Part 1: EC2 with ELB and ASG

Objective: Learn how to create a scalable and highly available web application environment

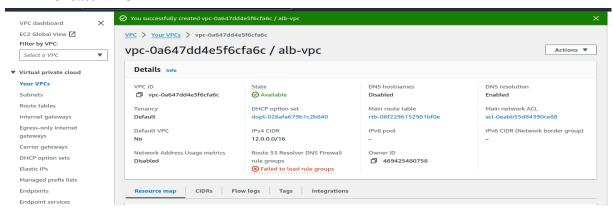
using Amazon EC2 instances, ELB, and ASG.

Approach:

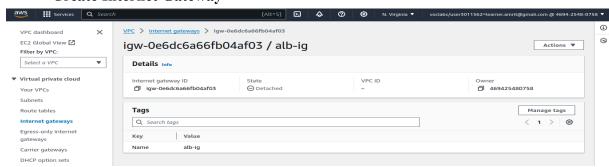
- 1. Launch EC2 Instances: Start by launching two or more EC2 instances. These instances will run a simple web application (e.g., a "Hello World" page or any basic web service).
- 2. Configure Load Balancer: Set up an Elastic Load Balancer (ELB) to distribute incoming web traffic across your EC2 instances. This step ensures high availability and fault tolerance.
- 3. Set Up Auto Scaling Group (ASG): Create an ASG that uses the launched EC2 instances. Configure ASG policies to automatically scale the number of instances up or down based on criteria like CPU usage or network traffic.
- 4. Test Your Setup: Simulate traffic to test the scaling policies and the load balancer. Observe how ASG adds or removes instances and how ELB distributes traffic.
- 5. Verify Website Functionality: Ensure that the website hosted on EC2 instances remains accessible and functional during scaling operations.

Goal: By the end of this lab, students will have a hands-on understanding of setting up a load-balanced and auto-scaled web application using AWS services.

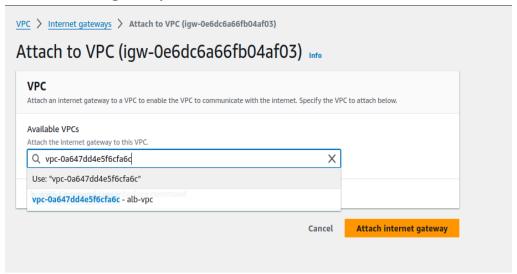
Create VPC



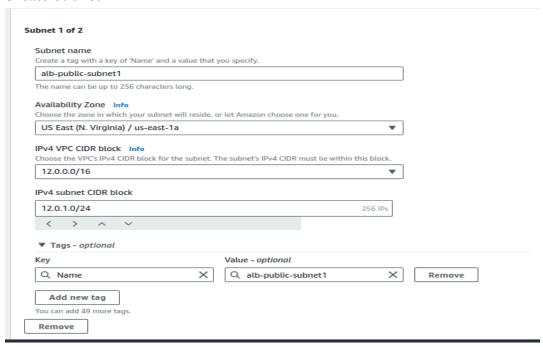
• Create Internet Gateway



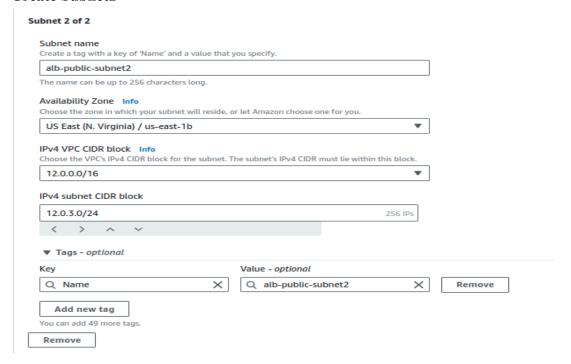
• Attach internet gateway to VPC



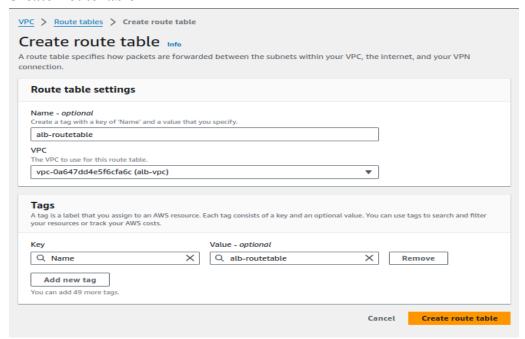
• Create Subnet1



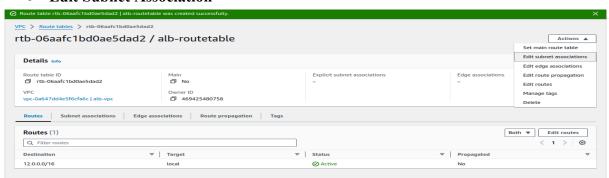
• Create Subnet2



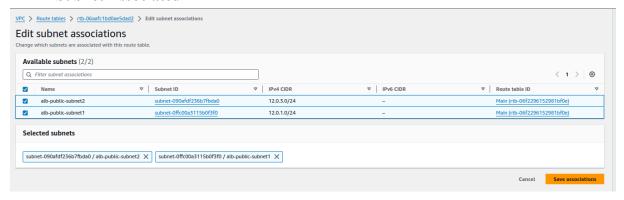
Create RouteTable



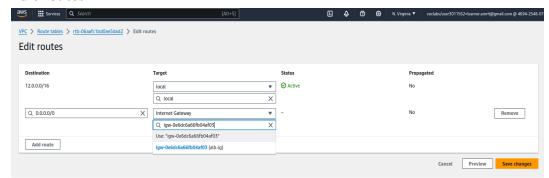
• Edit Subnet Association



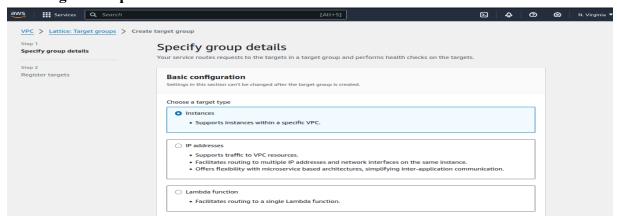
• Subnet Associated



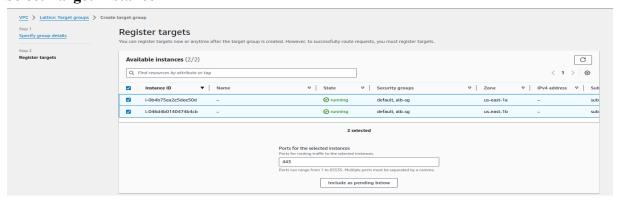
Edit routes



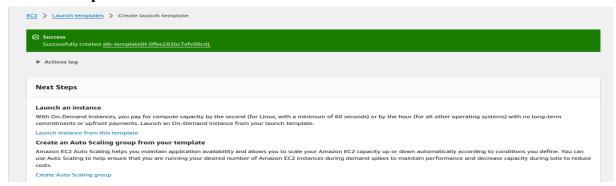
• Edit target Group



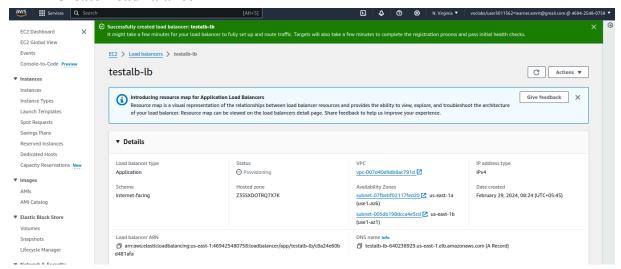
Select Target Instance



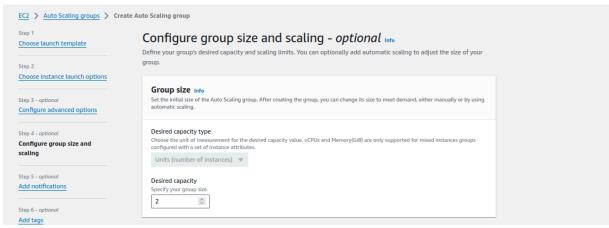
• Launch Template



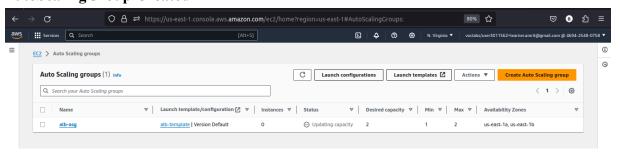
• Create LoadBalancer



• Create Auto Scaling Group



• AutoScalingGroup Created



• Each refresh will point to new EC2 instance, (dns name was copied from load balancer and then pasted as below)



Hello World from ip-12-0-5-201.ec2.internal



Hello World from ip-12-0-3-100.ec2.internal

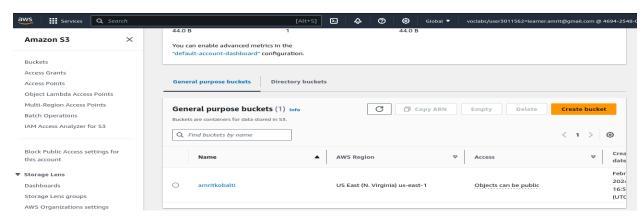
Part 2: Hosting a Static Portfolio Website on S3

Objective: Learn to host a static website (such as a personal portfolio) on Amazon S3. Approach:

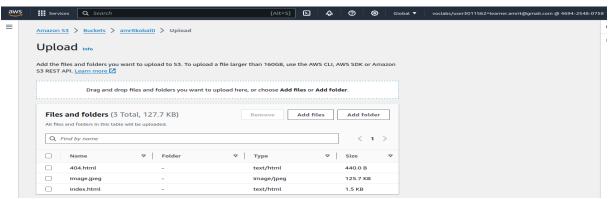
- 1. Create an S3 Bucket: Start by creating a new S3 bucket. Configure the bucket for website hosting, which includes setting permissions to make the content publicly accessible.
- 2. Upload Website Files: Upload the static files of your portfolio website (HTML, CSS, JavaScript, images) to the S3 bucket.
- 3. Configure DNS: Use Amazon Route 53 or another DNS service to point a domain name to the S3 bucket. This makes the website accessible via a user-friendly URL.
- 4. Enable Additional Features (Optional): Implement features like HTTPS for secure access and CloudFront for content delivery optimization.

Goal: Students will understand how to use S3 for hosting static websites, manage bucket permissions, and integrate with other AWS services for a complete web hosting solution.

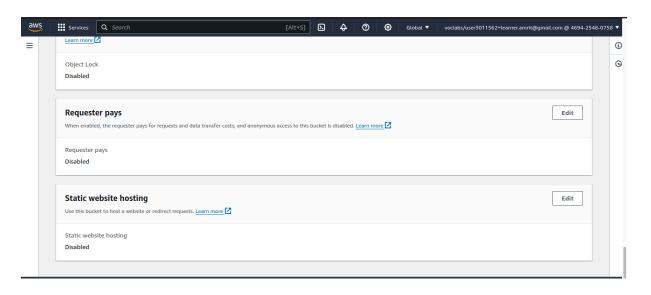
Create S3 Bucket



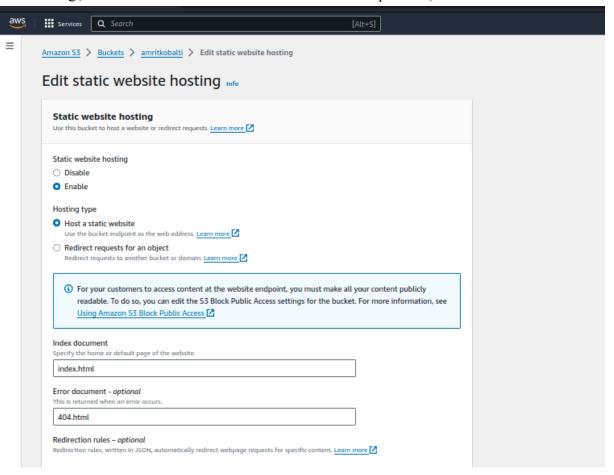
Upload Files



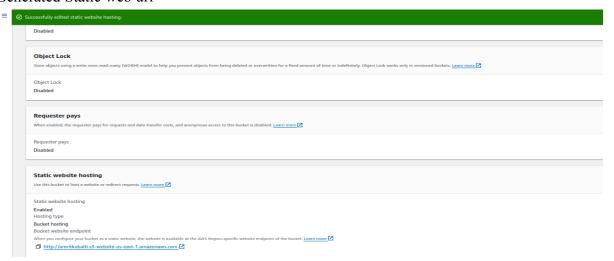
* Review Properties



❖ Enable Static Hosting(Include Exact file of static website that were uploaded)



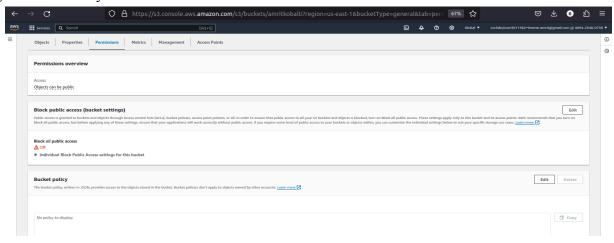
Generated Static web url



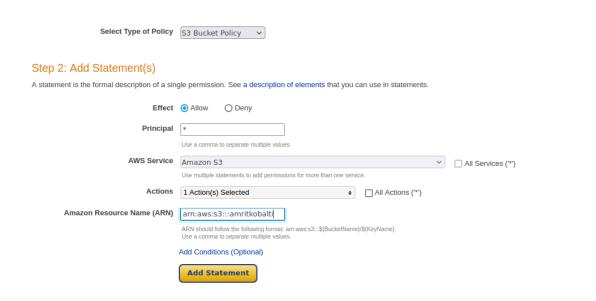
Error due to no adequate policy (edit permission)



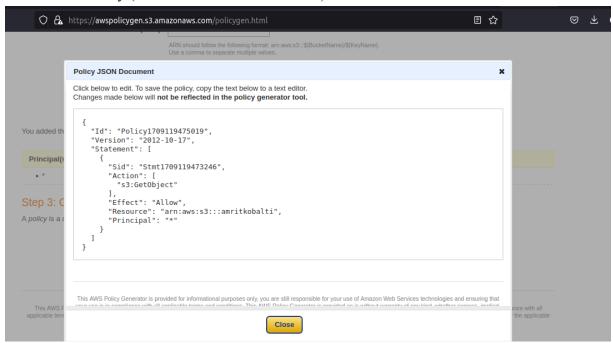
Change Bucket Policy



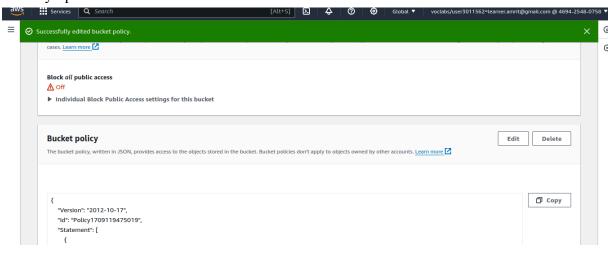
❖ Policy Generator



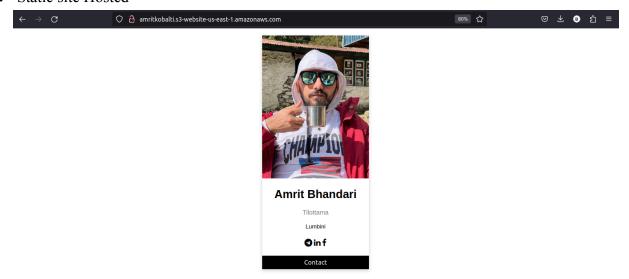
❖ Generated Policy (ADD: /* at the end ren name)



Policy updated



❖ Static site Hosted

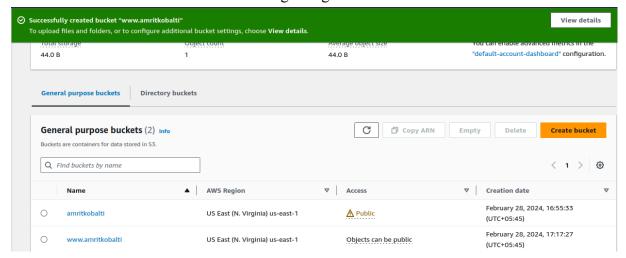


Error file for invalid URL request

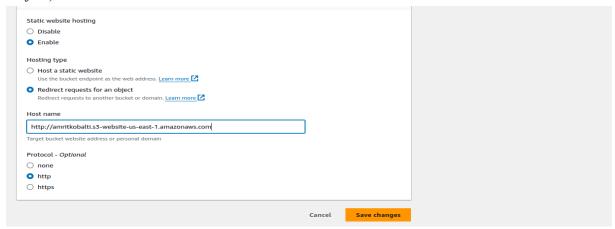


This page is not available.

❖ Create Second bucket with www. at the beginning



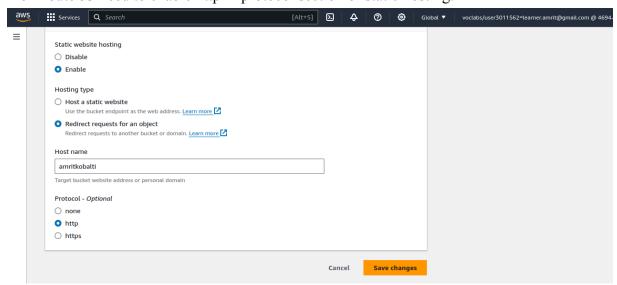
Enable static hosting of second bucket(select Protocol: none for redirected request for object):



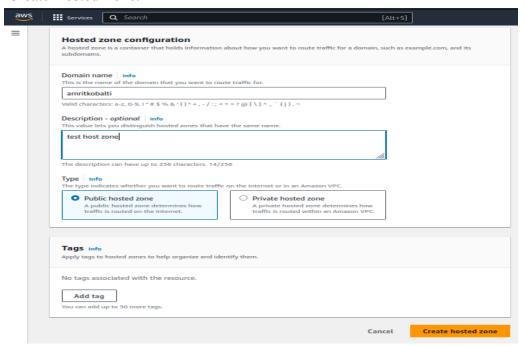
Redirected Access



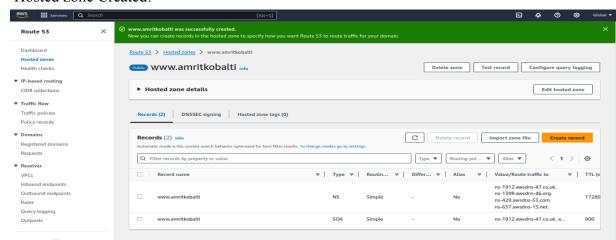
❖ For Route 53 need to enable http in protocol section of static hosting:



Create Hosted Zone:



❖ Hosted zone Created:



❖ Add record in hosted zone:

