

## VPC Configuration Lab

- **Objective:** To understand the fundamentals of AWS networking through the configuration of a Virtual Private Cloud (VPC).
- **Approach:** Students will create a new VPC, add subnets, set up an Internet Gateway, and configure route tables. The lab might also include setting up a simple EC2 instance within this VPC to demonstrate how resources are deployed in a custom network environment.
- **Goal:** By the end of this lab, students should be able to create and configure a VPC, understand subnetting, and the role of route tables and internet gateways in AWS.


1. Firstly, you have to create a VPC.

Create VPC

Launch EC2 Instances

Note: Your Instances will launch in the US East region.

### Resources by Region

 Refresh Resources

You are using the following Amazon VPC resources

2. We can use the following settings.

### ► Customize AZs

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#### Number of public subnets [Info](#)

The number of public subnets to add to your VPC. Use public subnets for web applications that need to be publicly accessible over the internet.

☐ 0 ☒ 1

#### Number of private subnets [Info](#)

The number of private subnets to add to your VPC. Use private subnets to secure backend resources that don't need public access.

☐ 0 ☒ 1 ☐ 2

### ▼ Customize subnets CIDR blocks

Public subnet CIDR block in us-east-1a

10.0.0.0/24

256 IPs

Private subnet CIDR block in us-east-1a

10.0.128.0/24

256 IPs











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3. Vpc creation takes some time. So we have to wait for a while.

⌵ Wait for NAT Gateways to activate

70%

▼ Details

- ✓ Create VPC: [vpc-0ed9803c18e9604f5](#) 
- ✓ Enable DNS hostnames
- ✓ Enable DNS resolution
- ✓ Verifying VPC creation: [vpc-0ed9803c18e9604f5](#) 
- ✓ Create S3 endpoint: [vpce-030b662d216c0823a](#) 
- ✓ Create subnet: [subnet-018a115396912506d](#) 
- ✓ Create subnet: [subnet-06f57e52fff22b78a](#) 
- ✓ Create internet gateway: [igw-0fbde80cff1198f2b](#) 
- ✓ Attach internet gateway to the VPC
- ✓ Create route table: [rtb-02e52b7879f47cf53](#) 
- ✓ Create route
- ✓ Associate route table
- ✓ Allocate elastic IP: [eipalloc-0ff58b6189394f8aa](#) 
- ✓ Create NAT gateway: [nat-09782a517fa09e98c](#) 
- ⋮ Wait for NAT Gateways to activate
- ⌵ Create route table
- ⌵ Create route
- ⌵ Associate route table
- ⌵ Verifying route table creation
- ⌵ Associate S3 endpoint with private subnet route tables: [vpce-030b662d216c0823a](#) 

4. After the creation of VPC, Now we can create a new subnet by selecting from the left side on control panel of VPC

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

## Create subnet [Info](#)

### VPC

#### VPC ID

Create subnets in this VPC.

vpc-0ed9803c18e9604f5 (project-vpc) ▼

### Associated VPC CIDRs

#### IPv4 CIDRs

10.0.0.0/16

5. Follow these simple steps

## Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.



### Subnet 1 of 1

#### Subnet name

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

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.

#### 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.

#### IPv4 subnet CIDR block

256 IPs

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6. Now subnets will be created like this

You have successfully created 2 subnets: subnet-0885c900c64be0b1f, subnet-00085139718bceb25

Subnets (2) Info

Actions ▼

Create subnet

Find resources by attribute or tag

Subnet ID : subnet-0885c900c64be0b1f

Subnet ID : subnet-00085139718bceb25

Clear filters

< 1 >

<input type="checkbox"/>	Name ▼	Subnet ID ▼	State
<input type="checkbox"/>	upesh-subnet-public	<a href="#">subnet-0885c900c64be0b1f</a>	<div><div></div>Avail</div>

7. Then create internet gateway by selecting from the left side

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.

No tags associated with the resource.

Add new tag

You can add 50 more tags.

Cancel

Create internet gateway

After creating a gateway we can go to route tables

Route tables (4) [Info](#)

[Refresh](#) [Actions](#) [Create route table](#)

< 1 > [Settings](#)

<input type="checkbox"/>	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
<input type="checkbox"/>	-	<a href="#">rtb-0786da0437e8acfe1</a>	-	-	Yes	<a href="#">vpc-09def53eb1315ff</a>
<input type="checkbox"/>	project-rtb-public	<a href="#">rtb-02e52b7879f47cf53</a>	<a href="#">subnet-018a1153969125...</a>	-	No	<a href="#">vpc-0ed9803c18e960...</a>
<input type="checkbox"/>	project-rtb-private1-us-east-1a	<a href="#">rtb-04e54e43d2bb7580d</a>	<a href="#">subnet-06f57e52fff22b7...</a>	-	No	<a href="#">vpc-0ed9803c18e960...</a>
<input type="checkbox"/>	-	<a href="#">rtb-0b49d2793d5678916</a>	-	-	Yes	<a href="#">vpc-0ed9803c18e960...</a>

8. Now by selecting private we can choose the edit subnet option in lower control panel

<input checked="" type="checkbox"/>	project-rtb-private1-us-east-1a	<a href="#">rtb-04e54e43d2bb7580d</a>	<a href="#">subnet-06f57e52fff22b7...</a>	-	No	<a href="#">vpc-0ed9803c18e9604f</a>
<input type="checkbox"/>	-	<a href="#">rtb-0b49d2793d5678916</a>	-	-	Yes	<a href="#">vpc-0ed9803c18e9604f</a>

Details

Routes

Subnet associations

Edge associations

Route propagation

Tags

Explicit subnet associations (1)

Edit subnet associations

Find subnet association

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
project-subnet-private1-us-east-1a	<a href="#">subnet-06f57e52fff22b78a</a>	10.0.128.0/24	-

Subnets without explicit associations (2)

Edit subnet associations

VPC > Route tables > [rtb-04e54e43d2bb7580d](#) > Edit subnet associations

### Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (2/4)

Filter subnet associations

	Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
<input type="checkbox"/>	project-subnet-public1-us-east-1a	<a href="#">subnet-018a115396912506d</a>	10.0.0.0/24	-	<a href="#">rtb-02e52b7879f47cf53</a> / project-rtb-...
<input checked="" type="checkbox"/>	project-subnet-private1-us-east-1a	<a href="#">subnet-06f57e52fff22b78a</a>	10.0.128.0/24	-	<a href="#">rtb-04e54e43d2bb7580d</a> / project-rtb-...
<input type="checkbox"/>	upesh-subnet-public	<a href="#">subnet-0885c900c64be0b1f</a>	10.0.2.0/24	-	Main ( <a href="#">rtb-0b49d2793d5678916</a> )
<input checked="" type="checkbox"/>	upesh-subnet-private	<a href="#">subnet-00085139718bceb25</a>	10.0.3.0/24	-	Main ( <a href="#">rtb-0b49d2793d5678916</a> )

Selected subnets

[subnet-06f57e52fff22b78a / project-subnet-private1-us-east-1a](#)
[subnet-00085139718bceb25 / upesh-subnet-private](#)

Cancel

Save associations

## 9.Create necessary security groups

Security group (sg-0b9f259c679803e60 | VPC Security) was created successfully

Details

VPC > Security Groups > [sg-0b9f259c679803e60](#) - VPC Security

### sg-0b9f259c679803e60 - VPC Security

Actions

Details

Security group name	Security group ID	Description	VPC ID
VPC Security	sg-0b9f259c679803e60	sa	<a href="#">vpc-0ed9803c18e9604f5</a>
Owner	Inbound rules count	Outbound rules count	
979147213970	2 Permission entries	1 Permission entry	



10. Lastly we have to create a new instance with all the settings we used to create a VPC and the subnets. And after the Ec2 instance is launched and working we will get a screen like this

Instances (6) <a href="#">Info</a>								
<input type="text" value="Find Instance by attribute or tag (case-sensitive)"/>					Any state ▾		< 1 > ⚙	
<input type="checkbox"/>	Name <a href="#">✎</a> ▾	Instance ID	Instance state ▾	Instance type ▾	Status check	Alarm status	Availability Zone ▾	Public IPv4
<input type="checkbox"/>		<a href="#">i-0f68f5351e892990d</a>	⊘ Terminated <a href="#">🔍</a> <a href="#">🔍</a>	t2.micro	–	<a href="#">View alarms</a> +	us-east-1f	–
<input type="checkbox"/>	VPC WEB SER...	<a href="#">i-0c75ca4e3bb75b767</a>	✔ Running <a href="#">🔍</a> <a href="#">🔍</a>	t2.micro	✔ 2/2 checks passed	<a href="#">View alarms</a> +	us-east-1a	ec2-18-235...
<input type="checkbox"/>		<a href="#">i-0aec4719f1cbf2fae</a>	⊘ Terminated <a href="#">🔍</a> <a href="#">🔍</a>	t2.micro	–	<a href="#">View alarms</a> +	us-east-1a	–