

Assignment3 :: Configure Application Load balancer with two EC2 instances

Step 1: Created three instances and created a page which will display the IP address

```
yum update -y
```

```
yum install -y httpd
```

```
systemctl enable --now httpd
```

```
echo "Hello World from $(hostname -f)" > /var/www/html/index.html
```

Instance 1 :: Assignment_3_WebServer_1

The screenshot displays the AWS Management Console interface. The left sidebar shows navigation options like EC2 Dashboard, Events, Tags, Limits, and Instances. The main content area shows a list of instances, with 'Assignment_3_WebServer_1' selected. Below the list, the details for this instance are shown, including its ID, state (Running), type (t2.micro), and various network and security settings.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elasti
Assignment_3_WebServer_1	i-0138d052e7a23f501	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-3-83-49-107.comp...	3.83.49.107	-
Assignment_3_WebServer_2	i-033fb23a5257e06b	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-34-238-126-129.co...	34.238.126.129	-
Assignment_3_WebServer_3	i-0aa4edbc39ca92ce9	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-107-22-79-146.co...	107.22.79.146	-

Instance: i-0138d052e7a23f501 (Assignment_3_WebServer_1)

Details | Security | Networking | Storage | Status checks | Monitoring | Tags

Instance summary

- Instance ID: i-0138d052e7a23f501 (Assignment_3_WebServer_1)
- Public IPv4 address: 3.83.49.107 | open address
- Private IPv4 addresses: 172.31.84.52
- Instance state: Running
- Public IPv4 DNS: ec2-3-83-49-107.compute-1.amazonaws.com | open address
- Hostname type: IP name: ip-172-31-84-52.ec2.internal
- Private IP DNS name (IPv4 only): ip-172-31-84-52.ec2.internal
- Elastic IP addresses: -
- Answer private resource DNS name: IPv4 (A)
- Instance type: t2.micro
- Auto-assigned IP address: 3.83.49.107 [Public IP]
- VPC ID: vpc-6fc80712
- Subnet ID: subnet-607cc241
- IAM Role: -
- AWS Compute Optimizer finding: Opt-in to AWS Compute Optimizer for recommendations. | Learn more
- Auto Scaling Group name: -

Instance 1 Webpage

The screenshot shows a web browser window with the address bar displaying '3.83.49.107'. The page content shows the message 'Hello World from ip-172-31-84-52.ec2.internal', indicating that the web server is successfully running and responding to requests.

Instance 2 :: Assignment_3_WebServer_2

The screenshot displays the AWS Management Console interface. The left sidebar shows navigation options like EC2 Dashboard, Events, Tags, Limits, and Instances. The main content area shows a list of instances under the heading 'Instances (1/3) info'. The instance 'Assignment_3_WebServer_2' is selected, and its details are shown in a tabbed view. The 'Details' tab is active, showing the instance summary, including its ID, state (Running), type (t2.micro), and various addresses (Public IPv4, Private IPv4, Public IPv4 DNS, Private IP DNS, Elastic IP addresses, Auto-assigned IP address, IAM Role, VPC ID, Subnet ID).

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elast
Assignment_3_WebServer_1	i-0138d052e7a23f501	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-5-83-49-107.comp...	5.83.49.107	-
Assignment_3_WebServer_2	i-033ffb23a3257e06b	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-34-238-126-129.co...	34.238.126.129	-
Assignment_3_WebServer_3	i-0aa4edbc39ca92ce9	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-107-22-79-146.co...	107.22.79.146	-

Instance: i-033ffb23a3257e06b (Assignment_3_WebServer_2)

Details | Security | Networking | Storage | Status checks | Monitoring | Tags

Instance summary info

Instance ID: i-033ffb23a3257e06b (Assignment_3_WebServer_2)

IPv6 address: -

Hostname type: IP name: ip-172-31-90-231.ec2.internal

Answer private resource DNS name: IPv4 (A)

Auto-assigned IP address: 34.238.126.129 [Public IP]

IAM Role: -

Instance state: Running

Private IP DNS name (IPv4 only): ip-172-31-90-231.ec2.internal

Instance type: t2.micro

VPC ID: vpc-6fc80712

Subnet ID: subnet-607cc241

Public IPv4 address: 34.238.126.129 | open address

Private IPv4 addresses: 172.31.90.231

Public IPv4 DNS: ec2-34-238-126-129.compute-1.amazonaws.com | open address

Elastic IP addresses: -

AWS Compute Optimizer finding: Opt-in to AWS Compute Optimizer for recommendations. | Learn more

Auto Scaling Group name: -

Instance 2 Webpage

The screenshot shows a web browser window with the address bar displaying '34.238.126.129'. The page content shows the output of a web server, which is 'Hello World from ip-172-31-90-231.ec2.internal'.

Instance 3 :: Assignment_3_WebServer_3

The screenshot displays the AWS Management Console interface. The left sidebar shows the navigation menu with options like EC2 Dashboard, Events, Tags, Limits, and Instances. The main content area shows the 'Instances (1/3) info' page. A table lists three instances, with the third instance, 'Assignment_3_WebServer_3' (ID: i-0aa4edbc39ca92ce9), selected. Below the table, the 'Details' tab for this instance is expanded, showing various configuration details such as Instance ID, IP addresses, Hostname type, VPC ID, and Subnet ID.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elasti
Assignment_3_WebServer_1	i-0138d052e7a23f501	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-3-85-49-107.comp...	3.83.49.107	-
Assignment_3_WebServer_2	i-033f23a5257e06b	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-34-238-126-129.co...	34.238.126.129	-
Assignment_3_WebServer_3	i-0aa4edbc39ca92ce9	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-107-22-79-146.co...	107.22.79.146	-

Instance: i-0aa4edbc39ca92ce9 (Assignment_3_WebServer_3)

Details | Security | Networking | Storage | Status checks | Monitoring | Tags

Instance summary

Instance ID: i-0aa4edbc39ca92ce9 (Assignment_3_WebServer_3)

Public IPv4 address: 107.22.79.146 | [open address](#)

Instance state: **Running**

Private IP DNS name (IPv4 only): ip-172-31-92-129.ec2.internal

Instance type: t2.micro

VPC ID: vpc-6fc80712

Subnet ID: subnet-607cc241

Auto-assigned IP address: 107.22.79.146 [Public IP]

IAM Role: -

Platform: Amazon Linux 2

Monitoring: -

Instance 3 Webpage

The screenshot shows a web browser window with the address bar displaying '107.22.79.146'. The page content shows the output of a command executed on the EC2 instance, which is 'Hello World from ip-172-31-92-129.ec2.internal'.

Step 2 : Application Load Balancer ::

Step 2.1 : Load Balancer Security Group :: Inbound Rules

The screenshot displays the AWS Management Console for the security group **sg-0eacec4dfd161f266 - my-first-load-balance-sg**. The **Inbound rules** tab is selected, showing a single rule with the following details:

Name	Security group rule...	IP version	Type	Protocol	Port range	Source	Description
-	sgr-085601da064f6b9da	IPv4	HTTP	TCP	80	0.0.0.0/0	-

The console also shows the **Details** of the security group, including its name, ID, description, VPC ID, owner, and rule counts.

Load Balancer Security Group :: Outbound Rules

The screenshot displays the AWS Management Console for the security group **sg-0eacec4dfd161f266 - my-first-load-balance-sg**. The **Outbound rules** tab is selected, showing a single rule with the following details:

Name	Security group rule...	IP version	Type	Protocol	Port range	Destination	Description
-	sgr-01cd4b7c199b7d0cf	IPv4	HTTP	TCP	80	0.0.0.0/0	-

The console also shows the **Details** of the security group, including its name, ID, description, VPC ID, owner, and rule counts.

Step 2.2 : Load Balancer Target Group 1 ::

The screenshot shows the AWS Management Console interface for the 'my-first-target-group' in the us-east-1 region. The console displays the following details:

- Target type:** Instance
- Protocol : Port:** HTTP: 80
- Protocol version:** HTTP1
- VPC:** vpc-6fc80712
- IP address type:** IPv4
- Load balancer:** None associated
- Total targets:** 2
- Healthy:** 0
- Unhealthy:** 0
- Unused:** 2
- Initial:** 0
- Draining:** 0

The 'Registered targets (2)' section shows two targets:

Instance ID	Name	Port	Zone	Health status	Health status details
i-033fb23a3257e06b	Assignment_3_WebServer_2	80	us-east-1b	unused	Target group is not configured to receive traffic from the load balancer
i-0138d052e7a23f501	Assignment_3_WebServer_1	80	us-east-1b	unused	Target group is not configured to receive traffic from the load balancer

Load Balancer Target Group 2 ::

The screenshot shows the AWS Management Console interface for the 'my-second-taregte-group' in the us-east-1 region. The console displays the following details:

- Target type:** Instance
- Protocol : Port:** HTTP: 80
- Protocol version:** HTTP1
- VPC:** vpc-6fc80712
- IP address type:** IPv4
- Load balancer:** None associated
- Total targets:** 1
- Healthy:** 1
- Unhealthy:** 0
- Unused:** 0
- Initial:** 0
- Draining:** 0

The 'Registered targets (1)' section shows one target:

Instance ID	Name	Port	Zone	Health status	Health status details
i-0aa4edbc39ca92ce9	Assignment_3_WebServer_3	80	us-east-1b	healthy	

Step 2.3 : Creating an Application Load Balancer ::

Note: I have attached only TargetGroup1

Summary

Review and confirm your configurations. [Estimate cost](#)

Basic configuration Edit Assignment_3_ALB <ul style="list-style-type: none">Internet-facingIPv4	Security groups Edit <ul style="list-style-type: none">my-first-loab-balance-sg-0eacec4dfd161f266 🔗	Network mapping Edit VPC vpc-6fc80712 🔗 <ul style="list-style-type: none">us-east-1a subnet-8fc370e9 🔗us-east-1b subnet-607cc241 🔗us-east-1c subnet-37783b7a 🔗us-east-1d subnet-cb9e2294 🔗us-east-1e subnet-6b66a15a 🔗us-east-1f subnet-1e8efb10 🔗	Listeners and routing Edit <ul style="list-style-type: none">HTTP:80 defaults to my-first-target-group 🔗
--	--	---	---

Add-on services [Edit](#)
None

Tags [Edit](#)
None

Attributes

📌 Certain default attributes will be applied to your load balancer. You can view and edit them after creating the load balancer.

Step 2.4: Attaching the second target group to Listener

Goto Load Balancer page and select the Listeners tab -> Edit the existing listener

The screenshot shows the AWS Management Console interface. The left sidebar contains navigation links for EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations, and Images. The main content area displays the 'Load balancer: Assignment-3-ALB' page. The 'Listeners' tab is selected, showing a table with one listener: 'HTTP : 80' with Listener ID 'arn...45f929353920e1c4'. The 'Rules' column for this listener shows 'Default: forwarding to my-first-target-group' with a 'View/edit rules' link. The top of the console shows the 'Create Load Balancer' button and a search bar with 'Assignment-3-ALB' entered.

EC2 Management Console

us-east-1.console.aws.amazon.com/ec2/v2/home?region=us-east-1#LoadBalancers:search=Assignment-3-ALB:sort=loadBalancerName

Search for services, features, blogs, docs, and more [Alt+S]

Create Load Balancer Actions

search : Assignment-3-ALB Add filter

Name	DNS name	State	VPC ID
Assignment-3-ALB	Assignment-3-ALB-1545065...	Active	vpc-6fc80712

Load balancer: Assignment-3-ALB

Description Listeners Monitoring Integrated services Tags

Listeners listen for connection requests using their protocol and port. You can add, remove, or update listeners and listener rules.

To view and edit listener attributes, select the listener and choose Edit.

Add listener Edit Delete

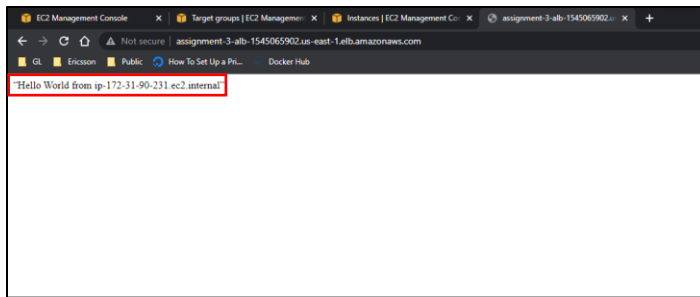
Listener ID	Security policy	SSL Certificate	Rules
<input type="checkbox"/> HTTP : 80 arn...45f929353920e1c4	N/A	N/A	Default: forwarding to my-first-target-group View/edit rules

Add new rules as below

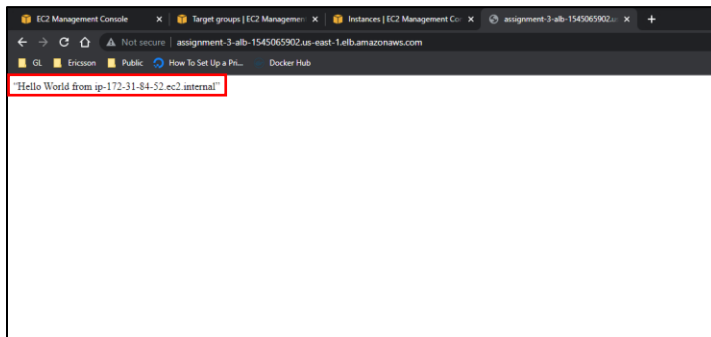
The screenshot shows the AWS Management Console interface for configuring rules in an Application Load Balancing (ALB) environment. The browser address bar indicates the console URL for the us-east-1 region, specifically for the Assignment-3-ALB. The console header shows the 'Rules' tab is active, and the page title is 'Assignment-3-ALB | HTTP:80'. Below the header, a message states 'To edit, select a mode above.' The main content area displays 'Assignment-3-ALB | HTTP:80 (3 rules)' and a link to 'Rule limits for condition values, wildcards, and total rules.' A table lists the configured rules:

Rule ID	ARN	IF Condition	THEN Action
1	arn...cf2a4	IF ✓ Path is /error	THEN Return fixed response 404 Content-Type: text/plain Response body: Warning !!! Page Not Found Error (less...)
2	arn...5da25	IF ✓ Path is /tg2	THEN Forward to my-second-target-group: 1 (100%) Group-level stickiness: Off
last	HTTP 80: default action <i>This rule cannot be moved or deleted</i>	IF ✓ Requests otherwise not routed	THEN Forward to my-first-target-group: 1 (100%) Group-level stickiness: Off

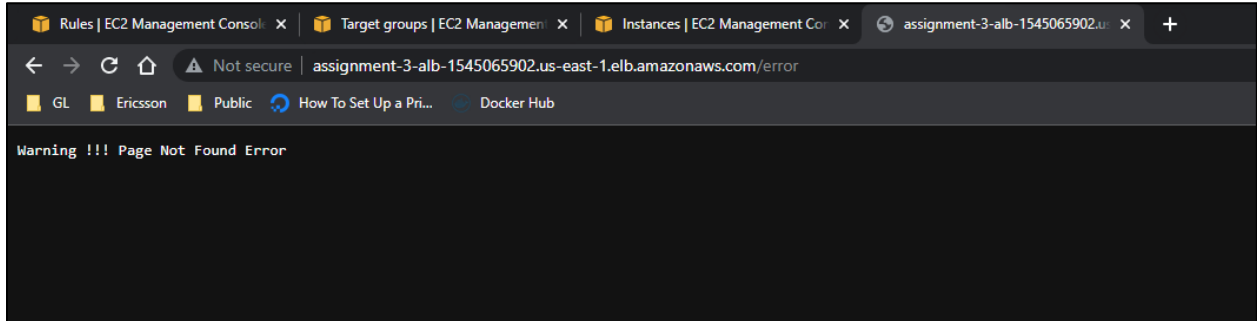
Result 1:



Result 2:



Result 3:



Result 4:

