

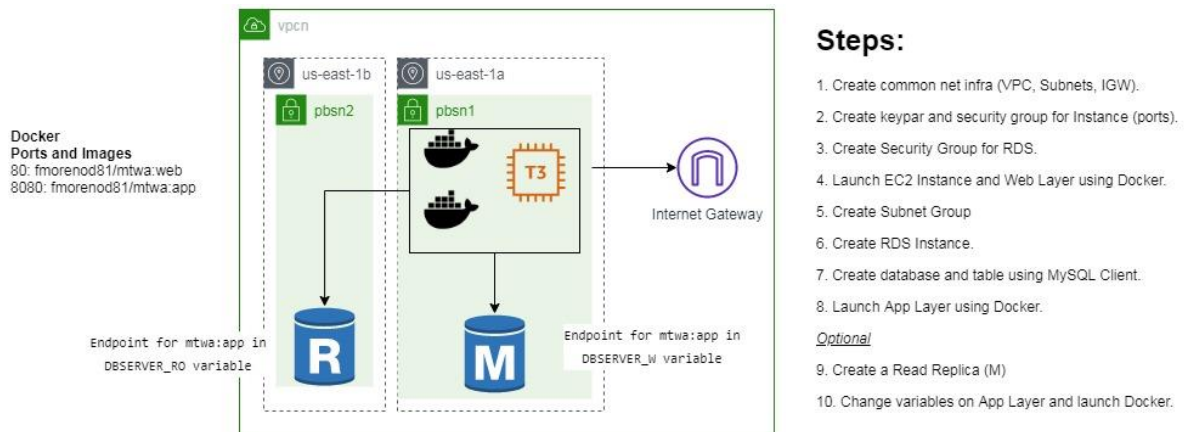
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## Purpose

Simulate a separated multi-tier architecture using web and application layer, and connect the application layer to a database.

## General Diagram



Create an environment on 2 public subnets, then create a public EC2 Instances and later, a MySQL RDS instance with a Read Replica.

The Read Replica Section is optional.

There are 3 Options to develop this lab: Manual commands using Web Management Console, CLI and CloudFormation.

If you use Web Management Console, please use the old web console when you create RDS using Web Management Console. If you have problems, please use CLI Commands.

## Prerequisites

Labs1c1 have to be done and the context for Administrative user have to activated on Command Line Session.

Labs5c2 have to be done, because you learn how to: Deploy Network Infrastructure, Securize instances, deploy applications using Docker and assign environment variables.

## Lab 7A: MySQL RDS with Read Replica using CLI

Create infrastructure for simplified MTWA (Lab s5c2)

```

rem Setear las variables de su grupo. Clase A: 10.x.x.x/8 Clase B: 172.16.x.
x a 172.31.x.x
set vpcn_Mask="10.0.0.0/16"
set pbsn1_Mask="10.0.0.0/24"
set pbsn2_Mask="10.0.1.0/24"
set instance_type="t2.micro"
set first_az="us-east-1a"
set second_az="us-east-1b"

rem Crear la VPC y habilitar resolucion DNS
aws ec2 create-vpc --cidr-block %vpcn_Mask%|jq ".Vpc.VpcId" >tmpFile
set /p vpcn_Id= < tmpFile
aws ec2 modify-vpc-attribute --vpc-id %vpcn_Id% --enable-dns-
hostnames "{\"Value\":\"true\"}"

rem Crear subred Publica
aws ec2 create-subnet --vpc-id %vpcn_Id% --cidr-block %pbsn1_Mask% --
availability-zone %first_az%|jq ".Subnet.SubnetId" >tmpFile
set /p pbsn1_Id= < tmpFile
aws ec2 modify-subnet-attribute --subnet-id %pbsn1_Id% --map-public-ip-on-
launch
aws ec2 create-subnet --vpc-id %vpcn_Id% --cidr-block %pbsn2_Mask% --
availability-zone %second_az%|jq ".Subnet.SubnetId" >tmpFile
set /p pbsn2_Id= < tmpFile

rem Crear el Internet Gateway IGW y asignarlo a la VPC
aws ec2 create-internet-
gateway|jq ".InternetGateway.InternetGatewayId" >tmpFile
set /p IGW_Id= < tmpFile
aws ec2 attach-internet-gateway --vpc-id %vpcn_Id% --internet-gateway-
id %IGW_Id%

rem Crear tabla de ruteo publica y asignarle IGW como ruta por defecto
aws ec2 create-route-table --vpc-
id %vpcn_Id%|jq ".RouteTable.RouteTableId" >tmpFile
set /p Public_RT_Id= < tmpFile
aws ec2 create-route --route-table-id %Public_RT_Id% --destination-cidr-
block 0.0.0.0/0 --gateway-id %IGW_Id%

rem Asociar la tabla de ruta a la subred
aws ec2 associate-route-table --subnet-id %pbsn1_Id% --route-table-
id %Public_RT_Id%

```

```
aws ec2 associate-route-table --subnet-id %pbsn2_Id% --route-table-id %Public_RT_Id%
```

rem Crear las llaves para el SSH a las nuevas instancias y convertirlas a PP K para usar Putty ya sea con puttygen o winscp

```
aws ec2 create-key-pair --key-name Lab7a --query "KeyMaterial" --output text > Lab7a.pem  
winscp.com /keygen "Lab7a.pem" /output="Lab7a.ppk"
```

rem Crear los Security Groups para esa instancia

```
aws ec2 create-security-group --group-name "SecGroup_A" --description "Security group for Instance A" --vpc-id %vpcn_Id% |jq ".GroupId">tmpFile  
set /p SecGroup_A_Id= < tmpFile  
aws ec2 authorize-security-group-ingress --group-id %SecGroup_A_Id% --protocol tcp --port 22 --cidr 0.0.0.0/0  
aws ec2 authorize-security-group-ingress --group-id %SecGroup_A_Id% --protocol tcp --port 80 --cidr 0.0.0.0/0  
aws ec2 authorize-security-group-ingress --group-id %SecGroup_A_Id% --protocol tcp --port 8080 --cidr 0.0.0.0/0
```

```
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>set second_az="us-east-1b"  
  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 create-vpc --cidr-block %vpcn_Mask%|jq ".Vpc.VpcId" >tmpFile  
  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>set /p vpcn_Id= < tmpFile  
  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 modify-vpc-attribute --vpc-id %vpcn_Id% --enable-dns-hostnames "{\"Value\":\"true\"}"  
  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 create-subnet --vpc-id %vpcn_Id% --cidr-block %pbsn1_Mask% --availability-zone %first_az%|jq ".Subnet.SubnetId" >tmpFile  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>set /p pbsn1_Id= < tmpFile  
  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 modify-subnet-attribute --subnet-id %pbsn1_Id% --map-public-ip-on-launch  
  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 create-subnet --vpc-id %vpcn_Id% --cidr-block %pbsn2_Mask% --availability-zone %second_az%|jq ".Subnet.SubnetId" >tmpFile  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>set /p pbsn2_Id= < tmpFile  
  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 create-internet-gateway|jq ".InternetGateway.InternetGatewayId" >tmpFile  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>set /p IGW_Id= < tmpFile  
  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 attach-internet-gateway --vpc-id %vpcn_Id% --internet-gateway-id %IGW_Id%  
  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 create-route-table --vpc-id %vpcn_Id%|jq ".RouteTable.RouteTableId" >tmpFile  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>set /p Public_RT_Id= < tmpFile  
  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 create-route --route-table-id %Public_RT_Id% --destination-cidr-block 0.0.0.0/0 --gateway-id %IGW_Id%  
{  
  "Return": true  
}  
  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 associate-route-table --subnet-id %pbsn1_Id% --route-table-id %Public_RT_Id%  
{  
  "AssociationId": "rtbassoc-0941a2474ea3c92e8",  
  "AssociationState": {  
    "State": "associated"  
  }  
}  
  
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 associate-route-table --subnet-id %pbsn2_Id% --route-table-id %Public_RT_Id%  
{  
  "AssociationId": "rtbassoc-0eac3181e3b231cec",  
  "AssociationState": {  
    "State": "associated"  
  }  
}
```

```

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 create-key-pair --key-name Lab7a --query "KeyMaterial" --output text > Lab7a.pem
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 create-key-pair --key-name Lab7a --query "KeyMaterial" --output text > Lab7a.pem
Key saved to "Lab7a.ppk".
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 create-security-group --group-name "SecGroup_A" --description "Security group for Instance A" --vpc-id %vpcn_Id% |jq ".GroupId">tmp
File
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>set /p SecGroup_A_Id= < tmpFile
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 authorize-security-group-ingress --group-id %SecGroup_A_Id% --protocol tcp --port 22 --cidr 0.0.0.0/0
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 authorize-security-group-ingress --group-id %SecGroup_A_Id% --protocol tcp --port 80 --cidr 0.0.0.0/0
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 authorize-security-group-ingress --group-id %SecGroup_A_Id% --protocol tcp --port 8888 --cidr 0.0.0.0/0

```

rem En el laboratorio de EC2 Inicial se mostrar la importancia de buscar una AMI correcto.

rem AWS sugiere que se tome el AMI Amazon Linux 2 y se instale docker desde linea de comandos: [https://docs.aws.amazon.com/AmazonECS/latest/developerguide/docker-basics.html#install\\_docker](https://docs.aws.amazon.com/AmazonECS/latest/developerguide/docker-basics.html#install_docker)

```

aws ec2 describe-images --owners amazon --filters "Name=name,Values=amzn2-ami-hvm-2.0.??????.?-x86_64-gp2" "Name=state,Values=available" --
query "reverse(sort_by(Images, &CreationDate))[:1].ImageId" --
output text >tmpFile
set /p AMI= < tmpFile

```

rem Se solicitan instancias y se adiciona un bootstrap para comprobar que el docker fue instalado

```

rem Se arrancan con las instancias de backend ya que es necesario modificar
posteriormente la capa de presentacion con el nombre del balanceador
aws ec2 run-instances --image-id %AMI% --count 1 --instance-
type %instance_type% --key-name Lab7a --security-group-ids %SecGroup_A_Id% -
-subnet-id %pbsn1_Id% --tag-
specifications "ResourceType=instance,Tags=[{Key=Name,Value=A}]" --user-
data file://bootstrap.txt |jq "[.Instances|.[]].InstanceId|."|jq "[0]" >tmp
File
set /p InstanceId= <tmpFile

```

rem Traer Datos especificos de instancia A. Revisar contenido describe-instances y Read\_A.jq ya que es diferente a lo de anteriores laboratorios.

```

aws ec2 describe-instances | jq -
f Read_Instance.jq|jq "[0].ENIPublicIpAddress" >tmpFile
set /p A_IP= < tmpFile
echo "Probar docker en %A_IP%"

```

```

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 create-security-group --group-name "SecGroup_RDS" --description "Security group for RDS" --vpc-id %vpcn_Id% |jq ".GroupId">tmpFile

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>set /p SecGroup_RDS_Id= < tmpFile

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 authorize-security-group-ingress --group-id %SecGroup_RDS_Id% --protocol tcp --port 3306 --source-group %SecGroup_A_Id%

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 describe-images --owners amazon --filters "Name=name,Values=amzn2-ami-hvm-2.0.????????-x86_64-gp2" "Name=state,Values=available"
--query "reverse(sort_by(Images, &CreationDate))[!].ImageId" --output text >tmpFile

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>set /p AMI= < tmpFile

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 run-instances --image-id %AMI% --count 1 --instance-type %instance_type% --key-name Lab7a --security-group-ids %SecGroup_A_Id% --su
bnet-id %pbsn1_Id% --tag-specifications "ResourceType=instance,Tags=[{Key=Name,Value=A}]" --user-data file://bootstrap.txt |jq "[.Instances[.].InstanceId]"|jq ".[0]" >tmpFile

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>set /p InstanceId= <tmpFile

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws ec2 describe-instances | jq -f Read_Instance.jq|jq ".[0].ENIPublicIpAddress" >tmpFile

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>set /p A_IP= < tmpFile

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>echo "Probar docker en %A_IP%"
"Probar docker en "34.201.2.181""

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>putty.exe -i "Lab7a.ppk" ec2-user@%A_IP%

C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>[]

```



<input type="button" value="View Data"/>	<input type="button" value="Enter Data"/>	<input type="button" value="Clear Data"/>	<input type="button" value="Clear Page"/>
--	---	---	---

<b><u>Client Information</u></b> IPv4: 181.61.208.101 Port: 4684 X-Forwarded-For: None Cookies: None	
<b><u>Web Server Information</u></b> EC2 hostname: ip-10-0-0-208.ec2.internal Container hostname: web1 IPv4: 172.17.0.2 Protocol: <b>HTTP</b> Port: 80 Local System Time: 2020-08-05 04:40:33	<b><u>App Server Information</u></b> Hostname: <b>ERROR</b> IPv4: <b>ERROR</b> Protocol: <b>ERROR</b> Port: <b>ERROR</b> Local System Time: <b>ERROR</b>

Create Subnet Group and RDS using CLI

*Create DB Security Group*

rem Crear los Security Groups para esa RDS

```
aws ec2 create-security-group --group-name "SecGroup_RDS" --  
description "Security group for RDS" --vpc-  
id %vpcn_Id% |jq ".GroupId">tmpFile
```

```
set /p SecGroup_RDS_Id= < tmpFile
```

```
aws ec2 authorize-security-group-ingress --group-id %SecGroup_RDS_Id% --  
protocol tcp --port 3306 --source-group %SecGroup_A_Id%
```

*Create DB SubnetGroup*

rem Crear el Db Subnet Group y luego, el RDS MySQL.

rem Se crea la Subnet Group agregando los nombre de las 2 Subredes

```
aws rds create-db-subnet-group --db-subnet-group-name lab7dbgr --db-subnet-  
group-description lab7dbgr --subnet-ids %pbsn1_Id% %pbsn2_Id%
```

### Create MySQL RDS

```
aws rds create-db-instance --db-name appdemo --db-instance-identifier appdemo --allocated-storage 20 --db-instance-class db.t2.micro --engine mysql --master-username appdemo --master-user-password appdemo1 --vpc-security-group-ids %SecGroup_RDS_Id% --availability-zone "us-east-1a" --no-multi-az --db-subnet-group-name lab7dbgr --publicly-accessible --no-enable-performance-insights --no-deletion-protection
```

rem Se tiene que esperar a que la RDS permanezca en estado Active para proseguir con el laboratorio. No es tan rapido hacer los cambios o las ejecuciones en las instancias BD.

```
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws rds create-db-subnet-group --db-subnet-group-name lab7dbgr --db-subnet-group-description lab7dbgr --subnet-ids subnet-011228a62334d6d8c subnet-0a0f3dbc55fc8a22b
{
  "DBSubnetGroup": {
    "DBSubnetGroupName": "lab7dbgr",
    "DBSubnetGroupDescription": "lab7dbgr",
    "VpcId": "vpc-02a163e870ce1d114",
    "SubnetGroupStatus": "Complete",
    "Subnets": [
      {
        "SubnetIdentifier": "subnet-011228a62334d6d8c",
        "SubnetAvailabilityZone": {
          "Name": "us-east-1a"
        },
        "SubnetStatus": "Active"
      }
    ]
  },
  {}
}
```

```
C:\Code\bsg-saa-c02\AWS_SAA\Code\s7c1\CLI>aws rds create-db-instance --db-name appdemo --db-instance-identifier appdemo --allocated-storage 20 --db-instance-class db.t2.micro --engine mysql --master-username ap
-group-ids %SecGroup_RDS_Id% --availability-zone "us-east-1a" --no-multi-az --db-subnet-group-name lab7dbgr --publicly-accessible --no-enable-performance-insights --no-deletion-protection
{
  "DBInstance": {
    "DBInstanceIdentifier": "appdemo",
    "DBInstanceClass": "db.t2.micro",
    "Engine": "mysql",
    "DBInstanceStatus": "creating",
    "MasterUsername": "appdemo",
    "DBName": "appdemo",
    "AllocatedStorage": 20,
    "PreferredBackupWindow": "05:50-06:20",
    "BackupRetentionPeriod": 1,
    "DBSecurityGroups": [],
    "VpcSecurityGroups": [
      {
        "VpcSecurityGroupId": "sg-0b1469831c9624d68",

```

## Lab 7A: MySQL RDS with Read Replica using Web Management Console

Create infrastructure for simplified MTWA (Lab s5c2) using Web Management Console

You have to create simplified MTWA, which means:

VPC, 2 Public Subnets (Map Public IP on launch), IGW, KeyPair, Security Groups for Ports 80, 443 and 22.

Create RDS Security Group, Subnet Group and RDS using Web Management Console

### Create DB Security Group

You have to create a Security Group with source as everywhere (0.0.0.0/0) or the cidr from EC2 instance if you like privacy. However, for troubleshooting I use open network.



Security Groups (1/8) Info

Q Filter security groups

<input type="checkbox"/>	Name	Security group ID	Security group name	VPC ID	Description	Owner
<input type="checkbox"/>	-	sg-02f9c0dd8aae416b5	launch-wizard-1	vpc-08cc4eec222b1f1b1	launch-wizard-1 create...	768312754627
<input type="checkbox"/>	-	sg-04c7a16cb22f684bc	SecGroup_A	vpc-0c94528546a9f68c9	Security group for Inst...	768312754627
<input type="checkbox"/>	-	sg-0584b9ccc09cd71c	DBSecGroup	vpc-08cc4eec222b1f1b1	Created by RDS manag...	768312754627
<input type="checkbox"/>	DS4All	sg-099119bdbafdc9eb	launch-wizard-3	vpc-08cc4eec222b1f1b1	launch-wizard-3 create...	768312754627
<input type="checkbox"/>	-	sg-0a1c48a7c11f9070	DbSecGroupRDS	vpc-08cc4eec222b1f1b1	Created by RDS manag...	768312754627
<input type="checkbox"/>	-	sg-0be32a8a6a081887b	default	vpc-08cc4eec222b1f1b1	default VPC security gr...	768312754627
<input checked="" type="checkbox"/>	-	sg-0f75f2cc9725d0d39	SecGroup_RDS	vpc-0c94528546a9f68c9	Security group for RDS	768312754627
<input type="checkbox"/>	-	sg-0fea70019bdbec0de	default	vpc-0c94528546a9f68c9	default VPC security gr...	768312754627

sg-0f75f2cc9725d0d39 - SecGroup\_RDS

Details

Inbound rules

Outbound rules

Tags

Inbound rules

Type	Protocol	Port range	Source	Description - optional
MYSQL/Aurora	TCP	3306	0.0.0.0/0	-

Create DB Subnet Group

aws Services Resource Groups EC2 VPC **RDS** Route 53 IAM CloudWatch ELB

Amazon RDS X

- Dashboard
- Databases
- Query Editor
- Performance Insights
- Snapshots
- Automated backups
- Reserved instances
- Proxies
- Subnet groups**
- Parameter groups
- Option groups
- Custom Availability Zones
- Events
- Event subscriptions
- Recommendations
- Certificate update

RDS > Subnet groups > Create DB subnet group

## Create DB Subnet Group

To create a new subnet group, give it a name and a description, and choose an existing VPC. You will then be able to add subnets related to that VPC.

### Subnet group details

Name  
You won't be able to modify the name after your subnet group has been created.  
appdemo-dbsubnetgrp

Description  
DB Subnet Group

VPC  
Choose a VPC identifier that corresponds to the subnets you want to use for your DB subnet group. You won't be able to choose a different VPC after the DB subnet group has been created.  
vpc-06b0a4ce4cad496e0

### Add subnets

Availability Zones  
Choose the Availability Zones that include the subnets you want to add.  
Choose an availability zone  
us-east-1a us-east-1b

Subnets  
Choose the subnets that you want to add. The list includes the subnets in the selected Availability Zones.  
Select subnets  
subnet-06ca19a75f1aa2f4b (10.0.0.0/24)  
subnet-07c3f398c8f33d4d2 (10.0.1.0/24)

#### Subnets selected (2)

Availability zone	Subnet ID	CIDR block
us-east-1a	subnet-06ca19a75f1aa2f4b	10.0.0.0/24
us-east-1b	subnet-07c3f398c8f33d4d2	10.0.1.0/24

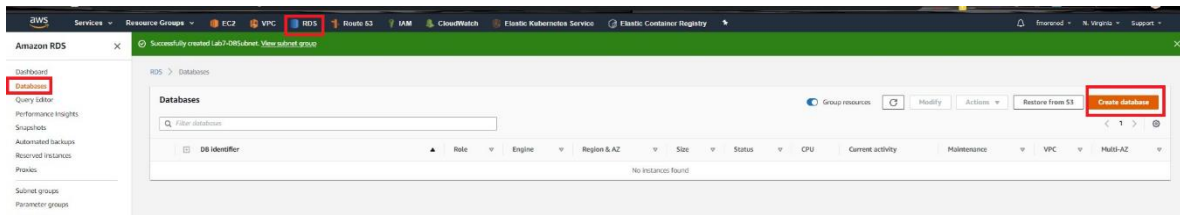
Cancel Create

Se tiene que seleccionar la VPC creada en el paso anterior, 2 zonas de disponibilidad donde están las 2 subredes, finalmente, las subredes y hacer click en Create.

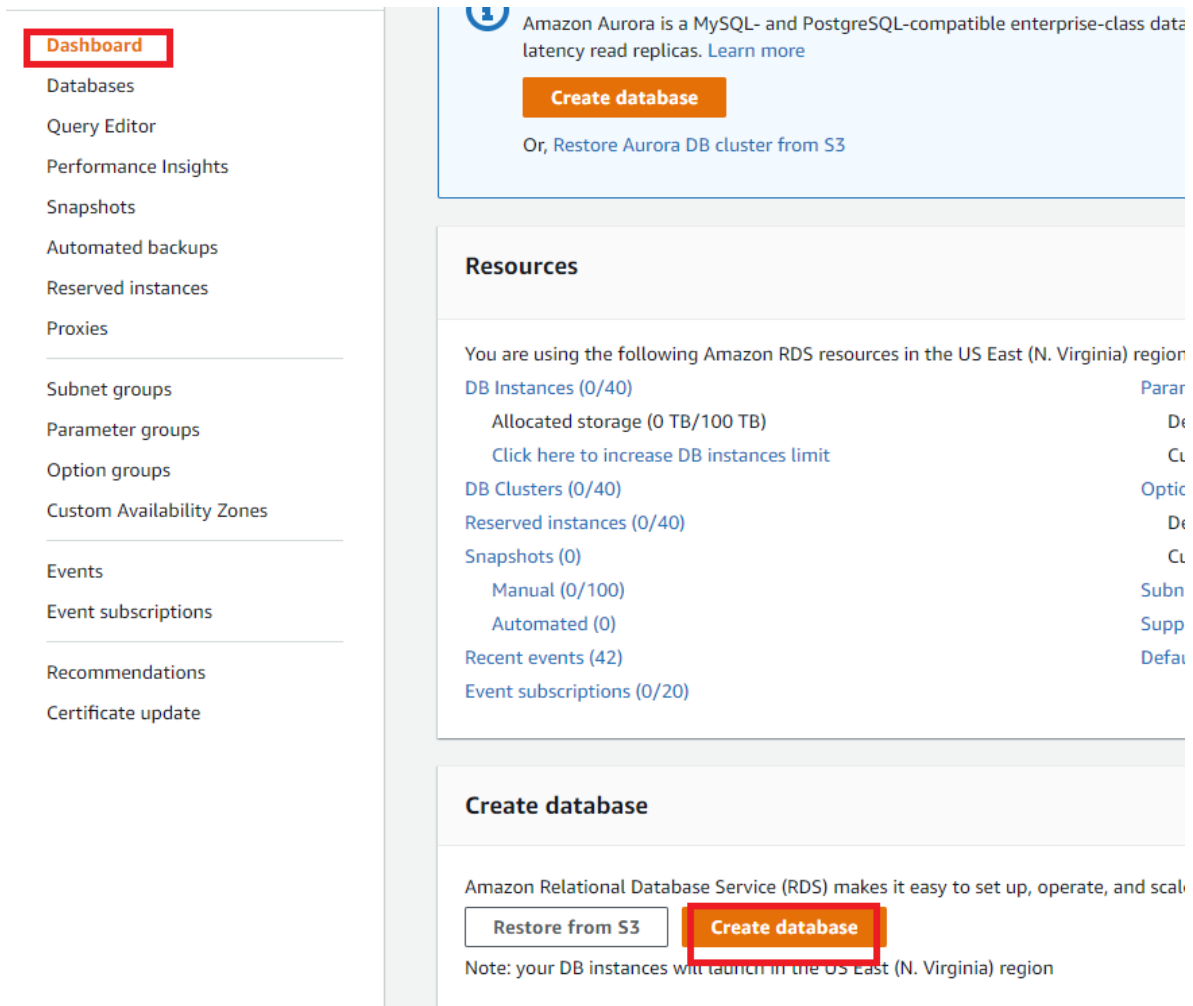
Create MySQL RDS

**IMPORTANTE:** AWS cambia las consolas graficas frecuentemente y la que se usó en el laboratorio presencial es la más nueva y presenta un problema de refresco al seleccionar el Security Group.

Para garantía del laboratorio usar la consola grafica anterior.



O



Opción para volver a la consola anterior



**We listened to your feedback!**

Now, create a database with a single click using our pre-built

[Switch to your original interface.](#)

RDS > Create database

## Create database

### Choose a database creation method [Info](#)

☒ Standard Create

You set all of the configuration options, including ones for availability, security, backups, and maintenance.

### Engine options

Engine type [Info](#)

☒ Amazon Aurora



☐ MySQL



Amazon RDS

Dashboard

Databases

Query Editor

Performance Insights

Snapshots

Automated backups

Reserved instances

Proxies

Subnet groups

Parameter groups

Option groups

Custom Availability Zones

Events

Event subscriptions

Recommendations

Certificate update

Switch to the new database creation flow.

RDS > Create database

Step 1  
Select engine

Step 2  
Specify DB details

Step 3  
Configure advanced settings

### Select engine

Engine options

☐ Amazon Aurora

☒ MySQL

☐ MariaDB

☐ PostgreSQL

☐ Oracle

☐ Microsoft SQL Server

#### MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 5 Read Replicas per instance, within a single Region or cross-region.

Aurora multi-master and Aurora global database features are now available. These features are now available in our new database creation flow.

Try it now

☒ Only enable options eligible for RDS Free Usage Tier [Info](#)

Cancel


Next

If appear this you use old graphic console, and it works !

Debido a que selecciona la capa gratuita tiene varias opciones ya pregrabadas,

## Specify DB details

### Instance specifications

Estimate your monthly costs for the DB Instance using the [AWS Simple Monthly Calculator](#) 

DB engine

MySQL Community Edition

License model [Info](#)


general-public-license ▼

DB engine version [Info](#)

MySQL 8.0.17 ▼



#### Known Issues/Limitations

Review the [Known Issues/Limitations](#)  to learn about potential compatibility issues with specific database versions.



#### Free tier

The Amazon RDS Free Tier provides a single db.t2.micro instance as well as up to 20 GiB of storage, allowing new AWS customers to gain hands-on experience with Amazon RDS. Learn more about the RDS Free Tier and the instance restrictions [here](#).

☒ Only enable options eligible for RDS Free Usage Tier [Info](#)

DB instance class [Info](#)

db.t2.micro — 1 vCPU, 1 GiB RAM ▼

Multi-AZ deployment [Info](#)

☐ Create replica in different zone

Creates a replica in a different Availability Zone (AZ) to provide data redundancy, eliminate I/O freezes, and minimize latency spikes during system backups.

☐ No

Storage type [Info](#)

Storage type [Info](#)

General Purpose (SSD) ▼

Allocated storage

20

GiB

(Minimum: 20 GiB, Maximum: 20 GiB) Higher allocated storage [may improve](#) IOPS performance.

Storage autoscaling

Provides dynamic scaling support for your database's storage based on your application's needs. [Info](#)

☒ **Enable storage autoscaling**  
Enabling this feature will allow the storage to increase once the specified threshold is exceeded.

Settings

DB instance identifier [Info](#)

Specify a name that is unique for all DB instances owned by your AWS account in the current region.

appdemo

DB instance identifier is case insensitive, but stored as all lower-case, as in "mydbinstance". Must contain from 1 to 63 alphanumeric characters or hyphens (1 to 15 for SQL Server). First character must be a letter. Cannot end with a hyphen or contain two consecutive hyphens.

Master username [Info](#)

Specify an alphanumeric string that defines the login ID for the master user.

appdemo

Master Username must start with a letter. Must contain 1 to 16 alphanumeric characters.

Master password [Info](#)

Confirm password [Info](#)

.....

appdemo1

.....

appdemo1

Master Password must be at least eight characters long, as in "mypassword". Can be any printable ASCII character except "/", "", or "@".

Cancel

Previous

Next

Aquí se tienen que seleccionar la VPC y Security Group creada en pasos anteriores, la Subnet group creada en el paso inmediatamente anterior. Si se tienen problemas en seleccionar el Security Group es posible que este en la consola anterior.

## Configure advanced settings

### Network & Security

#### Virtual Private Cloud (VPC) [Info](#)

VPC defines the virtual networking environment for this DB instance.

vpc-02a163e870ce1d114



Only VPCs with a corresponding DB subnet group are listed.

#### Subnet group [Info](#)

DB subnet group that defines which subnets and IP ranges the DB instance can use in the VPC you selected.

lab7dbgr



#### Public accessibility [Info](#)

☒ Yes

EC2 instances and devices outside of the VPC hosting the DB instance will connect to the DB instances. You must also create one or more VPC security groups that specify which EC2 instances and devices can connect to the DB instance.

☐ No

DB instance will not have a public IP address assigned. No EC2 instance or devices outside of the VPC will be able to

#### Availability zone [Info](#)

us-east-1a



#### VPC security groups

Security groups have rules authorizing connections from all the EC2 instances and devices that need to access the DB instance.

☐ Create new VPC security group

☒ Choose existing VPC security groups

Choose VPC security groups



SecGroup\_RDS X

Delete Default Sec Group

### Database options

#### Database name [Info](#)

appdemo



Enabling Enhanced Monitoring monitors database activity when you want to see how different processes or threads use the CPU

## Log exports


Select the log types to publish to Amazon CloudWatch Logs

- ☐ Audit log
- ☐ Error log
- ☐ General log
- ☐ Slow query log

## IAM role

The following service-linked role is used for publishing logs to CloudWatch Logs.

## RDS Service Linked Role

-  Ensure that General, Slow Query, and Audit Logs are turned on. Error logs are enabled by default. [Learn more](#)

## Maintenance

Auto minor version upgrade [Info](#)

- ☒ **Enable auto minor version upgrade**  
Enabling auto minor version upgrade will automatically upgrade to new minor versions as they are released. The automatic upgrades occur during the maintenance window for the database.

## Maintenance window [Info](#)

Select the period you want pending modifications or maintenance applied to the database by Amazon RDS.

- ☐ Select window
- ☒ No preference

## Deletion protection

- ☐ **Enable deletion protection**  
Protects the database from being deleted accidentally. While this option is enabled, you can't delete the database.

are enabled by default. [Learn more](#)

### Maintenance

Auto minor version upgrade [Info](#)

☒ **Enable auto minor version upgrade**  
 Enabling auto minor version upgrade will automatically upgrade to new minor versions as they are released. The automatic upgrades occur during the maintenance window for the database.

**Maintenance window** [Info](#)  
 Select the period you want pending modifications or maintenance applied to the database by Amazon RDS.

☐ Select window

☒ No preference

**Deletion protection**

☐ **Enable deletion protection**  
 Protects the database from being deleted accidentally. While this option is enabled, you can't delete the database.

### Estimated monthly costs

The Amazon RDS Free Tier is available to you for 12 months. Each calendar month, the free tier will allow you to use the Amazon RDS resources listed below for free:

- 750 hrs of Amazon RDS in a Single-AZ db.t2.micro Instance.
- 20 GB of General Purpose Storage (SSD).
- 20 GB for automated backup storage and any user-initiated DB Snapshots.

[Learn more about AWS Free Tier.](#)

When your free usage expires or if your application use exceeds the free usage tiers, you simply pay standard, pay-as-you-go service rates as described in the [Amazon RDS Pricing page](#).

**ⓘ** You are responsible for ensuring that you have all of the necessary rights for any third-party products or services that you use with AWS services.

Cancel **Create database**

Crear la BD tomaría hasta 10 minutos. Por favor, espere hasta que este en activa, algunas veces presentan problemas si lo realizamos antes.

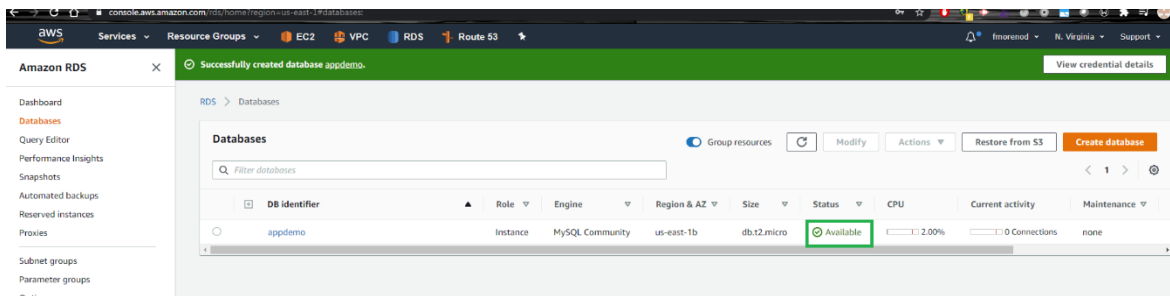
**Amazon RDS** **Creating database appdemo**  
 Your database might take a few minutes to launch. [View credential details](#)

RDS > Databases

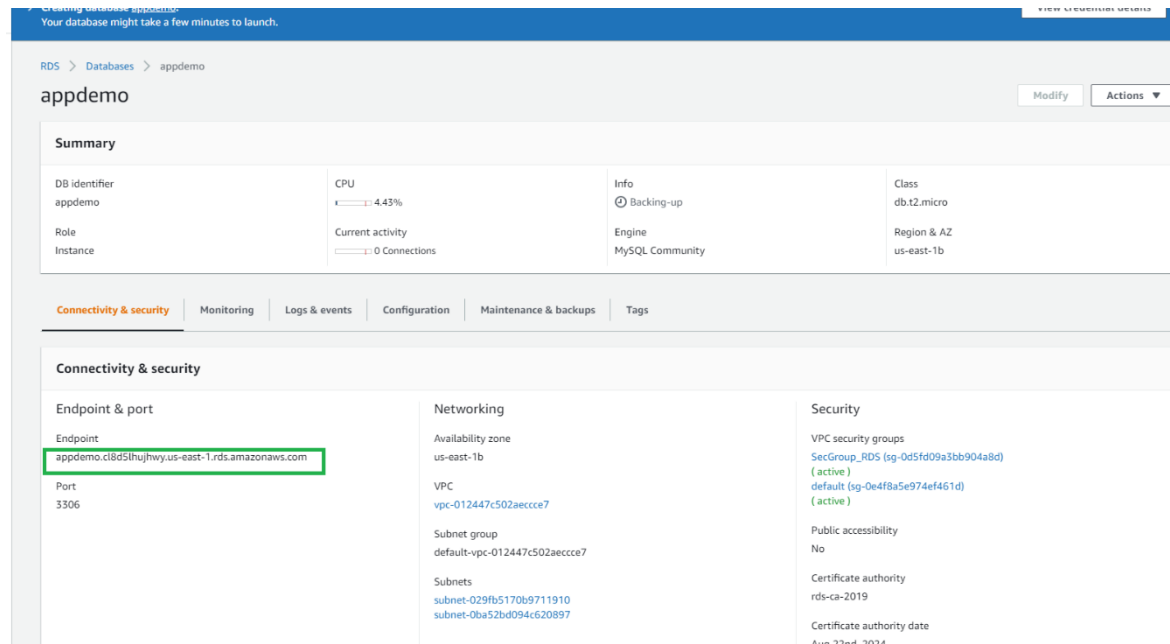
**Databases** ☒ Group resources

Filter databases

DB identifier	Role	Engine	Region & AZ	Size	Status	CPU	Current activity	Maintenance	VPC
appdemo	Instance	MySQL Community	-	db.t2.micro	Creating	-	-	none	vpc-012447c502



Se toma el nombre de la nueva instancia haciendo click en el nombre de la BD.



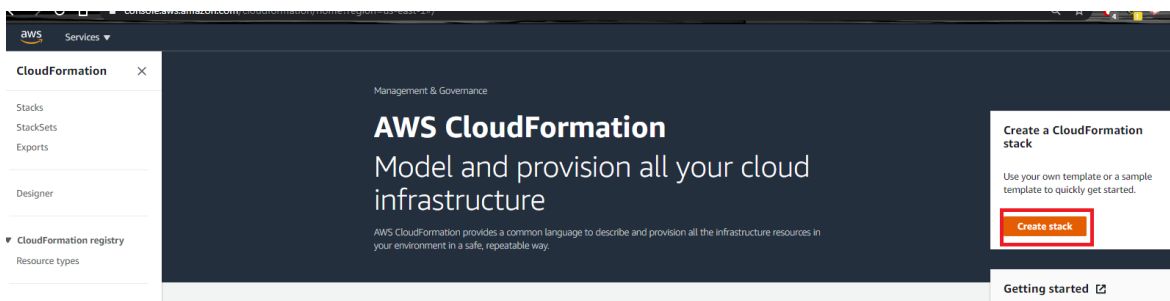
## Lab 7A: MySQL RDS with Read Replica using Cloudformation

Use the file Lab7\_CfnTemplate.yaml which implement all the infrastructure except KeyPair, so you have to create previously. The only exception is the Section call [Lab 7A: Common Continuation](#) and the MySQL client that you have to install using:

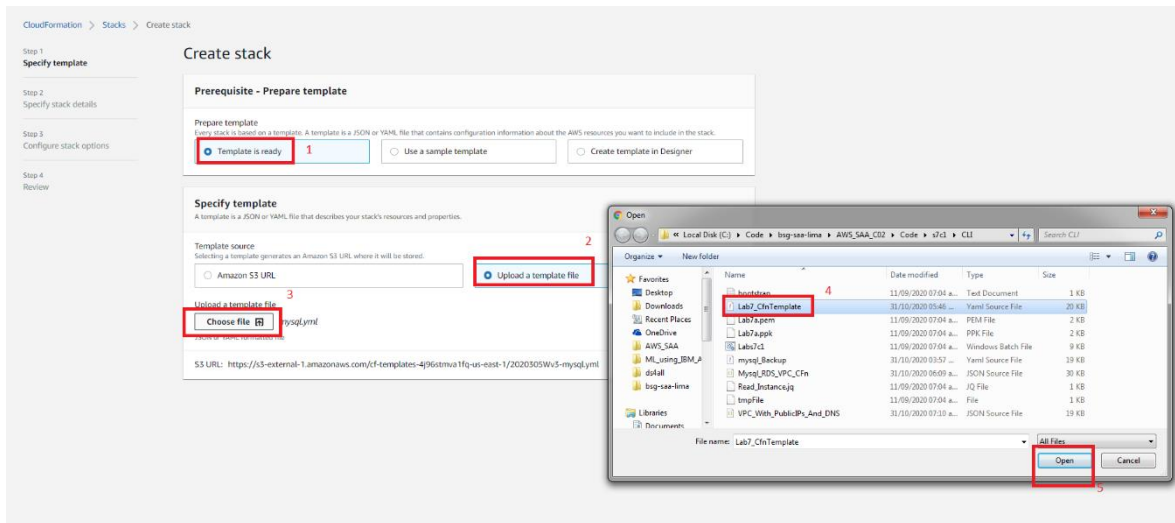
```
yum install -y https://dev.mysql.com/get/mysql57-community-release-el7-11.noarch.rpm
```

```
yum install -y mysql-community-client
```

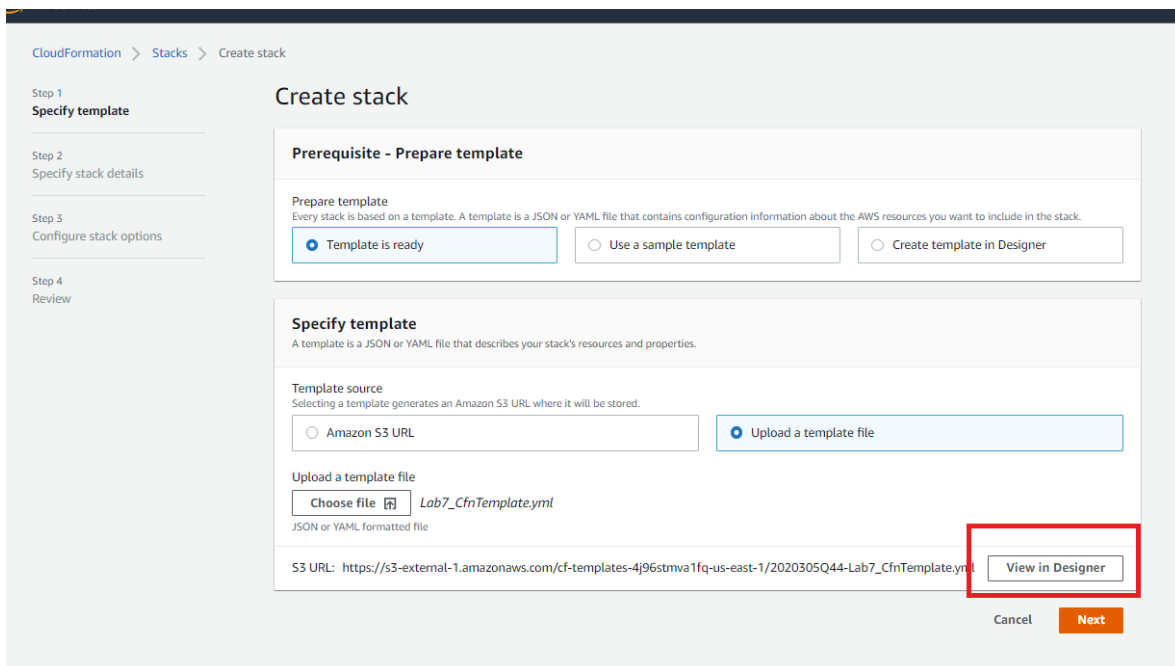
In addition, I try to explain how to implement infrastructure using YAML file and Cloudformation.



## Upload the file



## Check YAML file with Cloudformation Designer



The screenshot displays the AWS CloudFormation console interface. At the top, the browser address bar shows the URL `console.aws.amazon.com/cloudformation/...`. The console header includes the AWS logo, a 'Services' dropdown, and navigation links for 'fmorenod', 'N. Virginia', and 'Support'.

The main content area is divided into two sections. On the left, a sidebar titled 'Resource types' lists various AWS services, including ACMPCA, AccessAnalyzer, AmazonMQ, Amplify, ApiGateway, ApiGatewayV2, AppConfig, AppFlow, AppMesh, AppStream, AppSync, ApplicationAutoScaling, ApplicationInsights, Athena, AutoScaling, AutoScalingPlans, Backup, and Batch. A red box highlights the 'CloudFormation' icon in the top navigation bar.

The central area shows a visual diagram of a CloudFormation template, labeled 'File: template1'. The diagram illustrates the relationships between various AWS resources, including EC2 instances, IAM roles, and S3 buckets, connected by arrows indicating dependencies.

Below the diagram, the 'template1' tab is active, displaying the template's YAML code. The code is written in YAML and includes parameters for 'KeyName' and 'EC2InstanceType'. The 'Choose template language' dropdown is set to 'YAML'. The code is as follows:

```
1 AWSTemplateFormatVersion: 2010-09-09
2 Description: RDS MySQL instance for Lab7c. You have to have a KeyPair on that Region. Adapted from https://github.com/prisma/dat
3 Parameters:
4   KeyName:
5     Description: Name of an existing EC2 KeyPair to enable SSH access to the Instance A
6     Type: 'AWS::EC2::KeyPair::KeyName'
7     ConstraintDescription: must be the name of an existing EC2 KeyPair.
8   EC2InstanceType:
9     Description: EC2 instance types
10    Type: String
11    Default: t3.micro
12    AllowedValues:
13      - t1.micro
14      - t2.nano
15      - t2.micro
16      - t2.small
17      - t2.medium
18      - t2.large
19      - t3.micro
20      - m1.small
21      - m1.medium
22      - m1.large
23      - m1.xlarge
24      - m2.xlarge
25
```

The bottom of the console shows the 'Components' and 'Template' tabs, with 'Template' selected. The footer includes a 'Feedback' link, the language 'English (US)', and copyright information: '© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved.' It also links to 'Privacy Policy' and 'Terms of Use'.

After review, you can jump to deploy CFn stack. Select parameters:

Step 1  
Specify template

Step 2  
Specify stack details

Step 3  
Configure stack options

Step 4  
Review

## Specify stack details

### Stack name

Stack name

Labs7c1

Stack name can include letters (A-Z and a-z), numbers (0-9), and dashes (-).

### Parameters

Parameters are defined in your template and allow you to input custom values when you create or update a stack.

#### Database Configuration

##### Database Instance Type

The instance type to use for the database. Pricing: <https://aws.amazon.com/rds/mysql/pricing/>

db.t2.micro

##### Database name

The database name (Default "prisma", change if you are creating more than one database)

appdemo

##### Database Username

The database admin account user name. (Default "appdemo")

appdemo

##### Database Password

The database admin account password. (Choose a secure password. Default appdemo1)

\*\*\*\*\*

#### Other parameters

##### AllocatedStorage

Storage to allocate in GB (Default "10")

10

##### EC2InstanceType

EC2 Instance types

t3.micro

##### KeyName

Name of an existing Amazon EC2 key pair to use as the default key pair for the instance.

Lab7a

Cancel

Previous

Next

Step 1  
Specify template

Step 2  
Specify stack details

Step 3  
**Configure stack options**

Step 4  
Review

## Configure stack options

### Tags

You can specify tags (key-value pairs) to apply to resources in your stack. You can add up to 50 unique tags for each stack. [Learn more](#)

Key	Value	
		<div>R e m o v e</div>

### Permissions

Choose an IAM role to explicitly define how CloudFormation can create, modify, or delete resources in the stack. If you don't choose a role, CloudFormation uses permissions based on your user credentials. [Learn more](#)

#### IAM role - optional

Choose the IAM role for CloudFormation to use for all operations performed on the stack.

IAM role name ▼	<input type="text" value="Sample-role-name"/>	<input type="button" value="Remove"/>
-----------------	---	---------------------------------------

## Advanced options

You can set additional options for your stack, like notification options and a stack policy. [Learn more](#)

### ► Stack policy

Defines the resources that you want to protect from unintentional updates during a stack update.

### ► Rollback configuration

Specify alarms for CloudFormation to monitor when creating and updating the stack. If the operation breaches an alarm threshold, CloudFormation rolls it back. [Learn more](#)

### ► Notification options

### ► Stack creation options

Permissions

No permissions

There is no IAM role associated with this stack

Stack policy

No stack policy

There is no stack policy defined

Rollback configuration

Monitoring time

-

CloudWatch alarm ARN

-

Notification options

No notification options

There are no notification options defined

Stack creation options

Rollback on failure

Enabled

Timeout

-

Termination protection

Disabled

► Quick-create link

Cancel

Previous

Create change set

Create stack

In the meanwhile, you can review all tabs: Events, Resources, Outputs:



CloudFormation > Stacks > Labs7c1

Stacks (2)

Filter by stack name

Active View nested

1

Labs7c1  
2020-10-31 18:08:29 UTC-0500  
CREATE\_IN\_PROGRESS

DS4ATeam54  
2020-10-23 10:55:45 UTC-0500  
DELETE\_FAILED

### Labs7c1

Delete Update Stack actions Create stack

Stack info Events Resources Outputs Parameters Template Change sets

#### Events (1)

Search events

Timestamp	Logical ID	Status	Status reason
2020-10-31 18:08:29 UTC-0500	Labs7c1	CREATE_IN_PROGRESS	User Initiated

CloudFormation > Stacks > Labs7c1

Stacks (2)

Filter by stack name

Active View nested

1

Labs7c1  
2020-10-31 18:08:29 UTC-0500  
CREATE\_IN\_PROGRESS

DS4ATeam54  
2020-10-23 10:55:45 UTC-0500  
DELETE\_FAILED

### Labs7c1

Delete Update Stack actions Create stack

Stack info Events Resources Outputs Parameters Template Change sets

#### Resources (9)

Search resources

Logical ID	Physical ID	Type	Status	Status reason
DatabaseSecurityGroup	-	AWS-EC2-SecurityGroup	CREATE_IN_PROGRESS	-
InstanceSecurityGroup	-	AWS-EC2-SecurityGroup	CREATE_IN_PROGRESS	-
InternetGateway	igw-0cb8bc32b42915af0	AWS-EC2-InternetGateway	CREATE_COMPLETE	-
InternetGatewayAttachment	Labs7-Inter-HBA29f2f5DX	AWS-EC2-VPCGatewayAttachment	CREATE_IN_PROGRESS	Resource creation Initiated
ParameterGroup	labs7c1-parametergroup-fp8u962xumf3	AWS-RDS-DBParameterGroup	CREATE_COMPLETE	-
PublicRouteTable	rtb-0c9e9cdf40c753316	AWS-EC2-RouteTable	CREATE_COMPLETE	-
PublicSubnet2	subnet-06e2abb2c23949b59	AWS-EC2-Subnet	CREATE_IN_PROGRESS	Resource creation Initiated
StackAlarmTopic	arn:aws:sns:us-east-1:768312754627:Labs7c1-StackAlarmTopic-1QV96Z3EUZGKR	AWS-SNS-Topic	CREATE_COMPLETE	-
VPC	vpc-073499c2b857b95d8	AWS-EC2-VPC	CREATE_COMPLETE	-

CloudFormation > Stacks > Labs7c1

Stacks (2)

Filter by stack name

Active View nested

1

Labs7c1  
2020-10-31 18:08:29 UTC-0500  
CREATE\_IN\_PROGRESS

DS4ATeam54  
2020-10-23 10:55:45 UTC-0500  
DELETE\_FAILED

### Labs7c1

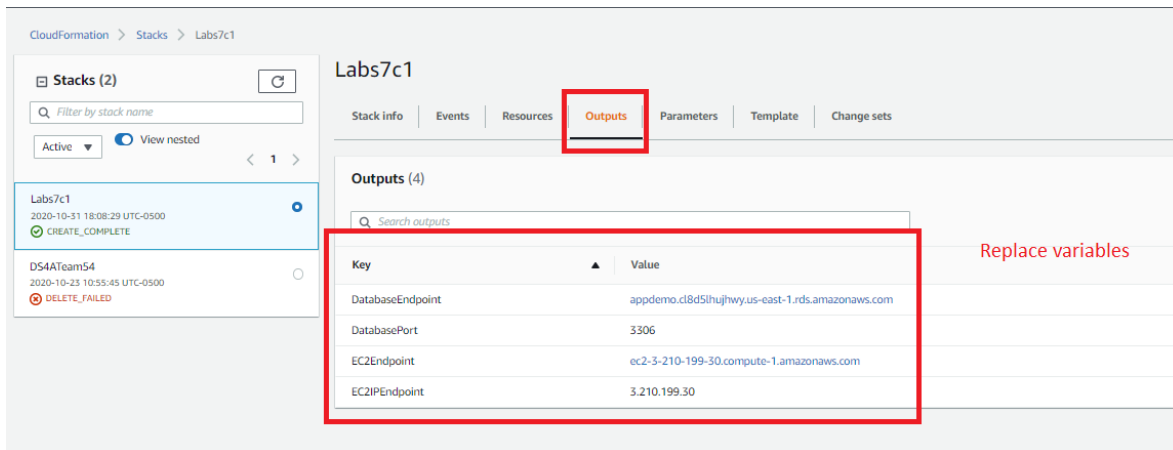
Delete Update Stack actions Create stack

Stack info Events Resources Outputs Parameters Template Change sets

#### Events (45)

Search events

Timestamp	Logical ID	Status	Status reason
2020-10-31 18:09:32 UTC-0500	DefaultPublicRoute	CREATE_COMPLETE	-
2020-10-31 18:09:31 UTC-0500	DatabaseInstance	CREATE_IN_PROGRESS	Resource creation Initiated
2020-10-31 18:09:29 UTC-0500	DatabaseInstance	CREATE_IN_PROGRESS	-
2020-10-31 18:09:28 UTC-0500	InstanceA	CREATE_IN_PROGRESS	Resource creation Initiated
2020-10-31 18:09:27 UTC-0500	DatabaseSubnetGroup	CREATE_COMPLETE	-
2020-10-31 18:09:27 UTC-0500	PublicSubnet1RouteTableAssociation	CREATE_IN_PROGRESS	Resource creation Initiated



You have the variables such as: DB Endpoints, EC2 Instance Public IPs.

After all you have to continue with next section.

## Lab 7A: Common Continuation

Able App Layer and connect to RDS

Usar putty o ssh para ir a la instancia. Se puede acceder desde afuera si Ud. Fue laxo con el Security Group que aplicamos a esa instancia RDS. Si no funciona la clave se puede cambiar desde la consola Web, pero posiblemente se deba a que no se espera a que este correctamente creada.

rem Ingresar a la instancia publica por SSH, desde Web se toma la IP publica  
. Obtener la informacion del Endpoint

```
putty.exe -i "Lab7a.ppk" ec2-user@%A_IP%
ping 8.8.8.8
```

rem Si no te reconoce el Mysql tienes que instalarlo desde

```
sudo yum install -y https://dev.mysql.com/get/mysql57-community-release-el7-11.noarch.rpm
```

```
sudo yum install -y mysql-community-client
```

rem Reemplazar el nombre del endpoint. La clave del usuario es appdemo1

```
mysql -h appdemo.cl8d5lhujhwy.us-east-1.rds.amazonaws.com -P 3306 -u appdemo -p
```

rem Copiar esta sentencia SQL para la creacion de la base de datos

```
CREATE DATABASE `appdemo`;
```

```

USE `appdemo`;
CREATE TABLE `demodata` (
  `id` INTEGER NOT NULL AUTO_INCREMENT,
  `name` VARCHAR(100),
  `notes` TEXT,
  `timestamp` TIMESTAMP,
  PRIMARY KEY (`id`),
  KEY (`name`)
);

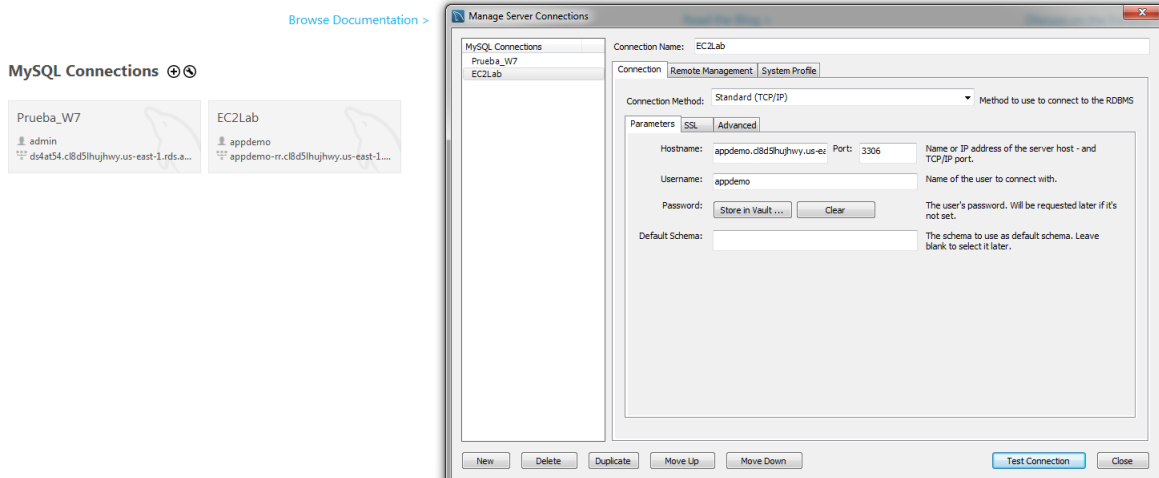
CREATE TABLE `demodata_erase_log` (
  `id` INTEGER NOT NULL AUTO_INCREMENT,
  `timestamp` TIMESTAMP,
  PRIMARY KEY (`id`),
  KEY (`timestamp`));
CREATE USER 'appdemo'@'%' IDENTIFIED BY 'appdemo1';
GRANT ALL PRIVILEGES ON appdemo.* to 'appdemo'@'%' WITH GRANT OPTION;
FLUSH PRIVILEGES;
quit

```

En tal caso de que no funcione puedes usar un cliente MySQL desde tu computador local conectando a la RDS

## Welcome to MySQL Workbench

MySQL Workbench is the official graphical user interface (GUI) tool for MySQL. It allows you to design, create and browse your database schemas, work with database objects and insert data as well as design and run SQL queries to work with stored data. You can also migrate schemas and data from other database vendors to your MySQL database.



ec2-user@ip-10-0-0-9:~

\_\_|\_|\_|\_|

https://aws.amazon.com/linux-2/

```
[ec2-user@ip-10-0-0-9 ~]$ mysql -h appdemo.cl8d5lhujuhwy.us-east-1.rds.amazonaws.com -P 3306 -u appdemo -p
```

Enter password:

Welcome to the MySQL monitor. Commands end with ; or \g.

Your MySQL connection id is 13

Server version: 8.0.17 Source distribution

Copyright (c) 2000, 2020, Oracle and/or its affiliates. All rights reserved.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

```
mysql> CREATE DATABASE `appdemo`;
```

ERROR 1007 (HY000): Can't create database 'appdemo'; database exists

```
mysql> USE `appdemo`;
```

```
  `notes` TEXT,
  `timestamp` TIMESTAMP,
  PRIMARY KEY (`id`),
  KEY (`name`)
);
```

```
CREATE TABLE `demodata_erase_log` (
  `id` INTEGER NOT NULL AUTO_INCREMENT,
  `timestamp` TIMESTAMP,
  PRIMARY KEY (`id`),
  KEY (`timestamp`));
```

```
CREATE USER 'appdemo'@'%' IDENTIFIED BY 'appdemo1';
```

```
GRANT ALL PRIVILEGES ON appdemo.* to 'appdemo'@'%' WITH GRANT OPTION;
```

```
FLUSH PRIVILEGES;
```

quitDatabase changed

```
mysql> CREATE TABLE `demodata` (
  ->  `id` INTEGER NOT NULL AUTO_INCREMENT,
  ->  `name` VARCHAR(100),
  ->  `notes` TEXT,
  ->  `timestamp` TIMESTAMP,
  ->  PRIMARY KEY (`id`),
  ->  KEY (`name`)
  -> );
```

Query OK, 0 rows affected (0.04 sec)

```
mysql>
```

```
mysql> CREATE TABLE `demodata_erase_log` (
  ->  `id` INTEGER NOT NULL AUTO_INCREMENT,
  ->  `timestamp` TIMESTAMP,
  ->  PRIMARY KEY (`id`),
  ->  KEY (`timestamp`));
```

Query OK, 0 rows affected (0.03 sec)

```
mysql> CREATE USER 'appdemo'@'%' IDENTIFIED BY 'appdemo1';
```

ERROR 1396 (HY000): Operation CREATE USER failed for 'appdemo'@'%'

```
mysql> GRANT ALL PRIVILEGES ON appdemo.* to 'appdemo'@'%' WITH GRANT OPTION;
```

Query OK, 0 rows affected (0.00 sec)

```
mysql> FLUSH PRIVILEGES;
```

Query OK, 0 rows affected (0.01 sec)

```
mysql> quit
```

The screenshot displays the Docker Cloud MTWA application interface. The interface is split into two panes. The left pane shows the 'Enter Data' button highlighted with a red box and a red arrow labeled '1'. Below it, the 'Client Information' and 'Web Server Information' sections are visible. The right pane shows the 'Saved 3 Records to Database!' message in a green box, with a green arrow labeled '2' pointing to it. The 'Enter Data' button is also highlighted with a red box and a red arrow labeled '4'.



## Lab 7B: Read Replica

### Create Read Replica on Web Management Console (Optional)

*Using Web Management Console*

**Successfully created database appdemo.** [View credential details](#)

RDS > Databases > appdemo

### appdemo

**Summary**

DB identifier appdemo	CPU 1.67%	Info Available	Class db.t2.micro
Role Instance	Current activity 1 Connections	Engine MySQL Community	Region & AZ us-east-1b

[Connectivity & security](#) | [Monitoring](#) | [Logs & events](#) | [Configuration](#) | [Maintenance & backups](#) | [Tags](#)

**Connectivity & security**

<b>Endpoint &amp; port</b> Endpoint appdemo.cl8d5lhujhwy.us-east-1.rds.amazonaws.com Port 3306	<b>Networking</b> Availability zone us-east-1b VPC vpc-012447c502a6ccce7 Subnet group default-vpc-012447c502a6ccce7	<b>Security</b> VPC security groups SecGroup_RDS (sg-0d5f09a3b6904a8d) (active) default (sg-0e4f8a5e974ef461d) (active) Public accessibility No
--	---	--

**Actions**

- Stop
- Reboot
- Delete
- Create read replica**
- Create Aurora read replica
- Promote
- Take snapshot
- Restore to point in time
- Migrate snapshot

✔ Successfully created database [appdemo](#).

[RDS](#) > [Databases](#) > [appdemo](#) > Add reader

## Create read replica DB instance

You are creating a replica DB instance from a source DB instance. This new DB instance will have the source DB instance's DB security groups and DB parameter groups.

### Instance specifications

#### DB instance class

Contains the compute and memory capacity of the DB instance.

db.t2.micro — 1 vCPU, 1 GiB RAM ▼

#### Multi-AZ deployment


Specifies if the DB instance should have a standby deployed in another availability zone.

☐ Yes

☒ No

#### Storage type [Info](#)

General Purpose (SSD) ▼

 Provisioning less than 100 GiB of General Purpose (SSD) storage for high throughput workloads could result in higher latencies upon exhaustion of the initial General Purpose (SSD) IO credit balance. [Click here](#) for more details.

### Network & Security

#### Destination region

The region in which the replica will be launched

US East (N. Virginia) ▼

#### Destination DB subnet group



## Network & Security

### Destination region

The region in which the replica will be launched

US East (N. Virginia) ▼

### Destination DB subnet group

default-vpc-012447c502aecce7 ▼

### Availability zone

The EC2 Availability Zone that the database instance will be created in.

No preference ▼

### Publicly accessible

☐ Yes

EC2 instances and devices outside of the VPC hosting the DB instance will connect to the DB instances. You must also select one or more VPC security groups that specify which EC2 instances and devices can connect to the DB instance.

☒ No

DB instance will not have a public IP address assigned. No EC2 instance or devices outside of the VPC will be able to connect.

### VPC security groups

Choose VPC security groups ▼

SecGroup\_RDS ✕

default ✕

## Encryption

### Encryption

☐ Enable encryption [Learn more](#) 

Select to encrypt the given instance. Master key ids and aliases appear in the list after they have been created using the Key Management Service(KMS) console.

☒ Disable encryption

## Settings

### Read replica source

Source DB instance Identifier

appdemo ▼

### DB instance identifier

DB instance identifier. This is the unique key that identifies a DB instance. This parameter is stored as a lowercase string (e.g. mydbinstance).

appdemo-rr

## Database options

### Database port

Port number on which the database accepts connections.

3306

( default: 3306 )

☐ Copy tags to snapshots

### IAM DB authentication [Info](#)

☐ Enable IAM DB authentication

Manage your database user credentials through AWS IAM users and roles.

☒ Disable

## Monitoring

### Enhanced monitoring

☐ Enable enhanced monitoring

Enhanced monitoring metrics are useful when you want to see how different processes or threads use the CPU.

☒ Disable enhanced monitoring

## Monitoring

Enhanced monitoring

☐ Enable enhanced monitoring  
Enhanced monitoring metrics are useful when you want to see how different processes or threads use the CPU.

☒ Disable enhanced monitoring

## Log exports

Select the log types to publish to Amazon CloudWatch Logs

☐ Audit log
 ☐ Error log
 ☐ General log
 ☐ Slow query log

**IAM role**  
The following service-linked role is used for publishing logs to CloudWatch Logs.

RDS Service Linked Role

Ensure that General, Slow Query, and Audit Logs are turned on. Error logs are enabled by default. [Learn more](#)

## Maintenance

**Auto minor version upgrade**  
Specifies if the DB instance should receive automatic engine version upgrades when they are available.

☒ Yes
 ☐ No

Cancel

Create read replica

Wait some minutes for creation of RR

RDS > Databases

Databases

☒ Group resources

<input type="checkbox"/>	DB identifier	Role	Engine	Region & AZ	Size	Status	CPU	Current activity	Maintenance	VPC	Multi-az
<input type="radio"/>	appdemo	Master	MySQL Community	us-east-1b	db.t2.micro	Modifying	2.33%	0 Connections	none	vpc-012447c502aeccce7	No
<input type="radio"/>	appdemo-rr	Replica	MySQL Community	-	db.t2.micro	Creating	-	-	none	vpc-012447c502aeccce7	No

RDS > Databases

Databases Group resources Modify Actions Restore from S3 Create database

Filter databases

DB identifier	Role	Engine	Region & AZ	Size	Status	CPU	Current activity	Maintenance
appdemo	Master	MySQL Community	us-east-1b	db.t2.micro	Available	2.17%	1 Connections	none
appdemo-rr	Replica	MySQL Community	us-east-1b	db.t2.micro	Available	1.67%	0 Connections	none

## Obtain endpoint

Amazon RDS

RDS > Databases > appdemo > appdemo-rr

appdemo-rr Modify Actions

**Summary**

DB identifier appdemo-rr	CPU 1.67%	Info Available	Class db.t2.micro
Role Replica	Current activity 0 Connections	Engine MySQL Community	Region & AZ us-east-1b

**Connectivity & security**

<b>Endpoint &amp; port</b> <b>Endpoint</b> appdemo-rr.cl8d5lhujhwy.us-east-1.rds.amazonaws.com <b>Port</b> 3306	<b>Networking</b> Availability zone us-east-1b VPC vpc-012447c502aeece7 Subnet group default-vpc-012447c502aeece7 Subnets subnet-029fb5170b9711910 subnet-0ba52bd094c620897	<b>Security</b> VPC security groups SecGroup_RDS (sg-0c5fd09a3bb904a8d) (active) default (sg-0e4f8a5e574ef461d) (active) Public accessibility No Certificate authority rds-ca-2019 Certificate authority date Aug 22nd, 2024
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## Replace endpoints using SSH (Putty)

Go to EC2 Instances and delete old container, then create new one.

rem En Putty, detener el contenedor de capa App y volver a asignar las variables de entorno DBSERVER\_W y DBSERVER\_RO

```
docker ps -a
```

```
docker stop <Contenedor_de_capa_APP>
```

```
docker rm --force <Contenedor_de_capa_APP>
```

```
docker ps -a
```

```
docker run -d -p 8080:8080 -e TZ=America/Bogota -
```

```
e DBSERVER_W="appdemo.cl8d5lhujhwy.us-east-1.rds.amazonaws.com" -
```

```
e DBSERVER_RO="appdemo-rr.cl8d5lhujhwy.us-east-1.rds.amazonaws.com" -
```

```
h app1 fmorenod81/mtwa:app
```

rem Que pasa cuando inviertes las variables, envia soporte del cambio.

