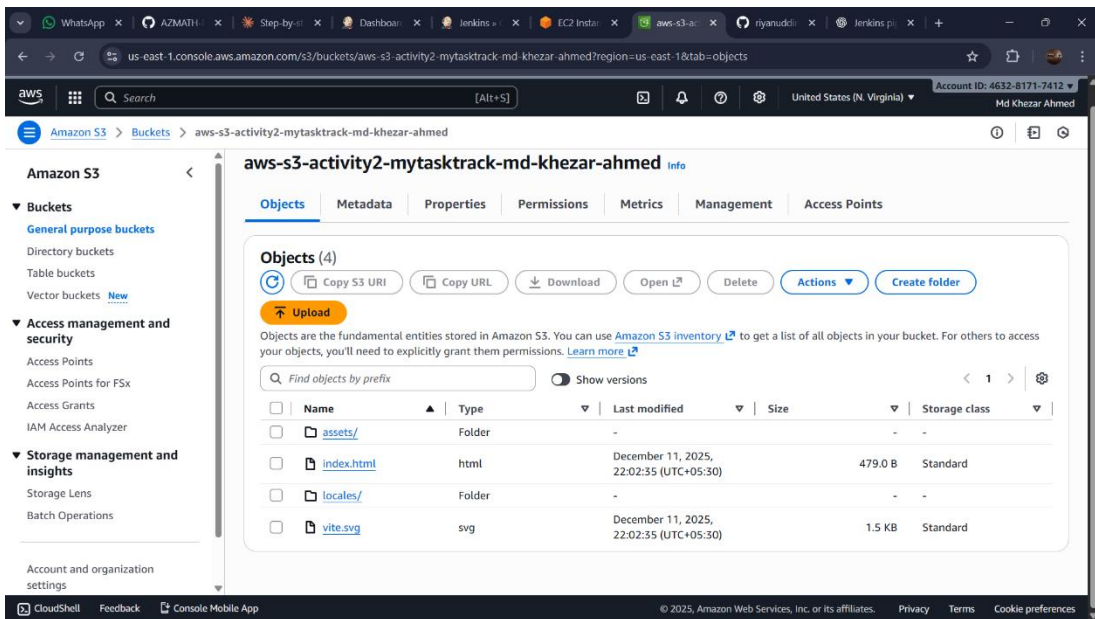
The screenshot shows the Jenkins console output for build #17. The output is as follows:

```

Started by user Md Khezar Ahmed
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/chat-app-deployment
[Pipeline] {
[Pipeline] withEnv
[Pipeline] {
[Pipeline] timestamps
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Stop current deployment)
[Pipeline] sh
22:02:24 + pm2 stop chat-app
22:02:25 @[32m[PM2] @[39mSpawning PM2 daemon with pm2_home=/var/lib/jenkins/.pm2
22:02:25 @[32m[PM2] @[39mPM2 Successfully daemonized
22:02:25 @[31m[PM2][ERROR] @[39mProcess or Namespace chat-app not found
22:02:25 + true
22:02:25 + pm2 delete chat-app
22:02:25 @[31m[PM2][ERROR] @[39mProcess or Namespace chat-app not found
22:02:25 + true
[Pipeline] }
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (checkout)

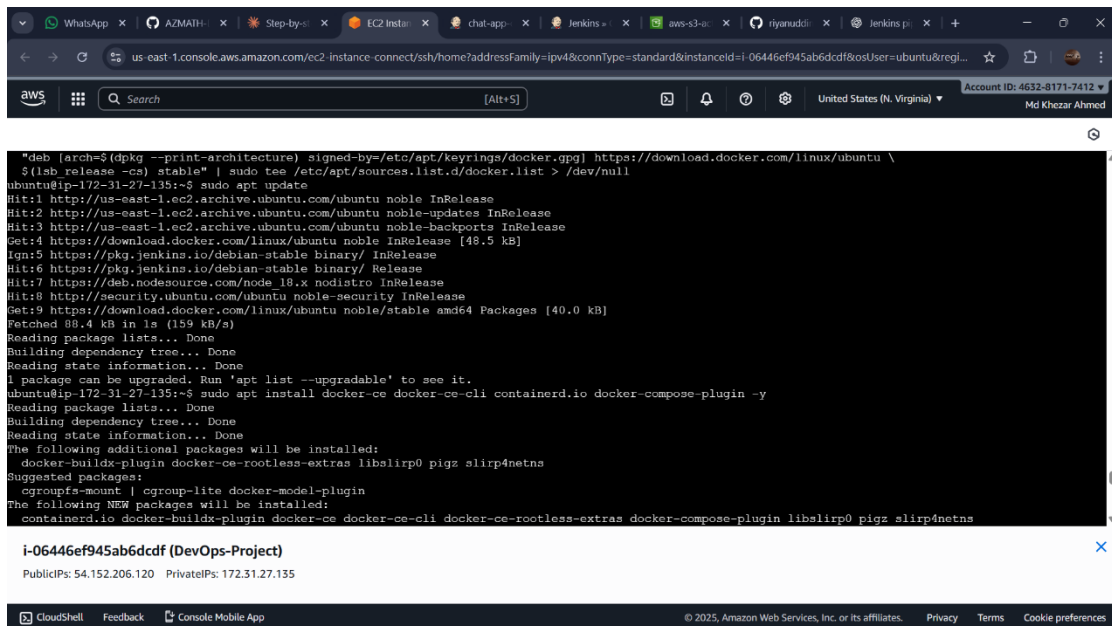
```

On the left side, there is a sidebar with navigation options: Status, Changes, Console Output (selected), Edit Build Information, Delete build #17, Timings, Pipeline Overview, Restart from Stage, Replay, Pipeline Steps, Workspaces, and Previous Build. At the bottom left, there are options for 'Timestamps' and 'View as plain text'.



Part 5: Docker

- Dockerize the react app (image should contain only dist files) and expose on port 3000, use docker-compose to manage the bring the docker container up (E.g: docker-compose up to start container)



us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-06446ef945ab6dcdf&osUser=ubuntu®i...

```
Status: Downloaded newer image for hello-world:latest
Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
   (amd64)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/

ubuntu@ip-172-31-27-135:~$ mkdir -p ~/docker-chat-app
ubuntu@ip-172-31-27-135:~$ cd ~/docker-chat-app
ubuntu@ip-172-31-27-135:~/docker-chat-app$ cp -r /opt/deployment/react/* .
ubuntu@ip-172-31-27-135:~/docker-chat-app$ nano Dockerfile
```

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-06446ef945ab6dcdf&osUser=ubuntu®i...

```
GNU nano 7.2 Dockerfile *
Use Alpine alpine for smaller image size
FROM nginx:alpine

# Copy dist files to Nginx html directory
COPY . /usr/share/nginx/html

# Expose port 3000
EXPOSE 3000

# Update Nginx configuration to listen on port 3000
RUN sed -i 's/listen 80;/listen 3000;/' /etc/nginx/conf.d/default.conf

# Start Nginx
CMD ["nginx", "-g", "daemon off;"]
```

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-06446ef945ab6dcdf&osUser=ubuntu®i...

```
GNU nano 7.2 docker-compose.yml *
version: '3.8'

services:
  chat-app:
    build: .
    container_name: chat-app-container
    ports:
      - "3000:3000"
    restart: unless-stopped
    networks:
      - chat-network

networks:
  chat-network:
    driver: bridge
```

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

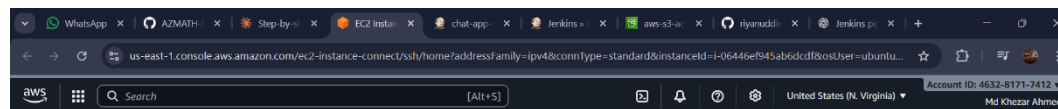
CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences



```
ubuntu@ip-172-31-27-135:~/docker-chat-app$ nano Dockerfile
ubuntu@ip-172-31-27-135:~/docker-chat-app$ nano docker-compose.yml
ubuntu@ip-172-31-27-135:~/docker-chat-app$ docker build -t chat-app:latest .
[+] Building 2.9s (8/8) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile              0.0s
=> transferring dockerfile: 399B                                0.4s
=> [internal] load metadata for docker.io/library/nginx:alpine  0.1s
=> [internal] load .dockerignore                                  0.0s
=> transferring context: 2B                                       0.0s
=> [internal] load build context                                  0.0s
=> transferring context: 239.7KB                                    0.1s
=> [1/3] FROM docker.io/library/nginx:alpine@sha256:229decab414250121a93c3f1b8316b9c69906d3a4993757c424cb964169ad42  1.5s
=> resolve docker.io/library/nginx:alpine@sha256:229decab414250121a93c3f1b8316b9c69906d3a4993757c424cb964169ad42  0.0s
=> sha256:fc1532503d72b70e7d4276ae52f2743b14326b83c31935c66d77c66019dea  1.40kB / 1.40kB
=> sha256:ad5b65da02cfbd43daa87443b87051f3816a10eb7719938d8cb9a96ee828d471  1.21kB / 1.21kB
=> sha256:51c0493937c33b38b568d8aed09d9596f558d08877b05a5e185516aba05e1f  403B / 403B
=> sha256:abdc946203a31d986f184559f417a33c3a8936a80153b2f0ff2a084f4a0d48  959B / 959B
=> sha256:136cc6976c2023a3363666b8167d08019fccc3e756c162cb8754e3819e4063  17.26MB / 17.26MB
=> sha256:5d2cc344426d3d91200b457a771ecfe976de824e165506f5cc5e56b63da1ca9  629B / 629B
=> sha256:014e56e13968f73cc085b124ca5fbc601d788099969a4eeae9f31dcd71a53  3.86MB / 3.86MB
=> sha256:dfad29a0c259f8d1ecl938529f8ef602e33ba2680497ad5d36e0727e1a10a  1.86MB / 1.86MB
=> extracting sha256:014e56e13968f73cc085b124ca5fbc601d788099969a4eeae9f31dcd71a53  0.2s
=> extracting sha256:dfad29a0c259f8d1ecl938529f8ef602e33ba2680497ad5d36e0727e1a10a  0.1s
=> extracting sha256:5d2cc344426d3d91200b457a771ecfe976de824e165506f5cc5e56b63da1ca9  0.0s
=> extracting sha256:abdc946203a31d986f184559f417a33c3a8936a80153b2f0ff2a084f4a0d48  0.0s
=> extracting sha256:51c0493937c33b38b568d8aed09d9596f558d08877b05a5e185516aba05e1f  0.0s
=> extracting sha256:ad5b65da02cfbd43daa87443b87051f3816a10eb7719938d8cb9a96ee828d471  0.0s
```

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences



```
=> sha256:0d2cc344426d3d91200b457a771ecfe976de824e165506f5cc5e56b63da1ca9  629B / 629B
=> sha256:014e56e13968f73cc085b124ca5fbc601d788099969a4eeae9f31dcd71a53  3.86MB / 3.86MB
=> sha256:dfad29a0c259f8d1ecl938529f8ef602e33ba2680497ad5d36e0727e1a10a  1.86MB / 1.86MB
=> extracting sha256:014e56e13968f73cc085b124ca5fbc601d788099969a4eeae9f31dcd71a53  0.2s
=> extracting sha256:dfad29a0c259f8d1ecl938529f8ef602e33ba2680497ad5d36e0727e1a10a  0.1s
=> extracting sha256:5d2cc344426d3d91200b457a771ecfe976de824e165506f5cc5e56b63da1ca9  0.0s
=> extracting sha256:abdc946203a31d986f184559f417a33c3a8936a80153b2f0ff2a084f4a0d48  0.0s
=> extracting sha256:51c0493937c33b38b568d8aed09d9596f558d08877b05a5e185516aba05e1f  0.0s
=> extracting sha256:ad5b65da02cfbd43daa87443b87051f3816a10eb7719938d8cb9a96ee828d471  0.0s
=> extracting sha256:136cc6976c2023a3363666b8167d08019fccc3e756c162cb8754e3819e4063  0.5s
=> [2/3] COPY ./usr/share/nginx/html                                       0.2s
=> [3/3] RUN sed -i 'a/listen 80;/listen 3000;/' /etc/nginx/conf.d/default.conf  0.4s
=> exporting to image                                                       0.2s
=> exporting manifest sha256:411fcd808e2f45d491678f53467652c04319d638236807986d10cab4989d  0.0s
=> exporting config sha256:10d0bc331ffca380a809ff205aneF9a151495a6e36945726eb1589f3a770  0.0s
=> exporting attestation manifest sha256:2f04e2b9271b707277coda884f282bca2d4f56fe7b9b5b44916619ac80d1a33  0.0s
=> exporting manifest list sha256:b536492873cc4890c2c90f876cad5b1bac0339c92d2b5d0cbaf1f403973a4b  0.0s
=> naming to docker.io/library/chat-app:latest                             0.0s
=> unpacking to docker.io/library/chat-app:latest                          0.1s
ubuntu@ip-172-31-27-135:~/docker-chat-app$ docker images

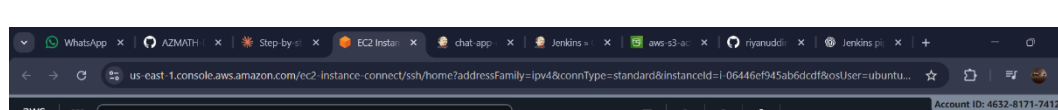
```

IMAGE	ID	DISK USAGE	CONTENT SIZE	EXTRA
chat-app:latest	b536492873ec	81.5MB	23.1MB	
hello-world:latest	d4aaab6242e0	25.9kB	9.52kB	

ubuntu@ip-172-31-27-135:~/docker-chat-app\$

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences



```
=> [internal] load local bake definitions                                0.0s
=> reading from stdin 539B                                               0.0s
=> [internal] load build definition from Dockerfile                      0.0s
=> transferring dockerfile: 399B                                         0.0s
=> [internal] load metadata for docker.io/library/nginx:alpine          0.1s
=> [internal] load .dockerignore                                         0.0s
=> transferring context: 2B                                               0.0s
=> [internal] load build context                                         0.0s
=> transferring context: 979B                                             0.0s
=> [1/3] FROM docker.io/library/nginx:alpine@sha256:229decab414250121a93c3f1b8316b9c69906d3a4993757c424cb964169ad42  1.5s
=> resolve docker.io/library/nginx:alpine@sha256:229decab414250121a93c3f1b8316b9c69906d3a4993757c424cb964169ad42  0.0s
=> CACHED [2/3] COPY ./usr/share/nginx/html                             0.0s
=> CACHED [3/3] RUN sed -i 'a/listen 80;/listen 3000;/' /etc/nginx/conf.d/default.conf  0.0s
=> exporting to image                                                       0.2s
=> exporting layers                                                         0.0s
=> exporting manifest sha256:e2fa815df9755880d59a80aa7767ecc4a593b59d7987f0cf13703349b57638  0.0s
=> exporting config sha256:1724ab53d0c8987f8a0ccf52d354fd258842ae15c2c83cc4f9cc4e5b7f5f1  0.0s
=> exporting attestation manifest sha256:2e1fd992df04628d4c2dd0f176de6d552a2bd4637a2dfe2ff43d2724e0a12  0.0s
=> exporting manifest list sha256:2c82a6d52b9e2b1b24532bf4fa36ff7e4e225b036010d16693f18f995cb9e8  0.0s
=> naming to docker.io/library/docker-chat-app:latest                   0.0s
=> unpacking to docker.io/library/docker-chat-app:latest                 0.0s
=> resolving provenance for metadata file                                  0.0s
ubuntu@ip-172-31-27-135:~/docker-chat-app$

```

Image	Build	Network	Container
docker-chat-app-chat-app	Build		
docker-chat-app_chat-network	Created		
chat-app-container	Created		

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

CloudShell Feedback Console Mobile App © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Terminal output from an AWS CloudShell session:

```
ubuntu@ip-172-31-27-135:~/docker-chat-app$ ^C
ubuntu@ip-172-31-27-135:~/docker-chat-app$ ^C
ubuntu@ip-172-31-27-135:~/docker-chat-app$ ^C
ubuntu@ip-172-31-27-135:~/docker-chat-app$ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS
i-06446ef945ab6dcdf
NAME          docker-chat-app-chat-app           "/docker-entrypoint.d/... 40 seconds ago Up 39 seconds 80/tcp, 0.0.0.0:3000->3000/tcp, [::]:3000->3000/tcp
chat-app-container
ubuntu@ip-172-31-27-135:~/docker-chat-app$ docker logs chat-app-container
/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
2025/12/11 16:52:15 [notice] #1: using the "epoll" event method
2025/12/11 16:52:15 [notice] #1: nginx/1.29.4
2025/12/11 16:52:15 [notice] #1: built by gcc 15.2.0 (Alpine 15.2.0)
2025/12/11 16:52:15 [notice] #1: OS: Linux 6.14.0-1015-aws
2025/12/11 16:52:15 [notice] #1: getrlimit(RLIMIT_NOFILE): 1024:524288
2025/12/11 16:52:15 [notice] #1: start worker processes
2025/12/11 16:52:15 [notice] #1: start worker process 29
2025/12/11 16:52:15 [notice] #1: start worker process 30
ubuntu@ip-172-31-27-135:~/docker-chat-app$
```

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

Terminal output from an AWS CloudShell session:

```
/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
2025/12/11 16:52:15 [notice] #1: using the "epoll" event method
2025/12/11 16:52:15 [notice] #1: nginx/1.29.4
2025/12/11 16:52:15 [notice] #1: built by gcc 15.2.0 (Alpine 15.2.0)
2025/12/11 16:52:15 [notice] #1: OS: Linux 6.14.0-1015-aws
2025/12/11 16:52:15 [notice] #1: getrlimit(RLIMIT_NOFILE): 1024:524288
2025/12/11 16:52:15 [notice] #1: start worker processes
2025/12/11 16:52:15 [notice] #1: start worker process 29
2025/12/11 16:52:15 [notice] #1: start worker process 30
ubuntu@ip-172-31-27-135:~/docker-chat-app$ curl http://localhost:3000
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8" />
<link rel="icon" type="image/svg+xml" href="/vite.svg" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<title>16next Tutorial - Greetings App</title>
<script type="module" crossorigin src="/assets/index-vNmJevtl.js"></script>
<link rel="stylesheet" crossorigin href="/assets/index-xz40b3c.css">
</head>
<body>
<div id="root"></div>
</body>
</html>
ubuntu@ip-172-31-27-135:~/docker-chat-app$
```

i-06446ef945ab6dcdf (DevOps-Project)
PublicIPs: 54.152.206.120 PrivateIPs: 172.31.27.135

Screenshot of a web browser showing a welcome message:

English French Hindi Arabic

Hello, Welcome!

You're watching RoadsideCoder YouTube Channel
This is an Internationalisation Tutorial