

Exercise: Setting Up AWS Elastic Container Service (ECS) with Fargate and Nginx

Objective:

By the end of this exercise, students will have created an ECS cluster, a service, and a task that uses an Nginx container to run a simple web page. This exercise follows the steps described in the YouTube video tutorial.

Prerequisites:

- AWS account
- Basic understanding of AWS services and Docker
- Access to the AWS Management Console

Instructions:

Step 1: Create an ECS Cluster

1. **Navigate to ECS:**
 - Log in to your AWS Management Console.
 - In the services menu, search for and select **ECS (Elastic Container Service)**.
2. **Enable New ECS Experience:**
 - Ensure the new ECS experience is enabled by toggling the option on the top left, if available.
3. **Create a Cluster:**
 - In the left navigation pane, click on **Clusters**.
 - Click on **Create Cluster**.
 - Select the **Networking only** option and click on **Next step**.
 - Name your cluster (e.g., `my-first-cluster`).
 - For networking, select the default VPC and subnets. Ensure at least three subnets are selected.
 - Choose **Fargate** as the launch type.
 - Click on **Create**.

Step 2: Create a Task Definition

4. **Navigate to Task Definitions:**
 - In the left navigation pane, click on **Task Definitions**.
 - Click on **Create new Task Definition**.
 - Select **Fargate** as the launch type and click on **Next step**.
5. **Configure Task Definition:**
 - Name the task definition (e.g., `nginx-task-definition`).
 - Add a container by clicking **Add container**.
 - Name the container `nginx` and set the image to `public.ecr.aws/nginx/nginx`.

- Set the memory limit to **512 MiB** and the CPU units to **256**.
 - Click on **Add**.
 - Click on **Next step**.
6. **Configure Task Size:**
- Set the task size to **0.5 vCPU** and **1 GB** memory.
 - Click on **Next step**.
 - Review the task definition and click on **Create**.

Step 3: Create a Service

7. **Navigate to Services:**
- In the left navigation pane, click on **Clusters**.
 - Click on the name of your cluster (e.g., **my-first-cluster**).
 - Click on **Create** under the **Services** tab.
8. **Configure Service:**
- Select the task definition created earlier (e.g., **nginx-task-definition**).
 - Name the service (e.g., **nginx-service**).
 - Set the number of desired tasks to **1**.
 - Click on **Next step**.
9. **Configure Networking:**
- Ensure that the **Fargate** launch type is selected.
 - Select the VPC and subnets used in the cluster creation.
 - Create a new security group that allows inbound traffic on port **80** (HTTP).
 - Ensure the **Auto-assign public IP** is enabled.
 - Click on **Next step**.
10. **Review and Create Service:**
- Review the service settings and click on **Create Service**.
 - Wait for the service to be created.

Step 4: Verify the Nginx Web Page

11. **Access the Nginx Web Page:**
- In the ECS service details, find the running task.
 - Click on the task ID to view details.
 - Find the **Public IP** address of the task.
 - Open a web browser and navigate to the public IP address.
 - You should see the Nginx welcome page.

Step 5: Cleanup

12. **Delete Resources:**
- To avoid charges, delete the service, cluster, and task definition once you have verified that the setup works.
 - Stop the task, delete the service, and then delete the cluster from the ECS console.
 - Deregister the task definition.