

Accessing MySQL from Excel

Contents

1. Introduction	2
2. Prerequisites	2
3. Setup	2
3.1. Populate MySQL Database.....	2
3.2. Set up ODBC Access	3
4. Discovery.....	4
4.1. Web Service Creation using SOA Gateway	4
4.2. Accessing the WSDL	6
5. Accessing a Web Service with Excel.....	8
6. Conclusion.....	11

1. Introduction

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

2. Prerequisites

It is assumed that you are running the 3 components, MySQL, 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 have MS Excel installed as part of the MS Office suite of products.

You will also need a MySQL database. The Open Source version (known as the *MySQL Community Server*) can be freely downloaded from the MySQL website. See [this link](#) for download, and [here](#) to step you through the installation and configuration.

3.1. Populate MySQL Database

Now that you've got MySQL installed and configured, you will need to populate it with some demo data. For this we use the RिसarisBank sample. This is available [here](#).

Save this file to "C:\Temp\RिसarisBank.sql"

- Connect to the MySQL Server using the **mysql** command.

```
E.g shell> mysql -u root -p
```

This command connects to the server using the MySQL `root` account to make sure that you'll have permission to create the `RिसarisBank` database. The `-p` option tells **mysql** to prompt you for the `root` password. Enter the password when prompted. (Remember that the MySQL `root` account is not the same as the operating system `root` account and probably will have a different password.)

- Create the `RिसarisBank` database.

```
mysql> CREATE DATABASE RिसarisBank;
```

```
mysql> use RिसarisBank;
```

- Load the contents of `RिसarisBank.sql` into the `RिसarisBank` database. E.g.

```
mysql> SOURCE c:\Temp\RिसarisBank.sql
```

- After the `SOURCE` command finishes, you can view your new tables.

```
mysql> SHOW TABLES;
```

```
mysql> DESCRIBE CustomerInformation;
```

```
mysql> DESCRIBE Branch;
```

etc ...

3.2.Set up ODBC Access

The final thing to do with your MySQL 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 "MySQL ODBC 3.51 Driver".

If you do not see this driver in the list, you need to install the MySQL Connector. See [here](#) for more information. We recommend installing v3.51.

Click Finish, and a window will appear allowing you to enter the DSN information. Add the following:

Data Source Name: RisarisBank

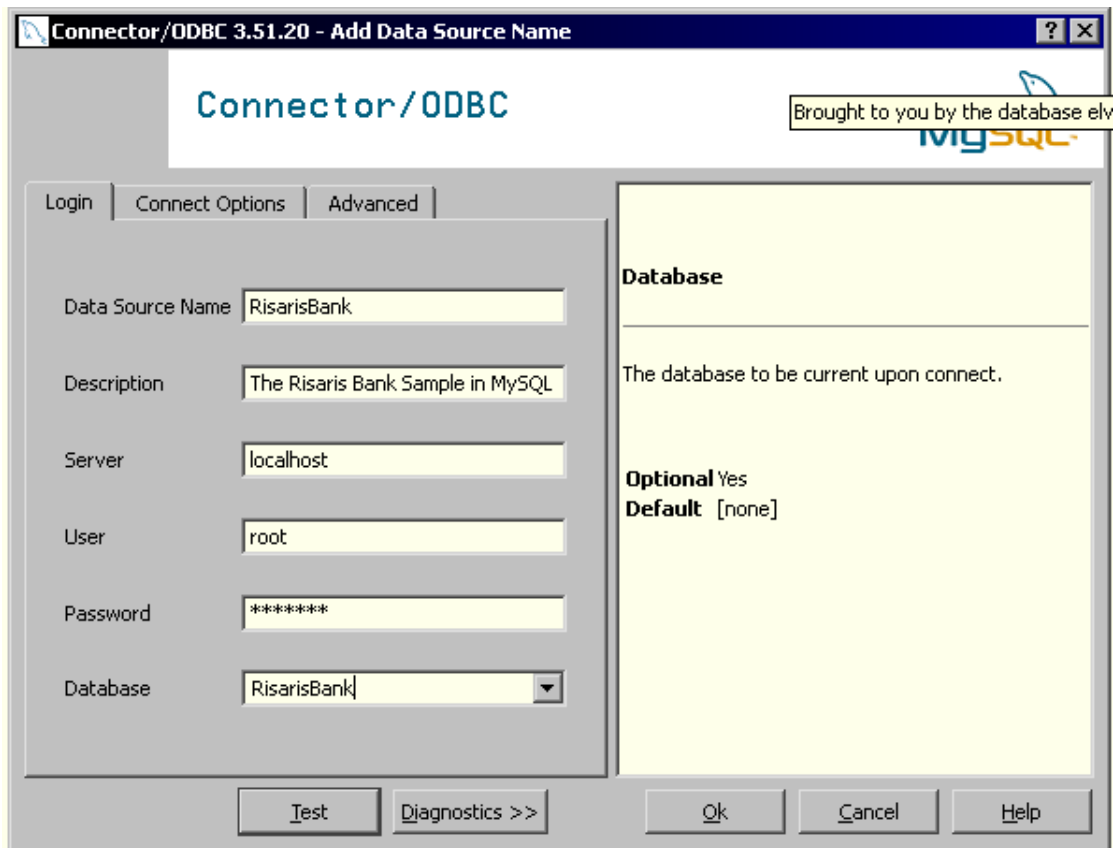
Description: The Risaris Bank Sample in MySQL

Server: localhost

User: root

Password: *** your MySQL root password ***

Database: RisarisBank (select from the drop down list)



All other options can be left as-is. Click OK.

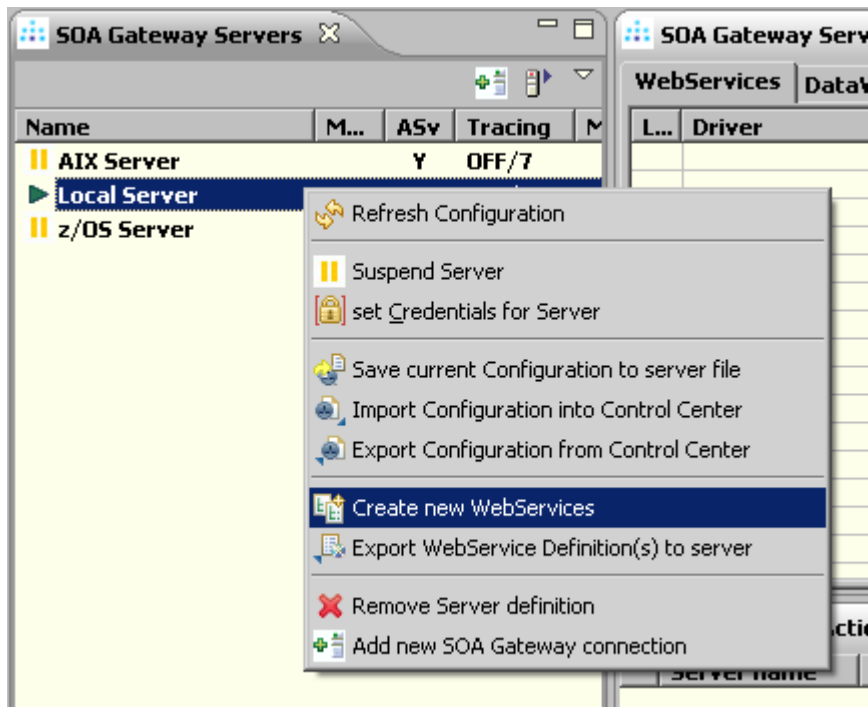
4. Discovery

At this stage you've got Excel and a MySQL database with some sample data in it. In this section we'll show you how to create web services from each of the MySQL tables. These web services can be used in Excel using URL-based queries to give you direct real-time access to your MySQL Data.

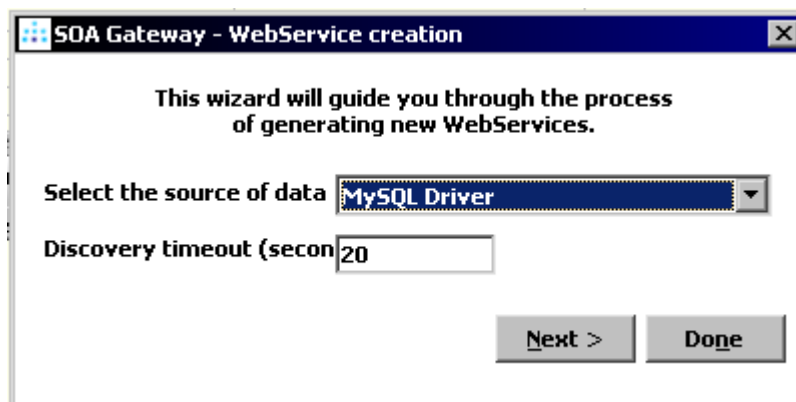
4.1. Web Service Creation using SOA Gateway

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".

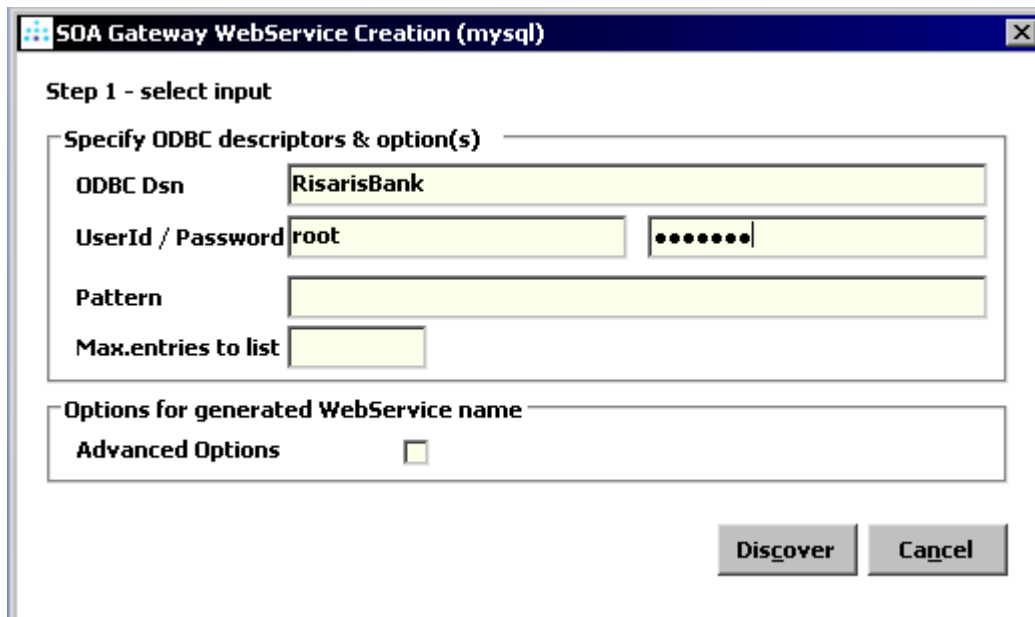


From the next dialog, choose “MySQL Driver”. If you do not see have a MySQL Driver in the list, see how to create one [here](#).



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				
			WebServices / DataViews / XSDs / XSLs				
Name	M...	ASv	Mod	Driver	WebService	DataSource Id	DataView
AIX Server	Y			MySQL Driver	accountsmovements	odbcDsn=RisarisBank, tableName=accountsmovements	accountsmovements
DMZ	Y			MySQL Driver	audit	odbcDsn=RisarisBank, tableName=audit	audit
dublin dev	Y			MySQL Driver	branch	odbcDsn=RisarisBank, tableName=branch	branch
jk server	Y			MySQL Driver	currentaccount	odbcDsn=RisarisBank, tableName=currentaccount	currentaccount
jk server linux	Y			MySQL Driver	customeraccountxref	odbcDsn=RisarisBank, tableName=customeraccountxref	customeraccountxref
jom server	Y			MySQL Driver	customerinformation	odbcDsn=RisarisBank, tableName=customerinformation	customerinformation
Local Server	Y			MySQL Driver	depositaccount	odbcDsn=RisarisBank, tableName=depositaccount	depositaccount
lxbre server	Y			MySQL Driver	tellertable	odbcDsn=RisarisBank, tableName=tellertable	tellertable
PCRJW9	Y						
risaris.com server	Y						
vse	Y						
z/OS Server	Y						
z/vse	Y						

You've just created 8 Web Services from your 8 MySQL 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 Excel, 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 Risaris 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 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 displays the SOA Gateway Server Configuration interface. The top window, titled "SOA Gateway Server Configuration - Local Server", shows a table of web services. The table has four columns: Mod, Driver, WebService, and DataSource Id. The 'branch' service is highlighted. Below this, the "SOA Gateway Action Log" shows messages such as "discovery completed, 8 WebService(s) generated" and "autosaved due to published WebService modification(s)". The bottom window, titled "Properties", shows the "WebService properties" for the 'branch' service. A green arrow points to the "WSDL URL is" field, which contains the URL <http://localhost:56000/branch?WSDL>. Below this, the "WebService Identification and options" section shows fields for 'odbcDsn' (RisarisBank), 'schemaName', and 'tableName' (branch).

Mod	Driver	WebService	DataSource Id
MySQL	MySQL Driver	accountsmovements	odbcDsn=RisarisBank, tableN
MySQL	MySQL Driver	audit	odbcDsn=RisarisBank, tableN
MySQL	MySQL Driver	branch	odbcDsn=RisarisBank, tableN
MySQL	MySQL Driver	currentaccount	odbcDsn=RisarisBank, tableN
MySQL	MySQL Driver	customeraccountxref	odbcDsn=RisarisBank, tableN
MySQL	MySQL Driver	customerinformation	odbcDsn=RisarisBank, tableN
MySQL	MySQL Driver	depositaccount	odbcDsn=RisarisBank, tableN
MySQL	MySQL Driver	tellertable	odbcDsn=RisarisBank, tableN

SOA Gateway Action Log

Server name	Message
Local Server	discovery completed, 8 WebService(s) generated
Local Server	autosaved due to published WebService modification(s)

WebService properties

Resource: **WebService**

Name: branch

DataView: branch

Driver: MySQL Driver

Read-only:

WSDL URL is: <http://localhost:56000/branch?WSDL>

WebService Identification and options

odbcDsn: RisarisBank

schemaName:

tableName: branch

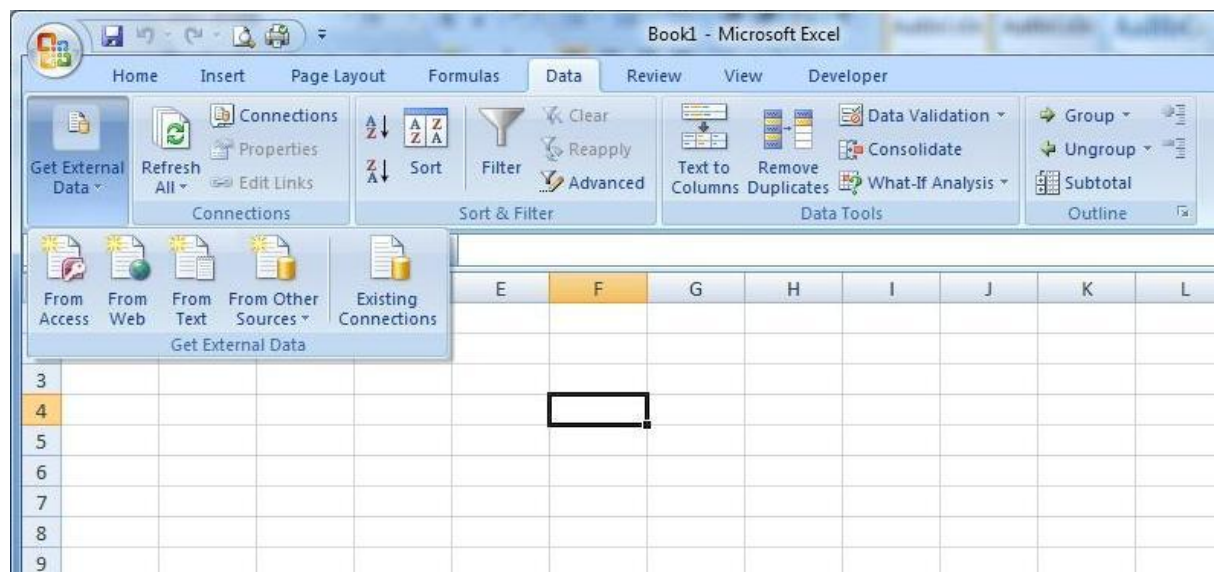
You can view the WSDL for the other web services by clicking the link from their properties view.

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 Risar Bank 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?LIST&CustomerNumber=*

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

Click on Go.

N.B. At this point, depending on your MySQL security settings, you may get an error message similar to this one:

```
<Title>Error</Title><p>ErrorCode = -11000</p><p>Reason = Mon Apr 21  
15:46:20.00595228, pid: 00019601, tid: 00884791. ERROR: in file  
src/adaptorImpl.cpp, at line 955.  
odbcDSDI::workerProcessOdbcDiagnostics() returned -11000, indicating  
ODBC API "SQLConnect" returned "-1", SQLSTATE is: HY000, Native error  
number is: 1044, Message Text is : [unixODBC][MySQL][ODBC 5.1  
Driver]Access denied for user 'jom'@'localhost' to database  
'RisarisBank'</p><p>Mon Apr 21 15:46:20.00595293, pid: 00019601, tid:  
00884791. ERROR: in file src/adaptorImpl.cpp, at line 976.
```

odbcDSDI::contextInit() returned -11000, indicating An external ODBC API call failed. See previous messages.</p>

The following steps should solve this issue:

- Log in to MySQL as user root.
- Issue the following 2 statements substituting 'jom'@'localhost' with the user and host in your error message:

```
grant SELECT, INSERT, DELETE, UPDATE on Risaribank.* to 'jom'@'localhost';  
flush privileges;
```

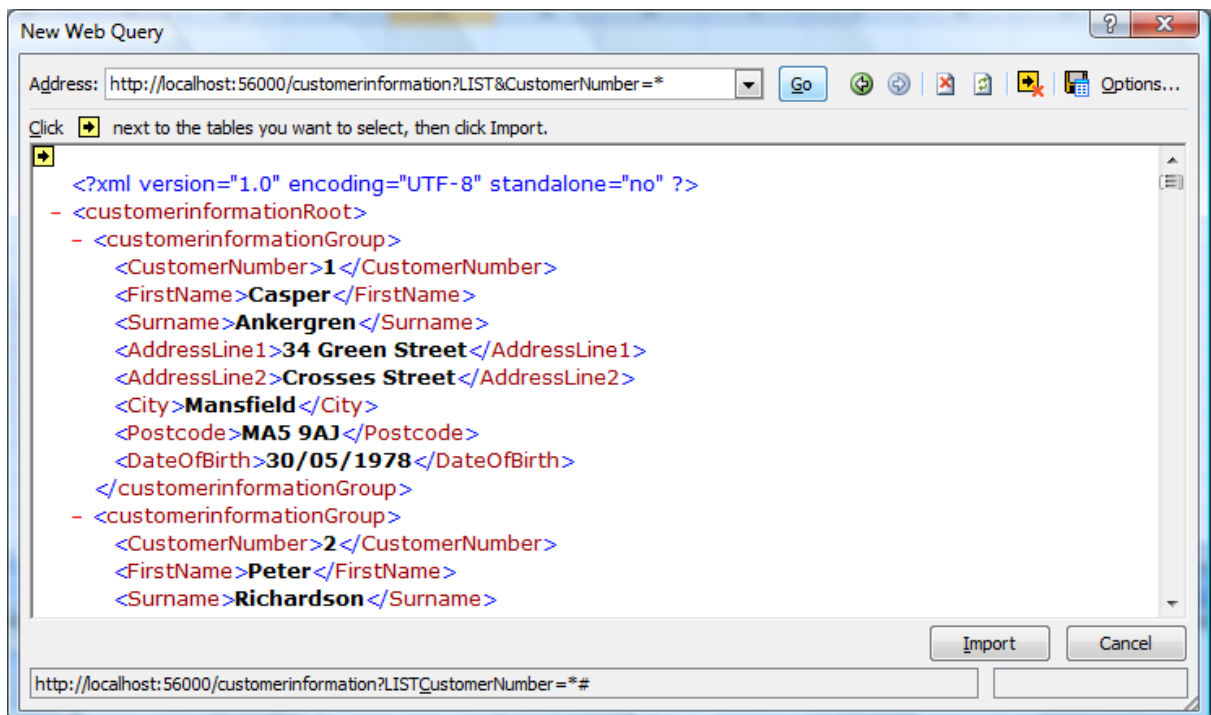
Enter the URL as before. Again, depending on your MySQL setup, you may receive a similar error message as MySQL selects a user login on a hierarchical basis and you may have to repeat the above for the next user.

If you wish to revoke the assigned privileges do the following:

- Log in to MySQL as user root.
- Issue the following 2 statements substituting 'jom'@'localhost' with the user and host in your error message:

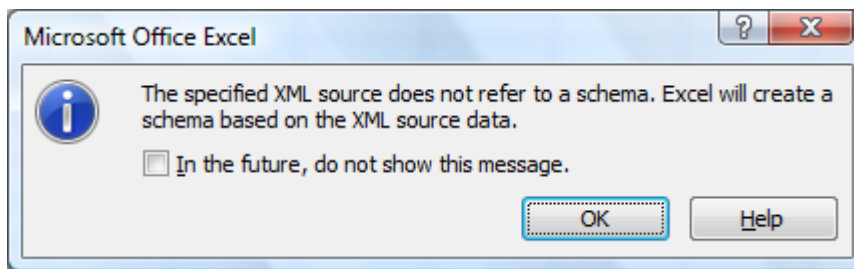
```
revoke SELECT, INSERT, DELETE, UPDATE on Risaribank.* from 'jom'@localhost;  
flush privileges;
```

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

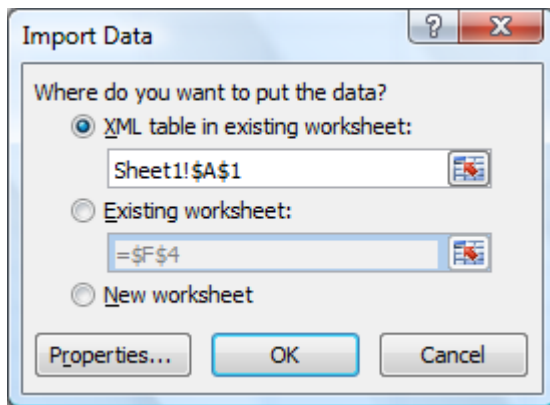


Now click on Import.

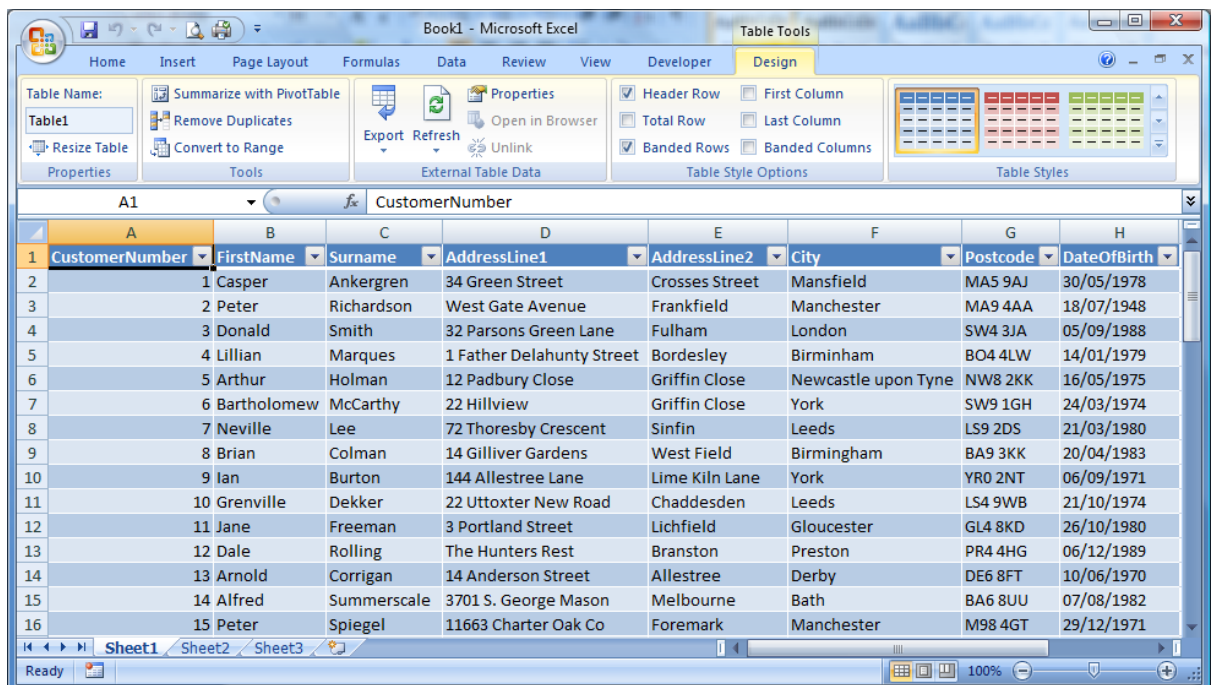
When the following dialog box is displayed click on OK.



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.



6. Conclusion

This tutorial shows how to access MySQL 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.