

AWS PROJECT 2

Manoj K

Creating an EC2 Instance

The screenshot shows the 'Step 3: Configure Instance Details' page in the AWS Management Console. The page is divided into several sections for configuring the EC2 instance:

- Shut down behavior:** A dropdown menu is set to 'Stop'.
- Stop - Hibernate behavior:** A checkbox for 'Enable hibernation as an additional stop behavior' is unchecked.
- Enable termination protection:** A checkbox for 'Protect against accidental termination' is unchecked.
- Monitoring:** A checkbox for 'Enable CloudWatch detailed monitoring' is unchecked.
- Tenancy:** A dropdown menu is set to 'Shared - Run a shared hardware instance'.
- Elastic Inference:** A checkbox for 'Add an Elastic Inference accelerator' is unchecked.
- Credit specification:** A checkbox for 'Unlimited' is unchecked.
- File systems:** A button 'Add file system' is visible.
- Advanced Details:**
 - Enclave:** A checkbox for 'Enable' is unchecked.
 - Metadata accessible:** A dropdown menu is set to 'Enabled'.
 - Metadata version:** A dropdown menu is set to 'V1 and V2 (token optional)'.
 - Metadata token response hop limit:** A dropdown menu is set to '1'.
 - User data:** A radio button for 'As text' is selected. Below it, a text box contains the command: `#bin/bash -ex
yum install mysql -y`

At the bottom right, there are three buttons: 'Cancel', 'Review and Launch', and 'Next: Add Storage'.

Installing mysql in linux instance by bootstrapping method

aws

Services ▾

1. Choose AMI

2. Choose Instance Type

3. Configure Instance

4. Add Storage

5. Add Tags

6. Configure Security Group

7. Review

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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	Value	Instances	Volumes
<input type="text" value="Name"/>	<input type="text" value="MyRdsEC2server"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Add another tag

Cancel

Review and Launch

Next: Configure Security Group

Feedback

English (US) ▾

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Key-value For instance which is been created

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1. Choose AMI2. Choose Instance Type3. Configure Instance4. Add Storage5. Add Tags6. Configure Security Group7. Review

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:

MyEc2server-SG

Description:

Security for ec2 server to connect with RDS

Type ⓘ	Protocol ⓘ	Port Range	Source ⓘ	Description ⓘ
All traffic ▼	All	0 - 65535	Anywhere ▼	0.0.0.0/0 :::0

Add Rule

Warning

Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Cancel

Previous

Review and Launch

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Security Group for ec2 instance

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1. Choose AMI

2. Choose Instance Type

3. Configure Instance

4. Add Storage

5. Add Tags

6. Configure Security Group

7. Review

Step 7: Review Instance Launch

You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers.

Edit security groups

AMI Details

Free tier eligible

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-0be2609ba883822ec

Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 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 a...

Root Device Type: ebsVirtualization type: hvm

Edit AMI

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

Edit instance type

Security Groups

Security group name: MYEC2server-SG

Description: Security for ec2 server to connect with RDS

Type	Protocol	Port Range	Source	Description
All traffic	All	All	0.0.0.0/0	
All traffic	All	All	:::/0	

Edit instance details

Storage

Edit storage

Tags

Edit tags

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Key Pairs

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Instances (1/1)

Filter instances

Connect

Instance state

Actions

Launch instances

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Support

MyRdsEc2server

i-0c4291ee73121f777

Running

t2.micro

2/2 che...

No alarms

us-east-1b

ec2-18-207-118-137.c...

Public IPv4 ...

Elastic IP

18.207.118.137

Instance: i-0c4291ee73121f777 (MyRdsEc2server)

Details

Security

Networking

Storage

Status Checks

Monitoring

Tags

Instance summary

Instance ID

i-0c4291ee73121f777 (MyRdsEc2server)

Instance state

Running

Instance type

t2.micro

AWS Compute Optimizer finding

Opt-in to AWS Compute Optimizer for recommendations

Learn more

Public IPv4 address

18.207.118.137 | open address

Public IPv4 DNS

ec2-18-207-118-137.compute-1.amazonaws.com | open address

Elastic IP addresses

-

IAM Role

-

Private IPv4 addresses

172.31.21.88

Private IPv4 DNS

ip-172-31-21-88.ec2.internal

VPC ID

vpc-eb7bb996

Subnet ID

subnet-2c80c161

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Instance Details

Creating a Security Group for RDS instance

Services ▾

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Instances New

Instance Types

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Network Interfaces New

Load Balancing ▾

Load Balancers

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Support ▾

EC2 > Security Groups > sg-offbe0796d0f92414 - rds-maz-SG

sg-offbe0796d0f92414 - rds-maz-SG

Details

Security group name
rds-maz-SG

Security group ID
sg-offbe0796d0f92414

Owner
245024665952

Description
Security group for RDS Aurora

VPC ID
vpc-ab7bb996

Inbound rules count
1 Permission entry

Outbound rules count
1 Permission entry

Inbound rules

Outbound rules

Tags

Inbound rules

Type	Protocol	Port range	Source	Description - optional
MYSQL/Aurora	TCP	3306	0.0.0.0	-

Edit inbound rules

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Create an Amazon Aurora database with Multi-AZ enabled

Amazon RDS

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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


☐ PostgreSQL


☐ Oracle


☐ Microsoft SQL Server


Edition

☒ Amazon Aurora with MySQL compatibility
☐ Amazon Aurora with PostgreSQL compatibility

Capacity type [Info](#)

☒ Provisioned
You provision and manage the server instance sizes.

☐ Serverless
You specify the minimum and maximum amount of resources needed, and Aurora scales the capacity based on database load. This is a good option for intermittent or unpredictable workloads.

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Replication features [Info](#)

Single-master replication is currently selected

☒ Single-master
Supports multiple reader instances connected to the same storage volume as a single writer instance. This is a good general-purpose option for most workloads.

☐ Multi-master
Supports multiple writer instances connected to the same storage volume. This is a good option for when continuous writer availability is required.

Engine version [Info](#)

View the engine versions that support the following database features.

☒ Show versions that support the global database feature
☐ Show versions that support the parallel query feature

Version
Aurora (MySQL 5.7) 2.07.2
[To see more versions, modify the capacity types. Info](#)

☐ Aurora MySQL engine versions earlier than 2.09.1 don't support the newest r6g generation instance classes.

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.

Settings

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Templates

Choose a sample template to meet your use case.

☐ Production

☒ Dev/Test

Settings

DB cluster identifier

MyAuroraCluster

Credentials Settings

Master username

labsAdmin

Master password

Confirm password

DB instance size

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DB instance size

DB instance class

db.t2.small

Availability & durability

Multi-AZ deployment

Connectivity

Virtual private cloud (VPC)

Default VPC (vpc-eb7bb996)

Subnet group

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Connectivity

Virtual private cloud (VPC)

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

Default VPC (vpc-eb7bb996)

Only VPCs with a corresponding DB subnet group are listed.

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

Subnet group

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

default

Public access

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

rds-maz-5G

Additional configuration

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Additional configuration

Database options

Database options, encryption disabled, failover, backup enabled, backtrack disabled, Enhanced Monitoring enabled, maintenance, CloudWatch Logs, delete protection disabled

Initial database name

whizlabsrds

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

DB cluster parameter group

default:aurora-mysql5.7

DB parameter group

default:aurora-mysql5.7

Option group

default:aurora-mysql-5-7

Failover priority

No preference

Backup

Creates a point-in-time snapshot of your database

Backup retention period

Choose the number of days that RDS should retain automatic backups for this instance.

1 day

Copy tags to snapshots

Encryption

Enable encryption

Choose to encrypt the given instance. Master key IDs and aliases appear in the list after they have been created using the AWS Key Management Service console.

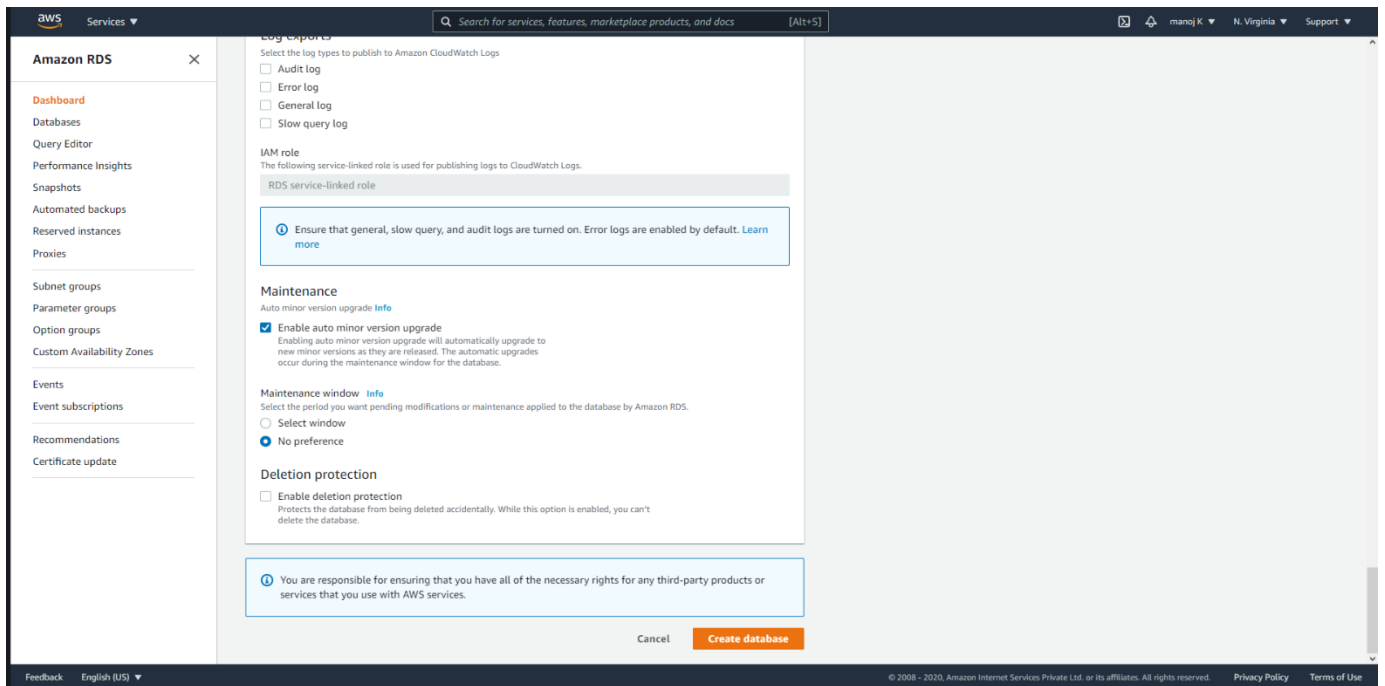
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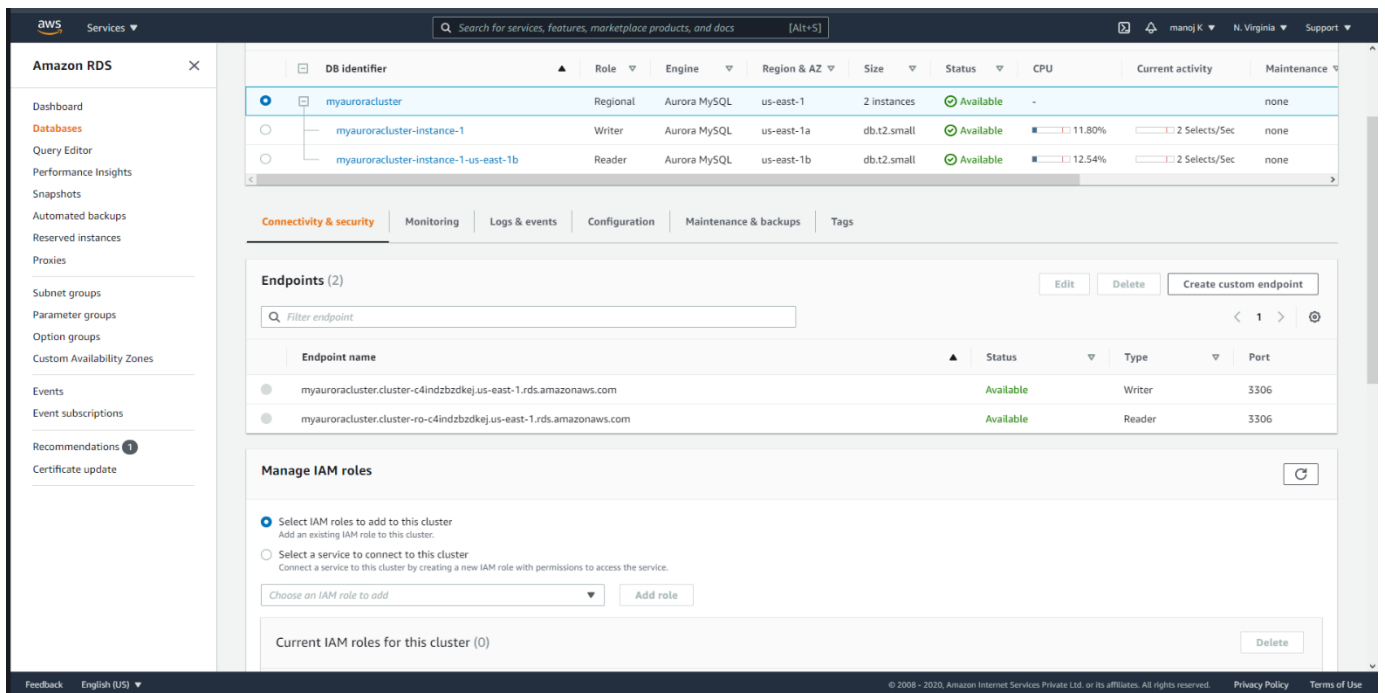
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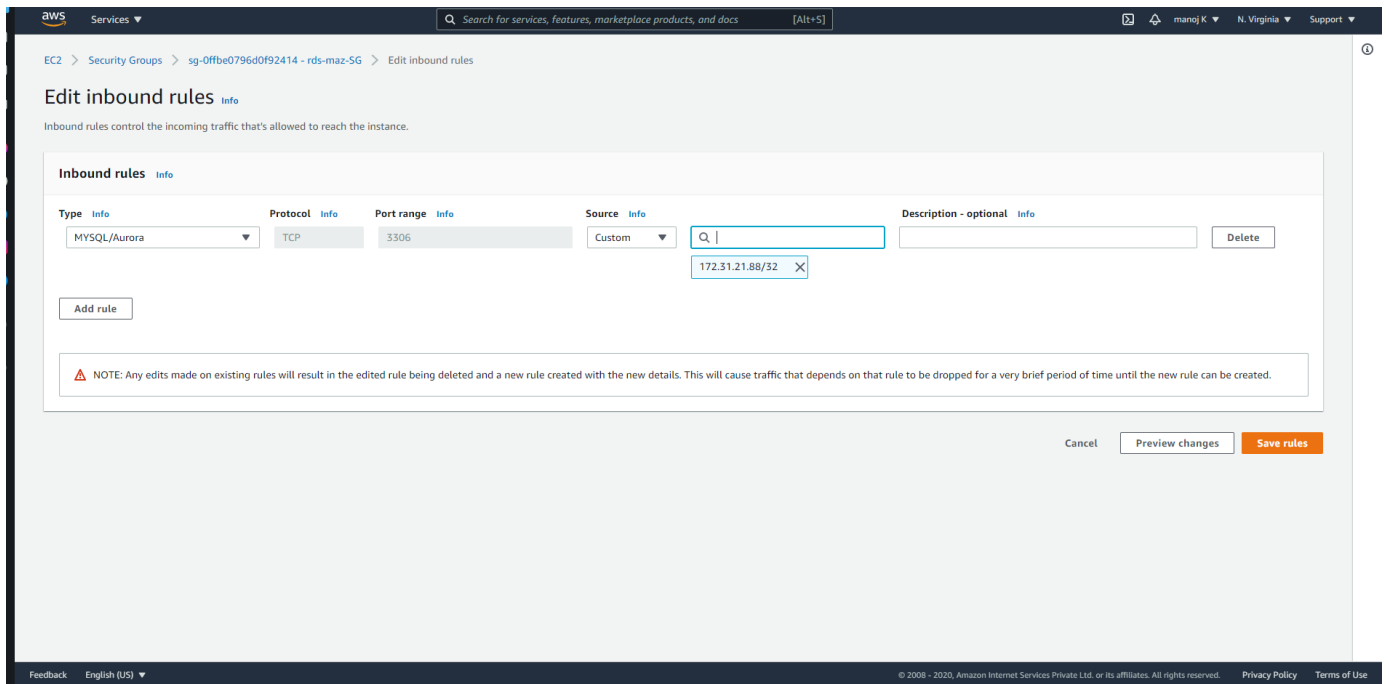
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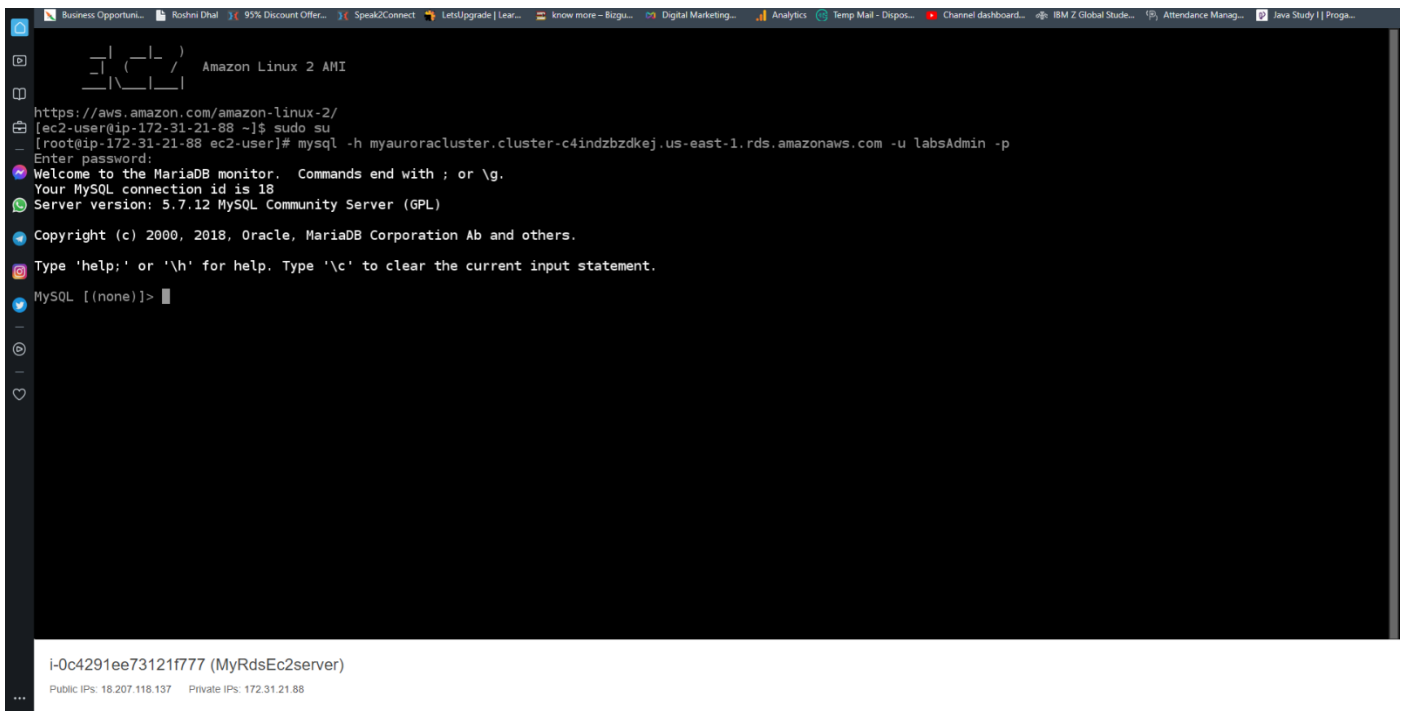
Connecting to the Aurora (MySQL) database on RDS





Changing security for RDS

Execute Database Operations via SSH



```
Business Opportuni... Roshni Dhal 95% Discount Offer... Speak2Connect LetsUpgrade | Lear... know more - Bizga... Digital Marketing... Analytics Temp Mail - Dispos... Channel dashboard... IBM Z Global Studie... Attendance Manag... Java Study | Progra...

MySQL [(none)]> Show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
| whizlabsrds |
+-----+
5 rows in set (0.02 sec)

MySQL [(none)]> Create database auroro_db;
Query OK, 1 row affected (0.02 sec)

MySQL [(none)]> use auroro_db;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'use auroro_db'
at line 1
MySQL [(none)]> use auroro_db;
Database changed
MySQL [auroro_db]> CREATE TABLE students ( subject_id INT AUTO_INCREMENT, subject_name VARCHAR(255) NOT NULL, teacher VARCHAR(255),start_date DATE, lesson TEXT,PRIMARY
KEY (subject_id));
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'teacher VARCHA
R(255),start_date DATE, lesson TEXT,PRIMARY KEY (subject_id))' at line 1
MySQL [auroro_db]> CREATE TABLE students ( subject_id INT AUTO_INCREMENT, subject_name
-> VARCHAR(255) NOT NULL, teacher VARCHAR(255),start_date DATE, lesson
-> TEXT,PRIMARY KEY (subject_id));
Query OK, 0 rows affected (0.03 sec)

MySQL [auroro_db]> INSERT INTO students(subject_name, teacher) VALUES ('English', 'John Taylor');
Query OK, 1 row affected (0.02 sec)

MySQL [auroro_db]> INSERT INTO students(subject_name, teacher) VALUES ('Science', 'Mary Smith');
Query OK, 1 row affected (0.01 sec)

MySQL [auroro_db]> INSERT INTO students(subject_name, teacher) VALUES ('Maths', 'Ted Miller');
Query OK, 1 row affected (0.01 sec)

i-0c4291ee73121f777 (MyRdsEc2server)
Public IPs: 18.207.118.137 Private IPs: 172.31.21.88
```

```
MySQL [(none)]> use auroro_db;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'use auroro_db'
at line 1
MySQL [(none)]> use auroro_db;
Database changed
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KEY (subject_id));
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'teacher VARCHA
R(255),start_date DATE, lesson TEXT,PRIMARY KEY (subject_id))' at line 1
MySQL [auroro_db]> CREATE TABLE students ( subject_id INT AUTO_INCREMENT, subject_name
-> VARCHAR(255) NOT NULL, teacher VARCHAR(255),start_date DATE, lesson
-> TEXT,PRIMARY KEY (subject_id));
Query OK, 0 rows affected (0.03 sec)

MySQL [auroro_db]> INSERT INTO students(subject_name, teacher) VALUES ('English', 'John Taylor');
Query OK, 1 row affected (0.02 sec)

MySQL [auroro_db]> INSERT INTO students(subject_name, teacher) VALUES ('Science', 'Mary Smith');
Query OK, 1 row affected (0.01 sec)

MySQL [auroro_db]> INSERT INTO students(subject_name, teacher) VALUES ('Maths', 'Ted Miller');
Query OK, 1 row affected (0.01 sec)

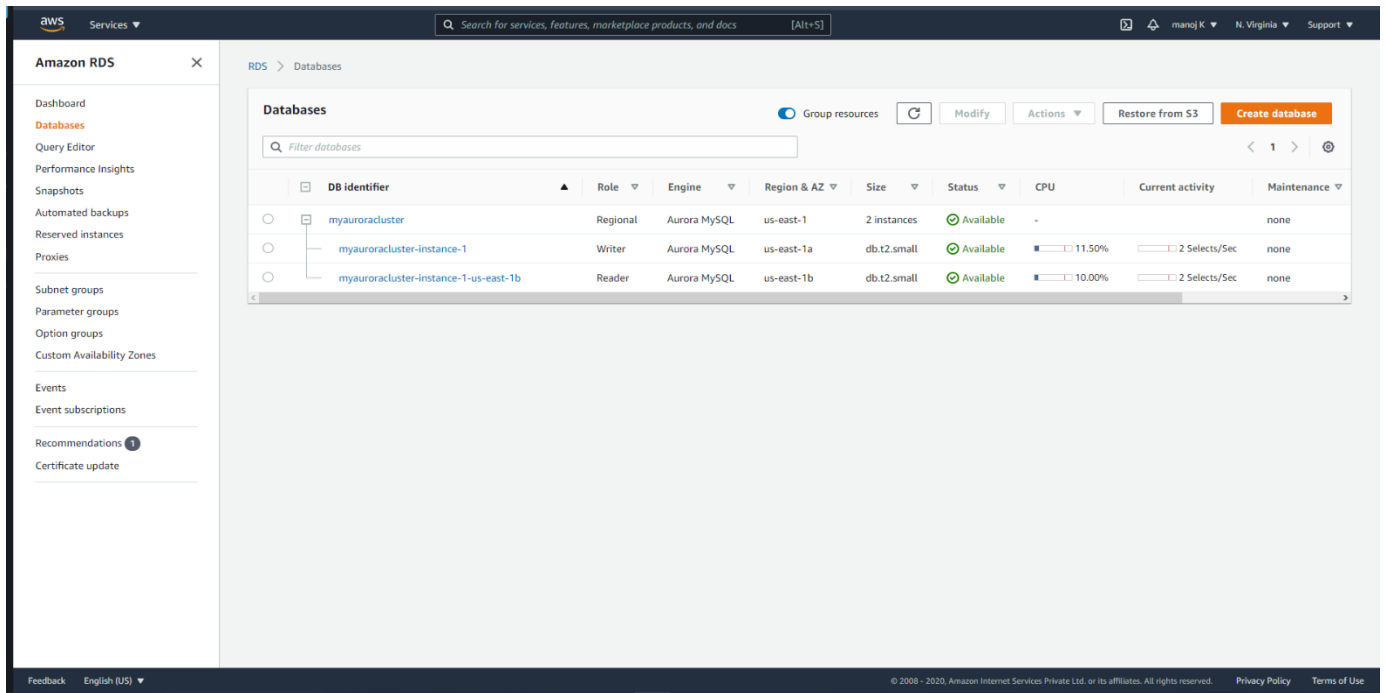
MySQL [auroro_db]> INSERT INTO students(subject_name, teacher) VALUES ('Arts', 'Suzan Carpenter');
Query OK, 1 row affected (0.01 sec)

MySQL [auroro_db]> select * from students;
+-----+-----+-----+-----+-----+
| subject_id | subject_name | teacher | start_date | lesson |
+-----+-----+-----+-----+-----+
| 1 | English | John Taylor | NULL | NULL |
| 2 | Science | Mary Smith | NULL | NULL |
| 3 | Maths | Ted Miller | NULL | NULL |
| 4 | Arts | Suzan Carpenter | NULL | NULL |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

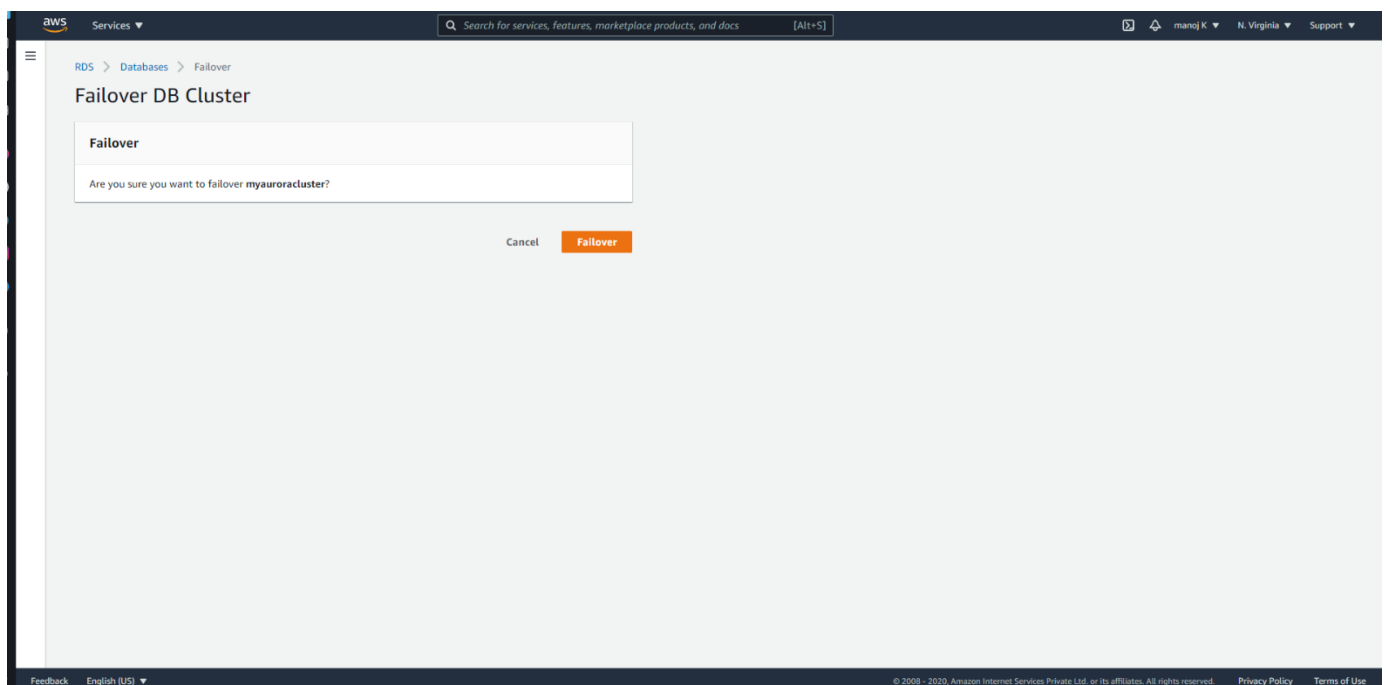
MySQL [auroro_db]>

i-0c4291ee73121f777 (MyRdsEc2server)
Public IPs: 18.207.118.137 Private IPs: 172.31.21.88
```

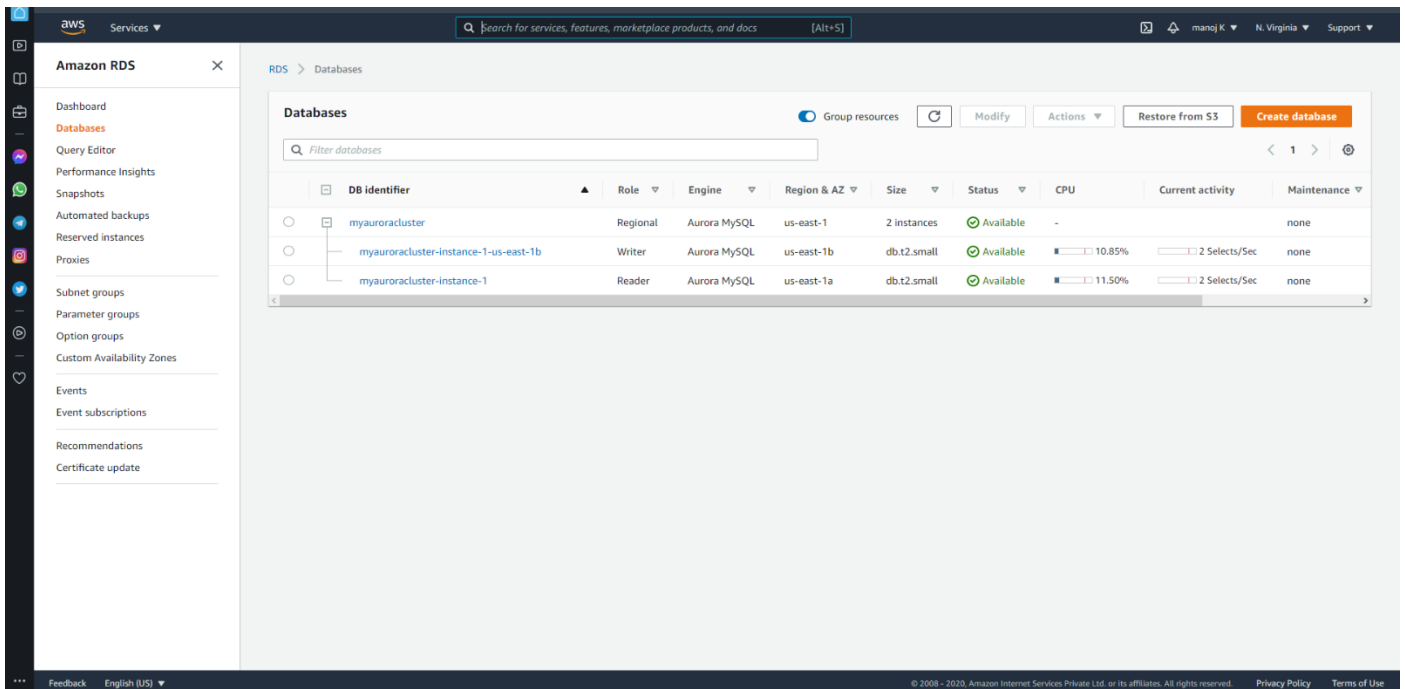
Forcing a Failover to Test Multi-AZ



Cluster before forcing a failover

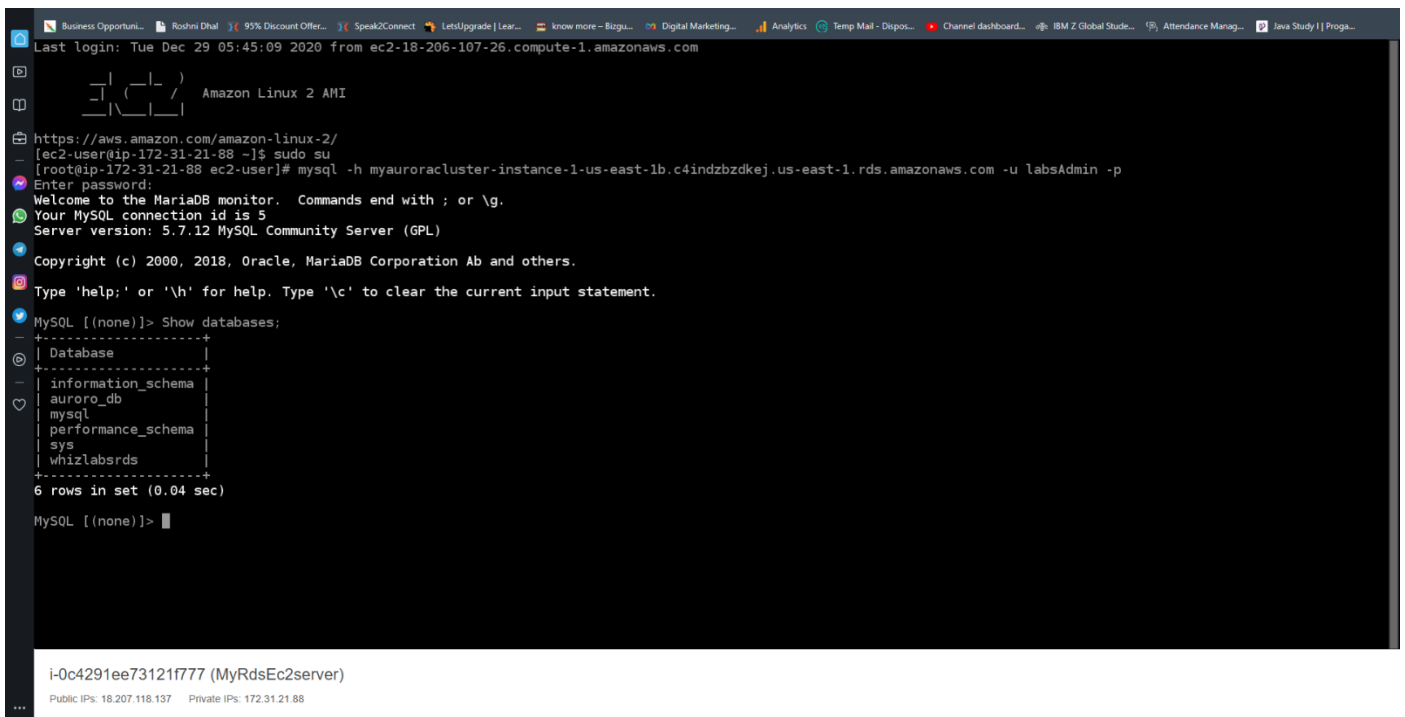


Creating failover of the Writer



Changing of writer and reader after failover

Testing the Failover Condition



Reading table information for completion of table and column names
 You can turn off this feature to get a quicker startup with -A

Database changed

```
MySQL [auroro_db]> show tables;
+-----+
| Tables_in_auroro_db |
+-----+
| students             |
+-----+
1 row in set (0.01 sec)
```

```
MySQL [auroro_db]> select * from students;
+-----+-----+-----+-----+-----+
| subject_id | subject_name | teacher | start_date | lesson |
+-----+-----+-----+-----+-----+
| 1 | English | John Taylor | NULL | NULL |
| 2 | Science | Mary Smith | NULL | NULL |
| 3 | Maths | Ted Miller | NULL | NULL |
| 4 | Arts | Suzan Carpenter | NULL | NULL |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

```
MySQL [auroro_db]> INSERT INTO students(subject_name, teacher) VALUES ('Spanish', 'Isabella');
Query OK, 1 row affected (0.01 sec)
```

```
MySQL [auroro_db]> select * from students;
+-----+-----+-----+-----+-----+
| subject_id | subject_name | teacher | start_date | lesson |
+-----+-----+-----+-----+-----+
| 1 | English | John Taylor | NULL | NULL |
| 2 | Science | Mary Smith | NULL | NULL |
| 3 | Maths | Ted Miller | NULL | NULL |
| 4 | Arts | Suzan Carpenter | NULL | NULL |
| 5 | Spanish | Isabella | NULL | NULL |
+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

```
MySQL [auroro_db]>
```

i-0c4291ee73121f777 (MyRdsEc2server)

Public IPs: 18.207.118.137 Private IPs: 172.31.21.88