

## CASO PRÁCTICO 6

### Automatización y Elasticidad en AWS

## Tarea 1: Despliegue de los recursos listados en una sola plantilla.



# lab-task

Delete

Update

Stack actions ▾

Create stack ▾

- Stack info
- Events
- Resources
- Outputs
- Parameters
- Template
- Change sets

Overview

Stack ID

arn:aws:cloudformation:us-east-1:945461251612:stack/lab-task/3c54ad20-66a6-11ed-b2b0-121845a0e12b

Description

This template creates a VPC with DNS and public IPs enabled, 2 subnets and an autoscaling group with webserver in different AZs.

Status

CREATE\_COMPLETE

Status reason

-

Root stack

-

Parent stack

-

Created time

2022-11-17 19:32:48 UTC+0100

Deleted time

-

Updated time

-

Drift status

NOT\_CHECKED

Termination protection

Disabled

Tags (0)

[Option+S]

N. Virginia ▾

voclabs/user2189442=enunez-n@student.42malaga.com @ 9454-6125... ▾

Resources (14)

Logical ID

▲

Physical ID

▼

Type

▼

Status

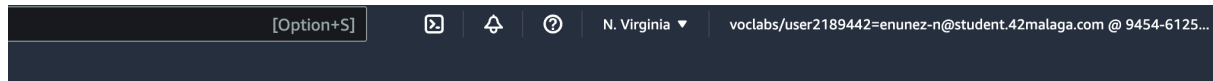
▼

Module

▼

AutoScalingGroup	lab-task-AutoScalingGroup-1C28HZSV2DIBV	AWS::AutoScaling::AutoScalingGroup	CREATE_COMPLETE	-
InstanceSecurityGroup	sg-0ff97fd19122dc2bc	AWS::EC2::SecurityGroup	CREATE_COMPLETE	-
InternetGateway	igw-044dc4588135742ba	AWS::EC2::InternetGateway	CREATE_COMPLETE	-
LaunchTemplate	lt-0dedde4f66907c664	AWS::EC2::LaunchTemplate	CREATE_COMPLETE	-
PublicRoute	lab-t-PublicRoute-V71ZUN9XMCBF	AWS::EC2::Route	CREATE_COMPLETE	-
PublicRouteTable	rtb-0092f1ff411e677a3	AWS::EC2::RouteTable	CREATE_COMPLETE	-
PublicSubnet1	subnet-05feacc651db3394b	AWS::EC2::Subnet	CREATE_COMPLETE	-
PublicSubnet1NetworkACLAssociation	aclassoc-0a3e5b21d3c60920b	AWS::EC2::SubnetNetworkACLAssociation	CREATE_COMPLETE	-
PublicSubnet1RouteTableAssociation	rtbassoc-02ad482048032cf71	AWS::EC2::SubnetRouteTableAssociation	CREATE_COMPLETE	-
PublicSubnet2	subnet-0d2873c2136d474fa	AWS::EC2::Subnet	CREATE_COMPLETE	-
PublicSubnet2NetworkACLAssociation	aclassoc-028c1628972a3d7fd	AWS::EC2::SubnetNetworkACLAssociation	CREATE_COMPLETE	-
PublicSubnet2RouteTableAssociation	rtbassoc-0a5dd7d68c1005867	AWS::EC2::SubnetRouteTableAssociation	CREATE_COMPLETE	-
VPC	vpc-0cbcc1fd72cc4fbdd	AWS::EC2::VPC	CREATE_COMPLETE	-
VPCGatewayAttachment	lab-t-VPCGatewayAttachment-GHGBHAU569T5	AWS::EC2::VPCGatewayAttachment	CREATE_COMPLETE	-

## Tarea 2: División de la plantilla en 2 plantillas, una para la Network y otra para la aplicación.



```
AWSTemplateFormatVersion: 2010-09-09
Description: >-
  Network Template: This template creates a VPC with DNS and public IPs enabled and 2 public subnets.
```

```
# This template creates:
#   VPC
#   Internet Gateway
#   Public Route Table
#   Public Subnet
```

```
#####
# Resources section
#####
```

Resources:

## VPC

```
VPC:
  Type: AWS::EC2::VPC
  Properties:
    EnableDnsSupport: true
    EnableDnsHostnames: true
    CidrBlock: 10.0.0.0/16
```

## Internet Gateway

```
InternetGateway:
  Type: AWS::EC2::InternetGateway
```

```
VPCGatewayAttachment:
  Type: AWS::EC2::VPCGatewayAttachment
  Properties:
    VpcId: !Ref VPC
    InternetGatewayId: !Ref InternetGateway
```

## Public Route Table

```
PublicRouteTable:
  Type: AWS::EC2::RouteTable
  Properties:
    VpcId: !Ref VPC
```

```
PublicRoute:
  Type: AWS::EC2::Route
  DependsOn: VPCGatewayAttachment
  Properties:
    RouteTableId: !Ref PublicRouteTable
    DestinationCidrBlock: 0.0.0.0/0
    GatewayId: !Ref InternetGateway
```

## Public Subnet 1

```
PublicSubnet1:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId: !Ref VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone: !Select [ 0, !GetAZs '
    MapPublicIpOnLaunch: true
    Tags:
      - Key: Name
        Value: Public Subnet 1
```

Esta es la plantilla para la **Network**, que solo describe la VPC, el Internet Gateway, las subnets y sus tablas de ruta.

Además, indica que se deben sacar como **parámetros** las IDs de la VPC y ambas subnets para poder ser referenciadas por otros stacks.



```
Type: AWS::EC2::SubnetRouteTableAssociation
Properties:
  SubnetId: !Ref PublicSubnet1
  RouteTableId: !Ref PublicRouteTable
```

```
PublicSubnet1NetworkAclAssociation:
  Type: AWS::EC2::SubnetNetworkAclAssociation
  Properties:
    SubnetId: !Ref PublicSubnet1
    NetworkAclId: !GetAtt
      - VPC
      - DefaultNetworkAcl
```

## Public Subnet 2

```
PublicSubnet2:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId: !Ref VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone: !Select [ 1, !GetAZs ' ' ]
    MapPublicIpOnLaunch: true
    Tags:
      - Key: Name
        Value: Public Subnet 2
```

```
PublicSubnet2RouteTableAssociation:
  Type: AWS::EC2::SubnetRouteTableAssociation
  Properties:
    SubnetId: !Ref PublicSubnet2
    RouteTableId: !Ref PublicRouteTable
```

```
PublicSubnet2NetworkAclAssociation:
  Type: AWS::EC2::SubnetNetworkAclAssociation
  Properties:
    SubnetId: !Ref PublicSubnet2
    NetworkAclId: !GetAtt
      - VPC
      - DefaultNetworkAcl
```

```
#####
# Outputs section
#####
```

Outputs:

```
PublicSubnet1:
  Description: The subnet 1 ID to use for public web servers
  Value: !Ref PublicSubnet1
  Export:
    Name: !Sub '${AWS::StackName}-SubnetID1'
```

```
PublicSubnet2:
  Description: The subnet 2 ID to use for public web servers
  Value: !Ref PublicSubnet2
  Export:
    Name: !Sub '${AWS::StackName}-SubnetID2'
```

```
VPC:
  Description: VPC ID
  Value: !Ref VPC
  Export:
    Name: !Sub '${AWS::StackName}-VPCID'
```

```
AWS::TemplateFormatVersion: 2010-09-09
Description: >-
  Application Template: This template provisions an Auto Scaling Group in 2 different VPC Subnets
  provisioned in a different stack, that launches instances from a Launch Template.
```

```
# This template creates:
#   Amazon EC2 instance
#   Security Group
```

```
#####
# Parameters section
#####
```

Parameters:

```
NetworkStackName:
  Description: >-
    Name of an active CloudFormation stack that contains the networking
    resources, such as the VPC and subnet that will be used in this stack
  Type: String
  MinLength: 1
  MaxLength: 255
  AllowedPattern: '^[a-zA-Z][-a-zA-Z0-9]*$'
  Default: lab-network
```

```
AmazonLinuxAMIID:
  Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2
```

```
InstanceTypeParameter:
  Type: String
  Default: t2.micro
  AllowedValues:
    - t2.micro
    - t3.micro
  Description: Enter t2.micro or t3.micro. Default is t2.micro.
```

```
LaunchTemplateVersionNumber:
  Default: 1
  Type: String
```

```
#####
# Resources section
#####
```

Resources:

## Security Group

```
InstanceSecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: Open HTTP (port 80)
    VpcId:
      Fn::ImportValue: !Sub ${NetworkStackName}-VPCID
    SecurityGroupIngress:
      - IpProtocol: tcp
        FromPort: 80
        ToPort: 80
        CidrIp: 0.0.0.0/0
```

## Launch Template

```
LaunchTemplate:
  Type: 'AWS::EC2::LaunchTemplate'
  Properties:
```

```
Default: 1
Type: String
```

```
#####
# Resources section
#####
```

Resources:

## Security Group

```
InstanceSecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: Open HTTP (port 80)
    VpcId:
      Fn::ImportValue: !Sub ${NetworkStackName}-VPCID
    SecurityGroupIngress:
      - IpProtocol: tcp
        FromPort: 80
        ToPort: 80
        CidrIp: 0.0.0.0/0
```

## Launch Template

```
LaunchTemplate:
  Type: 'AWS::EC2::LaunchTemplate'
  Properties:
    LaunchTemplateData:
      ImageId: !Ref AmazonLinuxAMIID
      InstanceType: !Ref InstanceTypeParameter
      NetworkInterfaces:
        - DeviceIndex: 0
          AssociatePublicIpAddress: true
          Groups:
            - !Ref InstanceSecurityGroup
          DeleteOnTermination: true
      Placement:
        Tenancy: default
      UserData:
        Fn::Base64:
          !Sub |
            #!/bin/bash
            sudo yum update -y
            sudo amazon-linux-extras install nginx1 -y
            sudo systemctl enable nginx
            sudo systemctl start nginx
```

## Autoscaling Group

```
AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    MinSize: '2'
    MaxSize: '4'
    DesiredCapacity: '2'
    LaunchTemplate:
      LaunchTemplateId: !Ref LaunchTemplate
      Version: !Ref LaunchTemplateVersionNumber
    VPCZoneIdentifier:
      - Fn::ImportValue: !Sub ${NetworkStackName}-SubnetID1
      - Fn::ImportValue: !Sub ${NetworkStackName}-SubnetID2
```

Esta es la plantilla para la **aplicación**, en ella se **parametrizan** la network de referencia donde desplegar los elementos que después se describen, la imagen de disco a utilizar, el tipo de instancias permitidas y la versión de la plantilla que estamos creando para el auto scaling group.

Después se describen todos los recursos solicitados, security group, launch template y Auto Scaling Group.

En la siguiente hoja muestro todos los **recursos desplegados** con cada plantilla.

lab-network

Stack info

Events

Resources

Outputs

Parameters

Template

Change sets

Overview

Stack ID

arn:aws:cloudformation:us-east-1:945461251612:stack/lab-network/f2b30620-66a1-11ed-a58b-0e63e6100f63

Description

Network Template: Sample template that creates a VPC with DNS and public IPs enabled.

Status

CREATE\_COMPLETE

Status reason

-

Root stack

-

Parent stack

-

Created time

2022-11-17 19:02:06 UTC+0100

Deleted time

-

Updated time

-

Last drift check time

-

Drift status

NOT\_CHECKED

IAM role

-

Termination protection

Disabled

lab-network

Stack info

Events

Resources

Outputs

Parameters

Template

Change sets

Resources (11)

Logical ID

Physical ID

Type

Status

Module

InternetGateway

igw-07106b0aa35c5ac6f

AWS::EC2::InternetGateway

CREATE\_COMPLETE

-

PublicRoute

lab-n-Publi-BE40IMF611V1

AWS::EC2::Route

CREATE\_COMPLETE

-

PublicRouteTable

rtb-061a174533dc93d5b

AWS::EC2::RouteTable

CREATE\_COMPLETE

-

PublicSubnet1

subnet-007370e63eba2c8f1

AWS::EC2::Subnet

CREATE\_COMPLETE

-

PublicSubnet1NetworkAdAssocation

aclassoc-0410c48ae2bb802ac

AWS::EC2::SubnetNetworkAdAssociation

CREATE\_COMPLETE

-

PublicSubnet1RouteTableAssocation

rtbassoc-007364e952337e962

AWS::EC2::SubnetRouteTableAssociation

CREATE\_COMPLETE

-

PublicSubnet2

subnet-0fd9d025f781d0383

AWS::EC2::Subnet

CREATE\_COMPLETE

-

PublicSubnet2NetworkAdAssocation

aclassoc-0cd3b5d0565073a0a

AWS::EC2::SubnetNetworkAdAssociation

CREATE\_COMPLETE

-

PublicSubnet2RouteTableAssocation

rtbassoc-0032ce654e42de780

AWS::EC2::SubnetRouteTableAssociation

CREATE\_COMPLETE

-

VPC

vpc-0bddc7fef72c540a5

AWS::EC2::VPC

CREATE\_COMPLETE

-

VPCGatewayAttachment

lab-n-VPCGa-0BZMQW7UD71D

AWS::EC2::VPCGatewayAttachment

CREATE\_COMPLETE

-

## lab-network

Stack info

Events

Resources

Outputs

Parameters

Te

Outputs (3)

Key

Value

Description

Export name

PublicSubnet1

subnet-007370e63eba2c8f1

The subnet 1 ID to use for public web servers

lab-network-SubnetID1

PublicSubnet2

subnet-0fd9d025f781d0383

The subnet 2 ID to use for public web servers

lab-network-SubnetID2

VPC

vpc-0bddc7fef72c540a5

VPC ID

lab-network-VPCID

lab-app

Stack info

Events

Resources

Outputs

Parameters

Template

Change sets

Overview

Stack ID

arn:aws:cloudformation:us-east-1:945461251612:stack/lab-app/34379140-66a4-11ed-8ddf-0a70561d9dad

Description

Application Template: Demonstrates how to reference resources from a different stack. This template provisions an EC2 instance in a VPC Subnet provisioned in a different stack.

Status

CREATE\_COMPLETE

Status reason

-

Root stack

-

Parent stack

-

Created time

2022-11-17 19:18:15 UTC+0100

Deleted time

-

Updated time

-

Last drift check time

-

Drift status

NOT\_CHECKED

IAM role

-

Termination protection

Disabled

lab-app

Stack info

Events

Resources

Outputs

Parameters

Template

Change sets

Resources (3)

Logical ID

Physical ID

Type

Status

AutoScalingGroup

lab-app-AutoScalingGroup-1TIZJNPYW6WBH

AWS::AutoScaling::AutoScalingGroup

CREATE\_COMPLETE

InstanceSecurityGroup

sg-06e33b7d58d340132

AWS::EC2::SecurityGroup

CREATE\_COMPLETE

LaunchTemplate

lt-041d8fe52e007e988

AWS::EC2::LaunchTemplate

CREATE\_COMPLETE

lab-app

Stack info

Events

Resources

Outputs

Parameters

Template

Change sets

Parameters (4)

Key

Value

Resolved value

AmazonLinuxAMIID

/aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86\_64-gp2

ami-02b972fec07f1e659

InstanceTypeParameter

t2.micro

LaunchTemplateVersionNumber

1

NetworkStackName

lab-network