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

This Proof of Concept (POC) aims to demonstrate the process of setting up a virtual machine in the cloud using the AWS Free Tier. Virtual machines (VMs) play a vital role in cloud computing, allowing users to deploy and manage scalable computing resources without the need for physical hardware. This POC provides a hands-on approach to understanding cloud infrastructure, focusing on AWS EC2 to create a simple, cost-effective computing environment.

Overview

This Proof of Concept (POC) outlines a step-by-step process to:

1. Set up a free AWS account.

2. Launch a virtual machine (VM) using AWS EC2.

3. Configure and secure the instance with a key pair and a security group.

4. Connect to the VM via SSH from a Windows system.

This project covers fundamental cloud computing tasks, providing beginners with hands-on experience in working with AWS infrastructure.

Objectives

1. **Understand AWS EC2 Basics** – Learn how to create, configure, and launch an EC2 instance.
2. **Practice Secure Connections** – Use SSH to establish a secure connection to the instance.
3. **Gain Hands-On Experience** – Navigate the AWS Management Console to manage and interact with cloud resources.
4. **Optimize Free Tier Usage** – Work within the AWS Free Tier limits to avoid unnecessary costs.

Importance

- **Foundation for Cloud Computing** – Learning to launch and manage virtual machines is a fundamental skill for cloud practitioners.
- **Hands-On Skill Development** – This POC provides practical experience in AWS, including instance management, security configurations, and SSH connectivity.

- **Scalability and Flexibility** – Highlights how cloud infrastructure enables rapid resource deployment compared to traditional setups.
- **Cost-Effective Learning** – Leveraging the AWS Free Tier allows users to explore cloud computing without financial commitment.
- **Career Relevance** – Proficiency in setting up virtual machines on AWS is a valuable skill for careers in IT, cloud computing, and DevOps.
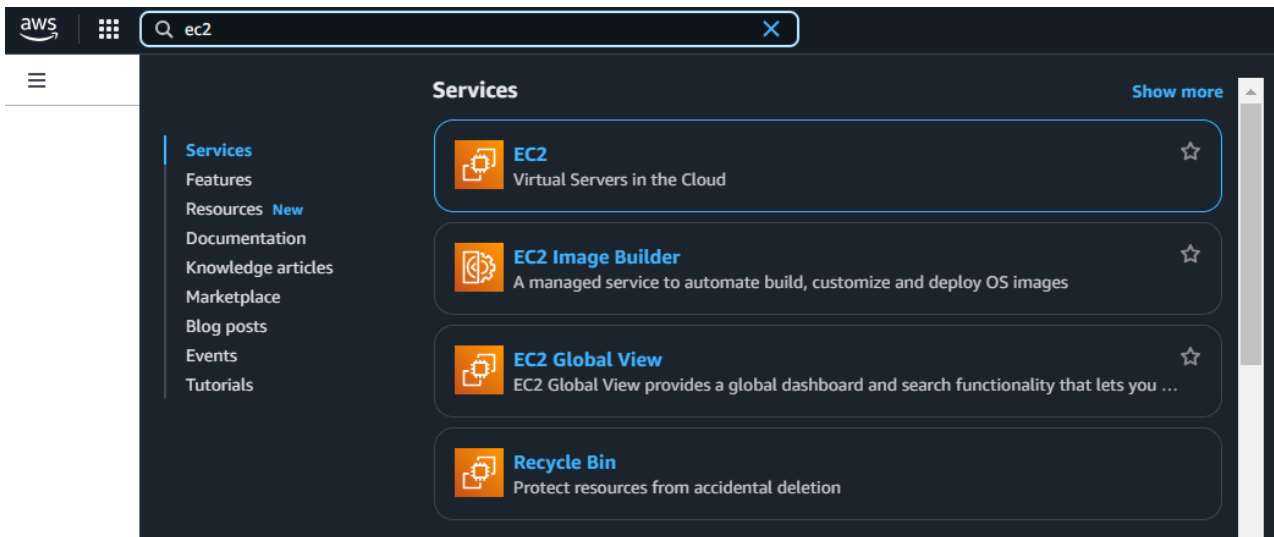

Step-by-Step Overview

Step 1:

- Go to [AWS Management Console](#).
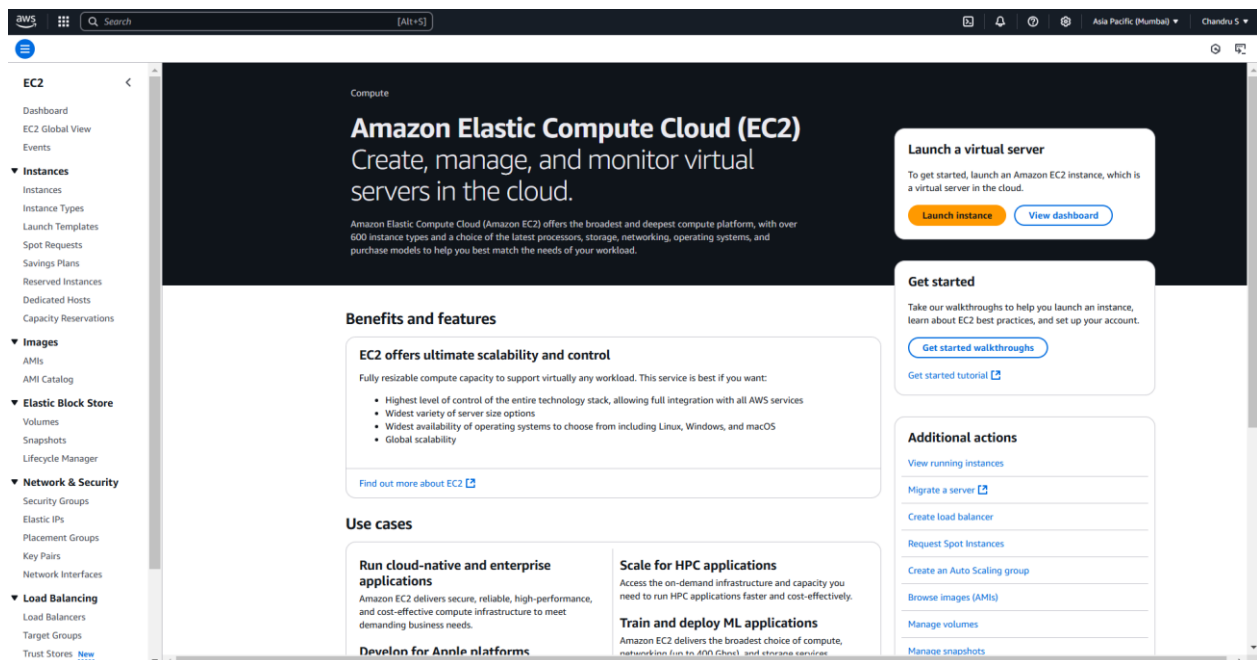- Enter your username and password to log in.
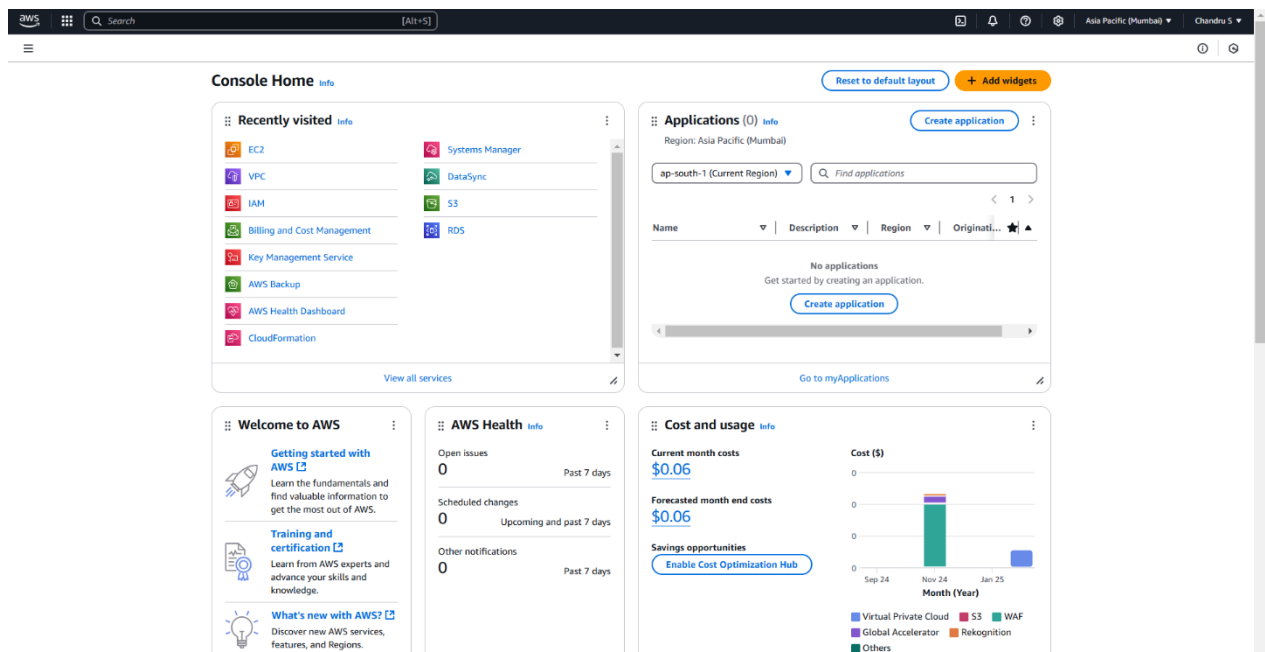
Step 2:

Navigate to the AWS Management Console and search for EC2.

Step 3:

Click Launch Instance.

Step 4:

1. Choose Amazon Linux 2023 Free Tier AMI or Ubuntu Free Tier AMI.
2. Select the t2.micro instance type (free tier).
3. Configure security group:
   Allow SSH (Port 22) from your IP.
4. Add a key pair:

If you don't have one, create a new key pair and download it as a .pem file.
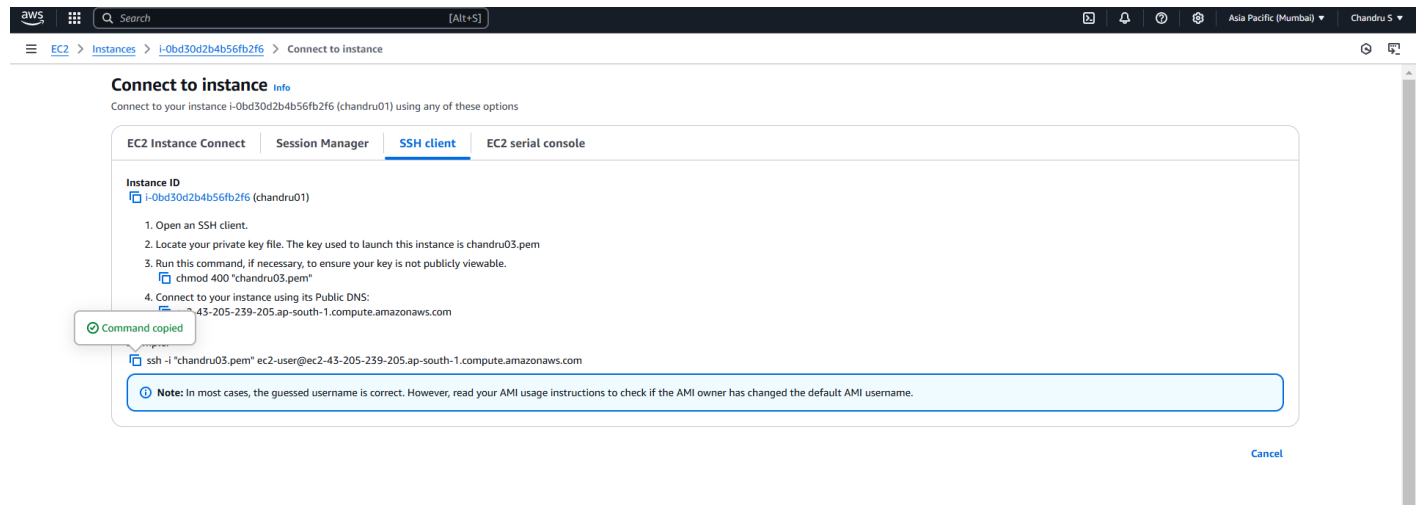
5. Click Launch Instance.
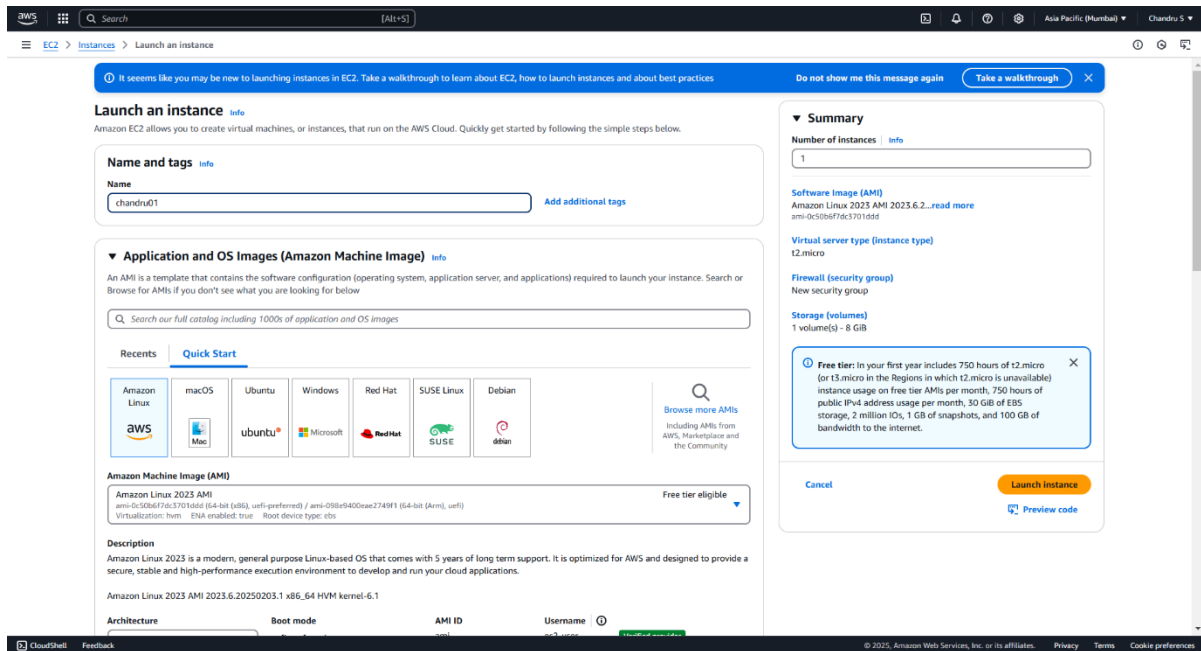
Step 5:

- Check your running instance in the Instances section .
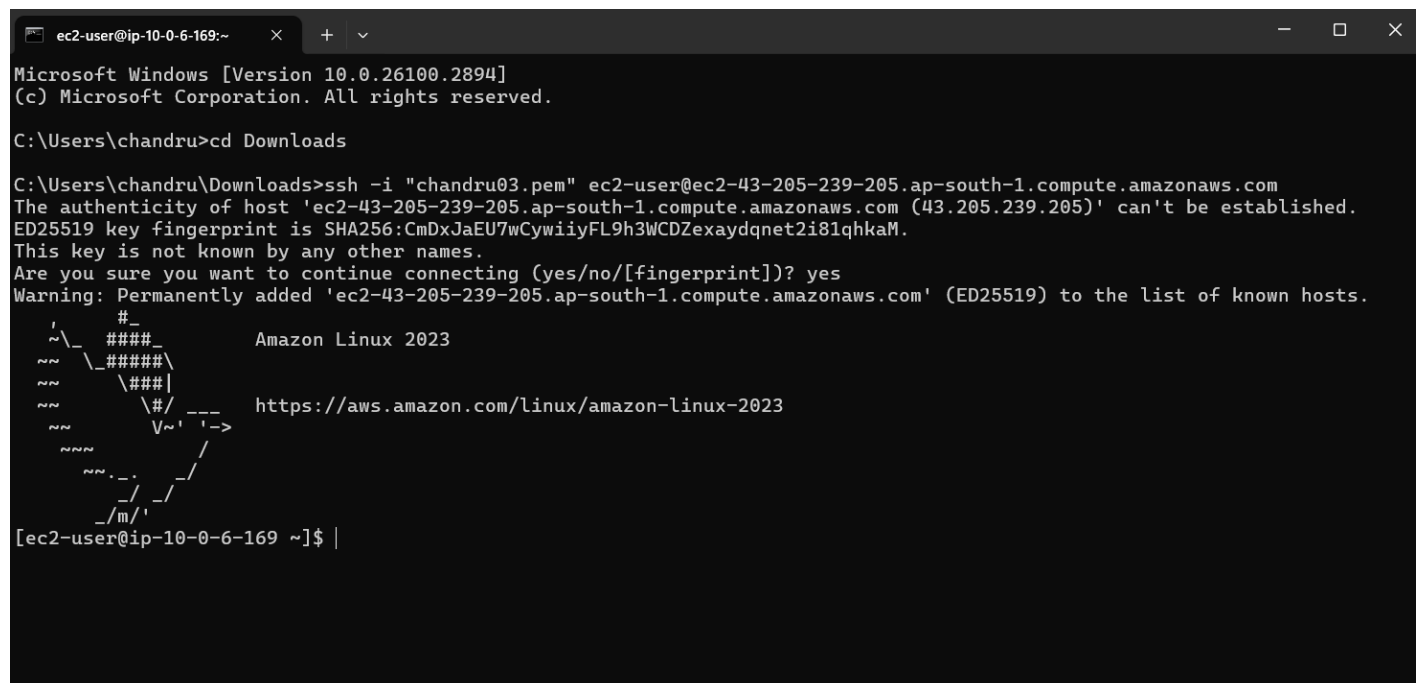- Select your Instance and click the Connect Option.
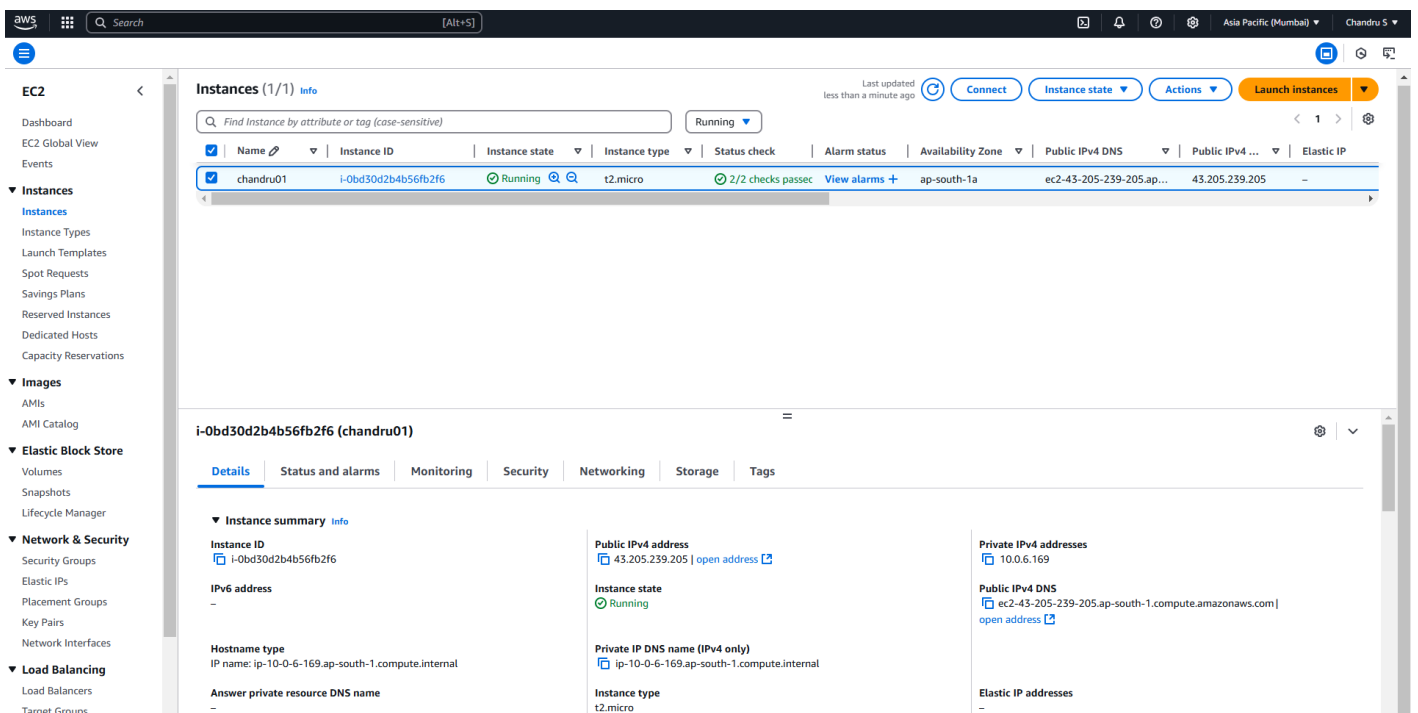
Step 6:

Go to the SSH client section, and copy the command provided under the 'Example' section.

Step 7:

- Open PowerShell, navigate to the Downloads folder.
- Run the SSH command from the EC2 Connect section, replace the key name with your downloaded key (e.g., new.pem), press Enter, and type yes when prompted.

- Successfully completed the setup of a virtual machine in AWS.

Outcome

By completing this PoC of setting up a virtual machine in AWS, you will:

1. Create and configure a free AWS account to use cloud resources within the Free Tier.
2. Launch an EC2 instance with Amazon Linux or Ubuntu as the operating system.
3. Generate and manage a secure key pair for SSH access to your EC2 instance.
4. Configure a security group to allow SSH connections to your instance from your IP address.
5. Successfully connect to the EC2 instance via SSH using the public IP address.
6. Gain hands-on experience with AWS EC2 and foundational cloud computing concepts.