**Index**

1. **Introduction to SCD Type-1**
2. **Why Use SCD Type-1?**
3. **Real-Life Example of SCD Type-1**
4. **Creating a Pipeline for SCD Type-1**
5. **Configuring the Data Flow Activity**
6. **Generating Hash Keys Using Derived Columns**
7. **Using Lookup Activity for Data Comparison**
8. **Implementing Conditional Split for Update Detection**
9. **Adding Audit Columns for Insert Operations**
10. **Configuring Sink for Data Mapping**
11. **Adding Audit Columns for Update Operations**
12. **Using Alter Row for Update Permissions**
13. **Finalizing Sink for Updated Data**

**1. Introduction to SCD Type-1**

**Slowly Changing Dimension (SCD) Type-1 is a method used in data warehousing to handle changes in dimension data by overwriting old data with new data. This means that the history of changes is not maintained, and only the latest data is stored.**

**2. Why Use SCD Type-1?**

**SCD Type-1 is useful when maintaining historical data is not necessary, and only the latest information is required. It helps ensure data consistency and accuracy, particularly in scenarios where old data becomes irrelevant.**

**3. Real-Life Example of SCD Type-1**

**Consider a retail company that maintains a customer database. If a customer changes their address, the system should update the record with the latest address instead of keeping the old one. This ensures that any future communication or deliveries go to the correct address without retaining outdated information.**

**4. Creating a Pipeline for SCD Type-1**

* **Open Azure Data Factory.**
* **Navigate to Author -> Pipeline.**
* **Click New Pipeline and rename it appropriately.**
* **Drag and drop a Data Flow Activity into the pipeline.**
* **Enable the Cluster for the required duration.**

**A screenshot of a computer

AI-generated content may be incorrect.**

**5. Configuring the Data Flow Activity**

* **Open the Data Flow and define the Source Dataset.**
* **Configure the dataset to fetch the required data from the source.**
* **Use a Select Transformation to rename or remove unnecessary columns for clarity.**

**A screenshot of a computer

AI-generated content may be incorrect.**

**6. Generating Hash Keys Using Derived Columns**

* **Add a Derived Column Transformation and rename it to HashKey.**
* **Use the Crc32 function to generate a hash key for data comparison.**
* **Convert integer data types to string using ToString before concatenation.**

**A screenshot of a computer

AI-generated content may be incorrect.**

**7. Using Lookup Activity for Data Comparison**

* **Add a Lookup Activity and connect it to the target table.**
* **Select two key columns: Customer ID and HashKey.**

**A screenshot of a computer

AI-generated content may be incorrect.**

**8. Implementing Conditional Split for Update Detection**

* **Add a Conditional Split Transformation.**
* **Define conditions for insert and update operations:**
  + **Insert Condition: isNull(CUSTID)**
  + **Update Condition: src\_ID == CUSTID && src\_Hashkey != HASHKEY**

**A screenshot of a computer

AI-generated content may be incorrect.**

**9. Adding Audit Columns for Insert Operations**

* **Add a Derived Column Transformation named InsertAuditColumns.**
* **Create audit columns for tracking insert metadata (e.g., InsertedBy, InsertedDate).**

**A screenshot of a computer

AI-generated content may be incorrect.**

**10. Configuring Sink for Data Mapping**

* **Add a Sink Transformation to store inserted data.**
* **Use the Mapping Settings to ensure correct column mappings.**

**A screenshot of a computer

AI-generated content may be incorrect.**

**11. Adding Audit Columns for Update Operations**

* **Add a Derived Column Transformation named UpdatedAuditColumns.**
* **Create two columns:** 
  + **UpdatedBy: Track who updated the record.**
  + **UpdatedDate: Capture the current timestamp.**

**A screenshot of a computer

AI-generated content may be incorrect.**

**12. Using Alter Row for Update Permissions**

* **Add an Alter Row Transformation to define update permissions.**
* **Set UpdateCondition to 1==1 to allow updates.**

**A screenshot of a computer

AI-generated content may be incorrect.**

**13. Finalizing Sink for Updated Data**

* **Add another Sink Transformation for updated records.**
* **Ensure correct mapping for updated records.**
* **Validate and run the pipeline.**

**A screenshot of a computer

AI-generated content may be incorrect.**

**This completes the implementation of SCD Type-1 in Azure Data Factory.**