

# HOW TO SETUP DOCKER AND CREATE, BUILD, RUN and PUSH THE DOCKER IMAGES using UBUNTU OS

I have created AWS custom linux ubuntu OS LIKE T3 MICRO Connected to instance with .pem key > below is the command ssh -i /c/Users/kasev/Downloads/aws\_key\_manju\_mail.pem.pem [ubuntu@51.21.150.221](mailto:ubuntu@51.21.150.221)

```
kasev@DESKTOP-0UQR4P5 MINGW64 ~ (master)
$ ssh -i /c/Users/kasev/Downloads/aws_key_manju_mail.pem.pem ubuntu@51.21.150.221
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-1011-aws x86_64)

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

System information as of Sun Sep 14 12:38:33 UTC 2025

System load: 0.0           Temperature: -273.1 C
Usage of /:  3.8% of 76.45GB Processes:      130
Memory usage: 36%          Users logged in: 1
Swap usage:  0%            IPv4 address for ens5: 172.31.26.71

 * Ubuntu Pro delivers the most comprehensive open source security and
   compliance features.

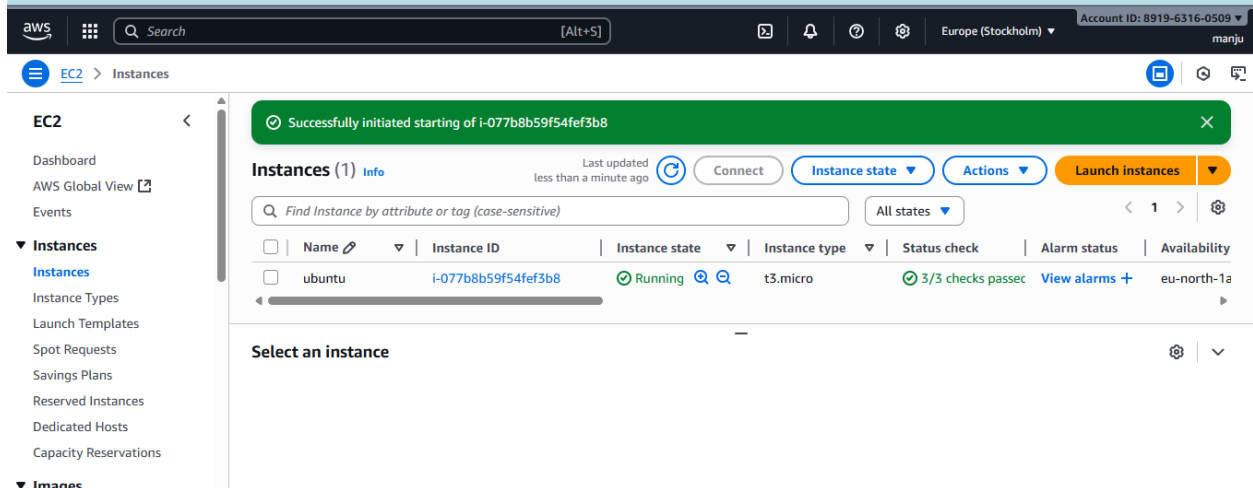
https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

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

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

Last login: Sun Sep 14 12:18:47 2025 from 152.59.205.159
ubuntu@ip-172-31-26-71:~$
```



Configured and installed the Docker in ubuntu instance

Follow below commands:

```
sudo apt update
```

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

```
sudo systemctl status docker
```

```

Setting up bridge-utils (1.7.1-1ubuntu2) ...
Setting up pigz (2.8-1) ...
Setting up containerd (1.7.27-0ubuntu1~24.04.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /usr/lib/systemd/system/containerd.service.
Setting up ubuntu-fan (0.12.16+24.04.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ubuntu-fan.service → /usr/lib/systemd/system/ubuntu-fan.service.
Setting up docker.io (27.5.1-0ubuntu3~24.04.2) ...
info: Selecting GID from range 100 to 999 ...
info: Adding group 'docker' (GID 113) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /usr/lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /usr/lib/systemd/system/docker.socket.
Processing triggers for dbus (1.14.10-4ubuntu4.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-26-71:~/docker$ sudo systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: enabled)
   Active: active (running) since Sun 2025-09-14 10:24:39 UTC; 52s ago
 TriggeredBy: ● docker.socket
    Docs: https://docs.docker.com
   Main PID: 2455 (dockerd)
     Tasks: 9
    Memory: 32.0M (peak: 32.1M)
       CPU: 393ms
    CGroup: /system.slice/docker.service
            └─2455 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Sep 14 10:24:38 ip-172-31-26-71 systemd[1]: Starting docker.service - Docker Application Container Engine...
Sep 14 10:24:38 ip-172-31-26-71 dockerd[2455]: time="2025-09-14T10:24:38.662888242Z" level=info msg="Starting up"
Sep 14 10:24:38 ip-172-31-26-71 dockerd[2455]: time="2025-09-14T10:24:38.663633489Z" level=info msg="OTEL tracing is not config
Sep 14 10:24:38 ip-172-31-26-71 dockerd[2455]: time="2025-09-14T10:24:38.663755924Z" level=info msg="detected 127.0.0.53 namese
Sep 14 10:24:38 ip-172-31-26-71 dockerd[2455]: time="2025-09-14T10:24:38.856111485Z" level=info msg="Loading containers: start.
Sep 14 10:24:39 ip-172-31-26-71 dockerd[2455]: time="2025-09-14T10:24:39.211858731Z" level=info msg="Loading containers: done."
Sep 14 10:24:39 ip-172-31-26-71 dockerd[2455]: time="2025-09-14T10:24:39.233296982Z" level=info msg="Docker daemon" commit="27.
Sep 14 10:24:39 ip-172-31-26-71 dockerd[2455]: time="2025-09-14T10:24:39.233422728Z" level=info msg="Daemon has completed initi
Sep 14 10:24:39 ip-172-31-26-71 dockerd[2455]: time="2025-09-14T10:24:39.256115024Z" level=info msg="API listen on /run/docker.
Sep 14 10:24:39 ip-172-31-26-71 systemd[1]: Started docker.service - Docker Application Container Engine.
lines 1-22/22 (END)

```

```

Last login: Sun Sep 14 10:24:09 2025 from 152.59.205.159
ubuntu@ip-172-31-26-71:~$ docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
17eec7bbc9d7: Pull complete
Digest: sha256:54e66cc1dd1fcb1c3c58bd8017914dbed8701e2d8c74d9262e26bd9cc1642d31
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-172-31-26-71:~$ |

```

docker run hello-world ( if you get daemon error run below cmd to fix the the issue)

sudo usermod -aG docker ubuntu ( this comd represent the adding the ubuntu user to docker group)

Next must logout from the instance and reconnect again and run below comd

docker run hello-world

Now error would be resolved.

Check the docker version

```

ubuntu@ip-172-31-26-71:~/docker$ docker --version
Docker version 27.5.1, build 27.5.1-0ubuntu3~24.04.2
ubuntu@ip-172-31-26-71:~/docker$ |

```

Next how to write and execute the docker files:

1) I have cloned repository of

git clone <https://github.com/KASEVADDI/Docker-Repository.git>

2) After cloned

cd /home/ubuntu/docker/Docker-Repository/examples/first-docker-file

Here Dockerfile i have created

```
/home/ubuntu/docker/Docker-Repository/examples/first-docker-file
ubuntu@ip-172-31-26-71:~/docker/Docker-Repository/examples/first-docker-file$ ls
Dockerfile  app.py
ubuntu@ip-172-31-26-71:~/docker/Docker-Repository/examples/first-docker-file$
```

Vim Dockerfile

FROM ubuntu:latest

# Set the working directory in the image

WORKDIR /app

# Copy the files from the host file system to the image file system

COPY . /app

# Install the necessary packages

RUN apt-get update && apt-get install -y python3 python3-pip

## Set environment variables

ENV NAME World

# Run a command to start the application

CMD ["python3", "app.py"]

:wq!

vim app.py

```
print ("Hello World")
```

```
:wq!
```

Once create the dockerfile and app.py need to execute the dockerfile using below comd

```
docker build -it kmuthyal/my-first-docker-image:latest .
```

Must run above comd to build a docker image from dockerfile

Why must provide the tag becoz in our system or docker registry there would be many images so to remain the images we have to create image with tag.

Once execute the docker build comd the tasks would be executed in the sequence which contains in the Dockerfile

### 3) Run the container from the image:

```
docker run -it kmuthyal/my-first-docker-image:latest .
```

docker images – to check the images

### 4) How push the docker image:

The **docker push** command is used to **upload (push) your local Docker image to a remote registry like Docker Hub.**

**To push docker image to docker hub must login to the docker registry through command line mode:**

```
ubuntu@ip-172-31-26-71:~/docker/Docker-Repository/examples/first-docker-file$ docker login -u kmuthyal
Password:
WARNING! Your password will be stored unencrypted in /home/ubuntu/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

Login Succeeded
```

After login to the docker hub run below comd to push the image from **local Docker image to a remote registry like Docker Hub.**

```
docker push kmuthyal/my-first-docker-image:latest
```

```
ubuntu@ip-172-31-26-71:~/docker/Docker-Repository/examples/first-docker-file$ docker push kmuthyal/my-first-docker-image:latest
The push refers to repository [docker.io/kmuthyal/my-first-docker-image]
15b685c4f3ab: Pushed
e91dd433de7b: Pushed
9dcc08c023c0: Pushed
9d592720ced4: Mounted from library/ubuntu
latest: digest: sha256:03805d843eeb4cb191c15b259c524124f18c9938d80308867c657e169267a359 size: 1155
ubuntu@ip-172-31-26-71:~/docker/Docker-Repository/examples/first-docker-file$
```

hub

Explore

My Hub

Search Docker Hub

CrkK

K

kmuthyal

Docker Personal

Repositories

Collaborations

Settings

Default privacy

Notifications

Billing

Usage

Pulls

Storage

Repositories / my-first-docker-image / General

kmuthyal/my-first-docker-image

Last pushed 1 minute ago · Repository size: 202.7 MB

first-file

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	1 minute

DOCKER SCOUT INACTIVE

Activate

Using 0 of 1 private repositories. [Get more](#)

Docker commands

To push a new tag to this repository:

docker push kmuthyal/my-first-docker-image:tagname

Public view

Build with Docker Build Cloud

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