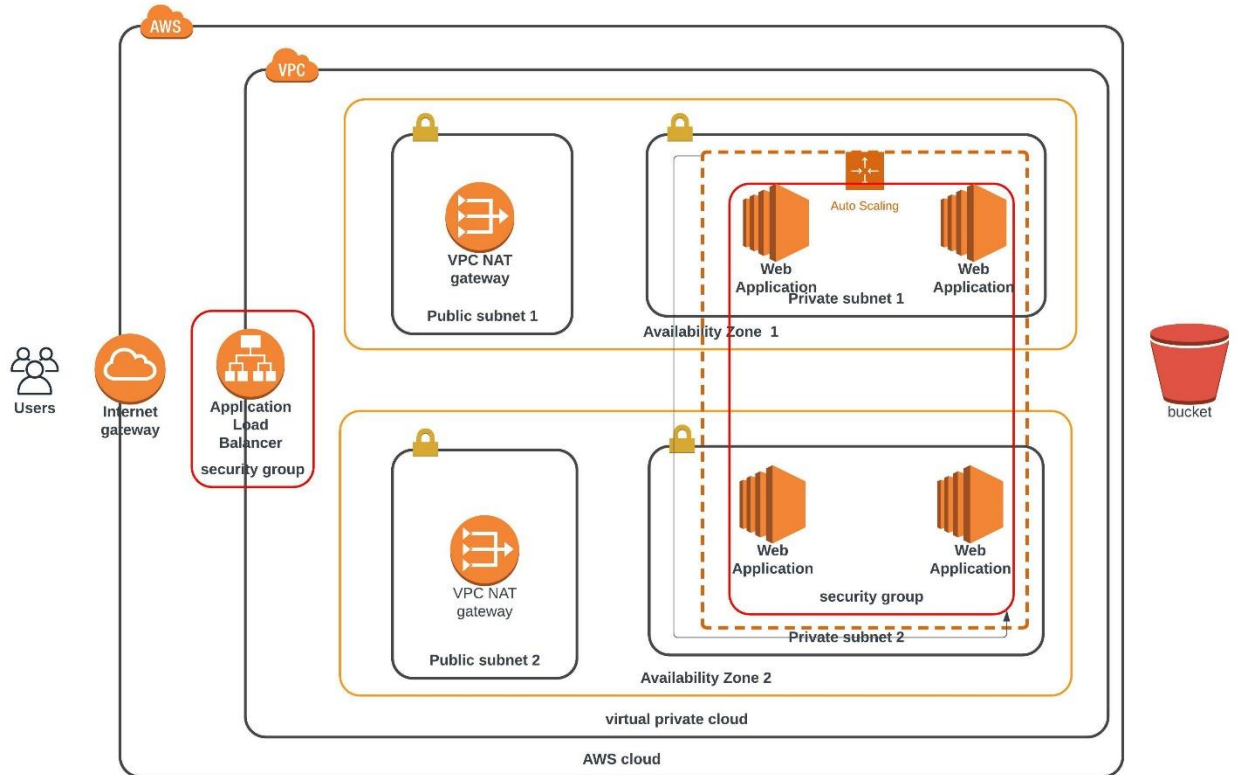


# Deploy a High-Availability Web App using CloudFormation

## 1. Diagram:



## 2. Parameters:

Project2-S3Bucket

Delete Update Stack actions Create stack

Stack info Events Resources Outputs Parameters Template

Change sets

Parameters (2)

Search parameters

Key	Value	Resolved value
EnvironmentName	UdacityProject	-
S3BucketName	project-301638121885-bucket	-

Activate Windows

**Parameters (6)**

Search parameters

Key	Value	Resolved value
EnvironmentName	UdacityProject	-
PrivateSubnet1CIDR	10.0.2.0/24	-
PrivateSubnet2CIDR	10.0.3.0/24	-
PublicSubnet1CIDR	10.0.0.0/24	-
PublicSubnet2CIDR	10.0.1.0/24	-
VpcCIDR	10.0.0.0/16	-

**Parameters (7)**

Search parameters

Key	Value	Resolved value
AMIToUse	ami-0cfa91bdbc3be780c	-
AutoScaleMax	6	-
AutoScaleMin	4	-
EBS	10	-
EnvironmentName	UdacityProject	-
InstType	t3.medium	-
KeyPair	Project2-KeyPair	-

### 3. Resources:

**Stacks (3)**

Filter by stack name

Active View nested 1

- Project2-Server  
2022-05-26 17:32:09 UTC+0200  
CREATE\_COMPLETE
- Project2-S3Bucket  
2022-05-26 16:26:46 UTC+0200  
CREATE\_COMPLETE
- Project2  
2022-05-26 15:41:24 UTC+0200  
CREATE\_COMPLETE**

**Resources (21)**

Search resources

Logical ID	Physical ID	Type	Status	Status reason	Module
DefaultPrivateRoute1	Proj-Default1RM8B5ZUIDO	AWS::EC2::Route	CREATE_COMPLETE	-	-
DefaultPrivateRoute2	Proj-Default1WAQU9NDMSI7T	AWS::EC2::Route	CREATE_COMPLETE	-	-
DefaultPublicRoute	Proj-Default-NWJ25DVL2GQV	AWS::EC2::Route	CREATE_COMPLETE	-	-
InternetGateway	lgw-0cb60de1b2bf3b876	AWS::EC2::InternetGateway	CREATE_COMPLETE	-	-
InternetGatewayAttachment	Proj-Inter-1CV2UBH3AT4QK	AWS::EC2::VPCGatewayAttachment	CREATE_COMPLETE	-	-
NatGateway1	nat-0655e062a5d068ae	AWS::EC2::NatGateway	CREATE_COMPLETE	-	-
NatGateway2	nat-0b515697712e9cd87	AWS::EC2::NatGateway	CREATE_COMPLETE	-	-
NatGateway	54.200.45.72	AWS::EC2::EIP	CREATE_COMPLETE	-	-

Stacks (3)

Filter by stack name

ActiveView nested1

Project2-Server  
2022-05-26 17:32:09 UTC+0200  
CREATE\_COMPLETE

Project2-S3Bucket  
2022-05-26 16:26:46 UTC+0200  
CREATE\_COMPLETE

Project2  
2022-05-26 15:41:24 UTC+0200  
CREATE\_COMPLETE

Resources (21)

Search resources

Logical ID	Physical ID	Type	Status	Status reason	Module
NatGateway2	nat-0b515697712ef9cd87	AWS::EC2::NatGateway	CREATE_COMPLETE	-	-
NatGatewayEIP1	elb-200.45.72	AWS::EC2::EIP	CREATE_COMPLETE	-	-
NatGatewayEIP2	elb-89.99.175	AWS::EC2::EIP	CREATE_COMPLETE	-	-
PrivateRouteTable1	rtb-0175e2d1b505cafb0	AWS::EC2::RouteTable	CREATE_COMPLETE	-	-
PrivateRouteTable2	rtb-08d6fc962fe516ea0	AWS::EC2::RouteTable	CREATE_COMPLETE	-	-
PrivateSubnet1	subnet-02c26d57665fb147f	AWS::EC2::Subnet	CREATE_COMPLETE	-	-
PrivateSubnet1RouteTableAssociation	rtbassoc-084157957e5471945	AWS::EC2::SubnetRouteTableAssociation	CREATE_COMPLETE	-	-
PrivateSubnet2	subnet-03cdf57ddc7f14ea	AWS::EC2::Subnet	CREATE_COMPLETE	-	-

Stacks (3)

Filter by stack name

ActiveView nested1

Project2-Server  
2022-05-26 17:32:09 UTC+0200  
CREATE\_COMPLETE

Project2-S3Bucket  
2022-05-26 16:26:46 UTC+0200  
CREATE\_COMPLETE

Project2  
2022-05-26 15:41:24 UTC+0200  
CREATE\_COMPLETE

Resources (21)

Search resources

Logical ID	Physical ID	Type	Status	Status reason	Module
PrivateSubnet2	subnet-03cdf57ddc7f14ea	AWS::EC2::Subnet	CREATE_COMPLETE	-	-
PrivateSubnet2RouteTableAssociation	rtbassoc-0a2194fe13743cabf	AWS::EC2::SubnetRouteTableAssociation	CREATE_COMPLETE	-	-
PublicRouteTable	rtb-026d2f5dbb2bc893d	AWS::EC2::RouteTable	CREATE_COMPLETE	-	-
PublicSubnet1	subnet-0c903c4c0276cfc6	AWS::EC2::Subnet	CREATE_COMPLETE	-	-
PublicSubnet1RouteTableAssociation	rtbassoc-09eef207519785e80	AWS::EC2::SubnetRouteTableAssociation	CREATE_COMPLETE	-	-
PublicSubnet2	subnet-07ca91261d048a154d	AWS::EC2::Subnet	CREATE_COMPLETE	-	-
PublicSubnet2RouteTableAssociation	rtbassoc-035266f4af4d73a80	AWS::EC2::SubnetRouteTableAssociation	CREATE_COMPLETE	-	-

Stacks (3)

Filter by stack name

ActiveView nested1

Project2-Server  
2022-05-26 17:32:09 UTC+0200  
CREATE\_COMPLETE

Project2-S3Bucket  
2022-05-26 16:26:46 UTC+0200  
CREATE\_COMPLETE

Project2  
2022-05-26 15:41:24 UTC+0200  
CREATE\_COMPLETE

Project2-S3Bucket

Stack infoResourcesOutputsParametersTemplateChange sets

Resources (2)

Search resources

Logical ID	Physical ID	Type	Status	Status reason	Module
S3Bucket	project-501638121885-bucket	AWS::S3::Bucket	CREATE_COMPLETE	-	-
S3ReadOnlyRole	Project2-S3Bucket-S3ReadOnlyRole-1X019GATSH62U	AWS::IAM::Role	CREATE_COMPLETE	-	-

C2 General

Stacks (3)

Filter by stack name

Active

View nested

1

Project2-Server

2022-05-26 17:32:09 UTC+0200

CREATE\_COMPLETE

Project2-S3Bucket

2022-05-26 16:26:46 UTC+0200

CREATE\_COMPLETE

Project2

2022-05-26 15:41:24 UTC+0200

CREATE\_COMPLETE

Project2-Server

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

Resources (9)

Search resources

Logical ID	Physical ID	Type	Status	Status reason	Module
ALBListenerRule	arn:aws:elasticloadbalancing:us-west-2:3301638121:885:listener-rule/app/Project2-WebApp-1CCCGCCFHH:K4G/kaa774e9b4bfc7da/1ce35687e2c97476722ae7e35da796a	AWS::ElasticLoadBalancingv2::ListenerRule	CREATE_COMPLETE	-	-
LBSecGroup	sg-01bedebc1fa8e59b	AWS::EC2::SecurityGroup	CREATE_COMPLETE	-	-
Listener	arn:aws:elasticloadbalancing:us-west-2:3301638121:885:listener/app/Project2-WebApp-1CCCGCCFHH	AWS::ElasticLoadBalancingv2::Listener	CREATE_COMPLETE	-	-

Stacks (3)

Filter by stack name

Active

View nested

1

Project2-Server

2022-05-26 17:32:09 UTC+0200

CREATE\_COMPLETE

Project2-S3Bucket

2022-05-26 16:26:46 UTC+0200

CREATE\_COMPLETE

Project2

2022-05-26 15:41:24 UTC+0200

CREATE\_COMPLETE

Resources (9)

Search resources

Logical ID	Physical ID	Type	Status	Status reason	Module
Listener	arn:aws:elasticloadbalancing:us-west-2:3301638121:885:listener/app/Project2-WebApp-1CCCGCCFHH:K4G/kaa774e9b4bfc7da/1ce35687e2c9747e	AWS::ElasticLoadBalancingv2::Listener	CREATE_COMPLETE	-	-
ProfileWithRolesForOurApp	Project2-Server-ProfileWithRolesForOurApp-MJR4w3XQcRk	AWS::IAM::InstanceProfile	CREATE_COMPLETE	-	-
WebAppGroup	Project2-Server-WebAppGroup-1JGRBFEL64YTE	AWS::AutoScaling::AutoScalingGroup	CREATE_COMPLETE	-	-
WebAppLB	arn:aws:elasticloadbalancing:us-west-2:3301638121:885:loadbalancer/app/Project2-WebApp-1CCCGCCFHH	AWS::ElasticLoadBalancingv2::LoadBalancer	CREATE_COMPLETE	-	-

Stacks (3)

Filter by stack name

Active

View nested

1

Project2-Server

2022-05-26 17:32:09 UTC+0200

CREATE\_COMPLETE

Project2-S3Bucket

2022-05-26 16:26:46 UTC+0200

CREATE\_COMPLETE

Project2

2022-05-26 15:41:24 UTC+0200

CREATE\_COMPLETE

Resources (9)

Search resources

Logical ID	Physical ID	Type	Status	Status reason	Module
WebAppLB	arn:aws:elasticloadbalancing:us-west-2:3301638121:885:loadbalancer/app/Project2-WebApp-1CCCGCCFHH:K4G/kaa774e9b4bfc7da	AWS::ElasticLoadBalancingv2::LoadBalancer	CREATE_COMPLETE	-	-
WebAppLaunchConfig	Project2-Server-WebAppLaunchConfig-1K0ZKXV9QIM7u	AWS::AutoScaling::LaunchConfiguration	CREATE_COMPLETE	-	-
WebAppTargetGroup	arn:aws:elasticloadbalancing:us-west-2:3301638121:885:targetgroup/Project2-WebApp-1EUBUC3U17WE1/6c80b9804e135a60	AWS::ElasticLoadBalancingv2::TargetGroup	CREATE_COMPLETE	-	-
WebServerSecurityGroup	sg-0c3277ab7ceb7914a	AWS::EC2::SecurityGroup	CREATE_COMPLETE	-	-

## 4. Outputs:

Stacks (3)

Filter by stack name

Active View nested < 1 >

Project2-Server  
2022-05-26 17:32:09 UTC+0200  
CREATE\_COMPLETE

Project2-S3Bucket  
2022-05-26 16:26:46 UTC+0200  
CREATE\_COMPLETE

Project2  
2022-05-26 15:41:24 UTC+0200  
CREATE\_COMPLETE

Project2

Delete Update Stack actions Create stack

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

Outputs (10)

Search outputs

Key	Value	Description	Export name
PrivateSubnet1	subnet-02c26d57663fb147f	A reference to the private subnet in the 1st Availability Zone	UdacityProject-PRI1-SN
PrivateSubnet2	subnet-035df57ddc7f14ea	A reference to the private subnet in the 2nd Availability Zone	UdacityProject-PRI2-SN
PrivateSubnets	subnet-02c26d57663fb147,subnet-035df57ddc7f14ea	A list of the private subnets	UdacityProject-PRIV-NETS
PublicSubnet1	subnet-0c603cc40276cfcb	A reference to the public subnet in the 1st Availability Zone	UdacityProject-PUB1-SN
PublicSubnet2	subnet-07ca9126b048a154b	A reference to the public subnet in the 2nd Availability Zone	UdacityProject-PUB2-SN
PublicSubnets	subnet-0c603cc40276cfcb,subnet-07ca9126b048a154b	A list of the public subnets	UdacityProject-PUB-NETS
VPC	vpc-0c9c734baab136617	A reference to the created VPC	UdacityProject-VPCID
VPCPrivateRouteTable1	rtb-0175e241b505cafb0	Private Routing AZ1	UdacityProject-PRI1-RT
VPCPrivateRouteTable2	rtb-08d6fc962fe516ea0	Private Routing AZ2	UdacityProject-PRI2-RT
VPCPublicRouteTable	rtb-026d2f3dbb2bcb893d	Public Routing	UdacityProject-PUB-RT

Stacks (3)

Filter by stack name

Active View nested < 1 >

Project2-Server  
2022-05-26 17:32:09 UTC+0200  
CREATE\_COMPLETE

Project2-S3Bucket  
2022-05-26 16:26:46 UTC+0200  
CREATE\_COMPLETE

Project2  
2022-05-26 15:41:24 UTC+0200  
CREATE\_COMPLETE

Project2-S3Bucket

Delete Update Stack actions Create stack

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

Outputs (2)

Search outputs

Key	Value	Description	Export name
BucketName	project-301638121885-bucket	S3 Bucket Name	UdacityProject-BucketName
S3Role	Project2-S3Bucket-S3ReadOnlyRole-1X010GAT5N62U	S3 Bucket Read Only Role	UdacityProject-S3ReadOnlyRole

Stacks (3)

Filter by stack name

Active View nested < 1 >

Project2-Server  
2022-05-26 17:32:09 UTC+0200  
CREATE\_COMPLETE

Project2-S3Bucket  
2022-05-26 16:26:46 UTC+0200  
CREATE\_COMPLETE

Project2  
2022-05-26 15:41:24 UTC+0200  
CREATE\_COMPLETE

Project2-Server

Delete Update Stack actions Create stack

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

Outputs (1)

Search outputs

Key	Value	Description	Export name
AppLB	http://Proje-WebAp-1CCGCGCFHHK4G-1424818985.us-west-2.elb.amazonaws.com	A reference to Load Balancer URL	UdacityProject-Load-Balancer-URL

## 5. Load Balancer:

The screenshot displays the AWS Management Console interface for a Load Balancer. The top navigation bar includes a 'Create Load Balancer' button and an 'Actions' dropdown. Below this is a search bar and a table listing the load balancer. The table has columns for Name, DNS name, State, VPC ID, Availability Zones, and Type. The load balancer 'Proje-WebAp-1CCCGCCFHHK4G' is shown as 'Active' in the 'us-west-2b, us-west-2a' zones.

The 'Load balancer: Proje-WebAp-1CCCGCCFHHK4G' section is visible, with tabs for Description, Listeners, Monitoring, Integrated services, and Tags. The 'Description' tab is selected, showing the 'Basic Configuration' section. This section displays the following details:

- Name:** Proje-WebAp-1CCCGCCFHHK4G
- ARN:** arn:aws:elasticloadbalancing:us-west-2:301638121885:loadbalancer/app/Proje-WebAp-1CCCGCCFHHK4G/caa774e9b4bfc7da
- DNS name:** Proje-WebAp-1CCCGCCFHHK4G-1424818985.us-west-2.elb.amazonaws.com (A Record)
- State:** Active
- Type:** application

The 'Listeners' tab is also visible, showing a table of listeners. The table has columns for Listener ID, Security policy, SSL Certificate, and Rules. A single listener is listed with the ID 'arn...1ce33687e2c9747e' and the protocol 'HTTP : 80'. The rules section indicates 'Default: forwarding to Proje-WebAp-1EIU8C3U17WE1'.

At the bottom of the console, there is an 'Activate Windows' watermark that reads 'Go to Settings to activate Windows.'

<http://proje-webap-1cccgccfhhk4g-1424818985.us-west-2.elb.amazonaws.com/>

- **Health Check:**

EC2 > Target groups > Proje-WebAp-1EIU8C3U17WE1

## Proje-WebAp-1EIU8C3U17WE1

arn:aws:elasticloadbalancing:us-west-2:301638121885:targetgroup/Proje-WebAp-1EIU8C3U17WE1/6c80b9804e135a60

Actions ▼

**Details**

Target type Instance	Protocol : Port HTTP: 80	Protocol version HTTP1	VPC <a href="#">vpc-0c9c734baab136617</a>
IP address type IPv4	Load balancer <a href="#">Proje-WebAp-1CCCGCFHHK4G</a>		

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
4	🟢 4	🔴 0	⊖ 0	⌚ 0	⊖ 0

**Targets** | Monitoring | Health checks | Attributes | Tags

Registered targets (4)

Filter resources by property or value

< 1 > ⚙️

<input type="checkbox"/>	Instance ID	Name	Port	Zone	Health status	Health status details
<input type="checkbox"/>	i-0537a8d13e9f72aa5		80	us-west-2b	🟢 healthy	
<input type="checkbox"/>	i-0a94adabf86057ca2		80	us-west-2a	🟢 healthy	
<input type="checkbox"/>	i-07f42399e3c631ad4		80	us-west-2a	🟢 healthy	
<input type="checkbox"/>	i-093d8f4516da6b060		80	us-west-2b	🟢 healthy	

**Security Groups (1/5)** Info

Filter security groups

< 1 > ⚙️

<input type="checkbox"/>	Name	Security group ID	Security group name	VPC ID	Description	Owner	Inbound rule
<input checked="" type="checkbox"/>	--	sg-01bedebc1f0a8e59b	Project2-Server-LB5ec...	vpc-0c9c734baab136617	Allow http to our load ...	301638121885	1 Permission
<input type="checkbox"/>	--	sg-0412ba78c62b0df35	default	vpc-0c9c734baab136617	default VPC security gr...	301638121885	1 Permission

sg-01bedebc1f0a8e59b - Project2-Server-LB5ecGroup-K748OC8QR2RW

Details | **Inbound rules** | Outbound rules | Tags

📘 You can now check network connectivity with Reachability Analyzer Run Reachability Analyzer ✕

Inbound rules (1/1)

Filter security group rules

< 1 > ⚙️

<input checked="" type="checkbox"/>	Name	Security group rule...	IP version	Type	Protocol	Port range	Source
<input checked="" type="checkbox"/>	--	sgr-063e5a1caccfb793	IPv4	HTTP	TCP	80	0.0.0.0/0

Security Groups (1/5) Info

Filter security groups

< 1 >

Name

Security group ID

Security group name

VPC ID

Description

Owner

Inbound rule

-

sg-01bedebc1f0a8e59b

Project2-Server-LBSec...

vpc-0c9c734baab136617

Allow http to our load ...

301638121885

1 Permission

-

sg-0412ba78c62b0df35

default

vpc-0c9c734baab136617

default VPC security gr...

301638121885

1 Permission

Details

Inbound rules

Outbound rules

Tags

You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer

Details

Security group name

Project2-Server-LBSecGroup-K748OC8QR2RW

Security group ID

sg-01bedebc1f0a8e59b

Description

Allow http to our load balancer

VPC ID

vpc-0c9c734baab136617

Owner

301638121885

Inbound rules count

1 Permission entry

Outbound rules count

1 Permission entry

Activate Windows  
Go to Settings to activate Windows.

Security Groups (1/5) Info

Filter security groups

< 1 >

Name

Security group ID

Security group name

VPC ID

Description

Owner

Inbound rule

-

sg-01bedebc1f0a8e59b

Project2-Server-LBSec...

vpc-0c9c734baab136617

Allow http to our load ...

301638121885

1 Permission

-

sg-0412ba78c62b0df35

default

vpc-0c9c734baab136617

default VPC security gr...

301638121885

1 Permission

Details

Inbound rules

Outbound rules

Tags

You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer

Outbound rules (1/1)

Filter security group rules

< 1 >

Name

Security group rule...

IP version

Type

Protocol

Port range

Destination

-

sg-0dc977f57e700c47e

IPv4

HTTP

TCP

80

0.0.0.0/0

C2 General



## 6. Launch Configurations & Autoscaling:

EC2 > Launch configurations

Launch configurations (1/1) Info

Search launch configurations

1

Actions

Copy to launch template

Create launch configuration

<input checked="" type="checkbox"/>	Name	AMI ID	Instance type	Spot price	Creation time
<input checked="" type="checkbox"/>	Project2-Server...	ami-0cfa91bdbc3...	t3.medium	-	Thu May 26 2022 17:34:22 GMT+020...

User data

View user data

Storage (volumes)

Search block devices

1

Block device	Size (GiB)	Type	IOPS	Throughput	Delete on termination	Encrypted
/dev/sdk	10	-	-	-	-	-

EC2 > Launch configurations

Launch configurations (1/1) Info

Search launch configurations

1

Actions

Copy to launch template

Create launch configuration

<input checked="" type="checkbox"/>	Name	AMI ID	Instance type	Spot price	Creation time
<input checked="" type="checkbox"/>	Project2-Server...	ami-0cfa91bdbc3...	t3.medium	-	Thu May 26 2022 17:34:22 GMT+0200 (Eastern European Standard Ti...

Details

Copy launch configuration

AMI ID ami-0cfa91bdbc3be780c	Instance type t3.medium	IAM instance profile Project2-Server-ProfileWithRolesForOurApp-MJRAw3XkQcFK
Kernel ID -	Key name Project2-KeyPair	Monitoring true
EBS optimized false	Security groups sg-0c9277ab7ceb7914a	Spot price -
Create time Thu May 26 2022 17:34:22 GMT+0200 (Eastern European Standard Time)	RAM disk ID -	IP address type Default
Metadata accessible -	Token hop limit -	Metadata version -

Activate Windows

Go to Settings to activate Windi

Details

Activity

Automatic scaling

Instance management

Monitoring

Instance refresh

Group details

Edit

Desired capacity 4	Auto Scaling group name Project2-Server-WebAppGroup-1JGR8FEL64YTC
Minimum capacity 4	Date created Thu May 26 2022 17:34:27 GMT+0200 (Eastern European Standard Time)
Maximum capacity 6	Amazon Resource Name (ARN) arn:aws:autoscaling:us-west-2:301638121885:autoScalingGroup:6ec15dc5-2559-44da-97c3-21bd5eb16c7a:autoScalingGroupName/Project2-Server-WebAppGroup-1JGR8FEL64YTC

<b>Network</b> <span>Edit</span>			
Availability Zones us-west-2a, us-west-2b		Subnet ID subnet-033cdf57ddc7f14ea, subnet-02c26d57663fb147f	
<b>Load balancing</b> <span>Edit</span>			
Load balancer target groups <a href="#">Proje-WebAp-TEIU8C3U17WE1</a>		Classic Load Balancers -	
<b>Health checks</b> <span>Edit</span>			
Health check type EC2		Health check grace period 0	
<b>Advanced configurations</b> <span>Edit</span>			
Instance scale-in protection Not protected from scale in	Termination policies Default	Maximum instance lifetime -	Default instance warmup Disabled
Placement group -	Suspended processes -	Default cooldown 300	<p>Activate Windows</p> <p>Go to Settings to activate Windows</p>

## 7. Working Test:

← → ↻ ⚠ Not secure | proje-webap-1cccgcchhk4g-1424818985.us-west-2.elb.amazonaws.com 🔗 ☆ 📱 E ⋮

it works! Udiagram, Udacity

<http://proje-webap-1cccgcchhk4g-1424818985.us-west-2.elb.amazonaws.com/>