Lab: Amazon Simple Storage Service (Amazon S3)

Lab overview and objectives

In this lab, you will use **Amazon Simple Storage Service** (Amazon **S3**) to store and view image files.

You will learn to use both **AWS Management Console** & **AWS SDK for Python (Boto3)** to work with **S3**.

After completing this lab, you should be able to:

- Create an Amazon S3 Bucket from the **AWS Management Console**.
- Upload an image file to the S3 Bucket from the **AWS Management Console**.
- Access the image file using pre-signed URL.
- Access the image file using Object URL.
- Access the image file from HTML page.
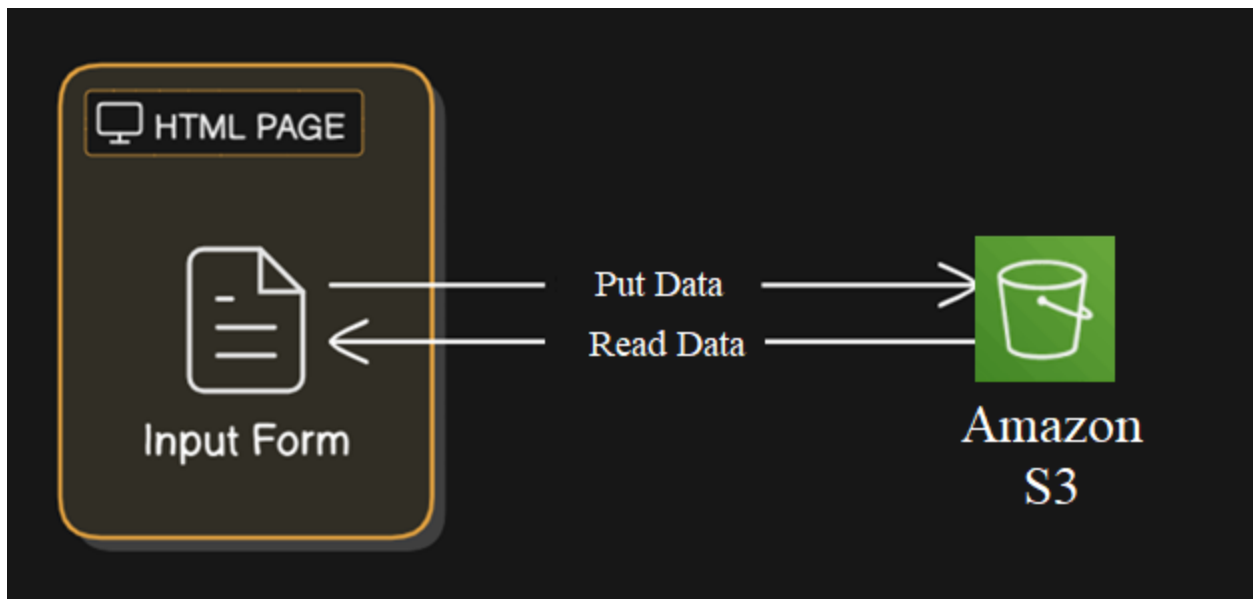
Scenario

You will create an S3 Bucket to store and view image files.

Accessing the AWS Management Console

For this lab, we will use the <mark>AWS Academy learner lab</mark> and the **AWS Management Console**.

Task 1: Create an S3 Bucket

1. In the AWS Console search box to the right of **Services**, search for and choose **S3** to open the **S3** console.
2. Choose **Create bucket**.
3. In the **Create bucket** screen, configure these settings:
   - In **General configuration**, set the Bucket name, as it should be unique, use a name with your initial, example: my-first-bucket-ys
   - In **Block Public Access settings for this bucket**, Deselect the checkbox **Block *all* public access** and acknowledge the **Turning off block all public access might result in this bucket and the objects within becoming public** check box

   ⚠ **Turning off block all public access might result in this bucket and the objects within becoming public**
   AWS recommends that you turn on block all public access, unless public access is required for specific and verified use cases such as static website hosting.

   ☑ I acknowledge that the current settings might result in this bucket and the objects within becoming public.

4. Press the **Create bucket** button**.**
5. Your bucket will be created, and success message will appear:

   ⊘ **Successfully created bucket "my-first-bucket-ys"**
   To upload files and folders, or to configure additional bucket settings, choose **View details**.
   (View details) ✕

Task 2: Uploading objects to the bucket

1. Select the bucket my-first-bucket-ys, the my-first-bucket-ys bucket screen will open.
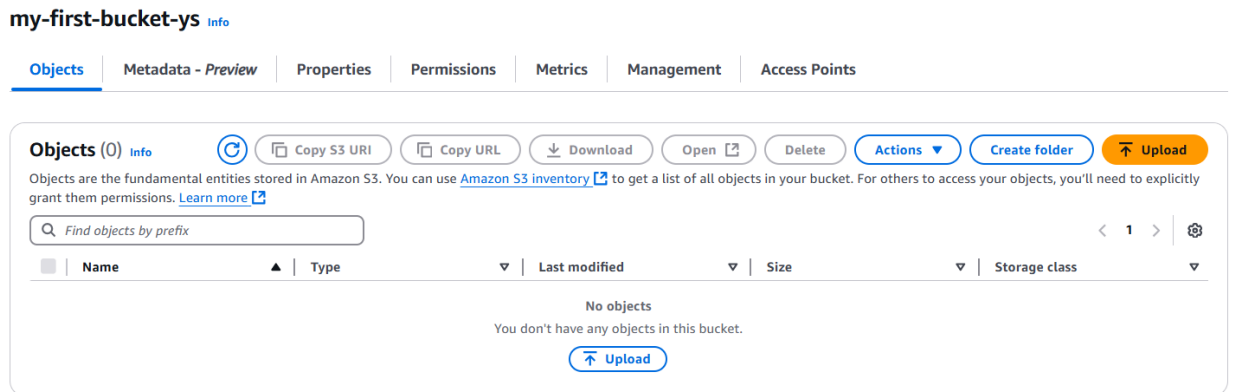
2. Press **Upload** button, the **Upload** window will open, then press the **Add files** button, and select any image file from your PC. You should now see your file in the **Files and folders** section. Press on the **Upload** button**.**

3. Your file will be uploaded.
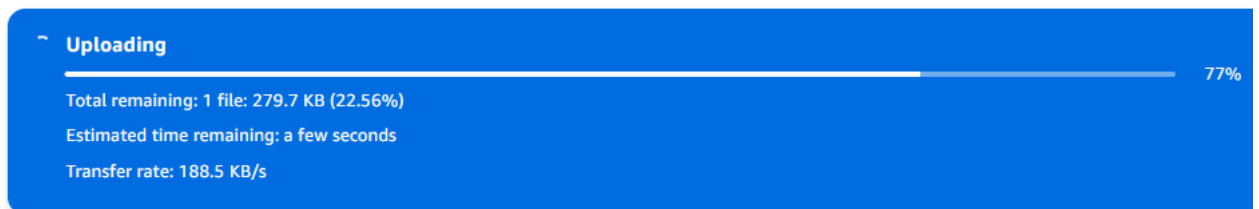
Once done, an Upload succeeded message will appear.
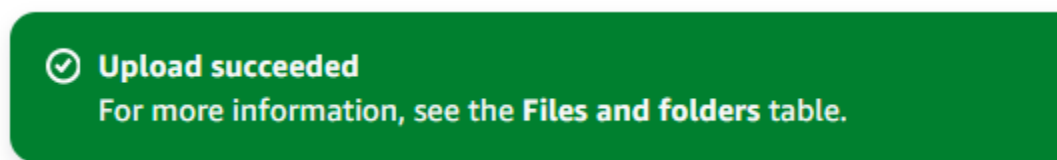
4. Press on **Close,** you will return to the **my-first-bucket-ys** overview page, where you will now see the file you uploaded.

Task 3: Access the file using pre-signed URL

You will now use 2 different ways to access the uploaded file using **pre-signed URL**.

- This URL is a temporary, signed URL that includes a time-limited access token and permissions. It allows you to access the object directly, even if the bucket or object is not publicly accessible.
- This is useful for securely sharing private objects. The URL contains all the necessary authentication details, so it works for your session or anyone who has the URL for its validity period.

1. In the **Object** frame, select the check box next to the file you uploaded, press **Actions**, and select the **Share with a pre-signed URL** option. When the pop-up window open, set the **Number of minutes** to 5, and press the **Create pre-signed URL** button**.**
2. A success message of creating a URL will pop up:

   With an option to copy the URL, press the **Copy pre-signed URL** button.

3. Go to any browser and paste the URL. Your uploaded file should now be displayed.

4. In the **Object** frame, select the file you uploaded. Press the Open button
   The file will now open.

   In this option, S3 console generates a **pre-signed URL** for the file with a duration of 15 minutes.

Task 4: Access the file using Object URL

You will now allow public access the uploaded file using **Object URL**. Please note this option is **not recommended** and presented here only for exploration.

- The "Object URL" is the direct link to the object in the bucket. This URL does not include any authentication or access permissions.
- Permissions Required: For this link to work, the object must be publicly accessible, or you need to have IAM permissions configured to allow access to the object. If the object is private (default setting), clicking on this link results in a permission error because it does not include any authentication details.

1. In the file **Object overview** frame, copy the **Object URL** link.
2. Go to any browser and paste the URL. You will get an **AccessDenied** error message.
3. Go back to the `my-first-bucket-ys` bucket screen and select the file you uploaded, and go to **Permission** tab.
4. View the **Access control list (ACL)** frame
   o The access **Everyone (public access)** has no **Object** permission.
   o the **Edit** button will be disabled.
5. Go back to the `my-first-bucket-ys` bucket screen and go to **Permission** tab.
6. Scroll down to **Object Ownership** frame and press the **Edit** button.
7. The **Edit Object Ownership** screen will open, select the **ACLs enabled option**, and acknowledge the **Enabling ACLs turns off the bucket owner enforced setting for Object Ownership** warning, and press **Save changes**. A success message should appear:

8. Go back to the `my-first-bucket-ys` bucket screen and select your file you uploaded, and go to **Permission** tab.
9. View the **Access control list (ACL)** frame and press the **Edit** button (Which is now enabled).
10. In the **Access control list (ACL)** window, in the **Objects** column check the **Read** check box in the **Everyone (public access)** row, Acknowledge the warning: **When you grant access to the Everyone or Authenticated users group grantees, anyone in the world can access the object**, and press **Save changes**. A success message should appear.

11. In the file **Object overview** frame, copy the **Object URL** link. Go to any browser and paste the URL. The file will now open

Task 5: Access the file from HTML page

You will access the file from basic HTML page.

1. Create a basic HTML page that will present the file using the **Object URL** link.

   Alternatively, use the following code. Make sure to replace the next tags: <your-bucket-name>, <region> & <your-image-file>, or simply copy the **Object URL** link and paste it in the src value.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Display S3 Image</title>
</head>
<body>
  <h1>Image from S3</h1>
  <img src="https://<your-bucket-name>.s3.<region>.amazonaws.com/<your-image-file>" alt="S3 Image"
style="max-width: 100%; height: auto;">
</body>
</html>
```

   Alternatively, use the following code using JavaScript. Make sure to replace the next tags: <your-bucket-name>, <region> & <your-image-file>, or simply copy the **Object URL** link and paste it in the src value.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Fetch S3 Image</title>
</head>
<body>
  <h1>Image from S3</h1>
  <div id="image-container"></div>

  <script>
    const imageUrl = "https://<your-bucket-name>.s3.<region>.amazonaws.com/<your-image-file>";

    // Create an img element dynamically
    const img = document.createElement("img");
    img.src = imageUrl;
    img.alt = "S3 Image";
```

```
    img.style.maxWidth = "100%";
    img.style.height = "auto";
    // Add it to the container
    document.getElementById("image-container").appendChild(img);
  </script>
</body>
</html>
```

2. Open the HTML page. Your picture should be displayed.

Activity complete

Congratulations! You have successfully completed the activity.