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**Introduction:**

To address the needs of our growing business, I designed an excellent e-commerce solution utilizing Amazon Web Services. I've been requested to build and execute excellent e-commerce solutions for the organization as a junior Cloud Practitioner.

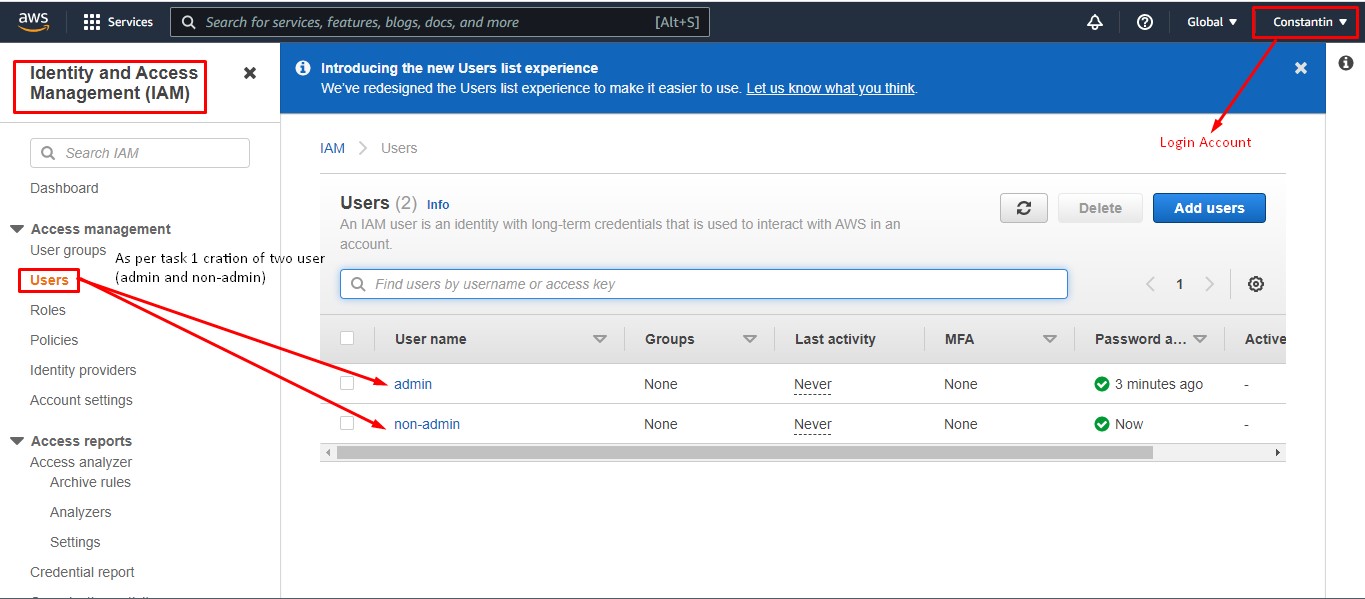
**Task 1.1**

**Identity & Access Management (IAM) services**

AWS Identity and Access Management (IAM) allows for fine-grained access management throughout the whole AWS infrastructure. You can control who has access to which services and resources, and under what conditions, using IAM. You manage permissions to your workforce and systems with IAM policies to ensure least-privilege permissions.

**Creation of Two Users Using I & AM Services**

I have created two users which are (admin & non admin) as per requested in above task.



From admin user we can use and manage all services. Admin user has privileges of creation ec2 instance and also other services which involved in these tasks, while non admin user has only view access.

**Task1-2:**

**Amazon EC2**

In the Amazon Web Services (AWS) Cloud, Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing power. Using Amazon EC2 reduces the requirement for upfront hardware investment, allowing you to develop and deploy apps more quickly. Amazon EC2 allows you to create as many or as few virtual servers as you need, as well as establish security and networking and manage storage. You can scale up or down on Amazon EC2 to manage variations in demand or popularity spikes, decreasing the need to forecast traffic.

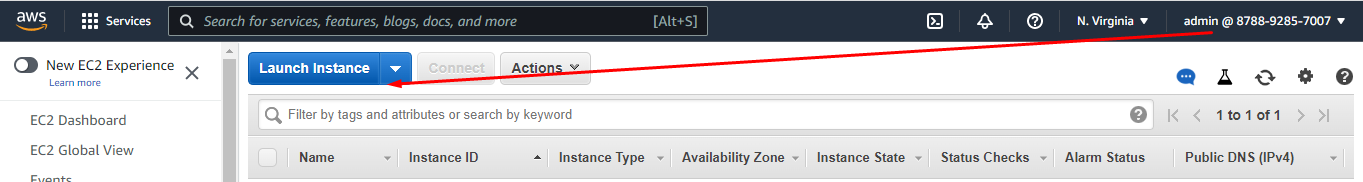
**Elastic Beanstalk service**

AWS Elastic Beanstalk is a simple tool for delivering and scaling web applications and services written in Java,.NET, PHP, Node.js, Python, Ruby, Go, and Docker on well-known servers like Apache, Nginx, Passenger, and IIS.

Simply upload your code, and Elastic Beanstalk will take care of everything else, including capacity provisioning, load balancing, auto-scaling, and application health monitoring. At the same time, you retain complete control over the AWS resources that power your application and may access them at any time.

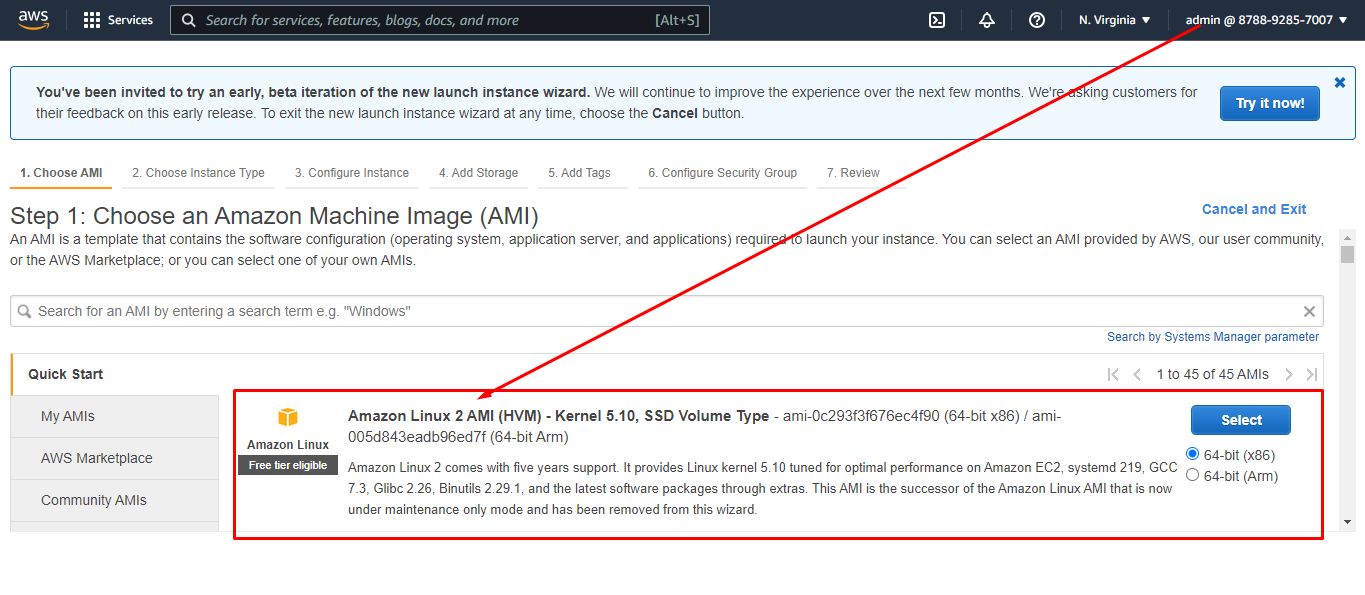
**Creation of AMI Using Admin User**

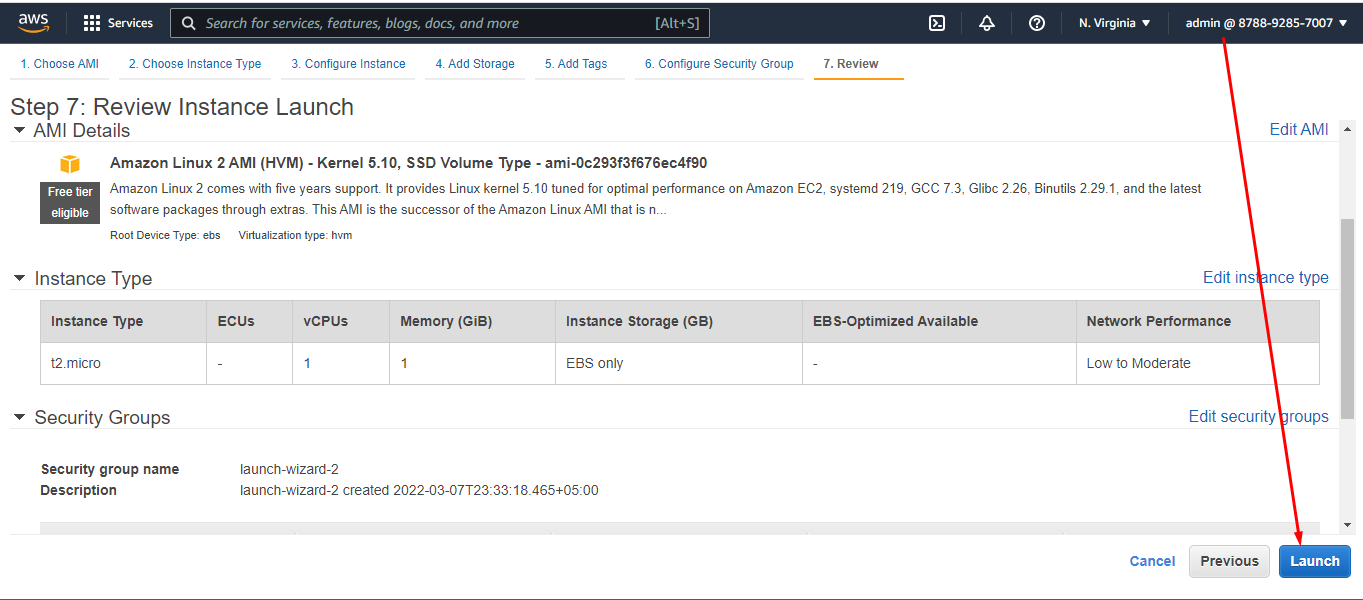
Admin user is creating an AMI instance , first we will click on launch instance.



**AMI Selection**

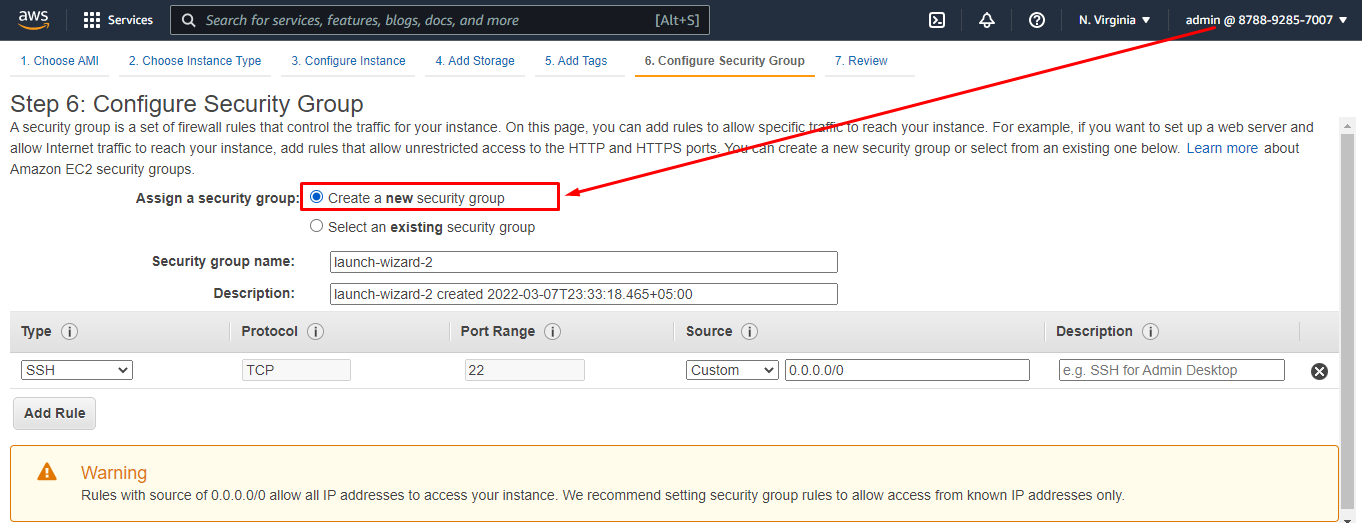
After launching instance we will select AMI type

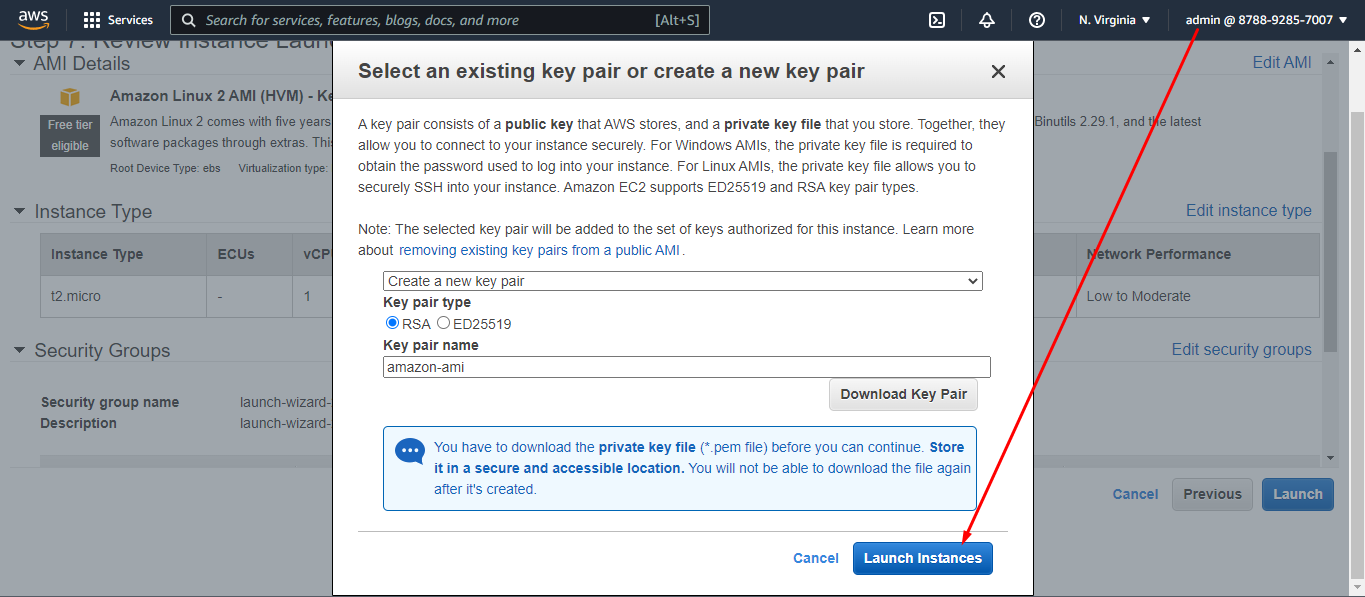
  
Once AMI type selected we will click on launch



After launching the AMI , we have to create a new security group for accessing

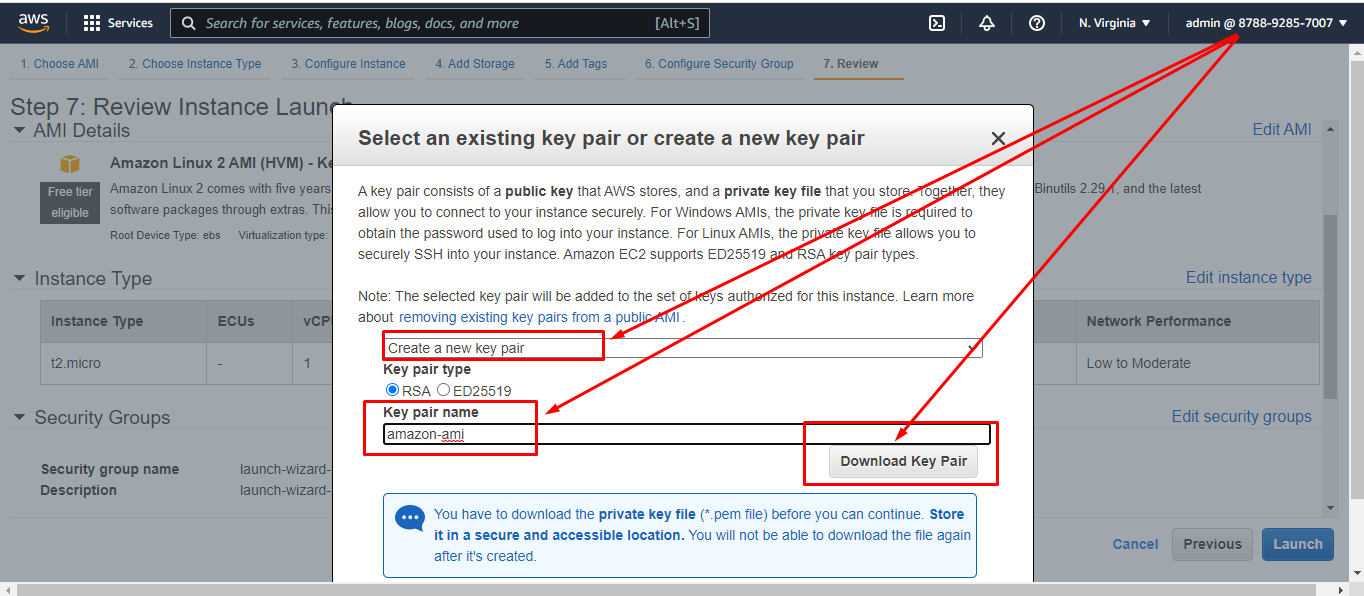
**Selection of New Security Group**



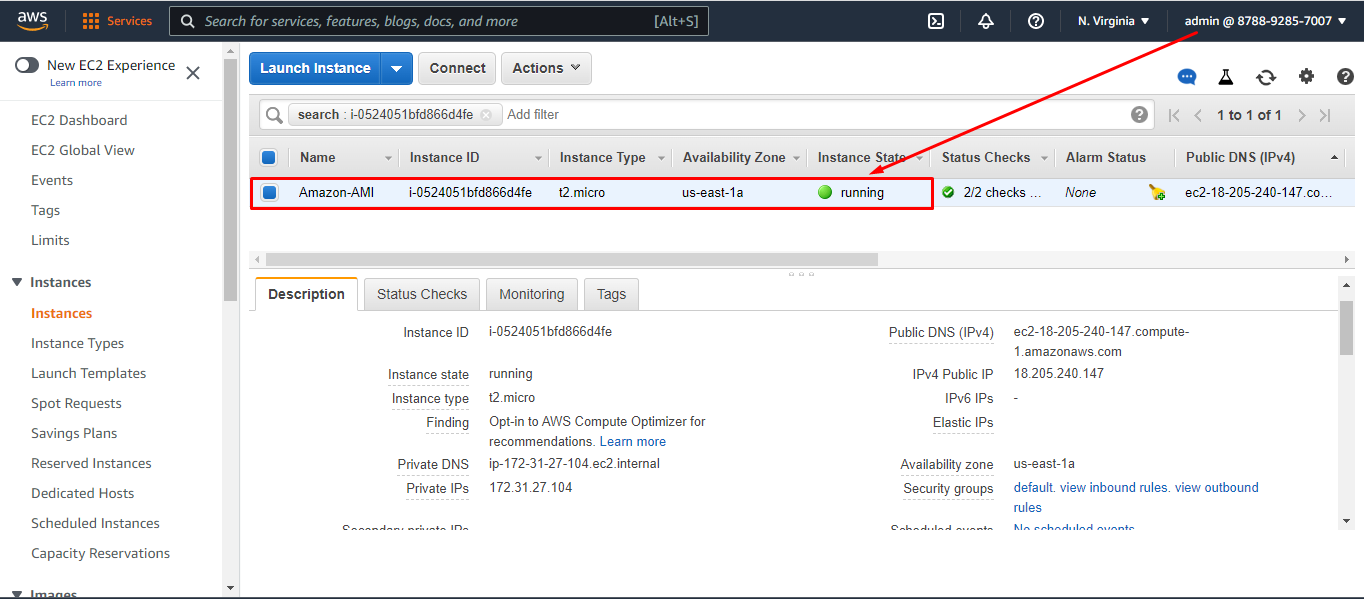


Once Security group selected then we have to select or create a new key pair for authentication into the AMI.

**Selection of New Key Pair**

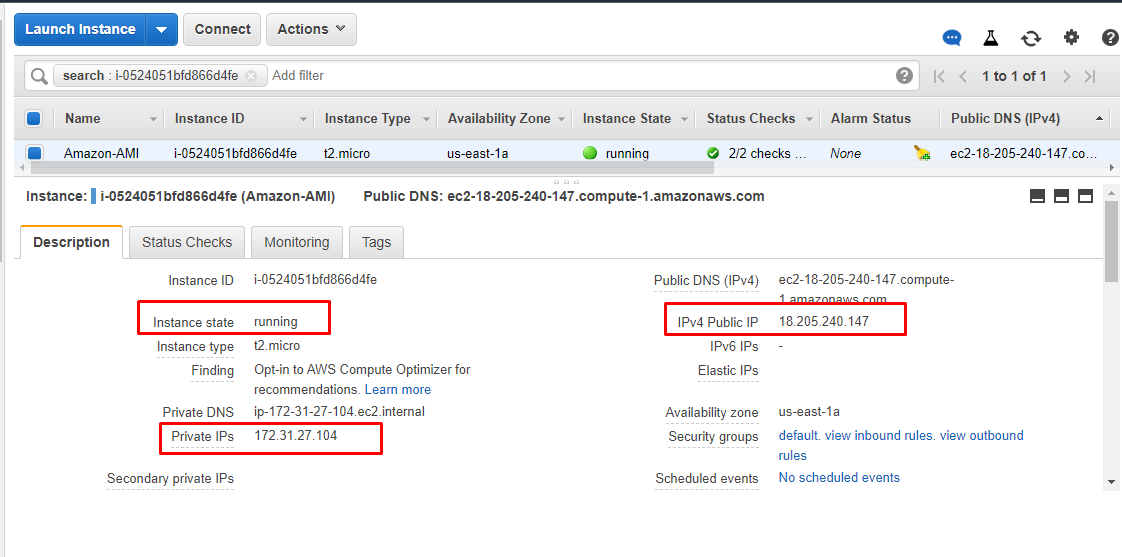
After launching the instance here we can see that our AMI is in running state.

**Finally AMI In Running State**



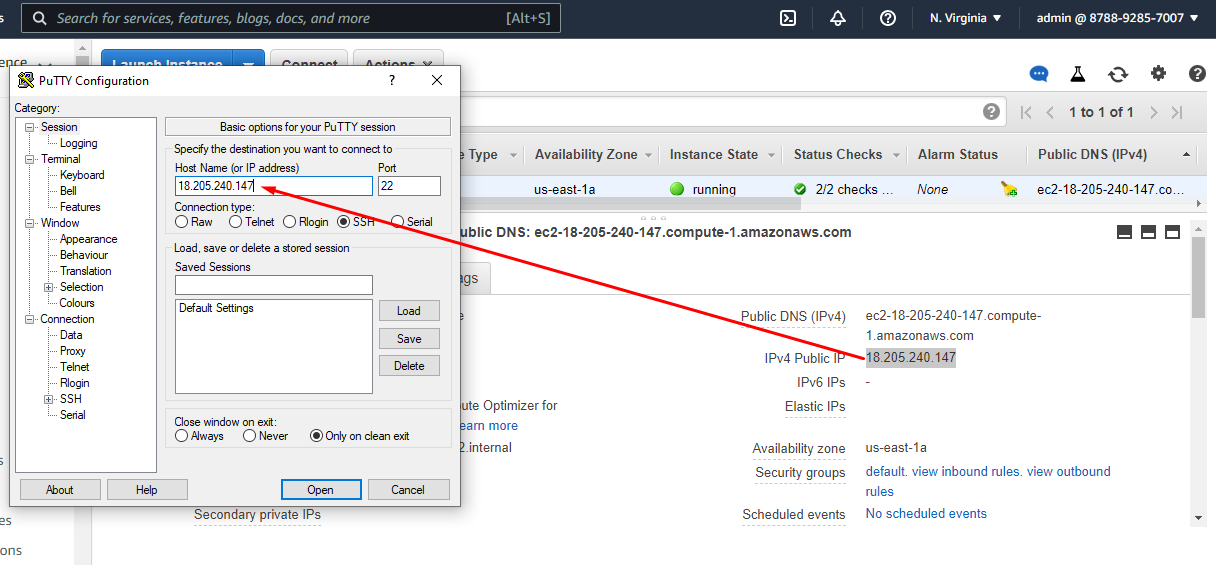
Now we will make connection with the created AMI, Note the details of AMI

**Connection with Machine**



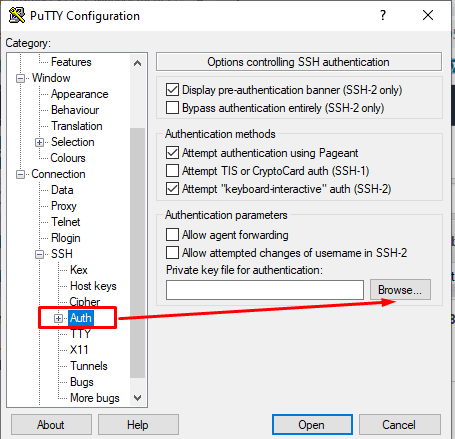
We have putty software , where in session tab will paste our public IP of AMI

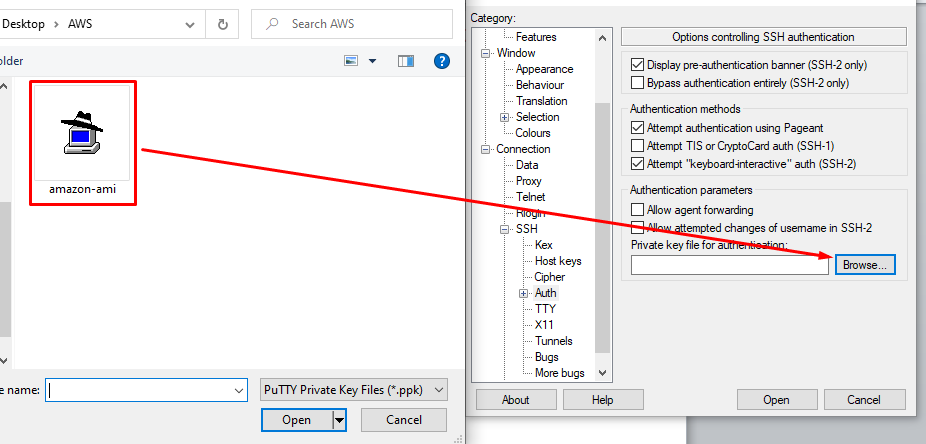
**Paste Public IP into Hostname of Putty Software**



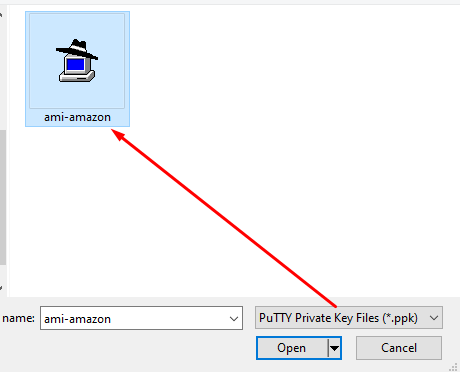
During launch of AMI we saved our private key for accessing, here we will browse it

**Browse for ppk file to load into putty for authentication**

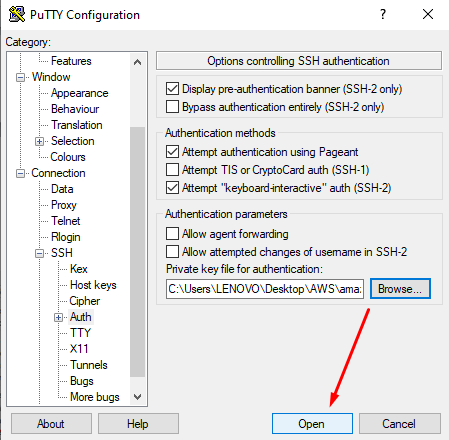




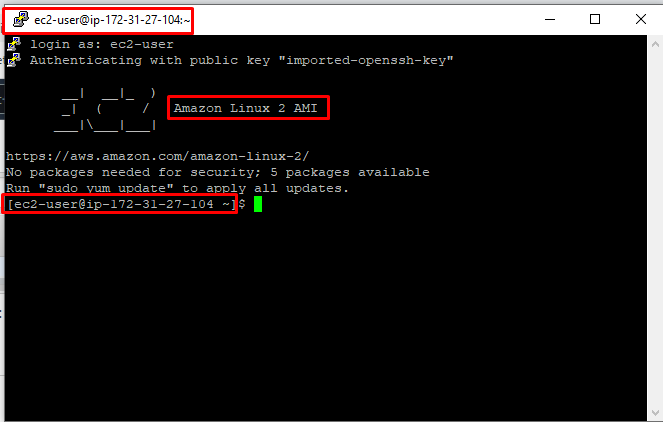
**Click on Open to load**



Once key has been browsed click on open to make connection



After click on open, connection has been established and machine is accessible.



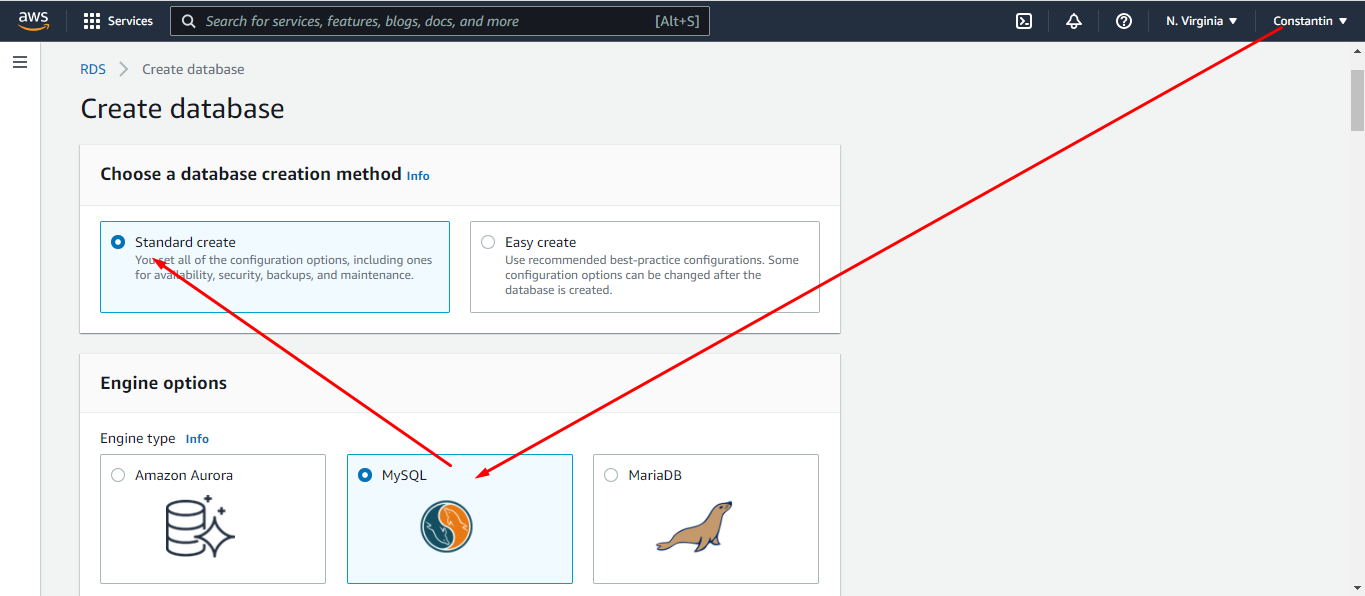
**TASK-2:**

**Relational Database Service (RDS)**

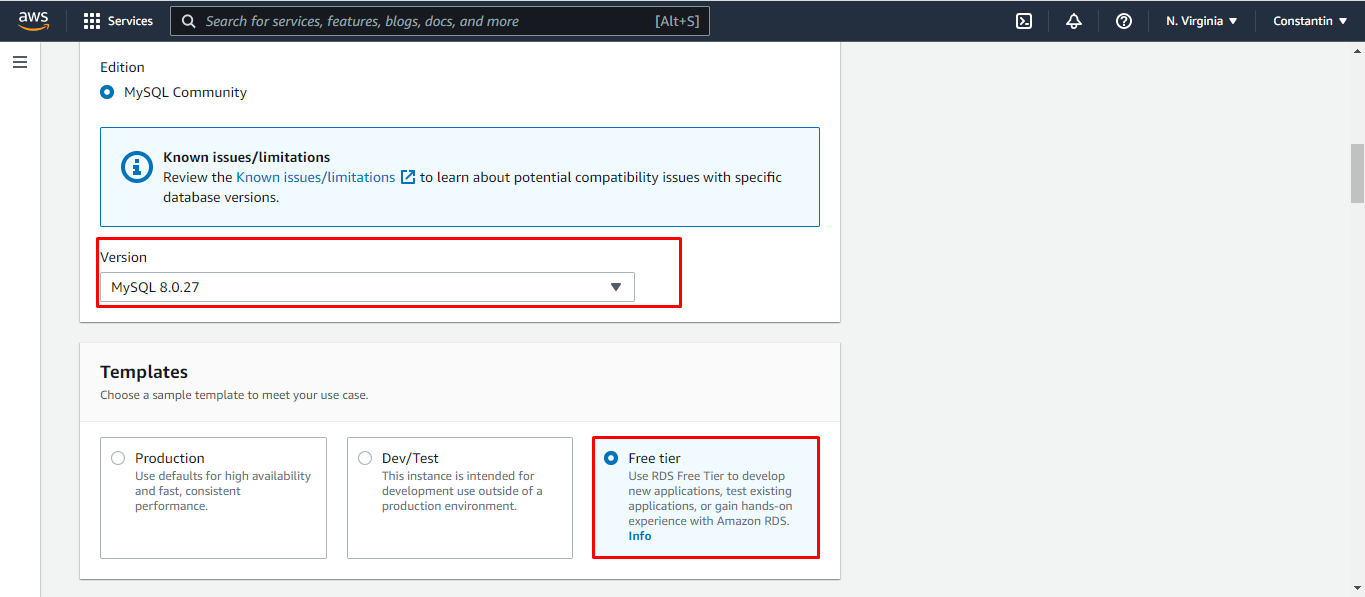
Amazon RDS (Amazon Relational Database Service) makes it simple to set up, run, and scale a relational database in the cloud. It offers scalable capacity at a low cost while automating time-consuming administrative activities including hardware provisioning, database setup, patching, and backups.

**MYSQL DB Creation**

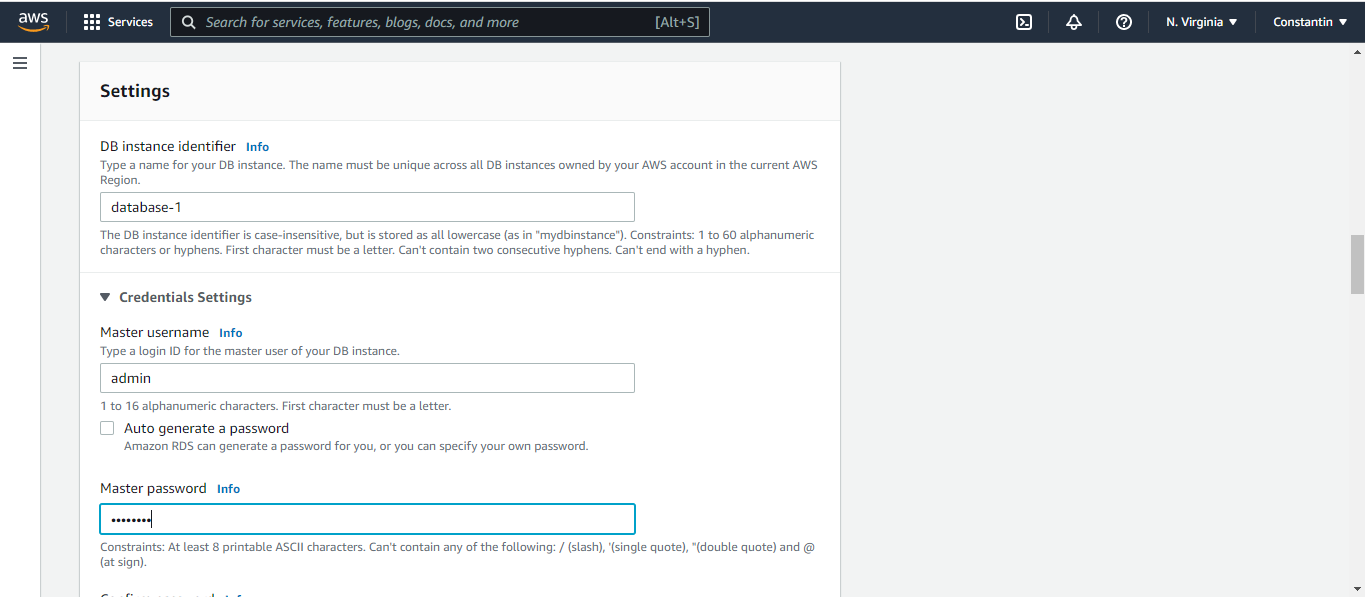
We have selected mysql as our database

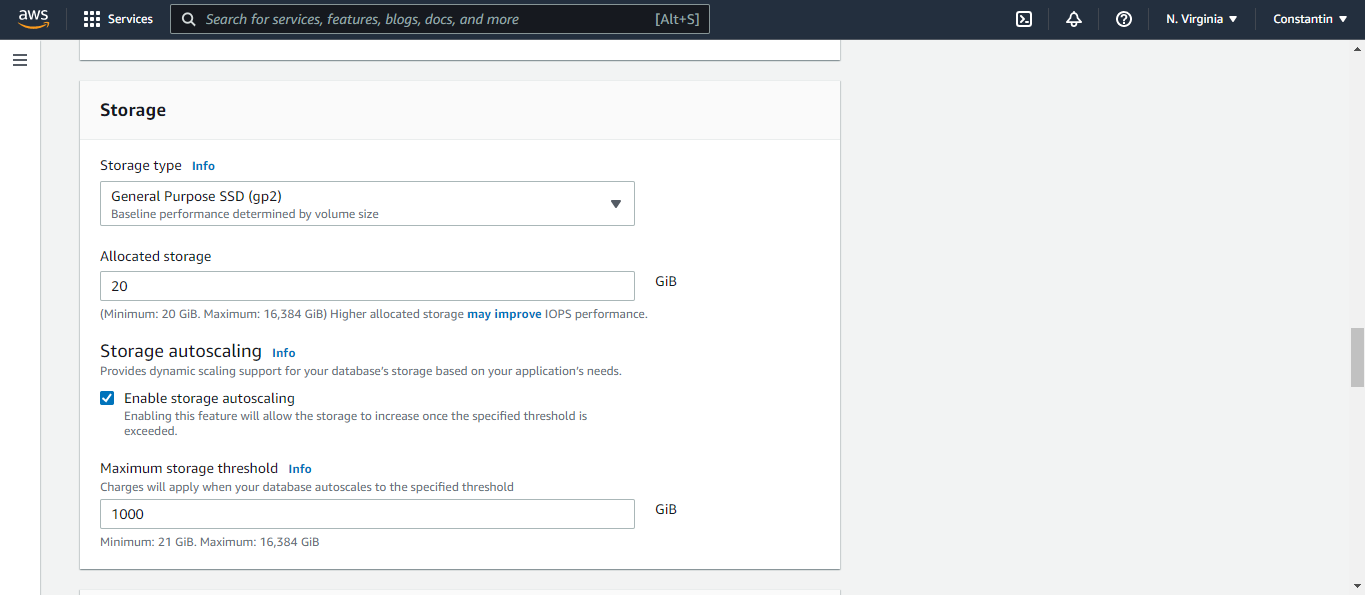


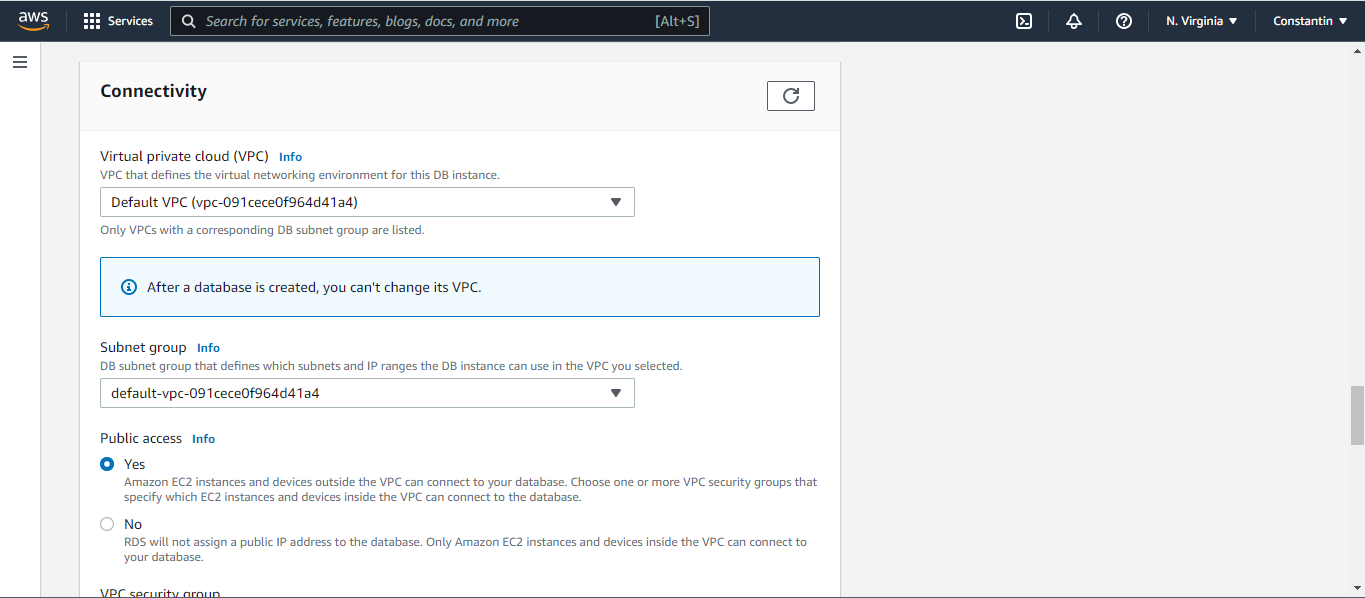
We have selected database version

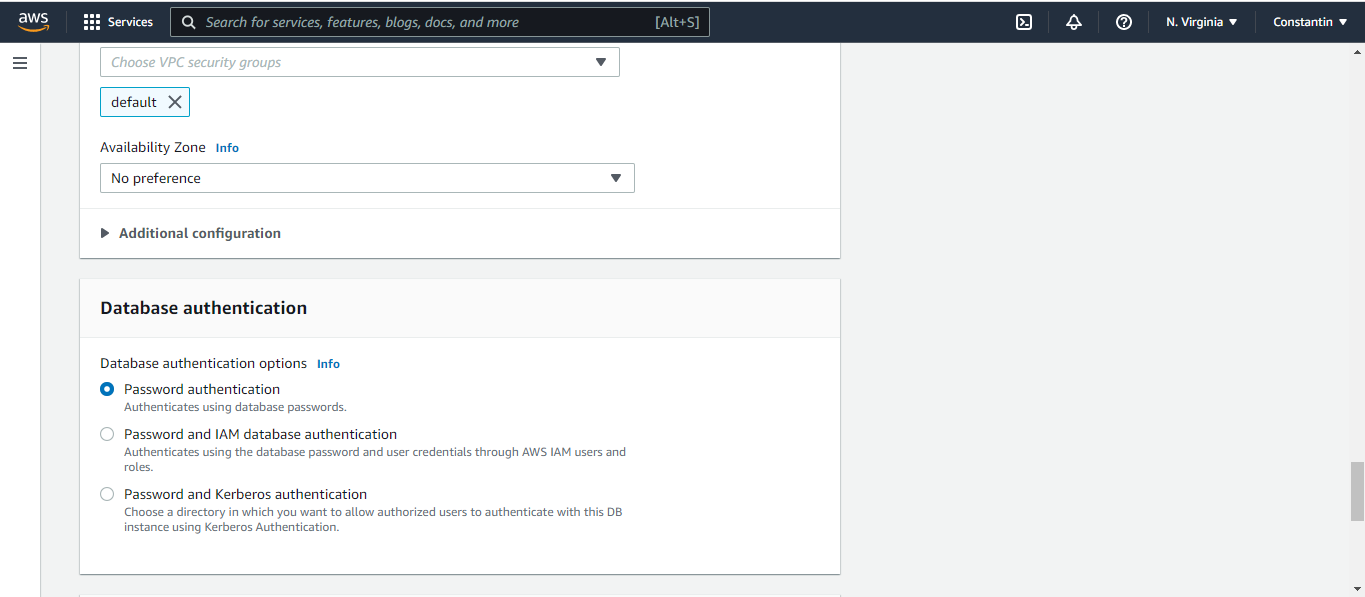


Database user name and password set

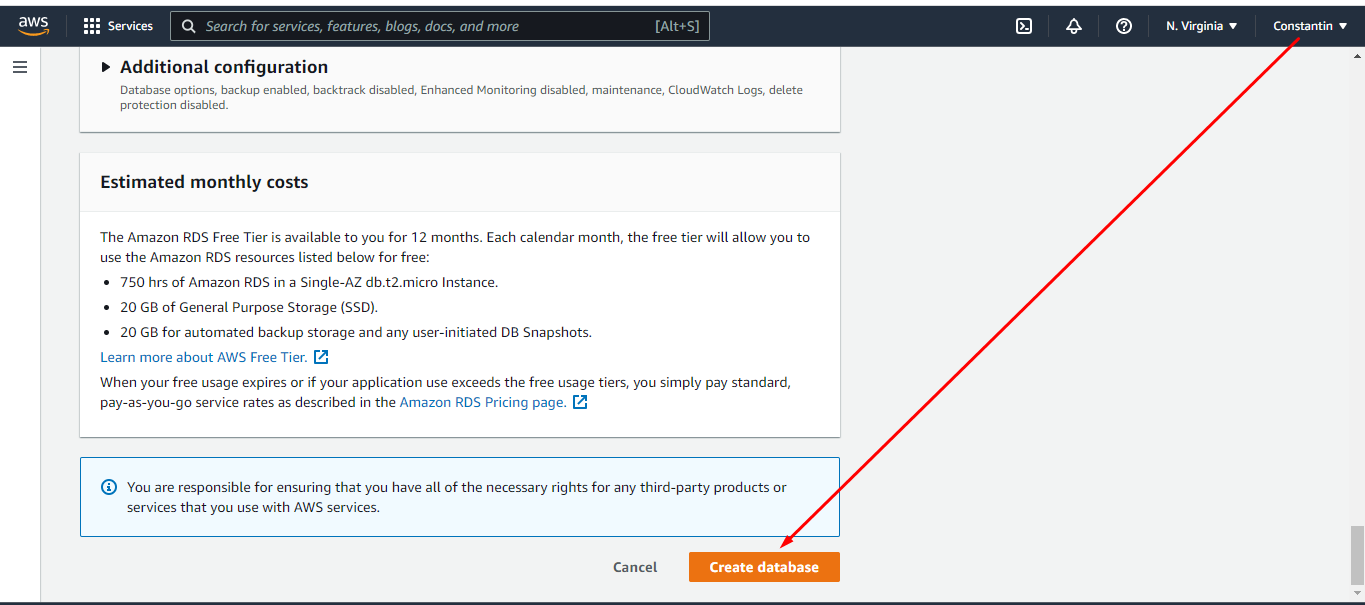


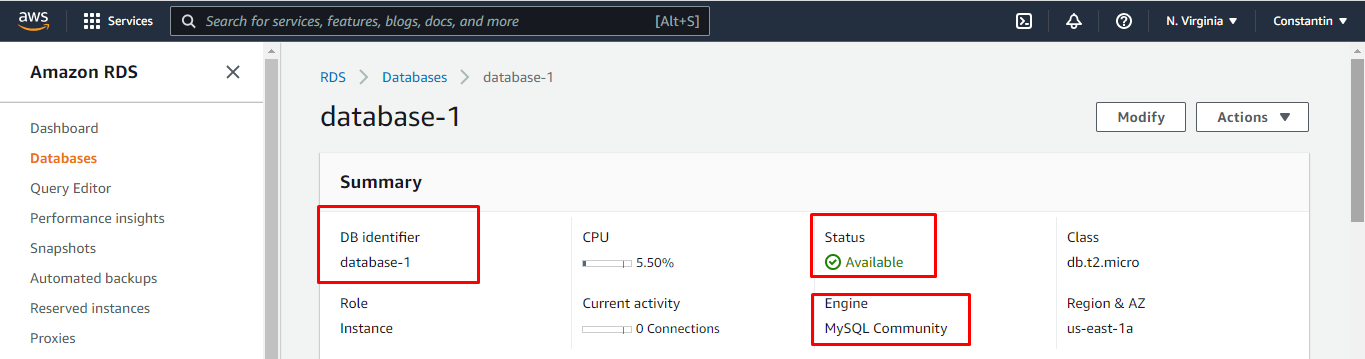


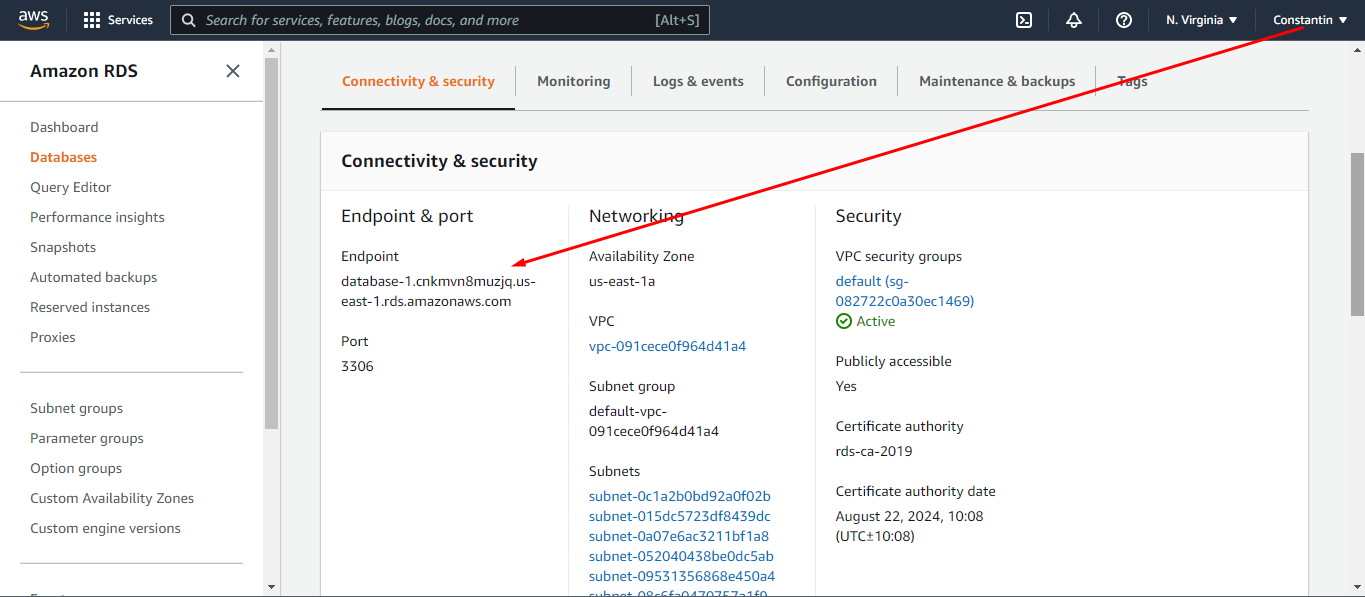


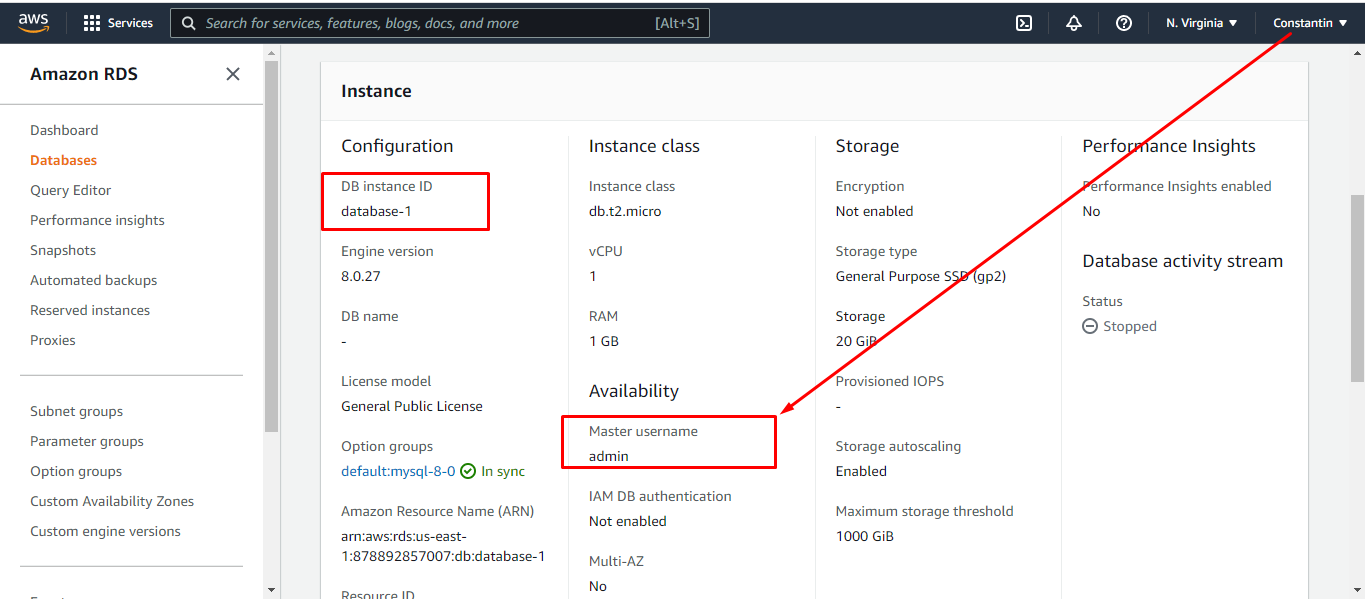


Now click on creation button to create the database.





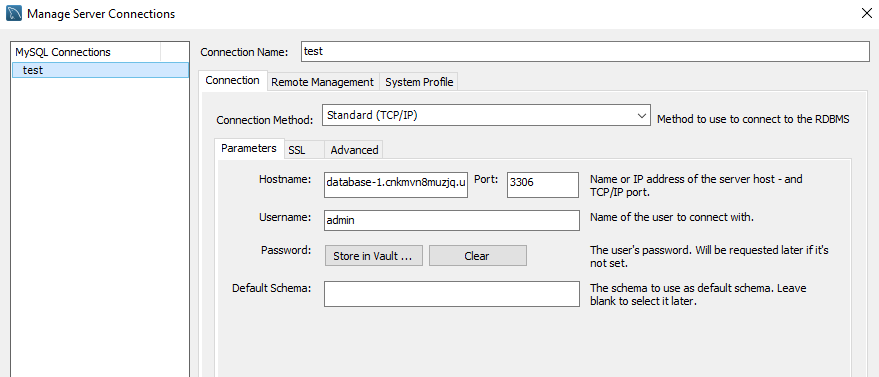


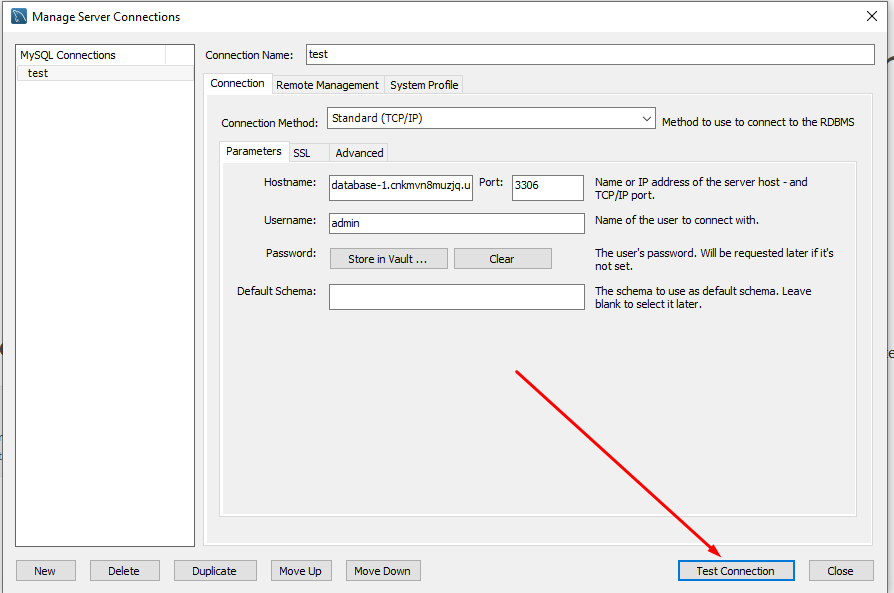


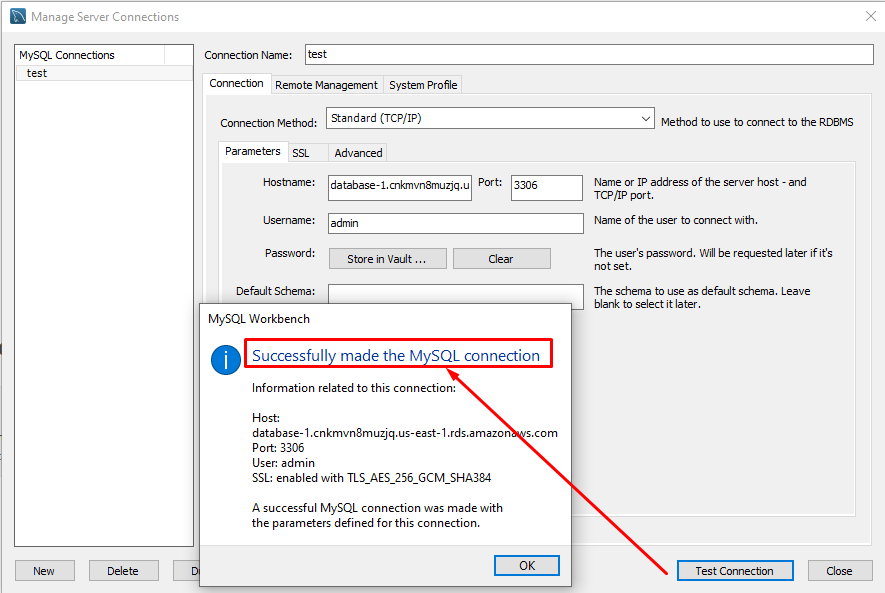
**DB Connectivity**

Now we will make connection to our database from MySQL client workbench , first we will download the software form mention below url.

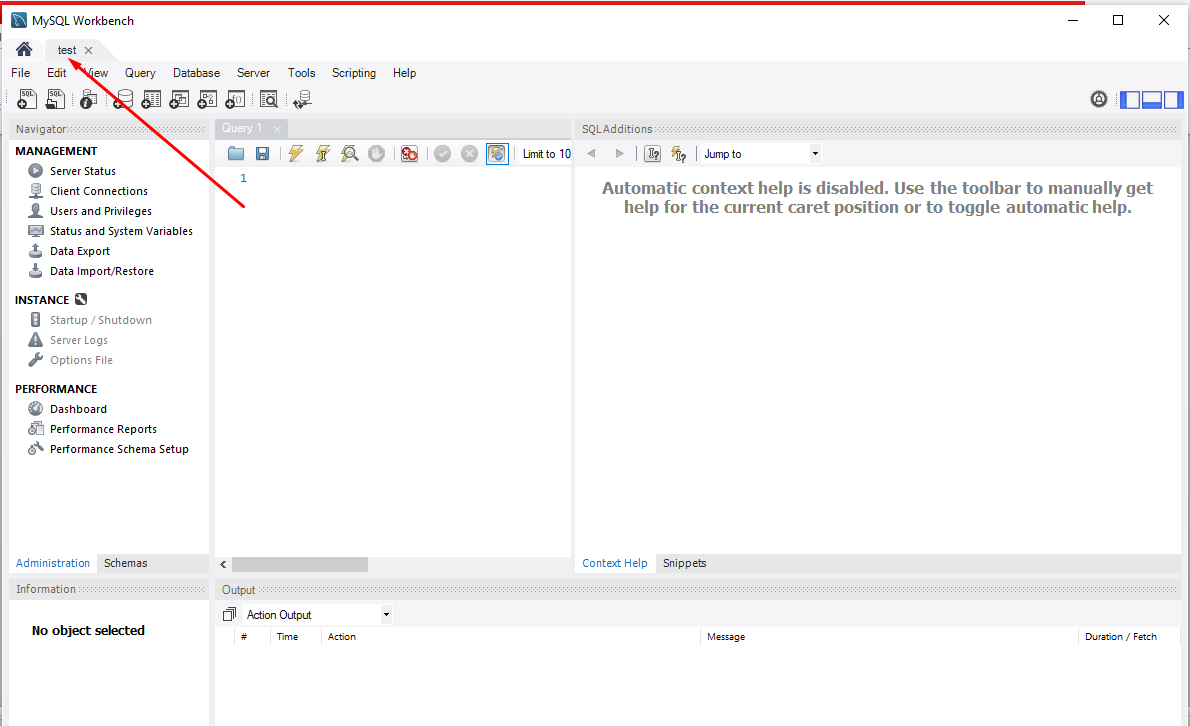
Downloaded the SQL client work bench from https://dev.mysql.com/downloads/workbench/







Database connection has been successfully made



**Task 3 -1**

As a retailer, we should look into retail solution sectors to help guide our customers through their journey. Consumer behaviors and expectations have completely changed, compelling retailers to accelerate digital transformation across the globe. To meet today's consumer expectations, optimize operations, attract new customers, and improve business insights, we must adopt cloud-based, cost-effective ecommerce solutions. AWS products and services are beneficial to retail IT operations across the board.

**AWS Cloud Search**

Amazon Cloud Search is a managed service in the AWS Cloud that makes setting up, managing, and scaling a search solution for your website or application simple and cost-effective. We can rapidly set it up and start processing queries, allowing you to add rich search features to your website or application. As an online retailer, we should be able to provide customers with a quick search and a short time spent on our website. Customizing search choices is also straightforward, scalable, and dependable. We don't have to create our own indexing, query parsing, query processing, results handling, or any of that other stuff because of cloud search services, and we also don't have to continually rewriting our code to add more features..

**Amazon GuardDuty**

Security is a never-ending process of improvement. As technology advances, so do the hazards and risks it poses. This necessitates the development of newer, more advanced, and powerful technologies to combat these dangers. As an online retail ecommerce business, security should be our primary concern.

Amazon Guard Duty is a regionally based intelligent threat detection service (IDS) that allows users to keep an eye on their AWS account for any strange or unexpected activity. Typically, online retailers receive customer visits from all over the world from various sources; this service observes or monitors pattern matching and unusual API requests that go against security best practices, as well as communications from dubious sources. Having the ability to respond to a potential threat as it is detected significantly reduces the chances of any danger to our services.

**Amazon RedShift**

Amazon Redshift is a cloud-based, fully managed petabyte-scale data warehousing service. Online retail ecommerce organizations are accumulating or possessing an increasing amount of data, which is becoming increasingly difficult to handle. These data are becoming more meaningful every day in today's period after being studied using various algorithms. AWS has a data warehousing solution called Redshift that can handle a large amount of data. By utilizing these services, we can focus on extracting insights from data in seconds with simple analytics for everyone. Do not attempt to manage your data warehouse infrastructure on your own. By analyzing these data we can improve our financial demands and forecasting, we can improve our business intelligence and make stronger and beneficial decision for company growth.

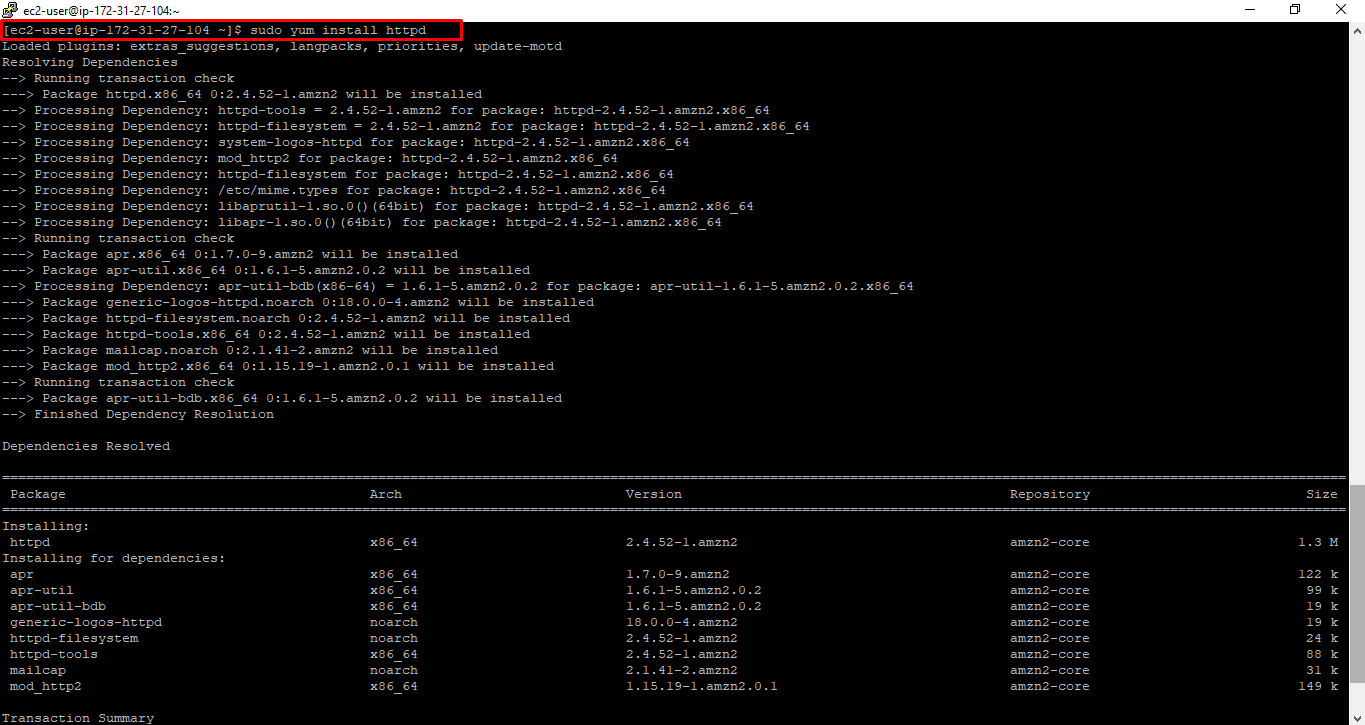
**Task3-2**

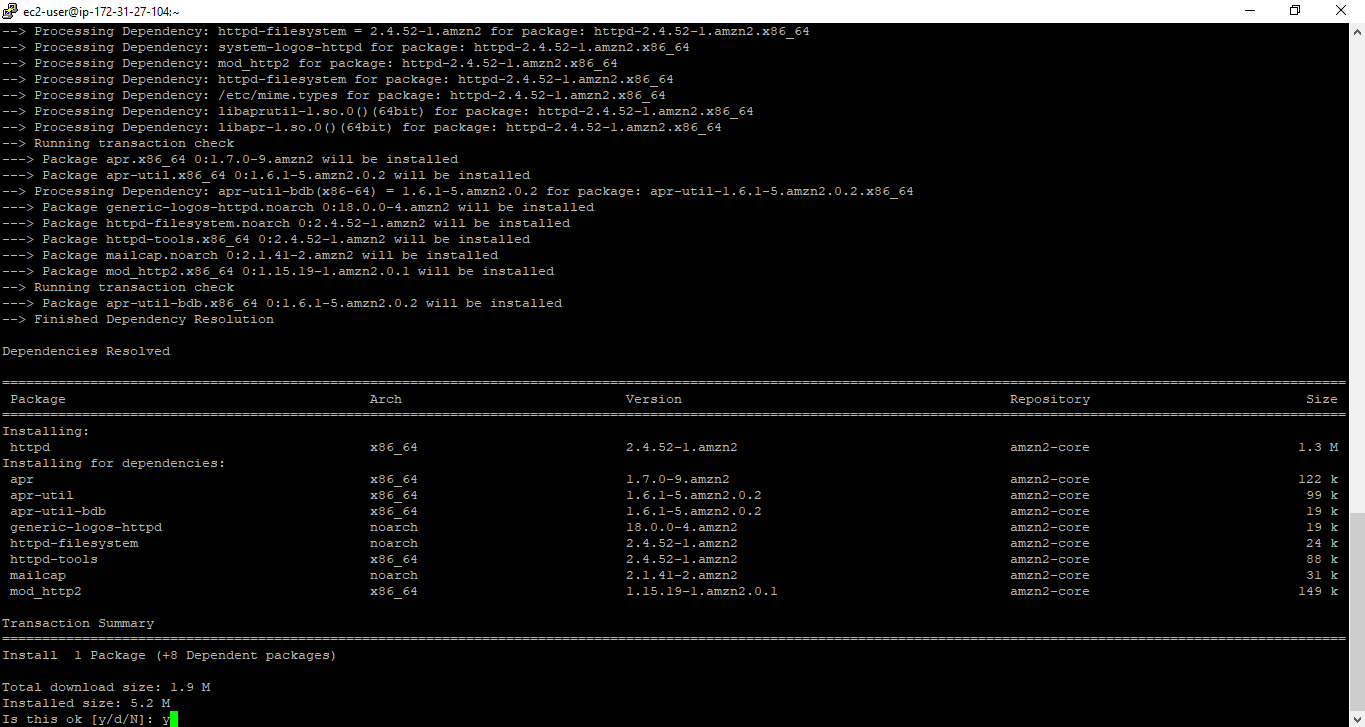
**Amazon Website and App Services**

AWS offers a complete solution for developing, delivering, testing, and monitoring your app. You may also use front-end technologies in conjunction with the breadth and depth of AWS services to meet your changing business needs.

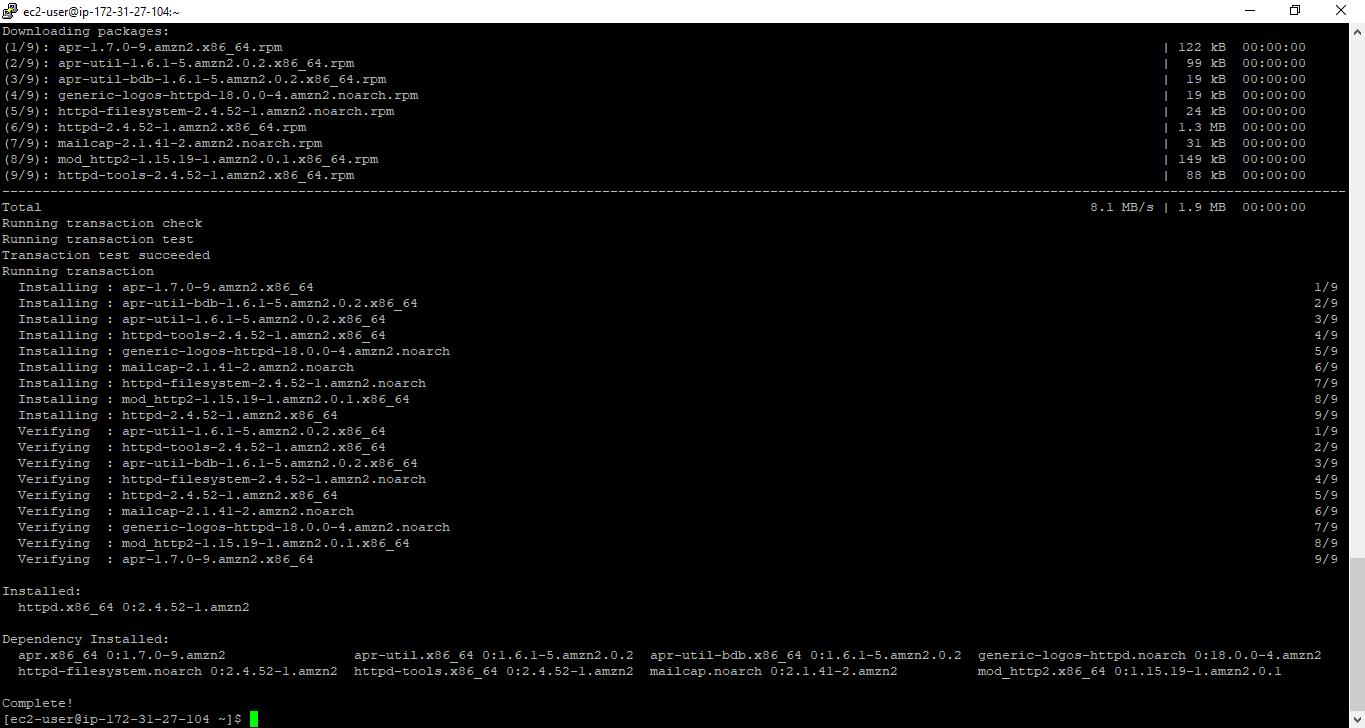
The tools and technologies required to power internet apps are referred to as web and mobile. AWS offers on-demand access to scalable web and application servers, storage, databases, content delivery, cache, search, and other application services, making it easier to design and run apps that delight customers.

Installing Apache



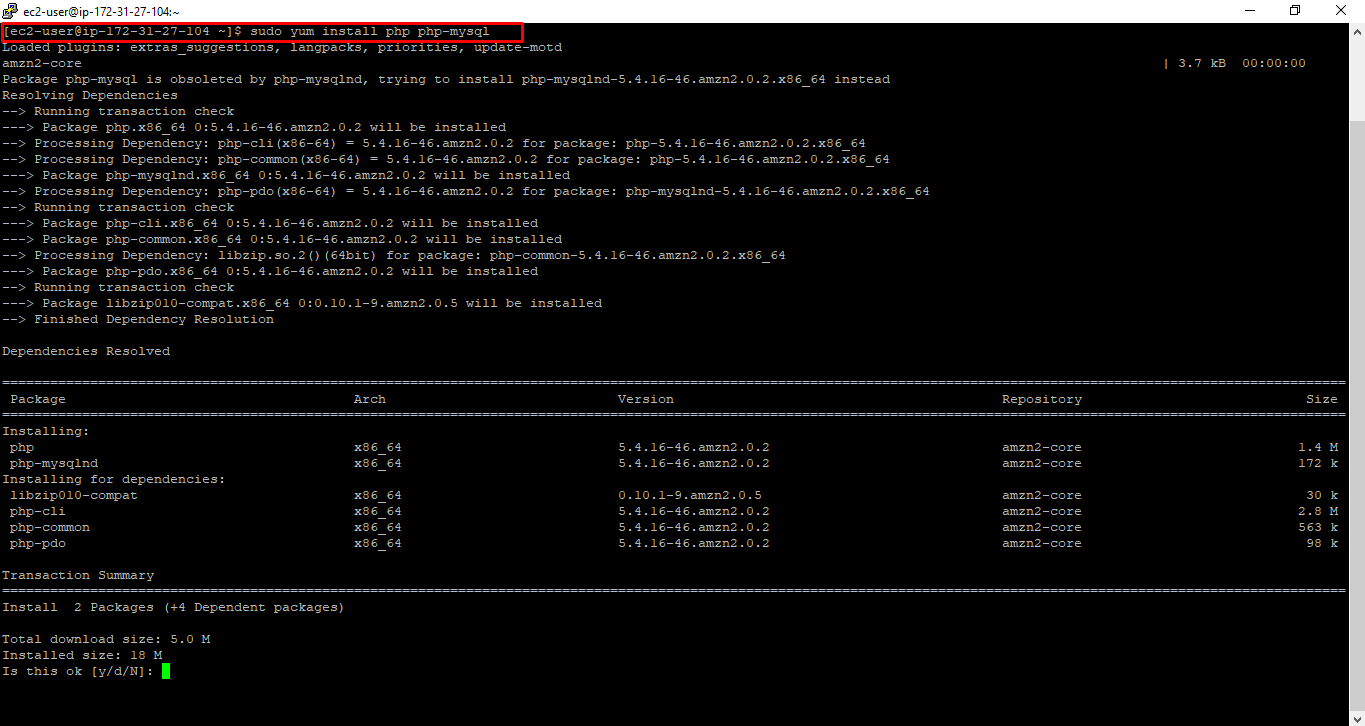


Press Y to install dependencies



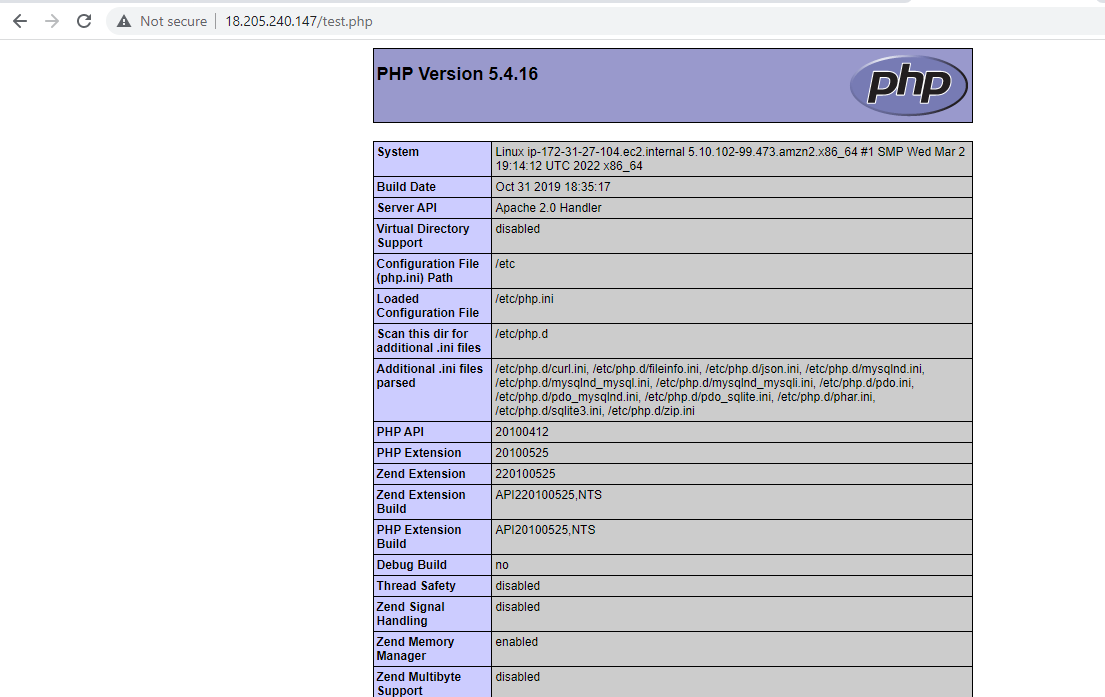
Apache has been installed

Now we are installing php & MySQL database

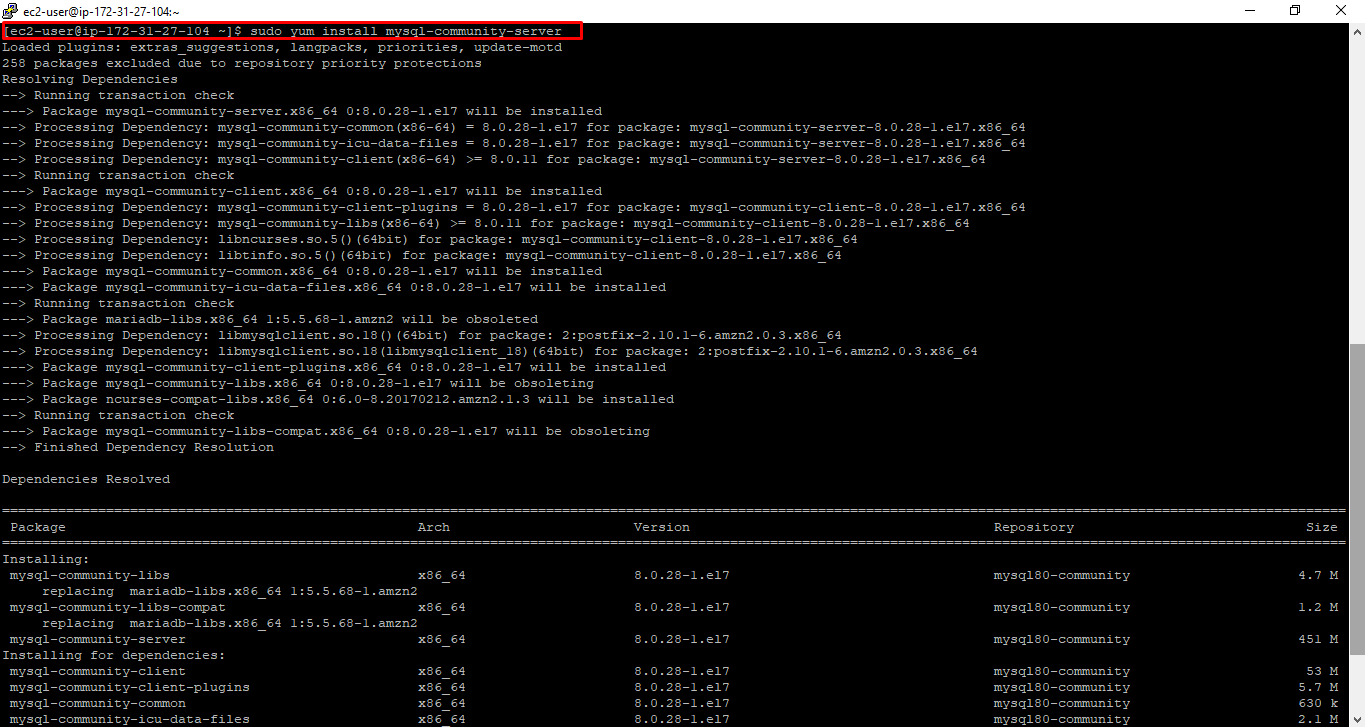


Type ‘y’ to install dependencies

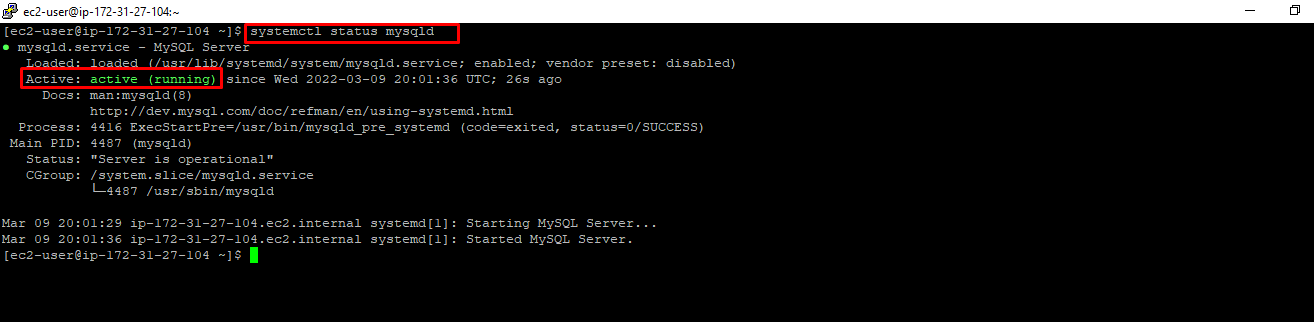
PHP has been installed , we can see it from browser



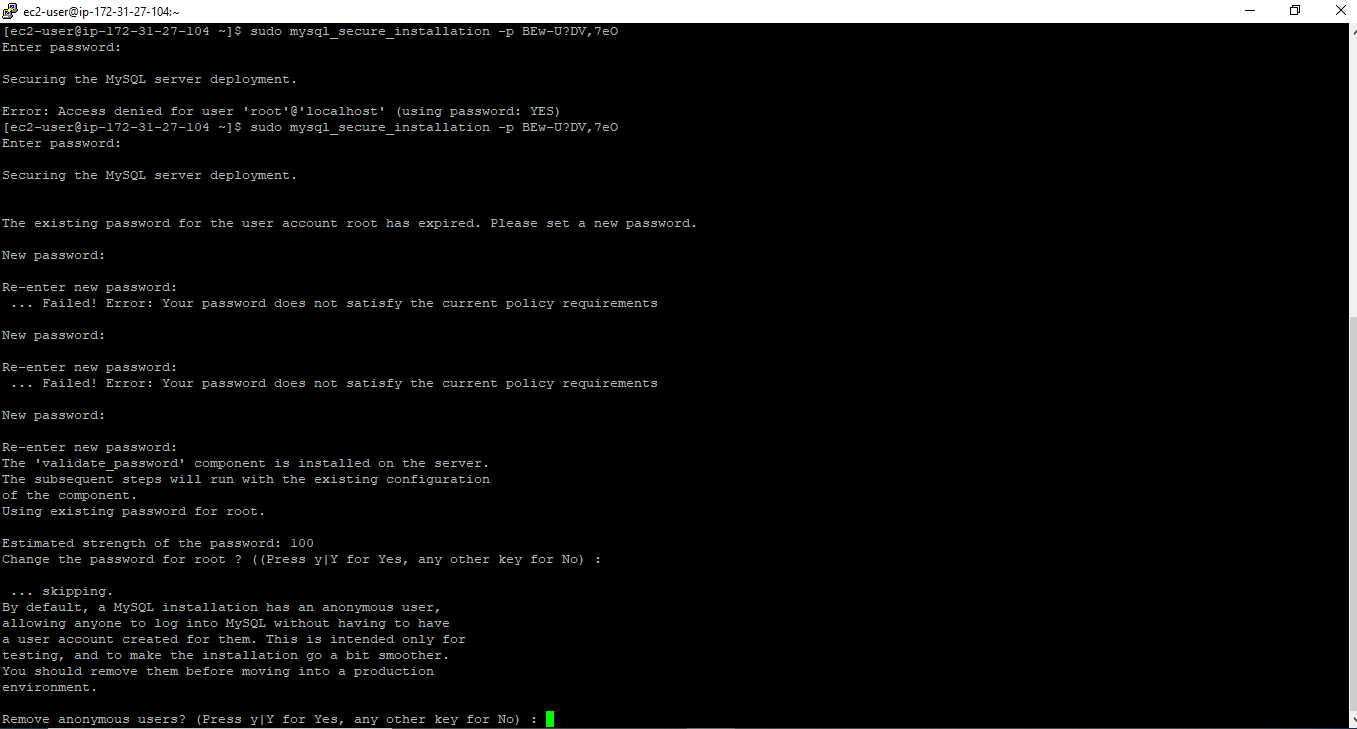
Now Installing database

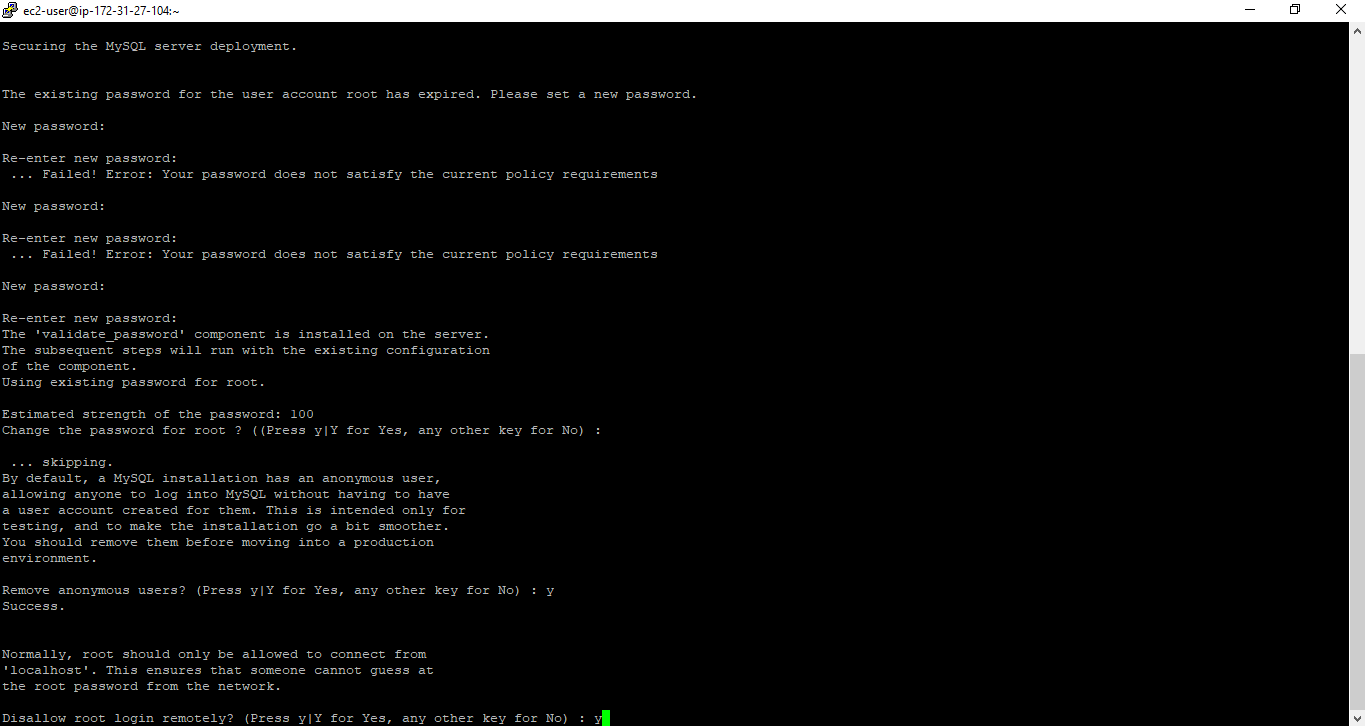


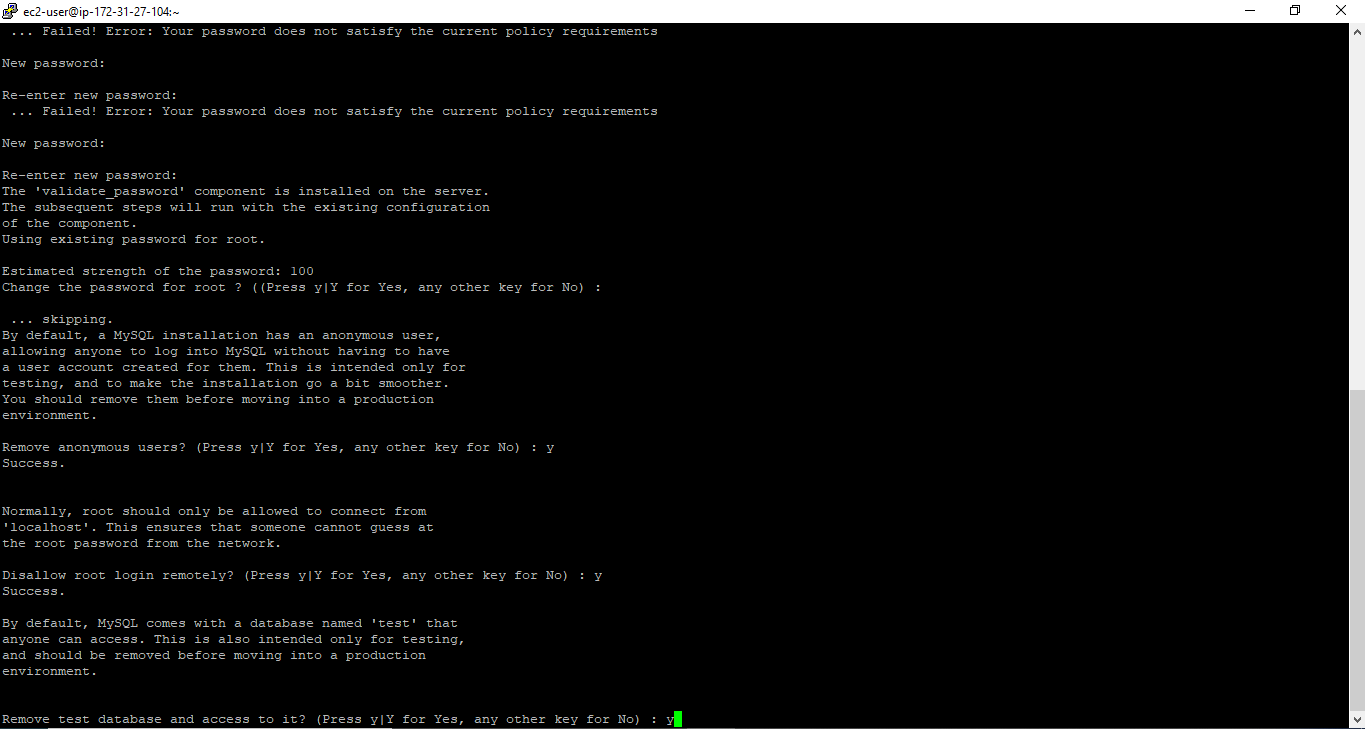
Database has been installed and you can see services are running

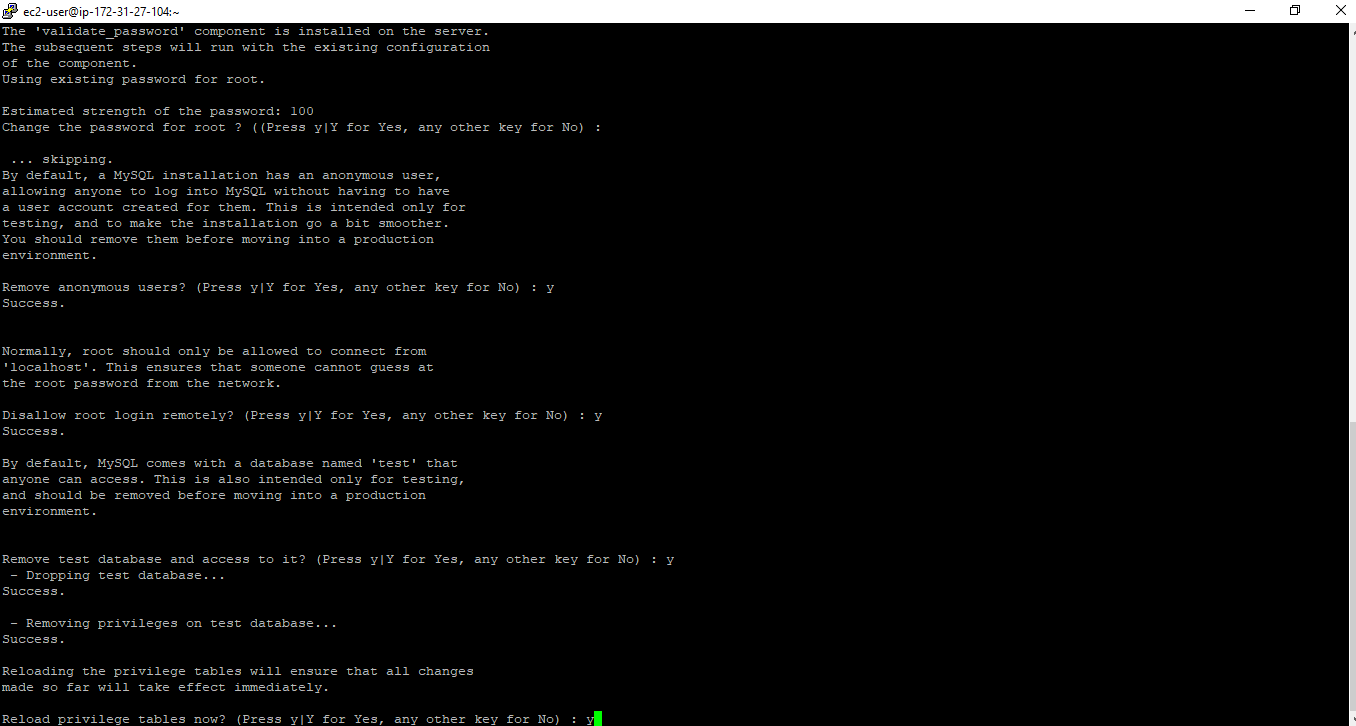


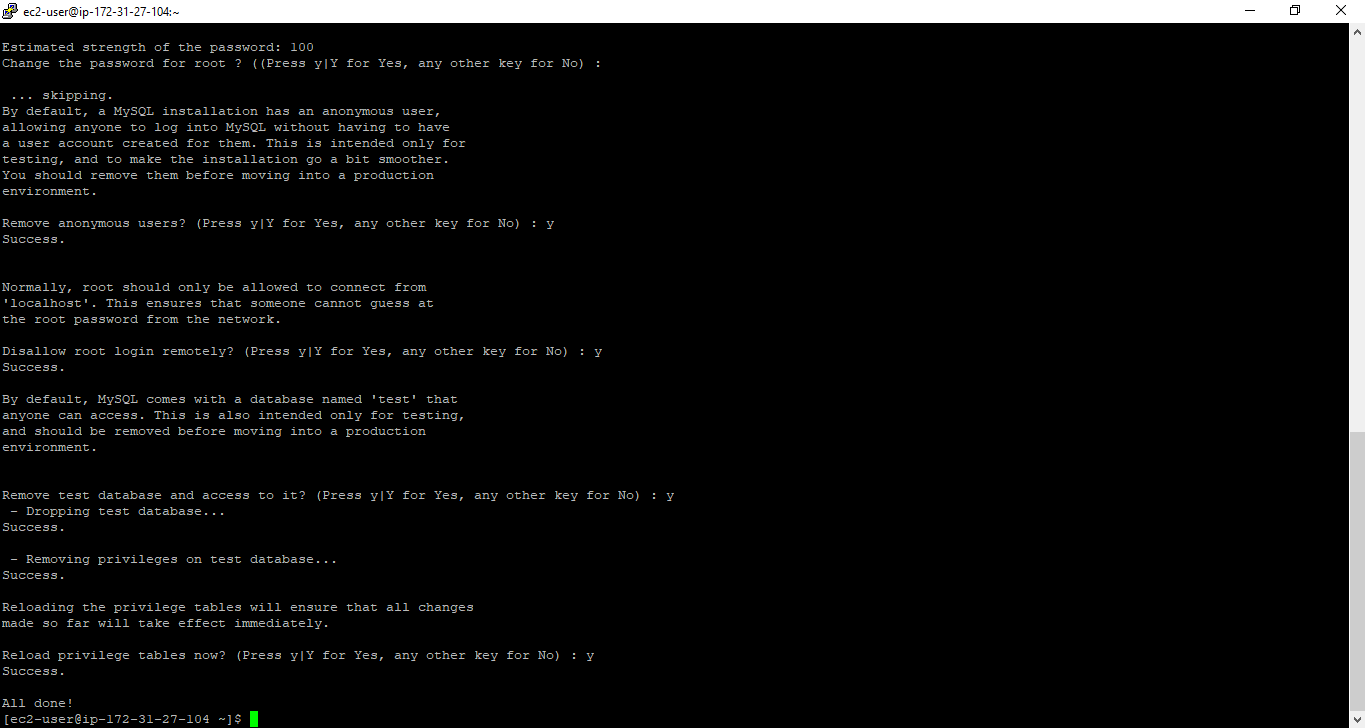
Configuring the database



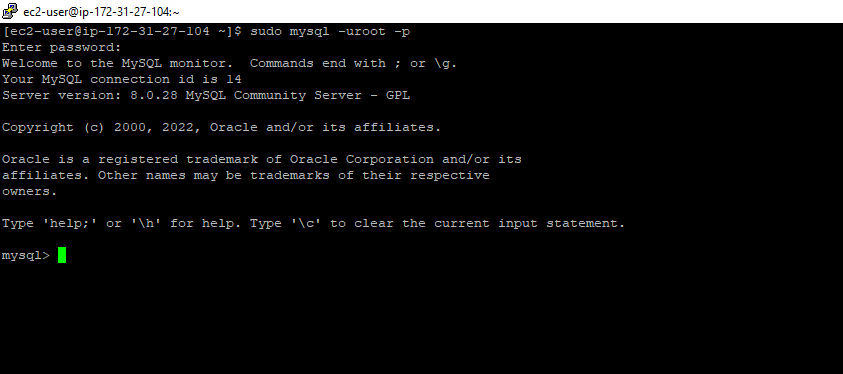




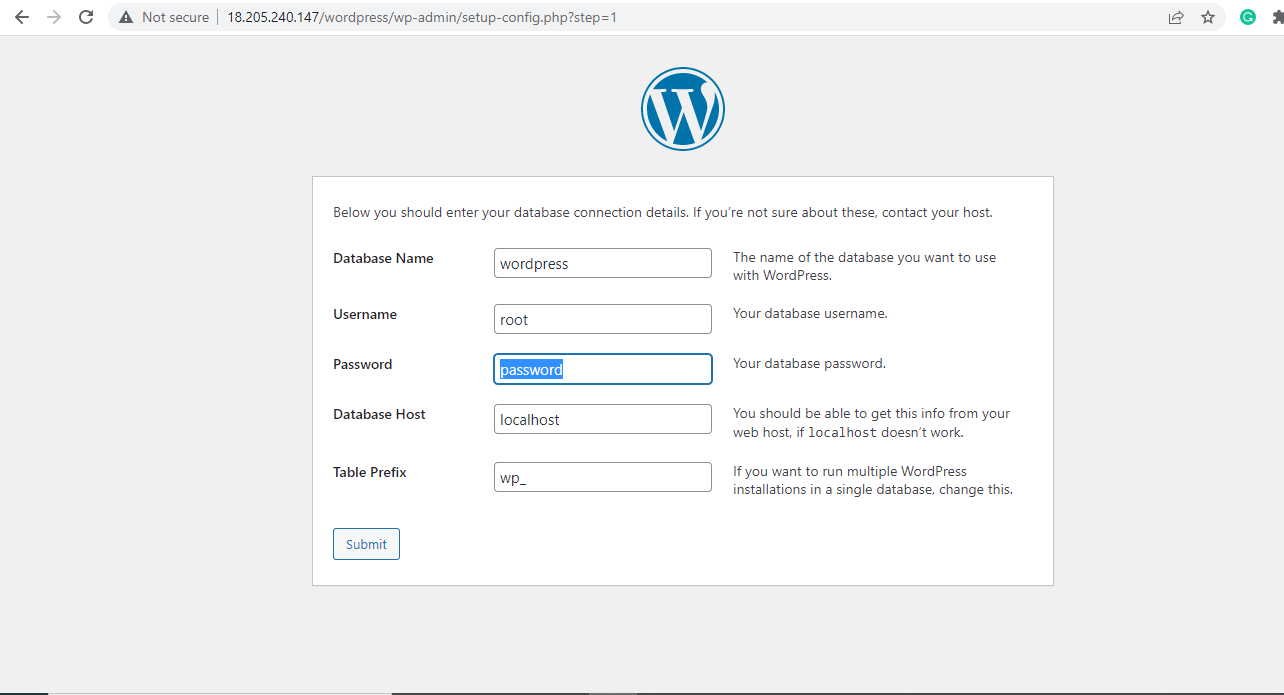


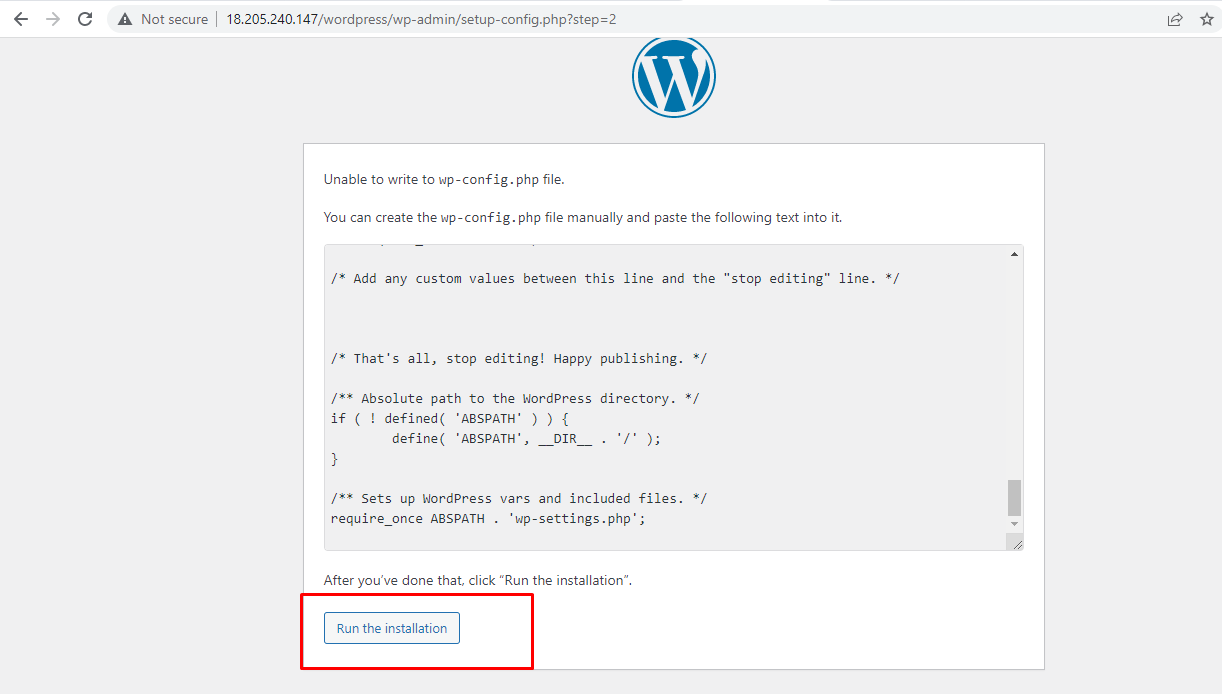


Now database has been configured and we have logged into MySQL database

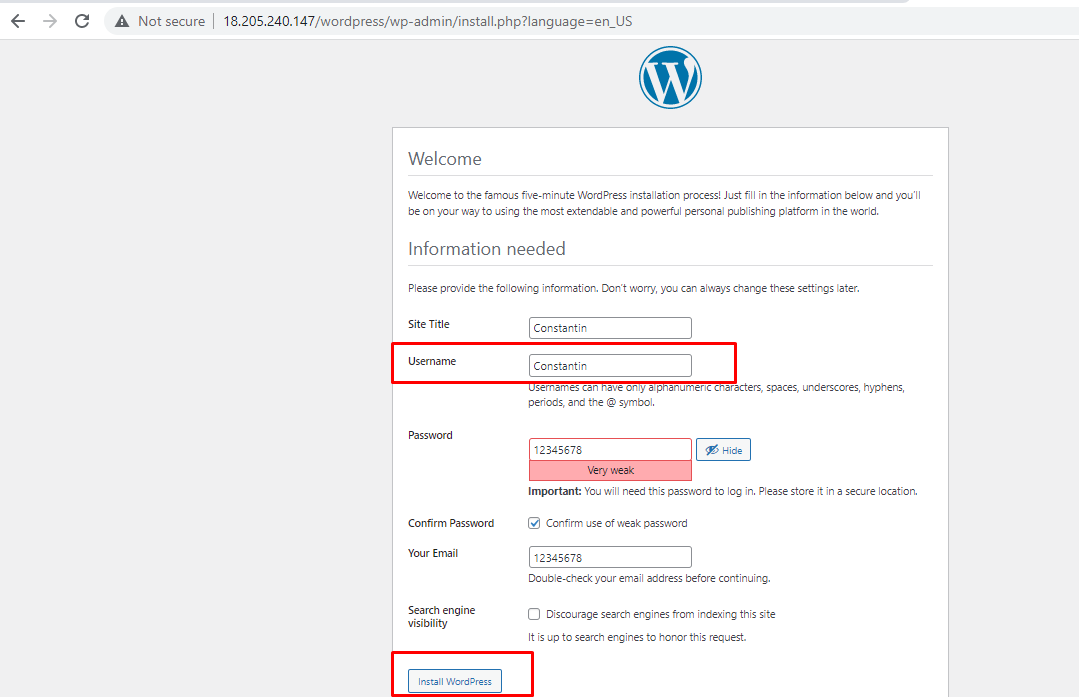


Installing and configuring WordPress

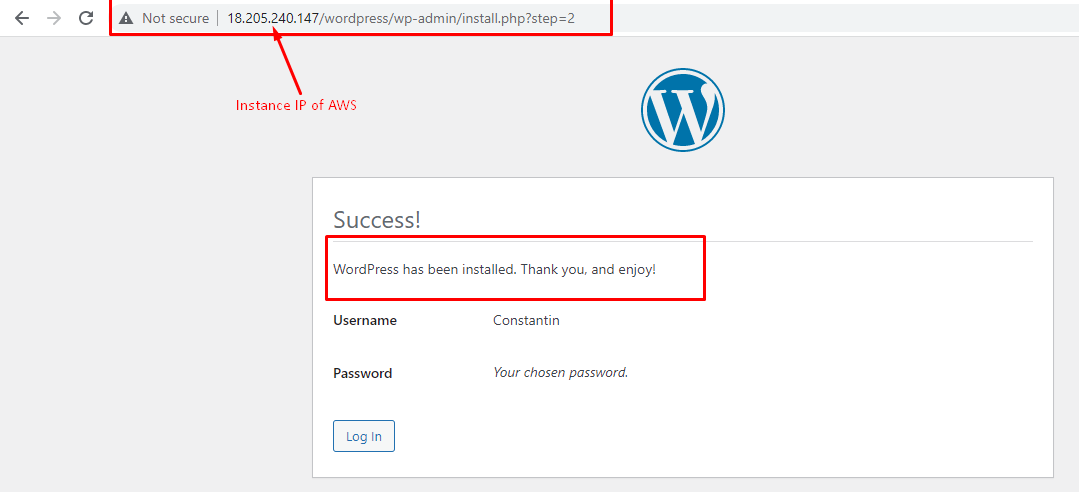




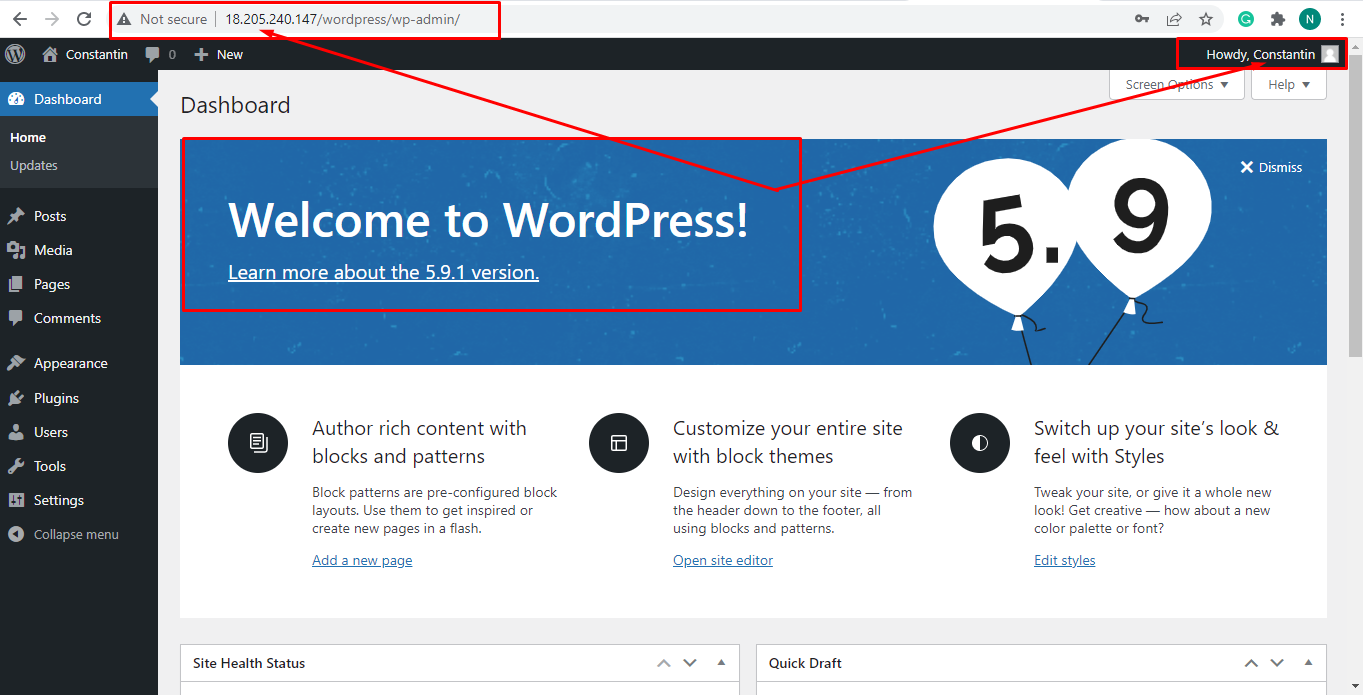
User and password creation into WordPress for managing



WordPress has been successfully installed and configured.



Here you can see after login into WordPress



Please find below the WordPress login URL

<http://18.205.240.147/wordpress/wp-login.php?redirect_to=http%3A%2F%2F18.205.240.147%2Fwordpress%2Fwp-admin%2F&reauth=1>

username: Constantin

password: 12345678

**Web application Deploy Url :**

<http://18.205.240.147/wordpress/index.php/constantin-first-cloud-computing-task/>

**Reference:**

<https://docs.aws.amazon.com/iam/index.html>

<https://aws.amazon.com/rds/>

<https://aws.amazon.com/ec2/>

<https://aws.amazon.com/ebs/>

<https://aws.amazon.com/sagemaker/>

<https://aws.amazon.com/cloudsearch/>

<https://aws.amazon.com/guardduty/>

https://dev.mysql.com/downloads/workbench/