

*CLOUD PLATFORMS AND ANALYTICS – WORKSHOP (WEEK 3)****Introduction to Azure Logic Apps***

This workshop will give you a hands-on introduction to logic apps by walking you through a use case for creating an integration workflow with Azure Logic Apps using the Azure portal.

**IMPORTANT:**

- The services covered in this course are only a subset of a much larger family of Azure services. Similar outcomes can be achieved by leveraging other services and/or features not covered by this workshop. Specific business requirements may also ask for the use of different services or features not included in this workshop.
- Some concepts presented in this course can be quite complex and you may need to seek for more information from different sources (e.g. [azure documentation](#)) to compliment your understanding of the Azure services covered.

**Document Structure**

This document contains detailed step-by-step instructions on how to create and maintain a storage account using Azure portal and Python. It is recommended you carefully read the detailed description contained in this document for a successfully complete this workshop.

You will see the label **IMPORTANT** whenever a there is a critical step. Please pay close attention to the instructions given.

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## Introduction

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This workshop aims to provide a comprehensive understanding of creating and managing Azure Storage Accounts, specifically focusing on Blob Storage, and leveraging Azure Logic Apps to automate workflows.

The workshop will cover the essential steps to set up a new Azure Storage Account, emphasizing Blob Storage, which is Azure's object storage solution for the cloud. You will learn how to create, configure, and manage Blob Storage, understanding its significance in storing a vast array of unstructured data.

Furthermore, the workshop will delve into Azure Logic Apps, a powerful cloud service that allows you to automate and orchestrate tasks, workflows, and business processes. You will learn how to create a Logic App workflow designed to automate the process of saving email attachments directly to Blob Storage.

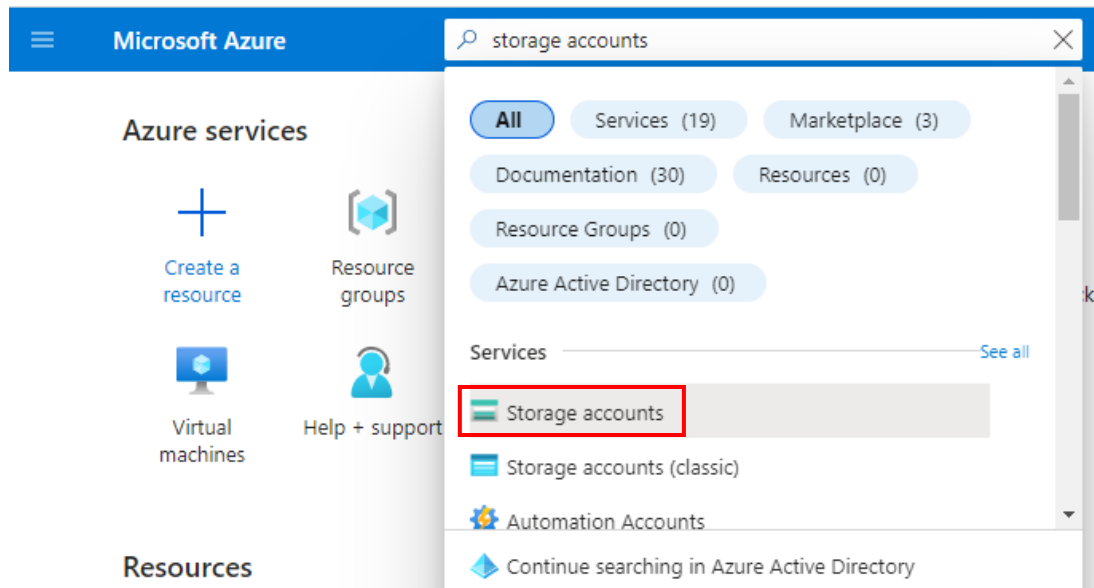
## Prerequisites

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- An Azure account and subscription. If you don't have a subscription, [sign up for a free Azure account](#) using your La Trobe student account.

## Create a storage account (Week 2 Recap)

1. Sign in to the [Azure portal](#) with your Azure account.
2. In the Azure search box, enter 'storage account', and select Logic apps



3. On the Storage accounts page, select **+ Create**.
4. On the **Create a storage account** pane, on the **Basics** tab, provide the following basic information about your logic app:
  - **Subscription:** Your Azure subscription name. *Ex: Azure for students*
  - **Resource Group:** Select **Create new** to create a new resource group: *Ex: BUS5001-Week2-RG*. (ensure the name is 1-90 characters long, contains only alphanumeric characters, periods, underscores, hyphens, and parentheses (no spaces), and is unique within the subscription)
  - **Storage account name:** *Ex: storageaccount<student\_id>*. (ensure the name is 3-24 characters long, contains only lowercase letters and numbers, and is unique across all Azure)
5. Use default values for other settings. When you're done, your settings look similar to this version:

## Create a storage account



### Basics

### Advanced

### Networking

### Data protection

### Encryption

### Tags

### Review + create

Azure Storage is a Microsoft-managed service providing cloud storage that is highly available, secure, durable, scalable, and redundant. Azure Storage includes Azure Blobs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure Tables. The cost of your storage account depends on the usage and the options you choose below. [Learn more about Azure storage accounts](#)

#### Project details

Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.

Subscription \* Azure for Students ▼

Resource group \* (New) BUS5001-Week2-RG ▼

[Create new](#)

#### Instance details

Storage account name \* ⓘ storageaccount21171234

Region \* ⓘ (Asia Pacific) Australia East ▼

[Deploy to an Azure Extended Zone](#)

Performance \* ⓘ

☒ **Standard:** Recommended for most scenarios (general-purpose v2 account)

☐ **Premium:** Recommended for scenarios that require low latency.

Redundancy \* ⓘ Geo-redundant storage (GRS) ▼

☒ Make read access to data available in the event of regional unavailability.

6. Select **Review**. On the validation page that appears, confirm all the information that you provided, and select **Create**.
7. After the deployment is completed. Select **Go to resource**.

## ✓ Your deployment is complete



Deployment name: storageaccount21171234\_1722903550585  
 Subscription: [Azure for Students](#)  
 Resource group: [BUS5001-Week2-RG](#)






### ▼ Deployment details

### ^ Next steps

[Go to resource](#)

8. On the left navigation panel, select **Access keys** under Security + networking.


**Security + networking**

-  Networking
-  Azure CDN
-  **Access keys**
-  Shared access signature
-  Encryption

9. In a future step you will need the Storage account name and an access key. You will access them here.

Storage account name

storageaccount21171234

**key1**  Rotate key

Last rotated: 3/21/2023 (0 days ago)

Key

y2VEzIE65TwdjNfzZwG3lz6pzn2r1zuEduXnyAMbTZgxPQ2Xrz+OAJDv8YkyCzVJnzi...

 Hide

Connection string

.....

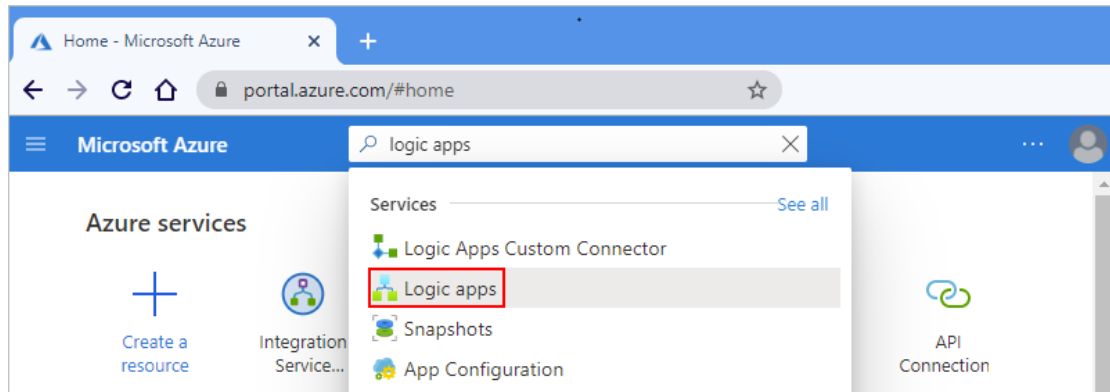
Show

## Create a Container for email attachments

1. In the storage account, navigate to **Containers** under Data storage. Select **+ Container** to add a container named *emailattachments*. Access level can be default Private.

## Create a Logic App resource

10. In the Azure search box, enter logic apps, and select Logic apps.



11. On the Logic apps page, select **+ Add**.
12. On the **Create Logic App** pane, select **Consumption, Multi-tenant** option and click **Select**.

### Create Logic App ...

Select a hosting option

These hosting plans determine the resource allocation, scaling and pricing fo

Consumption	
Hosting plans	<b>Multi-tenant</b> <input checked="" type="radio"/> Fully managed and easy to get started.
Compute	Shared
Networking	Public cloud
Pricing	Pay-per-operation

13. On the **Create Logic App** pane, on the **Basics** tab, provide the following basic information about your logic app:
  - a. **Subscription:** Your Azure subscription name. *Ex: Azure for students*
  - b. **Resource Group:** Select the resource group that you used with the storage account.
  - c. **Logic App name:** *Ex: storageaccount<student\_id>*. (can contain only letters, numbers, hyphens (-), underscores (\_), parentheses (()), and periods (.) and is unique across all regions). *Ex: Logic-App-<student\_id>*.
  - d. **Region:** Australia East
  - e. **Enable log analytics:** No

14. When you're done, your settings look similar to the following:

## Create Logic App (Multi-tenant) ...

**Basics** Tags Review + create

Create a logic app, which lets you group workflows as a logical unit for easier management, deployment and sharing of resources. Workflows let you connect your business-critical apps and services with Azure Logic Apps, automating your workflows without writing a single line of code.

### Project Details

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ	Azure for Students
Resource Group * ⓘ	RG-Week2

[Create new](#)

### Instance Details

Logic App name *	Logic-App-21171111 ✓
Region *	Australia East
Enable log analytics *	<input type="radio"/> Yes <input checked="" type="radio"/> No

**i** Looking for the classic consumption create experience? [Click here](#)

**Review + create**

< Previous

Next : Tags >

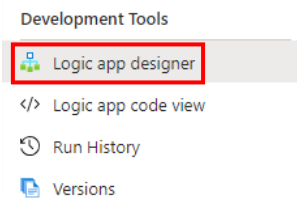
15. When you're ready, select **Review + Create**.

16. On the validation page that appears, confirm all the information that you provided, and select **Create**.

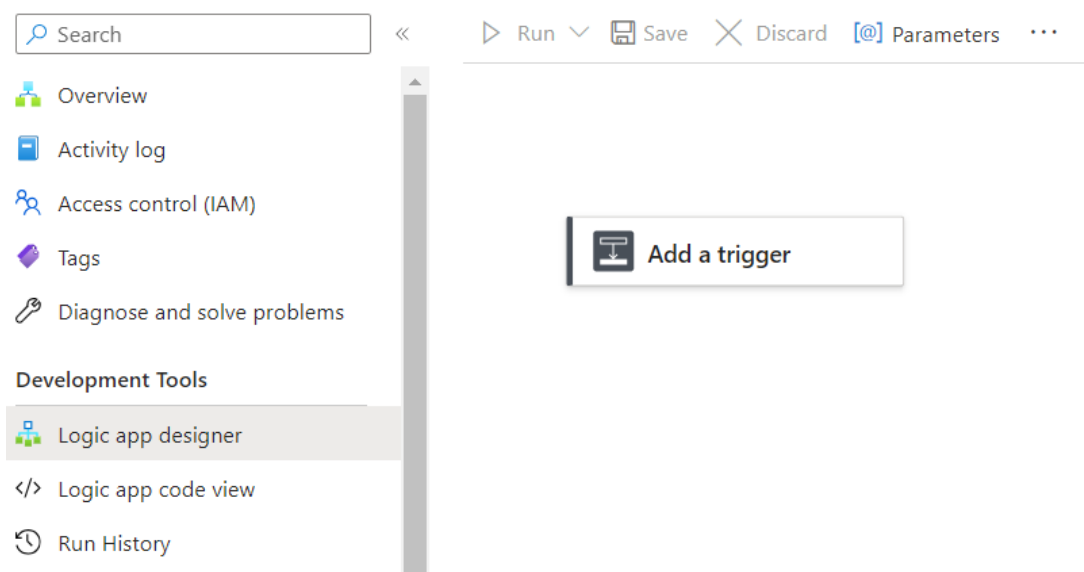


## Select the blank template

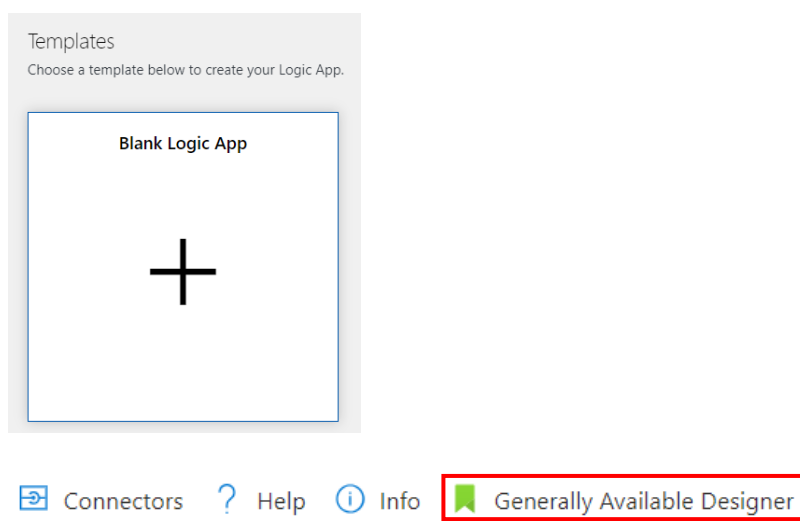
1. After Azure successfully deploys your app, select **Go to resource**. Or, find and select your logic app resource by typing the name in the Azure search box.
2. Select **Logic app designer** under **Development Tools** on the left navigation pane.



3. The designer should show an empty workflow where you can add the trigger.



**If not**, scroll down and select **Blank Logic App** under Templates, Select **Generally Available Designer** from the upper pane.



## Add the trigger

This workshop uses an Office 365 Outlook trigger that checks an email account. If a new email is received in the selected folder (ex: Inbox), the trigger fires, and a new workflow instance starts to run. If multiple new items exist between checks, the trigger fires for each item, and a separate new workflow instance runs for each item.

1. Select **Add a trigger** option.
2. In the search box, enter '**email arrives**'. Select the Office 365 Outlook trigger, **When a new email arrives (V3)**.

**Add a trigger** ✕

email arrives ✕

Runtime: Select a runtime Action Type: Triggers

☒ Group by Connector

**Gmail** See more

- When a new email arrives Trigger i

**Office 365 Outlook** See more

- When a new email arrives (V3)** Trigger i
- When a new email arrives in a shared mailbox (V2) Trigger i

3. Select **Sign in** and sign in to your student email account.
4. In the **Parameters** pane, enter following details,

Property	Required	Value
Folder	Yes	Inbox
Importance	Yes	Any
Only with Attachments	Yes	Yes
Include Attachments	Yes	Yes

Advanced parameters

Showing 4 of 9 ▼ Show all Clear all

Importance

Any ▼ ✕

Only With Attachments

Yes ▼ ✕

Include Attachments

Yes ▼ ✕

Folder

Inbox 📁 ✕

5. (Optional) In the Select **Advanced parameters** Dropdown and select **From**.

<b>From</b>	Yes	Email address that the email with the attachments is sent from. You can use your personal email address (Gmail) for this.
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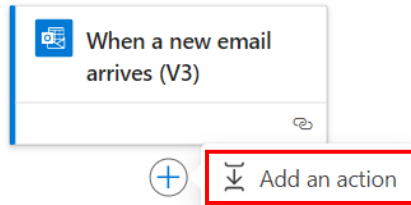
6. On the designer toolbar, select Save to save your logic app, which instantly goes live in the Azure portal.

The trigger doesn't do anything other than check the inbox folder. So, you need to add an action that defines what happens when the trigger fires.

## Add an Action

This workshop uses an Azure Blob storage action that create a blob for each attachment when the trigger fires for a new email.

1. Under the **When a new email arrives (V3)** trigger, select **+**, then **Add Action**.



2. In the search box, enter '**blob storage**' and select **Create blob (V2)** under Azure Blob Storage.


**Add an action** ✕

✕

Runtime Action Type

▼  ▼

☒ Group by Connector


 **Azure Blob Storage** ⓘ [See more](#)

**Create blob (V2)** ⓘ

Create block blob (V2) ⓘ

3. In the Azure Blob Storage action, change **Authentication type** to **Access Key**.
4. Enter following values to the fields,
  - a. **Connection Name**: Name for the connection to the storage account. *Ex: blob-connection.*
  - b. **Authentication Type**: **Access Key**
  - c. **Azure Storage Account Name or Blob Endpoint**: Storage account name that you created. ('Create Storage Account' section step 9)
  - d. **Azure Storage Account Access Key**: Storage Account Access Key. ('Create Storage Account' section step 9)

**Create a new connection**

Connection Name *	<input type="text" value="blob-connection"/>
Authentication Type *	<input type="text" value="Access Key"/>
Azure Storage Account Name Or Blob Endpoint * ⓘ	<input type="text" value="storageaccount21171233"/>
Azure Storage Account Access Key ⓘ	<input type="password" value="....."/> 

5. Select **Create**.
6. In the **Create blob (V2)** action,
  - a. For **Storage account name or blob endpoint**, select the connection settings for the created storage account.
  - b. For **Folder path**, enter `/emailattachments`

Folder Path \*


 

After adding the created container name, **add two '/' at the end**.  
Then select **Insert Expression**.




Folder Path \*

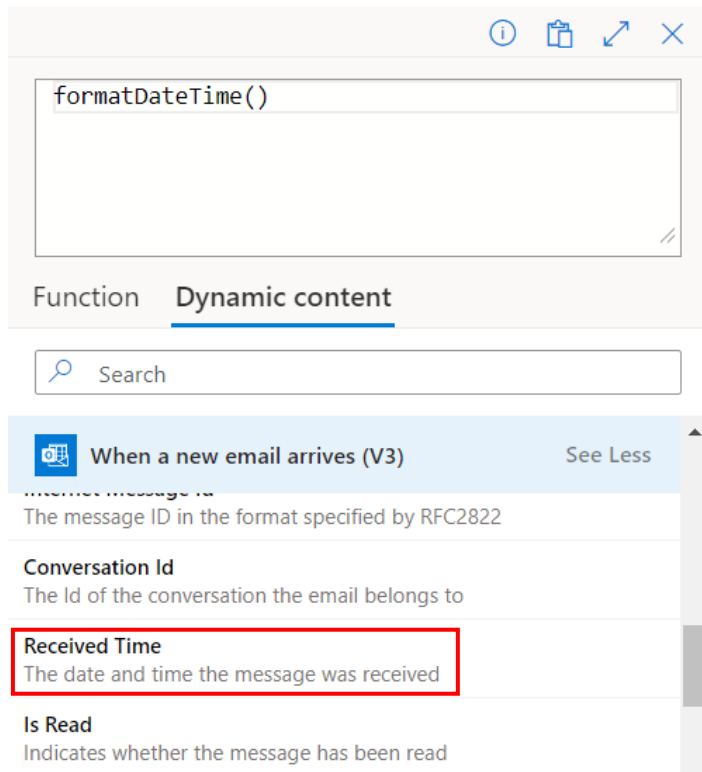
Blob Name \*

 Attachments Name

Blob Content \*

  Insert Dynamic Content  
 **Insert Expression**

Enter 'formatDateTime' in the text box. Open parenthesis '(' and select **Dynamic content** tab. Under that, select **Received Time** (if you cannot see **Received Time**, then click **see more**).



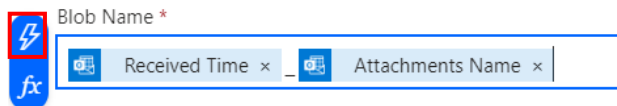
Go to the end of the expression, inside the parenthesis, put a comma ',' and insert 'yyyy-MM-dd'.

Final expression should look like this.

```
formatDateTime(triggerBody()?['receivedDateTime'], 'yyyy-MM-dd')
```

Click **ADD**.

- c. For **Blob name**, from the dynamic content window select **Received Time**, add an underscore '\_' and select **Attachments Name** from the dynamic content window.



- d. For **Blob content**, select **Attachments Content** from dynamic content window (Again, if you cannot see the property (Attachment Content) in the dynamic content window, click **see more**).

7. Final action window should look like the following.



## Create blob (V2) 1

**Parameters**

Settings

Code View

Testing

About

Storage Account Name Or Blob Endpoint \*

Use connection settings(sa21171234) ▾


Folder Path \*

/emailattachments/  formatDateTime(...) ×

Blob Name \*

 Received Time ×  Attachments Name ×

Blob Content \*

 Attachments Con... ×

Advanced parameters

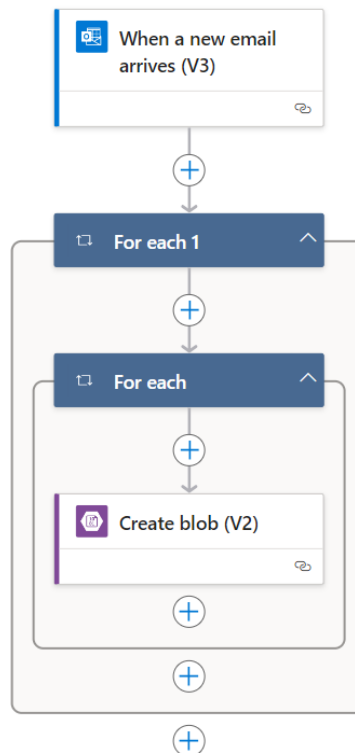
Showing 0 of 1 ▾

Show all

Clear all

**IMPORTANT:** Make sure you have '/' after emailattachments, in Folder Path.

8. After that, you will see that there are two "For Each" controls have been added to the workflow.

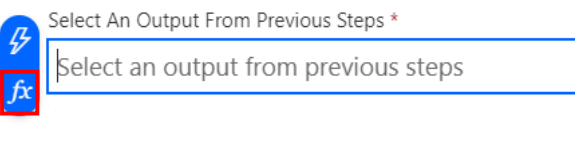


9. Select **For Each 1**, remove existing value, and change the **Select An Output From Previous Steps** to **Attachments**.

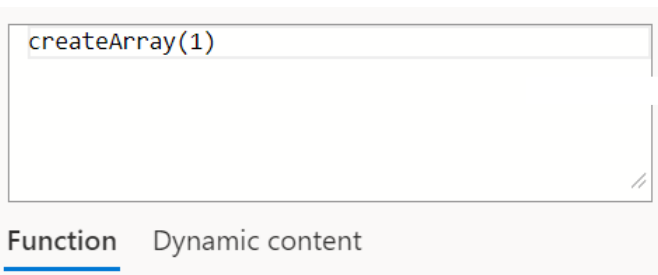


Parameters Settings Code View About

Select An Output From Previous Steps \*



Add `createArray(1)` in the expression field. Click **Add**.



10. Select **For Each**, remove existing value, and change the **Select An Output From Previous Steps** to **Attachments**.

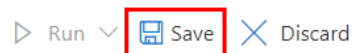


Parameters Settings Code View About

Select An Output From Previous Steps \*



11. Click **Save**.





## Run your workflow

To check that the workflow runs correctly, you can send an email with an attachment (ex: image, csv file) to your student email address (that you used to sign in to the trigger).

**Note:** If you add 'From' field in the trigger, make sure you use the email address that you entered for the 'From' field in the trigger to send the email.

If the logic app runs correctly, you should see a new folder and the attachment inside the container that you created within less than a minute after the email is received.

**emailattachments** Container

Search

Authentication method: Access key (Switch to Azure AD User Account)  
Location: emailattachments

Search blobs by prefix (case-sensitive)

Add filter

Name
<input type="checkbox"/> 2023-03-21

---

**emailattachments** Container

Search

Authentication method: Access key (Switch to Azure AD User Account)  
Location: emailattachments / 2023-03-21

Search blobs by prefix (case-sensitive)

Add filter

Name
<input type="checkbox"/> [.]
<input type="checkbox"/> 2023-03-21T06:47:00 00:00_Daily_report.csv

## Clean up resources

**IMPORTANT** When you're done with this workshop, delete/disable the logic app resource and any related resources to prevent unnecessary cost.