

DOCKER ASSIGNMENT SUBMISSION

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Assignment: Docker – Pull Ubuntu Image, Install Apache, Access Web Page

Problem Statement

Set up a Docker environment on an Ubuntu EC2 instance and perform the following:

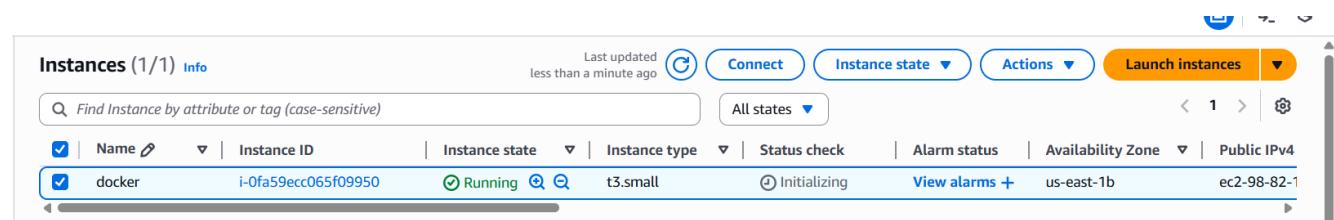
1. Launch an Ubuntu EC2 instance
 2. Pull and run an Ubuntu Docker container mapped to port 80
 3. Install Apache2 inside the container
 4. Verify Apache webpage in a browser
-

Environment Used

- Ubuntu EC2 instance
 - Docker installed on the EC2 instance
 - Ubuntu Docker container with Apache2
-

□ Task 1: Launch Ubuntu EC2 Instance & Connect

- Launched an Ubuntu EC2 instance
- Connected to the instance using EC2 Instance Connect



The screenshot shows the AWS CloudWatch Instances console. It displays a single instance named "docker" with the following details:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
docker	i-0fa59ecc065f09950	Running	t3.small	Initializing	View alarms +	us-east-1b	ec2-98-82-1

Below the table, the terminal output shows system information and a warning about ESM Apps:

```
Usage of /: 25.8% of 6.71GB Processes: 115
Memory usage: 11% Users logged in: 0
Swap usage: 0% IPv4 address for ens5: 10.0.13.46

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM 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

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-10-0-13-46:~$
```

□ Task 2: Install Docker on the EC2 Instance

```
sudo apt update -y  
sudo apt install docker.io -y  
sudo systemctl start docker  
sudo systemctl enable docker
```

Verify Docker:

```
docker --version
```

```
ubuntu@ip-10-0-13-46:~$ sudo apt update -y  
sudo apt install docker.io -y  
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease  
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]  
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]  
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]  
Get:5 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]  
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]  
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]  
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]  
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]  
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]  
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [25.0 kB]
```

```
ubuntu@ip-10-0-13-46:~$ sudo systemctl start docker  
sudo systemctl enable docker  
ubuntu@ip-10-0-13-46:~$ docker --version  
Docker version 28.2.2, build 28.2.2-0ubuntu1~24.04.1  
ubuntu@ip-10-0-13-46:~$ █
```

□ Task 3: Pull Ubuntu Docker Image

```
sudo docker pull ubuntu
```

```
ubuntu@ip-10-0-13-46:~$ sudo docker pull ubuntu  
Using default tag: latest  
latest: Pulling from library/ubuntu  
20043066d3d5: Pull complete  
Digest: sha256:c35e29c9450151419d9448b0fd75374fec4fff364a27f176fb458d472dfc9e54  
Status: Downloaded newer image for ubuntu:latest  
docker.io/library/ubuntu:latest  
ubuntu@ip-10-0-13-46:~$ █
```

□ Task 4: Run Ubuntu Container With Port 80 Mapped

```
sudo docker run -it -p 80:80 --name ub-server ubuntu
```

This opens a shell inside the container.

```
ubuntu@ip-10-0-13-46:~$ sudo docker run -it -p 80:80 --name ub-server ubuntu
root@d01e3b67e259:/# █
```

□ Task 5: Install Apache2 Inside the Container

Inside the container:

```
apt update -y
```

```
apt install apache2 -y
```

```
apachectl start
```

Apache web server is now running inside the container.

```
ubuntu@ip-10-0-13-46:~$ sudo docker run -it -p 80:80 --name ub-server ubuntu
root@d01e3b67e259:/# apt update -y
apt install apache2 -y
apachectl start
Get:1 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble InRelease [256 kB]
Get:3 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [2834 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:5 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [33.1 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [1715 kB]
```

□ Task 6: Access Apache Default Webpage

Open your browser and enter:

<http://<EC2-PUBLIC-IP>>

The Apache2 Ubuntu Default Page was displayed successfully, confirming that:

- Container is running
- Port mapping works
- Apache is accessible externally

△ Not secure 98.82.180.206 ☆

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This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should [replace this file](#) (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is [fully documented in /usr/share/doc/apache2/README.Debian.gz](#). Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the [manual](#) if the apache2-doc package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```
/etc/apache2/
|-- apache2.conf
|   '-- ports.conf
|-- mods-enabled
|   '-- *.Load
|   '-- *.conf
|-- conf-enabled
|   '-- *.conf
|-- sites-enabled
|   '-- *.conf
```

Conclusion

Successfully launched an Ubuntu EC2 instance, installed Docker, pulled an Ubuntu container, installed Apache inside the container, and accessed Apache's default webpage through a browser. This demonstrates proper use of Docker images, containers, port mapping, and running web services within Docker.