

Assignment #5

Task #1 – Create an Aurora DB and connect to it from EC2

1. Create Security groups for database and EC2.

The screenshot shows the AWS EC2 Security Groups page. The security group is named "sg-03efabca2b20a13ec - Assignment05Taks01-AuroraAccessSG". It has a VPC ID of "vpc-008e5d022ac70cd9e". There are 2 inbound rules (SSH, TCP port 22) and 1 outbound rule (All traffic, All). The "Inbound rules" tab is selected.

Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-09710324ad4c5035	IPv6	SSH	TCP	22
-	sgr-03fde0734f458ad21	IPv4	SSH	TCP	22

The screenshot shows the AWS EC2 Security Groups page for the same security group. The "Outbound rules" tab is selected, showing one rule for All traffic (All). The "Inbound rules" tab is also visible.

Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-0cb27db270c90b632	IPv4	All traffic	All	All

EC2 > Security Groups > sg-05c7285f903dcd943 - Assignment05Taks01-AuroraSG

Details

Security group name Assignment05Taks01-AuroraSG	Security group ID sg-05c7285f903dcd943	Description Security Group for Aurora Databases for Assignment 5.
Owner 252269823994	Inbound rules count 1 Permission entry	Outbound rules count 1 Permission entry

Inbound rules | **Outbound rules** | **Sharing - new** | **VPC associations - new** | **Tags**

Inbound rules (1)

IP version	Type	Protocol	Port range	Source	Description
MySQL/Aurora	TCP	3306	sg-03efabca2b20a13ec / Assignment05Taks01-AuroraAccessSG	-	-

Outbound rules (1)

Name	Security group rule ID	IP version	Type	Protocol	Port range	Destination
-	sgr-0a1ec20c683709640	IPv4	All traffic	All	All	0.0.0.0/0



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2. Create Aurora instance.

Screenshot of the AWS RDS 'Create database' wizard:

Create database [Info](#)

Choose a database creation method

- Standard create**
You set all of the configuration options, including ones for availability, security, backups, and maintenance.
- Easy create**
Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Engine options

Engine type [Info](#)

- Aurora (MySQL Compatible)** 
- Aurora (PostgreSQL Compatible)** 
- MySQL** 
- PostgreSQL** 
- MariaDB** 
- Oracle** 

Aurora MySQL-Compatible Edition

Aurora MySQL is Amazon's enterprise-class MySQL-compatible database.

Aurora MySQL offers:

- Up to five times the throughput of MySQL Community Edition
- Up to 128 TB of autoscaling SSD storage
- Six-way replication across three Availability Zones
- Up to 15 read replicas with replica lag under 10-ms
- Automatic monitoring with failover

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Templates

Choose a sample template to meet your use case.

- Production**
Use defaults for high availability and fast, consistent performance.
- Dev/Test**
This instance is intended for development use outside of a production environment.

Settings

DB cluster identifier [Info](#)

Enter a name for your DB cluster. The name must be unique across all DB clusters owned by your AWS account in the current AWS Region.

The DB cluster identifier is case-insensitive, but is stored as all lowercase (as in "mydbcluster"). Constraints: 1 to 65 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

Credentials Settings

Master username [Info](#)

Type a login ID for the master user of your DB instance.

1 to 32 alphanumeric characters. The first character must be a letter.

Credentials management

You can use AWS Secrets Manager or manage your master user credentials.

- Managed in AWS Secrets Manager - most secure**
RDS generates a password for you and manages it throughout its lifecycle using AWS Secrets Manager.
- Self managed**
Create your own password or have RDS create a password that you manage.

Auto generate password
Amazon RDS can generate a password for you, or you can specify your own password.

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AWS RDS > Create database

Credentials Settings

Master username [Info](#)
 Type a login ID for the master user of your DB instance.

 1 to 52 alphanumeric characters. The first character must be a letter.

Credentials management
 You can use AWS Secrets Manager or manage your master user credentials.

Managed in AWS Secrets Manager - most secure
 RDG generates a password for you and manages it throughout its lifecycle using AWS Secrets Manager.

Self managed
 Create your own password or have RDS create a password that you manage.

Auto generate password
 Amazon RDS can generate a password for you, or you can specify your own password.

Master password [Info](#)

Password strength Very weak
 Minimum constraints: At least 8 printable ASCII characters. Can't contain any of the following symbols: / \ * @
Confirm master password [Info](#)

Cluster storage configuration

[Info](#)
 Choose the storage configuration for the Aurora DB cluster that best fits your application's price predictability and price performance needs.

Configuration options
 Database instance, storage, and I/O charges vary depending on the configuration. [Learn more](#)

Aurora I/O-Optimized
 Aurora Standard

CloudShell [Feedback](#)

AWS RDS > Create database

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Instance configuration

The DB instance configuration options below are limited to those supported by the engine that you selected above.

DB instance class [Info](#)

Hide filters

Include previous generation classes

Serverless v2
 Memory optimized classes (includes r classes)
 Burstable classes (includes t classes)

db.t3.medium
 2 vCPUs 4 GiB RAM Network: Up to 2,085 Mbps

Availability & durability

Multi-AZ deployment [Info](#)

Create an Aurora Replica or Reader node in a different AZ (recommended for scaled availability)
 Creates an Aurora Replica for fast failover and high availability.

Don't create an Aurora Replica

Connectivity

[Info](#)

Compute resource
 Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.

Don't connect to an EC2 compute resource
 Don't set up a connection to a compute resource for this database. You can manually set up.

Connect to an EC2 compute resource
 Set up a connection to an EC2 compute resource for this database.

CloudShell [Feedback](#)

AWS RDS > Create database

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RDS > Create database

Connectivity

Compute resource
Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.

Don't connect to an EC2 compute resource
Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.

Connect to an EC2 compute resource
Set up a connection to an EC2 compute resource for this database.

Network type
To use dual-stack mode, make sure that you associate an IPv6 CIDR block with a subnet in the VPC you specify.

IPv4
Your resources can communicate only over the IPv4 addressing protocol.

Dual-stack mode
Your resources can communicate over IPv4, IPv6, or both.

Virtual private cloud (VPC)
Choose the VPC. The VPC defines the virtual networking environment for this DB cluster.

Default VPC (vpc-008e5d022ac70cd9e)
6 Subnets, 6 Availability Zones

Only VPCs with a corresponding DB subnet group are listed.

After a database is created, you can't change its VPC.

DB subnet group
Choose the DB subnet group. The DB subnet group defines which subnets and IP ranges the DB cluster can use in the VPC that you selected.

default

Public access

Yes
RDS assigns a public IP address to the cluster. Amazon EC2 instances and other resources outside of the VPC can connect to your cluster. Resources inside the VPC can also connect to the cluster. Choose one or more VPC security groups that specify which resources can connect to the cluster.

No
RDS doesn't assign a public IP address to the cluster. Only Amazon EC2 instances and other resources inside the VPC can connect to your cluster. Choose one or more VPC security groups that specify which resources can connect to the cluster.

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RDS > Create database

Public access

Yes
RDS assigns a public IP address to the cluster. Amazon EC2 instances and other resources outside of the VPC can connect to your cluster. Resources inside the VPC can also connect to the cluster. Choose one or more VPC security groups that specify which resources can connect to the cluster.

No
RDS doesn't assign a public IP address to the cluster. Only Amazon EC2 instances and other resources inside the VPC can connect to your cluster. Choose one or more VPC security groups that specify which resources can connect to the cluster.

VPC security group (firewall)
Choose one or more VPC security groups to allow access to your database. Make sure that the security group rules allow the appropriate incoming traffic.

Choose existing
Choose existing VPC security groups

Create new
Create new VPC security group

Existing VPC security groups

Choose one or more options

Assignment05Tasks01-AuroraSG

RDS Proxy
RDS Proxy is a fully managed, highly available database proxy that improves application scalability, resiliency, and security.

Create an RDS Proxy
RDS automatically creates an IAM role and a Secrets Manager secret for the proxy. RDS Proxy has additional costs. For more information, see [Amazon RDS Proxy pricing](#).

Certificate authority - optional
Using a server certificate provides an extra layer of security by validating that the connection is being made to an Amazon database. It does so by checking the server certificate that is automatically installed on all databases that you provision.

rds-ca-rsa2048-g1 (default)
Expiry: May 25, 2061

If you don't select a certificate authority, RDS chooses one for you.

► Additional configuration

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Monitoring [Info](#)

Choose monitoring tools for this database. Database Insights provides a combined view of Performance Insights and Enhanced Monitoring for your fleet of databases.

Database Insights - Advanced

- Retains 15 months of performance history
- Fleet-level monitoring
- Integration with CloudWatch Application Signals

Database Insights - Standard

- Retains 7 days of performance history, with the option to pay for the retention of up to 24 months of performance history

Database Insights pricing is separate from RDS monthly estimates. See [Amazon CloudWatch pricing](#).

▼ Additional monitoring settings

Enhanced Monitoring, CloudWatch Logs and DevOps Guru

Enable Enhanced monitoring

Enabling Enhanced Monitoring metrics are useful when you want to see how different processes or threads use the CPU.

Log exports

Select the log types to publish to Amazon CloudWatch Logs

Audit log
 Error log
 General log
 iam-db-auth-error log
 instance log
 Slow query log

IAM role

The following service-linked role is used for publishing logs to CloudWatch Logs.

RDS service-linked role

► Additional configuration

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▼ Additional configuration

Database options, encryption turned on, failover, backup turned on, backtrack turned off, maintenance, CloudWatch Logs, delete protection turned off.

Database options

Initial database name [Info](#)

assignment_05_task_01_ecommerce_db

If you do not specify a database name, Amazon RDS does not create a database.

DB cluster parameter group [Info](#)

default.aurora-mysql8.0

DB parameter group [Info](#)

default.aurora-mysql8.0

Option group [Info](#)

default:aurora-mysql-8-0

Failover priority

No preference

Backup

Backup retention period [Info](#)

The number of days (1-35) for which automatic backups are kept.

1 day

Copy tags to snapshots

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3. Aurora DB is now created with one reader and one writer instance.

The screenshot shows the AWS RDS Databases page. A blue banner at the top indicates that the database is "Creating". The main table lists three items under "DB identifier": "assignment-05-task-01-cluster" (Status: Creating, Role: Regional cluster, Engine: Aurora MySQL, Region: us-east-1, Size: 2 instances), "assignment-05-task-01-cluster-instance-1" (Status: Creating, Role: Reader instance, Engine: Aurora MySQL, Region: us-east-1a, Size: db.t3.medium), and "assignment-05-task-01-cluster-instance-1c" (Status: Creating, Role: Reader instance, Engine: Aurora MySQL, Region: us-east-1c, Size: db.t3.medium).

The screenshot shows the AWS RDS Databases page for the "assignment-05-task-01-cluster". The "Related" section shows the cluster and its two instances: "assignment-05-task-01-cluster" (Available, Regional cluster, Aurora MySQL, us-east-1, 2 instances) and "assignment-05-task-01-cluster-instance-1" (Available, Writer instance, Aurora MySQL, us-east-1a, db.t3.med...). The "Endpoints" section lists two endpoints: "assignment-05-task-01-cluster.cluster-codjwwgk4qf.us-east-1.rds.amazonaws.com" (Available, Writer, Port: 3306) and "assignment-05-task-01-cluster.cluster-ro-codjwwgk4qf.us-east-1.rds.amazonaws.com" (Available, Reader, Port: 3306). The "Manage IAM roles" section has a checkbox for selecting IAM roles.

4. Create EC2 for DB access. (Bastion server)

Screenshot of the AWS EC2 "Launch an instance" wizard.

Step 1: Name and tags

Name: assignment-05-task-01-aurora-access-server

Step 2: Application and OS Images (Amazon Machine Image)

Search bar: Search our full catalog including 1000s of application and OS images

Recent AMIs: Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE Linux, Debian

Quick Start: Quick Start (selected), Recents

Amazon Machine Image (AMI) details:

- Amazon Linux 2023 AMI
- ami-08b5b3a93ed654d19 (64-bit (x86), uefi-preferred) / ami-0eae2a0fc13b15fce (64-bit (Arm), uefi)
- Virtualization: hvm
- ENA enabled: true
- Root device type: ebs
- Free tier eligible

Step 3: Summary

Number of instances: 1

Software Image (AMI): Amazon Linux 2023 AMI 2023.6.2...read more
ami-08b5b3a93ed654d19

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

Buttons: Cancel, Launch instance, Preview code

Step 4: Instance type

Instance type: t2.micro

Free tier eligible

Buttons: CloudShell, Feedback, Search, Option+S, United States (N. Virginia), voclabs/user3826682=suman.adhikari @ 2522-6982-3994, Privacy, Terms, Cookie preferences

Step 5: Summary (Final)

Number of instances: 1

Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI...read more
ami-04aa0acb1165b32a

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

Buttons: Cancel, Launch instance, Preview code

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Screenshot of the AWS EC2 Launch Instance wizard, Step 1: Set instance details.

Instance type: t2.micro (Free tier eligible)

Key pair (login): vockey

Network settings: Network: vpc-008e5d022ac70cd9e, Subnet: No preference (Default subnet in any availability zone), Auto-assign public IP: Enable

Summary: Number of instances: 1, Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI..., Virtual server type (instance type): t2.micro, Firewall (security group): New security group, Storage (volumes): 1 volume(s) - 8 GiB

Network settings: Network: vpc-008e5d022ac70cd9e, Subnet: No preference (Default subnet in any availability zone), Auto-assign public IP: Enable

Summary: Number of instances: 1, Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI..., Virtual server type (instance type): t2.micro, Firewall (security group): Assignment05Taks01-AuroraAccessSG, Storage (volumes): 1 volume(s) - 8 GiB

Configure storage: 1x 8 GiB gp2 Root volume, Not encrypted

Instance summary for i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server) [Info](#)

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

Updated less than a minute ago

Instance ID i-0a28f153c0fb1dd49	Public IPv4 address 54.211.114.102 open address	Private IPv4 addresses 172.31.88.23
IPv6 address –	Instance state Running	Public IPv4 DNS ec2-54-211-114-102.compute-1.amazonaws.com open address
Hostname type IP name: ip-172-31-88-23.ec2.internal	Private IP DNS name (IPv4 only) ip-172-31-88-23.ec2.internal	Elastic IP addresses –
Answer private resource DNS name IPv4 (A)	Instance type t2.micro	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations. Learn more
Auto-assigned IP address 54.211.114.102 [Public IP]	VPC ID vpc-008e5d022ac70cd9e	Auto Scaling Group name –
IAM Role –	Subnet ID subnet-08ab7f6a24864722c	Managed false
IMDSv2 Required	Instance ARN arn:aws:ec2:us-east-1:252269823994:instance/i-0a28f153c0fb1dd49	
Operator –		

Details [Status and alarms](#) [Monitoring](#) [Security](#) [Networking](#) [Storage](#) [Tags](#)

Instance details [Info](#)

Security

Owner ID
[252269823994](#)

Launch time
Mon Mar 10 2025 22:10:52 GMT-0500 (Central Daylight Time)

Security groups

- [sg-03efabca2b20a13ec \(Assignment05Taks01-AuroraAccessSG\)](#)

Inbound rules

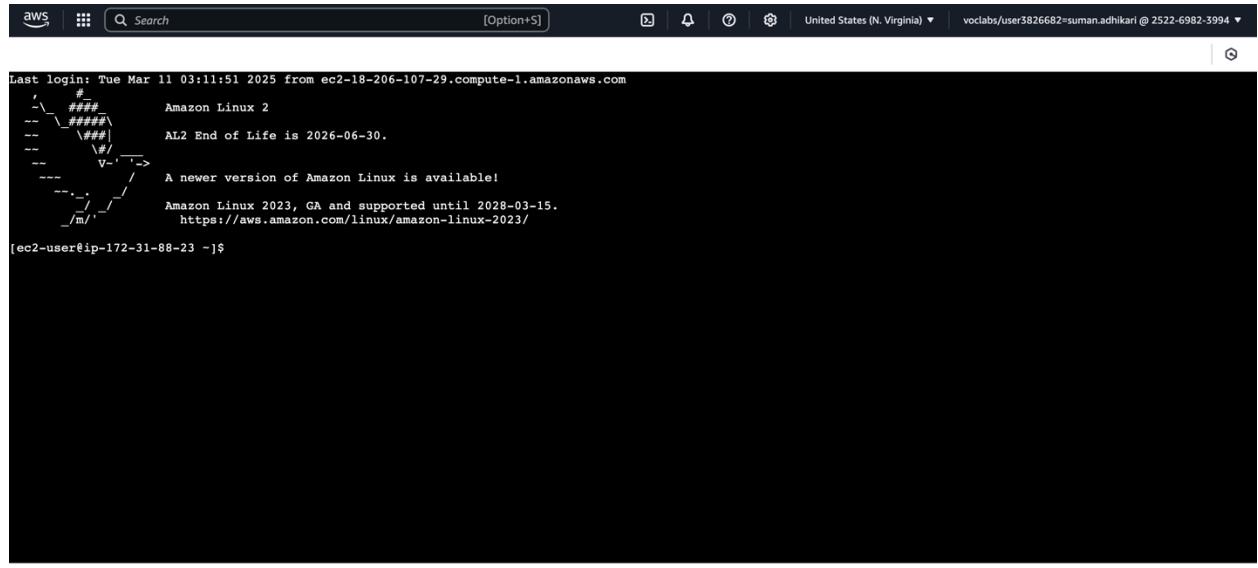
Filter rules	Security group rule ID	Port range	Protocol	Source	Security groups	Description
	sgr-099710324ad4c5035	22	TCP	::/0	Assignment05Taks01-AuroraAccessSG	–
	sgr-03fde0734f458ad21	22	TCP	0.0.0.0/0	Assignment05Taks01-AuroraAccessSG	–

Outbound rules

Filter rules	Security group rule ID	Port range	Protocol	Destination	Security groups	Description
	0cb27db270c90b632	All	All	0.0.0.0/0	Assignment05Taks01-AuroraAccessSG	–

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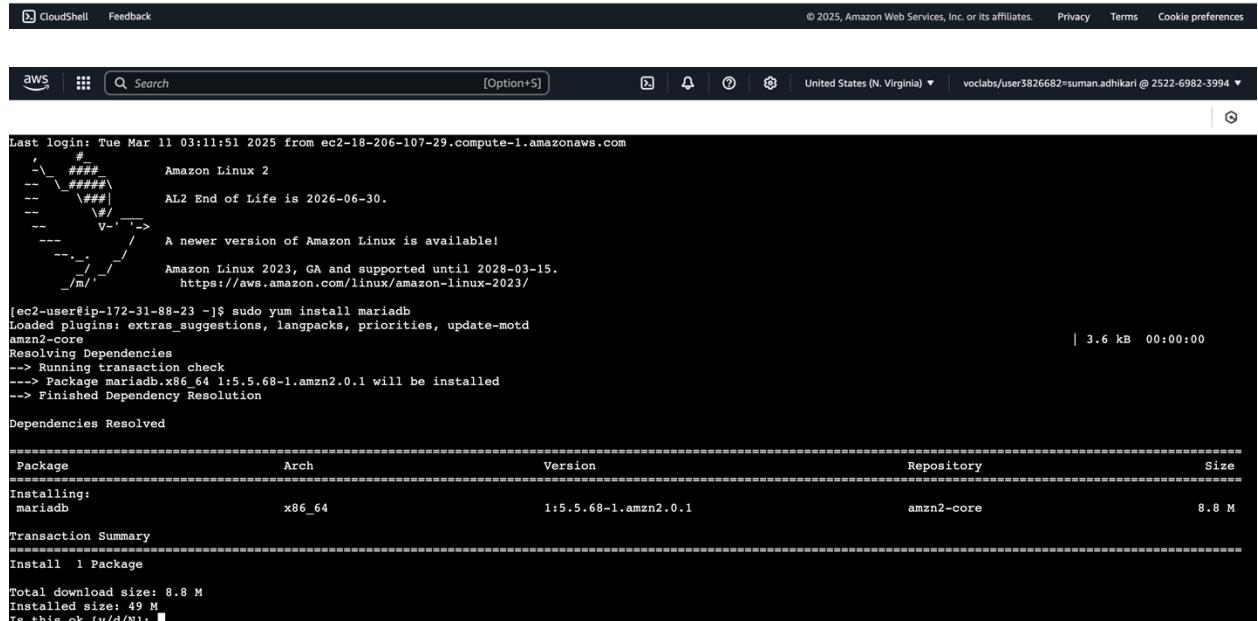
5. Install mysql client on EC2.



```
Last login: Tue Mar 11 03:11:51 2025 from ec2-18-206-107-29.compute-1.amazonaws.com
'`#_
--_###`      Amazon Linux 2
--_\###` AL2 End of Life is 2026-06-30.
--_#\` V-,->
---/_`/ A newer version of Amazon Linux is available!
---/_`/`/ Amazon Linux 2023, GA and supported until 2028-03-15.
---/_`/`/ https://aws.amazon.com/linux/amazon-linux-2023/
[ec2-user@ip-172-31-88-23 ~]$
```

i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server)

Public IPs: 54.211.114.102 Private IPs: 172.31.88.23



```
Last login: Tue Mar 11 03:11:51 2025 from ec2-18-206-107-29.compute-1.amazonaws.com
'`#_
--_###`      Amazon Linux 2
--_\###` AL2 End of Life is 2026-06-30.
--_#\` V-,->
---/_`/ A newer version of Amazon Linux is available!
---/_`/`/ Amazon Linux 2023, GA and supported until 2028-03-15.
---/_`/`/ https://aws.amazon.com/linux/amazon-linux-2023/
[ec2-user@ip-172-31-88-23 ~]$ sudo yum install mariadb
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core
Resolving Dependencies
--> Running transaction check
--> Package mariadb.x86_64 1:5.5.68-1.amzn2.0.1 will be installed
--> Finished Dependency Resolution
Dependencies Resolved

=====
Package           Arch       Version            Repository          Size
=====
Installing:
mariadb          x86_64    1:5.5.68-1.amzn2.0.1   amzn2-core          8.8 M

Transaction Summary
=====
Install 1 Package

Total download size: 8.8 M
Installed size: 49 M
Is this ok [y/d/N]:
```

i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server)

Public IPs: 54.211.114.102 Private IPs: 172.31.88.23

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```

amzn2-core
Resolving Dependencies
--> Running transaction check
--> Package mariadb.x86_64 1:5.5.68-1.amzn2.0.1 will be installed
--> Finished Dependency Resolution
Dependencies Resolved

=====
Package           Arch      Version            Repository      Size
=====
Installing:
mariadb          x86_64   1:5.5.68-1.amzn2.0.1    amzn2-core    8.8 M

Transaction Summary
=====
Install 1 Package

Total download size: 8.8 M
Installed size: 49 M
Is this ok [y/d/N]: y
Downloading packages:
mariadb-5.5.68-1.amzn2.0.1.x86_64.rpm                                         | 8.8 MB  00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : 1:mariadb-5.5.68-1.amzn2.0.1.x86_64                                     1/1
  Verifying  : 1:mariadb-5.5.68-1.amzn2.0.1.x86_64                                     1/1

Installed:
  mariadb.x86_64 1:5.5.68-1.amzn2.0.1

Complete!
[ec2-user@ip-172-31-88-23 ~]$ 

```

i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server)

Public IPs: 54.211.114.102 Private IPs: 172.31.88.23

6. Connect to writer instance and create tables `products` and `orders` .

```

[ec2-user@ip-172-31-88-23 ~]$ mysql -h assignment-05-task-01-cluster.cluster.codjwwgk4qf.us-east-1.rds.amazonaws.com -u root -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MySQL connection id is 92
Server version: 8.0.32 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)]> 

```

i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server)

Public IPs: 54.211.114.102 Private IPs: 172.31.88.23

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```
[ec2-user@ip-172-31-88-23 ~]$ mysql -h assignment-05-task-01-cluster.cluster-codjwwgk4qf.us-east-1.rds.amazonaws.com -u root -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MySQL connection id is 92
Server version: 8.0.32 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 |
+-----+
| assignment_05_task_01_ecommerce_db |
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.00 sec)

MySQL [(none)]> USE DATABASE `assignment_05_task_01_db`;
ERROR 1049 (42000): Unknown database 'DATABASE'
MySQL [(none)]> USE `assignment_05_task_01_db`;
ERROR 1049 (42000): Unknown database 'assignment_05_task_01_db'
MySQL [(none)]> USE `assignment_05_task_01_ecommerce_db`;
Database changed
MySQL [assignment_05_task_01_ecommerce_db]>
```

i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server)

Public IPs: 54.211.114.102 Private IPs: 172.31.88.23

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```
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MySQL connection id is 92
Server version: 8.0.32 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 |
+-----+
| assignment_05_task_01_ecommerce_db |
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.00 sec)

MySQL [(none)]> USE DATABASE `assignment_05_task_01_db`;
ERROR 1049 (42000): Unknown database 'DATABASE'
MySQL [(none)]> USE `assignment_05_task_01_db`;
ERROR 1049 (42000): Unknown database 'assignment_05_task_01_db'
MySQL [(none)]> USE `assignment_05_task_01_ecommerce_db`;
Database changed
MySQL [assignment_05_task_01_ecommerce_db]> CREATE TABLE `products` (
    -> `id` INT NOT NULL PRIMARY KEY AUTO_INCREMENT,
    -> `name` VARCHAR(255) NOT NULL,
    -> `price` DECIMAL(10,2) NOT NULL
    -> );
Query OK, 0 rows affected (0.03 sec)

MySQL [assignment_05_task_01_ecommerce_db]>
```

i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server)

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```
mysql> USE performance_schema;
      ↓
| sys
+-----+
5 rows in set (0.00 sec)

MySQL [(none)]> USE DATABASE `assignment_05_task_01_db`;
ERROR 1049 (42000): Unknown database 'DATABASE'
MySQL [(none)]> USE `assignment_05_task_01_db`;
ERROR 1049 (42000): Unknown database 'assignment_05_task_01_db'
MySQL [(none)]> USE `assignment_05_task_01_ecommerce_db`;
Database changed
MySQL [assignment_05_task_01_ecommerce_db]> CREATE TABLE `products` (
    >     `id` INT NOT NULL PRIMARY KEY AUTO_INCREMENT,
    >     `name` VARCHAR(255) NOT NULL,
    >     `price` DECIMAL(10,2) NOT NULL
    > );
Query OK, 0 rows affected (0.03 sec)

MySQL [assignment_05_task_01_ecommerce_db]> CLEAR
MySQL [assignment_05_task_01_ecommerce_db]> clear
MySQL [assignment_05_task_01_ecommerce_db]> cls
MySQL [assignment_05_task_01_ecommerce_db]> ;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'cls' at line 1
MySQL [assignment_05_task_01_ecommerce_db]> clear
MySQL [assignment_05_task_01_ecommerce_db]> CREATE TABLE `orders` (
    >     `id` INT NOT NULL AUTO_INCREMENT PRIMARY KEY,
    >     `product_id` INT NOT NULL,
    >     `qty` INT NOT NULL,
    >     FOREIGN KEY (`product_id`) REFERENCES `products`(`id`) ON DELETE CASCADE
    > );
Query OK, 0 rows affected (0.02 sec)

MySQL [assignment_05_task_01_ecommerce_db]>
```

i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server) X

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```
[ec2-user@ip-172-31-88-23 ~]$ mysql -h assignment-05-task-01-cluster.cluster-codjwgk4qf.us-east-1.rds.amazonaws.com -u root -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MySQL connection id is 144
Server version: 8.0.32 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)]> use `assignment_05_task_01_ecommerce_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 [assignment_05_task_01_ecommerce_db]> show tables;
+-----+
| Tables_in_assignment_05_task_01_ecommerce_db |
+-----+
| orders
| products
+-----+
2 rows in set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]>
```

i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server) X

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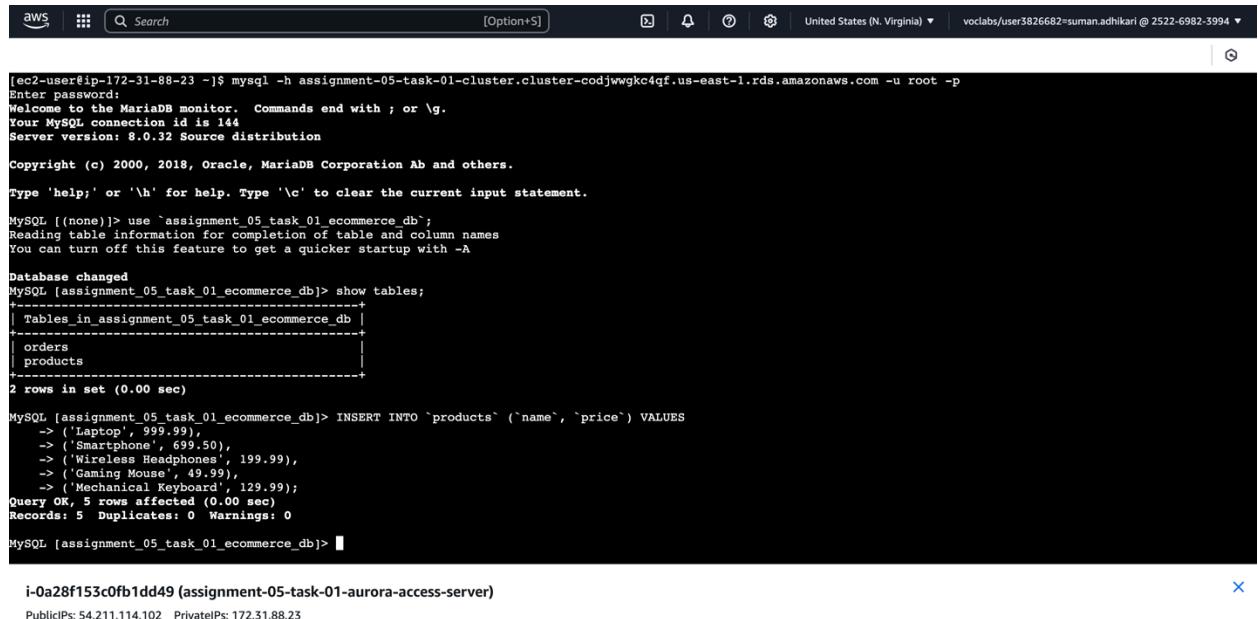
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```
-- Use db
USE `assignment_05_task_01_ecommerce_db`;

-- create products table
CREATE TABLE `products` (
  `id` INT NOT NULL PRIMARY KEY AUTO_INCREMENT,
  `name` VARCHAR(255) NOT NULL,
  `price` DECIMAL(10,2) NOT NULL
);

-- create orders table
CREATE TABLE `orders` (
  `id` INT NOT NULL AUTO_INCREMENT PRIMARY KEY,
  `product_id` INT NOT NULL,
  `qty` INT NOT NULL,
  FOREIGN KEY (`product_id`) REFERENCES `products`(`id`) ON DELETE CASCADE
);
```

7. Insert products on writer instance and verify on reader and writer instances..



```
[ec2-user@ip-172-31-88-23 ~]$ mysql -h assignment-05-task-01-cluster.cluster-codjwwgk4qf.us-east-1.rds.amazonaws.com -u root -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MySQL connection id is 144
Server version: 8.0.32 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)]> use `assignment_05_task_01_ecommerce_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 [assignment_05_task_01_ecommerce_db]> show tables;
+----------------+
| Tables_in_assignment_05_task_01_ecommerce_db |
+-----+
| orders
| products
+-----+
2 rows in set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]> INSERT INTO `products`(`name`, `price`) VALUES
    -> ('Laptop', 999.99),
    -> ('Smartphone', 699.50),
    -> ('Wireless Headphones', 199.99),
    -> ('Gaming Mouse', 49.99),
    -> ('Mechanical Keyboard', 129.99);
Query OK, 5 rows affected (0.00 sec)
Records: 5  Duplicates: 0  Warnings: 0

MySQL [assignment_05_task_01_ecommerce_db]>
```

i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server) X
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```
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)]> use `assignment_05_task_01_ecommerce_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 [assignment_05_task_01_ecommerce_db]> show tables;
+-----+
| Tables_in_assignment_05_task_01_ecommerce_db |
+-----+
| orders
| products
+-----+
2 rows in set (0.01 sec)

MySQL [assignment_05_task_01_ecommerce_db]> SELECT * FROM `products`;
Empty set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]> SELECT * FROM `products`;
+----+----+----+
| id | name          | price |
+----+----+----+
| 1  | Laptop        | 999.99 |
| 2  | Smartphone    | 699.50 |
| 3  | Wireless Headphones | 199.99 |
| 4  | Gaming Mouse  | 49.99  |
| 5  | Mechanical Keyboard | 129.99 |
+----+----+----+
5 rows in set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]>
```

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```
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 [assignment_05_task_01_ecommerce_db]> show tables;
+-----+
| Tables_in_assignment_05_task_01_ecommerce_db |
+-----+
| orders
| products
+-----+
2 rows in set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]> INSERT INTO `products` (`name`, `price`) VALUES
-> ('Laptop', 999.99),
-> ('Smartphone', 699.50),
-> ('Wireless Headphones', 199.99),
-> ('Gaming Mouse', 49.99),
-> ('Mechanical Keyboard', 129.99);
Query OK, 5 rows affected (0.00 sec)
Records: 5  Duplicates: 0  Warnings: 0

MySQL [assignment_05_task_01_ecommerce_db]> SELECT * FROM `products`;
+----+----+----+
| id | name          | price |
+----+----+----+
| 1  | Laptop        | 999.99 |
| 2  | Smartphone    | 699.50 |
| 3  | Wireless Headphones | 199.99 |
| 4  | Gaming Mouse  | 49.99  |
| 5  | Mechanical Keyboard | 129.99 |
+----+----+----+
5 rows in set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]>
```

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```
-- insert into `products` from writer instance
INSERT INTO `products` (`name`, `price`) VALUES
('Laptop', 999.99),
('Smartphone', 699.50),
('Wireless Headphones', 199.99),
('Gaming Mouse', 49.99),
('Mechanical Keyboard', 129.99);
```

8. Insert order from writer instances and verify on both reader and writer instances.

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```
+----+-----+
5 rows in set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]> INSERT INTO `orders` (`product_id`, `qty`) VALUES
-> (1, 2), -- 2 Laptops
-> (2, 1), -- 1 Smartphone
-> (3, 3), -- 3 Wireless Headphones
-> (4, 5), -- 5 Gaming Mice
-> (5, 2), -- 2 Mechanical Keyboards
-> (1, 1), -- 1 Laptop
-> (3, 2), -- 2 Wireless Headphones
-> (2, 4), -- 4 Smartphones
-> (4, 1), -- 1 Gaming Mouse
-> (5, 3); -- 3 Mechanical Keyboards
Query OK, 10 rows affected (0.00 sec)
Records: 10 Duplicates: 0 Warnings: 0

MySQL [assignment_05_task_01_ecommerce_db]> SELECT * FROM `orders`;
+---+-----+
| id | product_id | qty |
+---+-----+
| 1  | 1          | 2  |
| 2  | 2          | 1  |
| 3  | 3          | 3  |
| 4  | 4          | 5  |
| 5  | 5          | 2  |
| 6  | 1          | 1  |
| 7  | 3          | 2  |
| 8  | 2          | 4  |
| 9  | 4          | 1  |
| 10 | 5          | 3  |
+---+-----+
10 rows in set (0.01 sec)

MySQL [assignment_05_task_01_ecommerce_db]> ■
```

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```
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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 [assignment_05_task_01_ecommerce_db]> show tables
-> ;
+-----+
| Tables_in_assignment_05_task_01_ecommerce_db |
+-----+
| orders
| products
+-----+
2 rows in set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]> SELECT * FROM `orders`;
Empty set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]> SELECT * FROM `orders`;
+---+-----+
| id | product_id | qty |
+---+-----+
| 1  | 1          | 2  |
| 2  | 2          | 1  |
| 3  | 3          | 3  |
| 4  | 4          | 5  |
| 5  | 5          | 2  |
| 6  | 1          | 1  |
| 7  | 3          | 2  |
| 8  | 2          | 4  |
| 9  | 4          | 1  |
| 10 | 5          | 3  |
+---+-----+
10 rows in set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]> ■
```

i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server) X
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```

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+-----+-----+
5 rows in set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]> INSERT INTO `orders` (`product_id`, `qty`) VALUES
-- (1, 2), -- 2 Laptops
-- (2, 1), -- 1 Smartphone
-- (3, 3), -- 3 Wireless Headphones
-- (4, 5), -- 5 Gaming Mice
-- (5, 2), -- 2 Mechanical Keyboards
-- (1, 1), -- 1 Laptop
-- (3, 2), -- 2 Wireless Headphones
-- (2, 4), -- 4 Smartphones
-- (4, 1), -- 1 Gaming Mouse
-- (5, 3); -- 3 Mechanical Keyboards
Query OK, 10 rows affected (0.00 sec)
Records: 10  Duplicates: 0  Warnings: 0

MySQL [assignment_05_task_01_ecommerce_db]> SELECT * FROM `orders`;
+---+---+
| id | product_id | qty |
+---+---+
| 1  | 1           | 2   |
| 2  | 2           | 1   |
| 3  | 3           | 3   |
| 4  | 4           | 5   |
| 5  | 5           | 2   |
| 6  | 1           | 1   |
| 7  | 3           | 2   |
| 8  | 2           | 4   |
| 9  | 4           | 1   |
| 10 | 5           | 3   |
+---+---+
10 rows in set (0.01 sec)

MySQL [assignment_05_task_01_ecommerce_db]>

```

i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server) X
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```
-- insert into `orders` from writer instance
INSERT INTO `orders` (`product_id`, `qty`) VALUES
(1, 2), -- 2 Laptops
(2, 1), -- 1 Smartphone
(3, 3), -- 3 Wireless Headphones
(4, 5), -- 5 Gaming Mice
(5, 2), -- 2 Mechanical Keyboards
(1, 1), -- 1 Laptop
(3, 2), -- 2 Wireless Headphones
(2, 4), -- 4 Smartphones
(4, 1), -- 1 Gaming Mouse
(5, 3); -- 3 Mechanical Keyboards
```

9. Try doing write operation on reader instance. It should fail by default as it is in read-only mode.

The screenshot shows a CloudShell session on an Aurora Access Server. The user has run several MySQL commands:

```
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```

```
database changed
MySQL [assignment_05_task_01_ecommerce_db]> show tables
->;
+-----+
| Tables_in_assignment_05_task_01_ecommerce_db |
+-----+
| orders
| products
+-----+
2 rows in set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]> SELECT * FROM `orders`;
Empty set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]> SELECT * FROM `orders`;
+---+---+---+
| id | product_id | qty |
+---+---+---+
| 1  | 1          | 2  |
| 2  | 2          | 1  |
| 3  | 3          | 3  |
| 4  | 4          | 5  |
| 5  | 5          | 2  |
| 6  | 1          | 1  |
| 7  | 3          | 2  |
| 8  | 2          | 4  |
| 9  | 4          | 1  |
| 10 | 5          | 3  |
+---+---+---+
10 rows in set (0.00 sec)

MySQL [assignment_05_task_01_ecommerce_db]> INSERT INTO `products` (`name`, `price`) VALUES
-> ('Tablet', 799.99);
ERROR 1836 (HY000): Running in read-only mode
MySQL [assignment_05_task_01_ecommerce_db]>
```

At the bottom, the session details are shown:

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-- insert into `products` from reader instance
-- fails as instance is in reader mode
INSERT INTO `products` (`name`, `price`) VALUES ('Tablet', 799.99);

Task #2 – Deleting Aurora DB and EC2

1. Delete all instances first. After completion delete the cluster itself and do not create any snapshots. Afterwards, delete the EC2 and any security groups involved in the assignments.

The screenshot shows two consecutive screenshots of the AWS RDS console, illustrating the step-by-step deletion process of an Aurora database cluster and its instances.

Screenshot 1: Deleting DB instance assignment-05-task-01-cluster-instance-1-us-east-1c

This screenshot shows the "Deleting DB instance assignment-05-task-01-cluster-instance-1-us-east-1c" dialog box. The instance status is marked as "Deleting". The "Actions" button is visible at the top right of the dialog.

Screenshot 2: The assignment-05-task-01-cluster cluster is being deleted.

This screenshot shows the "assignment-05-task-01-cluster" cluster page. A message at the top states, "The assignment-05-task-01-cluster cluster is being deleted." The "Actions" button is visible at the top right of the cluster summary.

Related Instances Table (Screenshot 1):

DB identifier	Status	Role	Engine	Region	Size
assignment-05-task-01-cluster	Available	Regional cluster	Aurora MySQL	us-east-1	2 instances
assignment-05-task-01-cluster-instance-1	Deleting	Writer instance	Aurora MySQL	us-east-1a	db.t3.med...
assignment-05-task-01-cluster-instance-1-us-east-1c	Deleting	Reader instance	Aurora MySQL	us-east-1c	db.t3.med...

Cluster Summary (Screenshot 2):

DB identifier	Status	Role	Engine	Region & AZ
assignment-05-task-01-cluster	Available	Regional cluster	Aurora MySQL	us-east-1

Endpoints Table (Screenshot 2):

Endpoint name	Type	Port
assignment-05-task-01-cluster.cluster-codjwwgk4qf.us-east-1.rds.amazonaws.com	Writer	3306
assignment-05-task-01-cluster.cluster-ro-codjwwgk4qf.us-east-1.rds.amazonaws.com	Reader	3306

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RDS > Databases

Amazon RDS

- Dashboard
- Databases**
- Query Editor
- Performance insights
- Snapshots
- Exports in Amazon S3
- Automated backups
- Reserved instances
- Proxies

- Subnet groups
- Parameter groups
- Option groups
- Custom engine versions
- Zero-ETL integrations [New](#)

- Events
- Event subscriptions

- Recommendations **0**
- Certificate update

Databases (0)

Filter by databases

DB identifier Status Role Engine Region ... Size Recommendations

No instances found

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EC2 > Instances

EC2

- Dashboard
- EC2 Global View
- Events
- Instances**
- Instance Types
- Launch Templates
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts
- Capacity Reservations
- Images**
- AMIs
- AMI Catalog
- Elastic Block Store**
- Volumes
- Snapshots
- Lifecycle Manager
- Network & Security**
- Security Groups
- Elastic IPs

Instances (1/1) Info

Last updated less than a minute ago Connect Instance state Actions Launch instances

Find Instance by attribute or tag (case-sensitive) All states

Instance state = running Clear filters

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
assignment-05-task-01-aurora-access-server	i-0a28f153c0fb1dd49	Shutting-down	t2.micro	2/2 checks passed	View alarms +

i-0a28f153c0fb1dd49 (assignment-05-task-01-aurora-access-server)

Details Status and alarms Monitoring Security Networking Storage Tags

Instance summary

Instance ID i-0a28f153c0fb1dd49 Public IPv4 address 54.211.114.102 [open address](#)

Private IPv4 addresses 172.31.88.23

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