

Scenario

The café currently uses a single Amazon Elastic Compute Cloud (Amazon EC2) instance to host its web server, database, and application code.

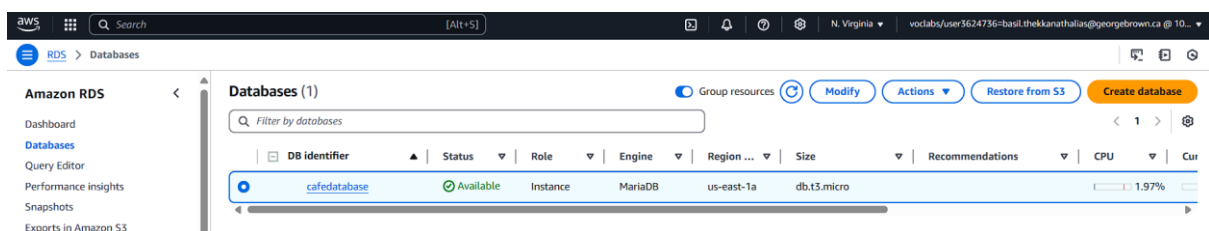
Meanwhile, the café business has grown. The order history that is stored in the database provides valuable business information that the café staff doesn't want to lose. Martha uses the data for accounting, and Frank looks at it occasionally to plan how many of each dessert type he should bake.

Sofía has additional concerns. The database must be consistently upgraded and patched, and she doesn't always have time to do these tasks. Also, administering the database is a specialized skill. Training others to do database administration isn't something that she wants to spend time on. Meanwhile, Sofía is also concerned that the café isn't doing data backups as often as they should.

Finally, Martha also wants to reduce labour costs that are associated with the technical learning investment that's needed to manage the database.

- Create an RDS database instance.
- Export data from a MariaDB database by using mysqldump.
- Connect a SQL client to an RDS database.
- Migrate data from a MariaDB database that runs on an EC2 instance to an RDS database instance.
- Configure a web application to use the new RDS database instance for data storage

Screenshots



Created a database instance under Amazon RDS


```

MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| cafe_db  |
| information_schema |
| mysql    |
| performance_schema |
| test     |
+-----+
5 rows in set (0.00 sec)

MariaDB [(none)]> use cafe_db;
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 [cafe_db]> show tables;
+-----+
| Tables_in_cafe_db |
+-----+
| order              |
| order_item         |
| product            |
| product_group      |
+-----+
4 rows in set (0.00 sec)

```

Reviewing Databases and checking the tables inside of café_db

```

[ec2-user@cafeserver ~]$
[ec2-user@cafeserver ~]$ mysqldump --databases cafe_db -u root -p > CafeDbDump.sql
Enter password:
[ec2-user@cafeserver ~]$
[ec2-user@cafeserver ~]$ ls
CafeDbDump.sql
[ec2-user@cafeserver ~]$

```

Taking backup of the café_db database

EC2 > Security Groups > sg-07692b95033fe8b74 - db5G > Edit inbound rules

Edit inbound rules [Info](#)

Inbound rules control the incoming traffic that's allowed to reach the instance.

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sg-0d6a5ce6358a434d0	MySQL/Aurora	TCP	3306	Cu...	

[Add rule](#) [Cancel](#) [Preview changes](#) [Save rules](#)

sg-0d9ca3596d5017cae
Ec2 Instance Security Group

Modifying inbound rule to allow port 3306 and giving source as security group of EC2 instance

The screenshot shows the Amazon RDS console for an instance named 'cafedatabase'. The instance is in the 'Available' state, running on a 'db.t3.micro' class in the 'us-east-1a' region. The 'Connectivity & security' section shows the endpoint 'cafedatabase.clamgkxpecoe.us-east-1.rds.amazonaws.com' and port '3306'. The 'Security' section shows the instance is publicly accessible and has a VPC security group 'db56 (sg-07692b95033fe8b74)'.

Copying endpoint of RDS database

```
[ec2-user@cafeserver ~]$ nmap -Pn cafedatabase.clamgkxpecoe.us-east-1.rds.amazonaws.com

Starting Nmap 6.40 ( http://nmap.org ) at 2024-12-18 22:44 UTC
Nmap scan report for cafedatabase.clamgkxpecoe.us-east-1.rds.amazonaws.com (10.0.3.247)
Host is up (0.0044s latency).
rDNS record for 10.0.3.247: ip-10-0-3-247.ec2.internal
Not shown: 999 filtered ports
PORT      STATE SERVICE
3306/tcp  open  mysql

Nmap done: 1 IP address (1 host up) scanned in 6.54 seconds
[ec2-user@cafeserver ~]$
```

3306 port is open

```
[ec2-user@cafeserver ~]$ mysql -u admin -p --host cafedatabase.clamgkxpecoe.us-east-1.rds.amazonaws.com
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 325
Server version: 10.11.9-MariaDB-log 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)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| innodb |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.00 sec)

MariaDB [(none)]>
```

Connecting to RDS database and reviewing the available databases

```

[ec2-user@cafeserver ~]$
[ec2-user@cafeserver ~]$ mysql -u admin -p --host cafedatabase.clamgkxpecoe.us-east-1.rds.amazonaws.com < CafeDbDump.sql
Enter password:
[ec2-user@cafeserver ~]$
[ec2-user@cafeserver ~]$ mysql -u admin -p --host cafedatabase.clamgkxpecoe.us-east-1.rds.amazonaws.com
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 331
Server version: 10.11.9-MariaDB-log 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)]>
MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| cafe_db |
| information_schema |
| innodb |
| mysql |
| performance_schema |
| sys |
+-----+
6 rows in set (0.00 sec)

MariaDB [(none)]>

```

Importing the Café_db backup to RDS Database

Secrets Store a new secret

Filter secrets by name, description, tag key, tag value, owning service or primary Region

Secret name	Description	Last retrieved (UTC)
/cafe/dbPassword	-	December 18, 2024
/cafe/dbUser	-	December 18, 2024
/cafe/dbName	-	December 18, 2024
/cafe/dbUrl	-	December 18, 2024
/cafe/currency	-	December 18, 2024
/cafe/timeZone	-	December 18, 2024
/cafe/showServerInfo	-	December 18, 2024

Secrets Manager details

```

[ec2-user@cafeserver ~]$ sudo service mariadb stop
Redirecting to /bin/systemctl stop mariadb.service
[ec2-user@cafeserver ~]$
[ec2-user@cafeserver ~]$ sudo service mariadb status
Redirecting to /bin/systemctl status mariadb.service
● mariadb.service - MariaDB 10.2 database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; vendor preset: disabled)
   Drop-In: /usr/lib/systemd/system/mariadb.service.d
            └─lokudb.conf
   Active: inactive (dead) since Wed 2024-12-18 23:05:46 UTC; 6s ago
     Process: 2371 ExecStartPost=/usr/libexec/mysql-check-upgrade (code=exited, status=0/SUCCESS)
     Process: 2300 ExecStart=/usr/libexec/mysqld --basedir=/usr --my.cnf=/usr/share/mysql/my.cnf --wsrep-new-cluster (code=exited, status=0/SUCCESS)
     Process: 2261 ExecStartPre=/usr/libexec/mysql-prepare-db-dir %n (code=exited, status=0/SUCCESS)
     Process: 2237 ExecStartPre=/usr/libexec/mysql-check-socket (code=exited, status=0/SUCCESS)
    Main PID: 2300 (code=exited, status=0/SUCCESS)
   Status: "MariaDB server is down"

Dec 18 22:30:42 cafeserver mysql-check-upgrade[2371]: ERROR: ld.so: object '/usr/lib64/libjemalloc.so.1' from LD_PRELOAD cannot be preloaded (cannot open shared object f...: ignored.
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Dec 18 22:30:42 cafeserver systemd[1]: Started MariaDB 10.2 database server.
Dec 18 23:05:44 cafeserver systemd[1]: Stopping MariaDB 10.2 database server...
Dec 18 23:05:46 cafeserver systemd[1]: Stopped MariaDB 10.2 database server.
Hint: Some lines were ellipsized, use -l to show in full.
[ec2-user@cafeserver ~]$

```

Stopping the MariaDB service inside the EC2 instance



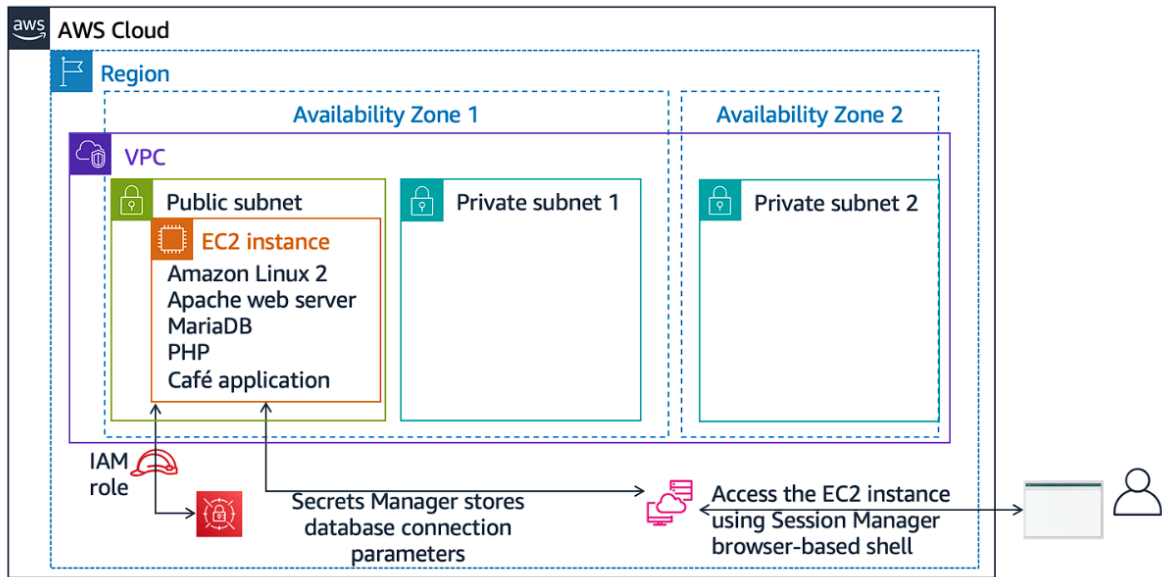
Café

[Home](#) [About Us](#) [Contact Us](#) [Menu](#) [Order History](#)

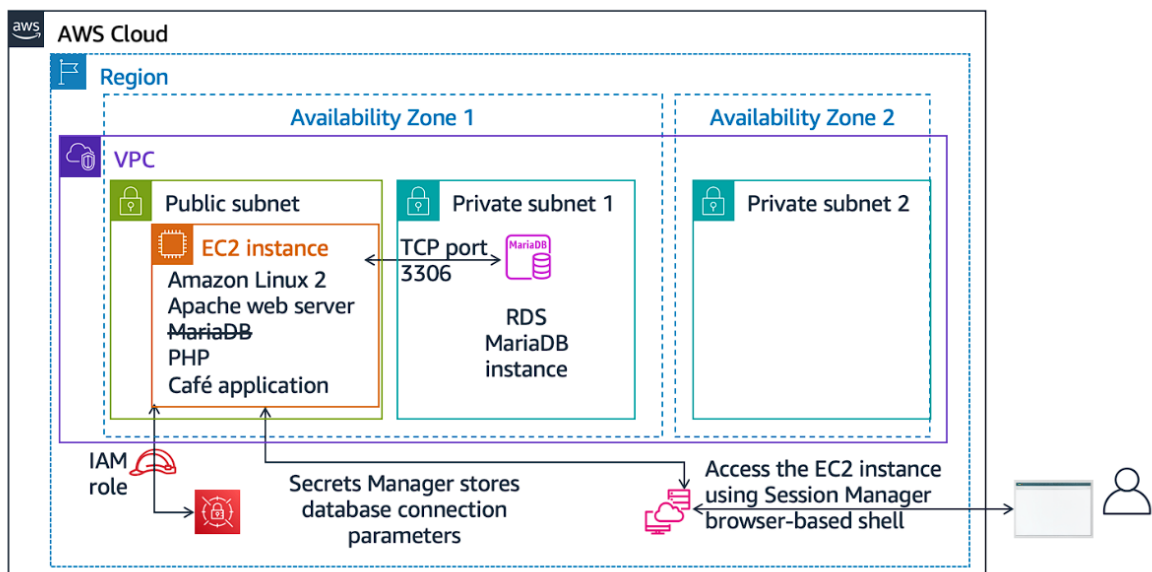


Our café offers an assortment of delicious and delectable pastries and coffees that will put a smile on your face. From cookies to croissants, tarts and cakes, each treat is especially prepared to excite your tastebuds and brighten your day!

Accessing the webpage



Architecture details before migration



Architecture details after migration

Conclusion

- Created an RDS database instance
- Exported data from a MariaDB database by using mysqldump
- Connected a SQL client to an RDS database.
- Migrated data from a MariaDB database that runs on an EC2 instance to an RDS database instance
- Configured a web application to use the new RDS database instance for data storage