



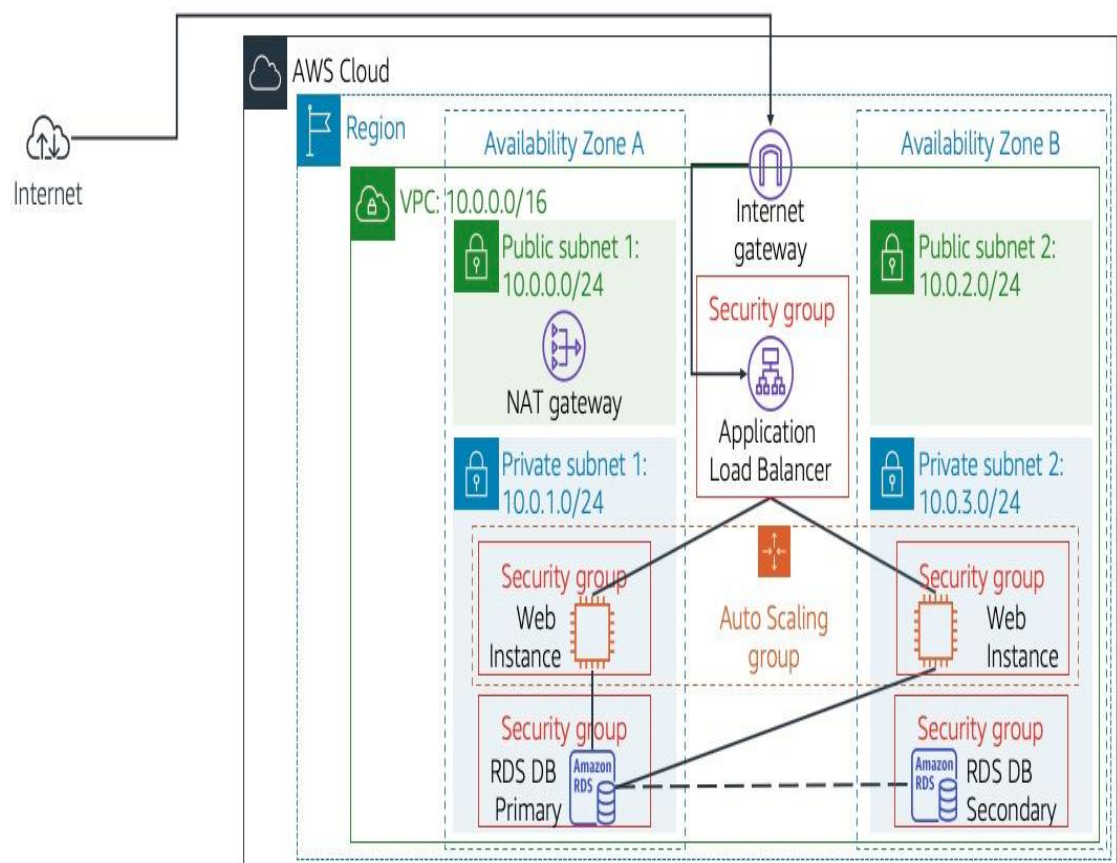
October project

## New project launches In AWS

Hello, my name: Aya Rabih  
working Dev-ops engineering in  
multinational lovely company and  
today we will learn how to Scale and  
Load Balance to web server  
Architecture and Multi AZ RDS.

This project it is so critical to lean it  
and get more info for cloud and  
AWS.

So, in this documentation you will  
find all steps you need it to create it  
with deep details



This project contains the following services.

✚ Create your AWS account or use labs for AWS

to also save your money.

✚ Choose your region you will working it.

✚ Create your VPC to save your resources in it.

✚ Create your availability zone to make scale for  
your resources.

✚ Create 2 public subnet.

✚ Create 2 private subnet.

✚ Attach your internet gateway.

✚ Create Nat gateway.

✚ Create load balancing.

✚ Create autoscaling.

✚ Create templet.

✚ Lunch instance

✚ Lunch RDS my SQL

Create by Aya Rabih

Linked in

GitHub

Project: build your web app in multi zone RDS with high availability

Create ec2 with name application.

EC2 > Instances > i-0f91e3ceaba09e126

Instance summary for i-0f91e3ceaba09e126 (applaction) Info

Updated less than a minute ago

Instance ID

i-0f91e3ceaba09e126 (applaction)

IPv6 address

-

Hostname type

IP name: ip-172-31-44-47.ec2.internal

Answer private resource DNS name

IPv4 (A)

Auto-assigned IP address

54.80.3.24 [Public IP]

IAM Role

-

IMDSv2

Optional

Public IPv4 address

54.80.3.24 [open address]

Instance state

Running

Private IP DNS name (IPv4 only)

ip-172-31-44-47.ec2.internal

Instance type

t2.micro

VPC ID

vpc-01aafb7a67bc2f152

Subnet ID

subnet-05b4e67227891d3aa

Private IPv4 addresses

172.31.44.47

Public IPv4 DNS

ec2-54-80-3-24.compute-1.amazonaws.com [open address]

Elastic IP addresses

-

AWS Compute Optimizer finding

ⓘ

User: arn:aws:sts::499411721216:assumed-role/voclabs/user2680374=21bc4713-96ec-4378-b187-428894bf25eb is not authorized to perform: compute-optimizer:GetEnrollmentStatus on resource: \* because no identity-based policy allows the compute-optimizer:GetEnrollmentStatus action

Retry

Auto Scaling Group name

-

Details

Security

Networking

Storage

Status checks

Monitoring

Tags

▼ Instance details Info

Platform

Ubuntu (Inferred)

Platform details

Linux/UNIX

Stop protection

Disabled

Instance auto-recovery

Default

AMI ID

ami-053b0d53c279acc90

AMI name

ubuntu/images/hvm-ssd/ubuntu-jammy-22.04-amd64-server-20230516

Launch time

Fri Oct 06 2023 21:00:29 GMT+0300 (GMT+03:00) (about 1 hour)

Lifecycle

normal

Monitoring

disabled

Termination protection

Disabled

AMI location

amazon/ubuntu/images/hvm-ssd/ubuntu-jammy-22.04-amd64-server-20230516

Stop-hibernate behavior

Disabled

And after launch it will be like that

Instances (1) Info

Connect

Instance state ▼

Actions ▼

Launch instances ▼

Find Instance by attribute or tag (case-sensitive)

< 1 > ⓘ

Name ↗ ▼

Instance ID

Instance state ▼

Instance type ▼

Status check

Alarm status

Availability Zone ▼

Public IPv4 DNS ▼

Public IPv4 ... ▼

Elastic IP ▼

IPv6 IPs ▼

Monitoring ▼

Security g

applaction

i-0f91e3ceaba09e126

Running

👁👁

t2.micro

2/2 checks passed

No alarms +

us-east-1c

ec2-54-80-3-24.comput...

54.80.3.24

-

-

disabled

default,ec

<

>

Now we will create our database RDS MySQL and link ec2 with it


Choose a database creation method [Info](#)


☒ Standard create  
You set all of the configuration options, including ones for availability, security, backups, and maintenance.


☐ Easy create  
Use recommended best-practice configurations. Some configuration options can be changed after the database is created.


Engine options


Engine type [Info](#)


☐ Aurora (MySQL Compatible)  



☐ Aurora (PostgreSQL Compatible)  


☒ MySQL  


☐ MariaDB  


☐ PostgreSQL  


☐ Oracle  


☐ Microsoft SQL Server  


▼ Hide filters

☒ Show versions that support the Multi-AZ DB cluster [Info](#)  
Create a A Multi-AZ DB cluster with one primary DB instance and two readable standby DB instances. Multi-AZ DB clusters provide up to 2x faster transaction commit latency and automatic failover in typically under 35 seconds.

☒ Show versions that support the Amazon RDS Optimized Writes [Info](#)  
Amazon RDS Optimized Writes improves write throughput by up to 2x at no additional cost.

Engine Version  
MySQL 8.0.33

Templates

Choose a sample template to meet your use case.

☐ Production  
Use defaults for high availability and fast, consistent performance.

☒ Dev/Test  
This instance is intended for development use outside of a production environment.

☐ Free tier  
Use RDS Free Tier to develop new applications, test existing applications, or gain hands-on experience with Amazon RDS. [Info](#)

Availability and durability

Deployment options [Info](#)

The deployment options below are limited to those supported by the engine you selected above.

☒ Single DB instance  
Creates a single DB instance with no standby DB instances.

☐ Multi-AZ DB instance  
Creates a primary DB instance and a standby DB instance in a different AZ. Provides high availability and data redundancy, but the standby DB instance doesn't support connections for read workloads.

☒ Multi-AZ DB Cluster - new  
Creates a DB cluster with a primary DB instance and two readable standby DB instances, with each DB instance in a different

Settings

DB instance identifier [Info](#)

Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

▼ Credentials Settings

Master username [Info](#)

Type a login ID for the master user of your DB instance.

1 to 16 alphanumeric characters. The first character must be a letter.

☐ Manage master credentials in AWS Secrets Manager

Manage master user credentials in Secrets Manager. RDS can generate a password for you and manage it throughout its lifecycle.

[i](#) If you manage the master user credentials in Secrets Manager, some RDS features aren't supported. [Learn more](#)

☐ Auto generate a password

Amazon RDS can generate a password for you, or you can specify your own password.

Master password [Info](#)

Constraints: At least 8 printable ASCII characters. Can't contain any of the following: / (slash), '(single quote), "(double quote) and @ (at sign).

Confirm master password [Info](#)

DB instance class [Info](#)

- ☐ Standard classes (includes m classes)
- ☐ Memory optimized classes (includes r and x classes)
- ☒ Burstable classes (includes t classes)

db.t3.micro

2 vCPUs 1 GiB RAM Network: 2,085 Mbps

☐ Include previous generation classes

Storage

Storage type [Info](#)

General Purpose SSD (gp2)

Baseline performance determined by volume size

Allocated storage [Info](#)

GiB

The minimum value is 20 GiB and the maximum value is 6,144 GiB

[i](#) Provisioning less than 100 GiB of General Purpose (SSD) storage for high throughput workloads could result in higher latencies upon exhaustion of the initial General Purpose (SSD) IO credit balance. [Learn more](#)

[i](#) After you modify the storage for a DB instance, the status of the DB instance will be in storage-optimization. Your instance will remain available as the storage-optimization operation completes. [Learn more](#)



Compute resource

Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.

- ☒ Don't connect to an EC2 compute resource  
Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.
- ☐ Connect to an EC2 compute resource  
Set up a connection to an EC2 compute resource for this database.

Virtual private cloud (VPC) [Info](#)

Choose the VPC. The VPC defines the virtual networking environment for this DB instance.

app-vpc (vpc-0b99cf48dedf48e03) ▼  
1 Subnets, 1 Availability Zones

Only VPCs with a corresponding DB subnet group are listed.

ⓘ After a database is created, you can't change its VPC.

DB subnet group [Info](#)

Choose the DB subnet group. The DB subnet group defines which subnets and IP ranges the DB instance can use in the VPC that you selected.

Create new DB Subnet Group ▼

Public access [Info](#)

- ☐ Yes  
RDS assigns a public IP address to the database. Amazon EC2 instances and other resources outside of the VPC can connect to your database. Resources inside the VPC can also connect to the database. Choose one or more VPC security groups that specify which resources can connect to the database.
- ☒ No  
RDS doesn't assign a public IP address to the database. Only Amazon EC2 instances and other resources inside the VPC can connect to your database. Choose one or more VPC security groups that specify which resources can connect to the database.

VPC security group (firewall) [Info](#)

Choose one or more VPC security groups to allow access to your database. Make sure that the security group rules allow the appropriate incoming traffic.

- ☒ Choose existing  
Choose existing VPC security groups
- ☐ Create new  
Create new VPC security group

Database authentication options [Info](#)

- ☒ Password authentication  
Authenticates using database passwords.
- ☐ Password and IAM database authentication  
Authenticates using the database password and user credentials through AWS IAM users and roles.
- ☐ Password and Kerberos authentication  
Choose a directory in which you want to allow authorized users to authenticate with this DB instance using Kerberos Authentication.

Monitoring

Monitoring

- ☐ Enable Enhanced monitoring  
Enabling Enhanced monitoring metrics are useful when you want to see how different processes or threads use the CPU.

▼ Additional configuration

Database options, encryption turned on, backup turned off, backtrack turned off, maintenance, CloudWatch Logs, delete protection turned off.

Database options

Initial database name [Info](#)

app

If you do not specify a database name, Amazon RDS does not create a database.

DB parameter group [Info](#)

default.mysql8.0 ▼



(default) aws/rds

Account

038601000160

KMS key ID

ee7c47e8-e75c-4a39-91fa-cde3b347db93

Log exports

Select the log types to publish to Amazon CloudWatch Logs

☐ Audit log

☐ Error log

☐ General log

☐ Slow query log

IAM role

The following service-linked role is used for publishing logs to CloudWatch Logs.

RDS service-linked role

Maintenance

Auto minor version upgrade [Info](#)

☐ Enable auto minor version upgrade

Enabling auto minor version upgrade will automatically upgrade to new minor versions as they are released. The automatic upgrades occur during the maintenance window for the database.

Maintenance window [Info](#)

Select the period you want pending modifications or maintenance applied to the database by Amazon RDS.

☐ Choose a window

☒ No preference

Deletion protection

☐ Enable deletion protection

Protects the database from being deleted accidentally. While this option is enabled, you can't delete the database.

You are responsible for ensuring that you have all of the necessary rights for any third-party products or services that you use with AWS services.

Cancel

Create database

RDS > Databases > Set up EC2 connection

Step 1

Set up EC2 connection

Step 2

Review and confirm

Set up EC2 connection [Info](#)

Select EC2 instance

Database

app [↗](#)

EC2 instance

Choose the EC2 instance to connect to this database. Only EC2 instances in the same VPC as the database are shown. If no EC2 instances in the same VPC are available, you can create a new EC2 instance.

i-090b1128083574fee

application us-east-1c

Create EC2 instance [↗](#)

Cancel

Continue

Connected compute resources (0) [Info](#)

Actions ▾

Connections to compute resources that were created automatically by RDS are shown here. Connections to compute resources that were created manually aren't shown.

Q Filter by compute resources

< 1 > ⚙

Resource identifier [↗](#) ▲

Resource type ▾

Availability Zone ▾

VPC security group [↗](#) ▾

Compute resource security group [↗](#) ▾

Connected proxy [↗](#) ▾

No connected compute resources

No connected compute resources that were created automatically to display.

Set up EC2 connection

Set up Lambda connection

Connection summary [Info](#)

You are setting up a connection between RDS database [app](#) and EC2 instance [i-090b1128083574fee](#).

To set up a connection between the database and the EC2 instance, VPC security group *rds-ec2-1* is added to the database, and VPC security group *ec2-rds-1* is added to the EC2 instance.



**Bold** indicates an addition being made to set up a connection.

Changes to RDS database: **app**

Attribute	Current value	New value
Security group	default	default, <b>rds-ec2-1</b>

Connected compute resources (1) [Info](#)

Connections to compute resources that were created automatically by RDS are shown here. Connections to compute resources that were created manually aren't shown.

Resource identifier <a href="#">↗</a>	Resource type <a href="#">▼</a>	Availability Zone <a href="#">▼</a>	VPC security group <a href="#">↗</a> <a href="#">▼</a>	Compute resource security group <a href="#">↗</a> <a href="#">▼</a>	Connected proxy <a href="#">↗</a> <a href="#">▼</a>
<a href="#">i-090b1128083574fee</a>	EC2 instance	<a href="#">us-east-1c</a>	<a href="#">rds-ec2-1</a>	<a href="#">ec2-rds-1</a>	-

Proxies (0)

Now we will create image form our ec2 instance

New EC2 Experience

EC2 Dashboard

EC2 Global View

Events

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Images

AMIs

AMI Catalog

Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

Network & Security

Security Groups

Elastic IPs

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

<input checked="" type="checkbox"/>	Name <a href="#">↗</a>	Instance ID	Instance state <a href="#">▼</a>	Instance type <a href="#">▼</a>	Status check	Alarm status	Availability Zone <a href="#">▼</a>	Public IPv4 DNS <a href="#">▼</a>	Public IPv4 ... <a href="#">▼</a>	Elastic IP <a href="#">▼</a>	IPv6 IPs <a href="#">▼</a>	Monitoring <a href="#">▼</a>	Secu...
<input checked="" type="checkbox"/>	ai...	09e126	Running	t2.micro	2/2 checks passed	No alarms	us-east-1c	ec2-54-80-3-24.comput...	54.80.3.24	-	-	disabled	defau...

Launch instances

Launch instance from template

Migrate a server

Connect

Stop instance

Start instance

Reboot instance

Hibernate instance

Terminate instance

Instance settings

Networking

Security

Image and templates

Monitor and troubleshoot

Create image

Create template from instance

Launch more like this

And this steps to create image

aws

Services

Search

[Alt+S]

Instance ID

i-0f91e3ceaba09e126

(applaction)

Image name

image-ec2

Maximum 127 characters. Can't be modified after creation.

Image description - optional

image-ec2

Maximum 255 characters

No reboot

☐ Enable

Instance volumes

Storage type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on termination	Encrypted
EBS	/dev/...	Create new snapshot fr...	8	EBS General Purpose S...	100		<input checked="" type="checkbox"/> Enable	<input type="checkbox"/> Enable

Add volume

During the image creation process, Amazon EC2 creates a snapshot of each of the above volumes.

Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

☒ Tag image and snapshots together

Tag the image and the snapshots with the same tag.

☐ Tag image and snapshots separately

Tag the image and the snapshots with different tags.

No tags associated with the resource.

Add new tag

You can add up to 50 more tags.

Cancel

Create image

And after create it will be like that

aws

Services

telephony

N. Virginia

voclabs/user2680374+21bc4713-96ec-4378-b187-428894bf25eb @ 49...

EC2 Dashboard

EC2 Global View

Events

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

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

Network Interfaces

Load Balancing

Load Balancers

Target Groups

Auto Scaling

Amazon Machine Images (AMIs) (1/1)

Info

Owned by me

Find AMI by attribute or tag

Recycle Bin

EC2 Image Builder

Actions

Launch instance from AMI

<input checked="" type="checkbox"/>	Name	AMI ID	AMI name	Source	Owner	Visibility	Status	Creation date	Platform	Root
<input checked="" type="checkbox"/>	image-ec2	ami-01203cb4e1056b170	image-ec2	499411721216/image-ec2	499411721216	Private	Available	2023/10/06 22:13 GMT+3	Linux/UNIX	ebs

AMI ID: ami-01203cb4e1056b170 (image-ec2)

Details

Permissions

Storage

Tags

AMI ID	ami-01203cb4e1056b170 (image-ec2)	Image type	machine	Platform details	Linux/UNIX	Root device type	EBS
AMI name	image-ec2	Owner account ID	499411721216	Architecture	x86_64	Usage operation	RunInstances
Root device name	/dev/sda1	Status	Available	Source	499411721216/image-ec2	Virtualization type	hvm
Boot mode	-	State reason	-	Creation date	Fri Oct 06 2023 22:13:23 GMT+0300 (GMT+03:00)	Kernel ID	-
Description	image-ec2	Product codes	-	RAM disk ID	-	Deprecation time	-
Last launched time	-	Block devices	/dev/sda1=snap-01fc423af873bc28d:8:true:gp2 /dev/sdb=ephemeral0 /dev/sdc=ephemeral1				





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*

templet-ec2

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

Template version description

templet-ec2

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

Key [Info](#)

Value [Info](#)

Q Name X

Q templet-ec2 X

Remove tag

Add new tag

You can add up to 49 more tags.

► Source template

▼ Summary

Software Image (AMI)

Canonical, Ubuntu, 22.04 LTS, ...[read more](#)

ami-053b0d53c279acc90

Virtual server type (instance type)

t2.micro

Firewall (security group)

rds-ec2-1

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel

Create launch template

Launch template contents

Specify the details of your launch template below. Leaving a field blank will result in the field not being included in the launch template.

▼ 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

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

Recents

My AMIs

Quick Start

☐ Don't include in launch template

☒ Owned by me

☐ Shared with me

[Browse more AMIs](#)

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

image-ec2

ami-01203cb4e1056b170

2023-10-06T19:13:23.000Z

Virtualization: hvm

ENA enabled: true

Root device type: ebs

Description

image-ec2

Architecture

AMI ID

x86\_64

ami-01203cb4e1056b170

▼ Summary

Software Image (AMI)

image-ec2

ami-01203cb4e1056b170

Virtual server type (instance type)

t2.micro

Firewall (security group)

rds-ec2-1

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel

Create launch template

▼ Instance type Info

Advanced

Instance type

t2.micro

Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true  
On-Demand Windows base pricing: 0.0162 USD per Hour  
On-Demand SUSE base pricing: 0.0116 USD per Hour  
On-Demand RHEL base pricing: 0.0716 USD per Hour  
On-Demand Linux base pricing: 0.0116 USD per Hour

☒ All generations

[Compare instance types](#)

Additional costs apply for AMIs with pre-installed software

▼ Key pair (login) Info

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

data

[Create new key pair](#)

▼ Network settings Info

Subnet Info

Don't include in launch template

[Create new subnet](#)

When you specify a subnet, a network interface is automatically added to your template.

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

Select security groups

ec2-rds-1

sg-0ac3a98bd9a526e95



VPC: vpc-01aafb7a67bc2f152

[Compare security group rules](#)

► Advanced network configuration

▼ Storage (volumes) Info

EBS Volumes

[Hide details](#)



Volume 1 (AMI Root) (8 GiB, EBS, General purpose SSD (gp2))

AMI Volumes are not included in the template unless modified



Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage



Add new volume

The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance

Now after adding all steps to create templet will be like that

Launch Templates (1) Info

Search

< 1 >

Launch Template ID

Launch Template Name

Default Version

Latest Version

Create Time

Created By

lt-0e5e6c2d4f4e4facf

templet-ec2

1

1

2023-10-06T19:23:26.000Z

arn:aws:sts:499411721216:assumed-role/voclabs/user/voclabs/user2680374=21bc4713-96ec-4378-b187-428894bf25eb

Now we will create target group

EC2 > Target groups

Target groups Info

Filter target groups

Name

ARN

Port

Protocol

Target type

Load balancer

VPC ID

No target groups  
You don't have any target groups in us-east-1  
Create target group

0 target groups selected  
Select a target group above.

Now this steps to create our target group

EC2 > Target groups > Create target group

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 on the targets.

Basic configuration

Settings in this section can't 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.

Lambda function

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

ec2-tg

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

1-65535

IP address type

target group name

ec2-tg

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

Protocol

HTTP

Port

80

1-65535

IP address type

Only targets with the indicated IP address type can be included in this target group.

☒ IPv4

Each instance has a default network interface (eth0) that is assigned the primary private IPv4 address. The instance's primary private IPv4 address is the one that will be applied to the target.

☐ IPv6

Each target you register must have an assigned primary IPv6 address. This is configured on the instances default network interface (eth0). [Learn more](#)

VPC

Select the VPC with the instances that you want to include in the target group. Only VPCs that support the IP address type selected above are available in this list.

-

vpc-01aafb7a67bc2f152

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.

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.

/

▼ Tags - optional

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

Key

name

Value

tg-ec2

Remove

Add new tag

You can add up to 49 more tags.

Cancel

Next

And after creating all steps will be like that below

Successfully created target group: tg-ec2

EC2 > Target groups

Target groups (1) Info

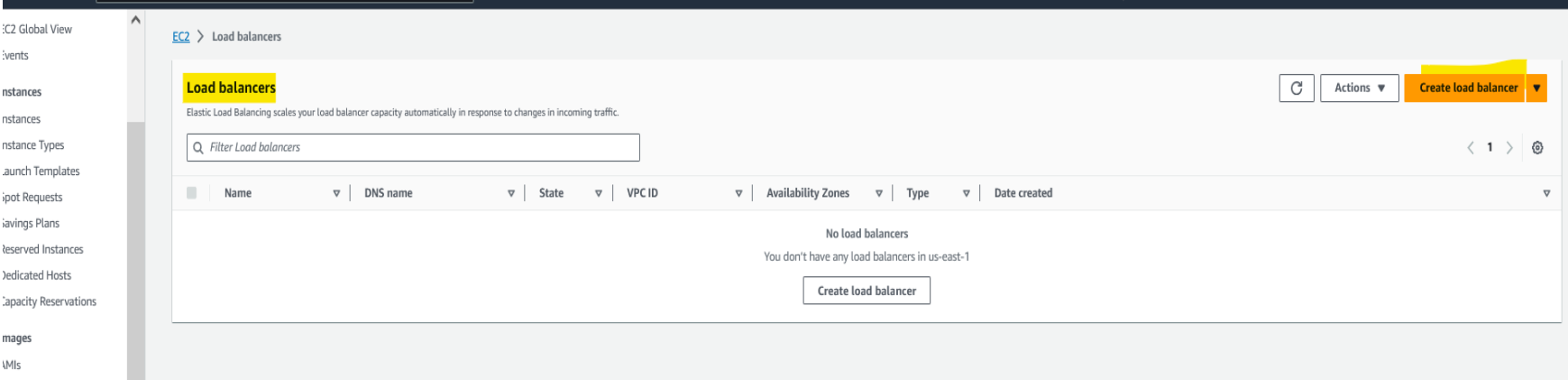
Filter target groups

< 1 > ⚙

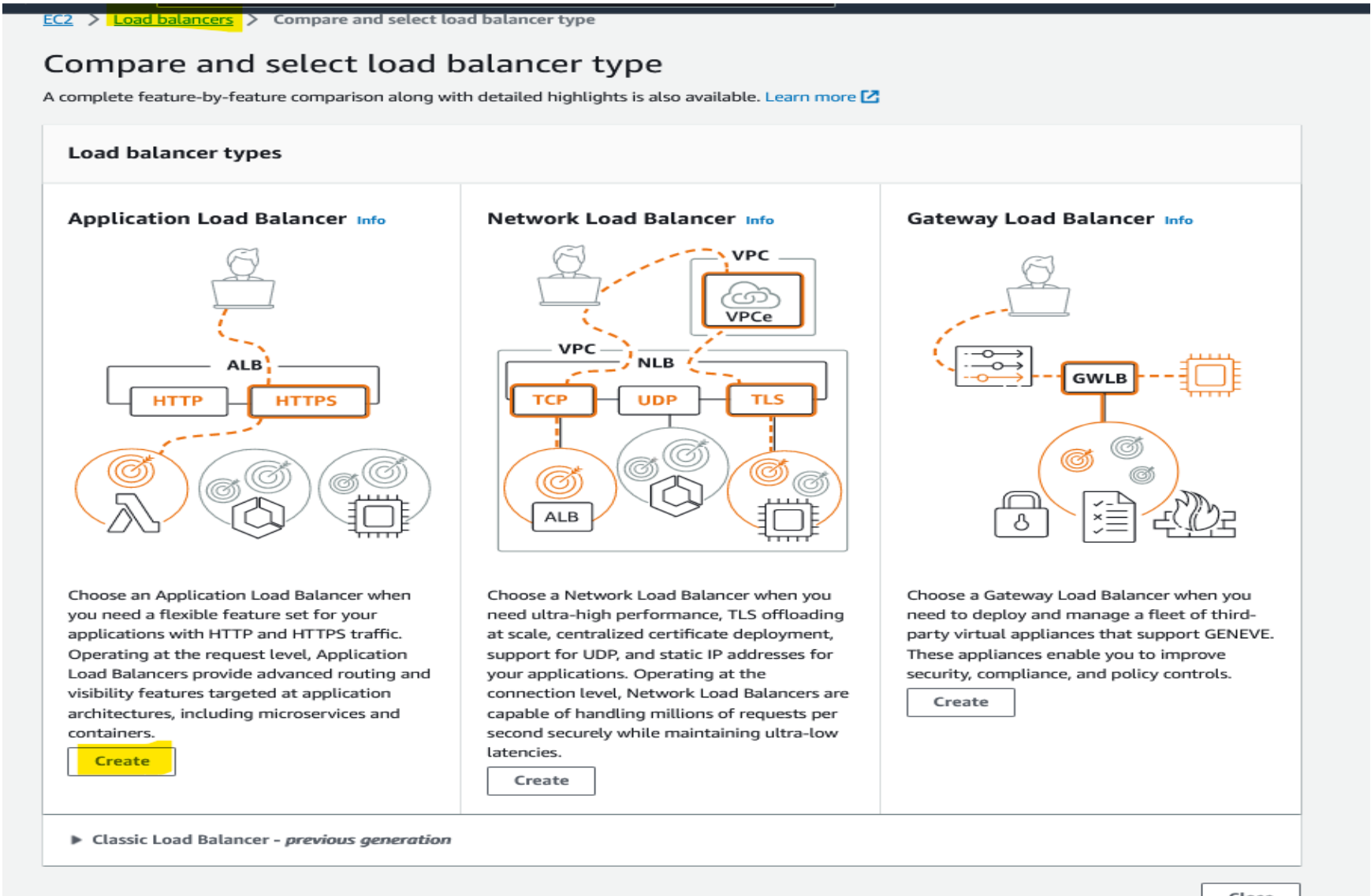
<input type="checkbox"/>	Name	ARN	Port	Protocol	Target type	Load balancer	VPC ID
<input type="checkbox"/>	tg-ec2	arn:aws:elasticloadbalanci...	80	HTTP	Instance	<a href="#">None associated</a>	vpc-01aafb7a67bc2f152



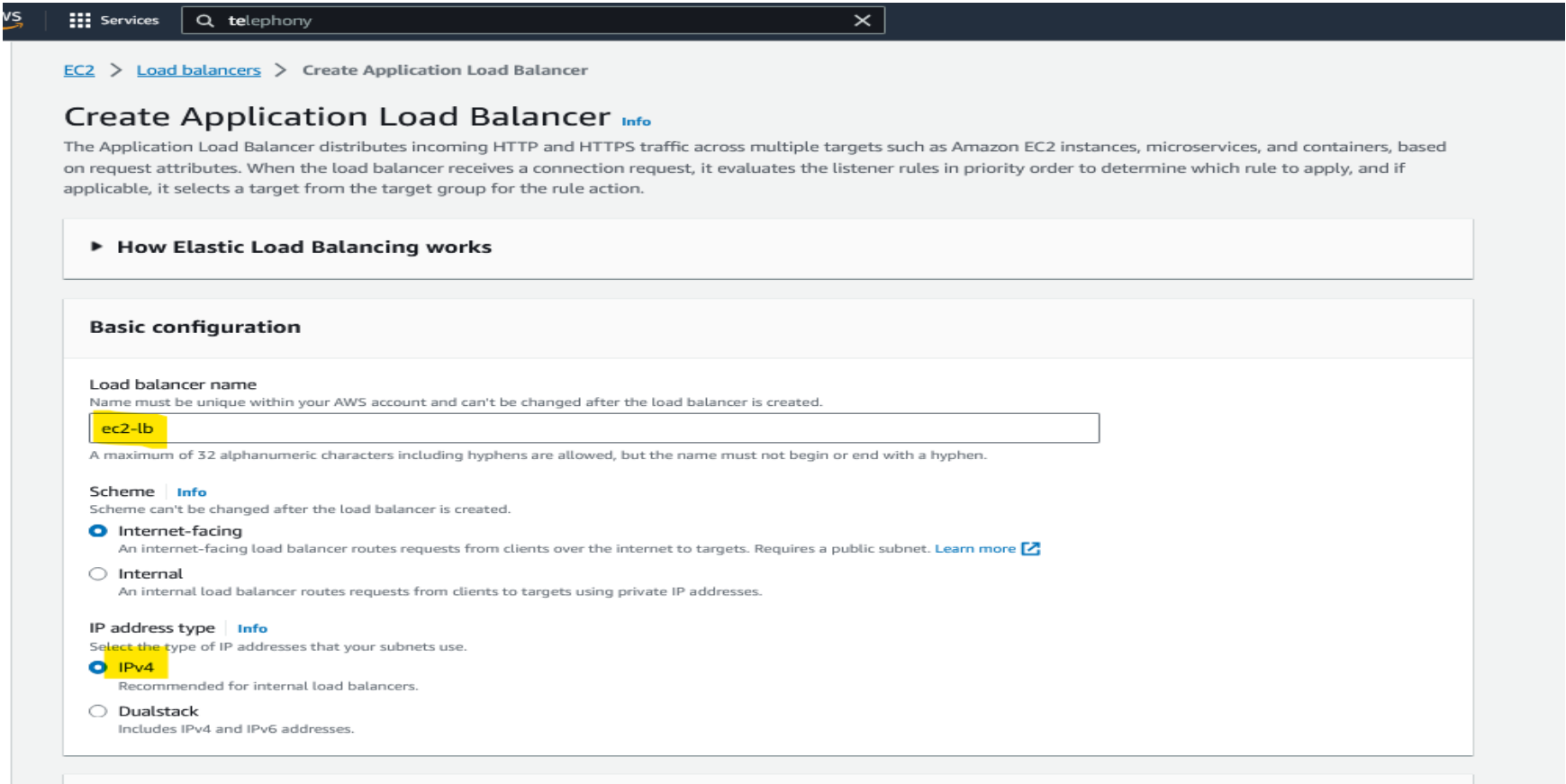
Now we will create load balance.



And this steps to create load balance.



We will create application load balancer.



Network mapping [Info](#)

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

VPC [Info](#)

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

vpc-01aafb7a67bc2f152  
IPv4: 172.31.0.0/16



Mappings [Info](#)

Select at least two Availability Zones and one subnet per zone. The load balancer routes traffic to targets in these Availability Zones only. Availability Zones that are not supported by the load balancer or the VPC are not available for selection.

☐ us-east-1a (use1-az2)

☐ us-east-1b (use1-az4)

☒ us-east-1c (use1-az6)

Subnet

subnet-05b4e67227891d3aa

IPv4 address

Assigned by AWS

☐ us-east-1d (use1-az1)

☐ us-east-1e (use1-az3)

☐ us-east-1f (use1-az5)

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-00db8700affe65499 VPC: vpc-01aafb7a67bc2f152

Listeners and routing [Info](#)

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

Remove

Add listener

▶ Add-on services - optional

Additional AWS services can be integrated with this load balancer at launch. You can also add these and other services after your load balancer is created by reviewing the "Integrated Services" tab for the selected load balancer.

▶ Load balancer tags - optional

Consider adding tags to your load balancer. Tags enable you to categorize your AWS resources so you can more easily manage them. The 'Key' is required, but 'Value' is optional. For example, you can have Key = production-webserver, or Key = webserver, and Value = production.

Summary

Review and confirm your configurations. [Estimate cost](#)

Basic configuration [Edit](#)

Security groups [Edit](#)

Network mapping [Edit](#)

Listeners and routing [Edit](#)

### Listeners and routing [Info](#)

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

[Remove](#)

##### Protocol

[HTTP](#)

##### Port

:

80

1-65535

##### Default action

[Info](#)

Forward to

[tg-ec2](#)

HTTP

Target type: Instance, IPv4

[Create target group](#)

#### Listener tags - optional

Consider adding tags to your listener. Tags enable you to categorize your AWS resources so you can more easily manage them.

[Add listener tag](#)

You can add up to 50 more tags.

[Add listener](#)

And after create load balance will be like that

aws

Services

telephony

EC2 > Load balancers

Load balancers (1/1)

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

Filter Load balancers

<input checked="" type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
<input checked="" type="checkbox"/>	lb-ec2	lb-ec2-824727636.us-east-1.elb.amazonaws.com	Provisioning	vpc-01aafb7a67bc2f152	2 Availability Zones	application	October 6, 2023, 22:44 (UTC+03:00)

Load balancer: lb-ec2

Details

Listeners and rules

Network mapping

Security

Monitoring

Integrations

Attributes

Tags

Details

Load balancer type

Application

Status

Provisioning

VPC

vpc-01aafb7a67bc2f152

IP address type

IPv4

Scheme

Internet-facing

Hosted zone

Z3SSXDOTRQ7X7K

Availability Zones

subnet-0f57f280dc6c631e us-east-1a (use1-az2)  
subnet-05ec7d763384982cb us-east-1b (use1-az4)

Date created

October 6, 2023, 22:44 (UTC+03:00)

Load balancer ARN

arn:aws:elasticloadbalancing:us-east-1:499411721216:loadbalancer/app/lb-ec2/95e1bb39be7ca23c

DNS name

lb-ec2-824727636.us-east-1.elb.amazonaws.com (A Record)

Now we will create auto scaling

aws

Services

telephony

Amazon EC2 Auto Scaling

helps maintain the availability of your applications

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.

Create Auto Scaling group

Get started with EC2 Auto Scaling by creating an Auto Scaling group.

Create Auto Scaling group

How it works

Auto Scaling group

Minimum size

Scale out as needed

Desired capacity

Maximum size

An Auto Scaling group is a collection of Amazon EC2 instances that are treated as a logical unit. You configure settings for a group and its instances as well as define the group's minimum, maximum, and desired capacity. Setting different minimum and maximum capacity values forms the bounds of the group, which allows the group to scale as the load on your application spikes higher or lower, based on demand. To scale the Auto Scaling group, you can either make manual adjustments to the desired capacity or let Amazon EC2 Auto Scaling automatically add and remove capacity to meet changes in demand.

When launching fleets of instances, you can specify what percentage of your capacity should be fulfilled by On-Demand instances, and what percentage with Spot Instances, to save up to 90% on EC2 costs. Amazon EC2 Auto Scaling lets you provision and balance capacity across Availability Zones to optimize availability. It also provides lifecycle hooks, instance health checks, and scheduled scaling to automate capacity management.

Pricing

Amazon EC2 Auto Scaling features have no additional fees beyond the service fees for Amazon EC2, CloudWatch (for scaling policies), and the other AWS resources that you use. Visit the pricing page of each service to learn more.

Getting started

What is Amazon EC2 Auto Scaling?

Getting started with Amazon EC2 Auto Scaling

Set up a scaled and load-balanced application

FAQ

Now will create auto scaling group.

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

Step 7

Review

you currently use launch configurations, you might consider migrating to launch templates.

Name

Auto Scaling group name

Enter a name to identify the group.

ec2-autoscalling

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

Launch template

Info

Switch to launch configuration

Launch template

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

templet-ec2

Create a launch template

Version

Default (1)

Create a launch template version

Description

templet-ec2

AMI ID

ami-01203cb4e1056b170

Key pair name

data

Launch template

templet-ec2

lt-0e5e6c2d4f4e4facf

Security groups

-

Security group IDs

sg-0ac3a98bd9a526e95

Instance type

t2.micro

Request Spot Instances

No

Additional details

Storage (volumes)

-

Date created

Fri Oct 06 2023 22:23:26 GMT+0300 (GMT+03:00)

Cancel

Next

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.

Reset to launch template

Specify instance attributes

Provide your compute requirements. We fulfill your desired capacity with matching instance types based on your allocation strategy selection.

Manually add instance types

Add one or more instance types. Any of the instance types may be launched to fulfill your desired capacity based on your allocation strategy selection.

Required instance attributes

Enter your compute requirements in virtual CPUs (vCPUs) and memory.

vCPUs

Enter the minimum and maximum number of vCPUs per instance.

0

minimum

60

maximum

No minimum

No maximum

Memory (GiB)

Enter the minimum and maximum GiBs of memory per instance.

0

minimum

80

maximum

No minimum

No maximum

Additional instance attributes - optional

Add instance attributes to further limit which instance types may be used to fulfill your desired capacity.

Choose attribute

Add attribute

Preview matching instance types (330)

This list includes all the instance types that match your compute requirements. Amazon EC2 may provision from any of these instance types. The exact instance types that are used to fulfill your desired capacity depend on the allocation strategy you choose and available capacity.

- 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
- Step 7  
Review

## Configure advanced options - optional [Info](#)

Integrate your Auto Scaling group with other services to distribute network traffic across multiple servers using a load balancer or to establish service-to-service communications using VPC Lattice. You can also set options that give you more control over 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.

☐ 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

tg-ec2 | HTTP  
Application Load Balancer: lb-ec2

X

↻

## Health checks

Health checks increase availability by replacing unhealthy instances. When you use multiple health checks, all are evaluated, and if at least one fails, instance replacement occurs.

EC2 health checks  
[i](#) Always enabled

### Additional health check types - optional [Info](#)

☒ Turn on Elastic Load Balancing health checks **Recommended**

Elastic Load Balancing monitors whether instances are available to handle requests. When it reports an unhealthy instance, EC2 Auto Scaling can replace it on its next periodic check.

[i](#)

EC2 Auto Scaling will start to detect and act on health checks performed by Elastic Load Balancing. To avoid unexpected terminations, first verify the settings of these health checks in the [Load Balancer console](#) [↗](#)

X

☐ Turn on VPC Lattice health checks

VPC Lattice can monitor whether instances are available to handle requests. If it considers a target as failed a health check, EC2 Auto Scaling replaces it after its next periodic check.

### Health check grace period [Info](#)

This time period delays the first health check until your instances finish initializing. It doesn't prevent an instance from terminating when placed into a non-running state.

300 seconds



EC2 > Auto Scaling groups > Create Auto Scaling group

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

Step 7  
Review

Configure group size and scaling policies - optional [Info](#)

Set the desired, minimum, and maximum capacity of your Auto Scaling group. You can optionally add a scaling policy to dynamically scale the number of instances in the group.

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 type

Choose the unit of measurement for the desired capacity value.

vCPUs

Desired capacity

1

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

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](#)

300 seconds

☐ Disable scale in to create only a scale-out policy

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

Skip to review

Previous

Next

After you create your steps, you will find that your instance has high availability.

And if get any CPU saturation high 60 % will recover your drop instance and create another

Also, if your instance will terminate will create another instance without any issue.