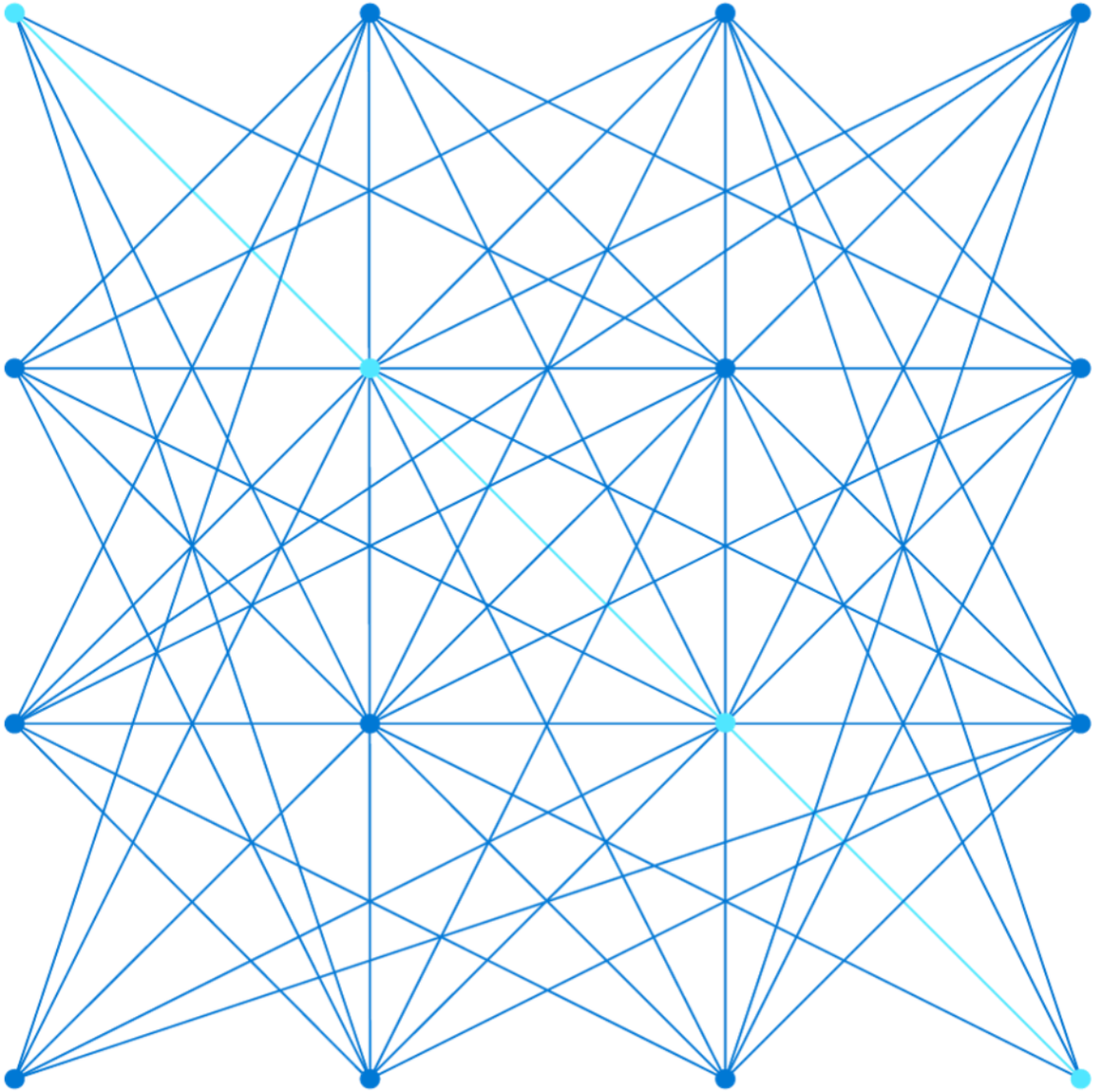
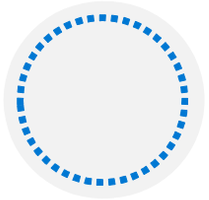
Microsoft Azure

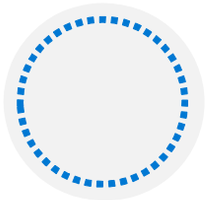
DP-203T00: Run interactive queries using Azure Synapse Analytics serverless SQL pools



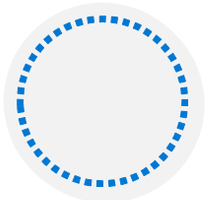
Agenda



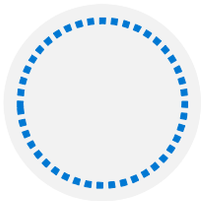
Lesson 01: Explore Azure Synapse serverless SQL pools capabilities



Lesson 02: Query data in the lake using Azure Synapse serverless SQL pools



Lesson 03: Create metadata objects in Azure Synapse serverless SQL pools



Lesson 04: Secure data and manage users in Azure Synapse serverless SQL pools

Lesson 01: Explore Azure Synapse serverless SQL pools capabilities

Azure Synapse serverless SQL Pools

Every Azure Synapse Analytics workspace comes with serverless SQL pool endpoints so you can start querying data in seconds to minutes in a data lake as soon as the workspace is created. There's no infrastructure to setup or clusters to maintain.

Comparing dedicated SQL Pools with serverless SQL pools in Azure Synapse Analytics

Dedicated SQL pools

- Used for Data Warehouse operations
- Provides predictable performance and costs
- Reserves processing power for data stored in SQL tables

Serverless SQL pools

- Used for data preparation or ad-hoc queries against unstructured data.
- Provides an always available SQL endpoint for unplanned workloads
- Enables interactive querying

Explore Azure Synapse serverless SQL pools capabilities

Every Azure Synapse Analytics workspace comes with serverless SQL pool endpoints so you can start querying data in seconds to minutes in a data lake as soon as the workspace is created. There's no infrastructure to setup or clusters to maintain.

Data Exploration

Browse the data lake and get initial insights about the data. Using Azure Synapse Studio, you can explore the data both graphically and programmatically.

Data transformation

Serverless SQL pool enables you to execute transformation statements over the data in the lake and store the results back to the data lake in a specified file format.

Logical data warehouse

Create objects (such as VIEWs and External Tables) that provide you with a SQL metadata layer over the data in the lake to create a logical data warehouse. Once these objects are created, any tool that can connect to serverless SQL pool will see these objects as regular SQL Server objects

Lesson 01: Query data in the lake using Azure Synapse serverless SQL pools

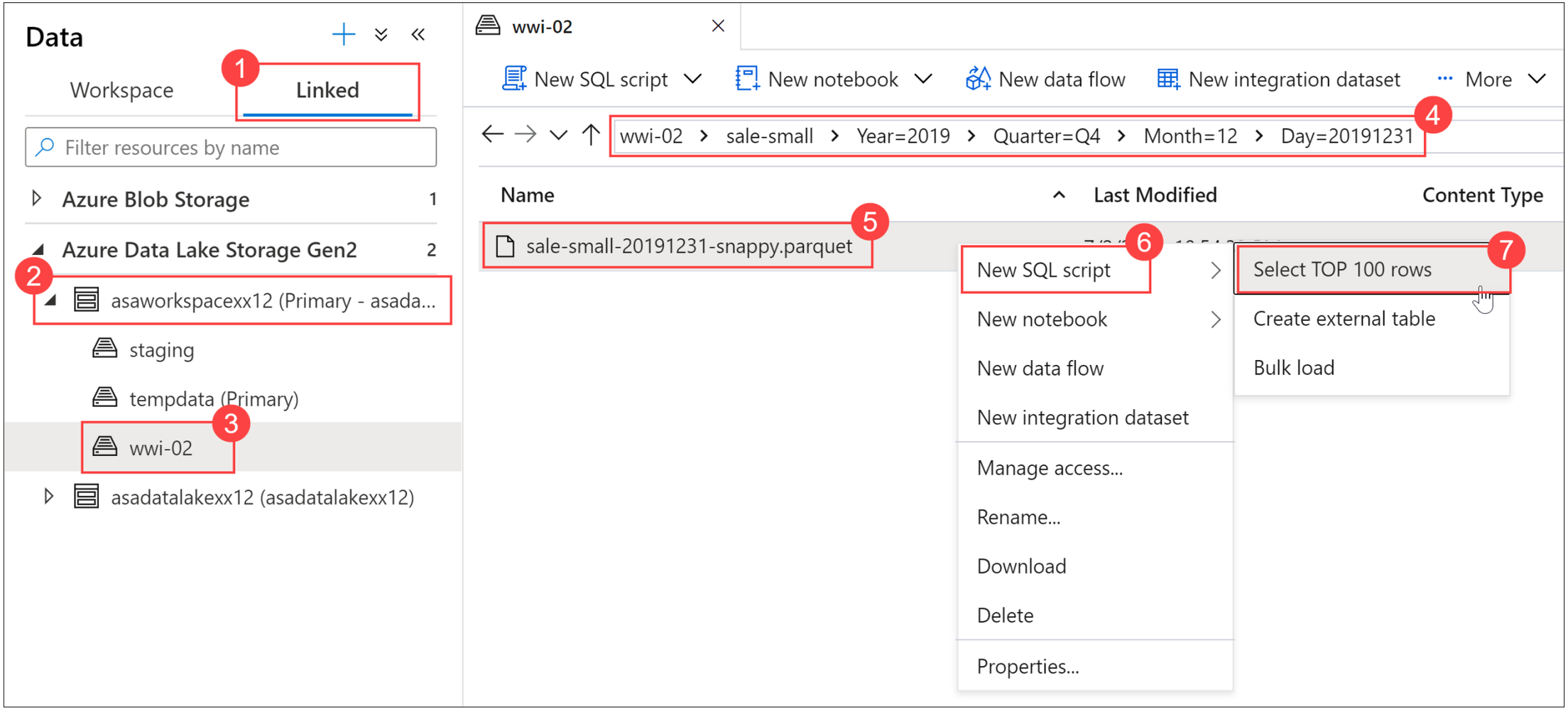
Common files to query

Parquet

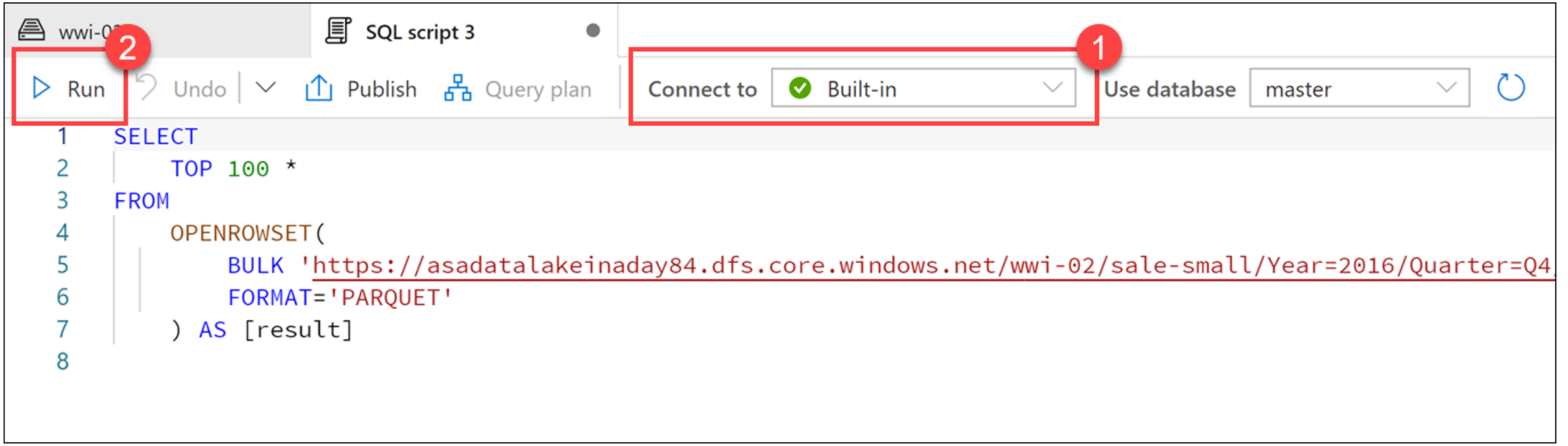
Json

DelimitedText

Using Azure Synapse Studio to view data



Querying parquet files in a data lake



Lesson 01: Create metadata objects in Azure Synapse serverless SQL pools

Create metadata objects in Azure Synapse serverless SQL pools

Database

```
CREATE DATABASE [YourDatabaseName]
```

Database scoped credential

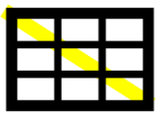
```
CREATE DATABASE SCOPED CREDENTIAL [sqlondemand]
WITH IDENTITY='SHARED ACCESS SIGNATURE',
SECRET = 'sv=2018-03-28&ss=bf&srt=sco&sp=rl&'
```

External data source

```
CREATE EXTERNAL DATA SOURCE SqlOnDemandDemo WITH (
    LOCATION = 'https://sqlondemandstorage.blob.core.windows.net',
    CREDENTIAL = sqlondemand );
```

External file format

```
CREATE EXTERNAL FILE FORMAT QuotedCsvWithHeaderFormat
WITH
( FORMAT_TYPE = DELIMITEDTEXT,
FORMAT_OPTIONS ( FIELD_TERMINATOR = ',', STRING_DELIMITER = '"',
FIRST_ROW = 2 ) );
```



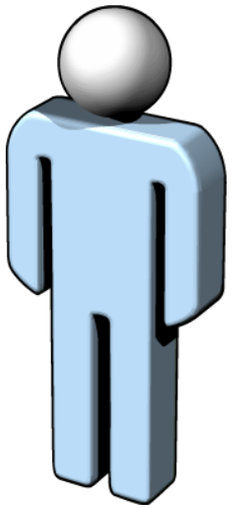
External Table

```
CREATE EXTERNAL TABLE populationExternalTable
( [country_name] VARCHAR (100) COLLATE Latin1_General_BIN2,
[year] smallint, [population] bigint )
WITH
( LOCATION = 'csv/population/population.csv',
DATA_SOURCE = sqlondemanddemo,
FILE_FORMAT = QuotedCSVWithHeaderFormat );
```

Lesson 01: Secure data and manage users in Azure Synapse serverless SQL pools

Securing access to data in a data lake when using Azure Synapse Analytics

Choose an authentication method



Azure Synapse Analytics
dedicated SQL pool

Authentication options
SQL Authentication
Or
Azure Active Directory
Authentication

Azure Data Lake
Store

Authentication options
Anonymous access
Shared access signature
Managed identity
User identity

Manage users in Azure Synapse serverless SQL pools

User

Bob

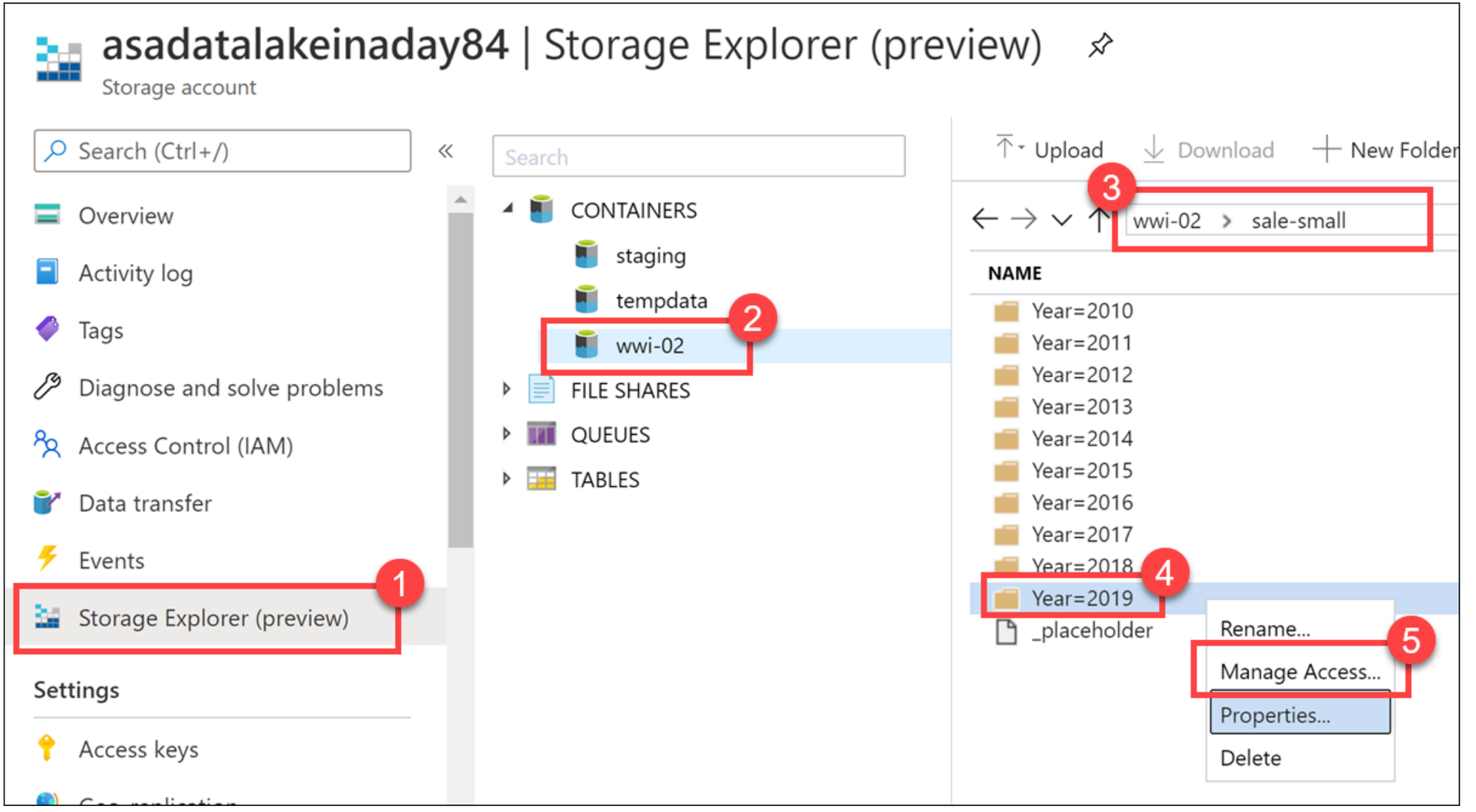
Role assignment

Storage Blob Data Reader

Storage account name

asadatalakeinaday84

Manage user access to data lake files



Review questions

Q01 – Which SQL function enables you to access files in Azure storage and read the contents of a remote data source?

A01 – OPENROWSET

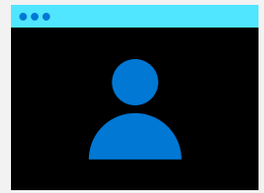
Q02 – Which metadata object allows you to reuse the queries that you create and enable applications to view data in a serverless SQL pool?

A02 – Views

Q03 – Name the three permissions that can be set on a container object?

A03 – Read, write and execute

Lab: Run interactive queries using Azure Synapse Analytics serverless SQL pools



Lab overview

In this lab, students will learn how to work with files stored in the data lake and external file sources, through T-SQL statements executed by a serverless SQL pool in Azure Synapse Analytics. Students will query Parquet files stored in a data lake, as well as CSV files stored in an external data store. Next, they will create Azure Active Directory security groups and enforce access to files in the data lake through Role-Based Access Control (RBAC) and Access Control Lists (ACLs).

Lab objectives

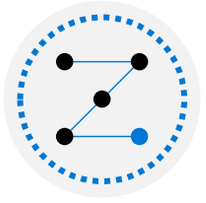
After completing this lab, you will be able to:

Querying a Data Lake Store using serverless SQL pools in Azure Synapse Analytics

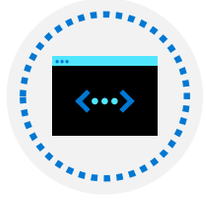
Securing access to data through using a serverless SQL pool in Azure Synapse Analytics

Lab review

Question 1 – Where in Azure Synapse Studio, can you Select TOP 100 rows of data stored in a data lake?



Question 2 – When scripting an External table using the “Create external table” GUI method in Synapse Studio, what metadata objects are created?



Question 3 – Which CREDENTIAL identity type can be time limited?

Question 4 – Which role enables a user to create external table as select (CETAS) against an Azure Data Lake Gen2 data store

Module summary

In this module, you have learned about:

- Explore Azure Synapse serverless SQL pools capabilities
- Query data in the lake using Azure Synapse serverless SQL pools
- Create metadata objects in Azure Synapse serverless SQL pools
- Secure data and manage users in Azure Synapse serverless SQL pools

Next steps

After the course, consider reading the documentation on the best practices for serverless SQL pool in Azure Synapse Analytics

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