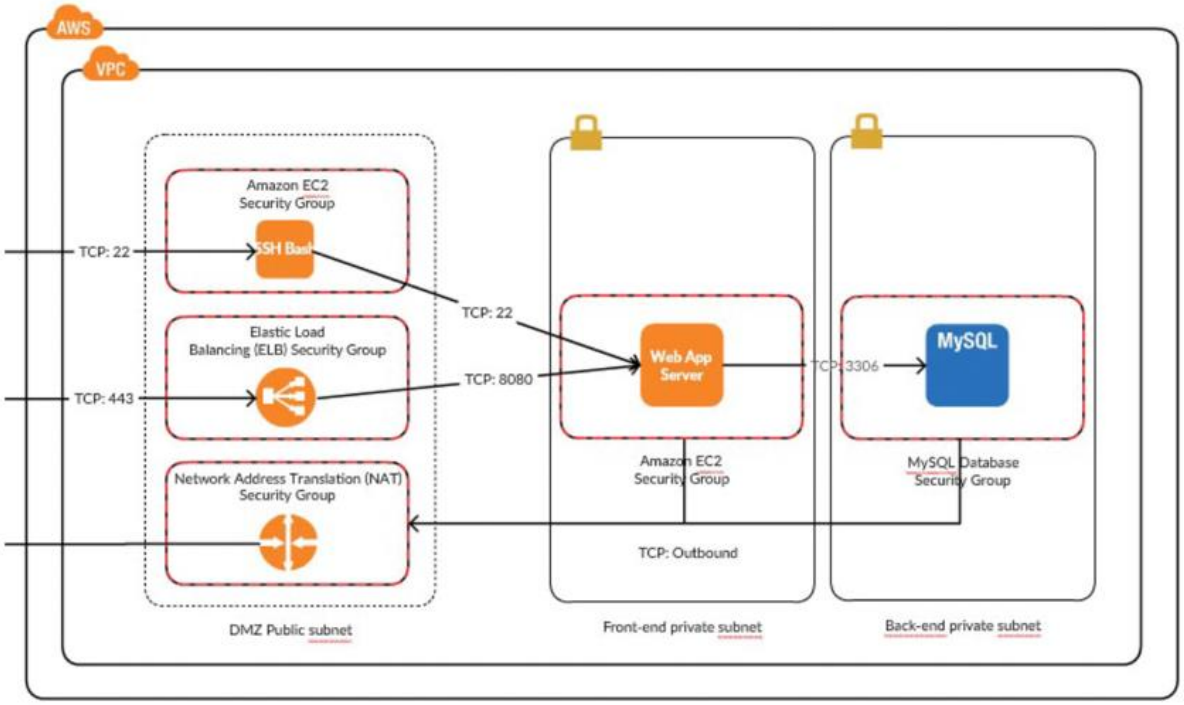
AWS Assignment / Atypon Java & DevOps

Mahmoud Qudah

In this assignment, I have been asked to build this network, to get hands-on experience on AWS tools and services.



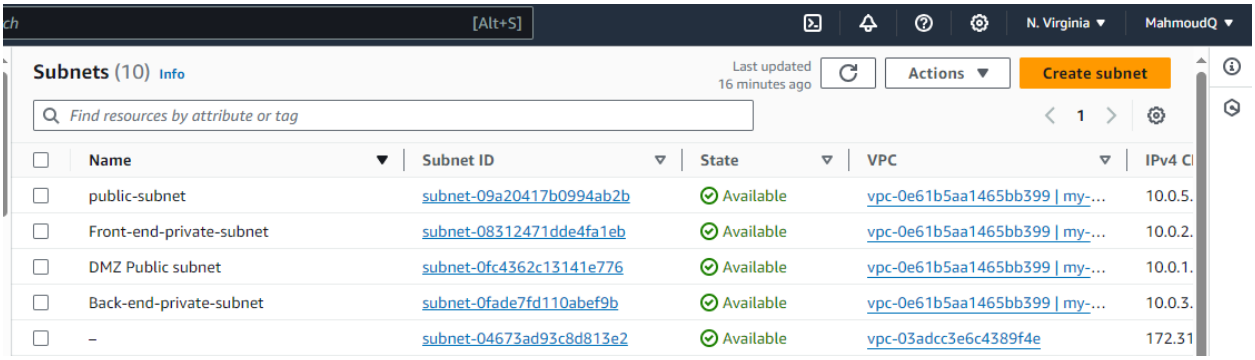
-Build the Network

1) **Set Up the VPC:**

   Create a VPC with a CIDR block (10.0.0.0/16).

   Create three subnets within the VPC:

   1. **Public Subnet (DMZ Public subnet)** with a CIDR block like 10.0.1.0/24.
   2. **Private Subnet (Front-end private subnet)** with a CIDR block like 10.0.2.0/24.
   3. **Private Subnet (Back-end private subnet)** with a CIDR block like 10.0.3.0/24.

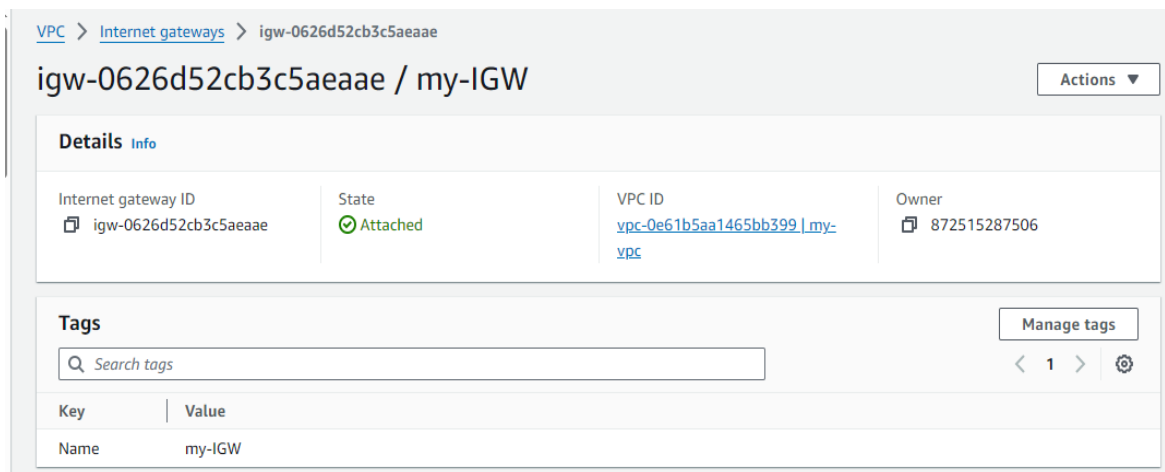


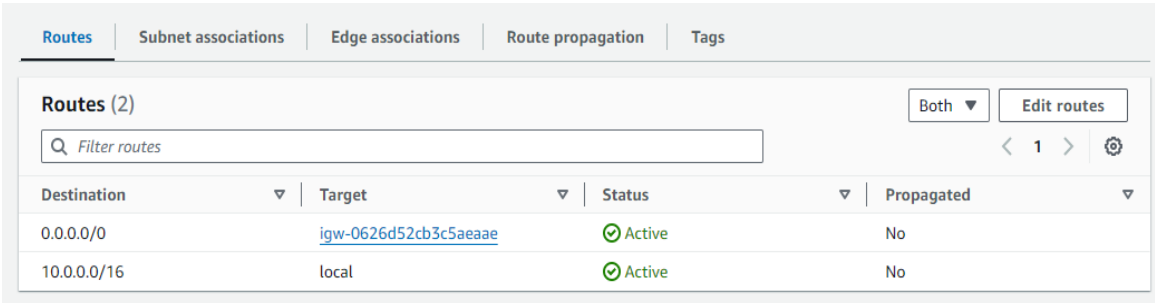
*I will explain what the public-subnet is later.

****

2) Set Up the Internet Gateway:

- Attach an Internet Gateway (IGW) to the VPC.
- Add a route to the Public Subnet's Route Table to allow outbound traffic to the Internet through the IGW.





3) **Set Up the NAT Gateway:**

- Create a NAT Gateway in the Public Subnet.
- Update the Route Table for the Private Subnet (Front-end) to allow outbound Internet access through the NAT Gateway.

4) **Launch EC2 Instances:**

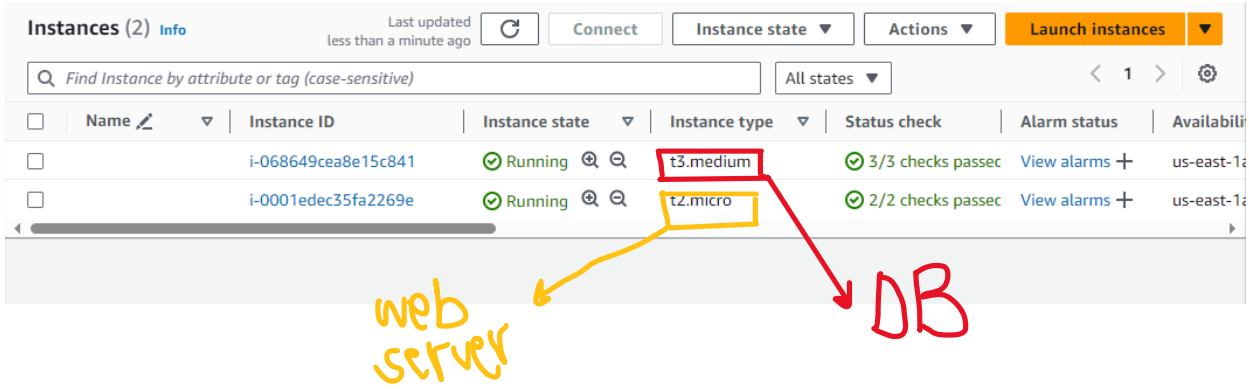
- **Launch a Web App Server** in the Front-end private subnet.

  Install your web application on this instance.

  Configure the security group to allow traffic from the ELB on port 8080.

- **Launch a MySQL Database Server** in the Back-end private subnet.

  Configure the security group to allow traffic from the Web App Server on port 3306.



5) **Set Up Security Groups:**

- Amazon EC2 Security Group: Allow SSH access on port 22 and HTTP/HTTPS traffic from the ELB.

- Elastic Load Balancer (ELB) Security Group: Allow inbound traffic on port 443 (HTTPS) from the internet.

- MySQL Security Group: Allow inbound traffic on port 3306 from the Web App Server.

Name	Security group ID	Security group name	VPC ID
–	sg-0906ec90eae48f079	MySQL Security Group	vpc-0e61b5aa1465bb399
–	sg-0ff75f120410bf547	default	vpc-03adcc3e6c4389f4e
–	sg-0f1b883db84b90937	ELB Security Group	vpc-0e61b5aa1465bb399
–	sg-03e6b1bf6d4c6e503	default	vpc-0e61b5aa1465bb399
–	sg-097cfd27d4512e7af	Amazon EC2 Security Group	vpc-0e61b5aa1465bb399

Amazon EC2 Security Group:

Details

Security group name	Security group ID	Description	VPC ID
Amazon EC2 Security Group	sg-097cfd27d4512e7af	Allows only SSHs	vpc-0e61b5aa1465bb399
Owner	**Inbound rules count**	**Outbound rules count**	
872515287506	2 Permission entries	1 Permission entry	

Inbound rules | Outbound rules | Tags

Inbound rules (2)

Manage tags | Edit inbound rules

Search

1

Name	Security group rule...	IP version	Type	Protocol
–	sgr-05cfa51b6a90234bb	–	Custom TCP	TCP
–	sgr-0efbe87b141a526ce	IPv4	SSH	TCP

Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info		Description - optional Info	
sgr-05cfa51b6a90234bb	Custom TCP	TCP	8080	Cust...	sg-0f1b883db84b90937		Delete
sgr-0efbe87b141a526ce	SSH	TCP	22	Cust...	0.0.0.0/8		Delete

Outbound rules Info

Security group rule ID	Type Info	Protocol Info	Port range Info	Destination Info	
sgr-0dfeaaf0294c09d07	All traffic	All	All	Cust...	0.0.0.0/0

Add rule

Elastic Load Balancer (ELB) Security Group:

Security group name	Security group ID	Description	VPC ID
ELB Security Group	sg-0f1b883db84b90937	send to the webapp	vpc-0e61b5aa1465bb399

Owner	Inbound rules count	Outbound rules count
872515287506	3 Permission entries	1 Permission entry

Inbound rules | Outbound rules | Tags

Inbound rules (3)

Manage tags | Edit inbound rules

Search

1

Name	Security group rule...	IP version	Type	Protocol
–	sgr-001cf28c57966dd81	IPv4	HTTPS	TCP
–	sgr-0a978d3549bd71c...	IPv4	All ICMP - IPv4	ICMP
–	sgr-0acf260825664bbe9	IPv4	HTTP	TCP

MySQL Security Group:

Edit inbound rules Info

nbound rules control the incoming traffic that's allowed to reach the instance.

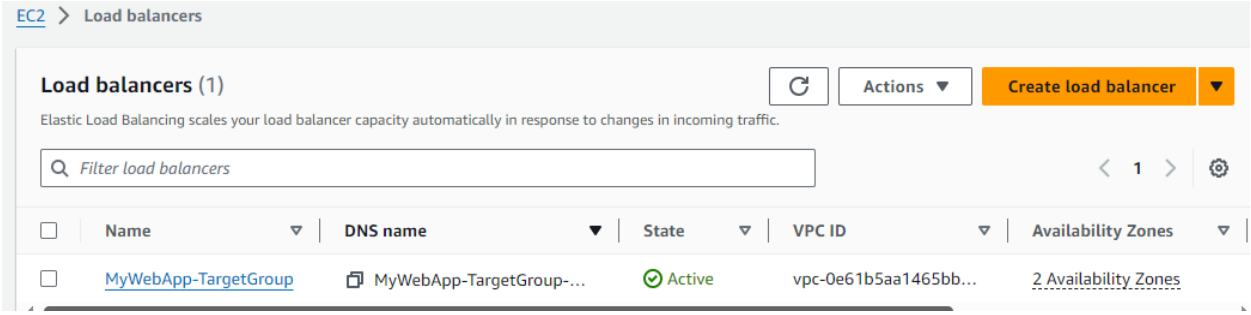
Inbound rules Info

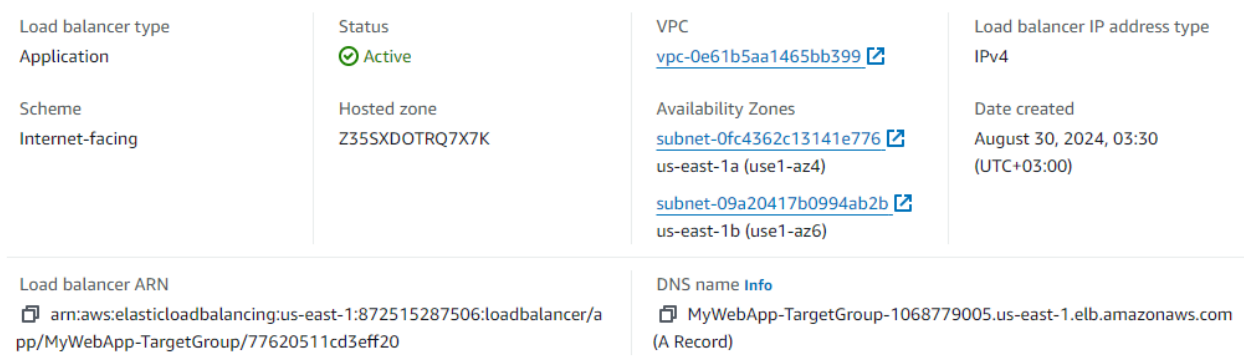
Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info		Description - optional Info	
sgr-08aa6ef5cb27efdd1	MYSQL/Aurora	TCP	3306	Cust...	sg-097cfd27d4512e7af		Delete

Add rule

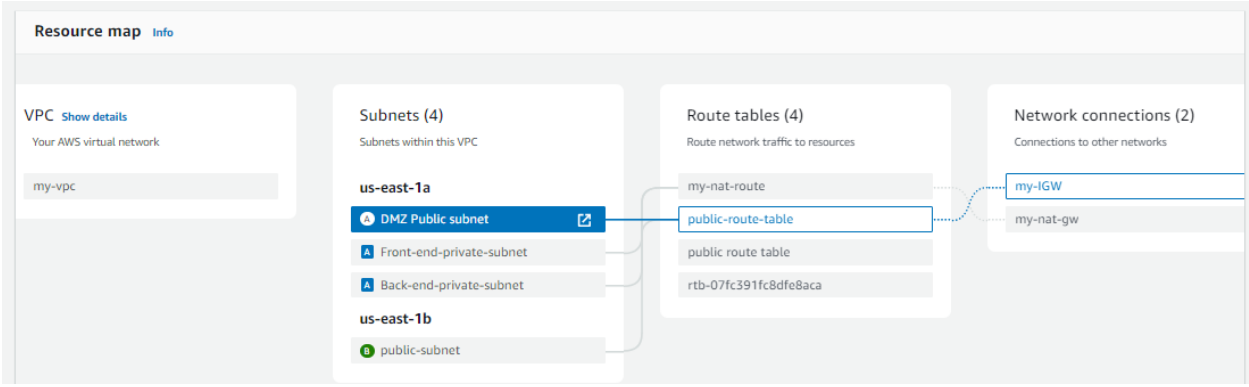
6)Set Up the Elastic Load Balancer (ELB):

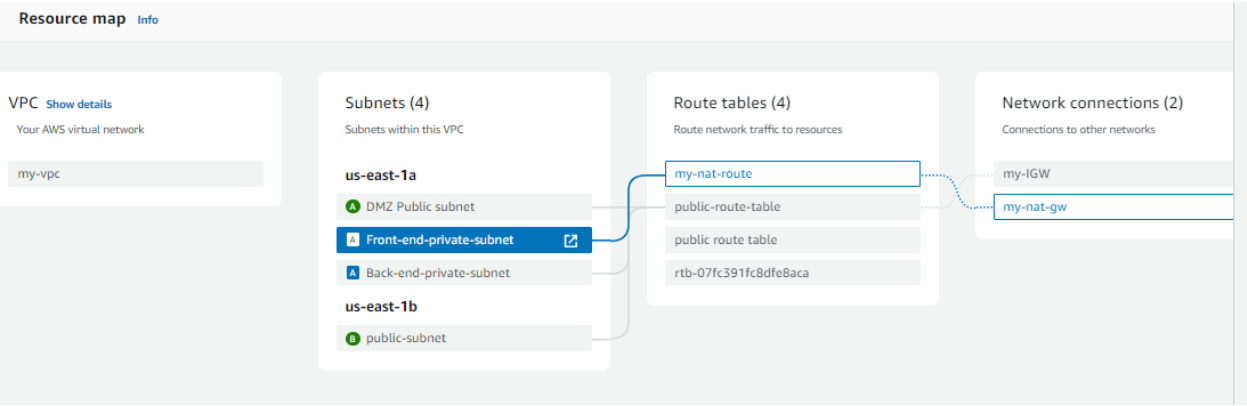
- Create an ELB that spans the public subnet.
- Configure it to distribute traffic to the Web App Server(s) on port 8080.

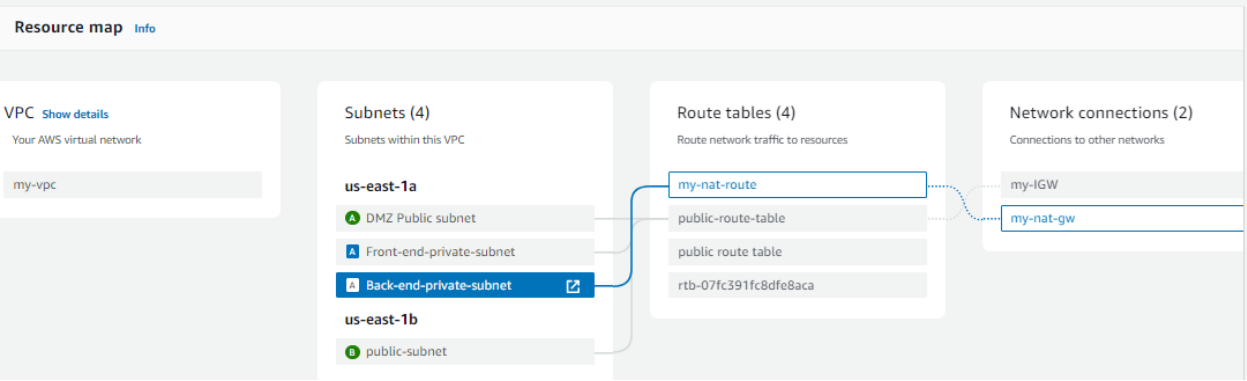




The big picture of the resource map:







This one is created when louncing the load balancer, as at least two public subnet were required.