

Fire Hydrant Ranger Tool – Deployment

Deployment Options & Comparison

Features	AWS	GCP	PythonAnywhere
Category	Iaas (Infrastructure as a Service)	Iaas (Infrastructure as a Service)	Paas (Platform as a Service)
Free Services offered	<p>EC2, S3, DynamoDB, RDS, SNS, Lambda, ...</p> <p>For more please visit https://aws.amazon.com/free/?all-free-tier.sort-by=item.additionalFields.SortRank&all-free-tier.sort-order=asc&awsf.Free%20Tier%20Types=*all&awsf.Free%20Tier%20Categories=*all</p>	<p>Cloud Storage, App Engine, Big Query, Cloud Run, Google Maps....</p> <p>For more please visit https://cloud.google.com/free/docs/free-cloud-features</p>	Beginner Plan: Virtual machine with pre-installed python environment.
Free Run hours / service	<p>EC2 :</p> <p>The Free Tier for Amazon EC2 allows you to run two EC2 instances -- one Linux, one Windows -- each month for a full month. For each operating system, you get 750 hours of a t2. micro instance. A 31-day month has 744 hours, so you'll be safe to keep each instance running constantly the entire month.</p>	<p>Compute Engine - 1 E2 micro instance per month Cloud Storage - 5GB per months standard storage Big Query- 1 TB per month</p>	<p>A limited account with one web app at your-username.pythonanywhere.com,</p>

Specifications	EC2 : Free T3Micro vCPU : 2 CPU credits/hour : 12 Mem (GiB) -1 Storage : EBS only Network performance (Gbps) : Upto 5	App Engine: 28 hours per day of F instances. 9 hours per day of B instances. 1GB egress per day. For more info on other services and their specifications, refer: https://cloud.google.com/free/docs/free-cloud-features	Memory :520 MB Restricted outbound Internet access from your apps, low CPU/bandwidth, no IPython/Jupyter notebook support.
Duration	AWS Free tier is valid for 12 months. But the services under free tier have short time trials depending on their limitations.	GCP Free trial is valid for 30 days.	-
Pricing	If free limits are exhausted, \$0.0108 per On Demand Linux t3.micro Instance Hour. For more on pricing: https://docs.aws.amazon.com/whitepapers/latest/how-aws-pricing-works/amazon-ec2.html	Free trial with 300\$ credit for 90 days.	Beginner account is free with certain limitations. For more related to other plans and pricing https://www.pythonanywhere.com/pricing/

Others (Render, Railway, Heroku)

Paas (Platform as a service)-One click deployment

Render-<https://render.com/>

Railway- <https://railway.app/>

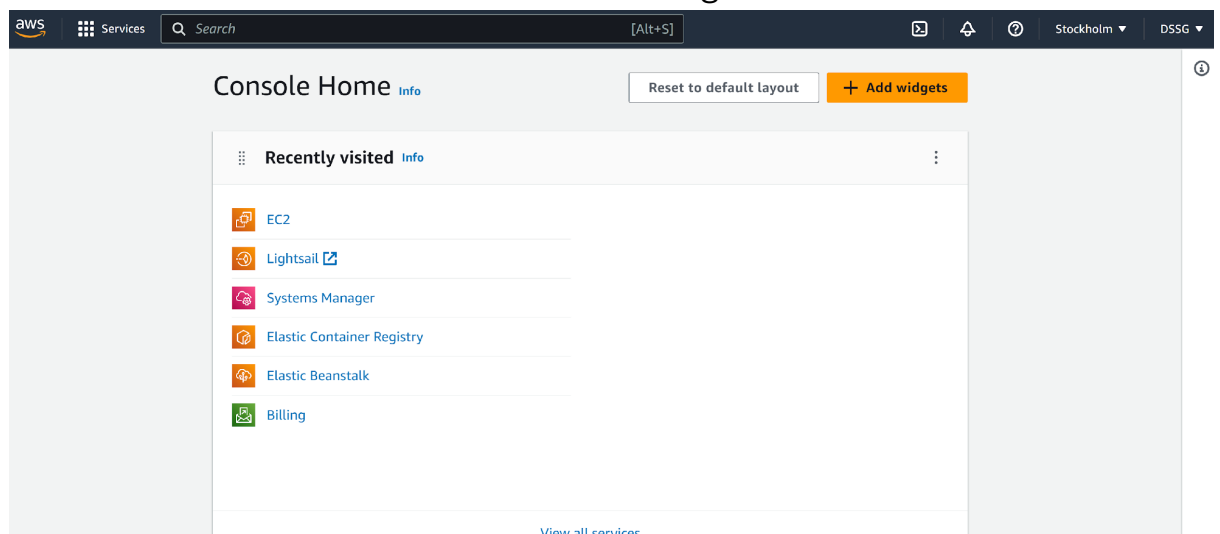
Heroku-<https://www.heroku.com/>

Limitations:

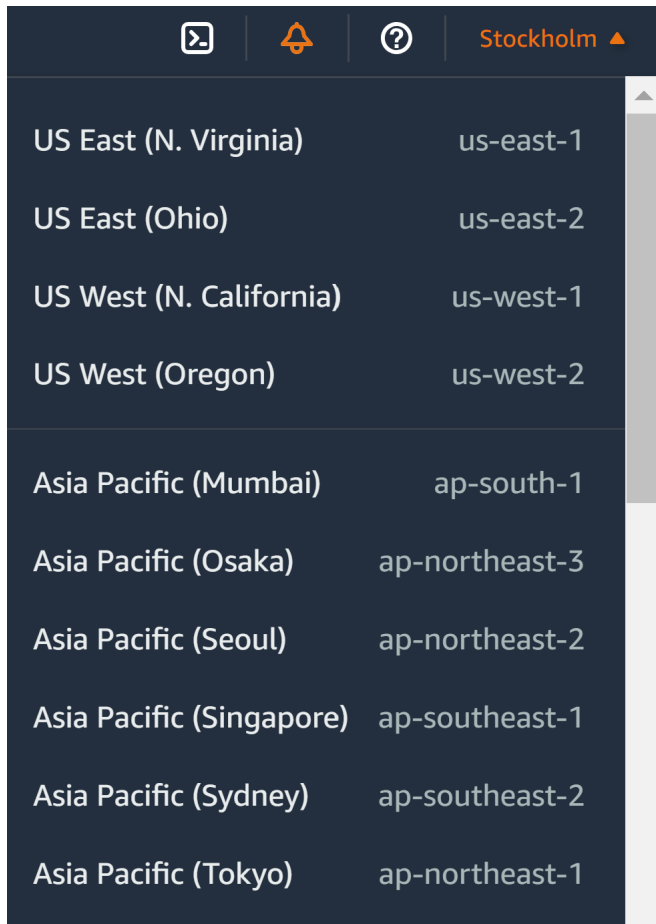
Need to be deployed from GitHub for which we do not have permissions.

AWS Deployment

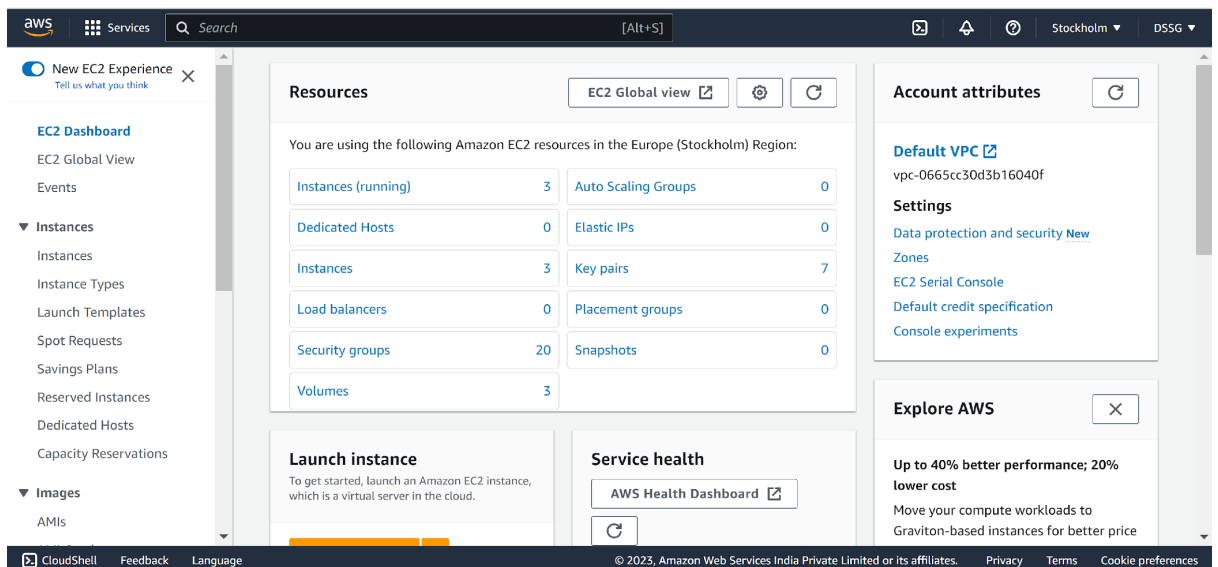
1. Login to AWS
2. Click on EC2 or Search for EC2 service using the search bar



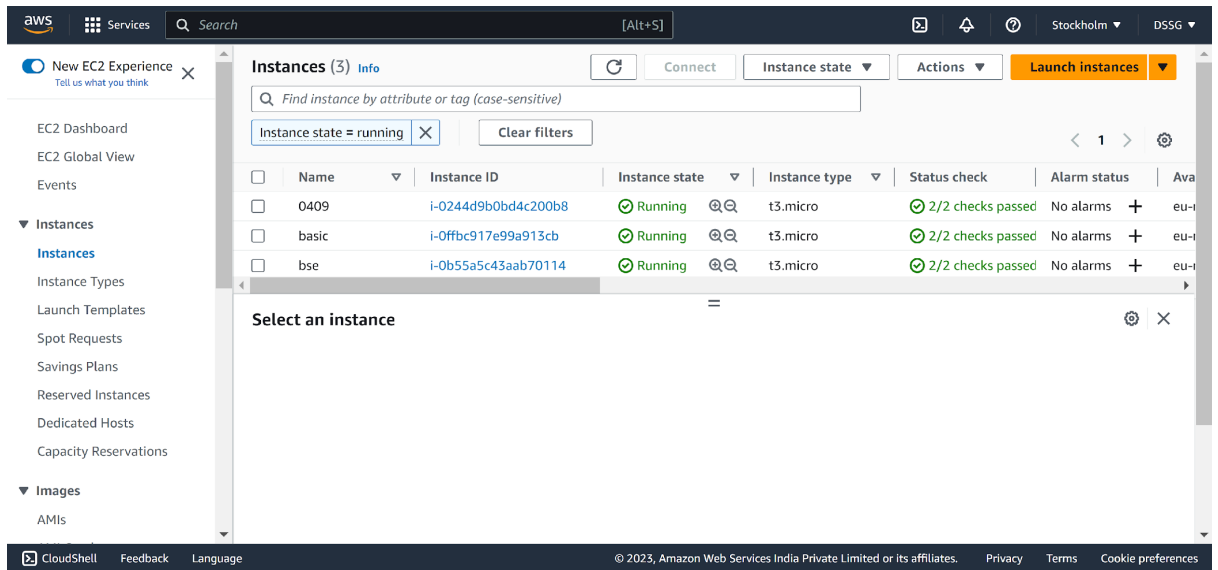
3. Make sure the availability region is same as the region you want to deploy your application.
For our application it is **Stockholm**. (Also make sure all other services are bound to the same region)



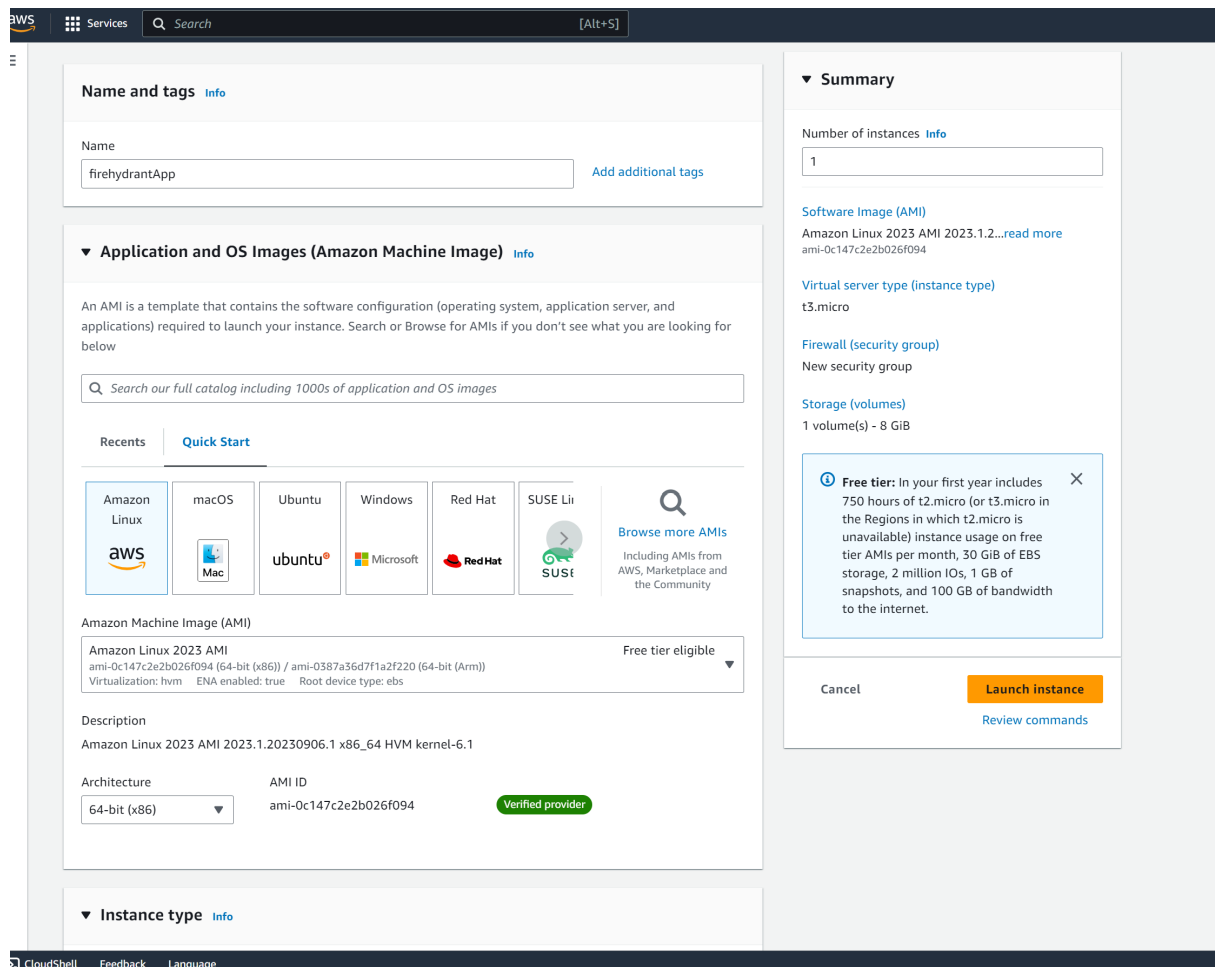
4. Click on Instances.



5. Click on **Launch Instances** .



6. Type in the details of the server




Generate a key-pair or use an existing one
To generate a new one – Click on create new key pair

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

Select ▼

 [Create new key pair](#)

Create key pair

Key pair name

Key pairs allow you to connect to your instance securely.

test

The name can include upto 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type



☒ RSA
RSA encrypted private and public key pair

☐ ED25519
ED25519 encrypted private and public key pair

Private key file format

☒ .pem
For use with OpenSSH

☐ .ppk
For use with PuTTY

 When prompted, store the private key in a secure and accessible location on your computer. You will need it later to connect to your instance. [Learn more](#) 

Cancel

Create key pair

- Fill in the details and click on Create key pair.
A .pem file will be downloaded to your local system.
- Click Edit on Network Settings Tab.

▼ Network settings

Info

Edit

Network

Info

vpc-0665cc30d3b16040f

Subnet

Info

No preference (Default subnet in any availability zone)

Auto-assign public IP

Info

Enable

Firewall (security groups)

Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group

Select existing security group

We'll create a new security group called 'launch-wizard-20' with the following rules:

☒ Allow SSH traffic from

Helps you connect to your instance

Anywhere

0.0.0.0/0

☐ Allow HTTPS traffic from the internet

To set up an endpoint, for example when creating a web server

☐ Allow HTTP traffic from the internet

To set up an endpoint, for example when creating a web server

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

×

aws

Services

Search

[Alt+S]

Stockholm

dsgx-munich-2023

Inbound Security Group Rules

▼ Security group rule 1 (TCP, 22, 0.0.0.0/0)

Remove

Type

Info

ssh

Protocol

Info

TCP

Port range

Info

22

Source type

Info

Anywhere

Source

Info

0.0.0.0/0

Description - optional

Info

e.g. SSH for admin desktop

▼ Security group rule 2 (TCP, 80, 0.0.0.0/0)

Remove

Type

Info

HTTP

Protocol

Info

TCP

Port range

Info

80

Source type

Info

Anywhere

Source

Info

0.0.0.0/0

Description - optional

Info

e.g. SSH for admin desktop

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

×

Add security group rule

▼ Summary

Number of instances

Info

1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.2.2...read more

ami-0703b5d7f7da98d1e

Virtual server type (instance type)

t3.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs

×

Cancel

Launch instance

- Add 1 new inbound security group “HTTP “ with source as 0.0.0.0/0 and “HTTPS” with source as 0.0.0.0/0 as shown in the above image.
8. No changes with Configure storage.

▼ Configure storage

Info

Advanced

1x

8

GiB

gp3

Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

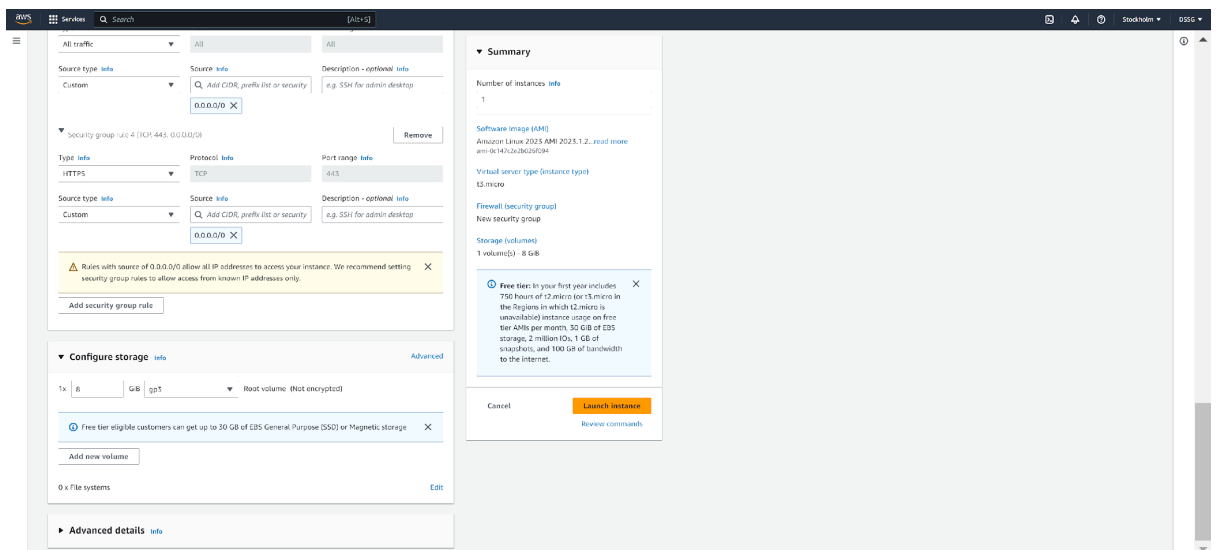
×

Add new volume

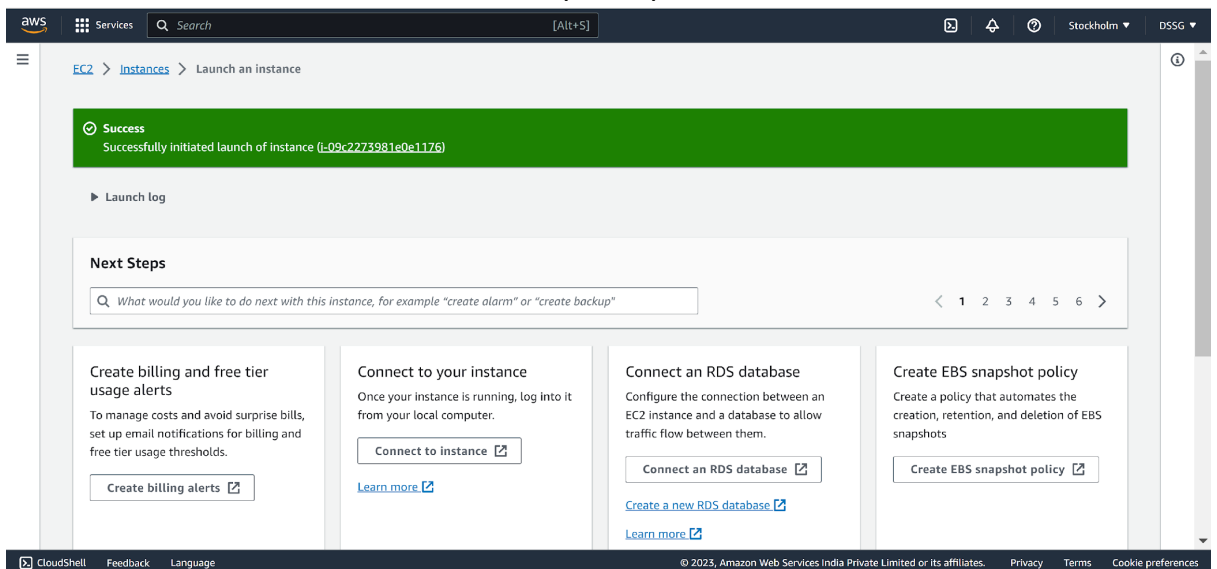
0 x File systems

Edit

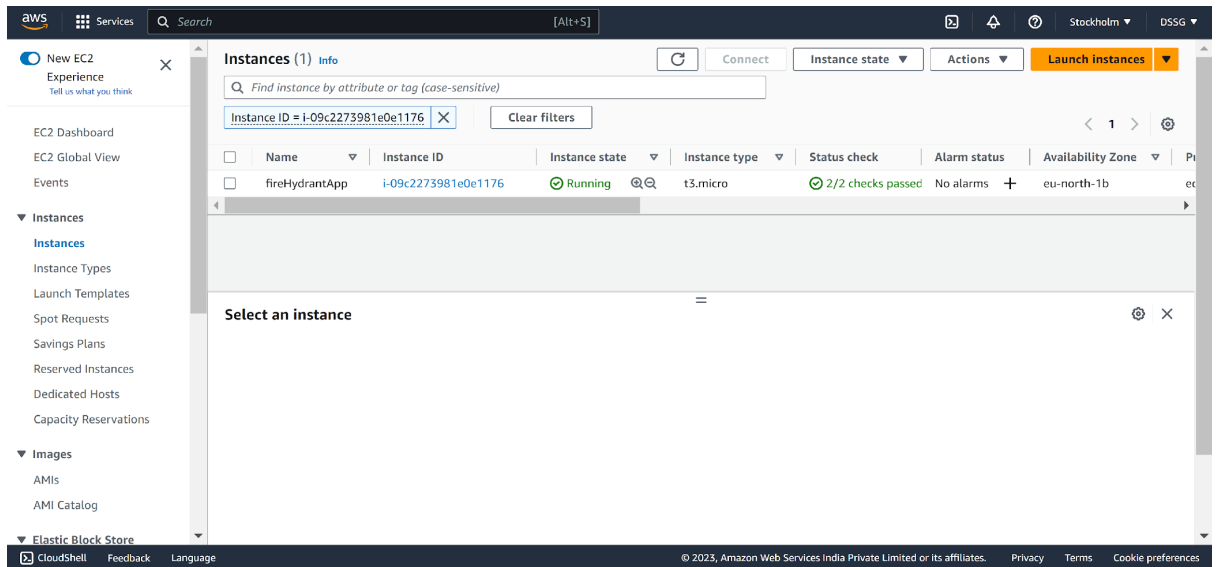
9. Click on Launch Instance.



You should see the below Success prompt.

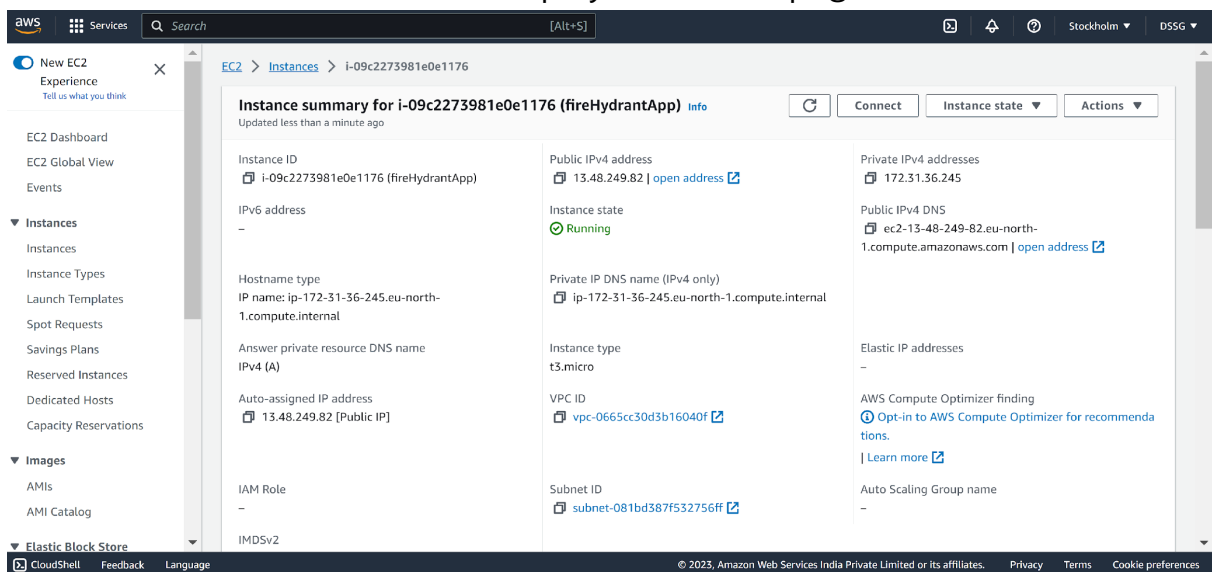


EC2 dashboard image after the ec2 server instance is created.
(It is initiated, running with 2/2 checks passed)

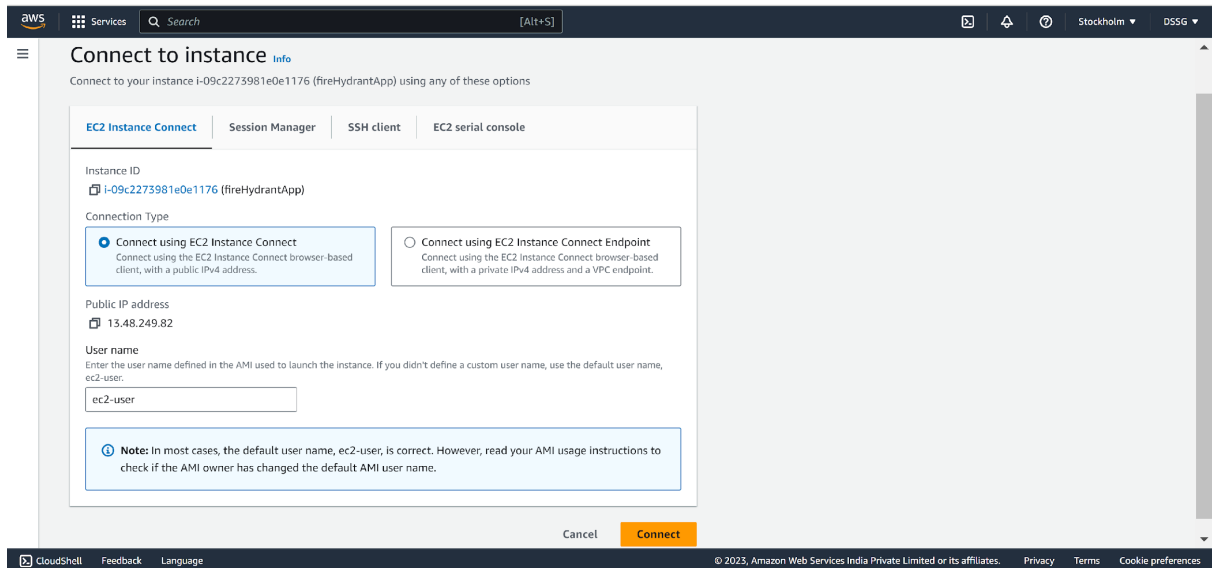


Application Deployment

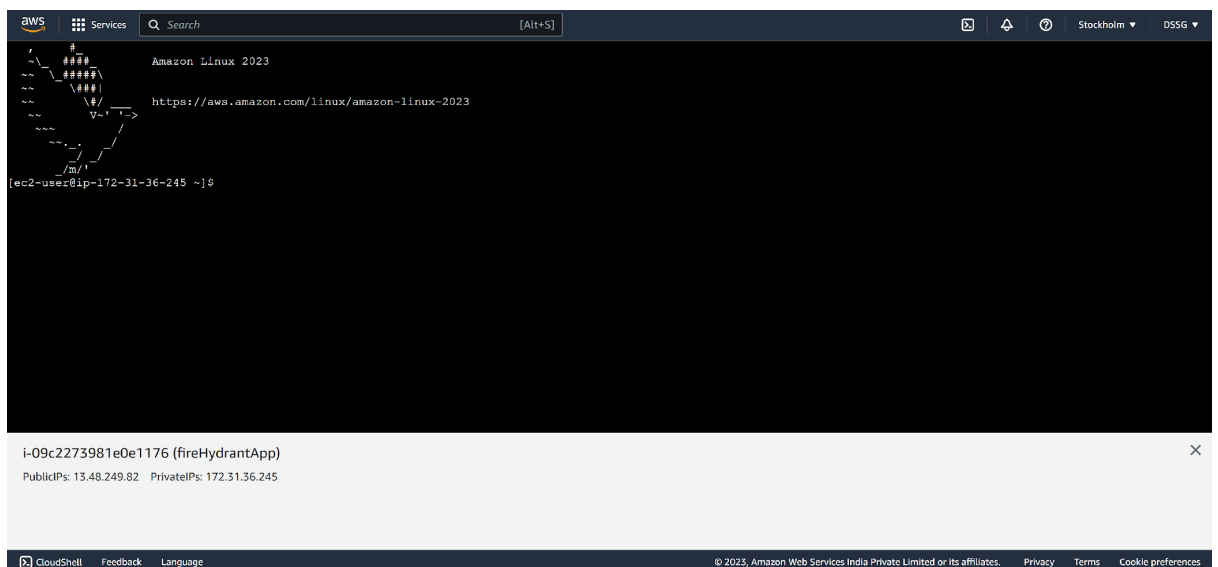
Click on the Instance ID, it will display the below page.



Click on connect.



Click on Connect.



Please install the requirements of application using Linux terminal.

sudo yum install update -y
(Update the packages to its latest versions)

sudo yum install docker

sudo yum install python3-pip

pip install pyopenssl (Adding adhoc certificate)

To push your local repository to AWS EC2 :

```
scp -i <aws secret key pair.pem> <name of the zipped repository>  
<user>@Public IPv4 DNS:.
```

After it is successfully pushed to remote server. Follow the below steps to deploy.

Manual Deployment

```
unzip main.zip
```

Go to the source folder.

```
cd main/src
```

```
pip3 install -r requirements.txt
```

```
python3 app.py
```

To run the application in the background permanently, use the command
`nohub python3 app.py`

Docker Deployment:

```
docker build -t app .
```

```
docker run -td -p 80:5000 app (To run permanently in the background)
```