Details of the resources we created:

VPC	vpc-05ca38fa9932048be
PUBLIC SUBNET	subnet-014b594d37f65b62a
PRIVATE SUBNET	subnet-04c0c1cc2f3d82b20
WEB APP INSTANCE : i-0086f53580f20ced6	63.32.152.192 (elastic PUBLIC IP)
DB INSTANCE:i-02ce4a964255c7104	10.0.2.196 (PRIVATE IP)
SECURITY GROUPS WEB APP	sg_appserver_group17
SECURITY GROUP DB	sg_dbserver_group17
ROUTING TABLE PUBLIC	rtb-01b14c60ae18bd95a
ROUTING TABLE PRIVATE	rtb-0ee8bfafec68903e6
IGW	igw-094069815fc509734
NAT	nat-055beb471041e55fb

1 Resource preparation

1.1 Creating a VPC and EC2

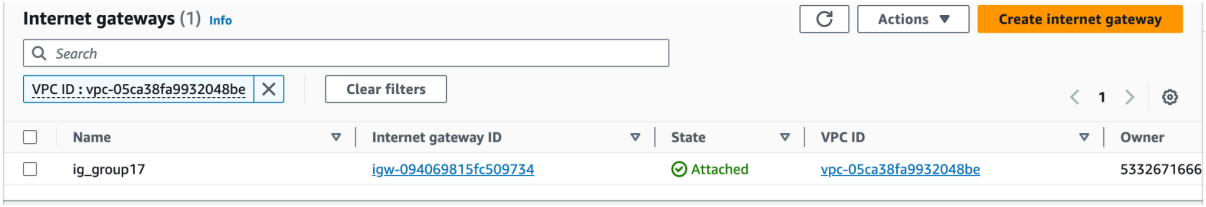
Create a VPC with network segment range 10.0.0.0/16, my id [vpc-05ca38fa9932048be]

Create two subnets, 10.0.1.0/24 for server, only server can directly access the public network, 10.0.2.0/24 for database

Create two EC2 instances and bind them to the two subnets.

1.2 Creating Internet Gateways

Create gateways and bind them to VPC



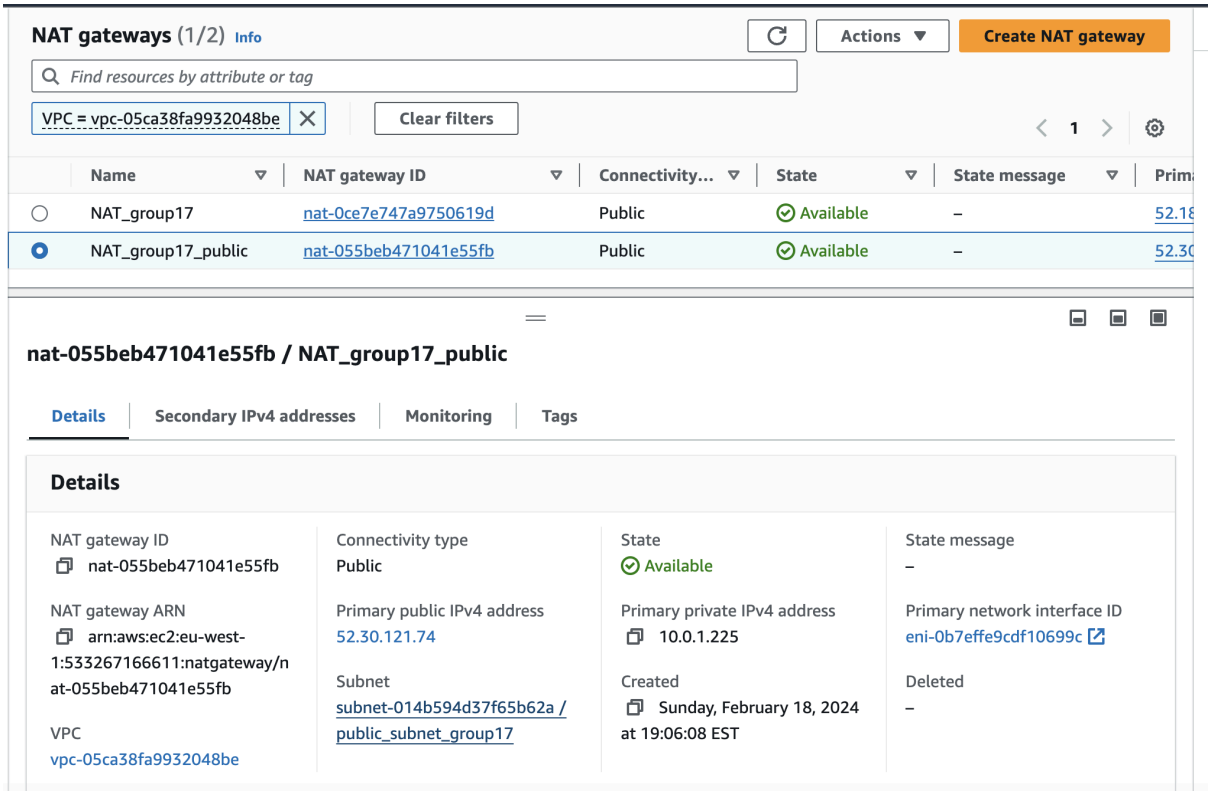
Supplementary:** Internet Gateway:**

- The Internet Gateway is a horizontally scalable, highly available VPC component that allows resources in the public subnet (e.g., EC2 instances) to communicate bi-directionally with the Internet.

- It is used to provide direct Internet access to instances in the public subnet, meaning that these instances can receive traffic directly from the Internet (if allowed by security groups and network ACLs) and send traffic directly to the Internet.
- The Internet gateway does not perform address translation (NAT) on incoming or outgoing traffic.

1.3 Creating a NAT Gateway

To select a public subnet for placement of a NAT gateway



Supplementary:** NAT Gateway (NAT Gateway):**

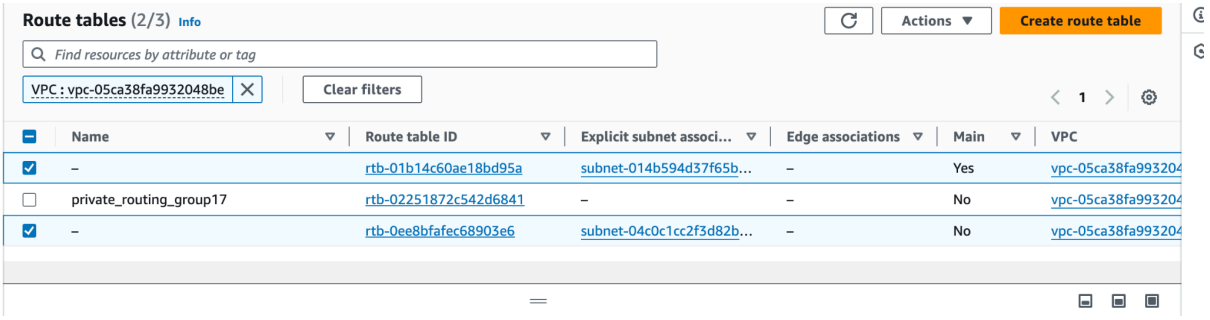
- A NAT gateway is a service that allows instances in a private subnet to access the Internet or other AWS services while preventing the Internet from directly accessing those instances.
- It is used to provide instances in a private subnet with the ability to egress traffic to the Internet while keeping those instances from having direct access to the Internet.
- The NAT gateway performs address translation (NAT), which means that instances in the private subnet use the IP address of the NAT gateway to communicate with the Internet.

1.4 Configuring the Routing Table

1. for the public subnet, add a routing rule with destination 0.0.0.0/0, targeting an Internet gateway
2. for the private subnet, add a routing rule with destination 0.0.0.0/0, targeting the NAT gateway

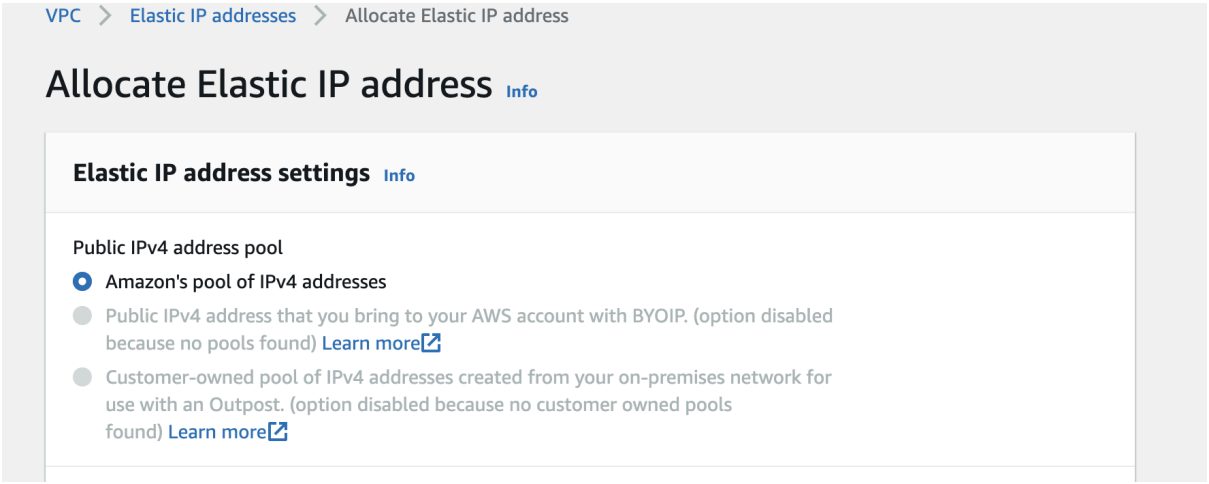
- On the Routing Table page, select the Subnet Associations tab.

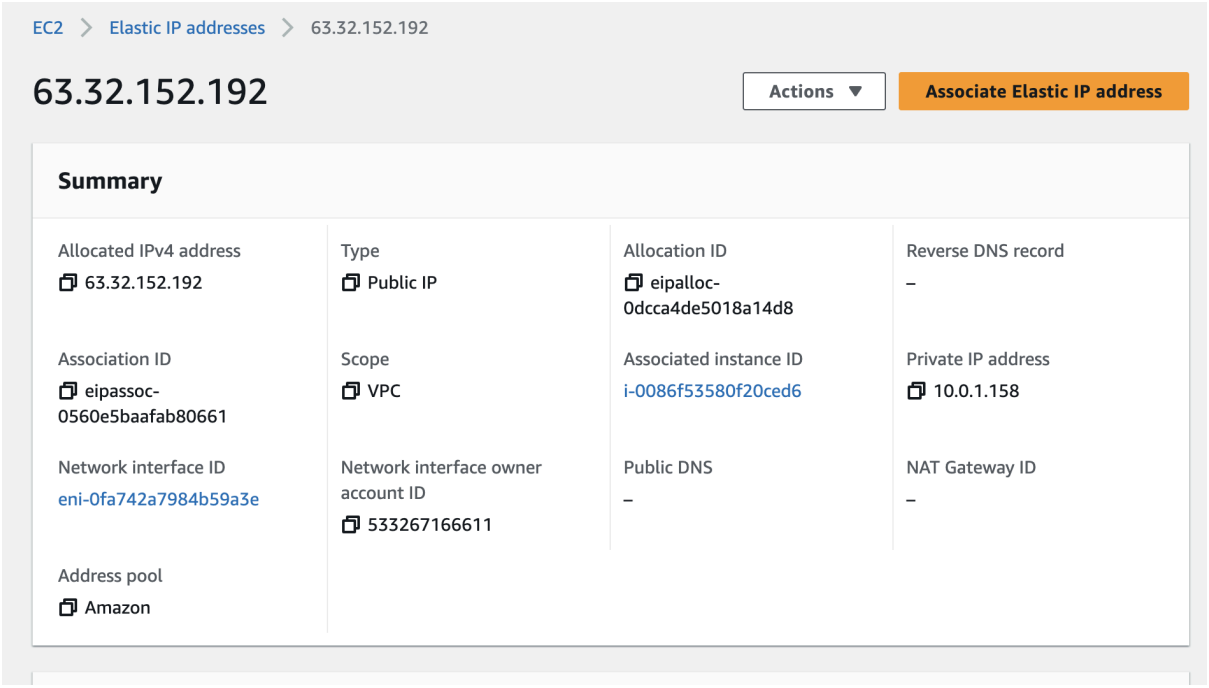
3. Associate the routing table to subnets



1.5 Configuring public ip

Bind to the server's public ip, so that you can access the server instance from the outside world, and access the database through the server.





Commands for MYSQL:

```
sudo wget https://dev.mysql.com/get/mysql80-community-release-el9-5.noarch.rpm
sudo yum localinstall mysql80-community-release-el9-5.noarch.rpm
sudo yum install mysql-community-server
systemctl start mysqld.service
```