Lab 05

CLOUD COMPUTING

CS-4075

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Section: SE-A

Due Date: Nov 15, 2023

Lab 5

Accessing the AWS Management Console:

1. At the top of these instructions, choose Start Lab to launch your lab.

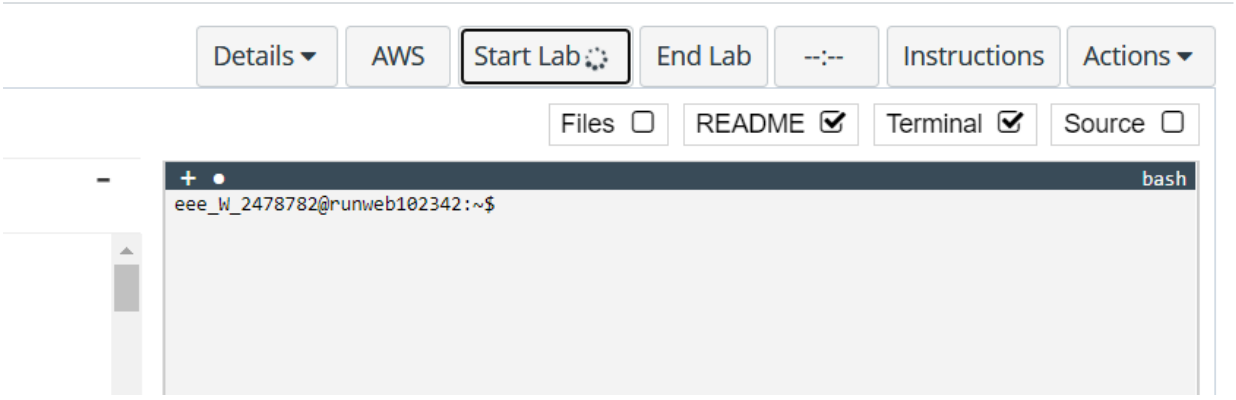

Figure 1: start the lab.

A Start Lab panel opens displaying the lab status.

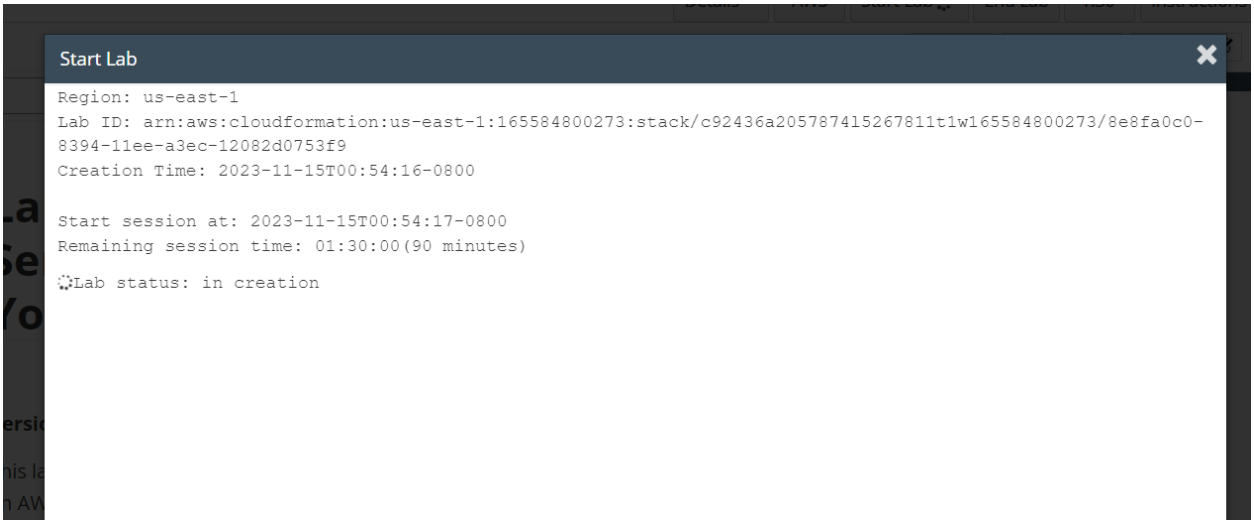

Figure 2: lab is in creation stge.

2. Wait until you see the message "**Lab status: ready**", then choose the **X** to close the Start Lab panel.

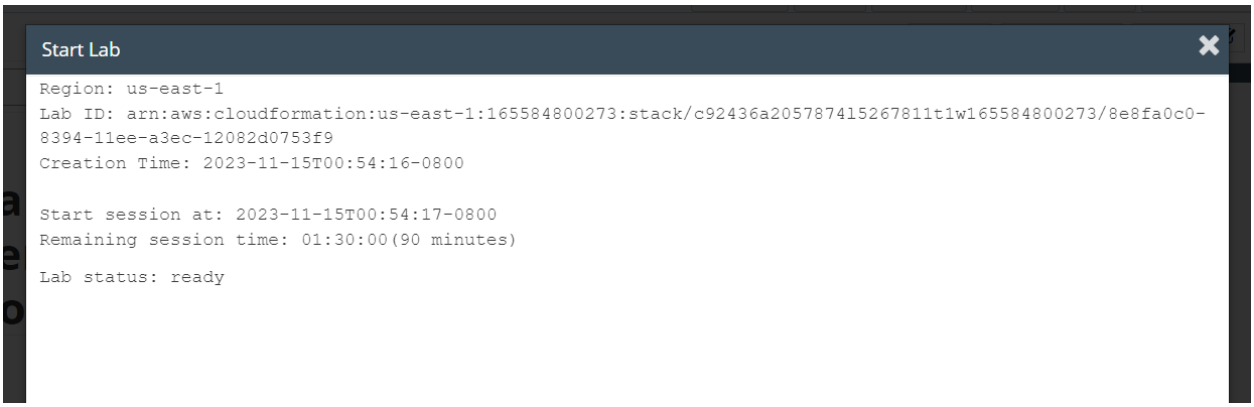

Figure 3: Lab is ready to use.

3. At the top of these instructions, choose AWS.

   This will open the AWS Management Console in a new browser tab. The system will automatically log you in.

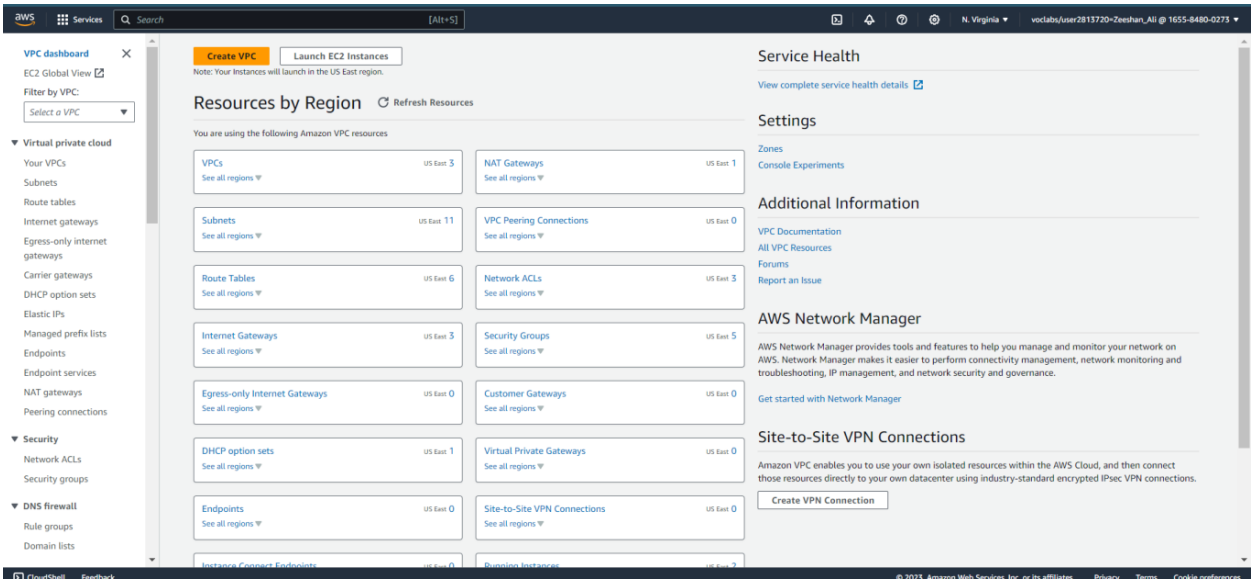

Figure 4: AWS DASHBOARD

Task 1: Create a Security Group for the RDS DB Instance

5. In the **AWS Management Console**, on the Services menu, choose **VPC**.

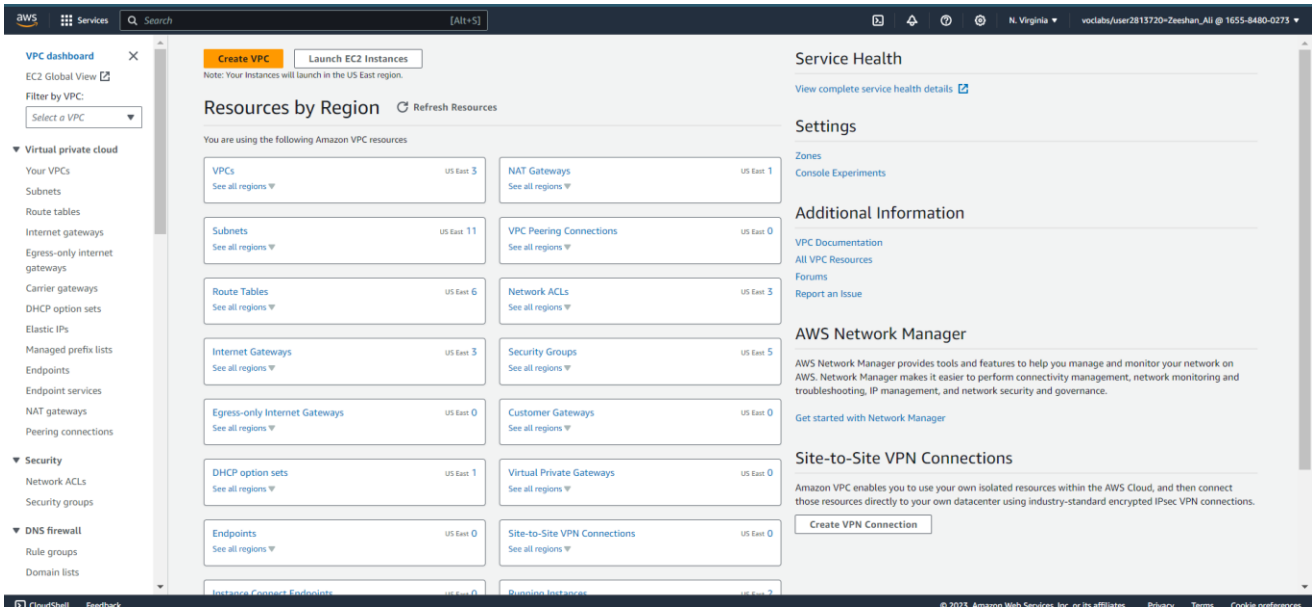

Figure 5: VPC DASHBOARD

6. In the left navigation pane, choose **Security Groups**.
7. Choose Create security group and then configure:
    - **Security group name:** `DB Security Group`
    - **Description:** `Permit access from Web Security Group`
    - **VPC:** *Lab VPC*
8. In the **Inbound rules** pane, choose Add rule.

    The security group currently has no rules. You will add a rule to permit access from the *Web Security Group*.

9. Configure the following settings:
    - **Type:** *MySQL/Aurora (3306)*
    - **CIDR, IP, Security Group or Prefix List:** Type `sg` and then select *Web Security Group*.

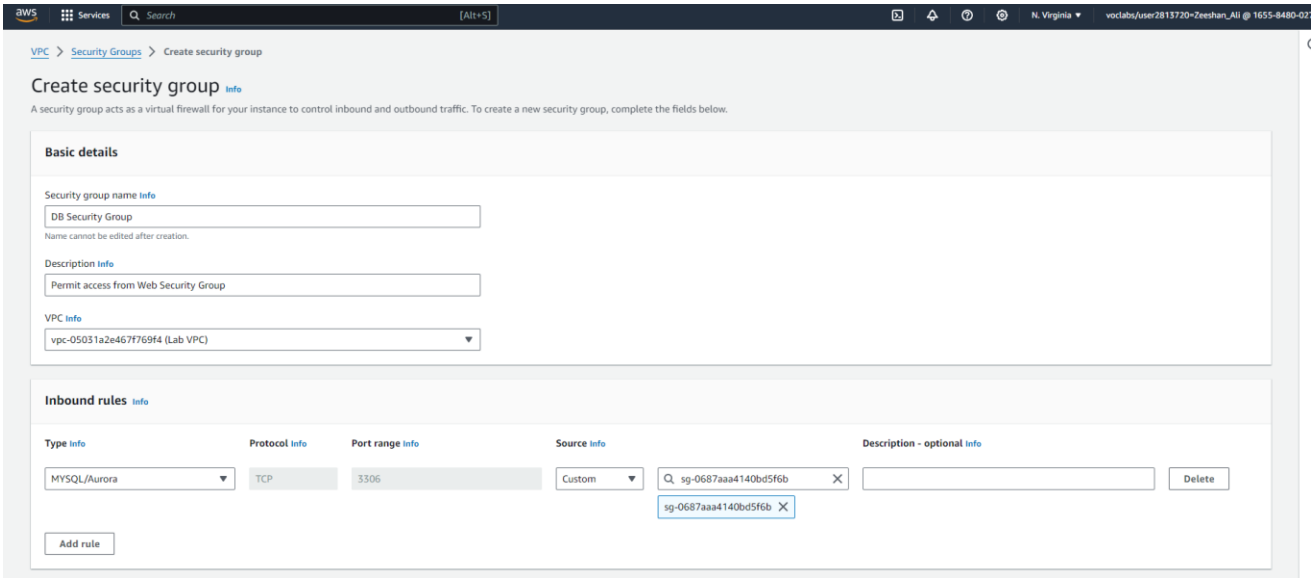

Figure 6: Security Groups

This configures the Database security group to permit inbound traffic on port 3306 from any EC2 instance that is associated with the *Web Security Group*.

10. Choose Create security group.

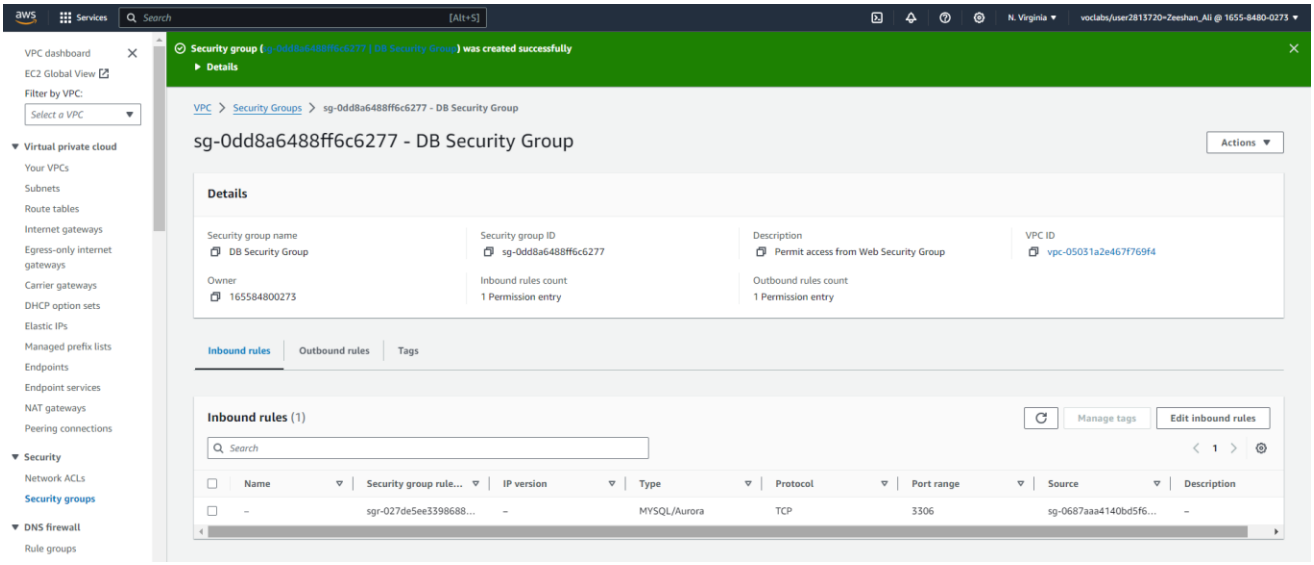

Figure 7: Success Create security group.

You will use this security group when launching the Amazon RDS database.

Task 2: Create a DB Subnet Group

11. On the Services menu, choose **RDS**.

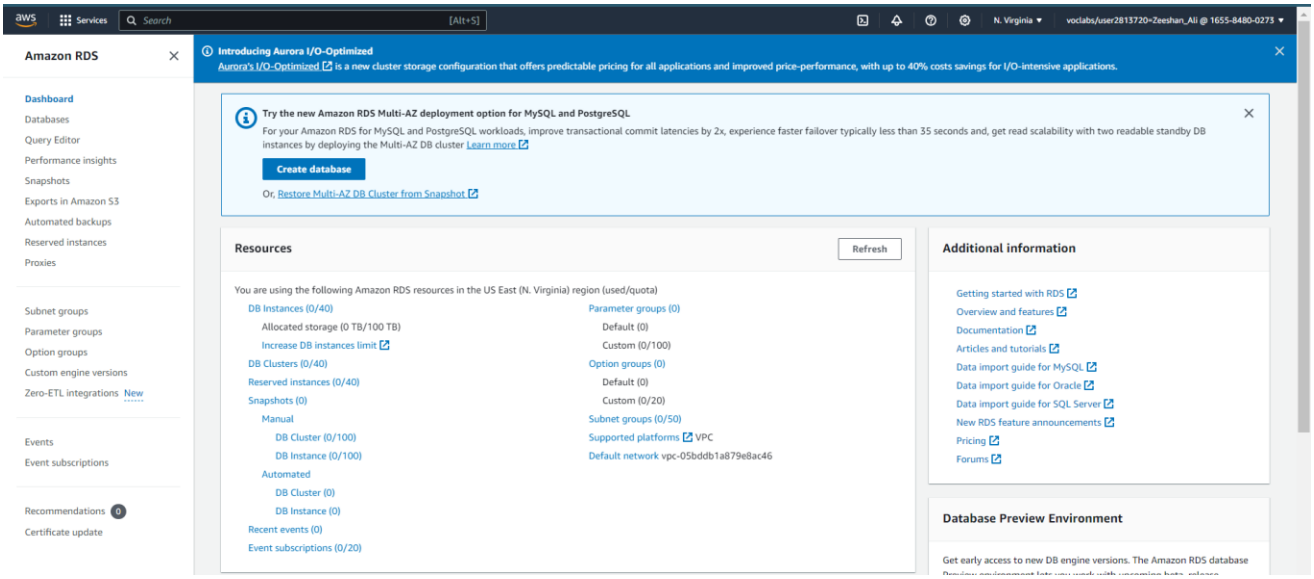

Figure 8: RDS

12. In the left navigation pane, choose **Subnet groups**.

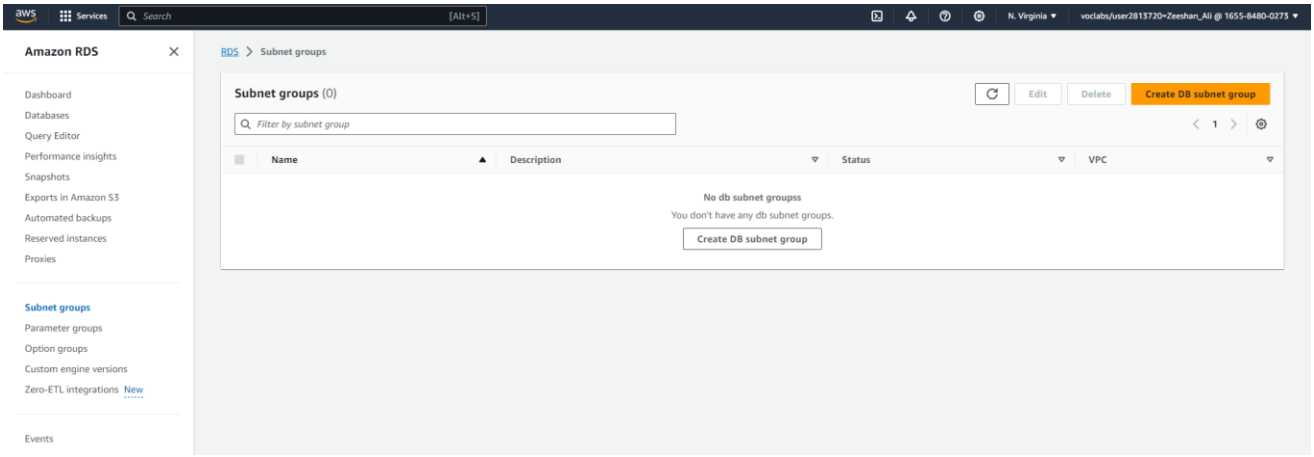

Figure 9: Subnet groups

13. Choose Create DB Subnet Group then configure:
    - **Name:** `DB-Subnet-Group`
    - **Description:** `DB Subnet Group`
    - **VPC:** *Lab VPC*

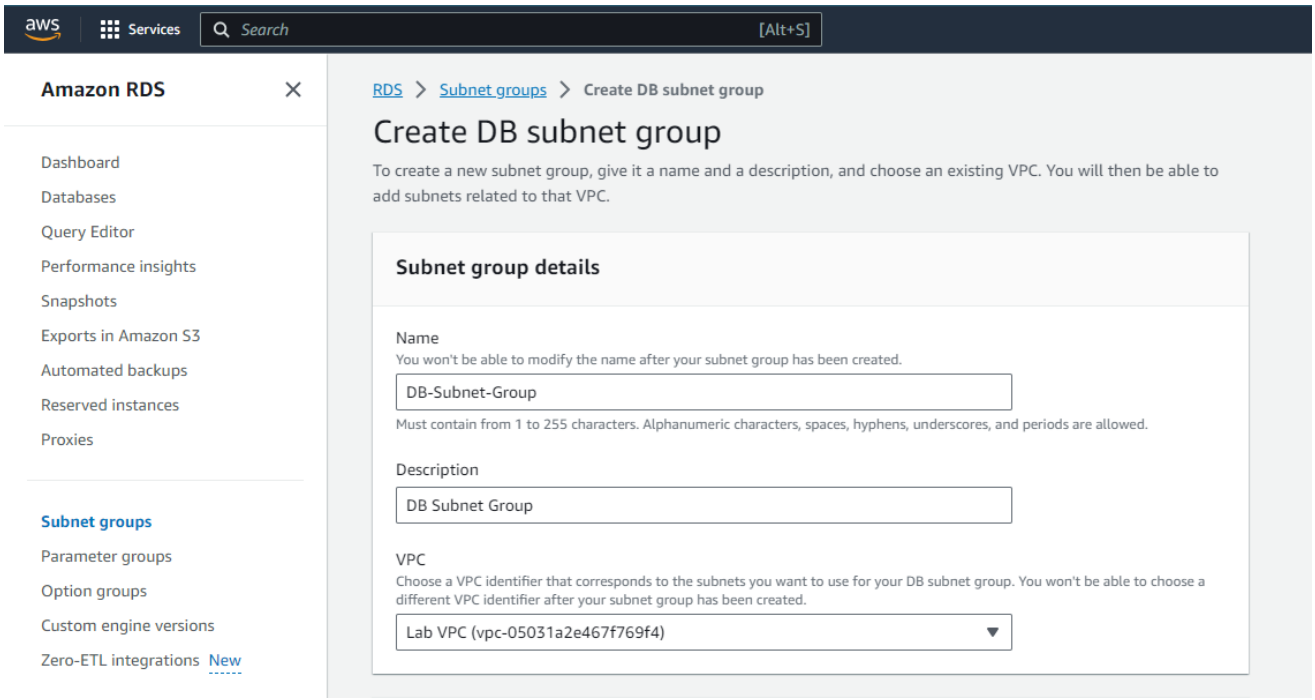

Figure 10: Create DB Subnet Group

14. Scroll down to the **Add Subnets** section.
15. Expand the list of values under **Availability Zones** and select the first two zones: **us-east-1a** and **us-east-1b**.
16. Expand the list of values under **Subnets** and select the subnets associated with the CIDR ranges **10.0.1.0/24** and **10.0.3.0/24**. These subnets should now be shown in the **Subnets selected** table.
17. Choose Create

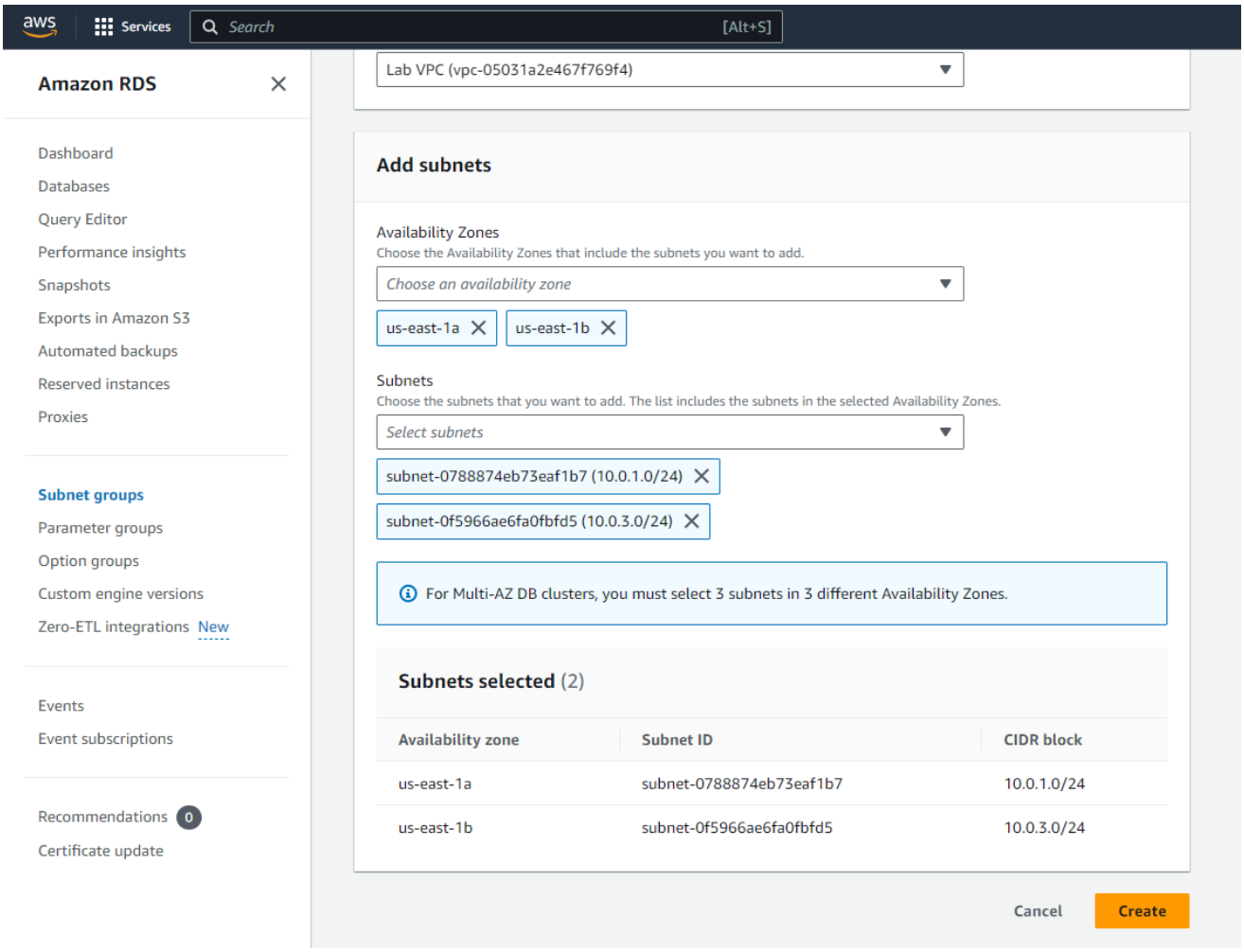

Figure 11: Choose Create

You will use this DB subnet group when creating the database in the next task.

Task 3: Create an Amazon RDS DB Instance

18. In the left navigation pane, choose **Databases**.
19. Choose Create database.

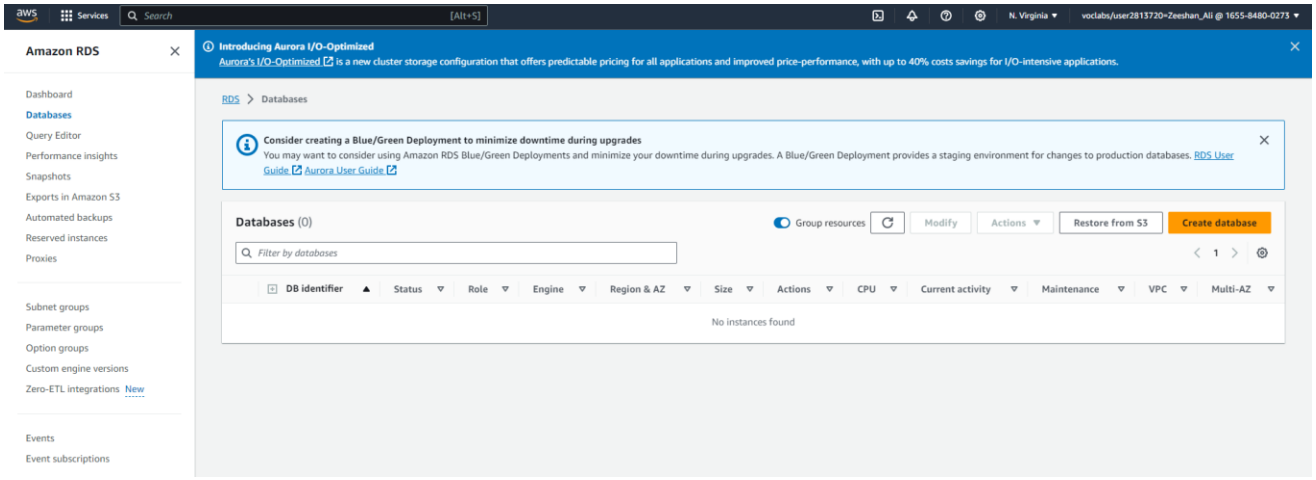

Figure 12: choose Databases.

20. Select **MySQL** under **Engine Options**.

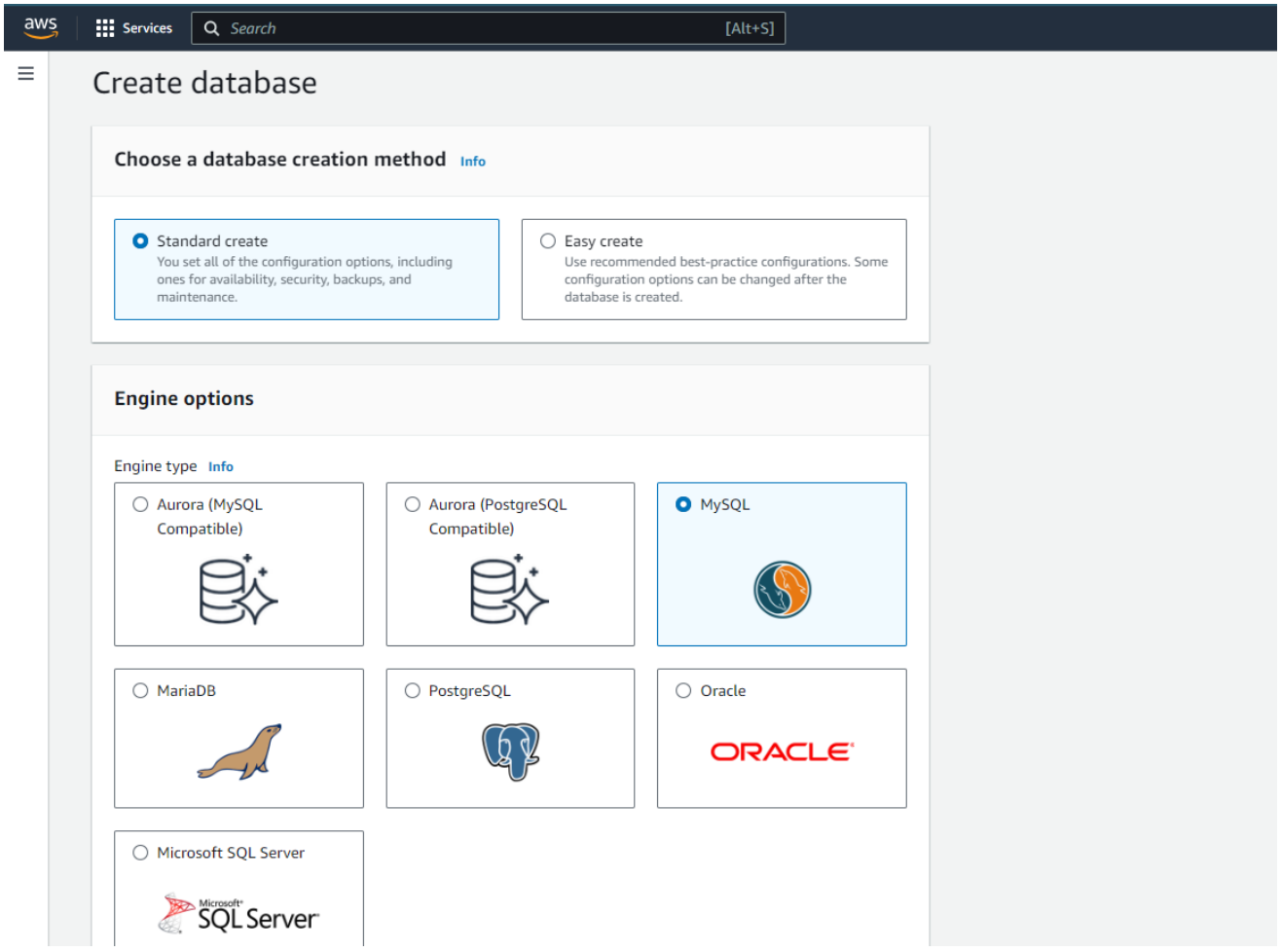

Figure 13: Select MySQL

21. Under **Templates** choose **Dev/Test**.
22. Under **Availability and durability** choose **multi-AZ DB instance**.

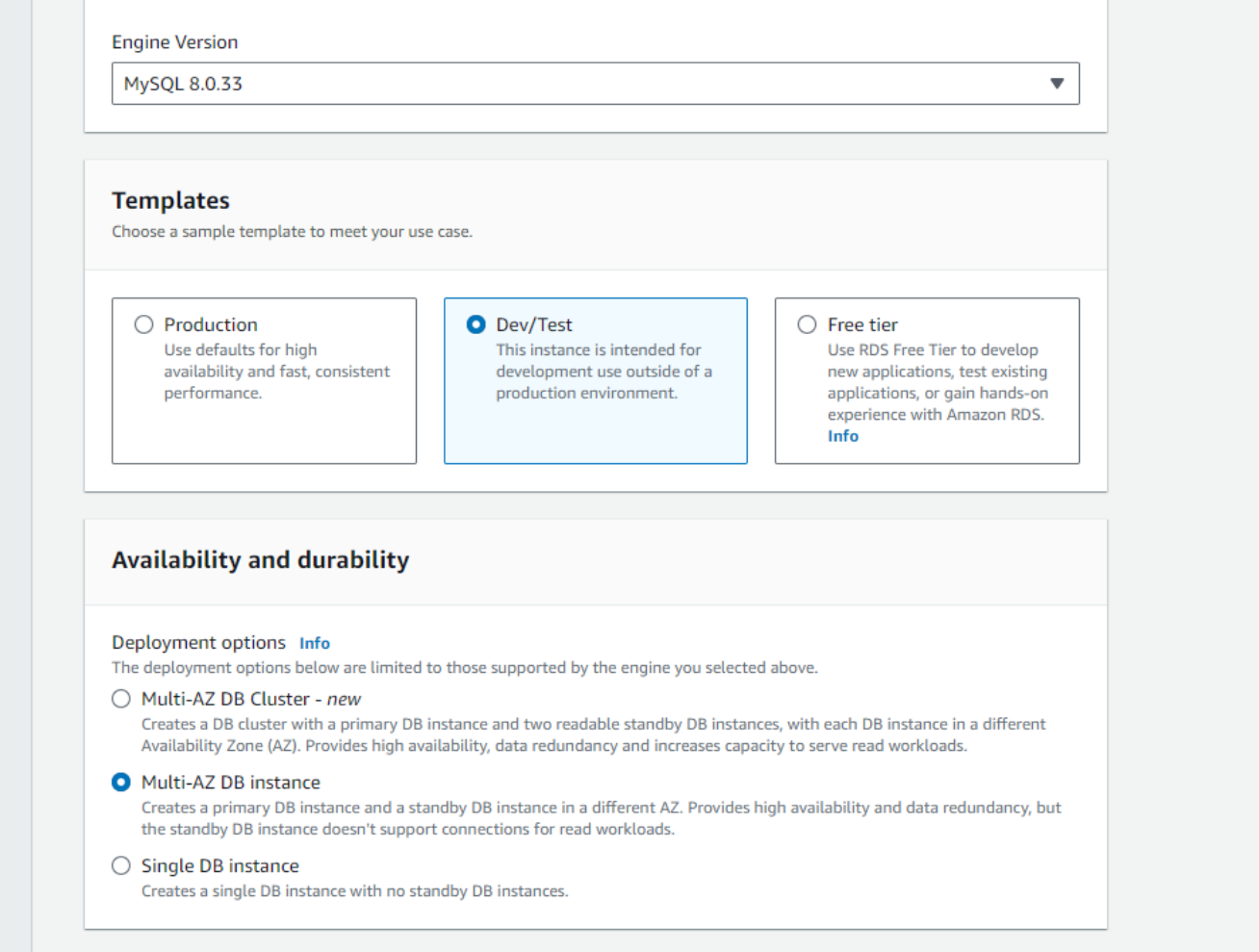

Figure 14: choose them.

23. Under **Settings**, configure:
    - **DB instance identifier:** lab-db
    - **Master username:** main
    - **Master password:** lab-password
    - **Confirm password:** lab-password

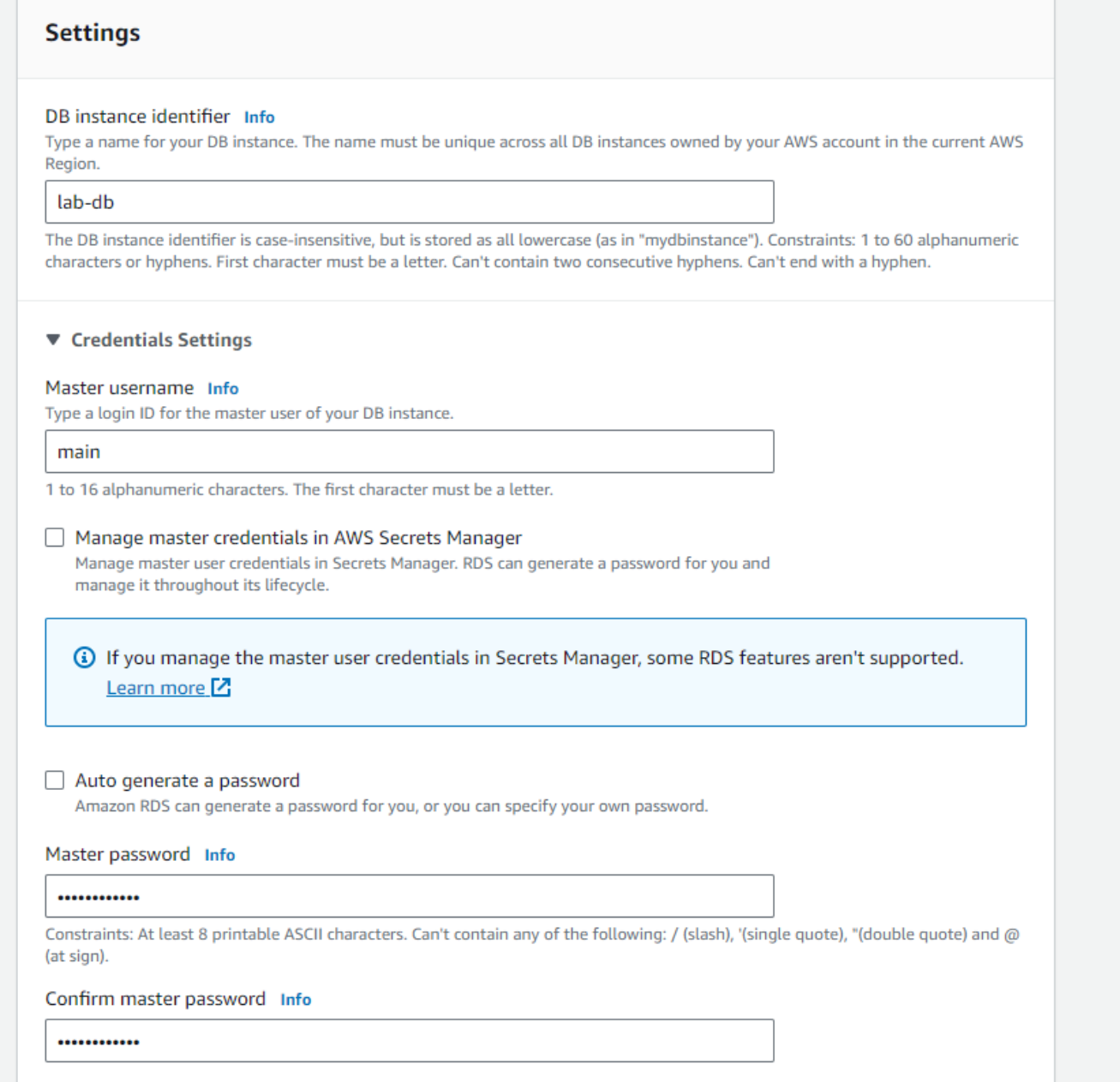

Figure 15: configure.

24. Under **DB instance class**, configure:
    - Select **Burstable classes (includes t classes)**.
    - Select *db.t3.micro*
25. Under **Storage**, configure:
    - **Storage type:** *General Purpose (SSD)*
    - **Allocated storage:** *20*

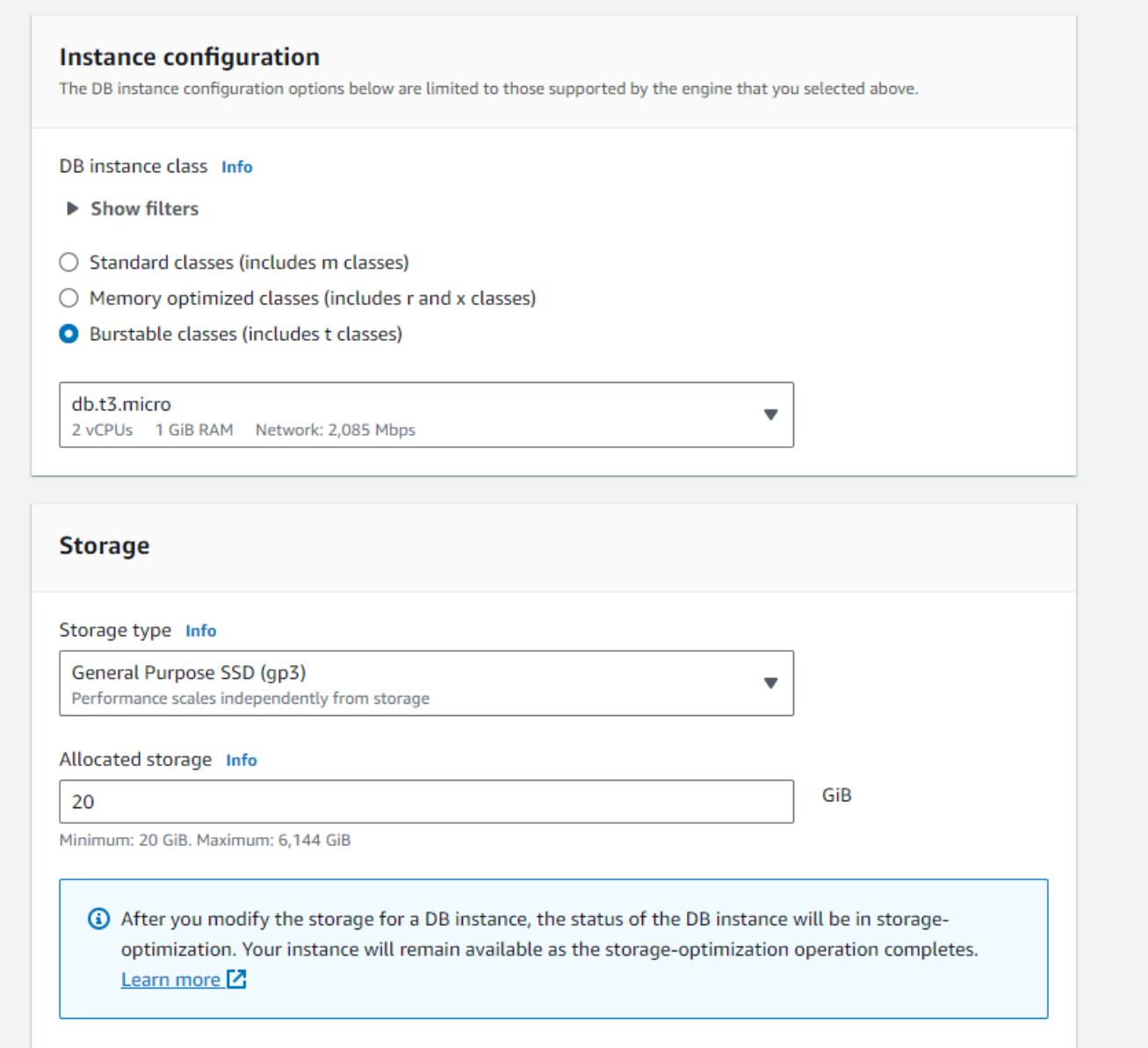

Figure 16: choose them.

26. Under **Connectivity**, configure:
    - **Virtual Private Cloud (VPC):** *Lab VPC*

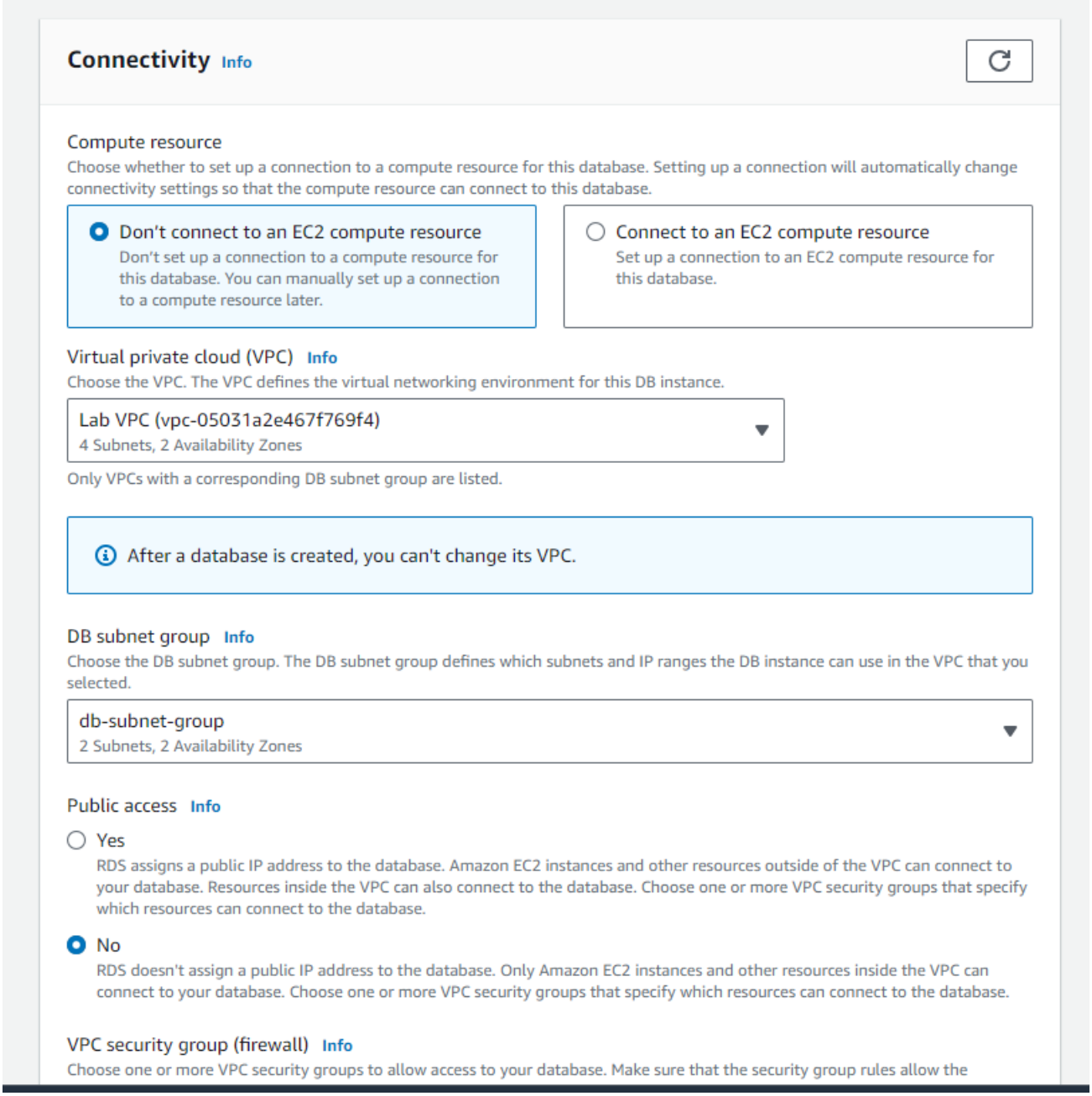

Figure 17: choose them.

27. Under **Existing VPC security groups**, from the dropdown list:
    - Choose *DB Security Group*.
    - Deselect *default*.

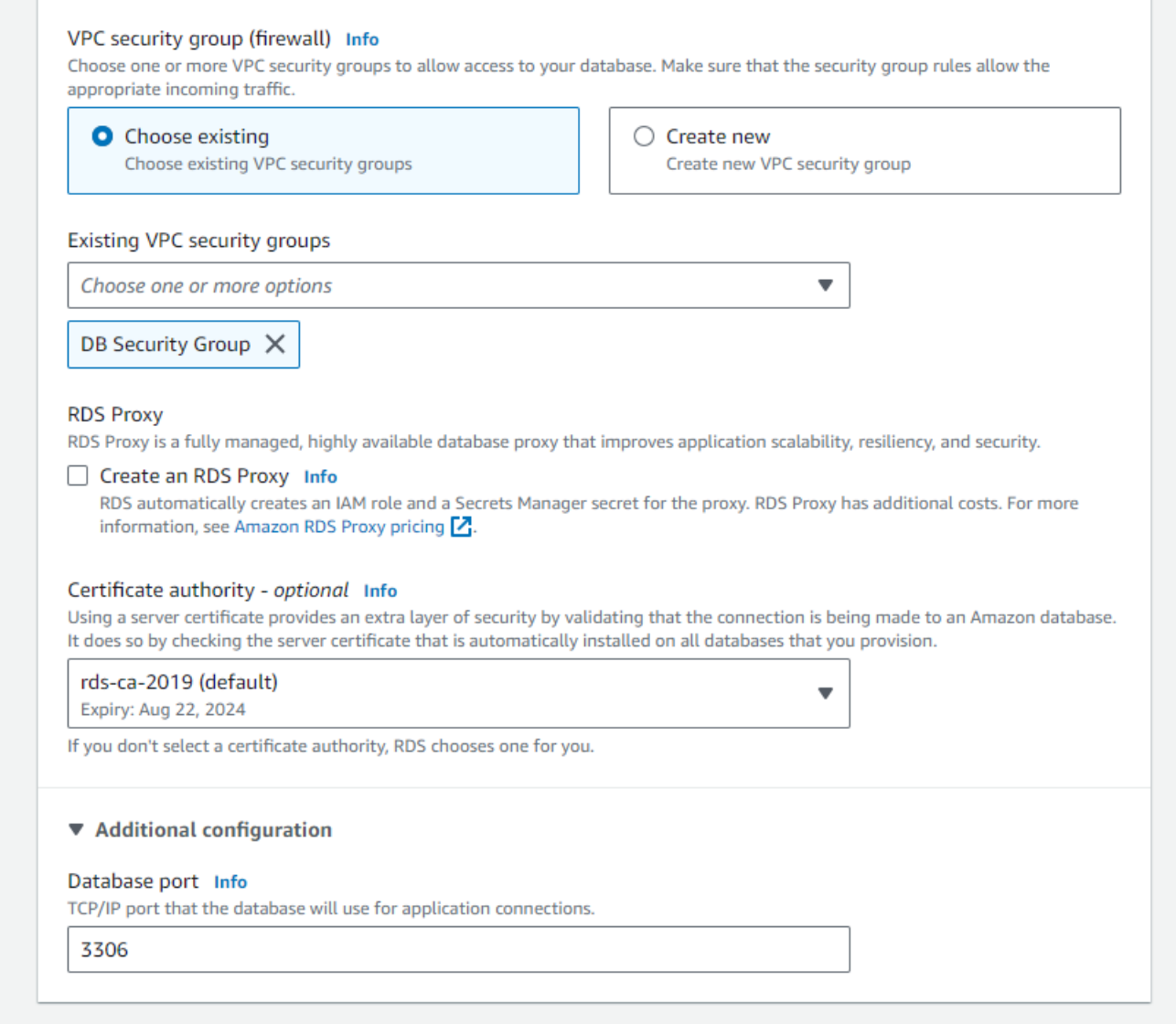

Figure 18: choose them.

28. Expand **Additional configuration**, then configure:
    - **Initial database name:** lab
    - Uncheck **Enable automatic backups**.
    - Uncheck **Enable encryption.**
    - Uncheck **Enable Enhanced monitoring**.

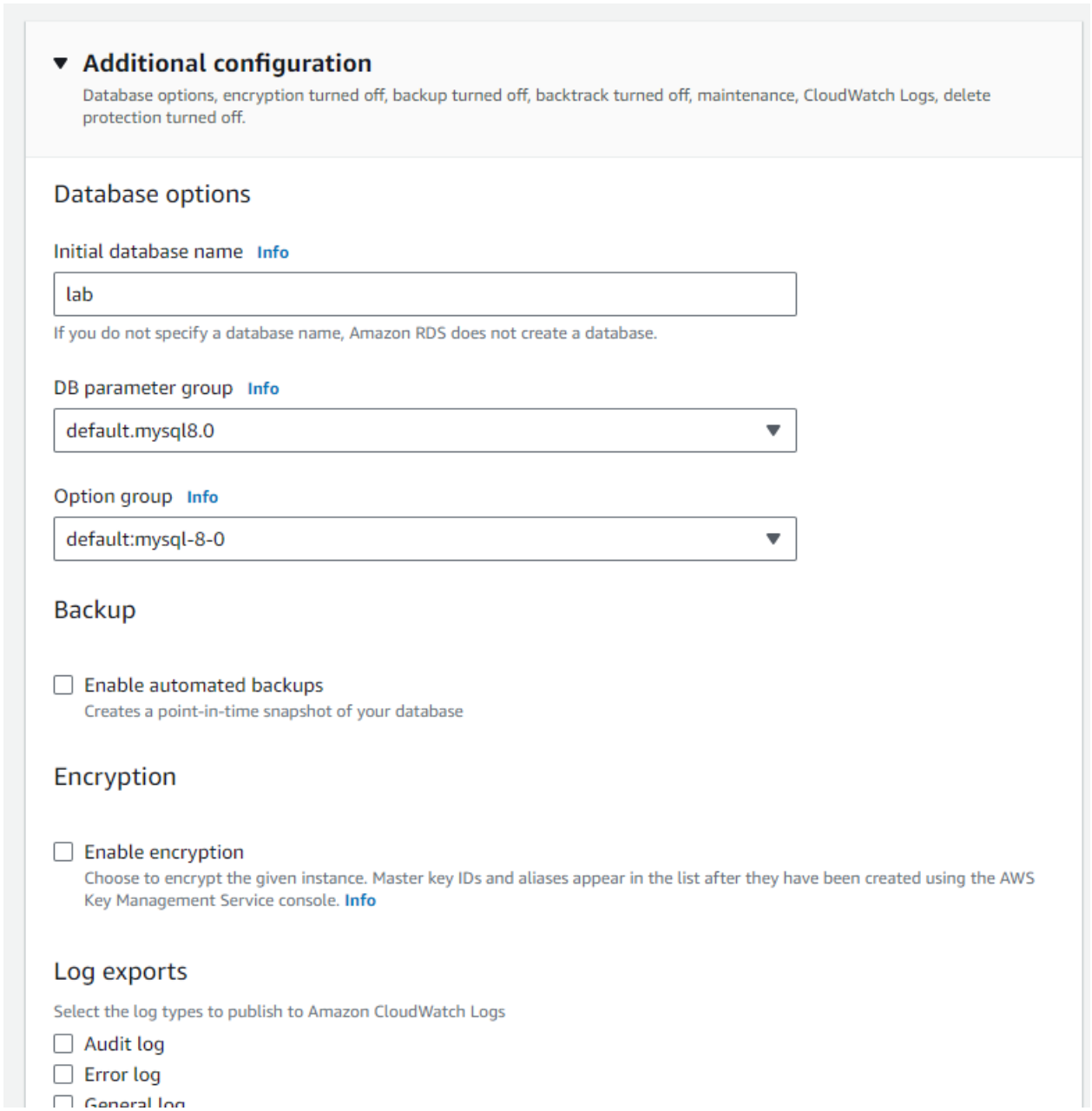

Figure 19: configure.

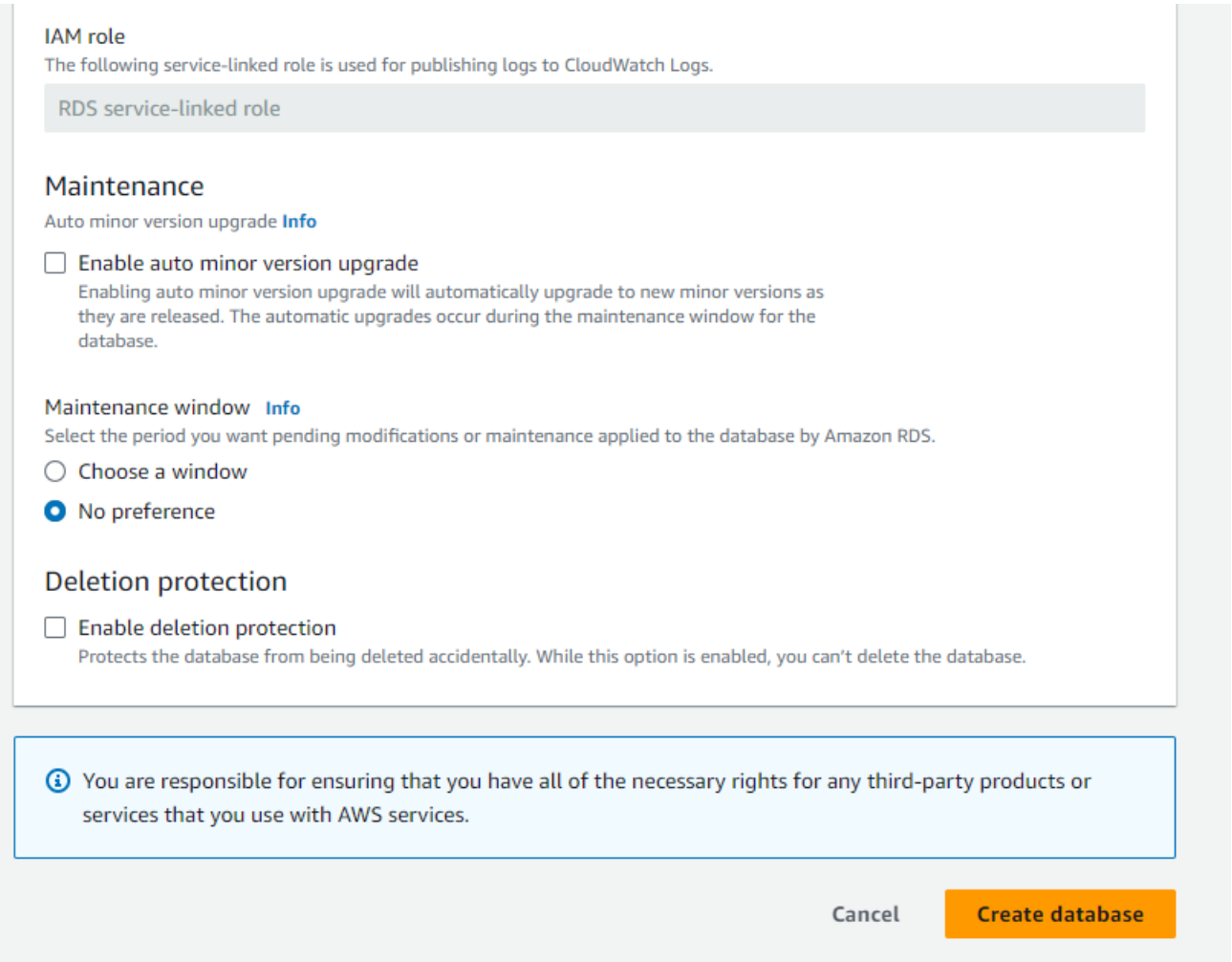

Figure 20: Create database.

29. Choose Create database. Your database will now be launched.

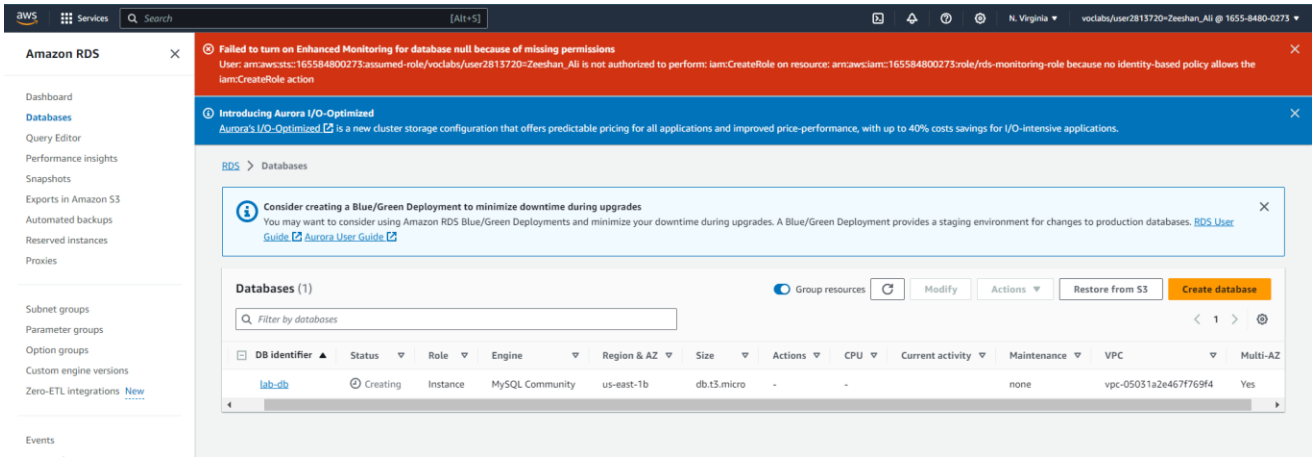

Figure 21: database will launch.

If you receive an error that mentions "not authorized to perform: iam:CreateRole", make sure you unchecked *Enable Enhanced monitoring* in the previous step.

30. Choose **lab-db** (choose the link itself).
31. Wait until **Info** changes to **Modifying** or **Available**.

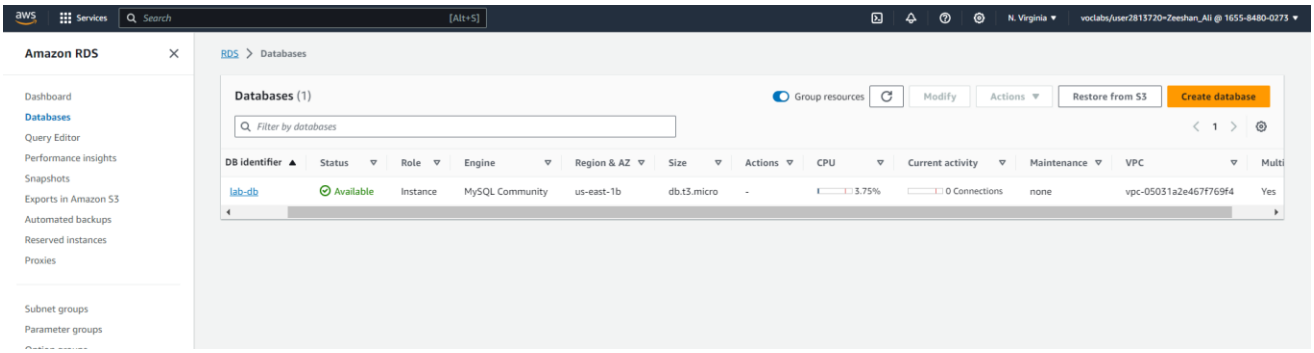

Figure 22: Info changes

32. Scroll down to the **Connectivity & security** section and copy the **Endpoint** field.

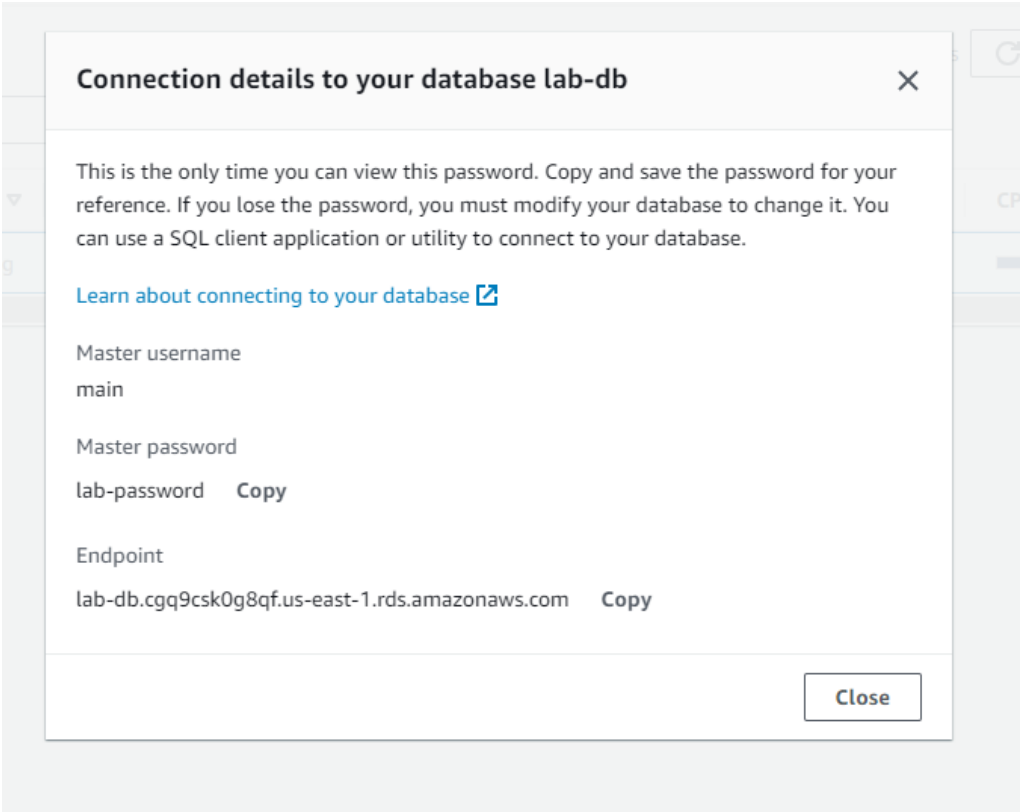

Figure 23: copy the Endpoint.

Task 4: Interact with Your Database

34. To copy the **WebServer** IP address, choose on the Details drop down menu above these instructions, and then choose Show.

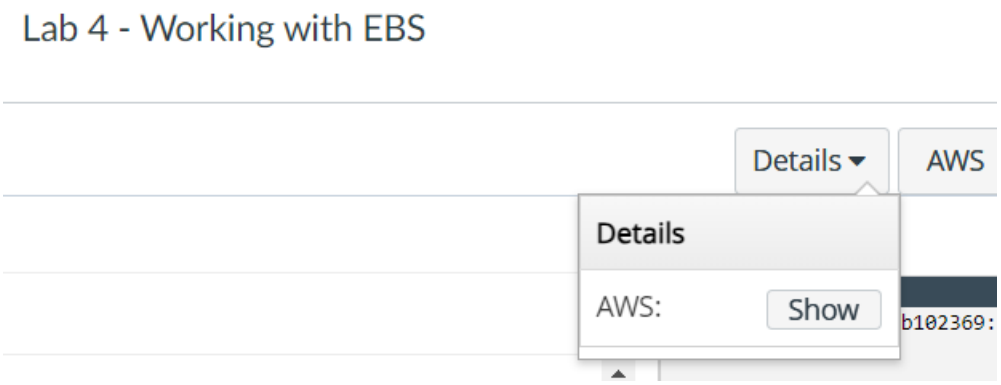

Figure 24: Details drop down menu.

35. Open a new web browser tab, paste the *WebServer* IP address and press Enter.

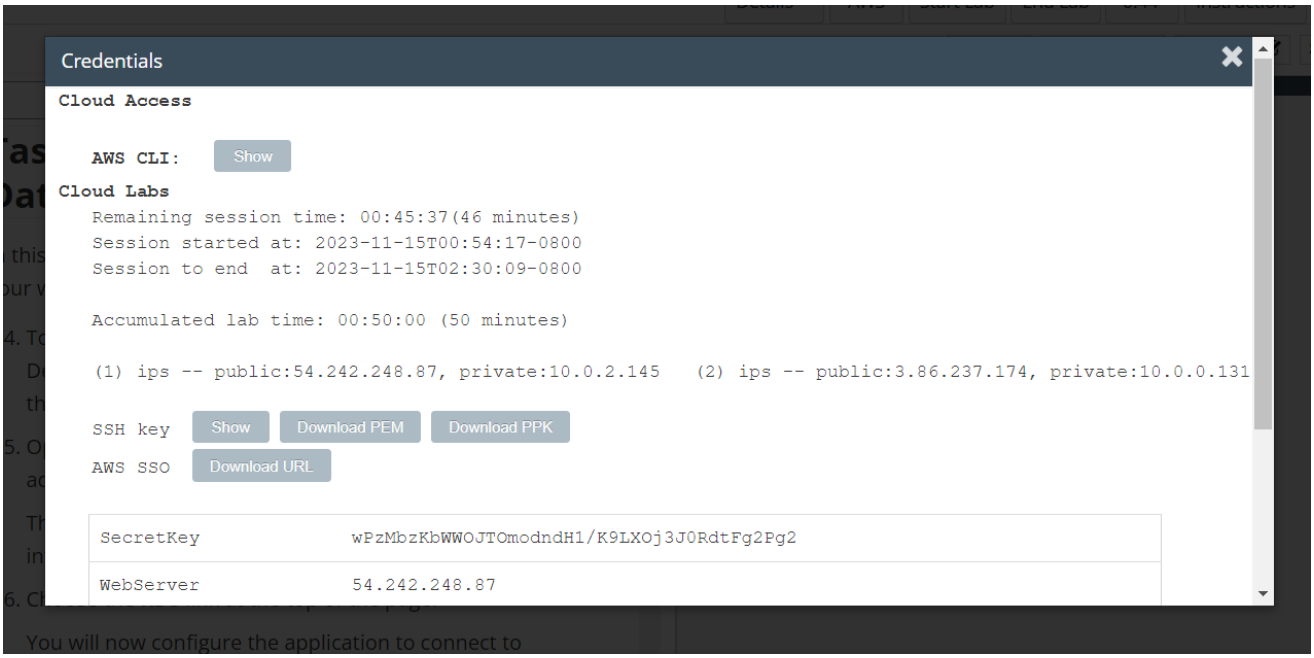

Figure 25: Webserver IP address

Figure 26: Webserver IP address

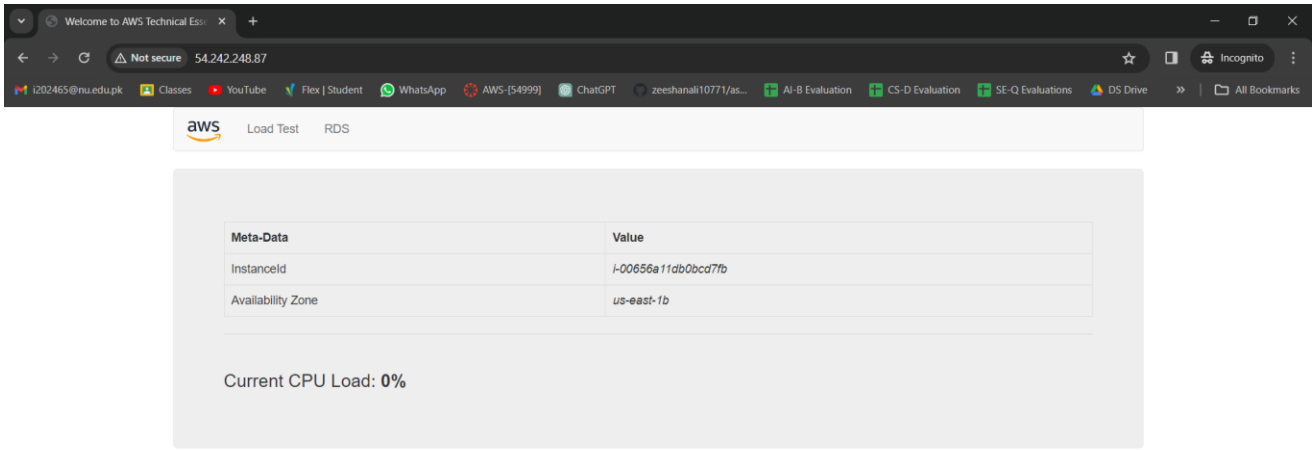

Figure 27: Webserver

36. Choose the **RDS** link at the top of the page.
37. Configure the following settings:
    - **Endpoint:** Paste the Endpoint you copied to a text editor earlier
    - **Database:** lab
    - **Username:** main
    - **Password:** lab-password
    - Choose **Submit**

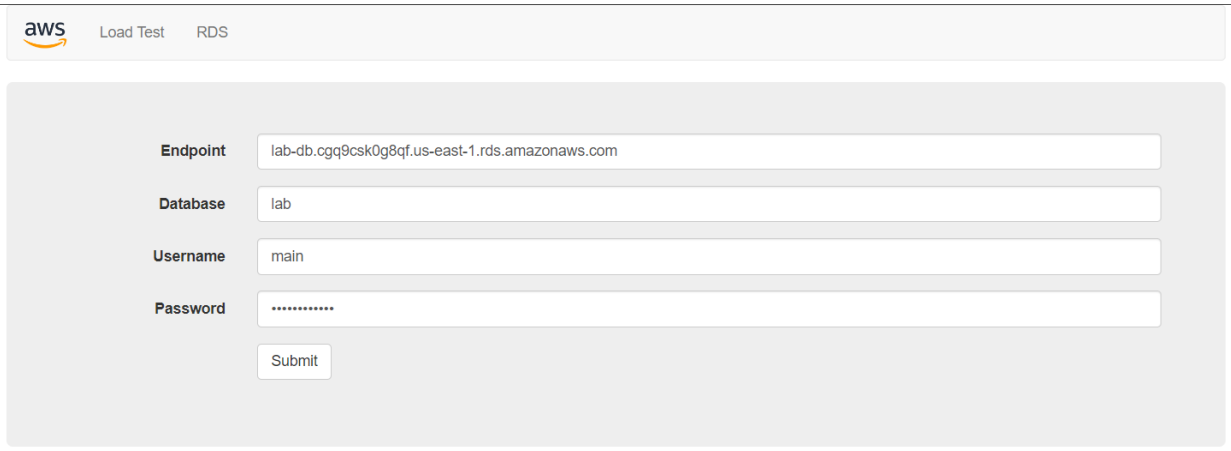

Figure 28: Configure RDS

A message will appear explaining that the application is running a command to copy information to the database. After a few seconds the application will display an **Address Book**.

The Address Book application uses the RDS database to store information.

38. Test the web application by adding, editing and removing contacts.

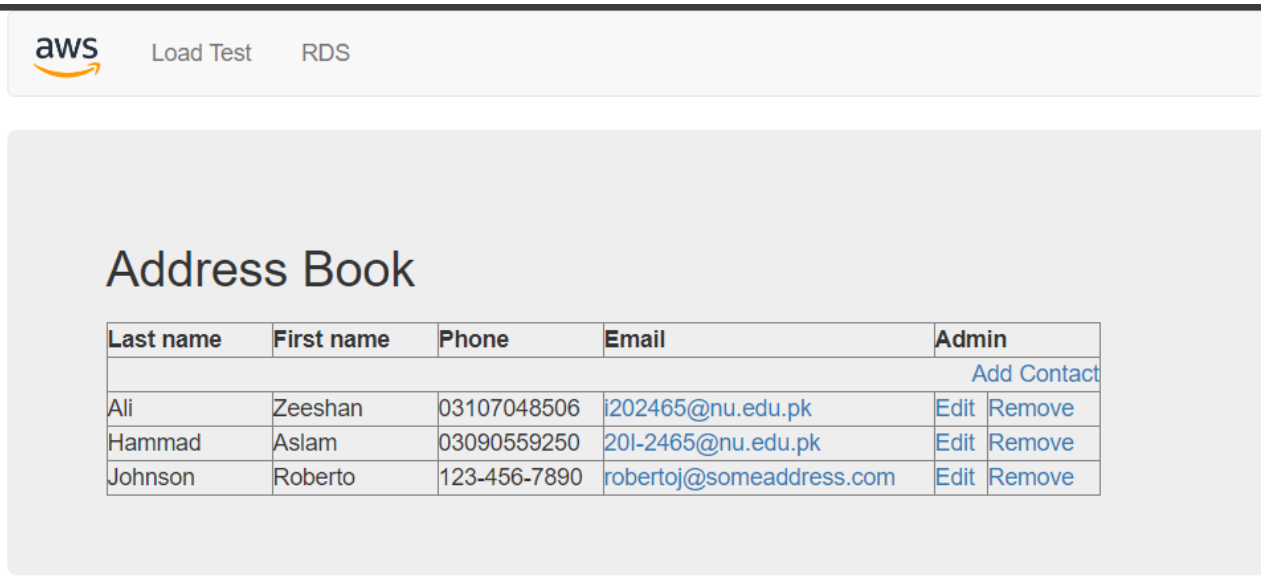

Figure 29: Address Book

Lab Complete

39. Choose End Lab at the top of this page and then choose Yes to confirm that you want to end the lab.

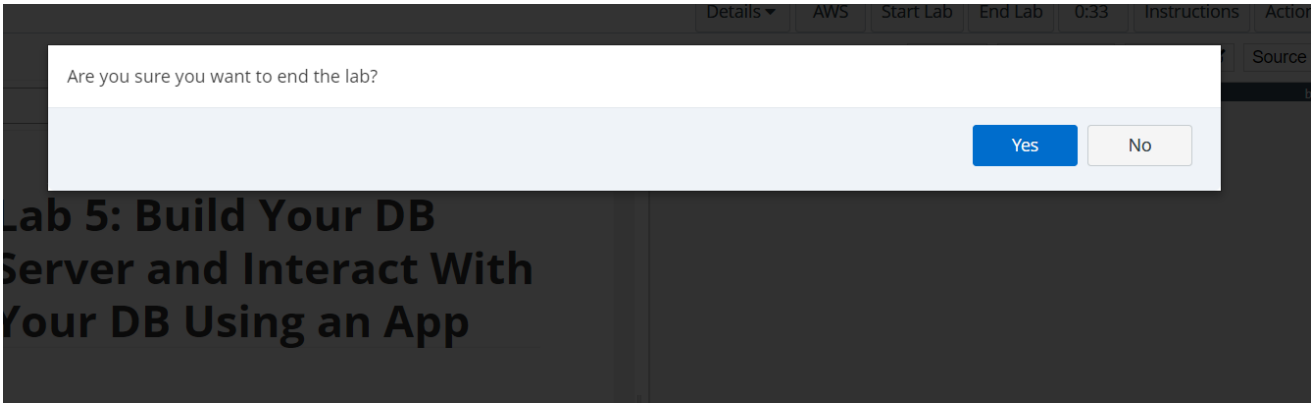

Figure 30: end the lab.

A panel will appear, indicating that "DELETE has been initiated... You may close this message box now."

40. Choose the **X** in the top right corner to close the panel.

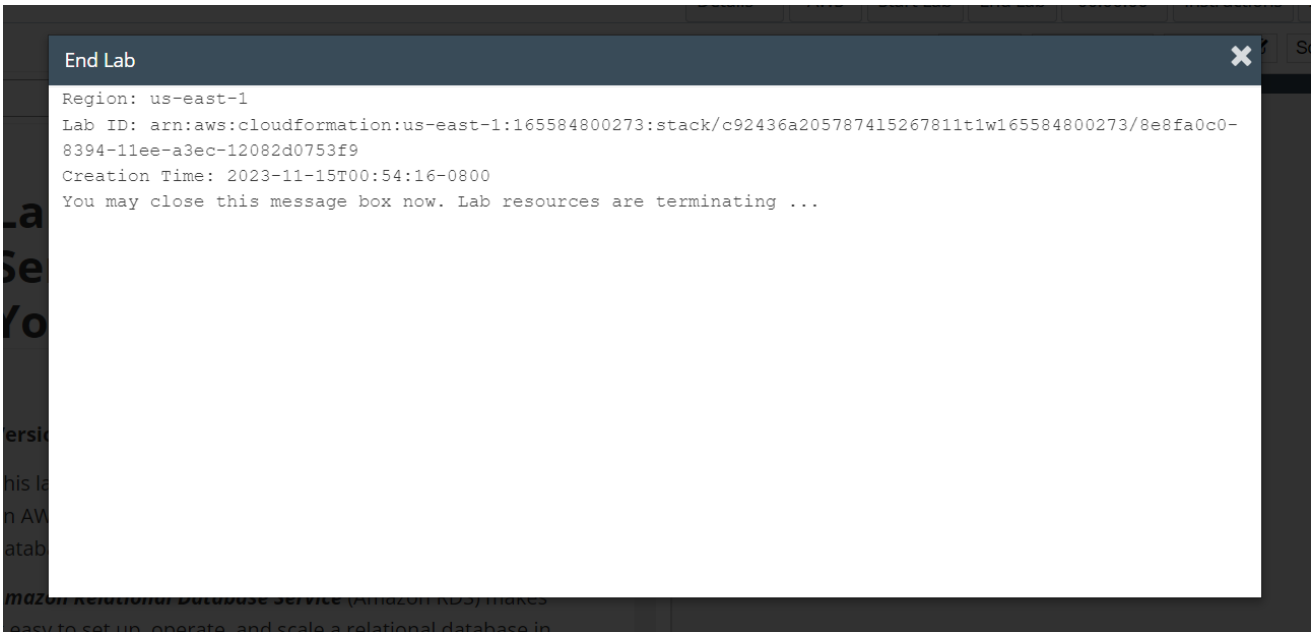

Figure 31: close the panel.