

# Practical - 7

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PRN: 202301040191

Roll no. 158

## # CloudFront

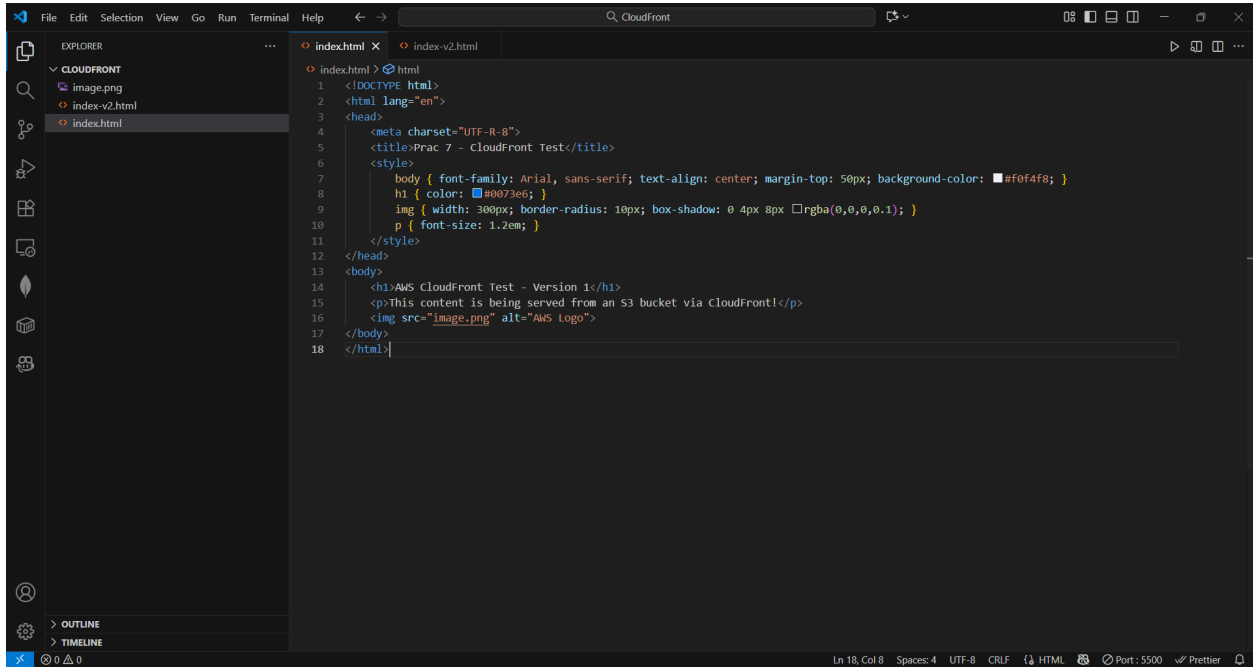
```
CloudFront > ls

Directory: D:\10_misc\CloudFront

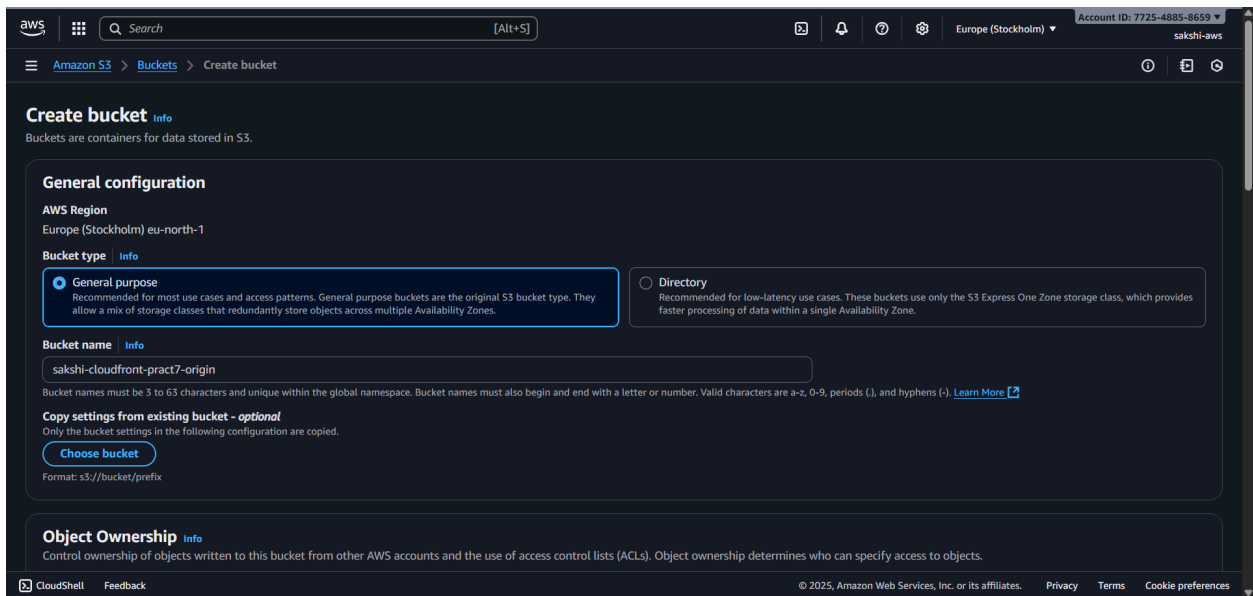
Mode                LastWriteTime         Length Name
----                -
-a-----         28-10-2025      19:30         49239 image.png
-a-----         28-10-2025      19:31          280 index-v2.html
-a-----         28-10-2025      19:30          612 index.html
```

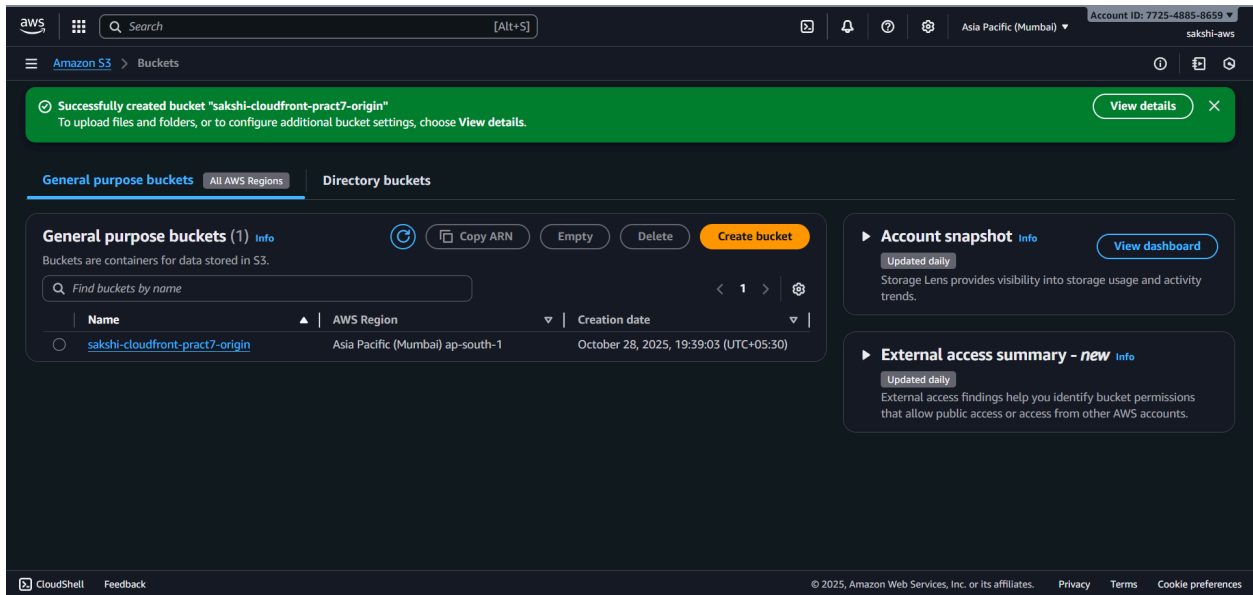
## Creating necessary files



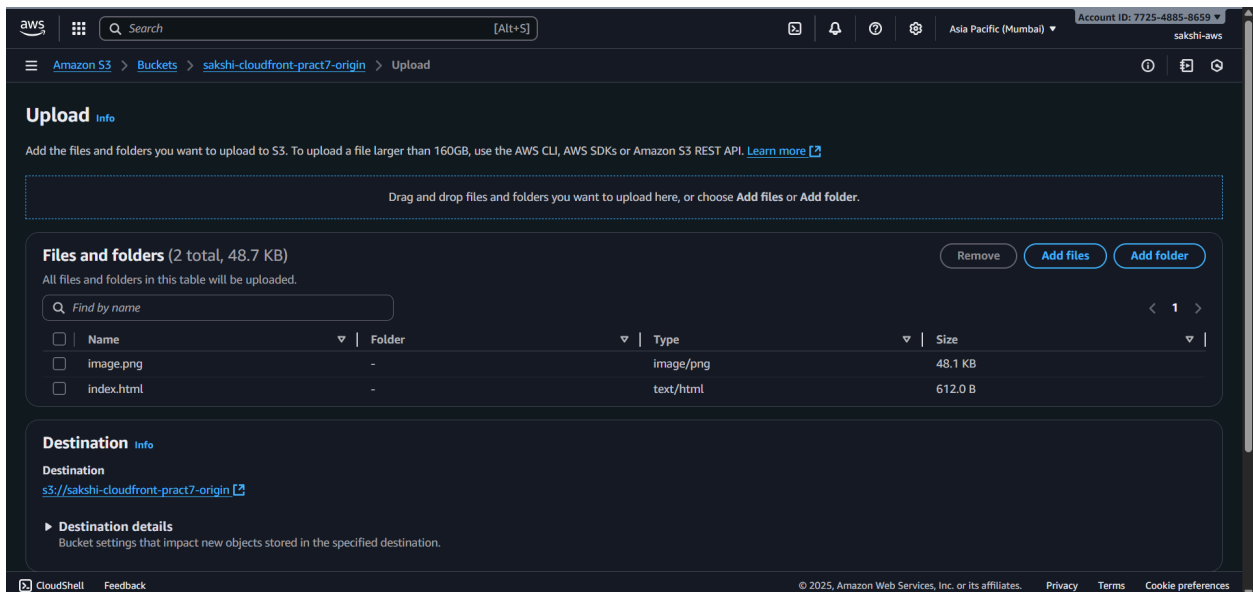


## Creating and configuring S3 bucket





## Uploading files in bucket



aws

Search

[Alt+S]

Asia Pacific (Mumbai)

Account ID: 7725-4885-8659

sakshi-aws

Upload succeeded

For more information, see the Files and folders table.

Upload: status

Close

After you navigate away from this page, the following information is no longer available.

Summary

Destination

s3://sakshi-cloudfront-pract7-origin

Succeeded

2 files, 48.7 KB (100.00%)

Failed

0 files, 0 B (0%)

Files and folders

Configuration

Files and folders (2 total, 48.7 KB)

Find by name

< 1 >

Name	Folder	Type	Size	Status	Error
image.png	-	image/png	48.1 KB	Succeeded	-
index.html	-	text/html	612.0 B	Succeeded	-

CloudShell

Feedback

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aws

Search

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Asia Pacific (Mumbai)

Account ID: 7725-4885-8659

sakshi-aws

Amazon S3

Buckets

sakshi-cloudfront-pract7-origin

sakshi-cloudfront-pract7-origin

Info

Objects

Properties

Permissions

Metrics

Management

Access Points

Objects (2)

Copy S3 URI

Copy URL

Download

Open

Delete

Actions

Create folder

Upload

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. [Learn more](#)

Find objects by prefix

< 1 >

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	image.png	png	October 28, 2025, 19:40:25 (UTC+05:30)	48.1 KB	Standard
<input type="checkbox"/>	index.html	html	October 28, 2025, 19:40:25 (UTC+05:30)	612.0 B	Standard

CloudShell

Feedback

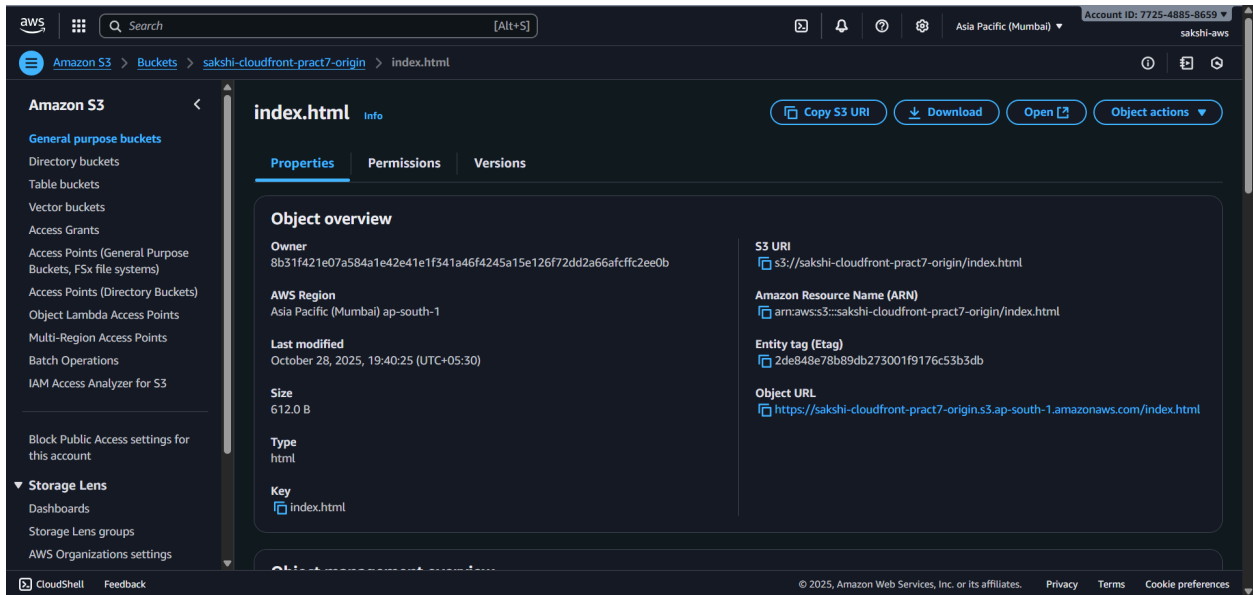
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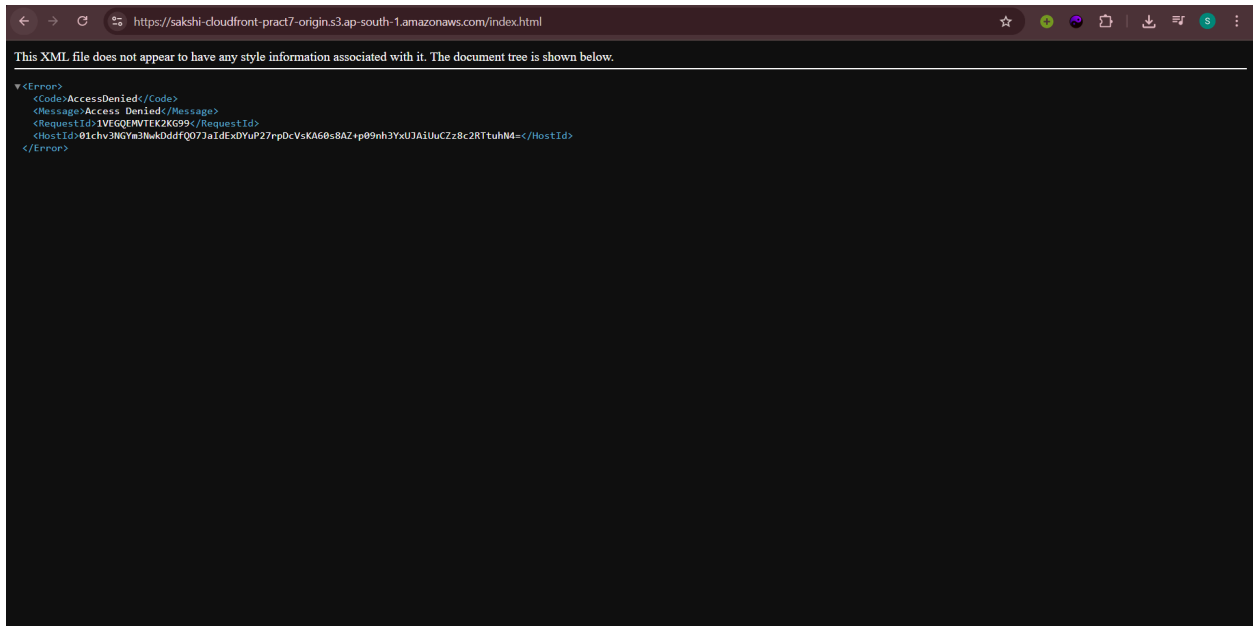
Terms

Cookie preferences

## Trying to access website through object url



## Access denied



# Launching cloudFront

The screenshot shows the Amazon CloudFront console landing page. At the top, there's a navigation bar with the AWS logo, a search bar, and account information (Account ID: 7725-4885-8659, Global, sakshi-aws). The main heading is "Amazon CloudFront" with the subtext "Securely deliver content with low latency and high transfer speeds". Below this, a paragraph describes CloudFront as a fast content delivery network (CDN) service. To the right, there's a "Get started with CloudFront" section with a "Create a CloudFront distribution" button. Below that, the "AWS Free Tier" is listed with details on data transfer and requests. The "Pricing (US)" section shows rates for 10 TB/month and HTTP requests. The "Benefits and features" section is divided into four columns: "Reduce latency", "Improve security", "Cut costs", and "Customize delivery", each with a brief description of the benefit.

Networking & Content Delivery

## Amazon CloudFront

Securely deliver content with low latency and high transfer speeds

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.

**Get started with CloudFront**

Enable accelerated, reliable and secure content delivery for Amazon S3 buckets, Application Load Balancers, Amazon API Gateway APIs, and more in 5 minutes or less.

[Create a CloudFront distribution](#)

**AWS Free Tier**

- 1 TB of data transfer out
- 10,000,000 HTTP or HTTPS requests
- 2,000,000 CloudFront Function invocations
- Each month, always free

**Pricing (US)**

First 1 TB data transfer free each month

10 TB/month	\$0.085 per GB
HTTP requests	\$0.0075 per 10,000

**Benefits and features**

**Reduce latency**

The CloudFront network has 225+ points of presence (PoPs) that are connected by fully redundant, parallel 100 GbE fiber delivering ultra-low latency performance and high availability to your end users. CloudFront automatically maps network conditions and intelligently routes your user's traffic when serving up cached or dynamic content.

**Improve security**

Use CloudFront for perimeter protection, traffic encryption, and access controls. AWS Shield Standard defends traffic transmitted through CloudFront from DDoS attacks at no additional charge. For application protection, you can integrate AWS WAF, managed rules, and managed third-party firewall options into CloudFront workloads.

**Cut costs**

Integrated with AWS, using CloudFront consolidates requests and removes data transfer out fees from your AWS origins. CloudFront offers customizable pricing options including simple pay-as-you-go on origins with no upfront fees and the CloudFront Security.

**Customize delivery**

Serverless compute features enable you to securely run your own code at the AWS CDN edge. Customize your delivery to overcome the unique challenges your business faces, creating your own balance between cost, performance, and security.

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# Creating distribution

The screenshot shows the "Create distribution" wizard in the Amazon CloudFront console. The left sidebar shows a progress bar with five steps: "Get started" (selected), "Specify origin", "Enable security", "Get TLS certificate", and "Review and create". The main area is titled "Get started" and includes a description: "Connect your websites, apps, files, video streams, and other content to CloudFront. We optimize the performance, reliability, and security for your web traffic." The "Distribution options" section has a "Distribution name" field (filled with "sakshi-cloudfront-pract7") and a "Description - optional" field. The "Distribution type" section has two radio buttons: "Single website or app" (selected) and "Multi-tenant architecture - New". The "Custom domain" section has a "Domain - optional" field and a "Check domain" button. The "Tags - optional" section has a "Key" field (filled with "Name") and a "Value - optional" field (filled with "sakshi-cloudfront-pract7").

CloudFront > Distributions > Create distribution

Step 1: **Get started**  
Step 2: Specify origin  
Step 3: Enable security  
Step 4: Get TLS certificate  
Step 5: Review and create

### Get started

Connect your websites, apps, files, video streams, and other content to CloudFront. We optimize the performance, reliability, and security for your web traffic.

**Distribution options** [Info](#)

**Distribution name**  
Name will be stored as a tag on the resource. You can add a name, or more tags, later.

sakshi-cloudfront-pract7

**Description - optional**

**Distribution type**

☒ **Single website or app**  
Choose if each website or application will have a unique configuration.

☐ **Multi-tenant architecture - New**  
Choose when you have multiple domains that need to share configurations. This is a common architecture for SaaS providers.

**Custom domain** [Info](#)

**Domain - optional**  
Use your own custom domain with free HTTPS to provide a secure, friendly URL for your app. You can add a custom domain later if you do not have a Route 53 zone in this account.

[Check domain](#)

**Tags - optional**

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

**Key**

Name

**Value - optional**

sakshi-cloudfront-pract7

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Step 1

Get started

Step 2

**Specify origin**

Step 3

Enable security

Step 4

Review and create

Specify origin

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

☒ Amazon S3

Deliver static assets like files and images, statically generated websites or single page applications (SPA).

☐ Elastic Load Balancer

Deliver applications hosted behind ELB such as dynamic websites, web services, and APIs.

☐ API Gateway

Deliver API endpoints for REST APIs hosted on API Gateway.

☐ Elemental MediaPackage

Deliver end-to-end live events or video on demand (VOD).

☐ VPC origin

Deliver applications and content hosted within private VPCs, such as EC2 instances and Application Load Balancers.

☐ Other

Refer to any AWS or non-AWS origin through its publicly resolvable URL.

Origin

S3 origin

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

sakshi-cloudfront-pract7-origin.s3.ap-south-1.amazonaws.com

Browse S3

Origin path - optional

The directory path within your origin where your content is stored. [Learn more](#)

/path

Settings

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

Allow private S3 bucket access to CloudFront

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

☒ Allow private S3 bucket access to CloudFront - Recommended

CloudShell

Feedback

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## Adding S3 bucket in origin

Step 1

Get started

Step 2

**Specify origin**

Step 3

Enable security

Step 4

Review and create

Specify origin

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

☒ Amazon S3

Deliver static assets like files and images, statically generated websites or single page applications (SPA).

☐ Elastic Load Balancer

Deliver applications hosted behind ELB such as dynamic websites, web services, and APIs.

☐ API Gateway

Deliver API endpoints for REST APIs hosted on API Gateway.

☐ Elemental MediaPackage

Deliver end-to-end live events or video on demand (VOD).

☐ VPC origin

Deliver applications and content hosted within private VPCs, such as EC2 instances and Application Load Balancers.

☐ Other

Refer to any AWS or non-AWS origin through its publicly resolvable URL.

Origin

S3 origin

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

sakshi-cloudfront-pract7-origin.s3.ap-south-1.amazonaws.com

Browse S3

Origin path - optional

The directory path within your origin where your content is stored. [Learn more](#)

/path

Settings

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

Allow private S3 bucket access to CloudFront

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

☒ Allow private S3 bucket access to CloudFront - Recommended

CloudShell

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# Selecting bucket from the drop down list

Step 1

Step 2

Step 3

Step 4

Get started

Specify origin

Enable security

Review and create

Specify origin

Origin type

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

Amazon S3

Deliver static assets like files and images, statically generated websites or single page applications (SPA).

Elastic Load Balancer

Deliver applications hosted behind ELB such as dynamic websites, web services, and APIs.

API Gateway

Deliver API endpoints for REST APIs hosted on API Gateway.

Elemental MediaPackage

Deliver end-to-end live events or video on demand (VOD).

VPC origin

Deliver applications and content hosted within private VPCs, such as EC2 instances and Application Load Balancers.

Other

Refer to any AWS or non-AWS origin through its publicly resolvable URL.

Origin

S3 origin

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

sakshi-cloudfront-pract7-origin.s3-ap-south-1.amazonaws.com

Browse S3

Origin path - optional

The directory path within your origin where your content is stored. [Learn more](#)

/path

Settings

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

Allow private S3 bucket access to CloudFront

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

☒ Allow private S3 bucket access to CloudFront - Recommended

CloudShell

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Step 1

Step 2

Step 3

Step 4

Get started

Specify origin

Enable security

Review and create

Enable security

Web Application Firewall (WAF)

Enable security protections

Keep your application secure from the most common web threats and security vulnerabilities using AWS WAF. Blocked requests are stopped before they reach your web servers.

Do not enable security protections

Select this option if your application does not need security protections from AWS WAF.

Cancel

Previous

Next

CloudShell

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AWS

Search

[Alt+S]

Global

Account ID: 7725-4885-8659

sakshi-aws

CloudFront

Distributions

Create distribution

Step 1  
Get started

Step 2  
Specify origin

Step 3  
Enable security

Step 4  
Review and create

Review and create

General configuration

Distribution name

sakshi-cloudfront-pract7

Description

-

Edit

Origin

Because you granted CloudFront access to your origin, CloudFront can write and update S3 bucket policies that restrict access to your S3 origin to CloudFront.

S3 origin

sakshi-cloudfront-pract7-origin.s3.ap-south-1.amazonaws.com

Origin path

-

Grant CloudFront access to origin

Yes

Enable Origin Shield

No

Connection attempts

3

Connection timeout

10

Edit

Cache settings

CloudFront will apply default cache settings tailored to serving content from a S3 origin. You can customize settings after you create your distribution.

Edit

Security

Security protections

None

Use monitor mode

No

Use existing WAF configuration

No

Edit

CloudShell

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AWS

Search

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Global

Account ID: 7725-4885-8659

sakshi-aws

CloudFront

Distributions

E256DA8RP303AI

Successfully created new distribution.

sakshi-cloudfront-pract7

Standard

View metrics

General

Security

Origins

Behaviors

Error pages

Invalidations

Tags

Logging

Details

Name

sakshi-cloudfront-pract7

Distribution domain name

d2jlkbg03hdd.cloudfront.net

ARN

arn:aws:cloudfront::772548858659:distribution/E256DA8RP303AI

Last modified

Deploying

Settings

Description

-

Price class

Use all edge locations (best performance)

Supported HTTP versions

HTTP/2, HTTP/1.1, HTTP/1.0

Alternate domain names

-

Add domain

Standard logging

Off

Cookie logging

Off

Default root object

-

Edit

Continuous deployment

Info

Create staging distribution

CloudShell

Feedback

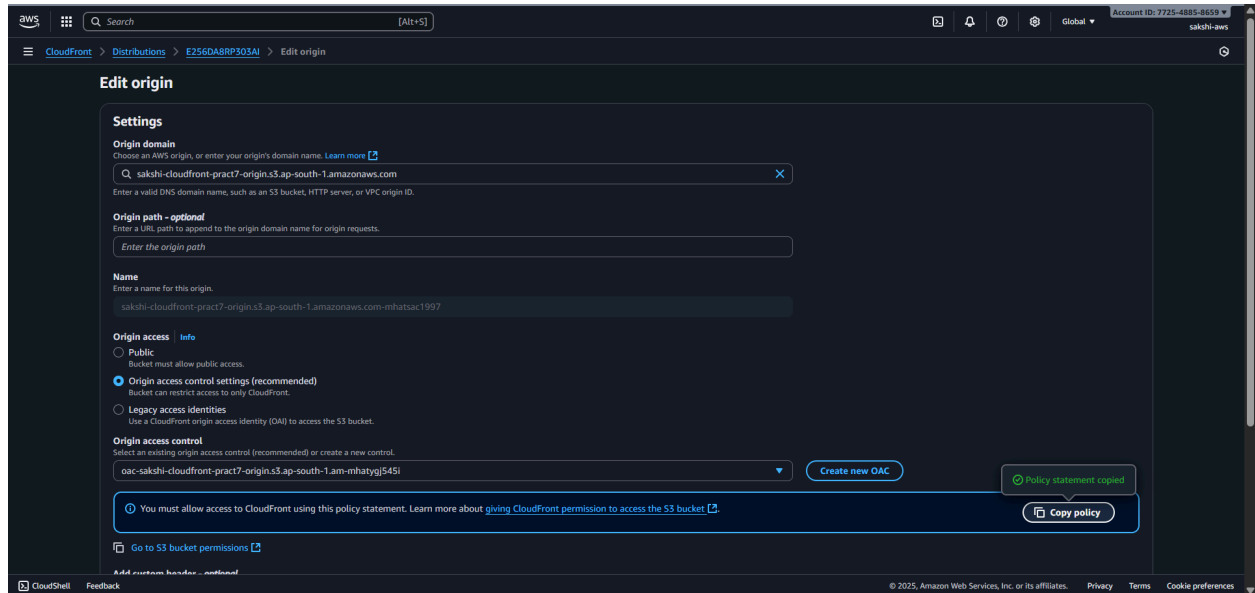
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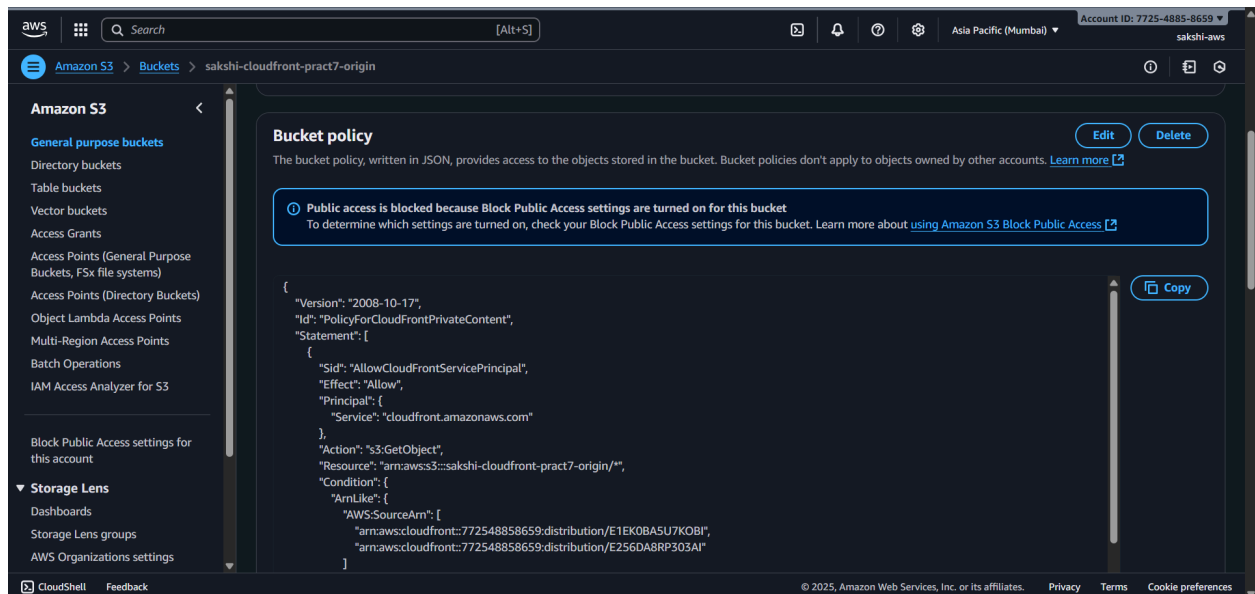
Terms

Cookie preferences

# Copying policy



# Editing the bucket policy



aws

Search

[Alt+S]

Account ID: 7725-4885-8659

sakshi-aws

Amazon S3

Buckets

sakshi-cloudfront-pract7-origin

Edit bucket policy

Policy examples

Policy generator

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::sakshi-cloudfront-pract7-origin

Policy

1 {

2     "Version": "2008-10-17",

3     "Id": "PolicyForCloudFrontPrivateContent",

4     "Statement": [

5         {

6             "Sid": "AllowCloudFrontServicePrincipal",

7             "Effect": "Allow",

8             "Principal": {

9                 "Service": "cloudfront.amazonaws.com"

10             },

11             "Action": "s3:GetObject",

12             "Resource": "arn:aws:s3::sakshi-cloudfront-pract7-origin/\*",

13             "Condition": {

14                 "StringEquals": {

15                     "AWS:SourceArn": "arn:aws:cloudfront::772548858659:distribution/E256DA8RP303AI"

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

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aws

Search

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Account ID: 7725-4885-8659

sakshi-aws

Amazon S3

Buckets

sakshi-cloudfront-pract7-origin

Successfully edited bucket policy.

Bucket policy

Edit

Delete

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](#)

Public access is blocked because Block Public Access settings are turned on for this bucket

To determine which settings are turned on, check your Block Public Access settings for this bucket. Learn more about [using Amazon S3 Block Public Access](#)

Copy

{

"Version": "2008-10-17",

"Id": "PolicyForCloudFrontPrivateContent",

"Statement": [

{

"Sid": "AllowCloudFrontServicePrincipal",

"Effect": "Allow",

"Principal": {

"Service": "cloudfront.amazonaws.com"

},

"Action": "s3:GetObject",

"Resource": "arn:aws:s3::sakshi-cloudfront-pract7-origin/\*",

"Condition": {

"StringEquals": {

"AWS:SourceArn": "arn:aws:cloudfront::772548858659:distribution/E256DA8RP303AI"

}

}

]

}

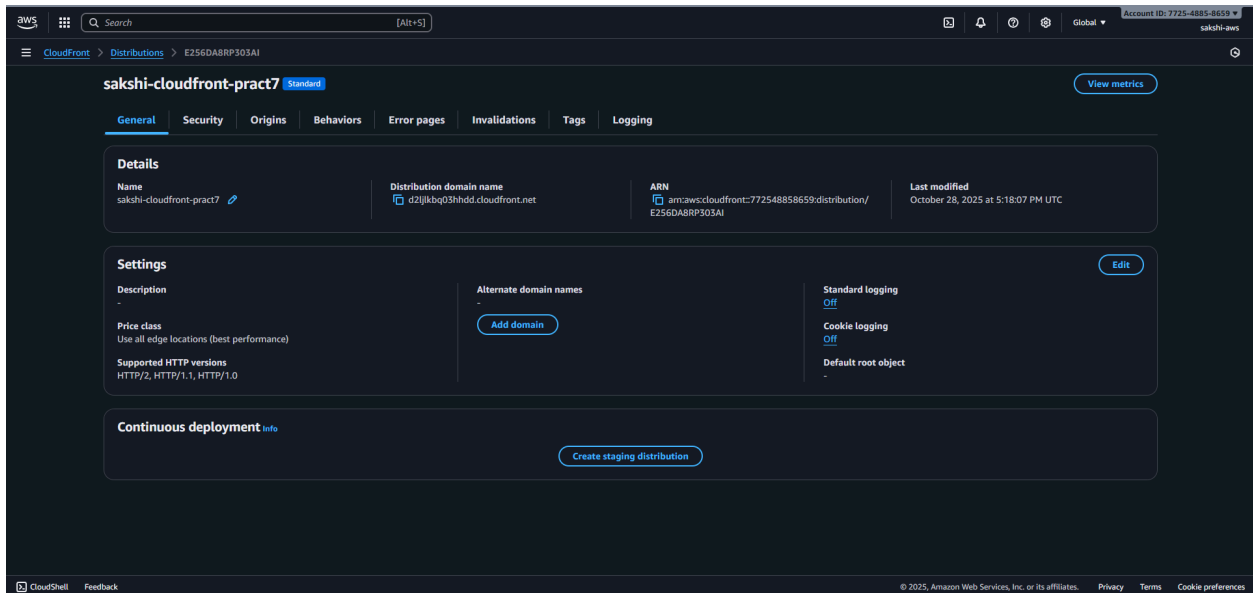
}

CloudShell

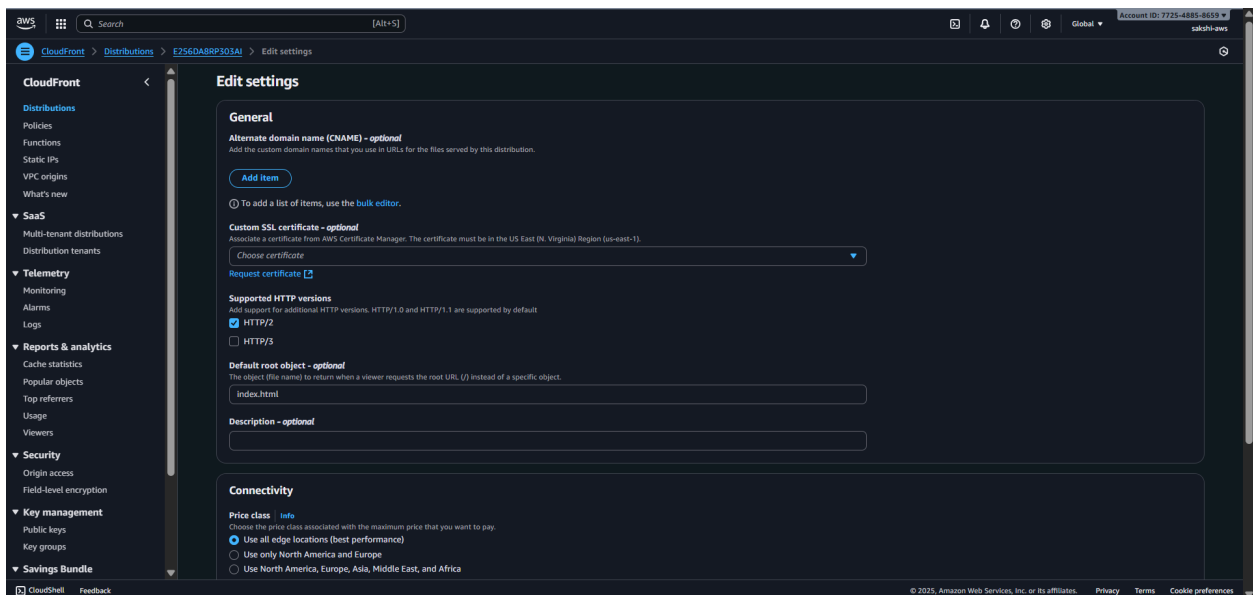
Feedback

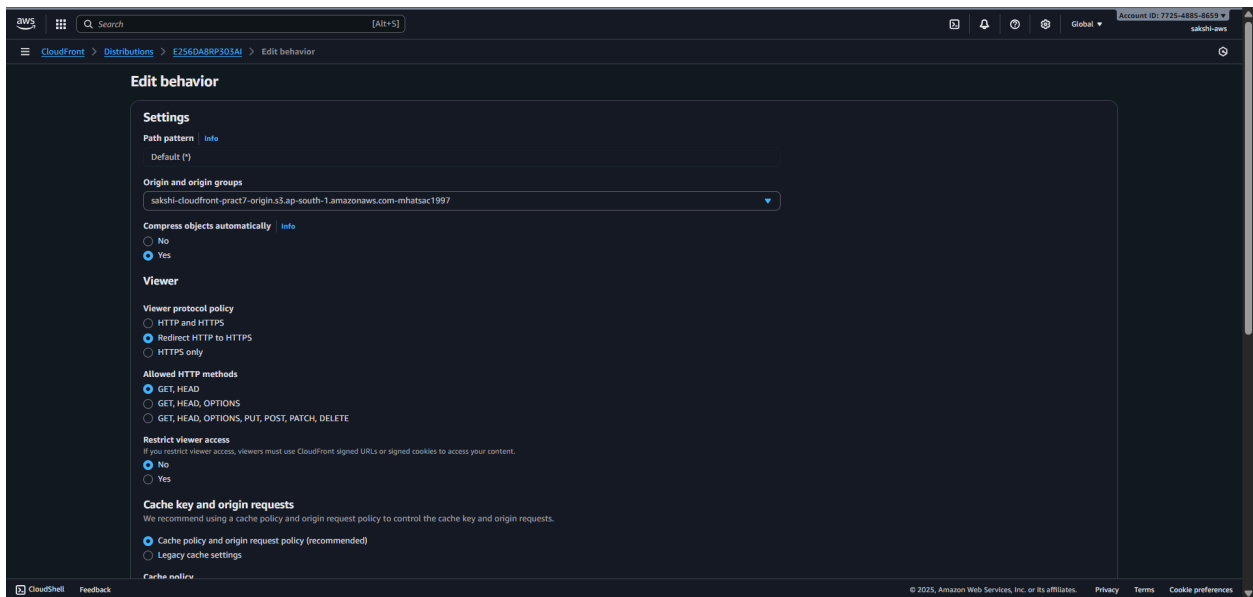
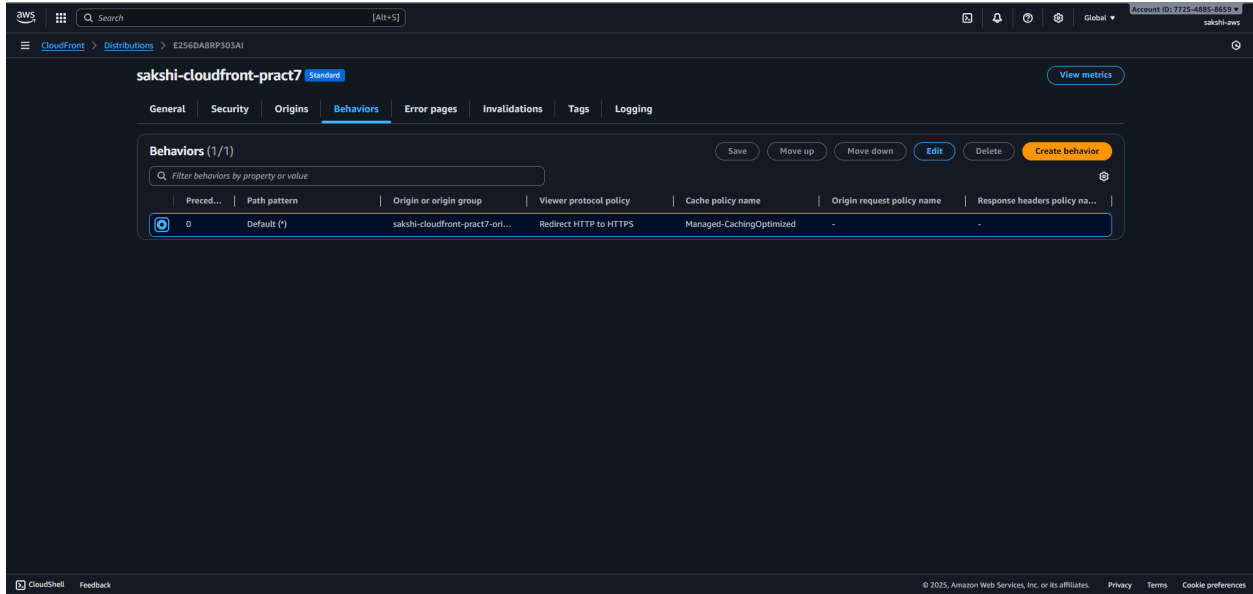
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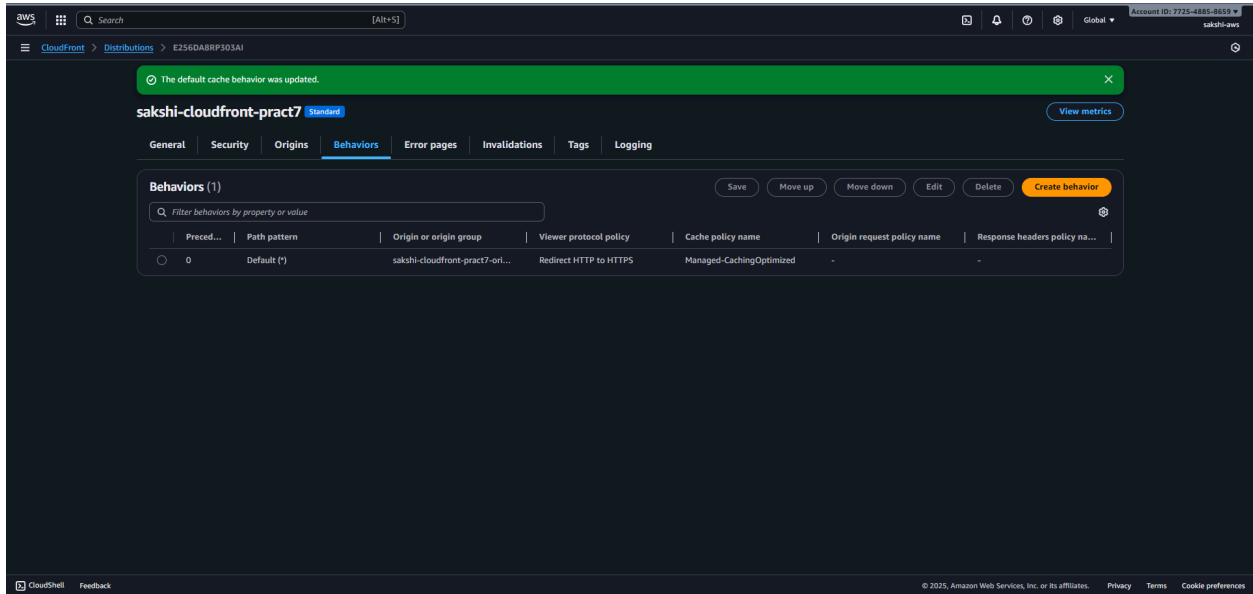
# Now editing the distribution



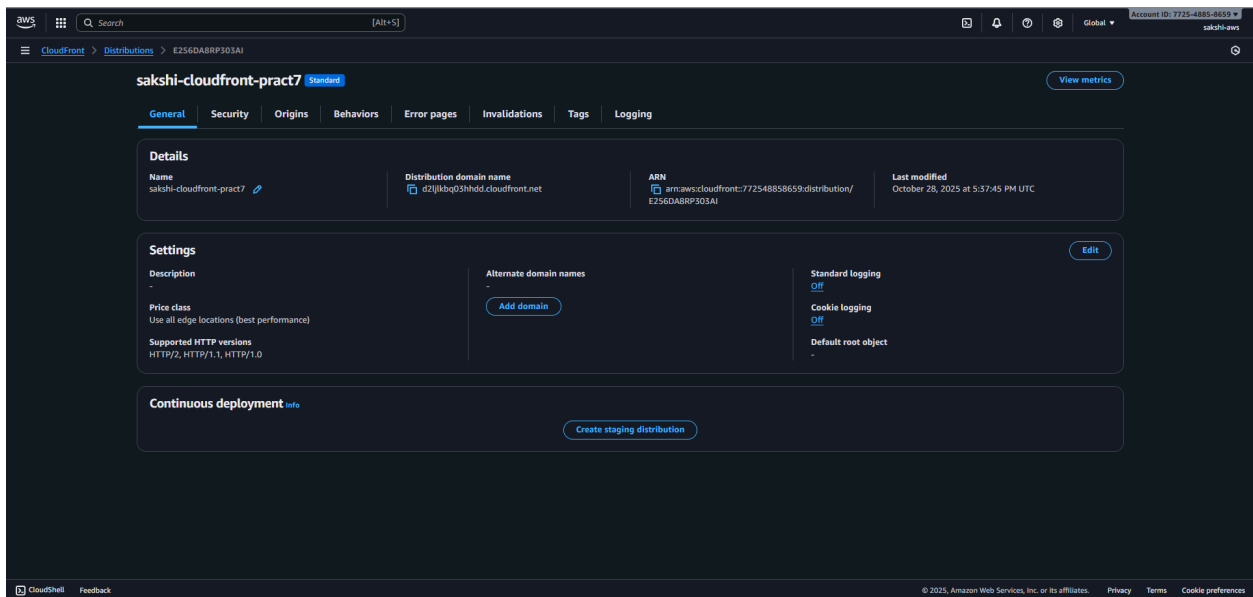
# Setting default root object



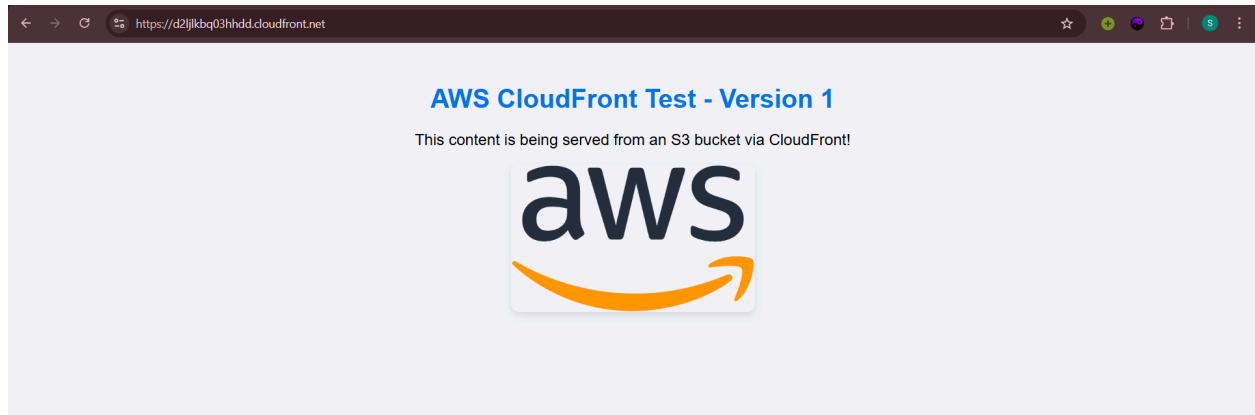




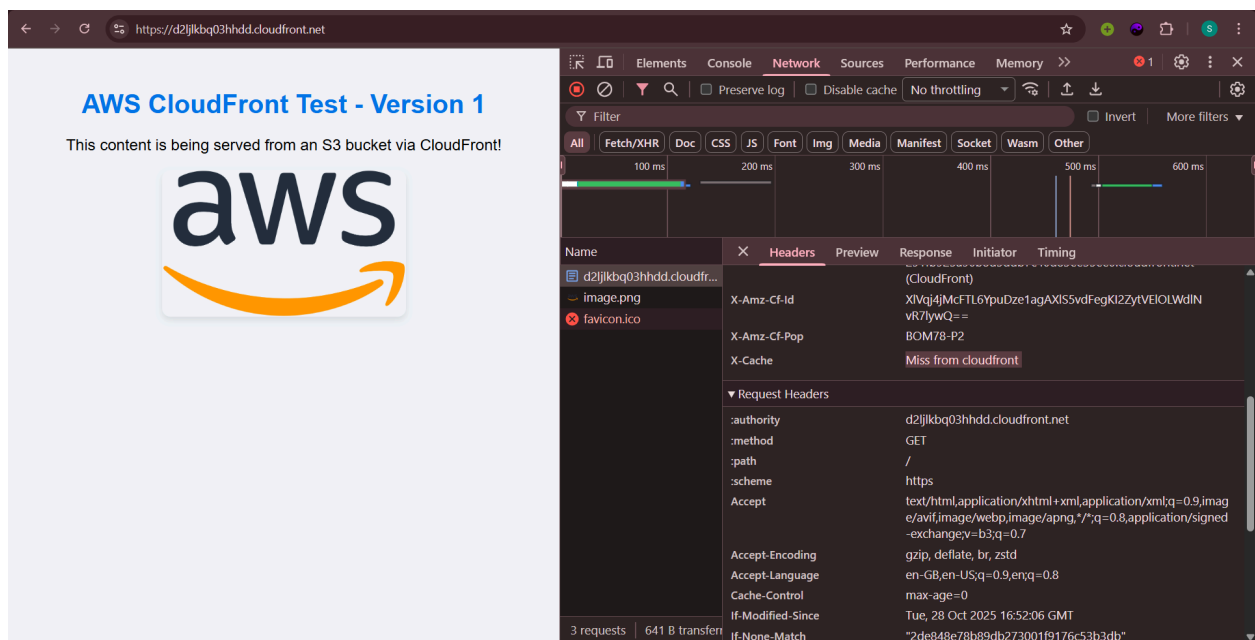
## Deployed



## Accessible



## Cache missed



## Did reload, cache hit from cloudfront

The screenshot shows a web browser at the URL `https://d2jlkbq03hhdd.cloudfront.net`. The page displays "AWS CloudFront Test - Version 1" and a message: "This content is being served from an S3 bucket via CloudFront!". Below the message is the AWS logo. The browser's developer tools are open to the Network tab, showing a list of requests. The first request, `d2jlkbq03hhdd.cloudfront.net`, is highlighted. Its headers show `X-Cache: Hit from cloudfront`, indicating a cache hit. The response status is 200, and the content type is `text/html`. The timing bar shows a total time of approximately 100 ms.

## Adding new file to bucket

The screenshot shows the AWS Management Console's "Upload" page for the bucket `sakshi-cloudfront-pract7-origin`. The page includes a search bar, a list of files and folders, and a destination section. The "Files and folders" section shows a table with one file, `index-v2.html`, which is 280.0 B in size. The "Destination" section shows the bucket name `s3://sakshi-cloudfront-pract7-origin` and a link to "Destination details".

Name	Folder	Type	Size
index-v2.html	-	text/html	280.0 B



# Deleting existing index.html

The screenshot shows the AWS S3 console interface. The breadcrumb navigation indicates the path: Amazon S3 > Buckets > sakshi-cloudfront-pract7-origin. The bucket name 'sakshi-cloudfront-pract7-origin' is displayed at the top. Below the bucket name, there are tabs for 'Objects', 'Properties', 'Permissions', 'Metrics', 'Management', and 'Access Points'. The 'Objects' tab is active, showing a list of objects. The objects are: 'image.png' (48.1 KB, Standard), 'index-v2.html' (280.0 B, Standard), and 'index.html' (612.0 B, Standard). The 'index.html' object is selected, and the 'Delete' button is visible in the top right corner of the object list.

Name	Type	Last modified	Size	Storage class
image.png	png	October 28, 2025, 22:22:05 (UTC+05:30)	48.1 KB	Standard
index-v2.html	html	October 28, 2025, 23:18:21 (UTC+05:30)	280.0 B	Standard
index.html	html	October 28, 2025, 22:22:06 (UTC+05:30)	612.0 B	Standard

# Renaming it

The screenshot shows the 'Rename object' dialog in the AWS S3 console. The breadcrumb navigation indicates the path: Amazon S3 > Buckets > sakshi-cloudfront-pract7-origin > index-v2.html > Rename object. The dialog title is 'Rename object "index-v2.html"'. The 'New object name' field contains 'index.html'. Below the field, there is a note: 'Object names can't contain "/" - See rules for naming'. The 'Additional copy settings' section has three options: 'Copy source settings' (selected), 'Don't specify settings', and 'Specify settings'. The 'Copy source settings' option is selected, and its description is: 'Source object settings are copied for storage class, object tags, metadata, server-side encryption, and additional checksums.' The 'Save changes' button is visible at the bottom right.

**Rename object "index-v2.html"**

New object name

index.html

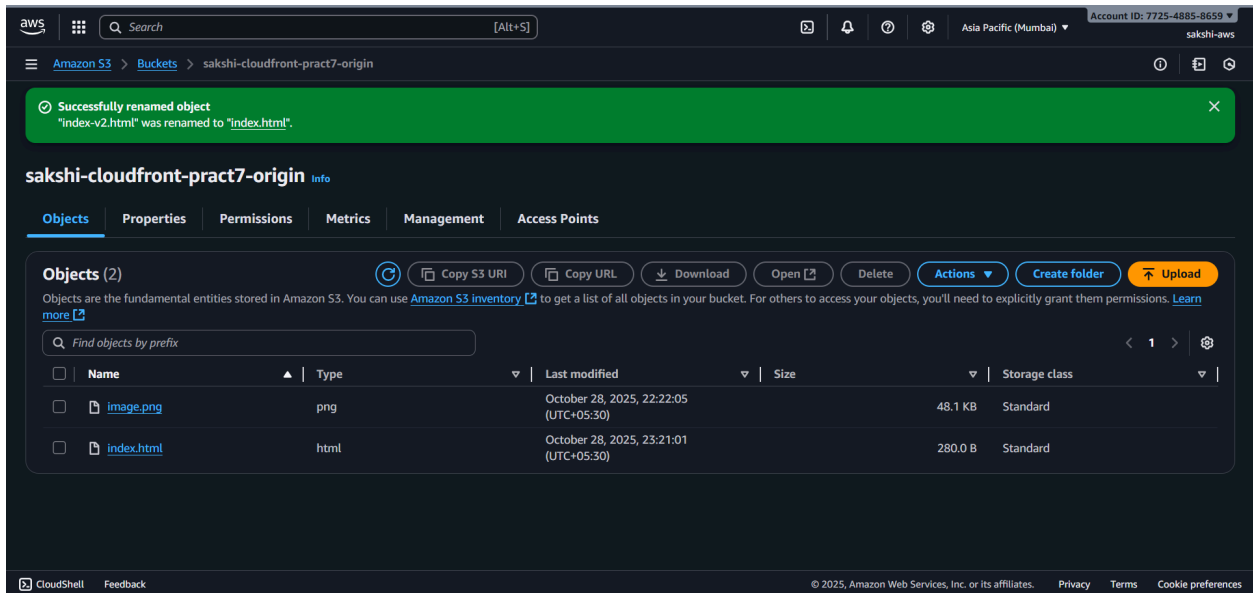
Object names can't contain "/" - See rules for naming

**Additional copy settings**

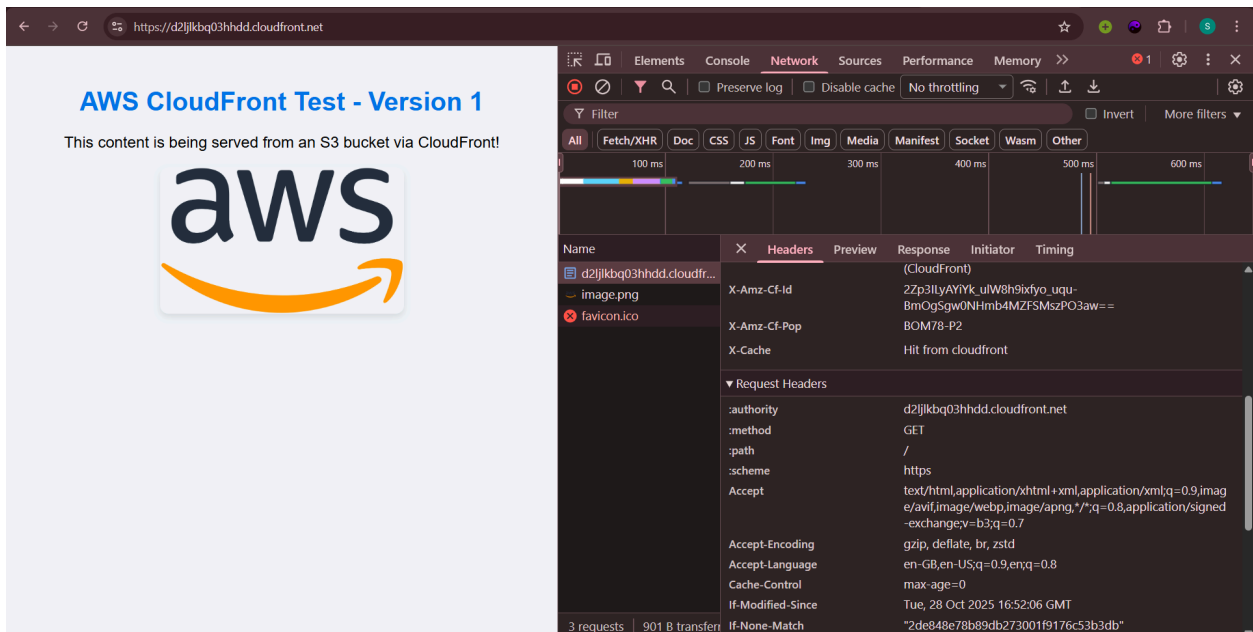
- ☒ Copy source settings  
Source object settings are copied for storage class, object tags, metadata, server-side encryption, and additional checksums.
- ☐ Don't specify settings  
No settings are specified for storage class, ACLs, object tags, metadata, server-side encryption, and additional checksums.
- ☐ Specify settings  
Specify settings for storage class, ACLs, object tags, metadata, server-side encryption, and additional checksums.

Cancel Save changes

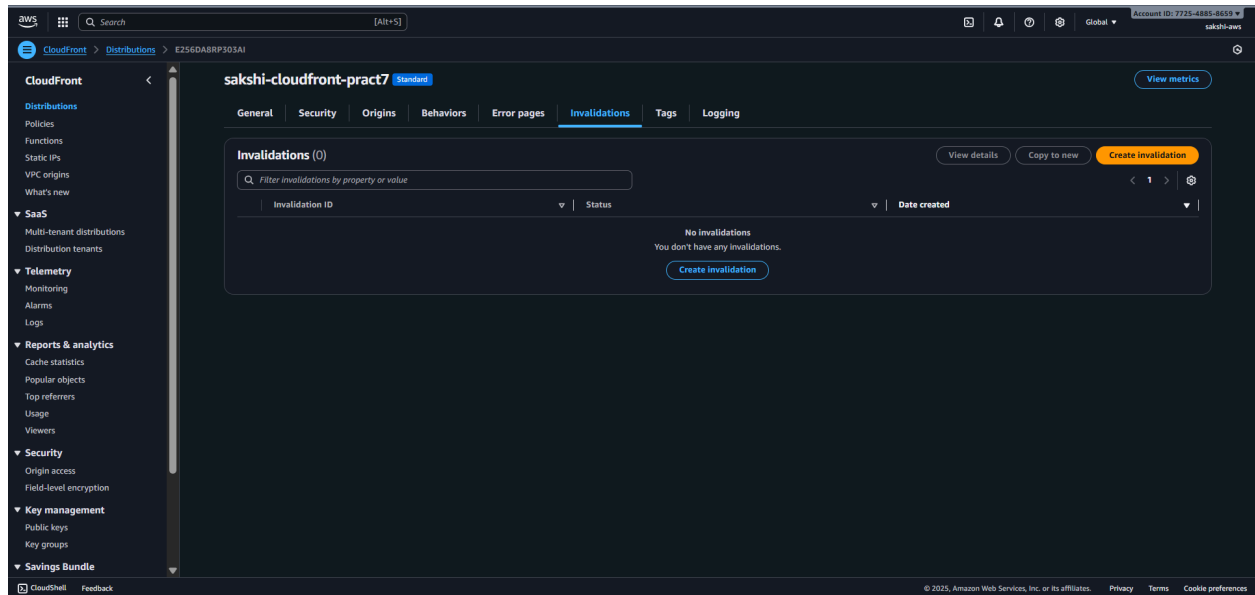
## Overwriting successful



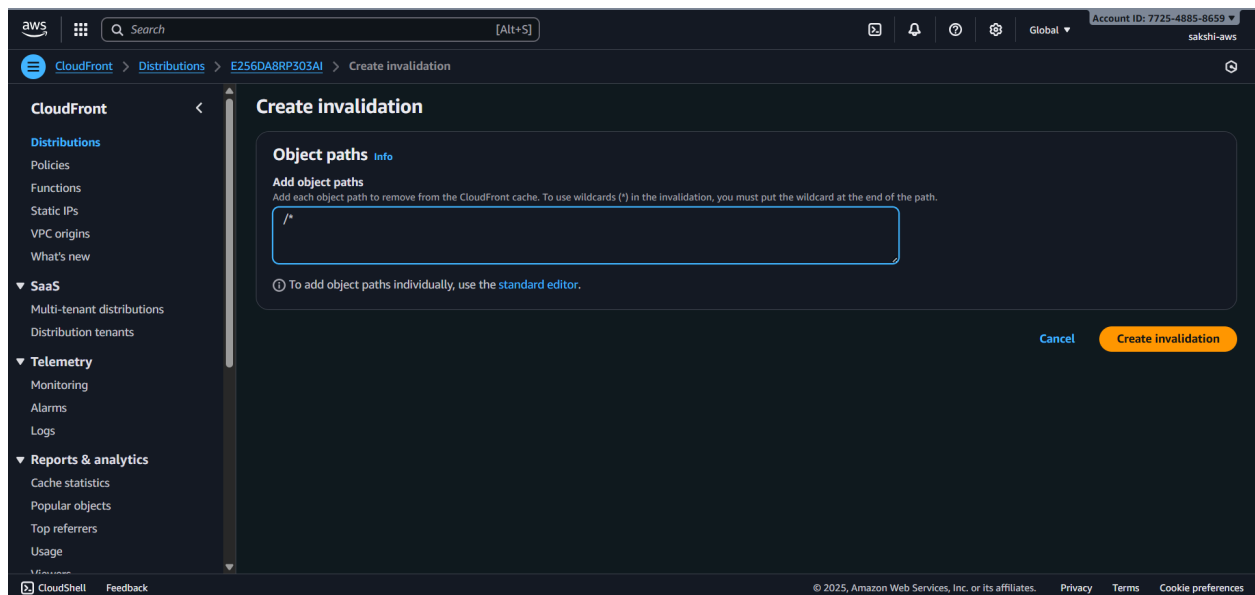
## But still same on website due to caching

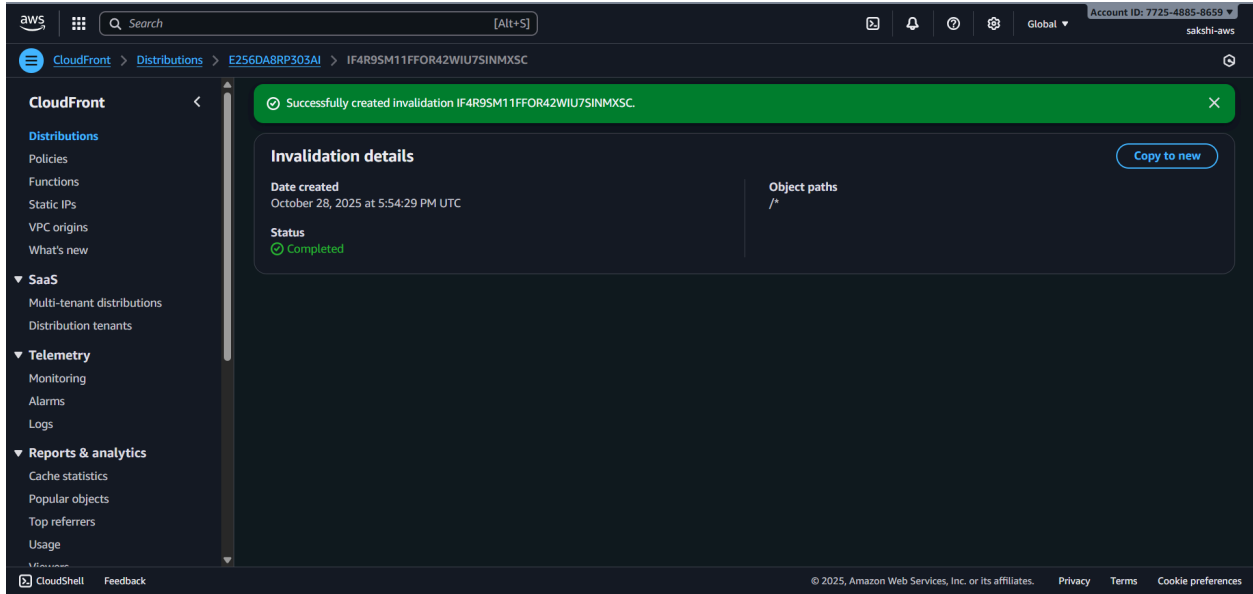


# Creating invalidation



# Creating invalidation covering all files





## Website updated



### AWS CloudFront Test - VERSION 2 (UPDATED!)

This content was updated and re-loaded after an invalidation.



## Got cache hit on refresh

The screenshot shows a web browser at the URL `https://d2jlkbq03hhdd.cloudfront.net`. The page content includes the text "AWS CloudFront Test - VERSION 2 (UPDATED!)" and a message "This content was updated and re-loaded after an invalidation." Below this is a large "aws" logo. The browser's developer tools are open to the Network tab, showing a list of requests. The first request, `d2jlkbq03hhdd.cloudfr...`, is selected, and its headers are visible. The response status is "Hit from cloudfront", indicating a cache hit.

Name	Headers	Preview	Response	Initiator	Timing
d2jlkbq03hhdd.cloudfr...	Etag		"0db46ff08379694e2d8b6059e89c78e6"		
image.png	Server		AmazonS3		
favicon.ico	Via		1.1		
	X-Amz-Cf-Id		291fb925a90b8d5ddb7c40d83ee35ee0.cloudfront.net (CloudFront)		
	X-Amz-Cf-Pop		bPjIBrzhXJUfumxyGB1aNsra5R4EMyAtQtgX59O4LmfpirBY-71w==		
	X-Amz-Server-Side-Encryption		BOM78-P2		
	X-Amz-Server-Side-Encryption		AES256		
	X-Cache		Hit from cloudfront		
Request Headers					
	:authority		d2jlkbq03hhdd.cloudfront.net		
	:method		GET		
	:path		/		
	:scheme		https		
	Accept		text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7		