

# VPC & VPC Peering

Create a VPC with 2 public subnets & 2 private subnet having Internet gateway and NAT gateway

**VPC Range – 192.168.0.0/16**

**Private Subnet 1 – 192.168.0.0/24**

**Private Subnet 2 – 192.168.1.0/24**

**Public Subnet 1 – 192.168.2.0/24**

**Public Subnet 2 – 192.168.3.0/24**

1. Create VPC with name “VPC-UDAY” with the range of VPC as **192.160.0.0/16**

VPC > Your VPCs > 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.

VPC-UDAY

**IPv4 CIDR block** [Info](#)

IPv4 CIDR manual input  
 IPAM-allocated IPv4 CIDR block

IPv4 CIDR  
192.168.0.0/16

**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	
Q Name X	Q VPC-UDAY X	Remove

[Add new tag](#)

You can add 49 more tags.

Cancel [Create VPC](#)

**Your VPCs (2)** [info](#) 🔄 Actions Create VPC

🔍 Filter VPCs < 1 >

<input type="checkbox"/>	Name	VPC ID	State	IPv4 CIDR	IPv6...	DHCP option set	Main route table	Main network ACL	Tenancy	Default VPC	Owner ID
<input type="checkbox"/>	VPC-UDAY	vpc-06655928932f859f7	Available	192.168.0.0/16	-	dopt-05ccadb0af6525...	rtb-0d59943afdfac2b21	acl-04d1c431c6857d0c7	Default	No	687817909682
<input type="checkbox"/>	-	vpc-0c85da6ed826f1dc8	Available	172.31.0.0/16	-	dopt-05ccadb0af6525...	rtb-09cc6d9462e9eafa1	acl-0bb0c7ea3731de860	Default	Yes	687817909682

2. Create an Internet Gateway name “VPC-UDAY-IGW” and attach it to the above VPC

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:

You can add 49 more tags.

### Internet gateways (2) [Info](#)

<input type="checkbox"/>	Name	Internet gateway ID	State	VPC ID	Owner
<input type="checkbox"/>	VPC-UDAY-IGW	igw-058f2007229b3ee5c	⊖ Detached	-	687817909682
<input type="checkbox"/>	-	igw-0605375b748b1cd83	⊕ Attached	vpc-0c85da6ed826f1dc8	687817909682

### Internet gateways (1/2) [Info](#)

<input type="checkbox"/>	Name	Internet gateway ID	State	VPC ID	Owner
<input checked="" type="checkbox"/>	VPC-UDAY-IGW	igw-058f2007229b3ee5c	⊖ Detached	-	9682
<input type="checkbox"/>	-	igw-0605375b748b1cd83	⊕ Attached	vpc-0c85da6ed826f1dc8	9682

- View details
- Attach to VPC
- Detach from VPC
- Manage tags
- Delete internet gateway

# Attach to VPC (igw-058f2007229b3ee5c) [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-06655928932f859f7 - VPC-UDAY**

▶ AWS Command Line Interface command

**vpc-06655928932f859f7 - VPC-UDAY**

Cancel

**Attach internet gateway**

Internet gateway igw-058f2007229b3ee5c successfully attached to vpc-06655928932f859f7

## igw-058f2007229b3ee5c / VPC-UDAY-IGW Actions

### Details [Info](#)

Internet gateway ID igw-058f2007229b3ee5c	State Attached	VPC ID vpc-06655928932f859f7   VPC-UDAY	Owner 687817909682
--	-------------------	--	-----------------------

### Tags Manage tags

  

Key	Value
Name	VPC-UDAY-IGW

## Internet gateways (2) [Info](#)

Filter internet gateways

Name	Internet gateway ID	State	VPC ID	Owner
VPC-UDAY-IGW	igw-058f2007229b3ee5c	Attached	vpc-06655928932f859f7   VPC-UDAY	687817909682
-	igw-0605375b748b1cd83	Attached	vpc-0c85da6ed826f1dc8	687817909682

3. Create **Private Subnet 1 – 192.168.0.0/24** with name **“VPC-UDAY-PrvSN1”** in the above VP

## Create subnet [Info](#)

### VPC

VPC ID  
Create subnets in this VPC.

vpc-06655928932f859f7 (VPC-UDAY) ▼

**Associated VPC CIDRs**

IPv4 CIDRs  
192.168.0.0/16

### 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.

VPC-UDAY-PrvSN1

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.

No preference ▼

**IPv4 CIDR block** [Info](#)

192.168.0.0/24 ✕

▼ **Tags - optional**

Key	Value - optional	
Name ✕	VPC-UDAY-PrvSN1 ✕	Remove

**Add new tag**

You can add 49 more tags.

**Remove**

**Add new subnet**

Cancel **Create subnet**

4. Create **Private Subnet 1 – 192.168.1.0/24** with name **“VPC-UDAY-PrvSN2”** in the above VPC

### Create subnet [Info](#)

#### VPC

VPC ID  
Create subnets in this VPC.

vpc-06655928932f859f7 (VPC-UDAY) ▼

#### Associated VPC CIDRs

IPv4 CIDRs

192.168.0.0/16

#### 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.

VPC-UDAY-PrvSN2

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.

No preference ▼

IPv4 CIDR block [Info](#)

192.168.1.0/24 ✕

▼ Tags - optional

Key	Value - optional	
Name ✕	VPC-UDAY-PrvSN2 ✕	Remove

[Add new tag](#)

You can add 49 more tags.

[Remove](#)

[Add new subnet](#)

Cancel [Create subnet](#)

5. Create **Public Subnet 1 – 192.168.2.0/24** with name “**VPC-UDAY-PubSN1**” in the above VPC

## Create subnet [Info](#)

### VPC

VPC ID  
Create subnets in this VPC.

vpc-06655928932f859f7 (VPC-UDAY) ▼

**Associated VPC CIDRs**

IPv4 CIDRs

192.168.0.0/16

### 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.

VPC-UDAY-PubSN1

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.

No preference ▼

**IPv4 CIDR block** [Info](#)

192.168.2.0/24 ✕

▼ **Tags - optional**

Key	Value - optional	
Name ✕	VPC-UDAY-PubSN1 ✕	Remove

**Add new tag**

You can add 49 more tags.

**Remove**

**Add new subnet**

Cancel **Create subnet**

6. Create **Public Subnet 1 – 192.168.3.0/24** with name “**VPC-UDAY-PubSN2**” in the above VPC

## Create subnet [Info](#)

### VPC

VPC ID  
Create subnets in this VPC.

vpc-06655928932f859f7 (VPC-UDAY) ▼

**Associated VPC CIDRs**

IPv4 CIDRs  
192.168.0.0/16

### 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.

VPC-UDAY-PubSN2

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.

No preference ▼

**IPv4 CIDR block** [Info](#)

192.168.3.0/24 ✕

▼ **Tags - optional**

Key	Value - optional	
Name ✕	VPC-UDAY-PubSN2 ✕	Remove

**Add new tag**

You can add 49 more tags.

Remove

**Add new subnet**

Cancel **Create subnet**



Subnets (7) Info



Actions ▾

Create subnet

Filter subnets

< 1 > ⚙

<input type="checkbox"/>	Name ▾	Subnet ID ▾	State ▾	VPC ▾	IPv4 CIDR ▾	IPv6 CIDR
<input type="checkbox"/>	VPC-UDAY-PrvSN2	subnet-0eb915223c34882e5	✔ Available	vpc-06655928932f859f7   VP...	192.168.1.0/24	-
<input type="checkbox"/>	-	subnet-0fee30122f110fb44	✔ Available	vpc-0c85da6ed826f1dc8	172.31.16.0/20	-
<input type="checkbox"/>	VPC-UDAY-PrvSN1	subnet-077b4cb213a7e921c	✔ Available	vpc-06655928932f859f7   VP...	192.168.0.0/24	-
<input type="checkbox"/>	VPC-UDAY-PubSN2	subnet-0605a4e477d2cc0b4	✔ Available	vpc-06655928932f859f7   VP...	192.168.3.0/24	-
<input type="checkbox"/>	-	subnet-021d0615f7e45ca5d	✔ Available	vpc-0c85da6ed826f1dc8	172.31.32.0/20	-
<input type="checkbox"/>	-	subnet-05f94c3356f9be7bf	✔ Available	vpc-0c85da6ed826f1dc8	172.31.0.0/20	-
<input type="checkbox"/>	VPC-UDAY-PubSN1	subnet-067d9565627281ab9	✔ Available	vpc-06655928932f859f7   VP...	192.168.2.0/24	-

- Now create a route table with the name “VPC-UDAY-PrvRT” in the above VPC for the private subnets.

Route tables (4) [Info](#) ↻ Actions Create route table

< 1 > ⚙

<input type="checkbox"/>	Name	Route table ID	Explicit subnet ...	Edge as...	Main	VPC	Owner ID
<input type="checkbox"/>	-	rtb-09ce6d9462e9eafa1	-	-	Yes	vpc-0c85da6ed826f1dc8	687817909682
<input type="checkbox"/>	VPC-UDAY-PrvRT	rtb-03aad59e32875f289	-	-	No	vpc-06655928932f859f7   VP...	687817909682
<input type="checkbox"/>	VPC-UDAY-PubRT	rtb-066ef40f6b077adf0	-	-	No	vpc-06655928932f859f7   VP...	687817909682
<input type="checkbox"/>	-	rtb-0d59943afdfac2b21	-	-	Yes	vpc-06655928932f859f7   VP...	687817909682

- Now create a route table with the name “**VPC-UDAY-PubRT**” in the above VPC for the public subnets.
- Now, **associate the route tables** to corresponding subnets. Public subnets to public route table and Private subnets to private route table.

**Route tables (1/4)** Info
Actions ▾
Create route table

< 1 > ⚙

<input type="checkbox"/>	Name ▾	Route table ID ▾	Explicit subnet associat...	Edge associations	Main ▾	VPC ▾	Owner ID ▾
<input type="checkbox"/>	-	rtb-09ce6d9462e9eafa1	-	-	Yes	vpc-0c85da6ed826f1dc8	687817909682
<input checked="" type="checkbox"/>	VPC-UDAY-PrvRT	rtb-03aad59e32875f289	-	-	No	vpc-06655928932f859f7   VP...	687817909682
<input type="checkbox"/>	VPC-UDAY-PubRT	rtb-066ef40f6b077adf0	-	-	No	vpc-06655928932f859f7   VP...	687817909682
<input type="checkbox"/>	-	rtb-0d59943afdfac2b21	-	-	Yes	vpc-06655928932f859f7   VP...	687817909682

---

**rtb-03aad59e32875f289 / VPC-UDAY-PrvRT**
⌵ ⌵ ⌵

Details
Routes
Subnet associations
Edge associations
Route propagation
Tags

**Explicit subnet associations (0)**
Edit subnet associations

< 1 > ⚙

Subnet ID ▾	IPv4 CIDR ▾	IPv6 CIDR ▾
<p>No subnet associations</p> <p>You do not have any subnet associations.</p>		

---

**Subnets without explicit associations (4)**
Edit subnet associations

< 1 > ⚙

The following subnets have not been explicitly associated with any route tables and are therefore associated with the main route table:

Subnet ID ▾	IPv4 CIDR ▾	IPv6 CIDR ▾
subnet-0eb915223c34882e5 / VPC-UDAY-PrvSN2	192.168.1.0/24	-
subnet-077b4cb213a7e921c / VPC-UDAY-PrvSN1	192.168.0.0/24	-
subnet-0605a4e477d2cc0b4 / VPC-UDAY-PubSN2	192.168.3.0/24	-
subnet-067d9565627281ab9 / VPC-UDAY-PubSN1	192.168.2.0/24	-

10. Connect public route table to internet gate way by using **“Edit Route”** option and giving destination as 0.0.0.0/0 and gate way Target as the above created one **“VPC-UDAY-IGW”**

VPC > Route tables > rtb-066ef40f6b077adf0 > Edit routes

### Edit routes

Destination	Target	Status	Propagated
192.168.0.0/16	local	Active	No
0.0.0.0/0	igw-	-	No

11. As a VPC requires a dedicated security group. Create a new security group with the name “VPC-UDAY-SG” for the above VPC “VPC-UDAY”. Allow all traffic

VPC > Security Groups > Create security group

### Create security group Info

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

#### Basic details

Security group name Info  
VPC-UDAY-SG  
Name cannot be edited after creation.

Description Info  
VPC-UDAY-SG

VPC Info  
vpc-0c85da6ed826f1dc8

#### Inbound rules Info

This security group has no inbound rules.

[Add rule](#)

#### Outbound rules Info

Type <small>Info</small>	Protocol <small>Info</small>	Port range <small>Info</small>	Destination <small>Info</small>	Description - optional <small>Info</small>	
SSH	TCP	22	Custom <input type="text" value="0.0.0.0/0"/>		Delete
All ICMP - IPv4	ICMP	All	Anywhere-IPv4 <input type="text" value="0.0.0.0/0"/>		Delete
All TCP	TCP	0 - 65535	Anywhere-IPv4 <input type="text" value="0.0.0.0/0"/>		Delete

[Add rule](#)

#### 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 up to 50 more tags.

Cancel [Create security group](#)

12. Create an EC2 instance “**EC2-UDAY-Pub1**” in the public subnet and one EC2 instance “**EC2-UDAY-Prv1**” in the private subnet in the above VPC and Security Group

EC2 > Instances > Launch an instance

### Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

#### Name and tags [Info](#)

Name: EC2-UDAY-Pub1 [Add additional tags](#)

#### Application and OS Images (Amazon Machine Image) [Info](#)

Search for your full catalog including 1000s of application and OS images

**Quick Start**

Amazon Linux | macOS | Ubuntu | Windows | Red Hat

Amazon Machine Image (AMI)

Ubuntu Server 22.04 LTS (HVM), SSD Volume Type **Free tier eligible**

Canonical, Ubuntu, 22.04 LTS, amd64 jammy image build on 2023-01-15

Architecture: 64-bit (x86) AMI ID: ami-06984ea821ac0a879 **Verified provider**

#### Instance type [Info](#)

Instance type: t2.micro **Free tier eligible**

Family: t2 | 1 vCPU | 1 GiB Memory

On-Demand Linux pricing: 0.0124 USD per Hour

On-Demand Windows pricing: 0.017 USD per Hour

On-Demand RHEL pricing: 0.0724 USD per Hour

On-Demand SUSE pricing: 0.0124 USD per Hour

[Compare instance types](#)

#### Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required: uday-mumbai-key-pair [Create new key pair](#)

#### Network settings [Info](#)

VPC - required [Info](#): vpc-06655928932f659f7 (VPC-UDAY) 192.168.0.0/16

Subnet [Info](#): subnet-067d9565627281ab9 VPC-UDAY-PubSN1

Auto-assign public IP [Info](#): Enable

Firewall (security groups) [Info](#):  Create security group  Select existing security group

Security group name - required: VPC-UDAY-SG

Description - required [Info](#): launch-wizard-7 created 2023-01-31T17:49:39.888Z

Inbound security groups rules

Security group rule 1 (TCP, 22, 0.0.0.0/0) [Remove](#)

Type [Info](#): ssh Protocol [Info](#): TCP Port range [Info](#): 22

Source type [Info](#): Anywhere Source [Info](#): Add CIDR, prefix list or security group Description - optional [Info](#): e.g. SSH for admin desktop

Security group rule 2 (TCP, 0-65535, 0.0.0.0/0) [Remove](#)

#### Summary

Number of instances [Info](#): 1

Software image (AMI): Canonical, Ubuntu, 22.04 LTS, ...read more ami-06984ea821ac0a879

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (Volumes): 1 volume(s) - 8 GiB

**Free tier:** In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million I/Os, 1 GiB of snapshots, and 100 GiB of bandwidth to the internet.

[Cancel](#) [Launch instance](#)

13. Now try to do SSH from public EC2 to Private EC2

14. Create a NAT Gateway in the public subnet to allow access to private subnet from outside. Allocate an elastic IP.

VPC > NAT gateways > Create NAT gateway

## Create NAT gateway [Info](#)

A highly available, managed Network Address Translation (NAT) service that instances in private subnets can use to connect to services in other VPCs, on-premises networks, or the internet.

### NAT gateway settings

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

The name can be up to 256 characters long.

**Subnet**  
Select a subnet in which to create the NAT gateway.

**Connectivity type**  
Select a connectivity type for the NAT gateway.

Public  
 Private

**Elastic IP allocation ID [Info](#)**  
Assign an Elastic IP address to the NAT gateway.

 

▶ **Additional settings**

### 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	
<input type="text" value="Name"/>	<input type="text" value="NAT-GW-UDAY"/>	<input type="button" value="Remove"/>

You can add 49 more tags.

15. Now, edit the private route table to allow internet access by editing the routes and adding the 0.0.0.0 and NAT GW created above.