

APPLICATION DEPLOYMENT

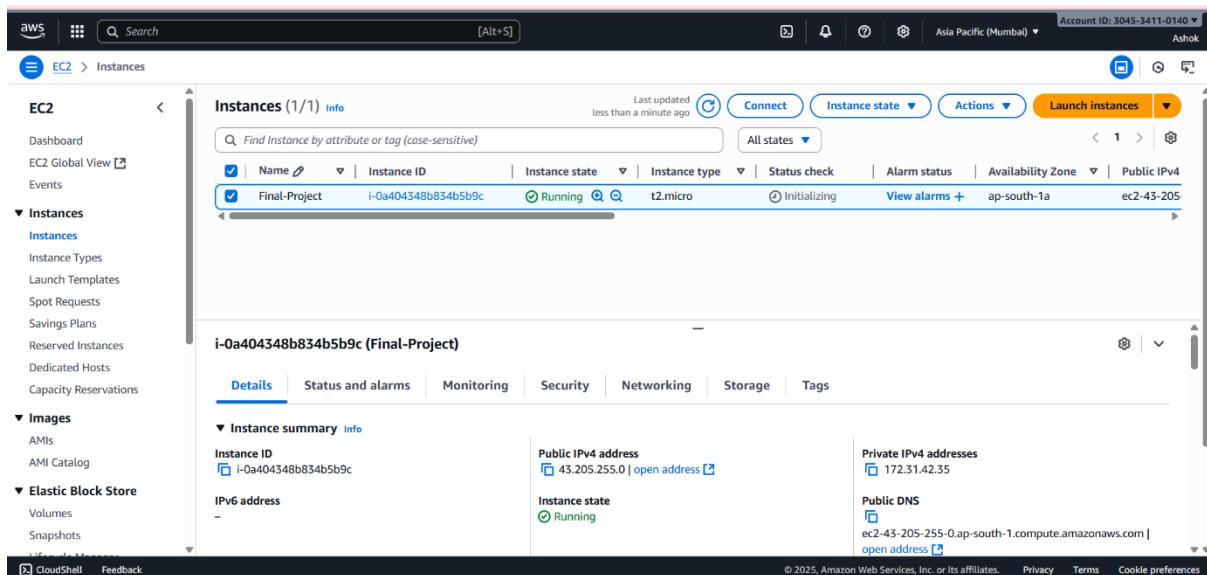
Project Name: Devops-build – Final Project

Git hub url: <https://github.com/M-Ashok07/Devops-app.git>

Pre-requisites

Before starting the project, I installed the required tools to set up and deploy the application:

- Amazon EC2 Instance – I launched an EC2 instance to serve as the server for deploying the application. This provided a scalable and reliable cloud environment for hosting the project.



- Docker – Installed Docker to containerize the application. Docker ensures that the application runs consistently across different environments by packaging the code along with all its dependencies.

```
root@ip-172-31-42-35:/home/project# docker --version
Docker version 27.5.1, build 27.5.1-0ubuntu3-24.04
root@ip-172-31-42-35:/home/project# systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: enabled)
   Active: active (running) since Thu 2025-08-28 06:01:37 UTC; 3min 24s ago
     Docs: https://docs.docker.com
      Main PID: 2053 (dockerd)
        Tasks: 9
       Memory: 21.0M (peak: 22.2M)
         CPU: 358ms
        CGroup: /system.slice/docker.service
               └─2053 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Aug 28 06:01:36 ip-172-31-42-35 systemd[1]: Starting docker.service - Docker Application Container Engine...
Aug 28 06:01:36 ip-172-31-42-35 dockerd[2053]: time="2025-08-28T06:01:36.552694662Z" level=info msg="Starting up"
Aug 28 06:01:36 ip-172-31-42-35 dockerd[2053]: time="2025-08-28T06:01:36.554300344Z" level=info msg="OTEL tracing is not configured, using no-op tracer provider"
Aug 28 06:01:36 ip-172-31-42-35 dockerd[2053]: time="2025-08-28T06:01:36.554640743Z" level=info msg="Detected 127.0.0.53 nameserver, assuming systemd-resolved, so using resolv.conf: /run/resolv.conf"
Aug 28 06:01:36 ip-172-31-42-35 dockerd[2053]: time="2025-08-28T06:01:36.701856338Z" level=info msg="Loading containers: start."
Aug 28 06:01:37 ip-172-31-42-35 dockerd[2053]: time="2025-08-28T06:01:37.353496135Z" level=info msg="Loading containers: done."
Aug 28 06:01:37 ip-172-31-42-35 dockerd[2053]: time="2025-08-28T06:01:37.373803042Z" level=info msg="Docker daemon" commit="27.5.1-0ubuntu3-24.04.2" containerd-snapshotter=false storage-driver="overlay2"
Aug 28 06:01:37 ip-172-31-42-35 dockerd[2053]: time="2025-08-28T06:01:37.378621546Z" level=info msg="Daemon has completed initialization"
Aug 28 06:01:37 ip-172-31-42-35 dockerd[2053]: time="2025-08-28T06:01:37.419097147Z" level=info msg="API listen on /run/docker.sock"
Aug 28 06:01:37 ip-172-31-42-35 systemd[1]: Started docker.service - Docker Application Container Engine.
[lines 1-22/22 (END)]
```

- AWS CLI – Configured the AWS Command Line Interface to interact with AWS services directly from the terminal. This made managing EC2, ECR, and other AWS resources easier during the deployment process.

```
root@ip-172-31-42-35:/home/project# aws --version
aws-cli/2.28.19 Python/3.13.7 Linux/6.14.0-1011-aws exe/x86_64.ubuntu.24
root@ip-172-31-42-35:/home/project#
```

Cloning the Repository:

Repo URL: <https://github.com/sriram-R-krishnan/devops-build>

The first step in the project was to clone the provided GitHub repository to the server.

```
root@ip-172-31-42-35:/home/project/devops-build/build#
root@ip-172-31-42-35:/home/project# git clone https://github.com/sriram-R-krishnan/devops-build.git
Cloning into 'devops-build'...
remote: Enumerating objects: 21, done.
remote: Total 21 (delta 0), reused 0 (delta 0), pack-reused 21 (from 1)
Receiving objects: 100% (21/21), 720.09 KiB | 16.37 MiB/s, done.
root@ip-172-31-42-35:/home/project# ls
aws awscli.sh awscliv2.zip devops-build
root@ip-172-31-42-35:/home/project# cd devops-build/
root@ip-172-31-42-35:/home/project/devops-build# ls
build
root@ip-172-31-42-35:/home/project/devops-build# cd build/
root@ip-172-31-42-35:/home/project/devops-build/build# ls
_redirects asset-manifest.json favicon.ico index.html logo192.png logo512.png manifest.json robots.txt static
root@ip-172-31-42-35:/home/project/devops-build/build#
```

Dockerizing the Application:

I created a **Dockerfile** to containerize the application, including all dependencies and commands to run it. Then, I made a **docker-compose file** to run the app on port 80 easily and manage it as a container.

Note: Screenshot not taken, but it is available in the GitHub repository

Bash Scripting:

1. **build.sh** – This script automates the process of building the Docker image for the application. Instead of manually writing Docker commands each time, this script ensures the image is built consistently every time with a single command.
2. **deploy.sh** – This script automates deploying the Docker image to the server. It handles running the container, mapping the application to port 80, and ensuring the application starts correctly.

```
root@ip-172-31-42-35:/home/project/devops-build#
root@ip-172-31-42-35:/home/project/devops-build# nano Dockerfile
root@ip-172-31-42-35:/home/project/devops-build# nano devops-build.yaml
root@ip-172-31-42-35:/home/project/devops-build# nano build.sh
root@ip-172-31-42-35:/home/project/devops-build# nano deploy.sh
root@ip-172-31-42-35:/home/project/devops-build# chmod +x build.sh de
deploy.sh      devops-build.yaml
root@ip-172-31-42-35:/home/project/devops-build# chmod +x build.sh deploy.sh
root@ip-172-31-42-35:/home/project/devops-build# ls
Dockerfile  build.sh  deploy.sh  devops-build.yaml  package.json
root@ip-172-31-42-35:/home/project/devops-build# nano devops-build.yaml
root@ip-172-31-42-35:/home/project/devops-build# nano build.sh
root@ip-172-31-42-35:/home/project/devops-build#
```

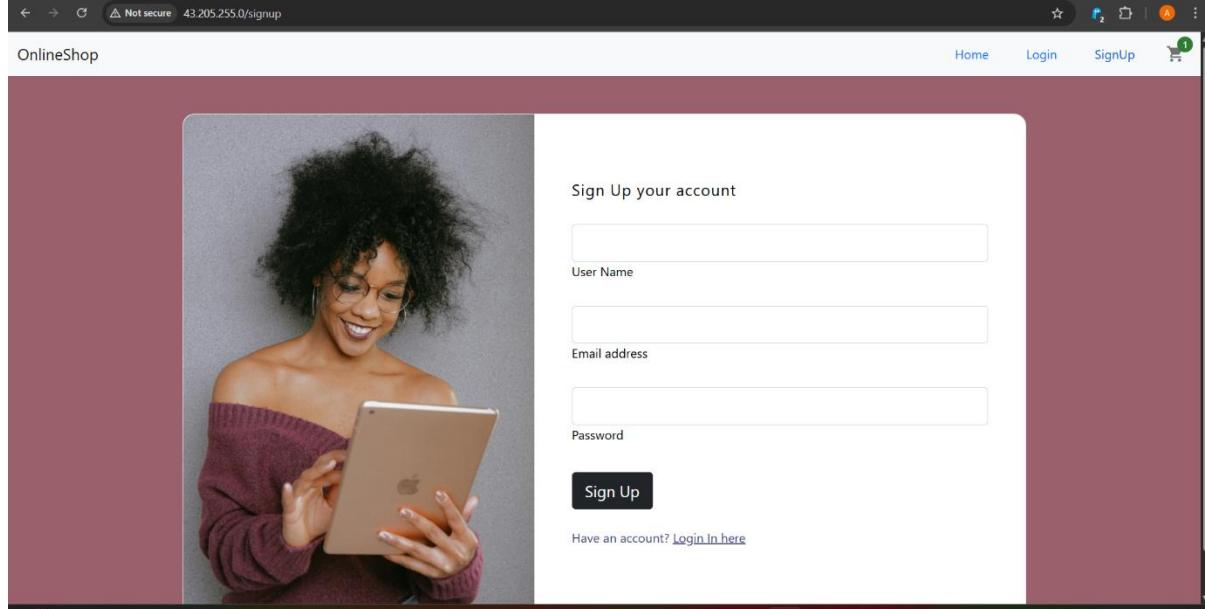
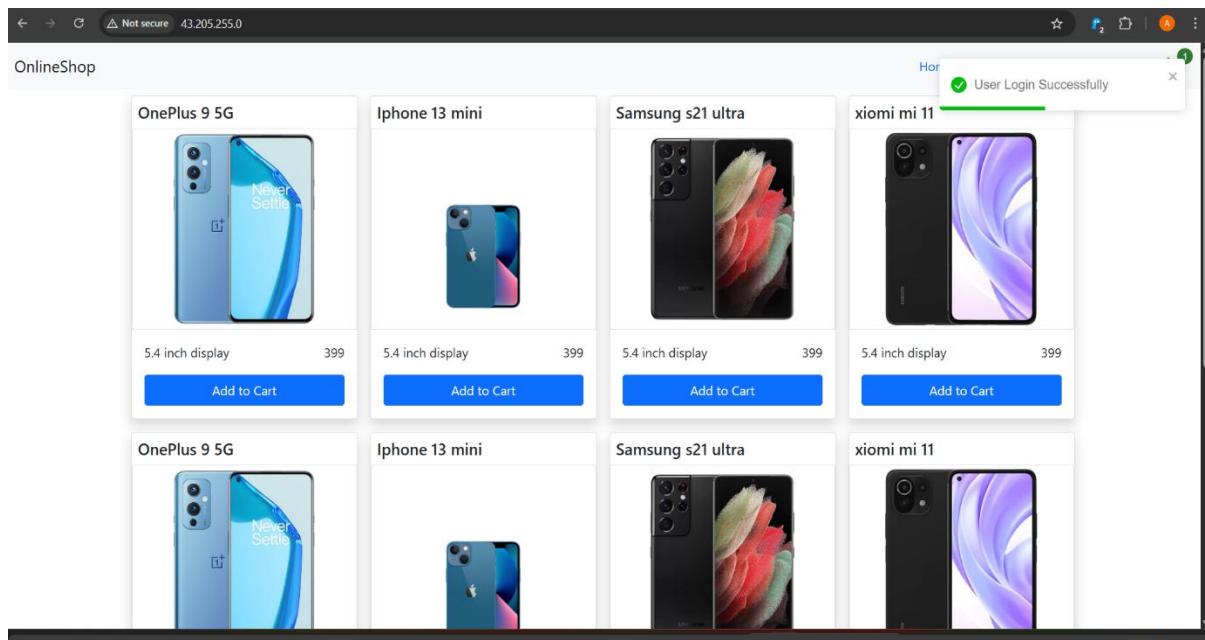
```
root@ip-172-31-42-35:/home/project/devops-build# ./deploy.sh
Deploying application...
Creating network "devops-build_default" with the default driver
Building devops-app
DEPRECATION: The legacy builder is deprecated and will be removed in a future release.
  Install the builder component to build images with BuildKit:
    https://docs.docker.com/go/buildkit/
Sending build context to Docker daemon 3.425MB
Step 1/7 : FROM node:18
--> b50082bc3670
Step 2/7 : WORKDIR /app
--> a7e0f64e63ff
Step 3/7 : COPY package*.json .
--> Using cache
--> 5c16aae60742
Step 4/7 : RUN npm install --production
--> Using cache
--> 4d553df55402
Step 5/7 : COPY .
--> Using cache
--> 521f93c3eddb8
Step 6/7 : EXPOSE 80
--> Using cache
--> b49b2d5d9da46
Step 7/7 : CMD ["npm", "start"]
--> Using cache
--> d8631099c45
Successfully built d8631099c45
Successfully tagged devops-build_devops-app:latest
Creating devops-app ... done
Application deployed and running on http://43.205.255.0:80
root@ip-172-31-42-35:/home/project/devops-build#
```

```
root@ip-172-31-42-35:/home/project/devops-build#
root@ip-172-31-42-35:/home/project/devops-build# ./deploy.sh
Deploying application...
Creating network "devops-build_default" with the default driver
Creating devops-app ... done
Application deployed at http:43.205.255.0:80
root@ip-172-31-42-35:/home/project/devops-build#
```

Docker images && Docker container :

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE		
devops-build_devops-app	latest	585e89e3037d	44 seconds ago	55.1MB		
nginx	alpine	4a86014ec699	2 weeks ago	52.5MB		
root@ip-172-31-42-35:/home/project/devops-build#	docker ps					
CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
df9ea50f9bcf	devops-build_devops-app	"/docker-entrypoint..."	33 seconds ago	Up 32 seconds	0.0.0.0:80->80/tcp, :::80->80/tcp	devops-app
root@ip-172-31-42-35:/home/project/devops-build#						

Application to the internet :port number: “80”



Not secure 43.205.255.0/cart

OnlineShop

Shopping Cart

#	Product	Price	Quantity	Total
1	 OnePlus 9 5G 5.4 inch display Remove	\$399	- 1 +	\$399

[Clear Cart](#)

SubTotal: \$399

Taxes and Shipping Calculated

[Login to CheckOut](#)

[Continue Shopping](#)

Not secure 43.205.255.0

OnlineShop



Login Into your account

Email address

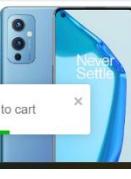
Password

Login

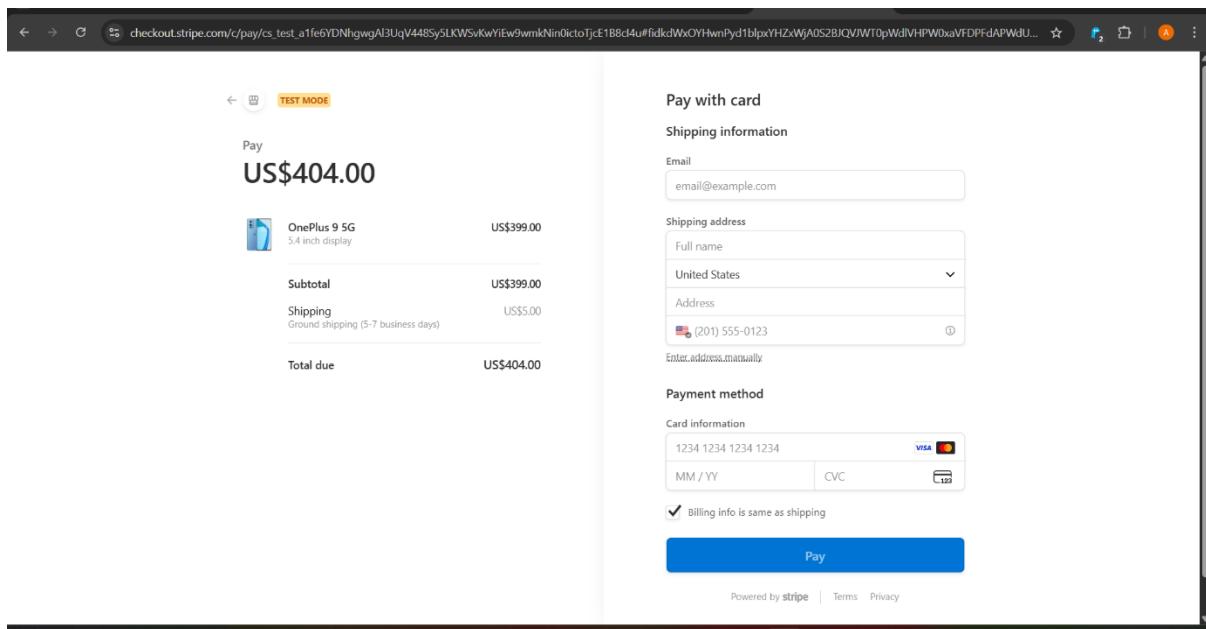
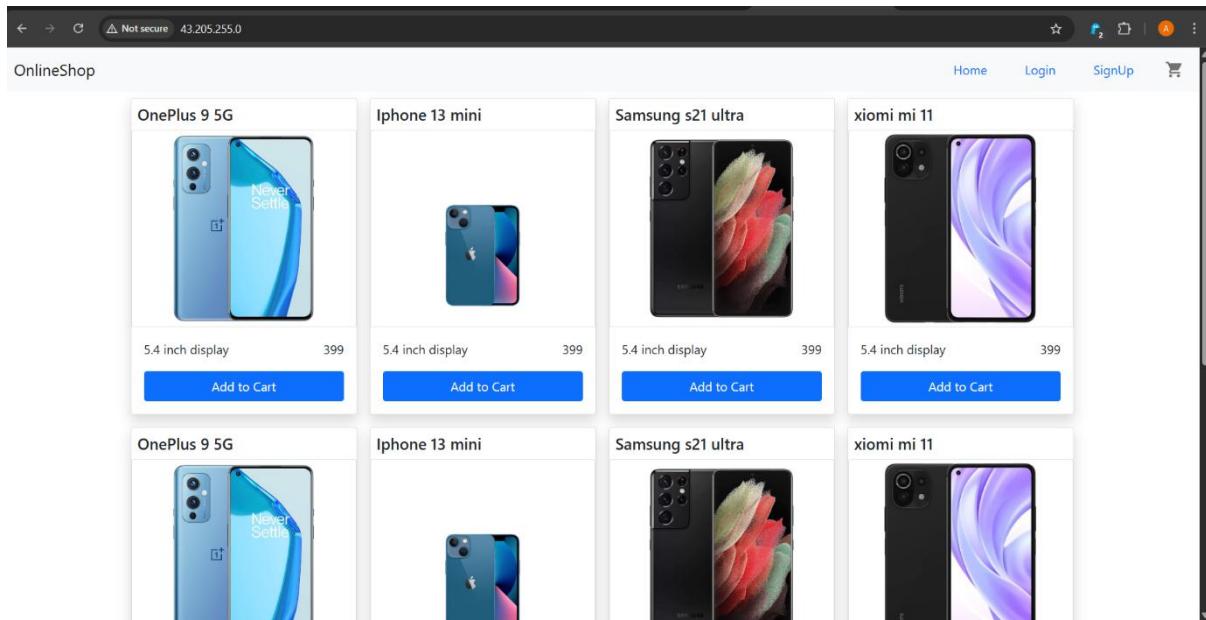
Have an account? [Login In here](#)

Not secure 43.205.255.0

OnlineShop

OnePlus 9 5G  5.4 inch display 399 Add to Cart	Iphone 13 mini  5.4 inch display 399 Add to Cart	Samsung s21 ultra  5.4 inch display 399 Add to Cart	xiom mi 11  5.4 inch display 399 Add to Cart
OnePlus 9 5G  5.4 inch display 399 Add to Cart	Iphone 13 mini  5.4 inch display 399 Add to Cart	Samsung s21 ultra  5.4 inch display 399 Add to Cart	xiom mi 11  5.4 inch display 399 Add to Cart





Version Control:

After completing the setup and scripting, I pushed all the project code to the **dev branch** on GitHub using the command-line interface (CLI). I included **.gitignore** and **.dockerignore** files to avoid committing unnecessary files like Docker images or temporary system files.

```
root@ip-172-31-42-35:/home/project/devops-build# git checkout -b dev
switched to a new branch 'dev'
root@ip-172-31-42-35:/home/project/devops-build# git add .
root@ip-172-31-42-35:/home/project/devops-build# git commit -m "first commit"
[dev 5f7c8c6] first commit
  Committer: root <root@ip-172-31-42-35.ap-south-1.compute.internal>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:
  git config --global --edit
After doing this, you may fix the identity used for this commit with:
  git commit --amend --reset-author
6 files changed, 51 insertions(+)
 create mode 100644 .dockerignore
 create mode 100644 .gitignore
 create mode 100644 Dockerfile
 create mode 100755 build.sh
 create mode 100755 deploy.sh
 create mode 100644 docker-compose.yaml
root@ip-172-31-42-35:/home/project/devops-build# git remote -v
origin https://github.com/sriram-R-krishnan/devops-build.git (fetch)
origin https://github.com/sriram-R-krishnan/devops-build.git (push)
root@ip-172-31-42-35:/home/project/devops-build# git remote get-url origin
https://github.com/sriram-R-krishnan/devops-build.git
root@ip-172-31-42-35:/home/project/devops-build# git remote set-url origin https://github.com/M-Ashok07/Devops-app.git
root@ip-172-31-42-35:/home/project/devops-build# git branch -M origin dev
fatal: no branch named 'origin'
root@ip-172-31-42-35:/home/project/devops-build# ^C
root@ip-172-31-42-35:/home/project/devops-build# git branch -M dev
root@ip-172-31-42-35:/home/project/devops-build# git push -u origin dev
Username for 'https://github.com': M-Ashok07
Password for 'https://M-Ashok07@github.com':
Enumerating objects: 29, done.
Counting objects: 100% (29/29), done.
Delta compression objects: 100% (29/29), 721.13 KiB | 80.13 MiB/s, done.
Writing objects: 100% (29/29), 721.13 KiB | 80.13 MiB/s, done.
Total 29 (delta 0), reused 21 (delta 0), pack-reused 0
To https://github.com/M-Ashok07/Devops-app.git
 * [new branch] dev -> dev
branch 'dev' set up to track 'origin/dev'.
```

The screenshot shows the GitHub repository page for 'Devops-app'. The repository is public and has 1 branch and 0 tags. The 'Code' tab is selected. The 'About' section indicates there is no description, website, or topics provided. The 'Activity' section shows 2 commits from the 'root' user, all of which are 'first commit'. The commits are for files: 'build', '.dockerignore', '.gitignore', 'Dockerfile', 'build.sh', 'deploy.sh', and 'docker-compose.yaml'. The 'Releases' section shows 'No releases published' and a link to 'Create a new release'. The 'Packages' section shows 'No packages published' and a link to 'Publish your first package'.

Docker Hub:

I created two Docker Hub repositories:

- **dev** – A public repository to push development images for testing and sharing.
- **prod** – A private repository to securely store production-ready images.

```
root@ip-172-31-42-35:/home/project/devops-build# docker login
Using web-based login
To sign in with credentials on the command line, use 'docker login -u <username>'

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

Waiting for authentication in the browser...
```

```
root@ip-172-31-42-35:/home/project/devops-build# docker login
Using web-based login
To sign in with credentials on the command line, use 'docker login -u <username>'

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

Waiting for authentication in the browser...
https://login.docker.com/activate
DQGW-BNHC
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

Login Succeeded
```

The screenshot shows the Docker Hub 'My Hub' interface. On the left, there's a sidebar with options like 'Repositories', 'Collaborations', 'Settings', 'Default privacy', 'Notifications', 'Billing', 'Usage', 'Pulls', and 'Storage'. The 'Repositories' tab is selected. In the main area, there's a 'Create repository' form. The 'Repository Name' field contains 'prod'. Below it is a 'Short description' input field with placeholder text: 'A short description to identify your repository. If the repository is public, this description is used to index your content on Docker Hub and in search engines, and is visible to users in search results.' Under 'Visibility', there are two options: 'Public' (radio button) and 'Private' (radio button, which is selected). A note below says 'Appears in Docker Hub search results' for Public and 'Only visible to you' for Private. At the bottom right of the form are 'Cancel' and 'Create' buttons. To the right of the form, there's a section titled 'Pushing images' with instructions for using the CLI and a note to replace 'tagname' with the desired image repository tag.

The screenshot shows the Docker Hub interface for a user named 'ashok948'. On the left, there's a sidebar with options like 'Repositories', 'Collaborations', 'Settings', and 'Storage'. The main area displays a repository named 'ashok948/prod'. It shows a lock icon indicating it's private. Below the repository name, it says 'Created less than a minute ago'. There are tabs for 'General', 'Tags', 'Image Management', 'Collaborators', 'Webhooks', and 'Settings'. Under 'General', there are fields for 'Add a description' and 'Add a category'. To the right, there's a section titled 'Docker commands' with a button to 'Push a new tag'. A sidebar on the right promotes 'buildcloud'.

This screenshot shows the process of creating a new repository. The sidebar on the left is identical to the previous one. In the center, a form is filled out for a new repository named 'dev'. The 'Repository Name' field contains 'dev'. There's a 'Short description' input field with a placeholder. Under 'Visibility', the 'Public' option is selected, with a note that it appears in Docker Hub search results. The 'Private' option is also available. At the bottom, there are 'Cancel' and 'Create' buttons.

The final screenshot shows the newly created repository 'ashok948/dev'. The sidebar and general layout are consistent with the other screenshots. The repository details show it was 'Created less than a minute ago'. The 'General' tab is active, showing the repository name and a lock icon. There are tabs for 'Tags', 'Image Management', 'Collaborators', 'Webhooks', and 'Settings'. The 'Tags' tab shows an 'INCOMPLETE' status. To the right, there's a section titled 'Docker commands' with a 'Public view' button and a 'Push a new tag' button. A sidebar on the right promotes 'buildcloud'.

```
root@ip-172-31-42-35:/home/project/devops-build# docker build -t devops-build:dev .
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 2.622MB
Step 1/4 : FROM nginx:alpine
--> 4a86014ec699
Step 2/4 : COPY build/ /usr/share/nginx/html
--> Using cache
--> c9bb4ac0cf15
Step 3/4 : EXPOSE 80
--> Using cache
--> 587de2a0e2c8
Step 4/4 : CMD ["nginx", "-g", "daemon off;"]
--> Using cache
--> 585e89e3037d
Successfully built 585e89e3037d
Successfully tagged devops-build:dev
root@ip-172-31-42-35:/home/project/devops-build# docker tag devops-build:dev ashok948/dev:latest
root@ip-172-31-42-35:/home/project/devops-build# docker push ashok948/dev:latest
The command 'docker' was found in the following locations:
  * command 'docker' from snap docker (28.1.1+)
  * command 'docker' from deb docker.io (27.5.1~Ubuntu-3~24.04.2)
  * command 'docker' from deb podman-docker (4.9.3+ds1-lubuntu0.2)
See 'snap info corename' for additional versions.
root@ip-172-31-42-35:/home/project/devops-build# docker push ashok948/dev:latest
The push refers to repository [docker.io/ashok948/dev]
caa8782f2431: Pushed
f9985d3fc94d: Mounted from library/nginx
d208138be39d: Mounted from library/nginx
a2b76470e8f1: Mounted from library/nginx
917b2c97271e: Mounted from library/nginx
16ca725632e5: Mounted from library/nginx
7978a9c91f72: Mounted from library/nginx
b6ff0212304e: Mounted from library/nginx
418dcdb7d85a: Mounted from library/nginx
latest: digest: sha256:f66ddaleb8f3ff59f861eb8f6285101eb0e03ebd7d78f87fc4f326d2284f9b45 size: 2199
root@ip-172-31-42-35:/home/project/devops-build#
```

```
root@ip-172-31-42-35:/home/project/devops-build
root@ip-172-31-42-35:/home/project/devops-build# docker build -t devops-build:prod .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
Install the buildx component to build images with BuildKit.
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Sending build context to Docker daemon 2.622MB
Step 1/4 : FROM nginx:alpine
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--> Using cache
--> 587de2a0e2c8
Step 4/4 : CMD ["nginx", "-g", "daemon off;"]
--> Using cache
--> 585e89e3037d
Successfully built 585e89e3037d
Successfully tagged devops-build:prod
root@ip-172-31-42-35:/home/project/devops-build# docker tag devops-build:prod ashok948/prod:latest
root@ip-172-31-42-35:/home/project/devops-build# docker push ashok948/prod:latest
The push refers to repository [docker.io/ashok948/prod]
caa8782f2431: Mounted from ashok948/dev
f9985d3fc94d: Mounted from ashok948/dev
d208138be39d: Mounted from ashok948/dev
a2b76470e8f1: Mounted from ashok948/dev
917b2c97271e: Mounted from ashok948/dev
16ca725632e5: Mounted from ashok948/dev
7978a9c91f72: Mounted from ashok948/dev
b6ff0212304e: Mounted from ashok948/dev
418dcdb7d85a: Mounted from ashok948/dev
latest: digest: sha256:f66ddaleb8f3ff59f861eb8f6285101eb0e03ebd7d78f87fc4f326d2284f9b45 size: 2199
root@ip-172-31-42-35:/home/project/devops-build#
```

Repositories / dev / General

ashok948/dev

Last pushed 3 minutes ago · Repository size: 22.1 MB

Add a description

Add a category

General Tags Image Management BETA Collaborators Webhooks Settings

Tags

This repository contains 0 tag(s).

Tag	OS	Type	Pulled	Pushed
latest		Image	less than 1 day	3 minutes

[See all](#)

Docker commands

To push a new tag to this repository:

```
docker push ashok948/dev:tagname
```

Using 1 of 1 private repositories. [Get more](#)

Public view

DOCKER SCOUT INACTIVE [Activate](#)

Build with Docker Build Cloud

Accelerate image build times with access to cloud-based builders and shared cache.

Docker Build Cloud executes builds on optimally-dimensioned cloud infrastructure with dedicated per-organization isolation.

Get faster builds through shared caching across your team, native multi-platform support, and encrypted data transfer - all without managing infrastructure.

[Go to Docker Build Cloud](#)

Repositories / dev / General

ashok948/dev

Last pushed 3 minutes ago · Repository size: 22.1 MB

Add a description

Add a category

General Tags Image Management BETA Collaborators Webhooks Settings

Tags

This repository contains 0 tag(s).

Tag	OS	Type	Pulled	Pushed
latest		Image	less than 1 day	3 minutes

[See all](#)

Docker commands

To push a new tag to this repository:

```
docker push ashok948/dev:tagname
```

Using 1 of 1 private repositories. [Get more](#)

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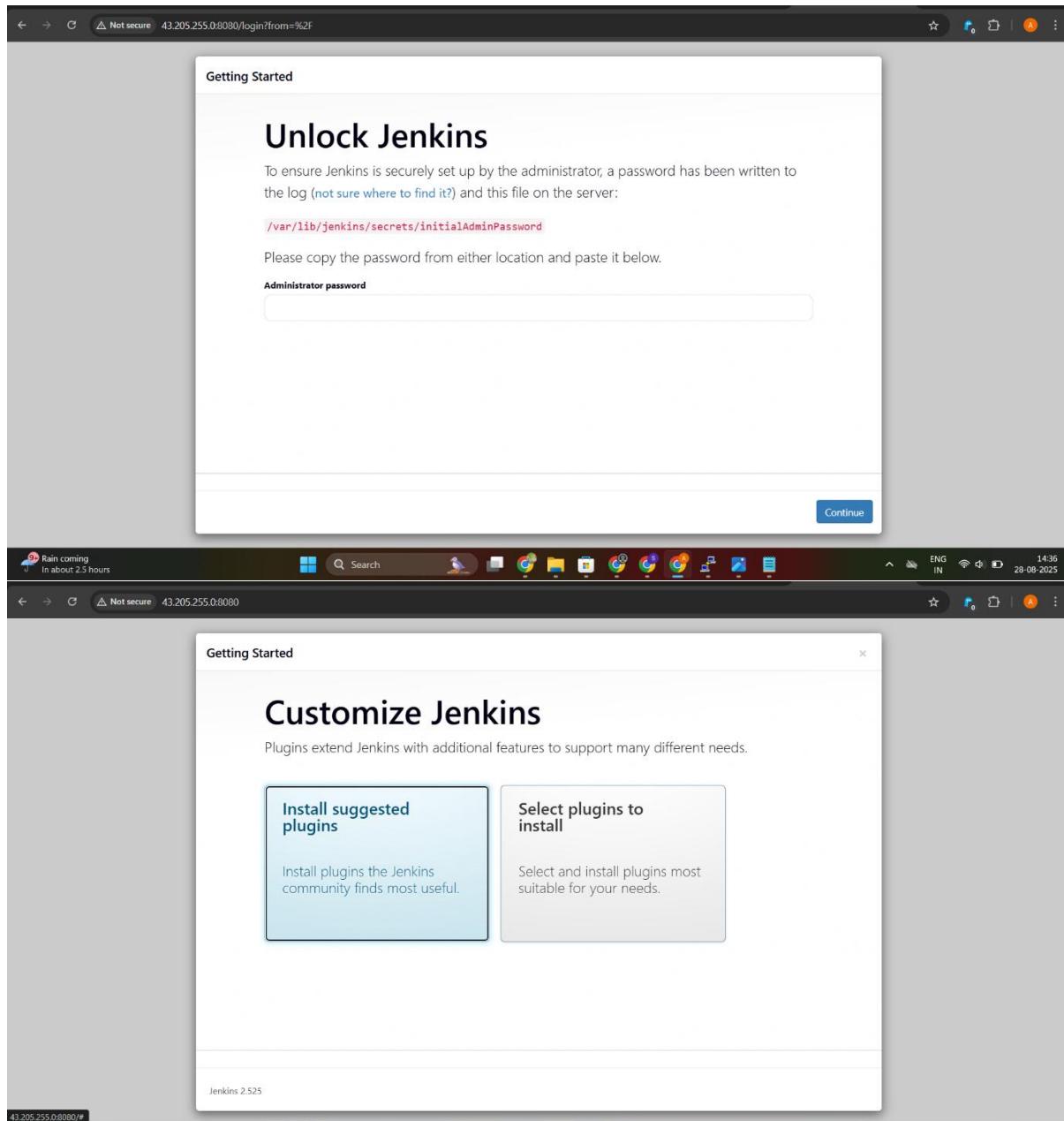
[Go to Docker Build Cloud](#)

```
root@ip-172-31-42-35:/home/project/devops-build
root@ip-172-31-42-35:/home/project/devops-build# docker pull ashok948/dev:latest
latest: Pulling from ashok948/dev
Digest: sha256:f66ddaleb8f3ff59f861eb8f6285101eb0e03ebd7d78f87fc4f326d2284f9b45
Status: Image is up to date for ashok948/dev:latest
docker.io/ashok948/dev:latest
root@ip-172-31-42-35:/home/project/devops-build# docker pull ashok948/prod:latest
latest: Pulling from ashok948/prod
Digest: sha256:f66ddaleb8f3ff59f861eb8f6285101eb0e03ebd7d78f87fc4f326d2284f9b45
Status: Image is up to date for ashok948/prod:latest
docker.io/ashok948/prod:latest
root@ip-172-31-42-35:/home/project/devops-build#
```

Jenkins CI/CD Setup:

I installed and configured **Jenkins** to automate the build, push, and deployment process of the application. Jenkins was connected to the GitHub repository with auto-trigger builds for both **dev** and **master** branches:

- **Dev branch** – Whenever code is pushed, Jenkins automatically builds the Docker image and pushes it to the **dev repository** on Docker Hub.
- **Master branch** – When changes from the dev branch are merged into master, Jenkins builds the image and pushes it to the **prod repository** on Docker Hub.



The screenshot shows the Jenkins 'Getting Started' page. At the top, there's a title 'Getting Started' and a progress bar. Below the bar is a grid of plugin icons and names. A tooltip for 'Folders' indicates it's a required dependency. At the bottom, it says 'Jenkins 2.525'.

✓ Folders	✓ OWASP Markup Formatter	Build Timeout	Credentials Binding
Timestamper	Workspace Cleanup	Ant	Gradle
Pipeline	GitHub Branch Source	Pipeline: GitHub Groovy Libraries	Pipeline Graph View
Git	SSH Build Agents	Matrix Authorization Strategy	LDAP
Email Extension	Mailer	Dark Theme	

** - required dependency

Jenkins 2.525

The screenshot shows the 'Instance Configuration' page. It has a title 'Instance Configuration' and a 'Jenkins URL:' input field containing 'http://43.205.255.0:8080/'. Below the input field is a descriptive text about the Jenkins URL. At the bottom right are 'Not now' and 'Save and Finish' buttons.

Jenkins URL:

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the `BUILD_URL` environment variable provided to build steps.

The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

Jenkins 2.525

Not now Save and Finish

Jenkins / Manage Jenkins / Plugins

Plugins

Updates Available plugins Installed plugins Advanced settings Download progress

Search available plugins

Install	Name	Released	Health
<input checked="" type="checkbox"/>	GitHub Integration 0.7.2 email ext Build Triggers	GitHub Integration Plugin for Jenkins	7 mo 15 days ago 
<input checked="" type="checkbox"/>	Docker Pipeline 621wa.73fbb81d9232 pipeline DevOps Deployment docker	Build and use Docker containers from pipelines.	2 mo 29 days ago 
<input checked="" type="checkbox"/>	Pipeline: Multibranch with defaults 2.1 Command Line Interface Source Code Management related Agent Management Build Triggers Miscellaneous	Enhances Pipeline plugin to handle branches better by automatically grouping builds from different branches. Supports enable one default pipeline	5 yr 11 mo ago 
<input checked="" type="checkbox"/>	Pipeline: Multibranch build strategy extension 64.v348e3c69ff5 This plugin provides additional configuration to prevent multibranch projects from triggering new builds based on a include or exclude regions in source repository or existence of a specific phrase in commit message of latest added commit. Each region uses ant pattern matching , and must be separated by a new line. Any commented line should start by # Each message uses Java pattern matching based on standard java.util.regex package, and must be separated by a new line. Examples: Exclusion (Region) # excluding html and jpeg changes to trigger builds src/main/web/**/.html src/main/web/**/.jpeg Inclusion (Region) # Any changes on java files will trigger build src/main/java/**/.java Exclusion (Message) .\([c]\-skip\)\.*.\[maven\]-release\[plugin\].*		2 mo 27 days ago 

43.205.255.0:8080



 Jenkins is restarting

Your browser will reload automatically when Jenkins is ready.

 Safe Restart
Builds on agents can usually continue.

Jenkins / Manage Jenkins / Credentials / System / Global credentials (unrestricted...)

Global credentials (unrestricted)

Credentials that should be available irrespective of domain specification to requirements matching.

ID	Name	Kind	Description
 docker-hub	ashok948/***** (docker hub credentials)	Username with password	docker hub credentials 
 Github-login	M-Ashok07/***** (Github-login-credentials)	Username with password	Github-login-credentials 

Icon: S M L

```

root@ip-172-31-42-35: /home/project/devops-build
root@ip-172-31-42-35:/home/project/devops-build# git add Jenkins
root@ip-172-31-42-35:/home/project/devops-build# git commit -m "Jenkins file add"
[dev b738c4e] Jenkins file add
Committer: root <root@ip-172-31-42-35.ap-south-1.compute.internal>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

git config --global --edit

After doing this, you may fix the identity used for this commit with:

git commit --amend --reset-author

1 file changed, 54 insertions(+)
create mode 100644 Jenkins
root@ip-172-31-42-35:/home/project/devops-build# git branch
* dev
  main
root@ip-172-31-42-35:/home/project/devops-build# git push -u origin dev
Username for 'https://github.com': M-Ashok07
Password for 'https://M-Ashok07@github.com':
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 849 bytes | 849.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/M-Ashok07/Devops-app.git
  5f7c8c6..b738c4e  dev -> dev
branch 'dev' set up to track 'origin/dev'.
root@ip-172-31-42-35:/home/project/devops-build#

```

The screenshot shows the GitHub Settings interface for a repository named 'Devops-app'. The top navigation bar includes links for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The Settings tab is active. On the left, a sidebar menu lists General, Access, Collaborators, Moderation options, Code and automation (Branches, Tags, Rules, Actions, Models, Webhooks), Copilot, Environments, Codespaces, and Pages. The 'Webhooks' option under 'Code and automation' is selected and highlighted with a green border. The main content area is titled 'Webhooks' and contains a brief description: 'Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our [Webhooks Guide](#)'. A 'Add webhook' button is located at the top right of this section.

github.com/M-Ashok07/Devops-app/settings/hooks/new

Moderation options

- Code and automation
- Branches
- Tags
- Rules
- Actions
- Models
- Webhooks**
- Copilot
- Environments
- Codespaces
- Pages

Content type *
application/x-www-form-urlencoded

Secret

SSL verification
By default, we verify SSL certificates when delivering payloads.

Enable SSL verification Disable (not recommended)

Which events would you like to trigger this webhook?

Just the push event.
 Send me everything.
 Let me select individual events.

Active
We will deliver event details when this hook is triggered.

Add webhook

github.com/M-Ashok07/Devops-app/settings/hooks

M-Ashok07 / Devops-app

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

Okay, that hook was successfully created. We sent a ping payload to test it out! Read more about it at <https://docs.github.com/webhooks/ping-event>.

General

Access

Collaborators

Moderation options

Code and automation

- Branches
- Tags
- Rules
- Actions
- Models
- Webhooks**
- Copilot
- Environments
- Codespaces
- Pages

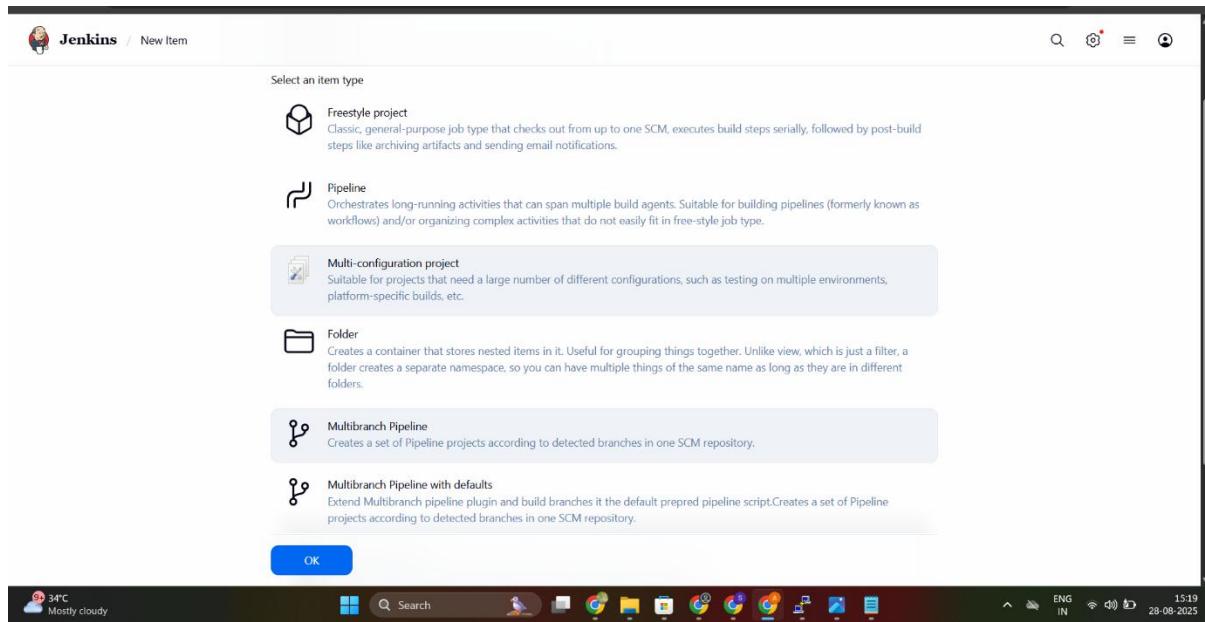
Webhooks

Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our [Webhooks Guide](#).

<http://43.205.255.0:8080/> (push)

This hook has never been triggered.

Add webhook



The screenshot shows the Jenkins 'Configuration' screen for the 'devops-build-pipeline' job. The 'General' tab is selected. The 'Display Name' field contains 'devops-app'. The 'Enabled' toggle switch is turned on. The 'Branch Sources' section is expanded, showing a 'Git' configuration with a 'Project Repository' field containing 'https://github.com/M-Ashok07/Devops-app.git'. There are 'Save' and 'Apply' buttons at the bottom of this section.

Properties

Docker Label ?

Docker registry URL ?

Registry credentials

- none - ▼

+ Add

Pipeline Libraries

Sharable libraries available to any Pipeline jobs inside this folder. These libraries will be untrusted, meaning their code runs in the Groovy sandbox.

+ Add

Save **Apply**

```
root@ip-172-31-42-35: /home/project/devops-build
root@ip-172-31-42-35: /home/project/devops-build# git branch
  dev
  main
* master
root@ip-172-31-42-35: /home/project/devops-build# git branch -d master
error: cannot delete branch 'master' used by worktree at '/home/project/devops-build'
root@ip-172-31-42-35: /home/project/devops-build# git merge dev
git push origin master
Already up to date.
Username for 'https://github.com': M-Ashok07
Password for 'https://M-Ashok07@github.com':
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'master' on GitHub by visiting:
remote:     https://github.com/M-Ashok07/Devops-app/pull/new/master
remote:
To https://github.com/M-Ashok07/Devops-app.git
 * [new branch]      master -> master
```

The screenshot shows the Jenkins Pipeline Stage View for the 'master' branch of the 'devops-build' project. The pipeline consists of five stages: Declarative: Checkout SCM, Checkout, Build Docker Image, Push to Docker Hub, and Deploy to AWS. The first stage, 'Declarative: Checkout SCM', is highlighted with a green background and labeled 'Success'. Its execution time is 2s. The other four stages have execution times of 1s, 471ms, 8s, and 2s respectively. The overall full run time is 26s. Below the stage view, there is a summary of builds, showing the last four builds: #9 (success), #8 (failure), #7 (failure), and #6 (failure). Each build row includes the build number, date, time, and status.

Build	Date	Time	Status
#9	Aug 28	11:46	Success
#8	Aug 28	11:31	Failed
#7	Aug 28	11:27	Failed
#6	Aug 28	11:27	Failed

Not secure 43.205.255.0:8080/job/devops-build/job/dev/

 Jenkins / devops-build- / dev

Status  dev

< Changes
▷ Build Now
View Configuration

Full project name: devops-build/dev

Stage View

Declarative: Checkout SCM	Checkout	Build Docker Image	Push to Docker Hub	Deploy to AWS
Average stage times: (full run time: ~29s)	3s	1s	421ms	11s
#16 Aug 28 17:29 1 commit	3s	1s	421ms	11s
	8s			

Permalinks

Builds ***

Filter

Today

- Last build (#16), 54 sec ago
- Last stable build (#16), 54 sec ago
- Last successful build (#16), 54 sec ago
- Last failed build (#15), 6 min 34 sec ago
- Last unsuccessful build (#15), 6 min 34 sec ago
- Last completed build (#16), 54 sec ago

Builds ***

Filter

Today

- #16 11:59
- #15 11:54
- #14 11:49
- #13 11:45

Not secure 43.205.255.0:8080/job/devops-build/job/dev/workflow-stage/

 Jenkins / devops-build- / dev / Full Stage View

dev - Stage View

Declarative: Checkout SCM	Checkout	Build Docker Image	Push to Docker Hub	Deploy to AWS
Average stage times: (full run time: ~29s)	3s	1s	421ms	11s
#16 Aug 28 17:29 1 commit	3s	1s	421ms	11s
	8s			

Jenkins 2.525

The screenshot shows the Jenkins interface for the 'devops-build' job. The left sidebar contains various Jenkins management links like Status, Configure, Scan Repository Now, Scan Repository Log, Multibranch Pipeline Events, Delete Multibranch Pipeline, Build History, Project Relationship, Check File Fingerprint, Favorite, Open Blue Ocean, GitHub, Rename, Config Files, Pipeline Syntax, and Credentials. The main content area displays the 'devops-build-' job with a folder name of 'devops-build'. It shows two branches: 'dev' and 'master'. The 'dev' branch has a last success at 1 min 10 sec (#16) and a last failure at 6 min 50 sec (#15). The 'master' branch has a last success at 14 min (#9) and a last failure at 29 min (#8). A search bar and a navigation bar with icons for back, forward, and search are at the bottom.

S	W	Name ↓	Last Success	Last Failure	Last Duration	F	
		dev	1 min 10 sec #16	6 min 50 sec #15	29 sec		
		master	14 min #9	29 min #8	26 sec		

Jenkins

Pipelines Administration Logout

devops-build-

Activity Branches Pull Requests

HEALTH	STATUS	BRANCH	COMMIT	LATEST MESSAGE	COMPLETED	
		dev	-	Update Jenkinsfile	a minute ago	
		master	-	Started by user Ashok M	14 minutes ago	

✓ devops-build- < 9

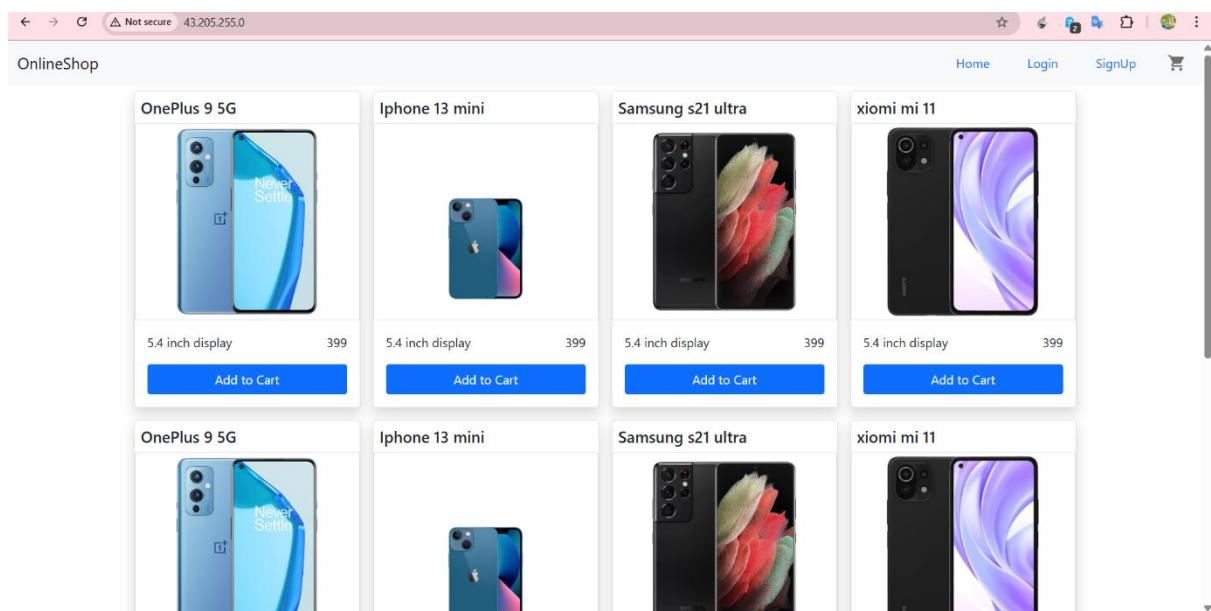
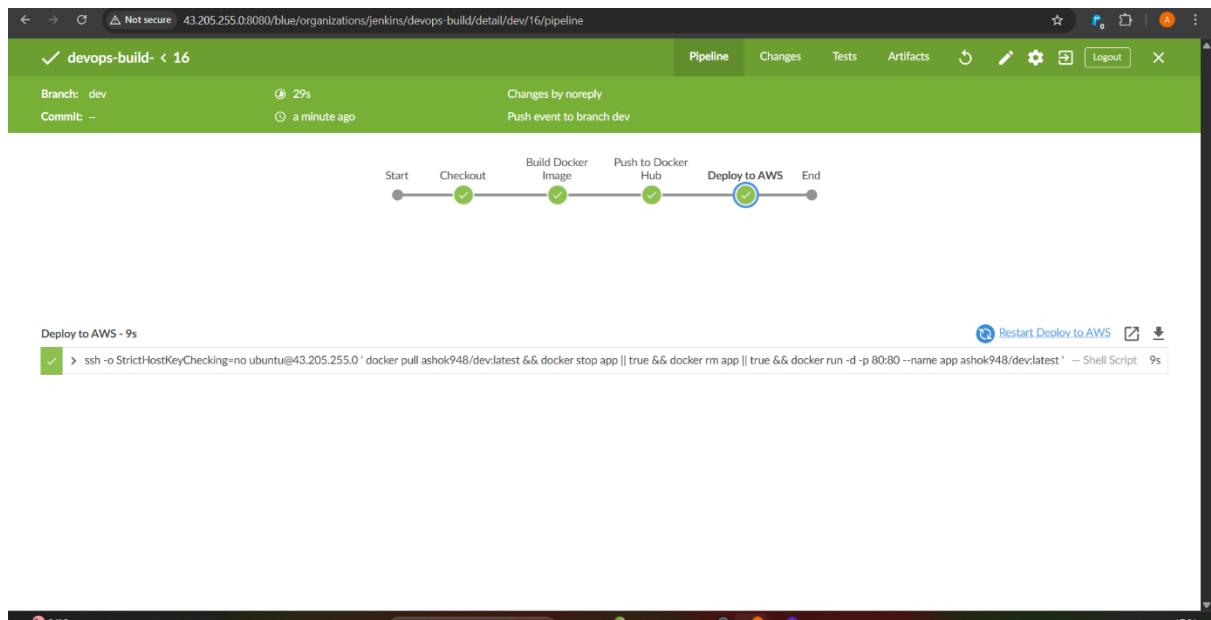
Pipeline Changes Tests Artifacts ⚡ 🖍️⚙️Logout X

Branch: master ① 27s No changes
Commit: - ① 14 minutes ago Started by user Ashok M

Start Checkout Build Docker Image Push to Docker Hub Deploy to AWS End

Deploy to AWS - 9s Restart Deploy to AWS Shell Script 9s

34°C Microsoft Search ENG 17:31



AWS EC2 Setup and Application Deployment:

I launched a **t2.micro EC2 instance** to deploy the application in a cloud environment. Security was configured carefully:

- **Access to the application** – Anyone with the public IP address can access the application on port 80.
- **Server login** – SSH access is restricted only to my IP address for security purposes.

The image contains two screenshots of the AWS Management Console. The top screenshot shows the 'Instances' page with two running t2.micro instances: 'Final-Project' and 'EC-AWS-And-Monitor'. The bottom screenshot shows the 'Launch an instance' wizard, step 2: 'Configure storage', where a 16 GiB gp3 root volume is selected. The right side of the wizard displays summary details like the software image (Canonical, Ubuntu, 24.04), virtual server type (t2.micro), and a summary of the launch.

Edit inbound rules [Info](#)

Inbound rules control the incoming traffic that's allowed to reach the instance.

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-0519dd8d2910654ff	HTTP	TCP	80	Anywh...	0.0.0.0/0
sgr-00d79f2514af73bf8	SSH	TCP	22	My IP	0.0.0.0/0
sgr-03ed70aa2ff781e9b	HTTPS	TCP	443	Custom	157.51.103.124/32

[Add rule](#)

⚠ Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

[Cancel](#) [Preview changes](#) [Save rules](#)

VPC > Network ACLs > acl-0a45277a78d623535

acl-0a45277a78d623535

Details [Info](#)

Network ACL ID acl-0a45277a78d623535	Associated with 3 Subnets	Default Yes	VPC ID vpc-05b7a1450b0c195ef / default -vpc
Owner 304534110140			

[Actions](#)

[Inbound rules](#) [Outbound rules](#) [Subnet associations](#) [Tags](#)

Inbound rules (3)

Rule number	Type	Protocol	Port range	Source	Allow/Deny
80	SSH (22)	TCP (6)	22	0.0.0.0/0	<input checked="" type="checkbox"/> Allow
100	All traffic	All	All	0.0.0.0/0	<input checked="" type="checkbox"/> Allow
*	All traffic	All	All	0.0.0.0/0	<input checked="" type="checkbox"/> Deny

✖ Failed to connect to your instance

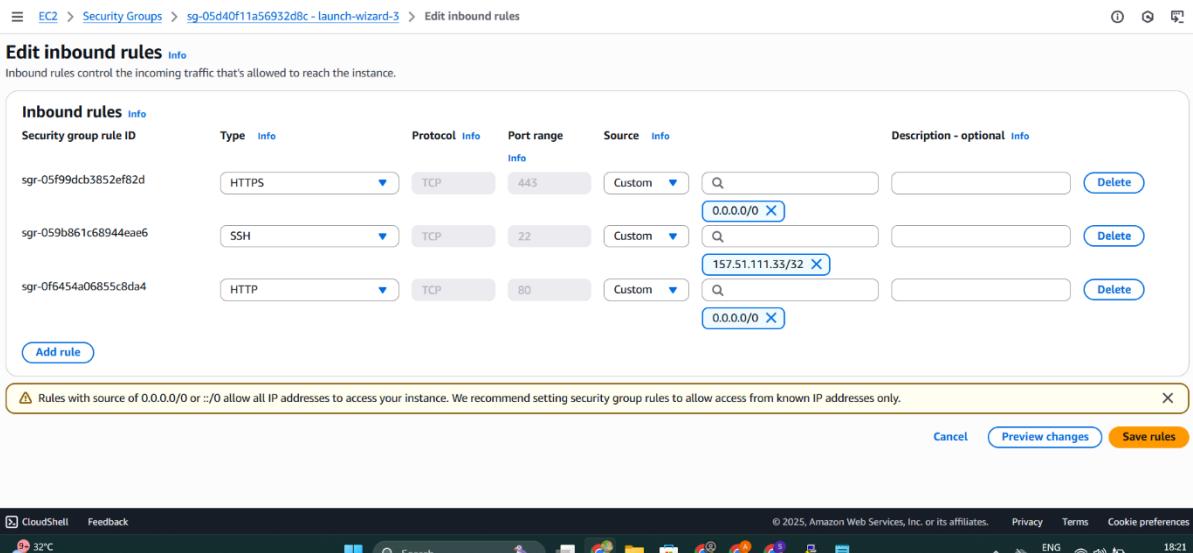
Error establishing SSH connection to your instance. Try again later.



AWS EC2 Setup and Application Deployment (Challenges Faced):

While deploying the application on the EC2 instance, I faced some challenges due to using **mobile internet**. My public IP kept changing, which caused problems because SSH login to the server was restricted to a specific IP. Every time the IP changed, I had to manually update the security group to allow access, which made the process time-consuming.

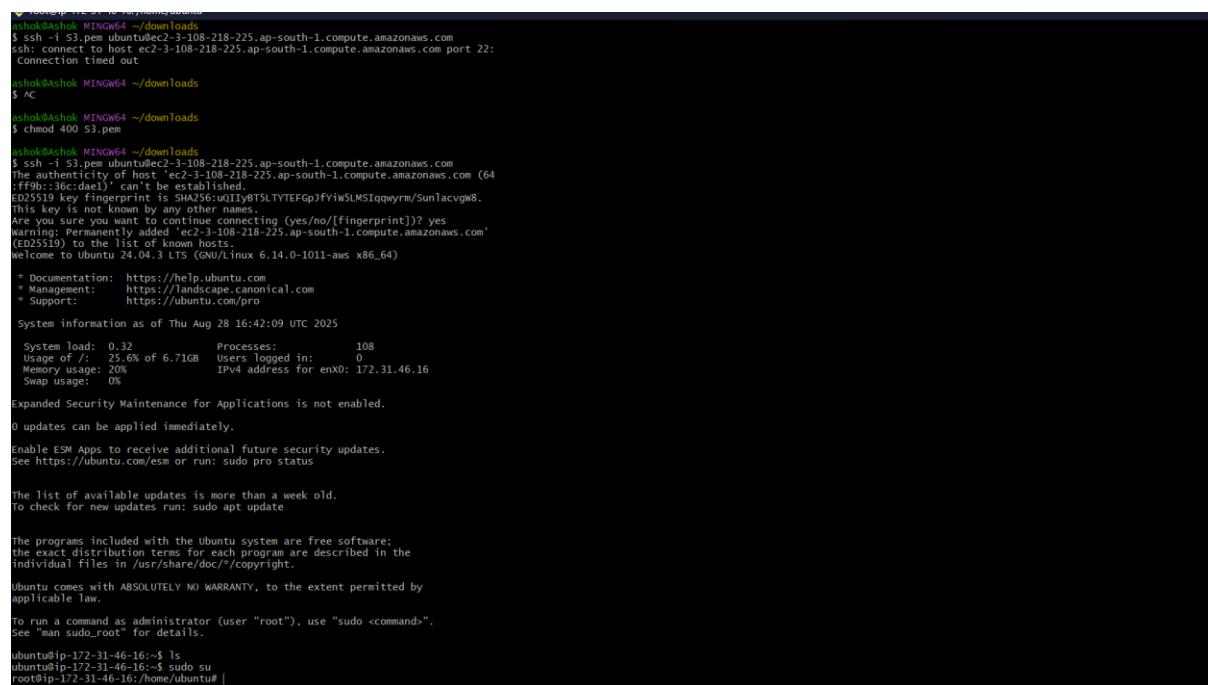
This issue highlighted the importance of using a **static IP** or a more stable internet connection for secure server access. Despite this challenge, I was able to successfully configure the server and deploy the application.



The screenshot shows the AWS Management Console interface for managing security groups. The user is on the 'Edit inbound rules' page for a specific security group. There are three rules listed:

- Rule 1: Type: HTTPS, Protocol: TCP, Port range: 443, Source: 0.0.0.0/0, Description: (empty)
- Rule 2: Type: SSH, Protocol: TCP, Port range: 22, Source: 157.51.111.33/32, Description: (empty)
- Rule 3: Type: HTTP, Protocol: TCP, Port range: 80, Source: 0.0.0.0/0, Description: (empty)

At the bottom, there is a note: "⚠ Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only." Below the note are 'Cancel', 'Preview changes', and 'Save rules' buttons. The browser toolbar at the top includes CloudShell, Feedback, and various icons.



```
ashok@ashok-MINION64:~/downloads$ ssh -i /Users/ashok/Downloads/ashok.pem ec2-3-108-218-225.ap-south-1.compute.amazonaws.com
ssh: connect to host ec2-3-108-218-225.ap-south-1.compute.amazonaws.com port 22: Connection timed out
ashok@ashok-MINION64:~/downloads$ chmod 400 S3.pem
ashok@ashok-MINION64:~/downloads$ ./downToRedis
ashok@ashok-MINION64:~/downloads$ ls
ashok@ashok-MINION64:~/downloads$ curl -X POST https://lambda-108-218-225.ap-south-1.amazonaws.com:443/ --data-binary @redis.zip
{
    "error": null,
    "functionArn": "arn:aws:lambda:ap-south-1:108218225:lambda-108-218-225"
}
ashok@ashok-MINION64:~/downloads$ curl -X GET https://lambda-108-218-225.ap-south-1.amazonaws.com:443/
{
    "error": null,
    "functionArn": "arn:aws:lambda:ap-south-1:108218225:lambda-108-218-225"
}
```

The terminal output shows the deployment of a Lambda function named 'lambda-108-218-225'. It uses an RSA key ('S3.pem') for authentication. The function is triggered via a POST request to a specified URL, and the response indicates successful deployment with the ARN 'arn:aws:lambda:ap-south-1:108218225:lambda-108-218-225'.

Using S3 Bucket for File Transfer:

I created an **S3 bucket** to transfer project files between EC2 instances. This allowed me to move the application files from one EC2 machine to another efficiently and securely. Using S3 simplified the file transfer process, avoided manual copying, and ensured that the files were safely stored in the cloud before deployment on the target server.

The screenshot shows the 'Create bucket' wizard in the AWS S3 console. The 'General configuration' section is selected. It includes fields for 'AWS Region' (set to Asia Pacific (Mumbai) ap-south-1), 'Bucket type' (set to 'General purpose'), and 'Bucket name' (set to 'devops-build-ec2-connect-machine-project'). There are also sections for 'Copy settings from existing bucket - optional' and 'Object Ownership'. A note at the bottom states: 'Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.'

The screenshot shows the 'Buckets' page in the AWS S3 console. A green success message at the top states: 'Successfully created bucket "devops-build-ec2-connect-machine-project". To upload files and folders, or to configure additional bucket settings, choose View details.' Below this, there are two tabs: 'General purpose buckets' (selected) and 'Directory buckets'. The 'General purpose buckets' tab shows a table with one item: 'devops-build-ec2-connect-machine-project' (Name), 'Asia Pacific (Mumbai) ap-south-1' (AWS Region), and 'August 28, 2025, 22:51:40 (UTC+05:30)' (Creation date). To the right of the table are three cards: 'Account snapshot' (info), 'Updated daily', 'Storage Lens provides visibility into storage usage and activity trends.', 'External access summary - new' (info), 'Updated daily', 'External access findings help you identify bucket permissions that allow public access or access from other AWS accounts.'

```

root@ip-172-31-42-35: ~
upload: .. /home/project/devops-build/.git/objects/c6/f7799e3a06dfaee329f196d5db47101409df4a to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/c6/f7799e3a06dfaee329f196d5db47101409df4a
upload: .. /home/project/devops-build/.git/objects/da2817a93407896948f30c150bf1731ba6b4c556 to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/da2817a93407896948f30c150bf1731ba6b4c556
upload: .. /home/project/devops-build/.git/objects/d6/9fb0836778948d2299b81e0088438ce202351c to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/d6/9fb0836778948d2299b81e0088438ce202351c
upload: .. /home/project/devops-build/.git/objects/d5/49adc89a0fdde04d238c8cff513df82fa9088 to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/d5/49adc89a0fdde04d238c8cff513df82fa9088
upload: .. /home/project/devops-build/.git/objects/df/ba947167d7e14ba0f17d63bf21390a9e004c to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/df/ba947167d7e14ba0f17d63bf21390a9e004c
upload: .. /home/project/devops-build/.git/objects/eb/587f8b526bla0falddda509e981fa0b0954a to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/eb/587f8b526bla0falddda509e981fa0b0954a
upload: .. /home/project/devops-build/.git/objects/f9/5030ecea0b27bfa9b0105947d0daa0s0f6fe to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/f9/5030ecea0b27bfa9b0105947d0daa0s0f6fe
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.rev
upload: .. /home/project/devops-build/.git/refs/heads/master to s3://devops-build-ec2-connect-machine-project/devops-build/.git/refs/heads/master
upload: .. /home/project/devops-build/.git/refs/heads/dev to s3://devops-build-ec2-connect-machine-project/devops-build/.git/refs/heads/dev
upload: .. /home/project/devops-build/.git/refs/remotes/origin/dev to s3://devops-build-ec2-connect-machine-project/devops-build/.git/refs/remotes/origin/dev
upload: .. /home/project/devops-build/.git/packed-refs to s3://devops-build-ec2-connect-machine-project/devops-build/.git/packed-refs
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.idx to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.idx
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.pack to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.pack
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.redirects to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.redirects
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.manifest to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.manifest
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.index.html to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.index.html
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.log192 to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.log192.png
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.log512 to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.log512.png
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.robots to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.robots.txt
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.favicon to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.favicon.ico
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.chunk.js to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.chunk.js
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.css.map to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.css.map
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.manifest.json to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.manifest.json
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.dockercompose.yaml to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.dockercompose.yaml
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.LICENSE to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.LICENSE.txt
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.jenkins.sh to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.jenkins.sh
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.main.flc40542.js to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.main.flc40542.js
upload: .. /home/project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.main.flc40542.js.map to s3://devops-build-ec2-connect-machine-project/devops-build/.git/objects/pack/7c8660280dfa31db96c27b9cf1fdbecbhb4d03.main.flc40542.js.map
root@ip-172-31-42-35: ~

```

Amazon S3

General purpose buckets

- Directory buckets
- Table buckets
- Vector buckets
- Access Grants
- Access Points (General Purpose Buckets, FSx file systems)
- Access Points (Directory Buckets)
- Object Lambda Access Points
- Multi-Region Access Points
- Batch Operations
- IAM Access Analyzer for S3

Block Public Access settings for this account

▼ Storage Lens

- Dashboards
- Storage Lens groups
- AWS Organizations settings

CloudShell Feedback

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Another EC2 machine accessing s3 bucket :

```

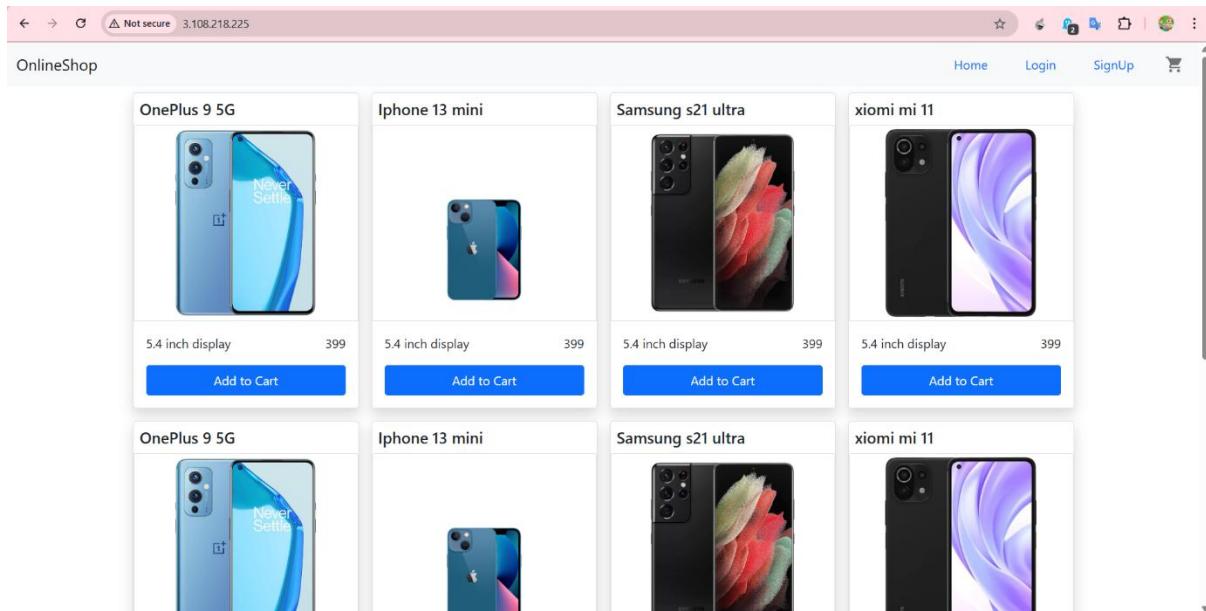
root@ip-172-31-46-16: /home
root@ip-172-31-46-16:/home# aws s3 ls
2025-08-28 17:21:43 devops-build-ec2-connect-machine-project
root@ip-172-31-46-16:/home#

```

```
root@ip-172-31-46-16:~/home# ls
aws awscli-bundle.zip awscli2.zip ubuntu
root@ip-172-31-46-16:~/home# cd ubuntu/
root@ip-172-31-46-16:~/home/ubuntu# ls
devops-build
root@ip-172-31-46-16:~/home/ubuntu# cd devops-build/
root@ip-172-31-46-16:~/home/ubuntu/devops-build# ls
dockerfile Jenkinsfile build build.sh deploy.sh docker-
root@ip-172-31-46-16:~/home/ubuntu/devops-build#
```

```
root@ip-172-31-46-16:~/home/ubuntu/devops-build
root@ip-172-31-46-16:~/home/ubuntu/devops-build# ls
Dockerfile Jenkinsfile build build.sh deploy.sh docker-compose.yaml jenkins.sh
root@ip-172-31-46-16:~/home/ubuntu/devops-build# chmod +x build.sh
root@ip-172-31-46-16:~/home/ubuntu/devops-build# chmod +x deploy.sh
root@ip-172-31-46-16:~/home/ubuntu/devops-build# ./build.sh
Building Docker image...
Building devops-app
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 2.628MB
Step 1/4 : FROM nginx:alpine
alpine: Pulling from library/nginx
8984/c27679d3: Pull complete
bc5c572a340ec: Pull complete
403e3f23c1637: Pull complete
9adffbae99eb7: Pull complete
9adffbae99eb8: Pull complete
9adffbae99eb9: Pull complete
9adffbae99eb0: Pull complete
9adffbae99eb1: Pull complete
9adffbae99eb2: Pull complete
9adffbae99eb3: Pull complete
9adffbae99eb4: Pull complete
9adffbae99eb5: Pull complete
9adffbae99eb6: Pull complete
9adffbae99eb7: Pull complete
Digest: sha256:42a516a16b852e33b7682d5ef8acbd5d13fe08fecadc7ed98605ba5e3b26ab8
Status: Downloaded newer image for nginx:alpine
--> 4a86014ec99
Step 2/4 : COPY build/ /usr/share/nginx/html
--> b0e09874f316
Step 3/4 : EXPOSE 80
--> Running in 81ddae492c0f
--> Removed intermediate container 81ddae492c0f
--> 34fbe023a20
Step 4/4 : CMD ["nginx", "-g", "daemon off;"]
--> Running in 8cee49ec8eca
--> Removed intermediate container 8cee49ec8eca
--> ea1eac2bd3
Successfully built ea1eac2bd3
Successfully tagged devops-build_devops-app:latest
Build completed:
root@ip-172-31-46-16:~/home/ubuntu/devops-build# |
```

```
root@ip-172-31-46-16:~/home/ubuntu/devops-build
root@ip-172-31-46-16:~/home/ubuntu/devops-build# docker images
REPOSITORY          TAG        IMAGE ID      CREATED             SIZE
devops-build_devops-app   latest     eae1ac2bdff3  About a minute ago  55.1MB
nginx               alpine     a486014ec699  2 weeks ago       5.25MB
root@ip-172-31-46-16:~/home/ubuntu/devops-build# docker run -itd -p 80:80 devops-build_devops-app
8419132adfdrefa5d8e06c82183bc0df9209d4a3997262fd36a3d1e1b215
root@ip-172-31-46-16:~/home/ubuntu/devops-build# docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS               NAMES
8419132adfd        "devops-build_startscript"   4 seconds ago    Up 4 seconds          0.0.0.0:80->80/tcp   player
```



Application Monitoring:

I set up an **open-source monitoring system** to keep track of the health status of the application. The system continuously checks whether the application is running and sends notifications **only if the application goes down**.

```
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring# ls
docker-compose.yaml
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring# nano prometheus.yaml
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring# docker-compose up -d
Creating network "monitoring_default" with the default driver
Creating volume "monitoring_grafana-data" with default driver
Pulling prometheus (prom/prometheus:...
latest: Pulling from prom/prometheus
9fa9226be034: Pull complete
1617e25568b2: Pull complete
097a69c6efe6: Pull complete
2ee6cb77bebd: Pull complete
a4e782810d03: Pull complete
76619c1908eb: Pull complete
2dfc70ad9941: Pull complete
fd1d3a5a5f79: Pull complete
5e4c02bc6754: Pull complete
208063e2dcbb: Pull complete
Digest: sha256:63805ebb8d2b3920190daf1cb14a60871b16fd38bed42b857a3182bc621f4996
Status: Downloaded newer image for prom/prometheus:latest
Pulling grafana (grafana/grafana:...
latest: Pulling from grafana/grafana
9824c27679d3: Already exists
b5f55c75514d: Pull complete
d394204a1bdc: Pull complete
cc8d890506a2: Pull complete
d4acc02fae7c: Pull complete
8c90a7c3d0e1: Pull complete
85954acf484: Pull complete
164de8f14b64: Pull complete
be3398fa2dbf: Pull complete
8711a47cb968: Pull complete
Digest: sha256:a1701c2180249361737a99a01bc770db39381640e4d631825d38ff4535efa47d
Status: Downloaded newer image for grafana/grafana:latest
Creating grafana ... done
Creating prometheus ... done
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring#
```

```

root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring# chmod 644 prometheus.yml
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring# ls
docker-compose.yml  monitoring
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring# nano docker-compose.yml
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring# nano prometheus.yml
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring# ls
docker-compose.yml  monitoring
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring# nano prometheus.yml
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring# docker-compose down
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring# docker rm -f prometheus
docker rm -f prometheus
docker-compose up -d
Starting grafana ... done
Removing grafana ... done
Removing prometheus ... done
Removing network monitoring-default
Error from server (NotFound): No such container: "prometheus"
Creating network "monitoring_default" with the default driver
Creating prometheus ... done
Creating grafana ... done
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring# docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS               NAMES
f663edde1059        prom/prometheus   "/bin/prometheus --c..."   8 seconds ago      Up 7 seconds       0.0.0.0:9090->9090/tcp   prometheus
dbf25f8d6187        grafana/grafana    "/run.sh"          8 seconds ago      Up 7 seconds       0.0.0.0:3000->3000/tcp, 0.0.0.0:3000->3000/tcp   grafana
8411932adfd9        devops-build/devops-app   "/docker-entrypoint..."   24 minutes ago     Up 24 minutes      0.0.0.0:80->80/tcp, 0.0.0.0:80->80/tcp   clever_antonelli
root@ip-172-31-46-16:/home/ubuntu/devops-build/monitoring#

```

The screenshot shows the Prometheus web interface at the URL `3.108.218.225:9090/query`. The interface has a dark theme. On the left, there's a sidebar titled 'Monitoring status' with the following options:

- Target health
- Rule health
- Service discovery
- Runtime & build information
- TSDB status
- Command-line flags
- Configuration** (selected)
- Alertmanager discovery

The main content area displays the message 'No data queried yet'. At the bottom left, there's a link to '3.108.218.225:9090/config'.

The screenshot shows the Prometheus web interface under the 'Status > Target health' tab. It lists two targets:

- prometheus**: Status is **1 / 1 up** (green). Last scrape was 9.759s ago, duration was 17ms. State is **UP**.
- react-app-health**: Status is **0 / 1 up** (red). Last scrape was 14.378s ago, duration was 5ms. State is **DOWN**. A red warning box indicates: **Error scraping target:** received unsupported Content-Type "text/html" and no fallback_scrape_protocol specified for target.

The screenshot shows the Grafana configuration interface for a new Prometheus data source. The 'Data sources' tab is selected. The configuration details are as follows:

- Name:** prometheus
- Connection:** Prometheus server URL: http://3.108.218.225:9090/

Conclusion & Learnings:

During this project, I successfully deployed a full-stack application using **Docker, Jenkins, and AWS services** while implementing CI/CD practices. The key steps included cloning the repository, Dockerizing the application, writing build and deploy scripts, pushing images to Docker Hub, and setting up Jenkins to automate builds and deployments.

Through this project, I learned:

- How to **containerize applications** using Docker and manage them with docker-compose.
- Writing **automation scripts** to simplify build and deployment processes.
- Setting up **CI/CD pipelines** with Jenkins for automated builds and deployments to dev and prod environments.

- Managing **AWS EC2 instances**, security groups, and transferring files between servers using S3.
- Handling **real-world challenges**, such as changing IP addresses, deployment issues, and troubleshooting during CI/CD.
- Implementing **monitoring systems** to track application health and receive notifications on downtime.

Overall, this project gave me practical experience in **cloud deployment, containerization, automation, and DevOps practices**, and strengthened my understanding of building and maintaining reliable, production-ready applications.