

DESPLIEGUE DE COMPUTACIÓN Y ALMACENAMIENTO EN LA NUBE

Enunciado

1. Creación y configuración de Security Groups: Creación de dos Security Groups que controlarán las conexiones entrantes y salientes hacia la aplicación web y el servidor de base de datos.

- a. Security Group para la aplicación web:
 - a. Crear regla de entrada para permitir tráfico HTTP desde cualquier dirección IPv4
 - b. Crear regla de entrada para permitir tráfico SSH desde cualquier dirección IPv4

Como solicitado, procedo a crear el security group “SG-AllAllowed” el cual acepta todo tráfico HTTP y SSH.

VPC > Security Groups > sg-0d866f04bd7ed096d - SG-AllAllowed

sg-0d866f04bd7ed096d - SG-AllAllowed

Actions ▾

Details

Security group name SG-AllAllowed	Security group ID sg-0d866f04bd7ed096d	Description Allow SSH HTTP	VPC ID vpc-0a5dafd168610c532
Owner 279139187641	Inbound rules count 2 Permission entries	Outbound rules count 1 Permission entry	

Inbound rules

Outbound rules

Tags

Inbound rules (2)

⌂

Manage tags

Edit inbound rules

Filter security group rules

< 1 > ⚙

<input type="checkbox"/>	Name ▾	Security group r... ▾	IP version ▾	Type ▾	Protocol ▾	Port range ▾	Source
<input type="checkbox"/>	-	sgr-0cb7e9a8e9518...	IPv4	HTTP	TCP	80	0.0.0.0/0
<input type="checkbox"/>	-	sgr-0a872b212f3a9...	IPv4	SSH	TCP	22	0.0.0.0/0

- b. Security Group para la base de datos:
 - a. Crear regla de entrada para permitir el tráfico MySQL desde el Security Group de la aplicación web

Como solicitado, se crea security group que admite tráfico MySQL desde “SG-AllAllowed”

VPC > Security Groups > sg-09118118164537a8e - SG-MySQL

sg-09118118164537a8e - SG-MySQL

Actions

Details

Security group name

SG-MySQL

Security group ID

sg-09118118164537a8e

Description

Private MySQL SG

VPC ID

vpc-0a5dafd168610c532

Owner

279139187641

Inbound rules count

1 Permission entry

Outbound rules count

1 Permission entry

Inbound rules

Outbound rules

Tags

Inbound rules (1/1)

Manage tags

Edit inbound rules

Filter security group rules

< 1 >

Security group r...	IP version	Type	Protocol	Port range	Source
sgr-0a68bc64e04e7...	-	MYSQL/Aurora	TCP	3306	sg-0d866f04bd7ed096d / SG-AllAllowed

2. Creación y configuración del servidor de aplicación en EC2: Creación de una nueva instancia en EC2. Configuración de la nueva instancia:

- a. AMI: Amazon Linux 2 AMI

Selección de Amazon Linux 2 AMI

Step 1: Choose an Amazon Machine Image (AMI)

Cancel and Exit

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Search for an AMI by entering a search term e.g. "Windows"

Search by Systems Manager parameter

Quick Start

My AMIs

AWS Marketplace

Community AMIs

Amazon Linux

Free tier eligible

Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type - ami-0b614a5d911900a9b (64-bit x86) / ami-0a1c7c7935530ecbf (64-bit Arm)

Amazon Linux 2 comes with five years support. It provides Linux kernel 5.10 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras. This AMI is the successor of the Amazon Linux AMI that is now under maintenance only mode and has been removed from this wizard.

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

64-bit (x86)

64-bit (Arm)

b. Tipo de instancia: t2.micro

Selección instancia t2.micro

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Filter by:

All instance families

Current generation

Show/Hide Columns

Currently selected: t2.micro (- ECUs, 1 vCPUs, 2.5 GHz, -, 1 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	t2	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate	Yes

c. VPC: VPC creada en el ejercicio anterior

d. Subred: Subred pública

subnet-00b3ff526678d67f8 / Public Subnet

Actions

Details

Subnet ID

subnet-00b3ff526678d67f8

Available IPv4 addresses

250

VPC

vpc-01e434594faebf08c | VPC Master

Auto-assign public IPv4 address

Yes

Outpost ID

-

Hostname type

IP name

Subnet ARN

arn:aws:ec2:us-east-2:279139187641:subnet/subnet-00b3ff526678d67f8

IPv6 CIDR

-

Route table

rtb-0f52fff4952369e0

Auto-assign IPv6 address

No

IPv4 CIDR reservations

-

Resource name DNS A record

Disabled

State

Available

Availability Zone

us-east-2a

Network ACL

acl-03367025e994b5c4a

Auto-assign customer-owned IPv4 address

No

IPv6 CIDR reservations

-

Resource name DNS AAAA record

Disabled

IPv4 CIDR

10.0.0.0/24

Availability Zone ID

use2-az1

Default subnet

No

Customer-owned IPv4 pool

-

IPv6-only

No

Owner

279139187641

e. Script de datos de usuario:

Incluyo script de datos de usuario según lo solicitado en

New user data
This user data will replace the current user data

☒ **Modify user data as text**
Add your user data below

☐ **Modify user data by importing a file**
Description of importing a file and what will happen to it

```
#!/bin/bash
yum -y install httpd php mysql php-mysql
case $(ps -p 1 -o comm | tail -1) in
systemd) systemctl enable --now httpd ;;
init) chkconfig httpd on; service httpd start ;;
*) echo "Error starting httpd (OS not using init or systemd)." 2>&1 esac
if [ ! -f /var/www/html/bootcamp-app.tar.gz ]; then
cd /var/www/html
wget https://s3.amazonaws.com/immersionday-labs/bootcamp-app.tar tar xvf bootcamp-app.tar
chown apache:root /var/www/html/rds.conf.php
fi
yum -y update
```

f. Almacenamiento: Volumen EBS

Adjunto captura del volumen creado Elastic Block Store (EBS)

EC2 > Volumes > vol-04451b7e6141a0796

vol-04451b7e6141a0796 Actions Delete Modify

Details			
Volume ID vol-04451b7e6141a0796	Size 8 GiB	Type gp2	Volume status Okay
Volume state In-use	IOPS 100	Throughput -	Encryption Not encrypted
KMS key ID -	KMS key alias -	KMS key ARN -	Snapshot snap-01278cf30e4db9372
Availability Zone us-east-2a	Created Sun Jan 16 2022 18:08:38 GMT-0300 (-03)	Multi-Attach enabled No	Attached Instances i-0b3d7124ecc7653be : /dev/xvda (attached)
Outposts ARN -			

g. Security Group: Grupo de seguridad de la aplicación web

Security group de la aplicación aplicado a la instancia EC2

EC2 > Security Groups > sg-0d866f04bd7ed096d - SG-AllAllowed

sg-0d866f04bd7ed096d - SG-AllAllowed Actions ▼

Details

Security group name SG-AllAllowed	Security group ID sg-0d866f04bd7ed096d	Description Allow SSH HTTP	VPC ID vpc-0a5dafd168610c532
Owner 279139187641	Inbound rules count 2 Permission entries	Outbound rules count 1 Permission entry	

h. Crear y descargar un par de claves SSH para acceder a la instancia remotamente

Llaves SSH creadas y descargadas

Select an existing key pair or create a new key pair ✕

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance. Amazon EC2 supports ED25519 and RSA key pair types.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Create a new key pair

Key pair type
☒ RSA ☐ ED25519

Key pair name
AWS_EJERCICIO2

Download Key Pair

3. Accede al servidor web utilizando las claves SSH descargadas: Accede al servidor web de manera remota mediante SSH utilizando las claves descargadas. Adjunta una captura de pantalla en la que se muestren los archivos que se encuentran en el directorio de la aplicación web que se esta sirviendo.

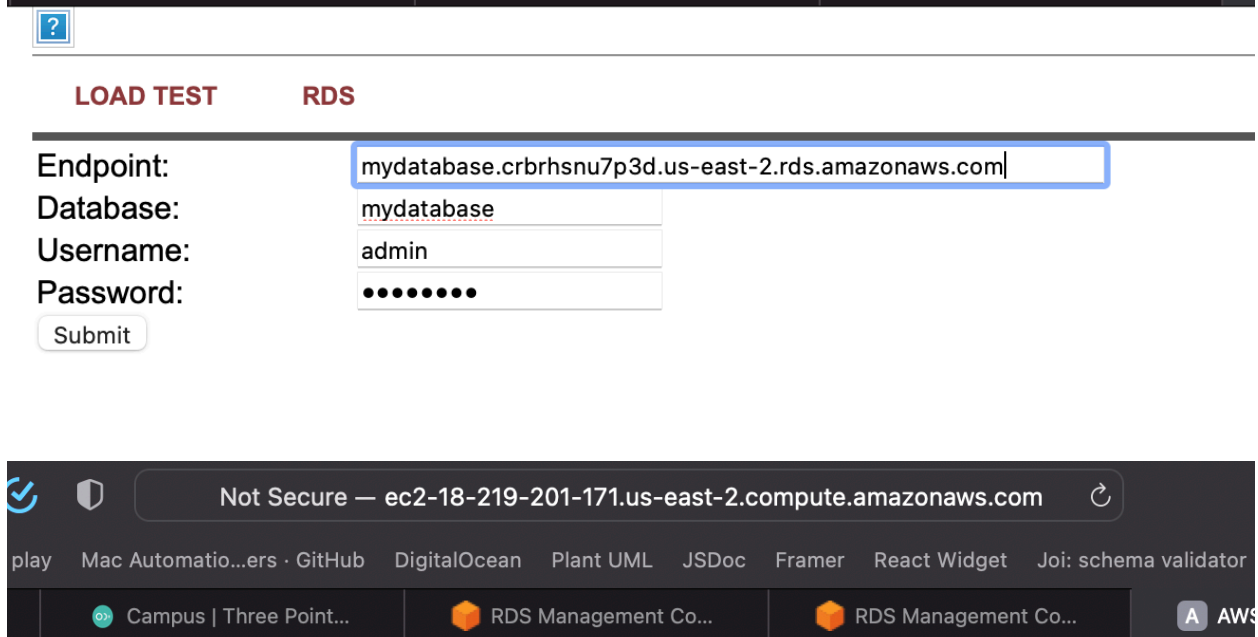
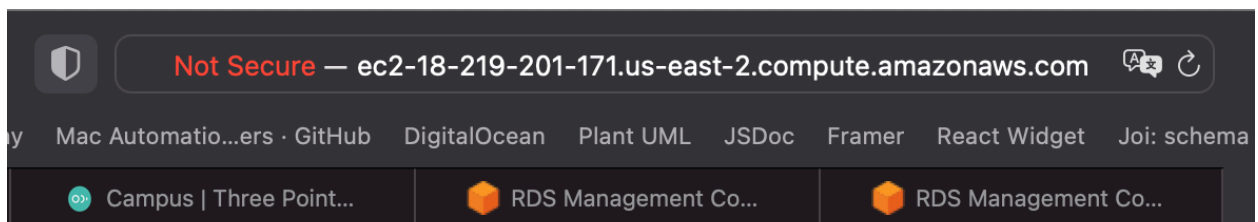
Como solicitado, accedo a la instancia de EC2, me dirijo a la carpeta /var/www/html y con el comando "ll" expongo la lista de archivos solicitados correctamente instalados en la nube:

```
[ec2-user@ip-172-31-20-121 html]$ pwd
/var/www/html
[ec2-user@ip-172-31-20-121 html]$ ll
total 88
-rw-r--r-- 1 root    root  30720 Jul 23  2018 bootcamp-app.tar
-rw-r--r-- 1 root    root   463 Jul 24  2013 db-update.php
-rw-r--r-- 1 root    root   368 Sep 17  2012 get-cpu-load.php
-rw-r--r-- 1 root    root   598 Sep  7  2012 get-index-meta-data.php
-rw-r--r-- 1 root    root   393 Apr 10  2013 index.php
-rw-r--r-- 1 root    root   371 Apr 10  2013 load.php
-rw-r--r-- 1 root    root   234 May  8  2013 menu.php
-rw-r--r-- 1 root    root   543 Oct  2  2014 put-cpu-load.php
-rw-r--r-- 1 root    root   488 Oct 24  2012 rds-config.php
-rw-r--r-- 1 root    root  3133 Sep  7  2012 rds-read-data.php
-rw-r--r-- 1 root    root  1652 Jul 24  2013 rds-write-config.php
-rw-r--r-- 1 apache  root    61 Jul 24  2013 rds.conf.php
-rw-r--r-- 1 root    root    61 Sep 17  2012 rds.conf.php.template
-rw-r--r-- 1 root    root   463 Apr 10  2013 rds.php
drwxr-xr-x 2 root    root    29 Jul 24  2013 sql
-rw-r--r-- 1 root    root   877 Sep  6  2012 style.css
[ec2-user@ip-172-31-20-121 html]$
```


4. Creación y configuración del servidor de base de datos MySQL: Creación de un servidor de base de datos MySQL utilizando el servicio RDS de AWS. El servidor debe crearse en la subred privada tal y como se indica en el diagrama de arquitectura presentado anteriormente. Conexión de la aplicación web a la base de datos utilizando la interfaz gráfica que proporciona:

Accedo a la instancia en cuestión

Pulso RDS para acceder a la configuración y escribir los datos

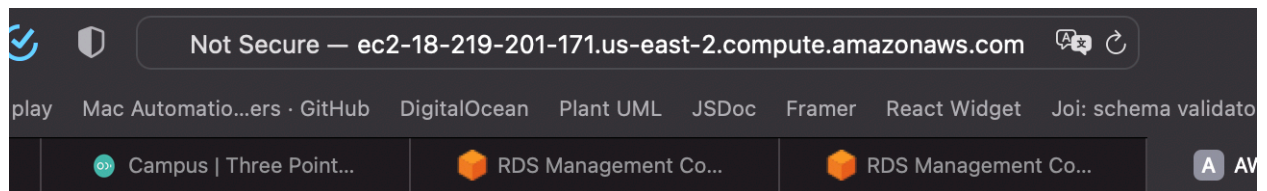


LOAD TEST **RDS**

Executing Command: `mysql -u admin -p33355555 -h mydatabase.crbrhsnu7p3d.us-east-2.rds.amazonaws.com mydatabase < sql/addressbook.sql`

Writing config out to rds.conf.php

Redirecting to rds.php in 10 seconds (or click [here](#))



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LOAD TEST

RDS

Address Book

Name	Phone	Email	Admin	
			Add Contact	
Alice	571-555-4875	alice@address2.us	Edit	Remove
Bob	630-555-1254	bob@fakeaddress.com	Edit	Remove

En este punto del ejercicio ya debería estar desplegada toda la arquitectura propuesta.

Como adjunto en captura, la app se encuentra funcional y conectada cumpliendo con todos los requisitos de la actividad.