Starting an AWS Oracle Standard Edition RDS Instance

Overview: In this exercise, you use your AWS Educate Starter account to spin-up an Oracle Standard Edition RDS Instance on AWS.

Note: Take your time while setting up and entering the database parameters. One incorrect setting could lead to not being able to properly connect to the database.

There are two major steps needed to successfully start and connect to your database instance in the cloud.

1) Create a security group - This allows your desktop computer to connect the database over port 1521. This is critical as by default, no one (including you) can connect to the instance. We complete step 1 first so when you move on to step 2, you will point to the security group you already created.
2) Spin-up an Oracle Database instance – This step is where you actually start the Oracle database server. The AWS Cloud environment will provide you an endpoint (a URL) for you to connect with SQL Developer.

Create a Security Group for your Database

A security group allows you to connect to the database using Port 1521 (the default port for Oracle) and your specific IP address of your desktop machine. Note: you can add more IPs as needed (e.g. your home, or work desktop). It is best practice to restrict the number of IPs to limit possible security issues.

To set up a security group, navigate to the EC2 instance service in your AWS console and scroll down to the security group link. (See figure 1.)

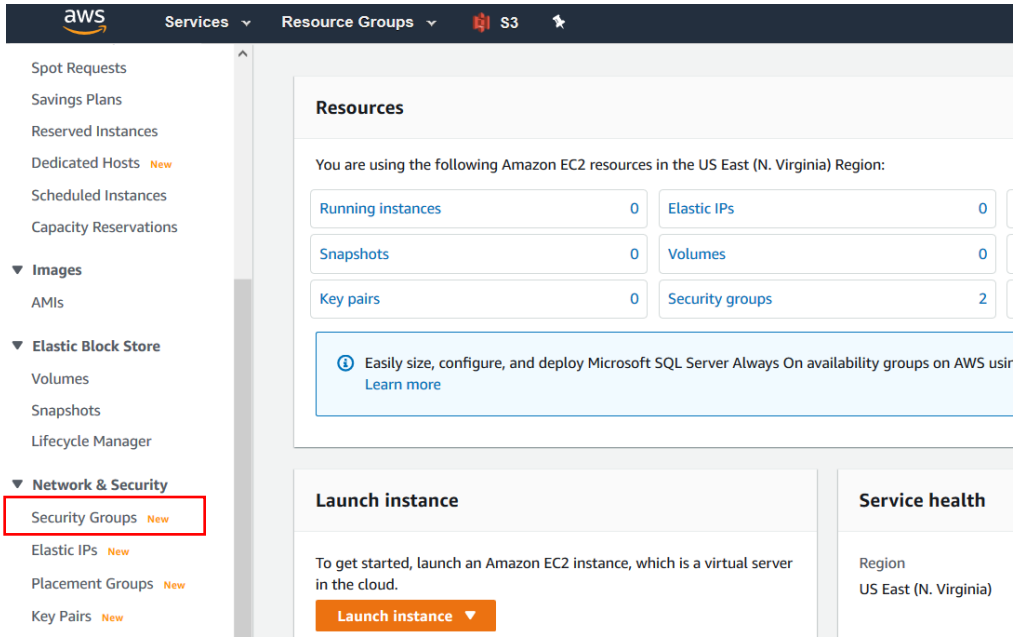

Figure 1 Novigate to Security Groups in the EC2 Services Dashboard

Select “Create Security Group”

Name the security MyDBSGroup (or similar) and add an inbound rule for Oracle-RDS for your custom IP address. Note when you select the Custom IP, the system will automatically place your desktop in the field. Feel free to add a description. This open up port 1521 for your desktop machine. See figure 2. Save and remember the name as you will select this option in the Database security group when you spin-up your database.

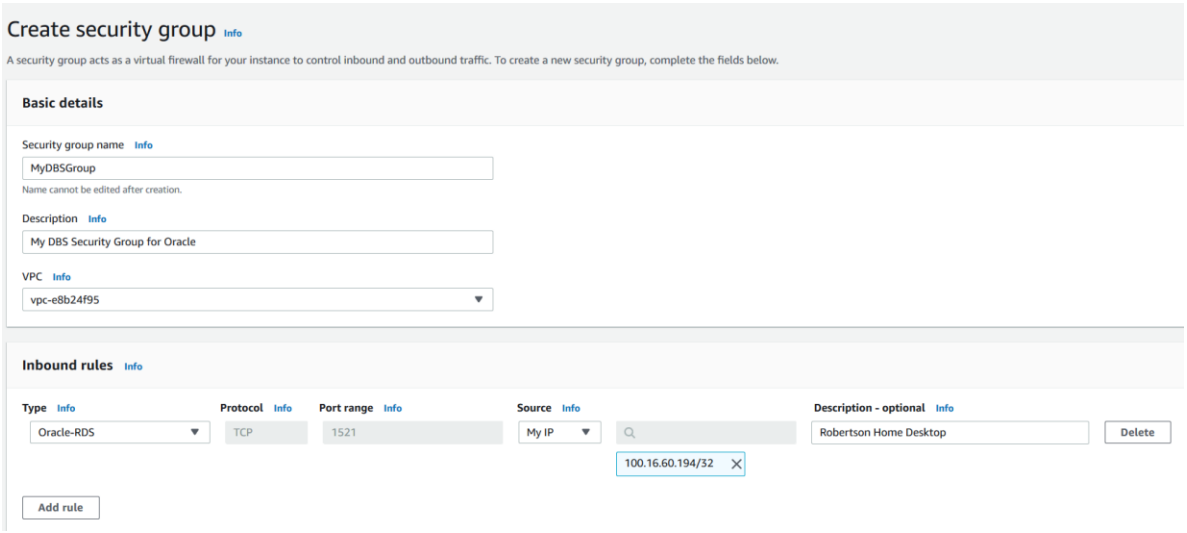

Figure 2 Create the Security Group

Spinning-up and Oracle RDS Instance on AWS:

After logging into your AWS Educate Starter account and entering your SDEV350 Database Security classroom following the process found in the “EnteringYourAWSClassroom.pdf” document, click on the AWS Console link.

As shown in figure 3, search for RDS in the Services dashboard.

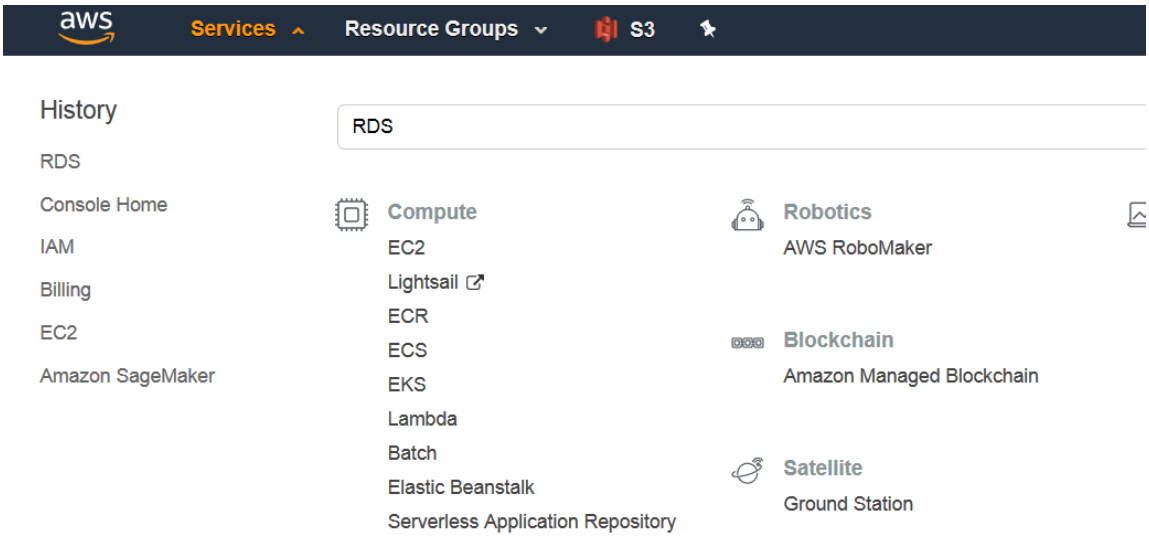

Figure 3 Search for the RDS Service in AWS Services

To create a database, click on the "Create Database" link as shown in figure 4.

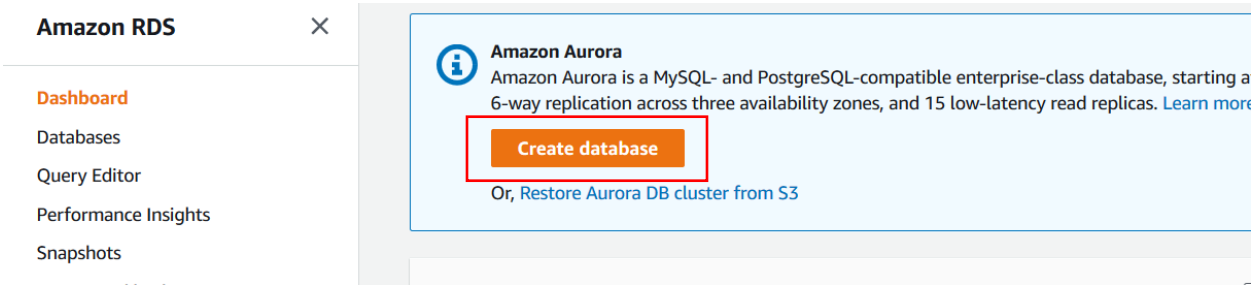

Figure 4 Select Create Database

When prompted, select the "Standard Create"and select the Oracle Engine as shown in figure 5.

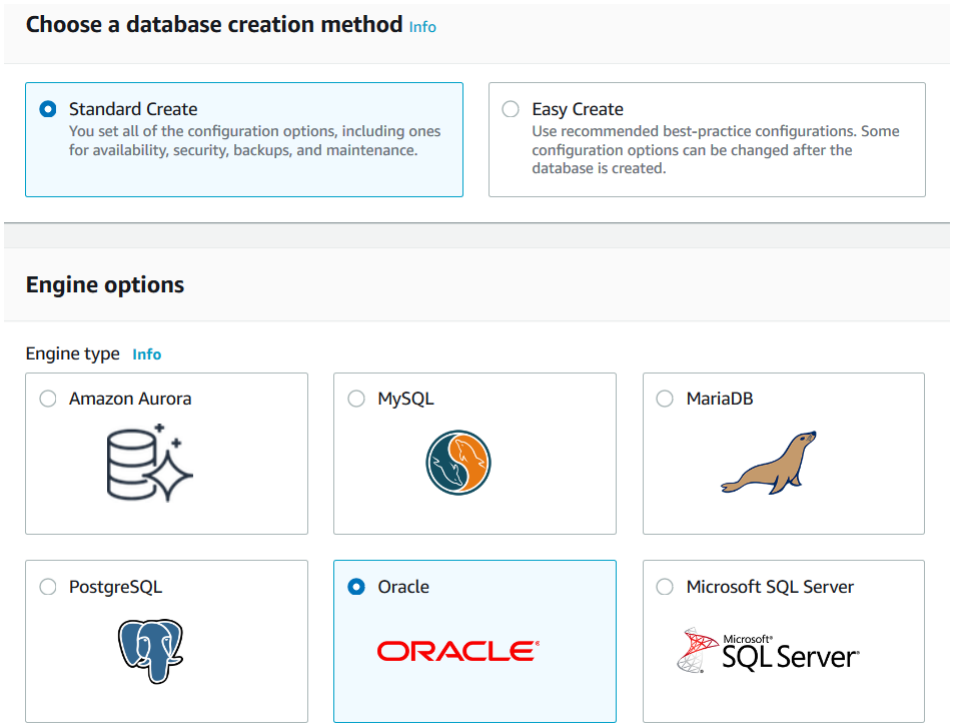

Figure 5 Selecting the Oracle Database Engine

Continue to scroll down to select additional options. These options include:

- Oracle Standard Edition Two
- Version: 19.0.[0.0.X] (where 0.0.X is the highest, or most recent edition number)
- License: Bring your own License.
- Dev/Test template

See figure 6.

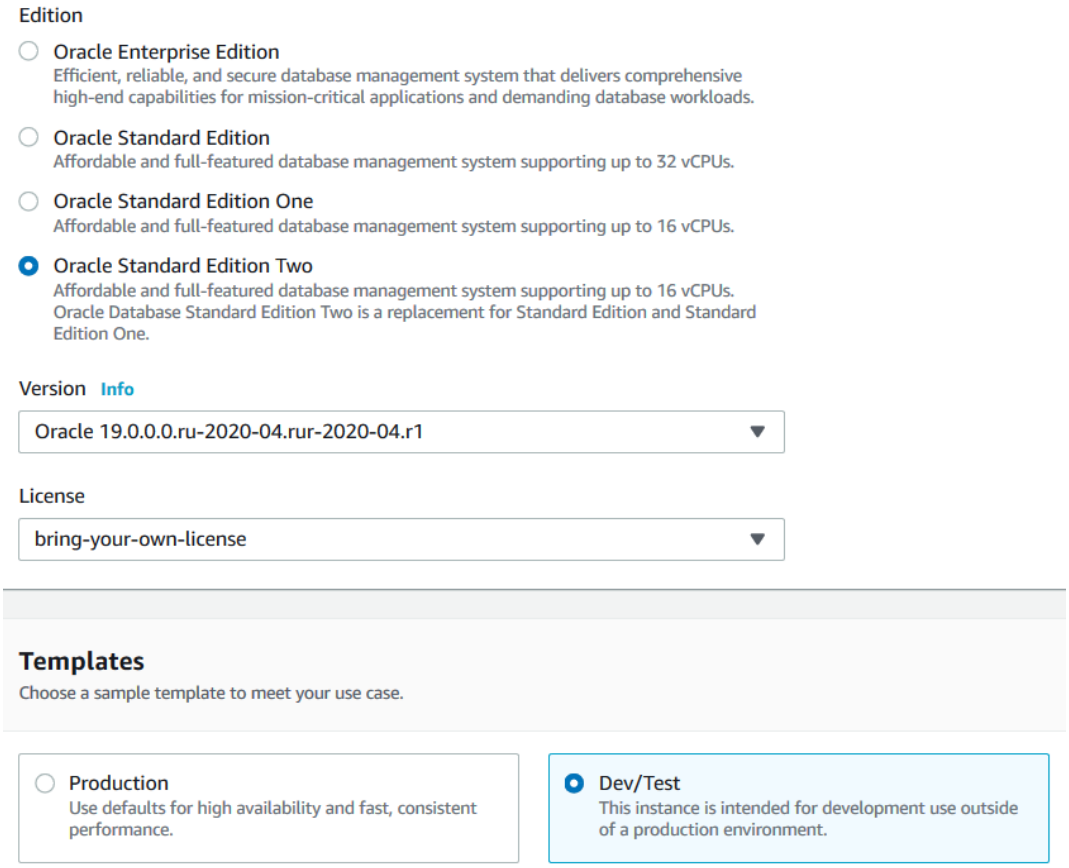

Figure 6 Additional Oracle Options

Continue to scroll down to enter a database identifier, master username and master password. The default database identifier and master username will suffice. Be sure enter a password you won't forget but is also secure. See figure 7.

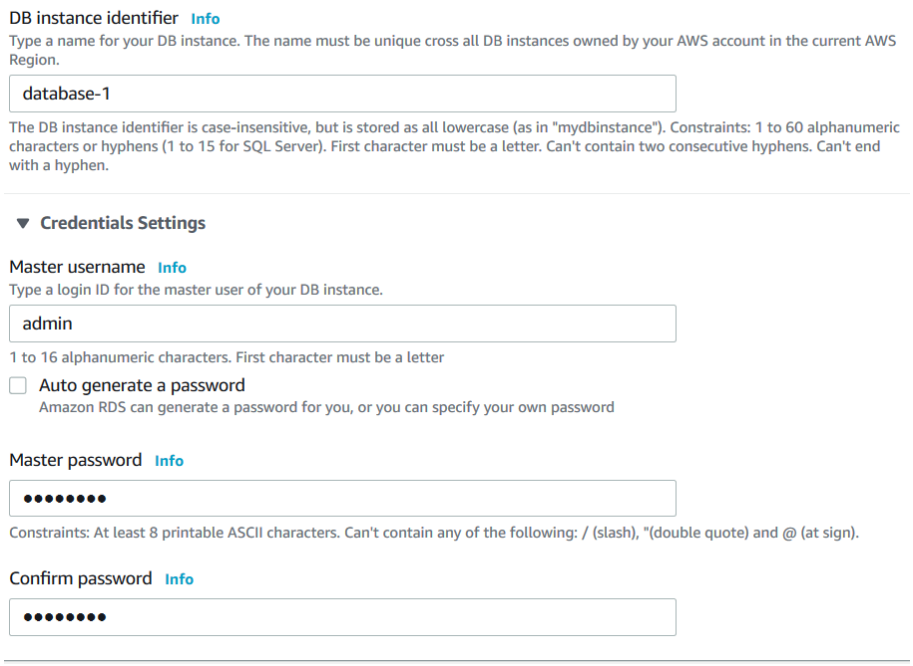

Figure 7 Additional Instance Settings

Critically important! Be sure to select the Burstable Class (includes t classes for the DB instance size. All other options are very expensive and you will run out of your allotted AWS class rooms in about week. Be sure you select the smallest instance size which is typically the first one and db.t3.micro. See Figure 8.

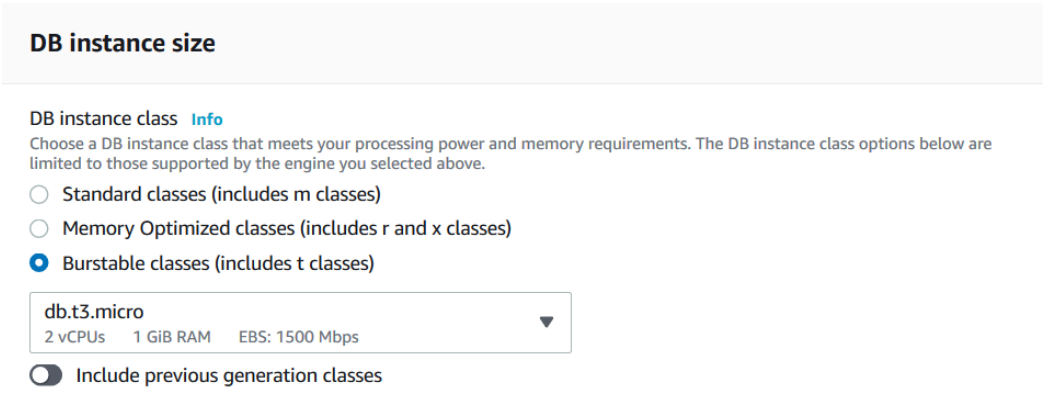

Figure 8 Selecting db.t3.micro

Continue to scroll down to the Storage. As shown in figure 9, select the General Purpose (SSD) with allocated storage of 20 GB. Be sure to **uncheck** the "Enable Autoscaling" option.

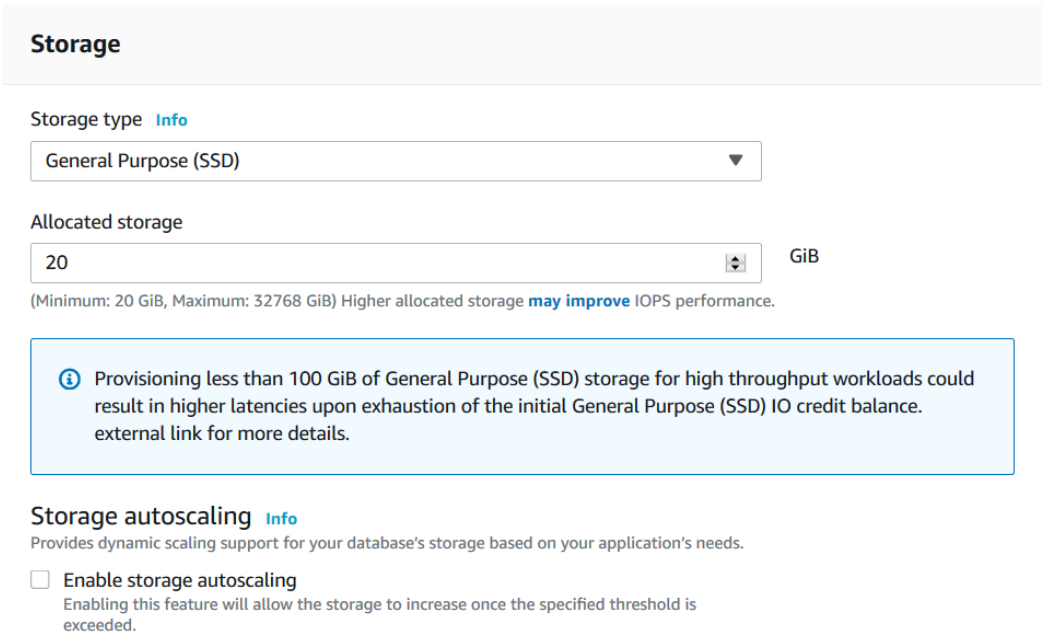

Figure 9 Storage Settings

For the Availability settings take the default settings of "Do not create a standby instance" as shown in figure 10.

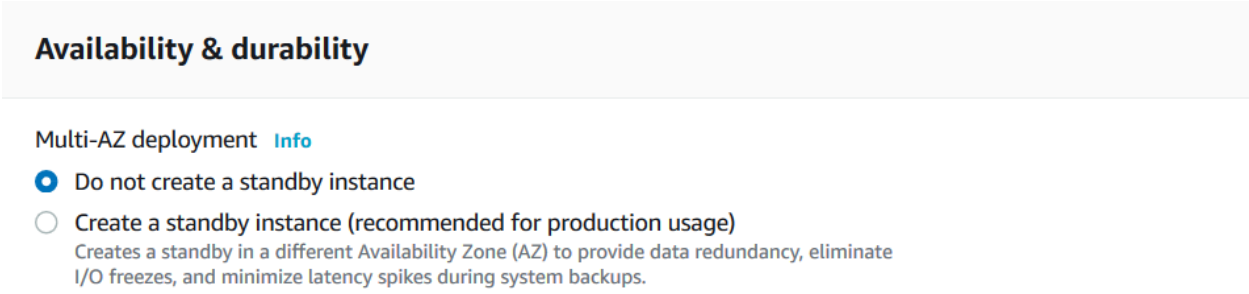

Figure 10 Availability & durability settings

Critically Important! For the Connectivity settings be sure to expand Additional Connectivity configuration. Then scroll down to select Yes for Publicly Accessible. If you don't do this, you will not be able to connect to your instance. (Note, this is for this class, for production environments, you will most likely have this set to No for security reasons.)

Also, be sure you select the security group you previously created. The security group you created provides access to your IP address for the Oracle RDS port (1521) In this example, MyDBSGroup was selected. See figure 11.

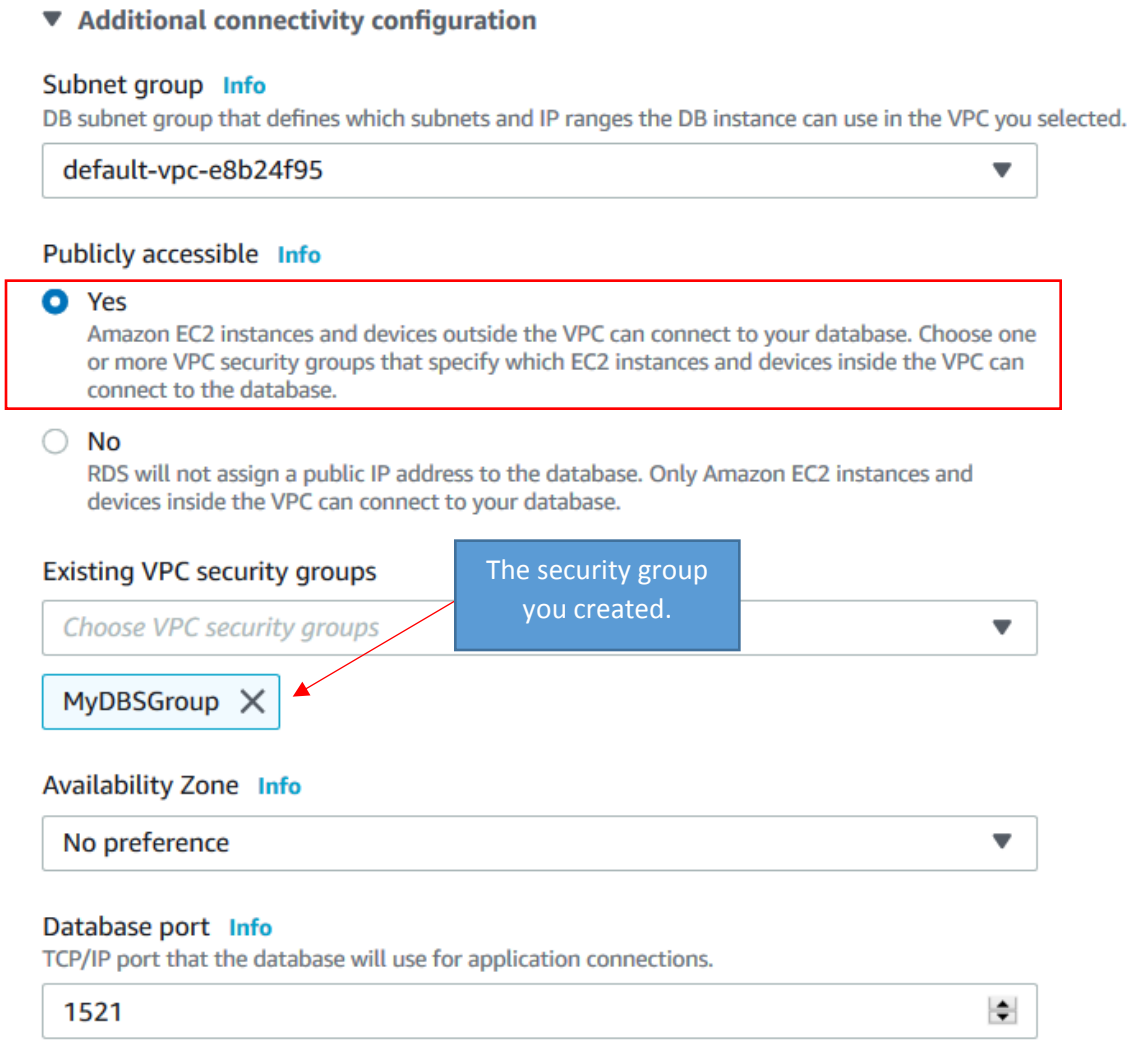

Figure 11 Connectivity Configuration Settings.

As shown in figure 12, accept the default password authentication option for database authentication.

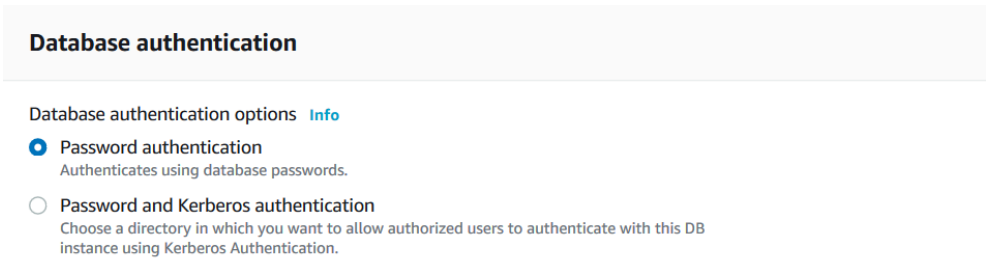

Figure 12 Database Authentication

Continue scrolling and view the additional configuration parameters to enter a database name. All of the other default settings will be okay. **But create a database with a name "ORCL". This is critical for future projects in the class.** (see figure 13.)

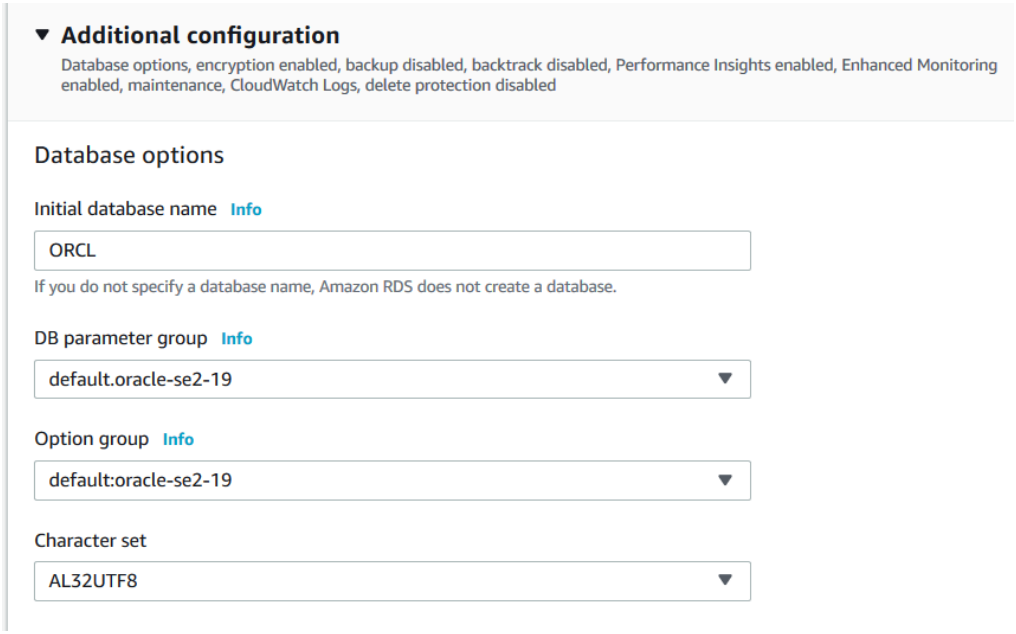

Figure 13 Naming the Database

Disable Automatic Back-ups, Enable the encryption using the default master key as shown in figure 14.

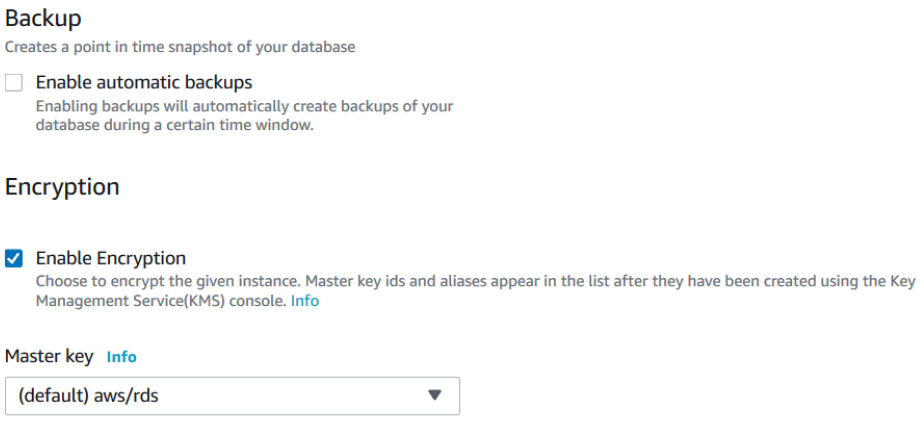

Figure 14 Back-up and Encryption options

For monitoring, Uncheck the Enable Performance Insights, Disable enhanced monitoring, but add the Alert and Audit Logs exports as shown in figure 15.

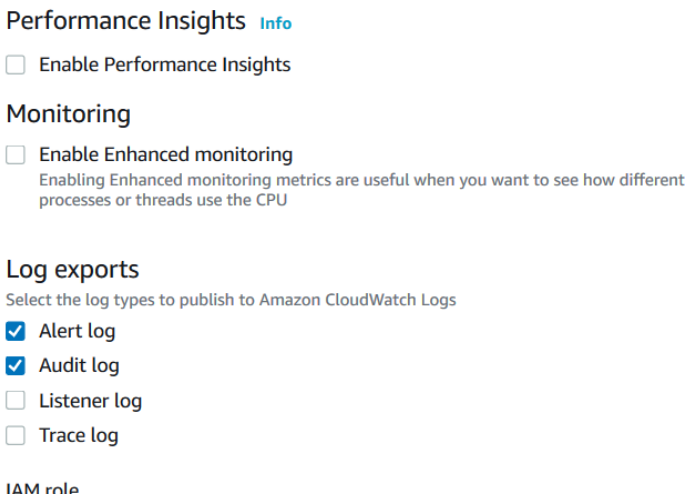

Figure 15 Log Export and Maintenance Options

For the maintenance, do not check Enable auto minor version, No preference for maintenance window and do not check the Enable deletion protection as shown in figure 16.

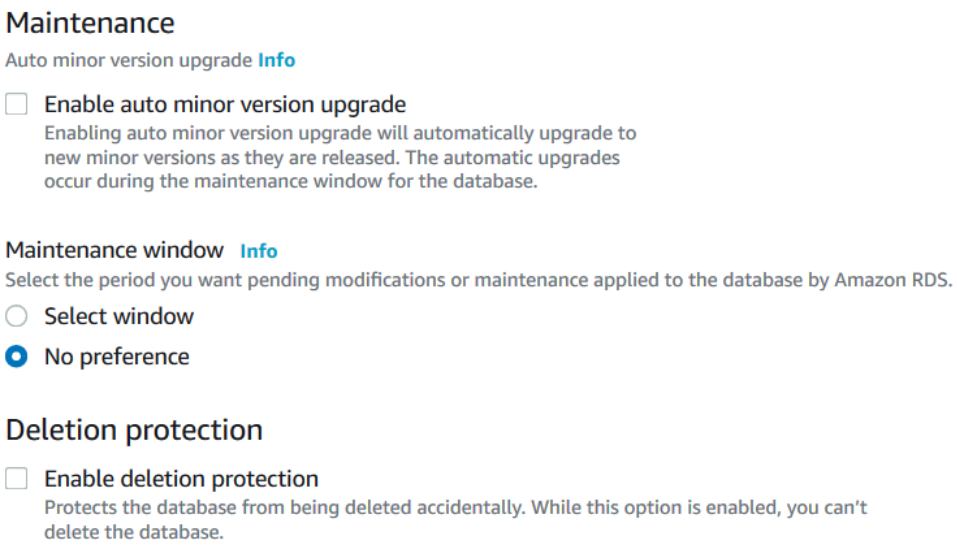

Figure 16 Deletion Protection Options

Finally, double check your cost estimates. If you have done this correctly, you will have a very modest monthly cost (which AWS is covering for you) of less than $30 a month. (See figure 17) This will allow you to run the database 24x7 for the 2 months of the course without issue. However, you should start and stop the instance to minimize the charges. This will allow your credits to last much longer and is a Cloud best practice. If you see a larger number, you may have probably entered the wrong instance type. Go back and start again and ask your professor for assistance if needed.

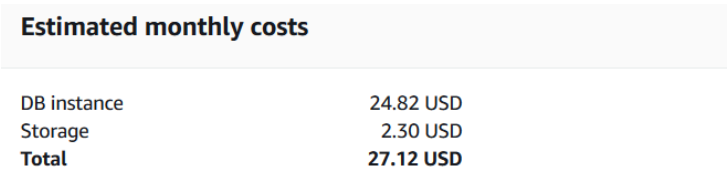

Figure 17 Checking your Monthly Cost

Select “Create Database” to continue.

As shown in figure 18, upon success, the DB instance will begin creation.

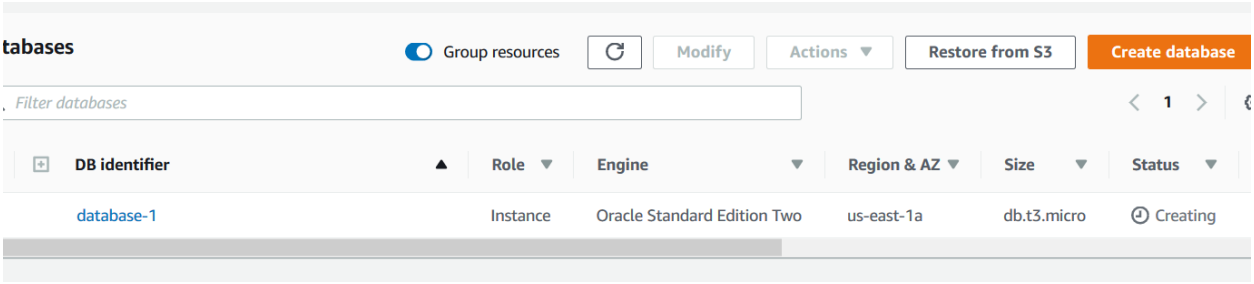

Figure 18 Creating the Database

Creation time varies from **10-30 minutes**. You can use the databases links in the RDS dashboard to monitor the status. Once the status changes to available, you will be able to connect to and start using your instance. (See figure 19).

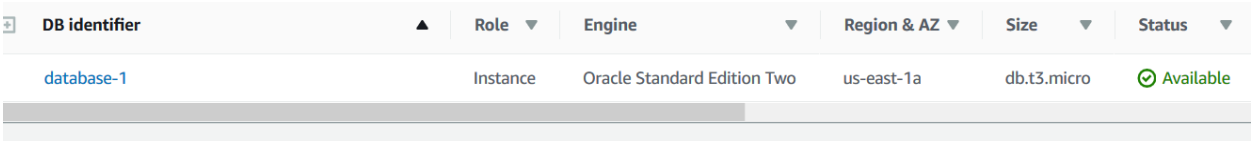

Figure 19 DB is now available

Additional documents, available in the LEO classroom, provide step-by-step details on how to connect to your Oracle RDS instance using SQL Developer.

Once the database is launched, it will remain running until it is either terminated or stopped. Additional details on how to stop or terminate an instance will be provided in LEO classroom documentation. It is highly recommended to stop the database while not in use. This is best practice for the Cloud model which saves operational costs. You can restart the instance at any time when you need to use it again.