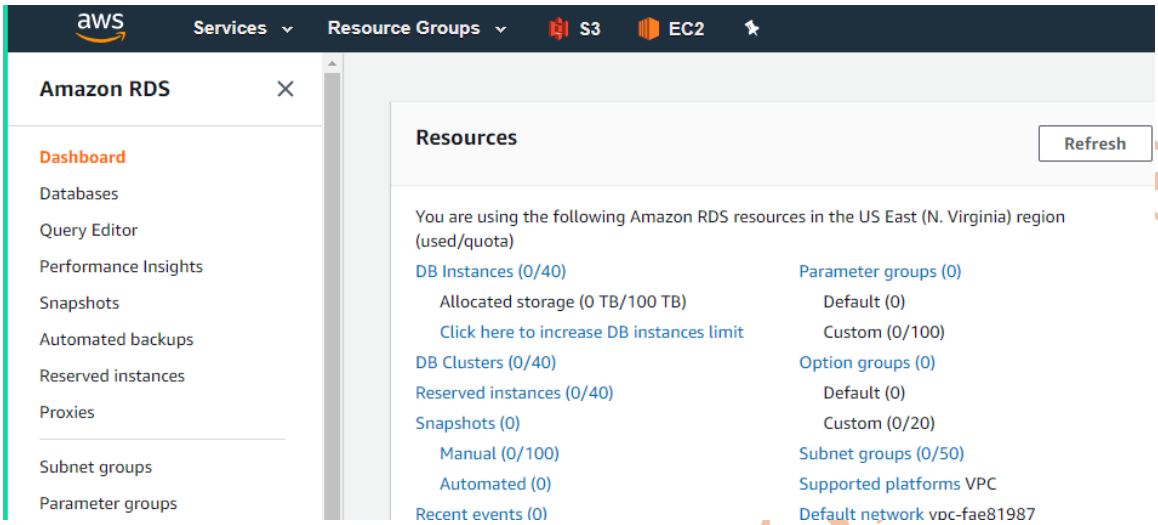
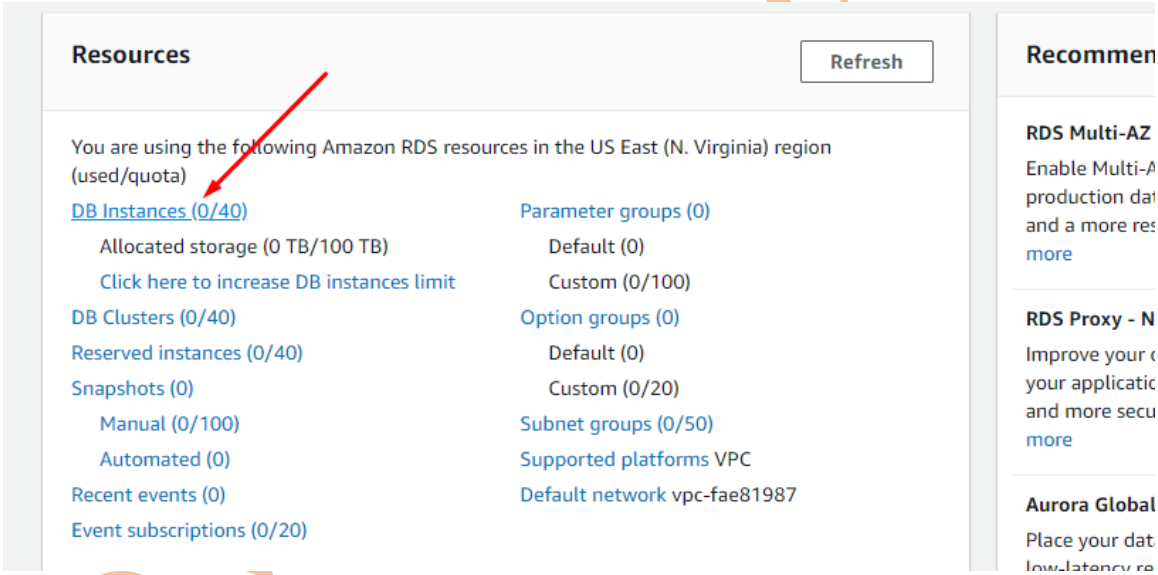
DVS Technologies Aws & Devops

1. Working with RDS





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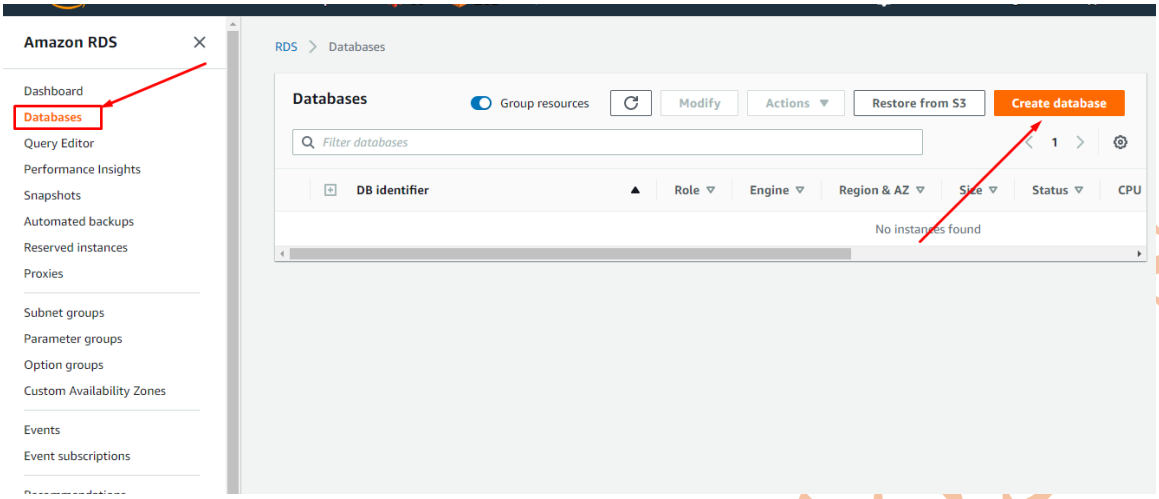
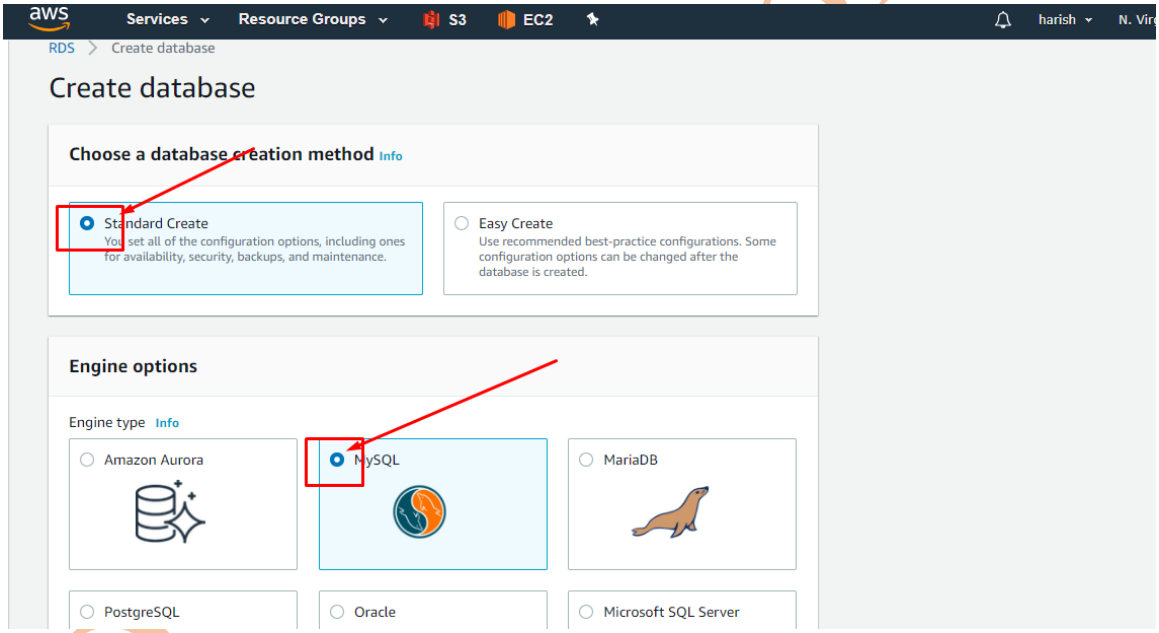
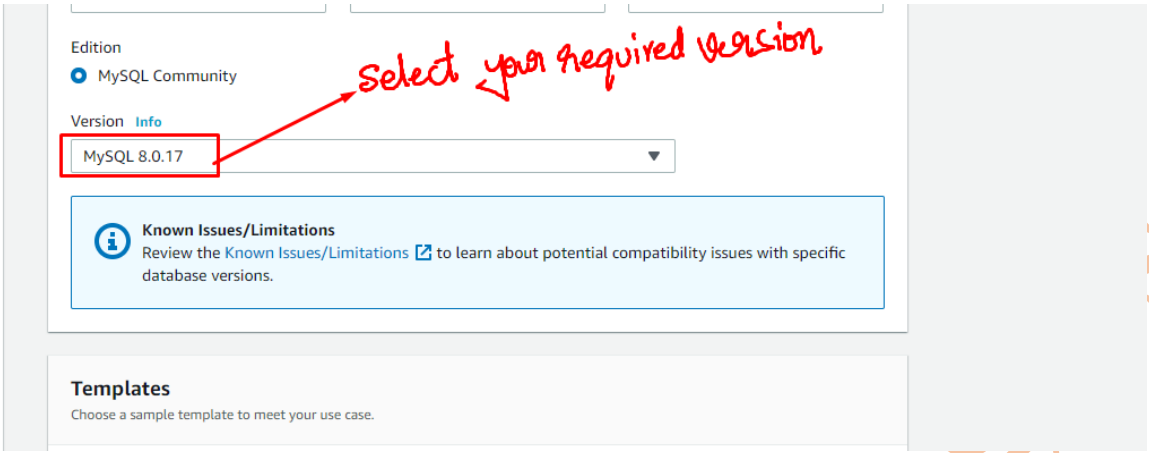
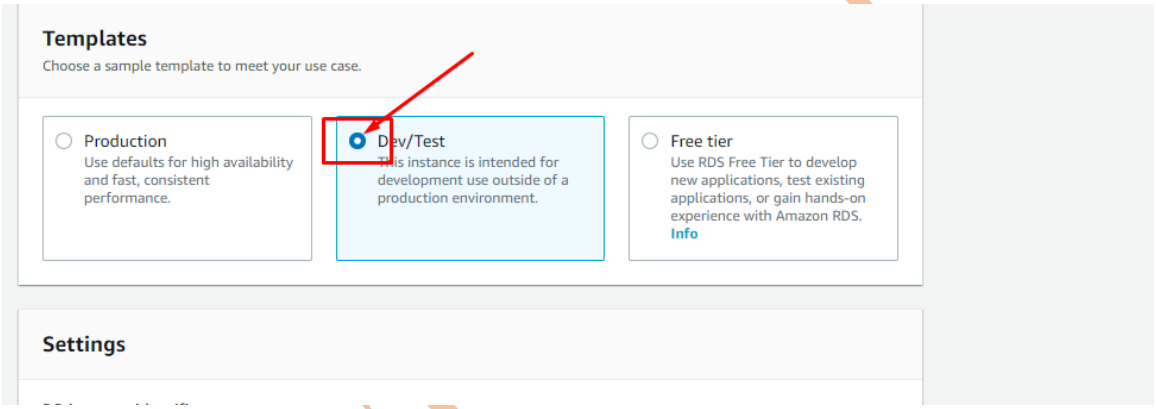





Edition
MySQL Community
Select your required version
Version Info
MySQL 8.0.17
Known Issues/Limitations
Review the Known Issues/Limitations to learn about potential compatibility issues with specific database versions.
Templates
Choose a sample template to meet your use case.


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.
Info
Settings

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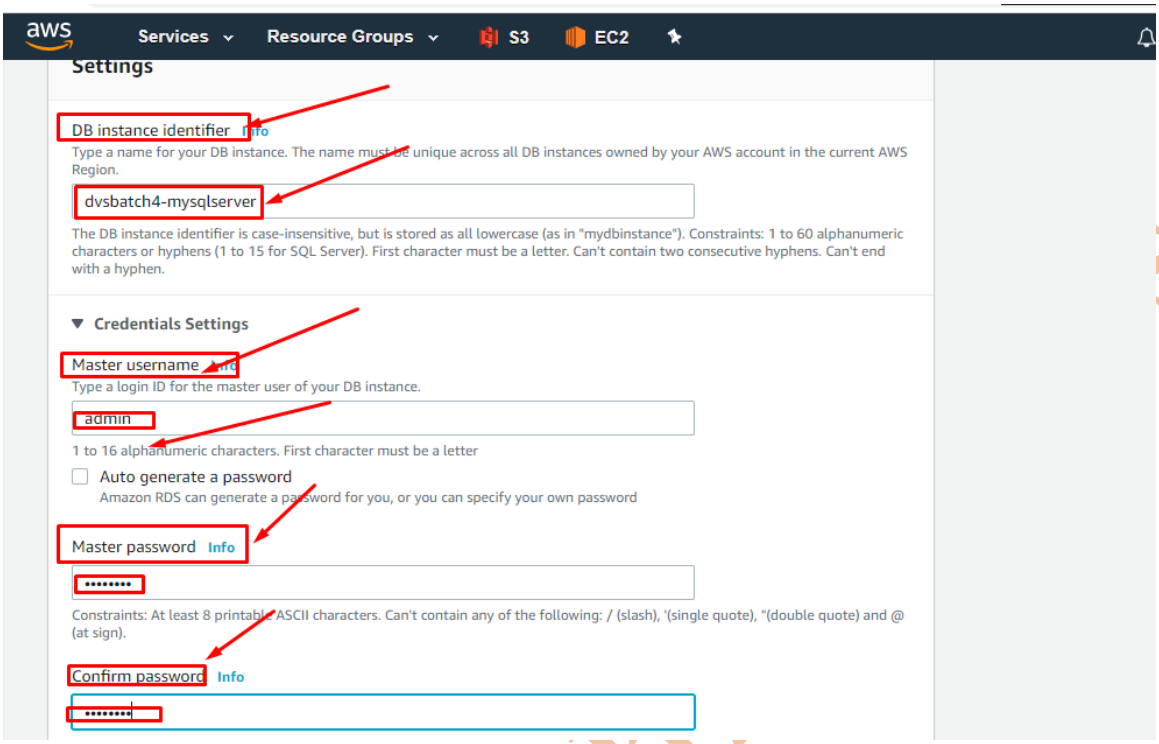
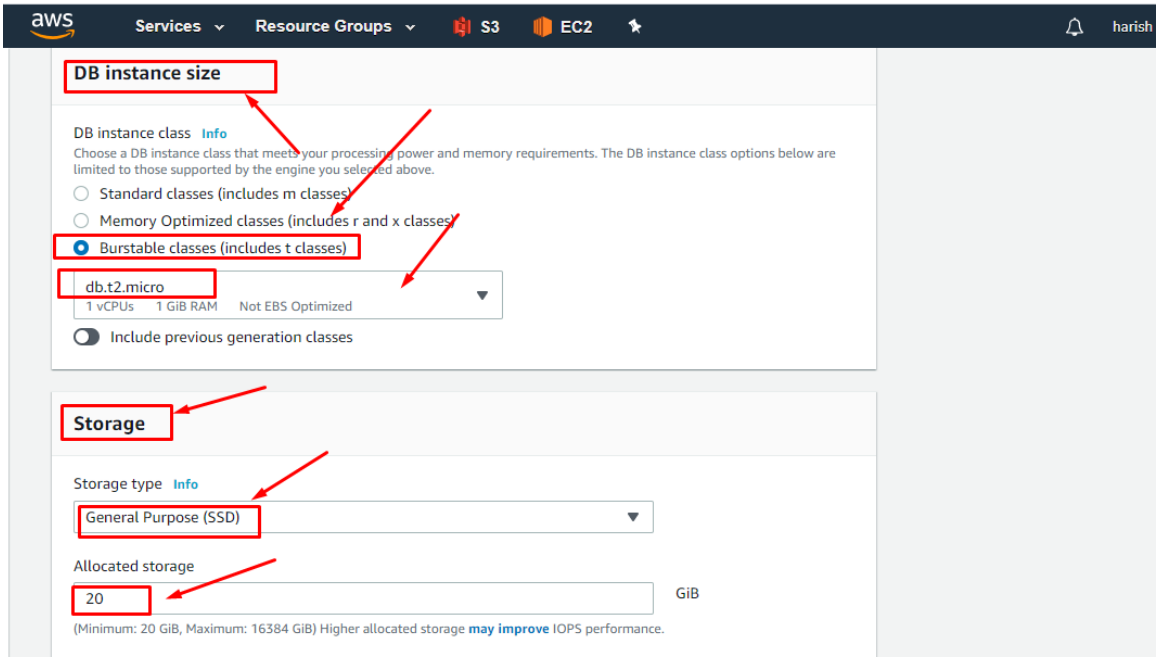
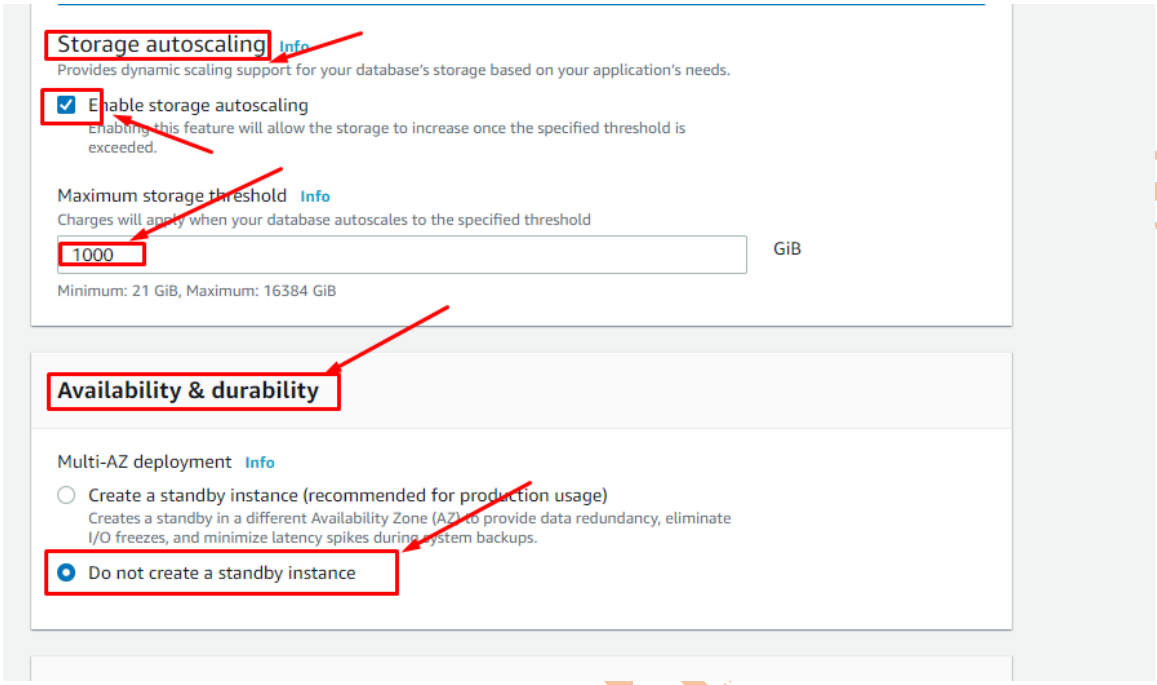
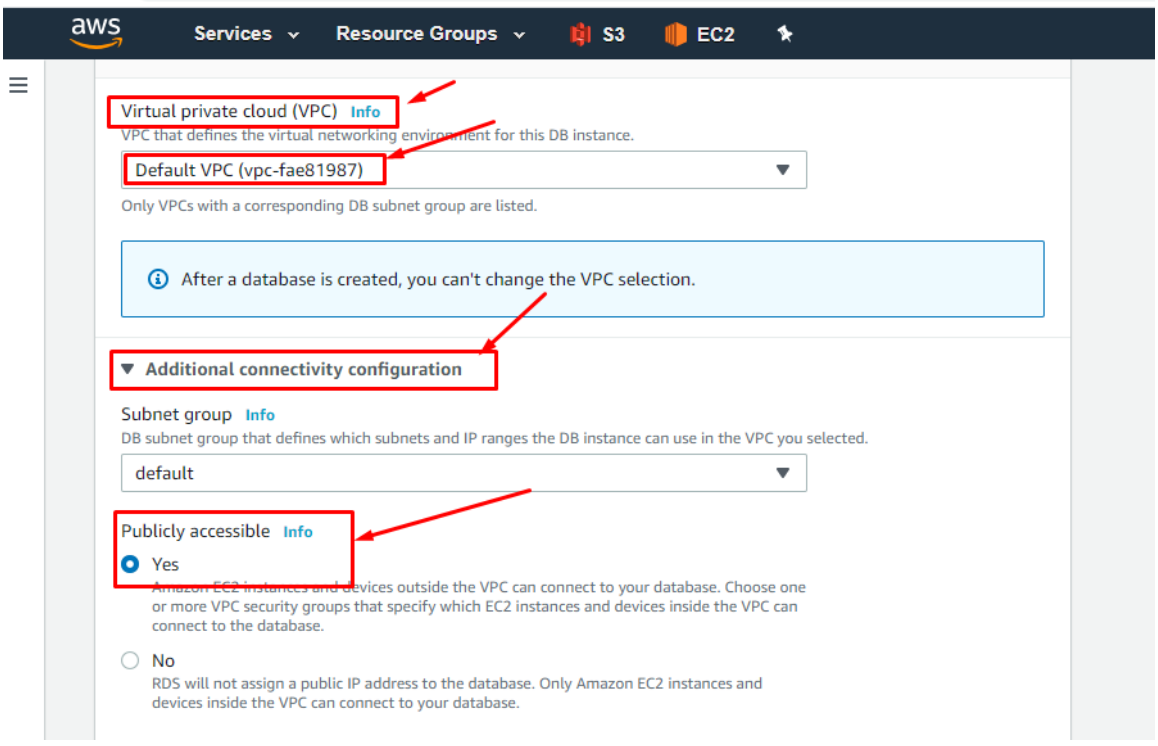
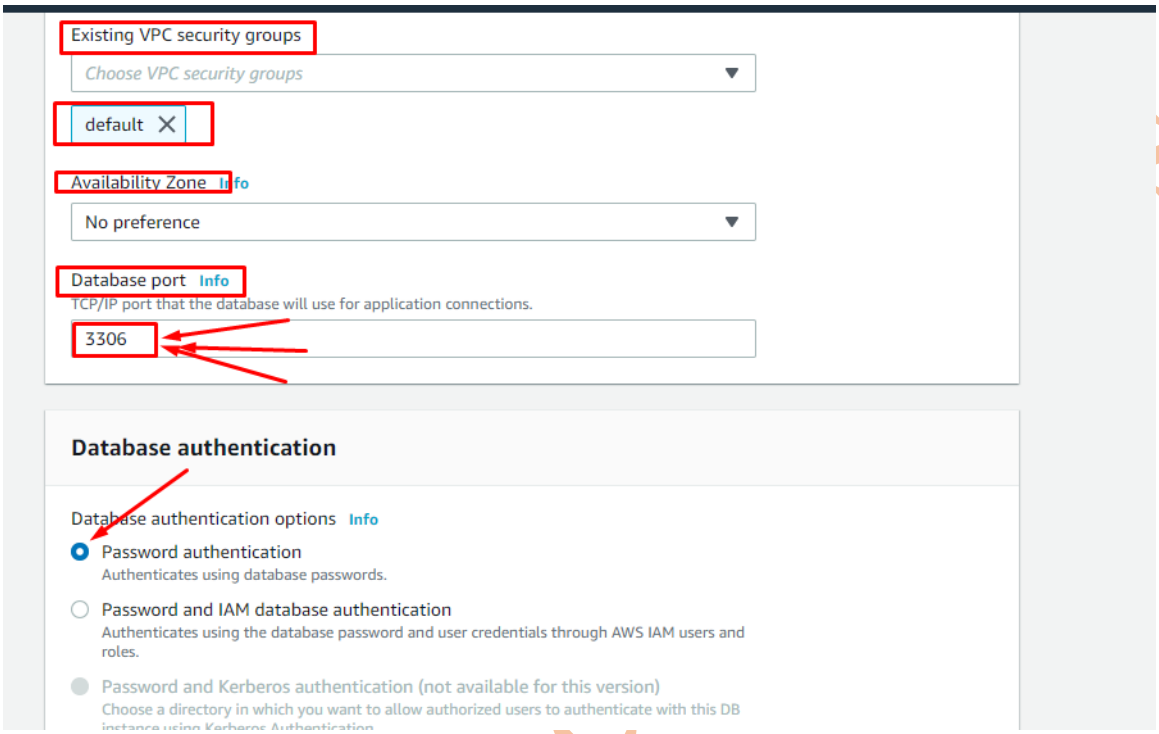





Storage autoscaling Info
Provides dynamic scaling support for your database's storage based on your application's needs.
Enable storage autoscaling
Enabling this feature will allow the storage to increase once the specified threshold is exceeded.
Maximum storage threshold Info
Charges will apply when your database autoscales to the specified threshold
1000
GiB
Minimum: 21 GiB, Maximum: 16384 GiB
Availability & durability
Multi-AZ deployment Info
Create a standby instance (recommended for production usage)
Creates a standby in a different Availability Zone (AZ) to provide data redundancy, eliminate I/O freezes, and minimize latency spikes during system backups.
Do not create a standby instance


aws
Services
Resource Groups
S3
EC2
Virtual private cloud (VPC) Info
VPC that defines the virtual networking environment for this DB instance.
Default VPC (vpc-fae81987)
Only VPCs with a corresponding DB subnet group are listed.
After a database is created, you can't change the VPC selection.
Additional connectivity configuration
Subnet group Info
DB subnet group that defines which subnets and IP ranges the DB instance can use in the VPC you selected.
default
Publicly accessible 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.



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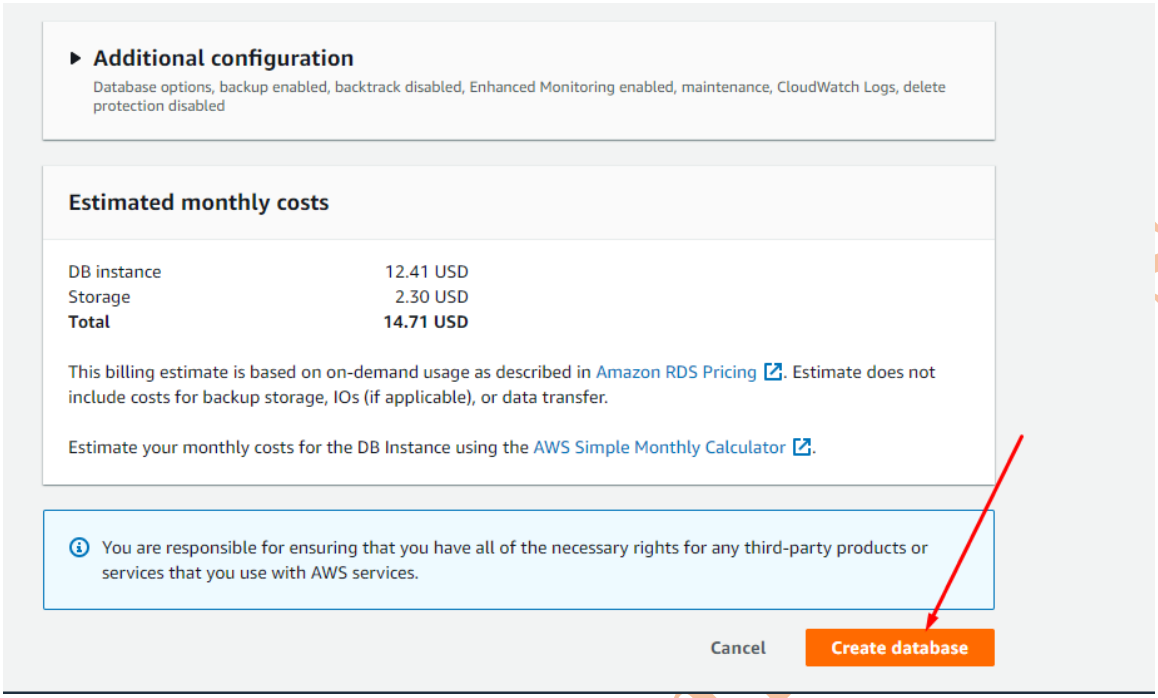

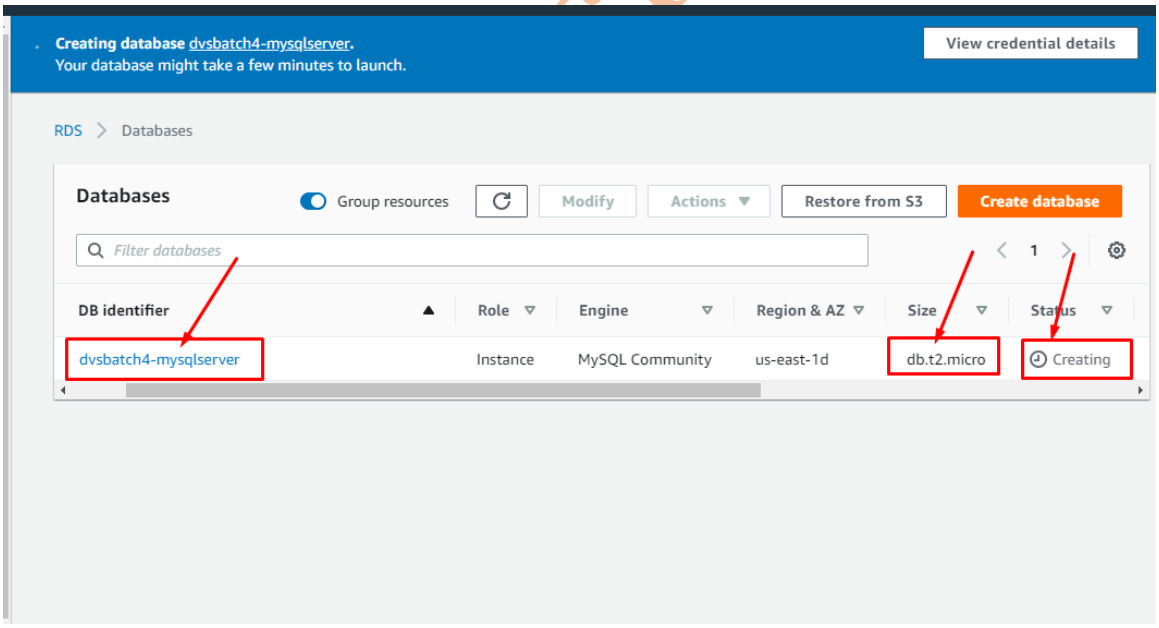

Launch one Ec2 and install the mysql client package as below:

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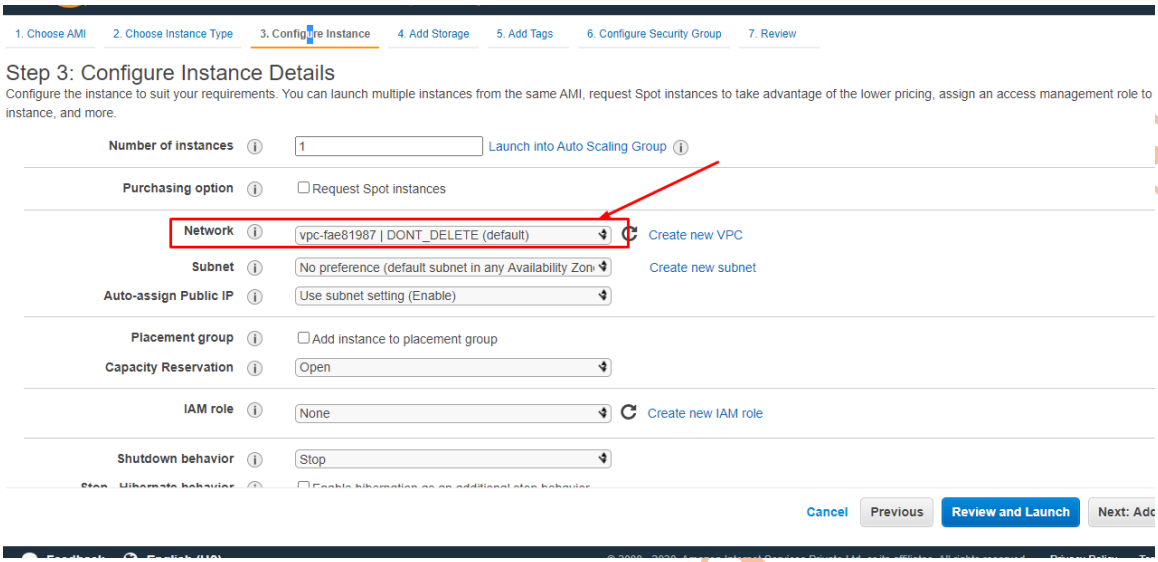

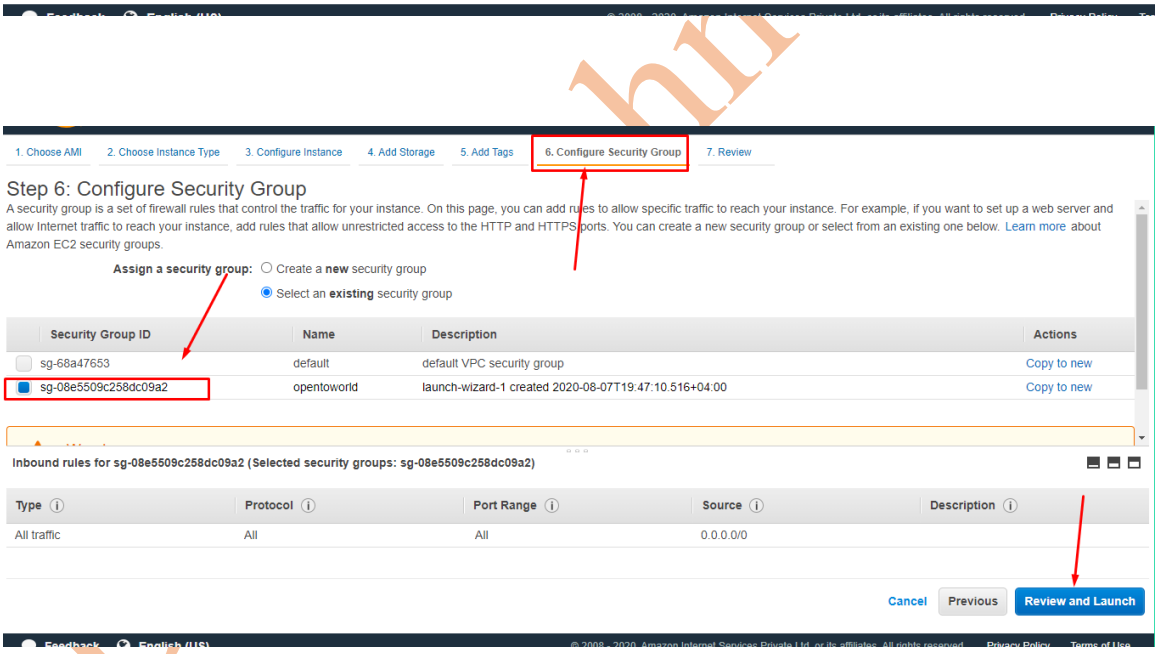

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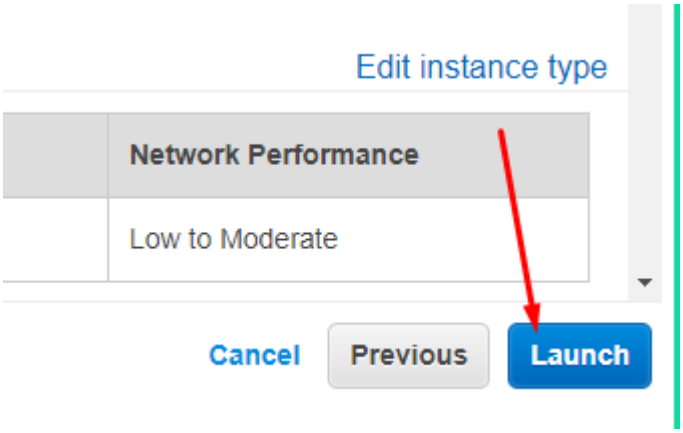

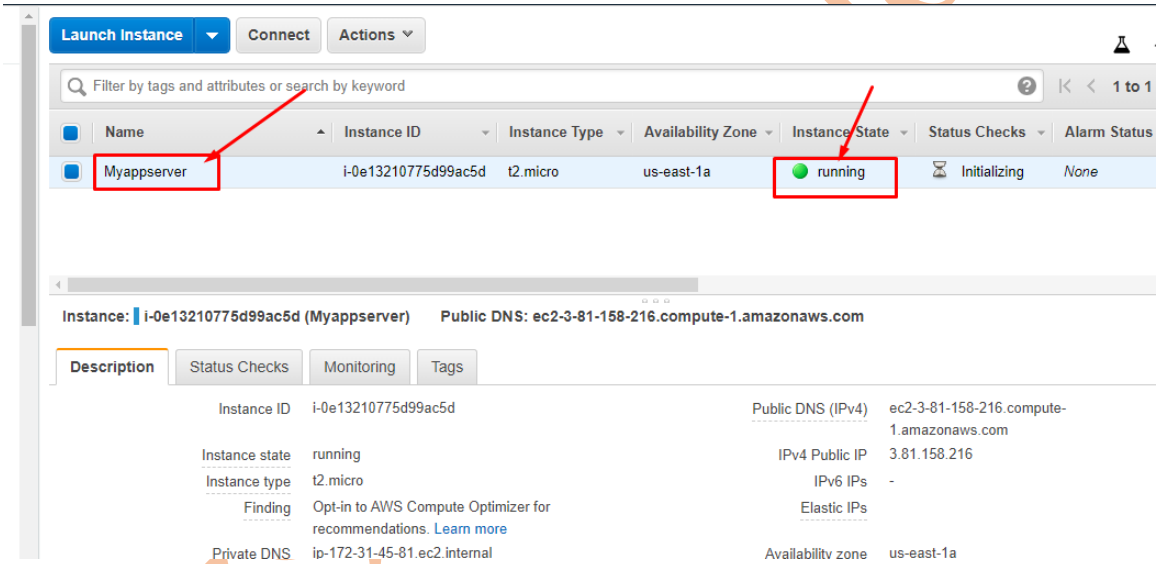

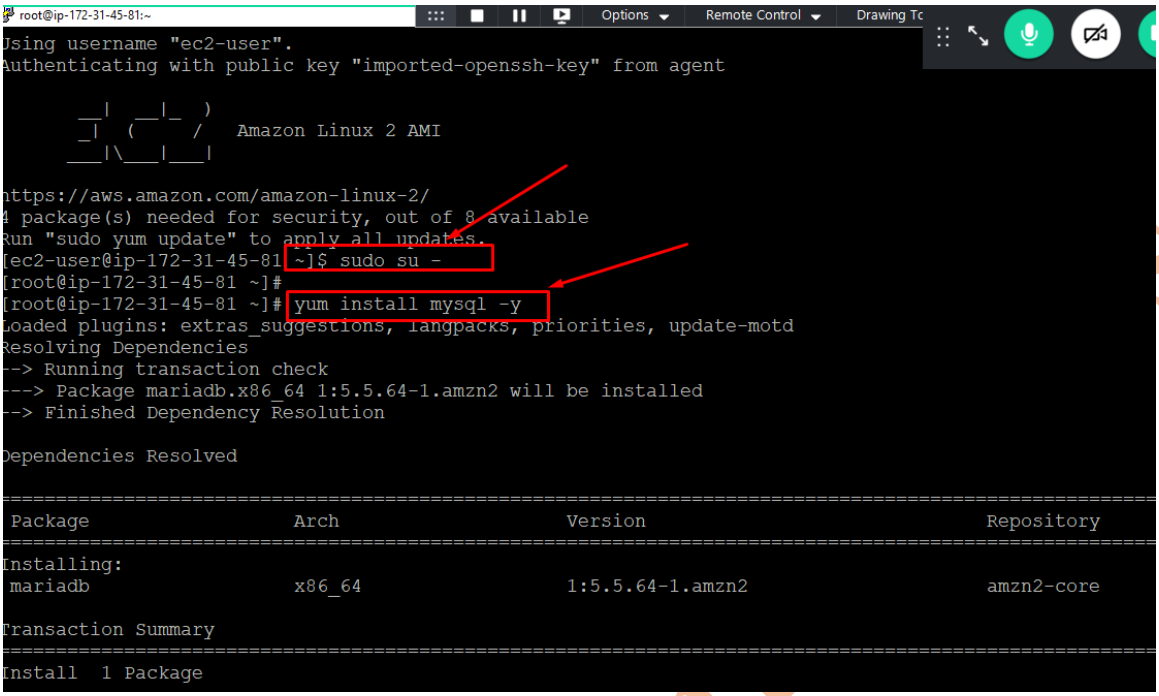

Logging in to the RDS server:

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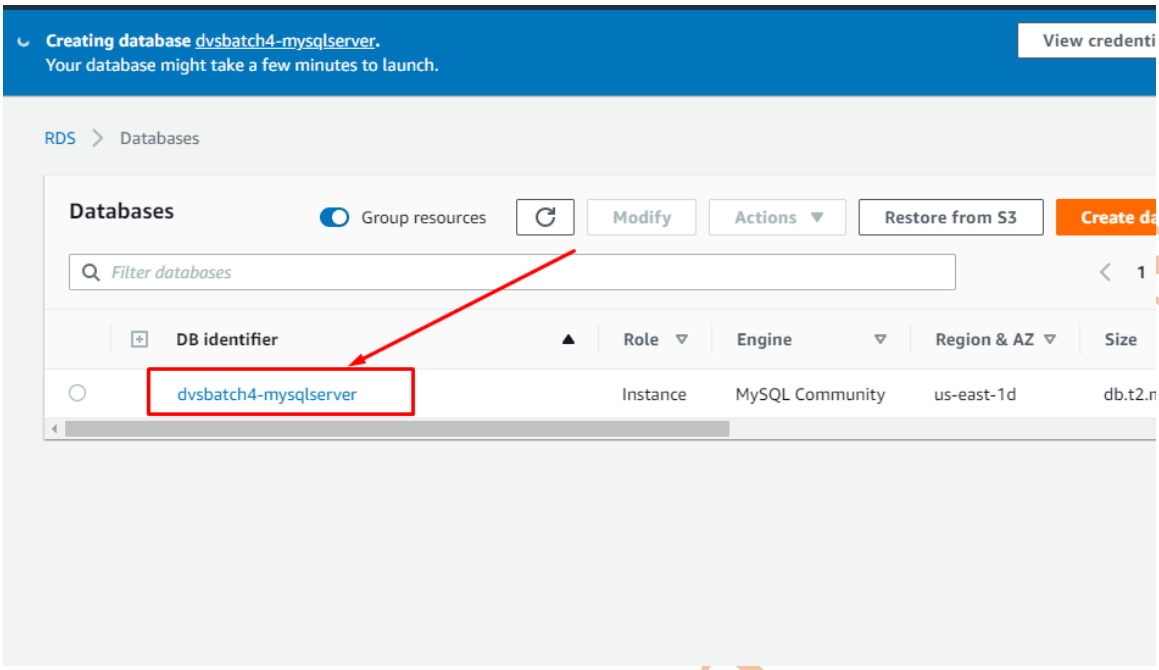

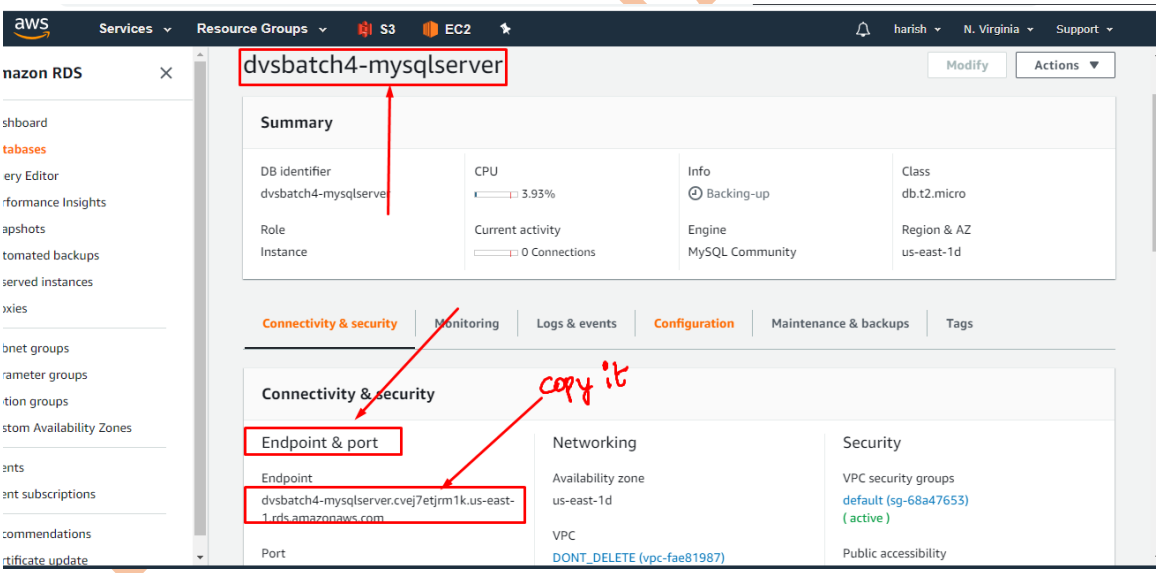

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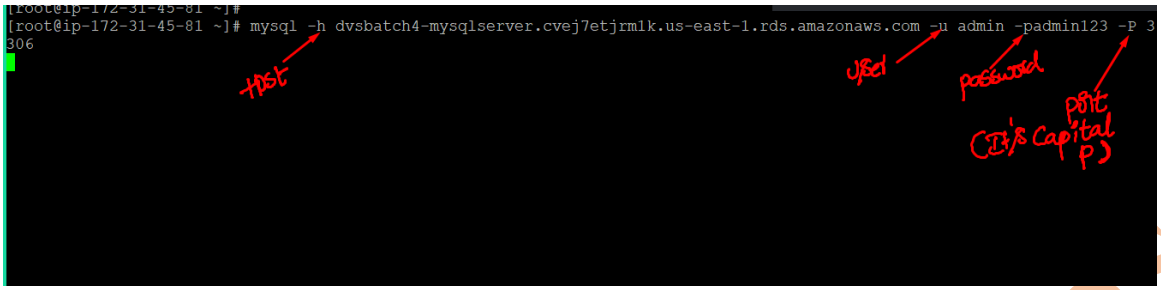
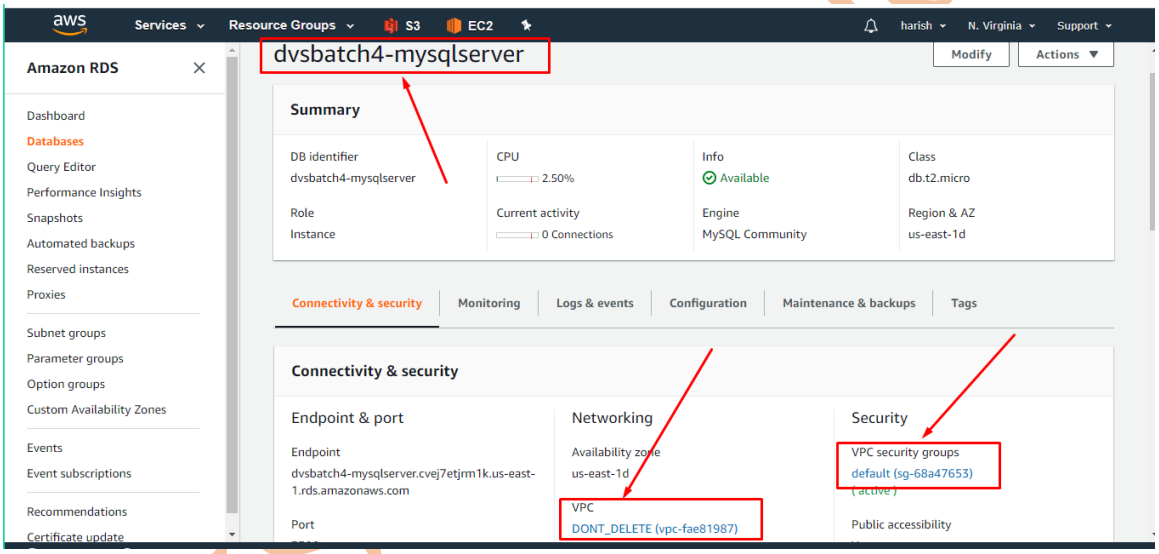


Issue here is my database is not responding to my request, we need to make sure that in our RDS security group
We are opening our port 3306. Follow the below steps to resolve the issue.



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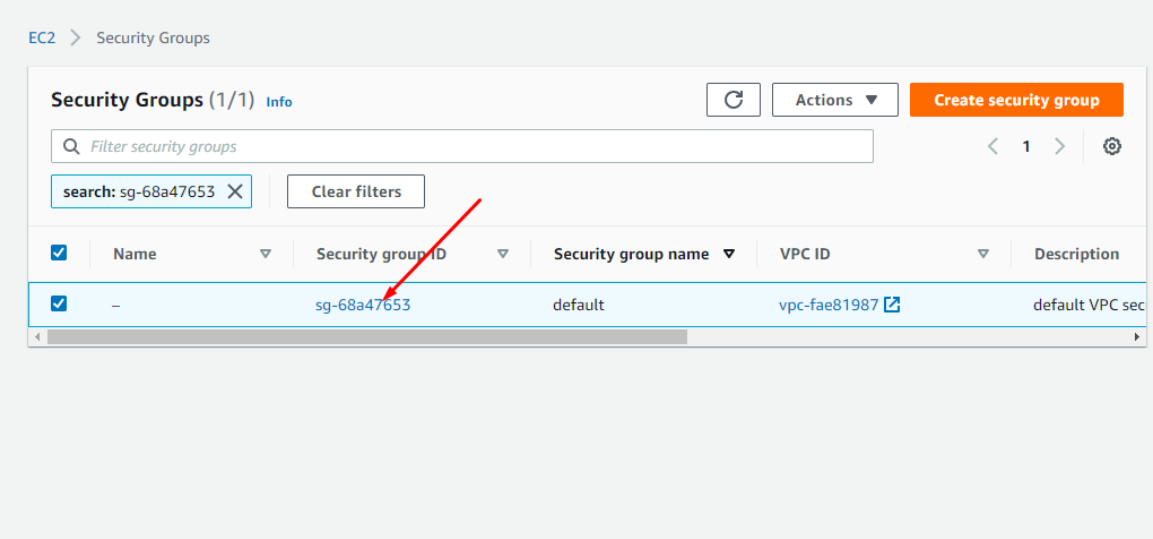
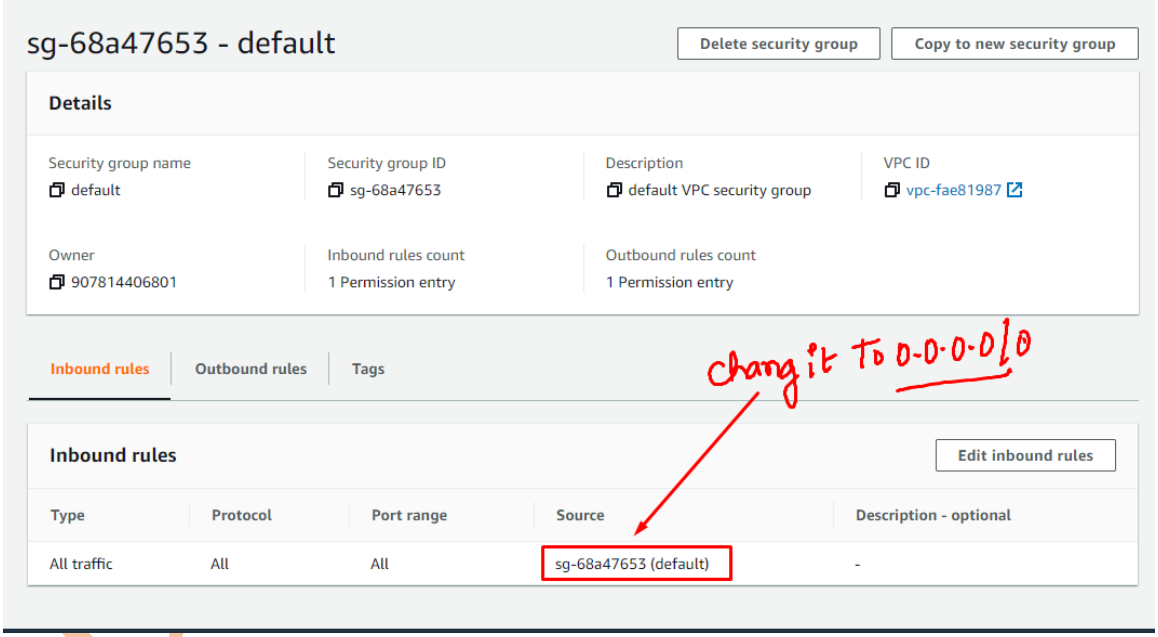
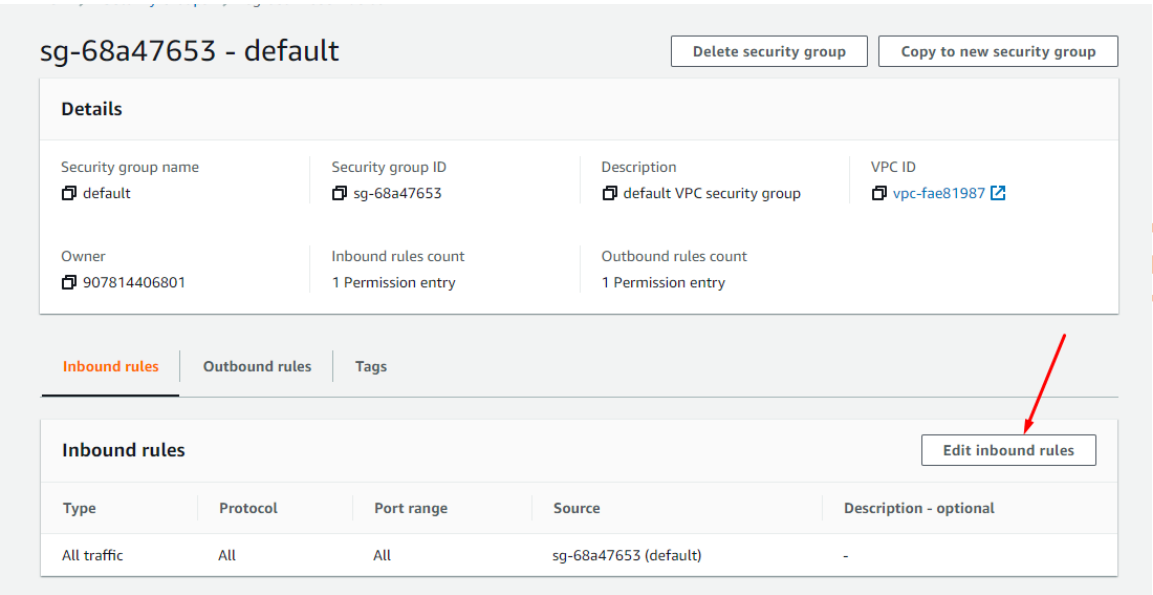
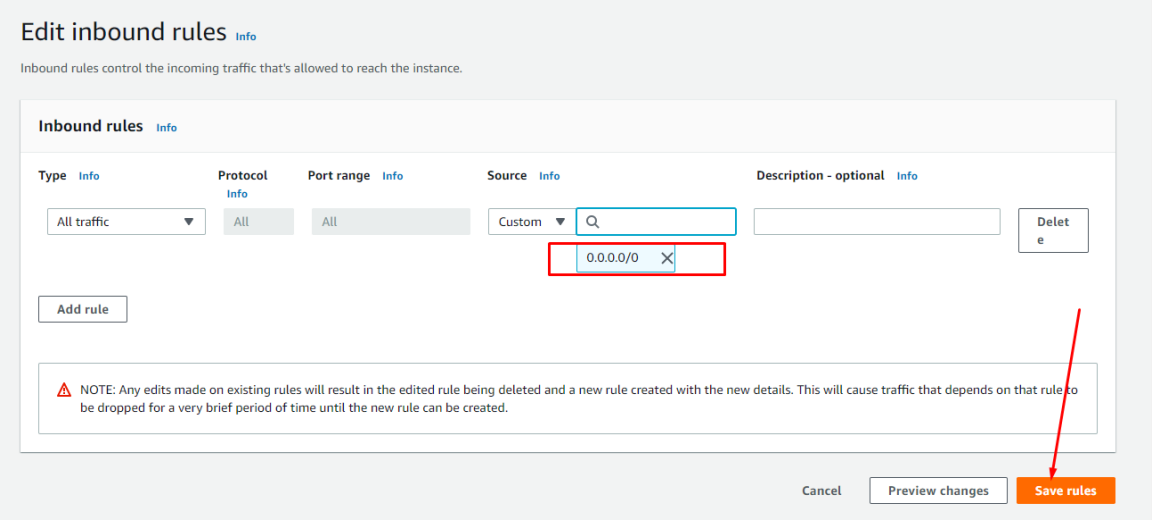




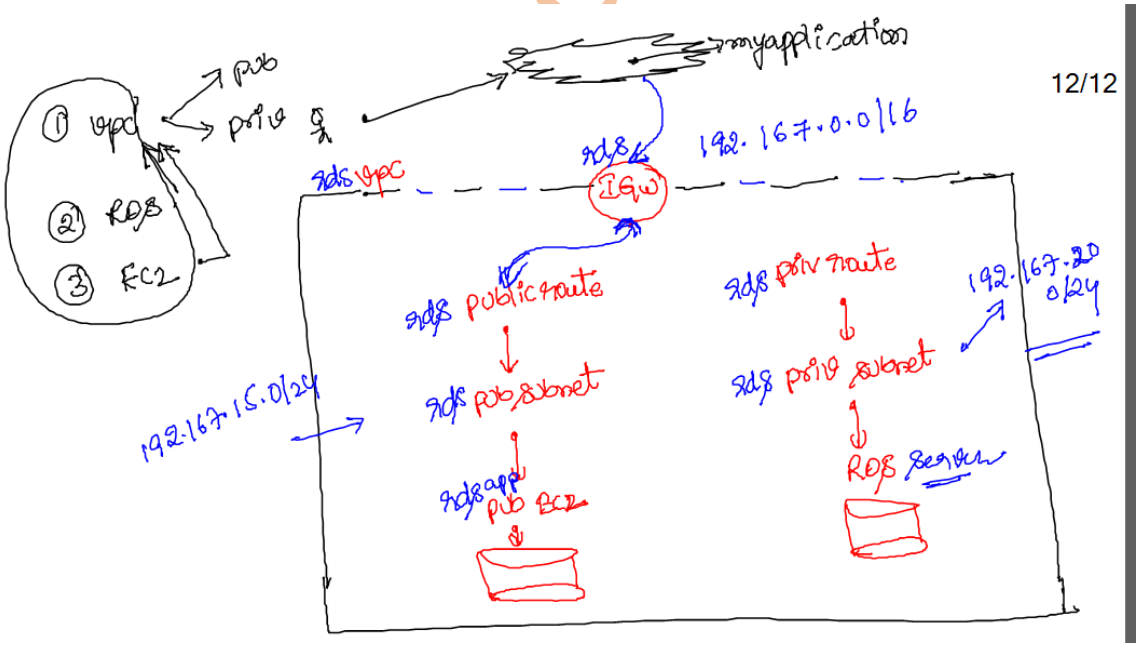




Post security group changes:

```
[root@ip-172-31-45-81 ~]# mysql -h dvsbatch4-mysqlserver.cvej7etjrm1k.us-east-1.rds.amazonaws.com -u admin -padmin123 -P
306
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 15
Server version: 8.0.17 Source distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
+--------------------+
3 rows in set (0.01 sec)

MySQL [(none)]> create database dvsbatch4;
Query OK, 1 row affected (0.01 sec)

MySQL [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| dvsbatch4          |
```

2. RDS with own VPC



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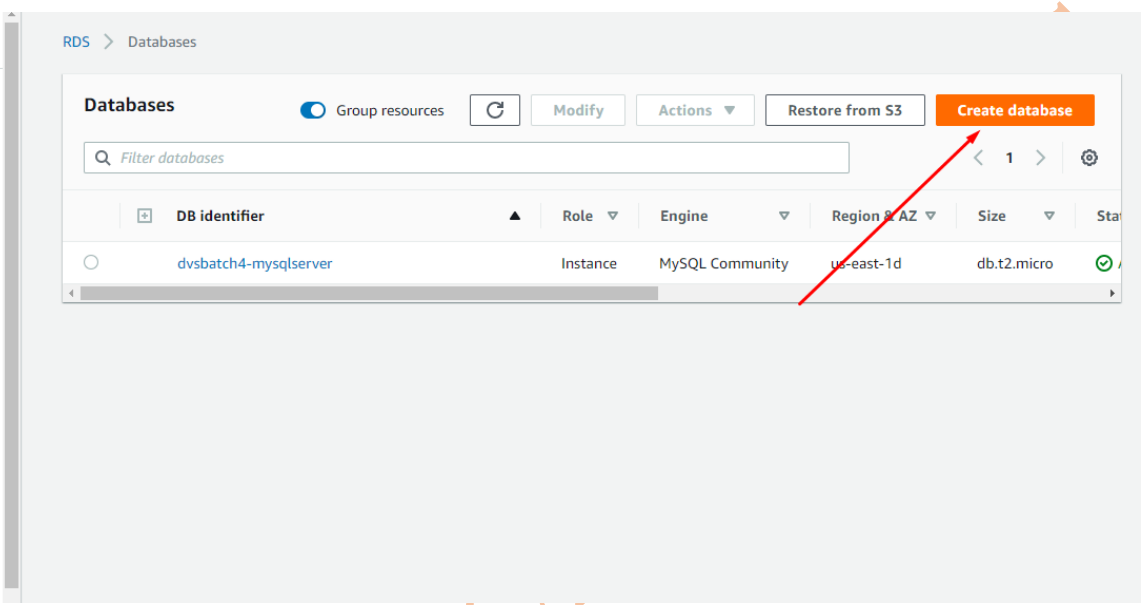
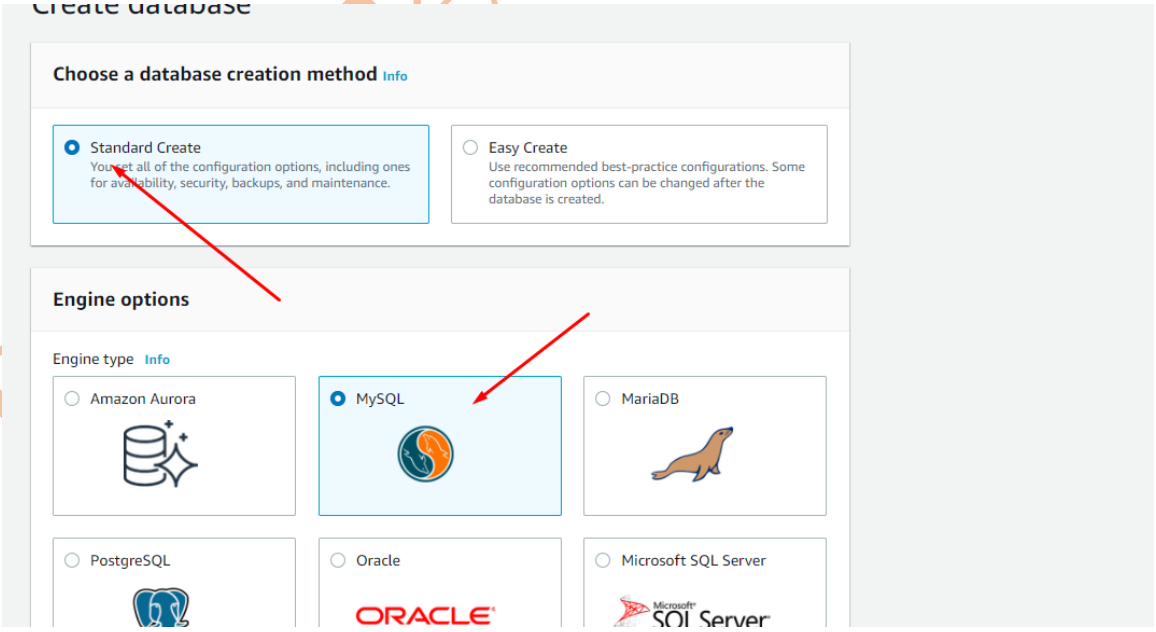
1. **Please create VPC as per the above picture**
   NOTE: Make sure that you are noting down the Availability zone details properly for your subnets

2. **Create RDS**





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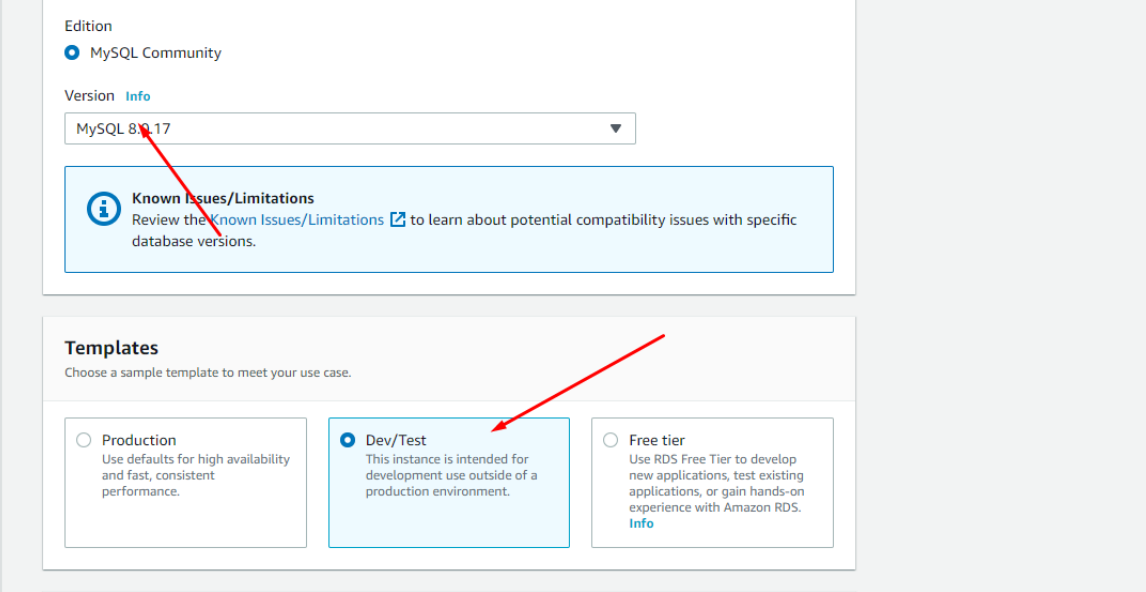

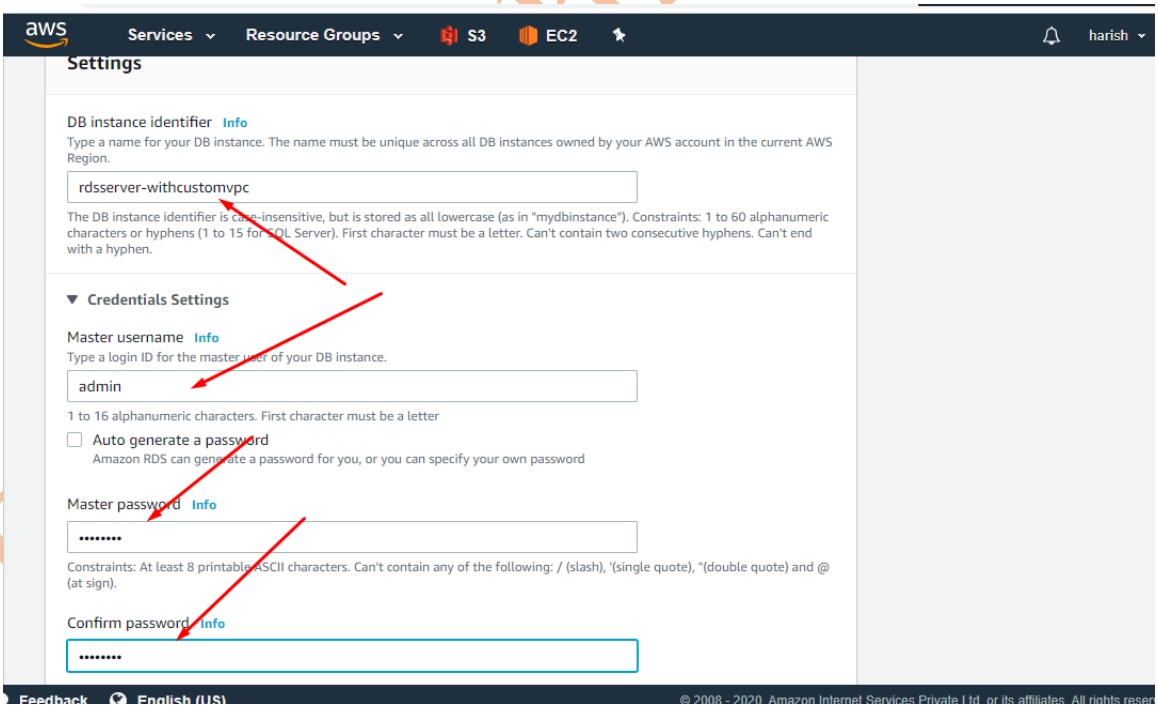

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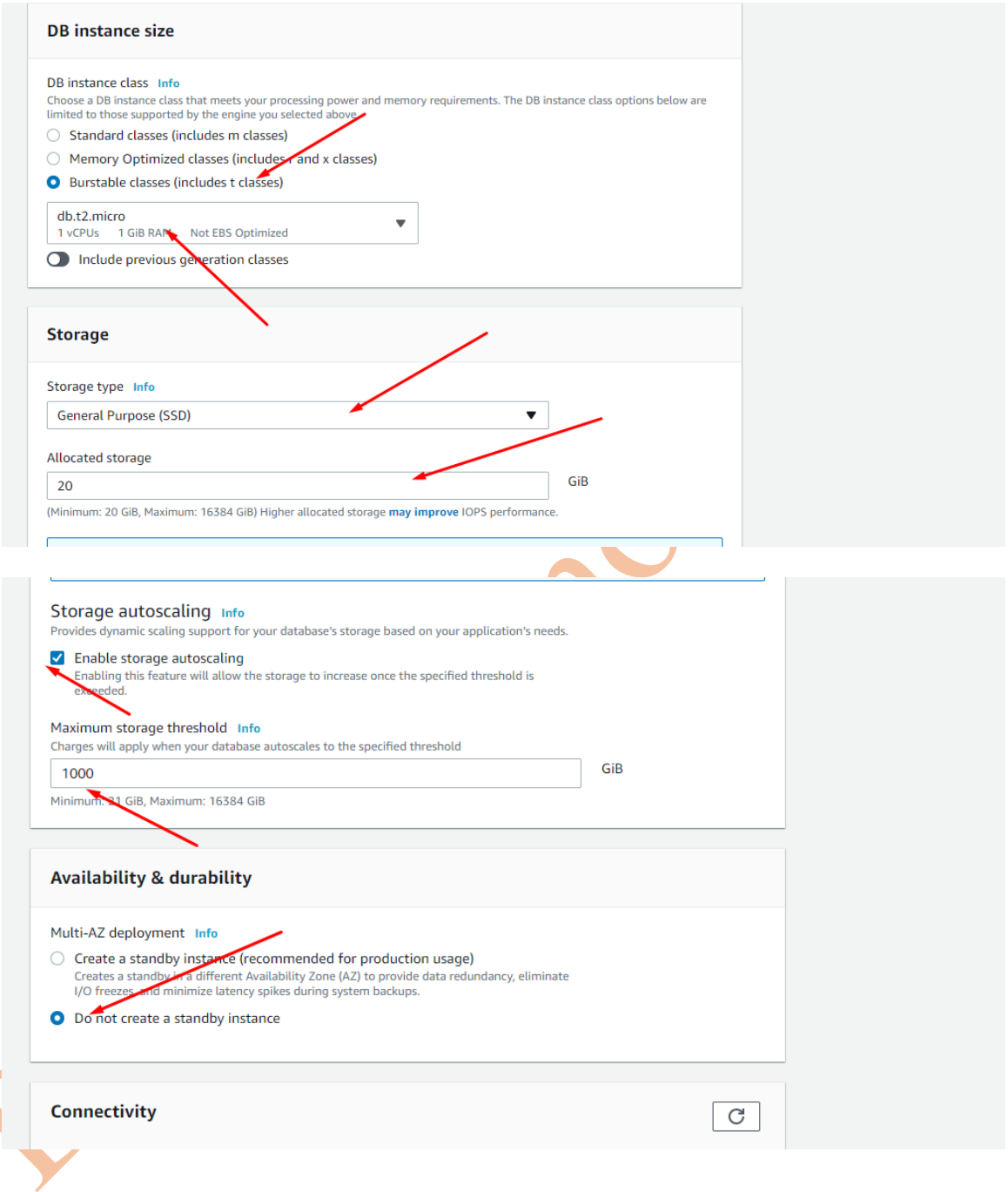
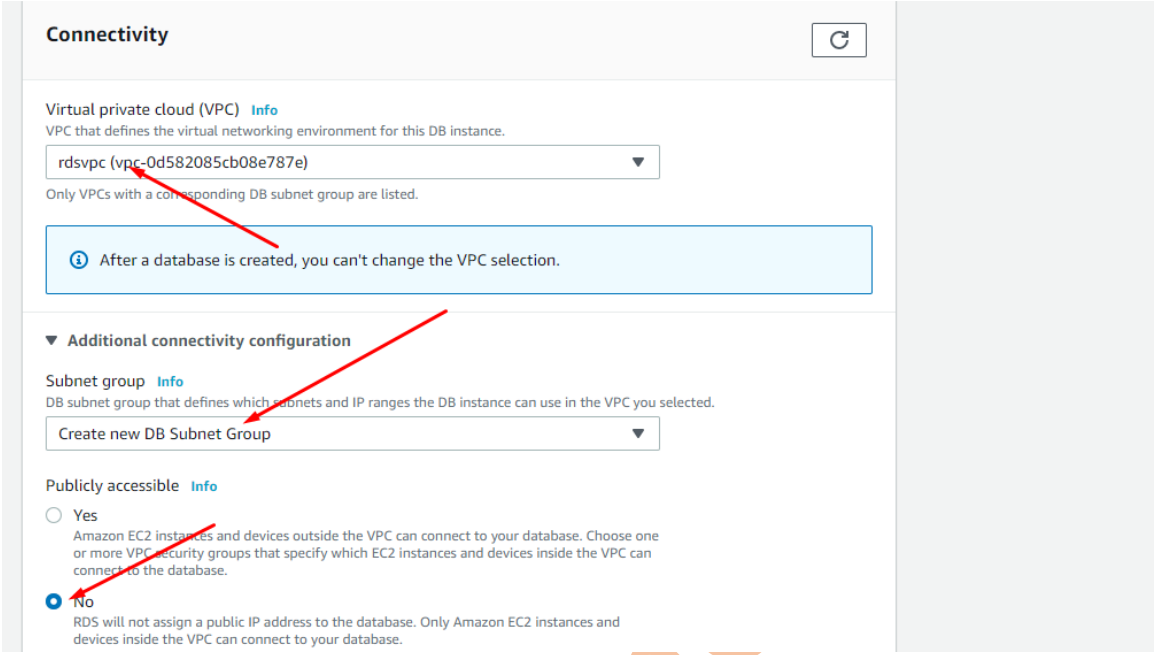
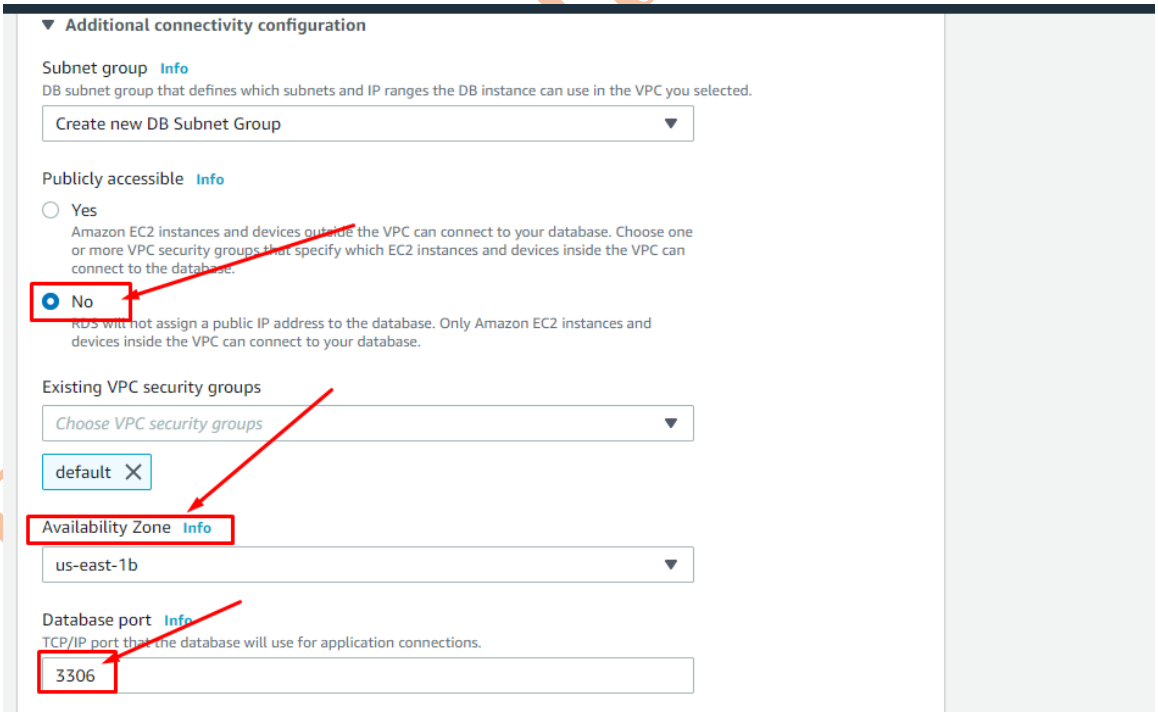
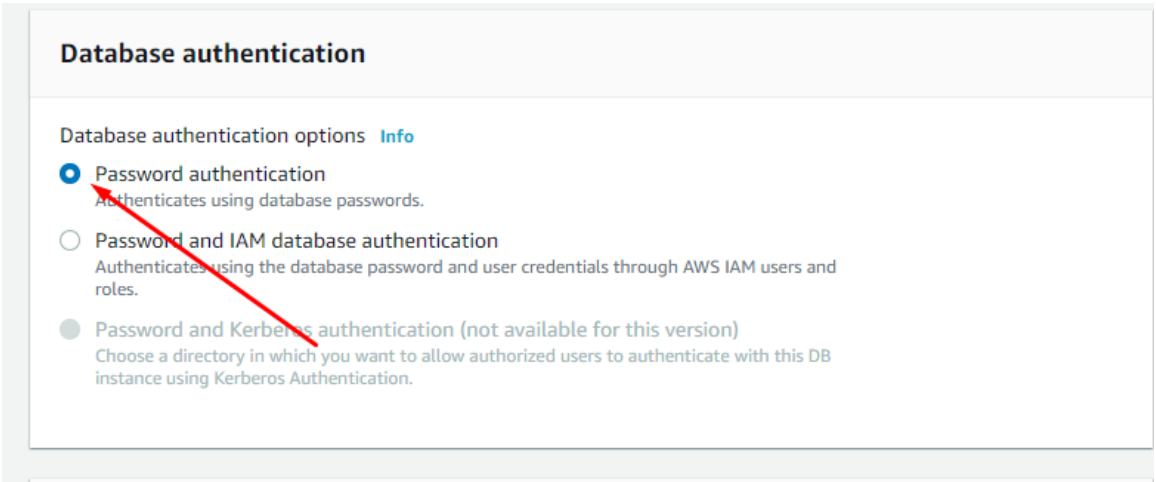
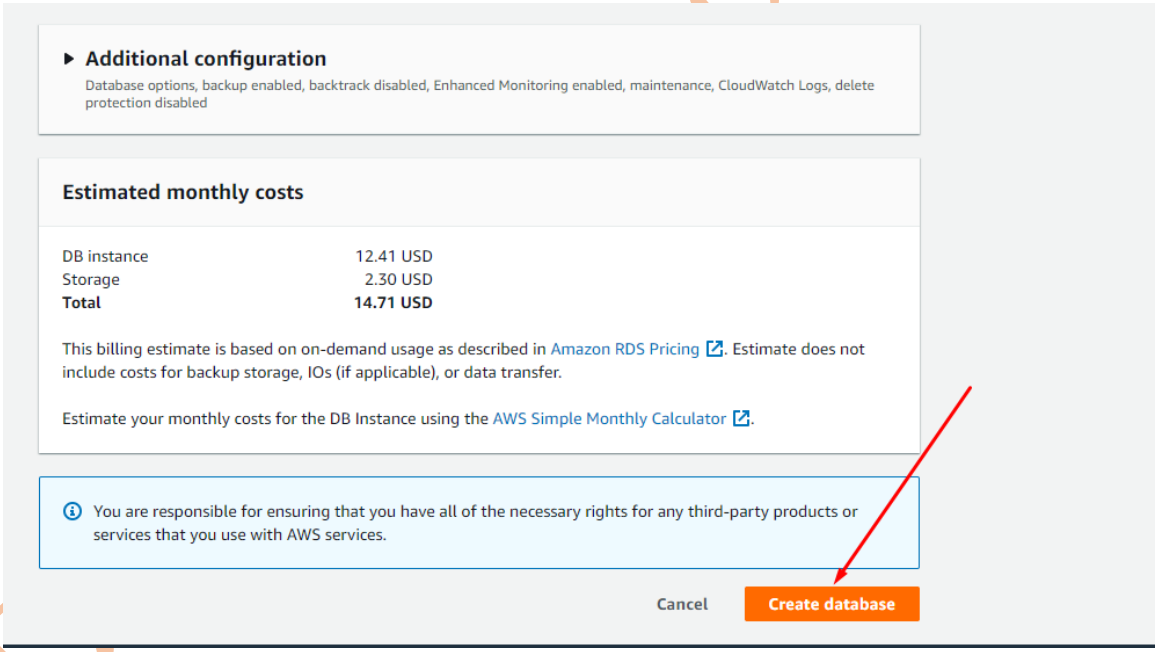



Connectivity
Virtual private cloud (VPC) Info
VPC that defines the virtual networking environment for this DB instance.
rdsvpc (vpc-0d582085cb08e787e)
Only VPCs with a corresponding DB subnet group are listed.
After a database is created, you can't change the VPC selection.
Additional connectivity configuration
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
Publicly accessible 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.


Additional connectivity configuration
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
Publicly accessible 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.
Existing VPC security groups
Choose VPC security groups
default
Availability Zone Info
us-east-1b
Database port Info
TCP/IP port that the database will use for application connections.
3306





3. **Let's create our EC2 server now**

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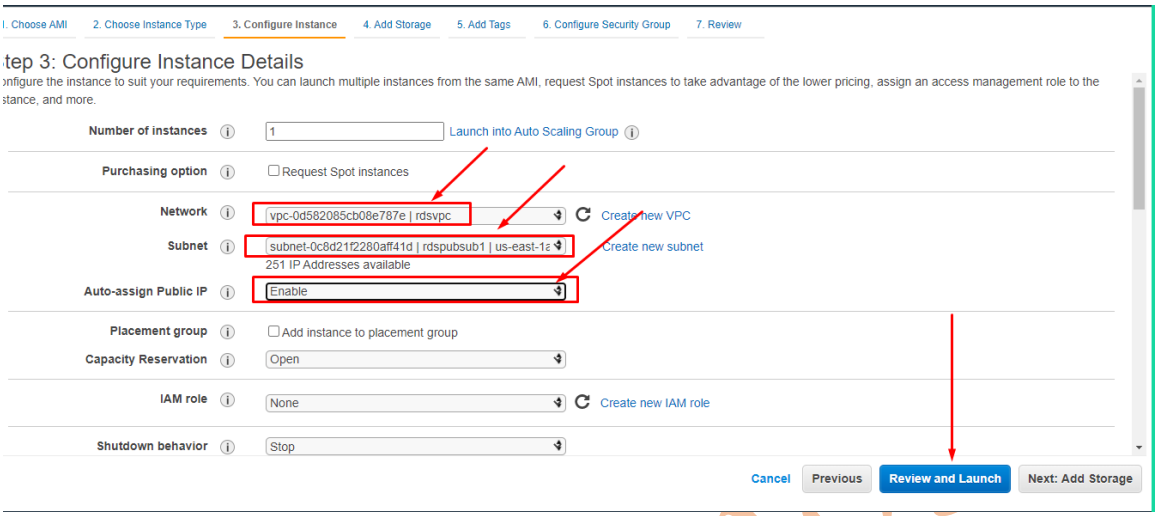
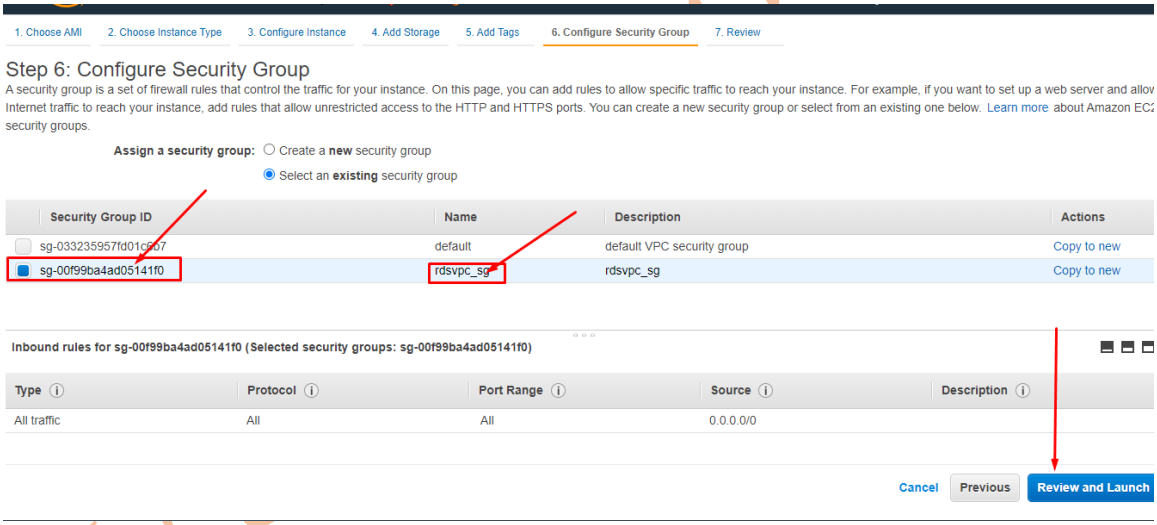
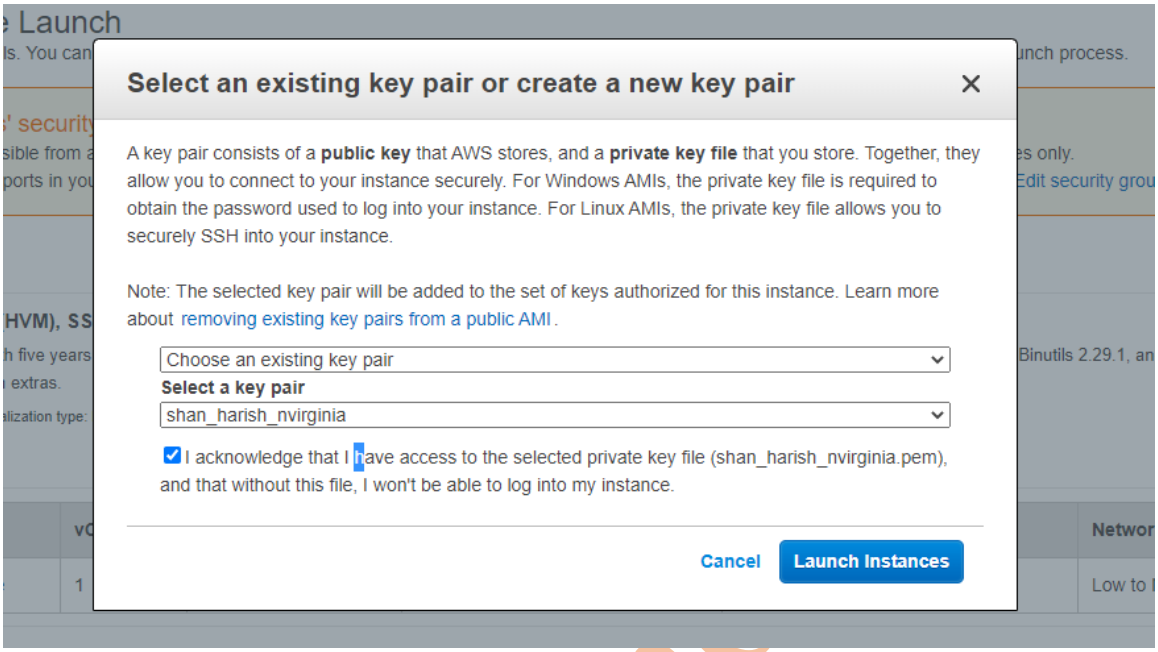
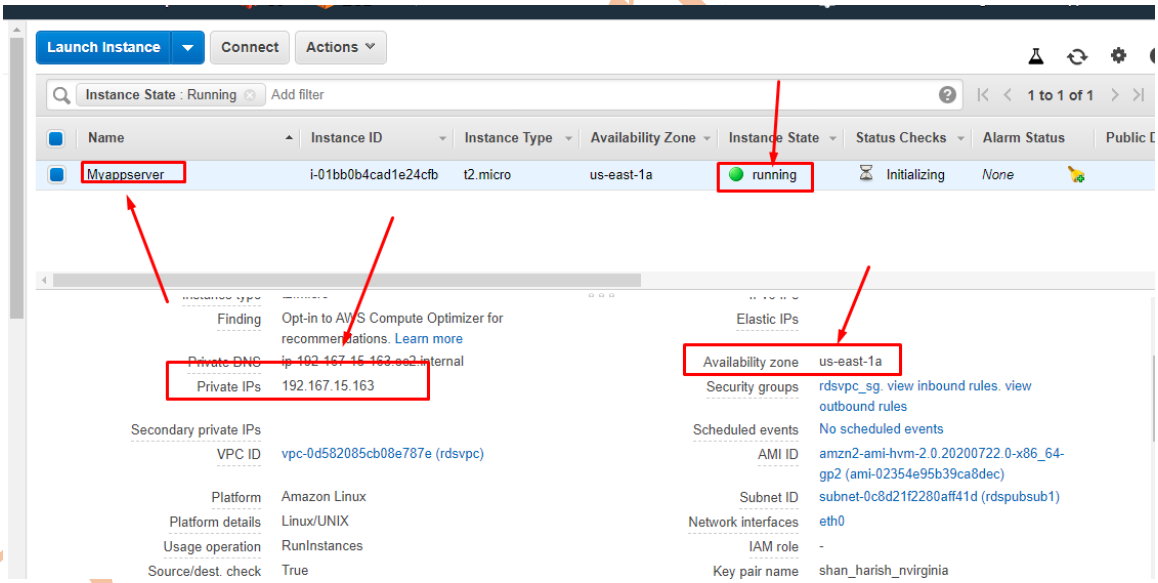
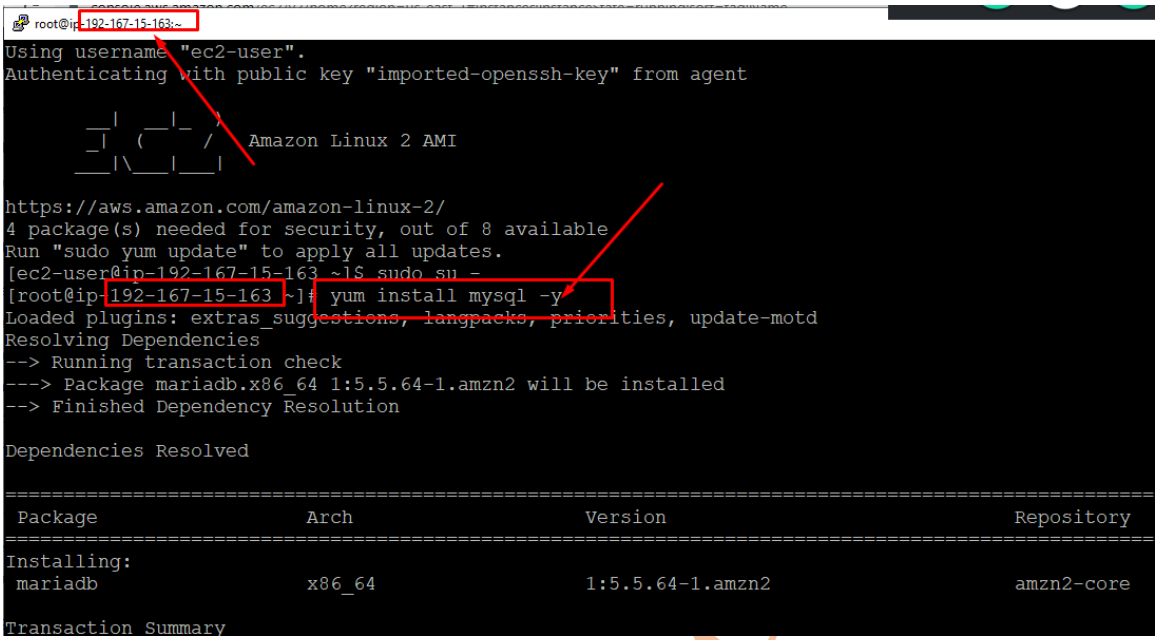




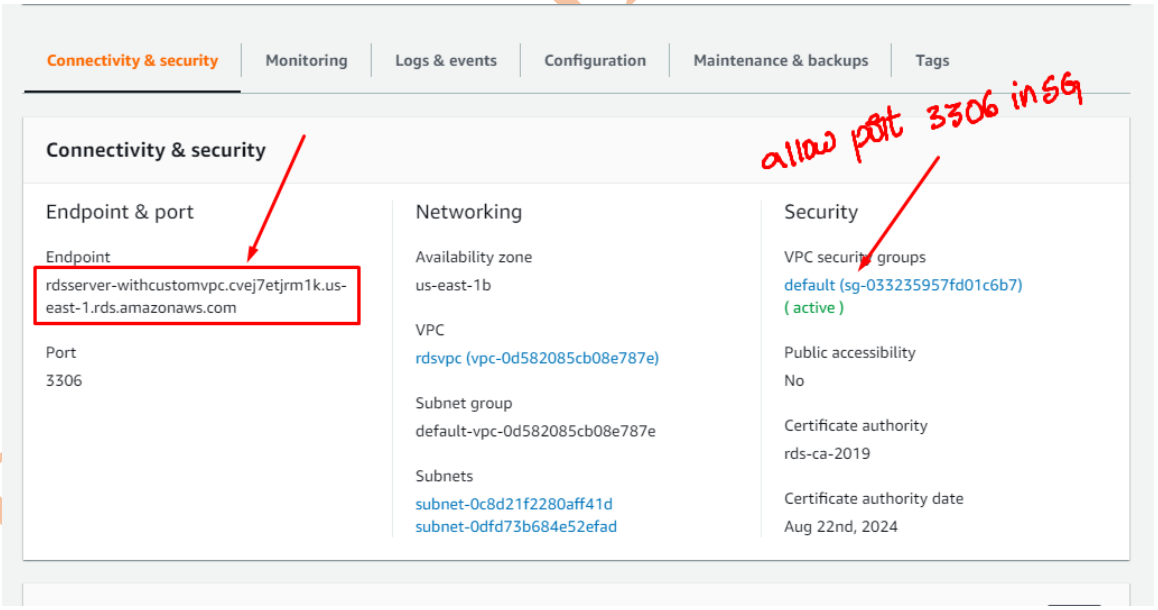
DVS Technologies Aws & Devops

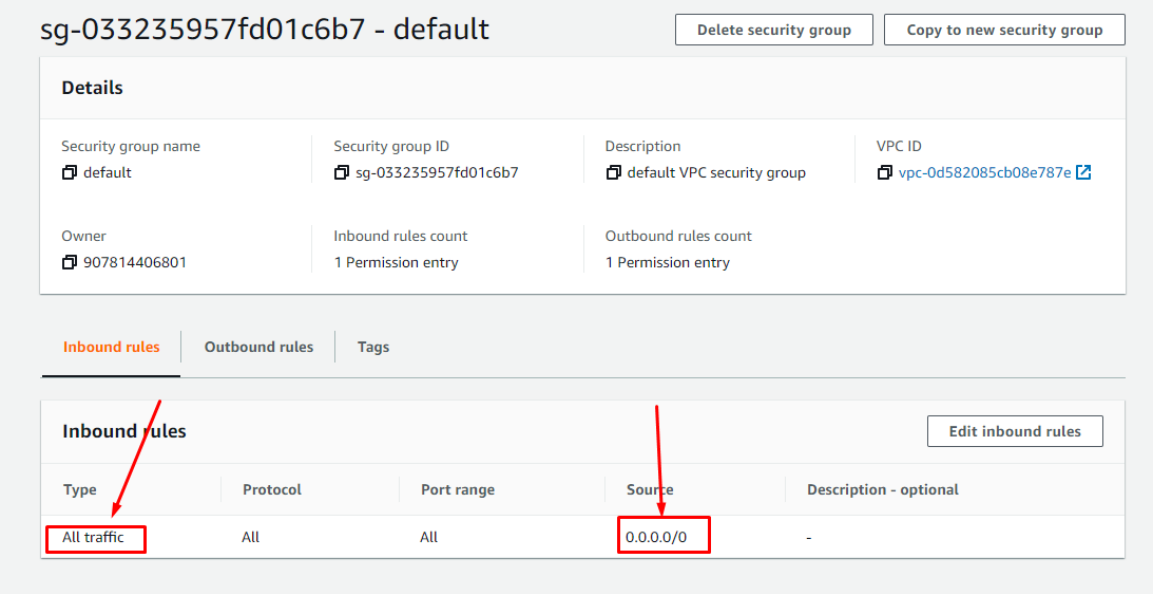




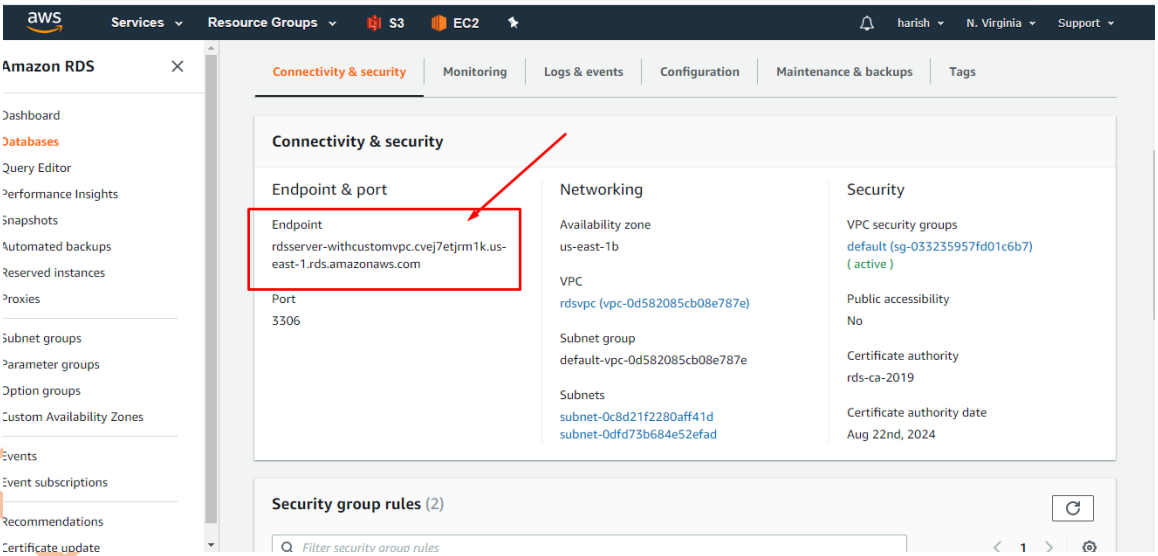


4. **Make sure that you are allowing the port in the security group for your RDS**



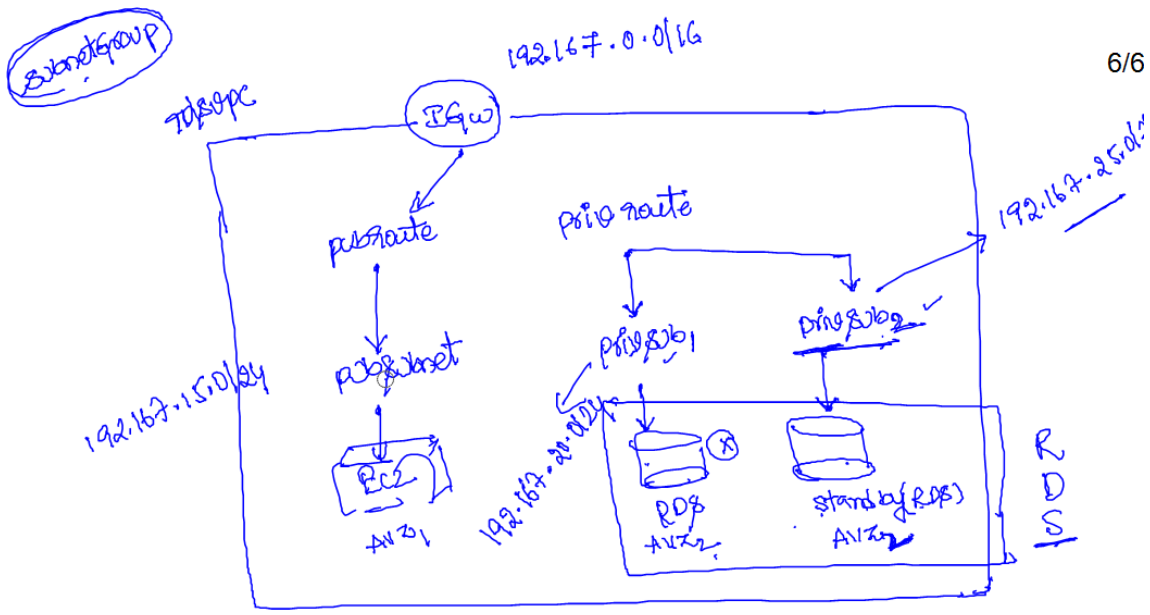


5. **Now let's try to access the database from the ec2 server**

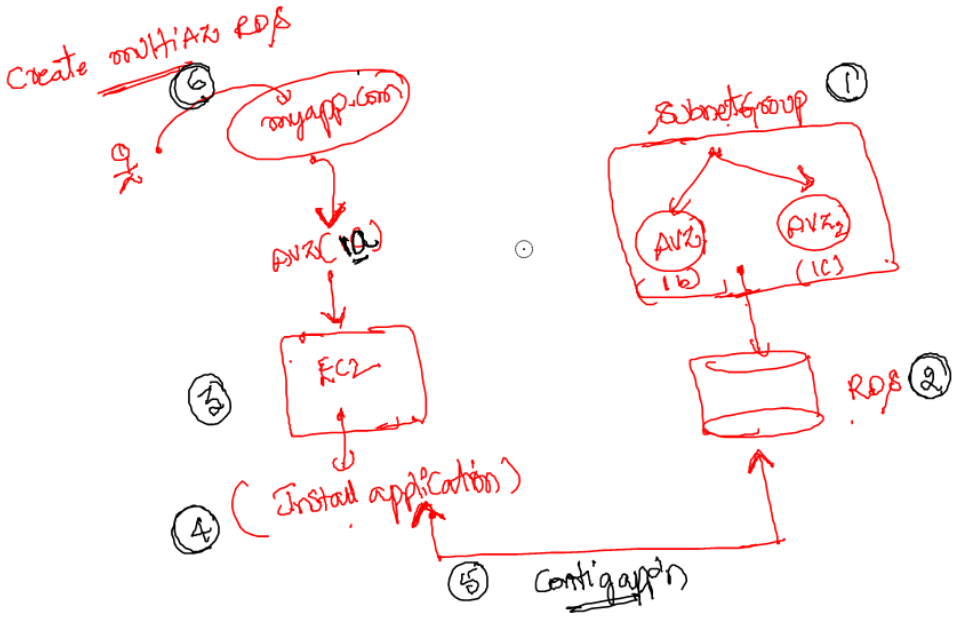


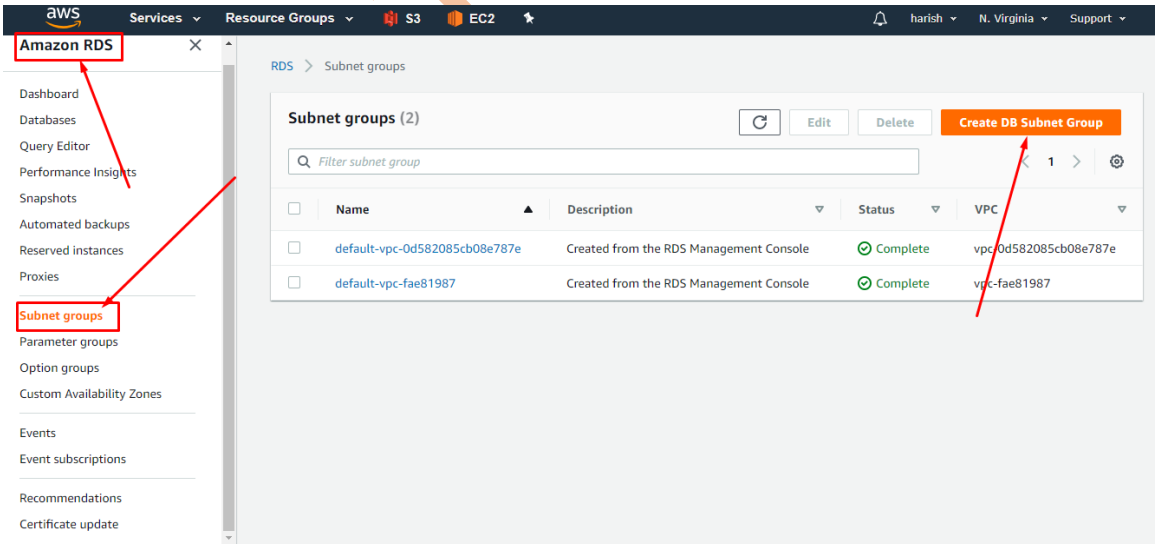
```
root@ip-192-167-15-163:~
[root@ip-192-167-15-163 ~]#
[root@ip-192-167-15-163 ~]#
[root@ip-192-167-15-163 ~]# mysql -u admin -padmin123 -h rdsserver-withcustomvpc.cvej7etjrm1k.us-east-1.rds.amazonaws.com
 -P 3306
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 15
Server version: 8.0.17 Source distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
+--------------------+
3 rows in set (0.00 sec)

MySQL [(none)]> Bye
[root@ip-192-167-15-163 ~]# host rdsserver-withcustomvpc.cvej7etjrm1k.us-east-1.rds.amazonaws.com
rdsserver-withcustomvpc.cvej7etjrm1k.us-east-1.rds.amazonaws.com has address 192.167.20.134
[root@ip-192-167-15-163 ~]#
```

3. Multi-AZ RDS

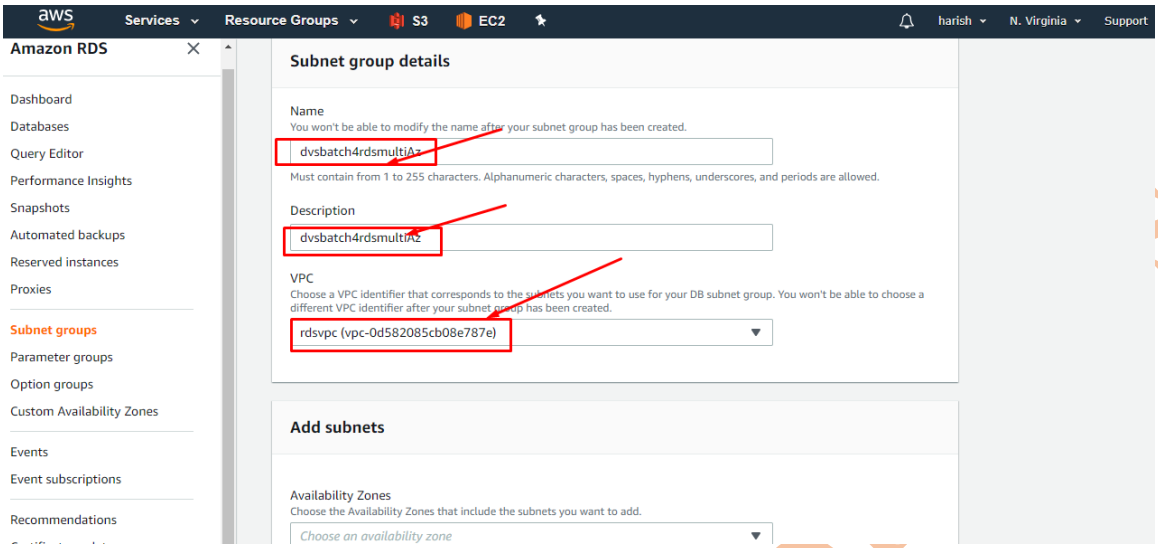


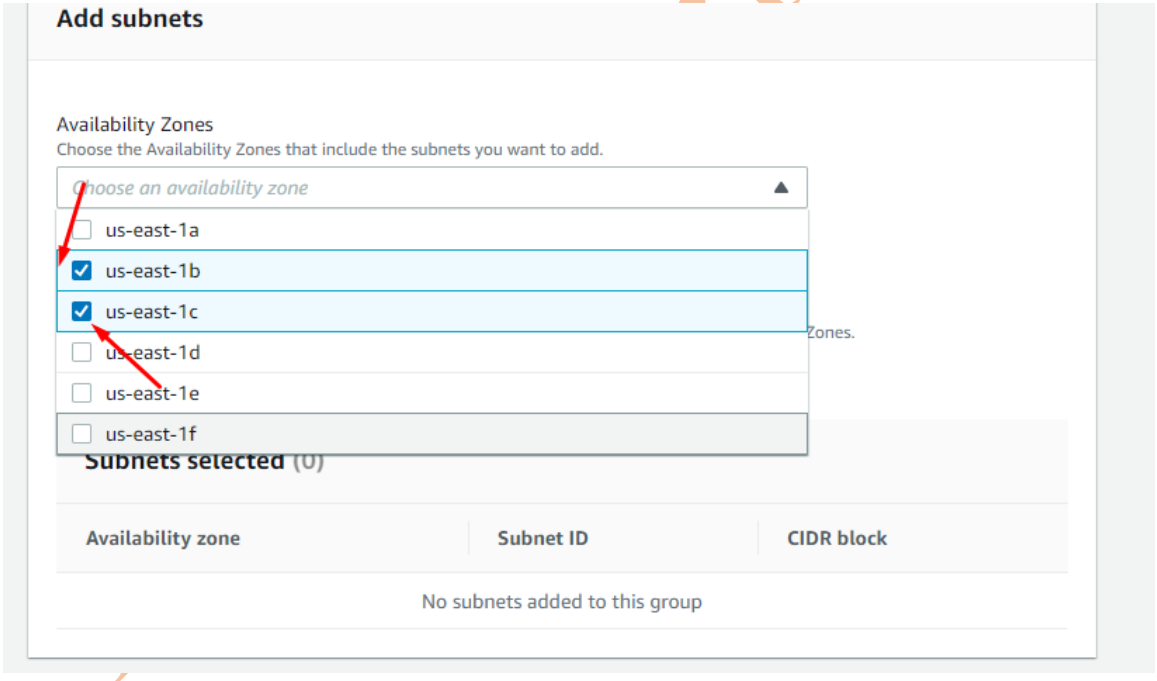
Before we go and execute below make sure that you are having one VPC with one public subnet & atleast two private subnets as specified above.



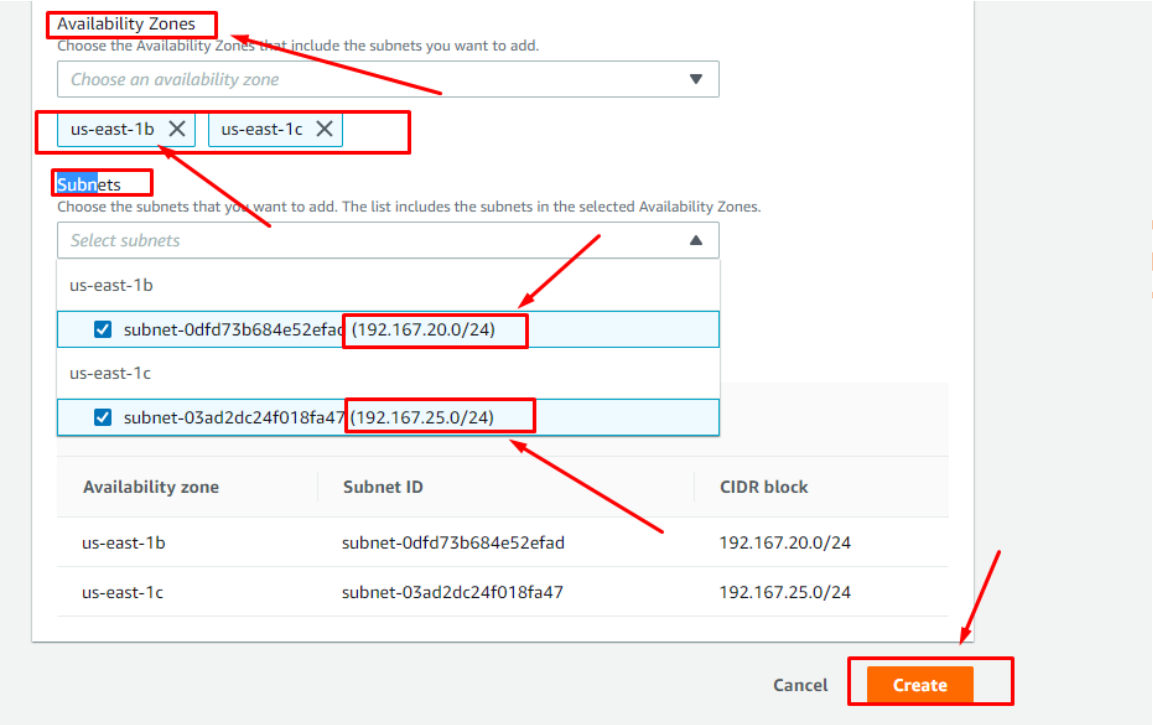


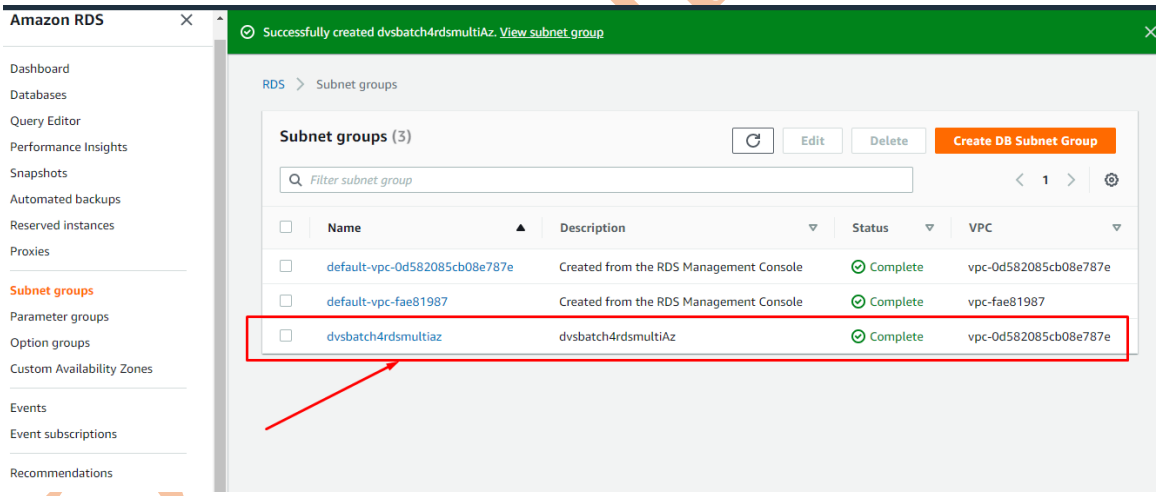
DVS Technologies Aws & Devops





DVS Technologies Aws & Devops





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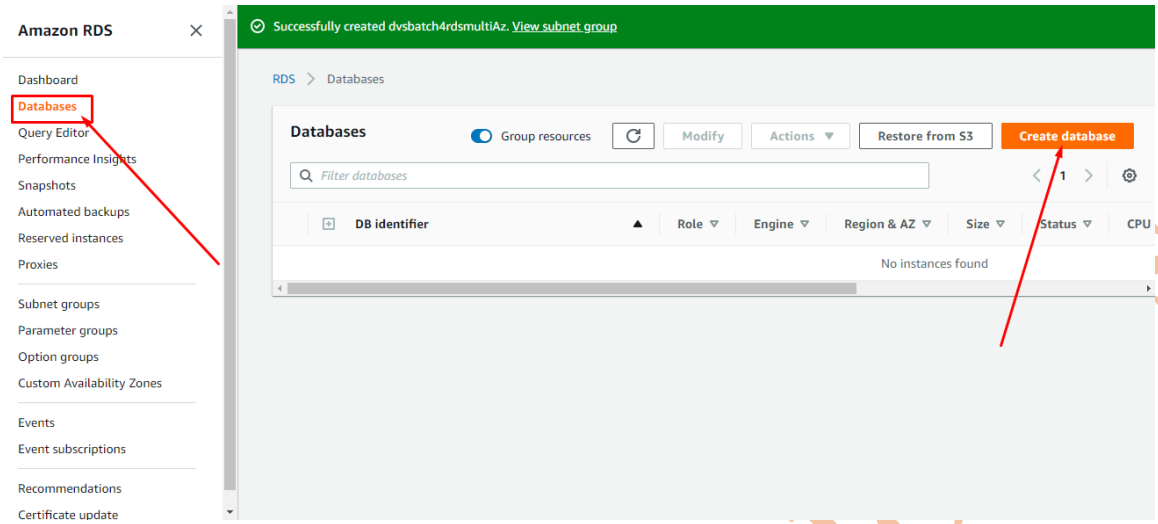
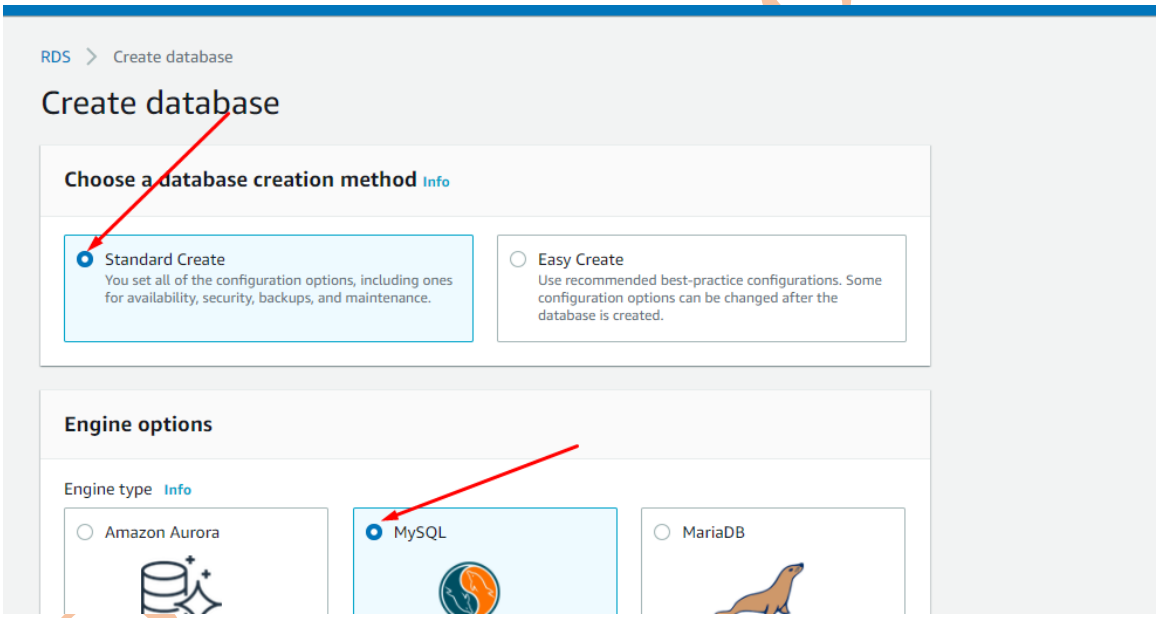
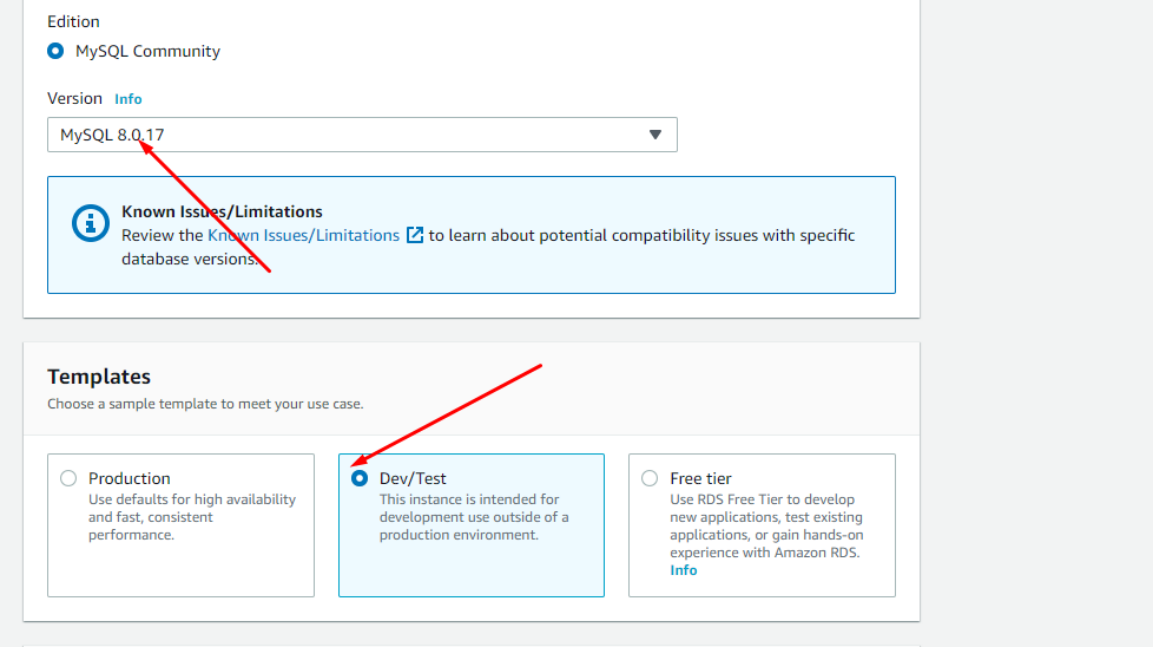
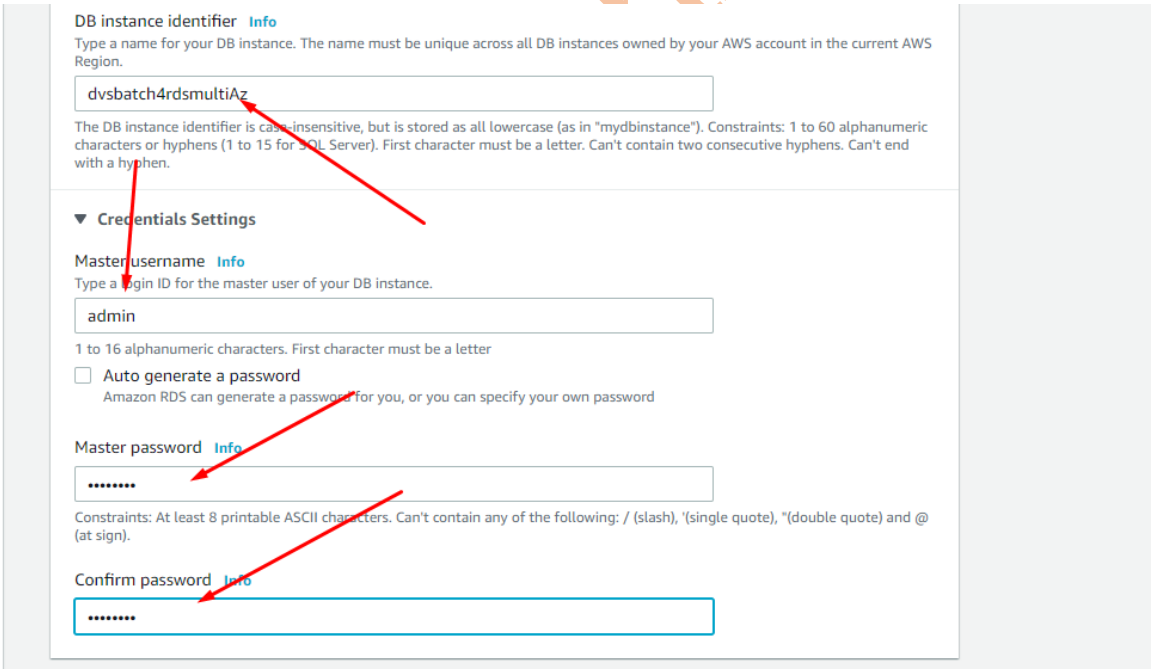


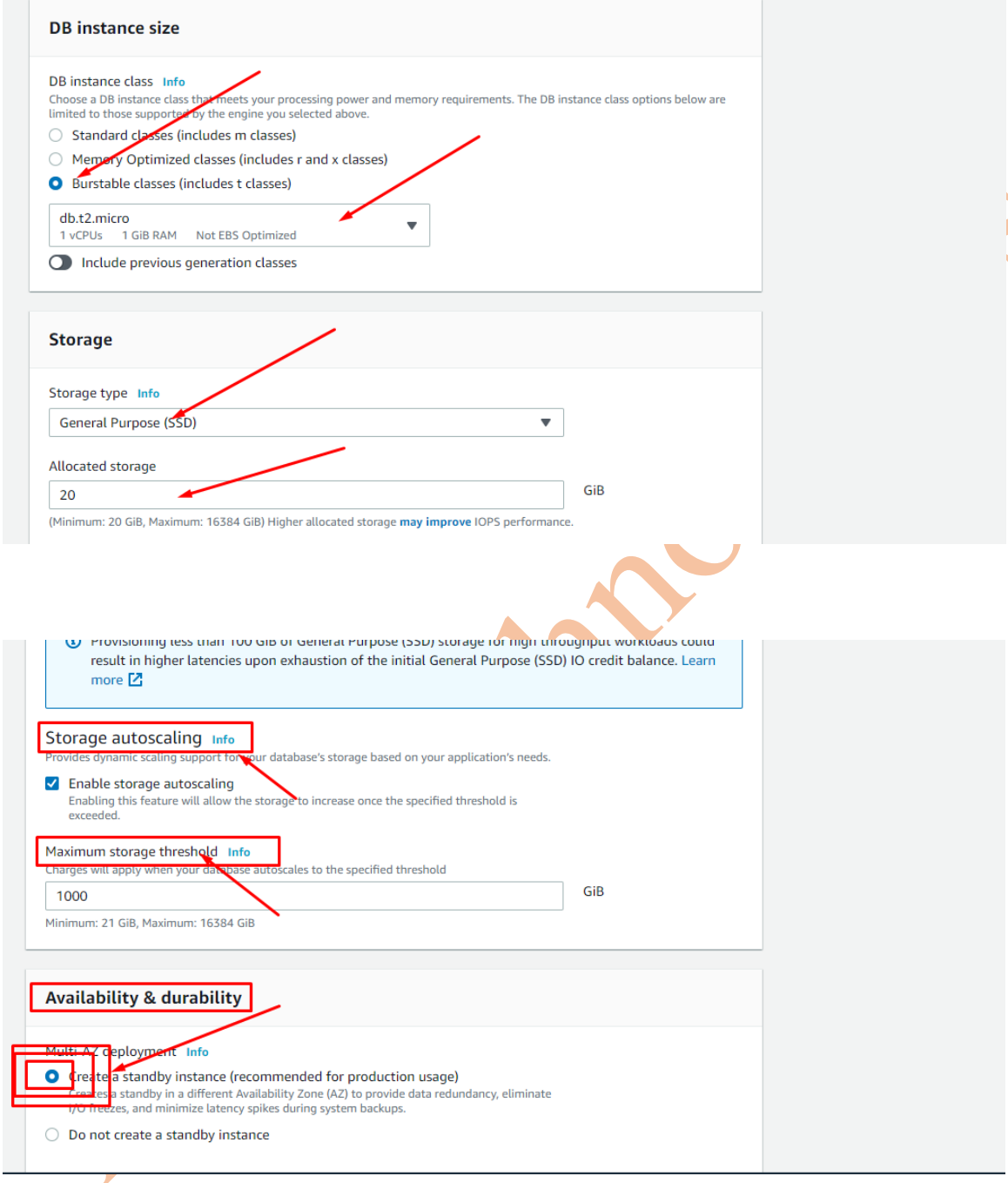


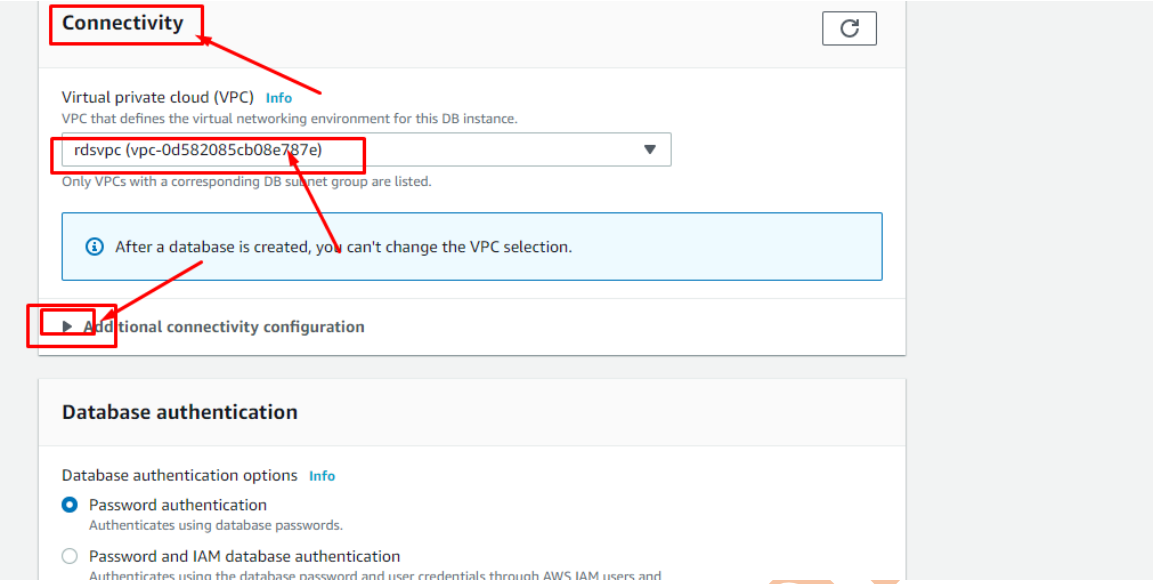
DVS Technologies Aws & Devops

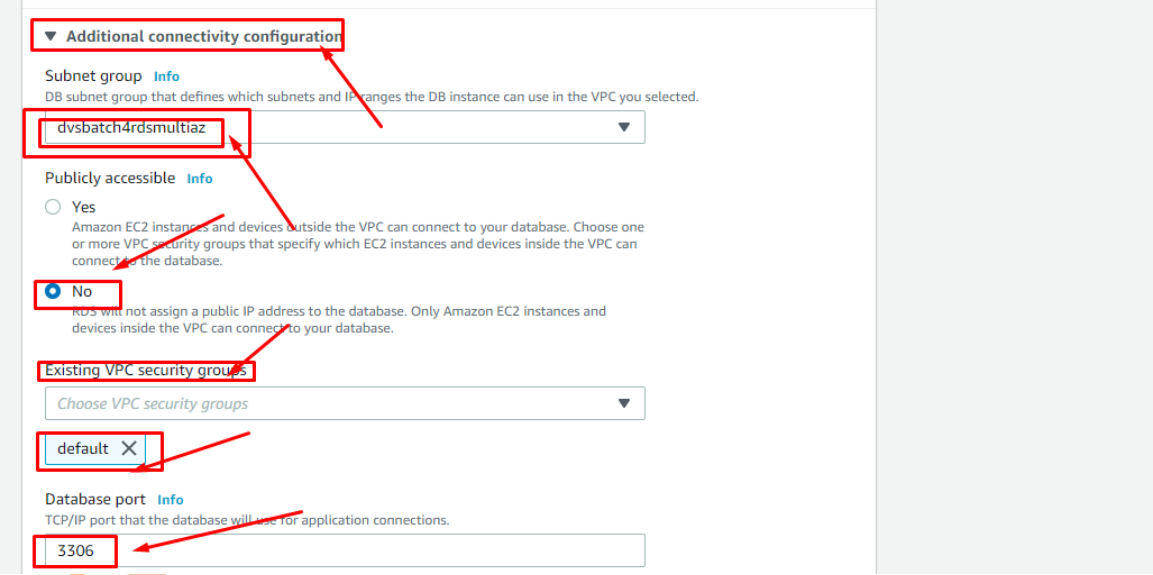


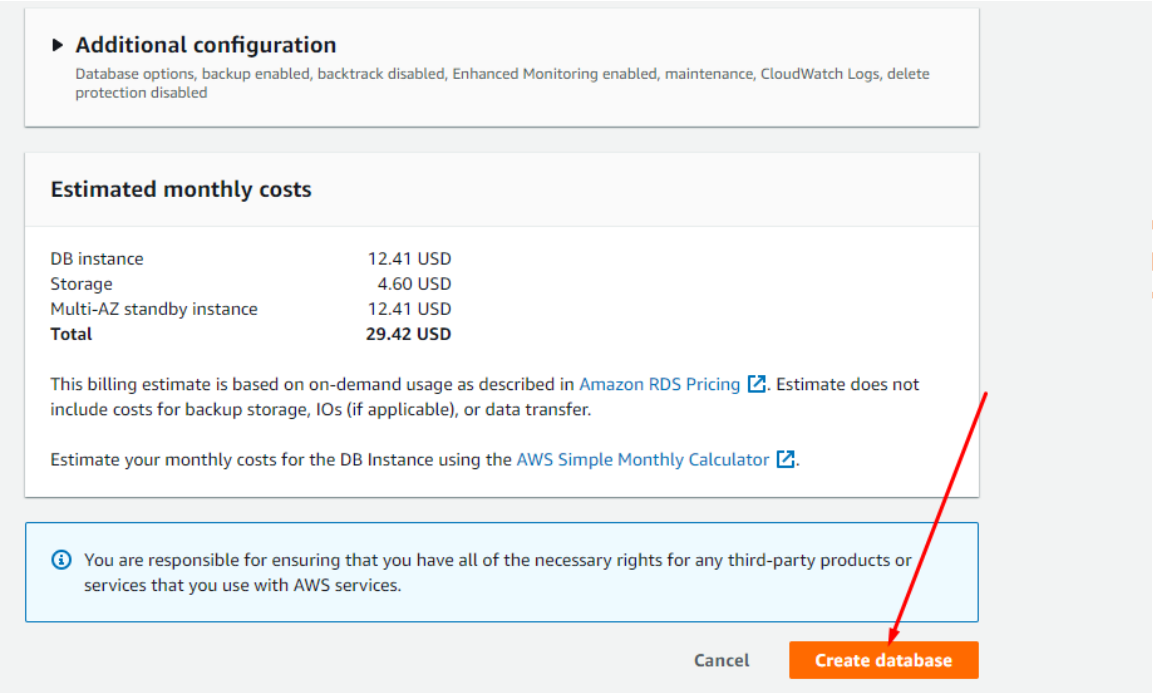


DVS Technologies Aws & Devops



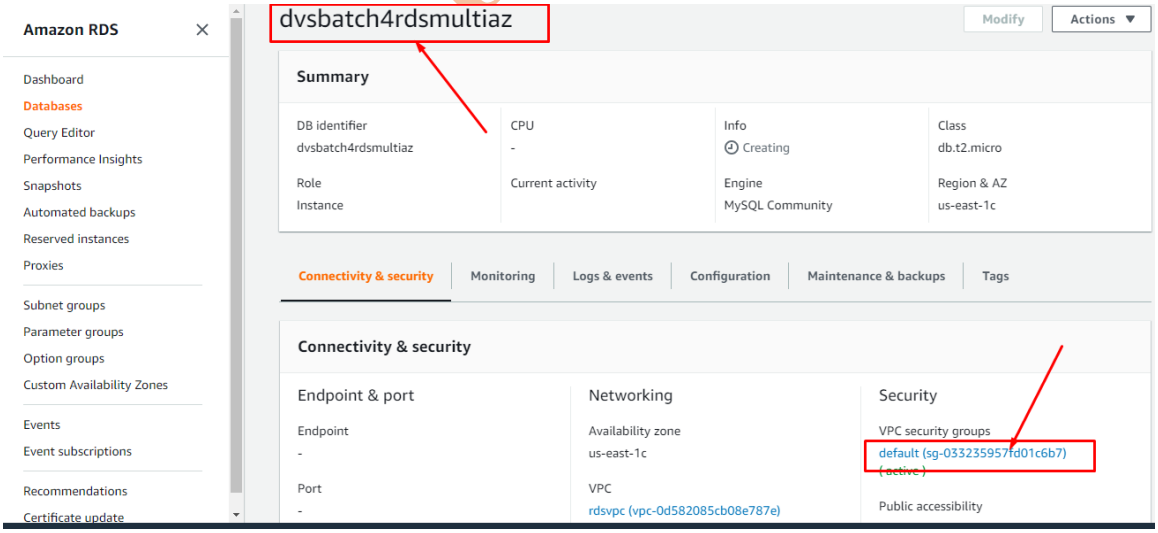

Connectivity
Virtual private cloud (VPC) Info
VPC that defines the virtual networking environment for this DB instance.
rdsvpc (vpc-0d582085cb08e787e)
Only VPCs with a corresponding DB subnet group are listed.
After a database is created, you can't change the VPC selection.
Additional connectivity configuration
Database authentication
Database authentication options Info
Password authentication
Authenticates using database passwords.
Password and IAM database authentication

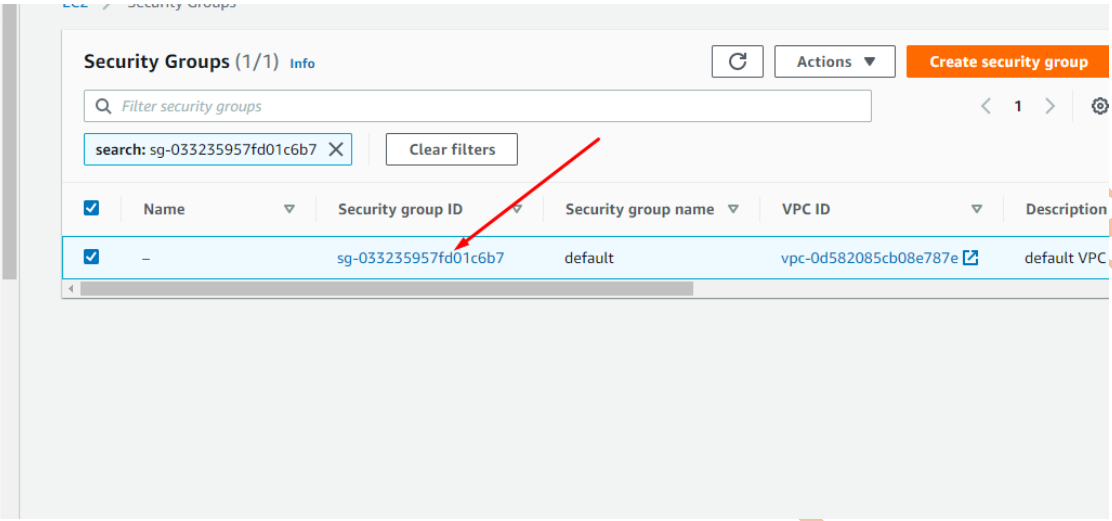

Additional connectivity configuration
Subnet group Info
DB subnet group that defines which subnets and IP ranges the DB instance can use in the VPC you selected.
dvsbatch4rdsmultiaz
Publicly accessible Info
Yes
Amazon EC2 instances and devices outside the VPC can connect to your database. Choose one 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.
Existing VPC security groups
Choose VPC security groups
default
Database port Info
TCP/IP port that the database will use for application connections.
3306

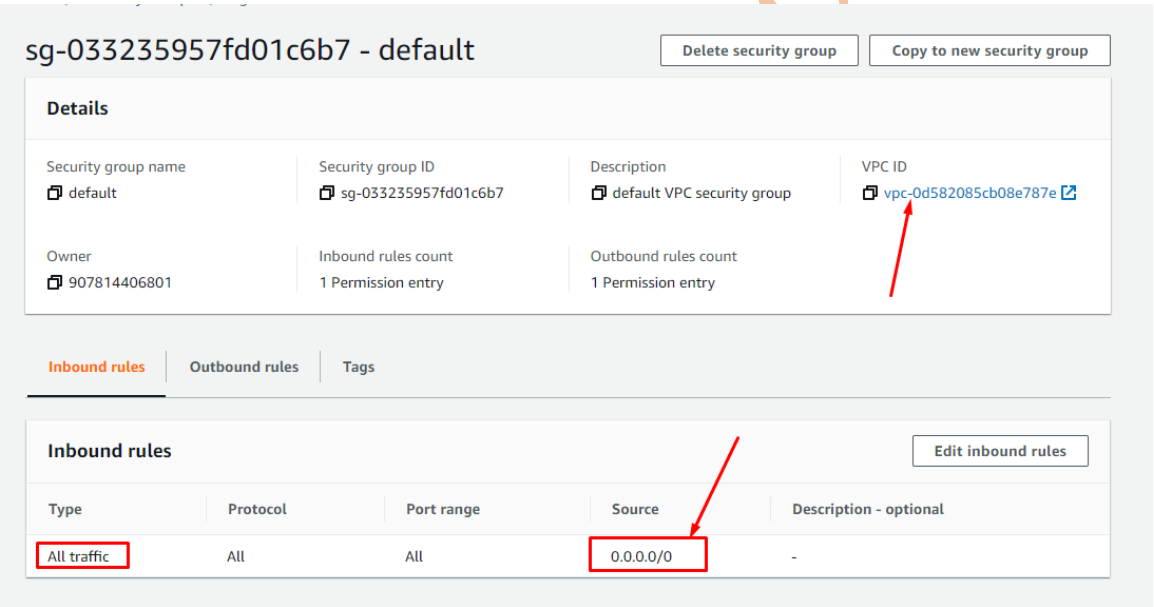


Make sure that your security group of RDS is having 3306 port opened for the connectivity.

Verification:







Meanwhile lets configure our application server:

Create a new Ec2 from AVZ1(1A) as below.

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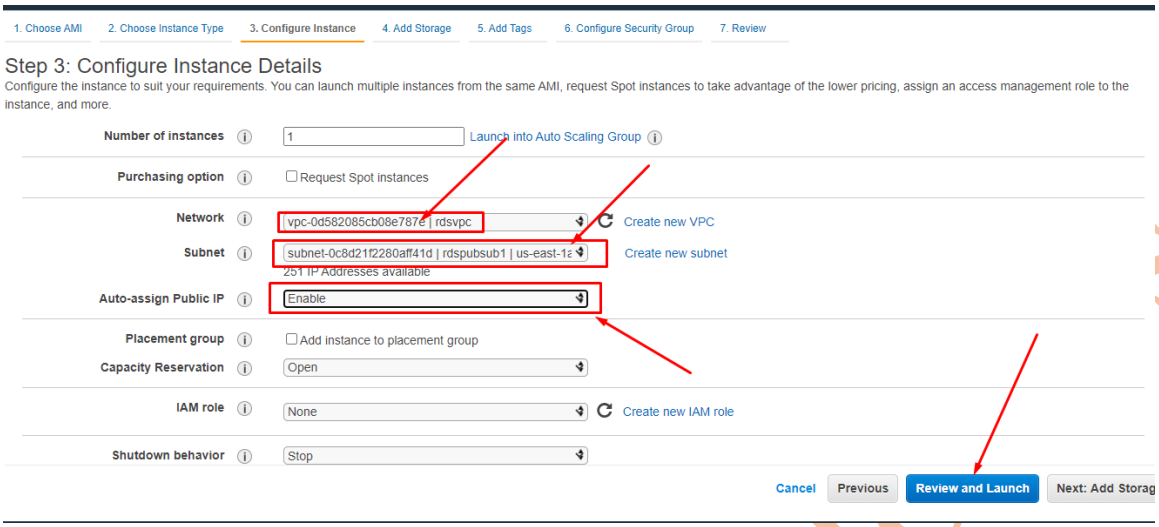
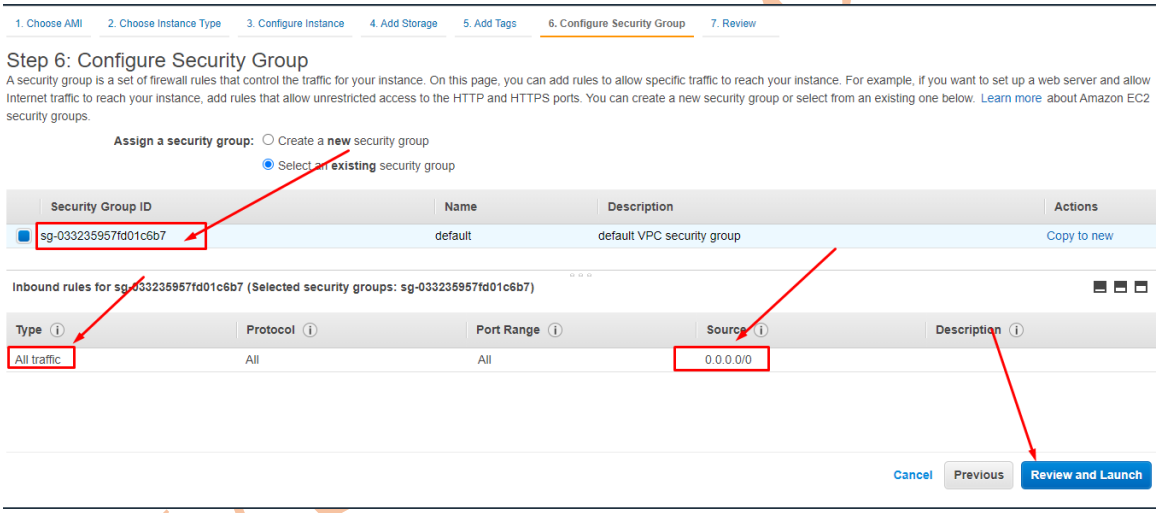
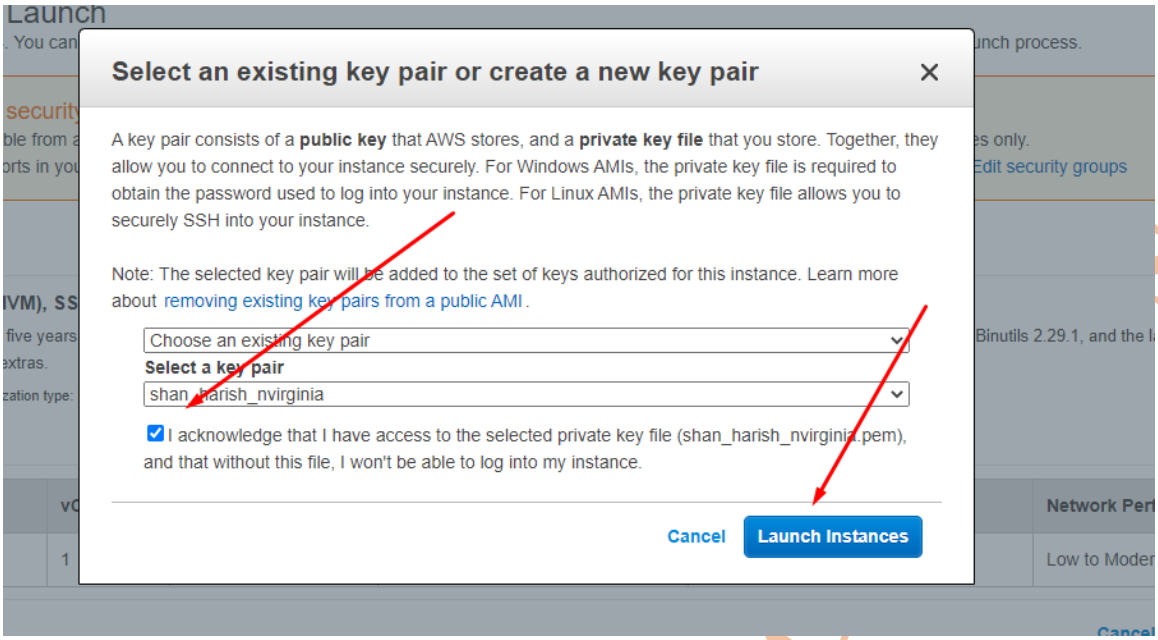
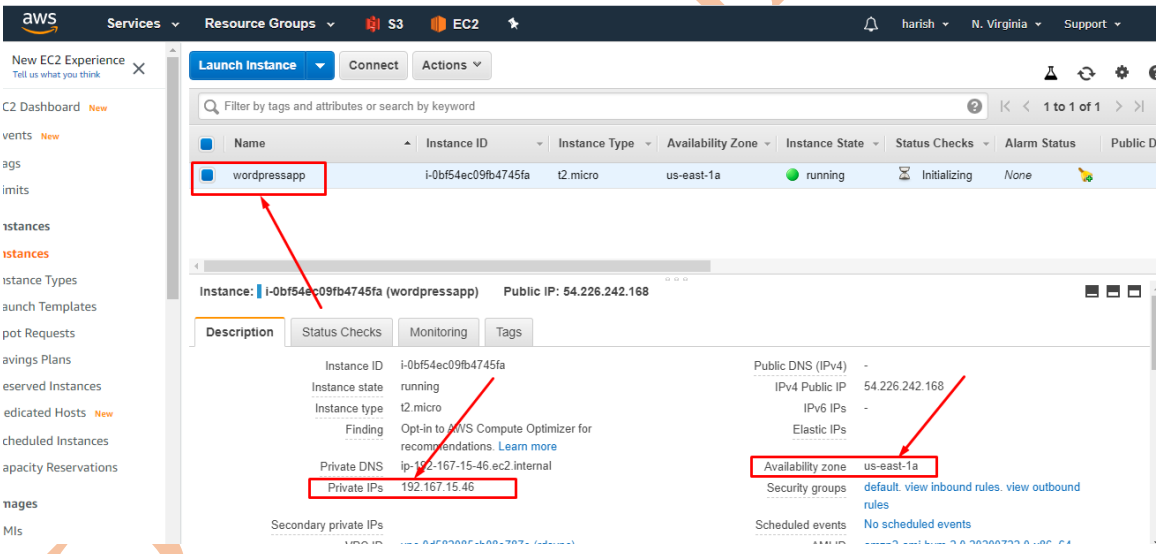








Now let's configure our wordpress application inside the server(ec2):

Execute the below command in the EC2 instance:
Installing wordpress application :

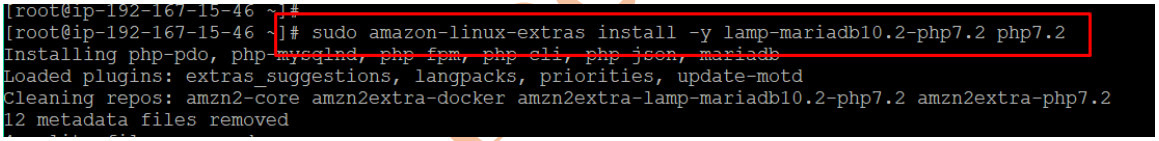
sudo yum update -y
sudo amazon-linux-extras install -y lamp-mariadb10.2-php7.2 php7.2

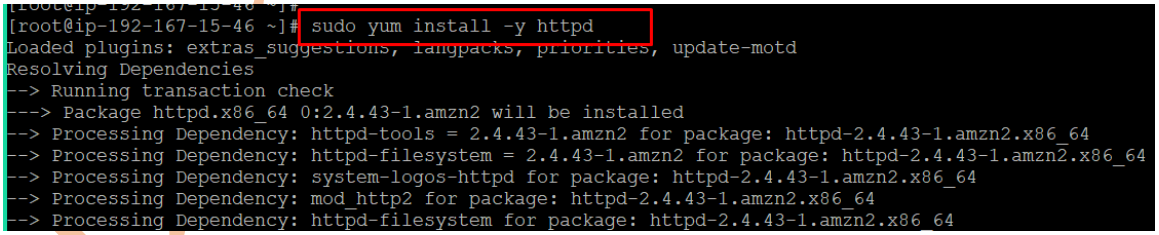
sudo yum install -y httpd
sudo systemctl start httpd
sudo systemctl enable httpd
wget https://wordpress.org/latest.tar.gz
tar -xzf latest.tar.gz
sudo cp -r wordpress/* /var/www/html/
cd /var/www/html/
sudo cp wp-config-sample.php wp-config.php

Post db installation do the below.

sudo vi wp-config.php --> add the database details to this file
sudo chown -R apache /var/www
sudo chgrp -R apache /var/www
sudo chmod 775 /var/www
sudo find /var/www -type d -exec sudo chmod 2775 {} \;
sudo find /var/www -type f -exec sudo chmod 0664 {} \;
sudo systemctl restart httpd

Teach them the configuration with the created db bring down the db & show them the use case of AZ
Note: you while loop for host command ..





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```
Complete!
[root@ip-192-167-15-46 ~]#
[root@ip-192-167-15-46 ~]# sudo systemctl start httpd
[root@ip-192-167-15-46 ~]# sudo systemctl enable httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd
[root@ip-192-167-15-46 ~]# wget https://wordpress.org/latest.tar.gz
--2020-08-19 15:36:03--  https://wordpress.org/latest.tar.gz
Resolving wordpress.org (wordpress.org)... 198.143.164.252
Connecting to wordpress.org (wordpress.org)|198.143.164.252|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 12979571 (12M) [application/octet-stream]
Saving to: 'latest.tar.gz'

100%[======================================================================>] 12,979,571  2.05MB/s

2020-08-19 15:36:08 (2.22 MB/s) - 'latest.tar.gz' saved [12979571/12979571]

[root@ip-192-167-15-46 ~]# ls -l latest.tar.gz
-rw-r--r-- 1 root root 12979571 Aug 11 18:15 latest.tar.gz
[root@ip-192-167-15-46 ~]# tar -xzf latest.tar.gz
[root@ip-192-167-15-46 ~]# sudo cp -r wordpress/* /var/www/html/
[root@ip-192-167-15-46 ~]# cd /var/www/html/
[root@ip-192-167-15-46 html]# ls -l
total 204
-rw-r--r--  1 root root   405 Aug 19 15:36 index.php
-rw-r--r--  1 root root 19915 Aug 19 15:36 license.txt
-rw-r--r--  1 root root  7278 Aug 19 15:36 readme.html
-rw-r--r--  1 root root  7101 Aug 19 15:36 wp-activate.php
```

```
-rw-r--r--  1 root root  3236 Aug 19 15:36 xmlrpc.php
[root@ip-192-167-15-46 html]# sudo cp wp-config-sample.php wp-config.php
[root@ip-192-167-15-46 html]# ls -l wp-config.php
-rw-r--r-- 1 root root 2913 Aug 19 15:36 wp-config.php
[root@ip-192-167-15-46 html]#
```

```
[root@ip-192-167-15-46 html]# cat wp-config.php
<?php
/**
 * The base configuration for WordPress
 *
 * The wp-config.php creation script uses this file during the
 * installation. You don't have to use the web site, you can
 * copy this file to "wp-config.php" and fill in the values.
 *
 * This file contains the following configurations:
 *
 * * MySQL settings
 * * Secret keys
 * * Database table prefix
 * * ABSPATH
 *
 * @link https://wordpress.org/support/article/editing-wp-config-php/
 *
 * @package WordPress
 */

// ** MySQL settings - You can get this info from your web host ** //
/** The name of the database for WordPress */
define( 'DB_NAME', 'database_name_here' );

/** MySQL database username */
define( 'DB_USER', 'username_here' );

/** MySQL database password */
define( 'DB_PASSWORD', 'password_here' );

/** MySQL hostname */
define( 'DB_HOST', 'localhost' );
```

database name

admin

admin123

"RDS ENDPOINT"

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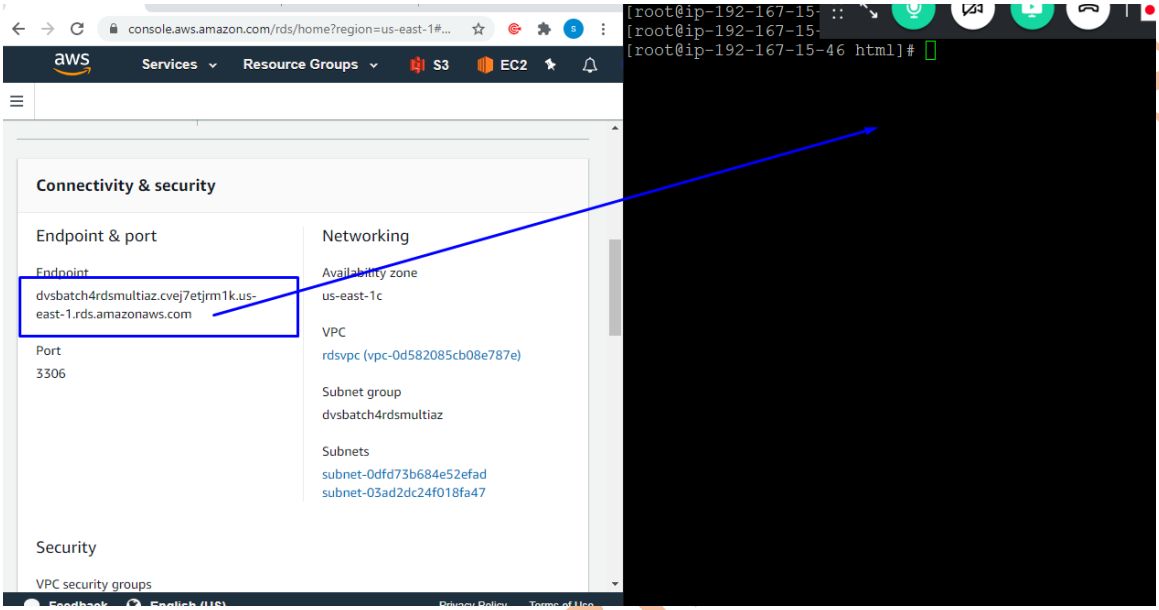
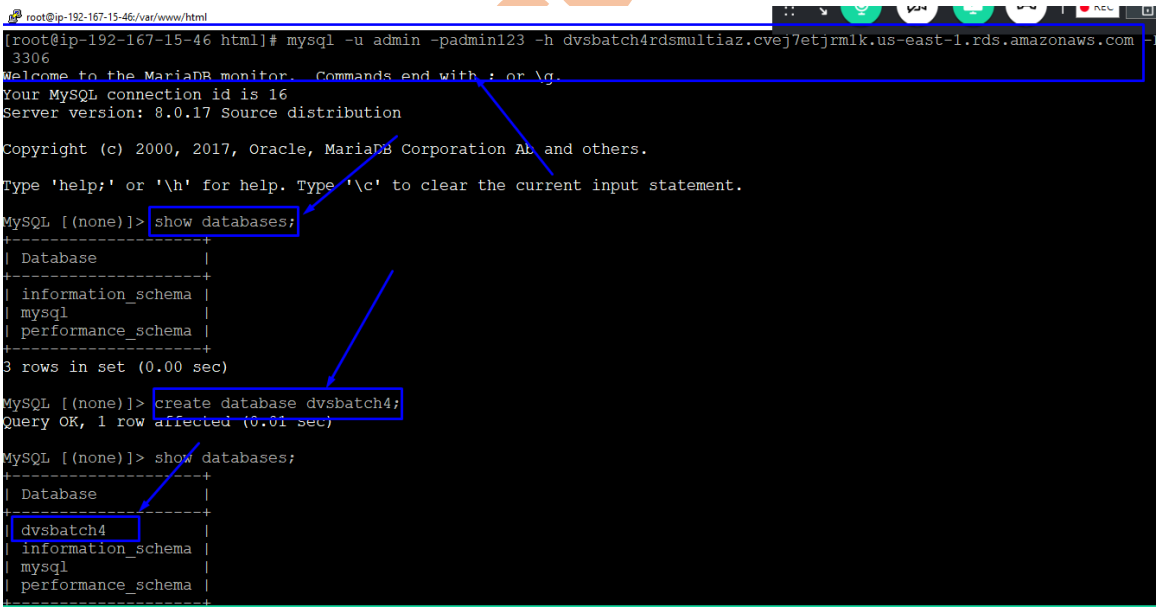
As part of the above I don't have datbase to provide lets create our database in the RDS server using below





```
[root@ip-192-167-15-46 html]# vi wp-config.php
```

```
 * @link https://wordpress.org/support/article/editing-wp-config-php/
 *
 * @package WordPress
 */

// ** MySQL settings - You can get this info from your web host ** //
/** The name of the database for WordPress */
define( 'DB_NAME', 'dvsbatch4' );

/** MySQL database username */
define( 'DB_USER', 'admin' );

/** MySQL database password */
define( 'DB_PASSWORD', 'admin123' );

/** MySQL hostname */
define( 'DB_HOST', 'dvsbatch4rdsmultiaz.cvej7etjrm1k.us-east-1.rds.amazonaws.com' );
[root@ip-192-167-15-46 html]# ^C
```

Make sure that you are editing the above file and adding the data.

```
MySQL [(none)]> ^DBye
[root@ip-192-167-15-46 html]# sudo chown -R apache /var/www
[root@ip-192-167-15-46 html]# sudo chgrp -R apache /var/www
[root@ip-192-167-15-46 html]# sudo chmod 775 /var/www
[root@ip-192-167-15-46 html]# sudo find /var/www -type d -exec sudo chmod 2775 {} \;
[root@ip-192-167-15-46 html]# sudo find /var/www -type f -exec sudo chmod 0664 {} \;
[root@ip-192-167-15-46 html]# sudo systemctl restart httpd
[root@ip-192-167-15-46 html]#
```

Verifying My application status:

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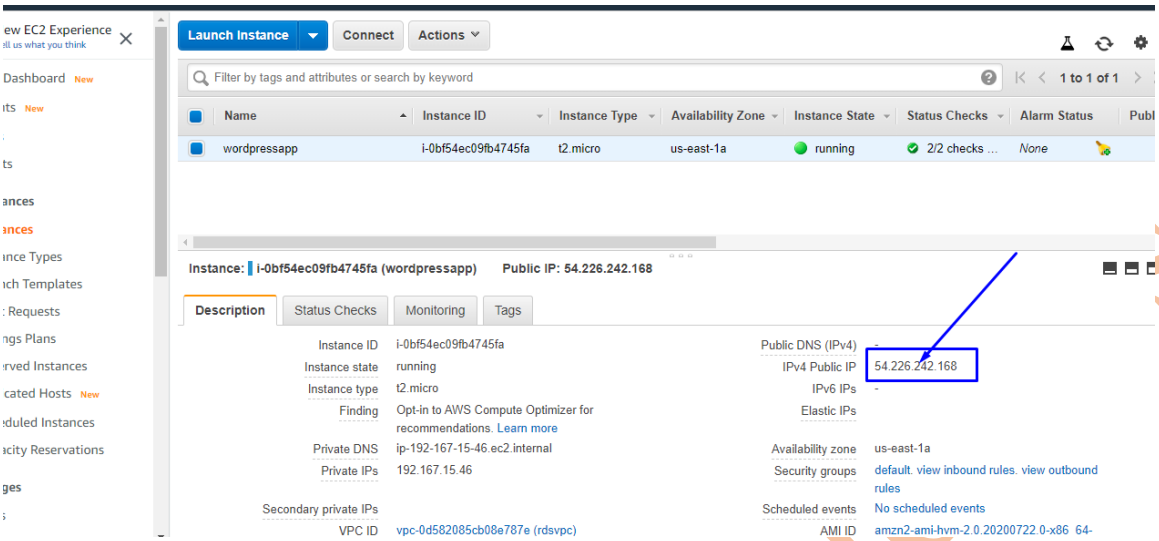

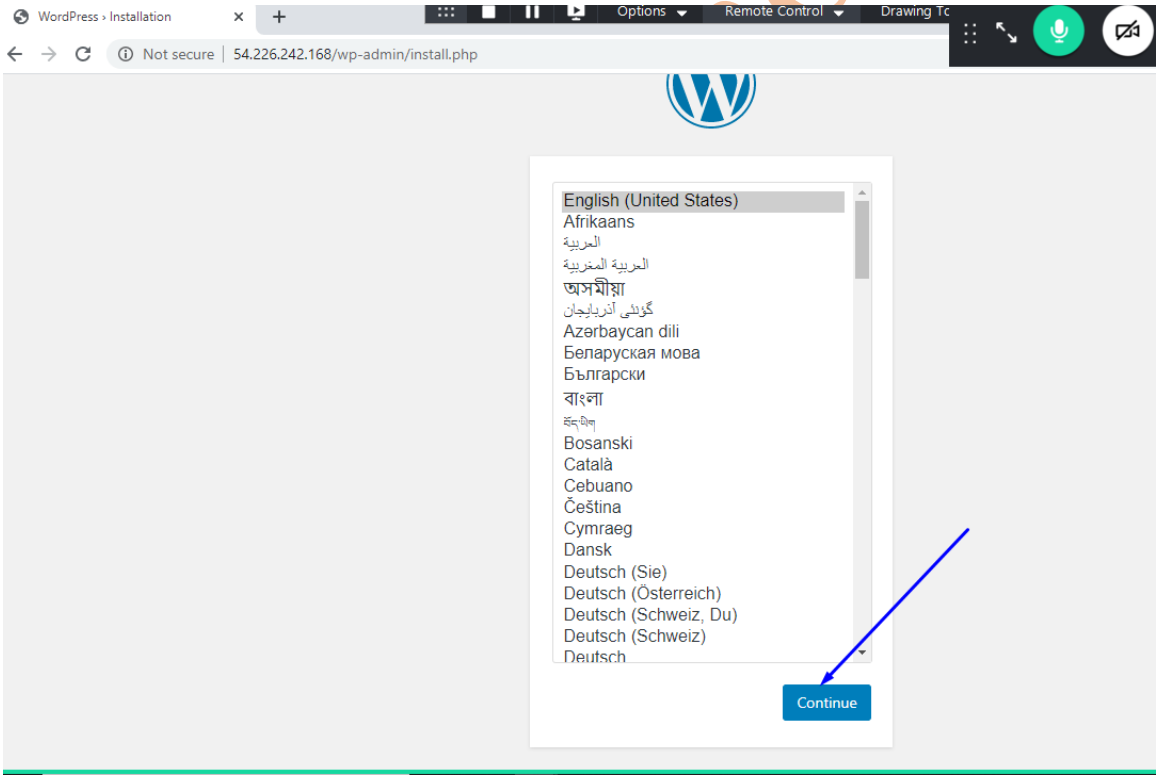

BEFORE CLICKING ON CONTINUE:

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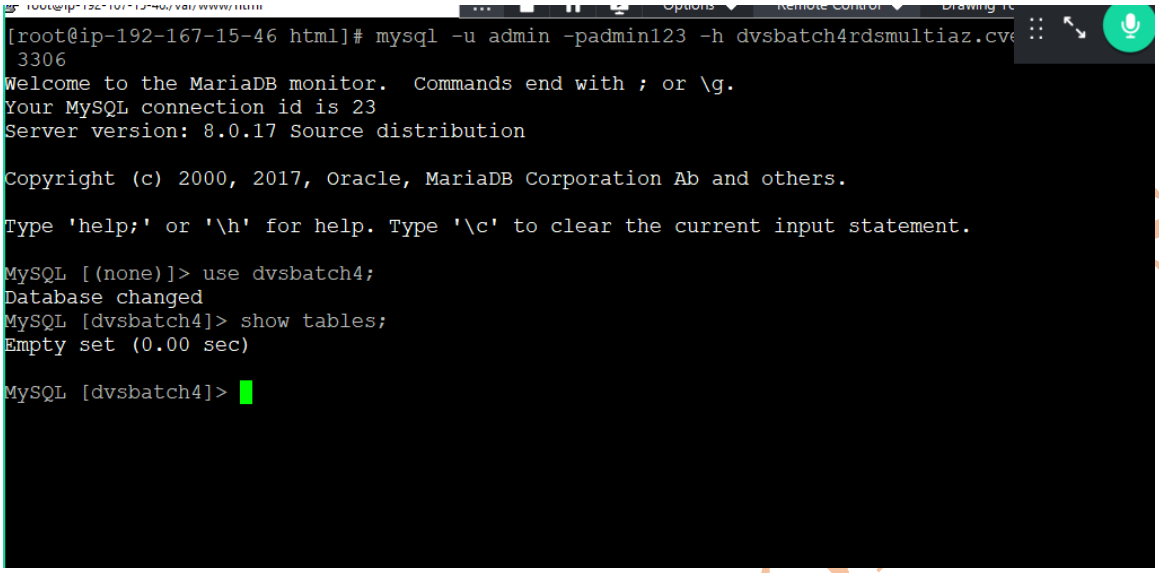
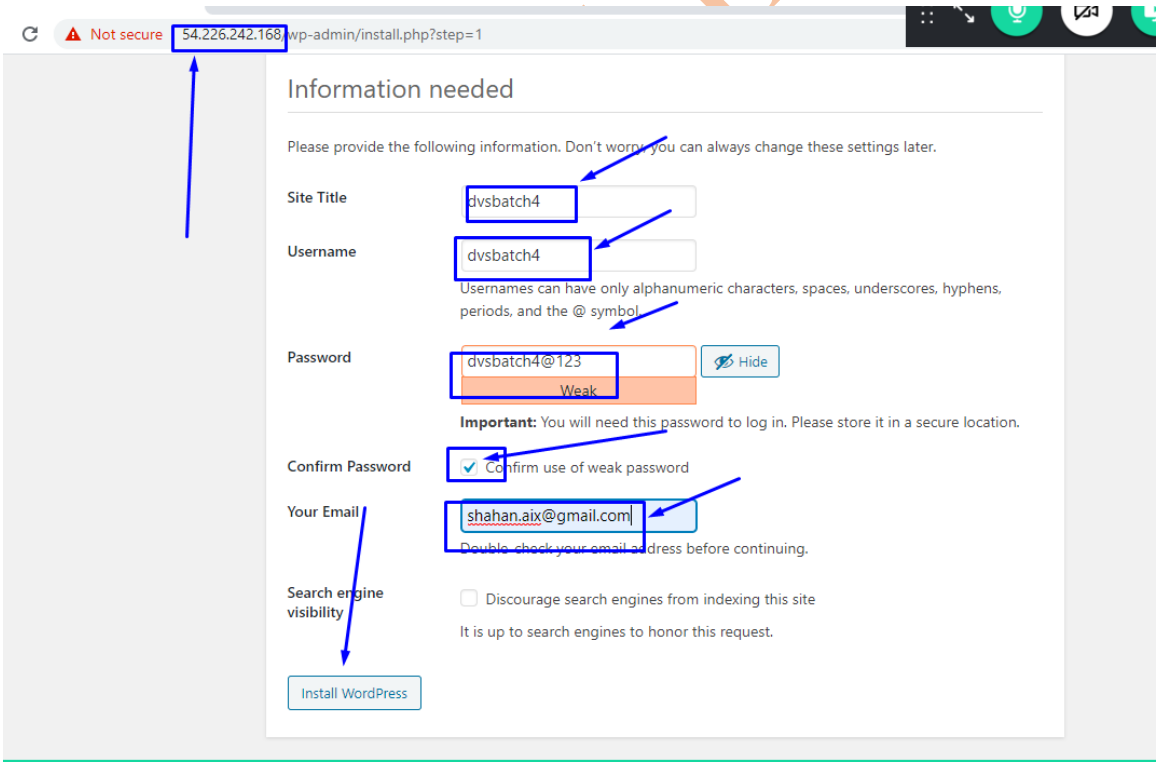
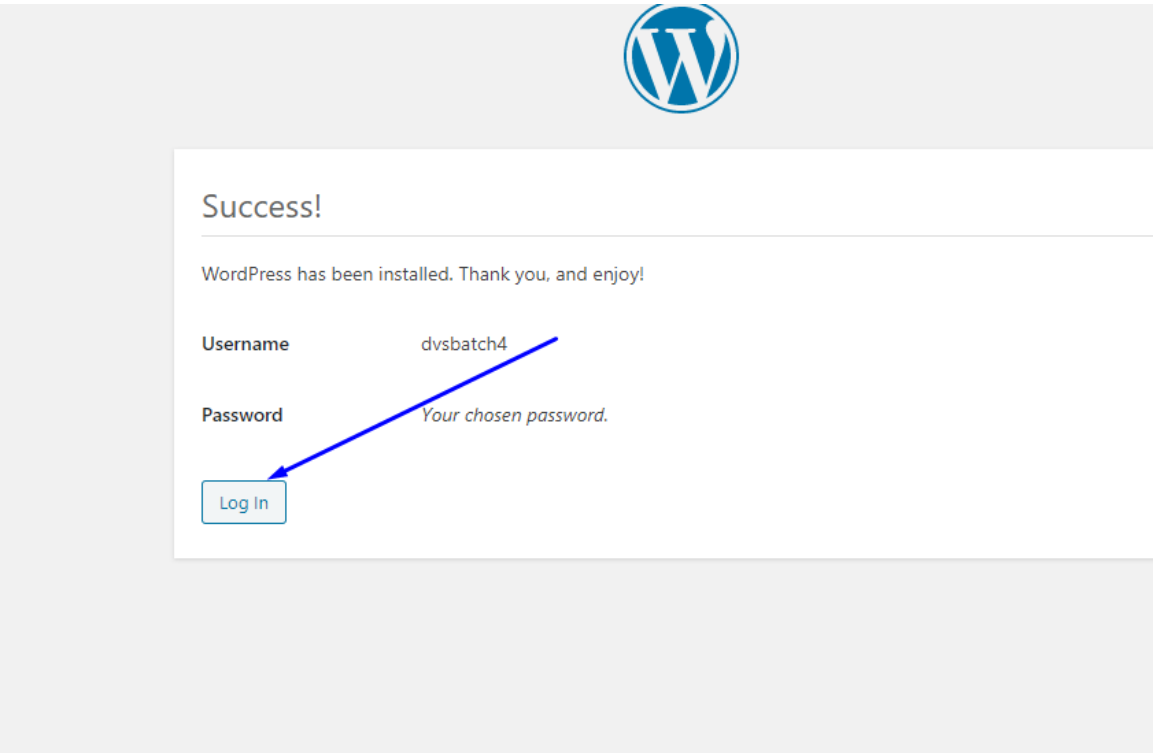
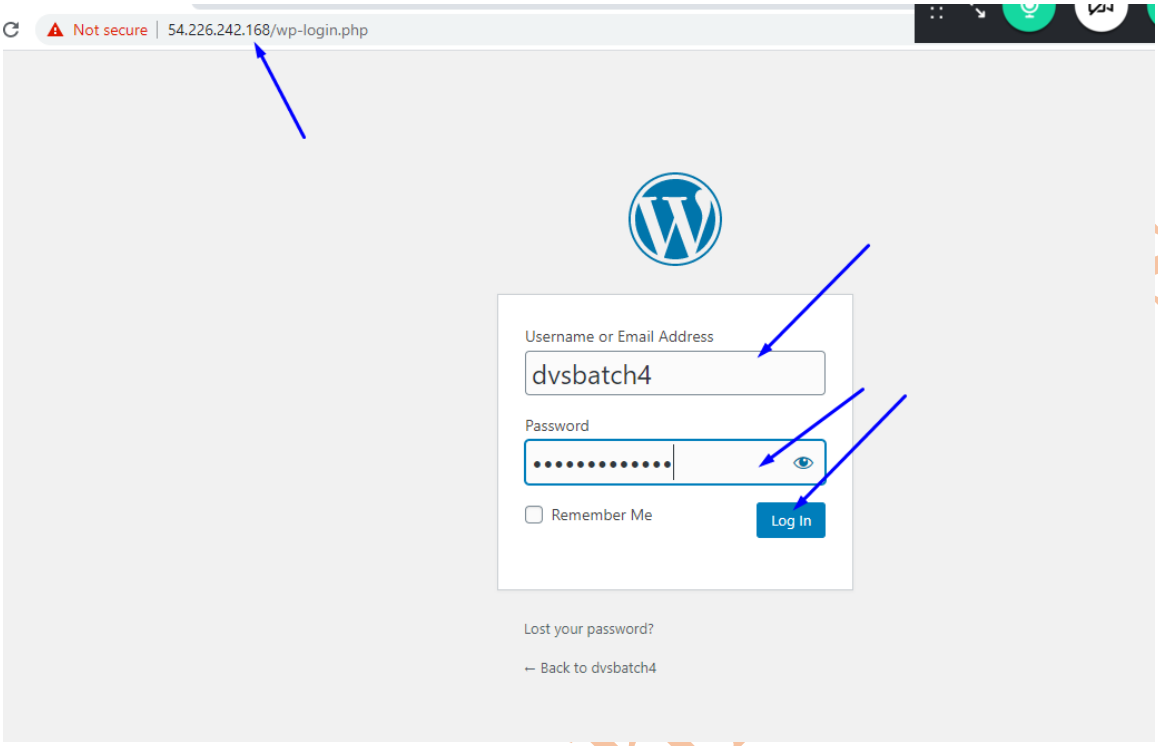


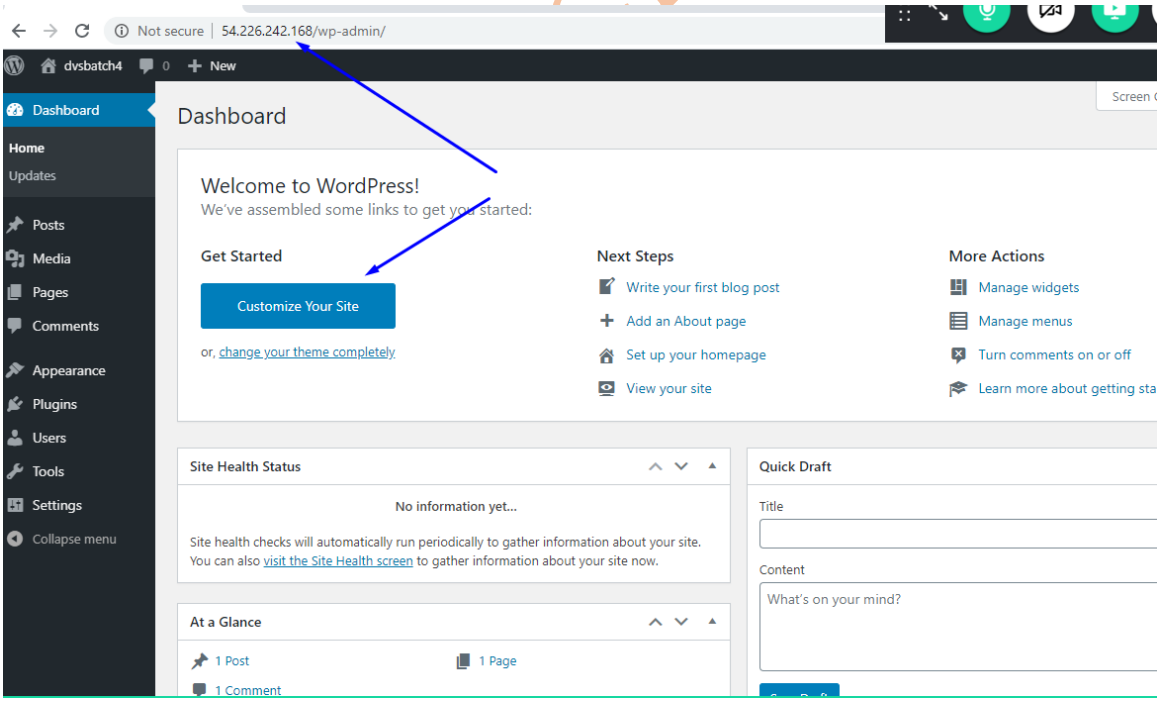


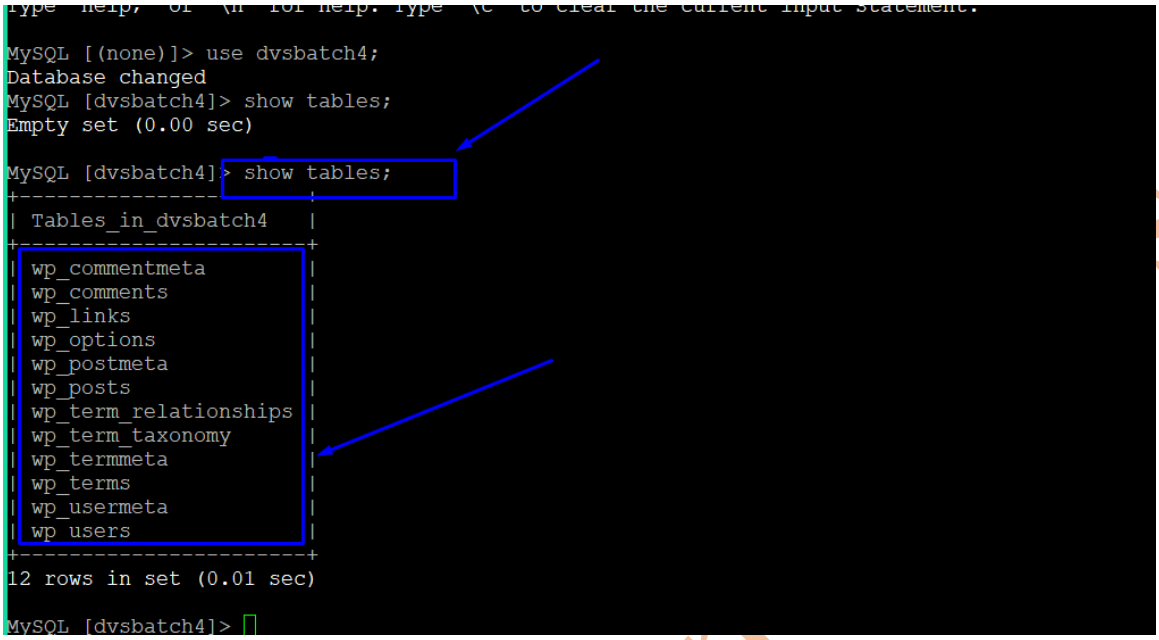
DVS Technologies Aws & Devops



DVS Technologies Aws & Devops



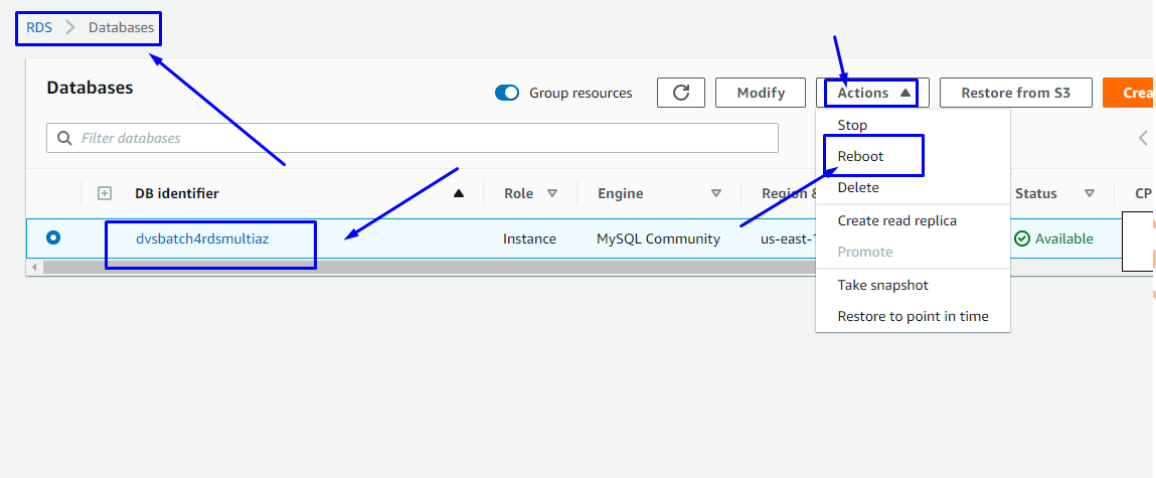


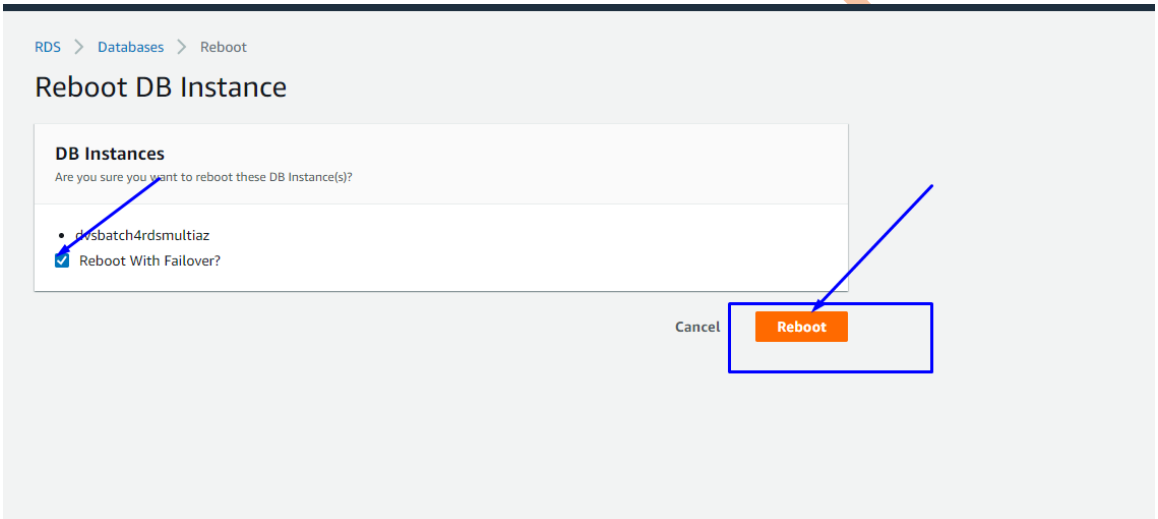


4. Testing Multi-AZ RDS

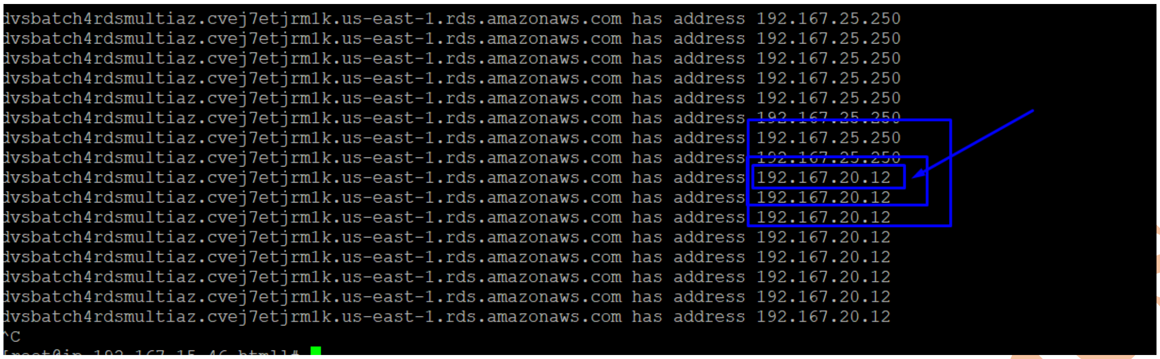
Perform the below:

while true; do host dvsbatch4rdsmultiaz.cvej7etjrm1k.us-east-1.rds.amazonaws.com; sleep 5; done

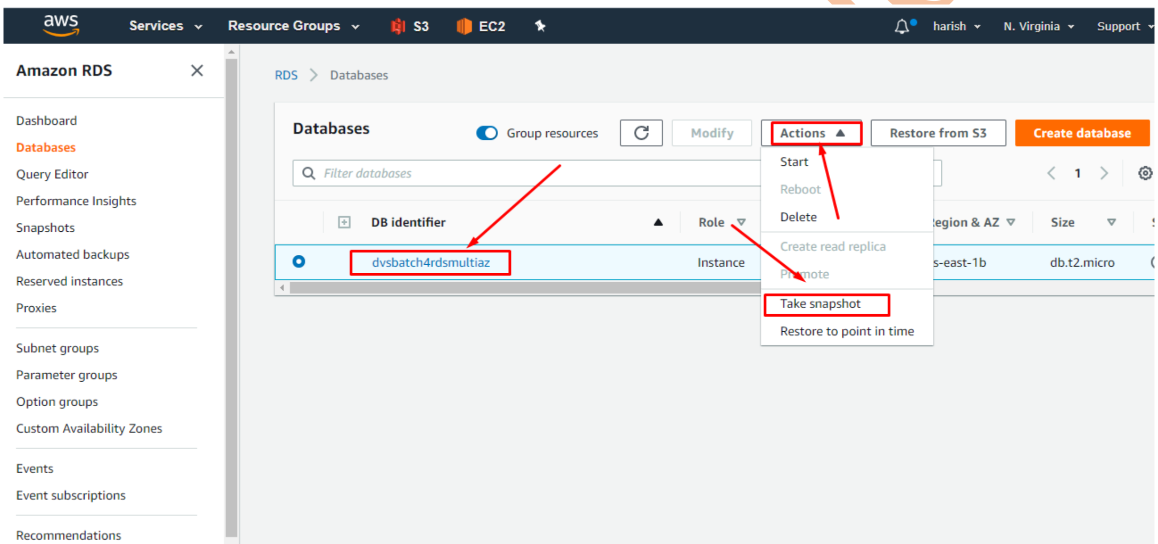




Pls wait for <1 min and monitor your Ec2



5. Creating Snapshots for RDS



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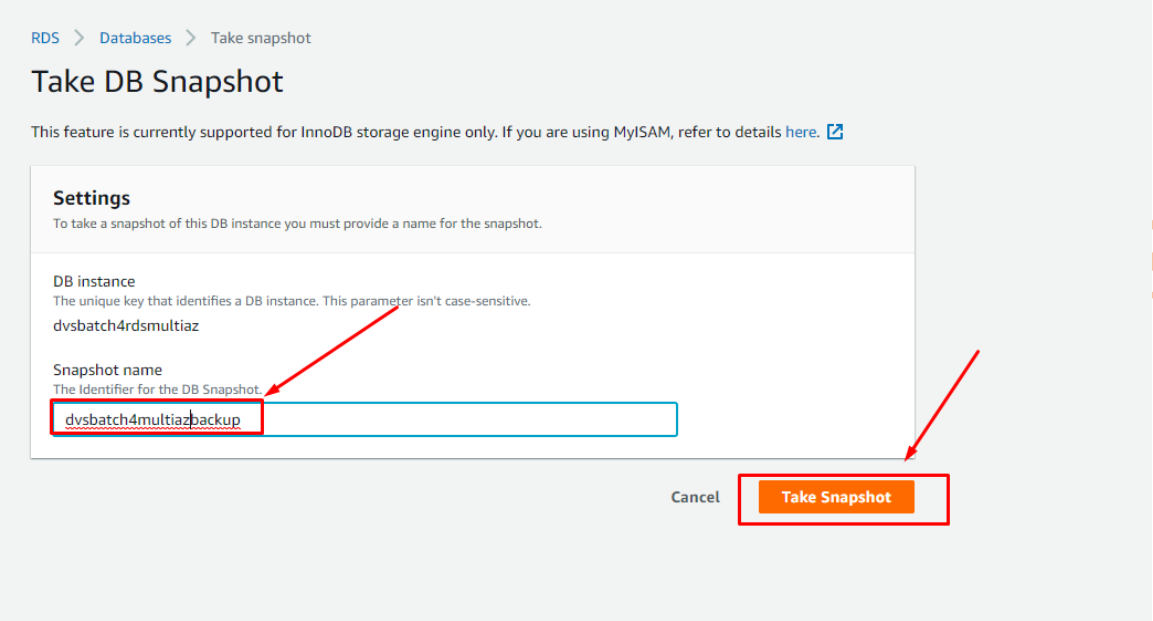
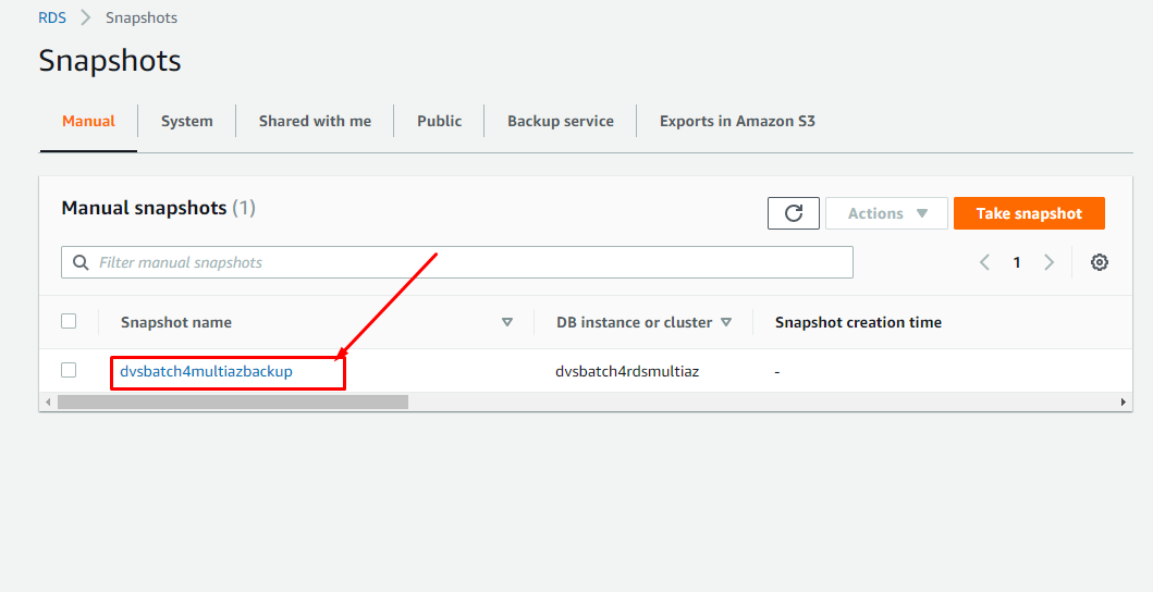
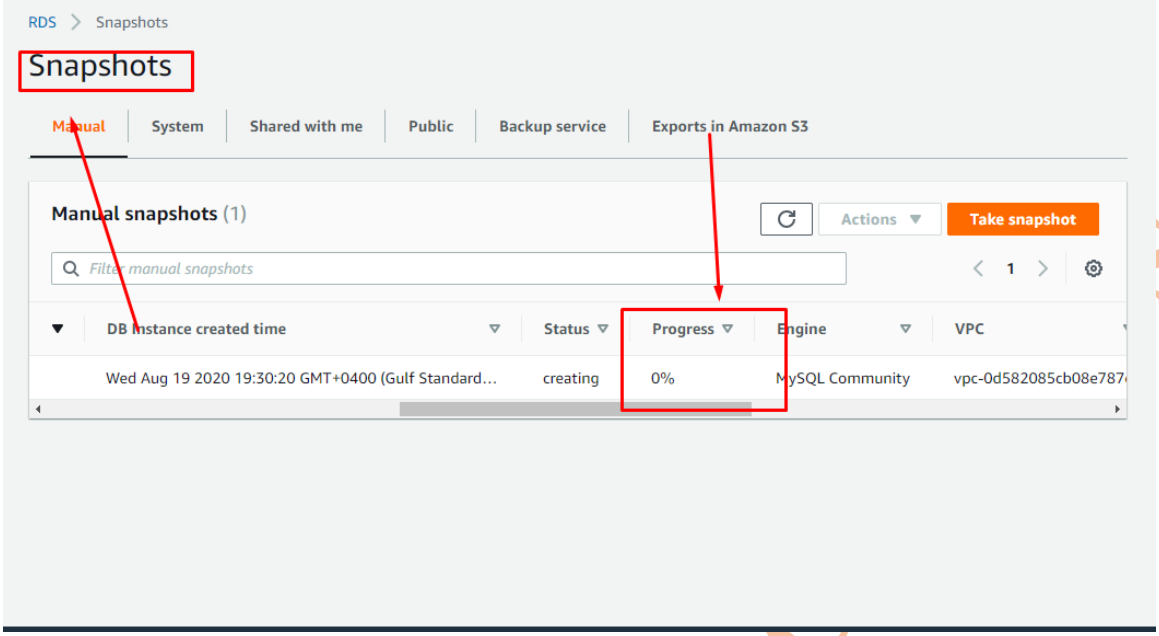
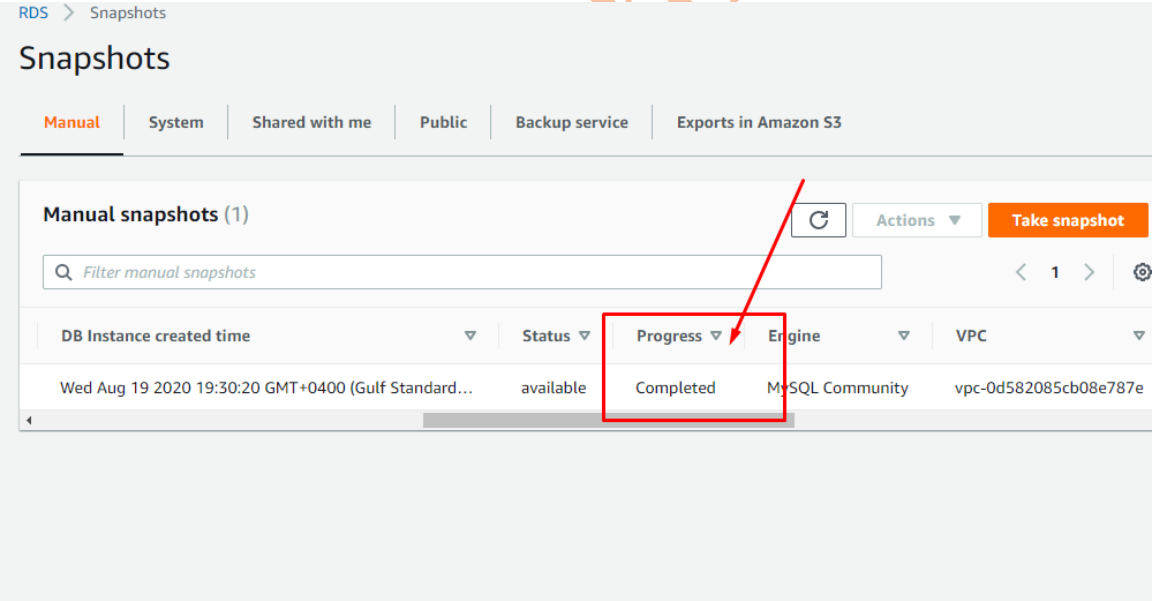


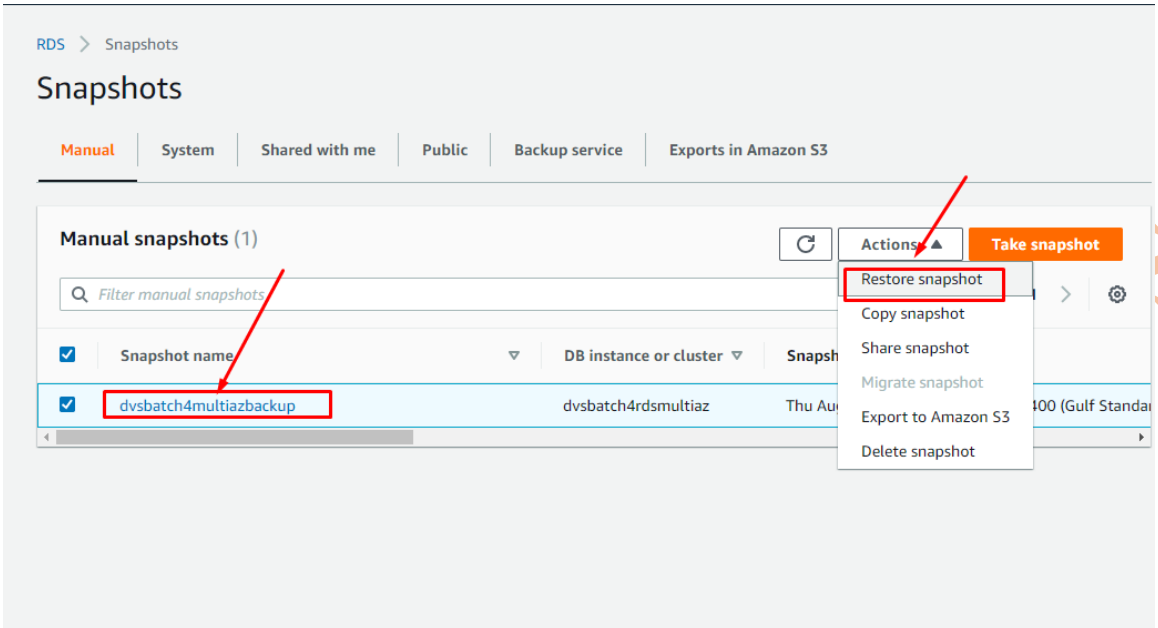


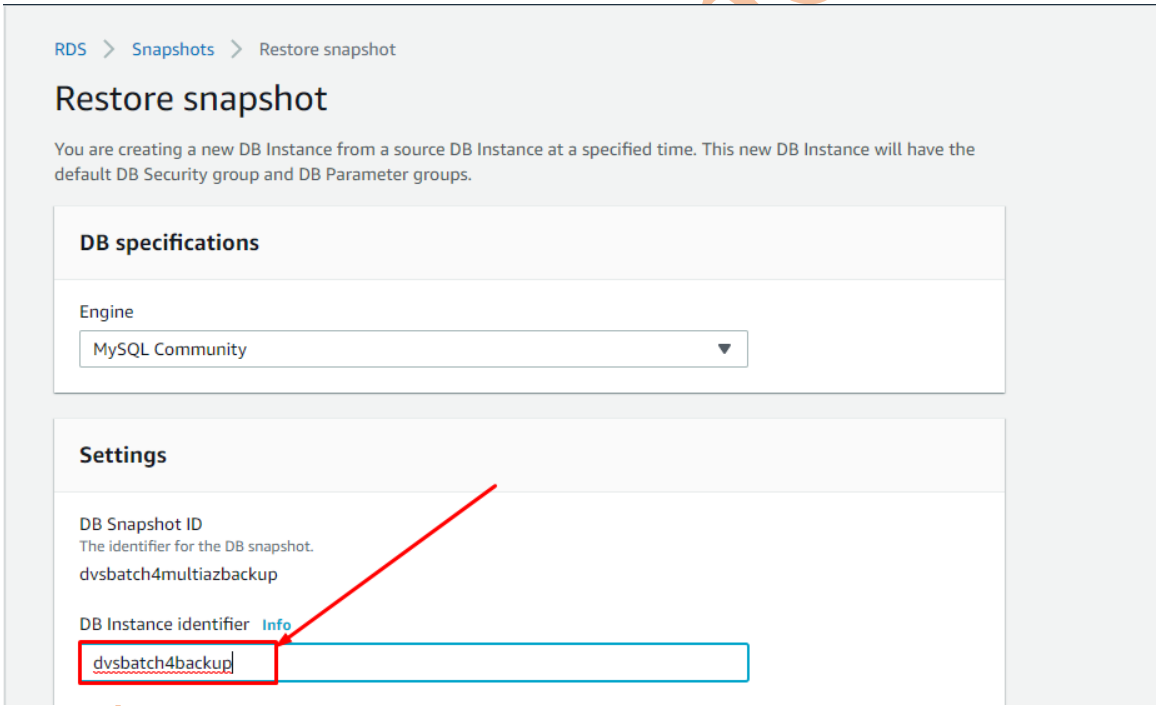
DVS Technologies Aws & Devops

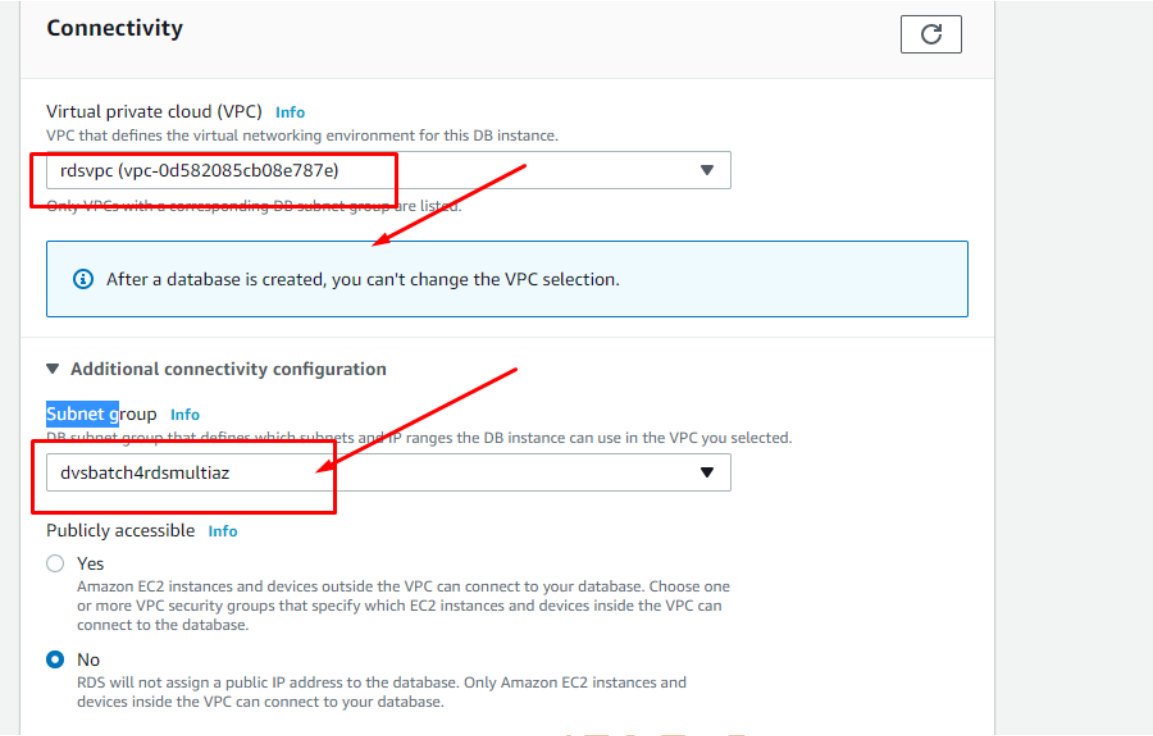


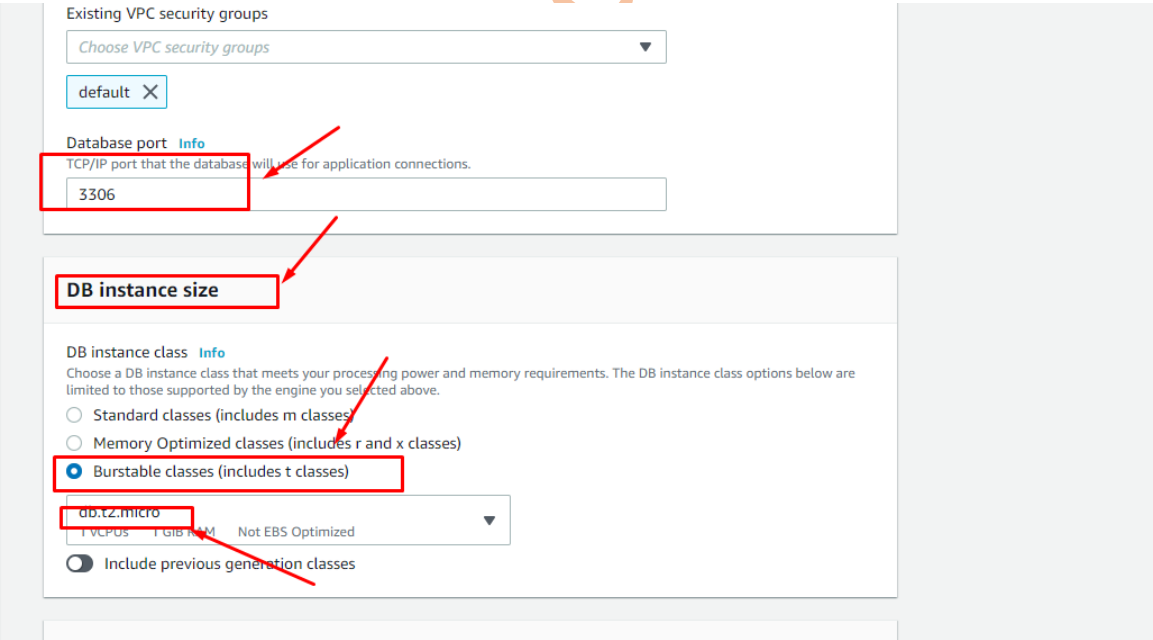


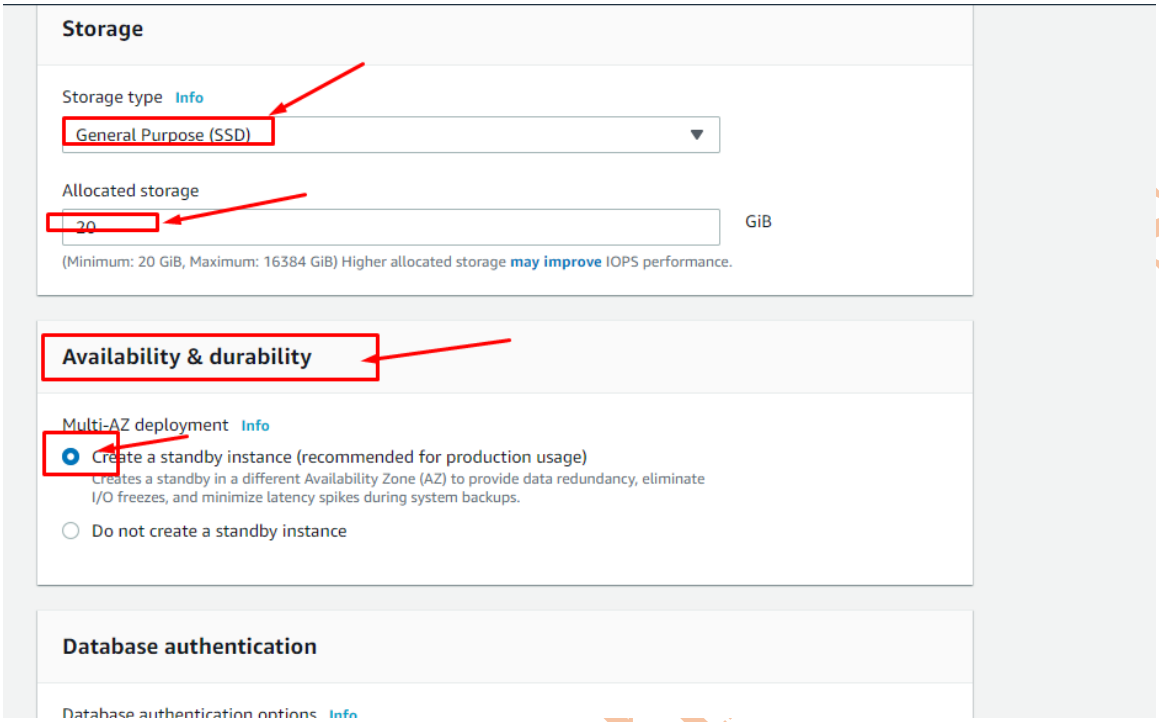
DVS Technologies Aws & Devops

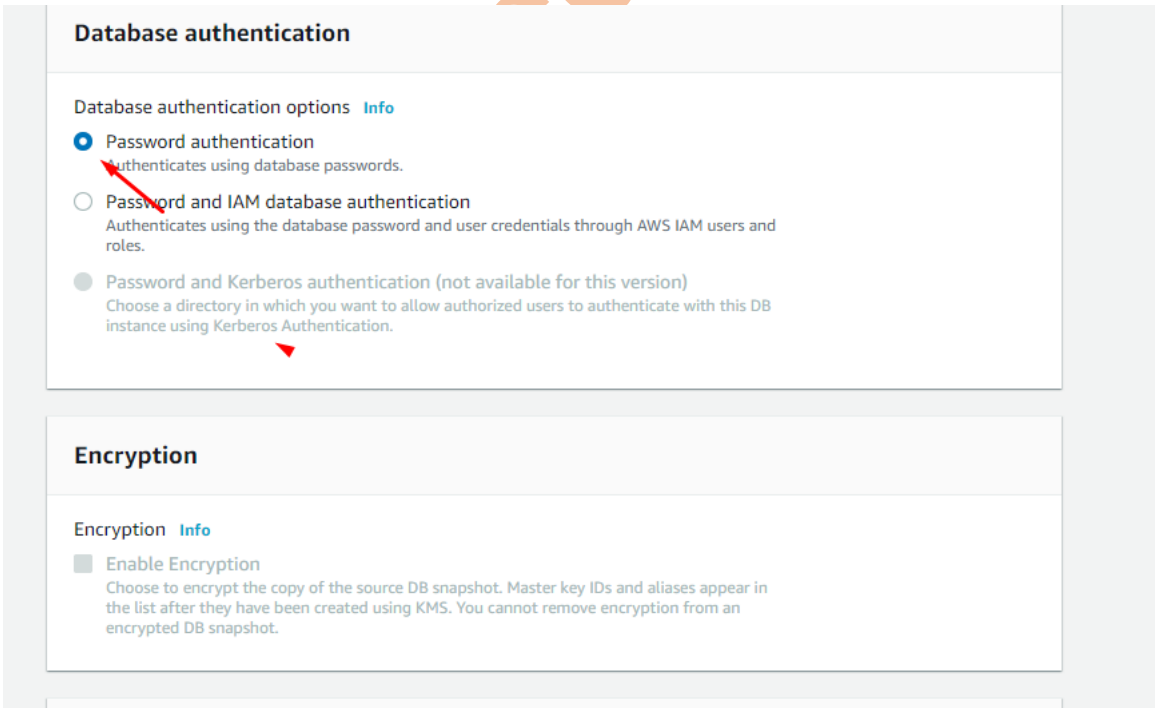





Connectivity
Virtual private cloud (VPC) Info
VPC that defines the virtual networking environment for this DB instance.
rdsvpc (vpc-0d582085cb08e787e)
Only VPCs with a corresponding DB subnet group are listed.
After a database is created, you can't change the VPC selection.
Additional connectivity configuration
Subnet group Info
DB subnet group that defines which subnets and IP ranges the DB instance can use in the VPC you selected.
dvsbatch4rdsmultiaz
Publicly accessible 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.


Existing VPC security groups
Choose VPC security groups
default
Database port Info
TCP/IP port that the database will use for application connections.
3306
DB instance size
DB instance class Info
Choose a DB instance class that meets your processing power and memory requirements. The DB instance class options below are limited to those supported by the engine you selected above.
Standard classes (includes m classes)
Memory Optimized classes (includes r and x classes)
Burstable classes (includes t classes)
db.t2.micro
Not EBS Optimized
Include previous generation classes


Storage
Storage type Info
General Purpose (SSD)
Allocated storage
20
GiB
(Minimum: 20 GiB, Maximum: 16384 GiB) Higher allocated storage may improve IOPS performance.
Availability & durability
Multi-AZ deployment Info
Create a standby instance (recommended for production usage)
Creates a standby in a different Availability Zone (AZ) to provide data redundancy, eliminate I/O freezes, and minimize latency spikes during system backups.
Do not create a standby instance
Database authentication
Database authentication options Info


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 (not available for this version)
Choose a directory in which you want to allow authorized users to authenticate with this DB instance using Kerberos Authentication.
Encryption
Encryption Info
Enable Encryption
Choose to encrypt the copy of the source DB snapshot. Master key IDs and aliases appear in the list after they have been created using KMS. You cannot remove encryption from an encrypted DB snapshot.