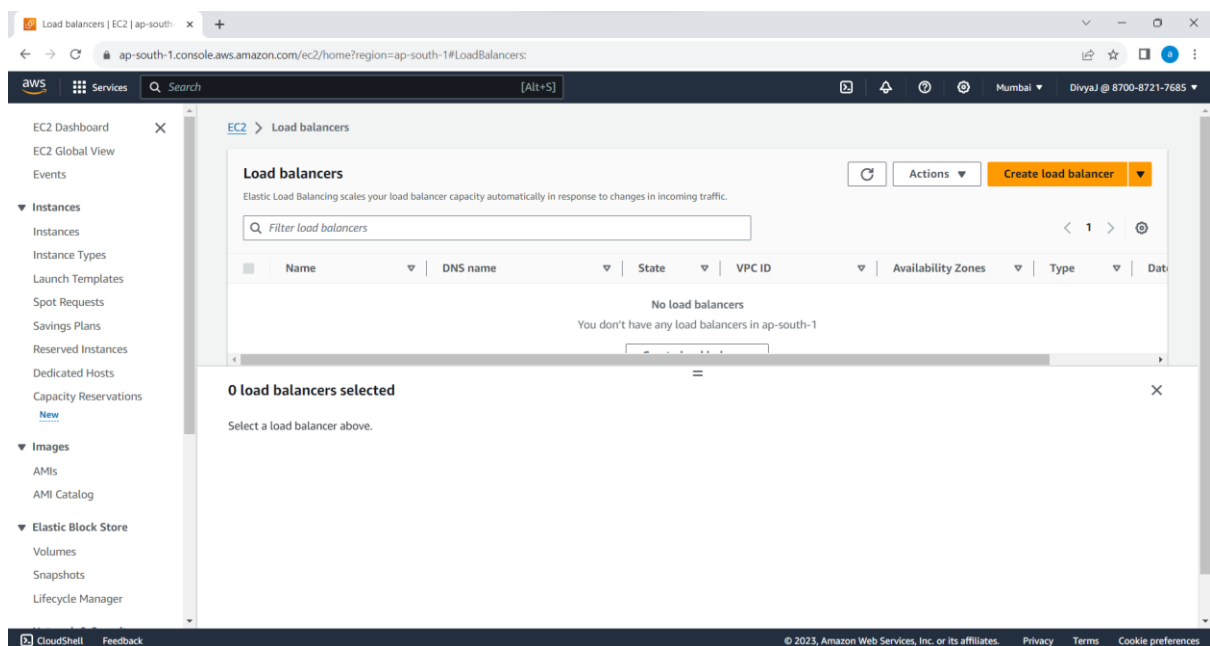


NAME: DIVYA SANJEEVARADDI JALIKOPPA

USN : 2KE20EC028

ASSIGNMENT

Navigate to load balancer



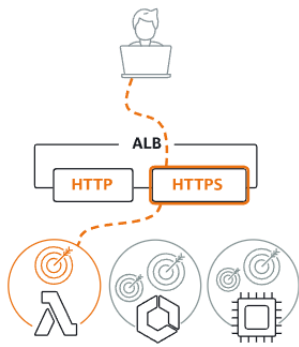
Select application load balancer

Compare and select load balancer type

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

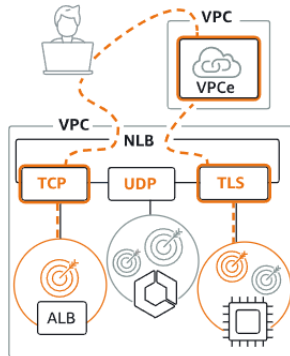
Load balancer types

Application Load Balancer [Info](#)



Choose an Application Load Balancer when you need a flexible feature set for your applications

Network Load Balancer [Info](#)



Choose a Network Load Balancer when you need ultra-high performance. TLS offloading at

Gateway Load Balancer [Info](#)



Choose a Gateway Load Balancer when you need to deploy and manage a fleet of third-party

Give name

► How Elastic Load Balancing works

Basic configuration

Load balancer name

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

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

Recommended for internal load balancers.

☐ Dualstack

Includes IPv4 and IPv6 addresses.

Select availability zones and select public subnets

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 or you can [create a new VPC](#). Only VPCs with an internet gateway are enabled for selection. The selected VPC can't be changed after the load balancer is created. To confirm the VPC for your targets, view your [target groups](#).

vpc-01
vpc-0cfd73862da010bd4
IPv4: 10.0.0.0/16



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.

☒ ap-south-1a (aps1-az1)

Subnet

subnet-098500e66d65d8e49 public subnet

IPv4 address

Assigned by AWS

☒ ap-south-1b (aps1-az3)

Subnet

subnet-014b97e39b56a81a8 AML-public-subnet

IPv4 address

Assigned by AWS

Create security group

Basic details

Security group name [Info](#)

alb-security-group

Name cannot be edited after creation.

Description [Info](#)

Allows SSH access to developers

VPC [Info](#)

vpc-0cfd73862da010bd4 (vpc-01)

Inbound rules [Info](#)

Type	Protocol	Port range	Source	Description - optional
All ICMP - IPv4	ICMP	All	Anyw... 0.0.0.0/0	
HTTP	TCP	80	Anyw... 0.0.0.0/0	
HTTPS	TCP	443	Custom 0.0.0.0/0	
Add rule				

Create target group

Target group name

alb-target

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

EC2 > Target groups > alb-target

alb-target

Actions ▾

Details
arn:aws:elasticloadbalancing:ap-south-1:870087217685:targetgroup/alb-target/ead43c248484a34a

Target type Instance	Protocol : Port HTTP: 80	Protocol version HTTP1	VPC vpc-0cfd73862da010bd4
IP address type IPv4	Load balancer None associated		

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
1	0	0	1	0	0

► **Distribution of targets by Availability Zone (AZ)**
Select values in this table to see corresponding filters applied to the Registered targets table below.

Targets | Monitoring | Health checks | Attributes | Tags

▼ Listener HTTP:80 Remove

Protocol HTTP	Port 80	Default action Forward to	Info
1-65535		alb-target	HTTP
		Target type: Instance, IPv4	

[Create target group](#)

← → ↻ ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#CreateLoadBalancerArns=arn:aws:elasticloadbalancing:ap-south-1:870087217685:loadbalancer/app/alb-load-balancer-...

aws Services Search [Alt+S] Mumbai Divyaji @ 8700-8721-7685

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

EC2 > Load balancers > alb-load-balancer > Create Application Load Balancer

Create Application Load Balancer

Suggested next steps

- Review, customize, or configure attributes for your load balancer and listeners using the **Description** and **Listeners** tabs within **alb-load-balancer**.
- Discover other services that you can integrate with your load balancer. Visit the **Integrated services** tab within **alb-load-balancer**.

[View load balancer](#)

Load balancer is created

EC2 > Load balancers

Load balancers (1/1)

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Filter load balancers 1 match

alb-load-balancer

< 1 >

<input checked="" type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	Type	Date
<input checked="" type="checkbox"/>	alb-load-balancer	alb-load-balancer-176025...	Provisioning...	vpc-0cfd73862da010b...	2 Availability Zones	application	Nov

Load balancer: alb-load-balancer

Details | Listeners and rules | Network mapping | Security | Monitoring | Integrations | Attributes | Tags

Details

Load balancer type Application	Status Provisioning	VPC vpc-0cfd73862da010bd4	IP address type IPv4
Scheme Internet-facing	Hosted zone ZP97RAFLXTNZK	Availability Zones subnet-098500e66d65d8e49 ap-	Date created November 26, 2023, 20:14 (UTC+05:30)

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EC2 > Target groups > alb-target

alb-target

Actions

Details

arn:aws:elasticloadbalancing:ap-south-1:870087217685:targetgroup/alb-target/ead43c248484a34a

Target type Instance	Protocol : Port HTTP: 80	Protocol version HTTP1	VPC vpc-0cfd73862da010bd4
IP address type IPv4	Load balancer None associated		

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
1	<input checked="" type="checkbox"/> 0	<input checked="" type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 0	<input checked="" type="checkbox"/> 0

► **Distribution of targets by Availability Zone (AZ)**
Select values in this table to see corresponding filters applied to the Registered targets table below.

Targets | Monitoring | Health checks | Attributes | Tags

Register 2 public instances and check the status

Its healthy

IP address type
IPv4

Load balancer
[alb](#)

2
Total targets

2
Healthy

0 Anomalous

0
Unhealthy

0
Unused

0
Initial

0
Draining

► Distribution of targets by Availability Zone (AZ)

Select values in this table to see corresponding filters applied to the Registered targets table below.

Targets

Monitoring

Health checks

Attributes

Tags

Registered targets (2) [Info](#)

Anomaly mitigation: Not applicable

Deregister

Register targets

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.

Filter targets

< 1 >

<input type="checkbox"/>	Instance ID	Name	Port	Zone	Health status	Health status details	Anomaly
<input type="checkbox"/>	i-0067e0b5e30c9ebdf	webserver-nginx	80	ap-south-1a	Healthy	-	Normal
<input type="checkbox"/>	i-0ef20eb182cef5876	nginx-image-i...	80	ap-south-1b	Healthy	-	Normal

In of the instance I stopped nginx so its unhealthy

alb-target

Actions

Details

arn:aws:elasticloadbalancing:ap-south-1:870087217685:targetgroup/alb-target/ead43c248484a34a

Target type
Instance

Protocol : Port
HTTP: 80

Protocol version
HTTP1

VPC
[vpc-0cfd73862da010bd4](#)

IP address type
IPv4

Load balancer
[alb-load-balancer](#)

2
Total targets

1
Healthy

0 Anomalous

1
Unhealthy

0
Unused

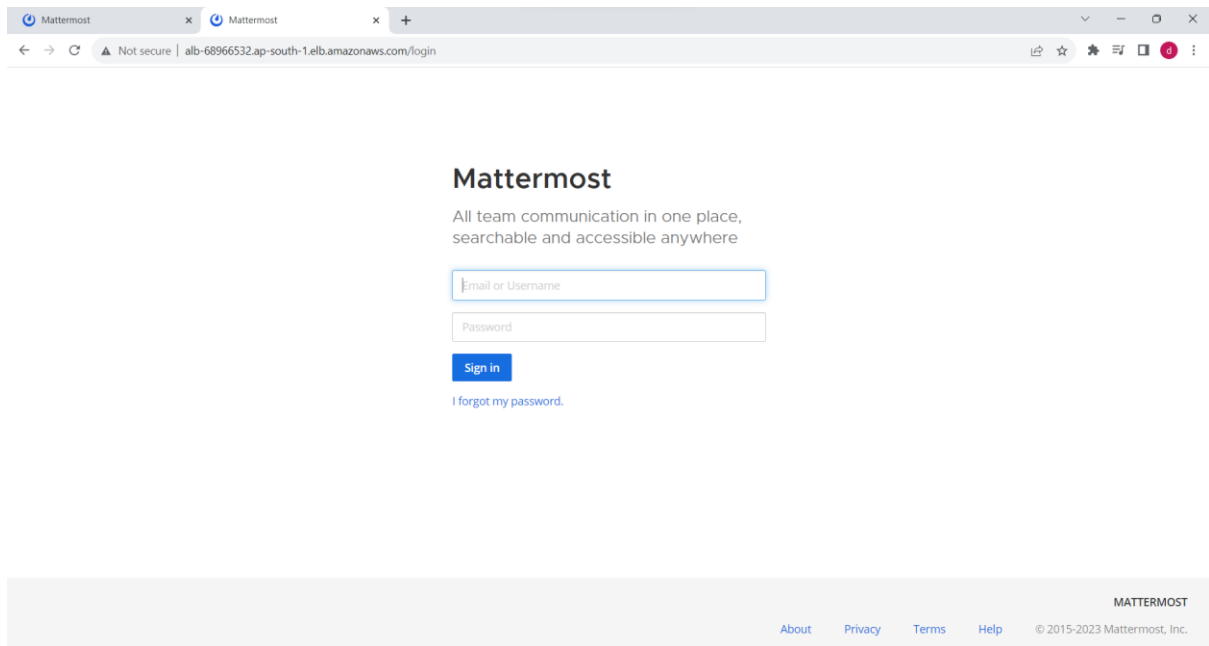
0
Initial

0
Draining

► Distribution of targets by Availability Zone (AZ)

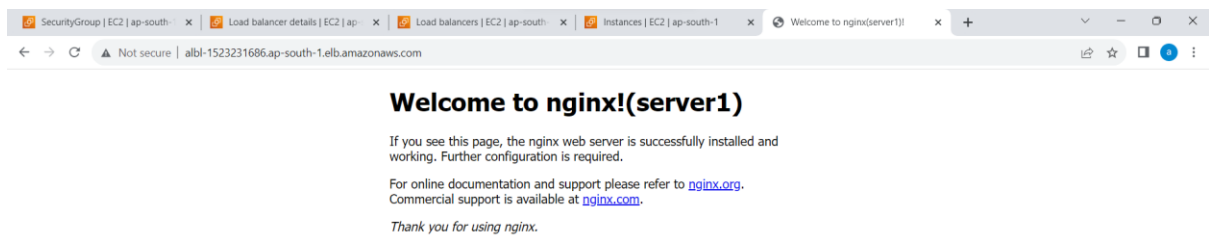
Select values in this table to see corresponding filters applied to the Registered targets table below.

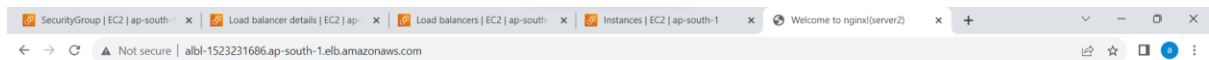
Go to the load balancer and check it with the DNS name



OPTIONAL: to show its coming in round robin fashion I have created 2 instances and installed nginx in them and accessed it using DNS of ALB

Its coming in round robin fashion





Welcome to nginx!(server2)

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

CONCLUSION:

case 1: Both the targets are healthy
it follows round robin fashion

Case 2: one of the target is healthy

Load balancer only send request to healthy server

Case3: Bothe the targets are unhealthy

Load balancer cannot send the request to either of the server so we cannot access

.....
.....

Select network load balancer

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

Give name for the 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.

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

Scheme
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**
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.

Register the 2 mattermost instances and give the port number as 8065

Available instances (2/5)

Filter instances

Instance ID	Name	State	Security groups	Zone	Private IPv4
<input checked="" type="checkbox"/> i-0905ffc43ad11854f	mattermost-image-instance	Running	launch-wizard-26	ap-south-1b	10.0.3.162
<input type="checkbox"/> i-0ef20eb182cef5876	nginx-image-instance	Running	launch-wizard-25	ap-south-1b	10.0.0.117
<input checked="" type="checkbox"/> i-044e4915c5184e2da	mattermost-app-server	Running	launch-wizard-20	ap-south-1a	10.0.4.48
<input type="checkbox"/> i-01907866d8107a380	mysql-db-server	Running	launch-wizard-22	ap-south-1a	10.0.4.39
<input type="checkbox"/> i-0067e0b5e30c9ebdf	webserver-nginx	Running	launch-wizard-24	ap-south-1a	10.0.1.82

2 selected

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

8065

1-65535 (separate multiple ports with commas)

Include as pending below

Both are healthy

nlb-target Actions

Introducing Automatic Target Weights (ATW) to increase application availability
Automatic Target Weights is achieved by turning on anomaly mitigation, which provides responsive, dynamic distribution of traffic to targets based on anomaly detection results. All HTTP/HTTPS target groups now include anomaly detection by default. [Learn more](#)

Details
arn:aws:elasticloadbalancing:ap-south-1:870087217685:targetgroup/nlb-target/4143e77c96470873

Target type Instance	Protocol : Port TCP: 80	VPC vpc-0cfd73862da010bd4	IP address type IPv4
Load balancer nlb			

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
2	2	0	0	0	0

Distribution of targets by Availability Zone (AZ)
Select values in this table to see corresponding filters applied to the Registered targets table below.

Go to the .conf file and give the DNS of NLB

```
ec2-user@ip-10-0-1-82:/etc/n  X + v
upstream backend {
    server nlb-6d68b36b36d8d874.elb.ap-south-1.amazonaws.com;
    keepalive 32;
}

proxy_cache_path /var/cache/nginx levels=1:2 keys_zone=mattermost_cache:10m max_size=3g inactive=120m use_temp_path=off;

server {
    listen 80;
    server_name 10.0.1.82;

    location ~ /api/v[0-9]+/(users/)?websocket$ {
        proxy_set_header Upgrade $http_upgrade;
        proxy_set_header Connection "upgrade";
        client_max_body_size 50M;
        proxy_set_header Host $http_host;
        proxy_set_header X-Real-IP $remote_addr;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
        proxy_set_header X-Forwarded-Proto $scheme;
        proxy_set_header X-Frame-Options SAMEORIGIN;
        proxy_buffers 256 16k;
        proxy_buffer_size 16k;
        client_body_timeout 60;
        send_timeout 300;
        lingering_timeout 5;
        proxy_connect_timeout 90;
        proxy_send_timeout 300;
        proxy_read_timeout 90s;
        proxy_pass http://backend;
    }
}
```

Access it using the DNS of ALB
we need to get mattermost page

