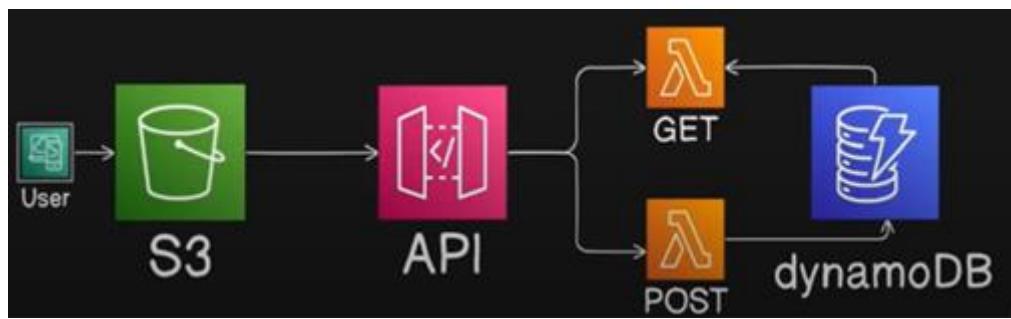


AWS Serverless Architecture

A serverless architecture is a way to build and run applications and services without having to manage infrastructure. Your application still runs on servers, but all the server management is done by AWS.

We'll deploy a serverless web application on AWS, leveraging the power of various AWS services. We'll setup a S3 bucket for hosting the static web content, configuring API Gateway to trigger Lambda functions for handling GET and POST requests to interact with a DynamoDB database, and finally, securing the application using CloudFront.

A web application built with serverless architecture uses AWS Lambda functions to handle user requests, Amazon API Gateway to manage API endpoints, and DynamoDB to store user data.



Part 1 - Created DynamoDB table and Lambda functions:

Creating DynamoDB table.

The screenshot shows the Amazon DynamoDB homepage. On the left, there's a sidebar with navigation links like Dashboard, Tables, Explore items, PartQL editor, Backups, Exports to S3, Imports from S3, Integrations (New), Reserved capacity, and Settings. Below that is a section for DAX with Clusters, Subnet groups, Parameter groups, and Events. At the bottom of the sidebar are CloudShell and Feedback buttons. The main content area has a dark header "Database" and a large title "Amazon DynamoDB" with the subtitle "A fast and flexible NoSQL database service for any scale". It describes DynamoDB as a fully managed, key-value, and document database. To the right, there's a "Get started" box with a "Create table" button, and a "Pricing" box with detailed information about costs. At the bottom right of the main area are links for © 2025, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

The screenshot shows the "Create table" wizard. The top navigation bar includes a back arrow, the text "DynamoDB > Tables > Create table", and icons for help and refresh. The main title is "Create table". Under "Table details", there's a "Table name" field containing "studentData", a note that it must be between 3 and 255 characters, and a dropdown for "String". Below that is a "Partition key" section with a field "studentid" and a dropdown for "String". A note says the partition key is part of the primary key and used for retrieval and scalability. There's also a "Sort key - optional" section with a field "Enter the sort key name" and a dropdown for "String", with a note that it's optional and used for sorting. At the bottom are CloudShell and Feedback buttons, and a footer with © 2025, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

DynamoDB > Tables > Create table

Local secondary indexes	-	No
Global secondary indexes	-	Yes
Encryption key management	Owned by Amazon DynamoDB	Yes
Deletion protection	Off	Yes
Resource-based policy	Not active	Yes

Tags
Tags are pairs of keys and optional values, that you can assign to AWS resources. You can use tags to control access to your resources or track your AWS spending.
No tags are associated with the resource.

Add new tag

You can add 50 more tags.

Cancel Create table

DynamoDB > Tables

Creating the studentData table. It will be available for use shortly.

Tables (1) Info

Name	Status	Partition key	Sort key	Indexes	Replication Regions	Deletion protection
studentData	Creating	studentid (\$)	-	0	0	Off

Find tables Any tag key Any tag value Actions Delete Create table

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The screenshot shows the AWS DynamoDB Tables page. A green success message at the top states: "The studentData table was created successfully." The main area displays a table titled "Tables (1) Info". The table has one row for "studentData", which is listed as "Active". The table includes columns for Name, Status, Partition key, Sort key, Indexes, Replication Regions, Deletion protection, and Favo. The status is "Active", the partition key is "studentid (\$)", and deletion protection is set to "Off". The table has 0 items and 0 indexes. The bottom of the page includes standard AWS navigation links like CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

Creating GET and POST lambda functions.

The screenshot shows the AWS Lambda landing page. It features a dark background with white text. The title "AWS Lambda" is prominently displayed, followed by the subtext "lets you run code without thinking about servers.". Below this, a paragraph explains that users pay only for compute time consumed and that Lambda can run code for various applications and services. To the right, there's a "Get started" button and a "Create a function" button. At the bottom, there's a "How it works" section with tabs for .NET, Java, Node.js (which is selected), Python, Ruby, and Custom runtime. A snippet of Node.js code is shown:

```
1 * exports.handler = async (event) => {  
2   console.log(event);
```

The bottom of the page includes standard AWS navigation links like CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

The screenshot shows the 'Create function' wizard in the AWS Lambda console. The 'Basic information' section is active, displaying fields for 'Function name' (set to 'getStudent'), 'Runtime' (set to 'Python 3.12'), and 'Architecture' (set to 'x86_64'). On the right, a sidebar titled 'Create a simple web app' provides a tutorial on building a Lambda function for a web application.

Create function [Info](#)

Choose one of the following options to create your function.

Author from scratch
Start with a simple Hello World example.

Use a blueprint
Build a Lambda application from sample code and configuration presets for common use cases.

Container image
Select a container image to deploy for your function.

Basic information

Function name
Enter a name that describes the purpose of your function.

Function name must be 1 to 64 characters, must be unique to the Region, and can't include spaces. Valid characters are a-z, A-Z, 0-9, hyphens (-), and underscores (_).

Runtime [Info](#)
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.
 Python 3.12 (C)

Architecture [Info](#)
Choose the instruction set architecture you want for your function code.
 x86_64 arm64

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Creating role for lambda function to get the permissions to access DynamoDB table.

The screenshot shows the 'Create role' wizard in the IAM console, currently on the 'Select trusted entity' step. It offers four options: 'AWS service' (selected), 'AWS account', 'Web identity', and 'Custom trust policy'. Below this, a 'Use case' section allows selecting an AWS service like EC2 or Lambda.

Step 1

Select trusted entity

Step 2
 Add permissions

Step 3
 Name, review, and create

Select trusted entity [Info](#)

Trusted entity type

AWS service
Allow AWS services like EC2, Lambda, or others to perform actions in this account.

AWS account
Allow entities in other AWS accounts belonging to you or a 3rd party to perform actions in this account.

Web identity
Allows users federated by the specified external web identity provider to assume this role to perform actions in this account.

SAML 2.0 federation
Allow users federated with SAML 2.0 from a corporate directory to perform actions in this account.

Use case
Allow an AWS service like EC2, Lambda, or others to perform actions in this account.

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IAM > Roles > Create role

Allows users federated by the specified external web identity provider to assume this role to perform actions in this account.

Allow users federated with SAML 2.0 from a corporate directory to perform actions in this account.

Custom trust policy
Create a custom trust policy to enable others to perform actions in this account.

Use case
Allow an AWS service like EC2, Lambda, or others to perform actions in this account.

Service or use case
Lambda

Choose a use case for the specified service.

Use case
 Lambda
Allows Lambda functions to call AWS services on your behalf.

Cancel Next

IAM > Roles > Create role

Step 1 Select trusted entity

Step 2 Add permissions

Step 3 Name, review, and create

Add permissions Info

Permissions policies (1/1045) Info

Choose one or more policies to attach to your new role.

Filter by Type

Policy name	Type	Description
<input checked="" type="checkbox"/>  AmazonDynamoDBFullAccess	AWS managed	Provides full access to Amazon Dynam...
<input type="checkbox"/>  AmazonDynamoDBFullAccesswi...	AWS managed	This policy is on a deprecation path. S...
<input type="checkbox"/>  AmazonDynamoDBReadonlyAc...	AWS managed	Provides read only access to Amazon D...
<input type="checkbox"/>  AWSLambdaDynamoDBExecutio...	AWS managed	Provides list and read access to Dynam...
<input type="checkbox"/>  AWSLambdaInvocation-Dynamo...	AWS managed	Provides read access to DynamoDB Str...

▶ Set permissions boundary - optional

IAM > Roles > Create role

Add permissions
Step 3
Name, review, and create

Role details

Role name
Enter a meaningful name to identify this role.
lambdaDynamoDbrole
Maximum 64 characters. Use alphanumeric and '+-=_,@-_.' characters.

Description
Add a short explanation for this role.
Allows Lambda functions to call AWS services on your behalf.
Maximum 1000 characters. Use letters (A-Z and a-z), numbers (0-9), tabs, new lines, or any of the following characters: _+=., @-/[\[]!#\$%^&`~`-

Step 1: Select trusted entities Edit

Trust policy

```
1 < [{}]
2   "Version": "2012-10-17",
3   "Statement": [
4     {
5       "Effect": "Allow",
6       "Action": [
7         "sts:AssumeRole"

```

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IAM > Roles > Create role

Step 2: Add permissions Edit

Permissions policy summary

Policy name	Type	Attached as
AmazonDynamoDBFullAccess	AWS managed	Permissions policy

Step 3: Add tags

Add tags - optional Info
Tags are key-value pairs that you can add to AWS resources to help identify, organize, or search for resources.
No tags associated with the resource.

Add new tag
You can add up to 50 more tags.

Cancel Previous Create role

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us-east-1.console.aws.amazon.com/iam/home?region=us-east-1#/roles

IAM > Roles

Identity and Access Management (IAM)

Role LambdaDynamoDbrole created.

Roles (25) Info

An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

Role name	Trusted entities	Last activity
AWSServiceRoleForAutoScaling	AWS Service: autoscaling (Service-Link)	145 days ago
AWSServiceRoleForElasticLoadBalancing	AWS Service: elasticloadbalancing (Service-Link)	145 days ago
AWSServiceRoleForGlobalAccelerator	AWS Service: globalaccelerator (Service-Link)	-
AWSServiceRoleForRDS	AWS Service: rds (Service-Linked Role)	15 minutes ago
AWSServiceRoleForSupport	AWS Service: support (Service-Link)	-
AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service-Link)	-
AWSServiceRoleForVPCTransitGateway	AWS Service: transitgateway (Service-Link)	231 days ago
lambdaDynamoDbrole	AWS Service: lambda (Service-Link)	150 days ago

CloudShell Feedback

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Lambda > Functions > Create function

Permissions Info

By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.

▼ Change default execution role

Execution role

Choose a role that defines the permissions of your function. To create a custom role, go to the [IAM console](#).

Create a new role with basic Lambda permissions

Use an existing role

Create a new role from AWS policy templates

Existing role

Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.

lambdaDynamoDbrole

Use additional configurations to set up code signing, function URL, tags, and Amazon VPC access for your function.

Info Tutorials

Create a simple web app

In this tutorial you will learn how to:

- Build a simple web app, consisting of a Lambda function with a function URL that outputs a webpage
- Invoke your function through its function URL

Learn more [\[?\]](#)

Start tutorial

Cancel Create function

CloudShell Feedback

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The screenshot shows the 'Create function' wizard in the AWS Lambda console. The 'Permissions' step is active, where users can choose an execution role. The 'Use an existing role' option is selected, with 'lambdaDynamoDbrole' chosen from a dropdown. Other options include 'Create a new role with basic Lambda permissions' and 'Create a new role from AWS policy templates'. Below this, the 'Additional Configurations' step is shown, which allows users to set up code signing, function URL, tags, and Amazon VPC access. A 'Create function' button is at the bottom right.

'getStudent' lambda function (GET) is created.

The screenshot shows the 'getStudent' function overview page. A green success message at the top states: 'Successfully created the function getStudent. You can now change its code and configuration. To invoke your function with a test event, choose "Test".' The main area displays the function's details: 'Diagram' tab selected, function name 'getStudent', 'Layers (0)', 'Last modified 23 seconds ago', 'Function ARN am:aws:lambda:us-east-2:026090557197:function:getStudent', and 'Function URL | Info'. On the left, there are tabs for 'Code', 'Test', 'Monitor', 'Configuration', 'Aliases', and 'Versions'. A sidebar on the right provides a tutorial for creating a simple web app.

Lambda > Functions > getStudent

Code Test Monitor Configuration Aliases Versions

Code source Info

Upload from

EXPLORER

GETSTUDENT

lambda_function.py

lambda_function.py

```
def lambda_handler(event, context):  
    # Initialize a DynamoDB resource object for the specified region  
    dynamodb = boto3.resource('dynamodb', region_name='us-east-2')  
  
    # Select the DynamoDB table named 'studentData'  
    table = dynamodb.Table('studentData')  
  
    # Scan the table to retrieve all items  
    response = table.scan()  
    data = response['Items']  
  
    # If there are more items to scan, continue scanning until all item  
    while 'LastEvaluatedKey' in response:  
        response = table.scan(ExclusiveStartKey=response['LastEvaluatedKey'])  
        data.extend(response['Items'])  
  
    # Return the retrieved data  
    return data
```

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

TEST EVENTS [NONE SELECTED]

Create new test event

CloudShell Feedback

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Tutorials

Create a simple web app

In this tutorial you will learn how to:

- Build a simple web app, consisting of a Lambda function with a function URL that outputs a webpage
- Invoke your function through its function URL

Learn more Start tutorial

Lambda > Functions > getStudent

Code Test Monitor Configuration Aliases Versions

Code source Info

Upload from

EXPLORER

GETSTUDENT

lambda_function.py

lambda_function.py

```
def lambda_handler(event, context):  
    # Initialize a DynamoDB resource object for the specified region  
    dynamodb = boto3.resource('dynamodb', region_name='us-east-2')  
  
    # Select the DynamoDB table named 'studentData'  
    table = dynamodb.Table('studentData')  
  
    # Scan the table to retrieve all items  
    response = table.scan()  
    data = response['Items']  
  
    # If there are more items to scan, continue scanning until all item  
    while 'LastEvaluatedKey' in response:  
        response = table.scan(ExclusiveStartKey=response['LastEvaluatedKey'])  
        data.extend(response['Items'])  
  
    # Return the retrieved data  
    return data
```

Ln 21, Col 16 Spaces: 4 UTF-8 LF Python Lambda Layout: US

Code properties Info

Package size 299 byte SHA256 hash HAPo9FReJVEC5aLavtc/qvd5v2td9ei Last modified 3 minutes ago

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Tutorials

Create a simple web app

In this tutorial you will learn how to:

- Build a simple web app, consisting of a Lambda function with a function URL that outputs a webpage
- Invoke your function through its function URL

Learn more Start tutorial

Successfully updated the function getStudent.

The screenshot shows the AWS Lambda Function Editor. The left sidebar has a tree view with 'EXPLORER' expanded, showing 'GETSTUDENT' and 'lambda_function.py'. Under 'TEST EVENTS [NONE SELECTED]', there is a '+ Create new test event' button. The main area shows the code for 'lambda_function.py':

```
lambda_function.py
1 import json
2 import boto3
3
4 def lambda_handler(event, context):
5     # Initialize a DynamoDB resource object for the specified region
6     dynamodb = boto3.resource('dynamodb', region_name='us-east-2')
7
8     # Select the DynamoDB table named 'studentData'
9     table = dynamodb.Table('studentData')
10
11    # Scan the table to retrieve all items
12    response = table.scan()
13    data = response['Items']
14
15    # If there are more items to scan, continue scanning until all items
16    while 'LastEvaluatedKey' in response:
17        response = table.scan(ExclusiveStartKey=response['LastEvaluatedKey'])
18        data.extend(response['Items'])
19
20    # Return the retrieved data
21    return {
22        'statusCode': 200,
23        'body': json.dumps(data)
24    }
```

The status bar at the bottom shows 'CloudShell Feedback' and copyright information: '© 2025, Amazon Web Services, Inc. or its affiliates.' followed by 'Privacy Terms Cookie preferences'.

Testing the code of GET function.

Successfully updated the function getStudent.

The screenshot shows the AWS Lambda Function Editor with a 'Create new test event' dialog open over the code editor. The dialog has fields for 'Event Name' (set to 'test1'), 'Event sharing settings' (radio buttons for 'Private' and 'Shareable' are shown), and a 'Template - optional' dropdown (set to 'Hello World'). The background code editor shows the same 'lambda_function.py' code as the previous screenshot.

Lambda > Functions > getStudent

Code source Info

Upload from

EXPLORER

GETSTUDENT

lambda_function.py

lambda_function.py

```
1 import json
2 import boto3
3
4 def lambda_handler(event, context):
```

Create new test event

Event Name: test1

Invoke Save

PROBLEMS OUTPUT CODE REFERENCE LOG TERMINAL

Status: Succeeded

Test Event Name: test1

Response:

[]

Function Logs:

START RequestId: ae1e26ba-f5e5-45a1-92b1-1760e54d2b60 Version: \$LATEST

END RequestId: ae1e26ba-f5e5-45a1-92b1-1760e54d2b60

REPORT RequestId: ae1e26ba-f5e5-45a1-92b1-1760e54d2b60 Duration: 2539.60 ms Billed Duration: 2540 ms Memory Size: 128 MB Max Memory Used: 85 MB Init Duration: 283.41 ms

Request ID: ae1e26ba-f5e5-45a1-92b1-1760e54d2b60

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Lambda > Functions

Functions (1)

Last fetched 0 seconds ago

Actions Create function

Filter by attributes or search by keyword

Function name	Description	Package type	Runtime	Last modified
getStudent	-	Zip	Python 3.12	3 minutes ago

Info Tutorials

Learn how to implement common use cases in AWS Lambda.

Create a simple web app

In this tutorial you will learn how to:

- Build a simple web app, consisting of a Lambda function with a function URL that outputs a webpage
- Invoke your function through its function URL

Learn more Start tutorial

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Creating 'insertStudentData' lambda function (POST)

The screenshot shows the 'Create function' wizard in the AWS Lambda console. The 'Basic information' section is visible, containing fields for 'Function name' (set to 'insertStudentData'), 'Runtime' (set to 'Node.js 22.x'), and 'Architecture' (set to 'x86_64'). On the right side, a sidebar titled 'Create a simple web app' provides a tutorial overview.

Create function Info

Choose one of the following options to create your function.

Author from scratch
Start with a simple Hello World example.

Use a blueprint
Build a Lambda application from sample code and configuration presets for common use cases.

Container image
Select a container image to deploy for your function.

Basic information

Function name
Enter a name that describes the purpose of your function.

Function name must be 1 to 64 characters, must be unique to the Region, and can't include spaces. Valid characters are a-z, A-Z, 0-9, hyphens (-), and underscores (_).

Runtime Info
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.
 (C)

Architecture Info
Choose the instruction set architecture you want for your function code.
 x86_64
 arm64

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The screenshot shows the 'Create function' wizard continuing. The 'Runtime' is now set to 'Python 3.12'. The 'Permissions' section is expanded, showing the 'Change default execution role' section. It includes options for creating a new role with basic Lambda permissions, using an existing role, or creating a new role from AWS policy templates. A note at the bottom states that role creation might take a few minutes.

Runtime Info
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.
 (C)

Architecture Info
Choose the instruction set architecture you want for your function code.
 x86_64
 arm64

Permissions Info
By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.

Change default execution role

Execution role
Choose a role that defines the permissions of your function. To create a custom role, go to the [IAM console](#).
 Create a new role with basic Lambda permissions
 Use an existing role
 Create a new role from AWS policy templates

Role creation might take a few minutes. Please do not delete the role or edit the trust or permissions policies in this role.

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Lambda > Functions > Create function

Permissions [Info](#)
By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.

▼ Change default execution role

Execution role
Choose a role that defines the permissions of your function. To create a custom role, go to the [IAM console](#).
 Create a new role with basic Lambda permissions
 Use an existing role
 Create a new role from AWS policy templates

Existing role
Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.
lambdaDynamoDbrole [View the lambdaDynamoDbrole role](#) on the IAM console.

▶ Additional Configurations
Use additional configurations to set up code signing, function URL, tags, and Amazon VPC access for your function.

[Cancel](#) [Create function](#)

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Lambda > Functions > insertStudentData

Success Successfully created the function `insertStudentData`. You can now change its code and configuration. To invoke your function with a test event, choose "Test".

insertStudentData

▼ Function overview [Info](#)

[Diagram](#) [Template](#)

insertStudentData [Edit](#) [Throttle](#) [Copy ARN](#) [Actions](#)

[Export to Infrastructure Composer](#) [Download](#)

Description
-

Last modified
3 seconds ago

Function ARN
[arn:aws:lambda:us-east-2:026090557197:function:insertStudentData](#)

Function URL [Info](#)

[+ Add trigger](#) [+ Add destination](#)

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Lambda > Functions > insertStudentData

EXPLORER

INSERTSTUDENTDATA

lambda_function.py

DEPLOY [UNDEPLOYED CHANGES]

You have undeployed changes.

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

TEST EVENTS [NONE SELECTED]

Create new test event

lambda_function.py

```
1 import json
2 import boto3
3
4 # Create a DynamoDB object using the AWS SDK
5 dynamodb = boto3.resource('dynamodb')
6 # Use the DynamoDB object to select our table
7 table = dynamodb.Table("studentData")
8
9 # Define the handler function that the Lambda service will use as an en
10 def lambda_handler(event, context):
11     # Extract values from the event object we got from the Lambda serv
12     student_id = event['studentid']
13     name = event['name']
14     student_class = event['class']
15     age = event['age']
16
17     # Write student data to the DynamoDB table and save the response in
18     response = table.put_item(
19         Item={
20             'studentid': student_id,
21             'name': name,
22             'class': student_class,
23             'age': age
24         }
25     )
26
27     # Return a properly formatted JSON object
28     return {
29         'statusCode': 200,
30         'body': json.dumps('Student data saved successfully!')
31     }
```

Ln 31, Col 6 Spaces:4 UTF-8 LF Python Lambda Layout: US

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Lambda > Functions > insertStudentData

EXPLORER

INSERTSTUDENTDATA

lambda_function.py

DEPLOY [UNDEPLOYED CHANGES]

You have undeployed changes.

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

TEST EVENTS [NONE SELECTED]

Create new test event

lambda_function.py

```
10 def lambda_handler(event, context):
11
12     # Write student data to the DynamoDB table and save the response in
13     response = table.put_item(
14         Item={
15             'studentid': student_id,
16             'name': name,
17             'class': student_class,
18             'age': age
19         }
20     )
21
22     # Return a properly formatted JSON object
23     return {
24         'statusCode': 200,
25         'body': json.dumps('Student data saved successfully!')
26     }
```

Amazon Q Tip 1/3: Start typing to get suggestions ([ESC] to

Ln 31, Col 6 Spaces:4 UTF-8 LF Python Lambda Layout: US

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Lambda > Functions > insertStudentData

Successfully updated the function insertStudentData.

EXPLORER

INSERTSTUDENTDATA

lambda_function.py

DEPLOY

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

TEST EVENTS [NONE SELECTED]

Create new test event

lambda_function.py

```
1 def lambda_handler(event, context):
2     # Write student data to the DynamoDB table and save the response in
3     # response = table.put_item(
4     #     Item={
5     #         'studentid': student_id,
6     #         'name': name,
7     #         'class': student_class,
8     #         'age': age
9     #     }
10
11     # Return a properly formatted JSON object
12     return {
13         'statusCode': 200,
14         'body': json.dumps('Student data saved successfully!')
15     }
```

Successfully updated the function insertStudentData.

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Lambda > Functions > insertStudentData

Successfully updated the function InsertStudentData.

EXPLORER

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

TEST EVENTS [NONE SELECTED]

Create new test event

lambda_function.py

```
16
17     # Write student data to the DynamoDB table and save the response in
18     response = table.put_item(
19     Item={
20         'studentid': student_id,
21         'name': name,
22         'class': student_class,
23         'age': age
24     }
25
26     # Return a properly
27     return {
28         'statusCode': 200,
29         'body': json.dumps('Student data saved successfully!')
30     }
```

Successfully updated the function insertStudentData.

Code properties

SHA256 hash

s8oUYkHajqnAJDuAASAAqejofczjLPE

Last modified

3 minutes ago

Encryption with AWS KMS customer managed KMS key

CloudShell Feedback

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Testing POST function

The screenshot shows the AWS Lambda Function Editor. The top navigation bar includes 'Lambda > Functions > insertStudentData'. A green success message box says 'Successfully updated the function insertStudentData.' Below the message are tabs for 'Code', 'Test', 'Monitor', 'Configuration', 'Aliases', and 'Versions', with 'Code' being the active tab.

The main area is titled 'Code source' with an 'Info' link. It shows the file structure: 'EXPLORER' contains 'INSERTSTUDENTDATA' (with 'lambda_function.py' selected) and 'DEPLOY' (with 'Deploy (Ctrl+Shift+U)' and 'Test (Ctrl+Shift+I)' buttons). The code editor displays the following Python script:

```
lambda_function.py
5 dynamodb = boto3.resource('dynamodb')
6 # Use the DynamoDB object to save data
7 table = dynamodb.Table('student')
8
9 # Define the handler function
10 def lambda_handler(event, context):
11     # Extract values from the event
12     student_id = event['student_id']
13     name = event['name']
14     student_class = event['class']
15     age = event['age']
16
17     # Write student data to the table
```

To the right of the code editor is a 'Create new test event' panel. It has a dropdown menu with options like 'Create new test event', 'Import', 'Import from clipboard', and 'Import from file'. The 'Event Name' field is set to 'test1'. Buttons for 'Invoke' and 'Save' are present. Below the event name is a note: 'Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.' Under 'Event sharing settings', there is a radio button for 'Private' and a note: 'This event is only available in the Lambda Console and to the event creator. You can configure a total of ten.' A 'Learn more' link is provided.

At the bottom right, there are 'Info' and 'Tutorials' tabs, with 'Tutorials' currently selected. A 'Create a simple web app' tutorial card is displayed, featuring a brief description, a 'Learn more' button, and a 'Start tutorial' button.

The screenshot shows the AWS Lambda Function Editor. On the left, there's a sidebar with icons for search, deploy, test, and event sources. The main area has tabs for 'Info' (selected) and 'Tutorials'. A success message at the top says 'Successfully updated the function insertStudentData.' The code editor contains Python code for a Lambda function named 'insertStudentData'. It defines a handler 'lambda_handler' that extracts student ID and name from the event and writes them to a DynamoDB table. Deployment options include 'Deploy (Ctrl+Shift+U)' and 'Test (Ctrl+Shift+I)'. Below the code, there are sections for 'TEST EVENTS [NONE SELECTED]' and '+ Create new test event'. The right side shows deployment settings: 'Private' (selected), 'Shareable', and 'Template - optional' set to 'Hello World'. An 'Event JSON' section shows a sample event payload:

```
1 "studentid": "1",
2 "name": "Gurjeet",
3 "class": "A",
4 "age": "22"
```

The bottom right corner features a 'Start tutorial' button.

The test event "test2" was successfully saved.

lambda_function.py

```
5 dynamodb = boto
6 # Use the Dynam
7 table = dynamod
8
9 # Define the ha
10 def lambda_han
11     # Extract v
12     student_id
13     name = even
14     student cla
15     age = event
16
```

Create new test event

Event Name: test2

Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.

Event sharing settings

Private

This event is only available in the Lambda Console and to the event creator. You can configure a total of ten. [Learn more](#)

Shareable

This event is available to IAM users within the same account who have permissions to

PROBLEMS OUTPUT CODE REFERENCE LOG TERMINAL Execution Results

Status: Succeeded Test Event Name: test2

Response:

```
{
    "statusCode": 200,
    "body": "\\"Student data saved successfully!\\\""
}
```

Test event is saved successfully.

CloudShell Feedback

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The test event "test2" was successfully saved.

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

TEST EVENTS [SELECTED: TEST2]

+ Create new test event

Private saved events

test2

13 name = even
14 student_id
15 age = event
16

This event is only available in the Lambda Console and to the event creator. You can configure a total of ten. [Learn more](#)

Shareable

This event is available to IAM users within the same account who have permissions to

PROBLEMS OUTPUT CODE REFERENCE LOG TERMINAL Execution Results

Status: Succeeded Test Event Name: test2

Response:

```
{
    "statusCode": 200,
    "body": "\\"Student data saved successfully!\\\""
}
```

Code properties

Info

Package size
598 byte

SHA256 hash
s8oUYYkHajqnAJDuAASAAqejofczjLPE
WlAyMen2cXy=

Last modified
5 minutes ago

Encryption with AWS KMS customer managed KMS key

Info

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The screenshot shows the AWS DynamoDB console with the path: DynamoDB > Explore items > studentData. On the left, there's a navigation sidebar with links like Dashboard, Tables, Explore items, DAX, and CloudShell. The main area shows a table named 'studentData' with one item returned. The table structure includes columns: studentid (String), age (Number), class (String), and name (String). The item displayed is: studentid: 1, age: 22, class: A, name: Gurjeet.

Data is getting displayed in DynamoDB after testing code of POST function.

This screenshot is identical to the one above, showing the AWS DynamoDB console with the path: DynamoDB > Explore items > studentData. It displays the same table structure and the same single item: studentid: 1, age: 22, class: A, name: Gurjeet.

Part 2 – Creating API to trigger lambda function and S3 static web hosting:

The screenshot shows the AWS Lambda search results for "API Gateway". The left sidebar has a "Lambda" tab selected. The main content area displays the "Services" section under "API Gateway", which includes "Top features" like "WebSocket API", "APIs", and "VPC links", each described as an "API Gateway feature". To the right, there's a "Tutorials" tab with a "Create a simple web app" section, which includes a brief description and a "Start tutorial" button.

The screenshot shows the AWS API Gateway landing page. It features a large title "API Gateway" with the subtitle "Create and manage APIs at scale". Below the title, it says "Amazon API Gateway is a fully managed service that makes it easy for developers to create, publish, maintain, monitor, and secure APIs." On the left, there's a "How it works" diagram showing the integration of API Gateway with various services like Lambda, VPC, and CloudWatch. On the right, there's a "Get started" section with a "Create an API" button, and a "Pricing" section explaining the pay-as-you-go model.

The screenshot shows the AWS API Gateway interface. At the top, the navigation bar includes 'API Gateway > APIs > Create API'. On the right side of the header are 'Build' and 'Import' buttons. Below the header, a large box contains the title 'REST API' and a brief description: 'Develop a REST API where you gain complete control over the request and response along with API management capabilities.' It also lists 'Works with the following:' Lambda, HTTP, AWS Services. At the bottom of this box are 'Import' and 'Build' buttons. A secondary box below it is titled 'REST API Private' with the description 'Create a REST API that is only accessible from within a VPC.' It also lists 'Works with the following:' Lambda, HTTP, AWS Services and has 'Import' and 'Build' buttons. The footer of the page includes links for CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

This screenshot shows the 'Create REST API' configuration page. The top navigation bar shows the path 'API Gateway > APIs > Create API > Create REST API'. The main form is titled 'Create REST API' with an 'Info' link. The 'API details' section contains four options: 'New API' (selected), 'Clone existing API', 'Import API', and 'Example API'. The 'API name' field is set to 'student'. The 'Description - optional' field is empty. The 'API endpoint type' section notes that Regional APIs are deployed in the current AWS Region, Edge-optimized APIs route requests to the nearest CloudFront Point of Presence, and Private APIs are only accessible from VPCs. The footer includes CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

API Gateway > APIs > Create API > Create REST API

API name: student

Description - optional:

API endpoint type: Edge-optimized

IP address type: IPv4

IP address type: Dualstack

Create API

'student' API gateway is created.

API Gateway > APIs > Resources - student (rj6wa1ka0b)

API Gateway

APIs

Custom domain names

Domain name access associations

VPC links

API: student

Resources

Stages

Authorizers

Gateway responses

Models

Resource policy

Documentation

Dashboard

API settings

Successfully created REST API 'student (rj6wa1ka0b)'.

Resources

Create resource /

Resource details

Path: /

Update documentation

Enable CORS

Resource ID: fa5dyg7qj

Methods (0)

No methods defined.

API actions Deploy API

Creating GET method to trigger GET lambda function.

API Gateway > APIs > Resources - student (rj6wa1ka0b) > 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.


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API Gateway > APIs > Resources - student (rj6wa1ka0b) > Create method

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-2
Grant API Gateway permissions: When you save your changes, API Gateway grants the following permissions to your Lambda function:
arn:aws:lambda:us-east-2:026090557197:function:getStudent
arn:aws:lambda:us-east-2:026090557197:function:insertStudentData

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

HTTP request headers

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API Gateway > APIs > Resources - student (rj6wa1ka0b) > Create method

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 | Info
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

▶ HTTP request headers

▶ Request body

Cancel **Create method**

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API Gateway > APIs > Resources - student (rj6wa1ka0b)

Resources

Successfully created method 'GET' in '/'. Redeploy your API for the update to take effect.

/ - GET - Method execution

ARN: arn:aws:execute-api:us-east-2:026090557197:rj6wa1ka0b/*:GET/
Resource ID: fa5dyg7qpj

Client → Method request → Integration request → Lambda integration
← Method response ← Integration response ←

API actions ▼ Deploy API Update documentation Delete

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API Gateway > APIs > Resources - student (rj6wa1ka0b)

API Gateway

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

▼ API: student

Resources

- Stages
- Authorizers
- Gateway responses
- Models
- Resource policy
- Documentation
- Dashboard
- API settings

Create resource

/

GET

Integration request | Integration response | Method response | **Test**

Test method

Make a test call to your method. When you make a test call, API Gateway skips authorization and directly invokes your method.

Query strings

```
param1=value1&param2=value2
```

Headers

Enter a header name and value separated by a colon (:). Use a new line for each header.

```
header1:value1  
header2:value2
```

Client certificate

No client certificates have been generated.

Test

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API Gateway > APIs > Resources - student (rj6wa1ka0b)

API Gateway

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

▼ API: student

Resources

- Stages
- Authorizers
- Gateway responses
- Models
- Resource policy
- Documentation
- Dashboard
- API settings

Create resource

/

GET

① / - GET method test results

Request

```
/
```

Latency ms

3002

Status

200

Response body

```
[{"studentid": "1", "name": "Gurjeet", "class": "A", "age": "22"}]
```

Response headers

```
{  
    "Content-Type": "application/json",  
    "X-Amzn-Trace-Id": "Root=1-681ac144-  
cd50695d8eaf16a9be66d5b8;Parent=463e59b8c37fc563;Sampled=0;Lineage=1:2edf3359:  
0"  
}
```

Logs

```
Execution log for request e7a142e2-dc9c-465b-818e-549f0c48cc9e  
Wed May 07 02:11:16 UTC 2025 : Starting execution for request: e7a142e2-dc9c-  
465b-818e-549f0c48cc9e
```

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API Gateway > APIs > Resources - student (rj6wa1ka0b)

Successfully created method 'GET' in '/'. Redeploy your API for the update to take effect.

Resources

Create resource / GET

Resource details

Path / Resource ID fa5dyg7qpj

Methods (1)

Method type	Integration type	Authorization	API key
GET	Lambda	None	Not required

API actions Deploy API

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Creating POST method to trigger the POST lambda function.

API Gateway > APIs > Resources - student (rj6wa1ka0b) > Create method

Successfully created method 'GET' in '/'. Redeploy your API for the update to take effect.

Create method

Method details

Method type: POST

Integration type:

- Lambda function: Integrate your API with a Lambda function.
Lambda icon
- HTTP: Integrate with an existing HTTP endpoint.
HTTP icon
- Mock: Generate a response based on API Gateway mappings and transformations.
Mock icon

- AWS service: Integrate with an AWS Service.
AWS icon
- VPC link: Integrate with a resource that isn't accessible over the public internet.
VPC icon

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☰ API Gateway > APIs > Resources - student (rj6wa1ka0b) > Create method

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-2 ▾
Grant API Gateway permissions
When you save your changes, API Gateway updates your Lambda function's resource-based policy to allow this API to invoke it.
arn:aws:lambda:us-east-2:026090557197:function:getStudent
arn:aws:lambda:us-east-2:026090557197:function:insertStudentData

Integration timeout | **Info**
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

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☰ API Gateway > APIs > Resources - student (rj6wa1ka0b) > Create method

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 | **Info**
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

▶ HTTP request headers

▶ Request body

Cancel Create method

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API Gateway > APIs > Resources - student (rj6wa1ka0b)

Successfully created method 'POST' in '/'. Redeploy your API for the update to take effect.

API Gateway

APIs
Custom domain names
Domain name access associations
VPC links

API: student

Resources
Stages
Authorizers
Gateway responses
Models
Resource policy
Documentation
Dashboard
API settings

Resources

Create resource

/

GET
POST

/ - POST - Method execution

ARN: arn:aws:execute-api:us-east-2:026090557197:rj6wa1ka0b/*/*/*

Resource ID: fa5dyg7qj

Update documentation Delete

Client → Method request → Integration request → Lambda integration
← Method response ← Integration response

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Deploying API to prod stage.

API Gateway > APIs > Resources - student (rj6wa1ka0b)

Succ...

API Gateway

APIs
Custom domain names
Domain name access associations
VPC links

API: student

Resources
Stages
Authorizers
Gateway responses
Models
Resource policy
Documentation
Dashboard
API settings

Resources

Create resource

/

GET
POST

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

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

Deployment description:

Cancel Deploy

Update documentation Delete

Resource ID: fa5dyg7qj

Integration request → Lambda integration
← Integration response

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The screenshot shows the AWS API Gateway interface. In the top navigation bar, the path is: API Gateway > APIs > student (rj6wa1ka0b) > Stages. On the left sidebar, under 'API: student', the 'Stages' option is selected. The main content area displays the 'Stages' section with a single stage named 'prod'. The 'Stage details' panel for 'prod' shows the following configuration:

- Stage name:** prod
- Rate Info:** 10000
- Burst Info:** 5000
- Cache cluster Info:** Inactive
- Default method-level caching:** Inactive
- Invoke URL:** https://rj6wa1ka0b.execute-api.us-east-2.amazonaws.com/prod
- Active deployment:** nttln4 on May 06, 2025, 22:13 (UTC-04:00)

At the bottom of the page, there are links for CloudShell, Feedback, and a footer with copyright information and links for Privacy, Terms, and Cookie preferences.

Copied invoke URL of API gateway.

This screenshot is identical to the one above, showing the AWS API Gateway Stages page for the 'student' API. However, a green tooltip with the text 'Copied' and a small clipboard icon appears over the 'Invoke URL' field. The rest of the interface and stage details are the same as in the first screenshot.

The screenshot shows the AWS API Gateway interface. On the left, the navigation bar includes 'APIs' and 'Resources - student (rj6wa1ka0b)'. The main panel displays a 'Resources' section with a single resource entry. The resource path is '/'. It lists two methods: 'GET' and 'POST'. Both methods are configured with 'Lambda' as the integration type and 'None' for both 'Authorization' and 'API key'. The 'Resource details' section shows the path '/' and the 'Resource ID' fa5dyg7qpj. There are buttons for 'Update documentation' and 'Enable CORS'. The bottom right corner of the main panel contains copyright information: '© 2025, Amazon Web Services, Inc. or its affiliates.' and links for 'Privacy', 'Terms', and 'Cookie preferences'.

Enabled CORS for both GET and POST methods.

The screenshot shows the 'Enable CORS' configuration page. At the top, the breadcrumb navigation is 'API Gateway > APIs > Resources - student (rj6wa1ka0b) > Enable CORS'. The main content area is titled 'Enable CORS'. It contains several configuration sections: 'CORS settings' (info), 'Gateway responses' (checkboxes for Default 4XX and Default 5XX), 'Access-Control-Allow-Methods' (checkboxes for GET, OPTIONS, and POST, with GET checked), 'Access-Control-Allow-Headers' (text input field containing 'Content-Type,X-Amz-Date,Authorization,X-Api-Key,X-Amz-Security-Token'), and 'Access-Control-Allow-Origin' (text input field with placeholder 'Enter an origin that can access the resource. Use a wildcard (*) to allow any origin to access the resource.'). The bottom right corner of the page contains copyright information: '© 2025, Amazon Web Services, Inc. or its affiliates.' and links for 'Privacy', 'Terms', and 'Cookie preferences'.

The screenshot shows the AWS API Gateway interface. In the top navigation bar, the path is: API Gateway > APIs > Resources - student (rj6wa1ka0b). A green success message box at the top right says "Successfully enabled CORS" with a "Details" link. On the left sidebar, under "API: student", there's a "Resources" section with links to Stages, Authorizers, Gateway responses, Models, Resource policy, Documentation, Dashboard, and API settings. The main content area is titled "Resources" and shows a single resource entry for path "/". Under this entry, three methods are listed: GET, OPTIONS, and POST. To the right, the "Resource details" panel shows the path as "/" and the resource ID as "fa5dyg7qjj". Below it, the "Methods (3)" table lists the three methods with their respective integration types (Lambda for GET and POST, Mock for OPTIONS), authorizations (None), and API key requirements (Not required). Buttons for "Update documentation" and "Enable CORS" are also present.

Creating S3 bucket to store the application code 'index.html' and API gateway code 'script.js'.

The screenshot shows the AWS S3 landing page. The main heading is "Amazon S3" with the subtext "Store and retrieve any amount of data from anywhere". Below this, a paragraph explains that S3 is an object storage service with scalability, availability, security, and performance. To the right, a "Create a bucket" call-to-action button is visible. Another panel on the right provides information about S3 pricing, stating there are no minimum fees and prices are based on location. It includes a link to the "AWS Simple Monthly Calculator" and a "View pricing details" button. At the bottom, there's a "How it works" section with a screenshot of a browser showing an AWS video player, and a "Copy link" button. The footer contains standard AWS links: CloudShell, Feedback, © 2025, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

Amazon S3 > Buckets > Create bucket

Create bucket Info

Buckets are containers for data stored in S3.

General configuration

AWS Region
US East (Ohio) us-east-2

Bucket type Info

General purpose
Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.

Directory
Recommended for low-latency use cases. These buckets use only the S3 Express One Zone storage class, which provides faster processing of data within a single Availability Zone.

Bucket name Info

Bucket names must be 3 to 63 characters and unique within the global namespace. Bucket names must also begin and end with a letter or number. Valid characters are a-z, 0-9, periods (.), and hyphens (-). [Learn More](#)

Copy settings from existing bucket - optional
Only the bucket settings in the following configuration are copied.

[Choose bucket](#)

Format: s3://bucket/prefix

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Amazon S3 > Buckets > Create bucket

Server-side encryption Info

Server-side encryption is automatically applied to new objects stored in this bucket.

Encryption type Info

Server-side encryption with Amazon S3 managed keys (SSE-S3)
 Server-side encryption with AWS Key Management Service keys (SSE-KMS)
 Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)
Secure your objects with two separate layers of encryption. For details on pricing, see DSSE-KMS pricing on the Storage tab of the [Amazon S3 pricing page](#).

Bucket Key
Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS. [Learn more](#)

Disable
 Enable

Advanced settings

After creating the bucket, you can upload files and folders to the bucket, and configure additional bucket settings.

Cancel [Create bucket](#)

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The screenshot shows the AWS S3 console with a green success message at the top: "Successfully created bucket 'firstbucketgurjeetkaur'". Below it is an "Account snapshot" card with a "View Storage Lens dashboard" button. The main area displays "General purpose buckets" with one item: "firstbucketgurjeetkaur" (Info, All AWS Regions). The bucket details show it was created on May 6, 2025, at 22:17:35 UTC-04:00.

Add copied API endpoint URL inside the script.js file.

The screenshot shows the AWS Serverless platform code editor. The "script.js" tab is active, displaying the following JavaScript code:

```
// Add your API endpoint here
var API_ENDPOINT = "https://rj6wa1ka0b.execute-api.us-east-2.amazonaws.com/prod";

// AJAX POST request to save student data
document.getElementById('savestudent').onclick = function(){
    var inputData = {
        "studentid": $("#studentid").val(),
        "name": $("#name").val(),
        "class": $("#class").val(),
        "age": $("#age").val()
    };
    $.ajax({
        url: API_ENDPOINT,
        type: "POST",
        data: JSON.stringify(inputData),
        contentType: 'application/json; charset=utf-8',
        success: function (response) {
            document.getElementById("studentSaved").innerHTML = "Student Data Saved!";
        },
        error: function () {
            alert("Error saving student data.");
        }
    });
}

// AJAX GET request to retrieve all students
document.getElementById("getstudents").onclick = function(){
    $.ajax({
        url: API_ENDPOINT,
        type: "GET",
        contentType: 'application/json; charset=utf-8',
        success: function (response) {
            // Process response data
        }
    });
}
```

The screenshot shows the AWS Serverless platform interface with the script.js file open in the code editor. The code implements an AJAX GET request to retrieve student data from an API endpoint and displays it in a table.

```
script.js > onclick > error
document.getElementById("savestudent").onclick = function(){
    ...
}

// AJAX GET request to retrieve all students
document.getElementById("getstudents").onclick = function(){
    $.ajax({
        url: API_ENDPOINT,
        type: 'GET',
        contentType: 'application/json; charset=utf-8',
        success: function (response) {
            $("#studentTable tr").slice(1).remove();
            jQuery.each(response, function(i, data) {
                $("#studentTable").append("<tr> \
                    <td>" + data['studentid'] + "</td> \
                    <td>" + data['name'] + "</td> \
                    <td>" + data['class'] + "</td> \
                    <td>" + data['age'] + "</td> \
                </tr>");
            });
        },
        error: function () {
            alert("Error retrieving student data.");
        }
    });
}

Ln 22, Col 10  Spaces:4  UTF-8  CRLF  {}  JavaScript  ⚙  🌐
```

The screenshot shows the AWS Serverless platform interface with the index.html file open in the code editor. The page contains a form for adding a new student and a table to display existing student data.

```
index.html > html > body > div.container > div#showStudents > table#studentTable > thead > tr > th
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Student Data</title>
    <style>
        body {
            background-color: #f0f0f0; /* Light gray background */
            color: #333; /* Dark gray text */
            font-family: Arial, sans-serif; /* Use Arial font */
        }
        h1 {
            color: #007bff; /* Blue heading text */
        }
        .container {
            max-width: 600px; /* Limit width to 600px */
            margin: 0 auto; /* Center the container */
            padding: 20px; /* Add padding */
            background-color: #fff; /* White background */
            border-radius: 10px; /* Rounded corners */
            box-shadow: 0 0 10px #rgba(0, 0, 0, 0.1); /* Add shadow */
        }
        input[type="text"], input[type="submit"] {
            width: 100%;
            padding: 10px;
            margin: 5px 0;
            box-sizing: border-box;
            border: 1px solid #ccc;
        }
    </style>

```

AWS Serverless platform

File Edit Selection View Go Run ...

EXPLORER AWS SERVERLESS... getstudent.py index.html insertstudentdata.py script.js

index.html > html > body > div.container > div#showStudents > table#studentTable > thead > tr > th

```
1 <html lang="en">
2   <head>
3     <style>
4       input[type="text"], input[type="submit"] {
5         width: 100%;
6         padding: 10px;
7         margin: 5px 0;
8         box-sizing: border-box;
9         border: 1px solid #ccc;
10        border-radius: 5px;
11      }
12
13      input[type="submit"] {
14        background-color: #007bff; /* Blue submit button */
15        color: #fff; /* White text */
16        cursor: pointer; /* Add pointer cursor */
17      }
18
19      input[type="submit"]:hover {
20        background-color: #0056b3; /* Darker blue on hover */
21      }
22
23      table {
24        width: 100%;
25        border-collapse: collapse;
26      }
27
28      th, td {
29        padding: 8px;
30        text-align: left;
31        border-bottom: 1px solid #ddd;
32      }
33
34    </style>
35  </head>
36  <body>
```

OUTLINE > TIMELINE

Ln 95, Col 36 Spaces:4 UTF-8 CRLF HTML

AWS Serverless platform

File Edit Selection View Go Run ...

EXPLORER AWS SERVERLESS... getstudent.py index.html insertstudentdata.py script.js

index.html > html > body > div.container > div#showStudents > table#studentTable > thead > tr > th

```
1 <html lang="en">
2   <head>
3     <style>
4       table {
5         border-collapse: collapse;
6       }
6
7       th, td {
8         padding: 8px;
9         text-align: left;
10        border-bottom: 1px solid #ddd;
11      }
12
13       th {
14         background-color: #f2f2f2; /* Light gray header background */
15       }
16     </style>
17   </head>
18   <body>
19     <div class="container">
20       <h1>Save and View Student Data</h1>
21       <label for="studentid">Student ID:</label><br>
22       <input type="text" name="studentid" id="studentid"><br>
23
24       <label for="name">Name:</label><br>
25       <input type="text" name="name" id="name"><br>
26
27       <label for="class">Class:</label><br>
28       <input type="text" name="class" id="class"><br>
29
30       <label for="age">Age:</label><br>
31       <input type="text" name="age" id="age"><br>
32
33     <br>
```

OUTLINE > TIMELINE

Ln 95, Col 36 Spaces:4 UTF-8 CRLF HTML

AWS Serverless platform

File Edit Selection View Go Run ...

EXPLORER AWS SERVERLESS PLATFORM

getstudent.py insertstudentdata.py JS script.js index.html

```
index.html > html > body > div.container > div#showStudents > table#studentTable > thead > tr > th
2   <html lang="en">
62    <body>
63      <div class="container">
73        <input type="button" value="Save Student Data" />
79        <p id="studentSaved"></p>
80
81        <br>
82        <input type="submit" id="getstudents" value="View all Students">
83        <br><br>
84        <div id="showStudents">
85          <table id="studentTable">
86            <colgroup>
87              <col style="width:20%">
88              <col style="width:20%">
89              <col style="width:20%">
90              <col style="width:20%">
91            </colgroup>
92            <thead>
93              <tr>
94                <th>Student ID</th>
95                <th>Name</th>
96                <th>Class</th>
97                <th>Age</th>
98              </tr>
99            </thead>
100           <tbody>
101             <!-- Student data will be displayed here -->
102           </tbody>
103         </table>
104       </div>
105     </div>
106
107     <script src="scripts.js"></script>
```

Ln 95, Col 36 Spaces: 4 UTF-8 CRLF HTML

AWS Serverless platform

File Edit Selection View Go Run ...

EXPLORER AWS SERVERLESS PLATFORM

getstudent.py insertstudentdata.py JS script.js index.html

```
index.html > html > head > style > h1
2   <html lang="en">
62    <body>
63      <div class="container">
64        <div id="showStudents">
65          <table id="studentTable">
66            <thead>
67              <tr>
68                <th>Student ID</th>
69                <th>Name</th>
70                <th>Class</th>
71                <th>Age</th>
72              </tr>
73            </thead>
74            <tbody>
75              <!-- Student data will be displayed here -->
76            </tbody>
77          </table>
78        </div>
79      </div>
80
81      <script src="script.js"></script>
82      <script type="text/javascript" src="https://ajax.googleapis.com/ajax/libs/jquery/1.6.0/jquery.min.js"></script>
83
84    </body>
85  </html>
```

Ln 14, Col 13 Spaces: 4 UTF-8 CRLF HTML

The screenshot shows the Amazon S3 console interface. At the top, the navigation bar indicates the user is in the 'Buckets' section under 'Amazon S3'. The current bucket is 'firstbucketgurjeetkaur'. Below the navigation, there are tabs for 'Objects', 'Metadata', 'Properties', 'Permissions', 'Metrics', 'Management', and 'Access Points'. The 'Objects' tab is selected. A sub-header 'Objects (0)' is displayed, along with several actions: 'Copy S3 URI', 'Copy URL', 'Download', 'Open', 'Delete', 'Actions', 'Create folder', and 'Upload'. A note below the actions states: 'Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions.' A search bar labeled 'Find objects by prefix' is present. The main table header includes columns for 'Name', 'Type', 'Last modified', 'Size', and 'Storage class'. A message 'No objects' is centered in the table area, followed by the sub-message 'You don't have any objects in this bucket.' A large blue 'Upload' button is located at the bottom right of the table area.

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The screenshot shows a Windows File Explorer window titled 'Open'. The address bar shows the path: 'Project1 > AWS Serverless platform'. The left sidebar lists local drives ('This PC') and network locations ('Network'). The main pane displays a list of files in the 'AWS Serverless platform' folder. The files are:

Name	Date modified	Type
getstudent	11-04-2025 18:39	Python Source F
<input checked="" type="checkbox"/> index	06-05-2025 22:20	Chrome HTML D
insertstudentdata	11-04-2025 18:02	Python Source F
<input checked="" type="checkbox"/> script	06-05-2025 22:19	JavaScript File

At the bottom of the window, there are filters: 'File name:' containing 'script' and 'index', and a dropdown set to 'All Files'.

Amazon S3 > Buckets > firstbucketgurjeetkaur > Upload

Upload Info

Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDKs or Amazon S3 REST API. [Learn more](#)

Drag and drop files and folders you want to upload here, or choose Add files or Add folder.

Files and folders (2 total, 5.0 KB)

All files and folders in this table will be uploaded.

<input type="checkbox"/>	Name	Folder	Type	Size
<input type="checkbox"/>	index.html	-	text/html	3.4 KB
<input type="checkbox"/>	script.js	-	text/javascript	1.6 KB

Destination Info

Destination
<s3://firstbucketgurjeetkaur>

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Upload succeeded
For more information, see the [Files and folders](#) table.

Summary

Destination	Succeeded	Failed
s3://firstbucketgurjeetkaur	2 files, 5.0 KB (100.00%)	0 files, 0 B (0%)

Files and folders **Configuration**

Files and folders (2 total, 5.0 KB)

Name	Folder	Type	Size	Status	Error
index.html	-	text/html	3.4 KB	Success	-
script.js	-	text/javascript	1.6 KB	Success	-

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Amazon S3 > Buckets > firstbucketgurjeetkaur

firstbucketgurjeetkaur [Info](#)

Objects | Metadata | **Properties** | Permissions | Metrics | Management | Access Points

Bucket overview

AWS Region US East (Ohio) us-east-2	Amazon Resource Name (ARN) arn:aws:s3:::firstbucketgurjeetkaur	Creation date May 6, 2025, 22:17:35 (UTC-04:00)
--	---	--

Bucket Versioning

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. [Learn more](#)

Bucket Versioning
Disabled

Multi-factor authentication (MFA) delete
An additional layer of security that requires multi-factor authentication for changing Bucket Versioning settings and permanently deleting object versions. To modify MFA delete settings, use the AWS CLI, AWS SDK, or the Amazon S3 REST API. [Learn more](#)

Disabled

[Edit](#)

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Amazon S3 > Buckets > firstbucketgurjeetkaur

Object Lock

Disabled

Requester pays

When enabled, the requester pays for requests and data transfer costs, and anonymous access to this bucket is disabled. [Learn more](#)

Requester pays
Disabled

Static website hosting

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

We recommend using AWS Amplify Hosting for static website hosting
Deploy a fast, secure, and reliable website quickly with AWS Amplify Hosting. Learn more about [Amplify Hosting](#) or [View your existing Amplify apps](#)

[Create Amplify app](#)

S3 static website hosting
Disabled

[Edit](#)

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Enabling S3 static web hosting.

Amazon S3 > Buckets > firstbucketgurjeetkaur > Edit static website hosting

Edit static website hosting [Info](#)

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](#)

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

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Amazon S3 > Buckets > firstbucketgurjeetkaur > Edit static website hosting

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

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

Redirection rules - optional
Redirection rules, written in JSON, automatically redirect webpage requests for specific content. [Learn more](#)

1

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The screenshot shows the AWS S3 Bucket configuration page for 'firstbucketgurjeetkaur'. A green success message at the top indicates 'Successfully edited static website hosting.' Below it, the 'Encryption type' is set to 'Info' (Server-side encryption with Amazon S3 managed keys (SSE-S3)). Under 'Bucket Key', it says 'Enabled'. In the 'Intelligent-Tiering Archive configurations' section, there are no configurations listed. At the bottom, there are links for CloudShell, Feedback, and various AWS terms like Privacy, Terms, and Cookie preferences.

Copy the website endpoint.

The screenshot shows the AWS S3 Bucket configuration page for 'firstbucketgurjeetkaur'. A green success message at the top indicates 'Successfully edited static website hosting.' Below it, the 'Static website hosting' section is active, with a note to use the bucket to host a website or redirect requests. It recommends using AWS Amplify Hosting. Under 'S3 static website hosting', 'Enabled' is selected. The 'Hosting type' is 'Bucket hosting'. A message box shows 'Bucket website endpoint copied' with a link to the endpoint: <http://firstbucketgurjeetkaur.s3-website.us-east-2.amazonaws.com>. At the bottom, there are links for CloudShell, Feedback, and various AWS terms like Privacy, Terms, and Cookie preferences.

Access the website endpoint.

Not secure firstbucketgurjeetkaur.s3-website.us-east-2.amazonaws.com

403 Forbidden

- Code: AccessDenied
- Message: Access Denied
- RequestId: NPND7TV5129XDWYH
- HostId: zGeGmuNbUpI6dvweD/6rxijgr4wFCWYqgLbJNkcQ9R3jPkuiXqzBXdHcmxHZFCbunH8sjdf68BA7GkiKgSypT3Qj1bd4klTTsmGbdSZiEc=

Allow permissions to access the website.

Amazon S3 > Buckets > firstbucketgurjeetkaur

firstbucketgurjeetkaur [Info](#)

Permissions

Objects Metadata Properties Permissions Metrics Management Access Points

Permissions overview

Access finding
Access findings are provided by IAM external access analyzers. Learn more about [How IAM analyzer findings work](#).
[View analyzer for us-east-2](#)

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

On

► Individual Block Public Access settings for this bucket

[Edit](#)

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

Edit Block public access (bucket settings) Info

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](#)

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

Edit Block public access (bucket settings) Info

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.

- 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.

Edit Block public access (bucket settings)

⚠️ Updating the Block Public Access settings for this bucket will affect this bucket and all objects within. This may result in some objects becoming public.

To confirm the settings, enter **confirm** in the field.

[Cancel](#) [Confirm](#)

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

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Amazon S3 > Buckets > firstbucketgurjeetkaur

Successfully edited Block Public Access settings for this bucket.

firstbucketgurjeetkaur Info

Objects | Metadata | Properties | **Permissions** | Metrics | Management | Access Points

Permissions overview

Access finding
Access findings are provided by IAM external access analyzers. Learn more about [How IAM analyzer findings work](#)

[View analyzer for us-east-2](#)

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
 Off

► Individual Block Public Access settings for this bucket

[Edit](#)

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Amazon S3 > Buckets > firstbucketgurjeetkaur

Successfully edited Block Public Access settings for this bucket.

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](#)

No policy to display.

[Edit](#) [Delete](#) [Copy](#)

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Amazon S3 > Buckets > firstbucketgurjeetkaur > Edit bucket policy

Edit bucket policy Info

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](#)

Bucket ARN
arn:aws:s3:::firstbucketgurjeetkaur

Policy

1	Edit statement
	Select a statement Select an existing statement in the policy or add a new statement.

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amazon web services

AWS Policy Generator

The AWS Policy Generator is a tool that enables you to create policies that control access to Amazon Web Services (AWS) products and resources. For more information about creating policies, see [key concepts](#) in [Using AWS Identity and Access Management](#). Here are [sample policies](#).

Step 1: Select Policy Type

A Policy is a container for permissions. The different types of policies you can create are an [IAM Policy](#), an [S3 Bucket Policy](#), an [SNS Topic Policy](#), a [VPC Endpoint Policy](#), and an [SQS Queue Policy](#).

Select Type of Policy [S3 Bucket Policy](#)

Step 2: Add Statement(s)

A statement is the formal description of a single permission. See [a description of elements](#) that you can use in statements.

Effect Allow Deny

Principal

Use a comma to separate multiple values.

AWS Service All Services ("*")
Use multiple statements to add permissions for more than one service.

Actions All Actions ("*")

Amazon Resource Name (ARN)

awspolicygen.s3.amazonaws.com/policygen.html

VPC Endpoint Policy, and an SQS Queue Policy.

Select Type of Policy S3 Bucket Policy

Step 2: Add Statement(s)

A statement is the formal description of a single permission. See a [description of elements](#) that you can use in statements.

Effect Allow Deny

Principal *

Use a comma to separate multiple values.

AWS Service Amazon S3 All Services ('*')

Actions 1 Action(s) Selected All Actions ('*')

Amazon Resource Name (ARN)

GetObject

GetObjectAcl

GetObjectAttributes

GetObjectLegalHold

GetObjectRetention

GetObjectTagging

(BucketName)/\${KeyName}.

d. You must enter a valid ARN.

Step 3: Generate Policy

A *policy* is a document (written in the [Access Policy Language](#)) that acts as a container for one or more statements.

Add one or more statements above to generate a policy.

Amazon S3 > Buckets > firstbucketgurjeetkaur > Edit bucket policy

Edit bucket policy [Info](#)

Bucket policy

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

Bucket ARN copied

Create ARN

arn:aws:s3:::firstbucketgurjeetkaur

Policy

1	Edit statement
	Select a statement Select an existing statement in the policy or add a new statement.

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← → ⌂ awspolicygen.s3.amazonaws.com/policygen.html

VPC Endpoint Policy, and an SQS Queue Policy.

Select Type of Policy S3 Bucket Policy

Step 2: Add Statement(s)

A statement is the formal description of a single permission. See a [description](#) of elements that you can use in statements.

Effect Allow Deny

Principal *

AWS Service Amazon S3 All Services ('*')

Actions 1 Action(s) Selected All Actions ('*')

Amazon Resource Name (ARN) s3:::firstbucketgurjeetkaur

ARN should follow the following format: arn:aws:s3:::\${BucketName}/\${KeyName}.
Use a comma to separate multiple values.

Add Conditions (Optional)

Add Statement

Step 3: Generate Policy

A *policy* is a document (written in the [Access Policy Language](#)) that acts as a container for one or more statements.

Add one or more statements above to generate a policy.

← → ⌂ awspolicygen.s3.amazonaws.com/policygen.html

Amazon Resource Name (ARN)

ARN should follow the following format: arn:aws:s3:::\${BucketName}/\${KeyName}.
Use a comma to separate multiple values.

Add Conditions (Optional)

Add Statement

You added the following statements. Click the button below to Generate a policy.

Principal(s)	Effect	Action	Resource	Conditions
*	Allow	s3:GetObject	arn:aws:s3:::firstbucketgurjeetkaur	None

Step 3: Generate Policy

A *policy* is a document (written in the [Access Policy Language](#)) that acts as a container for one or more statements.

Generate Policy **Start Over**

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← → ⌂ awspolicygen.s3.amazonaws.com/policygen.html

Amazon Resource Name (ARN)

ARN should follow the following format: arn:aws:s3:::\${BucketName}/\${KeyName}.

Policy JSON Document

Click below to edit. To save the policy, copy the text below to a text editor. Changes made below will not be reflected in the policy generator tool.

You added t

Principal * Step 3: A policy is a

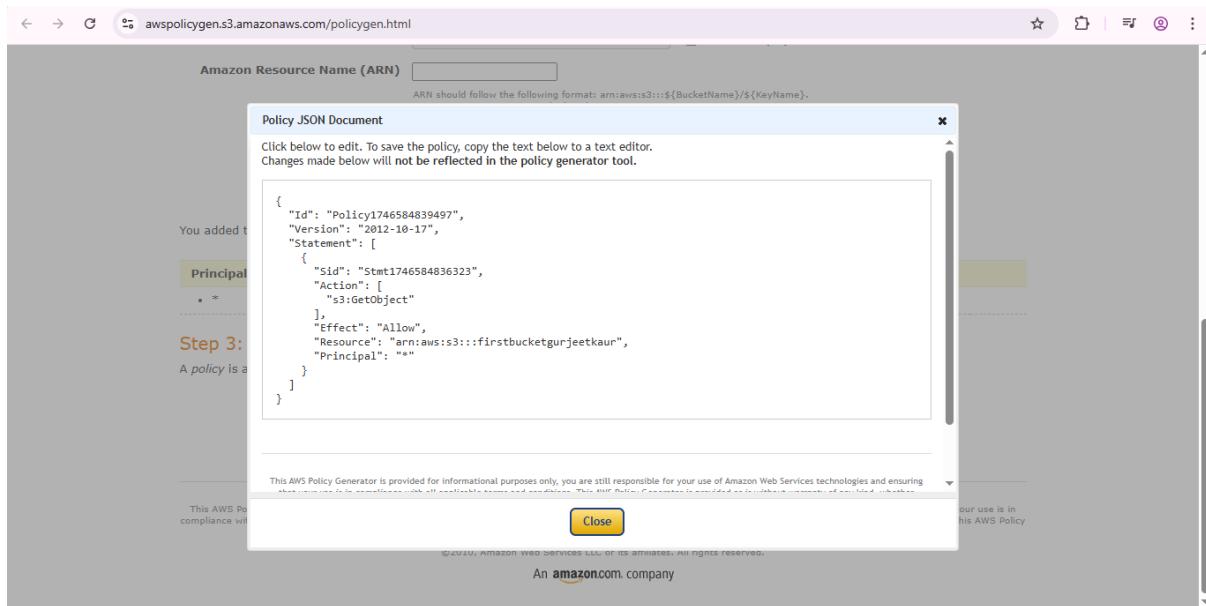
```
{ "Id": "Policy1746584839497", "Version": "2012-10-17", "Statement": [ { "Sid": "Stmt1746584836323", "Action": [ "s3:GetObject" ], "Effect": "Allow", "Resource": "arn:aws:s3:::firstbucketgurjeetkaur", "Principal": "*" } ] }
```

This AWS Policy Generator is provided for informational purposes only, you are still responsible for your use of Amazon Web Services technologies and ensuring adherence to all applicable laws, rules and regulations. This AWS Policy Generator does not generate compliant AWS IAM Policies. Your use is in your sole discretion and risk.

[Close](#)

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☰ Amazon S3 > Buckets > [firstbucketgurjeetkaur](#) > Edit bucket policy

Bucket ARN arn:aws:s3:::firstbucketgurjeetkaur

Policy

```
1 ▾ {  
2   "Id": "Policy1746584839497",  
3   "Version": "2012-10-17",  
4   "Statement": [  
5     {  
6       "Sid": "Stmt1746584836323",  
7       "Action": [  
8         "s3:GetObject"  
9       ],  
10      "Effect": "Allow",  
11      "Resource": "arn:aws:s3:::firstbucketgurjeetkaur",  
12      "Principal": "*"  
13    }  
14  ]  
15 }
```

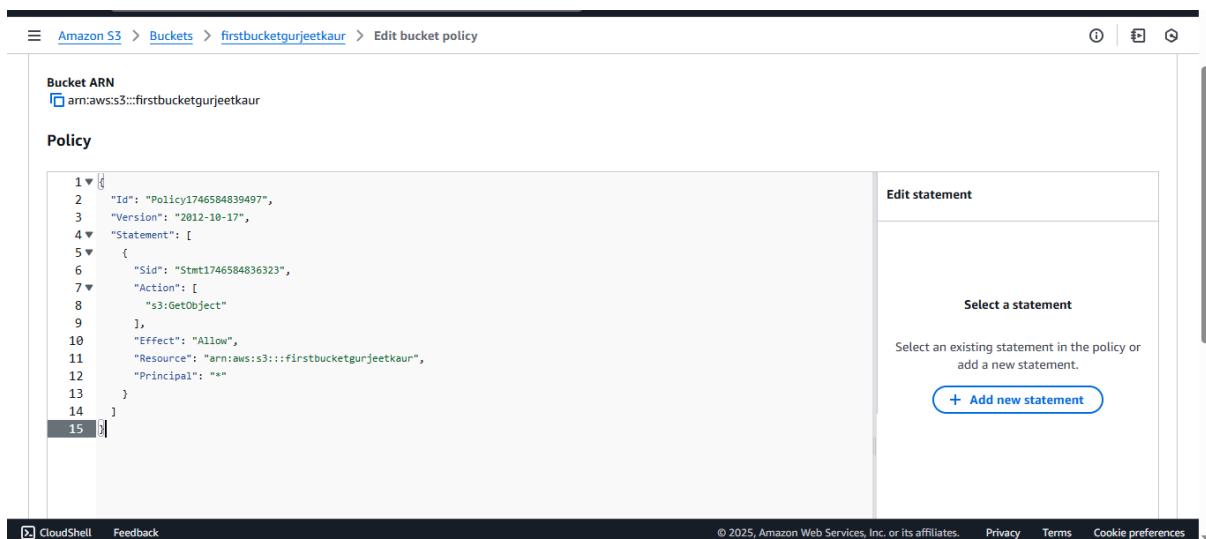
Edit statement

Select a statement

Select an existing statement in the policy or add a new statement.

[+ Add new statement](#)

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Amazon S3 > Buckets > firstbucketgurjeetkaur > Edit bucket policy

Bucket ARN
arn:aws:s3:::firstbucketgurjeetkaur

Policy

```
1 ▼ {
2   "Id": "Policy1746584839497",
3   "Version": "2012-10-17",
4   "Statement": [
5     {
6       "Sid": "Stmt1746584836323",
7       "Action": [
8         "s3:GetObject"
9       ],
10      "Effect": "Allow",
11      "Resource": "arn:aws:s3:::firstbucketgurjeetkaur/*",
12      "Principal": "*"
13    }
14  ]
15 }
```

Edit statement Stmt1746584836323 Remove

Add actions Choose a service Filter services

Included S3

Available AI Operations AMP API Gateway API Gateway V2

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Amazon S3 > Buckets > [firstbucketgurjeetkaur](#) > Edit bucket policy

Bucket ARN
arn:aws:s3:::firstbucketgurjeetkaur

Policy

```
1 ▼ {
2   "Id": "Policy1746584839497",
3   "Version": "2012-10-17",
4   "Statement": [
5     {
6       "Sid": "Stmt1746584836323",
7       "Action": [
8         "s3:GetObject"
9       ],
10      "Effect": "Allow",
11      "Resource": "arn:aws:s3:::firstbucketgurjeetkaur/*",
12      "Principal": "*"
13    }
14  ]
15 }
```

Edit statement Stmt1746584836323 Remove

Add actions Choose a service Filter services

Included S3

Available AI Operations AMP API Gateway API Gateway V2

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Amazon S3 > Buckets > [firstbucketgurjeetkaur](#) > Edit bucket policy

+ Add new statement

JSON Ln 11, Col 56

Security: 0 Errors: 0 Warnings: 0 Suggestions: 0 Preview external access

AR Operations AMP API Gateway API Gateway V2 ARC Zonal Shift ASC Access Analyzer

Add a resource Add

Add a condition (optional) Add

Cancel Save changes

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Amazon S3 > Buckets > firstbucketgurjeetkaur > Edit bucket policy

+ Add new statement

JSON Ln 11, Col 56

Security: 0 Errors: 0 Warnings: 0 Suggestions: 0

Add a resource Add

Add a condition (optional) Add

Preview external access

Cancel Save changes

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Amazon S3 > Buckets > firstbucketgurjeetkaur

Successfully edited bucket policy. X

```
{ "Version": "2012-10-17", "Id": "Policy1746584839497", "Statement": [ { "Sid": "Stmt1746584836323", "Effect": "Allow", "Principal": "*", "Action": "s3:GetObject", "Resource": "arn:aws:s3:::firstbucketgurjeetkaur/*" } ] }
```

Copy

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Now refresh the page, user will be able to see the website.

Save and View Student Data

Student ID:

Name:

Class:

Age:

Save Student Data

View all Students

Student ID	Name	Class	Age
1	Gurjeet	A	22

View student data. (by default value should display which is in DynamoDB)

Save and View Student Data

Student ID:

Name:

Class:

Age:

Save Student Data

View all Students

Student ID	Name	Class	Age
1	Gurjeet	A	22

Add student data. (It will be saved in DynamoDB)

The screenshot shows a web browser window with the URL `firstbucketgurjeetkaur.s3-website.us-east-2.amazonaws.com`. The page title is "Save and View Student Data". The form contains four input fields: "Student ID" (value: 2), "Name" (value: John), "Class" (value: B), and "Age" (value: 23). Below the form is a blue button labeled "Save Student Data". A message "Student Data Saved!" is displayed below the button. At the bottom is a "View all Students" button. A table below the button shows student data:

Student ID	Name	Class	Age
1	Gurjeet	A	22

The screenshot shows the same web browser window after data has been saved. The "Save Student Data" button is now greyed out. The "View all Students" button is highlighted in blue. The message "Student Data Saved!" is still present. The table at the bottom now includes the new data:

Student ID	Name	Class	Age
2	John	B	23
1	Gurjeet	A	22

The screenshot shows the AWS DynamoDB console. On the left, the navigation bar includes 'DynamoDB', 'Explore items', and 'studentData'. The main area displays a table titled 'Table: studentData - Items returned (2)'. The table has columns: studentid (String), age, class, and name. Two items are listed:

	studentid (String)	age	class	name
<input type="checkbox"/>	2	23	B	John
<input type="checkbox"/>	1	22	A	Gurjeet

At the bottom, there are links for 'CloudShell', 'Feedback', and copyright information: '© 2025, Amazon Web Services, Inc. or its affiliates.' followed by 'Privacy', 'Terms', and 'Cookie preferences'.

The screenshot shows a web browser window with the URL 'firstbucketgurjeetkaur.s3-website.us-east-2.amazonaws.com'. The page title is 'Save and View Student Data'. It contains a form with fields for Student ID (2), Name (John), Class (B), and Age (23). A blue button labeled 'Save Student Data' is present. Below the form, a message says 'Student Data Saved!'. A blue button labeled 'View all Students' is shown. At the bottom, there is a table with columns: Student ID, Name, Class, and Age. The data matches the entries in the form.

Student ID	Name	Class	Age
2	John	B	23
1	Gurjeet	A	22

Not secure firstbucketgurjeetkaur.s3-website.us-east-2.amazonaws.com

Save and View Student Data

Student ID:
3

Name:
Lora

Class:
C

Age:
24

Save Student Data

Student Data Saved!

View all Students

Student ID	Name	Class	Age
2	John	B	23
1	Gurjeet	A	22

Not secure firstbucketgurjeetkaur.s3-website.us-east-2.amazonaws.com

Save and View Student Data

Student ID:
3

Name:
Lora

Class:
C

Age:
24

Save Student Data

Student Data Saved!

View all Students

Student ID	Name	Class	Age
2	John	B	23
1	Gurjeet	A	22
3	Lora	C	24

The screenshot shows the AWS DynamoDB 'Explore items' interface. On the left, a sidebar lists various options like Dashboard, Tables, Explore items, PartQL editor, Backups, Exports to S3, Imports from S3, Integrations, Reserved capacity, and Settings. Under 'Explore items', there's a section for 'studentData'. The main area shows a table titled 'Table: studentData - Items returned (3)'. The table has columns: studentid (String), age, class, and name. The data is as follows:

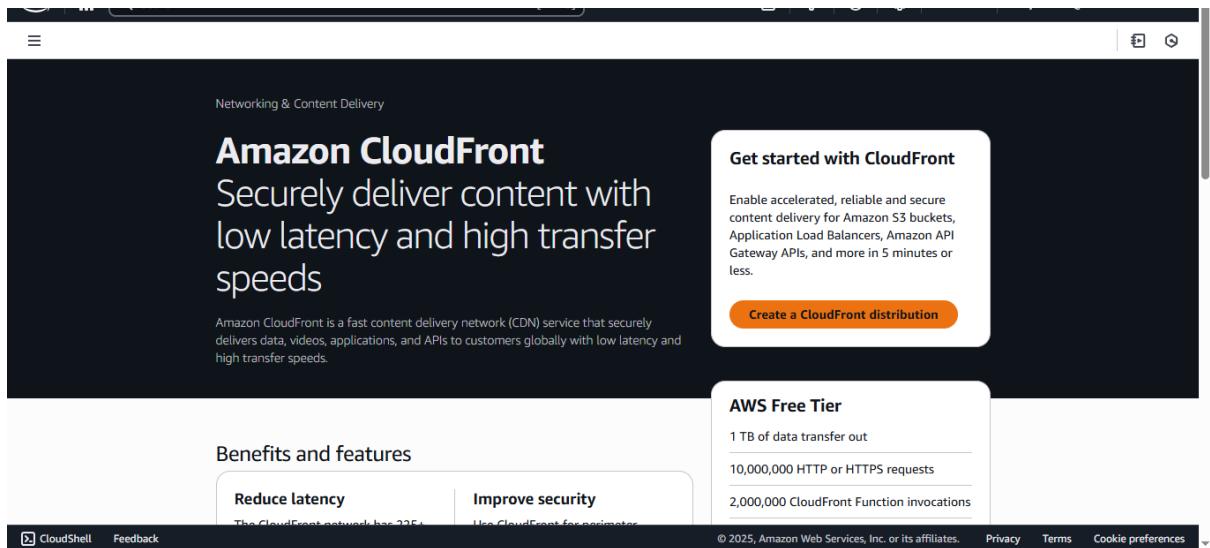
studentid (String)	age	class	name
2	23	B	John
1	22	A	Gurjeet
3	24	C	Lora

At the top right of the main area, there are 'Actions' and 'Create item' buttons. Below the table, it says 'Scan started on May 07, 2025, 10:26:25'. At the bottom of the page, there are links for CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

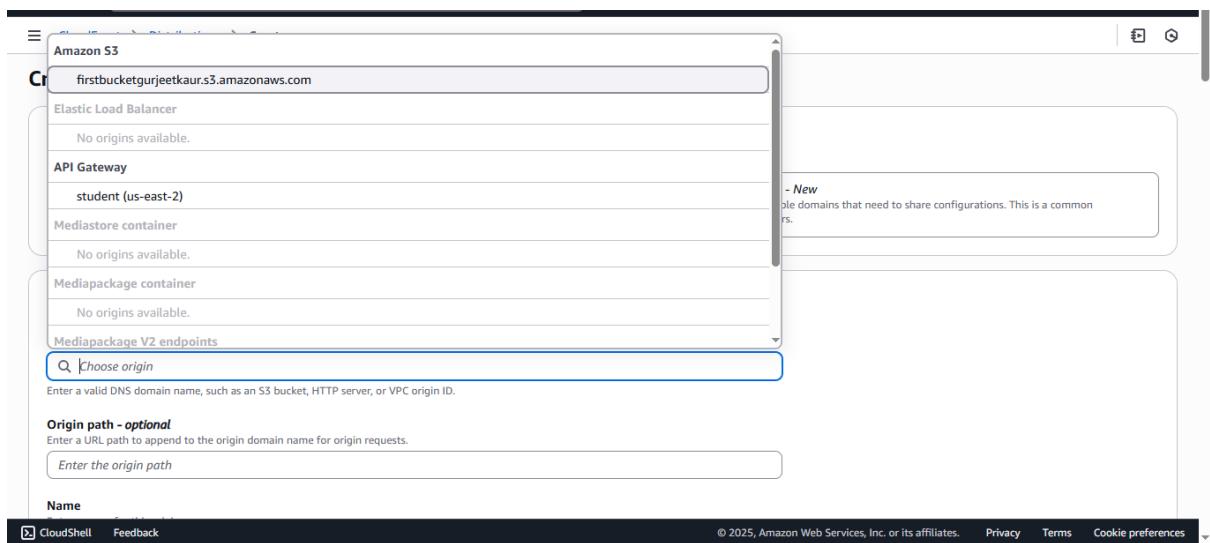
Part 3 – Adding CloudFront in front of S3 bucket for more security:

Since S3 static website endpoint is starting with 'http' which is not secure. So, using CloudFront for secure distribution URL which starts with 'https'.

The screenshot shows the AWS CloudFront service page. The left sidebar includes sections for General purpose, Storage Lens, and AWS Organizations. The main content area has three main sections: 'Services' (CloudFront), 'Resources' (Introducing resource search), and 'Documentation' (CloudFront Implementation Guide and User Guide). A message at the bottom asks 'Were these results helpful?' with 'Yes' and 'No' buttons. The status bar at the bottom indicates 'Disabled'.



The screenshot shows the Amazon CloudFront homepage. At the top, it says "Networking & Content Delivery". Below that is the heading "Amazon CloudFront" and the subtext "Securely deliver content with low latency and high transfer speeds". A brief description follows: "Amazon CloudFront is a fast content delivery network (CDN) service that securely delivers data, videos, applications, and APIs to customers globally with low latency and high transfer speeds." To the right, there's a "Get started with CloudFront" section with a button labeled "Create a CloudFront distribution". Below this is the "AWS Free Tier" section, which includes three items: "1 TB of data transfer out", "10,000,000 HTTP or HTTPS requests", and "2,000,000 CloudFront Function invocations". At the bottom of the page are links for "CloudShell", "Feedback", "Privacy", "Terms", and "Cookie preferences".



This screenshot shows the "Choose origin" step in the CloudFront setup process. On the left, a sidebar lists available origins: "Amazon S3" (selected), "Elastic Load Balancer" (disabled), "API Gateway" (disabled), "Mediastore container" (disabled), "Mediapackage container" (disabled), and "Mediapackage V2 endpoints" (disabled). The main area shows a search bar with the placeholder "firstbucketgurjeetkaur.s3.amazonaws.com" and a note: "Enter a valid DNS domain name, such as an S3 bucket, HTTP server, or VPC origin ID." Below the search bar is a section for "Origin path - optional" with a note: "Enter a URL path to append to the origin domain name for origin requests." A text input field is present. At the bottom, there are links for "Name", "CloudShell", "Feedback", "Privacy", "Terms", and "Cookie preferences".

CloudFront > Distributions > Create

Name
Enter a name for this origin.
firstbucketgurjeetkaur.s3.us-east-2.amazonaws.com

Origin access | Info
 Public
Bucket must allow public access.
 Origin access control settings (recommended)
Bucket can restrict access to only CloudFront.
 Legacy access identities
Use a CloudFront origin access identity (OAI) to access the S3 bucket.

Origin access control
Select an existing origin access control (recommended) or create a new control.
Select an origin access control ▾

Add custom header - optional
CloudFront includes this header in all requests that it sends to your origin.

Enable Origin Shield
Origin shield is an additional caching layer that can help reduce the load on your origin and help protect its availability.

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CloudFront > Distributions > Create

Name
Enter a name for this origin.
firstbucketgurjeetkaur.s3.us-east-2.amazonaws.com

Origin access | Info
 Public
Bucket must allow public access.
 Origin access control settings (recommended)
Bucket can restrict access to only CloudFront.
 Legacy access identities
Use a CloudFront origin access identity (OAI) to access the S3 bucket.

Origin access control
Select an existing origin access control (recommended) or create a new one.
Select an origin access control ▾
 This field cannot be empty

Add custom header - optional
CloudFront includes this header in all requests that it sends to your origin.

Enable Origin Shield

Create new OAC

Name
The name must be unique. Valid characters: letters, numbers and most special characters. Use up to 64 characters.
firstbucketgurjeetkaur.s3.us-east-2.amazonaws.com

Description - optional
The description can have up to 256 characters.
Enter description

Signing behavior
 Do not sign requests
 Sign requests (recommended)
 Do not override authorization header
Do not sign if incoming request has authorization header.

Origin type
S3
The origin type must be the same type as origin domain.

Cancel

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The screenshot shows the 'Create' step of the CloudFront distribution creation wizard. It's titled 'Origin access control'. There are two options: 'Origin access control settings (recommended)' (selected) and 'Legacy access identities'. Under 'Origin access control', there's a dropdown menu showing 'firstbucketgurjeetkaur.s3.us-east-2.amazonaws.com' and a 'Create new OAC' button. A yellow warning box says 'You must update the S3 bucket policy' and 'CloudFront will provide you with the policy statement after creating the distribution.' Below this, there's an 'Add custom header - optional' section with an 'Add header' button. Under 'Enable Origin Shield', the 'No' option is selected. At the bottom, there are links for 'CloudShell', 'Feedback', and copyright information.

The screenshot shows the 'Web Application Firewall (WAF)' step of the distribution creation wizard. It has an 'Origin response' dropdown set to 'No association'. Under 'Web Application Firewall (WAF)', the 'Do not enable security protections' option is selected. Below this, there's a 'Settings' section for 'Anycast static IP list - optional' which is currently empty. At the bottom, there are links for 'CloudShell', 'Feedback', and copyright information.

☰ CloudFront > Distributions > Create

(1) To add a list of alternative domain names, use the [bulk editor](#).

Custom SSL certificate - optional
Associate a certificate from AWS Certificate Manager. The certificate must be in the US East (N. Virginia) Region (us-east-1).

[Choose certificate](#) ▾ [Request certificate](#)

Supported HTTP versions
Add support for additional HTTP versions. HTTP/1.0 and HTTP/1.1 are supported by default.

HTTP/2
 HTTP/3

Default root object - optional
The object (file name) to return when a viewer requests the root URL (/) instead of a specific object.

index.html

IPv6
 Off
 On

Description - optional

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☰ CloudFront > Distributions > Create

The object (file name) to return when a viewer requests the root URL (/) instead of a specific object.

index.html

IPv6
 Off
 On

Description - optional

Standard logging [Info](#)
Additional charges may apply. See [Info](#) for more details.

Log delivery
Get logs of viewer requests to CloudWatch, Amazon S3 or Firehose

Off
 On

[Cancel](#) [Create distribution](#)

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The screenshot shows the AWS CloudFront 'Distributions' section. A green notification bar at the top says 'Successfully created new distribution.' It also includes a link to 'create an Internet Monitor'. Below this, a yellow warning box states 'The S3 bucket policy needs to be updated' and provides instructions to allow read access to CloudFront origin access control in the policy statement. There are 'Copy policy' and 'Edit' buttons next to this message. Below the notifications, there's a 'Notifications' section with counts for various types of notifications. The main content area shows a distribution named 'E11HRI973WKDJ3' with a 'Standard' configuration. A 'View metrics' button is visible. Below the distribution name, there are tabs for 'General' (which is selected), 'Security', 'Origins', 'Behaviors', 'Error pages', 'Invalidations', 'Tags', and 'Logging'. The 'General' tab displays details like the distribution domain name (d21j5ri4517frmy.cloudfront.net) and ARN (arn:aws:cloudfront::026090557197:distribution/E11HRI973WKDJ3). The 'Last modified' field shows it's 'Deploying'. At the bottom of the page, there are links for 'CloudShell', 'Feedback', and 'Edit' (in a blue button).

Add policies of cloudfont in s3 bucket.

The screenshot shows the AWS S3 'Buckets' section for a bucket named 'firstbucketgurjeetkaur'. On the left, there's a sidebar with 'Amazon S3' navigation, including 'General purpose buckets' (with 'Directory buckets', 'Table buckets', 'Access Grants', 'Access Points', 'Object Lambda Access Points', 'Multi-Region Access Points', 'Batch Operations', and 'IAM Access Analyzer for S3'), and 'Storage Lens' (with 'Dashboards', 'Storage Lens groups', and 'AWS Organizations settings'). The main content area has a 'Permissions overview' section with 'Access finding' (which is off) and a link to 'View analyzer for us-east-2'. Below this is a 'Block public access (bucket settings)' section, which is currently 'Off'. It includes a link to 'Individual Block Public Access settings for this bucket'. The final section is 'Bucket policy', which is currently empty. There are 'Edit' and 'Delete' buttons for the bucket policy. At the bottom, there are links for 'CloudShell', 'Feedback', and 'Edit' (in a blue button).

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

Edit Block public access (bucket settings) Info

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](#)

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

Edit Block public access (bucket settings) Info

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.

Edit Block public access (bucket settings)

This will result in public access being blocked for this bucket and all objects in the bucket.

To confirm the settings, enter **confirm** in the field.

confirm

[Cancel](#) [Confirm](#)

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

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CloudFront > Distributions > E11HRI973WKDJ3

Successfully created new distribution.
To get in-depth monitoring information for your distribution's internet traffic, [create an Internet Monitor](#)

The S3 bucket policy needs to be updated
Complete distribution configuration by allowing read access to CloudFront origin access control in your policy statement. [Go to S3 bucket permissions to update policy](#)

Notifications 0 1 0 0 0 0 0 0

E11HRI973WKDJ3 Standard

General Security Origins Behaviors Error pages Invalidations Tags Logging

View metrics

Details

Distribution domain name d21j5ri4517frmy.cloudfront.net

ARN arn:aws:cloudfront::026090557197:distribution/E11HRI973WKDJ3

Last modified Deploying

Settings

CloudShell Feedback Edit

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Amazon S3 > Buckets > firstbucketgurjeetkaur > Edit bucket policy

Amazon S3

General purpose buckets

- Directory buckets
- Table buckets
- Access Grants
- Access Points
- Object Lambda Access Points
- Multi-Region Access Points
- Batch Operations
- IAM Access Analyzer for S3

Block Public Access settings for this account

Storage Lens

- Dashboards
- Storage Lens groups
- AWS Organizations settings

Bucket ARN arn:aws:s3:::firstbucketgurjeetkaur

Policy

```
1 Version: "2008-10-17",
2   "Id": "PolicyForCloudFrontPrivateContent",
3   "Statement": [
4     {
5       "Sid": "AllowCloudFrontServicePrincipal",
6       "Effect": "Allow",
7       "Principal": {
8         "Service": "cloudfront.amazonaws.com"
9       },
10      "Action": "s3:GetObject",
11      "Resource": "arn:aws:s3:::firstbucketgurjeetkaur/*",
12      "Condition": {
13        "StringEquals": {
14          "AWS:SourceArn": "arn:aws:cloudfront::026090557197:distribution/E11HRI973WKDJ3"
15        }
16      }
17    }
18  ]
19 ]
20 ]
```

Edit statement

Select a statement

Select an existing statement in the policy or add a new statement.

+ Add new statement

CloudShell Feedback

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The screenshot shows the 'Edit bucket policy' page for the bucket 'firstbucketgurjeetkaur'. The left sidebar lists various AWS services under 'Amazon S3' and 'Storage Lens'. The main area contains a JSON editor with the following code:

```
16
17
18
19
20]
```

Below the editor is a button '+ Add new statement'. At the bottom, there's a status bar showing 'JSON Ln 20, Col 7' and counters for Security (0), Errors (0), Warnings (0), and Suggestions (0). A 'Preview external access' link is also present. At the bottom right are 'Cancel' and 'Save changes' buttons.

Copy the distribution domain name of Cloudfront.

The screenshot shows the 'Distributions' page for distribution 'E11HRI973WKDJ3'. A green success message at the top says 'Successfully created new distribution.' It also includes a note about updating the S3 bucket policy and a 'Copy policy' button. Below this, the distribution details are shown:

E11HRI973WKDJ3 Standard

General Security Origins Behaviors Error pages Invalidations Tags Logging

Distribution domain name copied
CloudFront domain name: d21j5ri4517frmy.cloudfront.net

ARN
arn:aws:cloudfront::026090557197:distribution/E11HRI973WKDJ3

Last modified
Deploying

At the bottom, there's an 'Edit' button and the standard AWS footer with links for CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

Access the CloudFront distribution DNS URL. Same application will load, but now with security.

Save and View Student Data

Student ID:

Name:

Class:

Age:

Save Student Data

View all Students

Student ID	Name	Class	Age
2	John	B	23
1	Gurjeet	A	22
3	Lora	C	24

Save and View Student Data

Student ID:

4

Name:

Sony

Class:

D

Age:

22

Save Student Data

Student Data Saved!

View all Students

Student ID	Name	Class	Age
2	John	B	23
1	Gurjeet	A	22
3	Lora	C	24

Save and View Student Data

Student ID:
4

Name:
Sony

Class:
D

Age:
22

[Save Student Data](#)

Student Data Saved!

[View all Students](#)

Student ID	Name	Class	Age
2	John	B	23
1	Gurjeet	A	22
4	Sony	D	22
3	Lora	C	24

Save and View Student Data

Student ID:
4

Name:
Sony

Class:
D

Age:
22

[Save Student Data](#)

Student Data Saved!

[View all Students](#)

Student ID	Name	Class	Age
2	John	B	23
1	Gurjeet	A	22
4	Sony	D	22
3	Lora	C	24