

S3. (SIMPLE STORAGE SERVICE)

Amazon S3: ESSENTIALS

- **File and Object Storage**
 - Unlimited Storage
 - High availability
 - 99.999999999% Durability (Think of Disk set with RAID 1)
 - 99.99% Availability (Spread across AZ's)
 - Objects size can be from 1byte to 5TB
- **Objects:** Are static files
 - Contains Key and Value pair (meta data)
- **Buckets:** Contain a group of objects/files
 - Each bucket name must be unique across AWS S3
- **Lifecycle Management**
 - Archive or Delete Objects
- **Versioning**
 - preserve, retrieve, and restore every version of every object
- **Encryption**
 - Server-Side Encryption (S3 or KMS) or Client-Side Encryption

STORAGE TYPES

S3 TYPE	Standard	Standard - Infrequent Access	Reduced Redundancy Storage
Durability	99.999999999%	99.999999999%	99.99%
Availability	99.99%	99.9%	99.99%

CREATE S3 BUCKET

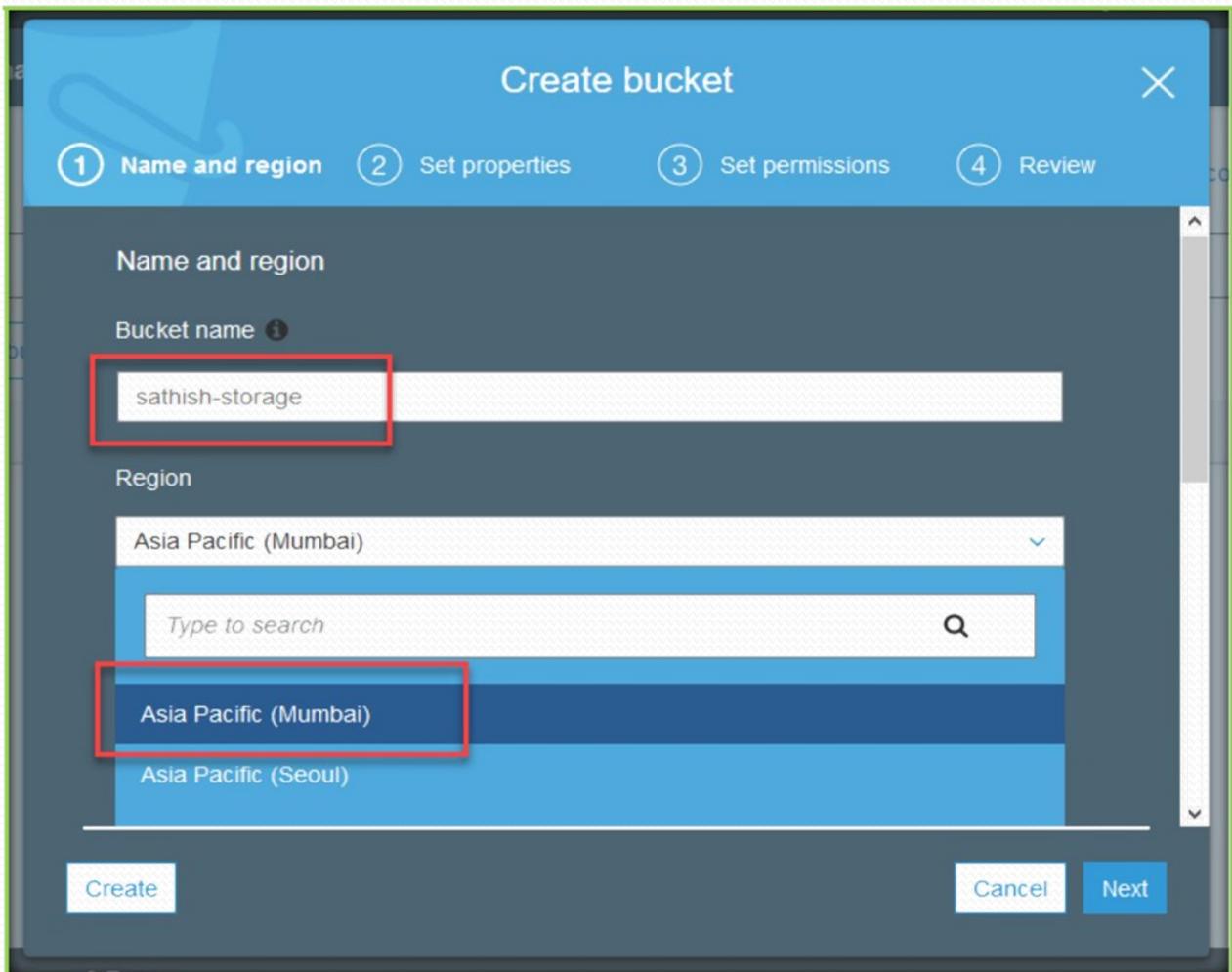
Once you logged in to AWS console, choose S3 under Storage & Content Delivery From Management Console.

The screenshot shows the 'Amazon Web Services' dashboard. On the left, there's a sidebar with categories like Compute, Storage & Content Delivery, and Mobile Services. Under 'Storage & Content Delivery', the 'S3' icon is highlighted with a red box and an arrow pointing to it. Other services listed include EC2, EC2 Container Service, Elastic Beanstalk, Lambda, CloudFront, CodeCommit, CodeDeploy, CodePipeline, CloudWatch, CloudFormation, and CloudTrail.

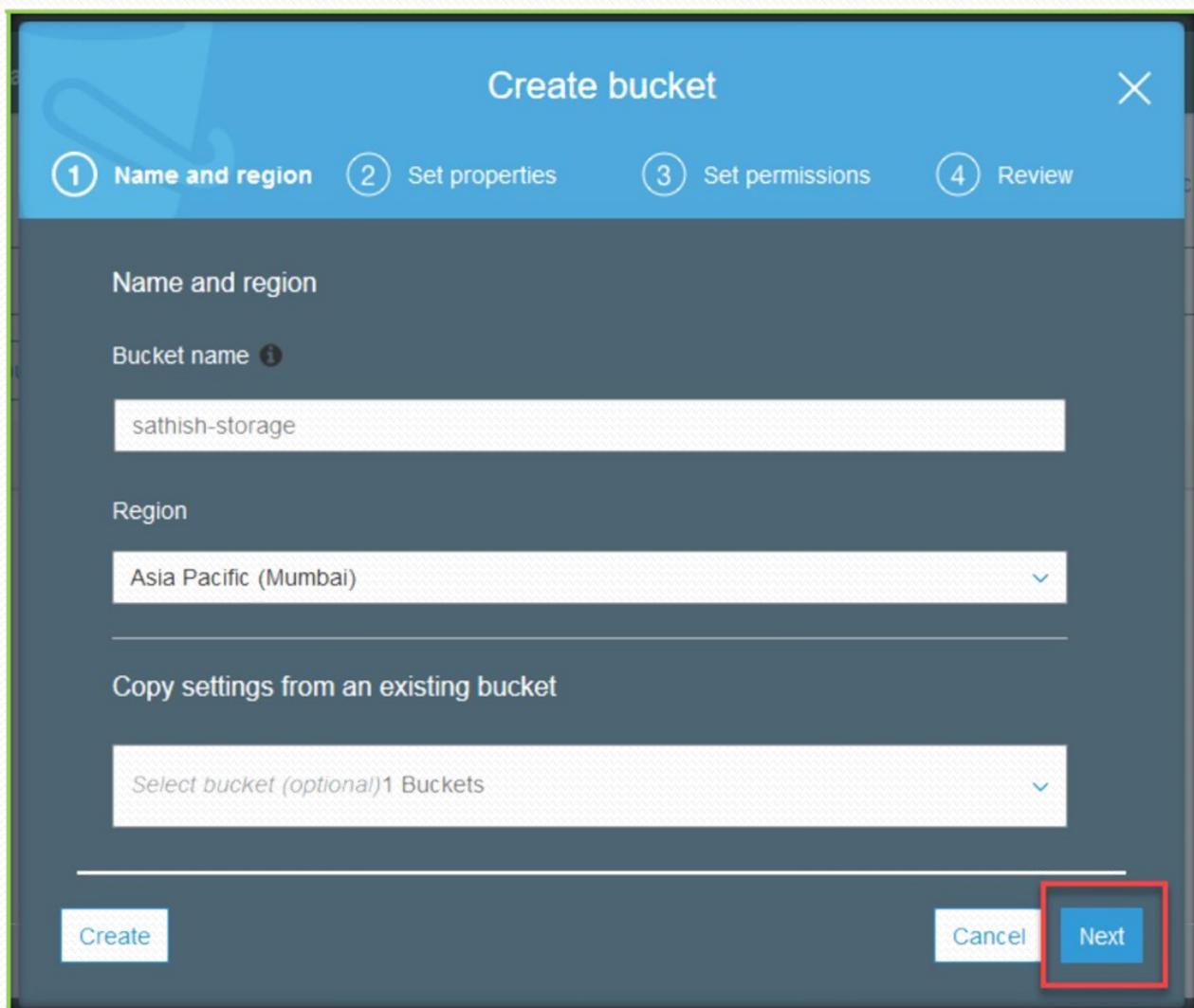
Click on Create Bucket to create a new one.

The screenshot shows the 'Amazon S3' service page. At the top, there's a search bar labeled 'Search for buckets'. Below it are three buttons: '+ Create bucket' (highlighted with a red box), 'Delete bucket', and 'Empty bucket'.

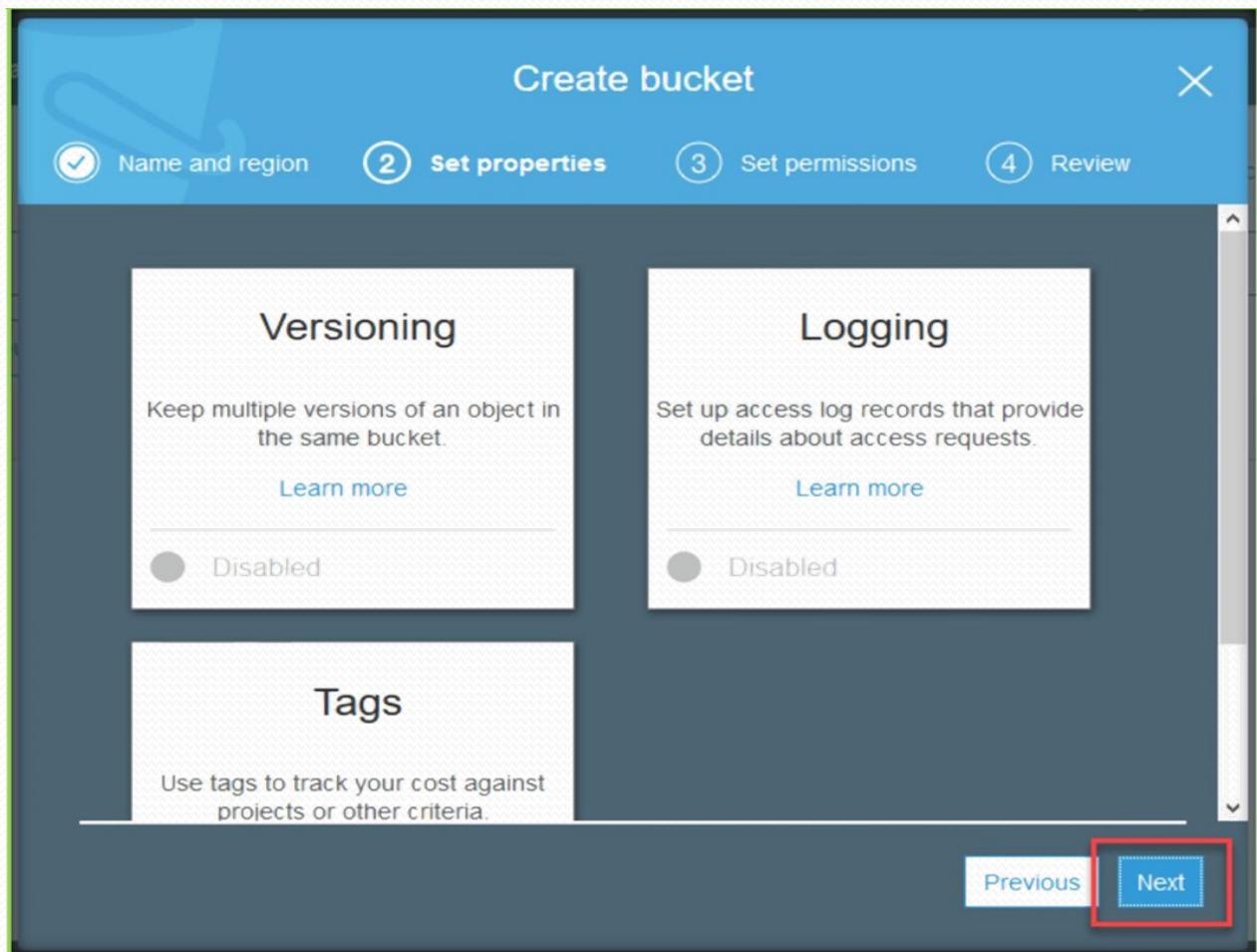
Then give a name for the S3 bucket and choose the region, in which region you want to place this bucket.



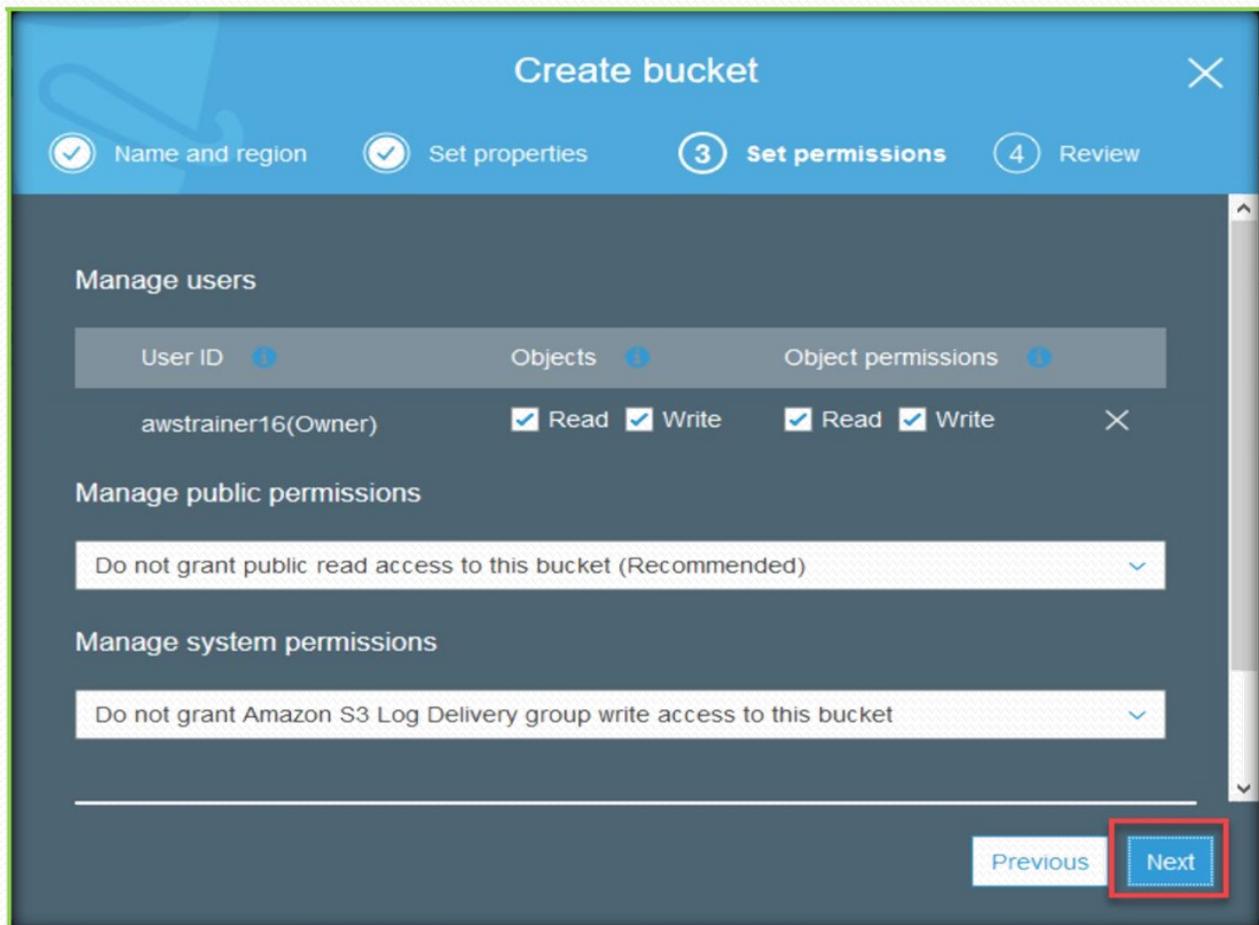
Then choose Next to continue with bucket creation process.



Choose Next here again.



Choose Next here again.



Choose create bucket to complete the creation process.

Create bucket

1 Name and region 2 Set properties 3 Set permissions 4 Review

Name and region

Bucket name sathish-storage Region Asia Pacific (Mumbai)

Properties

Versioning Disabled
Logging Disabled
Tagging 0 Tags

Permissions

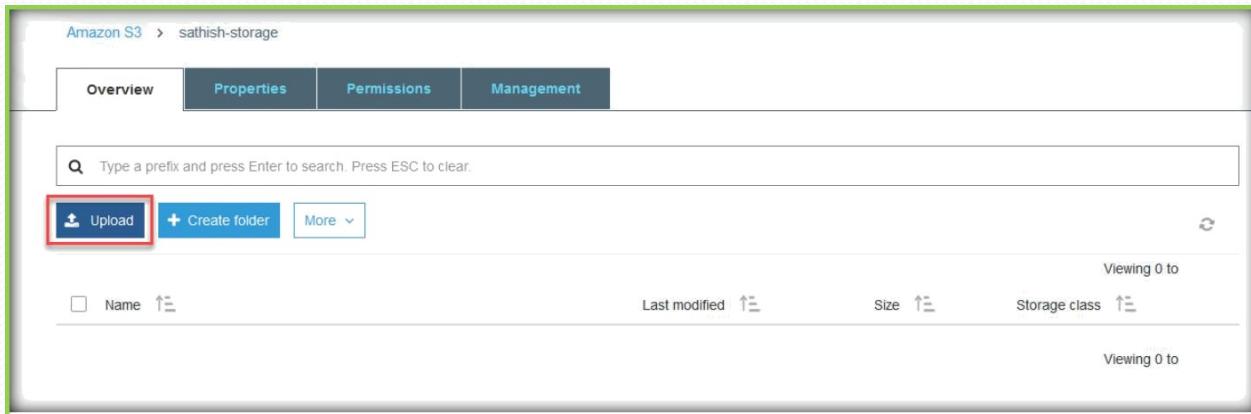
Users 1
Public permissions Disabled
System permissions Disabled

[Previous](#) [Create bucket](#)

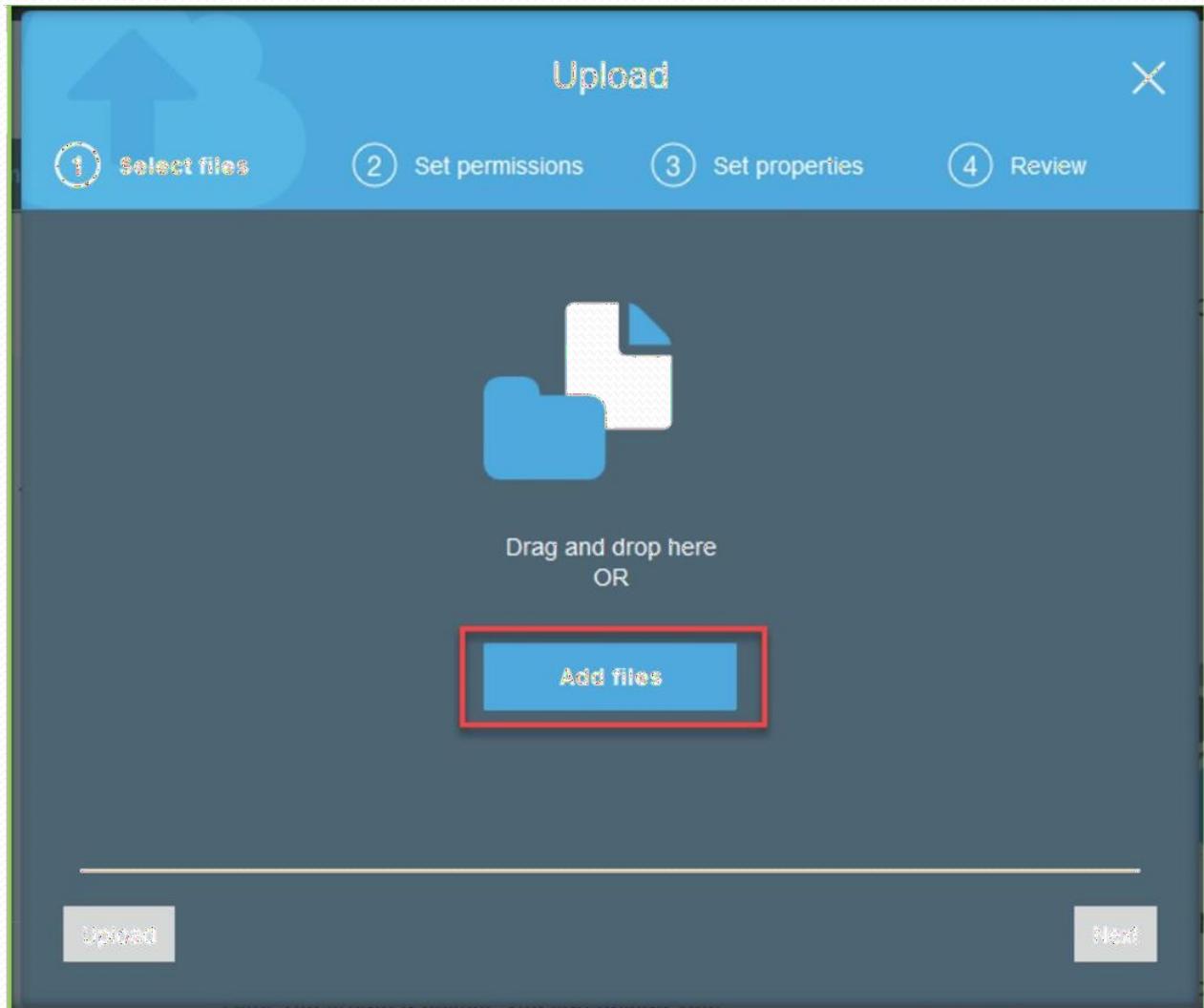
Now you can see the bucket in the buckets list.

Amazon S3		Discover the new console	Quick tips
<input type="text"/> Search for buckets			
+ Create bucket		Delete bucket	Empty bucket
Bucket name	↑↓	Region	↑↓
 sathish-storage		Asia Pacific (Mumbai)	Date created ↑↓ Sep 1, 2017 6:35:16 PM

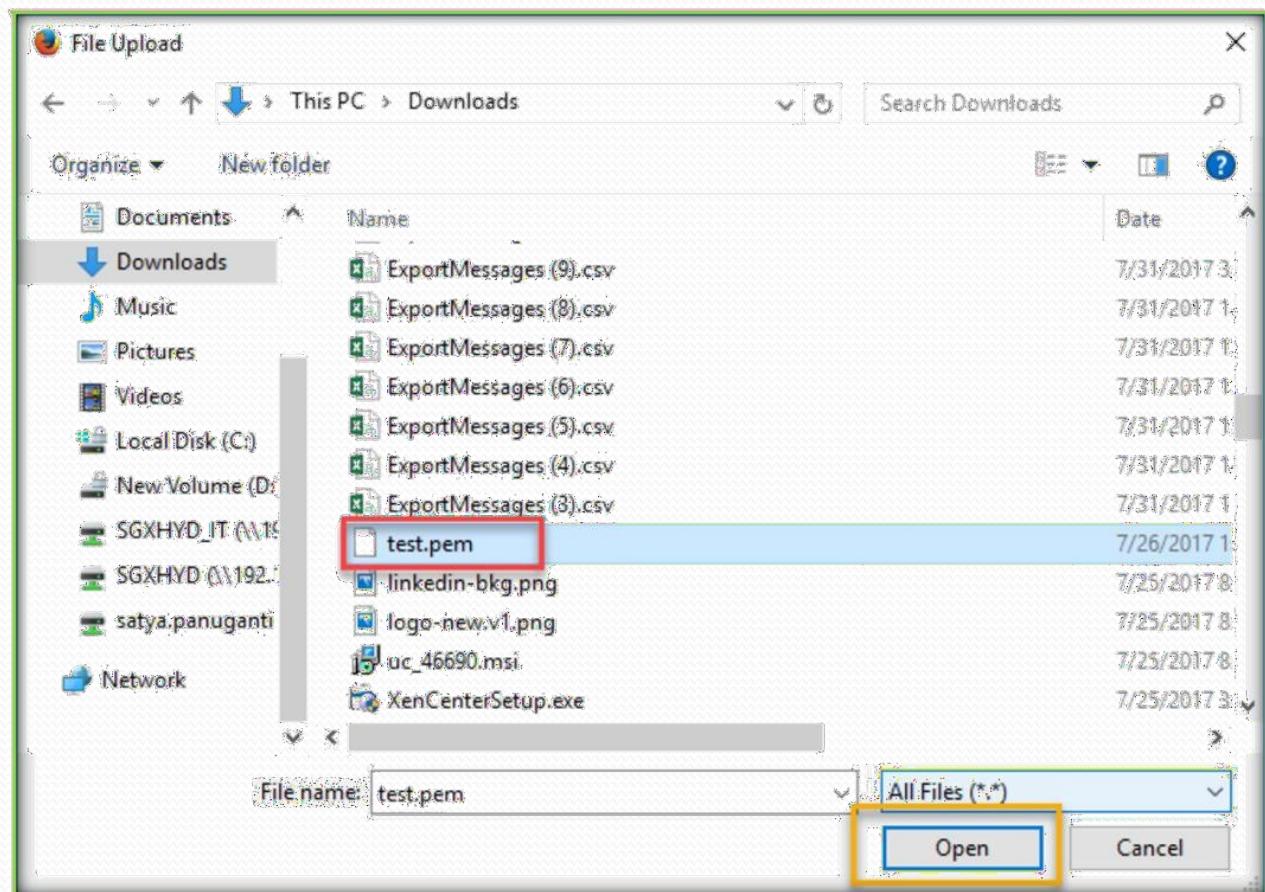
When you click on the newly created Bucket, you will go inside of the bucket, then choose upload to upload the data to the bucket.



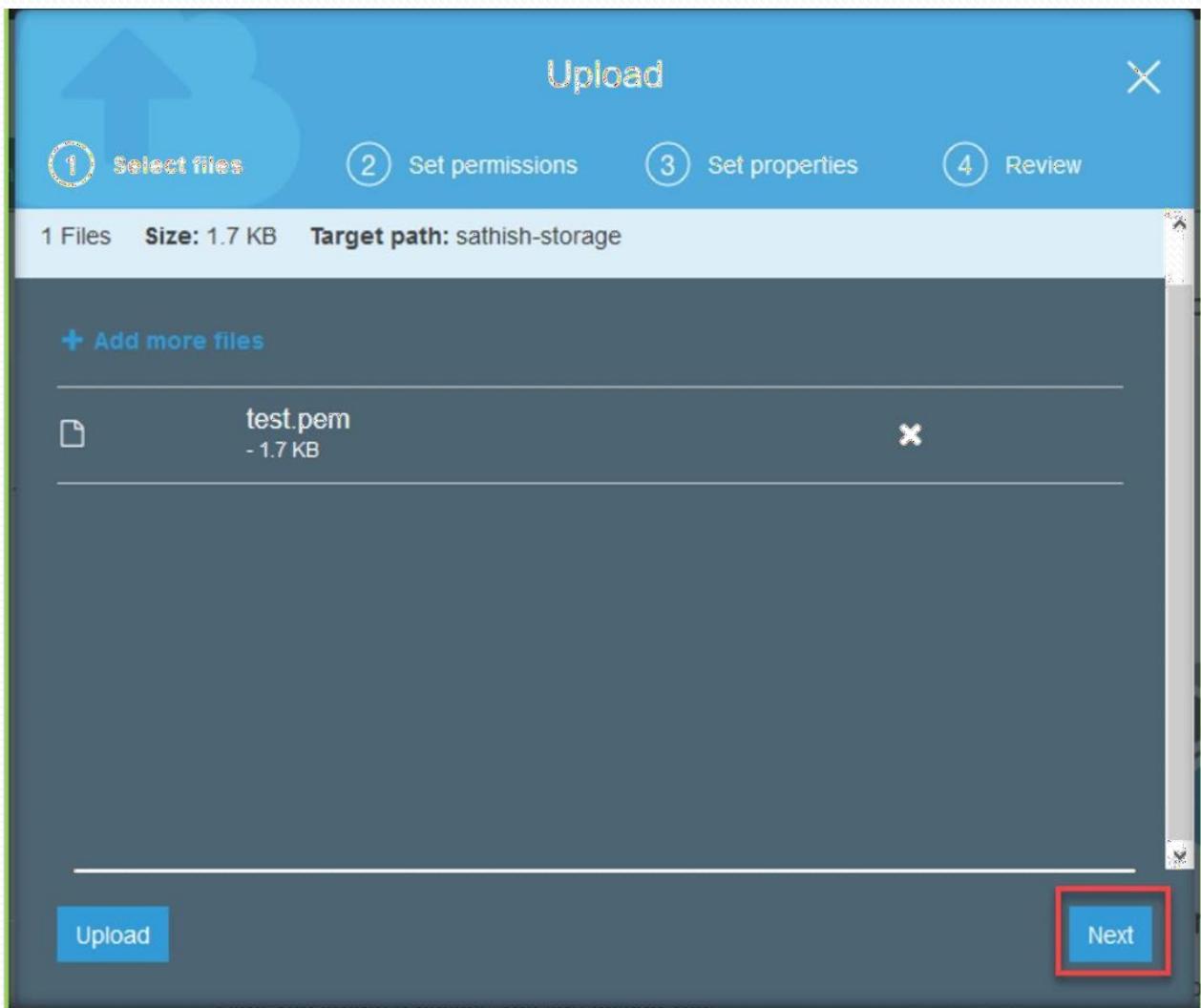
Next, choose add files.



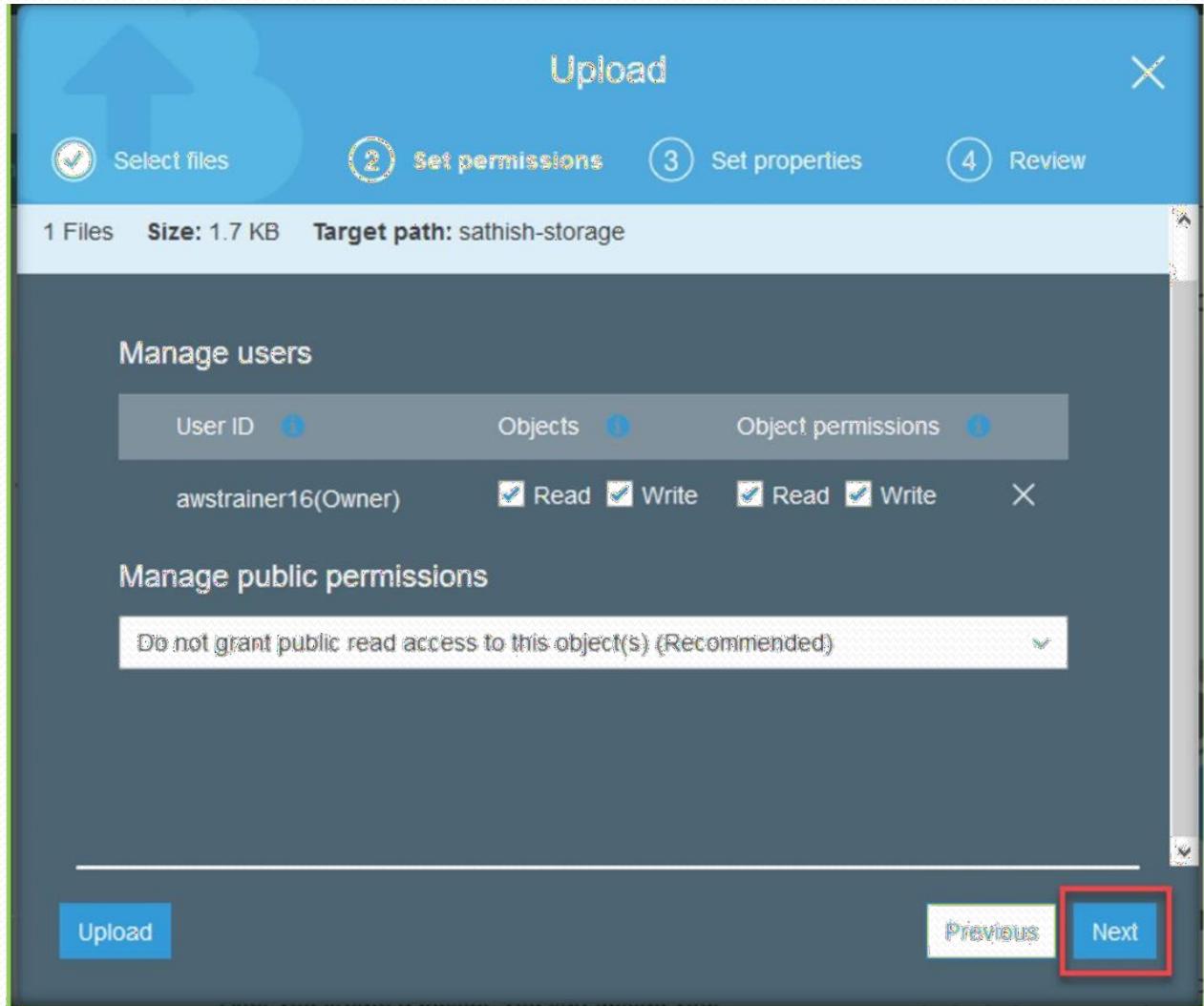
Then choose the files, you can choose multiple files to upload multiple files.



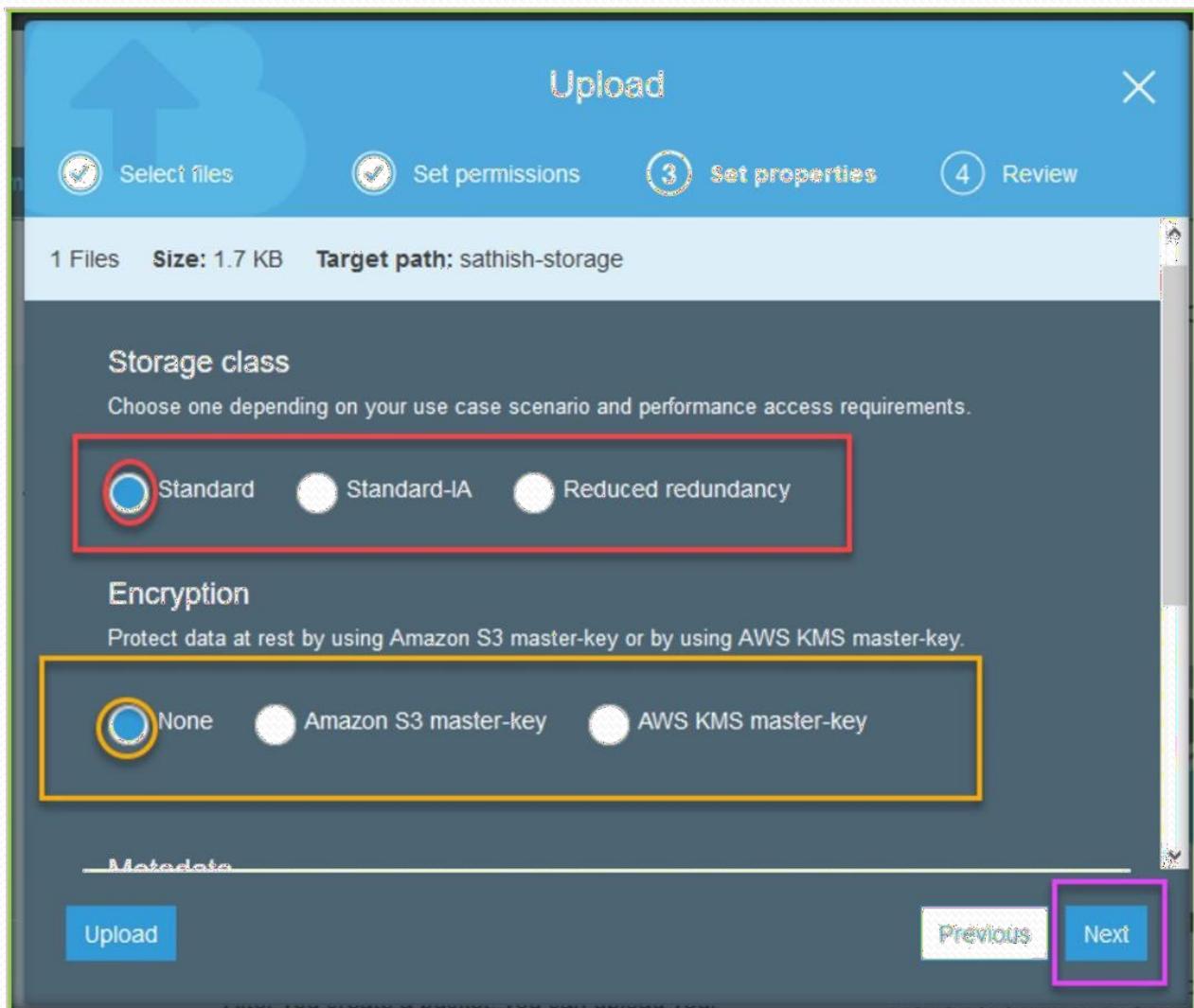
Then choose next.



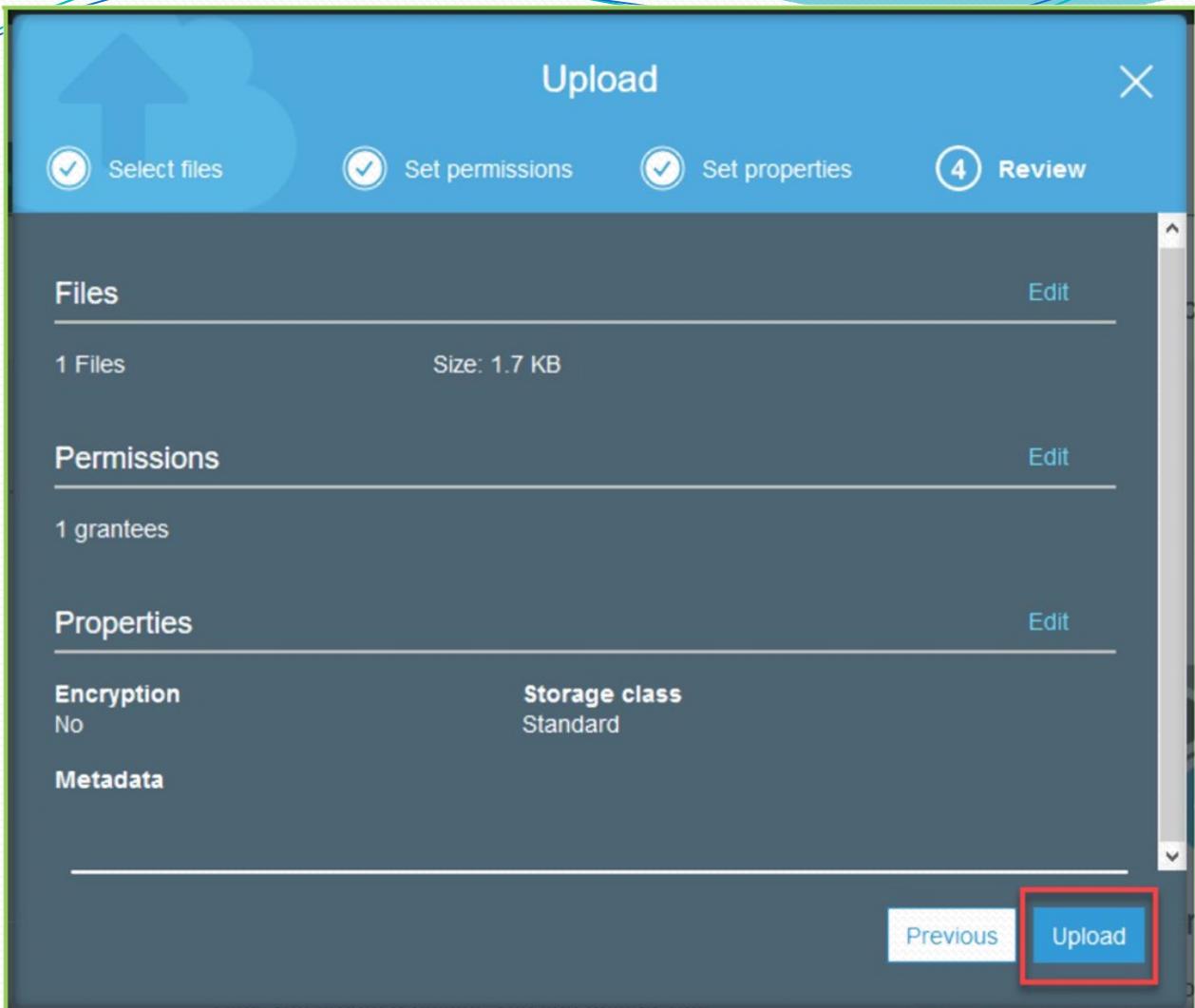
Choose next again.



Choose storage type and encryption then click on Next.



Finally click upload to complete upload process.

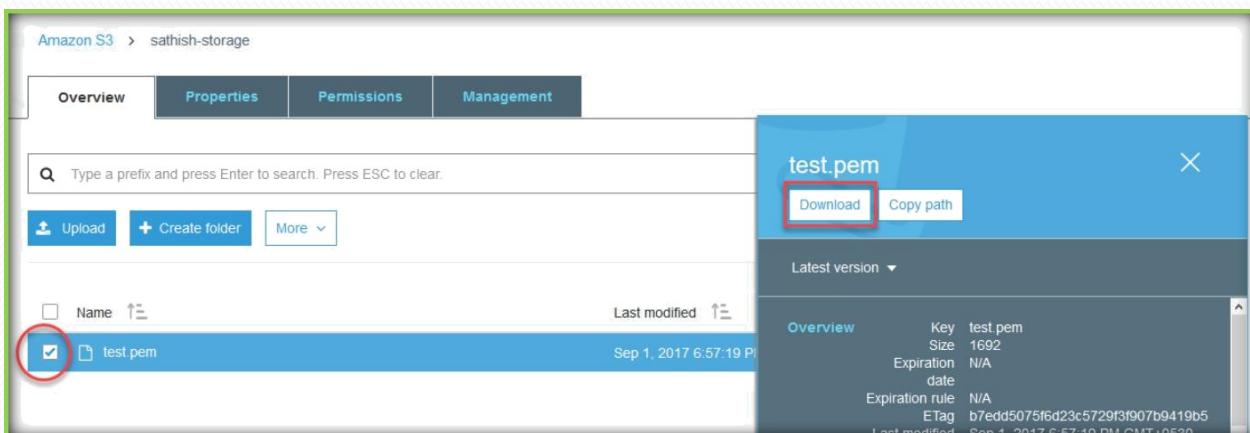


Once done, uploaded files will be in the list.

The screenshot shows the AWS S3 bucket list for 'sathish-storage'. The 'Properties' tab is selected. The search bar contains the placeholder 'Type a prefix and press Enter to search. Press ESC to clear.' Below the search bar are buttons for 'Upload', 'Create folder', and 'More'. The main area displays a single file named 'test.pem'. The file details are: Name: test.pem, Last modified: Sep 1, 2017 6:57:19 PM, Size: 1.7 KB, Storage class: Standard. The entire row for the file is highlighted with a red box.

HOSTING A WEBSITE ON S3

If you want to download the files which you upload, choose the file, a popup windows on left side of the page will come just click on *Download* to download the file.



Once you created a bucket, create a html file with following code and name that file as index.html and upload to created bucket.

```
<html>
<body>
<h1 style="color:blue;">This is for testing S3</h1>
</body>
</html>
```

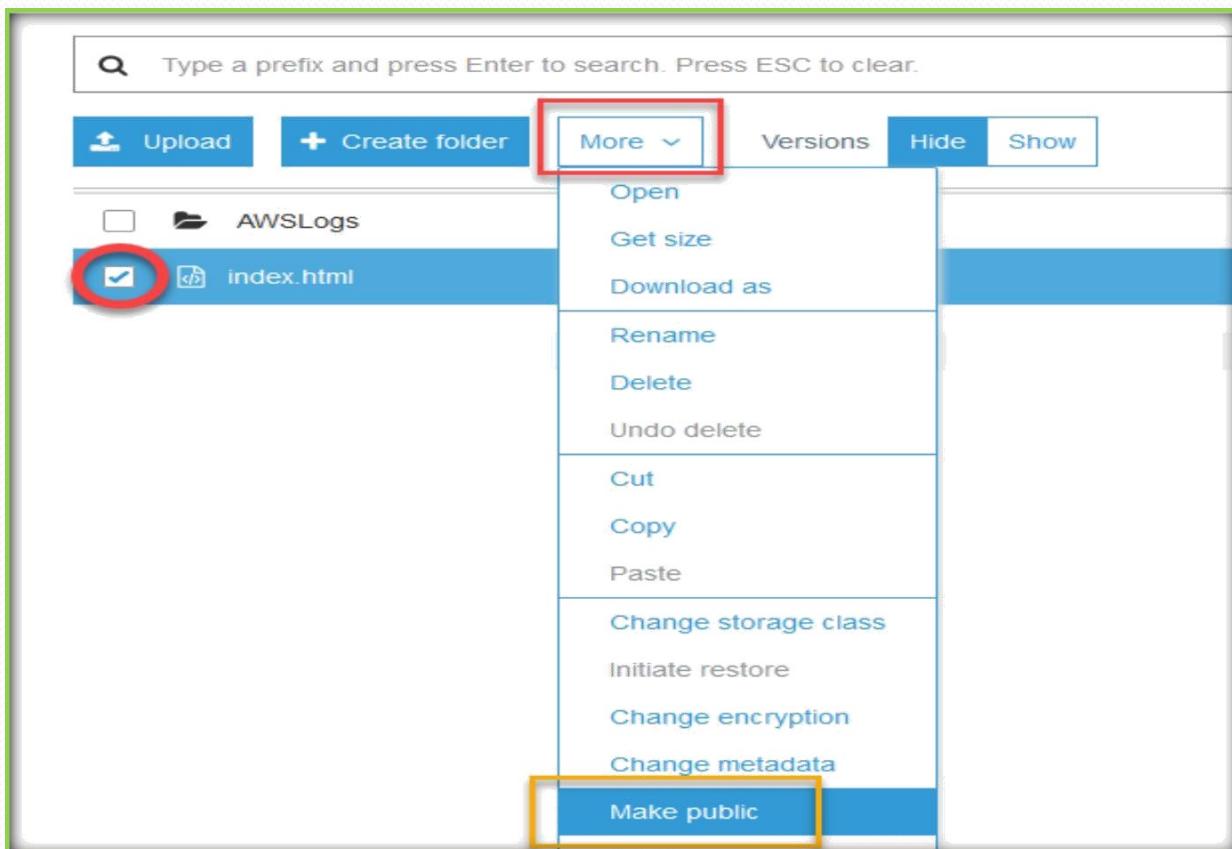
Once you uploaded, go inside of the bucket choose Properties from top menu and then choose Static Website Hosting.

The screenshot shows the 'Properties' tab selected in the Amazon S3 console. Under the 'Static website hosting' section, there is a green callout box highlighting the 'Host a static website...' option. A green arrow points from the text 'Choose Use this bucket to host a website, specify index.html under index document text field. Then choose save button.' to this highlighted area.

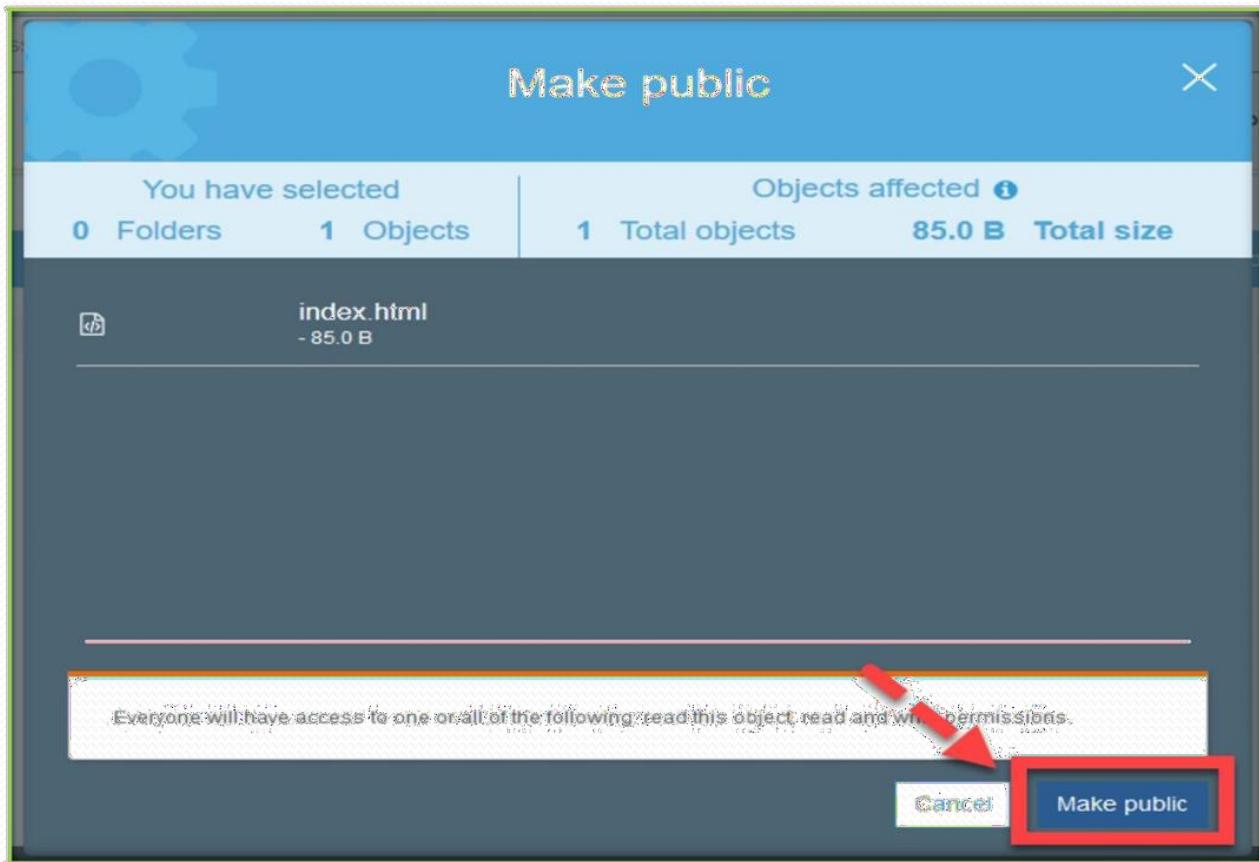
Choose Use this bucket to host a website, specify index.html under index document text field. Then choose save button.

The screenshot shows the 'Static website hosting' configuration dialog. It includes fields for 'Index document' (set to 'index.html') and 'Error document' (set to 'error.html'). The 'Index document' field is circled in red. At the bottom, there are two radio button options: 'Redirect requests' and 'Disable website hosting'. The 'Save' button is highlighted with a yellow box.

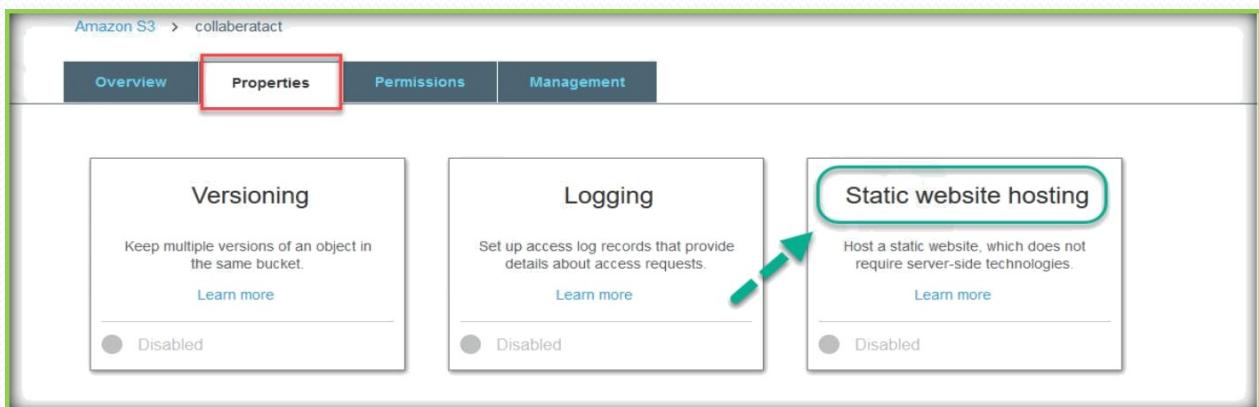
Then choose overview from top menu, then select the index.html file which we uploaded earlier, file select Make Public under More tab.



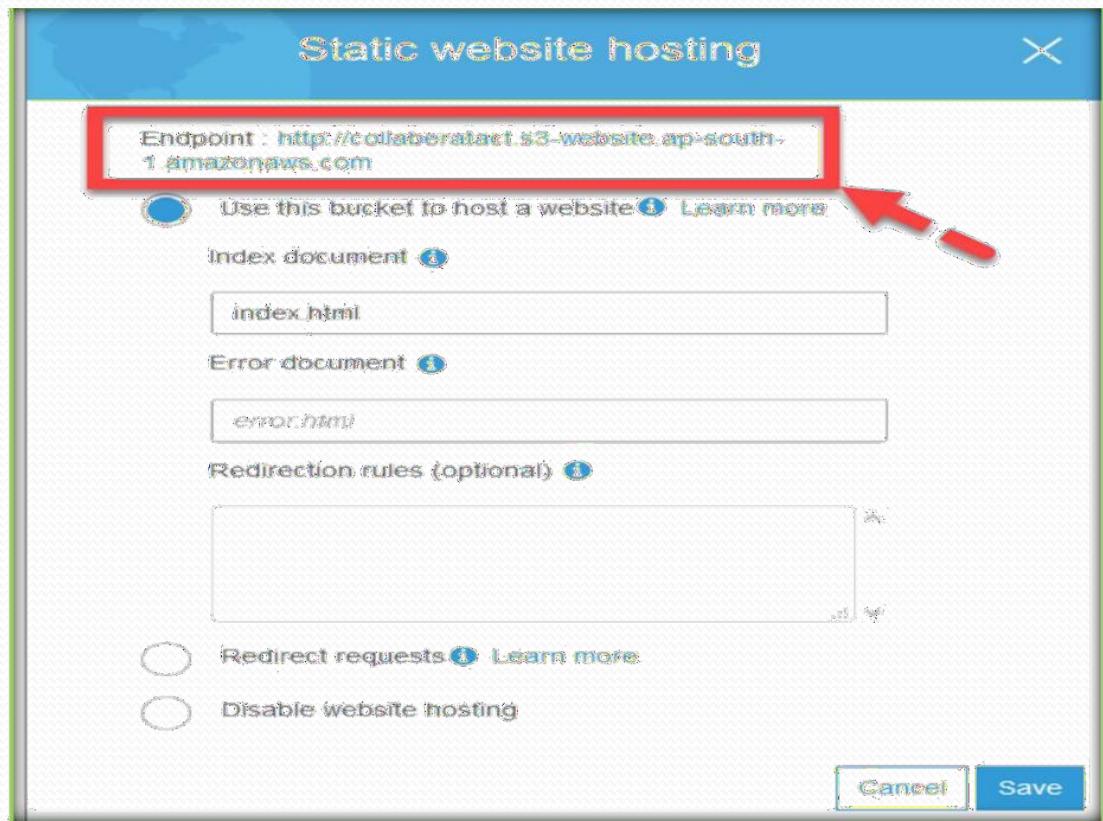
A pop up window will open to confirm, choose Make public to confirm.



Then choose Properties from top menu and then choose Static Website Hosting.

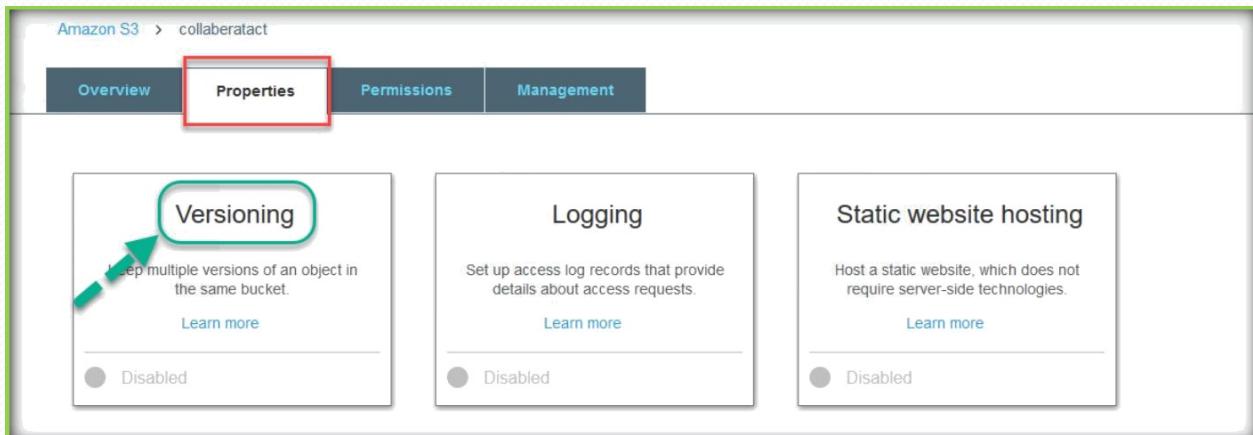


Then copy the Endpoint and open in a browser to see website which we hosted on S3.

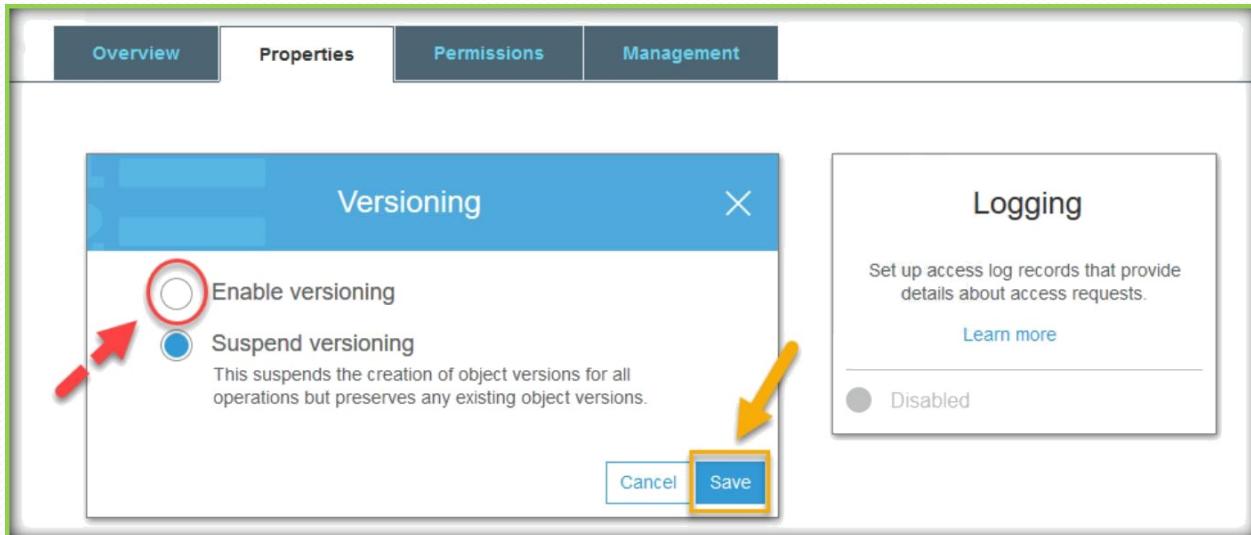


S3 OBJECT VERSIONING

Under S3, go in to the Bucket, choose Properties of the Bucket.
Under Properties, click on Versioning.



A pop up dialog box will open, choose Enable versioning, then choose save.



Add below code to existing index.html file and upload it to same bucket.

```
<html>
<body>
<h1 style="color:blue;">This is for testing S3 Versioning</h1>
<h2 style="color:green;">Hi Welcome to S3 Versioning</h2>
</body>
</html>
```

Now right click on the file and choose open to see the updated changes.

Amazon S3 > collaberatact

Overview Properties Permissions Management

Upload Create folder More Versions Hide Show

Name AWSLogs index.html

Open Get size Download as Rename

This is for testing S3 Versioning

Hi Welcome to S3 Versioning

Once enabled versioning, you can see a Versions tab will display beside of the Actions tab.

Choose Show to see the versions of current file.

Amazon S3 > collaberatact

Overview Properties Permissions Management

Upload Create folder More Versions Hide Show

Name AWSLogs index.html

Version ID Last modified Size Storage class

index.html Oct 5, 2017 11:18:22 AM 155.0 B Standard

Oct 5, 2017 11:18:22 AM (Latest version) 5njkLhG yksQgJ8SlJz8FWt7.B6r...

Choose index.html under the Bucket, click on Delete under more tab to remove the current version of the object.

The screenshot shows the Amazon S3 console interface. At the top, there's a navigation bar with 'Amazon S3' and a breadcrumb trail 'collaberatact'. Below it is a tab bar with 'Overview', 'Properties' (which is active and highlighted in blue), 'Permissions', and 'Management'. A search bar is present below the tabs. Underneath, there are buttons for 'Upload' and 'Create folder'. A 'More' dropdown menu is open, showing options like 'Open', 'Get size', 'Download as', 'Rename', 'Delete' (which is highlighted with a red box and circled), 'Undo delete', and 'Cut'. The main list area shows two items: 'AWSLogs' and 'index.html'. The 'index.html' item has a checkmark icon next to its name and is also circled in red. The list is sorted by 'Last modified'.

Click on Show option for Versions to see the available versions.
You can be able to see file has been deleted and added Delete marker to the file.

This screenshot shows the 'Versions' tab of the Amazon S3 console for the 'collaberatact' bucket. The 'Show' button in the top navigation bar is highlighted with a yellow box. The table below lists file versions:

Name	Version ID	Last modified	Size	Storage class
AWSLogs	--	--	--	--
index.html	Oct 5, 2017 11:25:12 AM	Oct 5, 2017 11:25:12 AM	--	--
index.html	Oct 5, 2017 11:25:12 AM (Delete marker)	ProuvYQgZ0zDCu2tv21WL7C4E...	--	--
index.html	Oct 5, 2017 11:18:22 AM	5njkLhG yksQgIJ8SIJz8FWt7B6r...	155.0 B	Standard

You choose the file which has delete marker and choose delete from the more tab.

Type a prefix and press Enter to search. Press ESC to clear.

Upload Create folder More ▾ Versions Hide Show

Name	Version ID	Last modified
index.html	vYQgZ0zDCu2tv21WL7C4E...	Oct 5, 2017
AWSLogs	hO...yKsQgiJ8SIJz8FWt7B6...	
index.html	vYQgZ0zDCu2tv21WL7C4E...	Oct 5, 2017

The 'More' button is highlighted with a red box. A context menu is open over the first 'index.html' object, with the 'Delete' option highlighted with a red circle. A pink arrow points from the 'Delete' option to the 'Delete' button in the confirmation dialog below.

Confirm deletion of delete marker.

Delete objects

You have selected 0 Folders 1 Objects Objects affected 1 Total objects 0 B * Total size

index.html Version ID: ProuvYQgZ0zDCu2tv21WL7C4E6jxbnmH
--

All affected versions of objects will be permanently deleted

Cancel Delete

A pink arrow points from the 'Delete' button in the confirmation dialog back up to the 'Delete' option in the context menu above.

Amazon S3 > collaberatact

Overview Properties Permissions Management

Type a prefix and press Enter to search. Press ESC to clear.

Upload Create folder More Versions Hide Show

Name	Version ID	Last modified
AWSLogs	--	--
index.html	Oct 5, 2017 11:18:22 AM	
Oct 5, 2017 11:18:22 AM (Latest version)	5njkLhG.yksQgiJ8Sijz8FWt7.B6r...	

You can be able to see the file has been restored back.

Amazon S3 > collaberatact

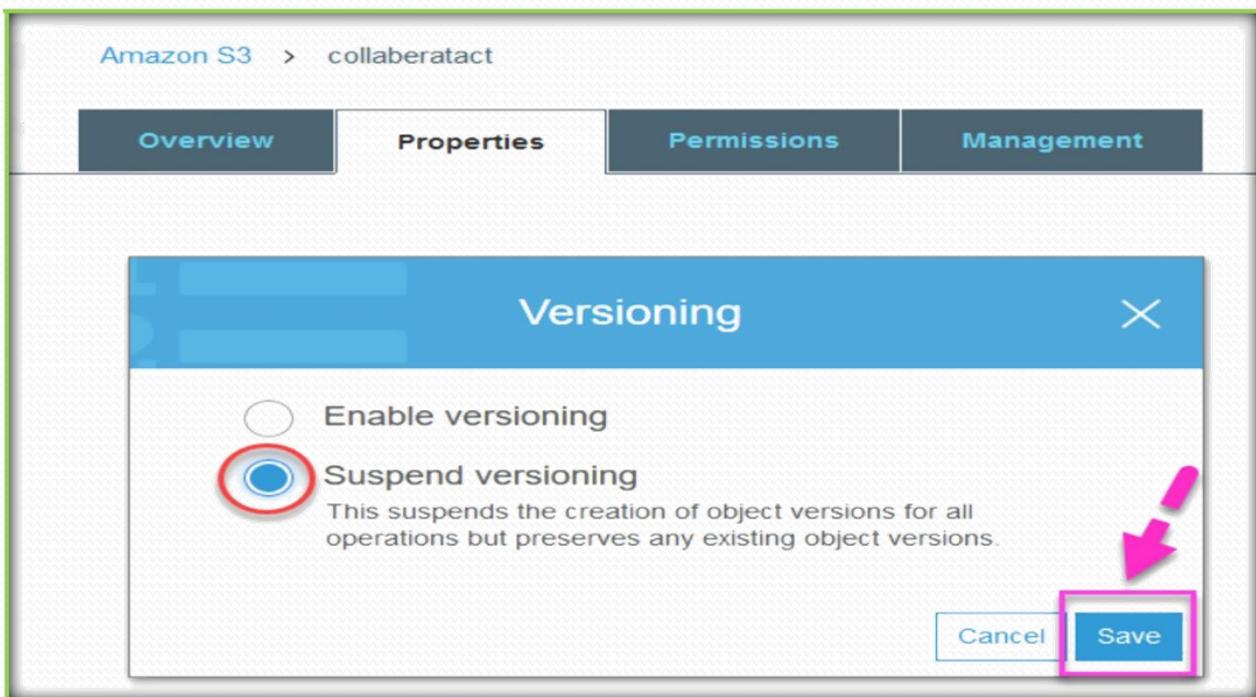
Overview Properties Permissions Management

Type a prefix and press Enter to search. Press ESC to clear.

Upload Create folder More Versions Hide Show

Name	Last modified	Size
AWSLogs	--	--
index.html	Oct 5, 2017 11:18:22 AM	155.0 B

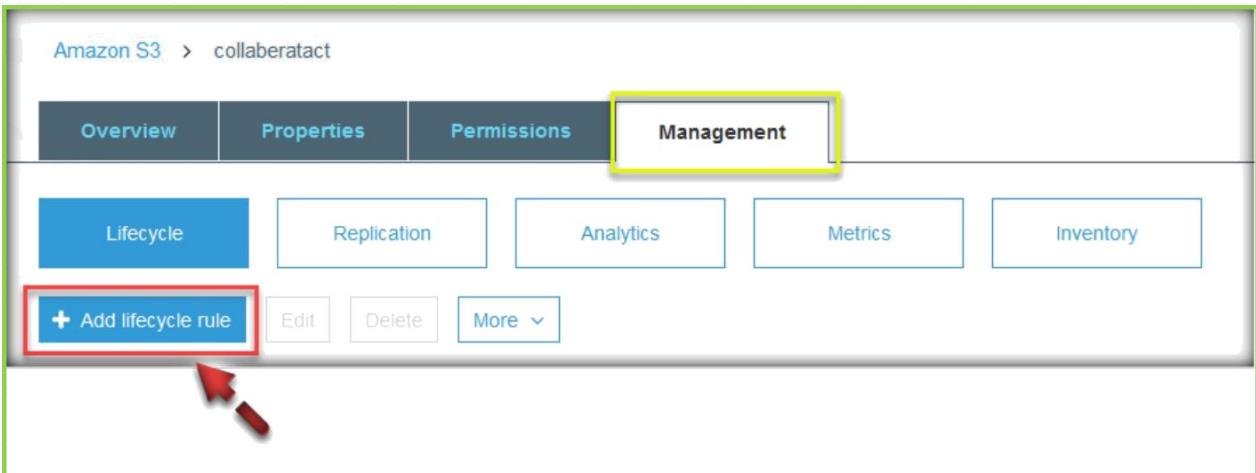
To suspend versioning on the Bucket, go to properties of the Bucket, click on Versioning, under versioning choose Suspend Versioning.



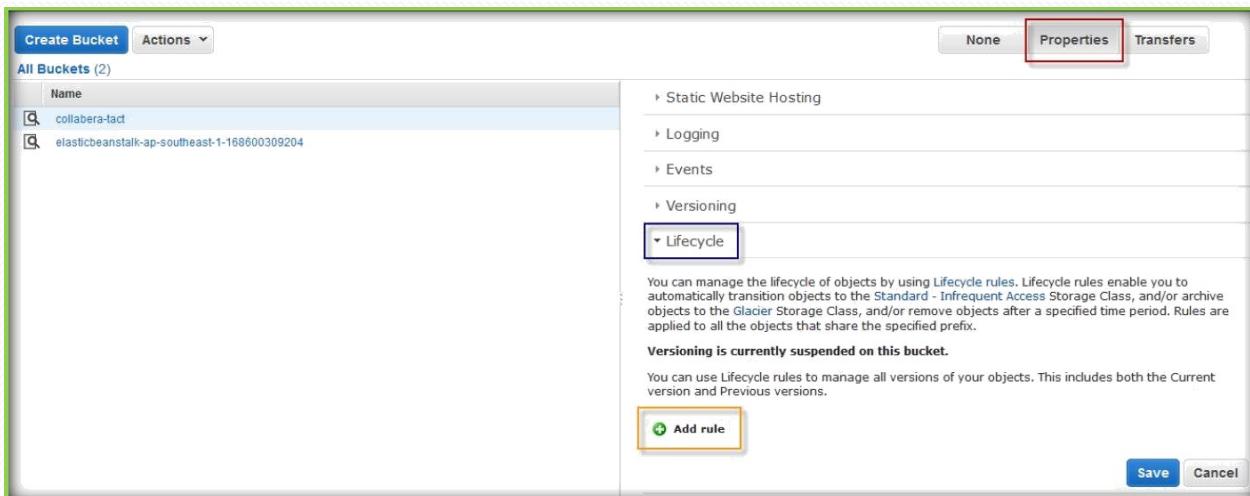
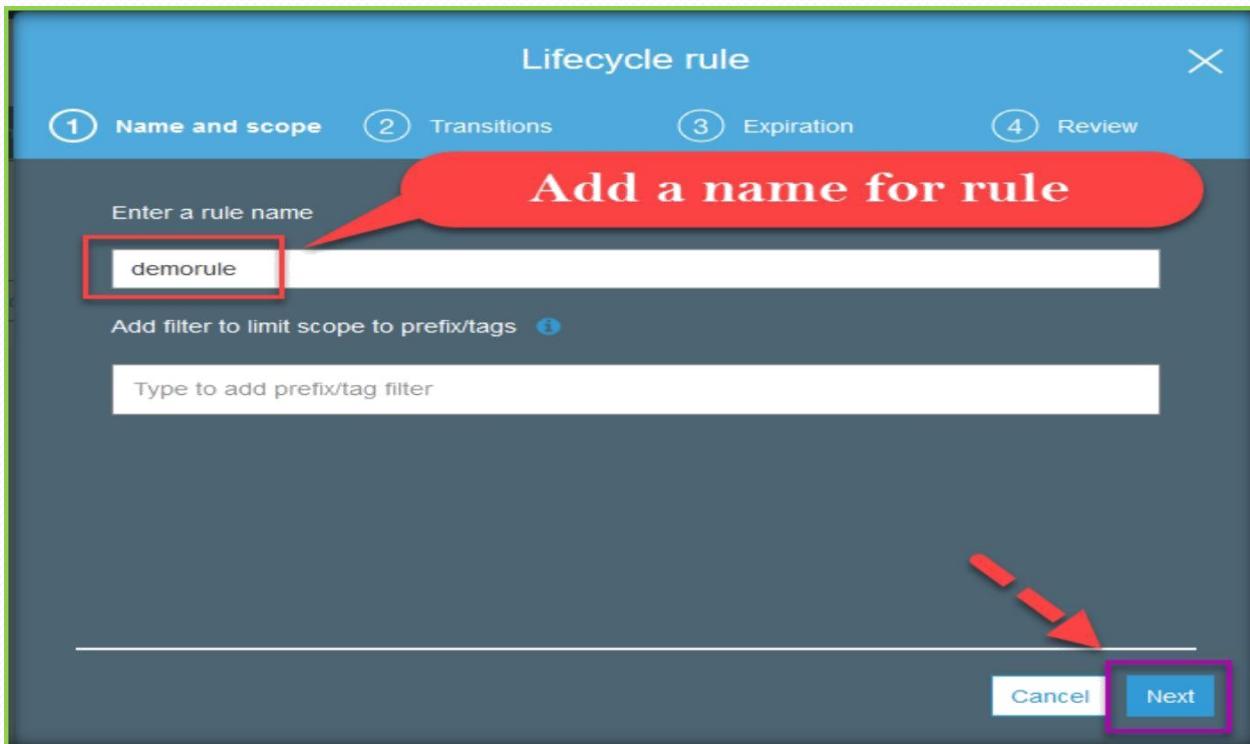
S3 LIFECYCLE POLICIES

Expand Lifecycle under bucket properties, then click on Add rule.

Go in to the bucket, choose Management them click on Add lifecycle rule below the lifecycle.



Then add a name for rule and choose Next.



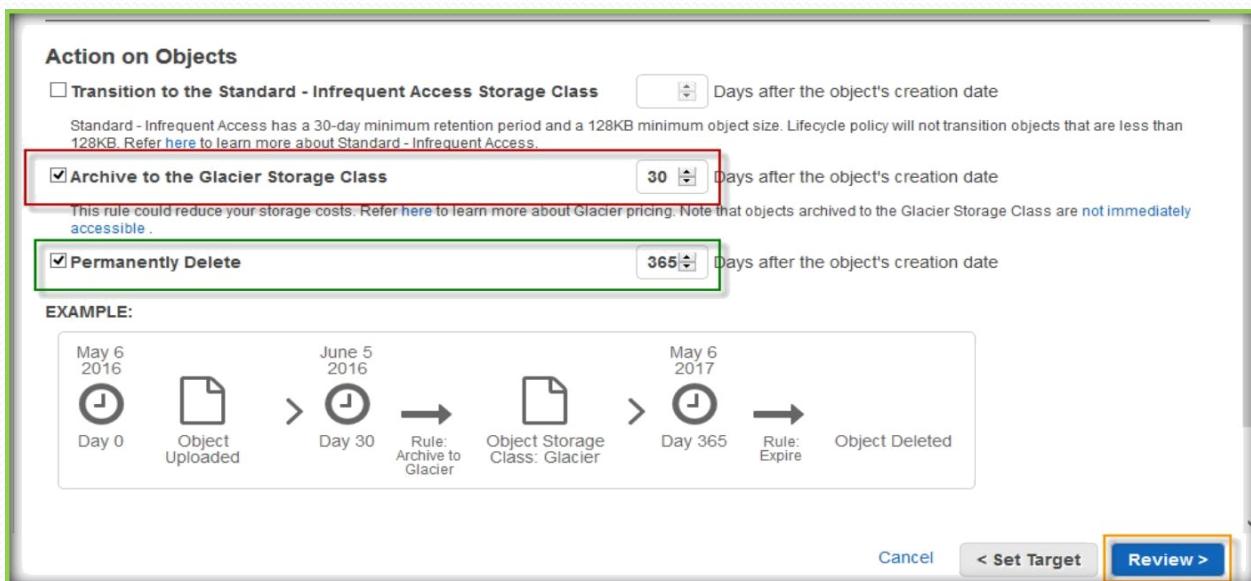
Specify you want to create lifecycle for whole Bucket or for specific folder, then choose Configure Rule.



Now choose the options to how you want your objects to be moved over to glacier or Standard Infrequent Access storage or permanently deleted.

Select the lifecycle policy and specify the days where object needs to be moved over or deleted.

Then choose Review.



Then specify a rule name under Rule Name text field and choose Create and Activate Rule.

Rule Name

Choose a descriptive name for your rule so you can easily identify it in the future. If you do not want to enter a name now, we will generate one for you.

Rule Name: (Optional)

Rule Target

This rule will apply to the whole bucket: **collaberatact**

Rule Configuration

Action on Objects

Archive to the Glacier Storage Class **30** days after the object's creation date.

This rule could reduce your storage costs. Refer [here](#) to learn more about Glacier pricing. Note that objects archived to the Glacier Storage Class are **not immediately accessible**.

Permanently Delete **365** days after the object's creation date

As versioning is not enabled, lifecycle delete rule will permanently delete the objects with no recovery.

[Cancel](#) [< Configure Rule](#) [Create and Activate Rule](#)

Under lifecycle policies choose cross mark against the rule and click save to delete the rule which you created.

All Buckets (2)

Name
collaberatact
elasticbeanstalk-ap-southeast-1-168600309204

Lifecycle

You can manage the lifecycle of objects by using Lifecycle rules. Lifecycle rules enable you to automatically transition objects to the Standard - Infrequent Access Storage Class, and/or archive objects to the Glacier Storage Class, and/or remove objects after a specified time period. Rules are applied to all the objects that share the specified prefix.

Versioning is not currently enabled on this bucket.

You can use Lifecycle rules to manage all versions of your objects. This includes both the Current version and Previous versions.

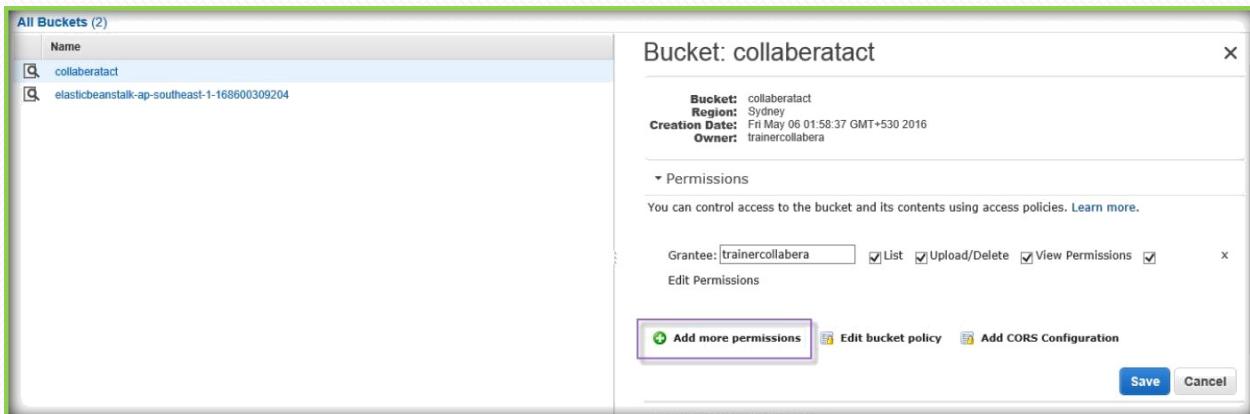
Enabled | Name collaber-deletion **Rule Target** Whole Bucket

[Add rule](#)

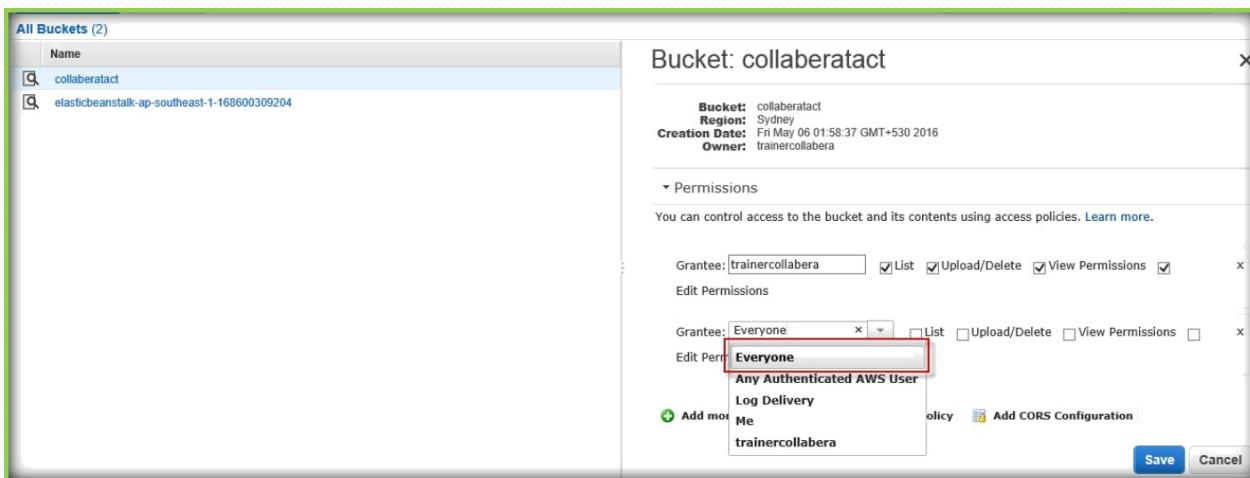
[Save](#) [Cancel](#)

S3 PERMISSIONS AND BUCKET POLICIES

Go to properties of your bucket and under properties expand permissions. Then choose Add more permissions.



Under Grantee choose option for your permission.



Then check permissions which you want to give for particular grantee, and choose save to apply the policy permission.

The screenshot shows the AWS S3 console. On the left, a sidebar lists 'All Buckets (2)' with entries for 'collaberatact' and 'elasticbeanstalk-ap-southeast-1-168600309204'. On the right, a detailed view for the 'collaberatact' bucket is displayed. The 'Properties' tab is selected. The bucket details include:

- Bucket:** collaberatact
- Region:** Sydney
- Creation Date:** Fri May 06 01:58:37 GMT+530 2016
- Owner:** trainercollabera

The 'Permissions' section shows two grantee entries:

- Grantee: trainercollabera (List, Upload/Delete, View Permissions checked)
- Grantee: Any Authenticated AWS User (List, Upload/Delete checked, View Permissions unchecked)

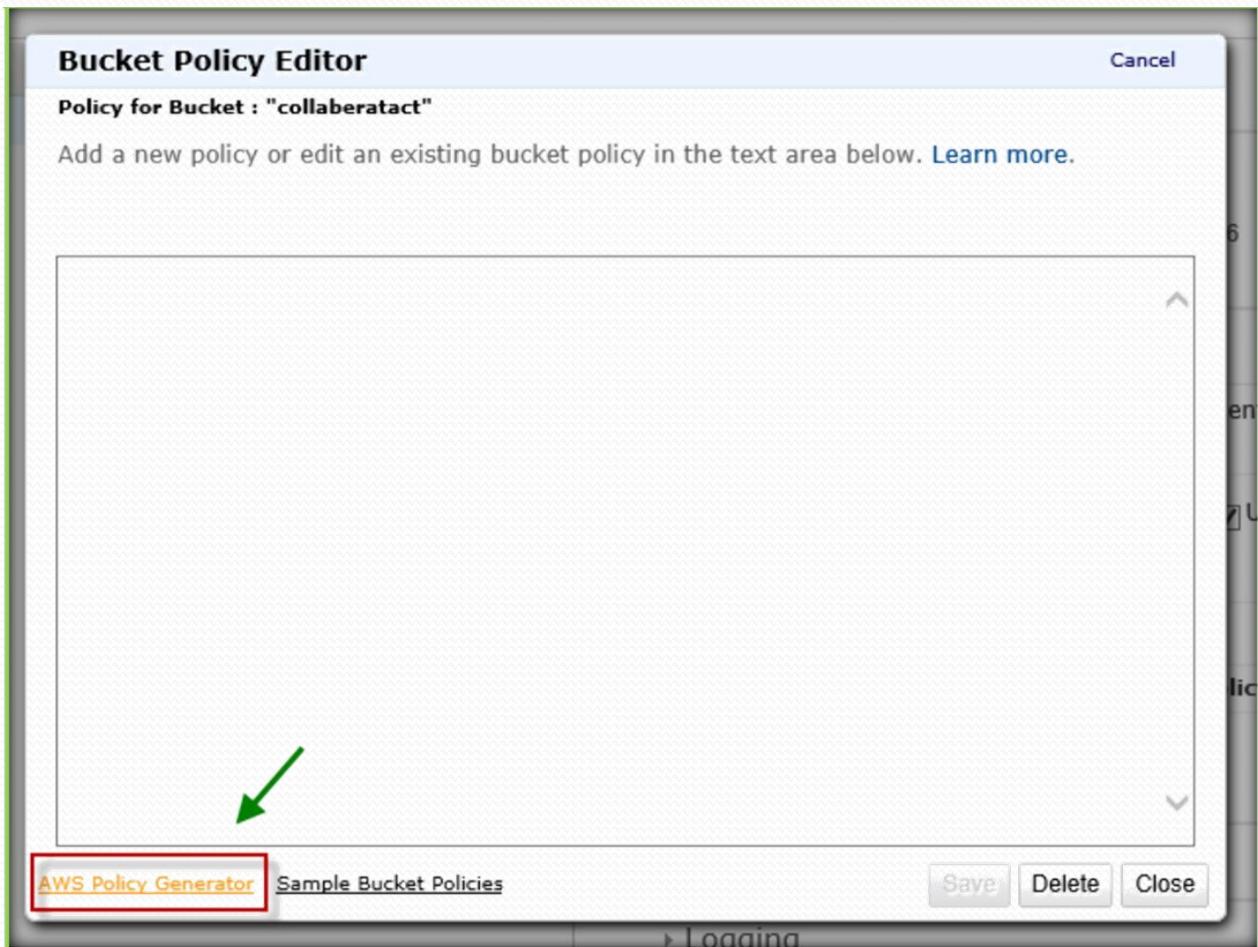
Buttons at the bottom include 'Add more permissions', 'Edit bucket policy' (which is highlighted with a red box), 'Add CORS Configuration', 'Save', and 'Cancel'.

S3 BUCKET POLICIES:

Go to properties of your bucket and under properties expand permissions, then choose **Add bucket policy** to add a new policy to bucket.

This screenshot is similar to the previous one, showing the 'Properties' tab for the 'collaberatact' bucket. A green arrow points from the text above to the 'Add bucket policy' button, which is highlighted with a red box. The other elements are identical to the first screenshot.

Bucket policy Editor text will be opened, then choose AWS Policy Generator.



From the AWS policy generator page, choose various options to generate policy.

Choose S3 Bucket Policy from Select type of policy.

The screenshot shows the "AWS Policy Generator" interface. At the top, it says "AWS Policy Generator". Below that is a paragraph about the tool's purpose. Under "Step 1: Select Policy Type", it says "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 and an SQS Queue Policy." A dropdown menu titled "Select Type of Policy" is open, showing five options: "SNS Topic Policy" (highlighted with a blue box), "IAM Policy", "SQS Queue Policy", "S3 Bucket Policy" (highlighted with a red box), and "VPC Endpoint Policy". A red arrow points to the "S3 Bucket Policy" option. At the bottom, under "Step 2: Add Statement(s)", it says "A statement is the formal description of a single permission. See a description of elements that you can use in statements." There are also "Effect", "Allow", and "Deny" buttons at the very bottom.

Choose Allow or Deny from Effect, then specify the AWS IAM user ARN in Principal text box.

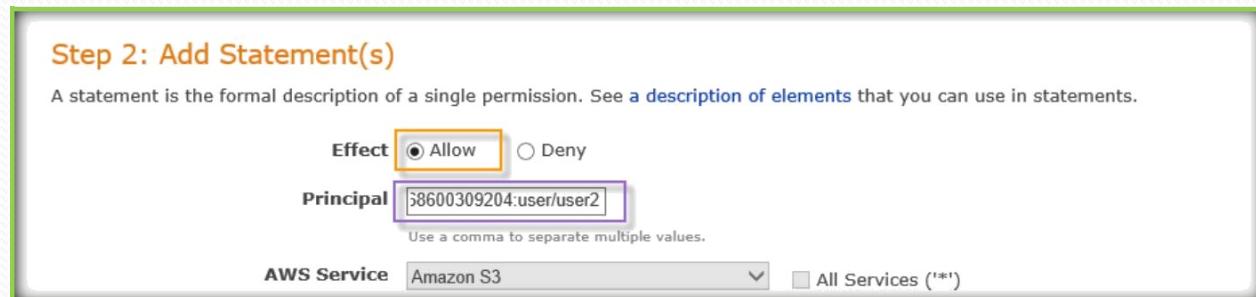
Step 2: Add Statement(s)

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 ('*')



From the Actions drop down list either choose All Actions or choose only specific options to give.

Use multiple statements to add permissions for more than one service.

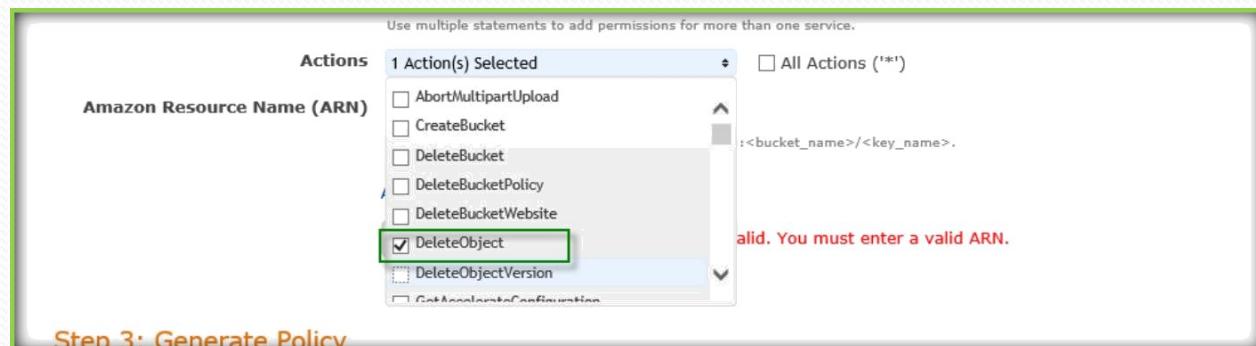
Actions 1 Action(s) Selected All Actions ('*')

Amazon Resource Name (ARN)
 Invalid. You must enter a valid ARN.

DeleteObject

DeleteObjectVersion
 GetBucketEncryptionConfiguration

Step 3: Generate Policy



Under Amazon Resource Name (ARN) specify the S3 bucket ARN in the following format.

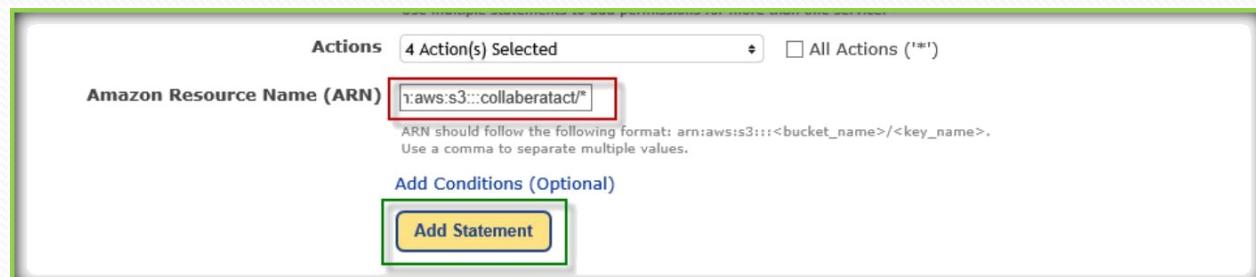
arn:aws:s3:::<bucket_name>/<key_name>

Once you specified choose Add statement button.

Actions 4 Action(s) Selected All Actions ('*')

Amazon Resource Name (ARN) ARN should follow the following format: arn:aws:s3:::<bucket_name>/<key_name>. Use a comma to separate multiple values.

Add Conditions (Optional)



Then choose Generate Policy to generate S3 bucket policy.

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

Principal(s)	Effect	Action	Resource	Conditions
arn:aws:iam::168600309204:user/user2	Allow	s3:DeleteObject s3:GetObject s3>ListBucket s3:PutObject	arn:aws:s3:::collaberatact/*	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**

Then a pop up window will open with JSON format code, copy the code and paste it in the AWS bucket policy page where we choose AWS policy generator option.

Add Conditions (Optional)

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.

```
{
  "Id": "Policy1462510908726",
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "Stmt1462510896967",
      "Action": [
        "s3:DeleteObject",
        "s3:GetObject",
        "s3>ListBucket",
        "s3:PutObject"
      ],
      "Effect": "Allow",
      "Resource": "arn:aws:s3:::collaberatact/*",
      "Principal": [
        "arn:aws:iam::168600309204:user/user2"
      ]
    }
  ]
}
```

Close

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Once pasted, select Save to save and apply the policy.

Bucket Policy Editor

Policy for Bucket : "collaberatact"

Add a new policy or edit an existing bucket policy in the text area below. [Learn more.](#)

```
{
    "Id": "Policy1462510908726",
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "Stmt1462510896967",
            "Action": [
                "s3:DeleteObject",
                "s3:GetObject",
                "s3:PutObject"
            ],
            "Effect": "Allow",
            "Resource": "arn:aws:s3:::collaberatact/*",
            "Principal": [
                "AWS": [
                    "arn:aws:iam::168600309204:user/user2"
                ]
            ]
        }
    ]
}
```

[AWS Policy Generator](#) | [Sample Bucket Policies](#)

Save **Delete** **Close**

To edit the policy, choose edit bucket policy option under Permissions of the bucket properties.

Create Bucket **Actions ▾**

All Buckets (2)

Name
collaberatact
elasticbeanstalk-ap-southeast-1-168600309204

Bucket: collaberatact

Bucket: collaberatact
Region: Sydney
Creation Date: Fri May 06 01:58:37 GMT+530 2016
Owner: trainercollabera

Permissions

You can control access to the bucket and its contents using access policies. [Learn more.](#)

Grantee: trainercollabera List Upload/Delete View Permissions

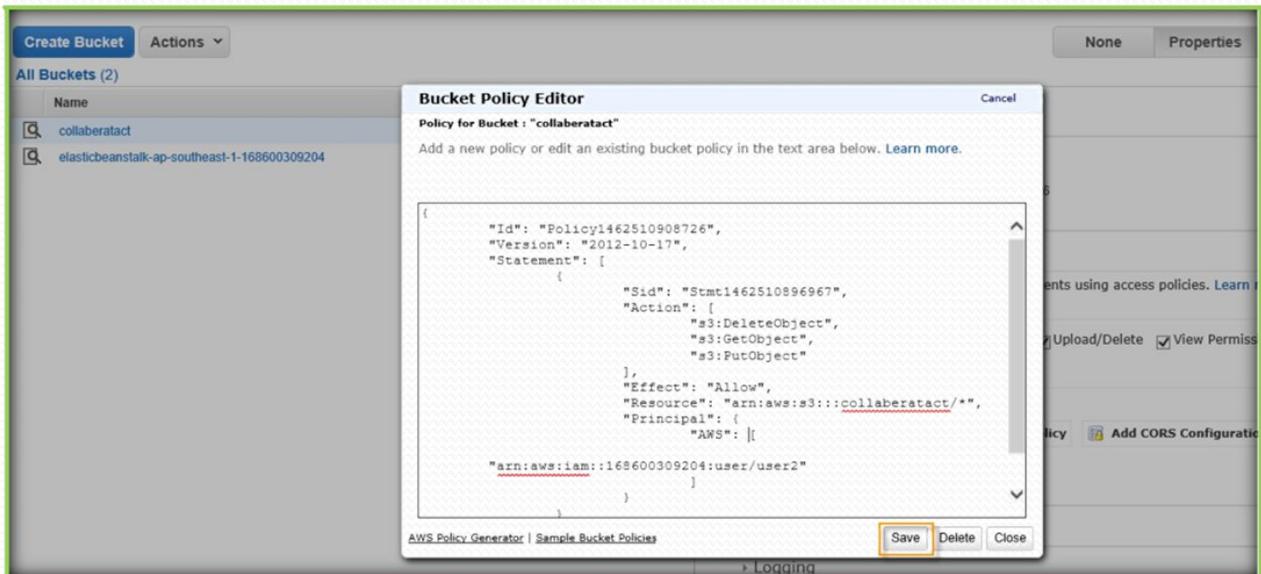
[Edit Permissions](#)

[Add more permissions](#) [Edit bucket policy](#) [Add CORS Configuration](#)

[Static Website Hosting](#)

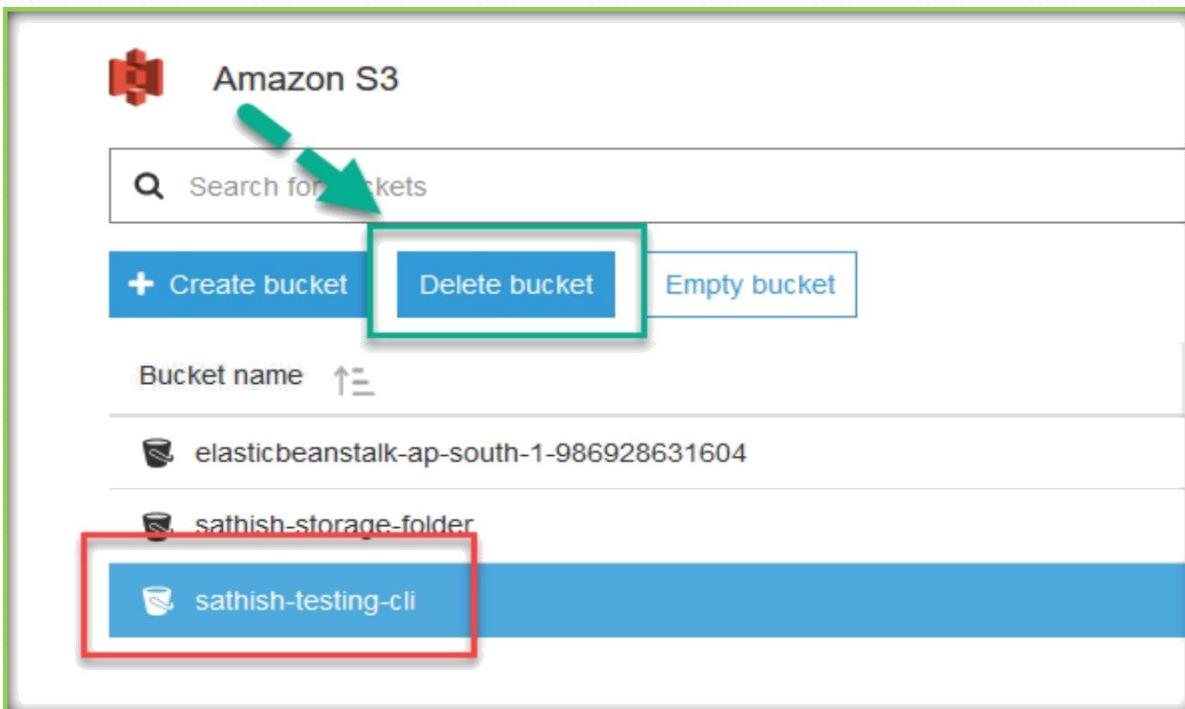
Save **Cancel**

Existing policy will open, either you can modify code or choose AWS policy generator to create a new policy then choose save to apply policies.



DELETING A BUCKET

Select your bucket and choose *Delete bucket* option on the top.



A pop up dialog box will open and ask for the bucket name to be entered to confirm the bucket deletion, then choose *confirm*.

