Deploying A Multi-Tier Website Using AWS EC2
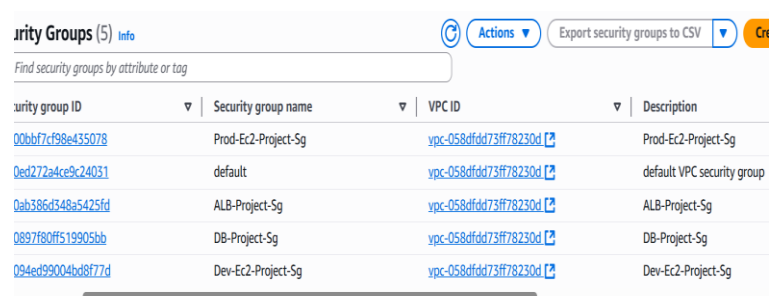
Description: Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capacity in the Amazon Web Services (AWS) cloud. Using Amazon EC2 eliminates your need to invest in hardware up front so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic.

Problem Statement: Company ABC wants to move their product to AWS. They have the following things set up right now: 1. MySQL DB 2. Website (PHP) The company wants high availability on this product, therefore wants Auto Scaling to be enabled on this websites.

Solution:

Create a Security Group

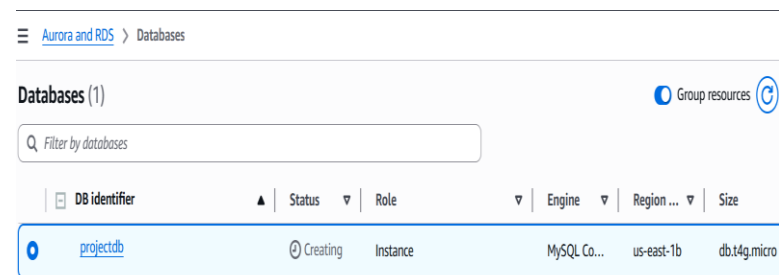| Name	Inbound Rule
Sg-Dev-Ec2-Project	Ssh-public http-public
Sg-Db	Mysql/Aurora (vpc cidr)
Sg-Prod-Ec2	http(vpc cidr)
Sg-lb	http

urity Groups (5) Info

Find security groups by attribute or tag

urity group ID	Security group name	VPC ID	Description
00bbf7cf98e435078	Prod-Ec2-Project-Sg	vpc-058dfdd73ff78230d	Prod-Ec2-Project-Sg
0ed272a4ce9c24031	default	vpc-058dfdd73ff78230d	default VPC security group
0ab386d348a5425fd	ALB-Project-Sg	vpc-058dfdd73ff78230d	ALB-Project-Sg
0897f80ff519905bb	DB-Project-Sg	vpc-058dfdd73ff78230d	DB-Project-Sg
094ed99004bd8f77d	Dev-Ec2-Project-Sg	vpc-058dfdd73ff78230d	Dev-Ec2-Project-Sg

Create a database

- Engine type: MySQL
- Templates: Free tier
- DB instance identifier: ProjectDB
- Master username: intel
- Put password
- VPC security group :DB-Project-Sg
- Initial database name: intel
- Enable automated backups and Enable encryption

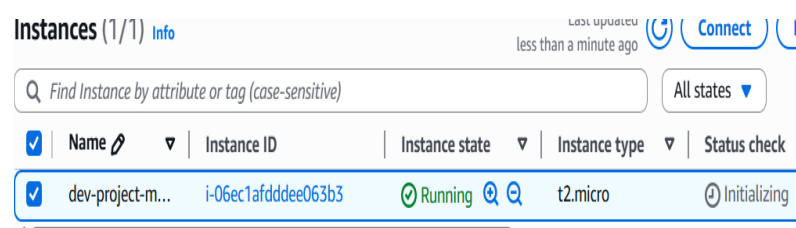- Create databases

Aurora and RDS > Databases

Databases (1)

Q Filter by databases

	DB identifier	Status	Role	Engine	Region ...	Size
O	projectdb	Creating	Instance	MySQL Co...	us-east-1b	db.t4g.micro

Create a database

- Navigate to EC2 → Instances → Launch Instance
- Name: dev-project-machine
- Choose AMI: Ubuntu AMI
- Instance Type: Choose t2.micro
- Key Pair: choose an existing Key
- Network Settings: Select existing SG
    1. Dev-Ec2-Project-Sg
    2. DB-Project-Sg
- Launch the instance

Instances (1/1) Info

Q Find Instance by attribute or tag (case-sensitive)

All states ▾

	Name	Instance ID	Instance state	Instance type	Status check
✓	dev-project-m...	i-06ec1afdddee063b3	Running	t2.micro	Initializing

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Select instance → connect


```
root@ip-172-31-25-113:/home/ubuntu# history
    1  apt-get update -y
    2  apt install apache2 -y
    3  apt install php5.6 -y
    4  add-apt-repository -y ppa:ondrej/php
    5  apt install php5.6 -y
    6  apt install php5.6 php5.6-mysqli mysql-client -y
    7  cd /var/www/html
    8  ls
    9  rm index.html
   10  ls
   11  nano index.php
   12  mysql -h projectdb.c41k2848y61m.us-east-1.rds.amazonaws.com -u intel -pintel123
   13  nano index.php
   14  mysql -h projectdb.c41k2848y61m.us-east-1.rds.amazonaws.com -u intel -pintel123
   15  history
   16  exit
   17  clear
root@ip-172-31-25-113:/home/ubuntu# mysql -h projectdb.c41k2848y61m.us-east-1.rds.amazonaws.
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 48
Server version: 8.0.41 Source distribution
```

```
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| intel              |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.00 sec)

mysql> use intel;
Database changed
mysql> create table users(firstname varchar(50),email varchar(50));
Query OK, 0 rows affected (0.03 sec)

mysql> select * from tables;
ERROR 1146 (42S02): Table 'intel.tables' doesn't exist
mysql> select * from users;
Empty set (0.00 sec)

mysql> select * from users;
+------------+----------------------------+
| firstname  | email                      |
+------------+----------------------------+
| bhagyashree | Bhagyashreejoshi@gmail.com |
```

i-06ec1afdddee063b3 (dev-project-machine)
PublicIPs: 54.205.54.255   PrivateIPs: 172.31.25.113

Action → create image

Image name: Project-image

create image

EC2 → Launch templates → Create launch template

Name : project-template

AMIs : Project-image

Instance type : t2.micro

Select existing security group :

1. Prod-Ec2-Project-Sg
2. DB-Project-Sg

EC2 → Target groups

Name : project-tg

Create

EC2 → Load balancers

Load balancer name : project-lb

Select all AZs

Security groups : ALB-Project-Sg

target group : project- tg

Deploying A Multi-Tier Website Using AWS EC2

EC2 → Auto Scaling groups → create

Name : project-asg
Launch template : project-template
AZs : select all default
Attach to an existing load balancer
Existing load balancer target groups :
project-tg
Desired capacity : 2
Max desired capacity : 5
Create Auto Scaling groups

Auto Scaling groups (1) Info

Last updated less than a minute ago | Launch configurations | Launch templates [↗]

Actions ▼ | Create Auto Scaling group

Search your Auto Scaling groups

⟨ 1 ⟩

	Name ▽	Launch template/configuration [↗] ▽
☐	**project-asg**	project-template	Version Default

Instances (3) Info

Connect | Instance state ▼ | Actions ▼ | Launch instances ▼

Find Instance by attribute or tag (case-sensitive) | All states ▼

Instance state = running ✕ | Clear filters | ⟨ 1 ⟩ ⚙

	Name ✎ ▲	Instance ID	Instance state ▽	Instance type ▽
☐		i-039afb3f035e9bb38	⊘ Running 🔍⊕ 🔍⊖	t2.micro
☐		i-01648e140946a7ba8	⊘ Running 🔍⊕ 🔍⊖	t2.micro
☐	dev-project-m...	i-06ec1afdddee063b3	⊘ Running 🔍⊕ 🔍⊖	t2.micro

⚠ Not secure   project-lb-432030521.us-east-1.elb.amazonaws.com   ☆   ≡

oint Logo   M Gmail   G   ▶ YouTube   📍 Maps   🌐 🎖 What is the ter...   🌐 New Tab
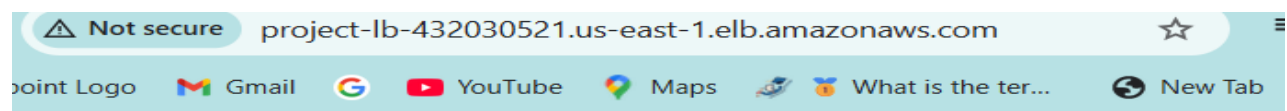
Submit Your Details

Name:

[   ]

Email:

[   ]

Submit

New record created successfully