

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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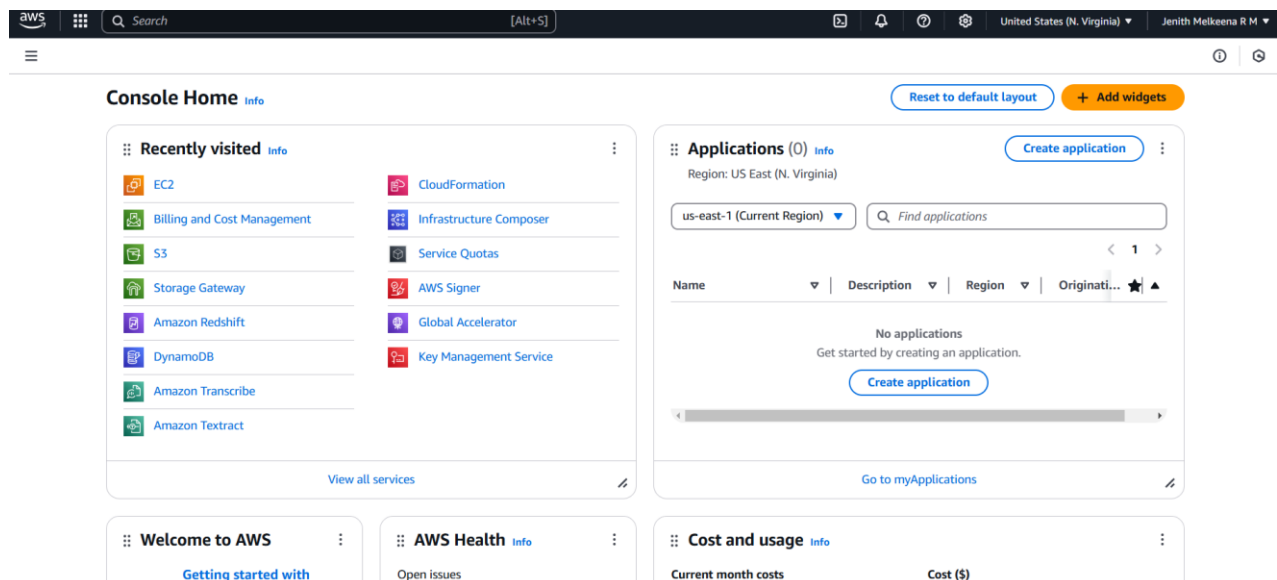
Introduction

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

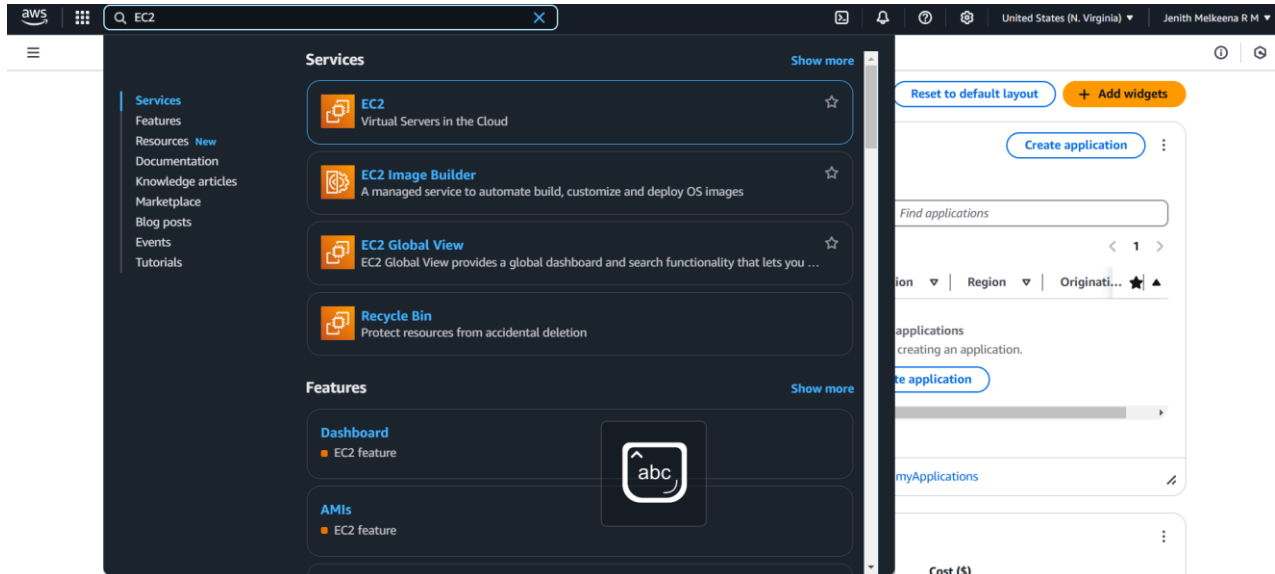
Step 1:

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



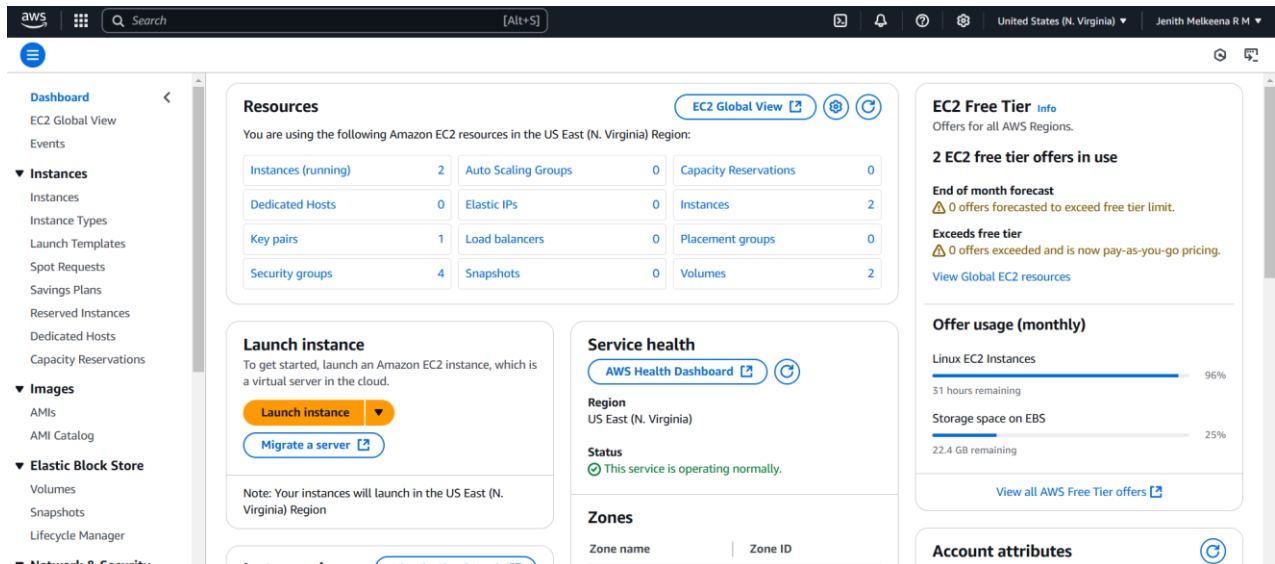
Step 2:

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**.

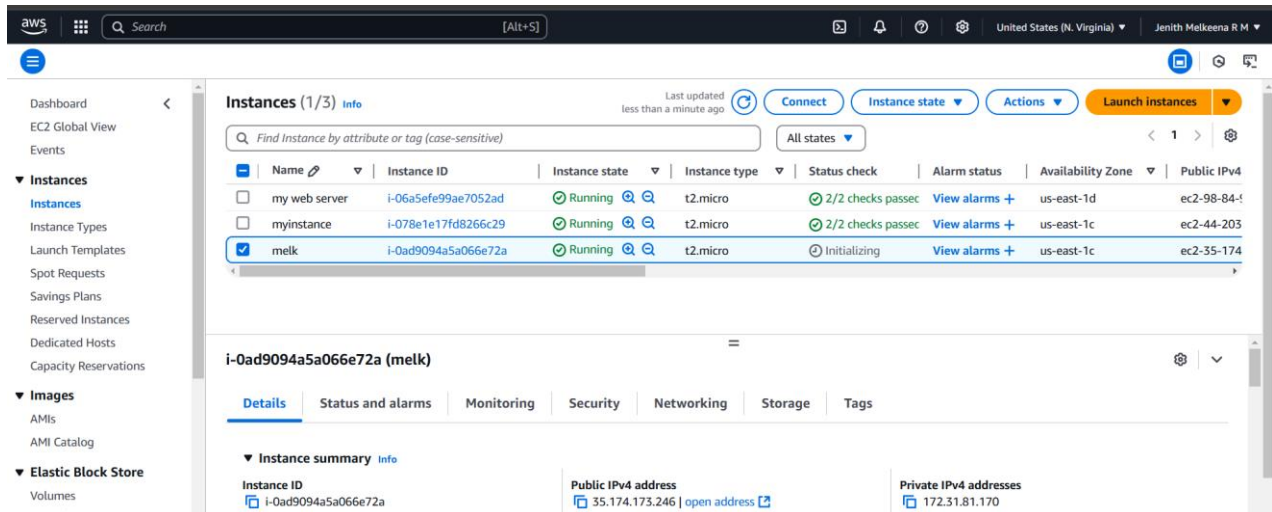
The screenshot shows the AWS Management Console 'Launch an instance' page. The breadcrumb trail is 'EC2 > Instances > Launch an instance'. The page title is 'Launch an instance' with an 'Info' link. Below the title is a brief description: 'Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.'

The main configuration area is divided into two sections: 'Name and tags' and 'Application and OS Images (Amazon Machine Image)'. The 'Name and tags' section has a 'Name' field with the placeholder 'e.g. My Web Server' and an 'Add additional tags' button. The 'Application and OS Images' section has 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 several operating system logos: Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE Linux, and Debian. To the right of these logos is a 'Browse more AMIs' button with a magnifying glass icon and the text 'Including AMIs from AWS, Marketplace and the Community'.

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...read more' with the ID 'ami-0c614dee691cbbf57'; '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 blue box with a warning icon and text: '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. 750 hours of public IP use'. At the bottom of the page are two buttons: 'Cancel' and 'Launch instance' (in orange). Below the 'Launch instance' button is a 'Preview code' link.

Step 5:

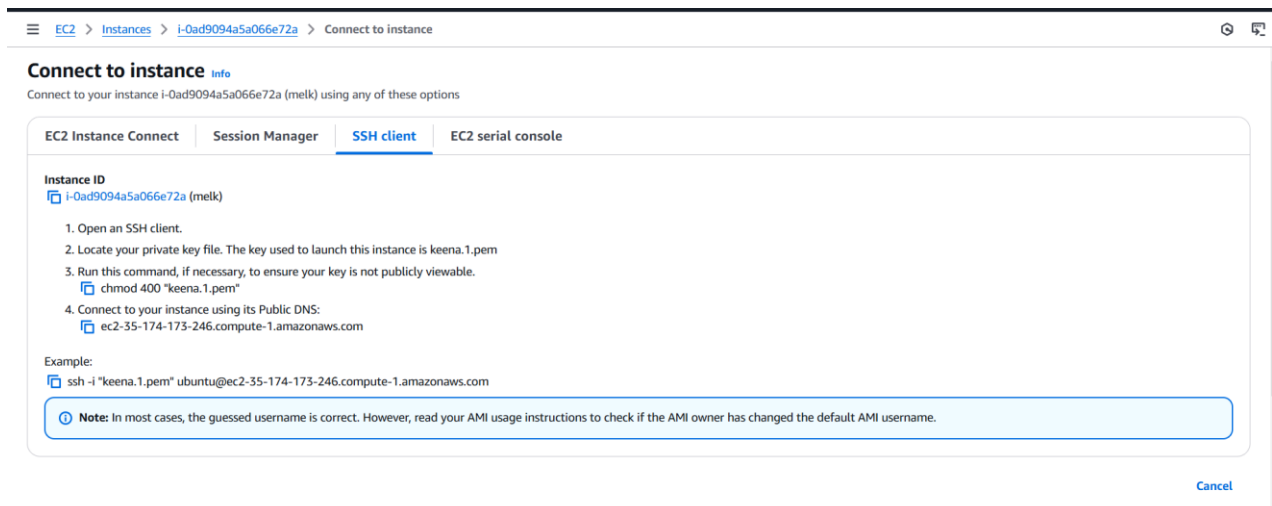
Check your running instance in the Instances section . Select your Instance and click the Connect Option.



The screenshot shows the AWS Management Console interface. On the left is a navigation menu with options like Dashboard, EC2 Global View, Events, and Instances. The main area displays the 'Instances (1/3)' page. A table lists three instances: 'my web server' (ID: i-06a5efe99ae7052ad), 'myinstance' (ID: i-078e1e17fd8266c29), and 'melk' (ID: i-0ad9094a5a066e72a). The 'melk' instance is selected. Below the table, the 'Details' tab for the 'melk' instance is expanded, showing its Instance ID, Public IPv4 address (35.174.173.246), and Private IPv4 addresses (172.31.81.170).

Step 6:

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



The screenshot shows the 'Connect to instance' page in the AWS Management Console. The 'SSH client' tab is selected. It provides instructions for connecting to the instance 'i-0ad9094a5a066e72a (melk)'. The instructions are: 1. Open an SSH client. 2. Locate your private key file. The key used to launch this instance is keena.1.pem. 3. Run this command, if necessary, to ensure your key is not publicly viewable. 4. Connect to your instance using its Public DNS: ec2-35-174-173-246.compute-1.amazonaws.com. An example command is provided: ssh -i "keena.1.pem" ubuntu@ec2-35-174-173-246.compute-1.amazonaws.com. A note states: 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.

```
PS C:\Users\jenit> cd downloads
PS C:\Users\jenit\downloads> ssh -i "keena.1.pem" ubuntu@ec2-35-174-173-246.compute-1.amazonaws.com
The authenticity of host 'ec2-35-174-173-246.compute-1.amazonaws.com (35.174.173.246)' can't be established.
ED25519 key fingerprint is SHA256:v4v75IzA3MmdxEj\IvVOy+6LFbK0i6phkTeola6fjU8.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? |
```

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.