

Udacity x ALX Cloud DevOps Nanodegree Program

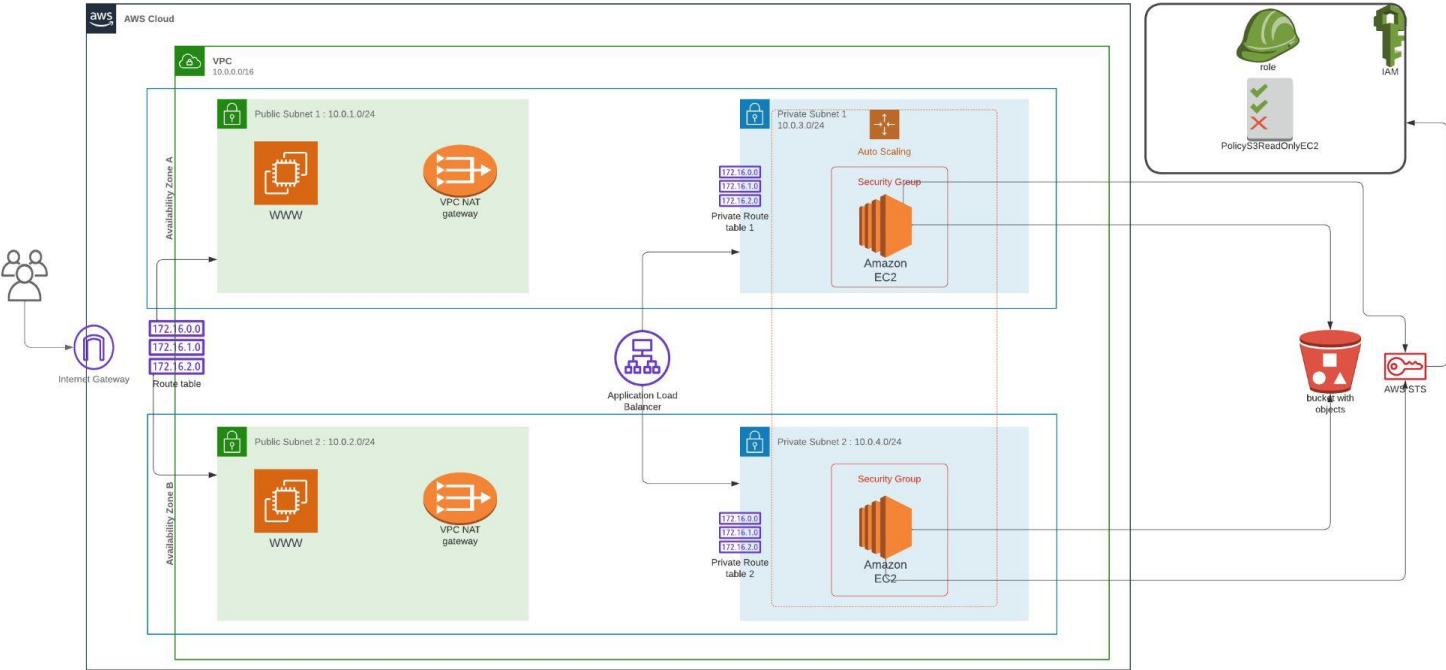
Deploy a high-availability web app using
CloudFormation

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Architecture Diagram

Udagram Architecture Diagram

Michael Bali | Deploy a High-Availability Web App Using Cloud Formation



Screenshot of VPC Creation

2022-06-18 12:34:19 UTC+0100	UdagramAp p	✔ CREAT E_COMPL ETE	-
2022-06-18 12:34:18 UTC+0100	VPC	✔ CREAT E_COMPL ETE	-
2022-06-18 12:34:06 UTC+0100	VPC	ⓘ CREAT E_IN_PRO GRESS	Resource creation Initiated
2022-06-18 12:34:02 UTC+0100	VPC	ⓘ CREAT E_IN_PRO GRESS	-
2022-06-18 12:33:57 UTC+0100	UdagramAp p	ⓘ CREAT E_IN_PRO GRESS	User Initiated

Screenshot of Public and Private Subnet Creation

The screenshot shows the AWS Management Console interface for the 'Subnets' page. The top navigation bar includes the AWS logo, 'Services' menu, a search bar, and region/account information (N. Virginia, topebali). The left sidebar shows the 'New VPC Experience' banner and navigation options: VPC dashboard, EC2 Global View, Filter by VPC (Select a VPC), Virtual private cloud, Your VPCs, Subnets (highlighted), Route tables, Internet gateways, Egress-only internet gateways, Carrier gateways, and DHCP Option Sets.

The main content area displays 'Subnets (10)' with an 'Info' link. A search bar for 'Filter subnets' is present. The subnets are listed in a table with columns: Name, Subnet ID, State, VPC, IPv4 CIDR, IPv6 CIDR, and Available IPv4 addresses. All subnets are in the 'Available' state.

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR	Available IPv4 addresses
-	subnet-0c269b63cef6dc7e9	Available	vpc-0f194ac7622d18ccb	172.31.0.0/20	-	4091
-	subnet-07d850184194f9549	Available	vpc-0f194ac7622d18ccb	172.31.16.0/20	-	4091
UdagramProject Pri...	subnet-052d5022313625eef	Available	vpc-0f7c7014e29bb9781 Ud...	10.0.3.0/24	-	251
-	subnet-00ebdd677f9180365	Available	vpc-0f194ac7622d18ccb	172.31.64.0/20	-	4091
-	subnet-0c304839095e09975	Available	vpc-0f194ac7622d18ccb	172.31.48.0/20	-	4091
UdagramProject Pu...	subnet-0d86beea140cd855b	Available	vpc-0f7c7014e29bb9781 Ud...	10.0.1.0/24	-	251
-	subnet-0820572fd6e3d1ae9	Available	vpc-0f194ac7622d18ccb	172.31.80.0/20	-	4091
UdagramProject Pu...	subnet-008b287341ce64cc6	Available	vpc-0f7c7014e29bb9781 Ud...	10.0.2.0/24	-	251
UdagramProject Pri...	subnet-0106a597b1d2c3595	Available	vpc-0f7c7014e29bb9781 Ud...	10.0.4.0/24	-	251
-	subnet-05d58b71526090f26	Available	vpc-0f194ac7622d18ccb	172.31.32.0/20	-	4091

Screenshot of Internet Gateway Creation

The screenshot shows the AWS Management Console interface for managing Internet Gateways. The top navigation bar includes the AWS logo, a search bar, and the current region (N. Virginia) and user (topeball). The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and Virtual private cloud, with 'Internet gateways' highlighted under the VPC section.

The main content area is titled 'Internet gateways (2)' and includes a search bar and a 'Create internet gateway' button. Below the search bar is a table listing the existing internet gateways.

<input type="checkbox"/>	Name	Internet gateway ID	State	VPC ID	Owner
<input type="checkbox"/>	-	igw-07cdd389bff98aa51	Attached	vpc-0f7c7014e29bb9781 UdiagramProject	841839502847
<input type="checkbox"/>	-	igw-0891f46cec3486516	Attached	vpc-0f194ac7622d18ccb	841839502847

Screenshot of Elastic IP Creation

The screenshot displays the AWS Management Console interface for Elastic IP addresses. The top navigation bar includes the AWS logo, a 'Services' menu, a search bar with the placeholder 'Search for services, features, blogs, docs, and more', and a keyboard shortcut '[Option+S]'. On the right side of the top bar, there are icons for help, notifications, and a user profile section showing 'N. Virginia' and 'topebali'.

The left-hand navigation pane is expanded to show the 'Virtual private cloud' section. It includes links for 'VPC dashboard', 'EC2 Global View' (marked as 'New'), and a 'Filter by VPC' dropdown menu set to 'Select a VPC'. Below these are links for 'Your VPCs', 'Subnets', 'Route tables', 'Internet gateways', 'Egress-only internet gateways', 'Carrier gateways', 'DHCP Option Sets', 'Elastic IPs' (which is highlighted in orange), and 'Managed prefix lists'.

The main content area is titled 'Elastic IP addresses (2)'. It features a search bar with the placeholder 'Filter Elastic IP addresses' and a table of two Elastic IP addresses. The table has columns for 'Name', 'Allocated IPv4 address', 'Type', 'Allocation ID', 'Reverse DNS record', 'Associated instance ID', and 'Private IP address'. The first row shows a public IP address '3.209.68.100' with allocation ID 'eipalloc-064b9b3119314209f'. The second row shows a public IP address '3.211.97.110' with allocation ID 'eipalloc-03200e32699d4b2c8'. To the right of the table, there are buttons for 'Actions' and 'Allocate Elastic IP address'.

<input type="checkbox"/>	Name	Allocated IPv4 address	Type	Allocation ID	Reverse DNS record	Associated instance ID	Private IP address
<input type="checkbox"/>	-	3.209.68.100	Public IP	eipalloc-064b9b3119314209f	-	-	10.0.2.210
<input type="checkbox"/>	-	3.211.97.110	Public IP	eipalloc-03200e32699d4b2c8	-	-	10.0.1.18

Screenshot of NAT GATEWAYS Creation

aws

Services

Search for services, features, blogs, docs, and more

[Option+S]

N. Virginia topeball

New VPC Experience
Tell us what you think

VPC dashboard

EC2 Global View

Filter by VPC:

Select a VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Egress-only internet gateways

Carrier gateways

DHCP Option Sets

Elastic IPs

Managed prefix lists

Endpoints

Endpoint services

NAT gateways

Peering connections

NAT gateways (2) Info

Actions

Create NAT gateway

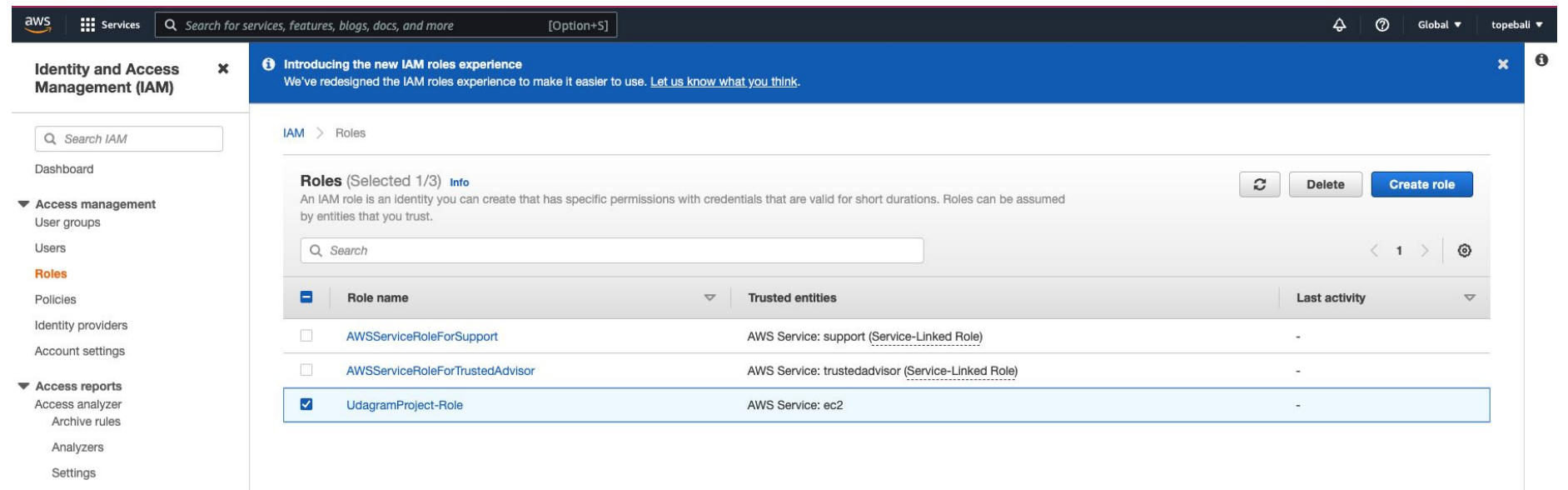
Filter NAT gateways

search: Available Clear filters

	Name	NAT gateway ID	Connectivit...	State	State message	Elastic IP address	Private IP address	Network interface ID
<input type="radio"/>	-	nat-03270e206ffc3dfdc	Public	Available	-	3.209.68.100	10.0.2.210	eni-0ad4468968ee26f97
<input type="radio"/>	-	nat-0d446dbbb7edb034	Public	Available	-	3.211.97.110	10.0.1.18	eni-094a077ce8c74362f

Select a NAT gateway

Screenshot of Udiagram Role Creation



Screenshot of Load Balancer Creation

aws

Services

Search for services, features, blogs, docs, and more

[Option+S]

Scheduled Instances

Capacity Reservations

Images

AMIs New

AMI Catalog

Elastic Block Store

Volumes New

Snapshots New

Lifecycle Manager New

Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

Load Balancing

Load Balancers

Target Groups New

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
<input checked="" type="checkbox"/>	Udagr-WebAp-20ESIR1FXIMD	Udagr-WebAp-20ESIR1FXI...	Active	vpc-0f7c7014e29bb9781	us-east-1b, us-east-1a	application	June 18, 2022 at 2:47:04 PM...	<input checked="" type="checkbox"/>

Load balancer: Udagr-WebAp-20ESIR1FXIMD

Description

Listeners

Monitoring

Integrated services

Tags

Screenshot of Launch Configuration Creation

aws

Services

Search for services, features, blogs, docs, and more

[Option+S]

N. Virginia

topebali

Scheduled Instances

Capacity Reservations

Images

AMIs New

AMI Catalog

Elastic Block Store

Volumes New

Snapshots New

Lifecycle Manager New

Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

Load Balancing

Load Balancers

Target Groups New

Auto Scaling

Launch Configurations

Auto Scaling Groups

EC2 > Launch configurations

Launch configurations (1) Info

Search launch configurations

Actions

Copy to launch template

Create launch configuration

<

1

>

<input type="checkbox"/>	Name	AMI ID	Instance type	Spot price	Creation time
<input type="checkbox"/>	UdiagramApp-W...	ami-052efd3df9d...	t3.small	-	Sat Jun 18 2022 14:42:42 GMT+0100 (West Africa Standard Time)

Select a launch configuration above

Screenshot of Autoscaling Creation

The screenshot displays the AWS Management Console interface for Auto Scaling groups. The left-hand navigation pane lists various AWS services, including Images, Elastic Block Store, Network & Security, Load Balancing, and Auto Scaling. The 'Auto Scaling' section is currently selected, showing 'Auto Scaling Groups' as the active view.

At the top of the main content area, there is a blue banner with two messages:

- A warning: "The old Auto Scaling groups console is no longer available. We will keep improving the new console based on your feedback."
- An informational message: "Auto Scale your Amazon EC2 Instances Ahead of Demand. Explore how the new predictive scaling policy of EC2 Auto Scaling helps you improve availability for your applications." with a "Learn More" button.

Below the banner, the breadcrumb navigation shows "EC2 > Auto Scaling groups". The main section is titled "Auto Scaling groups (1)" and includes an "Info" link, a refresh button, and "Edit" and "Delete" buttons. A search bar is present with the placeholder text "Search your Auto Scaling groups".




A table lists the existing Auto Scaling groups:

<input type="checkbox"/>	Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availability Zones
<input type="checkbox"/>	UdagramApp-WebAppGroup	UdagramApp-WebAppLaunchConfi...	5	-	4	4	6	us-east-1a, us-east-1b

An orange button labeled "Create an Auto Scaling group" is located to the right of the table.

Screenshot of Listener Creation

The screenshot shows the AWS Management Console interface for the 'Listeners' page of a Load Balancer. The top navigation bar includes the AWS logo, 'Services', a search bar with 'listerule', and user information for 'N. Virginia' and 'topebali'. The left sidebar lists various AWS services, with 'Load Balancing' and 'Load Balancers' highlighted. The main content area features a 'Create Load Balancer' button and an 'Actions' dropdown. Below this is a search bar and a table listing existing listeners. The table has columns for Name, DNS name, State, VPC ID, Availability Zones, Type, Created At, and Monitoring. One listener is listed: 'Udagr-WebAp-20ESIR1FXIMD' with a 'Active' state. Below the table, there is a section for creating new listeners, including a description, instructions, and buttons for 'Add listener', 'Edit', and 'Delete'. A table below this section shows the details for the selected listener, including its ID, security policy, SSL certificate, and rules.

Create Load Balancer **Actions**   

Filter by tags and attributes or search by keyword 1 to 1 of 1

<input type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	Type	Created At	Monitoring
<input checked="" type="checkbox"/>	Udagr-WebAp-20ESIR1FXIMD	Udagr-WebAp-20ESIR1FXI...	Active	vpc-0f7c7014e29bb9781	us-east-1b, us-east-1a	application	June 18, 2022 at 2:47:04 PM...	

Listeners listen for connection requests using their protocol and port. You can add, remove, or update listeners and listener rules.

To view and edit listener attributes, select the listener and choose Edit.

Add listener **Edit** **Delete**

<input type="checkbox"/>	Listener ID	Security policy	SSL Certificate	Rules
<input type="checkbox"/>	HTTP : 80 arn...4155ebe832f235a0	N/A	N/A	Default: forwarding to Udagr-WebAp-QHXGISIDETZP View/edit rules

Screenshot of Health Check Creation

aws

Services

Search for services, features, blogs, docs, and more

[Option+S]

New EC2 Experience

Tell us what you think

×

EC2 Dashboard

EC2 Global View

Events

Tags

Limits

▼ Instances

Instances

New

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

New

Dedicated Hosts

Scheduled Instances

Capacity Reservations

▼ Images

AMIs

New

AMI Catalog

▼ Elastic Block Store

Volumes

New

Snapshots

New

Udagr-WebAp-1F6UHMxJ00YUX

Actions ▼

Details

am:aws:elasticloadbalancing:us-east-1:841839502847:targetgroup/Udagr-WebAp-1F6UHMxJ00YUX/bb5432cb47a5e75a

Target type Instance	Protocol : Port HTTP: 80	Protocol version HTTP1	VPC vpc-0f7c7014e29bb9781
IP address type IPv4	Load balancer Udagr-WebAp-20ESIR1FXIMD		

Total targets

4

Healthy

🟢 4

Unhealthy

🔴 0

Unused

🟡 0

Initial

🕒 0

Draining

🕒 0

Targets

Monitoring

Health checks

Attributes

Tags

Health check settings

Edit

Protocol HTTP	Path /	Port Traffic port	Healthy threshold 2 consecutive health check successes
Unhealthy threshold 5 consecutive health check failures	Timeout 8 seconds	Interval 10 seconds	Success codes 200

Screenshot of Target Group Creation

The screenshot displays the AWS Management Console interface for creating a Target Group. The left sidebar shows the navigation menu with categories like Images, Elastic Block Store, Network & Security, Load Balancing, and Auto Scaling. The main content area is titled 'EC2 > Target groups'. It features a 'Create target group' button and a table listing existing target groups. One target group, 'Udagr-WebAp-QHXGISIDETZP', is selected and its details are shown in a modal window below. The details modal includes tabs for Details, Targets, Monitoring, Health checks, Attributes, and Tags. The 'Details' tab is active, showing the ARN, Target type (Instance), Protocol (HTTP), Port (8080), Protocol version (HTTP1), and VPC ID (vpc-0f7c7014e29bb9781).

Target groups (1/1) Info

Search or filter target groups

<input checked="" type="checkbox"/>	Name	ARN	Port	Protocol	Target type	Load balancer	VPC ID
<input checked="" type="checkbox"/>	Udagr-WebAp-QHXGISIDETZP	arn:aws:elasticloadbalancing:us-east-1:841839502847:targetgroup/Udagr-WebAp-QHXGISIDETZP/6ec03e29e813df51	8080	HTTP	Instance	Udagr-WebAp-20ESIR1FXIMD	vpc-0f7c7014e29bb9781

Target group: Udagr-WebAp-QHXGISIDETZP

Details Targets Monitoring Health checks Attributes Tags

Details

arn:aws:elasticloadbalancing:us-east-1:841839502847:targetgroup/Udagr-WebAp-QHXGISIDETZP/6ec03e29e813df51

Target type Instance	Protocol : Port HTTP: 8080	Protocol version HTTP1	VPC vpc-0f7c7014e29bb9781
IP address type IPv4	Load balancer Udagr-WebAp-20ESIR1FXIMD		

Screenshot of Output Parameter Creation

aws

Services

Search for services, features, blogs, docs, and more

[Option+S]

🔖

🔔

🔗

N. Virginia

topebali

CloudFormation

Stacks

UdagramApp

Stacks

Stack details

Drifts

StackSets

Exports

Designer

Registry

Public extensions

Activated extensions

Publisher

Feedback

Stacks (1)

Filter by stack name

Active

View nested

UdagramApp

2022-06-18 12:33:57 UTC+0100

UPDATE_COMPLETE

UdagramApp

Delete

Update

Stack actions

Create stack

Stack info

Events

Resources

Outputs

Parameters

Template

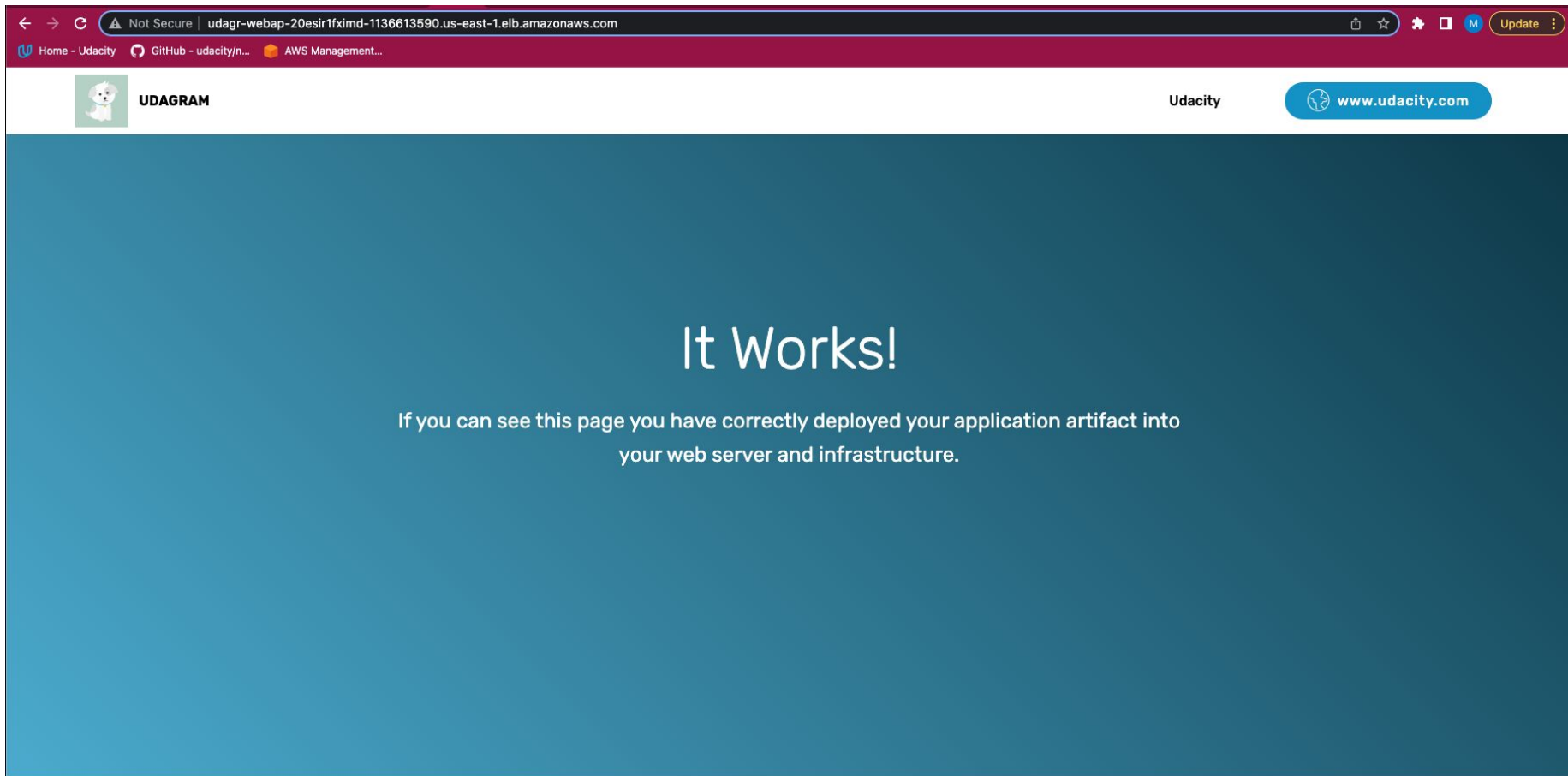
Change sets

Outputs (4)

Search outputs

Key	Value	Description	Export name
PrivateSubnets	subnet-052d5022313625eef,subnet-0106a597b1d2c3595	A list of the private subnets	UdagramProject-PRIV-NETS
PublicSubnets	subnet-0d86beea140cd855b,subnet-008b287341ce64cc6	A list of the public subnets	UdagramProject-PUB-NETS
VPC	vpc-0f7c7014e29bb9781	A reference to the created VPC	UdagramProject-VPCID
WebAppLoadBalancerDNSName	http://Udagr-WebAp-20ESIR1FXIMD-1136613590.us-east-1.elb.amazonaws.com	DNS name or Public URL of the Load Balancer	UdagramProject-LB-DNSName

Screenshot of Website



Screenshot of Stack Deletion

CloudFormation > Stacks > UdagramApp

Stacks (0)

Filter by stack name

Active

View nested

No stacks

No stacks to display

Create stack

View getting started guide

UdagramApp

Delete

Update

Stack actions

Create stack

Stack info

Events

Resources

Outputs

Parameters

Template

Change sets

Overview

Stack ID

arn:aws:cloudformation:us-east-1:841839502847:stack/UdagramApp/e5faa980-eef9-11ec-ad8a-0e5e35df2f93

Description

Author: Michael Bali / Udagram Project

Status

✔ DELETE_COMPLETE

Status reason

-

Root stack

-

Parent stack

-

Created time

2022-06-18 12:33:57 UTC+0100

Deleted time

2022-06-18 16:35:19 UTC+0100

Updated time

2022-06-18 15:55:42 UTC+0100

Drift status

⊖ NOT_CHECKED

Last drift check time

-

Termination protection

-

IAM role

-