

Name: Abdurrahman Qureshi

Roll No: 242466

Practical No: 11

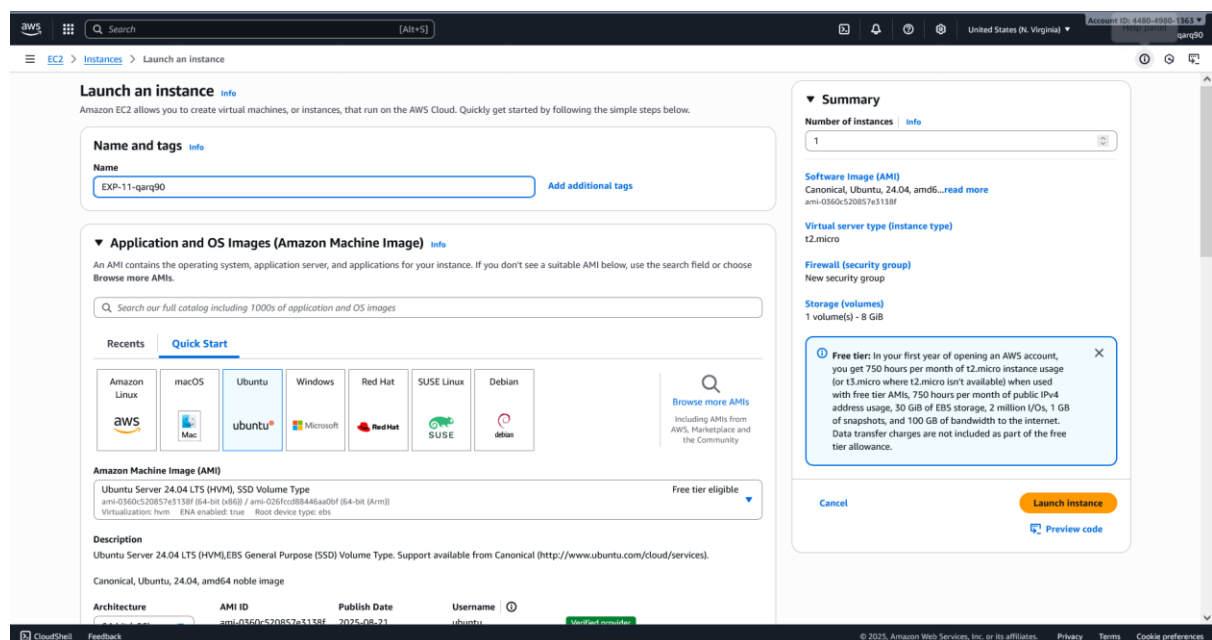
Date Of Performance: 16/09/2025

Aim: Deploying a NGINX Server in a Docker Container and
Modifying the index.html from Within the Running Container.

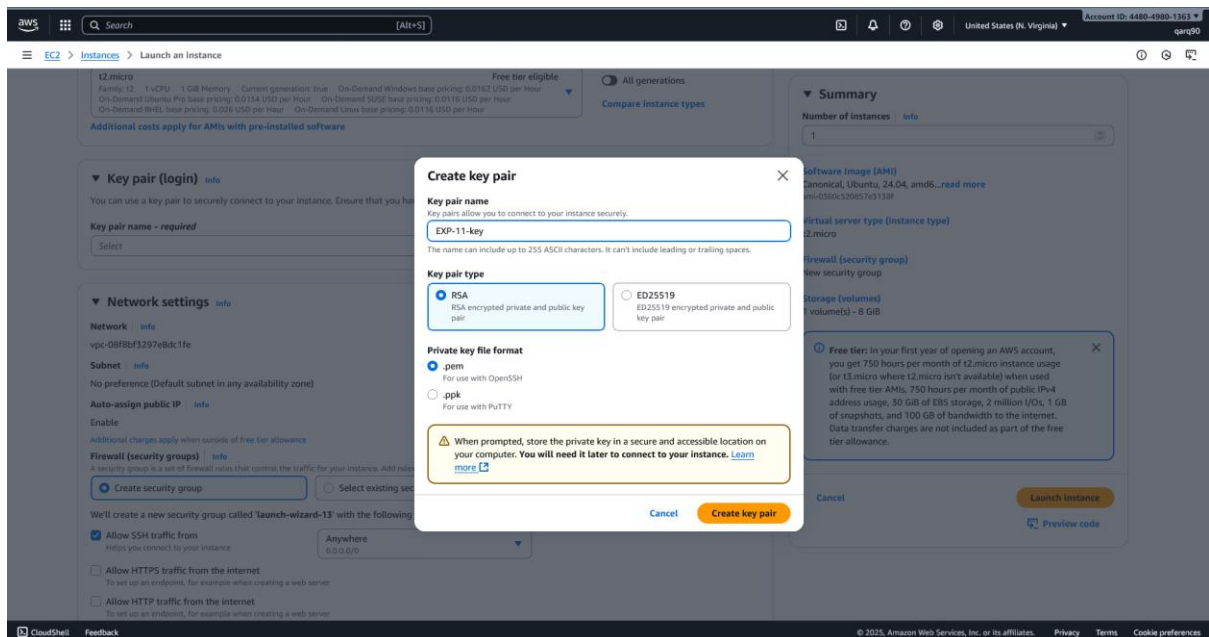
[Install docker on AWS EC2 –Ubuntu by using curl

#curl -fsSL https://get.docker.com -o get-docker.sh

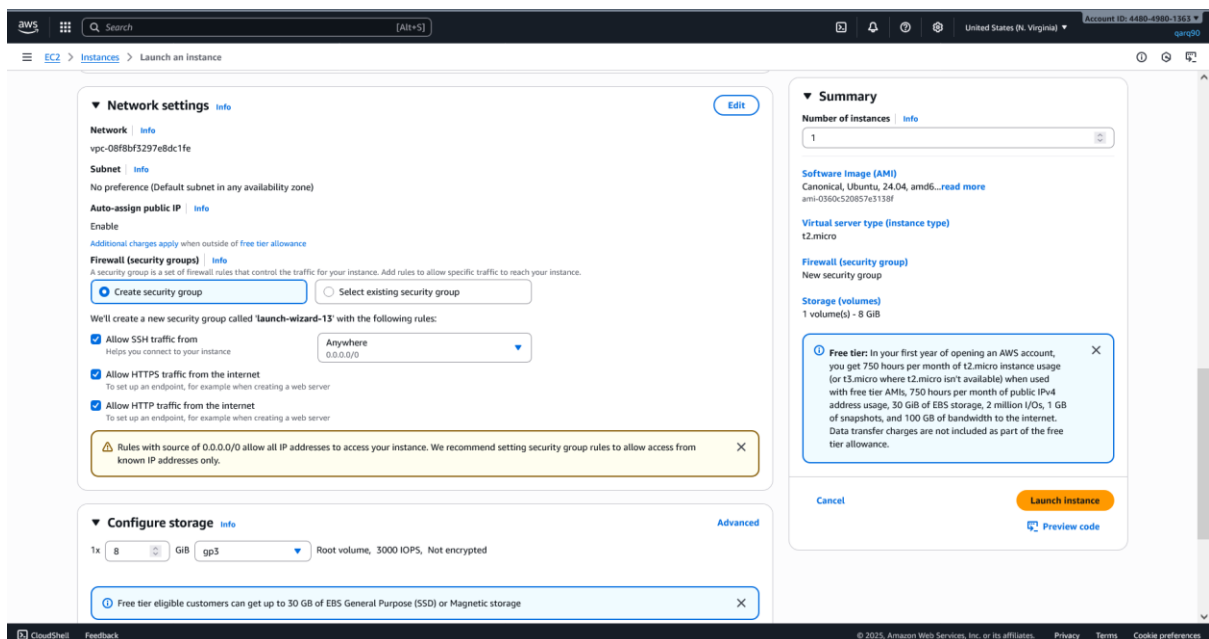
#sh get-docker.sh]



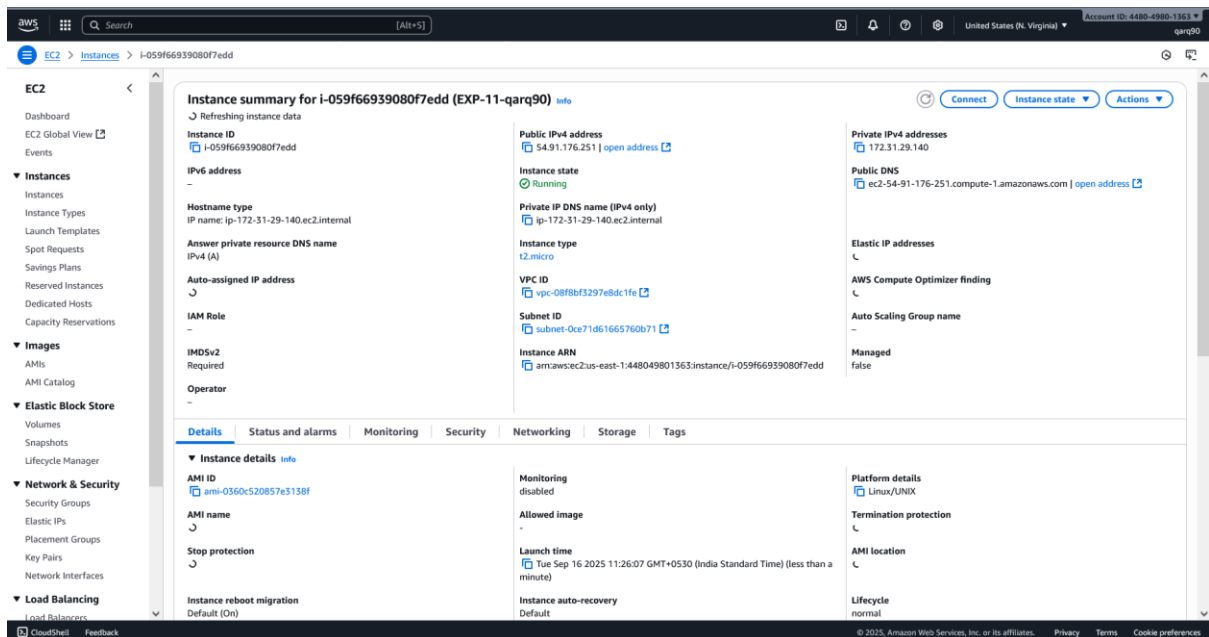
Setting up the EC2 Instance



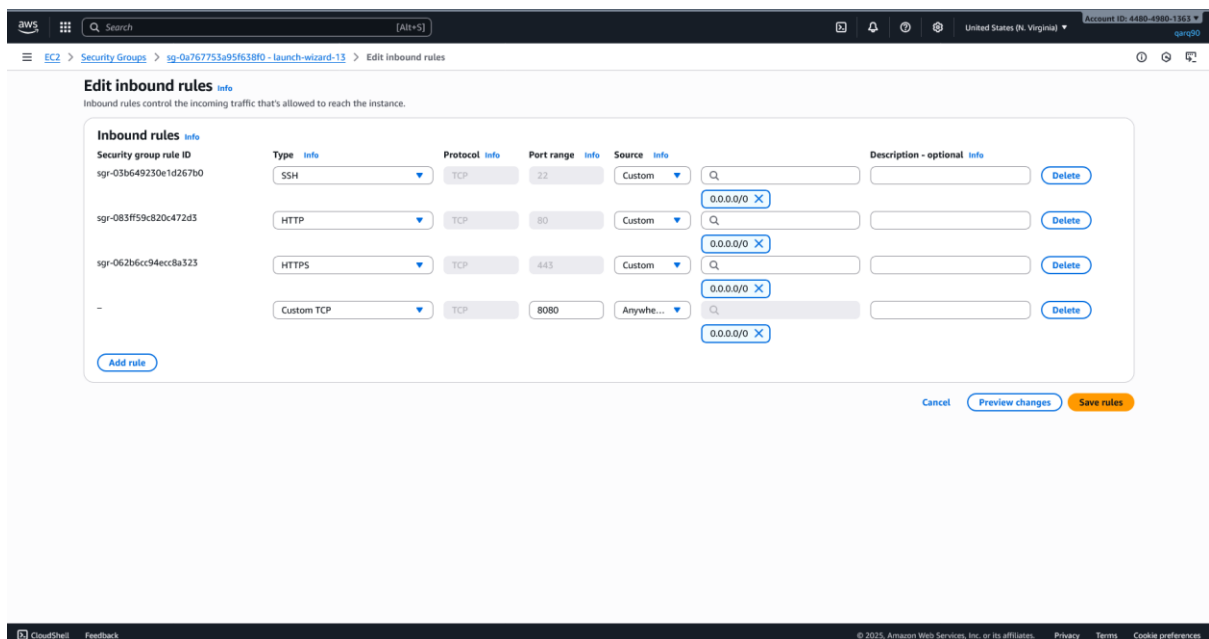
Creating Key Pair



Configuring Network Settings of the Instance



Instance Details



Editing the inbound rules

```
ubuntu@ip-172-31-29-140:~$  
E025519 key fingerprint is SHA256:z1ZbK8XdgLGis87dE0YjKqYwmKXU/gDTP0W1ainYK9V.  
This key is not known by any other names.  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
Warning: Permanently added 'ec2-54-91-176-251.compute-1.amazonaws.com' (E025519) to the list of known hosts.  
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 Tue Sep 16 05:56:47 UTC 2025  
  
System load:  0.61          Processes:            112  
Usage of /:   25.6% of 6.7168  Users logged in:     0  
Memory usage: 22%          IPv4 address for enx0: 172.31.29.140  
Swap usage:   0%  
  
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-172-31-29-140:~$
```

Connected to Instance

```
ubuntu@ip-172-31-29-140:~$ curl -fsSL https://get.docker.com -o get-docker.sh  
ubuntu@ip-172-31-29-140:~$ sudo sh get-docker.sh  
# Executing docker install script, commit: 5c8855edd77852564500337f5ac4ad65a0c168e  
+ sh -c apt-get -qq update >/dev/null  
+ sh -c DEBIAN_FRONTEND=noninteractive apt-get -y -qq install ca-certificates curl >/dev/null  
+ sh -c install -m 0755 -d /etc/apt/keyrings  
+ sh -c curl -fsSL "https://download.docker.com/linux/ubuntu/gpg" -o /etc/apt/keyrings/docker.asc  
+ sh -c chmod a+r /etc/apt/keyrings/docker.asc  
+ sh -c echo "deb [arch=amd64 signed-by=/etc/apt/keyrings/docker.asc] https://download.docker.com/linux/ubuntu noble stable" > /etc/apt/sources.list.d/docker.list  
+ sh -c apt-get -qq update >/dev/null  
+ sh -c DEBIAN_FRONTEND=noninteractive apt-get -y -qq install docker-ce docker-ce-cli containerd.io docker-compose-plugin docker-c  
e-rootless-extras docker-buildx-plugin docker-model-plugin >/dev/null  
Scanning processes...  
Scanning linux images...  
+ sh -c docker version  
Client: Docker Engine - Community  
Version:           28.4.0  
API version:       1.51  
Go version:        go1.24.7  
Git commit:        d8eb465  
Built:             Wed Sep 3 20:57:32 2025  
OS/Arch:           linux/amd64  
Context:           default  
  
Server: Docker Engine - Community  
Engine:  
Version:           28.4.0  
API version:       1.51 (minimum version 1.24)  
Go version:        go1.24.7  
Git commit:        249d679  
Built:             Wed Sep 3 20:57:32 2025  
OS/Arch:           linux/amd64  
Experimental:      false  
containerd:  
Version:           1.7.27  
GitCommit:         05044ec8a9a75232cad458827ca83437aae3f4da  
runc:  
Version:           1.2.5  
GitCommit:         v1.2.5-0-g59923ef
```

Installing Docker

```
ubuntu@ip-172-31-29-140: ~
Server: Docker Engine - Community
Engine:
  Version:      28.4.0
  API version:  1.51 (minimum version 1.24)
  Go version:   go1.24.7
  Git commit:   249d679
  Built:        Wed Sep  3 20:57:32 2025
  OS/Arch:      linux/amd64
  Experimental: false
containerd:
  Version:      1.7.27
  GitCommit:    05044ec0a9a75232cad458027ca83437aee3f4da
runc:
  Version:      1.2.5
  GitCommit:    v1.2.5-0-g59923ef
docker-init:
  Version:      0.19.0
  GitCommit:    de40ad0

=====

To run Docker as a non-privileged user, consider setting up the
Docker daemon in rootless mode for your user:

    dockend-rootless-setuptool.sh install

Visit https://docs.docker.com/go/rootless/ to learn about rootless mode.

To run the Docker daemon as a fully privileged service, but granting non-root
users access, refer to https://docs.docker.com/go/daemon-access/

WARNING: Access to the remote API on a privileged Docker daemon is equivalent
to root access on the host. Refer to the 'Docker daemon attack surface'
documentation for details: https://docs.docker.com/go/attack-surface/

=====

ubuntu@ip-172-31-29-140:~$
```

Configuring Docker

```
ubuntu@ip-172-31-29-140:~$ sudo usermod -aG docker ubuntu
ubuntu@ip-172-31-29-140:~$ newgrp docker
ubuntu@ip-172-31-29-140:~$ docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
17eec7bbc9d7: Pull complete
Digest: sha256:54e66cc1dd1fcb1c3c58bd8017914dbed8781e2d8c74d9262e26bd9cc1642d31
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-172-31-29-140:~$ docker --version
Docker version 28.4.0, build d8eb465
ubuntu@ip-172-31-29-140:~$
```

Configuration Complete

```
ubuntu@ip-172-31-29-140:~$ newgrp docker
ubuntu@ip-172-31-29-140:~$ docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
17eec7bbc9d7: Pull complete
Digest: sha256:54e66cc1dd1fcb1c3c58bd8817914dbed8781e2d8c74d9262e26bd9cc1642d31
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)
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 https://download.docker.com/linux/ubuntu noble InRelease
Hit:5 http://security.ubuntu.com/ubuntu noble-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
27 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-29-140:~$ 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 27 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 (24.2 MB/s)
Preconfiguring packages ...
Selecting previously unselected package nginx-common.
```

Installing nginx

```
ubuntu@ip-172-31-29-140:~$ sudo apt install nginx -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ubuntu@ip-172-31-29-140:~$ sudo bash -c 'echo "<!DOCTYPE html>
<html>
<head>
  <title>EXP11</title>
  <style>
  body {
    display: flex;
    justify-content: center;
    align-items: center;
    height: 100vh;
    margin: 0;
    background-color: #000;
    color: #0f0;
    font-family: monospace;
    font-size: 3em;
    text-align: center;
  }
</style>
</head>
<body>
  qazq90 Performed EXP11
</body>
</html>" > /var/www/html/index.html'
ubuntu@ip-172-31-29-140:~$
```

HTML file created

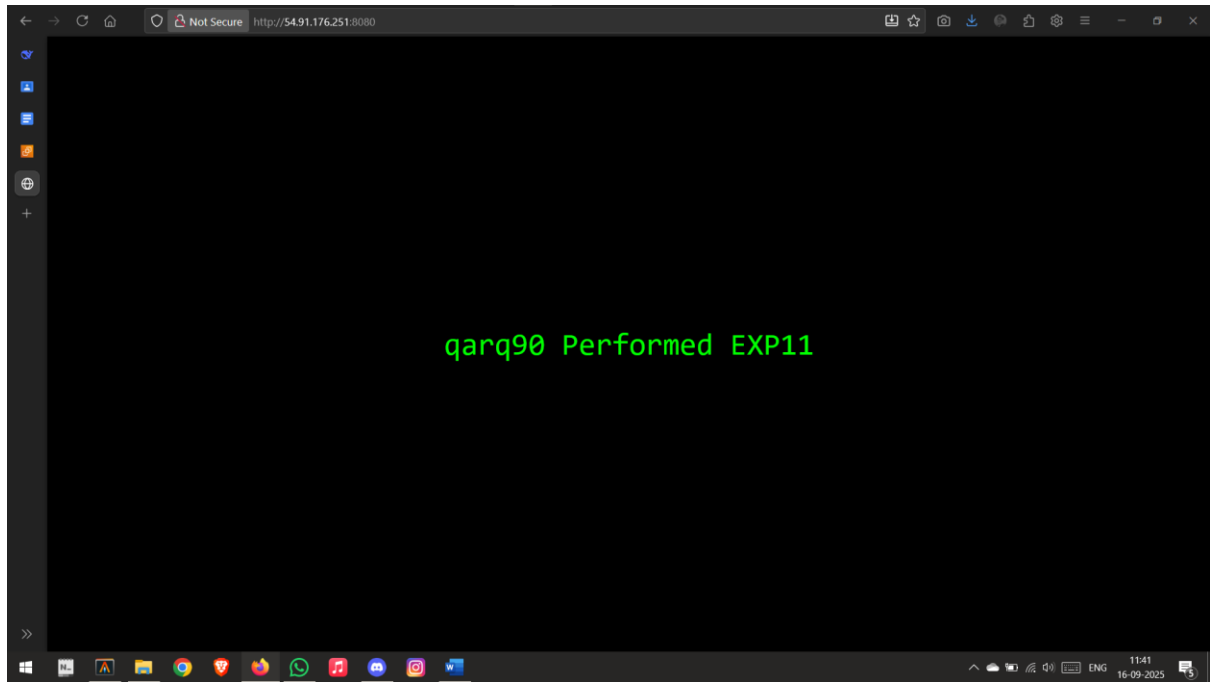
```
ubuntu@ip-172-31-29-140: ~
GNU nano 7.2 /etc/nginx/sites-available/exp11
server {
    listen 8080;
    listen [::]:8080;
    root /var/www/html; index
    index.html;
    server_name _;
    location / {
        try_files $uri
        $uri/ =404;
    }
}
```

Config file to deploy

```
ubuntu@ip-172-31-29-140: ~
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)
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 https://download.docker.com/linux/ubuntu noble InRelease
Hit:5 http://security.ubuntu.com/ubuntu noble-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
27 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-29-140:~$ sudo apt install nginx -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ubuntu@ip-172-31-29-140:~$ 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-172-31-29-140:~$ sudo systemctl restart nginx
ubuntu@ip-172-31-29-140:~$
```

Nginx Launched



Deployed on 8080