

Assignment - AWS July 27 2025 Batch

Rajesh Bhaskaran

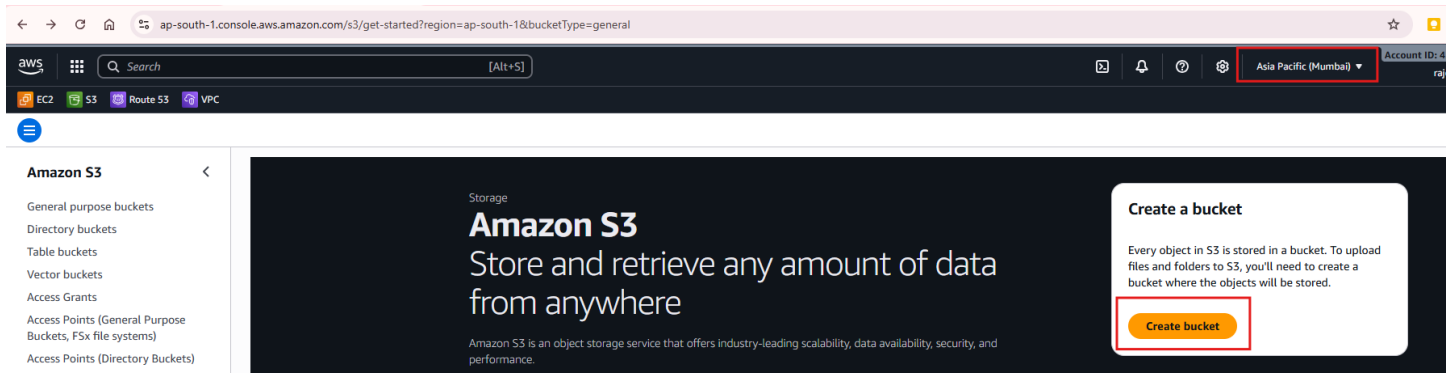
Mobile : 9902888474

Question 1 : VPC Endpoint lab --> Need to connect EC2 instance with S3 bucket

1. Create S3 Bucket

1. Open S3 Console

- Go to AWS Management Console → Services → S3
- Click "**Create bucket**"



1. Configure Bucket

- **Bucket name:** rajesh-s3bucket-27july
- **AWS Region:** Asia Pacific (Mumbai) ap-south-1
- **Block All Public Access:** Tick check

Create bucket [Info](#)

Buckets are containers for data stored in S3.

General configuration

AWS Region

Asia Pacific (Mumbai) ap-south-1

Bucket type [Info](#)



General purpose

Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.



Directory

Recommended for low-latency use cases. These buckets are optimized for processing of data within a single Availability Zone.

Bucket name [Info](#)

rajesh-s3bucket-27july

Bucket names must be 3 to 63 characters and unique within the global namespace. Bucket names must also begin and end with a letter or number. Valid characters are a-z, 0-9, periods (.), and hyphens (-).

Copy settings from existing bucket - *optional*

Only the bucket settings in the following configuration are copied.

[Choose bucket](#)

Format: s3://bucket/prefix

Object Ownership [Info](#)

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects in the bucket.

Object Ownership



ACLs disabled (recommended)

All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.



ACLs enabled

Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.

Object Ownership

Bucket owner enforced

- Click "**Create bucket**"

✔ Successfully created bucket "rajesh-s3bucket-27july"
To upload files and folders, or to configure additional bucket settings, choose [View details](#).

General purpose buckets

All AWS Regions

Directory buckets

General purpose buckets (1) [Info](#)

Buckets are containers for data stored in S3.

Find buckets by name

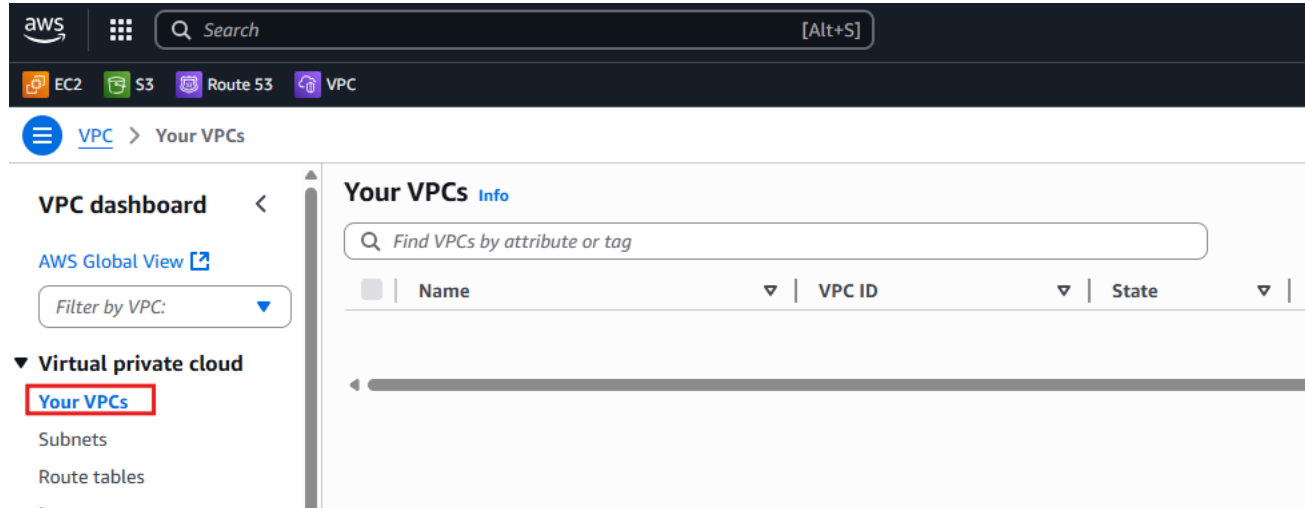
< 1 > [Settings](#)

	Name	AWS Region	Creation date
<input type="radio"/>	rajesh-s3bucket-27july	Asia Pacific (Mumbai) ap-south-1	October 10, 2025, 10:56:49 (UTC+05:30)

2. Create VPC (if you don't have one)

1. Open VPC Console

- Services → VPC
- Click "**Your VPCs**" in left sidebar
- Click "**Create VPC**"



2. Configure VPC

- **Resources to create:** VPC only
- **Name tag:** rajesh-s3-vpc
- **IPv4 CIDR:** 10.0.0.0/16 → **VPC CIDR: 10.0.0.0/16 || Public Subnet: 10.0.1.0/24 || Private Subnet: 10.0.2.0/24**
- **Tenancy** "Default" - Instances run on shared hardware ,Multiple AWS customers share the same physical server, Cost-effective.
- Click "**Create VPC**"

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.

rajesh-s3-vpc

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



✓ You successfully created vpc-06b825f6ac1a5297f / rajesh-s3-vpc

vpc-06b825f6ac1a5297f / rajesh-s3-vpc

Details [Info](#)

VPC ID

 vpc-06b825f6ac1a5297f

DNS resolution

Enabled

Main network ACL

[acl-025b30cec390a6ec6](#)

IPv6 CIDR (Network border group)

–

State

✓ Available

Tenancy

default

Default VPC

No

Network Address Usage metrics

Disabled

Block Public A

⊖ Off

DHCP option s

[dopt-0e0cb668](#)

IPv4 CIDR

10.0.0.0/16

Route 53 Reso

–

Resource map [Info](#)

CIDRs

Flow logs

Tags

Integrations

Resource map [Info](#)

VPC

Your AWS virtual network

rajesh-s3-vpc

Subnets (0)

Subnets within this VPC

Route tables (1)

Route network traffic to resour

rtb-03ae5dca257896de6

3. Create Subnets

1. Create Public Subnet

- In VPC Console → **Subnets** → **Create subnet**
- **VPC ID:** Select your VPC
- **Subnet name:** rajesh-public-subnet
- **Availability Zone:** Select any AZ
- **IPv4 CIDR:** 10.0.1.0/24 || Available IPv4 addresses – $2^8 - 5$
- Click "**Create subnet**"

subnet-0842d757f46dca09a / rajesh-public-subnet

Details

Subnet ID

subnet-0842d757f46dca09a

IPv4 CIDR

10.0.1.0/24

Availability Zone

aps1-az1 (ap-south-1a)

Network ACL

-

Auto-assign customer-owned IPv4 address

No

IPv6 CIDR reservations

-

Resource name DNS AAAA record

Disabled

Subnet ARN

arn:aws:ec2:ap-south-1:457271242412:subnet/subnet-0842d757f46dca09a

Available IPv4 addresses

251

Network border group

ap-south-1

Default subnet

No

Customer-owned IPv4 pool

-

IPv6-only

No

DNS64

Disabled

State

Available

IPv6 CIDR

-

VPC

vpc-06b825f6ac1a52

Auto-assign public IP

No

Outpost ID

-

Hostname type

IP name

Owner

457271242412

2. Create Private Subnet

- **Create subnet** again
- **VPC ID:** Select your VPC
- **Subnet name:** rajesh-private-subnet
- **Availability Zone:** Select same AZ as public subnet
- **IPv4 CIDR:** 10.0.2.0/24
- Click "**Create subnet**"

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.

rajesh-private-subnet

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-1 (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

10.0.2.0/24

< > ^ v

subnet-087a88015b1ccfc05 / rajesh-private-subnet

Details

Subnet ID

subnet-087a88015b1ccfc05

IPv4 CIDR

10.0.2.0/24

Availability Zone

aps1-az1 (ap-south-1a)

Network ACL

acl-025b30cec390a6ec6

Auto-assign customer-owned IPv4 address

No

IPv6 CIDR reservations

–

Resource name DNS AAAA record

Disabled

Subnet ARN

arn:aws:ec2:ap-south-1:457271242412:subnet/subnet-087a88015b1ccfc05

Available IPv4 addresses

251

Network border group

ap-south-1

Default subnet

No

Customer-owned IPv4 pool

–

IPv6-only

No

DNS64

Disabled

State

Available

IPv6 CIDR

–

VPC

vpc-06b825f6ac1a52

Auto-assign public IP

No

Outpost ID

–

Hostname type

IP name

Owner

457271242412

4. Create Internet Gateway

1. VPC Console → Internet Gateways → Create internet gateway

- **Name tag:** rajesh-main-igw
- Click "**Create internet gateway**"

Internet gateways (1) [Info](#)

Find internet gateways by attribute or tag

<input type="checkbox"/>	Name	Internet gateway ID	State	VPC ID
<input type="checkbox"/>	rajesh-main-igw	igw-0bd17f88293378fa3	Detached	-

2. Attach to VPC

- Select the IGW → **Actions** → **Attach to VPC**

[VPC](#) > [Internet gateways](#) > igw-0bd17f88293378fa3

VPC dashboard <

AWS Global View [🌐](#)

Filter by VPC: [▼](#)

▼ **Virtual private cloud**

- Your VPCs
- Subnets
- Route tables
- Internet gateways**
- Egress-only Internet gateways

igw-0bd17f88293378fa3 / rajesh-main-igw

Details [Info](#)

Internet gateway ID	State	VPC ID
igw-0bd17f88293378fa3	Detached	-

Tags

Search tags

Key	Value
Name	rajesh-main-igw

- Select your VPC → **Attach internet gateway**

[Internet gateways](#) > [Attach to VPC \(igw-0bd17f88293378fa3\)](#)

Attach to VPC (igw-0bd17f88293378fa3) [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-06b825f6ac1a5297f](#)

► **AWS Command Line Interface command**

5. Create Route Tables

1. Public Route Table

- Route Tables** → **Create route table**
- Name:** rajesh-public-rt
- VPC:** Select your VPC
- Click "**Create route table**"

✔ Route table rtb-0f7c7115f7f9bd8d5 | rajesh-public-rt was created successfully.

rtb-0f7c7115f7f9bd8d5 / rajesh-public-rt

Details [Info](#)

Route table ID

 rtb-0f7c7115f7f9bd8d5

VPC

[vpc-06b825f6ac1a5297f](#) | rajesh-s3-vpc

Main

 No

Explicit subnet

–

Owner ID

 457271242412

Routes

Subnet associations

Edge associations

Route propagation

Tags

Routes (1)



Destination



Target



Status

10.0.0.0/16

local

✔ Active


2. Add Internet Route

- Select rajesh-public-rt route table → **Routes tab** → **Edit routes**
- **Add route:**
 - **Destination:** 0.0.0.0/0
 - **Target:** Internet Gateway (select your IGW)
- Click "**Save changes**"

✔ Route table rtb-0f7c7115f7f9bd8d5 | rajesh-public-rt was created successfully.

Route tables (1/2) [Info](#)



	Name	Route table ID	Explicit subnet associ...	Edge associations
<input type="checkbox"/>	–	rtb-03ae5dca257896de6	–	–
<input checked="" type="checkbox"/>	rajesh-public-rt	rtb-0f7c7115f7f9bd8d5	–	–

Edit routes

Destination	Target	Status
10.0.0.0/16	local	Active
<input type="text" value="0.0.0.0/0"/>	<input type="text" value="local"/>	
	Internet Gateway	-
	<input type="text" value="igw-0bd17f88293378fa3"/>	

[Add route](#)

3. Associate Public Subnet with Route Table

- Select your public route table
- Go to the Subnet associations tab below
- Click Edit subnet associations
- In the popup, check the box next to your public-subnet
- Click Save associations

[VPC](#) > Route tables

VPC dashboard

AWS Global View

Filter by VPC:

Virtual private cloud

- Your VPCs
- Subnets
- Route tables**
- Internet gateways
- Egress-only Internet gateways
- DHCP option sets
- Elastic IPs
- Managed prefix lists

Route tables (1/2)

☐ - [rtb-03ae5dca257896de6](#) -

☒ **rajesh-public-rt** [rtb-0f7c7115f7f9bd8d5](#) [subnet-0842c...](#)

rtb-0f7c7115f7f9bd8d5 / rajesh-public-rt

[Details](#) | [Routes](#) | [Subnet associations](#) | [Edge associations](#) | [Route prop...](#)

Explicit subnet associations (1)

4. Private Route Table

- **Create route table**
- **Name:** rajesh-private-rt


- **VPC:** Select your VPC
- Click "**Create route table**"

✓ Route table rtb-01a30d8099a10d788 | rajesh-private-rt was created successfully.

rtb-01a30d8099a10d788 / rajesh-private-rt

Details [Info](#)

Route table ID

 rtb-01a30d8099a10d788

Main

 No


Explicit subnet associations

–

Edge

–

VPC

 vpc-06b825f6ac1a5297f | rajesh-s3-vpc

Owner ID

 457271242412

5. Associate Private Subnet

- Select private route table → **Subnet associations** → **Edit subnet associations**
- Check private-subnet → **Save associations**

Routes


Subnet associations

Edge associations

Route propagation

Tags

Explicit subnet associations (1)

 Find subnet association

Name



Subnet ID



IPv4 CIDR



IPv6 CIDR

rajesh-private-subnet

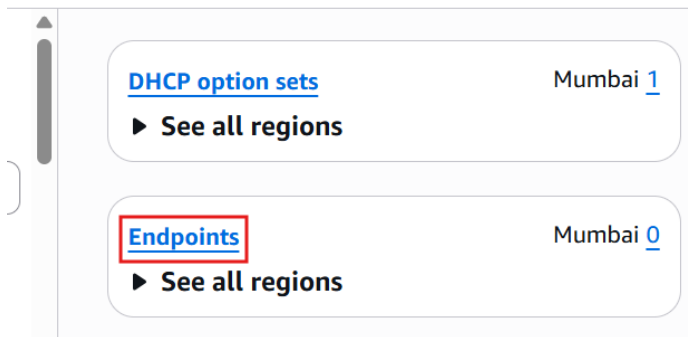
[subnet-087a88015b1ccfc05](#)

10.0.2.0/24

–

6. Create VPC Endpoint for S3

1. VPC Console → Endpoints → Create Endpoint



2. Configure Endpoint

- **Service category:** AWS services
- **Service name:** Find com.amazonaws.region.s3 (Gateway type)
- **VPC:** Select your VPC
- **Route tables:** Select private-rt (your private route table)
- **Policy:** Full access (default)
- Click "**Create endpoint**"

≡ [VPC](#) > [Endpoints](#) > Create endpoint

Create endpoint [Info](#)

Create the type of VPC endpoint that supports the service, service

Endpoint settings

Specify a name and select the type of endpoint.

Name tag - *optional*

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

Type [Info](#)

Select a category

- ☒ **AWS services**
Connect to services provided by Amazon with an Interface endpoint, or a Gateway endpoint

Services (1/2)

Search

Service Name = com.amazonaws.ap-south-1.s3

Clear filters

	Service Name	Owner	Type
<input checked="" type="radio"/>	com.amazonaws.ap-south-1.s3	amazon	Gateway
<input type="radio"/>	com.amazonaws.ap-south-1.s3	amazon	Interface

Network settings

Select the VPC in which to create the endpoint

VPC

Create the VPC endpoint in the VPC in the same AWS Region from which you will access a resource.

vpc-06b825f6ac1a5297f (rajesh-s3-vpc)

7. Create EC2 Instance in Private Subnet

1. EC2 Console → Instances → Launch instances

2. Configure Instance

- **Name:** Rajesh-EC2-private
- **AMI:** Amazon Linux 2023 AMI Kernel 6.1
- **Instance type:** t3.micro
- **Key pair:** Create new

Instances (1) Info

Find Instance by attribute or tag (case-sensitive)

All states

Instance state = running

Clear filters

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input type="checkbox"/>	Rajesh-EC2-private	i-0bd37da725614cd8c	Running	t3.micro	3/3 checks passed	View alarms	ap-south-1a

3. Network Settings

- **VPC:** Select your VPC
- **Subnet:** Select private-subnet
- **Auto-assign Public IP:** Disable

vpc-06b825f6ac1a5297f / rajesh-s3-vpc

Details [Info](#)

VPC ID
vpc-06b825f6ac1a5297f

DNS resolution
Enabled

Main network ACL
acl-025b30cec390a6ec6

IPv6 CIDR (Network border group)
-

State
Available

Tenancy
default

Default VPC
No

Network Address Usage metrics
Disabled

Block Public Access
Off

DHCP option set
dopt-0e0cb66899dbcf823

IPv4 CIDR
10.0.0.0/16

Route 53 Resolver DNS Firewall rule groups
-

Resource map [Info](#)

[CIDRs](#)

[Flow logs](#)

[Tags](#)

[Integrations](#)

Resource map [Info](#)

VPC
Your AWS virtual network
rajesh-s3-vpc

Subnets (2)
Subnets within this VPC
ap-south-1a
rajesh-public-subnet
rajesh-private-subnet

Route tables (3)
Route network traffic to resources
rajesh-private-rt
rtb-03ae5dca257896de6
rajesh-public-rt

Network Connections
Connections to other VPCs
rajesh-main-igw
vpce-0be2be501

Issue : Unable to connect to the EC2 instance console. (private subnet)

Question 2 : NAT instance --> How to give internet access to my private subnet EC2 instance using NAT instance.