

Deploying A web application to store data in RDS: -

- **Created A EC2 Instance: -**

EC2 > Instances > i-05dc5e7edcecd90ae

Instance summary for i-05dc5e7edcecd90ae (MJ-WEB-SERVER) [Info](#)

[Refresh](#) [Connect](#) [Instance state](#) [Actions](#)

Updated less than a minute ago

Instance ID i-05dc5e7edcecd90ae (MJ-WEB-SERVER)	Public IPv4 address 18.218.255.88 Open address	Private IPv4 addresses 172.31.18.68
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-18-218-255-88.us-east-2.compute.amazonaws.com Open address
Hostname type IP name: ip-172-31-18-68.us-east-2.compute.internal	Private IP DNS name (IPv4 only) ip-172-31-18-68.us-east-2.compute.internal	Elastic IP addresses -
Answer private resource DNS name -	Instance type t2.micro	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations. Learn more
Auto-assigned IP address 18.218.255.88 [Public IP]	VPC ID vpc-08de588c82431b93e	Auto Scaling Group name
IAM Role	Subnet ID	

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

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

✓ Elastic IP address associated successfully.
Elastic IP address 18.220.70.228 has been associated with instance i-05dc5e7edcecd90ae

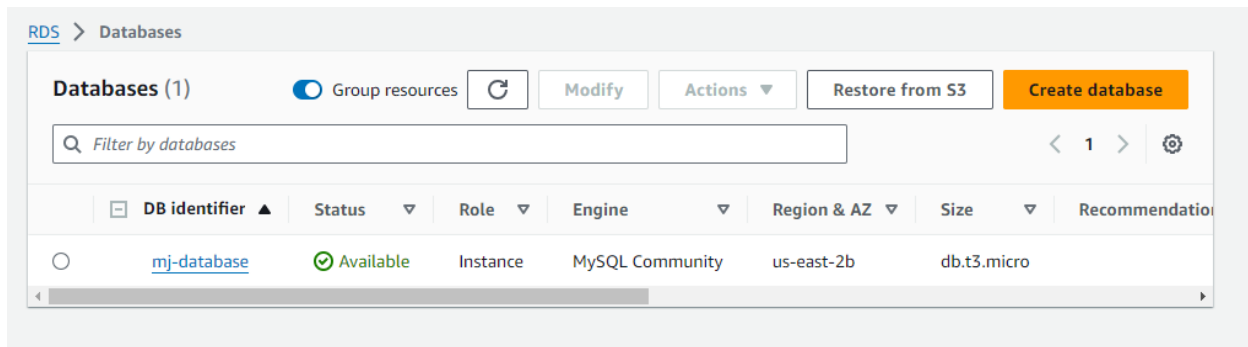
Elastic IP addresses (1) [Refresh](#) [Actions](#) [Allocate Elastic IP address](#)

Filter Elastic IP addresses

Public IPv4 address: 18.220.70.228 [Clear filters](#)

<input type="checkbox"/>	Name	Allocated IPv4 add...	Type	Allocation ID	Reverse
<input type="checkbox"/>	-	18.220.70.228	Public IP	eipalloc-0caaeef83ca36fb0	-

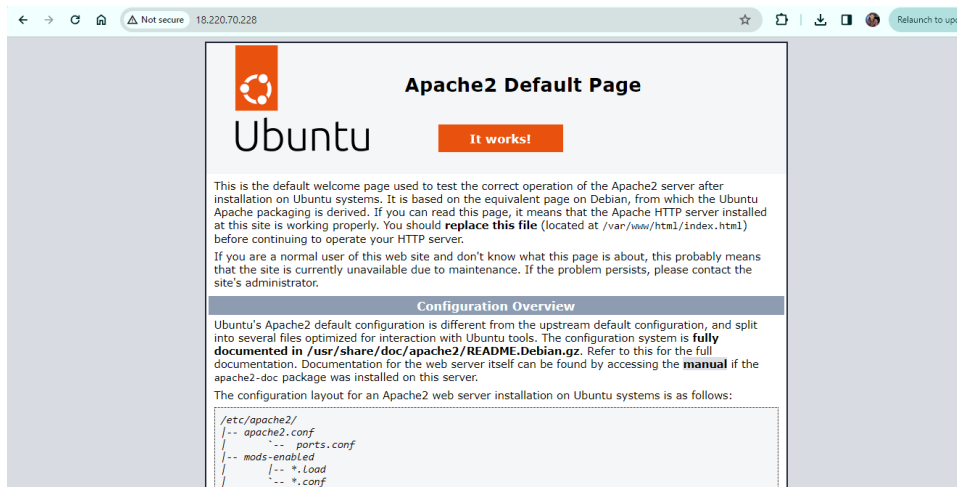
- **Created A RDS: -**



- **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No VM guests are running outdated hypervisor (qemu) binaries on this host.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 :-

← → ↺ 🏠 ⚠ Not secure 18.220.70.228/index.php

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

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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
```

← → ↻ 🏠 ⚠ Not secure 18.220.70.228/sample.php

Mihir Databases

NAME ADDRESS

ID	NAME	ADDRESS
1	Mihir Jain	Jaipur
2	Mihir Jain	Jaipur
3	Mihir Jain	Jaipur

- 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

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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: -

Configuration	Instance class	Storage	Performance Insights
DB instance ID mj-database	Instance class db.t3.micro	Encryption Enabled	Performance Insights enabled Turned off
Engine version 8.0.35	vCPU 2	AWS KMS key aws/rds	
DB name -	RAM 1 GB	Storage type General Purpose SSD (gp2)	
License model General Public License	Availability	Storage 20 GiB	
Option groups default:mysql-8-0 In sync	Master username MJ	Provisioned IOPS -	
Amazon Resource Name (ARN) arn:aws:rds:us-east-2:975050349146:db:mj-database	Master password *****	Storage throughput -	
Resource ID 	IAM DB authentication Not enabled	Storage autoscaling Disabled	
	Multi-AZ	Storage file system	

- Created a secrets manager for this database: -

Version number of the database engine to be used for this database

8.0.35

DB instance identifier [Info](#)

Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

mj-database

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

☒ Manage master credentials in AWS Secrets Manager

Manage master user credentials in Secrets Manager. RDS can generate a password for you and manage it throughout its lifecycle.

Some features from RDS won't be supported if you want to manage the master credentials in Secrets Manager. [Learn more](#)

Select the encryption key [Info](#)

You can encrypt using the KMS key that Secrets Manager creates or a customer managed KMS key that you create.

aws/secretsmanager (default)

[Add new key](#)

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

Version number of the database engine to be used for this database

8.0.35 ▼

DB instance identifier [Info](#)

Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

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Manage master user credentials in Secrets Manager. RDS can generate a password for you and manage it throughout its lifecycle.

i Some features from RDS won't be supported if you want to manage the master credentials in Secrets Manager. [Learn more](#) [↗](#)

Select the encryption key [Info](#)

You can encrypt using the KMS key that Secrets Manager creates or a customer managed KMS key that you create.

aws/secretsmanager (default) ▼ 





[Add new key](#) [↗](#)

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

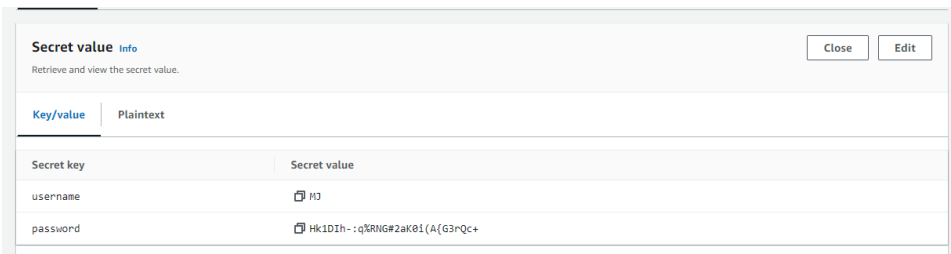
[AWS Secrets Manager](#) > [Secrets](#) > rds!db-3da6a24b-1d2b-42e8-b8bd-3fcae4a81d26

rds!db-3da6a24b-1d2b-42e8-b8bd-3fcae4a81d26 [Replicate secret to other Regions](#)

i This secret was created by Amazon RDS (rds).
Because this secret is managed by Amazon RDS (rds), you will not be able to modify the secret value. However, the secret may be modified in any other manner. [Learn more](#)

Secret details Actions ▼	
<p>Encryption key</p> <p> aws/secretsmanager</p> <p>Secret name</p> <p> rds!db-3da6a24b-1d2b-42e8-b8bd-3fcae4a81d26</p> <p>Secret ARN</p> <p> arn:aws:secretsmanager:us-east-2:975050349146:secret:rds!db-3da6a24b-1d2b-42e8-b8bd-3fcae4a81d26-Mb04qw</p>	<p>Secret description</p> <p> Secret associated with primary RDS DB instance: arn:aws:rds:us-east-2:975050349146:db:mj-database</p>

- 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

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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 SecretString --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

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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: -

Secret versions (2) Info			
<input type="text" value="Find secret versions"/> < 1 >			
Version ID	Staging labels	Last accessed	Created on (UTC)
<input type="checkbox"/> 49d2037d-9a4e-453d-9419-a1e0c08fb7fa	AWSPREVIOUS	11 February 2024	11 February 2024 at 15:49:36
<input checked="" type="checkbox"/> ed665811-d4b4-4900-b8ff-d507c9ca8ab7	AWSCURRENT AWSPENDING	11 February 2024	11 February 2024 at 16:35:07

- 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

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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](#)