

## **AWS CASE STUDY**

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**Cohort GN22DTAWS003-AWS**

Company XYZ need to make their Database and Database Server private from the world so that not one will be able to get any information about it and only authorized person and the services can access them. They want AWS to perform with operation. Write how you are going to solve this problem using AWS architect knowledge.

Company XYZ need to access RDS and EC2( which are in VPC-Backend) from VPC-Frontend.

VPC-Frontend should have Bastion server (Linux) to connect with RDS and EC2(Linux) in VPC-Backend,

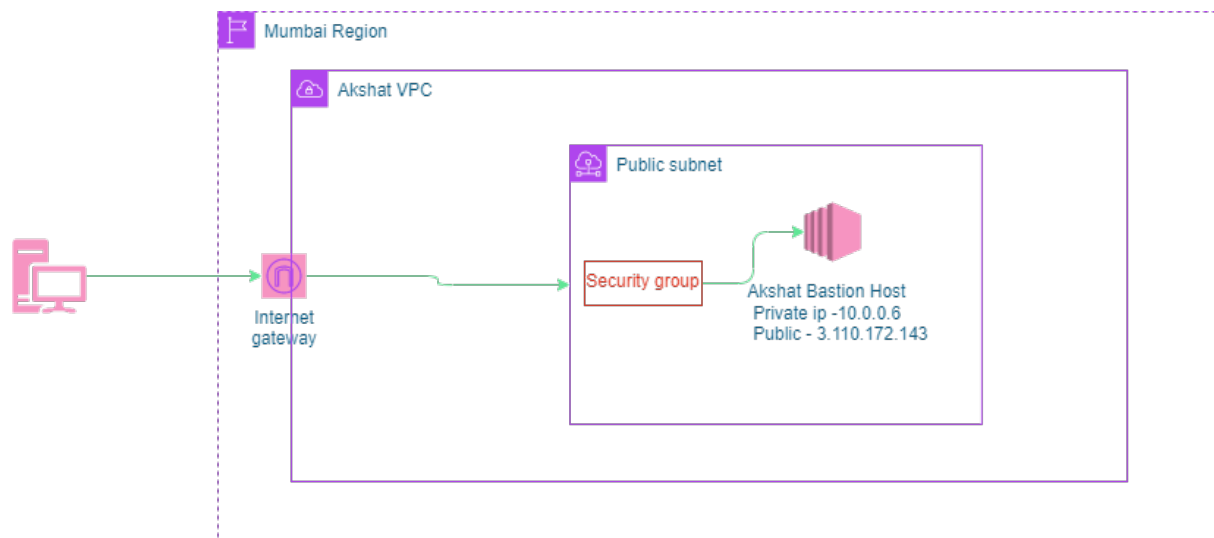
Make sure the VPC-Frontend will be a public VPC and the VPC-Backend should be private VPC.

Consider the proper CIDR and subnetting. Each VPC will have only 1 subnet.

Perform the following activities and write the details notes on the case study.

- 1) SSH from your local system to Bastion server
- 2) From Bastion connect to private EC2 in VPC-Backend.
- 3) From Local system connect to RDS (Through Bastion Server)

## SSH FROM LOCAL SYSTEM TO BASTION SERVER



### Step-1 Create new VPC

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New VPC Experience Tell us what you think

VPC dashboard  
EC2 Global View New  
Filter by VPC:  
Select a VPC

Virtual private cloud

Your VPCs

Subnets  
Route tables  
Internet gateways  
Egress-only internet

Your VPCs (1) Info

Filter VPCs

search: vpc-013cfb062388a76fd Clear filters

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR
akshat-vpc	vpc-013cfb062388a76fd	Available	10.0.0.0/16	-

### Step-2 Create subnet

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Your VPCs

Subnets  
Route tables  
Internet gateways  
Egress-only internet  
gateways  
DHCP Option Sets  
Elastic IPs  
Managed prefix lists  
Endpoints

You have successfully created 2 subnets: subnet-0946cf3a1d64ddc26, subnet-0fdd6e2269975f910

Subnets (2) Info

Filter subnets

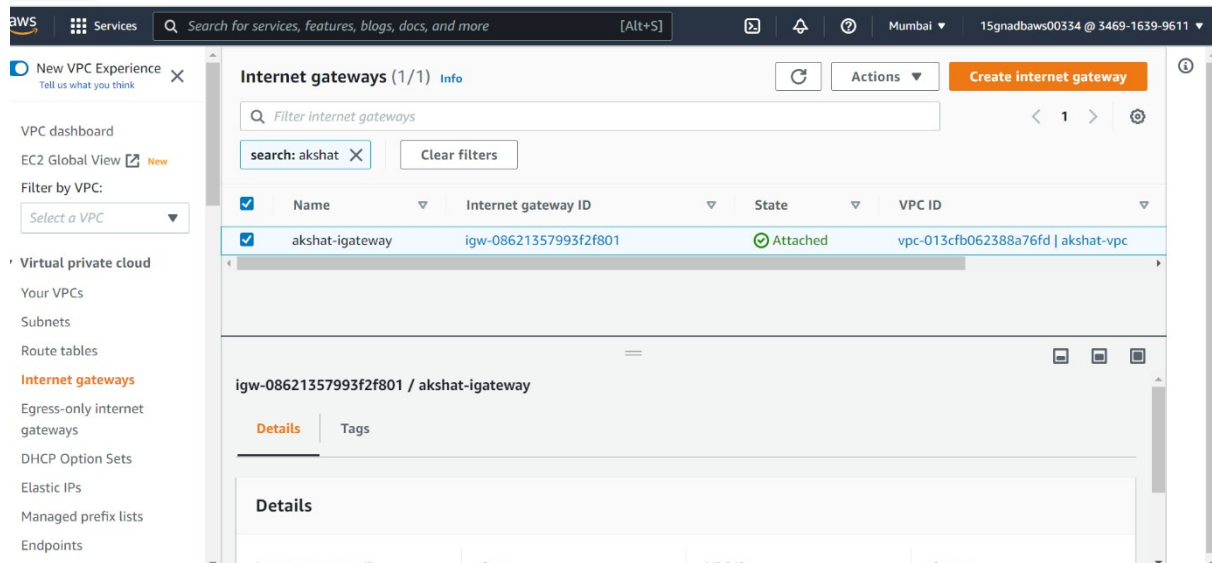
Subnet ID: subnet-0946cf3a1d64ddc26 Subnet ID: subnet-0fdd6e2269975f910  
VPC: vpc-013cfb062388a76fd Clear filters

Name	Subnet ID	State	VPC	IPv4 CIDR
akshat-private-sub...	subnet-0fdd6e2269975f910	Available	vpc-013cfb062388a76fd   aks...	10.0.1.0/24
akshat-public-subnet	subnet-0946cf3a1d64ddc26	Available	vpc-013cfb062388a76fd   aks...	10.0.0.0/24

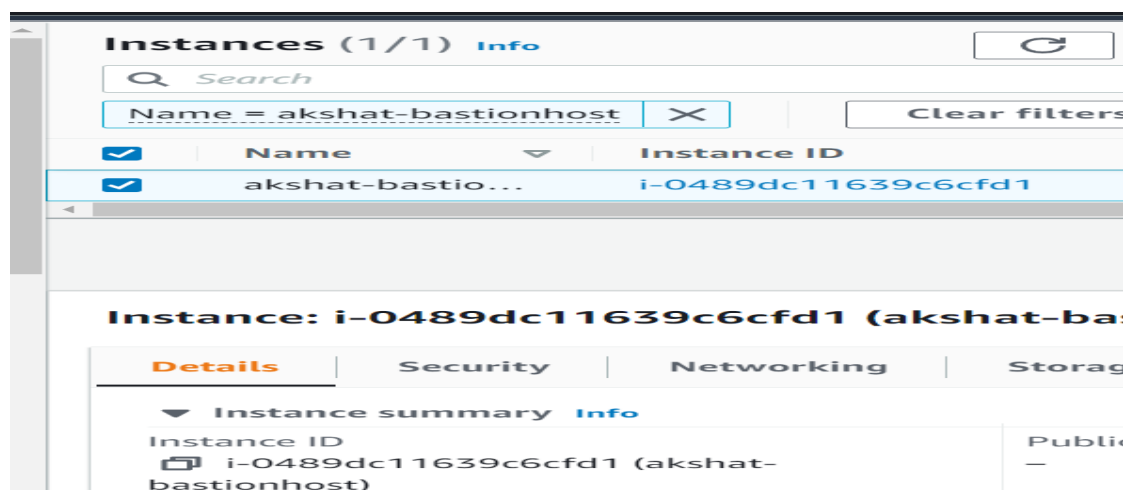
Select a subnet

Lenovo Vantage

## Step-3 Create Internet gateway



## Step- 4 Create an Ec2 instance in vpc using key pair



**Step 5-** Open PuTTY by clicking on the desktop icon or the **putty.exe** file in the PuTTY folder.

1. In the *Host Name* ( ) box, type public IP of instance
2. And in SSH select the key pair
3. Or directly connect through AWS

## Step - 6

Set route for the internet gateway

ap-south-1.console.aws.amazon.com/vpc/home?region=ap-south-1#EditRoutes:RouteTableId=rtb-0f95d51bc31d11f86

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VPC > Route tables > rtb-0f95d51bc31d11f86 > Edit routes

### Edit routes

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No
0.0.0.0/0	igw-08621357993f2f801	-	No

Add route

Cancel Preview Save changes

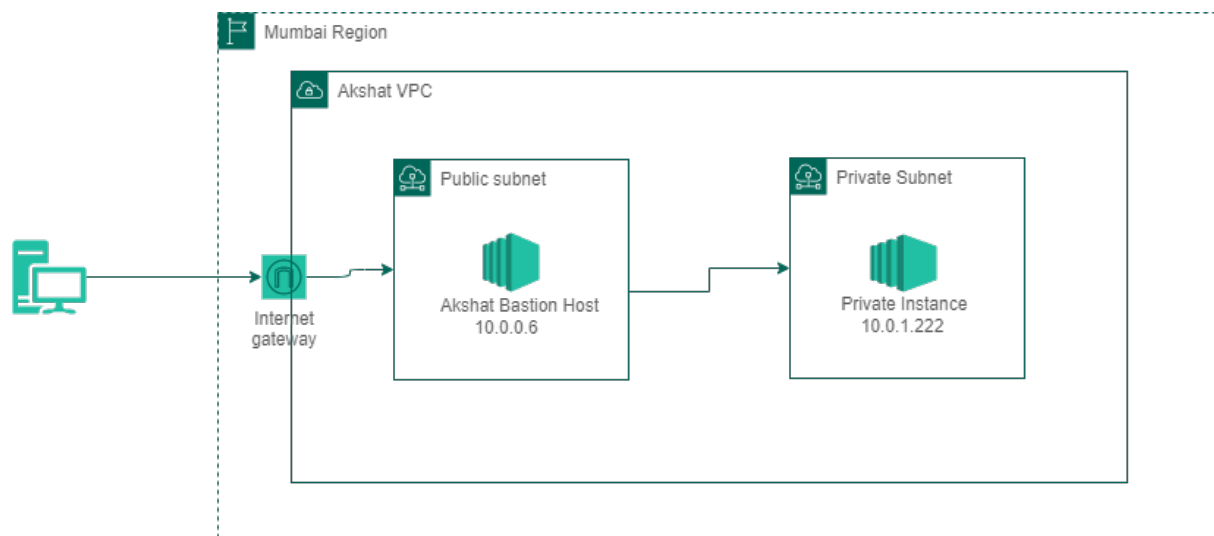
## Step 7 Finally you are connected to your ec2 instance

ap-south-1.console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0489dc11639c6cf1

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```
Amazon Linux 2 AMI
https://aws.amazon.com/amazon-linux-2/
ec2-user@ip-10-0-0-6 ~]$ ping google.com
PING google.com (216.58.196.78) 56(84) bytes of data:
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=1 ttl=51 time=1.48 ms
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=2 ttl=51 time=1.50 ms
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=3 ttl=51 time=1.51 ms
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=4 ttl=51 time=1.51 ms
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=5 ttl=51 time=1.47 ms
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=6 ttl=51 time=1.53 ms
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=7 ttl=51 time=1.47 ms
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=8 ttl=51 time=1.50 ms
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=9 ttl=51 time=1.60 ms
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=10 ttl=51 time=1.50 ms
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=11 ttl=51 time=1.49 ms
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=12 ttl=51 time=1.48 ms
4 bytes from kul01s09-in-f78.1e100.net (216.58.196.78): icmp_seq=13 ttl=51 time=1.52 ms
```


## From Bastion connect to private EC2 in VPC-Backend.






























## To connect private instance using Bastion



1. Create a private Instance in VPC and add a private subnet ,you can use Key pair as same as Bastion server or can create a new one.

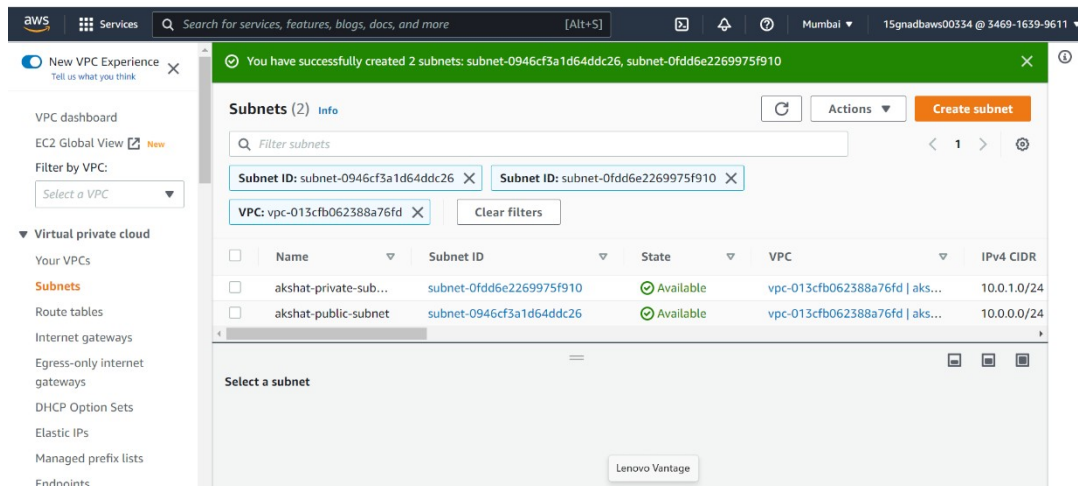
Q Search

< 1 > 

	Name 	Instance ID	Instance state 	Instance type 	Status check	Alarm status
<input type="checkbox"/>	bastion-host-1	i-04f4cd7641e4ead26	 Running 	t2.micro	 2/2 checks passed	No alarms 
<input type="checkbox"/>	akshat-bastio...	i-0489dc11639c6cfd1	 Running 	t2.micro	 2/2 checks passed	No alarms 
<input type="checkbox"/>	dominic-public	i-0579823569ac7218d	 Terminated 	t2.micro	-	No alarms 
<input type="checkbox"/>	dominic-private	i-00e22b1803e1128e6	 Terminated 	t2.micro	-	No alarms 
<input type="checkbox"/>	akshat-private	i-0164dc9b178de5837	 Terminated 	t2.micro	-	No alarms 
<input checked="" type="checkbox"/>	private-ak	i-05cfb82ae886720ee	 Running 	t2.micro	 2/2 checks passed	No alarms 

Instance: i-05cfb82ae886720ee (private-ak)  

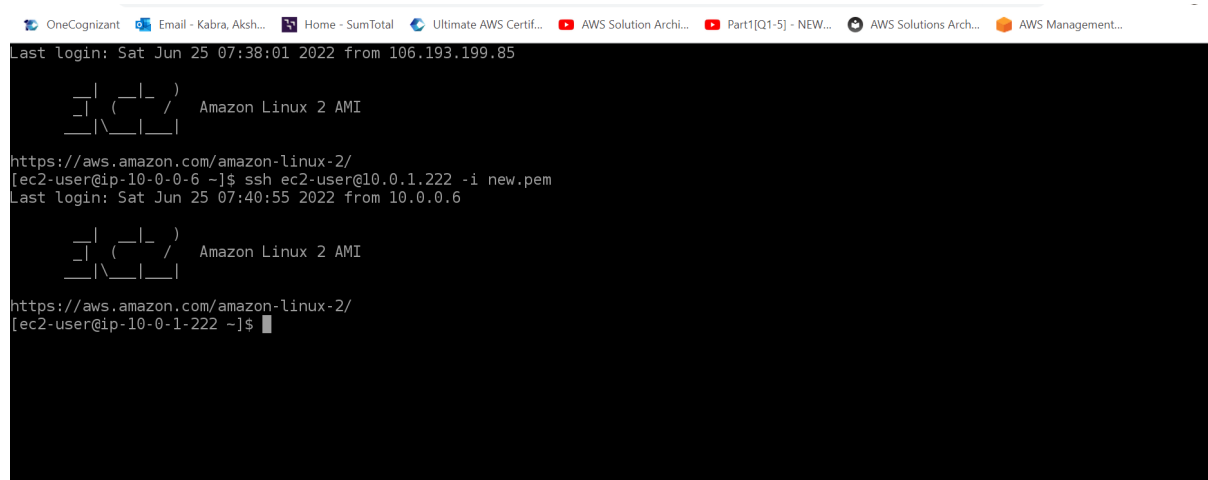
Instance ID  i-05cfb82ae886720ee (private-ak)	Public IPv4 address -	Private IPv4 addresses  10.0.1.222
IPv6 address	Instance state	Public IPv4 DNS



2. And in Security group, allow traffic from the security group of bastion server.
3. Make sure that private instance don't have a public IP (Auto Assign Public option is DISABLED)
4. Then follow the below Step.

First connect to Bastion Host then type -

“ssh ec2-user@private IP -I key file of instance”



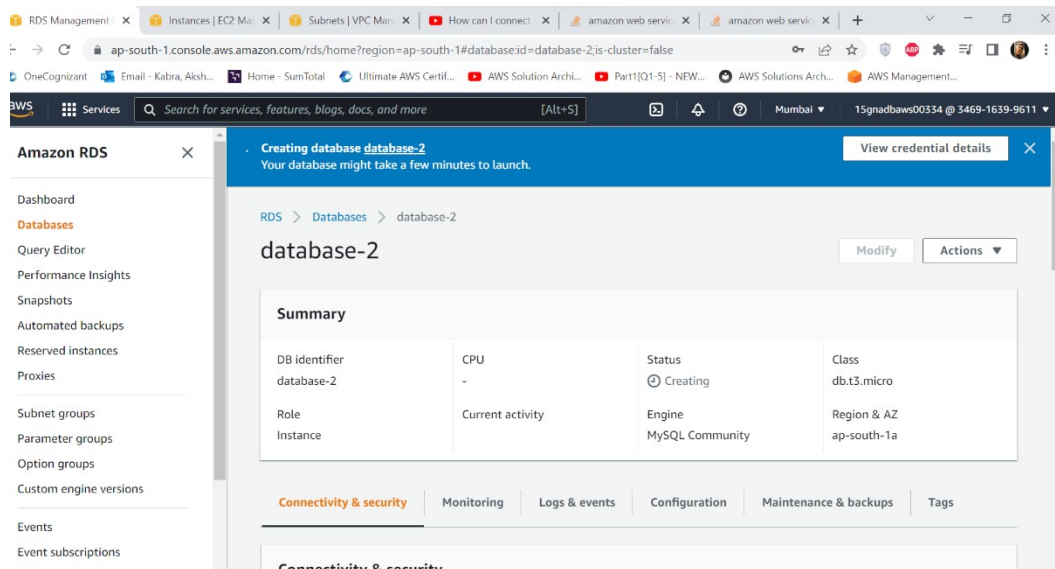
i-0489dc11639c6cfd1 (akshat-bastionhost)

Public IPs: 15.206.73.87 Private IPs: 10.0.0.6

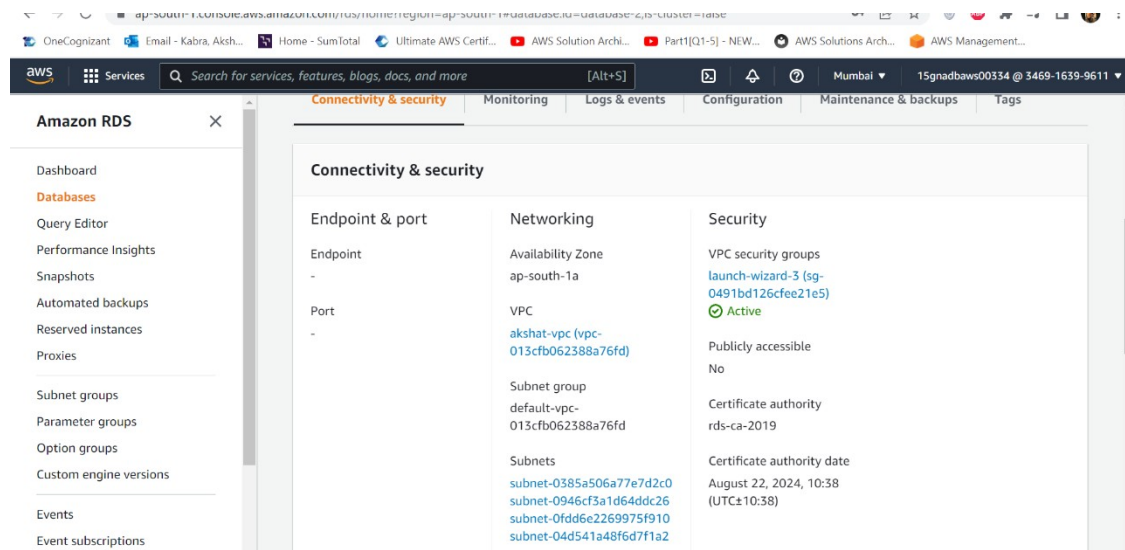
Now, you can able to connect to private instance from Bastion Host.

## From Local system connect to RDS (Through Bastion Server)

1. To connect Bastion Server to RDS ,First create RDS using any DB engine (MySQL)

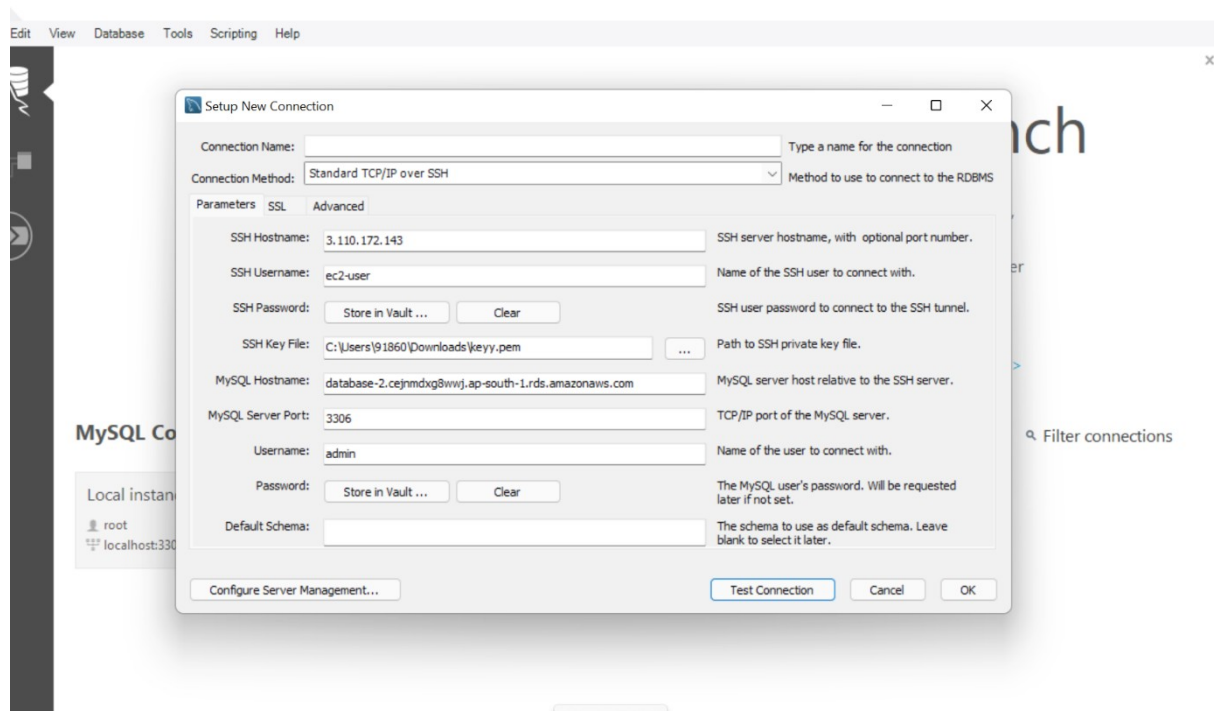


2. Make sure that RDS VPC is same as Bastion Host's VPC.



3. After creating RDS open MySQL workbench.
4. Setup new connection using connection method- Standard TCP/IP Over SSH.
5. In SSH Host name type the IP of Bastion Instance and in MYSQL host name type the end point of RDS DB
6. Then type the id password (used at the time of creation of RDS)

7.



Then click test connection and then click “ok” you can able to connect.

## **Problem I’ve faced and its Solutions**

While connecting to private instance I was getting an error “Permission Denied” then I’ve gone through various Youtube videos and followed their steps for connecting.