

Configuring Cloud Data Storage Integrations with Azure

This document describes how to create the Azure resources required to enable the Union Pacific Cloud data sharing service to deliver data to you.

Steps

Step 1: Create a Container in an Azure Storage Account

Create the storage account

If you have a storage account already you can reuse it.

The networking configuration needs to allow access from the internet. You will need permission to create a container and to change access control for the storage account.

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 *	Pay-As-You-Go
Resource group *	rg-snowflake-demo





[Create new](#)



Instance details

Storage account name * ⓘ	kfdemosnowflake02
Region * ⓘ	(US) East US
Primary service ⓘ	Azure Blob Storage or Azure Data Lake Storage Gen 2
Performance * ⓘ	<input checked="" type="radio"/> Standard: Recommended for most scenarios (general-purpose v2 account) <input type="radio"/> Premium: Recommended for scenarios that require low latency.
Redundancy * ⓘ	Locally-redundant storage (LRS)

Create a Container

Home > [kfddemosnowflake02_1738176584743 | Overview](#) > [kfddemosnowflake02](#)

 **kfddemosnowflake02 | Containers**   
Storage account

Search   [+ Container](#) [Change access level](#) [Restore container](#)

Search containers by prefix

	Name
<input type="checkbox"/>	\$logs
<input type="checkbox"/>	demo-data-container-02

- Overview
- Activity log
- Tags
- Diagnose and solve problems
- Access Control (IAM)
- Data migration
- Events
- Storage browser
- Storage Mover

Step 2: Provide storage container URL to the Union Pacific

Gather the name of the storage account. In this example it is **kfddemosnowflake02**

Gather the name of the container. For example: **demo-data-container-02**

Provide the URL to the container to the Union Pacific. For example, this is the URL to provide: **azure://kfddemosnowflake02.blob.core.windows.net/demo-data-container-02/**

Step 3: Provide the Azure Tenant ID

Gather the tenant ID for the azure subscription. For example, you can navigate to the directory and view the tenant ID from the overview screen.

Navigation: Add, Manage tenants, What's new, Preview features, Got feedback?

Message: To improve your experience, we're experimenting with your Home page. Click "Got feedback?" to tell us.

Tabs: Overview (selected), Monitoring, Properties, Recommendations, Setup guides

Search: Search your tenant

Basic information		
Name	Default Directory	Users
Tenant ID	f391da4a-d46c-4ec1-a8ed-0b19ba730529	Group
Primary domain	dverkylegmail.onmicrosoft.com	Applic
License	Microsoft Entra ID Free	Device

In this example the tenant id is f391da4a-d46c-4ec1-a8ed-0b19ba730529

Provide the tenant ID to the Union Pacific.

Step 4: Accept requested permissions using the Consent URL

Union Pacific will create a Snowflake storage integration in the Union Pacific Snowflake account.

Union Pacific will provide:

1. an azure **consent URL**
2. an azure **multi-tenant application name** ("snowflake" will appear in this name)

An admin user in your organization will need to visit the **consent URL** and accept the requested permission: "Sign in and read user profile". After consenting on behalf of your organization the azure **multi-tenant application** will appear in the list of enterprise applications in the EntraID Tenant.

The multi-tenant application name will match the one provided by Union Pacific. It will have a corresponding service principal to which you will grant permissions on the storage account container.

Step 5: Grant permissions on storage account container to the multi-tenant application

Select the storage blob contributor role (or some less privileged role)

Add role assignment

Role **Members** Conditions Review + assign

Selected role Storage Blob Data Contributor

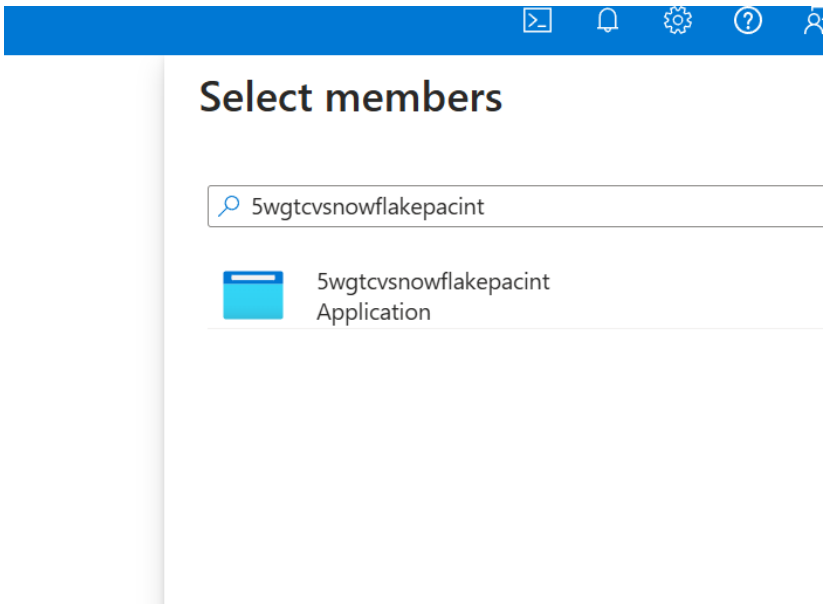
Assign access to User, group, or service principal
 Managed identity

Members [+ Select members](#)

Name	Object ID
No members selected	

Description

When you search for the service principal type in the name of the multi-tenant application provided by Union Pacific.



Confirm that the multi-tenant snowflake application has access to the storage account.

Storage account: **kfddemosnowflake02** | Access Control (IAM) ☆ ...

Search: Add Download role assignments Edit columns Refresh Delete Feedback

Overview Activity log Tags Diagnose and solve problems **Access Control (IAM)** Data migration Events Storage browser Storage Mover Partner solutions Data storage Containers File shares Queues Tables Security + networking Data management Settings Monitoring Monitoring (classic) Automation

Check access **Role assignments** Roles Deny assignments Classic administrators

Number of role assignments for this subscription: 7 / 4000 Privileged: 3 [View assignments](#)

All Job function (1) Privileged (3)

Search by name or email: Type: All Role: All Scope: All scopes Group by: Role

4 items (3 Users, 1 Service Principals)

Name	Type	Role
Contributor (2)		
<input type="checkbox"/> Manish Gupta mkgupta27_outlook.com#EXT#@dyerkylegmail.onmicrosoft.com	User	Contributor
<input type="checkbox"/> Manish Gupta mkgupta27_outlook.com#EXT#@dyerkylegmail.onmicrosoft.com	User	Contributor
Storage Blob Data Contributor (1)		
<input type="checkbox"/> Swgtcvsnowflakepacint	App	Storage Blob Data Contributor
User Access Administrator (1)		
<input type="checkbox"/> Kyle Dyer dyer.kyle_gmail.com#EXT#@dyerkylegmail.onmicrosoft.com	User	User Access Administrator

Send a notice to Union Pacific that you have granted the permissions on the storage account container.

Step 6: Union Pacific confirms the application has permissions

Union Pacific will run a quick test to confirm that the storage integration service has permission to the storage account container.

References

Snowflake Guide on configuring Azure container for loading data: <https://docs.snowflake.com/user-guide/data-load-azure-config>

Blog post that provides another good summary of the steps: <https://interworks.com/blog/2023/01/17/configuring-storage-integrations-between-snowflake-and-azure-storage/>