

Task : Create a VPC and Launch an EC2 Instance Within It.

Diagrammatic Representation:



Step 1: Create vpc .

What is vpc ?

→A Virtual Private Cloud (VPC) is a virtual network dedicated to your cloud resources, providing isolation and security within a public cloud environment. It allows you to control your network configuration, such as IP address ranges and subnets, for better resource management and protection.

The screenshot shows the 'Create VPC' page in the AWS Management Console. The page title is 'Create VPC' with an 'Info' link. Below the title is a descriptive sentence: 'A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.' The main section is 'VPC settings'. Under 'Resources to create', the 'VPC only' radio button is selected. The 'Name tag - optional' section has a text input field containing 'myvpc'. The 'IPv4 CIDR block' section has the 'IPv4 CIDR manual input' radio button selected, and the 'IPv4 CIDR' text input field contains '10.0.0.0/24'. Below this, a note states 'CIDR block size must be between /16 and /28.' The 'IPv6 CIDR block' section has the 'No IPv6 CIDR block' radio button selected. The 'Tenancy' dropdown menu is set to 'Default'. At the bottom, there is a 'Tags' section with a table for adding tags. The table has two columns: 'Key' and 'Value - optional'. The first row has 'Name' in the 'Key' column and 'myvpc' in the 'Value - optional' column. There are 'Add tag' and 'Remove tag' buttons. At the bottom right, there are 'Cancel' and 'Create VPC' buttons.

Create VPC [Info](#)

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.

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.

myvpc

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

IPv4 CIDR
10.0.0.0/24
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

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	
Name	myvpc	Remove tag

Add tag

You can add 49 more tags.

Cancel **Create VPC**

Step 2: Now Create Subnet in vpc .

What is Subnet ?

→A subnet, or subnetwork, is a segmented piece of a larger network that allows for more efficient management and organization of IP addresses. It helps in isolating traffic and enhancing security within a Virtual Private Cloud (VPC) by dividing a network into smaller, manageable sections.

vpc-092d7d856dd9a23cd (myvpc) ▲

Q

vpc-09066077d7529c57f (default)
172.31.0.0/16

vpc-092d7d856dd9a23cd (myvpc) ✓
10.0.0.0/24

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.
mysb
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.
10.0.0.0/24 ▼

IPv4 subnet CIDR block
10.0.0.0/28 16 IPs
< > ^ ▼

▼ **Tags - optional**

Key	Value - optional	
Q Name X	Q mysb X	Remove
Add new tag		
You can add 49 more tags.		
Remove		
Add new subnet		

Cancel Create subnet

Step 3: Now Create Internet Gateway and Attach it to our vpc.

What is Internet Gateway ?

→An Internet Gateway (IGW) is a component in a Virtual Private Cloud (VPC) that enables communication between instances in the VPC and the internet.

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="Name"/>	<input type="text" value="myigw"/>	<input type="button" value="Remove"/>
<input type="button" value="Add new tag"/>		

You can add 49 more tags.

The following internet gateway was created: igw-0b9b73ed1f083d347 - myigw. You can now attach to a VPC to enable the VPC

VPC > Internet gateways > Attach to VPC (igw-0b9b73ed1f083d347)

Attach to VPC (igw-0b9b73ed1f083d347) Info

VPC
Attach an internet gateway to a VPC to enable the VPC to communicate with the internet. Specify the VPC to attach below.

Available VPCs

Attach the internet gateway to this VPC.

vpc-092d7d856dd9a23cd - myvpc

▶ AWS Command Line Interface command

Step 4: Create Route table and Associate with subnet.

What is Route Table ?

→A route table is a set of rules in a network that directs how traffic should be routed between subnets and external destinations. In a Virtual Private Cloud (VPC), route tables specify the paths for network traffic, including directing traffic to an Internet Gateway, Virtual Private Gateway, or other network resources.

The screenshot shows the 'Create route table' wizard in the AWS Management Console. The title is 'Create route table' with an 'Info' link. Below the title is a descriptive sentence: 'A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.'

The 'Route table settings' section contains the following fields:

- Name - optional:** A text input field with the value 'myroute'. Below it is a hint: 'Create a tag with a key of 'Name' and a value that you specify.'
- VPC:** A dropdown menu with the text 'Select a VPC'. Below the dropdown is a search bar with a magnifying glass icon and a vertical line. Below the search bar are two VPC options: 'vpc-09066077d7529c57f (default)' and 'vpc-092d7d856dd9a23cd (myvpc)'. To the right of the second option is the text 'can use tags to search and filter'.

The 'Tags' section at the bottom has two input fields: 'Key' with the value 'Name' and 'Value - optional' with the value 'myroute'. Each field has a magnifying glass icon and a close button (X). To the right of these fields is a 'Remove' button. Below the input fields is an 'Add new tag' button. At the bottom of the section is the text 'You can add 49 more tags.'

At the bottom right of the wizard are two buttons: 'Cancel' and 'Create route table'.

Edit Routes and allow all ip and add our IGW.

Destination
10.0.0.0/24

Add route

Target

Status
Active

Propagated
No

Remove

Cancel Preview Save changes

Step 5: Now Create an ec2 Instance .

Name and tags Info

Name

myec2

Add additional tags

Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

Recents

Quick Start

Amazon Linux

aws

macOS

Mac

Ubuntu

ubuntu

Windows

Microsoft

Red Hat

Red Hat

SUSE L

SUSE

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type

ami-0522ab6e1ddcc7055 (64-bit (x86)) / ami-0000791bad666add5 (64-bit (Arm))

Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

Description

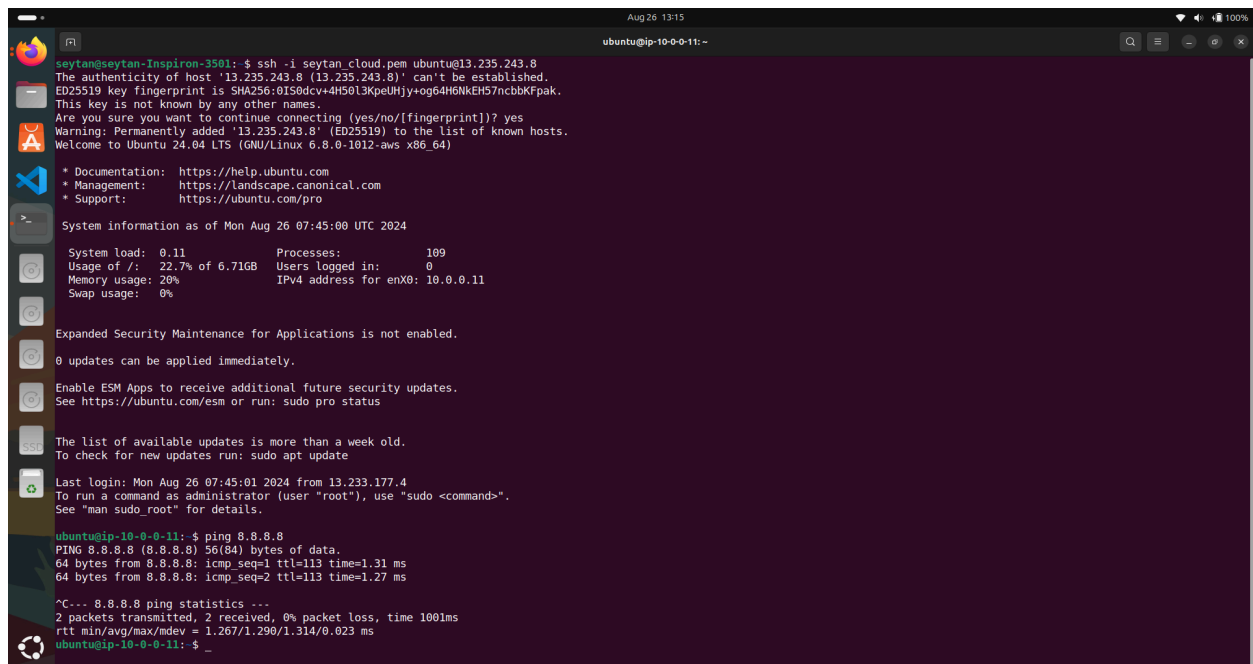
Ubuntu Server 24.04 LTS (HVM), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

Step 7: Now Copy the public ip of ec2 and connect it using command → `ssh -i private_key.pem user@public_ip`

The screenshot displays the AWS Management Console interface. The left sidebar shows the navigation menu with categories like EC2 Dashboard, Images, Elastic Block Store, Network & Security, Load Balancing, and Auto Scaling. The main content area shows the 'Instances (1/1)' page. A table lists the instance 'myec2' with its ID 'i-0f0ab9ce88250e505', state 'Running', type 't2.micro', and public IP address '13.235.243.8'. Below the table, the 'Details' tab for the instance 'i-0f0ab9ce88250e505 (myec2)' is expanded, showing various attributes in a grid:

Instance summary	
Instance ID	i-0f0ab9ce88250e505 (myec2)
Public IPv4 address	13.235.243.8 open address
Private IPv4 addresses	10.0.0.11
Instance state	Running
Public IPv4 DNS	-
IPv6 address	-
Private IP DNS name (IPv4 only)	ip-10-0-0-11.ap-south-1.compute.internal
Instance type	t2.micro
Hostname type	IP name: ip-10-0-0-11.ap-south-1.compute.internal
Answer private resource DNS name	-
Elastic IP addresses	-
Auto-assigned IP address	13.235.243.8 [Public IP]
VPC ID	vpc-092d7d856dd9a23cd (myvpc)
IAM Role	-
Subnet ID	-
AWS Compute Optimizer finding	
Opt-in to AWS Compute Optimizer for recommendations. Learn more	
Auto Scaling Group name	

After Connecting check the internet working or not by pinging at 8.8.8.8

A terminal window with a dark purple background. The top bar shows the date 'Aug 26 13:15' and the window title 'ubuntu@ip-10-0-0-11: ~'. The terminal content shows an SSH session from 'seytan@seytan-Inspiron-3501' to 'ubuntu@13.235.243.8'. It displays the host's authenticity, a warning about the host key fingerprint, and a welcome message for Ubuntu 24.04 LTS. Below this, system information is shown, including system load, memory usage, and network details. A message about security updates is also present. Finally, a 'ping 8.8.8.8' command is executed, showing successful results with 0% packet loss and a response time of 100ms.

```
seytan@seytan-Inspiron-3501: ~$ ssh -i seytan_cloud.pem ubuntu@13.235.243.8
The authenticity of host '13.235.243.8 (13.235.243.8)' can't be established.
ED25519 key fingerprint is SHA256:0IS0dcv+4H50L3kpeUHjy+og64H6NkEH57ncbbKfPak.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '13.235.243.8' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Mon Aug 26 07:45:00 UTC 2024

System load:  0.11          Processes:      109
Usage of /:   22.7% of 6.71GB Users logged in:  0
Memory usage: 20%          IPv4 address for enx0: 10.0.0.11
Swap usage:  0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Mon Aug 26 07:45:01 2024 from 13.233.177.4
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-10-0-0-11: ~$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data:
64 bytes from 8.8.8.8: icmp_seq=1 ttl=113 time=1.31 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=113 time=1.27 ms

^C--- 8.8.8.8 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 1.267/1.290/1.314/0.023 ms
ubuntu@ip-10-0-0-11: ~$
```

Conclusion:Creating a VPC and launching an EC2 instance within it provides a secure and isolated network environment in

the cloud. This setup enables controlled access to resources and the internet, ensuring efficient management and enhanced security for your cloud infrastructure.