SVKM'S NMIM'S Nilkamal School of Mathematics, Applied Statistics & Analytics
Master of Science (Data Science)

Practical-1 Infrastructure as a service using AWS.

Date:-09/01/2024 **Submission Date:- 15/01/2024**

Writeup:-

- **Cloud Computing architecture**
  1. Cloud architecture consists of a front end and back end. The front end is the client-side interface. The back end consists of the cloud service provider's data centers, servers, storage and applications.
  2. A central server administers the system, monitoring traffic and client demands to ensure quality of service. The underlying hardware infrastructure is distributed across various servers and locations.
- **IAAS**

  Infrastructure as a Service (IaaS) provides access to fundamental computing resources such as servers, storage, networks and operating systems over the internet. The cloud provider owns and maintains the physical infrastructure and delivers these resources to customers on-demand.

  Why IAAS??

  1. Flexibility - IaaS provides highly scalable and flexible computing resources that can be provisioned and decommissioned on-demand based on workload needs. This is useful for spiky or unpredictable workloads.
  2. Lower costs - With IaaS, organizations pay only for the infrastructure resources they use without having to purchase and maintain their own hardware. This eliminates capital expenditures and reduces costs.
- **AWS**

  Amazon Web Services offers a broad set of global cloud-based products including compute, storage, databases, analytics, networking, mobile, developer tools, management tools, IoT, security, and enterprise applications: on-demand, available in seconds, with pay-as-you-go pricing. From data warehousing to deployment tools, directories to content delivery, over 200 AWS services are available

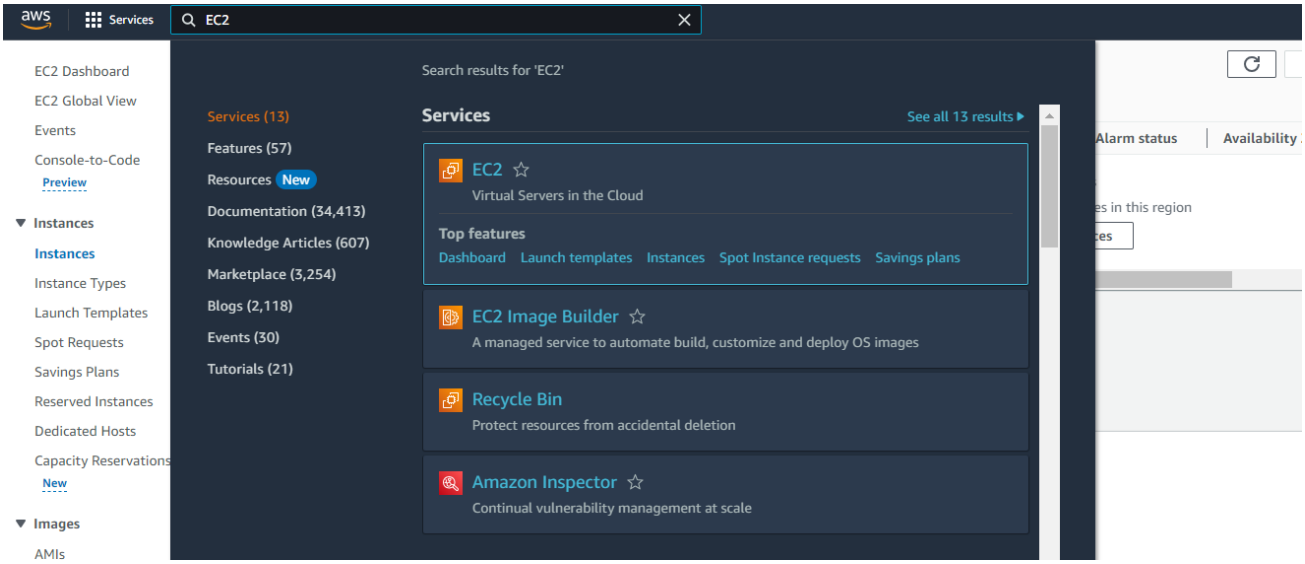
- **EC2**

Amazon Elastic Compute Cloud (EC2) provides scalable virtual servers that can be launched and terminated on-demand. Key features include:

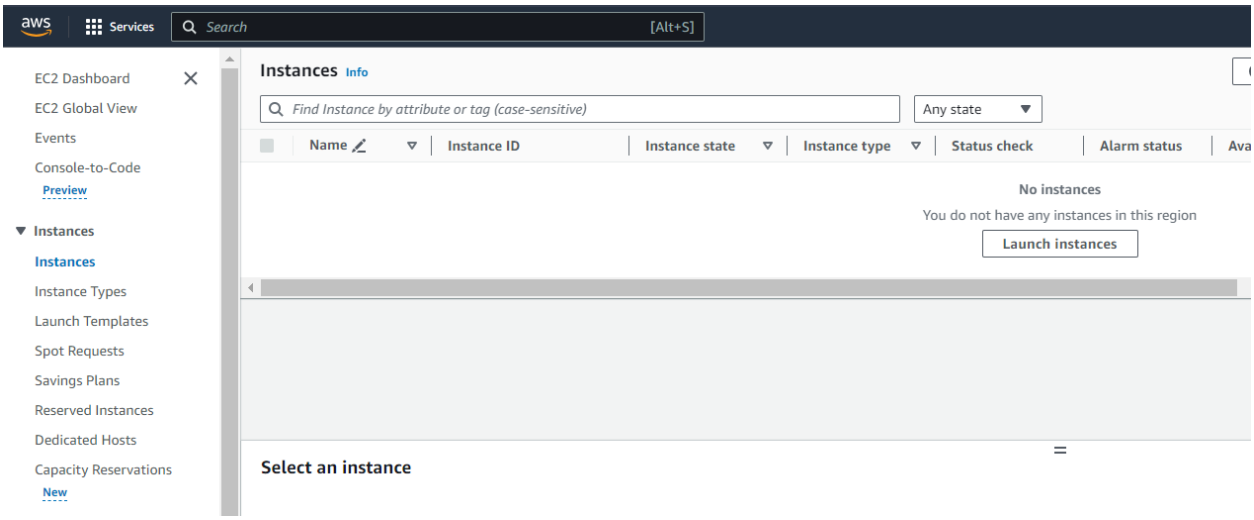
1. Multiple instance types for varying compute, memory and storage needs
2. Auto scaling and load balancing
3. High availability within and across data centers
4. Secure network connectivity options and access controls
5. Integrated with other AWS services
6. Pay as you go pricing based on instance hours used

Implementing the windows machine using AWS EC2

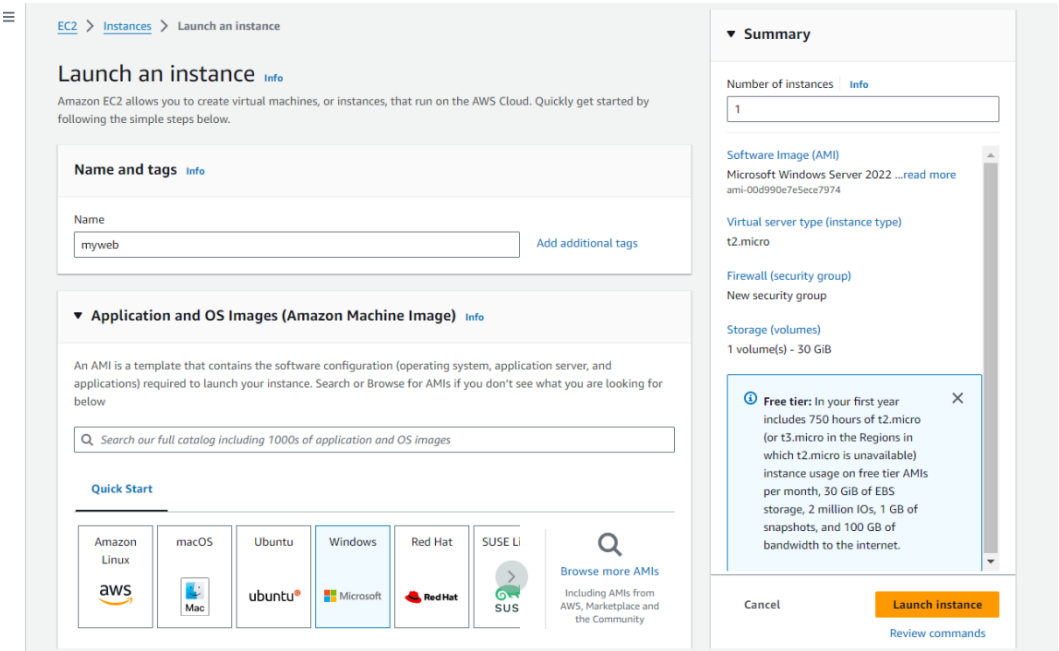
Step 1- Under AWS Dashboard select EC2



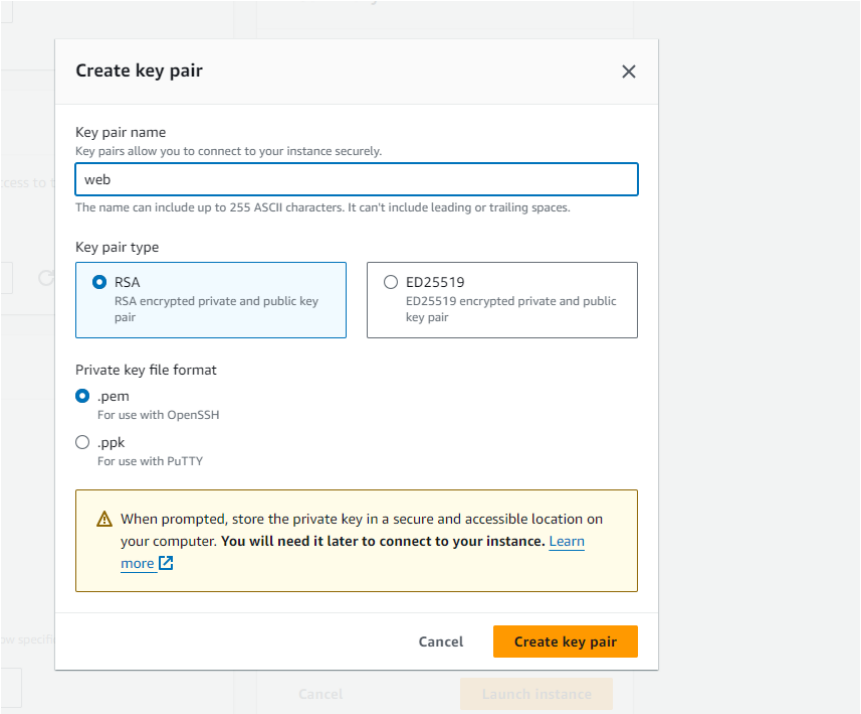
Step 2- Select Instance under EC2 and click on launch Instance



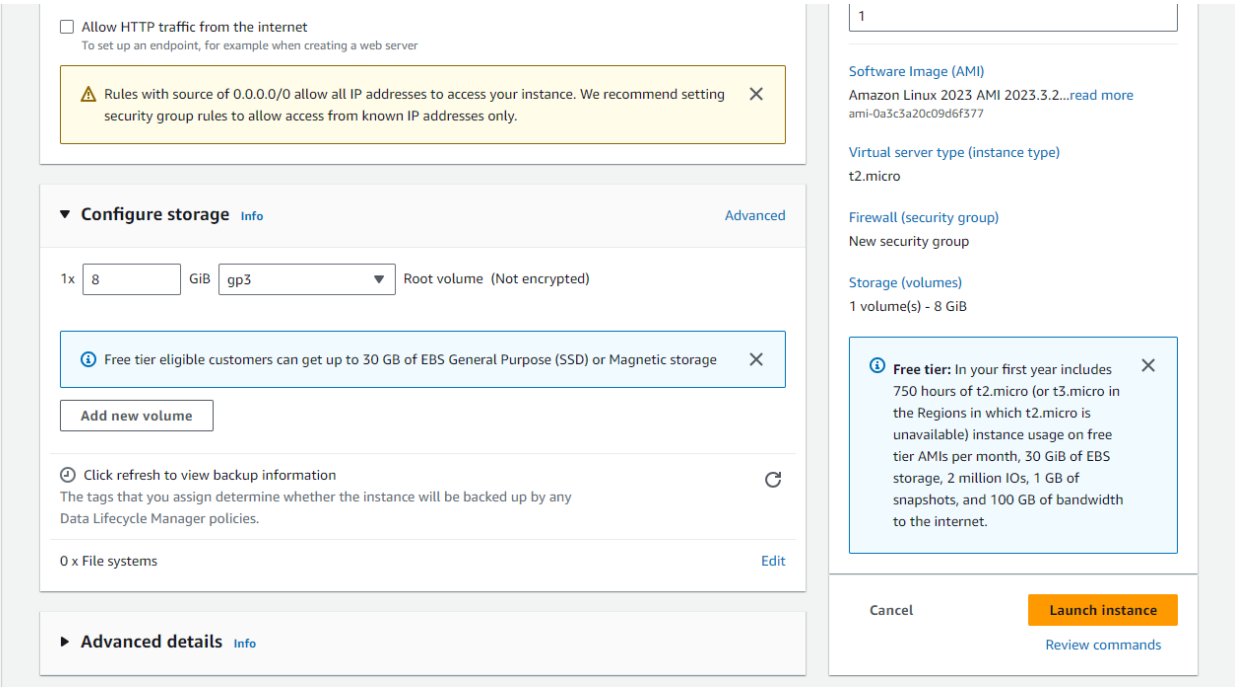
Step 3- Provide the name of the Instance and select Windows under Application and OS



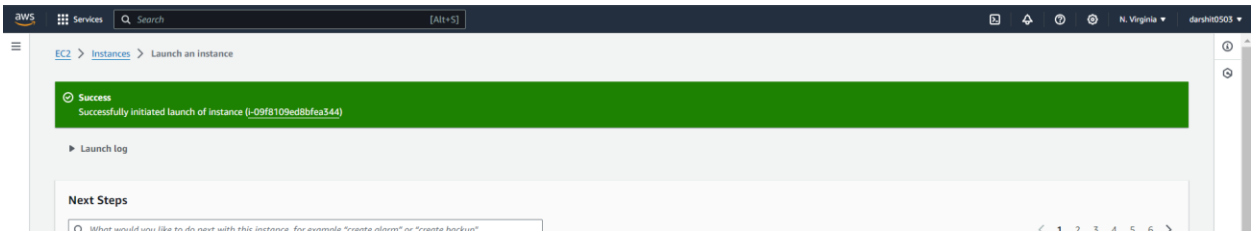
Step 4- For key pair click on Create a new key pair and select perm and click on Create key pair



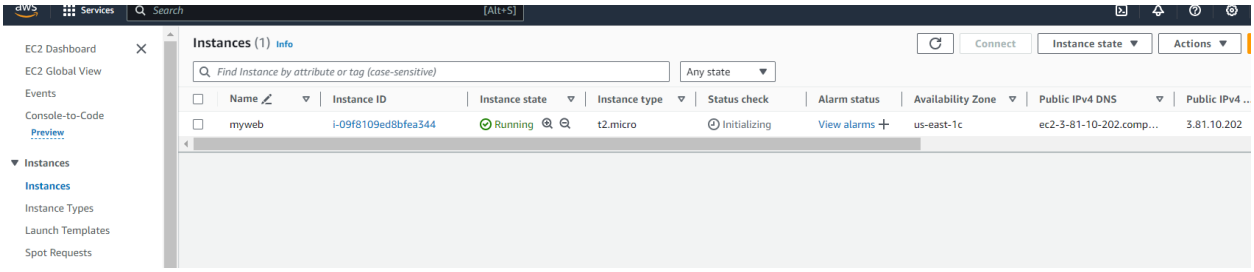
Step 5 – Launch the Instance Successfully



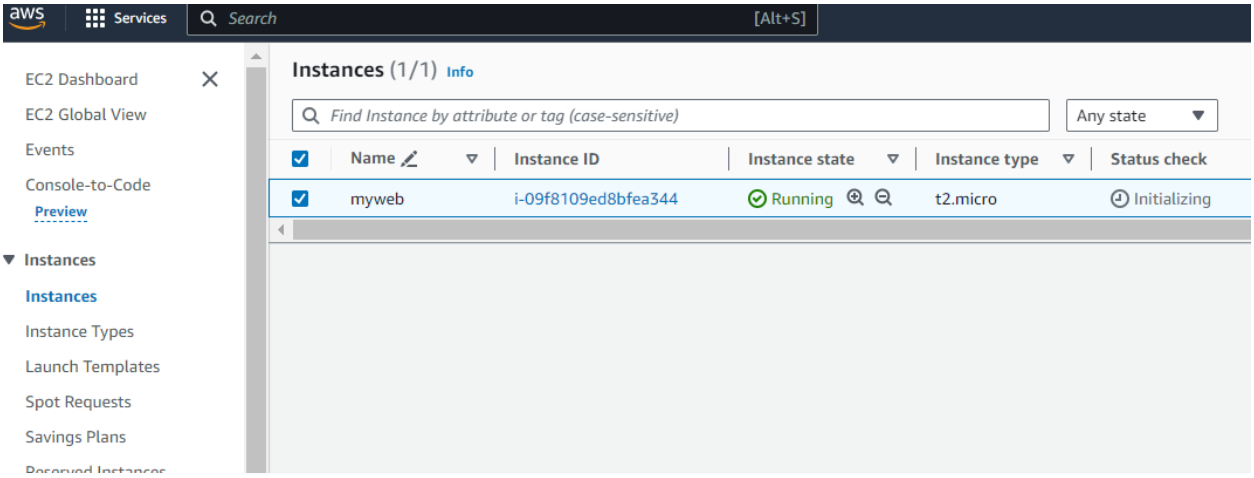
Step 6- Instance Successfully Launched



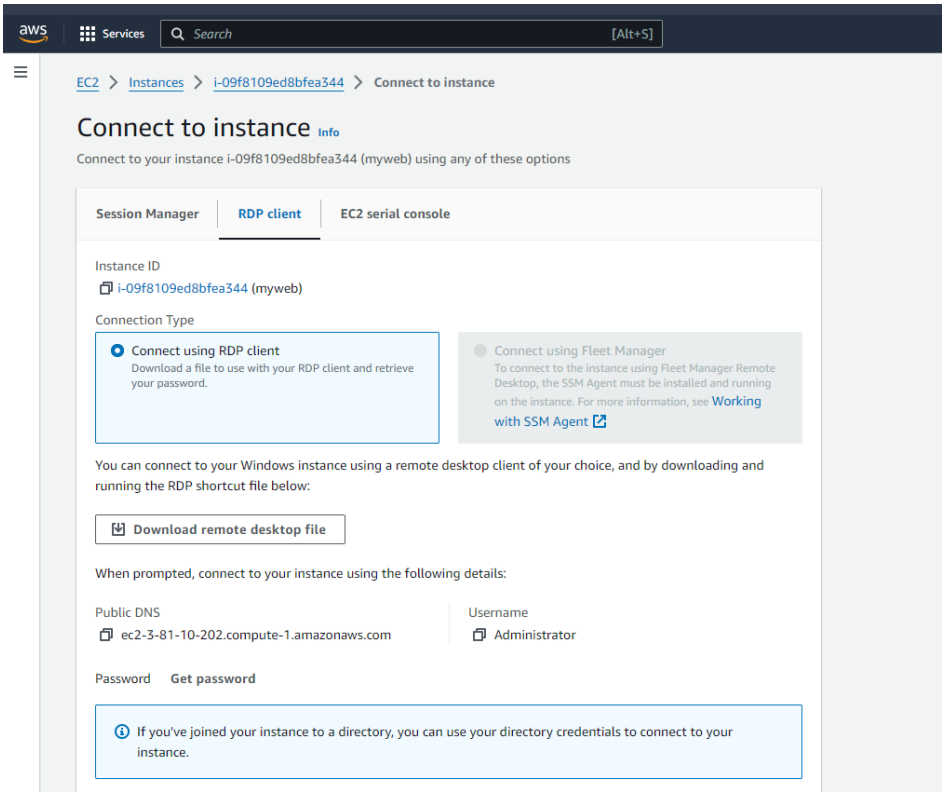
Step 7- Go to Instance, Refresh it and you see the launched instance



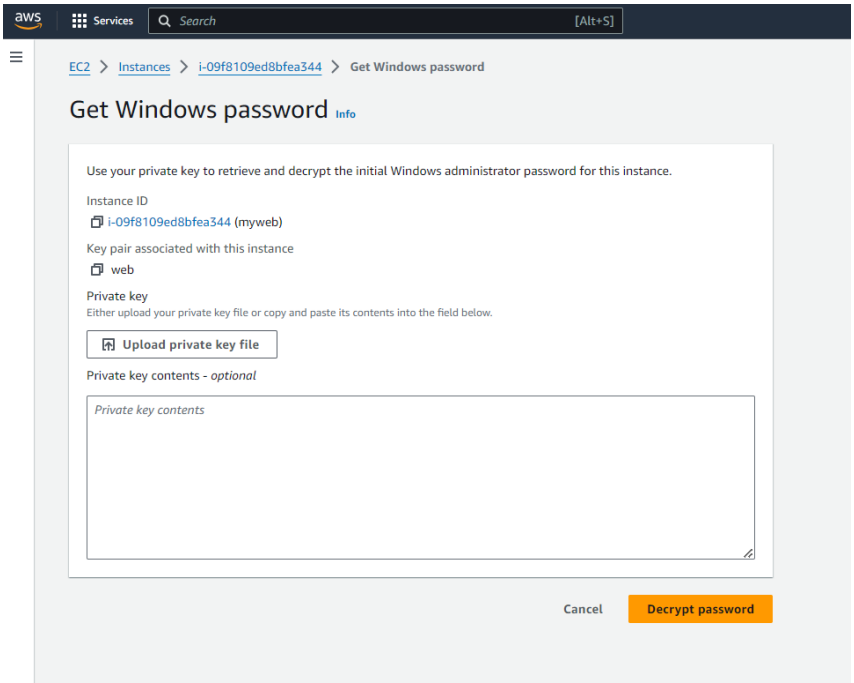
Step 8- Select the Instance



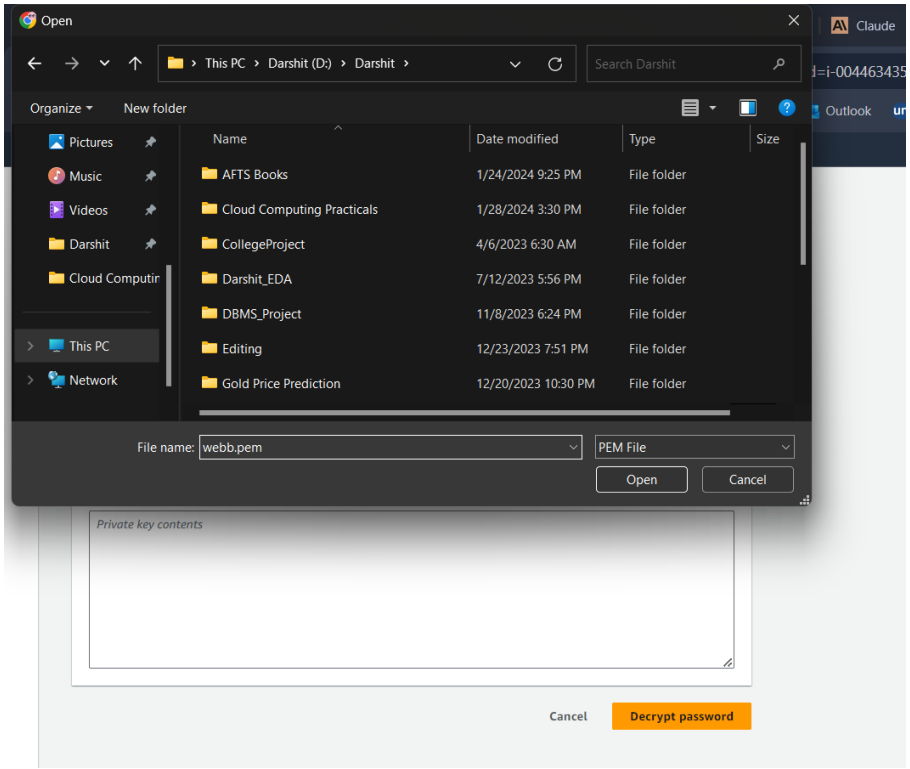
Step 9- Click on Connect and select RDP Client



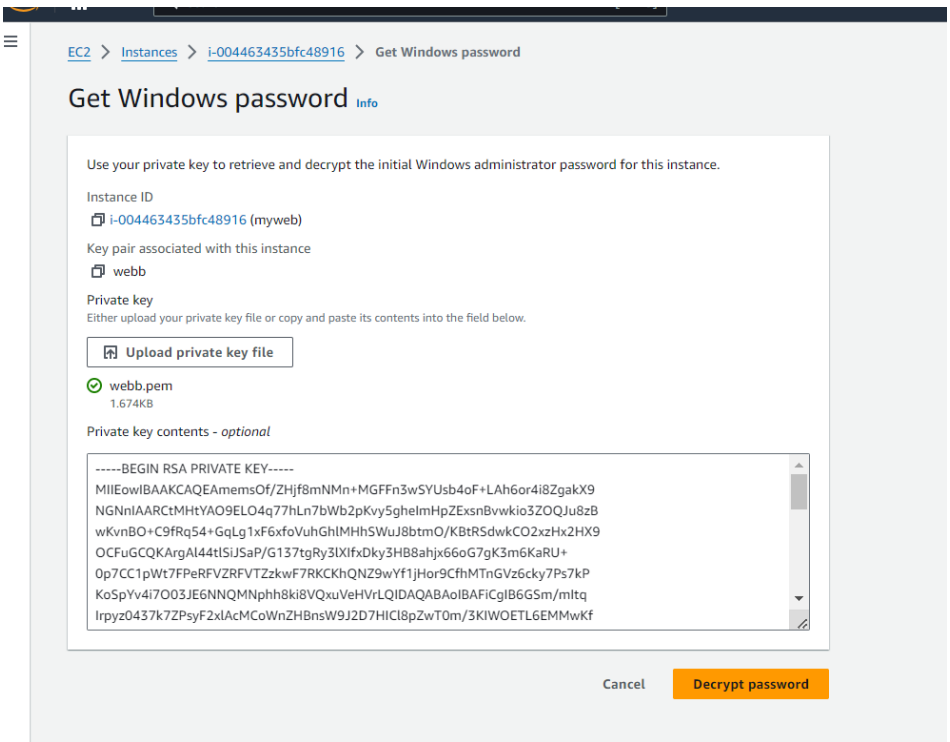
Step 10- Click on GET PASSWORD



Step 11- Upload the key value File which got downloaded while creating a instance

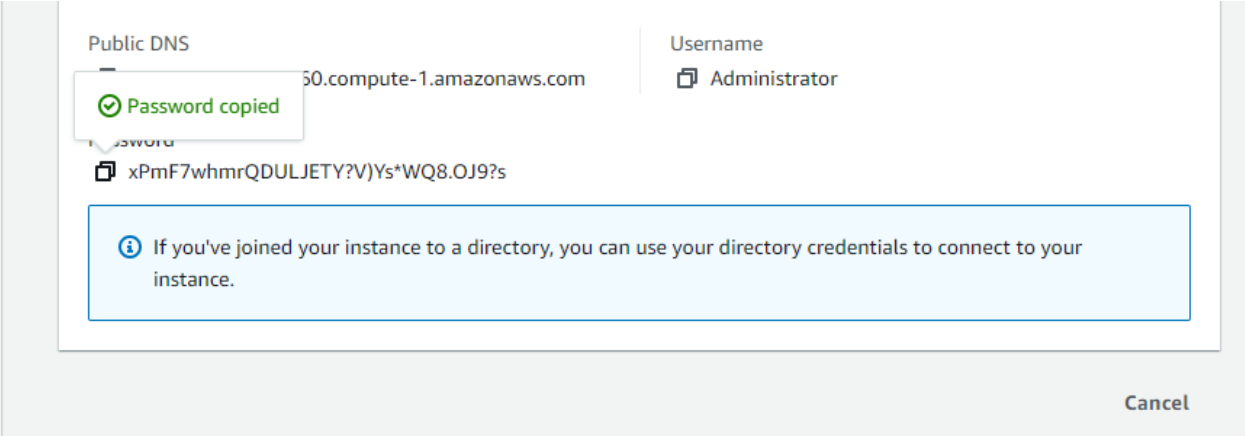


Step 12- Decrypt the Password

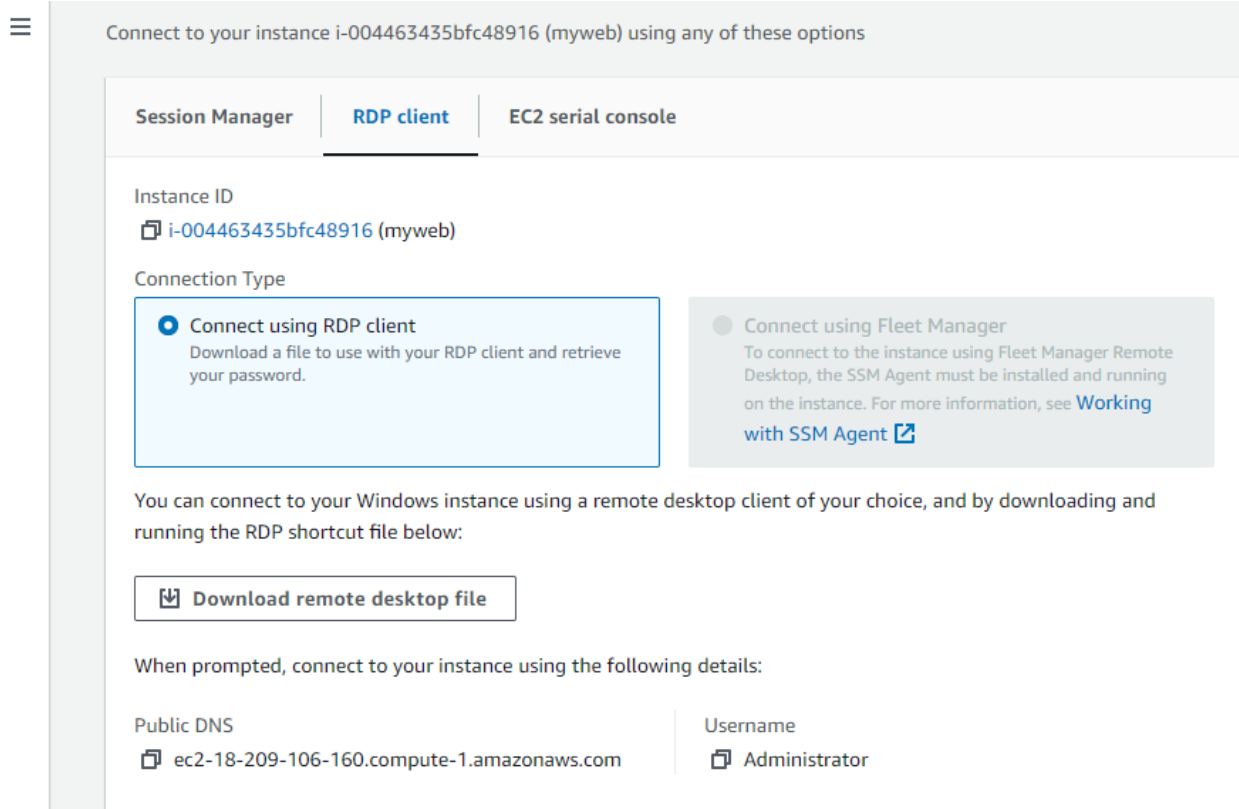


Step 13- Save the password

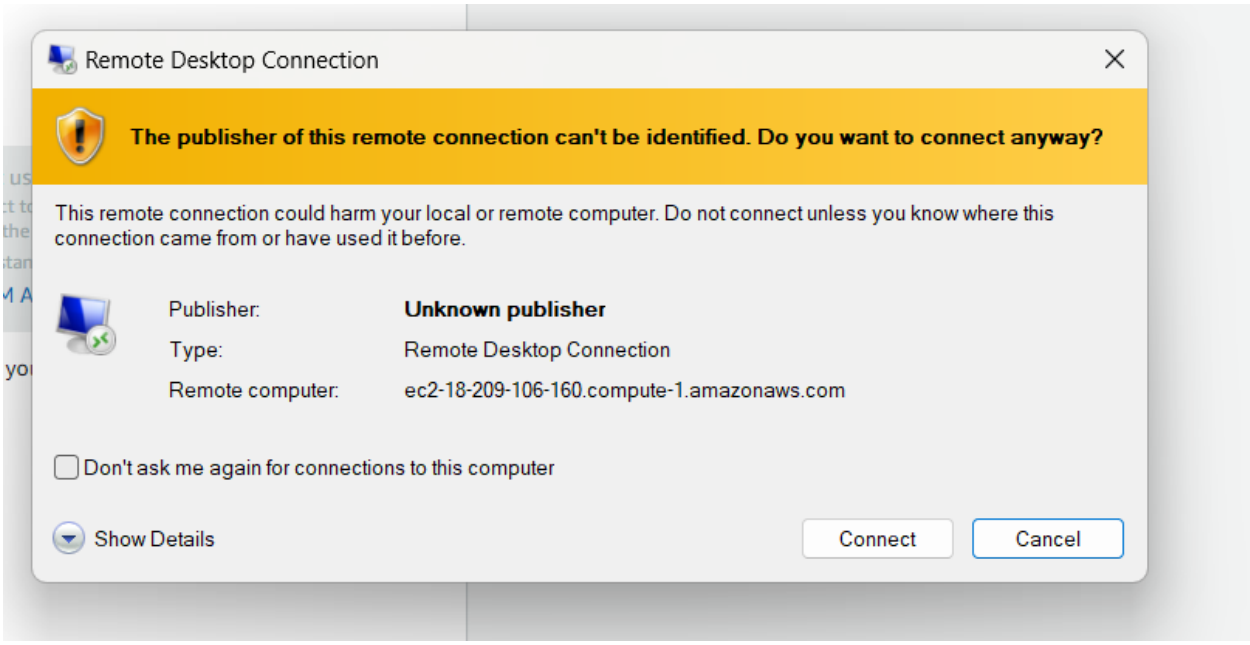
xPmF7whmrQDULJETY?V)Ys*WQ8.OJ9?s



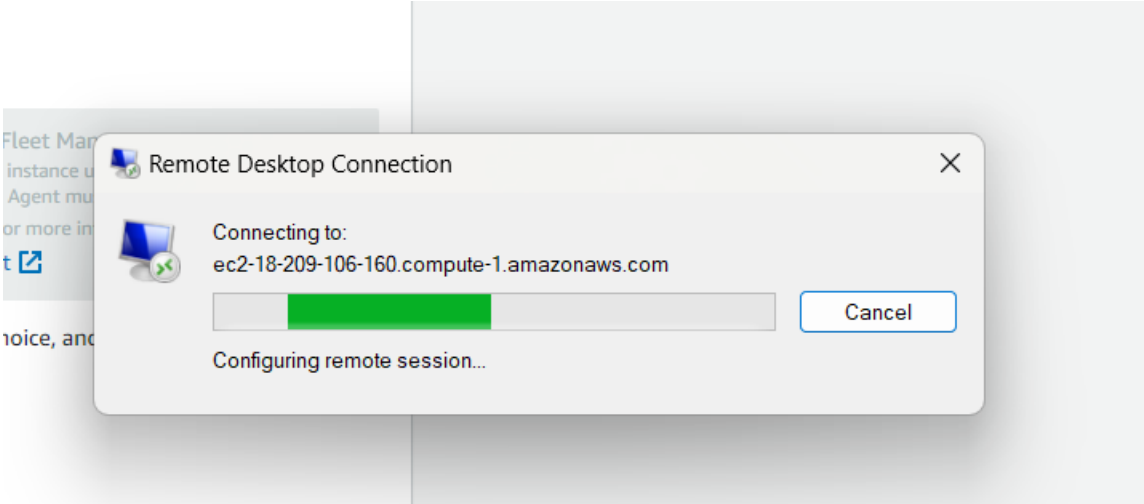
Step 14- Click on Download the Remote Desktop File .



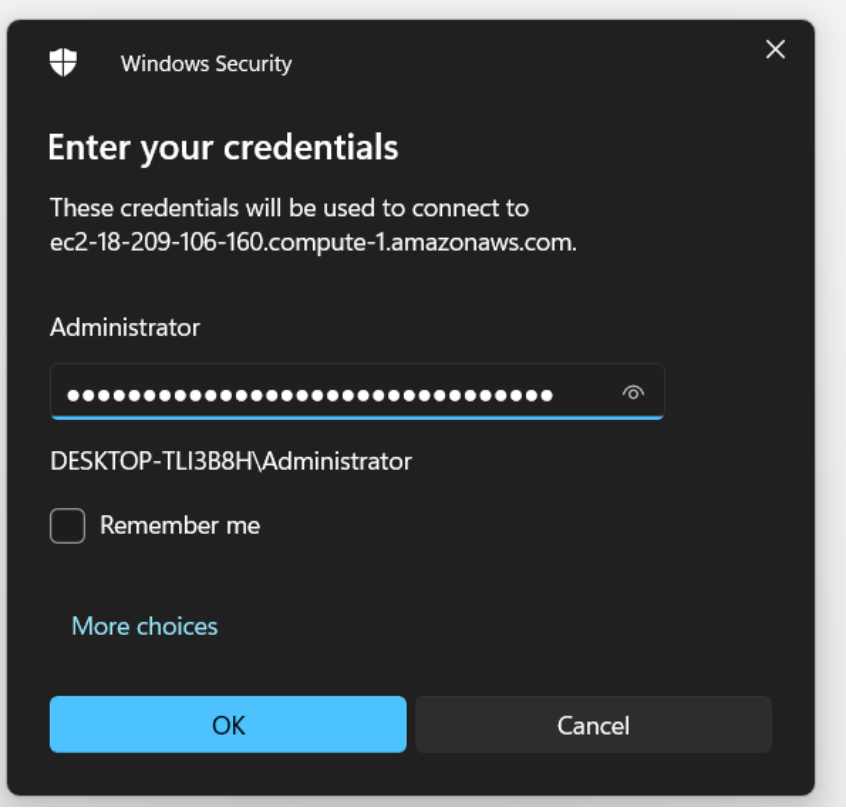
Step 15- Open the RDP File



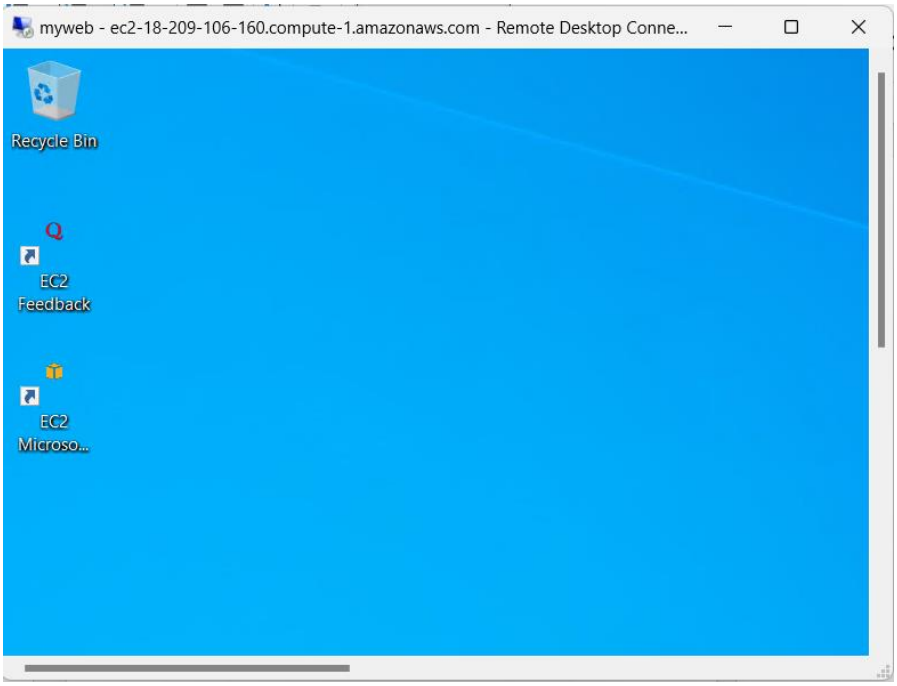
Step 16- Connect to the RDP



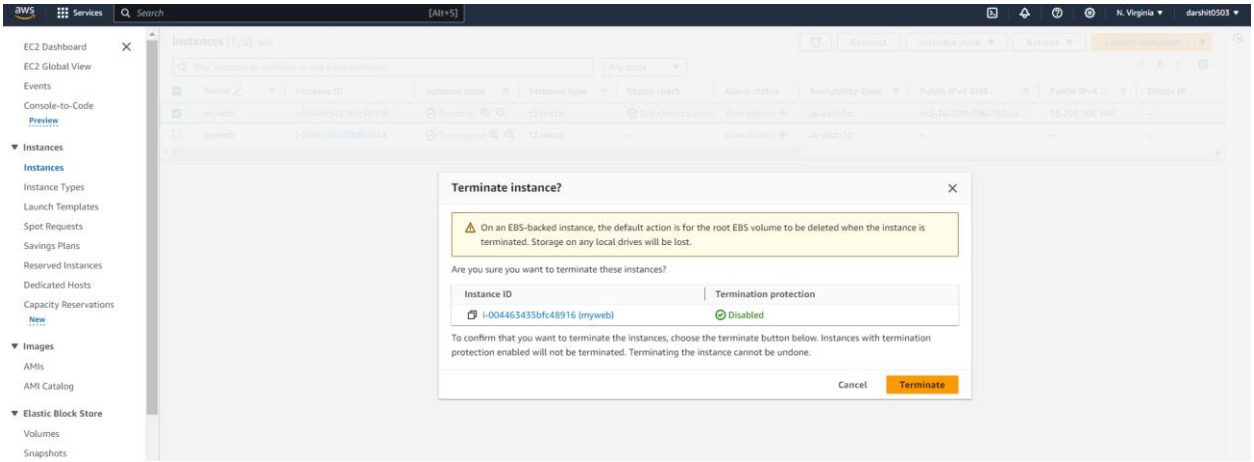
Step 17- Enter the password



Step 18- The Following Instance will popup

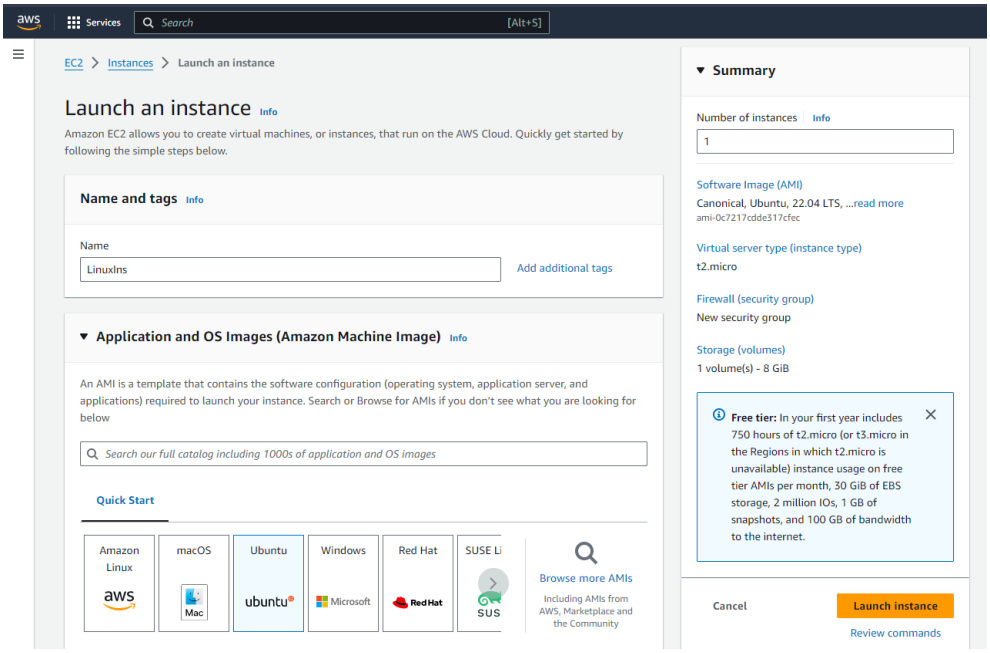


Step 19- Close the RDP and Go to Instances and Terminate the Instance

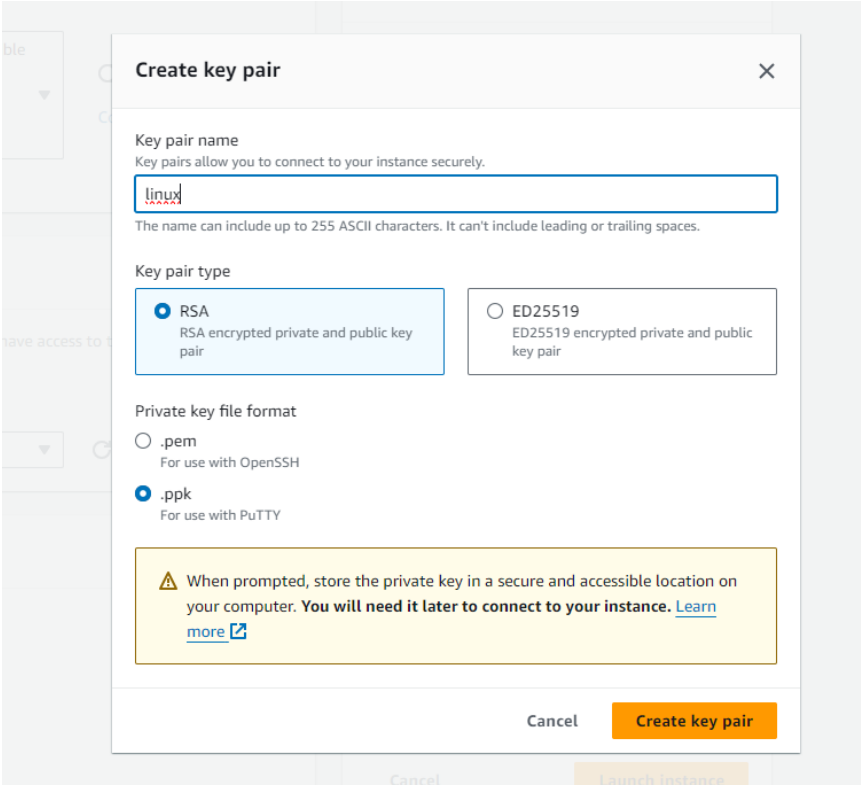


Implementing Ubuntu machine using AWS ec2 and execute the Linux commands.

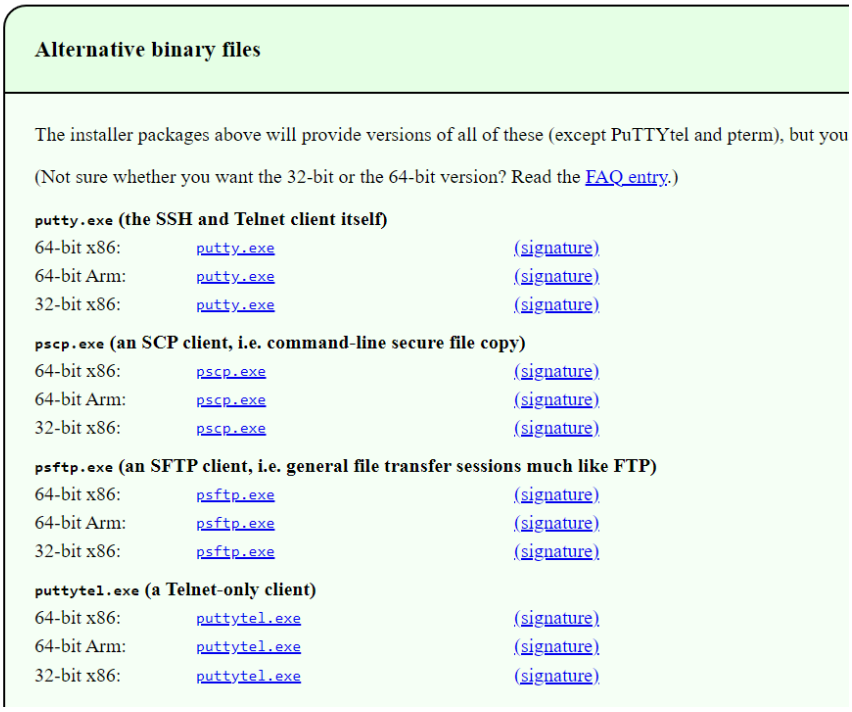
Step 20- Launch a New Instance for Linux and select Application and OS as Ubuntu



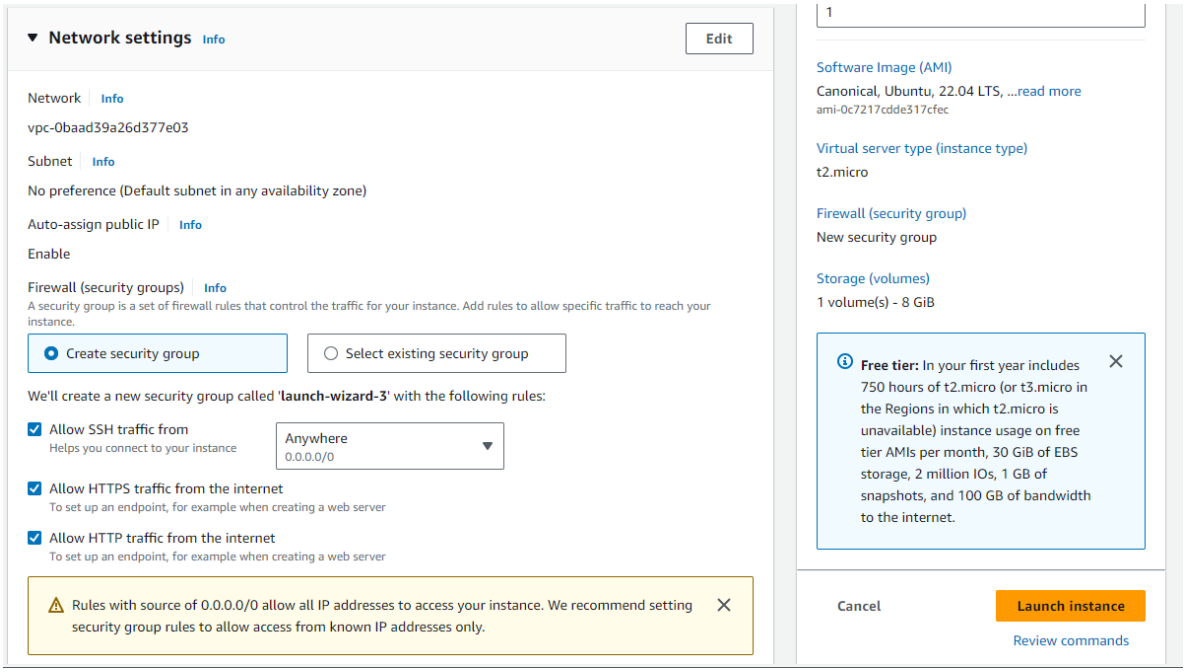
Step 21- Create a key pair and select ppk under the following



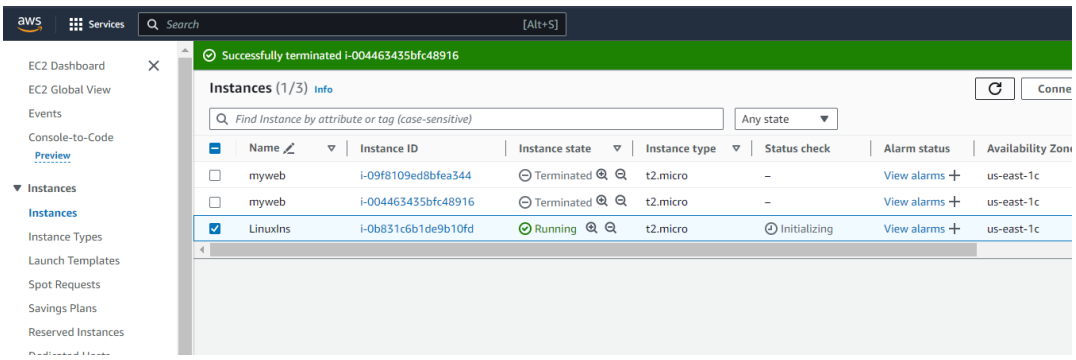
Step 22- Download Putty.exe from Google and select Alternative Binary Files (SSH and Talent Client Itself) and select 64 bit x 86



Step 22- Allow all the traffic under the Linux Instance and Launch it

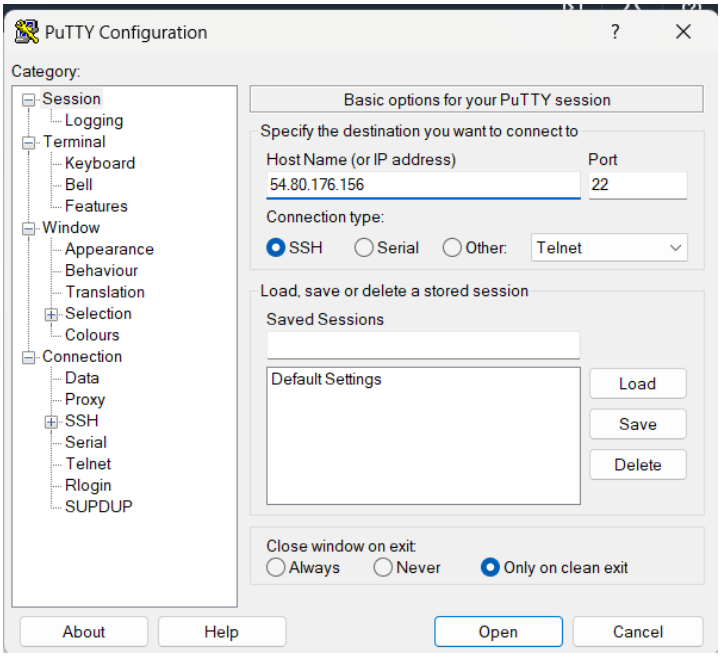


Step 23- After the Instance is successfully Launched Select the particular Linux

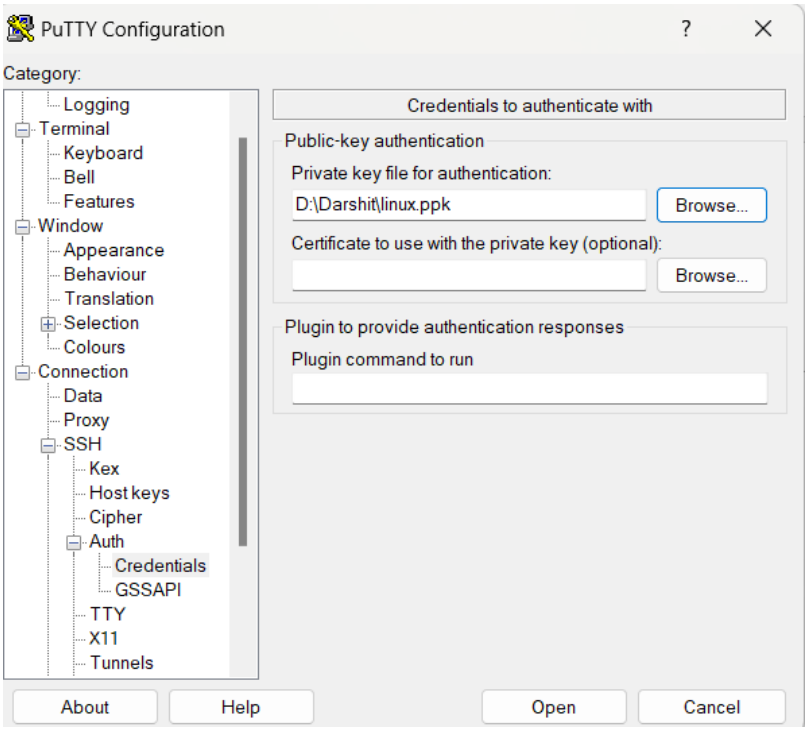


Step 24- Copy the Public IPV4 Address by selecting the Instance

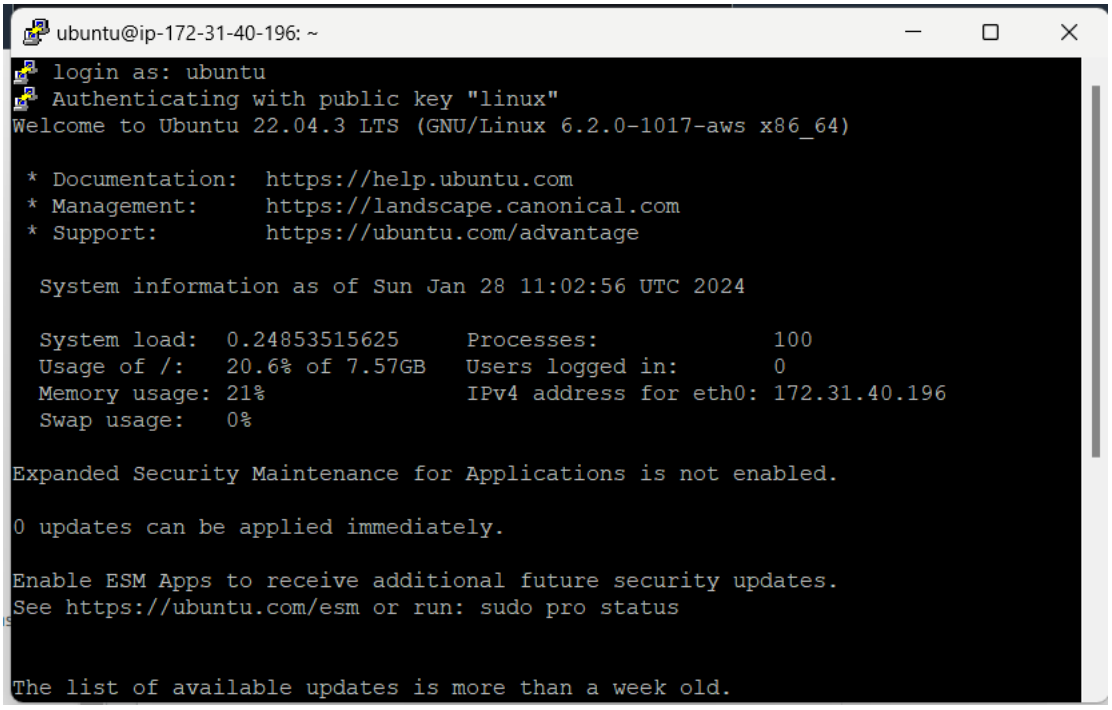
Step 25- Go to Putty and Paste the IP Address Copied



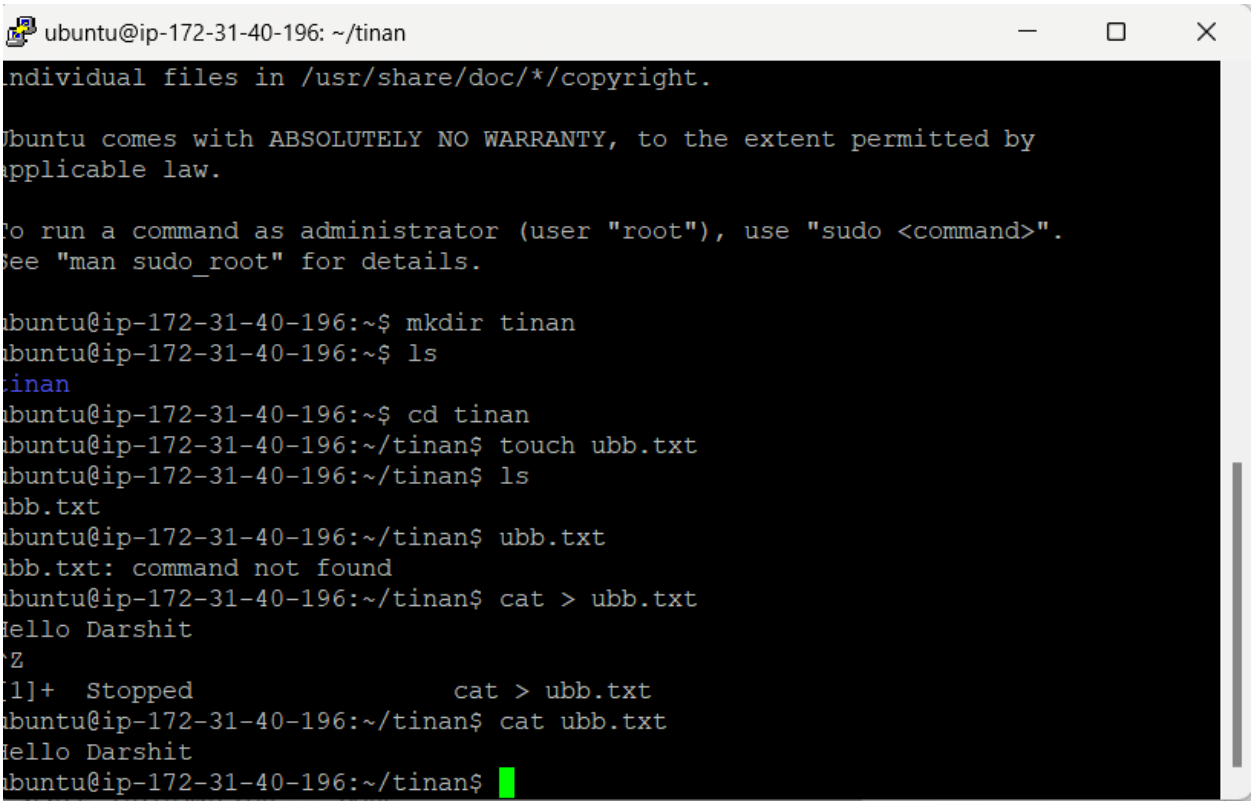
Step 26- Under the Putty Select Category -> SSH -> Auth -> Credentials -> Browse and select ppk file



Step 27- Click on open and “ACCEPT” and the following popup will appear as Ubuntu Name



Step 28- Run the Following Commands in Putty



Step 29- Run the Following Python Code in Ubuntu

```
ubuntu@ip-172-31-40-196:~$ mkdir test
ubuntu@ip-172-31-40-196:~$ cd test
ubuntu@ip-172-31-40-196:~/test$ cat > hello.py
Hello World
^Z
[2]+  Stopped                 cat > hello.py
ubuntu@ip-172-31-40-196:~/test$ python3 hello.py
  File "/home/ubuntu/test/hello.py", line 1
    Hello World
          ^^^^^
SyntaxError: invalid syntax
ubuntu@ip-172-31-40-196:~/test$ cat > hello.py
print("Hello World")
^Z
[3]+  Stopped                 cat > hello.py
ubuntu@ip-172-31-40-196:~/test$ python3 hello.py
Hello World
ubuntu@ip-172-31-40-196:~/test$
```

Step 30- Terminate the Instance and Close Putty