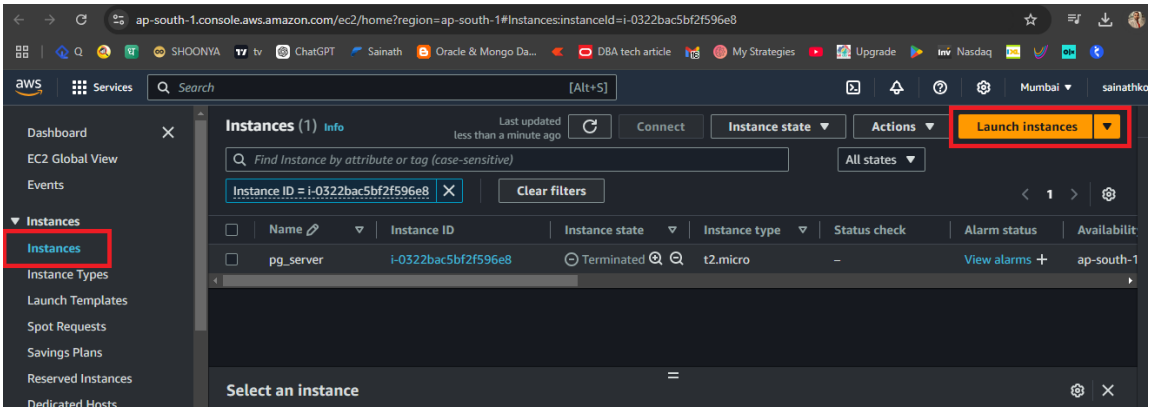
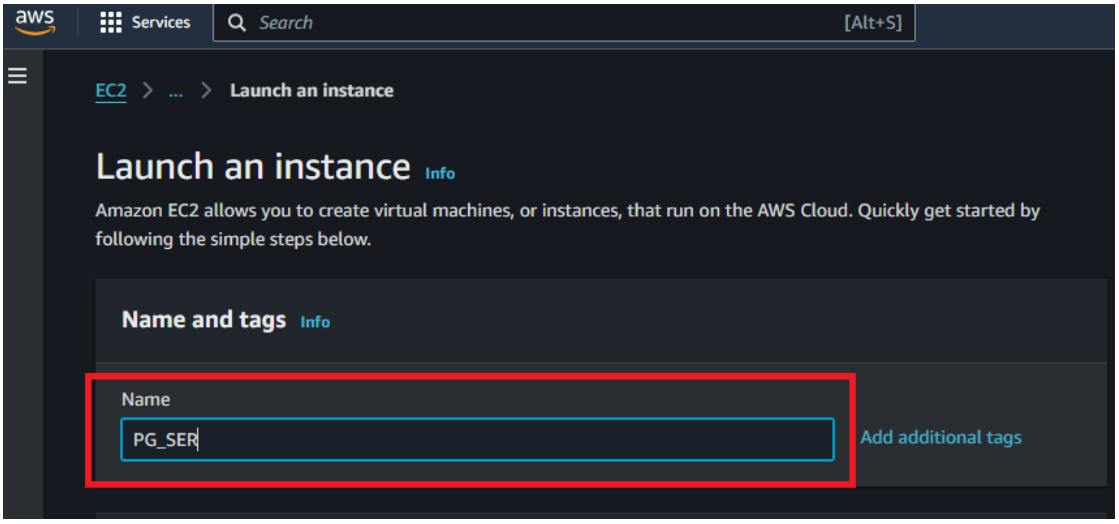
Steps for installing PostgreSQL 15 on an AWS EC2 instance with Amazon Linux 2023:

Creat Your EC2 Instance

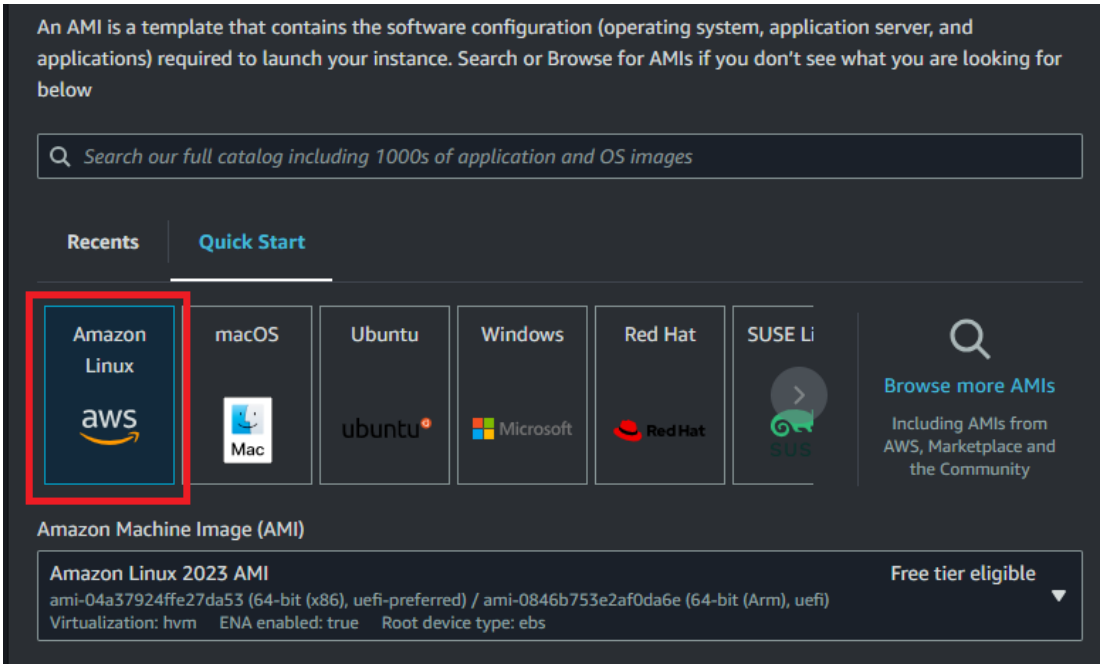
Click on launch instance

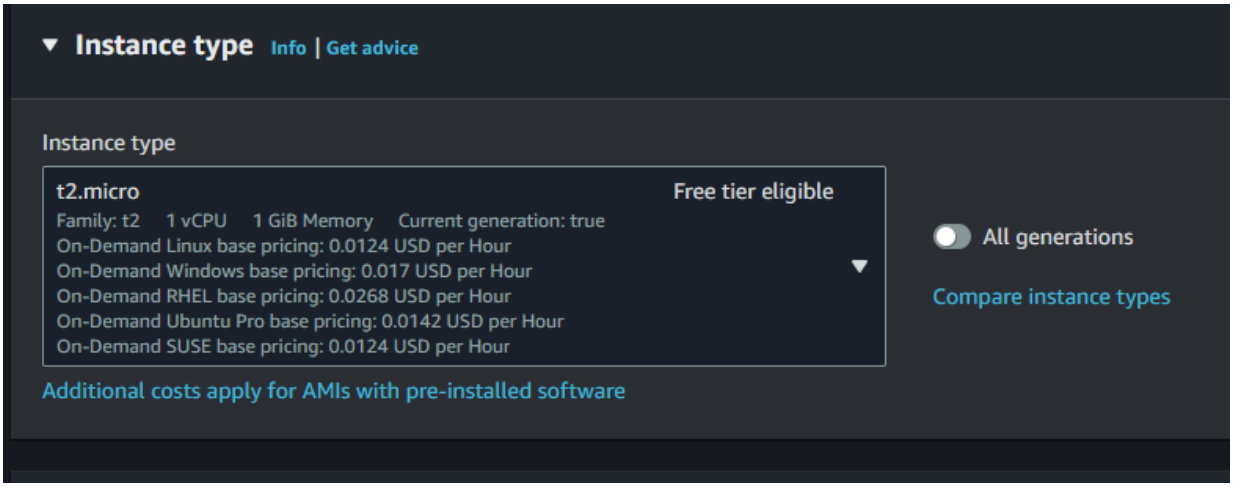


Give any name for the instance

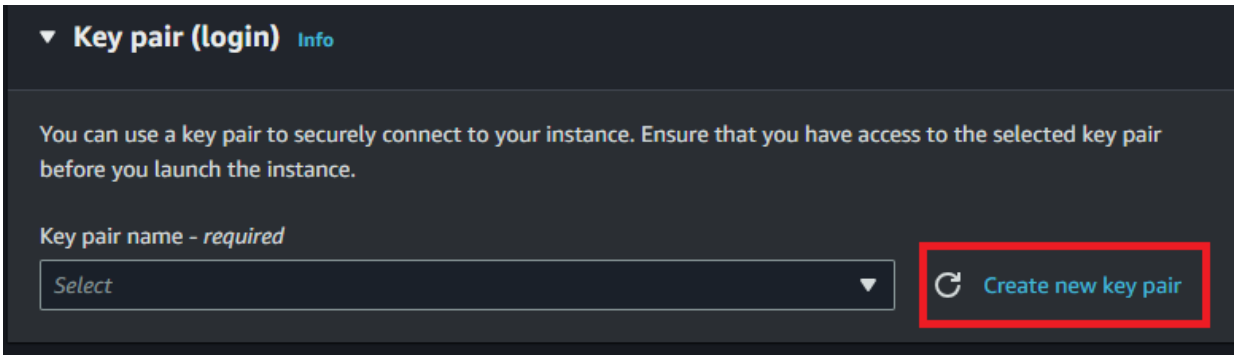


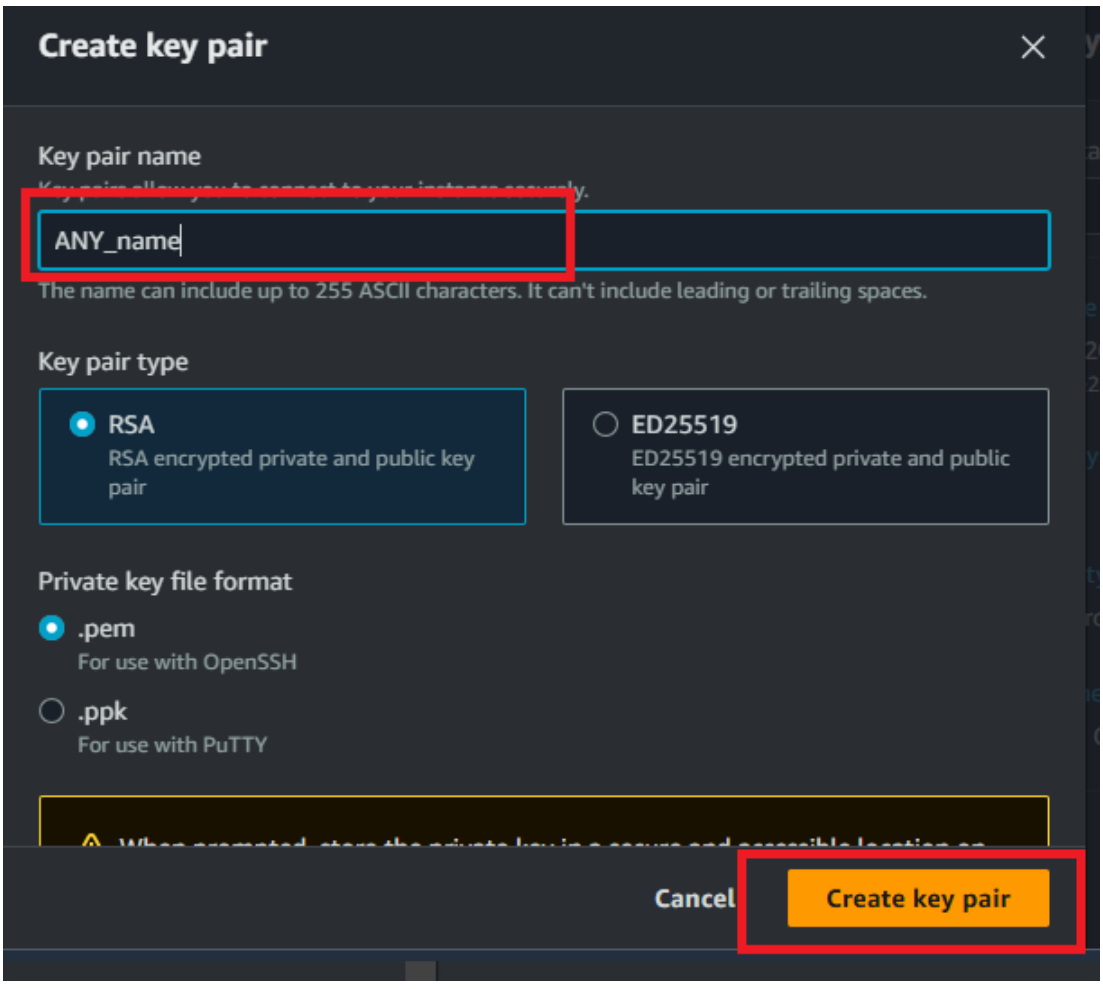
Select Amazon Linux



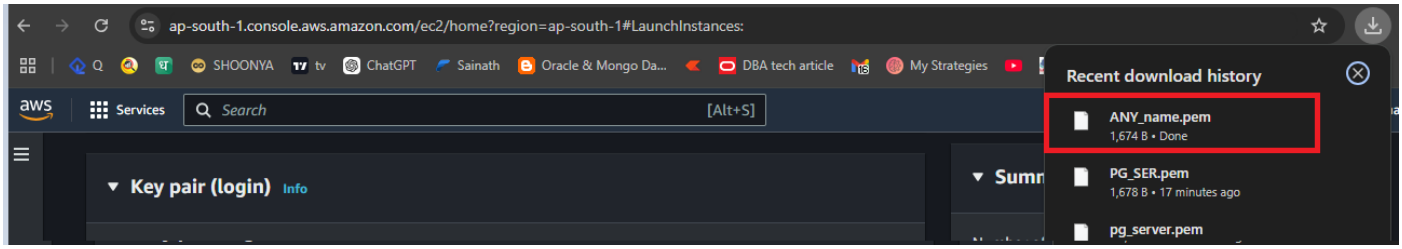


Create new key pair for remote connectivity.

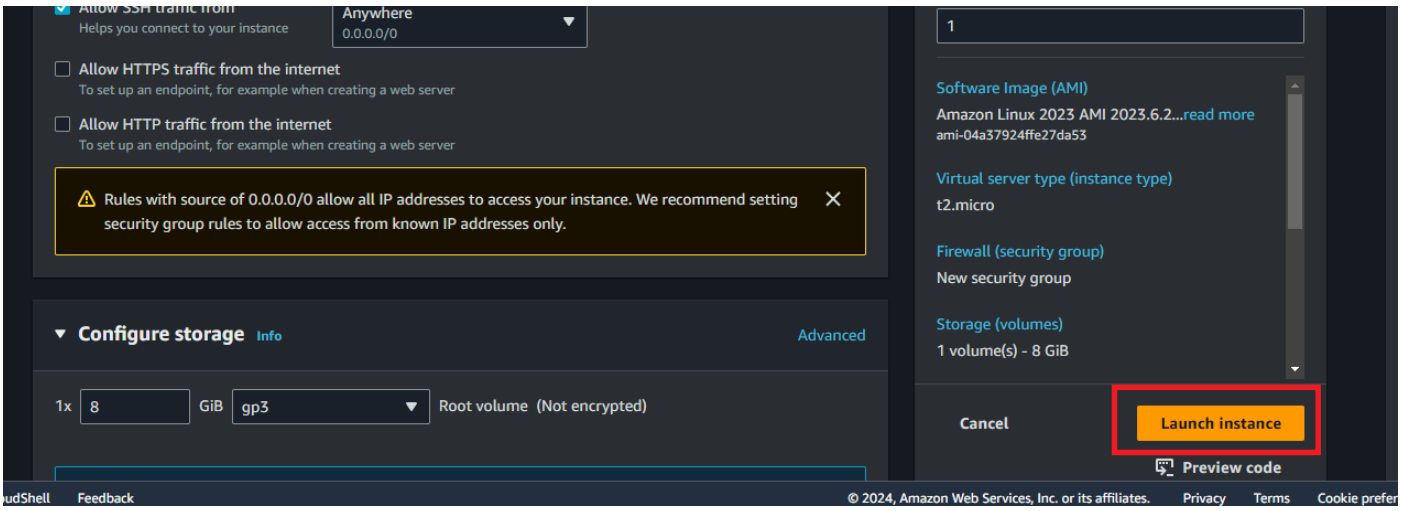


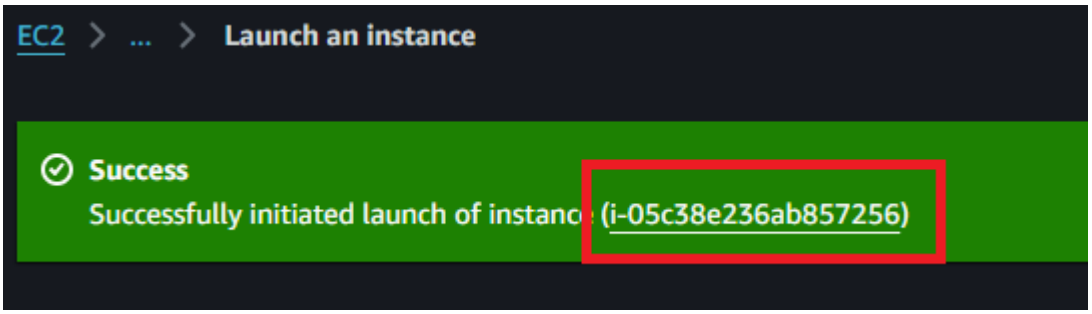


It will down the key to connect to the server from putty.

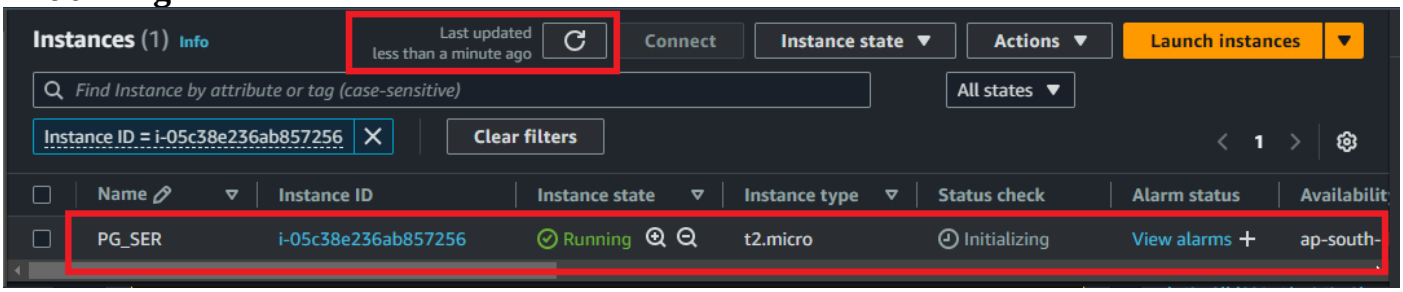


Launch the instance creation

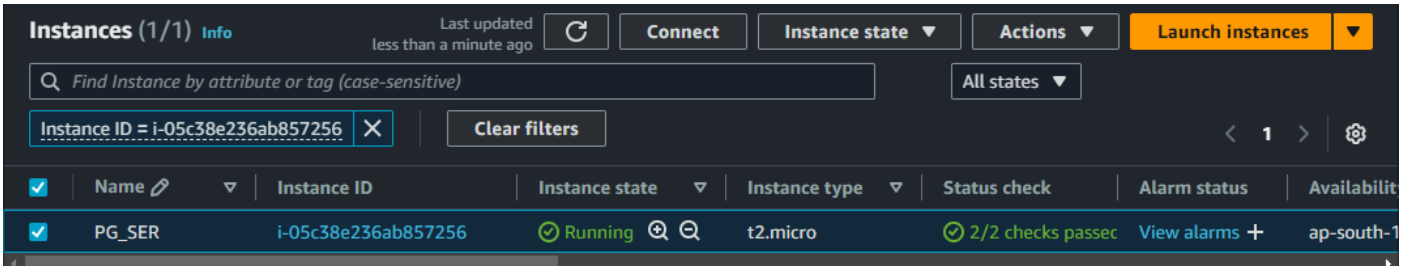




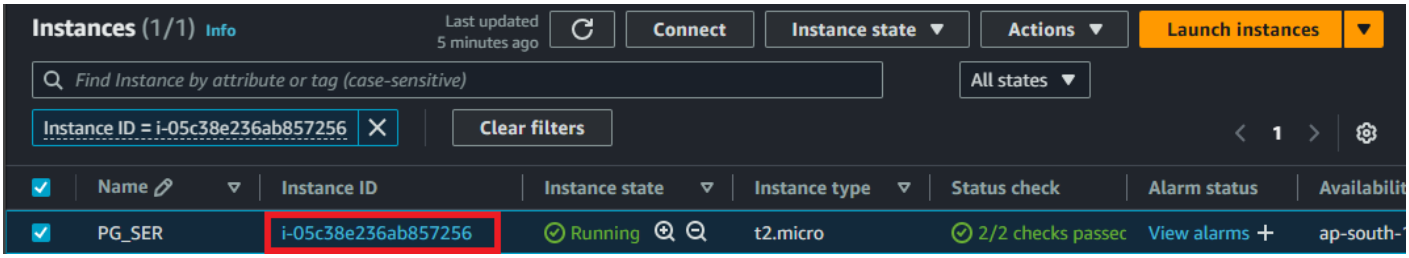
Initializing

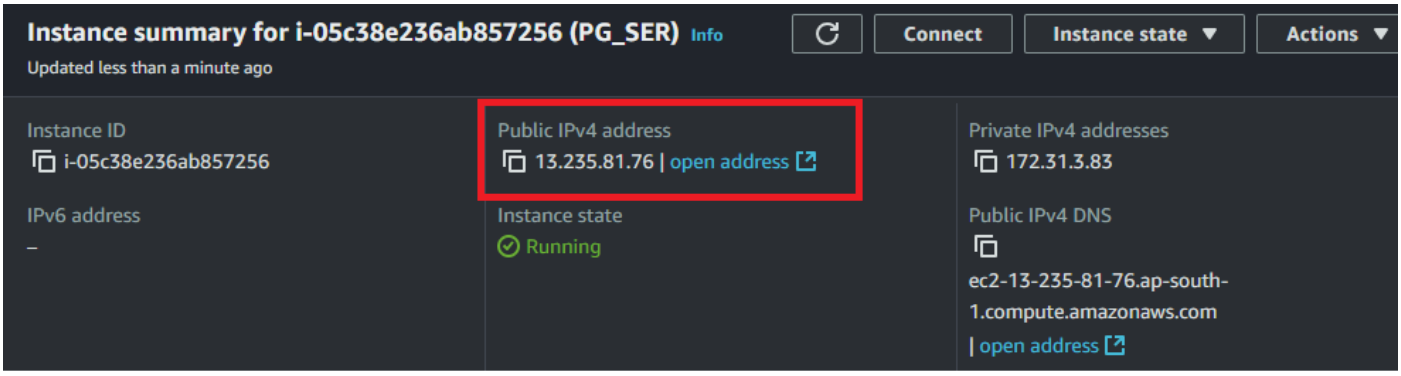


Ready to use



- **Use SSH to connect to your EC2 instance. This example uses `ec2-user` as the default user.**

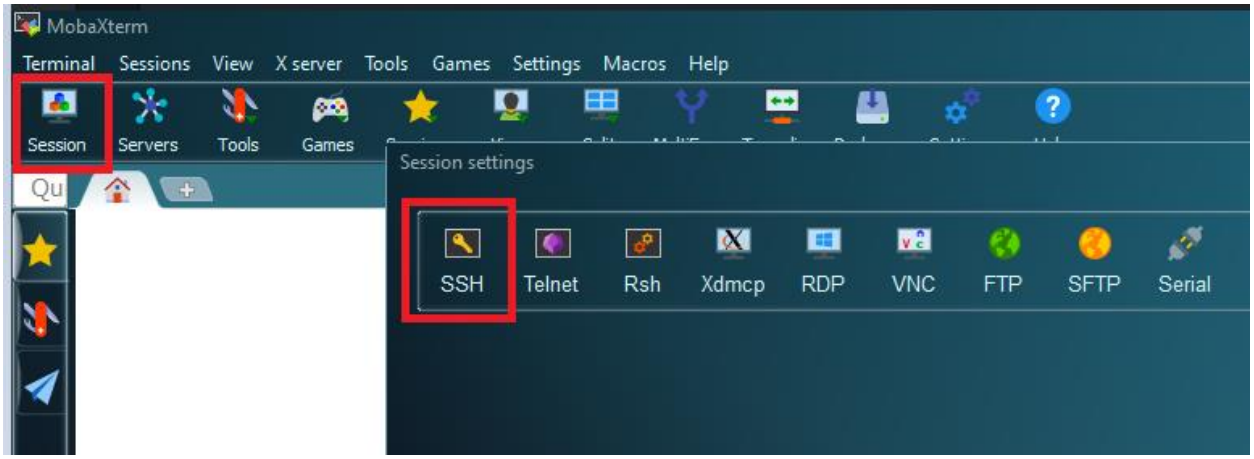




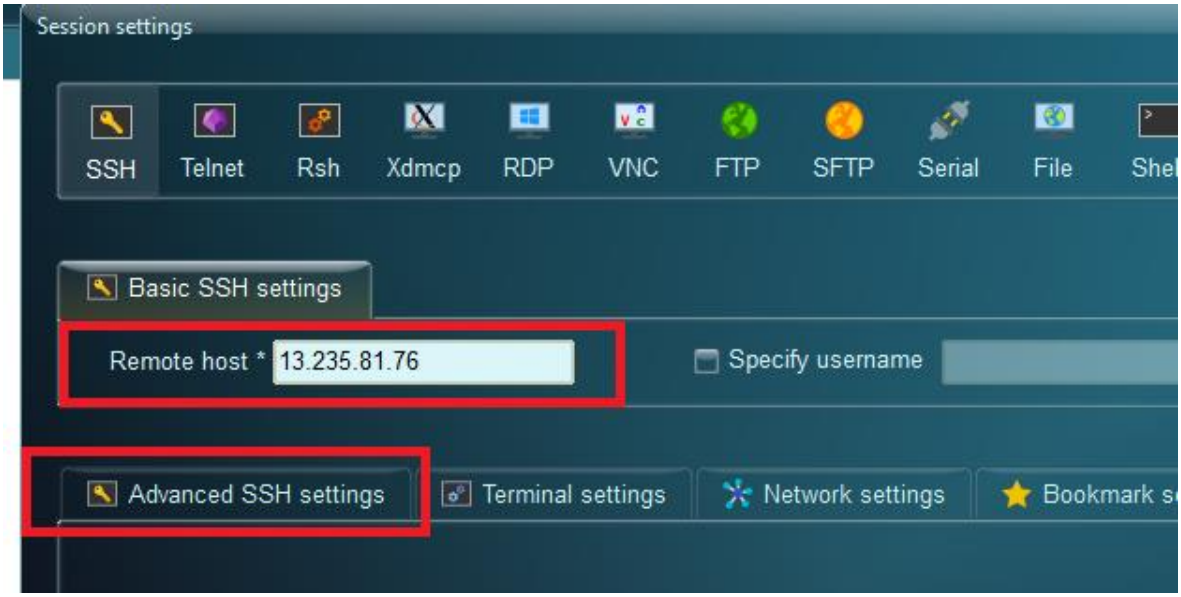
MobaXterm to connect:

Use the below link to download MoboXterm

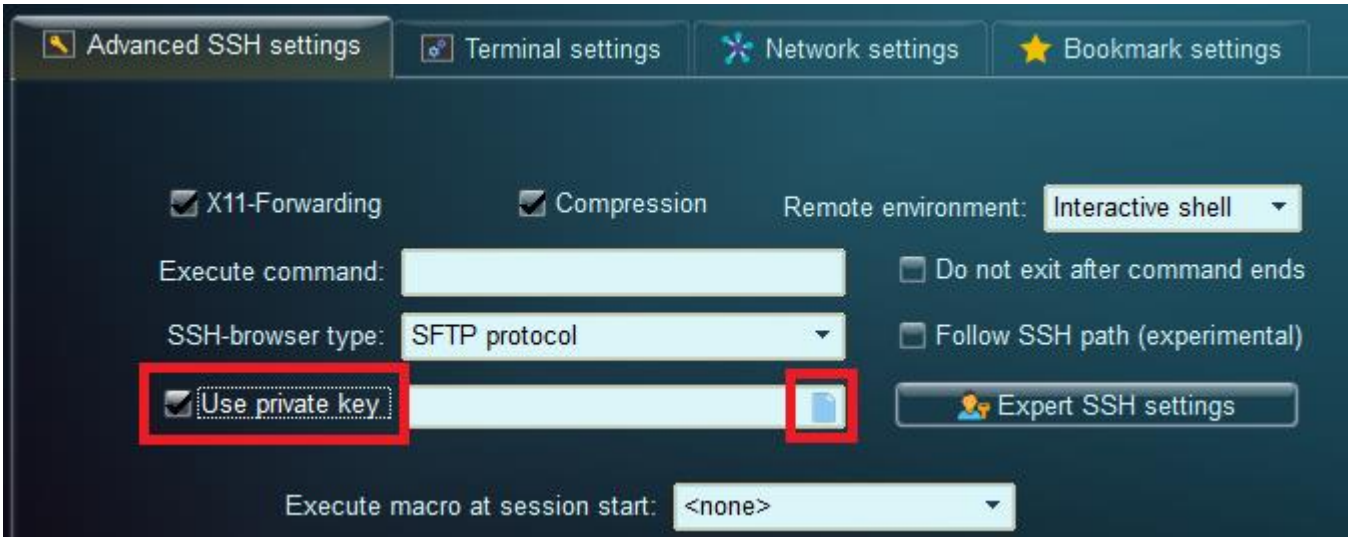
https://mobaxterm.mobatek.net/download-home-edition.html

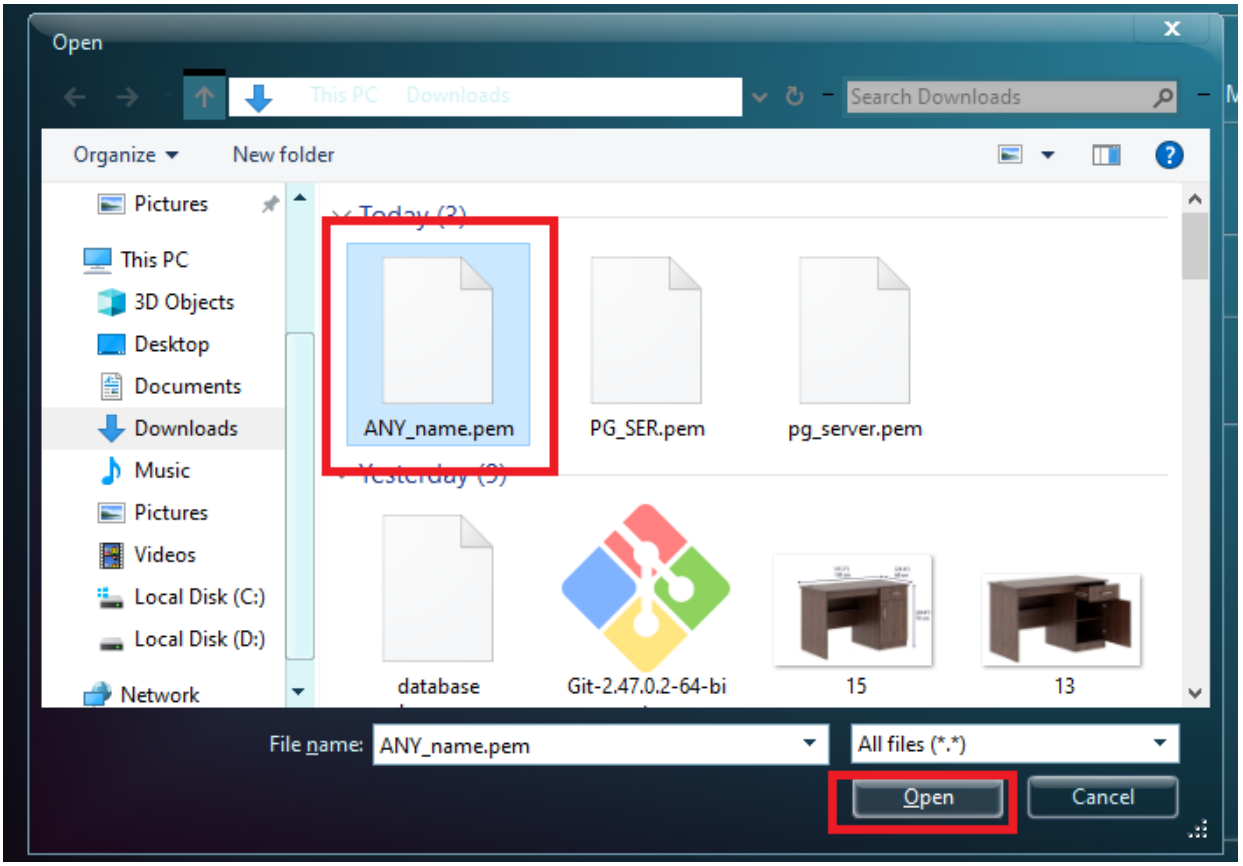


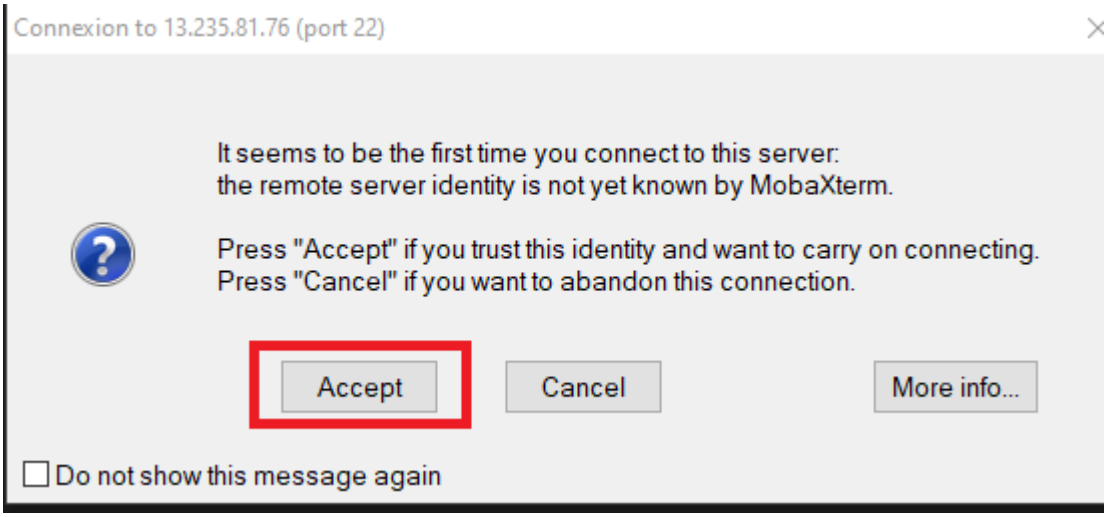
IP Addess : Pubilc IPv4 address

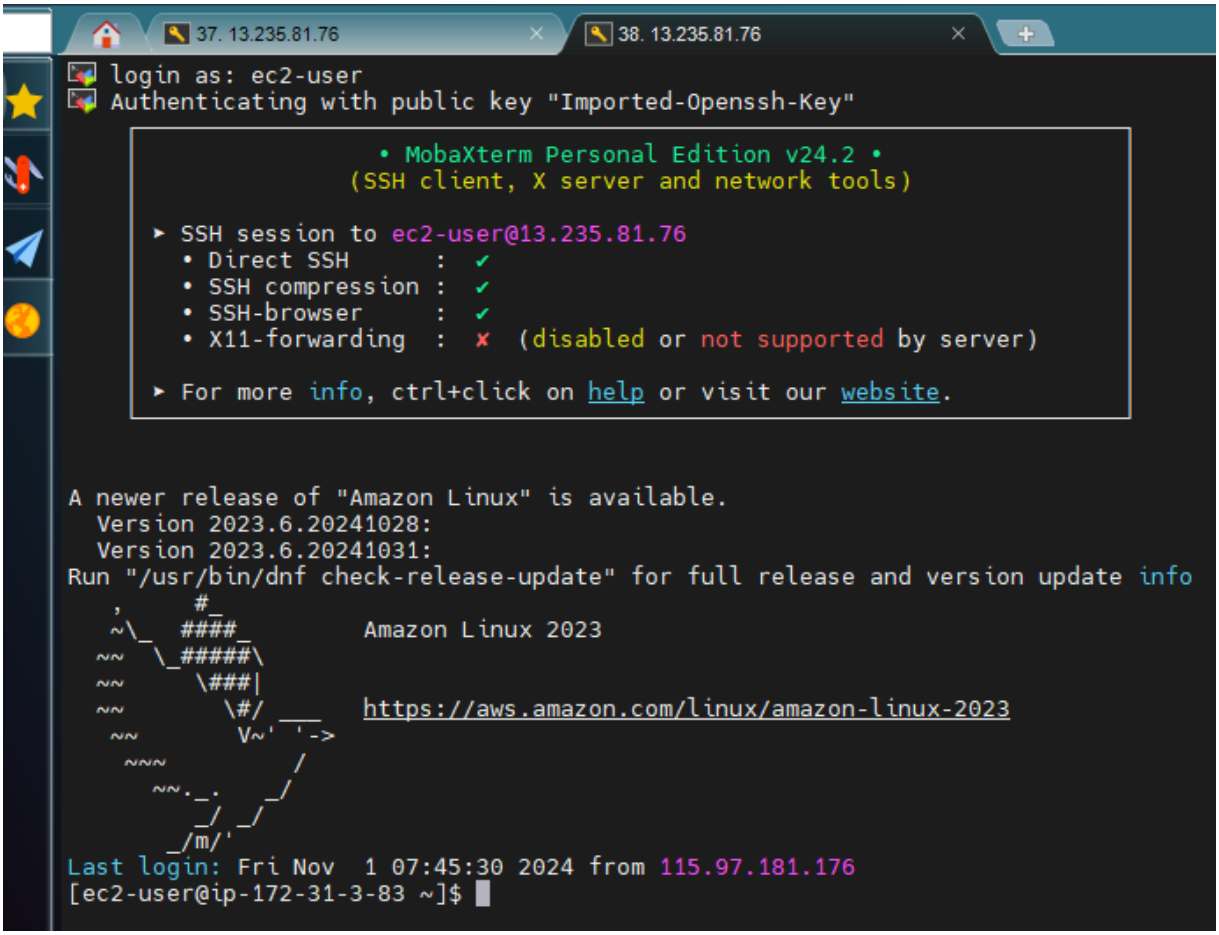


Browse the key location and select the key which we have downloaded









Postgresql Installation:

Check for Available Updates

- Run the `dnf update` command `to` ensure all installed packages are up-to-date. It's also useful to check if there are newer releases of Amazon Linux 2023 available.

  `sudo dnf update`

```
[ec2-user@ip-172-31-1-19 ~]$ sudo dnf update
Last metadata expiration check: 0:04:10 ago on Fri Nov  1 07:02:45 2024.
================================================================================
WARNING:
  A newer release of "Amazon Linux" is available.

  Available Versions:

  Version 2023.6.20241028:
    Run the following command to upgrade to 2023.6.20241028:

      dnf upgrade --releasever=2023.6.20241028

    Release notes:
     https://docs.aws.amazon.com/linux/al2023/release-notes/relnotes-2023.6.20241028.html

  Version 2023.6.20241031:
    Run the following command to upgrade to 2023.6.20241031:

      dnf upgrade --releasever=2023.6.20241031

    Release notes:
     https://docs.aws.amazon.com/linux/al2023/release-notes/relnotes-2023.6.20241031.html

================================================================================
Dependencies resolved.
Nothing to do.
Complete!
```

Install PostgreSQL 15 and

Server Packages

- Install PostgreSQL 15 along with the required server packages using `dnf`. This command will also pull in necessary dependencies.

```
sudo dnf install -y postgresql15.x86_64 postgresql15-server
```

```
[ec2-user@ip-172-31-1-19 ~]$ sudo dnf install -y postgresql15.x86_64 postgresql15-server
Last metadata expiration check: 0:04:16 ago on Fri Nov  1 07:02:45 2024.
Dependencies resolved.
================================================================================
 Package                 Architecture  Version                  Repository  Size
================================================================================
Installing:
 postgresql15            x86_64        15.8-1.amzn2023.0.1      amazonlinux 1.6 M
 postgresql15-server     x86_64        15.8-1.amzn2023.0.1      amazonlinux 6.3 M
Installing dependencies:
 libicu                  x86_64        67.1-7.amzn2023.0.3      amazonlinux 9.6 M
 postgresql15-private-libs x86_64      15.8-1.amzn2023.0.1      amazonlinux 145 k

Transaction Summary
================================================================================
Install  4 Packages

Total download size: 18 M
Installed size: 65 M
Downloading Packages:
(1/4): postgresql15-private-libs-15.8-1.amzn2023.0.1.x86_64.rpm  1.4 MB/s | 145 kB  00:00
(2/4): postgresql15-15.8-1.amzn2023.0.1.x86_64.rpm               9.3 MB/s | 1.6 MB  00:00
(3/4): libicu-67.1-7.amzn2023.0.3.x86_64.rpm                      35 MB/s | 9.6 MB  00:00
(4/4): postgresql15-server-15.8-1.amzn2023.0.1.x86_64.rpm         17 MB/s | 6.3 MB  00:00
--------------------------------------------------------------------------------
Total                                                             34 MB/s |  18 MB  00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :                                                        1/1
  Installing       : postgresql15-private-libs-15.8-1.amzn2023.0.1.x86_64   1/4
  Installing       : postgresql15-15.8-1.amzn2023.0.1.x86_64                2/4
  Installing       : libicu-67.1-7.amzn2023.0.3.x86_64                      3/4
  Verifying        : postgresql15-server-15.8-1.amzn2023.0.1.x86_64         4/4
================================================================================
WARNING:
  A newer release of "Amazon Linux" is available.

  Available Versions:

  Version 2023.6.20241028:
    Run the following command to upgrade to 2023.6.20241028:

      dnf upgrade --releasever=2023.6.20241028

    Release notes:
     https://docs.aws.amazon.com/linux/al2023/release-notes/relnotes-2023.6.20241028.html

  Version 2023.6.20241031:
    Run the following command to upgrade to 2023.6.20241031:

      dnf upgrade --releasever=2023.6.20241031

    Release notes:
     https://docs.aws.amazon.com/linux/al2023/release-notes/relnotes-2023.6.20241031.html

================================================================================

Installed:
  libicu-67.1-7.amzn2023.0.3.x86_64
  postgresql15-15.8-1.amzn2023.0.1.x86_64
  postgresql15-private-libs-15.8-1.amzn2023.0.1.x86_64
  postgresql15-server-15.8-1.amzn2023.0.1.x86_64

Complete!
```

Initialize the PostgreSQL Database

- After installation, initialize the database by running the PostgreSQL setup command. This will create the necessary data directory for PostgreSQL.

```
sudo postgresql-setup –initdb
```

```
[ec2-user@ip-172-31-1-19 ~]$ sudo postgresql-setup --initdb
 * Initializing database in '/var/lib/pgsql/data'
 * Initialized, logs are in /var/lib/pgsql/initdb_postgresql.log
```

Start and Enable PostgreSQL Service

- Start the PostgreSQL service and enable it to start automatically on boot.

```
sudo systemctl start postgresql
sudo systemctl enable postgresql
```

```
[ec2-user@ip-172-31-1-19 ~]$ sudo systemctl start postgresql
[ec2-user@ip-172-31-1-19 ~]$ sudo systemctl enable postgresql
Created symlink /etc/systemd/system/multi-user.target.wants/postgresql.service → /usr/lib/systemd/system/postgresql.service.
```

- Check the status to confirm it's running:

```
sudo systemctl status postgresql
```

```
[ec2-user@ip-172-31-1-19 ~]$ sudo systemctl status postgresql

● postgresql.service - PostgreSQL database server
     Loaded: loaded (/usr/lib/systemd/system/postgresql.service; enabled; preset: disabled)
     Active: active (running) since Fri 2024-11-01 07:07:18 UTC; 14s ago
   Main PID: 23911 (postgres)
      Tasks: 7 (limit: 1112)
     Memory: 17.0M
        CPU: 36ms
     CGroup: /system.slice/postgresql.service
             ├─23911 /usr/bin/postgres -D /var/lib/pgsql/data
             ├─23933 "postgres: logger "
             ├─23954 "postgres: checkpointer "
             ├─23955 "postgres: background writer "
             ├─23961 "postgres: walwriter "
             ├─23962 "postgres: autovacuum launcher "
             └─23963 "postgres: logical replication launcher "

Nov 01 07:07:17 ip-172-31-1-19.ap-south-1.compute.internal systemd[1]: Starting postgresql.service - PostgreSQL database se
Nov 01 07:07:18 ip-172-31-1-19.ap-south-1.compute.internal postgres[23911]: 2024-11-01 07:07:18.033 UTC [23911] LOG:  redir
Nov 01 07:07:18 ip-172-31-1-19.ap-south-1.compute.internal postgres[23911]: 2024-11-01 07:07:18.033 UTC [23911] HINT:  Futu
Nov 01 07:07:18 ip-172-31-1-19.ap-south-1.compute.internal systemd[1]: Started postgresql.service - PostgreSQL database ser
lines 1-20/20 (END)
```

Switch to the PostgreSQL User

- Switch to the `postgres` system user to configure and manage the PostgreSQL database.

```
su - postgres
sudo passwd postgres
```

```
[ec2-user@ip-172-31-1-19 ~]$ su - postgres
Password:
su: Authentication failure
[ec2-user@ip-172-31-1-19 ~]$ sudo passwd postgres
Changing password for user postgres.
New password:
BAD PASSWORD: The password contains the user name in some form
Retype new password:
passwd: all authentication tokens updated successfully.
[ec2-user@ip-172-31-1-19 ~]$ su - postgres
Password:
Last failed login: Fri Nov  1 07:08:17 UTC 2024 on pts/0
There was 1 failed login attempt since the last successful login.
[postgres@ip-172-31-1-19 ~]$ psql
psql (15.8)
Type "help" for help.

postgres=# \l+
```

Verify Database Installation

- Use the `\l+` command in `psql` to list available databases and verify the installation.

```
sql

\l+
```