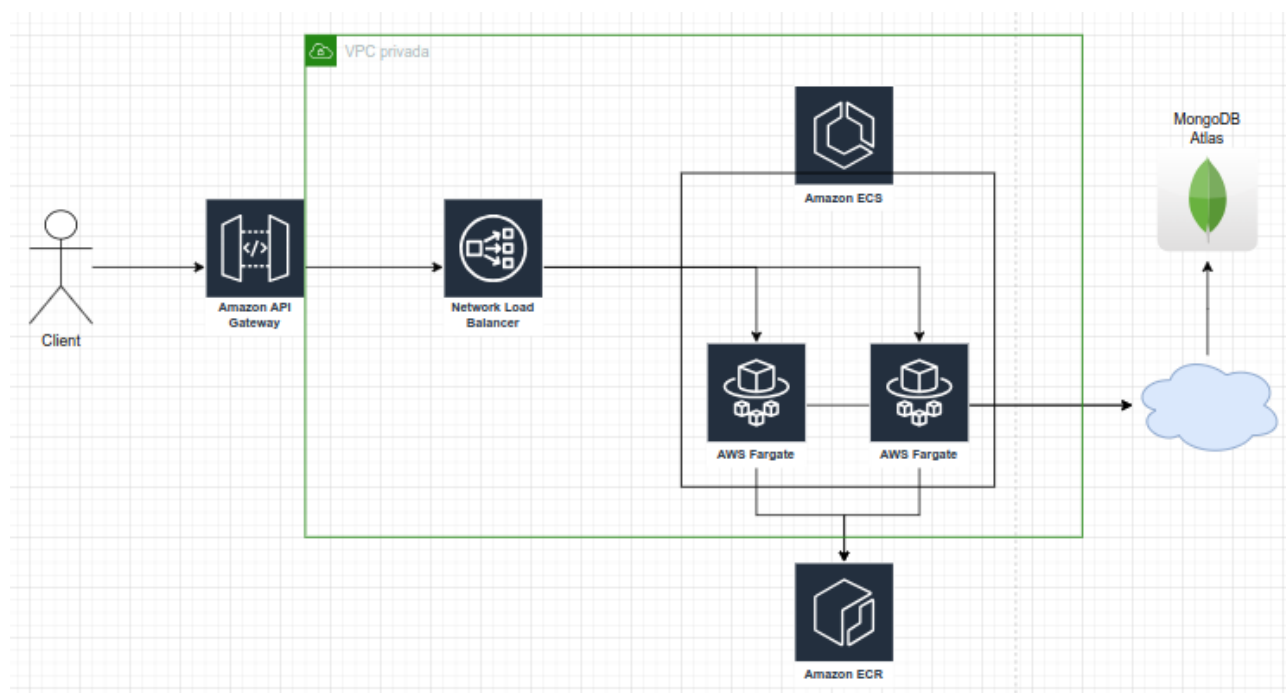


# Deploy na AWS

## Arquitetura:



## Parte 1 – VPC:

- Minhas VPCs → Adicione uma nova VPC, exemplo:

The screenshot shows the AWS VPC console interface. At the top, the breadcrumb navigation indicates the current page is 'vpc-0180590d4c952d5e1 / vpc-api-parquimetro'. Below this, there are tabs for 'Details', 'Resource map', 'CIDRs', 'Flow logs', 'Tags', and 'Integrations'. The 'Details' tab is selected, displaying a grid of VPC configuration details.

Details			
VPC ID vpc-0180590d4c952d5e1	State Available	DNS hostnames Disabled	DNS resolution Enabled
Tenancy Default	DHCP option set dopt-af89f7d5	Main route table rtb-0391efbb8c93a5e75	Main network ACL acl-0917144a591beafc
Default VPC No	IPv4 CIDR 192.168.0.0/16	IPv6 pool -	IPv6 CIDR (Network border group) -
Network Address Usage metrics Disabled	Route 53 Resolver DNS Firewall rule groups -	Owner ID 164746653457	

- Sub-redes → Adicione 2 sub-redes privadas em 'Availability Zone' diferentes e vinculadas a nova VPC criada, exemplo:

The screenshot shows the AWS VPC console interface. At the top, the breadcrumb navigation indicates the current page is 'subnet-06cf817fe584f1ab1 / subnet-priv1'. Below this, there are tabs for 'Details', 'Flow logs', 'Route table', 'Network ACL', 'CIDR reservations', 'Sharing', and 'Tags'. The 'Details' tab is selected, displaying a grid of subnet configuration details.

Subnets							
Name	Subnet ID	State	VPC	IPv4 CIDR	Availability Zone	Availability Zone ID	
subnet-priv1	subnet-06cf817fe584f1ab1	Available	vpc-0180590d4c952d5e1   vpc-api-parquimetro	192.168.3.0/24	us-east-1a	use1-az1	
subnet-priv2	subnet-084c2486cfb71912a	Available	vpc-0180590d4c952d5e1   vpc-api-parquimetro	192.168.4.0/24	us-east-1b	use1-az2	
subnet-priv3	subnet-07895c7bd6c73ce5	Available	vpc-0180590d4c952d5e1   vpc-api-parquimetro	192.168.5.0/24	us-east-1c	use1-az3	

Details			
Subnet ID subnet-06cf817fe584f1ab1	Subnet ARN arn:aws:ec2:us-east-1:164746653457:subnet/subnet-06cf817fe584f1ab1	State Available	IPv4 CIDR 192.168.3.0/24
Available IPv4 addresses 249	IPv6 CIDR -	Availability Zone us-east-1a	Availability Zone ID use1-az1
Network border group us-east-1	VPC vpc-0180590d4c952d5e1   vpc-api-parquimetro	Route table rtb-0391efbb8c93a5e75   private-route	Network ACL acl-0917144a591beafc
Default subnet No	Auto-assign public IPv4 address No	Auto-assign IPv6 address No	Auto-assign customer-owned IPv4 address No
Customer-owned IPv4 pool -	Outpost ID -	IPv4 CIDR reservations -	IPv6 CIDR reservations -
IPv6-only No	Hostname type IP name	Resource name DNS A record Disabled	Resource name DNS AAAA record Disabled
DNS64			

- NAT gateways → Adicione vinculado a uma das sub-redes privadas criadas anteriormente e alocue um IP Elástico, exemplo:

Name	NAT gateway ID	Connectiv...	State	State message	Primary public I...	Primary private ...	Primary networ...	VPC
natgateway-1	nat-05f13634d3b79b3f4	Public	Available	-	54.146.43.116	192.168.1.161	eni-0d4a7f486510...	vpc-01805f...

nat-05f13634d3b79b3f4 / natgateway-1

Details

Secondary IPv4 addresses

Monitoring

Tags

Details

NAT gateway ID

nat-05f13634d3b79b3f4

NAT gateway ARN

arn:aws:ec2:us-east-1:164746653457:natgateway/nat-05f13634d3b79b3f4

VPC

vpc-0180590d4c952d5e1 / vpc-api-parquimetro

Connectivity type

Public

Primary public IPv4 address

54.146.43.116

Subnet

subnet-0e59d80aaf94ac117 / subnet-pub1

State

Available

State message

-

Primary private IPv4 address

192.168.1.161

Primary network interface ID

eni-0d4a7f486510683f6

Created

Wednesday, November 1, 2023 at 24:18:17 GMT-3

Deleted

-

- Tabelas de rota → Crie uma tabela de roteamento, vinculando ao VPC criado e também as 2 sub-redes, após, inclua uma rota any para o NAT gateway, exemplo:

Name	Route table ID	Explicit subnet associati...	Edge associations	Main	VPC	Owner ID
private-route	rtb-0391efbb8c93a5e75	2 subnets	-	Yes	vpc-0180590d4c952d5e1   vpc-...	164746653457
public-route	rtb-0282e16320f8122bd	2 subnets	-	No	vpc-0180590d4c952d5e1   vpc-...	164746653457
-	rtb-70c59d0e	-	-	Yes	vpc-4165b83c	164746653457

rtb-0391efbb8c93a5e75 / private-route

Details

Routes

Subnet associations

Edge associations

Route propagation

Tags

Routes (2)

Filter routes

< 1 >

Edit routes

Destination	Target	Status	Propagated
0.0.0.0/0	nat-05f13634d3b79b3f4	Active	No
192.168.0.0/16	local	Active	No

## Parte 2 – Load Balancing:

- Target Groups → Configurações importantes:

- Tipo do target = Ip Addresses
- Protocolo = TCP, Porta = 8080
- Selecionar a VPC criada no passo 1
- Health check protocol = HTTP, /

Exemplo:

<input checked="" type="checkbox"/>	Name	ARN	Port	Protocol	Target type	Load balancer	VPC ID
<input checked="" type="checkbox"/>	nlbprivategrp	arn:aws:elasticloadbalancing:us-east-1:164746653457:targetgroup/nlbprivategrp/6cb14091129f2d67	8080	TCP	IP	nlb-private	vpc-0180590d4c952d5e1

**Target group: nlbprivategrp**

**Details**  
arn:aws:elasticloadbalancing:us-east-1:164746653457:targetgroup/nlbprivategrp/6cb14091129f2d67

Target type IP	Protocol : Port TCP: 8080	VPC <a href="#">vpc-0180590d4c952d5e1</a>	IP address type IPv4		
Load balancer <a href="#">nlb-private</a>					
Total targets 0	Healthy 0	Unhealthy 0	Unused 0	Initial 0	Draining 0

- Load Balancers → Criar 'Network Load Balancer', Scheme = internal, selecione a VPC criada no passo 1, Mappings = Adicionar as 2 sub-redes criadas no passo 1, Listener = TCP - 8080 e o target group criado anteriormente. Exemplo:

<input checked="" type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
<input checked="" type="checkbox"/>	nlb-private	nlb-private-56fc5bd176363393	Active	vpc-0180590d4c952d5e1	2 Availability Zones	network	November 1, 2023, 00:36 (UTC-03:00)

**Load balancer: nlb-private**

**Details**

Load balancer type Network	Status Active	VPC <a href="#">vpc-0180590d4c952d5e1</a>	IP address type IPv4
Scheme Internal	Hosted zone Z26RNL4JYFTOTI	Availability Zones <a href="#">subnet-06cf817fe584f1ab1</a> us-east-1a (use1-az1) <a href="#">subnet-084c2486cfb71912a</a> us-east-1b (use1-az2)	Date created November 1, 2023, 00:36 (UTC-03:00)
Load balancer ARN arn:aws:elasticloadbalancing:us-east-1:164746653457:loadbalancer/net/nlb-private/56fc5bd176363393	DNS name <a href="#">nlb-private-56fc5bd176363393.elb.us-east-1.amazonaws.com</a> (A Record)		

### Parte 3 – ECR:

DockerFile do projeto, exemplo:

```
FROM eclipse-temurin:17
COPY ./target/*.jar app.jar
ENTRYPOINT ["java", "-jar", "/app.jar"]
```

- Create Repository → Acesse o ECR (Elastic Container Registry) e crie um repositório, exemplo:

Private repositories (1)

↻

View push commands


Delete

Actions ▾

Create repository

🔍 Find repositories

< 1 > ⌛

<input type="checkbox"/>	Repository name ▲	URI	Created at ▼	Tag immutability	Scan frequency	Encryption type	Pull through cache
<input type="checkbox"/>	api-parquimetro	 164746653457.dkr.ecr.us-east-1.amazonaws.com/api-parquimetro	30 de outubro de 2023, 18:48:14 (UTC-03)	Disabled	Manual	AES-256	Inactive

- Siga as seguintes orientações entregues pela AWS e adicione a imagem do projeto:

1. Retrieve an authentication token and authenticate your Docker client to your registry.

Use the AWS CLI:

```
aws ecr get-login-password --region us-east-1 | docker login --username AWS --password-stdin 164746653457.dkr.ecr.us-east-1.amazonaws.com
```

Note: If you receive an error using the AWS CLI, make sure that you have the latest version of the AWS CLI and Docker installed.

2. Build your Docker image using the following command. For information on building a Docker file from scratch see the instructions [here](#). You can skip this step if your image is already built:

```
docker build -t api-parquimetro .
```


3. After the build completes, tag your image so you can push the image to this repository:

```
docker tag api-parquimetro:latest 164746653457.dkr.ecr.us-east-1.amazonaws.com/api-parquimetro:latest
```

4. Run the following command to push this image to your newly created AWS repository:

```
docker push 164746653457.dkr.ecr.us-east-1.amazonaws.com/api-parquimetro:latest
```

- Após a imagem ser enviada, exemplo:

<input type="checkbox"/>	Image tag	Artifact type	Pushed at	Size (MB)	Image URI	Digest	Scan status	Vulnerabilities
<input type="checkbox"/>	latest	Image	01 de novembro de 2023, 17:23:05 (UTC-03)	217.40	 Copy URI	sha256:b17099b8eeb74854e5ecd777f221b...	-	-

## Parte 4 – ECS:

- Create Cluster → Crie o cluster com a infraestrutura utilizando o 'AWS Fargate'. Exemplo:

Cluster	Services	Tasks	Registered container instances	CloudWatch monitoring	Capacity provider strategy
<a href="#">cluster-parguimetro</a>	0	No tasks running	0	☑ Default	No default found

- Task Definition → Infraestrutura, exemplo:

### ▼ Infrastructure requirements

Specify the infrastructure requirements for the task definition.

**Launch type** [Info](#)  
Selection of the launch type will change task definition parameters.

☒ **AWS Fargate**  
Serverless compute for containers.

☐ **Amazon EC2 instances**  
Self-managed infrastructure using Amazon EC2 instances.

**OS, Architecture, Network mode**  
Network mode is used for tasks and is dependent on the compute type selected.

**Operating system/Architecture** [Info](#)  
Linux/X86\_64

**Network mode** [Info](#)  
awsvpc

**Task size** [Info](#)  
Specify the amount of CPU and memory to reserve for your task.

**CPU** .5 vCPU **Memory** 1 GB

**▼ Task roles - conditional**

**Task role** [Info](#)  
A task IAM role allows containers in the task to make API requests to AWS services. You can create a task IAM role from the [IAM console](#).

-

**Task execution role** [Info](#)  
A task execution IAM role is used by the container agent to make AWS API requests on your behalf. If you don't already have a task execution IAM role created, we can create one for you.

ecsTaskExecutionRole

- Task Definition → Container, exemplo:

Container - 1 [Info](#)

Essential containerRemove

Container details

Specify a name, container image, and whether the container should be marked as essential. Each task definition must have at least one essential container.

Name

Image URI

Essential container

parquimetro-api

164746653457.dkr.ecr.us-east-1.amazonaws.com/api-pa

Yes ▼

Private registry [Info](#)

Store credentials in Secrets Manager, and then use the credentials to reference images in private registries.

☒ Private registry authentication

Port mappings [Info](#)

Add port mappings to allow the container to access ports on the host to send or receive traffic. Any changes to port mappings configuration impacts the associated service connect settings.

Container port

Protocol

Port name

App protocol

Remove

8080

TCP ▼

parquimetro-api-8080-tc

HTTP ▼

Add port mapping

Read only root file system [Info](#)

When this parameter is turned on, the container is given read-only access to its root file system.

☐ Read only

Resource allocation limits - conditional [Info](#)

Container-level CPU, GPU, and memory limits are different from task-level values. They define how much resources are allocated for the container. If container attempts to exceed the memory specified in hard limit, the container is terminated.

CPU

GPU

Memory hard limit

Memory soft limit

1

1

3

1

in vCPU

in GB

in GB

▼ Environment variables - optional

Environment variables [Info](#)

Add individually

Add a key-value pair to specify an environment variable.

O image URI, é o endereço URI disponibilizado lá no ECR.

- Task Definition → Include HealthCheck, exemplo:

▼ HealthCheck - optional

HealthCheck [Info](#)

**Command**

Enter a comma separated list of commands that the container runs to determine if it is healthy. The list will automatically be converted into a string array in the task definition's JSON file.

**Interval**

The time period in seconds between each health check validation. The valid values are between 5 and 300. The default value is 30.

seconds

**Timeout**

The time period in seconds to wait for a health check to succeed before it is considered a failure. The valid values are between 2 and 60. The default value is 5.

seconds

**Start period**

The optional grace period within which to provide containers time to bootstrap before failed health checks count towards the maximum number of retries. The valid values are between 0 and 300.

seconds

**Retries**

The number of times to retry a failed health check before the container is considered unhealthy. The valid values are between 1 and 10. The default value is 3.

► Container timeouts - optional

► Docker configuration - optional



- Create Service → Configuração de Deploy. Exemplo:

### Deployment configuration

Application type [Info](#)  
Specify what type of application you want to run.

☒ **Service**  
Launch a group of tasks handling a long-running computing work that can be stopped and restarted. For example, a web application.

☐ **Task**  
Launch a standalone task that runs and terminates. For example, a batch job.

**Task definition**  
Select an existing task definition. To create a new task definition, go to [Task definitions](#).

☐ **Specify the revision manually**  
Manually input the revision instead of choosing from the 100 most recent revisions for the selected task definition family.

Family  
tsk-parquimetro-api

Revision  
1 (LATEST)

**Service name**  
Assign a unique name for this service.

service-parquimetro

Service type [Info](#)  
Specify the service type that the service scheduler will follow.

☒ **Replica**  
Place and maintain a desired number of tasks across your cluster.

☐ **Daemon**  
Place and maintain one copy of your task on each container instance.

**Desired tasks**  
Specify the number of tasks to launch.

2

[► Deployment options](#)

Family no caso, é a Task Definition criada anteriormente.

- Create Service → Na rede, use a VPC do passo 1, assim como as sub-redes. Exemplo:

▼ Networking

VPC [Info](#)

Choose the Virtual Private Cloud to use.

vpc-0180590d4c952d5e1

vpc-api-parquimetro

Subnets

Choose the subnets within the VPC that the task scheduler should consider for placement.

Choose subnets

subnet-06cf817fe584f1ab1 ✕

subnet-priv1  
us-east-1a 192.168.3.0/24

subnet-084c2486cfb71912a ✕

subnet-priv2  
us-east-1b 192.168.4.0/24

Security group [Info](#)

Choose an existing security group or create a new security group.

☒ Use an existing security group

☐ Create a new security group

Security group name

Choose an existing security group.

Choose security groups

sg-0d335182b022a09de ✕

parquimetro

Public IP [Info](#)

Choose whether to auto-assign a public IP to the task's elastic network interface (ENI).

☒ Turned on

- Create Service → O load balancing é o 'Network Load Balancer', selecione o que foi criado na Parte 2, use também o Listener já criado e atribua ao target group que já existe. Exemplo:

▼ Load balancing - optional

Load balancer

Load balancer type | [Info](#)

Configure a load balancer to distribute incoming traffic across the tasks running in your service.

Network Load Balancer ▼

Load balancer

Select the load balancer you wish to use to distribute incoming traffic across the tasks running in your service.

nlb-private ▼

Health check grace period | [Info](#)

0

seconds

Container

Choose container to load balance

app 8080:8080 ▼

Listener | [Info](#)

Specify the port and protocol that the load balancer will listen for connection requests on.

☐ Create new listener

☒ Use an existing listener

Listener

8080:TCP ▼

Target group | [Info](#)

Specify whether to create a new target group or choose an existing one that the load balancer will use to route requests to the tasks in your service.

☐ Create new target group

☒ Use an existing target group

Target group name

nlbprivategrp ▼

Health check path

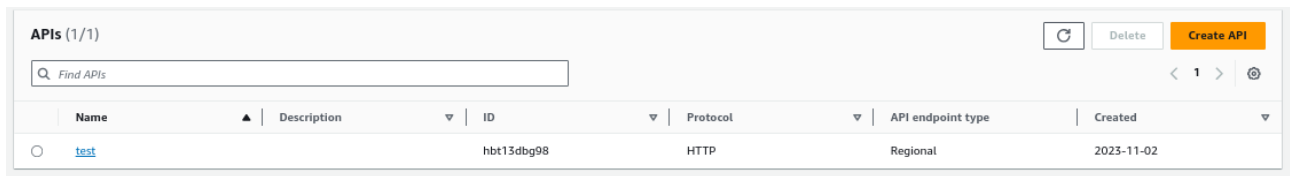
/

Health check protocol

HTTP

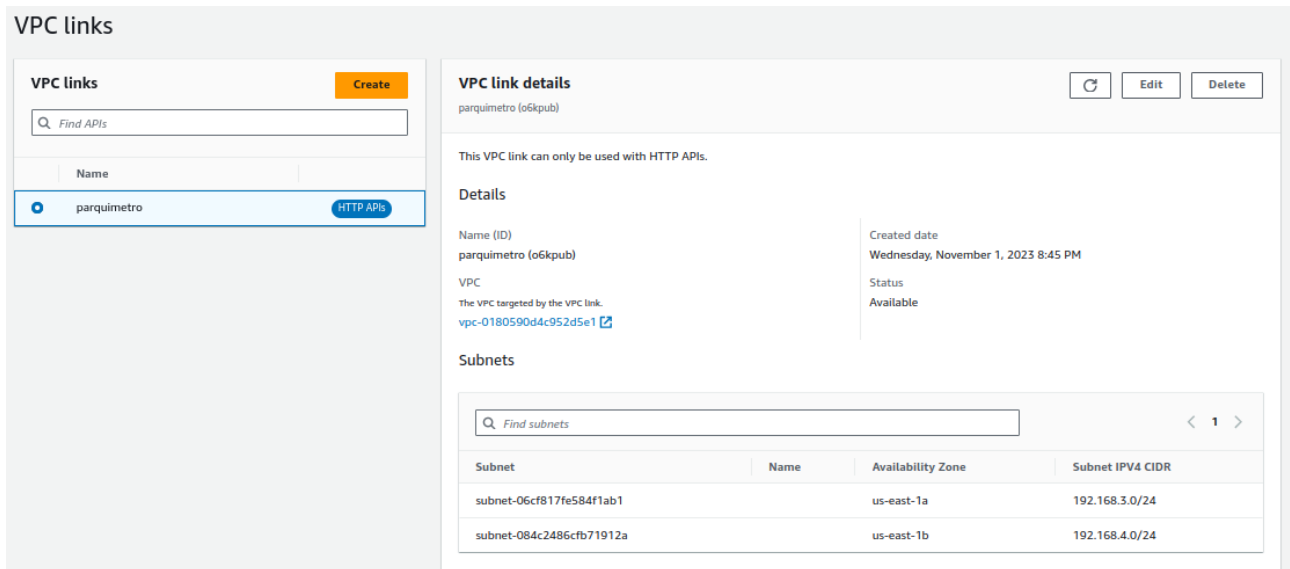
## Parte 5 – API Gateway:

- Create API → Crie uma 'HTTP API' e inclua um nome. Exemplo:



APIs (1/1)						
Name	Description	ID	Protocol	API endpoint type	Created	
test		hbt13dbg98	HTTP	Regional	2023-11-02	

- VPC links → Crie um 'VPC link for HTTP API's', selecione a VPC criada no passo 1 juntamente com as suas 2 sub-redes. Exemplo:



**VPC links**

**VPC link details**

parquimetro (o6kpub)

This VPC link can only be used with HTTP APIs.

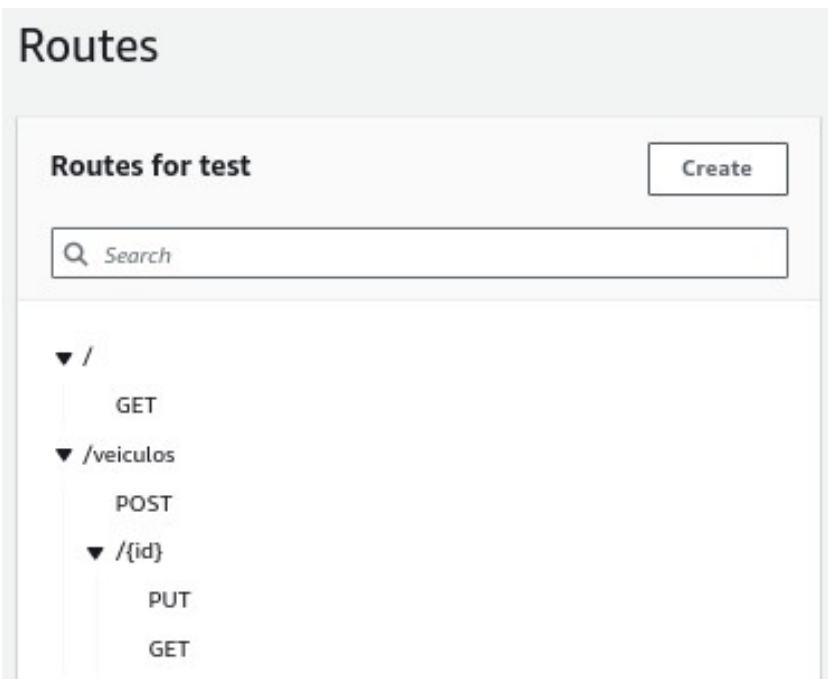
**Details**

Name (ID)	parquimetro (o6kpub)	Created date	Wednesday, November 1, 2023 8:45 PM
VPC	The VPC targeted by the VPC link. <a href="#">vpc-0180590d4c952d5e1</a>	Status	Available

**Subnets**

Subnet	Name	Availability Zone	Subnet IPv4 CIDR
subnet-06cf817fe584f1ab1		us-east-1a	192.168.3.0/24
subnet-084c2486cfb71912a		us-east-1b	192.168.4.0/24

- Rotas → Adicione as rotas da API. Exemplo:



**Routes for test**

**Create**

**Search**

- /
- GET
- /veiculos
- POST
- /{id}
- PUT
- GET

- Integração → Ao clicar na rota criada é possível incluir uma integração, selecione 'Private Resources' e adicione o Load balancer, listener e VPC link criados. Exemplo:

### Integration details

**Selection method**  
When this route receives a request, API Gateway sends the request through your VPC link to an Application Load Balancer, Network Load Balancer, or AWS Cloud Map service.

☒ **Select manually**  
Choose an ALB, NLB, or AWS Cloud Map service manually.

**Target service**  
You can send requests to an Application Load Balancer, Network Load Balancer, or resources registered with an AWS Cloud Map service. [Learn more](#)

☒ **ALB/NLB**  
Choose an ALB or NLB listener to send the request to.

☐ **Cloud Map**  
Choose an AWS Cloud Map service to send the request to.

**Load balancer**  
nlb-private

**Listener**  
TCP 8080

**Description - optional**

► Advanced settings

### VPC link

Choose a VPC link for the integration.

parquimetro

- Stages → Selecione o '\$default' e guarde a informação de 'Invoke URL'. Exemplo:

### Stages for test

Create

Search

☒ \$default

### Stage details

Delete Edit

**Details**

Name	Created	Last updated
\$default	November 1, 2023 9:39 PM	November 3, 2023 4:20 PM

**Invoke URL**  
<https://hbt13dbg98.execute-api-us-east-1.amazonaws.com>

**Description**  
None

**Attached deployment**  
Automatic Deployment  
Enabled

## Parte 6 – Postman:

- Consuma os seus endpoints criados. Exemplo:

