

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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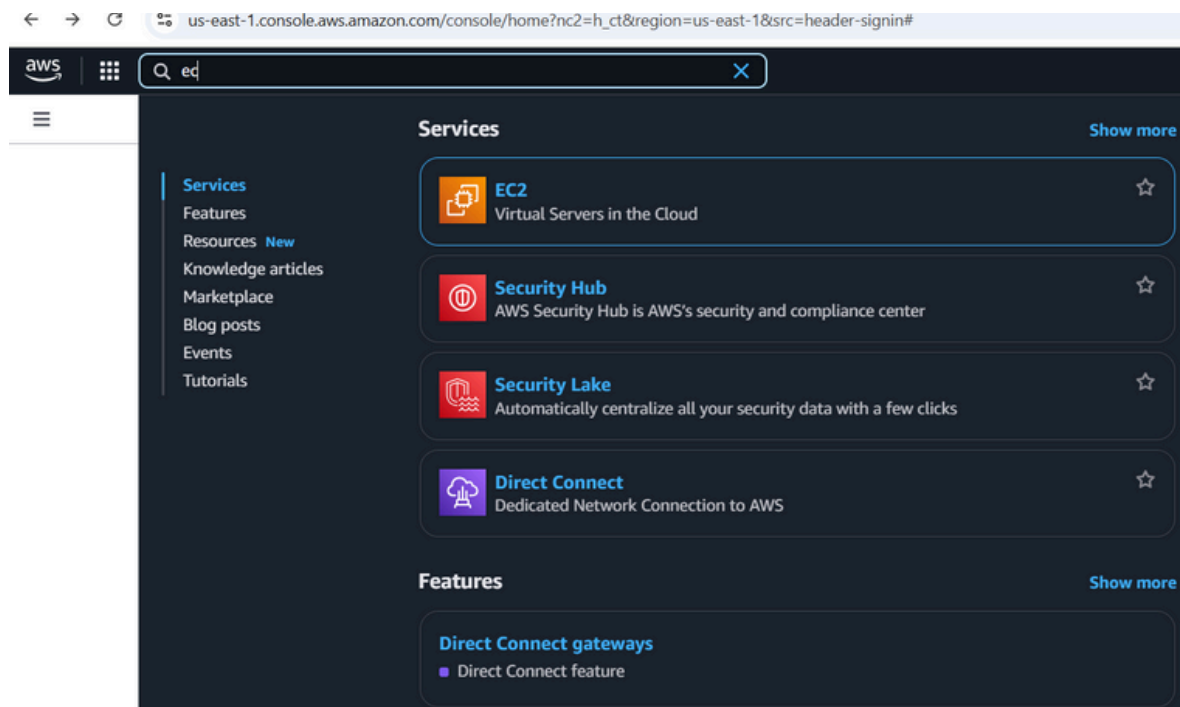
Introduction

The objective of this Proof of Concept (POC) is to explore the process of setting up a virtual machine in the cloud using the AWS Free Tier. A virtual machine (VM) is a crucial component in cloud computing, enabling users to deploy and manage scalable computing resources without requiring physical hardware. This POC serves as a foundational exercise for understanding cloud infrastructure and using AWS EC2 to create a simple and cost-effective computing environment.

Step-by-Step Overview

Step 1:

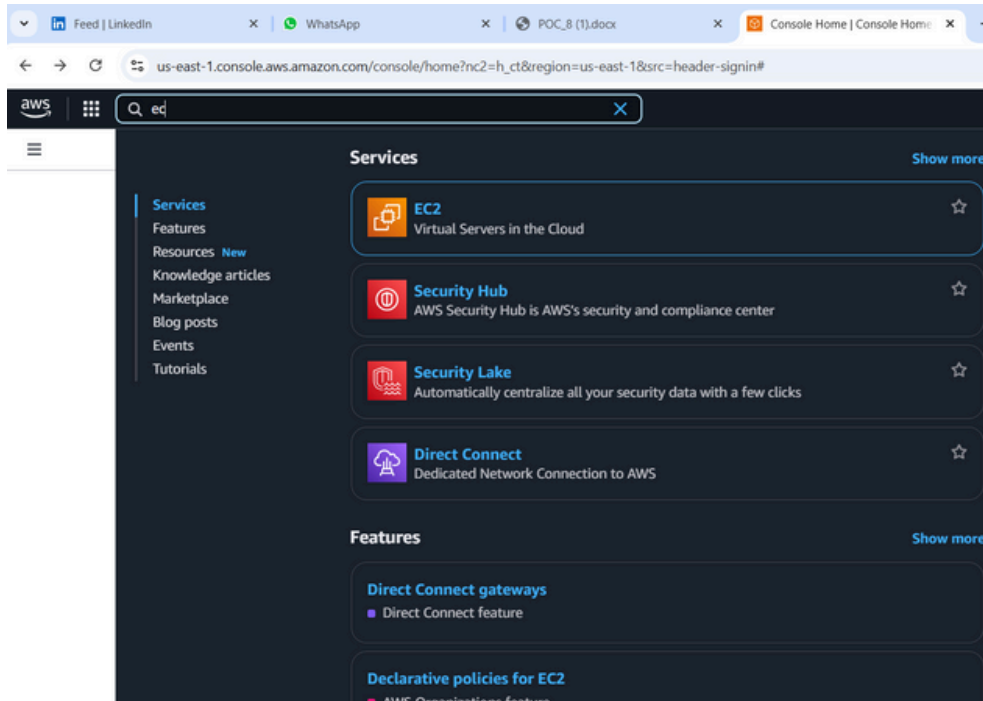
1. Go to [AWS Management Console](https://us-east-1.console.aws.amazon.com/console/home?nc2=h_ct®ion=us-east-1&src=header-signin#).
2. Enter your username and password to log in.



Step 2:

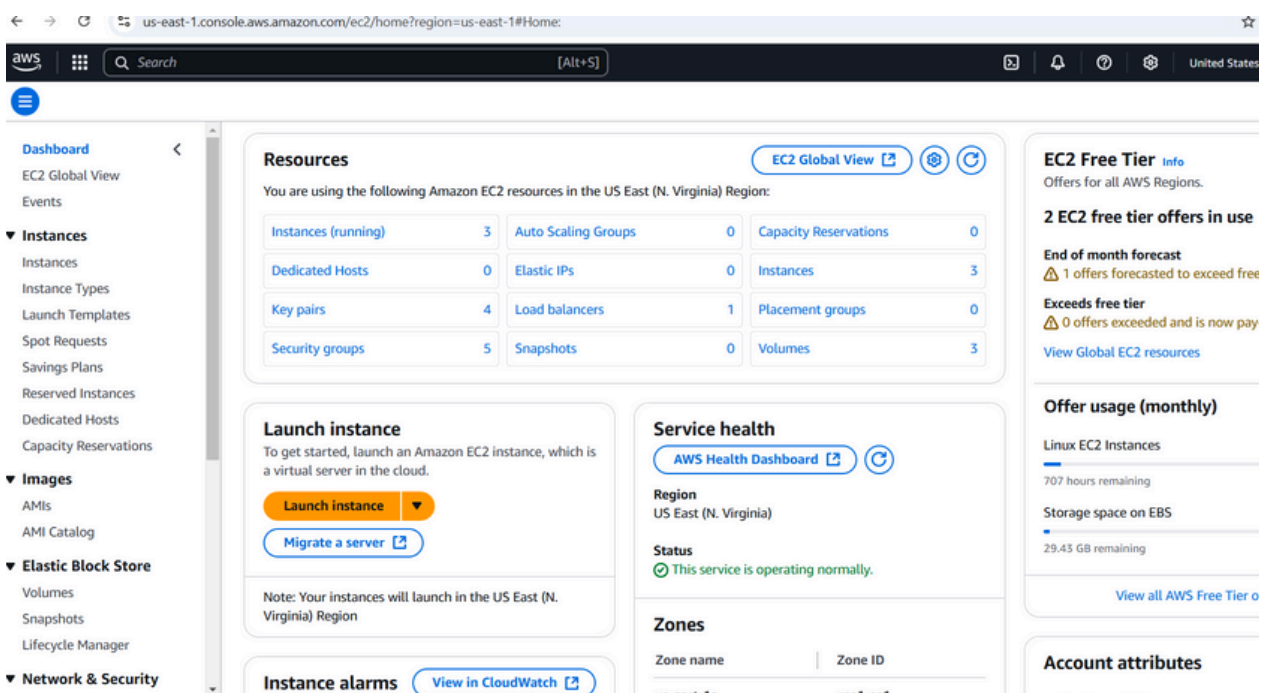
Navigate to the AWS Management Console and search for

EC2.



Step 3:

Click Launch Instances.



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.

The screenshot shows the AWS Management Console 'Launch an instance' page. The breadcrumb navigation is 'EC2 > Instances > Launch an instance'. The page title is 'Launch an instance' with an 'Info' link. Below the title is a sub-header 'Name and tags' with an 'Info' link. There is a text input field for 'Name' containing 'e.g. My Web Server' and a button 'Add additional tags'. Below this is a section 'Application and OS Images (Amazon Machine Image)' with an 'Info' link. It contains a search bar with the placeholder 'Search our full catalog including 1000s of application and OS images'. Below the search bar are two tabs: 'Recents' and 'Quick Start'. Under 'Quick Start', there are seven tiles for different operating systems: Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE Linux, and Debian. To the right of these tiles is a button 'Browse more AMIs' with a magnifying glass icon. On the right side of the page is a 'Summary' panel. It contains the following information: 'Number of instances' set to '1'; 'Software Image (AMI)' as 'Amazon Linux 2023 AMI 2023.6.2...real' with ID 'ami-0c614dee691cbbf37'; 'Virtual server type (instance type)' as 't2.micro'; 'Firewall (security group)' as 'New security group'; and 'Storage (volumes)' as '1 volume(s) - 8 GiB'. At the bottom of the summary panel is a 'Free tier' note: 'Free tier: In your first year includ t2.micro (or t3.micro in the Regio t2.micro is unavailable) instance tier AMIs per month. 750 hours'. At the very bottom of the summary panel is a 'Cancel' button.

Check your running instance in the Instances section . Select your Instance and click the Connect Option.

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Global View

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Instances (1) Info

Last updated less than a minute ago

Refresh

Connect

Instance state ▾

Actions ▾

Launch instances ▾

Find Instance by attribute or tag (case-sensitive)

Instance ID = i-051ead7a8d74c7b33 ✕

Clear filters

All states ▾

<input type="checkbox"/>	Name	Instance ID	Instance state ▾	Instance type ▾	Status check	Alarm status	Availability Zone ▾	Public IP
<input type="checkbox"/>	host	i-051ead7a8d74c7b33	Running	t2.micro	Initializing	View alarms +	us-east-1c	ec2-54-16

Select an instance

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

EC2 > Instances > i-051ead7a8d74c7b33 > Connect to instance

Connect to instance

Info

Connect to your instance i-051ead7a8d74c7b33 (host) using any of these options

EC2 Instance Connect

Session Manager

SSH client

EC2 serial console

Instance ID

i-051ead7a8d74c7b33 (host)

1. Open an SSH client.

2. Locate your private key file. The key used to launch this instance is esa.pem

3. Run this command, if necessary, to ensure your key is not publicly viewable.

chmod 400 "esa.pem"

4. Connect to your instance using its Public DNS:

ec2-54-160-171-135.compute-1.amazonaws.com

✔ Command copied

ssh -i "esa.pem" ec2-user@ec2-54-160-171-135.compute-1.amazonaws.com

Note:

In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

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.

```
Copyright (C) Microsoft Corporation. All rights reserved.
```

Install the latest PowerShell for new features and improvements! <https://aka.ms/PSWindows>

```
PS C:\Users\sairam> cd downloads
PS C:\Users\sairam\downloads> ssh -i "esa.pem" ec2-user@ec2-54-160-171-135.compute-1.amazonaws.com
The authenticity of host 'ec2-54-160-171-135.compute-1.amazonaws.com (54.160.171.135)' can't be established.
ED25519 key fingerprint is SHA256:JxY1hKPJGHbCCuoofY5XE4pr1jmQXT64VQ1ujm6L/Ro.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-54-160-171-135.compute-1.amazonaws.com' (ED25519) to the list of known hosts.
```

The terminal shows the installation progress of the AWS CLI on Amazon Linux 2023. It displays the version number (2.15.18), the download URL (<https://aws.amazon.com/linux/amazon-linux-2023>), and the current installation path (/usr/bin). The prompt indicates the user is logged in as ec2-user at ip-172-31-18-68.

```
#_
~ \ ##### Amazon Linux 2023
   \_#####\
      \#####\
         \###|
            \#/ --- https://aws.amazon.com/linux/amazon-linux-2023
              V~' '---
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 / 
/_/m/' ~] $

[ec2-user@ip-172-31-18-68 ~]$
```

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.