

# Setup docker through chat gpt: end to end docker process:

I have created one aws ec2 instance with instance type c7iflex.large --> availability zone -> eu-north-1b.

And connected to above server by git bash using below commands

```
ssh -i /c/Users/kasev/Downloads/aws_key_manju_mail.pem.pem  
ubuntu@16.171.36.240
```

## Step 1: Install Docker on Ubuntu

Run these commands one by one in your EC2 terminal ⏪

```
# Update your packages
```

```
sudo apt update -y
```

```
# Install Docker engine
```

```
sudo apt install docker.io -y
```

```
# Enable and start Docker service
```

```
sudo systemctl enable docker
```

```
sudo systemctl start docker
```

```
# Check Docker version
```

```
docker --version
```

✓ You should see output like:

```
Docker version 24.x.x, build ...
```

## Step 2: Add your user to the Docker group

This lets you run docker commands without using sudo every time.

```
sudo usermod -aG docker $USER
```

Then **logout and login again**, or run:

```
newgrp docker
```

To verify:

```
docker ps
```

If it shows no errors → good to go ✓

## Step 3: Create the Project

Create a simple directory for our app:

```
mkdir docker-flask-app  
cd docker-flask-app
```

## □ Step 4: Create Flask App Files

### 1 Create app.py

nano app.py

Paste this code:

```
from flask import Flask
```

```
app = Flask(name)
```

```
@app.route('/')
```

```
def hello():
```

```
    return "Hello Everyone, Thanks for watching this video!! please like this video and  
subscribe my channel!!"
```

```
if _name_ == "_main_:
```

```
    app.run(host='0.0.0.0', port=5000)
```

```
:wq!
```

### 2 Create requirements.txt

flask

### 3 Create Dockerfile

nano Dockerfile

Paste this:

```
FROM python:3.9-slim
```

```
WORKDIR /app
```

```
COPY . /app
```

```
RUN pip install -r requirements.txt  
EXPOSE 8080  
CMD ["python", "app.py"]
```

Save and exit.

## Step 5: Build Docker Image

```
ubuntu@ip-172-31-33-209:~/docker-flask-app$  
ubuntu@ip-172-31-33-209:~/docker-flask-app$ docker build -t flask-docker-app:1.0 .  
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.  
Install the buildx component to build images with BuildKit:  
https://docs.docker.com/go/buildx/  
  
Sending build context to Docker daemon 4.096kB  
Step 1/6 : FROM python:3.9-slim  
--> 085da638e1b8  
Step 2/6 : WORKDIR /app  
--> Using cache  
--> e9e1df6de85d  
Step 3/6 : COPY . /app  
--> Using cache  
--> 9324c3892b32  
Step 4/6 : RUN pip install -r requirements.txt  
--> Using cache  
--> 8b775014caea  
Step 5/6 : EXPOSE 8080  
--> Using cache  
--> 97d85bed08f1  
Step 6/6 : CMD ["python", "app.py"]  
--> Using cache  
--> 0e12cb0f7dc9  
Successfully built 0e12cb0f7dc9  
Successfully tagged flask-docker-app:1.0  
ubuntu@ip-172-31-33-209:~/docker-flask-app$ docker images  
REPOSITORY      TAG          IMAGE ID      CREATED        SIZE  
flask-docker-app  1.0          0e12cb0f7dc9  16 minutes ago  133MB  
<none>          <none>       03f8bf9ebddc  38 minutes ago  133MB  
python           3.9-slim    085da638e1b8  2 days ago    122MB  
ubuntu@ip-172-31-33-209:~/docker-flask-app$ docker run -d -p 8080:5000 flask-docker-app:1.0  
docker: invalid reference format  
  
Run 'docker run --help' for more information  
ubuntu@ip-172-31-33-209:~/docker-flask-app$ docker run -d -p 8080:5000 flask-docker-app:1.0  
928e1d9b30307ab6d28305dd3b0bbe91817206d24f125e88186748242f7795f0  
ubuntu@ip-172-31-33-209:~/docker-flask-app$ |
```

docker build -t flask-docker-app:1.0 .

## Step 6: Verify the Image

docker images

You should see flask-docker-app:1.0 in the list.

## ✓ What Happened

- Docker pulled the **Python 3.9 base image**.
- Installed **Flask** and its dependencies (click, werkzeug, jinja2, etc.) inside the image.
- Successfully completed the **RUN pip install -r requirements.txt** step.
- Finally executed the CMD ["python", "app.py"] instruction — meaning when you run the container, it'll start your Flask app automatically.
- The image flask-docker-app:1.0 is now ready.

The **warning about “running pip as root”** is harmless inside containers — you can safely ignore it since containers are isolated environments.

## Step 7: Run Container

docker run -d -p 8080:5000 flask-docker-app:1.0 -- to create and start the new container from the flask-docker-app image

or

docker run -p hostport:containerport <imagename>

Now your container is running!

Check with:

docker ps

## Step 7: Test Your App

Go to your AWS instance's **Public IP**, open in browser:

<http://<your-public-ip>:8080>



You should see:

**Hello, Docker! 🚀 Flask app running inside AWS EC2 container.**

the above content we can edit in `app.py` file.

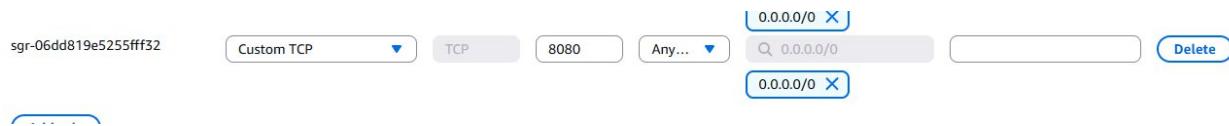
## ⚠ If You Don't See It:

Make sure your **EC2 Security Group** allows **Inbound Rule: Port 8080 (TCP)**.

To fix:

- Go to **AWS Console → EC2 → Security Groups → Inbound Rules → Edit**
- Add:
  - Type: Custom TCP
  - Port Range: 8080
  - Source: 0.0.0.0/0

Then reload your browser.



✓ **Congratulations!**

You just completed:

**Docker Build → Run → Deploy → Access via Public IP on AWS EC2**

**NOTE: IF YOU MAKE ANY CHANGES IN APP.PY WE SHOULD RUN BELOW COMMANDS**

2. Rebuild your Docker image (so the fixed app.py is used):

```
docker build -t flask-docker-app:1.0 .
```

3. Run the container again:

```
docker run -d -p 8080:5000 flask-docker-app:1.0 -- before run this command pls  
stop existed containers or change port numbers on above command.
```

Host server port no is 8080, container port no is 5000

```
8080:500
```

Finally, Flask app is now **successfully deployed and running** inside the Docker container, and you can access it through the browser (e.g., <http://<your-EC2-public-IP>:8080>).

**Step 8: push the image to docker hub (registry)**

```

ubuntu@ip-172-31-33-209:~/docker-flask-app$ docker login
ubuntu@ip-172-31-33-209:~/docker-flask-app$ docker login

USING WEB-BASED LOGIN

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

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

Waiting for authentication in the browser...
^CLogin canceled
ubuntu@ip-172-31-33-209:~/docker-flask-app$ docker login -u kmuthyal

Info - A Personal Access Token (PAT) can be used instead.
To create a PAT, visit https://app.docker.com/settings

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

Login Succeeded
ubuntu@ip-172-31-33-209:~/docker-flask-app$ docker tag flask-docker-app:1.0 kmuthyal/flask-docker-app:1.0
ubuntu@ip-172-31-33-209:~/docker-flask-app$ docker tag
docker: 'docker tag' requires 2 arguments

Usage: docker tag SOURCE_IMAGE[:TAG] TARGET_IMAGE[:TAG]

Run 'docker tag --help' for more information
ubuntu@ip-172-31-33-209:~/docker-flask-app$ docker push kmuthyal/flask-docker-app:1.0
The push refers to repository [docker.io/kmuthyal/flask-docker-app]
538496566941: Pushed ✓
3a7c0c1b74c7: Pushed ✓
05a7e960f516: Pushed ✓
c8f6b54339a8: Mounted from library/python
298992e09a03: Mounted from library/python
4f237755fbae: Mounted from library/python
d7c97cb6f1fe: Mounted from library/python
1.0: digest: sha256:03ba5f7c4cde603ff2d483ee27aede1526d22df10b3a4fa483e2d0d7bae3240d size: 1783
ubuntu@ip-172-31-33-209:~/docker-flask-app$ ...

```

The screenshot shows the Docker Hub 'My Hub' interface. On the left, there's a sidebar with navigation links like 'Repositories', 'Hardened Images', 'Collaborations', 'Settings', 'Default privacy', 'Notifications', 'Billing', 'Usage', 'Pulls', and 'Storage'. The main area is titled 'Repositories' and displays a list of repositories under the namespace 'kmuthyal'. The repository 'kmuthyal/flask-docker-app' is circled with a pink oval. Other repositories listed include 'kmuthyal/my-first-docker-image', 'kmuthyal/app1', 'kmuthyal/app2', and 'kmuthyal/cart'. Each repository entry includes columns for 'Name', 'Last Pushed', 'Contains', 'Visibility', and 'Scout'.

Name	Last Pushed	Contains	Visibility	Scout
kmuthyal/flask-docker-app	11 minutes ago	IMAGE	Public	Inactive
kmuthyal/my-first-docker-image	about 2 months ago	IMAGE	Public	Inactive
kmuthyal/app1	over 1 year ago	IMAGE	Public	Inactive
kmuthyal/app2	over 1 year ago	IMAGE	Public	Inactive
kmuthyal/cart	over 2 years ago	IMAGE	Public	Inactive

