

Introduction to Amazon Virtual Private Cloud

Table of Contents

INTRODUCTION TO AMAZON VIRTUAL PRIVATE CLOUD.....	1
LAB OVERVIEW	3
OBJECTIVES	3
TASK 1: CREATE AN AMAZON VPC	4
<i>VPC Overview</i>	4
TASK 2: EXPLORE YOUR VPC.....	13
CONCLUSION	18

Lab overview

In this lab, I was introduced to Amazon Virtual Private Cloud (Amazon VPC). I used the Amazon VPC wizard to create a VPC, I attached an Internet Gateway, I added a subnet, and defined routing for the VPC to allow traffic flow between the subnet and the Internet Gateway.

Objectives

By the end of this lab, I was able to do the following:

- Created an Amazon VPC through the VPC Wizard
- Explored the basic components of a VPC, namely:
 -
 - Public and private subnets
 - Route tables and routes
 - NAT gateways
 - Network ACLs

Task 1: Create an Amazon VPC

In this task, I created an Amazon VPC using the VPC Wizard. The wizard created the VPC automatically based on specified parameters. This approach is advantageous than manually creating each component of the VPC.

VPC Overview

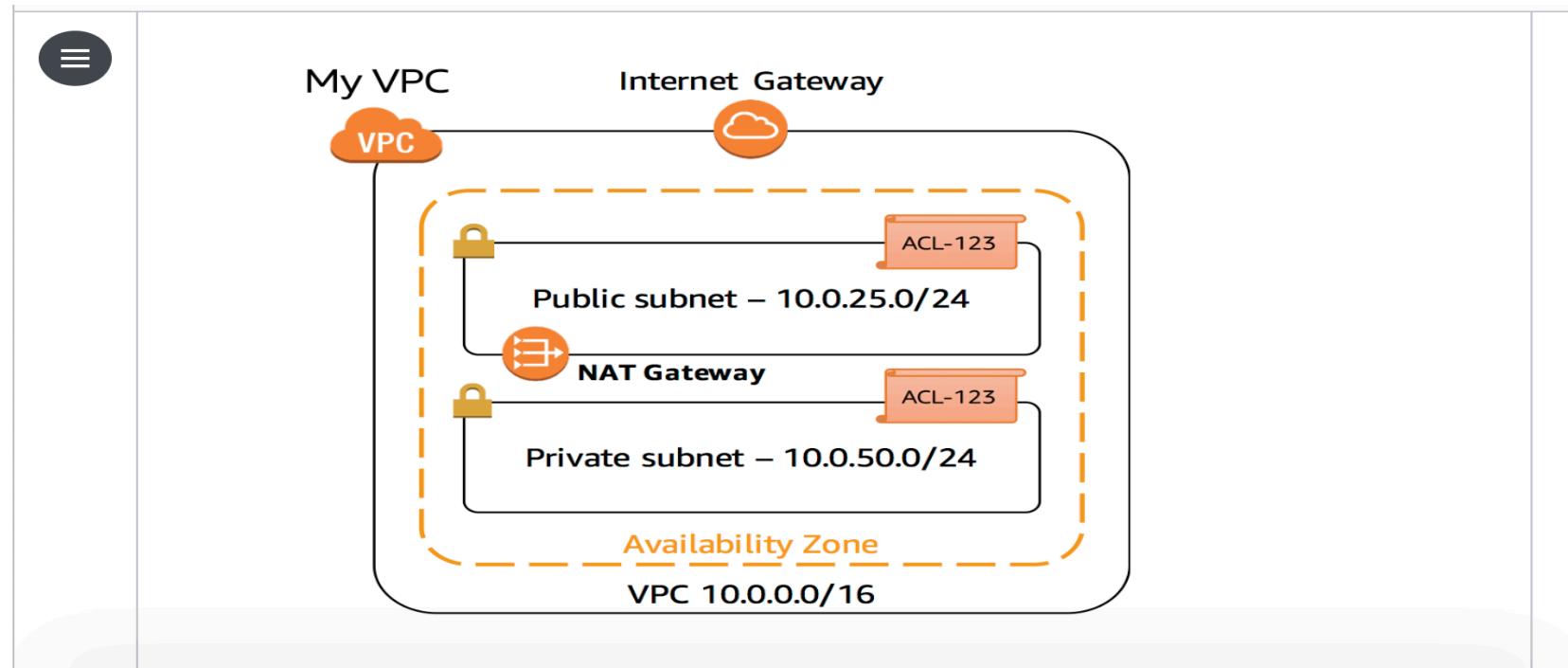


Figure 1: VPC overview (source: AWS Skill builder lab)

Step 1: Search for and choose “VPC” in the AWS Management Console’ search bar

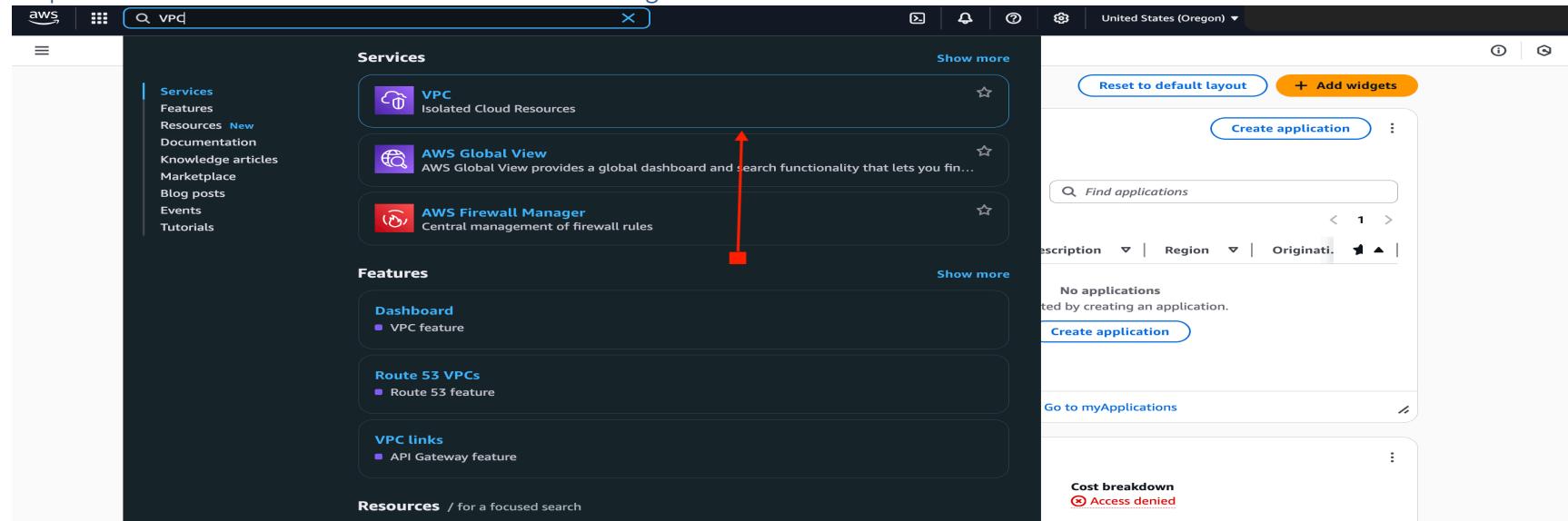


Figure 2: VPC Search (Source: Personal Collection)

The screenshot shows the AWS VPC Dashboard. At the top, there are buttons for 'Create VPC' and 'Launch EC2 Instances'. A note says 'Note: Your Instances will launch in the United States region.' Below this is a section titled 'Resources by Region' with the heading 'You are using the following Amazon VPC resources'. The dashboard lists various resources with their counts in the Oregon region:

Resource Type	Region	Count
VPCs	Oregon	1
NAT Gateways	Oregon	0
Subnets	Oregon	4
VPC Peering Connections	Oregon	0
Route Tables	Oregon	1
Network ACLs	Oregon	1
Internet Gateways	Oregon	0
Security Groups	Oregon	1
Egress-only Internet Gateways	Oregon	0
Customer Gateways	Oregon	0

On the left sidebar, under 'Virtual private cloud', there are links for 'Your VPCs', 'Subnets', 'Route tables', 'Internet gateways', 'Egress-only internet gateways', 'Carrier gateways', 'DHCP option sets', 'Elastic IPs', 'Managed prefix lists', 'NAT gateways', 'Peering connections', and 'Route servers'. Under 'Security', there are links for 'Network ACLs' and 'Feedback'. At the bottom, there is a decorative footer bar with various icons.

Figure 3: VPC Dashboard (Source: Personal Collection)

Step 2: Click Create VPC

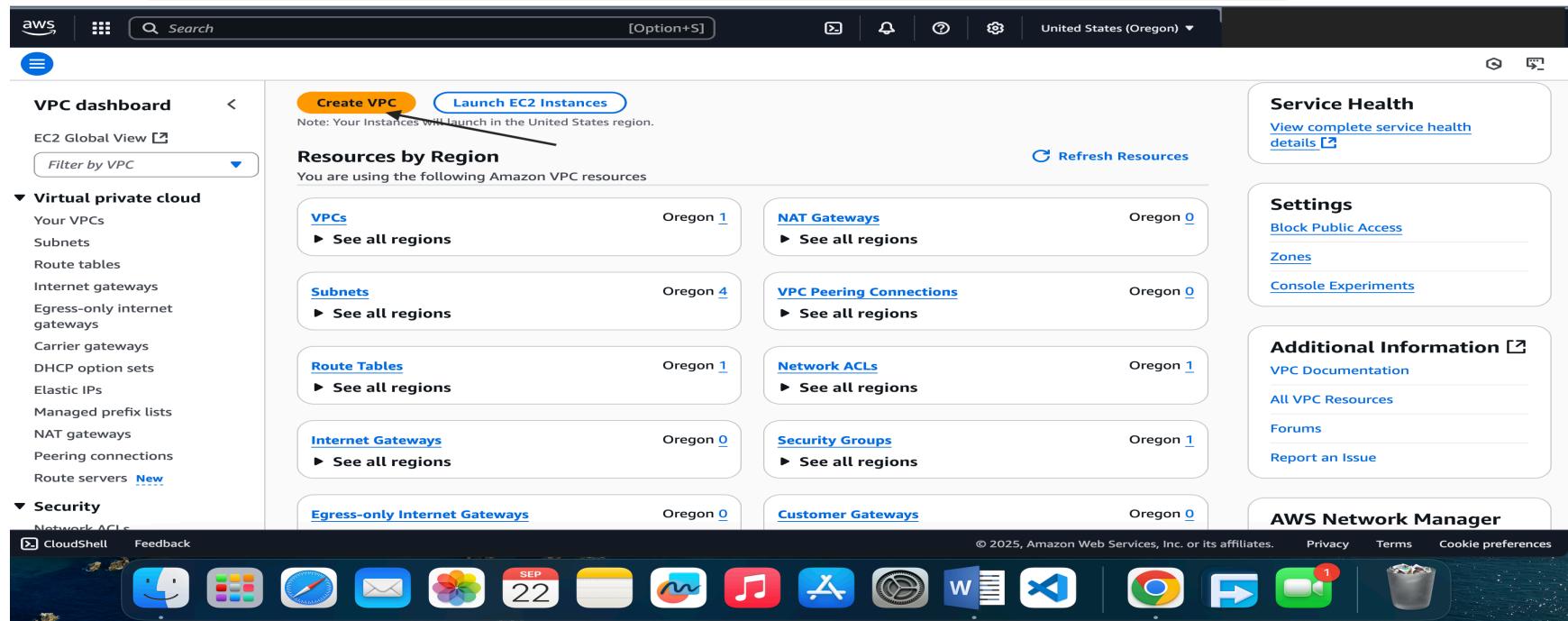


Figure 4: VPC Create VPC (Source: Personal Collection)

Step 4: VPC Settings

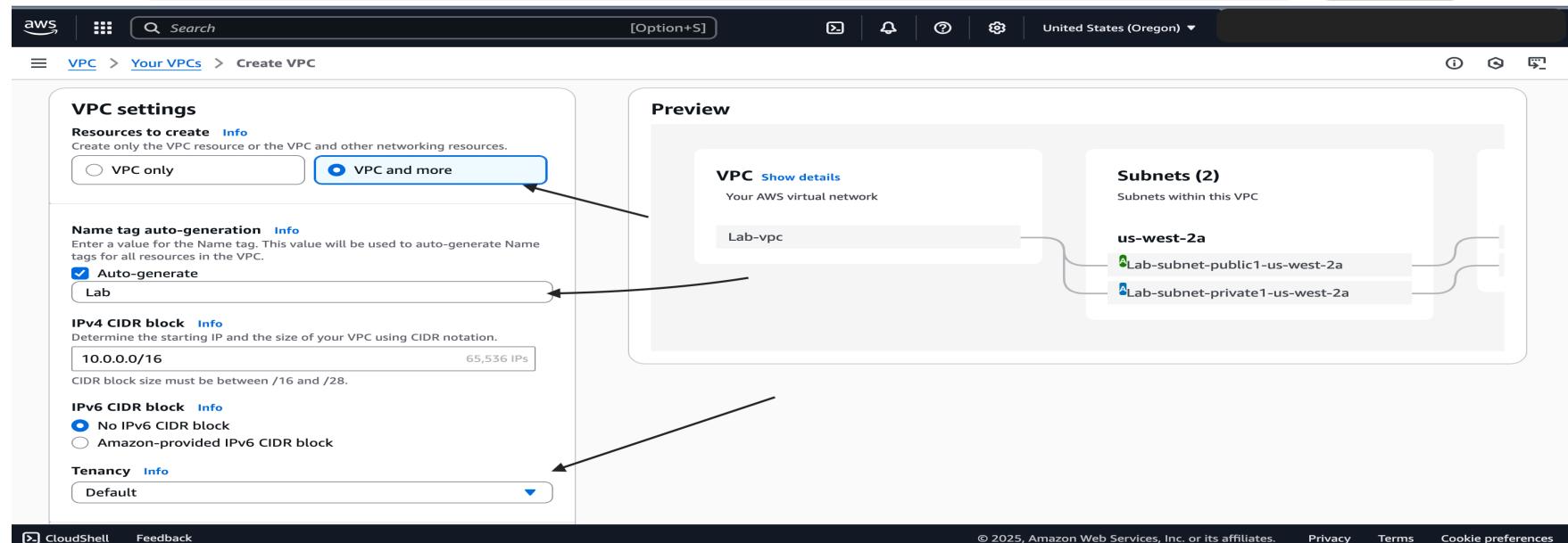


Figure 5: VPC Settings (Source: Personal Collection)

Step 5: Creating IP address and setting availability zones

- I set the number of Availability Zones (AZs) to 1
- I set the number of public subnets to 1 with the address: 10.0.25.0/24
- I set the number of private subnets to 1 with the address: 10.0.50.0/24
- I set the NAT gateways (\$) to 1 AZ
- I set the VPC endpoints to none.

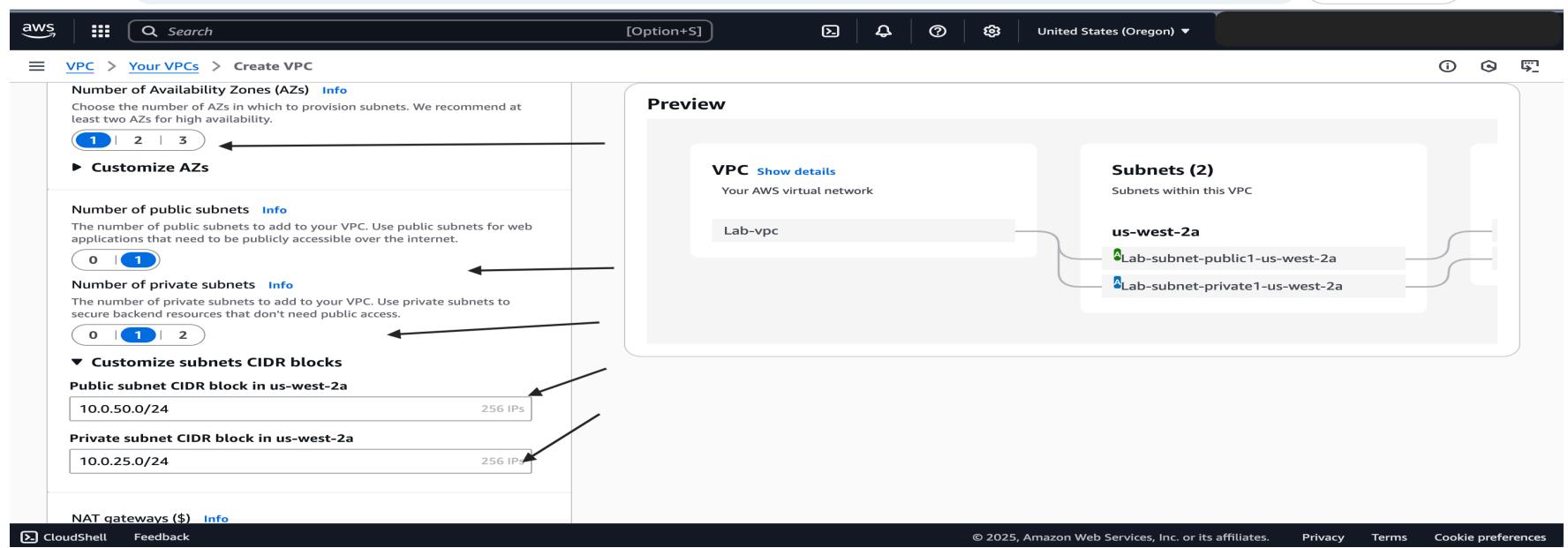


Figure 6: VPC Subnet (Source: Personal Collection)

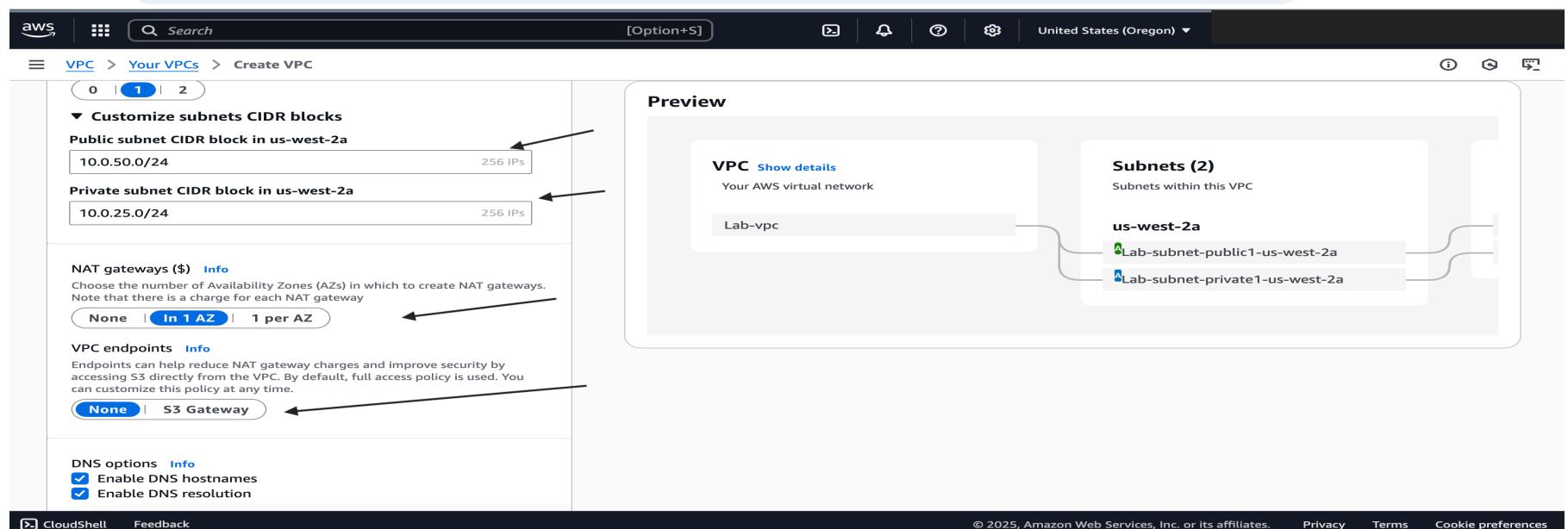


Figure 7: VPC Gateway (Source: Personal Collection)

Step 6: Create the VPC

The screenshot shows the AWS VPC creation process completed successfully. The main content area displays a list of 21 steps, each marked with a green checkmark, indicating they have been successfully executed. The steps include creating the VPC itself, enabling DNS hostnames and resolution, verifying the creation, creating subnets, attaching an internet gateway, creating route tables, associating route tables with subnets, allocating elastic IPs, creating NAT gateways, and waiting for NAT gateways to activate. A 'View VPC' button is located at the bottom right of the main content area.

Success

Details

- ✓ Create VPC: [vpc-06ce47c8400ff333f](#)
- ✓ Enable DNS hostnames
- ✓ Enable DNS resolution
- ✓ Verifying VPC creation: [vpc-06ce47c8400ff333f](#)
- ✓ Create subnet: [subnet-0fcf344f0869b5d6e](#)
- ✓ Create subnet: [subnet-0750afeef82faa25b](#)
- ✓ Create internet gateway: [igw-0072f5c625d25096d](#)
- ✓ Attach internet gateway to the VPC
- ✓ Create route table: [rtb-04f4c183ba777b2d3](#)
- ✓ Create route
- ✓ Associate route table
- ✓ Allocate elastic IP: [eipalloc-065f82d906844ccf6](#)
- ✓ Create NAT gateway: [nat-0add58b2f917e6249](#)
- ✓ Wait for NAT Gateways to activate
- ✓ Create route table: [rtb-00bf53126189b13ea](#)
- ✓ Create route
- ✓ Associate route table
- ✓ Verifying route table creation

View VPC

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Figure 8: VPC Details (Source: Personal Collection)

The screenshot shows the AWS VPC Details page for a VPC named 'Lab-vpc'. The top navigation bar includes links for AWS, VPC, Your VPCs, and the specific VPC ID. The main content area is titled 'vpc-06ce47c8400ff333f / Lab-vpc'. The 'Details' tab is selected, displaying various configuration settings:

- VPC ID:** vpc-06ce47c8400ff333f
- State:** Available
- Tenancy:** default
- Default VPC:** No
- Network Address Usage metrics:** Disabled
- Block Public Access:** Off
- DHCP option set:** dopt-0f104b8e99e89e115
- IPv4 CIDR:** 10.0.0.0/16
- Route 53 Resolver DNS Firewall rule groups:** -
- DNS hostnames:** Enabled
- Main route table:** rtb-02d5100e7fbed9224
- IPv6 pool:** -
- Owner ID:** 475572017314

Below the details, there are tabs for Resource map, CIDRs, Flow logs, Tags, and Integrations. The Resource map tab is active, showing a network diagram. The diagram consists of four main components connected by arrows:

- VPC:** Your AWS virtual network (Lab-vpc)
- Subnets (2):** Subnets within this VPC (us-west-2a)
 - Lab-subnet-public1-us-west-2a
 - Lab-subnet-private1-us-west-2a
- Route tables (3):** Route network traffic to resources
 - rtb-02d5100e7fbed9224
 - Lab-rtb-public
 - Lab-rtb-private1-us-west-2a
- Network Connections (2):** Connections to other networks
 - Lab-igw
 - Lab-nat-public1-us-west-2a

At the bottom of the page, there are links for CloudShell, Feedback, and a copyright notice: © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences.

Figure 9: VPC details after creation (Source: Personal Collection)

Task 2: Explore your VPC

In this task, I explored the VPC components created by the VPC Wizard namely:

The screenshot shows the AWS VPC Subnets page. On the left, there's a sidebar with 'Virtual private cloud' expanded, showing 'Subnets' selected. A black arrow points from this 'Subnets' link to the 'Subnets (8)' heading in the main content area. Another black arrow points from the 'Subnets' link in the top navigation bar to the same 'Subnets (8)' heading. The main content area displays a table of 8 subnets, each with a checkbox, Name, Subnet ID, State, VPC, Block Public..., and IPv4 CIDR columns. The subnets are all listed as 'Available'. The VPC column shows 'Lab-vpc' for all. The IPv4 CIDR columns show various ranges: 10.0.50.0/24, 10.0.50.0/24, 10.0.25.0/24, 10.0.25.0/24, 172.31.0.0/20, 172.31.32.0/20, 172.31.48.0/20, and 172.31.16.0/20.

Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR
Lab-subnet-public1-us-west-2a	subnet-0fcf344f0869b5d6e	Available	vpc-06ce47c8400ff333f Lab-vpc	Off	10.0.50.0/24
Lab-subnet-public1-us-west-2a	subnet-08508b3b860b8f6ab	Available	vpc-0e3898555c90b1d75 Lab...	Off	10.0.50.0/24
Lab-subnet-private1-us-west-2a	subnet-0750afeef82faa25b	Available	vpc-06ce47c8400ff333f Lab-vpc	Off	10.0.25.0/24
Lab-subnet-private1-us-west-2a	subnet-0edbdfb8926879b81	Available	vpc-0e3898555c90b1d75 Lab...	Off	10.0.25.0/24
-	subnet-056592eaeb03b5b92	Available	vpc-09af121ae1becab8b	Off	172.31.0.0/20
-	subnet-073b8ea27df98c176	Available	vpc-09af121ae1becab8b	Off	172.31.32.0/20
-	subnet-0c838b6533a898114	Available	vpc-09af121ae1becab8b	Off	172.31.48.0/20
-	subnet-00002ba758dc8f07	Available	vpc-09af121ae1becab8b	Off	172.31.16.0/20

Figure 10: Exploring the subnets component (Source: Personal Collection)

VPC dashboard < EC2 Global View [] Filter by VPC > Your VPCs

Your VPCs (2) Info

Name	VPC ID	State	Block Public...	IPv4 CIDR	IPv6 CIDR
-	vpc-09af121ae1becab8b	Available	Off	172.31.0.0/16	-
Lab-vpc	vpc-06ce47c8400ff333f	Available	Off	10.0.0.0/16	-

Select a VPC above

Last updated about 1 hour ago Actions Create 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
 - NAT gateways
 - Peering connections
 - Route servers New
- Security
 - Network ACLs
 - Security groups
- PrivateLink and Lattice

Figure 11: Exploring the “Your VPCs” Component (Source: Personal Collection)

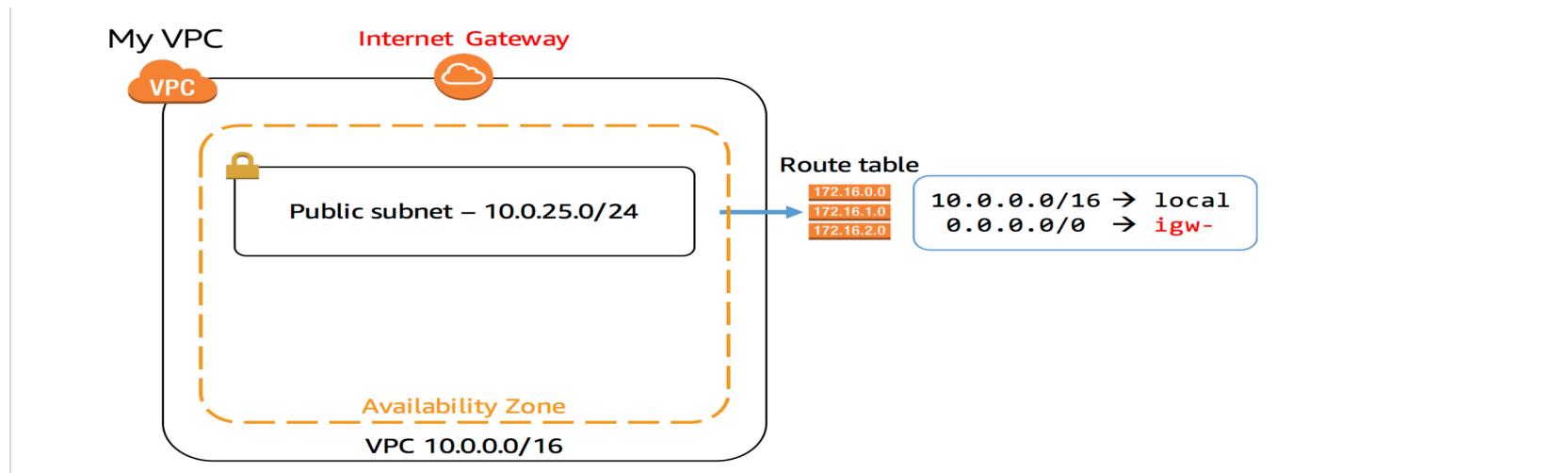


Figure 12: The IGW overview (Source: AWS Skill builder lab)

Screenshot of the AWS VPC Internet Gateways page:

VPC dashboard

- EC2 Global View
- Filter by VPC
- Virtual private cloud
 - Your VPCs
 - Subnets
 - Route tables
 - Internet gateways** (selected)
 - Egress-only internet gateways
 - Carrier gateways
 - DHCP option sets
 - Elastic IPs
 - Managed prefix lists
 - NAT gateways
 - Peering connections
 - Route servers [New](#)
- Security
 - Network ACLs
 - Security groups
- PrivateLink and Lattice

Internet gateways (2) Info

Name	Internet gateway ID	State	VPC ID	Owner
Lab-igw	igw-0072f5c625d25096d	Attached	vpc-06ce47c8400ff333f Lab-vpc	475572017314
Lab-igw	igw-022b73043d3804acd	Attached	vpc-0e3898555c90b1d75 Lab-vpc	475572017314

Select an internet gateway above

Figure 13: IGW component (Source: Personal Collection)

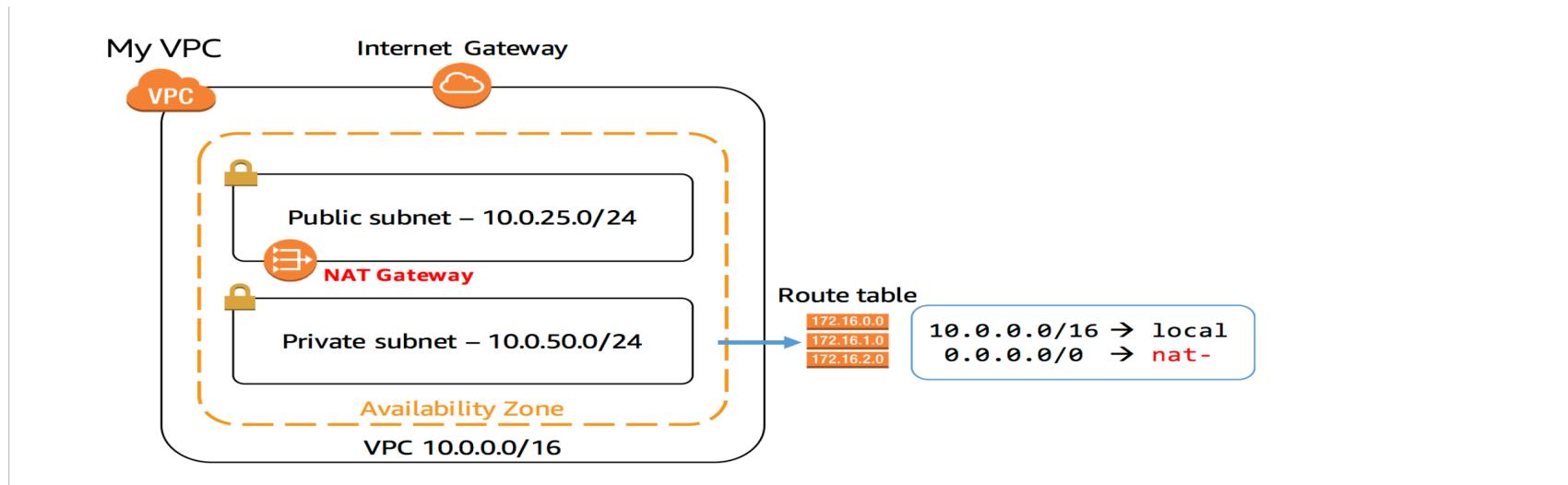


Figure 14: Route Table overview (Source: AWS skill builder lab)

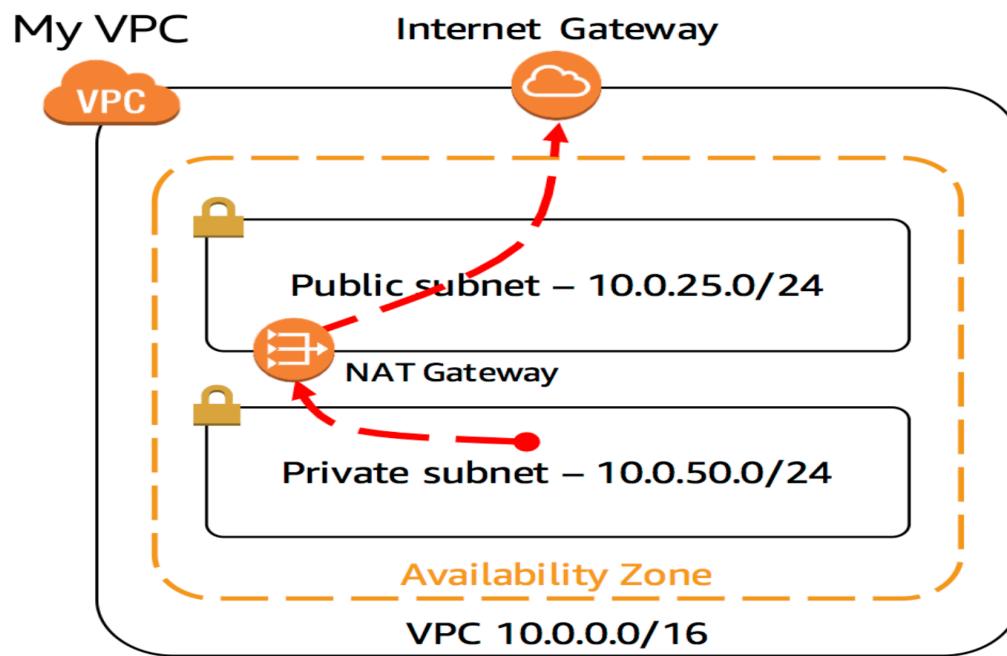


Figure 15: NAT Gateway (Source: AWS builder lab)

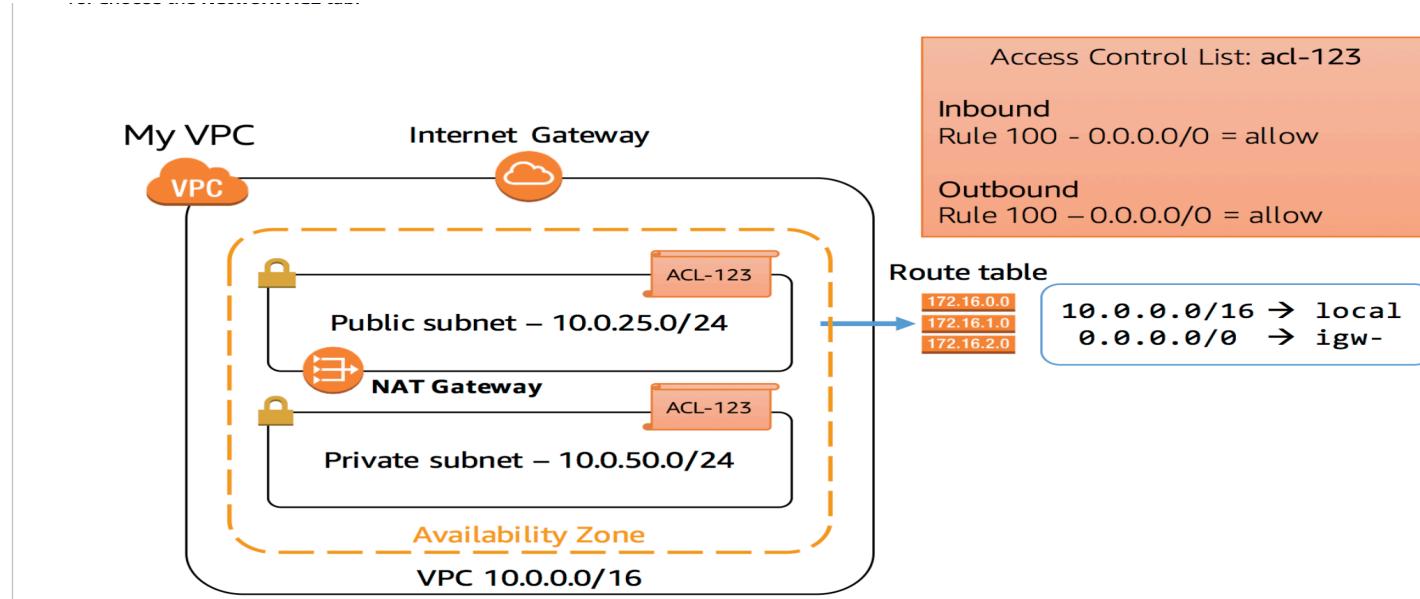


Figure 16: NACL Overview (Source: AWS Skill lab)

Conclusion

In this lab, I learned how to create an Amazon Virtual Private Cloud (VPC) through the AWS Wizard. I used the Amazon VPC wizard to create a VPC, I attached an Internet Gateway, I added a subnet, and defined routing for the VPC to allow traffic flow between the subnet and the Internet Gateway.

In addition, I visited the VPC's components over the navigation pane. I explored components such as “Your VPCs”, Internet gateways, Subnets, Route table, Network ACL, NAT gateways, Security Groups, and many more.

I am looking forward to learning about these components in depth to improve my knowledge of the Amazon Virtual Private Cloud.

Reference:

<https://lab.builder-labs.skillbuilder.aws.sa/lab/arn%3Aaws%3Alearningcontent%3Aus-east-1%3A470679935125%3Abuilder-labs%2Fspl-84%3A2.0.18-6fae6247/en-US/ebf1f8dc-9e3d-43bf-a063-6128b7101c2c::hrmEgYmNRB7qTbcbhBzUvr>