

## Lesson 03 Demo 05

### Setting Up a Web Server on an EC2 Instance

**Objective:** To set up a web server on an EC2 instance, making it accessible via its public IPv4 address

**Tools required:** AWS Management Console

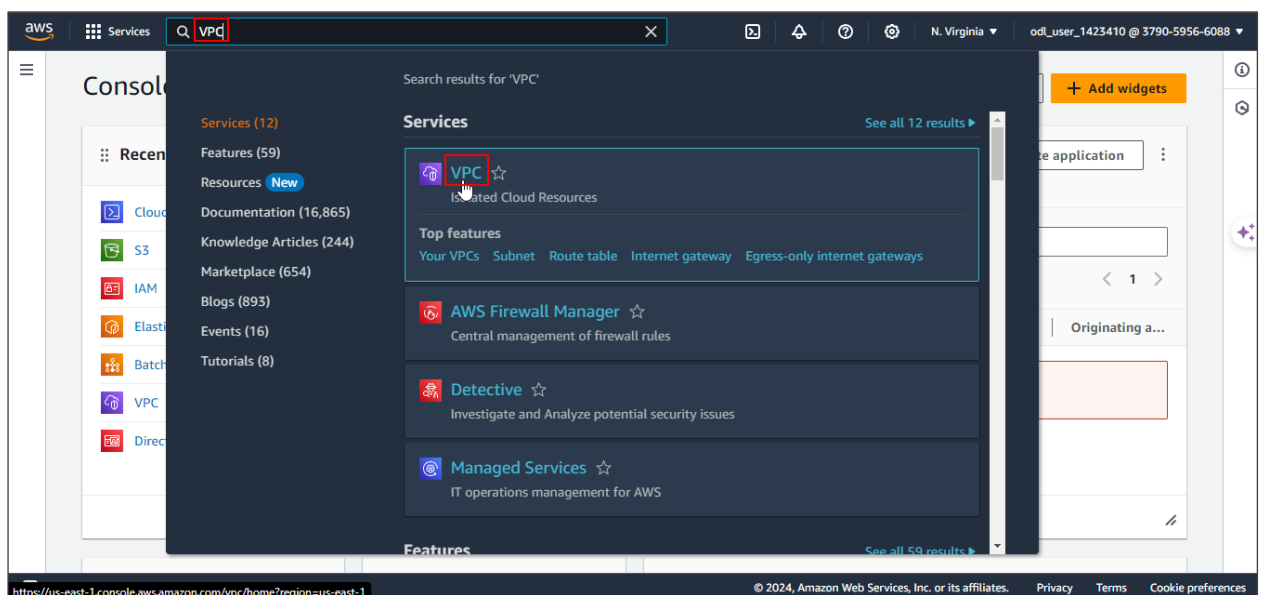
**Prerequisites:** NA

Steps to be followed:

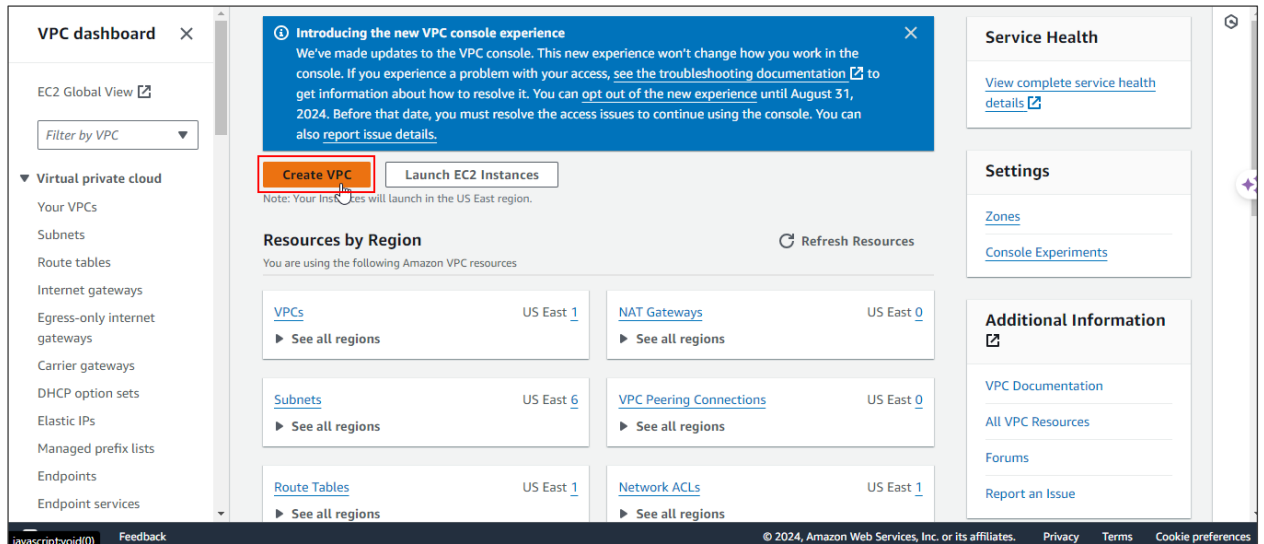
1. Create a VPC, a subnet, and an internet gateway
2. Create route tables
3. Create an EC2 web server instance

#### Step 1: Create a VPC, a subnet, and an internet gateway

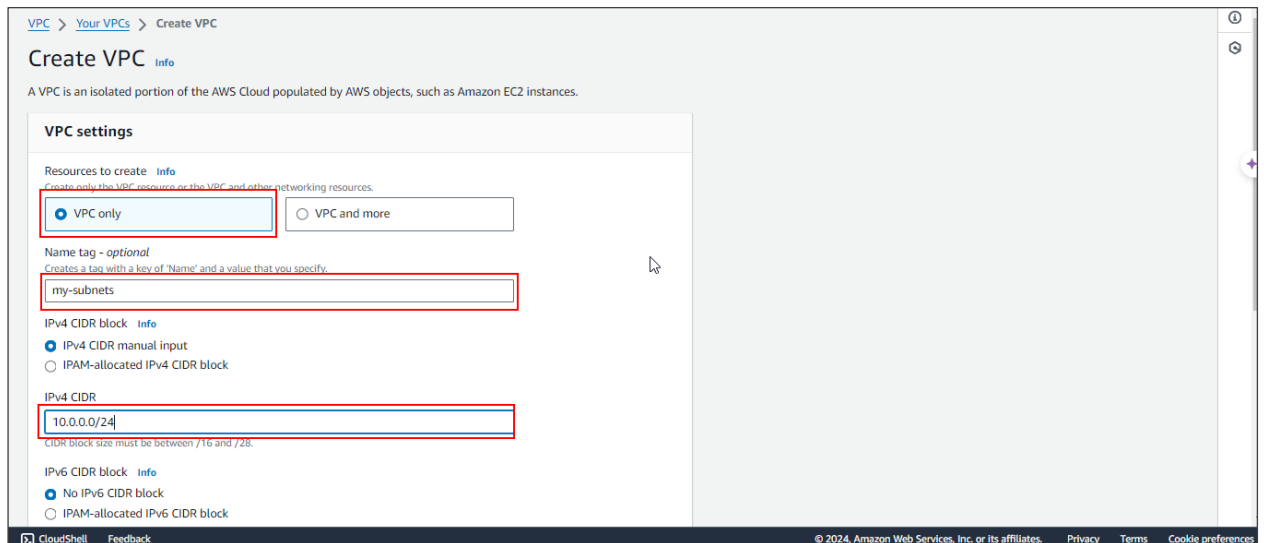
1.1 Navigate to the AWS console home dashboard, search for, and click on **VPC**



## 1.2 In the VPC dashboard, click on **Create VPC**



## 1.3 Select the **VPC only** option, add a name tag as **my-subnets**, and set the IPv4 CIDR to **10.0.0.0/24**



## 1.4 Click on **Create VPC**

10.0.0.0/24  
CIDR block size must be between /16 and /28.

**IPv6 CIDR block** [Info](#)

- ☒ No IPv6 CIDR block
- ☐ IPAM-allocated IPv6 CIDR block
- ☐ Amazon-provided IPv6 CIDR block
- ☐ IPv6 CIDR owned by me

**Tenancy** [Info](#)

Default

**Tags**  
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: Name Value - optional: my-subnets

[Add tag](#) [Remove tag](#)

You can add 49 more tags

[Cancel](#) [Create VPC](#)

**VPC dashboard** [EC2 Global View](#)

Filter by VPC

**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

**You successfully created vpc-03a58c8561bb7e269 / my-subnets**

[VPC](#) > [Your VPCs](#) > vpc-03a58c8561bb7e269

**vpc-03a58c8561bb7e269 / my-subnets** [Actions](#)

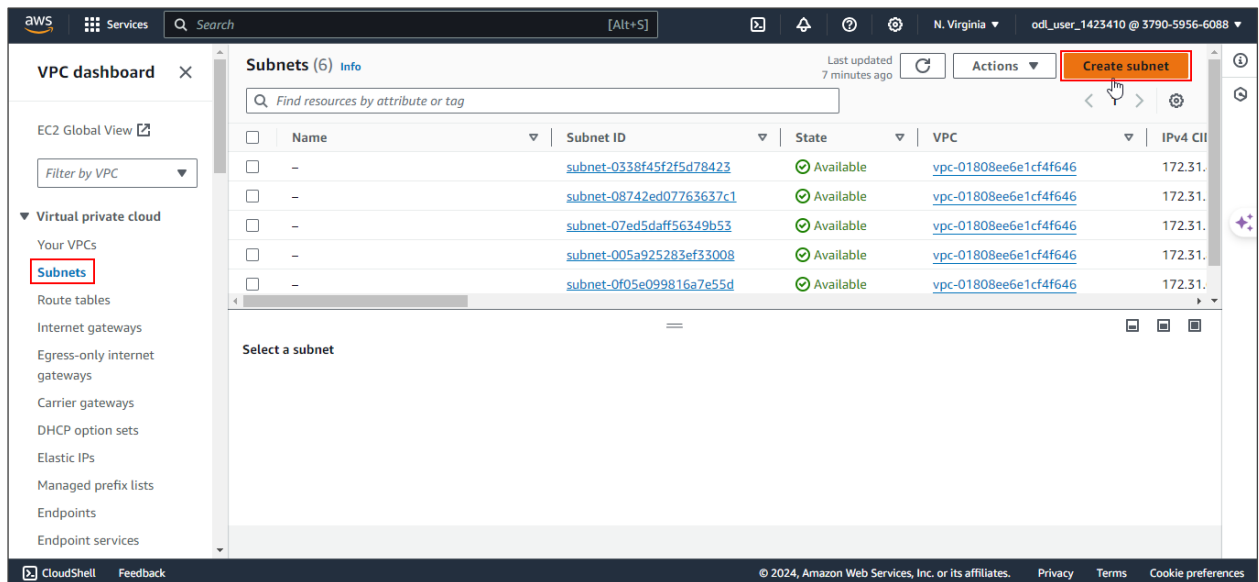
**Details** [Info](#)

VPC ID vpc-03a58c8561bb7e269	State Available	DNS hostnames Disabled	DNS resolution Enabled
Tenancy Default	DHCP option set dopt-05e3125fb0b0978dc	Main route table rtb-01645496271bbc000	Main network ACL acl-05b82665698dc7101
Default VPC No	IPv4 CIDR 10.0.0.0/24	IPv6 pool -	IPv6 CIDR (Network border group) -
Network Address Usage metrics Disabled	Route 53 Resolver DNS Firewall rule groups Failed to load rule groups	Owner ID 379059566088	

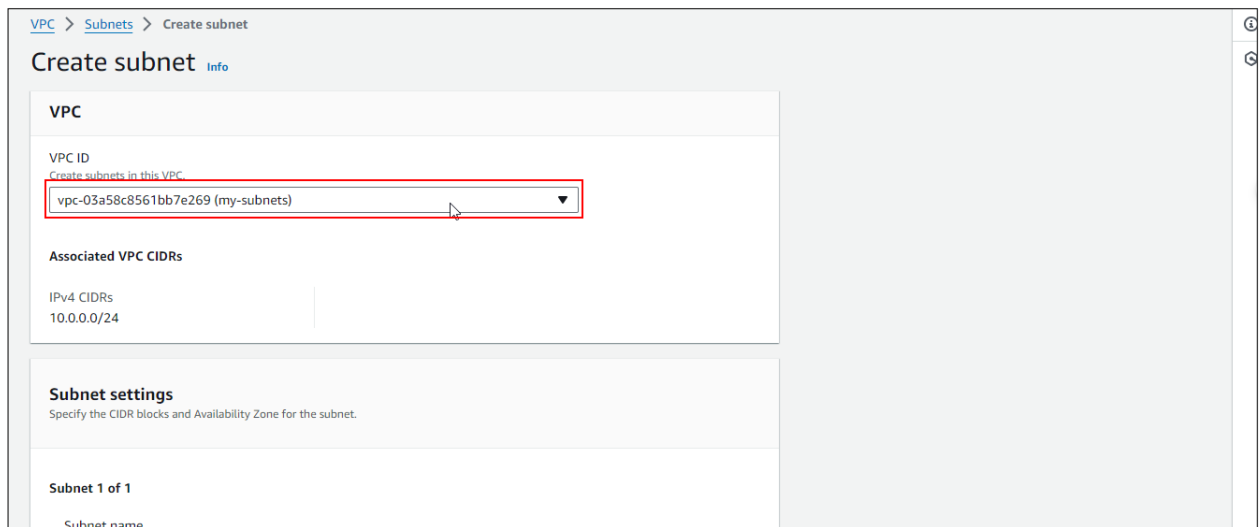
[Resource map](#) [CIDRs](#) [Flow logs](#) [Tags](#) [Integrations](#)

**Resource map** [Info](#)

1.5 Navigate to **Subnets** and click **Create subnet** as shown:



1.6 Select the previously created **VPC**, name the subnet as **my-subnets**, add an **IPv4 subnet CIDR block** for the subnet, such as **10.0.0.0/24**, and click on **Create subnet**



**Subnet name**  
Create a tag with a key of 'Name' and a value that you specify.  
  
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.

**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.

**IPv4 subnet CIDR block**  
 256 IPs

► **Tags - optional**

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1.7 Navigate to the **Internet gateways**, and click on **Create internet gateway**

**VPC dashboard** ×

EC2 Global View [↗](#)

Filter by VPC

▼ **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

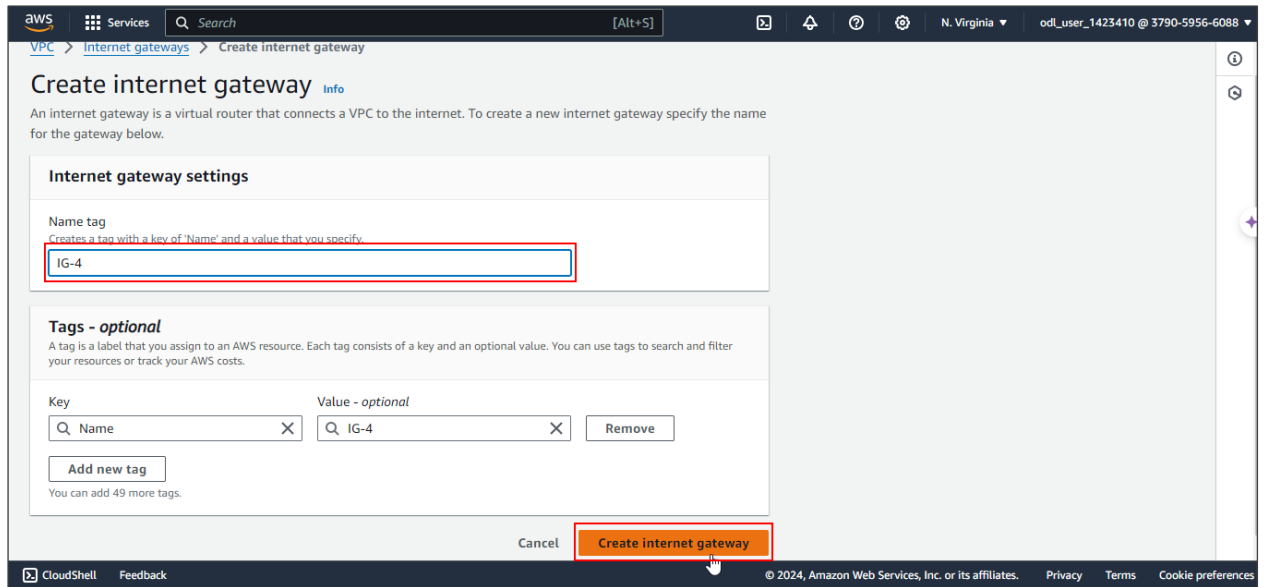
**Internet gateways (1)** [Info](#)

<input type="checkbox"/>	Name	Internet gateway ID	State	VPC ID
<input type="checkbox"/>	-	igw-06d6fc7b305d83707	Attached	vpc-01808ee6e1cf4f646

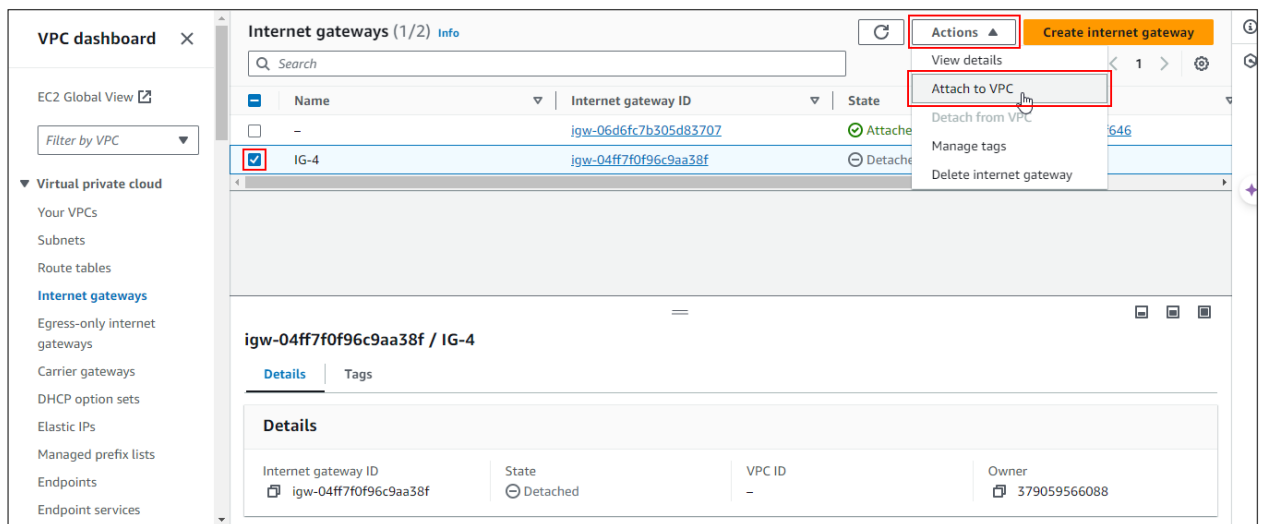
Select an internet gateway above

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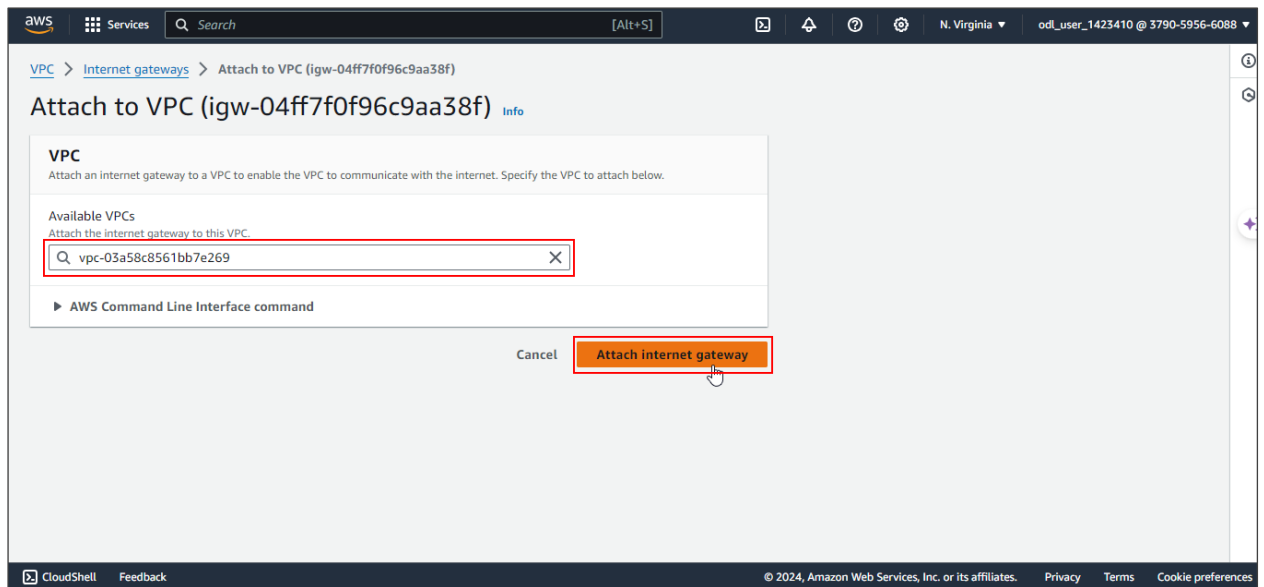
## 1.8 Add a name as IG-4, and click on **Create internet gateway**



## 1.9 Select the created internet gateway, click on **Actions**, and select the **Attach to VPC** option

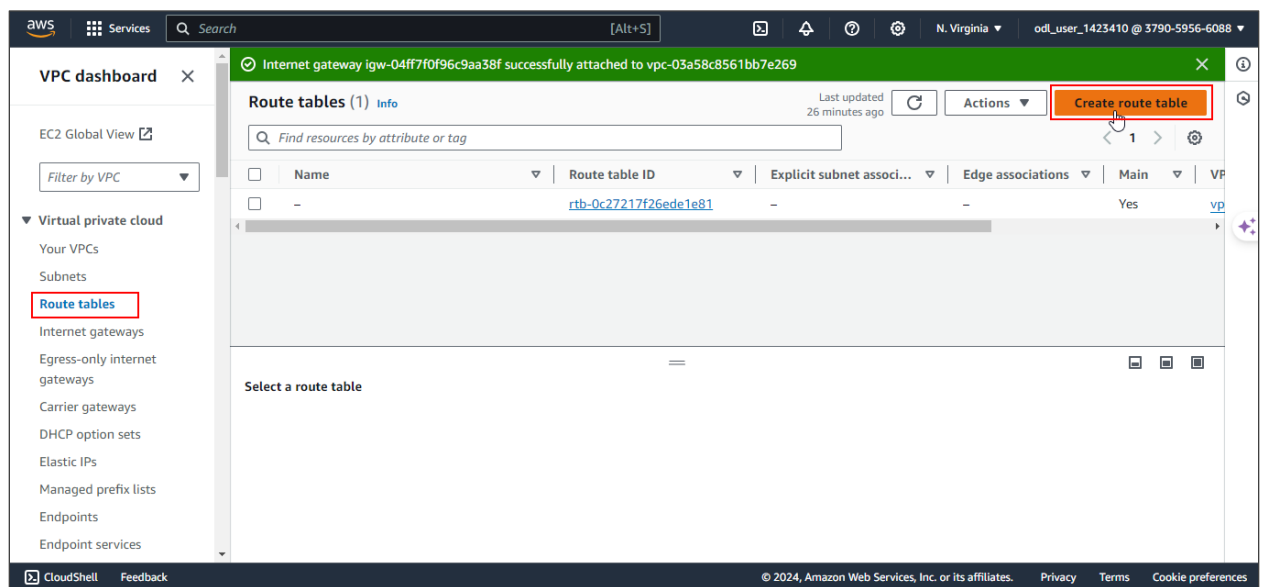


## 1.10 Select the **Available VPCs**, and click on **Attach internet gateway**



## Step 2: Create route tables

### 2.1 Navigate to **Route tables**, and click on **Create route table**



## 2.2 Name the route table as **route04**, select the VPC, and click on **Create route table**

connection.

### Route table settings

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

route04

VPC  
The VPC to use for this route table.

vpc-03a58c8561bb7e269 (my-subnets)

### Tags

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

Name route04 Remove

Add new tag

You can add 49 more tags.

Cancel Create route table

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## 2.3 Click on **Edit routes**

VPC dashboard

EC2 Global View

Filter by VPC

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

Route table - rtb-014e74cba71dc70d9 / route04 was created successfully.

### rtb-014e74cba71dc70d9 / route04

Actions

#### Details Info

Route table ID rtb-014e74cba71dc70d9	Main No	Explicit subnet associations -	Edge associations -
VPC vpc-03a58c8561bb7e269   my-subnets	Owner ID 379059566088		

Routes Subnet associations Edge associations Route propagation Tags

#### Routes (1)

Filter routes

Both Edit routes

Destination	Target	Status	Propagated
10.0.0.0/24	local	Active	No

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## 2.4 Click on **Add route**

VPC > Route tables > rtb-014e74cba71dc70d9 > Edit routes

### Edit routes

Destination	Target	Status	Propagated
10.0.0.0/24	local	Active	No

**Add route**

Cancel Preview **Save changes**

## 2.5 Add the destination value as **0.0.0.0/0**, set the target as **Internet Gateway**, select the previously created internet gateway, and click on **Save changes**

VPC > Route tables > rtb-014e74cba71dc70d9 > Edit routes

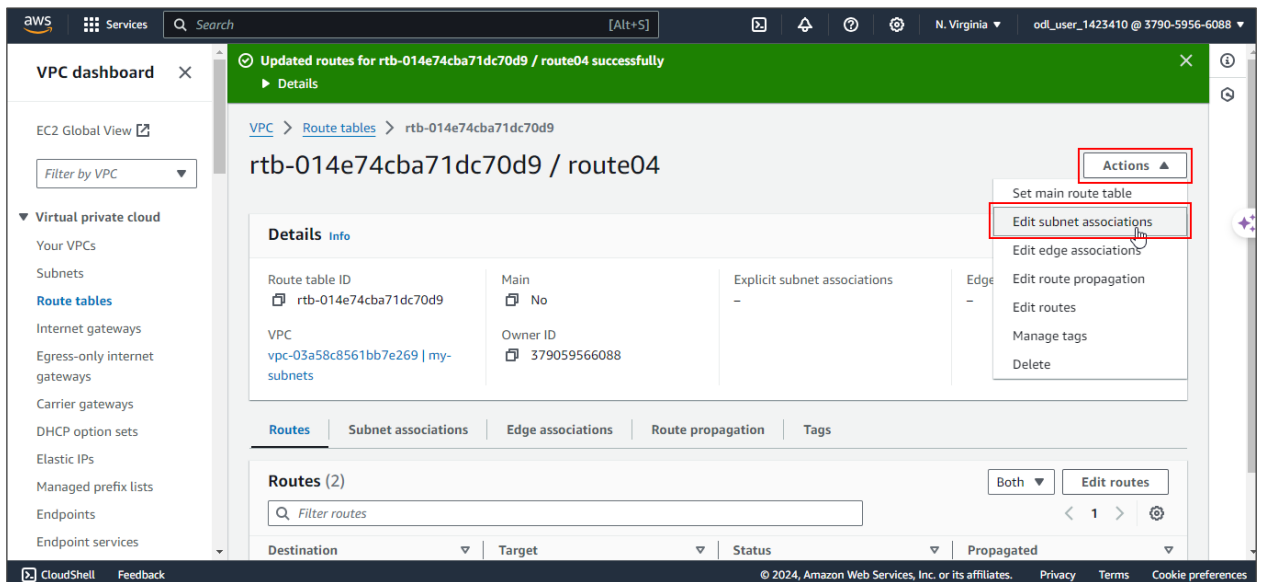
### Edit routes

Destination	Target	Status	Propagated
10.0.0.0/24	local	Active	No
0.0.0.0/0	Internet Gateway	-	No

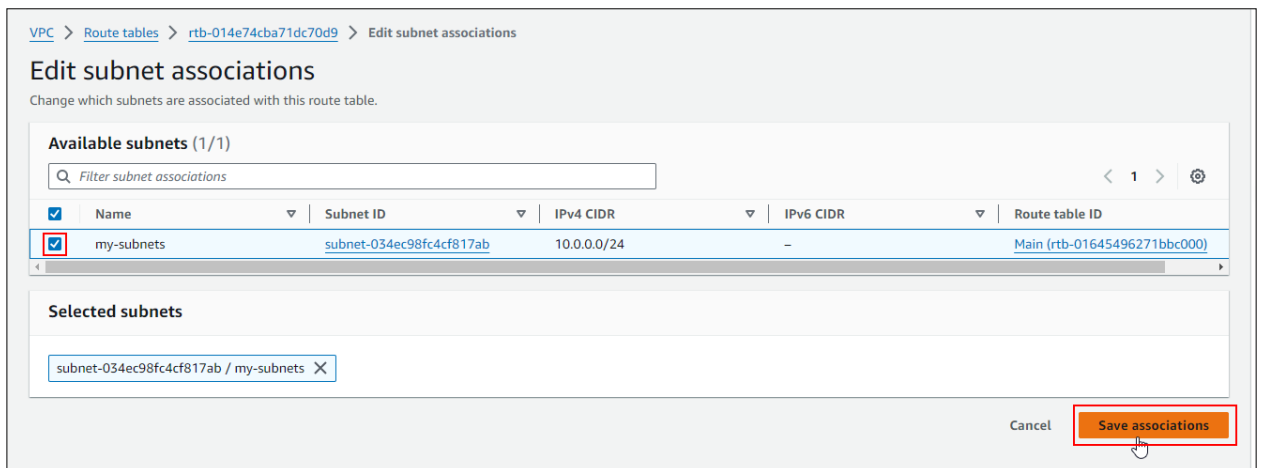
**Add route**

Cancel Preview **Save changes**

## 2.6 Click on **Actions** and select **Edit subnet associations**

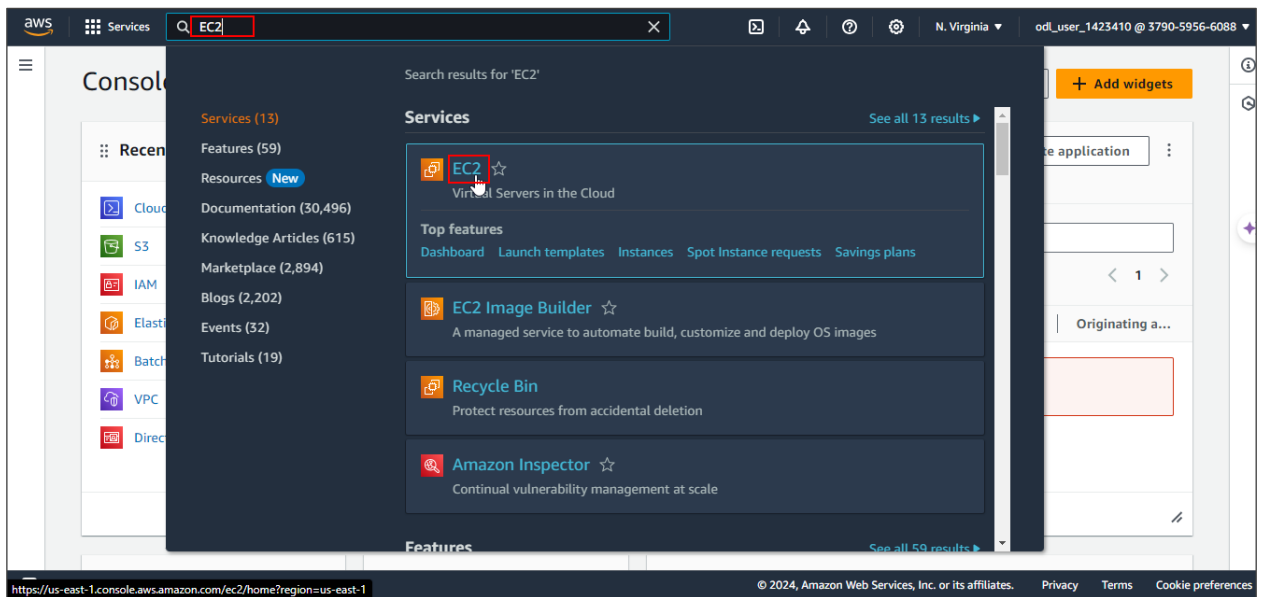


## 2.7 Select the subnet and click on **Save associations**

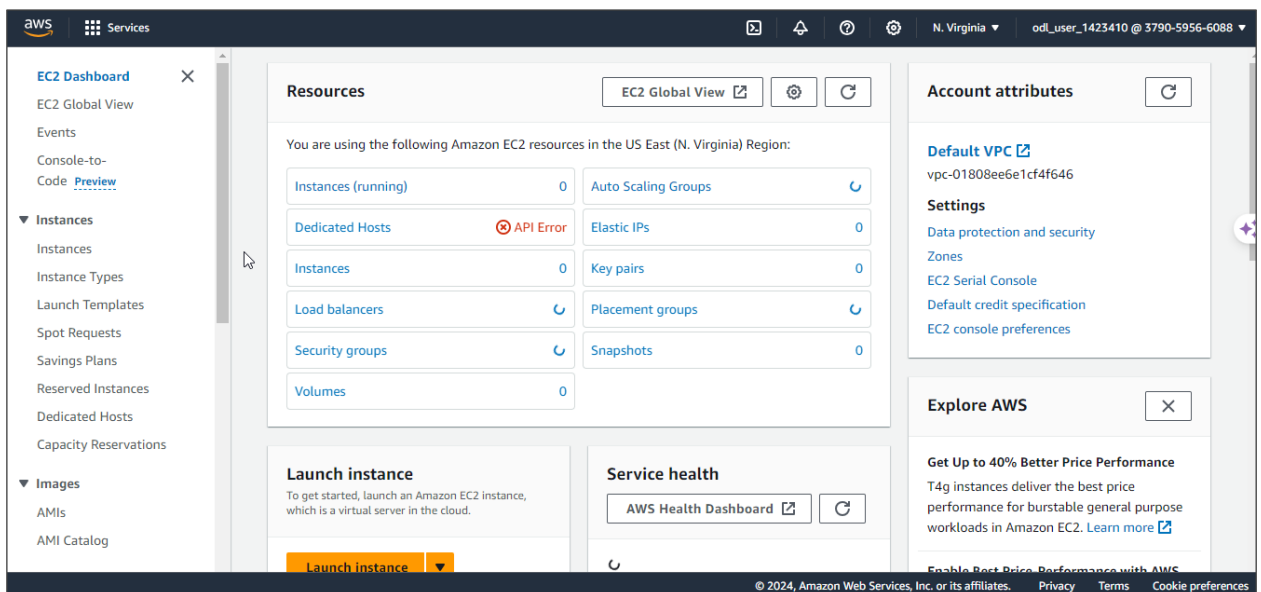


## Step 3: Create an EC2 web server instance

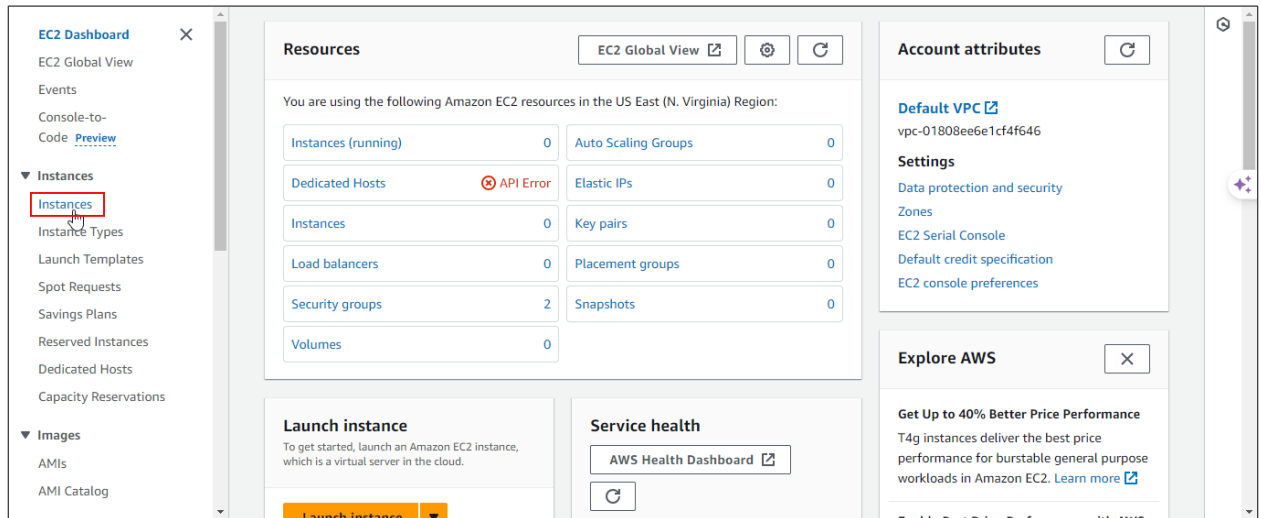
3.1 Navigate to the AWS console home dashboard, search for and click on **EC2** as shown:



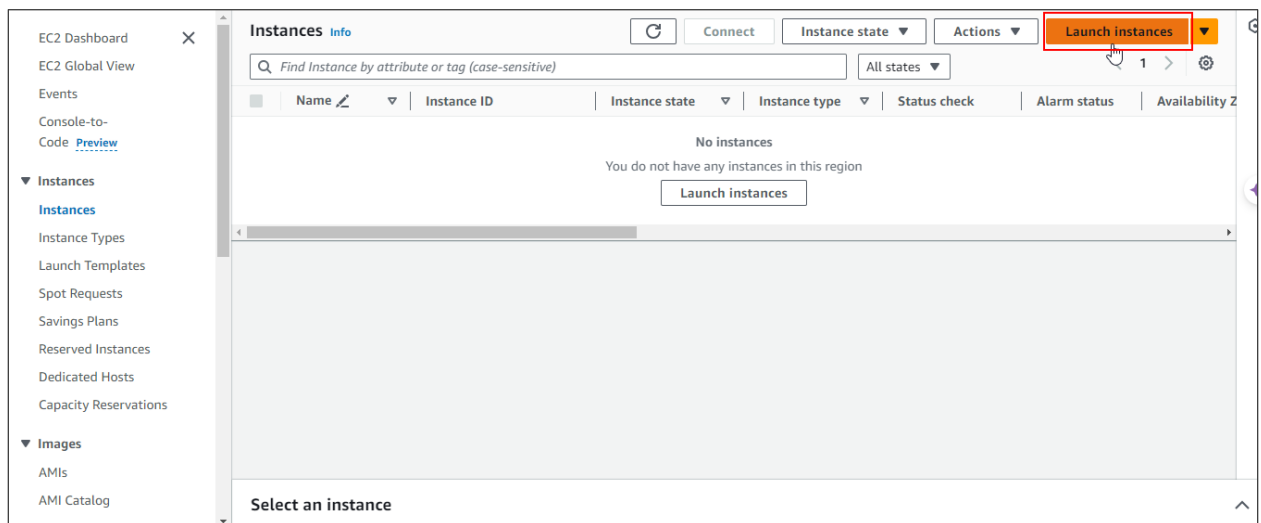
You will see the following interface:



### 3.2 Click on **Instances** on the left pane



### 3.3 Click on **Launch instances** as shown:



### 3.4 Provide the instance name, such as **my web instances**

### 3.5 Select **Amazon Linux** as the OS image

### 3.6 Choose **t2.micro** as the instance type

**▼ Instance type** [Info](#) | [Get advice](#)

Instance type

**t2.micro** Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true

On-Demand Windows base pricing: 0.0162 USD per Hour

On-Demand SUSE base pricing: 0.0116 USD per Hour

On-Demand RHEL base pricing: 0.026 USD per Hour

On-Demand Linux base pricing: 0.0116 USD per Hour

Additional costs apply for AMIs with pre-installed software

☐ All generations [Compare instance types](#)

**▼ Key pair (login)** [Info](#)

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 - required

Select [Create new key pair](#)

**▼ Summary**

Number of instances [Info](#)

1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.5.2...[read more](#)

ami-0ae8f15ae66fe8cda

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Cancel [Launch instance](#) [Review commands](#)

### 3.7 Click on **Create new key pair**, add **my web instances** as key pair name, select the required private key file format, and click on **Create key pair**

Additional costs apply for AMIs with pre-installed software

**▼ Key pair (login)** [Info](#)

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 - required

Select [Create new key pair](#)

**▼ Network settings** [Info](#) [Edit](#)

Network [Info](#)

vpc-01808ee6e1cf4f646

Subnet [Info](#)

No preference (Default subnet in any availability zone)

Auto-assign public IP [Info](#)

Enable

**▼ Summary**

Number of instances [Info](#)

1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.5.2...[read more](#)

ami-0ae8f15ae66fe8cda

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Cancel [Launch instance](#) [Review commands](#)

3.8 Click on the **Allow HTTP traffic from the internet** checkbox as shown:

### 3.9 Click on Edit

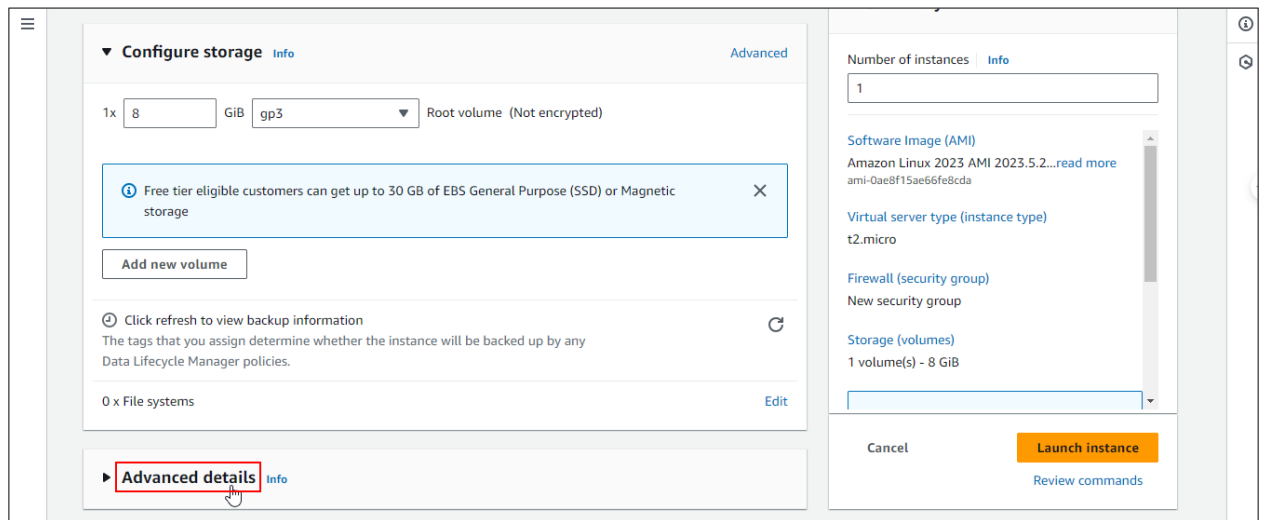
The screenshot shows the AWS console interface for launching an instance. The 'Network settings' section is expanded, and the 'Edit' button is highlighted with a red box. The 'Summary' section on the right shows the instance configuration, including the number of instances (1), software image (Amazon Linux 2023.5.2), virtual server type (t2.micro), firewall (security group), and storage (volumes).

### 3.10 Select the previously created VPC and subnet, and enable Auto-assign Public IP

The screenshot shows the AWS console interface for launching an instance. The 'Network settings' section is expanded, and the 'VPC' and 'Subnet' dropdowns are highlighted with red boxes. The 'Auto-assign public IP' dropdown is also highlighted with a red box and set to 'Enable'. The 'Summary' section on the right shows the instance configuration, including the number of instances (1), software image (Amazon Linux 2023.5.2), virtual server type (t2.micro), firewall (security group), and storage (volumes).

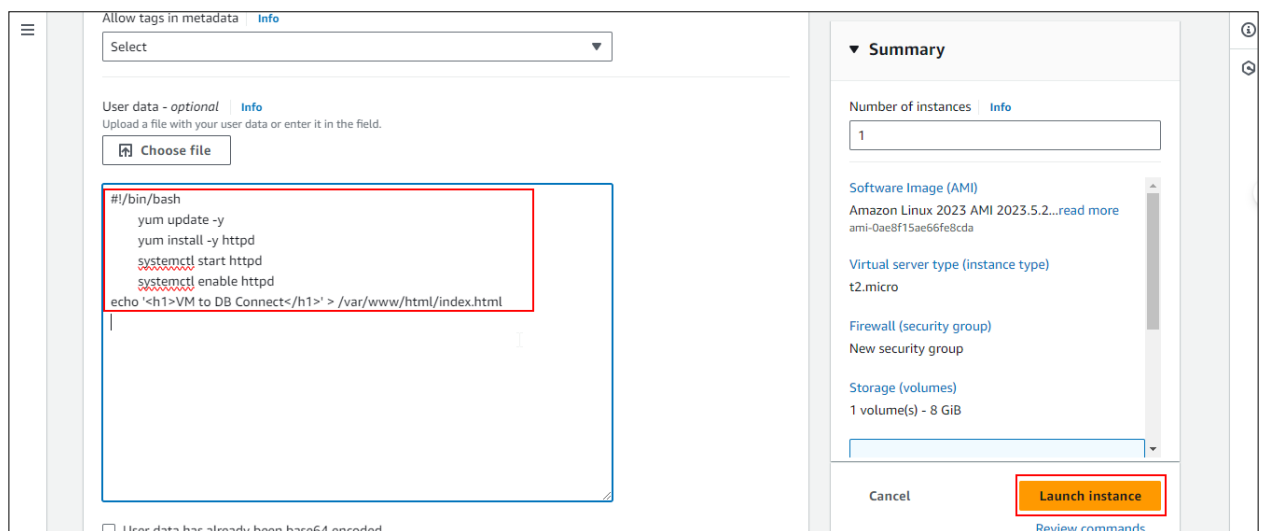


### 3.11 Click on **Advanced details**

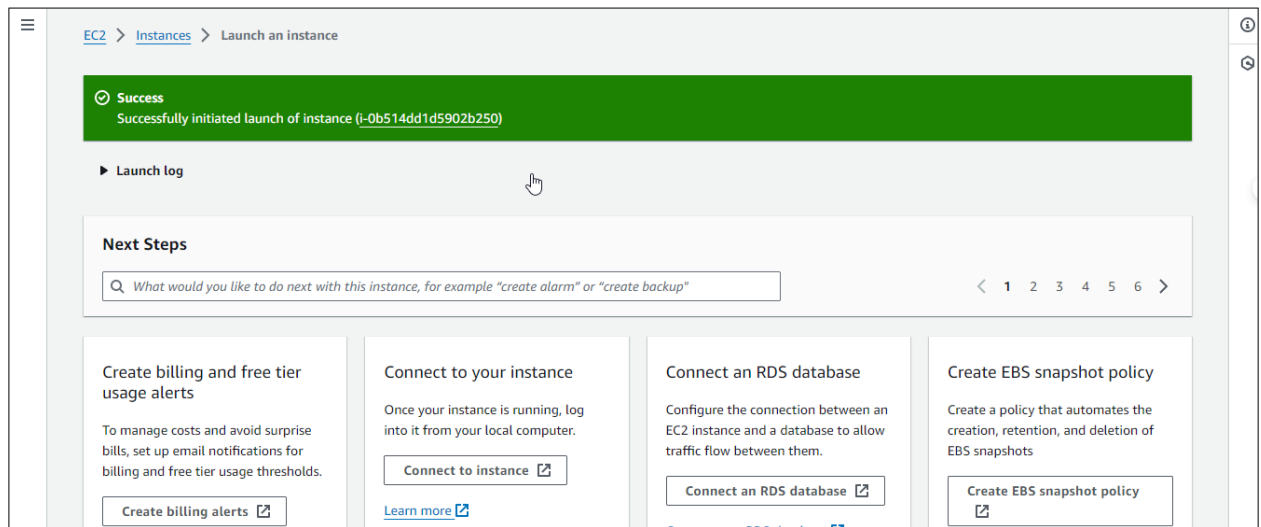


### 3.12 Add the following code in **User data**, and click on **Launch instance**:

```
#!/bin/bash
yum update -y
yum install -y httpd
systemctl start httpd
systemctl enable httpd
echo '<h1>VM to DB Connect</h1>' > /var/www/html/index.html
```

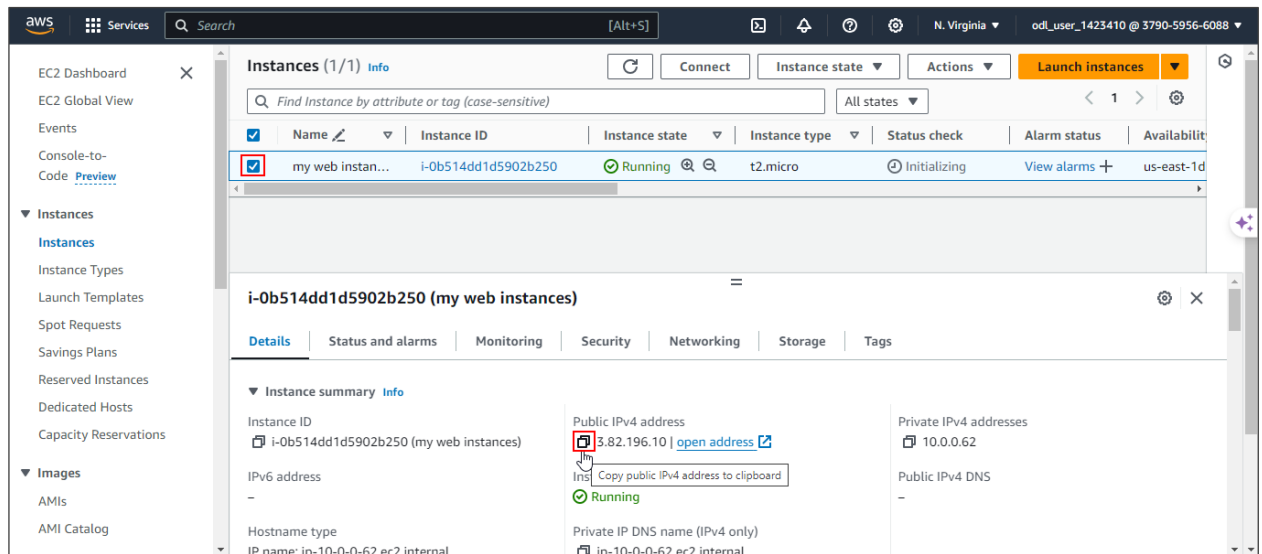


You will see the following interface:



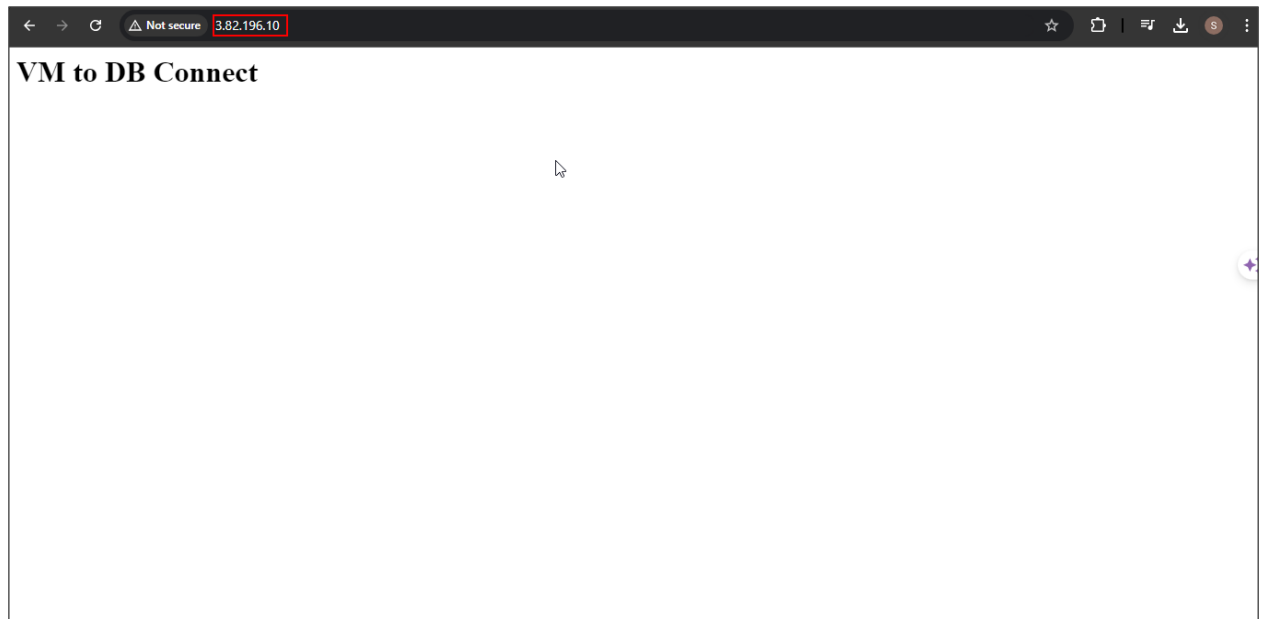
The EC2 web instance has been created successfully.

### 3.13 Select the instance and copy the public IPv4 address



3.14 Open a new browser tab, paste the public IPv4 address, and use port 80 to access the web server:

**3.82.196.10:80**



By following these steps, you have successfully set up a web server on an EC2 instance and made it accessible via its public IPv4 address.