

# Advance DevOps lab

## Experiment 1

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**Semester : V**

**Branch : Information Technology**

### **1) What is DevOps ?**

Ans: DevOps is the combination of cultural philosophies, practises, and tools that improves an organization's capacity to deliver applications and services at high velocity: evolving and improving products more quickly than organisations using conventional software development and infrastructure management processes. Organizations are able to better service their clients and compete more successfully on the market because to this quickness.

### **2) What is AWS EC2? Why EC2?**

Ans: Users can rent virtual computers on which to execute their own computer programmes using Amazon Elastic Compute Cloud (EC2), a component of Amazon Web Services, the company's cloud computing platform.

The following features are offered by Amazon EC2:

1. Instances, or virtual computing environments
2. Amazon Machine Images (AMIs), which are pre-configured templates for your instances that contain the operating system and any applications you require for your server.

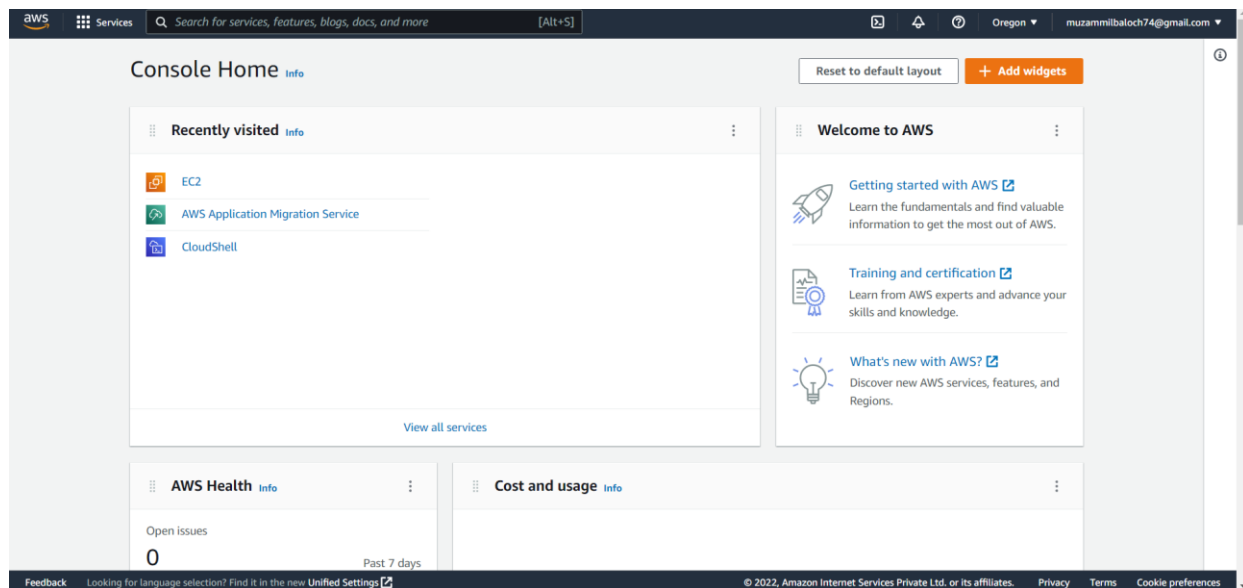
3. Various CPU, memory, storage, and networking settings for your instances, referred to as instance types
4. Using key pairs, safeguard your instances' login information (AWS stores the public key, and you store the private key in a secure place)
5. Secure login information for your instances using key pairs (AWS stores the public key, and you store the private key in a secure place)
6. Instance store volumes are storage volumes for transient data that disappears when you suspend, hibernate, or terminate your instance.
7. Amazon Elastic Block Store (Amazon EBS)-based persistent storage volumes for your data, also known as Amazon EBS volumes
8. Regions and Availability Zones are different physical locations for your resources, including instances and Amazon EBS volumes.
9. a firewall that lets you use security groups to define the protocols, ports, and source IP ranges that can access your instances
10. Elastic IP addresses, or static IPv4 addresses, are used in dynamic cloud computing.
11. Tags are metadata that you can create and give to your Amazon EC2 resources.
12. Virtual private clouds are virtual networks that can be created that are conceptually isolated from the rest of the AWS Cloud and can optionally connect to your own network (VPCs)

**3) Launch two instances of AWS EC2, one in windows and another in ubuntu .  
Get connected to instances using RDP and MobaXterm client software.  
Explain each step of EC2 creation and launching with the help of screenshots.**

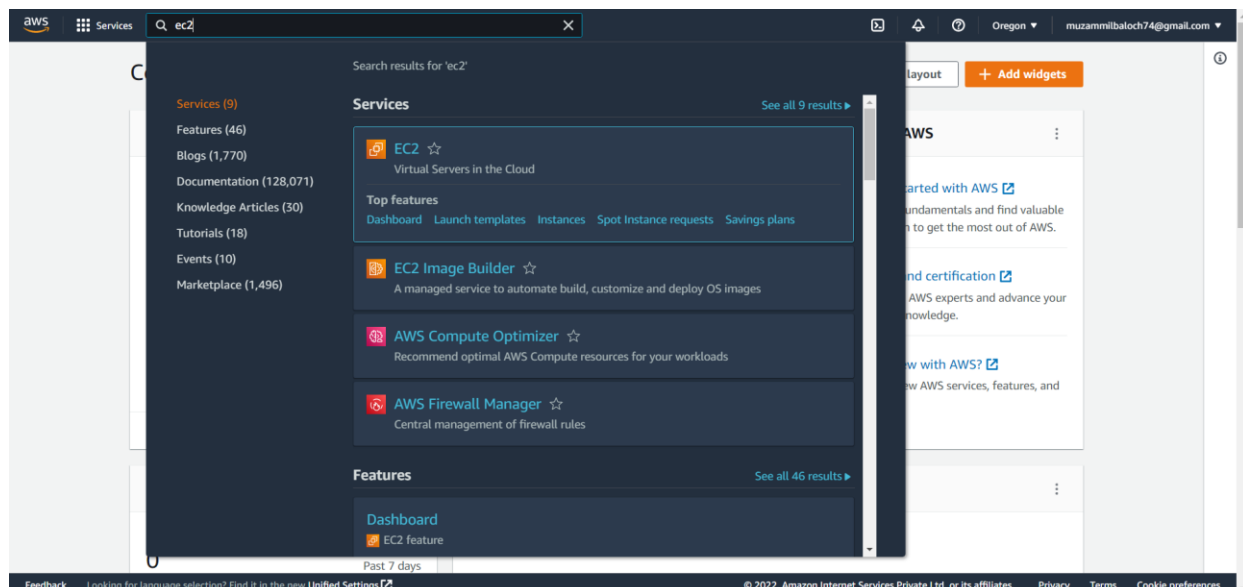
**Open google.com form both the instances, search your own name.**

(a) Windows

Step 1: Management Console Dashboard



Step 2: Click on services and then click on EC2



## Step 3: Launch instance

The screenshot shows the AWS Management Console interface for launching an EC2 instance. The top navigation bar includes the AWS logo, a search bar, and the user's account information (Oregon, muzamillaloch74@gmail.com). The left sidebar contains navigation links for 'New EC2 Experience', 'EC2 Dashboard', 'Events', 'Tags', 'Limits', 'Instances', 'Images', 'AMIs', and 'AMI Catalog'. The main content area is titled 'Resources' and displays a table of EC2 resources in the US West (Oregon) Region:

Resource	Count
Instances (running)	0
Dedicated Hosts	0
Elastic IPs	0
Instances	0
Key pairs	0
Load balancers	0
Placement groups	0
Security groups	1
Snapshots	0
Volumes	0

Below the table, there is a 'Launch instance' button and a 'Migrate a server' link. A note states: 'Note: Your instances will launch in the US West (Oregon)'. The 'Service health' section shows the region as 'US West (Oregon)' and the status as 'This service is operating normally'. The 'Account attributes' section lists supported platforms, VPC, Default VPC, Settings, EBS encryption, Zones, EC2 Serial Console, Default credit specification, and Console experiments. The 'Explore AWS' section offers promotional messages about better price performance and saving on EC2 with Spot Instances.

## Step 4: Select Windows

The screenshot shows the AWS Management Console interface for selecting an Amazon Machine Image (AMI). The top navigation bar is the same as in Step 3. The left sidebar shows the 'Application and OS Images (Amazon Machine Image)' section. The main content area is titled 'Application and OS Images (Amazon Machine Image)' and includes a search bar and a 'Quick Start' section. The 'Quick Start' section displays a grid of AMIs from various providers: Amazon Linux, Ubuntu, Windows, Red Hat, and SUSE Linux. The 'Windows' AMI is selected, showing details for 'Microsoft Windows Server 2019 Base' (ami-01f14dc60171d8d7b). The details include the architecture (64-bit (x86)), AMI ID (ami-01f14dc60171d8d7b), and a 'Free tier eligible' dropdown. The 'Summary' section on the right shows the configuration for the instance: Number of instances (1), Software Image (AMI) (Microsoft Windows Server 2019 ...read more), Virtual server type (instance type) (t2.micro), Firewall (security group) (New security group), and Storage (volumes) (1 volume(s) - 30 GiB). A 'Free tier' notification states: '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'. The bottom of the page includes a 'Launch instance' button and a 'Cancel' button.

## Step 5: Select instance with free tier

Amazon Machine Image (AMI)

Microsoft Windows Server 2019 Base  
ami-01f14dc60171d8d7b (64-bit (x86))  
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

Description

Microsoft Windows Server 2019 with Desktop Experience Locale English AMI provided by Amazon

Q

t1.micro  
Family: t1 1 vCPU 0.612 GiB Memory  
On-Demand Linux pricing: 0.02 USD per Hour  
On-Demand Windows pricing: 0.02 USD per Hour

Free tier eligible

t2.nano  
Family: t2 1 vCPU 0.5 GiB Memory  
On-Demand Linux pricing: 0.0058 USD per Hour  
On-Demand Windows pricing: 0.0081 USD per Hour

t2.micro  
Family: t2 1 vCPU 1 GiB Memory  
On-Demand Linux pricing: 0.0116 USD per Hour  
On-Demand Windows pricing: 0.0162 USD per Hour

Free tier eligible

t2.m1.micro  
Family: t2 1 vCPU 1 GiB Memory  
On-Demand Linux pricing: 0.0116 USD per Hour  
On-Demand Windows pricing: 0.0162 USD per Hour

Free tier eligible

Compare instance types

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.

Summary

Number of instances Info  
1

Software Image (AMI)  
Microsoft Windows Server 2019 ...read more  
ami-01f14dc60171d8d7b

Virtual server type (instance type)  
t2.micro

Firewall (security group)  
New security group

Storage (volumes)  
1 volume(s) - 30 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

Cancel Launch Instance

## Step 6: Create a login key which is required for logging in to the instance

Create key pair

Key pairs allow you to connect to your instance securely.

Enter the name of the key pair below. 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](#)

Key pair name

Enter key pair name

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

Private key file format

☒ .pem  
For use with OpenSSH

☐ .ppk  
For use with PuTTY

Cancel Create key pair

Instance type

t2.micro  
Family: t2 1 vCPU 1 GiB Memory  
On-Demand Linux pricing: 0.0116 USD per Hour  
On-Demand Windows pricing: 0.0162 USD per Hour

Free tier eligible

Compare instance types

Summary

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

Proceed without a key pair (Not recommended)

For Windows instances, you use a key pair to decrypt the administrator's password.

Network settings

Network

vpc-5ed96bb603d0b9a06

Subnet

No preference (Default subnet in any availability zone)

Auto-assign public IP

Enable

## ▼ Summary

Number of instances [Info](#)

1

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 30 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 per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.



Cancel

Launch instance

Step 7: Security: Select Anywhere so that we can access the instance from any IP address.

The screenshot shows the AWS Management Console interface for the 'Launch wizard'. The 'Network settings' tab is active, showing options for Network (vpc-0ed86bb603d0b9a06), Subnet (No preference), and Auto-assign public IP (Enable). Under 'Firewall (security groups)', the 'Create security group' option is selected. A rule is being created for 'Allow RDP traffic from' with the source set to 'Anywhere' (0.0.0.0/0). A warning message states: '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.' The 'Summary' tab on the right shows 'Number of instances' as 1, 'Virtual server type' as t2.micro, 'Firewall' as 'New security group', and 'Storage' as 1 volume(s) - 30 GiB. A 'Free tier' notification is displayed, stating that the first year includes 750 hours of t2.micro usage. The 'Launch instance' button is visible at the bottom right.

Step 8: Launch instance

Success message will be shown after successfully creation of instance

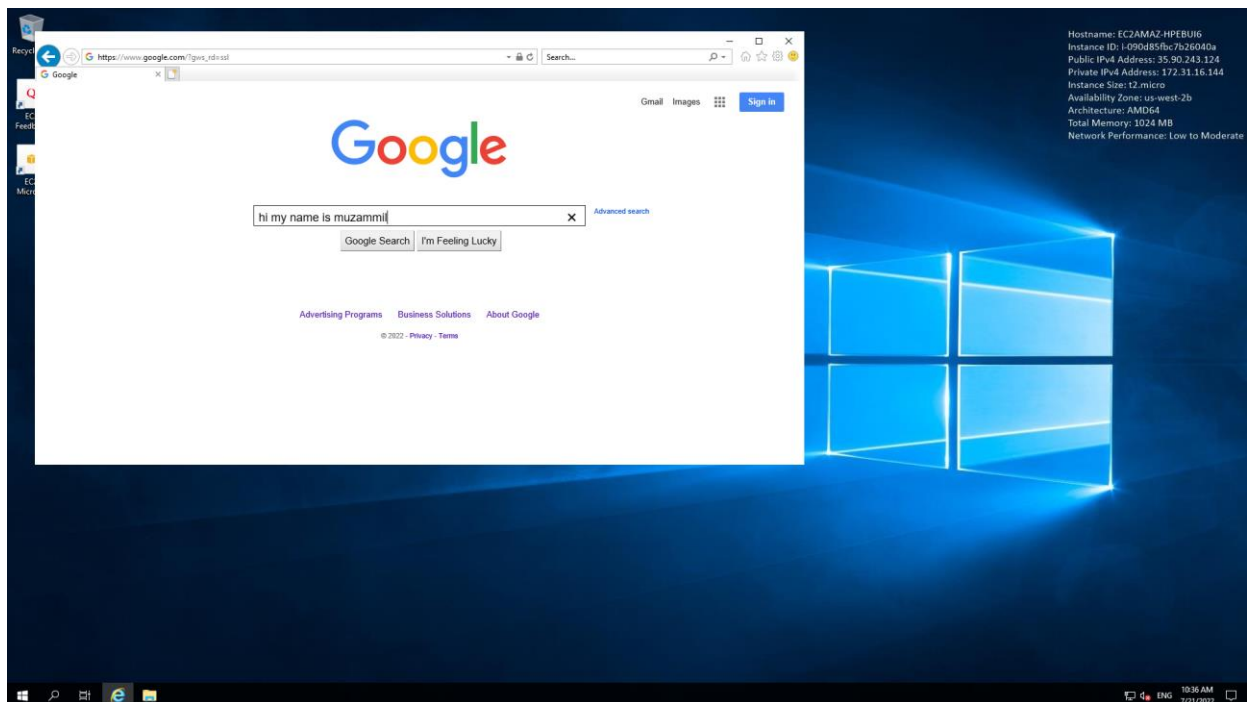
The screenshot shows the AWS Management Console interface after the successful launch of an EC2 instance. The 'Success' message is displayed, stating 'Successfully initiated launch of instance (i-090d85fbc7b26040a)'. Below the message, there is a 'Launch log' link. The 'Next Steps' section provides guidance on getting notified of estimated charges, how to connect to the instance, and a link to view more resources. The 'View all instances' button is visible at the bottom right.

## Step 9: RDP connection :

For connection we have to download the desktop file as shown in the image below

And have to decrypt the password which we downloaded by login key in the form of .pem file After that simply run the desktop file . the instance will start running.

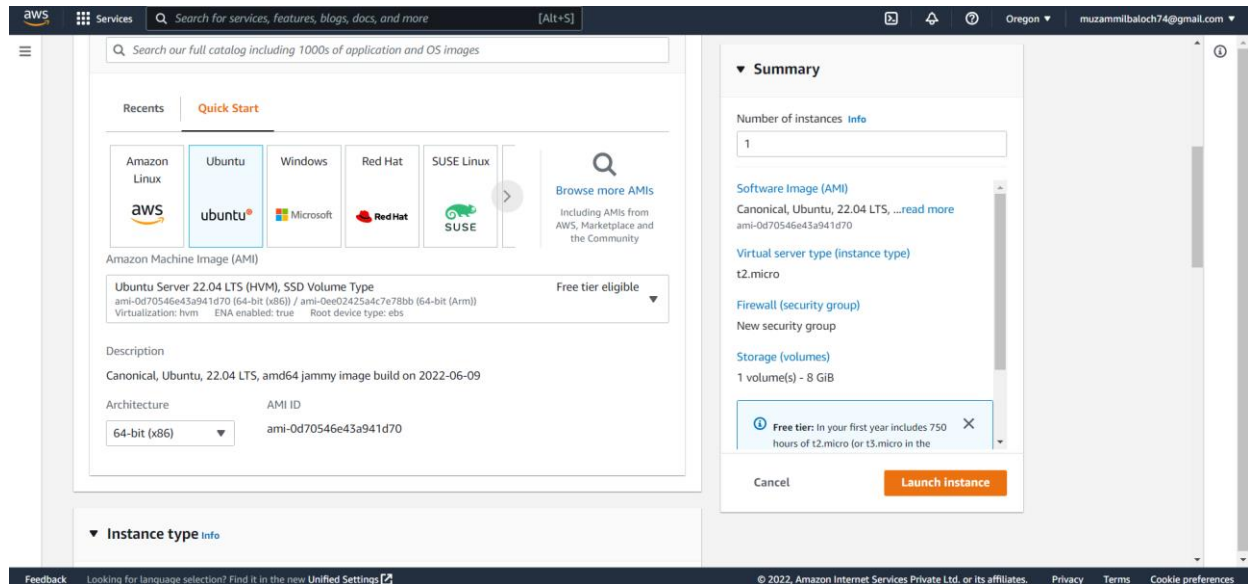
## Step 10: Opening google.com to search name



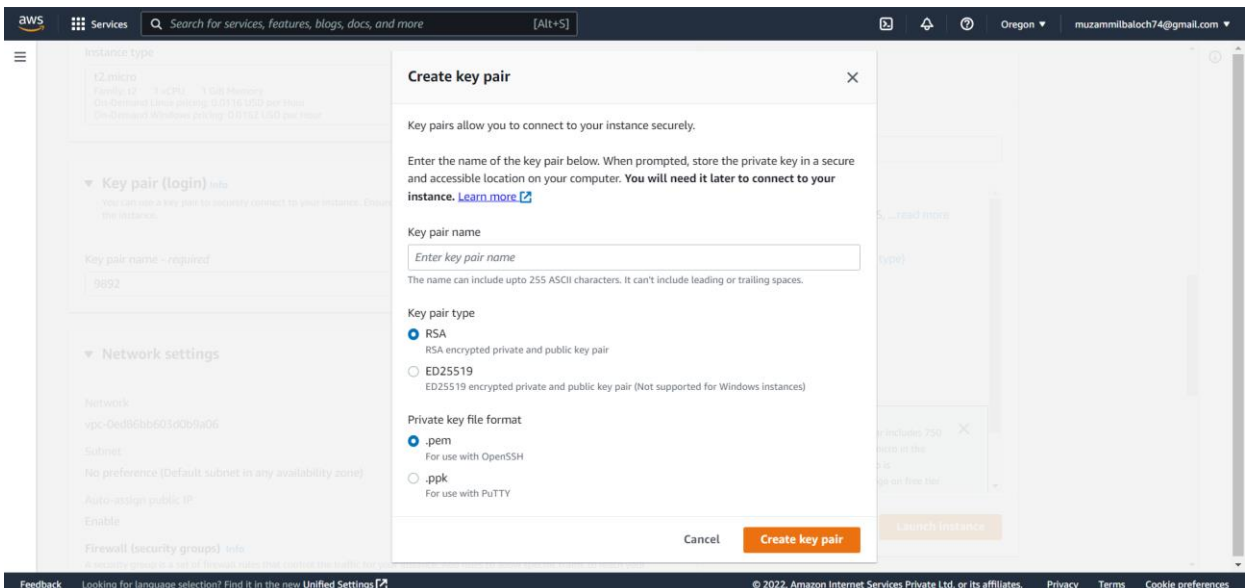


## (b) For ubuntu:

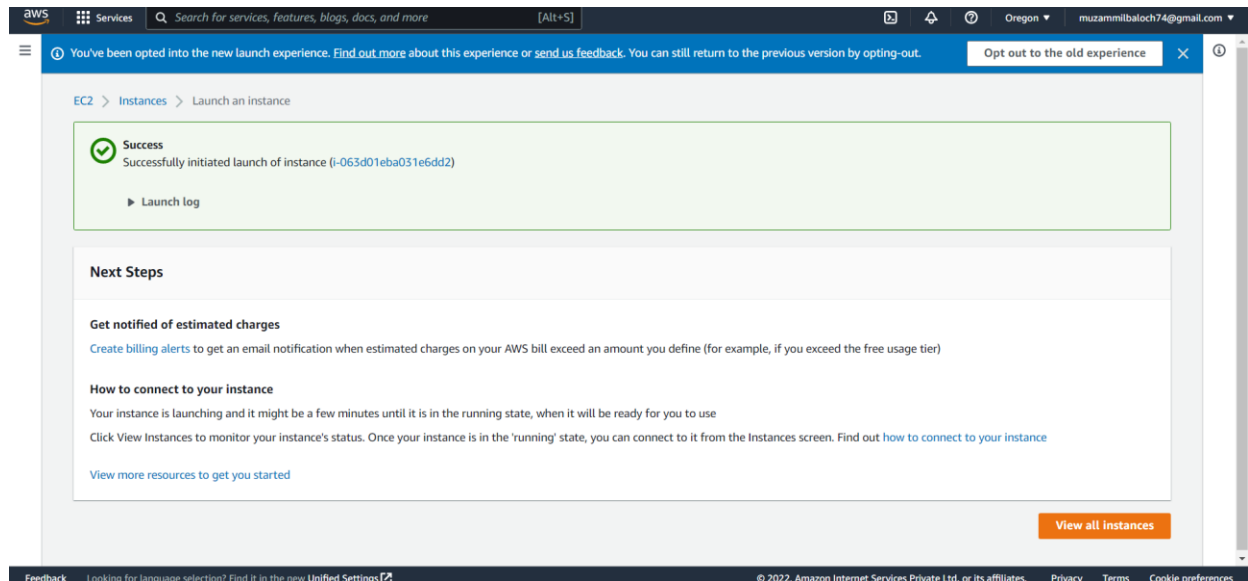
### Step 1: Select ubuntu



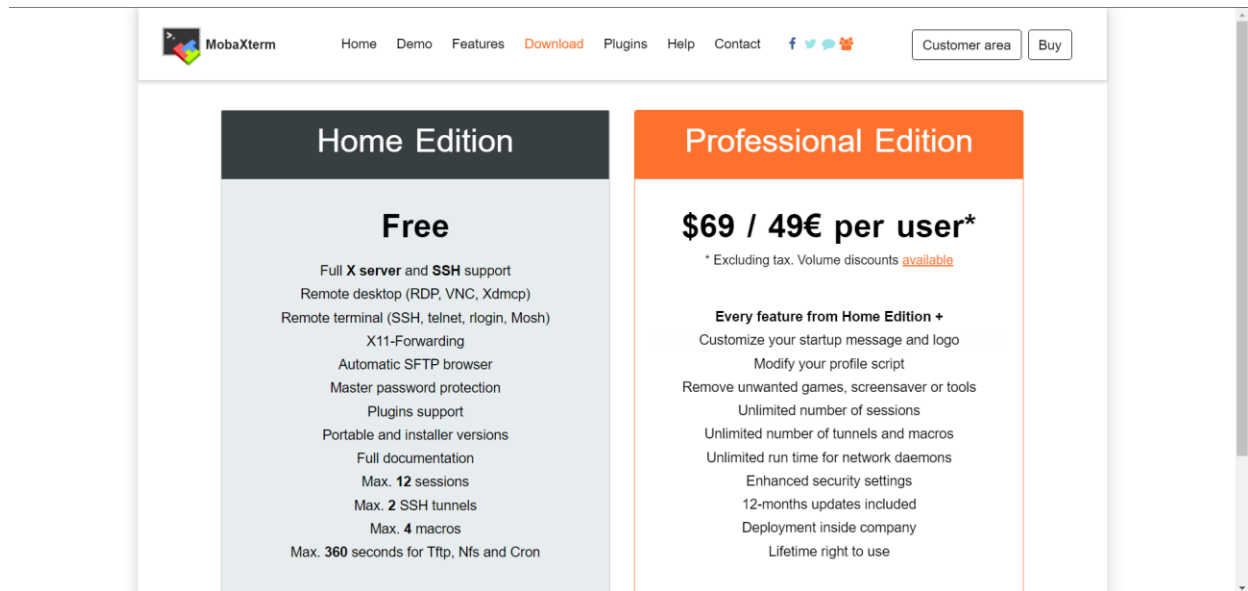
### Step 2: Login key



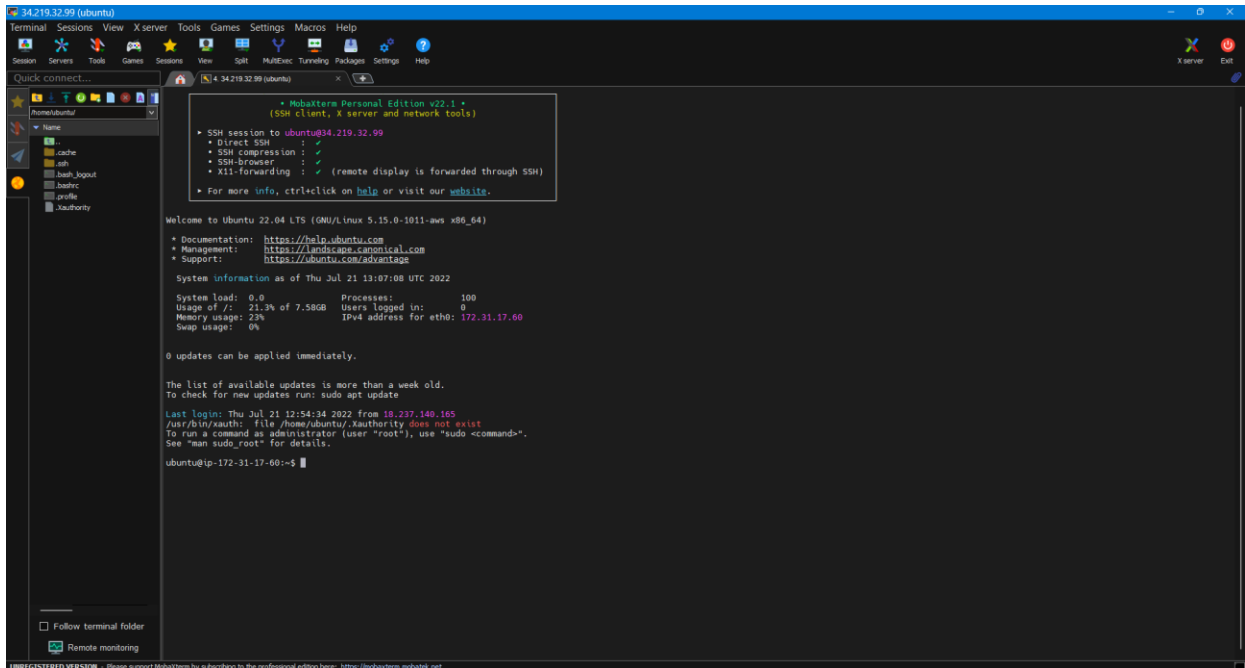
### Step 3: Launch Ubuntu instance



### Step 4: MobaXterm download



## Step 5: Creating a connection with an AWS instance via the Mobaxterm ssh server



## Step 6 : writing few commands to run Google Chrome through Ubuntu server

Which are as follows :

sudo su

sudo apt update

sudo apt install wget

wget [https://dl.google.com/linux/direct/google-chrome-stable\\_current\\_amd64.deb](https://dl.google.com/linux/direct/google-chrome-stable_current_amd64.deb)

sudo apt install ./google-chrome-stable\_current\_amd64.deb

## Step 7 : Launching Google and typing in our name

