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# Elastic Load Balancer

## What Is Elastic Load Balancing?

Elastic Load Balancing distributes incoming application traffic across multiple EC2 instances, in multiple Availability Zones. This increases the fault tolerance of your applications.

The load balancer serves as a single point of contact for clients, which increases the availability of your application. You can add and remove instances from your load balancer as your needs change, without disrupting the overall flow of requests to your application. Elastic Load Balancing scales your load balancer as traffic to your application changes over time, and can scale to the vast majority of workloads automatically.

You can configure health checks, which are used to monitor the health of the registered instances so that the load balancer can send requests only to the healthy instances. You can also offload the work of encryption and decryption to your load balancer so that your instances can focus on their main work.

## Features of Elastic Load Balancing

Elastic Load Balancing supports three types of load balancers:

- Application Load Balancers
- Network Load Balancers
- Classic Load Balancers

### Classic Load Balancer

- Classic Load Balancer provides basic load balancing across multiple Amazon EC2 instances and operates at both the request level and connection level.
- Classic Load Balancer is intended for applications that were built within the EC2- Classic network.

### Network Load Balancer

- Network Load Balancer is best suited for load balancing of TCP traffic where extreme performance is required. Operating at the connection level (Layer 4), Network Load Balancer routes traffic to targets within Amazon Virtual Private Cloud (Amazon VPC) and is capable of handling millions of requests per second while maintaining ultra-low latencies.
- Network Load Balancer is also optimized to handle sudden and volatile traffic patterns

## Application Load Balancer

- Application Load Balancer is best suited for load balancing of HTTP and HTTPS traffic and provides advanced request routing targeted at the delivery of modern application architectures, including micro services and containers.
- Operating at the individual request level (Layer 7), Application Load Balancer routes traffic to targets within Amazon Virtual Private Cloud (Amazon VPC) based on the content of the request.

### Pre requirement

1. **ELB name**
2. **TWO instance Server IP**
3. **Instance Server VPC**
4. **Instance Subnet**
5. **Location of status file**
6. **ELB lock down**
7. **Https – SSL generic add**

### ELB CREATION

- ELB creation request from will be received from client.
- The form contains the details such as Domain Name, SSL requirement, Health Check and A record details

Two types of ELB are created.

1. External
2. Internal

### Internal ELB Creation:

The only difference between External and Internal is, in first step we need to check the check box for internal ELB. And, after creating internal ELB it has to be mapped CNAME in DNS server.

**Create Load Balancer** [X]

1. Define Load Balancer 2. Configure Health Check 3. Add EC2 Instances 4. Review

This wizard will walk you through setting up a new load balancer. Begin by giving your new load balancer a unique name so that you can identify it from other load balancers you might create. You will also need to configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to any port on your EC2 instances. By default, we've configured your load balancer with a standard web server on port 80.

Load Balancer name:

Create LB type:

Create an internal load balancer: ☒ (what's this?)

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port
HTTP	80	HTTP	80

Add

Cancel Continue

## DNS – CNAME Creation:

For example consider below in the ELB that you have created (Internal ELB always have prefix as internal).

**internal-usvap-solr-data-index-514282672.us-east-1.elb.amazonaws.com.**

The Alias name has to be given as below.

**usvap-solrindex Properties**

Alias (CNAME) | Security

Alias name (uses parent domain if left blank):  
usvap-solrindex

Fully qualified domain name (FQDN):  
usvap-solrindex.udm000.unileverservices.com

Fully qualified domain name (FQDN) for target host:  
internal-usvap-solr-data-index-514282672.us-east-1.elb.ar

Browse...

OK Cancel Apply

## External ELB creation:

**Step 1:** Log in the instances which are to be added to the ELB and navigate to the below path.

Launch Instance

Connect

Actions

Filter by tags and attributes or search by keyword

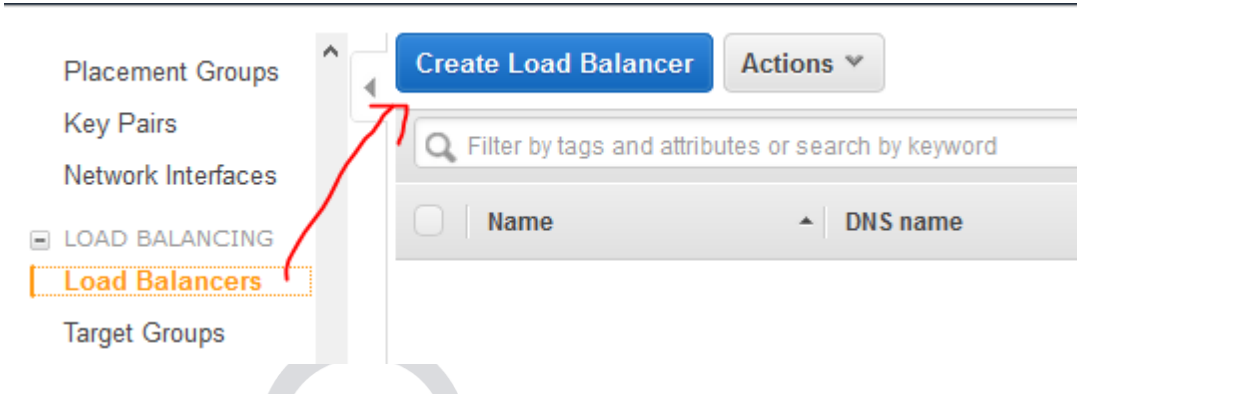
<input type="checkbox"/>	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Sta
<input type="checkbox"/>	server 1	i-06196f1c0b2401...	t2.micro	us-east-2c	<span>●</span> running	<span>✓</span> 2/2 checks...	None
<input checked="" type="checkbox"/>	server 2	i-0910eab5d5e2cf...	t2.micro	us-east-2c	<span>●</span> running	<span>✓</span> 2/2 checks...	None

Create two instance in Linux (Apache) / Windows (IIS) host a website in it.



**Step 2:**

1. Log in to AWS console for the region where the ELB need to be created.



Select load balancer type

Elastic Load Balancing supports three types of load balancers: Application Load Balancers, Network Load Balancers (new), and Classic Load Balancers. Choose the load balancer type that meets your needs. [Learn more about which load balancer is right for you](#)

**Application Load Balancer**

HTTP  
HTTPS

Create

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

[Learn more >](#)

**Network Load Balancer**

TCP

Create

Choose a Network Load Balancer when you need ultra-high performance and static IP addresses for your application. Operating at the connection level, Network Load Balancers are capable of handling millions of requests per second while maintaining ultra-low latencies.

[Learn more >](#)

**Classic Load Balancer**

PREVIOUS GENERATION  
for HTTP, HTTPS, and TCP

Create

Choose a Classic Load Balancer when you have an existing application running in the EC2-Classical network.

[Learn more >](#)

- Load Balancer Name will be given in ELB creation form. (Ex: “iedup-dove-tr-<aws amazon number>”)
- We need to create ELB only on “iedup-dove-tr”.
- Next we need to select VPC id in which the ELB has to be created.
- If SSL required, select Load Balancer Protocol as HTTP and leave Instance Protocol as 80.

**Step 2: Assign Security Groups**

You have selected the option of having your Elastic Load Balancer inside of a VPC, which allows you to assign security groups to your load balancer. Please select the security groups to assign to this load balancer. This can be changed at any time.

Assign a security group: ☒ Create a new security group ☐ Select an existing security group

Security group name:

Description:

Type	Protocol	Port Range	Source
Custom TCP	TCP	80	Custom 0.0.0.0/0
All traffic	All	0 - 65535	Custom 0.0.0.0/0

Add Rule

## 2. Configuring Health Check.

1. Define Load Balancer

2. Assign Security Groups

3. Configure Security Settings

4. Configure Health Check

## Step 4: Configure Health Check

Your load balancer will automatically perform health checks on your EC2 instances and only route traffic to in balancer. Customize the health check to meet your specific needs.

Ping Protocol

Ping Port

## Advanced Details

Response Timeout  seconds

Interval  seconds

Unhealthy threshold

Healthy threshold

- Ping protocol and port as it is HTTP / TCP - 80
- Response Timeout is 10 sec.
- Health check interval is 12 sec.
- Unhealthy Threshold is 2 sec.
- Health Threshold 2 sec.

## 3. Add the instances that need to be in ELB.

1. Define Load Balancer

2. Assign Security Groups

3. Configure Security Settings

4. Configure Health Check

5. Add EC2 Instances

## Step 5: Add EC2 Instances

The table below lists all your running EC2 Instances. Check the boxes in the Select column to add those instances to this load balancer.

VPC vpc-7eaeed17 (172.31.0.0/16)

<input type="checkbox"/>	Instance	Name	State	Security groups
<input type="checkbox"/>	i-0061708144859dec6	Normall	stopped	launch-wizard-2
<input checked="" type="checkbox"/>	i-06196f1c0b240155f	server 1	running	launch-wizard-9
<input checked="" type="checkbox"/>	i-0910eab5d5e2cf513	server 2	running	launch-wizard-10

## Availability Zone Distribution

2 instances in us-east-2c

☒ Enable Cross-Zone Load Balancing

☒ Enable Connection Draining  seconds

## 5. Add tag

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags

### Step 6: Add Tags

Apply tags to your resources to help organize and identify them.

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about

Key	Value
<input type="text" value="name"/>	<input type="text" value="ELB"/>
<input type="button" value="Create Tag"/>	

## 6. Review and submit

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

### Step 7: Review

Please review the load balancer details before continuing

▼ Define Load Balancer

Load Balancer name: ELB  
Scheme: internet-facing  
Port Configuration: 80 (HTTP) forwarding to 80 (HTTP)

Edit load balancer definition

▼ Configure Health Check

Ping Target: TCP:80  
Timeout: 5 seconds  
Interval: 30 seconds  
Unhealthy threshold: 2  
Healthy threshold: 10

Edit health check

▼ Add EC2 Instances

Cross-Zone Load Balancing: Enabled  
Connection Draining: Enabled, 300 seconds  
Instances: i-06196f1c0b240155f (server 1), i-0910eab5d5e2cf513 (server 2)

Edit instances

Cancel

Previous

Create

## 7. Check status of server , it should be in IN SERVICE

ELB

ELB-51334584.us-east-2.e...

vpc-7eaeed17

us-east-2a, us-east-2...

classic

<

Load balancer: ELB

Description

Instances

Health Check

Listeners

Monitoring

Tags

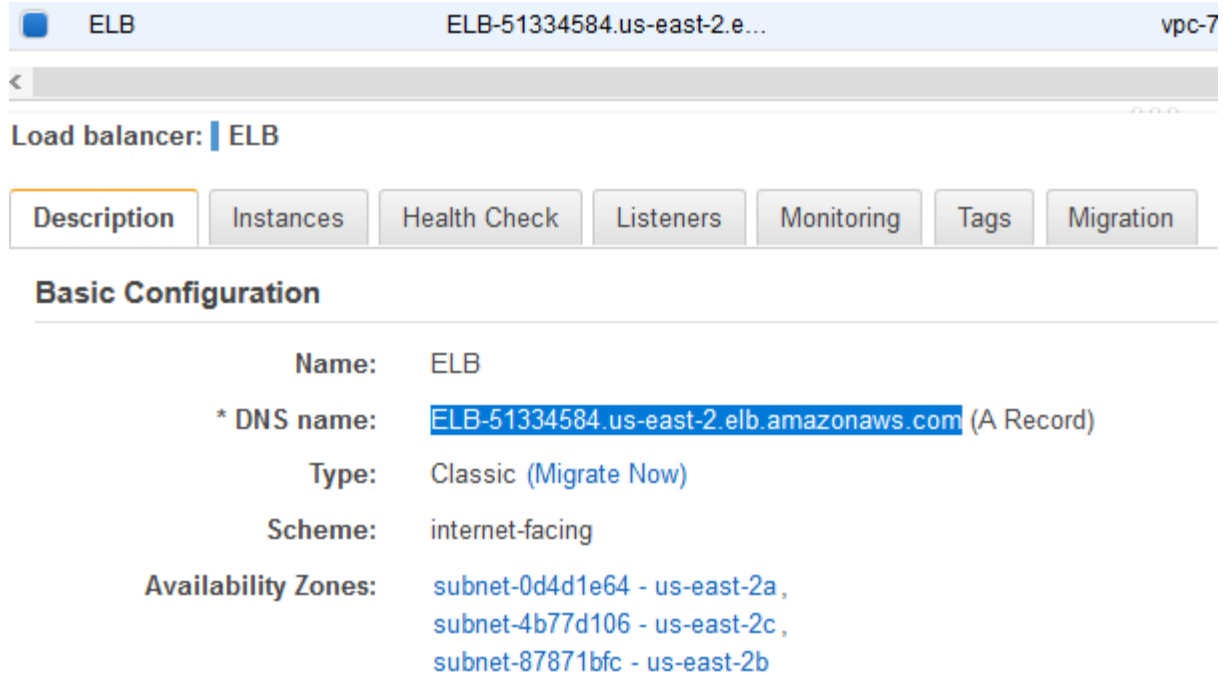
Migration

Connection Draining: Enabled, 300 seconds (Edit)

Edit Instances

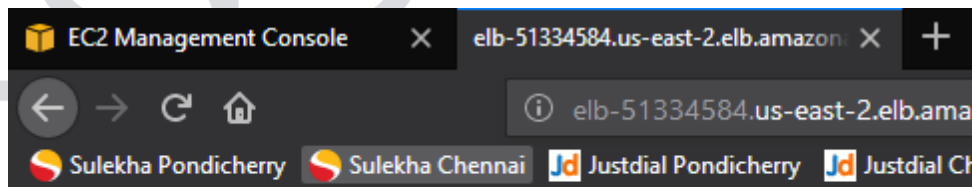
Instance ID	Name	Availability Zone	Status	Actions
i-06196f1c0b240155f	server 1	us-east-2c	InService ⓘ	<a href="#">Remove from Load Balancer</a>
i-0910eab5d5e2cf513	server 2	us-east-2c	InService ⓘ	<a href="#">Remove from Load Balancer</a>





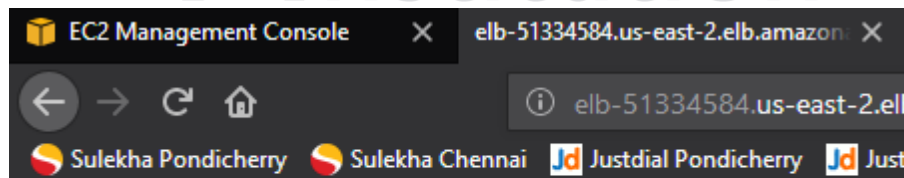
The screenshot displays the AWS Management Console interface for an Elastic Load Balancing (ELB) instance. At the top, the instance name is "ELB-51334584.us-east-2.e..." and the VPC is "vpc-7". Below this, the "Load balancer:" section shows "ELB". A navigation bar includes tabs for "Description", "Instances", "Health Check", "Listeners", "Monitoring", "Tags", and "Migration". The "Basic Configuration" section is expanded, showing the following details:

- Name:** ELB
- \* DNS name:** [ELB-51334584.us-east-2.elb.amazonaws.com](https://ELB-51334584.us-east-2.elb.amazonaws.com) (A Record)
- Type:** Classic (Migrate Now)
- Scheme:** internet-facing
- Availability Zones:** subnet-0d4d1e64 - us-east-2a, subnet-4b77d106 - us-east-2c, subnet-87871bfc - us-east-2b

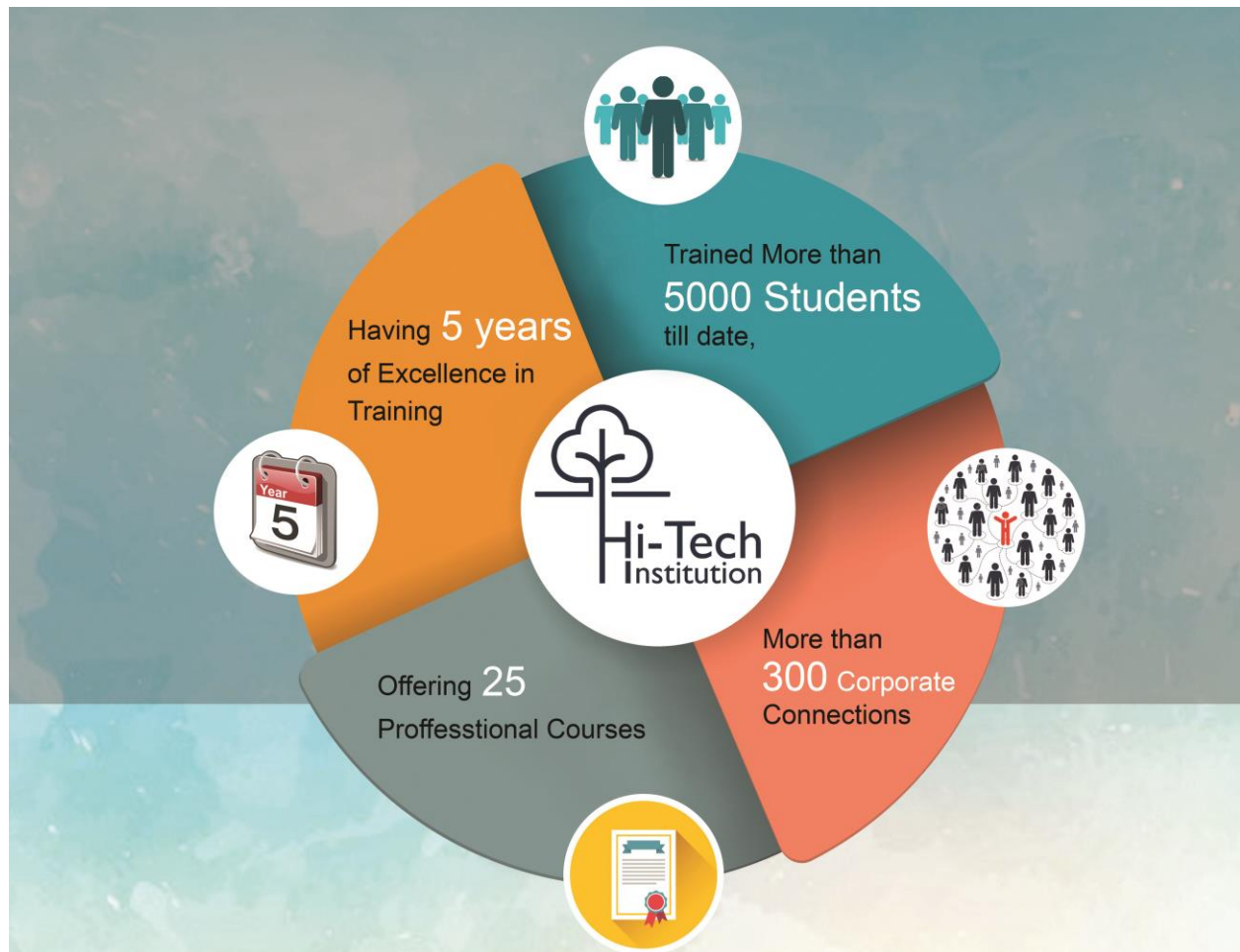


server 1

Institution



server 2



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