

Lesson 03 Demo 08

Creating Route Requests in ALB

Objective: To set up routing requests in Amazon Web Services (AWS) using an Application Load Balancer (ALB)

Tools required: Amazon Workspace

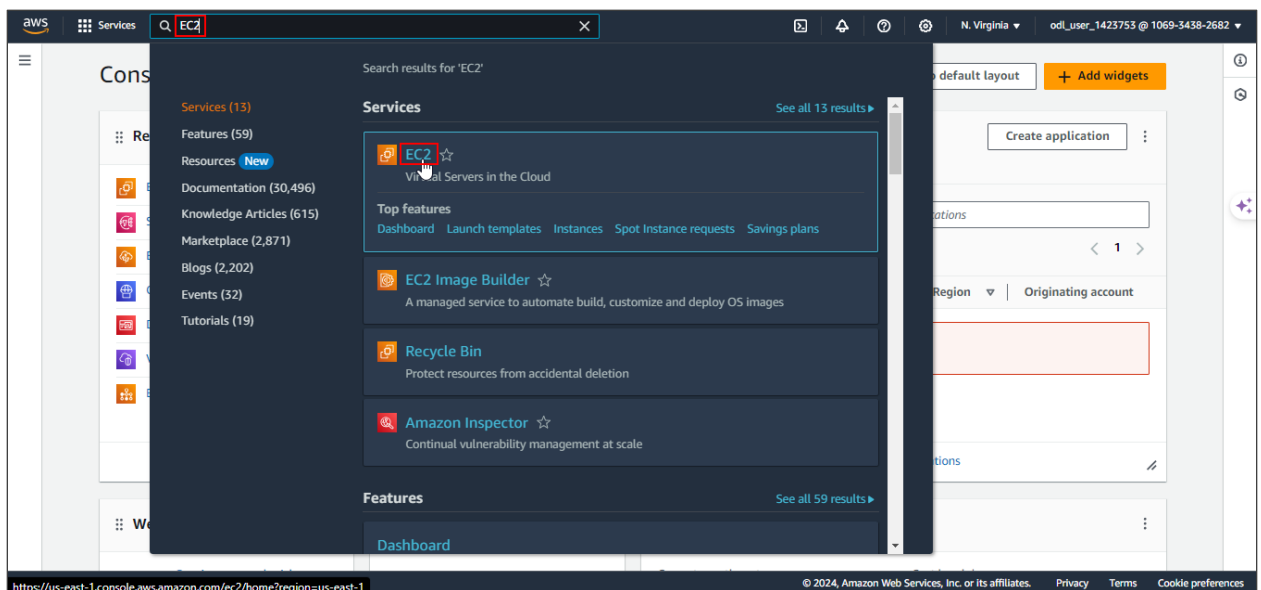
Prerequisites: Amazon account

Steps to be followed:

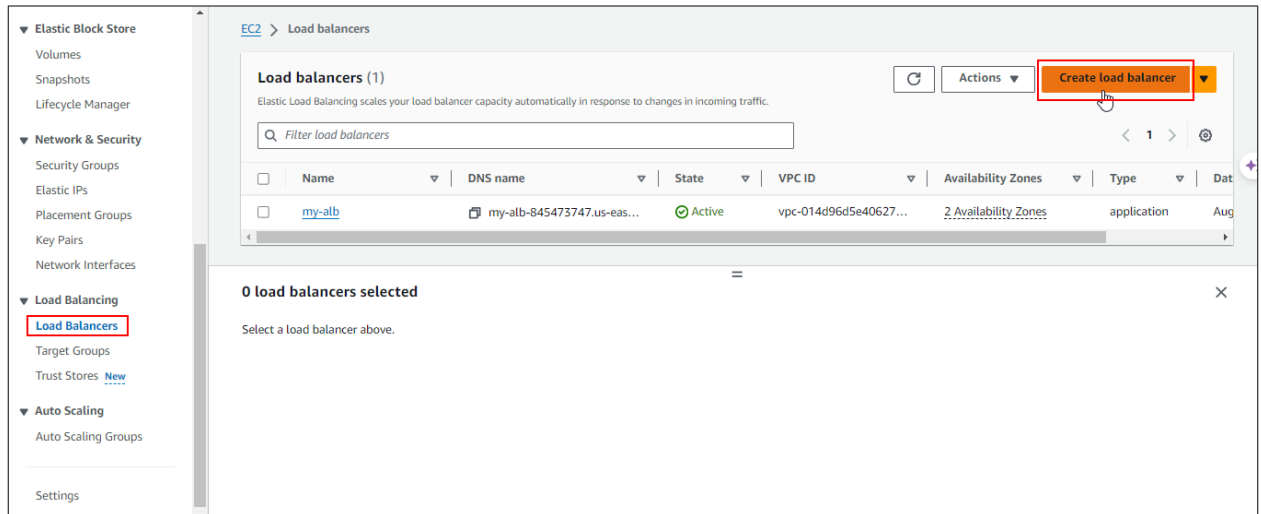
1. Set up the prerequisites for EC2
2. Create a routing request in ALB

Step 1: Set up the prerequisites for EC2

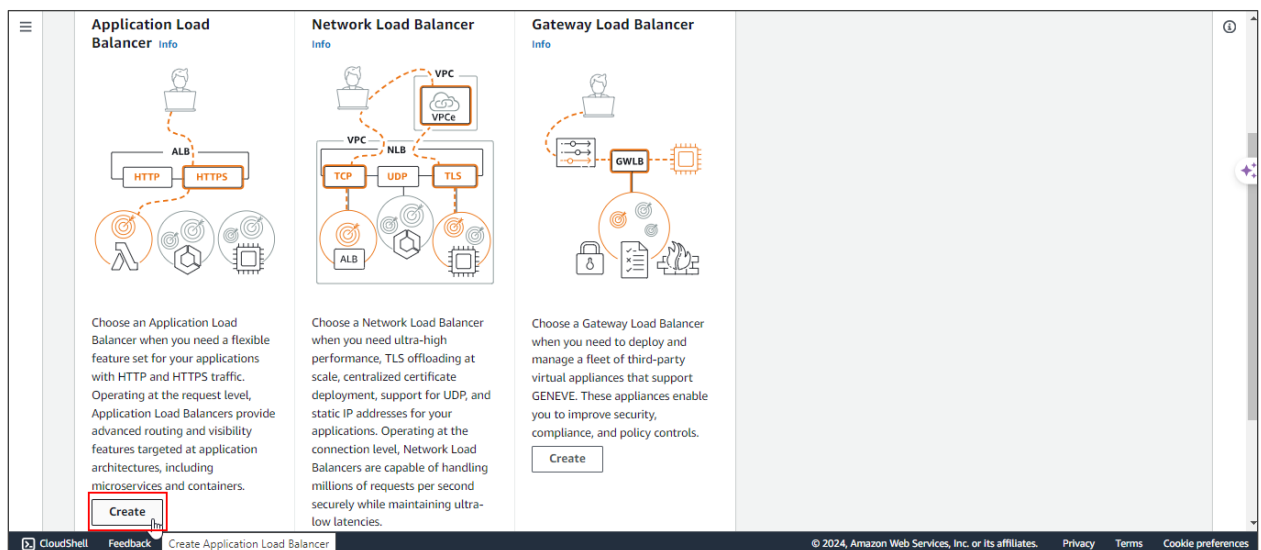
1.1 Navigate to the AWS console home dashboard, search for and click on **EC2**



1.2 Navigate to the **Load Balancers** tab under the **Load Balancing** section and click on **Create load balancer**



1.3 Choose **Application Load Balancer** and click on **Create**



1.4 Enter the Load balancer name as Demo-1

Basic configuration

Load balancer name

Name must be unique within your AWS account and can't be changed after the load balancer is created.

Demo-1

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

Scheme

Info

Scheme can't 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. Compatible with the IPv4 and Dualstack IP address types.

Load balancer IP address type

Info

Select the front-end IP address type to assign to the load balancer. The VPC and subnets mapped to this load balancer must include the selected IP address types. Public IPv4 addresses have an additional cost.

☒ IPv4

Includes only IPv4 addresses.

☐ Dualstack

Includes IPv4 and IPv6 addresses.

☐ Dualstack without public IPv4

Includes a public IPv6 address, and private IPv4 and IPv6 addresses. Compatible with internet-facing load balancers only.

1.5 Select the Mappings as us-east 1a and us-east 2b

Mappings

Info

Select at least two Availability Zones and one subnet per zone. The load balancer routes traffic to targets in these Availability Zones only. Availability Zones that are not supported by the load balancer or the VPC are not available for selection.

Availability Zones

☒ us-east-1a (use1-az4)

Subnet

subnet-0bd95890e468ef05d

IPv4 subnet CIDR: 172.31.16.0/20

IPv4 address

Assigned by AWS

☒ us-east-1b (use1-az6)

Subnet

subnet-0a4815ab829101e43

IPv4 subnet CIDR: 172.31.32.0/20

IPv4 address

Assigned by AWS

☐ us-east-1c (use1-az1)

Subnet

subnet-0a4815ab829101e43

IPv4 subnet CIDR: 172.31.32.0/20

IPv4 address

Assigned by AWS

☐ us-east-1d (use1-az2)

Subnet

subnet-0a4815ab829101e43

IPv4 subnet CIDR: 172.31.32.0/20

IPv4 address

Assigned by AWS

☐ us-east-1e (use1-az3)

Subnet

subnet-0a4815ab829101e43

IPv4 subnet CIDR: 172.31.32.0/20

IPv4 address

Assigned by AWS

☐ us-east-1f (use1-az5)

Subnet

subnet-0a4815ab829101e43

IPv4 subnet CIDR: 172.31.32.0/20

IPv4 address

Assigned by AWS

1.6 Select Security groups as default

Security groups [Info](#)

A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can [create a new security group](#).

Security groups

Select up to 5 security groups

default
sg-01fa1455e4f1d0117 VPC: vpc-014d96d5e406276f2

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 HTTP:80 [Remove](#)

Protocol: HTTP Port: 80 Default action: [Info](#)

Forward to: Select a target group

[Create target group](#)

1.7 Open a new tab and create a new target group named Demo-1G

EC2 Dashboard [×](#)

EC2 Global View

Events

Console-to-Code [Preview](#)

▼ **Instances**

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

▼ **Images**

AMIs

AMI Catalog

EC2 > Target groups

Target groups (2) [Info](#)

[Filter target groups](#)

< 1 > [⚙️](#)

<input type="checkbox"/>	Name	ARN	Port	Protocol	Target type
<input type="checkbox"/>	Demo-1G	arn:aws:elasticloadbalanci...	80	HTTP	Instance

0 target groups selected [×](#)

Select a target group above.

The target groups have been created successfully. Refer to the previous demos for instructions on how to create target groups.

1.8 Select **Demo-1** as the default action in the **Listeners and Routing** section

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 HTTP:80 Remove

Protocol: HTTP Port: 80 (1-65535)

Default action: **Demo-1G** (Target type: Instance, IPv4) Info

[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.

Add listener tag

You can add up to 50 more tags.

1.9 Click on **Create load balancer**

[Service integrations](#) [Edit](#)

AWS WAF: None
AWS Global Accelerator: 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.

Creation workflow and status

► **Server-side tasks and status**

After completing and submitting the above steps, all server-side tasks and their statuses become available for monitoring.

Cancel Create load balancer

Successfully created load balancer: Demo-1

It might take a few minutes for your load balancer to fully set up and route traffic. Targets will also take a few minutes to complete the registration process and pass initial health checks.

[EC2](#) > [Load balancers](#) > Demo-1

Demo-1 Refresh Actions

▼ **Details**

Load balancer type Application	Status ⌚ Provisioning	VPC vpc-014d96d5e406276f2	Load balancer IP address type IPv4
Scheme Internet-facing	Hosted zone Z35SXDOTRQ7X7K	Availability Zones subnet-0bd95890e468ef05d us-east-1a (use1-az4)	Date created August 12, 2024, 21:32 (UTC+05:30)

The **Application Load Balancer** has been successfully created.

Step 2: Create a routing request in ALB

2.1 Select **Demo-1** and click on **Details**

The screenshot shows the AWS Management Console interface. On the left is a navigation sidebar with categories like EC2 Dashboard, Instances, and Images. The main content area is titled 'Load balancers (1/2)' and contains a table of load balancers. The table has columns for Name, DNS name, State, VPC ID, and Availability Zones. The first row, 'Demo-1', is selected. Below the table, a modal window titled 'Load balancer: Demo-1' is open, showing the 'Details' tab. This tab displays various attributes of the load balancer in a grid format.

Name	DNS name	State	VPC ID	Availability Zones
Demo-1	Demo-1-707773027.us-east-1.elb.amazonaws.com	Active	vpc-014d96d5e40627...	2 Availability Zones

Load balancer: Demo-1			
Details			
Load balancer type	Status	VPC	Load balancer IP address type
Application	Active	vpc-014d96d5e406276f2	IPv4
Scheme	Hosted zone	Availability Zones	Date created
Internet-facing	Z35SXDOTRQ7X7K	subnet-0bd95890e468ef05d	August 12, 2024, 21:32

2.2 Click on **Listeners and rules**, select the Listener ID, and click on **Add rule**

This screenshot shows the same AWS Management Console interface as the previous one, but with the 'Listeners and rules' tab selected in the modal window for 'Load balancer: Demo-1'. The 'Details' tab is still visible in the background, showing the same attributes. The 'Listeners and rules' tab is currently empty, indicating that no listeners or rules have been added to this load balancer yet.

Load balancers (1/2)

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Filter load balancers

Name	DNS name	State	VPC ID	Availability Zones	Type
<input checked="" type="checkbox"/> Demo-1	Demo-1-707773027.us-east-1.elb.amazonaws.com	Active	vpc-014d96d5e40627...	2 Availability Zones	application
<input type="checkbox"/> my-alb	my-alb-845473747.us-east-1.elb.amazonaws.com	Active	vpc-014d96d5e40627...	2 Availability Zones	application

Load balancer: Demo-1

Listeners and rules (1/1)

A listener checks for connection requests on its configured protocol and port. Traffic received by the listener is routed to the target group and any additional rules.

Filter listeners

Manage rules (dropdown): Add rule (highlighted), Edit rules, Reprioritize rules

Manage listener (dropdown): Add listener

Protocol:Port	Default action	Rules	ARN	Security policy	Default S
<input checked="" type="checkbox"/> HTTP:80	Forward to target group <ul style="list-style-type: none"> Demo-1G: 1 (100%) Target group stickiness: Off 	1 rule	ARN	Not applicable	Not applic

2.3 Enter the name as **Demo-1** and click **Next**

aws Services Search [Alt+S] N. Virginia

EC2 > Load balancers > Demo-1 > HTTP:80 listener > Add rule

Step 1: Add rule

Step 2: Define rule conditions

Step 3: Define rule actions

Step 4: Set rule priority

Step 5: Review and create

Add rule

Define the rule and then review it in the context of the other rules on this listener.

► Listener details: HTTP:80

Name and tags

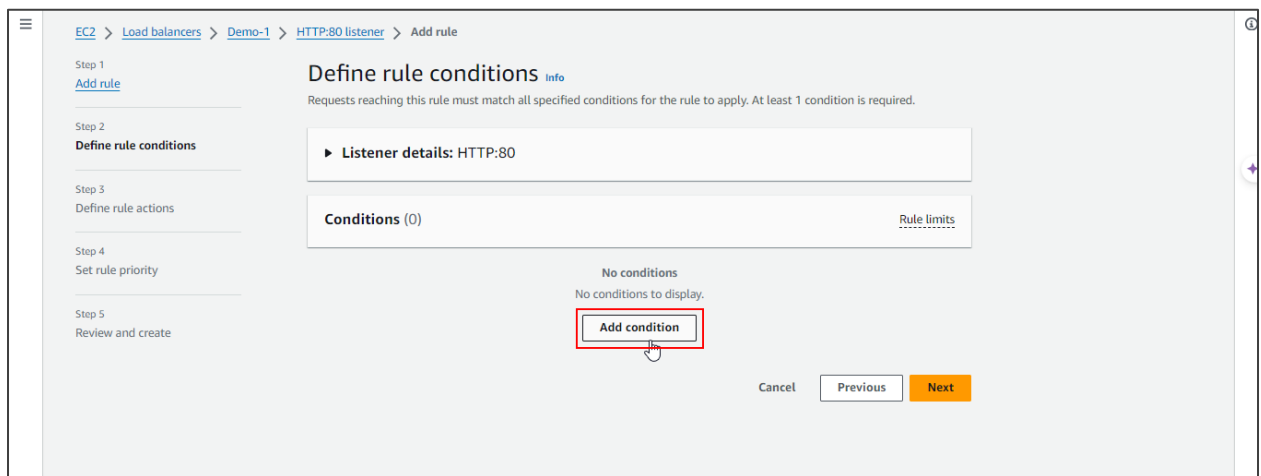
Tags can help you manage, identify, organize, search for and filter resources.

Name: Demo-1

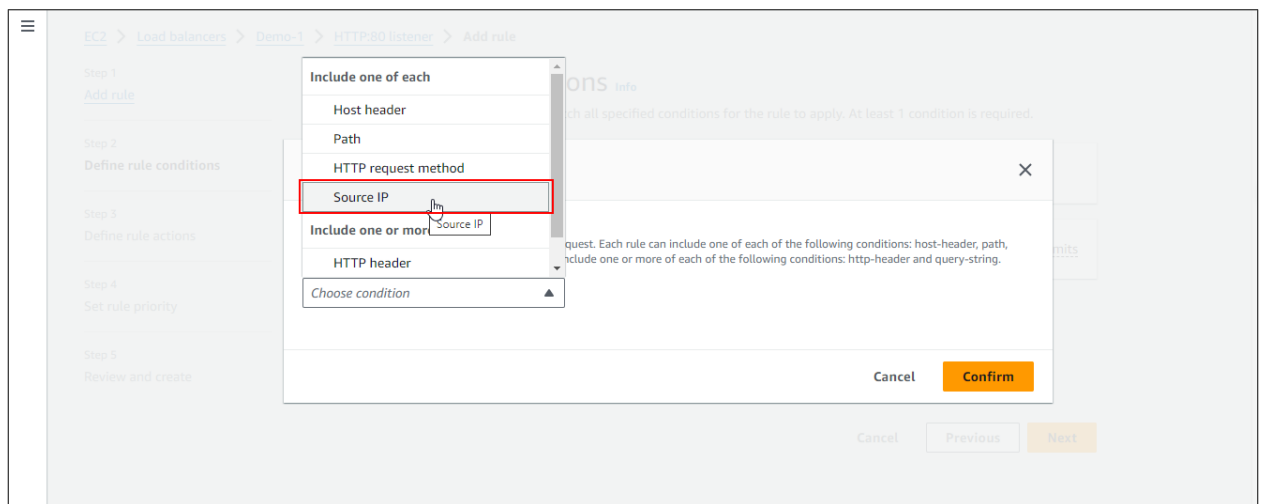
Add additional tags

Cancel Next

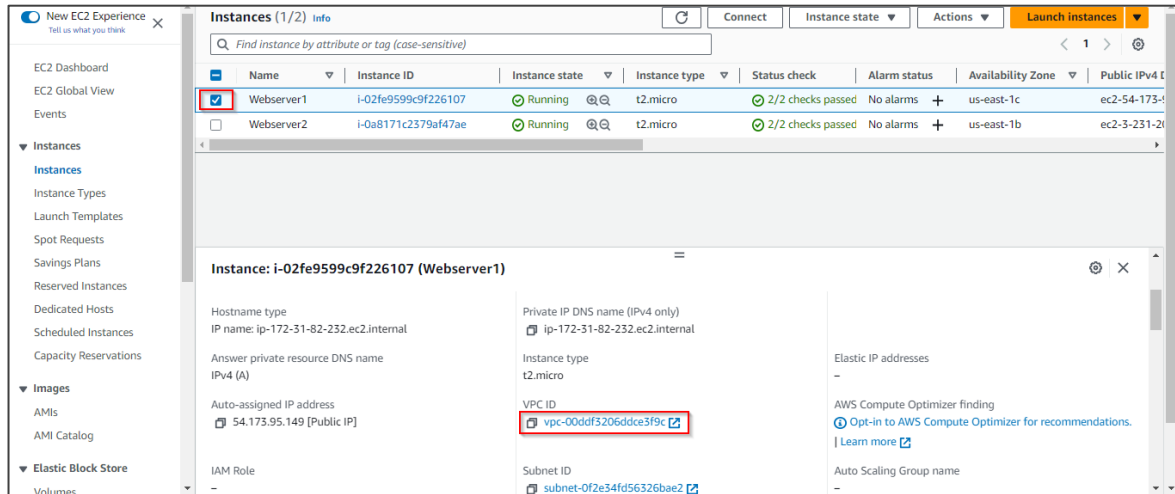
2.4 Click on **Add condition**



2.5 Select **Source IP** as the **Rule condition type**

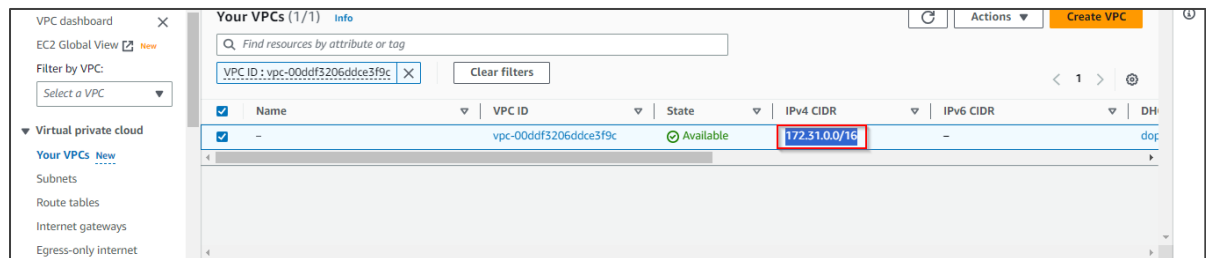


2.6 Enter the Source IP address, open a new tab, go to the EC2 dashboard, select **Webserver1** from the previous demos, and click on the **VPC ID** under the Details tab



Note: Refer to the previous demos for creating instances

2.7 Copy the **IPv4 CIDR** from the selected VPC



2.8 Paste the copied IP address into the **Source IP** field and click **Confirm**

Edit condition Rule limits ×

Rule condition types
Route traffic based on the condition type of each request. Each rule can include one of each of the following conditions: host-header, path, http-request-method and source-ip. Each rule can include one or more of each of the following conditions: http-header and query-string.

Source IP ▼

Source IP
Define the source IP address in CIDR format.

is 🗑️

Both IPv4 and IPv6 CIDRs are allowed. Wildcards are not supported.

[Add new value](#)

You can add up to 4 more condition values for this rule.

Cancel **Confirm**

2.9 Click on **Next**

[EC2](#) > [Load balancers](#) > [Demo-1](#) > [HTTP:80 listener](#) > [Add rule](#)

Step 1
[Add rule](#)

Step 2
Define rule conditions

Step 3
Define rule actions

Step 4
Set rule priority

Step 5
Review and create

Define rule conditions Info

Requests reaching this rule must match all specified conditions for the rule to apply. At least 1 condition is required.

► **Listener details:** HTTP:80

Conditions (1) Rule limits Edit Delete Add condition

Source IP (1) Info □

If
Source IP

is
172.31.0.0/16

Cancel Previous **Next**

2.10 Select **Forward to target groups** and choose the target group **Demo-1**

Define rule actions

Step 3
Define rule actions

Step 4
Set rule priority

Step 5
Review and create

Actions

Action types

Routing actions

☒ Forward to target groups ☐ Redirect to URL ☐ Return fixed response

Forward to target group [Info](#)
Choose a target group and specify routing weight or [Create target group](#)

Target group

Demo-1G HTTP Weight: 1 Percent: 100%
Target type: Instance, IPv4 0-999

You can add up to 4 more target groups.

Target group stickiness [Info](#)
Enables the load balancer to bind a user's session to a specific target group. To use stickiness the client must support cookies. If you want to bind a user's session to a specific target, turn on the Target Group attribute Stickiness.

☐ Turn on target group stickiness

2.11 Set the priority to **2** and click **Next**

Set rule priority

Step 5
Review and create

Priority
Rule priority controls the evaluation order of a rule within the listener's set of rules. You can leave gaps in priority numbers.
2
1 - 50000

Listener rules (2) [Info](#) [Rule limits](#)

Traffic received by the listener is routed according to the default action and any additional rules. Rules are evaluated in priority order from the lowest value to the highest value.

Name tag	Priority	Conditions (If)	Actions (Then)	ARN
Demo-1	2	Source IP is 172.31.0.0/16	Forward to target group • Demo-1G : 1 (100%) • Target group stickiness: Off	Pending
Default	Last (default)	If no other rule applies	Forward to target group • Demo-1G : 1 (100%) • Target group stickiness: Off	<input type="button" value="ARN"/>

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2.12 Click on the **Create** button

Review and create

Step 2: [Define rule conditions](#)

Step 3: [Define rule actions](#)

Step 4: [Set rule priority](#)

Step 5: **Review and create**

Listener details: HTTP:80

Rule details: Demo-1 Edit

Priority	Conditions (If)	Actions (Then)
2	If request matches all: Source IP is 172.31.0.0/16	Forward to target group <ul style="list-style-type: none"> Demo-1G: 1 (100%) Target group stickiness: Off

Rule ARN: Pending

Rule tags (1) Edit

Tags can help you manage, identify, organize, search for and filter resources.

Key	Value
Name	Demo-1

Cancel Previous **Create**

EC2 Dashboard ×

EC2 Global View

Events

Console-to-Code [Preview](#)

▼ **Instances**

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

▼ **Images**

- AMIs
- AMI Catalog

Successfully created rule "Demo-1" on listener HTTP:80.

[EC2](#) > [Load balancers](#) > [Demo-1](#) > HTTP:80 listener

HTTP:80 [Info](#) ↻ Actions

▼ **Details**

A listener checks for connection requests using the protocol and port that you configure. The default action and any additional rules that you create determine how the Application Load Balancer routes requests to its registered targets.

Protocol:Port	Load balancer	Default actions
HTTP:80	Demo-1	Forward to target group <ul style="list-style-type: none"> Demo-1G: 1 (100%) Target group stickiness: Off

Listener ARN
arn:aws:elasticloadbalancing:us-east-1:106934382682:listener/app/Demo-1/4f23c817f31ac829/aef383c12bdfda6e

[Rules](#) | [Tags](#)

The **HTTP:80** listener has been created successfully.

By following these steps, you have successfully created a routing request in an Application Load Balancer (ALB) on Amazon Web Services (AWS).