

Project 1

Configure and Connect a MySQL Database Instance with a Web Server

Project 1

20220116 7:00pm CST Submitted Project 1.

The screenshot shows a learning platform interface. At the top, it displays "PG CC - AWS Solutions Architect SAA C02", "1 Class completed | 61% Self-Learning Videos Watched | 0/2 Projects Done", and navigation icons for Community, Help, and Notes. On the left, a sidebar lists categories: SELF LEARNING, LIVE CLASSES, PRACTICE LABS, ASSESSMENT, and CERTIFICATE. The main area shows an "Assessment" section with a requirement: "Minimum 1 project and 1 test must be completed/passed as a part of certification unlocking criteria." Below this, "Project 1" is listed with the title "Configure and Connect a MySQL Database Instance with a Web Server" and a "Gradable" button. "Project 2" is listed below it with the title "Set Up a WordPress Instance for Your Organization" and a "Gradable" button. At the bottom, "Test 1" is listed with the title "AWS solution Assessment 1" and a "Passed" status. A modal window for "Project 1" is open, stating "Your project is under assessment. You will hear from us soon." It also includes a satisfaction survey section with a 5-star rating and a "NEXT" button. The "DESCRIPTION" section at the bottom explains the task: "You are working as a database administrator for an IT firm. You have been asked to create a new database instance on AWS cloud and connect it with the employee management portal hosted on a web server."

DESCRIPTION

You are working as a database administrator for an IT firm. You have been asked to create a new database instance on AWS cloud and connect it with the employee management portal hosted on a web server.

Background of the problem statement:

Your organization wants to deploy a new multi-tier application. The application will take live inputs from the employees and it will be hosted on a web server running on the AWS cloud.

The development team has asked you to set up the web server and configure it to scale automatically in cases of a traffic surge, to make the application highly available. They have also asked you to take the inputs from the employees and store them securely in the database.

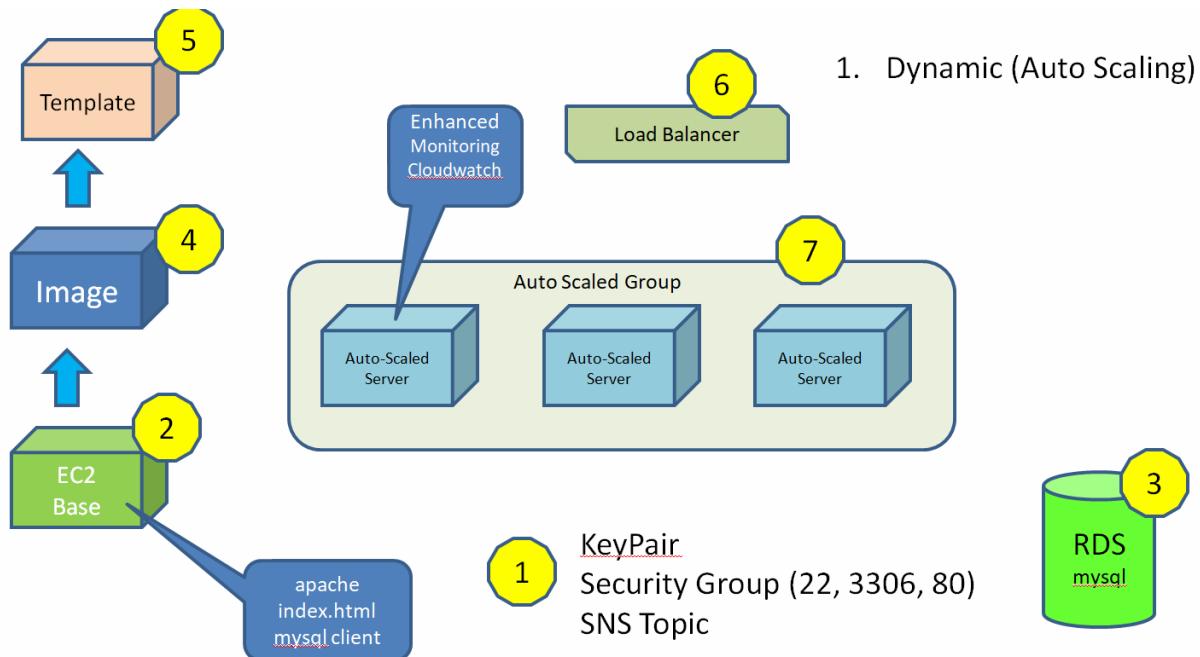
You must use the following:

- Create a Database Instance with the following specifications:
 - Database creation method: Standard Create
 - Engine: MySQL
 - Database Instance size: db.t2.micro
- Create an EC2 Instance with the following specifications:

- AMI: Amazon Linux
- Region: Use only US East (N Virginia), us-east-1, and us-east-2
- Instance types: t2.micro and t3.micro
- Allowed EBS types: GP2 and Standard

Following requirements should be met:

- Follow the above-mentioned specifications
- Make sure that the Availability Zone is similar throughout the instances and volumes
- Ensure that the server scales automatically and the traffic is optimally routed among the scaled servers
- Document the step-by-step process involved in completing this task



1. Key pair, security Group (22, 3306, 80)

You've been invited to try an early, beta iteration of the new launch instance wizard. We will continue to improve the experience over the next few months. We're asking customers for their feedback on this early release. To exit the new launch instance wizard at any time, choose the **Cancel** button.

Step 1: Choose an Amazon Machine Image (AMI)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. Learn more about instance types and how they can meet your computing needs.

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

User data

As text As file Input is already base64 encoded

```
#!/bin/bash
sudo yum install mysql -y
sudo yum install httpd -y
sudo service httpd start
sudo echo "<h1>My Website on AWS EC2 Linux</h1>" >/var/www/html/index.html
```

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.

A copy of a tag can be applied to volumes, instances or both.

Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key (128 characters maximum)	Value (256 characters maximum)	Instances (i)	Volumes (i)	Network Interfaces (i)
Name	Project base Server	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Add another tag (Up to 50 tags maximum)				

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group: Create a new security group
 Select an existing security group

Security group name: Project Firewall

Description: launch-wizard-1 created 2022-01-15T19:50:40.649-06:00

Type (i)	Protocol (i)	Port Range (i)	Source (i)	Description (i)
SSH	TCP	22	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop
HTTP	TCP	80	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop
MYSQL/Aurora	TCP	3306	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop

[Add Rule](#)

Step 7: Review Instance Launch

AMI Details

 **Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type - ami-08e4e35cccc6189f4**
 Free tier eligible Amazon Linux 2 comes with five years support. It provides Linux kernel 5.10 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras. This AMI is the successor of the Amazon Linux AMI that is n...

Root Device Type: ebs Virtualization type: hvm

[Edit AMI](#)

Instance Type

[Edit instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	-	1	1	EBS only	-	Low to Moderate

Security Groups

[Edit security groups](#)

Security group name: Project Firewall
 Description: launch-wizard-1 created 2022-01-16T17:13:13.613-06:00

Type (i)	Protocol (i)	Port Range (i)	Source (i)	Description (i)
SSH	TCP	22	0.0.0.0/0	
HTTP	TCP	80	0.0.0.0/0	
MYSQL/Aurora	TCP	3306	0.0.0.0/0	

Instance Details

[Edit instance details](#)

Storage

[Edit storage](#)

Tags

[Edit tags](#)

Select an existing key pair or create a new key pair

X

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance. Amazon EC2 supports ED25519 and RSA key pair types.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Create a new key pair

Key pair type
 RSA ED25519

Key pair name
project key

Download Key Pair

Tip: You have to download the **private key file** (*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

Cancel

Launch Instances

Name	Instance ID	Instance state	Instan...	Status c...	Alarm status	Availab...	Public IPv4 DNS	Public IPv4 ...
Project base Server	i-0c8c1c0...	Running	t2.micro	-	No alarms	+ us-east-1c	ec2-34-205-16-66.compute-1.amazonaws.com	34.205.16.66

SNS Topic

Create topic

Details

Type **Info**
Topic type cannot be modified after topic is created

Standard
• Best-effort message ordering
• At-least once message delivery
• Highest throughput in publishes/second
• Subscription protocols: SQS, Lambda, HTTP, SMS, email, mobile application endpoints

FIFO (first-in, first-out)
• Strictly-preserved message ordering
• Exactly-once message delivery
• High throughput, up to 300 publishes/second
• Subscription protocols: SQS

Name
MyProject-SNS-Topic

Topic MyProject-SNS-Topic created successfully.
You can create subscriptions and send messages to them from this topic.

MyProject-SNS-Topic

Details

Name
MyProject-SNS-Topic

Display name
-

ARN
arn:aws:sns:us-east-1:268016126308:MyProject-SNS-Topic

Topic owner
268016126308

Type
Standard

Subscriptions | Access policy | Delivery retry policy (HTTP/S) | Delivery status logging | Encryption | Tags

Subscriptions (0) Edit Delete Request confirmation Confirm subscription Create subscription

2. EC2 Project base server

Instances (1) Info

Name	Instance ID	Instance state	Inst...	Status check	Alarm status	Availab...	Public IPv4 DNS
Project base Server	i-0c8c1c0b40c53d0bd	Running	t2.micro	2/2 checks passed...	No alarms	us-east-1c	ec2-34-205-16-66.compute-1.amazonaws.com

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

Name	Instance ID	Instance state	Status check	Alarm status	Available	Public IPv4 DNS
Project base Server	i-0c8c1c0b40c53d0bd	Running	2/2 checks passed...	No alarms	us-east-1c	ec2-34-205-16-66.compute-1.amazonaws.com

Instance: i-0c8c1c0b40c53d0bd (Project base Server)

[Details](#) [Security](#) [Networking](#) [Storage](#) [Status checks](#) [Monitoring](#) [Tags](#)

Instance summary [Info](#)

Instance ID	i-0c8c1c0b40c53d0bd (Project base Server)	Public IPv4 address	34.205.16.66 open address
IPv6 address	-	Instance state	Running

Private IPv4 addresses
172.31.87.242

Public IPv4 DNS
ec2-34-205-16-66.compute-1.amazonaws.com | [open address](#)

Not secure | 34.205.16.66

My Website on AWS EC2 Linux

3. RDS mysql:

We listened to your feedback! Now, create a database with a single click using our pre-built configurations! Or choose your own configurations. [Switch to your original interface.](#)

RDS > Create database

Create database

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](#)

Amazon Aurora

MySQL

MariaDB

The screenshot shows the AWS RDS MySQL creation wizard. It has three main sections: Deployment Options, Availability and durability, and Settings.

Deployment Options:

- 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.

- Multi-AZ DB cluster - preview (not supported for this version)
Creates a DB cluster with a primary DB instance and two readable standby DB instances, with each DB instance in a different Availability Zone (AZ). Provides high availability, data redundancy and increases capacity to serve read workloads.
- Multi-AZ DB instance (not supported for Multi-AZ DB cluster snapshot)
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.
- Single DB instance (not supported for Multi-AZ DB cluster snapshot)
Creates a single DB instance with no standby DB instances.

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.

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. First character must be a letter.

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 password [Info](#)

DB instance class

DB instance class [Info](#)

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

db.t2.micro

1 vCPUs 1 GiB RAM Not EBS Optimized

Include previous generation classes

Storage

Storage type [Info](#)

General Purpose SSD (gp2)

Baseline performance determined by volume size

Allocated storage

20

GiB

(Minimum: 20 GiB. Maximum: 16,384 GiB) Higher allocated storage [may improve](#) IOPS performance.

Storage autoscaling [Info](#)

Provides dynamic scaling support for your database's storage based on your application's needs.

Enable storage autoscaling

Enabling this feature will allow the storage to increase once the specified threshold is exceeded.

Connectivity



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

VPC that defines the virtual networking environment for this DB instance.

Default VPC (vpc-04d679b48dc0779d8)



Only VPCs with a corresponding DB subnet group are listed.

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

Subnet group [Info](#)

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

default



Public access [Info](#)

Yes

Amazon EC2 instances and devices outside the VPC can connect to your database. Choose one or more VPC security groups that specify which EC2 instances and devices inside the VPC can connect to the database.

No

RDS will not assign a public IP address to the database. Only Amazon EC2 instances and devices inside the VPC can connect to your database.

VPC security group

Choose a VPC security group to allow access to your database. Ensure that the security group rules allow the appropriate incoming traffic.

Choose existing

Choose existing VPC security groups

Create new

Create new VPC security group

Existing VPC security groups

Choose VPC security groups



Project Firewall

Availability Zone [Info](#)

No preference



► Additional configuration

Database authentication

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.

▶ **Additional configuration**
Database options, backup enabled, backtrack disabled, Enhanced Monitoring disabled, maintenance, CloudWatch Logs, delete protection disabled.

Estimated monthly costs

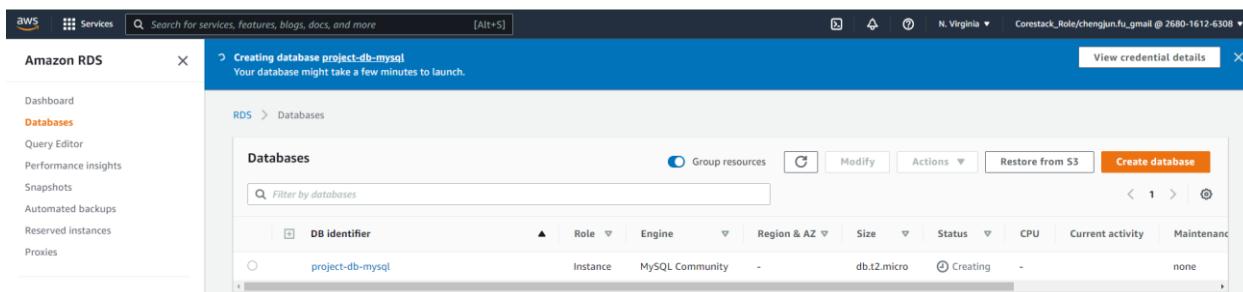
The Amazon RDS Free Tier is available to you for 12 months. Each calendar month, the free tier will allow you to use the Amazon RDS resources listed below for free:

- 750 hrs of Amazon RDS in a Single-AZ db.t2.micro Instance.
- 20 GB of General Purpose Storage (SSD).
- 20 GB for automated backup storage and any user-initiated DB Snapshots.

[Learn more about AWS Free Tier.](#)

When your free usage expires or if your application use exceeds the free usage tiers, you simply pay standard, pay-as-you-go service rates as described in the [Amazon RDS Pricing page](#).

ⓘ 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.



4. Image:

Screenshot of the AWS EC2 Instances page showing a single instance named "Project base Server" (Instance ID: i-0c8c1c0b40c53d0bd) in the "Running" state.

A modal dialog titled "Stop instance?" is displayed, listing the instance ID "i-0c8c1c0b40c53d0bd" and asking for confirmation to stop the instance.

The "Stop" button is highlighted in orange.

After confirming, the instance status changes to "Stopping".

Finally, the instance is successfully stopped, showing a green success message and the status as "Stopped".

In the bottom right corner of the main EC2 Instances page, a context menu is open for the stopped instance, showing options like "Create image", "Image and templates", and "Monitor and troubleshoot".

Create image [Info](#)

An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

Instance ID
 i-0c8c1c0b40c53d0bd (Project base Server)

Image name

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

Image description - optional

 Maximum 255 characters

No reboot
 Enable

Instance volumes

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

[Add volume](#)

i 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 tag](#)
 You can add 50 more tags.

[Cancel](#) [Create image](#)

New EC2 Experience [Tell us what you think](#)

Amazon Machine Images (AMIs) [Info](#)

Owned by me [Search](#)

Name	AMI ID	AMI name	Source	Owner	Visibility	Status	Creation date	Platform	Root
-	ami-0c9f6c2z6853d56fb	Project AMI	268016126308/Project AMI	268016126308	Private	Pending	2022/01/16 17:47 GMT-6	Linux/UNIX	ebs

[Actions](#) [Launch instance from image](#)

Select an AMI

The screenshot shows the AWS EC2 service interface under the 'Amazon Machine Images (AMIs)' section. A single AMI entry is listed:

Name	AMI ID	AMI name	Source	Owner	Visibility	Status	Creation date	Platform
ami-0c9f6c2c6853d56fb	Project AMI	268016126308/Project AMI	268016126308	Private	Pending	2022/01/16 17:47 GMT-6	Linux	

The screenshot shows the same AWS EC2 service interface under the 'Amazon Machine Images (AMIs)' section. The AMI entry now has a green 'Available' status:

Name	AMI ID	AMI name	Source	Owner	Visibility	Status	Creation date	Platform
ami-0c9f6c2c6853d56fb	Project AMI	268016126308/Project AMI	268016126308	Private	Available	2022/01/16 17:47 GMT-6	Linux/UNIX	

5. Template:

The screenshot shows the AWS Compute service interface under the 'EC2 launch templates' section. It features a central heading 'EC2 launch templates' and sub-sections for 'Streamline, simplify and standardize instance launches' and 'Benefits and features'. On the right, there's a 'New launch template' button and documentation links.

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*

Project-Template

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

Template version description

v1

Max 255 chars

Auto Scaling guidance [Info](#)

Select this if you intend to use this template with EC2 Auto Scaling

- Provide guidance to help me set up a template that I can use with EC2 Auto Scaling

► [Template tags](#)

► [Source template](#)

Launch template contents

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) - required [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*

[AMI from catalog](#) [My AMIs](#) [Quick Start](#)

Owned by me Shared with me

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

Amazon Machine Image (AMI)

Project AMI
ami-0c9f6c2c6853d56fb
2022-01-16T23:47:40.000Z Virtualization: hvm ENA enabled: true Root device type: ebs

Description

-

Architecture	AMI ID
x86_64	ami-0c9f6c2c6853d56fb

Instance type

t2.micro	Free tier eligible	
Family: t2	1 vCPU	1 GiB Memory
On-Demand Linux pricing: 0.0116 USD per Hour		
On-Demand Windows pricing: 0.0162 USD per Hour		

[Compare instance types](#)

▼ 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

 [Create new key pair](#)

▼ **Summary**

Software Image (AMI)
Project AMI
ami-0c9f6c2c6853d56fb

Virtual server type (instance type)
t2.micro

Firewall (security group)
Project Firewall

Storage (volumes)
1 volume(s) - 8 GiB

i **Free tier:** includes 750 hours of t2.micro or t3.micro instance usage on a Free Tier AMI, 30 GiB of General Purpose storage, 2 million I/Os, 1 GB of snapshots, 15 GB of bandwidth out, per month for your first year.

Cancel Create launch template

Screenshot of the AWS EC2 Launch Template creation success page.

Success
Successfully created Project-Template (lt-0a9ce12b8ef9d10af)

[Actions log](#)

Next steps

- Launch an instance**
With On-Demand Instances, you pay for compute capacity by the second (for Linux, with a minimum of 60 seconds) or by the hour (for all other operating systems) with no long-term commitments or upfront payments. Launch an On-Demand Instance from your launch template.
[Launch instance from this template](#)
- Create an Auto Scaling group from your template**
Amazon EC2 Auto Scaling helps you maintain application availability and allows you to scale your Amazon EC2 capacity up or down automatically according to conditions you define. You can use Auto Scaling to help ensure that you are running your desired number of Amazon EC2 Instances during demand spikes to maintain performance and decrease capacity during lulls to reduce costs.
[Create Auto Scaling group](#)
- Create Spot Fleet**
A Spot Instance is an unused EC2 instance that is available for less than the On-Demand price. Because Spot Instances enable you to request unused EC2 instances at steep discounts, you can lower your Amazon EC2 costs significantly. The hourly price for a Spot Instance (of each instance type in each Availability Zone) is set by Amazon EC2, and adjusted gradually based on the long-term supply of and demand for Spot Instances. Spot Instances are well-suited for data-analysis, batch jobs, background processing, and optional tasks.
[Create Spot Fleet](#)

[View launch templates](#)

Screenshot of the AWS EC2 Launch Templates list page.

Launch templates (1) [Info](#)

Launch template ID	Launch template name	Default version	Latest version	Create time
lt-0a9ce12b8ef9d10af	Project-Template	1	1	2022-01-17T00:29:23.000Z

6. Load Balancer:

Screenshot of the AWS Classic Load Balancer creation page.

Classic Load Balancer - previous generation

Classic Load Balancer [Info](#)

Choose a Classic Load Balancer when you have an existing application running in the EC2-Classic network.

AWS will be retiring the EC2-Classic network on August 15, 2022. [Learn more](#)

[Create](#)

Step 1: Define Load Balancer

Basic Configuration

This wizard will walk you through setting up a new load balancer. Begin by giving your new load balancer a unique name so that you can identify it from other load balancers you might create. You will also need to configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to any port on your EC2 Instances. By default, we've configured your load balancer with a standard web server on port 80.

Load Balancer name:	Project-Load-Balancer		
Create LB Inside:	My Default VPC (172.31.0.0/16)		
Create an internal load balancer:	<input type="checkbox"/>		
Enable advanced VPC configuration:	<input type="checkbox"/>		
Listener Configuration:			
Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port
HTTP	80	HTTP	80
Add			

Step 2: Assign Security Groups

You have selected the option of having your Elastic Load Balancer inside of a VPC, which allows you to assign security groups to your load balancer. Please select the security groups to assign to this load balancer. This can be changed at any time.

Assign a security group:

- Create a new security group
- Select an existing security group

Security Group ID	Name	Description	Actions
sg-0772a8011cdf7347f	default	default VPC security group	Copy to new
sg-0f7382202df36f051	Project Firewall	launch-wizard-1 created 2022-01-16T17:13:13.613-06:00	Copy to new

Step 4: Configure Health Check

Your load balancer will automatically perform health checks on your EC2 instances and only route traffic to instances that pass the health check. If an instance fails the health check, it is automatically removed from the load balancer. Customize the health check to meet your specific needs.

Ping Protocol	HTTP
Ping Port	80
Ping Path	/index.html

Advanced Details

Response Timeout	5	seconds
Interval	10	seconds
Unhealthy threshold	2	
Healthy threshold	2	

Load Balancer Creation Status

Successfully created load balancer

Load balancer Project-Load-Balancer was successfully created.

Note: It may take a few minutes for your instances to become active in the new load balancer.

Close

The screenshot shows the AWS Load Balancer console. On the left, there's a sidebar with navigation links like EC2 Dashboard, EC2 Global View, Events, Tags, Instances (with sub-links for Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations), Images (AMIs, AMI Catalog), and Elastic Block Store (Volumes). The main area is titled 'Create Load Balancer' and shows a table with one row for 'Project-Load-Balancer'. The table columns include Name, DNS name, State, VPC ID, Availability Zones, and Type. The 'Project-Load-Balancer' row has a DNS name of 'Project-Load-Balancer-184979887.us-east-1.elb.amazonaws.com', a VPC ID of 'vpc-0d00c23fa92c9dd24', Availability Zones of 'us-east-1f, us-east-1e, ...', and a Type of 'classic'. Below the table, there's a detailed view of the load balancer named 'Project-Load-Balancer'. It includes tabs for Description, Instances, Health check, Listeners, Monitoring, Tags, and Migration. Under 'Basic Configuration', it shows the Name 'Project-Load-Balancer', * DNS name 'Project-Load-Balancer-184979887.us-east-1.elb.amazonaws.com (A Record)', Type 'Classic (Migrate Now)', and Scheme 'Internet-facing'. It also shows Creation time as 'January 16, 2022 at 5:58:40 PM UTC-6', Hosted zone as 'Z35SXDOTRQ7X7K', Status as '0 of 0 instances in service', and VPC as 'vpc-0d00c23fa92c9dd24'.

7. Auto scaled group:

The screenshot shows the AWS Auto Scaling console. The left sidebar has the same navigation as the previous screenshot. The main area features a large banner with the text 'Amazon EC2 Auto Scaling helps maintain the availability of your applications'. Below the banner, a sub-banner states: 'Auto Scaling groups are collections of Amazon EC2 instances that enable automatic scaling and fleet management features. These features help you maintain the health and availability of your applications.' To the right of these banners is a call-to-action button labeled 'Create Auto Scaling group'.

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

New EC2 Experience Tell us what you think

EC2 Dashboard EC2 Global View Events Tags Limits Instances Instances New Instance Types Launch Templates Spot Requests Savings Plans Reserved Instances New Dedicated Hosts Scheduled Instances Capacity Reservations Images AMIs New Elastic Block Store Volumes New Snapshots New Lifecycle Manager New Network & Security Security Groups Elastic IPs Placement Groups Key Pairs Network Interfaces Load Balancing Load Balancers Target Groups New Auto Scaling Launch Configurations

EC2 > Auto Scaling groups > Create Auto Scaling group

Choose launch template or configuration Info

Specify a launch template that contains settings common to all EC2 instances that are launched by 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 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.
 ▼ ↻

Create a launch template Info

Version
 ▼ ↻

Create a launch template version Info

Description	Launch template	Instance type
v1	Project-Template <small>↻</small> lt-0a9ce12b8ef9d10af	t2.micro
AMI ID	ami-0c9f6c2c6853d56fb	Security groups -
Key pair name	project key	Security group IDs sg-0f7382202df36f051 <small>↻</small>

Additional details

Storage (volumes)	Date created Sun Jan 16 2022 18:29:23 GMT-0600 (Central Standard Time)
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Cancel **Next**

Skip to review

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New EC2 Experience Tell us what you think

EC2 Dashboard

EC2 Global View

Events

Tags

Limits

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Images

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Elastic Block Store

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Load Balancing

- Load Balancers
- Target Groups New

Auto Scaling

- Launch Configurations
- Auto Scaling Groups

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

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-0d00c23fa92c9dd24
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

us-east-1a | subnet-0ae99abc5cb10fd34 X
172.31.32.0/20 Default

us-east-1b | subnet-06dc4ddf520b04eb1 X
172.31.0.0/20 Default

us-east-1c | subnet-0062819693c89adde X
172.31.80.0/20 Default

us-east-1d | subnet-029cce1e9ac2357f7 X
172.31.16.0/20 Default

us-east-1e | subnet-0980a279db18a42eb X
172.31.48.0/20 Default

us-east-1f | subnet-03630da3cb41157af X
172.31.64.0/20 Default

Create a subnet

Instance type requirements Info

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.

Override launch template

Launch template	Version	Description
Project-Template lt-0a9ce12b8ef9d10af	Default	v1

Instance type
t2.micro

Cancel Previous Skip to review Next

Screenshot of the AWS EC2 Auto Scaling Groups creation wizard.

Left sidebar:

- New EC2 Experience (radio button selected)
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 - Load Balancers
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- Auto Scaling**
 - Launch Configurations
 - Auto Scaling Groups** (selected)

Screenshot of the AWS EC2 Auto Scaling Groups creation wizard.

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 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:

Minimum capacity:

Maximum capacity:

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:

Metric type:

Target value:

Instances need: seconds warm up before including in metric

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

Buttons: Cancel, Previous, Skip to review, Next

Screenshot of the AWS EC2 New Experience interface showing the "Add notifications" step of creating an Auto Scaling group.

Add notifications Info

Send notifications to SNS topics whenever Amazon EC2 Auto Scaling launches or terminates the EC2 instances in your Auto Scaling group.

Notification 1

SNS Topic Choose an SNS topic to use to send notifications
MyProject-SNS-Topic

Event types Notify subscribers whenever instances

Launch
 Terminate
 Fail to launch
 Fail to terminate

Add notification

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

Screenshot of the AWS EC2 New Experience interface showing the "Add tags" step of creating an Auto Scaling group.

Add tags Info

Add tags to help you search, filter, and track your Auto Scaling group across AWS. You can also choose to automatically add these tags to instances when they are launched.

Tags (1)

Key	Value - optional	Tag new instances
Name	Project AS WebServer	<input checked="" type="checkbox"/>

Add tag 49 remaining

Cancel **Previous** **Next**

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

Review Info

Step 1: Choose launch template or configuration

[Edit](#)

Group details

Auto Scaling group name
Project-Auto-Scaling-GRP

Launch template

Launch template	Version	Description
Project-Template Edit lt-0a9ce12b8ef9d10af	Default	v1

Step 2: Choose instance launch options

[Edit](#)

Network

Network

VPC

[vpc-0d00c23fa92c9dd24](#) [Edit](#)

Availability Zone	Subnet	
us-east-1b	subnet-06dc4ddf520b04eb1 Edit	172.31.0.0/20
us-east-1c	subnet-0062819693c89adde Edit	172.31.80.0/20
us-east-1d	subnet-029cce1e9ae2357f7 Edit	172.31.16.0/20
us-east-1e	subnet-0980a279db18a42eb Edit	172.31.48.0/20
us-east-1f	subnet-03630da3cb41157af Edit	172.31.64.0/20
us-east-1a	subnet-0ae99abc5cb10fd34 Edit	172.31.32.0/20

Instance type requirements

This Auto Scaling group will adhere to the launch template.

Step 3: Configure advanced options

Edit

Load balancing

Load balancer 1

Name	Type	Target group
Project-Load-Balancer 	Classic	-

Health checks

Health check type	Health check grace period
EC2	300 seconds

Additional settings

Monitoring
Disabled

Step 4: Configure group size and scaling policies

Edit

Group size

Desired capacity	Minimum capacity	Maximum capacity
1	1	3

Scaling policy

Target tracking scaling		
Policy type	Scaling policy name	Execute policy when
Target tracking scaling	Target Tracking Policy	As required to maintain Average CPU utilization at 70
Take the action		
Add or remove capacity units as required	Instances need 300 seconds to warm up before including in metric	Scale in Enabled

Instance scale-in protection

Instance scale-in protection
<input checked="" type="checkbox"/> Enable instance protection from scale in

Step 5: Add notifications

Notification 1	Event types
SNS Topic MyProject-SNS-Topic	<input checked="" type="checkbox"/> Launch <input checked="" type="checkbox"/> Terminate <input checked="" type="checkbox"/> Fail to launch <input checked="" type="checkbox"/> Fail to terminate

Step 6: Add tags

Tags (1)	
Key	Value
Name	Project AS WebServer

Tag new instances

Cancel **Create Auto Scaling group**

Auto Scaling groups (1)								
Name	Launch template/configuration	Instances	Status	Desired capacity	Min	M...	Availability Zones	
Project-Auto-Scaling-GRP	Project-Template Version Default	0	Updating capacity	1	1	3	us-east-1a, us-east-1b, us-east-1c, us-east-1d, us-east-1e, us...	

Instances (2) Info									
Name	Instance ID	Instance state	Inst...	Status check	Alarm status	Availab...	Public IPv4 DNS	Public IP	
Project base Server	i-0c8c1c0b40c53d0bd	Stopped	t2.micro	-	No alarms	+	us-east-1c	-	
Project AS WebServer	i-0fba760463425d4...	Running	t2.micro	Initializing	No alarms	+	us-east-1e	ec2-54-236-49-149.compute-1.amazonaws.c...	

Instances (1/2) info

Name	Instance ID	Instance state	Inst...	Status check	Alarm status	Availab...	Public IPv4 DNS	Public If
Project base Server	i-0c8c1c0b40c53d0bd	Stopped	t2.micro	-	No alarms	us-east-1c	-	-
Project AS WebServer	i-0fba760463425d4...	Running	t2.micro	2/2 checks pass!	No alarms	us-east-1e	ec2-54-236-49-149.compute-1.amazonaws.c...	54.236.4...

Instance: i-0fba760463425d4dd (Project AS WebServer)

Details | Security | Networking | Storage | Status checks | Monitoring | Tags

Instance summary

Instance ID	i-0fba760463425d4dd (Project AS WebServer)	54.236.49.149 open address	Private IPv4 addresses
IPv6 address	-	Instance state	Running
Hostname type	IP name: ip-172-31-58-60.ec2.internal	Private IP DNS name (IPv4 only)	ec2-54-236-49-149.compute-1.amazonaws.com open address
			Answer private resource DNS name

← → C Not secure | 54.236.49.149

My Website on AWS EC2 Linux

Create Load Balancer Actions

Name	DNS name	State	VPC ID	Availability Zone
Project-Load-Balancer	Project-Load-Balancer-184979887.us-east-1.elb.amazonaws.com	vpc-0d00c23fa92c9dd24	us-east-1f, us-ea	

Load balancer: Project-Load-Balancer

Description | Instances | Health check | Listeners | Monitoring | Tags | Migration

Basic Configuration

Name	Project-Load-Balancer	Creation time	January 16, 2022 at 5:58:40 PM UTC-6
* DNS name	Project-Load-Balancer-184979887.us-east-1.elb.amazonaws.com (A Record)	Hosted zone	Z35SXDOTRQ7X7K
Status	1 of 1 instances in service		

← → C Not secure | project-load-balancer-184979887.us-east-1.elb.amazonaws.com

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END OF PROJECT 1