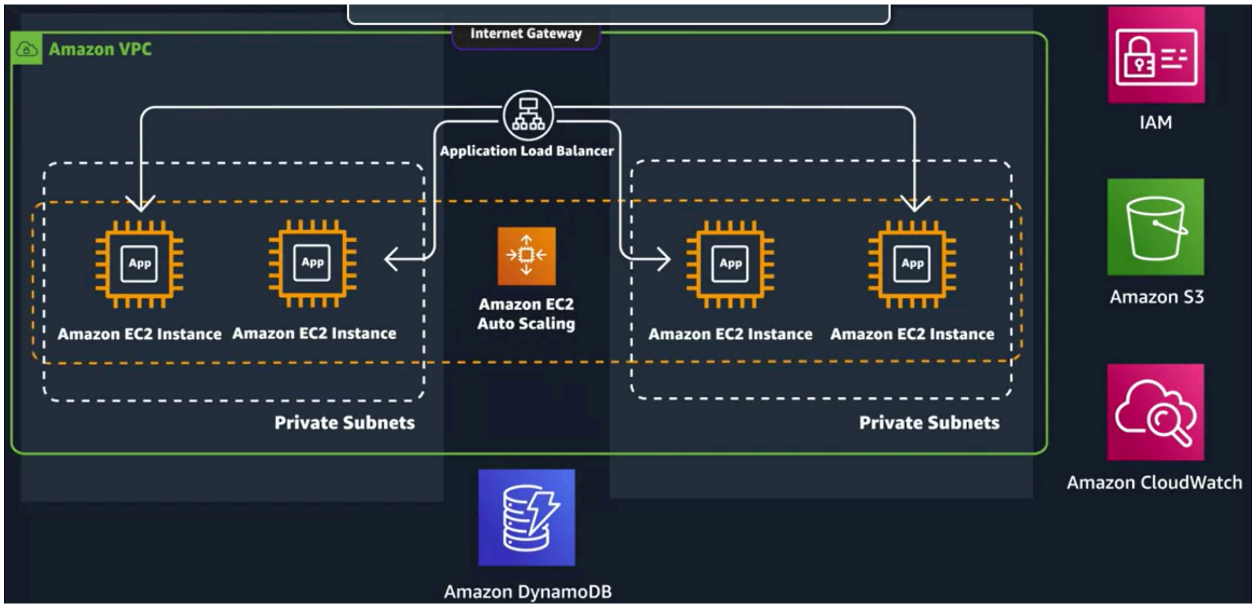
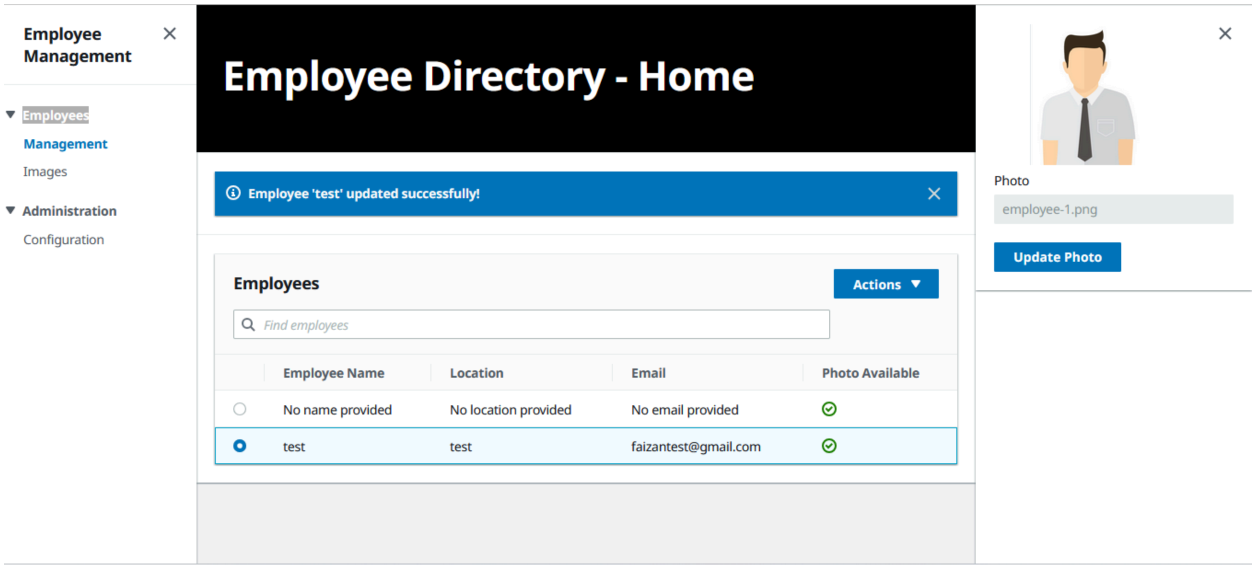
- **Project Outlook**
  In this project, I designed and implemented a highly available and scalable three-tier web application architecture using various AWS services. The architecture follows best practices for security, reliability, and cost-efficiency.



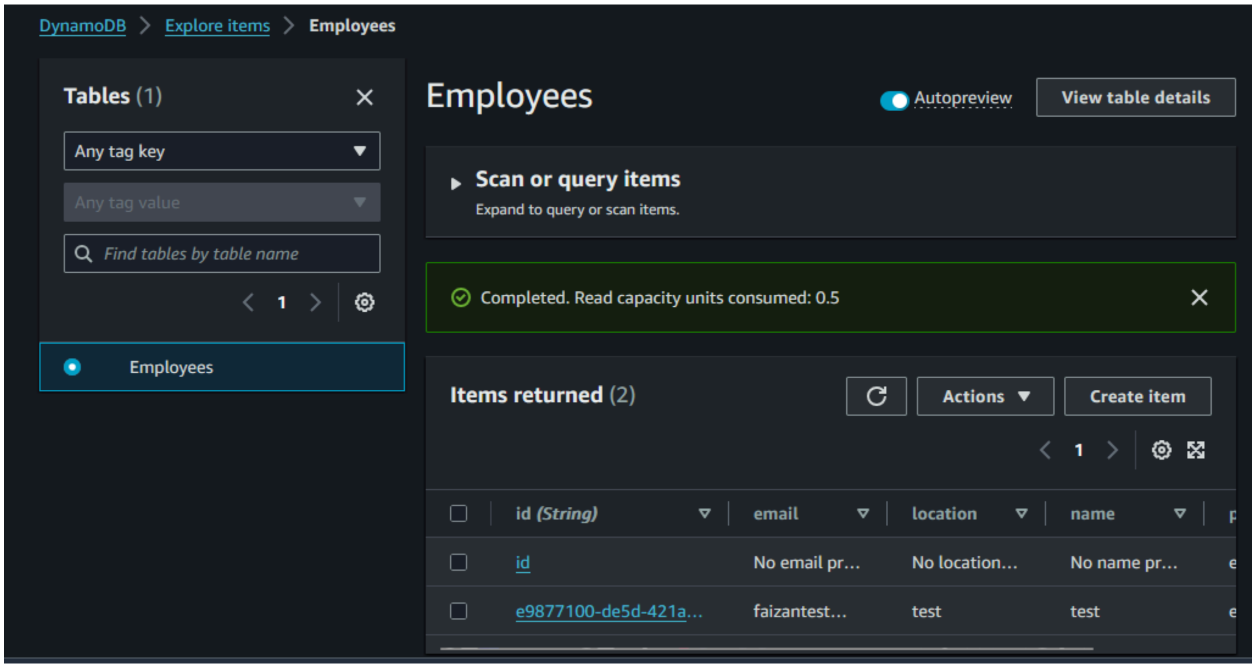


Employee 'test' updated successfully!

Employees

	Employee Name	Location	Email	Photo Available
○	No name provided	No location provided	No email provided	✓
●	test	test	faizantest@gmail.com	✓

- DynamoDB



DynamoDB > Explore items > Employees

Tables (1)

Any tag key

Any tag value

Find tables by table name

Employees

Employees

Autopreview View table details

Scan or query items

Expand to query or scan items.

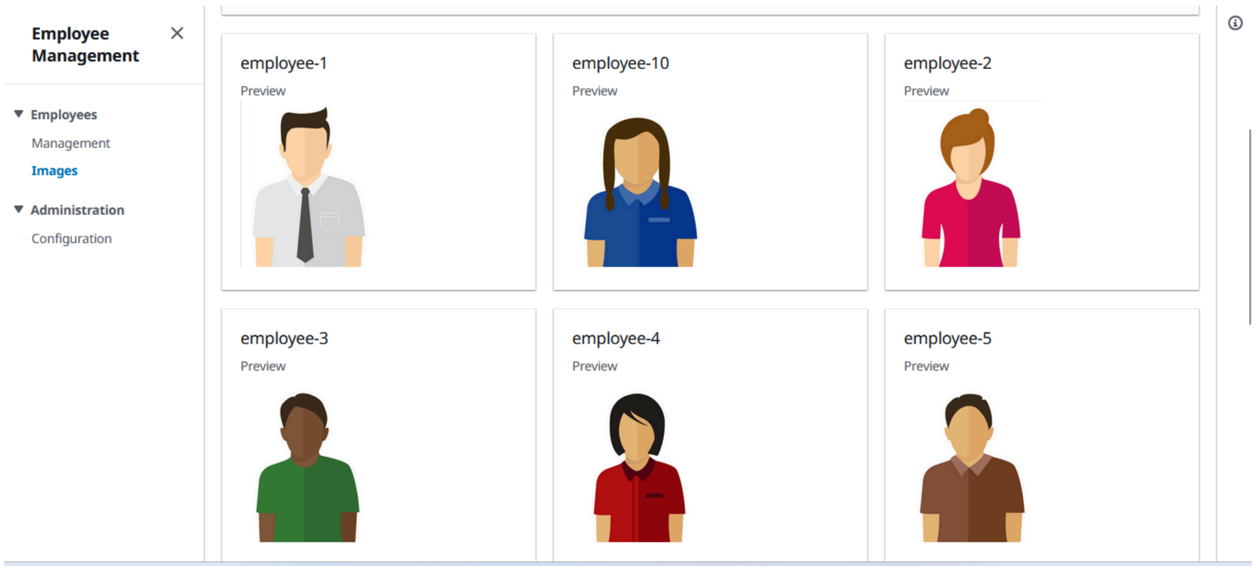
Completed. Read capacity units consumed: 0.5

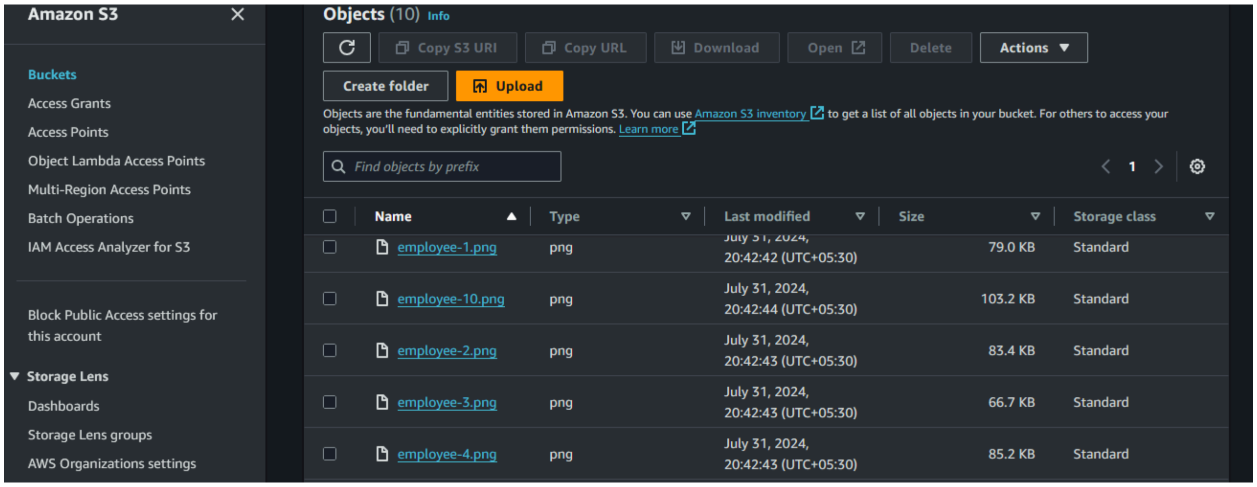
Items returned (2)

Actions Create item

	id (String)	email	location	name	p
☐	id	No email pr…	No location…	No name pr…	e
☐	e9877100-de5d-421a…	faizantest…	test	test	e

- S3-Bucket

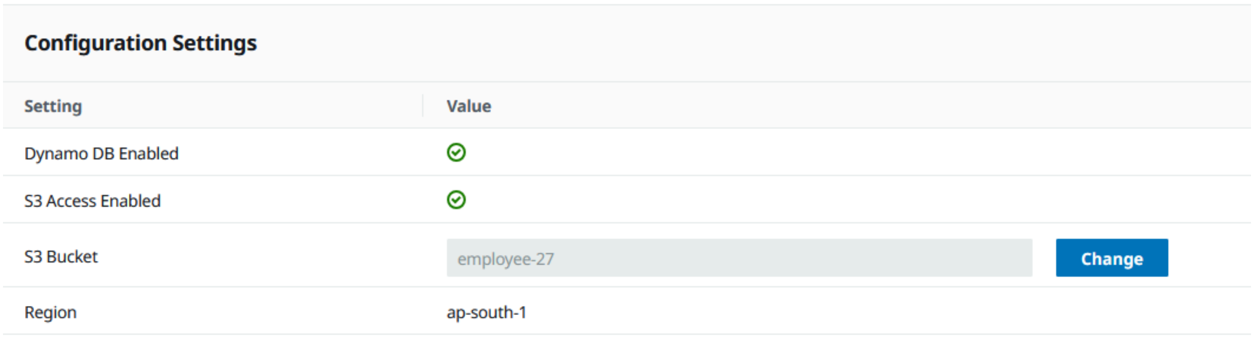




Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more

Name	Type	Last modified	Size	Storage class
employee-1.png	png	July 31, 2024, 20:42:42 (UTC+05:30)	79.0 KB	Standard
employee-10.png	png	July 31, 2024, 20:42:44 (UTC+05:30)	103.2 KB	Standard
employee-2.png	png	July 31, 2024, 20:42:43 (UTC+05:30)	83.4 KB	Standard
employee-3.png	png	July 31, 2024, 20:42:43 (UTC+05:30)	66.7 KB	Standard
employee-4.png	png	July 31, 2024, 20:42:43 (UTC+05:30)	85.2 KB	Standard

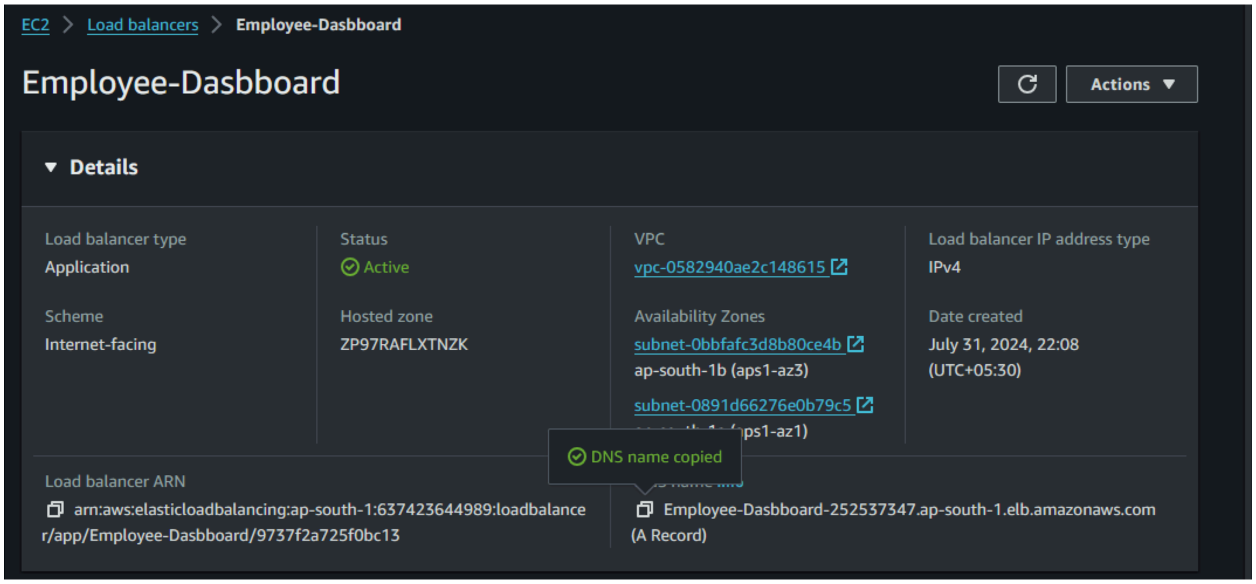
- Both S3 and DynamoDB are enabled



Configuration Settings

Setting	Value
Dynamo DB Enabled	✓
S3 Access Enabled	✓
S3 Bucket	employee-27
Region	ap-south-1

- Created a Load Balancer and Target Group


EC2 > Load balancers > Employee-Dasbboard

Employee-Dasbboard

▼ Details

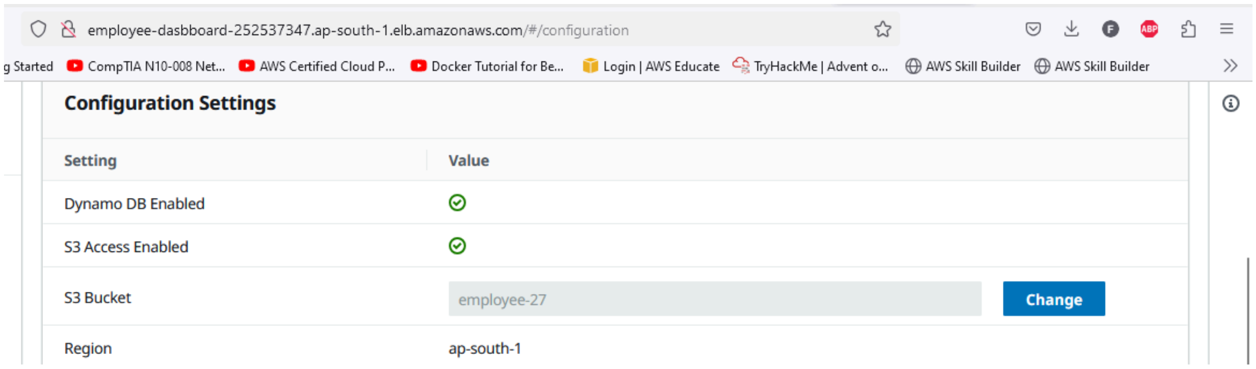
Load balancer type	Status	VPC	Load balancer IP address type
Application	✓ Active	vpc-0582940ae2c148615	IPv4
Scheme	Hosted zone	Availability Zones	Date created
Internet-facing	ZP97RAFLXTNZK	subnet-0bbfafc3d8b80ce4b ap-south-1b (aps1-az3) subnet-0891d66276e0b79c5 ps1-az1)	July 31, 2024, 22:08 (UTC+05:30)

✓ DNS name copied

Load balancer ARN
arn:aws:elasticloadbalancing:ap-south-1:637423644989:loadbalancer/app/Employee-Dasbboard/9737f2a725f0bc13

Employee-Dasbboard-252537347.ap-south-1.elb.amazonaws.com (A Record)

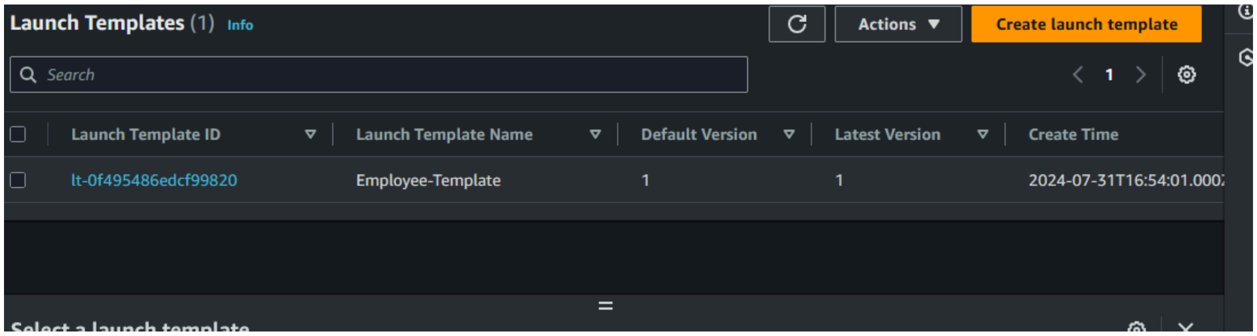
- We can see the application has been opened in from Load balancer


employee-dasbboard-252537347.ap-south-1.elb.amazonaws.com/#/configuration

Configuration Settings

Setting	Value
Dynamo DB Enabled	✓
S3 Access Enabled	✓
S3 Bucket	employee-27 Change
Region	ap-south-1

- Create a launch Template

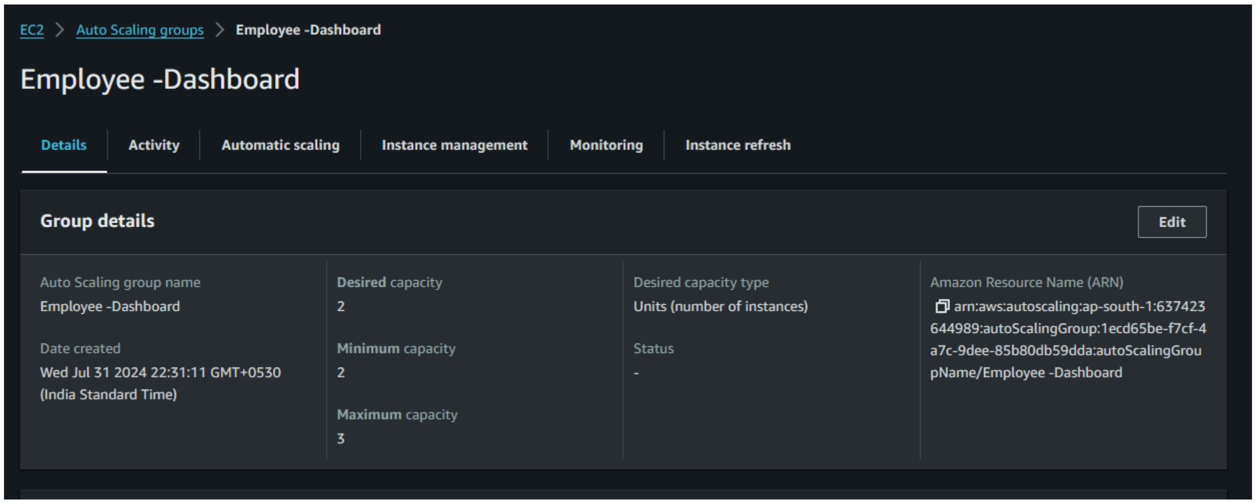


Launch Templates (1) Info

	Launch Template ID	Launch Template Name	Default Version	Latest Version	Create Time
☐	lt-0f495486edcf99820	Employee-Template	1	1	2024-07-31T16:54:01.000

Select a launch template

- Created a Auto-Scaled Group and added the instance we created at start and set Desired,minimum,maximum capacity and used **Target tracking scaling policy**



EC2 > Auto Scaling groups > Employee -Dashboard

Employee -Dashboard

Details | Activity | Automatic scaling | Instance management | Monitoring | Instance refresh

Group details

Auto Scaling group name
Employee -Dashboard

Date created
Wed Jul 31 2024 22:31:11 GMT+0530 (India Standard Time)

Desired capacity
2

Minimum capacity
2

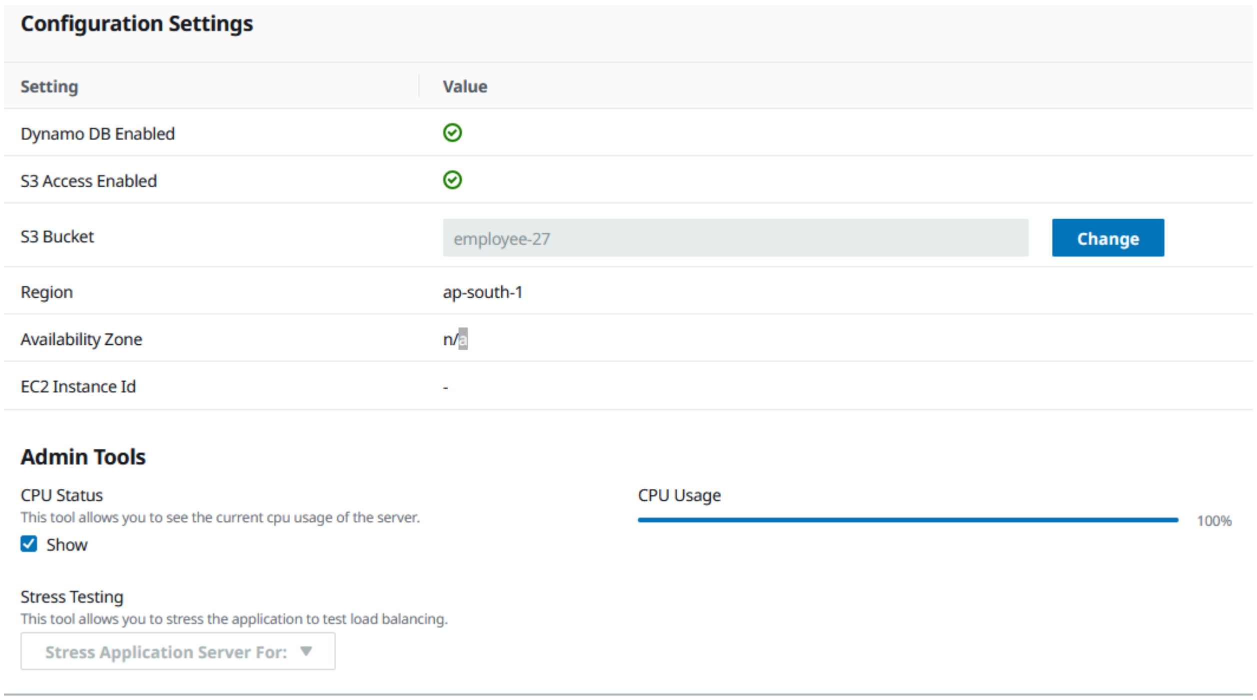
Maximum capacity
3

Desired capacity type
Units (number of instances)

Status
-

Amazon Resource Name (ARN)
arn:aws:autoscaling:ap-south-1:637423644989:autoScalingGroup:1ecd65be-f7cf-4a7c-9dee-85b80db59dda:autoScalingGroupName/Employee -Dashboard

- Did a Stress Test



Configuration Settings

Setting	Value
Dynamo DB Enabled	✓
S3 Access Enabled	✓
S3 Bucket	employee-27
Region	ap-south-1
Availability Zone	n/a
EC2 Instance Id	-

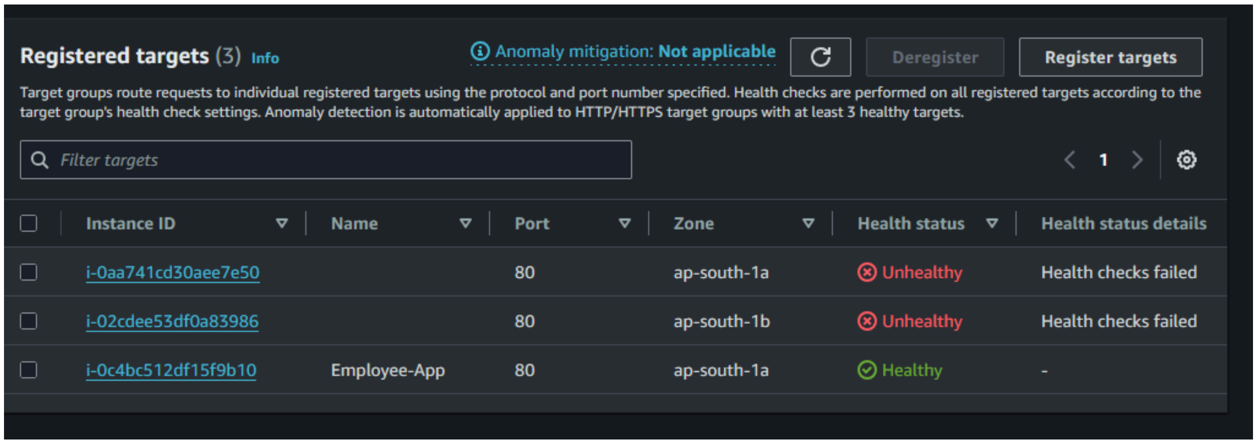
Admin Tools

CPU Status
This tool allows you to see the current cpu usage of the server.
☑ Show

CPU Usage 100%

Stress Testing
This tool allows you to stress the application to test load balancing.

- Healthcheckup was done using load balancer and AELB(Application Elastic Load Balancer).Screenshot when the Instance Scaled after stress test.



Registered targets (3) Info

Anomaly mitigation: Not applicable

Target groups route requests to individual registered targets using the protocol and port number specified. Health checks are performed on all registered targets according to the target group's health check settings. Anomaly detection is automatically applied to HTTP/HTTPS target groups with at least 3 healthy targets.

Instance ID	Name	Port	Zone	Health status	Health status details
i-0aa741cd30aee7e50		80	ap-south-1a	Unhealthy	Health checks failed
i-02cdee53df0a83986		80	ap-south-1b	Unhealthy	Health checks failed
i-0c4bc512df15f9b10	Employee-App	80	ap-south-1a	Healthy	-

Conclusion:

- Create a EC2-Instance,S3 ,Dynamodb,vpc for the web-application
- Create an Application Load Balancer and Launch Template
- Set up an Amazon Elastic Compute Cloud (Amazon EC2) Auto Scaling group
- Launch a template
- Stress test a web application to validate scaling