

Goals

Create an API with api gateway
Use a VPC link to secure traffic

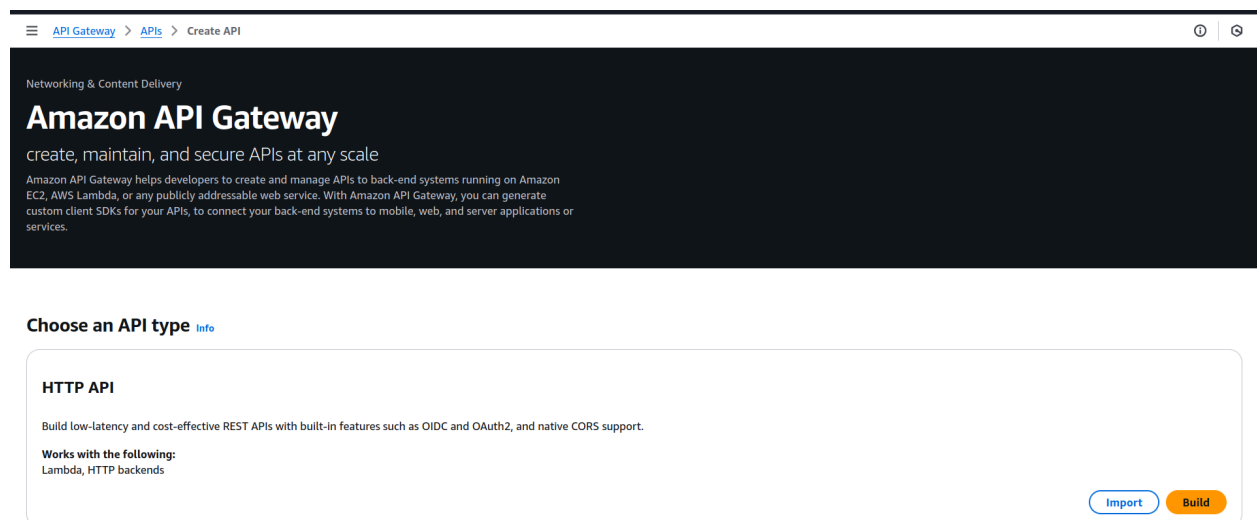
End result:

You can now use https so traffic is more secure
EC2 is less exposed to the internet

Create API Gateway

Create the HTTP Gateway

Click on build



The screenshot shows the 'Create API' page in the Amazon API Gateway console. The breadcrumb trail at the top reads 'API Gateway > APIs > Create API'. The page header indicates 'Networking & Content Delivery'. The main heading is 'Amazon API Gateway' with the subtitle 'create, maintain, and secure APIs at any scale'. A descriptive paragraph states: 'Amazon API Gateway helps developers to create and manage APIs to back-end systems running on Amazon EC2, AWS Lambda, or any publicly addressable web service. With Amazon API Gateway, you can generate custom client SDKs for your APIs, to connect your back-end systems to mobile, web, and server applications or services.' Below this, the section 'Choose an API type' includes a link to 'info'. The 'HTTP API' option is selected, with a description: 'Build low-latency and cost-effective REST APIs with built-in features such as OIDC and OAuth2, and native CORS support.' It also lists 'Works with the following: Lambda, HTTP backends'. At the bottom right of the selection box are 'Import' and 'Build' buttons.

Use these settings. Add the endpoint with the port to your EC2 Instance

Create an API

Create and configure integrations

Specify the backend services that your API will communicate with. These are called integrations. For a Lambda integration, API Gateway invokes the Lambda function and responds with the response from the function. For an HTTP integration, API Gateway sends the request to the URL that you specify and returns the response from the URL.

Integrations (1) [Info](#)

HTTP

Remove

Method

URL endpoint

GET

http://ec2-3-139-72-150.us-east-2.compute.amazonaws.com:5000

Add integration

API name
An HTTP API must have a name. This name is cosmetic and does not have to be unique; you will use the API's ID (generated later) to programmatically refer to this API.

API Website Forms

Cancel [Review and create](#)

We will be using the base path / resource.

Configure routes - optional

Configure routes [Info](#)

API Gateway uses routes to expose integrations to consumers of your API. Routes for HTTP APIs consist of two parts: an HTTP method and a resource path (e.g., GET /pets). You can define specific HTTP methods for your integration (GET, POST, PUT, PATCH, HEAD, OPTIONS, and DELETE) or use the ANY method to match all methods that you haven't defined on a given resource.

Method

Resource path

Integration target

GET

/

GET http://ec2-3-139-72-150.us-east-2.compute.a... Remove

Add route

Cancel [Review and create](#) [Previous](#)

Go through the rest with default settings and click create

Test it out

Connect to your api through the default endpoint, located in the API tab

APIs

Custom domain names

Domain name access associations

VPC links

API: API Website For... (sx61ck6oxd)

Develop

Routes

Authorization

Integrations

API Website Forms

API details

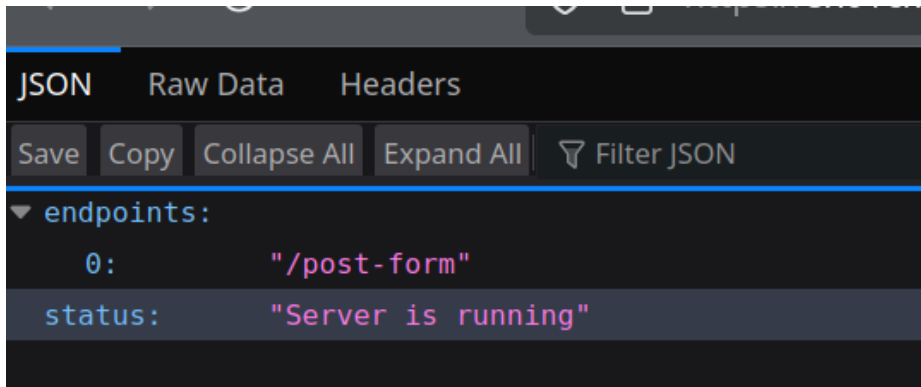
API ID
sx61ck6oxd

Protocol
HTTP

Description
No Description

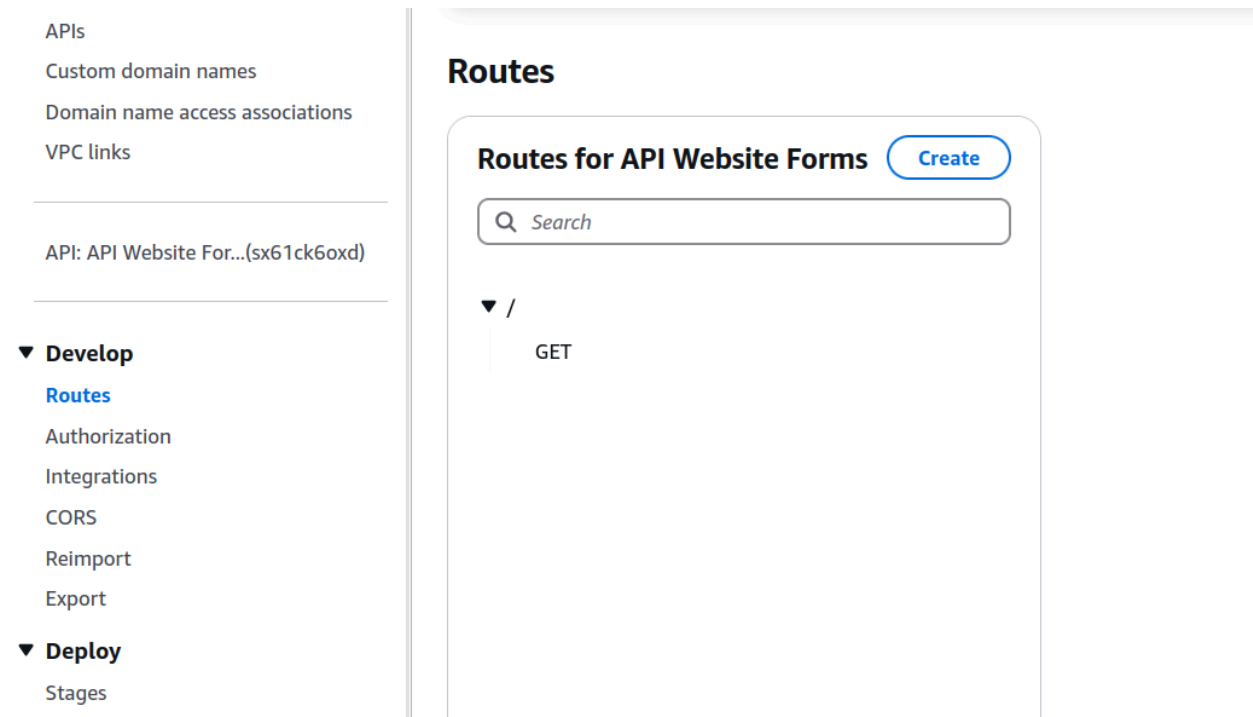
Default endpoint
Enabled
<https://sx61ck6oxd.execute-api.us-east-2.amazonaws.com>

Stages for API Website Forms (1)



Create post-form route

Create a new route



Create a route

Route and method [Info](#)

Route name eg. /pets

Choose a method and enter a path to create a route. You can also specify one \$default route per API. The \$default route is invoked when the request to the API

POST



/post-form

Add the integration

ES

tes for API Website Forms

Create

Search

GET


ost-form

POST

Route details

POST /post-form (ID: 97ct4l0)

ARN

 arn:aws:apigateway:us-east-2::apis/sx61ck6oxd/routes/97ct4l0

Authorization

Authorizers protect your API against unauthorized requests. Routes with no au

No authorizer attached to this route.

Attach authorization

Integration

The integration is the backend resource that this route calls when it receives a r

No integration attached to this route.

Attach integration

Create and attach an integration

Add the url. Don't forget the http.

Create an integration

Attach this integration to a route

Q POST /post-form



Integration target

Integration type

HTTP URI



Integration details

Integration target

When this route receives a request, API Gateway sends the request to the URL specified using the HTTP method defined. 'ANY' indicates that API Gateway uses the same method of integration.

HTTP method

POST



URL

http://ec2-3-139-72-150.us-east-2.compute.amazonaws.com:5000/post-form

▼ Advanced settings

Go back to your index.html and replace the form action with your post form api.

Congratulations.

Creating a target group

EC2 > Target groups > Create target group

Step 1
● Specify group details
Step 2
○ Register targets

Specify group details

Your load balancer routes requests to the targets in a target group and performs health checks on the targets.

Basic configuration

Settings in this section can't be changed after the target group is created.

Choose a target type

☒ Instances

- Supports load balancing to instances within a specific VPC.
- Facilitates the use of [Amazon EC2 Auto Scaling](#) to manage and scale your EC2 capacity.

Target group name

Portfolio-EC2-Targets

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

Protocol : Port

Choose a protocol for your target group that corresponds to the Load Balancer type that will route traffic to it. Some protocols now include anomaly detection for the targets and you can set mitigation options target group is created. This choice cannot be changed after creation

HTTP

80

1-65535

IP address type

Only targets with the indicated IP address type can be registered to this target group.

☒ IPv4

Each instance has a default network interface (eth0) that is assigned the primary private IPv4 address. The instance's primary private IPv4 address is the one that will be applied to the target.

☐ IPv6

Each instance you register must have an assigned primary IPv6 address. This is configured on the instance's default network interface (eth0).

[Learn more](#)

VPC

Select the VPC with the instances that you want to include in the target group. Only VPCs that support the IP address type selected above are available in this list.

Portfolio VPC-vpc

vpc-0e23050b43b76917b

IPv4 VPC CIDR: 10.0.0.0/16

Protocol version

☒ HTTP1

Send requests to targets using HTTP/1.1. Supported when the request protocol is HTTP/1.1 or HTTP/2.

☐ HTTP2

Send requests to targets using HTTP/2. Supported when the request protocol is HTTP/2 or gRPC, but gRPC-specific features are not available.

☐ gRPC

Filter instances

☒ Instance ID

▼

☒ Name

▼

☒ State

▼

☒ Security groups

▼

☒ Zone

▼

<input checked="" type="checkbox"/>	i-0ee04a7687601b4fa	PortfolioEC2	Running	ec2-rds-2, ec2-rds-1, EC2 Inbound	us-east-2a
-------------------------------------	---------------------	--------------	---------	-----------------------------------	------------

1 selected

Ports for the selected instances

Ports for routing traffic to the selected instances.

5000

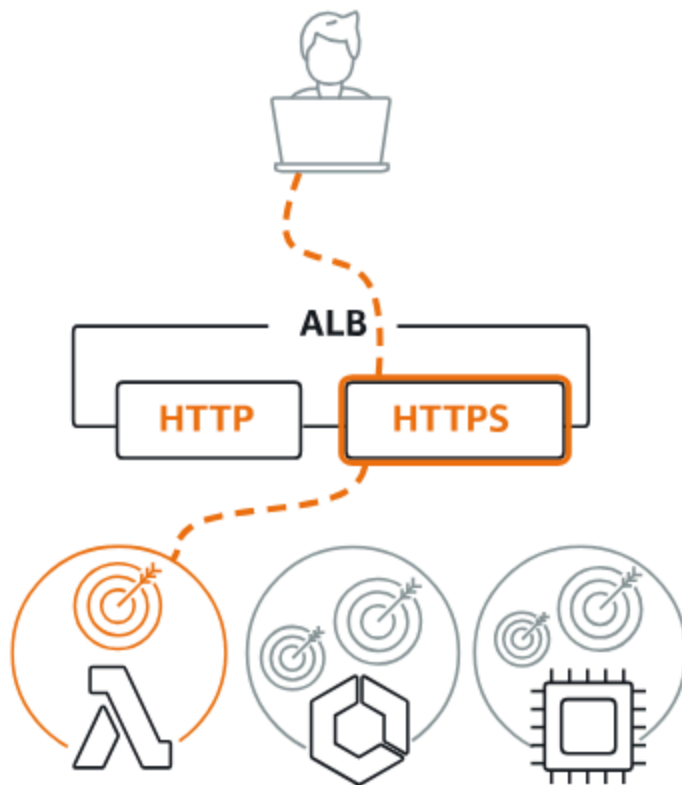
1-65535 (separate multiple ports with commas)

Include as pending below

Creating an application load balancer

The screenshot shows the AWS Management Console interface for 'Load balancers'. The main content area has a header 'Load balancers' with a description: 'Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.' Below this is a search bar 'Filter load balancers' and a table with columns: Name, DNS name, State, VPC ID, Availability Zones, Type, and Date created. A message in the center of the table states 'No load balancers' and 'You don't have any load balancers in us-east-2'. A 'Create load balancer' button is located below the table. The left sidebar shows the navigation menu with 'Load Balancing' selected, and 'Load Balancers' is highlighted under the 'Load Balancing' section. The top right of the console shows the 'Actions' dropdown menu and a 'Create load balancer' button.

Application Load Balancer [Info](#)



Choose an Application Load Balancer when you need a flexible feature set for your applications with HTTP and HTTPS traffic. Operating at the request level, Application Load Balancers provide advanced routing and visibility features targeted at application architectures, including microservices and containers.

[Create](#)

Basic configuration

Load balancer name

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

Portfolio-ALB

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

- Serves internet-facing traffic.
- Has public IP addresses.
- DNS name is publicly resolvable.
- Requires a public subnet.



Internal

- Serves internal traffic.
- Has private IP addresses.
- DNS name is publicly resolvable.
- 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 requirement.



IPv4

Includes only IPv4 addresses.



Dualstack

Includes IPv4 and IPv6 addresses.

Network mapping

[Info](#)

The load balancer routes traffic to targets in the selected subnets, and in accordance with your IP address settings.

VPC

[Info](#)

The load balancer will exist and scale within the selected VPC. The selected VPC is also where the load balancer targets must be hosted unless routing to Lambda or on-premises targets, or if using VPC peering. To confirm the VPC for your targets, view [target groups](#). For a new VPC, [create a VPC](#).

Portfolio VPC-vpc

vpc-0e23050b43b76917b
IPv4 VPC CIDR: 10.0.0.0/16



IP pools

[Info](#)

You can optionally choose to configure an IPAM pool as the preferred source for your load balancer's IP addresses. View [Pools](#) in [Amazon VPC IP Address Manager console](#).

☐ Use IPAM pool for public IPv4 addresses

Compatible with Internet-facing scheme, IPv4 and Dualstack IP address types.

Availability Zones and subnets

[Info](#)

Select at least two Availability Zones and a subnet for each zone. A load balancer node will be placed in each selected zone and will automatically scale in response to traffic. The load balancer routes traffic to targets in the selected Availability Zones only.

☒ us-east-2a (use2-az1)

Subnet

Only CIDR blocks corresponding to the load balancer IP address type are used. At least 8 available IP addresses are required for your load balancer to scale efficiently.

subnet-0f3c8ed669c067a5d

IPv4 subnet CIDR: 10.0.128.0/20

Portfolio VPC-subnet-private1-us-east-2a

☒ us-east-2b (use2-az2)

Subnet

Only CIDR blocks corresponding to the load balancer IP address type are used. At least 8 available IP addresses are required for your load balancer to scale efficiently.

subnet-065aa241335650740

Portfolio VPC-subnet-private2-us-east-2b

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

[Re...](#)

Protocol

HTTP

Port

80

1-65535

Default action

[Info](#)

Forward to

Portfolio-EC2-Targets

Target type: Instance, IPv4

HTTP

[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.

[Add listener](#)

Creating a VPC Link

API Gateway

- APIs
- Custom domain names
- Domain name access associations
- VPC links

VPC links

VPC links

Create

Find APIs

Choose a VPC link version [Info](#)

☐ VPC link for REST APIs
This VPC link can be used with REST APIs.

☒ VPC link for HTTP APIs
This VPC link can be used with HTTP APIs.

VPC link details

Name

PortfolioVPCLink

VPC

Choose a VPC to connect to.

Portfolio VPC-vpc (vpc-0e23050b43b76917b)

Subnets

Choose the subnets to include in the VPC link. After the VPC link is created, you can't change its subnets.

Find subnets

<input checked="" type="checkbox"/>	Subnet	Name	Availability Zone	Subnet IPv4 C
<input type="checkbox"/>	subnet-0fe665740eb08165f	RDS-Pvt-subnet-1	us-east-2a	10.0.32.0/25
<input type="checkbox"/>	subnet-00f1bda4732322fc1	RDS-Pvt-subnet-2	us-east-2c	10.0.32.128/2
<input type="checkbox"/>	subnet-0cf4eadca9659721f	Portfolio VPC-subnet-public1-us-east-2a	us-east-2a	10.0.0.0/20
<input checked="" type="checkbox"/>	subnet-0f3c8ed669c067a5d	Portfolio VPC-subnet-private1-us-east-2a	us-east-2a	10.0.128.0/20
<input type="checkbox"/>	subnet-00c1c1887a78ea5f6	Portfolio VPC-subnet-public2-us-east-2b	us-east-2b	10.0.16.0/20
<input type="checkbox"/>	subnet-0db8cecc7b26a9715	RDS-Pvt-subnet-3	us-east-2b	10.0.33.0/25
<input checked="" type="checkbox"/>	subnet-065aa241335650740	Portfolio VPC-subnet-private2-us-east-2b	us-east-2b	10.0.144.0/20

Security groups

Choose the security groups for the VPC link. After the VPC link is created, you can't change its security groups.

Find security groups

<input checked="" type="checkbox"/>	Group ID	Name	Description
<input checked="" type="checkbox"/>	sg-009d5f362c01f1791	default	default VPC security group
<input type="checkbox"/>	sg-03957583aa4e2c437	ec2-rds-1	Security group attached to instances to securely connect to PortfolioRDS. Modification could lead to connection loss.
<input type="checkbox"/>	sg-0679625a044c41849	Application Load Balancer to EC2	Route traffic from Application Load Balancer to EC2
<input type="checkbox"/>	sg-0705d8768a17e0bc5	rds-ec2-2	Security group attached to portfolioRDSServer to allow EC2 instances with specific security groups attached to connect to
<input type="checkbox"/>	sg-083aec5b3e1066806	rds-ec2-1	Security group attached to PortfolioRDS to allow EC2 instances with specific security groups attached to connect to the d
<input type="checkbox"/>	sg-0c6e8dca006960dff	EC2 Inbound	Connections inbound to EC2 Instance
<input type="checkbox"/>	sg-0ca25c20595f8ab15	ec2-rds-2	Security group attached to instances to securely connect to portfolioRDSServer. Modification could lead to connection lo

Creating a more private route

Create a new integration for route /

Detach the old integration and create a new one

VPC links

API: API Website For...(sx61ck6oxd)

▼ Develop

Routes

Authorization

Integrations

CORS

Reimport

Export

Attach integrations to routes

Manage integrations

Routes for API Website Forms

▼ /

GET HTTP GET

▼ /post-form

POST HTTP POST

Integration details for route

GET / (an6duoh)

HTTP URI

GET http://ec2-3-139-72-150.us-east-2.compute.amazonaws.com:5000

Integration ID

seat02

Detach integration

Manage integration

Description

-

Timeout

The number of milliseconds that API Gateway should wait for a response from the integration before timing out.

Attach this integration to a route

Integration target

Integration type

