

|  |                                   |
|--|-----------------------------------|
| 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

|                          | Name       | Internet gateway ID                   | State    | VPC ID                                | Owner      |
|--------------------------|------------|---------------------------------------|----------|---------------------------------------|------------|
| <input type="checkbox"/> | ig_group17 | <a href="#">igw-094069815fc509734</a> | Attached | <a href="#">vpc-05ca38fa9932048be</a> | 5332671666 |

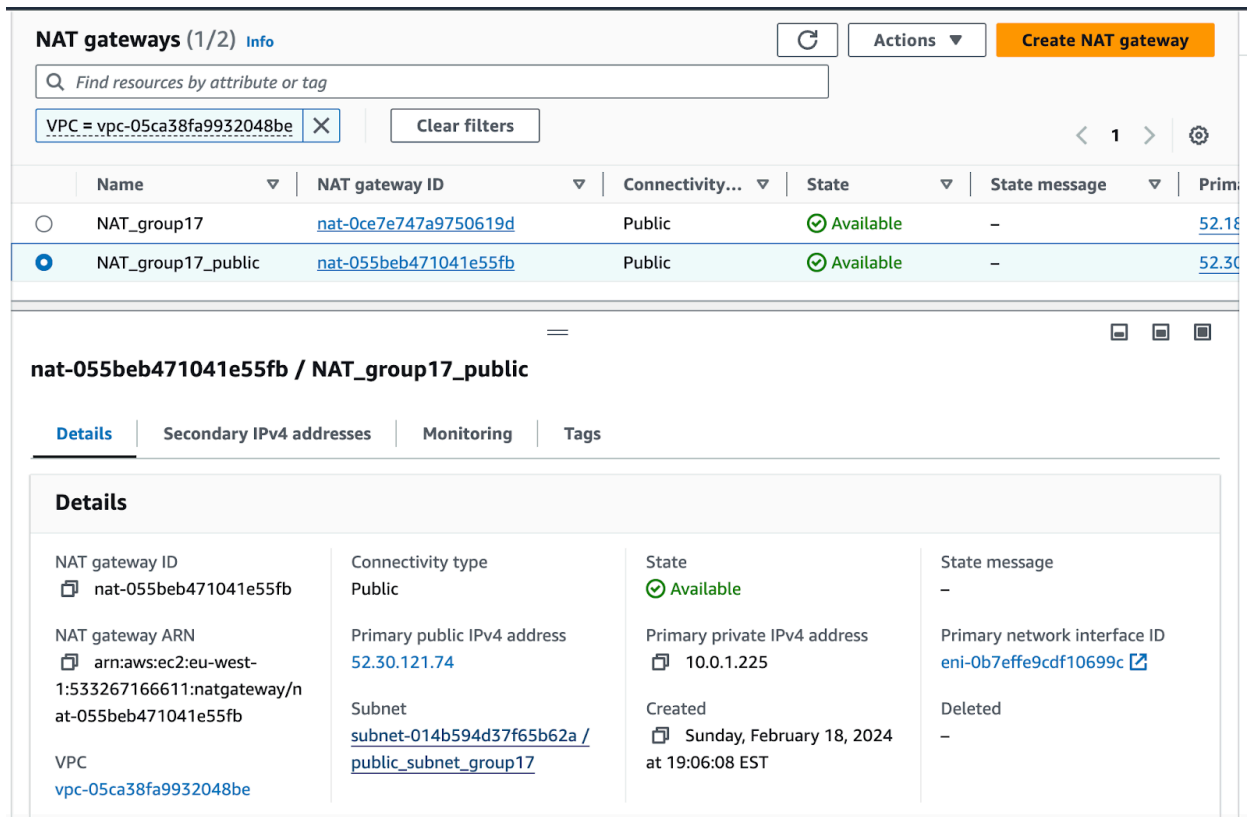
Supplementary:\*\* Internet Gateway:\*\*

- 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



**NAT gateways (1/2)** Info

Find resources by attribute or tag

VPC = vpc-05ca38fa9932048be X Clear filters

|                                  | Name               | NAT gateway ID                        | Connectivity... | State     | State message | Prim                  |
|----------------------------------|--------------------|---------------------------------------|-----------------|-----------|---------------|-----------------------|
| <input type="radio"/>            | NAT_group17        | <a href="#">nat-0ce7e747a9750619d</a> | Public          | Available | -             | <a href="#">52.18</a> |
| <input checked="" type="radio"/> | NAT_group17_public | <a href="#">nat-055beb471041e55fb</a> | Public          | Available | -             | <a href="#">52.30</a> |

**nat-055beb471041e55fb / NAT\_group17\_public**

Details Secondary IPv4 addresses Monitoring Tags

| Details  |  |  |   |
|--|--|--|---|
| NAT gateway ID<br>nat-055beb471041e55fb  | Connectivity type<br>Public  | State<br>Available                                   | State message<br>-  |
| NAT gateway ARN<br>arn:aws:ec2:eu-west-1:533267166611:natgateway/nat-055beb471041e55fb | Primary public IPv4 address<br><a href="#">52.30.121.74</a>                | Primary private IPv4 address<br>10.0.1.225           | Primary network interface ID<br><a href="#">eni-0b7effe9cdf10699c</a> |
| VPC<br><a href="#">vpc-05ca38fa9932048be</a>   | Subnet<br><a href="#">subnet-014b594d37f65b62a / public_subnet_group17</a> | Created<br>Sunday, February 18, 2024 at 19:06:08 EST | Deleted<br>-  |

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

Route tables (2/3) [Info](#)

Find resources by attribute or tag

VPC: [vpc-05ca38fa9932048be](#) ✕ Clear filters

< 1 > ⚙

| <input checked="" type="checkbox"/> | Name                    | Route table ID                        | Explicit subnet associ...                 | Edge associations | Main | VPC                                |
|-------------------------------------|-------------------------|---------------------------------------|---|-------------------|------|------------------------------------|
| <input checked="" type="checkbox"/> | -                       | <a href="#">rtb-01b14c60ae18bd95a</a> | <a href="#">subnet-014b594d37f65b...</a>  | -                 | Yes  | <a href="#">vpc-05ca38fa993204</a> |
| <input type="checkbox"/>            | private_routing_group17 | <a href="#">rtb-02251872c542d6841</a> | -   | -                 | No   | <a href="#">vpc-05ca38fa993204</a> |
| <input checked="" type="checkbox"/> | -                       | <a href="#">rtb-0ee8bfafec68903e6</a> | <a href="#">subnet-04c0c1cc2f3d82b...</a> | -                 | No   | <a href="#">vpc-05ca38fa993204</a> |

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## 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.

[VPC](#) > [Elastic IP addresses](#) > Allocate Elastic IP address

## Allocate Elastic IP address [Info](#)

### Elastic IP address settings [Info](#)

Public IPv4 address pool

- ☒ Amazon's pool of IPv4 addresses
- ☐ Public IPv4 address that you bring to your AWS account with BYOIP. (option disabled because no pools found) [Learn more](#)
- ☐ Customer-owned pool of IPv4 addresses created from your on-premises network for use with an Outpost. (option disabled because no customer owned pools found) [Learn more](#)

EC2 > Elastic IP addresses > 63.32.152.192

63.32.152.192

Actions ▼

Associate Elastic IP address

Summary

|   |  |   |                                  |
|---|--|---|----------------------------------|
| Allocated IPv4 address<br>63.32.152.192       | Type<br>Public IP                                  | Allocation ID<br>eipalloc-0dcca4de5018a14d8   | Reverse DNS record<br>-          |
| Association ID<br>eipassoc-0560e5baafab80661  | Scope<br>VPC                                       | Associated instance ID<br>i-0086f53580f20ced6 | Private IP address<br>10.0.1.158 |
| Network interface ID<br>eni-0fa742a7984b59a3e | Network interface owner account ID<br>533267166611 | Public DNS<br>-                               | NAT Gateway ID<br>-              |
| Address pool<br>Amazon                        |  |   |                                  |

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
```