

Creación Instancia (Clase 16 19-04-24)

Nombre instancia EC2:

clientBD
AWS Linux
keytest

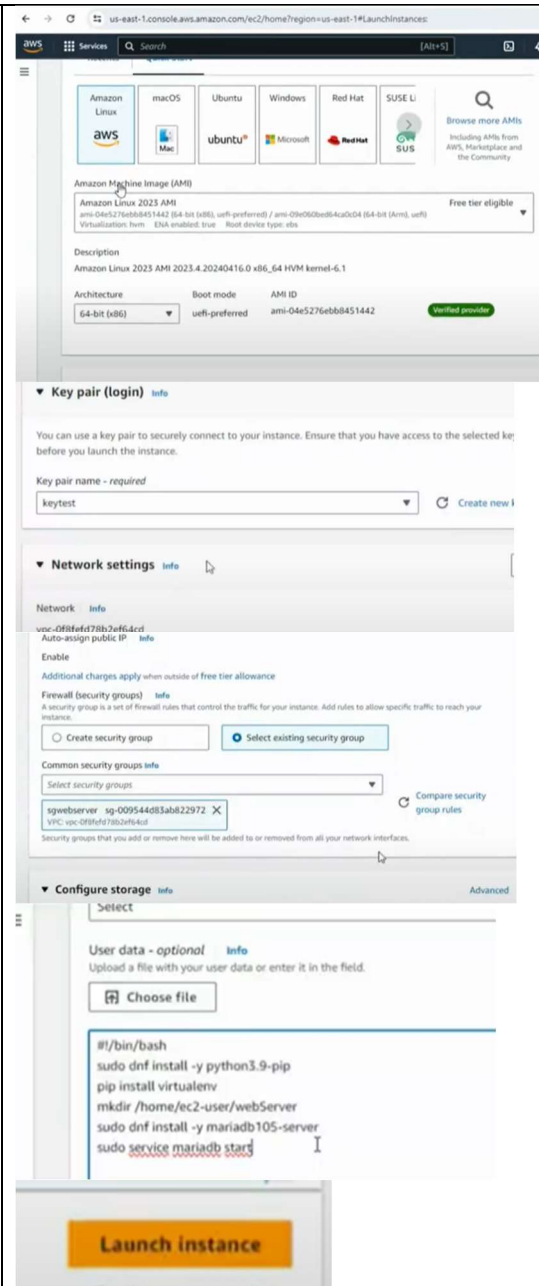
Security Group:

sgwebserver

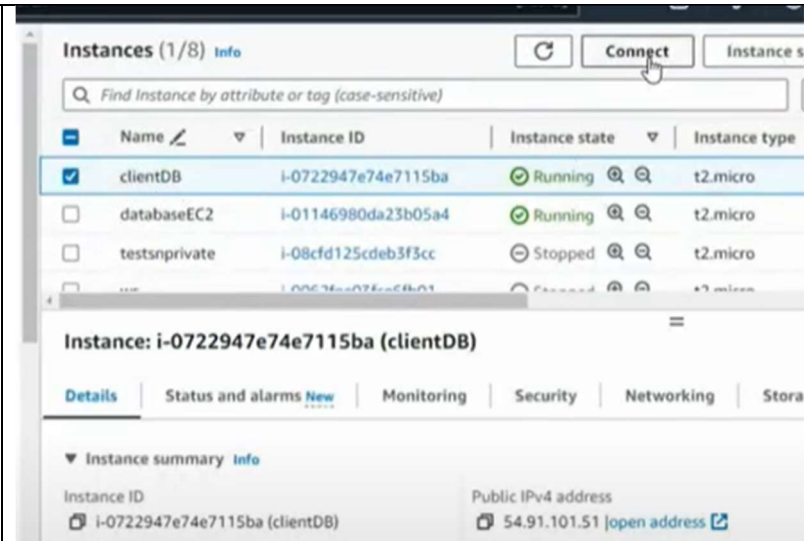
En advance, user data:

```
#!/bin/bash
sudo dnf install -y python3.9-pip
pip install virtualenv
mkdir /home/ec2-user/webServer
sudo dnf install -y mariadb 105-server
sudo service mariadb start
```

Launch instance



Correr la instancia:

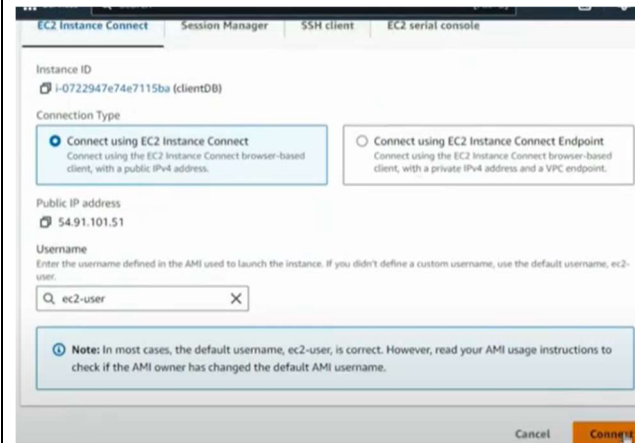


The screenshot shows the AWS Management Console 'Instances' page. A table lists three instances: 'clientDB' (Running, t2.micro), 'databaseEC2' (Running, t2.micro), and 'testsnprivate' (Stopped, t2.micro). The 'clientDB' instance is selected. Below the table, the 'Instance: i-0722947e74e7115ba (clientDB)' details are shown, including the public IPv4 address 54.91.101.51. The 'Connect' button is highlighted with a mouse cursor.

Name	Instance ID	Instance state	Instance type
clientDB	i-0722947e74e7115ba	Running	t2.micro
databaseEC2	i-01146980da23b05a4	Running	t2.micro
testsnprivate	i-08cfd125cdeb3f3cc	Stopped	t2.micro

Instance: i-0722947e74e7115ba (clientDB)

Instance ID: i-0722947e74e7115ba (clientDB) | Public IPv4 address: 54.91.101.51



The screenshot shows the 'EC2 Instance Connect' dialog box. It displays the instance ID 'i-0722947e74e7115ba (clientDB)' and the public IP address '54.91.101.51'. The 'Connect using EC2 Instance Connect' option is selected. The username 'ec2-user' is entered in the 'Username' field. A note at the bottom states: 'Note: In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.' The 'Connect' button is highlighted with a mouse cursor.

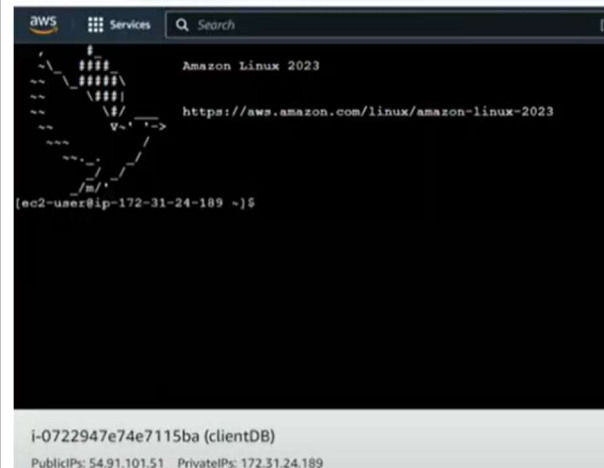
Instance ID: i-0722947e74e7115ba (clientDB)

Public IP address: 54.91.101.51

Username: ec2-user

Note: In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

Se Ingresa a la instancia:



```
aws
Services
Search
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023
[ec2-user@ip-172-31-24-189 ~]$
i-0722947e74e7115ba (clientDB)
PublicIPs: 54.91.101.51 PrivateIPs: 172.31.24.189
```

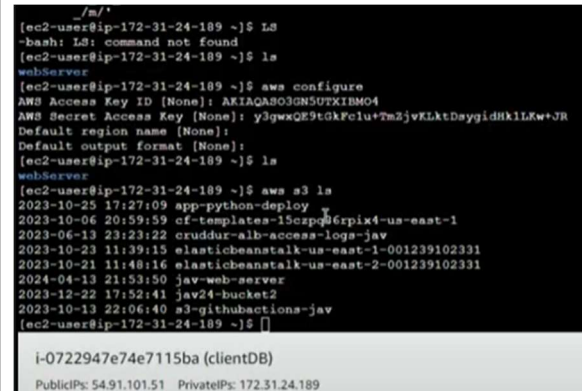
Se va a configurar un servidor web

Se requiere autenticar en AWS con el comando:
aws configure

access key ID:

secret Access key:

Ver el contenido del bucket S3
Aws s3 ls



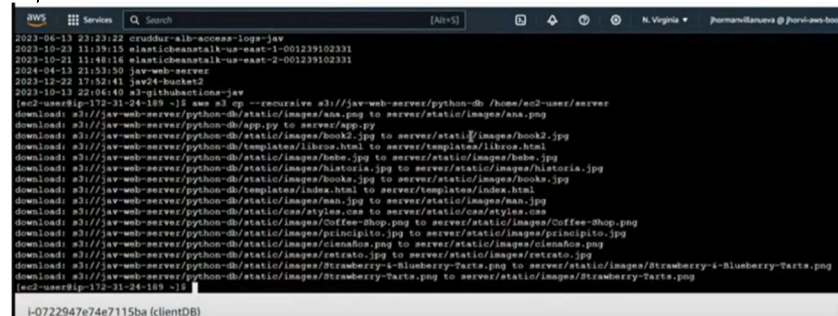
```
./m/
[ec2-user@ip-172-31-24-189 ~]$ ls
-bash: ls: command not found
[ec2-user@ip-172-31-24-189 ~]$ ls
webServer
[ec2-user@ip-172-31-24-189 ~]$ aws configure
AWS Access Key ID [None]: AKIAQAS03GN5UTXIBMO4
AWS Secret Access Key [None]: y3gwxQE9tGkFclu+7m2jvKLtDaygidHk1LkKw+JR
Default region name [None]:
Default output format [None]:
[ec2-user@ip-172-31-24-189 ~]$ ls
webServer
[ec2-user@ip-172-31-24-189 ~]$ aws s3 ls
2023-10-25 17:27:09 app-python-deploy
2023-10-06 20:59:59 cf-templates-15cspq06rpix4-us-east-1
2023-06-13 23:23:22 cruddur-alb-access-logs-jav
2023-10-23 11:39:15 elasticbeanstalk-us-east-1-001239102331
2023-10-21 11:48:16 elasticbeanstalk-us-east-2-001239102331
2024-04-13 21:53:50 jav-web-server
2023-12-22 17:52:41 jav24-bucket2
2023-10-13 22:06:40 s3-githubactions-jav
[ec2-user@ip-172-31-24-189 ~]$
i-0722947e74e7115ba (clientDB)
PublicIPs: 54.91.101.51 PrivateIPs: 172.31.24.189
```

Traer información desde el bucket a la carpeta server

aws s3 cp --recursive s3://jav-web-server/python-db
/home/ec2-user/server

cambiar al Directorio server:
cd server

muestra:
app.py static templates



```
aws
Services
Search
[Alt+S]
N. Virginia
jordanillanava @ jordi-aws-b00n
2023-06-13 23:23:22 cruddur-alb-access-logs-jav
2023-10-23 11:39:15 elasticbeanstalk-us-east-1-001239102331
2023-10-21 11:48:16 elasticbeanstalk-us-east-2-001239102331
2024-04-13 21:53:50 jav-web-server
2023-12-22 17:52:41 jav24-bucket2
2023-10-13 22:06:40 s3-githubactions-jav
[ec2-user@ip-172-31-24-189 ~]$ aws s3 cp --recursive s3://jav-web-server/python-db /home/ec2-user/server
download: s3://jav-web-server/python-db/static/images/ana.png to server/static/images/ana.png
download: s3://jav-web-server/python-db/app.py to server/app.py
download: s3://jav-web-server/python-db/static/images/book2.jpg to server/static/images/book2.jpg
download: s3://jav-web-server/python-db/templates/libros.html to server/templates/libros.html
download: s3://jav-web-server/python-db/static/images/babe.jpg to server/static/images/babe.jpg
download: s3://jav-web-server/python-db/static/images/historia.jpg to server/static/images/historia.jpg
download: s3://jav-web-server/python-db/static/images/books.jpg to server/static/images/books.jpg
download: s3://jav-web-server/python-db/templates/index.html to server/templates/index.html
download: s3://jav-web-server/python-db/static/images/ana.jpg to server/static/images/ana.jpg
download: s3://jav-web-server/python-db/static/css/styles.css to server/static/css/styles.css
download: s3://jav-web-server/python-db/static/images/Coffee-Shop.png to server/static/images/Coffee-Shop.png
download: s3://jav-web-server/python-db/static/images/pinipito.jpg to server/static/images/pinipito.jpg
download: s3://jav-web-server/python-db/static/images/cinaboa.png to server/static/images/cinaboa.png
download: s3://jav-web-server/python-db/static/images/extra.jpg to server/static/images/extra.jpg
download: s3://jav-web-server/python-db/static/images/Strawberry-4-Blueberry-Tarts.png to server/static/images/Strawberry-4-Blueberry-Tarts.png
download: s3://jav-web-server/python-db/static/images/Strawberry-Tarts.png to server/static/images/Strawberry-Tarts.png
[ec2-user@ip-172-31-24-189 ~]$
i-0722947e74e7115ba (clientDB)
```

Estando en el Directorio server se crea el entorno virtual con el siguiente comando:

python3 -m virtualenv venv

```
[ec2-user@ip-172-31-24-189 ~]$ cd server/
[ec2-user@ip-172-31-24-189 server]$ ls
app.py  static  templates
[ec2-user@ip-172-31-24-189 server]$ python3 app.py
Traceback (most recent call last):
  File "/home/ec2-user/server/app.py", line 1, in <module>
    from flask import Flask, render_template
ModuleNotFoundError: No module named 'flask'
[ec2-user@ip-172-31-24-189 server]$ python3 -m virtualenv venv
created virtual environment CPython3.9.16.final.0-64 in 1102ms
creator CPython3Posix(dest=/home/ec2-user/server/venv, clear=False, no_vcs_ignore=False, global=False)
seeder FromAppData(download=False, pip=bundle, setuptools=bundle, wheel=bundle, via=copy, app_data_dir=/home/ec2-user/.local/share/virtualenv)
added seed packages: pip==24.0, setuptools==69.5.1, wheel==0.43.0
activators BashActivator, CShellActivator, FishActivator, NushellActivator, PowerShellActivator, PythonActivator
[ec2-user@ip-172-31-24-189 server]$ ls
app.py  static  templates  venv
[ec2-user@ip-172-31-24-189 server]$
```

source venv/

source venv/bin/

source venv/bin/activate

```
ModuleNotFoundError: No module named 'flask'
[ec2-user@ip-172-31-24-189 server]$ python3 -m virtualenv venv
created virtual environment CPython3.9.16.final.0-64 in 1102ms
creator CPython3Posix(dest=/home/ec2-user/server/venv, clear=False, no_vcs_ignore=False, global=False)
seeder FromAppData(download=False, pip=bundle, setuptools=bundle, wheel=bundle, via=copy, app_data_dir=/home/ec2-user/.local/share/virtualenv)
added seed packages: pip==24.0, setuptools==69.5.1, wheel==0.43.0
activators BashActivator, CShellActivator, FishActivator, NushellActivator, PowerShellActivator, PythonActivator
[ec2-user@ip-172-31-24-189 server]$ ls
app.py  static  templates  venv
[ec2-user@ip-172-31-24-189 server]$ source venv/
[ec2-user@ip-172-31-24-189 server]$ source venv/bin/
[ec2-user@ip-172-31-24-189 server]$ source venv/bin/activate
. gitignore bin/ lib/ lib64/ pyvenv.cfg
[ec2-user@ip-172-31-24-189 server]$ source venv/
. gitignore bin/ lib/ lib64/ pyvenv.cfg
[ec2-user@ip-172-31-24-189 server]$ source venv/bin/
activate activate.nu pip pip3.9 python3.9 wheel3
activate.csh activate.pal pip-3.9 python wheel wheel3.9
activate.fish activate_this.py pip3 python3 wheel-3.9
[ec2-user@ip-172-31-24-189 server]$ source venv/bin/activate
(venv) [ec2-user@ip-172-31-24-189 server]$
```

i-0722947e74e7115ba (clientDB)

PublicIPs: 54.91.101.51 PrivateIPs: 172.31.24.189

Instalación de paquetes necesarios:

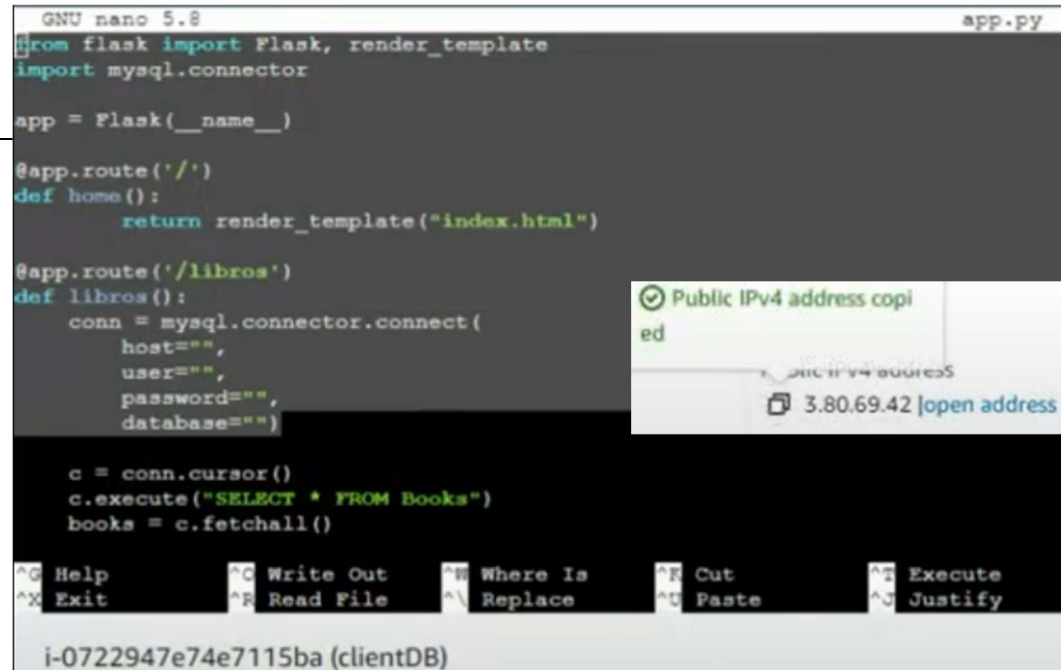
pip install flask

Editar el servidor web archivo app.py

sudo nano app.py

Editar las líneas del archivo app.py:
import mysql.connector

```
def.libro():  
    conn = mysql.connector.connect (  
        host="3.80.69.42",  
        user="root",  
        password="Test!2024",  
        database="books_db")
```

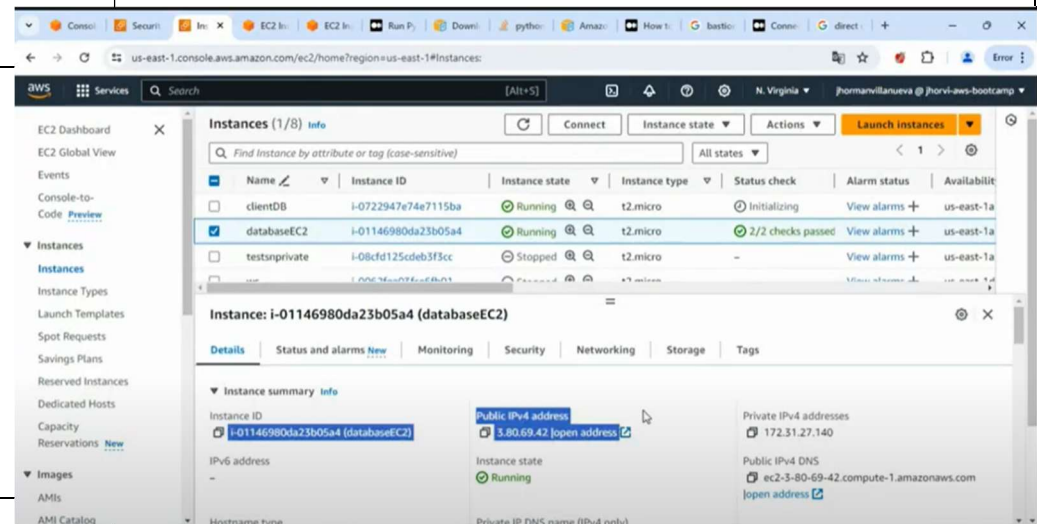


El host es la ip de la instancia EC2 databaseEC2

Esta instancia fue creada en la clase 15 18-04-2024

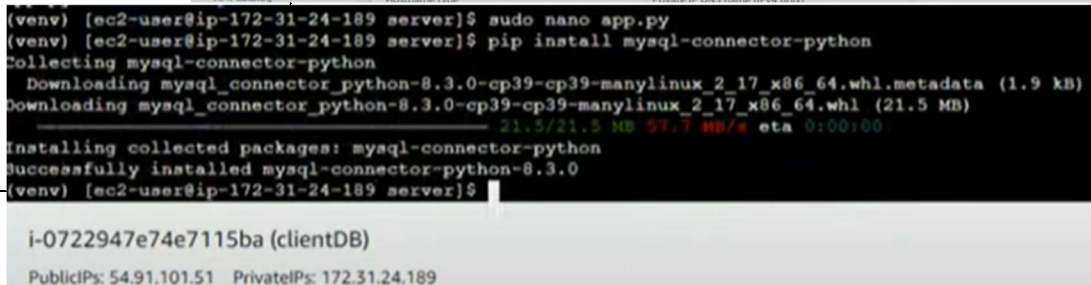
Se guarda con Ctrl X para salir,
“yes” para confirmar y Enter

Se sale del editor



Instalar la librería connector:

pip install mysql-connector-python



Correr aplicacion con el siguiente comando:

python3 app.py

la aplicación esta corriendo

```
(venv) [ec2-user@ip-172-31-24-189 server]$ python3 app.py
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.31.24.189:5000
Press CTRL+C to quit
```

i-0722947e74e7115ba (clientDB)

PublicIPs: 54.91.101.51 PrivateIPs: 172.31.24.189

Comprobar el funcionamiento:

Ir a la instancia clientDB para buscar la IP 54.91.101.51

Instances (1/8) info

Find instance by attribute or tag (case-sensitive)

All states

Name	Instance ID	Instance state	Instance type	Status check
testEC2	i-041912e12c8caa42	Stopped	t2.micro	-
clientDB	i-0722947e74e7115ba	Running	t2.micro	2/2 checks passed
testVpc	i-025f82716352c2c9	Stopped	t2.micro	-

Instance: i-0722947e74e7115ba (clientDB)

Details Status and alarms New Monitoring Security Networking Storage Tags

Instance summary info

Instance ID: i-0722947e74e7115ba (clientDB)

Public IPv4 address: 54.91.101.51 [open address](#)

Private IPv4 addresses: 172.31.24.189

Abrir una ventana nueva del browser y editar la dirección:

http://54.91.101.51:5000



Librería El Mundo de L

Libros disponibles

ISBN	Title	Author	Description
1	El principito	Antoine de Saint-Exupery	Libro infantil que fomenta la creatividad
2	Cien años de soledad	Gabriel Garcia Marquez	Novela de literatura
3	El diario de Ana Frank	Ana Frank	Libro sobre la ocupación Nazi en Holanda
4	El retrato de Oscar Wilde	Oscar Wilde	Libro de ficción

```
Database changed
MariaDB [books_db]> show tables;
+-----+
| Tables_in_books_db |
+-----+
| Books               |
+-----+
1 row in set (0.000 sec)

MariaDB [books_db]> SELECT * FROM Books;
+-----+-----+-----+-----+-----+
| ISBN | title                | author                | description                | image_url                |
+-----+-----+-----+-----+-----+
| 1     | El principito        | Antoine de Saint-Exupery | Libro infantil que fomenta la creatividad | static/images/principito.jpg |
| 2     | Cien años de soledad | Gabriel Garcia Marquez | Novela de literatura       | static/images/cienanos.png |
| 3     | El diario de Ana Frank | Ana Frank             | Libro sobre la ocupación Nazi en Holanda | static/images/ana.png |
| 4     | El retrato de Dorian Gray | Oscar Wilde          | Libro de ficción         | static/images/retrato.jpg |
+-----+-----+-----+-----+-----+
4 rows in set (0.005 sec)

MariaDB [books_db]> Ctrl-C -- exit!
Aborted
[ec2-user@ip-172-31-27-140 ~]$
```

i-01146980da23b05a4 (databaseEC2)

PublicIPs: 3.80.69.42 PrivateIPs: 172.31.27.140

Se muestra la información de la base de datos que esta en la instancia databaseEC2

Configurar una base de datos RDS

Amazon RDS

Databases

Create Database
Standard create

Engine options:
MySQL

Templates:
Free tier

Settings:
DB instance identifier:
Webdatabase

Credentials Settings:
Master User name
Admin

Credential management:
Self managed

Master Password:
Test!2024
Confirm
Test!2024

Conectivity
Default VPC

Public Access
Yes

VPC security group (firewall)

Escojer el grupo de seguridad existente:
databaseSG

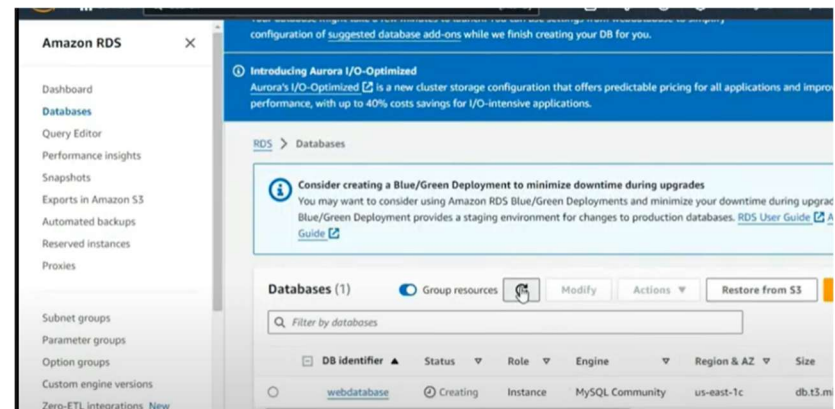
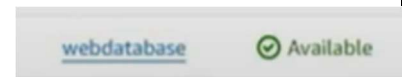
Availability zone:
No preference

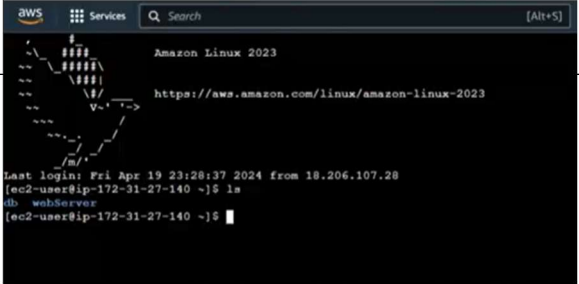
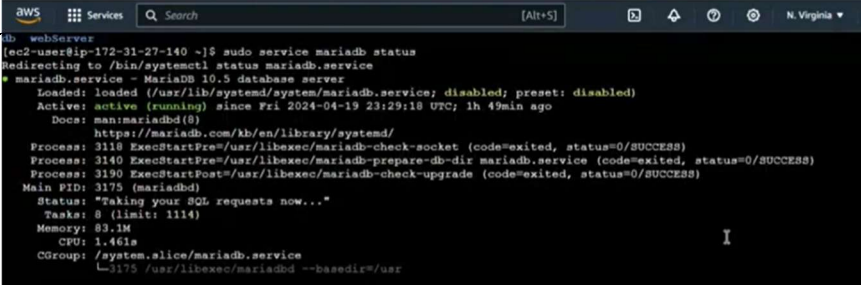
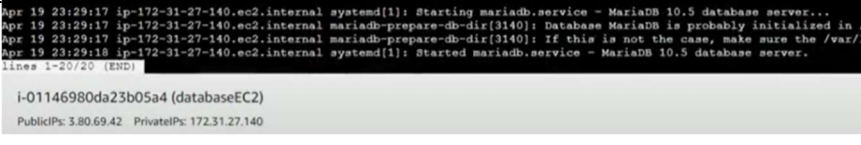
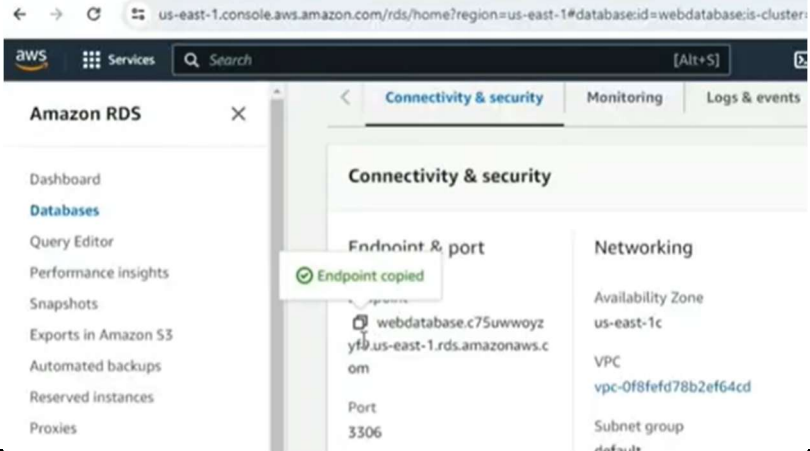
Additional configuration:
Initial database name:
Books_db

Créate database

Se demora unos minutos en la creación.

Esta es una plataforma como servicio



<p>Vamos a la instancia EC2 en donde esta la base de datos:</p> <p>databaseEC2</p>	
<p>Verificar contenido con el comando:</p> <p>ls</p> <p>deben aparecer db y webserver</p>	
<p>Se verifica si corre el servicio mariadb con el siguiente comando:</p> <p>Sudo service mariadb status</p>	
<p>Para hacer una prueba de comunicarnos con la base de datos se requiere conocer el end point de la base de datos en Amazon RDS</p> <p>Entrar en el servicio RDS</p> <p>Databases</p> <p>Seleccionar webdatabase</p> <p>Copiar el end point para pegar en un comando que se ejecuta en la consola que ejecuta la instancia databaseEC2.</p>	
<p>El comando es:</p> <p>mysql -u admin -p -host endpoint</p>	

Prueba para comunicar base de datos

Con el comando:

`mysql -u admin -p --host webdatabase.c75uwwoyzyf9.us-east-1.rds.amazonaws.com`

Enter password: (Test!2024)

Ya está conectado a la base de datos.

Si se escribe el comando:

`showdatabases;`

Muestra las bases de datos

Entrar a la base de datos books_db

`use books_db;`

Ver el contenido:

`show tables;`

La base se datos no tiene información.

Ctrl c para salir

```
aws Services Search [Alt+S]
[ec2-user@ip-172-31-27-140 ~]$ mysql -u admin -p --host webdatabase.c75uwwoyzyf9.us-east-1.rds.amazonaws.com
i-01146980da23b05a4 (databaseEC2)
```

```
aws Services Search [Alt+S]
[ec2-user@ip-172-31-27-140 ~]$ mysql -u admin -p --host webdatabase.c75uwwoyzyf9.us-east-1.rds.amazonaws.com
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 24
Server version: 8.0.35 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)]>
```

```
MySQL [(none)]> show databases;
+-----+
| Database |
+-----+
| books_db |
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.002 sec)

MySQL [(none)]> use books_db;
Database changed
MySQL [books_db]> show tables;
Empty set (0.002 sec)

MySQL [books_db]>
```

i-01146980da23b05a4 (databaseEC2)

Se va a migrar de la base de datos EC2 a la base de datos en la nube

```
sudo mysqldump --databases books_db -u root -p > BookDbDump.sql
```

password: Test!2024

```
[ec2-user@ip-172-31-27-140 ~]$ sudo mysqldump --databases books_db -u root -p > BookDbDump.sql
Enter password:
[ec2-user@ip-172-31-27-140 ~]$ ls
BookDbDump.sql  db  webServer
[ec2-user@ip-172-31-27-140 ~]$
```

i-01146980da23b05a4 (databaseEC2)
PublicIPs: 3.80.69.42 PrivateIPs: 172.31.27.140

se crea el archive BookDBDump.sql

Para terminar la migración se escribe el siguiente comando:

```
mysql -u admin -p --host endpoint < BookDbDump.sql
```

```
mysql -u admin -p --host webdatabase.c75uwwozyf9.us-east-1.rds.amazonaws.com < BookDbDump.sql
```

password: Test!2024

```
[ec2-user@ip-172-31-27-140 ~]$ mysql -u admin -p --host webdatabase.c75uwwozyf9.us-east-1.rds.amazonaws.com < BookDbDump.sql
Enter password:
[ec2-user@ip-172-31-27-140 ~]$
```

i-01146980da23b05a4 (databaseEC2)
PublicIPs: 3.80.69.42 PrivateIPs: 172.31.27.140

De esta manera queda hecha la migración de la base de datos.

Se comprueba de la siguiente manera:

Se conecta a la base de datos con el siguiente comando:

```
mysql -u admin -p --host webdatabase.c75uwwozyf9.us-east-1.rds.amazonaws.com
```

y se muestran las bases de datos con:

```
showdatabases;
```

```
Enter password:
[ec2-user@ip-172-31-27-140 ~]$ mysql -u admin -p --host webdatabase.c75uwwozyf9.us-east-1.rds.amazonaws.com
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 28
Server version: 8.0.35 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)]> show databases;
+-----+
| Database |
+-----+
| books_db |
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.002 sec)

MySQL [(none)]>
```

i-01146980da23b05a4 (databaseEC2)

Se entra a la base de datos books_db con el comando:

```
use books_db;
```

muestre el contenido con el comando:

```
show tables;
```

aparece la tabla books

vamos a ver si los datos también se migraron

```
5 rows in set (0.002 sec)

MySQL [(none)]> use books_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
MySQL [books_db]> show tables;
+-----+
| Tables_in_books_db |
+-----+
| Books |
+-----+
1 row in set (0.002 sec)

MySQL [books_db]>
```

i-01146980da23b05a4 (databaseEC2)

PublicIPs: 3.80.69.42 PrivateIPs: 172.31.27.140

Para comprobar si los datos también migraron

select * FROM Books;

Se comprueba que
Todos los datos
migraron

la base de datos que esta
end EC2 se migro a RDS

Ctrl C para salir

```
1 row in set (0.002 sec)

MySQL [books_db]> SELECT * FROM Books;
+-----+-----+-----+-----+-----+
| ISBN | title | author | description | image_url |
+-----+-----+-----+-----+-----+
| 1 | El principito | Antoine de Saint-Exupery | Libro infantil que fomenta la creatividad | static/images/principito.jpg |
| 2 | Cien años de soledad | Gabriel García Marquez | Novela de literatura | static/images/cien años.png |
| 3 | El diario de Ana Frank | Ana Frank | Libro sobre la ocupación Nazi en Holanda | static/images/ana.png |
| 4 | El retrato de Dorian Gray | Oscar Wilde | Libro de ficción | static/images/retrato.jpg |
+-----+-----+-----+-----+-----+

4 rows in set (0.001 sec)

MySQL [books_db]> Ctrl-C -- exit!
Aborted
[ec2-user@ip-172-31-27-140 ~]$
```

i-01146980da23b05a4 (databaseEC2)
PublicIPs: 3.80.69.42 PrivateIPs: 172.31.27.140
