

## Actividad

Objetivo: Asociar un certificado https al servidor apache de una instancia EC2. Esta instancia formará parte de un target group y un load balancer.

### Servicios:

- EC2
- ACM (Amazon Certificate Manager)
- ELB (Elastic Load Balancer)

### Procedimiento:

#### Crear una instancia EC2 con Apache

##### Firewall (security groups) | Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

☒ Create security group

☐ Select existing security group

We'll create a new security group called 'launch-wizard-1' with the following rules:

☒ Allow SSH traffic from  
Helps you connect to your instance

Anywhere  
0.0.0.0/0

☒ Allow HTTPS traffic from the internet  
To set up an endpoint, for example when creating a web server

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To set up an endpoint, for example when creating a web server

Iniciar sesión en la ec2

Una vez dentro de la ec2 instalamos apache.

```
sudo apt update
```

```
sudo apt install -y apache2 \
    ghostscript \
    libapache2-mod-php \
    mysql-client \
    php \
    php-bcmath \
    php-curl \
    php-imagick \
    php-intl \
    php-json \
    php-mbstring \
```

php-mysql\  
php-xml\  
php-zip

Verificamos:

sudo systemctl status apache2

```
ubuntu@ip-172-31-87-106:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Wed 2025-03-05 01:25:18 UTC; 5s ago
     Docs: https://httpd.apache.org/docs/2.4/
    Main PID: 15466 (apache2)
      Tasks: 55 (limit: 1130)
     Memory: 5.4M (peak: 5.6M)
        CPU: 31ms
    CGroup: /system.slice/apache2.service
            └─15466 /usr/sbin/apache2 -k start
              └─15469 /usr/sbin/apache2 -k start
                └─15470 /usr/sbin/apache2 -k start

Mar 05 01:25:18 ip-172-31-87-106 systemd[1]: Starting apache2.service - The Apache HTTP Server>
Mar 05 01:25:18 ip-172-31-87-106 systemd[1]: Started apache2.service - The Apache HTTP Server.
lines 1-15/15 (END)
```

Crear una página de prueba:

sudo echo "<h1>Hola, este es mi servidor Apache</h1>" | sudo tee  
/var/www/html/index.html

Solicitar un certificado SSL con ACM

Pasos previos:

Configurar DNS cloudflare

<input type="checkbox"/>	NS	aws01	ns-314.awsdns-39.com	DNS only
Type	Name (required)	Nameserver (required)	TTL	
NS	aws01	ns-314.awsdns-39.com	Auto	
Use @ for root		E.g. ns1.example.com		

Configurar Router 53 nombre de dominio

Public

aws01.karura.cat

Info

► Hosted zone details

Records (2)

DNSSEC signing

Hosted zone tags (0)

Records (1/2)

Info

The following table lists the existing records in aws01.karura.cat. You can't delete the SOA r

Q Filter records by property or value

Record name

▼

Type

▼

Routin...

▼

aws01.karura.cat

NS

Simple

aws01.karura.cat

SOA

Simple

ns-314.awsdns-39.com. awsdns-hostmaster.amazon.com. 1 7200 900 1209600 86400

Solicitar el certificado

📌 Successfully requested certificate with ID 012812bd-4a4b-4e3d-a415-c9cda0da82d8

A certificate request with a status of pending validation has been created. Further action is needed to complete the validation and a

012812bd-4a4b-4e3d-a415-c9cda0da82d8

### Certificate status

#### Identifier

012812bd-4a4b-4e3d-a415-c9cda0da82d8

#### Status

🕒 Pending validation [Info](#)

#### ARN

arn:aws:acm:us-east-1:017133020150:certificate/012812bd-4a4b-4e3d-a415-c9cda0da82d8

#### Type

Amazon Issued

El mensaje azul indica que ACM pedirá que validemos el dominio. Usamos Route 53, por lo tanto hacemos clic en Create records in Route 53 para validar automáticamente.

Domains (1)

Create records in Route 53

Create records in Route 53

### Create DNS records in Amazon Route 53 (1/1)

Q Search domains

1 match

Validation status = Pending validation X

Validation status = Failed X

Is domain in Route 53? = Yes X

Clear filters

< 1 >

<input checked="" type="checkbox"/>	Domain	Validation status	Is domain in Route 53?
-------------------------------------	--------	-------------------	------------------------

<input checked="" type="checkbox"/>	demo.aws01.karura.cat	🕒 Pending validation	Yes
-------------------------------------	-----------------------	----------------------	-----

Cancel

Create records

Listo:

✓ Successfully created DNS records

Successfully created DNS records in Amazon Route 53 for certificate with ID 012812bd-4a4b-4e3d-a415-c9cda0da82d8.

Notifications

0

0

1

1

0

▼

012812bd-4a4b-4e3d-a415-c9cda0da82d8

### Certificate status

Identifier

012812bd-4a4b-4e3d-a415-c9cda0da82d8

Status

⌚ Pending validation [Info](#)

ARN

arn:aws:acm:us-east-1:017133020150:certificate/012812bd-4a4b-4e3d-a415-c9cda0da82d8

Type

Amazon Issued

Verificamos:

Public

**aws01.karura.cat** [Info](#)

### ► Hosted zone details

**Records (3)**

DNSSEC signing

Hosted zone tags (0)

### Records (3) [Info](#)

Automatic mode is the current search behavior optimized for best filter results. [To ch](#)

🔍 *Filter records by property or value*

☐ | Record name ▼ | Type ▼ | Routin...

☐ | aws01.karura.cat | NS | Simple

☐ | aws01.karura.cat | SOA | Simple

☐ | \_70c72933d69ade03856d7f5f5638578... | CNAME | Simple

## Crear un Load Balancer

El objetivo es usar el certificado SSL que solicitó en ACM para habilitar HTTPS en su servidor Apache. Sin embargo, ACM no permite descargar directamente el certificado y la clave privada. En su lugar, debemos usar el certificado a través del Load Balancer (ALB), que ya está configurado para manejar HTTPS.

### Availability Zones and subnets [Info](#)

Select at least two Availability Zones and a subnet for ea

#### ☒ us-east-1a (use1-az4)

##### Subnet

Only CIDR blocks corresponding to the load balancer

subnet-0b6fd3fc758847724

IPv4 subnet CIDR: 10.53.0.0/20

#### ☒ us-east-1b (use1-az6)

##### Subnet

Only CIDR blocks corresponding to the load balancer

subnet-06a6ab38ec2a6bfa8

IPv4 subnet CIDR: 10.53.16.0/20

Configurar el certificado SSL:

En el listener de HTTPS (puerto 443), selecciona el certificado que solicitaste en ACM.

### Listeners and routing [Info](#)

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer r

#### ▼ Listener HTTP:80

Protocol

HTTP ▼

Port

80

1-65535

Default action [Info](#)

Forward to

mi-target-group

Target type: Instance, IPv4

HTTP ▼

[Create target group](#)

#### Listener tags - optional

Consider adding tags to your listener. Tags enable you to categorize your AWS resources so you can more easily manage them.

[Add listener tag](#)

You can add up to 50 more tags.

#### ▼ Listener HTTPS:443

Protocol

HTTPS ▼

Port

443

1-65535

Default action [Info](#)

Forward to

mi-target-group

Target type: Instance, IPv4

HTTP ▼

[Create target group](#)

## Secure listener settings [Info](#)

These settings will apply to all of your secure listeners. Once created, you can manage them.

### Security policy | [Info](#)

Your load balancer uses a Secure Socket Layer (SSL) negotiation configuration called a security policy.

#### Security category

All security policies

Pol

E

## Default SSL/TLS server certificate

The certificate used if a client connects without SNI protocol, or if there are no matching certificates in your listener certificate list.

#### Certificate source

☒ From ACM

#### Certificate (from ACM)

The selected certificate will be applied as the default SSL/TLS server certificate for this load balancer.

demo.aws01.karura.cat  
012812bd-4a4b-4e3d-a415-c9cda0da82d8

[Request new ACM certificate](#) [↗](#)

Crear un Target Group:

En la sección Target Groups, crea un nuevo grupo:

Name: Ponle un nombre (por ejemplo, mi-target-group).

Target type: Selecciona Instance.

Protocol: HTTP.

Port: 80.

Registra tu instancia EC2 en el target group.

[EC2](#) > [Target groups](#) > [Create target group](#)

## Basic configuration

Settings in this section can't be changed after the target group is created.

#### Choose a target type

☒ Instances

- Supports load balancing to instances within a specific VPC.
- Facilitates the use of [Amazon EC2 Auto Scaling](#) [↗](#) to manage and scale your fleet of EC2 instances.

Target group name

mi-target-group

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Protocol : Port

Choose a protocol for your target group that corresponds to the Load Balancer type that will route traffic to it. Some protocols now include anomaly created. This choice cannot be changed after creation

HTTP

80

1-65535

IP address type

Register targets

This is an optional step to create a target group. However, to ensure that your load balancer routes traffic to this target group you must register y

Available instances (1/1)

Filter instances

<input checked="" type="checkbox"/>	Instance ID	Name	State	Security groups
<input checked="" type="checkbox"/>	i-085574563b223d7e4	test	Running	actividad 80 y 443

Review targets

Targets (1)

Filter targets

Show only pending

Instance ID	Name	Port	State	Security groups	Zone
i-085574563b223d7e4	test	80	Running	actividad 80 y 443	us-east-1

Review targets

Targets (1)

Filter targets

Show only pending

Remove all pending

Instance ID	Name	Port	State	Security groups	Zone	Private IPv4 address	Subnet ID	Launch time
i-085574563b223d7e4	test	80	Running	actividad 80 y 443	us-east-1a	10.53.15.41	subnet-0b6fd3fc758847724	March 5, 2025, 02:52 (UTC+01:00)

1 pending

Cancel

Previous

Create target group

## mi-target-group

Details

arn:aws:elasticloadbalancing:us-east-1:017133020150:targetgroup/mi-target-group/48f7f8ac7c8c693f

Target type

Instance

IP address type

IPv4

Protocol : Port

HTTP: 80

Protocol v

HTTP1

Load balancer

None associated

1

Total targets

0

Healthy

0 Anomalous

0

Unhealthy

1

Unused

Distribution of targets by Availability Zone (AZ)

Select values in this table to see corresponding filters applied to the Registered targets table below.

Targets

Monitoring

Health checks

Attributes

Tags

Registered targets (1) Info

Target groups route requests to individual registered targets using the protocol and port number specified. Health checks are performed automatically applied to HTTP/HTTPS target groups with at least 3 healthy targets.


Filter targets

Instance ID	Name	Port	Zone	Health status
<a href="#">i-085574563b223d7e4</a>	test	80	us-east-1a (us...	Unused



mi-target-group

Details



arn:aws:elasticloadbalancing:us-east-1:017133020150:targetgroup/mi-target-group/48f7f8ac7c8c693f

Target type

Instance

IP address type

IPv4


Protocol : Port

HTTP: 80

Protocol ver


HTTP1

Load balancer

[pruebalb](#) 

1


Total targets



1


Healthy

0 Anomalous



0

Unhealthy



0

Unused

► Distribution of targets by Availability Zone (AZ)

Select values in this table to see corresponding filters applied to the Registered targets table below.

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Registered targets (1) [Info](#)




Target groups route requests to individual registered targets using the protocol and port number specified. Health checks are performed automatically applied to HTTP/HTTPS target groups with at least 3 healthy targets.



Filter targets

<input type="checkbox"/>	Instance ID	Name	Port	Zone	Health status	H
<input type="checkbox"/>	<a href="#">i-085574563b223d7e4</a>	test	80	us-east-1a (us...	 Healthy	-

# mi-target-group

<b>Details</b>	
 <code>arn:aws:elasticloadbalancing:us-east-1:017133020150:targetgroup/mi-</code>	
<b>Target type</b> Instance	<b>Protocol : Port</b> HTTP: 80
<b>IP address type</b> IPv4	<b>Load balancer</b> <a href="#">pruebalb</a> 
<b>1</b> Total targets	 <b>1</b> Healthy
	0 Anomalous
<b>► Distribution of targets by Availability Zone (AZ)</b> Select values in this table to see corresponding filters applied to the Registered targ	

# Create record [Info](#)

## Quick create record

### ▼ Record 1

#### Record name [Info](#)

subdomain

aws01.karura.cat

Keep blank to create a record for the root domain.

#### Record type [Info](#)

A – Routes traffic to an IPv4 address and some AWS resources

#### ☒ Alias

#### Value [Info](#)

34.229.17.109

[name] points to **34.229.17.109** and has its traffic proxied through Cloudflare.

Type	Name (required)	IPv4 address (required)	Proxy status	TTL
A		34.229.17.109	<input checked="" type="checkbox"/> Proxied	Auto
Use @ for root				

#### Record Attributes [Documentation](#)

The information provided here will not impact DNS record resolution and is only meant for your reference.

Comment

Enter your comment here (up to 100 characters).

Cancel Save

Type	Name (required)	IPv4 address (required)	Proxy status	TTL
A	karura.cat	34.229.17.109	<input checked="" type="checkbox"/> Proxied	Auto
Use @ for root				

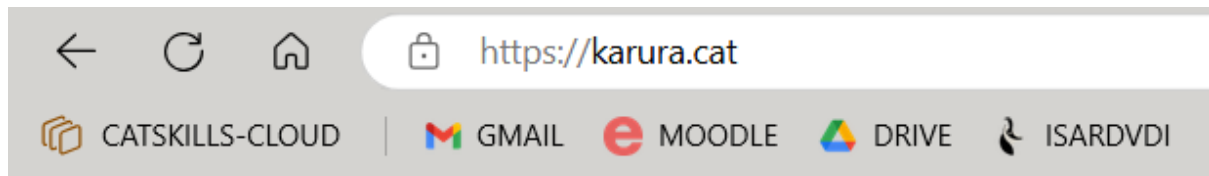
#### Record Attributes [Documentation](#)

The information provided here will not impact DNS record resolution and is only meant for your reference.

## Resumen procedimiento:

- Crear una instancia EC2 y configurar Apache.
- Solicitar un certificado SSL con ACM.
- Crear una Application Load Balancer con un target group que incluye mi instancia EC2.
- Configurar Apache para usar HTTPS con el certificado de ACM.
- Verificar que todo funciona accediendo al ALB a través de HTTPS.

## Resultado:



# Hola, este es mi servidor Apache