



Creating an OLE DB Table Function

Version 2

Contents

Before you begin	1	Step 6. Map OLE DB and DB2 data types	13
Step 1. Open the Create OLE DB Table Function wizard	3	Step 7 (Optional): Create a table view or import data from current table definitions	15
Step 2. Name the user-defined function	5	Step 8: Verify, complete, and run the user-defined function	17
Step 3. Create the OLE DB provider connection string	7	Summary.	19
Step 4. Access the OLE DB source data	9	Additional information	21
Step 5. Define the source's data columns	11		

Before you begin

Welcome to the Using the Create OLE DB Table Function wizard tutorial.

Objective:

You can use the Create OLE DB Table Function wizard to create an OLE DB table user-defined function (UDF) that allows you import to data from any database that supports the OLE DB format. This tutorial guides you through the Create OLE DB Table Function wizard to create a user-defined function using a sample Microsoft® Access database file (available to your database as a table) and a sample DB2® database.

Duration:

This tutorial should take 30 to 60 minutes for you to complete.

Prerequisites:

You need the following software to complete this tutorial

- IBM® DB2 Development Center Version 8.1 or later

You need to download and extract the following file to complete this tutorial:

- Microsoft Access database file Northwind.zip. Extract the .zip file and save the Northwind.mdb in a new directory called c:\accessfiles\.

Overview

The NorthwindCustomers user-defined function that you create in this tutorial makes the data in a sample Microsoft Access database file available to your DB2 SAMPLE database table. You will retrieve the names and phone numbers of customer contacts in the Northwind Company database.

This tutorial guides you through the steps to successfully create a user-defined function using the Create OLE DB Table Function wizard. Follow the eight steps in order because later steps depend on tasks completed in earlier steps.

Conventions used in this tutorial

This tutorial uses typographical conventions in the text to help you distinguish between the names of controls and text that you type. For example:

- Buttons and selection choices on the application interface are in boldface font:

Click **Button Name**.

- Text that you type is in example font:

This is the text that
you type.

- File or directory names are also in example font:

...\ProgramFiles\SQLLIB\spb\projects\file.mdb.

Step 1. Open the Create OLE DB Table Function wizard

To open the wizard from the IBM DB2 Development Center:

1. Open Development Center.
2. Click **Project** —> **New Project** from the main menu.
3. In the window that opens, specify a name for the new project (for example, oledb_tutorial), and click **OK**. Your project appears in the Project view.
4. Create a connection to the SAMPLE database:
 - a. Right click the **Database Connections** folder under your project, and click **Add Connection**.
 - b. On the Connection Type page of the Add Database Connection wizard, click **Online** and click **Next**.
 - c. On the Connection page, complete the following steps:
 - 1) Select SAMPLE from the **Database** list.
 - 2) Select the **Use your current user ID and password** check box, or enter a valid user ID and password in the appropriate fields.
 - d. Click **Finish**. The connection appears in the Project view.
5. Right-click the **User-Defined Functions** folder in the Project view, and click **New** —> **User-Defined Function using Wizard**.
6. In the New Object window that opens, select User-Defined function and OLE DB. The Create OLE DB Table Function wizard opens.

Step 2. Name the user-defined function

To name the user-defined function:

1. On the UDF Name page of the wizard, type NorthwindContacts in the **UDF Name** field.
2. **Optional:** In the **Comment** field, you can type OLE DB function to retrieve data from MS Access database file.
3. Click **Next**.

Step 3. Create the OLE DB provider connection string

Next, you must create a connection string to communicate with the OLE DB provider. You can manually enter the connection string if you are familiar with the format, otherwise you can use the connection string builder.

To create a connection string using the connection string builder:

1. On the OLE DB Provider page of the wizard, click **Build String**.
2. In the OLE DB Build Connection String wizard window, click **Microsoft Jet 4.0 OLE DB Provider** (or Microsoft Jet 4.0 OLE DB Provider).
3. Click **Next**.
4. Type the path to your Microsoft Access file c:\accessfiles\Northwind.mdb in the **Database file** field.
5. Make sure the **Use your current user ID and password** check box is checked.
6. To verify that the file path is valid, click **Test Connection**.
7. Click **Finish**.

You should see the complete connection string in the **Connection string** field, similar to this:

```
Provider=Microsoft.Jet.OLEDB.4.0; Data Source=C:\accessfiles\Northwind.mdb;  
User ID=Admin; Password=;
```

8. Click **Next**.

Tip: If the connection fails, verify that the file path is accurate

Step 4. Access the OLE DB source data

Next you must identify the source location of the data that you want to retrieve from your Microsoft Access database file. For the purposes of this tutorial, you want to retrieve data from a single table in the database.

To retrieve data from a specific table:

1. On the Source data page of the wizard, click **Access source data using a table**.
2. In the **Name** list, select **Customers**.
3. Click **Next**.

Step 5. Define the source's data columns

You can select which columns from the specific table to extract data from. By default, all available columns are selected. However, you want the data from only two of the columns in the Customers table.

To define the source's data columns:

1. On the Data Columns page of the wizard, select only the CONTACTNAME and PHONE data columns.

Tip: To select only a few columns it is quickest to deselect all of the **Available columns** at once using the << button, and then click the columns that you want and move them to the **Selected columns** one by one using the > button.

2. To preview the selected data, click **Show Sample Content** and then click **Close** after you are satisfied.
3. Click **Next**.

Step 6. Map OLE DB and DB2 data types

In this step, you can view the default DB2 data type that each OLE DB data type maps to. You can also change these default data types to accommodate the data that you are retrieving. For example, some of the contacts in the Northwind.mdb Customers table have very long names, so you want to increase the length allowed for the CONTACTNAME column.

To change the default DB2 data type:

1. On the Column Mapping page of the wizard, click **CONTACTNAME**.
2. Click **Change**.
3. In the Change Column Definition window, change the **Length** field value to 50.
4. Click **OK**.
5. The Column Mapping page reflects the change. Click **Next**.

Step 7 (Optional): Create a table view or import data from current table definitions

You can create a DB2 view or a new DB2 table for the data retrieved from the OLE DB table function. Since for this example, you want to be able to manipulate the data in the future, you will create a new table, rather than a view.

To create a new table and import the user-defined function data into it:

1. On the Options page of the wizard, click **Create a new table and import the UDF data into it**.
2. Type NWINDCONTACTS in the **Table name** field.
3. Click **Next**.

Step 8: Verify, complete, and run the user-defined function

In this step, you can view the settings for the user-defined function. You also can view the code that is created by this wizard. The code builds the user-defined function and the optional table that you chose to create.

To view the SQL code that is created by this wizard:

1. On the Summary page of the wizard, click **Show SQL**. The code includes functionality to retrieve the specified data as well as create the table in the DB2 SAMPLE database. The code should appear similar to this:

```
CREATE FUNCTION NorthwindContacts ()
RETURNS TABLE ("CONTACTNAME" VARCHAR(50), "PHONE" VARCHAR(24))
LANGUAGE OLEDB
EXTERNAL NAME '!Customers!Provider=Microsoft.Jet.OLEDB.4.0;
Data Source=C:\accessfiles\Northwind.mdb; User ID=Admin; Password=;'
```

```
COMMENT ON FUNCTION NorthwindContacts
IS 'OLE DB function to retrieve data from MS Access database file'
-----
CREATE TABLE NWINDCONTACTS("CONTACTNAME" VARCHAR(50),
"PHONE" VARCHAR(24))
```

```
INSERT INTO NWINDCONTACTS
SELECT * FROM TABLE(NorthwindContacts()) AS T
```

2. Click **Close** to close the SQL statements window.
3. To complete the user-defined function, click **Finish**.
In the Output View of the Development Center, click the **Message** tab. You should see messages that confirm the successful creation of the NorthwindContacts OLE DB table function and the DB2 table with the data imported from the user-defined function. The new UDF appears in the **User-Defined Functions** folder in the Project View.
4. To run the UDF, right-click the NorthwindContacts UDF in the Project view, and select **Run**.
5. In the Output View, click the **Results** tab to display the function results.

Summary

By going through this tutorial you completed the following tasks:

- You created a user-defined function that retrieves data from specific columns within a specific table of a Microsoft Access database file using OLE DB data type mapping.
- You built a connection string to communicate with the Microsoft Access database file.
- You changed the DB2 default OLE DB data type mapping to better suit the data.
- You created a table to hold the retrieved data for future manipulation and use.

Additional information

The following resources can provide more information on this topic:

- *DB2 Information Center* . This online information center has detailed information about using IBM DB2 Development Center and user-defined functions to build applications. It also includes information about writing user-defined functions with supported OLE DB data types.

<http://publib.boulder.ibm.com/infocenter/db2help/index.jsp>

- MSDN Library Data Access Web Site - OLE DB Section. This Web site includes detailed information about the OLE DB technology, including a link to product information and a white paper, as well as recent OLE DB news headlines.

<http://www.microsoft.com/data/oledb>