**Creating External Tables and Views in Azure Synapse Serverless SQL Pool**

**1. Introduction to Serverless SQL in Azure Synapse**

**What is Azure Synapse Serverless SQL Pool?**

Azure **Synapse Serverless SQL Pool** is a **pay-per-query** solution that enables **on-demand querying of data stored in Azure Data Lake (ADLS)** without the need for preloaded data.

**Key Features of Serverless SQL**

**No Data Storage** – Queries directly from **ADLS without needing a database**.  
**Schema-on-Read** – Data structure is **determined at query time**, allowing flexible queries.  
**Pay per Query** – **Only pay for the data scanned** instead of paying for infrastructure.  
**Built-in Security** – Uses **Managed Identity, SAS tokens, or Credentials** for access control.

**Why Use Serverless SQL Instead of a Dedicated SQL Pool?**

| **Feature** | **Serverless SQL Pool** | **Dedicated SQL Pool** |
| --- | --- | --- |
| **Infrastructure** | No setup required | Needs **provisioned resources** |
| **Data Storage** | Uses **external storage (ADLS)** | Stores data **inside Synapse** |
| **Cost Model** | **Pay per query** | Pay for **reserved capacity** |
| **Use Case** | Querying **ADLS data** | High-performance **data warehouse** |

**2. Why Use External Tables and Views?**

When working with **Azure Synapse Serverless SQL**, you can **query ADLS files in two ways**: 1️. **External Tables** – Persistent, structured access to external files.  
2️. **Views (OPENROWSET)** – Temporary, on-demand file queries.

**External Tables vs. Views: Which One to Use?**

| **Feature** | **External Table (NEW1)** | **View (NEW) with OPENROWSET** |
| --- | --- | --- |
| **Best For** | Repeated queries, **structured data access** | **Ad-hoc or one-time queries** |
| **Performance** | Faster (schema cached) | Slower (reads every query) |
| **Schema Definition** | Stored permanently | Defined **inside query** |
| **Storage** | Stores metadata | No storage, reads directly from files |
| **Access Pattern** | Used like a normal SQL table | Used like a query |

**When to Use Each?**

**Use External Tables** when:  
You need **repeated access** to **structured data**.  
 You want **better performance** (cached schema).

**Use Views (OPENROWSET)** when:  
You need a **quick, one-time query**.  
The data format is **inconsistent** (schema may change).

**Connect to serverless sql**

Before going further , go to Azure portal and in synapse workspace 🡪 setting 🡪 properties 🡪 Serverless SQL endpoint and copy it A screenshot of a computer

Description automatically generatedand use this server name and admin-password same as normal sqldb

**3. Creating External Table & View: Step-by-Step Guide**

**Step 1️: Create Master Key & Credential**

We need to **securely access ADLS data** using **SAS tokens**.

A screenshot of a computer

Description automatically generated **Master Key:** Encrypts stored credentials securely.

### **CREDENTIAL:** Uses a **SAS token** for secure access to **ADLS Gen2**. To get the SAS Token go to ADLS gen2 in Azure portal , select shared access signature A screenshot of a computer screen Description automatically generatedand Enable services, container, Objects and select generate SAS and connecting string A screenshot of a computer Description automatically generatedand copy SAS token

### **Step 2️: Create External Data Source**

Defines **where the external data is stored**.

A close-up of a computer screen

Description automatically generated **Purpose:**

* Allows **Synapse SQL** to access **ADLS Gen2**.
* Uses the **SAS credential** (democredential).

### To get the location , go to ADLS gen2 -🡪 Setting 🡪 Endpoint 🡪 from Datalake Storage copy the locationA screenshot of a computer Description automatically generated **Step 3️: Define File Format for CSV**

Specifies how **CSV files** should be parsed.

A screenshot of a computer program

Description automatically generated **Purpose:**

* Defines **CSV parsing rules** (delimiter, header row, text format).

### **Step 4️: Create an External Table**

Creates a **permanent external table** to query data from ADLS. A computer code with text

Description automatically generated **Purpose:**

* Queries **CSV files stored in ADLS (scdtype1/ folder)**.
* **Uses demodatasource** to connect to ADLS.
* **Uses file\_format\_name1** for **parsing CSV files**.

### A screenshot of a computer Description automatically generated **Step 5️: Create a View Using OPENROWSET**

Allows **direct querying** without creating an external table.

A screenshot of a computer

Description automatically generated A screenshot of a computer

Description automatically generated A screenshot of a computer

Description automatically generated **Purpose:**

* Reads **CSV files directly from ADLS** (without storing metadata).
* **Dynamic query** for **ad-hoc analysis**.

https://www.youtube.com/watch?v=AKIKHge51Z8 A screenshot of a web page

Description automatically generated