**AWS S3 Pre-Signed URLs - Explained for Beginners**

AWS **S3 Pre-Signed URLs** allow you to **share files securely** from your **S3 bucket** for a **limited time** without making the bucket public.

Imagine you have a **private file** in S3 that you want to share with someone. Instead of making the entire bucket public, you can **generate a special link** (Pre-Signed URL) that lets them access the file for a specific time.

**🔹 Why Use S3 Pre-Signed URLs?**

✅ **Secure File Sharing** – Only people with the URL can access the file.  
✅ **Temporary Access** – You control how long the link is valid.  
✅ **No Need to Make Bucket Public** – Keeps your data private.  
✅ **Supports File Upload & Download** – You can allow users to **upload** or **download** files.

**🔹 How Do S3 Pre-Signed URLs Work?**

1️⃣ **You (the owner)** generate a **Pre-Signed URL** using AWS SDK or CLI.  
2️⃣ **You send the URL** to the person who needs access.  
3️⃣ **The user clicks the link** and can **download or upload** the file (before the URL expires).

**🔹 How to Create a Pre-Signed URL?**

**📌 Using AWS CLI:**

aws s3 presign s3://my-bucket/myfile.txt --expires-in 3600

➡ **This creates a URL valid for 1 hour (3600 seconds).**

**🔹 Example of a Pre-Signed URL**

A generated **Pre-Signed URL** looks like this:

https://my-bucket.s3.amazonaws.com/myfile.txt?AWSAccessKeyId=EXAMPLE&Expires=1712345678&Signature=abcdefg12345

📌 The **URL contains special security parameters** that **expire** after the set time.

**🔹 Things to Keep in Mind**

✅ **Expiration Time** – After expiry, the URL **won't work anymore**.  
✅ **Only Grants Limited Access** – Users **can't see other files** in your bucket.  
✅ **Requires IAM Permissions** – You need the right **IAM permissions** to generate URLs.  
✅ **Can Be Used for Uploading** – You can also **allow users to upload** files securely.

**🔹 Final Thoughts**

AWS **S3 Pre-Signed URLs** are a **secure and temporary** way to share files **without making your S3 bucket public**. They help **control access**, **reduce security risks**, and **simplify file sharing** in applications. 🚀

Would you like help implementing Pre-Signed URLs in your AWS project? 😊