

## Project-2---Website-Orchestration-2

### Problem Statement:

How to orchestrate a website with lesser time and higher availability along with Auto Scaling.

### Topics:

In this AWS project, you have to deploy a high-availability PHP application with an external Amazon RDS database to Elastic Beanstalk. Running a DB instance external to Elastic Beanstalk decouples the database from the lifecycle of your environment. This lets you connect to the same database from multiple environments, swap one database for another, or perform a blue/green deployment without affecting your database.

### Highlights:

Launch a DB instance in Amazon RDS

Create an Elastic Beanstalk Environment

Configure Security Groups and Scaling

### SOLUTION:

#### 1. RDS Instance created

The screenshot displays the AWS Management Console interface for an Amazon RDS instance. The top navigation bar shows various AWS services, and the breadcrumb trail indicates the path: RDS > Databases > database-project2. The instance name 'database-project2' is prominently displayed at the top of the console view, along with 'Create', 'Modify', and 'Actions' buttons.

The 'Summary' section provides key details about the instance:

DB identifier	Status	Role	Engine	Recommendations
database-project2	Available	Instance	MySQL Community	
CPU	Class	Current activity	Region & AZ	
3.05%	db.t3.micro	0 Connections	us-east-1a	

Below the summary, a series of tabs allow for further exploration: Connectivity & security, Monitoring, Logs & events, Configuration, Zero-ETL integrations, Maintenance & backups, Tags, and Recommendations. The 'Connectivity & security' tab is currently selected, showing three main categories:

- Endpoint & port:** Endpoint is database-project2.c7qge622w7a1.us-east-1.rds.amazonaws.com; Port is 3306.
- Networking:** Availability Zone is us-east-1a; VPC is vpc-0cc7f12f99a9d7686; Subnet group is default-vpc-0cc7f12f99a9d7686; Subnets are subnet-0f1f2399b58414207 and subnet-0a104e3a937085b22.
- Security:** VPC security groups is newproject2 (sg-0c8dfa9fa5fbee0e0) and is Active; Publicly accessible is No; Certificate authority is rds-ca-rsa2048-g1; Certificate authority date is May 26, 2061, 05:04 (UTC+05:30).

## 2. Elastic beanstalk environment created

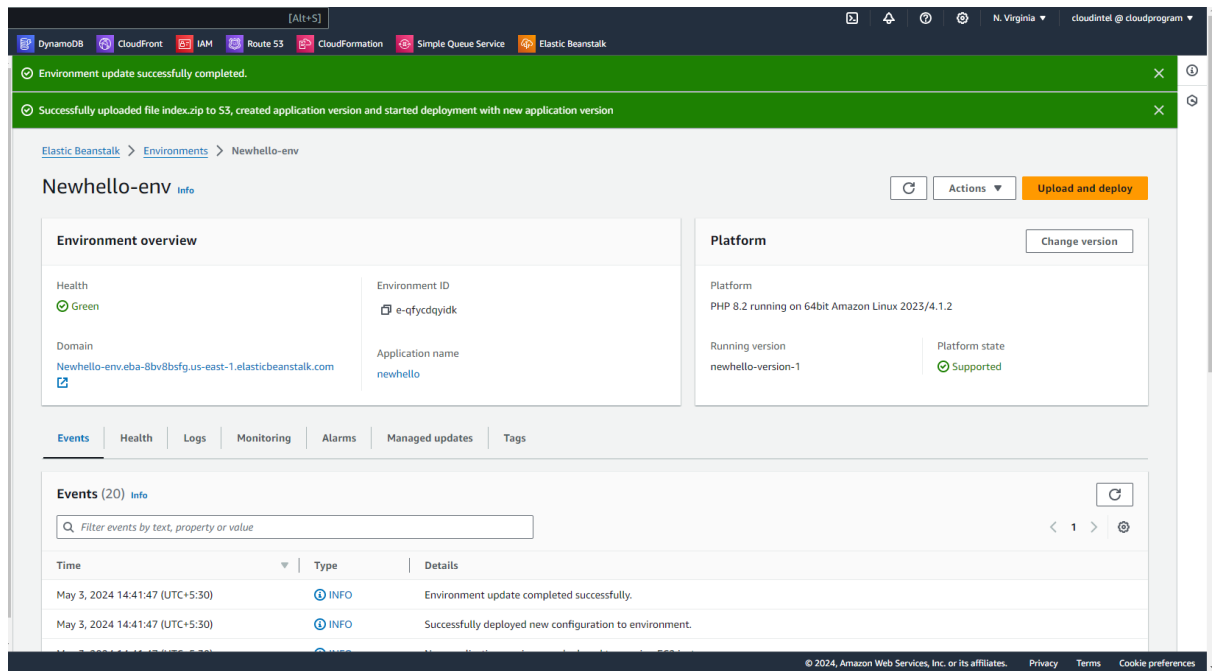
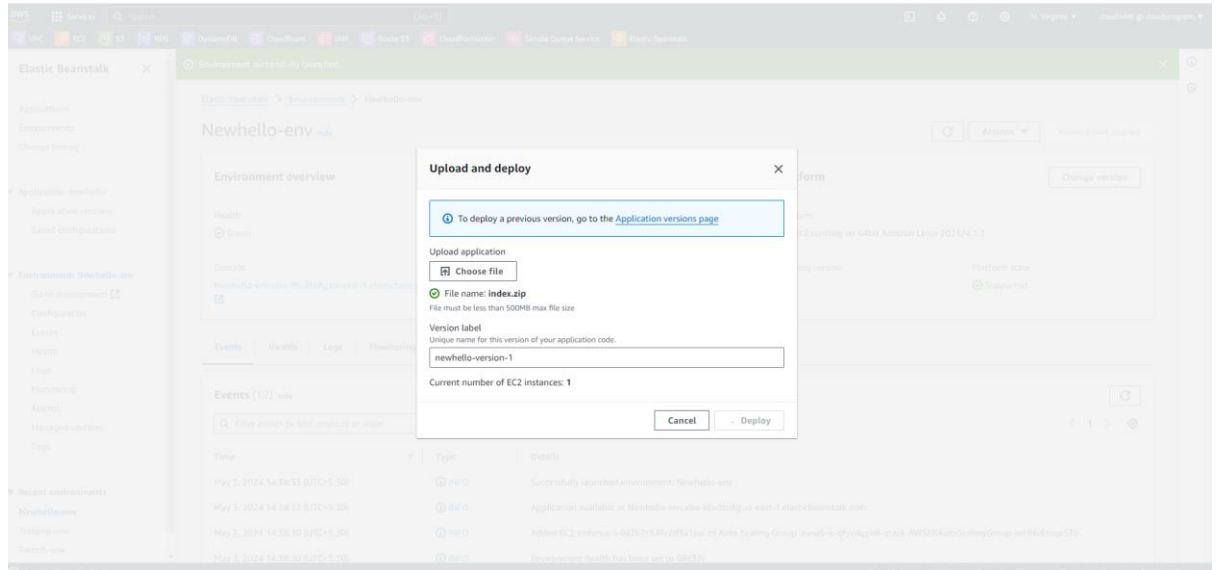
The screenshot shows the AWS Elastic Beanstalk console. A green banner at the top indicates 'Environment successfully launched.' The left sidebar shows the 'Elastic Beanstalk' menu with options for Applications, Environments, and Change History. The main content area displays the 'Newhello-env' environment details. The 'Environment overview' section shows a 'Health' status of 'Green', an 'Environment ID' of 'e-qfydcqydk', a 'Domain' of 'Newhello-env-eba-8bv8bsfg-us-east-1.elasticbeanstalk.com', and an 'Application name' of 'newhello'. The 'Platform' section shows 'Platform' as 'PHP 8.2 running on 64bit Amazon Linux 2023/4.1.2' and 'Platform state' as 'Supported'. Below these sections is a table of 'Events (12)' with columns for Time, Type, and Details. The events listed are:

Time	Type	Details
May 3, 2024 14:38:33 (UTC+5:30)	INFO	Successfully launched environment: Newhello-env
May 3, 2024 14:38:32 (UTC+5:30)	INFO	Application available at Newhello-env-eba-8bv8bsfg-us-east-1.elasticbeanstalk.com.
May 3, 2024 14:38:30 (UTC+5:30)	INFO	Added EC2 instance 'i-0a7b7c54fe2d3a1ba' to Auto Scaling Group 'aws-eb-e-qfydcqydk-stack-AWSEBAutoScalingGroup-iwHNeEmqe5To'.
May 3, 2024 14:38:30 (UTC+5:30)	INFO	Environment health has been set to GREEN

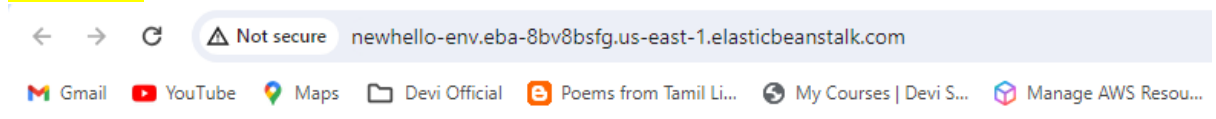
This screenshot provides a more detailed view of the 'Events (12)' for the 'Newhello-env' environment. The events are listed in chronological order, showing the steps from environment creation to instance deployment and health checks.

Time	Type	Details
May 3, 2024 14:38:33 (UTC+5:30)	INFO	Successfully launched environment: Newhello-env
May 3, 2024 14:38:32 (UTC+5:30)	INFO	Application available at Newhello-env-eba-8bv8bsfg-us-east-1.elasticbeanstalk.com.
May 3, 2024 14:38:30 (UTC+5:30)	INFO	Added EC2 instance 'i-0a7b7c54fe2d3a1ba' to Auto Scaling Group 'aws-eb-e-qfydcqydk-stack-AWSEBAutoScalingGroup-iwHNeEmqe5To'.
May 3, 2024 14:38:30 (UTC+5:30)	INFO	Environment health has been set to GREEN
May 3, 2024 14:38:30 (UTC+5:30)	INFO	Adding instance 'i-0a7b7c54fe2d3a1ba' to your environment.
May 3, 2024 14:38:26 (UTC+5:30)	INFO	Instance deployment completed successfully.
May 3, 2024 14:38:21 (UTC+5:30)	INFO	Instance deployment: You didn't include a 'composer.json' file in your source bundle. The deployment didn't install Composer dependencies.
May 3, 2024 14:37:43 (UTC+5:30)	INFO	Waiting for EC2 instances to launch. This may take a few minutes.
May 3, 2024 14:36:56 (UTC+5:30)	INFO	Created EIP: 18.205.54.240
May 3, 2024 14:36:41 (UTC+5:30)	INFO	Created security group named: sg-04bcd8c02790f3e4
May 3, 2024 14:36:21 (UTC+5:30)	INFO	Using elasticbeanstalk-us-east-1-590184123293 as Amazon S3 storage bucket for environment data.
May 3, 2024 14:36:20 (UTC+5:30)	INFO	createEnvironment is starting.

## Upload and Deploy



## Verification



Hello World

## EC2 Instance Created

[Alt+S] N. Virginia cloudinit @ cloudprogram

RDS DynamoDB CloudFront IAM Route 53 CloudFormation Simple Queue Service Elastic Beanstalk

### Instances (1/1) info

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

Instance state = running X Clear filters

Name ↗	Instance ID	Instance state ▾	Instance type ▾	Status check	Alarm status	Availability Zone ▾	Public IPv4 DNS
Newhello-env	i-0a7b7c54fe2d3a1ba	Running	t2.small	2/2 checks passed	<a href="#">View alarms +</a>	us-east-1b	ec2-18-205-54-240.compute-1.

### i-0a7b7c54fe2d3a1ba (Newhello-env)

[Details](#) | [Status and alarms New](#) | [Monitoring](#) | [Security](#) | [Networking](#) | [Storage](#) | [Tags](#)

#### ▼ Instance summary info

Instance ID

I-0a7b7c54fe2d3a1ba (Newhello-env)

IPv6 address

-

Hostname type

IP name: ip-172-31-8-180.ec2.internal

Answer private resource DNS name

-

Auto-assigned IP address

-

IAM Role

No roles attached to instance profile: elastic-beanstalk-instance-profile

Public IPv4 address

18.205.54.240 | [open address](#)

Instance state

Running

Private IP DNS name (IPv4 only)

ip-172-31-8-180.ec2.internal

Instance type

t2.small

VPC ID

vpc-0cc7f12f99a9d7686

Subnet ID

subnet-07055bf2d69520671

Private IPv4 addresses

172.31.8.180

Public IPv4 DNS

ec2-18-205-54-240.compute-1.amazonaws.com | [open address](#)

Elastic IP addresses

18.205.54.240 (Newhello-env) [Public IP]

AWS Compute Optimizer finding

Opt-in to AWS Compute Optimizer for recommendations. | [Learn more](#)

Auto Scaling Group name

aws-ec2-gfydcyldk-stack-AWSEBAutoScalingGroup-iwHNeEmiqe5to

## Auto Scaling Group

RDSDynamoDBCloudFrontIAMRoute 53CloudFormationSimple Queue ServiceElastic Beanstalk

[Alt+S]

N. Virginia @ cloudprogram

<Auto Scaling group> awseb-e-qfydcqydk-stack-AWSEBAutoScalingGroup-iwHNeEmqe5To

awseb-e-qfydcqydk-stack-AWSEBAutoScalingGroup-iwHNeEmqe5To

DetailsActivityAutomatic scalingInstance monitoringMonitoringInstance refresh

Group detailsEdit

<div>Auto Scaling group name awseb-e-qfydcqydk-stack-AWSEBAutoScalingGroup-iwHNeEmqe5To</div> <div>Date created Fri May 03 2024 14:36:50 GMT+0530 (India Standard Time)</div>	<div>Desired capacity 1</div> <div>Minimum capacity 1</div> <div>Maximum capacity 1</div>	<div>Desired capacity type Units (number of instances)</div> <div>Status -</div>	<div>Amazon Resource Name (ARN)  arn:aws:auto-scaling-us-east-1:590184123293:autoScalingGroup:b82bbe20-f5a6-419f-9764-a2713c4fdfeau-toScalingGroupName/awseb-e-qfydcqydk-stack-AWSEBAutoScalingGroup-iwHNeEmqe5To</div>
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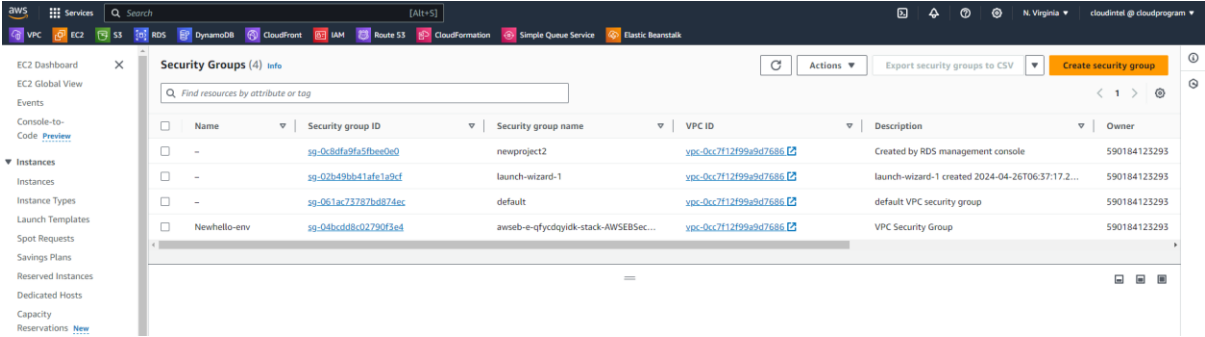
Launch configurationEdit

<div>Launch configuration awseb-e-qfydcqydk-stack-AWSEBAutoScalingLaunchConfiguration-GeE7x83iz4VR</div> <div>Storage (volumes) -</div>	<div>AMI ID  ami-0e3d48616e159ca9c</div> <div><div>Security groups</div><div> sg-02b49bb41afe1a9cf sg-04bcd8c02790f3e4</div></div>	<div>Instance type t2.small</div> <div>Key pair name casestudy</div>	<div>Create time Fri May 03 2024 14:36:34 GMT+0530 (India Standard Time)</div>
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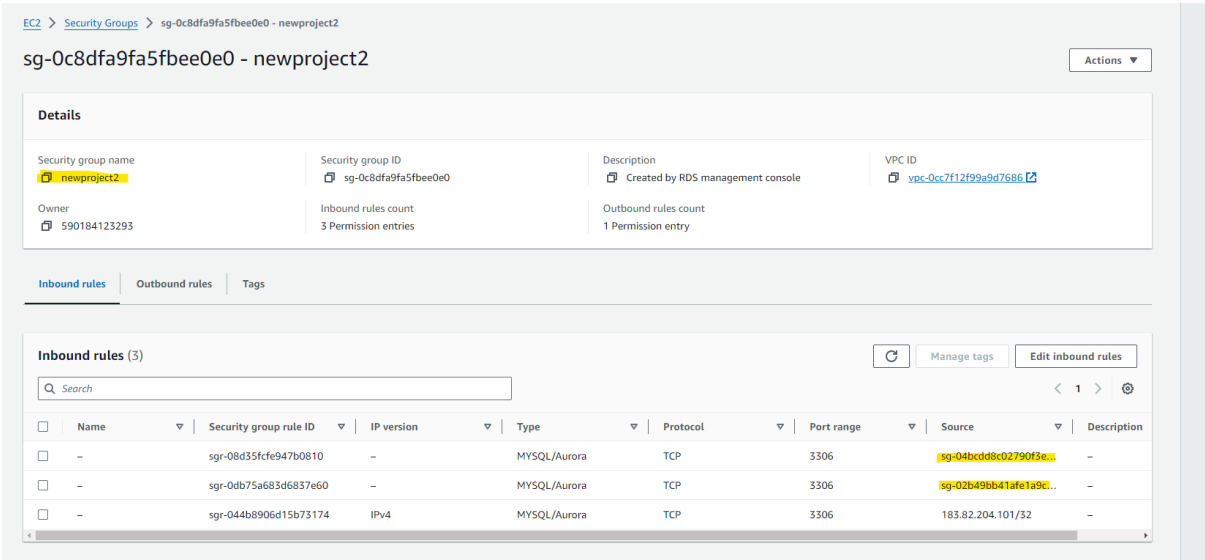
View details in the launch configuration console

3. Security group configurations

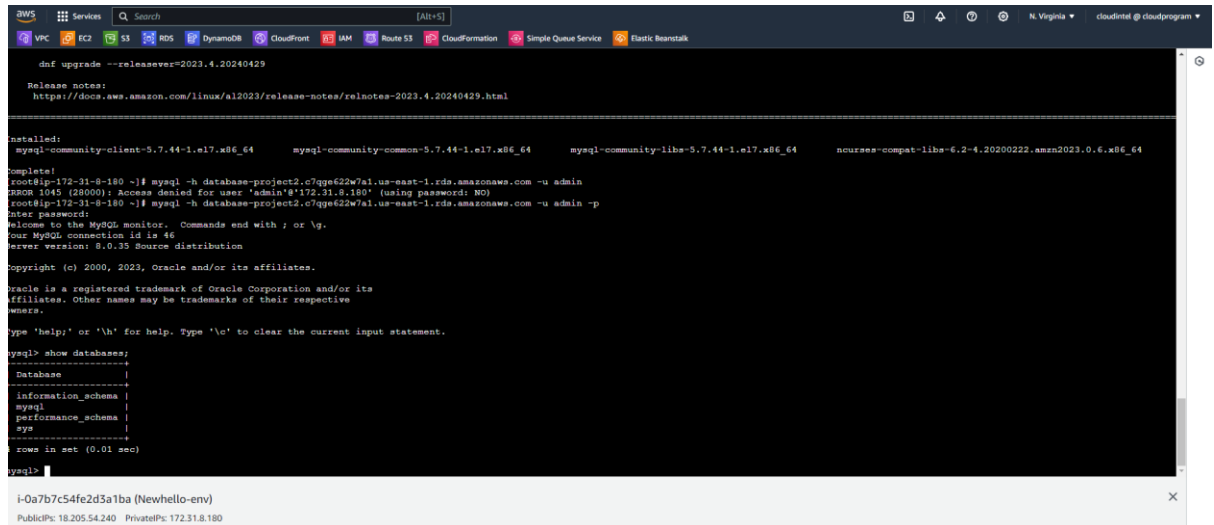
AVAILABLE SG's



RDS SG Inbound rules configured with source (ASG security groups)



## Verify Connectivity from EC2 (Elastic-Bean Stalk) to RDS



```
dnf upgrade --releasever=2023.4.20240429

Release notes:
https://docs.aws.amazon.com/linux/al2023/release-notes/relnotes-2023.4.20240429.html

-----
Installed:
mysql-community-client-5.7.44-1.el7.x86_64      mysql-community-common-5.7.44-1.el7.x86_64      mysql-community-libs-5.7.44-1.el7.x86_64      ncurses-compat-libs-6.2-4.20200222.amzn2023.0.6.x86_64

Complete!
root@ip-172-31-8-180 ~# mysql -h database-project2.c7qge22w7a1.us-east-1.rds.amazonaws.com -u admin
ERROR 1045 (28000): Access denied for user 'admin'@'172.31.8.180' (using password: NO)
root@ip-172-31-8-180 ~# mysql -h database-project2.c7qge22w7a1.us-east-1.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 46
Server version: 8.0.35 Source distribution

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
> rows in set (0.01 sec)

mysql>
```

i-Oa7b7c54fe2d3a1ba (NewHello-env)  
PublicIP: 18.205.54.240 PrivateIP: 172.31.8.180