

3 – TIER ARCHITECTURE.

What Is Meant By 3-Tier Architecture?

Three-tier architecture is a software development model that organizes applications into three logical and physical computing tiers:

1.Presentation tier

2.Application tier

3.Data tier

1.Presentation tier:

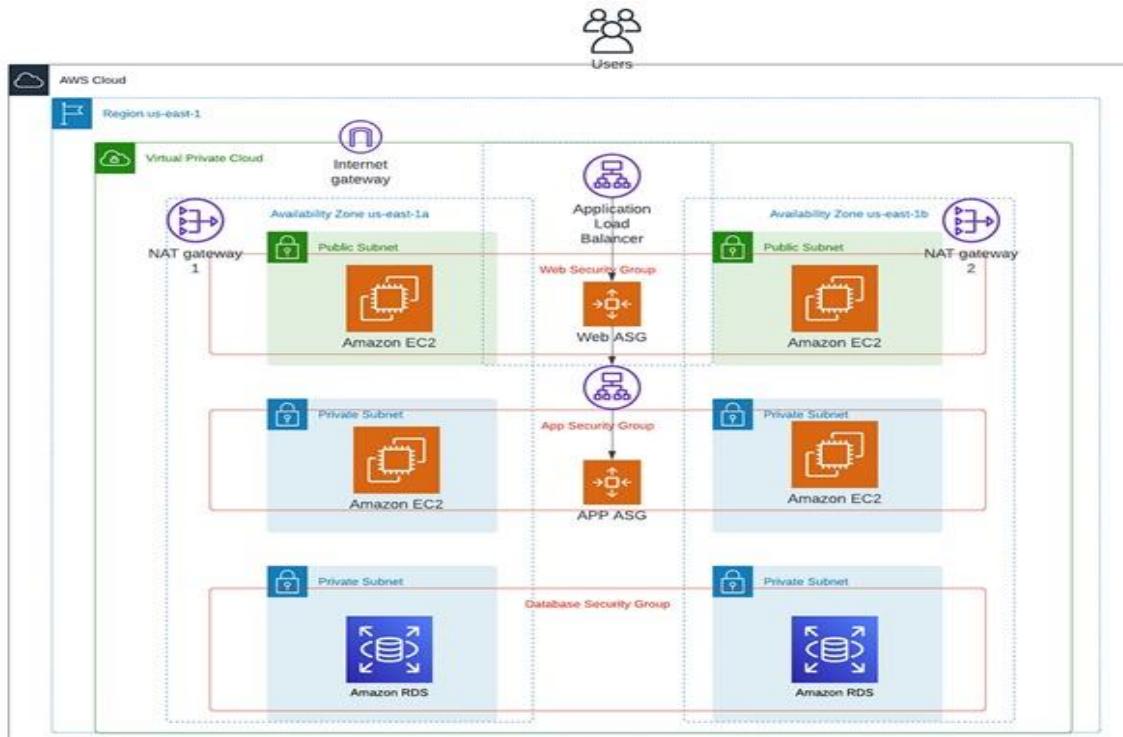
Also known as the user interface, web tier or frontend this is where the end –user interacts with the system

2.Application tier:

Also known as the middle tier or logic tier this is the core of the application where information is processed using business logic

3.Data tier:

Also known as the databases tier,back-end, or data access tier, this is where the application's data is stored ,managed ,retrieved and manipulated



Create VPC In US – EAST:

- 1.login to the AWS account & select VIRGINIA region & do search for VPC in the search box.
2. click on create VPC .
3. select VPC only & give name & give IPv4 CIDR and then.
4. click on create VPC.

SS

The screenshot shows the AWS VPC Dashboard. On the left, there's a sidebar with options like EC2 Global View, Virtual private cloud (Your VPCs, Subnets, Route tables, Internet gateways, Egress-only Internet gateways, Carrier gateways, DHCP option sets, Elastic IPs, Managed prefix lists, Endpoints, Endpoint services, NAT gateways, Peering connections), and Security. The main area displays 'Your VPCs (2)'. It has a table with columns: Name, VPC ID, State, IPv4 CIDR, IPv6 CIDR, and DHCP opt. The first VPC is 'vpc-07e3ae8ee882bf5f3' (Available, 10.0.0.0/16, -) and the second is 'vpc-065220c0dcf618762' (Available, 10.0.0.0/16, -). A 'Create VPC' button is located at the top right of the table area. Below the table, it says 'Select a VPC above'.

Create SUBNETS (2- Public & 4 - Private):

- 1.Click on SUBNETS & Click on create subnet & choose VPC ID (Own VPC not Default).
2. give subnet name & select availability zone (2a or 2b) & give IPv4 subnet CIDR BLOCK .
3. click on create subnet.
4. like that create 6 subnets – 2 public subnets in 2a & 2b zone and 4 private subnets – take 2 private subnets in 2a & remaining 2 private subnets in 2b zone.
5. some snapshots of subnets are added below

VPC | us-east-1

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#CreateSubnet

aws Services Search [Alt+S]

VPC Subnets Create subnet

Create subnet Info

VPC

VPC ID
Create subnets in this VPC.
vpc-065220c0dcf618762 (my project vpc)

Associated VPC CIDRs

IPv4 CIDRs
10.0.0.0/16

Subnet settings
Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name
Create a tag with a key of 'Name' and a value that you specify.
my-subnet-01

The name can be up to 256 characters long.

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VPC | us-east-1

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#CreateSubnet

aws Services Search [Alt+S]

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name
Create a tag with a key of 'Name' and a value that you specify.
my-subnet -p-public 2

The name can be up to 256 characters long.

Availability Zone info
Choose the zone in which your subnet will reside, or let Amazon choose one for you.
US East (N. Virginia) / us-east-1b

IPv4 VPC CIDR block info
Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.
10.0.0.0/16

IPv4 subnet CIDR block
10.0.0.5/24 256 IPs

Tags - optional

Key Value - optional
Name my-subnet -p-public 2 Remove Add new tag

You can add 49 more tags.

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VPC | us-east-1

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#CreateSubnet

aws Services Search [Alt+S]

IPv4 CIDRs
10.0.0.0/16

Subnet settings
Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name
Create a tag with a key of 'Name' and a value that you specify.
my-s- p-private 1

The name can be up to 256 characters long.

Availability Zone info
Choose the zone in which your subnet will reside, or let Amazon choose one for you.
US East (N. Virginia) / us-east-1a

IPv4 VPC CIDR block info
Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.
10.0.0.0/16

IPv4 subnet CIDR block
10.0.1.0/24 256 IPs

Tags - optional

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Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR
my-s-p-private 1	subnet-0cdcb057a89035cc6	Available	vpc-065220c0dcf618762 my p...	10.0.1.0/24	-
my-s-p-private 2	subnet-0af7f5c9b3112145e	Available	vpc-065220c0dcf618762 my p...	10.0.2.0/24	-
my -subnet-p-public 1	subnet-0fe1e972a5169d0c9	Available	vpc-065220c0dcf618762 my p...	10.0.0.0/24	-
my-subnet-p-public 2	subnet-04ca3b25d874aa995	Available	vpc-065220c0dcf618762 my p...	10.0.5.0/24	-
-	subnet-085a369726f04f3f1	Available	vpc-07e8ae8e0882bf5f3	10.0.0.0/24	-
my-s-p-private 3	subnet-075fb3a19cce50495	Available	vpc-065220c0dcf618762 my p...	10.0.3.0/24	-
my-s-p-private 4	subnet-08b2c3c5957bb7f33	Available	vpc-065220c0dcf618762 my p...	10.0.4.0/24	-

Create INTERNET GATEWAY:

- 1.click on internet gateway &create internet gateway.
2. after the creation of internet gateway, click on internet gateway , click on actions & attach it to VPC.
- 3.Snapshots of internet gateway are attached below.
- 3.Snapshots of internet gateway are attached below.

Internet gateway settings

Name tag
Creates a tag with a key of 'Name' and a value that you specify.

Tags - optional
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional
<input type="text" value="Name"/>	<input type="text" value="my-p-igw"/>
Add new tag	

You can add 49 more tags.

[Cancel](#) [Create internet gateway](#)

The following internet gateway was created: igw-0106fc23427a4d439 - my-p-igw. You can now attach to a VPC to enable the VPC to communicate with the internet.

Name	Internet gateway ID	State	VPC ID	Owner
-	igw-087572f91e4694554	Attached	vpc-07e3ae8ee882bf5f3	010526267461
my-p-igw	igw-0106fc23427a4d439	Detached	-	010526267461

Select an internet gateway above

Create NATGATEWAY:

1.click on Nat gateway & click on create.

2.select PRIVATE SUBNET & choose connectivity type as PUBLIIC & Allocate ELASTIC IP.

3.Click on create NAT GATEWAY.

NAT gateway settings

Name - optional
Create a tag with a key of 'Name' and a value that you specify.

The name can be up to 256 characters long.

Subnet
Select a subnet in which to create the NAT gateway.

Connectivity type
Select a connectivity type for the NAT gateway.
 Public
 Private

Elastic IP allocation ID Info
Assign an Elastic IP address to the NAT gateway.

Additional settings Info

The screenshot shows the AWS VPC NatGateways console. On the left, there's a navigation sidebar with options like EC2 Global View, Virtual private cloud (Your VPCs, Subnets, Route tables, Internet gateways, Egress-only internet gateways, Carrier gateways, DHCP option sets, Elastic IPs, Managed prefix lists, Endpoints, Endpoint services), NAT gateways (selected), and Peering connections. The main area displays a table titled 'NAT gateways (1) Info'. The table has columns: Name, NAT gateway ID, Connectivity..., State, Stat..., Primary public IP..., and Primary private IP. One row is listed: 'my-p-natgw' with NAT gateway ID 'nat-0276b98dbba484fa1', State 'Available', Primary public IP '44.216.244.98', and Primary private IP '10.0.1.44'. Below the table, a section titled 'Select a NAT gateway' is visible.

Create ROUTE TABLES:

1. We have to create 2 route tables – one is PUBLIC & another one is PRIVATE.
2. goto route table – click on create route- select VPC & create route table.

The screenshot shows the AWS VPC CreateRouteTable console. The top navigation bar includes 'VPC' and 'Route tables'. The main form is titled 'Create route table' with an 'Info' link. It contains two sections: 'Route table settings' and 'Tags'. In 'Route table settings', there's a 'Name - optional' field with 'my-p-r-private 3' entered, and a 'VPC' dropdown set to 'vpc-065220c0dcf618762 (my project vpc)'. In the 'Tags' section, there's a table with a single row: 'Key' 'Name' and 'Value - optional' 'my-p-r-private 3'. At the bottom right, there's a 'Create route table' button.

3. click on route- actions-edit subnet associations-select PUBLIC SUBNETS – save associations.

Available subnets (1/6)

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
my-s-p-private 1	subnet-0cdcb057a89035cc6	10.0.1.0/24	-	rtb-0673a35b2ab68fdcc / my-p-r-priv...
my-s-p-private 2	subnet-0af7f5c9b3112145e	10.0.2.0/24	-	rtb-00090dce6c316e966 / my-p-r-priv...
my-subnet-p-public 1	subnet-0fe1e912a3169ddc9	10.0.0.0/24	-	rtb-07d15cbe88f2e0108 / my-p-r-pub...
my-subnet-p-public 2	subnet-04ca3b25d874ad995	10.0.5.0/24	-	rtb-0d950d91c58f7d560 / my-p-r-pu...
<input checked="" type="checkbox"/> my-s-p-private 3	subnet-075fb3a19cce50495	10.0.3.0/24	-	Main (rtb-0ec4ad7e69848e8b2)
my-s-p-private 4	subnet-08b2c3c5957bb7f33	10.0.4.0/24	-	Main (rtb-0ec4ad7e69848e8b2)

Selected subnets

subnet-075fb3a19cce50495 / my-s-p-private 3

Actions: Cancel, Save associations

4. create another route table as PRIVATE.

5. Select VPC – do edit subnet associations – select 4 private subnets – save associations.

6. snapshots are attached below.

Route tables (8) Info

Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
-	rtb-0ae3db9e9bfb04f4c	-	-	Yes	vpc-07e3ae8ee882bf5f3
-	rtb-0ec4ad7e69848e8b2	-	-	Yes	vpc-065220c0dcf618762 m
my-p-r-public1	rtb-07d15cbe88f2e0108	subnet-0fe1e912a3169d...	-	No	vpc-065220c0dcf618762 m
my-p-r-public2	rtb-0d950d91c58f7d560	subnet-04ca3b25d874ad...	-	No	vpc-065220c0dcf618762 m
my-p-r-private1	rtb-0673a35b2ab68fdcc	subnet-0cdcb057a89035...	-	No	vpc-065220c0dcf618762 m
my-p-r-private2	rtb-0af7f5c9b3112145e	subnet-0af7f5c9b311214...	-	No	vpc-065220c0dcf618762 m
my-p-r-private3	rtb-0a1dde8964965a5cf	subnet-075fb3a19cce50...	-	No	vpc-065220c0dcf618762 m
my-p-r-private4	rtb-06f8c57ff5640afdf6	subnet-08b2c3c5957bb7...	-	No	vpc-065220c0dcf618762 m

Select a route table

7.click on public route table – edit routes – add route - attach internet gateway – save changes.

8. click on private route table – attach internet gateway & Nat gateway – save changes.

VPC | us-east-1

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#RouteTableDetails:RouteTableId=rtb-07d15cbe88f2e0108

VPC dashboard > Route tables > rtb-07d15cbe88f2e0108 / my-p-r- public1

Details Info

Route table ID: rtb-07d15cbe88f2e0108 Main: No Explicit subnet associations: subnet-0fe1e912a3169d0c9 / my-subnet-p-public 1 Edge associations: -

VPC: vpc-065220c0dcf618762 | my project Owner ID: 010526267461

Actions ▾

- Set main route table
- Edit subnet associations
- Edit edge associations
- Edit route propagation
- Edit routes**
- Manage tags
- Delete

Routes Subnet associations Edge associations Route propagation Tags

Routes (1)

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No

Filter routes Both Edit routes

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VPC | us-east-1

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#EditRoutes:RouteTableId=rtb-07d15cbe88f2e0108

VPC > Route Tables > rtb-07d15cbe88f2e0108 > Edit routes

Edit routes

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No
Q 0.0.0.0	Internet Gateway	-	No
Q igw-0106fc23427a4d439	X	-	-

Add route Remove

Cancel Preview Save changes

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The screenshot shows the AWS VPC Route Table Details page. The route table ID is rtb-0673a35b2ab68fdcc, and it is associated with the VPC 'vpc-065220c0dcf618762 | my project'. There is one route entry: Destination 10.0.0.0/16, Target local, Status Active, Propagated No. A context menu is open over the table, with 'Edit routes' highlighted.

9. Now go to the subnets - click on public subnet -01, click on actions – edit subnet settings – ENABLE Auto assign public IPv4 address.

10. Do the same for remaining subnets also.

Create SECURITY GROUPS:

1. we have to create TWO security groups.

2. Goto security groups - click on create security groups- select VPC – add INBOUND (SSH & HTTP) & OUTBOUND RULES (All traffic) – click on create security group.

3. snapshots are attached below

VPC | us-east-1

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#CreateSecurityGroup:

aws Services Search [Alt+S]

VPC > Security Groups > Create security group

Create security group info

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name Info
my-p-sg1

Name cannot be edited after creation.

Description Info
allow

VPC info
vpc-065220c0dcf618762 (my project vpc)

Inbound rules Info

This security group has no inbound rules.

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VPC | us-east-1

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#CreateSecurityGroup:

aws Services Search [Alt+S]

This security group has no inbound rules.

Add rule

Outbound rules Info

Type <small>Info</small>	Protocol <small>Info</small>	Port range <small>Info</small>	Destination <small>Info</small>	Description - optional <small>Info</small>
All traffic	All	All	Custom	0.0.0.0/0
Custom TCP	TCP	80	Anywhere	0.0.0.0/0
SSH	TCP	22	Anywhere	0.0.0.0/0

Add rule

Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

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VPC | us-east-1

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#CreateSecurityGroup:

aws Services Search [Alt+S]

VPC > Security Groups > Create security group

Create security group info

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name Info
my-p-sg2

Name cannot be edited after creation.

Description Info
allow

VPC info
vpc-065220c0dcf618762 (my project vpc)

Inbound rules Info

This security group has no inbound rules.

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Type - Info

Protocol	Port range	Info	Destination	Description - optional
All traffic	All	All	Custom	0.0.0.0/0
Custom TCP	TCP	80	Anywh...	0.0.0.0/0
SSH	TCP	22	Anywh...	0.0.0.0/0

Add rule

Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

Add new tag

You can add up to 50 more tags.

Create security group

Inbound security group rules successfully modified on security group (sg-0623b07fa92fc4b25 | my-p-sg-1)

Details

Security Groups (5) info

Name	Security group ID	Security group name	VPC ID	Description
my-p-sg1	sg-0623b07fa92fc4b25	my-p-sg-1	vpc-065220c0dcf618762	allow
my-p-sg2	sg-0ec9d936be3cb870fc	my-p-sg2	vpc-065220c0dcf618762	allow
-	sg-0f2285d5c3b23c5a7	default	vpc-07e3ae8ee882bf5f3	default VPC s
-	sg-0ec5e5aa840fb9458	default	vpc-065220c0dcf618762	default VPC s

NOW LAUNCH TWO TEMPLATES (Public &Private):

PUBLIC TEMPLATE AND PRIVATE TEMPLATE:

1. Search EC2 – Click on LAUNCH TEMPLATES – Click on CREATE LAUNCH TEMPLATES.
2. Select AMI – UBUNTU & instance type – t2.micro(1GB- Free Tier).
3. Select KEY PAIR – a new or existing.
4. In Network Settings, I am not going to specify subnets, but security group (SG) that I am created for the security-group-1&2 (my-sg-01&02) is selected. Make sure the proper VPC is selected.
5. Snapshots of Public Template and private Template are attached below.

Create launch template | EC2 | +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTemplate:

Services Search [Alt+S]

>Delete Launch Template Request Succeeded

EC2 > Launch templates > Create launch template

Create launch template

Creating a launch template allows you to create a saved instance configuration that can be reused, shared and launched at a later time. Templates can have multiple versions.

Launch template name and description

Launch template name - required
template-private
Must be unique to this account. Max 128 chars. No spaces or special characters like '&', ',', '@'.

Template version description
nothing
Max 255 chars

Auto Scaling guidance Info
Select this if you intend to use this template with EC2 Auto Scaling
 Provide guidance to help me set up a template that I can use with EC2 Auto Scaling

▶ Template tags

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A screenshot of the AWS EC2 'Create launch template' wizard. The 'Launch template name and description' step is shown. A tooltip for the 'Auto Scaling guidance' checkbox explains the free tier benefits: 'Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of data transfer.

Create launch template | EC2 | +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTemplate:

Services Search [Alt+S]

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below.

Search our full catalog including 1000s of application and OS images

Recents Quick Start

Don't include in launch template Amazon Linux macOS Ubuntu Windows Red H

Browse more AMIs Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type
ami-0e86e20dae9224db8 (64-bit (x86)) / ami-0e86e20dae9224db8 (64-bit (Arm))
Virtualization: hvm - ENI enabled: true - Root device type: ebs
Free tier eligible

Description
Ubuntu Server 24.04 LTS (HVM), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

Architecture 64-bit (x86) AMI ID ami-0e86e20dae9224db8 Verified provider

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A screenshot of the AWS EC2 'Create launch template' wizard. The 'Amazon Machine Image (AMI)' step is shown. A tooltip for the selected AMI ('Ubuntu Server 24.04 LTS (HVM), SSD Volume Type') explains the free tier benefits: 'Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of data transfer.

Create launch template | EC2 | us-east-1

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTemplate:

aws Services Search [Alt+S]

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name: durga prasanthi

Network settings Info

Subnet: Don't include in launch template

Firewall (security groups): A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Select existing security group: Create security group:

Security groups: Select security groups: my-p-sg 2 sg-01623341a9bbf95e3

Storage (volumes): 1 volume(s) - 8 GiB

Summary

Software Image (AMI): Canonical, Ubuntu, 24.04, amd64...

Virtual server type (instance type): t2.micro

Firewall (security group): my-p-sg 2

Storage (volumes): 1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million I/Os, 1 GB of memory, and 1000 AWS Lambda invocations per month.

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Launch templates | EC2 | us-east-1

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchTemplates:

aws Services Search [Alt+S]

Launch Templates (2) Info

Launch Template ID	Launch Template Name	Default Version	Latest Version	Create Time	Created By
lt-0f3311c74e408e64a	template-public	1	1	2024-08-27T05:30:10.000Z	arn:aws:iam::...
lt-0584168f0151de7b4	template-private	1	1	2024-08-27T06:11:18.000Z	arn:aws:iam::...

Select a launch template

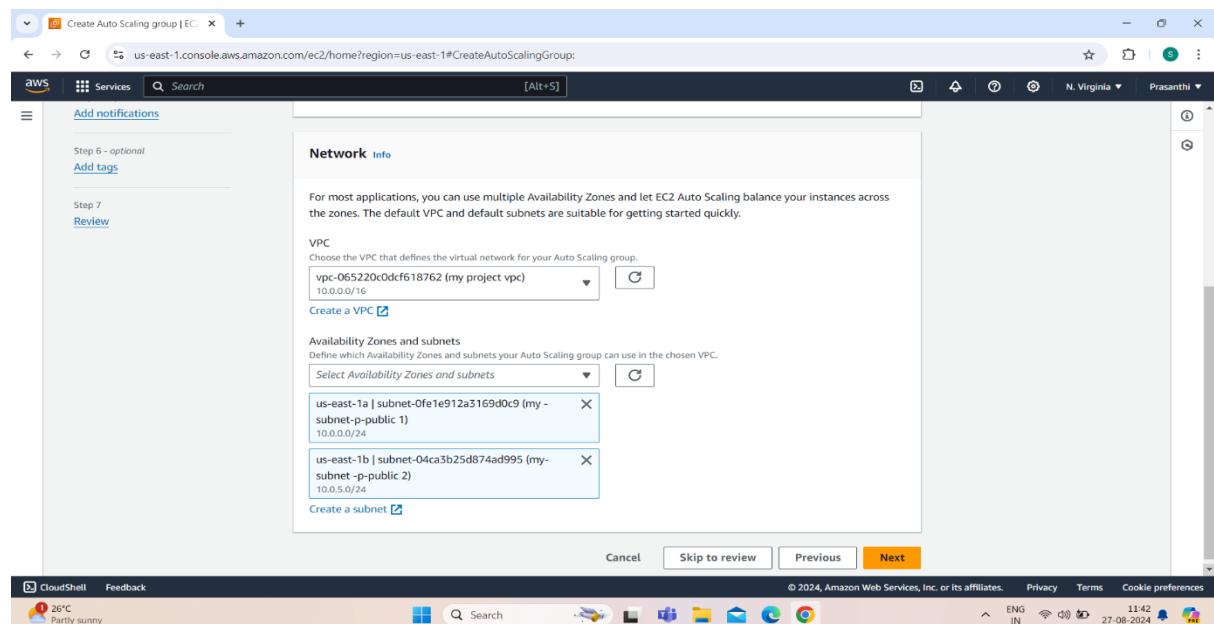
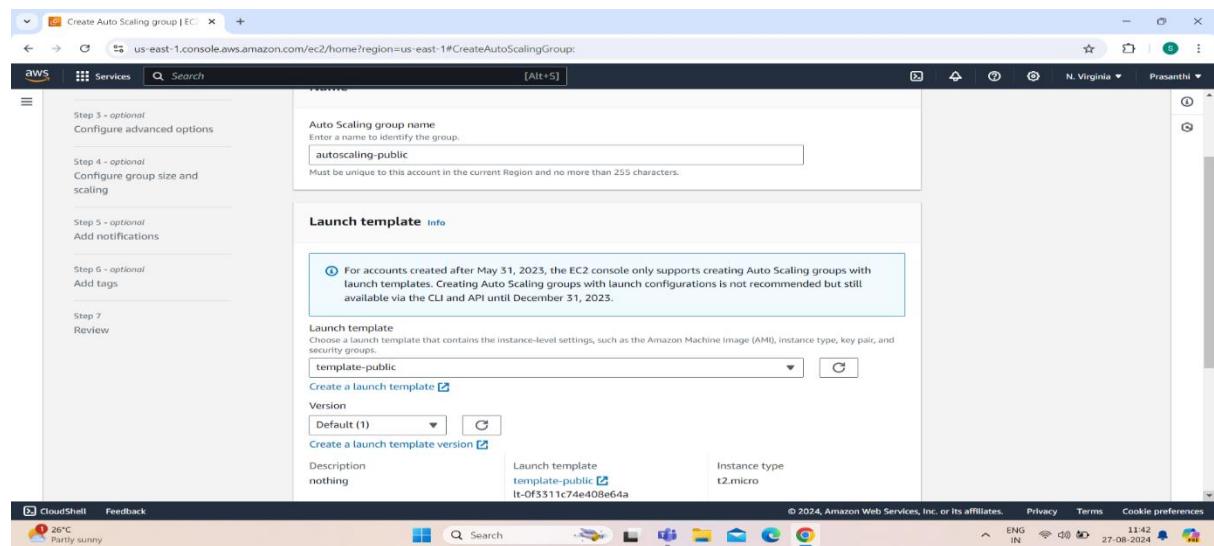
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Upcoming Earnings ENG IN 16:09 27-08-2024

CREATE TWO AUTOSCALING GROUPS (Public & Private):

PUBLIC AUTO SCALING GROUP:

- 1.In EC2, go to autoscaling group – click on create autoscaling group.
- 2.give name to ASG – Select PUBLIC TEMPLATE (which is already created)
- 3.In network settings- choose VPC – choose 2 public subnets.
4. After that click on NEXT.

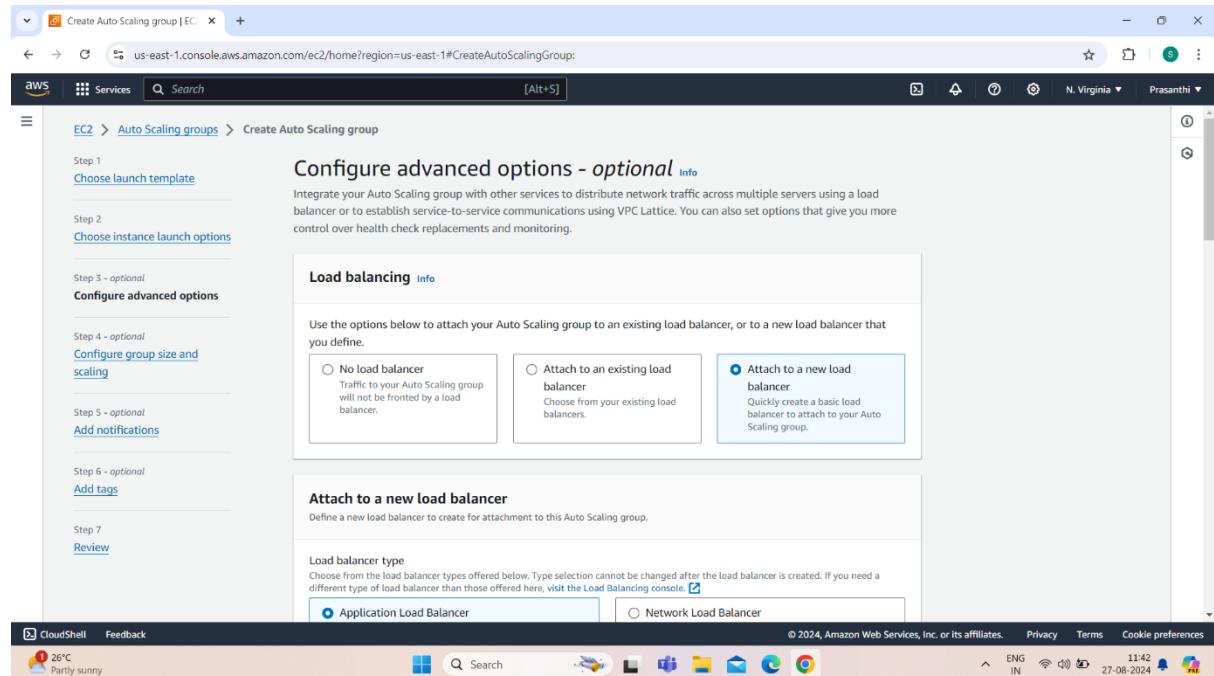


5. We have to attach LOAD BALANCER to ASG.

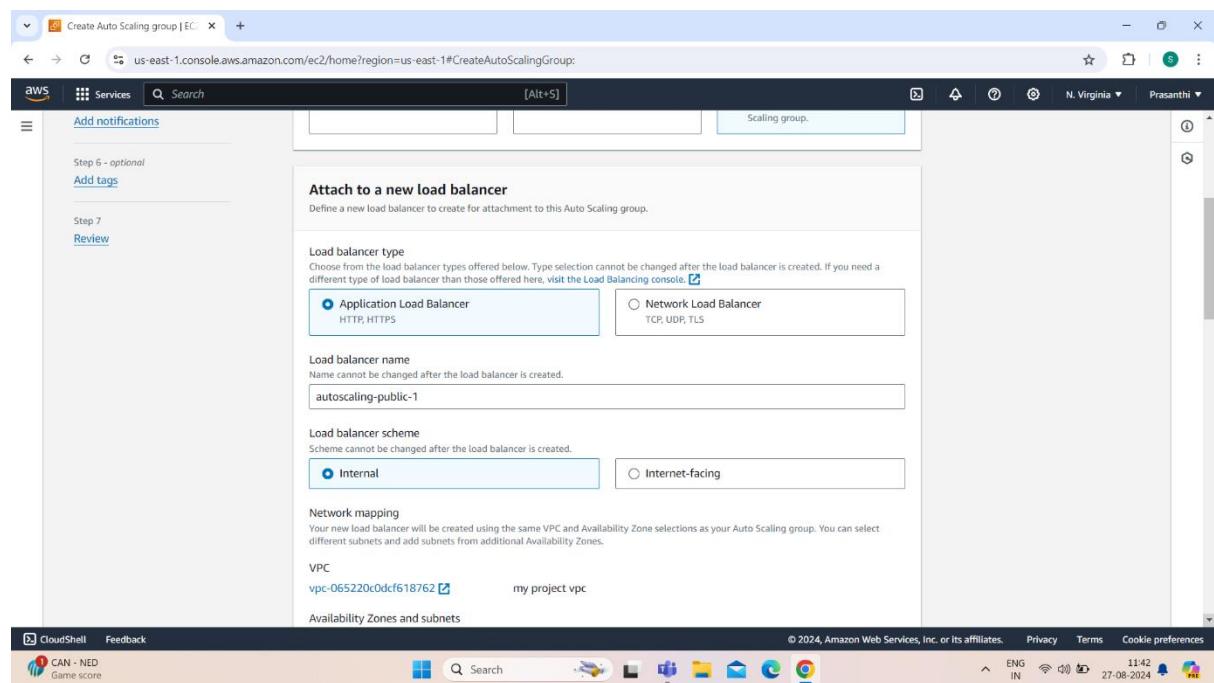
6. Attach load balancer- choose application load balancer- LB name should be same as ASG , if you want to edit it you can edit the name.

7. select subnets – give PORT NO: 80 for HTTP – Select TARGET GROUP (new or existing).

8. Give HEALTH CHECK GRACE PERIOD as your wish.



The screenshot shows the AWS Create Auto Scaling group wizard at Step 4: Configure advanced options - optional. In the 'Load balancing' section, the 'Attach to a new load balancer' option is selected. Below this, the 'Attach to a new load balancer' section shows 'Application Load Balancer' selected. The interface includes tabs for Step 1 (Choose launch template), Step 2 (Choose instance launch options), Step 3 - optional (Configure advanced options), Step 4 - optional (Configure group size and scaling), Step 5 - optional (Add notifications), Step 6 - optional (Add tags), and Step 7 (Review). The status bar at the bottom indicates it's 26°C and partly sunny.



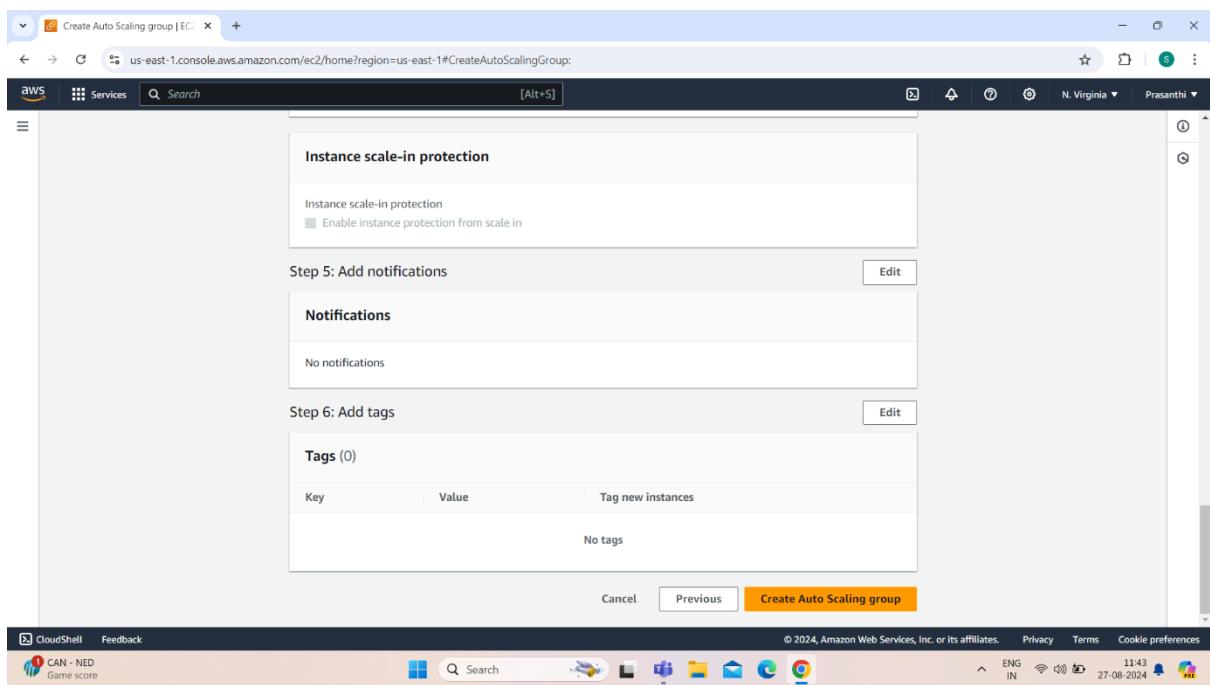
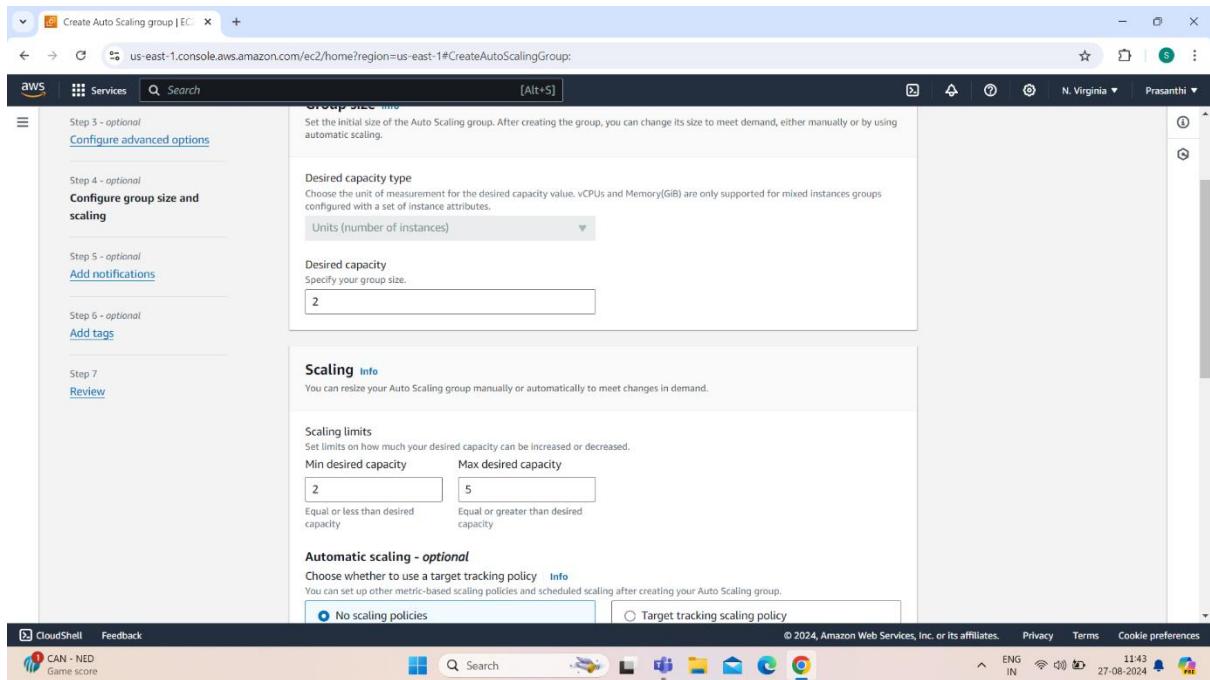
The screenshot shows the AWS Create Auto Scaling group wizard at Step 6: optional. The 'Attach to a new load balancer' section shows 'Application Load Balancer' selected. Below it, the 'Load balancer name' field contains 'autoscaling-public-1'. The 'Load balancer scheme' section shows 'Internal' selected. The 'Network mapping' section lists 'vpc-065220c0dcf618762' under 'my project vpc'. The 'Scaling group.' field is empty. The interface includes tabs for Step 1 (Add notifications), Step 2 (Add tags), Step 3 - optional (Add notifications), Step 4 - optional (Add tags), Step 5 - optional (Add notifications), Step 6 - optional (Add notifications), and Step 7 (Review). The status bar at the bottom indicates it's 26°C and partly sunny.

9. Select Group size

We want to set a minimum and maximum number of instances the ASG can provision:

- **Desired capacity:** 2
- **Minimum capacity:** 2
- **Maximum capacity:** 5

10. After that, click on next – next – create auto scaling group.



CREATE ANOTHER AUTO SCALING GROUP AS PRIVATE:

- 1.follow all the steps as above.
2. But at network settings, choose 4 private subnets.
- 3.snapshots of private ASG are attached below

The screenshot shows the AWS CloudShell interface with the following details:

- Page Title:** Create Auto Scaling group | EC2
- URL:** us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateAutoScalingGroup;
- Region:** N. Virginia
- User:** Prasanthi
- Left Sidebar (Step 1: Choose launch template):**
 - Choose launch template
 - Choose instance launch options
 - Configure advanced options
- Main Content (Step 1: Choose launch template):**

Choose launch template Info

Specify a launch template that contains settings common to all EC2 instances that are launched by this Auto Scaling group.

Name
Auto Scaling group name Enter a name to identify the group. <input type="text" value="autoscaling-private"/> Must be unique to this account in the current Region and no more than 255 characters.
- Left Sidebar (Step 2: Choose instance launch options):**
 - Configure group size and scaling
- Left Sidebar (Step 3 - optional: Configure advanced options):**
 - Add notifications
- Left Sidebar (Step 4 - optional: Configure group size and scaling):**
 - Add tags
- Left Sidebar (Step 5 - optional: Add notifications):**
 - Review view
- Bottom Navigation:** CloudShell, Feedback, Search, ENG INR, 27-06-2024, Privacy, Terms, Cookie preferences

The screenshot shows the AWS CloudFormation Create Stack Wizard - Step 7: Review. The page title is "Create Auto Scaling group | EC2". The URL is "us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1>CreateAutoScalingGroup". The top navigation bar includes "Services", "Search", and "Step 7 Review". A sidebar on the left shows "N. Virginia" and "Prasanthi". The main content area displays the following configuration:

VPC
Choose the VPC that defines the virtual network for your Auto Scaling group.
vpc-065220c0dcf618762 (my project vpc) ▾ [Edit](#)

Availability Zones and subnets
Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.
[Select Availability Zones and subnets](#) ▾ [Edit](#)

us-east-1a | subnet-0cdcb057a89035cc6 (my-s-p-private 1)
10.0.0.0/24

us-east-1b | subnet-0af7f5c9b3112145e (my-s-p-private 2)
10.0.2.0/24

us-east-1a | subnet-075fb3a19cce50495 (my-s-p-private 3)
10.0.5.0/24

us-east-1b | subnet-08bb2c3c5957bb7f53 (my-s-p-private 4)
10.0.4.0/24

[Create a subnet](#) [Edit](#)

Partly sunny

Create Auto Scaling group EC2

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateAutoScalingGroup:

aws Services Search [Alt+S]

N. Virginia Prasanthi

EC2 > Auto Scaling groups > Create Auto Scaling group

Step 1 Choose launch template

Step 2 Choose instance launch options

Step 3 - optional Configure advanced options

Step 4 - optional Configure group size and scaling

Step 5 - optional Add notifications

Step 6 - optional Add tags

Step 7 Review

Configure advanced options - *optional*

Integrate your Auto Scaling group with other services to distribute network traffic across multiple servers using a load balancer or to establish service-to-service communications using VPC Lattice. You can also set options that give you more control over health check replacements and monitoring.

Load balancing Info

Use the options below to attach your Auto Scaling group to an existing load balancer, or to a new load balancer that you define.

No load balancer Traffic to your Auto Scaling group will not be fronted by a load balancer.

Attach to an existing load balancer Choose from your existing load balancers.

Attach to a new load balancer Quickly create a basic load balancer to attach to your Auto Scaling group.

Attach to a new load balancer

Define a new load balancer to create for attachment to this Auto Scaling group.

Load balancer type Choose from the load balancer types offered below. Type selection cannot be changed after the load balancer is created. If you need a different type of load balancer than those offered here, visit the Load Balancing console. [\[?\] Help](#)

Application Load Balancer

Network Load Balancer

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CloudShell Feedback

26°C Partly sunny

Search

11:45 27-08-2024

Create Auto Scaling group | EC2

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateAutoScalingGroup:

aws Services Search [Alt+S]

Network mapping
Your new load balancer will be created using the same VPC and Availability Zone selections as your Auto Scaling group. You can select different subnets and add subnets from additional Availability Zones.

VPC
vpc-065220c0dcf618762 my project vpc

Availability Zones and subnets
You must select a single subnet for each Availability Zone enabled. Only public subnets are available for selection to support DNS resolution.

us-east-1a: subnet-0cdcb057a89035cc6
us-east-1b: subnet-0af7f5c9b3112145e

Listeners and routing
If you require secure listeners, or multiple listeners, you can configure them from the Load Balancing console after your load balancer is created.

Protocol	Port	Default routing (forward to)
HTTP	80	Create a target group New target group name An instance target group with default settings will be created. autoscaling-private-1

Tags - optional
Consider adding tags to your load balancer. Tags enable you to categorize your AWS resources so you can more easily manage them.

Add tag

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Create Auto Scaling group | EC2

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateAutoScalingGroup:

aws Services Search [Alt+S]

Step 5 - optional
[Configure advanced options](#)

Step 4 - optional
Configure group size and scaling

Step 5 - optional
[Add notifications](#)

Step 6 - optional
[Add tags](#)

Step 7
[Review](#)

Desired capacity type
Choose the unit of measurement for the desired capacity value. vCPUs and Memory(GiB) are only supported for mixed instances groups configured with a set of instance attributes.

Units (number of instances)

Desired capacity
Specify your group size.
2

Scaling Info
You can resize your Auto Scaling group manually or automatically to meet changes in demand.

Scaling limits
Set limits on how much your desired capacity can be increased or decreased.

Min desired capacity	Max desired capacity
2	5

Equal or less than desired capacity Equal or greater than desired capacity

Automatic scaling - optional
Choose whether to use a target tracking policy

No scaling policies Target tracking scaling policy

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Create Auto Scaling group | EC2

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateAutoScalingGroup:

aws Services Search [Alt+S]

Instance scale-in protection

Instance scale-in protection
Enable instance protection from scale in

Step 5: Add notifications

Notifications

No notifications

Step 6: Add tags

Tags (0)

Key	Value	Tag new instances
No tags		

Cancel Previous Create Auto Scaling group

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences CAN - NED Game score ENG IN 11:43 27-08-2024 Prasanthi

4.Successfully created TWO AUTO SCALING GROUPS.

The screenshot shows the AWS Management Console with the URL us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#AutoScalingGroups. The left sidebar is collapsed. The main content area displays the 'Auto Scaling groups' page with two entries:

Name	Launch template/configuration	Instances	Status	Desired capacity	Min
autoscaling-private	template-private Version Default	2	-	2	2
autoscaling-public	template-public Version Default	2	-	2	2

Below the table, a message says "0 Auto Scaling groups selected". The bottom navigation bar includes CloudShell, Feedback, and various system icons.

5. Now go to EC2 dashboard- click on instances.

6. Here we can see the 4 FOUR NEW RUNNING INSTANCES.

7. Give the names to those instances as – public-1, public-2, private-1&private-2.

The screenshot shows the AWS Management Console with the URL [us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instancesv3:\\$case=true%5C.client=false:\\$regex=tags:false%5C.client=false](https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instancesv3:$case=true%5C.client=false:$regex=tags:false%5C.client=false). The left sidebar is collapsed. The main content area displays the 'Instances' page with four entries:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
private-2	i-07d2667fbf51ef36c	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1b
public-2	i-027cd020d3204f3e0	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1b
private-1	i-042c5c43daf391830	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a
public-1	i-05b52b4ff99bab4f2	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a

Below the table, a message says "Select an instance". The bottom navigation bar includes CloudShell, Feedback, and various system icons.

8. Click on public -1 instance – click on connect- connect to the EC2 server.

9. After connecting to the UBUNTU, give the following commands:

- sudo -I -- to become a root user
 - apt update -y – to update packages
 - apt install apache2 – to install apache2
 - cd /var/www/html – path
 - ls – list
 - rm index.html – to remove index.html
 - vi index.html – enter – press I – insert date --:x (to save) – enter
 - systemctl status apache2 – to check the server status
 - Ping google.com – to check whether the server is ping or not.

10. snapshots attached below.

```
ubuntu@ip-10-0-3-201:~  
root@ip-10-0-3-201:~# vi durga prasanthi 1.pem  
1 file to edit  
root@ip-10-0-3-201:~# chmod 400 durga prasanthi 1.pem  
chmod: cannot access 'prasanthi': No such file or directory  
root@ip-10-0-3-201:~# chmod 400 "durga prasanthi 1.pem"  
chmod: cannot access 'durga prasanthi 1.pem': No such file or directory  
root@ip-10-0-3-201:~# chmod 400 "durga prasanthi 1.pem"  
chmod: cannot access 'durga prasanthi 1.pem': No such file or directory  
root@ip-10-0-3-201:~# ssh -o StrictHostKeyChecking=no -o UserKnownHostsFile=/dev/null durga@10.0.3.201  
The authenticity of host '10.0.3.201 (10.0.3.201)' can't be established.  
ED25519 key fingerprint is SHA256:psYg0wt3TxelwFMHaoQoD0MxqI0B0vPwX0Hsu25rk.  
Are you sure you want to continue connecting (yes/no)? [fingerprint]? yes  
Warning: Permanently added '10.0.3.201' (ED25519) to the list of known hosts.  
durga@ip-10-0-3-201:~$  
# Documentation: https://help.ubuntu.com  
# Management: https://landscape.canonical.com  
# Support: https://ubuntu.com/pro  
  
System information of luru Aug 27 09:35:55 UTC 2024  
[luru:~]# load average: 0.0  
Processes: 104  
CPU usage: 2.3% of 0.71GHz  
Users logged in: 0  
Memory usage: 23%

Swap usage: 0%

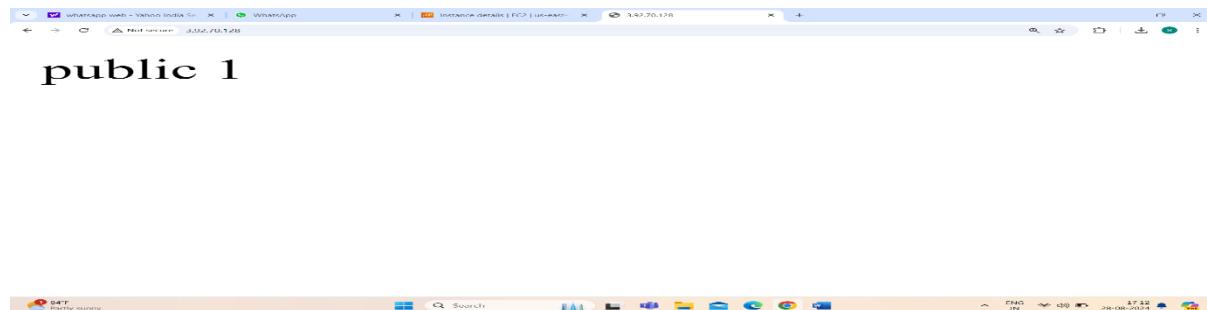


Expanded Security Maintenance for Applications is not enabled.  
0 updates can be applied immediately.  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
  
The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/<copyright>.br/>  
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
ubuntu@ip-10-0-3-201:~$


```

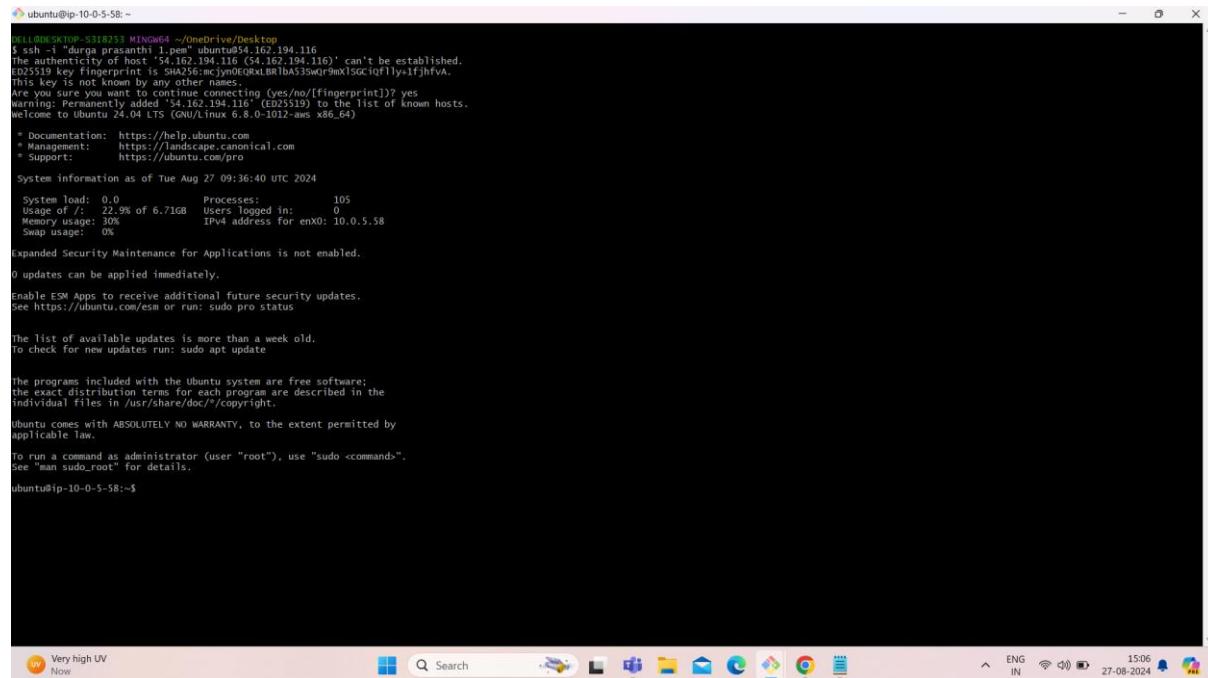
11. Copy the PUBLIC IP address & paste it in google chrome.

12. It will shows the data which we inserted



NOW CONNECT TO THE PRIVATE INSTANCE THROUGH THE PUBLIC INSTANCE:

1.Follow the steps as mentioned in the snapshots.



```
ls index.html index.htm index.hmt
ssh -i "durga_prasanthi_1.pem" ubuntu@54.162.194.116
The authenticity of host '54.162.194.116 (54.162.194.116)' can't be established.
ED25519 key fingerprint is SHA256:mcjyn0EQRxLBRIba53Swr9mXSGCidfly+1fjhfvA.
This key is not known by any other names.
Are you sure you want to continue connecting? (yes/no/[Fingerprint])? yes
warning: Permanently added '54.162.194.116' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Tue Aug 27 09:36:40 UTC 2024

System load: 0.0          Processes:           105
Usage of /: 22.9% of 6.71GB  Users logged in:    0
Memory usage: 30%          IPv4 address for enX0: 10.0.5.58
Swap usage: 0%             Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
see https://ubuntu.com/esm or run: sudo pro status

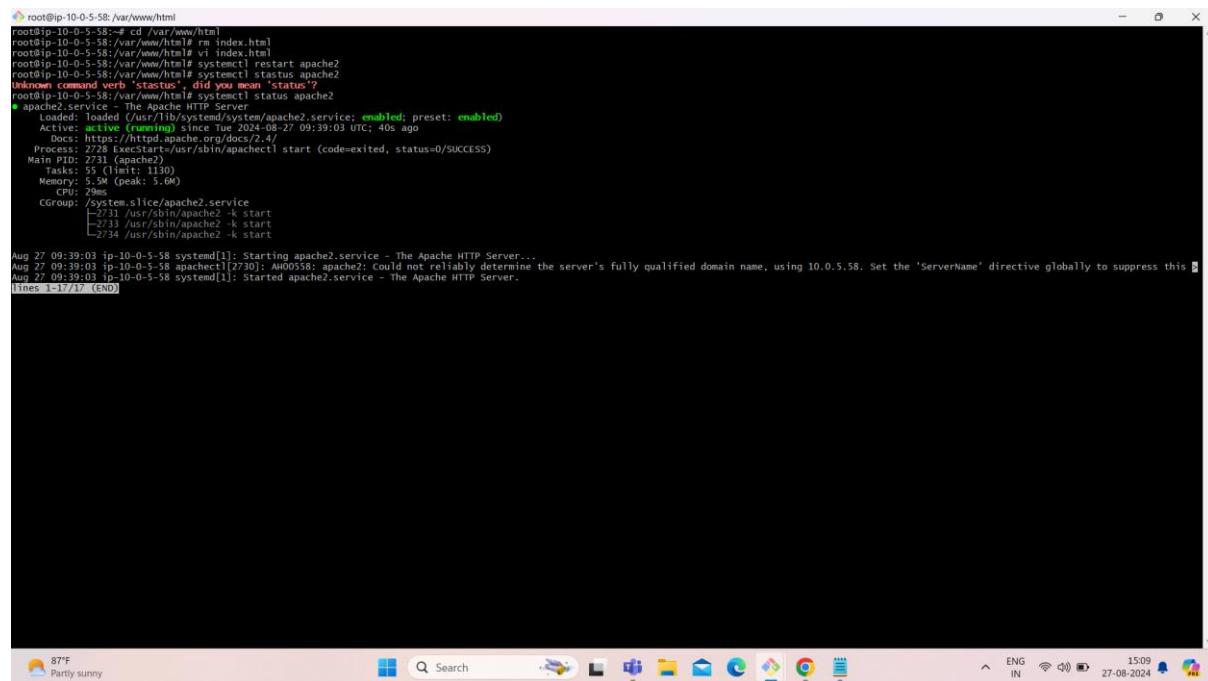
The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-10-0-5-58:~$
```



```
root@ip-10-0-5-58: ~var/www/html
root@ip-10-0-5-58: ~var/www/html# cd /var/www/html
root@ip-10-0-5-58: ~var/www/html# rm index.html
root@ip-10-0-5-58: ~var/www/html# vi index.html
root@ip-10-0-5-58: ~var/www/html# systemctl start apache2
root@ip-10-0-5-58: ~var/www/html# systemctl status apache2
Unknown command verb 'status', did you mean 'status'?
root@ip-10-0-5-58: ~var/www/html# systemctl status apache2
● apache2.service - Apache2
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
     Active: active (running) since Tue 2024-08-27 09:39:03 UTC; 40s ago
       Docs: https://httpd.apache.org/docs/2.4/
   Process: PID: 2731 (apache2)
   Main PID: 2731 (apache2)
      Tasks: 55 (limit: 1130)
     Memory: 5.5M (peak: 5.6M)
        CPU: 29ms
      CGroup: /system.slice/apache2.service
              └─2731 /usr/sbin/apache2 -k start
                  ├─2733 /usr/sbin/apache2 -k start
                  ├─2734 /usr/sbin/apache2 -k start
                  └─2735 /usr/sbin/apache2 -k start

Aug 27 09:39:03 ip-10-0-5-58 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Aug 27 09:39:03 ip-10-0-5-58 apachectl[2730]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 10.0.5.58. Set the 'ServerName' directive globally to suppress this.
Aug 27 09:39:03 ip-10-0-5-58 systemd[1]: Started apache2.service - The Apache HTTP Server.

Lines 1-17/17 (END)
```

```

root@ip-10-0-5-58:~/var/www/html#
Process: 2728 ExecStart=/usr/sbin/apache2 start (code=exited, status=0/SUCCESS)
Main PID: 55 (limit: 1130)
Tasks: 55 (peak: 5.0M)
CPU: 29ms
CGroup: /system.slice/apache2.service
└─2731 /usr/sbin/apache2 -k start
   ├─2733 /usr/sbin/apache2 -k start
   └─2734 /usr/sbin/apache2 -k start

Aug 27 09:39:03 ip-10-0-5-58 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Aug 27 09:39:03 ip-10-0-5-58 apache2[2730]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 10.0.5.58. Set the 'ServerName' directive globally to suppress this
Aug 27 09:39:03 ip-10-0-5-58 systemd[1]: Started apache2.service - The Apache HTTP Server.

root@ip-10-0-5-58:~/var/www/html# ping google.com
PING google.com (142.251.163.102) 56(84) bytes of data.
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=1 ttl=58 time=1.83 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=2 ttl=58 time=1.82 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=3 ttl=58 time=1.83 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=4 ttl=58 time=1.88 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=5 ttl=58 time=1.87 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=6 ttl=58 time=1.85 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=7 ttl=58 time=1.88 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=8 ttl=58 time=1.88 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=9 ttl=58 time=1.89 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=10 ttl=58 time=1.93 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=11 ttl=58 time=1.85 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=12 ttl=58 time=1.86 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=13 ttl=58 time=1.84 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=14 ttl=58 time=1.84 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=15 ttl=58 time=1.93 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=16 ttl=58 time=1.90 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=17 ttl=58 time=1.88 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=18 ttl=58 time=1.88 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=19 ttl=58 time=1.90 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=20 ttl=58 time=1.87 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=21 ttl=58 time=1.87 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=22 ttl=58 time=1.88 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=23 ttl=58 time=1.93 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=24 ttl=58 time=1.90 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=25 ttl=58 time=1.88 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=26 ttl=58 time=1.85 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=27 ttl=58 time=1.84 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=28 ttl=58 time=1.84 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=29 ttl=58 time=1.84 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=30 ttl=58 time=1.83 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=31 ttl=58 time=1.88 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=32 ttl=58 time=1.85 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=33 ttl=58 time=1.86 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=34 ttl=58 time=1.81 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=35 ttl=58 time=1.82 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=36 ttl=58 time=1.94 ms
64 bytes from wv-in-f102.le100.net (142.251.163.102): icmp_seq=37 ttl=58 time=1.93 ms
NC
google.com ping statistics --
37 packets transmitted, 3 received, 0% packet loss, time 36067ms
rtt min/avg/max/mdev = 17.90/1.976/5.940/0.661 ms
root@ip-10-0-5-58:/var/www/html#

```

87°F Partly sunny ENG IN 15:10 27-08-2024

2.Successfully connected to the PRIVATE INSTANCE.

```

ubuntu@ip-10-0-2-91:~
root@ip-10-0-5-58:~/var/www/html# vi durga_prasanthi 1.pem
3 file to edit
root@ip-10-0-5-58:~/var/www/html# chmod 400 "durga_prasanthi 1.pem"
chmod: cannot access 'durga_prasanthi 1.pem': No such file or directory
root@ip-10-0-5-58:~/var/www/html# vi<C
root@ip-10-0-5-58:~/var/www/html# vi "durga_prasanthi 1.pem"
root@ip-10-0-5-58:~/var/www/html# chmod 400 "durga_prasanthi 1.pem"
root@ip-10-0-5-58:~/var/www/html# ssh "durga_prasanthi 1.pem" ubuntu@10.0.2.91
The authenticity of host '10.0.2.91 (10.0.2.91)' can't be established.
ED25519 key fingerprint is SHA256:zIVlpljPMGTO2BZQX42cUpkrNSlcpNm5Xe60Fsc.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
warning: Permanently added "10.0.2.91 (ED25519)" to the list of known hosts.
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Tue Aug 27 09:45:23 UTC 2024

System load: 0.0      Processes:          104
Usage of /: 22.7% of 6.71GB  Users logged in:        0
Memory usage: 20%      IPv4 address for enx0: 10.0.2.91
Swap usage: 0K

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright*.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-10-0-2-91:~|

```

87°F Partly sunny ENG IN 15:15 27-08-2024

Create SUBNET GROUP :

- 1.select create subnet group on rds dashboard.
- 2.give a name to new subnet group-select vpc.
- 3.add availability zones (us-east-1a & us-east-1b) and 6 subnets.

The screenshot shows the 'Create DB subnet group' wizard on the AWS RDS console. In the 'Subnet group details' section, the 'Name' field is set to 'my-p-db-subnet'. The 'Description' field contains 'allow'. Under 'VPC', the dropdown shows 'my project vpc (vpc-065220c0dcf618762)'. Below this, the 'Add subnets' section lists two selected Availability Zones: 'us-east-1a' and 'us-east-1b'. The status bar at the bottom indicates it's 84°F and partly sunny.

The screenshot shows the 'Create DB subnet group' wizard on the AWS RDS console. In the 'Availability Zones' section, 'us-east-1a' and 'us-east-1b' are selected. In the 'Subnets' section, two subnets are selected: 'subnet-0fe1e912a3169d0c9 (10.0.0.0/24)' and 'subnet-04ca3b25d874ad995 (10.0.5.0/24)'. A note at the bottom states: 'For Multi-AZ DB clusters, you must select 3 subnets in 3 different Availability Zones.' The 'Subnets selected (2)' table shows the two chosen subnets. The 'Create' button is visible at the bottom right. The status bar at the bottom indicates it's 84°F and partly sunny.

4.successfully created a db subnet group.

The screenshot shows the AWS RDS Subnet Groups page. At the top, a green banner says "Successfully created my-p-db-subnet. View subnet group". Below it, the "Subnet groups (1)" section displays a table with one row:

Name	Description	Status	VPC
my-p-db-subnet	allow	Complete	vpc-065220c0dcf618762

The left sidebar includes links for Dashboard, Databases, Query Editor, Performance insights, Snapshots, Exports in Amazon S3, Automated backups, Reserved instances, Proxies, Subnet groups (selected), Parameter groups, Option groups, Custom engine versions, Zero-ETL integrations, Events, and Event subscriptions. The bottom of the screen shows a Windows taskbar with various icons and system status information.

Create DATABASE:

- 1.select database on rds dashboard and click create database .
- 2.choose STANDARD in creation method and MYSQL in engine methods.
- 3.select FREE TIER in template .
4. choose SELF MANAGED in settings and give PASSWORD.
- 5.Go to connectivity and choose CONNECT TO EC2 INSTANCE and select public instance
- 6.we don't have to give vpc and db subnet group it will take by default.
- 7.choose existing security groups and select both public (public-sg) and private (private-sg) security groups.

Create database

Choose a database creation method [Info](#)

- Standard create You set all of the configuration options, including ones for availability, security, backups, and maintenance.
- Easy create Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Engine options

Engine type [Info](#)

- Aurora (MySQL Compatible) 
- Aurora (PostgreSQL Compatible) 
- MySQL 
- MariaDB 

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL Community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

Engine Version MySQL 8.0.35

Enable RDS Extended Support [Info](#) Amazon RDS Extended Support is a paid offering. By selecting this option, you consent to being charged for this offering if you are running your database major version past the RDS end of standard support date for that version. Check the end of standard support date for your major version in the RDS for MySQL documentation.

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](#)

Availability and durability

Deployment options [Info](#) The deployment options below are limited to those supported by the engine you selected above.

- Multi-AZ DB Cluster Creates a DB cluster with a primary DB instance and two readable standby DB instances, with each DB instance in a different Availability Zone (AZ). Provides high availability, data redundancy and increases capacity to serve read workloads.

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL Community edition with the flexibility to easily scale compute resources or storage capacity for your database.

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- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

Settings

DB instance identifier [Info](#) Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

Credentials Setting

Master username [Info](#) Type a login ID for the master user of your DB instance.

1 to 16 alphanumeric characters. The first character must be a letter.

Credentials management You can use AWS Secrets Manager or manage your master user credentials.

- Managed in AWS Secrets Manager - most secure RDS generates a password for you and manages it throughout its lifecycle using AWS Secrets Manager.
- Self managed Create your own password or have RDS create a password that you manage.

Auto generate password Amazon RDS can generate a password for you, or you can specify your own password.

Master password [Info](#) Password strength: **Weak** Minimum constraints: At least 8 printable ASCII characters. Can't contain any of the following symbols: / \ ^ @.

Confirm master password [Info](#)

Instance configuration

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL Community edition with the flexibility to easily scale compute resources or storage capacity for your database.

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- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

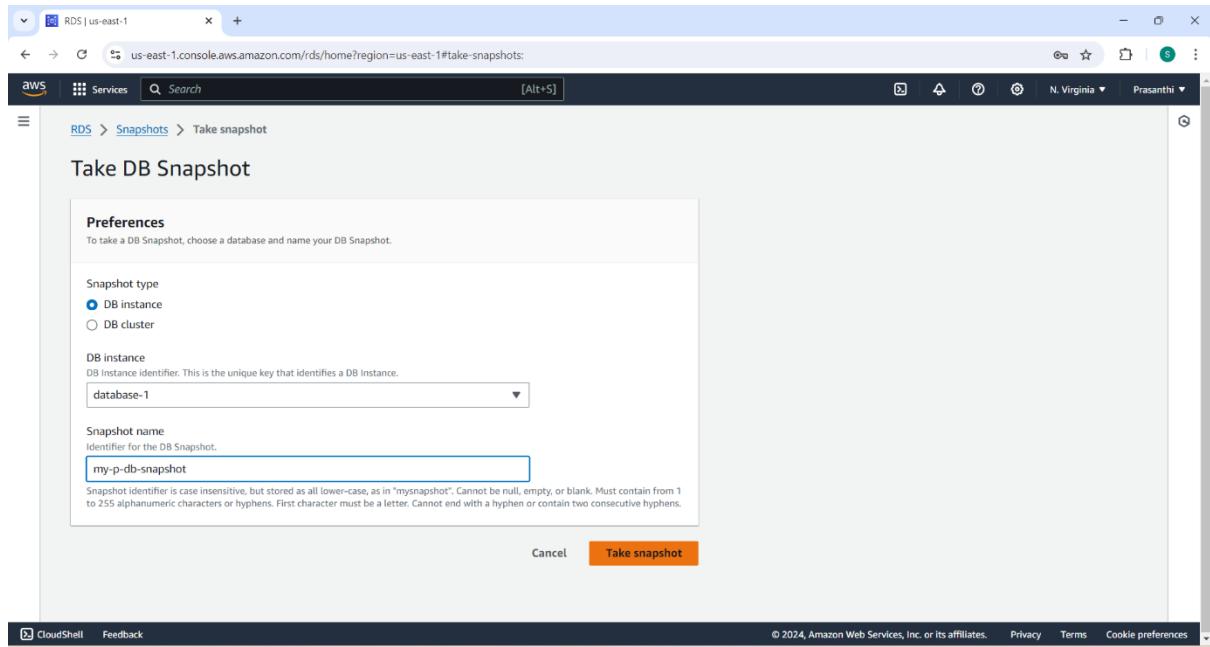
The screenshot shows the AWS RDS MySQL setup wizard. The first step, 'Compute resource', is completed with the message: 'After a database is created, you can't change its compute resource.' The second step, 'EC2 instance', is in progress, showing the EC2 instance 'i-05b52b4ff99bab4f2' selected. A note states: 'Some VPC settings can't be changed when a compute resource is added'. The third step, 'Virtual private cloud (VPC)', is in progress, showing the VPC 'my-project-vpc' selected. A note states: 'After a database is created, you can't change its VPC.'. The fourth step, 'DB subnet group', is in progress, showing 'Choose existing' selected. A note states: 'DB subnet group - info'. The fifth step, 'Public access', is in progress, showing 'Yes' selected. A note states: 'Public access - info'. The sixth step, 'VPC security group (firewall)', is in progress, showing 'Choose existing' selected. A note states: 'VPC security group (firewall) - info'. The seventh step, 'Additional VPC security group', is in progress, showing 'my-p-sg 1' and 'my-p-sg 2' selected. A note states: 'Amazon RDS will add a new VPC security group rds-ec2-1 to allow connectivity with your compute resource.' The right panel displays the MySQL service details.

8.successfully database is created.

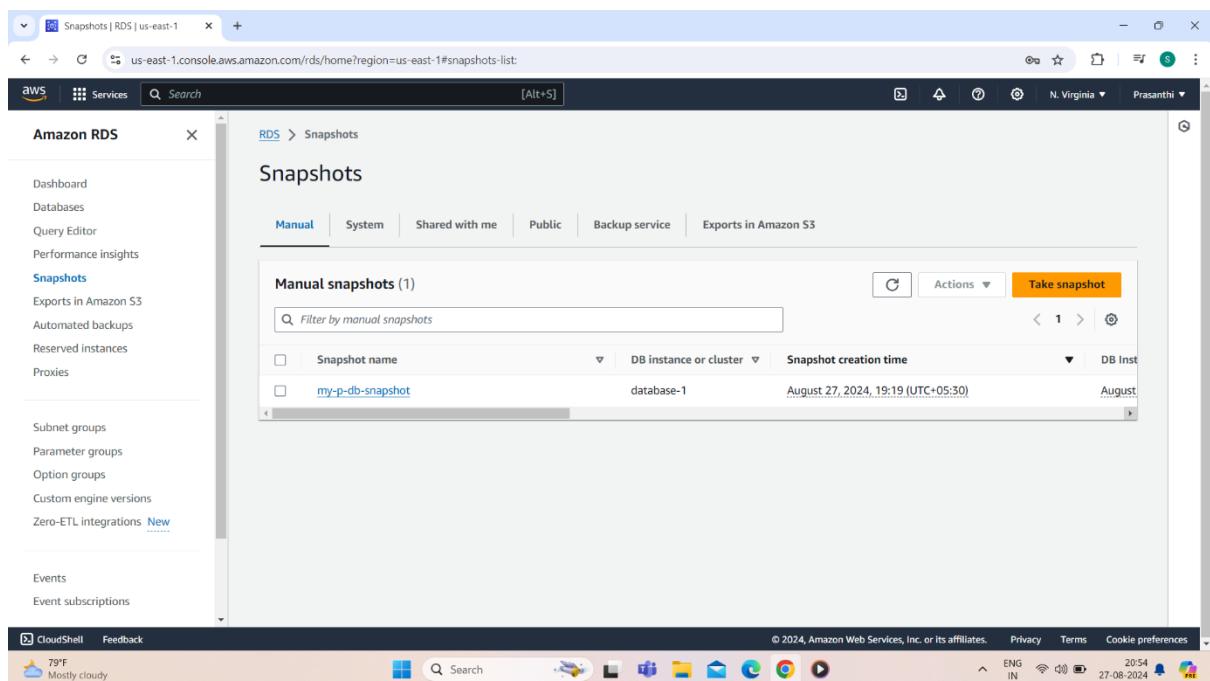
The screenshot shows the AWS RDS Databases page. A green notification bar at the top reads: 'Successfully set up a connection between database-1 and EC2 instance i-05b52b4ff99bab4f2'. The main table lists one database named 'database-1' with the status 'Available'. The table includes columns for DB identifier, Status, Role, Engine, Region &..., Size, and Recommendations. The left sidebar shows navigation links for Dashboard, Databases, Query Editor, Performance insights, Snapshots, Exports in Amazon S3, Automated backups, Reserved instances, Proxies, Subnet groups, Parameter groups, Option groups, Custom engine versions, Zero-ETL integrations, Events, and Event subscriptions. The bottom right corner shows the AWS CloudShell and feedback status.

Take DB SNAPSHOT :

- 1.Go to rds dashboard - select snapshot –click on take snapshot.
- 2.select db instance and give a new name to snapshot.
- 3.click on take snapshot.



- 4.successfully snapshot is created.



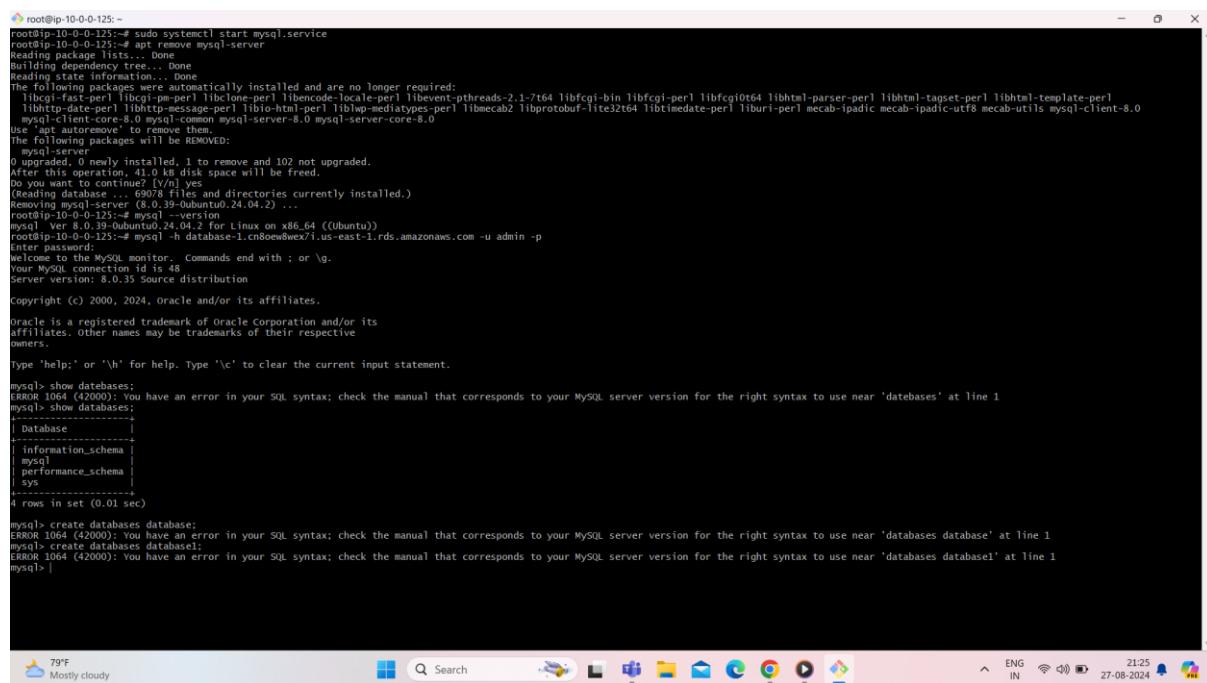
MYSQL installation :

1.Go to public instance web and give the following commands

- Sudo apt update -y
- Sudo apt install mysql –sever -y
- mysql -h database-1.cn8oew8wex7i.us-east-1.rds.amazonaws.com -u admin -p

(database-1.cn8oew8wex7i.us-east-1.rds.amazonaws.com – end point of database)

2.once you complete giving the commands it displays as following in below snapshots



The screenshot shows a terminal window with the following content:

```
root@ip-10-0-0-125:~# sudo systemctl start mysql.service
root@ip-10-0-0-125:~# apt update mysql-server
Reading package lists... done
Building dependency tree... done
Reading state information... done
The following packages were automatically installed and are no longer required:
  libfcgi-perl libclone-perl libencode-locale-perl libevent-threadsafe-2.1-7t64 libfcgi-bin libfcgi-perl libfcgi0t64 libhtml-parser-perl libhtml-tagset-perl libhtml-template-perl
  libhttp-date-perl libhttp-message-perl libio-html-perl libwp-mediatypes-perl libmecab2 libprotobuf-lite32t64 libtimedate-perl liburi-perl mecab-ipadic mecab-ipadic-utf8 mecab-utils mysql-client-8.0
Use 'apt autoremove' to remove them.
The following packages will be REMOVED:
  mysql-server
0 upgraded, 0 newly installed, 1 to remove and 102 not upgraded.
After this operation, 41.18 kB disk space will be freed.
Do you want to continue? [Y/n] n
(Reading database ... 69078 files and directories currently installed.)
Removing mysql-server (8.0.39-Ubuntu0.24.04.2) ...
root@ip-10-0-0-125:~# mysql --version
mysql 8.0.39-0ubuntu0.24.04.2 for Linux on x86_64 ((Ubuntu))
root@ip-10-0-0-125:~# mysql -h database-1.cn8oew8wex7i.us-east-1.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 48
Server version: 8.0.35 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> show databases;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'databases' at line 1
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
1 rows in set (0.01 sec)

mysql> create database database;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'databases database' at line 1
mysql> create databases database;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'databases database' at line 1
mysql>
```

THE END