

# Exploring Amazon S3 (Simple Storage Service)

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**Environment:** AWS

**Project Link:** [GitHub Repository](#)

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## Introduction

Amazon S3 (Simple Storage Service) is one of the most widely used services in AWS. It provides object storage through a web interface, enabling users to store and retrieve data at any scale. In this project, I will explore the fundamental concepts of S3, create and manage buckets, upload and secure objects, enable versioning, and implement lifecycle policies. This hands-on approach will strengthen my understanding of how cloud storage works and its role in real-world applications.

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## Project Goals and Learning Outcomes

- Gain a strong understanding of S3 fundamentals: buckets, objects, permissions, versioning, and lifecycle management.
  - Create, configure, and manage an S3 bucket using the AWS Management Console.
  - Upload and manage data (objects) inside an S3 bucket.
  - Explore versioning for tracking file changes.
  - Secure an S3 bucket using IAM permissions and bucket policies.
  - Implement lifecycle policies to optimize storage costs.
  - Reflect on the practical applications of S3 for cloud computing and DevOps.
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## What is S3?

Amazon Simple Storage Service (Amazon S3) is a scalable object storage service built for storing any type of data. It allows developers and businesses to store large amounts of unstructured data, such as documents, media files, and backups, and access them anytime over the internet. Unlike traditional storage, S3 is serverless, meaning AWS manages all infrastructure, scaling, and durability.

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## Importance of S3

S3 is a cornerstone of AWS because:

- It provides **high durability (99.99999999%)** for stored objects.
  - It is **infinitely scalable**, supporting growth without hardware concerns.
  - It offers **secure and fine-grained access control** through IAM roles, policies, and encryption.
  - It integrates with many AWS services like CloudFront, Lambda, and Athena.
  - It is cost-effective, offering multiple storage classes for different use cases.
  - It supports backup, disaster recovery, static website hosting, big data analytics, and application integration.
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# Step-by-Step Execution

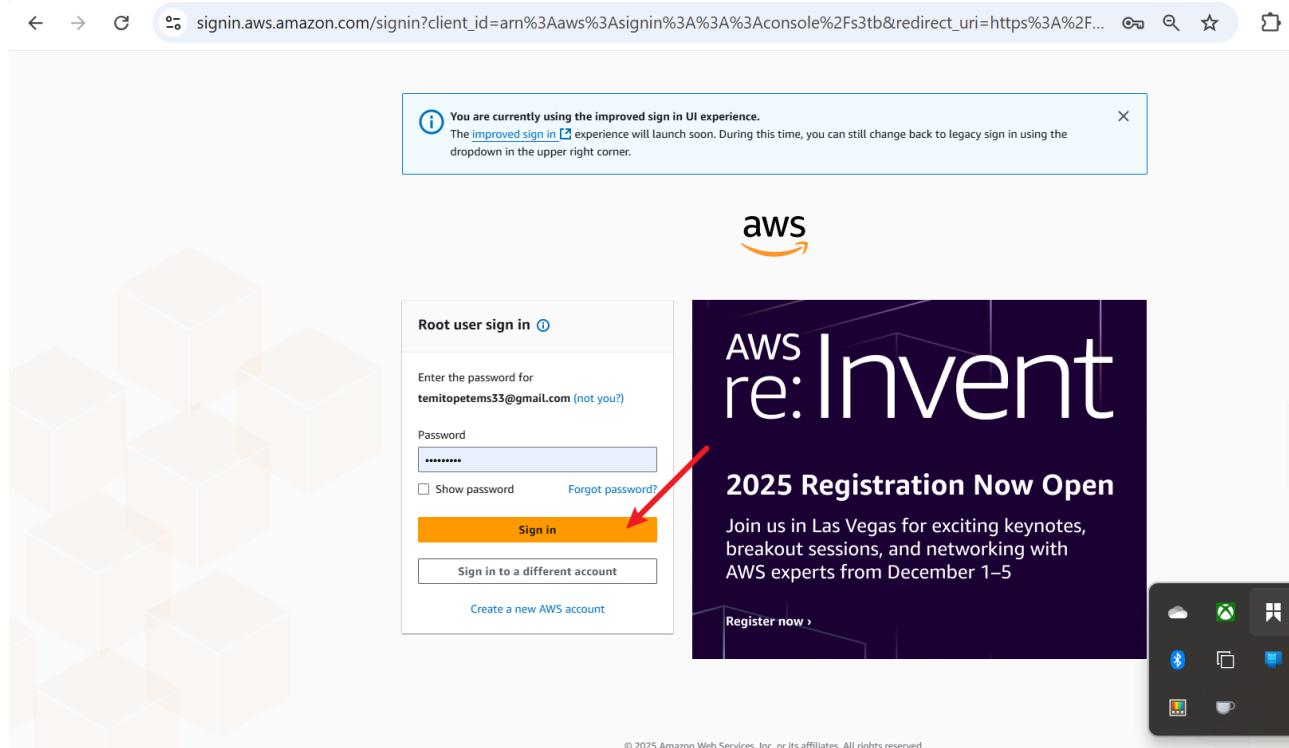
## ❖ Project Objectives

- Understand the fundamentals of Amazon S3.
  - Create and manage S3 buckets.
  - Upload and version objects.
  - Set permissions for public access.
  - Implement lifecycle policies for cost optimization.
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## ❖ Step-by-Step Execution

### 1. Log in to AWS Console

- Log in to your AWS account (or create one if you don't have).



### 2. Navigate to S3 Service

- On the dashboard, search for **S3** and click the service.

The screenshot shows the AWS CloudFront dashboard. A red arrow points to the search bar at the top left, which contains the text "s3". Below the search bar, the "Services" section is visible, with the "S3 Scalable Storage in the Cloud" card highlighted by a red box. To the right, there are sections for "Applications", "CloudFront usage", and a navigation menu.

### 3. Create a New Bucket

- Click **Create bucket**.

The screenshot shows the "Amazon S3" get-started page. On the right side, a modal window titled "Create a bucket" is open. It contains instructions about buckets and a prominent yellow "Create bucket" button, which is highlighted with a red arrow. On the left, there's a "How it works" section with a video thumbnail and some text. The top navigation bar shows the URL "us-east-2.console.aws.amazon.com/s3/get-started?region=us-east-2".

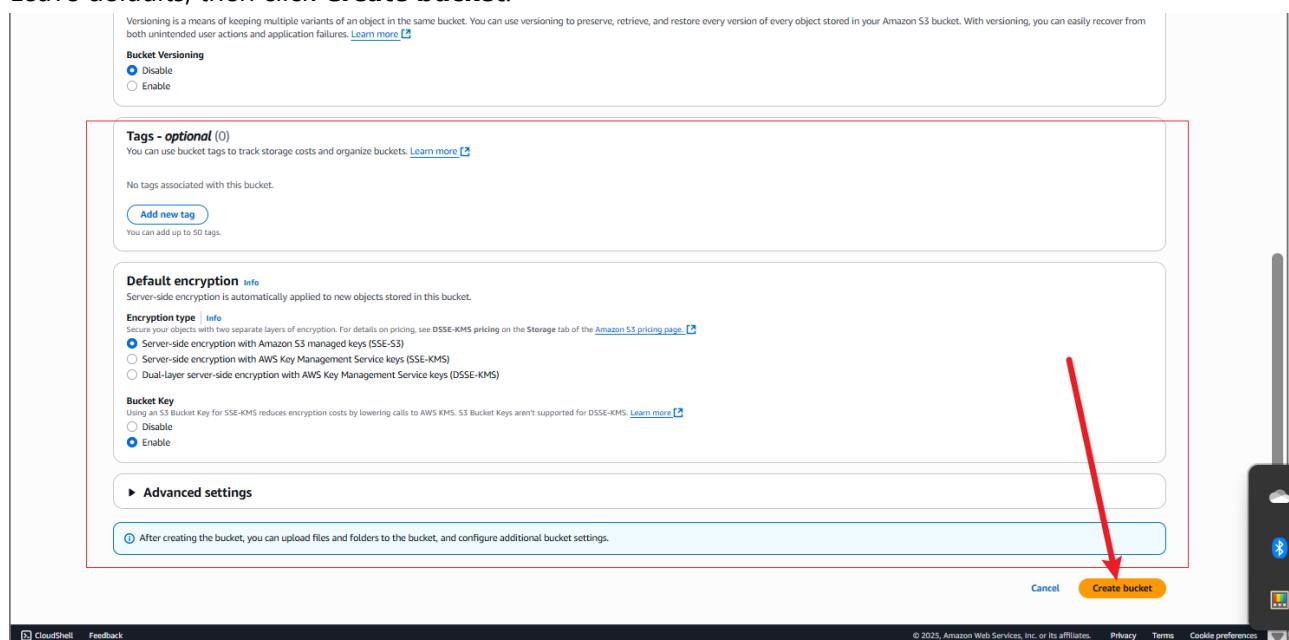
- Select **General Purpose**, name the bucket **my-first-s3-bucket-090**, and scroll down.

The screenshot shows the 'Create bucket' page in the AWS S3 console. The 'General configuration' section is visible, featuring an 'AWS Region' dropdown set to 'US East (Ohio) us-east-2'. The 'Bucket type' section contains two options: 'General purpose' (selected) and 'Directory'. A red arrow points to the 'General purpose' radio button. Below it, the 'Bucket name' field is filled with 'my-first-s3-bucket-090', also highlighted by a red arrow. Other sections like 'Copy settings from existing bucket - optional' and 'Choose bucket' are partially visible.

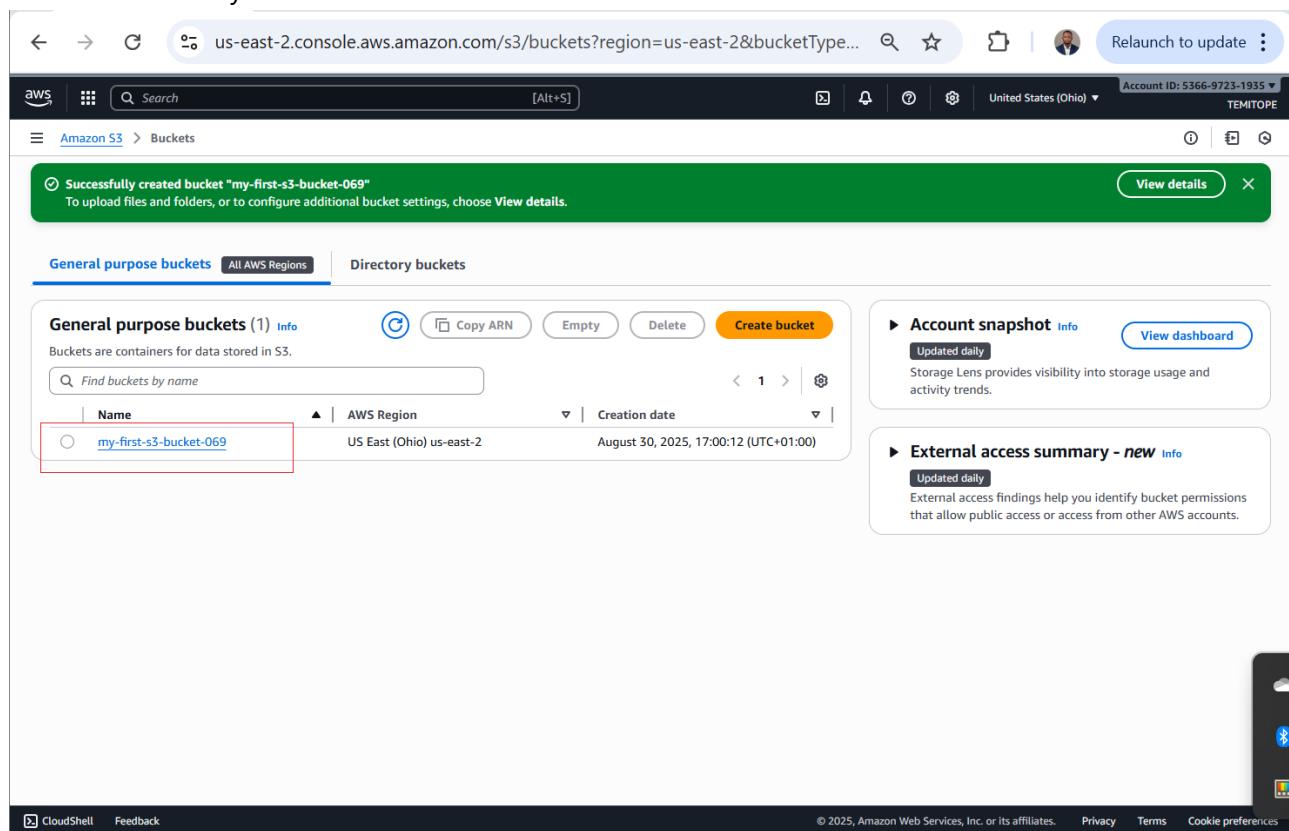
- Disable ACL, block all public access, leave versioning disabled, and scroll down.

The screenshot shows the 'Create bucket' page continuing down the page. The 'Object Ownership' section is shown, with 'ACLs disabled (recommended)' selected (indicated by a red arrow). Below it, the 'Block Public Access settings for this bucket' section is expanded, showing the 'Block off public access' checkbox checked (also indicated by a red arrow). This section also provides detailed information about different access control settings. The bottom of the page includes standard AWS footer links for CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

- Leave defaults, then click **Create bucket**.



- Bucket successfully created.



#### 4. Open the Bucket

- Click the bucket name.

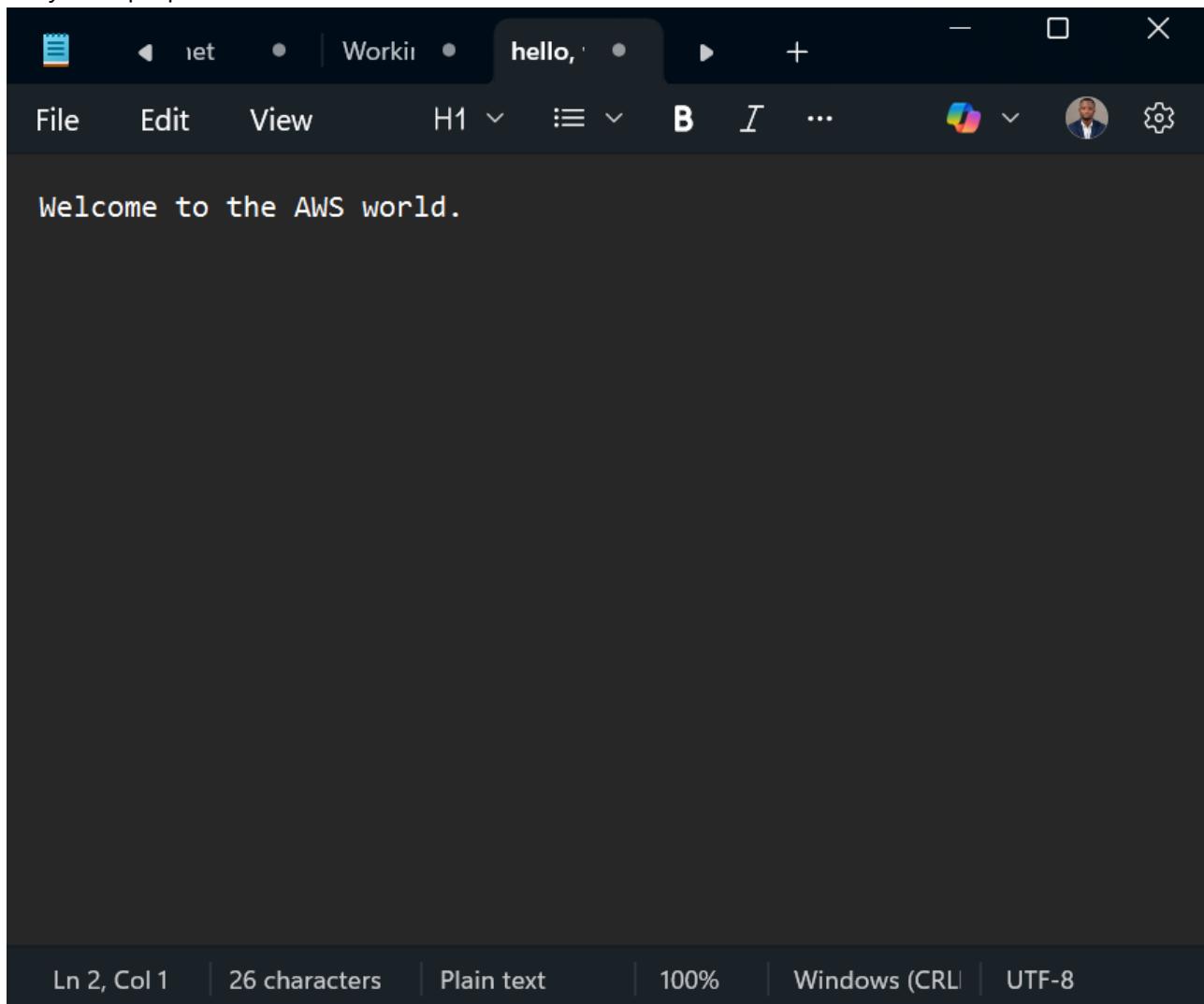
The screenshot shows the AWS S3 Buckets page. A green banner at the top indicates that a bucket named "my-first-s3-bucket-069" has been successfully created. Below the banner, there are two tabs: "General purpose buckets" (selected) and "Directory buckets". Under the "General purpose buckets" tab, there is a table with one row. The first column contains a link to the bucket named "my-first-s3-bucket-069", which is highlighted with a red arrow. The second column shows the AWS Region as "US East (Ohio) us-east-2", and the third column shows the Creation date as "August 30, 2025, 17:00:12 (UTC+01:00)". To the right of the table, there are three cards: "Account snapshot", "External access summary - new", and "Storage Lens". At the bottom of the page, there are links for CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

- View empty bucket (0 objects).

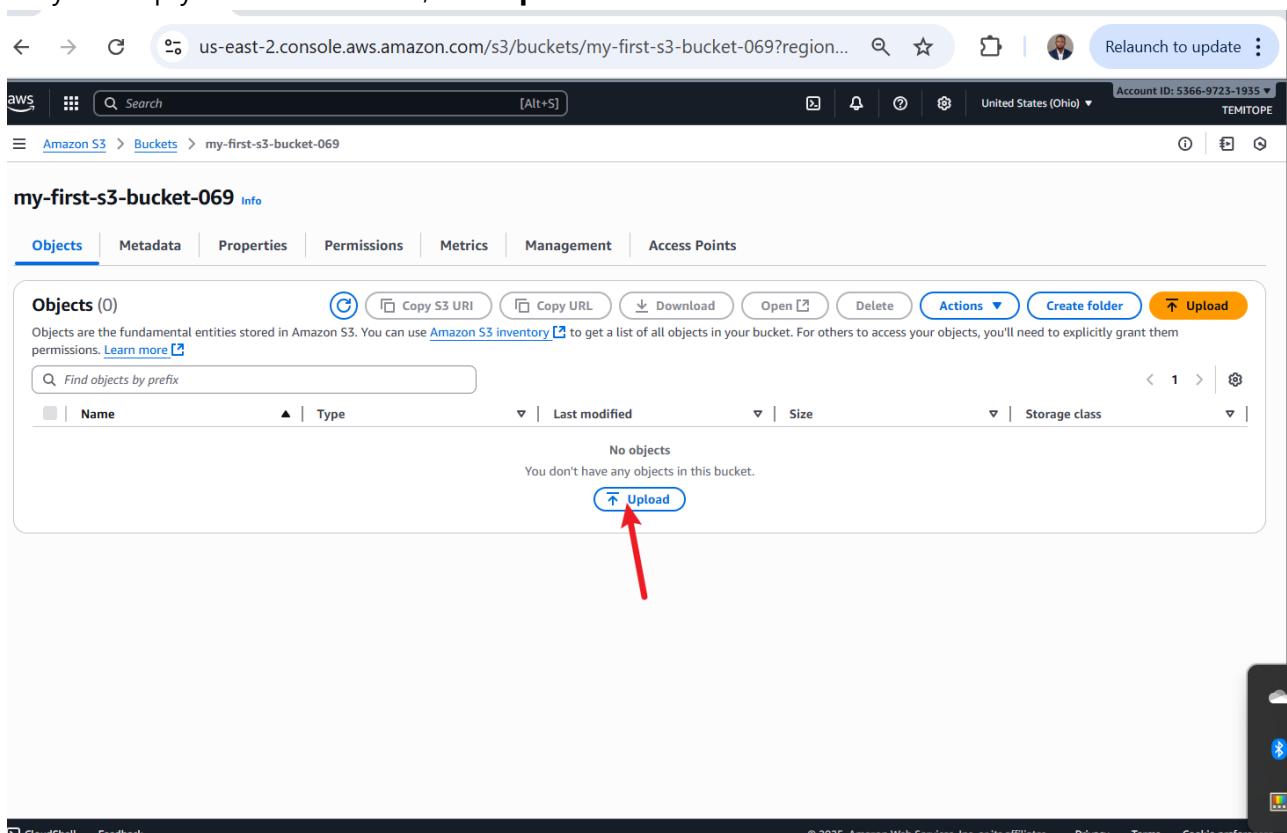
The screenshot shows the AWS S3 Bucket Objects page for the bucket "my-first-s3-bucket-069". The top navigation bar shows the URL "us-east-2.console.aws.amazon.com/s3/buckets/my-first-s3-bucket-069?region...". The page title is "my-first-s3-bucket-069". Below the title, there is a navigation bar with tabs: Objects (selected), Metadata, Properties, Permissions, Metrics, Management, and Access Points. Under the "Objects" tab, there is a table with one row. The first column contains a link to the object, which is highlighted with a red arrow. The second column shows the Type as "No objects", and the third column shows the Storage class. A message below the table states "You don't have any objects in this bucket." At the bottom of the page, there is a blue "Upload" button.

## 5. Upload Your First Object

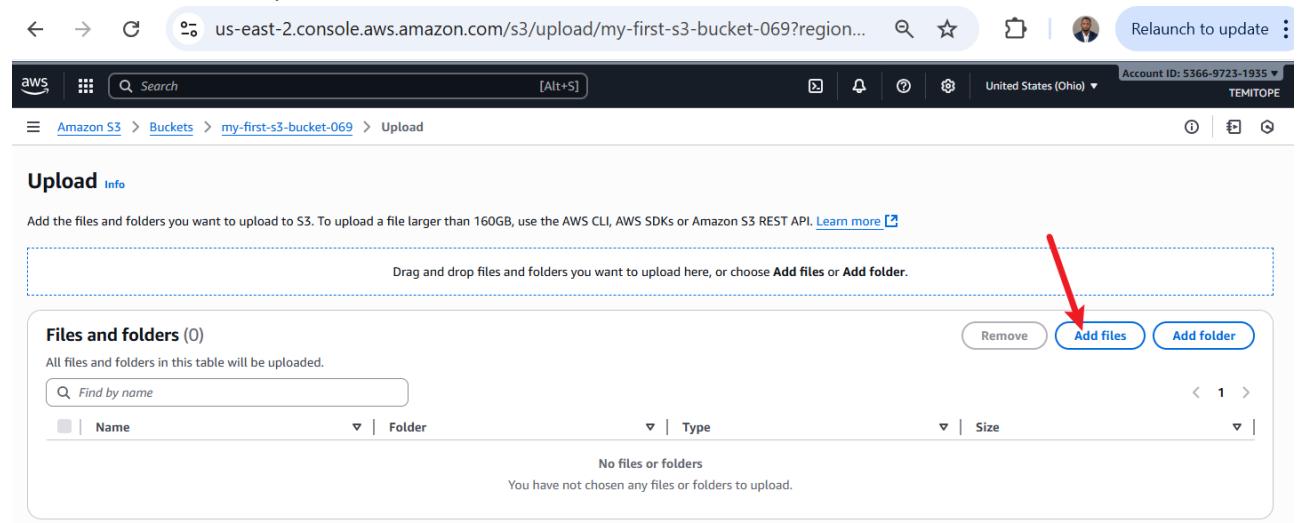
- On your laptop, create a file `hello_welcome.txt` with the and save it:



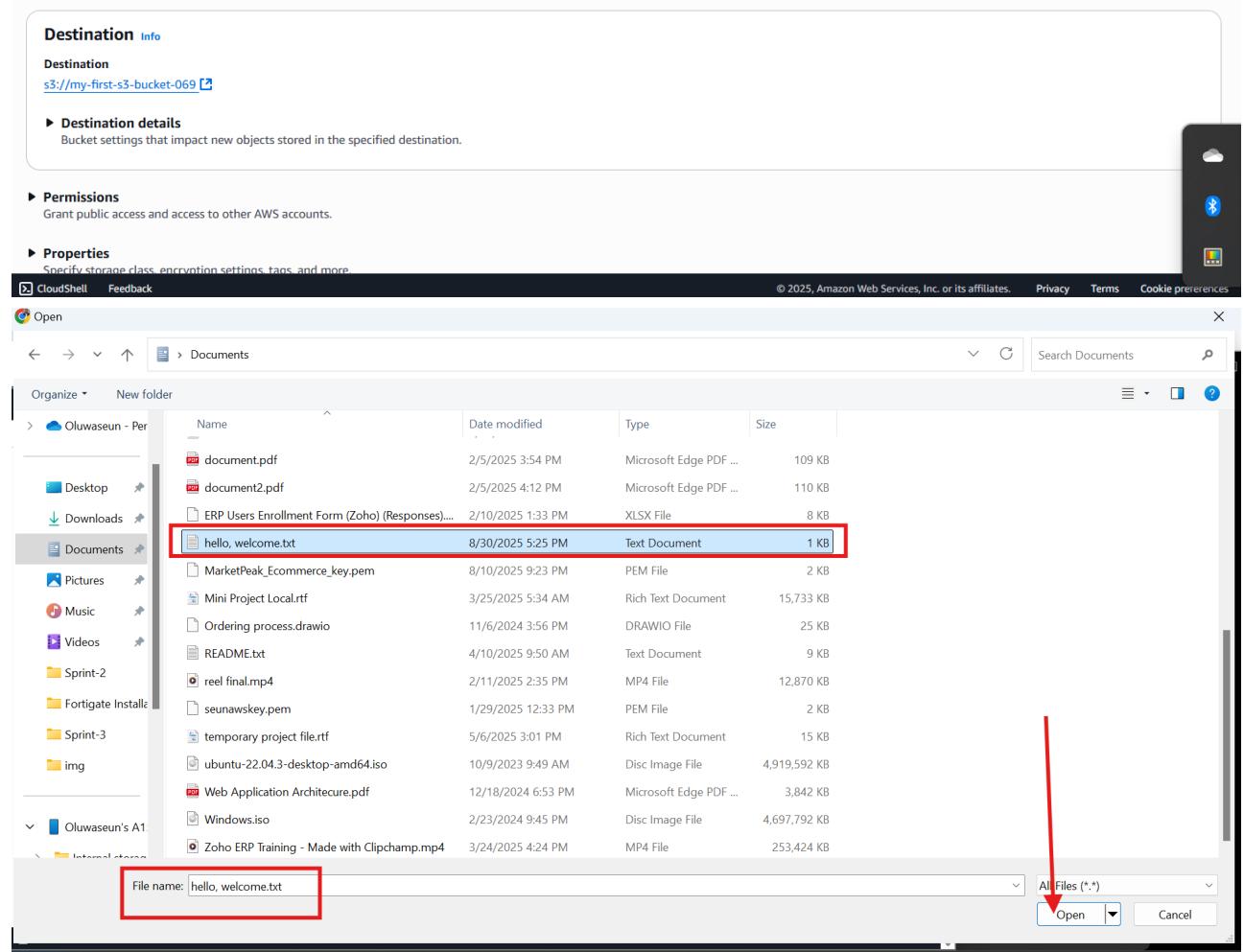
- On your empty bucket dashboard, click **Upload**.



- Add file → select → open.



The screenshot shows the AWS S3 'Upload' interface. At the top, there's a search bar and navigation links for 'Amazon S3 > Buckets > my-first-s3-bucket-069 > Upload'. Below this is a large dashed blue box with the text 'Drag and drop files and folders you want to upload here, or choose Add files or Add folder.' A red arrow points to the 'Add files' button in the top right corner of this box. Below the box, there's a table titled 'Files and folders (0)' with columns for Name, Type, and Size. A message says 'No files or folders' and 'You have not chosen any files or folders to upload.'

The screenshot shows a Windows file explorer window with the path 'Documents' selected. The left sidebar shows 'CloudShell', 'Feedback', and a list of drives and folders like 'Desktop', 'Downloads', 'Documents', 'Pictures', 'Music', 'Videos', 'Sprint-2', 'Fortigate Install', 'Sprint-3', 'img', 'Oluwaseun's A1', and 'Internal storage'. The main area shows a list of files in the 'Documents' folder. One file, 'hello\_welcome.txt', is selected and highlighted with a red box. At the bottom of the window, there's a file selection dialog with the 'File name:' field containing 'hello\_welcome.txt', a dropdown menu set to 'All Files (\*.\*)', and a 'Cancel' button. The 'Open' button is also highlighted with a red box.

- File ready → click **Upload**.

The screenshot shows the AWS S3 console interface for uploading files to a bucket. In the 'Files and folders' table, a file named 'hello.welcome.txt' is listed with a red box highlighting its row. In the bottom right corner of the screen, there is a large orange arrow pointing towards the 'Upload' button.

**Files and folders (1 total, 27.0 B)**

Name	Folder	Type	Size
hello.welcome.txt	-	text/plain	27.0 B

**Destination info**

Destination: <s3://my-first-s3-bucket-069>

**Destination details**

Bucket settings that impact new objects stored in the specified destination.

**Permissions**

Grant public access and access to other AWS accounts.

**Properties**

Specify storage class, encryption settings, tags, and more.

**Upload**

- Upload successful.

The screenshot shows the AWS S3 console after a successful upload. A green banner at the top indicates 'Upload succeeded'. Below it, the 'Upload: status' section shows a summary: 1 file uploaded (100.00%) with a success rate of 100%. The 'Files and folders' tab is selected, showing the uploaded file 'hello.welcome.txt' in the table.

**Upload succeeded**

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

**Upload: status**

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

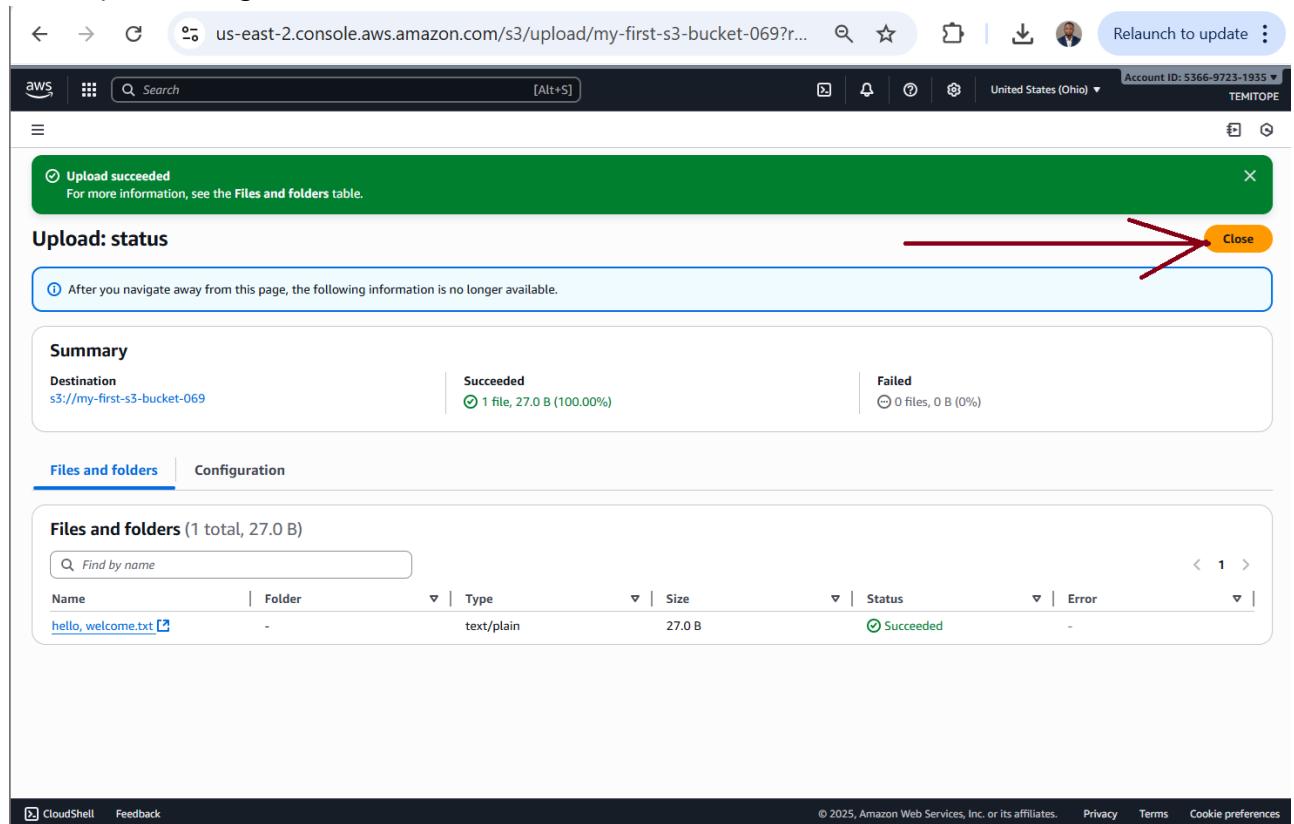
**Summary**

Destination	Succeeded	Failed
<a href="s3://my-first-s3-bucket-069">s3://my-first-s3-bucket-069</a>	1 file, 27.0 B (100.00%)	0 files, 0 B (0%)

**Files and folders (1 total, 27.0 B)**

Name	Folder	Type	Size	Status	Error
hello.welcome.txt	-	text/plain	27.0 B	Succeeded	-

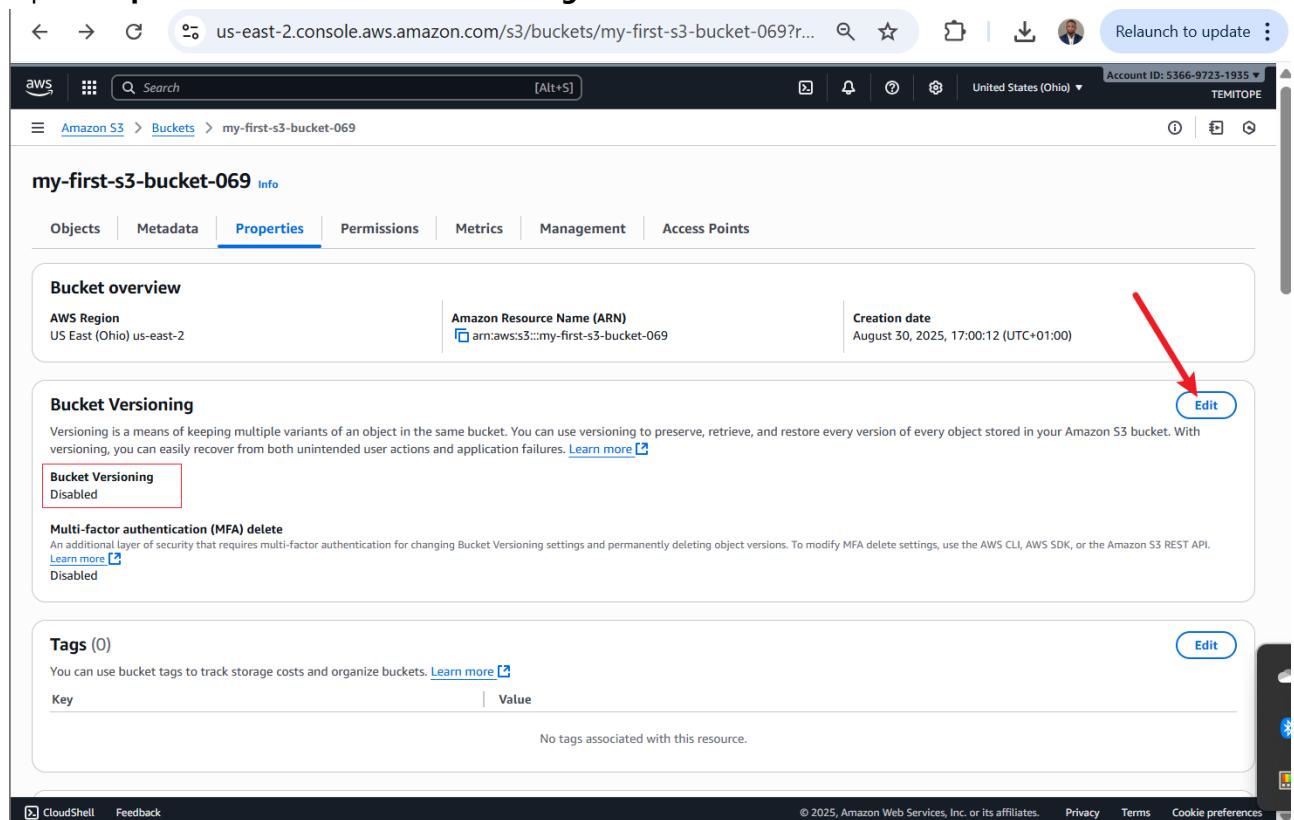
- Close upload dialog → back to bucket.



The screenshot shows the AWS S3 'Upload: status' page. At the top, a green banner says 'Upload succeeded'. Below it, a message states 'For more information, see the Files and folders table.' A red arrow points to the 'Close' button in the top right corner of this message area. The main section is titled 'Summary' and shows 'Destination s3://my-first-s3-bucket-069'. It lists 'Succeeded' (1 file, 27.0 B (100.00%)) and 'Failed' (0 files, 0 B (0%)). Below this is a 'Files and folders' table with one entry: 'hello\_welcome.txt' (text/plain, 27.0 B, Status: Succeeded). The bottom of the page includes standard AWS navigation links like CloudShell, Feedback, and copyright information.

## 6. Enable Versioning

- Open **Properties** → under **Bucket Versioning** click edit.



The screenshot shows the AWS S3 'my-first-s3-bucket-069' properties page. The 'Properties' tab is selected. Under 'Bucket overview', it shows 'AWS Region: US East (Ohio) us-east-2', 'Amazon Resource Name (ARN): arn:aws:s3:::my-first-s3-bucket-069', and 'Creation date: August 30, 2025, 17:00:12 (UTC+01:00)'. The 'Bucket Versioning' section is expanded, showing 'Bucket Versioning: Disabled'. A red arrow points to the 'Edit' button next to the 'Bucket Versioning' status. Other sections visible include 'Multi-factor authentication (MFA) delete' (disabled), 'Tags (0)', and 'CloudShell' and 'Feedback' links at the bottom.

- Enable and save changes.

**Edit Bucket Versioning**

**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](#)

Suspend  
This suspends the creation of object versions for all operations but preserves any existing object versions.

Enable

After enabling Bucket Versioning, you might need to update your lifecycle rules to manage previous versions of objects.

**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

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

- Success message.

**my-first-s3-bucket-069**

[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:::my-first-s3-bucket-069](#)

Creation date: August 30, 2025, 17:00:12 (UTC+01:00)

**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: Enabled

**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

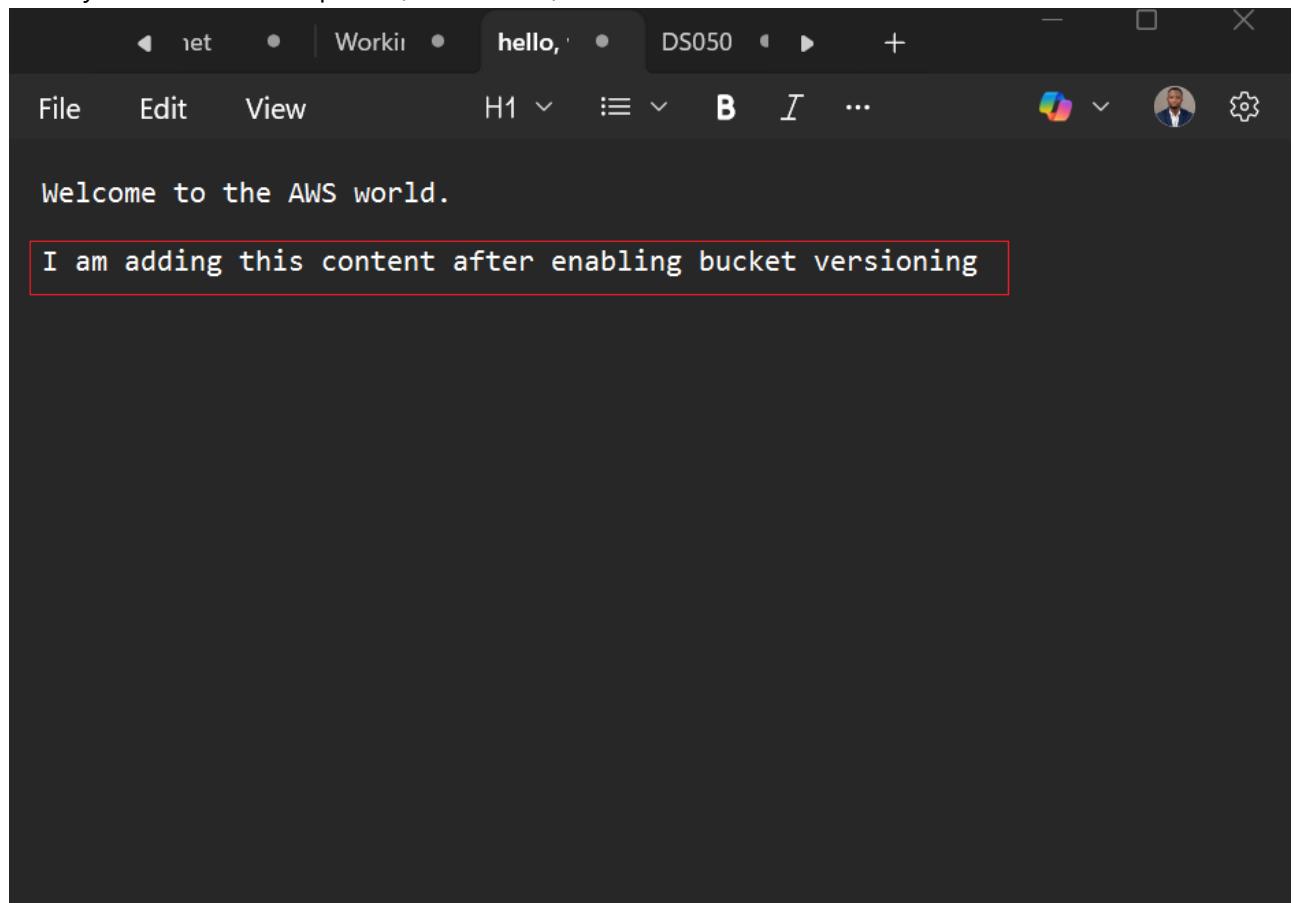
**Tags (0)**

You can use bucket tags to track storage costs and organize buckets. [Learn more](#)

Key	Value
-----	-------

[Edit](#)

- Modify local file and re-upload (new version).



us-east-2.console.aws.amazon.com/s3/buckets/my-first-s3-bucket-069?r... Relaunch to update

Search [Alt+S]

Account ID: 5366-9723-1935

Amazon S3 > Buckets > my-first-s3-bucket-069

my-first-s3-bucket-069 [Info](#)

[Objects](#) [Metadata](#) [Properties](#) [Permissions](#) [Metrics](#) [Management](#) [Access Points](#)

**Objects (1)**

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  Show versions

Name	Type	Last modified	Size	Storage class
hello, welcome.txt	txt	August 30, 2025, 17:48:03 (UTC+01:00)	27.0 B	Standard

[Actions](#) [Create folder](#) [Upload](#)

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The screenshot shows two windows side-by-side. The top window is the AWS S3 'Upload' interface for the bucket 'my-first-s3-bucket-069'. It features a central upload area with a dashed blue border for dragging files, labeled 'Drag and drop files and folders you want to upload here, or choose Add files or Add folder.' Below this is a table titled 'Files and folders (0)' showing 'No files or folders' selected. To the right of the table are three buttons: 'Remove', 'Add files' (which has a red arrow pointing to it), and 'Add folder'. The bottom window is a file selection dialog from a Mac OS X-style file browser. The 'Documents' folder is selected in the sidebar. A file named 'hello, welcome.txt' is highlighted with a red box. The file details are shown in the main pane: Name: 'hello, welcome.txt', Date modified: '8/30/2025 6:18 PM', Type: 'Text Document', Size: '1 KB'. At the bottom of the dialog, there is a 'File name:' field containing 'hello, welcome.txt', a dropdown menu set to 'All Files (\*.\*)', and two buttons: 'Open' (with a red arrow pointing to it) and 'Cancel'.

The screenshot shows the AWS S3 'Upload' interface. In the 'Files and folders' table, a file named 'hello.welcome.txt' is listed with a size of 86.0 B and a type of text/plain. A red box highlights this file. The 'Upload' button at the bottom right is highlighted with a yellow oval and a red arrow pointing to it.

**Files and folders (1 total, 86.0 B)**

Name	Folder	Type	Size
hello.welcome.txt	-	text/plain	86.0 B

**Destination**

Destination: s3://my-first-s3-bucket-069

**Permissions**

Grant public access and access to other AWS accounts.

**Properties**

Specify storage class, encryption settings, tags, and more.

**Upload**

**Upload status**

Upload succeeded: 1 file, 86.0 B (100.00%)

**Summary**

Destination	Succeeded	Failed
s3://my-first-s3-bucket-069	1 file, 86.0 B (100.00%)	0 files, 0 B (0%)

**Files and folders (1 total, 86.0 B)**

Name	Folder	Type	Size	Status	Error
hello.welcome.txt	-	text/plain	86.0 B	Succeeded	-

The screenshot shows the AWS S3 console with a success message: "Upload succeeded". It includes a summary table and a detailed file list.

Destination	Succeeded	Failed
s3://my-first-s3-bucket-069	1 file, 86.0 B (100.00%)	0 files, 0 B (0%)

**Files and folders (1 total, 86.0 B)**

Name	Folder	Type	Size	Status
hello_welcome.txt	-	text/plain	86.0 B	Succeeded

- Show versions.

The screenshot shows the AWS S3 console with the "Objects" tab selected. A red arrow points to the "Show versions" button in the toolbar above the list.

Name	Type	Version ID	Last modified	Size	Storage class
hello_welcome.txt	txt	DsU3Vg6MwFvK9l4wUd0yqR dHuTuByABP	August 30, 2025, 18:27:09 (UTC+01:00)	86.0 B	Standard
hello_welcome.txt	txt	null	August 30, 2025, 17:48:03 (UTC+01:00)	27.0 B	Standard

## 7. Set Bucket Permissions

- Go to **Permissions** → edit block public access.

The screenshot shows the AWS S3 console for a bucket named "my-first-s3-bucket-069". The "Permissions" tab is selected. A red arrow points to the "Edit" button in the "Block public access (bucket settings)" section. Another red arrow points to the "Edit" button in the "Bucket policy" section.

**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

**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](#).

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](#).

No policy to display.

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- Uncheck → save.

The screenshot shows the "Edit Block public access (bucket settings)" page. A red arrow points to the "Save changes" button at the bottom right. The "Block all public access" checkbox is unchecked.

**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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The screenshot shows the AWS S3 console interface for managing bucket settings. In the top navigation bar, the URL is `us-east-2.console.aws.amazon.com/s3/bucket/my-first-s3-bucket-069/property`. The main page displays the 'my-first-s3-bucket-069' bucket details, including tabs for Objects, Metadata, Properties, Permissions (which is selected), Metrics, Management, and Access Points.

In the 'Permissions' section, the 'Block public access (bucket settings)' subsection is visible. It contains several options:

- Block all public access**: A note states: "Turning this setting on is the same as turning on all four settings below." This option is currently off.
- Block public access to buckets and objects granted to my bucket**: A note states: "S3 will block public access permissions applied to newly added objects using ACLs."
- Block public access to buckets and objects granted to my bucket via CORS**: A note states: "S3 will ignore all ACLs that grant public access to buckets and objects via CORS."
- Block public access to buckets and objects granted to my bucket via access point policies**: A note states: "S3 will block new bucket and access point policies that grant public access to buckets and objects via access point policies."
- Block public and cross-account access to buckets and objects**: A note states: "S3 will ignore public and cross-account access for buckets or objects within this bucket."

A modal window titled "Edit Block public access (bucket settings)" is open, containing a warning message: "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." Below the warning is a text input field labeled "To confirm the settings, enter **confirm** in the field." The word "confirm" is typed into the field. At the bottom of the modal are "Cancel" and "Confirm" buttons.

After confirming the changes, a green success message appears at the top of the page: "Successfully edited Block Public Access settings for this bucket." The "Permissions" tab remains active, and the "Edit" button for the "Block public access (bucket settings)" section is highlighted.

At the bottom of the page, there are links for CloudShell and Feedback, and standard footer links for Privacy, Terms, and Cookie preferences.

- Edit bucket policy.

The screenshot shows the AWS S3 Bucket Settings page for the bucket 'my-first-s3-bucket-069'. In the 'Block public access (bucket settings)' section, the 'Block all public access' setting is turned off. A red arrow points to the 'Edit' button in the top right corner of this section. Below it, the 'Bucket policy' section is shown, which currently displays 'No policy to display.' A red arrow points to the 'Edit' button in the top right corner of this section.

The screenshot shows the 'Edit bucket policy' page for the same bucket. The 'Bucket policy' section contains a JSON policy block. A red arrow points to the 'Bucket ARN copied' message above the policy editor. Another red arrow points to the 'Policy generator' button in the top right corner of the editor. The editor interface includes tabs for 'Policy examples' and 'Policy generator'.

- Generate policy.

The screenshot shows the AWS Policy Generator interface. In Step 1: Select policy type, the 'Type of Policy' dropdown is set to 'S3 Bucket Policy'. In Step 2: Add statement(s), the 'Effect' is set to 'Allow'. The 'Principal' field contains a wildcard (\*). Under 'Actions', 'All Actions' is selected, and specific actions 'GetObject' and 'GetObjectVersion' are chosen from the dropdown. The 'Amazon Resource Name (ARN)' field contains 'arn:aws:s3:::my-first-s3-bucket-069/'. A red arrow points to the 'Add Statement' button at the bottom left of the statement editor.

**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](#).

**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](#).

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.

Actions  
 All Actions (\*\*\*)  
Select Actions--  
GetObject X GetObjectVersion X

Amazon Resource Name (ARN)  
 All Resources (\*\*\*)  
arn:aws:s3:::my-first-s3-bucket-069/  
ARN should follow the following format: arn:aws:s3:::\${BucketName}/\${KeyName}. Use a comma to separate multiple values.

► Add conditions (optional)

Add Statement

**Statements added (1)**  
You added the following statements. Click the button below to Generate a policy.

Principal(s)	Effect	Action	Resource(s)	Condition(s)	Remove
*	Allow	s3:GetObject s3:GetObjectVersion	arn:aws:s3:::my-first-s3-bucket-069/*	None	<a href="#">Remove</a>

**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](#)

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← → G awspolicygen.s3.amazonaws.com/policygen.html 🔍 ⭐ 🗑️ 🌐 Relaunch to update ⋮

Use a comma to separate multiple values.

**Actions**  
 All Actions (\*\*\*)  
 All Resources ("\*")  
[Select Actions...](#)

**Amazon Resource Name (ARN)**  
 ARN should follow the following format: arn:aws:s3:::  
 Add conditions (optional)  
[Add Statement](#)

**Statements added (1)**  
You added the following statements. Click the button below to Generate a policy.

Principal(s)	Effect
*	Allow

**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**.

```

1  Version: "2012-10-17",
2  Statement: [
3    {
4      Sid: "Statement1",
5      Effect: "Allow",
6      Principal: "*",
7      Action: [
8        "s3:GetObject",
9        "s3:GetObjectVersion"
10      ],
11     Resource: "arn:aws:s3:::my-first-s3-bucket-069/*"
12   }
13 ]
14
15 
```

1.1 JSON

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- Paste policy & save.

The screenshot shows the AWS S3 Bucket Policy editor. On the left, there's a sidebar with navigation links like 'Amazon S3', 'General purpose buckets', 'Storage Lens', and 'AWS Marketplace for S3'. The main area is titled 'Bucket policy' and contains a JSON code editor. The JSON code is:

```

1 Version: "2012-10-17",
2 Statement: [
3     {
4         Sid: "Statement1",
5         Effect: "Allow",
6         Principal: "*",
7         Action: [
8             "s3:GetObject",
9             "s3:GetObjectVersion"
10        ],
11        Resource: "arn:aws:s3:::my-first-s3-bucket-069/*"
12    }
13]
14
15

```

Below the code editor are buttons for '+ Add new statement' and 'Preview external access'. At the bottom, there are status indicators: 'Secure: 0', 'Errors: 0', 'Warnings: 0', 'Suggestions: 0', and buttons for 'Cancel' and 'Save changes' (which is highlighted with a red arrow).

The screenshot shows the AWS S3 Bucket Permissions overview page. The top navigation bar includes 'CloudShell' and 'Feedback'. The main content area has tabs for 'Objects', 'Metadata', 'Properties', 'Permissions' (which is selected), 'Metrics', 'Management', and 'Access Points'. A green success message at the top says 'Successfully edited bucket policy.' Below it, the 'Permissions overview' section includes 'Access finding' and 'Block public access (bucket settings)'. The 'Block public access' section shows 'Block all public access' is off. The 'Bucket policy' section shows the same JSON policy as the previous screenshot. At the bottom, there are 'Edit' and 'Delete' buttons for the policy, and a 'Copy' button. The status bar at the bottom right shows '© 2025, Amazon Web Services, Inc. or its affiliates.' and other links.

```
# Policy copied
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "Statement1",
      "Effect": "Allow",

```

```
"Principal": "*",
"Action": [
    "s3:GetObject",
    "s3:GetObjectVersion"
],
"Resource": "arn:aws:s3:::my-first-s3-bucket-069/*"
}
]
```

## 8. Access Object Publicly

- Click on version with **null** ID → copy object URL.

The screenshot shows the AWS S3 console interface. On the left, there's a sidebar with navigation links like 'Amazon S3', 'General purpose buckets', 'Storage Lens', and 'AWS Marketplace for S3'. The main area is titled 'my-first-s3-bucket-069' and shows 'Objects (2)'. There are two entries in the table:

Name	Type	Version ID	Last modified	Size	Storage class
hello_welcome.txt	txt	DsU3Vg6MwFvK9I4wUdOyqRdHuT uByABP	August 30, 2025, 18:27:09 (UTC+01:00)	86.0 B	Standard
hello_welcome.txt	txt	null	August 30, 2025, 17:48:03 (UTC+01:00)	27.0 B	Standard

A red arrow points to the second row where the Version ID is 'null'. Above the table, there are several buttons: 'Copy S3 URI', 'Copy URL', 'Download', 'Open', 'Delete', 'Actions', 'Create folder', and 'Upload'. The URL in the browser bar is 'us-east-2.console.aws.amazon.com/s3/buckets/my-first-s3-bucket-069?region...'. The status bar at the bottom right shows 'Account ID: 5366-9723-1935' and 'TIMEZONE: United States (Ohio)'.

The screenshot shows the AWS S3 console interface. On the left, there's a sidebar with navigation links like 'Amazon S3', 'General purpose buckets', 'Storage Lens', and 'AWS Marketplace for S3'. The main area displays the 'Object overview' for the file 'hello.welcome.txt'. Key details shown include:

- Owner:** 6ee71487bebcbfa8fd2c179aee740e8f467684494a4f20293bb2ddfeeabf6762
- AWS Region:** US East (Ohio) us-east-2
- Last modified:** August 30, 2025, 17:48:03 (UTC+01:00)
- Size:** 27.0 B
- Type:** txt
- Key:** hello.welcome.txt

In the top right, there are buttons for 'Copy S3 URI', 'Download', 'Open', and 'Object actions'. A tooltip 'Object URL Copied' with a red arrow points to the copied URL: <https://my-first-s3-bucket-069.s3.us-east-2.amazonaws.com/hello%2C+welcome.txt?versionId=null>.

- Paste link in browser → object accessible.

The screenshot shows a web browser window with the copied URL pasted into the address bar: <https://my-first-s3-bucket-069.s3.us-east-2.amazonaws.com/hello%2C+welcome.txt?versionId=null>. The browser interface includes a search bar at the top, a toolbar with icons for back, forward, and refresh, and a bookmarks bar on the right. Below the address bar, there are several browser extensions or quick access links: Document, Online Courses, Inbox (5,161), (15) YouTube, ChatGPT, Oluwaseun... (with a green profile icon), Facebook, WhatsApp, LinkedIn, and Add shortcut. At the bottom, there's a 'Customize Chrome' button.

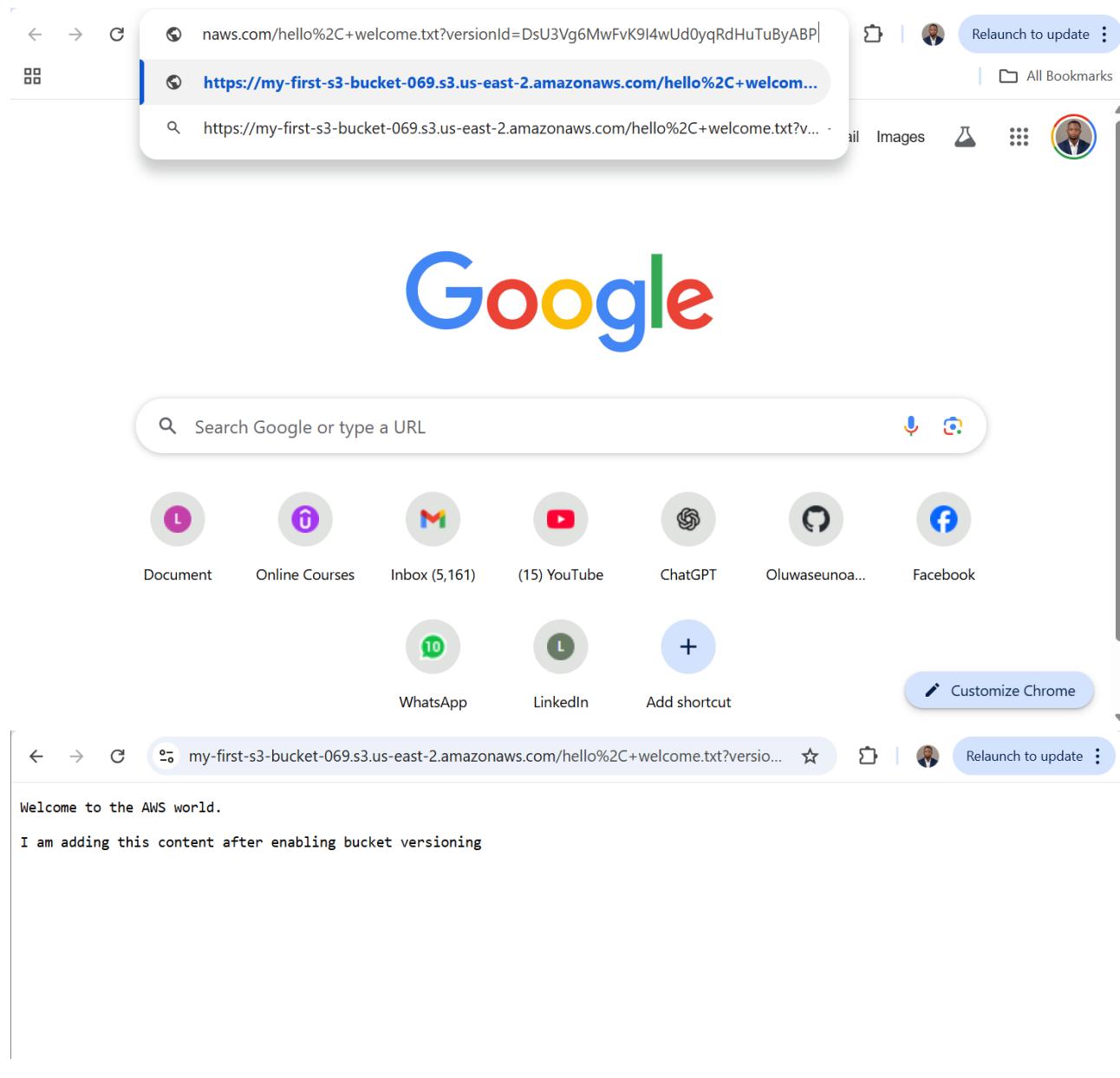
The screenshot shows the AWS landing page. At the top, it displays the URL <https://my-first-s3-bucket-069.s3.us-east-2.amazonaws.com/hello%2C+welcome.txt?versionId=null>. Below the URL, the text 'Welcome to the AWS world.' is visible.

- Access latest version as well.

The screenshot shows the AWS S3 console interface. On the left, the navigation pane includes sections for General purpose buckets, Storage Lens, and AWS Marketplace for S3. The main content area displays the objects in the 'my-first-s3-bucket-069' bucket. A red arrow highlights the first object, 'hello.welcome.txt', which is listed twice: once with a timestamp of 'August 30, 2025, 18:27:09 (UTC+01:00)' and another with 'null'. Both entries show a size of 86.0 B and a storage class of Standard. At the top right of the main area, there are buttons for Actions, Create Folder, and Upload.

This screenshot shows the detailed view of the 'hello.welcome.txt' object. The left sidebar contains the same navigation as the previous screen. The main content area has tabs for Properties, Permissions, and Versions. Under Object overview, it shows the owner (6ec71487...), AWS Region (US East (Ohio) us-east-2), Last modified (August 30, 2025, 18:27:09 (UTC+01:00)), Size (86.0 B), and Type (txt). To the right, there's a panel with S3 URI (s3://my-first-s3-bucket-069/hello.welcome.txt), ARN (arn:aws:s3:::my-first-s3-bucket-069/hello.welcome.txt), and an Entry tag (Etag) (4ed82bf62a420e50c01cde). A green message at the bottom of this panel says 'Object URL Copied' with a link to the copied URL: https://my-first-s3-bucket-069.s3.us-east-2.amazonaws.com/hello%2C+welcome.txt?versionId=DsU3Vg6MwFvK9I4wUd0yqRdhHuByABP. A red arrow points to this message.



## 9. Configure Lifecycle Policies

- Go to **Management** tab → create lifecycle rule.

The screenshot shows the AWS S3 Management console with the following details:

- Left Sidebar:** Shows "Amazon S3" and "General purpose buckets" (Directory buckets, Table buckets, Vector buckets, Access Grants, Access Points (General Purpose Buckets, Fsx file systems), Access Points (Directory Buckets), Object Lambda Access Points, Multi-Region Access Points, Batch Operations, IAM Access Analyzer for S3).
- Breadcrumbs:** Amazon S3 > Buckets > my-first-s3-bucket-069
- Bucket Name:** my-first-s3-bucket-069
- Management Tab:** Selected tab, showing the "Lifecycle configuration" section.
- Lifecycle Configuration:** A box for managing object storage costs. It includes a "Create lifecycle rule" button highlighted with a red arrow.
- Replication Rules:** A section for defining replication rules, currently empty.
- Footer:** Includes links for AWS Marketplace, cloudShell, Feedback, and copyright information: © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences.

- Name the rule & set filters.

**Create lifecycle rule** [Info]

**Lifecycle rule configuration**

**Lifecycle rule name**  
my-lifecycle-rule Up to 255 characters

**Choose a rule scope**  
 Limit the scope of this rule using one or more filters  Apply to all objects in the bucket

**Filter type**  
You can filter objects by prefix, object tags, object size, or whatever combination suits your usecase.

**Prefix**  
Add filter to limit the scope of this rule to a single prefix.  
txt Don't include the bucket name in the prefix. Using certain characters in key names can cause problems with some applications and protocols. [Learn more](#)

**Object tags**  
You can limit the scope of this rule to the key/value pairs added below.

**Add tag**

**Object size**  
You can limit the scope of this rule to apply to objects based on their size. [Learn more](#)

Specify minimum object size  
**Minimum object size**  
The filter will allow objects larger than the entered value.  
2 Must be a positive number 0 B or larger. GB 2,147,483,648 bytes

Specify maximum object size  
**Maximum object size**  
The filter will allow objects smaller than the entered value.  
10 The integer value must be greater than 2.0 GB. GB 10,737,418,240 bytes

**Lifecycle rule actions**  
Choose the actions you want this rule to perform.

- Transition objects after 30 days → Standard-IA.

**Lifecycle rule actions**  
Choose the actions you want this rule to perform.

Transition current versions of objects between storage classes  
 Transition noncurrent versions of objects between storage classes  
 Expire current versions of objects  
 Permanently delete noncurrent versions of objects  
 Delete expired object delete markers or incomplete multipart uploads

Transitions are charged per request  
For a lifecycle transition action, each request corresponds to an object transition. For details on lifecycle transition pricing, see requests pricing info on the [Storage & requests tab of the Amazon S3 pricing page](#).  
 I acknowledge that this lifecycle rule will incur a transition cost per request.

**Transition current versions of objects between storage classes**  
Choose transitions to move current versions of objects between storage classes based on your use case scenario and performance access requirements. These transitions start from when the objects are created and are consecutively applied. [Learn more](#)

Choose storage class transitions: Standard-IA Days after object creation: 30 Remove

**Add transition**

**Review transition and expiration actions**

Current version actions	Noncurrent versions actions
Day 0 Objects uploaded	Day 0 No actions defined.
↓	
Day 30 Objects move to Standard-IA	

**Create rule**

- Rule added successfully.

The screenshot shows the AWS S3 Lifecycle configuration page for a bucket named "my-first-s3-bucket-069". A green success message at the top states: "The rule 'my-lifecycle-rule' has been successfully added and the lifecycle configuration has been updated. It may take some time for the configuration to be updated. Refresh the lifecycle rules list if changes to the configuration aren't displayed." Below this, the "Lifecycle rules" section displays one rule: "my-lifecycle-rule" (Status: Enabled, Scope: Filtered, Transition to Standard-IA). The interface includes standard AWS navigation and search tools.

## ⌚ Project Reflection

Through this lab, we:

- Created and managed S3 buckets.
- Uploaded objects and enabled versioning.
- Configured permissions and bucket policies.
- Enabled lifecycle management for cost optimization.

This project gives a solid hands-on foundation in **Amazon S3**.