

# LAB 1: APPLICATION LOAD BALANCER

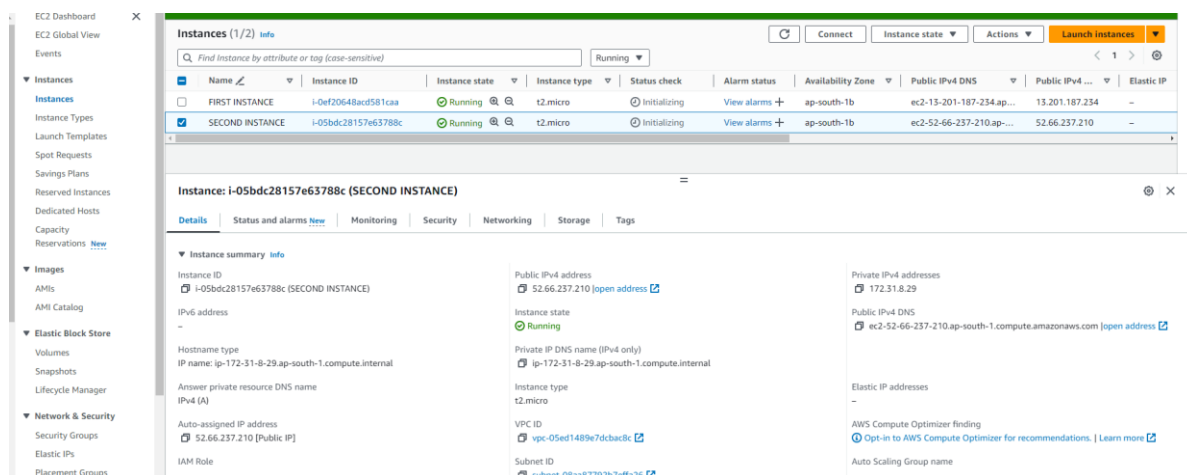
**AIM:** To launch an application load balancer.

## THEORY:

- An Application Load Balancer functions at the application layer, the seventh layer of the Open Systems Interconnection (OSI) model.
- After the load balancer receives a request, it evaluates the listener rules in priority order to determine which rule to apply, and then selects a target from the target group for the rule action.
- You can configure listener rules to route requests to different target groups based on the content of the application traffic.
- Routing is performed independently for each target group, even when a target is registered with multiple target groups.
- You can configure the routing algorithm used at the target group level.
- The default routing algorithm is round robin; alternatively, you can specify the least outstanding requests routing algorithm.

## PROCEDURE:

1. Launch two instances.



## 2. Create target groups.

**Basic configuration**  
Settings in this section can't be changed after the target group is created.

Choose a target type

☒ Instances

- Supports load balancing to instances within a specific VPC.
- Facilitates the use of [Amazon EC2 Auto Scaling](#) to manage and scale your EC2 capacity.

Target group name

demo-tg-alb

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Step 1  
[Specify group details](#)

Step 2  
**Register targets**

**Register targets**  
This is an optional step to create a target group. However, to ensure that your load balancer routes traffic to this target group you must register your targets.

Available instances (2)

Filter instances

| <input type="checkbox"/> | Instance ID         | Name            | State   | Security groups | Zone        | Private IPv4 address | Subnet ID            |
|--------------------------|---------------------|-----------------|---------|-----------------|-------------|----------------------|----------------------|
| <input type="checkbox"/> | i-0e720648dc581ca   | FIRST INSTANCE  | Running | launch-wizard-1 | ap-south-1b | 172.31.12.147        | subnet-08a6b7792b7ef |
| <input type="checkbox"/> | i-05bdc28157e63788c | SECOND INSTANCE | Running | launch-wizard-1 | ap-south-1b | 172.31.8.29          | subnet-08a6b7792b7ef |

0 selected

Ports for the selected instances  
Ports for routing traffic to the selected instances.  

80

1-55555 (Separate multiple ports with commas)

Include as pending below

2 instances are now pending below. Include more or register targets when ready.

**Review targets**

Targets (2)

Filter targets

Show only pending

Remove all pending

| Instance ID         | Name            | Port | State   | Security groups | Zone        | Private IPv4 address | Subnet ID              | Launch time                       |
|---------------------|-----------------|------|---------|-----------------|-------------|----------------------|------------------------|-----------------------------------|
| i-0e720648dc581ca   | FIRST INSTANCE  | 80   | Running | launch-wizard-1 | ap-south-1b | 172.31.12.147        | subnet-08a6b7792b7ef26 | March 31, 2024, 00:52 (UTC+05:30) |
| i-05bdc28157e63788c | SECOND INSTANCE | 80   | Running | launch-wizard-1 | ap-south-1b | 172.31.8.29          | subnet-08a6b7792b7ef26 | March 31, 2024, 00:52 (UTC+05:30) |

## 3. Create application load balancer

**Basic configuration**

**Load balancer name**  
Name must be unique within your AWS account and can't be changed after the load balancer is created.

demoALB

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

**Scheme** [Info](#)  
Scheme can't be changed after the load balancer is created.

☒ Internet-facing

An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. [Learn more](#)

☐ Internal

An internal load balancer routes requests from clients to targets using private IP addresses.

**IP address type** [Info](#)  
Select the type of IP addresses that your subnets use.

☒ IPv4

Includes only IPv4 addresses.

☐ Dualstack

Includes IPv4 and IPv6 addresses.

**Security groups** [Info](#)  
A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can create a new security group [Create new security group](#)

Security groups

Select up to 5 security groups

demo-sg-load-balancer  
sg-03514013e91930eb4 VPC: vpc-05ed1489e7dcbac8c

**Listeners and routing** [Info](#)  
A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

▼ Listener HTTP:80 Remove

Protocol HTTP Port 80  
1-65535

Default action [Info](#)  
Forward to demo-tg-alb  
Target type: Instance, IPv4

[Create target group](#)

**Listener tags - optional**  
Consider adding tags to your listener. Tags enable you to categorize your AWS resources so you can more easily manage them.

Add listener tag  
You can add up to 50 more tags.

Add listener

► **Load balancer tags - optional**

**Successfully created load balancer: demoALB**  
It might take a few minutes for your load balancer to fully set up and route traffic. Targets will also take a few minutes to complete the registration process and pass initial health checks.

EC2 > Load balancers > demoALB

**demoALB** Actions

**Introducing resource map for Application Load Balancers**  
Resource map is a visual representation of the relationships between load balancer resources and provides the ability to view, explore, and troubleshoot the architecture of your load balancer. Resource map can be viewed on the load balancers detail page. Share feedback to help us improve your experience. Give feedback

**Details**

|                                   |                              |  |   |
|-----------------------------------|------------------------------|--|---|
| Load balancer type<br>Application | Status<br>Active             | VPC<br>vpc-05ed1489e7dcbac8c   | IP address type<br>IPv4                           |
| Scheme<br>Internet-facing         | Hosted zone<br>ZP97RAFLXTNZK | Availability Zones<br>subnet-0d2a8a51b672e15d9 ap-south-1a (aps1-az1)<br>subnet-08aa87792b7effa26 ap-south-1b (aps1-az3)<br>subnet-0b31da4f982d ap-south-1c (aps1-az2) | Date created<br>March 31, 2024, 00:43 (UTC+05:30) |

Load balancer ARN  
arn:aws:elasticloadbalancing:ap-south-1:058264174589:loadbalancer/app/demoALB/7ac9a37d168d2b98

[demoALB-563189734.ap-south-1.elb.amazonaws.com \(A Record\)](#)

[Listeners and rules](#) [Network mapping](#) [Resource map - new](#) [Security](#) [Monitoring](#) [Integrations](#) [Attributes](#) [Tags](#)

4. Test the load balancer.

**Hello World from ip-172-31-12-147.ap-south-1.compute.internal**

**Hello World from ip-172-31-8-29.ap-south-1.compute.internal**

EC2 > Target groups

Target groups (1/1) Info

Filter target groups

< 1 > @

☒

demo-tg-alb

arn:aws:elasticloadbalancing:ap-south-1:123456789012:targetgroup/demo-tg-alb/vpc-05ed1489e7d6bac8c

80

HTTP

Instance

None associated

vpc-05ed1489e7d6bac8c

Target group: demo-tg-alb

DetailsTargetsMonitoringHealth checksAttributesTags

Registered targets (2) Info

Anomaly mitigation: Not applicable

DeregisterRegister targets

Filter targets

< 1 > @

| <input type="checkbox"/> | Instance ID         | Name           | Port | Zone        | Health status | Health status details | Launch time                       | Anomaly detection... |
|--------------------------|---------------------|----------------|------|-------------|---------------|-----------------------|-----------------------------------|----------------------|
| <input type="checkbox"/> | i-0ef20648acd581caa | FIRST INSTANCE | 80   | ap-south-1b | Healthy       | -                     | March 31, 2024, 00:32 (UTC+05:30) | Normal               |
| <input type="checkbox"/> | i-05bdc28157e63788c | SECOND INST... | 80   | ap-south-1b | Healthy       | -                     | March 31, 2024, 00:32 (UTC+05:30) | Normal               |

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