EC2(Elastic Compute Cloud)

- EC2 stands for Elastic Compute Cloud and the ec2 are used for creating new virtual servers or virtual machines on-demand AWS. They can be accessed from server and reduces physical storage and helps in deploying applications faster and can be created easily.

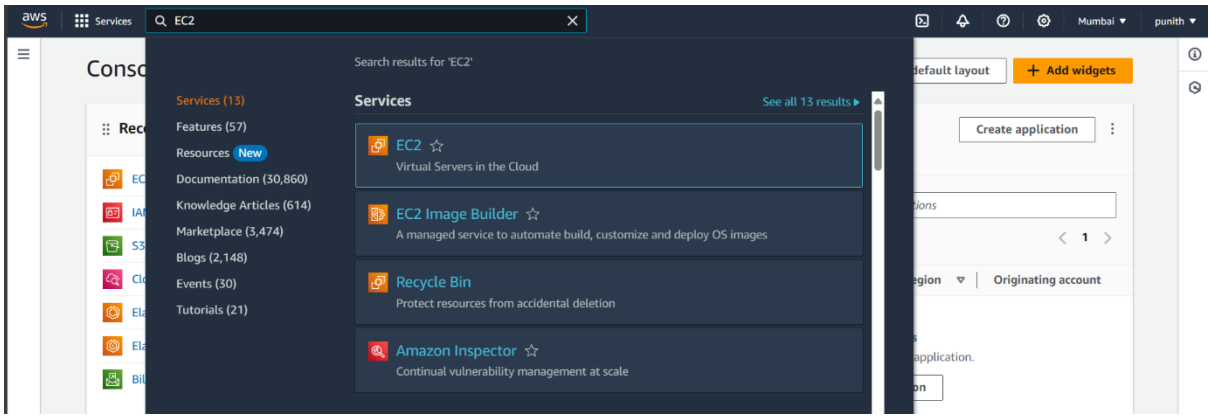
- Instances: Instances are the images of the respective OS like AMI, Ubuntu etc.. Instances define the size and the RAM, CPU and cost of an OS for using. There are instance types like general purpose, compute optimized, memory optimized and storage optimized instances.

- Key Pairs: Key pairs contains Public and Private Key of the instance and It secures the login information of the instance.

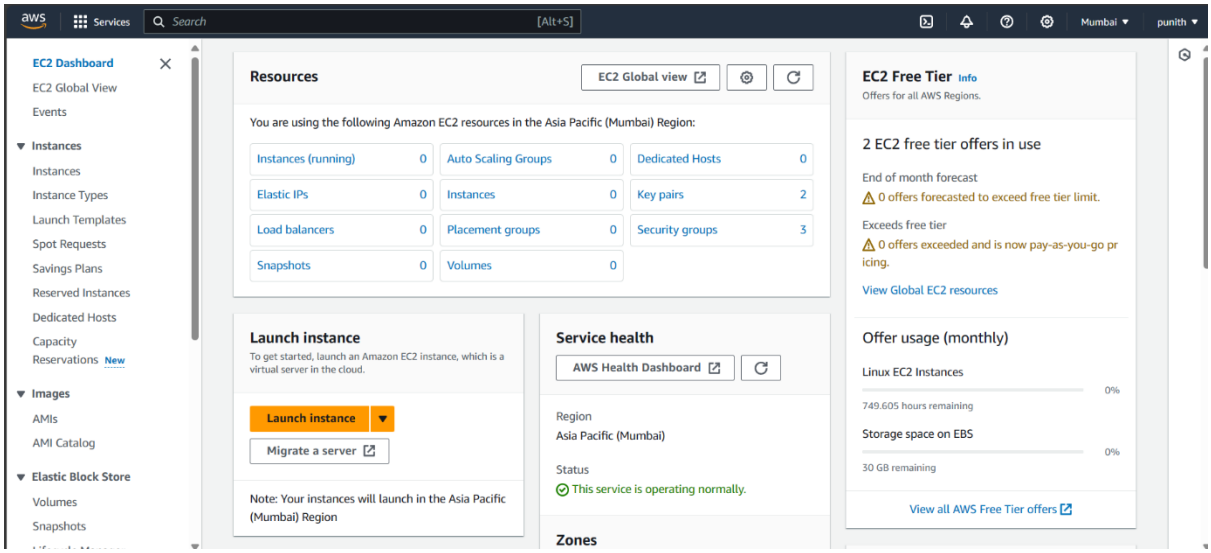
- Region and Availability Zones: Regions are the locations of AWS infrastructure like US East, Asia Pacific, Europe, etc. .There can be multiple Availability Zones in Single Region like N.Virginia, Mumbai, Tokyo etc.. and the Availability Zones contains many Data Centres.

The Hands-on Images has been attached and explained in detailed way below:

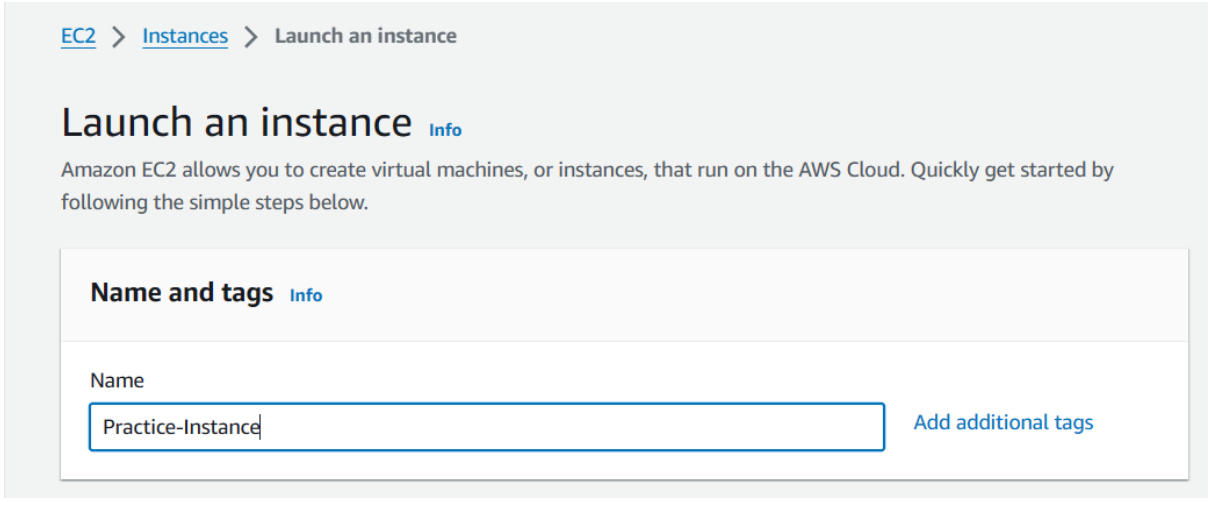
Search for EC2 in the AWS console.



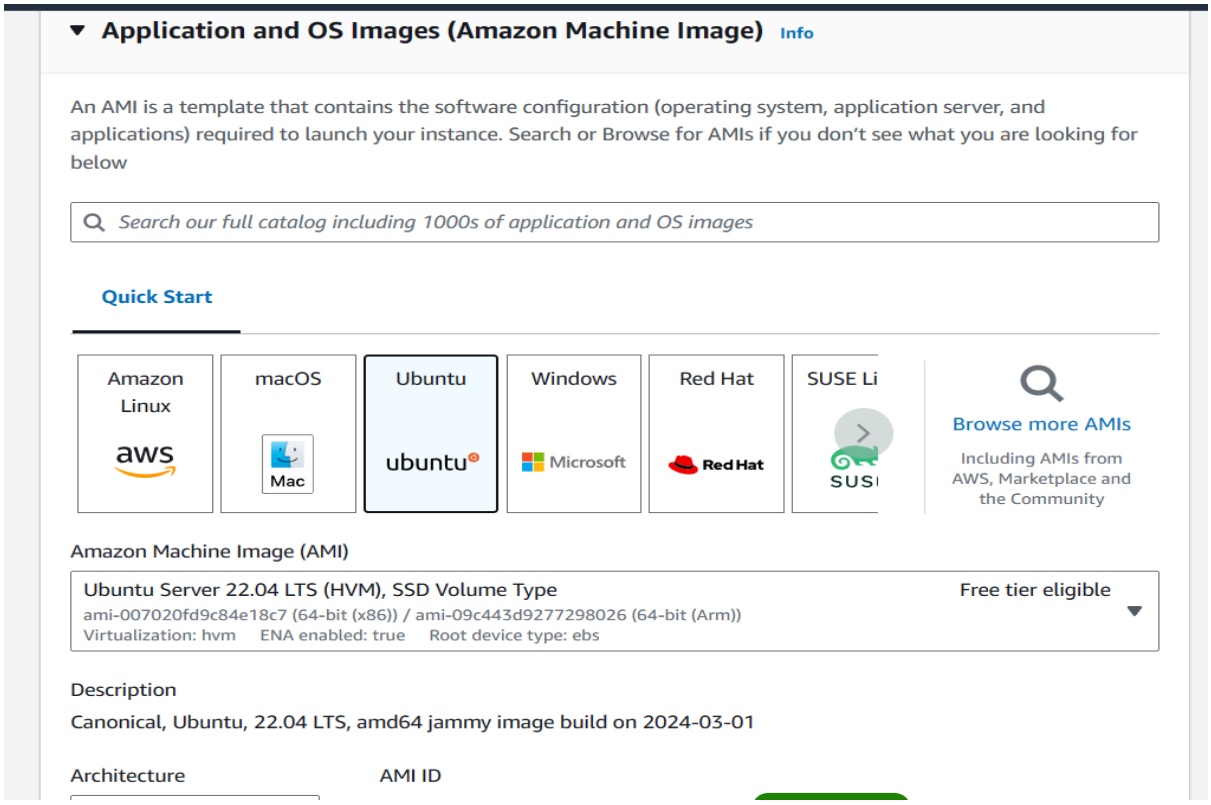
The EC2 dashboard gets displayed and Click on Launch Instance.



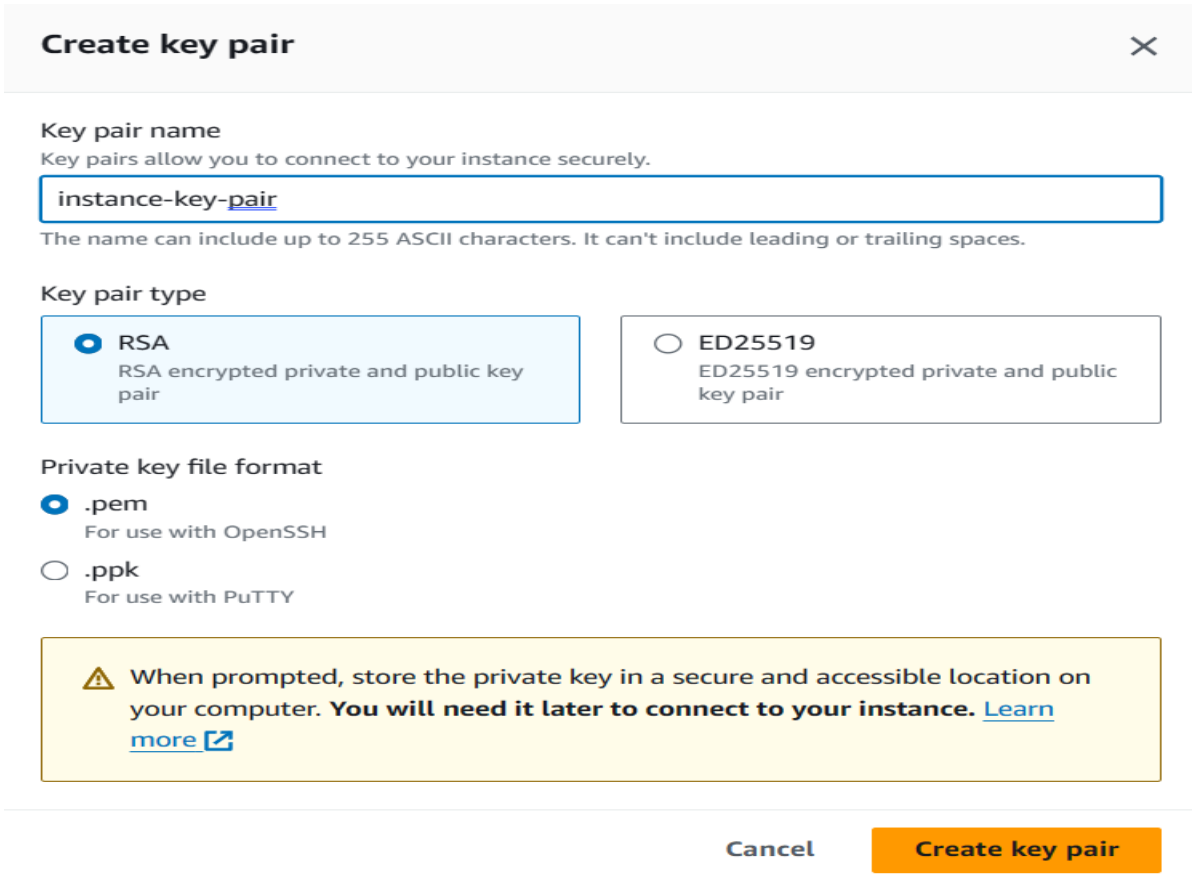
Name the Instance.



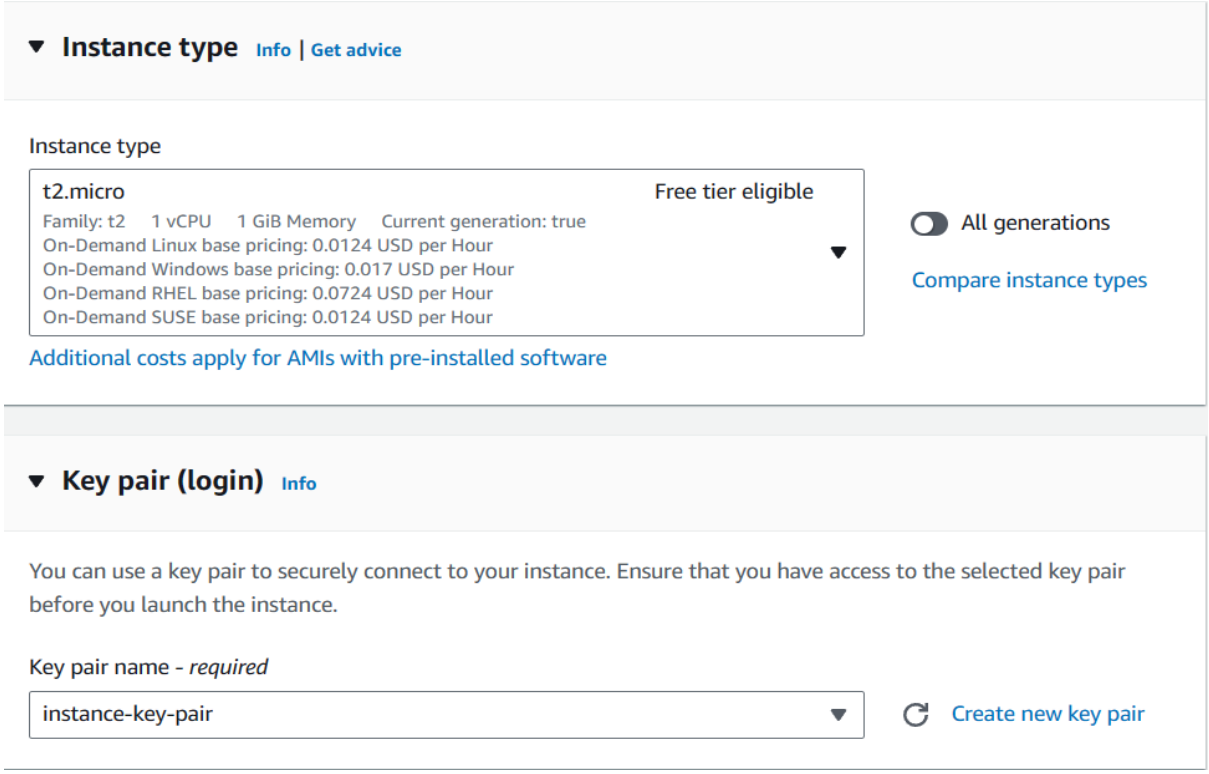
Select the OS the its version.



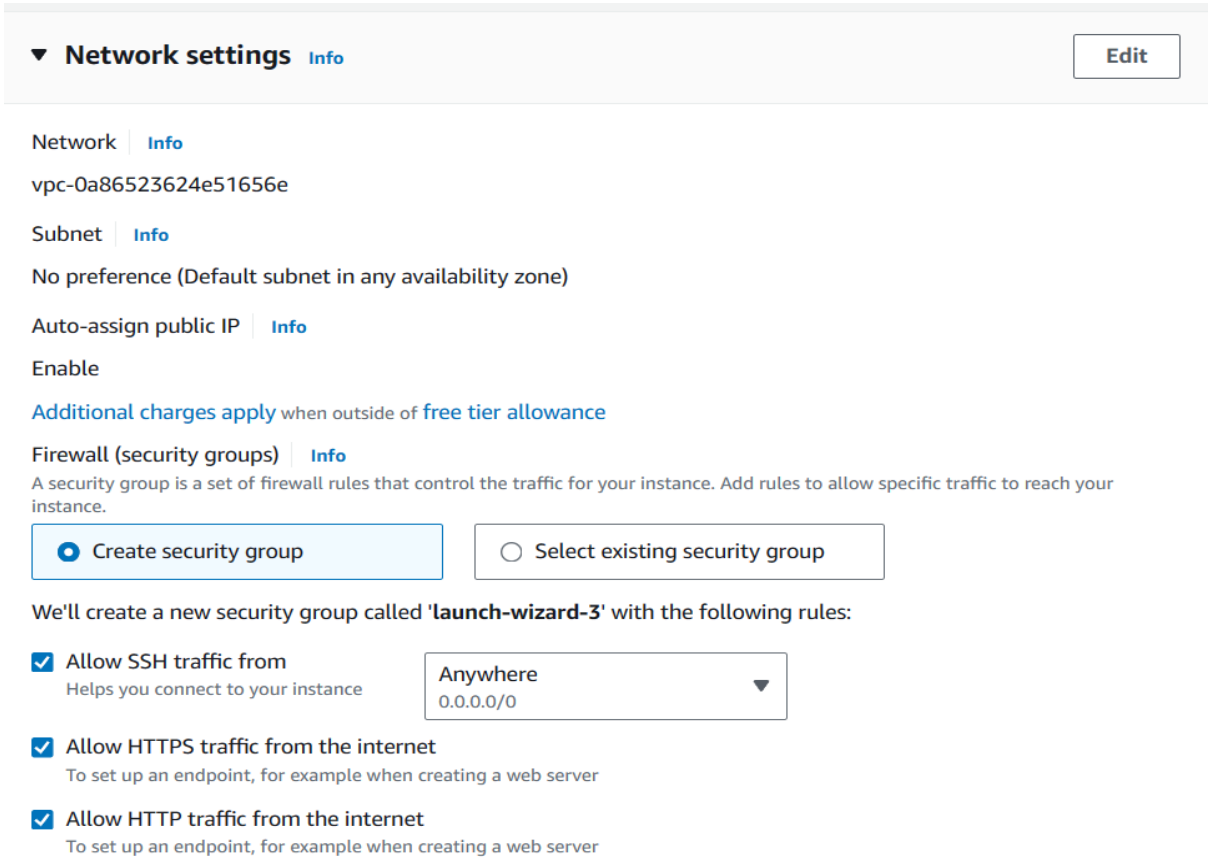
Create a new key-pair.



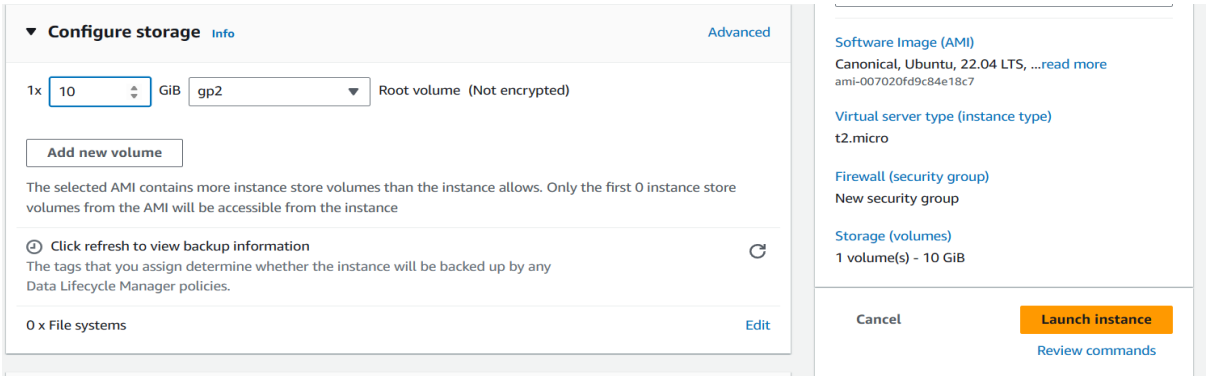
Select instance type and the key-pair created.



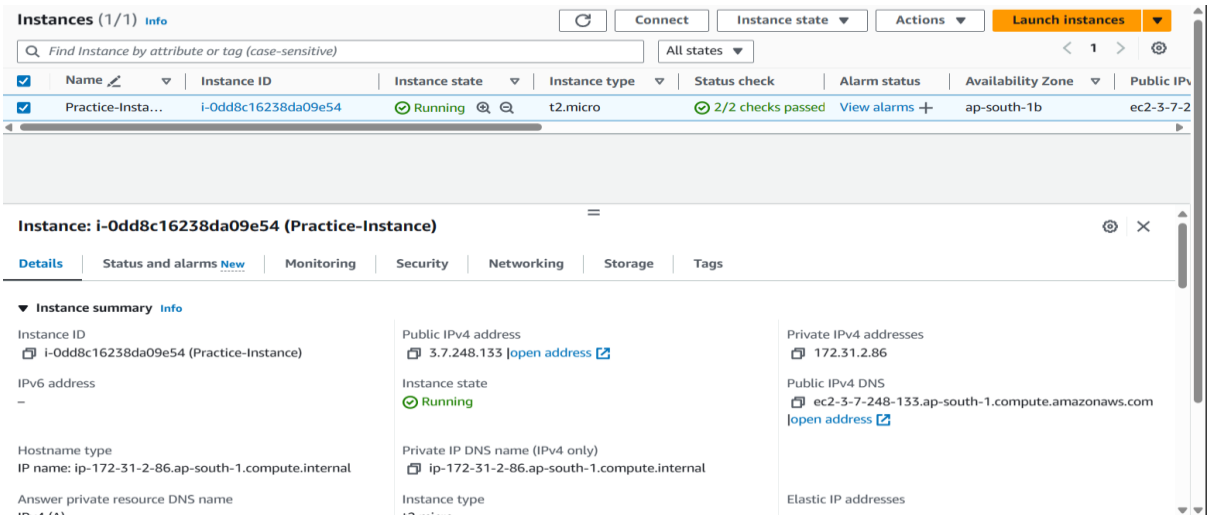
Check on all protocols to allow traffic from every protocol.



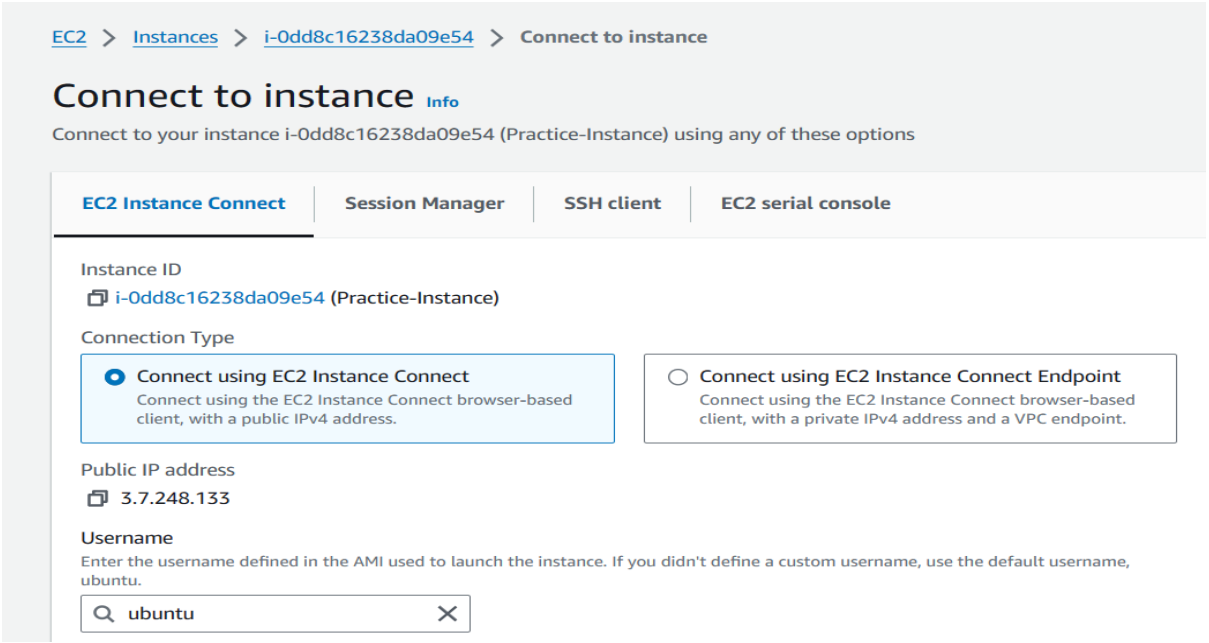
Select the Storage and Launch instance.



Here , we can view IP address of instance and status of the instance.

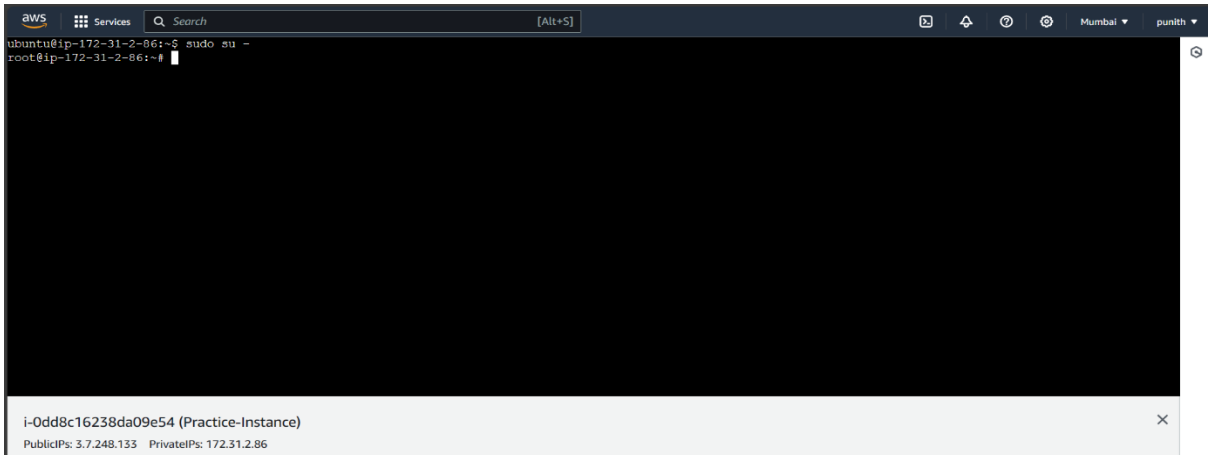


Now , we have many ways to connect ec2, Click on connect ec2 and we can use the instance on the web browser itself.

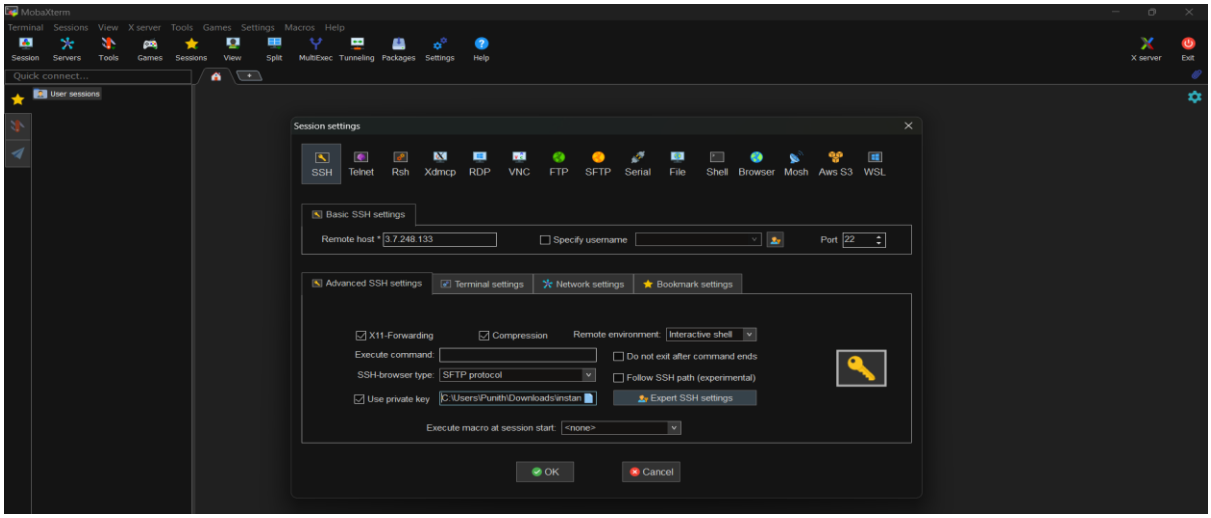


- Now , I am going to install Jenkins and Run Jenkins on the server using our instance created.

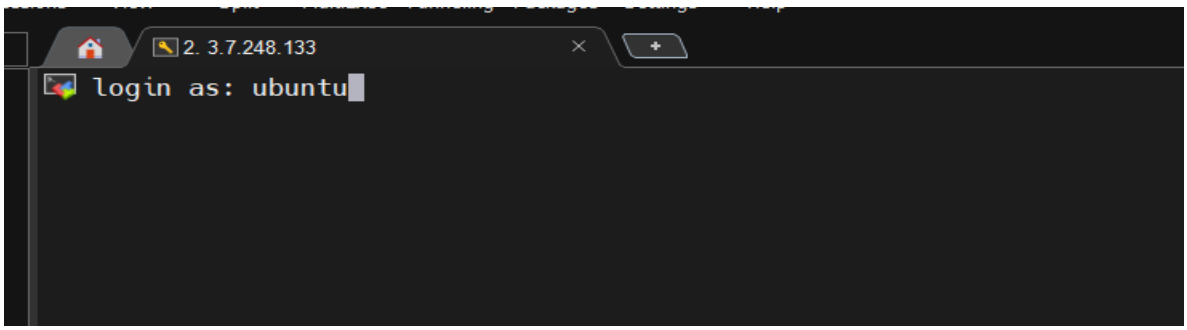
We get the CLI of the ubuntu on the web browser. Login into the root by sudo su – command.



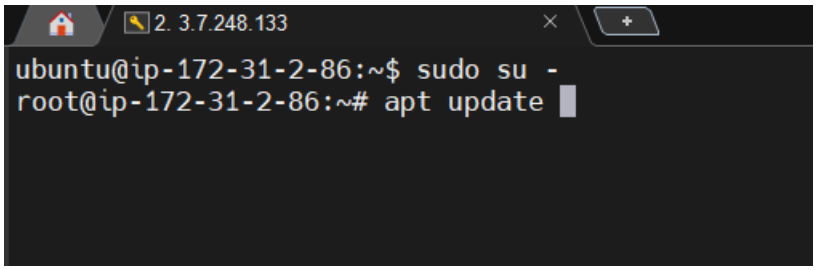
Other way of connecting ec2 is using MobaXterm. Here, we can connect using the .pem file that is creating at the time of launching an instance. Give the IP address and check the private key to connect .pem file.



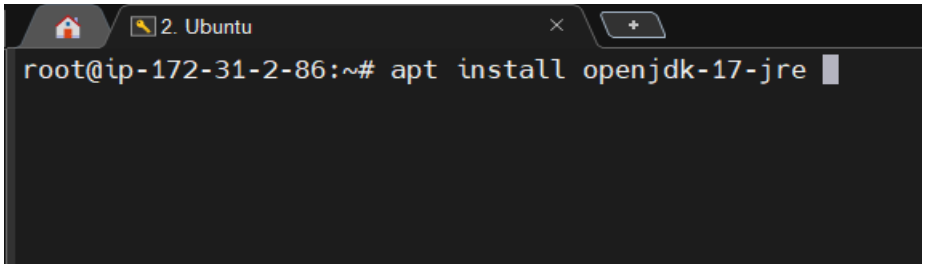
The default username for ubuntu instance is ‘ubuntu’.



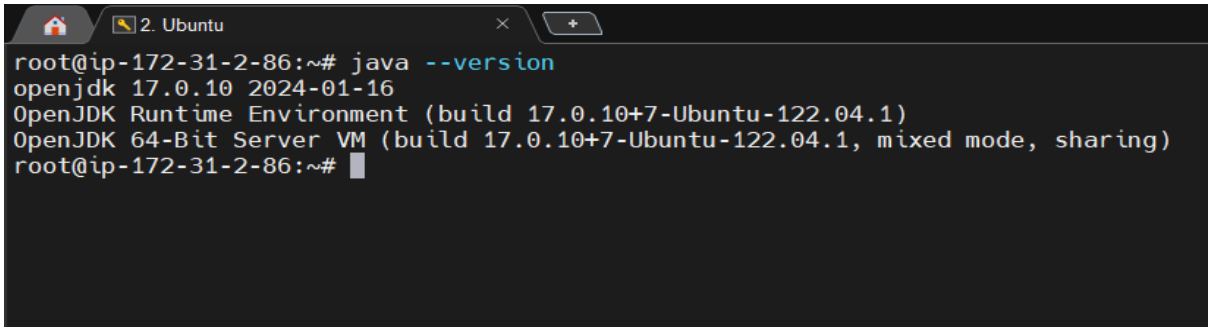
Enter ‘sudo su –‘ command to login to root and use ‘apt update’ command to update the packages.



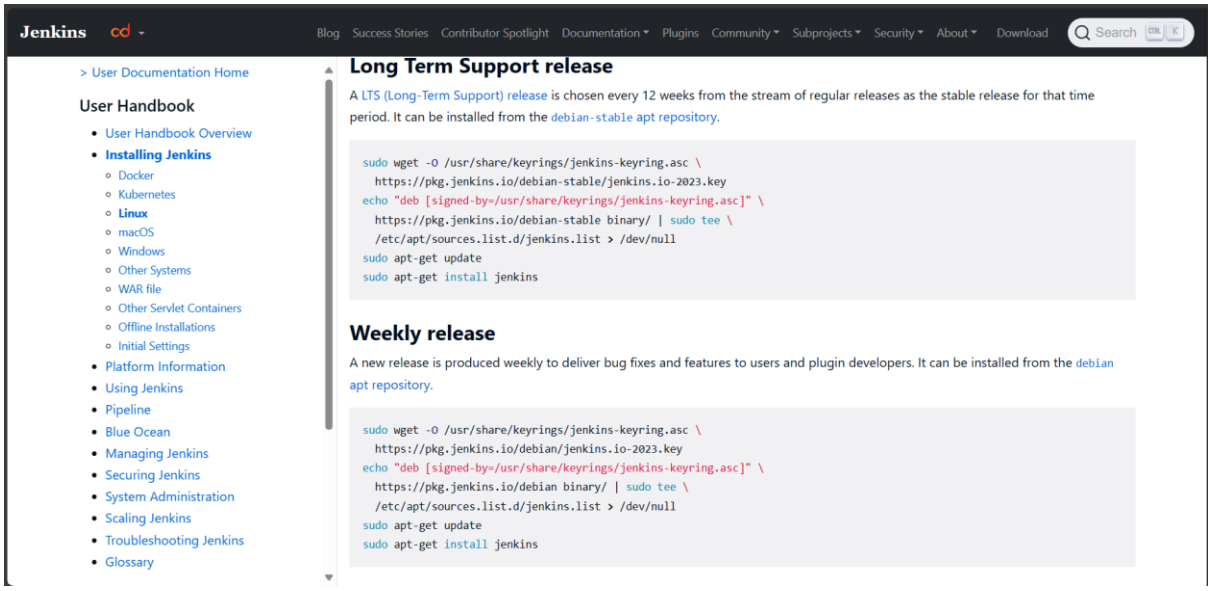
Install java.



After installing check whether java installed or not by following command.



Go to official Jenkins site and choose the release that you want to install.



Copy and paste on the terminal and click enter.

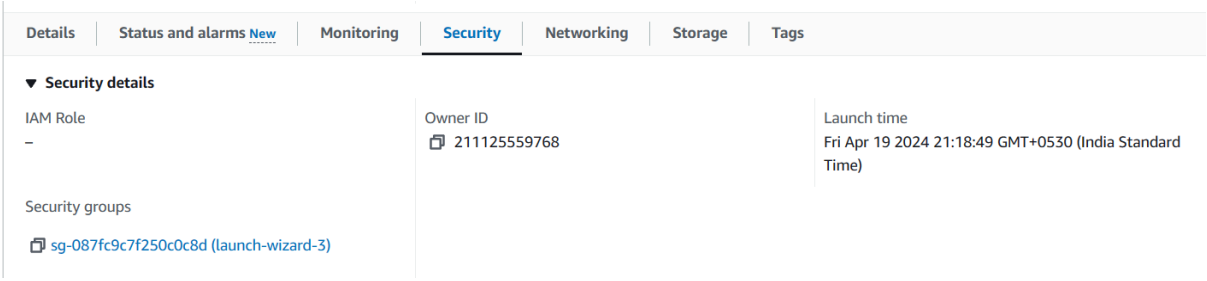
```
root@ip-172-31-2-86:~# sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
  https://pkg.jenkins.io/debian/jenkins.io-2023.key
echo "deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc]" \
  https://pkg.jenkins.io/debian binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null
sudo apt-get update
sudo apt-get install jenkins
```

After installing, check the status of Jenkins by ‘systemctl status jenkins’ .

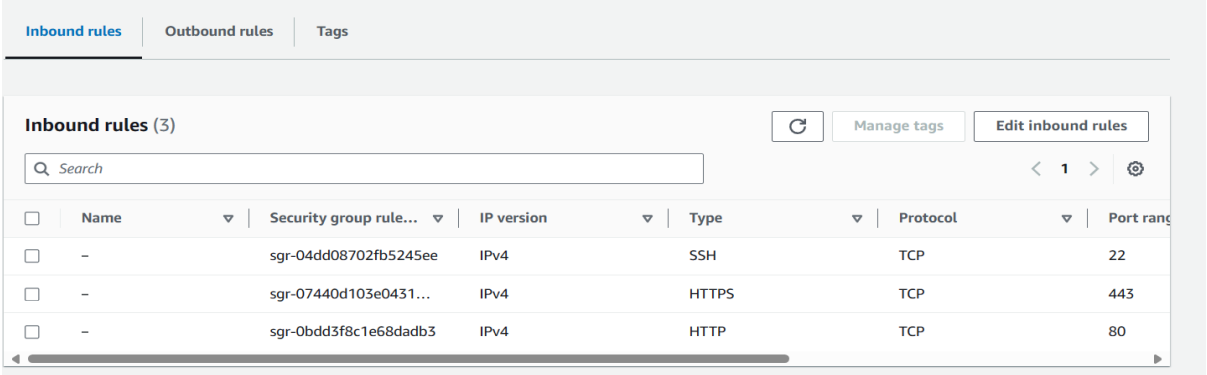
```
root@ip-172-31-2-86:~# systemctl status jenkins
● jenkins.service - Jenkins Continuous Integration Server
     Loaded: loaded (/lib/systemd/system/jenkins.service; enabled; vendor preset: enabled)
     Active: active (running) since Fri 2024-04-19 16:07:10 UTC; 1min 2s ago
   Main PID: 6031 (java)
      Tasks: 45 (limit: 1121)
     Memory: 280.2M
        CPU: 38.590s
     CGroup: /system.slice/jenkins.service
             └─6031 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080

Apr 19 16:06:39 ip-172-31-2-86 jenkins[6031]: ba035c30459d4a0eac537fe38cd1a734
Apr 19 16:06:39 ip-172-31-2-86 jenkins[6031]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Apr 19 16:06:39 ip-172-31-2-86 jenkins[6031]: ************************************************************
Apr 19 16:06:39 ip-172-31-2-86 jenkins[6031]: ************************************************************
Apr 19 16:06:39 ip-172-31-2-86 jenkins[6031]: ************************************************************
Apr 19 16:07:10 ip-172-31-2-86 jenkins[6031]: 2024-04-19 16:07:10.679+0000 [id=31]       INFO       jenkins.InitReactorRunner$1#onAttained: Completed initi
Apr 19 16:07:10 ip-172-31-2-86 jenkins[6031]: 2024-04-19 16:07:10.720+0000 [id=24]       INFO       hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up
Apr 19 16:07:10 ip-172-31-2-86 systemd[1]: Started Jenkins Continuous Integration Server.
Apr 19 16:07:10 ip-172-31-2-86 jenkins[6031]: 2024-04-19 16:07:10.825+0000 [id=47]       INFO       h.m.DownloadService$Downloadable#load: Obtained the upd
Apr 19 16:07:10 ip-172-31-2-86 jenkins[6031]: 2024-04-19 16:07:10.826+0000 [id=47]       INFO       hudson.util.Retrier#start: Performed the action check u
lines 1-20/20 (END)
```

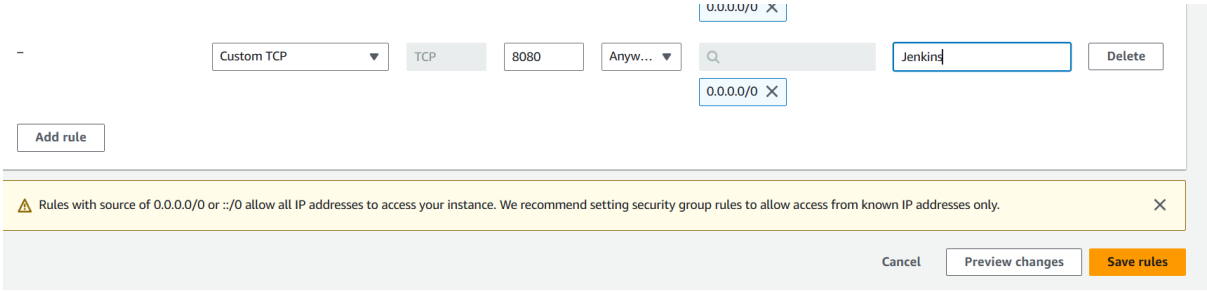
Comeback to instance and go to security and go to inbound rules.



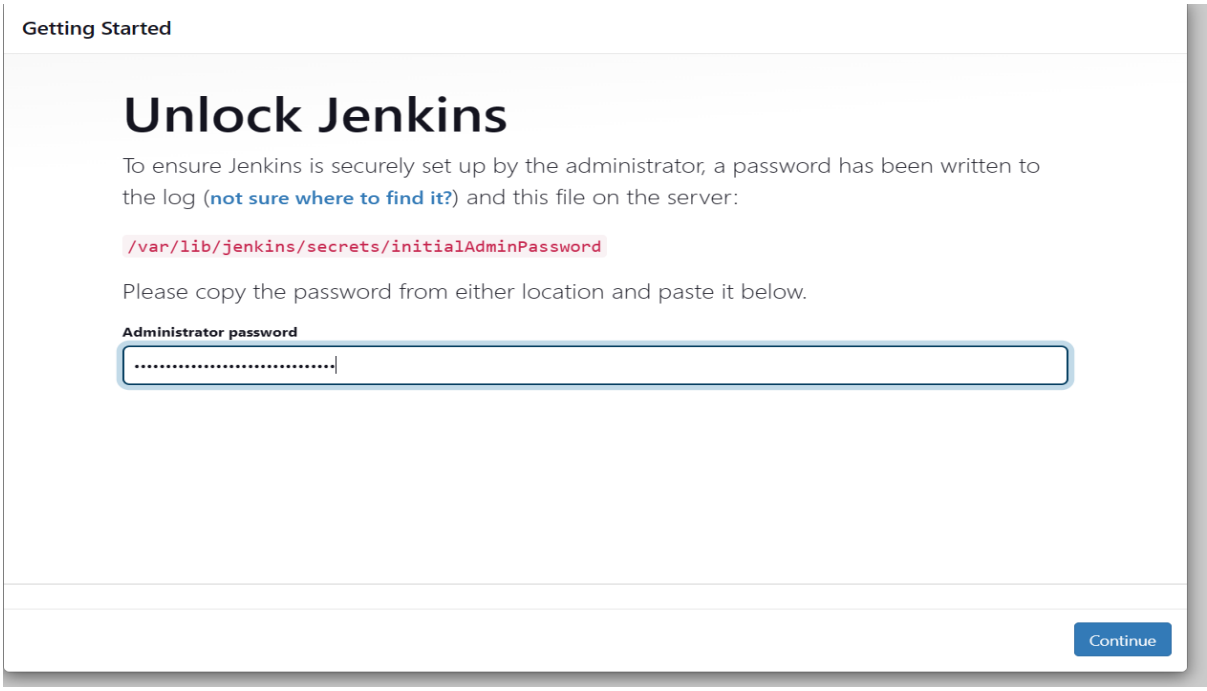
Inbound rules allows to define port , protocols and etc.. Click on Edit inbound rules.



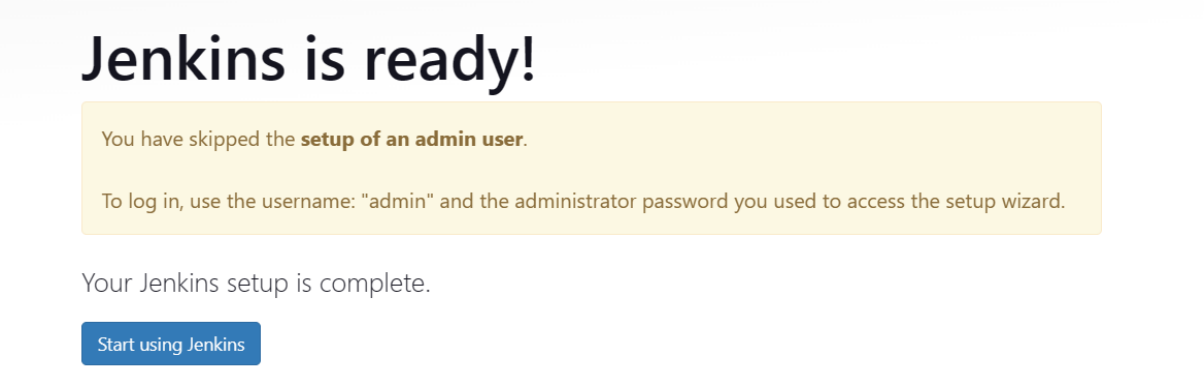
Add Rule and give the port ‘8080’ as Jenkins runs on this port. Save rules.



Access the Jenkins by https://IP_address_ofinstance:port . In my case, it is https://3.7.248.133:8080 .



Install the suggested plugins in Jenkins and start using Jenkins.Continue as Admin as of now.



This is how Jenkins dashboard looks like.