

## Configure Custom Amazon VPC and provision web server in public subnet of the VPC.

Objectives:

1. Learn to design and implement custom Amazon VPC.
2. Learn to provision a web server in public subnet.
3. Learn to provision NAT gateway.

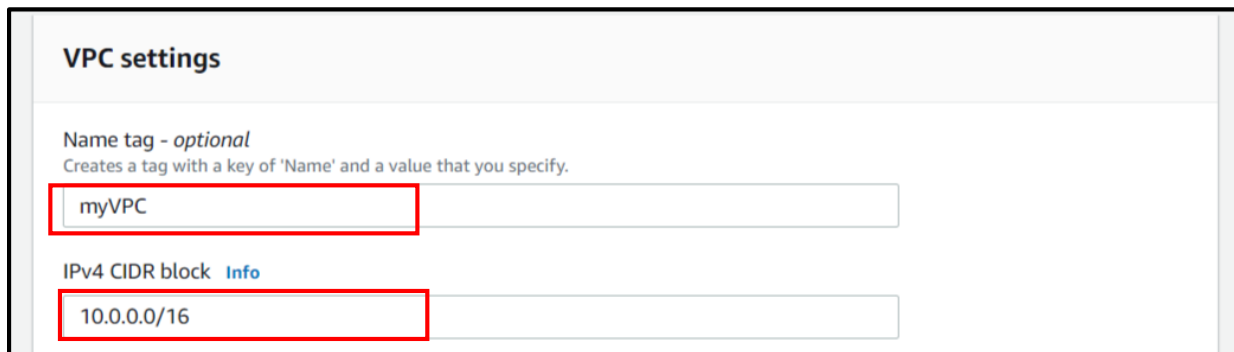
Step 1: In AWS Management Console, go to **VPC** service. In VPC side Panel, click **Your VPCs**. Your default VPC is visible in this window. Click on **Create VPC**.



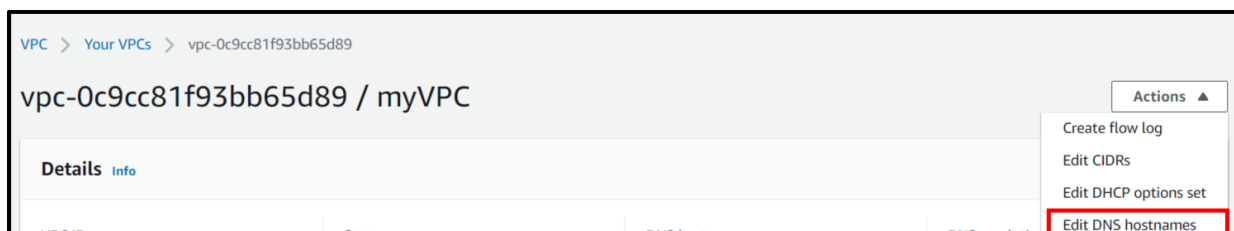
In VPC settings:

**Name tag** – **myVPC**

**IPv4 CIDR block** – **10.0.0.0/16**



Keep rest default, scroll down and click on **Create VPC**. In the next successful creation window, click on **Actions** -> **Edit DNS Hostnames**.



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Check the **Enable** box and **Save changes**.

**Edit DNS hostnames** [Info](#)

**DNS hostnames**  
Indicates whether instances with public IP addresses get corresponding public DNS hostnames.

VPC ID  
vpc-0c9cc81f93bb65d89

DNS hostnames  
☒ Enable

Cancel **Save changes**

Step 2: Go back to VPC dashboard. Click on **Subnets**. Here there would be existing subnets of default VPC. Click on **Create Subnets**.

Select **myVPC** from drop down.

**VPC**

VPC ID  
Create subnets in this VPC.  
vpc-0c9cc81f93bb65d89 (myVPC)

**Associated VPC CIDRs**  
IPv4 CIDRs  
10.0.0.0/16

Configure Subnet settings as follows:

**Subnet Name:** **myPublicSN**

**Availability Zone:** **ap-south-1a**

(The above values may vary according to your own region, subnets and requirements)

**IPv4 CIDRs:** **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.  
  
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 CIDR block [Info](#)

Keep the rest values default, scroll down and click on **Create Subnet**.

Select the **myPublicSN**, go to **Actions** -> **Modify auto-assign IP settings**

**Actions** ▲ **Create subnet**

View details

Create flow log

**Modify auto-assign IP settings**

6 CIDR

Check the **Enable auto assign public IPv4 address**. And click **Save**.

**Settings**

Subnet ID  
subnet-0460bd6670a0ff108

Auto-assign IPv4 [Info](#)  
☒ **Enable auto-assign public IPv4 address**

Auto-assign customer-owned IPv4 address [Info](#)  
☐ Enable auto-assign customer-owned IPv4 address  
Option disabled because no customer owned pools found.

Cancel **Save**

Go back to **Subnets**, click on **Create Subnets**. Select **myVPC** from drop down.

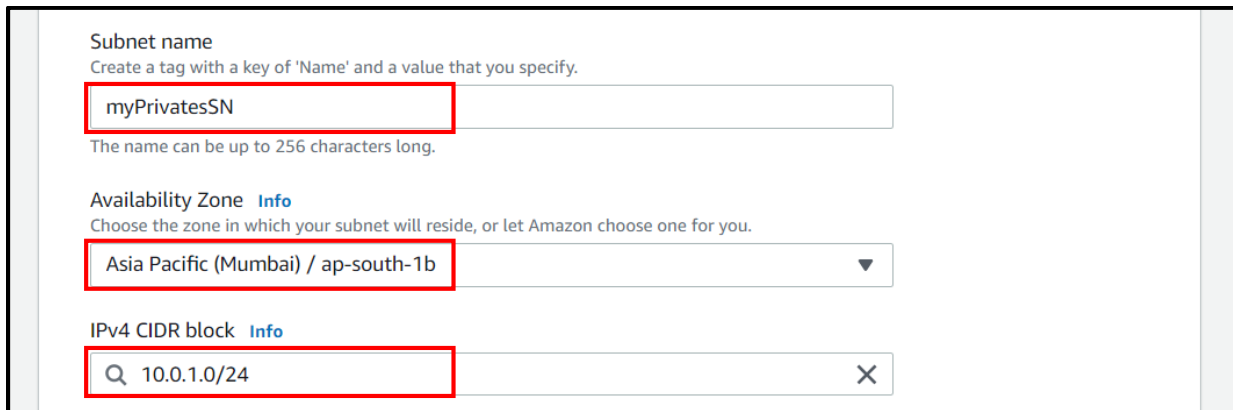
Configure private subnet according to following configurations:

**Subnet Name:** myPrivateSN

**Availability Zone:** ap-south-1b

(The above values may vary according to your own region, subnets and requirements)

**IPv4 CIDRs:** 10.0.1.0/24



Subnet name  
Create a tag with a key of 'Name' and a value that you specify.  
myPrivateSN  
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-1b

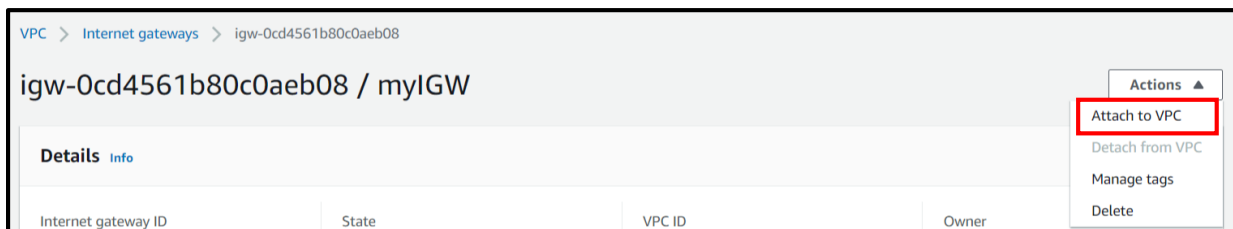
IPv4 CIDR block [Info](#)  
10.0.1.0/24

**Step 3:** In VPC console side panel, go to **Internet Gateways**. Click on **Create internet gateway**.

Provide **Name tag** – myIGW.

Keep the defaults as is, scroll down and click on **Create internet gateway**.

In the successful creation window, click on **Actions** -> **Attach to VPC**.



VPC > Internet gateways > igw-0cd4561b80c0aeb08

igw-0cd4561b80c0aeb08 / myIGW

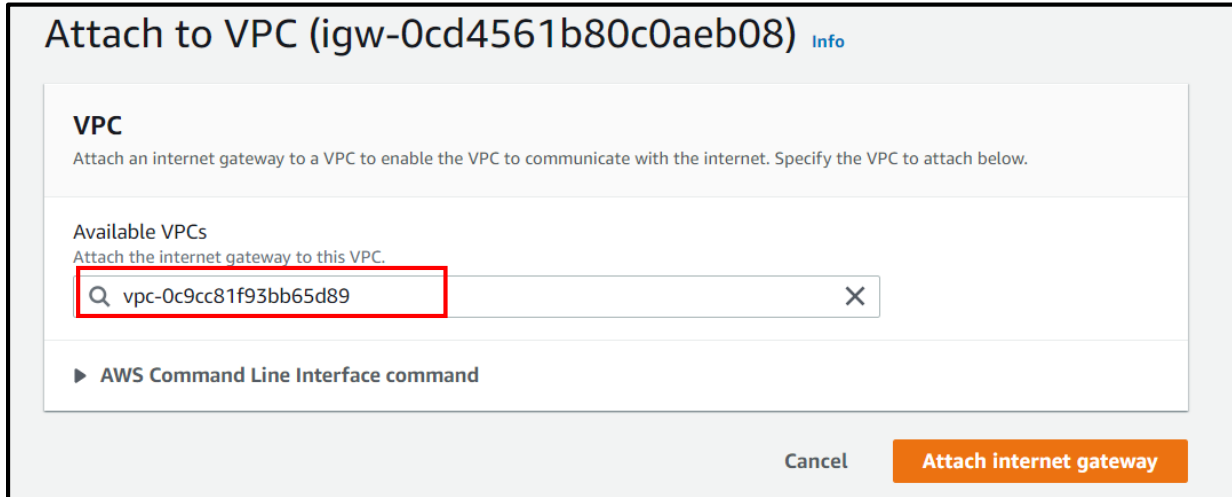
Details [Info](#)

Internet gateway ID	State	VPC ID	Owner
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Actions

- Attach to VPC
- Detach from VPC
- Manage tags
- Delete

Select **myVPC** from drop down and click on **Attach internet gateway**.



The screenshot shows the 'Attach to VPC (igw-0cd4561b80c0aeb08)' console page. It includes a search bar for available VPCs with the ID 'vpc-0c9cc81f93bb65d89' entered. At the bottom, there are 'Cancel' and 'Attach internet gateway' buttons.

**Attach to VPC (igw-0cd4561b80c0aeb08)** [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.

**AWS Command Line Interface command**

**Cancel** **Attach internet gateway**

Step 4: Go back to VPC service console. Select **Route Tables**. Here we create 2 route tables.

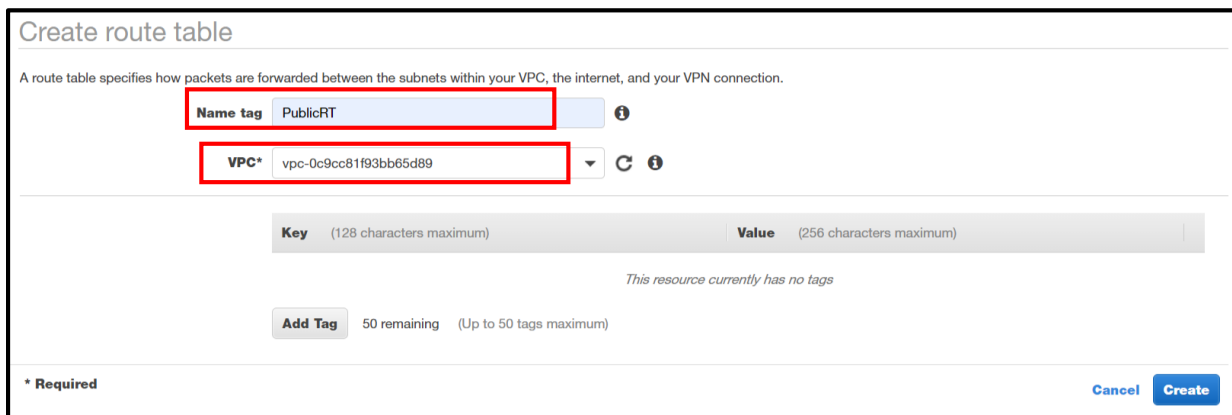
Click on **Create route table**.

Provide following configurations:

**Name Tag** – **PublicRT**

**VPC** – **myVPC** (from drop down)

Click on **Create** button.



The screenshot shows the 'Create route table' console page. It includes input fields for 'Name tag' (PublicRT) and 'VPC\*' (vpc-0c9cc81f93bb65d89). Below these are fields for 'Key' and 'Value' for tags. At the bottom, there are 'Cancel' and 'Create' buttons.

**Create route table**

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

**Name tag**  [Info](#)

**VPC\***  [Refresh](#) [Info](#)

**Key** (128 characters maximum) **Value** (256 characters maximum)

*This resource currently has no tags*

**Add Tag** 50 remaining (Up to 50 tags maximum)

**\* Required** **Cancel** **Create**

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Follow the same procedure to create Private route table.

Go back to **Route Tables**. Click on **Create route table**.

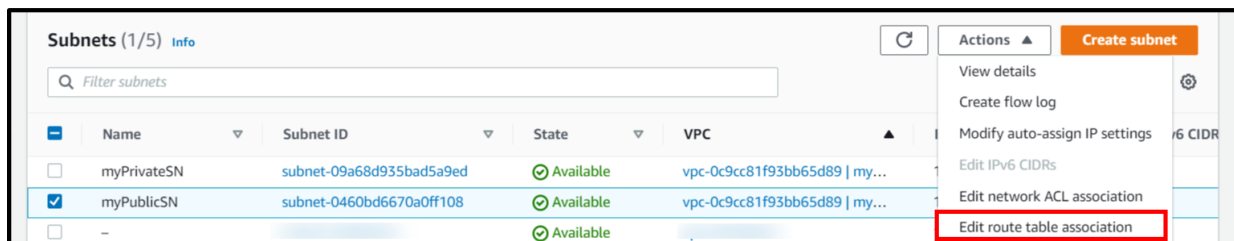
Provide following configurations:

**Name Tag** – **PrivateRT**

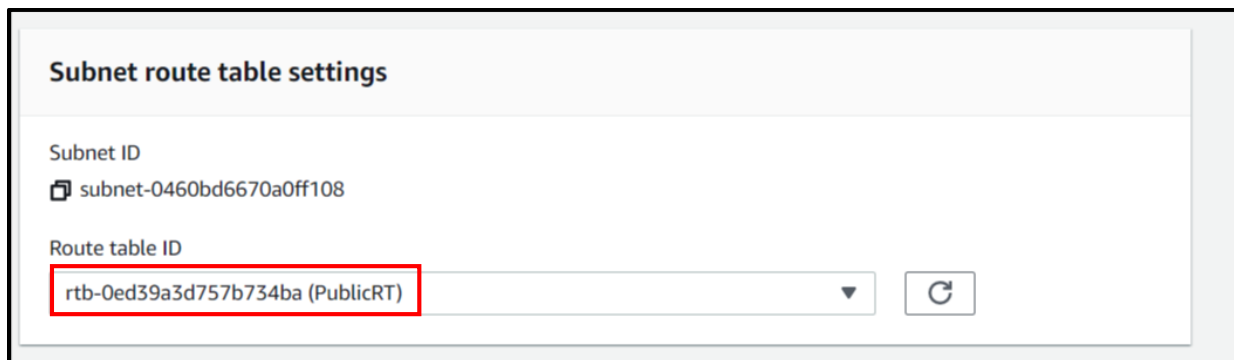
**VPC** – **myVPC** (from drop down)

Click on **Create** button.

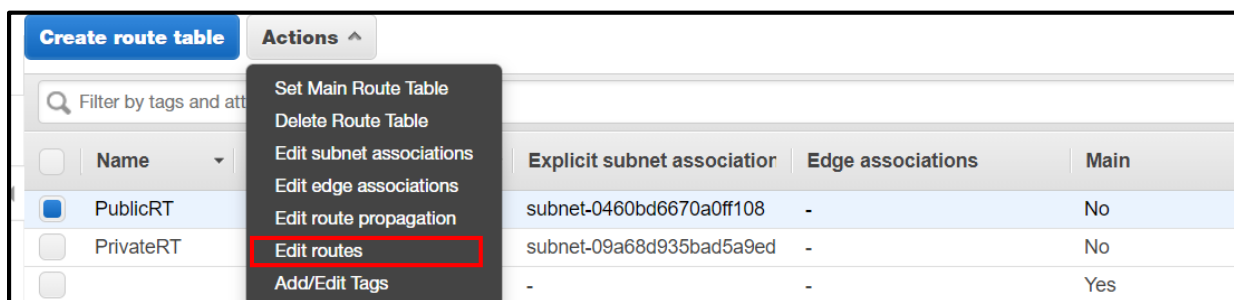
Step 5: Go back to **Subnets**. Select **myPublicSN**. Go to **Actions** -> **Edit route table associations**.



Select the **PublicRT** from drop down. Click on **Save**.



Go to **Actions** -> **Edit Routes**.



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Configure as follows:

**Destination:** 0.0.0.0/0

**Target:** myIGW (from drop down)

Click on **Save Routes**.

Destination	Target	Status	Propagated
10.0.0.0/16	local	active	No
0.0.0.0/0	igw-0cd4561b80c0aeb08		No

**Add route**

\* Required Cancel **Save routes**

Go back to **Subnets**. Select **myPrivateSN**. Go to **Actions** -> **Edit route table associations**.

Select the **PrivateRT** from drop down. Click on **Save**.

Step 6: In VPC console side panel, click **Security Groups** under **Security**.

Click on **Create security group**.

Configure it as follows:

**Security group name:** MyWebServerSG

**Description:** Security Group for EC2 Webserver in custom VPC

Select **myVPC** from drop down.

**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**

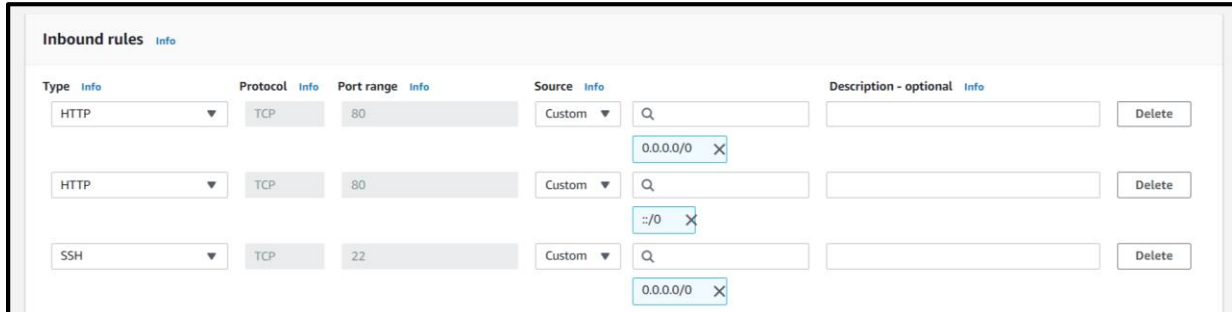
Security group name Info  
MyWebServerSG  
Name cannot be edited after creation.

Description Info  
Security Group for EC2 Webserver in custom VPC

VPC Info  
vpc-0c9cc81f93bb65d89 (myVPC)

Add three rules under **Inbound Rules**:

1. **Type:** HTTP  
**Source:** 0.0.0.0/0
2. **Type:** HTTP  
**Source:** ::/0
3. **Type:** SSH  
**Source:** 0.0.0.0/0



After adding the rules, scroll down and click on **Create security group**.

Now also create a database security group. Go to **Security Groups** under **Security**.

Click on **Create security group**. Configure it as follows:

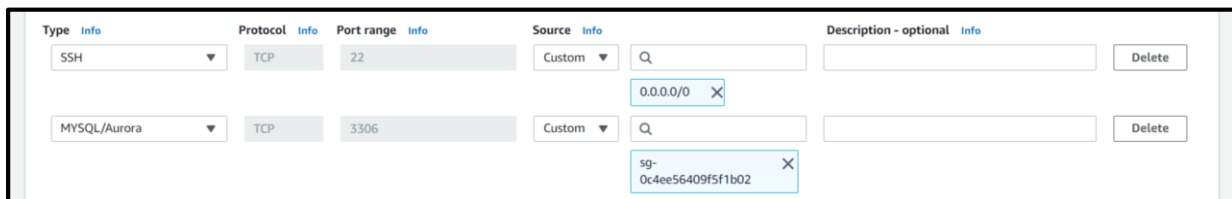
**Security group name:** MyDatabaseSG

**Description:** Security Group for RDS Database in custom VPC

Select **myVPC** from drop down.

Add three rules under Inbound Rules:

1. **Type:** SSH  
**Source:** 0.0.0.0/0
2. **Type:** MySQL/Aurora  
**Source:** MyWebServerSG (The Security group created above for ec2 webserver instance creation)



After adding the rules, scroll down and click on **Create security group**.



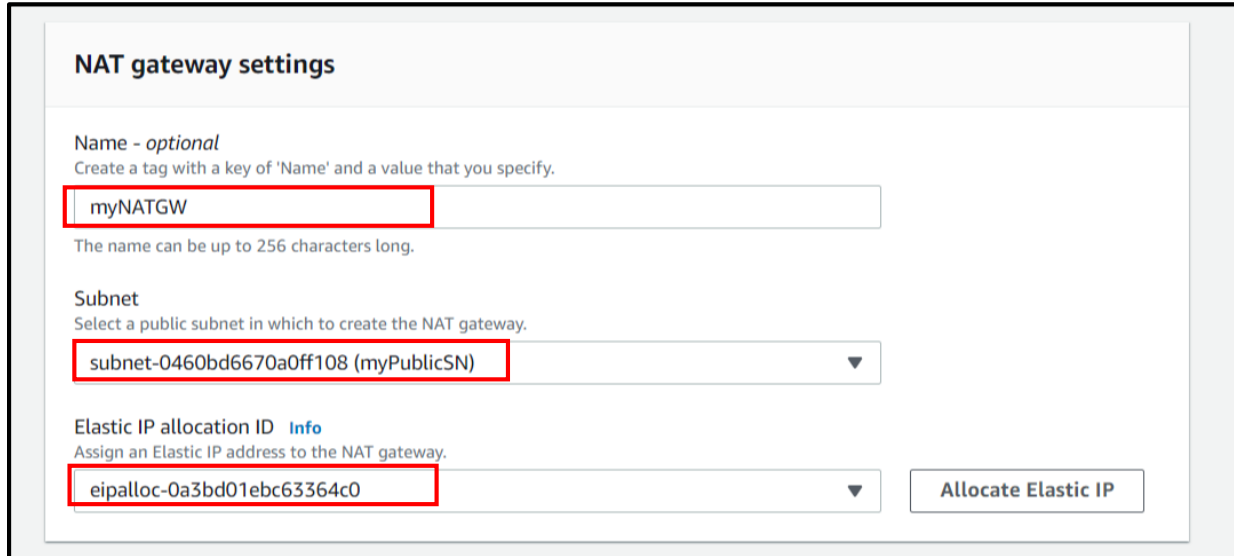
Step 7: In VPC console, go to **NAT Gateways**. Click on **Create NAT gateway**.

Configure as follows:

**Name:** myNATGW

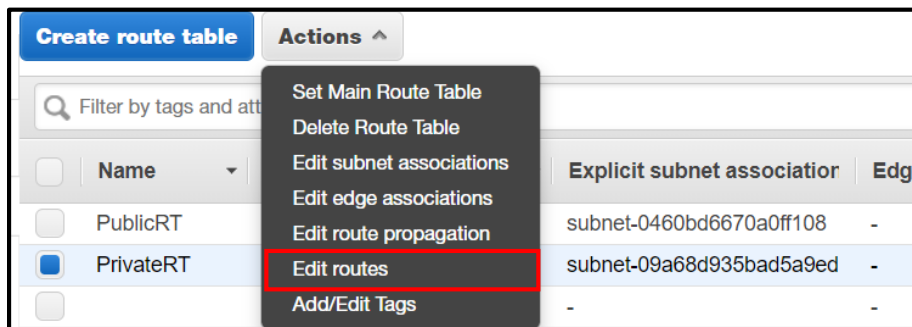
**Subnet:** myPublicSN

**Elastic IP allocation ID:** *Select the Allocate Elastic IP option*



Scroll down and click on **Create NAT gateway**.

Go back to **Route Tables**. Select **PrivateRT**. Go to **Action** -> **Edit Routes**.



Explicit subnet association	Edge
subnet-0460bd6670a0ff108	-
subnet-09a68d935bad5a9ed	-
-	-

Add route with following configuration:

**Destination:** 0.0.0.0/0

**Target:** myNATGW

Click on **Save routes**.

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Destination	Target	Status	Propagated
10.0.0.0/16	local	active	No
0.0.0.0/0	nat-0a5ba7b9f30b55199		No

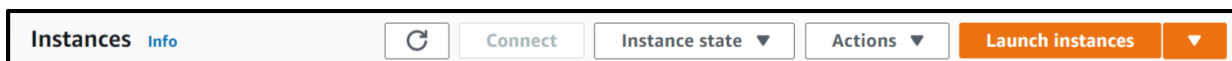
Add route

\* Required

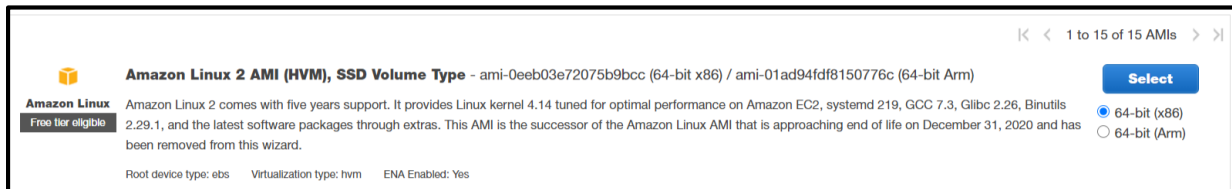
Cancel Save routes

Step 8: In AWS console go to **EC2** services. Select **Instances**.

Click on **Launch instances**.



Select **Linux 2 AMI**.



In next step keep the default **t2.micro**.

In next step, Configure Instance Details, select:

**Network:** **myVPC**

**Subnet:** **myPublicSN**

Scroll down to **Advanced Details**. Under **User data**, in the text box, provide the following script:

```
#!/bin/bash
yum -y update
yum -y install httpd
chkconfig httpd on
service httpd start
echo "<html><h1>Hello! How are You? This is your Web
Server!</h1></html>" > /var/www/html/index.html
```

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User data ⓘ ☒ As text ☐ As file ☐ Input is already base64 encoded

```
#!/bin/bash
yum -y update
yum -y install httpd
chkconfig httpd on
service httpd start
echo "<html><h1>Hello! How are You? This is your Web Server!</h1>"
```

In next step keep default storage selection.

In next step add tags as follows:

**Key:** Name

**Value:** MyWebServerForVPC

In next step, click on **Select exiting security groups** radio button. Select the **MyWebServerSG** created previously.

Select the key pair, and launch the instance.

Copy the **Public IPv4 address**, run it in a different tab and test the web server instance.



If you no longer need this infrastructure, make sure to dissociate and release the elastic IP address, delete the EC2 instance, NAT gateway and the custom VPC.

# Cloud Plus Plus Services



Was this document helpful? YES / NO

Document Created by	Version
Parag Deshpande	05-MAR-2020