

ADVANCED CLOUD COMPUTING - AWS SOLUTION CERTIFICATE - APPLIED

Assignment



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Step 1: Create a VPC

Go to the AWS Console → VPC Service.

1. Click "Create VPC".
2. Enter the following details:-
 - Name tag: e.g., project2
 - IPv4 CIDR block: e.g., 10.0.0.0/16
 - IPv6 CIDR block: No IPv6 CIDR block.
 - Tenancy: Default.
 - The CIDR block 10.0.0.0/16 is chosen to allow a wide range of IP addresses for future scalability.

aws | Search [Alt+S]

VPC > Your VPCs > Create VPC

VPC settings

Resources to create [Info](#)
Create only the VPC resource or the VPC and other networking resources.

☒ VPC only ☐ VPC and more

Name tag - optional
Creates a tag with a key of 'Name' and a value that you specify.

project2

IPv4 CIDR block [Info](#)
☒ IPv4 CIDR manual input
☐ IPAM-allocated IPv4 CIDR block

IPv4 CIDR
10.0.0.0/16
CIDR block size must be between /16 and /28.

IPv6 CIDR block [Info](#)
☒ No IPv6 CIDR block
☐ IPAM-allocated IPv6 CIDR block
☐ Amazon-provided IPv6 CIDR block
☐ IPv6 CIDR owned by me

Tenancy [Info](#)
Default ▼

Then Click "Create VPC".

Create VPC

Step 2: Create Subnets

Public subnets are designed to host resources like web servers accessible via the internet. Private subnets host sensitive resources, such as databases, that require restricted access.

Public Subnet 1:

1. Go to Subnets → Click "Create subnet".

[VPC](#) > [Subnets](#) > Create subnet

Create subnet [Info](#)

VPC

VPC ID

Create subnets in this VPC.

vpc-0718636b8a60ea4a8 (project2)

2. Select the VPC created in Step 1.
3. Enter:-
 - Name tag: e.g., pro2
 - Availability Zone: e.g., ap-south-1a.
 - IPv4 CIDR block: e.g., 10.0.55.0/20.

Subnet 1 of 1

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

pro2

The name can be up to 256 characters long.

Availability Zone [Info](#)

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

Asia Pacific (Mumbai) / ap-south-1a

IPv4 VPC CIDR block [Info](#)

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.55.0/20

4,096 IPs

Create subnet

Public Subnet 2:

Repeat the process.

- **Name tag:** e.g., pro3.
- **Availability Zone:** e.g., ap-south-1c.
- **IPv4 CIDR block:** e.g., 10.0.65.0/20.
- Click **"Create subnet"**.

Subnets (5) [Info](#)

<input type="text" value="Find resources by attribute or tag"/>			
<input type="checkbox"/>	Name ▾	Subnet ID ▾	State ▾
<input type="checkbox"/>	pro3	subnet-0f1e7c5ac4aa370f7	✓ Available
<input type="checkbox"/>	pro2	subnet-0787e1ac959998ae8	✓ Available

Step 3: Create an Internet Gateway

An Internet Gateway allows resources in public subnets to communicate with the internet.

Go to **Internet Gateways** → Click **"Create Internet Gateway"**.

Enter:

- **Name tag:** e.g., vpcig.

VPC > Internet gateways > Create internet gateway ⓘ

Create internet gateway [Info](#)

An internet gateway is a virtual router that connects a VPC to the internet. To create a new internet gateway specify the name for the gateway below.

Internet gateway settings

Name tag
Creates a tag with a key of 'Name' and a value that you specify.

Tags - optional
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	
<input type="text" value="Q Name"/>	<input type="text" value="Q vpcig"/>	<input type="button" value="Remove"/>
<input type="button" value="Add new tag"/>		

You can add 49 more tags.

Click **"Create Internet Gateway"**.

Attach the Internet Gateway to the VPC:-

- Select the created Internet Gateway → Click **"Actions"** → **"Attach to VPC"**.
- Select your VPC (e.g., project2) → Click **"Attach"**.

igw-0d2c608d6f4dbd701 / vpcig

Details Tags

Details

Internet gateway ID
igw-0d2c608d6f4dbd701

State
Attached

VPC ID
vpc-0718636b8a60ea4a8 | project2

Owner
600627347958

Step 4: Create a Route Table

Go to Route Tables → Click "Create route table".

Enter:

- Name tag: e.g., vpcroute.
- Select the VPC (e.g., project2).
- Click "Create Route Table".

VPC > Route tables > Create route table

Create route table Info

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

Route table settings

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

vpcroute

VPC
The VPC to use for this route table.

vpc-0718636b8a60ea4a8 (project2)

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	Q vpcroute

[Add new tag](#)

You can add 49 more tags.

Cancel [Create route table](#)

Add a route to the Route Table:-

Select the created route table.

Go to the **Routes** tab → Click "**Edit routes**".

Add the following:

- **Destination:** 0.0.0.0/0
- The 0.0.0.0/0 destination ensures that traffic to any IP address outside the VPC is routed through the Internet Gateway.
- **Target:** Select the Internet Gateway (e.g., vpcig).

Click "**Save changes**".

VPC > Route tables > rtb-0f7f1f7b579674e5c > Edit routes

Edit routes

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No
0.0.0.0/0	Internet Gateway	Active	No

Buttons: Add route, Cancel, Preview, Save changes

Step 5: Attach Subnets to the Route Table

- Select the Route Table created in Step 4 (e.g., vpcroute).
- Go to the **Subnet associations** tab → Click "Edit subnet associations".

rtb-0f7f1f7b579674e5c / vpcroute

Details | Routes | **Subnet associations** | Edge associations | Route propagation | Tags

Explicit subnet associations (2)

Find subnet association

Buttons: Edit subnet associations

- Select the subnets created earlier (pro2 and pro3).
- Click "Save".
- Associating subnets with the route table enables the public subnets to use the Internet Gateway for internet communication.

Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (2/2)

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
pro3	subnet-0f1e7c5ac4aa370f7	10.0.64.0/20	-	rtb-0f7f1f7b579674e5c / vpcroute
pro2	subnet-0787e1ac959998ae8	10.0.48.0/20	-	rtb-0f7f1f7b579674e5c / vpcroute

Selected subnets

subnet-0f1e7c5ac4aa370f7 / pro3 | subnet-0787e1ac959998ae8 / pro2

Buttons: Cancel, Save associations

Step 6 : Verify in Resource Map

Navigate to the VPC Dashboard:

- Go to **VPC** in the AWS Console.

Select Your VPC:

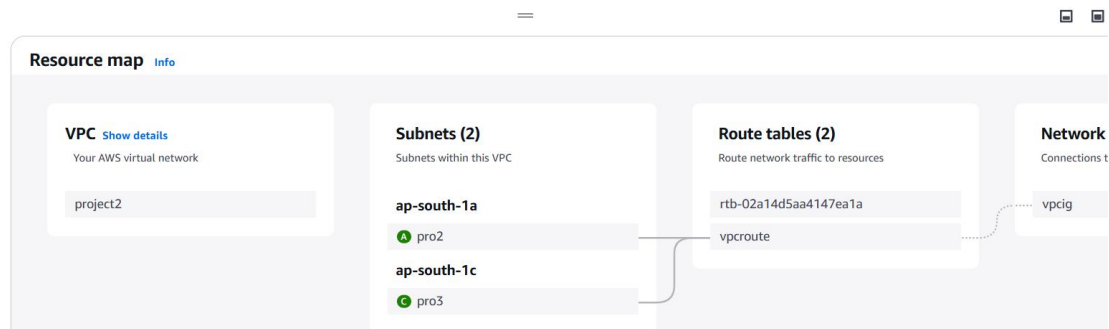
- Locate the VPC you created (e.g., project2).
- Click on the VPC's name or select it.

Open the Resource Map:

- On the VPC details page, scroll to find the **Resource Map** section (usually visible at the top or in the sidebar).
- Click "**Show details**" if the resource map is collapsed.

Test by launching instances:

- In pro2 (public subnet), assign a public IP, and verify internet connectivity (e.g., ping google.com).
- In pro3 (private subnet), verify isolation (cannot directly access the internet).



Troubleshooting tip:

- If the instance cannot access the internet, ensure the security group allows outbound HTTP/HTTPS traffic and SSH access.