

LOAD BALANCER

1. Launch 2 EC2 instances

The screenshot shows the AWS Launch Wizard interface for launching two EC2 instances. It includes sections for 'Name and tags', 'Application and OS Images (Amazon Machine Image)', 'Summary', and 'Network settings'.

Name and tags: Name is set to "hasrat-web".

Application and OS Images (Amazon Machine Image): Shows a search bar and tabs for 'Recents', 'My AMIs', and 'Quick Start'. Under 'Quick Start', there are seven options: Amazon Linux (selected), macOS, Ubuntu, Windows, Red Hat, SUSE Linux, and Debian. A 'Browse more AMIs' button is also present.

Summary: Shows 1 instance selected, Software Image (AMI) as Amazon Linux 2023 AMI 2023.9.2..., Virtual server type (instance type) as t3.micro, Firewall (security group) as New security group, and Storage (volumes) as 1 volume(s) - 8 GiB.

Network settings: Shows Network as vpc-08e1d1e87473288a0, Subnet as No preference (Default subnet in any availability zone), Auto-assign public IP as Enabled, and Firewall (security groups) as Create security group (selected).

2. Allow http and https from the internet.

The screenshot shows the AWS Launch Wizard interface for step 2, focusing on network settings.

Network settings: Shows Network as vpc-08e1d1e87473288a0, Subnet as No preference (Default subnet in any availability zone), Auto-assign public IP as Enabled, and Firewall (security groups) as Create security group (selected).

Create security group: A new security group named 'launch-wizard-7' is being created with the following rules:

- Allow SSH traffic from**: Helps you connect to your instance. Target is Anywhere (0.0.0.0/0).
- Allow HTTPS traffic from the internet**: To set up an endpoint, for example when creating a web server.
- Allow HTTP traffic from the internet**: To set up an endpoint, for example when creating a web server.

3. In advanced details paste the website script in user data . This will install httpd and create a simple website for both the Ec2 instance

User data - optional | [Info](#)
Upload a file with your user data or enter it in the field.

```
sudo yum update -y

# Install Apache web server (httpd)

sudo yum install -y httpd

sudo systemctl start httpd

sudo systemctl enable httpd

# Create a simple HTML file to verify the web server is running, including
dynamic hostname

echo "<html><h1>HASRAT Web Server on Amazon Linux -
${hostname}</h1></html>" > /var/www/html/index.html
```

4. Verify

Instances (2) [Info](#)

Find Instance by attribute or tag (case-sensitive)

< 1 > |

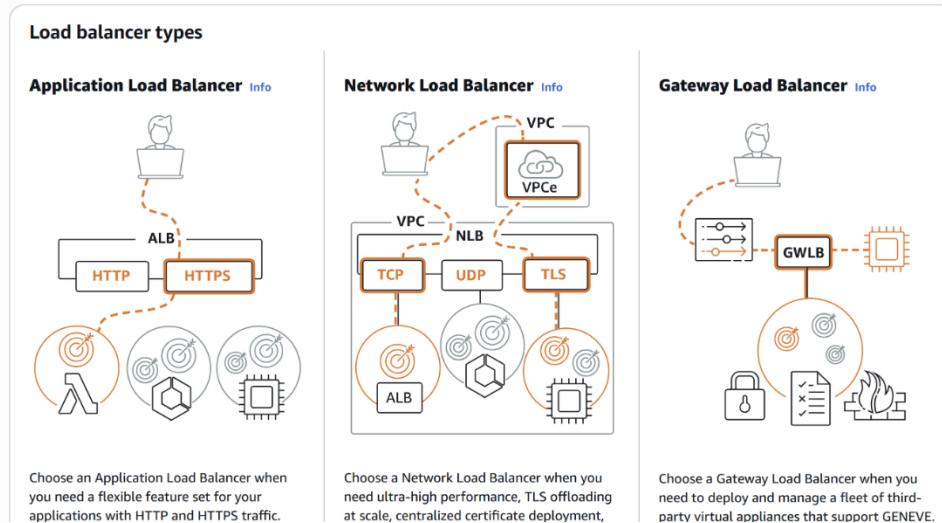
<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input type="checkbox"/>	hasrat-web	i-05f401ae6e0f6337c	<input checked="" type="checkbox"/> Running Q Q	t3.micro	<input checked="" type="checkbox"/> 3/3 checks passed View alarms +	View alarms +	ap-south-1b
<input type="checkbox"/>	hasrat-web	i-0d25dfac7bca80c0f	<input checked="" type="checkbox"/> Running Q Q	t3.micro	<input checked="" type="checkbox"/> 3/3 checks passed View alarms +	View alarms +	ap-south-1b

5. Go to Load balancer and select Application Load balancer

EC2 > Load balancers > Compare and select load balancer type

Compare and select load balancer type

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



6. Give name :

Basic configuration

Load balancer name

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

hasrat-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 can't be changed after the load balancer is created.

Internet-facing

- Serves internet-facing traffic.
- Has public IP addresses.
- DNS name resolves to public IPs.
- Requires a public subnet.

Internal

- Serves internal traffic.
- Has private IP addresses.
- DNS name resolves to private IPs.
- Compatible with the IPv4 and Dualstack IP address types.

Load balancer IP address type | Info

Select the front-end IP address type to assign to the load balancer. The VPC and subnets mapped to this load balancer must include the selected IP address types. Public IPv4 addresses have an additional cost.

IPv4

Includes only IPv4 addresses.

Dualstack

Includes IPv4 and IPv6 addresses.

Dualstack without public IPv4

Includes a public IPv6 address, and private IPv4 and IPv6 addresses. Compatible with **internet-facing** load balancers only.

7. In Network mapping click on target group

Network mapping Info

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

VPC | Info

The load balancer will exist and scale within the selected VPC. The selected VPC is also where the load balancer targets must be hosted unless routing to Lambda or on-premises targets, or if using VPC peering. To confirm the VPC for your targets, view [target groups](#).

vpc-08e1d1e87473288a0
172.31.0.0/16

(default) ▾



Create VPC ↗

IP pools | Info

You can optionally choose to configure an IPAM pool as the preferred source for your load balancers IP addresses. Create or view [Pools](#) in the [Amazon VPC IP Address Manager console](#).

Use IPAM pool for public IPv4 addresses

The IPAM pool you choose will be the preferred source of public IPv4 addresses. If the pool is depleted IPv4 addresses will be assigned by AWS.

8. Create the Target group with port 80 enabled

hasrat-lb-tg

Actions ▾

Details

arn:aws:elasticloadbalancing:ap-south-1:132141656530:targetgroup/hasrat-lb-tg/59b1b633871d48f6

Target type
Instance

Protocol : Port

HTTP: 80

Protocol version

HTTP1

VPC

[vpc-08e1d1e87473288a0](#)

IP address type
IPv4

Load balancer

None associated

0
Total targets

0
Healthy

0
Unhealthy

0
Unused

0
Initial

0
Draining

0 Anomalous

9. Inside Target group click on Register Targets

Targets

Monitoring

Health checks

Attributes

Tags

Registered targets (0) 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 > |

Instance ID

▼

Name

▼

Port

▼

Zone

▼

Health status

▼

Health status details

Admini...

No registered targets

You have not registered targets to this group yet

Register targets

10. Select the Target (EC2)

Register targets

Select instances, specify ports, and add the instances to the list of pending targets. Repeat to add additional combinations of instances and ports to the list of pending targets. Once you are finished, click Register pending targets.

Available instances (2/2)

Instance ID	Name	State	Security groups	Zone
i-05f401ae6e0f6337c	hasrat-web	Running	launch-wizard-6	ap-south-1b
i-0d25dfac7bca80c0f	hasrat-web	Running	launch-wizard-6	ap-south-1b

2 selected

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

80
1-65535 (separate multiple ports with commas)

[Include as pending below](#)

11. Click Register pending targets

Review targets

Targets (2)

Instance ID	Name	Port	State	Security groups	Zone	Private IPv4 address	Subnet ID	Launch time
i-05f401ae6e0f6337c	hasrat-web	80	Running	launch-wizard-6	ap-south-1b	172.31.7.171	subnet-0fd08baaf710cf896	January 3, 2026, 09:
i-0d25dfac7bca80c0f	hasrat-web	80	Running	launch-wizard-6	ap-south-1b	172.31.5.232	subnet-0fd08baaf710cf896	January 3, 2026, 09:

2 pending

[Cancel](#) [Register pending targets](#)

12. Go Back to Load balancer and Create security group with Inbound port 80

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](#).

Security groups

Select up to 5 security groups

default sg-00cbafab4c9630f66 VPC: vpc-08e1d1e87473288a0 X

hasrat-lb-sg sg-0fcb10324dfbb747a VPC: vpc-08e1d1e87473288a0 X

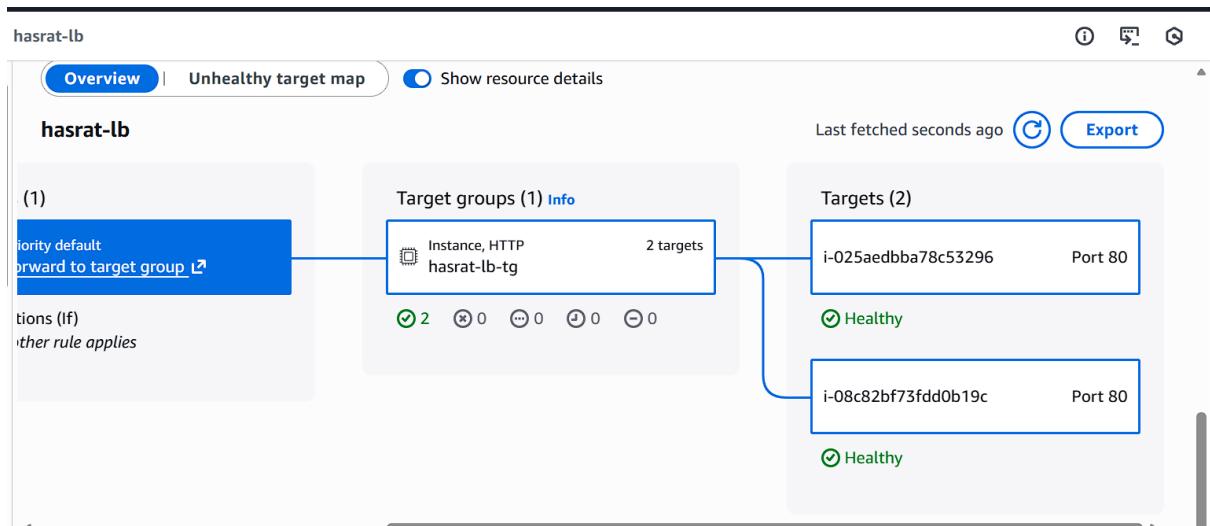
13. Click Create load balancer

[Cancel](#) [Create load balancer](#)

14. Click on load balancer we created

Load balancers (1/1) What's new?						
Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.						
Actions Create load balancer						
Filter load balancers						
<input checked="" type="checkbox"/> Name	hasrat-lb	<input checked="" type="checkbox"/> Active	application	Internet-facing	IPv4	vpc-08e1d1e87473288a0 3 Avai

15. Go to Resource Mapping to check if the Targeted Ec2 are in Healthy state



16. Copy the Public IP from EC2 and check if the Website is running and refresh the website to check if the Load balancer is working

Here we can see that the Hostname is Changing that means the load balancer is balancing the traffic between two targeted Ec2 instances

The image contains two screenshots of a web browser. Both screenshots show the same website content: 'HASRAT Web Server on Amazon Linux - ip-172-31-9-214.ap-south-1.compute.internal!'. The difference is in the browser's address bar, which shows two different public IP addresses: 'ip-172-31-9-214.ap-south-1.compute.internal' in the top screenshot and 'ip-172-31-3-143.ap-south-1.compute.internal' in the bottom screenshot. This demonstrates that the load balancer is correctly distributing traffic between the two EC2 instances.

AUTO SCALING

1. Inside Ec2 , Create Auto scaling Group

The screenshot shows the 'Create Auto Scaling group' wizard. The title is 'Amazon EC2 Auto Scaling' with the subtitle 'helps maintain the availability of your applications'. Below it, a note states: 'Auto Scaling groups are collections of Amazon EC2 instances that enable automatic scaling and fleet management features. These features help you maintain the health and availability of your applications.' A call-to-action button 'Create Auto Scaling group' is visible.

2. Give Name :

The screenshot shows the 'Choose launch template' step of the wizard. On the left, a vertical navigation bar lists steps: Step 1 (radio button selected), Step 2, Step 3 - optional, Step 4 - optional, Step 5 - optional, Step 6 - optional, Step 7, and Review. The main area is titled 'Choose launch template' with a note: 'Specify a launch template that contains settings common to all EC2 instances that are launched by this Auto Scaling group.' It includes a 'Name' input field containing 'hasrat-web-asg' and a 'Launch template' section with a note about launch templates being supported until December 31, 2023.

3. Click Create a Launch Template

The screenshot shows the 'Launch template' configuration screen. It includes a note about launch templates being supported until December 31, 2023. A dropdown menu for 'Select a launch template' is open, showing a single item 'Create a launch template'. At the bottom right are 'Cancel' and 'Next' buttons.

4. Give name to the template

EC2 > Launch templates > Create launch template

Create launch template

Creating a launch template allows you to create a saved instance configuration that can be reused, shared and launched at a later time. Templates can have multiple versions.

Launch template name and description

Launch template name - required

Must be unique to this account. Max 128 chars. No spaces or special characters like '&', '*', '@'.

Template version description

Max 255 chars

Auto Scaling guidance | [Info](#)
Select this if you intend to use this template with EC2 Auto Scaling
 Provide guidance to help me set up a template that I can use with EC2 Auto Scaling

Template tags

Source template

[Launch template contents](#)

5. Create the AMI of any one of the Ec2 intance and select the AMI

Instances (1/2) [Info](#)

Find Instance by attribute or tag (case-sensitive)

Instance state = running

Name	Instance ID	Instance state	Instance type	Status check
<input checked="" type="checkbox"/> hasrat-web	i-05f401ae6e0f6337c	Running		Create image
<input type="checkbox"/> hasrat-web	i-0d25dfac7bca80c0f	Running		Create template from instance

Actions ▲ [Launch instances](#)

Instance diagnostics

Instance settings

Networking

Security

Zone ▾

Image and templates

Storage

Monitor and troubleshoot

▼ Application and OS Images (Amazon Machine Image) - required [Info](#)

An AMI contains the operating system, application server, and applications for your instance. If you don't see a suitable AMI below, use the search field or choose [Browse more AMIs](#).

Search our full catalog including 1000s of application and OS images

Recents [My AMIs](#) Quick Start

Owned by me Shared with me

[Browse more AMIs](#)
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

hasrat-web-image
ami-0358e8890494a9639
2025-12-17T16:47:29.000Z Virtualization: hvm ENA enabled: true Root device type: ebs Boot mode: uefi-preferred

6. In Network Setting , Select the existing load balancer security group

The screenshot shows the 'Network settings' section of an AWS configuration interface. It includes fields for Subnet (set to 'Don't include in launch template'), Availability Zone (set to 'Not applicable for EC2 Auto Scaling'), and Firewall (security groups). The 'Firewall' section shows a selected security group named 'hasrat-lb-sg'. A 'Compare security group rules' link is also present. Below this is a section for 'Advanced network configuration'.

7. Review and Create the Template

The screenshot shows the 'Summary' section of a 'Create launch template' wizard. It lists the selected Software Image (AMI), Virtual server type (instance type), Firewall (security group), and Storage (volumes). At the bottom are 'Cancel' and 'Create launch template' buttons.

8. Go back to Auto Scaling and Select the Template we created and Click Next

The screenshot shows the 'Launch template' selection step in the 'Create launch template' wizard. It displays a note about account creation dates and a dropdown menu where 'mytemplate' is selected. A 'Create a launch template' button is also visible.

9. In Network Tab select the VPC same as Load balancer and choose the availability zones and click Next

Network Info

For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across subnets are suitable for getting started quickly.

VPC

Choose the VPC that defines the virtual network for your Auto Scaling group.

vpc-08e1d1e87473288a0
172.31.0.0/16 Default

[Create a VPC](#)



Availability Zones and subnets

Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.

Select Availability Zones and subnets

aps1-az1 (ap-south-1a) | subnet-00ae0b79752ff26e6 X
172.31.32.0/20 Default

aps1-az2 (ap-south-1c) | subnet-04a7a3aaeba0fd7ca X
172.31.16.0/20 Default

aps1-az3 (ap-south-1b) | subnet-0fd08baaf710cf896 X
172.31.0.0/20 Default



[Create a subnet](#)

10. Select the Following Options

- Step 1
- Choose launch template
- Step 2
- Choose instance launch options
- Step 3 - optional
- Integrate with other services**
- Step 4 - optional
- Configure group size and scaling
- Step 5 - optional
- Add notifications
- Step 6 - optional
- Add tags
- Step 7
- Review

Integrate with other services - optional Info

Use a load balancer to distribute network traffic across multiple servers. Enable service-to-service communications with VPC Lattice. Shift resources away from impaired Availability Zones with zonal shift. You can also customize health check replacements and monitoring.

Load balancing Info

Use the options below to attach your Auto Scaling group to an existing load balancer, or to a new load balancer that you define.

Select Load balancing options

Attach to an existing load balancer
Choose from your existing load balancers.

Attach to a new load balancer
Quickly create a basic load balancer to attach to your Auto Scaling group.

Attach to an existing load balancer

Select the load balancers to attach

Choose from your load balancer target groups
This option allows you to attach Application, Network, or Gateway Load Balancers.

Choose from Classic Load Balancers

Existing load balancer target groups
Only instance target groups that belong to the same VPC as your Auto Scaling group are available for selection.

Select target groups

hasrat-lb-tg | HTTP
Application Load Balancer: hasrat-lb



VPC Lattice integration options Info

To improve networking capabilities and scalability, integrate your Auto Scaling group with VPC Lattice. VPC Lattice facilitates communications between AWS services and helps you connect and manage your applications across compute services in AWS.

Select VPC Lattice service to attach

No VPC Lattice service
VPC Lattice will not manage your Auto Scaling group's network access and connectivity with other services.

Attach to VPC Lattice service
Incoming requests associated with specified VPC Lattice target groups will be routed to your Auto Scaling group.

[Create new VPC Lattice service](#)

11. Select 2 Desired Capacity for auto scaling

Step 1
Step 2
Step 3 - optional
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Step 6 - optional
Step 7
Review

Configure group size and scaling - optional Info

Define your group's desired capacity and scaling limits. You can optionally add automatic scaling to adjust the size of your group.

Group size Info

Set the initial size of the Auto Scaling group. After creating the group, you can change its size to meet demand, either manually or by using automatic scaling.

Desired capacity type

Choose the unit of measurement for the desired capacity value. vCPUs and Memory(GiB) are only supported for mixed instances groups configured with a set of instance attributes.

Units (number of instances)

Desired capacity

Specify your group size.

2

Scaling Info

You can resize your Auto Scaling group manually or automatically to meet changes in demand.

Scaling limits

Set limits on how much your desired capacity can be increased or decreased.

Min desired capacity Equal or less than desired capacity

Max desired capacity Equal or greater than desired capacity

Automatic scaling - optional

Choose whether to use a target tracking policy | Info

You can set up other metric-based scaling policies and scheduled scaling after creating your Auto Scaling group.

No scaling policies
Your Auto Scaling group will remain at its initial size and will not dynamically resize to meet demand.

Target tracking scaling policy
Choose a CloudWatch metric and target value and let the scaling policy adjust the desired capacity in proportion to the metric's value.

Scaling policy name

Target Tracking Policy

Metric type Info

Monitored metric that determines if resource utilization is too low or high. If using EC2 metrics, consider enabling detailed monitoring for better scaling performance.

Average CPU utilization

Target value

50

Instance warmup Info

12. Review and Create

Step 1
Choose launch template

Step 2
Choose instance launch options

Step 3 - optional
Integrate with other services

Step 4 - optional
Configure group size and scaling

Step 5 - optional
Add notifications

Step 6 - optional
Add tags

Step 7
Review

Review Info

Step 1: Choose launch template Edit

Group details

Auto Scaling group name: hasrat-web-asg

Launch template

Launch template	Version	Description
mytemplate <small>lt-07b0fc516d1e60c7</small>	Default	

Step 2: Choose instance launch options Edit

Network

VPC: vpc-08e1de87475288a0 edit

Availability Zones and subnets

Availability Zone	Subnet	Subnet CIDR range
aps1-az1 (ap-south-1a)	subnet-00ae0b79752ff26e6 <small>edit</small>	172.31.32.0/20
aps1-az2 (ap-south-1c)	subnet-04a7a3aaeba0fd7ca <small>edit</small>	172.31.16.0/20
aps1-az3 (ap-south-1b)	subnet-0fd08baaf710cf896 <small>edit</small>	172.31.0.0/20

Availability Zone distribution
Balanced best effort

Instance type requirements

This Auto Scaling group will adhere to the launch template.

Step 3: Integrate with other services

[Edit](#)

Load balancing

Load balancer 1

Name
hasrat-lb [Edit](#)

Type
Application/HTTP

Target group
hasrat-lb-tg [Edit](#)

VPC Lattice integration options

VPC Lattice target groups
-

Application Recovery Controller (ARC) zonal shift

ARC zonal shift
Disabled

Health checks

Health check type
EC2

Health check grace period
300 seconds

Step 4: Configure group size and scaling policies

[Edit](#)

Group size

Desired capacity
2

Desired capacity type
Units (number of instances)

Step 4: Configure group size and scaling policies

[Edit](#)

Group size

Desired capacity
2

Desired capacity type
Units (number of instances)

Scaling

Minimum desired capacity
1

Maximum desired capacity
3

Target tracking policy
Policy type
Target tracking scaling

Scaling policy name
Target Tracking Policy

Execute policy when
As required to maintain Average CPU utilization at 50

Take the action
Add or remove capacity units as required

Instances need
300 seconds to warm up before including in metric

Scale in
Enabled

Instance maintenance policy

Replacement behavior
No policy

Min healthy percentage
-

Max healthy percentage
-

Additional settings

Instance scale-in protection
Disabled

Monitoring
Disabled

Default instance warmup
Disabled

Capacity Reservation preference

Preference
Default

Capacity Reservation IDs
-

Resource Groups
-

Step 5: Add notifications

[Edit](#)

Notifications

No notifications

13. Here we can see the Auto scaling group has created two instances because we have ordered 2 desired capacity

14. We can also see the extra instance created by auto scaling group without a name inside the instances tab

15. Here is the Logs of auto scaling group , maintaining the number of instance. when one instance is terminated ASG has launched another instance in response