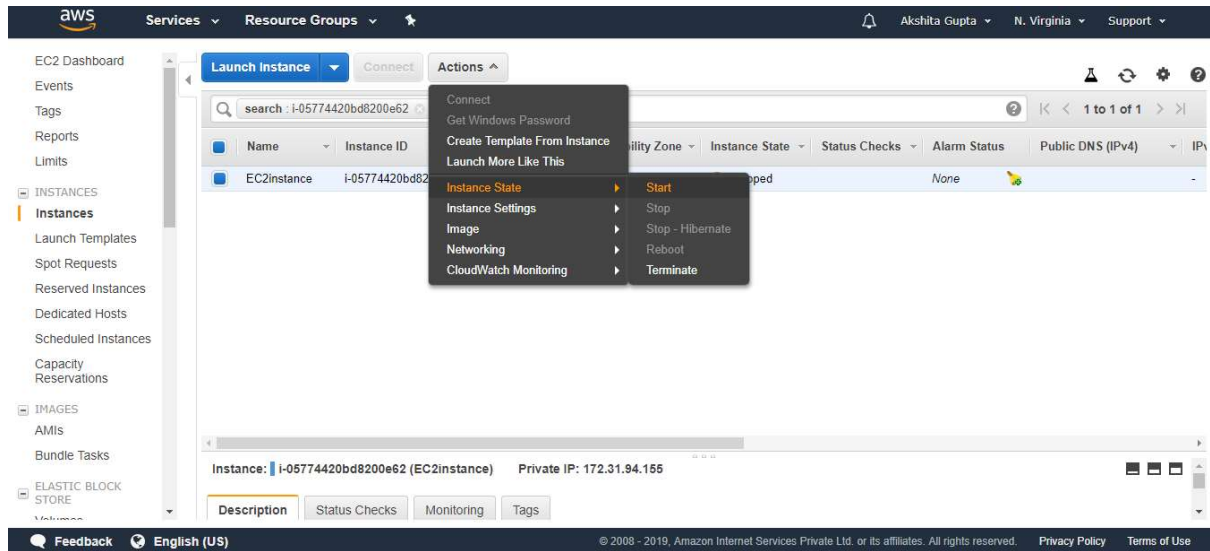


Creating a Load Balancer

- Sign in to the AWS Management Console.
- Create an EC2 instance.
- An EC2 instance is in a stopped state. Start the instance by clicking on the **Actions** dropdown menu and then click on the **start**.



Now, my instance is running, and its IP address is 18.191.224.149.

- Open the putty.
- Run the command **sudo su** to provide the privileges to the root device.
- Run the command **yum update ?y** to update the EC2 instance.
- Install the Apache server by using the command **yum install httpd ?y**.

```
root@ip-172-31-94-155:/home/ec2-user
Transaction test succeeded
Running transaction
  Installing : apr-1.5.2-5.13.amzn1.x86_64 1/5
  Installing : apr-util-1.5.4-6.18.amzn1.x86_64 2/5
  Installing : httpd-tools-2.2.34-1.16.amzn1.x86_64 3/5
  Installing : apr-util-ldap-1.5.4-6.18.amzn1.x86_64 4/5
  Installing : httpd-2.2.34-1.16.amzn1.x86_64 5/5
  Verifying : httpd-tools-2.2.34-1.16.amzn1.x86_64 1/5
  Verifying : apr-util-1.5.4-6.18.amzn1.x86_64 2/5
  Verifying : httpd-2.2.34-1.16.amzn1.x86_64 3/5
  Verifying : apr-1.5.2-5.13.amzn1.x86_64 4/5
  Verifying : apr-util-ldap-1.5.4-6.18.amzn1.x86_64 5/5

Installed:
  httpd.x86_64 0:2.2.34-1.16.amzn1

Dependency Installed:
  apr.x86_64 0:1.5.2-5.13.amzn1
  apr-util.x86_64 0:1.5.4-6.18.amzn1
  apr-util-ldap.x86_64 0:1.5.4-6.18.amzn1
  httpd-tools.x86_64 0:2.2.34-1.16.amzn1

Complete!
[root@ip-172-31-94-155 ec2-user]#
```

The above screen shows that the server has been installed successfully.

- Start the server by using the command **service httpd start**.

```
root@ip-172-31-94-155:/home/ec2-user
[root@ip-172-31-94-155 ec2-user]# service httpd start
Starting httpd: [ OK ]
[root@ip-172-31-94-155 ec2-user]#
```

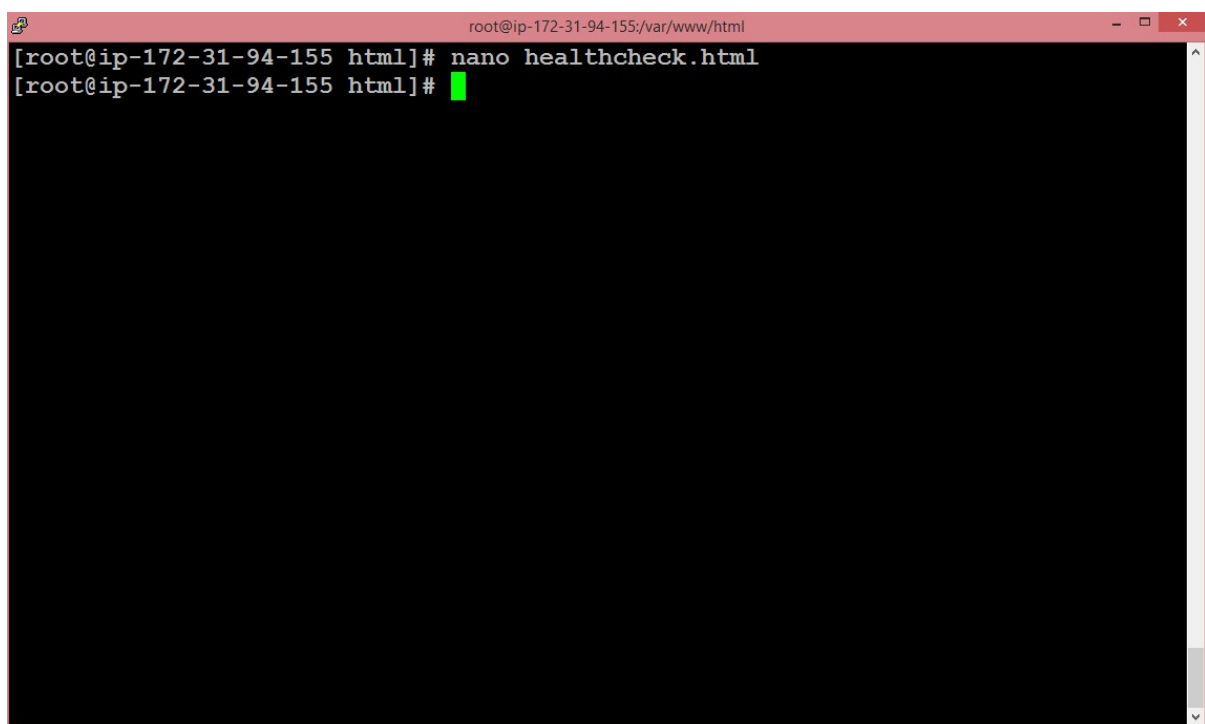
- Move to the html directory by running the command **cd /var/www/html**.
- Run the command **nano index.html** to create the editor.

```
<!DOCTYPE html>
<html>

<h1>Hello Learnmore</h1>

</html>
```

- Now, we are going to create **nano healthcheck.html** file.

A terminal window with a red title bar. The title bar text is "root@ip-172-31-94-155:/var/www/html". The terminal shows two lines of text: "[root@ip-172-31-94-155 html]# nano healthcheck.html" and "[root@ip-172-31-94-155 html]# " followed by a green cursor. The rest of the terminal area is black.

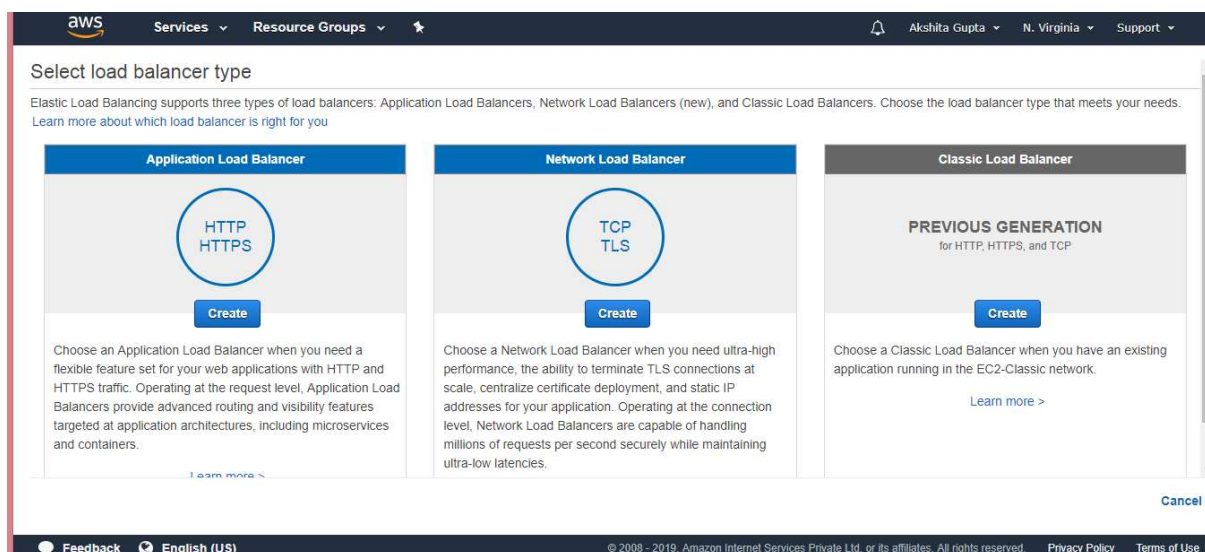
```
root@ip-172-31-94-155:/var/www/html
[root@ip-172-31-94-155 html]# nano healthcheck.html
[root@ip-172-31-94-155 html]#
```

- I write "**My instance is running**" to healthcheck file.

```
root@ip-172-31-94-155:/var/www/html
GNU nano 2.5.3 File: healthcheck.html
My instance is running.

[ Read 1 line ]
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^_ Go To Line
```

- Move to the EC2 service, click on the Load Balancer appearing on the left side of the console.
- Click on the Create Load Balancer. On clicking, three types of Load Balancers are shown:



- We create a **Classic Load Balancer**.
- On clicking on the **create** button, the screen appears shown below:

Step 1: Define Load Balancer
Basic Configuration

This wizard will walk you through setting up a new load balancer. Begin by giving your new load balancer a unique name so that you can identify it from other load balancers you might create. You will also need to configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to any port on your EC2 instances. By default, we've configured your load balancer with a standard web server on port 80.

Load Balancer name:

Create LB inside:

Create an internal load balancer: ☐ (what's this?)

Enable advanced VPC configuration: ☒

Listener Configuration:

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

Add

Select Subnets

Cancel Next: Assign Security Groups

Step 1: Define Load Balancer

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-1e77ce64 (172.31.0.0/16)

Available subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
+	us-east-1a	subnet-5f2b4071	172.31.80.0/20	
+	us-east-1b	subnet-237e4269	172.31.16.0/20	
+	us-east-1c	subnet-e1d6b8bd	172.31.32.0/20	

Selected subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
-	us-east-1d	subnet-daf69bbd	172.31.0.0/20	
-	us-east-1e	subnet-40c6767e	172.31.48.0/20	
-	us-east-1f	subnet-e295b2ed	172.31.64.0/20	

Cancel Next: Assign Security Groups

Load Balancer name: It is the name of the Load balancer that the user provides. Suppose I have given a ClassicELB as a load balancer name.

Create LB inside: I kept it as a default VPC.

Backward Skip 10sPlay VideoForward Skip 10s

Create an internal load balancer: As we want to serve external web traffic, so we need an external load balancer, not an internal load balancer. Uncheck this field.

Enable advanced VPC configuration: Check this field to add at least one subnet.

Linear Configuration: It describes from which protocol and port, it is listening, and to which port it is passing.

- Click on the **Next** button.
- Configure Health check.

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:
 Ping Port:
 Ping Path:

Advanced Details

Response Timeout: seconds
 Interval: seconds
 Unhealthy threshold:
 Healthy threshold:

[Cancel](#) [Previous](#) [Next: Add EC2 Instances](#)

Ping Protocol: It defines the type of protocol.

Ping port: It defines the port number.

Ping Path: It defines the path of the web page that we created, i.e., **healthcheck.html**.

Response Timeout: It defines how long it will take and waits for the response.

Interval: It is the amount of time between health checks.

Unhealthy threshold: It defines the number of consecutive health check failures before declaring an EC2 instance unhealthy.

Healthy threshold: It defines the number of consecutive health check successes before declaring an EC2 instance healthy.

- Click on the **Next**.
- Add your EC2 instance to the Load Balancer. Check the EC2 instance box.

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-1e77ce64 (172.31.0.0/16)

Instance	Name	State	Security groups	Zone	Subnet ID	Subnet CIDR	
<input type="checkbox"/>	i-05774420bd8200e62	EC2instance	running	launch-wizard-2	us-east-1a	subnet-5f2b4071	172.31.80.0/20

Availability Zone Distribution
1 instance in us-east-1a

☒ Enable Cross-Zone Load Balancing

[Cancel](#) [Previous](#) [Next: Add Tags](#)

○ Click on the **Next**.

○ Review the load balancer, and then click on the **Create** button.

The screenshot shows the 'Step 7: Review' page in the AWS Management Console. The page title is 'Step 7: Review' with a subtitle 'Please review the load balancer details before continuing'. The navigation bar at the top shows steps 1 through 7, with '7. Review' being the active step. The main content area is divided into three sections: 'Define Load Balancer', 'Configure Health Check', and 'Add EC2 Instances'. Each section has a corresponding 'Edit' link. The 'Define Load Balancer' section shows 'Load Balancer name: MyClassicELB', 'Scheme: internet-facing', and 'Port Configuration: 80 (HTTP) forwarding to 80 (HTTP)'. The 'Configure Health Check' section shows 'Ping Target: HTTP:80/healthcheck.html', 'Timeout: 2 seconds', 'Interval: 5 seconds', 'Unhealthy threshold: 2', and 'Healthy threshold: 3'. The 'Add EC2 Instances' section shows 'Cross-Zone Load Balancing: Enabled' and 'Connection Draining: Enabled, 300 seconds'. At the bottom right, there are 'Cancel', 'Previous', and 'Create' buttons.

aws Services Resource Groups Akshita Gupta N. Virginia Support

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: MyClassicELB
Scheme: internet-facing
Port Configuration: 80 (HTTP) forwarding to 80 (HTTP)

Configure Health Check [Edit health check](#)

Ping Target: HTTP:80/healthcheck.html
Timeout: 2 seconds
Interval: 5 seconds
Unhealthy threshold: 2
Healthy threshold: 3

Add EC2 Instances [Edit instances](#)

Cross-Zone Load Balancing: Enabled
Connection Draining: Enabled, 300 seconds

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

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Load Balancer Creation Status

The screenshot shows a green success message box. It contains a green checkmark icon, the text 'Successfully created load balancer', and a note stating 'Load balancer MyClassicELB was successfully created. Note: It may take a few minutes for your instances to become active in the new load balancer.' There is a 'Close' button at the bottom right.

✓ **Successfully created load balancer**
Load balancer MyClassicELB was successfully created.
Note: It may take a few minutes for your instances to become active in the new load balancer.

[Close](#)

The above screen shows that Class load balancer has been successfully created.

○ When we check the status of an instance, the status appears as **OutOfService**.

The screenshot shows the 'Edit Instances' page for a load balancer. At the top, it says 'Connection Draining: Enabled, 300 seconds (Edit)'. Below this is an 'Edit Instances' button. The main part of the page is a table with columns: Instance ID, Name, Availability Zone, Status, and Actions. There is one instance listed with ID 'i-05774420bd8200e62', Name 'EC2instance', Availability Zone 'us-east-1a', and Status 'OutOfService'. The 'Actions' column has a link 'Remove from Load Balancer'. Below the table is an 'Edit Availability Zones' button.

Connection Draining: Enabled, 300 seconds (Edit)

[Edit Instances](#)

Instance ID	Name	Availability Zone	Status	Actions
i-05774420bd8200e62	EC2instance	us-east-1a	OutOfService ⓘ	Remove from Load Balancer

[Edit Availability Zones](#)

○ After 1 or 2 minutes, the status of an instance appears as **InService**.

The screenshot shows the 'Edit Instances' page for a load balancer. At the top, it says 'Connection Draining: Enabled, 300 seconds (Edit)'. Below this is an 'Edit Instances' button. The main part of the page is a table with columns: Instance ID, Name, Availability Zone, Status, and Actions. There is one instance listed with ID 'i-05774420bd8200e62', Name 'EC2instance', Availability Zone 'us-east-1a', and Status 'InService'. The 'Actions' column has a link 'Remove from Load Balancer'.

Load balancer: MyClassicELB

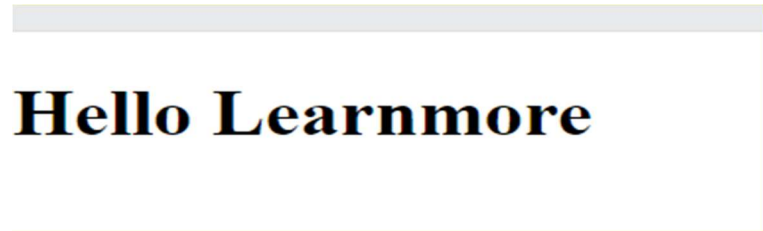
Description **Instances** Health check Listeners Monitoring Tags Migration

Connection Draining: Enabled, 300 seconds (Edit)

[Edit Instances](#)

Instance ID	Name	Availability Zone	Status	Actions
i-05774420bd8200e62	EC2instance	us-east-1a	InService ⓘ	Remove from Load Balancer

- Copy the DNS name of a Load balancer and paste it to the clipboard of a web browser. You will see the output which is shown below:



Hello Learnmore

Therefore, we can say that DNS name is converted into a public IP address which is directing you to the **index.html**. Amazon provides DNS name to the Classic Load Balancer rather than a public IP address as the public IP address can be changed.

Note: Once the EC2 instance is out of service, the load balancer would not send the traffic to EC2 instance as it is presuming that healthcheck file that we created has been failed.