

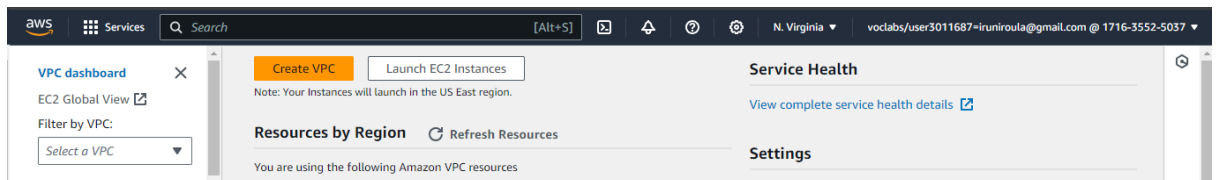
VPC Configuration Lab

Objective: To understand the fundamentals of AWS networking through the configuration of a Virtual Private Cloud (VPC).

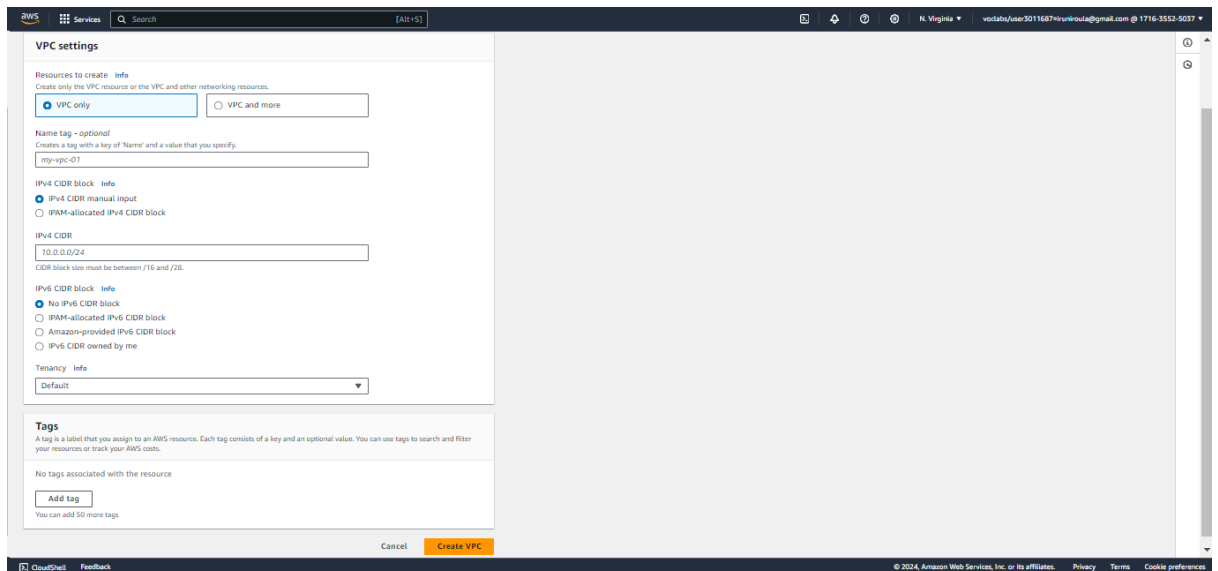
Approach: Students will create a new VPC, add subnets, set up an Internet Gateway, and configure route tables. The lab might also include setting up a simple EC2 instance within this VPC to demonstrate how resources are deployed in a custom network environment.

Goal: By the end of this lab, students should be able to create and configure a VPC, understand subnetting, and the role of route tables and internet gateways in AWS.

Step 1: Navigate to VPC Dashboard and click on “Create VPC” to create a new VPC.



Step 2: Configure the VPC form and assign requested values.



New VPC is created

The screenshot shows the AWS Management Console interface for a VPC. The breadcrumb navigation is **VPC > Your VPCs > vpc-0fd2386dc9b6533b2**. The page title is **vpc-0fd2386dc9b6533b2 / vpc-1**. On the left, the 'Virtual private cloud' section is expanded, showing 'Your VPCs' and a list of related resources: Subnets, Route tables, Internet gateways, Egress-only internet gateways, Carrier gateways, DHCP option sets, Elastic IPs, Managed prefix lists, Endpoints, Endpoint services, and NAT gateways. The main content area has a 'Details' tab selected, displaying the following information:

Details	
VPC ID vpc-0fd2386dc9b6533b2	State Available
Tenancy Default	DHCP option set dopt-0f97bffadfd4242ea
Default VPC No	IPv4 CIDR 10.0.0.0/25
Network Address Usage metrics Disabled	Route 53 Resolver DNS Firewall rule groups Failed to load rule groups
DNS hostnames Disabled	Main route table rtb-05c1cfc1adb5a77ef
DNS resolution Enabled	Main network ACL acl-046c146fd6df506b5
	IPv6 pool -
	IPv6 CIDR (Network border group) -
	Owner ID 171635525037

Below the details, there are tabs for 'Resource map', 'CIDRs', 'Flow logs', 'Tags', and 'Integrations'. The 'Resource map' tab is currently selected, showing a diagram of the VPC resources.

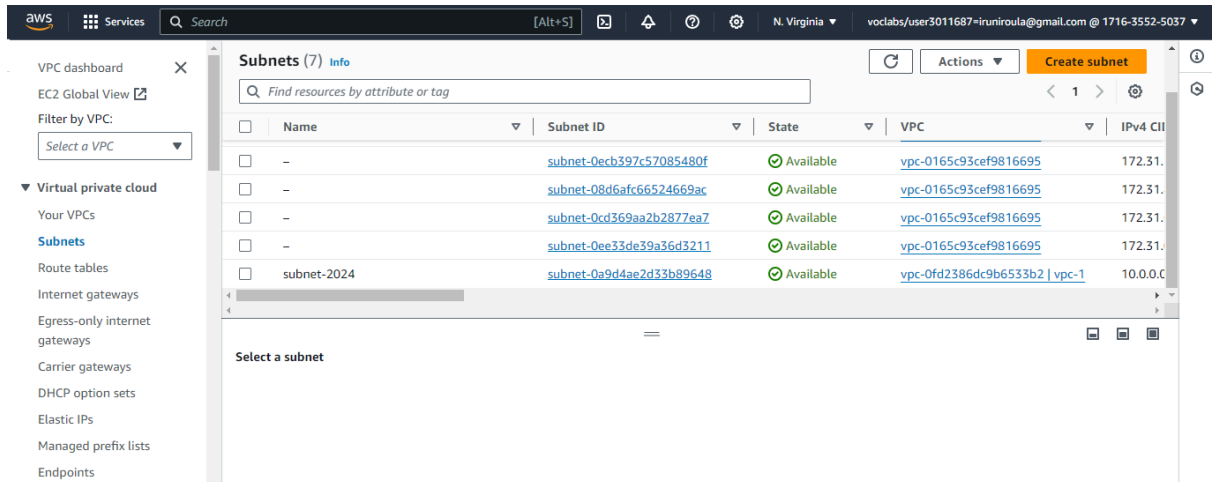
Step 3: Navigate to the subnet section and select created VPC ID

The screenshot shows the 'Create subnet' page in the AWS Management Console. The breadcrumb navigation is **VPC > Subnets > Create subnet**. The page title is **Create subnet**. The 'VPC' section contains a 'VPC ID' dropdown menu with the text 'Create subnets in this VPC.' and the selected value 'vpc-0fd2386dc9b6533b2 (vpc-1)'. Below this, the 'Associated VPC CIDRs' section shows a table with the following information:

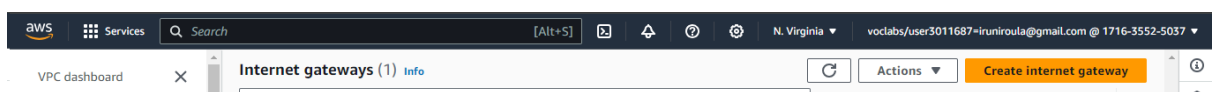
IPv4 CIDRs
10.0.0.0/25

Step 4: Give subnet name select availability region and click on create subnet

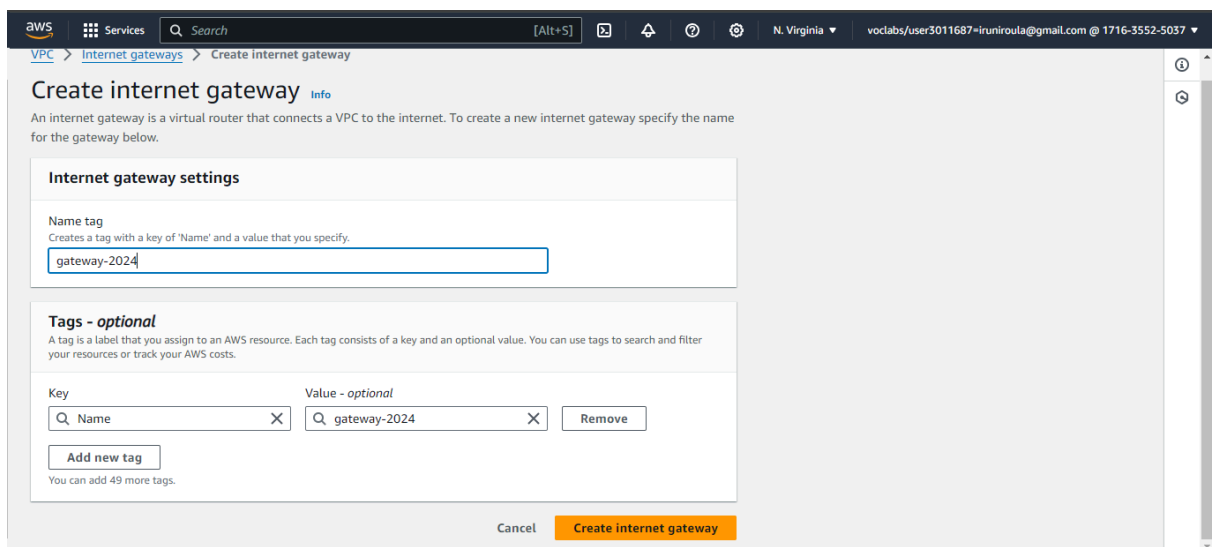
Here, the subnet (subnet-2024) is created.



Step 5: Navigate to Internet gateway and select create internet gateway



Step 6: Assign gateway name and then create



aws Services Search [Alt+S] N. Virginia voclabs/user3011687=iruniroula@gmail.com @ 1716-3552-5037

VPC dashboard EC2 Global View Filter by VPC: Select a 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

VPC > Internet gateways > igw-089abfa256f58547f

igw-089abfa256f58547f / gateway-2024

Actions

Details Info

Internet gateway ID	igw-089abfa256f58547f	State	Detached	VPC ID	-	Owner	171635525037
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Tags Manage tags

Search tags

Key	Value
Name	gateway-2024

Step 7: Attach gateway to VPC by selecting internet gateway and selecting “Attach to VPC” in the dropdown

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VPC dashboard EC2 Global View Filter by VPC: Select a 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

Internet gateways (1/2) Info

Search

	Name	Internet gateway ID	State
<input type="checkbox"/>	-	igw-02248191ffa83e677	Attached
<input checked="" type="checkbox"/>	gateway-2024	igw-089abfa256f58547f	Detached

Actions

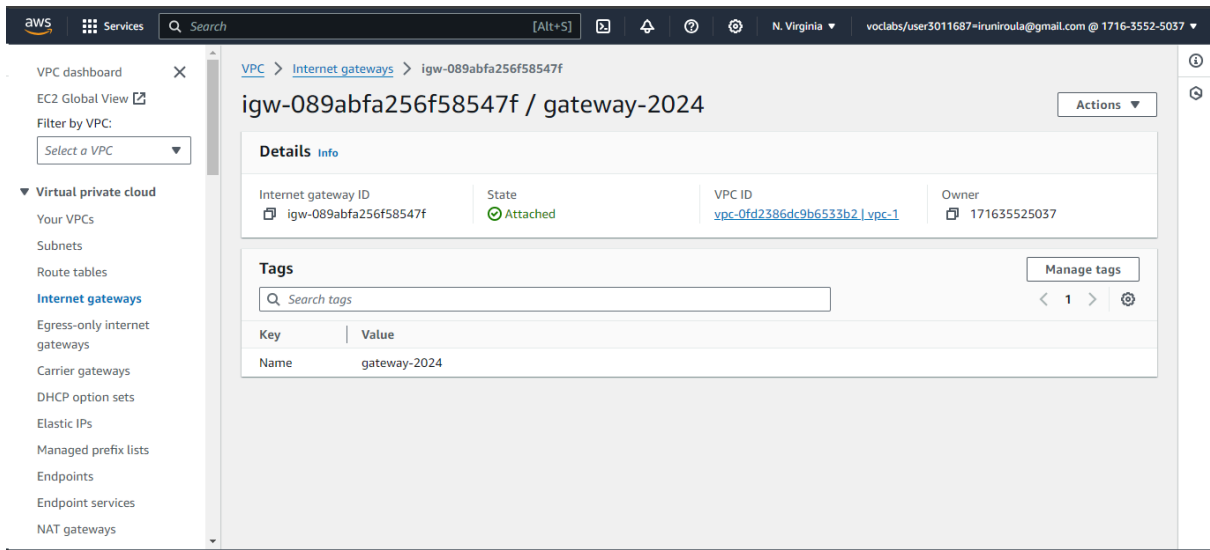
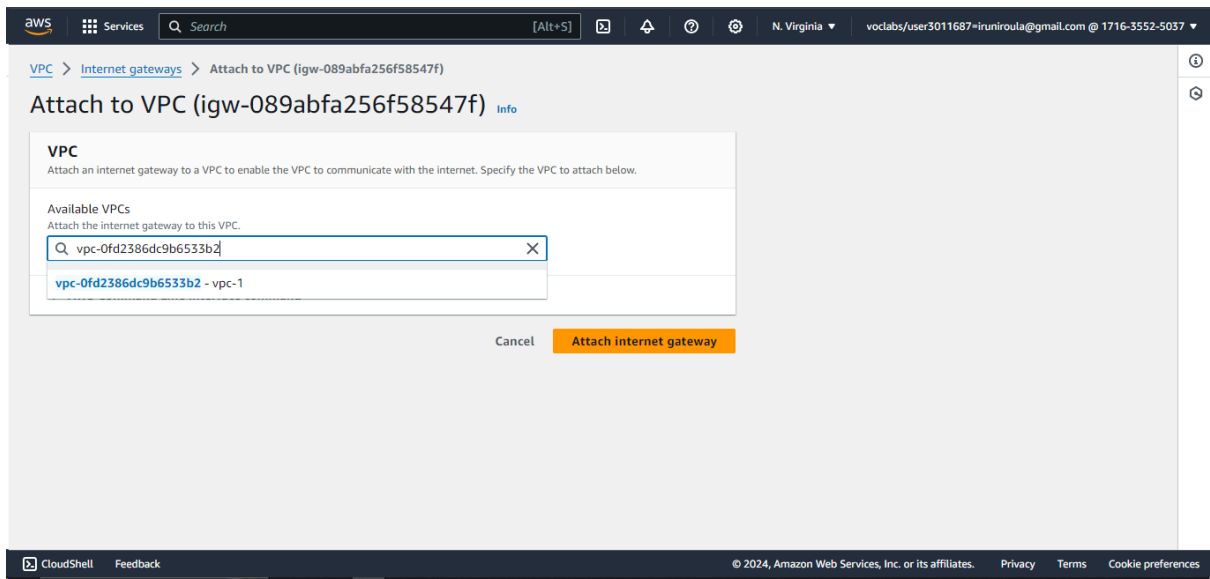
- Create internet gateway
- View details
- Attach to VPC
- Detach from VPC
- Manage tags
- Delete internet gateway

igw-089abfa256f58547f / gateway-2024

Details Info

Internet gateway ID	igw-089abfa256f58547f	State	Detached	VPC ID	-	Owner	171635525037
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Step 8: Attach to the vpc created



Step 9: Navigate to route table and select create route table. Give route table name and select vpc

The screenshot shows the 'Create route table' wizard in the AWS Management Console, specifically the 'Route table settings' step. The interface includes a header with the AWS logo, 'Services', a search bar, and user information. Below the header, a brief description of route tables is provided. The main content area is divided into two sections: 'Route table settings' and 'Tags'. In the 'Route table settings' section, there is a text input for 'Name - optional' with the value 'route-2024', and a dropdown menu for 'VPC' with the selected value 'vpc-0fd2386dc9b6533b2 (vpc-1)'. The 'Tags' section includes a description of tags and a list of existing tags with keys 'Name' and 'route-2024'. At the bottom right, there are 'Cancel' and 'Create route table' buttons.

Route table settings

Name - optional
Create a tag with a key of 'Name' and a value that you specify.
route-2024

VPC
The VPC to use for this route table.
vpc-0fd2386dc9b6533b2 (vpc-1)

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 route-2024 Remove

Add new tag
You can add 49 more tags.

Cancel Create route table

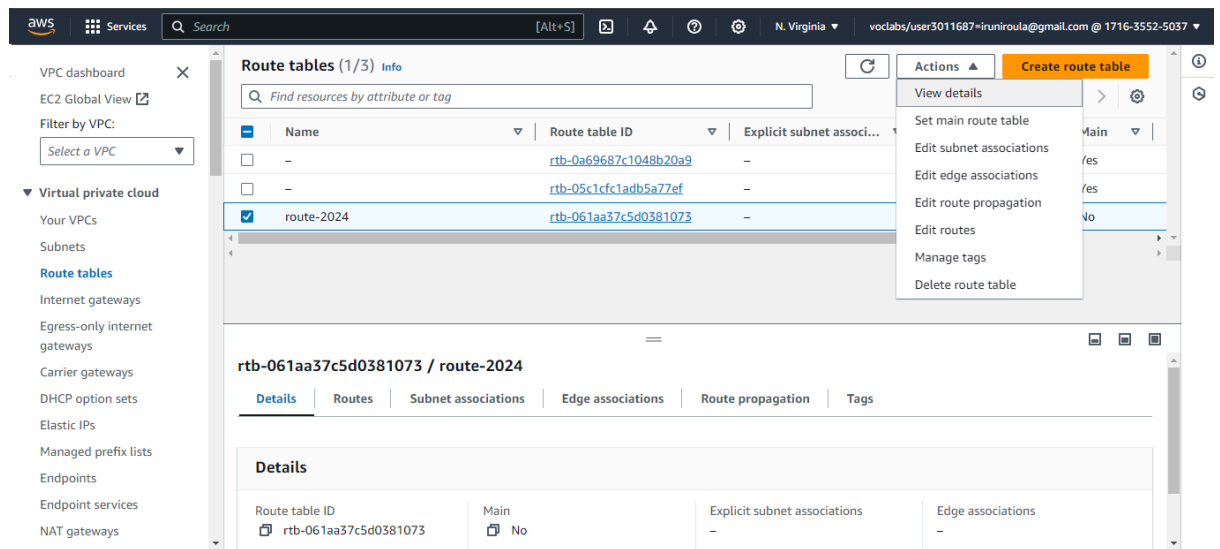
Route table created

The screenshot shows the 'Route tables' page in the AWS Management Console. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area displays a table of route tables. The table has columns for Name, Route table ID, Explicit subnet associations, Edge associations, and Main. Three route tables are listed: two unnamed tables with IDs 'rtb-0a69687c1048b20a9' and 'rtb-05c1cfc1adb5a77ef', and one named 'route-2024' with ID 'rtb-061aa37c5d0381073'. The 'route-2024' table is highlighted. Below the table, there is a 'Select a route table' section.

Name	Route table ID	Explicit subnet associ...	Edge associations	Main
-	rtb-0a69687c1048b20a9	-	-	Yes
-	rtb-05c1cfc1adb5a77ef	-	-	Yes
route-2024	rtb-061aa37c5d0381073	-	-	No

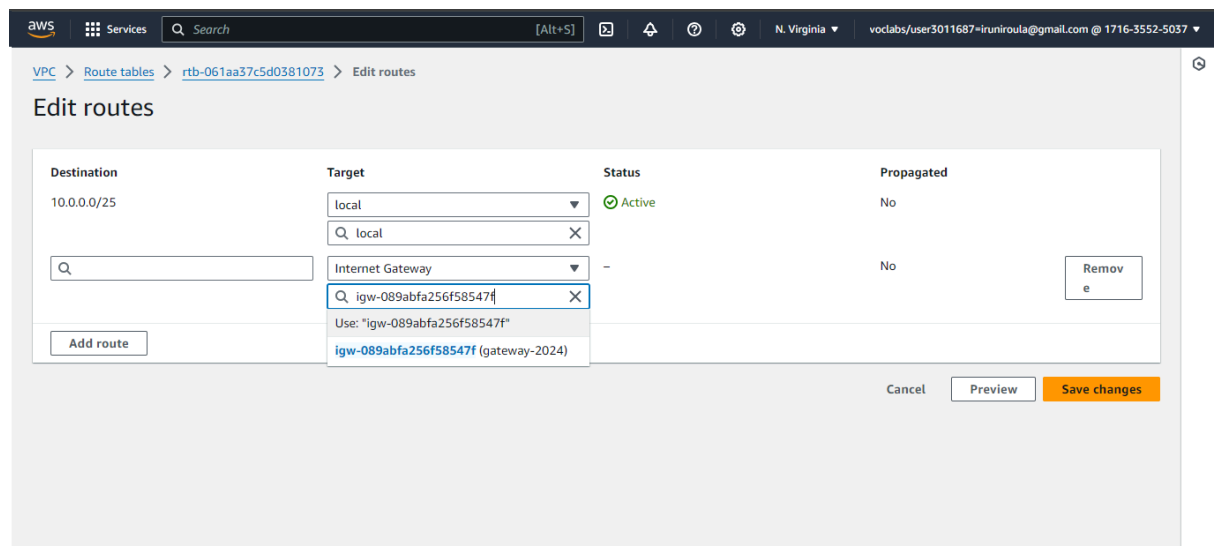
Select a route table

Step 10: Select route table and click on edit routes

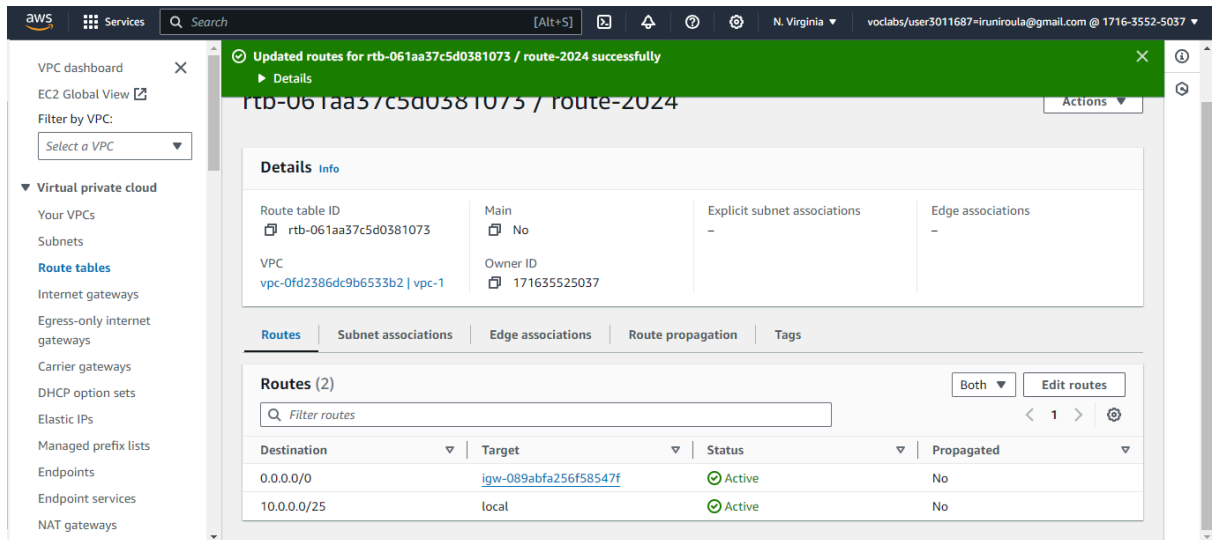


The screenshot shows the AWS Management Console interface. On the left, the 'Virtual private cloud' section is expanded, showing 'Route tables' as the selected option. The main panel displays a list of route tables. The table has columns: Name, Route table ID, and Explicit subnet associations. The row 'route-2024' with ID 'rtb-061aa37c5d0381073' is selected. A context menu is open over this row, showing actions like 'View details', 'Set main route table', 'Edit subnet associations', 'Edit edge associations', 'Edit route propagation', 'Edit routes', 'Manage tags', and 'Delete route table'. The 'Edit routes' option is highlighted. Below the list, the details for 'rtb-061aa37c5d0381073 / route-2024' are shown, including tabs for Details, Routes, Subnet associations, Edge associations, Route propagation, and Tags. The 'Details' tab is active, showing the Route table ID, Main status (No), Explicit subnet associations (None), and Edge associations (None).

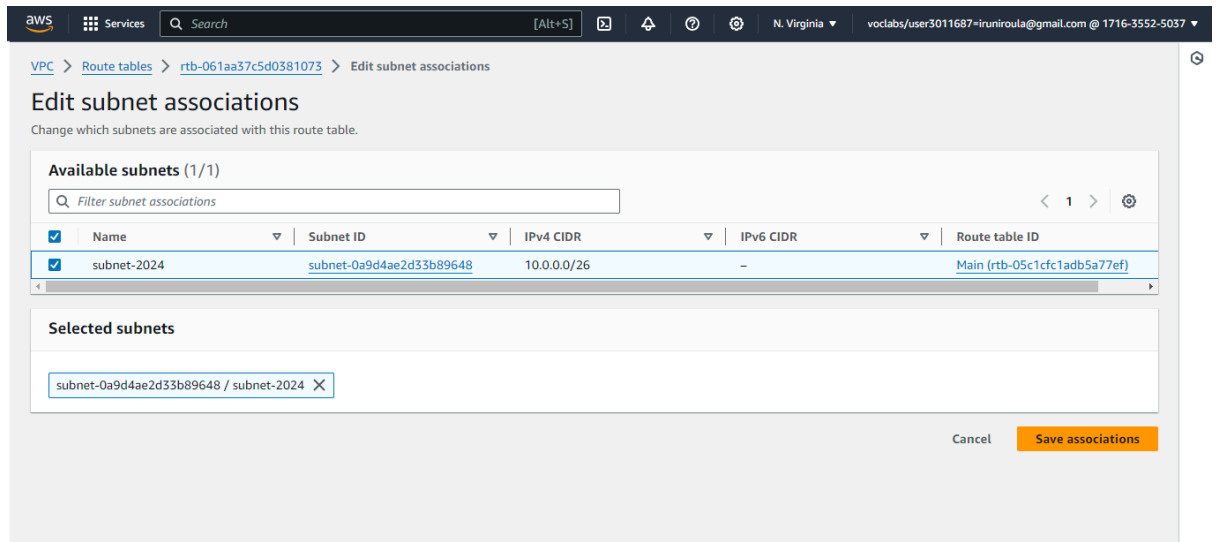
Step 11: Select add route and select the internet gateway created earlier



The screenshot shows the 'Edit routes' page in the AWS Management Console. The breadcrumb trail is 'VPC > Route tables > rtb-061aa37c5d0381073 > Edit routes'. The page title is 'Edit routes'. There is a table with columns: Destination, Target, Status, and Propagated. The first row has Destination '10.0.0.0/25', Target 'local', Status 'Active', and Propagated 'No'. The second row has Destination (empty), Target 'Internet Gateway', Status '-', and Propagated 'No'. A search bar is next to the Target column. Below the table, there is an 'Add route' button. At the bottom right, there are 'Cancel', 'Preview', and 'Save changes' buttons.



Step 12: Navigate to subnet associations tab. Select created subnet and save associations.



Step 13: Setting up simple EC2 instance and selecting created VPC and subnet and enabling “Auto assign public IP”. creating a new ssh group.

Launch an instance [info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [info](#)

Name: [Add additional tags](#)

Application and OS Images (Amazon Machine Image) [info](#)

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.

Recents | **Quick Start**

[Amazon Linux](#) [macOS](#) [Ubuntu](#) [Windows](#) [Red Hat](#) [SUSE Linux](#) [Browse more AMIs](#)

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI
ami-0440c3b780d96a29d (64-bit x86, with preferred) / ami-093c02f9f1974dbb (64-bit ARM, with preferred)
Virtualization: hvm | ENA: enabled | true | Root device type: ebs

Free tier eligible

Summary

Number of instances: [info](#)

Software Image (AMI)
Amazon Linux 2023 AMI 2023.5.2...[read more](#)
ami-0440c3b780d96a29d

Virtual server type (Instance type)
t2.micro

Firewall (security group)
New security group

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, 30 GiB of EBS storage, 2 million I/Os, 1 GiB of snapshots, and 100 GB of bandwidth to the internet.

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

Network

The VPC that you want to launch your instance into.
[Get more networking guidance](#)

Learn more [What is Amazon VPC?](#) [How Amazon VPC works?](#)

Network settings [info](#)

VPC - required [info](#)

[Create new VPC](#)

Subnet [info](#)

[Create new subnet](#)

VPC: vpc-0f42386dc9b6535b2 | Owner: 17163552-9037 | Availability Zone: us-east-1a | IP addresses available: 59 | CIDR: 10.0.0.0/24

Auto-assign public IP [info](#)

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

Description - required [info](#)

Inbound Security Group Rules

Security group rule 1 (TCP, 22, 0.0.0.0/0) [Remove](#)

Type	Protocol	Port range	Source type	Source	Description - optional
ssh	TCP	22	Anywhere	<input type="text" value="Add CIDR, prefix list or security group"/>	<input type="text" value="e.g. SSH for admin desktop"/>

Summary

Number of instances: [info](#)

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Amazon Linux 2023 AMI 2023.5.2...[read more](#)
ami-0440c3b780d96a29d

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

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EC2 Instance is launched

The screenshot displays the AWS Management Console interface for the 'Launch an Instance' page. At the top, a green banner indicates 'Success: Successfully initiated launch of Instance (i-072bb1ba28e924e51)'. Below this, a 'Launch log' section is visible. The main area is titled 'Next Steps' and contains a search bar with the placeholder text 'What would you like to do next with this instance, for example "create alarm" or "create backup"'. Below the search bar, there are eight tiles, each representing a different action you can take next:

- Create billing and free tier usage alerts:** To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds. [Create billing alerts](#)
- Connect to your instance:** Once your instance is running, log into it from your local computer. [Connect to instance](#) [Learn more](#)
- Connect an RDS database:** Configure the connection between an EC2 instance and a database to allow traffic flow between them. [Connect an RDS database](#) [Create a new RDS database](#) [Learn more](#)
- Create EBS snapshot policy:** Create a policy that automates the creation, retention, and deletion of EBS snapshots. [Create EBS snapshot policy](#)
- Manage detailed monitoring:** Enable or disable detailed monitoring for the instance. If you enable detailed monitoring, the Amazon EC2 console displays monitoring graphs with a 1-minute period. [Manage detailed monitoring](#)
- Create Load Balancer:** Create an application, network gateway or classic Elastic Load Balancer. [Create Load Balancer](#)
- Create AWS budget:** AWS Budgets allows you to create budgets, forecast spend, and take action on your costs and usage from a single location. [Create AWS budget](#)
- Manage CloudWatch alarms:** Create or update Amazon CloudWatch alarms for the instance. [Manage CloudWatch alarms](#)

On the right side of the console, there is a 'Network' panel with a close button. It contains the text: 'The VPC that you want to launch your instance into.' followed by a link [Get more networking guidance](#). Below this, there is a 'Learn more' section with a link [What is Amazon VPC?](#) and another link [How Amazon VPC works?](#)

Connecting to the instance

