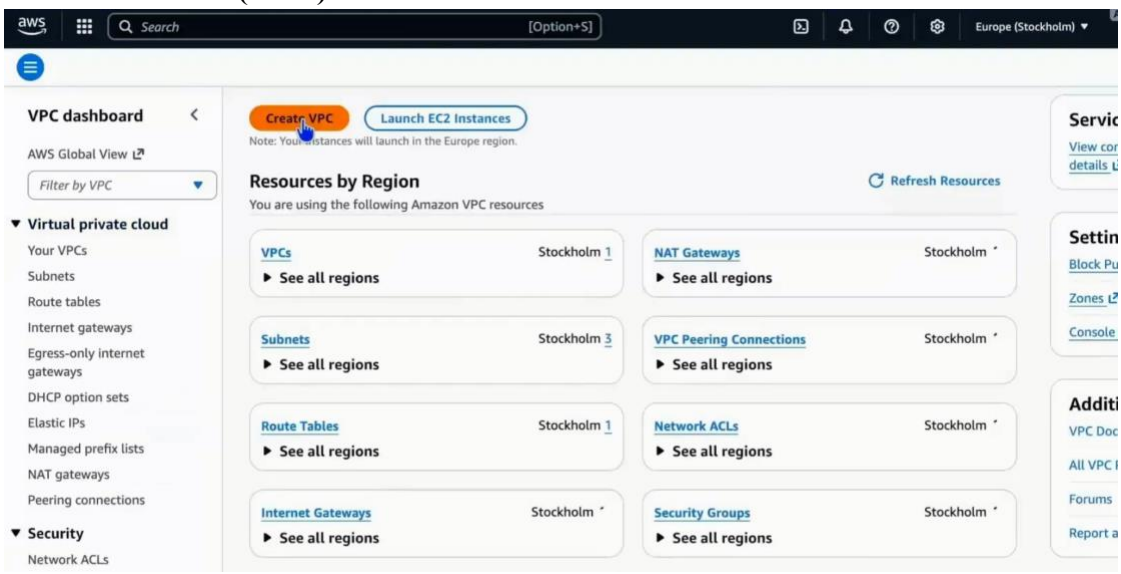
Designing and Configuring a Virtual LAN with Public and Private Subnets using AWS

Objective

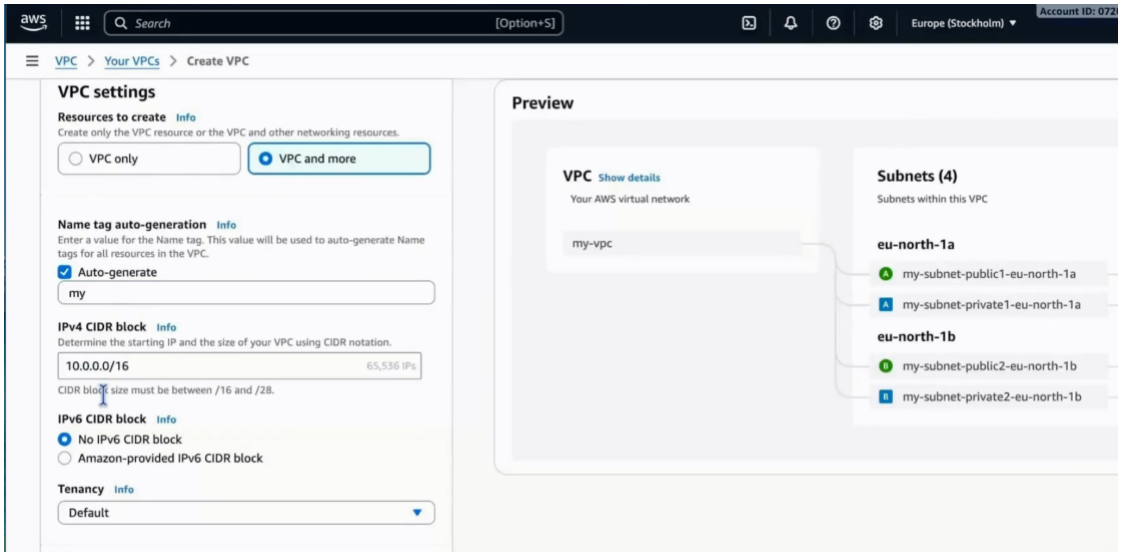
The objective of this project is to design and configure a Virtual Private Cloud (VPC) in AWS with both public and private subnets. This setup ensures secure communication between instances and demonstrates subnet connectivity, isolation, and internet accessibility for the public subnet.

VPC Dashboard (Start)



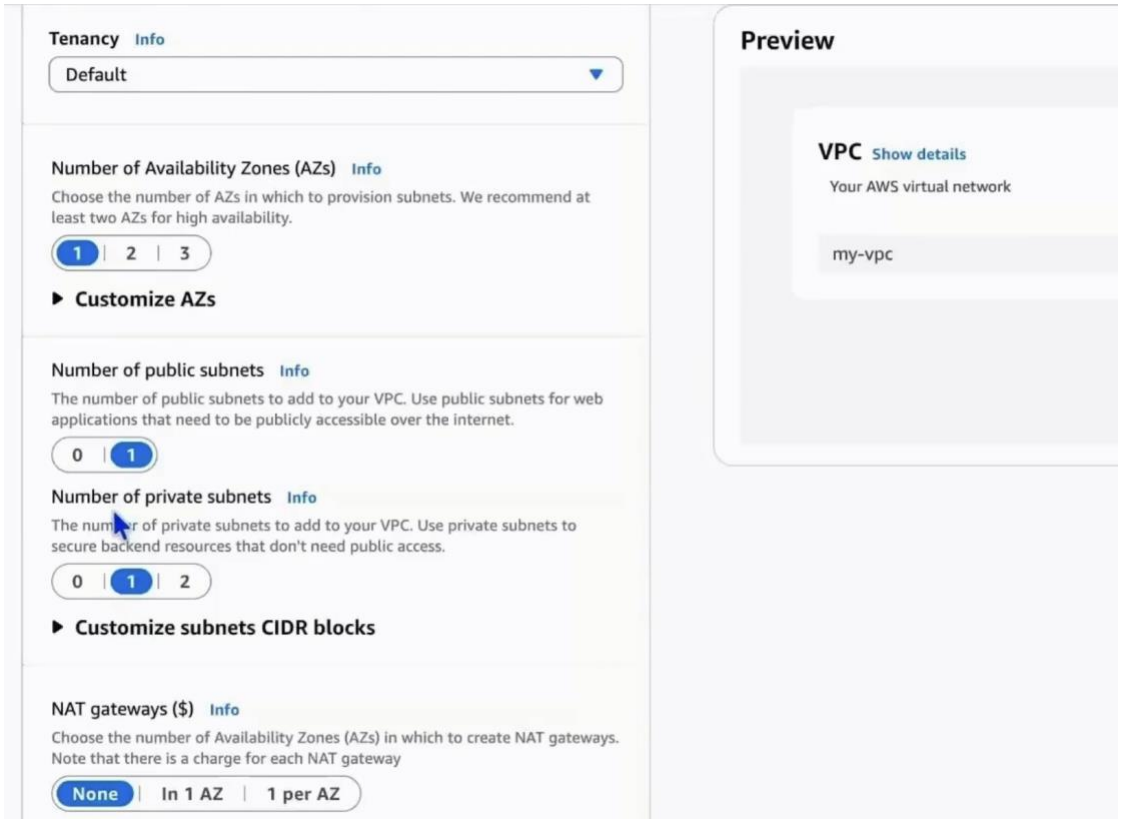
Open the VPC Dashboard to begin creating the VPC.

Create VPC (VPC and more)



Choose 'VPC and more' to let AWS create subnets and routing automatically.

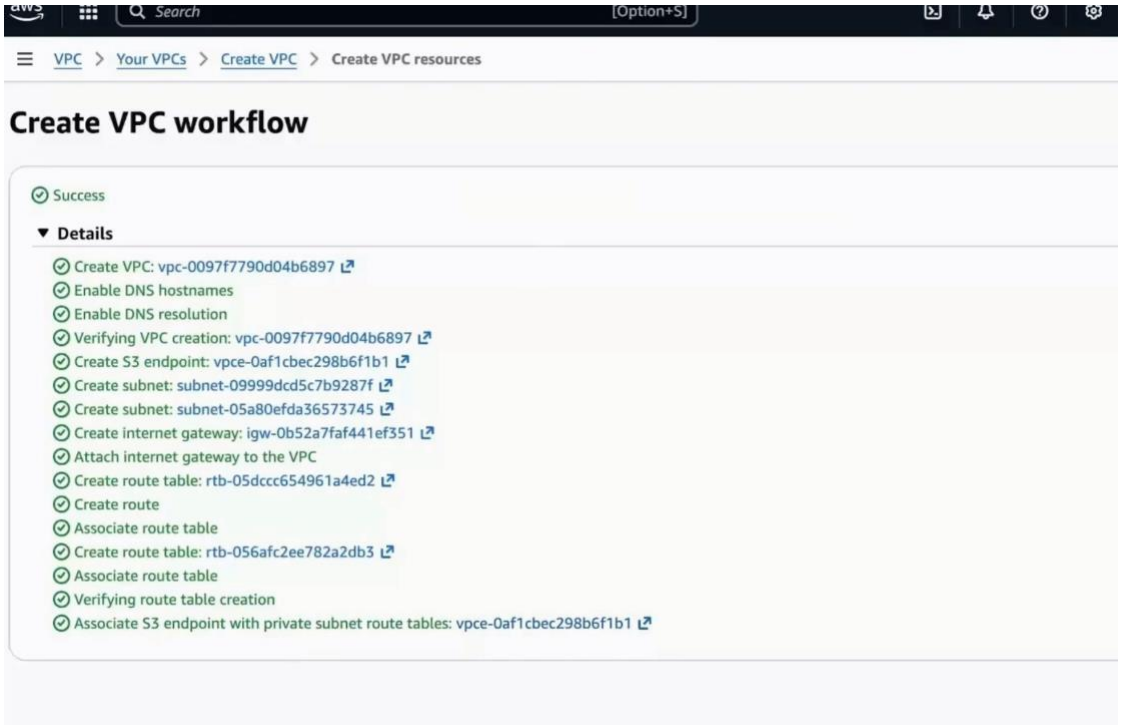
VPC CIDR and Name Tag



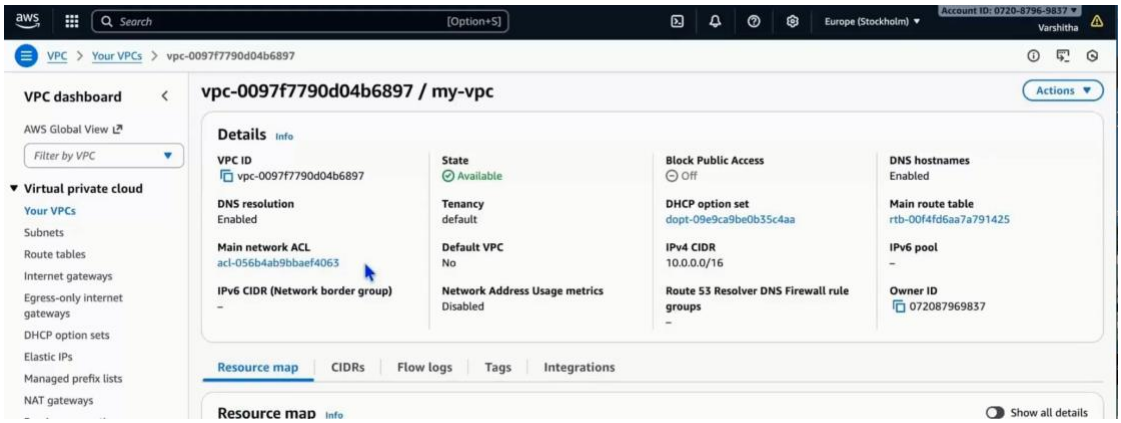
Set the VPC name and IPv4 CIDR block (e.g., 10.0.0.0/16).

Choose AZs and Subnet Counts

Select number of availability zones and number of public/private subnets.



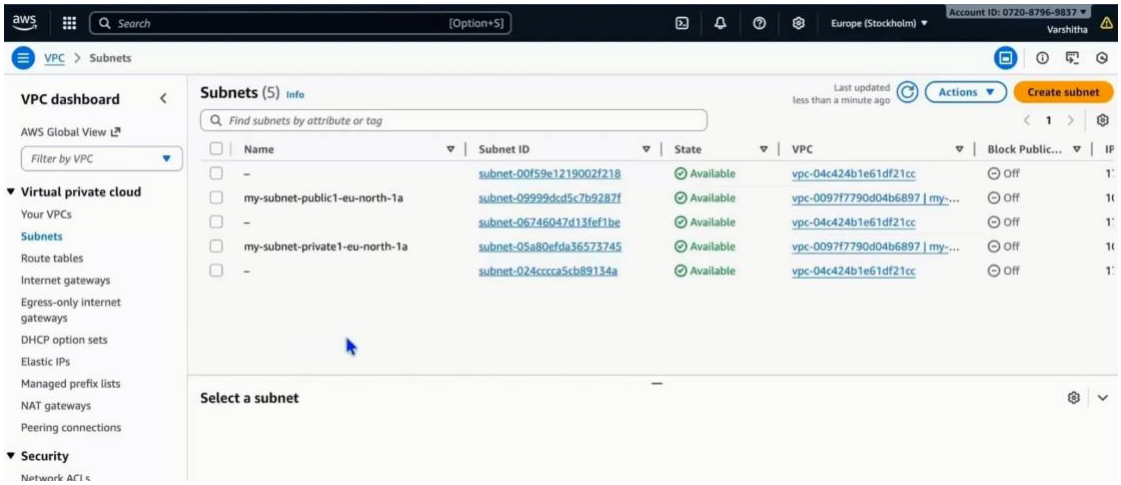
VPC Creation Workflow (Success)



VPC Details (my-vpc)

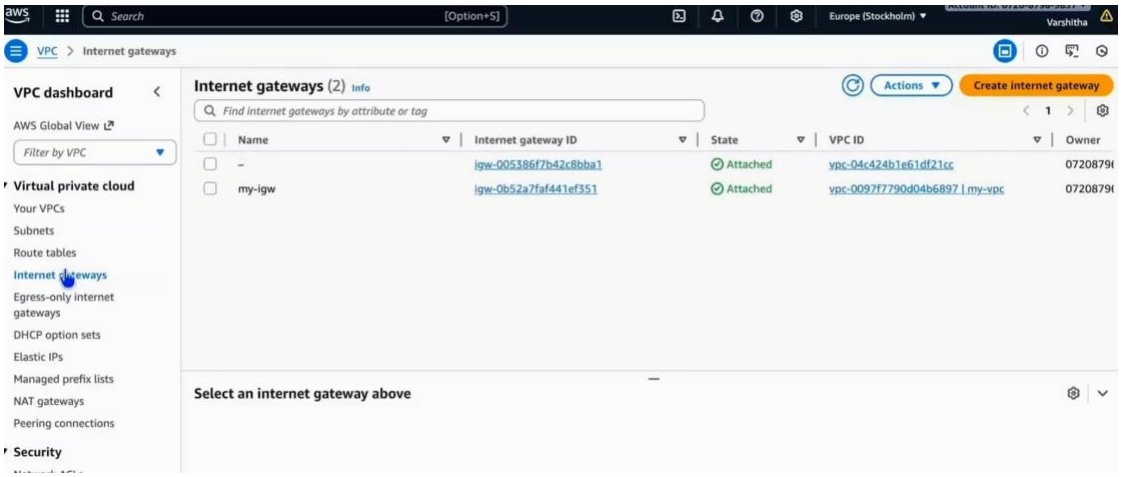
Verify VPC details: VPC ID, DNS, CIDR and route table references.

Subnets List



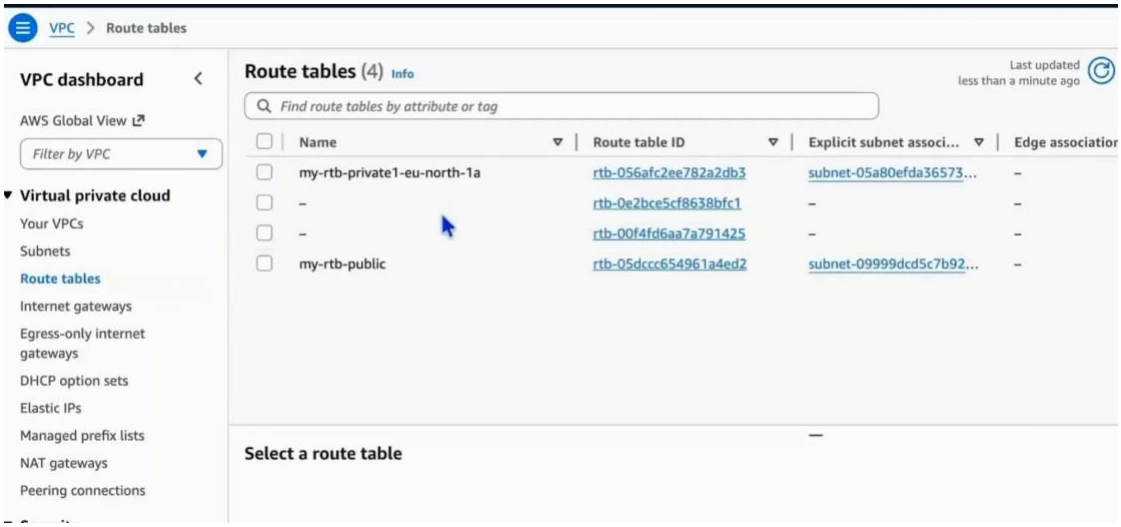
View the created subnets: public and private subnets listed under the VPC.

Internet Gateways (Attached)



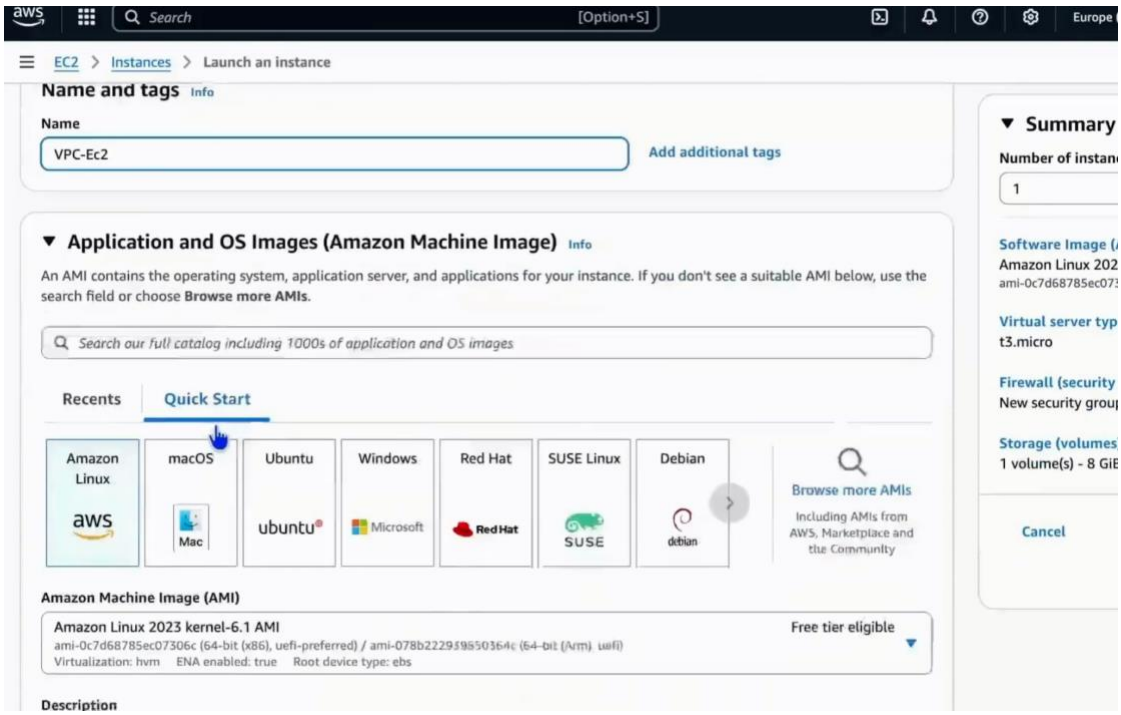
Confirm the Internet Gateway is created and attached to the VPC.

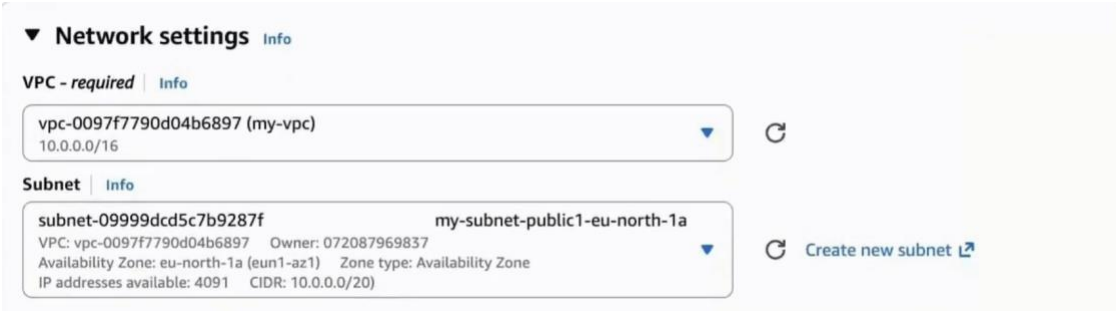
Route Tables

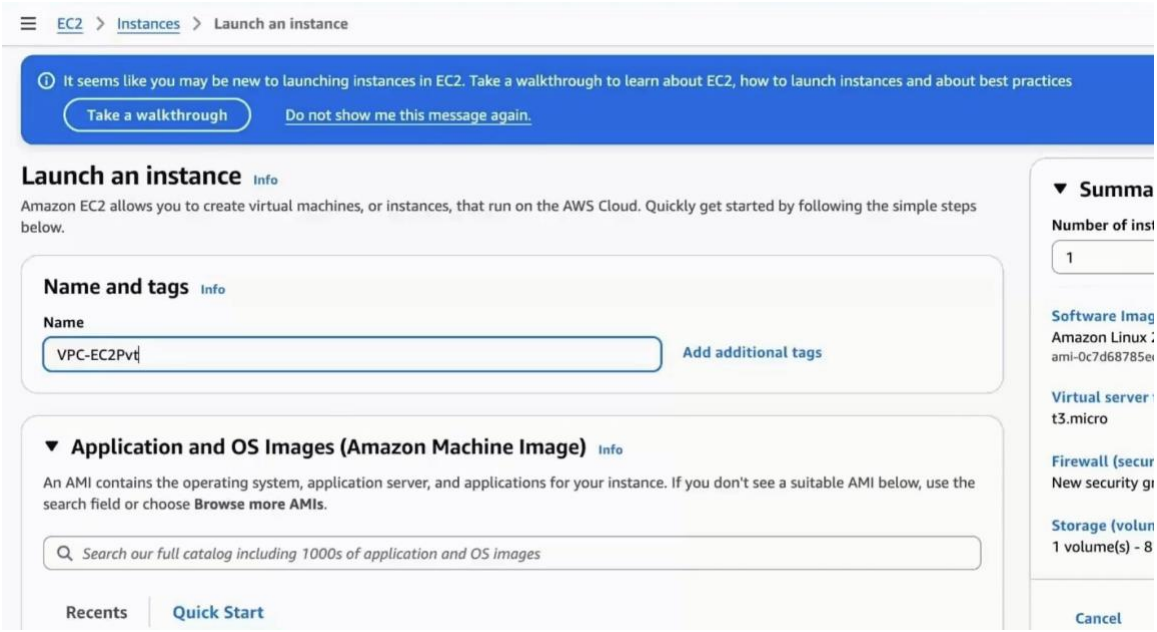


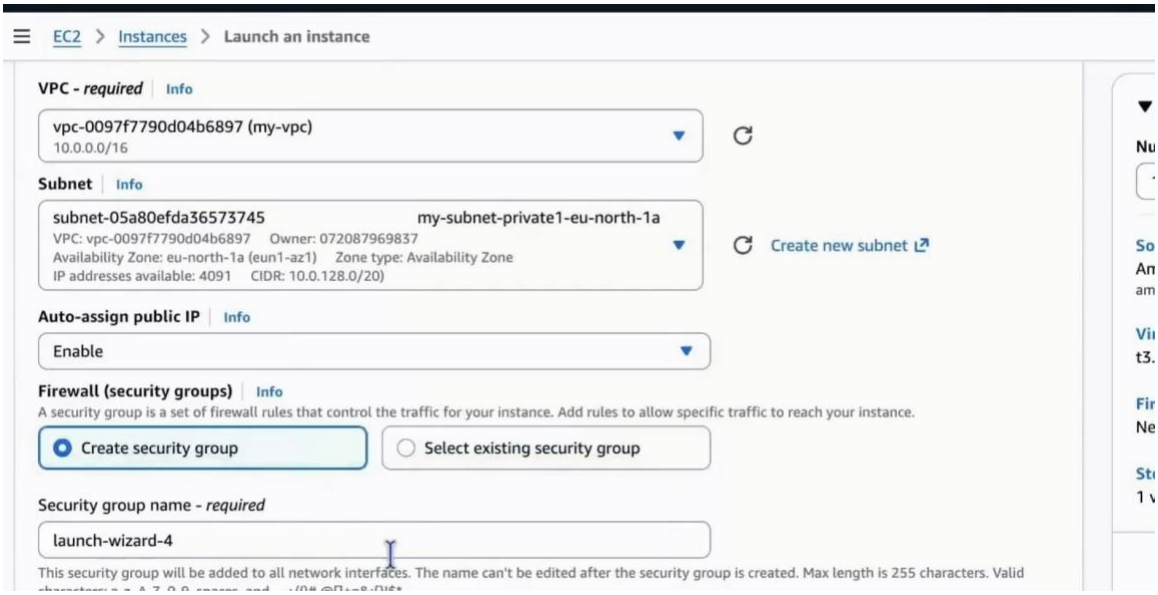
Check public and private route tables and their subnet associations.

Launch EC2

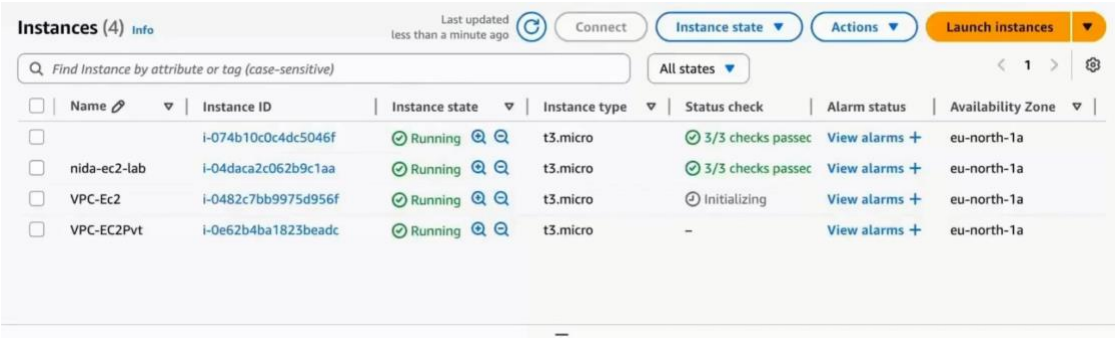



Network settings Info
VPC - required Info
vpc-0097f7790d04b6897 (my-vpc)
10.0.0.0/16
Subnet Info
subnet-09999dcd5c7b9287f my-subnet-public1-eu-north-1a
VPC: vpc-0097f7790d04b6897 Owner: 072087969837
Availability Zone: eu-north-1a (eun1-az1) Zone type: Availability Zone
IP addresses available: 4091 CIDR: 10.0.0.0/20)
Create new subnet


EC2 > Instances > Launch an instance
It seems like you may be new to launching instances in EC2. Take a walkthrough to learn about EC2, how to launch instances and about best practices
Take a walkthrough
Do not show me this message again.
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
VPC-EC2Pvt
Add additional tags
Application and OS Images (Amazon Machine Image) Info
An AMI contains the operating system, application server, and applications for your instance. If you don't see a suitable AMI below, use the search field or choose Browse more AMIs.
Search our full catalog including 1000s of application and OS images
Recents
Quick Start
Summa
Number of inst
1
Software Imag
Amazon Linux
Virtual server
t3.micro
Firewall (secur
New security g
Storage (volu
1 volume(s) - 8
Cancel

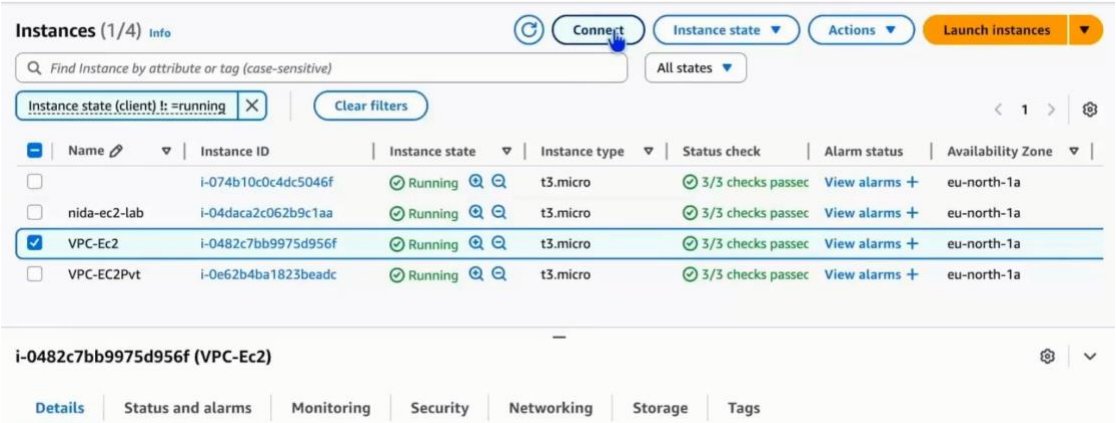

EC2 > Instances > Launch an instance
VPC - required Info
vpc-0097f7790d04b6897 (my-vpc)
10.0.0.0/16
Subnet Info
subnet-05a80efda36573745 my-subnet-private1-eu-north-1a
VPC: vpc-0097f7790d04b6897 Owner: 072087969837
Availability Zone: eu-north-1a (eun1-az1) Zone type: Availability Zone
IP addresses available: 4091 CIDR: 10.0.128.0/20)
Create new subnet
Auto-assign public IP Info
Enable
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-4
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

Instances Running (overview)



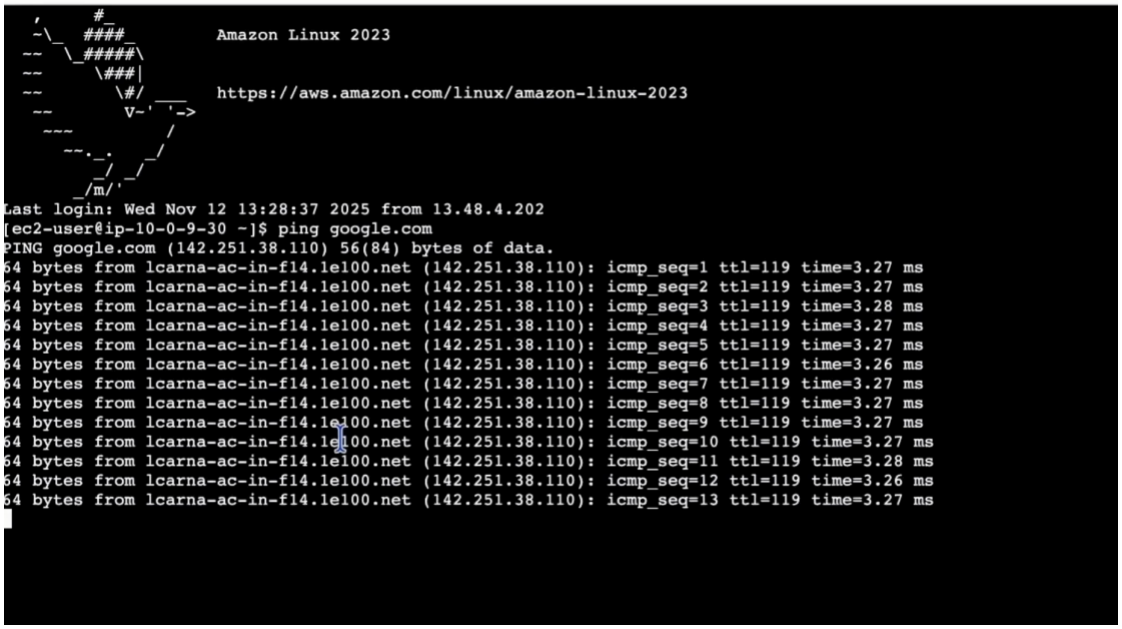
Instances launched: public and private instances should appear here.

Select Public Instance & Connect



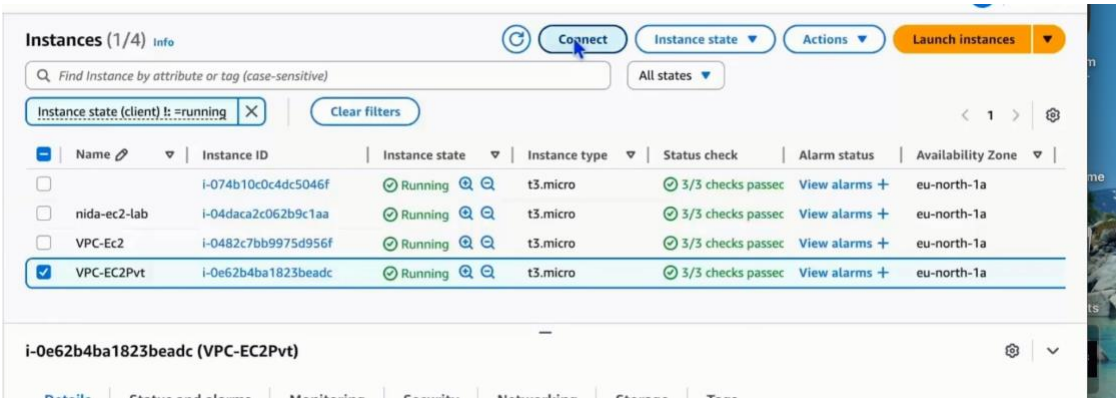
Select the public instance (VPC-Ec2) to connect using Instance Connect.

Ping Test from Public Instance



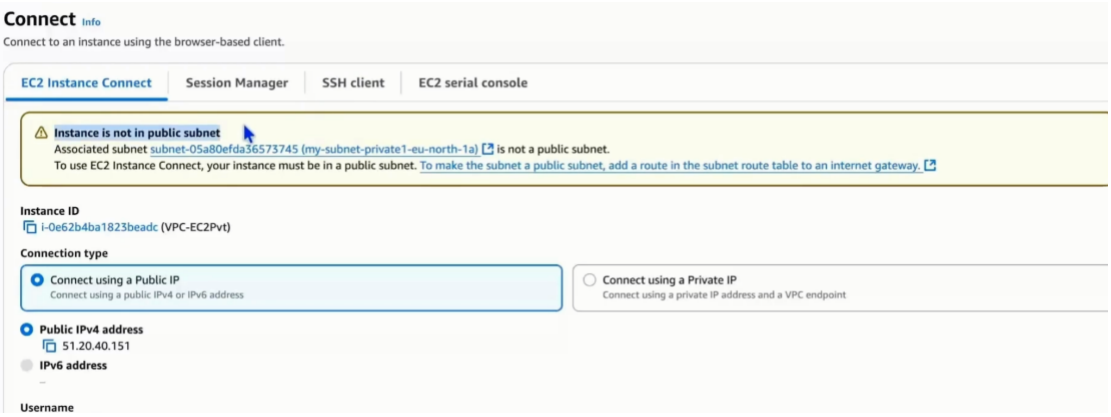
Ping google.com from the public instance to verify internet access.

Select Private Instance & Connect Attempt



Attempt to connect to the private instance — shows instance is not in public subnet.

Network Settings while launching EC2 (subnet selection)



This instance is in a private subnet — hence, it cannot be accessed directly from the internet

Conclusion

A Virtual LAN (VPC) with public and private subnets is now created and validated. The public subnet provides internet access via the Internet Gateway (verified by the ping test), while the private subnet remains isolated (connect attempts show it is not public). This setup demonstrates secure separation of internet-facing and internal resources in AWS.