

Lab Exercise 10– Creating an AWS RDS Instance in Terraform

Objective:

Learn how to use Terraform to create an AWS RDS instance.

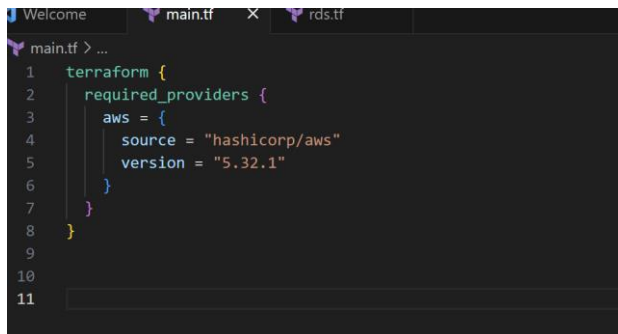
Prerequisites:

- Terraform installed on your machine.
- AWS CLI configured with the necessary credentials.

Steps:

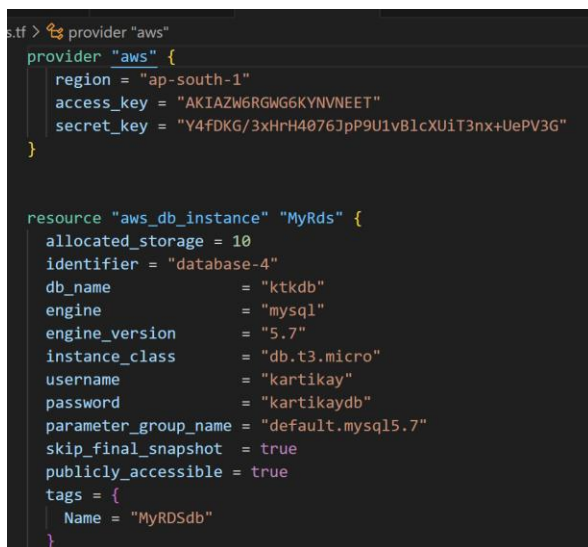
2. Create Terraform Configuration Files:

Create a file named main.tf:



```
1 terraform {
2   required_providers {
3     aws = {
4       source = "hashicorp/aws"
5       version = "5.32.1"
6     }
7   }
8 }
9
10
11
```

Rds.tf



```
s.tf > provider "aws"
provider "aws" {
  region = "ap-south-1"
  access_key = "AKIAZW6RGWG6KYNVNEET"
  secret_key = "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"
}

resource "aws_db_instance" "MyRds" {
  allocated_storage = 10
  identifier = "database-4"
  db_name         = "ktkdb"
  engine          = "mysql"
  engine_version  = "5.7"
  instance_class  = "db.t3.micro"
  username        = "kartikay"
  password        = "kartikaydb"
  parameter_group_name = "default.mysql5.7"
  skip_final_snapshot = true
  publicly_accessible = true
  tags = {
    Name = "MyRDSdb"
  }
}
```

- Replace "YourPassword123" with a secure password and "your-security-group-id"

with your actual security group ID.

- In this configuration, we define an AWS RDS instance with specific settings, such as engine type, instance class, and security group.

3. Initialize and Apply:

```
22
23
24
--
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS

Terraform has created a lock file `.terraform.lock.hcl` to record the provider selections it made above. Include this file in your version control repository so that Terraform can guarantee to make the same selections by default when you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see any changes that are required for your infrastructure. All Terraform commands should now work.

If you ever set or change modules or backend configuration for Terraform, rerun this command to reinitialize your working directory. If you forget, other commands will detect it and remind you to do so if necessary.

PS E:\terraform-variables\Terraformexp9> █

Column Selection Ln 17, Col 1

```
aws_db_instance.MyRds: Still creating... [2m30s elapsed]
aws_db_instance.MyRds: Still creating... [2m40s elapsed]
aws_db_instance.MyRds: Still creating... [2m50s elapsed]
aws_db_instance.MyRds: Still creating... [3m0s elapsed]
aws_db_instance.MyRds: Still creating... [3m10s elapsed]
aws_db_instance.MyRds: Still creating... [3m20s elapsed]
aws_db_instance.MyRds: Still creating... [3m30s elapsed]
aws_db_instance.MyRds: Still creating... [3m40s elapsed]
aws_db_instance.MyRds: Still creating... [3m50s elapsed]
aws_db_instance.MyRds: Still creating... [4m0s elapsed]
aws_db_instance.MyRds: Creation complete after 4m7s [id=db-3GQM3KES6HQ465X]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
PS E:\terraform-variables\Terraform 10> █
```

- Run the following Terraform commands to initialize and apply the configuration:

terraform init

terraform apply

- Terraform will prompt you to confirm the creation of the RDS instance. Type yes

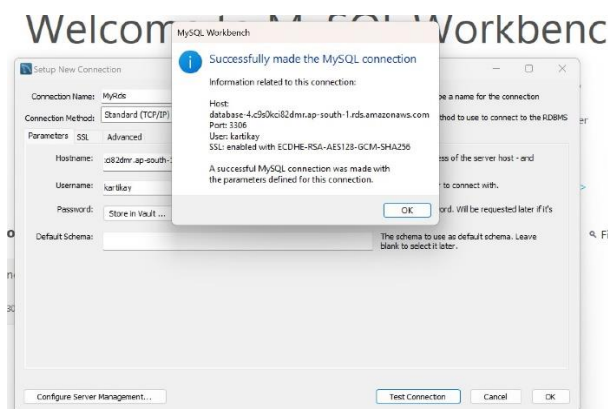
and press Enter.

4. Verify RDS Instance in AWS Console:

The screenshot displays the AWS Management Console interface for an Amazon RDS instance. At the top, a search bar shows 'Filter by databases'. Below it, a table lists the instance 'database-4' with a status of 'Available', engine of 'MySQL Community', region of 'ap-south-1a', and size of 'db.t3.micro'. The instance details page is open, showing various tabs: 'Connectivity & security', 'Monitoring', 'Logs & events', 'Configuration', 'Maintenance & backups', 'Tags', and 'Recommendations'. The 'Connectivity & security' tab is selected, displaying three sections: 'Endpoint & port', 'Networking', and 'Security'. The 'Endpoint & port' section shows the endpoint 'database-4.c9s0kci82dmr.ap-south-1.rds.amazonaws.com' and port '3306'. The 'Networking' section shows the availability zone 'ap-south-1a', VPC 'vpc-044fcb3db5f862e95', subnet group 'default', and subnets 'subnet-0683ae5ef7d66d258', 'subnet-0fbd5ba8fe341aaab', and 'subnet-08cb49d0363af45c7'. The 'Security' section shows the VPC security groups 'default (sg-0d343e70c8cafeec2)' with a status of 'Active', 'Publicly accessible' set to 'Yes', certificate authority 'rds-ca-rsa2048-g1', certificate authority date 'May 20, 2061, 00:10 (UTC+05:30)', and DB instance certificate expiration date 'February 23, 2027, 11:56'.

- Log in to the AWS Management Console and navigate to the RDS service.
- Verify that the specified RDS instance with the specified settings has been created.

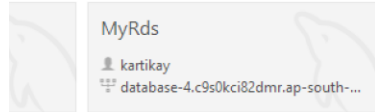
5. Connect to MySQL



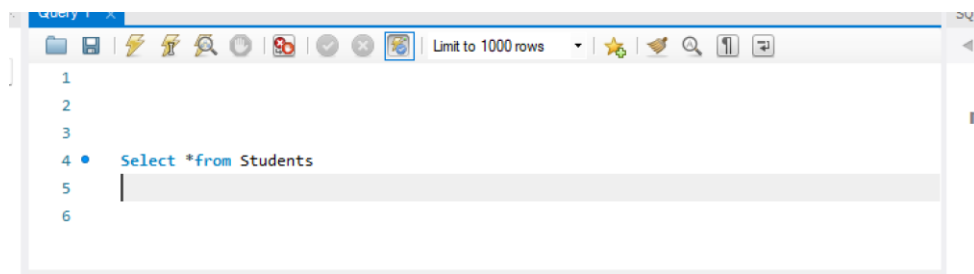
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Output				
Action Output				
#	Time	Action	Message	Duration / Fetch
1	12:34:53	CREATE TABLE Students (STU_ID INT PRIMARY KEY, -- Unique identifier for each student (integer) ...	Error Code: 1050. Table 'Students' already exists	0.047 sec
2	12:34:59	INSERT INTO Students (STU_ID, STU_NAME, STU_CITY) VALUES (1, 'FIGO', 'Madrid'), (2, 'RONALDO', 'Lisbon'), (3, 'BECKHAM', 'London'), (4, 'NAZARIO', 'Madrid'), (5, 'ZLATAN', 'Stockholm')	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.046 sec



Result Grid			
STU_ID	STU_NAME	STU_CITY	
1	FIGO	Madrid	
2	RONALDO	Lisbon	
3	BECKHAM	London	
4	NAZARIO	Madrid	
5	ZLATAN	Stockholm	
NULL	NULL	NULL	

Students 1 x Apply Revert Context Help Snippets

Output				
Action Output				
#	Time	Action	Message	
1	12:34:53	CREATE TABLE Students (STU_ID INT PRIMARY KEY, -- Unique identifier for each student (integ...	Error Code: 1050. Table 'Students' already exists	
2	12:34:59	INSERT INTO Students (STU_ID, STU_NAME, STU_CITY) VALUES (1, 'FIGO', 'Madrid'), (2, 'RO...	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	
3	12:37:00	INSERT INTO Students (STU_ID, STU_NAME, STU_CITY) VALUES (1, 'FIGO', 'Madrid'), (2, 'RO...	Error Code: 1062. Duplicate entry '1' for key 'PRIMARY'	
4	12:38:42	Select from Students LIMIT 0, 1000	5 row(s) returned	

Summary				
DB identifier database-4	Status Available	Role Instance	Engine MySQL Community	Recommendations
CPU <div><div></div></div> 2.49%	Class db.t3.micro	Current activity <div><div></div></div> 2 Connections	Region & AZ ap-south-1a	

Connectivity & security	Monitoring	Logs & events	Configuration	Maintenance & backups	Tags	Recommendations
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6. Clean Up:

After testing, you can clean up the RDS instance:

terraform destroy

```
Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
PS E:\terraform-variables\Terraform 10> terraform destroy
aws_db_instance.MyRds: Refreshing state... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with:
- destroy

Terraform will perform the following actions:

# aws_db_instance.MyRds will be destroyed
- resource "aws_db_instance" "MyRds" {
  - address                  = "database-4.c9s0kci82dmr.ap-south-1.rds.amazonaws.com" -> null
  - allocated_storage       = 10 -> null
  - apply_immediately       = false -> null
```

Confirm the destruction by typing yes.

```
aws_db_instance.MyRds: Still destroying... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU, 2m20s elapsed]
aws_db_instance.MyRds: Still destroying... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU, 2m30s elapsed]
aws_db_instance.MyRds: Still destroying... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU, 2m40s elapsed]
aws_db_instance.MyRds: Still destroying... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU, 2m50s elapsed]
aws_db_instance.MyRds: Still destroying... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU, 3m0s elapsed]
aws_db_instance.MyRds: Still destroying... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU, 3m10s elapsed]
aws_db_instance.MyRds: Still destroying... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU, 3m20s elapsed]
aws_db_instance.MyRds: Still destroying... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU, 3m30s elapsed]
aws_db_instance.MyRds: Still destroying... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU, 3m40s elapsed]
aws_db_instance.MyRds: Still destroying... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU, 3m50s elapsed]
aws_db_instance.MyRds: Still destroying... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU, 4m0s elapsed]
aws_db_instance.MyRds: Still destroying... [id=db-3GQM3KES6HQ465X2DRBB4IK3LU, 4m10s elapsed]
aws_db_instance.MyRds: Destruction complete after 4m15s

Destroy complete! Resources: 1 destroyed.
PS E:\terraform-variables\Terraform 10>
```