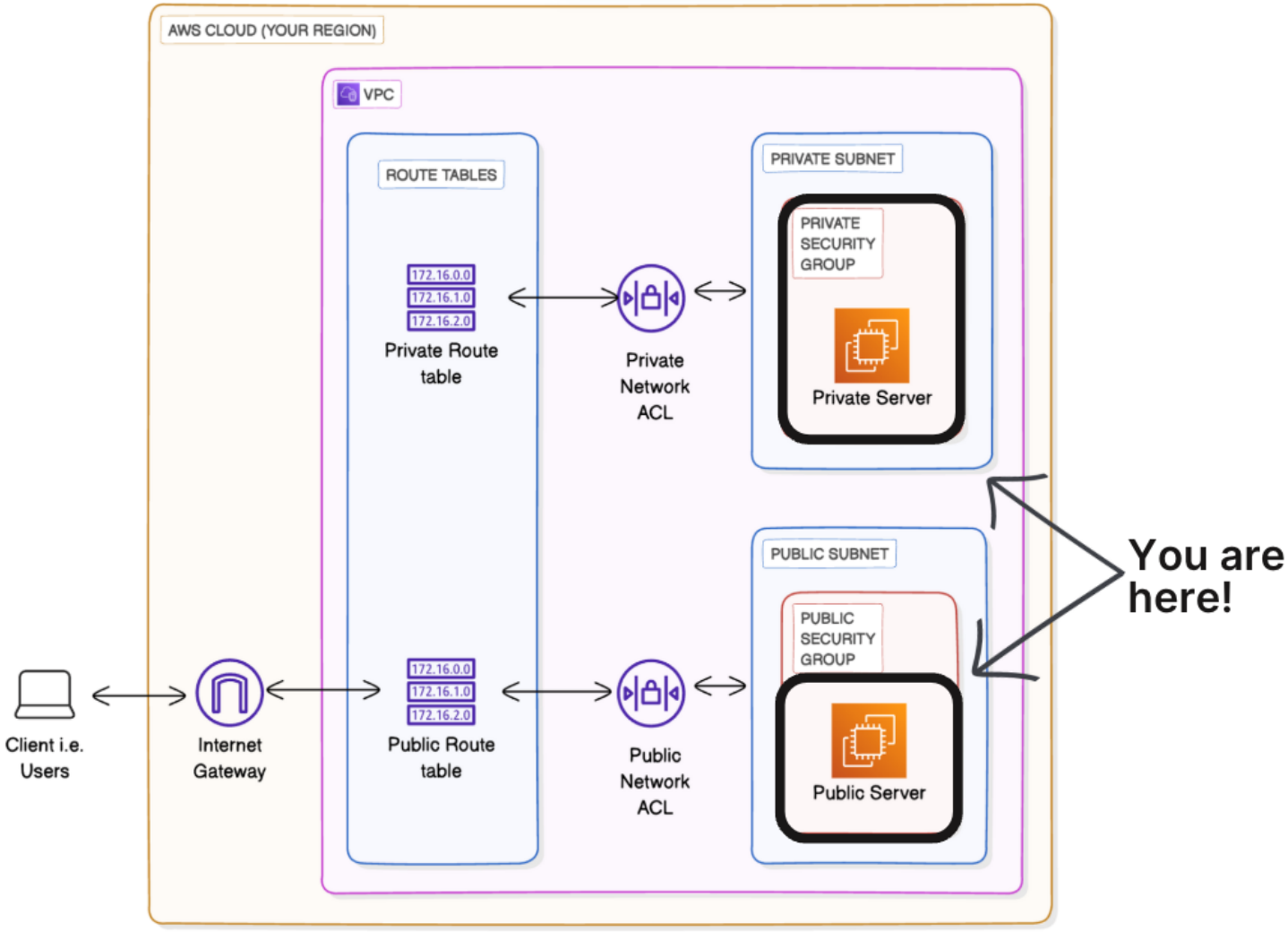
Launching VPC Resources - Step-by-Step Documentation



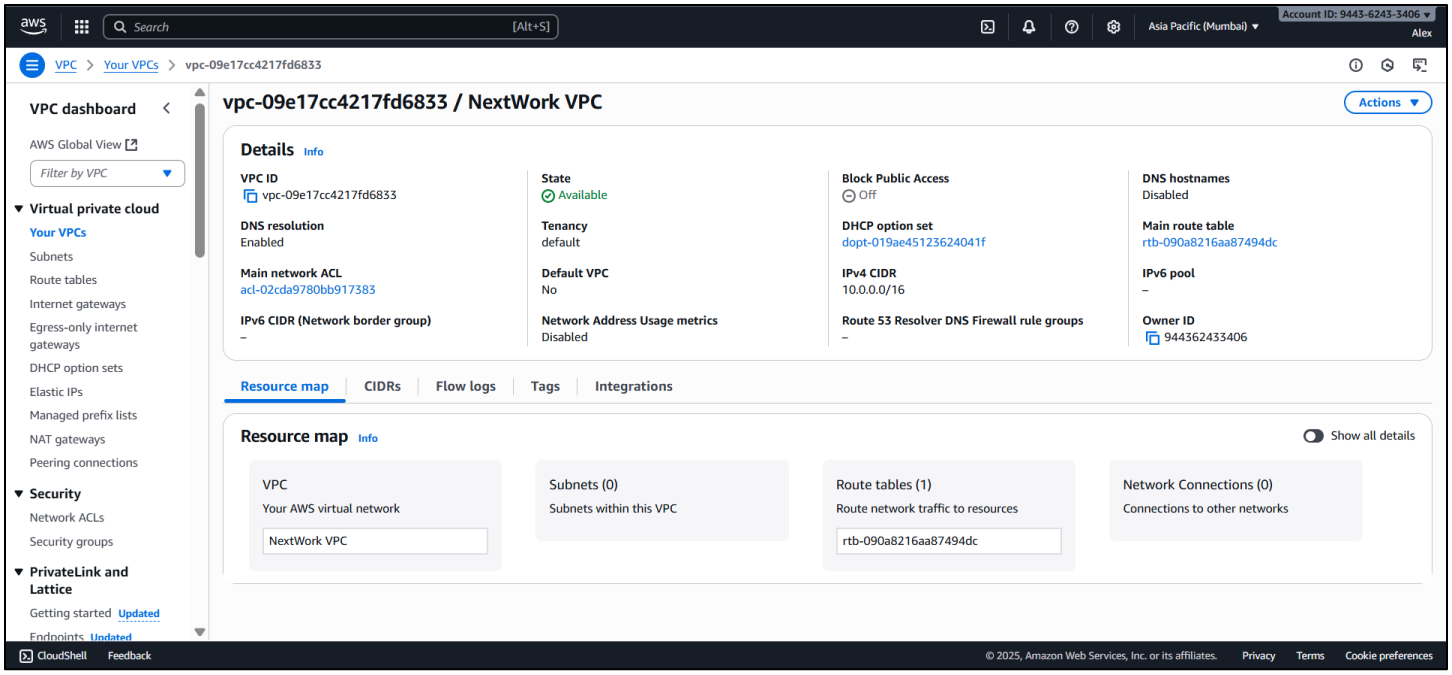
This documentation provides a comprehensive, step-by-step process for launching resources into your Amazon VPC. It builds on the earlier projects 'Build a Virtual Private Cloud', 'VPC Traffic Flow and Security', and 'Creating a Private Subnet'. This guide includes both the foundational steps and the new tasks required to launch EC2 instances in public and private subnets, and to use the VPC wizard.

Step 1: Create a VPC

Set up a new Virtual Private Cloud in AWS.

Actions:

- - Log in to AWS Management Console.
- - Search for 'VPC' in the search bar and select it.
- - In the left-hand navigation pane, choose 'Your VPCs'.
- - Click 'Create VPC'.
- - Select 'VPC only' option.
- - Enter a Name tag (e.g., NextWork VPC).
- - Enter an IPv4 CIDR block (e.g., 10.0.0.0/16).
- - Click 'Create VPC' to finalize.

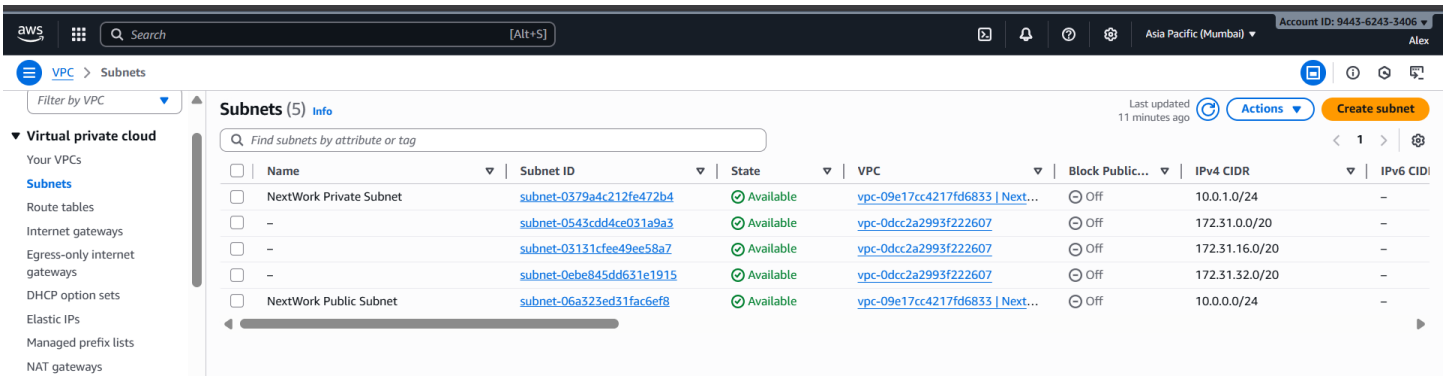


Step 2: Create Subnets

Divide your VPC into subnets for better resource organization.

Actions:

- - From the VPC Dashboard, select 'Subnets' in the navigation pane.
- - Click 'Create subnet'.
- - Choose the VPC you just created (NextWork VPC).
- - Enter a Subnet name (e.g., Public 1).
- - Select an Availability Zone.
- - Enter an IPv4 CIDR block for the subnet (e.g., 10.0.0.0/24).
- - Click 'Create subnet'.
- - Select your new subnet and go to 'Edit subnet settings'.
- - Enable 'Auto-assign public IPv4 address'.
- - Click 'Save' to apply changes.
- - Repeat the process to create a private subnet (e.g., 10.0.1.0/24) without enabling public IPs.

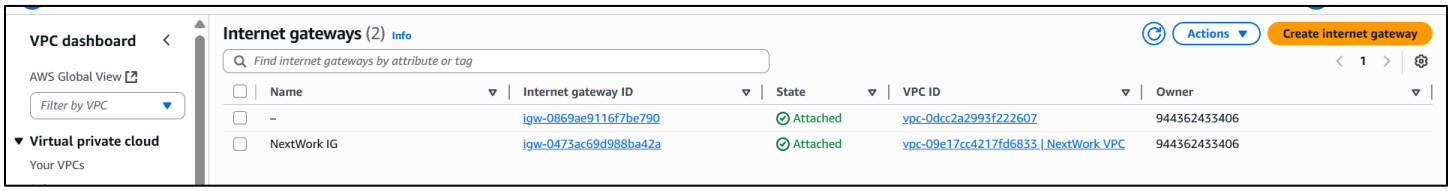


Step 3: Create an Internet Gateway

Attach an internet gateway to your VPC to enable internet access for public subnets.

Actions:

- - In the VPC Dashboard, select 'Internet gateways' from the left-hand panel.
- - Click 'Create internet gateway'.
- - Enter a Name tag (e.g., NextWork IG).
- - Click 'Create internet gateway'.
- - Select your newly created gateway and choose 'Attach to VPC'.
- - Select your VPC (NextWork VPC) and confirm.

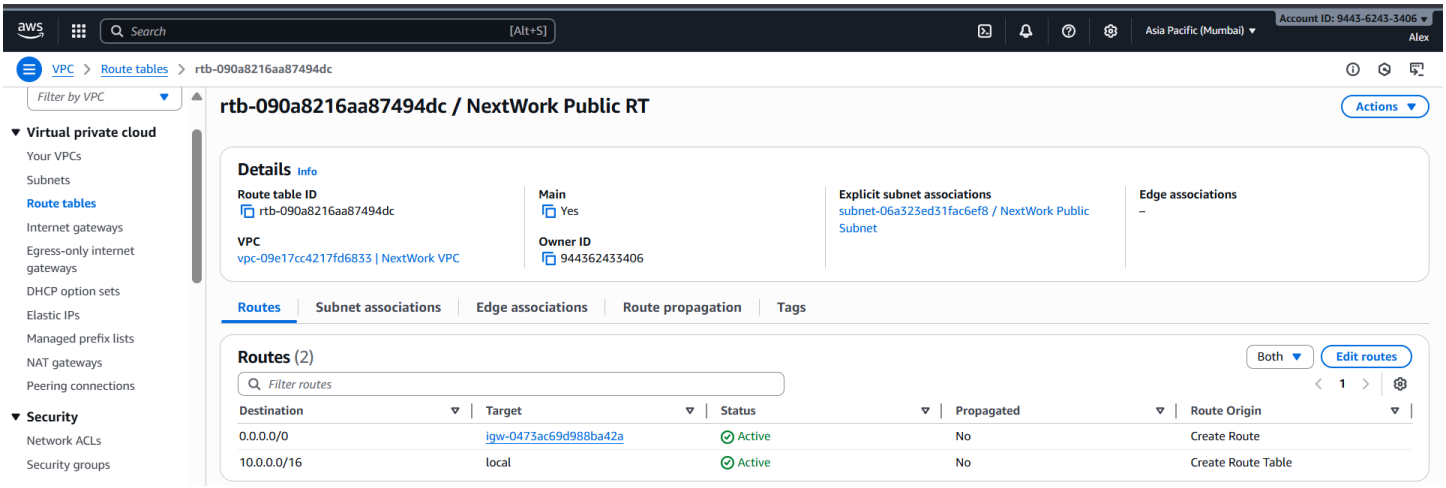


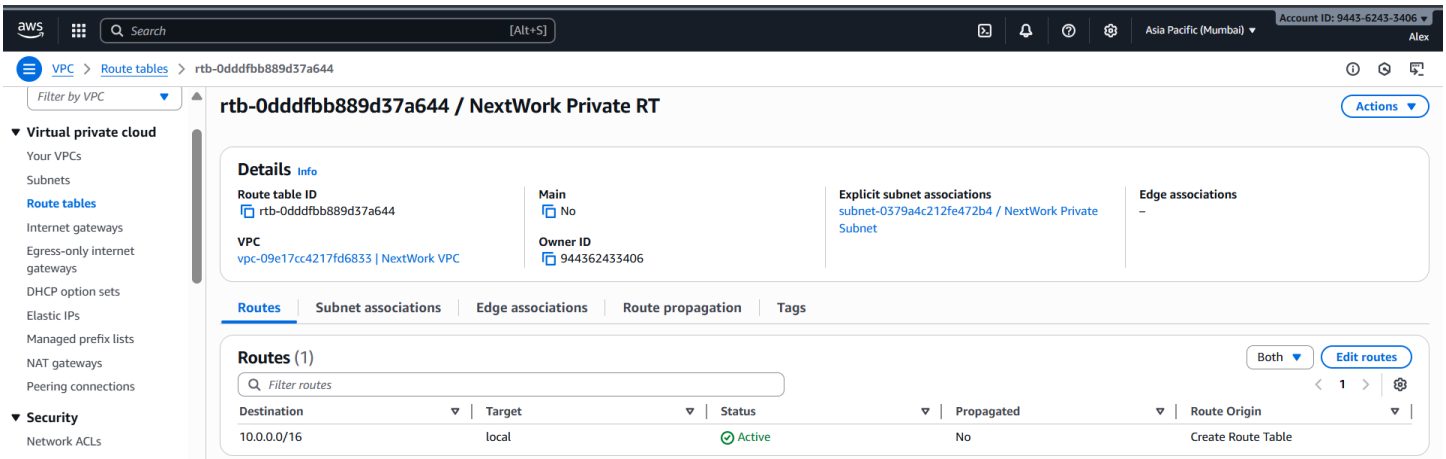
Step 4: Configure Route Tables

Set up route tables for both public and private subnets.

Actions:

- - Go to 'Route tables' in the VPC Dashboard.
- - Create a public route table and associate it with your public subnet.
- - Edit the routes to add Destination = 0.0.0.0/0 and Target = Internet Gateway.
- - Create a private route table and associate it with your private subnet.
- - Do not add a route to the internet gateway to keep the subnet private.



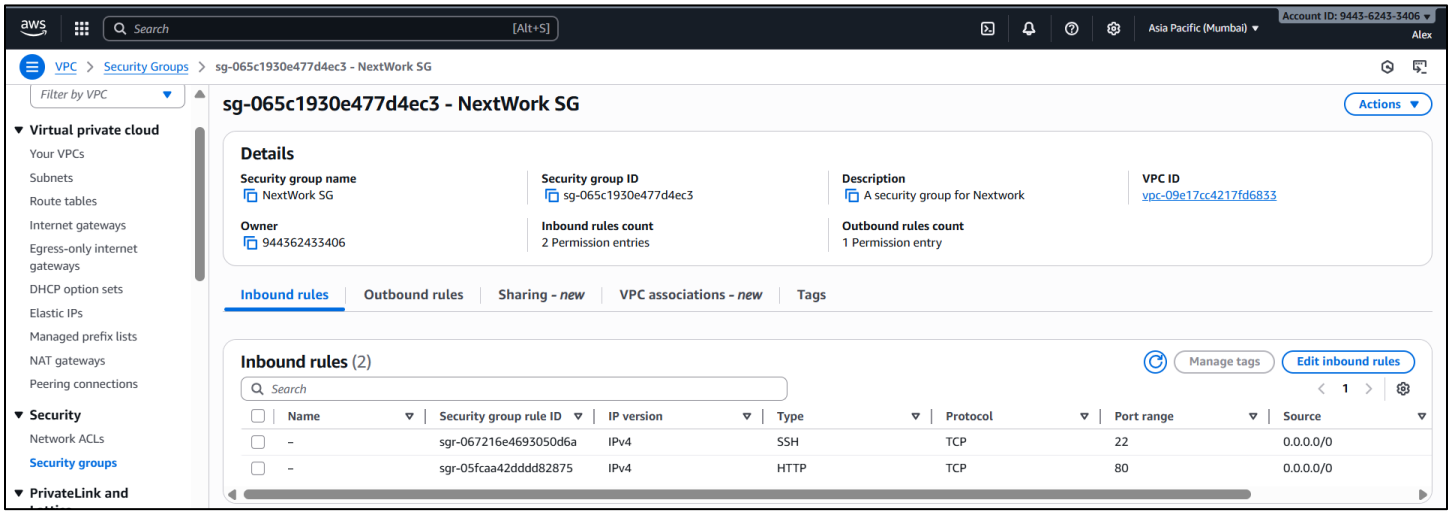


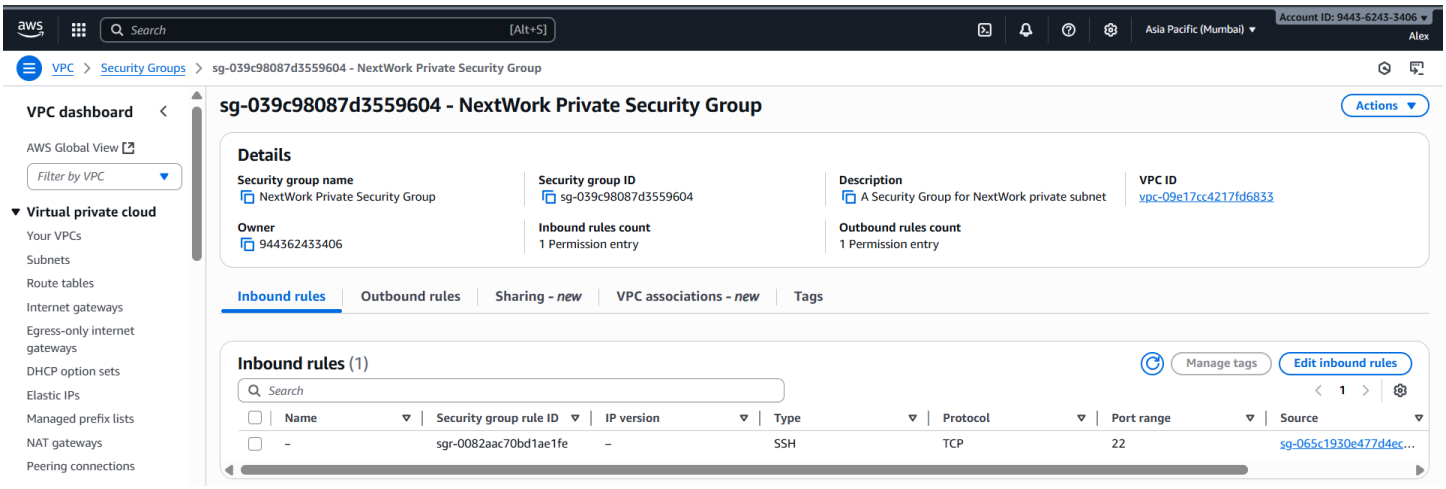
Step 5: Create Security Groups and NACLs

Set up security groups and network ACLs for your subnets.

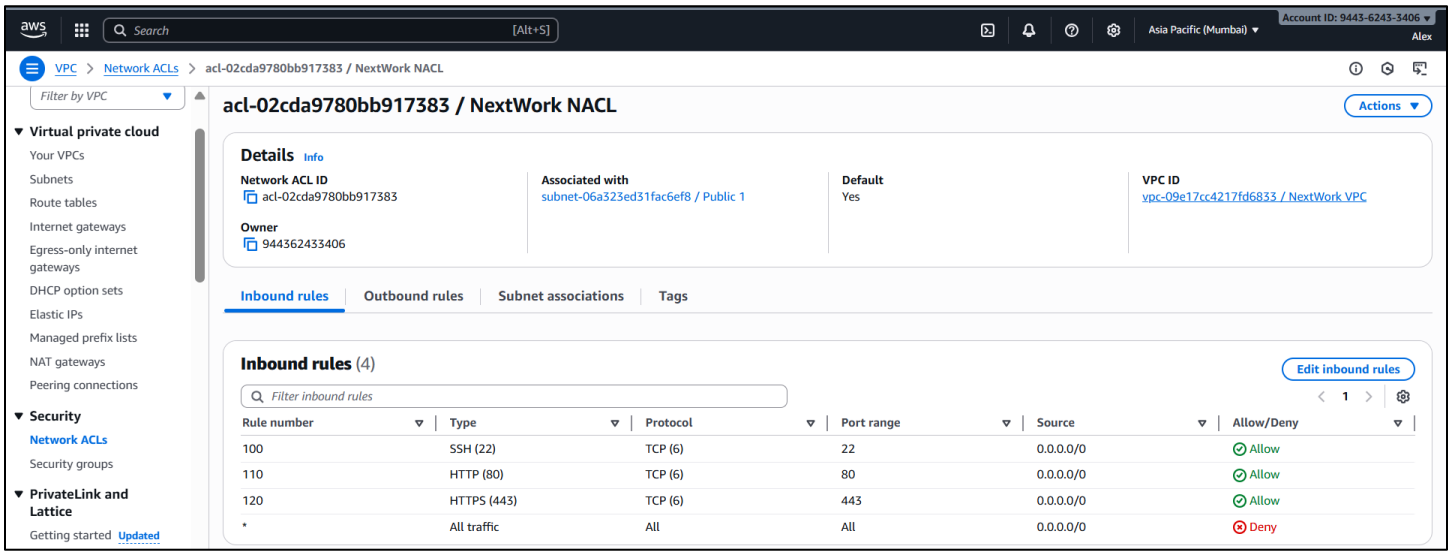
Actions:

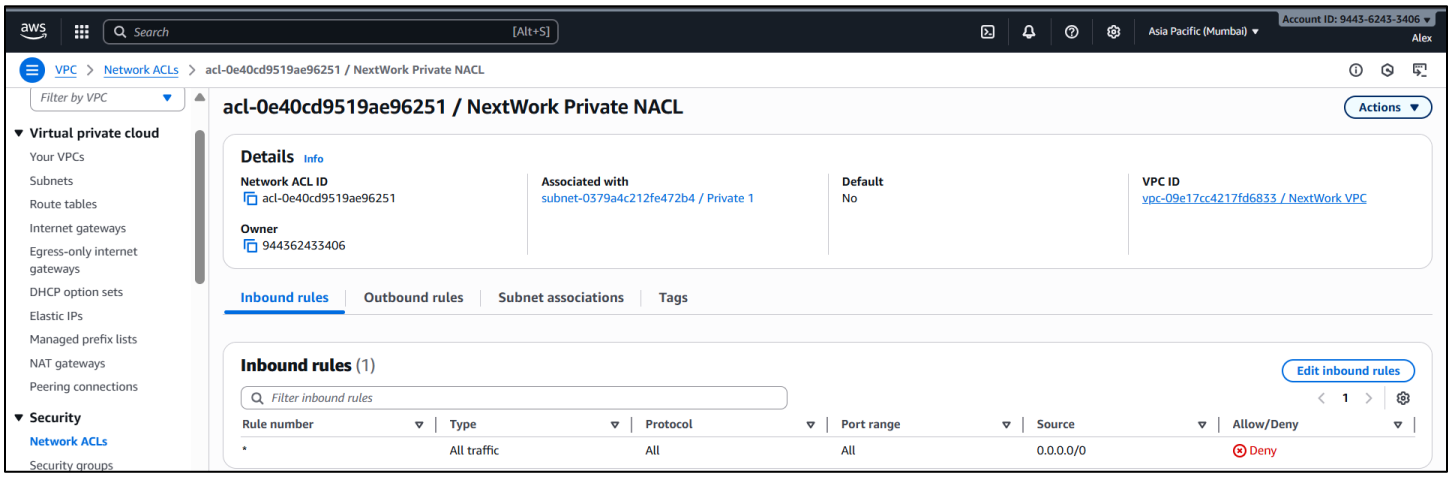
- - In the VPC Dashboard, go to 'Security groups' and create a new one (e.g., NextWork-SG).
- - Allow inbound HTTP (80), HTTPS (443), and SSH (22) traffic for your public subnet.
- - Create a separate security group for the private subnet with limited inbound rules.
- - In 'Network ACLs', create and configure one for the public subnet (allow web and SSH traffic).
- - Create and configure one for the private subnet with restricted inbound/outbound rules.





Public and Private NACL's



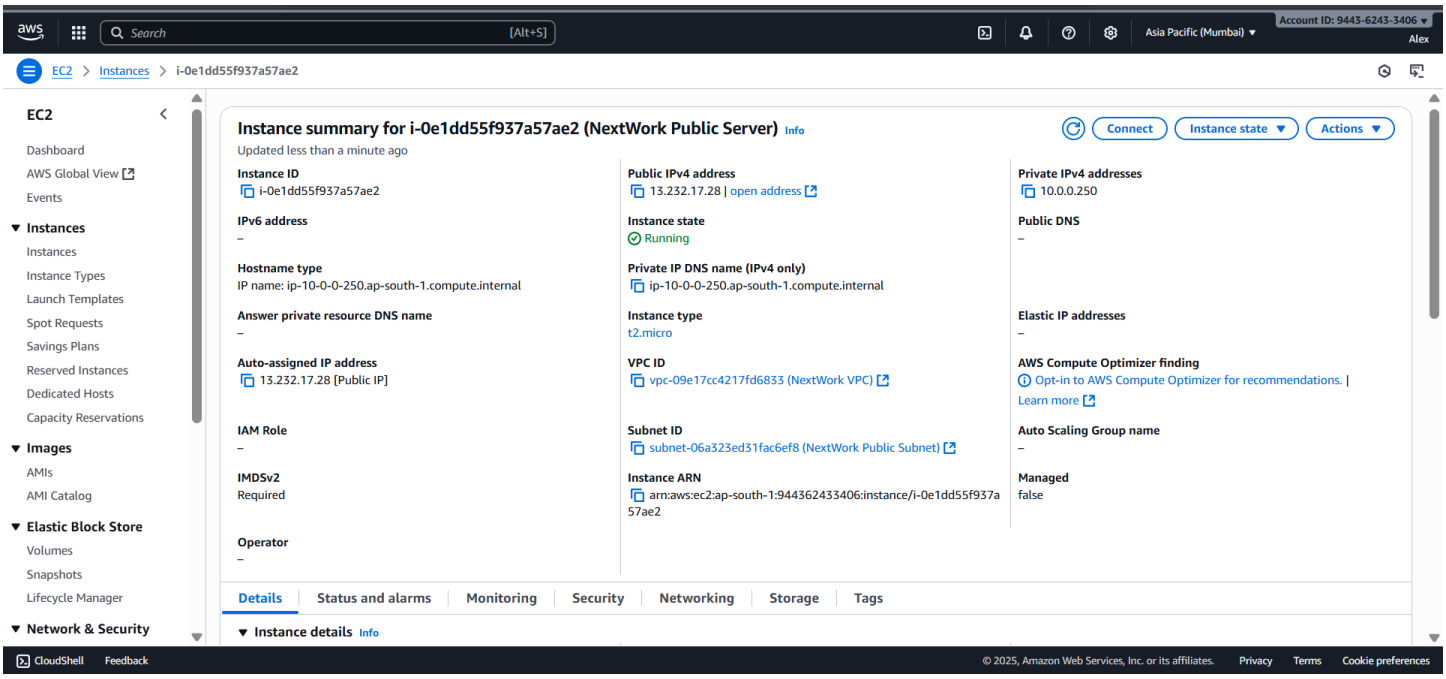


Step 6: Launch an EC2 Instance in the Public Subnet

Deploy a virtual machine that can be accessed over the internet.

Actions:

- - In the AWS Management Console, go to the EC2 Dashboard.
- - Click 'Launch instance'.
- - Enter a Name tag (e.g., Public-EC2).
- - Select an Amazon Machine Image (e.g., Amazon Linux 2).
- - Choose an instance type (e.g., t2.micro).
- - In the Network settings, choose your VPC and the Public subnet.
- - Enable Auto-assign Public IP.
- - Select your public security group (NextWork-SG).
- - Click 'Launch' and download a new key pair if needed.
- - Wait for the instance to launch and test connectivity via EC2 Instance Connect.



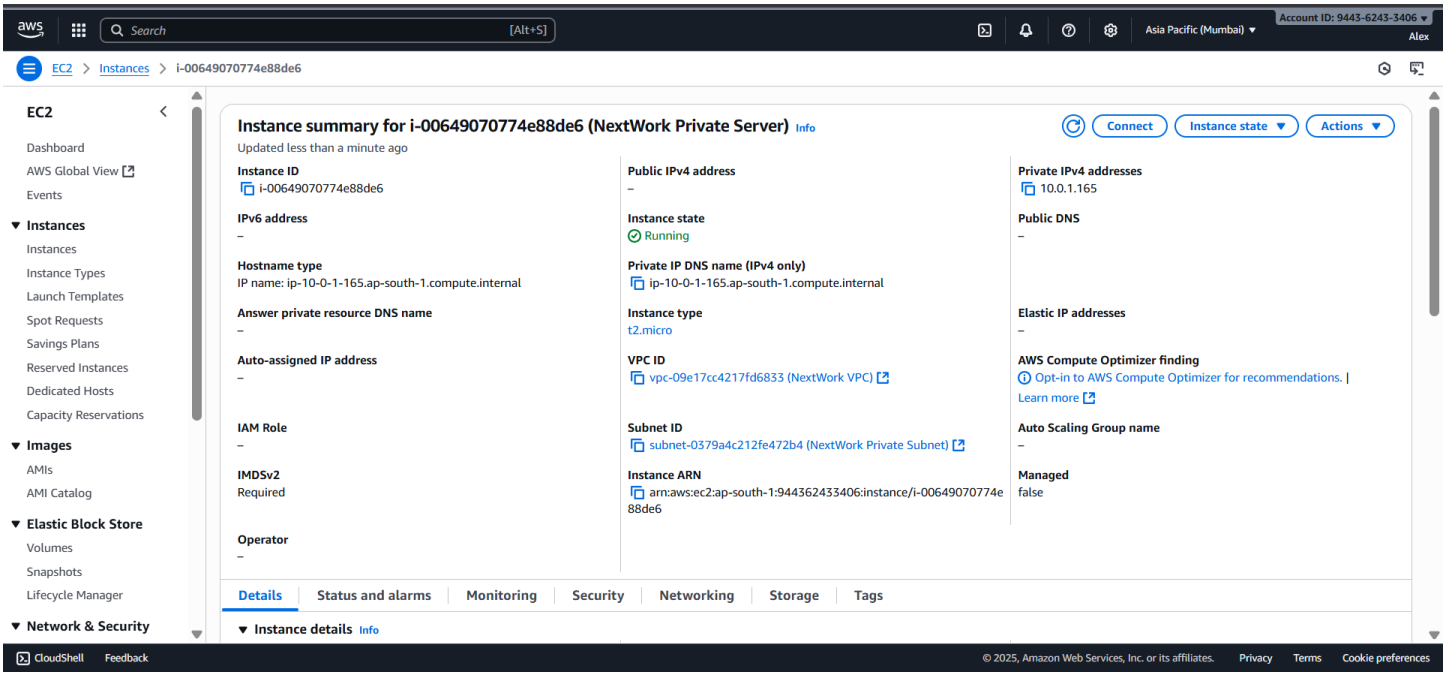
Step 7: Launch an EC2 Instance in the Private Subnet

Deploy a virtual machine in your private subnet without internet access.

Actions:

- - From the EC2 Dashboard, click 'Launch instance'.
- - Enter a Name tag (e.g., Private-EC2).
- - Select the same Amazon Machine Image (Amazon Linux 2).
- - Choose an instance type (e.g., t2.micro).
- - In Network settings, choose your VPC and the Private subnet.
- - Disable Auto-assign Public IP.
- - Select your private subnet security group.

- - Click 'Launch'.
- - Note: This instance will not have internet access; you can connect via a Bastion host in the public subnet if required.



Step 8: Use Amazon VPC Wizard

Quickly set up a VPC with pre-configured subnets, route tables, and internet gateways.

Actions:

- - In the VPC Dashboard, click on 'Launch VPC Wizard'.
- - Select a configuration template (e.g., VPC with Public and Private Subnets).
- - Follow the wizard prompts to create the VPC.
- - Review the automatically created components: subnets, route tables, internet gateway, and NACLs.
- - Compare this with your manually created VPC to understand the differences.