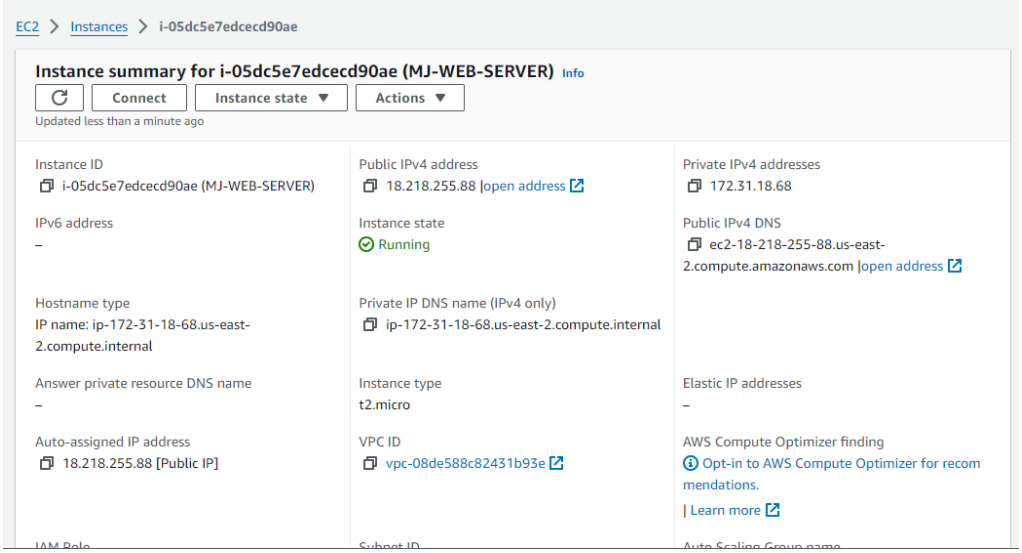
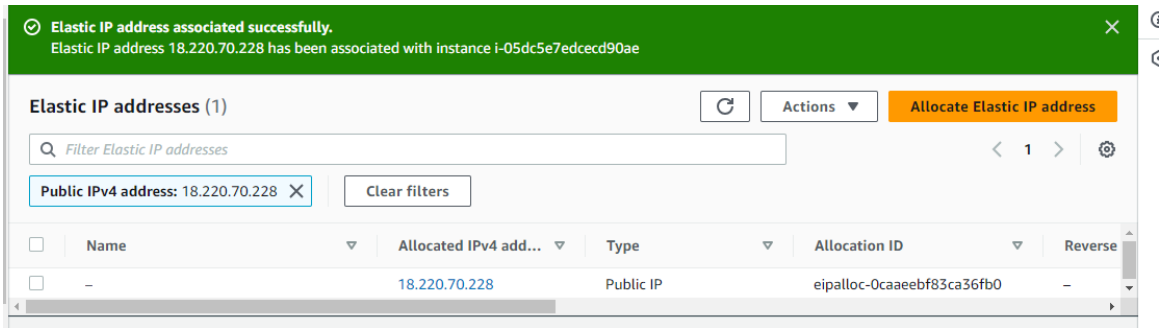
Deploying A web application to store data in RDS: -

- **Created A EC2 Instance: -**

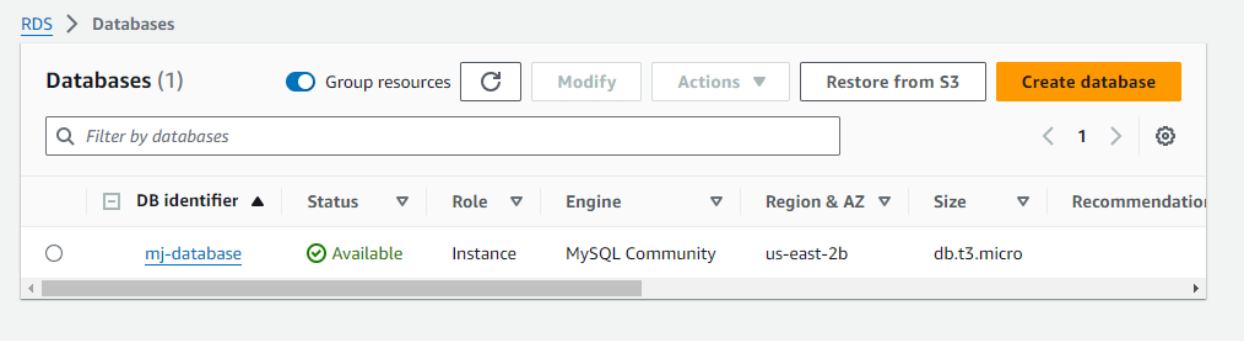


1. Enable Security Groups: - HTTP (80), HTTPS (443), SSH (22)

- **Associated an Elastic IP To EC2 Instance: -**



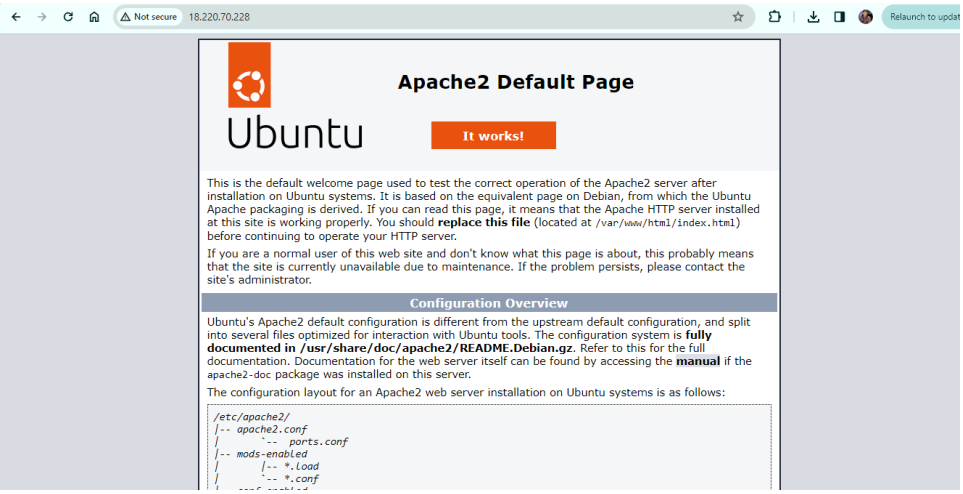
- **Created A RDS: -**



- **Install a webserver Apache2: -**

-> installing apache2 or PHP on Ec2 instance: -

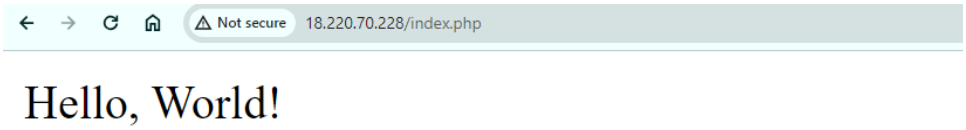
```
No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-18-68:~# sudo apt install php libapache2-mod-php php-mysql
```



- **Created a webserver:-**

```
root@ip-172-31-18-68:~# ls
snap
root@ip-172-31-18-68:~# cd /var/
root@ip-172-31-18-68:/var# cd ..
root@ip-172-31-18-68:/# cd /var/
root@ip-172-31-18-68:/var# ls
backups  cache  crash  lib  local  lock  log  mail  opt  run
root@ip-172-31-18-68:/var# cd www
root@ip-172-31-18-68:/var/www# ls
html
root@ip-172-31-18-68:/var/www# cd html
root@ip-172-31-18-68:/var/www/html# vi index.php
root@ip-172-31-18-68:/var/www/html# cat index.ph
cat: index.ph: No such file or directory
root@ip-172-31-18-68:/var/www/html# cat index.php
<?php
        echo 'Hello, World!';
?>
```

- Created a one file for hello world :-



- **Created a one file for database connection Username or password: -**

```
root@ip-172-31-18-68:/var/www/html# php -v
PHP 8.1.2-1ubuntu2.14 (cli) (built: Aug 18 2023 11:41:11) (NTS)
Copyright (c) The PHP Group
Zend Engine v4.1.2, Copyright (c) Zend Technologies
    with Zend OPcache v8.1.2-1ubuntu2.14, Copyright (c), by Zend Technologies
root@ip-172-31-18-68:/var/www/html# vi db.inc.php
root@ip-172-31-18-68:/var/www/html# cat db.inc.php
<?php

define('DB_SERVER', 'mj-database.cv4c2kioc7pd.us-east-2.rds.amazonaws.com');
define('DB_USERNAME', 'MJ');
define('DB_PASSWORD', 'mihir12345');
define('DB_DATABASE', 'mihir');
?>
```

- Connected to a database: -

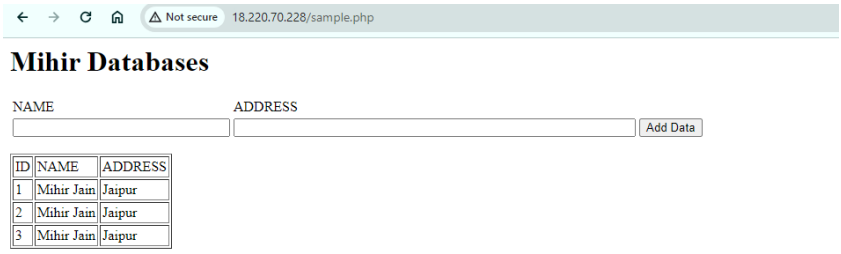
```
root@ip-172-31-18-68:/var/www/html# mysql -u MJ -h mj-database.cv4c2kioc7pd.us-east-2.rds.amazonaws.com -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 30
Server version: 8.0.35 Source distribution

Copyright (c) 2000, 2024, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

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

- Created a database in the rds

```
mysql> Create Database mihir
    -> ;
Query OK, 1 row affected (0.00 sec)

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mihir              |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.01 sec)
```

- Created a sample page for database: -

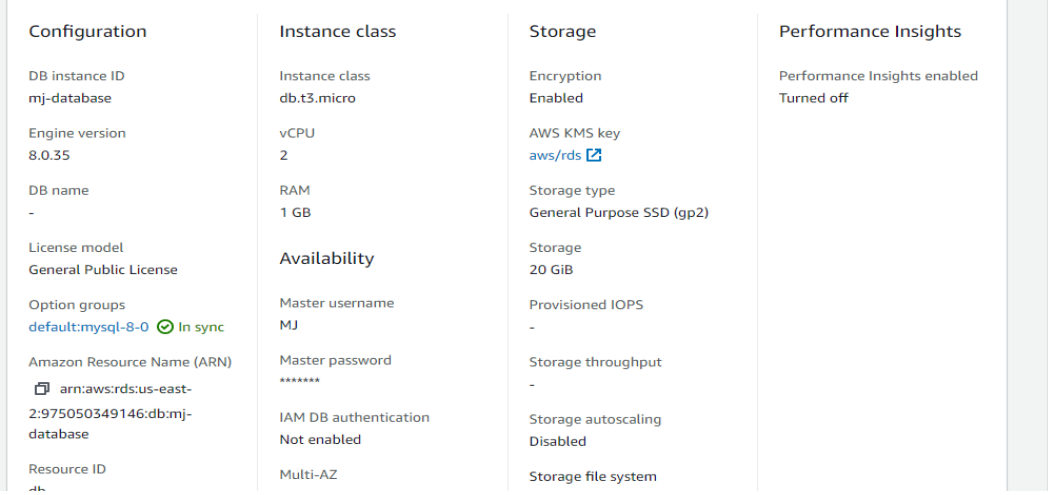
```
root@ip-172-31-18-68:/var/www/html# vi sample.php
root@ip-172-31-18-68:/var/www/html# ls
db.inc.php  index.html.bkp  index.php  sample.php
root@ip-172-31-18-68:/var/www/html# vi sample.php
```



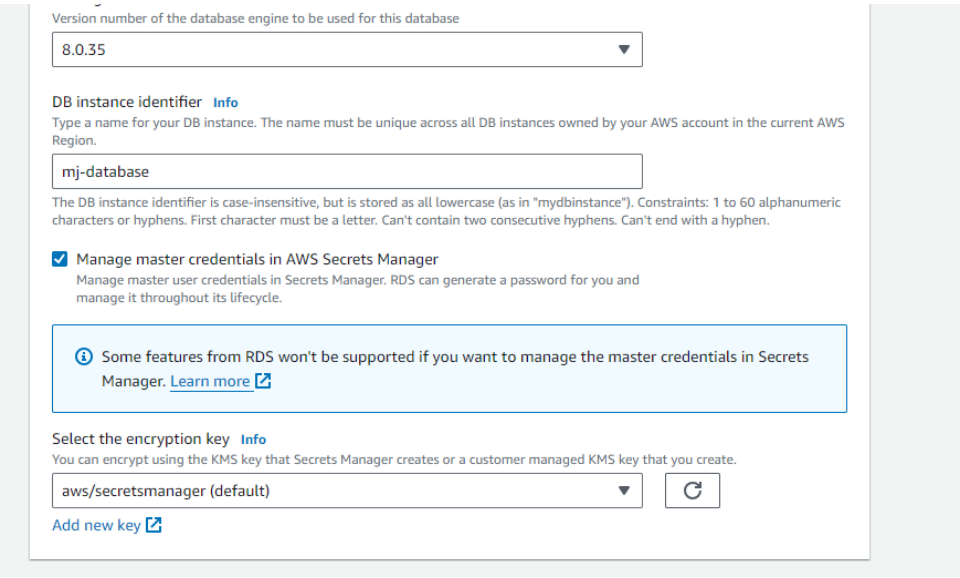
- Login to MySQL database for checking the website data content is store in backend:-

```
root@ip-172-31-18-68:/var/www/html# mysql -u MJ -h mj-database.cv4c2kioc7pd.us-east-2.rds.amazonaws.com -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 35
Server version: 8.0.35 Source distribution

Copyright (c) 2000, 2024, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

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

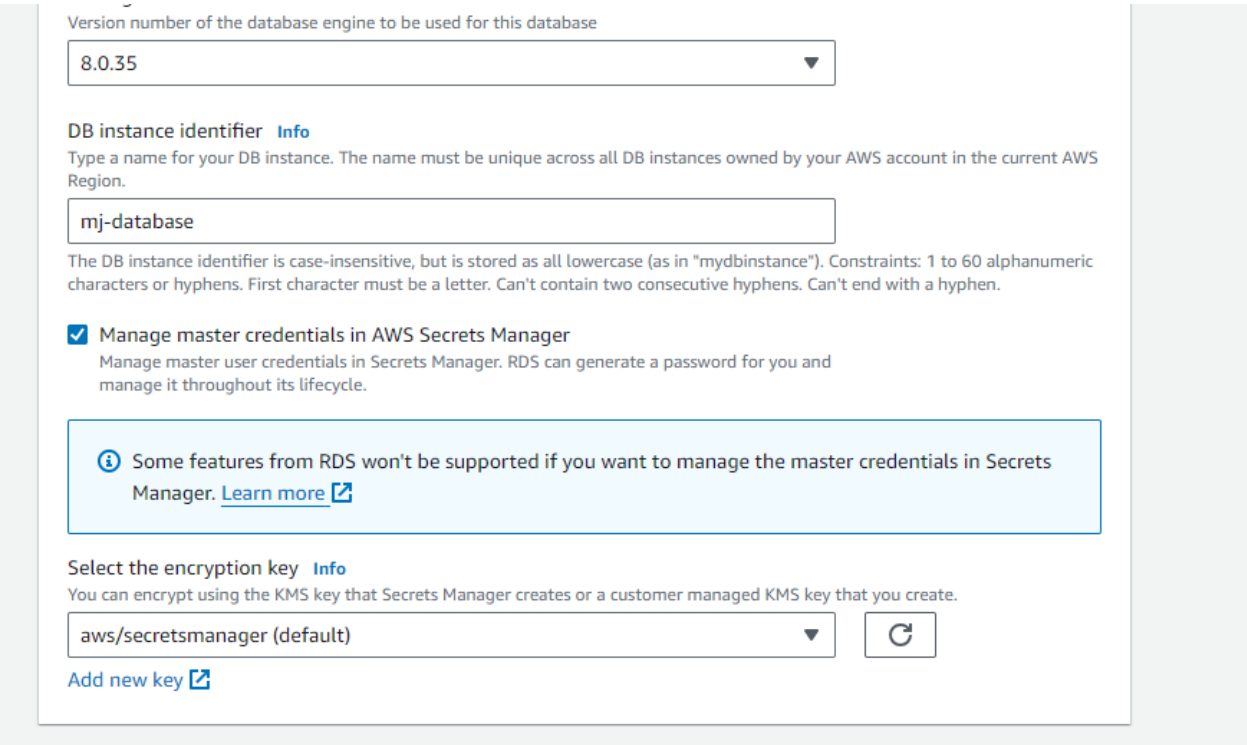
- **Currently this database is login from the username and password i am not enable the secret manager: -**



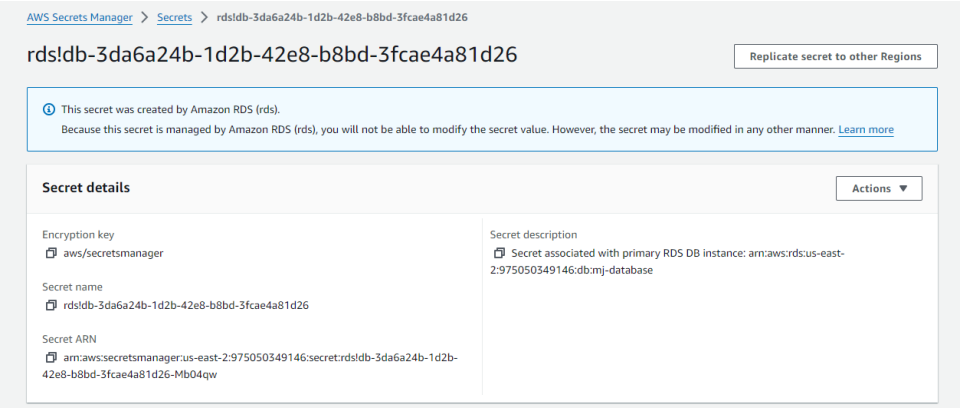
- Created a secrets manager for this database: -



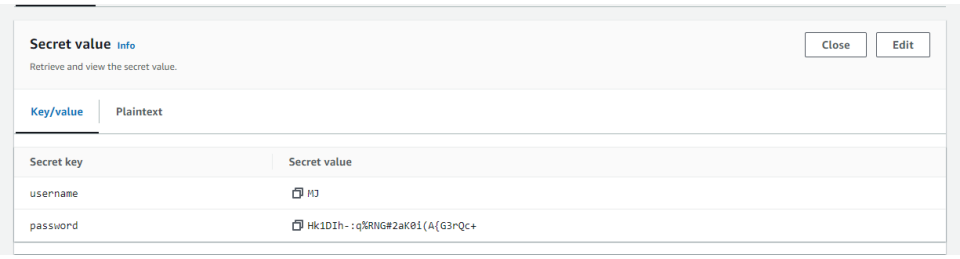
- So, we modify the database and enable the secrets manager.



- So, we created a secret manager for this database: -



- So, we created a secret manager and paste the secret value to db.inc.php file




```
root@ip-172-31-18-68:/var/www/html# vi db.inc.php
"db.inc.php" 7L, 203B written/html#
root@ip-172-31-18-68:/var/www/html# cat db.inc.php
<?php

define('DB_SERVER', 'mj-database.cv4c2kioc7pd.us-east-2.r
define('DB_USERNAME', 'MJ');
define('DB_PASSWORD', 'Hk1DIh-:q%RNG#2aK0i(A{G3rQc+');
define('DB_DATABASE', 'mihir');
?>
root@ip-172-31-18-68:/var/www/html#
```

- So, I login to database with secret manager key:-

```
root@ip-172-31-18-68:/var/www/html# mysql -u MJ -h mj-database.cv4c2kioc7pd.us-east-2.rds.amazonaws.com -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 64
Server version: 8.0.35 Source distribution

Copyright (c) 2000, 2024, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

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

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mihir              |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.00 sec)

mysql> use mihir;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A
```

- This is the hardcoded section I used
- So, then I rotate the key then there is no login

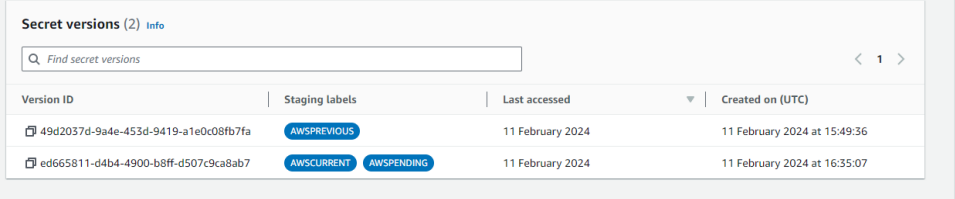
- So, I used this script to login to the RDS whenever I rotate the key then the login to then my SQL database: -

```
root@ip-172-31-18-68:/var/www/html# vi login.sh
root@ip-172-31-18-68:/var/www/html# cat login.sh
secrets=$(aws secretsmanager get-secret-value --secret-id 'rds!db-3da6a24b-1d2b-42e8-b8bd-3fcae4a81d26' --query SecretSt
ring --output text)

username=$(echo $secrets | jq -r '.username')
password=$(echo $secrets | jq -r '.password')

mysql -h mj-database.cv4c2kioc7pd.us-east-2.rds.amazonaws.com -u $username -p$password -P 3306
```

- So, I can login from this script every time: -

```
root@ip-172-31-18-68:/var/www/html# bash login.sh
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 76
Server version: 8.0.35 Source distribution

Copyright (c) 2000, 2024, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

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

mysql> exit
Bye
root@ip-172-31-18-68:/var/www/html#
```

- So, I rotated the key: -



- After rotated the key I login the system: -

```
root@ip-172-31-18-68:/var/www/html# bash login.sh
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 82
Server version: 8.0.35 Source distribution

Copyright (c) 2000, 2024, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

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

mysql>
```

Referred link: -

Link: - Install a web server on your EC2 instance - Amazon Relational Database Service