

Practical - 2

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VPC Peering

Creating VPC 1

The screenshot shows the AWS VPC dashboard with the following details:

VPC ID: vpc-04f4d9c09a9617cf
State: Available
Tenancy: default
Main network ACL: acl-05434c4b34cf04b28
IPv6 CIDR: -
Default VPC: No
Network Address Usage metrics: Disabled
Block Public Access: Off
DHCP option set: dopt-099d6e38ddaa4615ac
IPv4 CIDR: 12.0.0.0/16
Route 53 Resolver DNS Firewall rule groups: -
DNS hostnames: Disabled
Main route table: rtb-01c9ee65260358a5e
IPv6 pool: -
Owner ID: 772548858659

Resource map: Shows 1 VPC (Your AWS virtual network), 0 Subnets (Subnets within this VPC), and 1 Route tables (Route network traffic to resources).

Actions: Includes options like Actions, Show all details, Privacy, Terms, and Cookie preferences.

Creating VPC 2

The screenshot shows the 'Create VPC' configuration page in the AWS VPC service. The 'VPC settings' section is open, showing options for creating resources. Under 'Resources to create', 'VPC only' is selected. A 'Name tag - optional' field contains 'my-vpc-2'. Under 'IPv4 CIDR block', 'IPv4 CIDR manual input' is selected, with '13.0.0.0/16' entered. Under 'IPv6 CIDR block', 'No IPv6 CIDR block' is selected. At the bottom, there are links for CloudShell, Feedback, and a footer with copyright information.

Creating route table for vpc 1

The screenshot shows the 'Create route table' configuration page in the AWS Route Tables service. The 'Route table settings' section is open, showing a 'Name - optional' field with 'rt-vpc-1'. Under 'VPC', 'vpc-04f4d9c09a9617cf (my-vpc-1)' is selected. In the 'Tags' section, a single tag 'Name: rt-vpc-1' is added. At the bottom, there are 'Cancel' and 'Create route table' buttons.

Creating route table for vpc 2

The screenshot shows the 'Create route table' wizard in the AWS VPC console. In the 'Route table settings' section, a tag named 'rt-vpc-2' is added to the VPC 'my-vpc-2'. In the 'Tags' section, a single tag 'rt-vpc-2' is listed under the key 'Name'. The 'Create route table' button is at the bottom right.

Route table settings

Name - optional
Create a tag with a key of 'Name' and a value that you specify.
rt-vpc-2

VPC
The VPC to use for this route table.
vpc-028e1157493ee0b56 (my-vpc-2)

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
Q Name	X rt-vpc-2

Add new tag
You can add 49 more tags.

Cancel Create route table

The screenshot shows the 'Route tables' list in the AWS VPC console. A new route table 'rt-vpc-2' has been created and is listed in the table. The table includes columns for Name, Route table ID, Explicit subnet associations, Edge associations, Main status, and VPC.

Name	Route table ID	Explicit subnet associations	Edge associations	Main	VPC
-	rtb-0399df32cb6f1c44e	-	-	Yes	vpc-0d1ba43b497a1d3b1
-	rtb-01c9ee65260358a5e	-	-	Yes	vpc-04f4d9c09a9617cfdf
-	rtb-090c03c8c5662d797	-	-	Yes	vpc-028e1157493ee0b56
rt-vpc-1	rtb-0239fab7ddabdb77e	-	-	No	vpc-04f4d9c09a9617cfdf
rt-vpc-2	rtb-0da4a49ab3d1807e7	-	-	No	vpc-028e1157493ee0b56

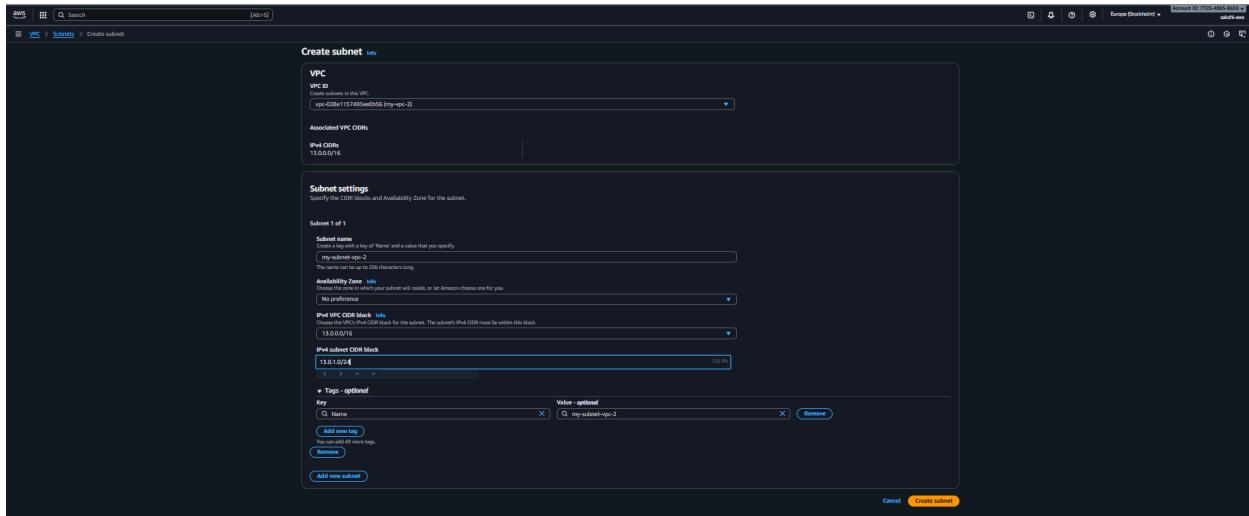
Select a route table

Creating subnet for vpc 1

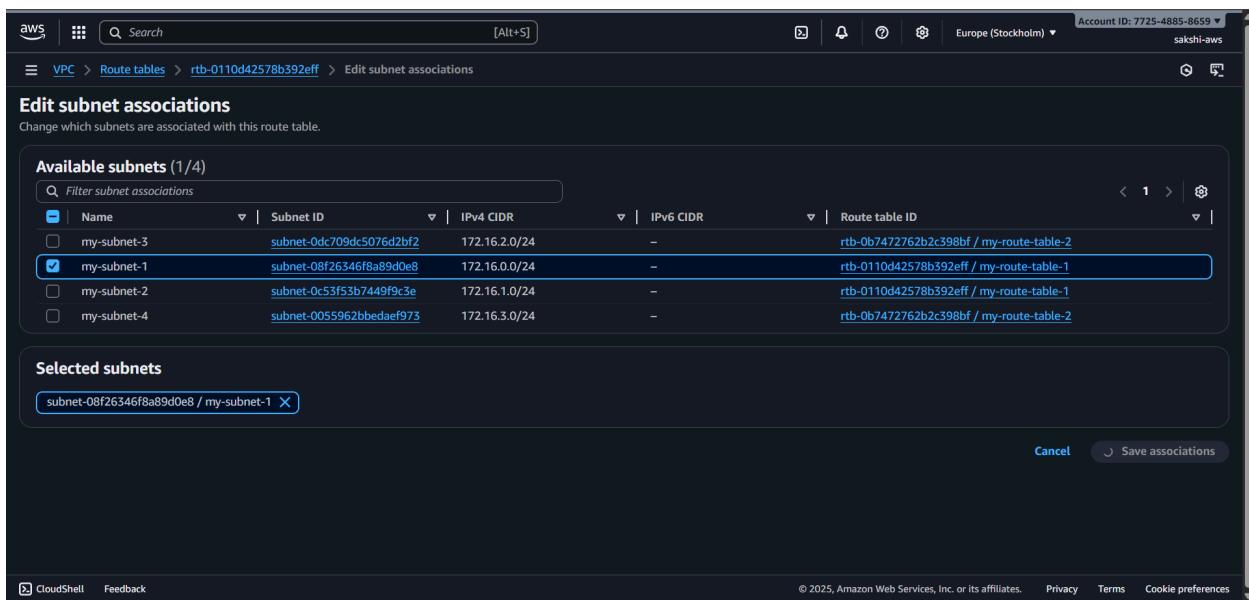
The screenshot shows the 'Create subnet' wizard in the AWS VPC console. In the 'VPC' section, the VPC ID 'vpc-04f4d9c09a9617cf (my-vpc-1)' is selected. Under 'Associated VPC CIDRs', the IPv4 CIDR '12.0.0.0/16' is listed. In the 'Subnet settings' section, the 'Subnet name' is set to 'my-subnet-vpc-1'. The 'Availability Zone' is set to 'Europe (Stockholm) / eun1-az1 (eu-north-1a)'. The 'IPv4 VPC CIDR block' is '12.0.0.0/16'. The 'IPv4 subnet CIDR block' is '12.0.1.0/24'. A single tag 'Name' is added with the value 'my-subnet-vpc-1'. The bottom right contains standard AWS navigation links: CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

This screenshot shows the continuation of the 'Create subnet' wizard. It includes fields for 'Availability Zone' (set to 'Europe (Stockholm) / eun1-az1 (eu-north-1a)'), 'IPv4 VPC CIDR block' (set to '12.0.0.0/16'), and 'IPv4 subnet CIDR block' (set to '12.0.1.0/24'). The 'Tags - optional' section shows a single tag 'Name' with value 'my-subnet-vpc-1'. At the bottom, there are 'Cancel' and 'Create subnet' buttons, along with standard AWS footer links: CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

Subnet for vpc 2



Associating route table with subnet



Add subnet1 association with its router

The screenshot shows the AWS VPC Route Tables interface. The URL is [VPC > Route tables > rtb-0239fab7ddabdb77e > Edit subnet associations](#). The title is "Edit subnet associations".
Available subnets (1/1):
- my-subnet-vpc-1 (subnet-0053ee50e55c5c33e / 12.0.1.0/24) is selected and associated with the Main route table.
Selected subnets:
- subnet-0053ee50e55c5c33e / my-subnet-vpc-1
Buttons: Cancel, Save associations.

Add subnet2 association with its router

The screenshot shows the AWS VPC Route Tables interface. The URL is [VPC > Route tables > rtb-0da4a49ab3d1807e7 > Edit subnet associations](#). The title is "Edit subnet associations".
Available subnets (1/1):
- my-subnet-vpc-2 (subnet-0da5b74ee1e1f781c / 13.0.1.0/24) is selected and associated with the Main route table.
Selected subnets:
- subnet-0da5b74ee1e1f781c / my-subnet-vpc-2
Buttons: Cancel, Save associations.

Internet gateway for subnet1

The screenshot shows the 'Create internet gateway' page in the AWS VPC console. The 'Internet gateway settings' section contains a 'Name tag' field with the value 'my-igw-1'. The 'Tags - optional' section shows a single tag named 'Name' with the value 'my-igw-1'. At the bottom right are 'Cancel' and 'Create internet gateway' buttons.

Internet gateway associated to vpc1

The screenshot shows the 'Attach to VPC' page for the internet gateway 'igw-0735ec52e68927374'. A green banner at the top states: 'The following internet gateway was created: igw-0735ec52e68927374 - my-igw-1. You can now attach to a VPC to enable the VPC to communicate with the internet.' Below this, the 'Attach to VPC (igw-0735ec52e68927374)' section lists an 'Available VPCs' entry: 'vpc-04f4d9c09a9617cf'. At the bottom right are 'Cancel' and 'Attach internet gateway' buttons.

Adding internet route to subnet1 route table

The screenshot shows the 'Edit routes' page for a specific route table. A route is being added for the destination 12.0.0.0/16, which is being targeted to the Internet Gateway (igw-0735ec52e68927374). The route is currently active and has not been propagated. The 'Add route' button is visible at the bottom left, and the 'Preview' and 'Save changes' buttons are at the bottom right.

internet gateway for associated subnet2

The screenshot shows the 'Attach to VPC' dialog for an internet gateway. It allows selecting a VPC to attach the gateway to. In this case, the 'Available VPCs' dropdown is populated with 'vpc-028e1157493ee0b56'. The 'Attach internet gateway' button is highlighted in orange at the bottom right.

Adding internet route to subnet2 route table

The screenshot shows the 'Edit routes' page for a specific route table. A new route is being added with the following details:

Destination	Target	Status	Propagated	Route Origin
13.0.0.0/16	local	Active	No	CreateRouteTable
0.0.0.0/0	Internet Gateway	-	No	CreateRoute
	igw-0dc1e17b24118a03d	X		

Buttons at the bottom include 'Add route', 'Cancel', 'Preview', and 'Save changes'.

Launching first ec2 instance

The screenshot shows the 'Launch an instance' wizard. The 'Name and tags' section has 'vpc-1-ec2' entered. The 'Summary' section shows 1 instance selected. The 'Software Image (AMI)' section is set to 'Amazon Linux 2023 AMI 2023.9.2...'. The 'Virtual server type (instance type)' is 't3.micro'. The 'Storage (volumes)' section shows 1 volume(s) - 8 GiB. The 'Launch instance' button is visible at the bottom right.

Selecting key pair and network settings

The screenshot shows the AWS EC2 'Launch an instance' wizard. On the left, under 'Key pair (login)', a dropdown menu is open with 'key-pair-1' selected. Below it, under 'Network settings', there are sections for 'Network' (VPC: vpc-0a01f3cb5989d692a), 'Subnet' (No preference), and 'Auto-assign public IP' (Enable). In the 'Firewall (security group)' section, a button labeled 'Create security group' is highlighted in blue. A note below says: 'We'll create a new security group called "launch-wizard-10" with the following rules:'. Underneath are three checkboxes: 'Allow SSH traffic from Anywhere', 'Allow HTTPS traffic from the internet', and 'Allow HTTP traffic from the internet'. A warning message at the bottom states: 'Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.' On the right, the 'Summary' section shows 'Number of instances: 1', 'Software Image (AMI): Amazon Linux 2023 AMI 2023.9.2...', 'Virtual server type (instance type): t3.micro', and 'Storage (volumes): 1 volume(s) - 8 GiB'. At the bottom right are 'Cancel', 'Launch instance', and 'Preview code' buttons.

Adding user data

The screenshot shows the AWS EC2 'Launch an instance' wizard. On the left, under 'User data - optional', there is a text area containing the following script:

```
#!/bin/bash
yum install httpd -y
service httpd start
echo "<h1> User Data </h1>">/var/www/html/index.html
```

A note below says: 'User data has already been base64 encoded'. On the right, the 'Summary' section is identical to the previous screenshot, showing the same instance configuration. At the bottom right are 'Cancel', 'Launch instance', and 'Preview code' buttons.

Similarly launched ec2 instance for vpc2

The screenshot shows the AWS EC2 Instances page. The left sidebar is collapsed. The main area displays a table titled "Instances (2) Info" with the following data:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
vpc-1-ec2	i-010dc796e1a4255b2	Running	t3.micro	Initializing	View alarms	eu-north-1a	ec2-56-2
vpc-2-ec2	i-06b558085e6e81f6c	Running	t3.micro	Initializing	View alarms	eu-north-1a	ec2-16-1

Below the table, a section titled "Select an instance" is visible. The bottom right corner of the page includes standard AWS footer links: CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

Creating peering connection request

The screenshot shows the "Create peering connection" page under the VPC Peering connections section. The page has the following sections:

- Create peering connection**: A brief description of what a peering connection does.
- Peering connection settings**:
 - Name**: An optional tag name, currently set to "peering-connection-between-vpc1-and-vpc2".
- Select a local VPC to peer with**:
 - VPC ID (Requester)**: Set to "vpc-04f4d9c09a9617cf (my-vpc-1)".
 - VPC CIDRs for vpc-04f4d9c09a9617cf (my-vpc-1)**: Shows a table with one entry: CIDR 12.0.0.0/16, Status Associated, and Status reason -.
- Select another VPC to peer with**:
 - Account**: Radio button selected for "My account".
 - Region**: Radio button selected for "This Region (eu-north-1)".
 - VPC ID (Acceptor)**: Input field containing "vpc-028e1157493ee0b56 (mv-vnc-2)".

The bottom right corner of the page includes standard AWS footer links: CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

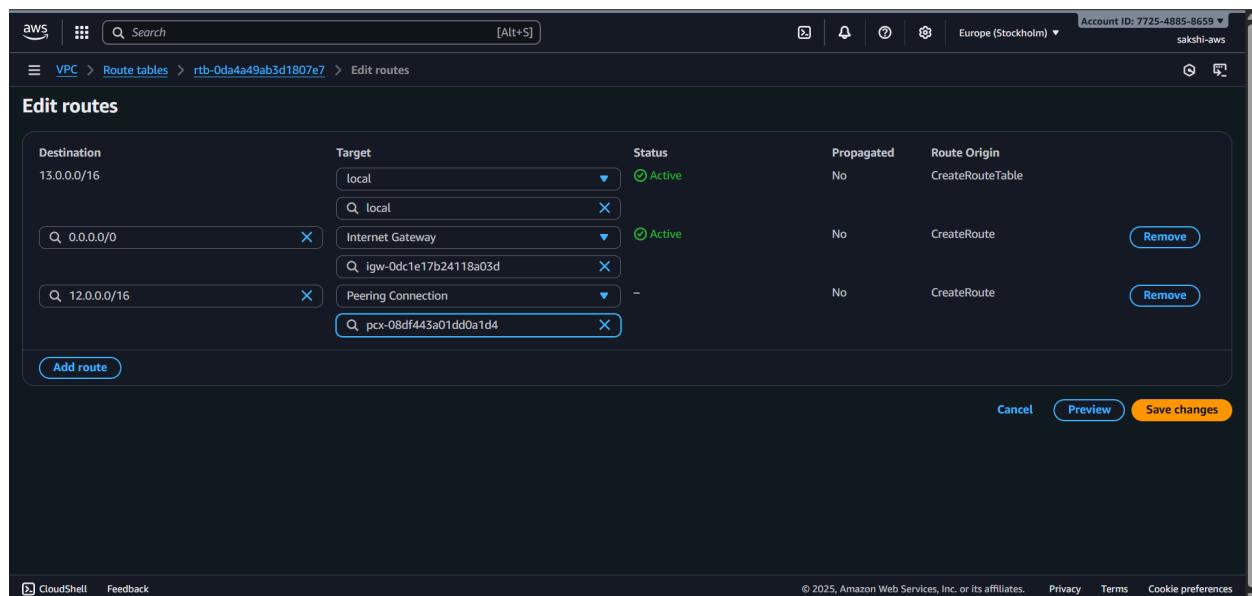
Accepting it

A screenshot of the AWS VPC dashboard. In the center, a modal window titled "pcx-08df443a01dd0a1d4 / peering-connection-between-vpc1-and-vpc2" displays a message: "A VPC peering connection pcx-08df443a01dd0a1d4 / peering-connection-between-vpc1-and-vpc2 has been requested." Below this, a sub-modal titled "Accept VPC peering connection request" asks, "Are you sure you want to accept this VPC peering connection request? (pcx-08df443a01dd0a1d4 / peering-connection-between-vpc1-and-vpc2)". It lists details for both the Requester and Acceptor, including VPC IDs, CIDRs, and regions. At the bottom right of the sub-modal are "Cancel" and "Accept request" buttons.

A screenshot of the AWS Route Tables page. The main area shows a table for "Edit routes" under route table "rtb-0239fab7ddabdb77e". The table columns are Destination, Target, Status, Propagated, and Route Origin. There are four entries:

Destination	Target	Status	Propagated	Route Origin
12.0.0.0/16	local	Active	No	CreateRouteTable
0.0.0.0/0	Internet Gateway	Active	No	CreateRoute
13.0.0.0/16	Peering Connection	-	No	CreateRoute

Each row has a "Remove" button. At the bottom of the table are "Add route", "Cancel", "Preview", and "Save changes" buttons. The footer includes standard AWS links like CloudShell and Feedback.



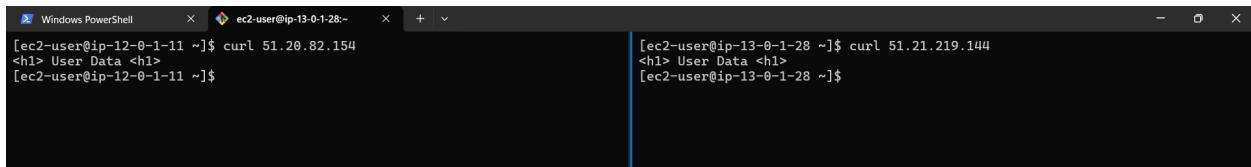
Connected to instances

```
Windows PowerShell      x   ec2-user@ip-13-0-1-28~  x  +  x
deshm@LAPTOP-GUBJ3GL3 MINGW64 ~/downloads
$ ssh -i new-key-pair.pem ec2-user@51.21.219.144
The authenticity of host '51.21.219.144 (51.21.219.144)' can't be established.
ED25519 key fingerprint is SHA256:PgWmNMF/1959HJV2ze1lBMoq0WJouX9VArT3X1JeW
0
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '51.21.219.144' (ED25519) to the list of known hosts.
          #_
          _###_
          \####\ Amazon Linux 2023
          \###]
          \|#
          \|~' _--> https://aws.amazon.com/linux/amazon-linux-2023
          ~--_/
          ~--_/_/
          _/m/
[ec2-user@ip-12-0-1-11 ~]$
```



```
deshm@LAPTOP-GUBJ3GL3 MINGW64 ~/downloads
$ ssh -i new-key-pair.pem ec2-user@51.20.82.154
The authenticity of host '51.20.82.154 (51.20.82.154)' can't be established.
ED25519 key fingerprint is SHA256:M8PISuexX1cZ/nbPowElmVANx64JGHGJ9SA9pq0sUL
w_
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '51.20.82.154' (ED25519) to the list of known hosts.
          #_
          _###_
          \####\ Amazon Linux 2023
          \###]
          \|#
          \|~' _--> https://aws.amazon.com/linux/amazon-linux-2023
          ~--_/
          ~--_/_/
          _/m/
[ec2-user@ip-13-0-1-28 ~]$
```

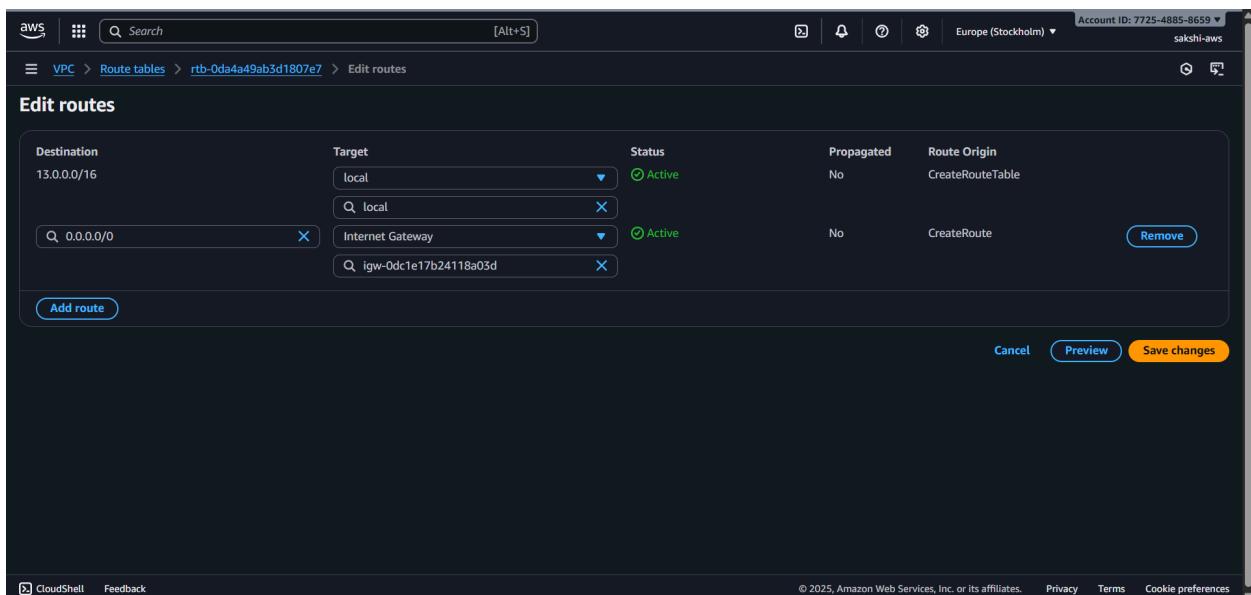
Connecting using curl command



```
[ec2-user@ip-12-0-1-11 ~]$ curl 51.20.82.154
<h1> User Data <h1>
[ec2-user@ip-12-0-1-11 ~]$
```

```
[ec2-user@ip-13-0-1-28 ~]$ curl 51.21.219.144
<h1> User Data <h1>
[ec2-user@ip-13-0-1-28 ~]$
```

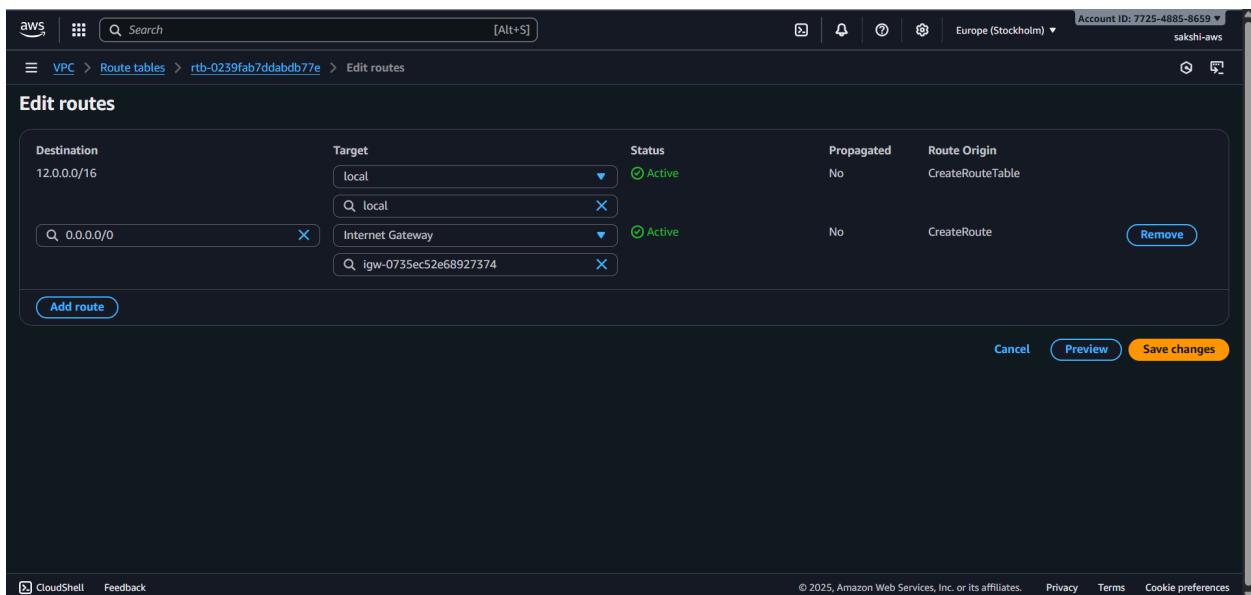
Editing route tables



The screenshot shows the 'Edit routes' interface for a specific route table. The table has two entries:

Destination	Target	Status	Propagated	Route Origin
13.0.0.0/16	local	Active	No	CreateRouteTable
0.0.0.0/0	Internet Gateway	Active	No	CreateRoute

Buttons at the bottom include 'Add route', 'Remove', 'Cancel', 'Preview', and 'Save changes'.



The screenshot shows the 'Edit routes' interface for a different route table. This table also has two entries:

Destination	Target	Status	Propagated	Route Origin
12.0.0.0/16	local	Active	No	CreateRouteTable
0.0.0.0/0	Internet Gateway	Active	No	CreateRoute

Buttons at the bottom include 'Add route', 'Remove', 'Cancel', 'Preview', and 'Save changes'.