

## Create Application Load balancer

- Start a simple server in private EC2 8880
- Target ALB to serve that server
- ALB should be accessible through port 80 listener
- Health Check
- Register healthy on 3 success
- Register unhealthy on 5 success
- Timeout 5 Seconds
- Interval 45 Seconds
- Access the server via ALB publicly using ALB's DNS name.

**Security Group Create for our Load balancer first as;**

**Basic details**

Security group name [Info](#)

Team-D-LB-SG

Name cannot be edited after creation.

Description [Info](#)

Sg for load balancer

VPC [Info](#)

vpc-0537ba172f80d5930

**Inbound rules** [Info](#)

Type [Info](#)

HTTP

Protocol [Info](#)

TCP

Port range [Info](#)

80

Source [Info](#)

Anywhere-IPv4

Description - optional [Info](#)

Allowed for port 80

0.0.0.0/0

Add rule

**Outbound rules** [Info](#)

Type [Info](#)

All traffic

Protocol [Info](#)

All

Port range [Info](#)

All

Destination [Info](#)

Custom

Description - optional [Info](#)

0.0.0.0/0

Add rule

**Tags - optional**

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key

Name

Value - optional

Team-D-LB-SG

Remove

Add new tag

You can add up to 49 more tag

Security group (sg-07ac702840d3f1b41 | Team-D-LB-SG) was created successfully

Details

EC2 > Security Groups > sg-07ac702840d3f1b41 - Team-D-LB-SG

sg-07ac702840d3f1b41 - Team-D-LB-SG

Actions

Details

Security group name

Team-D-LB-SG

Security group ID

sg-07ac702840d3f1b41

Description

Sg for load balancer

VPC ID

vpc-0537baf72f80d5930

Owner

949263681218

Inbound rules count

1 Permission entry

Outbound rules count

1 Permission entry

Inbound rules

Outbound rules

Tags

You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer

Inbound rules (1/1)

Filter security group rules

Manage tags

Edit inbound rules

	Name	Security group rule...	IP version	Type	Protocol	Port range	Source	Description
<input checked="" type="checkbox"/>	-	sgn-06a6ef09a12edc9e4	IPv4	HTTP	TCP	80	0.0.0.0/0	Allowed for port 80

## Creating Target Group :

### Specify group details

Your load balancer routes requests to the targets in a target group and performs health checks on the targets.

#### Basic configuration

Settings in this section cannot be changed after the target group is created.

Choose a target type

☒ Instances

- Supports load balancing to instances within a specific VPC.

☐ IP addresses

- Supports load balancing to VPC and on-premises resources.
- Facilitates routing to multiple IP addresses and network interfaces on the same instance.
- Offers flexibility with microservice based architectures, simplifying inter-application communication.

☐ Lambda function

- Facilitates routing to a single Lambda function.
- Accessible to Application Load Balancers only.

☐ Application Load Balancer

- Offers the flexibility for a Network Load Balancer to accept and route TCP requests within a specific VPC.
- Facilitates using static IP addresses and PrivateLink with an Application Load Balancer.

Target group name

Team-D-LB-TG

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

Protocol

HTTP

Port

80

VPC

Select the VPC with the instances that you want to include in the target group.

#### VPC

Select the VPC with the instances that you want to include in the target group.

##### Team-D-VPC

vpc-0537baf72f80d5930  
IPv4: 10.15.32.0/22

#### Protocol version

☒ HTTP1

Send requests to targets using HTTP/1.1. Supported when the request protocol is HTTP/1.1 or HTTP/2.

☐ HTTP2

Send requests to targets using HTTP/2. Supported when the request protocol is HTTP/2 or gRPC, but gRPC-specific features are not available.

☐ gRPC

Send requests to targets using gRPC. Supported when the request protocol is gRPC.

### Health checks

The associated load balancer periodically sends requests, per the settings below, to the registered targets to test their status.

#### Health check protocol

HTTP

#### Health check path

Use the default path of "/" to ping the root, or specify a custom path if preferred.

/

Up to 1024 characters allowed.

#### ▼ Advanced health check settings

Restore defaults

#### ▼ Advanced health check settings

Restore defaults

##### Port

The port the load balancer uses when performing health checks on targets. The default is the port on which each target receives traffic from the load balancer, but you can specify a different port.

☐ Traffic port

☒ Override

8880

1-65535

##### Healthy threshold

The number of consecutive health checks successes required before considering an unhealthy target healthy.

3

2-10

##### Unhealthy threshold

The number of consecutive health check failures required before considering a target unhealthy.

5

2-10

##### Timeout

The amount of time, in seconds, during which no response means a failed health check.

5

seconds

2-120

##### Interval

The approximate amount of time between health checks of an individual target

45

seconds

5-300

##### Success codes

The HTTP codes to use when checking for a successful response from a target. You can specify multiple values (for example, "200,202") or a range of values (for example, "200-299").

200-299

Note that the port is in **Override** and has port **8880** and other health check settings as per question.

## Register the target:

Review targets								
<div>Targets (1) <span>Remove all pending</span></div> <div>All <input type="text" value="Filter resources by property or value"/></div> <div>&lt; 1 &gt; ⚙</div>								
Remove	Health status	Instance ID	Name	Port	State	Security groups	Zone	Subnet ID
×	Pending	I-0a4211e5ffee7ee21	Team-D-EC2-Pvt	8880	running	launch-wizard-3	us-east-2a	subnet-017289753c7257388

EC2 > Target groups								
<div>Target groups (1) <a href="#">Info</a> <span>↻</span> <span>Actions</span> <span>Create target group</span></div> <div><input type="text" value="Search or filter target groups"/></div> <div>&lt; 1 &gt; ⚙</div>								
<input type="checkbox"/>	Name	ARN	Port	Protocol	Target type	Load balancer	VPC ID	
<input type="checkbox"/>	Team-D-LB-TG	arn:aws:elasticloadbalancin...	80	HTTP	Instance	-	vpc-0537baf72f80d5930	

Now we create load balancer as:

## Load Balancer Home

<div>Create Load Balancer <span>Actions</span></div> <div><input type="text" value="Filter by tags and attributes or search by keyword"/></div> <div>&lt; &lt; None found &gt; &gt;</div>								
<input type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	Type	Created At	Monitoring
You do not have any load balancers in this region.								

## Load Balancer Creation

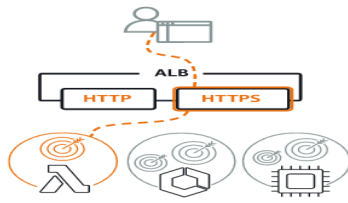
Select the application load balancer from below:

## Select load balancer type

A complete feature-by-feature comparison along with detailed highlights is also available. [Learn more](#)

### Load balancer types

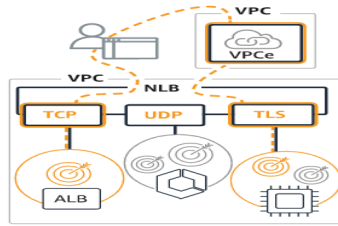
#### Application Load Balancer [Info](#)



Choose an Application Load Balancer when you need a flexible feature set for your applications with HTTP and HTTPS traffic. Operating at the request level, Application Load Balancers provide advanced routing and visibility features targeted at application architectures, including microservices and containers.

Create

#### Network Load Balancer [Info](#)



Choose a Network Load Balancer when you need ultra-high performance, TLS offloading at scale, centralized certificate deployment, support for UDP, and static IP addresses for your applications. Operating at the connection level, Network Load Balancers are capable of handling millions of requests per second securely while maintaining ultra-low latencies.

Create

#### Gateway Load Balancer [Info](#)



Choose a Gateway Load Balancer when you need to deploy and manage a fleet of third-party virtual appliances that support GENEVE. These appliances enable you to improve security, compliance, and policy controls.

Create

## Create Application Load Balancer [Info](#)

The Application Load Balancer distributes incoming HTTP and HTTPS traffic across multiple targets such as Amazon EC2 instances, microservices, and containers, based on request attributes. When the load balancer receives a connection request, it evaluates the listener rules in priority order to determine which rule to apply, and if applicable, it selects a target from the target group for the rule action.

### ► How Application Load Balancers work

#### Basic configuration

##### Load balancer name

Name must be unique within your AWS account and cannot be changed after the load balancer is created.

Team-D-LB

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

##### Scheme [Info](#)

Scheme cannot 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

Recommended for internal load balancers.

##### ☐ Dualstack

Includes IPv4 and IPv6 addresses.

#### Network mapping [Info](#)

The load balancer routes traffic to targets in the selected subnets, and in accordance with your IP address settings.

**VPC** [Info](#)

Select the virtual private cloud (VPC) for your targets. Only VPCs with an internet gateway are enabled for selection. The selected VPC cannot be changed after the load balancer is created. To confirm the VPC for your targets, view your [target groups](#).

Team-D-VPC  
vpc-0537baf72f80d5930  
IPv4: 10.15.32.0/22

**Mappings** [Info](#)

Select at least two Availability Zones and one subnet per zone. The load balancer routes traffic to targets in these Availability Zones only. Availability Zones that are not supported by the load balancer or the VPC are not available for selection. Subnets cannot be removed after the load balancer is created, but additional subnets can be added.

☒ **us-east-2a****Subnet**

subnet-0f2289611791d484b

Team-D-Pub-Subnet-1 ▼

**IPv4 settings**

Assigned by AWS

**IPv6 settings**

IPv6 address

None

☒ **us-east-2b****Subnet**

subnet-097d36c5a88e7499e

Team-D-Pub-Subnet-2 ▼

**IPv4 settings**

Assigned by AWS

**IPv6 settings**

IPv6 address

None

Select our created security group and target group:

subnet-097d36c5a88e7499e

Team-D-Pub-Subnet-2 ▼

**IPv4 settings**

Assigned by AWS

**IPv6 settings**

IPv6 address

None

☒ **us-east-2c****Subnet**

subnet-04cac1b8f8d29fd3d

Team-D-Pub-Subnet-3 ▼

**IPv4 settings**

Assigned by AWS

**IPv6 settings**

IPv6 address

None

**Security groups** [Info](#)

A security group is a set of firewall rules that control the traffic to your load balancer.

**Security groups**

Select security groups

[Create new security group](#)

Team-D-LB-SG sg-07ac702840d3f1b41 ✕  
VPC: vpc-0537baf72f80d5930

## Listeners and routing [Info](#)

A listener is a process that checks for connection requests, using the protocol and port you configure. Traffic received by the listener is then routed per your specification. You can specify multiple rules and multiple certificates per listener after the load balancer is created.

▼ Listener HTTP:80

Remove

Protocol

Port

Default action [Info](#)

HTTP

:

80

Forward to

Team-D-LB-TG

HTTP

⌂

1-65535

Target type: Instance, IPv4

Create target group [↗](#)

Add listener

### ► Add-on services - optional

You can add these integrated services now as you create your load balancer, or add them later using your load balancer's "Integrated services" tab.

### ▼ Tags - optional

Consider adding tags to your load balancer. Tags enable you to categorize your AWS resources so you can more easily manage them. The 'Key' is required, but 'Value' is optional. For example, you can have Key = production-webserver, or Key = webserver, and Value = production.

Key

Value - optional

Name

Team-D-LB

Remove

Add tag

You can add up to 49 more tags.

## Summary

Review and confirm your configurations. [Estimate cost](#) [↗](#)

## Summary

Review and confirm your configurations. [Estimate cost](#) [↗](#)

### Basic configuration [Edit](#)

Team-D-LB

- Internet-facing
- Dualstack

### Security groups [Edit](#)

- Team-D-LB-SG  
[sg-07ac702840d3f1b41](#) [↗](#)

### Network mapping [Edit](#)

VPC [vpc-0537baf72f80d5930](#) [↗](#)

Team-D-VPC

- us-east-2a  
[subnet-0f2289611791d484b](#) [↗](#)  
Team-D-Pub-Subnet-1
- us-east-2b  
[subnet-097d36c5a88e7499e](#) [↗](#)  
Team-D-Pub-Subnet-2
- us-east-2c  
[subnet-04cac1b8f8d29fd3d](#) [↗](#)  
Team-D-Pub-Subnet-3

### Listeners and routing [Edit](#)

- HTTP:80 defaults to  
[Team-D-LB-TG](#) [↗](#)

### Add-on services [Edit](#)

None

### Tags [Edit](#)

NameTeam-D-LB

### Attributes

[i](#) Certain default attributes will be applied to your load balancer. You can view and edit them after creating the load balancer.

Cancel

Create load balancer

## Created Load Balancer

Create Load Balancer

Actions

search : Team-D-LB

Add filter

< > 1 to 1 of 1 > >

Name	DNS name	State	VPC ID	Availability Zones	Type	Created At	Monitoring
Team-D-LB	Team-D-LB-979181073.us-e...	Provisioning	vpc-0537ba72f80d5930	us-east-2c, us-east-2b, ...	application	December 7, 2021 at 10:13...	

Load balancer: Team-D-LB

Description

Listeners

Monitoring

Integrated services

Tags

Basic Configuration

Name

Team-D-LB

ARN

arn:aws:elasticloadbalancing:us-east-2:949263681218:loadbalancer/app/Team-D-LB/40bfdd09ba02ec43

DNS name

Team-D-LB-979181073.us-east-2.elb.amazonaws.com  
(A Record)

State

Provisioning

Type

application

Scheme

internet-facing

IP address type

ipv4

Edit IP address type

VPC

vpc-0537ba72f80d5930

Availability Zones

subnet-04cac1b8f8d29f3d - us-east-2c  
IPv4 address: Assigned by AWS

subnet-097d36c5a89e7499e - us-east-2b  
IPv4 address: Assigned by AWS

subnet-0f2289611791d484b - us-east-2a  
IPv4 address: Assigned by AWS

## Open Port 8880

Edit inbound rules

Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules

Info

Security group rule ID	Type	Protocol	Port range	Source	Description - optional	
sgr-05bc9854f675eb188	Custom TCP	TCP	8880	Custom	Open port for load balancer	Delete
sgr-08969ab414b50871a	SSH	TCP	22	Custom	10.15.32.0/22	Delete
sgr-08ce45c876c44247	All ICMP - IPv4	ICMP	All	Custom	10.15.32.0/22	Delete
sgr-0022c85284316ecc7	PostgreSQL	TCP	5432	Custom	10.15.32.0/22	Delete

Add rule

Cancel

Preview changes

Save rules



We have our index page as below:

```
ec2-user@ip-10-15-32-111:~  
Hello from Team-D on PORT 8880
```

Run the python script to see it in the web from our private ec2-instance as :

```
ec2-user@ip-10-15-32-111:~  
[ec2-user@ip-10-15-32-111 ~]$ python3 -m http.server 8880  
Serving HTTP on 0.0.0.0 port 8880 (http://0.0.0.0:8880/) ...
```

here, **10.15.32.111** is our private ip of the private ec2 instance.

We can finally see the result through the ALB DNS Name publicly as,

```
< > ↻ team-d-lb-979181073.us-east-2.elb.amazonaws.com  
Hello from Team-D on PORT 8880
```