



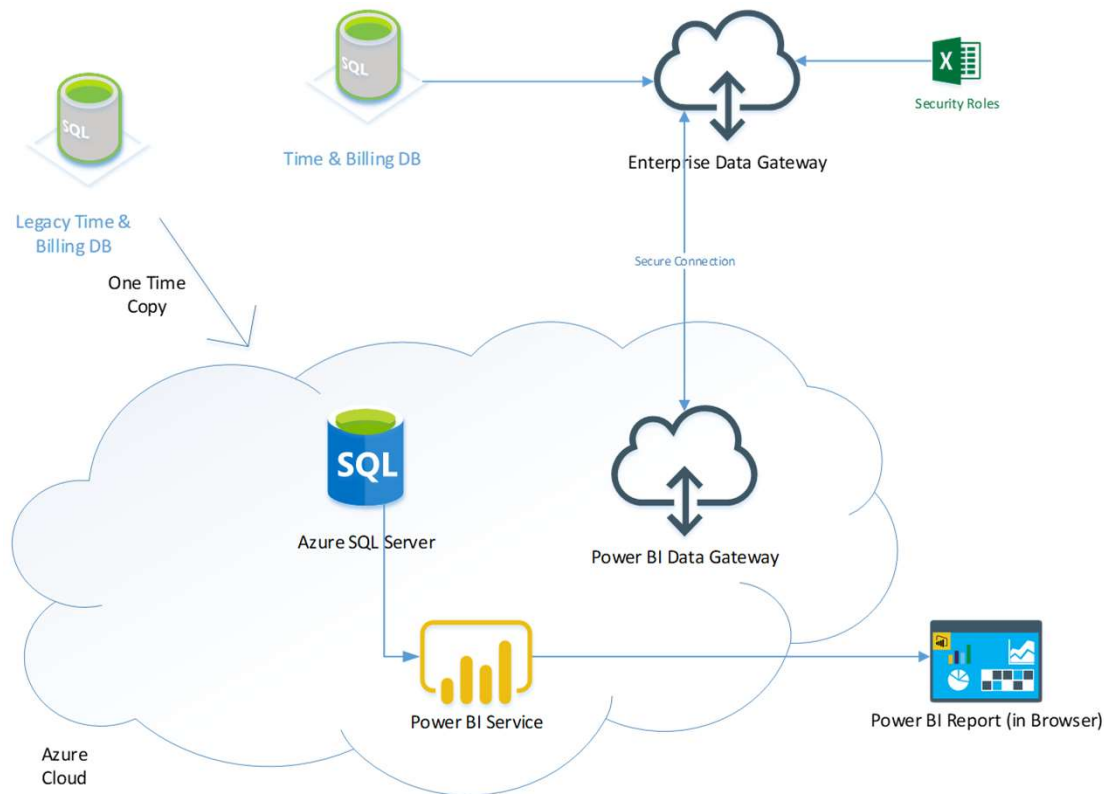
# **Reusing Power BI Dataflows in Azure Synapse**

**Houston Power BI Users Group  
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# Basic Power BI Architecture

## Legal Firm Analytics



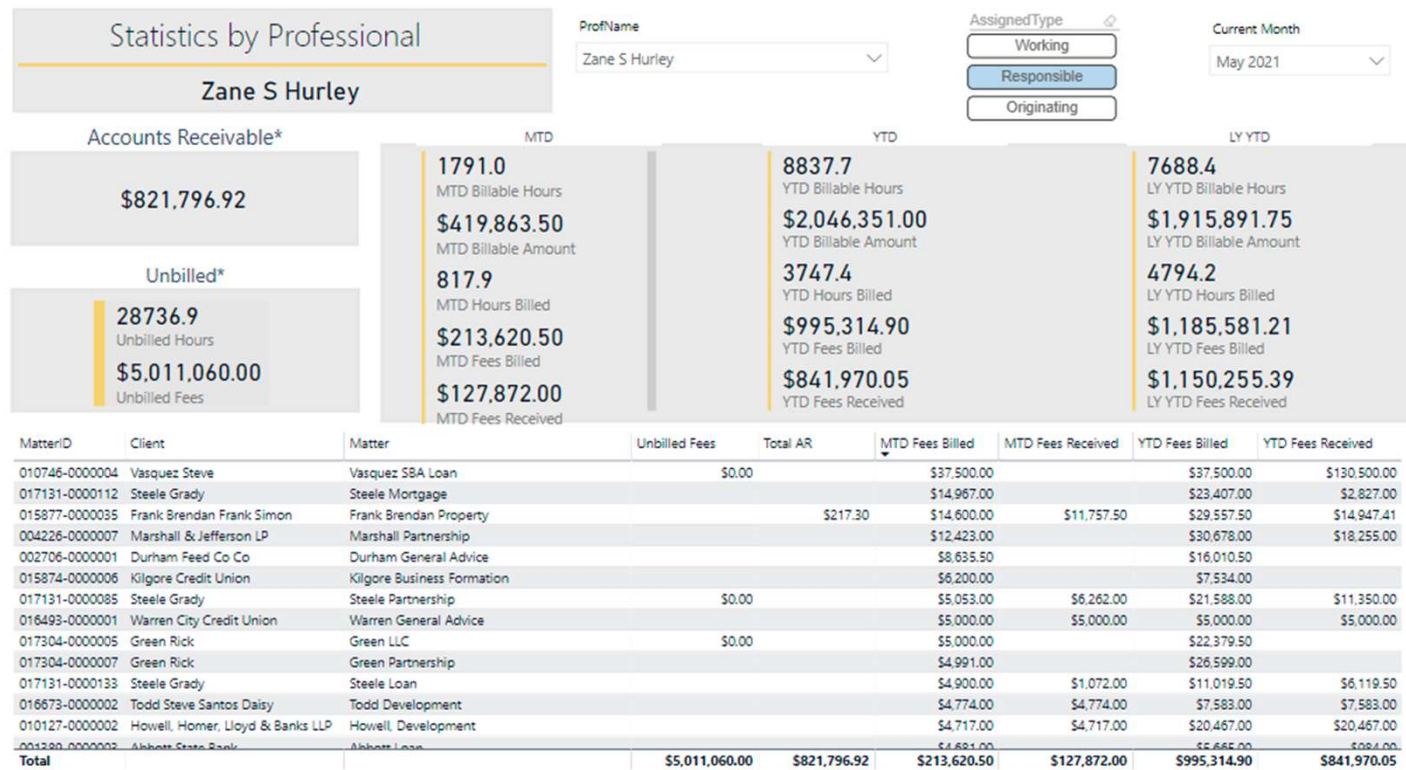
**You've got Ops & Finance Data sourced, cleaned & usable for Power BI Dashboards.**

What if you could reuse it?

- Corporate Performance Management
- FP&A tools
- Budgeting
- 3<sup>rd</sup> party tools
- Etc.

# Productivity

## Legal Dashboards



\* These figures are current as of the refresh date. They do not change as the Current Month changes.

# Azure Data Lake

## Workspaces

powerbi ...

Container

<<

Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Shared access tokens

Manage ACL

Access policy

Upload

Add Directory

Refresh

Ren.

**Authentication method:** Access key [\(Switch to Azure AD Use](#)  
**Location:** powerbi

Name	Modified
<input type="checkbox"/> LegalDataLakehouse	
<input type="checkbox"/> LegalDataLakehouseInc	
<input type="checkbox"/> LegalDataLakehousePro	

# Azure Data Lake

## Power BI Dataflows – Pro

powerbi

Container

Search (Ctrl+J)

«

Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Shared access tokens

Manage ACL

Access policy

Properties

Upload

Add Directory

Refresh

Rename

Delete

Change tier

Authentication method:

Access key (Switch to Azure AD User Account)

Location:

powerbi / LegalDataLakehousePro / LegalLakehouseFact / Transaction.csv.snapshots

Search blobs by prefix (case-sensitive)

Name	Modified	Access tier	Blob type
<input type="checkbox"/> [..]			
<input type="checkbox"/> Transaction.csv@snapshot=20...	6/28/2021, 7:37:38 PM	Hot (Inferred)	Block blob
<input type="checkbox"/> Transaction.csv@snapshot=20...	6/28/2021, 8:48:37 PM	Hot (Inferred)	Block blob

# Azure Data Lake

## Power BI Dataflows – PPU (Premium Per User) - Data

powerbi

Container

Search (Ctrl+J)

«

Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Shared access tokens

Manage ACL

Access policy

Properties

Upload

Add Directory

Refresh

Rename

Delete

Change tier

Authentication method:

Access key (Switch to Azure AD User Account)

Location:

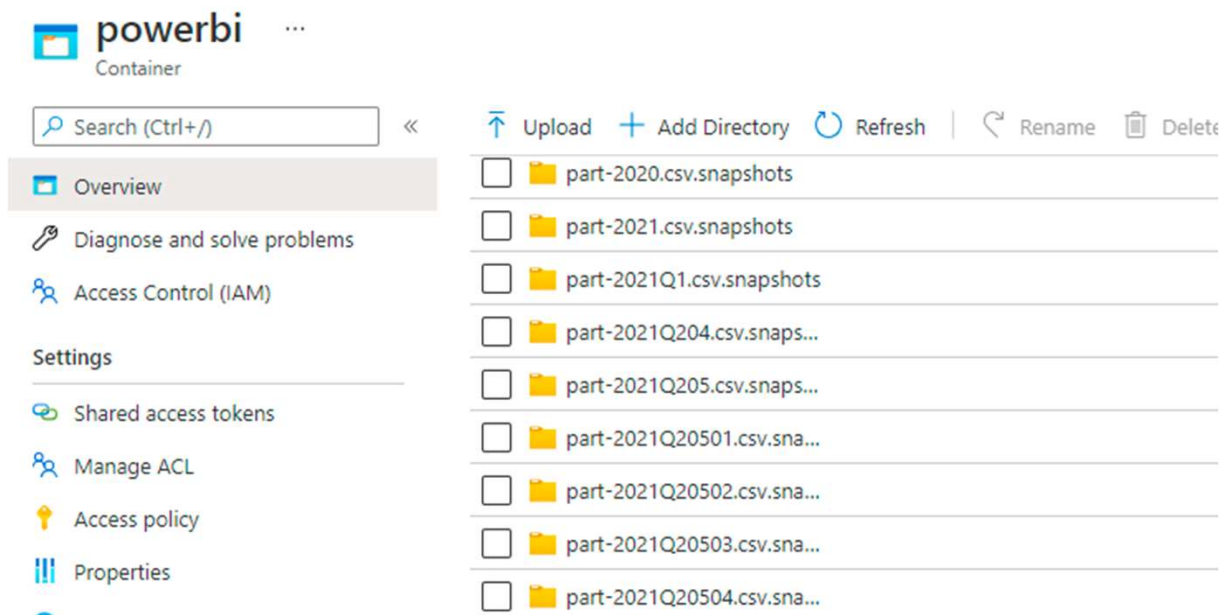
powerbi / LegalDataLakehouse / LegalLakehouseFact / Transaction / Transaction.csv.snapshots

Search blobs by prefix (case-sensitive)

Name	Modified	Access tier	Blob type
<input type="checkbox"/> [..]			
<input type="checkbox"/> Transaction.csv@snapshot=20...	6/28/2021, 7:56:43 PM	Hot (Inferred)	Block blob

# Azure Data Lake

## Power BI Dataflows – PPU + Incremental Refresh - Partitions



# Azure Data Lake

## Power BI Dataflows – PPU + Incremental Refresh - Data

powerbi

Container

Search (Ctrl+ /)

«

Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Shared access tokens

Manage ACL

Access policy

Upload

Add Directory

Refresh

Rename

Delete

Change tier

Acquire lease

Br

Authentication method:

Access key (Switch to Azure AD User Account)

Location:

powerbi / LegalDataLakehouseInc / LegalLakehouseFact / Transaction / Transaction / part-2021Q20521.csv.snapshots

Search blobs by prefix (case-sensitive)

Name	Modified	Access tier	Blob type	Size
<input type="checkbox"/> [..]				
<input type="checkbox"/> part-2021Q20521.csv@sn...	6/28/2021, 9:10:45 PM	Hot (Inferred)	Block blob	230.6 KiB
<input type="checkbox"/> part-2021Q20521.csv@sn...	6/28/2021, 9:15:09 PM	Hot (Inferred)	Block blob	230.6 KiB



# Synapse Analytics

## Serverless SQL

```
--*****
--Step #1: create new database on 'Built-In' (Serverless SQL)
--Notes/Refs:
--Use 'COLLATE Latin1_General_100_BIN2_UTF8' for Parquet predicate pushdown
--https://docs.microsoft.com/en-us/azure/synapse-analytics/sql/best-practices-serverless-sql-pool

USE master

--DROP DATABASE LegalDataLakehouse

CREATE DATABASE LegalDataLakehouse COLLATE Latin1_General_100_BIN2_UTF8

USE LegalDataLakehouse
```

# Synapse Analytics

## Serverless SQL 2

```
--*****
--Step #2: create master key to protect credentials
--Notes/Refs:
--https://docs.microsoft.com/en-us/azure/synapse-analytics/sql/create-use-views
--https://github.com/Azure-Samples/Synapse/blob/main/SQL/Samples/LdwSample/SampleDB.sql

USE LegalDataLakehouse
IF NOT EXISTS (SELECT * FROM sys.symmetric_keys) BEGIN
    declare @password nvarchar(400) = CAST(newid() as VARCHAR(400));
    EXEC('CREATE MASTER KEY ENCRYPTION BY PASSWORD = ''' + @password + ''')
END

select * from sys.symmetric_keys
```

# Synapse Analytics

## Serverless SQL 3

```
--*****
--Step #3: create credentials for containers in our storage account
--Notes/Ref:
--Generate SAS Key directly from the storage account container
-- MUST have Read & List permissions, set duration
--https://github.com/Azure-Samples/Synapse/blob/main/SQL/Samples/LdwSample/SampleDB.sql

--drop DATABASE SCOPED CREDENTIAL datalakepbicred
CREATE DATABASE SCOPED CREDENTIAL datalakepbicred
WITH IDENTITY='SHARED ACCESS SIGNATURE',
SECRET = 'sp=rl&st=2021-06-28T11:10:17Z&se=2022-06-28T19:10:17Z&spr=https&sv=2020-02-10&sr=c&sig=xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx'
--secret redacted before commit!

select * from sys.database_scoped_credentials
```

# Synapse Analytics

## Serverless SQL 4

```
--*****
--Step #4: create data_source using location and credentials for our storage account
--Notes/Ref:
--https://github.com/Azure-Samples/Synapse/blob/main/SQL/Samples/LdwSample/SampleDB.sql

--drop external data source datalakepbids
CREATE EXTERNAL DATA SOURCE datalakepbids WITH (
    LOCATION = 'https://styyyyydataalakexxxx.blob.core.windows.net/powerbi',
    CREDENTIAL = datalakepbicred
)

select * from sys.external_data_sources
```

# Synapse Analytics

## Serverless SQL 5

```
--*****
--Step #5: Setup SQL user for external access

USE MASTER
CREATE LOGIN lxxxxxxxxxReader WITH PASSWORD = 'xxxxxxxxxxxxxxxxxxxxxxx'; --pwd redacted

USE LegalDataLakehouse
CREATE USER lxxxxxxxxxReader FROM LOGIN lxxxxxxxxxReader;

ALTER ROLE db_datareader ADD MEMBER lxxxxxxxxxReader;

--REVOKE REFERENCES ON DATABASE SCOPED CREDENTIAL::datalakepicred TO lxxxxxxxxxRedear;
GRANT REFERENCES ON DATABASE SCOPED CREDENTIAL::datalakepicred TO lxxxxxxxxxReader;
```