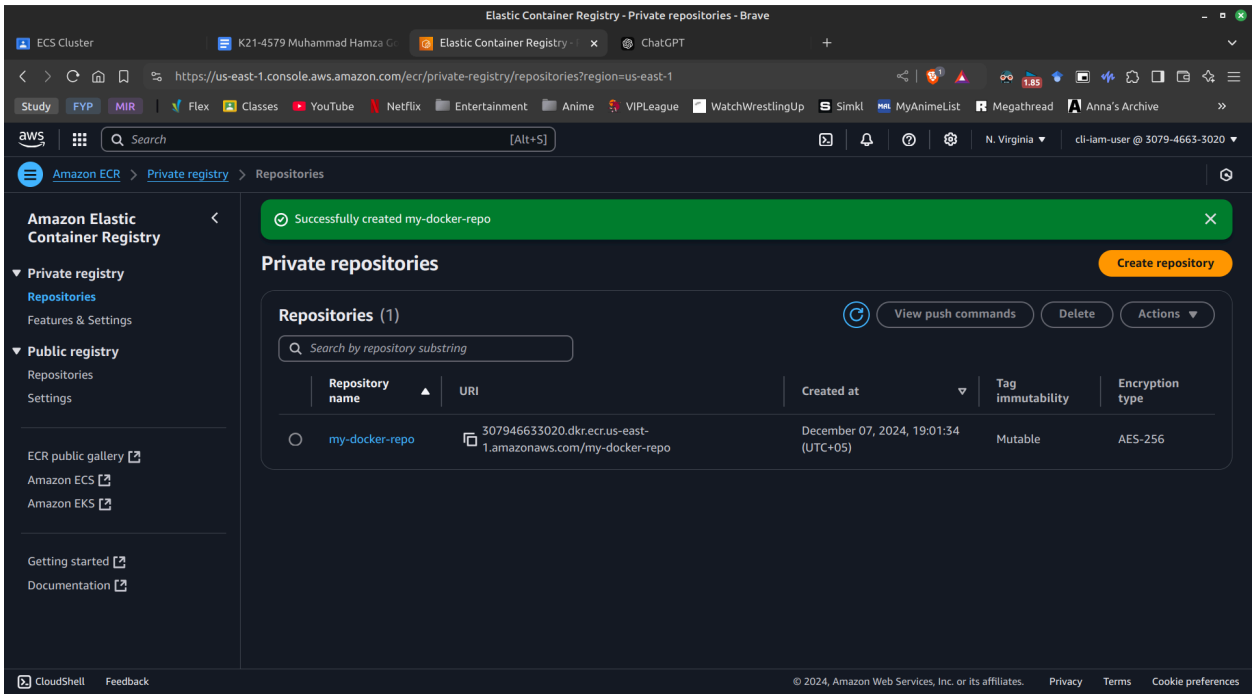
Muhammad Hamza
21K-4579

1. Create an ECR Repository

1. **Login to AWS Management Console**:
   - Navigate to **ECR (Elastic Container Registry)** from the Services menu.
2. **Create Repository**:
   - Click **Create Repository**.
   - Enter the **repository name** (e.g., `my-docker-repo`).
   - Select **Private** as the repository type.
   - Configure settings like tag immutability or encryption if needed.
   - Click **Create**.



2. Push a Docker Image to ECR from Your Local Machine

1. **Authenticate Docker with ECR**:
   - Open your CLI and authenticate

```
aws ecr get-login-password --region us-east-1 | docker login
--username AWS --password-stdin
307946633020.dkr.ecr.us-east-1.amazonaws.com
```

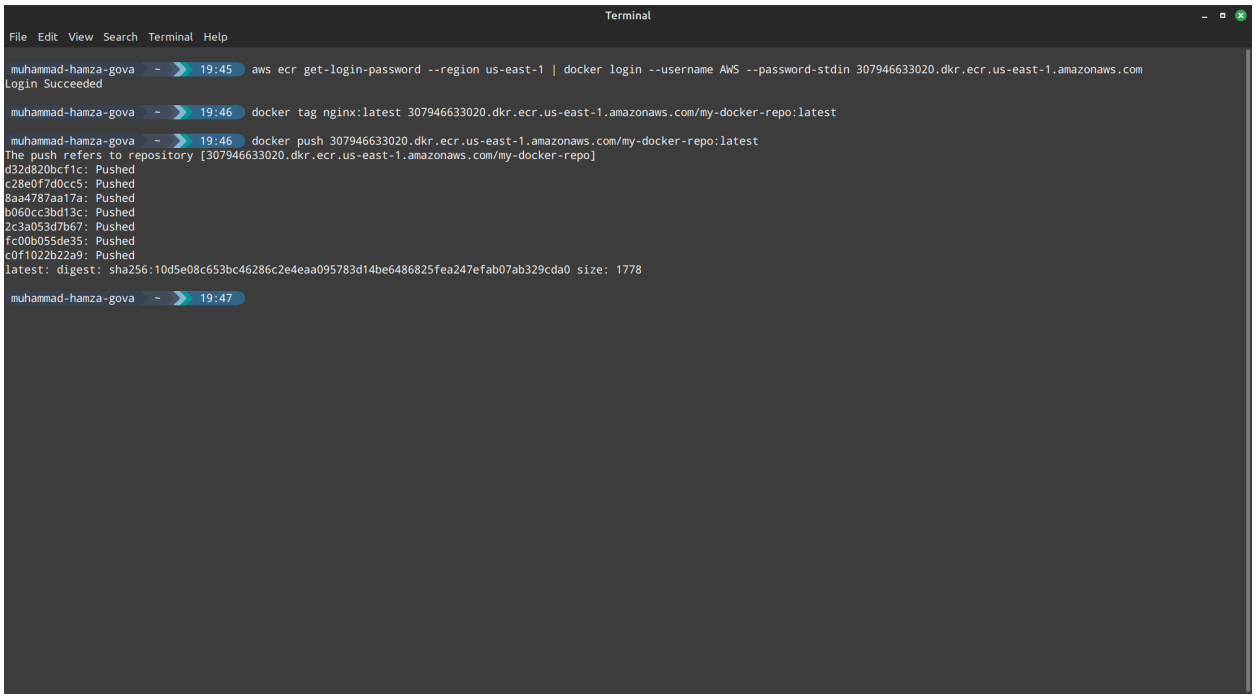
Muhammad Hamza
21K-4579

2. **Tag the Image**:
   - Tag your Docker image with the repository URI:

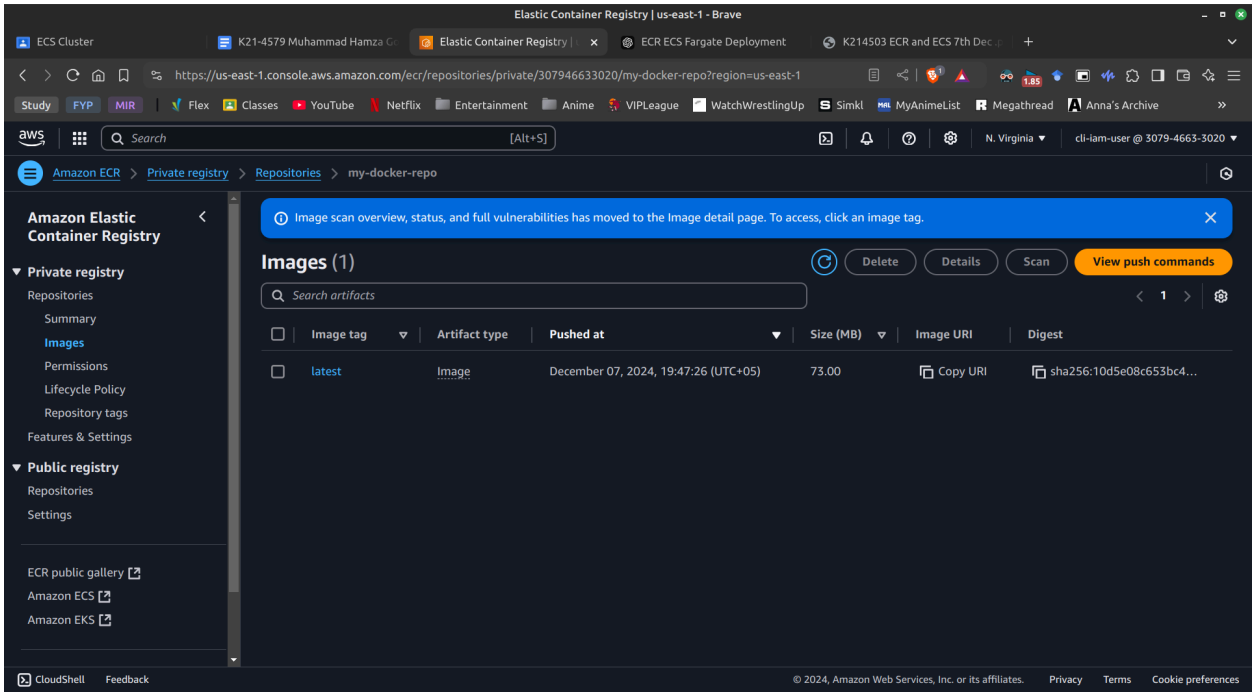
```
docker tag nginx:latest
307946633020.dkr.ecr.us-east-1.amazonaws.com/my-docker-repo:latest
```

3. **Push the Image**:
   - Push the tagged image:

```
docker push
<account-id>.dkr.ecr.<region>.amazonaws.com/<repository-name>:<tag>
```



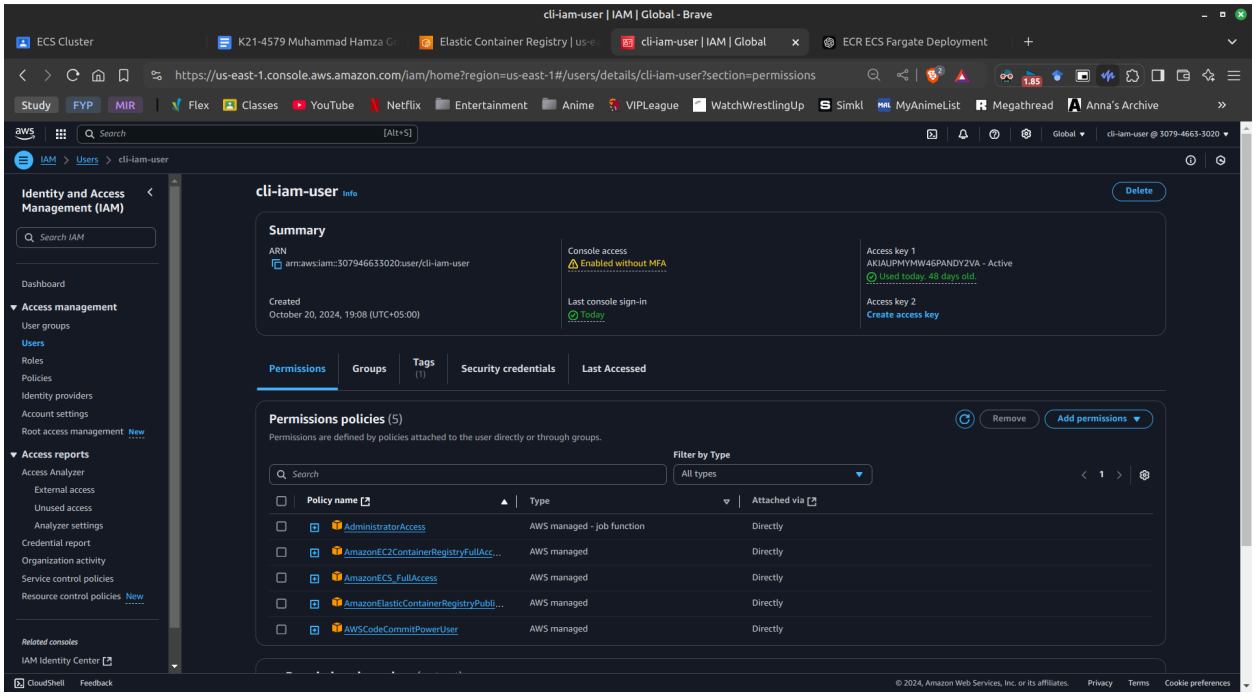
Muhammad Hamza
21K-4579



3. Configure Permissions for ECR

1. **Create IAM Role for ECR Access**:
   - Go to **IAM** → **Roles** → **Create Role**.
   - Select **AWS Service** → **ECS**.
   - Attach the policy **AmazonEC2ContainerRegistryFullAccess**.
   - Name the role (e.g., `cli-iam-user`) and create it.
2. **Assign Policy to User/Role**:
   - Ensure users pushing/pulling images have the `AmazonEC2ContainerRegistryFullAccess` or similar permissions.

Muhammad Hamza
21K-4579



Here's a step-by-step guide for completing your task based on the AWS Management Console and information from the reference PDF:

---

1. Create an ECR Repository

1. **Login to AWS Management Console**:
   - Navigate to **ECR (Elastic Container Registry)** from the Services menu.
2. **Create Repository**:
   - Click **Create Repository**.
   - Enter the **repository name** (e.g., `my-docker-repo`).
   - Select **Private** as the repository type.
   - Configure settings like tag immutability or encryption if needed.
   - Click **Create**.

---

2. Push a Docker Image to ECR from Your Local Machine

1. **Authenticate Docker with ECR**:

Open your CLI and authenticate:
bash
Copy code
```
aws ecr get-login-password --region <your-region> | docker login
```

```
--username AWS --password-stdin
<account-id>.dkr.ecr.<region>.amazonaws.com
```

2. **Tag the Image**:

Tag your Docker image with the repository URI:
bash
Copy code

```
docker tag <local-image-name>:<tag>
<account-id>.dkr.ecr.<region>.amazonaws.com/<repository-name>:<tag>
```

3. **Push the Image**:

Push the tagged image:
bash
Copy code

```
docker push
<account-id>.dkr.ecr.<region>.amazonaws.com/<repository-name>:<tag>
```

---

3. Configure Permissions for ECR

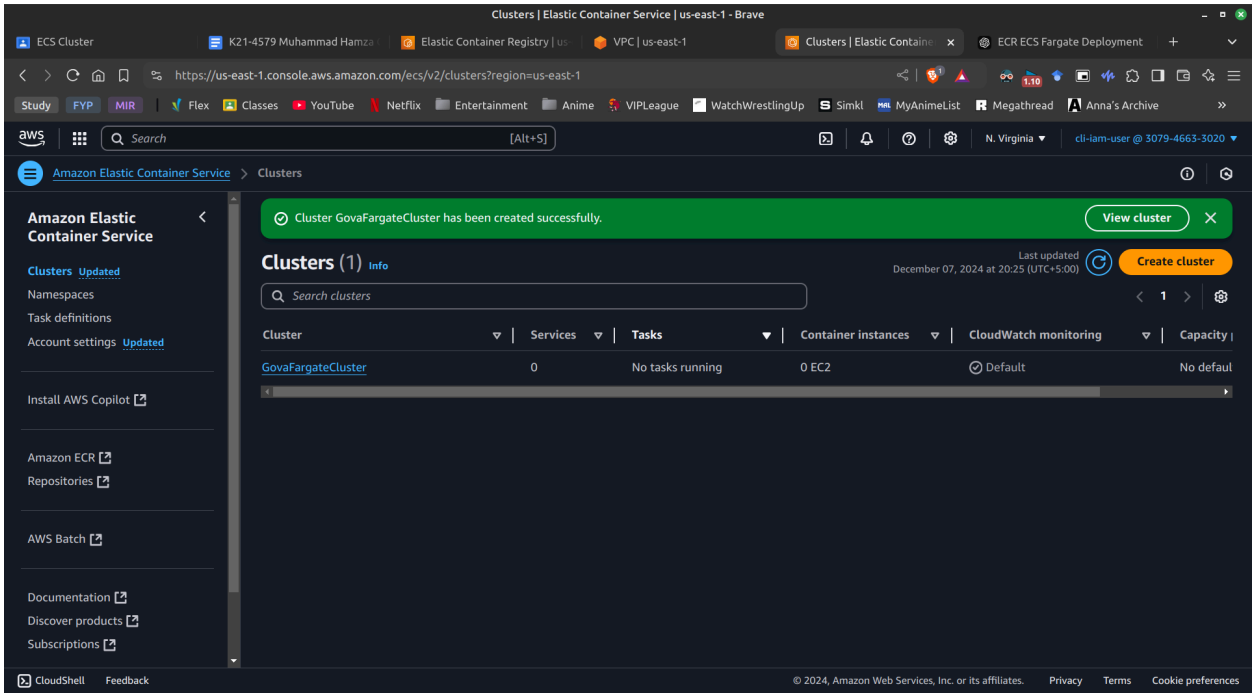
1. **Create IAM Role for ECR Access**:
   - Go to **IAM** → **Roles** → **Create Role**.
   - Select **AWS Service** → **ECS**.
   - Attach the policy **AmazonEC2ContainerRegistryFullAccess**.
   - Name the role (e.g., `ECRAccessRole`) and create it.
2. **Assign Policy to User/Role**:
   - Ensure users pushing/pulling images have the `AmazonEC2ContainerRegistryPowerUser` or similar permissions.

---

4. Set Up an ECS Cluster

1. **Create an ECS Cluster**:
   - Navigate to **ECS (Elastic Container Service)** in the AWS Console.
   - Click **Create Cluster**.
   - Select **Networking only (Fargate)**.

- Provide a name for the cluster (e.g., `GovaFargateCluster`).
- Configure VPC and subnets if not pre-configured.
- Click **Create**.



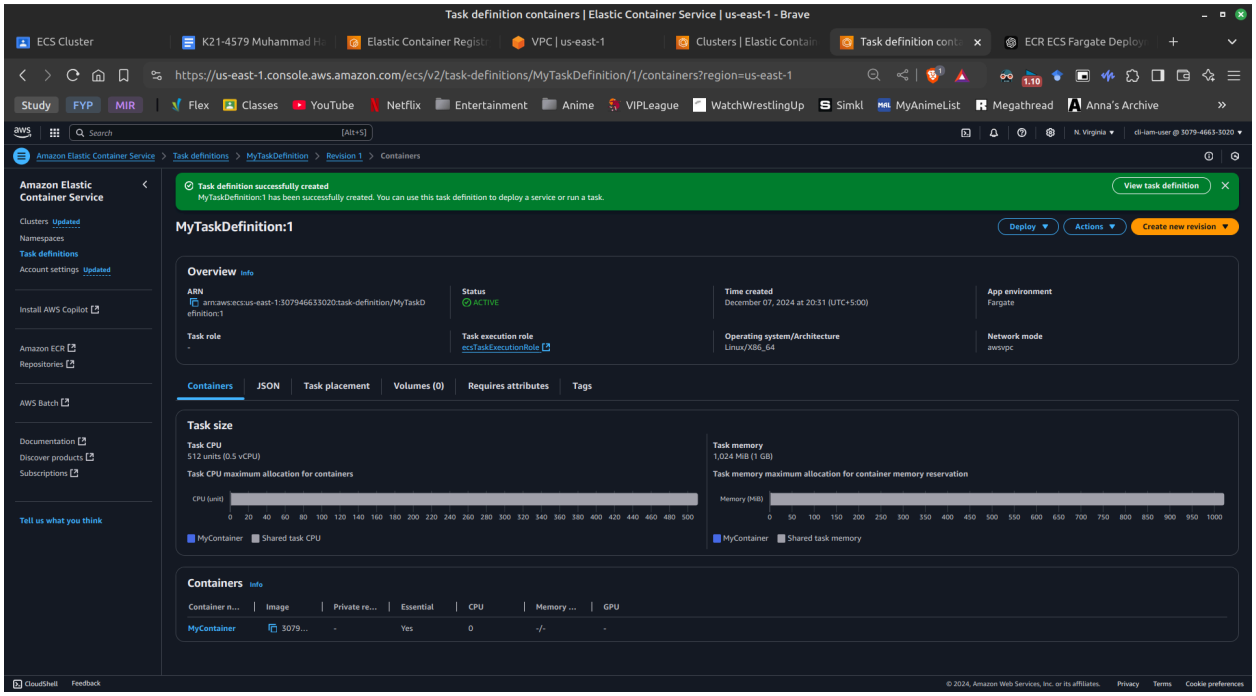
5. Deploy a Docker Container to ECS using Fargate

1. **Create Task Definition**:
   - Go to **Task Definitions** → **Create New Task Definition**.
   - Choose **Fargate**.
   - Provide a task definition name (e.g., `MyTaskDefinition`).
   - Add a container:
     - Click **Add Container**.
     - Enter the container name (e.g., `MyContainer`).
     - Add the image URI from ECR

`307946633020.dkr.ecr.us-east-1.amazonaws.com/my-docker-repo:latest`

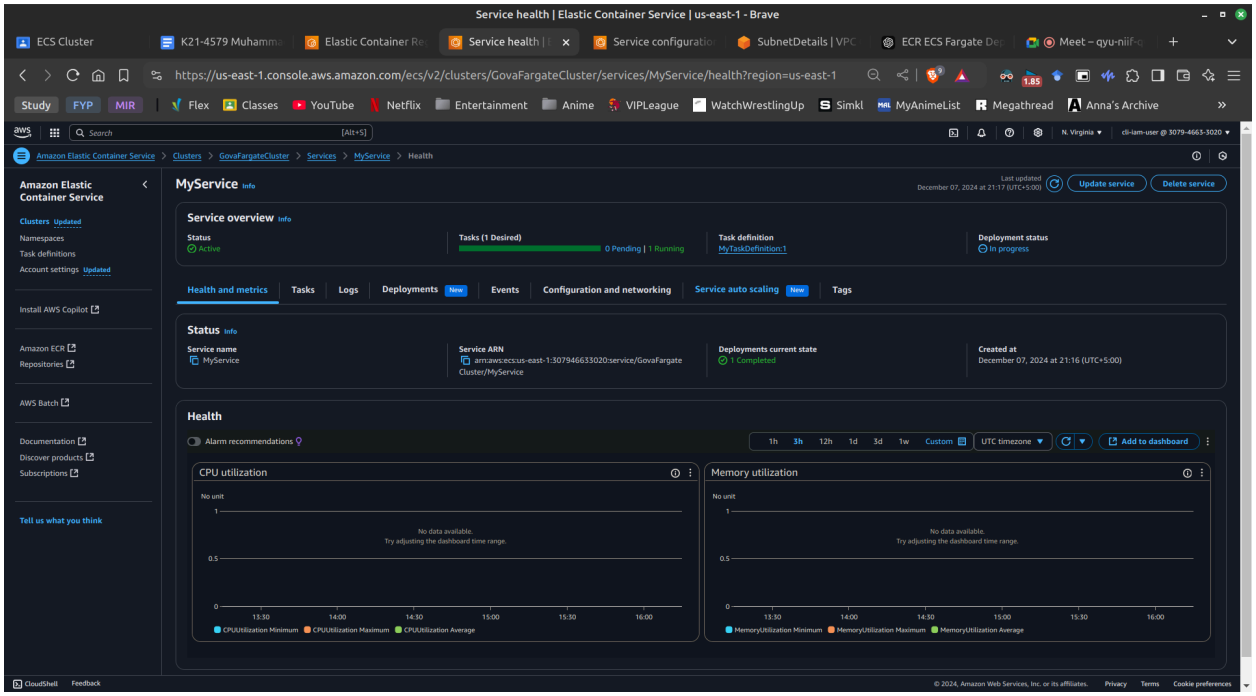
     - Configure CPU/memory limits.
     - Set port mappings (e.g., 80:80 for a web server).
   - Save and create the task definition.

Muhammad Hamza
21K-4579

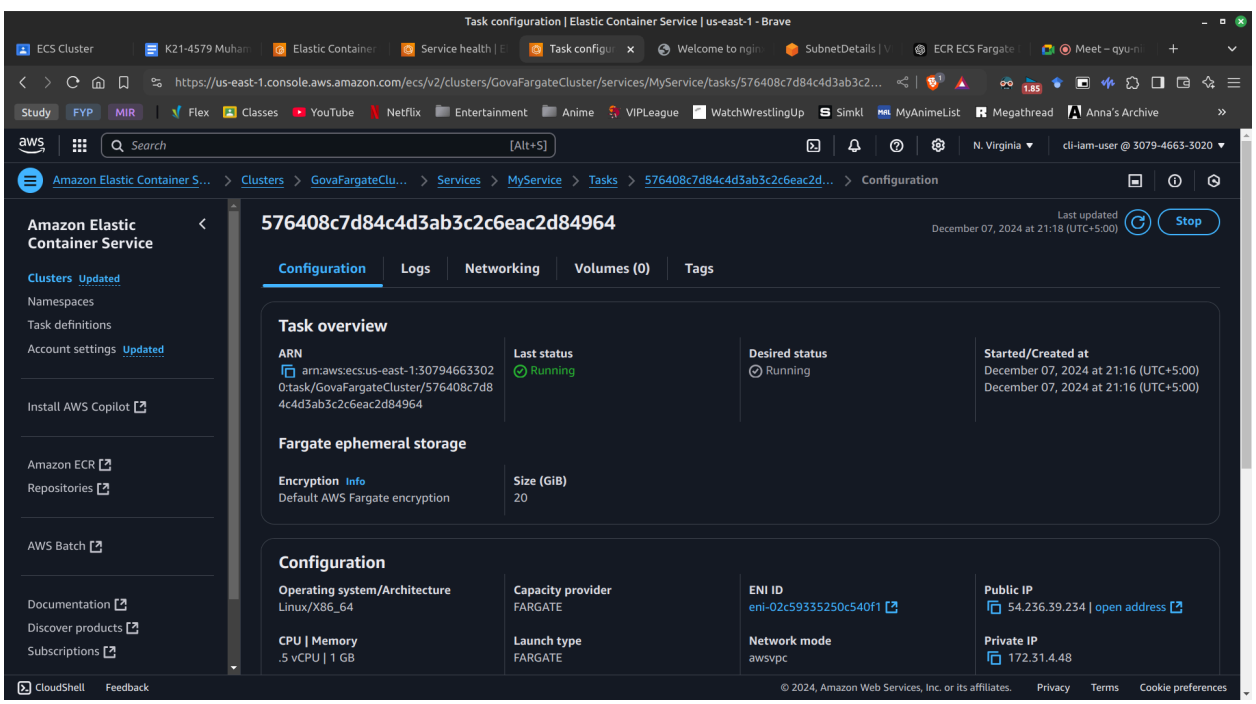


2. **Run a Service**:
   - Go to **Services** in your cluster.
   - Click **Create Service**.
   - Choose Fargate as the launch type.
   - Select your task definition and cluster.
   - Configure service settings (e.g., number of tasks).
   - Enable **Public IP** for networking.
   - Click **Create Service**.

Muhammad Hamza
21K-4579



3. **Access the Deployed Container**:
   - Go to the **Tasks** section in your service.
   - Copy the **Public IP** of the running task.
   - Use it to access your application (e.g., `http://54.236.39.234/`).



Muhammad Hamza
21K-4579