Experiment no 4

Aim :To study and Implement Storage as a Service using Own Cloud/ AWS S3, Glaciers/ Azure Storage.

Theory:

Storage as a service (STaaS)

Storage as a service (STaaS) is a cloud business model in which a company leases or rents its storage infrastructure to another company or individuals to store data.

Small companies and individuals often find this to be a convenient methodology for managing backups, and providing cost savings in personnel, hardware and physical space.

As an alternative to storing magnetic tapes offsite in a vault, IT administrators are meeting their storage and backup needs by service level agreements (SLAs) with an SaaS provider, usually on a cost-per-gigabyte-stored and cost-per-data-transferred basis. The client transfers the data meant for storage to the service provider on a set schedule over the SaaS provider's wide area network or over the Internet.

Advantages of STaaS

1. Storage costs
   Personnel, hardware and physical storage space expenses are reduced.
2. Disaster recovery
   Having multiple copies of data stored in different locations can better enable disaster recovery measures.
3. Scalability
   With most public cloud services, users only pay for the resources that they use.
4. Syncing
   Files can be automatically synced across multiple devices.
5. Security
   Security can be both an advantage and a disadvantage, as security methods may change per vendor. Data tends to be encrypted during transmission and while at rest.

Disadvantages of STaaS

1. Security
   Users may end up transferring business-sensitive or mission-critical data to the cloud, which makes it important to choose a service provider that's reliable.
2. Potential storage costs
   If bandwidth limitations are exceeded, these could be expensive.
3. Potential downtimes
   Vendors may go through periods of downtime where the service is not available, which can be trouble for mission-critical data.
4. Limited customization
   Since the cloud infrastructure is owned and managed by the service provider, it is less

customizable.

5. Potential for vendor lock-in
   It may be difficult to migrate from one service to another.

Amazon S3

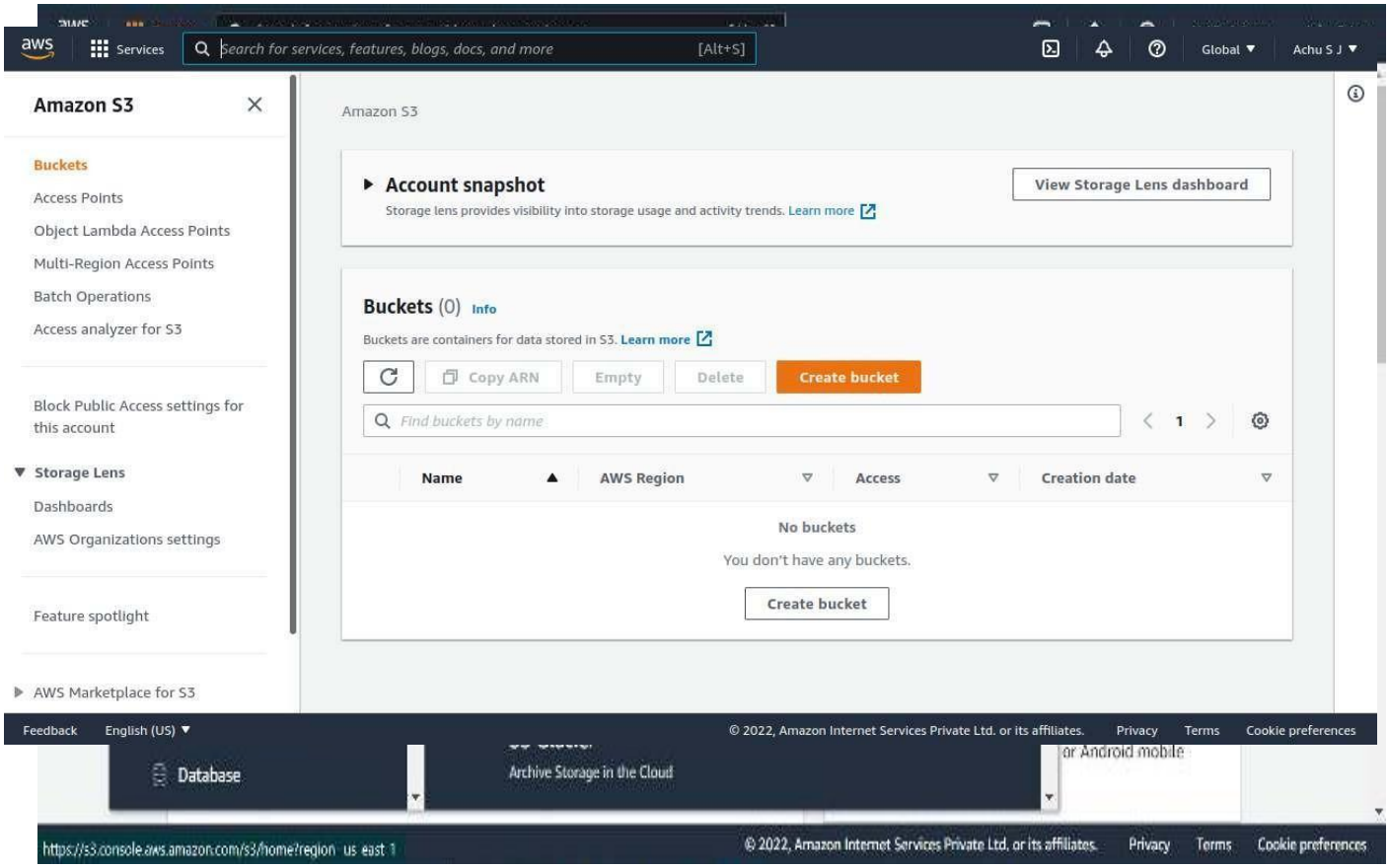
Amazon S3 (Simple Storage Service) provides object storage, which is built for storing and recovering any amount of information or data from anywhere over the internet. It provides this storage through a web services interface. While designed for developers for easier web-scale computing, it provides 99.999999999 percent durability and 99.99 percent availability of objects. It can also store computer files up to 5 terabytes in size.

AWS S3 Benefits

- Durability: S3 provides 99.999999999 percent durability.
- Low cost: S3 lets you store data in a range of "storage classes." These classes are based on the frequency and immediacy you require in accessing files.
- Scalability: S3 charges you only for what resources you actually use, and there are no hidden fees or overage charges. You can scale your storage resources to easily meet your organization's ever-changing demands.
- Availability: S3 offers 99.99 percent availability of objects
- Security: S3 offers an impressive range of access management tools and encryption features that provide top-notch security.
- Flexibility: S3 is ideal for a wide range of uses like data storage, data backup, software delivery, data archiving, disaster recovery, website hosting, mobile applications, IoT devices, and much more.
- Simple data transfer: You don't have to be an IT genius to execute data transfers on S3. The service revolves around simplicity and ease of use.

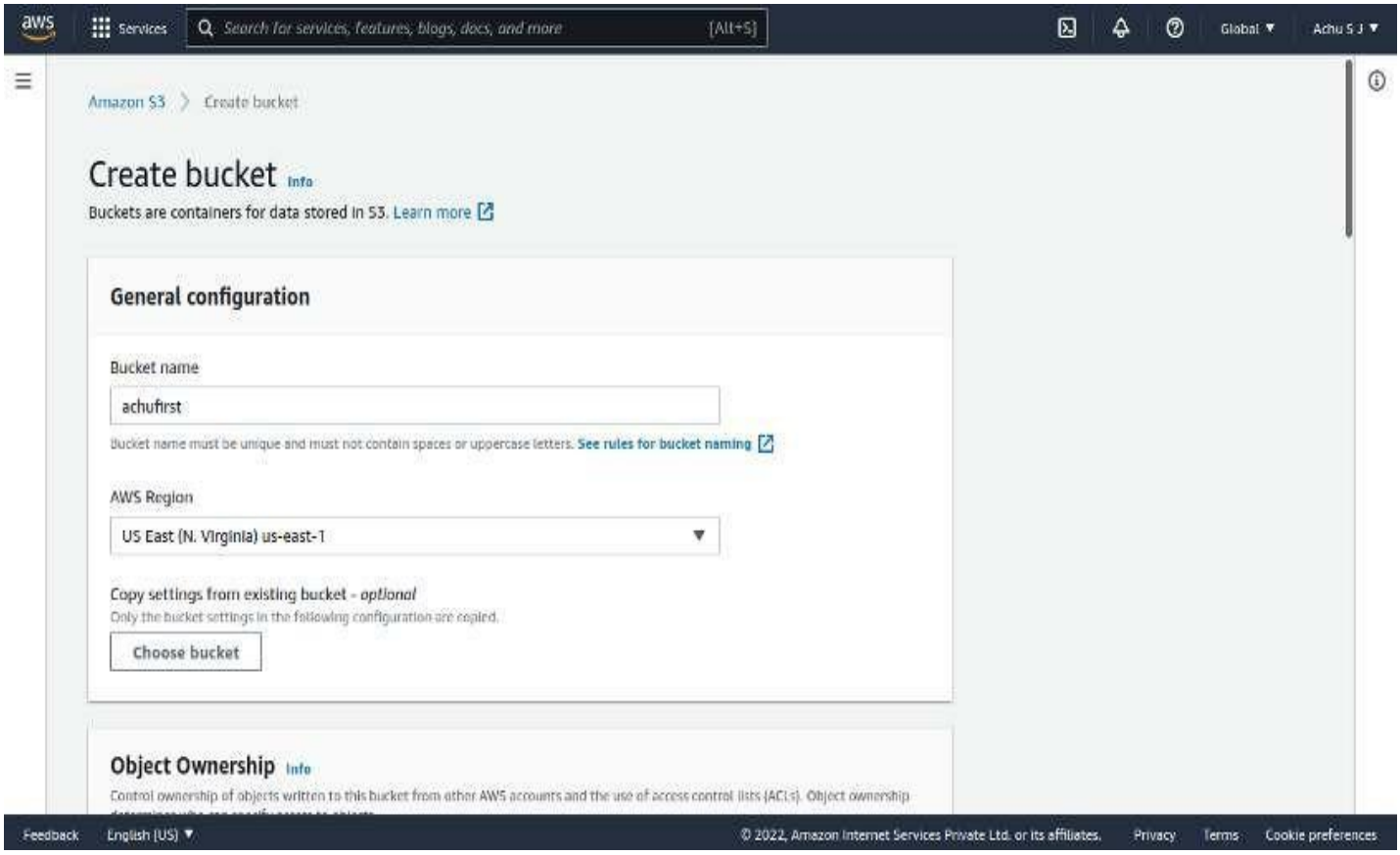
Implementation:

Step 1: In AWS, Services->Storage-> S3

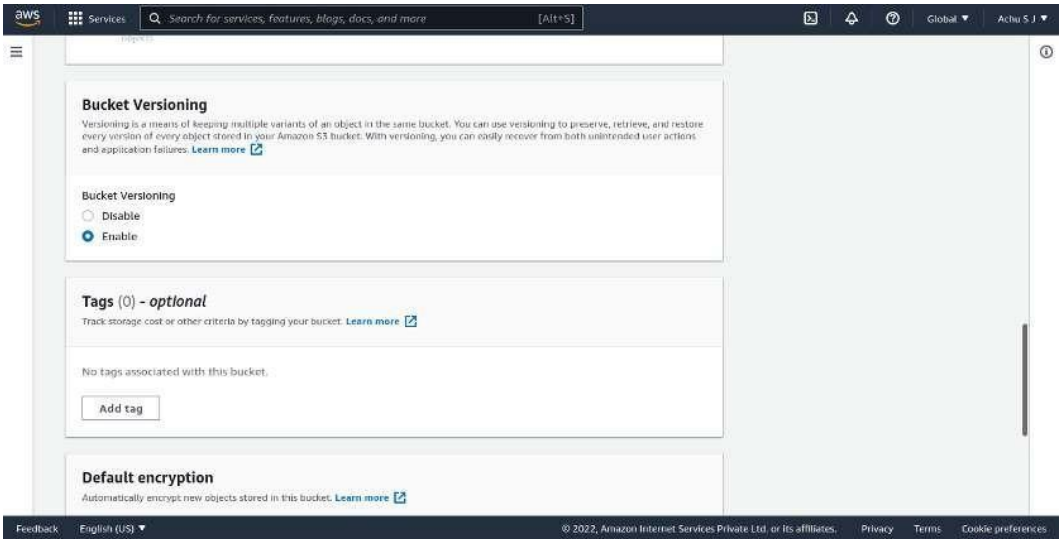


Step 2: Click on Create bucket

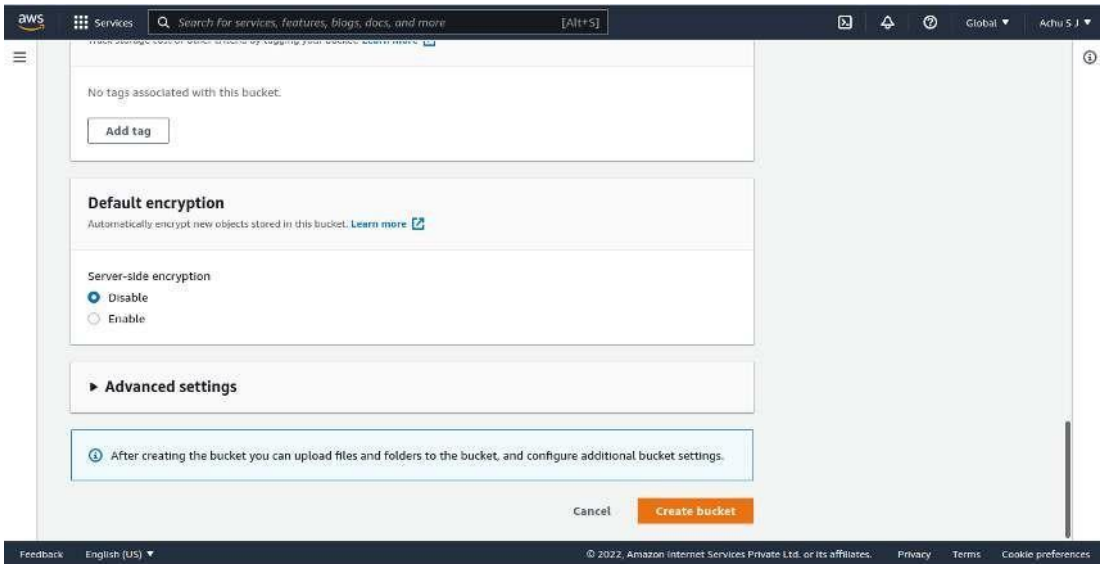
Step 3: Adding Bucket name and choosing AWS Region


aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
Global
Achu S J
Amazon S3 > Create bucket
Create bucket Info
Buckets are containers for data stored in S3. Learn more
General configuration
Bucket name
achufirst
Bucket name must be unique and must not contain spaces or uppercase letters. See rules for bucket naming
AWS Region
US East (N. Virginia) us-east-1
Copy settings from existing bucket - optional
Only the bucket settings in the following configuration are copied.
Choose bucket
Object Ownership Info
Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership
Feedback
English (US)
© 2022, Amazon Internet Services Private Ltd. or its affiliates.
Privacy
Terms
Cookie preferences

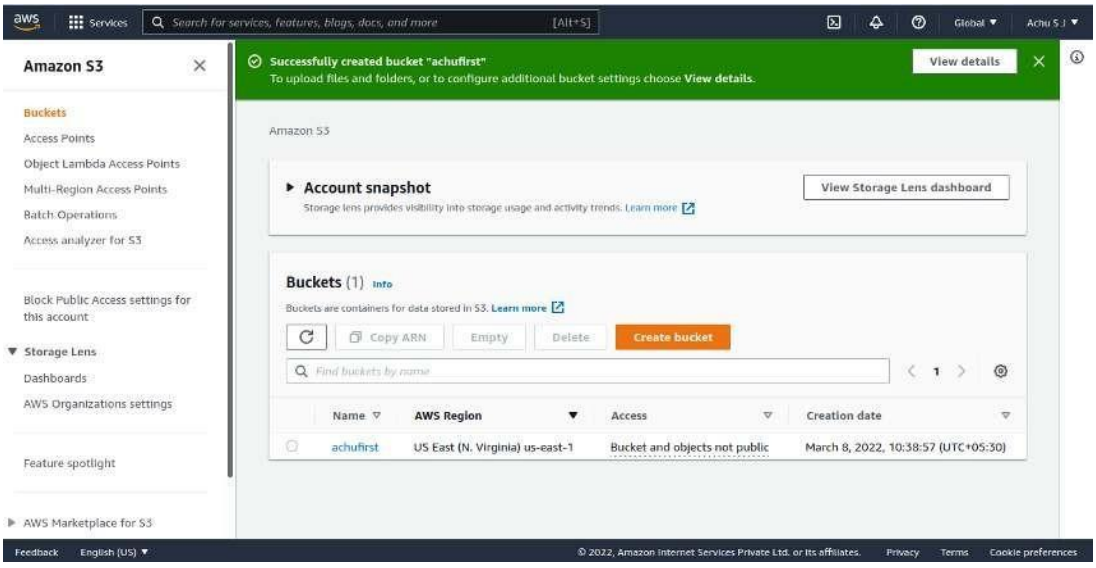
Step 4: Enable Bucket Versioning



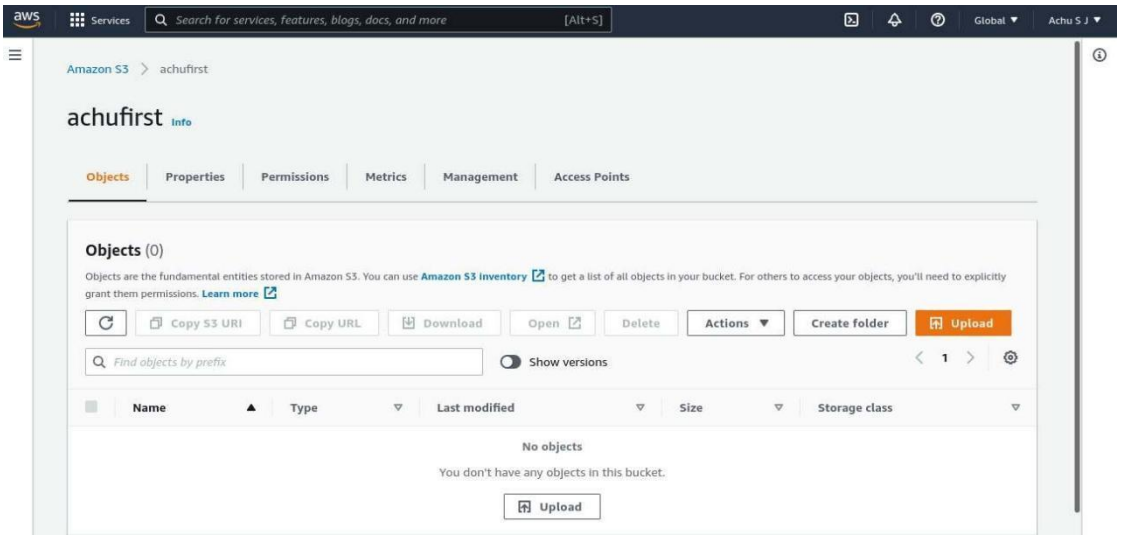
Step 5: Disable Default encryption and click Create bucket



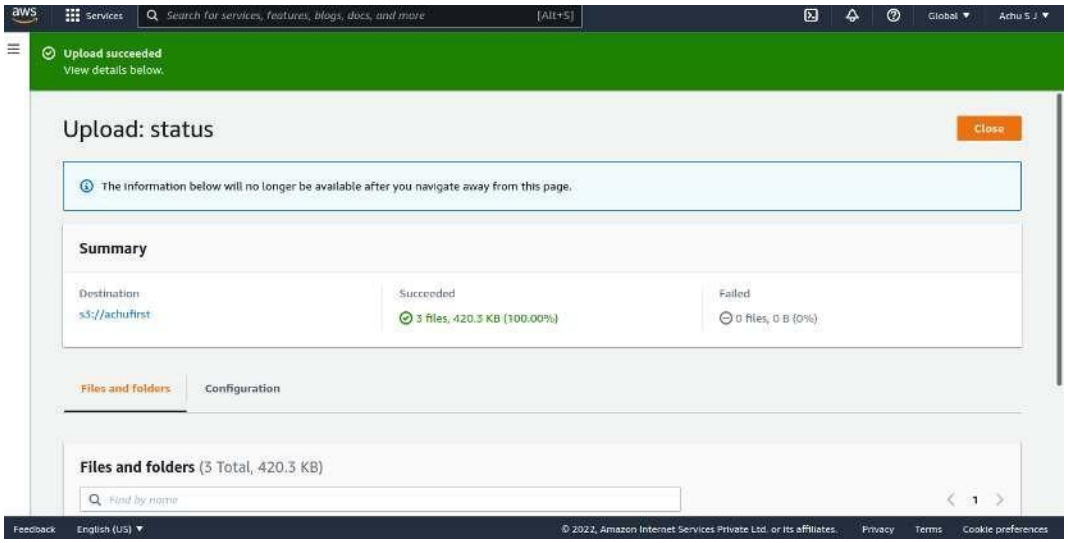
Step 6: Bucket 'achufirst' is created



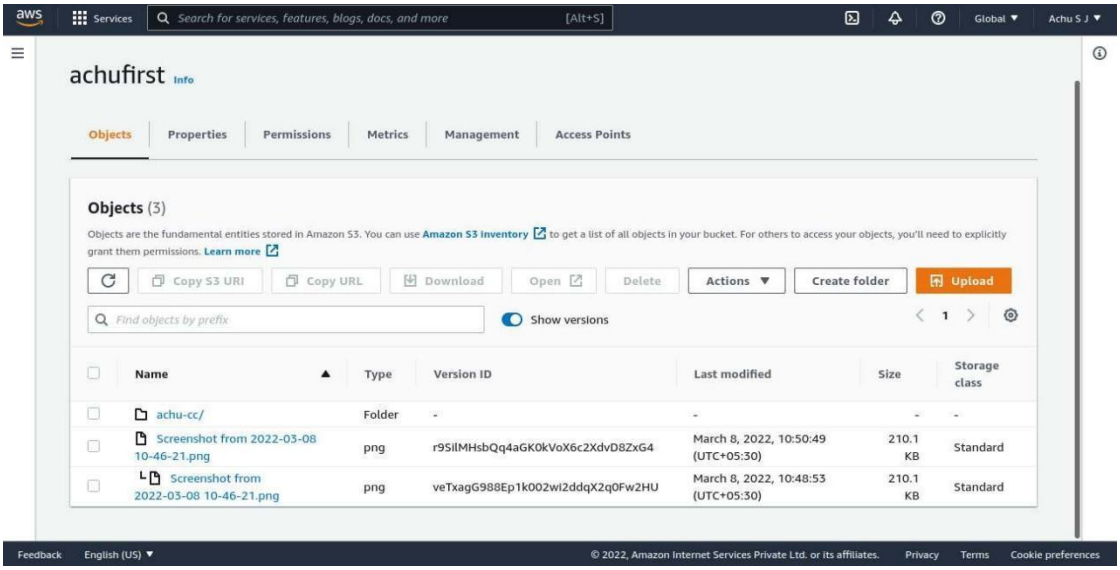
Step 7: Selecting 'achufirst' and uploading files



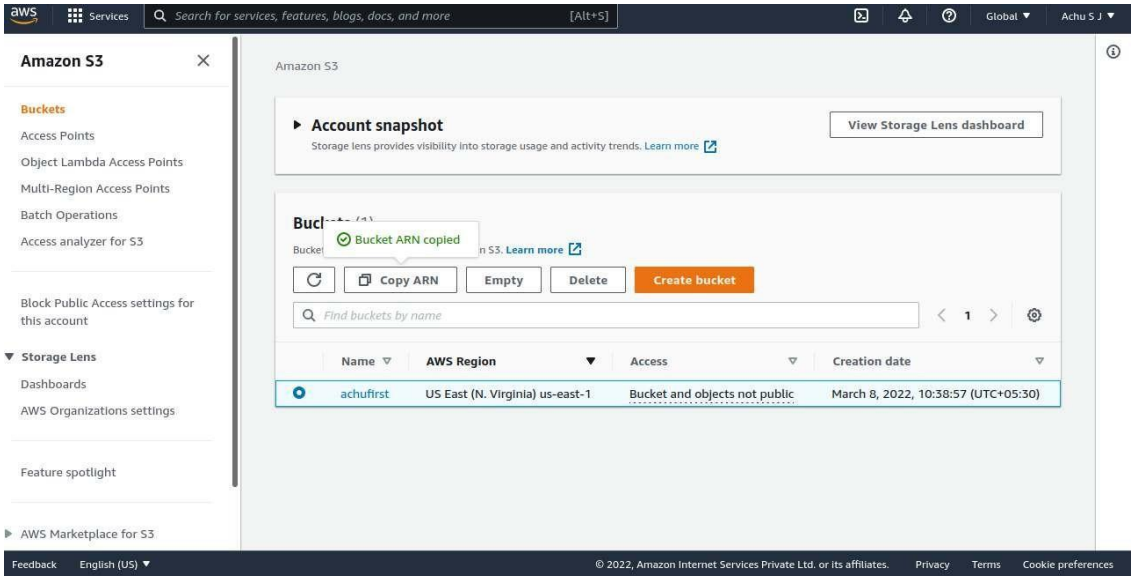
Step 8: Uploaded files successfully



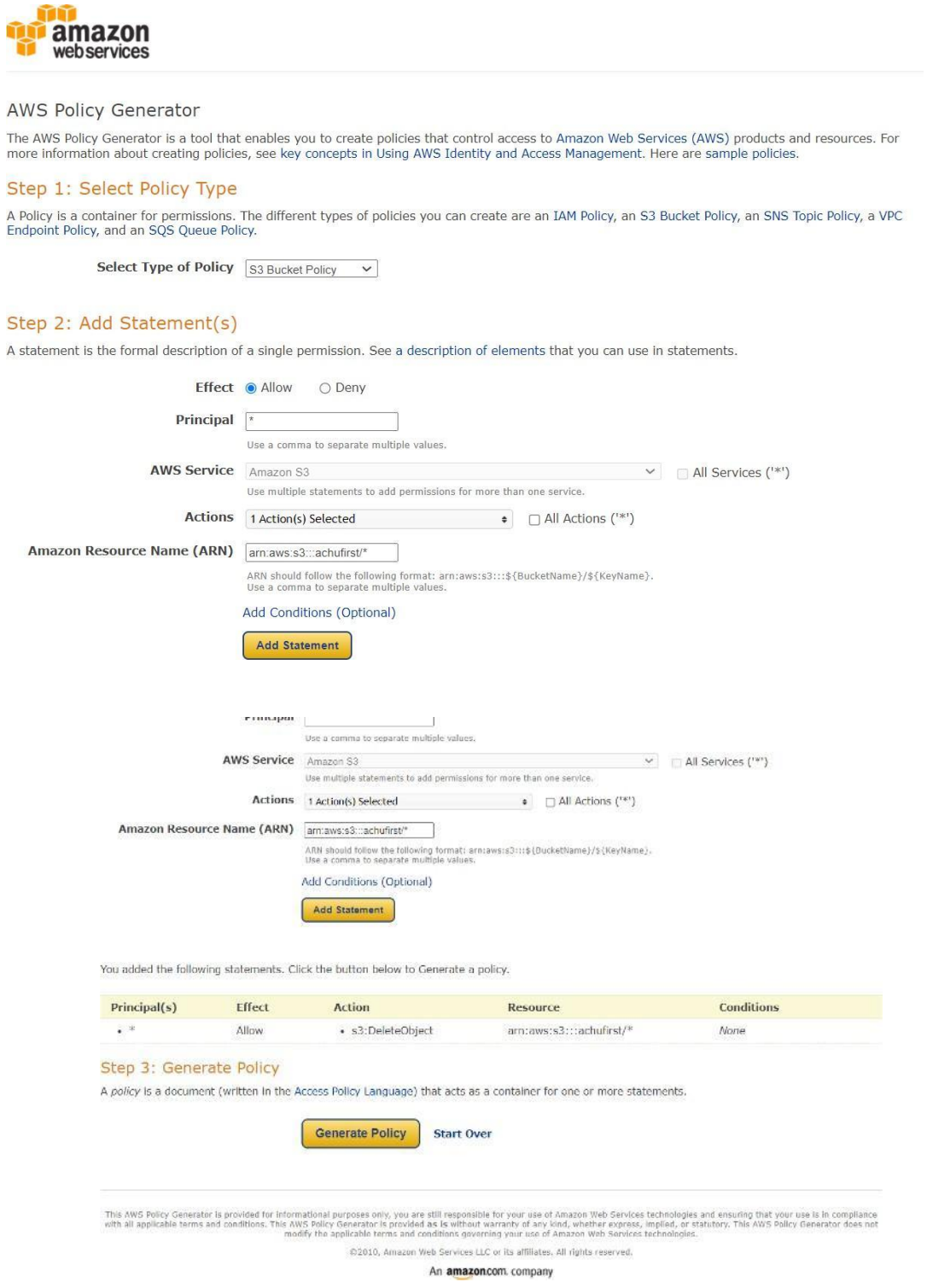
Step 9: After uploading the same png file one by one, clicking on ‘Show versions’, we can see that the Version ID is different for both



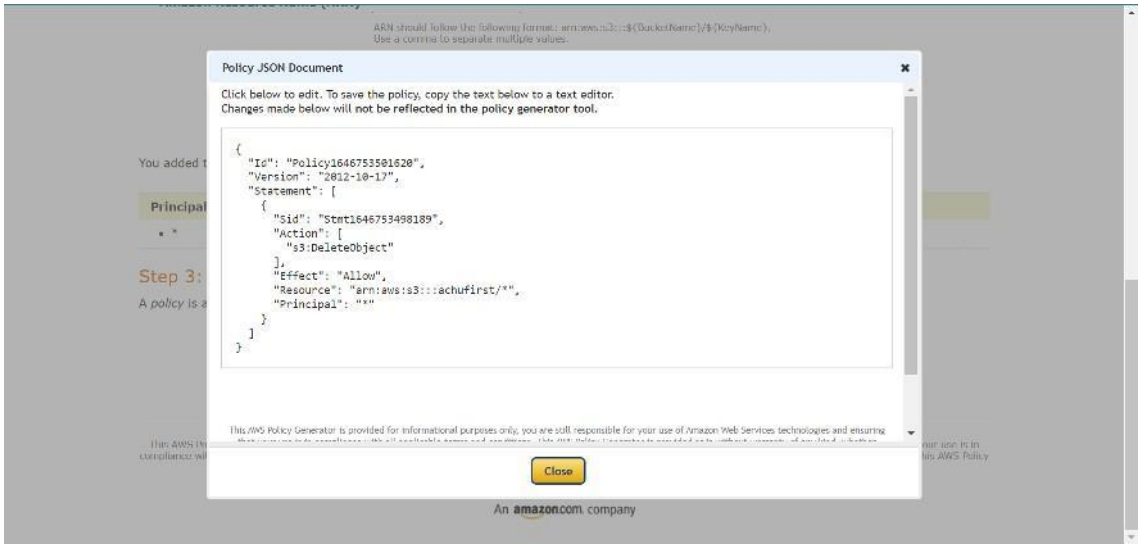
Step 10: Copying ARN for 'achufirst'



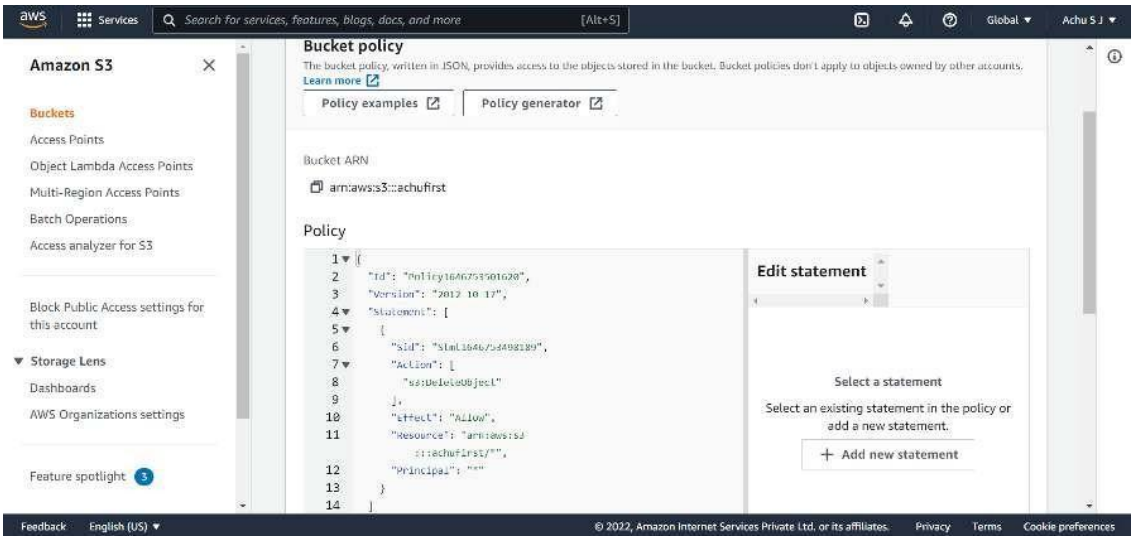
Step 11: Going to Permissions -> Edit Bucket Policy -> Policy Generator Do as shown



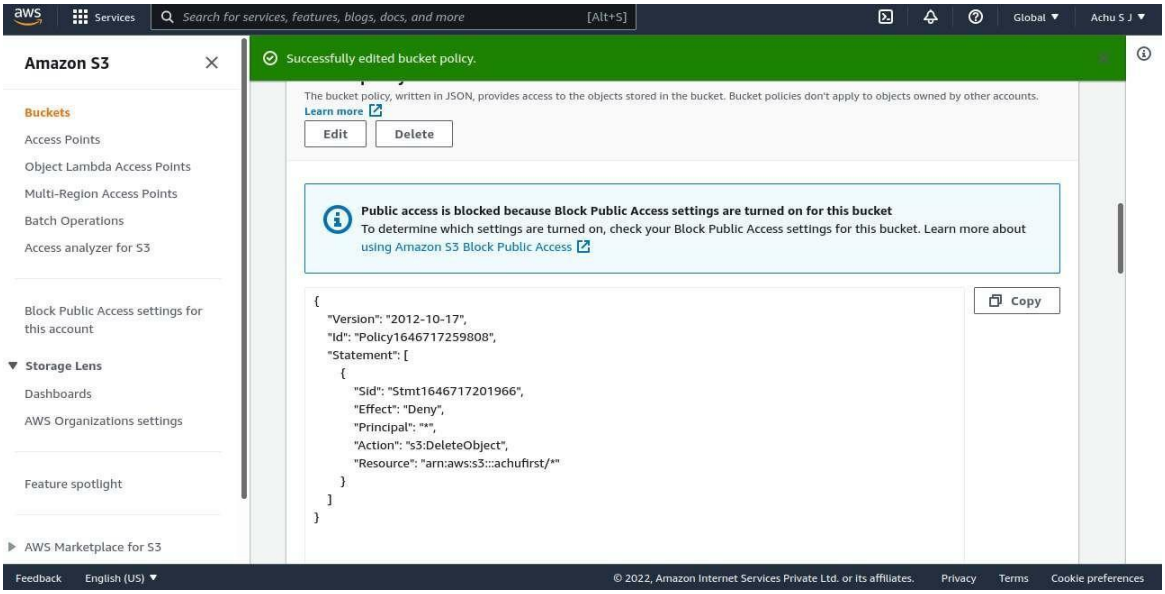
Step 12: Click on Generate Policy and the following JSON document is obtained. It is then copied.



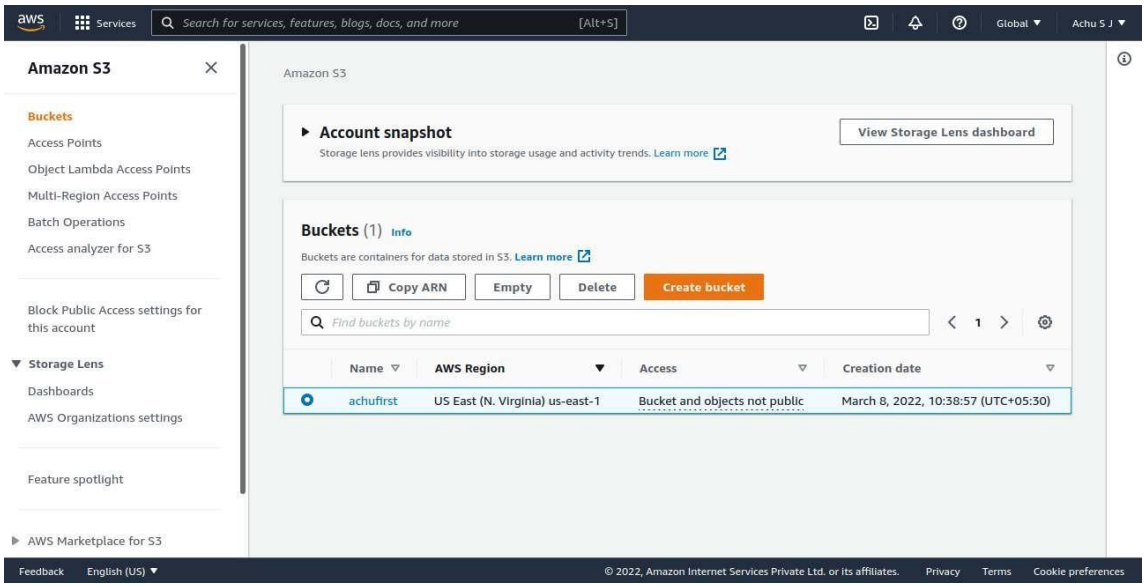
Step 13: The bucket policy is updated and changes are saved.



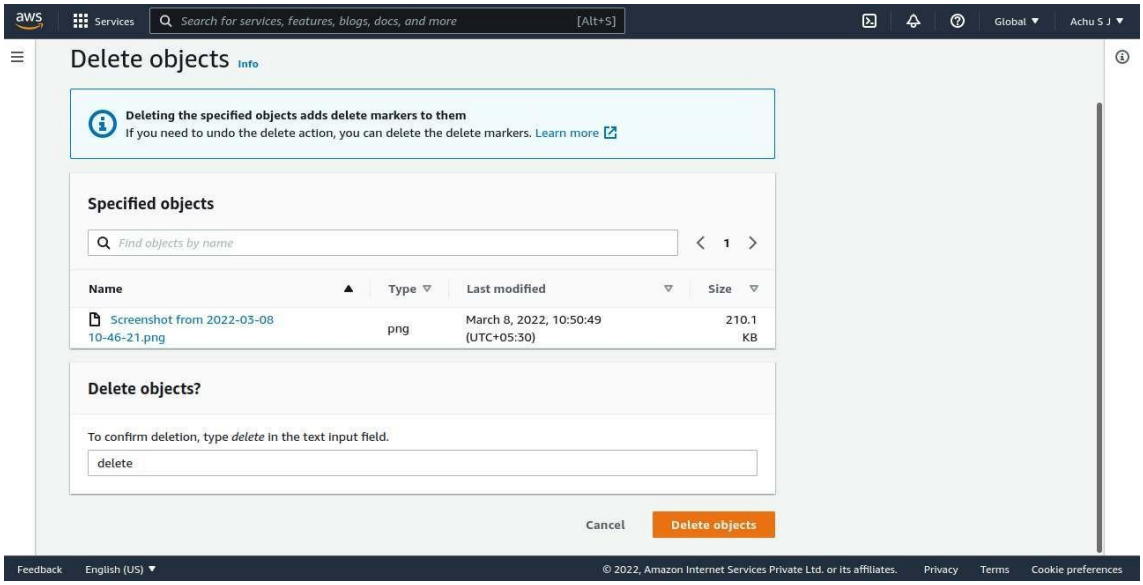
Step 14: Successfully edited bucket policy



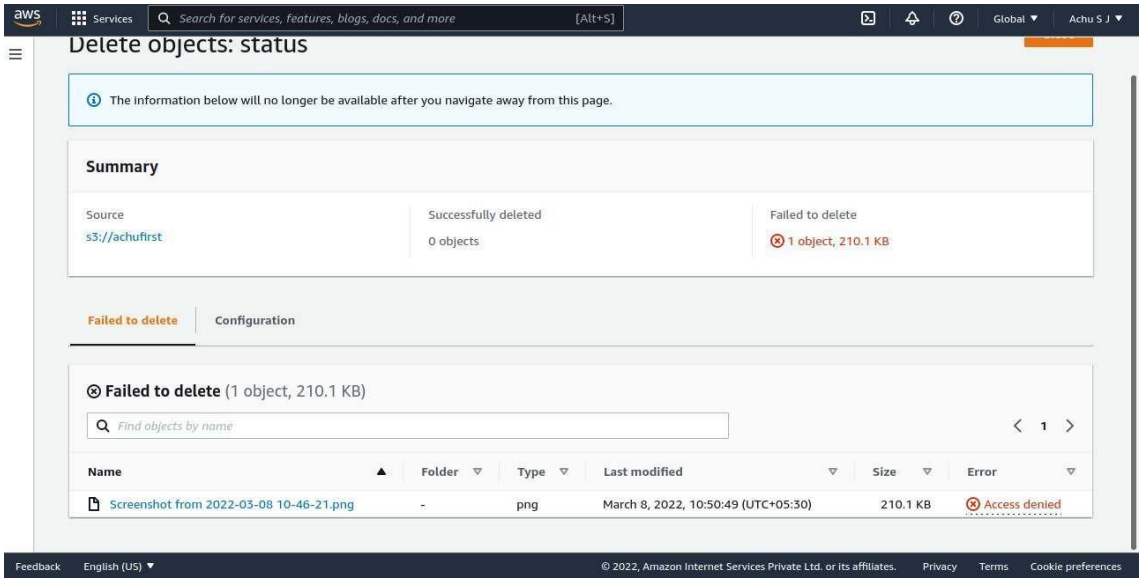
Step 15: Delete objects inside bucket



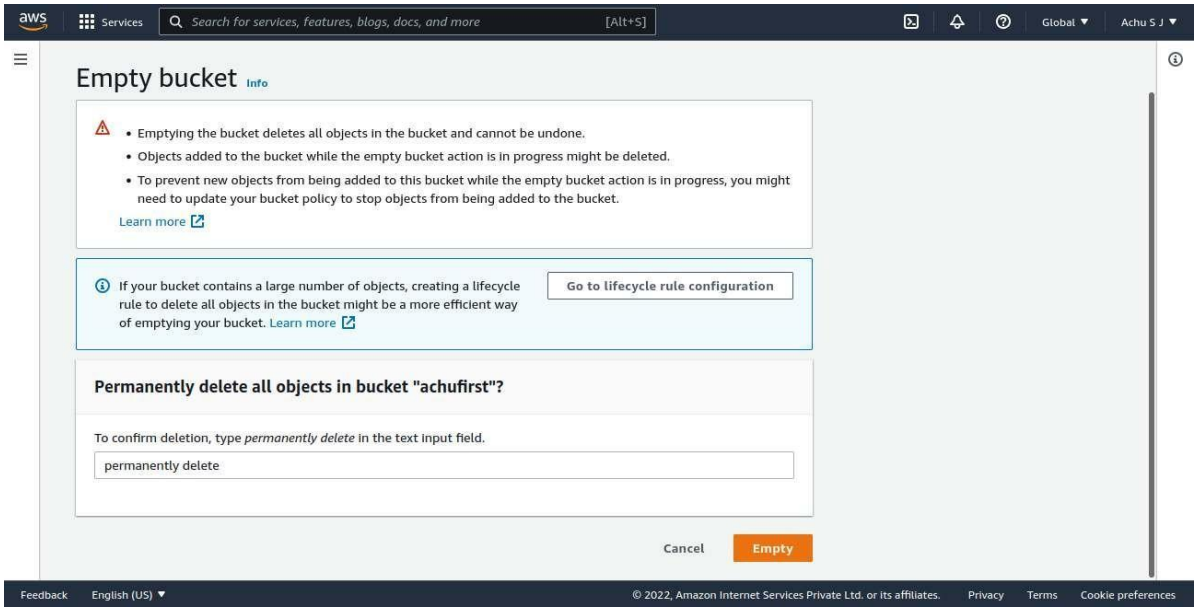
Step 16: Reviewing objects in bucket and confirming deletion



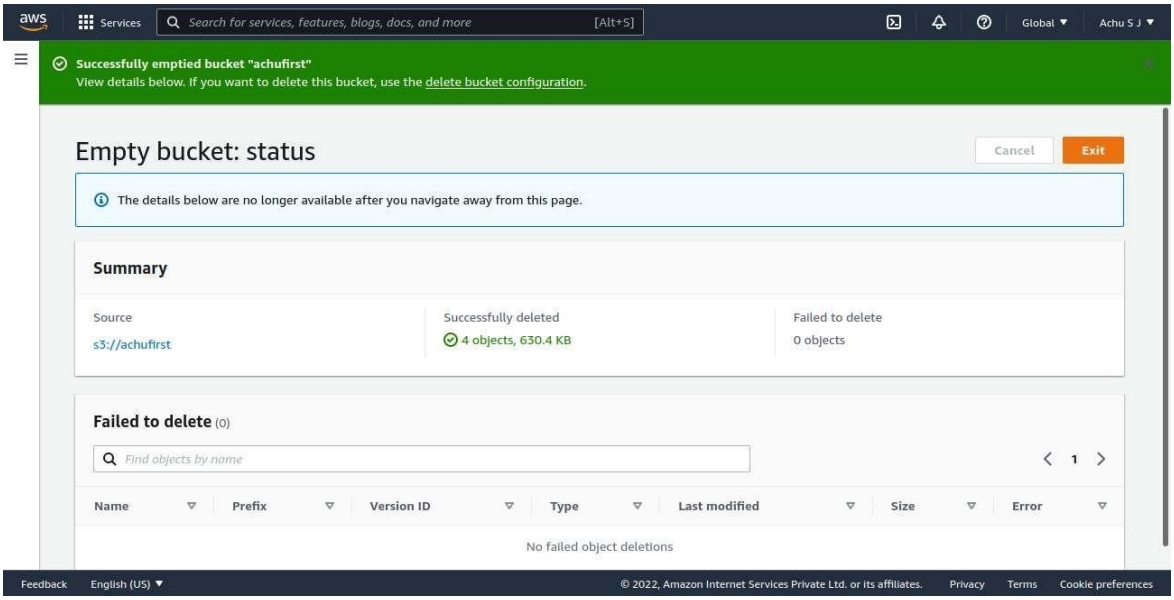
Step 17: Deletion is not possible because of the policy we added



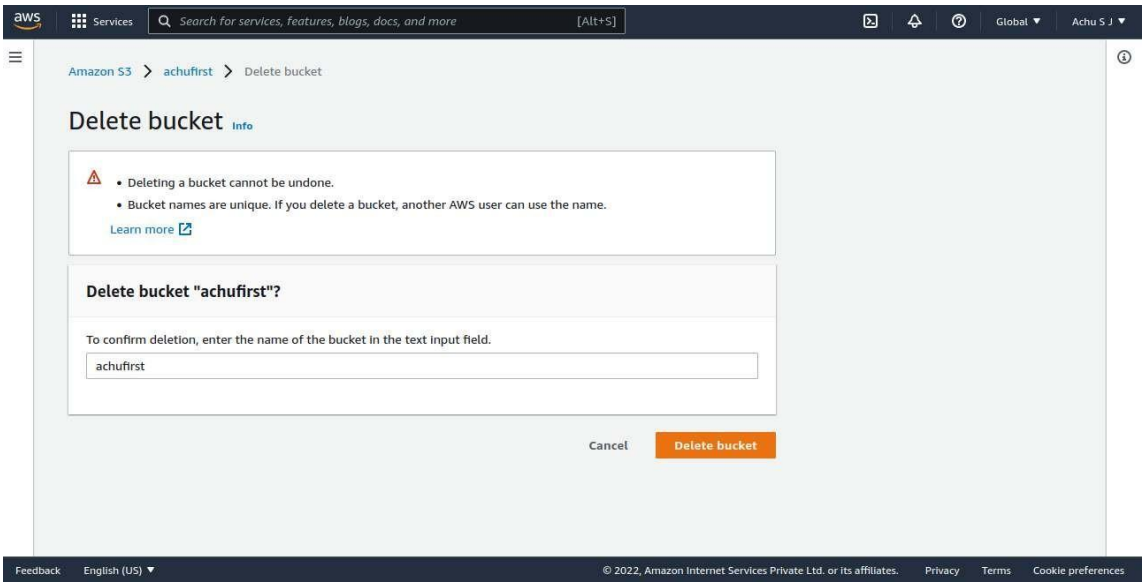
Step 18: Now, emptying bucket

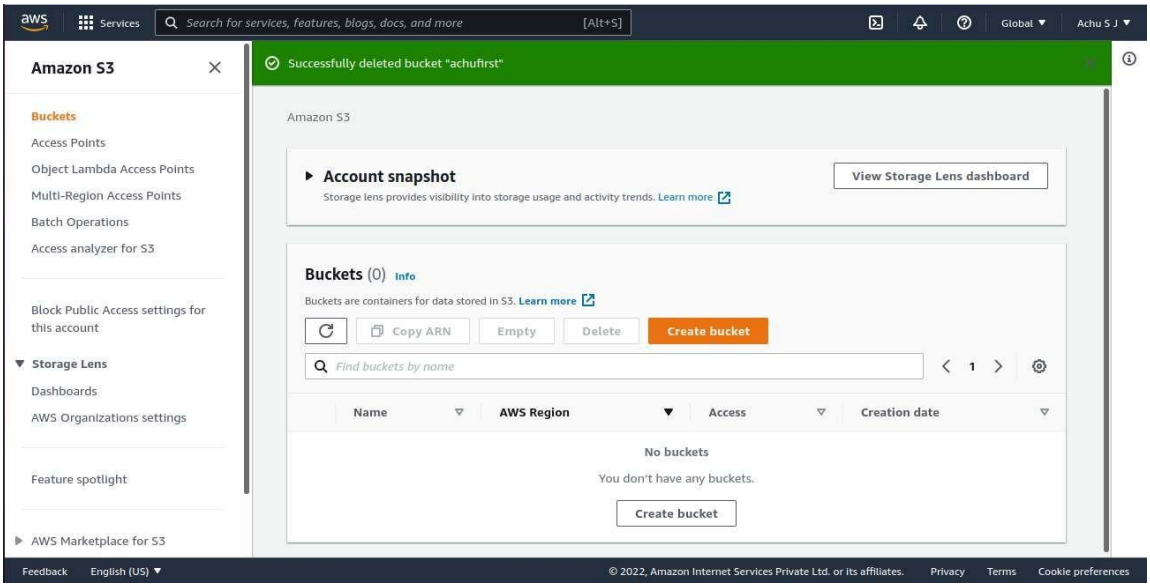


Emptied bucket successfully



Step 19: Deleting bucket





Conclusion:

Thus, we have learnt about Storage as a Service and implemented the same using AWS S3.