

Project 3: Demonstration of EC2 Autoscaling in AWS

Scribe[≡]



Demonstrate the EC2 Autoscaling in AWS.

Create the following resources and demonstrate the scale-out and scale-in capabilities of AWS EC2 Autoscaling.

- Launch template for Application Load Balancer
- Application Load Balancer
- Launch template
- Autoscaling group

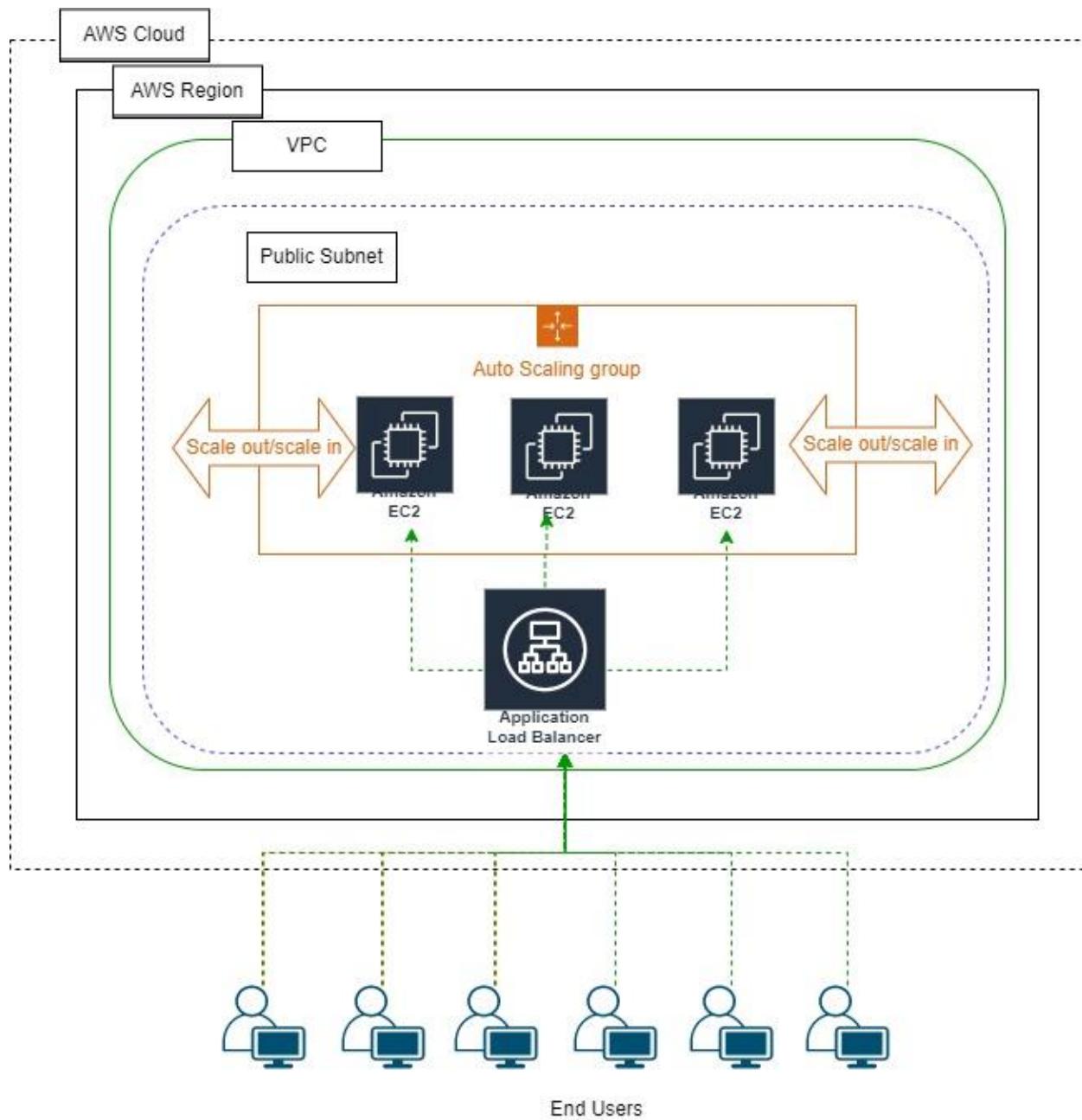
This Document Covers the follwoing sections:

1. Archtitctural Diagram

2. Creating Target Groups and Application Loadbalancer

3. Creating Launch Template and Autoscaling Group and Testing the Autoscaling

1. Architecture: EC2 Autoscaling in AWS

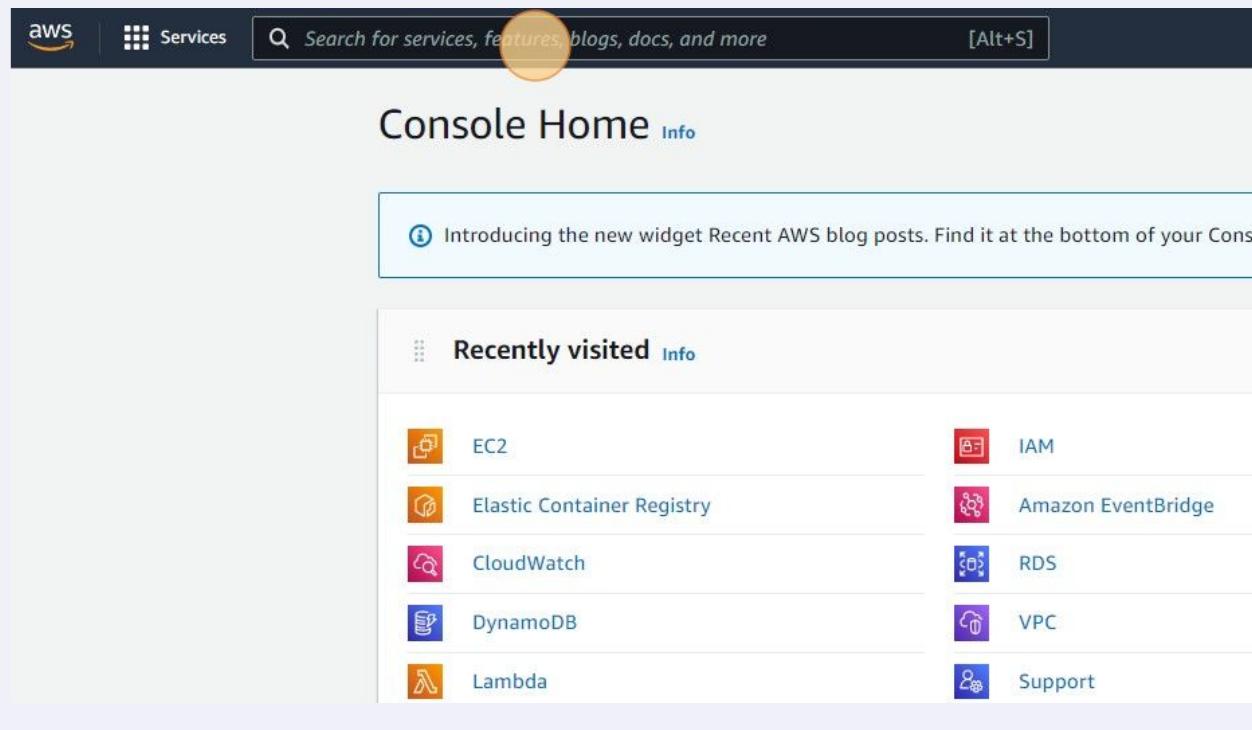


2: Creating Target Groups and Application Loadbalancer

- 1 Navigate to <https://ap-south-1.console.aws.amazon.com/console/home?region=ap-south-1>

Creating Target Group

- 2 Click the "Search for services, features, blogs, docs, and more" field.



- 3 Type "ec2"

4 Click "EC2"

The screenshot shows the AWS search interface with the query 'ec2' entered. The search results are titled 'Search results for 'ec2'' and include a sidebar with categories like Services (8), Features (46), Blogs (1,801), etc. The main content area features the 'EC2' service card, which is highlighted with a yellow circle. The card includes the EC2 logo, the text 'Virtual Servers in the Cloud', and a 'Top features' section with links to Dashboard, Launch templates, Instances, Spot Instance requests, and Savings plans.

5 Click here.

The screenshot shows the AWS EC2 Dashboard. On the left, there's a sidebar with options like EC2 Global View, Events, Tags, Limits, Instances (with sub-options for Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, and Reserved Instances), and New EC2 Experience (with a feedback link). A yellow circle highlights the 'Instances' section in the sidebar. The main content area is titled 'Resources' and displays a list of Amazon EC2 resources used in the Asia Pacific (Mumbai) Region, including Instances (running), Dedicated Hosts, Instances, Key pairs, Placement groups, Security groups, and Volumes. A callout box at the bottom right provides information about Microsoft SQL Server Always On availability groups.

6 Click "Target Groups"

The screenshot shows the AWS CloudFormation console. On the left, there's a sidebar with navigation links: Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), Load Balancing (Load Balancers, Target Groups - highlighted with a yellow circle, New), and Auto Scaling (Launch Configurations, Auto Scaling Groups). At the bottom of the sidebar are Feedback and Unified Settings links. The main content area has a header with a blue info icon and text about Microsoft SQL Server Always On availability groups. Below this is a 'Launch instance' section with a 'Launch instance' button and a 'Migrate a server' button. A note says instances will launch in the Asia Pacific (Mumbai) Region. To the right, there's a 'Service hub' sidebar with Region (Asia Pacific (Mumbai)), Status (This service), and Zones (Zone name ap-south-1a). The bottom of the page has a dark footer bar with links for Feedback, Unified Settings, and a user profile.

7 Click "Create target group"

The screenshot shows the AWS Lambda console. The top navigation bar includes icons for file operations, notifications, help, Mumbai region, and a user profile (gnataraj-aws). Below the navigation is a toolbar with a 'Create' button, 'Actions' dropdown, and a 'Create target group' button (highlighted with a yellow circle). The main content area displays a table with columns for Port and Action. A message states 'No target groups' and 'You don't have any target groups in ap-south-1'. A 'Create target group' button is located at the bottom of this section. The bottom of the page has a dark footer bar with links for Feedback, Unified Settings, and a user profile.

8 Select "Instances" target type

Step 1
Specify group details

Step 2
Register targets

Specify group details

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

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.
- Facilitates the use of Amazon EC2 Auto Scaling  to manage and scale your EC2 capacity.

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.
- Supports IPv6 targets, enabling end-to-end IPv6 communication, and IPv4-to-IPv6 NAT.

9 Click the "Target group name" field.

- 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 VPC.
- Facilitates using static IP addresses and PrivateLink with an Application Load Balancer.

Target group name

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

Protocol Port

HTTP	▼	:	80
------	---	---	----

VPC

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

-	vpc-06260e2e0884cfe32
	IPv4: 172.31.0.0/16

10 Type "my-target-group"

11 Click on the VPC dropdown

target group name
my-target-group

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

Protocol Port
HTTP : 80

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

- vpc-06260e2e0884cfe32
IPv4: 172.31.0.0/16

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.

12 Select your Default VPC

Protocol : HTTP : 80

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

- vpc-06260e2e0884cf32
IPv4: 172.31.0.0/16
- vpc-06260e2e0884cf32
IPv4: 172.31.0.0/16
- my-vpc-vpc
vpc-00d15623f78401a1a
IPv4: 10.0.0.0/16

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.

13 Select the Protocol version - HTTP1

Search for services, features, blogs, docs, and more [Alt+S]

Mumbai gnataraaj-aws

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

Protocol : HTTP : 80

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

- vpc-06260e2e0884cf32
IPv4: 172.31.0.0/16

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.

14

In the Health checks, select Protocol be HTTP and health check URL be /

Health checks
The associated load balancer periodically sends requests, per the settings below, to the registered targets.

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

► Tags - optional
Consider adding tags to your target group. Tags enable you to categorize your AWS resources so you can more easily manage them.

15

Click "Next"

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

► Tags - optional
Consider adding tags to your target group. Tags enable you to categorize your AWS resources so you can more easily manage them.

Cancel **Next**

16 Notice Available instance are 0

This is an optional step to create a target group. However, to ensure that your load balancer routes traffic to this target group you must register your targets.

Available instances (0)

No Available instances
0 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

Review targets

Targets (0)

No instances added yet

Specify instances above, or leave the group empty if you prefer to add targets later.

Page selection? Find it in the new Unified Settings [\[?\]](#)

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17 Click "Create target group"

No instances added yet

leave the group empty if you prefer to add targets later.

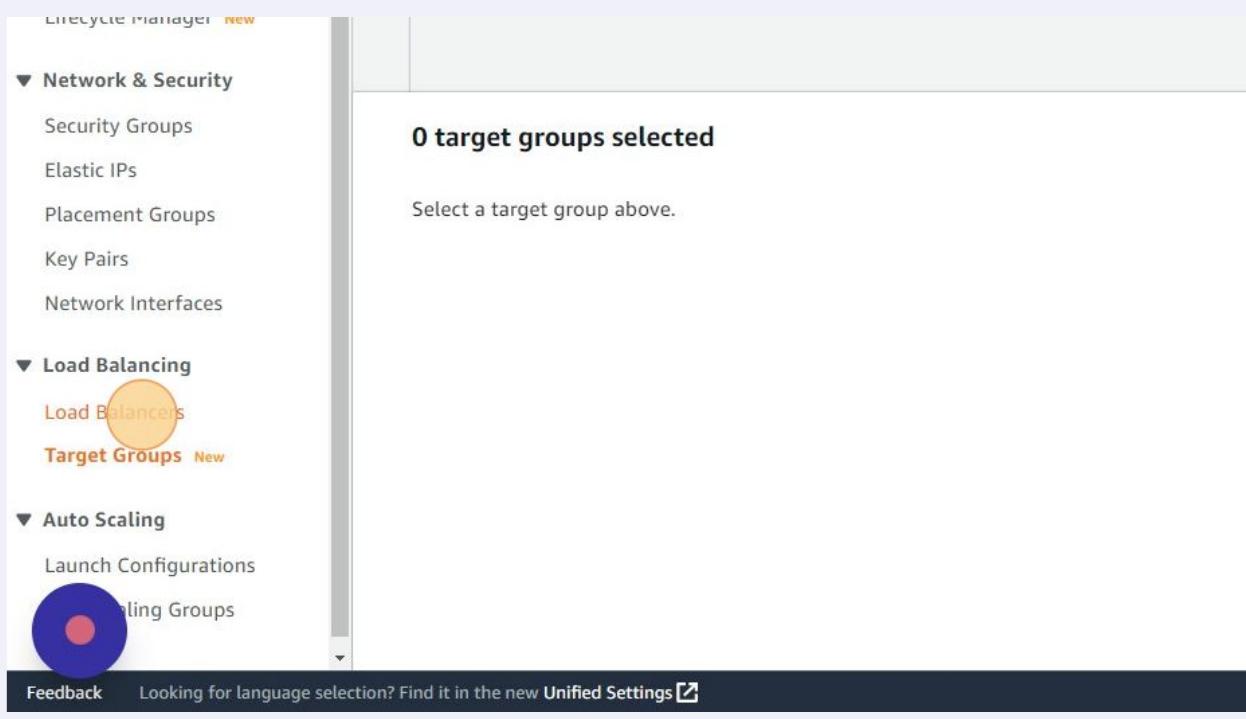
Cancel Previous **Create target group**

18

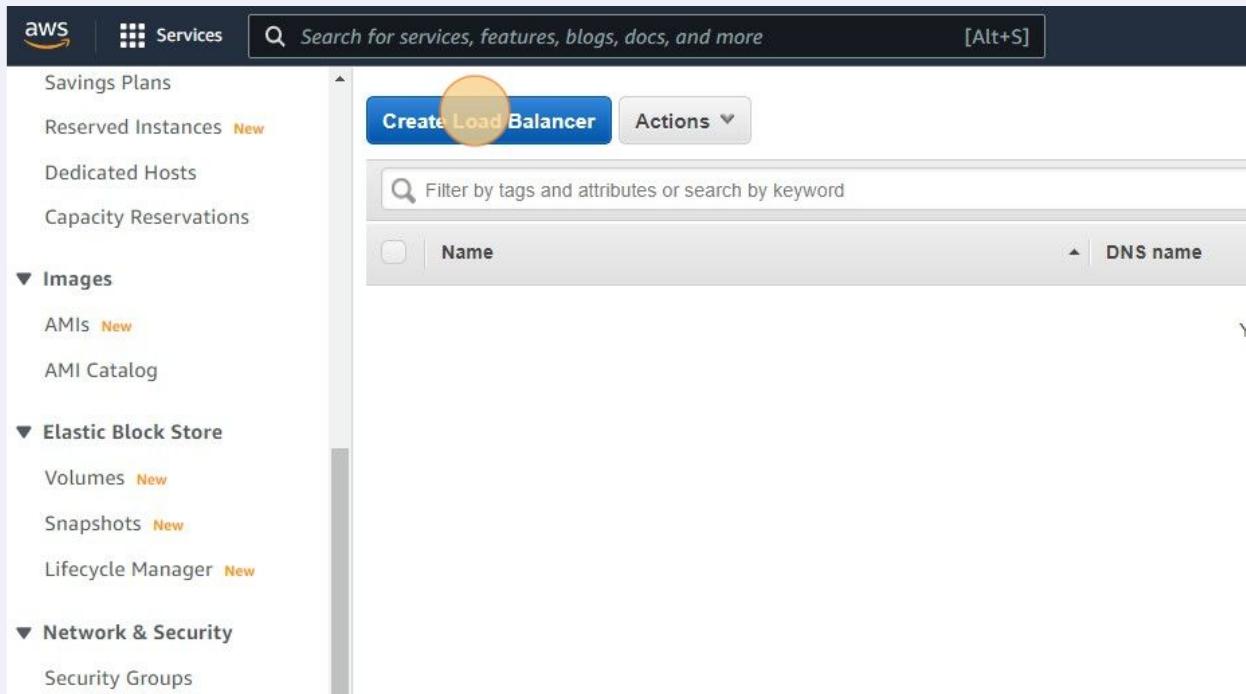
The screenshot shows the AWS Lambda console interface. On the left, there's a sidebar with navigation links: Tags, Limits, Instances (with a yellow circle highlighting the 'Instances' link), Images, and Lambda Functions (which is the active tab). The main area is titled 'Create New Function'. It has sections for 'Function name', 'Runtime', 'Handler', and 'Code'. A large orange circle highlights the 'Code' section, which contains a 'Create New Layer' button and a 'Upload ZIP file' input field. Below the code section, there's a 'Target Groups' section with a search bar and a table showing one target group: 'my-target-group' with ARN 'arn:aws:elasticloadbalancing:ap-south-1:17...'. A message at the bottom says '0 target groups selected' and 'Select a target group above.'

Creating Load Balancer

19 Click "Load Balancers"



20 Click "Create Load Balancer"



21 Select Application Load Balancer

The screenshot shows the AWS Services menu with a search bar at the top. Below it, there's a note about feature comparison. The main content is titled "Load balancer types" and contains three cards:

- Application Load Balancer**: Handles HTTP and HTTPS traffic. It can route requests to Lambda functions, API Gateways, and EC2 instances. A "Create" button is present.
- Network Load Balancer**: Handles TCP, UDP, and TLS traffic. It supports VPC and VPCE. A "Create" button is present.
- Gateway Load Balancer**: Handles TCP, UDP, and TLS traffic, supporting third-party virtual appliances. A "Create" button is present.

At the bottom left, there's a "Feedback" link and a note about language selection. At the bottom right, there are links for "Privacy", "Terms", and "Cookie preferences".

22 Click "Create"

This screenshot is identical to the one above, but the "Create" button in the Application Load Balancer section is highlighted with a red box. The rest of the interface, including the other two load balancer options and the footer links, remains the same.

23 Click the "Load balancer name" field.

▶ 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.

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

24 Type "my-load-balancer"

25 Click "Internet-facing"

Basic configuration

Load balancer name

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

my-load-balancer

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.

26 Click "IPv4"

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

27 In the VPC drop down,

The screenshot shows the 'Network mapping' section of the AWS Load Balancer configuration. A dropdown menu is open under the 'VPC' heading, listing available VPCs. The first item, 'vpc-06260e2e0884cf32' (IPv4: 172.31.0.0/16), is highlighted with a yellow circle. Below the dropdown, there is a 'Mappings' section where the 'ap-south-1a' zone is selected.

28 Select the Default VPC

The screenshot shows the 'Network mapping' section of the AWS Load Balancer configuration. A dropdown menu is open under the 'VPC' heading, listing available VPCs. The second item, 'my-vpc-vpc' (IPv4: 10.0.0.0/16), is highlighted with a yellow circle. Below the dropdown, there is a 'Mappings' section where the 'ap-south-1a' zone is selected.

29 Select all the Availability zones and subnets

The screenshot shows the AWS Services console with the search bar at the top. Below it, there's a dropdown menu for 'Subnet' containing 'subnet-09d9f9fc02505efa90'. Under 'IPv4 settings', it says 'Assigned by AWS'. A checkbox for 'ap-south-1' is checked. Below this, another subnet 'subnet-0a44e8e14347a30e5' is listed with its 'IPv4 settings' assigned by AWS. A second checkbox for 'ap-south-1' is also checked. At the bottom left, there's a 'Security groups' section with a note about security groups controlling traffic to load balancers. The footer includes links for Feedback, Unified Settings, Privacy, Terms, and Cookie preferences.

30 In the security group dropdown

The screenshot shows the AWS Services console with the search bar at the top. Below it, there's a dropdown menu for 'Security groups' with the note 'A security group is a set of firewall rules that control the traffic to your load balancer'. A single security group 'default sg-0fa4e7e9262e045d0' is listed with its VPC information. In the 'Listeners and routing' section, a 'Listener HTTP:80' is configured with 'Protocol: HTTP', 'Port: 80', and 'Default action: Forward to 1-65535'. There's a 'Create target group' link. At the bottom left, there's an 'Add an endpoint optional' section with a note about language selection. The footer includes links for Feedback, Unified Settings, Privacy, Terms, and Cookie preferences.

31 Select the previously created security group

The screenshot shows the AWS CloudFront console. In the top left, there's a section titled 'IS Info' with a note about firewall rules. Below it is a table for 'Security groups'. A row for 'group i884cfe32' is selected, indicated by a yellow circle on the left. To the right of the table is a large orange circle with a white 'C' inside, likely a watermark or a button. At the bottom of the screen, there's a 'HTTP:80' section with a 'Re...' button.

32 Click the "Port" field.

The screenshot shows the 'Listeners and routing' section of the AWS CloudFront configuration. It details a 'Listener HTTP:80' with the following settings:

- Protocol:** HTTP
- Port:** 80 (highlighted with a yellow circle)
- Default action:** Forward to [Select a target group](#)
- Create target group** (button)

At the bottom, there's a 'Add listener' button and a 'Feedback' link. A blue circular icon with a red dot is visible on the left.

33 Click "Select a target group"

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

Security groups

Select up to 5 security groups

Create new security group

default sg-0fa4e7e9262e045d0 X
VPC: vpc-06260e2e0884cf32

my-mca-security-group sg-019369c1980952d70 X
VPC: vpc-06260e2e0884cf32

Listeners and routing

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

▼ Listener HTTP:80

Protocol Port Default action Info

HTTP 80 Forward to Select a target group Create target group

Add listener

Add on services optional

Feedback Looking for language selection? Find it in the new Unified Settings

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34 In the listeners and routing, select the target group created earlier

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

Security groups

Select up to 5 security groups

Create new security group

default sg-0fa4e7e9262e045d0 X
VPC: vpc-06260e2e0884cf32

my-mca-security-group sg-019369c1980952d70 X
VPC: vpc-06260e2e0884cf32

Listeners and routing

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

▼ Listener HTTP:80

Protocol Port Default action Info

HTTP 80 Forward to Select a target group Create target

my-target-group
Target type: Instance IPv4

Add listener

Add on services optional

Feedback Looking for language selection? Find it in the new Unified Settings

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35

The screenshot shows the AWS CloudFront console with the "Security groups" section selected. A new security group, "my-mca-security-group", has been created and is listed. The "Listeners and routing" section shows a listener for port 80 configured to forward traffic to the "my-target-group".

36 Click "Create load balancer"

The screenshot shows the AWS CloudFront console with the configuration page for a new load balancer. The "Security groups" section lists "default" and "my-mca-security-group". The "Network mapping" section shows VPC settings and subnet associations for "ap-south-1a", "ap-south-1b", and "ap-south-1c". The "Listeners and routing" section shows a listener for port 80 forwarding to "my-target-group". The "Tags" section indicates "None". At the bottom, the "Create load balancer" button is highlighted.

37 Click "View load balancer"

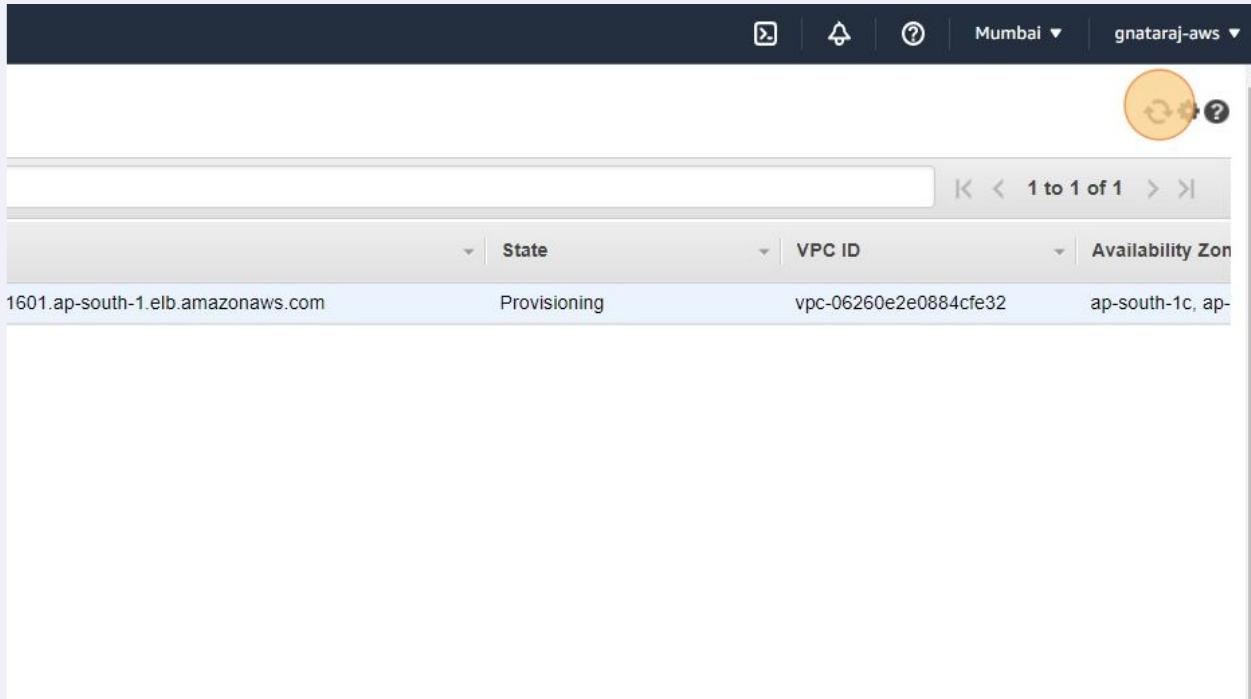
using the **Description** and **Listeners** tabs within **my-load-balancer**.
Select the **Integrated services** tab within **my-load-balancer**.

View load balancer

38 Watch the state - Provisioning

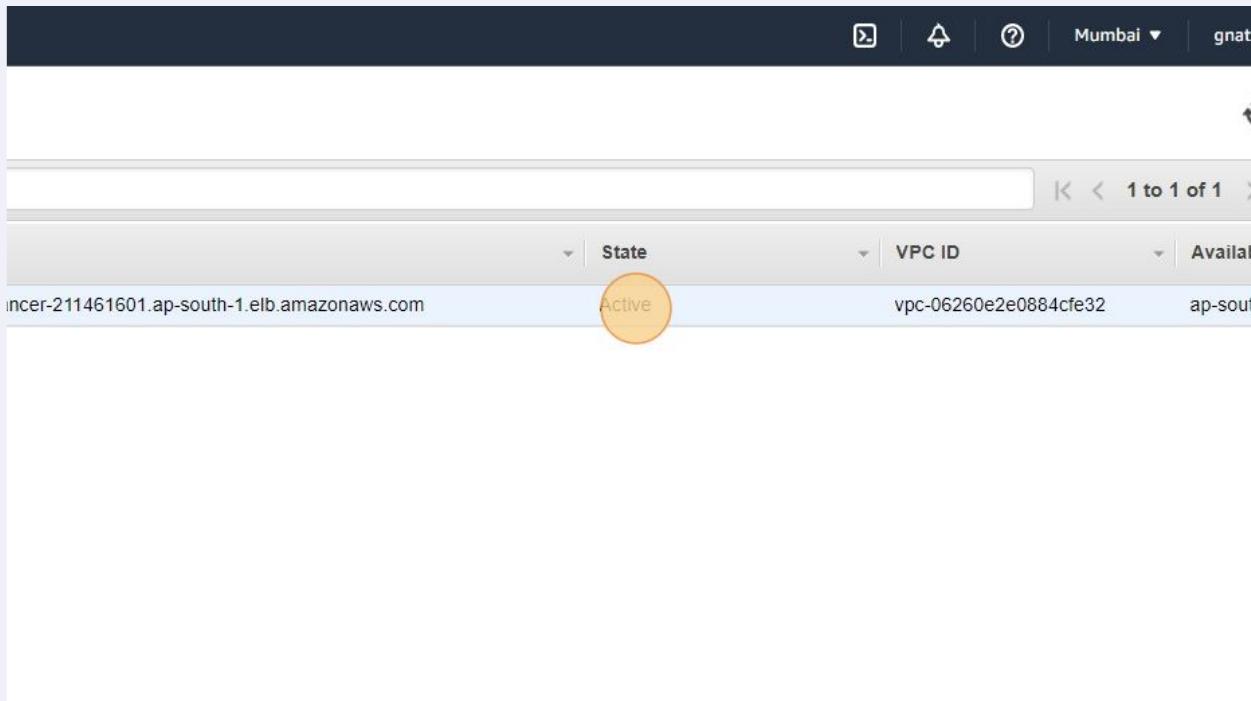
	State	VPC ID	Available
ancer-211461601.ap-south-1.elb.amazonaws.com	Provisioning	vpc-06260e2e0884cf32	ap-sou

39 Refresh



Metrics			
	State	VPC ID	Availability Zone
1601.ap-south-1.elb.amazonaws.com	Provisioning	vpc-06260e2e0884cf32	ap-south-1c, ap-

40 Wait till it becomes "Active"



Metrics			
	State	VPC ID	Availability Zone
1601.ap-south-1.elb.amazonaws.com	Active	vpc-06260e2e0884cf32	ap-south-1c, ap-

41 Copy the DNS name of the Load balancer

The screenshot shows the AWS Elastic Load Balancing console. At the top, there's a navigation bar with tabs for 'Names', 'DNS Name', 'State', and 'VPC'. Below the navigation bar, a table lists a single load balancer entry: 'my-load-balancer' with the DNS name 'my-load-balancer-211461601.ap-south-1.elb.amazonaws.com'. The 'State' is listed as 'Active' and the 'VPC' is 'vpc-06260e2e0'. Below the table, there are tabs for 'Description', 'Listeners', 'Monitoring', 'Integrated services', and 'Tags'. A section titled 'asic Configuration' contains fields for 'Name' (my-load-balancer), 'ARN' (arn:aws:elasticloadbalancing:ap-south-1:170838198394:loadbalancer/app/my-load-balancer/35add34913030337), 'DNS name' (my-load-balancer-211461601.ap-south-1.elb.amazonaws.com), and 'State' (Active). The 'DNS name' field is highlighted with a yellow circle. At the bottom of the page, there are links for 'Edit it in the new Unified Settings' and 'Print'.

42 Open a new browser tab and paste the URL
Notice the following message:
"503 Service Temporarily Unavailable"

3: Creating Launch Template and Autoscaling Group and Testing the Autoscaling

- 1 Navigate to [https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-so](https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#Home)uth-1#Home:

Creating Lauch Configuration

- 2 Click "Launch Templates"

The screenshot shows the AWS EC2 Global View interface. On the left, there's a sidebar with various navigation options like EC2 Global View, Events, Tags, Limits, Instances, Images, and AMIs. The 'Instances' section is expanded, and 'Launch Templates' is highlighted with a yellow circle. The main content area displays resource statistics for the Asia Pacific (Mumbai) Region, including 0 running instances, 0 dedicated hosts, 0 instances, 0 key pairs, 0 placement groups, 1 volume, and 0 security groups. Below this, there's a promotional message about Microsoft SQL Server Always On availability groups. At the bottom, there's a 'Launch instance' button and a 'Service history' section.

You are using the following Amazon EC2 resources in the Asia Pacific (Mumbai) Region:

Instances (running)	0	Dedicated Hosts
Instances	0	Key pairs
Placement groups	0	Security groups
Volumes	1	

Easily size, configure, and deploy Microsoft SQL Server Always On availability groups for SQL Server. [Learn more](#)

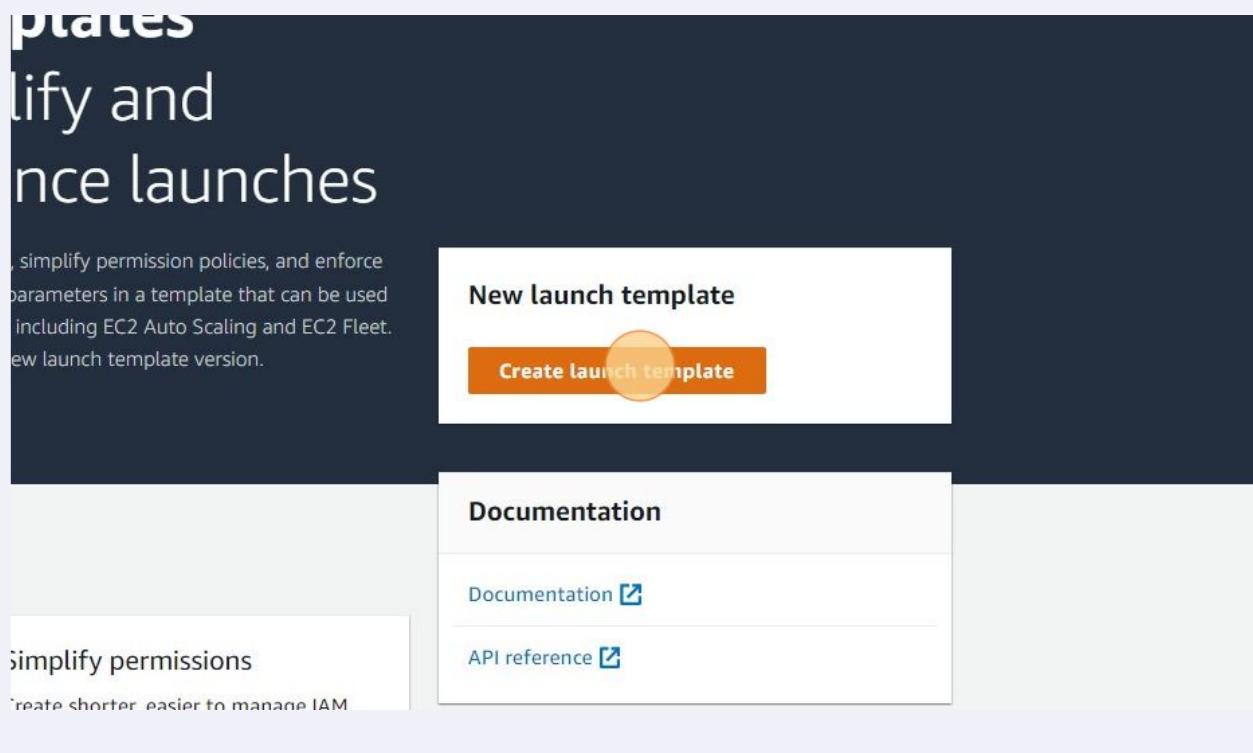
Launch instance

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

Service history

Region
Asia Pacific (

- 3 Click "Create launch template"



- 4 Click the "Launch template name - required" field.

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*

MyTemplate

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

Template version description

A prod webserver for MyApp

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

5 Type "my-launch-template" (or choose any name for the template

6 Type some description for the template like "demo template"

7 Click the "Template version description" field.

Launch template name and description

Launch template name - *required*

my-launch-template

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

Template version description

demo template

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](#)

8 In the Application and OS images, go to "Quick Start"

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

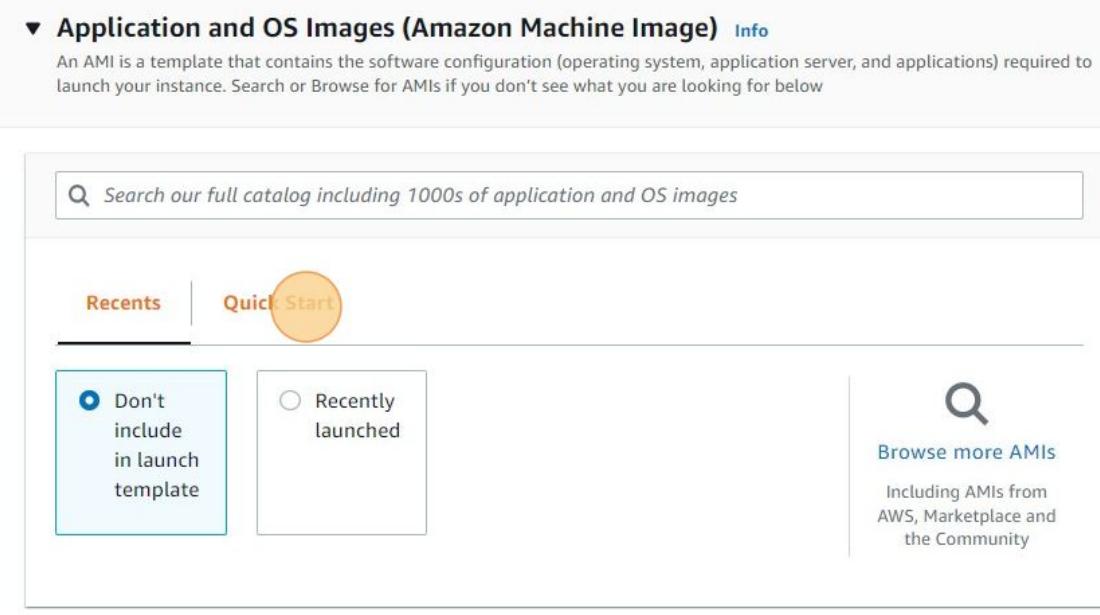
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

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

[Recents](#) [Quick Start](#)

Don't include in launch template Recently launched

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



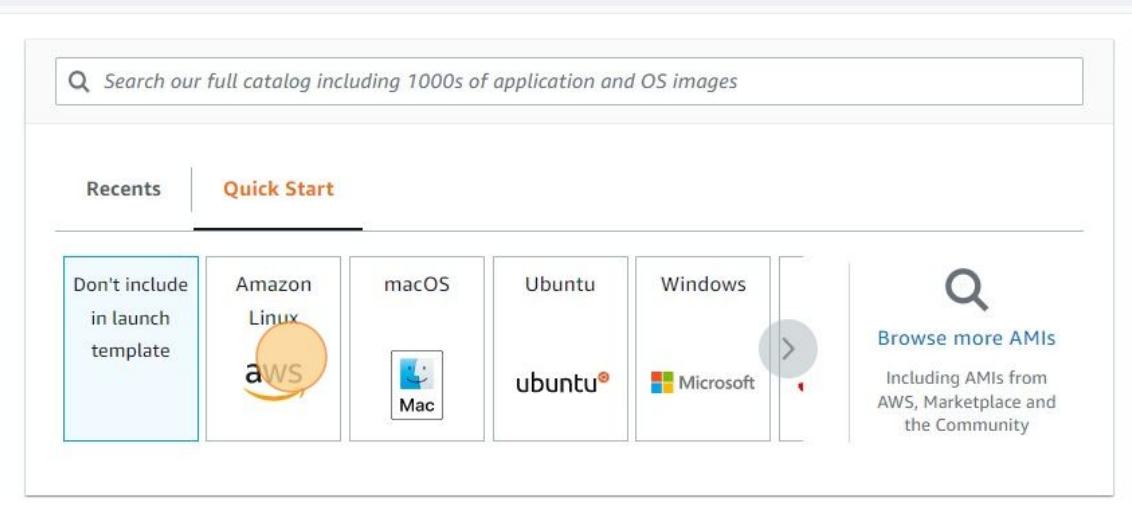
9 Select Amazon Linux

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

[Recents](#) [Quick Start](#)

Don't include in launch template Amazon Linux macOS Ubuntu Windows [...>](#)

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



▼ **Instance type** [Info](#)

Advanced

Instance type

- 10** Click "ami-06489866022e12a14 (64-bit (x86)) / ami-0e18b1d379af4e263 (64-bit (Arm))"

Amazon Machine Image (AMI)

Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type
ami-06489866022e12a14 (64-bit (x86)) / ami-0e18b1d379af4e263 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible ▾

Description

Amazon Linux 2 Kernel 5.10 AMI 2.0.20220805.0 x86_64 HVM gp2

Architecture AMI ID

64-bit (x86) ▾ ami-06489866022e12a14 Verified provider

- 11** In the instance type, select the t2.micro, "Free tier eligible"

11 In the instance type, select the t2.micro, "Free tier eligible"

Instance type

Don't include in launch template

Compare instance types

Q

Don't include in launch template

t2.nano

Family: t2 1 vCPU 0.5 GiB Memory

On-Demand Linux pricing: 0.0062 USD per Hour

On-Demand Windows pricing: 0.0085 USD per Hour

t2.micro

Family: t2 1 vCPU 1 GiB Memory

On-Demand Linux pricing: 0.0124 USD per Hour

On-Demand Windows pricing: 0.017 USD per Hour

Free tier eligible

t2.small

Family: t2 1 vCPU 2 GiB Memory

On-Demand Linux pricing: 0.0248 USD per Hour

On-Demand Windows pricing: 0.034 USD per Hour

t2.medium

Family: t2 2 vCPU 4 GiB Memory

On-Demand Linux pricing: 0.0496 USD per Hour

On-Demand Windows pricing: 0.0676 USD per Hour

t2.large

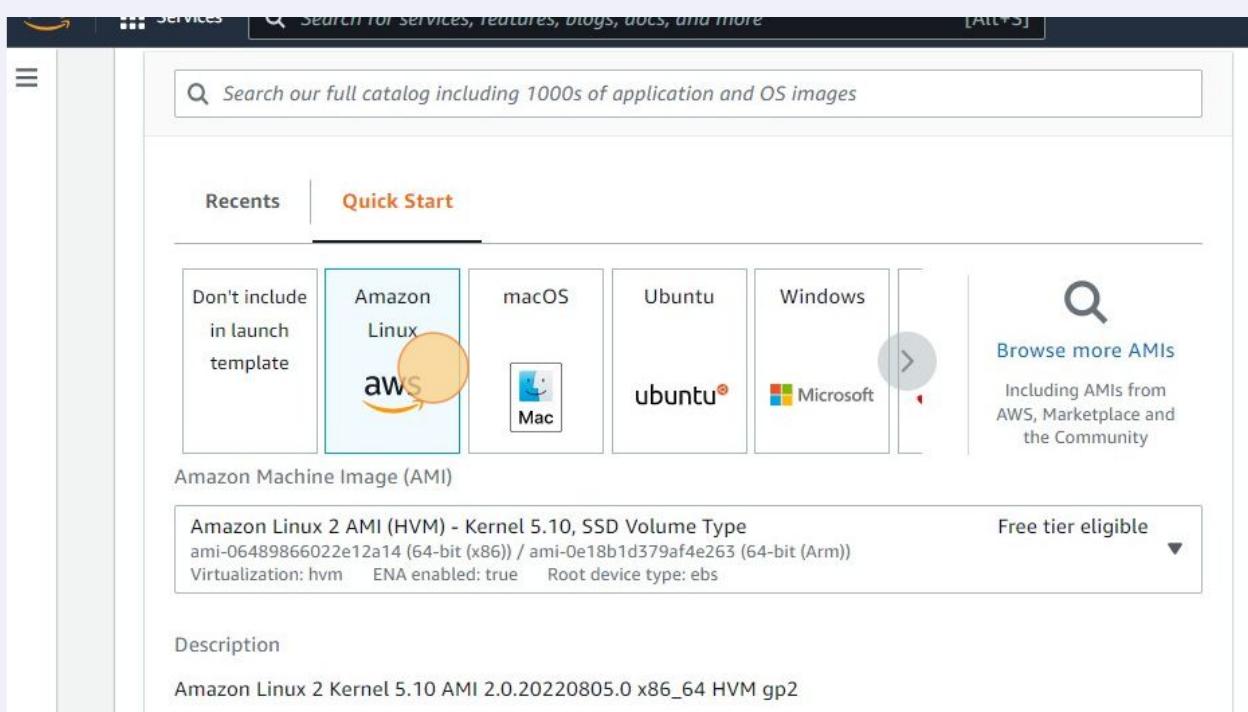
Family: t2 2 vCPU 8 GiB Memory

selected key pair before you launch

Create new key pair

Create new subnet

12 Click here.



13 In the key pair, select the keypair you created before

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name

Don't include in launch template

Search...
Specify a custom value...

Don't include in launch template

gnataraj-key
Type: rsa

my-ssh-keypair
Type: rsa

sit-mca-demo
Type: rsa

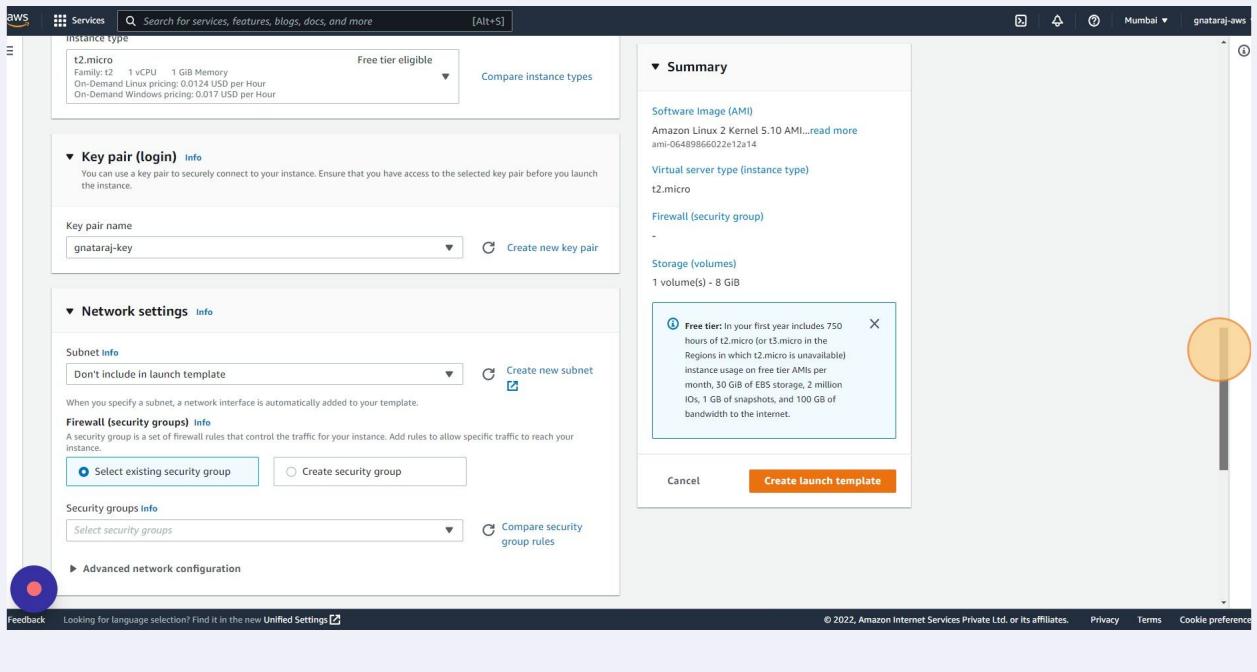
Firewall (security groups) INFO

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

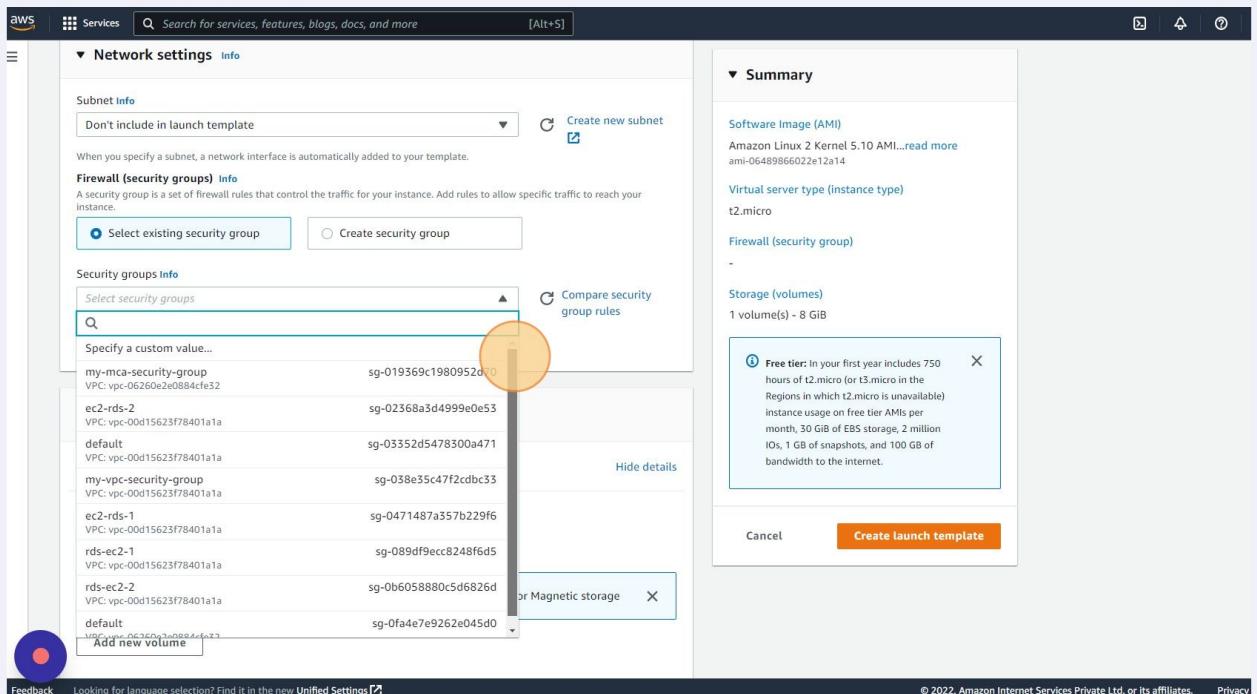
Select existing security group Create security group

Security groups INFO

14 Click here.



15 In the security group, select the security group you created earlier



16 Click "Advanced details"

The screenshot shows the AWS Lambda function configuration interface. At the top, there is a banner for EBS storage. Below it, there is a section for adding new volumes and one for resource tags, both of which are currently empty. A large orange circle highlights the 'Advanced details' button, which is located in a collapsed section. At the bottom, there is a feedback link and a note about language selection.

17 Click the "User data Info" field.

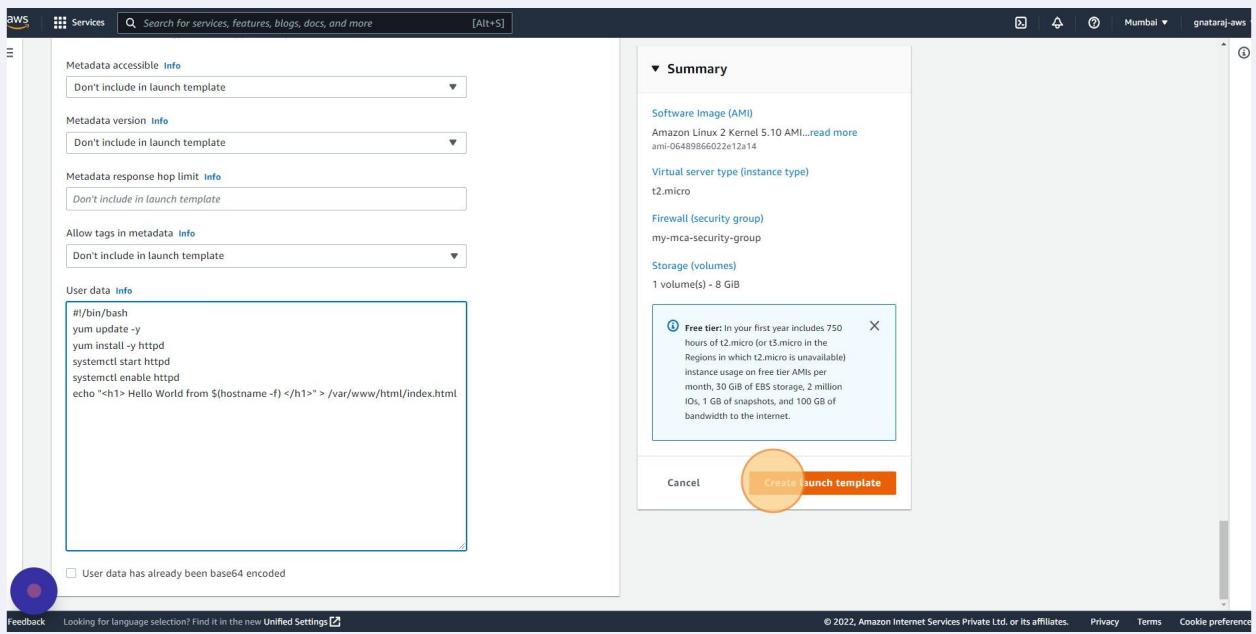
The screenshot shows the AWS Lambda function configuration interface, specifically the 'Advanced details' section. It includes fields for 'Metadata response hop limit', 'Allow tags in metadata', and 'User data'. The 'User data' field is highlighted with an orange circle.

18

Copy the content from
<https://raw.githubusercontent.com/gnataraj/aws-autoscaling/main/userdata.txt>

19

Paste the content in the User data section and Click "Create launch template"



20 Click "View launch templates"

The screenshot shows the AWS Lambda console. At the top, there's a banner with the text: "Run your code on AWS Lambda (for all other operating systems) with no long-term commitments or upfront payments. Launch an On-Demand function or a Serverless function with a trigger." Below the banner, there's a section about Auto Scaling: "down automatically according to conditions you define. You can use Auto Scaling to help ensure that you are / during lulls to reduce costs." Another section discusses Spot Instances: "you to request unused EC2 instances at steep discounts, you can lower your Amazon EC2 costs significantly. The based on the long-term supply of and demand for Spot Instances. Spot instances are well-suited for data-analysis,". At the bottom right of the main content area, there's a prominent orange button with the text "View launch templates". Below the main content area, there's a footer bar with the text: "© 2022, Amazon Internet Services Private Ltd. or its affiliates. Privacy Terms Cookie preferences".

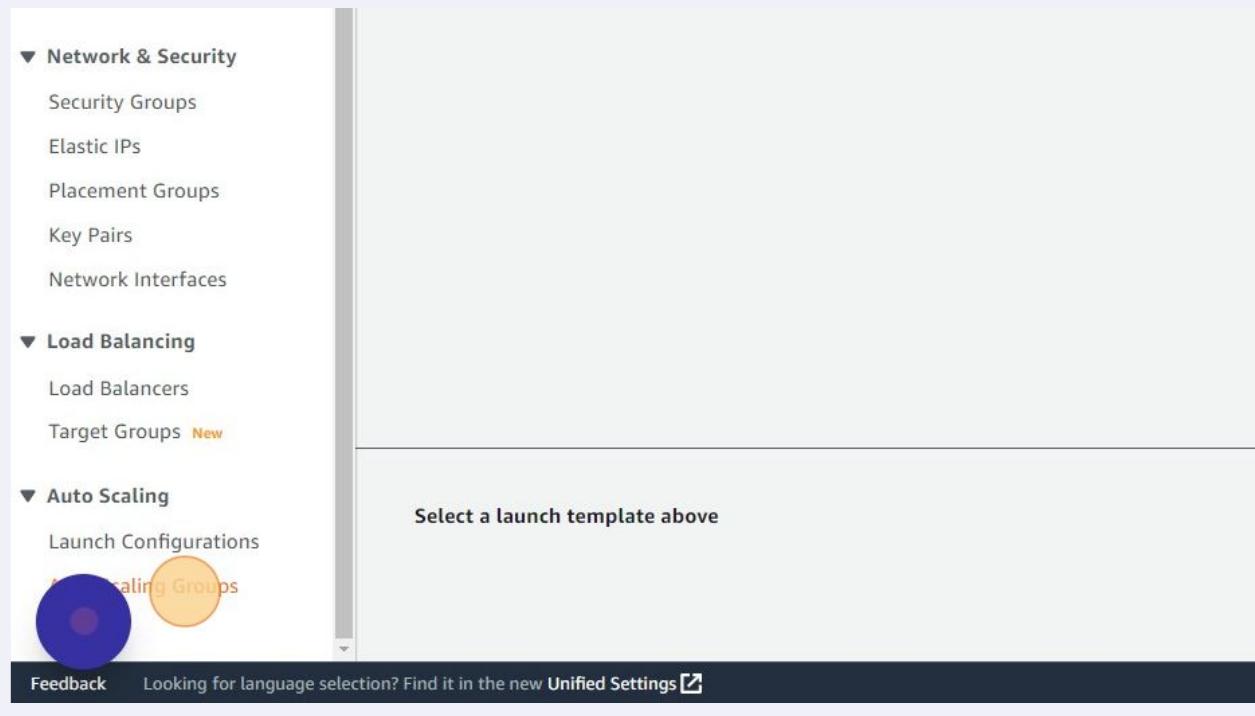
21 Click here.

The screenshot shows the AWS Lambda Global View interface. On the left, there's a sidebar with navigation links: "EC2 Global View", "Events", "Tags", "Limits", "Instances" (which is expanded to show "Instances", "Instance Types", "Launch Templates", "Spot Requests", "Savings Plans", "Reserved Instances", "Dedicated Hosts", and "Capacity Reservations"), and "Images". The "Launch Templates" link is highlighted with a yellow circle. The main content area has a search bar at the top with the placeholder "Filter by tags or properties or search by keyword". Below the search bar, there's a table with two columns: "Launch template ID" and "Launch template name". The first row shows "lt-034ee64c174239a4c" and "my-launch-template". A yellow circle highlights the "Launch Templates" link in the sidebar and the "my-launch-template" entry in the table.

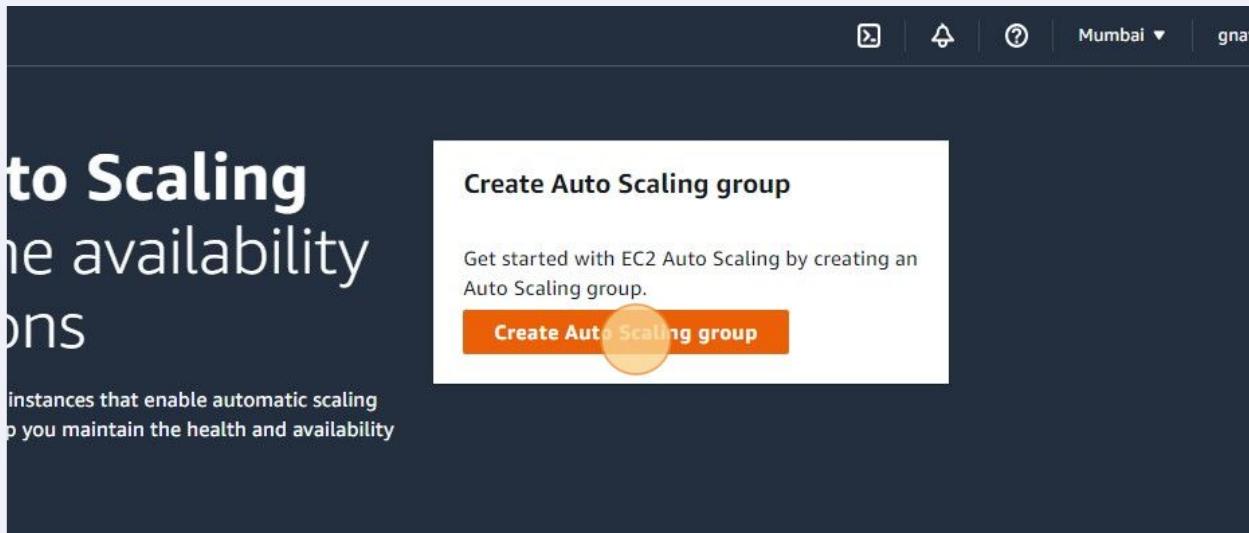
Creating Autoscaling Group

22

Click "Auto Scaling Groups"



23 Click "Create Auto Scaling group"



24 Click the "Auto Scaling group name" field.

Step 1
Choose launch template or configuration

Step 2
Choose instance launch options

Step 3 (optional)
Configure advanced options

Step 4 (optional)
Configure group size and scaling policies

Step 5 (optional)
Add notifications

Step 6 (optional)
Add tags

Choose launch template or configuration Info

Specify a launch template that contains settings common to all EC2 instances that are part of this Auto Scaling group. If you currently use launch configurations, you might consider migrating to launch templates.

Name

Auto Scaling group name

Enter a name to identify the group.



Must be unique to this account in the current Region and no more than 255 characters.

Launch template Info

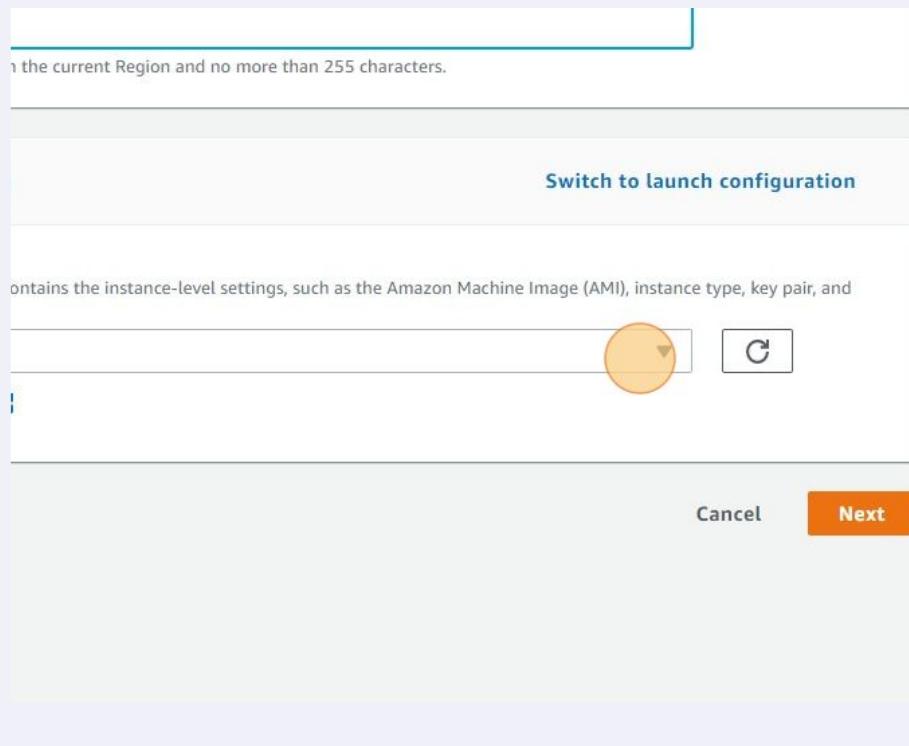
Launch template

Choose a launch template that contains the instance-level settings, such as the Amazon Machine Image, security groups, and key pairs.

Select a launch template

25 Type "my-auto-scaling-group"

26 Click "Select a launch template"



27 Select the Launch template you created before

Must be unique to this account in the current Region and no more than 255 characters.

Launch template	Info	Switch to launch configuration
Select a launch template		
<input type="text"/> Search launch templates		
my-launch-template		

Cancel

28 Click "Next"

Choose a launch template that contains the instance-level settings, such as the Amazon Machine Image (AMI), instance type, key pair, and security groups.

my-launch-template	C	
Create a launch template []		
Version		
Default (1) [] C		
Create a launch template version []		
Description	Launch template	Instance type
demo template	my-launch-template [] lt-034ee64c174239a4c	t2.micro
AMI ID	Security groups	Request Spot Instances
ami-06489866022e12a14	-	No
Key pair name	Security group IDs	
gnataraj-key	sg-019369c1980952d70 []	
Additional details		
Storage (volumes)	Date created	
-	Thu Sep 15 2022 21:13:32 GMT+0530 (India Standard Time)	

Cancel Next

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29 Click here.

Choose the VPC network environment that your instances are launched into, and customize the instance types and purchase options.

Network Info

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

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

vpc-06260e2e0884cf32
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  

Create a subnet 

30 Select the Default VPC in Network section

Network Info

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

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

vpc-06260e2e0884cf32
172.31.0.0/16 Default

vpc-06260e2e0884cf32
172.31.0.0/16 Default

vpc-00d15623f78401a1a (my-vpc-vpc)
10.0.0.0/16

Select Availability Zones and subnets  

Create a subnet 

Instance type requirements Info

Override launch template

31 Click here.

zones. The default VPC and default subnets are suitable for getting started quickly.

VPC

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

vpc-06260e2e0884cf32
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



Create a subnet

Override launch template

Instance type requirements

You can keep the same instance attributes or instance type from your launch template, or you can choose to override the launch template by specifying different instance attributes or manually adding instance types.

Launch template

[View Launch template](#)

Version

Default

Description

demo template

32 In the availability zone, select all the zones and subnets

Choose the VPC network environment that your instances are launched into, and customize the instance types and purchase options.

Network

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

VPC

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

vpc-06260e2e0884cf32
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



ap-south-1a | subnet-09d9fc02505efa90
172.31.32.0/20 Default

ap-south-1b | subnet-0a44e8e14347a30e5
172.31.0.0/20 Default

ap-south-1c | subnet-05714764e155eb467
172.31.16.0/20 Default

ap-south-1c | subnet-05714764e155eb467
172.31.16.0/20 Default

Create a subnet

33

Choose instance launch options Info

Choose the VPC network environment that your instances are launched into, and customize the instance types and purchase options.

Network Info

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

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

vpc-06260e2e0884cfe32
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  

ap-south-1a | subnet-09d9fc02505efa90 X
172.31.32.0/20 Default

ap-south-1b | subnet-0a44e8e14347a30e5 X
172.31.0.0/20 Default

ap-south-1c | subnet-05714764e155eb467 X
172.31.16.0/20 Default

Create a subnet 



34

Click "Next"

Override launch template

from your launch template, or you can edit instance attributes or manually adding instance types.

Description
demo template

Cancel **Previous** **Skip to review** **Next**

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35

In the Load Balancing, Click the "Attach to an existing load balancer chooses from your existing load balancers." field.

Configure advanced options Info

Choose a load balancer to distribute incoming traffic for your application across instances to make it more reliable and scalable. You can also set options that give you more control over health check replacements and monitoring.

Load balancing - optional 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.

No load balancer

Traffic to your Auto Scaling group will not be fronted by a load balancer.



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.

Health checks - optional

Health check type Info

EC2 Auto Scaling automatically replaces instances that fail health checks. If you enabled load balancing, you can enable ELB health checks.

36

Select Choose form your load balancer target group, in the Attach to an existing load balancer section

Load balancing - optional 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.

No load balancer

Traffic to your Auto Scaling group will not be fronted by a load balancer.

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 that you want to attach to your Auto Scaling group.

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



C

Health checks - optional

Health check type Info

EC2 Auto Scaling automatically replaces instances that fail health checks. If you enabled load balancing, you can enable ELB health checks.

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37 Select the previously created target group

Attach to an existing load balancer
Select the load balancers that you want to attach to your Auto Scaling group.

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 ▾ C

my-target-group | HTTP Application Load Balancer: my-load-balancer

Health check type [Info](#)
EC2 Auto Scaling automatically replaces instances that fail health checks. If you enabled load balancing, you can enable ELB health checks in

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38

Load balancing - optional [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.

No load balancer
Traffic to your Auto Scaling group will not be fronted by a load balancer.

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 that you want to attach to your Auto Scaling group.

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 ▾ C

my-target-group | HTTP X Application Load Balancer: my-load-balancer

Health checks - optional

39 In the health checks, Select the "ELB" field.

my-target-group | HTTP X
Application Load Balancer: my-load-balancer

Health checks - *optional*

Health check type [Info](#)
EC2 Auto Scaling automatically replaces instances that fail health checks. If you enabled load balancing in addition to the EC2 health checks that are always enabled.

EC2 ELB

Health check grace period
The amount of time until EC2 Auto Scaling performs the first health check on new instances after they are put into service.

300 seconds

Additional settings - *optional*

Monitoring [Info](#)

40

my-target-group | HTTP X
Application Load Balancer: my-load-balancer

Health checks - *optional*

Health check type [Info](#)
EC2 Auto Scaling automatically replaces instances that fail health checks. If you enabled load balancing, you can enable ELB health checks in addition to the EC2 health checks that are always enabled.

EC2 ELB

Health check grace period
The amount of time until EC2 Auto Scaling performs the first health check on new instances after they are put into service.

300 seconds

Additional settings - *optional*

Monitoring [Info](#)

Enable group metrics collection within CloudWatch

Default instance warmup [Info](#)
The amount of time that CloudWatch metrics for new instances do not contribute to the group's aggregated instance metrics, as their usage data is not reliable yet.

Enable default instance warmup

Cancel Previous Skip to review Next

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41 Click "Next"

health check on new instances after they are put into service.

:ch

es do not contribute to the group's aggregated instance metrics, as their usage

Cancel **Previous** **Skip to review** **Next**

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42 In the group size, mark Desired capacity = 2 Minimum capacity =1 Maximum capacity = 4

[Launch options](#) [Advanced options](#) [Up size and down size](#) [Insights](#)

Group size - optional [Info](#)

Specify the size of the Auto Scaling group by changing the desired capacity. You can also specify minimum and maximum capacity limits. Your desired capacity must be within the limit range.

Desired capacity: 2

Minimum capacity: 1

Maximum capacity: 4

Scaling policies - optional

Choose whether to use a scaling policy to dynamically resize your Auto Scaling group to meet changes in demand. [Info](#)

Target tracking scaling policy
Choose a desired outcome and leave it to the scaling policy to add and remove capacity as needed to achieve that outcome.

None

43 Click here.

optional

Choose whether to use a scaling policy to dynamically resize your Auto Scaling group to meet changes in demand. [Info](#)

Scaling policy
Choose a desired outcome and leave it to the scaling policy to add and remove capacity as needed to achieve that outcome.

None



Instance scale-in protection - optional

Instance scale-in protection
If protect from scale in is enabled, newly launched instances will be protected from scale in by default.
in protection

44 In the scaling policies - select None

Minimum capacity

1

Maximum capacity

4

Scaling policies - optional

Choose whether to use a scaling policy to dynamically resize your Auto Scaling group to meet changes in demand. [Info](#)

Target tracking scaling policy

Choose a desired outcome and leave it to the scaling policy to add and remove capacity as needed to achieve that outcome.

None



Instance scale-in protection - optional

Instance scale-in protection

If protect from scale in is enabled, newly launched instances will be protected from scale in by default.

Enable instance scale-in protection

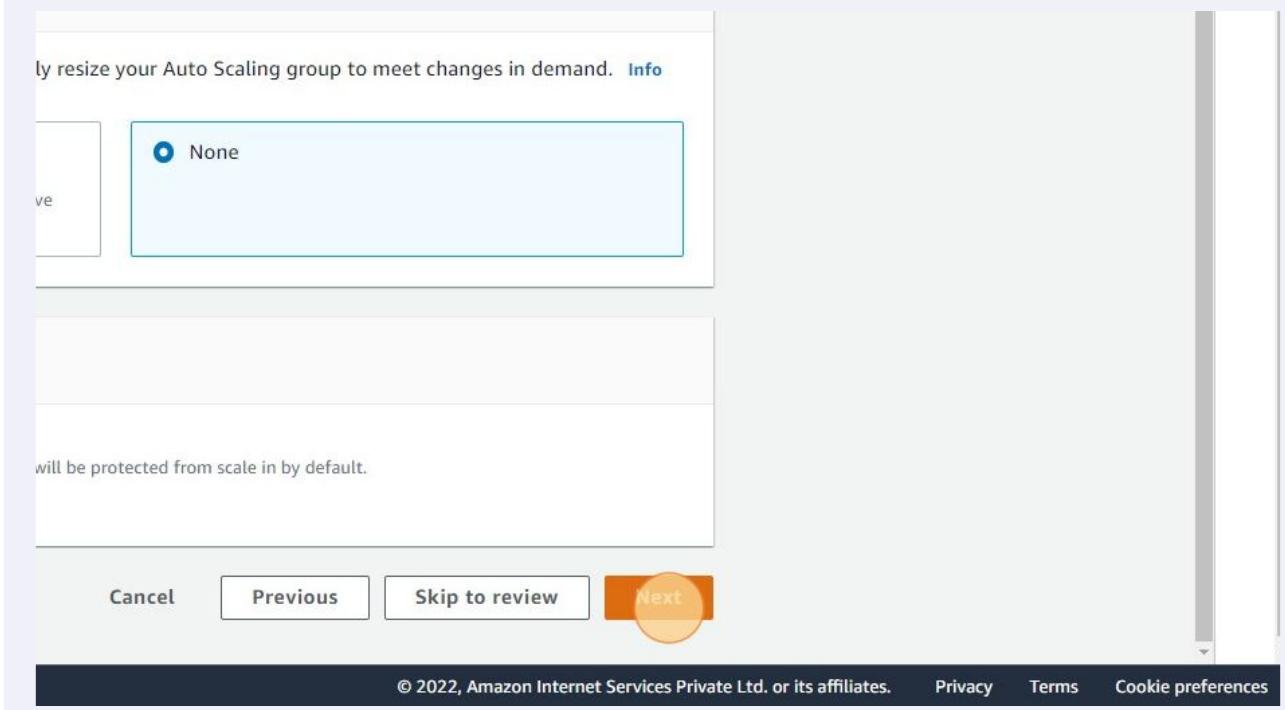
Cancel

Previous

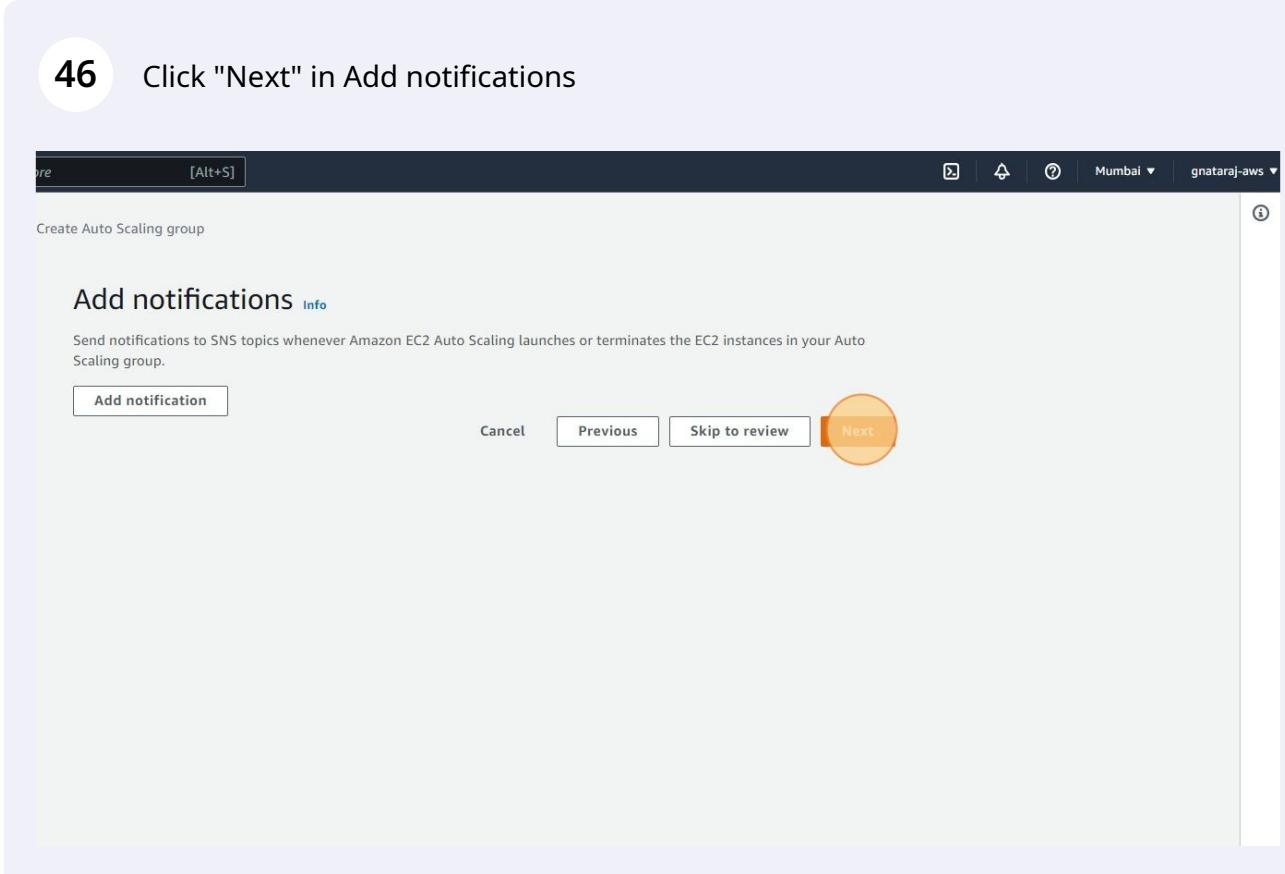
Skip to review

Next

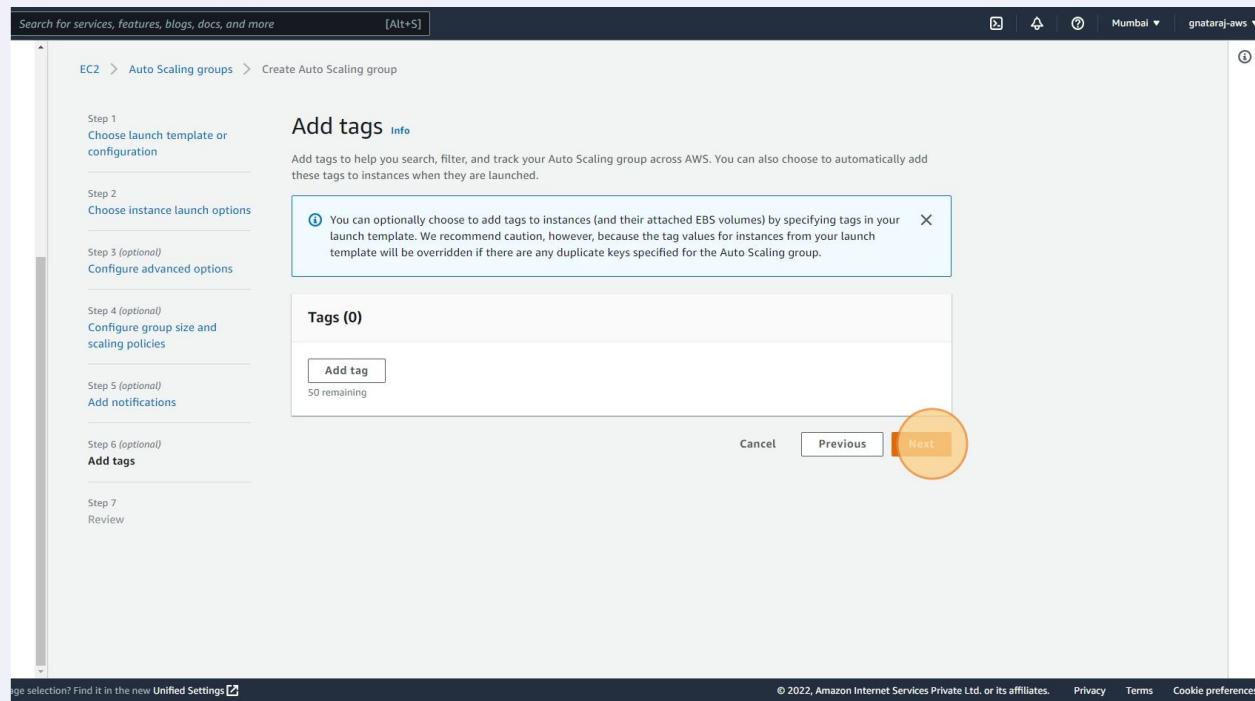
45 Click "Next"



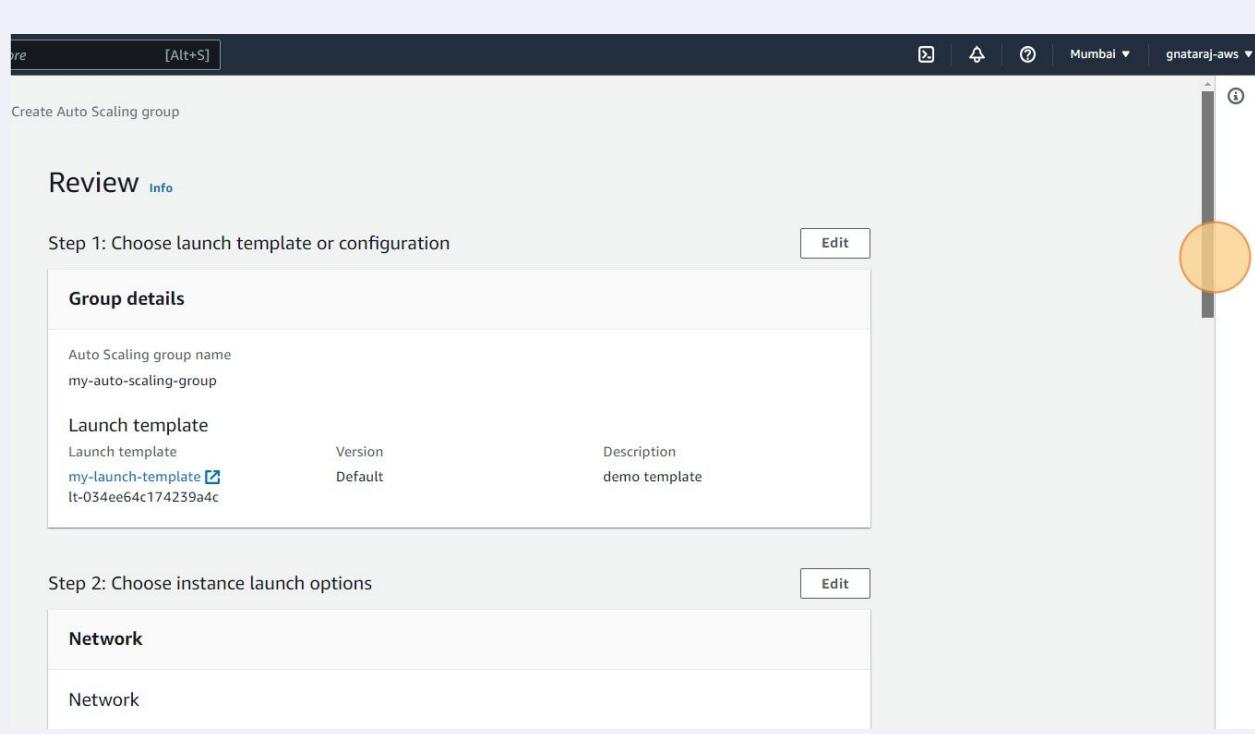
46 Click "Next" in Add notifications



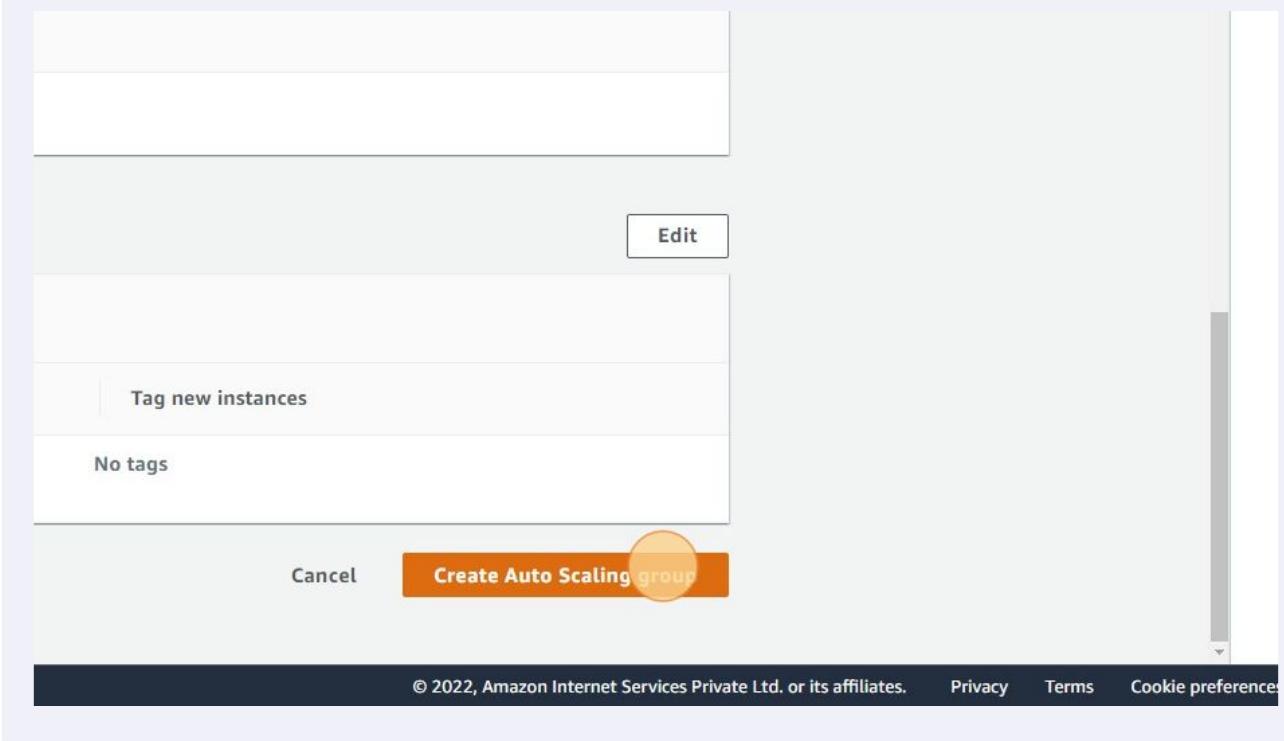
47 Click "Next" in Add tags



48 Review



49 Click "Create Auto Scaling group"



50 Click on the autoscaling group you created "my-auto-scaling-group"

The screenshot shows the 'Auto Scaling groups' page. On the left is a sidebar with links like Dedicated Hosts, Capacity Reservations, Images, AMIs, AMI Catalog, Elastic Block Store, Volumes, Snapshots, Lifecycle Manager, Network & Security, Security Groups, Elastic IPs, Placement Groups, Key Pairs, and Network Interfaces. The main area shows a table titled 'Auto Scaling groups (1) Info'. The table has columns for Name, Launch template/configuration, Instances, and Last activity. One row is visible, showing 'my-auto-scaling-group' as the name, 'my-launch-template | Version Default' as the launch template, and '2' instances. The 'my-auto-scaling-group' link is highlighted with a yellow circle.

51 Click "Instance management"

The screenshot shows the AWS Auto Scaling Groups console. At the top, there's a search bar with placeholder text "Search services, features, blogs, docs, and more" and a keyboard shortcut "[Alt+S]". Below the search bar, the navigation path is shown as "my2 > Auto Scaling groups > my-auto-scaling-group". The main navigation tabs are "Details", "Activity", "Automatic scaling", "Instance management" (which is highlighted with a yellow circle), "Monitoring", and "Instance refresh". Under the "Group details" section, there are two columns of information:

Desired capacity	Auto Scaling group name
2	my-auto-scaling-group
Minimum capacity	Date created
1	Thu Sep 15 2022 21:15:32 GMT+0530 (India Standard Time)
Maximum capacity	Amazon Resource Name (ARN)
4	arn:aws:autoscaling:ap-south-1:170838198394:autoScalingGroup:4077ac4d-46ff-4e89-857b7830c4baae4:autoScalingGroupName/my-auto-scaling-group

52 Watch instance LifeCycle (Pending/InService)

The screenshot shows the AWS Auto Scaling Instances page. The title is "Instances (2)". There is a search bar labeled "Filter instances". The main table has columns: "Instance ID", "Lifecycle", "Instance type", and "Weighted capacity". Two rows are listed:

Instance ID	Lifecycle	Instance type	Weighted capacity
i-065fc510816cf31f	Pending	t2.micro	-
i-09b20de0c854995b6	InService	t2.micro	-

Below the table, there is a section titled "Lifecycle hooks (0) Info". It includes a search bar labeled "Filter lifecycle hooks" and a table with columns: "Name", "Lifecycle transition", "Default result", and "Heartbeat timer". A message at the bottom states "No lifecycle hooks are current".

53 Wait till all becomes InService

The screenshot shows the AWS CloudWatch Metrics console with the 'Instance management' tab selected. The 'Instances (2)' section displays two Lambda instances:

Instance ID	Lifecycle	Instance type	Weighted capacity
i-065fcd510816cf31f	InService	t2.micro	-
i-09b20de0c854995b6	InService	t2.micro	-

54 Click "EC2 Dashboard"

The screenshot shows the AWS EC2 Dashboard with the 'Auto Scaling groups' section selected. The 'Instances' tab is active, showing two instances:

Instance ID	Lifecycle	Instance type
i-065fcd510816cf31f	InService	t2.micro
i-09b20de0c854995b6	InService	t2.micro

55 Click Instances (running) .

The screenshot shows the AWS EC2 Dashboard. On the left sidebar, under the 'Instances' section, the 'Instances New' link is highlighted. The main panel displays 'Resources' with the message: 'You are using the following Amazon EC2 resources in the Asia Pacific (Mumbai) Region:'. A callout bubble highlights the 'Instances (running)' box, which shows 0 instances. Other resource counts are: Dedicated Hosts (0), Key pairs (0), Placement groups (0), Security groups (0), and Volumes (1). A promotional message at the bottom encourages using Microsoft SQL Server Always On availability groups.

56 You can notice two instances running

The screenshot shows the AWS EC2 Instances page. At the top, there are buttons for 'Connect', 'Instance state ▾', and 'Actions'. Below is a table listing two instances:

ID	Instance state	Instance type	...
510816cf31f	Running	t2.micro	(1)
de0c854995b6	Running	t2.micro	(1)

57 Click any of the instances

The screenshot shows the AWS Lambda console interface. At the top, there is a search bar and a filter bar with the text "Instance state = running". Below this is a table with two rows of data. The first row has columns for "Name" (with a dropdown arrow), "Instance ID" (i-065fcd510816cf31f), "Instance state" (Running), and "Instance type" (t2.micro). The second row has similar columns. A large orange circle highlights the "Instance ID" column of the first row. Below the table, there is a section titled "Select an instance" with a dropdown menu.

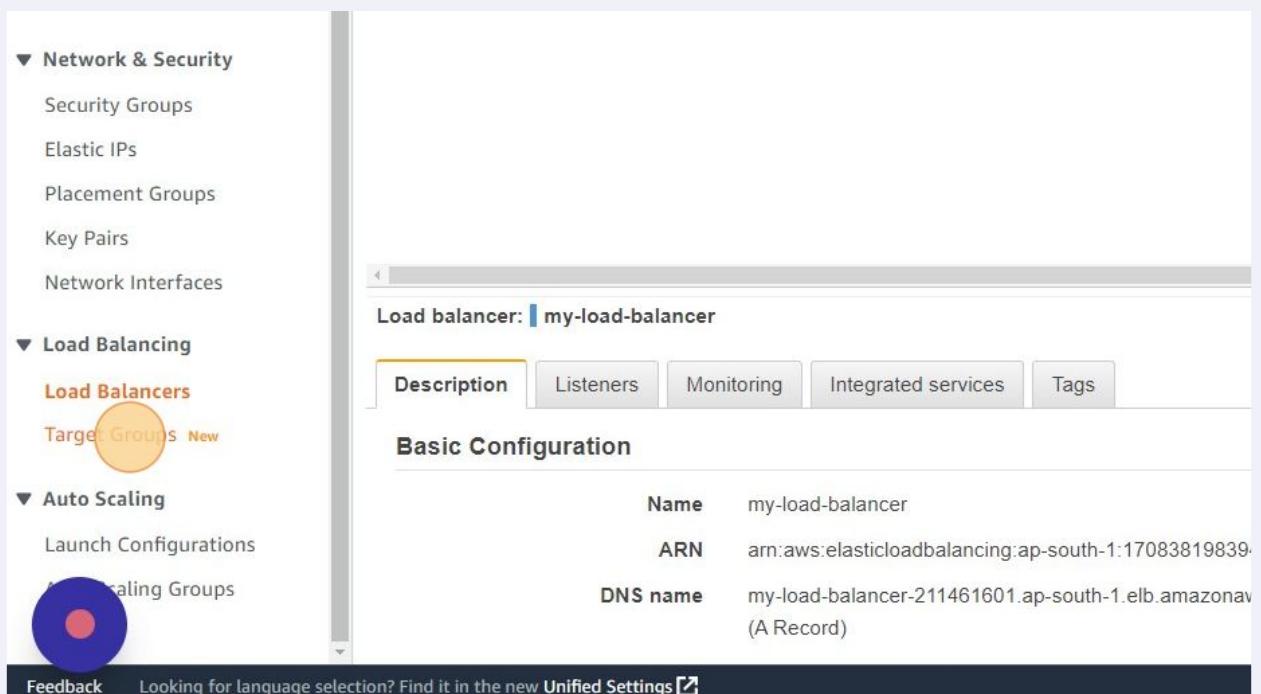
58 Copy the Public IPv4 address

The screenshot shows the details page for the instance i-065fcd510816cf31f. At the top, there is a navigation bar with tabs for Security, Networking, Storage, Status checks, Monitoring, and Tags. Below this is a summary section with tabs for General summary and Info. The General summary tab is selected. It displays various instance details. A large orange circle highlights the "Public IPv4 address" field, which contains the value 13.127.126.194. There is also a link "open address" next to it. Other visible details include the Instance state (Running), Private IP DNS name (ip-172-31-34-211.ap-south-1.compute.internal), and Instance type (t2.micro).

59 Open a new tab and paste the public IPv4 address and check the webpage is viewable

60 Repeat and check the web page from another instance

61 Click "Target Groups"



62 Click "my-target-group"

The screenshot shows the AWS Management Console sidebar with categories like Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images (AMIs, AMI Catalog), Elastic Block Store (Volumes, Snapshots, Lifecycle Manager), and Network & Security (Security Groups, Elastic IPs). The main content area is titled 'Target groups (1)' and shows a table with one row. The row for 'my-target-group' is highlighted with a yellow circle. The table has columns for Name and ARN. The ARN value is 'arn:aws:elasticloadbalancing:ap-south-1:170838198394:targetgroup/8fc4c9f5b9c806f2'. A message at the bottom says '0 target groups selected'.

63 Check two EC2 instances are registered.

This screenshot shows the 'my-target-group' details page. The 'Details' section includes fields for Target type (Instance), Protocol (HTTP: 80), Protocol version (HTTP1), and VPC (vpc-06260e2e0884cfef32). Below this, a table shows target status: Total targets 2, Healthy 2, Unhealthy 0, Unused 0, Initial 0, and Draining 0. The 'Targets' tab is selected, showing a table of registered targets with two entries: 'i-065fcfd510816cf31f' and 'i-09b20de0c854995b6', both in the 'healthy' state. Other tabs include Monitoring, Health checks, Attributes, and Tags.

64 Click "Load Balancers"

The screenshot shows the AWS Lambda console. On the left, there's a sidebar with sections for Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), Load Balancing (Load Balancers, Target Groups New), and Auto Scaling (Launch Configurations, Auto Scaling Groups). The 'Load Balancers' section is highlighted with a yellow circle. The main area has tabs for Targets, Monitoring, Health checks, Attributes, and Tags. The 'Targets' tab is selected and highlighted in orange. Below it, the heading 'Registered targets (2)' is displayed. A search bar with the placeholder 'Filter resources by property or value' is present. A table lists two registered targets:

Instance ID	Name	Port
i-065fcd510816cf31f		80
i-09b20de0c854995b6		80

At the bottom, there are 'Feedback' and 'Unified Settings' links.

65 Copy the Load Balancer DNS name

The screenshot shows the AWS Load Balancer console. At the top, there's a search bar containing '-load-balancer'. Below it, there are tabs for Stunners, Monitoring, Integrated services, and Tags. The 'Integrated services' tab is selected. In the main area, there's a table with columns for Name, ARN, and DNS name. The 'DNS name' row is highlighted with a yellow circle. The 'DNS name' value is 'my-load-balancer-211461601.ap-south-1.elb.amazonaws.com' followed by a copy icon. At the bottom, there are 'Unified Settings' and copyright information.

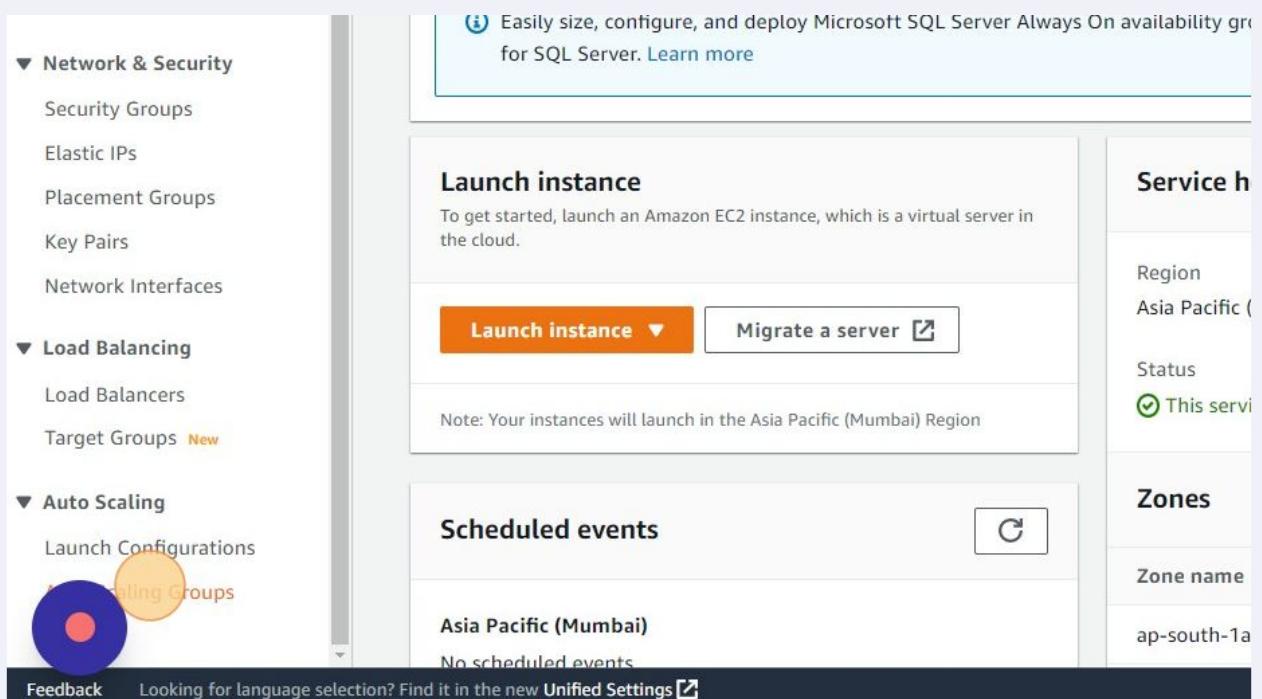
66

In a new tab paste the domain name and check you are able to access the page.

Testing the Scale Out

67

Click "Auto Scaling Groups"



The screenshot shows the AWS CloudFormation console. On the left, there's a navigation sidebar with sections like Network & Security, Load Balancing, and Auto Scaling. Under Auto Scaling, 'Launch Configurations' and 'Auto Scaling Groups' are listed, with 'Auto Scaling Groups' highlighted by a yellow circle. The main content area has a heading 'Easily size, configure, and deploy Microsoft SQL Server Always On availability groups for SQL Server. Learn more'. Below it is a 'Launch instance' button and a note about launching in the Asia Pacific (Mumbai) Region. To the right, there are service headers for Region (Asia Pacific), Status (This service), and Zones (Zone name: ap-south-1a). At the bottom, there's a feedback link and a note about language selection.

Feedback Looking for language selection? Find it in the new Unified Settings

Easily size, configure, and deploy Microsoft SQL Server Always On availability groups for SQL Server. [Learn more](#)

Launch instance

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

Launch instance ▾ **Migrate a server**

Note: Your instances will launch in the Asia Pacific (Mumbai) Region

Scheduled events

Asia Pacific (Mumbai)

No scheduled events

Service headers

Region: Asia Pacific (Mumbai)

Status: This service

Zones

Zone name: ap-south-1a

68 Click "my-auto-scaling-group"

The screenshot shows the AWS EC2 Auto Scaling groups page. On the left, there's a sidebar with various navigation links like Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, AMI Catalog, Elastic Block Store, Volumes, Snapshots, Lifecycle Manager, Network & Security, Security Groups, Elastic IPs, and Placement Groups. The main area is titled 'Auto Scaling groups (1)' and contains a table with one row. The row for 'my-auto-scaling-group' has its name column highlighted with a yellow circle. The table includes columns for Name, Launch template/configuration, and Instance.

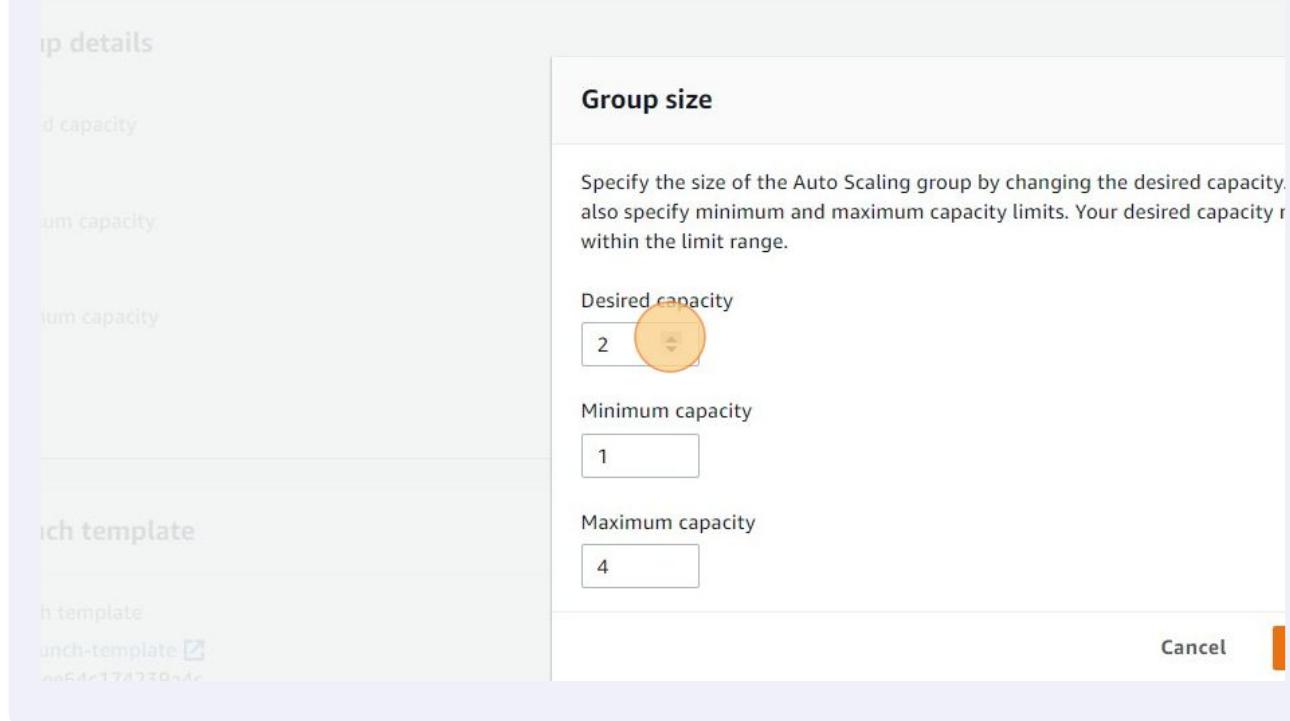
Name	Launch template/configuration	Instance
my-auto-scaling-group	my-launch-template Version Default	2

69 Edit on the Group details

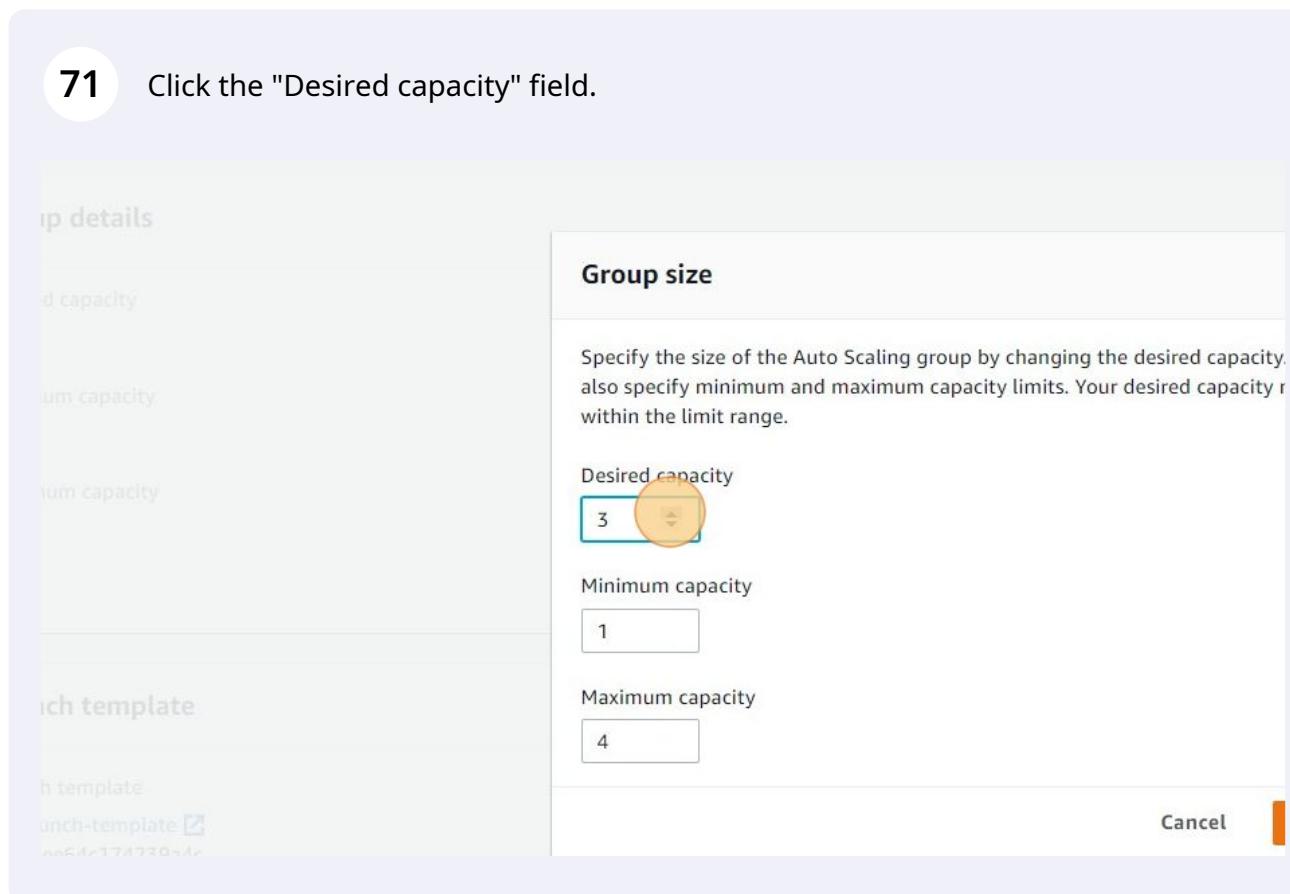
The screenshot shows the 'Group details' section of the AWS Auto Scaling group configuration. It displays various settings like Desired capacity (2), Minimum capacity (1), Maximum capacity (4), Auto Scaling group name (my-auto-scaling-group), Date created (Thu Sep 15 2022 21:15:32 GMT+0530 (India Standard Time)), and Amazon Resource Name (ARN). Below this, the 'Launch template' section is shown, featuring a table with columns for Launch template, AMI ID, Instance type, Security group IDs, and other parameters. The 'Edit' button for the launch template is highlighted with a yellow circle.

Launch template	AMI ID	Instance type
my-launch-template lt-034ee64c174239a4c	ami-06489866022e12a14	t2.micro
Version Default	Security groups -	Security group IDs sg-019369c1980952d70
Description demo template	Key pair name gnataraj-key	Storage (volumes)
Request Spot Instances	Create time	Created by

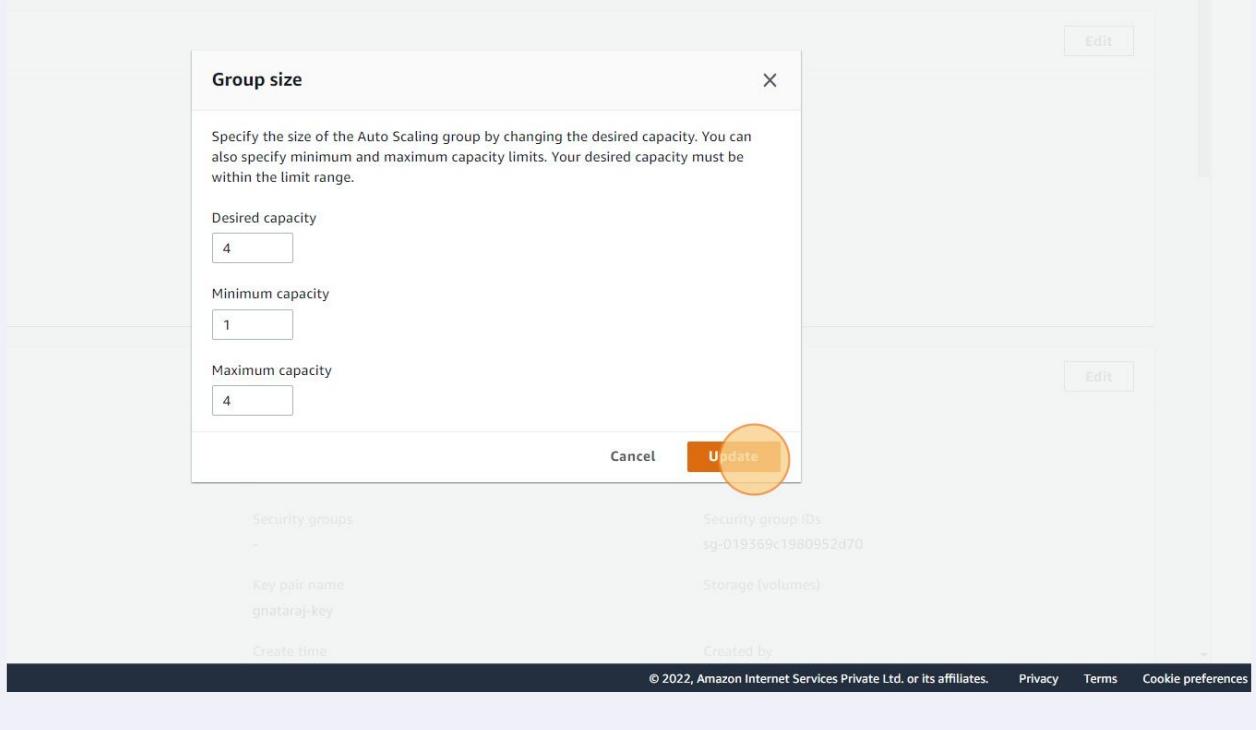
70 Click the "Desired capacity" field.



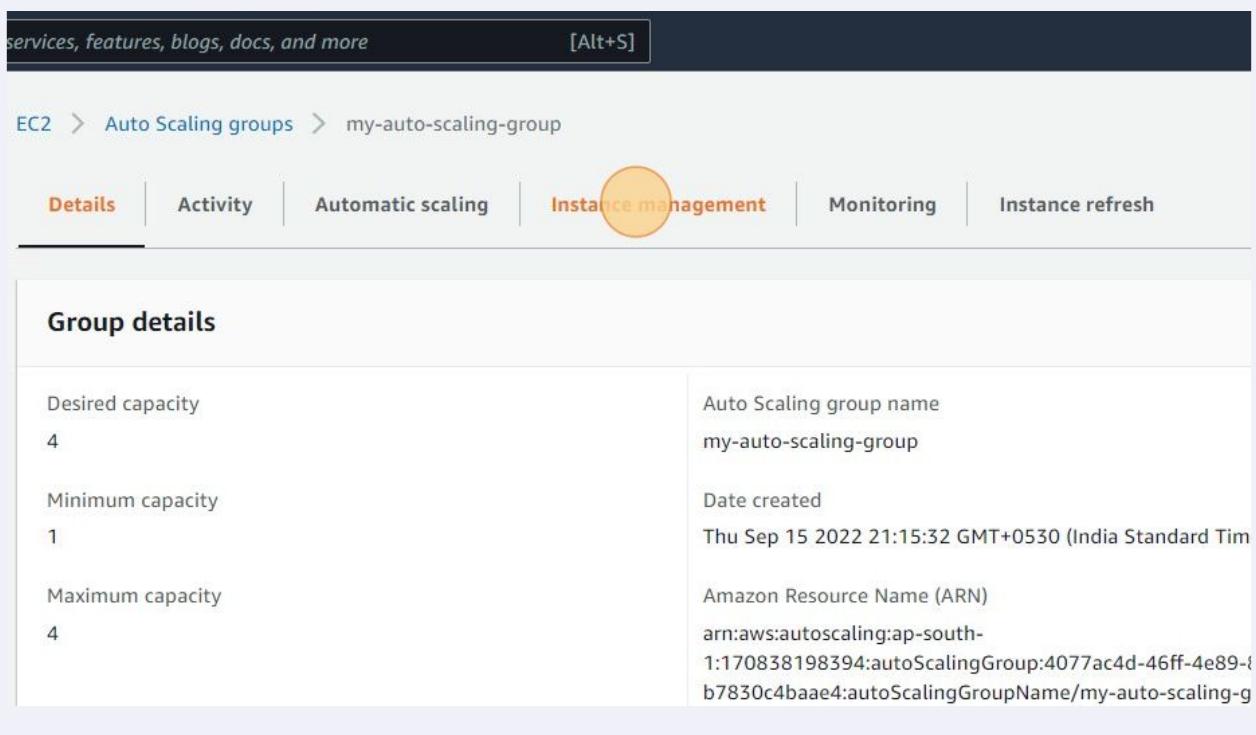
71 Click the "Desired capacity" field.



72 Update the "Desired capacity" field to 4 and Click "Update"



73 Click "Instance management"



74 Wait till the instances count become Desired Capacity, i.e 4

The screenshot shows the AWS EC2 Instances page. At the top, there are filters for 'Weighted capacity', 'Launch template/configurati...', 'Availability Zone', 'Health stat...', and 'Prot...'. Below these filters, there is a table with three rows of instance data:

Launch template/configurati...	Availability Zone	Health stat...
my-launch-template Version 1	ap-south-1a	Healthy
my-launch-template Version 1	ap-south-1b	Healthy

At the bottom right of the table, there is a 'Actions' dropdown menu with a circled 'C' icon.

75 Click here.

The screenshot shows the AWS Auto Scaling Groups page for the group 'my-auto-scaling-group'. On the left, there is a sidebar with various navigation options like 'Reserved Instances', 'Dedicated Hosts', 'Capacity Reservations', 'Images', 'Elastic Block Store', 'Network & Security', 'Load Balancing', and 'Auto Scaling'. A large orange circle highlights the 'Auto Scaling' section in the sidebar.

The main content area has tabs for 'Details', 'Activity', 'Automatic scaling', 'Instance management' (which is selected), 'Monitoring', and 'Instance refresh'. Under the 'Instance management' tab, there is a section for 'Instances (4)' which lists four instances:

Instance ID	Lifecycle	Instance type	Weighted capacity	Launch template/configurati...	Availability Zone	Health stat...
i-065fc510816cf31f	InService	t2.micro	-	my-launch-template Version 1	ap-south-1a	Healthy
i-09b20de0c854995b6	InService	t2.micro	-	my-launch-template Version 1	ap-south-1b	Healthy
i-0aba7ec80f43bb665	Pending	t2.micro	-	my-launch-template Version 1	ap-south-1a	Healthy
i-0af781a8622302e3d	Pending	t2.micro	-	my-launch-template Version 1	ap-south-1b	Healthy

Below the instances, there is a section for 'Lifecycle hooks (0)' with a 'Create lifecycle hook' button.

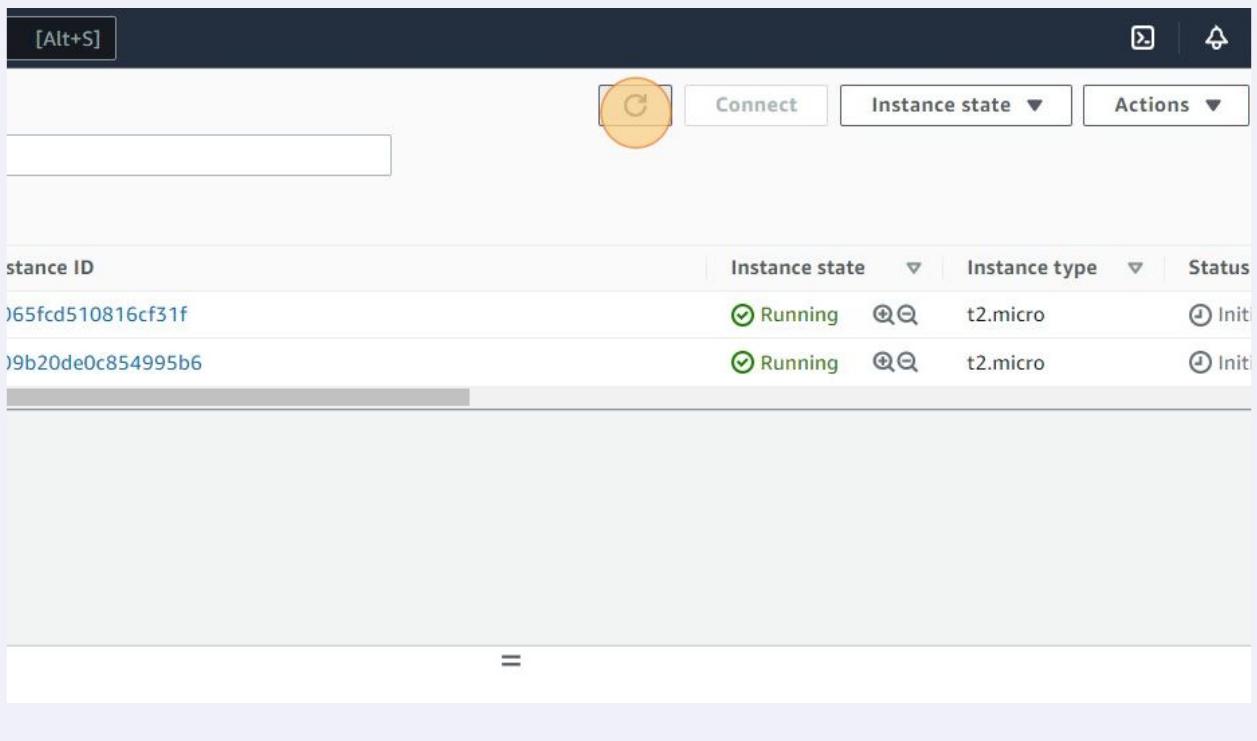
76 Click "EC2 Dashboard"

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with a 'New EC2 Experience' toggle and a 'Tell us what you think' link. Below that is a list of links: 'EC2 Dashboard' (which is highlighted with a yellow circle), 'EC2 Global View', 'Events', 'Tags', 'Limits', and a '▼ Instances' section with links for 'Instances', 'Instance Types', 'Launch Templates', 'Spot Requests', 'Savings Plans', and 'Reserved Instances'. The main content area has a breadcrumb navigation: 'EC2 > Auto Scaling groups > my-auto-scaling-group'. Below this are tabs: 'Details', 'Activity', 'Automatic scaling', and 'Instance management' (which is underlined). The 'Instances (4)' section contains a table with columns: 'Instance ID', 'Lifecycle', and 'Instance ty...'. The table lists four instances: one 'InService' t2.micro instance (i-065fc...), another 'InService' t2.micro instance (i-09b20...), and two 'Pending' t2.micro instances (i-0aba7... and i-0c7e0...).

77 Click on the instances

The screenshot shows the AWS Resources page. The sidebar is identical to the previous screenshot. The main content area has a title 'Resources' and a message: 'You are using the following Amazon EC2 resources in the Asia Pacific (Mumbai) Region:'. Below this is a table with four rows: 'Instances (running)' (0), 'Dedicated Hosts' (0); 'Instances' (0), 'Key pairs' (0); 'Placement groups' (0), 'Security groups' (0); and 'Volumes' (1). A callout box points to the 'Instances (running)' row. At the bottom, there's a note: 'Easily size, configure, and deploy Microsoft SQL Server Always On availability groups for SQL Server. Learn more'.

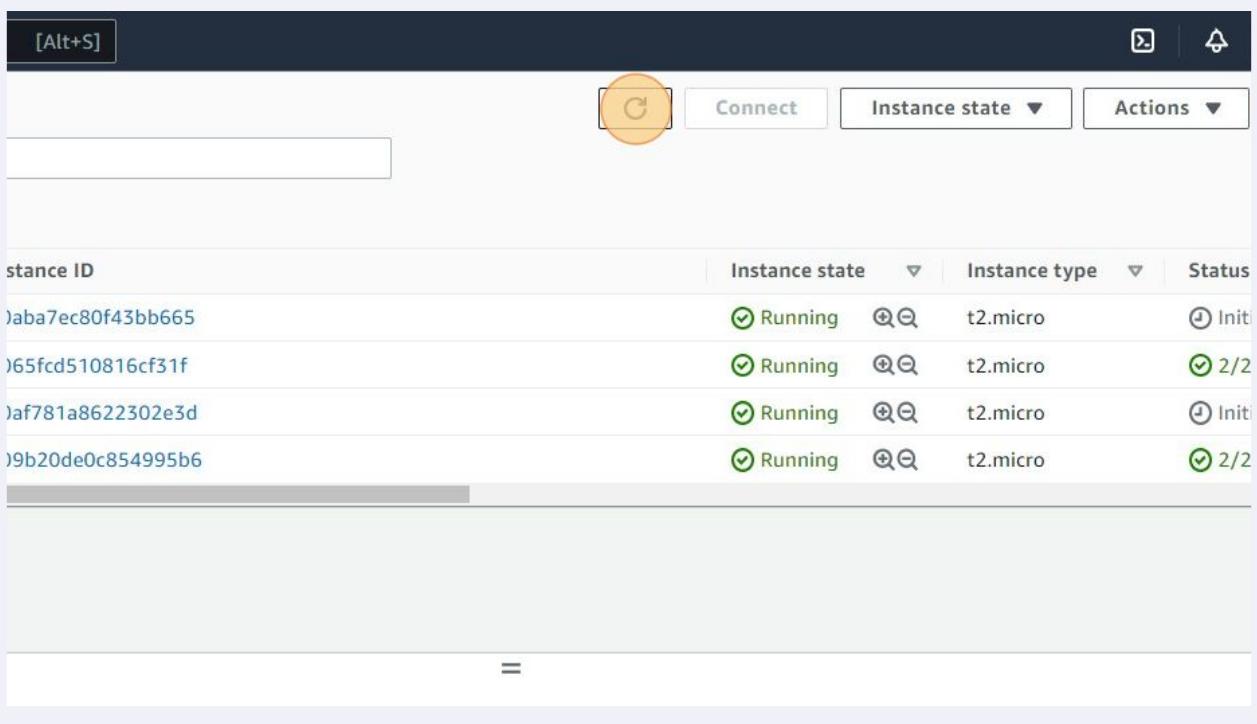
78 Click Refresh



The screenshot shows the AWS Lambda console interface. At the top, there's a toolbar with a refresh icon (a circular arrow), a 'Connect' button, and dropdown menus for 'Instance state' and 'Actions'. Below the toolbar is a table listing Lambda functions. The table has columns for 'Function name', 'Instance state', 'Instance type', and 'Status'. Two rows are visible:

Function name	Instance state	Instance type	Status
065fc510816cf31f	Running	t2.micro	Init
09b20de0c854995b6	Running	t2.micro	Init

79 Click refresh



The screenshot shows the AWS Lambda console interface after a refresh. The table now displays three rows of Lambda functions. The third row, which was previously listed as 'Init', now shows '2/2' under the 'Status' column, indicating that both instances have completed their initialization.

Function name	Instance state	Instance type	Status
0aba7ec80f43bb665	Running	t2.micro	Init
065fc510816cf31f	Running	t2.micro	2/2
0af781a8622302e3d	Running	t2.micro	Init
09b20de0c854995b6	Running	t2.micro	2/2

80 Wait till all the four instances comes to running state

The screenshot shows the AWS EC2 Instances page with a search bar at the top. A sidebar on the left lists various EC2-related options like Instances, Images, and Elastic Block Store. The main area displays a table of four instances, all of which are currently running. The table includes columns for Name, Instance ID, Instance state, Instance type, and Status check.

Name	Instance ID	Instance state	Instance type	Status check
-	i-0aba7ec80f43bb65	Running	t2.micro	2/2 checks passed
-	i-065fd510816cf51f	Running	t2.micro	2/2 checks passed
-	i-0af781a8622302e3d	Running	t2.micro	2/2 checks passed
-	i-09b20de0c854995b6	Running	t2.micro	2/2 checks passed

81 Click "Target Groups"

The screenshot shows the AWS Network & Security page. On the left, there's a sidebar with categories like Network & Security, Load Balancing, and Auto Scaling. Under Load Balancing, the 'Target Groups' option is highlighted with a yellow circle. The main content area is titled 'Select an instance'.

82 Click "my-target-group"

The screenshot shows the AWS EC2 Target groups page. On the left, there's a sidebar with navigation links: Savings Plans, Reserved Instances (New), Dedicated Hosts, Capacity Reservations, Images (AMIs New, AMI Catalog), Elastic Block Store (Volumes New, Snapshots New, Lifecycle Manager New), and Network & Security (Security Groups, Elastic IPs). The main area is titled "Target groups (1) Info". It contains a table with one row for "my-target-group". The table has columns for Name and ARN. The "my-target-group" row is highlighted with a yellow circle. Below the table, a message says "0 target groups selected".

83 Click this refresh button.

The screenshot shows the AWS ELB Target Groups page. At the top, there are three status counts: Unused (0), Initial (0), and Draining (0). Below this is a toolbar with a refresh icon (highlighted with a yellow circle), Deregister, Register targets, and navigation arrows. The main table lists two targets: "ap-south-1a" and "ap-south-1b", both marked as "healthy". The table has columns for Zone, Health status, and Health status details.

84

Click here.

Search for services, features, blogs, docs, and more [Alt+S]

Mumbai gnataraaj-aws

Target type Instance	Protocol : Port HTTP: 80	Protocol version HTTP1	VPC vpc-06260e2e0884cfef32
IP address type IPv4	Load balancer my-load-balancer		
Total targets 4	Healthy 3	Unhealthy 1	Unused 0
Initial 0			Draining 0

Targets **Monitoring** **Health checks** **Attributes** **Tags**

Registered targets (4)

<input type="checkbox"/> Instance ID	Name	Port	Zone	Health status	Health status details
<input type="checkbox"/> i-0af781a8622302e3d		80	ap-south-1b	☒ unhealthy	Health checks failed
<input type="checkbox"/> i-065fcd510816cf31f		80	ap-south-1a	○ healthy	
<input type="checkbox"/> i-0aba7ec80f43bb665		80	ap-south-1a	○ healthy	
<input type="checkbox"/> i-09b20de0c854995b6		80	ap-south-1b	○ healthy	

Deregister Register targets < 1 > ⌂

Page selection? Find it in the new [Unified Settings](#) © 2022, Amazon Internet Services Private Ltd. or its affiliates. Privacy Terms Cookie preferences

Testing the Scale In

85

Click "Auto Scaling Groups"

Services Search for services, features, blogs, docs, and more [Alt+S]

Mumbai gnataraaj-aws

Target type Instance	Protocol : Port HTTP: 80	Protocol version HTTP1	VPC vpc-06260e2e0884cfef32
IP address type IPv4	Load balancer my-load-balancer		
Total targets 4	Healthy 3	Unhealthy 1	Unused 0
Initial 0			Draining 0

Targets **Monitoring** **Health checks** **Attributes** **Tags**

Registered targets (4)

<input type="checkbox"/> Instance ID	Name	Port	Zone	Health status	Health status details
<input type="checkbox"/> i-0af781a8622302e3d		80	ap-south-1b	☒ unhealthy	Health checks failed
<input type="checkbox"/> i-065fcd510816cf31f		80	ap-south-1a	○ healthy	
<input type="checkbox"/> i-0aba7ec80f43bb665		80	ap-south-1a	○ healthy	
<input type="checkbox"/> i-09b20de0c854995b6		80	ap-south-1b	○ healthy	

C Deregister Register targets < 1 > ⌂

Feedback Looking for language selection? Find it in the new [Unified Settings](#) © 2022, Amazon Internet Services Private Ltd. or its affiliates. Privacy Terms Cookie preferences

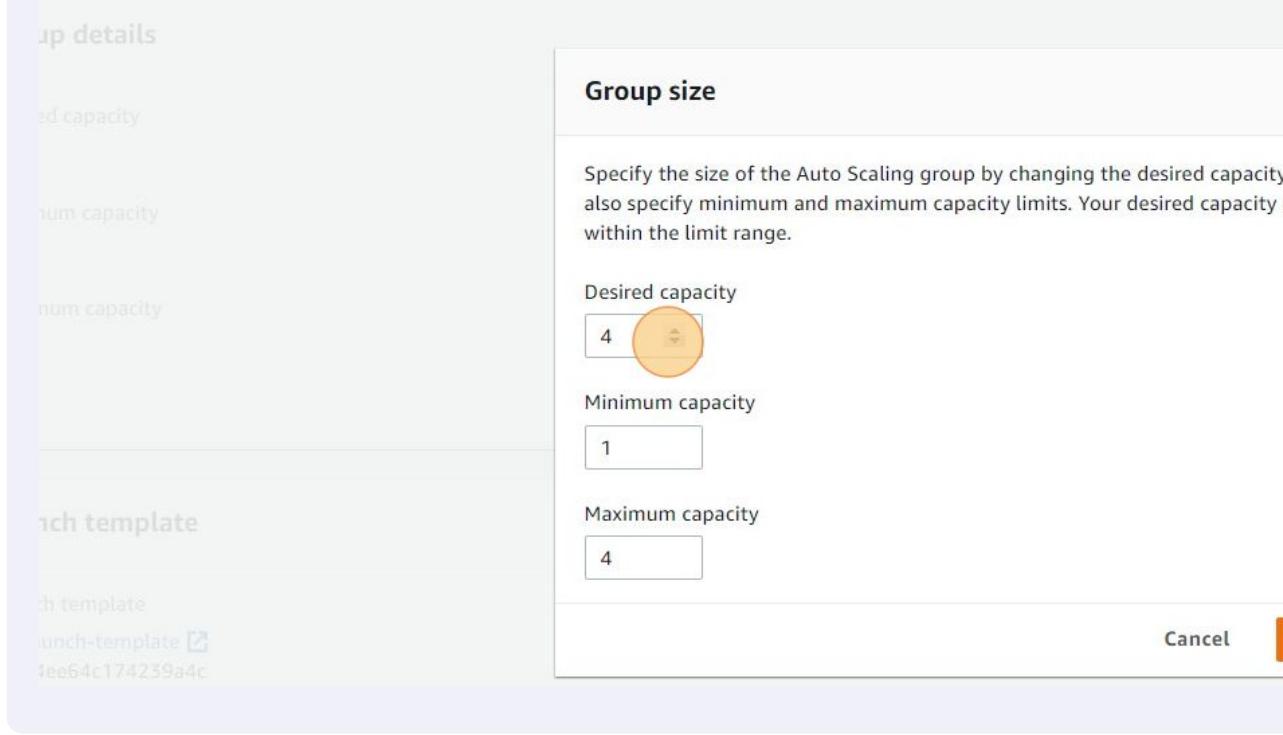
86 Click "my-auto-scaling-group"

The screenshot shows the AWS EC2 Auto Scaling groups page. On the left, there's a sidebar with various navigation links like Reserved Instances, Dedicated Hosts, Capacity Reservations, etc. The main area shows the title "Auto Scaling groups (1) Info". Below it is a search bar with the placeholder "Search your Auto Scaling groups". A table lists one item: "my-auto-scaling-group" with a Launch template/configuration of "my-launch-template | Version Default" and 4 instances. The "my-auto-scaling-group" link is highlighted with a yellow circle.

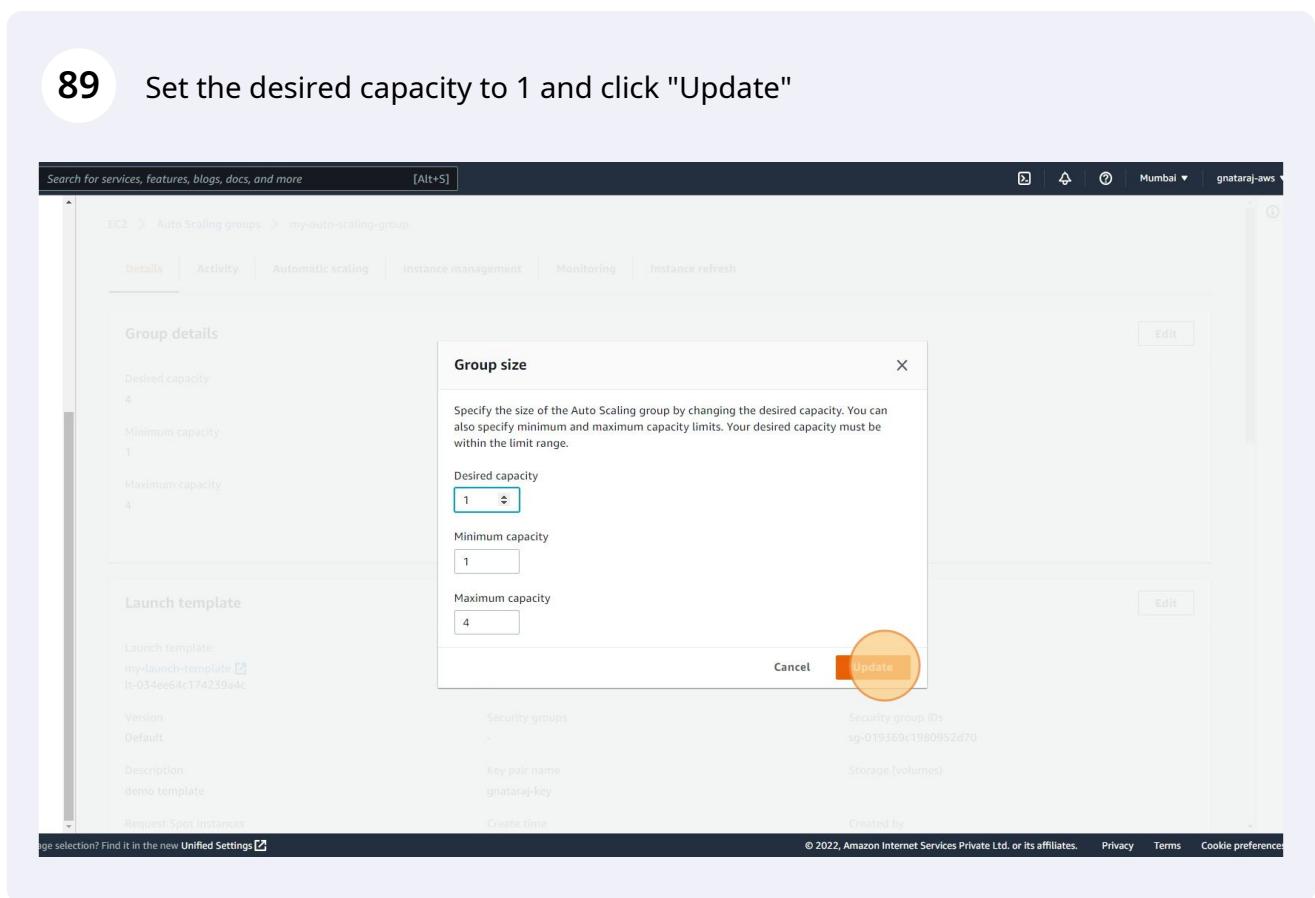
87 Click "Edit"

The screenshot shows the "Edit" screen for the "my-auto-scaling-group". At the top, there's a dark header with icons for refresh, alert, help, location (Mumbai), and user (gnataraj-aws). Below the header, there's a "Instance refresh" button. The main content area shows the group's configuration, including its name, ARN, and creation time (2023-07-10T10:32 GMT+0530). The "Edit" button, located at the top right of the configuration table, is highlighted with a yellow circle.

- 88** Double-click the "Desired capacity" field.



- 89** Set the desired capacity to 1 and click "Update"



90 Click "Instance management"

The screenshot shows the AWS Auto Scaling Groups page. At the top, there's a search bar with placeholder text "services, features, blogs, docs, and more" and a keyboard shortcut "[Alt+S]". Below the search bar, the navigation path is "EC2 > Auto Scaling groups > my-auto-scaling-group". A horizontal menu bar contains six items: "Details" (selected), "Activity", "Automatic scaling", "Instance management" (highlighted with a yellow circle), "Monitoring", and "Instance refresh". The main content area is titled "Group details" and displays the following information:

Desired capacity	1	Auto Scaling group name	my-auto-scaling-group
Minimum capacity	1	Date created	Thu Sep 15 2022 21:15:32 GMT+0530 (India Standard Time)
Maximum capacity	4	Amazon Resource Name (ARN)	arn:aws:autoscaling:ap-south-1:170838198394:autoScalingGroup:4077ac4d-46ff-4e89-8b7830c4baae4:autoScalingGroupName/my-auto-scaling-gr

91 Check that Lifecycle of the 3 instances in terminating state

The screenshot shows the AWS Auto Scaling Instances page. At the top, there's a search bar with placeholder text "Filter instances" and a horizontal menu bar containing six items: "Details" (selected), "Activity", "Automatic scaling", "Instance management" (highlighted with a yellow circle), "Monitoring", and "Instance refresh". The main content area is titled "Instances (4)" and displays a table of instance details:

<input type="checkbox"/>	Instance ID	Lifecycle	Instance ty...	Weighted capacity
<input type="checkbox"/>	i-065fc510816cf31f	Terminating	t2.micro	-
<input type="checkbox"/>	i-09b20de0c854995b6	Terminating	t2.micro	-
<input type="checkbox"/>	i-0aba7ec80f43bb665	Terminating	t2.micro	-
<input type="checkbox"/>	i-0af781a8622302e3d	InService	t2.micro	-

Below the table, there's a section titled "Lifecycle hooks (0) [Info](#)".

92 Click here.

The screenshot shows the AWS CloudFormation console. On the left, there's a navigation sidebar with sections like 'Images', 'Elastic Block Store', 'Network & Security', and 'Load Balancing'. A large orange circle highlights the 'Instances' section under 'Load Balancing'. The main content area is titled 'Instances (4)' and contains a table with four rows. The columns are 'Instance ID', 'Lifecycle', and 'Instance type'. The instances listed are:

Instance ID	Lifecycle	Instance type
i-065fc510816cf31f	Terminating	t2.micro
i-09b20de0c854995b6	Terminating	t2.micro
i-0aba7ec80f43bb665	Terminating	t2.micro
i-0af781a8622302e3d	InService	t2.micro

Below the table is a section titled 'Lifecycle hooks (0) Info' with a search bar.

93 Click "EC2 Dashboard"

The screenshot shows the AWS EC2 Dashboard. On the left, there's a sidebar with options like 'EC2 Dashboard' (which is highlighted with an orange circle), 'EC2 Global View', 'Events', 'Tags', 'Limits', and 'Instances' (with sub-options like 'Instances', 'Instance Types', 'Launch Templates', etc.). The main content area shows the 'EC2 > Auto Scaling groups > my-auto-scaling-group' path. Below this, there are tabs for 'Details', 'Activity', 'Automatic scaling', and 'Instance management' (which is underlined). The 'Instances' section displays the same table of four terminating t2.micro instances as in the previous screenshot.

94 Click this button.

The screenshot shows the AWS Instances page. At the top, there is a search bar and a toolbar with buttons for 'Connect', 'Instance state', and 'Actions'. Below the toolbar is a table listing four instances. Each instance row contains columns for Instance ID, Instance state, Instance type, and Status check. All instances are listed as 'Running' t2.micro type with a status of '2/2 checks passed'. A yellow circle highlights the 'Connect' button in the toolbar.

Instance ID	Instance state	Instance type	Status check
i-0a7ec80f43bb665	Running	t2.micro	2/2 checks passed
i-065fc510816cf31f	Running	t2.micro	2/2 checks passed
i-0af781a8622302e3d	Running	t2.micro	2/2 checks passed
i-09b20de0c854995b6	Running	t2.micro	2/2 checks passed

95 Click "Target Groups"

The screenshot shows the AWS Lambda console. On the left, there is a navigation sidebar with categories like 'Images', 'Elastic Block Store', 'Network & Security', 'Load Balancing', and 'Auto Scaling'. Under 'Load Balancing', the 'Target Groups' option is highlighted with a yellow circle. The main area shows a table titled 'Instances (4) Info' with columns for Name, Instance ID, Instance state, Instance type, and Status check. All four instances listed are 'Running' t2.micro type with a status of '2/2 checks passed'. Below the table, there is a section titled 'Select an instance'.

96 Click "my-target-group"

The screenshot shows the AWS EC2 Target Groups page. On the left, there's a navigation sidebar with various services like Reserved Instances, AMIs, and Auto Scaling. The main area is titled 'Target groups (1) Info'. A single target group is listed: 'my-target-group' with ARN 'arn:aws:elasticloadbalancing:ap-south-1:170838198394:targetgroup/my-target-group/8fc4c9f5b9c806f2' and port '80'. The 'my-target-group' row is highlighted with a yellow circle. Below the table, it says '0 target groups selected' and 'Select a target group above.'

97 Click refresh

This screenshot shows the detailed view of the 'my-target-group' from the previous step. At the top, it says 'my-target-group'. Below that is a 'Details' section with fields: Target type 'Instance', Protocol 'HTTP: 80', Protocol version 'HTTP1', and VPC 'vpc-06260e2e0884cf32'. Under 'Targets', there are four total targets: 3 healthy, 1 unhealthy, 0 unused, 0 initial, and 0 draining. The 'Targets' tab is active. Below this is a 'Registered targets (4)' section with a table:

Instance ID	Name	Port	Zone	Health status	Health status details
i-0af781a8622302e3d		80	ap-south-1b	✗ unhealthy	Health checks failed
i-065fc510816cf31f		80	ap-south-1a	✓ healthy	

98 Watch the Health Status for draining

The screenshot shows the AWS CloudWatch Metrics console. At the top, there is a search bar and navigation links for Mumbai and user gnataraj-aws. Below the search bar, there is a summary table for a target group:

Instance	HTTP: 80	HTTP1	vpc-06260e2e0884cfe32
IP address type	Load balancer		
IPv4	my-load-balancer		
Total targets	Healthy: 1	Unhealthy: 0	Unused: 0
4			
Initial	0	0	Draining: 3

Below the summary table, there are tabs for Targets, Monitoring, Health checks, Attributes, and Tags. The Targets tab is selected. The Registered targets section shows four entries:

Instance ID	Name	Port	Zone	Health status	Health status details
i-0af781a8622302e3d		80	ap-south-1b	healthy	
i-065fcd510816cf31f		80	ap-south-1a	draining	Target deregistration is in progress
i-0aba7ec80f43bb665		80	ap-south-1a	draining	Target deregistration is in progress
i-09b20de0c854995b6		80	ap-south-1b	draining	Target deregistration is in progress

At the bottom of the page, there is a footer with links for Feedback, Unified Settings, and copyright information.

99 Wait for a very long, long time to terminate the instance in the targets.

The screenshot shows the AWS CloudWatch Metrics console. The left sidebar has a circular orange highlight around the 'Images' section. At the top, there is a search bar and navigation links for Mumbai and user gnataraj-aws. Below the search bar, there is a summary table for a target group:

Instance	HTTP: 80	HTTP1	vpc-06260e2e0884cfe32
IP address type	Load balancer		
IPv4	my-load-balancer		
Total targets	Healthy: 1	Unhealthy: 0	Unused: 0
1			
Initial	0	0	Draining: 0

Below the summary table, there are tabs for Targets, Monitoring, Health checks, Attributes, and Tags. The Targets tab is selected. The Registered targets section shows one entry:

Instance ID	Name	Port	Zone	Health status	Health status details
i-0af781a8622302e3d		80	ap-south-1b	healthy	

At the bottom of the page, there is a footer with links for Feedback, Unified Settings, and copyright information.

100 Click "EC2 Dashboard"

The screenshot shows the AWS Services navigation bar at the top. Below it is a search bar and a dashboard summary showing 1 total target, all healthy. A sidebar on the left lists various AWS services like Instances, Images, and Elastic Block Store. The 'Instances' section is expanded, showing options like Instances, Instance Types, Launch Templates, and Spot Requests. The 'EC2 Dashboard' link is highlighted with a red circle. The main content area displays a table titled 'Registered targets (1)' with one entry: i-0af781a8622302e3d, port 80, zone ap-south-1b, and health status healthy.

101 Click here.

The screenshot shows the AWS Services navigation bar at the top. Below it is a search bar and a dashboard summary showing 0 instances running. A sidebar on the left lists various AWS services like Instances, Images, and Elastic Block Store. The 'Instances' section is expanded, showing options like Instances, Instance Types, Launch Templates, and Spot Requests. The 'Instances' link is highlighted with a red circle. The main content area displays a table titled 'Resources' showing 0 instances, 0 dedicated hosts, 0 key pairs, 0 placement groups, and 1 volume. A callout box provides information about Microsoft SQL Server Always On availability groups.