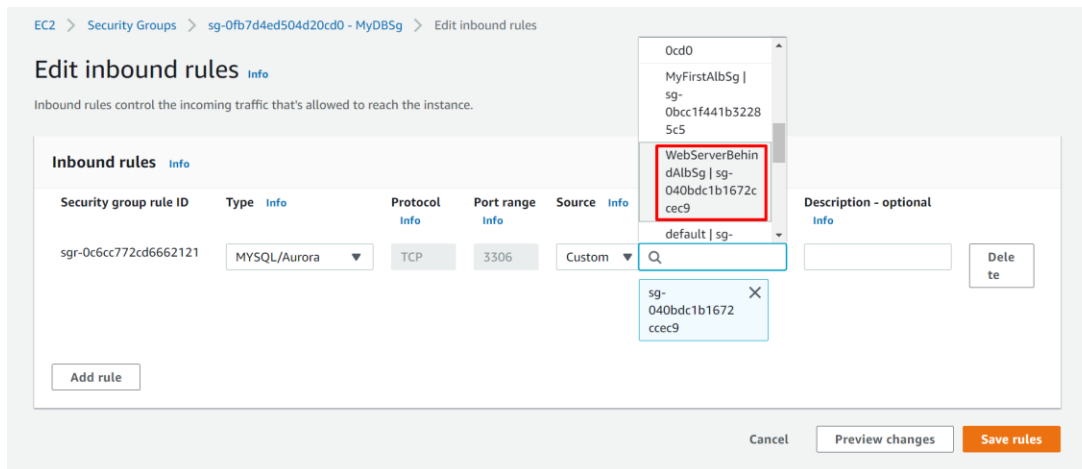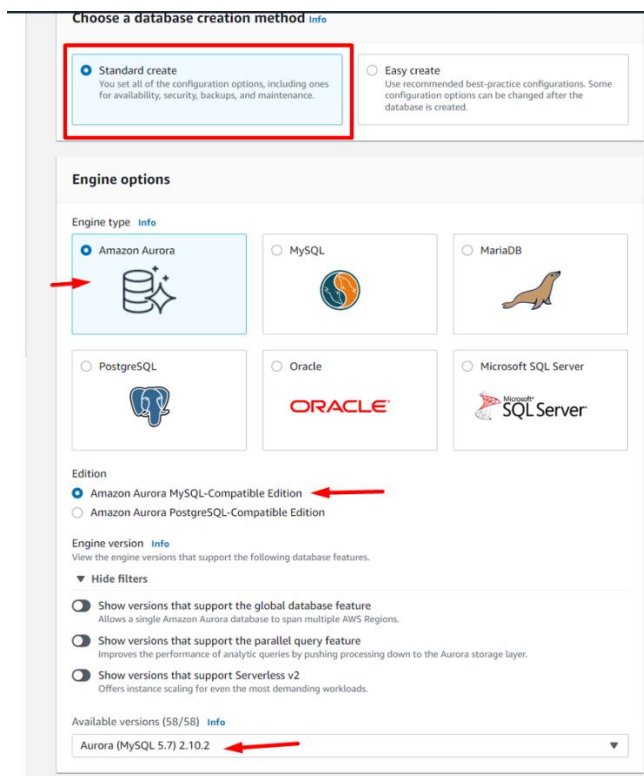# Assignment 5 – RDS – Reference

You should follow the specs only. If you get stuck, try to figure it out yourself by putting some efforts and time and referring the official AWS docs. Don't blindly follow these step by step screenshots. They are tend to outdated.

Step by step instructions - RDS

Create a Security Group at first

Create a database in RDS

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

Type 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.

`myDBCluster`

The DB cluster identifier is case-insensitive, but is stored as all lowercase (as in "mydbcluster"). 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.

▼ **Credentials Settings**

Master username Info

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

`root`

1 to 32 alphanumeric characters. First character must be a letter.

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

Master password Info

`•••••••••`

Constraints: At least 8 printable ASCII characters. Can't contain any of the following: / (slash), '(single quote), "(double quote) and @ (at sign).

Confirm password Info

`•••••••••`

Instance configuration

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

DB instance class Info

○ Memory optimized classes (includes r classes)

● Burstable classes (includes t classes)

db.t3.small
2 vCPUs   2 GiB RAM   Network: 2,085 Mbps

◯ Include previous generation classes

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 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.

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

[Default VPC (vpc-01b8fb7c355b68fc8)   ▼]

Only VPCs with a corresponding DB subnet group are listed.

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

DB Subnet group Info
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-vpc-01b8fb7c355b68fc8   ▼]

Public access Info

○ 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) Info
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   ▼]

[MyDBSg ✕]

Monitoring

Monitoring

☐ Enable Enhanced monitoring   **Uncheck**

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

▼ 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**

```
university
```

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

DB cluster parameter group   **Info**

```
default.aurora-mysql5.7                                          ▼
```

DB parameter group   **Info**

```
default.aurora-mysql5.7                             ▼
```

Option group   **Info**

```
default:aurora-mysql-5-7                            ▼
```

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

### Encryption

☑ Enable encryption
Choose to encrypt the given instance. Master key IDs and aliases appear in the list after they have been created using the AWS Key Management Service console. **Info**

AWS KMS key   **Info**

```
(default) aws/rds                                   ▼
```

Account
846866515154

KMS key ID
c3fd8794-e81f-42ae-85bd-d680ff16efa0

Backtrack

Database created

Install mysql client on EC2

mysql -h myfirstclouddb-instance-1.cqzw6byf7zkj.us-east-1.rds.amazonaws.com -P 3306 -u root -p

```
MySQL [cloudlabdb]> CREATE TABLE COURSE (
    ->  COURSE_ID int,
    ->  COURSE_CODE varchar(255),
    ->  COURSE_NAME varchar(255),
    -> TEACHER_ID int
    -> );
Query OK, 0 rows affected (0.06 sec)

MySQL [cloudlabdb]> show tables;
+---------------------+
| Tables_in_cloudlabdb |
+---------------------+
| COURSE              |
| TEACHER             |
+---------------------+
2 rows in set (0.01 sec)

MySQL [cloudlabdb]> INSERT INTO TEACHER (TEACHER_ID, NAME)
    -> VALUES (1, "UNUBOLD"),
    -> (2, "ASAAD"),
    -> (3, "UMUR");
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

MySQL [cloudlabdb]> INSERT INTO COURSE (COURSE_ID, COURSE_CODE, COURSE_NAME, TEACHER_ID)
    -> VALUES (1, "CS516", "CLOUD COMPUTING", 1),
    -> (2, "CS568", "React", 1),
    -> (3, "CS569", "Angular", 1),
    -> (3, "CS569", "Angular", 2);
Query OK, 4 rows affected (0.01 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

```
MySQL [cloudlabdb]> SELECT TEACHER.NAME, COURSE.COURSE_ID, COURSE.COURSE_NAME
    -> FROM TEACHER JOIN COURSE ON TEACHER.TEACHER_ID = COURSE.TEACHER_ID;
+---------+-----------+-----------------+
| NAME    | COURSE_ID | COURSE_NAME     |
+---------+-----------+-----------------+
| UNUBOLD |         1 | CLOUD COMPUTING |
| UNUBOLD |         2 | React           |
| UNUBOLD |         3 | Angular         |
| ASAAD   |         3 | Angular         |
+---------+-----------+-----------------+
4 rows in set (0.00 sec)
```

For the Reader Instance:

```
[root@ip-10-0-0-204 bin]# mysql -h myfirstclouddb.cluster-ro-cqzw6byf7zkj.us-east-1.rds.amazonaws.com -P 3306 -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 11
Server version: 5.7.12 MySQL Community Server (GPL)

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 cloudlabdb;
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 [cloudlabdb]> show tables;
+---------------------+
| Tables_in_cloudlabdb |
+---------------------+
| COURSE              |
| TEACHER             |
+---------------------+
2 rows in set (0.00 sec)

MySQL [cloudlabdb]> INSERT INTO TEACHER (TEACHER_ID, NAME)
    -> VALUES (1, "UNUBOLD"),
    -> (2, "ASAAD"),
    -> (3, "UMUR");
ERROR 1290 (HY000): The MySQL server is running with the --read-only option so it cannot execute this statement
MySQL [cloudlabdb]>
```