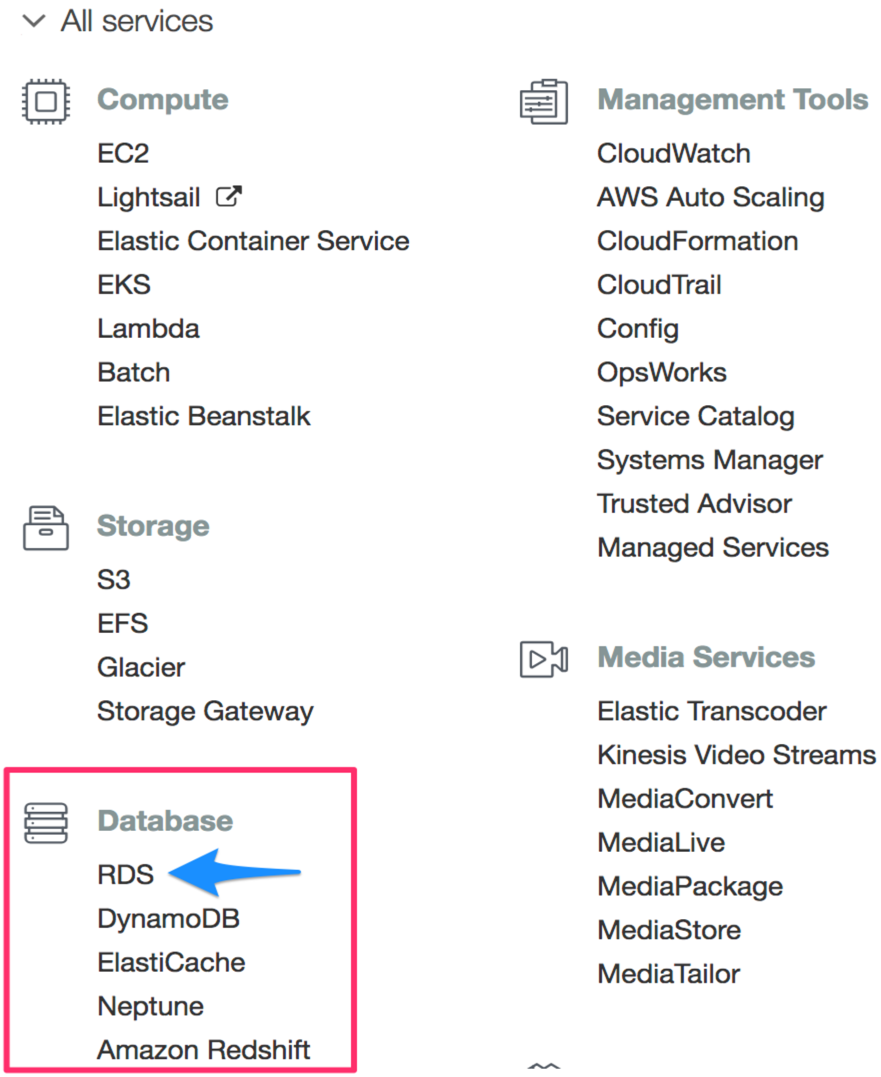
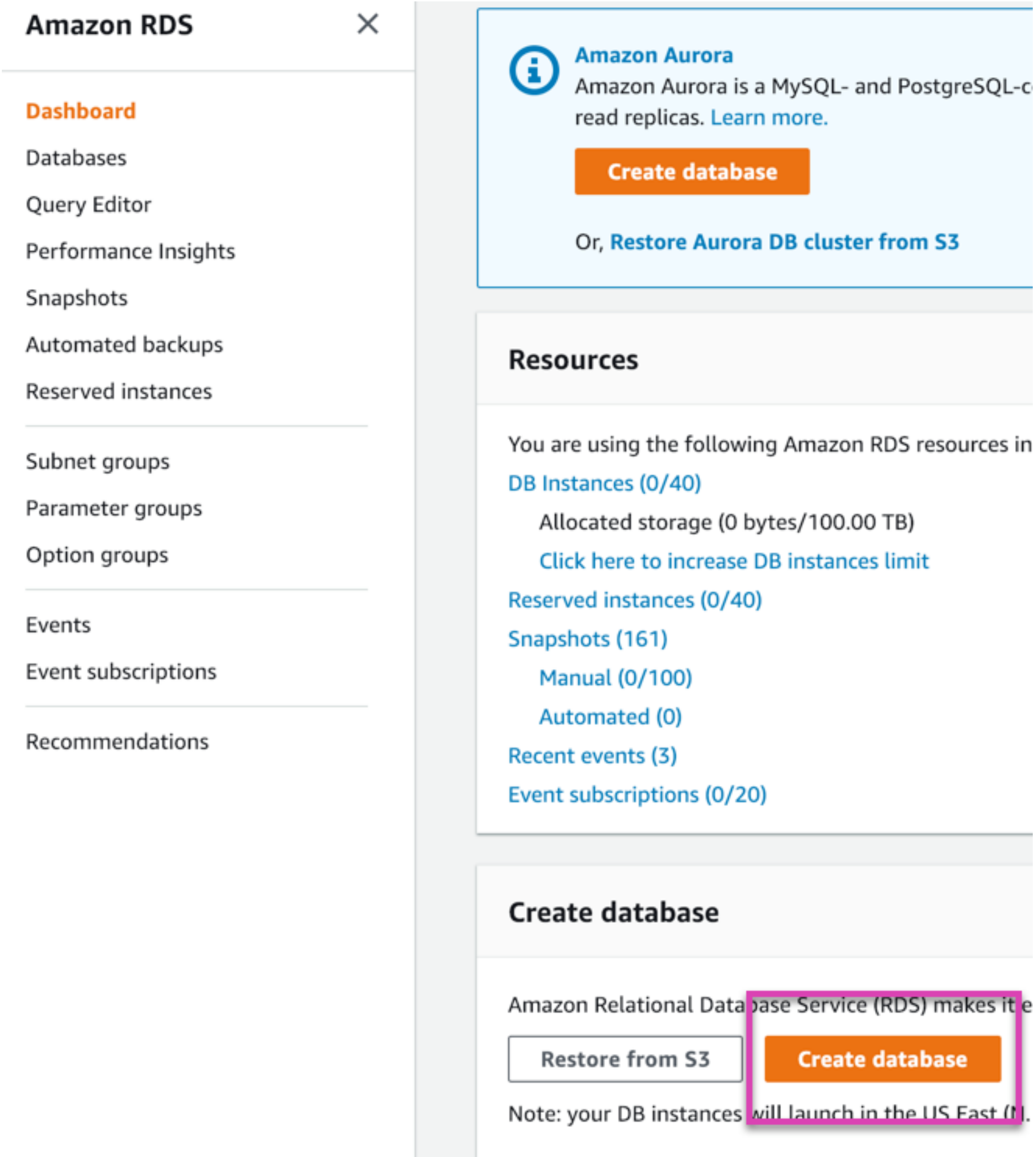
Creating a PostgreSQL Database in AWS RDS

- Log in to the AWS Management Console and navigate to the **RDS** section under **Database.**



- Scroll down to the "Create database" section and click the **Create database** button.
- **Note:** AWS may have a different screen than the one pictured below. If this is the first time using the service, the orange **Create database** will still be at the bottom.

- **Important!** Do not to click the **Create database** button at the top under the "Amazon Aurora" section.



Amazon Aurora

Amazon Aurora is a MySQL- and PostgreSQL-c
read replicas. Learn more.

Or, Restore Aurora DB cluster from S3

Resources

You are using the following Amazon RDS resources in

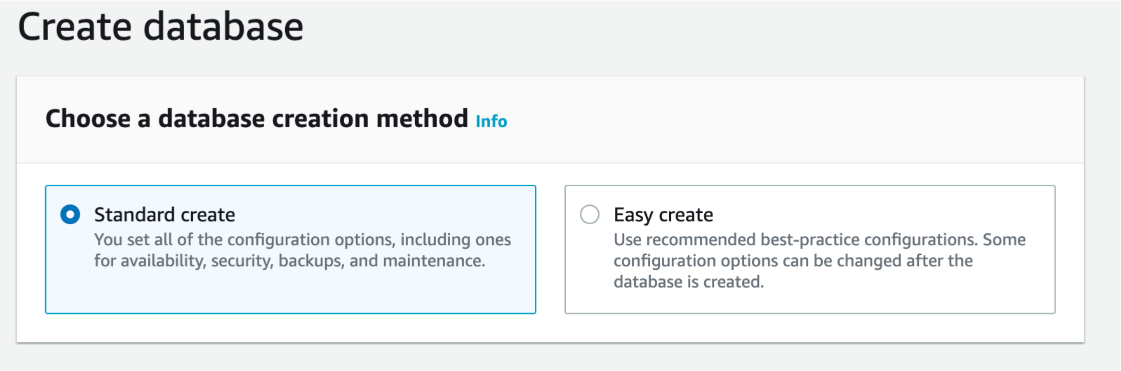
DB Instances (0/40)
Allocated storage (0 bytes/100.00 TB)
Click here to increase DB instances limit
Reserved instances (0/40)
Snapshots (161)
Manual (0/100)
Automated (0)
Recent events (3)
Event subscriptions (0/20)

Create database

Amazon Relational Database Service (RDS) makes it e

Note: your DB instances will launch in the US East (N.

- After clicking the **Create database** button, you will be redirected to the "Create database" page to begin the configuration of your database.
  - **Note:** On the new database creation flow, you will see a "Create database" section with two options. If students see this page, tell them to select the "standard create" option; this is where we'll set all the configuration options.



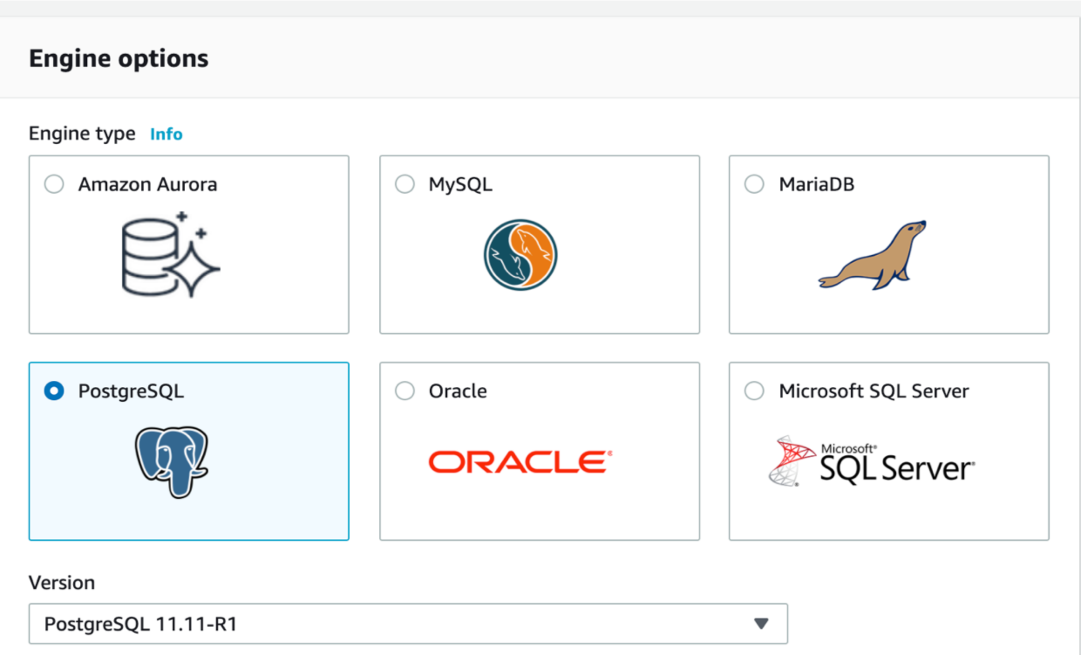
Create database

Choose a database creation method Info

● 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.

- Next, in the "Engine options" section, select **PostgreSQL** and version `11.11-R1` is sufficient.



Engine options

Engine type Info

○ Amazon Aurora

○ MySQL

○ MariaDB

● PostgreSQL

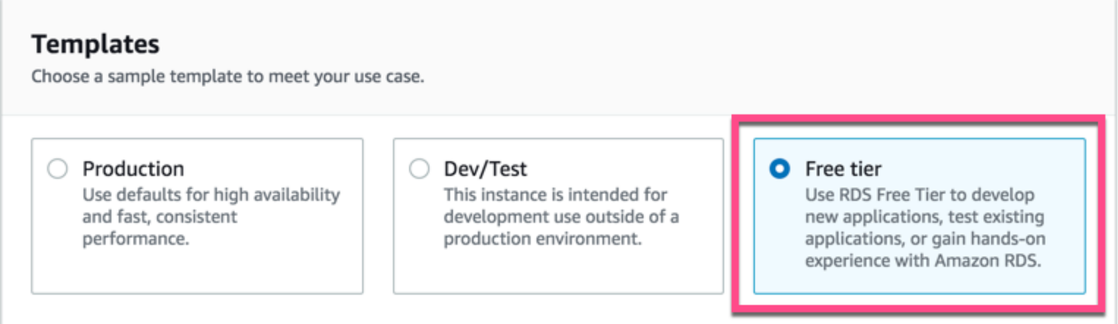
○ Oracle

○ Microsoft SQL Server

Version

PostgreSQL 11.11-R1 ▼

- If available, under **Templates**, select **Free Tier**.



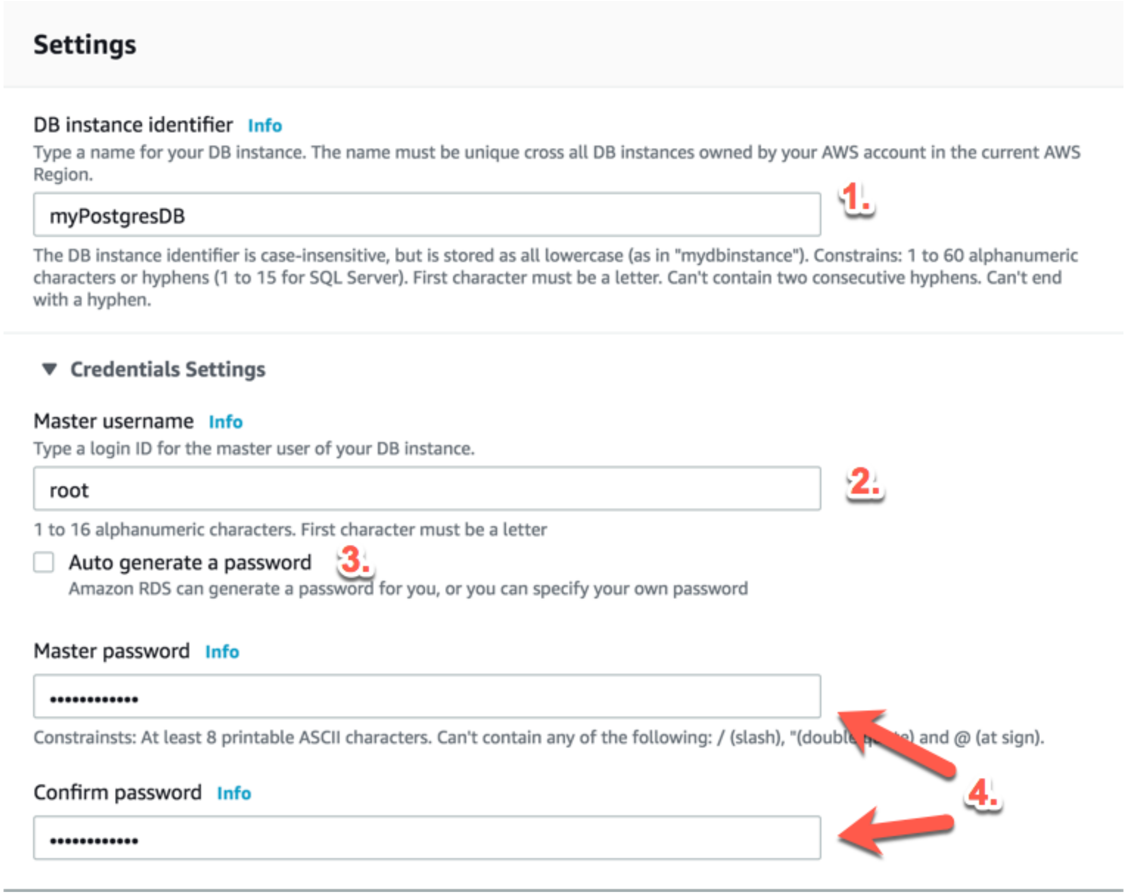
Templates
Choose a sample template to meet your use case.

○ Production
Use defaults for high availability and fast, consistent performance.

○ Dev/Test
This instance is intended for development use outside of a production environment.

● Free tier
Use RDS Free Tier to develop new applications, test existing applications, or gain hands-on experience with Amazon RDS.

- Fill out the fields under “Settings.”
    - In **step 1**, give your database instance identifier the name `myPostgresDB`, and in **step 2**, use `root` as the master username.
        - **Note**: Although the database instance identifier and master username can take any name you choose, we recommend sticking to these settings in this case for consistency.
    - In **step 3**, uncheck the “Auto generate password” box.
    - In **step 4**, enter a password and be sure to record it somewhere. The other settings will be accessible in the future, but the password will not.



Settings

DB instance identifier Info

Type a name for your DB instance. The name must be unique cross all DB instances owned by your AWS account in the current AWS Region.

myPostgresDB

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constrains: 1 to 60 alphanumeric characters or hyphens (1 to 15 for SQL Server). 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 16 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

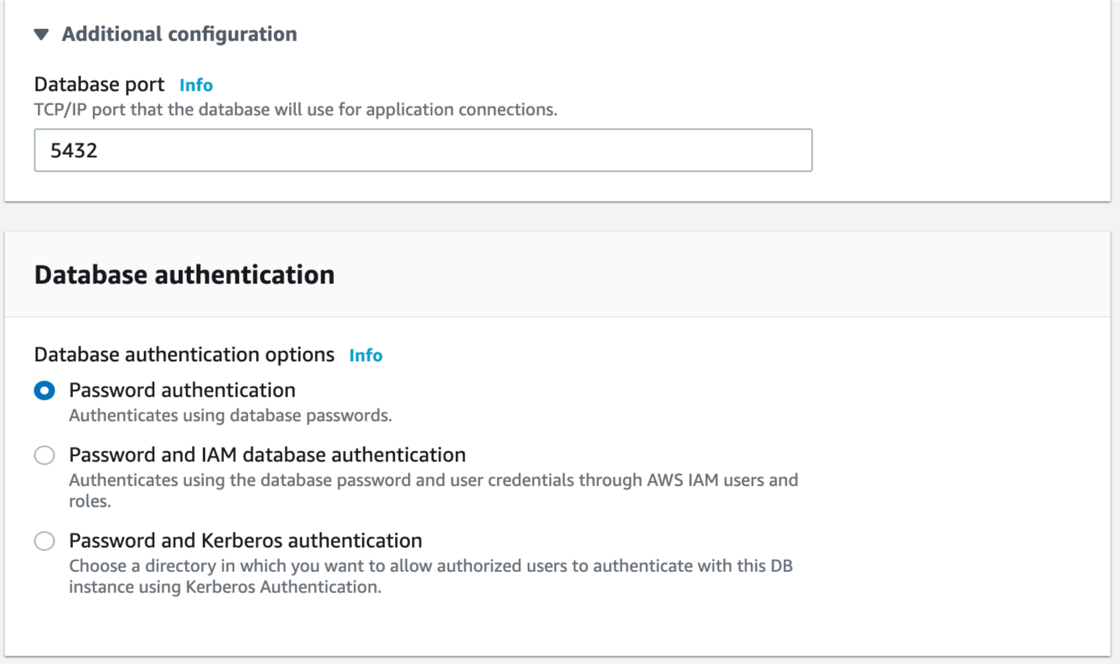
••••••••••••

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

Confirm password Info

••••••••••••

- In the “Additional configuration” section, make sure the port is `5432`, and “Password authentication” is selected in the “Database authentication” section.



▼ **Additional configuration**

Database port Info

TCP/IP port that the database will use for application connections.

5432

Database authentication

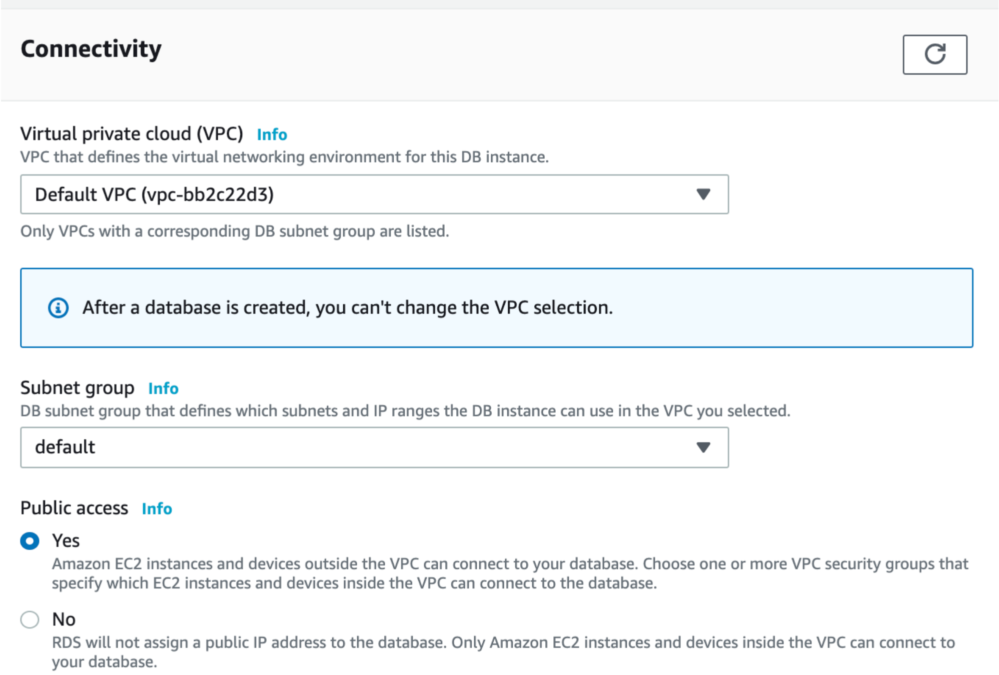
Database authentication options Info

● Password authentication
Authenticates using database passwords.

○ Password and IAM database authentication
Authenticates using the database password and user credentials through AWS IAM users and roles.

○ Password and Kerberos authentication
Choose a directory in which you want to allow authorized users to authenticate with this DB instance using Kerberos Authentication.

- In the “Connectivity” section, select “Yes” under the “Public accessibility” option.
    - Explain that this does not mean anyone can access the database, as a password is still required, but it allows connections from outside sources like pgAdmin.



Connectivity

Virtual private cloud (VPC) Info

VPC that defines the virtual networking environment for this DB instance.

Default VPC (vpc-bb2c22d3) ▼

Only VPCs with a corresponding DB subnet group are listed.

ⓘ After a database is created, you can't change the VPC selection.

Subnet group Info

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

default ▼

Public access Info

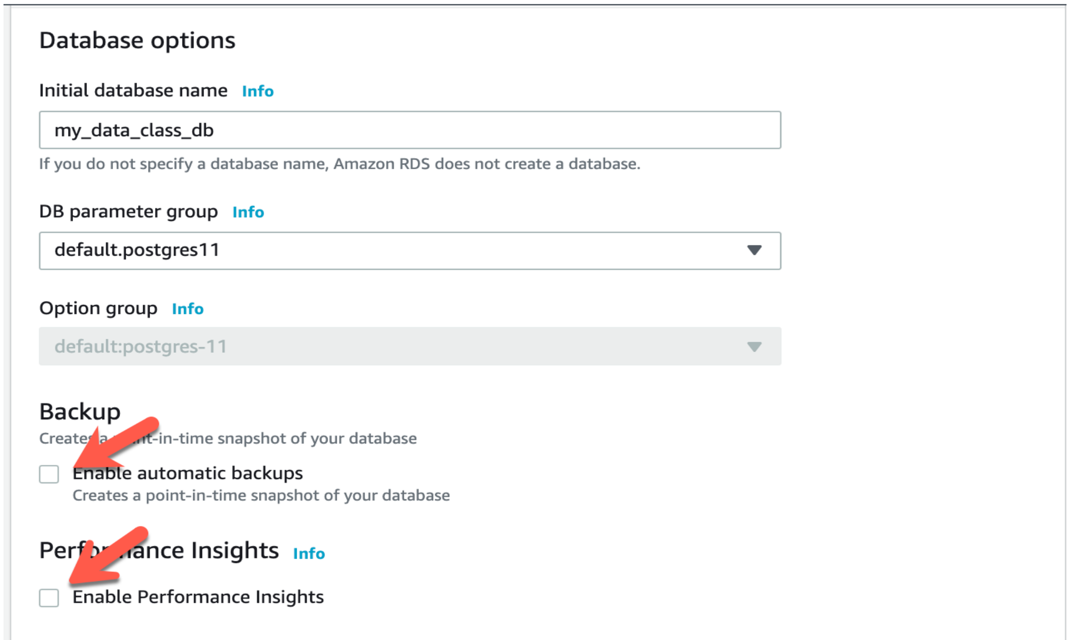
● Yes
Amazon EC2 instances and devices outside the VPC can connect to your database. Choose one or more VPC security groups that specify which EC2 instances and devices inside the VPC can connect to the database.

○ No
RDS will not assign a public IP address to the database. Only Amazon EC2 instances and devices inside the VPC can connect to your database.

- Next, in the “Additional configuration” section, click the down arrow to show the “Database options” fields.

- Name your database **my_data_class_db** for the sake of consistency. Keep the default settings in the other fields.

- And, in the “Backup” section, **uncheck** the boxes for “Enable automatic backups” and “Enable Performance Insights.”



Database options

Initial database name

my_data_class_db

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

DB parameter group

default.postgres11

Option group

default:postgres-11

Backup

Creates a point-in-time snapshot of your database

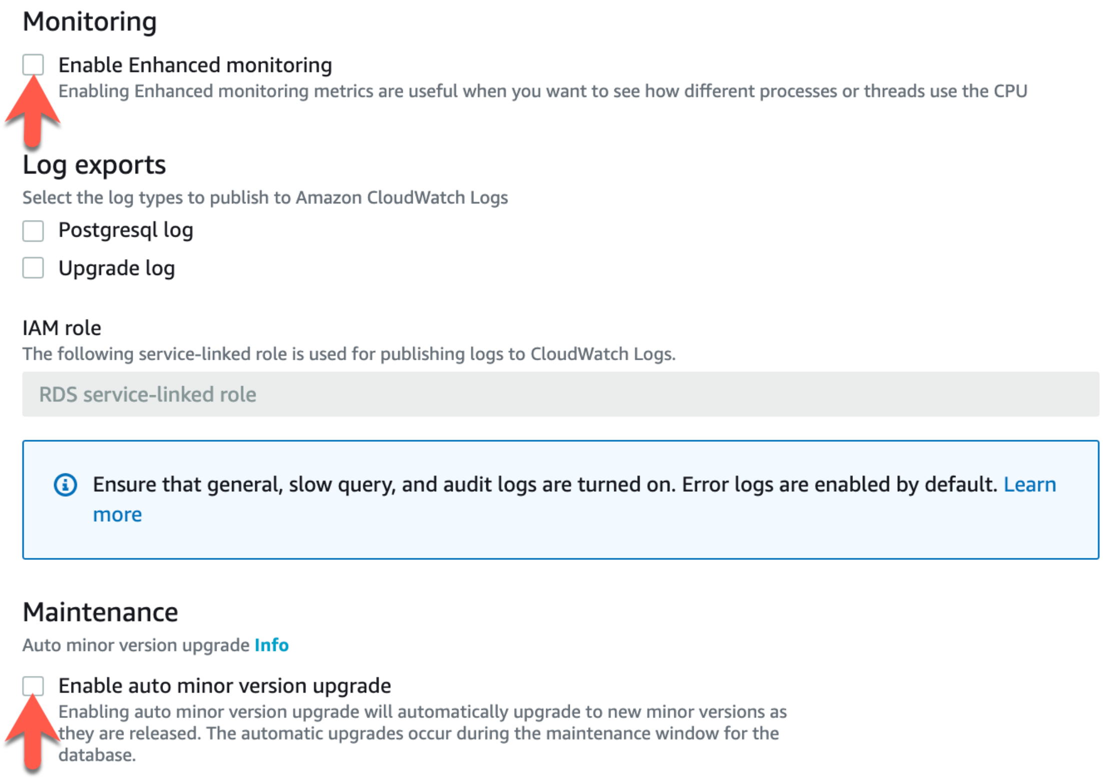
□ Enable automatic backups

Creates a point-in-time snapshot of your database

Performance Insights

□ Enable Performance Insights

- **Uncheck** the boxes for “Enable Enhanced Monitoring” and “Enable auto minor version upgrade.”



Monitoring

□ 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

□ Postgresql log

□ Upgrade log

IAM role

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

RDS service-linked role

ⓘ Ensure that general, slow query, and audit logs are turned on. Error logs are enabled by default. Learn more

Maintenance

Auto minor version upgrade Info

□ Enable auto minor version upgrade
Enabling auto minor version upgrade will automatically upgrade to new minor versions as they are released. The automatic upgrades occur during the maintenance window for the database.

- Click **Create Database** followed by **View DB Instance details** to navigate to the instance console page. The database creation on AWS’s end will take anywhere from 10 to 15 minutes.