HPCSA

Cloud Computing and Security

Lab Assignment 1

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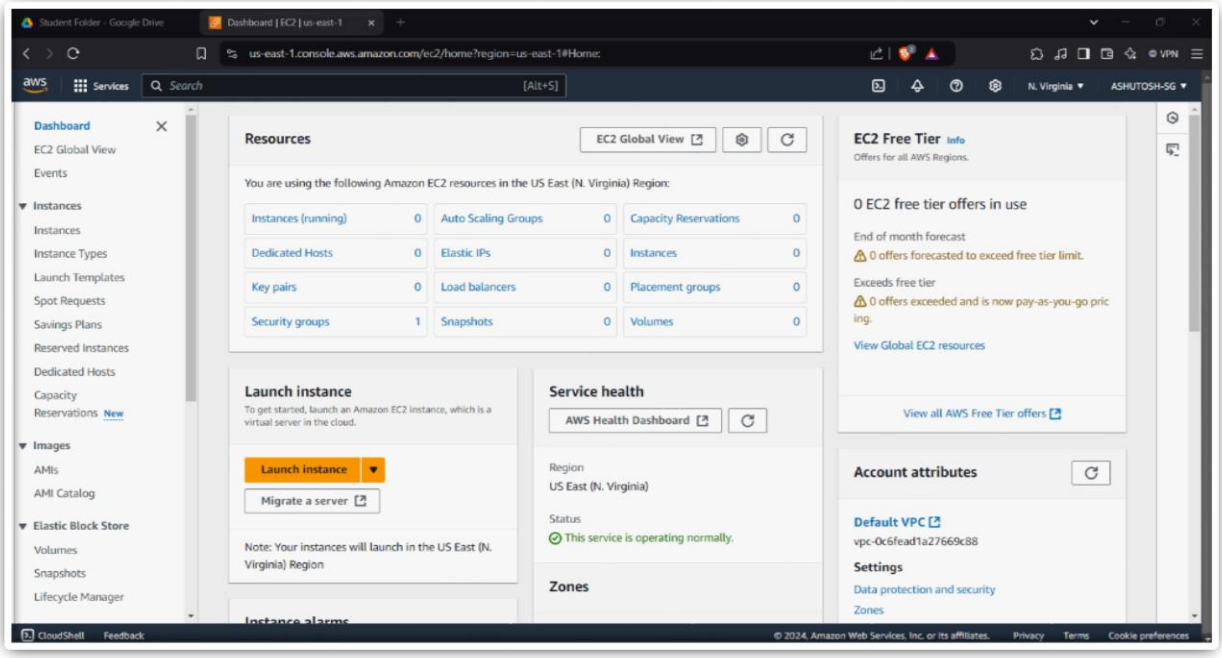
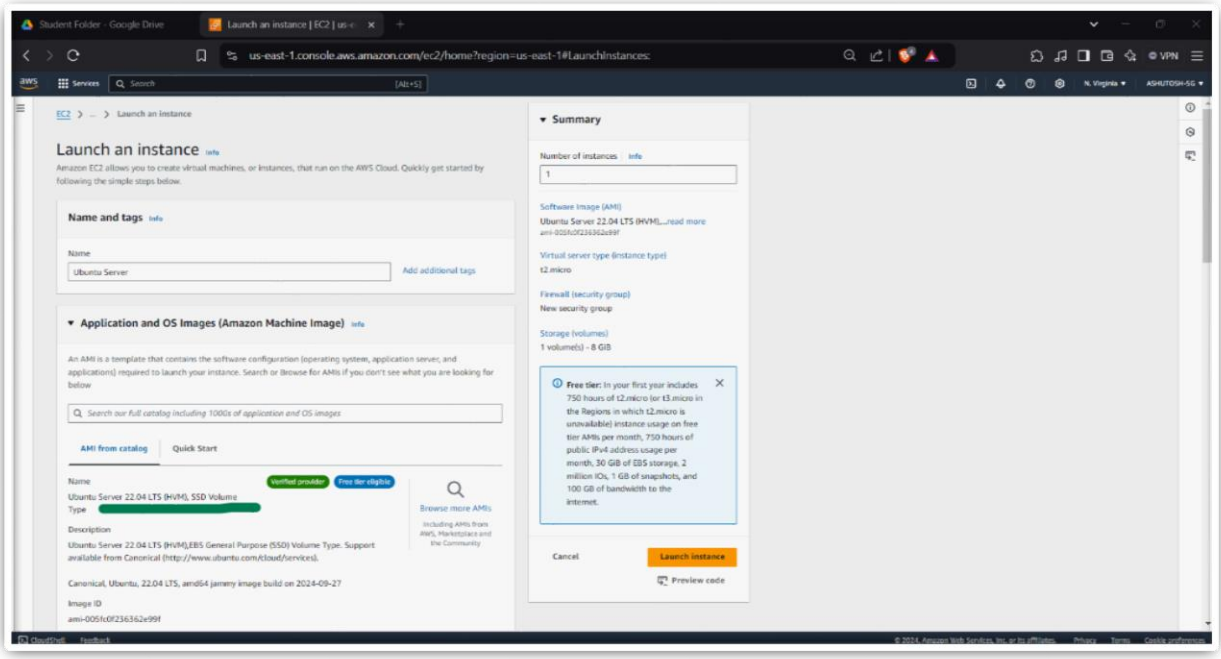
1. Create an Ubuntu EC2 instance and host a website on it which will display “Welcome to Cloud computing” message.
   Also copy some files from your machine to this instance using Winscp

Step 1: Launch an Ubuntu EC2 Instance

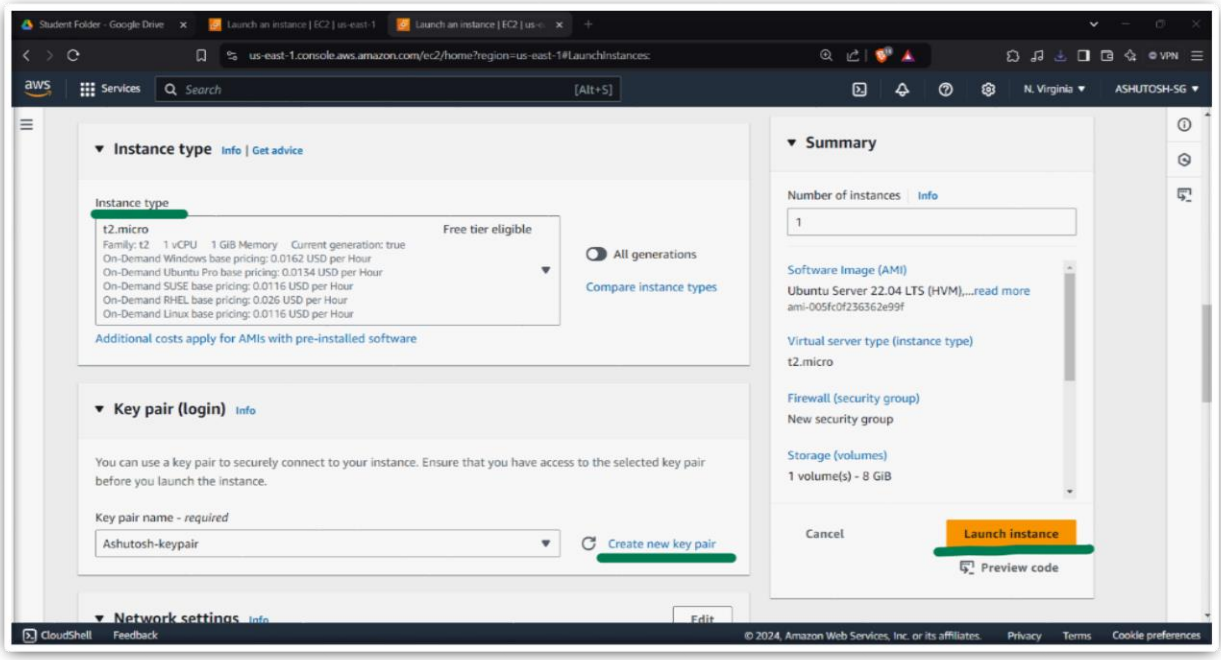
1) Navigate to **EC2** service and click **Launch Instance**.



2) Choose **Ubuntu Server 22.04 LTS** (or the latest LTS version) under the **Amazon Machine Image (AMI)**.



3) Select **t2.micro** instance type (eligible for the Free Tier) and click **Next**.
4) Configure the instance as needed and click **Review and Launch**.
5) On the **Key Pair** page, choose an existing key pair or create a new one (download the .pem file as it's required to access your instance).
6) Click **Launch Instances** and wait until the instance status changes to "running."

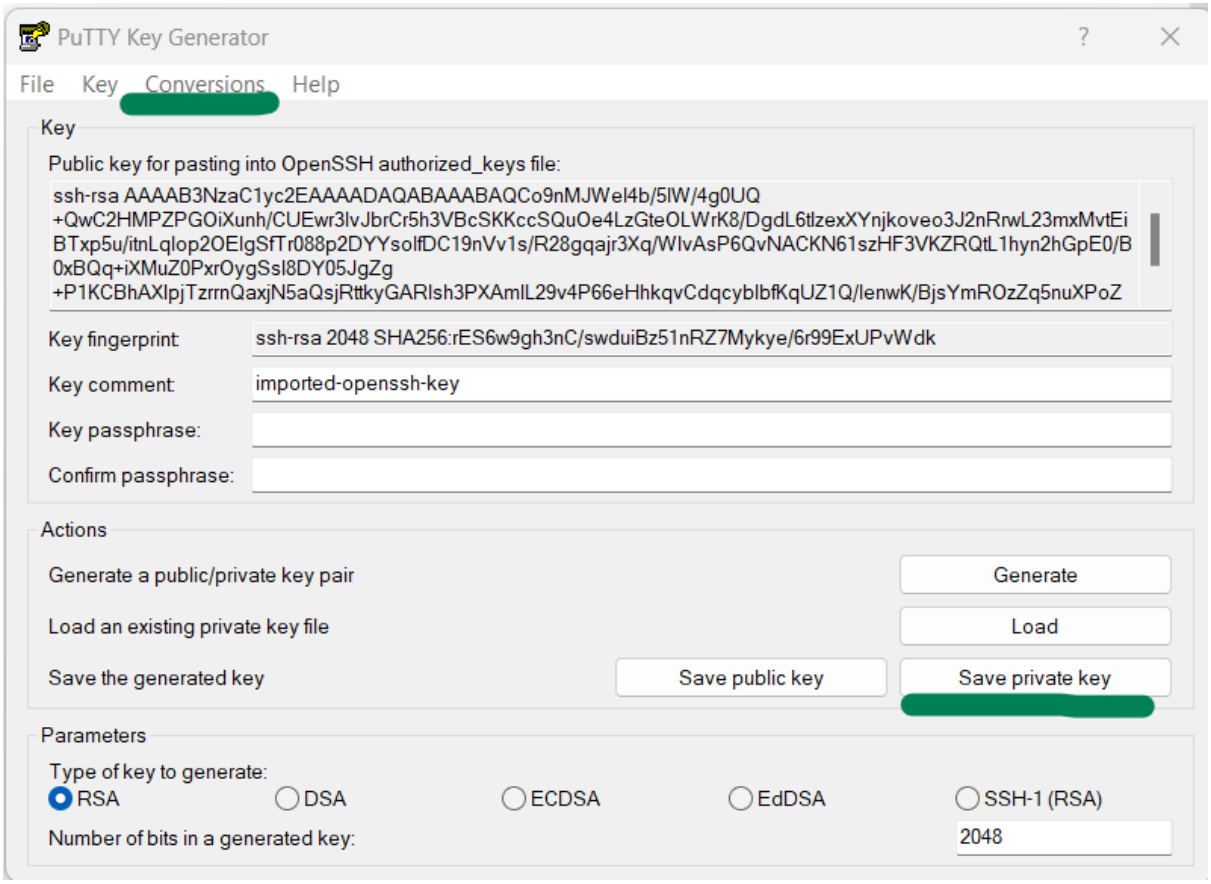


Step 2: Connect to Your EC2 Instance Using PuTTY

7) Since PuTTY doesn't accept .pem&Pktfiles directly, you'll first need to convert it to a .ppk format:

Convert the .pem Key to .ppk Using PuTTYgen

Open **PuTTYgen** (part of the PuTTY installation package).
Click **Load** and select your .pem file.
PuTTYgen will load and convert the file. Once it's done, click **Save private key** (you may get a warning about saving without a passphrase; click **Yes** to proceed).
Save the converted file as a .ppk file.



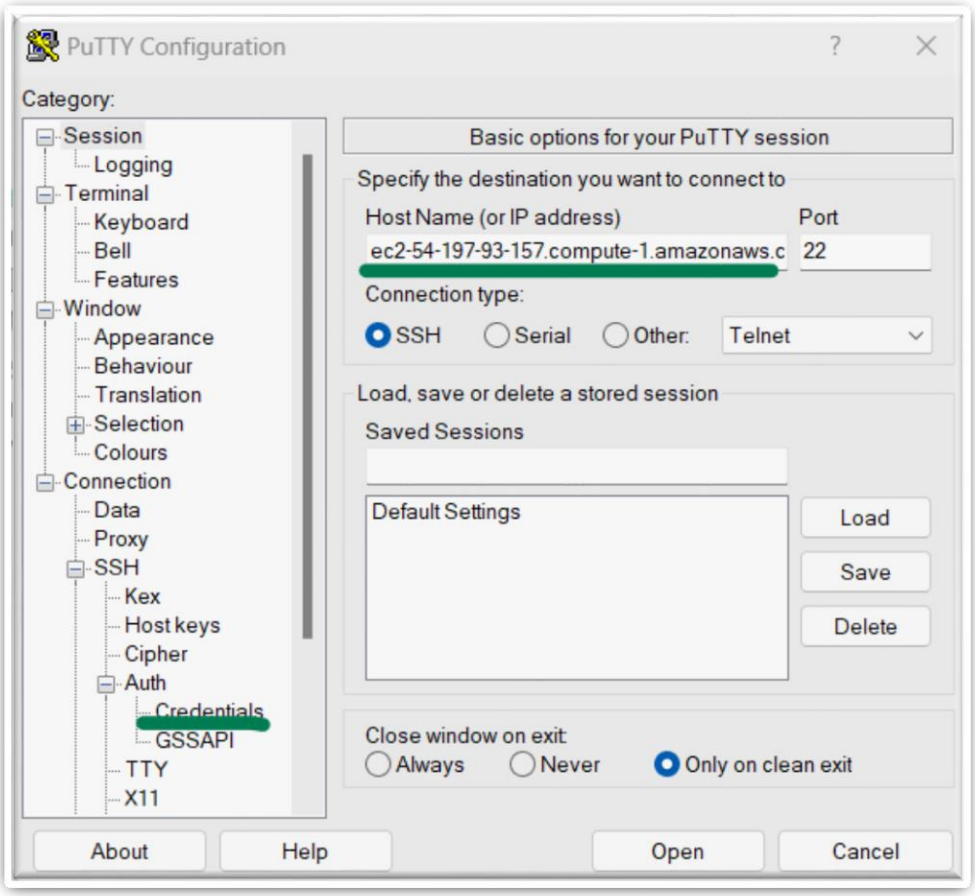
Connect to the Instance

1. Open **PuTTY** and enter your **EC2 instance's public DNS or IP** in the **Host Name (or IP address)** field.

2. Under **Connection > SSH > Auth**, browse and select the .ppk file you saved.

3. Go back to the **Session** tab and click **Open** to connect.

4. When prompted for the username, enter ubuntu.



Step 3: Install Apache Web Server

sudo apt update
sudo apt install apache2 -y
sudosystemctl start apache2
sudosystemctl enable apache2

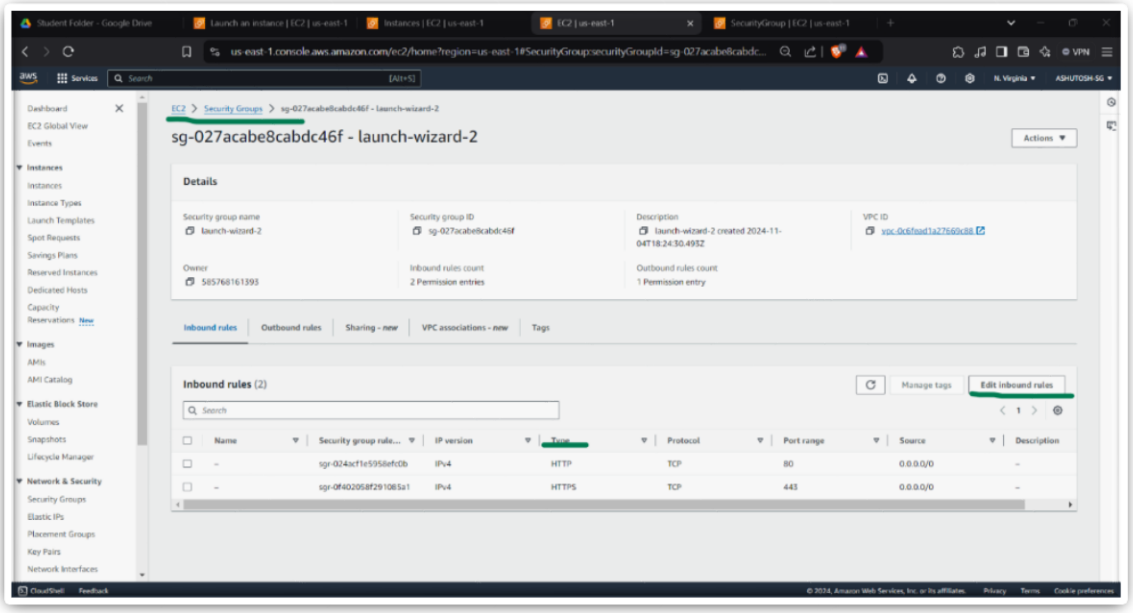
Step 4: Create a Simple HTML Page

sudo nano /var/www/html/index.html

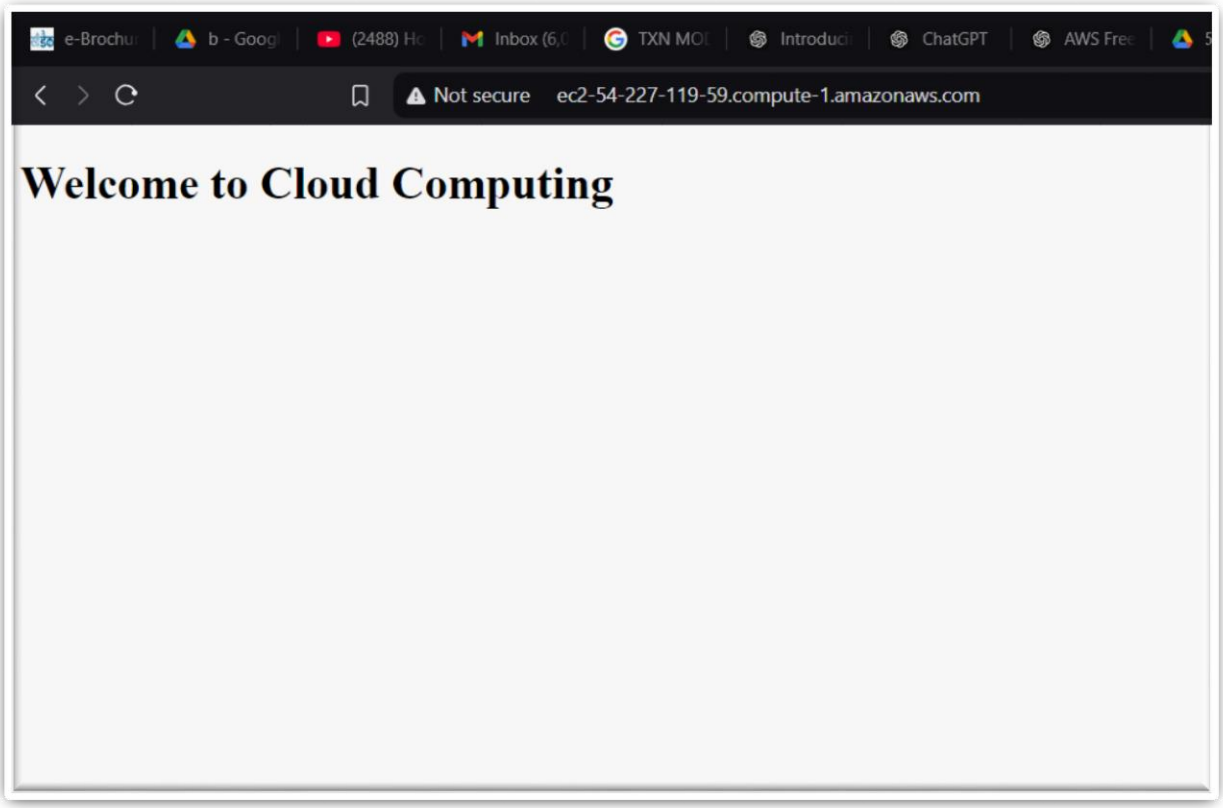
```
<!DOCTYPE html>
<html>
<head>
<title>Welcome Page</title>
</head>
<body>
<h1>Welcome to Cloud Computing</h1>
</body>
</html>
```

Step 5: Configure Security Group for HTTP Access

1. In the **EC2 Dashboard**, select your instance.
2. Under **Security**, click the **Security Group** link.
3. Edit inbound rules, adding:
    - **Type**: HTTP
    - **Protocol**: TCP
    - **Port**: 80
    - **Source**: Anywhere (0.0.0.0/0)
4. Save the rule



Open your instance's public IP or DNS in a browser to see your message.



Step 7: Transfer Files with WinSCP

1. Open **WinSCP** and create a new session.
2. Configure the session with:
    - **File Protocol**: SFTP
    - **Host Name**: Your instance's public IP/DNS
    - **Port Number**: 22
    - **User Name**: ubuntu
    - **Private Key File**: Select your .ppk file.

Configure the Private Key File:

- Click on **Advanced…** in the bottom left corner of the WinSCP Login window.
- In the **Advanced Site Settings** dialog, go to **SSH**>**Authentication** on the left sidebar.
- Under **Authentication parameters**, find **Private key file** and click **Browse…**.

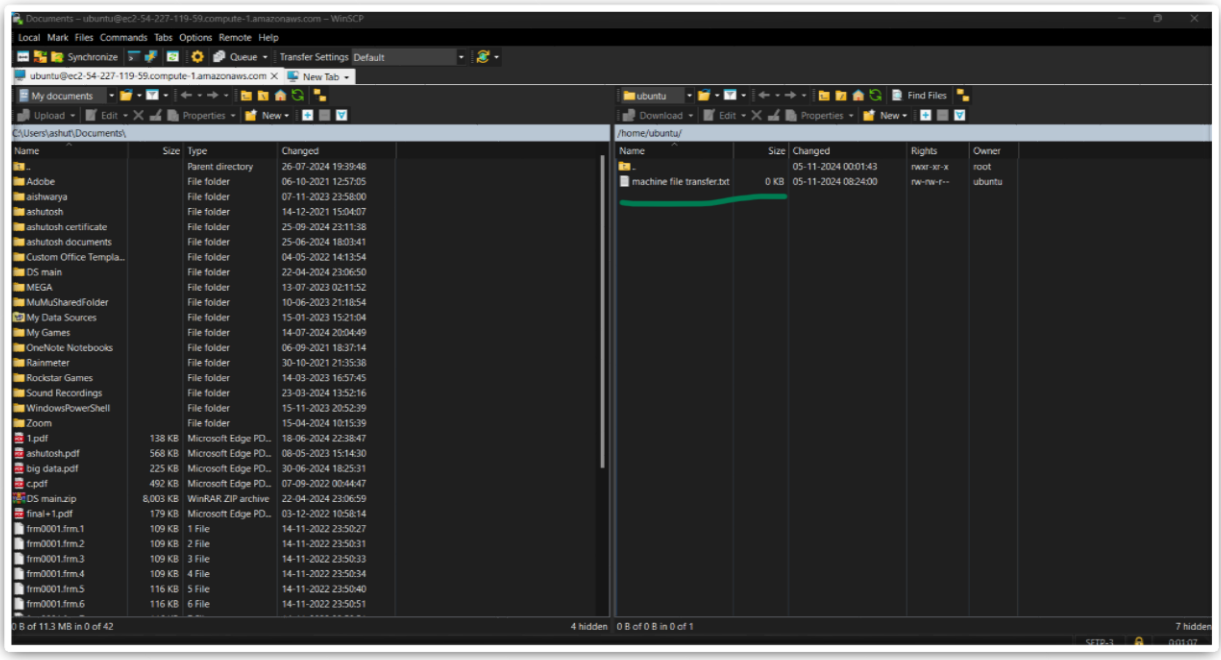
- Navigate to the location where you saved your **.ppk** file (the converted key from your .pem file).
- Select the **.ppk** file and click **Open**.
- **Save and Connect**:
- Click **OK** to close the Advanced Site Settings.
- Optionally, click **Save** on the main WinSCP Login screen to save your settings for future connections.
- Finally, click **Login** to connect to your EC2 instance
-

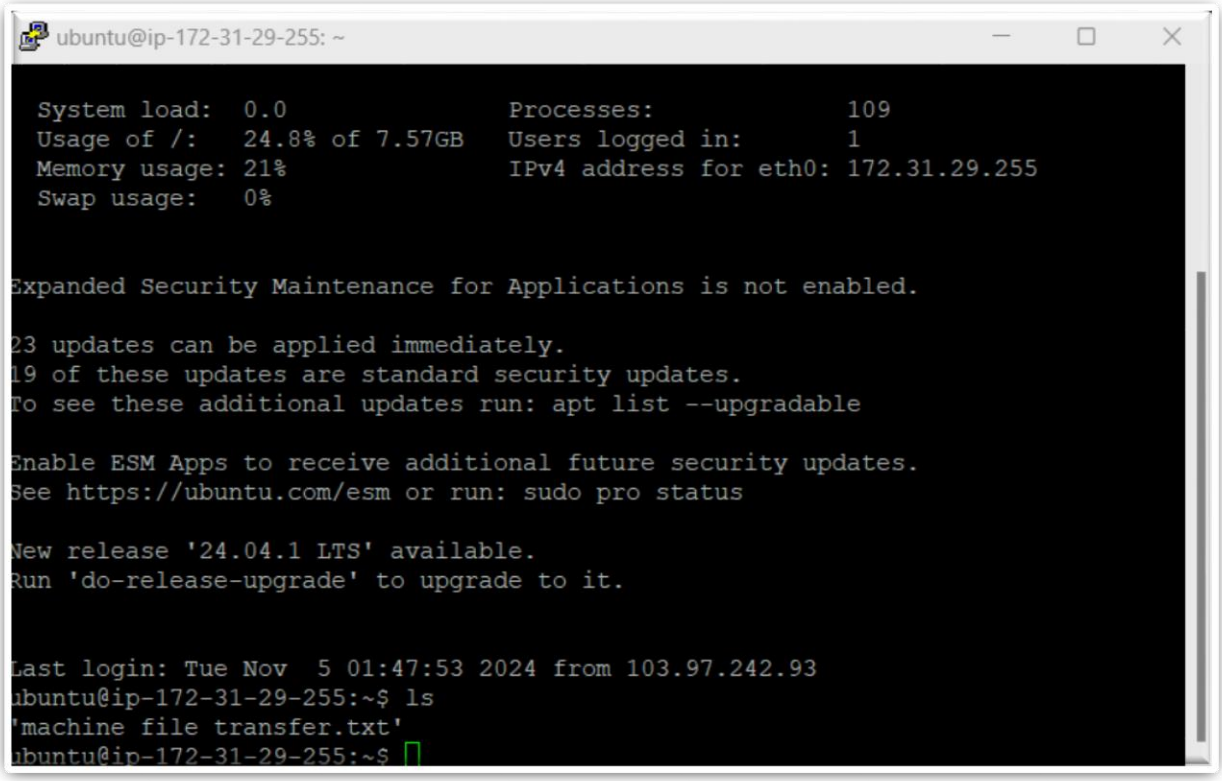
3. Click **Login** and **Yes** if prompted about the host key.

Verify Security Group Inbound Rules

Ensure that your EC2 instance's **Security Group** allows inbound SSH traffic:

- Go to the **EC2 Dashboard** in AWS, select **Instances**, and click on your instance.
- Under **Description**, locate the **Security groups** and click the Security Group ID.
- In **Inbound rules**, make sure there's an entry for **SSH** with **Port 22** open to **My IP** or **Anywhere (0.0.0.0/0)** (for unrestricted access).
- Save the changes if you added or modified the rule.




ubuntu@ip-172-31-29-255: ~
System load: 0.0 Processes: 109
Usage of /: 24.8% of 7.57GB Users logged in: 1
Memory usage: 21% IPv4 address for eth0: 172.31.29.255
Swap usage: 0%
Expanded Security Maintenance for Applications is not enabled.
23 updates can be applied immediately.
19 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
New release '24.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.
Last login: Tue Nov 5 01:47:53 2024 from 103.97.242.93
ubuntu@ip-172-31-29-255:~$ ls
'machine file transfer.txt'
ubuntu@ip-172-31-29-255:~$

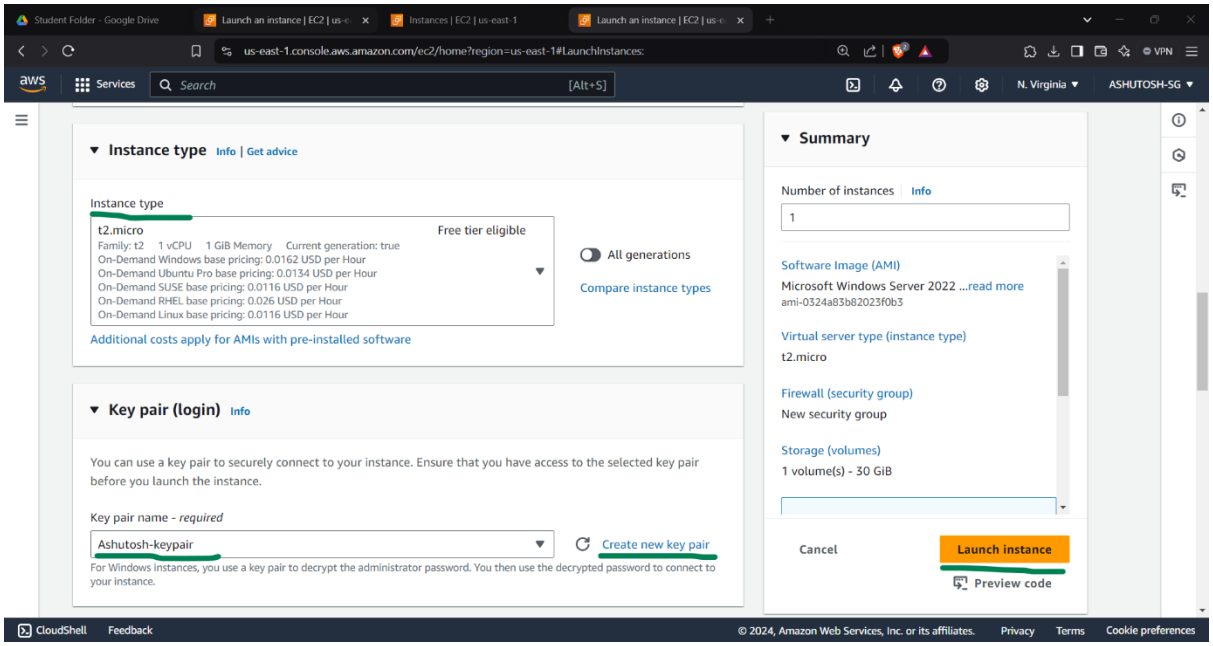
Q2----------

Create a Windows EC2 instance and host a website on it which will display " welcome to HPCSA…. You name!!!" Message. Copy some files from local machine to Windows server using copy and paste.

Step 1: Launch a Windows EC2 Instance

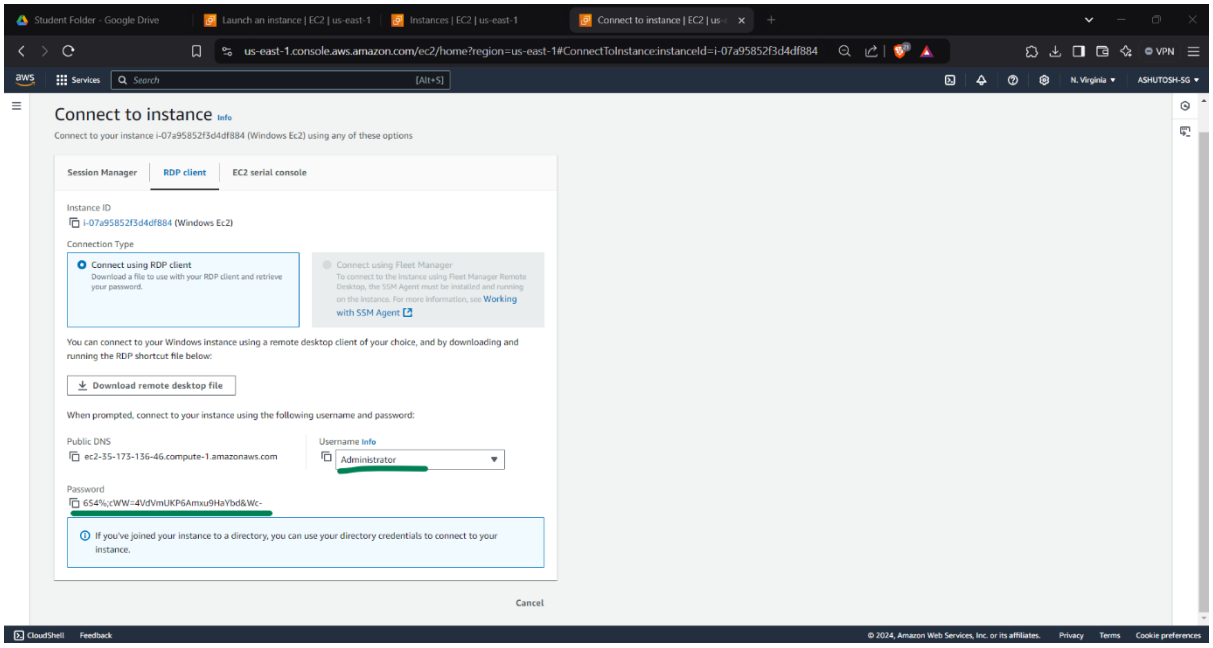
1. **Log in to the AWS Console**:
   - Go to the **AWS Management Console** and log in with your credentials.
2. **Navigate to EC2**:
   - In the AWS Management Console, search for **EC2** and select it from the services.
3. **Launch an Instance**:
   - Click **Launch Instance**.
   - Choose **Microsoft Windows Server** as the AMI (Amazon Machine Image). You can select **Windows Server 2019** or **Windows Server 2022**.
   - Select an **Instance Type** like t2.micro (free tier eligible).
4. **Key Pair Configuration**:
   - Choose an existing key pair or create a new one to securely access the instance. Make sure to download the .pem file if you create a new key pair, as it will be required later.
5. **Configure Security Group**:
   - Under **Security Group settings**, add rules to allow **RDP (Remote Desktop Protocol)** on port **anywhere**
     - Add a rule for **HTTP** on port **80** to allow web traffic, so the website is accessible.

6. **Launch the Instance**:
   - Review the settings, then click **Launch Instance**.
   - Wait until the instance status shows as **running** (this may take a few minutes)

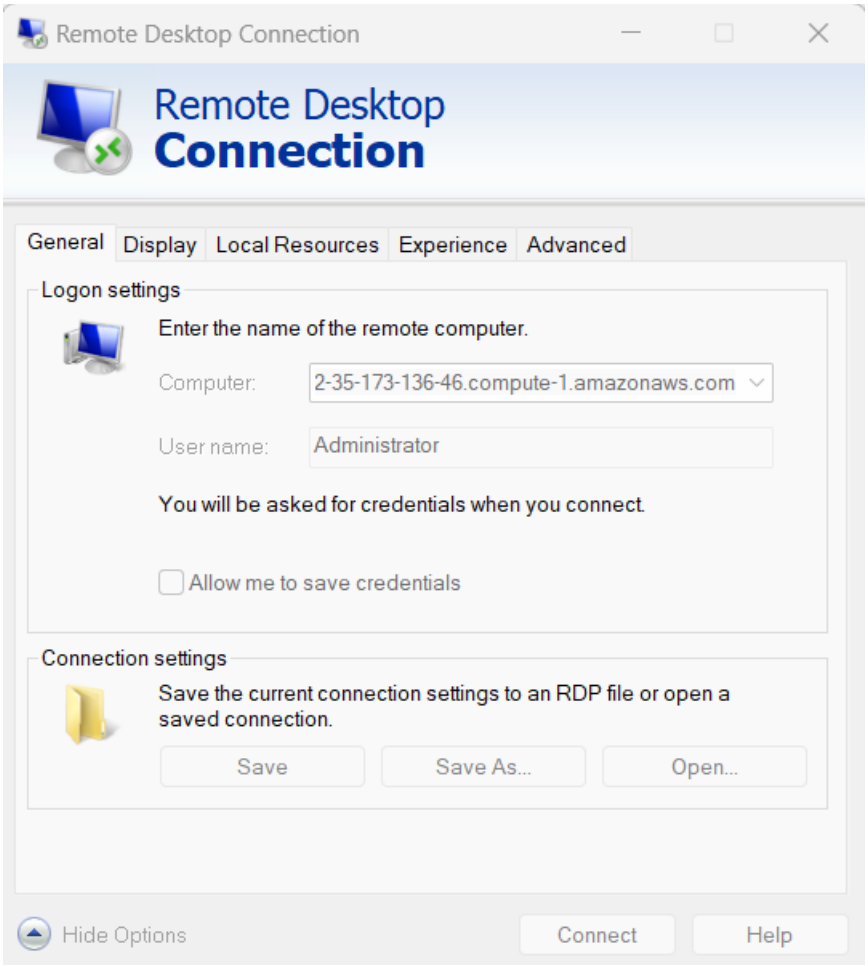


Step 2: Connect to the Windows EC2 Instance

1. **Get the RDP Password**:
    - In the EC2 Dashboard, select your instance, then click **Connect>RDP Client**.
    - Click on **Get Password**. Upload your .pem file and click **Decrypt Password** to get the instance password.



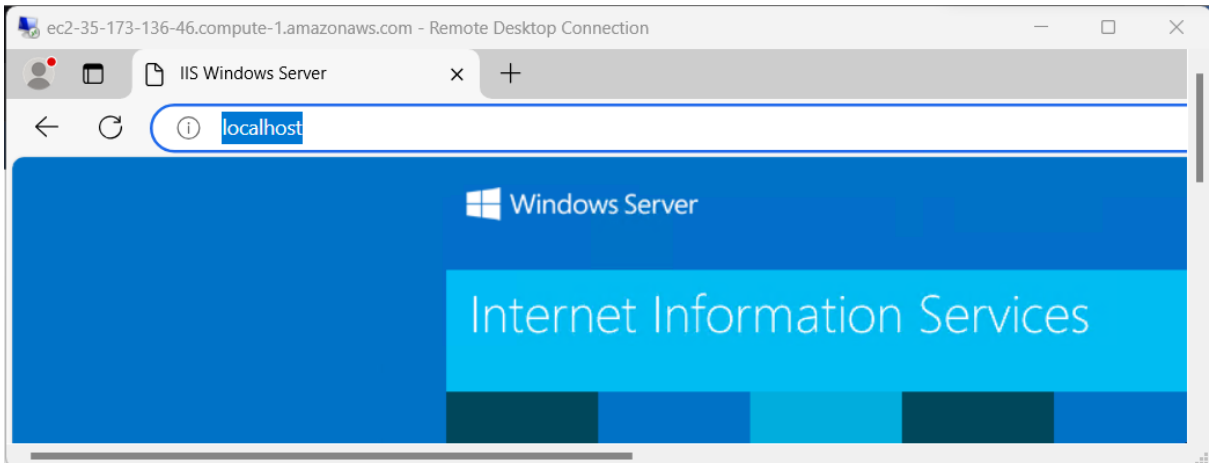
2. **Connect Using RDP**:
    - Open **Remote Desktop Connection** on your computer.
    - Enter the **Public IP** or **Public DNS** of your EC2 instance.
    - Use the username (usually Administrator) and the decrypted password.
    - 6S4%;cWW=4VdVmUKP6Amxu9HaYbd&Wc-



Step 3: Install IIS (Web Server) on the Windows Instance

dism /online /enable-feature /featurename:IIS-WebServer /all

This command uses **DISM (Deployment Image Servicing and Management)** to enable the IIS feature.
check
http://localhost



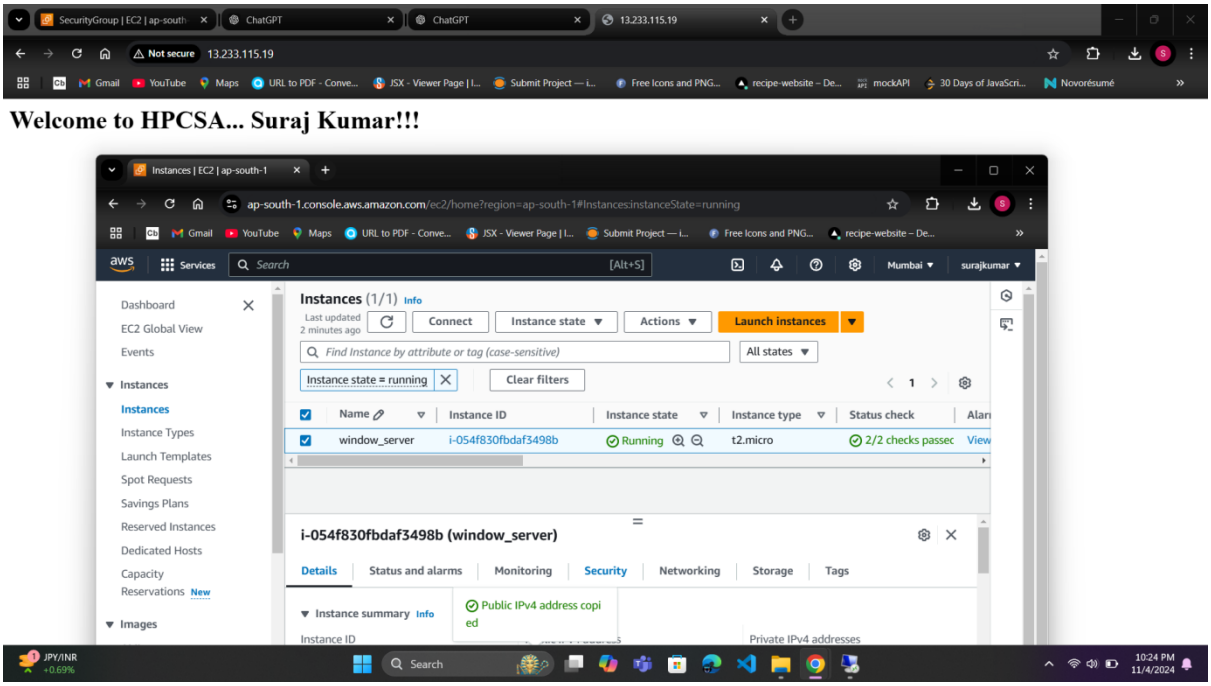
If IIS is not already running, you can start the IIS

net start w3svc ----------
This will start the **World Wide Web Publishing Service**, which is responsible for handling HTTP requests.

step 4

cd C:\inetpub\wwwroot

echo ^<html^>^<body^>^<h1^>Welcome to HPCSA… [Ashutosh Suraj]!!!^</h1^>^</body^>^</html^>> index.html



Step 5: Copy Files from Local Machine to Windows Server

1. **Enable Clipboard Copy/Paste in RDP**:
    - Before connecting, open **Remote Desktop Connection** on your local computer.
    - Click on **Show Options**>**Local Resources** tab.
    - Under **Local devices and resources**, make sure **Clipboard** is checked. This enables copy-pasting between your local machine and the EC2 instance.

file transfered Completed