SVKM'S NMIM'S Nilkamal School of Mathematics, Applied Statistics & Analytics

Master of Science (Data Science)

Practical-4 To configure Amazon Simple Storage Service (Amazon S3)

Writeup:

STORAGE AS A SERVICE S3:

Storage as a Service (STaaS) is a cloud computing model that enables businesses and individuals to store, manage, and access data remotely over the internet. Instead of maintaining physical storage infrastructure on-premises, users can leverage third-party cloud service providers to store their data securely in off-site data centers.

Key characteristics of Storage as a Service include:

Scalability: STaaS offers scalable storage solutions, allowing users to increase or decrease storage capacity based on their needs without significant upfront investments in hardware or infrastructure.

Cost-Effectiveness: Users typically pay for STaaS on a subscription or pay-as-you-go basis, which can be more cost-effective than purchasing and maintaining on-premises storage infrastructure. This model eliminates the need for upfront capital expenditure and reduces operational costs associated with hardware maintenance and upgrades.

Accessibility: Data stored in the cloud can be accessed from anywhere with an internet connection, providing flexibility and enabling remote collaboration among users in different locations.

Reliability and Redundancy: Reputable STaaS providers often offer robust data redundancy and backup mechanisms to ensure data durability and availability. Data replication across multiple geographically dispersed data centers helps mitigate the risk of data loss due to hardware failures, disasters, or other unforeseen events.

Security: STaaS providers employ various security measures, including encryption, access controls, and compliance certifications, to protect sensitive data from unauthorized access, data breaches, and cyber threats.

Management and Maintenance: STaaS providers handle the management, maintenance, and upgrades of the underlying storage infrastructure, freeing users from the administrative burden of managing storage hardware and software.

Integration: Many STaaS solutions offer seamless integration with other cloud services, applications, and workflows, enabling users to leverage their existing tools and environments.

Overall, Storage as a Service offers a flexible, cost-effective, and reliable solution for storing and managing data in the cloud, making it an attractive option for businesses of all sizes looking to streamline their storage infrastructure and optimize resource utilization.

USECASES:

Static Content Hosting: Amazon S3 can host static website content, such as HTML, CSS, JavaScript files, images, and videos. Users can upload their website assets directly to an S3 bucket, making them accessible via unique URLs.

Cost-Effective: Hosting a static website on Amazon S3 is cost-effective, as users only pay for the storage used and data transfer out of the S3 bucket. There are no charges for requests made to the website, making it suitable for low-traffic websites or applications.

Scalability: S3 automatically scales to accommodate increasing traffic and storage requirements. Users do not need to worry about provisioning or managing servers; Amazon S3 handles the scalability aspects transparently.

High Availability and Durability: Amazon S3 provides high availability and durability for hosted content. S3 stores data across multiple data centers within a region, ensuring redundancy and fault tolerance. This means that static websites hosted on S3 benefit from reliable and consistent performance.

Content Delivery: Users can configure Amazon CloudFront, AWS's content delivery network (CDN), to distribute website content globally with low latency and high transfer speeds. By integrating S3 with CloudFront, users can deliver website assets efficiently to users worldwide.

Security: Amazon S3 offers various security features, including encryption at rest and in transit, access control policies, and integration with AWS Identity and Access Management (IAM). Users can secure their static websites and restrict access to specific users or groups.

Versioning and Lifecycle Policies: S3 supports versioning, allowing users to retain multiple versions of objects and recover them if needed. Additionally, users can define lifecycle policies to automatically transition or expire objects based on predefined rules, helping manage storage costs effectively.

STEPS FOR S3:

To Configure S3 with following task:

Sign Up for Amazon S3

Create a Bucket

Add an Object to a Bucket

Add an folder to Bucket

View an Object

Move an Object

Delete an Object and Bucket

To empty a bucket

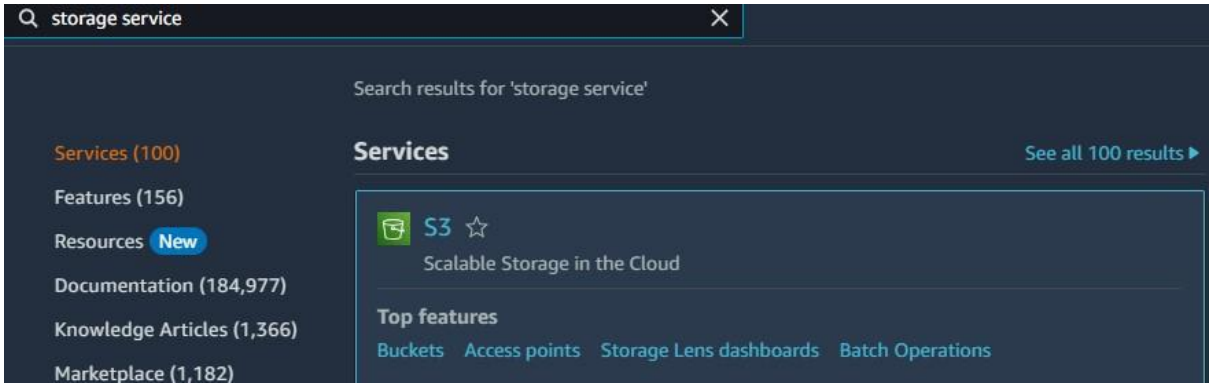
To delete a bucket

Hosting a Static Website on Amazon S3

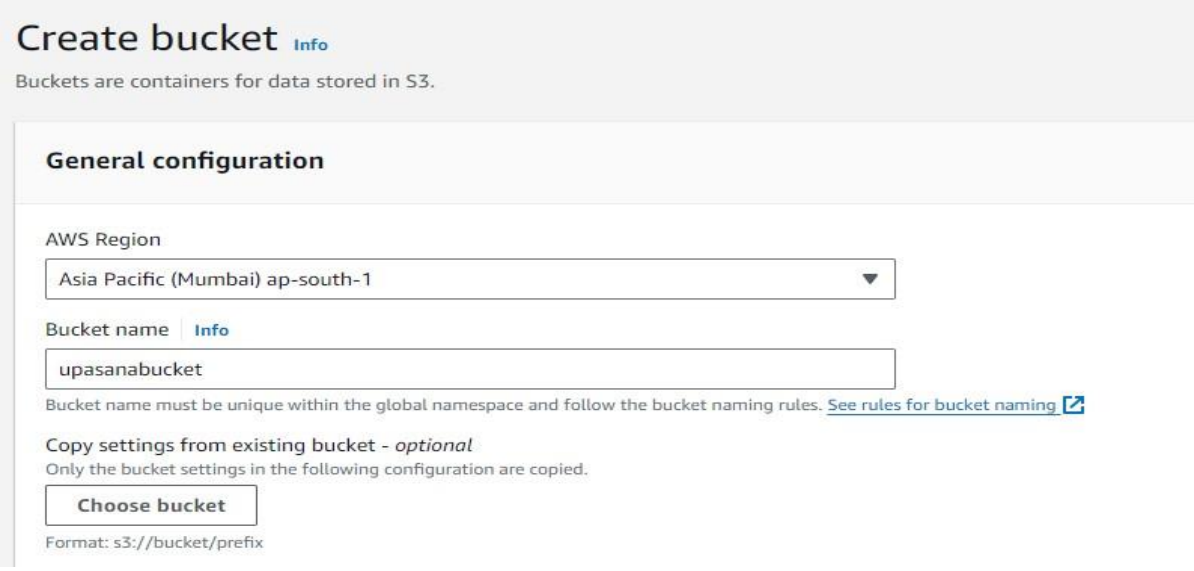
AWS user to control S3

Step 1 : To create S3 bucket for storing objects that is files and folders.

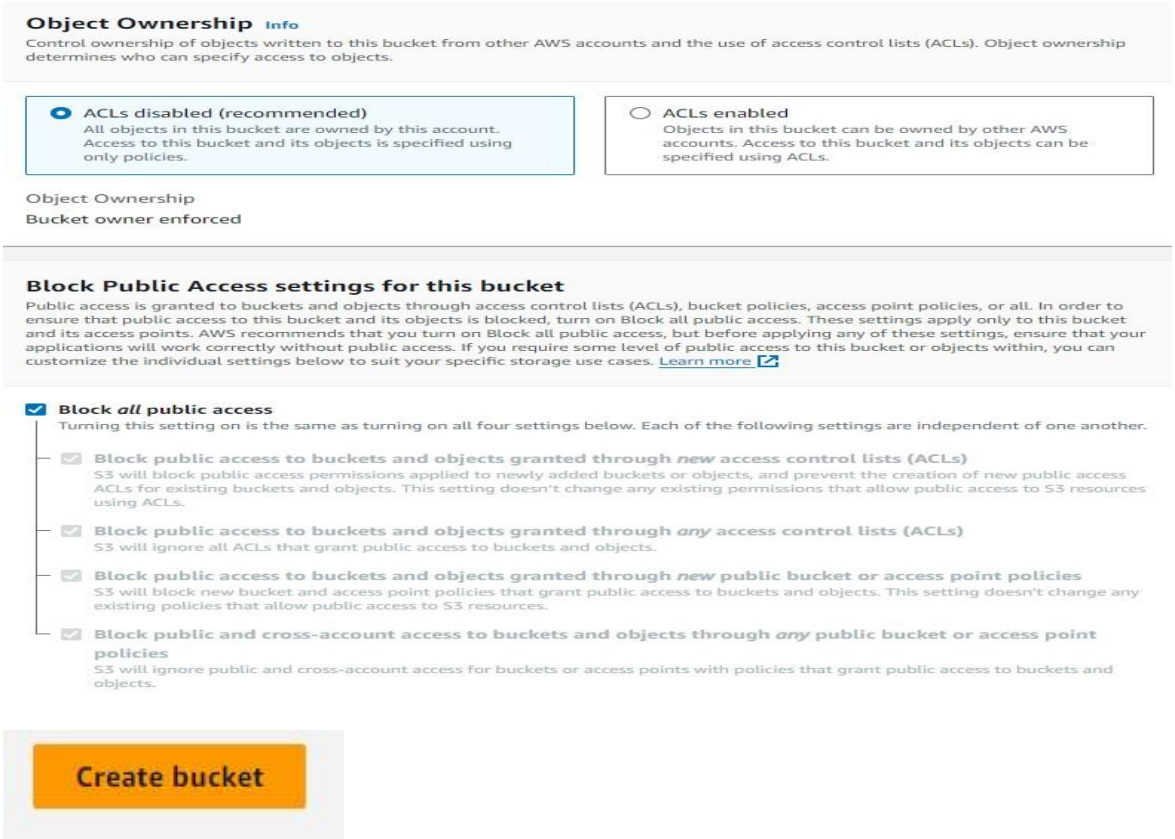
Select Storage service and click on S3

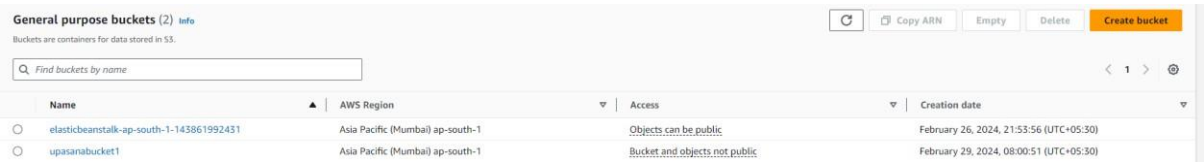


Do General configuration :

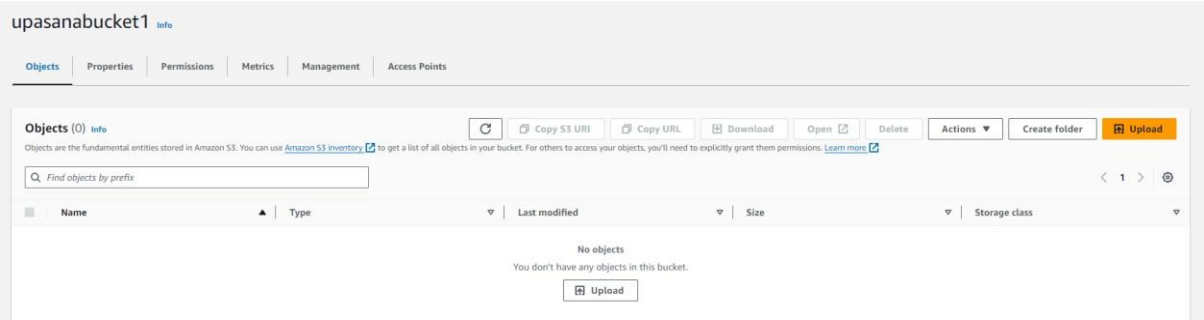


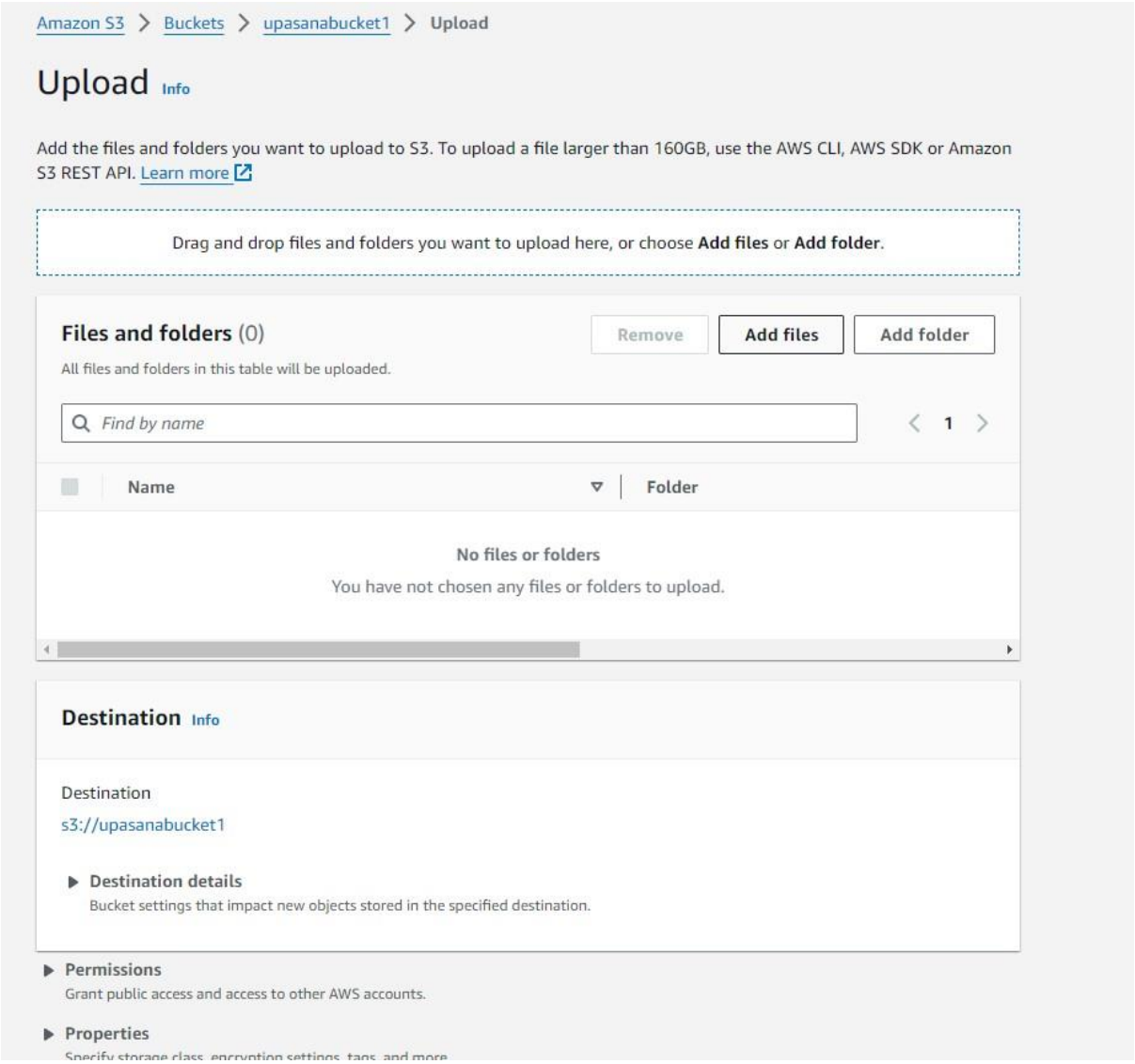
Rest keep same as follows:

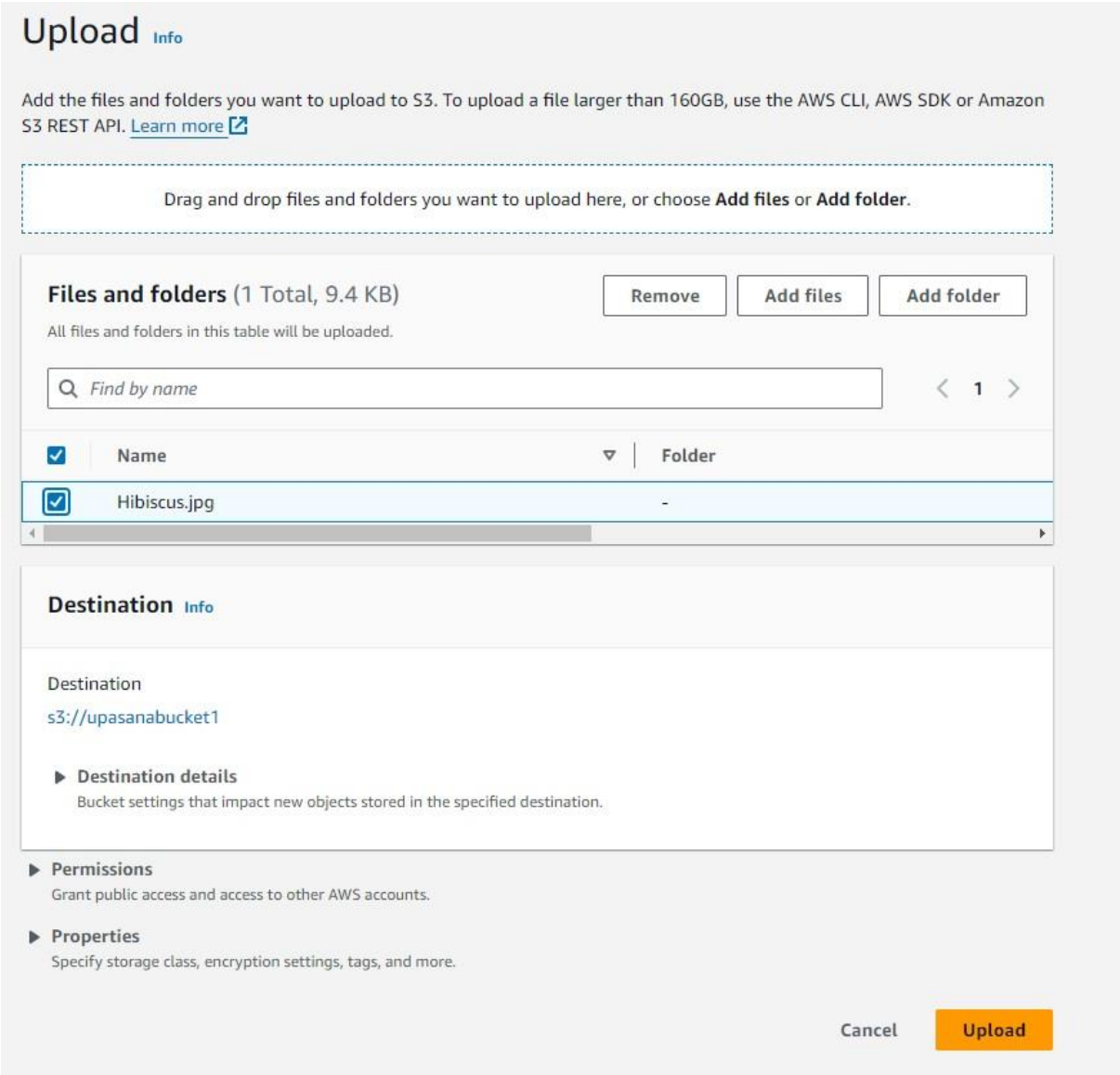




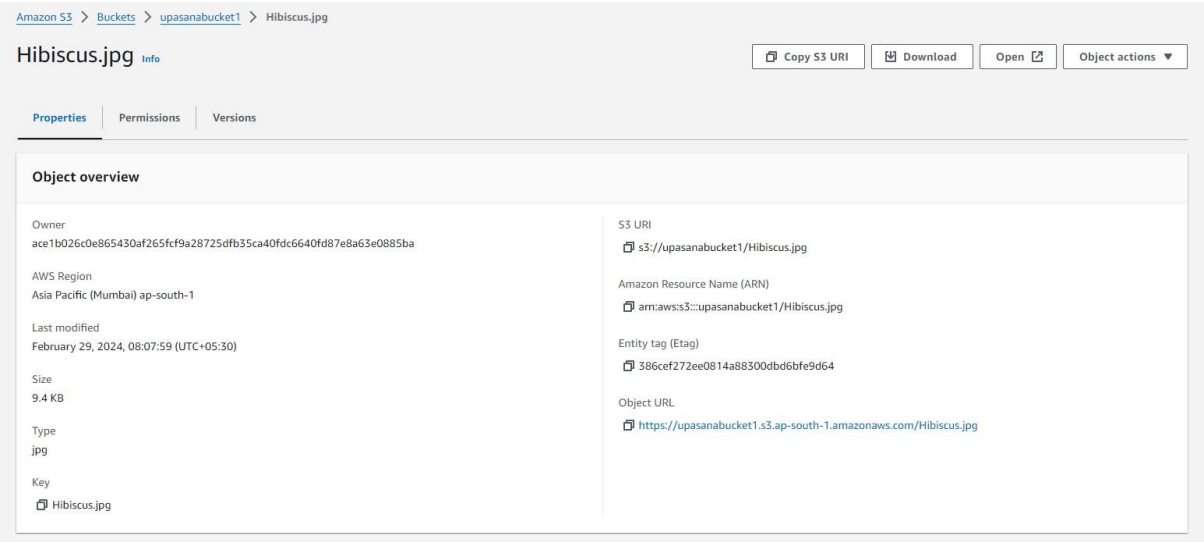
Select the upasanabucket1




Amazon S3 > Buckets > upasanabucket1 > Upload
Upload Info
Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. Learn more
Drag and drop files and folders you want to upload here, or choose Add files or Add folder.
Files and folders (0)
Remove
Add files
Add folder
All files and folders in this table will be uploaded.
Find by name
1
Name
Folder
No files or folders
You have not chosen any files or folders to upload.
Destination Info
Destination
s3://upasanabucket1
Destination details
Bucket settings that impact new objects stored in the specified destination.
Permissions
Grant public access and access to other AWS accounts.
Properties

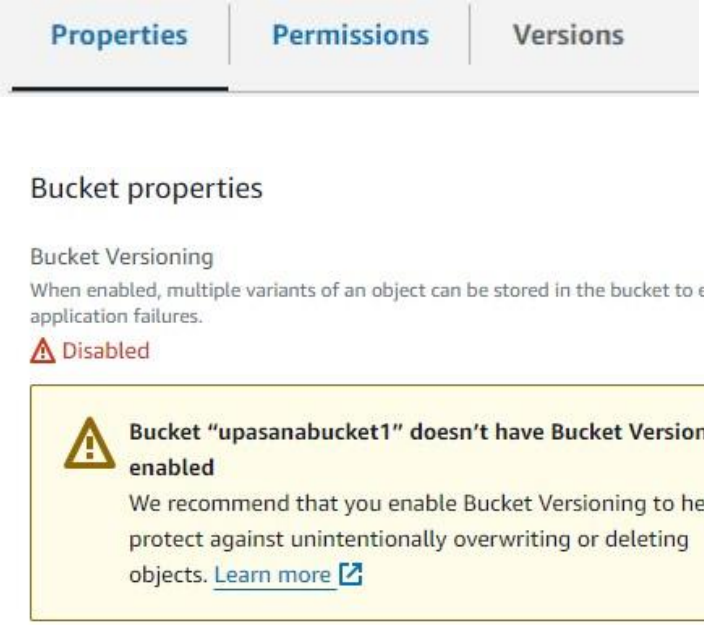

Upload Info
Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. Learn more
Drag and drop files and folders you want to upload here, or choose Add files or Add folder.
Files and folders (1 Total, 9.4 KB)
Remove
Add files
Add folder
All files and folders in this table will be uploaded.
Find by name
1
Name
Folder
Hibiscus.jpg
-
Destination Info
Destination
s3://upasanabucket1
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.
Cancel
Upload


Upload succeeded
View details below.



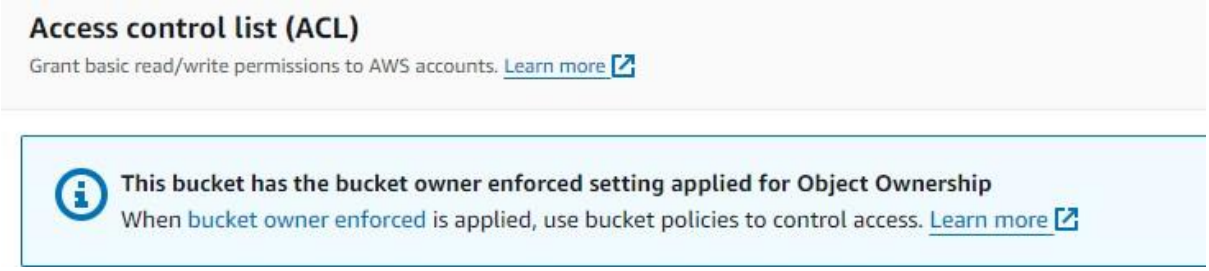
Click on Open button to see

To see the url



Enable Bucket Versioning

Go to permissions



Edit Object Ownership Info

Object Ownership

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

- ○ **ACLs disabled (recommended)**
  All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.
- ◉ **ACLs enabled**
  Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.

⚠ We recommend disabling ACLs, unless you need to control access for each object individually or to have the object writer own the data they upload. Using a bucket policy instead of ACLs to share data with users outside of your account simplifies permissions management and auditing.

⚠ **Enabling ACLs turns off the bucket owner enforced setting for Object Ownership**
Once the bucket owner enforced setting is turned off, access control lists (ACLs) and their associated permissions are restored. Access to objects that you do not own will be based on ACLs and not the bucket policy.

☑ I acknowledge that ACLs will be restored.

Object Ownership

- ◉ Bucket owner preferred
  If new objects written to this bucket specify the bucket-owner-full-control canned ACL, they are owned by the bucket owner. Otherwise, they are owned by the object writer.
- ○ Object writer
  The object writer remains the object owner.

ⓘ If you want to enforce object ownership for new objects only, your bucket policy must specify that the bucket-owner-full-control canned ACL is required for object uploads. Learn more

Cancel | Save changes

Hibiscus.jpg Info

Copy S3 URI | Download | Open | Object actions

Properties | Permissions | Versions

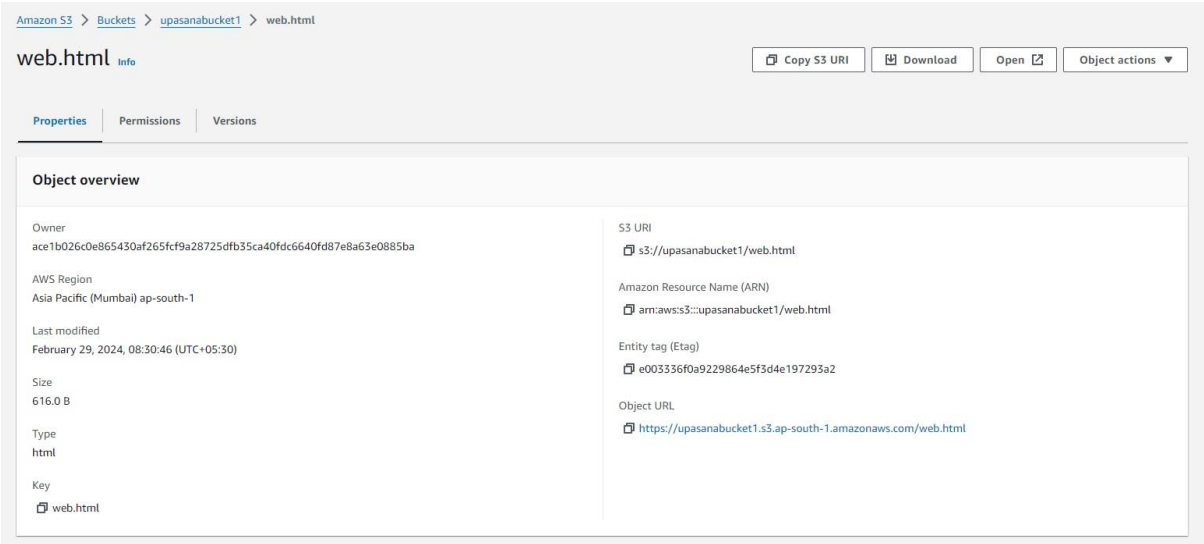
Access control list (ACL)
Grant basic read/write permissions to AWS accounts. Learn more

Edit

Grantee	Object	Object ACL
Object owner (your AWS account) Canonical ID: ace1b026c0e865430af265fcf9a28725dfb35ca40fdc6640fd87e8a63e0885ba	Read	Read, Write
Everyone (public access) Group: http://acs.amazonaws.com/groups/global/AllUsers	⚠ Read	⚠ Read
Authenticated users group (anyone with an AWS account) Group: http://acs.amazonaws.com/groups/global/AuthenticatedUsers	⚠ Read	⚠ Read

url : https://upasanabucket1.s3.ap-south-1.amazonaws.com/Hibiscus.jpg

Static website



url : https://upasanabucket1.s3.ap-south-1.amazonaws.com/web.html

Go to google , bootstrap search buttons , and copy paste file in html

```
<html>
<div class="btn-group" role="group" aria-label="Basic radio toggle button group">
  <input type="radio" class="btn-check" name="btnradio" id="btnradio1" autocomplete="off"
checked>
  <label class="btn btn-outline-primary" for="btnradio1">Radio 1</label>

  <input type="radio" class="btn-check" name="btnradio" id="btnradio2" autocomplete="off">
  <label class="btn btn-outline-primary" for="btnradio2">Radio 2</label>

  <input type="radio" class="btn-check" name="btnradio" id="btnradio3" autocomplete="off">
  <label class="btn btn-outline-primary" for="btnradio3">Radio 3</label> </div>
</html>
```