

# ARQUITECTURA DE RED VPC EN AWS

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## 1. Diseño de la Red Virtual (VPC)

Configuramos una red lógica denominada `demo-vpc-dianalozano` utilizando el bloque de direcciones `10.0.0.0/16`.

VPC > Your VPCs > Create VPC

Create VPC

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.

VPC settings

Resources to create

Create only the VPC resource or the VPC and other networking resources.

VPC only

VPC and more

Name tag - optional

Creates a tag with a key of 'Name' and a value that you specify.

demo-vpc-dianalozano

IPv4 CIDR block

IPv4 CIDR manual input

IPAM-allocated IPv4 CIDR block

IPv4 CIDR

10.0.0.0/16

CIDR block size must be between /16 and /28.

IPv6 CIDR block

No IPv6 CIDR block

IPAM-allocated IPv6 CIDR block

Amazon-provided IPv6 CIDR block

IPv6 CIDR owned by me

Tenancy

Default

VPC encryption control (\$)

Monitor mode provides visibility into encryption status without blocking traffic. Enforce mode prevents unencrypted traffic. Additional charges apply

None

Monitor mode

Enforce mode

Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key

Value - optional

Q Name

Q demo-vpc-dianalozano

Remove tag

Add tag

You can add 49 more tags

## 2. Segmentación en Subredes

Creamos dos subredes dentro de la VPC para organizar los recursos según su nivel de exposición:

- **Subred Pública ([public-subnet-1-dianalozano](#)):** Configurada con el CIDR 10.0.1.0/24 para alojar el servidor web.
- **Subred Privada ([private-subnet-1-dianalozano](#)):** Configurada con el CIDR 10.0.2.0/24 para recursos internos sin salida directa a internet.

### SUBNET PUBLICA

VPC > Subnets > Create subnet

Create subnet

VPC

VPC ID

Create subnets in this VPC.

vpc-0fbc07f19be6a3fa5 (demo-vpc-dianalozano)

Associated VPC CIDRs

IPv4 CIDRs

10.0.0.0/16

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.

public-subnet-1-dianalozano

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.

United States (N. Virginia) / use1-az4 (us-east-1c)

IPv4 VPC CIDR block

Info

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.1.0/24

256 IPs

Tags - optional

Key

Value - optional

Q Name X

Q public-subnet-1-dianalozano X Remove

Add new tag

You can add 49 more tags.

Remove

Add new subnet

Cancel

Create subnet

You have successfully created 1 subnet: subnet-0212c1d1e70060962

Subnets (1)

Info

Last updated less than a minute ago

Actions

Create subnet

Find subnets by attribute or tag

Subnet ID: subnet-0212c1d1e70060962 X

Clear filters

	Name	Subnet ID	State	VPC
<input type="checkbox"/>	public-subnet-1-dianalozano	<a href="#">subnet-0212c1d1e70060962</a>	Available	<a href="#">vpc-0fbc07f19be6a3fa5</a> demo...

## SUBNET PRIVADA

☰ VPC > Subnets > Create subnet ⓘ

### Create subnet ⓘ

**VPC**  
**VPC ID**  
Create subnets in this VPC.  
vpc-0fbc07f19be6a3fa5 (demo-vpc-dianalozano) ▼

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

**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.  
private-subnet-1-dianalozano  
The name can be up to 256 characters long.

**Availability Zone ⓘ**  
Choose the zone in which your subnet will reside, or let Amazon choose one for you.  
United States (N. Virginia) / use1-az3 (us-east-1e) ▼

**IPv4 VPC CIDR block ⓘ**  
Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.  
10.0.0.0/16 ▼

**IPv4 subnet CIDR block**  
10.0.2.0/24 256 IPs  
< > ^ v

▼ **Tags - optional**

Key	Value - optional	
Q Name	private-subnet-1-dianalozano	Remove

[Add new tag](#)  
You can add 49 more tags.  
[Remove](#)

[Add new subnet](#)

Cancel [Create subnet](#)

### 3. Conectividad y Tablas de Ruteo

Para habilitar la comunicación con internet en la subred pública, se realizaron los siguientes pasos:

1. **Internet Gateway (IGW):** Cree [demo-igw-dianalozano](#) y la vincule a la VPC.
2. **Tabla de Ruteo Pública (public-rt):** Añadi una ruta estática hacia 0.0.0.0/0 con destino al IGW.
3. **Tabla de Ruteo Privada:** Luego cree una tabla independiente asociada a la subred privada sin ruta al IGW, asegurando su aislamiento.

VPC > Internet gateways > Create internet gateway

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### Create internet gateway Info

An internet gateway is a virtual router that connects a VPC to the internet. To create a new internet gateway specify the name for the gateway below.

#### Internet gateway settings

**Name tag**  
Creates a tag with a key of 'Name' and a value that you specify.

#### Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional	
<input type="text" value="Name"/>	<input type="text" value="demo-igw-dianalozano"/>	<button>Remove</button>

Add new tag

You can add 49 more tags.

Cancel Create internet gateway

VPC > Route tables > Create route table

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### Create route table Info

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

#### Route table settings

**Name - optional**  
Create a tag with a key of 'Name' and a value that you specify.

**VPC**  
The VPC to use for this route table.

vpc-0fbc07f19be6a3fa5 (demo-vpc-dianalozano) ▼

#### Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional	
<input type="text" value="Name"/>	<input type="text" value="public-rt-dianalozano"/>	<button>Remove</button>

Add new tag

You can add 49 more tags.

Cancel Create route table

VPC > Route tables > rtb-05a0786e9ccfe0e24 > Edit routes

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### Edit routes

Destination	Target	Status	Propagated	Route Origin	
10.0.0.0/16	<div>local ▼ <input type="text" value="local"/></div>	🟢 Active	No	CreateRouteTable	
<div><input type="text" value="0.0.0.0/0"/></div>	<div>Internet Gateway ▼ <input type="text" value="igw-0a0633f4393ac65ad"/></div>	-	No	CreateRoute	<button>Remove</button>

Add route

Cancel Preview Save changes

VPC > Route tables > rtb-05a0786e9ccfe0e24

**VPC dashboard**

AWS Global View [i](#)

Filter by VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Egress-only internet gateways

Carrier gateways

DHCP option sets

Elastic IPs

Managed prefix lists

NAT gateways

Peering connections

Route servers

Security

Network ACLs

Security groups

Updated routes for rtb-05a0786e9ccfe0e24 / public-rt-dianalozano successfully

Details

rtb-05a0786e9ccfe0e24 / public-rt-dianalozano

Actions

Details

Route table ID  
rtb-05a0786e9ccfe0e24

Main  
No

Explicit subnet associations  
-

Edge associations  
-

VPC  
vpc-0fbc07f19be6a3fa5 | demo-vpc-dianalozano

Owner ID  
654654478122

Routes

Subnet associations

Edge associations

Route propagation

Tags

Routes (2)

Filter routes

Destination	Target	Status	Propagated	Route Origin
0.0.0.0/0	igw-0a0633f4393ac65ad	Active	No	Create Route
10.0.0.0/16	local	Active	No	Create Route Table

#### 4. Security Group

Se configuró el grupo de seguridad [sgdianalozano](#) para filtrar el tráfico entrante a la instancia. Se habilitaron los puertos:

- **SSH (22):** Para acceso administrativo.
- **HTTP (80):** Para permitir el tráfico de usuarios al servidor web.

EC2 > Security Groups > sg-0e09017c08a256767 - demo-sg-dianalozano

**EC2**

Dashboard

EC2 Global View [i](#)

Events

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Capacity Manager [New](#)

Images

AMIs

AMI Catalog

Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

Network & Security

Security Groups

Elastic IPs

Security group (sg-0e09017c08a256767 | demo-sg-dianalozano) was created successfully

Details

sg-0e09017c08a256767 - demo-sg-dianalozano

Actions

Details

Security group name  
demo-sg-dianalozano

Security group ID  
sg-0e09017c08a256767

Description  
seguridad

VPC ID  
vpc-0fbc07f19be6a3fa5 [i](#)

Owner  
654654478122

Inbound rules count  
2 Permission entries

Outbound rules count  
1 Permission entry

Inbound rules

Outbound rules

Sharing

VPC associations

Related resources - new

Tags

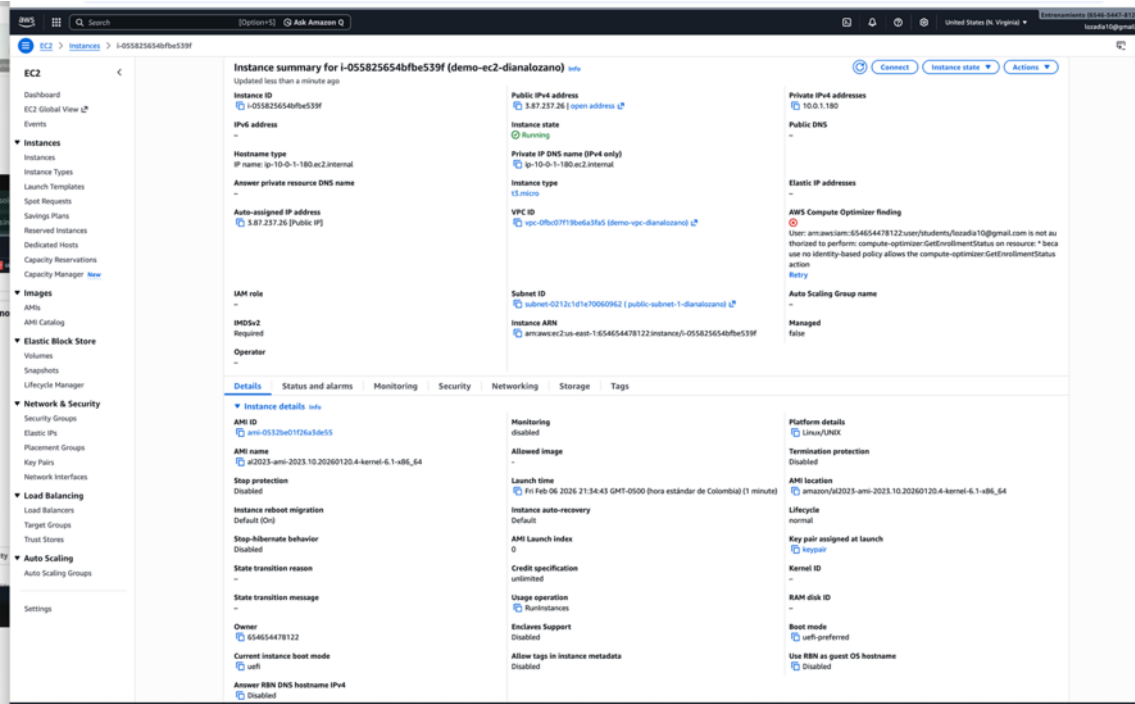
Inbound rules (2)

Search

Name	Security group rule ID	IP version	Type	Protocol
-	sgr-0fa8e7e86bdc32fec	IPv4	HTTP	TCP
-	sgr-0a83bb3a9f8a25d22	IPv4	SSH	TCP

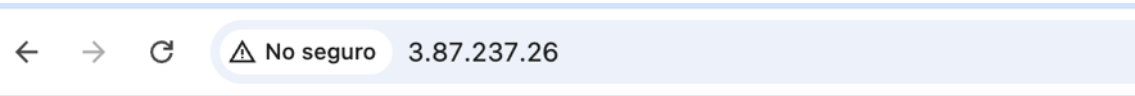
#### 5. Lanzamiento y Automatización (User Data)

Desplegamos una instancia EC2 en la subred pública. Se utilizó un script de **User Data** para automatizar la instalación de Apache y la creación de una página personalizada con el nombre del host y la fecha.



## 6. Resultados y Verificación

La validación final se realizó accediendo a la **IP Pública (3.91.43.233)**. El navegador mostró el mensaje configurado, confirmando que la infraestructura de red (VPC, IGW, Subnets y Security Groups) está correctamente integrada.



It works!