

Akshada Anil Kanawade.

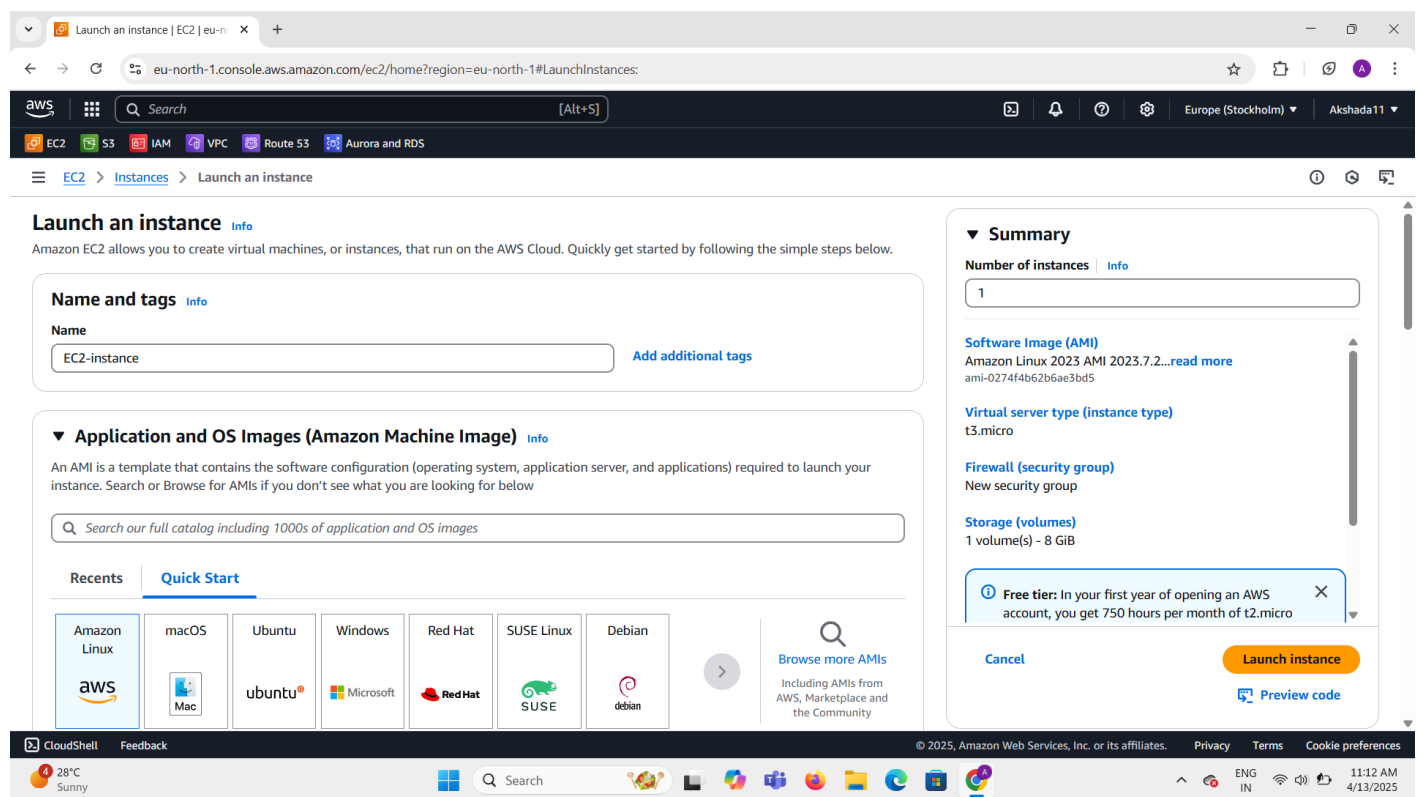
## AWS Mini Project.

### Migrate EC2 Instance & RDS MariaDB Integration

#### Key Points :

- Deployed an EC2 instance and configured a MariaDB database using AWS RDS.
- Performed database operations like creating databases and inserting values.
- Migrated data from the EC2-hosted database to the RDS instance for seamless integration and scalability.

#### 1. Create EC2-Instance.



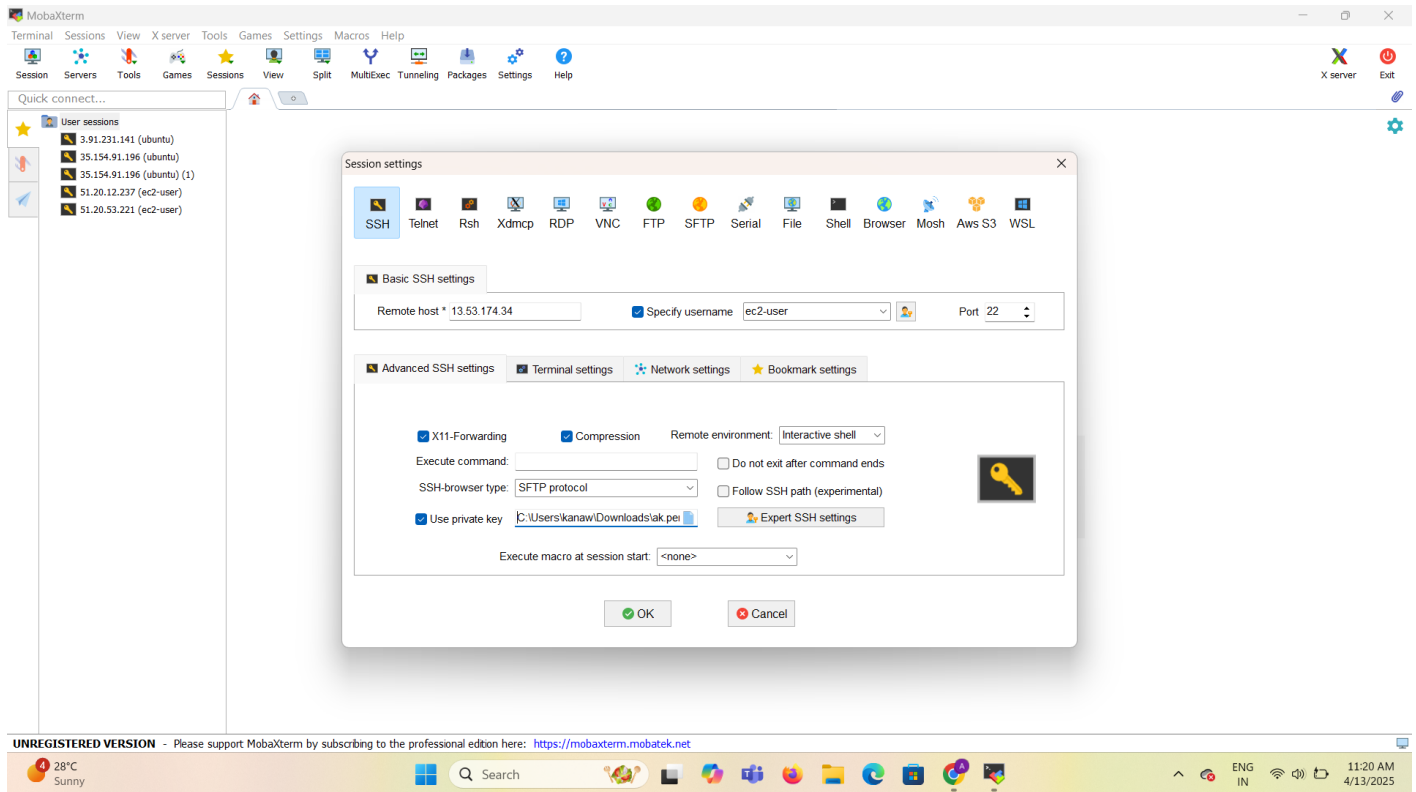
## 2. Successfully created Ec2- instance.

The screenshot displays the AWS Management Console for the eu-north-1 region. The left-hand navigation pane shows the 'EC2' service selected, with a sub-menu for 'Instances'. The main content area, titled 'Instances (1/1) Info', shows a table with one instance: 'EC2-instance' with ID 'i-06fd0ac47ea883c35'. The instance is in a 'Running' state, using the 't3.micro' instance type, and is in the 'eu-north-1b' availability zone. Below the table, the 'Details' tab for the instance 'i-06fd0ac47ea883c35 (EC2-instance)' is active. It shows the instance summary, including the instance ID, IPv6 address, and instance state (Running). It also displays the public IPv4 address (13.53.174.34) and private IPv4 addresses (172.31.39.238). The public IPv4 DNS is listed as 'ec2-13-53-174-34.eu-north-1.compute.amazonaws.com'.

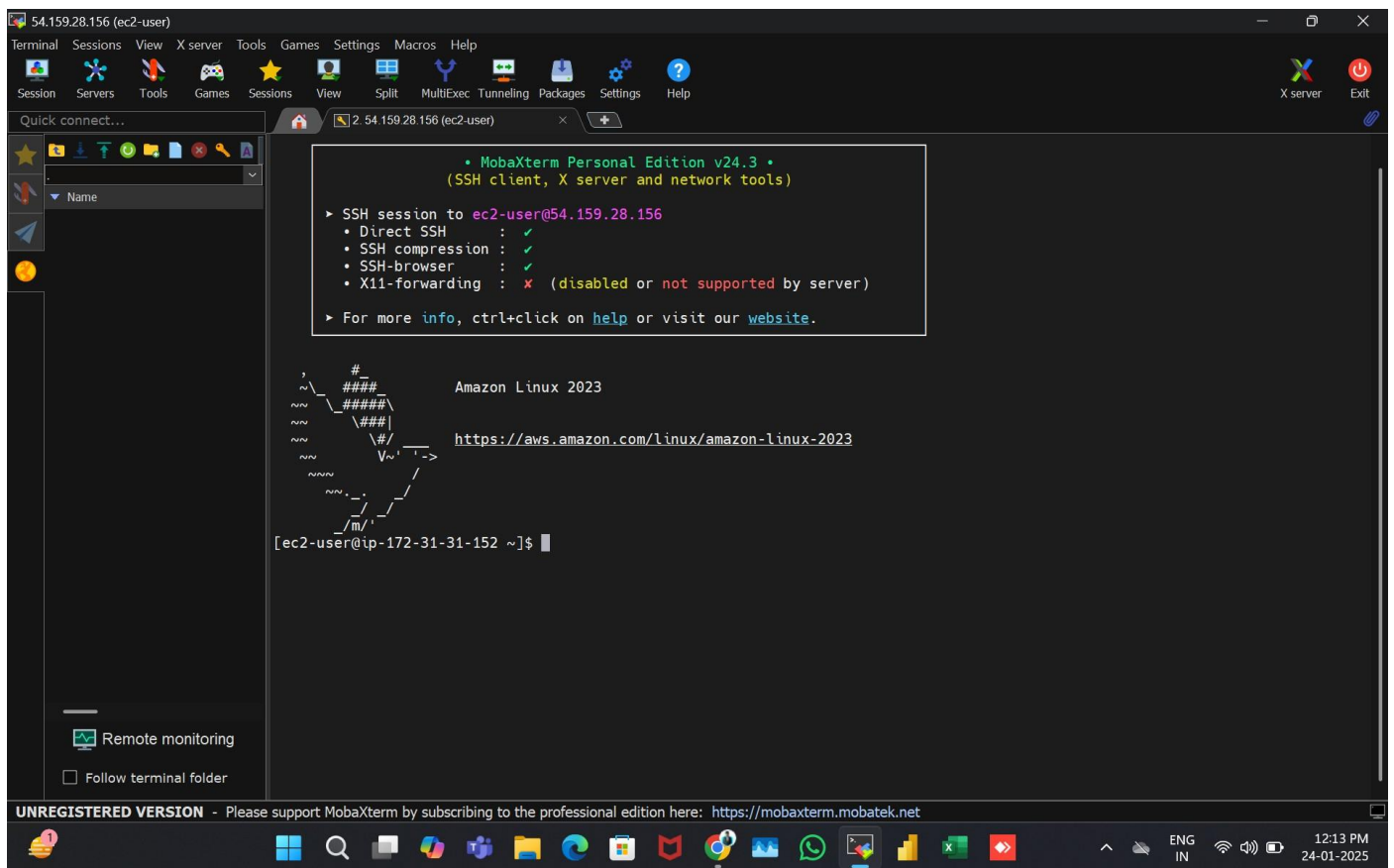
## 2. Add Security group in ec2-instance.

The screenshot shows the 'Edit inbound rules' page for a security group in the AWS Management Console. The breadcrumb navigation indicates the path: 'EC2 > Security Groups > sg-0eaaa3ed48b5bb2ad - launch-wizard-3 > Edit inbound rules'. The page title is 'Edit inbound rules' with an 'Info' link. A note states: 'Inbound rules control the incoming traffic that's allowed to reach the instance.' The 'Inbound rules' section shows a table with two rules. The first rule has a Security group rule ID of 'sgr-06b2e4b1902baebb2', Type 'SSH', Protocol 'TCP', Port range '22', Source 'Custom', and Description '0.0.0.0/0'. The second rule has a Security group rule ID of '-', Type 'MySQL/Aurora', Protocol 'TCP', Port range '3306', Source 'Anyw...', and Description '0.0.0.0/0'. There are 'Delete' buttons for each rule. At the bottom, there is a warning message: 'Rules with source of 0.0.0.0/0 or :::0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.' Below the warning are 'Cancel', 'Preview changes', and 'Save rules' buttons.

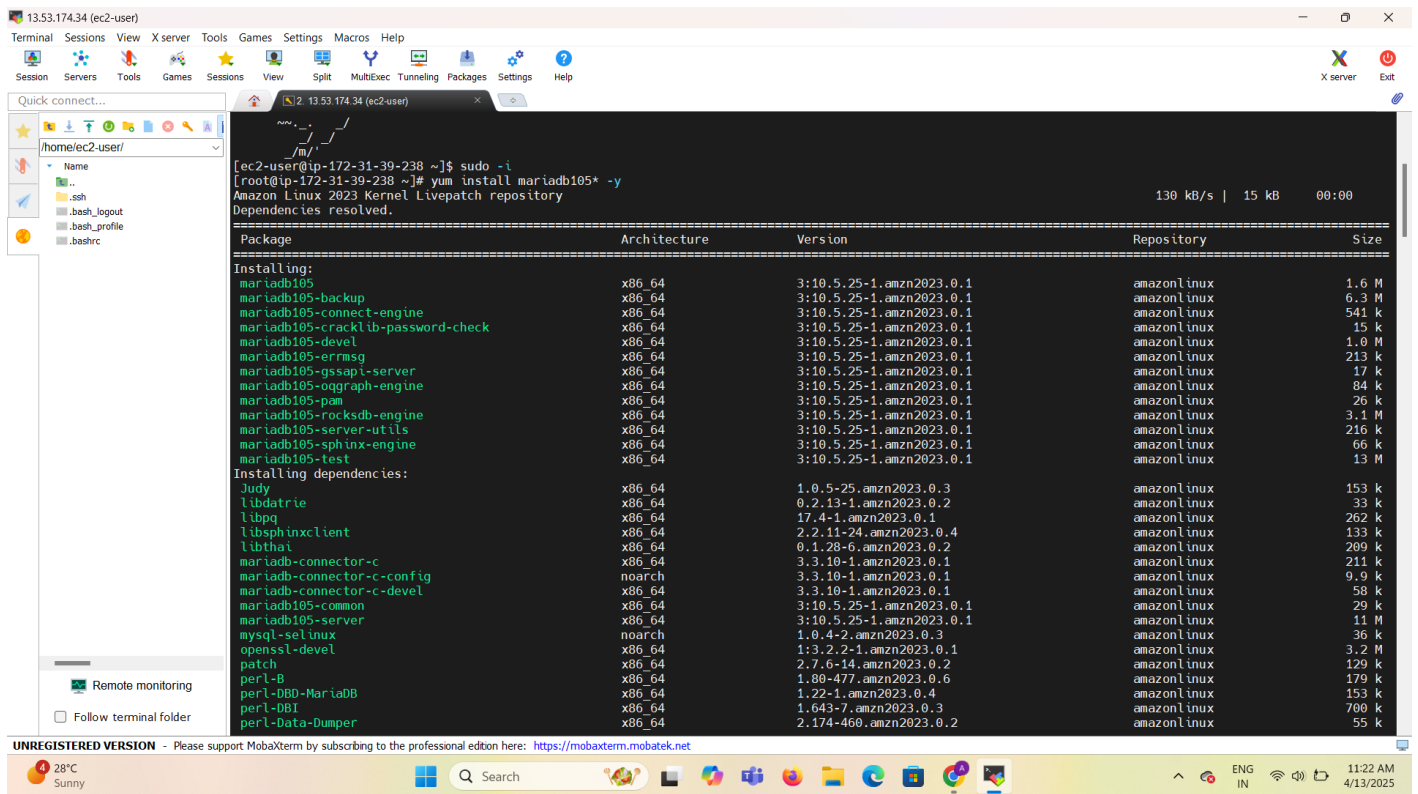
### 3. Get SSH of your ec2-instance .



#### 4. Successfully access the ec2-instance using SSH.



## 5. Switch to root user and install mariadb on ec2-instance. Cmd for switch user :- 'sudo -i'



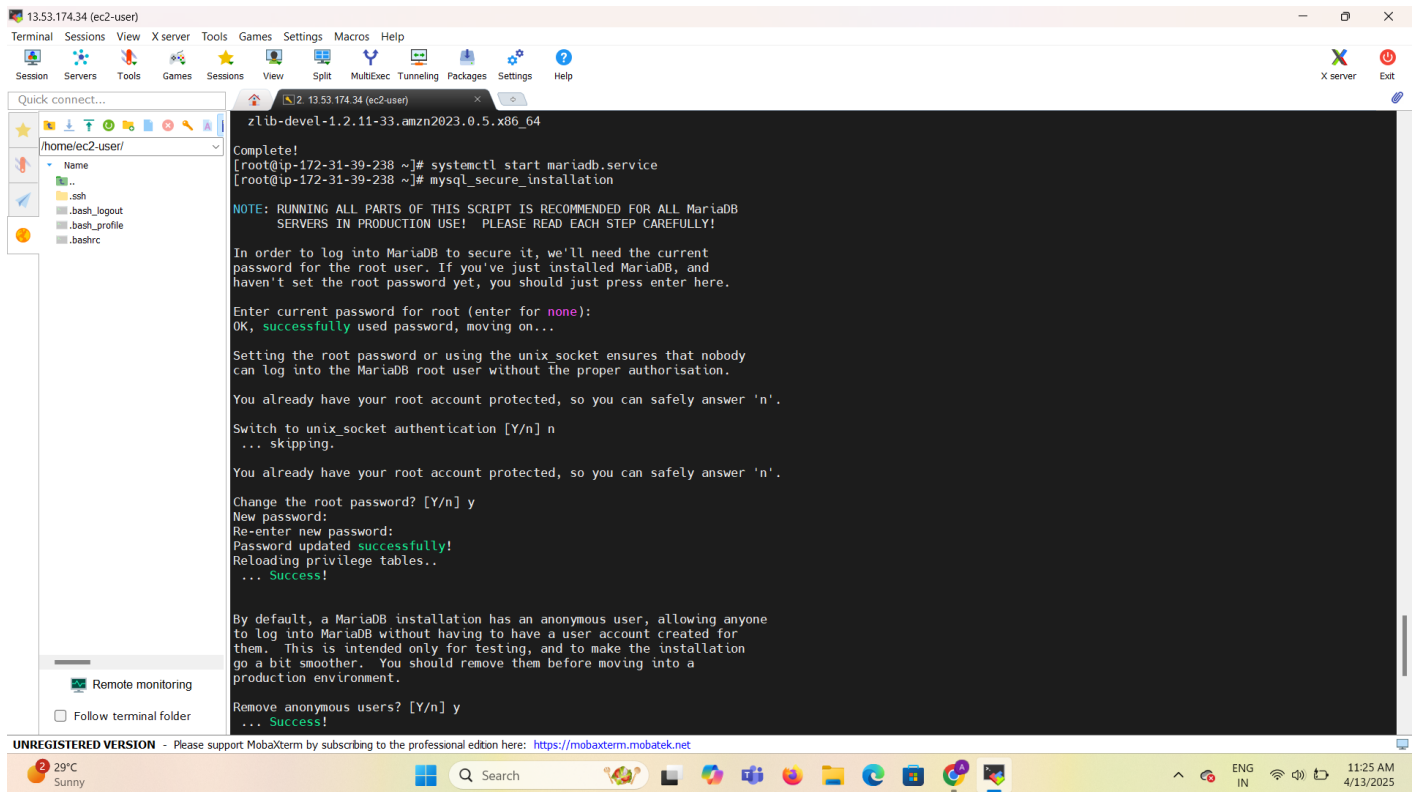
```
[ec2-user@ip-172-31-39-238 ~]$ sudo -i
[root@ip-172-31-39-238 ~]# yum install mariadb105* -y
Amazon Linux 2023 Kernel Livepatch repository
Dependencies resolved.

=====
Package                                Architecture    Version                                Repository      Size
=====
Installing:
mariadb105                             x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     1.6 M
mariadb105-backup                       x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     6.3 M
mariadb105-connect-engine               x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     541 k
mariadb105-cracklib-password-check      x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     15 k
mariadb105-devel                         x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     1.0 M
mariadb105-errmsg                       x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     213 k
mariadb105-gssapi-server                x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     17 k
mariadb105-ogggraph-engine              x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     84 k
mariadb105-pam                          x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     26 k
mariadb105-rocksdb-engine               x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     3.1 M
mariadb105-server-utils                 x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     216 k
mariadb105-sphinx-engine                 x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     66 k
mariadb105-test                          x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     13 M
Installing dependencies:
Judy                                     x86_64          1.0.5-25.amzn2023.0.3                 amazonlinux     153 k
libdatrie                               x86_64          0.2.13-1.amzn2023.0.2                 amazonlinux     33 k
libpq                                    x86_64          17.4-1.amzn2023.0.1                  amazonlinux     262 k
libsphinxclient                         x86_64          2.2.11-24.amzn2023.0.4               amazonlinux     133 k
libthai                                 x86_64          0.1.28-6.amzn2023.0.2                amazonlinux     209 k
mariadb-connector-c                     x86_64          3.3.10-1.amzn2023.0.1                amazonlinux     211 k
mariadb-connector-c-config              noarch          3.3.10-1.amzn2023.0.1                amazonlinux     9.9 k
mariadb-connector-c-devel               x86_64          3.3.10-1.amzn2023.0.1                amazonlinux     58 k
mariadb105-common                       x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     29 k
mariadb105-server                       x86_64          3:10.5.25-1.amzn2023.0.1             amazonlinux     11 M
mysql-selinux                           noarch          1.0.4-2.amzn2023.0.3                 amazonlinux     36 k
openssl-devel                           x86_64          1:3.2.2-1.amzn2023.0.1               amazonlinux     3.2 M
patch                                    x86_64          2.7.6-14.amzn2023.0.2                amazonlinux     129 k
perl-B                                   x86_64          1.80-477.amzn2023.0.6                amazonlinux     179 k
perl-DBD-MariaDB                        x86_64          1.22-1.amzn2023.0.4                  amazonlinux     153 k
perl-DBI                                 x86_64          1.643-7.amzn2023.0.3                 amazonlinux     700 k
perl-Data-Dumper                        x86_64          2.174-460.amzn2023.0.2               amazonlinux     55 k

=====
```

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

## 6. Start mariadb service and assign password to database.



```
zlib-devel-1.2.11-33.amzn2023.0.5.x86_64

Complete!
[root@ip-172-31-39-238 ~]# systemctl start mariadb.service
[root@ip-172-31-39-238 ~]# mysql_secure_installation

NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MariaDB
SERVERS IN PRODUCTION USE! PLEASE READ EACH STEP CAREFULLY!

In order to log into MariaDB to secure it, we'll need the current
password for the root user. If you've just installed MariaDB, and
haven't set the root password yet, you should just press enter here.

Enter current password for root (enter for none):
OK, successfully used password, moving on...

Setting the root password or using the unix socket ensures that nobody
can log into the MariaDB root user without the proper authorisation.

You already have your root account protected, so you can safely answer 'n'.

Switch to unix_socket authentication [Y/n] n
... skipping.

You already have your root account protected, so you can safely answer 'n'.

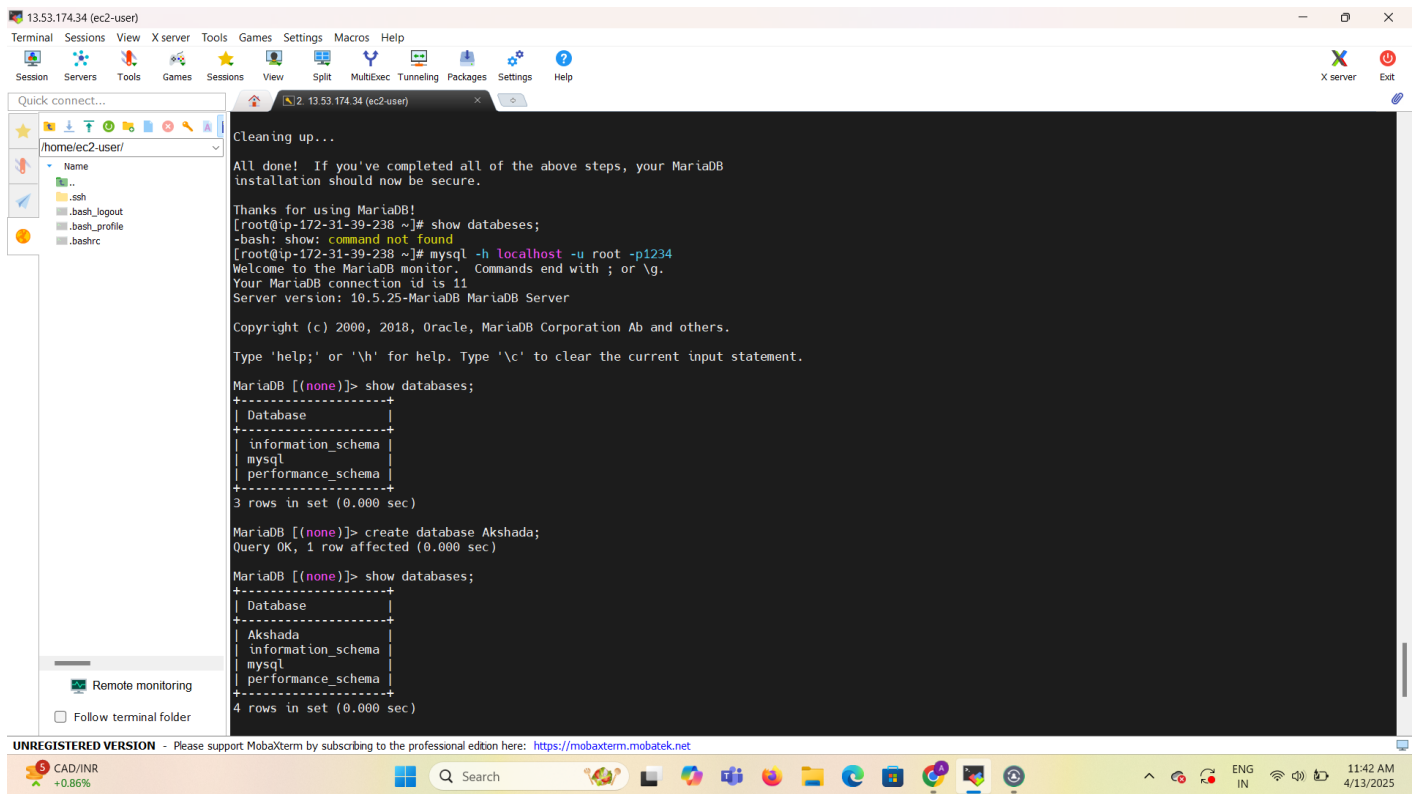
Change the root password? [Y/n] y
New password:
Re-enter new password:
Password updated successfully!
Reloading privilege tables..
... Success!

By default, a MariaDB installation has an anonymous user, allowing anyone
to log into MariaDB without having to have a user account created for
them. This is intended only for testing, and to make the installation
go a bit smoother. You should remove them before moving into a
production environment.

Remove anonymous users? [Y/n] y
... Success!
```

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

## 7. Get Connect the database created on ec2-instance .



The screenshot shows a MobaXterm terminal window titled '13.53.174.34 (ec2-user)'. The terminal output indicates that the MariaDB installation is complete and secure. It shows the user running the command `show databases;` which returns three databases: `information_schema`, `mysql`, and `performance_schema`. Then, the user runs `create database Akshada;` and the output shows 'Query OK, 1 row affected (0.000 sec)'. Finally, the user runs `show databases;` again, which now returns four databases: `Akshada`, `information_schema`, `mysql`, and `performance_schema`. The terminal also shows the user's shell prompt as `root@ip-172-31-39-238 ~` and the MariaDB connection ID as 11. The server version is 10.5.25-MariaDB. The terminal window has a sidebar on the left with a file explorer showing the `/home/ec2-user/` directory. The bottom status bar shows 'UNREGISTERED VERSION' and a link to the professional edition.

```
Cleaning up...

All done! If you've completed all of the above steps, your MariaDB
installation should now be secure.

Thanks for using MariaDB!
[root@ip-172-31-39-238 ~]# show databases;
-bash: show: command not found
[root@ip-172-31-39-238 ~]# mysql -h localhost -u root -p1234
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 11
Server version: 10.5.25-MariaDB MariaDB Server

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

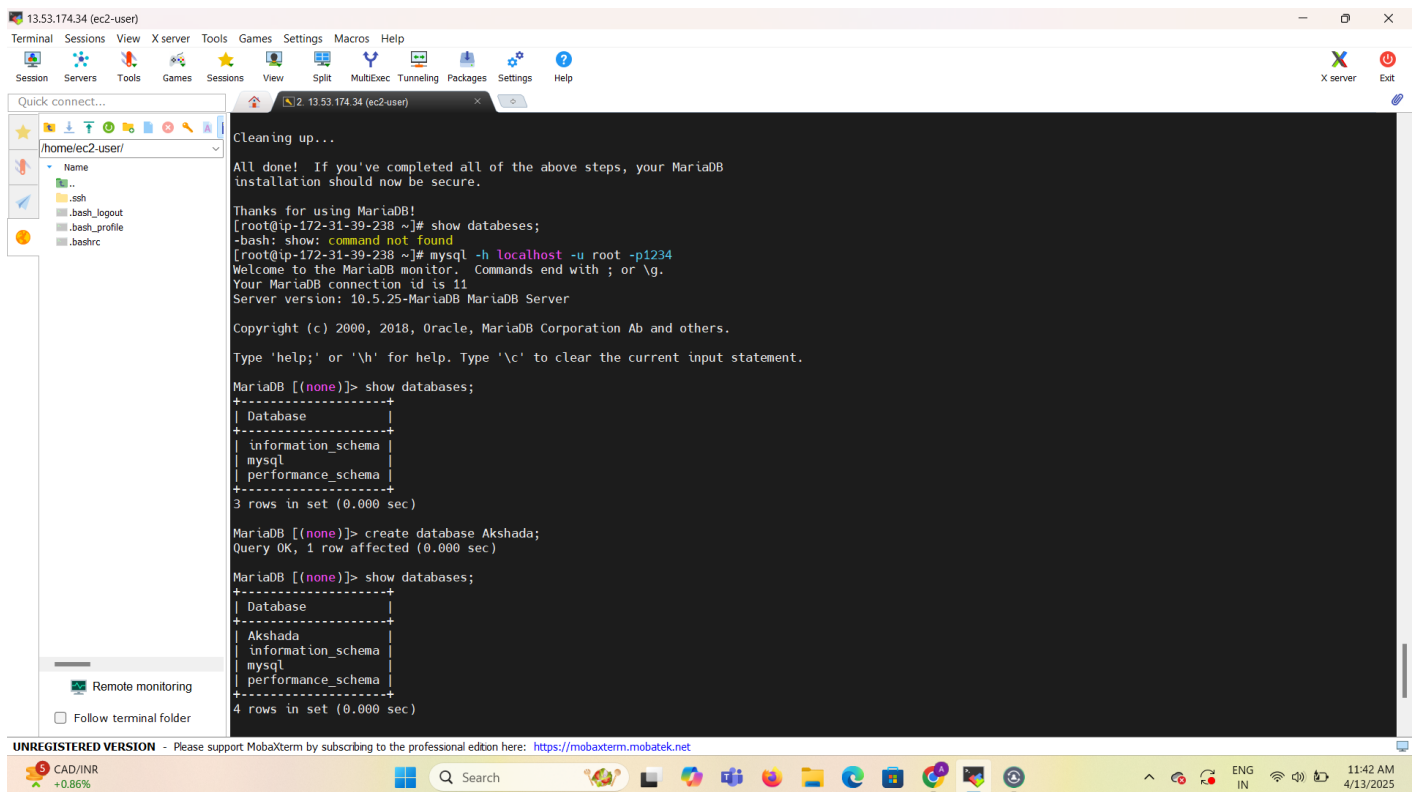
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
+-----+
3 rows in set (0.000 sec)

MariaDB [(none)]> create database Akshada;
Query OK, 1 row affected (0.000 sec)

MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| Akshada |
| information_schema |
| mysql |
| performance_schema |
+-----+
4 rows in set (0.000 sec)
```

## 8. Check existing databases and Create New Database .



This screenshot is identical to the one above, showing the same MobaXterm terminal window with the same output. It shows the user running the command `show databases;` which returns three databases: `information_schema`, `mysql`, and `performance_schema`. Then, the user runs `create database Akshada;` and the output shows 'Query OK, 1 row affected (0.000 sec)'. Finally, the user runs `show databases;` again, which now returns four databases: `Akshada`, `information_schema`, `mysql`, and `performance_schema`. The terminal also shows the user's shell prompt as `root@ip-172-31-39-238 ~` and the MariaDB connection ID as 11. The server version is 10.5.25-MariaDB. The terminal window has a sidebar on the left with a file explorer showing the `/home/ec2-user/` directory. The bottom status bar shows 'UNREGISTERED VERSION' and a link to the professional edition.

```
Cleaning up...

All done! If you've completed all of the above steps, your MariaDB
installation should now be secure.

Thanks for using MariaDB!
[root@ip-172-31-39-238 ~]# show databases;
-bash: show: command not found
[root@ip-172-31-39-238 ~]# mysql -h localhost -u root -p1234
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 11
Server version: 10.5.25-MariaDB MariaDB Server

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

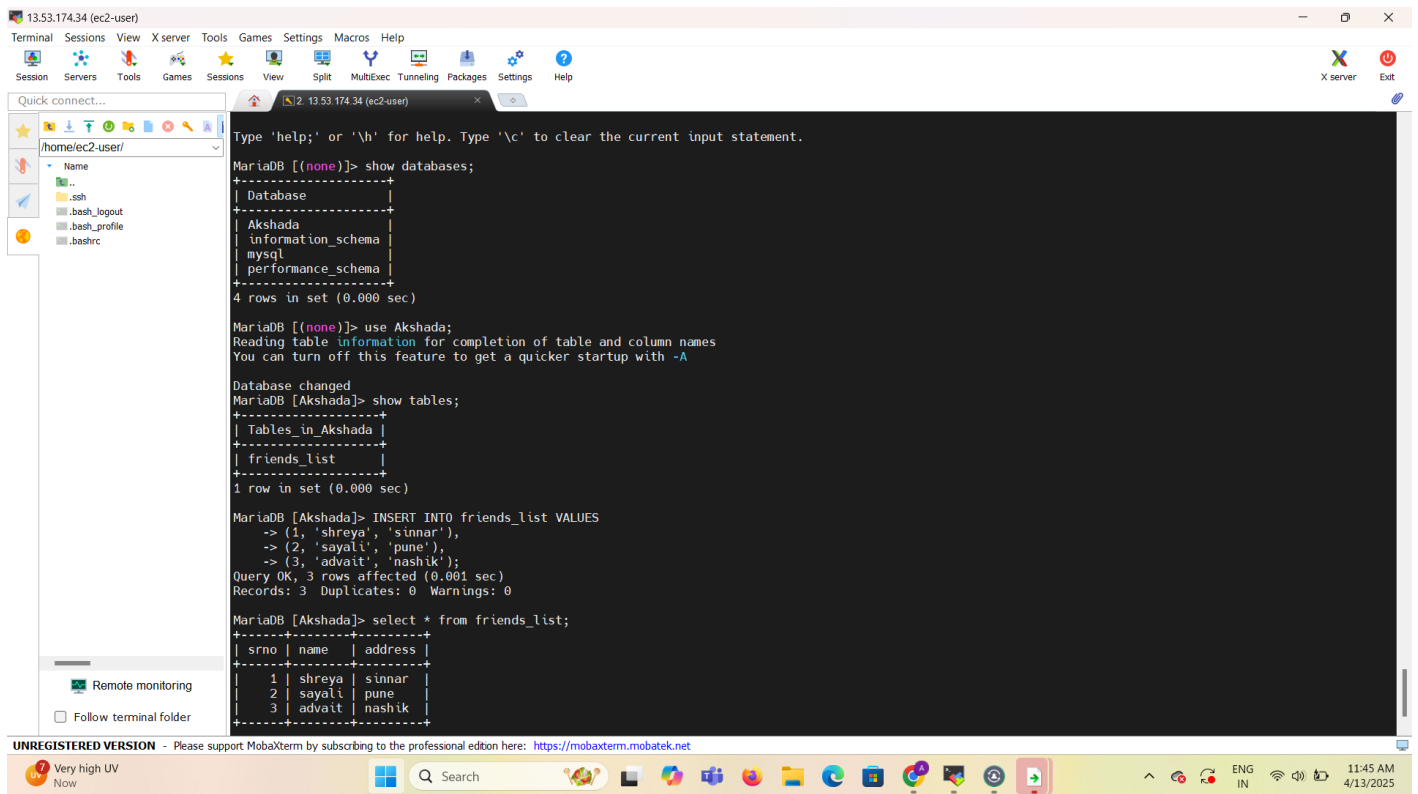
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
+-----+
3 rows in set (0.000 sec)

MariaDB [(none)]> create database Akshada;
Query OK, 1 row affected (0.000 sec)

MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| Akshada |
| information_schema |
| mysql |
| performance_schema |
+-----+
4 rows in set (0.000 sec)
```

## 9. Inside that database create table and insert the values and show the data.



The screenshot shows a MobaXterm terminal window with the following commands and output:

```
MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| Akshada  |
| information_schema |
| mysql    |
| performance_schema |
+-----+
4 rows in set (0.000 sec)

MariaDB [(none)]> use Akshada;
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
MariaDB [Akshada]> show tables;
+-----+
| Tables_in_Akshada |
+-----+
| friends_list       |
+-----+
1 row in set (0.000 sec)

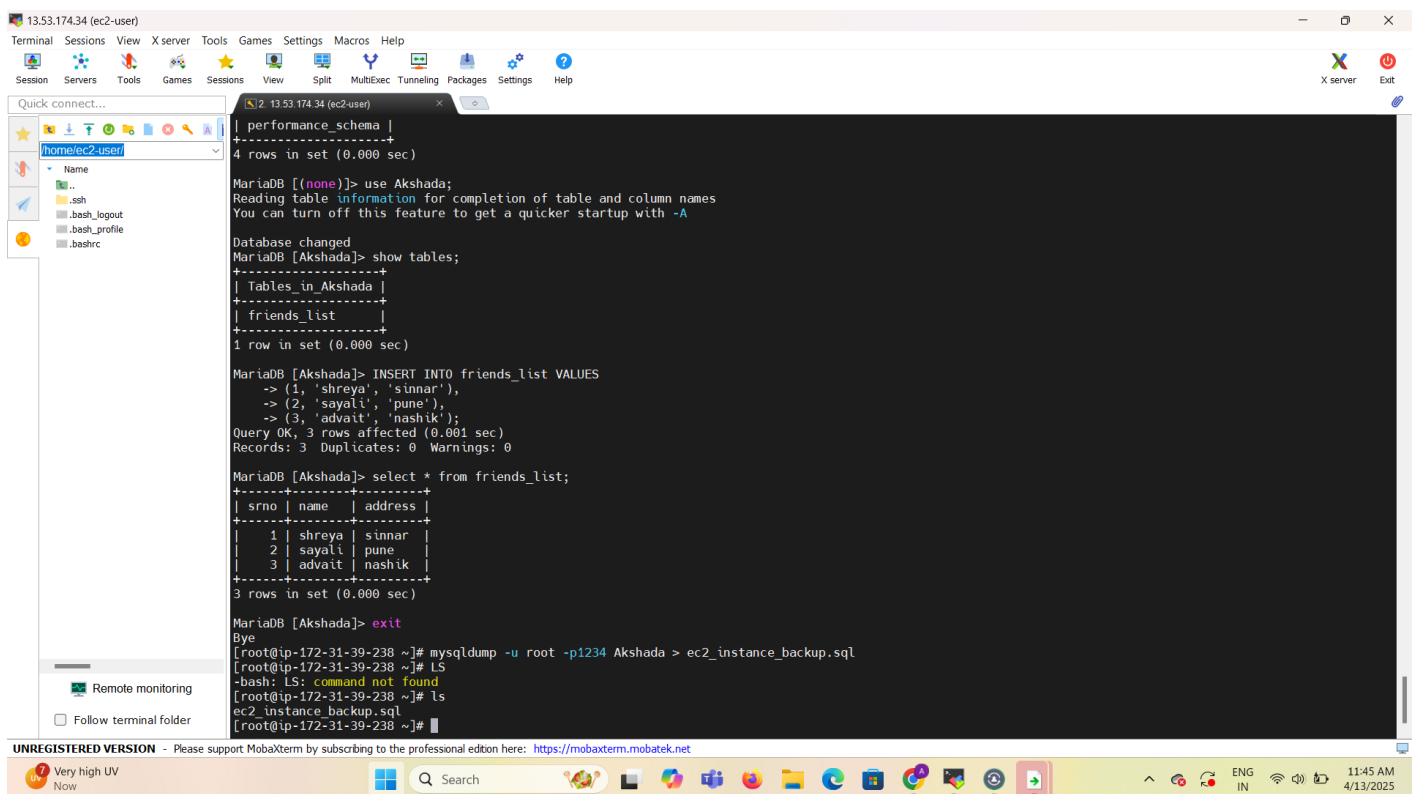
MariaDB [Akshada]> INSERT INTO friends_list VALUES
-> (1, 'shreya', 'sinnar'),
-> (2, 'sayali', 'pune'),
-> (3, 'advait', 'nashik');
Query OK, 3 rows affected (0.001 sec)
Records: 3 Duplicates: 0 Warnings: 0

MariaDB [Akshada]> select * from friends_list;
+-----+-----+-----+
| srno | name  | address |
+-----+-----+-----+
| 1    | shreya | sinnar  |
| 2    | sayali | pune    |
| 3    | advait | nashik  |
+-----+-----+-----+
```

At the bottom of the terminal window, there is a message: "UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>"

## 10. exit the database and create a database file for backup using following cmd .

**Mysql -u (username) -p (password) (database\_name) > new file name.sql**



The screenshot shows a MobaXterm terminal window with the following commands and output:

```
MariaDB [(none)]> use Akshada;
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
MariaDB [Akshada]> show tables;
+-----+
| Tables_in_Akshada |
+-----+
| friends_list       |
+-----+
1 row in set (0.000 sec)

MariaDB [Akshada]> INSERT INTO friends_list VALUES
-> (1, 'shreya', 'sinnar'),
-> (2, 'sayali', 'pune'),
-> (3, 'advait', 'nashik');
Query OK, 3 rows affected (0.001 sec)
Records: 3 Duplicates: 0 Warnings: 0

MariaDB [Akshada]> select * from friends_list;
+-----+-----+-----+
| srno | name  | address |
+-----+-----+-----+
| 1    | shreya | sinnar  |
| 2    | sayali | pune    |
| 3    | advait | nashik  |
+-----+-----+-----+
3 rows in set (0.000 sec)

MariaDB [Akshada]> exit
Bye
[root@ip-172-31-39-238 ~]# mysqldump -u root -p1234 Akshada > ec2_instance_backup.sql
[root@ip-172-31-39-238 ~]# ls
-bash: ls: command not found
[root@ip-172-31-39-238 ~]# ls
ec2_instance_backup.sql
[root@ip-172-31-39-238 ~]#
```

At the bottom of the terminal window, there is a message: "UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>"



## 11. Create a database using RDS service .

**Create database** [info](#)

**Choose a database creation method**

- ☒ **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](#)

- ☐ Aurora (MySQL Compatible)
- ☐ Aurora (PostgreSQL Compatible)
- ☐ MySQL
- ☐ PostgreSQL

**MariaDB** [>](#)

MariaDB Community Edition is a MySQL-compatible database with strong support from the open source community, and extra features and performance optimizations.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.
- Supports global transaction ID (GTID) and thread pooling.
- Developed and supported by the MariaDB open source community.

## 12. Select Mariadb Database.

**Create database** [info](#)

**Engine options**

**Engine type** [info](#)

- ☒ **MariaDB**
- ☐ Oracle
- ☐ Microsoft SQL Server
- ☐ IBM Db2

**MariaDB** [>](#)

MariaDB Community Edition is a MySQL-compatible database with strong support from the open source community, and extra features and performance optimizations.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.
- Supports global transaction ID (GTID) and thread pooling.
- Developed and supported by the MariaDB open source community.

### 13. Assign database name , username , password .

eu-north-1.console.aws.amazon.com/rds/home?region=eu-north-1#launch-db-instance:

**Credentials Settings**

**Master username** [Info](#)  
Type a login ID for the master user of your DB instance.  
  
1 to 16 alphanumeric characters. The first character must be a letter.

**Credentials management**  
You can use AWS Secrets Manager or manage your master user credentials.

☐ Managed in AWS Secrets Manager - *most secure*  
RDS generates a password for you and manages it throughout its lifecycle using AWS Secrets Manager.

☒ Self managed  
Create your own password or have RDS create a password that you manage.

☐ Auto generate password  
Amazon RDS can generate a password for you, or you can specify your own password.

**Master password** [Info](#)  
  
**Password strength** **Strong**  
Minimum constraints: At least 8 printable ASCII characters. Can't contain any of the following symbols: / ' \* @

**Confirm master password** [Info](#)

**MariaDB**

MariaDB Community Edition is a MySQL-compatible database with strong support from the open source community, and extra features and performance optimizations.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.
- Supports global transaction ID (GTID) and thread pooling.
- Developed and supported by the MariaDB open source community.

**Instance configuration**

CloudShell Feedback

© 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Very high UV Now

11:45 AM 4/13/2025

### 14. Successfully created the database.

eu-north-1.console.aws.amazon.com/rds/home?region=eu-north-1#databases:

**Aurora and RDS**

Dashboard  
**Databases**  
Query Editor  
Performance insights  
Snapshots  
Exports in Amazon S3  
Automated backups  
Reserved instances  
Proxies

Subnet groups  
Parameter groups  
Option groups  
Custom engine versions  
Zero-ETL integrations [New](#)

Events  
Event subscriptions

**Successfully created database rds-database** [View connection details](#)

You can use settings from rds-database to simplify configuration of suggested database add-ons while we finish creating your DB for you.

**Databases (1)** [Group resources](#) [Modify](#) [Actions](#) [Create database](#)

<input type="checkbox"/>	DB identifier	Status	Role	Engine	Region ...	Size	Recommenc
<input type="radio"/>	<a href="#">rds-database</a>	Available	Instance	MariaDB	eu-north-1a	db.m5.large	

CloudShell Feedback

© 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

35°C Sunny

1:09 PM 4/13/2025



## 15. Copy the endpoint of database .

The screenshot shows the AWS Management Console for an Amazon RDS database instance. The left sidebar contains navigation options like Dashboard, Databases, Query Editor, Performance insights, Snapshots, Exports in Amazon S3, Automated backups, Reserved instances, Proxies, Subnet groups, Parameter groups, Option groups, Custom engine versions, Zero-ETL integrations, Events, and Event subscriptions. The main content area displays the 'rds-database' instance details. A 'Summary' section shows the DB identifier as 'rds-database', Status as 'Available', Role as 'Instance', Engine as 'MariaDB', CPU usage at 2.41%, Class as 'db.m5.large', Current activity as '0.00 sessions', and Region & AZ as 'eu-north-1a'. Below this, the 'Connectivity & security' tab is selected, showing the Endpoint & port as 'rds-database.cpgesyccapl.eu-north-1.rds.amazonaws.com' on port '3306'. A tooltip indicates 'Endpoint copied'. Other sections include Networking (Availability Zone: eu-north-1a, VPC: vpc-05ee27487e1fe793a, Subnet group: default-vpc-05ee27487e1fe793a) and Security (VPC security groups: default (sg-02a14a6b23483762d), VPC: Active, Publicly accessible: No, Certificate authority: Info).

## 16. Connect to database in RDS service and Enter following cmd and paste endpoint.

**mysql -h (endpoint) -u (username) -p (password) (database name where u paste it) < (backup file name) .**

The screenshot shows a terminal window with the following commands and output:

```
[ec2-user@ip-172-31-39-238 ~]$ mysql -h rds-database.cpgesyccapl.eu-north-1.rds.amazonaws.com -u admin -pAkshada123 pune < ec2_instance_backup.sql
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 196
Server version: 11.4.4-MariaDB managed by https://aws.amazon.com/rds/

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

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

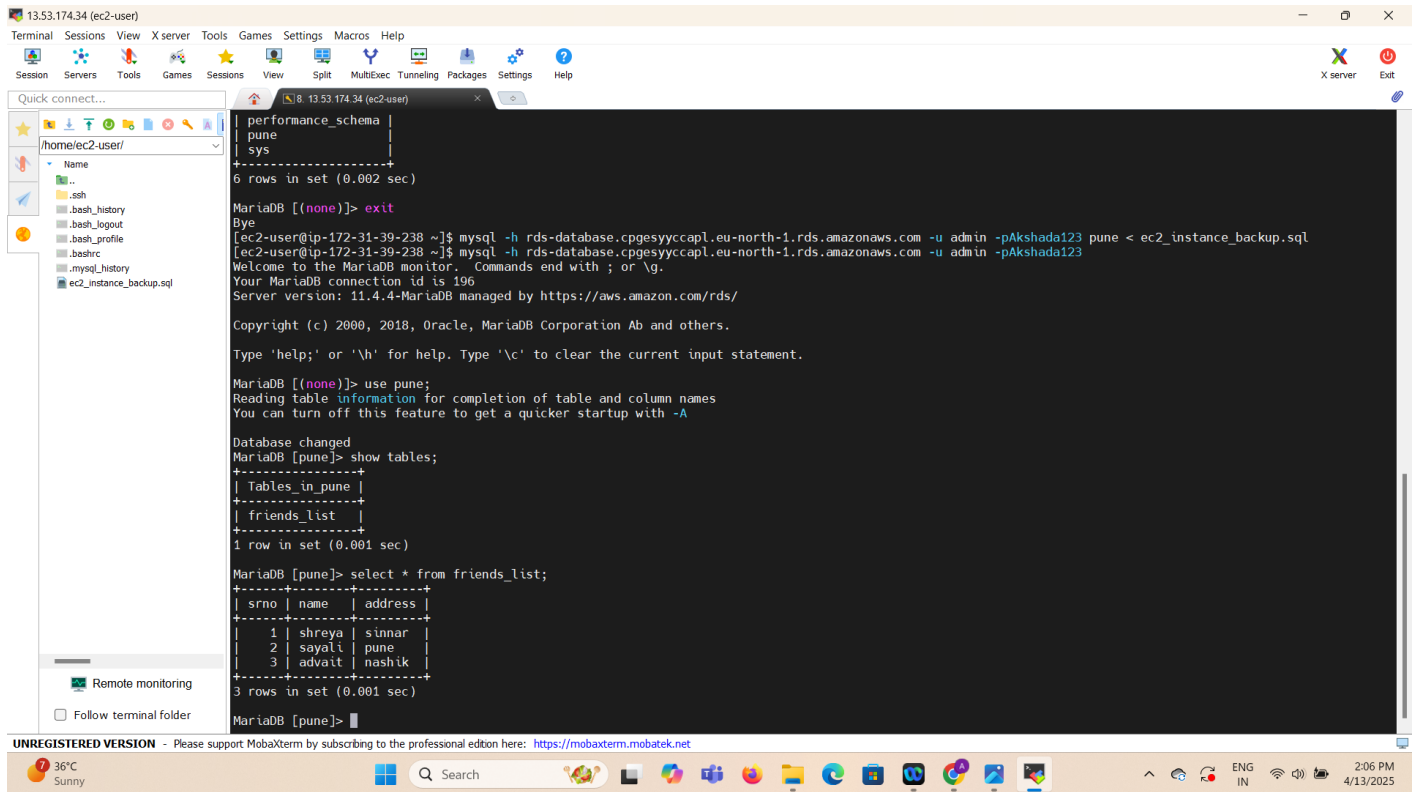
MariaDB [(none)]> use pune;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
MariaDB [pune]> show tables;
+-----+
| Tables_in_pune |
+-----+
| friends_list    |
+-----+
1 row in set (0.001 sec)

MariaDB [pune]> select * from friends_list;
+-----+
| srno | name | address |
+-----+
| 1    | shreya | sinhar |
| 2    | sayali | pune |
| 3    | advait | nashik |
+-----+
3 rows in set (0.001 sec)

MariaDB [pune]>
```

## 17. Check the Database. Successfully take backup file from Ec2-instance to RDS service database .



```
13.53.174.34 (ec2-user)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
/home/ec2-user/
Name
.ssh
.bash_history
.bash_logout
.bash_profile
.bashrc
.mysql_history
ec2_instance_backup.sql
Remote monitoring
Follow terminal folder

performance_schema |
pune |
sys |
+-----+
6 rows in set (0.002 sec)

MariaDB [(none)]> exit
Bye
[ec2-user@ip-172-31-39-238 ~]$ mysql -h rds-database.cpgesyycapl.eu-north-1.rds.amazonaws.com -u admin -pAkshada123 pune < ec2_instance_backup.sql
[ec2-user@ip-172-31-39-238 ~]$ mysql -h rds-database.cpgesyycapl.eu-north-1.rds.amazonaws.com -u admin -pAkshada123
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 196
Server version: 11.4.4-MariaDB managed by https://aws.amazon.com/rds/

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

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

MariaDB [(none)]> use pune;
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
MariaDB [pune]> show tables;
+-----+
| Tables_in_pune |
+-----+
| friends_list |
+-----+
1 row in set (0.001 sec)

MariaDB [pune]> select * from friends_list;
+-----+-----+-----+
| srno | name | address |
+-----+-----+-----+
| 1 | shreya | sinnar |
| 2 | sayali | pune |
| 3 | advait | nashik |
+-----+-----+-----+
3 rows in set (0.001 sec)

MariaDB [pune]>
```

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

36°C Sunny Search ENG IN 2:06 PM 4/13/2025