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Deploy-a-high-availability-web-app-using-CloudFormation / README.md



Abhaycl Add files via upload

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247 lines (157 sloc) 8.63 KB

Deploy a high-availability web app using CloudFormation, Project Starter Code

The objective of this project is to deploy web servers for a highly available web app using CloudFormation.

How to run the program with your own code

For the execution of your own code, in the Visual Studio Code application, we open a terminal with powershell and run our CloudFormation script.

For Windows systems, we have the following scripts:

To create the stack from the project.

```
.\Create_Stack.bat UdagramApp structure_network_server.yml structure_network_server.json
```

To update the stack from the project.

```
.\Update_Stack.bat UdagramApp structure_network_server.yml structure_network_server.json
```

To delete the stack from the project.

```
.\Delete_Stack.bat UdagramApp
```

For Linux systems, we have the following scripts:

To create the stack from the project.

```
./Create_Stack.sh UdagramApp structure_network_server.yml structure_network_server.json
```

To update the stack from the project.

```
./Update_Stack.sh UdagramApp structure_network_server.yml structure_network_server.json
```

To delete the stack from the project.

```
./Delete_Stack.sh UdagramApp
```

The summary of the files and folders within repo is provided in the table below:

File/Folder	Definition
images/*	Folder containing the images of the project.
scripts/*	Folder containing the project execution scripts.
jumboxKP.pem	File containing the key pair of the jump box machine.
structure_network_server.json	File containing the project parameters.
structure_network_server.yml	Template containing all network coding, servers and their configurations.
udacity.zip	Compressed file containing the website downloaded by the development team.
UdacityMadridKP.pem	File containing the key pair of the machines in the private networks.
README.md	Contains the project documentation.
README.pdf	Contains the project documentation in PDF format.

Steps to complete the project:

Problem.

1. Your company is creating an Instagram clone called Udagram. Developers pushed the latest version of their code in a zip file located in a public S3 Bucket.
2. You have been tasked with deploying the application, along with the necessary supporting software into its matching infrastructure.
3. This needs to be done in an automated fashion so that the infrastructure can be discarded as soon as the testing team finishes their tests and gathers their results.

Rubric Points

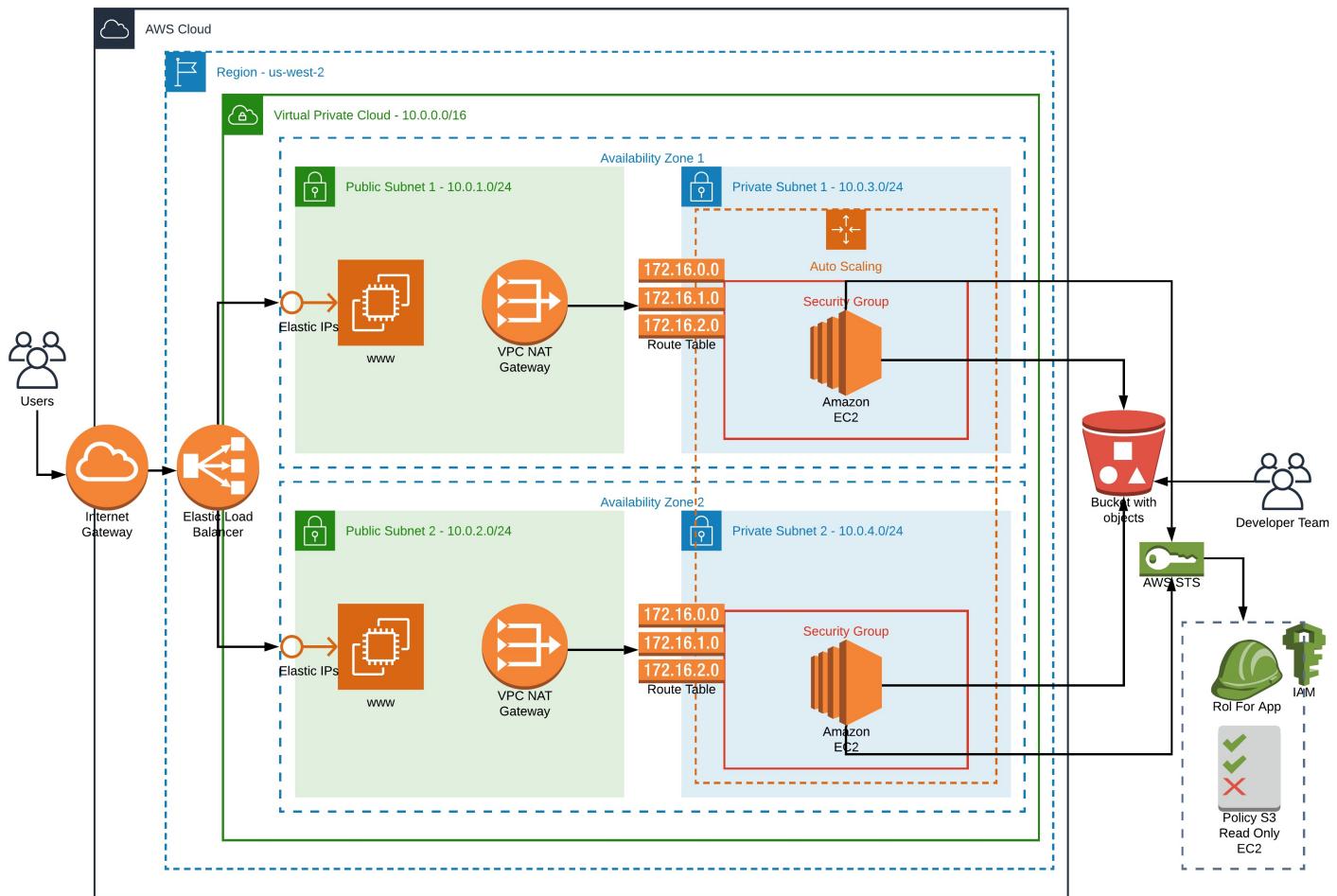
Here I will consider the rubric points individually and describe how I addressed each point in my implementation.

Scenario.

In this project, we'll deploy web servers for a highly available web app using CloudFormation. We'll write the code that creates and deploys the infrastructure and application for an Instagram-like app from the ground up. We'll begin with deploying the networking components, followed by servers, security roles and software.

AWS Diagram.

The diagram we have designed and will use for the Udagram application is as follows:



Version of software tools used for this project.

- Visual Studio Code/1.48.0
- AWS CLI/1.18.120
- Python/2.7.17
- Windows/10
- Botocore/1.17.43

Project deployment.

Create S3 Bucket.

Navigate to the "AWS Management Console" page, type "S3" in the "Find Services" box and then select "S3".

AWS Management Console

AWS services

Find Services

You can enter names, keywords or acronyms.

S3

Scalable Storage in the Cloud

The Amazon S3 dashboard displays. Click "Create bucket".

Amazon S3

Buckets (0)

Buckets are the fundamental container in Amazon S3 for data storage. For others to access the objects in your buckets, you'll need to explicitly grant them permissions. [Learn more](#)

Copy ARN

Empty

Delete

Create bucket

Name

▼

Region

Access

Bucket created

▼

No buckets

You don't have any buckets.

Create bucket

Enter a "Bucket name" and click "Next". Note: Bucket names must be globally unique.

Amazon S3 > Create bucket

Create bucket

General configuration

Bucket name

Bucket name must be unique and must not contain spaces or uppercase letters. [See rules for bucket naming](#)

Region

▼

Click "Next" again to skip over "Step 2: Configure Options".

On "Step 3: Set Permissions", uncheck "Block all public access".

Bucket settings for Block Public Access

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to this bucket and its objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

Block all public access

Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

Block public access to buckets and objects granted through new access control lists (ACLs)

S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.

Block public access to buckets and objects granted through any access control lists (ACLs)

S3 will ignore all ACLs that grant public access to buckets and objects.

Block public access to buckets and objects granted through new public bucket or access point policies

S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.

Block public and cross-account access to buckets and objects through any public bucket or access point policies

S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.



Turning off block all public access might result in this bucket and the objects within becoming public

AWS recommends that you turn on block all public access, unless public access is required for specific and verified use cases such as static website hosting.

I acknowledge that the current settings might result in this bucket and the objects within becoming public.

Click "Next" and click "Create bucket".

⌚ Successfully created bucket "udacity-website-practice2" View details X

To upload files and folders, or to configure additional bucket settings such as Bucket Versioning, tags, and default encryption, choose [View details](#).

Amazon S3

Buckets (1)				<input type="button" value="C"/>	<input type="button" value="Copy ARN"/>	<input type="button" value="Empty"/>	<input type="button" value="Delete"/>	<input type="button" value="Create bucket"/>
Buckets are the fundamental container in Amazon S3 for data storage. For others to access the objects in your buckets, you'll need to explicitly grant them permissions. Learn more								
Name	Region	Access	Creation date					
udacity-website-practice2	US West (Oregon) us-west-2	Objects can be public	2020-05-29T04:19:53.000Z					

< 1 > ⚙️

Once the bucket is created, click on the name of the bucket to open the bucket to the contents.

udacity-website-practice2

Overview Properties Permissions Management Access points

Upload + Create folder Download Actions

US West (Oregon)

This bucket is empty. Upload new objects to get started.



Upload an object

Buckets are globally unique containers for everything that you store in Amazon S3.



Set object properties

After you create a bucket, you can upload your objects (for example, your photo or video files).



Set object permissions

By default, the permissions on an object are private, but you can set up access control policies to grant permissions to others.

The developer team provides us with the code of the website in the S3 container that we have previously created, which leaves us a compressed file called `udacity.zip`, this file has been uploaded with the following command from a terminal.

```
aws s3 cp udacity.zip s3://udacity-website-practice2
```

```
PS D:\Cloud DevOps Engineer\P2> aws s3 cp udacity.zip s3://udacity-website-practice2
upload: .\udacity.zip to s3://udacity-website-practice2/udacity.zip
PS D:\Cloud DevOps Engineer\P2> 
PS D:\Cloud DevOps Engineer\P2> aws s3 ls s3://udacity-website-practice2
C:\Program Files\Amazon\AWSCLI\.\dateutil\parser\_parser.py:1189: UnicodeWarning: Unicode equal comparison failed to convert both arguments to Unicode - interpreting them as being
 unequal
2020-08-16 09:43:51      153007 udacity.zip
PS D:\Cloud DevOps Engineer\P2> 
```

And in the S3 console.

udacity-website-practice2

Overview Properties Permissions Management Access points

Type a prefix and press Enter to search. Press ESC to clear.

Upload + Create folder Download Actions

US West (Oregon)

Name	Last modified	Size	Storage class
udacity.zip	Aug 16, 2020 9:43:51 AM GMT+0200	149.4 KB	Standard

The optional part is to create the key pairs for the jump box machine to access the machines that are in the private network in case you need to access them.

Key pairs

Filter key pairs

Actions

Name	Fingerprint	ID
jumboxKP	a0:23:64:39:71:8c:24:1c:47:3b:4a:19:0...	key-0b08081e59707241e
UdacityMadridKP	07:24:fca:03:2:a2:ce:69:6d:5f:28:be:08:...	key-0618770a28a3bbd5b

Deployment script execution steps.

The following images show the status of the steps followed in the deployment of our network and server configuration script for the implementation of the website provided by the development team.

```
PS D:\Cloud DevOps Engineer\P2> .\Create_Stack.bat UdagramApp structure_network_server.yml structure_network_server.json
D:\Cloud DevOps Engineer\P2>aws cloudformation create-stack --stack-name UdagramApp --template-body file://structure_network_server.yml --parameters file://structure_network_server.json --capabilities "CAPABILITY_IAM" "CAPABILITY_NAMED_IAM" --region=us-west-2
{
  "StackId": "arn:aws:cloudformation:us-west-2:657427634491:stack/UdagramApp/bab0c450-e35a-11ea-9b7a-067bcb97a926"
}
PS D:\Cloud DevOps Engineer\P2>
```

CloudFormation > Stacks

Stacks (1)

Stack name	Stack ID	Status	Created time	Updated time	Drift status	Status
UdagramApp	arn:aws:cloudformation:us-west-2:657427634491:stack/UdagramApp/bab0c450-e35a-11ea-9b7a-067bcb97a926	CREATE_IN_PROGRESS	2020-08-21 05:02:21 UTC+0200	-	NOT_CHECKED	-

CloudFormation > Stacks > UdagramApp

UdagramApp

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

Overview

Stack ID	Description
arn:aws:cloudformation:us-west-2:657427634491:stack/UdagramApp/bab0c450-e35a-11ea-9b7a-067bcb97a926	Abhay Carande Luna / Udagram Project This template deploys a VPC, with a pair of public and private subnets spread across two Availability Zones. It deploys an Internet Gateway, with a default route on the public subnets. It deploys a pair of NAT Gateways (one in each AZ), and default routes for them in the private subnets.

Status: CREATE_COMPLETE

Root stack: -

Created time: 2020-08-21 05:02:21 UTC+0200

Updated time: -

Drift status: NOT_CHECKED

Termination protection: Disabled

CloudFormation > Stacks > UdagramApp

UdagramApp

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

Events (98)

Timestamp	Logical ID	Status	Status reason	Physical ID
2020-08-21 05:05:46 UTC+0200	UdagramApp	CREATE_COMPLETE	-	arn:aws:cloudformation:us-west-2:657427634491:stack/UdagramApp/bab0c450-e35a-11ea-9b7a-067bcb97a926
2020-08-21 05:05:43 UTC+0200	DefaultPrivateRoute2	CREATE_COMPLETE	-	Udagr-Defau-13P61DIOD8T1
2020-08-21 05:05:42 UTC+0200	WebAppGroup	CREATE_COMPLETE	-	UdagramApp-WebAppGroup-13VD93GF6QV14
2020-08-21 05:05:28 UTC+0200	DefaultPrivateRoute2	CREATE_IN_PROGRESS	Resource creation Initiated	Udagr-Defau-13P61DIOD8T1
2020-08-21 05:05:27 UTC+0200	DefaultPrivateRoute2	CREATE_IN_PROGRESS	-	-
2020-08-21 05:05:25 UTC+0200	NatGateway2	CREATE_COMPLETE	-	nat-Occ8cd01a79704622

CloudFormation > Stacks > UdagramApp

Stacks (1)

Filter by stack name

View nested

Active

UdagramApp (2020-08-21 05:02:21 UTC+0200) CREATE_COMPLETE

UdagramApp

Resources (32)

Search resources

Logical ID	Physical ID	Type	Status	Status reason
ALBListenerRule	arn:aws:elasticloadbalancing:us-west-2:657427634491:listener-rule/app/Udagr-WebAp-RLD719225CJF/a77b8c38820a677/1f809728d5e6b99/d39e942721ad34f0	AWS::ElasticLoadBalancingV2::ListenerRule	CREATE_COMPLETE	-
DefaultPrivateRoute1	Udagr-Defau-URHETKPAE5MP	AWS::EC2::Route	CREATE_COMPLETE	-
DefaultPrivateRoute2	Udagr-Defau-1SP61DIODBTI	AWS::EC2::Route	CREATE_COMPLETE	-
DefaultPublicRoute	Udagr-Defau-42R5ORG78R2M	AWS::EC2::Route	CREATE_COMPLETE	-
InternetGateway	igw-038c6ff3f6fe1a65f	AWS::EC2::InternetGateway	CREATE_COMPLETE	-
InternetGatewayAttachment	Udagr-Inter-17U2W9OK8OKWZ	AWS::EC2::VPCGatewayAttachment	CREATE_COMPLETE	-
Listener	arn:aws:elasticloadbalancing:us-west-2:657427634491:listener/app/Udagr-WebAp-RLD719225CJF	AWS::ElasticLoadBalancingV2::Listener	CREATE_COMPLETE	-

CloudFormation > Stacks > UdagramApp

Stacks (1)

Filter by stack name

View nested

Active < 1 >

UdagramApp 
2020-08-21 05:02:21 UTC+0200 
CREATE_COMPLETE

UdagramApp 
2020-08-21 05:02:21 UTC+0200 
CREATE_COMPLETE

UdagramApp 
2020-08-21 05:02:21 UTC+0200 
CREATE_COMPLETE

UdagramApp

Delete Update Stack actions Create stack

Stack info Events Resources Outputs Parameters Template Change sets

Outputs (11)

Search outputs

Key	Value	Description	Export name
PrivateSubnet1	subnet-07d3760ddc5c8932b	A reference to the private subnet in the 1st Availability Zone.	UdagramProject-PRI1-SN
PrivateSubnet2	subnet-06cb6d86aba0a0bae	A reference to the private subnet in the 2nd Availability Zone.	UdagramProject-PRI2-SN
PrivateSubnets	subnet-07d3760ddc5c8932b,subnet-06cb6d86aba0a0bae	A list of the private subnets.	UdagramProject-PRIV-NETS
PublicSubnet1	subnet-00dc38211828e6667	A reference to the public subnet in the 1st Availability Zone.	UdagramProject-PUB1-SN
PublicSubnet2	subnet-065cb086649fa2928	A reference to the public subnet in the 2nd Availability Zone.	UdagramProject-PUB2-SN
PublicSubnets	subnet-00dc38211828e6667,subnet-065cb086649fa2928	A list of the public subnets.	UdagramProject-PUB-NETS
VPC	vpc-0de454e42cc26aa6c6	A reference to the created VPC.	UdagramProject-VPCID
VPCPrivateRouteTable1	rtb-0321a8ffccb17ee14	Private Routing AZ1.	UdagramProject-PRI1-RT
VPCPrivateRouteTable2	rtb-0c4f2db86ef03fafb	Private Routing AZ2.	UdagramProject-PRI2-RT

The screenshot shows the AWS CloudFormation console with the following details:

- CloudFormation > Stacks > UdagramApp**
- Stacks (1)**: One stack named "UdagramApp" is listed.
- Filter by stack name**: A search bar to filter stacks.
- Active**: The stack status is "Active".
- View nested**: An option to view nested stacks.
- UdagramApp**: Stack details:
 - Created: 2020-08-21 05:02:21 UTC+0200
 - Status: CREATE_COMPLETE
- UdagramApp**: Stack name.
- Parameters (7)**: The current tab. The table lists the following parameters and their values:

Key	Value	Resolved value
EnvironmentName	UdagramProject	-
InstanceType	t3.medium	-
PrivateSubnet1CIDR	10.0.3.0/24	-
PrivateSubnet2CIDR	10.0.4.0/24	-
PublicSubnet1CIDR	10.0.1.0/24	-
PublicSubnet2CIDR	10.0.2.0/24	-
VpcCIDR	10.0.0.0/16	-

- Actions**: Buttons for Delete, Update, Stack actions (dropdown), and Create stack.

Stacks (1)

UdagramApp

2020-08-21 05:02:21 UTC+0200

CREATE_COMPLETE

Template

```

Description: >
  Abby Caronde Luna / Udagram Project
  This template deploys a VPC, with 2 pairs of public and private subnets spread
  across two Availability Zones. It deploys an Internet Gateway, with a default
  route on the public subnets. It deploys a pair of NAT Gateways (one in each AZ),
  and default routes for them in the private subnets.

Parameters:
  EnvironmentName:
    Description: An environment to deploy a high availability website.
    Type: String

  VpcCidr:
    Description: Please enter the IP range (CIDR notation) for this VPC.
    Type: String
    Default: 10.0.0.0/16

  PublicSubnet1Cidr:
    Description: Please enter the IP range (CIDR notation) for the Public Subnet 1.
    Type: String
    Default: 10.0.1.0/24

  PublicSubnet2Cidr:
    Description: Please enter the IP range (CIDR notation) for the Public Subnet 2.
    Type: String
    Default: 10.0.2.0/24

  PrivateSubnet1Cidr:
    Description: Please enter the IP range (CIDR notation) for the Private Subnet 1.
    Type: String
    Default: 10.0.3.0/24

```

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Create Load Balancer Actions ▾

Filter by tags and attributes or search by keyword

Name	DNS name	State	VPC ID	Availability Zones	Type	Created At	Monitoring
Udagr-WebAp-RLD719225...	Udagr-WebAp-RLD719225...	active	vpc-0de54e42cc26aa6c6	us-west-2a, us-west-2b	application	August 21, 2020 at 5:03:05 ...	

Load balancer: **Udagr-WebAp-RLD719225CJF**

Description Listeners Monitoring Integrated services Tags

Basic Configuration

Name	Udagr-WebAp-RLD719225CJF
ARN	arn:aws:elasticloadbalancing:us-west-2:657427634491:loadbalancer/app/Udagr-WebAp-RLD719225CJF/fa77b8c38820a677
DNS name	Udagr-WebAp-RLD719225CJF-758923361.us-west-2.elb.amazonaws.com (A Record)
State	active
Type	application
Scheme	internet-facing
IP address type	ipv4
VPC	vpc-0de54e42cc26aa6c6
Availability Zones	subnet-00dc38211828e6667 - us-west-2a IPV4 address: Assigned by AWS
	subnet-065cb086649fa2928 - us-west-2b IPV4 address: Assigned by AWS

Edit IP address type

Edit subnets

Create Load Balancer Actions ▾

Filter by tags and attributes or search by keyword

Name	DNS name	State	VPC ID	Availability Zones	Type	Created At	Monitoring
Udagr-WebAp-RLD719225...	Udagr-WebAp-RLD719225...	active	vpc-0de54e42cc26aa6c6	us-west-2a, us-west-2b	application	August 21, 2020 at 5:03:05 ...	

Load balancer: **Udagr-WebAp-RLD719225CJF**

Description **Listeners** Monitoring Integrated services Tags

A listener checks for connection requests using its configured protocol and port, and the load balancer uses the listener rules to route requests to targets. You can add, remove, or update listeners and listener rules.

Add listener Edit Delete

Listener ID	Security policy	SSL Certificate	Rules
HTTP : 80	N/A	N/A	Default: forwarding to Udagr-WebAp-LALCABRGY80S View/edit rules
arn...1f809728d5eeb699			

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EC2 > Target groups > Udagr-WebAp-LALCABRGY80S

Udagr-WebAp-LALCABRGY80S

[arn:aws:elasticloadbalancing:us-west-2:657427634491:targetgroup/Udagr-WebAp-LALCABRGY80S/84d912cfbcf2282d](#)

Basic configuration

Target type instance	Protocol : Port HTTP : 80	VPC vpc-0de54e42cc26aa6c6	Load balancer Udagr-WebAp-RLD719225CJF
-------------------------	------------------------------	------------------------------	---

Group details **Targets** Monitoring Tags

Registered targets (2)

Instance ID	Name	Port	Zone	Status	Status details
i-0fb1ebd0c00c81bb		80	us-west-2b	healthy	
i-00484d7d51c41a2a0		80	us-west-2a	healthy	

[C](#) [Deregister](#) [Register targets](#)

EC2 > Target groups > Udagr-WebAp-LALCABRGY80S

Udagr-WebAp-LALCABRGY80S

[arn:aws:elasticloadbalancing:us-west-2:657427634491:targetgroup/Udagr-WebAp-LALCABRGY80S/84d912cfbcf2282d](#)

Basic configuration

Target type instance	Protocol : Port HTTP : 80	VPC vpc-0de54e42cc26aa6c6	Load balancer Udagr-WebAp-RLD719225CJF
-------------------------	------------------------------	------------------------------	---

Group details Targets Monitoring Tags

Health check settings

Protocol HTTP	Unhealthy threshold 5
Path /	Timeout 8 seconds
Port traffic-port	Interval 10 seconds
Healthy threshold 2	Success codes 200

[Edit](#)

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EC2 > Launch configurations

Launch configurations (1/1) [Info](#)

[C](#) Actions [Create launch configuration](#)

<input checked="" type="checkbox"/> Name	AMI ID	Instance type	Spot price	Creation time
<input checked="" type="checkbox"/> UdagramApp-WebAppLaunchConfig-1B31MEKJEE...	ami-005bdb005f...	t3.medium	-	Fri Aug 21 2020 05:04:47 GMT+0200 (hora de verano de Europa central)

Launch configuration: UdagramApp-WebAppLaunchConfig-1B31MEKJEE8ES

Details

AMI ID ami-005bdb005f00e791	Instance type t3.medium	IAM instance profile UdagramApp-ProfileWithRolesForOurApp-1L3S2EGX2POD
Kernel ID -	Key name UdacityMadridkP	Monitoring true
EBS optimized false	Security groups sg-07a17e1de80e0d18d	Spot price -
Create time Fri Aug 21 2020 05:04:47 GMT+0200 (hora de verano de Europa central)	RAM disk ID -	IP address type Default
Metadata accessible -	Token hop limit -	Metadata version -
User data		

[Copy launch configuration](#)

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EC2 > Auto Scaling groups

Auto Scaling groups (1/1)

[Edit](#) [Delete](#) [Create an Auto Scaling group](#)

Search your Auto Scaling groups

<input checked="" type="checkbox"/>	Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availability Zones	Default co...
<input checked="" type="checkbox"/>	UdagramApp-WebAppGrp	UdagramApp-WebAppLaunchConf...	2	-	2	2	4	us-west-2a, us-wes...	300

[Details](#) [Activity](#) [Automatic scaling](#) [Instance management](#) [Monitoring](#) [Instance refresh](#)

Group details

Desired capacity	Auto Scaling group name
2	UdagramApp-WebAppGroup-13VD93GF6QV14
Minimum capacity	Date created
2	Fri Aug 21 2020 05:04:49 GMT+0200 (hora de verano de Europa central)
Maximum capacity	Amazon Resource Name (ARN)
4	arn:aws:autoscaling:us-west-2:657427634491:autoScalingGroup:044dae80-3a13-4328-95a3-ea54d44fb52:autoScalingGroupName/UdagramApp-WebAppGroup-13VD93GF6QV14

Launch configuration

Launch configuration	AMI ID	Security groups
----------------------	--------	-----------------

New VPC Experience
Tell us what you think

VPC Dashboard New

Filter by VPC:

[Select a VPC](#)

VIRTUAL PRIVATE CLOUD

Your VPCs

Subnets

Route Tables

Internet Gateways New

Egress Only Internet Gateways New

Carrier Gateways New

DHCP Options

Sets New

[Create VPC](#) [Actions](#)

Filter by tags and attributes or search by keyword									
Name	aws:cloudfc...	aws:cloudformation:stac...	aws:cloudfo...	VPC ID	State	IPv4 CIDR	IPv6 CIDR (Network Border Group)	DHCP options set	Ma...
UdagramProject	VPC	arn:aws:cloudformation:u...	UdagramApp	vpc-0de54e42cc26aa6c6	available	10.0.0/16	-	dopt-0778a1c6368d96ae4	rtb-0

VPC: vpc-0de54e42cc26aa6c6

[Description](#) [CIDR Blocks](#) [Flow Logs](#) [Tags](#)

VPC ID	vpc-0de54e42cc26aa6c6	Tenancy	default
State	available	Default VPC	No
IPv4 CIDR	10.0.0.0/16	Classic link	Disabled
IPv6 CIDR (Network Border Group)	-	IPv6 Pool	-
DNS resolution	Enabled	Network ACL	acl-0a9db4f3362accadef
DNS hostnames	Enabled	DHCP options set	dopt-0778a1c6368d96ae4
ClassicLink DNS Support	Disabled	Route table	rtb-018eeb74287fb62f6
Owner	657427634491		

New VPC Experience
Tell us what you think

VPC Dashboard New

Filter by VPC:

[Select a VPC](#)

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Your VPCs

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Elastic IPs New

Managed Prefix

Lists New

Endpoints

[Create subnet](#) [Actions](#)

Filter by tags and attributes or search by keyword									
Name	aws:cloudfor...	Subnet ID	State	VPC	IPv4 CIDR	Available IPv4	IPv6 CIDR	Availability Zone	Availability Zone
UdagramProject Public Subnet (AZ1)	PublicSubnet1	subnet-00dc38211828e6667	available	vpc-0de54e42cc26aa6c6...	10.0.1.0/24	249	-	us-west-2a	usw2-az2
UdagramProject Public Subnet (AZ2)	PublicSubnet2	subnet-065cb086649fa2928	available	vpc-0de54e42cc26aa6c6...	10.0.2.0/24	249	-	us-west-2b	usw2-az1
UdagramProject Private Subnet (AZ2)	PrivateSubn...	subnet-06cb6d86bab0a0bae	available	vpc-0de54e42cc26aa6c6...	10.0.4.0/24	250	-	us-west-2b	usw2-az1
UdagramProject Private Subnet (AZ1)	PrivateSubn...	subnet-07d3760ddc5c8932b	available	vpc-0de54e42cc26aa6c6...	10.0.3.0/24	250	-	us-west-2a	usw2-az2

Subnet: subnet-00dc38211828e6667

[Description](#) [Flow Logs](#) [Route Table](#) [Network ACL](#) [Tags](#) [Sharing](#)

Subnet ID	subnet-00dc38211828e6667	State	available
VPC	vpc-0de54e42cc26aa6c6 UdagramProject	IPv4 CIDR	10.0.1.0/24
Available IPv4 Addresses	249	IPv6 CIDR	-
Availability Zone	us-west-2a (usw2-az2)	Network Border Group	us-west-2
Route Table	rtb-01fe872afa678ab5c UdagramProject Public Route Table	Network ACL	acl-0a9db4f3362accadef
Default subnet	No	Auto-assign public IPv4	Yes
Auto-assign customer-owned IPv4 address	No	Customer-owned IPv4 pool	-
Auto-assign IPv6 address	No	Outpost ID	-
Owner	657427634491		

New VPC Experience
Tell us what you think

VPC Dashboard New

Filter by VPC:

[Select a VPC](#)

VIRTUAL PRIVATE CLOUD

Your VPCs

Subnets

Route Tables

Internet Gateways New

Egress Only Internet Gateways New

[Create route table](#) [Actions](#)

Filter by tags and attributes or search by keyword									
Name	Route Table ID	Explicit subnet association	Edge associations	Main	VPC ID	Owner			
	rtb-01fe872afa678ab5c	-	-	Yes	vpc-0de54e42cc26aa6c6 ...	657427634491			
UdagramProject Private Routes (AZ1)	rtb-0321a8fcfb17ee14	subnet-07d3760ddc5c8932b	-	No	vpc-0de54e42cc26aa6c6 ...	657427634491			
UdagramProject Private Routes (AZ2)	rtb-0c42db86ef03fafb	subnet-06cb6d86bab0a0bae	-	No	vpc-0de54e42cc26aa6c6 ...	657427634491			
UdagramProject Public Route Table	rtb-0fe872afa678ab5c	2 subnets	-	No	vpc-0de54e42cc26aa6c6 ...	657427634491			

Route Table: rtb-0fe872afa678ab5c

[Summary](#) [Routes](#) [Subnet Associations](#) [Edge Associations](#) [Route Propagation](#) [Tags](#)

Route Table ID	rtb-0fe872afa678ab5c	Main	No
Explicitly Associated with	2 subnets	VPC	vpc-0de54e42cc26aa6c6 UdagramProject
Owner	657427634491		

New VPC Experience
Tell us what you think

VPC Dashboard [New](#)

Filter by VPC:
 Select a VPC

VIRTUAL PRIVATE CLOUD

- Your VPCs
- Subnets
- Route Tables
- Internet Gateways [New](#)**
- Egress Only Internet Gateways [New](#)
- Carrier Gateways [New](#)
- DHCP Options Sets [New](#)
- Elastic IPs [New](#)
- Managed Prefix Lists [New](#)

Internet gateways (1/1) [Info](#)

Name	Internet gateway ID	State	VPC ID	Owner
UdagramProject	igw-038c6ff3f6fe1a65f	Attached	vpc-0de54e42cc26aa6c6 UdagramPr...	657427634491

igw-038c6ff3f6fe1a65f / UdagramProject

Details **Tags**

Details

Internet gateway ID igw-038c6ff3f6fe1a65f	State Attached	VPC ID vpc-0de54e42cc26aa6c6 UdagramProject	Owner 657427634491
--	--	--	---------------------------------------

NAT gateways (1/2) [Info](#)

Name	NAT gateway ID	State	State message	Elastic IP address	Private IP address	Network interface ID	VPC
-	nat-04e876b7461a2ff4c	Available	-	52.41.154.29	10.0.1.170	eni-0095f3480c1667707 ...	vpc-0de54e42cc26aa6c6 / Ud...
-	nat-0cc8cd01a79704622	Available	-	35.167.33.12	10.0.2.196	eni-0099035cf4671ce4d ...	vpc-0de54e42cc26aa6c6 / Ud...

nat-04e876b7461a2ff4c

Details **Monitoring** **Tags**

Details

NAT gateway ID nat-04e876b7461a2ff4c	State Available	State message -	Elastic IP address 52.41.154.29
Private IP address 10.0.1.170	Network interface ID eni-0095f3480c1667707	VPC vpc-0de54e42cc26aa6c6 / UdagramProject	Subnet subnet-00dc38211828e6667 / UdagramProject Public Subnet (AZ1)
Created 2020/08/21 05:03 GMT+2	Deleted -		

Elastic IP addresses (1/2) [Info](#)

Name	Allocated IPv4 add...	Type	Allocation ID	Associated instance ID	Private IP addr...	Association ID	Netw...
-	35.167.33.12	Public IP	eipalloc-02549088285492a2e	-	10.0.2.196	eipassoc-0f830f35da87672c5	6574
-	52.41.154.29	Public IP	eipalloc-0b04f74bb77f11803	-	10.0.1.170	eipassoc-06b05e81700e33c06	6574

35.167.33.12

Summary **Tags**

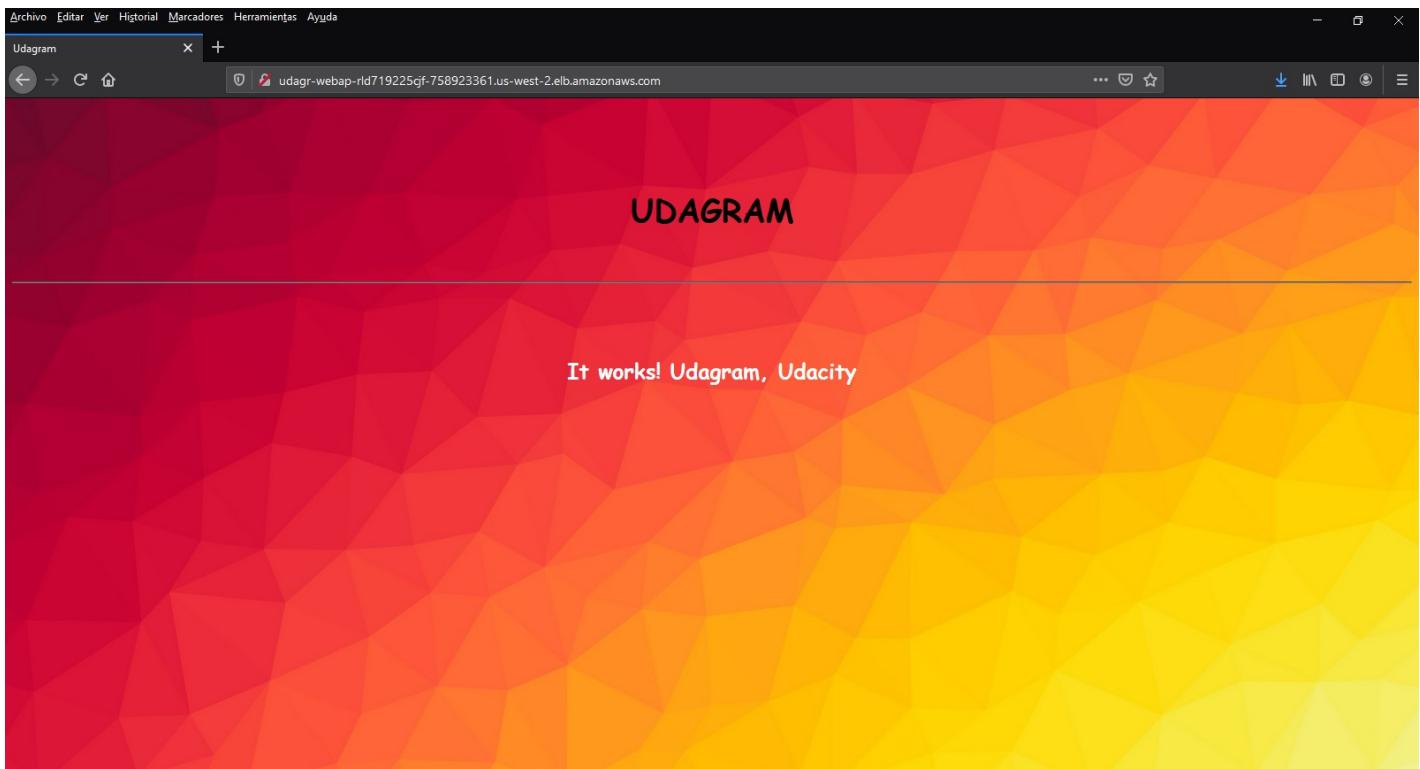
Summary

Allocated IPv4 address 35.167.33.12	Type Public IP	Allocation ID eipalloc-02549088285492a2e	Association ID eipassoc-0f830f35da87672c5
Scope VPC	Associated instance ID -	Private IP address 10.0.2.196	Network interface ID eni-0099035cf4671ce4d
Network interface owner account ID 657427634491	Public DNS ec2-35-167-33-12.us...	NAT Gateway ID nat-0cc8cd01a79704622	Address pool Amazon

```
PS D:\Cloud DevOps Engineer\P2> .\Delete_Stack.bat UdagramApp
PS D:\Cloud DevOps Engineer\P2>
```

Website.

This would be the display of our website on the route: <http://Udagr-WebAp-RLD719225CJF-758923361.us-west-2.elb.amazonaws.com>



Conclusion.

For this project we had to look in detail how each step of the configuration was done, create the jump box to check each step of the apps installations, because we found a small problem with the installation of Apache in a Ubuntu 18 machine, so we added the following lines to the code so that the Apache installation would be unattended.

```
export DEBIAN_FRONTEND=noninteractive
sudo dpkg-reconfigure debconf -f noninteractive -p critical
sudo DEBIAN_FRONTEND=noninteractive apt-get install -q -y -o Dpkg::Options::="--force-confde
```