Home / AWS / Guided Lab / How to Encrypt an Unencrypted RDS DB Instance

How to Encrypt an Unencrypted RDS DB Instance

Level: **Intermediate**

Amazon RDS Amazon Web Services

1h 18m 39s left

15 MIN

End Lab

Open Console

Validation

WHIZLABS

0 K

Whiz_User_80425.62576945

Password

25441d01-d556-4366-a5cd-73dddffb4c77

Access Key

AKIAVD6UN6VZCVSRU2PY

Secret Key

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

Lab Resources

No Lab Resources Found

Support Documents

1. FAQs and Troubleshooting

Need help?

How to use Hands on Lab

Troubleshooting Lab

FAQs

Submit Feedback | Share

Lab Overview | Lab Steps | Lab Validation | Lab FAQs

Database Engineer

Database

Lab Steps

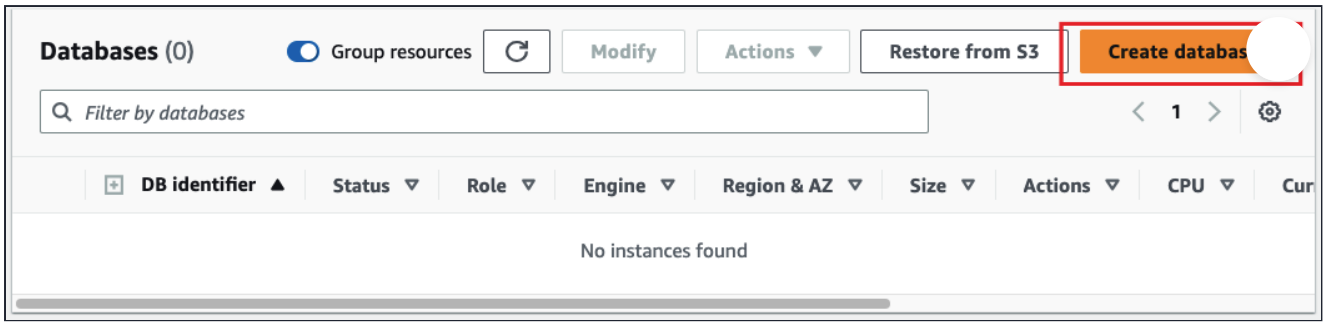
Task 1: Sign in to AWS Management Console

1. Click on the **Open Console** button, and you will get redirected to AWS Console in a new browser tab.
2. On the AWS sign-in page,
    - Leave the Account ID as default. Never edit/remove the 12 digit Account ID present in the AWS Console. otherwise, you cannot proceed with the lab.
    - Now copy your **User Name** and **Password** in the Lab Console to the **IAM Username and Password** in AWS Console and click on the **Sign in** button.
3. Once Signed In to the AWS Management Console, Make the default AWS Region as **US East (N. Virginia) us-east-1.**

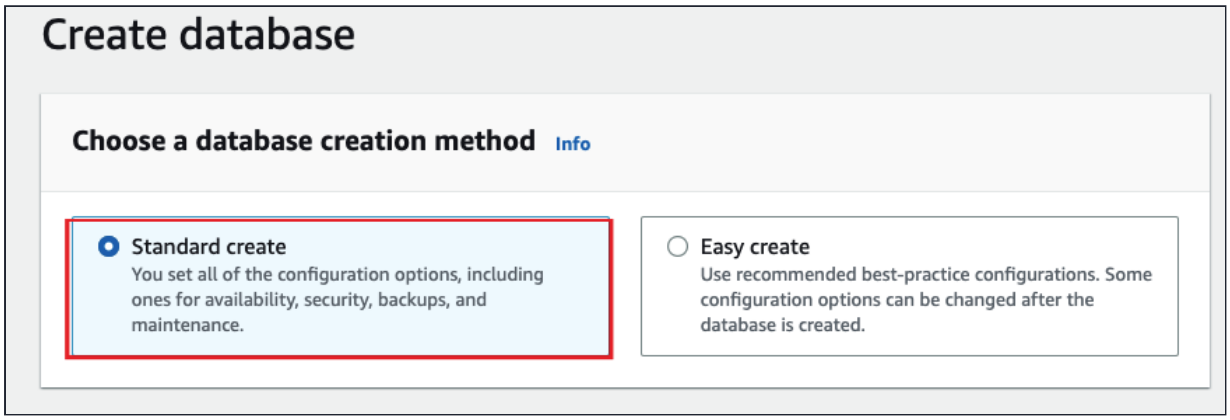
Task 2: Create an RDS DB Instance (without enabling the Encryption)

1. Navigate to the **Services** menu at the top left corner and click on **RDS** present under the **Database** section.
2. RDS dashboard is displayed.

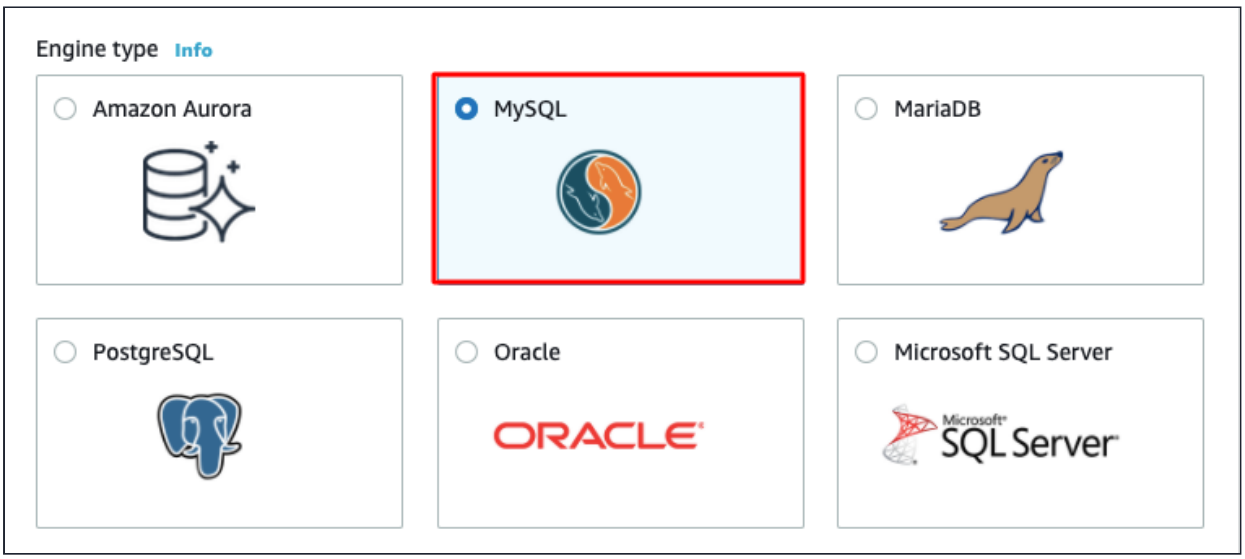
3. Click on **Create Database** and you are navigated to the page where you will provide all the required details to create a MySQL database.



4. On the page, click on the option **Standard create** a method for our lab requirement.



5. In the **Engine options**, select MySQL engine type.



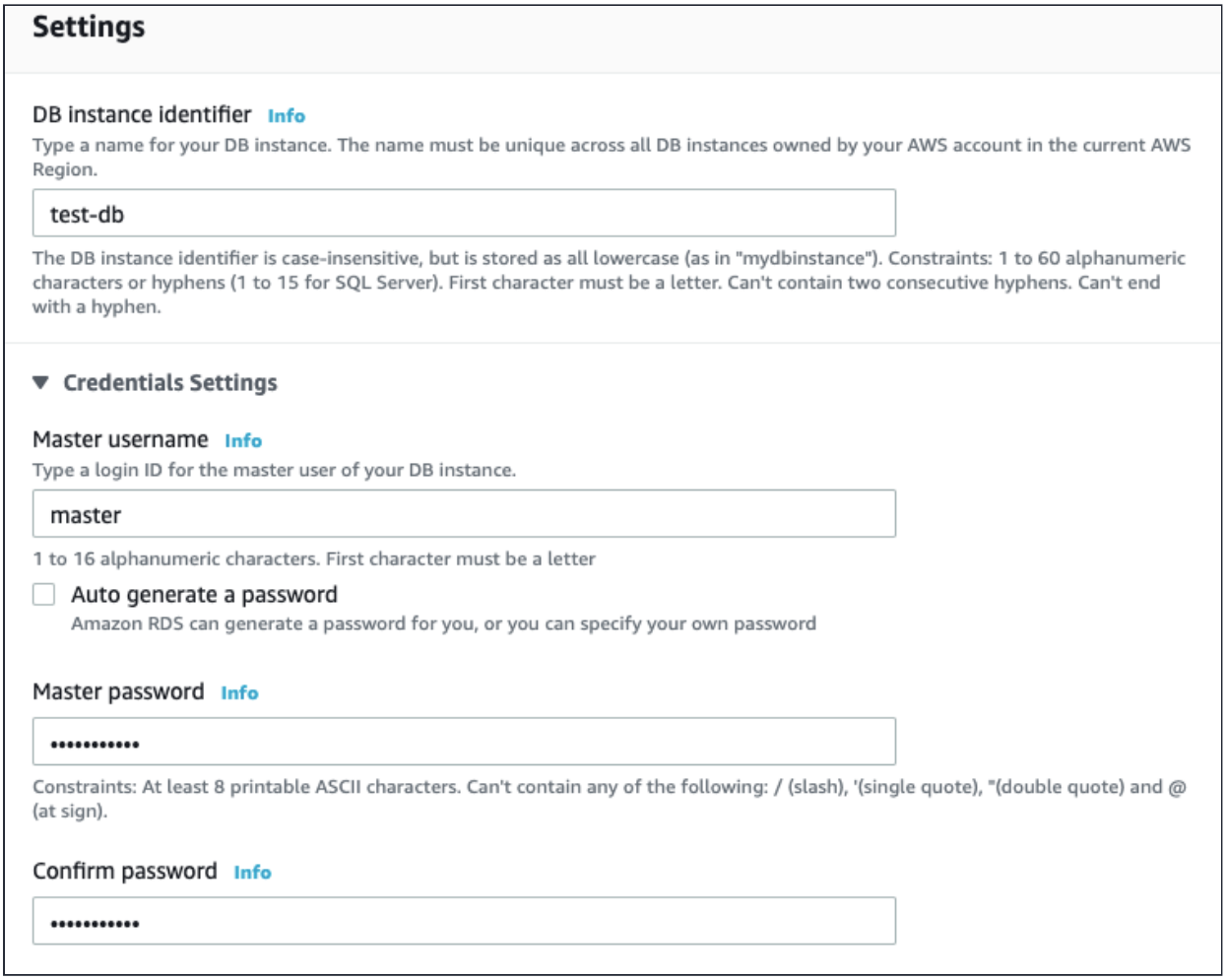
6. **Edition**: Leave it as default

7. Under **Templates**, select the **Free tier** option.

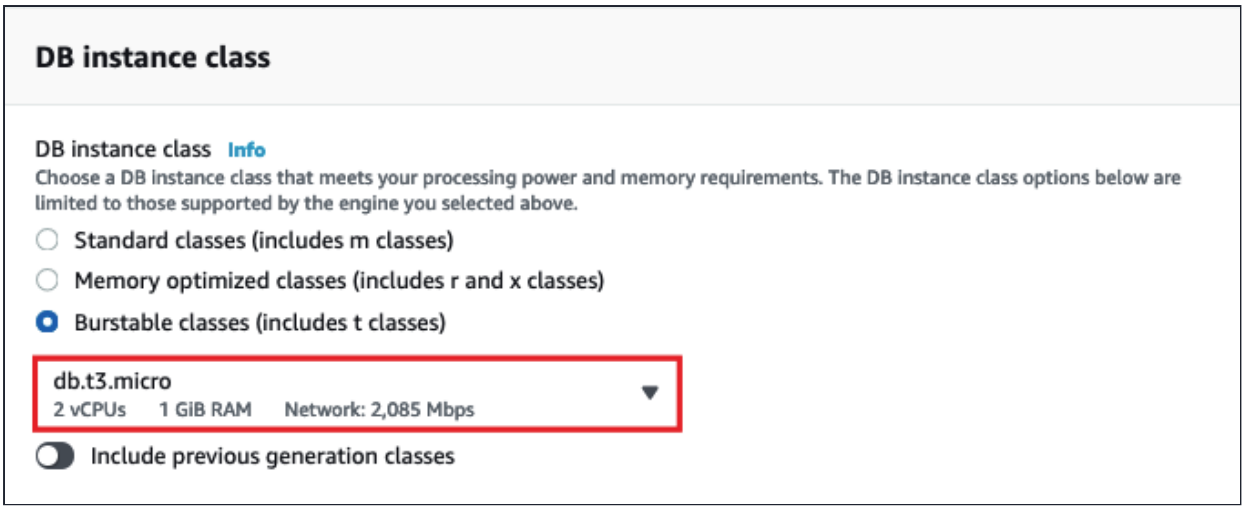
8. Under **Settings**, provide the following details.

- DB cluster identifier: Enter ***test-db***
- Master username: Enter ***master***
- Master password: Enter ***Whizlabs123***
- Confirm password: Enter ***Whizlabs123***

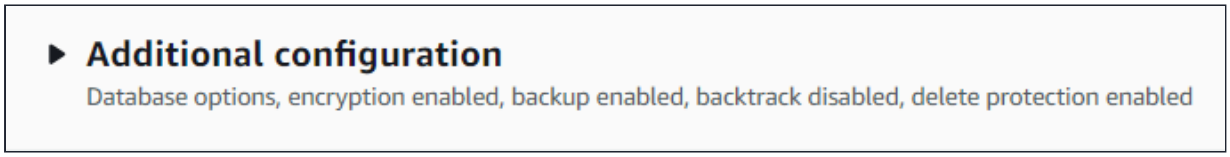
Note - Make sure the master and confirm passwords should be the same.



9. Under **DB instance class**, select **Burstable classes (includes t classes)** and select **db.t3.micro**

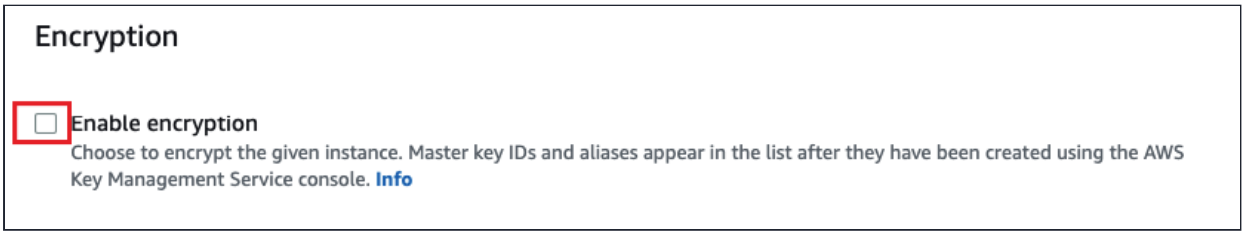


10. Storage type : **General Purpose (SSD)**
11. Allocated storage : **20**
12. Uncheck **Enable storage autoscaling**.
13. Leave the **Availability and durability** as default.
14. Under **Connectivity**, make sure that **Public access** is **No**. Leave everything else as default.
15. Leave **Database Authentication** as default.
16. Expand the **Additional configuration**.



17. In the displayed layout provide the following values under **Database options**.

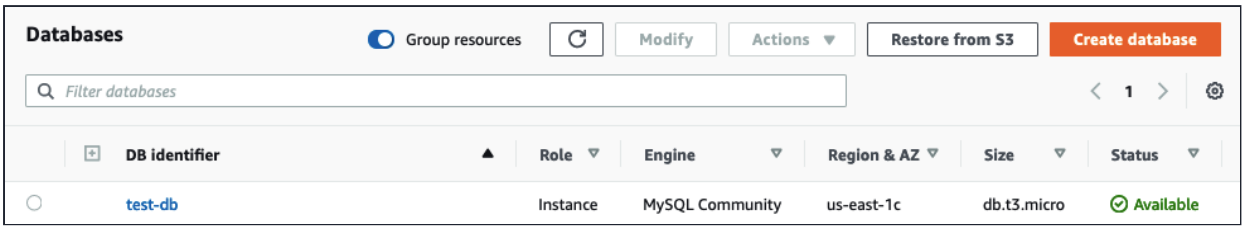
- Initial database name : Enter ***projectdb***
- Leave **DB parameter group** and **Option group** as default.
- Under **Backup**, uncheck **Enable automatic backups**.
- **IMPORTANT**: Uncheck **Enable encryption** option.



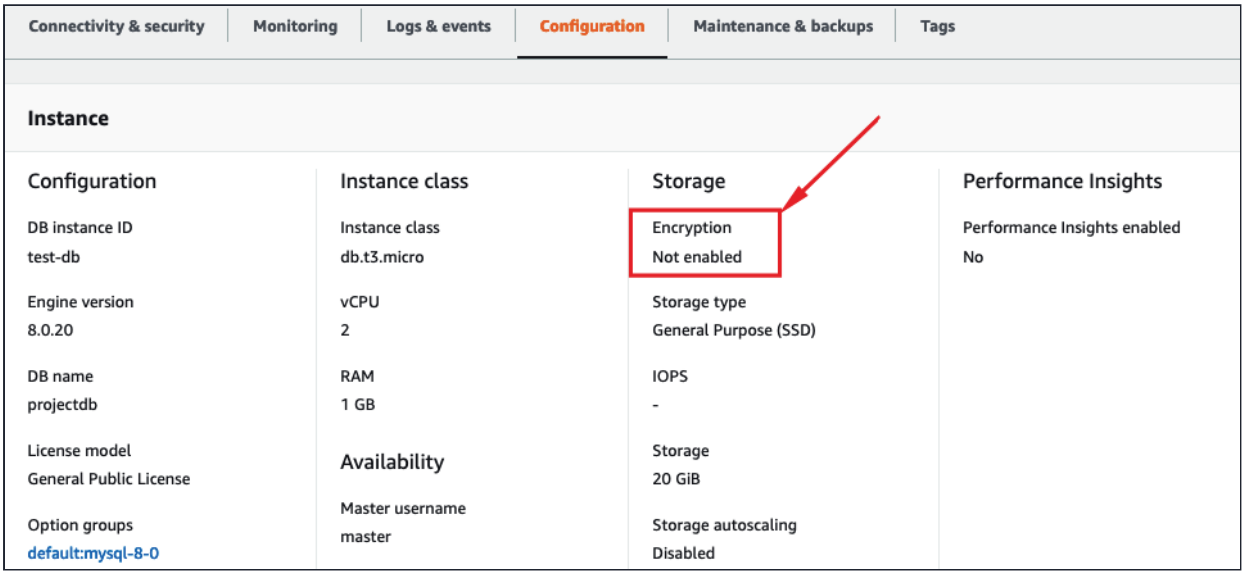
- Uncheck **Deletion protection**.

18. Click on **Create Database** to create the database. This process does take time between 5-10 minutes.

19. Once the database is created the status changes to **Available**.



20. Click on the database and navigate to the **Configuration** tab. You can notice that the **Encryption** is **not enabled**, as we wanted it to be,

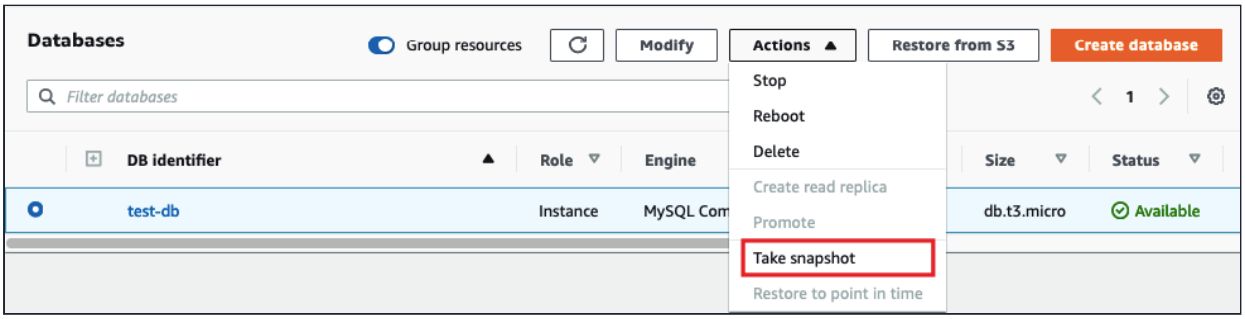


21. If we select the database and go to modify it, we will not find an option to Encrypt the database.

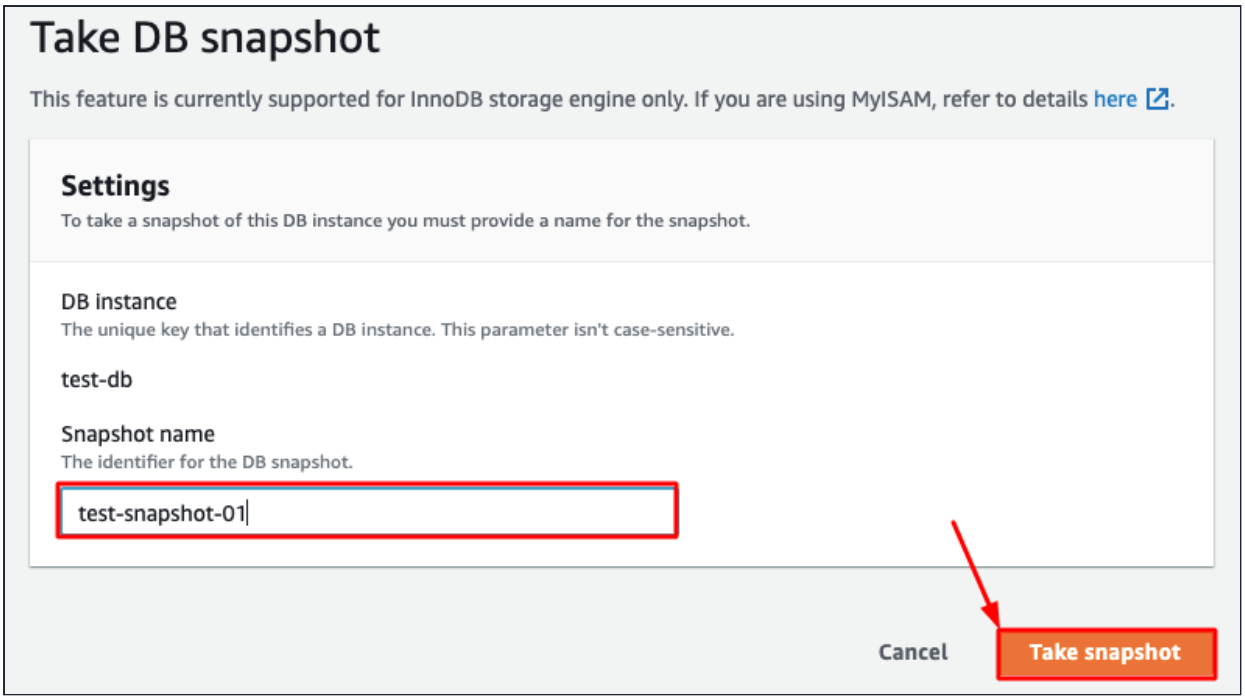
Task 3: Take a snapshot from the existing DB Instance

1. Select the created DB Instance and click on **Actions.**

2. Click **Take snapshot** from the options.



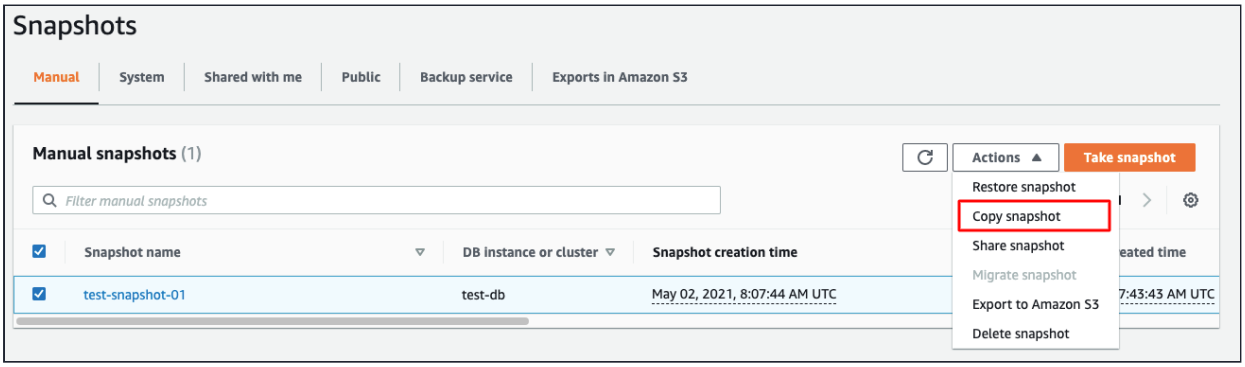
3. Give a name to the snapshot, **test-snapshot-01** and click on the **Take snapshot** button.



4. The snapshot creation takes 3-5 minutes. Refresh after some time, the snapshot creation status will be **available**.

Task 4: Make a copy of the snapshot and encrypt it

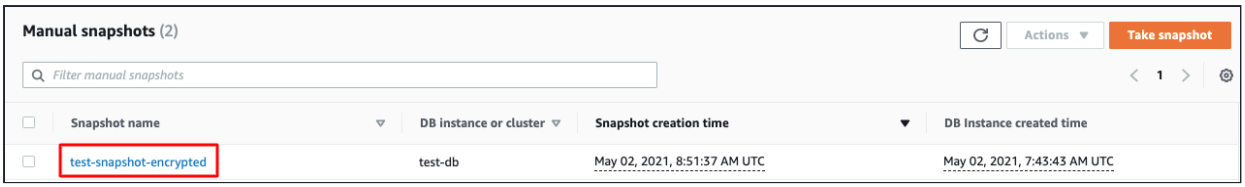
1. It is not possible to encrypt the snapshot in this stage.
2. We need to encrypt the snapshot while taking a copy of it.
3. Under the **Manual snapshots**, select the created snapshot and click on **Actions**.
4. Click **Copy snapshot** from the options.



5. Under settings, provide the following details.

   - Make sure the region is the same as the original DB Instance i.e, **US East (N.Virginia)**
   - New DB Snapshot Identifier: Enter **test-snapshot-encrypted**
   - Under **Encryption**, check **Enable Encryption**. Leave the master key as default as it is a demo.(**IMPORTANT**)

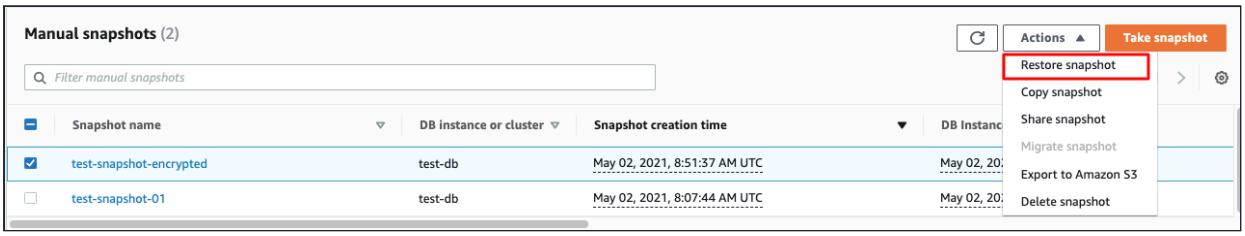
- Click on the **Copy snapshot** button.



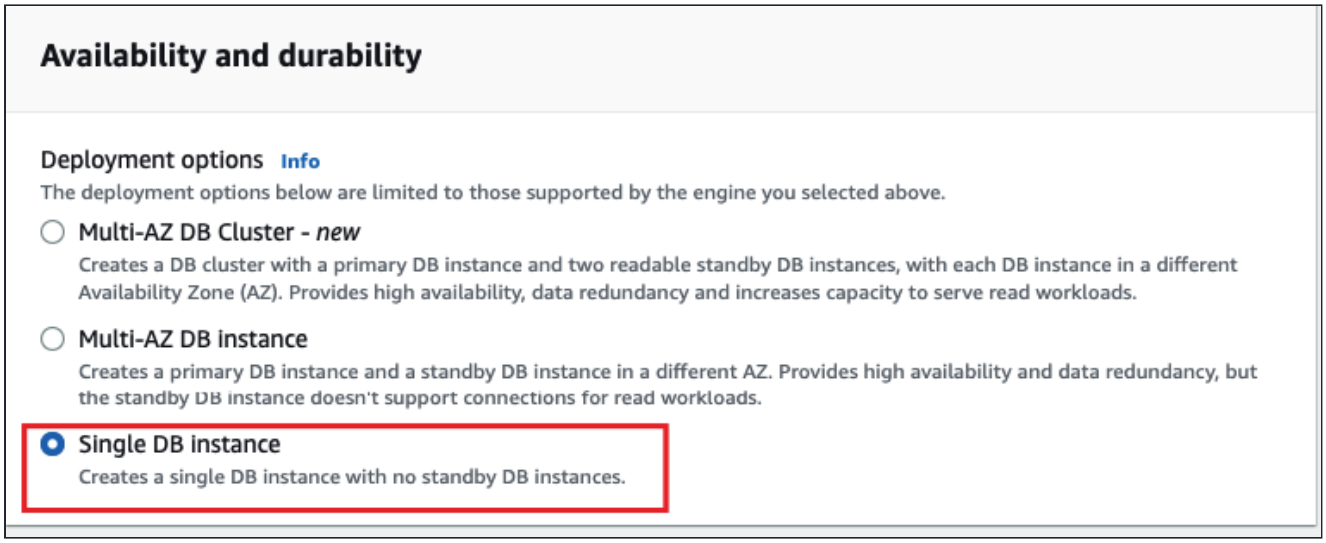
Task 5: Restore DB Instance from the encrypted snapshot

1. Click on the encrypted snapshot and click on **Actions**.

2. Click on **Restore snapshot** from the options.



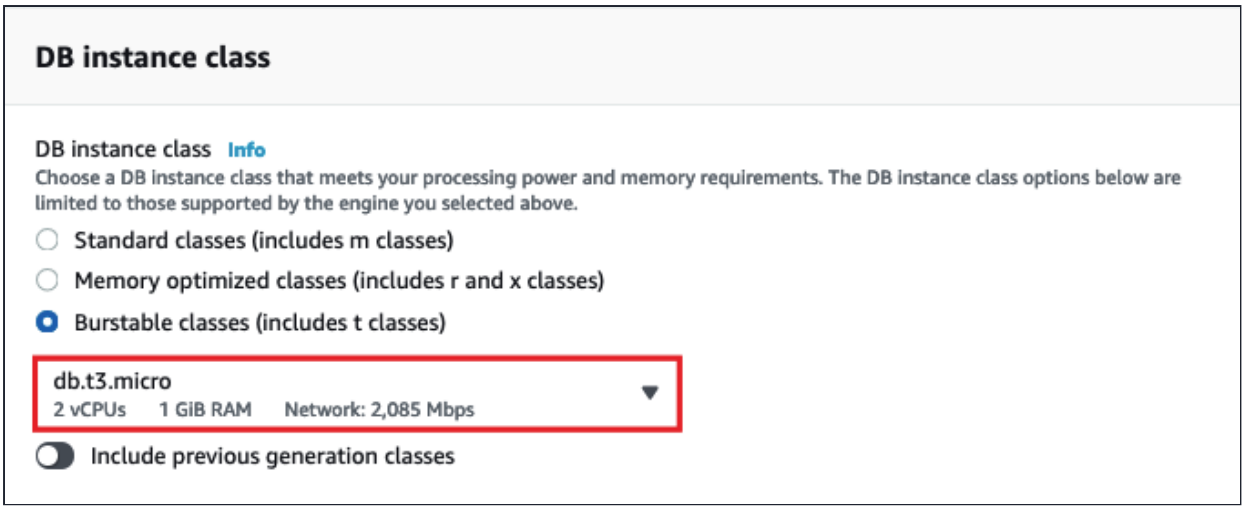
3. Under **Availability and Durability** select Single DB Instance zone



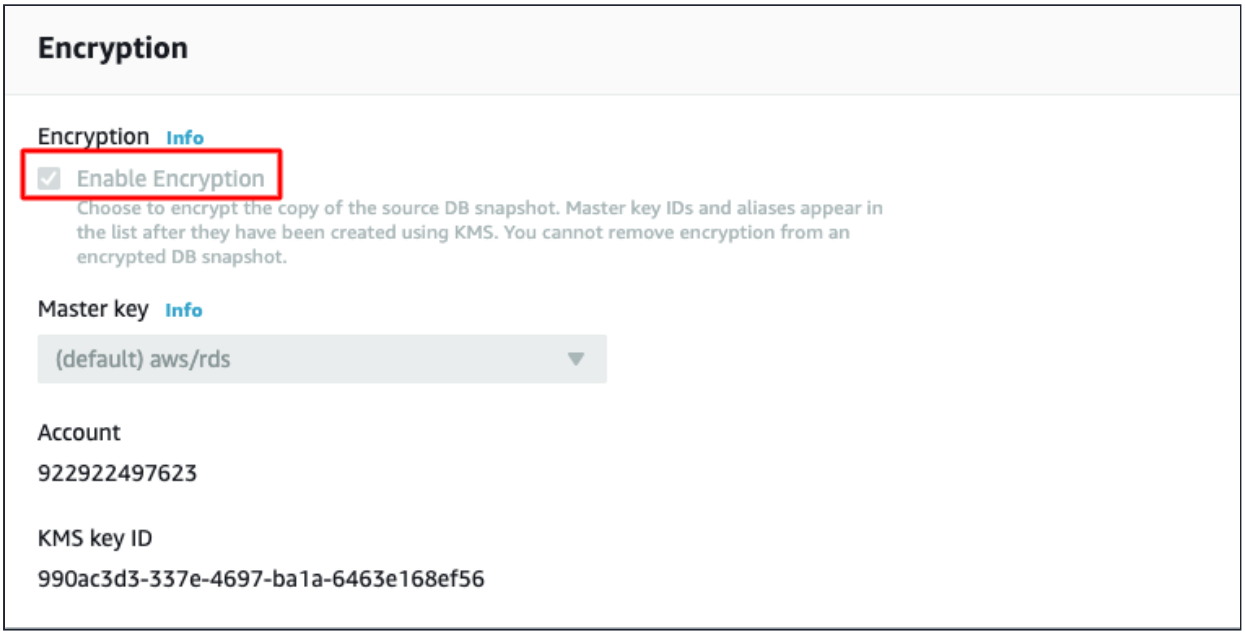
4. **Settings**, enter the name of DB Instance as **test-db-encrypted**.

5. Make the other settings exactly as the original DB Instance.

6. Under the **DB instance class**, select **Burstable classes (including t classes)** and select **db.t3.micro**

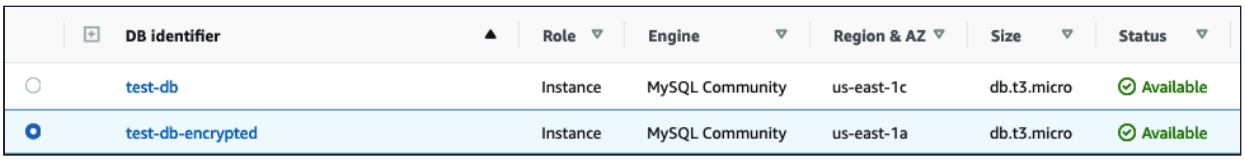


7. Under **Encryption**, you can see the **Enable Encryption** is enabled and **cannot make changes since the snapshot is encrypted.**



8. Leave **DB parameter group** and **Option group** as default.

9. Click on **Restore DB Instance** button. The database creation takes around 5-10 minutes.



DB identifier	Role	Engine	Region & AZ	Size	Status
test-db	Instance	MySQL Community	us-east-1c	db.t3.micro	Available
test-db-encrypted	Instance	MySQL Community	us-east-1a	db.t3.micro	Available

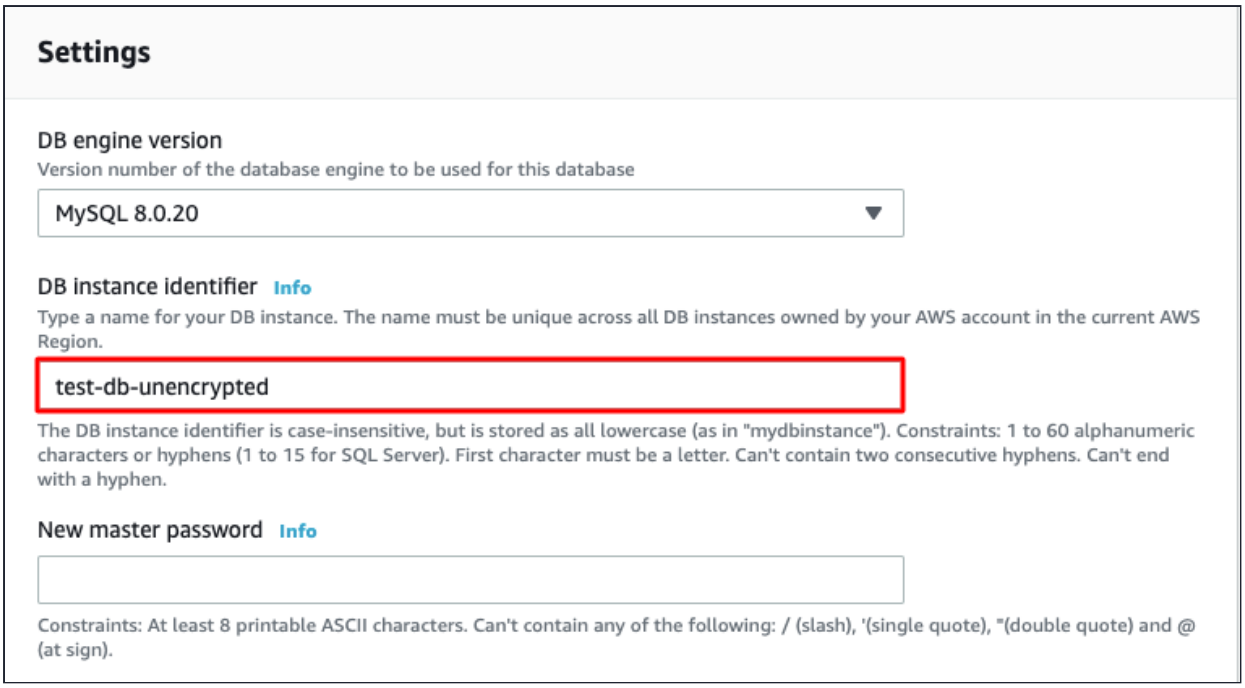
Task 6: Change the name of the original DB Instance

1. We have to make sure that the Endpoint of the restored DB Instance should be the same as the original DB Instance.

2. To do so, we have to change the names of the DB Instances as the names are unique.

3. Select the original DB Instance and click on **Modify**.

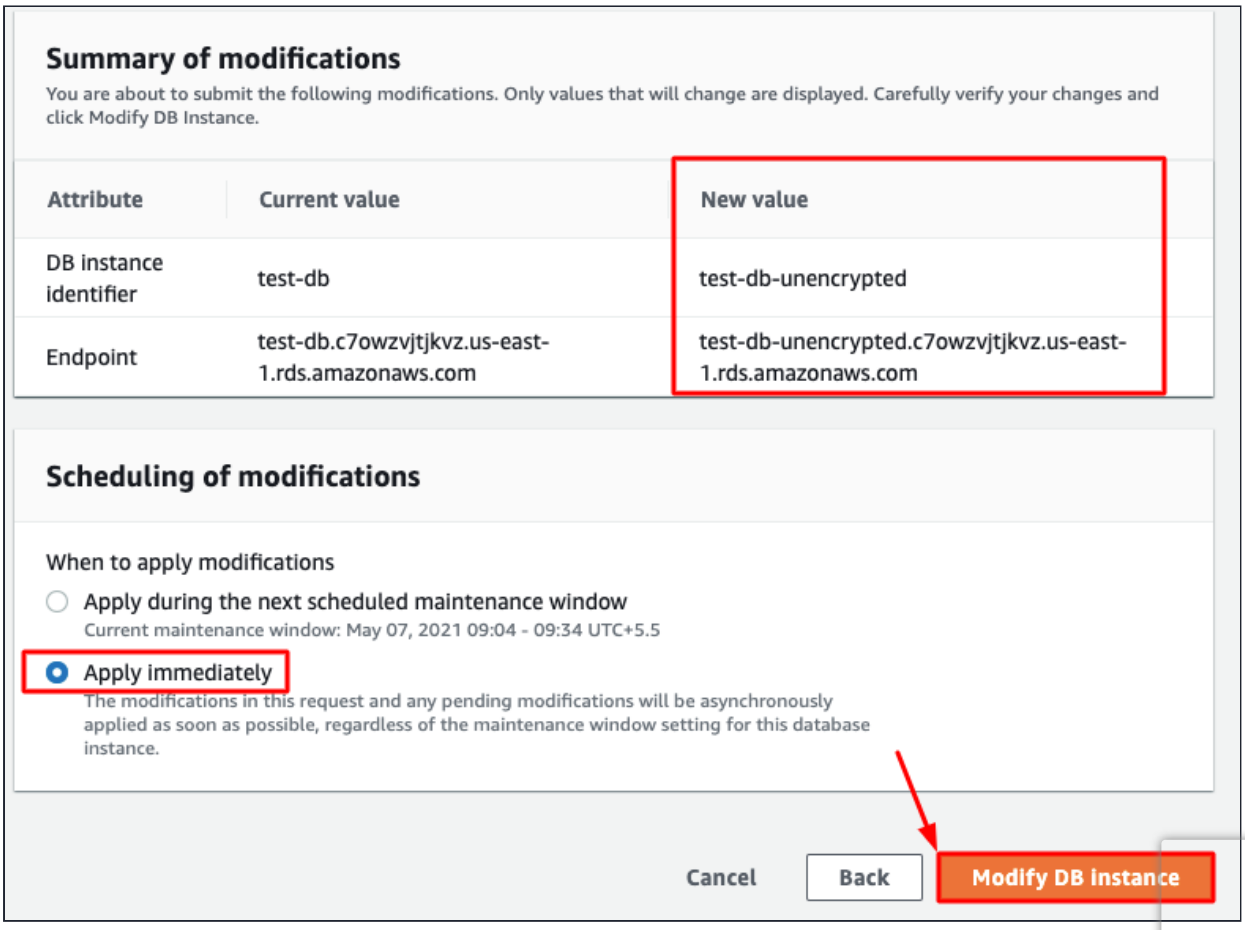
4. Change the DB Instance Identifier to **test-db-unencrypted**.



5. Leave everything as default and click on **Continue**.

6. Verify the new values of the DB Instance Identifier and the Endpoint.

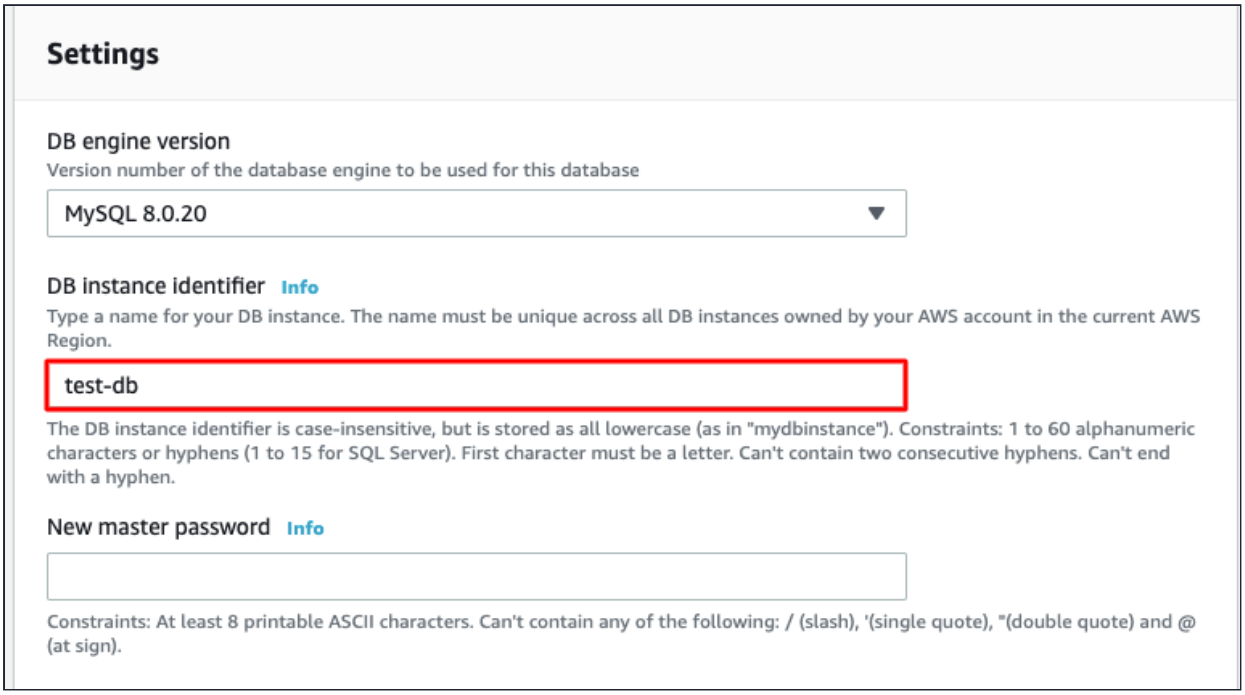
7. Under **Scheduling of modifications**, select **Apply Immediately** and click on **Modify DB Instance** button.



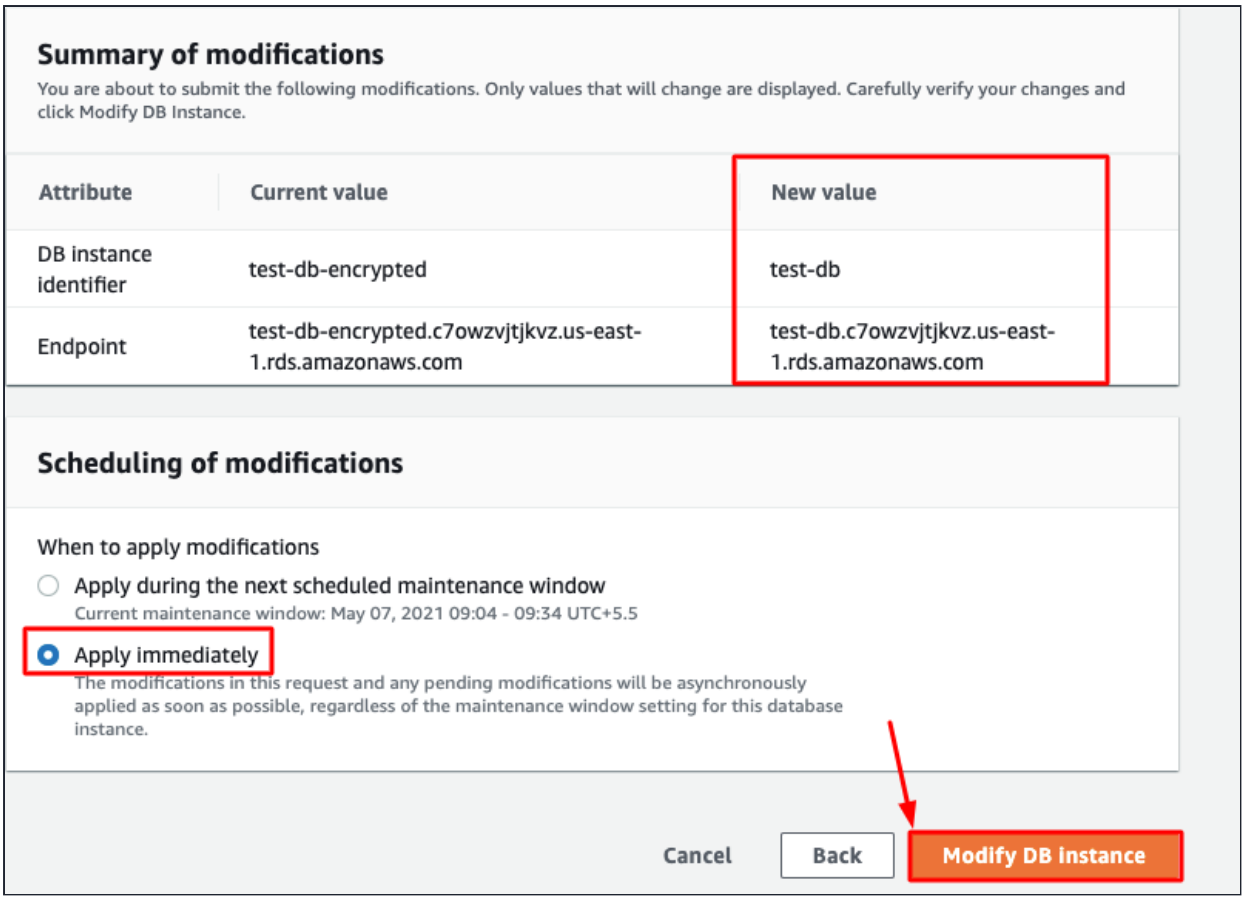
8. It might take some time to reboot the DB Instance. Press ctrl+R if you are not able to see the changes.

Task 7: Change the name of the Restored DB Instance to the original DB Instance name

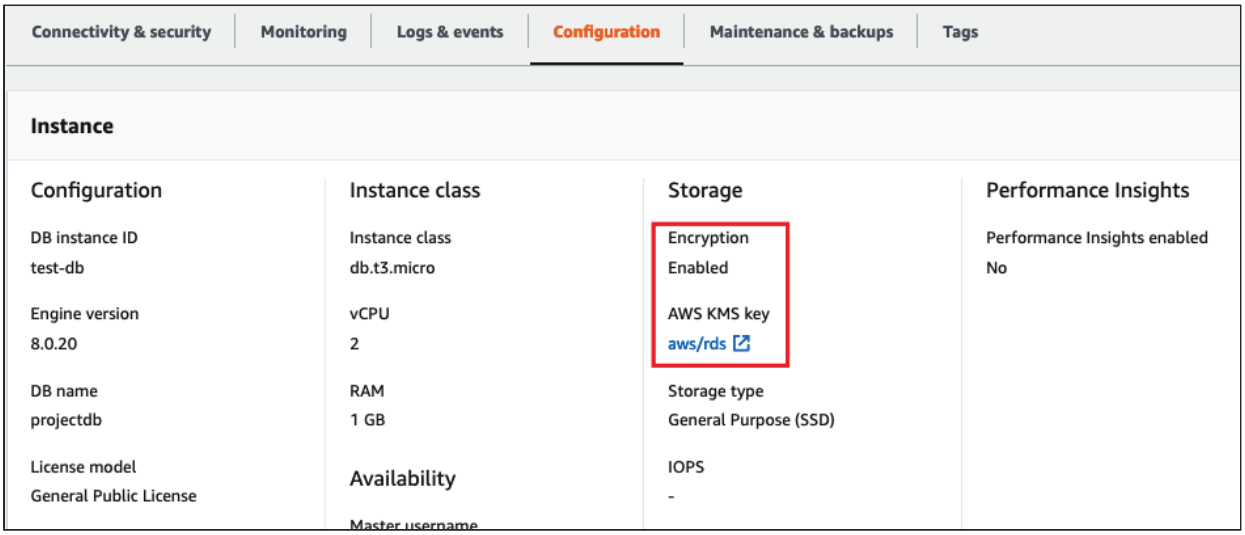
1. Select on the restored database and click on **Modify**.
2. Change the DB Instance Identifier to **test-db**.



3. Leave everything as default and click on **Continue**.
4. Verify the new values of the DB Instance Identifier and the Endpoint.
5. Under **Scheduling of modifications**, select **Apply Immediately** and click on **Modify DB Instance** button..



6. It might take some time to reboot the DB Instance. Press ctrl+R if you are not able to see the changes.
7. Once the database is modified, click and open **test-db** i.e, the encrypted DB Instance.
8. Click on the database and navigate to the **Configuration** tab. You can notice that the **Encryption** is **enabled**.



Task 8: Delete the unencrypted RDS DB Instance and snapshot

1. Since we have the encrypted DB Instance, we shall delete the unencrypted DB Instance and the snapshot associated.

2. Click on **Databases** present to the left of the screen.

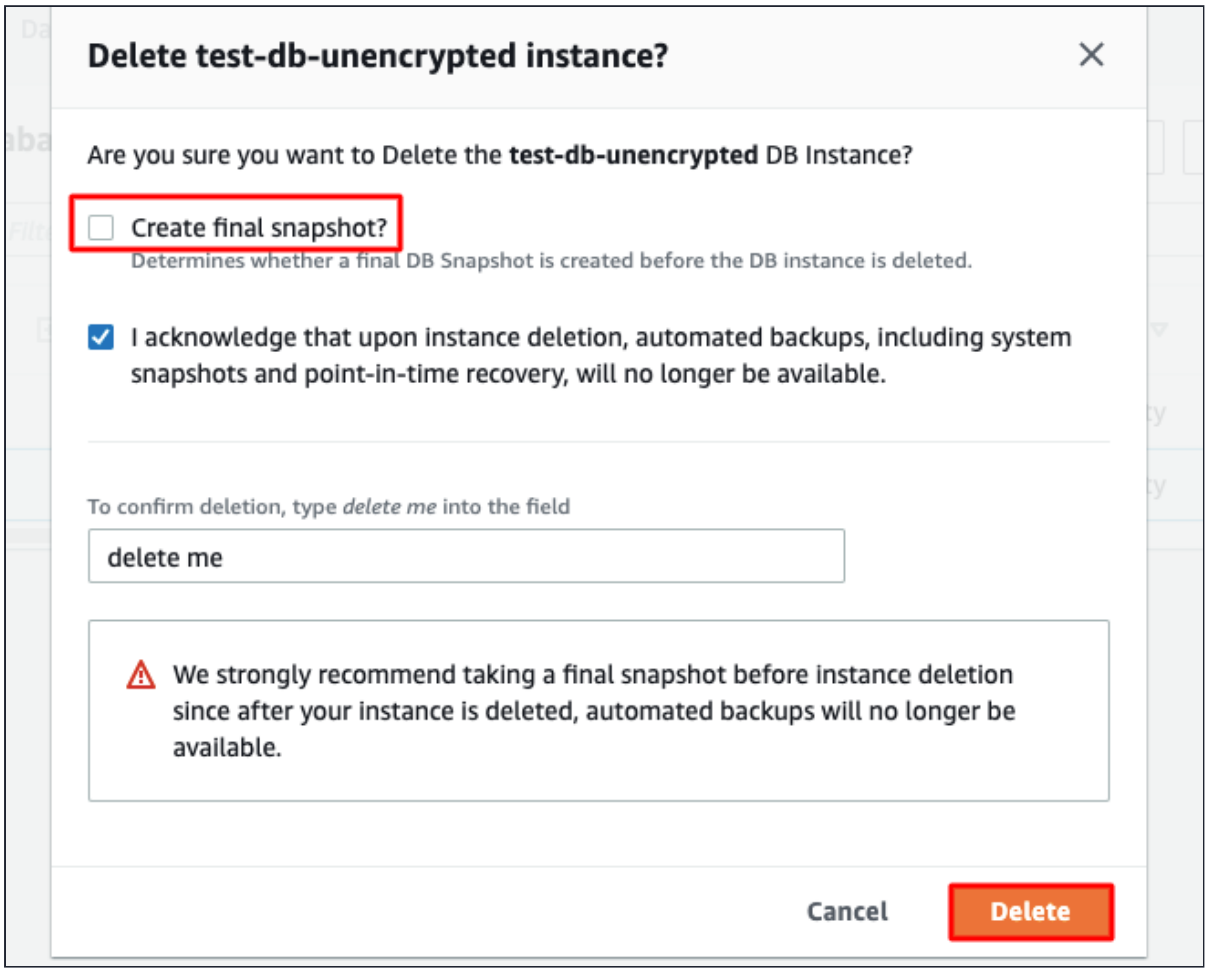
3. Select the Unencrypted DB Instance (i.e **test-db-unencrypted**) and click on **Actions**.

4. Click on the **Delete** option.

5. Uncheck the Create final snapshot option.

6. Check the Acknowledge box.

7. Confirm the deletion by entering **delete me** and click on **delete**.



8. Click on the **Snapshots** on the left of your screen.

9. Under **Manual snapshots**, select the unencrypted snapshot (i.e. **test-snapshot-01**) and click on **Actions**.

10. Click on the **Delete snapshot** option.

11. Confirm by clicking on the **Delete** button.

12. In this way, you can encrypt an unencrypted RDS DB Instance.

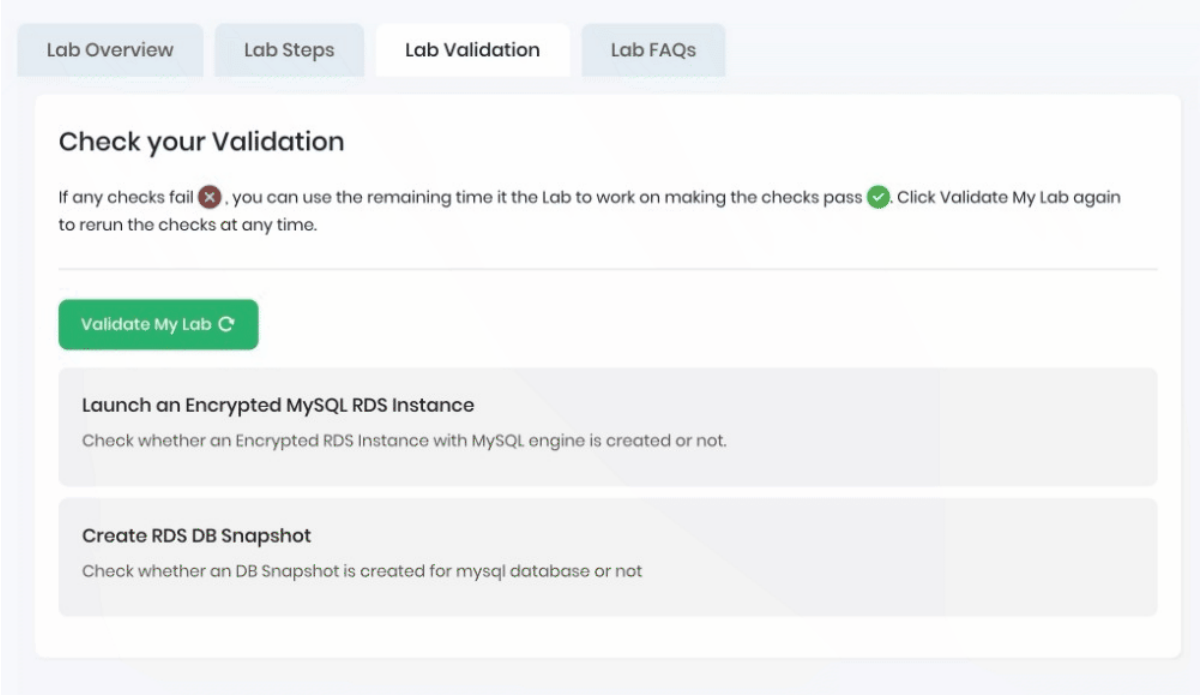
13. Wait till both resources are completely deleted. This step is to avoid confusion in the validation report.

Do you know?

Database encryption is a critical component of a comprehensive security strategy. It helps protect data from unauthorized access, complies with regulatory requirements, mitigates the impact of data breaches, enhances cloud security, builds trust with customers, and mitigates insider threats.

Task 9: Validation Test

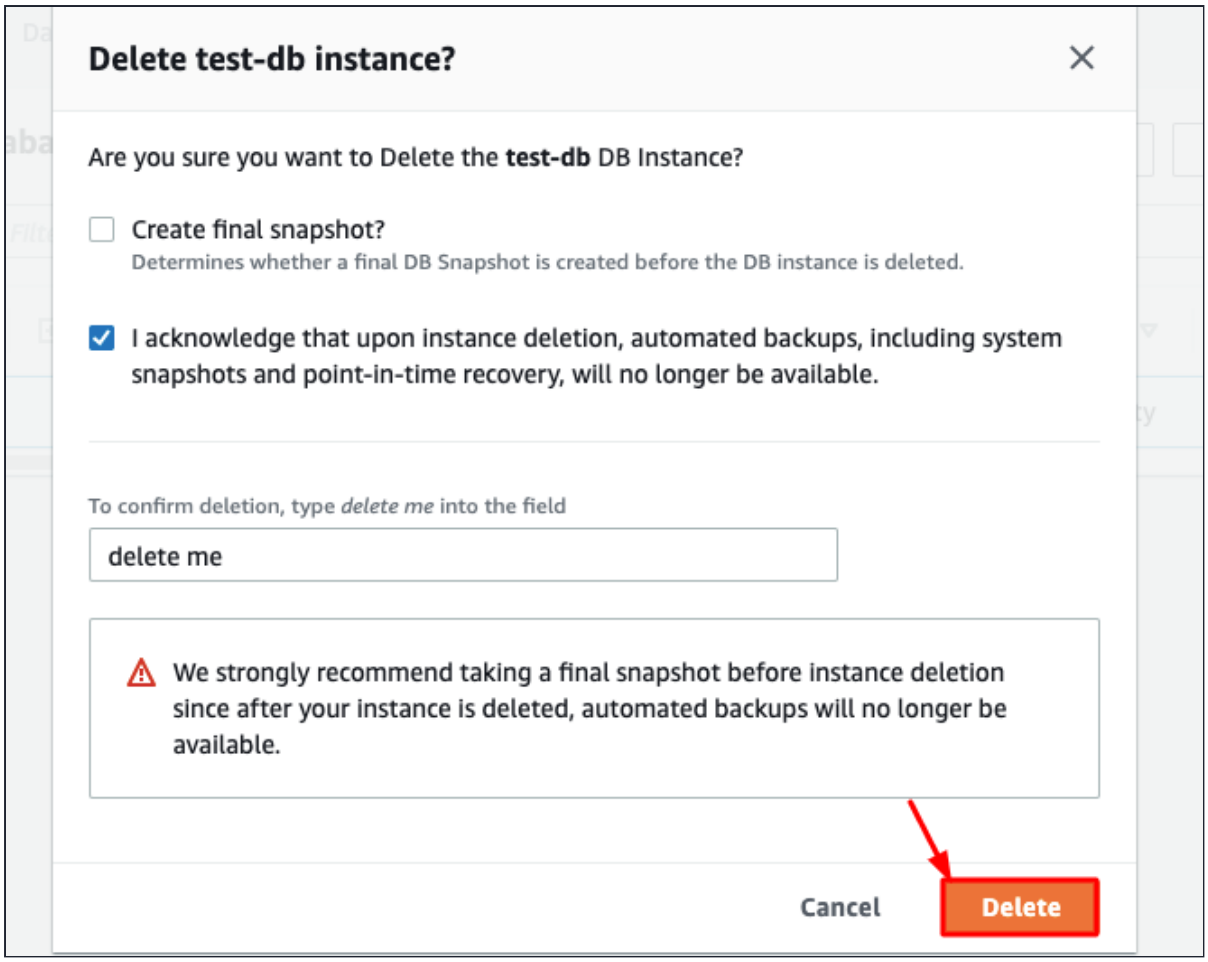
1. Once the lab steps are completed, please click on the **Validation** button on the right-side panel.
2. This will validate the resources in the AWS account and displays whether you have completed this lab successfully or not.
3. Sample output :



Task 10: Delete AWS Resources

Deleting the DB Instance

1. Click on **Databases** present to the left of the screen.
2. Select the DB Instance and click on **Actions**.
3. Click on the **Delete** option.
4. Uncheck the Create final snapshot option.
5. Check the Acknowledge box.
6. Confirm the deletion by entering **delete me** and click on **delete**.



7. The status changes to **Deleting** and the DB Instance gets deleted.
8. You can proceed to further steps even if it is in a **deleting** state.

Deleting the Snapshot

1. Click on the **Snapshots** on the left of your screen. Under **Manual snapshots**, select the unencrypted snapshot and click on **Actions**.
2. Click on the **Delete Snapshot** option.
3. Confirm by clicking on the **Delete** button.

Completion and Conclusion

1. You have created an unencrypted Amazon RDS DB Instance.
2. You have taken the snapshot of the DB Instance.
3. You have made a copy of the snapshot and encrypted it.
4. You have restored the DB Instance with the copied snapshot.
5. You have changed the names of the original and restored DB instances.
6. You have made sure that the Endpoint of the restored database is the same as the originally created DB Instance.
7. You have deleted the Unencrypted DB Instance and snapshot.

End Lab

1. Sign out of AWS Management Console.
2. You have successfully completed the lab.
3. Once you have completed the steps, click on **End Lab** from your whizlabs lab console and wait till the process gets completed.