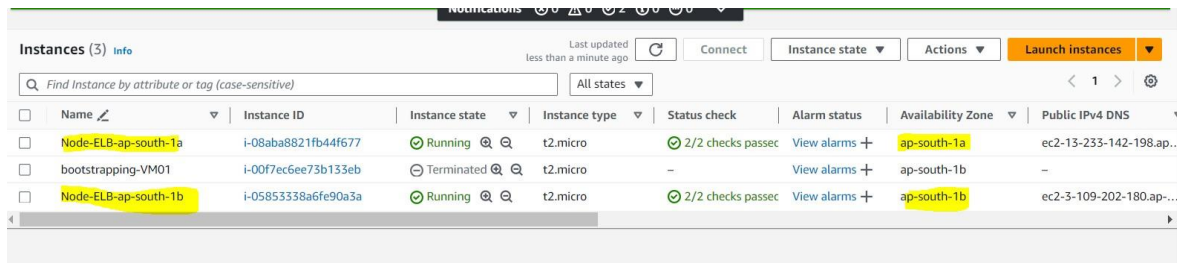


ELB (Elastic Load Balancer)

1) Create two instances in different zone of (ap-south-1)

- Creating two instances in different zones of ap-south-1.



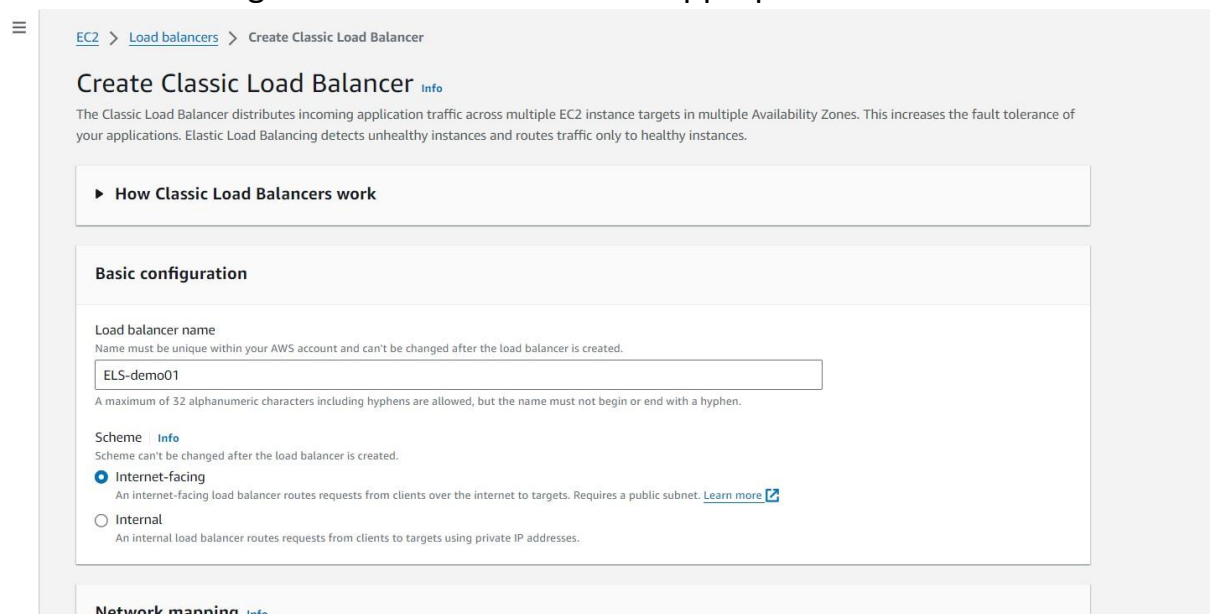
The screenshot shows the AWS Management Console 'Instances' page for the ap-south-1 region. It displays a table of three EC2 instances. The first instance, 'Node-ELB-ap-south-1a', is in the 'Running' state, has an instance ID of i-08aba8821fb44f677, is a t2.micro type, and is located in the ap-south-1a availability zone. The second instance, 'bootstrapping-VM01', is in the 'Terminated' state, has an instance ID of i-00f7ec6ee73b133eb, is a t2.micro type, and is located in the ap-south-1b availability zone. The third instance, 'Node-ELB-ap-south-1b', is in the 'Running' state, has an instance ID of i-05853338a6fe90a3a, is a t2.micro type, and is located in the ap-south-1b availability zone. The table also shows status checks, alarm status, and public IPv4 DNS addresses for each instance.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
Node-ELB-ap-south-1a	i-08aba8821fb44f677	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-233-142-198.ap...
bootstrapping-VM01	i-00f7ec6ee73b133eb	Terminated	t2.micro	-	View alarms	ap-south-1b	-
Node-ELB-ap-south-1b	i-05853338a6fe90a3a	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1b	ec2-3-109-202-180.ap...

2) Creating Load balancer for running two instances

i. create classic load balancer

- Go to the EC2 Dashboard in the AWS Management Console.
- Under Load Balancing, select Load Balancers.
- Click Create Load Balancer.
- Choose Classic Load Balancer.
- Name the load balancer.
- Configure the listener settings (default: HTTP on port 80).
- Assign the load balancer to the appropriate VPC and subnets.



The screenshot shows the 'Create Classic Load Balancer' page in the AWS Management Console. The page is titled 'Create Classic Load Balancer' and includes a brief description of the Classic Load Balancer. Below the description, there is a section for 'Basic configuration' where the 'Load balancer name' is set to 'ELS-demo01'. The 'Scheme' is set to 'Internet-facing'. The 'Network mapping' section is partially visible at the bottom.

EC2 > Load balancers > Create Classic Load Balancer

Create Classic Load Balancer

The Classic Load Balancer distributes incoming application traffic across multiple EC2 instance targets in multiple Availability Zones. This increases the fault tolerance of your applications. Elastic Load Balancing detects unhealthy instances and routes traffic only to healthy instances.

► How Classic Load Balancers work

Basic configuration

Load balancer name
Name must be unique within your AWS account and can't be changed after the load balancer is created.
ELS-demo01

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.

Network mapping

ii. Map the network for instances

- Select the appropriate VPC and subnets where your instances (prodserver01 and prodserver02) are located.
- Make sure the security groups for the instances allow HTTP (port 80) traffic.

The screenshot shows the 'Network mapping' configuration page in the AWS Management Console. The page is titled 'Network mapping' with an 'info' link. Below the title, a subtitle reads: 'The load balancer routes traffic to targets in the selected subnets, and in accordance with your network settings.' The main configuration area is divided into two sections: 'VPC' and 'Mappings'. The 'VPC' section has a subtitle 'Select the virtual private cloud (VPC) for your targets or you can [create a new VPC](#)'. It includes a dropdown menu showing 'vpc-01ff4ab41ecc0386a' with 'IPv4 VPC CIDR: 172.31.0.0/16' and a refresh button. The 'Mappings' section has a subtitle 'Select at least one Availability Zone and one subnet for each zone. We recommend selecting at least two Availability Zones. The load balancer will route traffic only to targets in the selected Availability Zones. Availability Zones that are not supported by the load balancer or the VPC are not available for selection.' It lists three Availability Zones: 'ap-south-1a (aps1-az1)' (selected), 'ap-south-1b (aps1-az3)' (selected), and 'ap-south-1c (aps1-az2)' (not selected). For each selected zone, a 'Subnet' dropdown is shown. For 'ap-south-1a', the selected subnet is 'subnet-0117669ed04a81901' with 'IPv4 subnet CIDR: 172.31.32.0/20'. For 'ap-south-1b', the selected subnet is 'subnet-0697f7f6159f9d5ff' with 'IPv4 subnet CIDR: 172.31.0.0/20'. Each subnet selection is followed by 'IPv4 address' and 'Assigned by AWS' labels.

Network mapping [info](#)

The load balancer routes traffic to targets in the selected subnets, and in accordance with your network 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 available for selection. The selected VPC cannot be changed after the load balancer is created. When selecting a VPC for your load balancer, ensure each subnet has a CIDR block with at least a /27 bitmask and at least 8 free IP addresses. [Learn more](#)

vpc-01ff4ab41ecc0386a
IPv4 VPC CIDR: 172.31.0.0/16

Mappings

Select at least one Availability Zone and one subnet for each zone. We recommend selecting at least two Availability Zones. The load balancer will route traffic only to targets in the selected Availability Zones. Availability Zones that are not supported by the load balancer or the VPC are not available for selection.

Availability Zones

☒ **ap-south-1a (aps1-az1)**

Subnet

subnet-0117669ed04a81901
IPv4 subnet CIDR: 172.31.32.0/20

IPv4 address
Assigned by AWS

☒ **ap-south-1b (aps1-az3)**

Subnet

subnet-0697f7f6159f9d5ff
IPv4 subnet CIDR: 172.31.0.0/20

IPv4 address
Assigned by AWS

☐ **ap-south-1c (aps1-az2)**

iii. attached instance to load balancer

- In the Instances section, select both instances (prodserver01 and prodserver02) to attach to the load balancer.
- Configure health checks (e.g., HTTP on /healthcheck.html).
- Review and create the load balancer.

Manage instances

Update which instances are registered to your load balancer. To receive traffic from the load balancer, EC2 instances must be registered and considered healthy according to the configured health check settings. Select the instances to register, and deselect any that need to be deregistered. All instances to be registered are populated in the review selected instances section, along with a summary of all changes at the bottom. Once you are satisfied with your selections, choose Save changes.

► **Load balancer details:** ELS-demo01

Available instances (2/2)

Choose from the instances currently available to the load balancer. Selecting an unregistered instance queues it for registration, while deselecting a registered instance queues it for deregistration. Once an instance is queued for deregistration, its details are only displayed here. [Learn more](#)

Filter available instances

<input checked="" type="checkbox"/>	Registration status	Instance ID	Name	State	Security groups
<input checked="" type="checkbox"/>	Not registered	i-08aba8821fb44f677	Node-ELB-ap-south-1a	Running	Bootstrapping-group01
<input checked="" type="checkbox"/>	Not registered	i-05853338a6fe90a3a	Node-ELB-ap-south-1b	Running	Bootstrapping-group01

iv. Successfully created load balancer

- After creating the load balancer, you will see it listed in the Load Balancers section.
- Wait for the load balancer to become active.

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

<input checked="" type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
<input checked="" type="checkbox"/>	ELS-demo01	ELS-demo01-175830250....	–	vpc-01ff4ab41ecc0386a	2 Availability Zones	classic	September 2, 2024, 11...

iv. both instances in-service status

- Go to the Instances tab within the Load Balancer section.
- Both instances should show as In-Service, indicating they are healthy and responding to the load balancer's health checks.

Successfully created load balancer: ELS-demo01
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

Load balancers (1/1)

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

Filter load balancers

<input checked="" type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
<input checked="" type="checkbox"/>	ELS-demo01	ELS-demo01-429629876....	-	vpc-01ff4ab41ecc0386a	2 Availability Zones	classic	September 3, 2024, 23:14 (U...

Load balancer: ELS-demo01

Target instances (2)

Connection draining: On (300 seconds)

Instances currently registered to your load balancer are displayed. To deregister instances, select them, then choose Deregister. To register and deregister instances simultaneously, choose Manage instances.

Filter target instances

<input type="checkbox"/>	Instance ID	Name	Health status	Health status description	Security groups
<input type="checkbox"/>	i-0d2f85ba546e584f4	Node-ELB-ap-south-1a	In-service	Not applicable	Bootstrapping-group01
<input type="checkbox"/>	i-03c98349edb4ab4c9	Node-ELB-ap-south-1b	In-service	Not applicable	Bootstrapping-group01

3. copy DNS name and paste in chrome

- In the Load Balancers section, copy the DNS name of the load balancer.
- Paste the DNS name into the Chrome browser.

Load balancer: ELS-demo01

(aps1-az3)
subnet-0117669ed04a81901 ap-south-1a
(aps1-az1)

DNS name copied

ELS-demo01-429629876.ap-south-1.elb.amazonaws.com (A Record)

This Classic Load Balancer can be migrated to a next generation load balancer. Migration wizard uses your load balancer's current configurations to create a new load balancer. [Learn more](#)

Launch migration wizard

Distribution of targets by Availability Zone (AZ)

For each enabled Availability Zone, you can view the number of registered instances and their current health states. Selecting any values here will apply the corresponding filter to the Target instances table.

4. output of index.html file

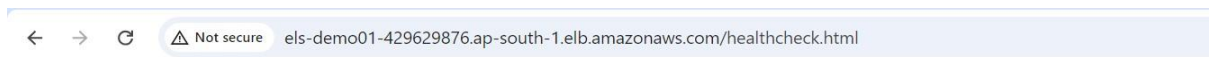
- The browser will display the content of the index.html file hosted on one of the instances.

- Since a load balancer distributes traffic between instances, you might get the index.html from either prodserver01 or prodserver02.



Create and configure the service front-end-service so its accessible through ClusterIP and routes to the existing pod named front-end

5. output of healthcheck.html file
 - To check the health status, append /healthcheck.html to the load balancer's DNS name (e.g., ProdLoadBalancer XXXXXXXX.elb.amazonaws.com/healthcheck.html).
 - The browser should display the content of the healthcheck.html file, verifying that the instance is healthy.



Hi, I am running fine /h1>

You Have completed ELB