

Configure Amazon RDS with MySQL engine and establish connection from an EC2 instance.

Objectives:

1. Learn RDS and deploy MySQL database engine using RDS service.
2. Test RDS/MySQL database connection from EC2 instance.

Step 1: In **EC2** service console, go to **Security groups** in side panel. Click on **Create security groups**.



Create a Security Group for Linux Server with following configuration:

Security group name: LinuxSG

Description: Security Group for Linux Server

Type: SSH

Source: 0.0.0.0/0

Click on **Create security group** button in bottom right corner. Confirm that it is created.

Go back to **EC2** service console, go to **Security groups** in side panel. Click on **Create security groups**.

Provide **Security group name** as RDS-SG.

Provide **Description** as Security Group for Database.

Provide following Inbound rules:

1. **Type:** SSH
Source: 0.0.0.0/0
2. **Type:** MySQL/Aurora
Source: LinuxSG (security group that would be used to create the EC2 instance)

Cloud Plus Plus Services



Type	Protocol	Port range	Source
SSH	TCP	22	0.0.0.0/0
MYSQL/Aurora	TCP	3306	sg-0a543e89ae24da77e (LinuxSG)

Click on **Create security group** button in bottom right corner. Confirm that it is created.

Step 2: Go to **RDS** service console. Click on **Create database**.

Choose a **Standard create** database creation method.

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.

Select the **MySQL** radio button in **Engine options**. Confirm **MySQL 8.0.20**

Engine options

Engine type [Info](#)

☐ Amazon Aurora

☒ **MySQL**

☐ MariaDB

☐ PostgreSQL

☐ Oracle

☐ Microsoft SQL Server

Edition

☒ MySQL Community

[Known Issues/Limitations](#)
Review the [Known Issues/Limitations](#) to learn about potential compatibility issues with specific database versions.

Version

MySQL 8.0.20

Cloud Plus Plus Services



Select the **Dev/Test** in **Templates**.

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](#)

Under **Settings**:

Give **DB instance identifier** as **mydatabase1**.

Provide **Credentials Settings** as per your choice and store it in a secure place. We refer to following values for this document:

- Master Username: **rdsuser123**
- Master password: **rdspass123**

Settings

DB cluster identifier [Info](#)
Type a name for your DB cluster. The name must be unique across all DB clusters owned by your AWS account in the current AWS Region.

mydatabase1

The DB cluster identifier is case-insensitive, but is stored as all lowercase (as in "mydbcluster"). 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.

rdsuser123

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](#)

.....

Cloud Plus Plus Services



Let the **DB instance class** be **Standard Classes** and **size** be **db.m5.xlarge**.

Confirm the default **Storage** settings as **Storage type**: **General type- General Purpose (SSD)** and **Allocated storage** **20 GiB**.

Uncheck the **Enable storage autoscaling**.

Under **Availability & durability** select **Do not create a standby instance** radio button.

Connectivity section will have Default VPC selected.

Click on **Additional connectivity configuration** for drop down.

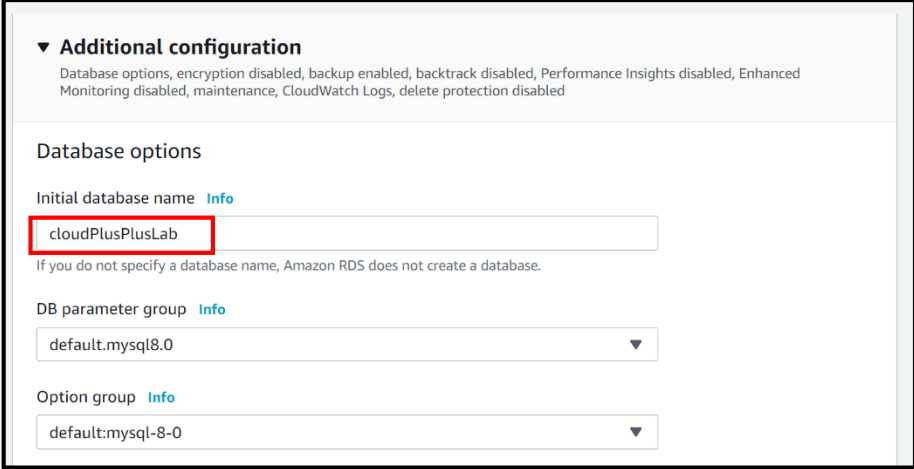
- Select **default-vpc** Subnet group.
- Select **Yes** radio button under **Public access**.
- Select **Choose Existing** radio button in **VPC security group**.
- In the **Existing VPC security groups** default will be selected. Remove this security group by clicking on the **cross** sign. Select the **RDS-SG** created in previous step.
- In **Availability Zone** select **1a** which should be **same as the AZ of Linux Instance**.
- The **Database port** will be default **3306**.

Database authentication is set to **Password authentication**.

Click on **Additional configuration** drop down.

Provide **Initial database name** as **cloudPlusPlusLab**.

DB **parameter group** and **Option group** will be **default mysql8.0**.



▼ **Additional configuration**
Database options, encryption disabled, backup enabled, backtrack disabled, Performance Insights disabled, Enhanced Monitoring disabled, maintenance, CloudWatch Logs, delete protection disabled

Database options

Initial database name [Info](#)

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

DB parameter group [Info](#)

Option group [Info](#)

In **Backup** the **Enable automatic backups** will be checked.

Backup retention period will be **0 days**.

Backup window will have **No preference** selected.

Uncheck **Copy tags to snapshots**.

Uncheck **Enable Encryption**.

Uncheck **Enable Performance Insights**.

Uncheck **Enable Enhanced monitoring**.

Uncheck all options under **Log Exports**.

Uncheck **Enable auto minor version upgrade**.

Select **No preference** for **Maintenance window**.

Uncheck **Enable deletion protection**.

Ensure no additional cost is being incurred in the **Estimated monthly cost** section.

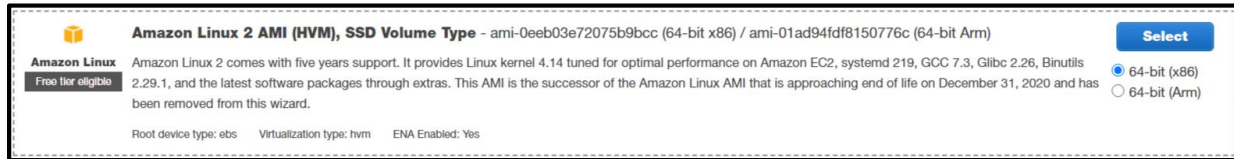
Click on **Create database** button in bottom right corner.

Confirm that the database is created and **Available**.

Cloud Plus Plus Services

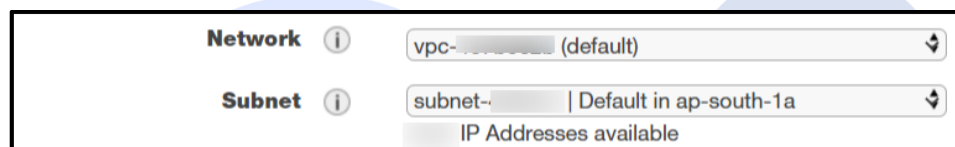


Step 3: Go to **EC2** in AWS Console. Click on **Launch Instance**. Select the **Linux2 AMI**.

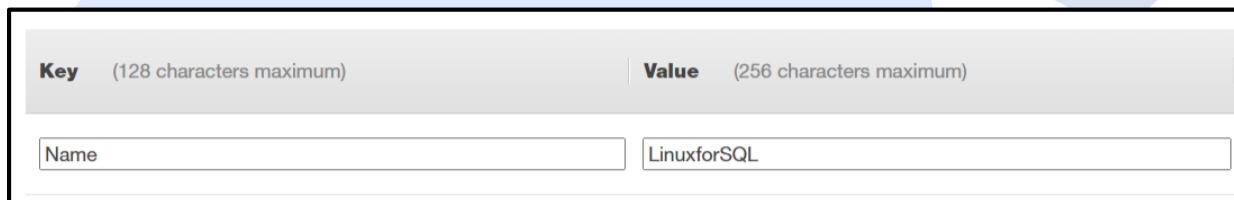


In **Step 2: Choose an Instance Type** keep the default **t2.micro** and go to next step.

In **Step 3**, select a subnet same as the one in which RDS is created. In our case we select **ap-south-1a**.



Keep the defaults for **Step 4: Add Storage**. And go to Step 5. Provide the **Key** as **Name** and **Value** as **LinuxForSQL**.



In **Step 6** select the **existing** Linux Server Security Group **LinuxSG** created earlier in this exercise. For more information refer to our blog in [Linux Server Configuration here](#). **Review, acknowledge the Key-pair** and **Launch** the Instance. Make sure it is running.

Step 4: SSH into the instance.

Run the following command to establish root user access:

```
sudo su
```

Run the next command to install mysql on your instance:

```
yum install mysql
```

During installation, you would be prompted at following screen. Type **Y** and press **Enter** to proceed.

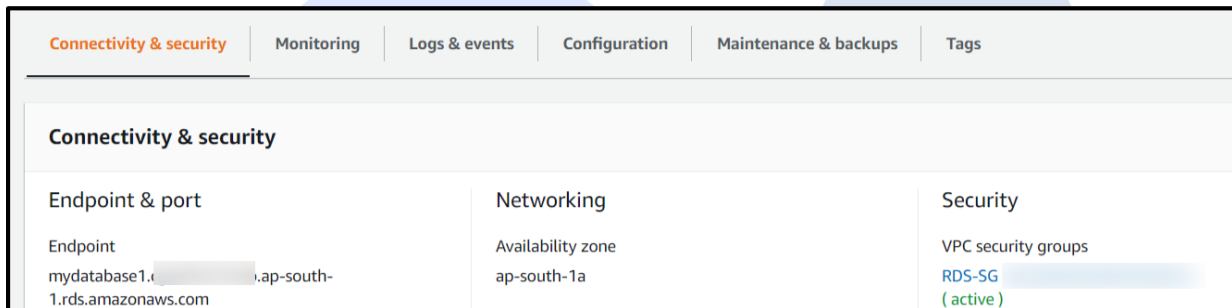
```
Total download size: 8.8 M
Installed size: 49 M
Is this ok [y/d/N]: y
```

The installation will be complete.

```
Installed:
  mariadb.x86_64 1:5.5.68-1.amzn2

Complete!
```

Go to RDS in console, click on your RDS instance and copy the endpoint.



Run the following command in SSH where the blue part will be replaced by your end point and user name:

```
mysql --user rdsuser123 --password --host mydatabase1.1.rds.amazonaws.com
```

You will be prompted to enter password in which you enter the password provided during creation of RDS instance:

```
[root@ip-172-31-13-46 ec2-user]# mysql --user rdsuser123 --password --host mydatabase1.1.rds.amazonaws.com
Enter password:
```

If the command, endpoint and password is entered correctly, the following will be prompted.

```
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 14
Server version: 8.0.20 Source distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

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

MySQL [(none)]>
```

Run the following SQL queries to test the database, here the blue part will be replaced by your database name that was provided during creation of RDS instance:

```
CREATE TABLE cloudPlusPlusLab.employee (firstname text, lastname text, phone text);
```

```
INSERT INTO cloudPlusPlusLab.employee VALUES ("Harry", "Potter", "123-4567");
```

```
INSERT INTO cloudPlusPlusLab.employee VALUES ("Virat", "Kohli", "987-6543");
```

```
SELECT * FROM cloudPlusPlusLab.employee;
```

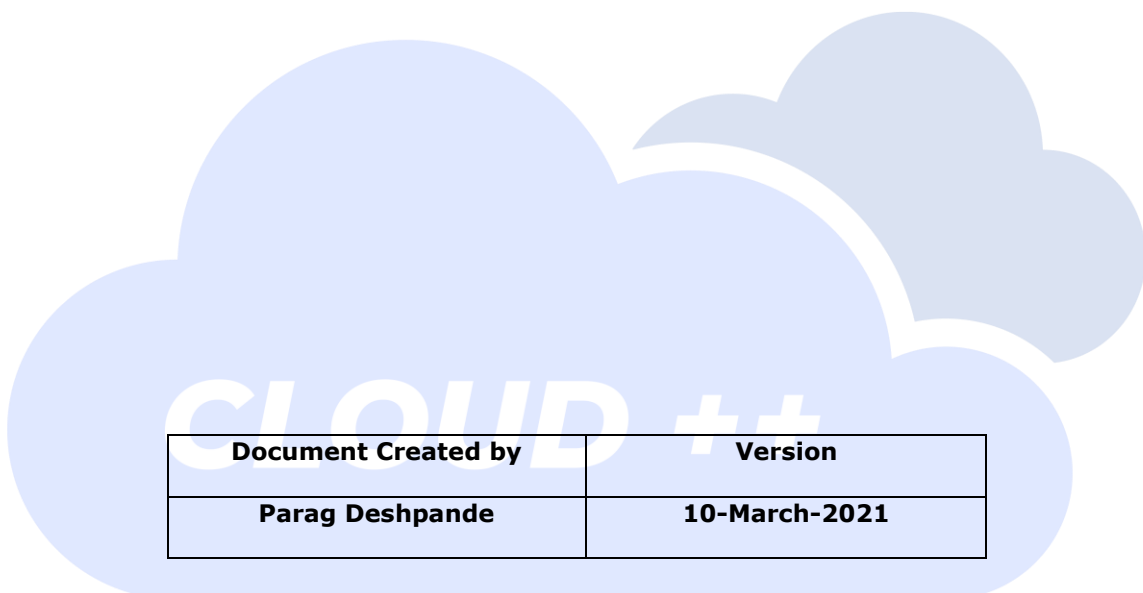
```
MySQL [(none)]> SELECT * FROM cloudPlusPlusLab.employee;
+-----+-----+-----+
| firstname | lastname | phone |
+-----+-----+-----+
| Harry     | Potter   | 123-4567 |
| Virat     | Kohli    | 987-6543 |
+-----+-----+-----+
2 rows in set (0.00 sec)
```

Thus we have successfully established connection with RDS using the Linux EC2 Instance.

Note: Delete RDS instance, Security groups and terminate the instances if you no longer need them.

Your trusted partner for
cloud enablement

Was this document helpful? YES / NO



Document Created by	Version
Parag Deshpande	10-March-2021

Your trusted partner for
cloud enablement