



Andhra Pradesh State Skill Development Corporation



AWS CLOUD COMPUTING

ELASTIC LOAD BALANCER (ELB)



Elastic Load Balancer (ELB)

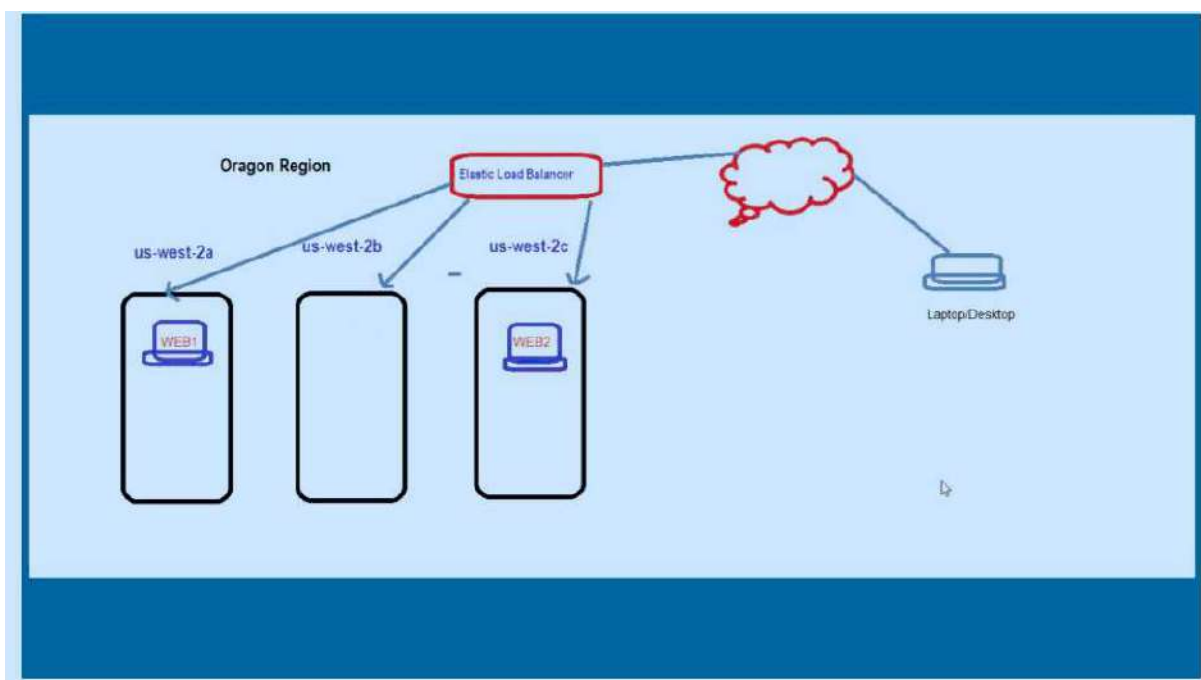


Elastic Load Balancing automatically distributes incoming application traffic across multiple targets, such as Amazon EC2 instances, containers, IP addresses, and Lambda functions. It can handle the varying load of your application traffic in a single Availability Zone or across multiple Availability Zones. Elastic Load Balancing offers three types of load balancers that all feature the high availability, automatic scaling, and robust security necessary to make your applications fault tolerant.

OBJECTIVE

To configure Elastic Load Balancer in AWS

Topology



Pre-Requisites

User should have AWS Account, or IAM user have EC2 Full Access

Task:

Launch two instances in two different Availability Zones
 Configure httpd (Apache2) Web Server in each instance
 Verify web server from browser.
 Configure Elastic Load Balancer.
 Verify Web Server through ELB

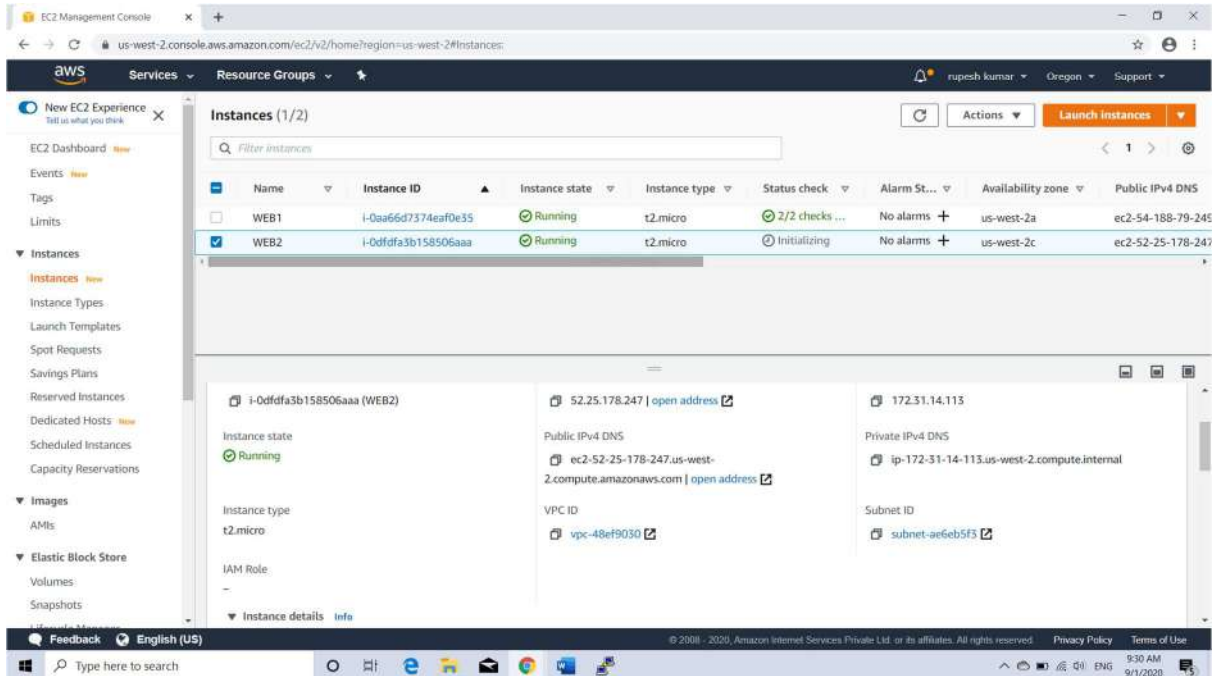
- 1. Launch two installs with apache web server in two separate Availability Zone,
 For Example, US-West-2a and US-West-2c**

- 2. Check Websites are running**

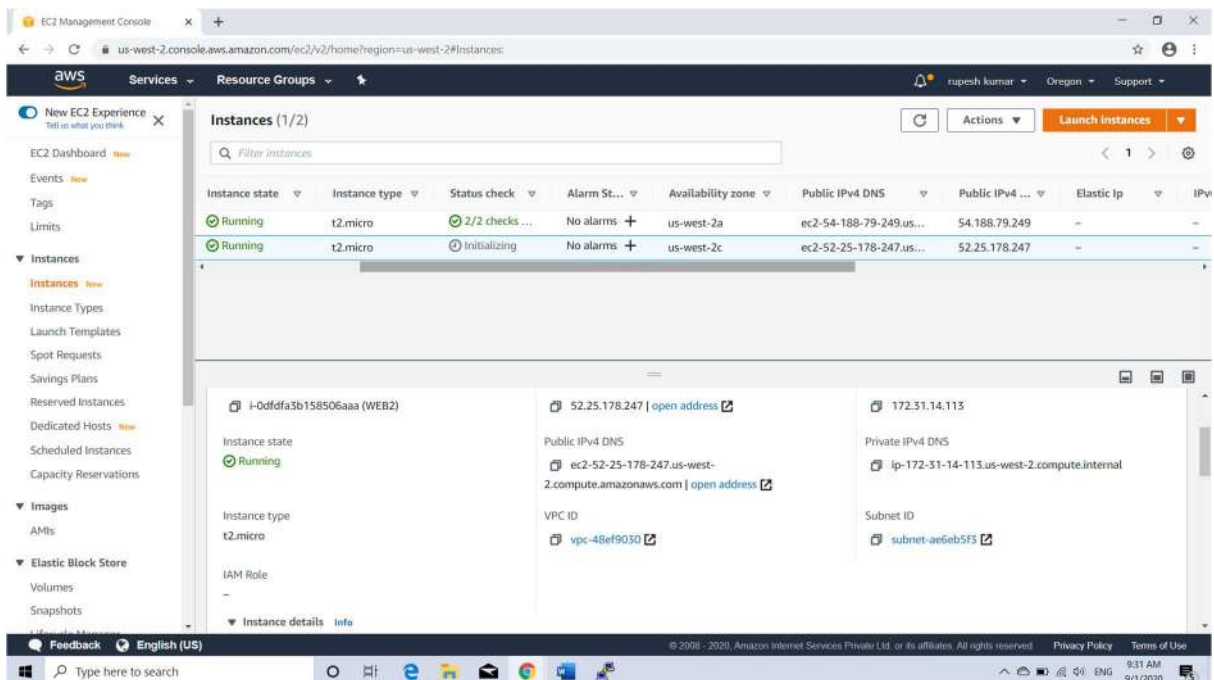
Open the Browser

Provide public IP for both instances.

Verify both websites are running.

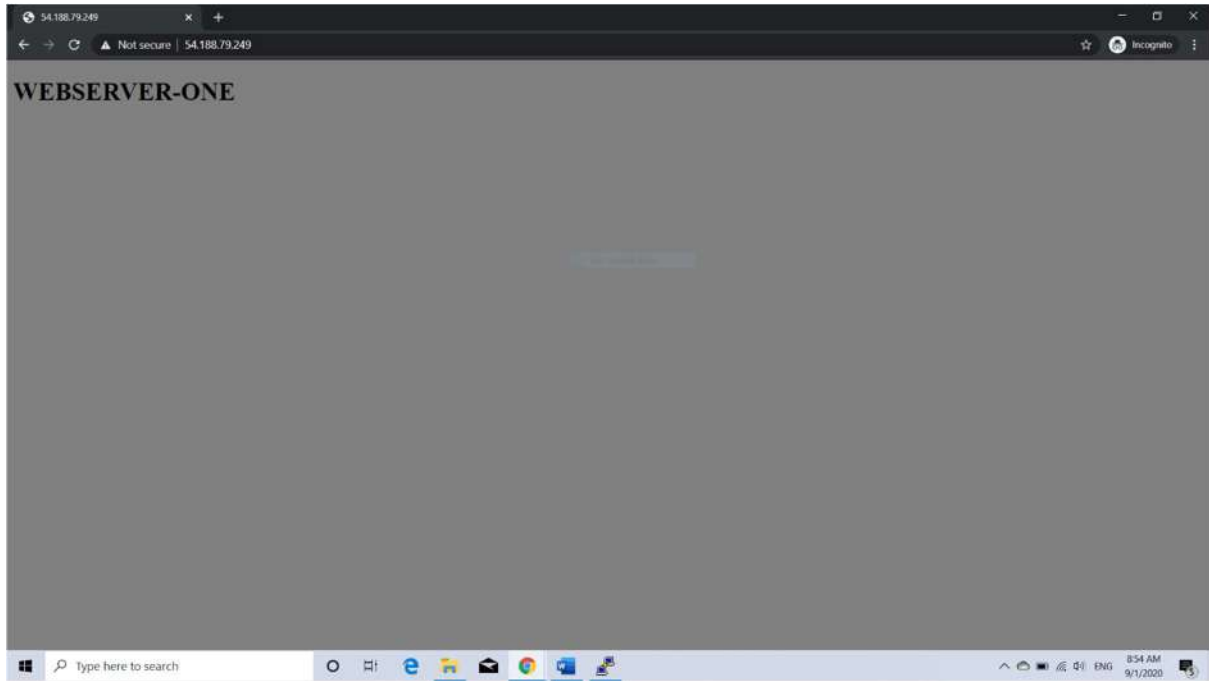


Verify public IP of both instances

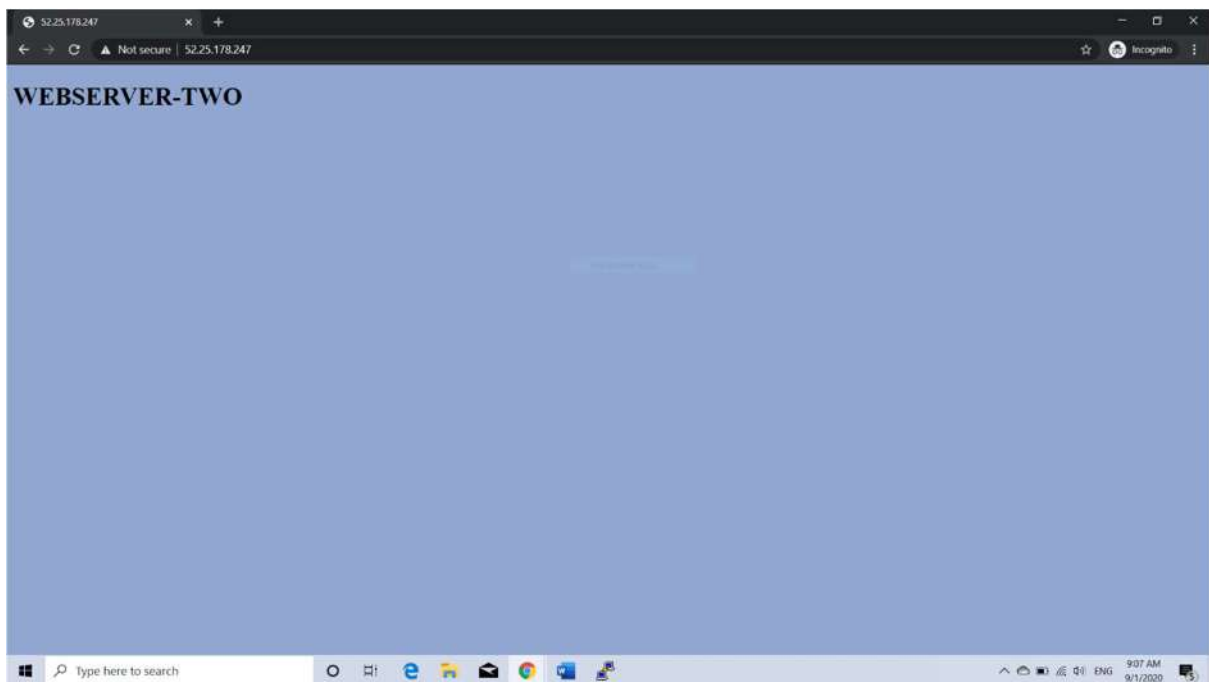




Verify Output of Web Server one



Verify Output of Web Server two



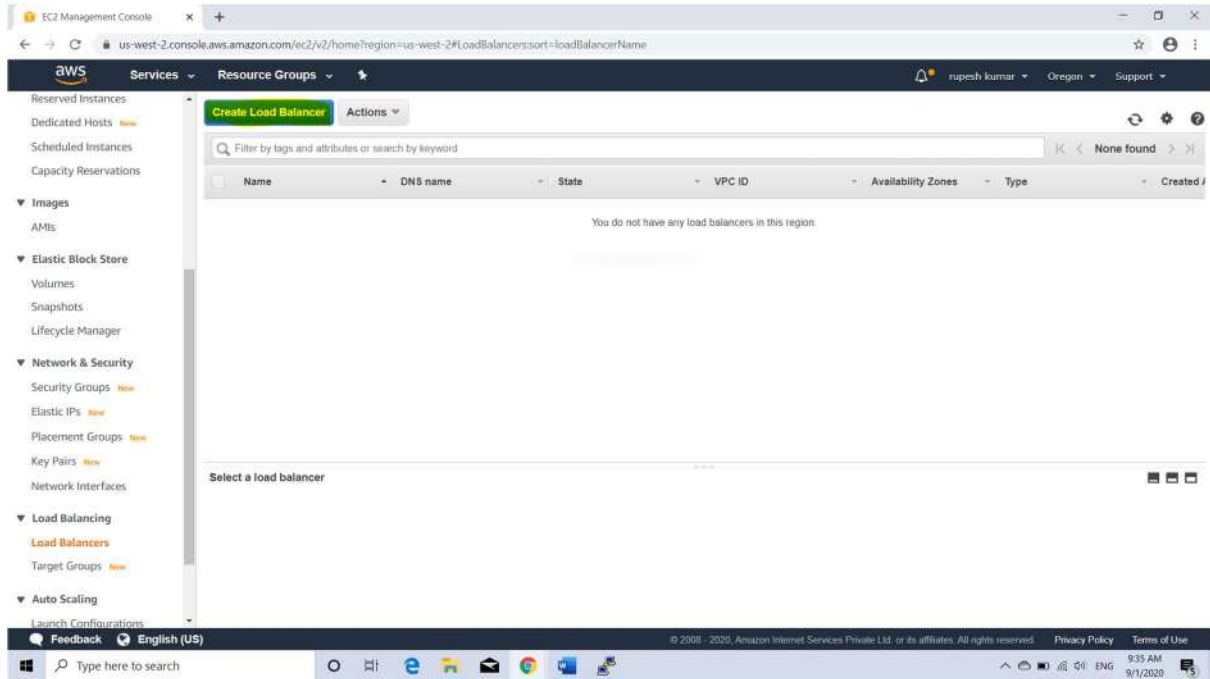
3) To configure Elastic Load Balancer.

Open the AWS console, On EC2 dashboard panel

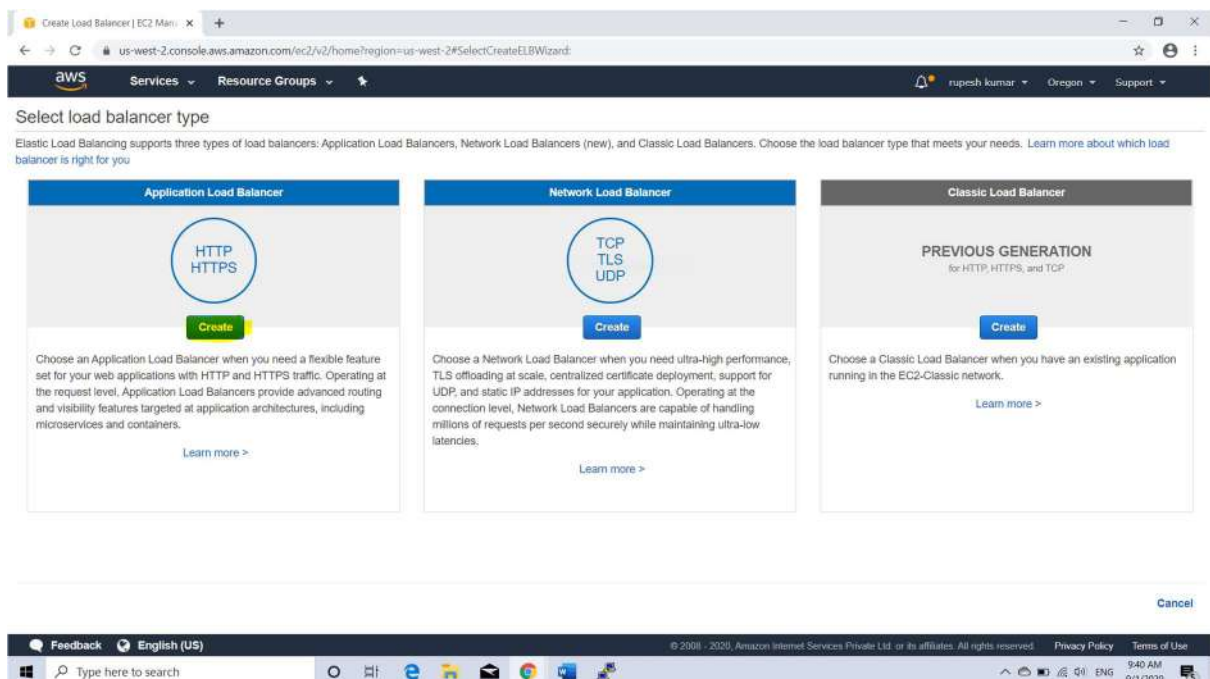
Expanding “Load Balancing”

Select “Load Balancer”

Click on “Create Load Balancer button”

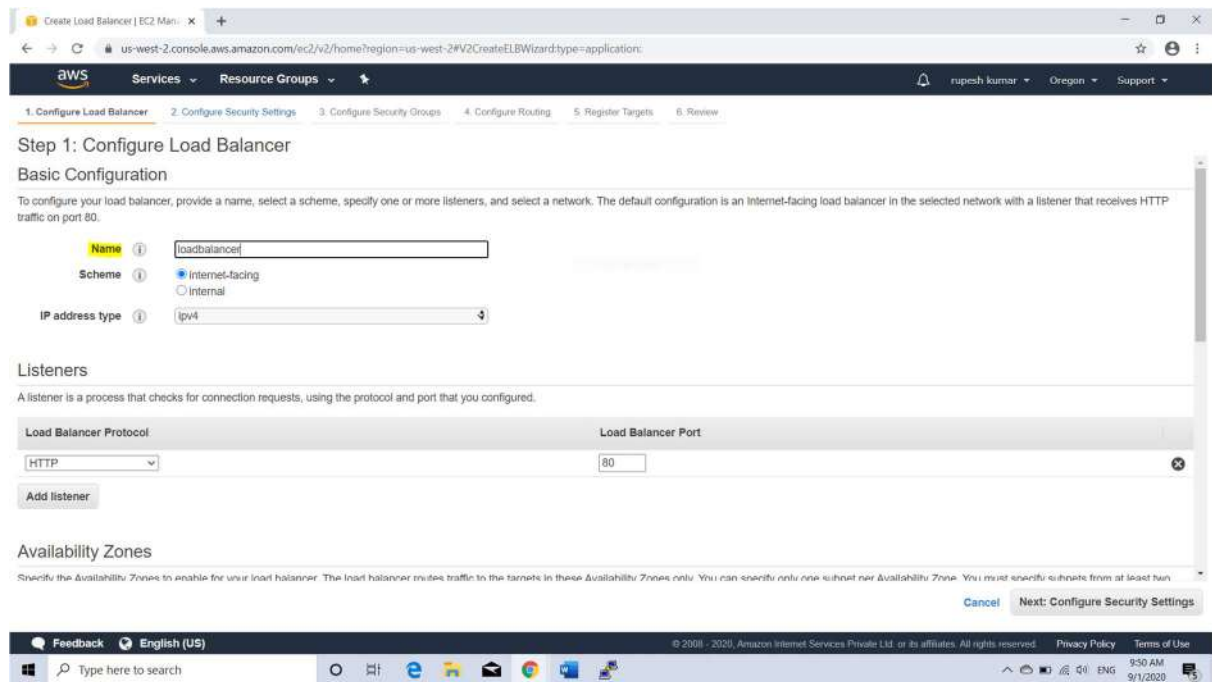


Click on create load balancer button, you'll see types of load balancers and select your required type by clicking on create button.



Step 1: Configure Load Balancer

Assign a name for the load balancer, scroll down to last, select VPC and availability zones. Make sure that load balancer and instances must be in same VPC and click on next: configure security settings



Create Load Balancer | EC2 Man... x

us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#V2CreateELBWizard?type=application

aws Services Resource Groups

1. Configure Load Balancer 2. Configure Security Settings 3. Configure Security Groups 4. Configure Routing 5. Register Targets 6. Review

Step 1: Configure Load Balancer

Basic Configuration

To configure your load balancer, provide a name, select a scheme, specify one or more listeners, and select a network. The default configuration is an Internet-facing load balancer in the selected network with a listener that receives HTTP traffic on port 80.

Name

Scheme ☒ Internet-facing ☐ Internal

IP address type

Listeners

A listener is a process that checks for connection requests, using the protocol and port that you configured.

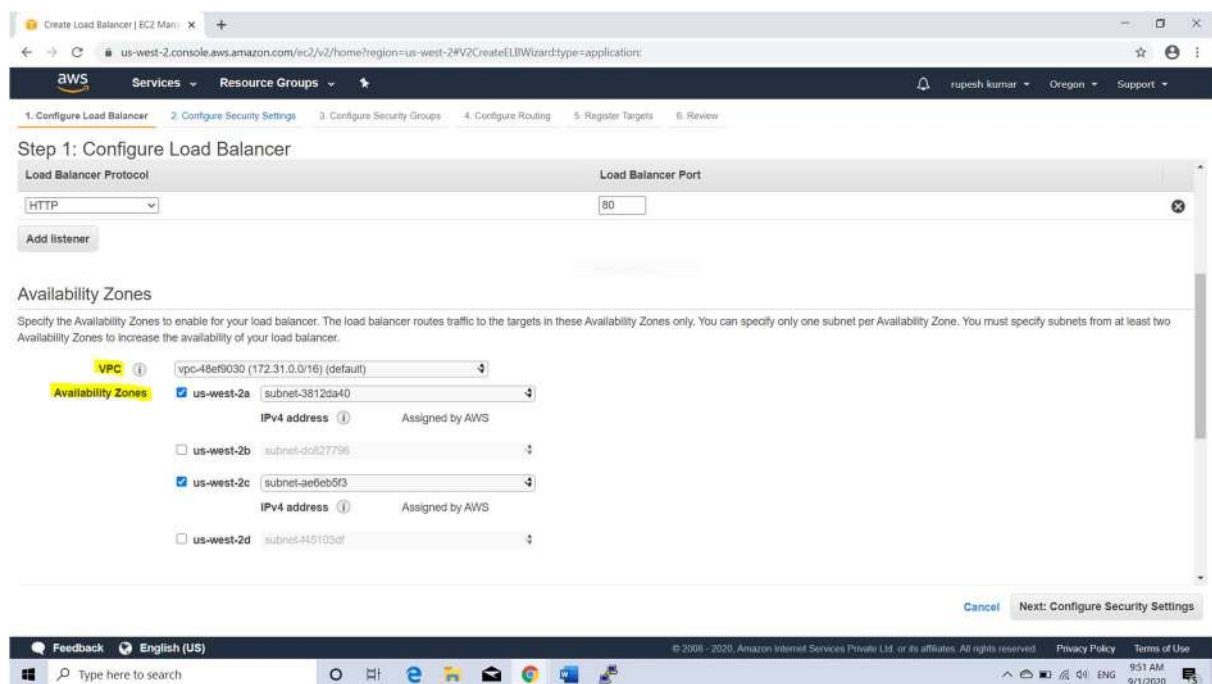
Load Balancer Protocol	Load Balancer Port
HTTP	80

Add listener

Availability Zones

Specify the Availability Zones to enable for your load balancer. The load balancer routes traffic to the targets in these Availability Zones only. You can specify only one subnet per Availability Zone. You must specify subnets from at least two Availability Zones to increase the availability of your load balancer.

Cancel Next: Configure Security Settings



Create Load Balancer | EC2 Man... x

us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#V2CreateELBWizard?type=application

aws Services Resource Groups

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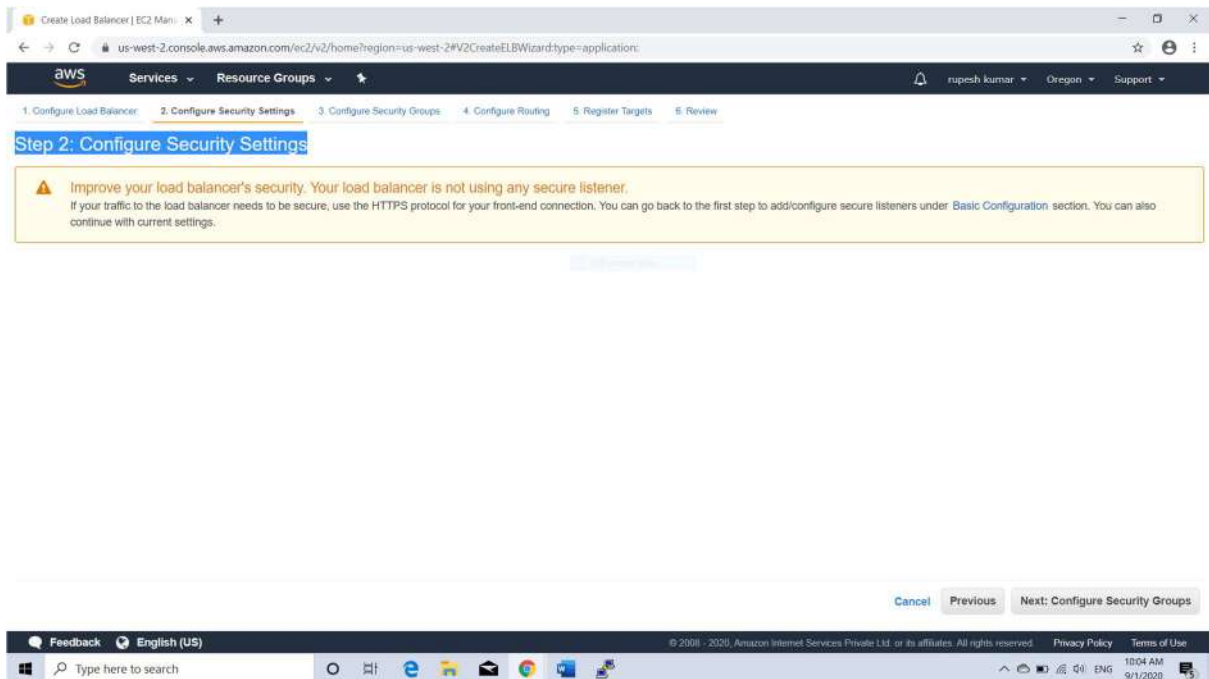
VPC

Availability Zones

- ☒ us-west-2a IPv4 address Assigned by AWS
- ☐ us-west-2b
- ☒ us-west-2c IPv4 address Assigned by AWS
- ☐ us-west-2d

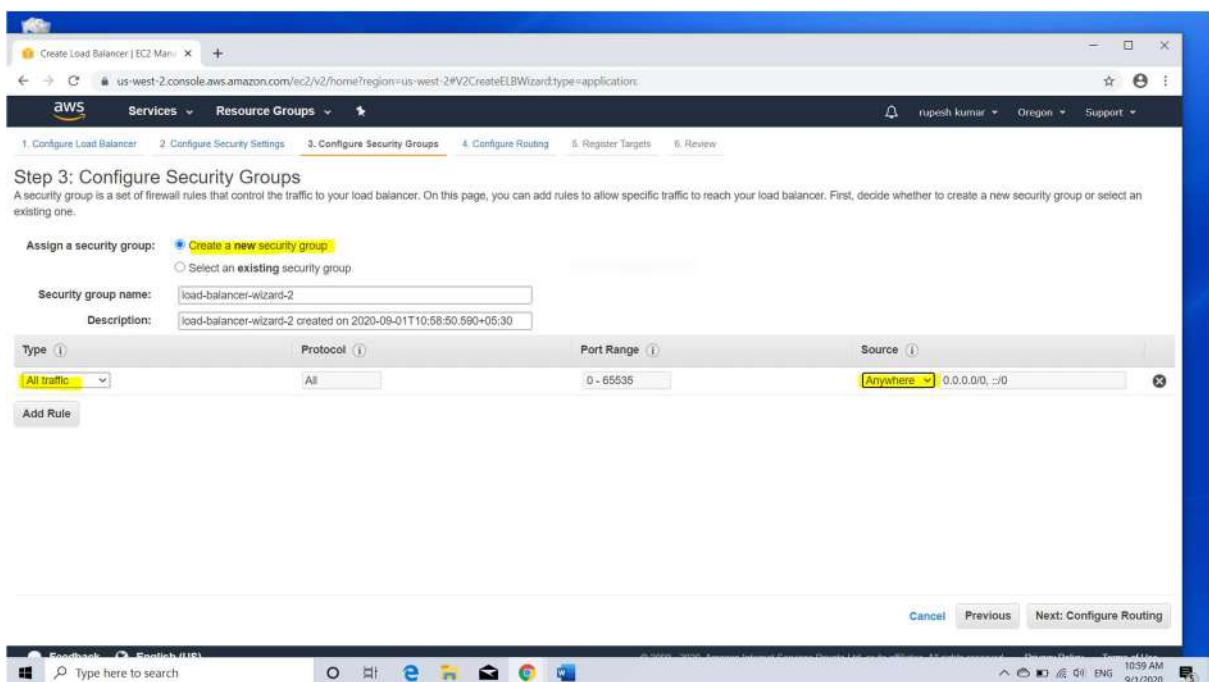
Cancel Next: Configure Security Settings

Step 2: Configure Security Settings



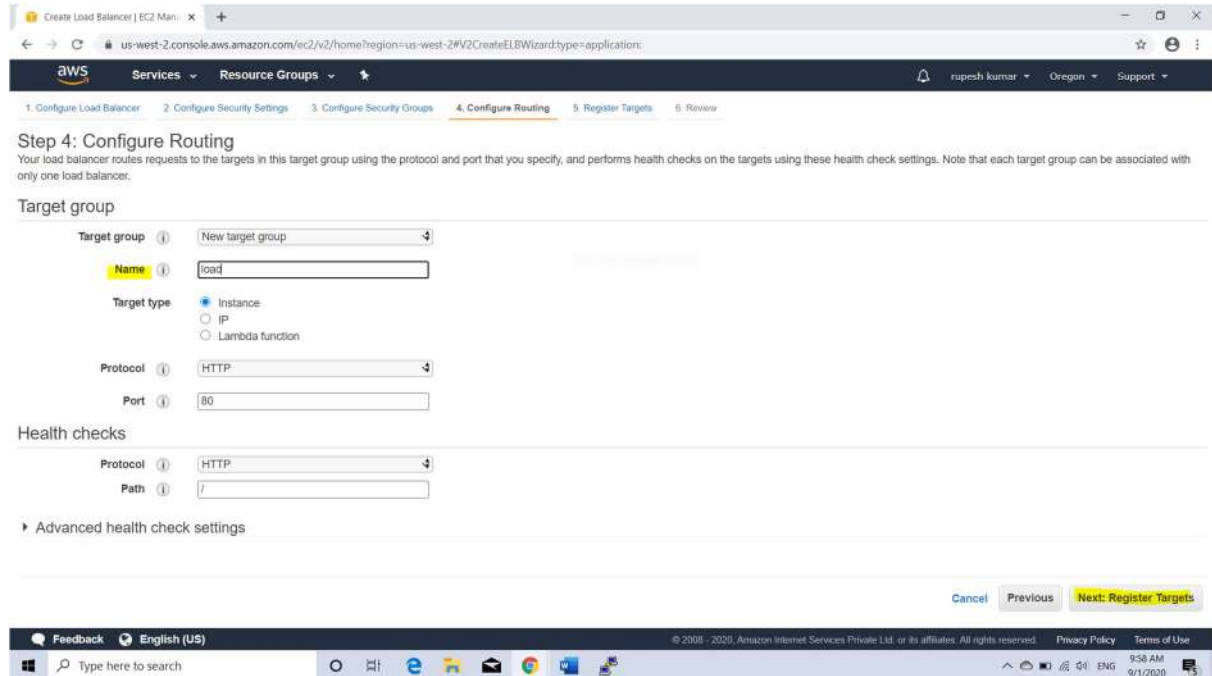
Step 3: Configure Security Groups

A security group is a set of firewall rules that control the traffic to your load balancer. On this page, you can add rules to allow specific traffic to reach your load balancer. First, decide whether to create a new security group or select an existing one.



Step 4: Configure Routing

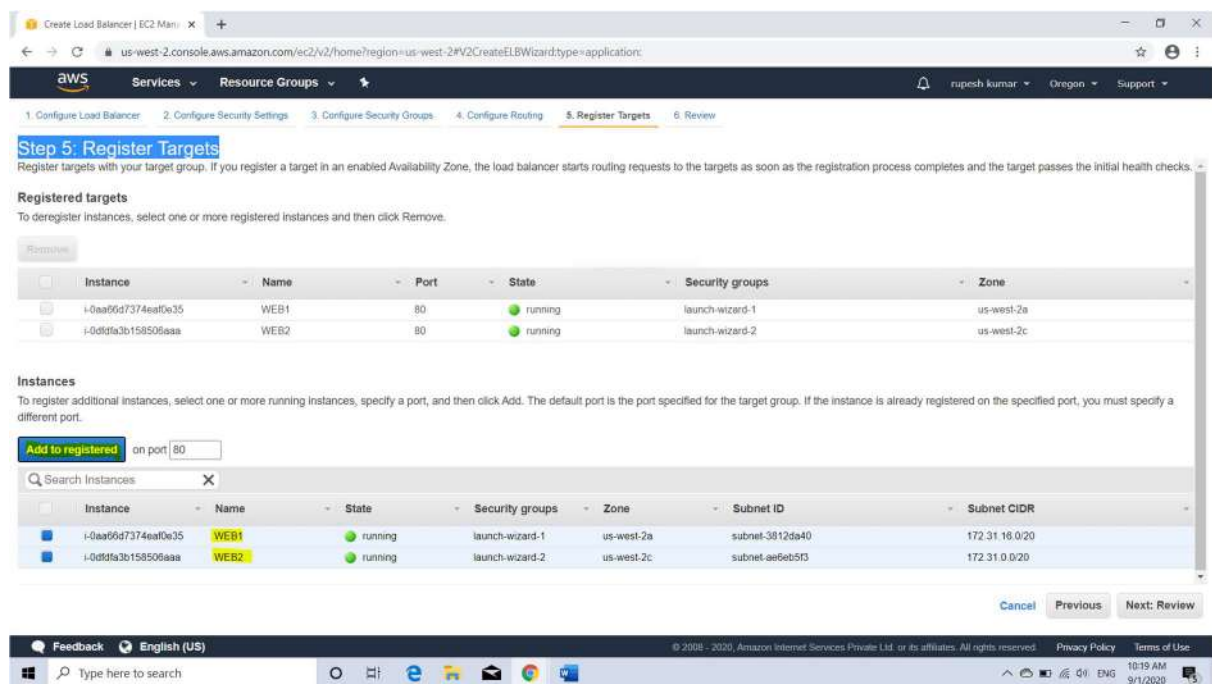
Click on next: configure routing assign a name for the target group and click on next: register targets. Check if there are any registered targets, you'll see no instances available



The screenshot shows the AWS Management Console for the 'Create Load Balancer' wizard, specifically the 'Configure Routing' step. The breadcrumb trail indicates the steps: 1. Configure Load Balancer, 2. Configure Security Settings, 3. Configure Security Groups, 4. Configure Routing (current), 5. Register Targets, and 6. Review. The 'Target group' section includes a dropdown for 'New target group', a text input for 'Name' (containing 'load'), radio buttons for 'Target type' (Instance selected, IP, Lambda function), a dropdown for 'Protocol' (HTTP), and a text input for 'Port' (80). The 'Health checks' section has a dropdown for 'Protocol' (HTTP) and a text input for 'Path' (/). An expandable section for 'Advanced health check settings' is visible. At the bottom right, there are buttons for 'Cancel', 'Previous', and 'Next: Register Targets'.

Step 5: Register Targets

Select the servers that you want to perform the load balancing and click on add to registered now you'll find registered targets and click on next.



The screenshot shows the AWS Management Console for the 'Create Load Balancer' wizard, specifically the 'Register Targets' step. The breadcrumb trail indicates the steps: 1. Configure Load Balancer, 2. Configure Security Settings, 3. Configure Security Groups, 4. Configure Routing, 5. Register Targets (current), and 6. Review. The 'Registered targets' section shows a table with two entries:

Instance	Name	Port	State	Security groups	Zone
i-0aa66d7374eaf0e35	WEB1	80	running	launch-wizard-1	us-west-2a
i-0dtdfa3b158506aaa	WEB2	80	running	launch-wizard-2	us-west-2c

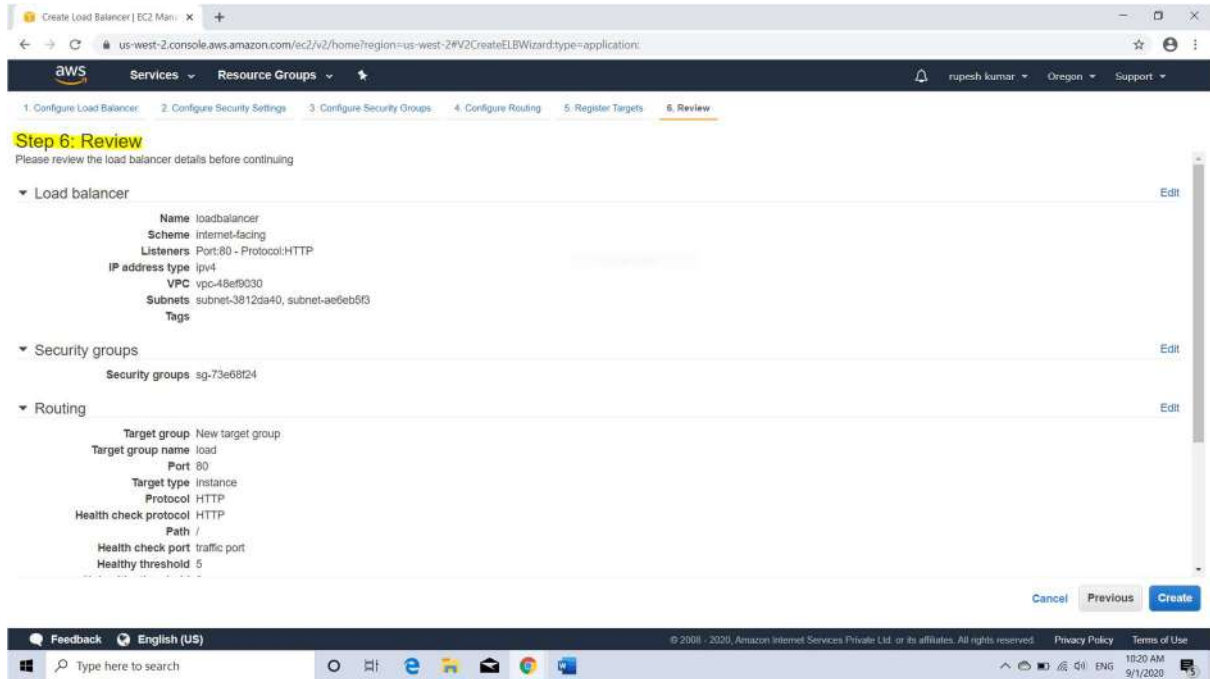
Below this, the 'Instances' section provides instructions on how to register additional instances. An 'Add to registered' button is shown with a port input field set to 80. A search bar 'Search Instances' is present. Below the search bar, a table lists available instances:

Instance	Name	State	Security groups	Zone	Subnet ID	Subnet CIDR
i-0aa66d7374eaf0e35	WEB1	running	launch-wizard-1	us-west-2a	subnet-3912da40	172.31.16.0/20
i-0dtdfa3b158506aaa	WEB2	running	launch-wizard-2	us-west-2c	subnet-ae6eb5f3	172.31.0.0/20

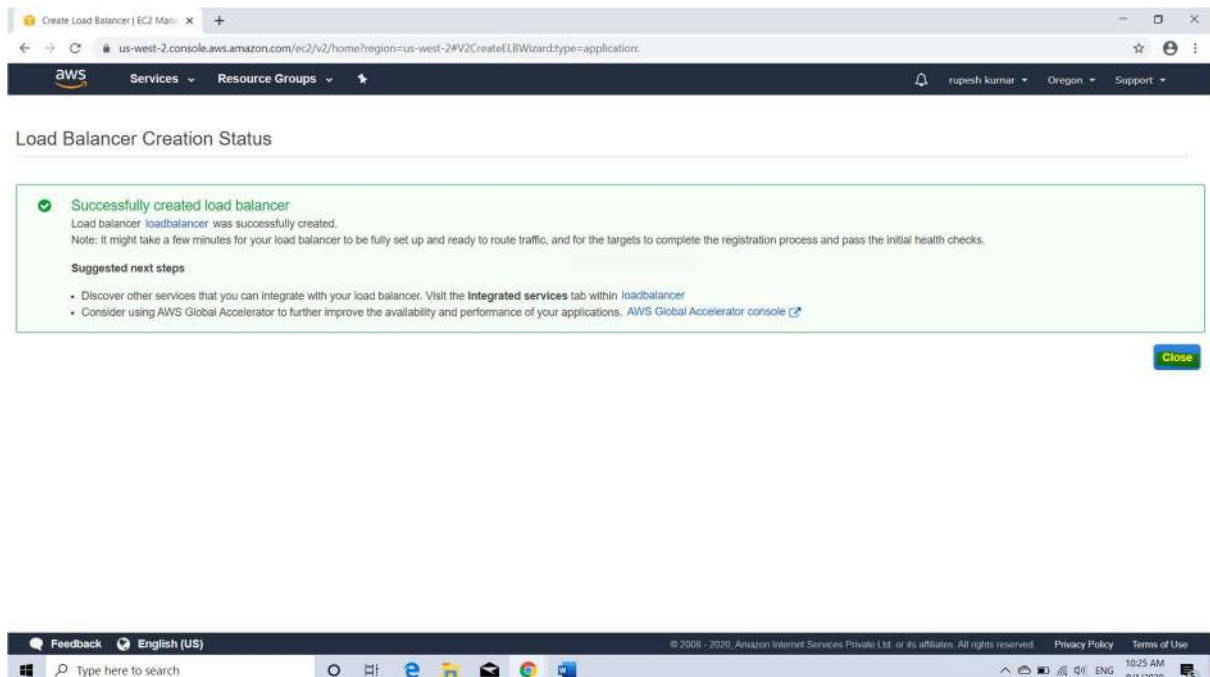
At the bottom right, there are buttons for 'Cancel', 'Previous', and 'Next: Review'.

Step 6: Review

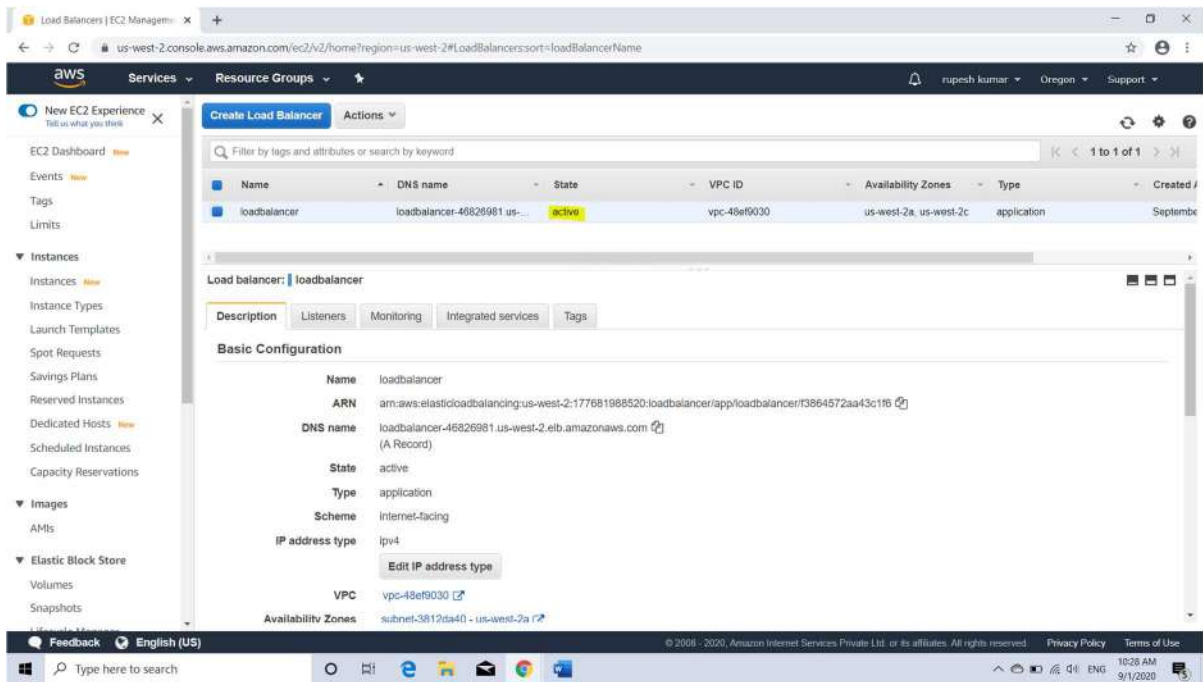
Review and click on create button.



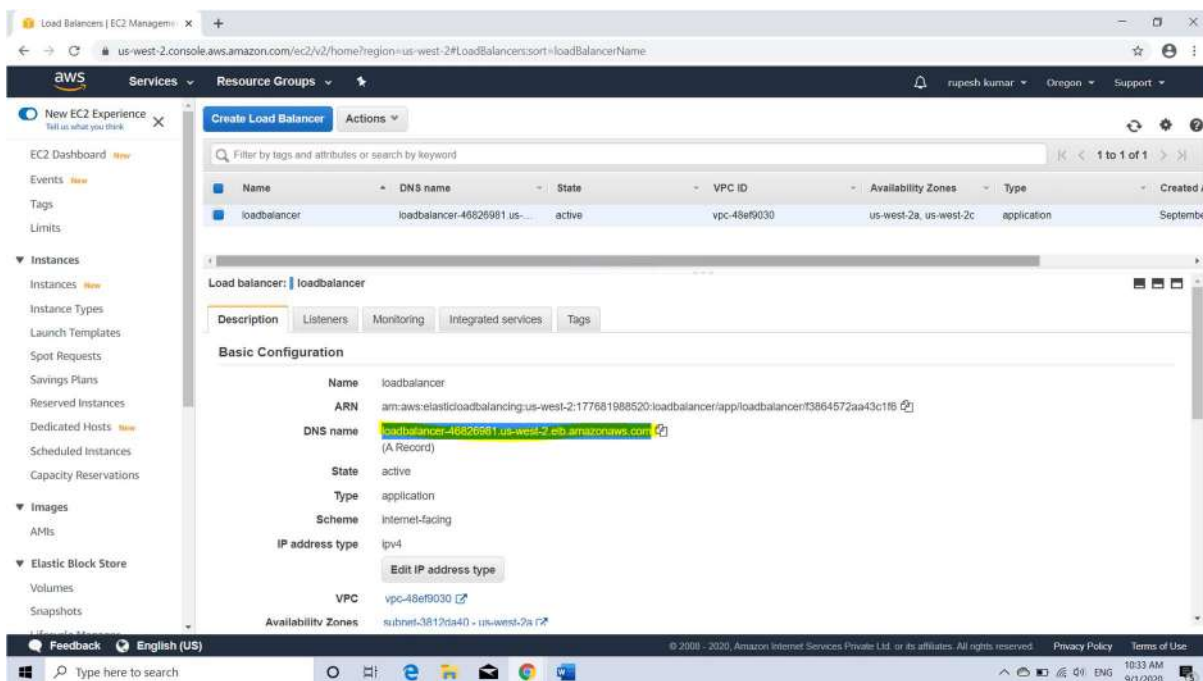
You'll see a message as successfully created load balancer and click on close button



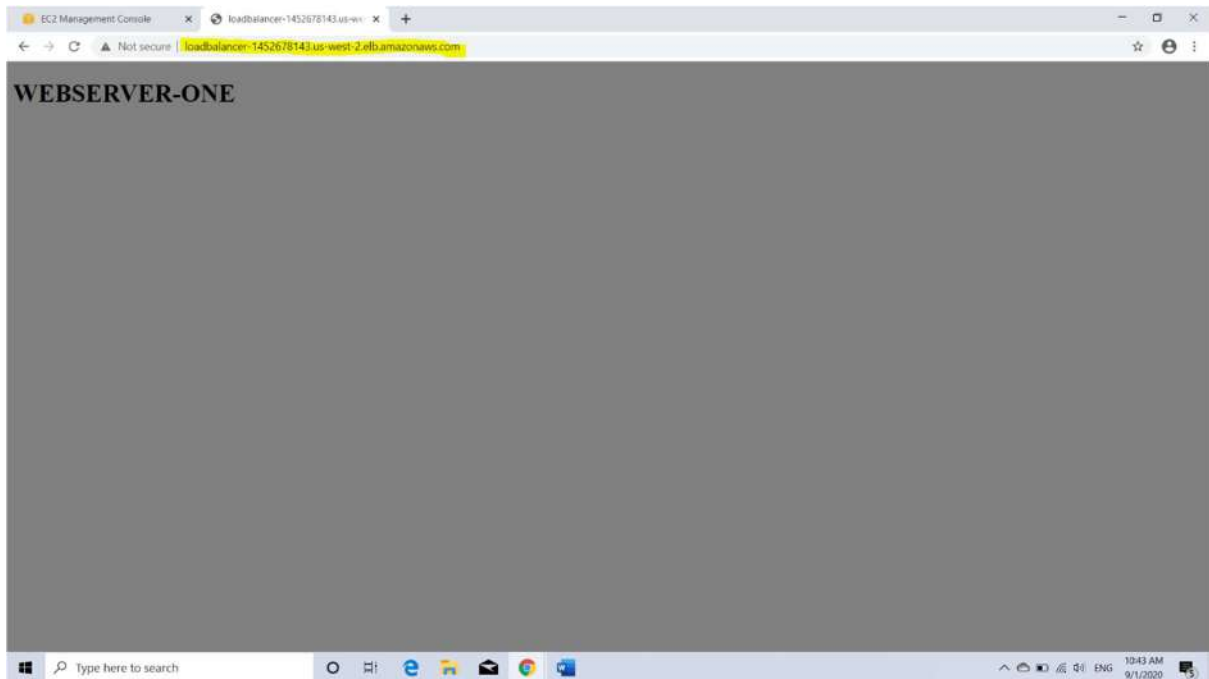
Check the status of the load balancer and it is in provisioning state. After few minutes it'll changed to active state.



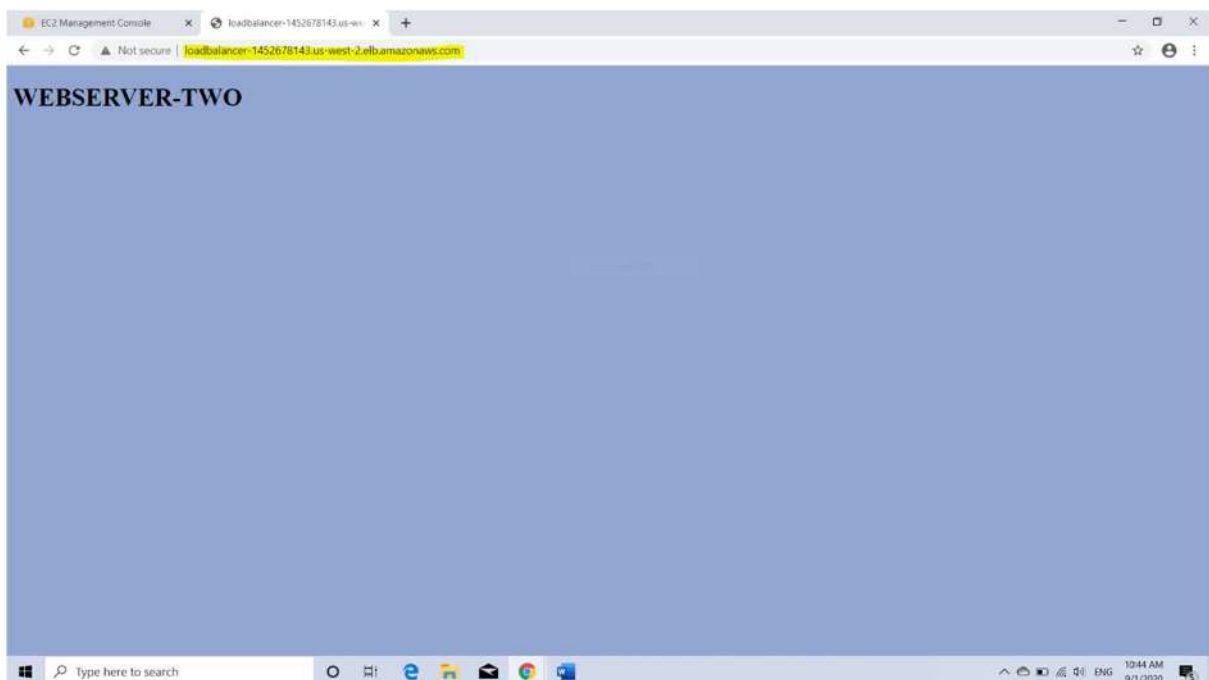
Now under the description tab, you'll find a DNS name for your load balancer copy and paste it in new tab.



In Browser type Load Balancer DNS names
Verify website by frequently refreshing browser (press F5)



On each refresh one by one, webserver1 and webserver2 will be displayed



If you got this output, **Congratulation your ELB configuration is successful.**