Placement Empowerment Program

Cloud Computing and DevOps Centre

Set Up IAM Roles and Permissions

" Create an IAM role on your cloud platform. Assign the role to your VM to restrict/allow specific actions."

Name: **DHARSHINI P** DEPARTMENT: **IT**

Introduction

IAM (Identity and Access Management) roles and permissions are essential for managing access control within a cloud environment. By configuring IAM roles, you can define what actions a Virtual Machine (VM) can perform and which resources it can access. This ensures security, prevents unauthorized access, and follows the principle of least privilege.

Overview

IAM roles are used to grant specific permissions to AWS, GCP, or Azure resources without using long-term credentials. Instead of assigning direct user permissions, IAM roles allow instances, applications, or services to assume predefined access levels dynamically.

Objective

The primary objectives of this POC are:

- Create an IAM role with necessary permissions.
- Attach the role to a VM instance.
- Define policies to allow/restrict access to specific services.
- Improve security by following best IAM practices.

Importance

- **Enhanced Security**: Eliminates the need for storing sensitive credentials within the VM.

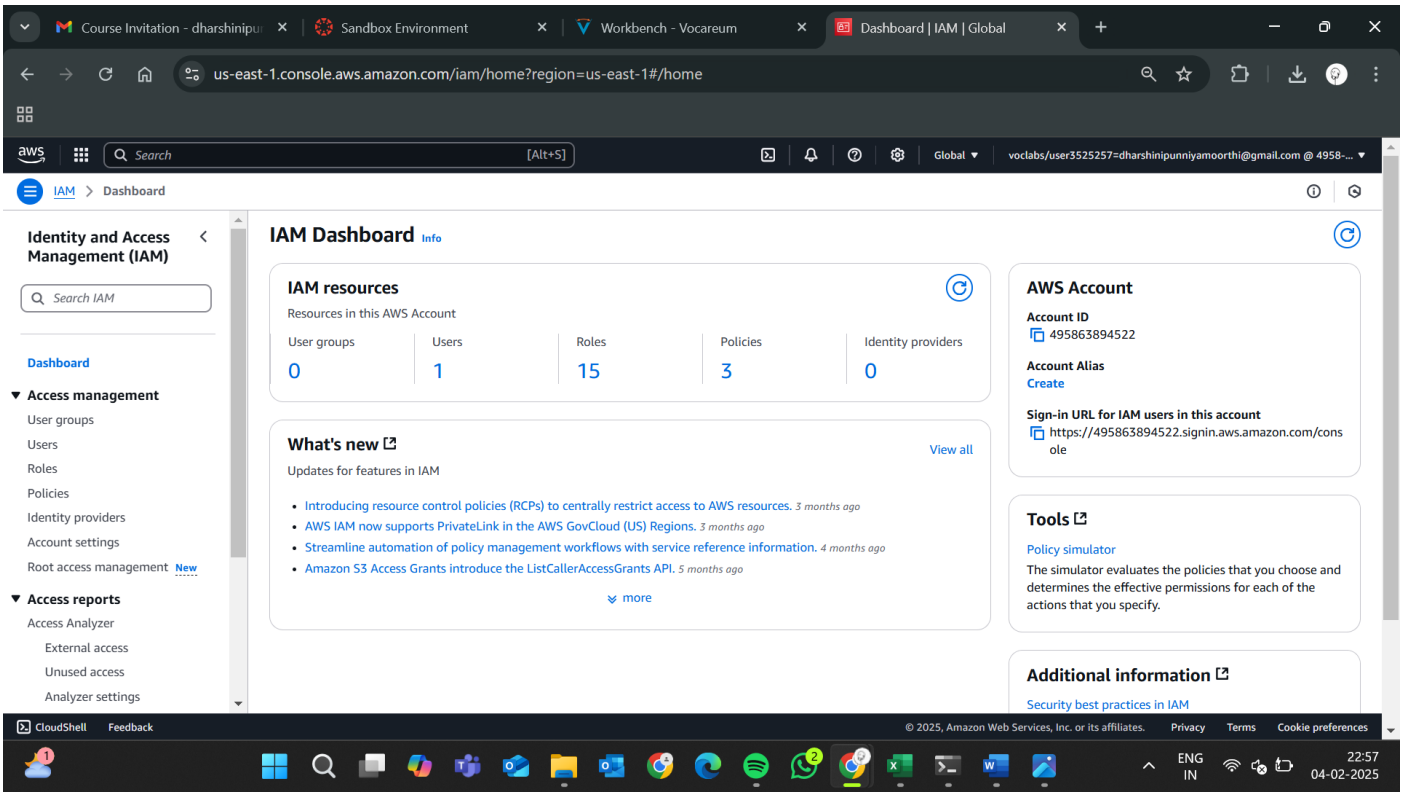
- **Access Control**: Ensures that the VM operates only within the permitted scope.
- **Audit and Monitoring**: Facilitates tracking of access and activities via cloud logs.
- **Scalability**: Allows dynamic role-based access without modifying user-level permissions.

Step-by-Step Overview

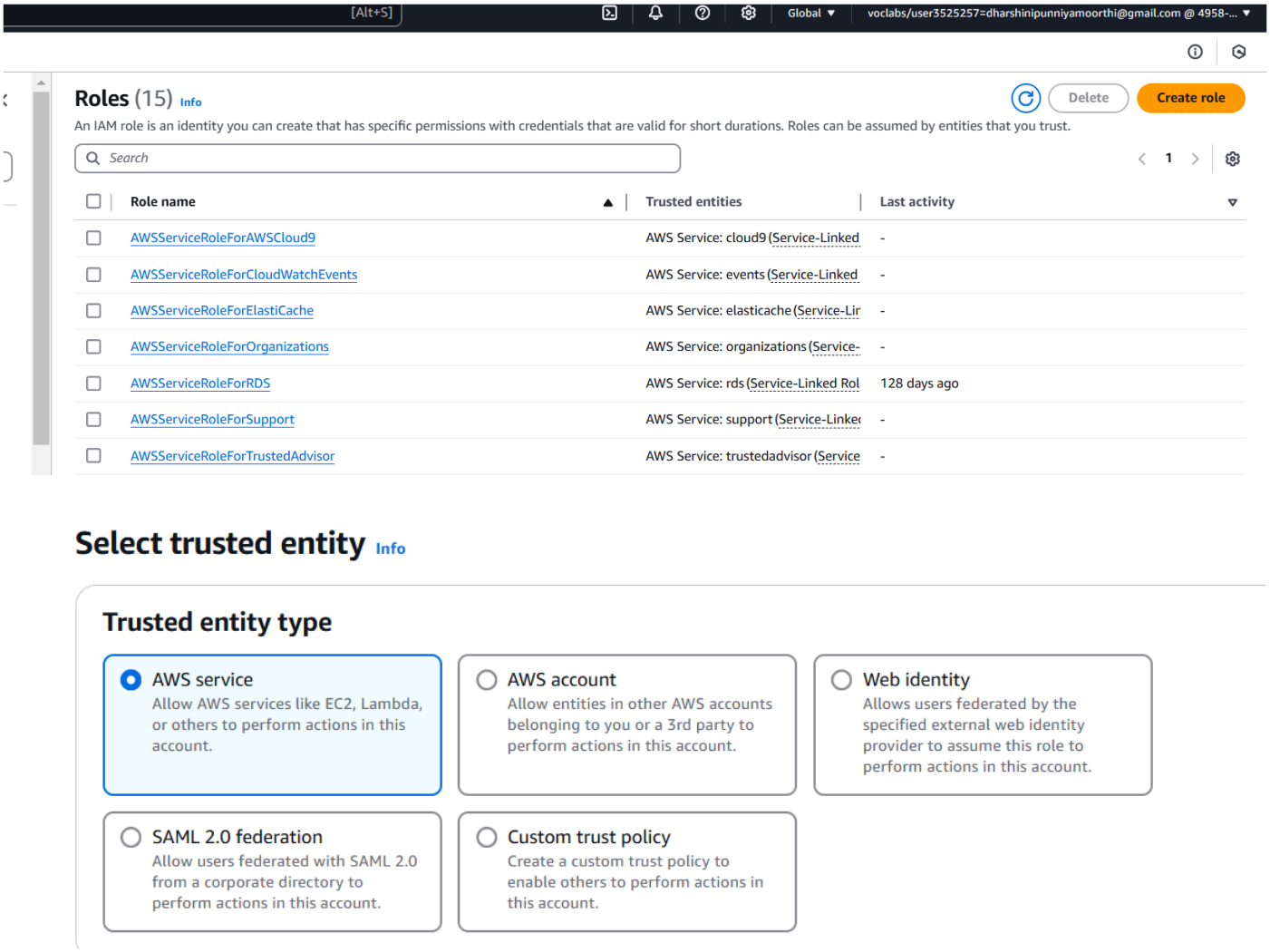
Step 1:

Create an IAM Role:

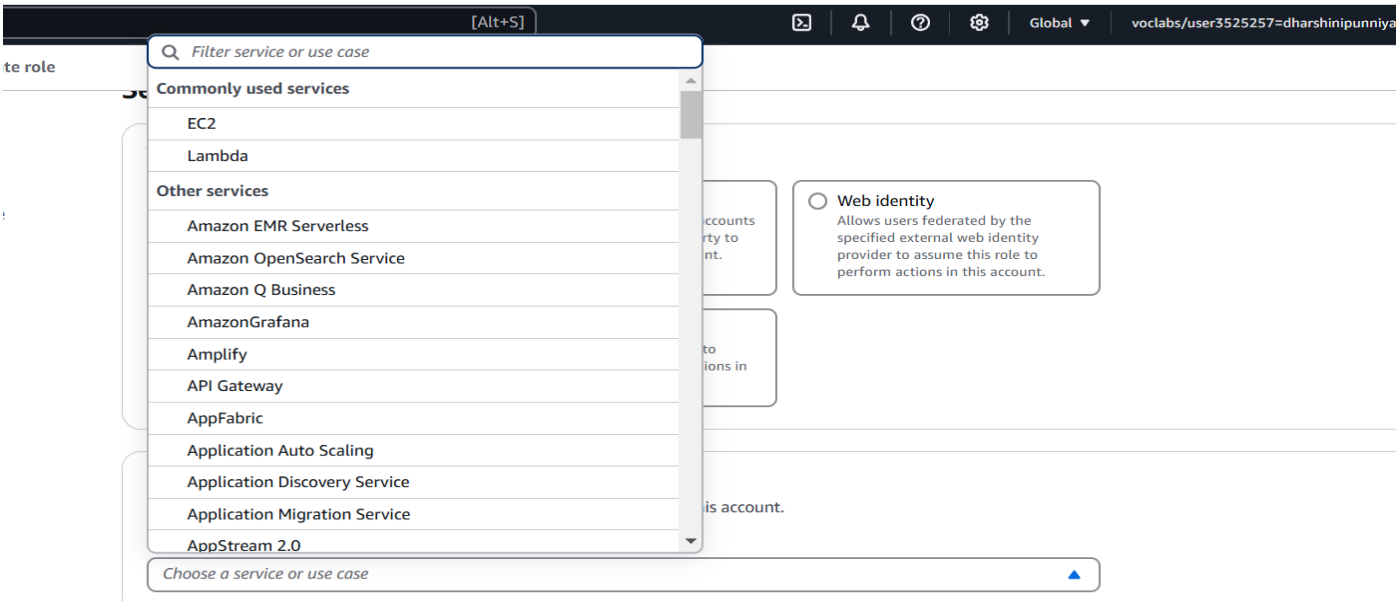
- Navigate to the **IAM Console → Roles**.

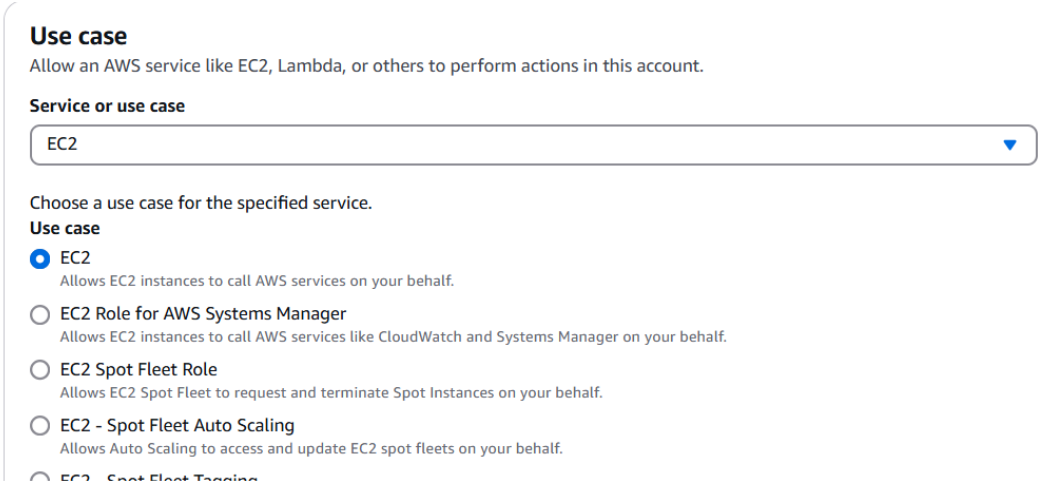


- Click **Create role** and select **AWS service** as a trusted entity.

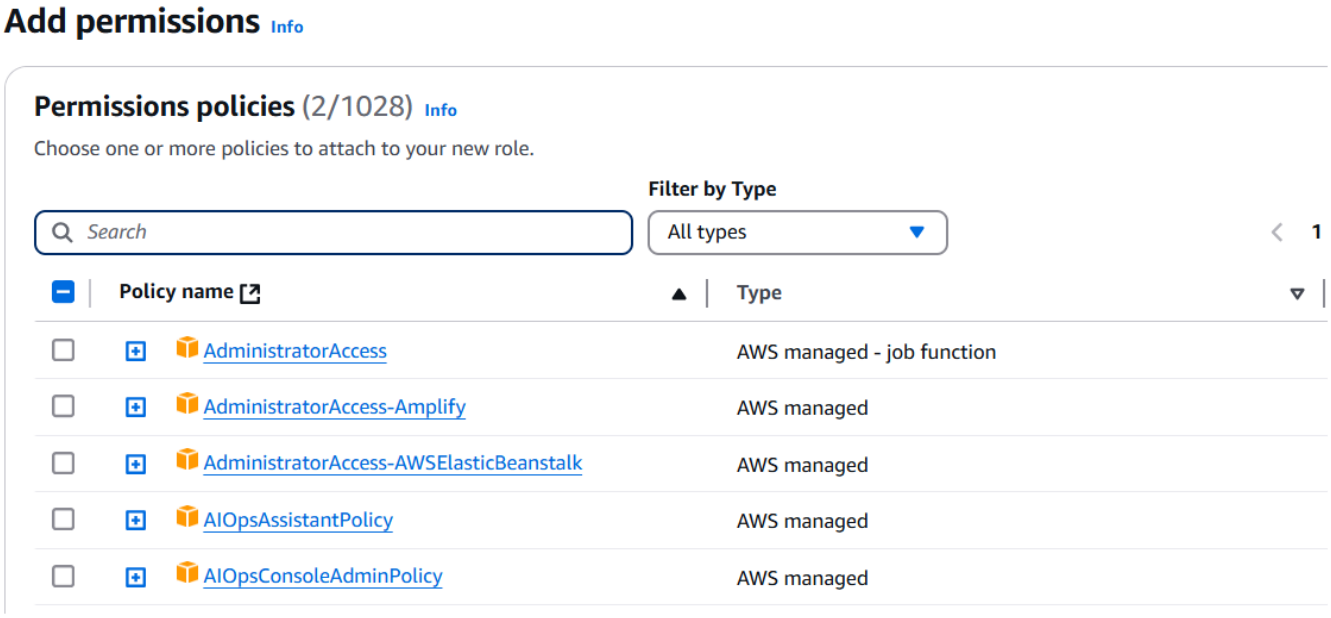


- Choose **EC2** as the use case.

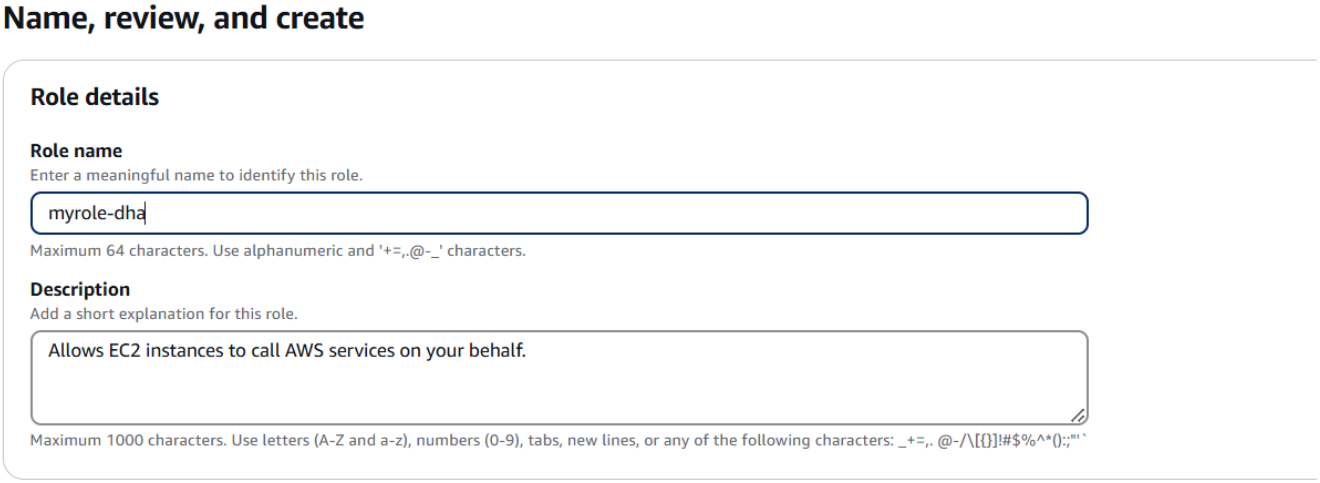




- Attach policies (e.g., AmazonS3ReadOnlyAccess for read-only S3 access).



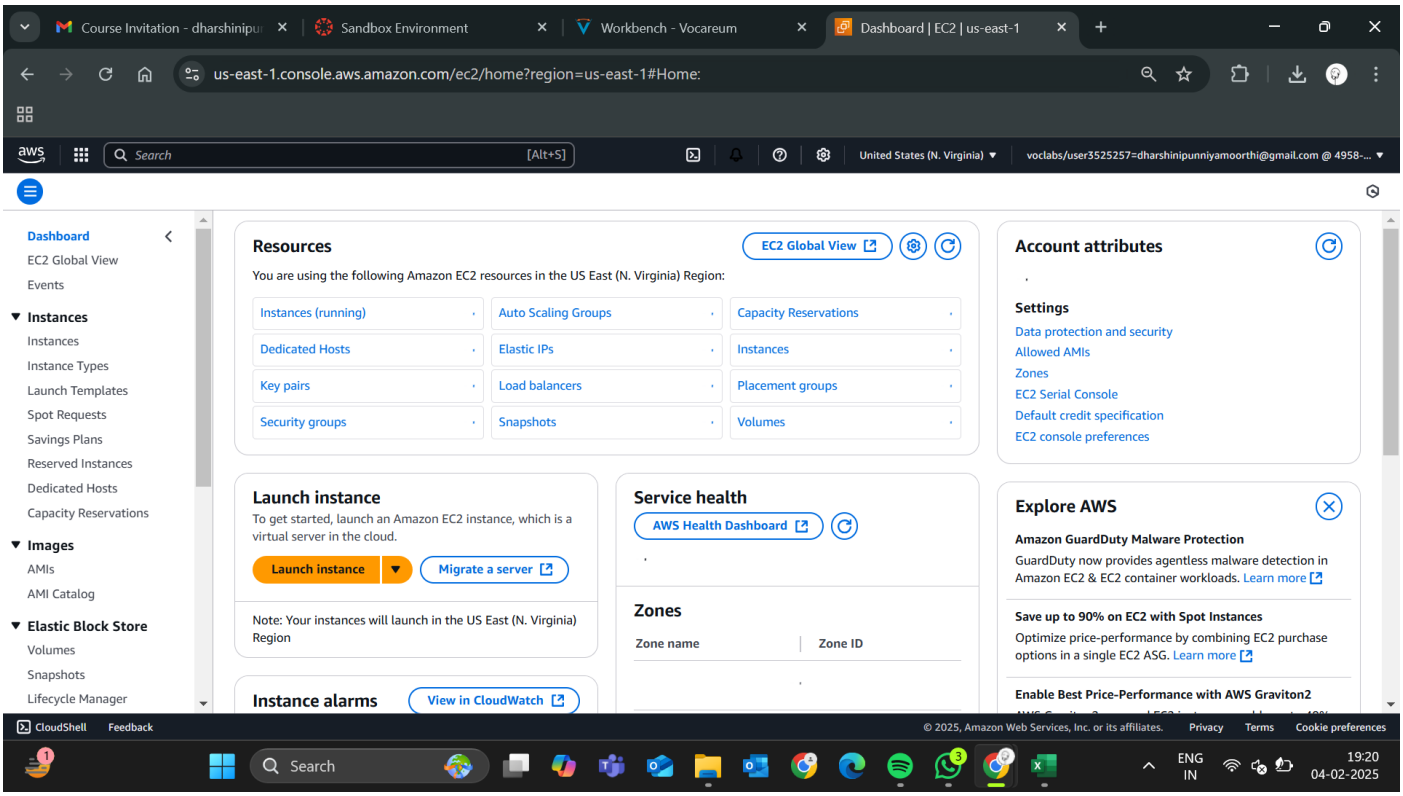
- Name the role and create it.



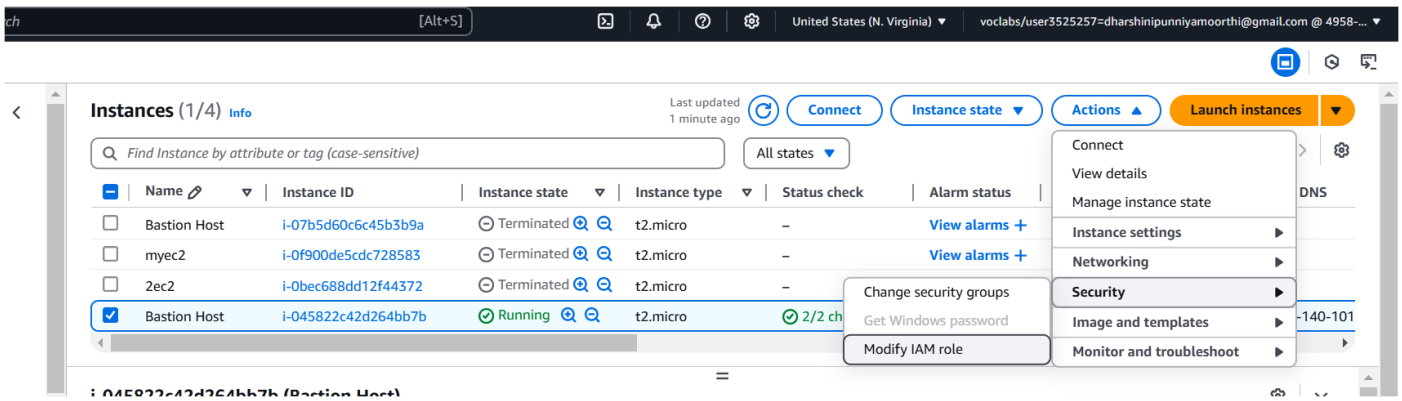
Step 2:

Attach the Role to an EC2 Instance:

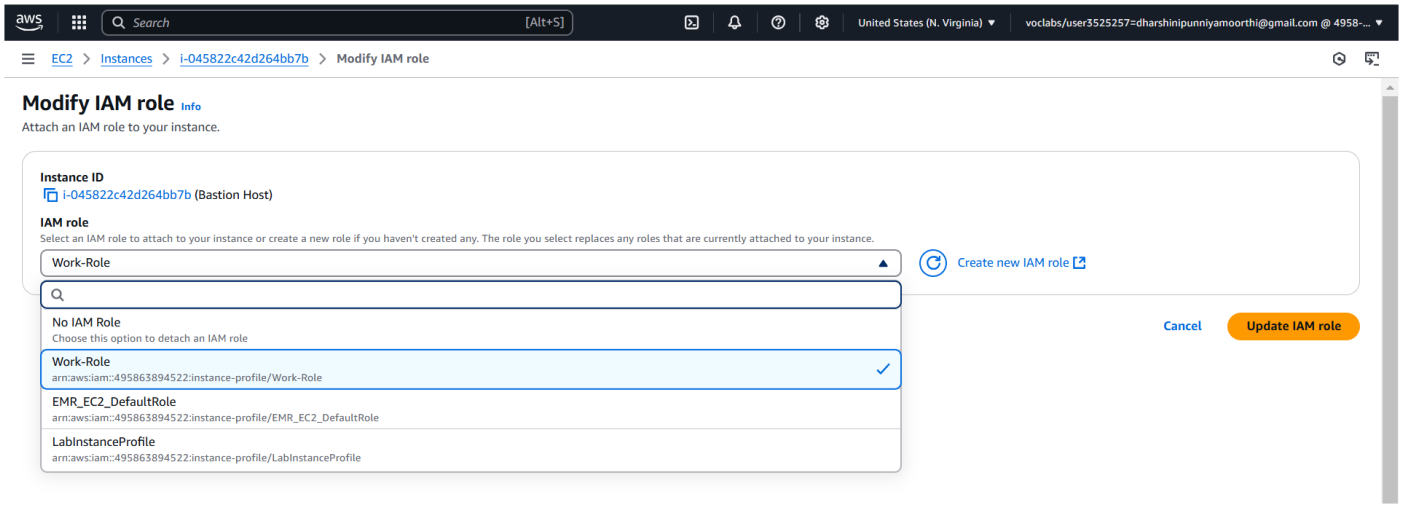
- Go to **EC2 Console** → Select your instance.

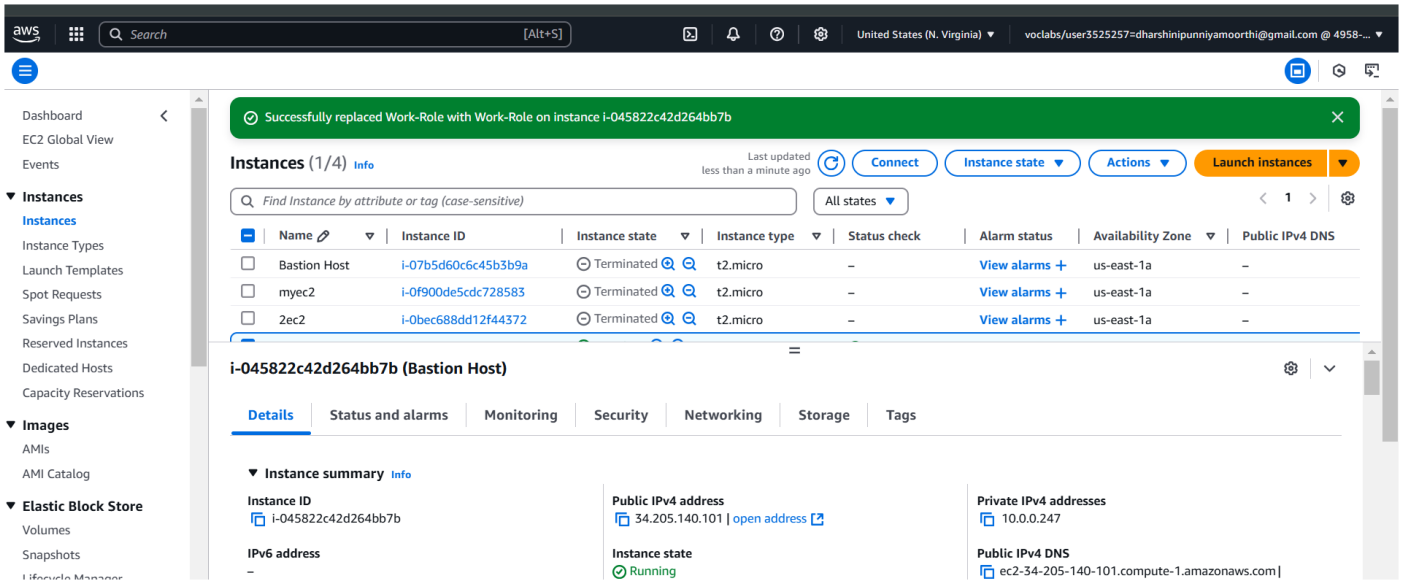


- Click **Actions** → **Security** → **Modify IAM Role**.



- Select the newly created IAM role and attach it.





Expected Outcome:

By the end of this process, you will have:

- The IAM role is successfully created and assigned to the VM.
- The VM is granted only the specified permissions without using credentials.
- The configured access restrictions work as expected, improving security.
- The role-based access can be monitored and modified as needed.

By following these steps, you ensure secure and efficient access control for your cloud-based virtual machines.