

Host Static Website with S3 & CloudFront

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Project Name	Host Static Website with S3 & CloudFront
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📌 Project Overview

This project demonstrates how to host a fully functional static website using **Amazon S3** and accelerate content delivery globally using **Amazon CloudFront**. The setup ensures high availability, low latency, secure access and is ideal for portfolio sites, landing pages, blogs, and documentation platforms.

🛠 AWS Services Used

Service	Purpose
Amazon S3	Stores and serves static files (HTML, CSS, JS, media)
Amazon CloudFront	Delivers content globally with low latency and high transfer speed

Service	Purpose
CloudWatch (optional)	Monitoring and logging performance metrics

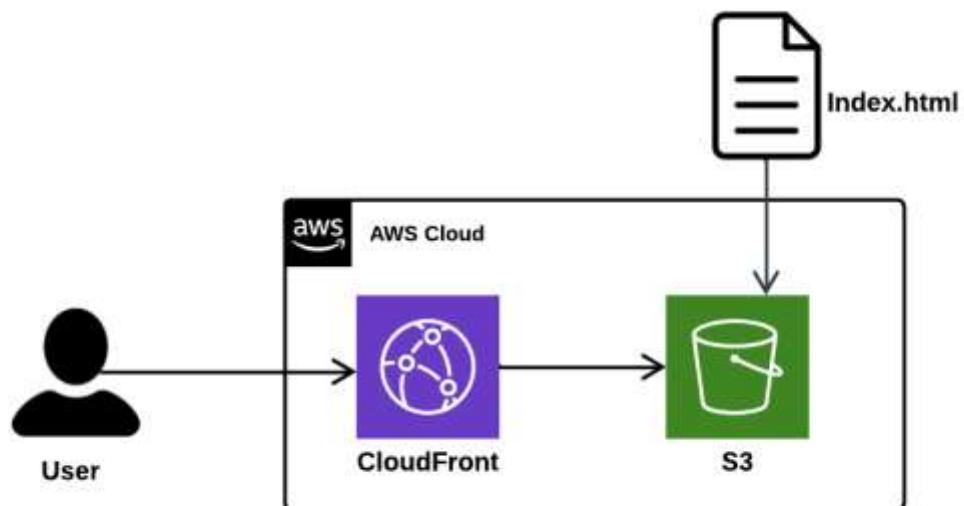
Pre-requisites

Things needed before beginning:

- An active AWS account
 - Static website files (HTML, CSS, JS)
 - Registered domain name (optional)
 - AWS IAM credentials with S3 and CloudFront access
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Architecture Diagram

architecture diagram here showing user→ CloudFront →S3



Implementation Steps

1. Create and Configure S3 Bucket

- Create an S3 bucket (preferably named after your domain)
- Enable static website hosting
- Upload website files (index.html, etc.)
- Configure bucket policies or use **Origin Access Identity (OAI)**

2. Configure Bucket Permissions

- Adjust block public access settings
- Use bucket policy or OAI to secure access via CloudFront

3. Set Up CloudFront Distribution

- Set S3 as the origin
- Enable caching, compression, geo-restrictions (optional)
- Set default root object to index.html

4. Test and Validate

- Access the website via CloudFront URL or custom domain
- Check HTTPS, performance, and rendering

5. Monitor and Optimize

- Enable **CloudWatch & CloudFront logs**
- Use invalidations to refresh cache



Security Configuration

S3:

- **Block Public Access** unless using CloudFront OAI
- Enable **Versioning** to protect content integrity

CloudFront:

- Enforce **HTTPS** using viewer policy

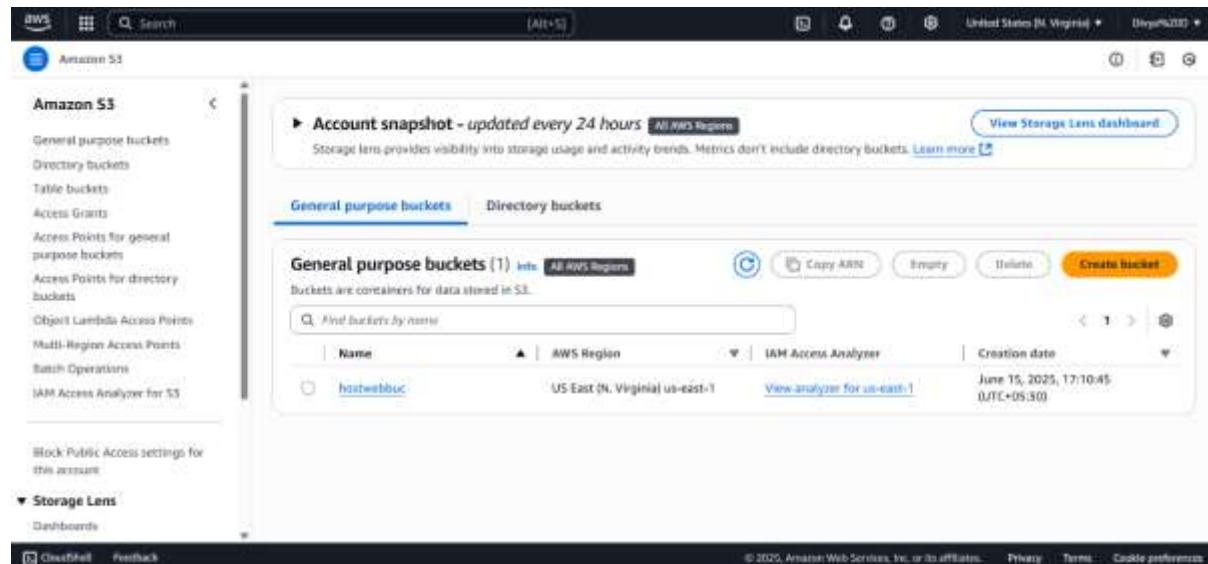
- Use **Signed URLs/Cookies** for private content
 - Enable **Geo-restrictions** where necessary
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Results

- Website loads securely and efficiently across geographies
 - HTTPS ensures user trust and SEO benefit
 - Cache invalidation enables fast updates
 - Resilient and scalable solution with zero server management
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project screenshots

Amazon S3 Configuration



The screenshot shows the AWS S3 console interface. At the top, there's a navigation bar with the AWS logo, a search bar, and various account and region settings. Below the navigation bar, the main header reads "Amazon S3". On the left, a sidebar lists several S3-related services and features: General purpose buckets, Directory buckets, Table buckets, Access Grants, Access Points for general purpose buckets, Access Points for directory buckets, Object Lambda Access Points, Multi-Region Access Points, Batch Operations, and IAM Access Analyzer for S3. A note about Block Public Access settings for the account is also present. The main content area is titled "Account snapshot - updated every 24 hours" and includes a "View Storage Lens dashboard" button. Below this, the "General purpose buckets" tab is selected, showing a list of buckets. The table has columns for Name, AWS Region, IAM Access Analyzer, and Creation date. One bucket is listed: "hostwebbbuc" (US East (N. Virginia) us-east-1), created on June 15, 2025, at 17:10:45 (UTC+05:30). Action buttons for Copy ARN, Empty, Delete, and Create bucket are available above the table.

The screenshot shows the AWS S3 console interface. At the top, there's a search bar and navigation links for 'Amazon S3 > Buckets > hostwebbuc > new/'. Below the navigation is a breadcrumb trail 'new/'. A 'Copy S3 URI' button is visible on the right. The main area is titled 'Objects (3)' and contains a table with three items: '9t.jpg' (Type: jpg), 'port.css' (Type: css), and 'portindex.html' (Type: html). The table includes columns for Name, Type, Last modified, Size, and Storage class. Buttons for Actions, Create folder, and Upload are at the top of the table.

This screenshot shows the properties of the 'portindex.html' object. The top navigation bar includes 'Amazon S3 > Buckets > hostwebbuc > new/ > portindex.html'. The main content area is titled 'portindex.html' with a 'Properties' tab selected. It displays various details: Owner (gvenkateshreddy9), AWS Region (US East (N. Virginia) us-east-1), Last modified (June 27, 2025, 20:29:58 (UTC+05:30)), Size (3.2 KB), Type (html), and Key (new/portindex.html). To the right, there are sections for S3 URI (s3://hostwebbuc/new/portindex.html), Amazon Resource Name (ARN) (arn:aws:s3:::hostwebbuc/new/portindex.html), Entity tag (etag) (8bed82af034477dbc84eaaf90b0ff0959), and Object URL (https://hostwebbuc.s3.us-east-1.amazonaws.com/new/portindex.html). Navigation links for CloudShell and Feedback are at the bottom.

Connecting with AWS CloudFront

The screenshot shows the AWS CloudFront console. The left sidebar has sections for CloudFront (Distributions, Policies, Function, Static IP's, VPC origins, What's new), SaaS (Multi-tenant distributions, Distribution benefits), Telemetry (Monitoring, Alarms, Logs), and Reports & analytics (Cache statistics, Popular objects). The main content area is titled 'Distributions (1)' and shows a table with one distribution entry: ID (CLOUDFRONT00000000000000000000), Status (Enabled), Type (Standard), Domain (hostwebbuc.s3-), and Last modified (June 15, 2025). Buttons for Enable, Disable, Delete, and Create distribution are at the top of the table. Navigation links for CloudShell and Feedback are at the bottom.

Hosted Portfolio website

My Portfolio

I am **Divya Siva Naga Malleswari**, a B.Tech 3rd-year student at Vignan's Lara Institute of Technology. Currently, I am exploring the world of AI & ML tools in AWS, diving deep into cloud computing and intelligent automation. With a strong passion for web development, I love building interactive and scalable web applications. Always eager to learn and innovate, I'm on a journey to enhance my skills in cloud technologies and software development.



Skills



Problem-solving skills through analytical thinking, technical knowledge, and practical application. These skills help in tackling complex engineering challenges and real-world issues efficiently.



Technical skills through academic learning, practical projects, and hands-on experience. These skills are essential for solving engineering problems and excelling in the tech industry.

Projects



- Alumni network management system
- food waste management system

Get in touch



Code Screenshots

Portindex.css

Port.css

Challenges Faced

-  Configuring secure bucket policies with CloudFront OAI
 -  CloudFront propagation delays (up to 30 mins for updates)
 -  Cache invalidation required post-deployment changes
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Future Enhancements

- Use **Amazon Cognito** for user authentication if adding login features.
 - Set up **Redirection Rules** for SEO-friendly URLs.
 - Add **Dark/Light Mode** toggle using JavaScript + CSS.
 - Automate deployments with **GitHub Actions**, AWS CodePipeline, or Jenkins.
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References

- [Amazon S3 Documentation](#)
 - [Static Website Hosting with Amazon S3](#)
 - [CloudFront Documentation](#)
 - [Using CloudFront with S3](#)
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