

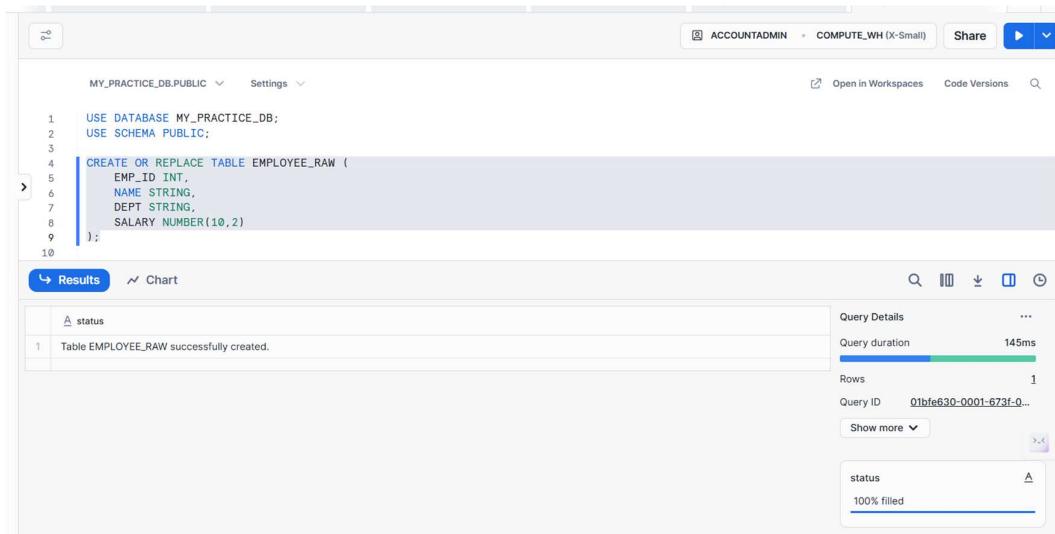
Set up Snowpipe with Azure Blob Storage and monitor using COPY_HISTORY

Objective

Automatically ingest files from Azure Blob Storage into Snowflake using Snowpipe and monitor ingestion status.

Step 1: Created Snowflake Table

- Created the table **EMPLOYEE_RAW** with columns matching the CSV file (EMP_ID, NAME, DEPT, SALARY).
- This table will store the ingested employee data.



The screenshot shows the Snowflake UI interface. In the top navigation bar, it says 'ACCOUNTADMIN' and 'COMPUTE_WH (X-Small)'. Below the navigation, there's a 'Share' button and a search icon. The main area has tabs for 'MY_PRACTICE_DB.PUBLIC' and 'Settings'. A code editor window is open with the following SQL query:

```
1 USE DATABASE MY_PRACTICE_DB;
2 USE SCHEMA PUBLIC;
3
4 CREATE OR REPLACE TABLE EMPLOYEE_RAW (
5   EMP_ID INT,
6   NAME STRING,
7   DEPT STRING,
8   SALARY NUMBER(10,2)
9 );
10
```

Below the code editor, there are two tabs: 'Results' and 'Chart'. The 'Results' tab shows a single row of output:

status
1 Table EMPLOYEE_RAW successfully created.

On the right side of the results table, there are 'Query Details' and 'Show more' buttons. The 'Query Details' section shows:

- Query duration: 145ms
- Rows: 1
- Query ID: 01bfe630-0001-673f-0...

At the bottom right, there's a progress bar labeled 'status' with '100% filled'.

Step 2: Uploaded CSV File to Azure Blob Storage

- Uploaded the file **employee.csv** into the Azure container **assign3**.
- Verified the file contents (EMP_ID, NAME, DEPT, SALARY) are correct.

Microsoft Azure

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Overview

Upload Open in Explorer Delete Move Refresh Open in mobile CU / PS Feedback JSON View

Essentials

Resource group (move)	: rg-azuser4840 mmilocal-SK (R0)
Location	: centralindia
Subscription (move)	: MMILearners
Subscription ID	: 2a3c6418-9fb9-4d98-a24b-2c2d7633d375
Disk state	: Available
Tags (edit)	: Add tags

Properties Monitoring Capabilities (5) Recommendations (0) Tutorials Tools + SDKs

Data Lake Storage

Hierarchical namespace	Enabled
Default access tier	Hot
Blob anonymous access	Enabled
Blob soft delete	Enabled (7 days)
Container soft delete	Enabled (7 days)
Versioning	Disabled
Change feed	Disabled

Security

Require secure transfer for REST API operations	Enabled
Storage account key access	Enabled
Minimum TLS version	Version 1.2
Infrastructure encryption	Disabled

Networking

Public network access	Enabled
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Secure + networking

https://portal.azure.com/#@rg-azuser4840.mmilocal.onmicrosoft.com

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Containers

Add container Upload Refresh Delete Change access level Restore containers Edit columns

Search containers by prefix Only show active containers

Name	Last modified	Anonymous access level	Lease state
slogs	10/15/2025, 10:15:40 AM	Private	Available
assign3	10/16/2025, 10:14:22 PM	Container	Available
bronze	10/15/2025, 12:46:26 PM	Container	Available
retailsales	10/22/2025, 8:40:29 PM	Container	Available
salesdata	10/15/2025, 10:19:19 AM	Container	Available

Security + networking

Add or remove favorites by pressing Ctrl+Shift+F

Microsoft Azure

hexadatastorage | Containers > assign3 Container

Add Directory Upload Refresh Delete Copy Paste Rename Acquire lease Break lease Edit columns

Search blobs by prefix (case-sensitive) Only show active objects

Name	Last modified	Access tier	Blob type	Size	Lease state
employee.csv	10/16/2025, 10:16:08 PM	Hot (Inferred)	Block blob	85 B	Available

Step 3: Created External Stage in Snowflake

- Created an external stage **AZURE_EMP_STAGE** to connect Snowflake with the Azure Blob container.
- Verified that the file was accessible from Snowflake using the LIST command.

```
17
18
19 CREATE OR REPLACE PIPE EMP_PIPE AS
20   COPY INTO EMPLOYEE_RAW
21   FROM @AZURE_EMP_STAGE
22   FILE_FORMAT = (TYPE = CSV FIELD_OPTIONALLY_ENCLOSED_BY='"' SKIP_HEADER=1);
23
24
25   ALTER PIPE EMP_PIPE REFRESH;
26
27
28   SELECT * FROM EMPLOYEE_RAW LIMIT 10;
29
30   LIST @AZURE_EMP_STAGE;
31
-- Output +
```

Step 4: Created Snowpipe for Automatic Loading

- Created a Snowpipe named **EMP_PIPE** to automatically load files from the Azure stage into the **EMPLOYEE_RAW** table whenever new files arrive.

```
9   ;
10
11 CREATE OR REPLACE STAGE AZURE_EMP_STAGE
12 URL='azure://hexadatastorage.blob.core.windows.net/assign3'
13 CREDENTIALS=(AZURE_SAS_TOKEN='sp=rwl&st=2025-10-16T16:39:56Z&se=2025-10-17T00:54:56Z&spr=https&sv=2024-11-
04&sr=c&sig=%2F7ioqEWVv14InKV99z0Sa7KlJ3bk5Y%2BaRXJVbIKUczmE%3D');
14
15
16   LIST @AZURE_EMP_STAGE;
17
18
19 CREATE OR REPLACE PIPE EMP_PIPE AS
20   COPY INTO EMPLOYEE_RAW
21   FROM @AZURE_EMP_STAGE
22   FILE_FORMAT = (TYPE = CSV FIELD_OPTIONALLY_ENCLOSED_BY='"' SKIP_HEADER=1);
23
24
25   ALTER PIPE EMP_PIPE REFRESH;
26
```

Step 5: Triggered Snowpipe Manually

- Manually triggered the Snowpipe using the refresh command to load data from the stage into the target table.
- Snowpipe detected and loaded the **employee.csv** file.

Step 6: Verified Data in Target Table

- Verified that all records from **employee.csv** were successfully loaded into **EMPLOYEE_RAW**.
- Confirmed 3 rows (John, Anu, Bob) were inserted correctly.

Step 7: Monitored Ingestion Using **COPY_HISTORY**

- Used the **COPY_HISTORY** function to monitor the ingestion status.
- Confirmed that the file **employee.csv** was **LOADED** successfully and showed **3 rows** ingested.

```
28   SELECT * FROM EMPLOYEE_RAW LIMIT 10;
29
30 LIST @AZURE_EMP_STAGE;
31
32   SELECT *
33   FROM TABLE(INFORMATION_SCHEMA.COPY_HISTORY(
34     TABLE_NAME => 'EMPLOYEE_RAW',
35     START_TIME => DATEADD('hour', -1, CURRENT_TIMESTAMP())
36   ))
37 ORDER BY LAST_LOAD_TIME DESC;
38
39
40 | SELECT * FROM EMPLOYEE_RAW LIMIT 10;
41
42
43
```

Final Outcome

- Snowpipe successfully automated file ingestion from Azure Blob Storage to Snowflake.
- Verified data loading and monitored ingestion logs using **COPY_HISTORY**.