Regions and Zones

Region: India

Think of a region as a large area in a country. In this case, it's like the entire country of India. It's where you can store your data and run your applications.

Availability Zones: Mumbai and Bangalore

Now, within the India region, we have different availability zones. These are like separate cities or regions within the country. Let's say we have two availability zones: one in Mumbai and another in Bangalore.

Mumbai (Availability Zone): This is like one city within India. It's a location in Mumbai where your computer stuff can be stored. It's like saying, "I want to keep a copy of my website in Mumbai."

Bangalore (Availability Zone): Similarly, Bangalore is another city in India where your computer stuff can be stored. It's like saying, "I want to keep another copy of my website in Bangalore."

Having both Mumbai and Bangalore as availability zones in the India region helps ensure that if something happens in one city (like a power outage or a technical issue), your website or app can keep running smoothly from the other city.

In this example, AWS treats India as a region, and within India, they have availability zones in Mumbai and Bangalore, which act like separate cities for storing your computer stuff. This way, they make sure your things stay safe and available even if there are any issues in one of the cities.

use this link.

https://aws.amazon.com/about-aws/global-infrastructure/?p=ngi&loc=0







South America

The AWS Cloud in South America has 3 Availability Zones within one geographic Region, with four Edge Network locations and one Regional Edge Cache location.

Regions (Availability Zones):

São Paulo (3)

Edge Locations

Rio de Janeiro, Brazil; São Paulo, Brazil; Bogota, Colombia; Buenos Aires, Argentina; Santiago, Chile

Regional Edge Caches:

São Paulo, Brazil

Regions

São Paulo Launched 2011

Availability Zones: 3

North America

The AWS Cloud in North America has 25 Availability Zones within seven geographic Regions, with 44 Edge Network locations and two Regional Edge Cache locations.

Regions (Availability Zones):

N. Virginia (6), Ohio (3), N. California (3), Oregon (4), US-East (3), US-West (3), Central (3)

Edge Locations:

Ashburn, VA; Atlanta GA; Boston, MA; Chicago, IL; Dallas/Fort Worth, TX; Denver, CO; Hayward, CA; Jacksonville, FL; Los Angeles, CA; Miami, FL; Minneapolis, MN; Montreal, QC; New York, NY; Newark, NJ; Palo Alto, CA; Phoenix, AZ; Philadelphia, PA; San Jose, CA; Seattle, WA; South Bend, IN; St. Louis, MO; Toronto, ON

Regional Edge Caches:

Northern Virginia; Ohio; Oregon

Coming soon

Canada West Coming Soon

AWS GovCloud (US-East) Launched 2018

AWS GovCloud (US-West) Launched 2011

Canada Central Launched 2016

Northern California Launched 2009

Availability Zones: 3

Northern Virginia Launched 2006

Availability Zones: 6 | Local Zones: 14 | Wavelength Zones: 8

Ohio Launched 2016 Availability Zones: 3

Oregon Launched 2011

Availability Zones: 4 | Local Zones: 6 | Wavelength Zones: 5

Asia Pacific and China

The AWS Cloud in Asia Pacific and China has 38 Availability Zones within 12 geographic Regions, with 34 Edge Network locations and 5 Regional Edge Cache locations.

Regions (Availability Zones):

Hong Kong SAR (3), Melbourne (3), Mumbai (3), Seoul (4), Singapore (3), Sydney (3), Tokyo (4), Osaka (3), Beijing (3), Ningxia (3), Jakarta (3), Hyderabad (3)

Bangalore, India; Chennai, India; Hong Kong SAR, China; Hyderabad, India; Kuala Lumpur, Malaysia; Mumbai, India; Manila, Philippines; New Delhi, India; Osaka, Japan; Seoul, South Korea; Singapore; Taipei, Taiwan; Tokyo, Japan; Melbourne; Perth; Sydney; Beijing, China; Shanghai, China; Zhongwei, China; Shenzhen, China

Regional Edge Caches:

Mumbai, India; Singapore; Seoul, South Korea; Tokyo, Japan; Sydney, Australia

Regions

Beijing Availability Zones: 3

Hong Kong SAR Launched 2019

Hyderabad Launched 2022

Availability Zones: 3

Jakarta Launched 2021

Availability Zones: 3

Melbourne Launched 2023 Availability Zones: 3

Mumbai Launched 2016

Availability Zones: 3 | Local Zones: 2

Ningxia

Availability Zones: 3 Osaka Launched 2021

Availability Zones: 3 Seoul Launched 2016

Availability Zones: 4 | Wavelength Zones: 1

Singapore Launched 2010

Availability Zones: 3 | Local Zones: 2

Sydney Launched 2012 Availability Zones: 3 | Local Zones: 2

Tokyo Launched 2011

Availability Zones: 4 | Local Zones: 1 | Wavelength Zones: 2

Auckland Coming Soon Malavsia Coming Soon

Thailand Coming Soon

Europe / Middle East / Africa

The AWS Cloud in Europe, Middle East and Africa has 33 Availability Zones within eleven geographic Regions, with 39 Edge Network locations and two Regional Edge Cache locations.

Regions (Availability Zones):

Bahrain (3), Cape Town (3), Frankfurt (3), Ireland (3), Israel(3), London (3), Milan (3), Paris (3), Spain (3), Stockholm (3), Zurich (3), and UAE (3)

Edge Locations

Amsterdam, The Netherlands; Berlin, Germany; Cape Town, South Africa; Dublin, Ireland; Frankfurt, Germany; Helsinki, Finland; Johannesburg, South Africa; London, England; Madrid, Spain; Manchester, England; Marseille, France; Milan, Italy; Munich, Germany; Dusseldorf, Germany; Palermo, Italy; Paris, France; Prague, Czech Republic; Stockholm, Sweden; Vienna, Austria; Warsaw, Poland; Zurich, Switzerland; Lisbon, Portugal; Brussels, Belgium; Athens, Greece; Bucharest, Romania; Budapest, Hungary; Nairobi, Kenya; Sofia, Bulgaria

Regional Edge Caches:

Frankfurt, Germany; London, England

Regions

Bahrain Launched 2019 Availability Zones: 3 | Local Zones: 1 Cape Town Launched 2020 Availability Zones: 3 | Local Zones: 1

Europe (Stockholm) Launched 2018 Availability Zones: 3 | Local Zones: 2 Frankfurt Launched 2014

Availability Zones: 3 | Local Zones: 2 Ireland *Launched 2007*

London Launched 2016

Availability Zones: 3 | Wavelength Zones: 2

Milan Launched 2020 Availability Zones: 3

Paris Launched 2017 Availability Zones: 3 Spain Launched 2022 Availability Zones: 3

NAE Launched 2022
Nailability Zones: 3

Availability Zones: 3

South America

The AWS Cloud in South America has 3 Availability Zones within one geographic Region, with four Edge Network locations and one Regional Edge Cache location.

Regions (Availability Zones):

São Paulo (3)

Edge Locations:

Rio de Janeiro, Brazil; São Paulo, Brazil; Bogota, Colombia; Buenos Aires, Argentina; Santiago, Chile

Regional Edge Caches:

São Paulo, Brazil

Regions

São Paulo Launched 2011

Availability Zones: 3

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The AWS Cloud in North America has 25 Availability Zones within seven geographic Regions, with 44 Edge Network locations and two Regional Edge Cache locations.

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Ashburn, VA; Atlanta GA; Boston, MA; Chicago, IL; Dallas/Fort Worth, TX; Denver, CO; Hayward, CA; Jacksonville, FL; Los Angeles, CA; Miami, FL; Minneapolis, MN; Montreal, QC; New York, NY; Newark, NJ; Palo Alto, CA; Phoenix, AZ; Philadelphia, PA; San Jose, CA; Seattle, WA; South Bend, IN; St. Louis, MO; Toronto, ON

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Northern Virginia; Ohio; Oregon

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Hong Kong SAR (3), Melbourne (3), Mumbai (3), Seoul (4), Singapore (3), Sydney (3), Tokyo (4), Osaka (3), Beijing (3), Ningxia (3), Jakarta (3), Hyderabad (3)

Edge Locations:

Bangalore, India; Chennai, India; Hong Kong SAR, China; Hyderabad, India; Kuala Lumpur, Malaysia; Mumbai, India; Manila, Philippines; New Delhi, India; Osaka, Japan; Seoul, South Korea; Singapore; Taipei, Taiwan; Tokyo, Japan; Melbourne; Perth; Sydney; Beijing, China; Shanghai, China; Zhongwei, China; Shenzhen, China

Regional Edge Caches:

Mumbai, India; Singapore; Seoul, South Korea; Tokyo, Japan; Sydney, Australia

Europe / Middle East / Africa

The AWS Cloud in Europe, Middle East and Africa has 33 Availability Zones within eleven geographic Regions, with 39 Edge Network locations and two Regional Edge Cache locations.

Regions (Availability Zones):

Bahrain (3), Cape Town (3), Frankfurt (3), Ireland (3), Israel(3), London (3), Milan (3), Paris (3), Spain (3), Stockholm (3), Zurich (3), and UAE (3)

Edge Locations:

Amsterdam, The Netherlands; Berlin, Germany; Cape Town, South Africa; Dublin, Ireland; Frankfurt, Germany; Helsinki, Finland; Johannesburg, South Africa; London, England; Madrid, Spain; Manchester, England; Marseille, France; Milan, Italy; Munich, Germany; Dusseldorf, Germany; Palermo, Italy; Paris, France; Prague, Czech Republic; Stockholm, Sweden; Vienna, Austria; Warsaw, Poland; Zurich, Switzerland; Lisbon, Portugal; Brussels, Belgium; Athens, Greece; Bucharest, Romania; Budapest, Hungary; Nairobi, Kenya; Sofia, Bulgaria

Elastic Compute Cloud(EC2)

Rent Virtual Machines: You can choose different types of virtual computers for your needs, just like picking a car based on how many people you need to transport.

Store Data on Virtual Drives: Think of these like virtual USB sticks where you can keep your files and programs.

Distribute the Work: It's like having a bunch of friends helping you with a task. EC2 lets you spread out the work across many virtual computers.

When choosing EC2 instances, what kinds of specifications and setups can we customize?

- 1.IAM And Roles
- 2.Operating System
- 3.CPU
- 4.RAM
- 5.Storage
- 6.Security
- 7.Boot Strap
- 8.Network Card
- 9.Elastic IP address
- 10.Load Balancers
- 11.Auto Scaling
- 12. Monitoring and Metrics
- 13.Snapshots and AMIs
- 14.Instance Types

IAM Roles: You can assign IAM roles to your instances, allowing them to securely access other AV	٧S
services without the need for explicit credentials.	

Types of OS.			
1.Windows			
2.Linux			
3.MacOS			
	Use Case for Windows:		

Windows is an operating system widely used in personal computers, laptops, and various business environments.

Use Case for Linux:

Linux is an open-source operating system employed in a wide range of applications, from web servers to embedded systems.

Use Case for MacOS:

MacOS is the operating system developed by Apple and is exclusively used on Macintosh computers.

Windows: Utilizes a familiar layout with a "Start" menu and taskbar at the bottom.

Linux: Can be customized to your preference, but may require some learning, especially for beginners.

MacOS: Showcases a clean, stylish design featuring a dock at the bottom and a menu bar at the top.

Differences

Windows:

Windows OS has a graphical user interface that makes it easy for people to interact with it. It's known for its user-friendly interface, which makes easy interactions. Many software and applications are developed with Windows compatibility in mind. Additionally, it is better for gaming platform due to its extensive gaming library.

Linux:

Linux is widely used, from servers to embedded systems. It's highly customizable and a vast repository of open-source software. While some proprietary software may not be available, Linux provides a command-line interface for interactions, offering users full control over the system trust me full control.

MacOS:

MacOS has a clean design, featuring a dock at the bottom and a menu bar at the top. It's known for its user-friendly and visually interface. This operating system is exclusively for Macintosh users. It's only integrated with other Apple devices and services, providing a seamless experience for users with iPhones and iPads.

CPU, RAM, and Storage I mentioned in my previous post itself please check it once check this link below.
https://www.linkedin.com/posts/kovvuru-dhanush-787990225_aws-cloudcomputing-awsexam-activity-7113156148022706176-t3SN?utm_source=share&utm_medium=member_desktop
Security:
Firewall Rules and Security Group: Think of these like locks and keys for your virtual computer. You set the rules to control who gets in and who doesn't.
Boot Strap Script (EC2 User Data):
EC2 user data is like giving your virtual computer a set of instructions or a to-do list when it starts up. It can automatically set up software, configure settings, and perform tasks to customize the behavior of your EC2 instance. This helps automate the initial setup process, making it easier and more efficient.

This is like the internet connection for your virtual computer. The faster the card, the quicker it can communicate with other computers. And having a public IP address is like giving it a phone number that anyone can call.

Elastic IP Addresses

You can reserve a static public IP address that you can associate with your instance. This is useful if you want to ensure your instance always has the same public IP.

Auto Scaling

This allows you to automatically adjust the number of EC2 instances in a group based on the conditions you define. This ensures your application can handle varying levels of traffic.

Monitoring and Metrics

AWS provides tools to monitor your instances' performance and collect metrics. You can set up alarms to be notified if certain thresholds are reached.

You can create snapshots of your EBS volumes, which are like backups. You can also create Amazon Machine Images (AMIs) to save the configuration of your instance.

I'll provide a detailed, hands-on explanation with step-by-step screenshots to quickly explain what EBS means.

oad Balancers

You can set up load balancers to evenly distribute incoming network traffic across multiple instances. This helps improve the availability and fault tolerance of your applications.

Instance Types

Within each family (e.g., t2, m5, etc.), there are different instance types optimized for various use cases, such as compute-optimized, memory-optimized, etc.

check this link.
https://aws.amazon.com/ec2/instance-types/
Security Group

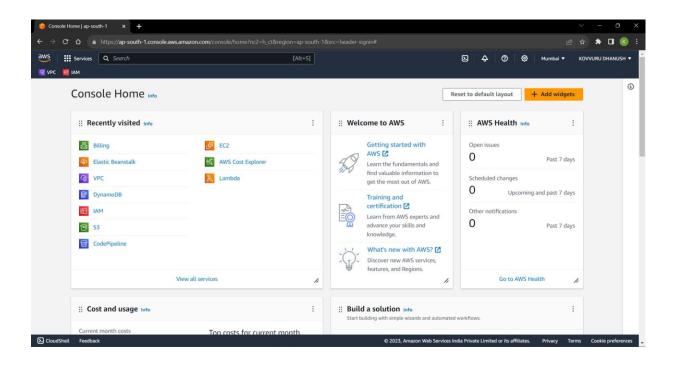
A Security Group is like a virtual firewall for your Amazon Elastic Compute Cloud (EC2) instances. It controls inbound and outbound traffic, acting as a protective barrier. You can think of it as a set of rules that determine who can communicate with your EC2 instance and what kind of traffic is allowed. It's an essential part of securing your cloud resources in AWS.

Protocols

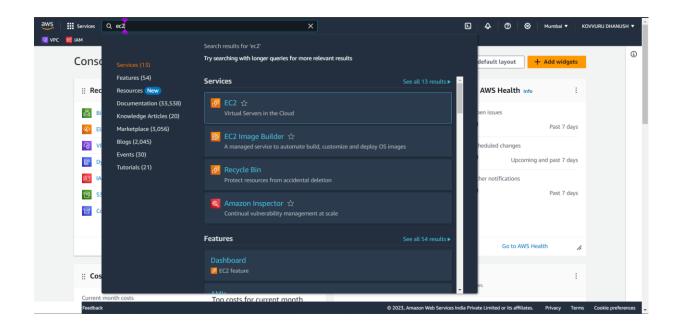
HTTP and HTTPS are protocols used for communication between a web browser (like Chrome, Firefox, etc.) and a web server (where a website is hosted).

Kev Pai

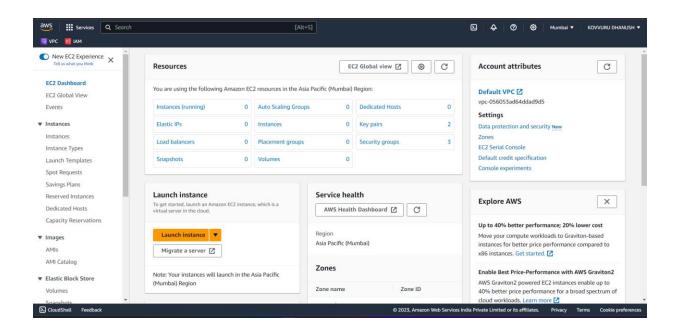
A key pair is like having a special lock and key.



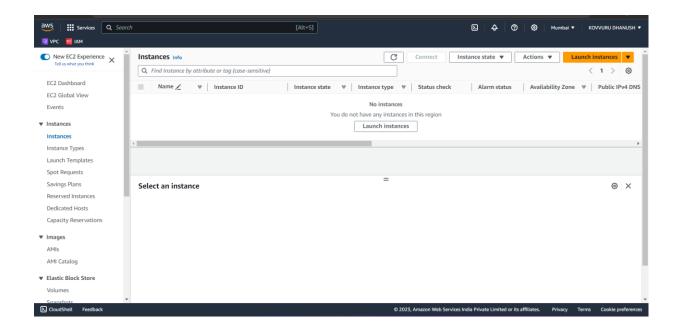
Here I'm very excited and I'm choosing Mumbai because I'm very near to it.



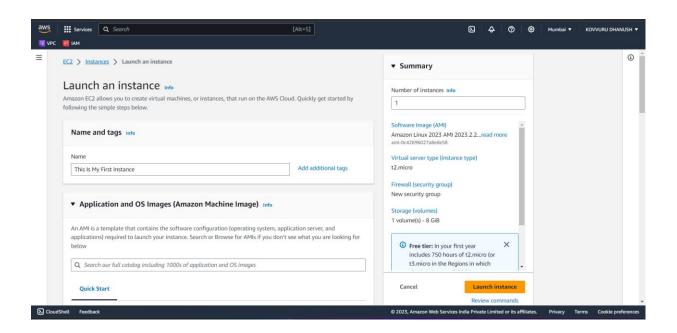
In search bar search for EC2.



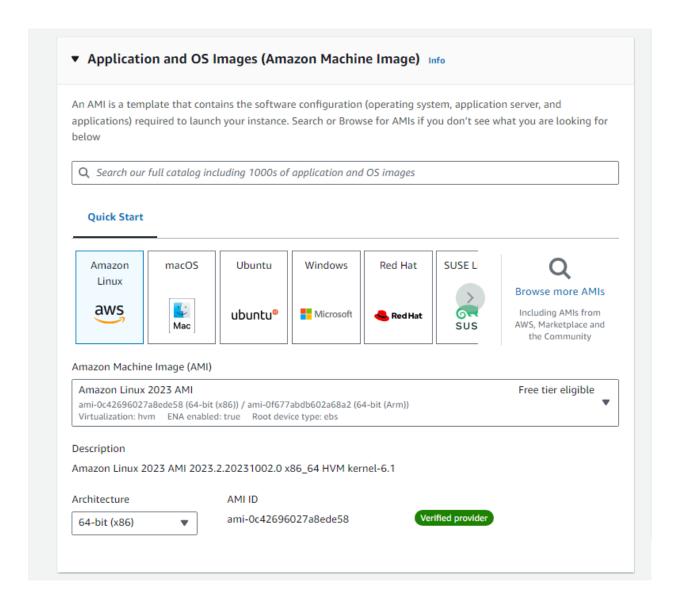
In the left-hand menu click on instances.



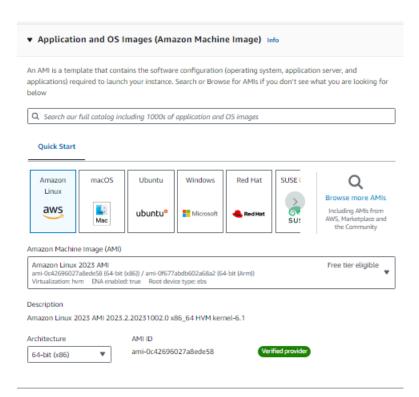
Now click on launch instance.

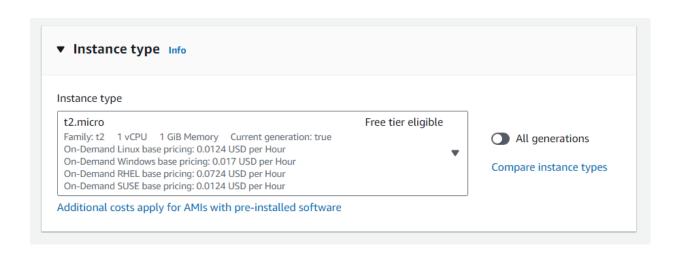


Here you can give your own name.



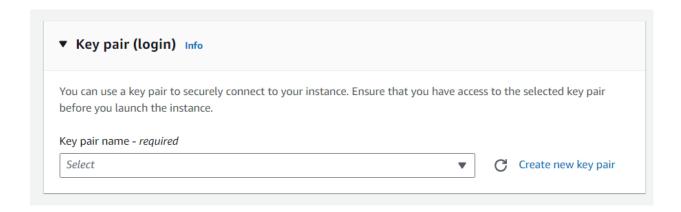
Here I will be launching Linux machine, and which is free tier eligible.



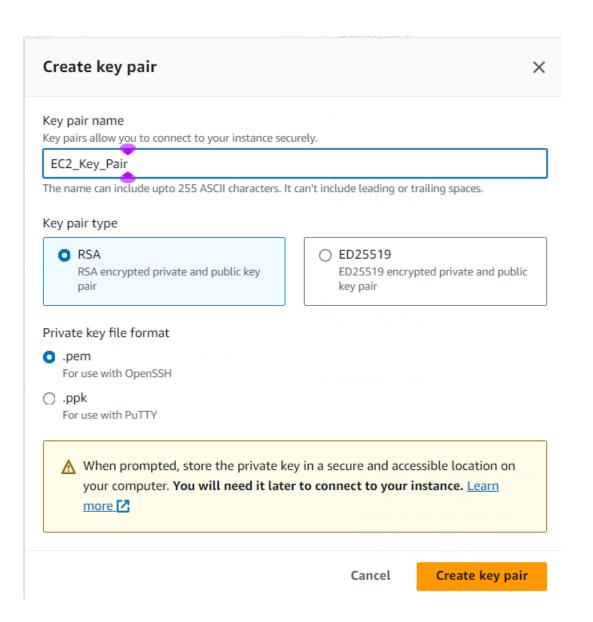


HERE I HAVE CHOOSEN t2.micro

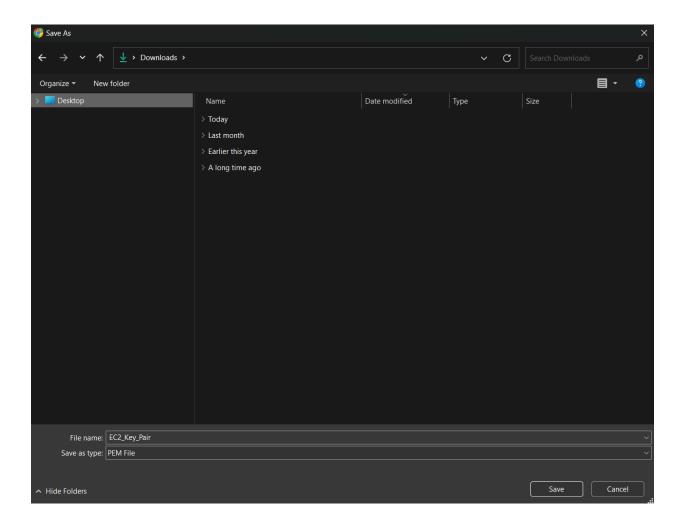
Here it Is providing me 1 vCPU and 1 GiB Memory



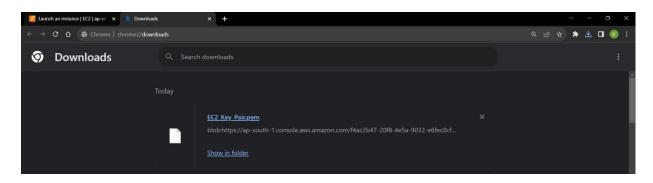
Now click on create new key pair.



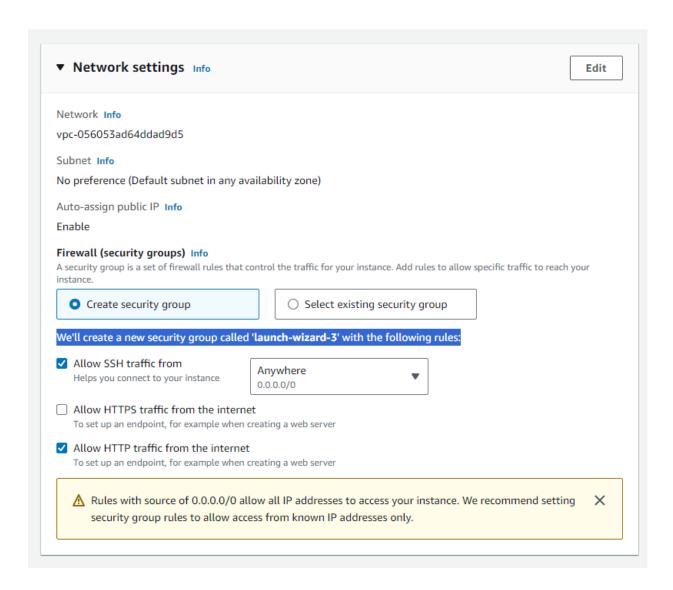
Now click on create key pair.



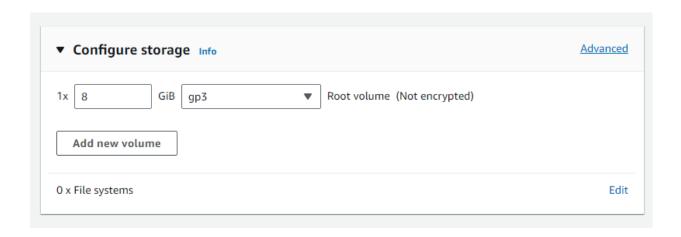
Download the key pair.



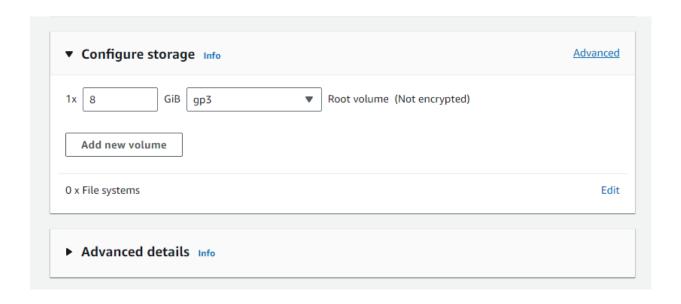
Successfully it is downloaded.



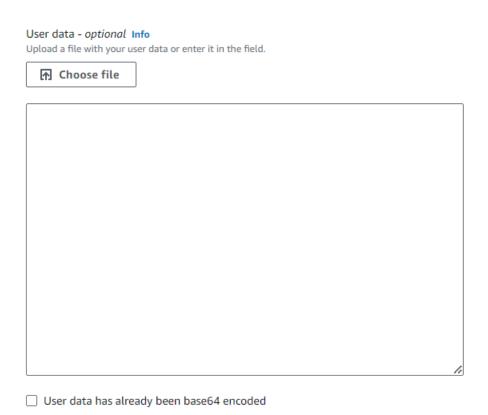
Here it creates launch-wizard-3 automatically mean by deafult from AWS.



Here you get by default automatically 8 GiB EBS Volume.



Now click on advance details.



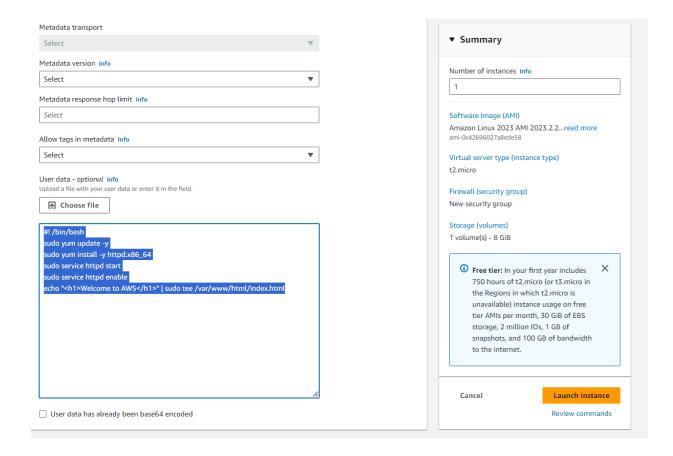
After opening advance details come down mean scroll down come near User data

User data - optional Info
Upload a file with your user data or enter it in the field.

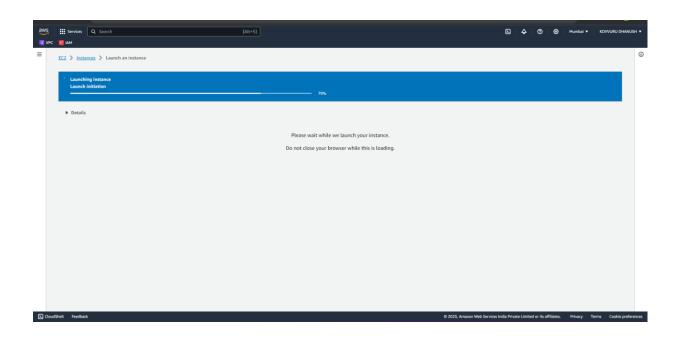
The Choose file

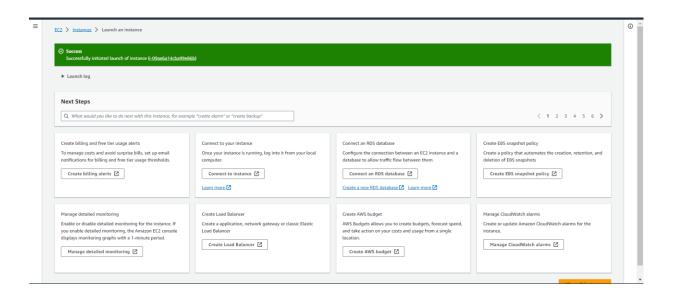
#! /bin/bash
sudo yum update -y
sudo yum install -y httpd.x86_64
sudo service httpd start
sudo service httpd enable
echo "<h1>Welcome to AWS</h1>" | sudo tee /var/www/html/index.html

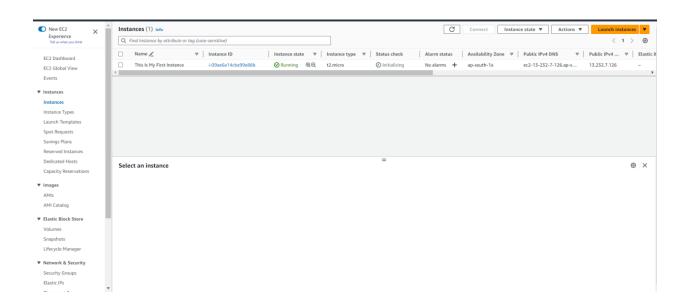
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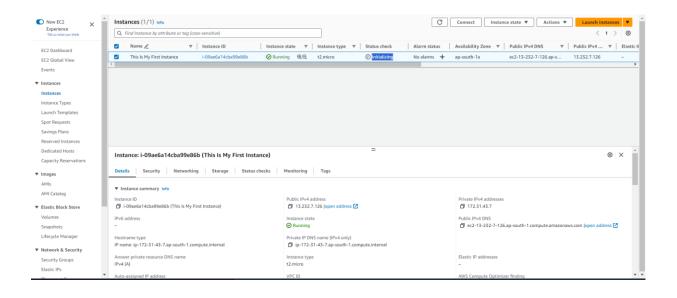


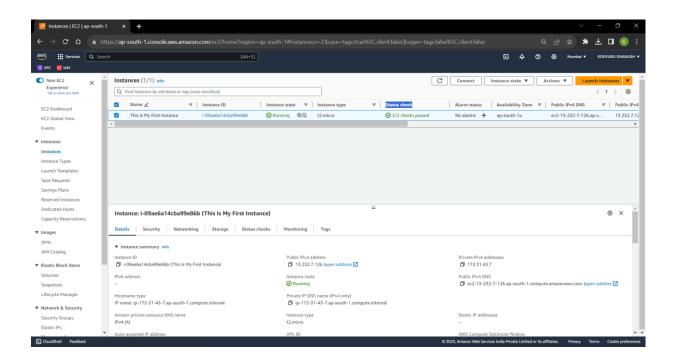
Now click on launch instance.

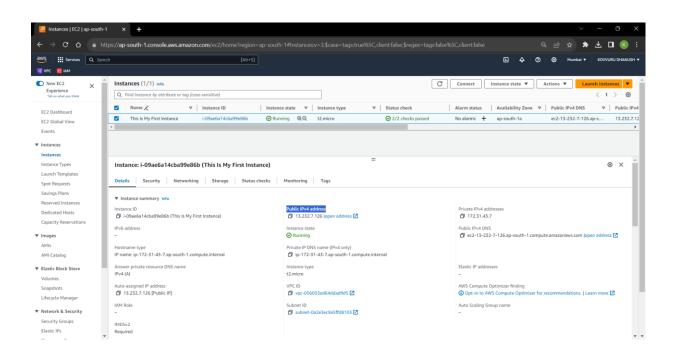


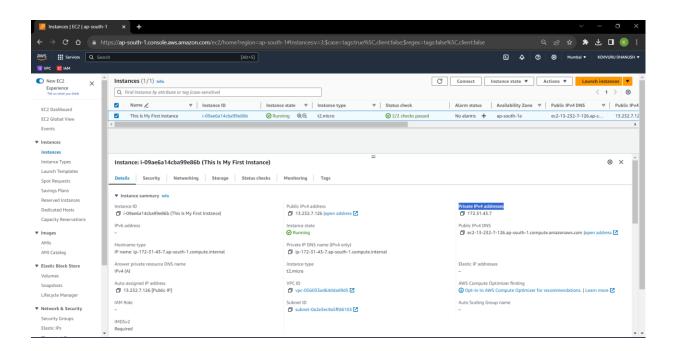


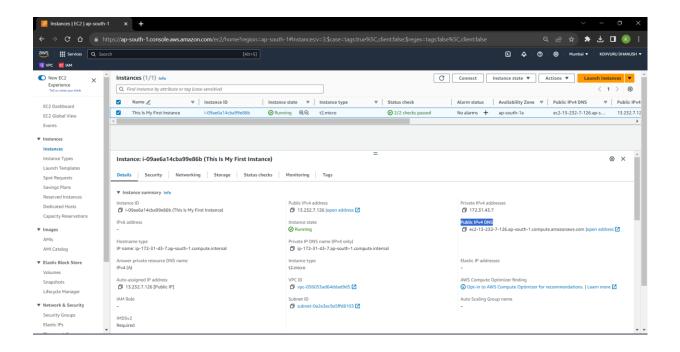


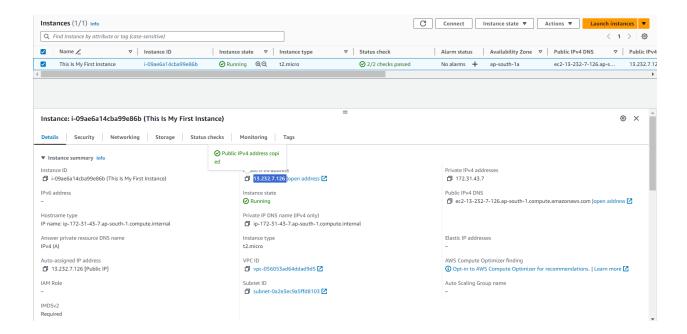




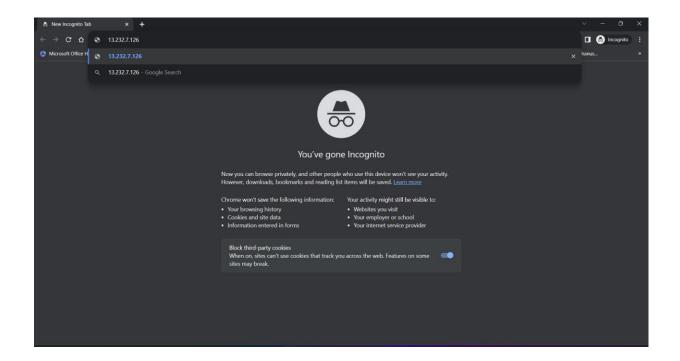








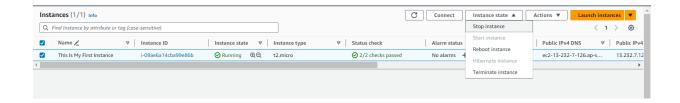
Copy the public IP.



Paste it on a new tab.

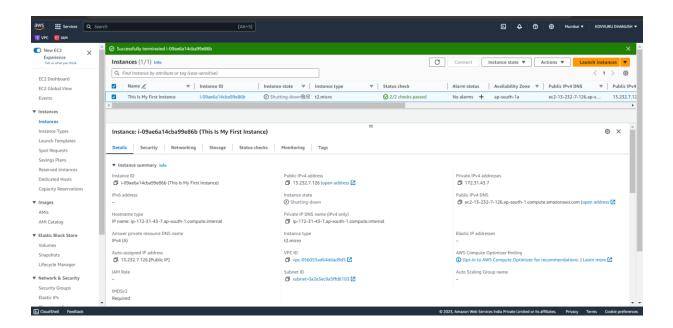


Welcome to AWS

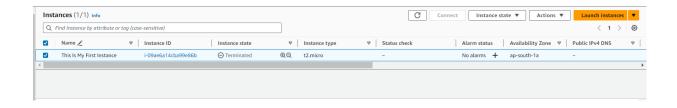


Here you can stop, start or terminate the instance.

Here I'm terminating the instance.



Successfully instance has terminated.



Done successfully.