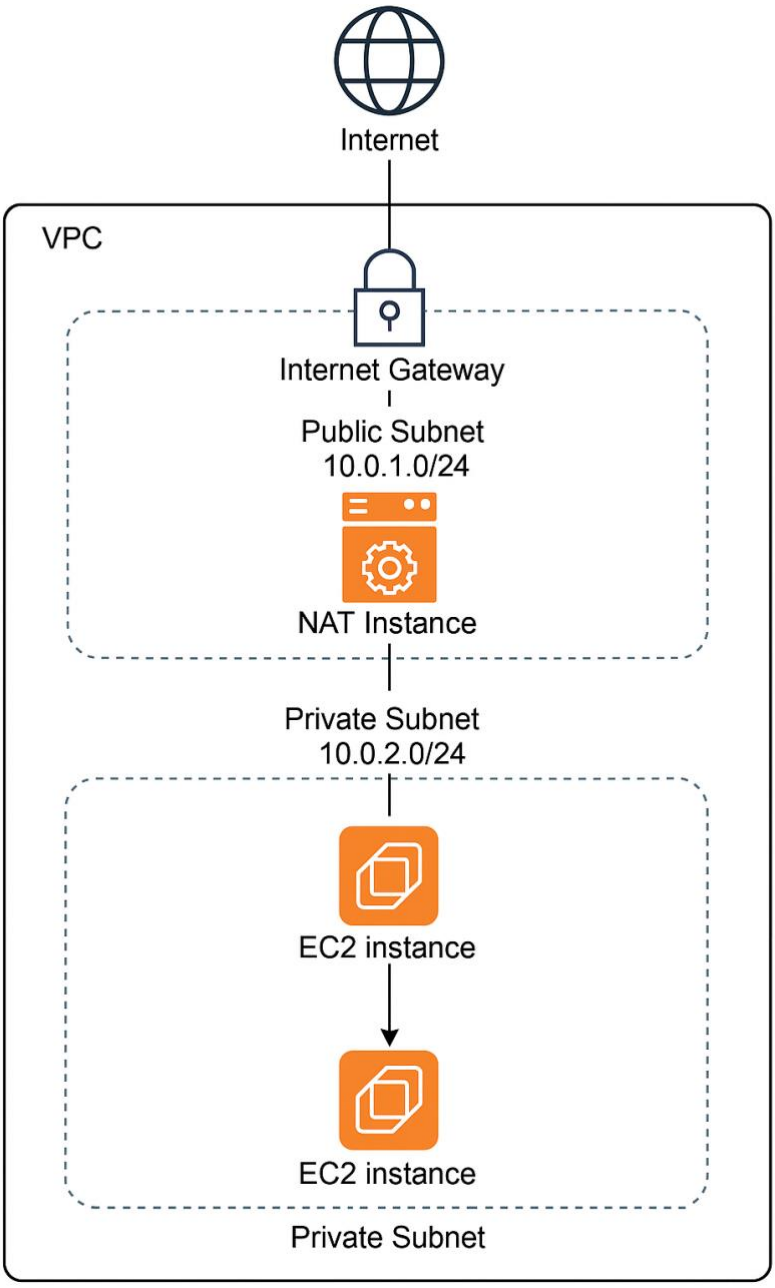
How do you create VPC in AWS ?

Concept

VPC	Custom VPC creation
Subnet	Public & private subnets
Internet Gateway	Public internet access
NAT instance	Private instance internet access
Route Tables	Routing traffic from/to subnets
Security Groups	Controlling instance access
EC2	One public, one private

Prerequisites

- AWS Free Tier account
- Key pair created
- Basic IAM permissions to create EC2, VPC, etc.
- Use **us-east-1** or **any region with AMIs available**



✅ **Step-by-Step Setup**

1. Create a VPC

- CIDR block: 10.0.0.0/16
- Enable DNS hostname: ✅

2. Create Subnets

- **Public Subnet**: 10.0.1.0/24 (e.g., AZ: us-east-1a)
- **Private Subnet**: 10.0.2.0/24 (e.g., AZ: us-east-1a)

3. Create an Internet Gateway (IGW)

- Attach it to the VPC

4. Create a Route Table for Public Subnet

- Add route: 0.0.0.0/0 → IGW
- Associate with **Public Subnet**

5. Launch a NAT Instance

- Use a NAT AMI (e.g., amzn-ami-vpc-nat)

- Place it in **Public Subnet**
- Enable Source/Dest Check = Disabled
- Add Elastic IP to it

6. Create a Route Table for Private Subnet

- Add route: 0.0.0.0/0 → NAT Instance (not IGW)
- Associate with **Private Subnet**

7. Launch EC2 in Public Subnet

- Use Amazon Linux
- Assign public IP
- Security Group: Allow SSH from your IP

8. Launch EC2 in Private Subnet

- No public IP
- Security Group: Allow SSH from Public EC2's private IP

Live Demo

🖥️ **Part 1: VPC + Subnet + IGW + Public EC2**

- Show how EC2 in public subnet gets internet
- SSH into it from your local machine

🖥️ **Part 2: NAT + Private EC2**

- SSH from public EC2 → private EC2
- Show curl google.com or yum update on private EC2 to prove internet via NAT

🧠 **Part 3: Troubleshoot Scenarios (Good for Engagement)**

- Remove NAT route → internet fails
- Enable/disable Source/Dest check on NAT → show the effect
- Attach IGW but forget route → demo broken internet

1. You want to host a public web server on EC2 that users can access over the internet. Which setup is MOST appropriate?

A. Launch the EC2 instance in a private subnet with a NAT Gateway

B. Launch the EC2 instance in a public subnet with an Internet Gateway and assign a public IP

C. Launch the EC2 instance in a private subnet with no route to the internet

D. Launch the EC2 instance in a public subnet without any route table changes

✅ **Correct Answer:** B. Launch the EC2 instance in a public subnet with an Internet Gateway and assign a public IP

2. Your backend EC2 instance should not be accessible from the internet but needs to download OS patches. What setup should you use?

A. Place the instance in a public subnet and attach an Elastic IP

B. Place the instance in a private subnet with no internet access

C. Place the instance in a private subnet with a route to a NAT Gateway in a public subnet

D. Place the instance in a private subnet and use a security group allowing inbound internet access

✅ **Correct Answer:** C. Place the instance in a private subnet with a route to a NAT Gateway in a public subnet

3. A database in your private subnet should only accept traffic from application servers in the same VPC. How do you achieve this?

A. Use a Security Group that allows access from the internet
B. Assign a public IP to the database and control access via NACL
C. Use a Security Group that allows inbound traffic only from the app server's security group
D. Use a Route Table entry for 0.0.0.0/0

✅ **Correct Answer:** C. Use a Security Group that allows inbound traffic only from the app server's security group