**AWS S3 Batch Operations – Explained for Beginners**

AWS **S3 Batch Operations** allow you to perform **actions on millions or even billions of S3 objects** at once. Instead of processing files **one by one**, you can **run a single job** to apply changes **to many files at the same time**.

**🔹 Why Use S3 Batch Operations?**

✅ **Saves Time** – No need to process files individually.  
✅ **Automates Bulk Tasks** – Run the same action on many files.  
✅ **Supports Large-Scale Operations** – Works on **millions of objects** in S3.  
✅ **Integrates with AWS Services** – Works with **Lambda, Glacier, Object Tags, ACLs, and more**.

**🔹 What Can You Do with S3 Batch Operations?**

1️⃣ **Copy Multiple Files** – Move or duplicate objects across buckets.  
2️⃣ **Delete Many Files** – Remove large numbers of objects quickly.  
3️⃣ **Restore Archived Files** – Bring back objects stored in **S3 Glacier**.  
4️⃣ **Change Object Permissions** – Modify **ACLs (Access Control Lists)**.  
5️⃣ **Update Object Tags & Metadata** – Add or remove tags on multiple files.  
6️⃣ **Run AWS Lambda on Objects** – Apply custom processing (e.g., resize images).

**🔹 How S3 Batch Operations Work?**

1️⃣ **Create a CSV File** – List the S3 objects (files) you want to process.  
2️⃣ **Upload the CSV to S3** – The file should contain the **bucket name and object keys**.  
3️⃣ **Create a Batch Job** in S3 – Select the action (copy, delete, restore, etc.).  
4️⃣ **Run the Job** – AWS processes all the objects in the list.  
5️⃣ **Check Job Status** – View reports and logs in the **S3 Console**.

**🔹 How to Use S3 Batch Operations?**

**Using AWS Console**

1️⃣ **Go to AWS S3 Console**  
2️⃣ **Click "Batch Operations"** in the left menu  
3️⃣ **Create a new job**  
4️⃣ **Upload a CSV file** with object details  
5️⃣ **Select the operation** (Copy, Delete, etc.)  
6️⃣ **Choose a target bucket (if needed)**  
7️⃣ **Start the job and monitor progress**

**Using AWS CLI (Example for Deleting Objects)**

aws s3 batch-operations create-job \

--account-id 123456789012 \

--operation '{"S3PutObjectAcl":{"AccessControlPolicy":{"Grants":[],"Owner":{}}}}' \

--report '{"Bucket":"arn:aws:s3:::my-bucket","Format":"CSV","Enabled":true}' \

--manifest '{"Spec":{"Format":"S3BatchOperations\_CSV\_20180820","Fields":["Bucket","Key"]},"Location":{"ObjectArn":"arn:aws:s3:::my-bucket/manifest.csv","ETag":"example-etag"}}'

**🔹 Example Use Case – Bulk Image Processing**

📌 **Scenario:** You have **10,000 images** in S3 and want to **resize them automatically**.  
1️⃣ **Upload a CSV file** listing all image files.  
2️⃣ **Create a Batch Job** to run an **AWS Lambda function** on each file.  
3️⃣ **Lambda resizes the images** and saves them back to S3.  
✅ **Now, all images are processed automatically!**

**🔹 Things to Keep in Mind**

✅ **Batch Jobs are Asynchronous** – They run in the background.  
✅ **Supports Large Datasets** – Can process billions of objects.  
✅ **Requires IAM Permissions** – You need proper **S3 and Batch Operations permissions**.  
✅ **Costs Apply** – Based on **number of objects and actions performed**.

**🔹 Final Thoughts**

AWS **S3 Batch Operations** help you **manage large-scale data tasks efficiently**. Instead of processing objects one by one, you can **run bulk operations with just a few clicks**. Whether you're **copying, deleting, tagging, or processing objects with Lambda**, **S3 Batch Operations save time and effort**. 🚀

Would you like help setting up an **S3 Batch Job** for your project? 😊