Web Application with ELB and Auto Scaling Group for Reliability and Scalability

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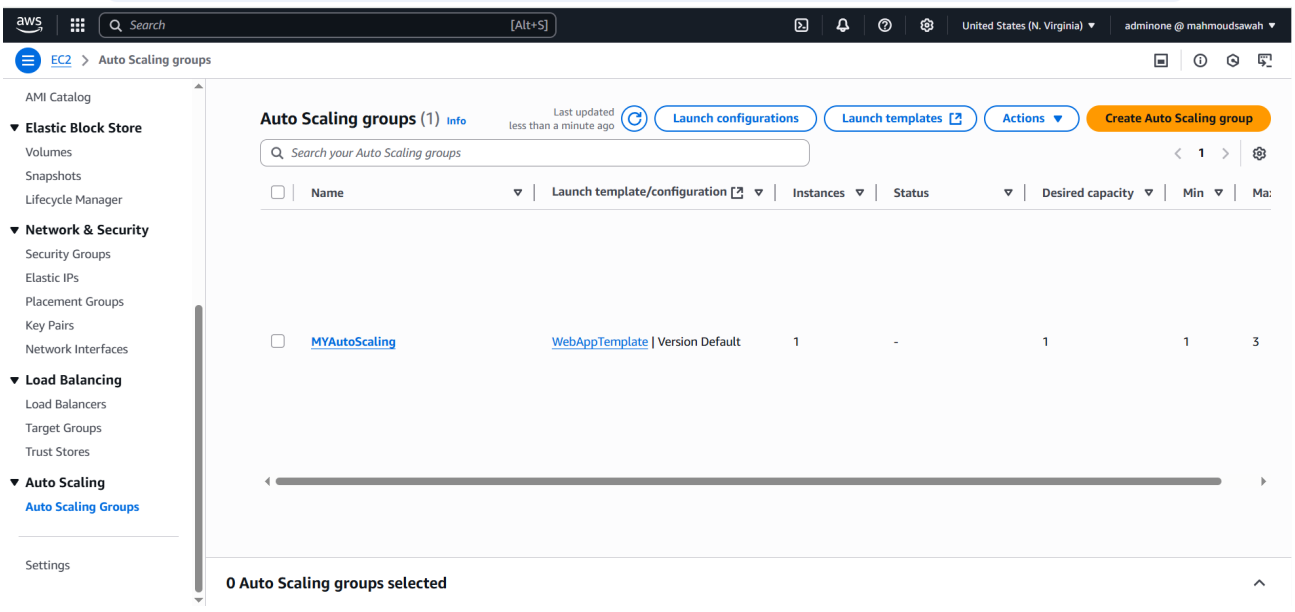
Task: Web application with ELB and Autoscaling Group to be reliable and scalable

Section 1: Auto Scaling Group Configuration

This section details the setup and configuration of the Auto Scaling Group, which is crucial for maintaining application availability and enabling automatic scaling based on demand.

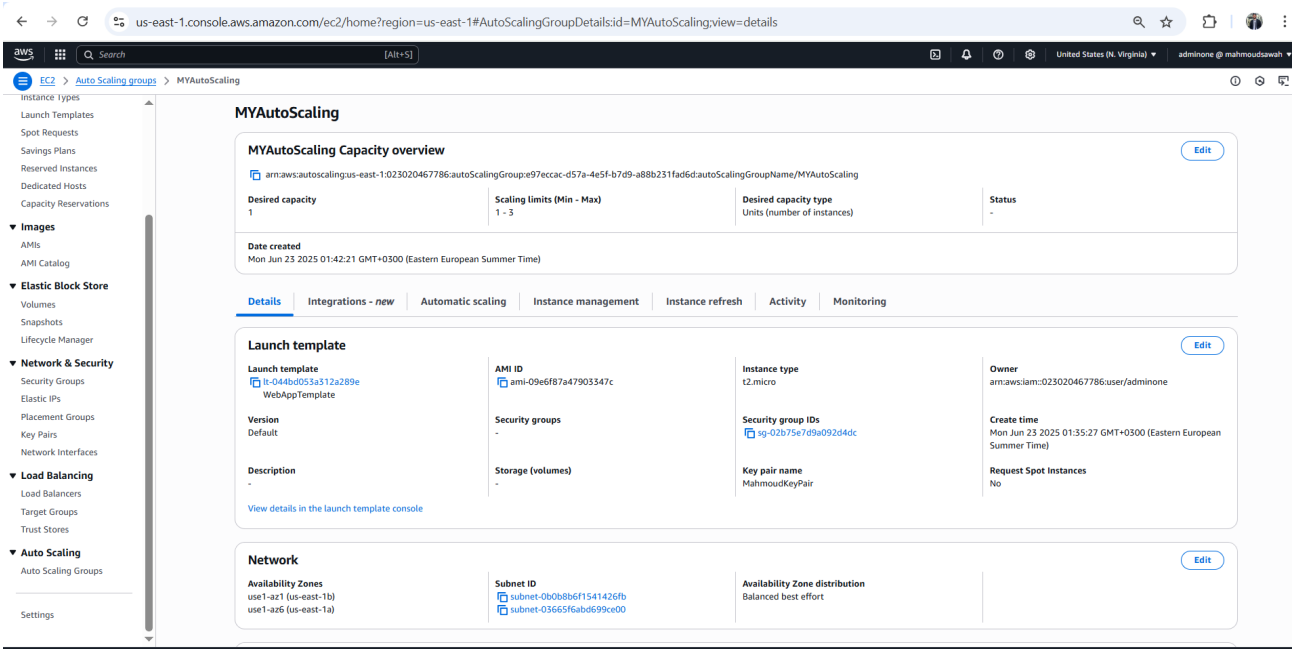
Overview of the Auto Scaling Group

The screenshot below shows the `MyAutoScaling` Auto Scaling Group. It is configured with a desired capacity of 1 instance, a minimum of 1 instance, and a maximum of 3 instances. This ensures that at least one instance is always running, and the group can scale out to handle increased traffic.



Details of the Auto Scaling Group

Further details of the `MyAutoScaling` group are presented here. It utilizes the `WebAppTemplate` launch template, which defines the instance configuration. The group is distributed across two subnets (`subnet-06d066f8f154142b9` and `subnet-0366d3f9a00000`), enhancing fault tolerance by spanning multiple Availability Zones.

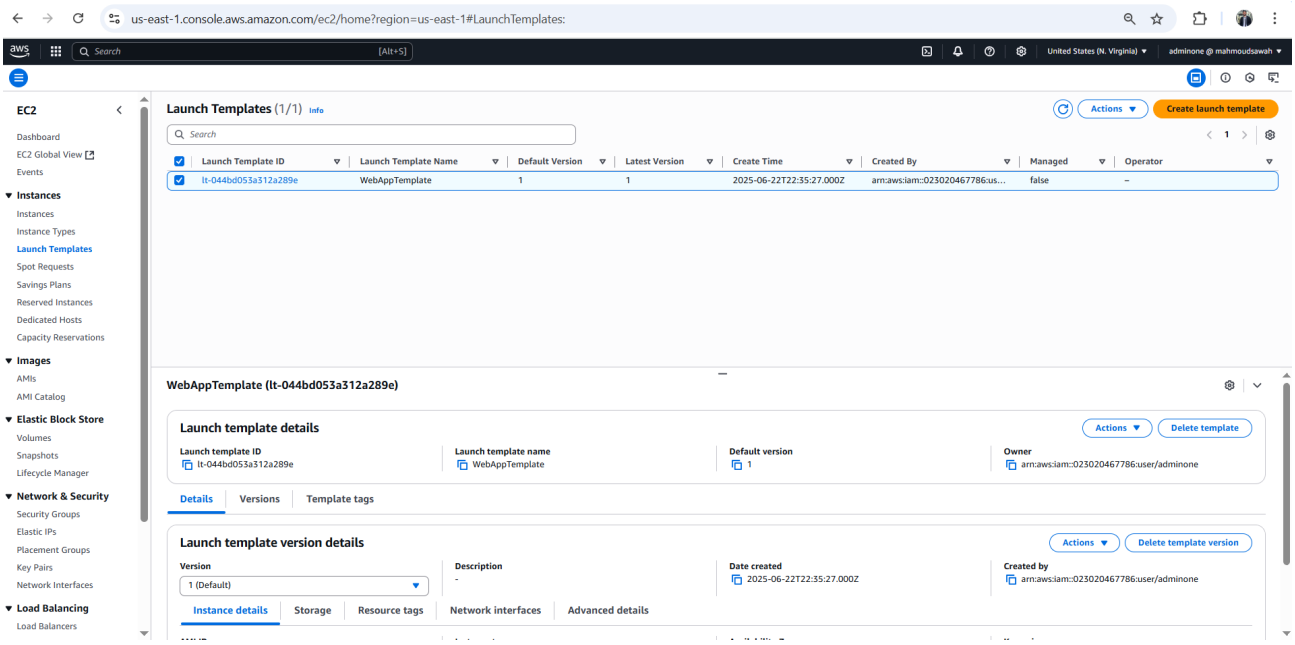


Section 2: Launch Template Configuration

This section describes the launch template used by the Auto Scaling Group to provision new EC2 instances.

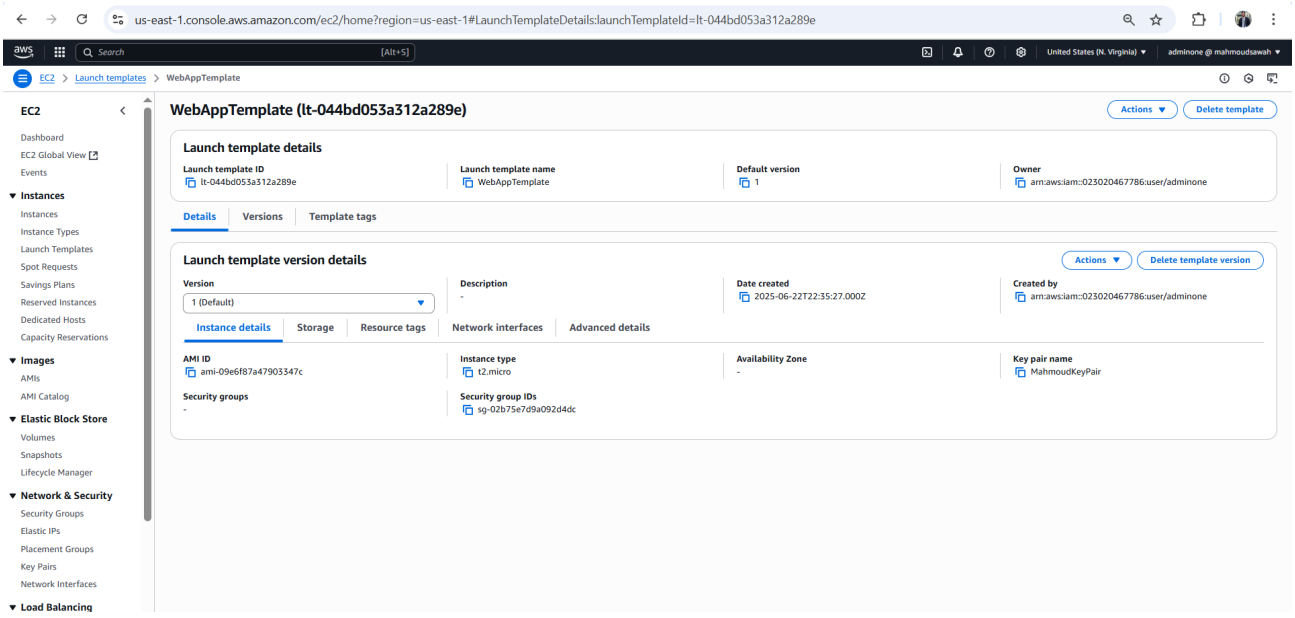
Overview of the Launch Template

The `WebAppTemplate` launch template is shown below. This template serves as a blueprint for instances launched by the Auto Scaling Group, ensuring consistency in their configuration.



Details of the Launch Template

The details of the `WebAppTemplate` include the AMI ID (`ami-09e8f83a7f03547c`), instance type (`t2.micro`), and the associated key pair (`MahmoudKeyPair`). It also specifies the security groups (`sg-02920264572288`) that will be applied to the instances, controlling inbound and outbound traffic.

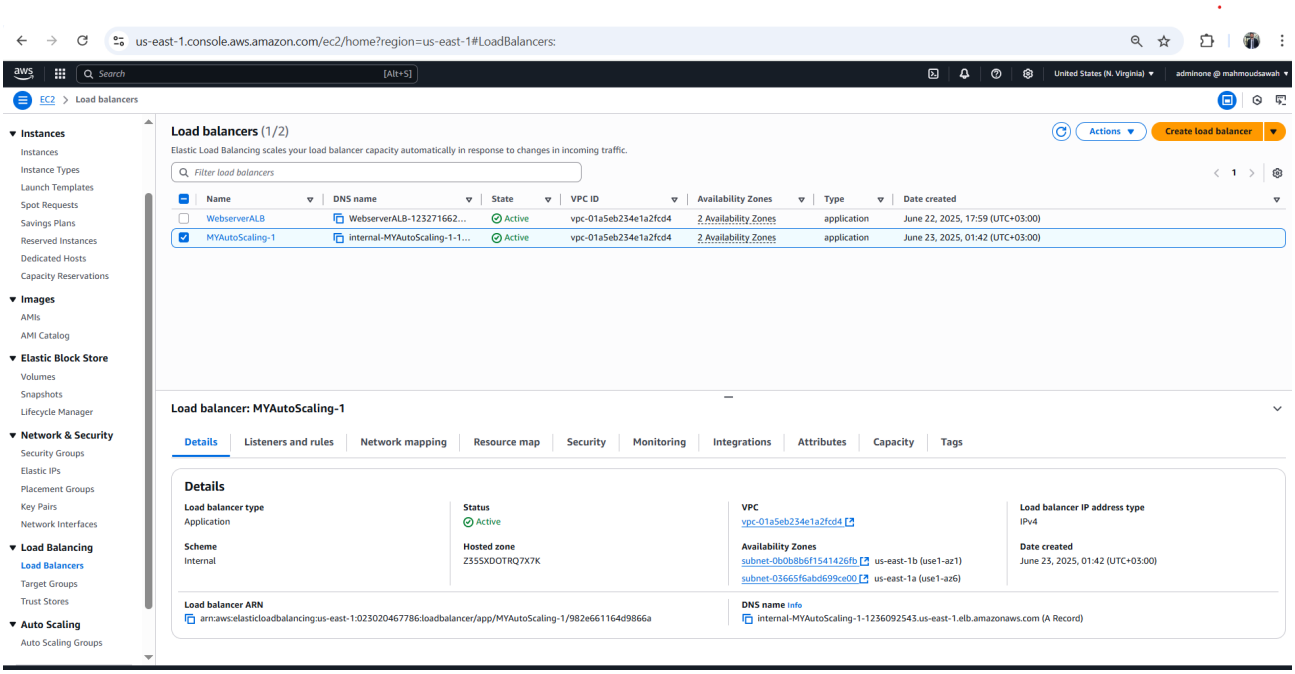


Section 3: Load Balancer Configuration

This section outlines the setup of the Elastic Load Balancer (ELB), which distributes incoming application traffic across multiple targets, such as EC2 instances.

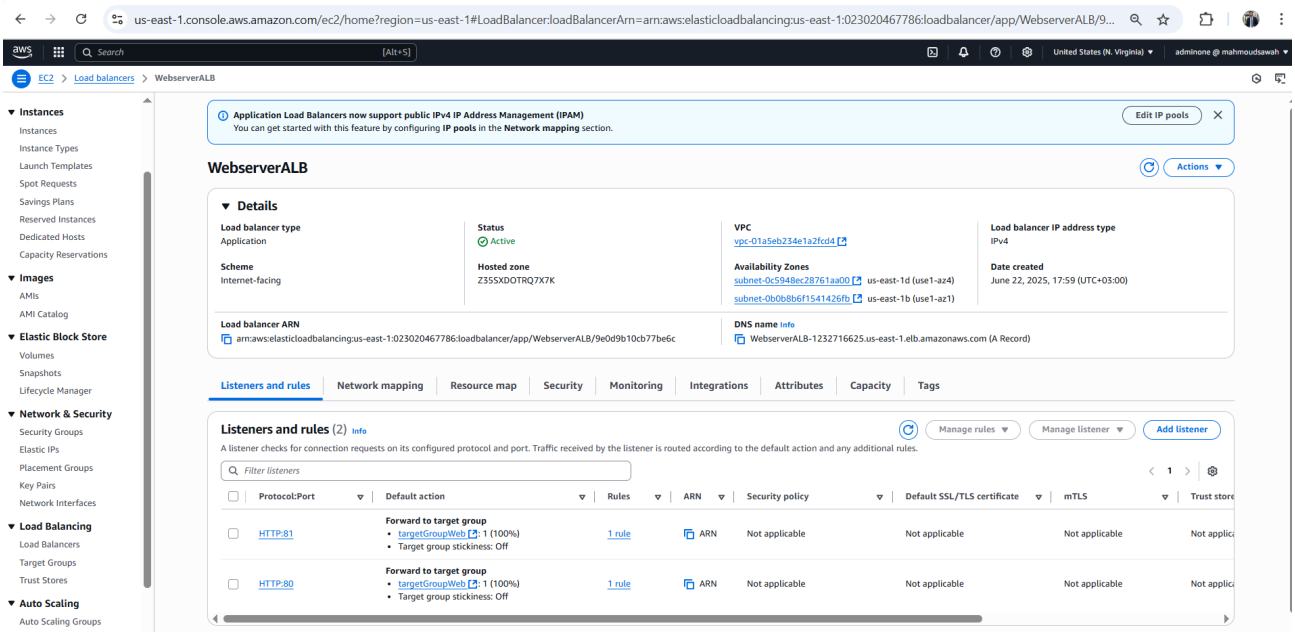
Overview of Load Balancers

The console shows two load balancers: `WebServerALB` and `MyAutoScaling-1`. The `WebServerALB` is an Application Load Balancer (ALB) and is active, indicating it is ready to distribute traffic.



Details of WebServerALB

The `WebServerALB` is an internet-facing Application Load Balancer. It is configured to listen on HTTP (port 80) and forward requests to a target group. The load balancer is deployed across multiple Availability Zones, enhancing its reliability and fault tolerance.



Section 4: EC2 Instances in Auto Scaling Group

This section provides an overview of the EC2 instances that are managed by the Auto Scaling Group and are serving the web application.

Overview of EC2 Instances

The screenshot below shows the EC2 instances running in the environment. The instances named `server1` and `server2` are likely part of the Auto Scaling Group, launched based on the `WebAppTemplate` and registered with the `WebServerALB`.