Virtual Private Cloud (VPC) Setup

Goal

To establish a custom, secure, and isolated virtual network (VPC) within AWS, including all necessary components for network connectivity and secure deployment of a cloud resource, such as an EC2 instance.

Prerequisites

- Access to an **AWS Management Console**.
- Basic understanding of **CIDR notation** for IP addressing.

Skills Used

- AWS: **VPC**, **Subnets**, **Internet Gateway (IGW)**, **Route Tables**, **EC2**.

Execution Steps: Designing and Configuring the Network

Step 1: Create the Custom VPC

1. Navigate to the **VPC dashboard** in the AWS Console.
2. Click **Create VPC**.
3. Choose the **VPC only** option.
4. Provide a **Name tag** (e.g., Gayathri_vpc).
5. Specify the **IPv4 CIDR block** (e.g., 10.0.0.0/16) and click **Create VPC**.

Step 2: Create a Public Subnet

1. Go to the **Subnets** section and click **Create subnet**.
2. Select the **VPC** created in Step 1.
3. Provide a **Subnet name** and an **IPv4 Subnet CIDR block** (e.g., 10.0.1.0/24).
4. Click **Create subnet**.

Step 3: Set Up Internet Connectivity

1. Go to **Internet Gateways** and click **Create internet gateway**.
2. Provide a **Name tag** and click **Create internet gateway**.
3. Select the newly created IGW, go to **Actions**, and choose **Attach to VPC**.
4. Select your custom VPC and click **Attach internet gateway**.

Step 4: Configure the Route Table

1. Go to **Route Tables** and click **Create route table**.
2. Provide a **Name tag** and select your custom VPC, then click **Create route table**.
3. **Add Default Route:** Select the new route table, go to the **Routes** tab, and click **Edit routes**.
    - Add a new route with **Destination** 0.0.0.0/0 (representing all internet traffic).

- Set the **Target** to the **Internet Gateway** created in Step 3, and **Save changes**.

4. **Associate Subnet:** Go to the **Subnet associations** tab, click **Edit subnet associations**, and select the subnet created in Step 2 to associate it with this route table, then **Save association**.

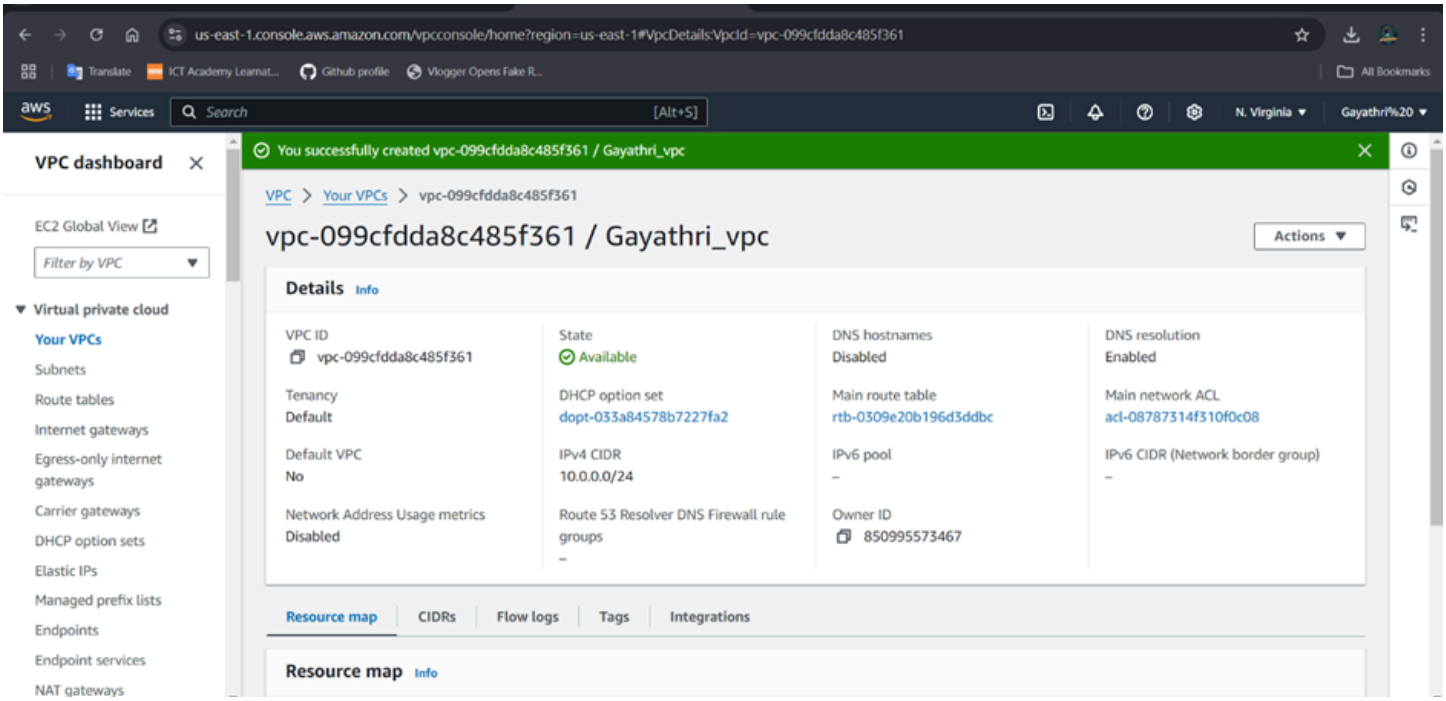
Step 5: Launch an EC2 Instance within the VPC

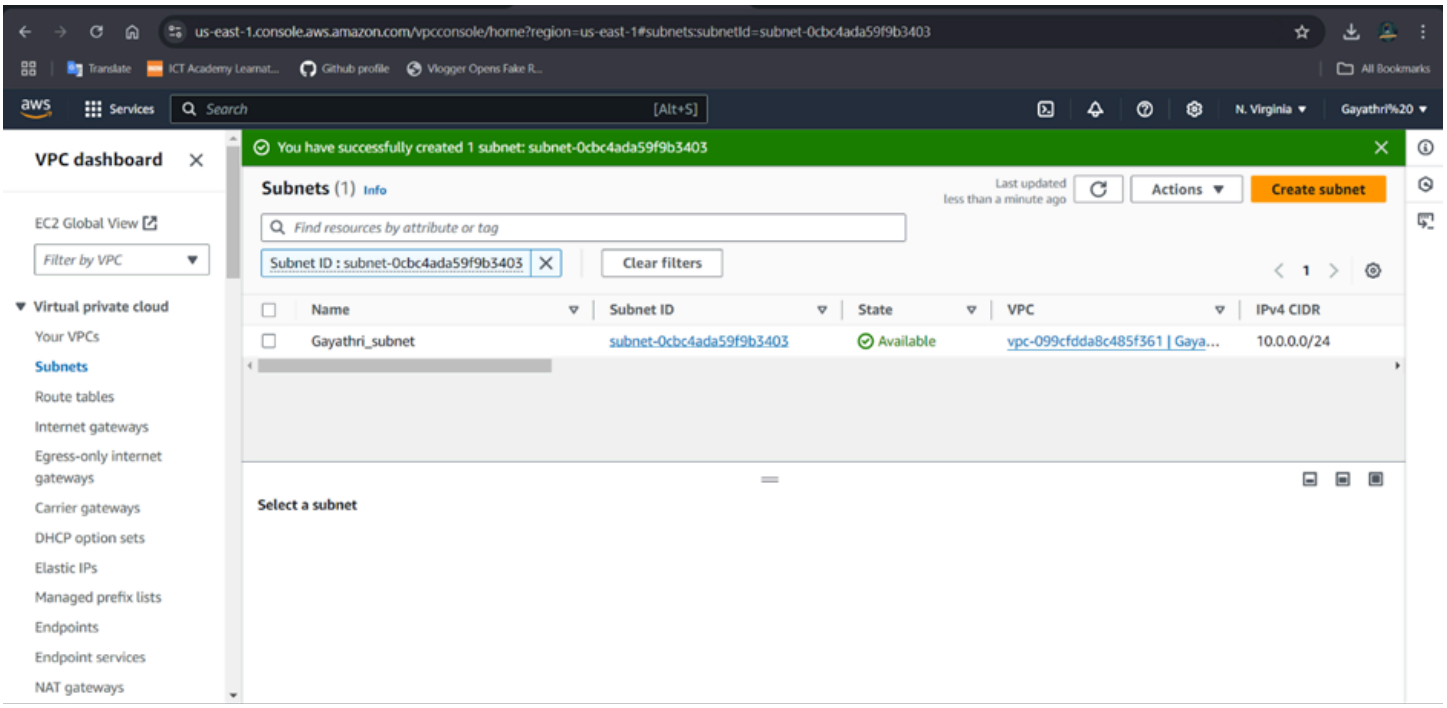
1. Navigate to the **EC2 dashboard** and click **Launch instance**.
2. In the **Network settings** section, make the following selections:
   - **VPC:** Select your custom VPC.
   - **Subnet:** Select the public subnet you created.
   - **Auto-assign Public IP:** Ensure this is set to **Enable** (since this is a public subnet).
3. Complete the rest of the instance configuration and click **Launch instance**.

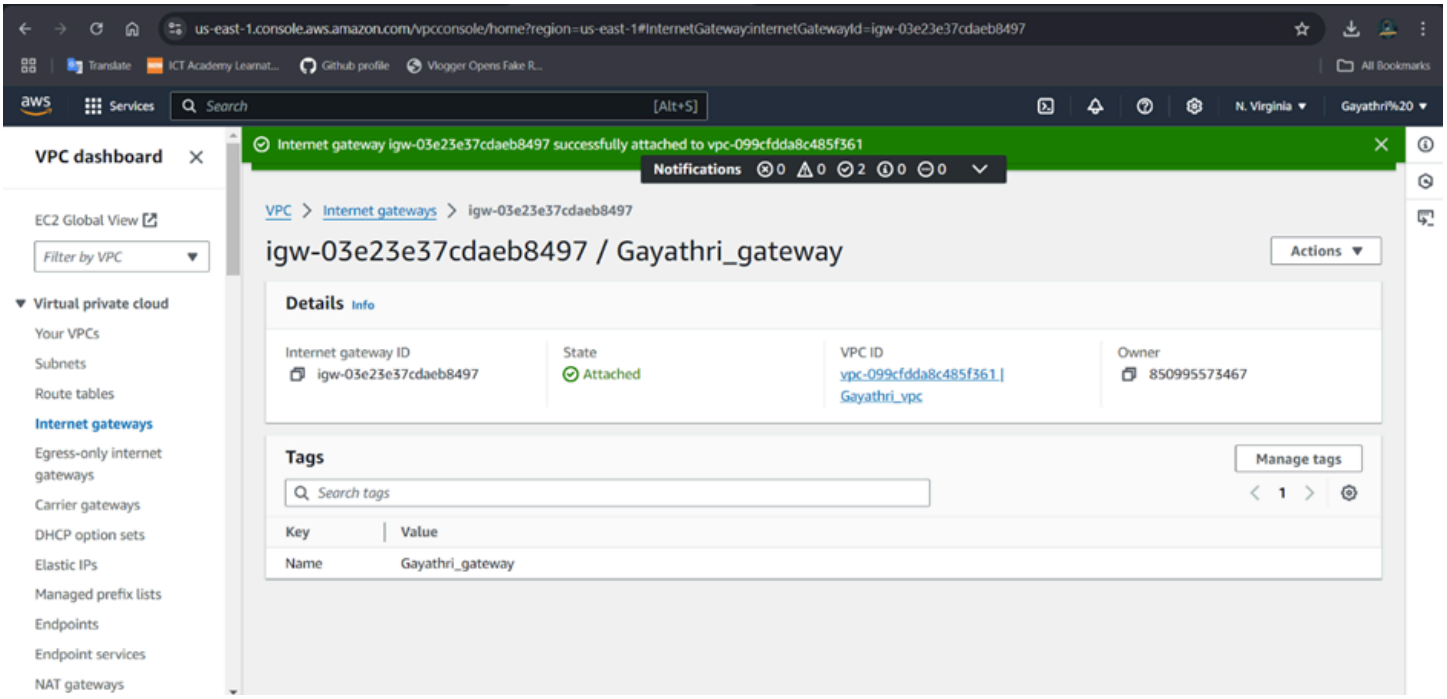
Outcome

A secure and isolated network environment (VPC) is established, and an EC2 instance is launched within it, ensuring the deployment is managed under a custom network configuration.

SCREENSHOTS:




us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#subnets:subnetId=subnet-0cbc4ada59f9b3403
Services
Search
[Alt+S]
N. Virginia
Gayathri%20
VPC dashboard
You have successfully created 1 subnet: subnet-0cbc4ada59f9b3403
Subnets (1) Info
Last updated less than a minute ago
Actions
Create subnet
Find resources by attribute or tag
Subnet ID : subnet-0cbc4ada59f9b3403
Clear filters
Name
Subnet ID
State
VPC
IPv4 CIDR
Gayathri_subnet
subnet-0cbc4ada59f9b3403
Available
vpc-099cfdda8c485f361 | Gaya...
10.0.0.0/24
Select a subnet
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
NAT gateways


us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#InternetGateway:internetGatewayId=igw-03e23e37cdaeb8497
Services
Search
[Alt+S]
N. Virginia
Gayathri%20
VPC dashboard
Internet gateway igw-03e23e37cdaeb8497 successfully attached to vpc-099cfdda8c485f361
Notifications
VPC > Internet gateways > igw-03e23e37cdaeb8497
igw-03e23e37cdaeb8497 / Gayathri_gateway
Actions
Details Info
Internet gateway ID
igw-03e23e37cdaeb8497
State
Attached
VPC ID
vpc-099cfdda8c485f361 | Gayathri_vpc
Owner
850995573467
Tags
Manage tags
Search tags
Key
Value
Name
Gayathri_gateway
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
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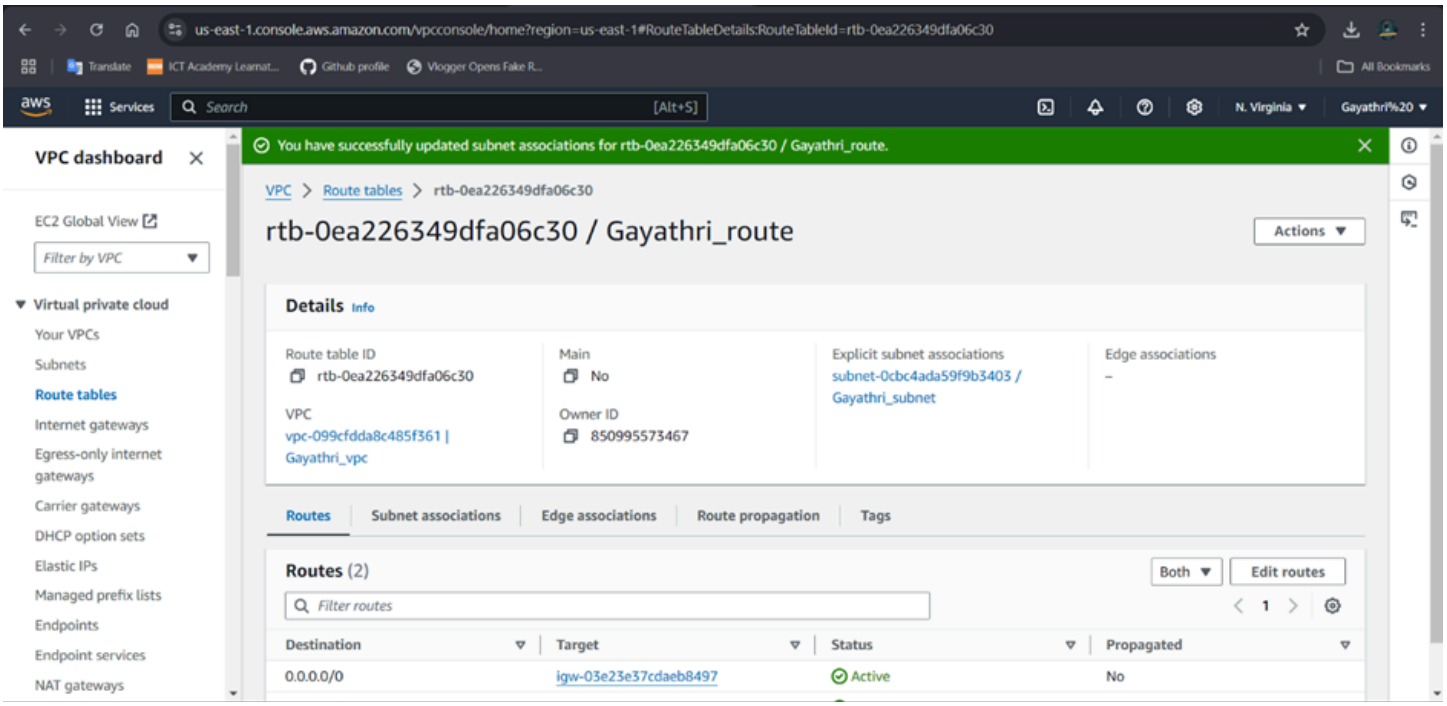
us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#RouteTableDetails:RouteTableId=rtb-0ea226349dfa06c30
Translate
ICT Academy Learnat...
Github profile
Vlogger Opens Fake R...
All Bookmarks
aws
Services
Search
[Alt+S]
N. Virginia
Gayathri%20
VPC dashboard
You have successfully updated subnet associations for rtb-0ea226349dfa06c30 / Gayathri_route.
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
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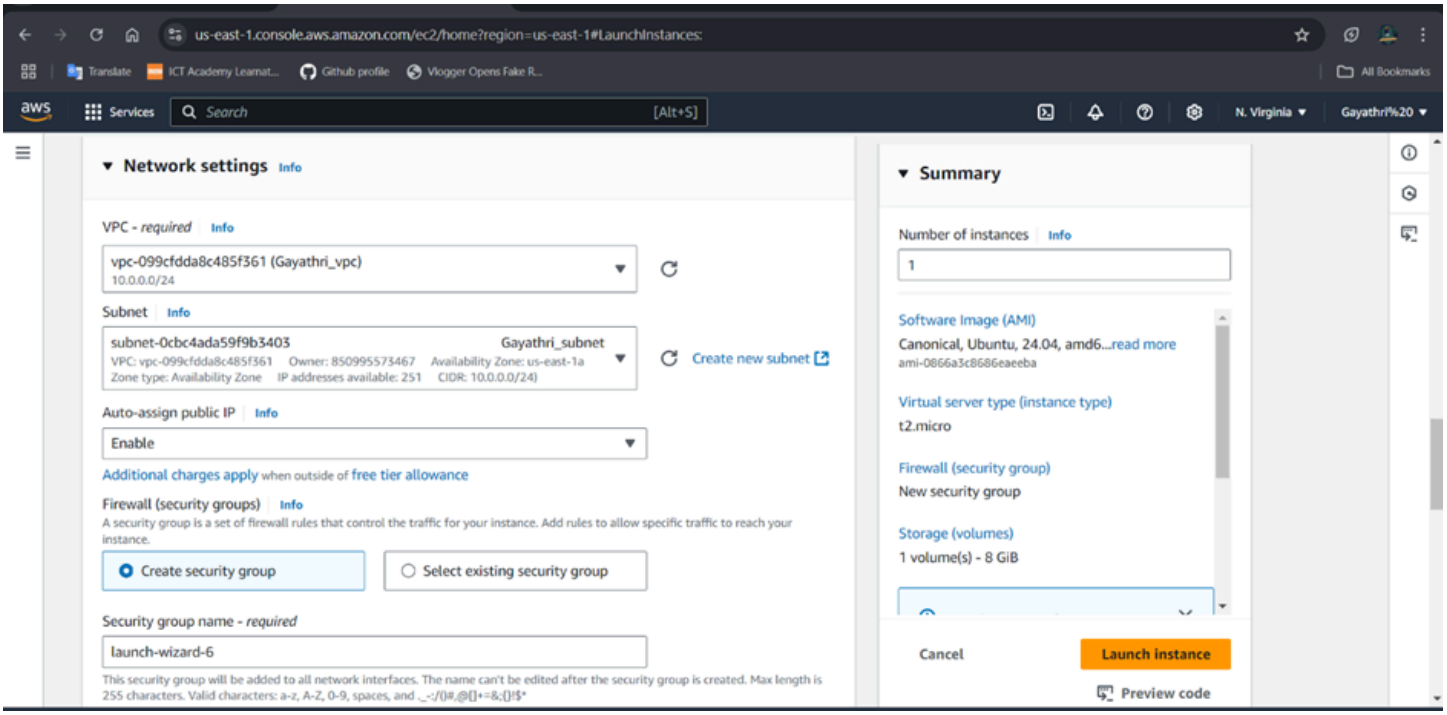
Endpoint services
NAT gateways
VPC > Route tables > rtb-0ea226349dfa06c30
rtb-0ea226349dfa06c30 / Gayathri_route
Actions
Details Info
Route table ID
rtb-0ea226349dfa06c30
Main
No
Explicit subnet associations
subnet-0cbc4ada59f9b3403 / Gayathri_subnet
Edge associations
–
VPC
vpc-099cfdda8c485f361 | Gayathri_vpc
Owner ID
850995573467
Routes
Subnet associations
Edge associations
Route propagation
Tags
Routes (2)
Both
Edit routes
Filter routes
1
Destination
Target
Status
Propagated
0.0.0.0/0
igw-03e23e37cdaeb8497
Active
No


us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
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Vlogger Opens Fake R...
All Bookmarks
aws
Services
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[Alt+S]
N. Virginia
Gayathri%20
Network settings Info
VPC - required Info
vpc-099cfdda8c485f361 (Gayathri_vpc)
10.0.0.0/24
Subnet Info
subnet-0cbc4ada59f9b3403 Gayathri_subnet
VPC: vpc-099cfdda8c485f361 Owner: 850995573467 Availability Zone: us-east-1a
Zone type: Availability Zone IP addresses available: 251 CIDR: 10.0.0.0/24)
Create new subnet
Auto-assign public IP Info
Enable
Additional charges apply when outside of free tier allowance
Firewall (security groups) Info
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.
Create security group
Select existing security group
Security group name - required
launch-wizard-6
This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and ._-:/()#,@[]+=&;{}!$*
Summary
Number of instances Info
1
Software Image (AMI)
Canonical, Ubuntu, 24.04, amd6...read more
ami-0866a3c8686eaeeba
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Cancel
Launch instance
Preview code