St. JOSEPH'S GROUP OF INSTITUTIONS
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aws

Placement Empowerment Program

Cloud Computing and DevOps Centre

Set Up a Virtual Machine in the Cloud Create a free-tier AWS account. Launch a virtual machine and SSH into it.

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Introduction and Overview

In this POC, we will learn how to Set up a virtual machine in the cloud is essential for running applications, hosting websites, or learning cloud computing. AWS (Amazon Web Services) provides a **Free Tier**, allowing users to launch and use an EC2 (Elastic Compute Cloud) instance at no cost for the first 12 months. This project will guide you through **creating an AWS account, launching a virtual machine (EC2 instance), and connecting to it via SSH**.

Objective

What You Will Learn

- How to create an AWS Free Tier account
- How to launch an EC2 instance (Virtual Machine) using AWS
- How to connect to the instance via SSH
- Basic management of an EC2 instance

Requirements

- A valid email address and phone number (for AWS signup)
- A computer with an SSH client (Linux/macOS terminal or Windows PowerShell/PuTTY)
- A stable internet connection

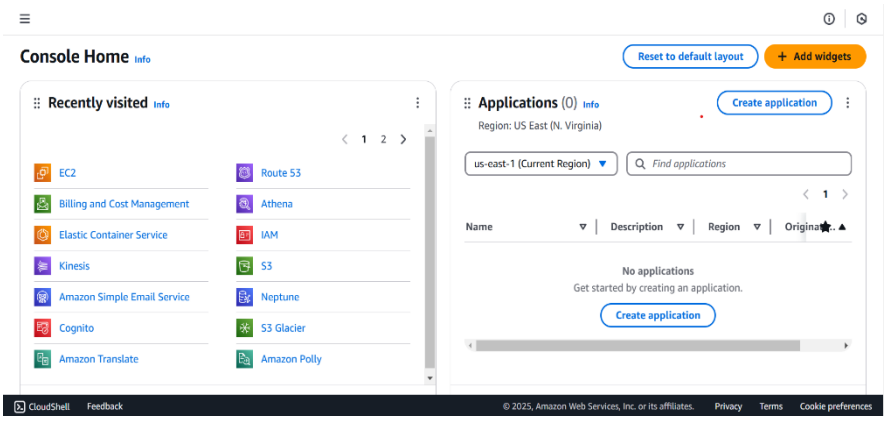
Step-by-Step Overview

Step1:

Create an AWS Free Tier Account

1. Go to **AWS Free Tier**.

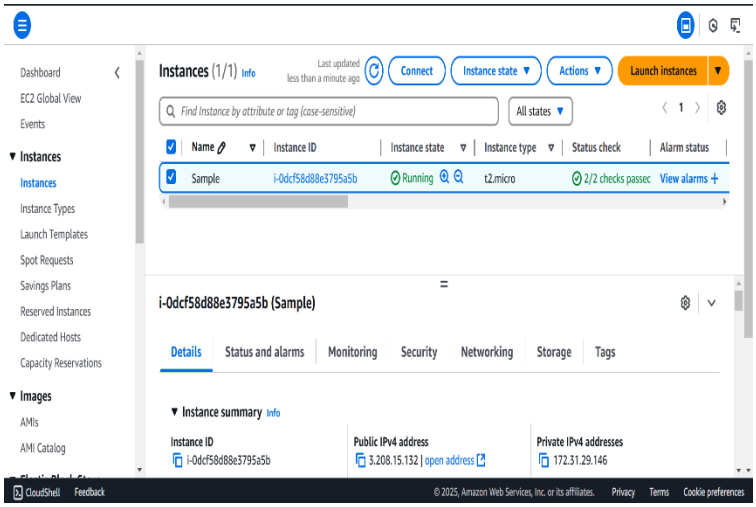
2. Click **"Create an AWS Account"**.
3. Fill in the required details (email, password, account name).
4. Provide your **billing information** (Credit/Debit card is required for identity verification, but you won't be charged for Free Tier usage).
5. Verify your **phone number**.
6. Choose a **support plan** (select "Basic" for free).
7. Log in to the **AWS Management Console**.



Step 2 :

Launch an EC2 Instance (Virtual Machine)

1. **Open the EC2 Dashboard**:
    - In AWS Console, search for **EC2** and open the **EC2 Dashboard**.
2. **Click "Launch Instance"**.
3. **Configure the EC2 Instance**:
    - **Name**: Choose a name (e.g., "MyEC2Instance").
    - **Amazon Machine Image (AMI)**: Select **Amazon Linux 2023** or **Ubuntu 22.04** (both are Free Tier eligible).
    - **Instance Type**: Choose **t2.micro** (1 vCPU, 1GB RAM - Free Tier eligible).
    - **Key Pair**:
        - Click **Create new key pair**.

        - Name it (e.g., "my-key").
        - Select **.pem format** and **Download Key Pair** (store it securely).
    - **Security Group**:
        - Allow **SSH (port 22)**.
        - Restrict access to **Your IP** for security.
    - **Storage**: Keep default (8GB SSD).
4. Click **Launch Instance** and wait for initialization.
5. 

Step 3:

Connect to the EC2 Instance via SSH

For Linux/macOS Users

1. Open a terminal.
2. Navigate to the directory where the .pem key is stored:

cd /path/to/key

3. Set the correct permissions for the key file:

chmod 400 my-key.pem

4. Connect to the instance (replace your-ec2-ip with the actual IP):
5. ssh -i my-key.pem ec2-user@your-ec2-ip # Amazon Linux

ssh -i my-key.pem ubuntu@your-ec2-ip # Ubuntu

For Windows Users (PowerShell)

1. Open **PowerShell** as Administrator.

2. Navigate to the .pem file location:

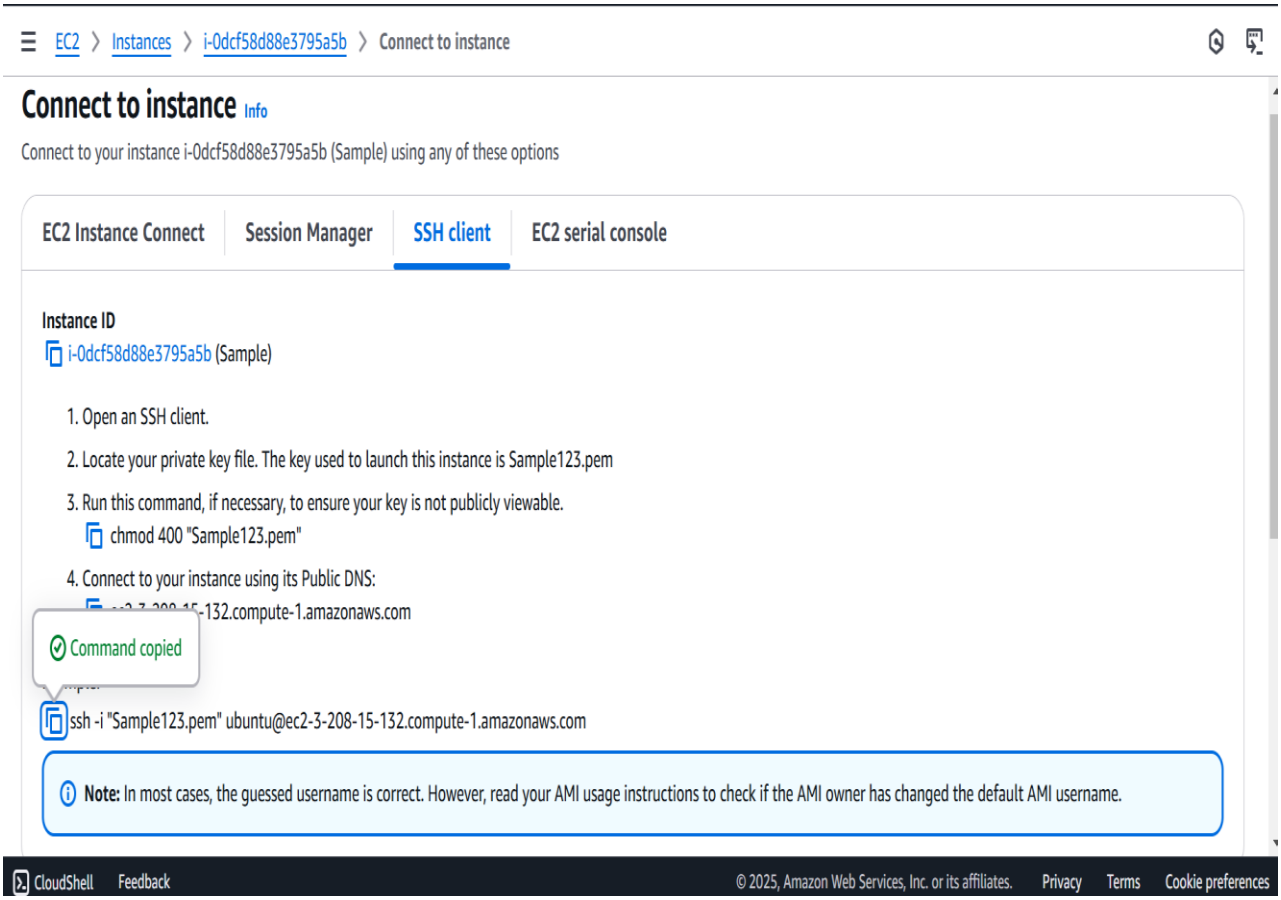
```
cd C:\Users\YourUser\Downloads
```

3. Connect using SSH:

```
ssh -i my-key.pem ec2-user@your-ec2-ip
```

For Windows Users (Using PuTTY)

1. Convert .pem to .ppk using **PuTTYgen**:
    - Open **PuTTYgen** → Click **Load** → Select my-key.pem → Click **Save Private Key**.
2. Connect using **PuTTY**:
    - Open **PuTTY**.
    - Enter **Host Name**: your-ec2-ip.
    - Under **Connection → SSH → Auth**, load the .ppk key.
    - Click **Open**.



Step 4: Verify Connection & Manage Instance

- Once connected, run:
- username -a # Check Linux version
- df -h # Check disk usage

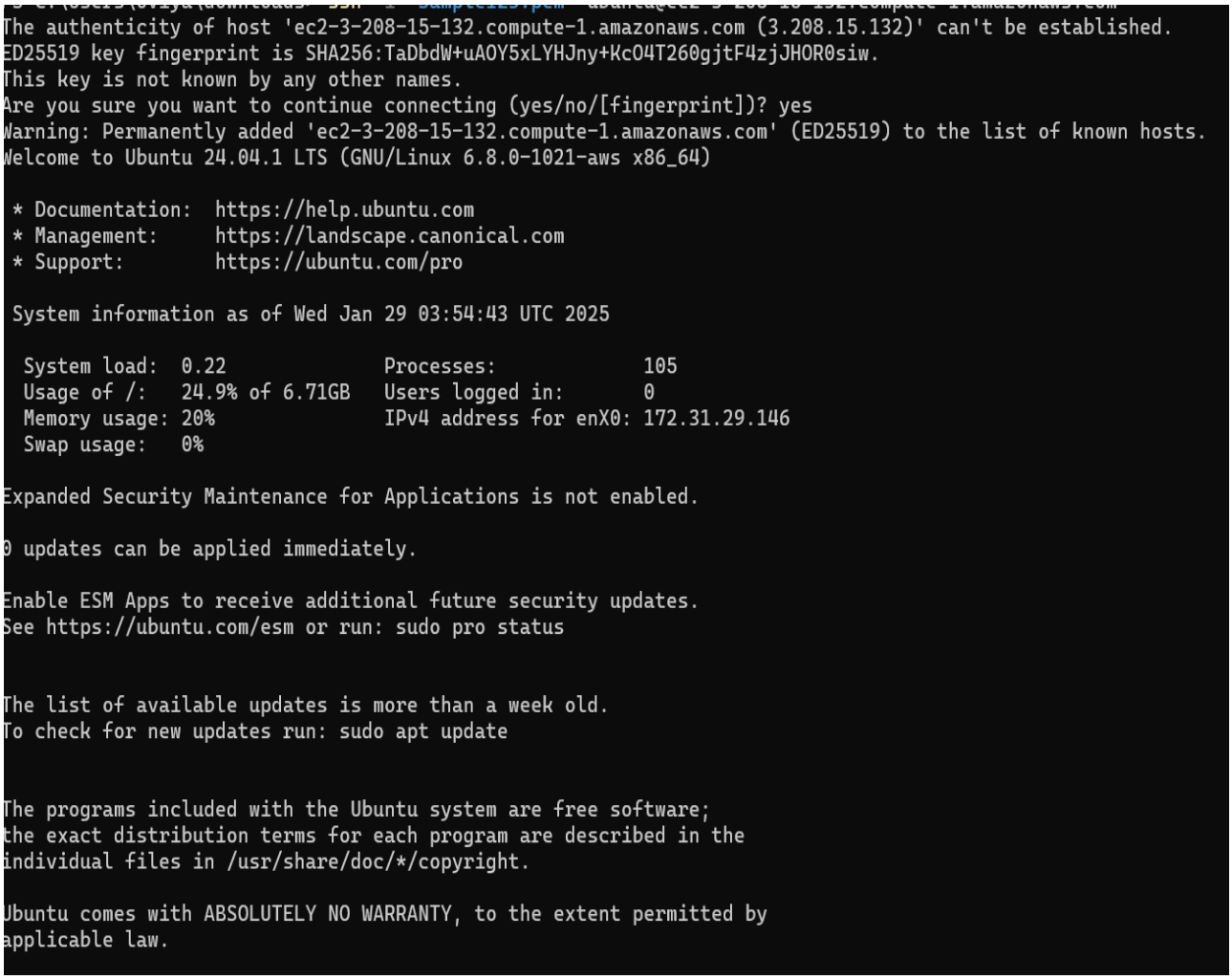
uptime # Check system uptime

- To **stop** the instance:

aws ec2 stop-instances --instance-ids i-xxxxxxxxxxxxx

- To **terminate** (delete) the instance:

  Go to stop instance and then finally delete it.



Conclusion

- Created an AWS Free Tier account
- Launched an EC2 instance
- Connected to the instance using SSH