

# Module 5 Challenge Lab - Migrating a Database to Amazon RDS

CafeDatabase is created according to its parameters.

RDS > Databases

**Databases** Group resources Refresh Modify Actions Restore from S3 Create database

	DB identifier	Role	Engine	Region & AZ	Size	Storage type
<input type="radio"/>	cafedatabase	Instance	MariaDB	us-east-1a	db.t2.micro	Standard

**Instances (1)** Info Refresh Connect Instance state Actions Launch instance

Instance state = running Clear filters

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
<input type="checkbox"/>	CafeServer	i-0c6d6735d8e3c4f1c	<span>Running</span>	t2.micro	<span>2/2 checks passed</span>	No alarms

aws Services  [Alt+S] N. Virginia voclabs/user2211147-Nwe\_Htay\_Win @ 1735

**New EC2 Experience** Tell us what you think

- EC2 Dashboard
- EC2 Global View
- Events
- Tags
- Limits
- Instances**
  - Instances New
  - Instance Types
  - Launch Templates
  - Spot Requests
  - Savings Plans
  - Reserved Instances New
  - Dedicated Hosts
  - Scheduled Instances

**EC2 > Instances > i-0c6d6735d8e3c4f1c**

**Instance summary for i-0c6d6735d8e3c4f1c (CafeServer)** Info Refresh Connect Instance state Actions

Updated less than a minute ago

Instance ID i-0c6d6735d8e3c4f1c (CafeServer)	Public IPv4 address 44.210.88.226 <a href="#">open address</a>	Private IPv4 addresses 10.0.0.147
IPv6 address -	Instance state <span>Running</span>	Public IPv4 DNS ec2-44-210-88-226.compute-1.amazonaws.com <a href="#">open address</a>
Hostname type IP name: ip-10-0-0-147.ec2.internal	Private IP DNS name (IPv4 only) ip-10-0-0-147.ec2.internal	Elastic IP addresses -
Answer private resource DNS name -	Instance type t2.micro	AWS Compute Optimizer finding <span>Warning</span>
Auto-assigned IP address ip-10-0-0-147.ec2.internal	VPC ID vpc-0c6d6735d8e3c4f1c	

# Hello From Your Web Server!

## Café

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



# Café

[Home](#) [Menu](#) [Order History](#)

## Order Confirmation

Thank for your order! It will be available for pickup within 15 minutes. Your order number and details are shown below.

Order Number: 25   Date: 2022-10-26   Time: 02:18:23   Total Amount: \$4.00

Item	Price	Quantity	Amount
Croissant	\$1.50	2	\$3.00
Donut	\$1.00	1	\$1.00

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## Order history

# Café

[Home](#) [Menu](#) [Order History](#)

## Order History

Order Number: 25   Date: 2022-10-26   Time: 02:18:23   Total Amount: \$4.00

Item	Price	Quantity	Amount
Croissant	\$1.50	2	\$3.00
Donut	\$1.00	1	\$1.00

Order Number: 24   Date: 2020-07-28   Time: 13:14:07   Total Amount: \$35.00

Item	Price	Quantity	Amount
Strawberry Blueberry Tart	\$3.50	4	\$14.00
Strawberry Tart	\$3.50	3	\$10.50
Latte	\$3.50	3	\$10.50

Order Number: 23   Date: 2020-07-28   Time: 13:13:54   Total Amount: \$6.00

## Connect EC2

EC2 > Instances > i-0c6d6735d8e3c4f1c

**Instance summary for i-0c6d6735d8e3c4f1c (CafeServer)** [Info](#) Refresh Connect Instance state ▼ Actions ▼  
Updated less than a minute ago

Instance ID i-0c6d6735d8e3c4f1c (CafeServer)	Public IPv4 address 44.210.88.226   <a href="#">open address</a>	Private IPv4 addresses 10.0.0.147
-------------------------------------------------	---------------------------------------------------------------------	--------------------------------------

**EC2 Instance Connect** | Session Manager | SSH client | EC2 serial console

Instance ID  
 i-0c6d6735d8e3c4f1c (CafeServer)

Public IP address  
 44.210.88.226

User name

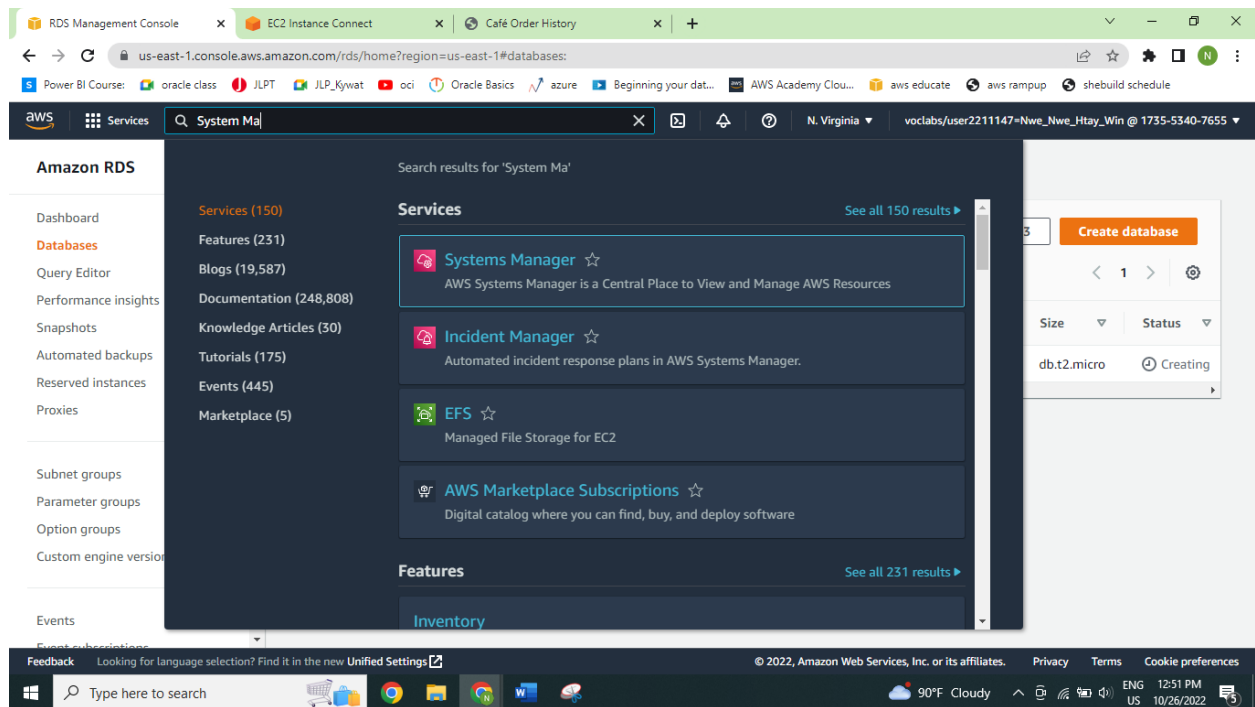
Connect using a custom user name, or use the default user name ec2-user for the AMI used to launch the instance.

**Note:** In most cases, the guessed user name is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.

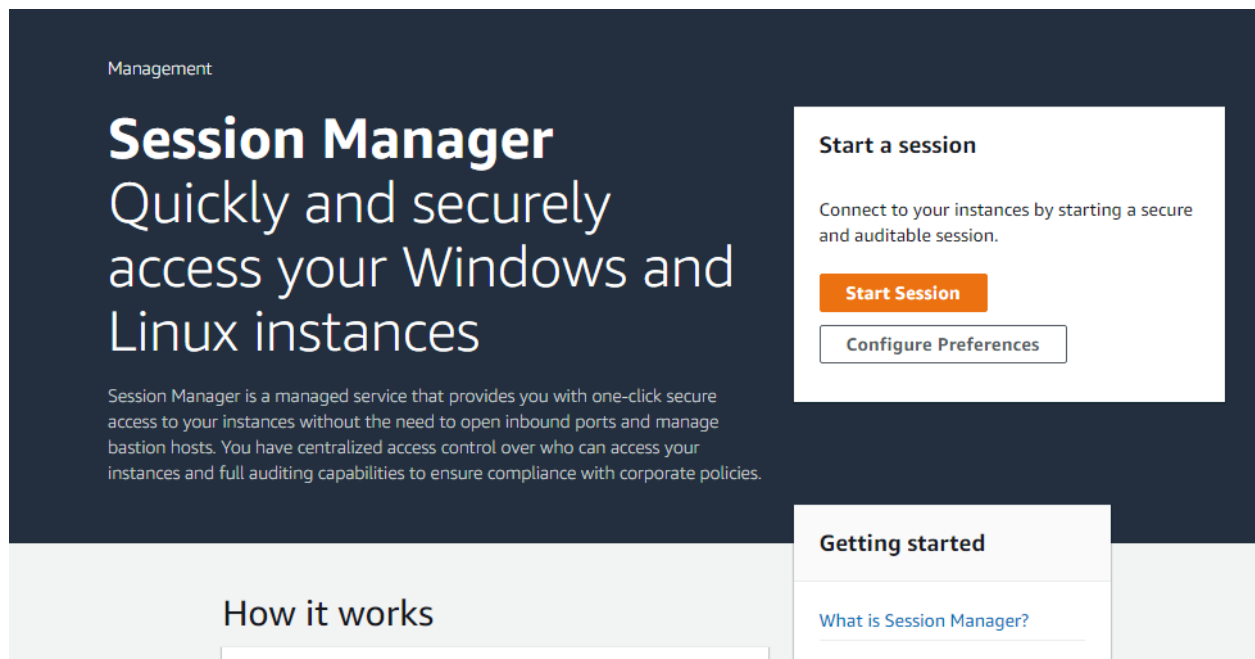
Cancel Connect

```
aws Services Search for services, features, blogs, docs, and more [Alt+S] N. Virginia v
Last login: Wed Oct 26 06:09:18 2022
  _ | _ | )
 _ | ( _ /  Amazon Linux 2 AMI
 _ | \ _ | _ |
https://aws.amazon.com/amazon-linux-2/
[ec2-user@cafeserver ~]$
```

Go to system manager



Then session manager



## Reason

### Reason for session – optional

The reason for connecting to the instance. This value is included in the details of the event created by AWS CloudTrail when you start the session. The value can have up to 256 characters.

## Target instances



< 1 >

	Instance name	Instance ID	Agent version	Instance state	Availability zone	Platform
	CafeServer	i-0c6d6735d8e3c4f1c	3.1.1732.0	running	us-east-1a	Amazon Linux

CancelStart session

us-east-1.console.aws.amazon.com/systems-manager/session-manager/i-0c6d6735d8e3c4f1c?region=us-east-1

Power BI Course: oracle class JLPT JLP\_Kywat oci Oracle Basics azure Beginning your dat... AWS Academy Clou...

Session ID: user2211147=Nwe\_Nwe\_Htay\_Win- Instance ID: i-0c6d6735d8e3c4f1c

sh-4.2\$

```
bash
sudo su
su ec2-user
whoami
cd /home/ec2-user/
```

```
Session ID: Instance ID: i-
sh-4.2$ bash
[ssm-user@cafeserver bin]$ sudo su
[root@cafeserver bin]# su ec2-user
[ec2-user@cafeserver bin]$ whoami
ec2-user
[ec2-user@cafeserver bin]$ cd /home/ec2-user/
[ec2-user@cafeserver ~]$
```

Maria db status

`service mariadb status`

Module 5 Challenge Lab - Migrating a Database to Amazon RDS

Due No Due Date Points 100 Submitting an ex...

Submit Details AWS Start Lab End Lab 2:42

Grades Actions

Files README Terminal

EN\_US

In the terminal, run these commands:

```
service mariadb status
mysql --version
```

The output should show that the locally installed MariaDB database on this EC2 instance is running. It should also show the version number of the database.

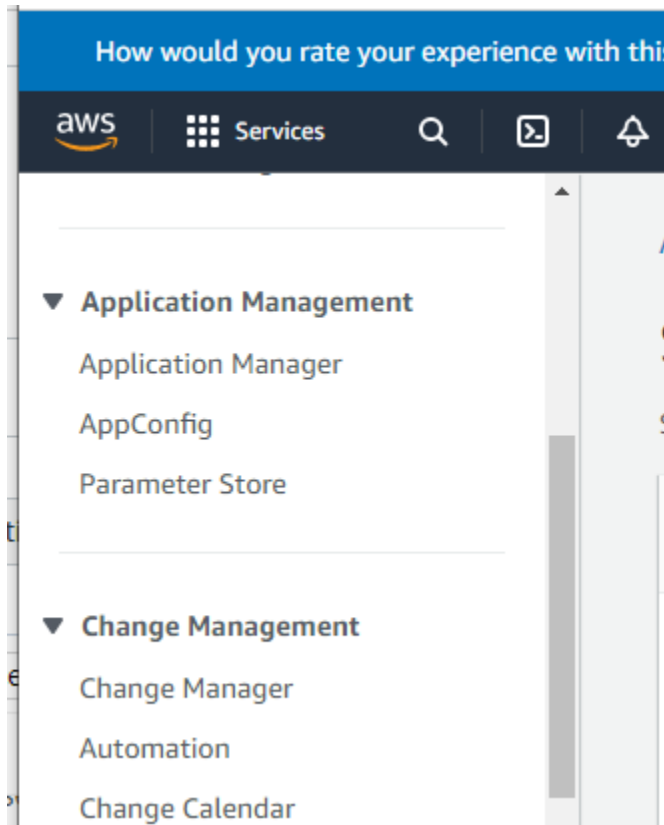
Snipping Tool

File Edit Tools Help

us-east-1.console.aws.amazon.com/systems-manager/session-manager/i-0c6d6735d...

Session ID: Instance ID: i-  
sh-4.2\$ bash  
[ssm-user@cafeserver bin]\$ sudo su  
[root@cafeserver bin]# su ec2-user  
[ec2-user@cafeserver bin]\$ whoami  
ec2-user  
[ec2-user@cafeserver bin]\$ cd /home/ec2-user/  
[ec2-user@cafeserver ~]\$ 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  
└─tokudb.conf  
Active: active (running) since Wed 2022-10-26 06:08:34 UTC; 16min ago  
Process: 3760 ExecStartPost=/usr/libexec/mysql-check-upgrade (code=exited, status=0/SUCCESS)  
Process: 3564 ExecStartPre=/usr/libexec/mysql-check-socket (code=exited, status=0/SUCCESS)  
Main PID: 3689 (mysqld)  
Status: "Taking your SQL requests now..."  
CGroup: /system.slice/mariadb.service  
└─3689 /usr/libexec/mysqld --basedir=/usr  
Oct 26 06:08:34 ip-10-0-0-147.ec2.internal mysql-check-upgrade[3760]: ERROR: ld.so: object  
Oct 26 06:08:34 ip-10-0-0-147.ec2.internal mysql-check-upgrade[3760]: ERROR: ld.so: object  
Oct 26 06:08:34 ip-10-0-0-147.ec2.internal mysql-check-upgrade[3760]: ERROR: ld.so: object  
Oct 26 06:08:34 ip-10-0-0-147.ec2.internal mysql-check-upgrade[3760]: ERROR: ld.so: object  
Oct 26 06:08:34 ip-10-0-0-147.ec2.internal mysql-check-upgrade[3760]: ERROR: ld.so: object  
Oct 26 06:08:34 ip-10-0-0-147.ec2.internal mysql-check-upgrade[3760]: ERROR: ld.so: object  
Oct 26 06:08:34 ip-10-0-0-147.ec2.internal mysql-check-upgrade[3760]: ERROR: ld.so: object  
Oct 26 06:08:34 ip-10-0-0-147.ec2.internal mysql-check-upgrade[3760]: ERROR: ld.so: object  
Oct 26 06:08:34 ip-10-0-0-147.ec2.internal systemd[1]: Started MariaDB 10.2 database server.  
Oct 26 06:08:34 ip-10-0-0-147.ec2.internal mysql-check-upgrade[3760]: ERROR: ld.so: object  
Oct 26 06:08:34 ip-10-0-0-147.ec2.internal mysql-check-upgrade[3760]: ERROR: ld.so: object  
Oct 26 06:08:34 ip-10-0-0-147.ec2.internal systemd[1]: Started MariaDB 10.2 database server.  
Hint: Some lines were ellipsized, use -l to show in full.  
[ec2-user@cafeserver ~]\$ mysql --version  
mysql Ver 15.1 Distrib 10.2.38-MariaDB, for Linux (x86\_64) using EditLine wrapper  
[ec2-user@cafeserver ~]\$

Choose parameter store



Copy password



## /cafe/dbPassword

Overview

History

Tags

Name

/cafe/dbPassword

Tier

Standard

Type

String

Last modified date

Wed, 26 Oct 2022 06:08:41 GMT

Value

Re:Start!9

Description

Database Password

Data type

text

Last modified user

arn:aws:sts::17355340:  
role/CafeRole/i-0c6d0

Version

1

And run in bash

```
mysql -u root -p
```

```
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 17
Server version: 10.2.38-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;
use cafe_db;
show tables;
select * from `order`;
```

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

```
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)

```
MariaDB [cafe_db]> 
```

our MariaDB server version for the right syntax t  
MariaDB [cafe\_db]> select \* from `order`;

order_number	order_date_time	amount
1	2020-06-20 13:09:07	20.00
2	2020-06-21 13:09:23	24.00
3	2020-06-22 13:09:38	32.50
4	2020-06-22 13:09:49	10.50
5	2020-06-24 13:10:02	42.00
6	2020-06-25 13:10:20	14.00
7	2020-06-25 13:10:30	35.00
8	2020-06-27 13:10:36	6.00
9	2020-06-28 13:10:46	18.00
10	2020-07-02 13:10:58	18.00
11	2020-07-03 13:11:08	19.50
12	2020-07-04 13:11:17	9.00
13	2020-07-05 13:11:27	26.50
14	2020-07-05 13:11:40	42.00
15	2020-07-06 13:12:27	35.00
16	2020-07-09 13:12:35	19.50
17	2020-07-12 13:12:48	57.50
18	2020-07-14 13:13:04	34.00
19	2020-07-15 13:13:17	29.00
20	2020-07-18 13:13:27	14.00
21	2020-07-20 13:13:36	17.50
22	2020-07-21 13:13:47	33.50
23	2020-07-28 13:13:54	6.00

MariaDB [cafe\_db]> select \* from `order\_item`;

order_number	order_item_number	product_id	quantity	amount
1	1	1	4	6.00
1	2	9	4	14.00
2	1	2	12	12.00
2	2	7	4	12.00
3	1	5	5	17.50
3	2	7	3	9.00
3	3	8	2	6.00
4	1	3	3	7.50
4	2	8	1	3.00
5	1	1	4	6.00
5	2	4	4	12.00
5	3	7	8	24.00

Let's dump

```
mysqldump --databases cafe_db -u root -p > CafeDbDump.sql
```

```
MariaDB [cafe_db]> exit;
Bye
[ec2-user@cafeserver ~]$ mysqldump --databases cafe_db -u root -p > CafeDbDump.sql
Enter password:
[ec2-user@cafeserver ~]$
```

```
[ec2-user@cafeserver ~]$ ls
CafeDbDump.sql  set-key.sh  setup  www
[ec2-user@cafeserver ~]$
```

Run dumpfile

```
cat CafeDbDump.sql
```

```
CafeDbDump.sql  set-key.sh  setup  www
[ec2-user@cafeserver ~]$ cat CafeDbDump.sql
-- MySQL dump 10.19  Distrib 10.2.38-MariaDB, for Linux (x86_64)
--
-- Host: localhost    Database: cafe_db
--
-- Server version
--      10.2.38-MariaDB

/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
/*!40101 SET NAMES utf8 */;
/*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;
/*!40103 SET TIME_ZONE='+00:00' */;
/*!40014 SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0 */;
/*!40014 SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS, FOREIGN_KEY_CHECKS=0 */;
/*!40101 SET @OLD_SQL_MODE=@@SQL_MODE, SQL_MODE='NO AUTO VALUE ON ZERO' */;
```

Establish connection on EC2 instance wot new RDS instance

Get RDS endpoint first

## Amazon RDS

- Dashboard
- Databases**
- Query Editor
- Performance insights
- Snapshots
- Automated backups
- Reserved instances
- Proxies

---

- Subnet groups
- Parameter groups
- Option groups
- Custom engine versions

---

Events

Connectivity & security
Monitoring

User: arn:aws:sts::173553407655:assume:cloudwatch:GetMetricData because no id

### Connectivity & security

#### Endpoint & port

Endpoint

cafedatabase.cogl8pnx6gm.us-east-1.rds.amazonaws.com

Port

3306

```
mysql -u admin -p --host cafedatabase.cogl8pnx6gm.us-east-1.rds.amazonaws.com
```

add inbound rules for TCP 3306

You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer

Inbound rules (3)

Manage tags
Edit inbound rules

Filter security group rules

<input type="checkbox"/>	Name	Security group rule...	IP version	Type	Protocol
<input type="checkbox"/>	-	sgr-0a048a0209f25d639	IPv4	SSH	TCP
<input type="checkbox"/>	-	sgr-0776c3ac307b0a4e1	IPv4	HTTP	TCP
<input type="checkbox"/>	-	sgr-051fd07eea4a1b9e0	IPv4	MYSQL/Aurora	TCP

Checking security option on TCP port 3306 at session manager

```
MariaDB [cafedatabase]> exit;
Bye
[ec2-user@cafeserver ~]$ nmap -Pn cafedatabase.cogl8pnx6gm.us-east-1.rds.amazonaws.com

Starting Nmap 6.40 ( http://nmap.org ) at 2022-10-27 04:17 UTC
Nmap scan report for cafedatabase.cogl8pnx6gm.us-east-1.rds.amazonaws.com (10.0.2.20)
Host is up (0.00056s latency).
rDNS record for 10.0.2.20: ip-10-0-2-20.ec2.internal
Not shown: 999 filtered ports
PORT      STATE SERVICE
3306/tcp  open  mysql

Nmap done: 1 IP address (1 host up) scanned in 4.24 seconds
[ec2-user@cafeserver ~]$
```

```
rDNS record for 10.0.3.155: ip-10-0-3-155.ec2.internal
All 1000 scanned ports on cafedatabase.cogl8pnx6gm.us-east-1.rds.amazonaws.com (10.0.3.155) are filtered

Nmap done: 1 IP address (1 host up) scanned in 201.29 seconds
sh-4.2$ mysql -u admin -p --host cafedatabase.cogl8pnx6gm.us-east-1.rds.amazonaws.com
Enter password:
```

Password must be Caf3DbPassw0rd! of cafedatabase

```
Enter password:
ERROR 1045 (28000): Access denied for user 'admin'@'10.0.0.147' (using password: YES)
[ec2-user@cafeserver ~]$ mysql -u admin -p --host cafedatabase.cogl8pnx6gm.us-east-1.rds.amazonaws.com
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 93
Server version: 10.6.10-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)]>
```

```

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)]> █

```

Haven't shown café\_db

## Task 5

Import db with dump file

```
mysql -u admin -p --host cafedatabase.coglf8pnx6gm.us-east-1.rds.amazonaws.com <
CafeDbDump.sql
```

```

ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the
e near 'mysql -u admin -p --host cafedatabase.coglf8pnx6gm.us-east-1.rds.amazonaws.co...' at line 1
MariaDB [(none)]> exit;
Bye
[ec2-user@cafeserver ~]$ mysql -u admin -p --host cafedatabase.coglf8pnx6gm.us-east-1.rds.amazonaws.com < CafeDbDump.sql
Enter password:
ERROR 1045 (28000): Access denied for user 'admin'@'10.0.0.147' (using password: YES)
[ec2-user@cafeserver ~]$ mysql -u admin -p --host cafedatabase.coglf8pnx6gm.us-east-1.rds.amazonaws.com < CafeDbDump.sql
Enter password:
[ec2-user@cafeserver ~]$ █

```

Now, café\_db

```

Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 106
Server version: 10.6.10-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 |
+-----+
| cafe_db  |
| information_schema |
| innodb   |
| mysql    |
| performance_schema |
| sys      |
+-----+
6 rows in set (0.00 sec)

MariaDB [(none)]>

```

## Run Sql commands

```

show databases;
use cafe_db;
show tables;
select * from `order`;

```

It goes well.

## Task 6

Then go to System manager and parameter store

The screenshot shows the AWS Systems Manager Parameter Store console. The breadcrumb navigation indicates the path: AWS Systems Manager > Parameter Store. The 'My parameters' tab is selected, showing a list of parameters. The parameters are all of type 'String' and have a 'Standard' tier. The list includes parameters for database configuration, such as currency, db name, db password, db URL, db user, and server info.

Name	Tier	Type	Last modified
/cafe/currency	Standard	String	Wed, 26 Oct 2022 06:08:39 GMT
/cafe/dbName	Standard	String	Wed, 26 Oct 2022 06:08:40 GMT
/cafe/dbPassword	Standard	String	Wed, 26 Oct 2022 06:08:41 GMT
/cafe/dbUrl	Standard	String	Wed, 26 Oct 2022 06:08:40 GMT
/cafe/dbUser	Standard	String	Wed, 26 Oct 2022 06:08:41 GMT
/cafe/showServerInfo	Standard	String	Wed, 26 Oct 2022 06:08:38 GMT



Change password

# /cafe/dbPassword

Overview

History

Tags

Name

/cafe/dbPassword

Tier

Standard

Type

String

Last modified date

Wed, 26 Oct 2022 12:30:34 GMT

Value

Caf3DbPassw0rd!

Change dburl with endpoint

# /cafe/dbUrl

Overview

History

Tags

Name

/cafe/dbUrl

Description

Database UR

Tier

Standard

Data type

text

Type

String

Last modifier

arn:aws:sts::

Last modified date

Wed, 26 Oct 2022 12:30:23 GMT

Version

2

Value

cafedatabase.coglf8pnx6gm.us-east-1.rds.amazonaws.com

To change the dbuser, now it is root and change to admin

# /cafe/dbUser

Overview

History

Tags

Name  
/cafe/dbUser

Tier  
Standard

Type  
String

Last modified date  
Wed, 26 Oct 2022 06:08:41 GMT

Value  
root

Description  
Database

Data type  
text

Last modified by  
arn:aws:sts

Version  
1

Let's check to RDF configuration master name

Amazon RDS

Dashboard

Databases

Query Editor

Performance insights

Snapshots

Automated backups

Reserved instances

Proxies

Subnet groups

Parameter groups

Option groups

Custom engine versions


Summary

DB identifier cafedatabase	CPU -	Status Available	Class db.t2.micro
Role Instance	Current activity 0 Connections	Engine MariaDB	Region & AZ us-east-1a

Connectivity & securityMonitoringLogs & eventsConfigurationMaintenance & backupsTags

Instance

Configuration	Instance class	Storage	Performance Insights
DB instance ID cafedatabase	Instance class db.t2.micro	Encryption Not enabled	Performance Insights enabled Turned off

Instance		
<b>Configuration</b>	<b>Instance class</b>	<b>Storage</b>
DB instance ID cafedatabase	Instance class db.t2.micro	Encryption Not enabled
Engine version 10.6.10	vCPU 1	Storage type General Purpose
DB name -	RAM 1 GB	Provisioned IOPS -
License model General Public License	<b>Availability</b>	Storage 20 GiB
Option groups default:mariadb-10-6  In sync	Master username admin	Storage autoscaling Enabled
Amazon Resource Name (ARN)	IAM DB authentication Enabled	Maximum storage

It is admin

### Description — *Optional*

Database User Name

#### Tier

Parameter Store offers standard and advanced parameters.

☒ **Standard**

Limit of 10,000 parameters. Parameter value size up to 4 KB. Parameter policies are not available. No additional charge.

☐ **Advanced**

Can create more than 10,000 parameters. Parameter value size up to 8 KB. Parameter policies are available. Charges apply.

#### Type

String

#### Data type

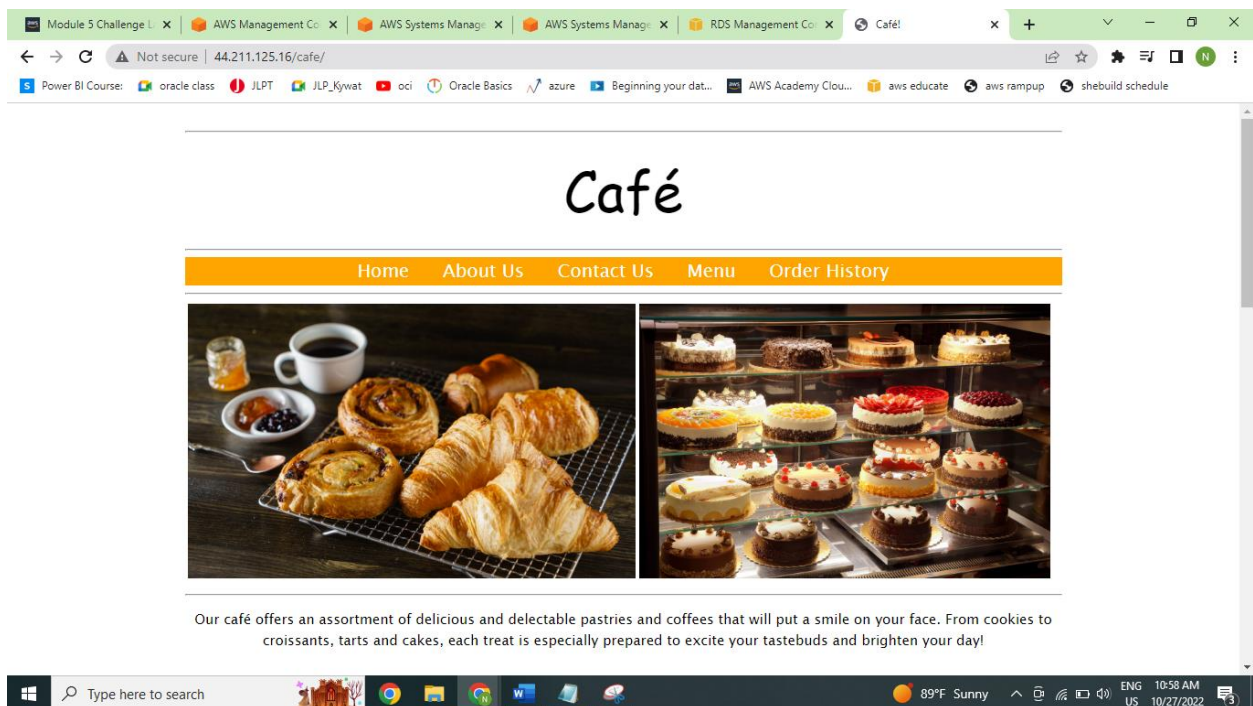
text

#### Value

admin

Maximum length 4096 characters.

Now it works--<http://44.211.125.16/cafe/>



# Café

[Home](#) [Menu](#) [Order History](#)

## Order Confirmation

Thank for your order! It will be available for pickup within 15 minutes. Your order number and details are shown below.

**Order Number:** 27   **Date:** 2022-10-27   **Time:** 00:27:08   **Total Amount:** \$2.00

Item	Price	Quantity	Amount
Donut	\$1.00	2	\$2.00