

AWS Serverless Deployment

AWS serverless deployment involves deploying applications that leverage serverless services like AWS Lambda, Amazon API Gateway, Amazon S3, and Amazon DynamoDB, without the need to provision or manage servers. This approach allows developers to focus on writing code while AWS handles the underlying infrastructure.

AWS Serverless deployment diagram

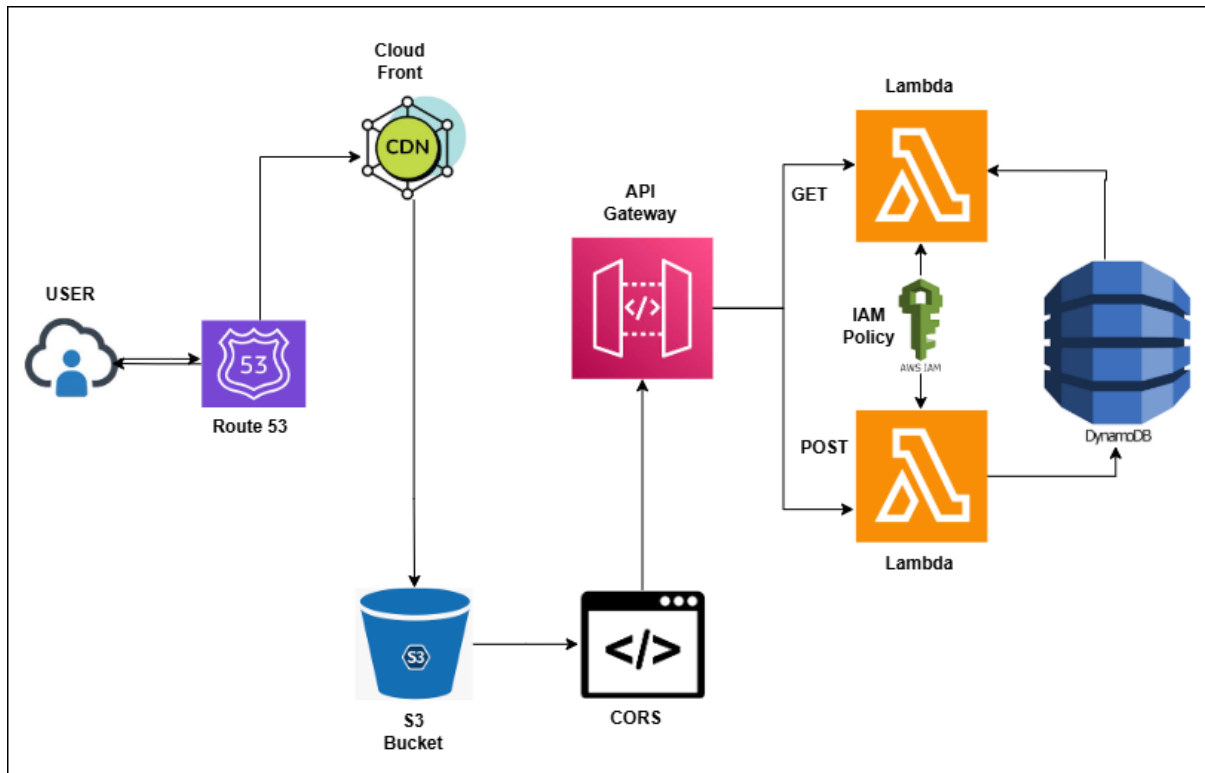


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Step1: Creating Application

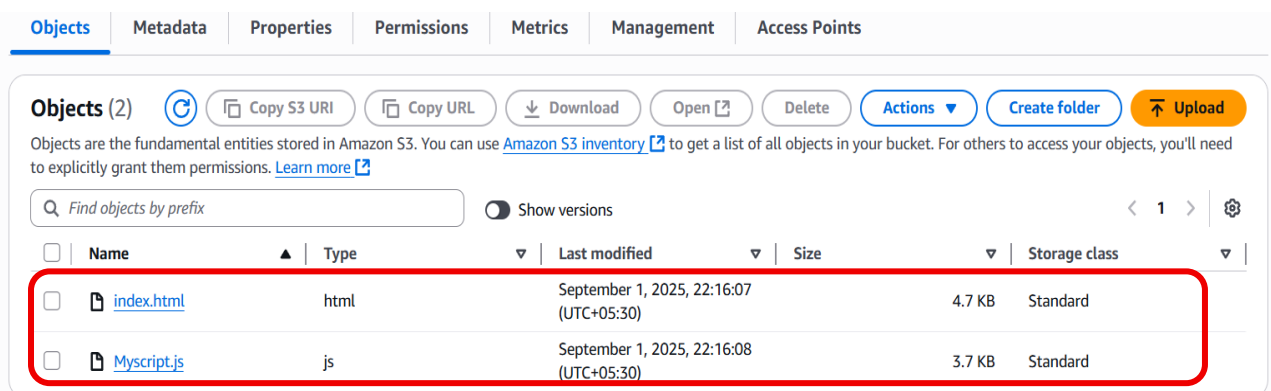
Developed the Project which includes Frontend and backend process. Frontend includes, posting and retrieving the Employee details in API gateway using AJAX and enabling the CORS. Backend includes API gateway is used to trigger the lambda function to insert and select the Employee records in Dynamo DB.

Step2: S3 bucket creation

An Amazon S3 bucket is a fundamental storage resource within AWS S3. It functions as a container for storing objects, which are essentially files (like images, documents, or application data) along with any associated metadata.

- Download the Project from [My Github Repo](#)
- Create the S3 bucket with unique name and upload the Project inside the s3 bucket.
- Enable the S3 bucket public access rule required for static website hosting.
- To make the S3 bucket has private , we are using cloud front distribution (CDN).
- Enabling the static website hosting configuration.
- Attach AWS S3 bucket Policy to get the objects accessed by the users.

- Uploaded files in S3 bucket



The screenshot displays the Amazon S3 console interface for a specific bucket. The 'Objects' tab is selected, showing a list of two objects: 'index.html' and 'Myscript.js'. The 'index.html' object is highlighted with a red box. The console includes various action buttons at the top, such as 'Copy S3 URI', 'Copy URL', 'Download', 'Open', 'Delete', 'Actions', 'Create folder', and 'Upload'. A search bar and a 'Show versions' toggle are also present. The table columns are Name, Type, Last modified, Size, and Storage class.

	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	index.html	html	September 1, 2025, 22:16:07 (UTC+05:30)	4.7 KB	Standard
<input type="checkbox"/>	Myscript.js	js	September 1, 2025, 22:16:08 (UTC+05:30)	3.7 KB	Standard

- Enabling static website hosting

Static website hosting
Use this bucket to host a website or redirect requests. [Learn more](#)

Static website hosting

☐ Disable

☒ Enable

Hosting type

☒ Host a static website
Use the bucket endpoint as the web address. [Learn more](#)

☐ Redirect requests for an object
Redirect requests to another bucket or domain. [Learn more](#)

For your customers to access content at the website endpoint, you must make all your content publicly readable. To do so, you can edit the S3 Block Public Access settings for the bucket. For more information, see [Using Amazon S3 Block Public Access](#)

Index document
Specify the home or default page of the website.

index.html

Error document - optional
This is returned when an error occurs.

error.html

- S3 Bucket policy

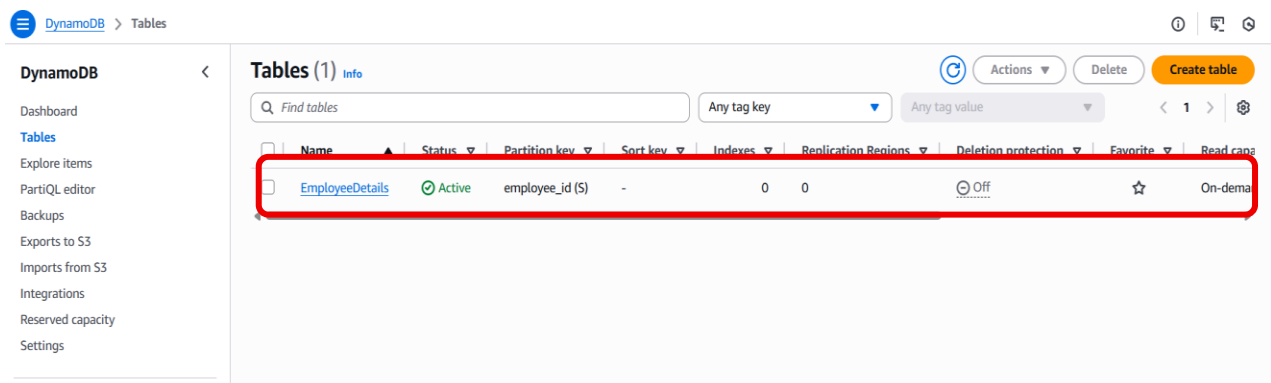
Bucket policy
The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts. [Learn more](#)

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "Statement1",
      "Effect": "Allow",
      "Principal": "*",
      "Action": "s3:GetObject",
      "Resource": "arn:aws:s3:::awsserverlessbkt/*"
    }
  ]
}
```

Step3: Creating Table in Dynamo DB

Amazon DynamoDB is a fully managed, serverless NoSQL database service offered by Amazon Web Services (AWS). It is designed to provide fast and predictable performance with seamless scalability, making it suitable for high-performance, internet-scale applications.

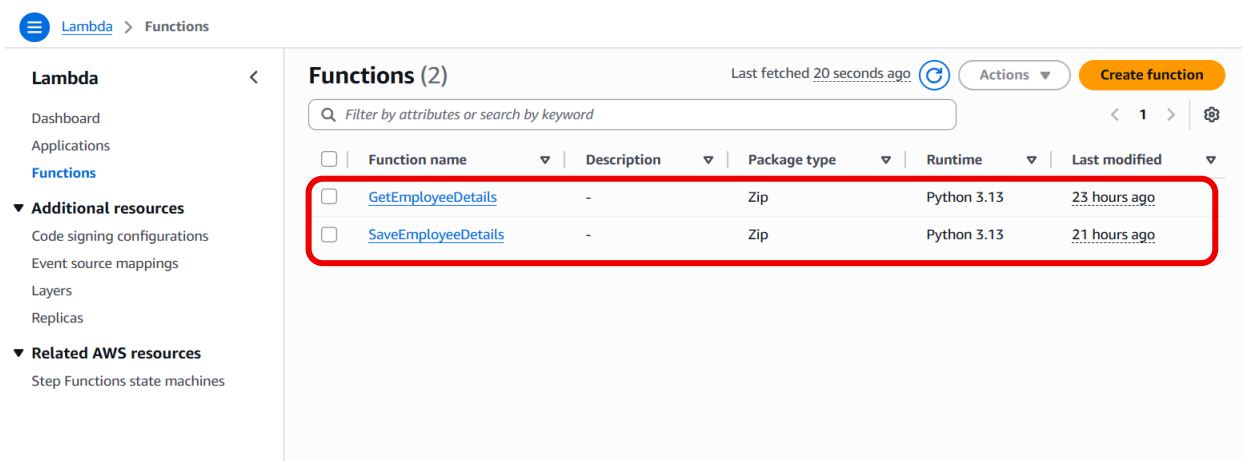
- Create Employee Table in DynamoDB



Step4: Creating Lambda function:

AWS Lambda is a serverless compute service that enables users to run code without provisioning or managing servers. It is a core component of Amazon Web Services (AWS) and operates on a "pay-per-use" model, meaning charges are incurred only when the code is actively running.

- Creating the lambda function to automate the Insertion the Selection process from Dynamo DB.
- Creating the Event handler for getting Employee details and posting Employee details from DynamoDB in lambda function using Python.



- Creating IAM role for accessing the Dynamo DB.

The screenshot shows the AWS IAM console for the role 'Lamba_dynamoDB'. The role is described as 'Allows Lambda functions to call AWS services on your behalf.' The 'Summary' section shows the creation date as September 01, 2025, 15:11 (UTC+05:30) and the ARN as 'arn:aws:iam::054728709811:role/Lamba_dynamoDB'. The 'Permissions policies' section shows one policy attached: 'AmazonDynamoDBFullAccess', which is highlighted with a red box. The 'Filter by Type' dropdown is set to 'All types'.

- Attach the IAM role in Lambda function.

The screenshot shows the AWS Lambda console for the function 'GetEmployeeDetails'. The 'Edit basic settings' page is displayed. The 'Execution role' section shows the role 'Lamba_dynamoDB' selected, which is highlighted with a red box. The 'SnapStart' section is set to 'None'. The 'Timeout' section is set to 0 minutes and 3 seconds. The 'Execution role' section has two options: 'Use an existing role' (selected) and 'Create a new role from AWS policy templates'.

Step5: Creating API Gateway

AWS API Gateway is a fully managed service that enables developers to create, publish, maintain, monitor, and secure APIs at any scale. It acts as a "front door" for applications to access data, business logic, or functionality from backend services.

- Creating API to trigger the lambda function for GET and POST Method

API Gateway > APIs > Create API > Create REST API

Create REST API [Info](#)

API details

☒ **New API**
Create a new REST API.

☐ **Clone existing API**
Create a copy of an API in this AWS account.

☐ **Import API**
Import an API from an OpenAPI definition.

☐ **Example API**
Learn about API Gateway with an example API.

API name

testEmployee

Description - optional

API endpoint type

Edge-optimized

IP address type [Info](#)

Choose the type of IP address that can invoke the default endpoint for your API.

- Create GET and POST Method and integrate it with lambda functions.

API Gateway > APIs > Resources - testEmployee (g7n9ehn395) > Create method

Create method

Method details

Method type

GET

Integration type

☒ **Lambda function**
Integrate your API with a Lambda function.

☐ **HTTP**
Integrate with an existing HTTP endpoint.

☐ **Mock**
Generate a response based on API Gateway mappings and transformations.

☐ **AWS service**
Integrate with an AWS Service.

☐ **VPC link**
Integrate with a resource that isn't accessible over the public internet.

☐ **Lambda proxy integration**
Send the request to your Lambda function as a structured event.

Lambda proxy integration

Send the request to your Lambda function as a structured event.

Lambda function

Provide the Lambda function name or alias. You can also provide an ARN from another account.

us-east-1

arn:aws:lambda:us-east-1:054728709811:function:GetEmplo

Grant API Gateway permission to invoke your Lambda function

When you save your changes, API Gateway updates your Lambda function's resource-based policy to allow this API to invoke it.

Integration timeout

By default, you can enter an integration timeout of 50 - 29,000 milliseconds. You can use Service Quotas to raise the integration timeout to greater than 29,000 ms

29000

Method request settings

URL query string parameters

API Gateway

APIs

Custom domain names

Domain name access associations

VPC links

Usage plans

API keys

Client certificates

Settings

APIs (1/1)

Find APIs

Name	Description	ID	Protocol	API endpoint type
testEmployee		g7ngeh395	REST	Edge-optimized

API Gateway

APIs

Custom domain names

Domain name access associations

VPC links

API: testEmployee

Resources

Stages

Authorizers

Gateway responses

Models

Resource policy

Documentation

Dashboard

API settings

Resources

Create resource

/

GET

OPTIONS

POST

Resource details

Path
/

Resource ID
oiqngbz3j

API actions

Deploy API

Update documentation

Enable CORS

Methods (3)

Delete

Create method

Method type	Integration type	Authorization	API key
GET	Lambda	None	Not required
OPTIONS	Mock	None	Not required
POST	Lambda	None	Not required

- Enabling CORS , to communicate Frontend AJAX call to API endpoint.

API Gateway > APIs > Resources - testEmployee (g7ngehn395) > Enable CORS

Enable CORS

CORS settings [Info](#)

To allow requests from scripts running in the browser, configure cross-origin resource sharing (CORS) for your API. When you save your configuration, API Gateway replaces any existing CORS settings with your new configuration.

Gateway responses

API Gateway will configure CORS for the selected gateway responses.

☐ Default 4XX

☐ Default 5XX

Access-Control-Allow-Methods

☒ GET

☐ OPTIONS

☒ POST

Access-Control-Allow-Headers

API Gateway will configure CORS for the selected gateway responses.

Content-Type,X-Amz-Date,Authorization,X-API-Key,X-Amz-Security-Token

Access-Control-Allow-Origin

Enter an origin that can access the resource. Use a wildcard "*" to allow any origin to access the resource.

*

- API Deployment

Deploy API

Create or select a stage where your API will be deployed. You can use the deployment history to revert or change the active deployment for a stage. [Learn more](#)

Stage

New stage

Stage name

Prod

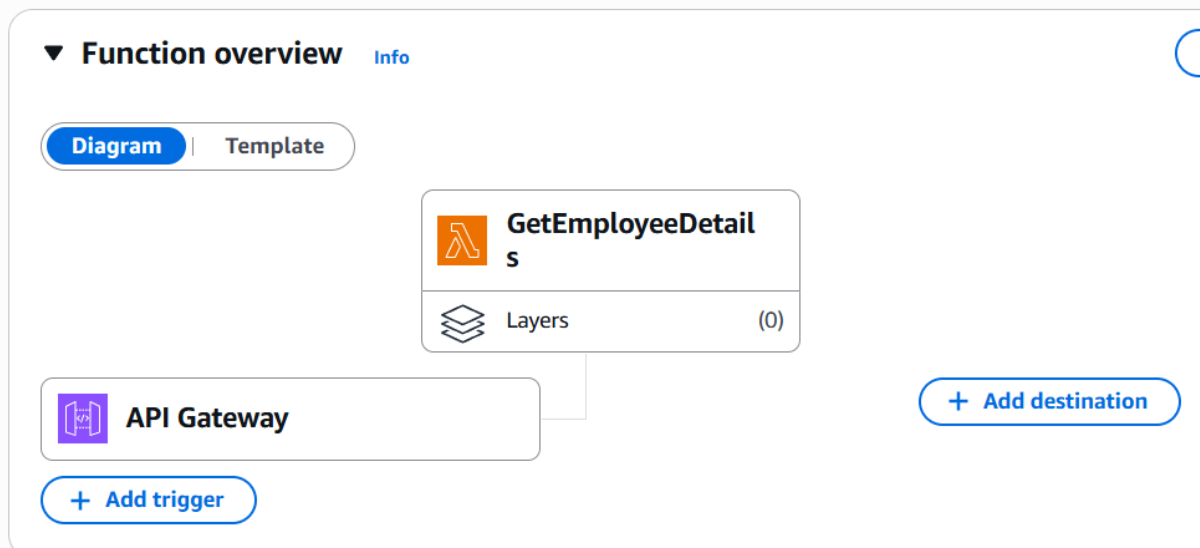
Deployment description

A new stage will be created with the default settings. Edit your stage settings on the **Stage** page.

[Cancel](#) [Deploy](#)

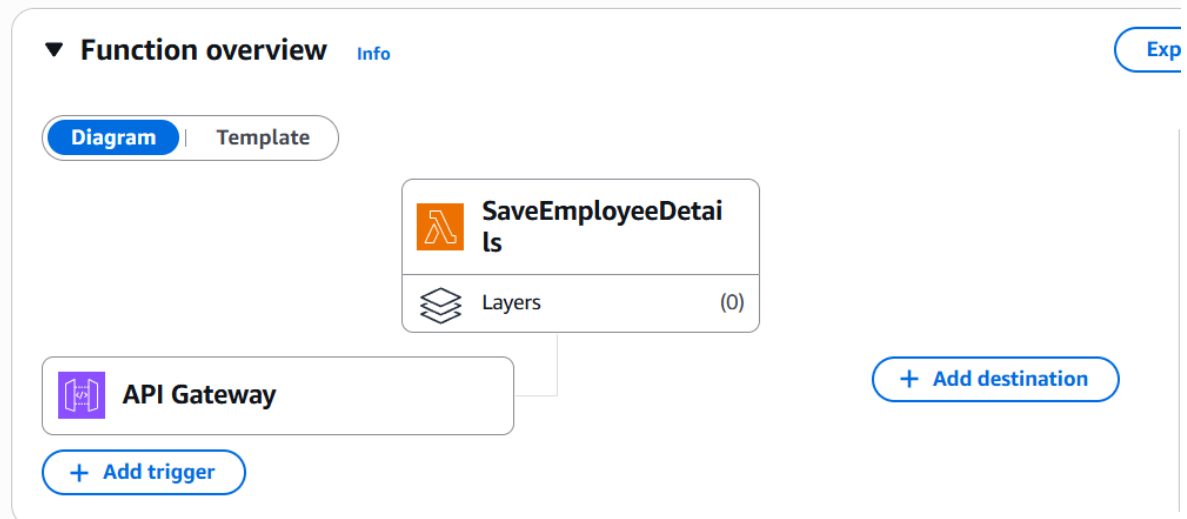
- API trigger to Lambda function

GetEmployeeDetails



≡ [Lambda](#) > [Functions](#) > [SaveEmployeeDetails](#)

SaveEmployeeDetails



Step6: Enabling CloudFront Distribution (CDN)

- Amazon CloudFront is a content delivery network service that accelerates the delivery of your static and dynamic web content to users globally.
- It achieves this by caching content at edge locations (data centers) around the world, bringing the content closer to your users and reducing latency

- Create Cloud front distribution with S3 bucket

CloudFront > Distributions > Create distribution

We've streamlined the process of creating a CloudFront distribution. Continue here and let us know what you think. Or go to the previous Create Distribution page.

Step 1: Get started
Step 2: **Specify origin**
Step 3: Enable security
Step 4: Review and create

Specify origin

Origin type
Your origin is where your content (such as a website or app) lives. CloudFront works with AWS-based origins and origins hosted on other cloud providers.

- ☒ **Amazon S3**
Deliver static assets like files and images, statically generated websites or single page applications (SPA).
- ☐ **Elastic Load Balancer**
Deliver applications hosted behind ELB such as dynamic websites, web services, and APIs.
- ☐ **API Gateway**
Deliver API endpoints for REST APIs hosted on API Gateway.
- ☐ **Elemental MediaPackage**
Deliver end-to-end live events or video on demand (VOD).
- ☐ **VPC origin**
Deliver applications and content hosted within private VPCs, such as EC2 instances and Application Load Balancers.
- ☐ **Other**
Refer to any AWS or non-AWS origin through its publicly resolvable URL.

Origin
S3 origin
Choose an AWS origin, or enter your origin's domain name. [Learn more](#)

awsserverlessbkt.s3.us-east-1.amazonaws.com [Browse S3](#)

- Making S3 bucket as private.

Amazon S3 > Buckets > awsserverlessbkt > Edit Block public access (bucket settings)

Amazon S3
General purpose buckets
Directory buckets
Table buckets
Vector buckets
Access Grants
Access Points (General Purpose Buckets, FSx file systems)
Access Points (Directory Buckets)
Object Lambda Access Points
Multi-Region Access Points
Batch Operations
IAM Access Analyzer for S3
Block Public Access settings for this account
▼ Storage Lens

Edit Block public access (bucket settings)

Block public access (bucket settings)
Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to all your S3 buckets and objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to your buckets or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

- ☒ **Block all public access**
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.
- ☒ **Block public access to buckets and objects granted through new access control lists (ACLs)**
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.
- ☒ **Block public access to buckets and objects granted through any access control lists (ACLs)**
S3 will ignore all ACLs that grant public access to buckets and objects.
- ☒ **Block public access to buckets and objects granted through new public bucket or access point policies**
S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.
- ☒ **Block public and cross-account access to buckets and objects through any public bucket or access point policies**
S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

[Cancel](#) [Save changes](#)

CloudFront > Distributions > Create distribution

We've streamlined the process of creating a CloudFront distribution. Continue here and let us know what you think. Or go to the previous Create Distribution page.

Settings
CloudFront provides default origin and cache settings based on what origin you selected. [View default settings for S3](#)

Allow private S3 bucket access to CloudFront
CloudFront will update your S3 bucket policy to allow CloudFront to access your S3 bucket. The policy allows CloudFront to access the bucket only when the request is on behalf of the CloudFront distribution that contains the S3 origin.

- ☒ **Allow private S3 bucket access to CloudFront - Recommended**

Origin settings
Origin settings control how CloudFront connects to the specified origin.

- ☒ **Use recommended origin settings**
- ☐ **Customize origin settings**

Cache settings
Cache settings determine when CloudFront serves cached content and when it fetches new content from the origin.

- ☒ **Use recommended cache settings tailored to serving S3 content**
- ☐ **Customize cache settings**

[Cancel](#) [Previous](#) [Next](#)

- S3 bucket policy after configuring CDN

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "Statement1",
      "Effect": "Allow",
      "Principal": "*",
      "Action": "s3:GetObject",
      "Resource": "arn:aws:s3:::awsserverlessbkt/*"
    },
    {
      "Sid": "AllowCloudFrontServicePrincipal",
      "Effect": "Allow",
      "Principal": {
        "Service": "cloudfront.amazonaws.com"
      },
      "Action": "s3:GetObject",
      "Resource": "arn:aws:s3:::awsserverlessbkt/*",
      "Condition": {
        "ArnLike": {
```

- Run CDN through Http. Copy the domain and run in browser.
- To make this hosting secure, we will go for SSL certification enabled, and hosted this distribution through Route 53.

Creating Hosted Zone

- Purchase the Domain in GoDaddy website and Create the Hosted Zone with the same Domain name in Route 53.
- Automatically Namespaces will be created inside the Hosted Zone.
- Copy the namespaces and paste inside the GoDaddy Domain website.

Enabling SSL Certificate (ACM)

- Request a Public Certificate

☰ [AWS Certificate Manager](#) > [Certificates](#) > Request certificate 🔍 🗨

Request certificate

Certificate type Info

ACM certificates can be used to establish secure communications access across the internet or within an internal network. Choose the type of certificate for ACM to provide.

☒ Request a public certificate

☐ Request a private certificate

No private CAs available for issuance.

Requesting a private certificate requires the creation of a private certificate authority (CA). To create a private CA, visit [AWS Private Certificate Authority](#)

[Cancel](#) [Next](#)

→ Provide the fully qualified Domain Name (contains sub domain and main domain)

AWS Certificate Manager > Certificates > Request certificate > Request public certificate

Request public certificate

Domain names
Provide one or more domain names for your certificate.

s3.mycloudtech.shop

[Add another name to this certificate](#)

You can add additional names to this certificate. For example, if you're requesting a certificate for "www.example.com", you might want to add the name "example.com" so that customers can reach your site by either name.

Allow export Info

☒ **Disable export**
Use this certificate only with integrated AWS services. The private key for this certificate will be disallowed for exporting from AWS.

☐ **Enable export**
Export this certificate and private key for use with any TLS workflow. ACM will charge your account based on the requested domains when the certificate is issued for the first time and for each renewal.

Validation method Info
Select a method for validating domain ownership.

☒ **DNS validation - recommended**

→ DNS Record creation

AWS Certificate Manager > Certificates > 2a2111be-cad0-4561-b0aa-21a685d9d25c > Create DNS records in Amazon Route 53

Create DNS records in Amazon Route 53 (0/1)

Search domains

Domain	Validation status	Is domain in Route 53?
s3.mycloudtech.shop	Success	Yes

DNS Record is Created in Route 53 and Request for public certificate (SSL) is Issued.

Adding Domain in CloudFront

→ Enter Fully qualified Domain Name which we have created for SSL.

CloudFront > Distributions > E2GJYBDCE8CW3Z > Edit settings

Choose the price class associated with the maximum price that you want to pay.

☒ **Use all edge locations (best performance)**

☐ Use only North America and Europe

☐ Use North America, Europe, Asia, Middle East, and Africa

Alternate domain name (CNAME) - optional
Add the custom domain names that you use in URIs for the files served by this distribution.

s3.mycloudtech.shop [Remove](#)

[Add item](#)

To add a list of items, use the [bulk editor](#).

Custom SSL certificate - optional
Choose a certificate from AWS Certificate Manager. The certificate must be in the us-east-1 region (at least v1).

s3.mycloudtech.shop (71025550-36ea-48db-b30c-3509f9b0371c)

☒ s3.mycloudtech.shop [Request certificate](#)

☐ Legacy clients support - \$600/month prorated charge applies. Most customers do not need this.
CloudFront allocates dedicated IP addresses at each CloudFront edge location to serve your content over HTTPS.

Security policy
The security policy determines the SSL or TLS protocol and the specific ciphers that CloudFront uses for HTTPS connections with viewers (clients).

☐ TLSv1.3_2025

☒ **TLSv1.2_2021 (recommended)**

CloudFront > Distributions > E2GJYBDC8CW3Z

General Security Origins Behaviors Error pages Invalidations Tags Logging

Details

Name: cdn [Link](#)

Distribution domain name: [d3m1cuz5vxrft.cloudfront.net](#)

ARN: [arn:aws:cloudfront::054728709811:distribution/E2GJYBDC8CW3Z](#)

Last modified: September 2, 2025 at 9:35:24 AM UTC

Settings [Edit](#)

Description: -

Price class: Use all edge locations (best performance)

Supported HTTP versions: HTTP/2, HTTP/1.1, HTTP/1.0

Alternate domain names: [s3.mycloudtech.shop](#) [Link](#)

[Route domains to CloudFront](#)

Custom SSL certificate: [s3.mycloudtech.shop](#) [Link](#)

Security policy: TLSv1.2_2021

Standard logging: [Off](#)

Cookie logging: [Off](#)

Default root object: -

- SSL Certificate is enabled for CloudFront.
- Now, Route the CloudFront Distribution in Route 53.

Step7: Hosting Application in Route53

- Amazon Route 53 is to act as a highly available and scalable Domain Name System (DNS) web service for routing internet traffic to applications and resources
- It translates human-readable domain names (like "[www.example.com](#)") into the numerical IP addresses that computers use to connect. Additionally, Route 53 offers domain registration and health checking capabilities.

Records (7) [Info](#) [Refresh](#) [Delete record](#) [Add record](#) [Create record](#)

Automatic mode is the current search behavior optimized for best filter results. [To change modes go to settings.](#)

[Type](#) [Routing p...](#) [Alias](#) [1](#) [Settings](#)

<input type="checkbox"/>	Record ...	Type	Routin...	Differ...	Alias	Value/Route traffic to	TTL (s...	Health ...
<input type="checkbox"/>	mycloudt...	NS	Simple	-	No	ns-920.awsdns-51.net. ns-1790.awsdns-31.co.uk. ns-300.awsdns-37.com. ns-1125.awsdns-12.org.	172800	-
<input type="checkbox"/>	mycloudt...	SOA	Simple	-	No	ns-920.awsdns-51.net. awsd...	900	-
<input type="checkbox"/>	_a27fc05c...	CNAME	Simple	-	No	_b9e9cb6ed4f6981f6e59e6c...	300	-
<input type="checkbox"/>	_517d120...	CNAME	Simple	-	No	_b33fd005eb7c3785b372c1...	300	-
<input type="checkbox"/>	_94efc1aa...	CNAME	Simple	-	No	_b371a41a8e7596382a9a7d...	300	-
<input type="checkbox"/>	_2753f76...	CNAME	Simple	-	No	_747e244c0c410274a8a78d...	300	-
<input type="checkbox"/>	_7f453fd...	CNAME	Simple	-	No	_3ff9d8a865c8fd0fd37e6d3...	300	-

Create the Record in Hosted Zone:

- Select the Record type

- Enable Alias
- Route the traffic: Alias to CloudFront distribution
- Selecting Simple routing policy.

Route 53 > Hosted zones > mycloudtech.shop > Create record


Create record info

Quick create record Switch to wizard

▼ Record 1 Delete

Record name info
 .mycloudtech.shop
Keep blank to create a record for the root domain.

Record type info
 A – Routes traffic to an IPv4 address and some AWS resources

☒ Alias 

Route traffic to info

US East (N. Virginia)

Routing policy info

Evaluate target health
☐ No

Records (1/8) info Refresh Delete record Import zone file Create record

Automatic mode is the current search behavior optimized for best filter results. [To change modes go to settings.](#)

Type ▼ Routing p... ▼ Alias ▼ < 1 > Settings

<input type="checkbox"/>	Record name	Type	Routin...	Differ...	Alias	Value/Rou
<input type="checkbox"/>	mycloudtech.shop	NS	Simple	-	No	ns-920.aws ns-1790.av ns-300.aws ns-1125.av
<input type="checkbox"/>	mycloudtech.shop	SOA	Simple	-	No	ns-920.aws
<input type="checkbox"/>	_a27fc05ca2ada21c618...	CNAME	Simple	-	No	_b9e9cb6e
<input type="checkbox"/>	_517d120dde2f7e34f4...	CNAME	Simple	-	No	_b33fd005
<input type="checkbox"/>	_94efc1aad97ca6a5999...	CNAME	Simple	-	No	_b371a41a
<input checked="" type="checkbox"/>	s3.mycloudtech.shop	A	Simple	-	Yes	d3m1cuz5v
<input type="checkbox"/>	_2753f761313ebc7e34...	CNAME	Simple	-	No	_747e244c
<input type="checkbox"/>	_7f453fd18500619149...	CNAME	Simple	-	No	_3ff9d8a8

Record details Edit record

Record name

Record type
 A

Value

Alias
 Yes

TTL (seconds)
 -

Routing policy
 Simple

Now our application is hosted in Route 53, lets run the application.

Run: s3.mycloudtech.shop

← → ↻ s3.mycloudtech.shop/index.html

History Download Mozilla F... Gmail YouTube Maps Live Charts - Investi... MHC_RECRUITMENT sadistic Development

Save Employee Details

Employee Id
Enter the Employee Id

Employee Name
Enter the Employee Name

Department
Enter the Department

Salary
Enter the Salary

Date Of Birth
dd-mm-yyyy

Save Data Cancel

View Employee Records

← → ↻ s3.mycloudtech.shop/index.html

History Download Mozilla F... Gmail YouTube Maps Live Charts - Investi... MHC_RECRUITMENT sadistic Development

Save Employee Details

Employee Id
Emp005

Employee Name
Kaviya

Department
Devops

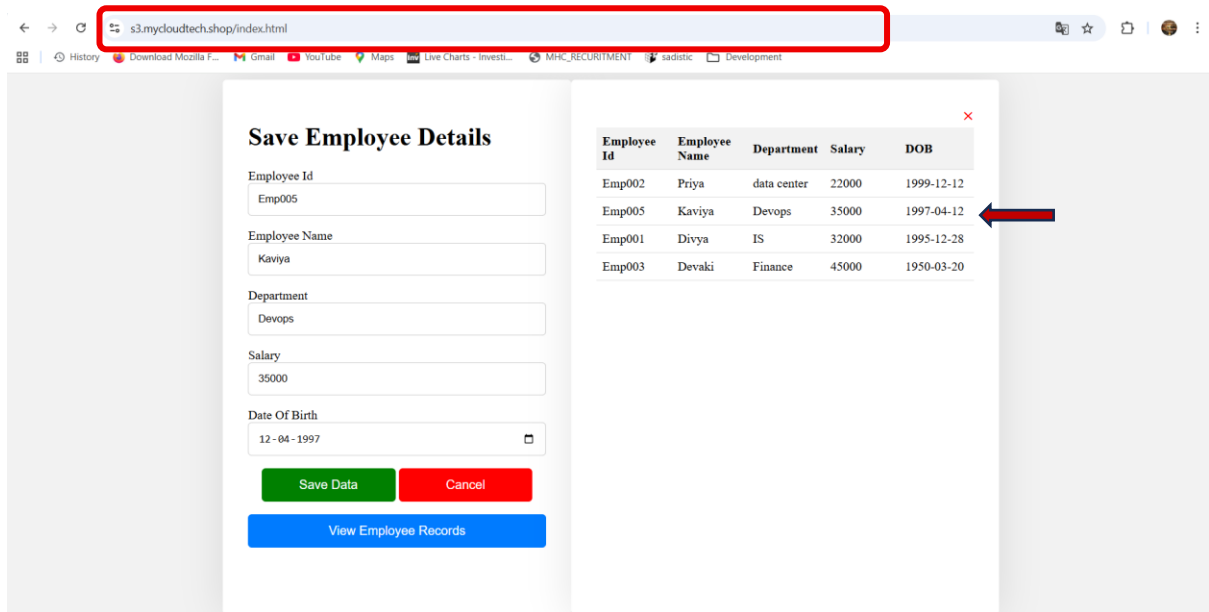
Salary
35000

Date Of Birth
12-04-1997

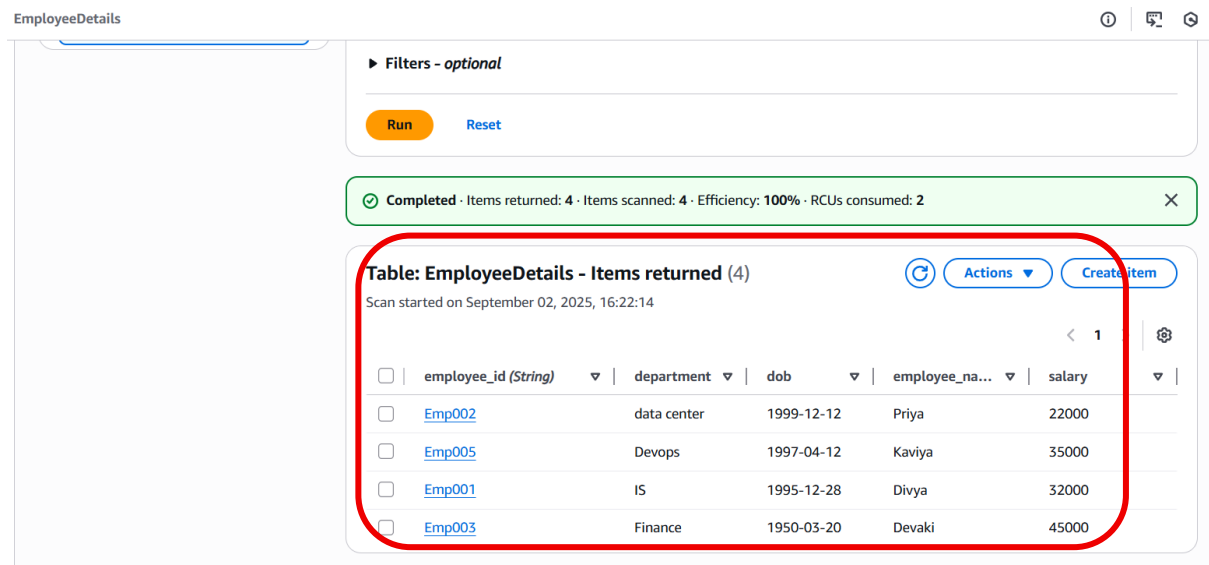
Save Data Cancel

View Employee Records

→ Employee Data Saved!



- Checking records in Dynamo DB



AWS Serverless Project is Successfully created and deployed.