

Network Load Balancer

Step1: Launch Instance with userdata script.

The screenshot shows the AWS Management Console interface for launching an EC2 instance. The browser tabs include 'Adrenalin MAX', 'Mail - Bhargav Chillakanti - Outlook', and 'Launch an instance | EC2 Management Console'. The URL is 'ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:'.

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name: [Add additional tags](#)

Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

User data [Info](#)

```
#!/bin/bash
sudo su
yum update -y
sleep 10
yum install httpd -y
sleep 10
systemctl start httpd
sleep 10
systemctl enable httpd
echo "<html> <h1> Response coming from httpd apache web server </h1> </html>"
/var/www/html/index.html
```

☐ User data has already been base64 encoded

Step2: Create Network Load balancer with zone mappings as of below.

The screenshot shows the 'Basic configuration' step of the 'CreateNLBWizard' in the AWS Management Console. The wizard is for a Network Load Balancer in the ap-south-1 region. The 'Load balancer name' field is filled with 'Networkloadbalancerexercise'. The 'Scheme' is set to 'Internet-facing'. The 'IP address type' is set to 'IPv4'.

How Elastic Load Balancing works

Basic configuration

Load balancer name
Name must be unique within your AWS account and cannot be changed after the load balancer is created.

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Scheme
Scheme cannot be changed after the load balancer is created.

☒ **Internet-facing**
An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. [Learn more](#)

☐ **Internal**
An internal load balancer routes requests from clients to targets using private IP addresses.

IP address type [Info](#)
Select the type of IP addresses that your subnets use.

☒ **IPv4**
Recommended for internal load balancers.

☐ **Dualstack**
Includes IPv4 and IPv6 addresses.

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The screenshot shows the 'Mappings' step of the 'CreateNLBWizard' in the AWS Management Console. The wizard is for a Network Load Balancer in the ap-south-1 region. The 'Mappings' section shows two Availability Zones selected: 'ap-south-1a (aps1-az1)' and 'ap-south-1b (aps1-az3)'. For each zone, a subnet is selected: 'subnet-024a85cea9e5beb8' for the first zone and 'subnet-041ce40d66515c1e8' for the second zone. The 'IPv4 address' is set to 'Assigned by AWS'.

IPv4: 172.31.0.0/16

Mappings
Select at least one Availability Zone and one subnet for each zone. We recommend selecting at least two Availability Zones. The load balancer will route traffic only to targets in the selected Availability Zones. Zones that are not supported by the load balancer or VPC cannot be selected. Subnets can be added, but not removed, once a load balancer is created.

☒ **ap-south-1a (aps1-az1)**

Subnet

IPv4 settings

IPv4 address

☒ **ap-south-1b (aps1-az3)**

Subnet

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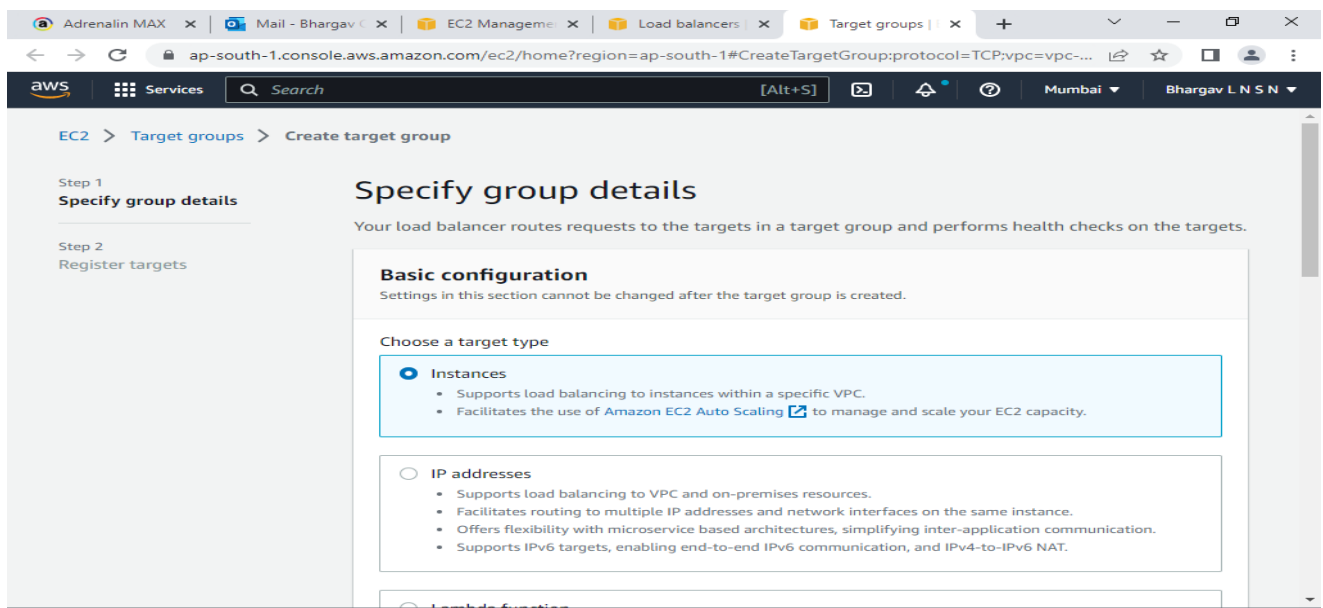
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Step 3: Create the Target group for the load balancer with Listeners port:80, 8080, 8081.

TCP – 80 - Apache web page

TCP – 8080 – Jenkins

TCP – 8081 – Nginix



Register the targetgroup with provisioned Instance

This is an optional step to create a target group. However, to ensure that your load balancer routes traffic to this target group you need to register your targets.

Available instances (1/1)

Filter resources by property or value

<input checked="" type="checkbox"/>	Instance ID	Name	State	Security groups	Zone
<input checked="" type="checkbox"/>	i-0860fb6fba910b0a7	Networkloadbalancerexercise	running	launchwizard1	ap-south-1a

1 selected

Ports for the selected instances
Ports for routing traffic to the selected instances.

80

1-65535 (separate multiple ports with commas)

Include as pending below

1 selection is now pending below. Include more or register targets when ready.

Review targets

Targets (1)

Remove all pending

Remove	Health status	Instance ID	Name	Port	State	Security groups
<input checked="" type="checkbox"/>	Pending	i-0860fb6fba910b0a7	Networkloadbalancerexercise	80	running	launchwizard1

1 pending

Cancel Previous **Create target group**

Add the listener ports to the load balancer

Adrenalin MAX x Mail - Bhargav x EC2 Manageme x Load balancers x Target groups | x +

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#CreateNLBWizard:

aws Services Search [Alt+S] Mumbai Bhargav L N S N

Listeners and routing [Info](#)

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

▼ Listener TCP:80 [Remove](#)

Protocol TCP Port 80 1-65535

Default action [Info](#)

Forward to Networkloadbalancerexercise TCP [Create target group](#)

Target type: Instance, IPv4

[Add listener tag](#)

You can add up to 50 more tags.

[Add listener](#)

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Adrenalin MAX x Mail - Bhargav x Connect to x EC2 Instance x Load balancers x Target groups | x +

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#ElbAddListener:loadBalancerArn=arn:aws:el...

aws Services Search [Alt+S] Mumbai Bhargav L N S N

Add listener

► **Details**

[arn:aws:elasticloadbalancing:ap-south-1:192095846711:loadbalancer/net/Networkloadbalancerexercise/20d21fc9bd6d6ed0](#)

Listener details [Info](#)

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

Protocol TCP Port 8080 1-65535

Default action [Info](#)

Forward to Networkloadbalancerexercise TCP [Create target group](#)

Target type: Instance, IPv4

► **Tags - optional**

Consider adding tags to your listener. Tags enable you to categorize your AWS resources so you can more easily manage them.

[Cancel](#) [Add](#)

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Load balancer is created with three listener ports.

Adrenalin | Mail - Bhar | Connect to | EC2 Instance | EC2 Manag | Target grou | +

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LoadBalancers:search=Networkloadbalanc...

aws Services Search [Alt+S] Mumbai Bhargav L N S N

New EC2 Experience Tell us what you think

EC2 Dashboard
EC2 Global View
Events
Tags
Limits

Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations

Images

Create Load Balancer Actions

search : Networkloadbalancerexercise Add filter

Name	DNS name	State	VPC ID
Networkloadbalancerexercise	Networkloadbalancerexercis...	Active	vpc-025c74b83c402

Add listener Edit Delete

Listener ID	Security policy	SSL Certificate	ALPN policy	Default action
<input type="checkbox"/> TCP : 80	N/A	N/A	N/A	forwarding to Networkloadbalancerexercise
<input type="checkbox"/> TCP : 8080	N/A	N/A	N/A	forwarding to Networkloadbalancerexercise
<input type="checkbox"/> TCP : 8081	N/A	N/A	N/A	forwarding to Networkloadbalancerexercise

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Connect to EC2 Instance connect

Check the httpd version and port using `httpd -v`, `lsof -i tcp:80`

Adrenalin | Mail - Bhar | Connect to | EC2 Instance | EC2 Manag | Target grou | +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0860fb6fba9...

aws Services Search [Alt+S] Mumbai Bhargav L N S N

Amazon Linux 2 AMI

```

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-41-93 ~]$ sudo su -
Last login: Wed Jan 11 10:36:19 UTC 2023
[root@ip-172-31-41-93 ~]# httpd -v
-bash: httpd: command not found
[root@ip-172-31-41-93 ~]# httpd -v
server version: Apache/2.4.54 ()
Server built: Jun 30 2022 12:00:00
[root@ip-172-31-41-93 ~]# lsof -i tcp:80
COMMAND  PID  USER  FD  TYPE  DEVICE  SIZE/OFF  NODE  NAME
httpd    3350  root   4u  IPv6  21347    0t0    TCP  *:http  (LISTEN)
httpd    3352  apache 4u  IPv6  21347    0t0    TCP  *:http  (LISTEN)
httpd    3353  apache 4u  IPv6  21347    0t0    TCP  *:http  (LISTEN)
httpd    3354  apache 4u  IPv6  21347    0t0    TCP  *:http  (LISTEN)
httpd    3354  apache 10u  IPv6  22337    0t0    TCP  ip-172-31-41-93.ap-south-1.compute.internal:http->106.51.12
2.2.actcorp.in:17271 (ESTABLISHED)
httpd    3355  apache 4u  IPv6  21347    0t0    TCP  *:http  (LISTEN)
httpd    3356  apache 4u  IPv6  21347    0t0    TCP  *:http  (LISTEN)
httpd    3861  apache 4u  IPv6  21347    0t0    TCP  *:http  (LISTEN)
[root@ip-172-31-41-93 ~]#

```

i-0860fb6fba910b0a7 (Networkloadbalancerexercise)

PublicIPs: 35.154.97.178 PrivateIPs: 172.31.41.93

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Install the nginx using command - `sudo amazon-linux-extras install nginx1 -y`

Adrenalin | Mail - Bhar | Connect to | EC2 Instance | EC2 Manag | Target grou | +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0860fb6fba9...

aws Services Search [Alt+S] Mumbai Bhargav L N S N

```
httpd 3354 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3354 apache 10u IPv6 22337 0t0 TCP ip-172-31-41-93.ap-south-1.compute.internal:http->106.51.12
2.2.actcorp.in:17271 (ESTABLISHED)
httpd 3355 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3356 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3861 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
[root@ip-172-31-41-93 ~]# sudo amazon-linux-extras install nginx1 -y
Installing nginx
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Cleaning repos: amzn2-core amzn2extra-docker amzn2extra-kernel-5.10 amzn2extra-nginx1
17 metadata files removed
6 sqlite files removed
0 metadata files removed
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core | 3.7 kB 00:00:00
amzn2extra-docker | 3.0 kB 00:00:00
amzn2extra-kernel-5.10 | 3.0 kB 00:00:00
amzn2extra-nginx1 | 3.0 kB 00:00:00
(1/9): amzn2-core/2/x86_64/group_gz | 2.5 kB 00:00:00
(2/9): amzn2-core/2/x86_64/updateinfo | 539 kB 00:00:00
(3/9): amzn2extra-docker/2/x86_64/updateinfo | 8.0 kB 00:00:00
(4/9): amzn2extra-kernel-5.10/2/x86_64/updateinfo | 22 kB 00:00:00
(5/9): amzn2extra-nginx1/2/x86_64/updateinfo | 76 B 00:00:00
(6/9): amzn2extra-docker/2/x86_64/primary_db | 99 kB 00:00:00
(7/9): amzn2extra-nginx1/2/x86_64/primary_db | 56 kB 00:00:00
```

i-0860fb6fba910b0a7 (Networkloadbalancerexercise)

PublicIPs: 35.154.97.178 PrivateIPs: 172.31.41.93

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Adrenalin | Mail - Bhar | Connect to | EC2 Instance | EC2 Manag | Target grou | +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0860fb6fba9...

aws Services Search [Alt+S] Mumbai Bhargav L N S N

```
46 collectd available [ =stable ]
47 aws-nitro-enclaves-cli available [ =stable ]
48 R4 available [ =stable ]
kernel-5.4 available [ =stable ]
50 selinux-ng available [ =stable ]
51 php8.0 available [ =stable ]
52 tomcat9 available [ =stable ]
53 unbound1.13 available [ =stable ]
54 mariadb10.5 available [ =stable ]
55 kernel-5.10=latest enabled [ =stable ]
56 redis6 available [ =stable ]
57 ruby3.0 available [ =stable ]
58 postgresql12 available [ =stable ]
59 postgresql13 available [ =stable ]
60 mock2 available [ =stable ]
61 dnsmasq2.85 available [ =stable ]
62 kernel-5.15 available [ =stable ]
63 postgresql14 available [ =stable ]
64 firefox available [ =stable ]
65 lustre available [ =stable ]
66 php8.1 available [ =stable ]
67 awscli1 available [ =stable ]
[root@ip-172-31-41-93 ~]# nginx -v
nginx version: nginx/1.22.0
[root@ip-172-31-41-93 ~]#
```

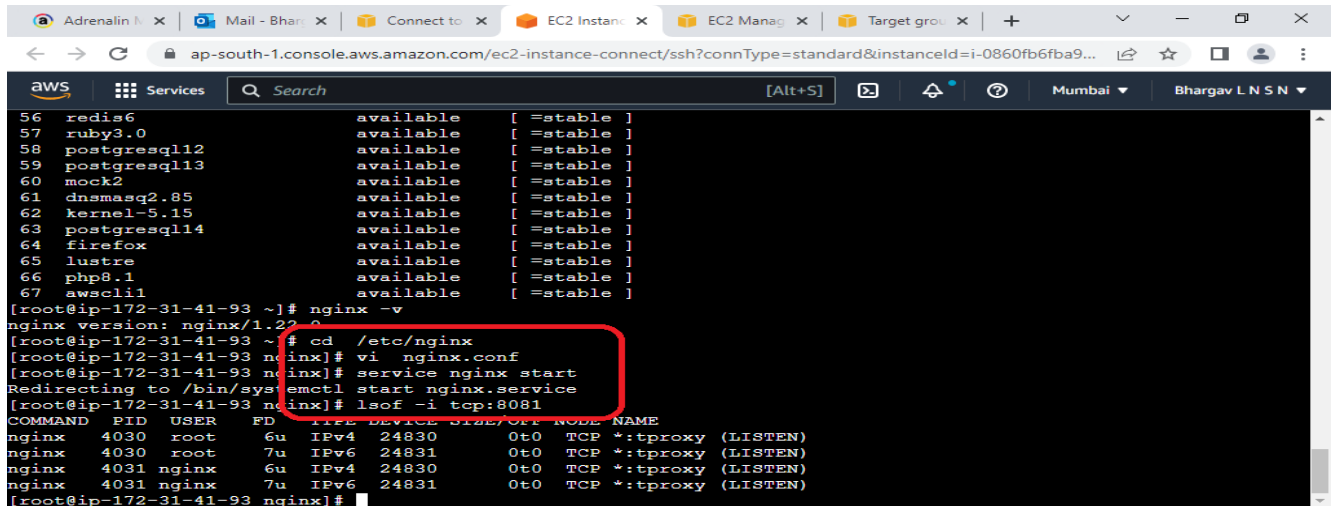
i-0860fb6fba910b0a7 (Networkloadbalancerexercise)

PublicIPs: 35.154.97.178 PrivateIPs: 172.31.41.93

Now change the port of nginx to 8081 in the config file using vi command

cd /etc/nginx

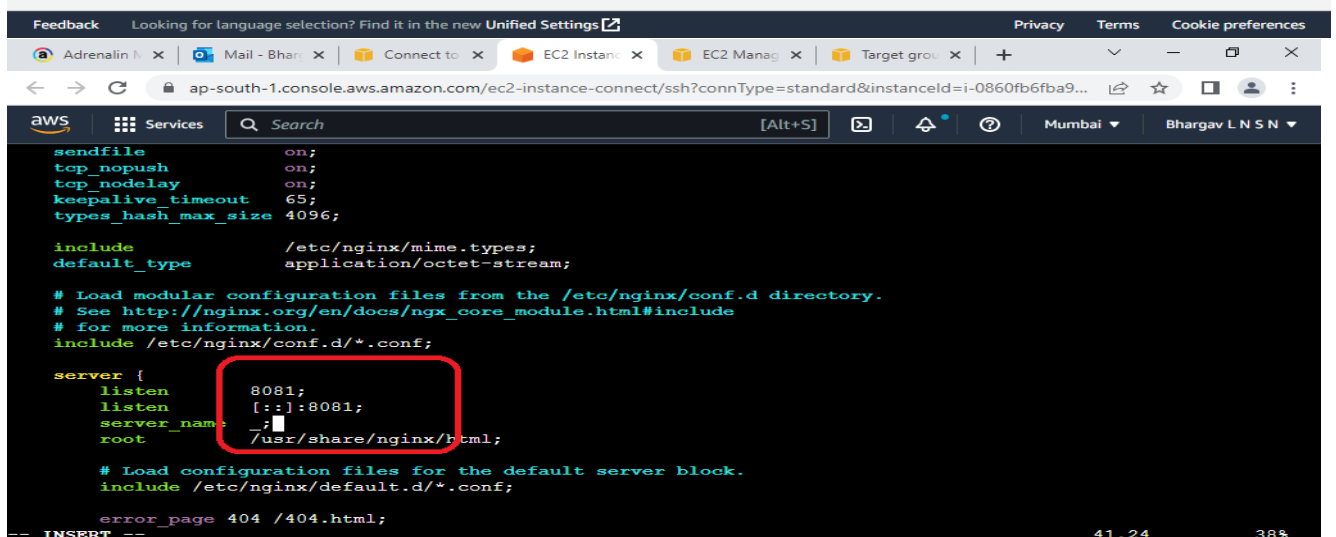
vi nginx.conf



```
56 redis6 available [ =stable ]
57 ruby3.0 available [ =stable ]
58 postgresql12 available [ =stable ]
59 postgresql13 available [ =stable ]
60 mock2 available [ =stable ]
61 dnsmasq2.85 available [ =stable ]
62 kernel-5.15 available [ =stable ]
63 postgresql14 available [ =stable ]
64 firefox available [ =stable ]
65 lustre available [ =stable ]
66 php8.1 available [ =stable ]
67 awscli1 available [ =stable ]
[root@ip-172-31-41-93 ~]# nginx -v
nginx version: nginx/1.22.0
[root@ip-172-31-41-93 ~]# cd /etc/nginx
[root@ip-172-31-41-93 nginx]# vi nginx.conf
[root@ip-172-31-41-93 nginx]# service nginx start
Redirecting to /bin/systemctl start nginx.service
[root@ip-172-31-41-93 nginx]# systemctl status nginx.service
nginx.service
Loaded: loaded (/usr/lib/systemd/system/nginx.service; vendor preset: enabled)
Active: active (running) since Mon 2022-08-08 14:22:00 UTC; 1min 1s ago
Main PID: 4030
Tasks: 3
CGroup: /systemd/system/nginx.service
└─ 4030 root 6u IPv4 24830 0t0 TCP *:http (LISTEN)
└─ 4030 root 6u IPv6 24831 0t0 TCP *:http (LISTEN)
└─ 4031 nginx 6u IPv4 24830 0t0 TCP *:http (LISTEN)
└─ 4031 nginx 6u IPv6 24831 0t0 TCP *:http (LISTEN)
```

i-0860fb6fba910b0a7 (Networkloadbalancerexercise)

PublicIPs: 35.154.97.178 PrivateIPs: 172.31.41.93



```
sendfile on;
tcp_nopush on;
tcp_nodelay on;
keepalive_timeout 65;
types_hash_max_size 4096;

include /etc/nginx/mime.types;
default_type application/octet-stream;

# Load modular configuration files from the /etc/nginx/conf.d directory.
# See http://nginx.org/en/docs/nginx_core_module.html#include
# for more information.
include /etc/nginx/conf.d/*.conf;

server {
    listen 8081;
    listen [::]:8081;
    server_name _;
    root /usr/share/nginx/html;

    # Load configuration files for the default server block.
    include /etc/nginx/default.d/*.conf;

    error_page 404 /404.html;
}
```

i-0860fb6fba910b0a7 (Networkloadbalancerexercise)

PublicIPs: 35.154.97.178 PrivateIPs: 172.31.41.93

Check the ports of nginx and httpd using – lsof command

Adrenalin N x | Mail - Bhar... x | Connect to x | EC2 Instance x | EC2 Manag x | Target grou x | +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0860fb6fba9...

aws Services Search [Alt+S] Mumbai Bhargav L N S N

```
65 lustre available [ =stable ]
66 php8.1 available [ =stable ]
67 awscli1 available [ =stable ]
[root@ip-172-31-41-93 ~]# nginx -v
nginx version: nginx/1.22.0
[root@ip-172-31-41-93 ~]# cd /etc/nginx
[root@ip-172-31-41-93 nginx]# vi nginx.conf
[root@ip-172-31-41-93 nginx]# service nginx start
Redirecting to /bin/systemctl start nginx.service
[root@ip-172-31-41-93 nginx]# lsof -i tcp:8081
COMMAND PID USER FD TYPE DEVICE SIZE/OFF NODE NAME
nginx 4030 root 6u IPv4 24830 0t0 TCP *:tproxy (LISTEN)
nginx 4030 root 7u IPv6 24831 0t0 TCP *:tproxy (LISTEN)
nginx 4031 nginx 6u IPv4 24830 0t0 TCP *:tproxy (LISTEN)
nginx 4031 nginx 7u IPv6 24831 0t0 TCP *:tproxy (LISTEN)
[root@ip-172-31-41-93 nginx]# lsof -i tcp:80
COMMAND PID USER FD TYPE DEVICE SIZE/OFF NODE NAME
httpd 3350 root 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3352 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3353 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3354 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3355 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3356 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3861 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
[root@ip-172-31-41-93 nginx]#
```

i-0860fb6fba910b0a7 (Networkloadbalancerexercise)

PublicIPs: 35.154.97.178 PrivateIPs: 172.31.41.93

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Installing Jenkins

- Install the java linux extras

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&insta...

aws Services Search [Alt+S] Mumbai Bhargav L N S N

```
[root@ip-172-31-41-93 ~]# yum install openjdk-11-jdk
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
No package openjdk-11-jdk available.
Error: Nothing to do
[root@ip-172-31-41-93 ~]# yum install openjdk-11-jdk -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
No package openjdk-11-jdk available.
Error: Nothing to do
[root@ip-172-31-41-93 ~]# yum install -y openjdk-11-jdk -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
No package openjdk-11-jdk available.
Error: Nothing to do
[root@ip-172-31-41-93 ~]# sudo amazon-linux-extras install java-openjdk11 -y
Installing java-11-openjdk
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Cleaning repos: amzn2-core amzn2extra-docker amzn2extra-java-openjdk11 amzn2extra-kernel-5.10 amzn2extra-nginx1
22 metadata files removed
8 sqlite files removed
0 metadata files removed
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core | 3.7 kB 00:00:00
amzn2extra-docker | 3.0 kB 00:00:00
amzn2extra-java-openjdk11 | 3.0 kB 00:00:00
amzn2extra-kernel-5.10 | 3.0 kB 00:00:00
amzn2extra-nginx1 | 3.0 kB 00:00:00
```

i-0860fb6fba910b0a7 (Networkloadbalancerexercise)

PublicIPs: 35.154.97.178 PrivateIPs: 172.31.41.93

li. Install the wget for jenkins

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&insta...

aws Services Search [Alt+S] Mumbai Bhargav L N S N

```
61 dnsmasq2.85 available [ =stable ]
62 kernel-5.15 available [ =stable ]
63 postgresql14 available [ =stable ]
64 firefox available [ =stable ]
65 lustre available [ =stable ]
66 php8.1 available [ =stable ]
67 awscli1 available [ =stable ]
[root@ip-172-31-41-93 ~]# sudo yum install jenkins -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
No package jenkins available.
Error: Nothing to do
[root@ip-172-31-41-93 ~]# sudo wget -O /etc/yum.repos.d/jenkins.repo \
> https://pkg.jenkins.io/redhat-stable/jenkins.repo
--2023-01-11 11:05:40-- https://pkg.jenkins.io/redhat-stable/jenkins.repo
Resolving pkg.jenkins.io (pkg.jenkins.io)... 151.101.154.133, 2a04:4e42:24::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|151.101.154.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 85
Saving to: '/etc/yum.repos.d/jenkins.repo'

100%[=====] 85 --.-K/s in 0s

2023-01-11 11:05:41 (3.51 MB/s) - '/etc/yum.repos.d/jenkins.repo' saved [85/85]
[root@ip-172-31-41-93 ~]#
```

i-0860fb6fba910b0a7 (Networkloadbalancerexercise) ×
PublicIPs: 35.154.97.178 PrivateIPs: 172.31.41.93

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&insta...

aws Services Search [Alt+S] Mumbai Bhargav L N S N

```
61 dnsmasq2.85 available [ =stable ]
62 kernel-5.15 available [ =stable ]
63 postgresql14 available [ =stable ]
64 firefox available [ =stable ]
65 lustre available [ =stable ]
66 php8.1 available [ =stable ]
67 awscli1 available [ =stable ]
[root@ip-172-31-41-93 ~]# sudo yum install jenkins -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
No package jenkins available.
Error: Nothing to do
[root@ip-172-31-41-93 ~]# sudo wget -O /etc/yum.repos.d/jenkins.repo \
> https://pkg.jenkins.io/redhat-stable/jenkins.repo
--2023-01-11 11:05:40-- https://pkg.jenkins.io/redhat-stable/jenkins.repo
Resolving pkg.jenkins.io (pkg.jenkins.io)... 151.101.154.133, 2a04:4e42:24::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|151.101.154.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 85
Saving to: '/etc/yum.repos.d/jenkins.repo'

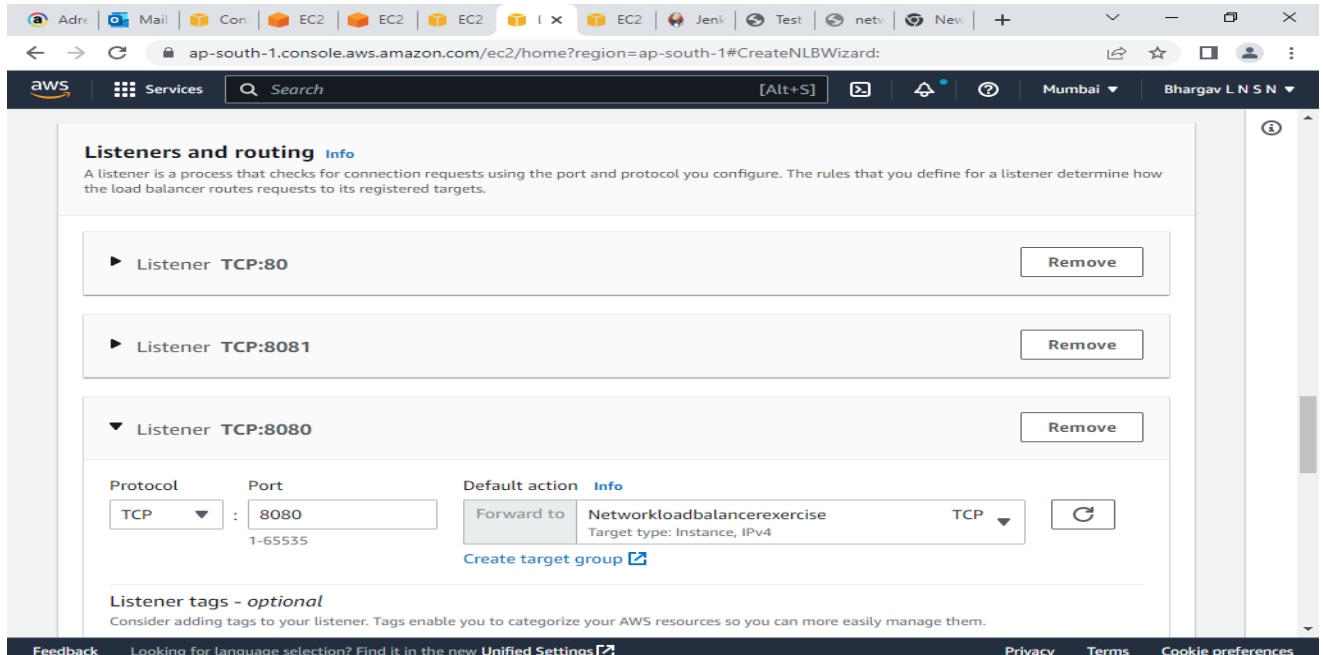
100%[=====] 85 --.-K/s in 0s

2023-01-11 11:05:41 (3.51 MB/s) - '/etc/yum.repos.d/jenkins.repo' saved [85/85]
[root@ip-172-31-41-93 ~]# sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io.key
```

i-0860fb6fba910b0a7 (Networkloadbalancerexercise) ×
PublicIPs: 35.154.97.178 PrivateIPs: 172.31.41.93

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Add the 8080-listener port in the target group to load balancer



Listeners and routing [Info](#)

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

- ▶ Listener TCP:80 [Remove](#)
- ▶ Listener TCP:8081 [Remove](#)
- ▼ Listener TCP:8080 [Remove](#)

Protocol: TCP Port: 8080
1-65535

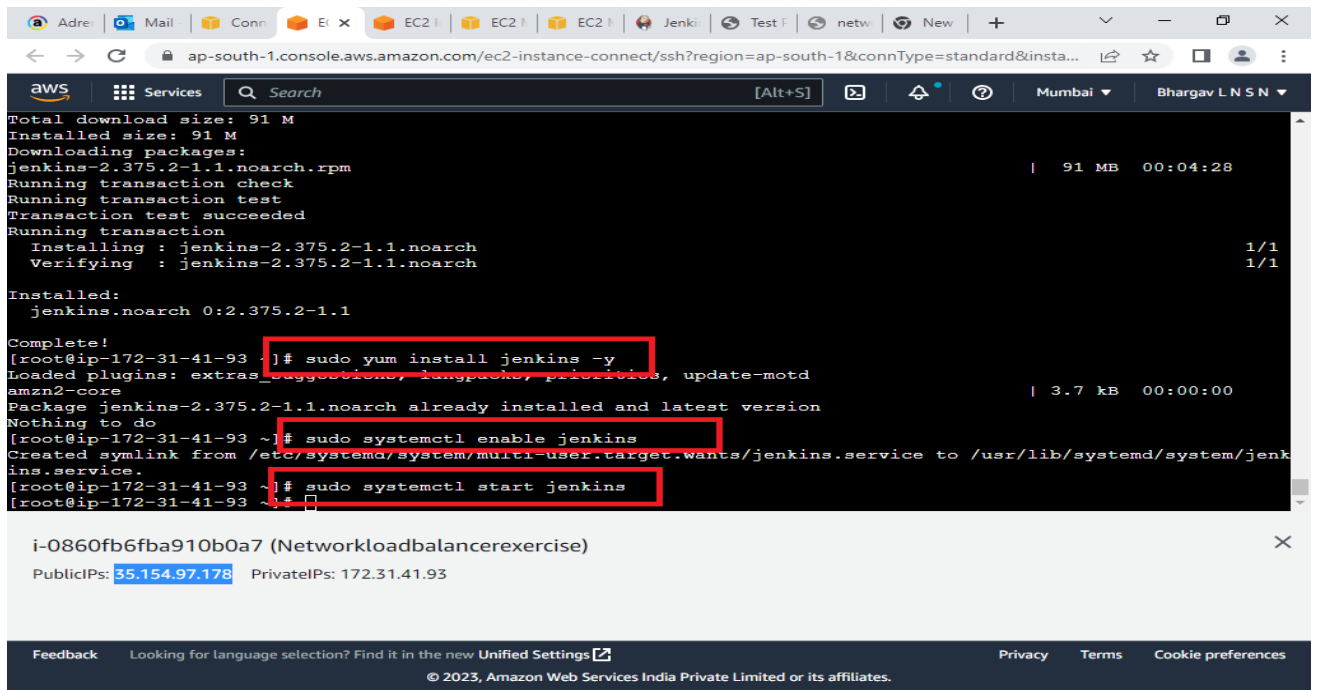
Default action [Info](#)

Forward to: Networkloadbalancerexercise
Target type: Instance, IPv4

[Create target group](#)

Listener tags - optional
Consider adding tags to your listener. Tags enable you to categorize your AWS resources so you can more easily manage them.

Install the jenkins and start jenkins



ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&insta...

```
Total download size: 91 M
Installed size: 91 M
Downloading packages:
jenkins-2.375.2-1.1.noarch.rpm | 91 MB 00:04:28
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : jenkins-2.375.2-1.1.noarch 1/1
  Verifying : jenkins-2.375.2-1.1.noarch 1/1

Installed:
jenkins.noarch 0:2.375.2-1.1

Complete!
[root@ip-172-31-41-93 ~]# sudo yum install jenkins -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd, amzn2-core
Package jenkins-2.375.2-1.1.noarch already installed and latest version
Nothing to do
[root@ip-172-31-41-93 ~]# sudo systemctl enable jenkins
Created symlink from /etc/systemd/system/multi-user.target.wants/jenkins.service to /usr/lib/systemd/system/jenkins.service.
[root@ip-172-31-41-93 ~]# sudo systemctl start jenkins
[root@ip-172-31-41-93 ~]#
```

i-0860fb6fba910b0a7 (Networkloadbalancerexercise)

PublicIPs: 35.154.97.178 PrivateIPs: 172.31.41.93

Check all the ports using lsof command

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&insta...

aws Services [Alt+S] Mumbai Bhargav L N S N

```
Nothing to do
[root@ip-172-31-41-93 ~]# sudo systemctl enable jenkins
Created symlink from /etc/systemd/system/multi-user.target.wants/jenkins.service to /usr/lib/systemd/system/jenkins.service.
[root@ip-172-31-41-93 ~]# sudo systemctl start jenkins
[root@ip-172-31-41-93 ~]# lsof -i tcp:8080
COMMAND PID USER FD TYPE DEVICE SIZE/OFF NODE NAME
java 11390 jenkins 8u IPv6 98763 0t0 TCP *:webcache (LISTEN)
[root@ip-172-31-41-93 ~]# lsof -i tcp:8081
COMMAND PID USER FD TYPE DEVICE SIZE/OFF NODE NAME
nginx 4030 root 6u IPv4 24830 0t0 TCP *:tproxy (LISTEN)
nginx 4030 root 7u IPv6 24831 0t0 TCP *:tproxy (LISTEN)
nginx 4031 nginx 6u IPv4 24830 0t0 TCP *:tproxy (LISTEN)
nginx 4031 nginx 7u IPv6 24831 0t0 TCP *:tproxy (LISTEN)
[root@ip-172-31-41-93 ~]# lsof -i tcp:80
COMMAND PID USER FD TYPE DEVICE SIZE/OFF NODE NAME
httpd 3350 root 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3352 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3353 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3354 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3355 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3356 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 3861 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
httpd 9901 apache 4u IPv6 21347 0t0 TCP *:http (LISTEN)
[root@ip-172-31-41-93 ~]#
```

i-0860fb6fba910b0a7 (Networkloadbalancerexercise)

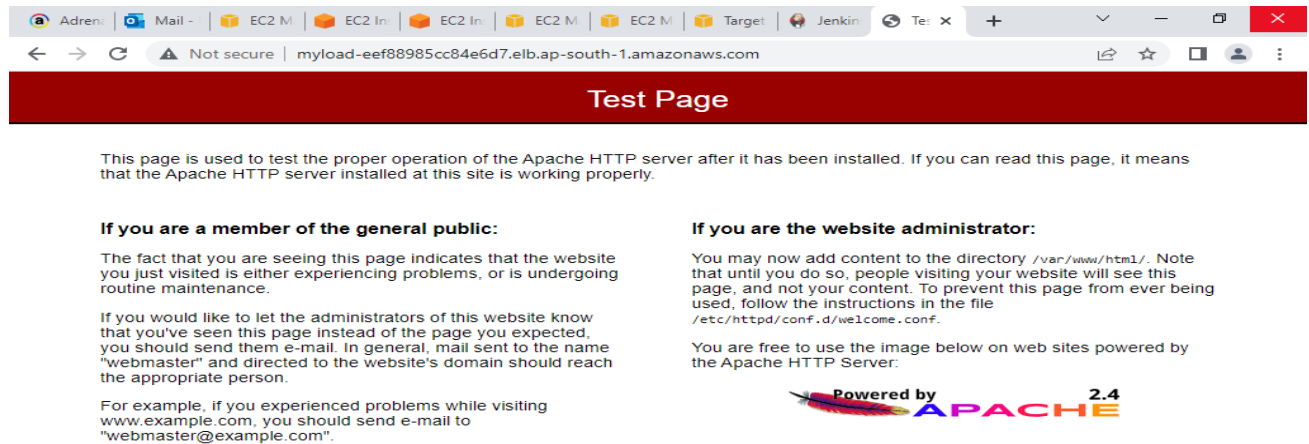
PublicIPs: 35.154.97.178 PrivateIPs: 172.31.41.93

Using the load balancer DNS we get the final output

On port – 80 – HTTPD

port – 8080 – JENKINS

port – 8081 – NGINIX



Connect the DNS name with :8080 and :8081

