

ASSIGNMENT-2

EC2- Classic Load Balancer

- Create 2 Ec2 windows free tier instances.
- Configure IIS server on both. Be sure you are configuring them on two different availability zones for achieving high availability.
- Configuring a classic load balancer between those two instances with HTTP service port.

Note: You can use one node same from Assignment 1 of IIS server.

Load Balancing-

Load Balancing distributes incoming application or network traffic across multiple targets, such as Amazon EC2 instances, containers, and IP addresses, in multiple Availability Zones. Elastic Load Balancing scales your load balancer as traffic to your application changes over time. It can automatically scale to the vast majority of workloads.

Load Balancer Benefits-

A load balancer distributes workloads across multiple compute resources, such as virtual servers. Using a load balancer increases the availability and fault tolerance of your applications.

You can add and remove compute resources from your load balancer as your needs change, without disrupting the overall flow of requests to your applications.

You can configure health checks, which monitor the health of the compute resources, so that the load balancer sends requests only to the healthy ones. You can also offload the work of encryption and decryption to your load balancer so that your compute resources can focus on their main work.

Elastic Load Balancing supports three types of load balancers: Application Load Balancers, Network Load Balancers, and Classic Load Balancers. Here we'll discuss Classic Load Balancers.

Classic Load Balancer-

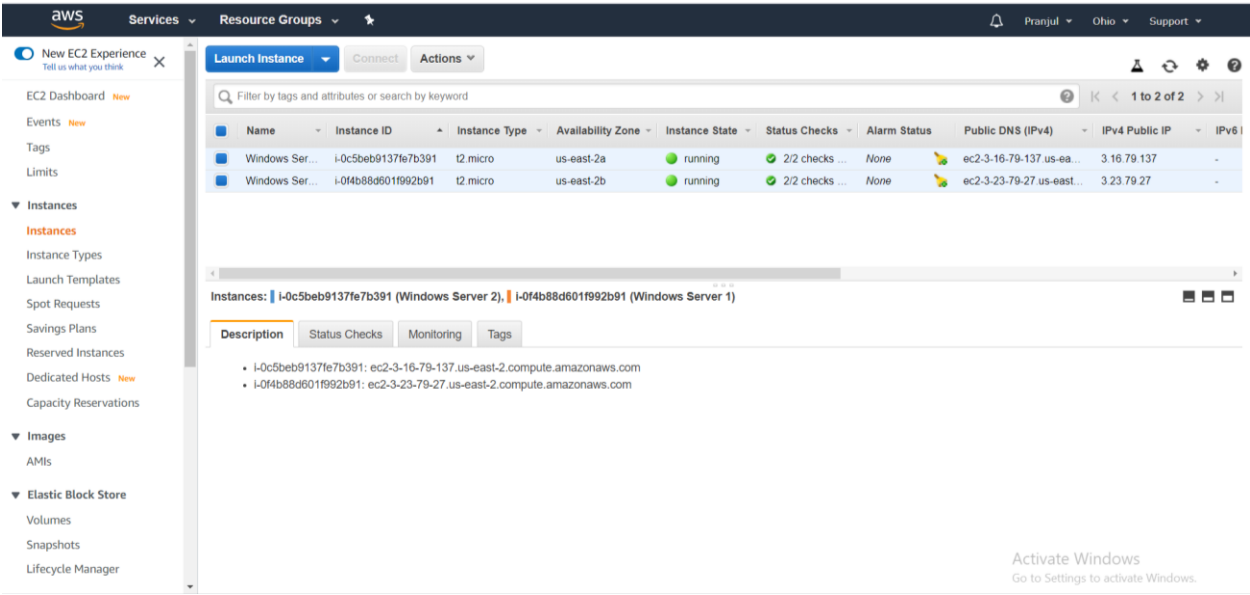
A load balancer distributes incoming application traffic across multiple EC2 instances in multiple Availability Zones. This increases the fault tolerance of your applications. Elastic Load Balancing detects unhealthy instances and routes traffic only to healthy instances.

Your load balancer serves as a single point of contact for clients. This increases the availability of your application. You can add and remove instances from your load balancer as your needs change, without disrupting the overall flow of requests to your application. Elastic Load Balancing scales your load balancer as traffic to your application changes over time. Elastic Load Balancing can scale to the vast majority of workloads automatically.

You can configure *health checks*, which are used to monitor the health of the registered instances so that the load balancer only sends requests to the healthy instances.

Steps:

- 1- Create two EC2 windows free tier instances. i.e. Windows Server 1 and Windows Server 2
- 2- Configure on two different availability zones. i.e. us-east-2a and us-east-2b



aws Services Resource Groups

New EC2 Experience

EC2 Dashboard

Events

Tags

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Instance Types

Launch Templates

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Dedicated Hosts

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AMIs

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Volumes

Snapshots

Lifecycle Manager

Launch Instance

Connect

Actions

Filter by tags and attributes or search by keyword

Name Instance ID

Windows Ser... i-0c5beb9137fe7b391

Windows Ser... i-0f4b88d601f992b91

Instances: i-0c5beb9137fe7b391 (Win

Description Status Checks M

Alarm Status Public DNS (IPv4) IPv4 Public IP IPv6

None ec2-3-16-79-137 us-east-1 3.16.79.137 -

None ec2-3-23-79-27 us-east-1 3.23.79.27 -

Putty Key Generator

File Key Conversions Help

Key

No key.

Actions

Generate a public/private key pair

Load an existing private key file

Save the generated key

Generate

Load

Save public key

Save private key

Parameters

Type of key to generate:

☒ RSA ☐ DSA ☐ ECDSA ☐ Ed25519 ☐ SSH-1 (RSA)

Number of bits in a generated key: 2048

Activate Windows

Go to Settings to activate Windows.

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None ec2-3-23-79-27 us-east-1 3.23.79.27 -

Putty Key Generator

File Key Conversions Help

Key

Public key for pasting into OpenSSH authorized_keys file:

ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCPp3YbA5o759oX0m4XWwHwSPW3tLz2GkmRG8NS06YmglAgwsZn3gZDJk10400WcJUE0Vz771WyB0uB5nLEssSIE3e3a7m2MJkoEszntW20Hop+g8EKAkytz4OW+eglFznnWABIDUFzEnNMmplyMQOMlS9Mq1ZsASDmBLR63Qm5ydl4m

Key fingerprint: ssh-rsa 2048 d5fc:71e5:dc:84:cb:41:85:6e:4b:60:eb:41:a8

Key comment: imported-openssh-key

Key passphrase:

Confirm passphrase:

Actions

Generate a public/private key pair

Load an existing private key file

Save the generated key

Generate

Load

Save public key

Save private key

Parameters

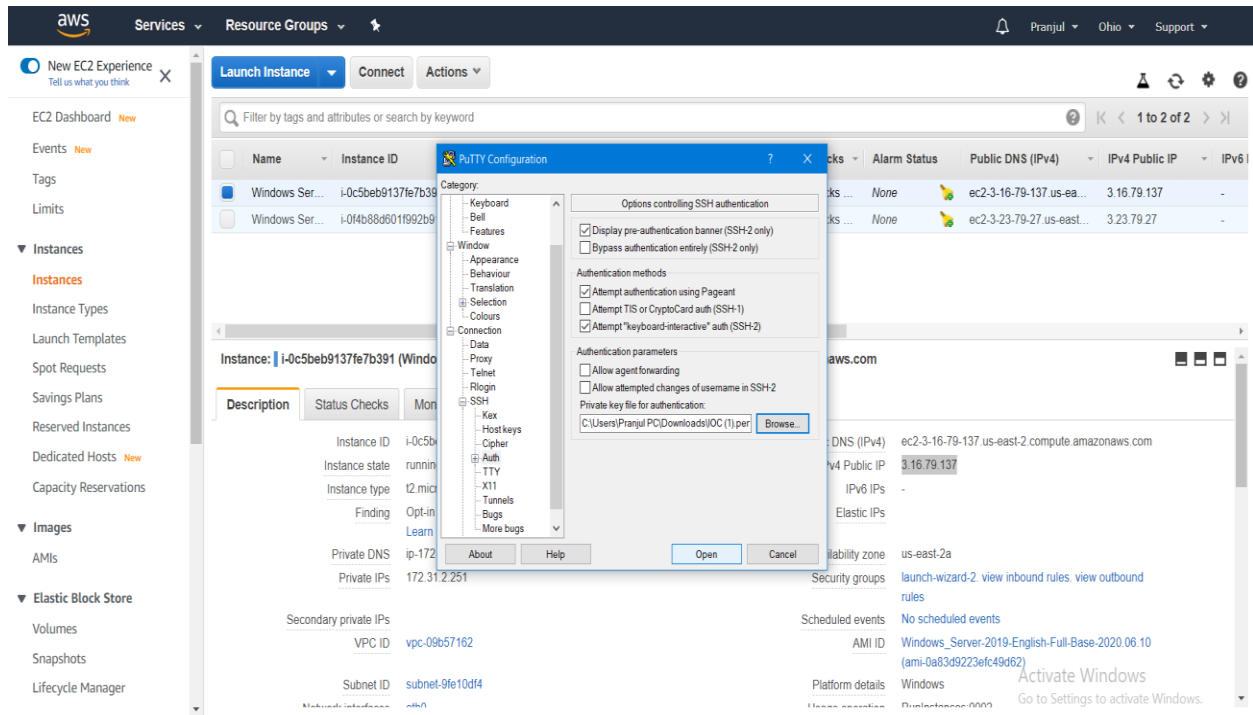
Type of key to generate:

☒ RSA ☐ DSA ☐ ECDSA ☐ Ed25519 ☐ SSH-1 (RSA)

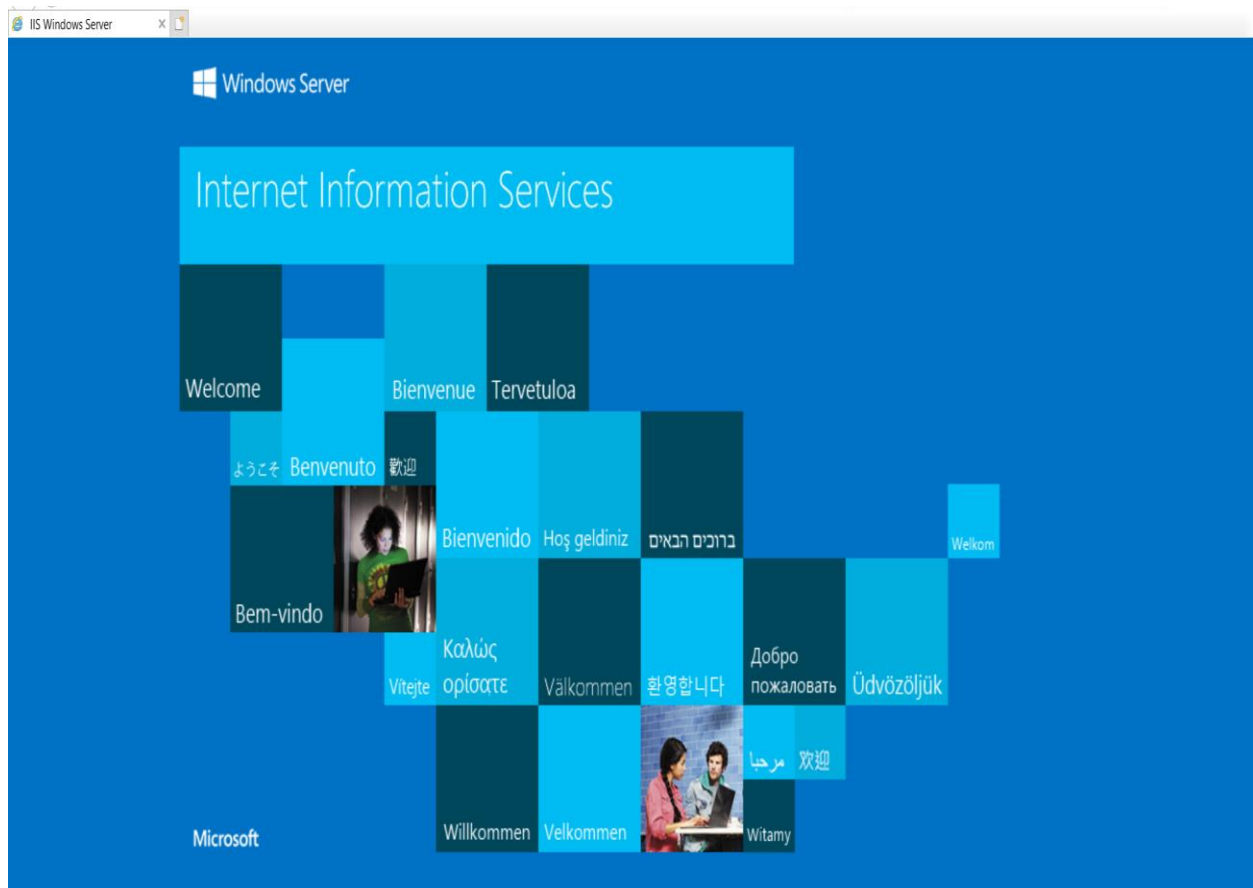
Number of bits in a generated key: 2048

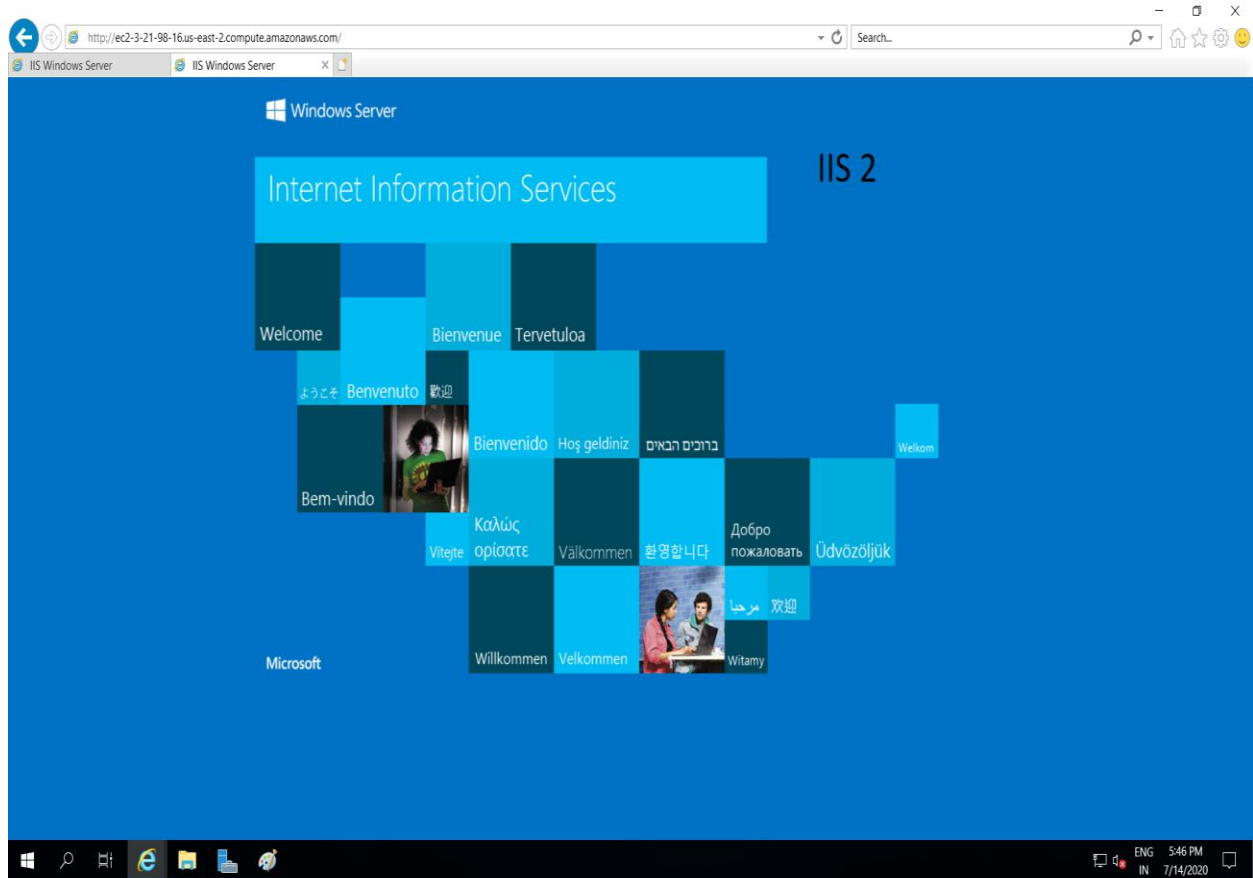
Activate Windows

Go to Settings to activate Windows.

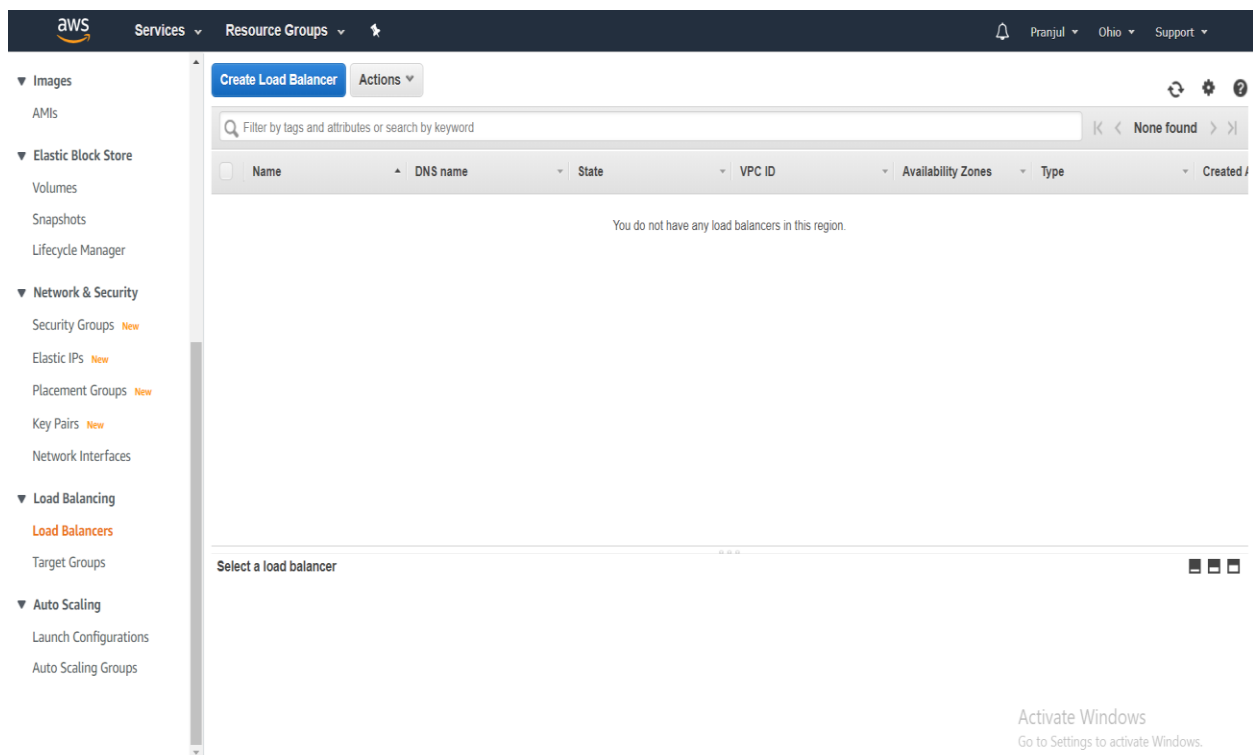


Two Windows Server (IIS) are launched.

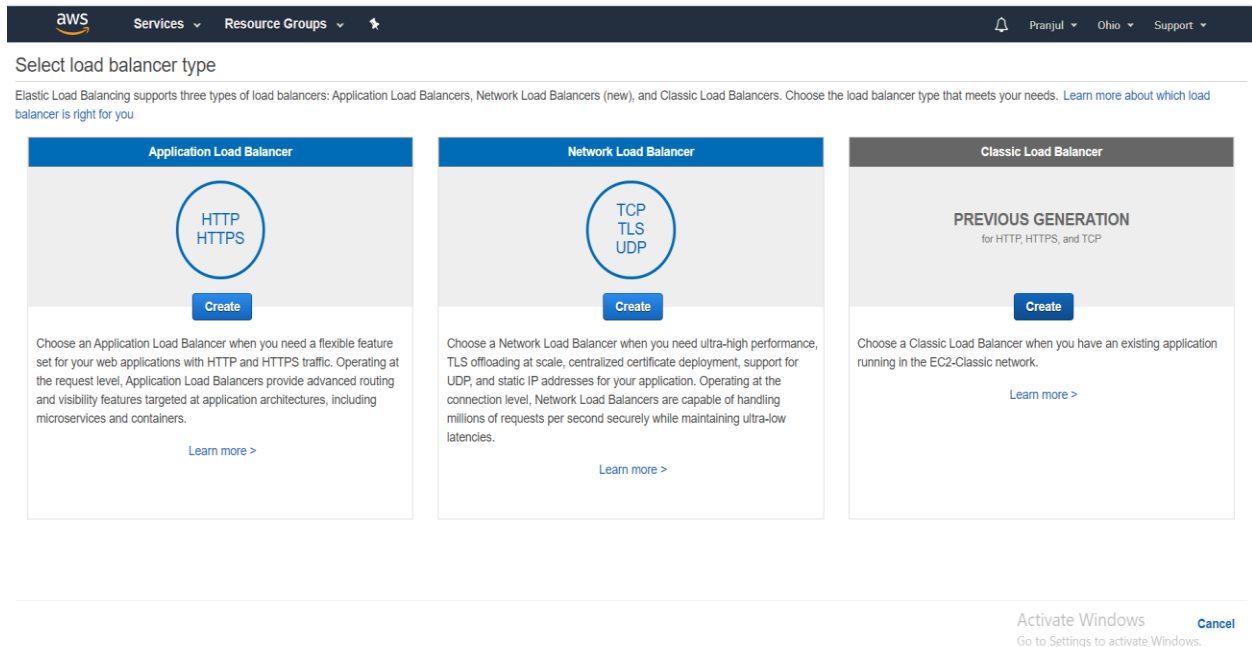




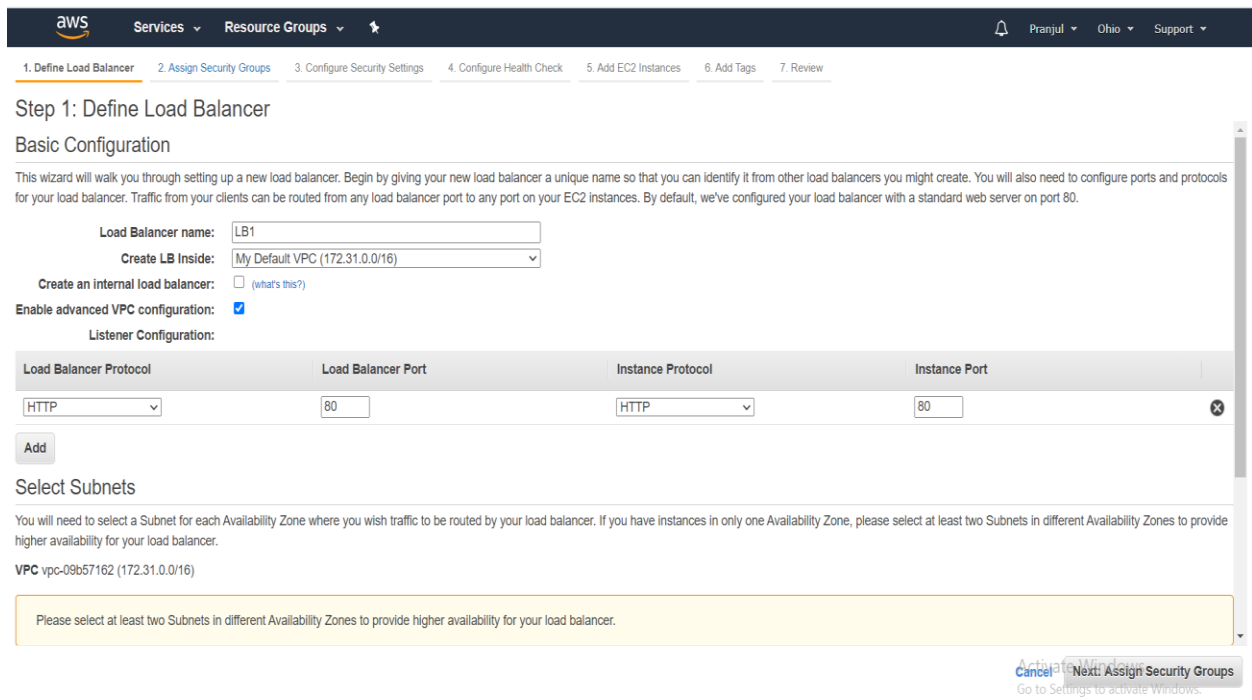
3- Create Load Balancer



4- Select load balancer type. Configure HTTP service port.



5- Define Load Balancer. Load Balancer Name: LB1 Enable advanced VPC configuration



6- Choose subnets.

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1. Define Load Balancer

2. Assign Security Groups

3. Configure Security Settings

4. Configure Health Check

5. Add EC2 Instances

6. Add Tags

7. Review

Step 1: Define Load Balancer

Enable advanced VPC configuration: ☒

Listener Configuration:

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port
HTTP	80	HTTP	80

Add

Select Subnets

You will need to select a Subnet for each Availability Zone where you wish traffic to be routed by your load balancer. If you have instances in only one Availability Zone, please select at least two Subnets in different Availability Zones to provide higher availability for your load balancer.

VPC vpc-09b57162 (172.31.0.0/16)

Available subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
	us-east-2c	subnet-720c8e3e	172.31.32.0/20	

Selected subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
	us-east-2a	subnet-9fe10df4	172.31.0.0/20	
	us-east-2b	subnet-c4772dbe	172.31.16.0/20	

Cancel

Next: Assign Security Groups

Go to Settings to activate Windows.

7- Assign Security Groups.

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Step 2: Assign Security Groups

You have selected the option of having your Elastic Load Balancer inside of a VPC, which allows you to assign security groups to your load balancer. Please select the security groups to assign to this load balancer. This can be changed at any time.

Assign a security group: ☐ Create a new security group

☒ Select an existing security group

Filter VPC security groups

Security Group ID	Name	Description	Actions
<input type="checkbox"/> sg-a2941bc6	default	default VPC security group	Copy to new
<input type="checkbox"/> sg-06482a6652bdf3c72	launch-wizard-1	launch-wizard-1 created 2020-07-13T10:34:08.088+05:30	Copy to new
<input checked="" type="checkbox"/> sg-0d8071051e2d8572d	launch-wizard-2	launch-wizard-2 created 2020-07-14T22:15:52.277+05:30	Copy to new
<input checked="" type="checkbox"/> sg-08d6cd0087678ce79	launch-wizard-3	launch-wizard-3 created 2020-07-14T22:50:05.330+05:30	Copy to new

Cancel

Previous

Next: Configure Security Settings

Go to Settings to activate Windows.

8- Configure Security Settings.

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Step 3: Configure Security Settings

Improve your load balancer's security. Your load balancer is not using any secure listener.

If your traffic to the load balancer needs to be secure, use either the HTTPS or the SSL protocol for your front-end connection. You can go back to the first step to add/configure secure listeners under [Basic Configuration](#) section. You can also continue with current settings.

Cancel

Previous

Next: Configure Health Check

Go to Settings to activate Windows.

9- Configure Health check.

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Step 4: Configure Health Check

Your load balancer will automatically perform health checks on your EC2 instances and only route traffic to instances that pass the health check. If an instance fails the health check, it is automatically removed from the load balancer. Customize the health check to meet your specific needs.

Ping Protocol

HTTP

Ping Port

80

Ping Path

/index.html

Advanced Details

Response Timeout

5

seconds

Interval

10

seconds

Unhealthy threshold

2

Healthy threshold

10

Cancel

Previous

Next: Add EC2 Instances

Go to Settings to activate Windows.

10- Add EC2 Instance.

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Step 5: Add EC2 Instances

The table below lists all your running EC2 Instances. Check the boxes in the Select column to add those instances to this load balancer.

VPC vpc-09b57162 (172.31.0.0/16)

Instance	Name	State	Security groups	Zone	Subnet ID	Subnet CIDR
<input checked="" type="checkbox"/>	i-05143bed1b7574641	running	launch-wizard-3	us-east-2a	subnet-9fe10df4	172.31.0.0/20
<input checked="" type="checkbox"/>	i-0f4b88d9011992b91	running	launch-wizard-1	us-east-2b	subnet-c4772dbe	172.31.16.0/20

Availability Zone Distribution

1 instance in us-east-2a
1 instance in us-east-2b

☒ Enable Cross-Zone Load Balancing

☒ Enable Connection Draining 30 seconds

Activate Windows

Cancel Previous Next: Add Tags

Go to Settings to activate Windows.

11- Add Tags.

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Step 6: Add Tags

Apply tags to your resources to help organize and identify them.

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tagging your Amazon EC2 resources.

Key	Value
<input type="text" value="Name"/>	<input type="text" value="Windows Server"/>

Create Tag

Activate Windows

Cancel Previous Review and Create

Go to Settings to activate Windows.

12- Review and create.

aws Services Resource Groups

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 7: Review

Please review the load balancer details before continuing

- ▼ Define Load Balancer [Edit load balancer definition](#)
 - Load Balancer name: LB1
 - Scheme: Internet-facing
 - Port Configuration: 80 (HTTP) forwarding to 80 (HTTP)
- ▼ Configure Health Check [Edit health check](#)
 - Ping Target: HTTP:80/index.html
 - Timeout: 5 seconds
 - Interval: 10 seconds
 - Unhealthy threshold: 2
 - Healthy threshold: 10
- ▼ Add EC2 Instances [Edit instances](#)
 - Cross-Zone Load Balancing: Enabled
 - Connection Draining: Enabled, 30 seconds
 - Instances: i-05143bed1b7574641 (Window Server 2), i-0f4b88d601f992b91 (Windows Server 1)
- ▼ VPC Information [Edit subnets](#)
 - VPC: vpc-09b57162
 - Subnets: subnet-9fe10df4, subnet-c4772dbe
- ▼ Security groups [Edit security groups](#)

[Cancel](#) [Previous](#) [Create](#)

Activate Windows
Go to Settings to activate Windows.

13- Successfully created load balancer.

Load Balancer Creation Status

✔ **Successfully created load balancer**

Load balancer [LB1](#) was successfully created.

Note: It may take a few minutes for your instances to become active in the new load balancer.

[Close](#)

Activate Windows
Go to Settings to activate Windows.

14- Check the status after 30 seconds.

aws Services Resource Groups

Create Load Balancer Actions

search: LB1 Add filter

Name	DNS name	State	VPC ID	Availability Zones	Type	Created
LB1	LB1-1404496691.us-east-2...		vpc-09b57162	us-east-2b, us-east-2a	classic	July 14, 2017

Load balancer: LB1

Description Instances Health check Listeners Monitoring Tags Migration

Connection Draining: Enabled, 30 seconds (Edit)

Edit Instances

Instance ID	Name	Availability Zone	Status	Actions
i-05143bed1b7574641	Window Server 2	us-east-2a	OutOfService	Remove from Load Balancer
i-0f4b88d601f992b91	Windows Server 1	us-east-2b	OutOfService	Remove from Load Balancer

Edit Availability Zones

Availability Zone	Subnet ID	Subnet CIDR	Instance Count	Healthy?	Actions
us-east-2b	subnet-c4772dbe	172.31.16.0/20	1	No (Availability Zone contains no healthy instances)	Remove from Load Balancer

