Lab – Create a database in AWS

# Overview

Before you start, it is important to know what this lab isn’t – it is not a database course! In your lecture, you will have heard about databases. This lab runs through the process of setting up a database (deploying a database) in accordance with the needs of the business. Once the database deploys and is tested, that’s where the lab finishes. It does not go further into the manipulation of the database. That is something to look forward to if you go further into courses such as programming. As a cloud engineer, you will set up the database, ready for the programmers to use.

# References

This lab is based on content found at <https://zacks.one/aws-database-lab/>. While not required, you could look at this site and see additional content related to databases in AWS.

# Before you start

We will be using a program called “MySQL Workbench” to test our connection to the database we create. You will need to download and install this program to your PC or a VM before you start. It can be found at <https://dev.mysql.com/downloads/workbench/>. There is (currently) no need to sign up to Oracle, you can just go straight to the download.

# Step 1 – connect to your AWS console

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| Access your AWS course through:  <https://awsacademy.instructure.com/courses> |  |
| Start your connection, and then access the AWS console. |  |

# Step 2 – Create a database

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| From the management console, select:  All services   * Database * RDS   This will select the “Relational Database” option |  |
| Click on the BOTTOM “Create Database” |  |
| Under “Engine options” select “MySQL” |  |
| Note: This lab was written using Version MySQL 8.0.23, the default at the time. |  |
| Under “Templates” select “Free tier” |  |
| **Settings:**  DB Instance Identifier: **mydatabaseinstance**  Master username: **mydatabaseuser**  Password: **mydatabasepassword** |  |
| Connectivity:  Virtual Private Cloud: Default VPC  Subnet Group: Default  Public Access: **Yes**  VPC Security Group: **Create New**  New VPC Security group name: **VPC Database Group**  Availability Zone: **No preference** |  |
| Select “Additional Configuration”  Confirm the database port is set to **3306** |  |
| Database authentication  We don’t want just anyone reading and writing to our database, and need to confirm they are who they claim to be. We can do this with a username/password.  Confirm it is set to “Password Authentication” |  |
| Under “Additional configuration” select:  Initial database name: mydatabase  DB parameter group: default  Option group: default  The following settings are unchecked because we don’t need them for the lab  Backup: Uncheck  Monitoring: Uncheck  Log exports: Uncheck  Leave the rest at default  Maintenance  Enable auto minor version upgrade: check  Maintenance window: no preference  Deletion protection: uncheck |  |
| Select “Create database” |  |
| The database takes a few minutes to create |  |
| Wait until the status changes from “Creating” to “Available” |  |

# Step 3 – Configure the security options to allow external access

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| You should only have one database in the list  Select the database you created |  |
| You will now see some detailed information regarding the database.  Make sure the “Connectivity and security” tab is selected |  |
| On the right hand side, locate “VPC security groups”  Select the group “VPC database group”  This contains the rules for connecting to your database |  |
| Select “Inbound rules”  Select “Edit inbound rules”  163.232.0.6 |  |
| Remove the single IP address |  |
| Select a source of “Anywhere”  This will change the IP address to 0.0.0.0/0 which means “anywhere on the Internet” |  |
| Select “Save rules”  We now have a rule where we can access the database from the classroom |  |

# Step 4 - Connect to the database

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| Return to the front database screen by:  Services (top left)  Database > RDS |  |
| Click on “Databases” in the top left |  |
| Select the database you created |  |
| Under “Connectivity and Security” locate your “Endpoint” (the URL you use to access it) and your port. |  |
| Copy and paste YOUR endpoint and port to the right | Endpoint  mydatabaseinstance.crumpaxhf1ns.us-east-1.rds.amazonaws.com  Port  3306 |
| Open the “MySQL Workbench” program |  |
| Click on the plus icon to the right of **MySQL Connections** |  |
| Connection Name: AWS DB Connection  Host Name: Enter your endpoint → e.g, mydatabaseinstance.crumpaxhf1ns.us-east-1.rds.amazonaws.com  Port: 3306  Username: mydatabaseuser  Password: Click on Store in keychain and enter password mydatabasepassword  Leave other settings at default |  |
| Click on “Test connection” to confirm you can access the database |  |
| If the client is able to connect to the database, you will see the message to the right.  Click “OK” on the message.  Click “OK” on the setup screen. |  |
| Click on your database connection |  |
| Under “Management” click on “Server Status” |  |
| You may need to expand the screen to see it.  To the right, you will see a symbol to show the server status is “Running” |  |
| If everything is set up, you will have now connected to the database successfully.  At this point, your role as the cloud engineer is over. You can then pass the cloud based database to the database programming team, ready to connect to their programs (e.g. Python) |  |
| Close down MySQL Workbench |  |

# Step 5 - Lab clean-up

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| Return to the front database screen by:  Services (top left)  Database > RDS |  |
| Select “Databases” |  |
| Select the radio button next to your database |  |
| Under “Actions” select “Delete” |  |
| In the confirmation prompt, type “Delete me” |  |
| Wait for the database to delete.  While deleting, it has a status of “Deleting”  This takes a few minutes |  |
| Once deleted, the top bar turns green, and the deletion is complete |  |