

Accessing DB2 from Excel

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1. Introduction

In this tutorial we will show you how to build an Excel application to access DB2 via the SOA Gateway.

2. Prerequisites

It is assumed that you are running the 3 components, DB2, Excel and the SOA Gateway on Windows.

It is assumed you already have a SOA Gateway server and Control Centre installed. See [here](#) for more info about installing the SOA Gateway.

3. Setup

It is assumed that you already that MS Excel installed as part of the MS Office suite of products.

You will also need a DB2 database. IBM provides a downloadable edition of DB2, called "DB2 Express-C". See [this link](#) for the DB2 Express-C homepage. Download and install a version of DB2 Express.

Populate DB2 Database

Now that you've got DB2 installed, we need to populate it with some demo data. For this we'll use the Risarisk Bank Demo, which is available [here](#). Save this file to "c:\Temp\RisariskBank_db2.sql".

- Open the DB2 Control Centre under "IBM DB2", "General Admin Tools" in the Start Menu.
- Right click "All databases" and select "Create Database", "Standard".
- Name your new database "RISBANK". All other options can be left as default, so click "Finish".
- Open a DB2 command shell by typing "db2cmd" in a DOS box.
- From the db2 command shell, change directory to where you downloaded the RisariskBank_db2.sql. E.g "cd \temp".
- Populate the RISBANK database by running the command "db2 -f RisariskBank_db2.sql". Note you may see errors about "SYSTEM.CUSTOMERINFORMATION is an undefined name". These occur because the RisariskBank_db2.sql attempts to drop any existing tables before creating new ones. To prove this, you can run the same command again, and the errors will disappear.
- You can now return to the DB2 Control Centre and view the newly created tables in the RISBANK database.

Set up ODBC Access

The final thing to do with your DB2 Database is to set up an ODBC DSN which will be used by the SOA Gateway to access this database.

Click Start, Control Panel, Administrative Tools, Data Sources (ODBC)

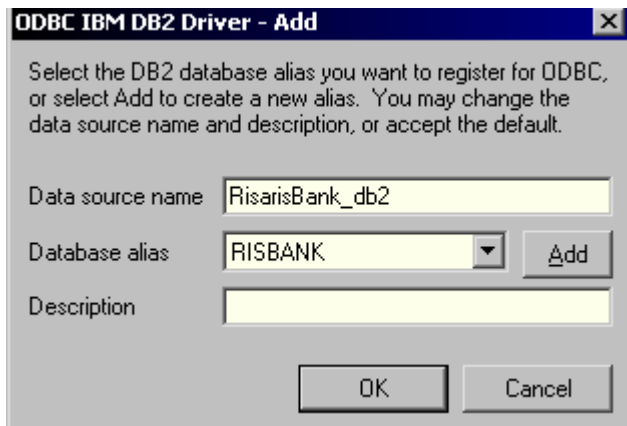
From the resulting screen, choose the "System DSN" Tab.

Click Add

From the list of data source drivers, select "IBM DB2 ODBC DRIVER", and click "Finish".

Enter "RisarisBank_db2" as the Data source Name.

Ensure that the Database Alias is RISBANK, and click "OK".



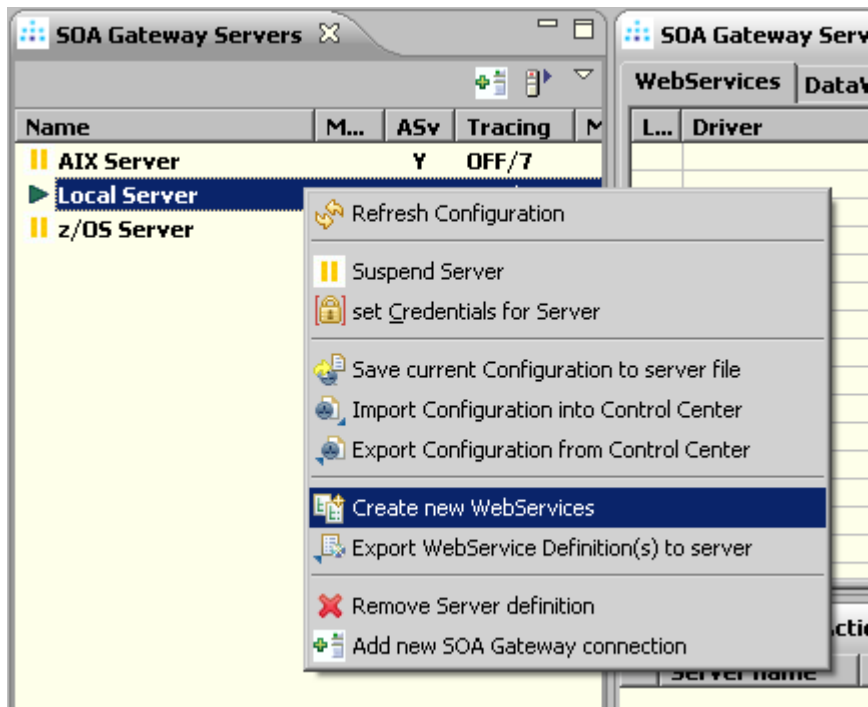
4. Discovery

At this stage you've got InfoPath installed, and a DB2 database with some sample data in it. In this section we'll show you how to create web services from each of the DB2 tables. These web services can be used by the InfoPath language (and many others) to give you direct real-time access to your DB2 Data.

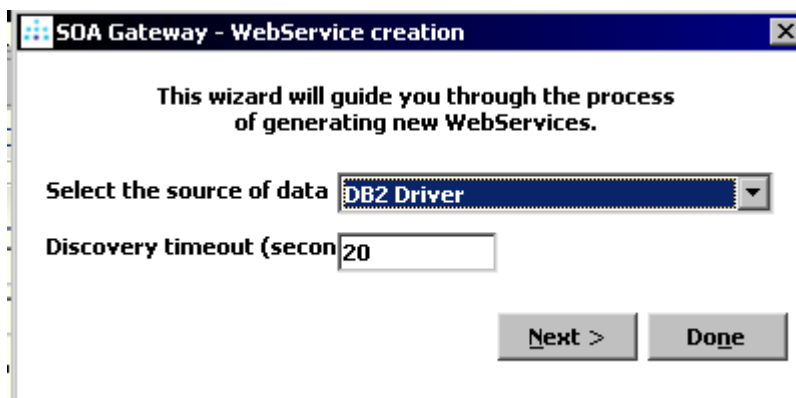
4.1. Web Service Creation using SOA Gateway

Start your SOA Gateway Control Centre. See [here](#) for an introduction to the Control Centre.

In your servers view, right click the entry which represents your local SOA Gateway Server. Select "Create New Web Services".

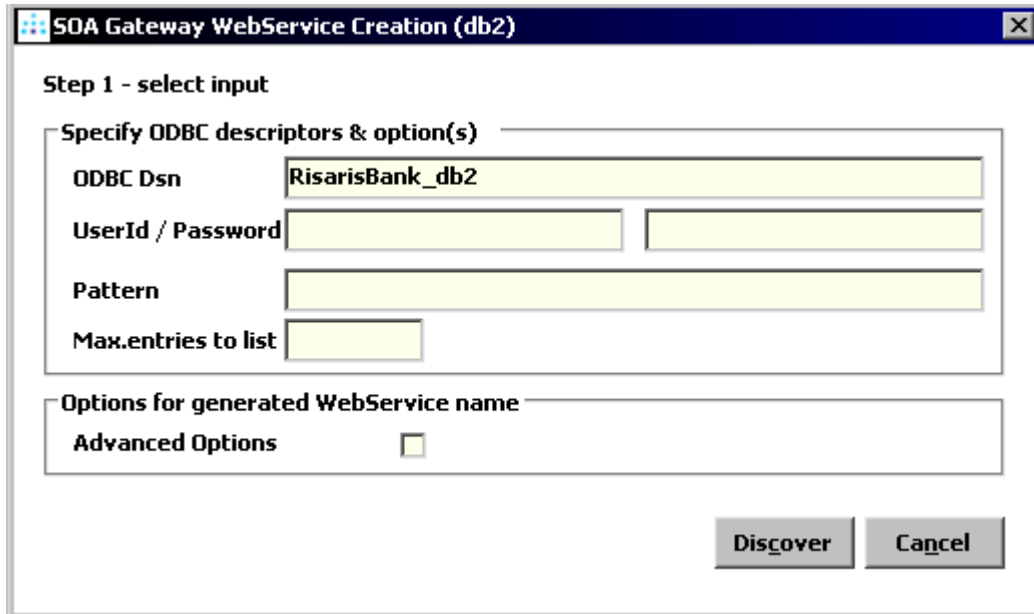


From the next dialog, choose “DB2 Driver”. If you do not see have a DB2 Driver in the list, see how to create one [here](#).



Click Next.

The next screen gives you the ability to add information about your DSN



Enter the above information and click Discover.

The wizard will display all the tables it finds at this (RisarisBank) DSN.

Click “Select All”, and click “Import”.

The wizard will create web services from each one of these tables.

SOA Gateway Servers			SOA Gateway Server Configuration - Local Server				
Name	M...	ASv	Mod	Driver	WebService	DataSource Id	DataView
AIX Server		Y					
DMZ		Y					
dublin dev		Y					
jk server		Y					
jk server linux		Y					
jom server		Y					
▶ Local Server		Y					
lxbre server		Y					
PCRJW9		Y					
risaris.com server		Y					
vse		Y					
z/OS Server		Y					
z/vse		Y					
			DB2.	DB2 Driver	ACCOUNTSMOVEMENTS_SY...	odbcDsn=RisarisBank_db2, schemaNam...	ACCOUNTSMOVEMENTS_SYSTEM
			DB2.	DB2 Driver	AUDIT_SYSTEM	odbcDsn=RisarisBank_db2, schemaNam...	AUDIT_SYSTEM
			DB2.	DB2 Driver	BRANCH_SYSTEM	odbcDsn=RisarisBank_db2, schemaNam...	BRANCH_SYSTEM
			DB2.	DB2 Driver	CURRENTACCOUNT_SYSTEM	odbcDsn=RisarisBank_db2, schemaNam...	CURRENTACCOUNT_SYSTEM
			DB2.	DB2 Driver	CUSTOMERACCOUNTXREF_S...	odbcDsn=RisarisBank_db2, schemaNam...	CUSTOMERACCOUNTXREF_SYSTEM
			DB2.	DB2 Driver	CUSTOMERINFORMATION_S...	odbcDsn=RisarisBank_db2, schemaNam...	CUSTOMERINFORMATION_SYSTEM
			DB2.	DB2 Driver	DEPOSITACCOUNT_SYSTEM	odbcDsn=RisarisBank_db2, schemaNam...	DEPOSITACCOUNT_SYSTEM
			DB2.	DB2 Driver	TELLERTABLE_SYSTEM	odbcDsn=RisarisBank_db2, schemaNam...	TELLERTABLE_SYSTEM

You’ve just created 8 Web Services from your 8 DB2 Tables!

4.2. Accessing the WSDL

Web Service Description Language (WSDL) is a standard, XML-based language that is used to describe a Web Service.

For each of the 8 web services you’ve created in the previous section, the SOA Gateway provides you with a WSDL to describe the Web Service. The WSDL itself is usually interpreted by a web

service client, such as InfoPath, but it is useful to know where to find the WSDL for each of your Web Services.

As WSDL is XML-based, it will open in your browser of choice. To see the WSDL for one of your Risar Bank web services, do the following in your SOA Gateway Control Centre:

- Click on the web service you are interested in, for example the “branch” web service.
- The properties for this web service should appear in your [Properties View](#). If you do not see the Properties view, select Window -> Show View -> Other -> General -> Properties and click OK.
- In the properties view, there is a link to your WSDL. Click it to open the WSDL in a browser.

The screenshot shows two windows from the SOA Gateway Control Centre. The top window, titled "SOA Gateway Server Configuration - Local Server", displays a table of WebServices. The bottom window, titled "SOA Gateway Action Log", shows a message: "Local Server recovery completed, 8 WebService(s) generated". Below that is the "Properties" view for the selected "BRANCH_SYSTEM" web service. A green arrow points from the "BRANCH_SYSTEM" row in the table to the "WebService" section of the Properties view.

Mod	Driver	WebService	DataSource Id
DB2.	DB2 Driver	ACCOUNTSMOVEMENTS_SY...	odbcDsn=RisarisBank_db2, schen
DB2.	DB2 Driver	AUDIT_SYSTEM	odbcDsn=RisarisBank_db2, schen
DB2.	DB2 Driver	BRANCH_SYSTEM	odbcDsn=RisarisBank_db2, schen
DB2.	DB2 Driver	CURRENTACCOUNT_SYSTEM	odbcDsn=RisarisBank_db2, schen
DB2.	DB2 Driver	CUSTOMERACCOUNTXREF_S...	odbcDsn=RisarisBank_db2, schen
DB2.	DB2 Driver	CUSTOMERINFORMATION_S...	odbcDsn=RisarisBank_db2, schen
DB2.	DB2 Driver	DEPOSITACCOUNT_SYSTEM	odbcDsn=RisarisBank_db2, schen
DB2.	DB2 Driver	TELLERTABLE_SYSTEM	odbcDsn=RisarisBank_db2, schen

SOA Gateway Action Log

Local Server recovery completed, 8 WebService(s) generated

WebService properties

Resource: WebService

Name: BRANCH_SYSTEM

DataView: BRANCH_SYSTEM

Driver: DB2 Driver

Read-only:

WSDL URL is: http://localhost:56000/BRANCH_SYSTEM?WSDL

WebService Identification and options

odbcDsn: RisarisBank_db2

schemaName: SYSTEM

tableName: BRANCH

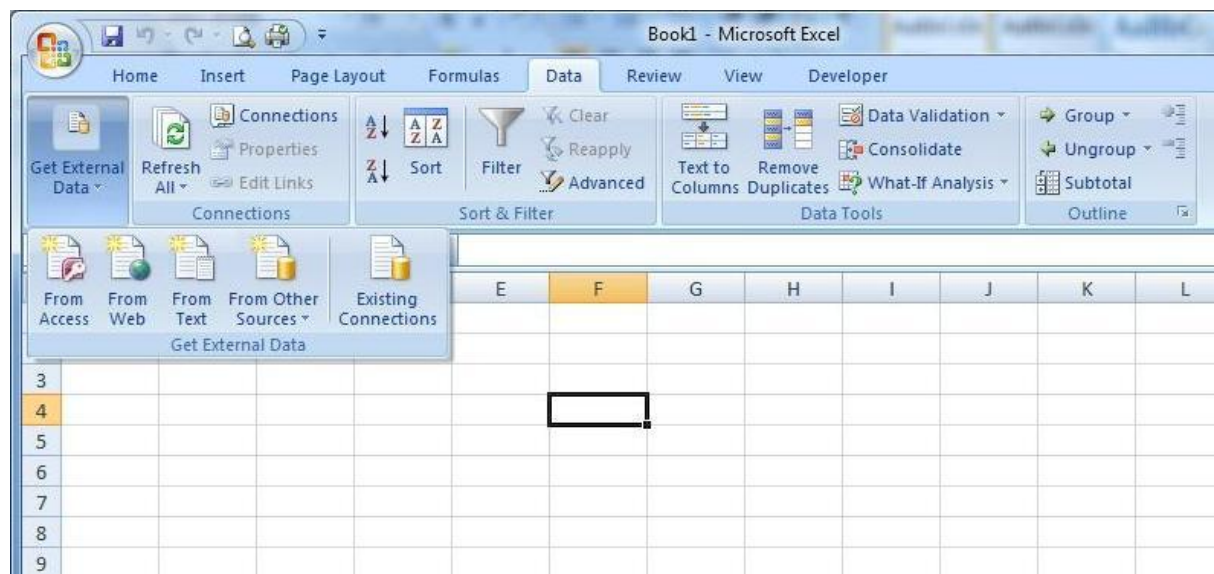
You can view the WSDL for the other web services by clicking the link from their properties view.

This WSDL is the starting point for using Web Services, and can be used time and again by different web service clients.

5. Accessing a Web Service with Excel

We will use the Excel application to access our new Risaribank Web Services.

Open *Microsoft Excel*. Click on the Data tab. Click Get External Data and click the From Web menu item.



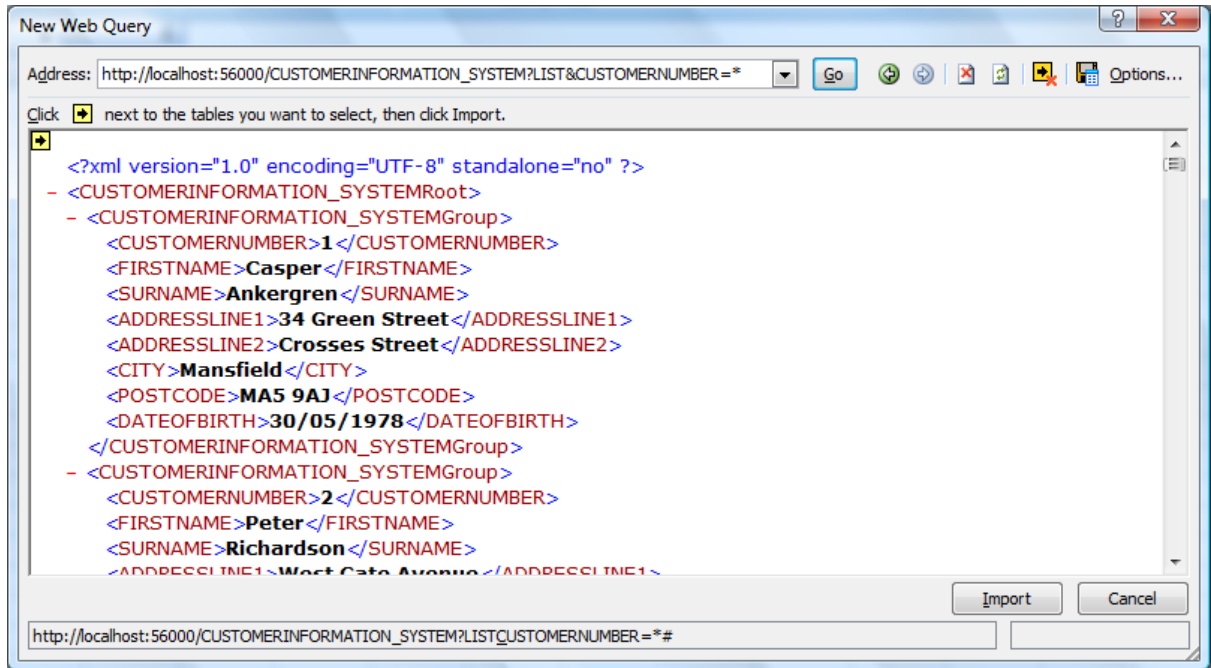
In the Address field type the query you wish to execute e.g.

http://localhost:56000/CUSTOMERINFORMATION_SYSTEM?LIST&CUSTOMERNUMBER=*

Depending on your SOA Gateway configuration you may have to change localhost and/or the port number of 56000.

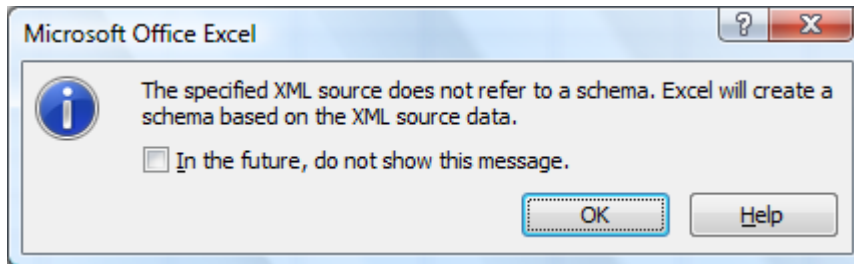
Click on Go.

If valid the query will return the results in the data pane as shown below.

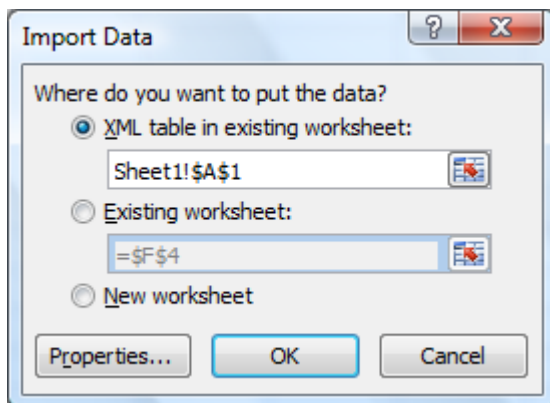


Now click on Import.

When the following dialog box is displayed click on OK.



You are then asked where you wish Excel to place the data. Here we chose the default of \$A\$1. Hit OK.



Excel presents the data in a nicely formatted table as shown.

The screenshot shows a Microsoft Excel window titled 'Book1 - Microsoft Excel'. The 'Table Tools' ribbon is active, showing the 'Design' tab. A table named 'Table1' is selected, with the formula bar showing '=CUSTOMERNUMBER'. The table data is as follows:

	A	B	C	D	E	F	G	H
1	CUSTOMERNUMBER	FIRSTNAME	SURNAME	ADDRESSLINE1	ADDRESSLINE2	CITY	POSTCODE	DATEOFBIRTH
2	1	Casper	Ankergrén	34 Green Street	Crosses Street	Mansfield	MA5 9AJ	30/05/1978
3	2	Peter	Richardson	West Gate Avenue	Frankfield	Manchester	MA9 4AA	18/07/1948
4	3	Donald	Smith	32 Parsons Green Lane	Fulham	London	SW4 3JA	05/09/1988
5	4	Lillian	Marques	1 Father Delahunty Street	Bordesley	Birmingham	BO4 4LW	14/01/1979
6	5	Arthur	Holman	12 Padbury Close	Griffin Close	Newcastle upon Tyne	NW8 2KK	16/05/1975
7	6	Bartholomew	McCarthy	22 Hillview	Griffin Close	York	SW9 1GH	24/03/1974
8	7	Neville	Lee	72 Thoresby Crescent	Sinfin	Leeds	LS9 2DS	21/03/1980
9	8	Brian	Colman	14 Gilliver Gardens	West Field	Birmingham	BA9 3KK	20/04/1983
10	9	Ian	Burton	144 Allestree Lane	Lime Kiln Lane	York	YR0 2NT	06/09/1971
11	10	Grenville	Dekker	22 Uttoxter New Road	Chaddesden	Leeds	LS4 9WB	21/10/1974
12	11	Jane	Freeman	3 Portland Street	Lichfield	Gloucester	GL4 8KD	26/10/1980
13	12	Dale	Rolling	The Hunters Rest	Branston	Preston	PR4 4HG	06/12/1989
14	13	Arnold	Corrigan	14 Anderson Street	Allestree	Derby	DE6 8FT	10/06/1970
15	14	Alfred	Summerscale	3701 S. George Mason	Melbourne	Bath	BA6 8UU	07/08/1982
16	15	Peter	Spiegel	11663 Charter Oak Co	Foremark	Manchester	M98 4GT	29/12/1971

6. Conclusion

This tutorial shows how to access DB2 from Excel using the SOA Gateway. As you can see, you have built a powerful application that uses Web Services to retrieve information in real-time.