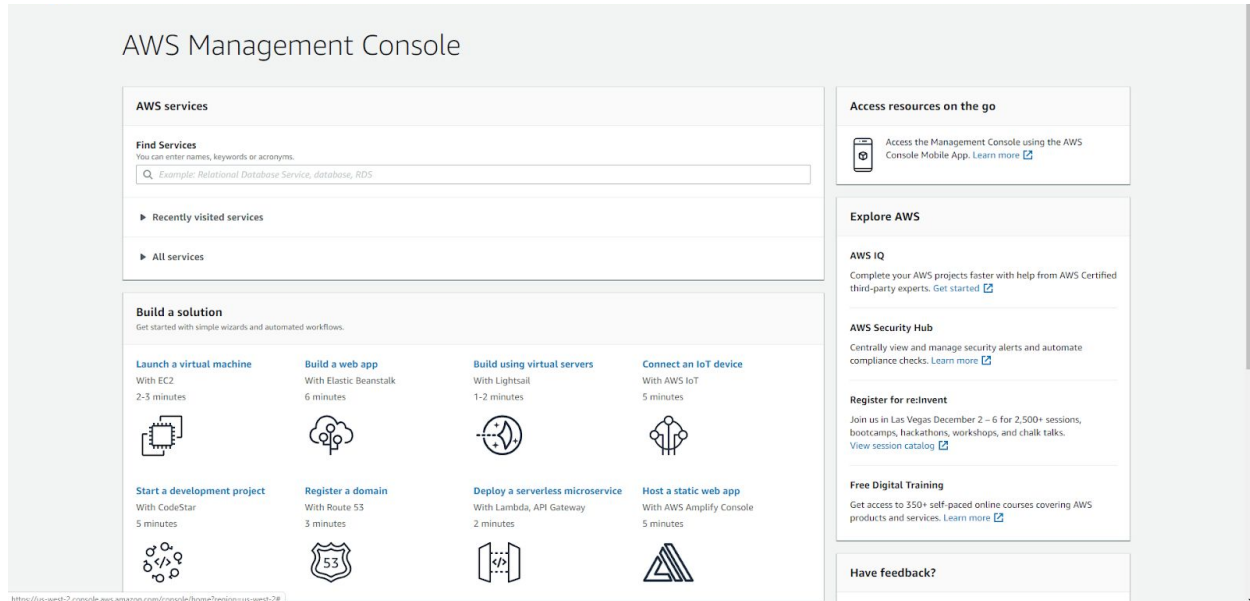


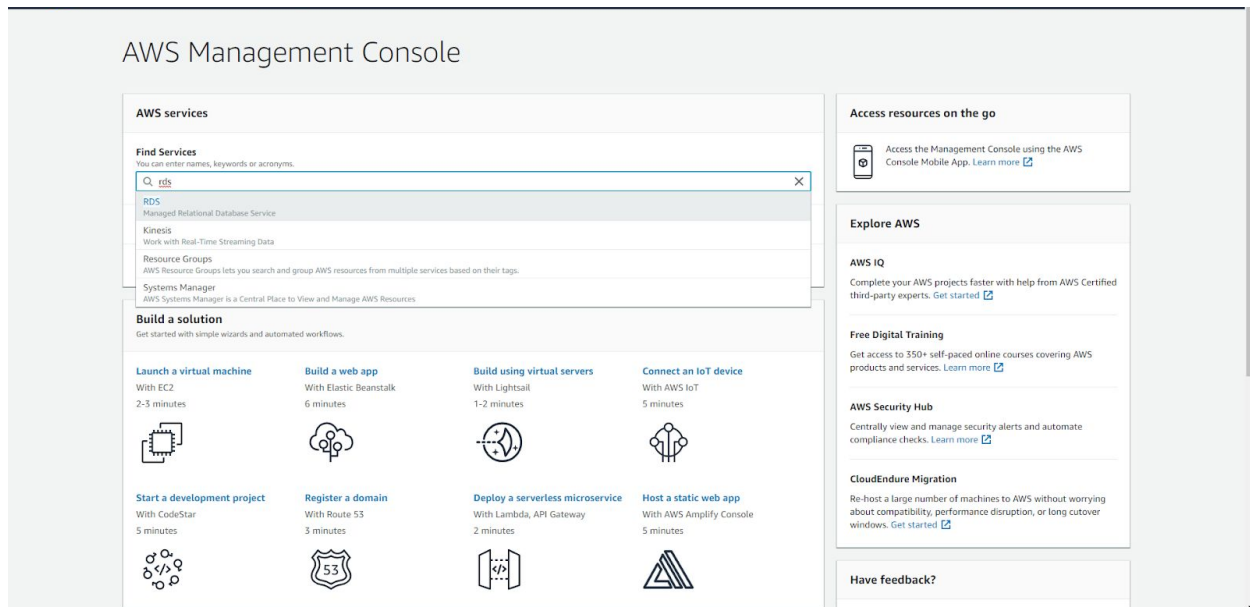
Demonstrate the activation of RDS and Cloud9

In this Amazon RDS database set up example, I'll be initializing a photo database within AWS RDS to run within an Amazon VPC created during setup.

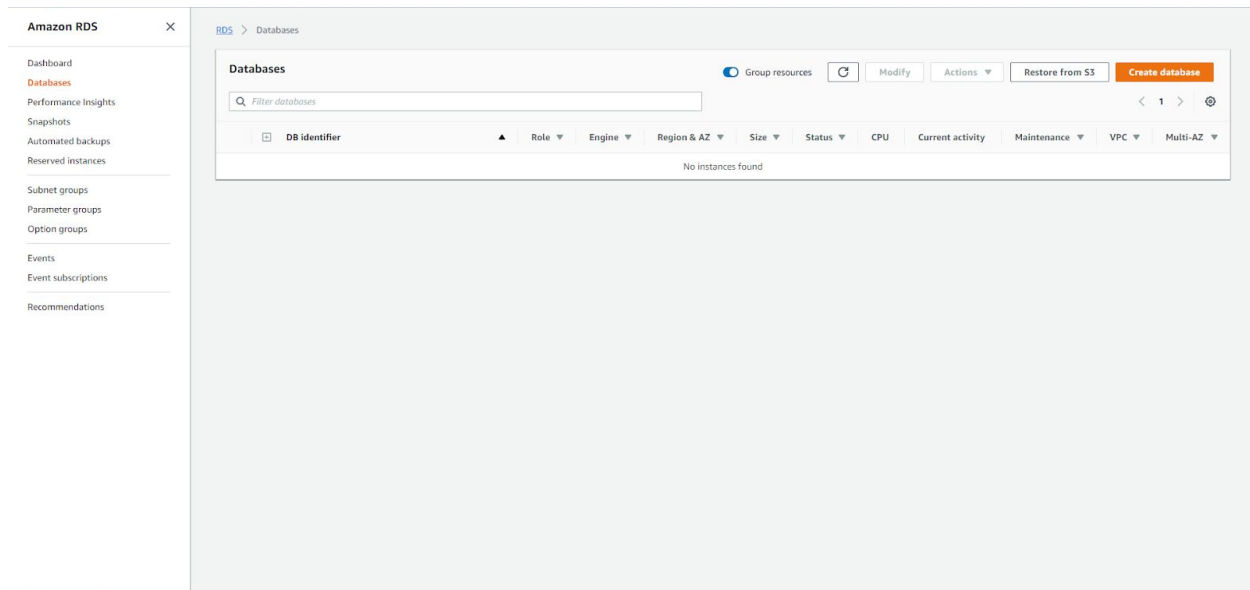
1)At the AWS console make sure Oregon AZ is selected in the top right corner.



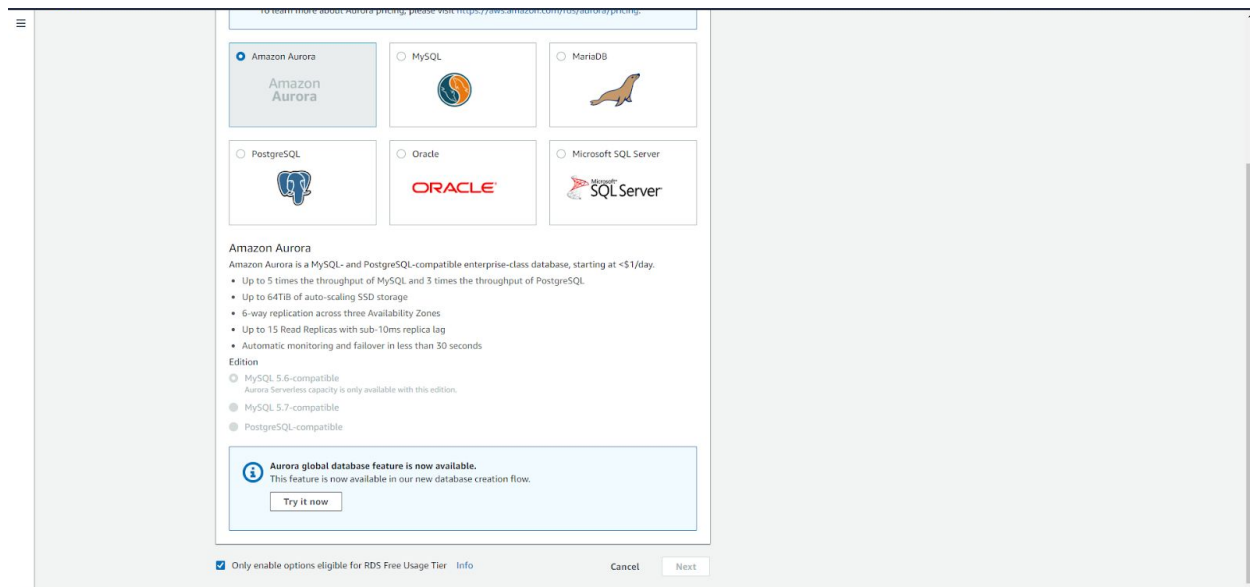
2)At the AWS management console under find service, type in RDS.



3) Select databases on the right to list all databases in use. Select Create database.



4) Scroll to the bottom of page to enable Free Tier options



5) Select MySQL

Step 1
Select engine

Step 2
Specify DB details

Step 3
Configure advanced settings

RDS > Create database

Select engine

Engine options

☐ Amazon Aurora

☒ MySQL

☐ MariaDB

☐ PostgreSQL

☐ Oracle

☐ Microsoft SQL Server

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 5 Read Replicas per instance, within a single Region or cross-region.

Aurora global database feature is now available.
This feature is now available in our new database creation flow.

[Try it now](#)

6) Scroll to the bottom and enter DB instance identifier

General Purpose (SSD)

Allocated storage

20 GiB

(Minimum: 20 GiB, Maximum: 20 GiB) Higher allocated storage [may improve](#) IOPS performance.

Storage autoscaling

Provides dynamic scaling support for your database's storage based on your application's needs. [Info](#)

☒ **Enable storage autoscaling**

Enabling this feature will allow the storage to increase once the specified threshold is exceeded.

Maximum storage threshold [Info](#)

Charges will apply when your database autoscales to the specified threshold

1000 GiB

(Minimum: 21 GiB, Maximum: 16384 GiB)

Settings

DB instance identifier [Info](#)

Specify a name that is unique for all DB instances owned by your AWS account in the current region.

practice-photo-db

DB instance identifier is case insensitive, but stored as all lower-case, as in "mydbinstance". Must contain from 1 to 63 alphanumeric characters or hyphens (1 to 15 for SQL Server). First character must be a letter. Cannot end with a hyphen or contain two consecutive hyphens.

Master username [Info](#)

Specify an alphanumeric string that defines the login ID for the master user.

Master Username must start with a letter. Must contain 1 to 16 alphanumeric characters.

Master password [Info](#) **Confirm password** [Info](#)

Master Password must be at least eight characters long, as in "mypassw0rd". Can be any printable ASCII character except ";", "'", or "&".

[Cancel](#) [Previous](#) [Next](#)

7) Enter a name for Master username

General Purpose (SSD)

Allocated storage
20 GiB
(Minimum: 20 GiB, Maximum: 20 GiB) Higher allocated storage **may improve** IOPS performance.

Storage autoscaling
Provides dynamic scaling support for your database's storage based on your application's needs. [Info](#)
☒ **Enable storage autoscaling**
Enabling this feature will allow the storage to increase once the specified threshold is exceeded.
Maximum storage threshold [Info](#)
Charges will apply when your database autoscales to the specified threshold
1000 GiB
(Minimum: 21 GiB, Maximum: 16384 GiB)

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DB instance identifier is case insensitive, but stored as all lower-case, as in "mydbinstance". Must contain from 1 to 63 alphanumeric characters or hyphens (1 to 15 for SQL Server). First character must be a letter. Cannot end with a hyphen or contain two consecutive hyphens.

Master username [Info](#)
Specify an alphanumeric string that defines the login ID for the master user.
master
Master Username must start with a letter. Must contain 1 to 16 alphanumeric characters.

Master password [Info](#) Confirm password [Info](#)
Master Password must be at least eight characters long, as in "mypassw0rd". Can be any printable ASCII character except ";", ",", or "@".

Cancel Previous Next

8) Enter a master password then select Next

General Purpose (SSD)

Allocated storage
20 GiB
(Minimum: 20 GiB, Maximum: 20 GiB) Higher allocated storage **may improve** IOPS performance.

Storage autoscaling
Provides dynamic scaling support for your database's storage based on your application's needs. [Info](#)
☒ **Enable storage autoscaling**
Enabling this feature will allow the storage to increase once the specified threshold is exceeded.
Maximum storage threshold [Info](#)
Charges will apply when your database autoscales to the specified threshold
1000 GiB
(Minimum: 21 GiB, Maximum: 16384 GiB)

Settings

DB instance identifier [Info](#)
Specify a name that is unique for all DB instances owned by your AWS account in the current region.
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DB instance identifier is case insensitive, but stored as all lower-case, as in "mydbinstance". Must contain from 1 to 63 alphanumeric characters or hyphens (1 to 15 for SQL Server). First character must be a letter. Cannot end with a hyphen or contain two consecutive hyphens.

Master username [Info](#)
Specify an alphanumeric string that defines the login ID for the master user.
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Master Username must start with a letter. Must contain 1 to 16 alphanumeric characters.

Master password [Info](#) Confirm password [Info](#)
Master Password must be at least eight characters long, as in "mypassw0rd". Can be any printable ASCII character except ";", ",", or "@".

Cancel Previous Next

9) Under VPC select Create new VPC

Step 1
Select engine

Step 2
Specify DB details

Step 3
Configure advanced settings

RDS > Create database

Configure advanced settings

Network & Security

Virtual Private Cloud (VPC) [Info](#)
VPC defines the virtual networking environment for this DB instance.

Create new VPC

Only VPCs with a corresponding DB subnet group are listed.

Subnet group [Info](#)
DB subnet group that defines which subnets and IP ranges the DB instance can use in the VPC you selected.

Create new DB Subnet Group

Public accessibility [Info](#)

☐ Yes
EC2 instances and devices outside of the VPC hosting the DB instance will connect to the DB instances. You must also select one or more VPC security groups that specify which EC2 instances and devices can connect to the DB instance.

☒ No
DB instance will not have a public IP address assigned. No EC2 instance or devices outside of the VPC will be able to connect.

Availability zone [Info](#)

No preference

VPC security groups
Security groups have rules authorizing connections from all the EC2 instances and devices that need to access the DB instance.

☒ Create new VPC security group

☐ Choose existing VPC security groups

Database options

Database name [Info](#)

10) Give the database a name

Database options

Database name [Info](#)

photosDB

Note: If no database name is specified then no initial MySQL database will be created on the DB instance.

Port [Info](#)
TCP/IP port the DB instance will use for application connections.

3306

DB parameter group [Info](#)

default.mysql5.7

Option group [Info](#)

defaultmysql-5-7

IAM DB authentication [Info](#)

☐ Enable IAM DB authentication
Manage your database user credentials through AWS IAM users and roles.

☒ Disable

Encryption

Encryption

☒ Enable encryption [Learn more](#)
Select to encrypt the given instance. Master key ids and aliases appear in the list after they have been created using the Key Management Service (KMS) console.

☐ Disable encryption

☒ The selected engine or DB instance class does not support storage encryption.

Backup

11) Scroll to bottom and select Create database

Select the log types to publish to Amazon CloudWatch Logs

- ☐ Audit log
- ☐ Error log
- ☐ General log
- ☐ Slow query 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 ⓘ
☒ Enable auto minor version upgrade
Enables automatic upgrades to new minor versions as they are released. The automatic upgrades occur during the maintenance window for the DB instance.

☐ Disable auto minor version upgrade

Maintenance window ⓘ
Select the period in which you want pending modifications or patches applied to the DB instance by Amazon RDS.

☐ Select window

☒ No preference

Deletion protection

☒ Enable deletion protection
Protects the database from being deleted accidentally. While this option is enabled, you can't delete the database.

Cancel Previous **Create database**

12) After a few moments Select View DB instance details

RDS > Create database

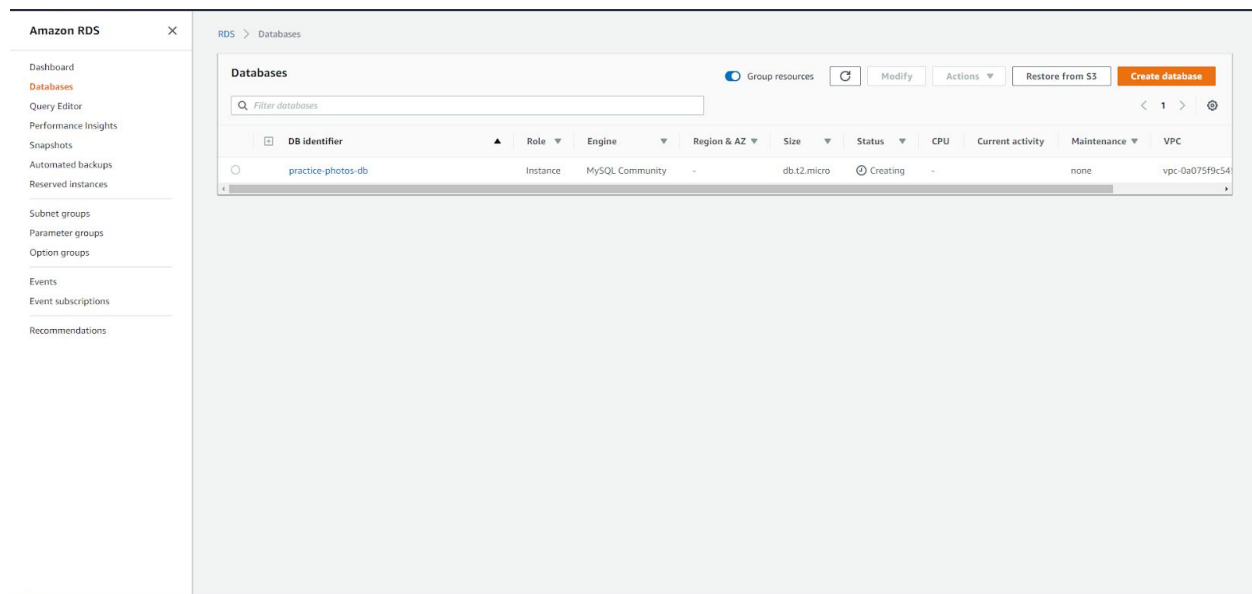
✓ Your DB instance is being created.
Note: Your instance may take a few minutes to launch.

Connecting to your DB instance

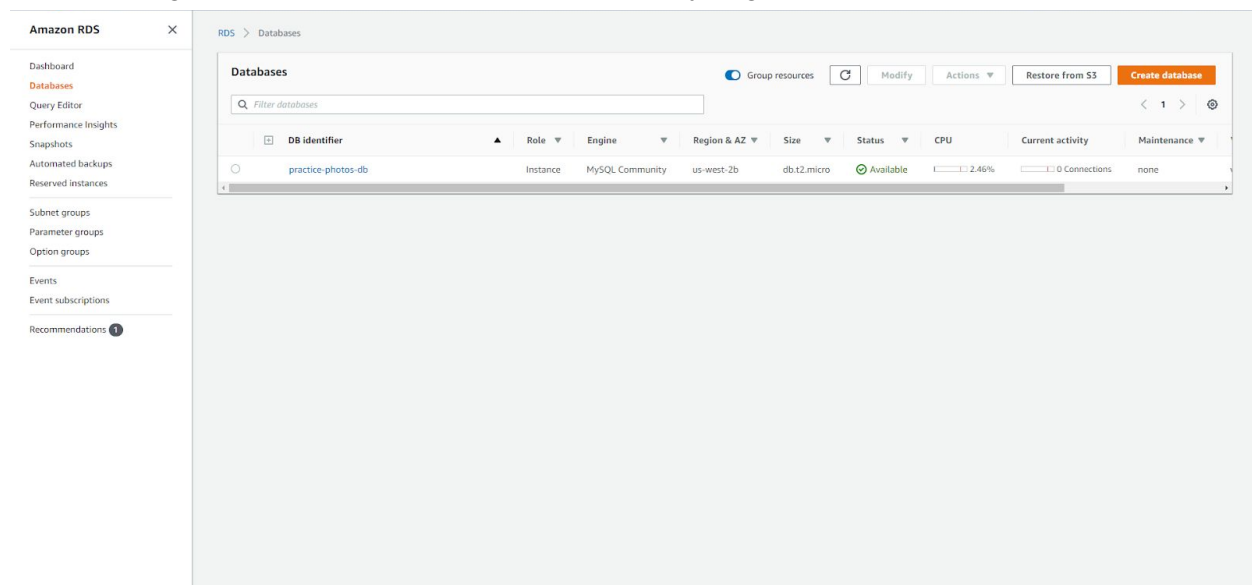
Once Amazon RDS finishes provisioning your DB instance, you can use a SQL client application or utility to connect to the instance.
[Learn about connecting to your DB instance](#)

All DB instances **View DB instance details**

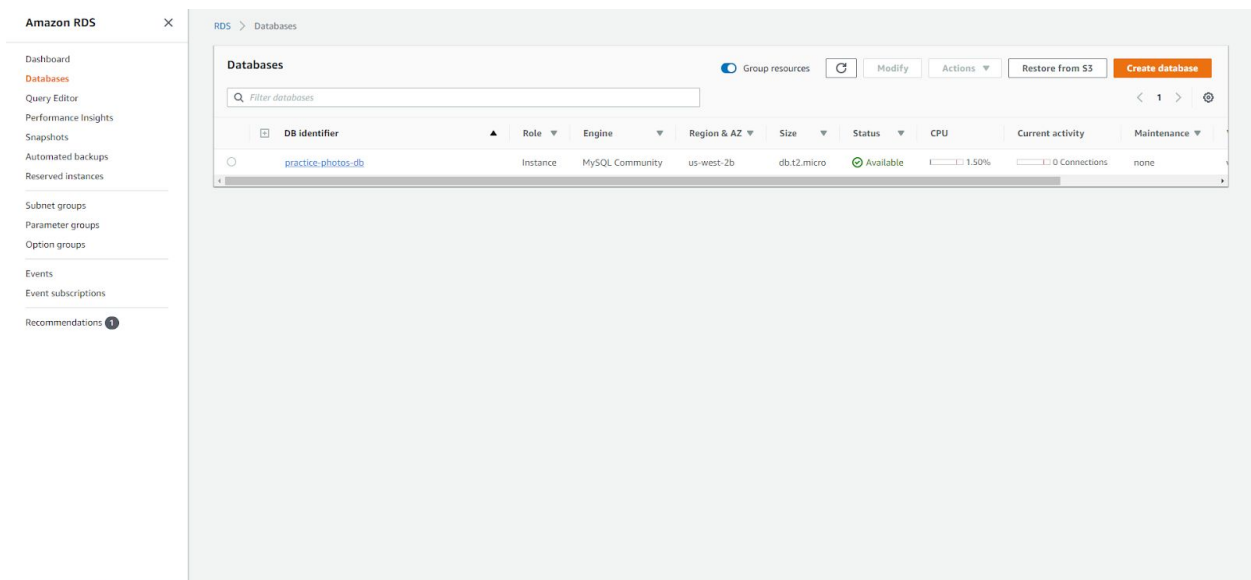
13)Wait for status Available, which will take about 5 mins



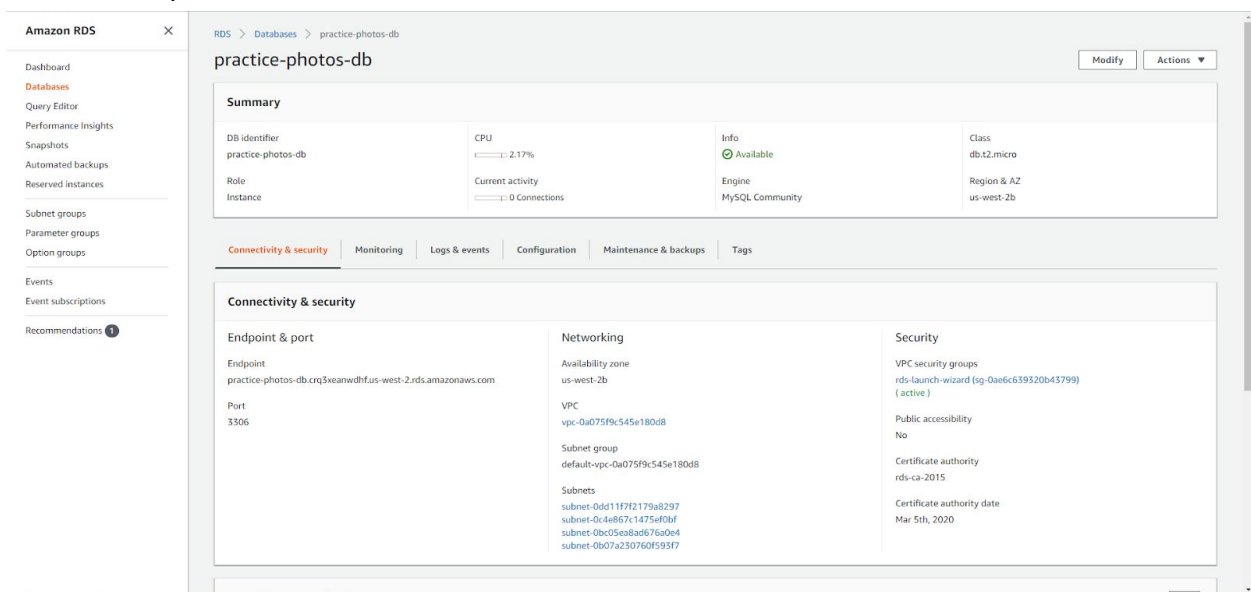
14)Note the green Available status. The RDS is ready to go.



15) Select on the database just created



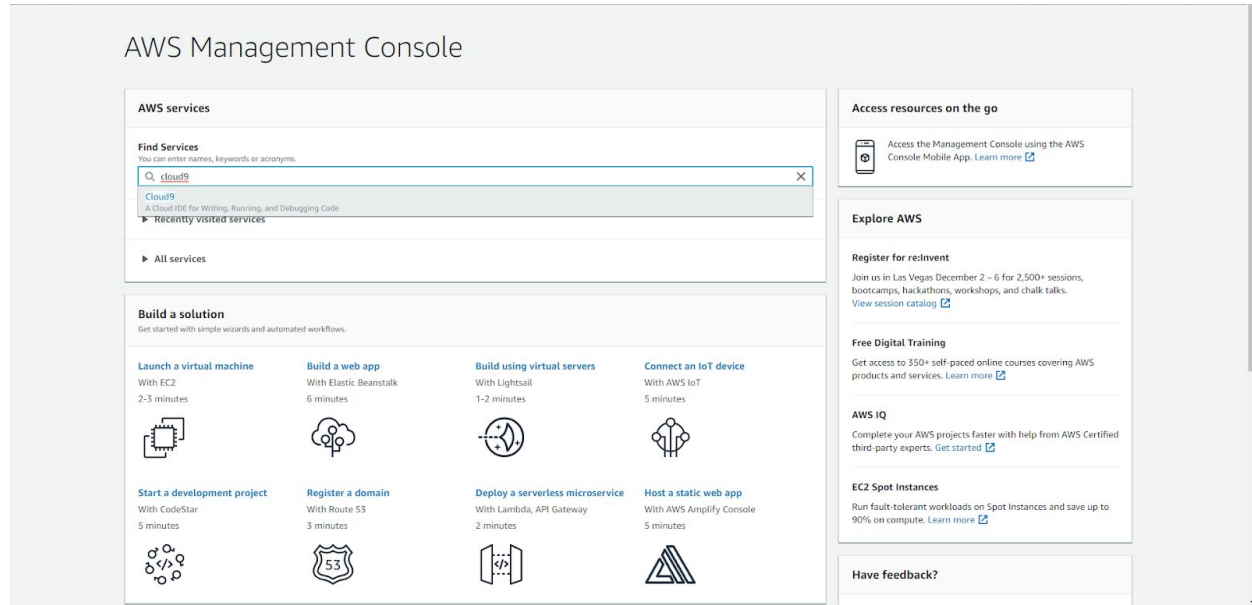
16) That's it! A new VPC instance has been created in the process of making a photo database. Note the endpoint and VPC details.



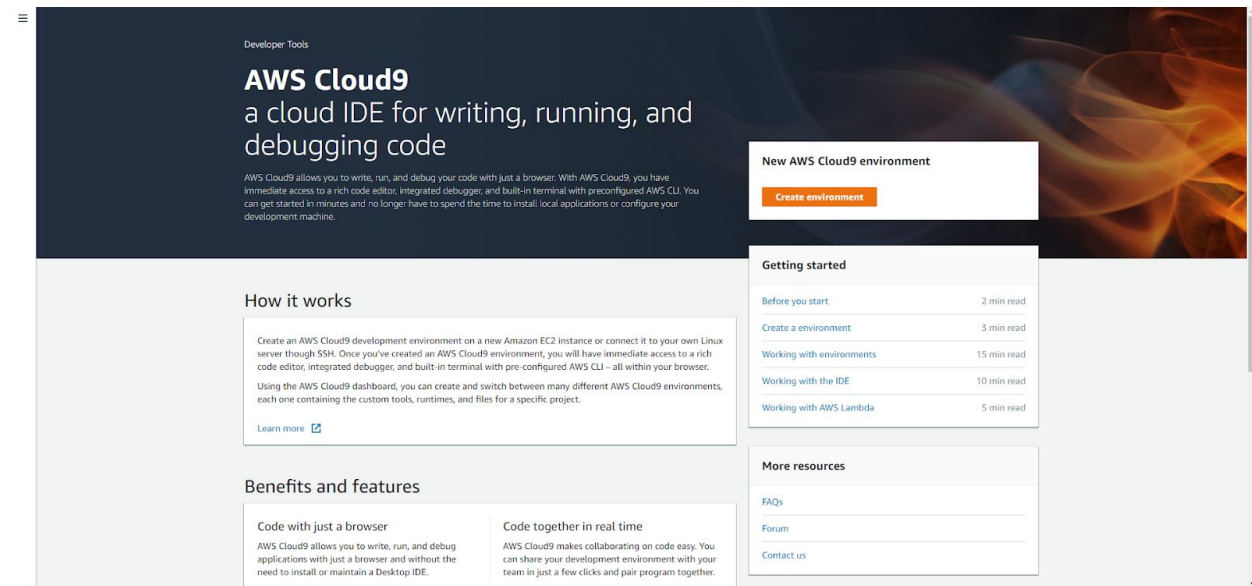
Demonstrate the activation of an Amazon Cloud9 Environment

In this Amazon Cloud9 environment set up example, a Cloud9 initialization will provide an environment for code to be implemented for our photo database.

1) From the AWS Management Console, enter Cloud9



2) Select Create environment



3)Name the environment

The screenshot shows the 'Name environment' step in the AWS Cloud9 console. The breadcrumb navigation at the top reads 'AWS Cloud9 > Environments > Create environment'. On the left, a sidebar lists three steps: 'Step 1: Name environment' (active), 'Step 2: Configure settings', and 'Step 3: Review'. The main content area is titled 'Name environment' and contains a form for 'Environment name and description'. The 'Name' field is required and contains the text 'photos build'. Below it, a description field is optional and contains the text 'Write a short description for your environment'. At the bottom of the form are 'Cancel' and 'Next step' buttons.

4)Scroll to the bottom and select the VPC from the last section or create a new VPC. Select us-west-2a under subnet, this will allow provisioning of our services we decide to incorporate into Cloud9. Select Next step

The screenshot shows the 'Configure settings' step in the AWS Cloud9 console. The breadcrumb navigation at the top reads 'AWS Cloud9 > Environments > Create environment'. On the left, a sidebar lists three steps: 'Step 1: Name environment', 'Step 2: Configure settings' (active), and 'Step 3: Review'. The main content area is titled 'Configure settings' and contains several sections: 'Instance type' with radio buttons for 't2.micro', 't2.small', 'm4.large', and 'Other instance type'; 'Platform' with radio buttons for 'Amazon Linux' and 'Ubuntu Server 18.04 LTS'; 'Cost-saving setting' with a dropdown menu set to 'After 30 minutes (default)'; 'IAM role' with a dropdown menu set to 'AWSServiceRoleForAWSCloud9'; and 'Network settings (advanced)' which includes 'Network (VPC)' and 'Subnet' sections. The 'Network (VPC)' section has a dropdown menu set to 'vpc-0a075f9c545e180d8' and a 'Create new VPC' button. The 'Subnet' section has a dropdown menu set to 'subnet-0dd11f7f2179a8297 | Non-default in us-west-2a' and a 'Create new subnet' button. At the bottom of the form are 'Cancel', 'Previous step', and 'Next step' buttons.

5) Select Create environment

The screenshot shows the 'Environment name and settings' page in the AWS Cloud9 console. On the left, a sidebar indicates the current step is 'Review'. The main area displays the following configuration details:

- Name: photos build
- Description: No description provided
- Environment type: EC2
- Instance type: t2.micro
- Subnet: subnet-0dd11f72179a8297
- Platform: Amazon Linux
- Cost-saving settings: After 30 minutes (default)
- IAM role: AWSServiceRoleForAWSCloud9 (generated)

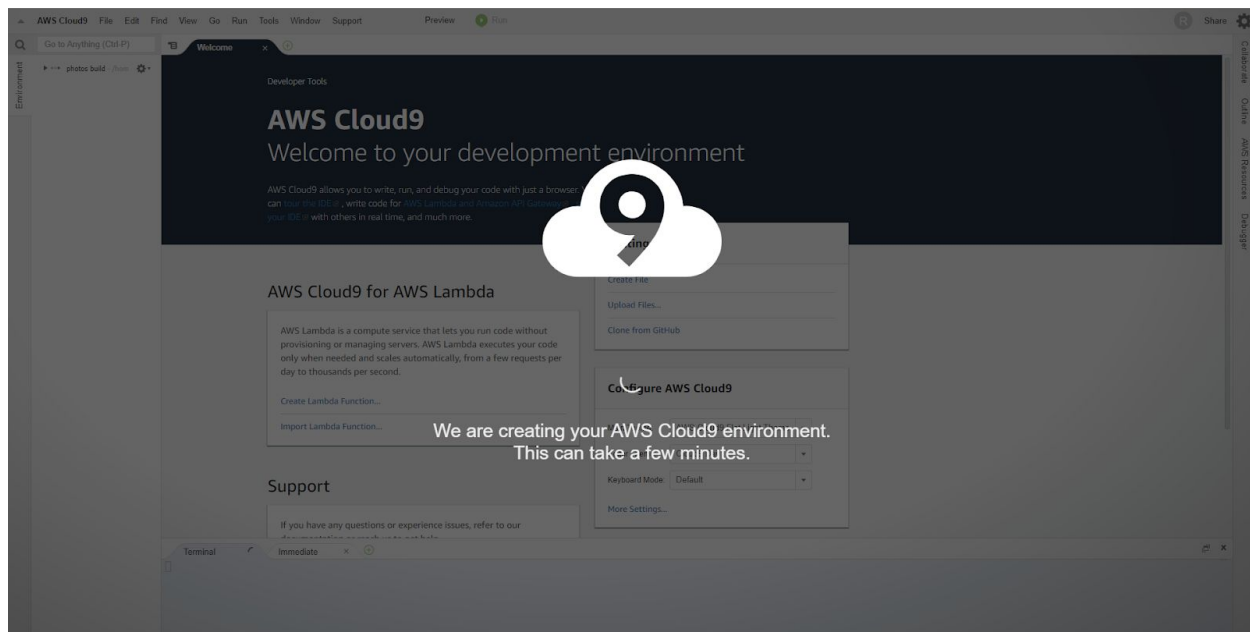
A blue information box contains the following text:

We recommend the following best practices for using your AWS Cloud9 environment

- Use **source control and backup** your environment frequently. AWS Cloud9 does not perform automatic backups.
- Perform regular **updates of software** on your environment. AWS Cloud9 does not perform automatic updates on your behalf.
- **Turn on AWS CloudTrail** in your **AWS account** to track activity in your environment. [Learn more](#)
- Only share your environment with **trusted users**. Sharing your environment may put your AWS access credentials at risk. [Learn more](#)

At the bottom, there are three buttons: 'Cancel', 'Previous step', and 'Create environment'.

6) Wait for the Cloud9 environment to finish



7) That's it! Here is the location where code for the database will get worked on. To save code, a repository either from AWS CodeCommit or some other web server is utilized. There's a terminal window at the very bottom, a file structure outline to the left, and in the center a code editor tab. Launching code can occur within Cloud9. However, Amazon Beanstalk can simplify and automate this process for a more throughput release.

