50°

Lab - AWS re/Start

Actividad: Migración a Amazon RDS

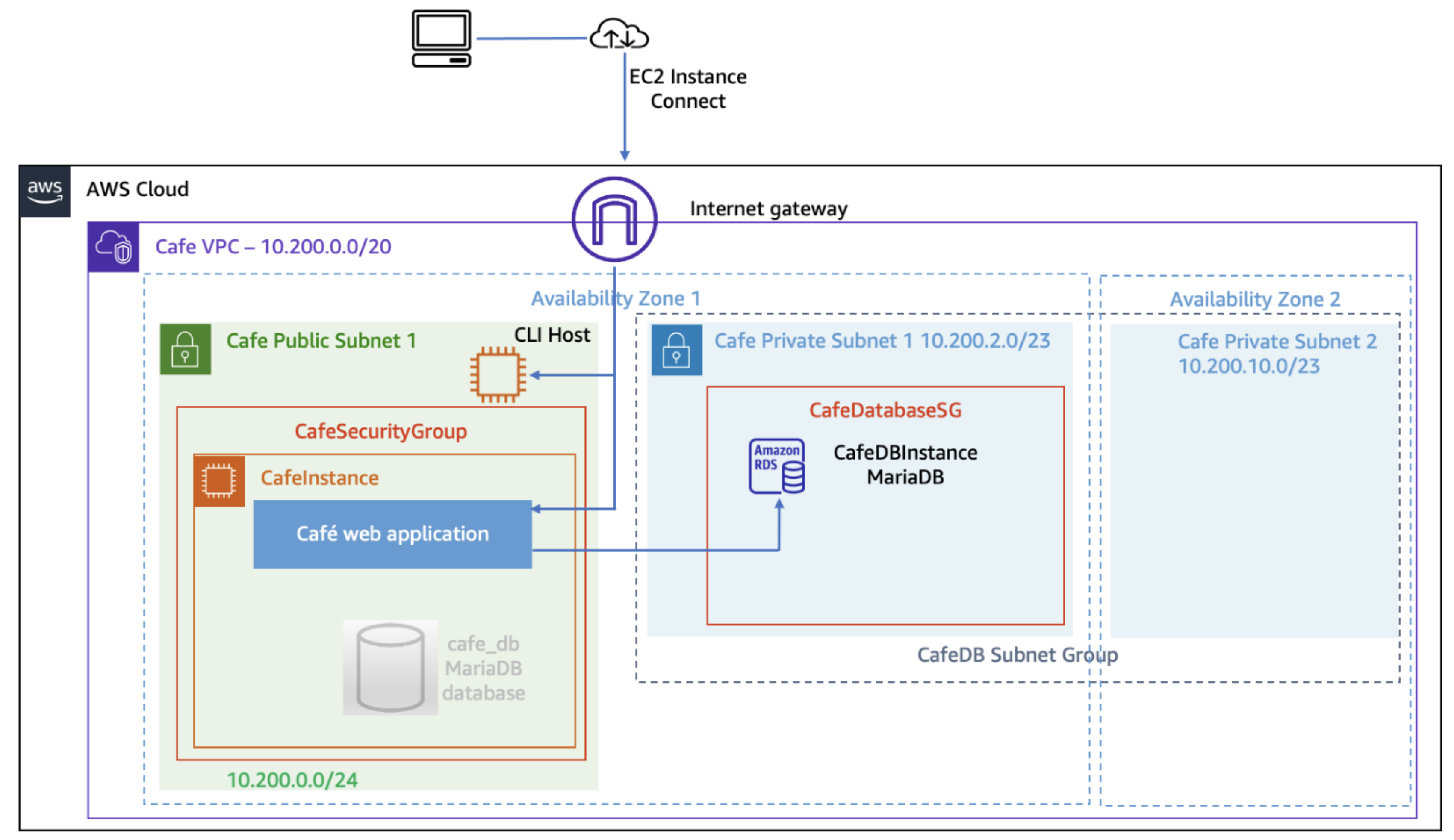
SWIPE

Tarea 01

Interactuando con Amazon RDS

Los objetivos son:

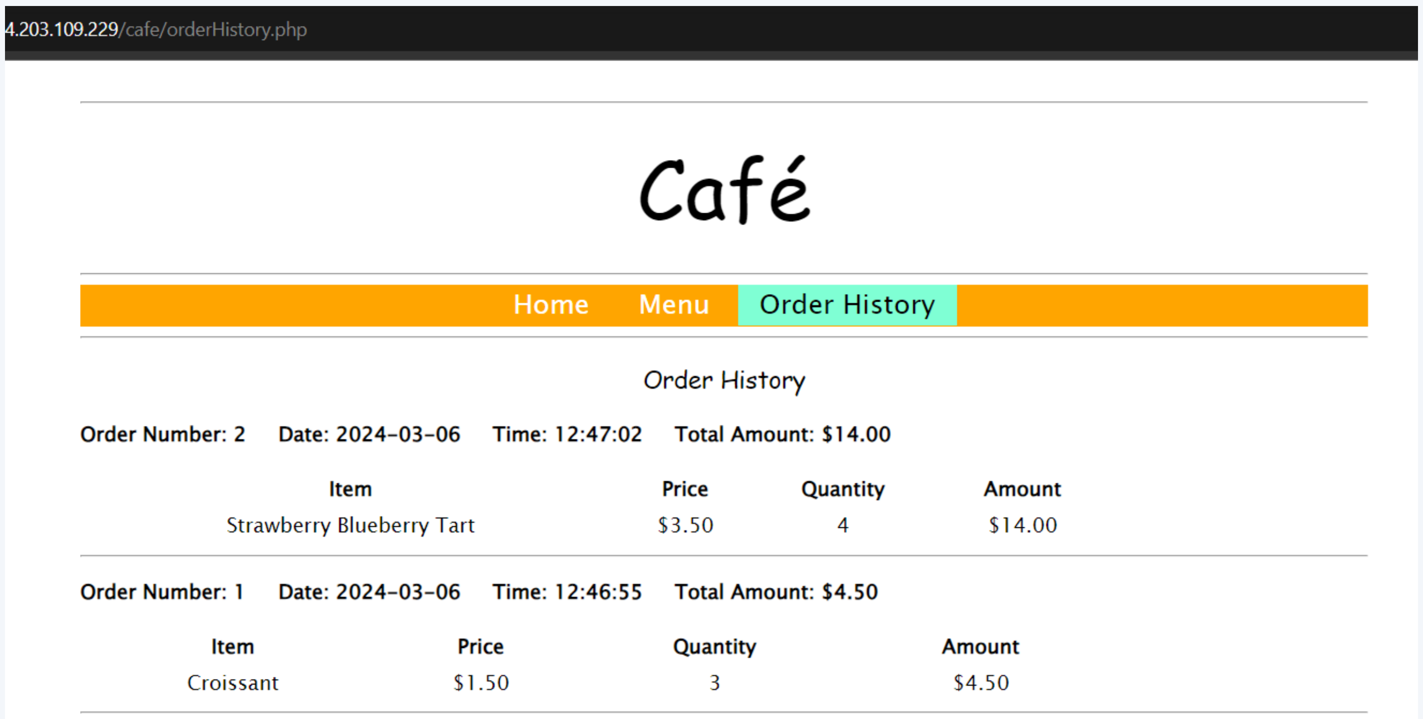
- Crear una instancia de Amazon RDS MariaDB mediante la CLI de AWS.
- Migrar datos de una base de datos MariaDB en una instancia EC2 a una instancia MariaDB de Amazon RDS.
- Monitorice la instancia de Amazon RDS mediante las métricas de Amazon CloudWatch.



SWIPE

Tarea 01

Empezamos creando un registro de ordenes en página del cafe, que nos servirán luego para hacer comparaciones



Order History

Order Number: 2 Date: 2024-03-06 Time: 12:47:02 Total Amount: $14.00

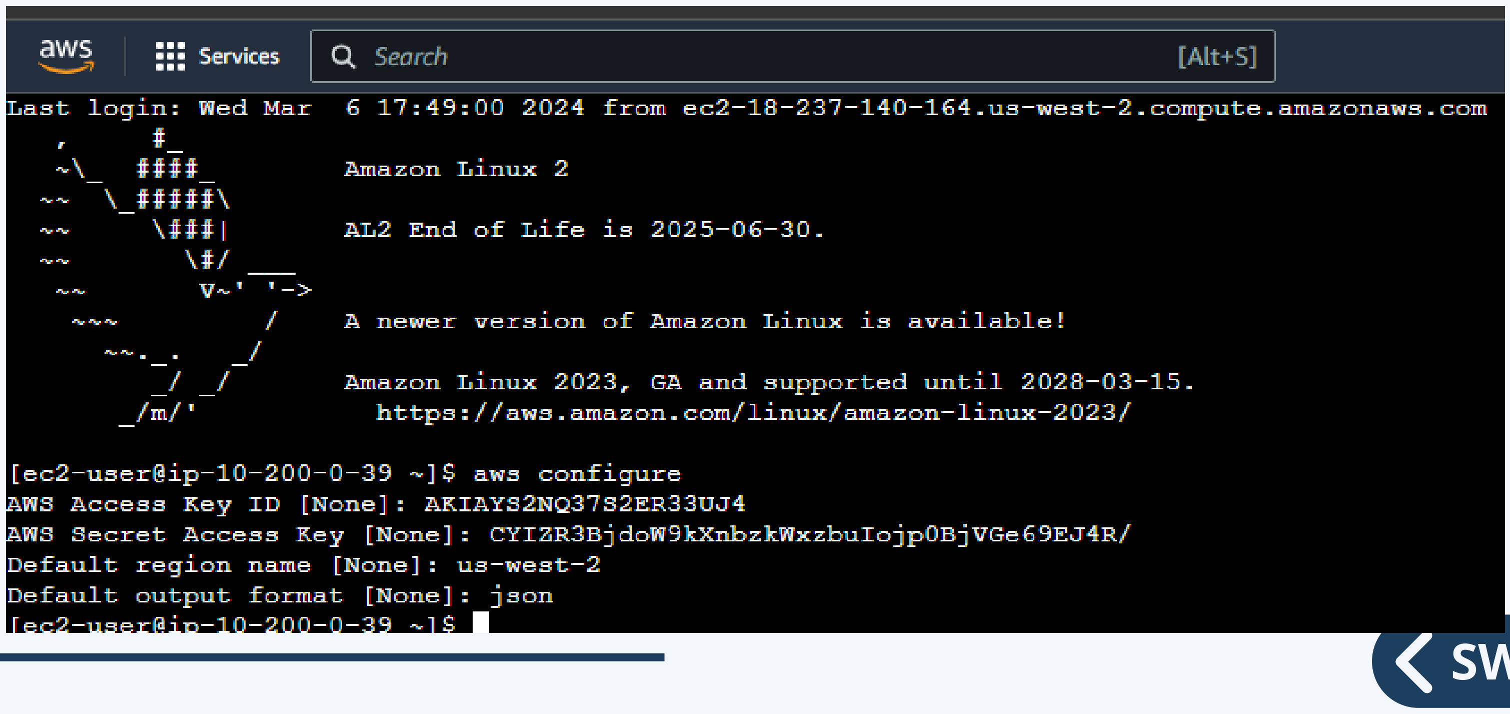
Item	Price	Quantity	Amount
Strawberry Blueberry Tart	$3.50	4	$14.00

Order Number: 1 Date: 2024-03-06 Time: 12:46:55 Total Amount: $4.50

Item	Price	Quantity	Amount
Croissant	$1.50	3	$4.50

Ahora, procedemos a crear la instancia de RDS BD. Para ello, debemos crear primero los siguientes componentes:

- CafeDatabaseSG (Security group for the Amazon RDS database)
- CafeDB Private Subnet 1
- CafeDB Private Subnet 2
- CafeDB Subnet Group (Database subnet group)



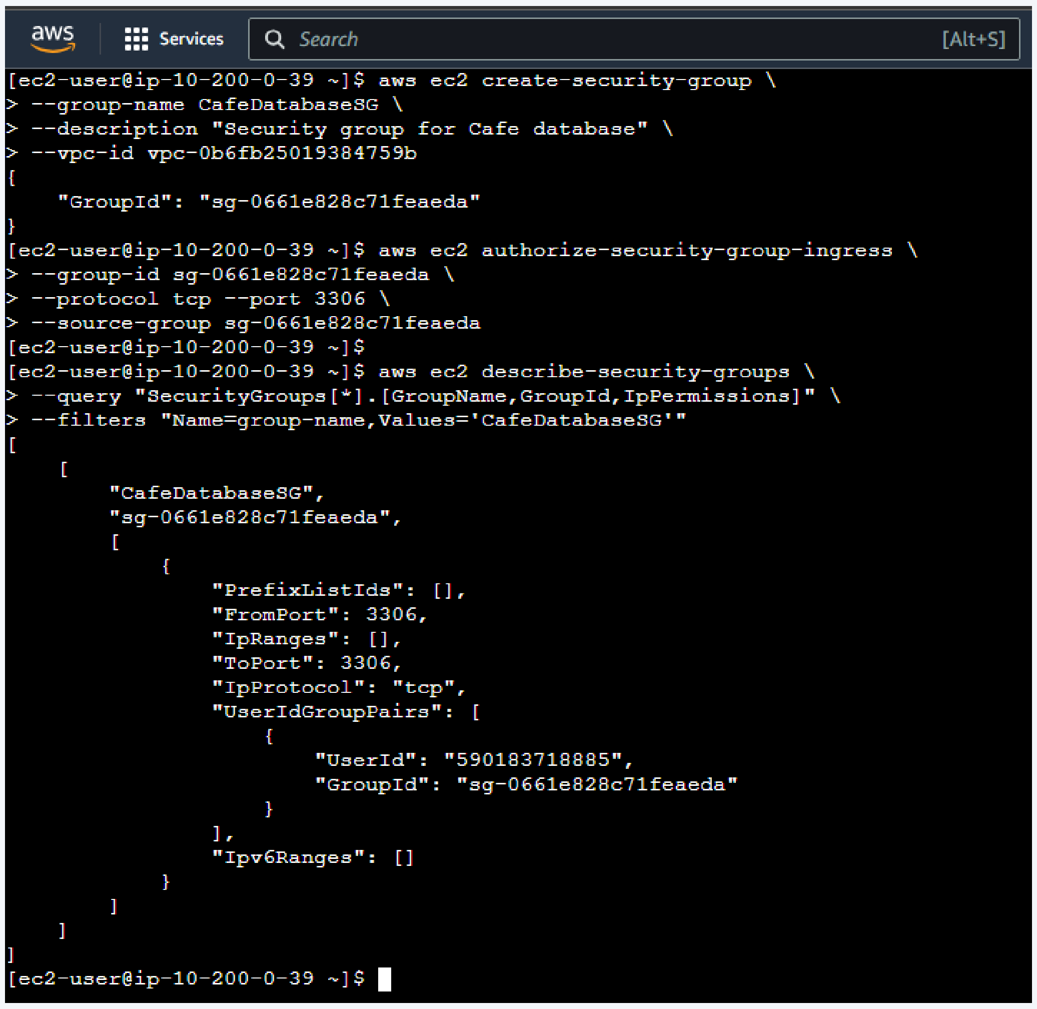
```
Last login: Wed Mar  6 17:49:00 2024 from ec2-18-237-140-164.us-west-2.compute.amazonaws.com
   ,     #_
   ~\_  ####_        Amazon Linux 2
  ~~  \_#####\
  ~~     \###|       AL2 End of Life is 2025-06-30.
  ~~       \#/ ___
   ~~       V~' '->
    ~~~         /    A newer version of Amazon Linux is available!
      ~~._.   _/
         _/ _/       Amazon Linux 2023, GA and supported until 2028-03-15.
       _/m/'           https://aws.amazon.com/linux/amazon-linux-2023/

[ec2-user@ip-10-200-0-39 ~]$ aws configure
AWS Access Key ID [None]: AKIAYS2NQ37S2ER33UJ4
AWS Secret Access Key [None]: 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
Default region name [None]: us-west-2
Default output format [None]: json
[ec2-user@ip-10-200-0-39 ~]$ 
```

SWIPE

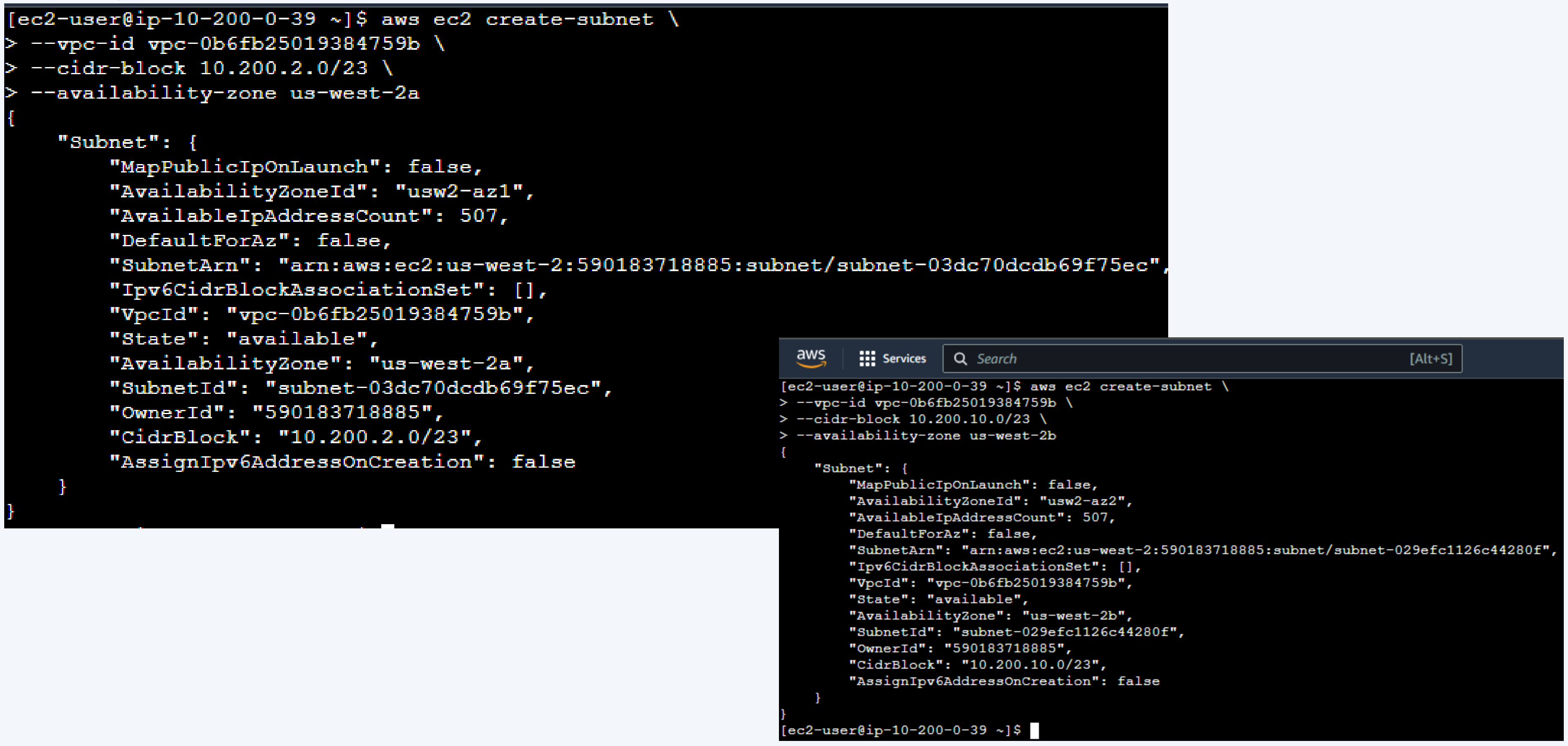
Tarea 01

Empezamos creando el grupo de seguridad, junto con sus reglas de entrada



```
[ec2-user@ip-10-200-0-39 ~]$ aws ec2 create-security-group \
> --group-name CafeDatabaseSG \
> --description "Security group for Cafe database" \
> --vpc-id vpc-0b6fb25019384759b
{
    "GroupId": "sg-0661e828c71feaeda"
}
[ec2-user@ip-10-200-0-39 ~]$ aws ec2 authorize-security-group-ingress \
> --group-id sg-0661e828c71feaeda \
> --protocol tcp --port 3306 \
> --source-group sg-0661e828c71feaeda
[ec2-user@ip-10-200-0-39 ~]$
[ec2-user@ip-10-200-0-39 ~]$ aws ec2 describe-security-groups \
> --query "SecurityGroups[*].[GroupName,GroupId,IpPermissions]" \
> --filters "Name=group-name,Values='CafeDatabaseSG'"
[
    [
        "CafeDatabaseSG",
        "sg-0661e828c71feaeda",
        [
            {
                "PrefixListIds": [],
                "FromPort": 3306,
                "IpRanges": [],
                "ToPort": 3306,
                "IpProtocol": "tcp",
                "UserIdGroupPairs": [
                    {
                        "UserId": "590183718885",
                        "GroupId": "sg-0661e828c71feaeda"
                    }
                ],
                "Ipv6Ranges": []
            }
        ]
    ]
]
[ec2-user@ip-10-200-0-39 ~]$
```

Luego, procedemos a crear las subredes privadas



```
[ec2-user@ip-10-200-0-39 ~]$ aws ec2 create-subnet \
> --vpc-id vpc-0b6fb25019384759b \
> --cidr-block 10.200.2.0/23 \
> --availability-zone us-west-2a
{
    "Subnet": {
        "MapPublicIpOnLaunch": false,
        "AvailabilityZoneId": "usw2-az1",
        "AvailableIpAddressCount": 507,
        "DefaultForAz": false,
        "SubnetArn": "arn:aws:ec2:us-west-2:590183718885:subnet/subnet-03dc70dcdb69f75ec",
        "Ipv6CidrBlockAssociationSet": [],
        "VpcId": "vpc-0b6fb25019384759b",
        "State": "available",
        "AvailabilityZone": "us-west-2a",
        "SubnetId": "subnet-03dc70dcdb69f75ec",
        "OwnerId": "590183718885",
        "CidrBlock": "10.200.2.0/23",
        "AssignIpv6AddressOnCreation": false
    }
}
```

```
[ec2-user@ip-10-200-0-39 ~]$ aws ec2 create-subnet \
> --vpc-id vpc-0b6fb25019384759b \
> --cidr-block 10.200.10.0/23 \
> --availability-zone us-west-2b
{
    "Subnet": {
        "MapPublicIpOnLaunch": false,
        "AvailabilityZoneId": "usw2-az2",
        "AvailableIpAddressCount": 507,
        "DefaultForAz": false,
        "SubnetArn": "arn:aws:ec2:us-west-2:590183718885:subnet/subnet-029efc1126c44280f",
        "Ipv6CidrBlockAssociationSet": [],
        "VpcId": "vpc-0b6fb25019384759b",
        "State": "available",
        "AvailabilityZone": "us-west-2b",
        "SubnetId": "subnet-029efc1126c44280f",
        "OwnerId": "590183718885",
        "CidrBlock": "10.200.10.0/23",
        "AssignIpv6AddressOnCreation": false
    }
}
[ec2-user@ip-10-200-0-39 ~]$
```

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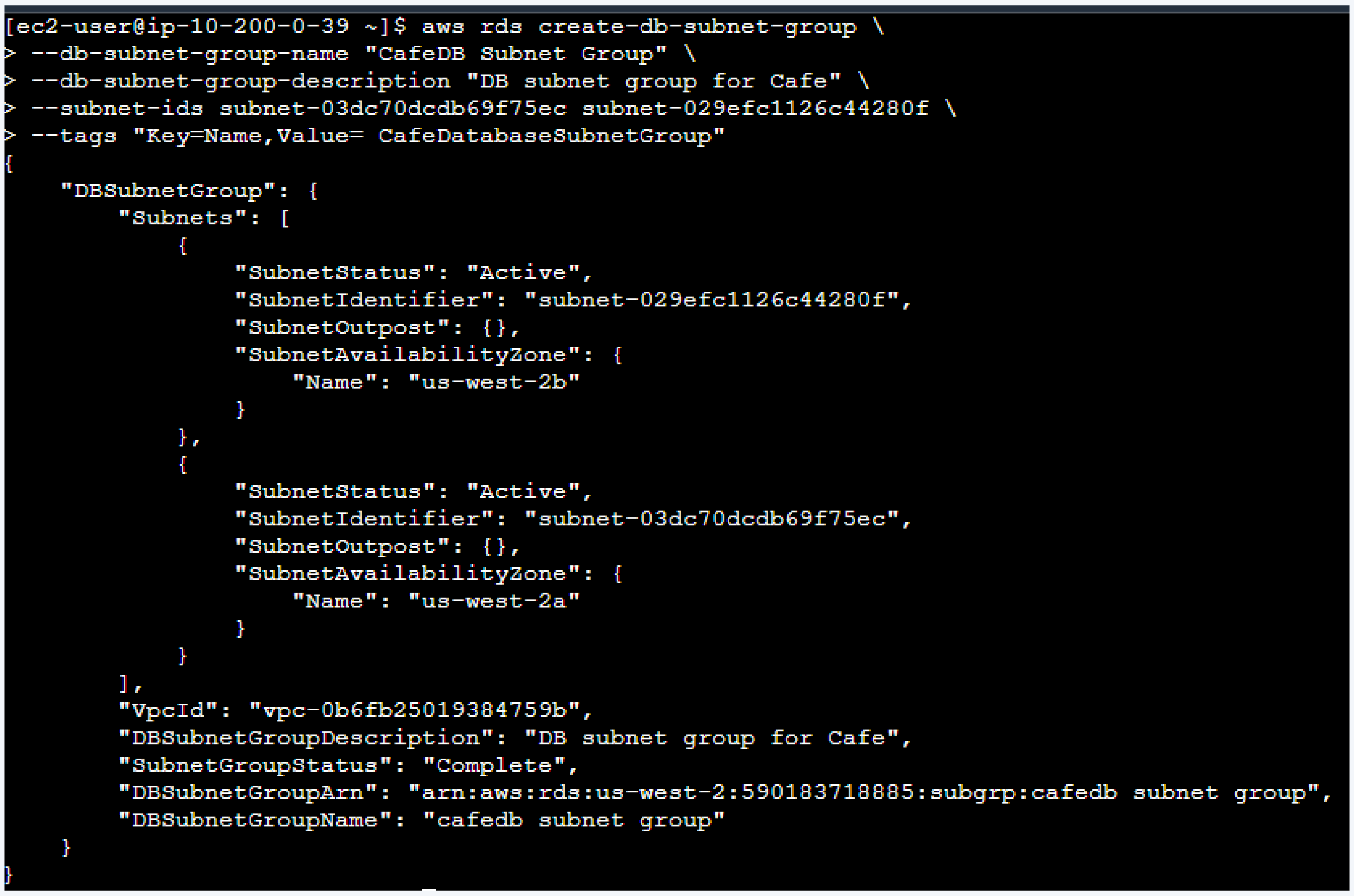
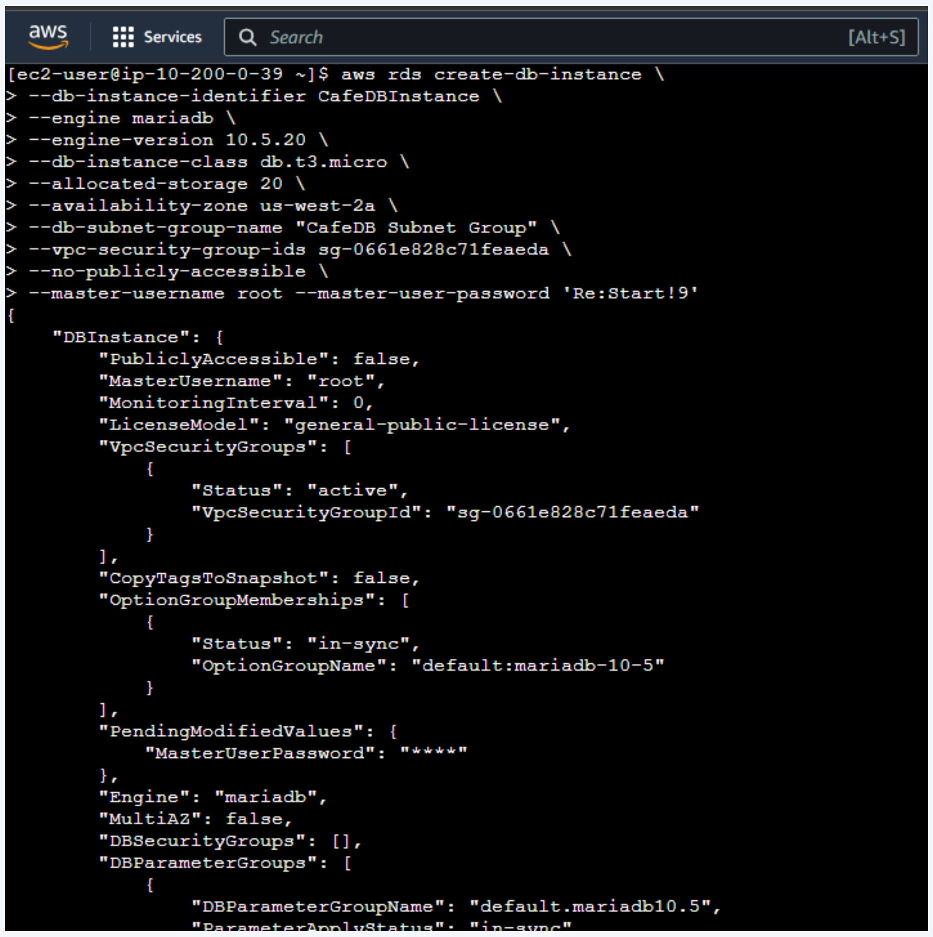
Tarea 01

Luego, adjuntamos estas subredes a la instancia de RDS BD:



```
[ec2-user@ip-10-200-0-39 ~]$ aws rds create-db-subnet-group \
> --db-subnet-group-name "CafeDB Subnet Group" \
> --db-subnet-group-description "DB subnet group for Cafe" \
> --subnet-ids subnet-03dc70dcdb69f75ec subnet-029efc1126c44280f \
> --tags "Key=Name,Value= CafeDatabaseSubnetGroup"
{
    "DBSubnetGroup": {
        "Subnets": [
            {
                "SubnetStatus": "Active",
                "SubnetIdentifier": "subnet-029efc1126c44280f",
                "SubnetOutpost": {},
                "SubnetAvailabilityZone": {
                    "Name": "us-west-2b"
                }
            },
            {
                "SubnetStatus": "Active",
                "SubnetIdentifier": "subnet-03dc70dcdb69f75ec",
                "SubnetOutpost": {},
                "SubnetAvailabilityZone": {
                    "Name": "us-west-2a"
                }
            }
        ],
        "VpcId": "vpc-0b6fb25019384759b",
        "DBSubnetGroupDescription": "DB subnet group for Cafe",
        "SubnetGroupStatus": "Complete",
        "DBSubnetGroupArn": "arn:aws:rds:us-west-2:590183718885:subgrp:cafedb subnet group",
        "DBSubnetGroupName": "cafedb subnet group"
    }
}
```

Ahora, creamos la instancia de RDS BD:

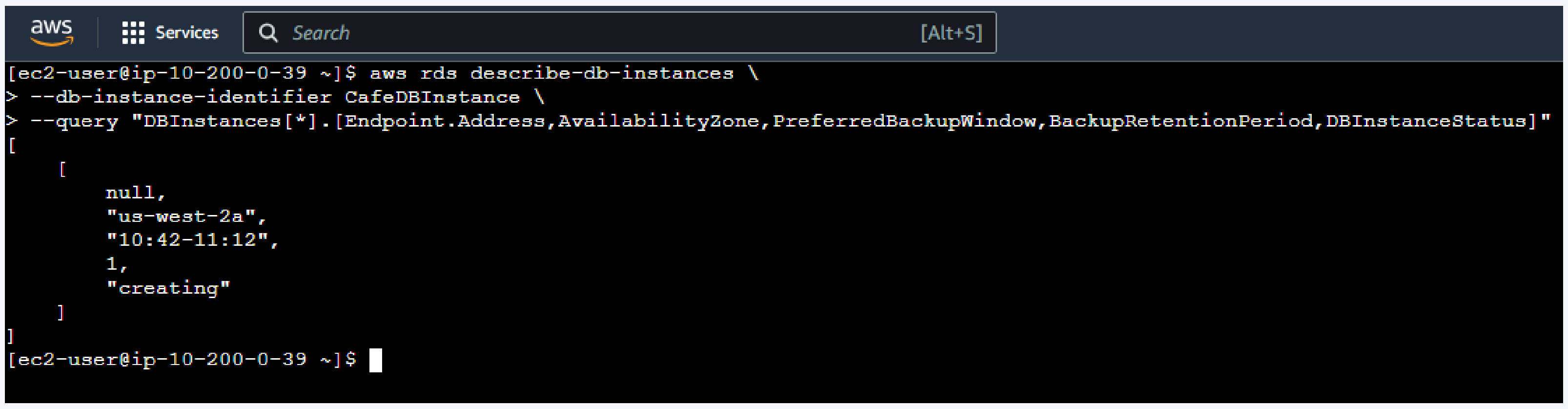


```
[ec2-user@ip-10-200-0-39 ~]$ aws rds create-db-instance \
> --db-instance-identifier CafeDBInstance \
> --engine mariadb \
> --engine-version 10.5.20 \
> --db-instance-class db.t3.micro \
> --allocated-storage 20 \
> --availability-zone us-west-2a \
> --db-subnet-group-name "CafeDB Subnet Group" \
> --vpc-security-group-ids sg-0661e828c71feaeda \
> --no-publicly-accessible \
> --master-username root --master-user-password 'Re:Start!9'
{
    "DBInstance": {
        "PubliclyAccessible": false,
        "MasterUsername": "root",
        "MonitoringInterval": 0,
        "LicenseModel": "general-public-license",
        "VpcSecurityGroups": [
            {
                "Status": "active",
                "VpcSecurityGroupId": "sg-0661e828c71feaeda"
            }
        ],
        "CopyTagsToSnapshot": false,
        "OptionGroupMemberships": [
            {
                "Status": "in-sync",
                "OptionGroupName": "default:mariadb-10-5"
            }
        ],
        "PendingModifiedValues": {
            "MasterUserPassword": "****"
        },
        "Engine": "mariadb",
        "MultiAZ": false,
        "DBSecurityGroups": [],
        "DBParameterGroups": [
            {
                "DBParameterGroupName": "default.mariadb10.5",
                "ParameterApplyStatus": "in-sync"
```

SWIPE

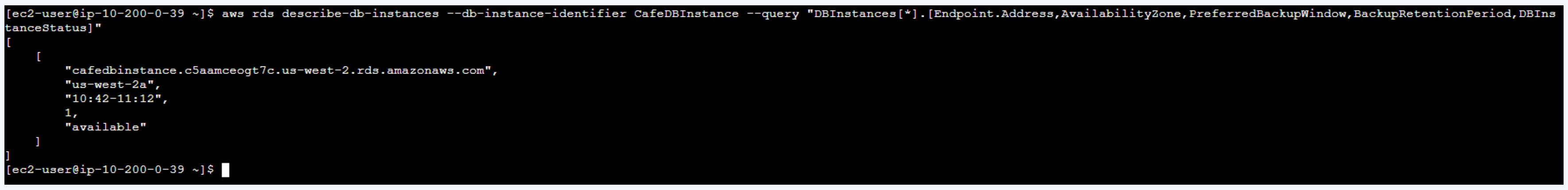
Tarea 01

Y verificamos su estado:



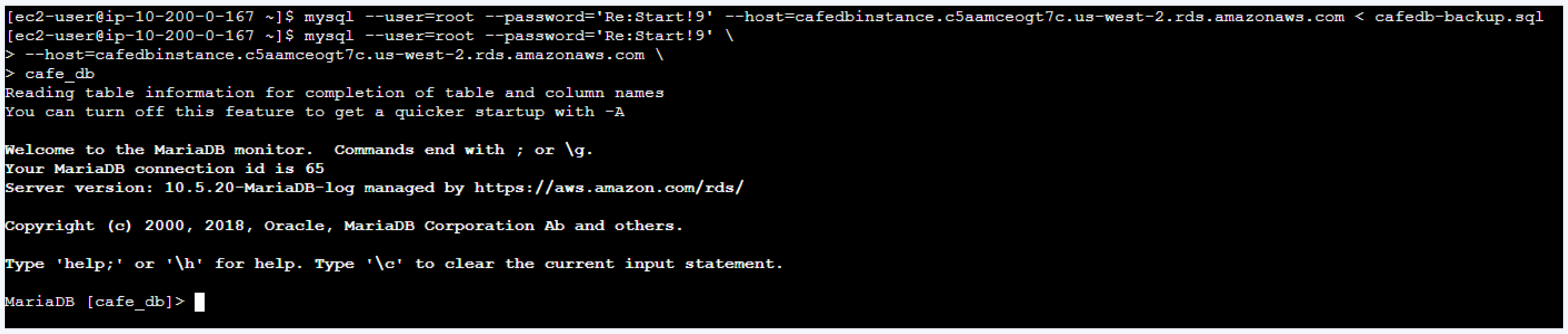
```
[ec2-user@ip-10-200-0-39 ~]$ aws rds describe-db-instances \
> --db-instance-identifier CafeDBInstance \
> --query "DBInstances[*].[Endpoint.Address,AvailabilityZone,PreferredBackupWindow,BackupRetentionPeriod,DBInstanceStatus]"
[
    [
        null,
        "us-west-2a",
        "10:42-11:12",
        1,
        "creating"
    ]
]
[ec2-user@ip-10-200-0-39 ~]$
```

Hasta el momento que se encuentra disponible:



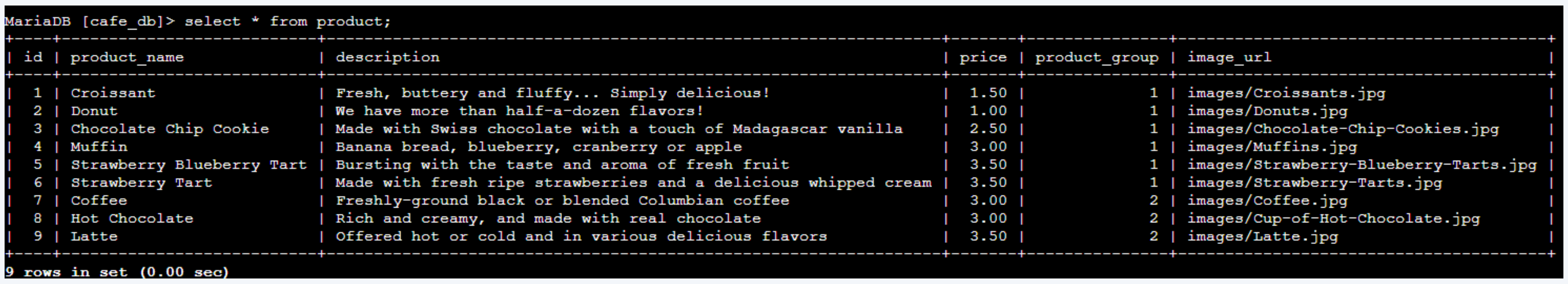
```
[ec2-user@ip-10-200-0-39 ~]$ aws rds describe-db-instances --db-instance-identifier CafeDBInstance --query "DBInstances[*].[Endpoint.Address,AvailabilityZone,PreferredBackupWindow,BackupRetentionPeriod,DBIns
tanceStatus]"
[
    [
        "cafedbinstance.c5aamceogt7c.us-west-2.rds.amazonaws.com",
        "us-west-2a",
        "10:42-11:12",
        1,
        "available"
    ]
]
[ec2-user@ip-10-200-0-39 ~]$
```

Ahora, procedemos a hacer migración hacia la nueva RDS DB desde la bd que se encuentra en la instancia de la página del Cafe



```
[ec2-user@ip-10-200-0-167 ~]$ mysql --user=root --password='Re:Start!9' --host=cafedbinstance.c5aamceogt7c.us-west-2.rds.amazonaws.com < cafedb-backup.sql
[ec2-user@ip-10-200-0-167 ~]$ mysql --user=root --password='Re:Start!9' \
> --host=cafedbinstance.c5aamceogt7c.us-west-2.rds.amazonaws.com \
> 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

Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 65
Server version: 10.5.20-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 [cafe_db]>
```

Y lo probamos:

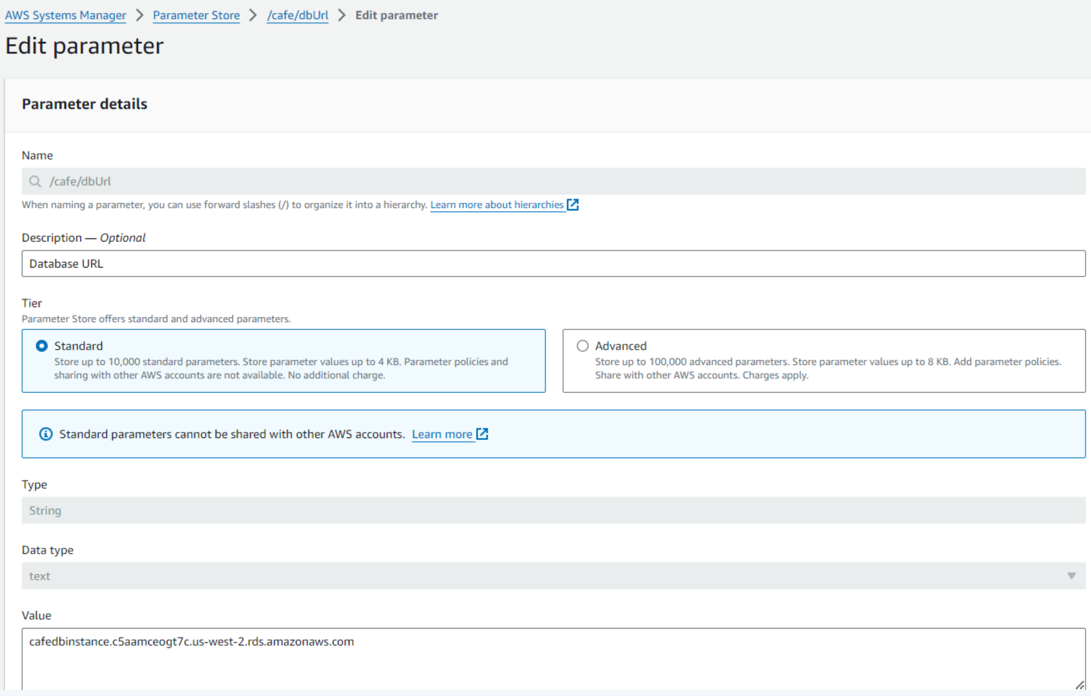


```
MariaDB [cafe_db]> select * from product;
+----+---------------------------+-----------------------------------------------------------------+-------+---------------+---------------------------------------+
| id | product_name              | description                                                     | price | product_group | image_url                             |
+----+---------------------------+-----------------------------------------------------------------+-------+---------------+---------------------------------------+
|  1 | Croissant                 | Fresh, buttery and fluffy... Simply delicious!                  |  1.50 |             1 | images/Croissants.jpg                 |
|  2 | Donut                     | We have more than half-a-dozen flavors!                         |  1.00 |             1 | images/Donuts.jpg                     |
|  3 | Chocolate Chip Cookie     | Made with Swiss chocolate with a touch of Madagascar vanilla    |  2.50 |             1 | images/Chocolate-Chip-Cookies.jpg     |
|  4 | Muffin                    | Banana bread, blueberry, cranberry or apple                     |  3.00 |             1 | images/Muffins.jpg                    |
|  5 | Strawberry Blueberry Tart | Bursting with the taste and aroma of fresh fruit                |  3.50 |             1 | images/Strawberry-Blueberry-Tarts.jpg |
|  6 | Strawberry Tart           | Made with fresh ripe strawberries and a delicious whipped cream |  3.50 |             1 | images/Strawberry-Tarts.jpg           |
|  7 | Coffee                    | Freshly-ground black or blended Columbian coffee                |  3.00 |             2 | images/Coffee.jpg                     |
|  8 | Hot Chocolate             | Rich and creamy, and made with real chocolate                   |  3.00 |             2 | images/Cup-of-Hot-Chocolate.jpg       |
|  9 | Latte                     | Offered hot or cold and in various delicious flavors            |  3.50 |             2 | images/Latte.jpg                      |
+----+---------------------------+-----------------------------------------------------------------+-------+---------------+---------------------------------------+
9 rows in set (0.00 sec)
```

SWIPE

Tarea 01

Ahora debemos configurar el website para que use esta instancia de RDS DB



AWS Systems Manager > Parameter Store > /cafe/dbUrl > Edit parameter

Edit parameter

Parameter details

Name

/cafe/dbUrl

When naming a parameter, you can use forward slashes (/) to organize it into a hierarchy. Learn more about hierarchies

Description — *Optional*

Database URL

Tier

Parameter Store offers standard and advanced parameters.

● Standard
Store up to 10,000 standard parameters. Store parameter values up to 4 KB. Parameter policies and sharing with other AWS accounts are not available. No additional charge.

○ Advanced
Store up to 100,000 advanced parameters. Store parameter values up to 8 KB. Add parameter policies. Share with other AWS accounts. Charges apply.

Standard parameters cannot be shared with other AWS accounts. Learn more

Type

String

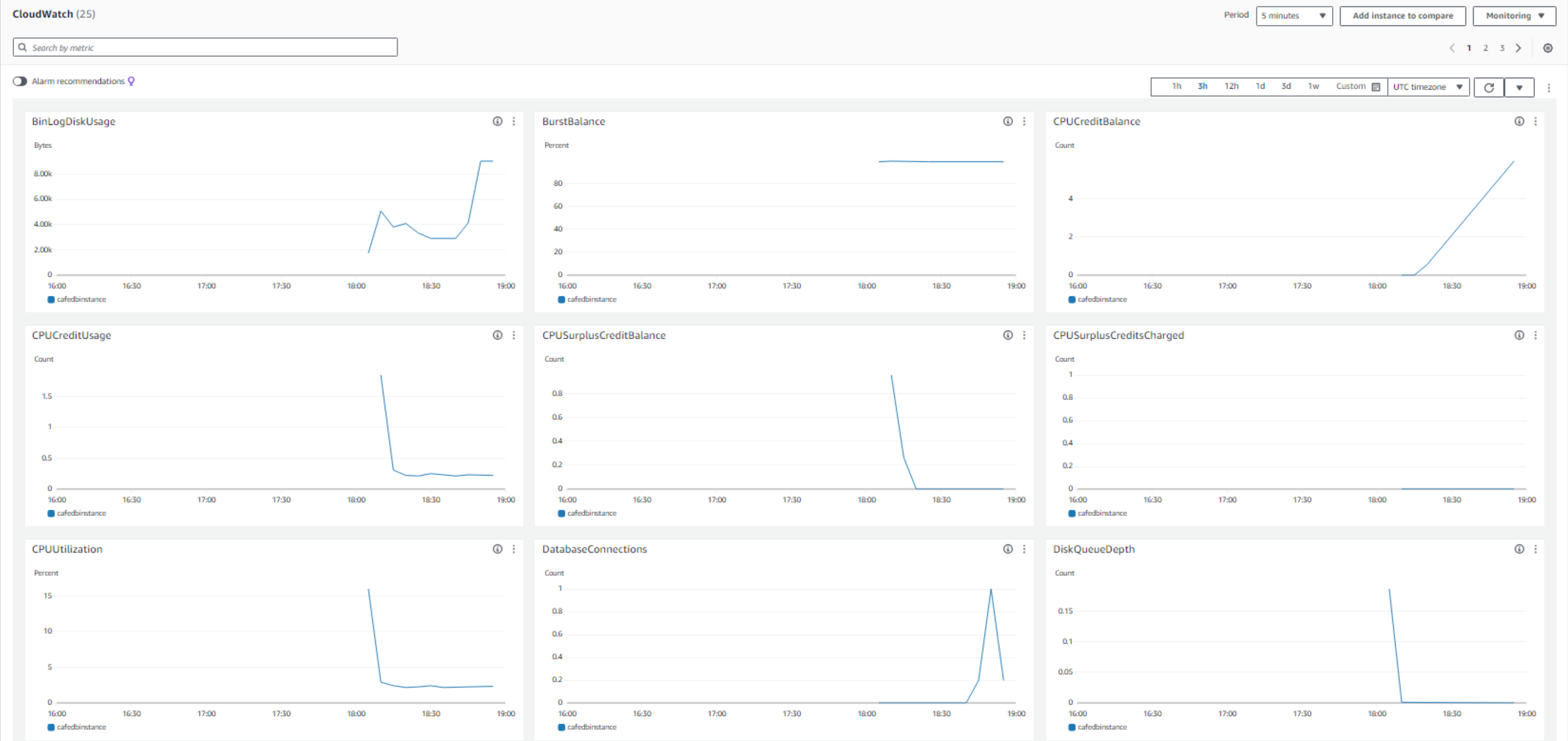
Data type

text

Value

```
cafedbinstance.c5aamceogt7c.us-west-2.rds.amazonaws.com
```

Asimismo, podemos monitorear esta instancia de RDS DB.



SWIPE