

Accessing MySQL from Word

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1. Introduction

In this tutorial we will show you how to use a Word application to access MySQL via the SOA Gateway.

2. Prerequisites

It is assumed that you are running the 3 components, MySQL, Word 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 Word 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 RisarisBank sample. This is available [here](#).

Save this file to "C:\Temp\RisarisBank.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 `RisarisBank` 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 `RisarisBank` database.

```
mysql> CREATE DATABASE RisarisBank;
```

```
mysql> use RisarisBank;
```

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

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

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

```
mysql> SHOW TABLES;
```

```
mysql> DESCRIBE CustomerInformation;
```

```
mysql> DESCRIBE Branch;
```

etc ...

- To enable Word to access the RissarisBank database via a URL query we need to ensure that there is no requirement to provide a username or password. Enter the following statements to enable this:

```
mysql> grant all on RissarisBank.* to root@localhost;  
mysql> flush privileges;
```

Note

If you wish to revoke this later enter the following statements:

```
mysql>revoke all privileges, grant option from root@localhost;  
mysql>flush privileges;
```

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: RissarisBank

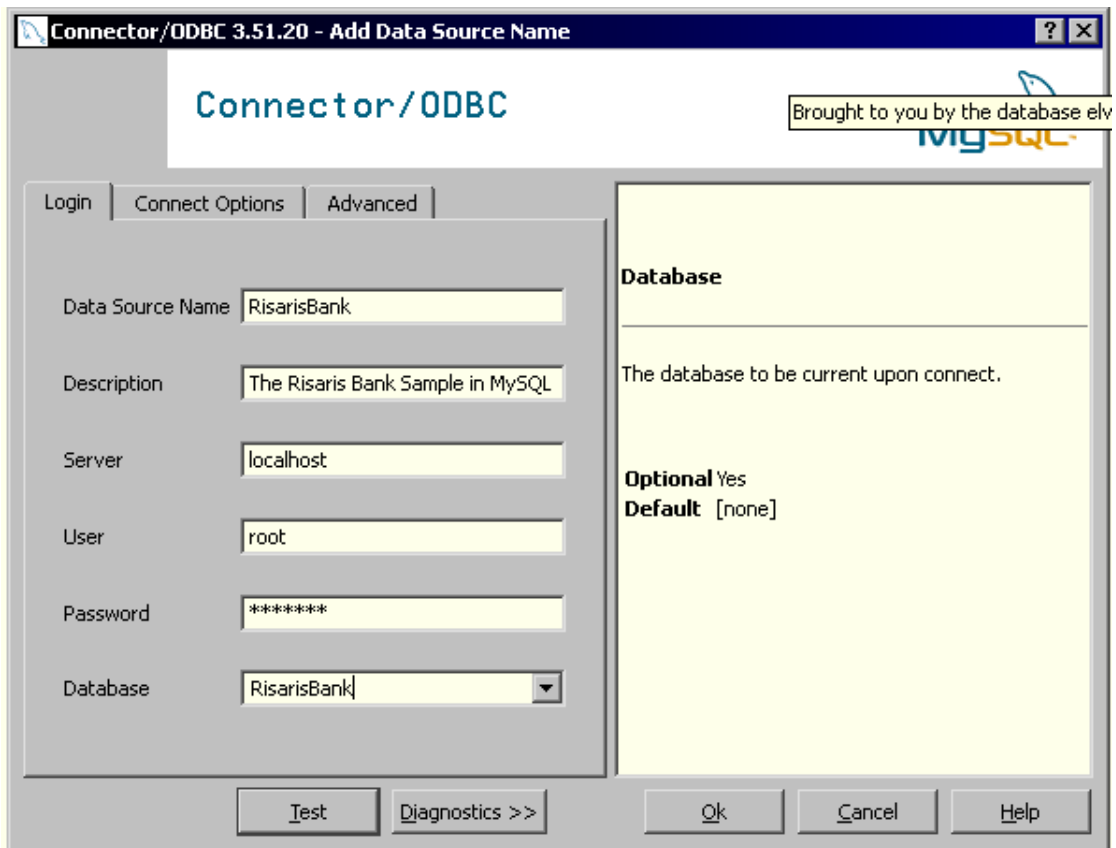
Description: The Rissaris Bank Sample in MySQL

Server: localhost

User: root

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

Database: RissarisBank (select from the drop down list)



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

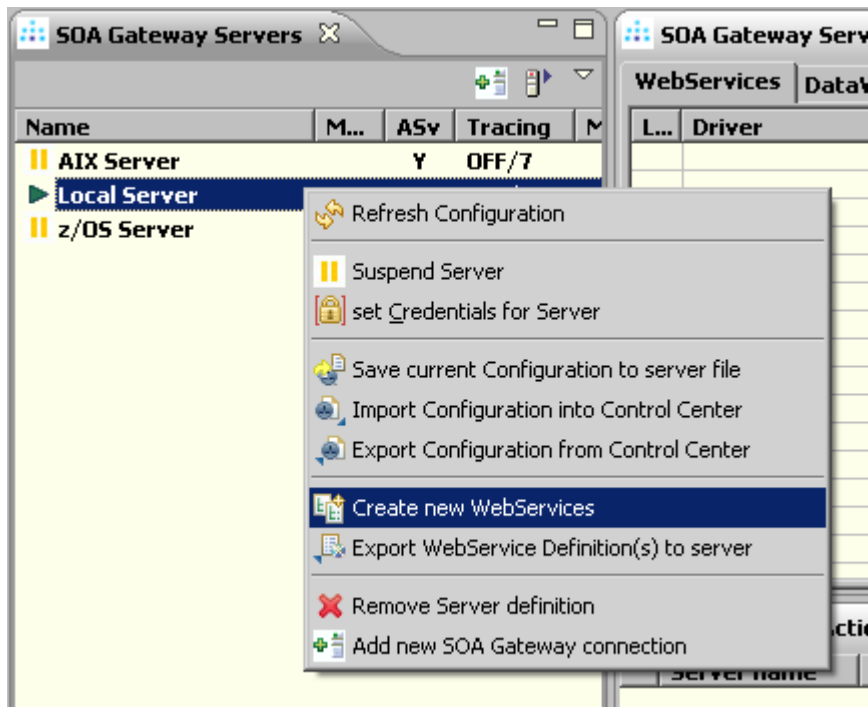
4. Discovery

At this stage you've got Word 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 Word using URL-based queries to give you direct real-time access to your MySQL Data.

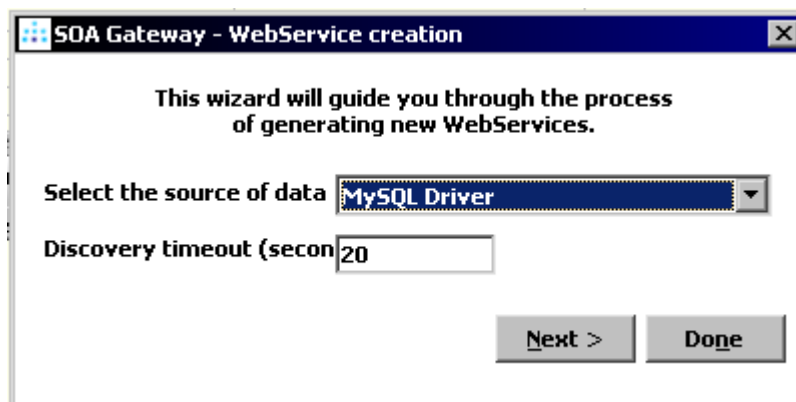
4.1. Web Service Creation using SOA Gateway

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".

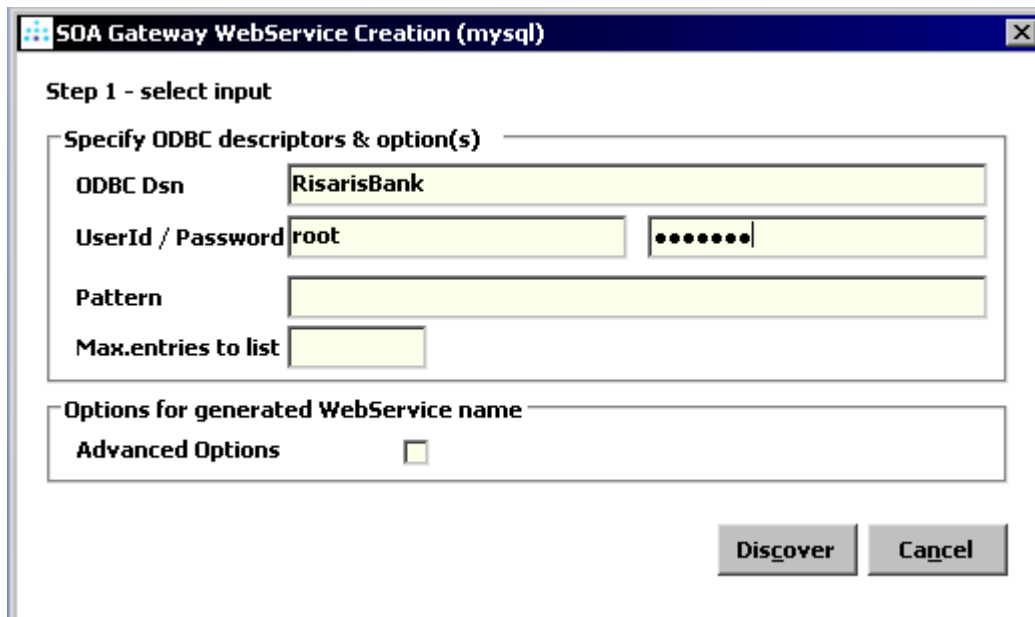


From the next dialog, choose “MySQL Driver”. If you do not see have a MySQL Driver in the list, see how to create one [here](#).



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				
Name	M...	ASv	Mod	Driver	WebService	DataSource Id	DataView
AIX Server	Y		MySQL	MySQL Driver	accountsmovements	odbcDsn=RisarisBank, tableName=accountsmovements	accountsmovements
DMZ	Y		MySQL	MySQL Driver	audit	odbcDsn=RisarisBank, tableName=audit	audit
dublin dev	Y		MySQL	MySQL Driver	branch	odbcDsn=RisarisBank, tableName=branch	branch
jk server	Y		MySQL	MySQL Driver	currentaccount	odbcDsn=RisarisBank, tableName=currentaccount	currentaccount
jk server linux	Y		MySQL	MySQL Driver	customeraccountxref	odbcDsn=RisarisBank, tableName=customeraccountxref	customeraccountxref
jom server	Y		MySQL	MySQL Driver	customerinformation	odbcDsn=RisarisBank, tableName=customerinformation	customerinformation
Local Server	Y		MySQL	MySQL Driver	depositaccount	odbcDsn=RisarisBank, tableName=depositaccount	depositaccount
lxbre server	Y		MySQL	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 Word, 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", has a "WebServices" tab selected. It contains a table with the following data:

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

Below this table is the "SOA Gateway Action Log" window, which 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. The "Resource" is set to "WebService". The "Name" is "branch", the "DataView" is "branch", and the "Driver" is "MySQL Driver". The "WSDL URL" is <http://localhost:56000/branch?WSDL>. Under "WebService Identification and options", the "odbcDsn" is "RisarisBank" and the "tableName" is "branch". A green arrow points to the "WSDL URL" field.

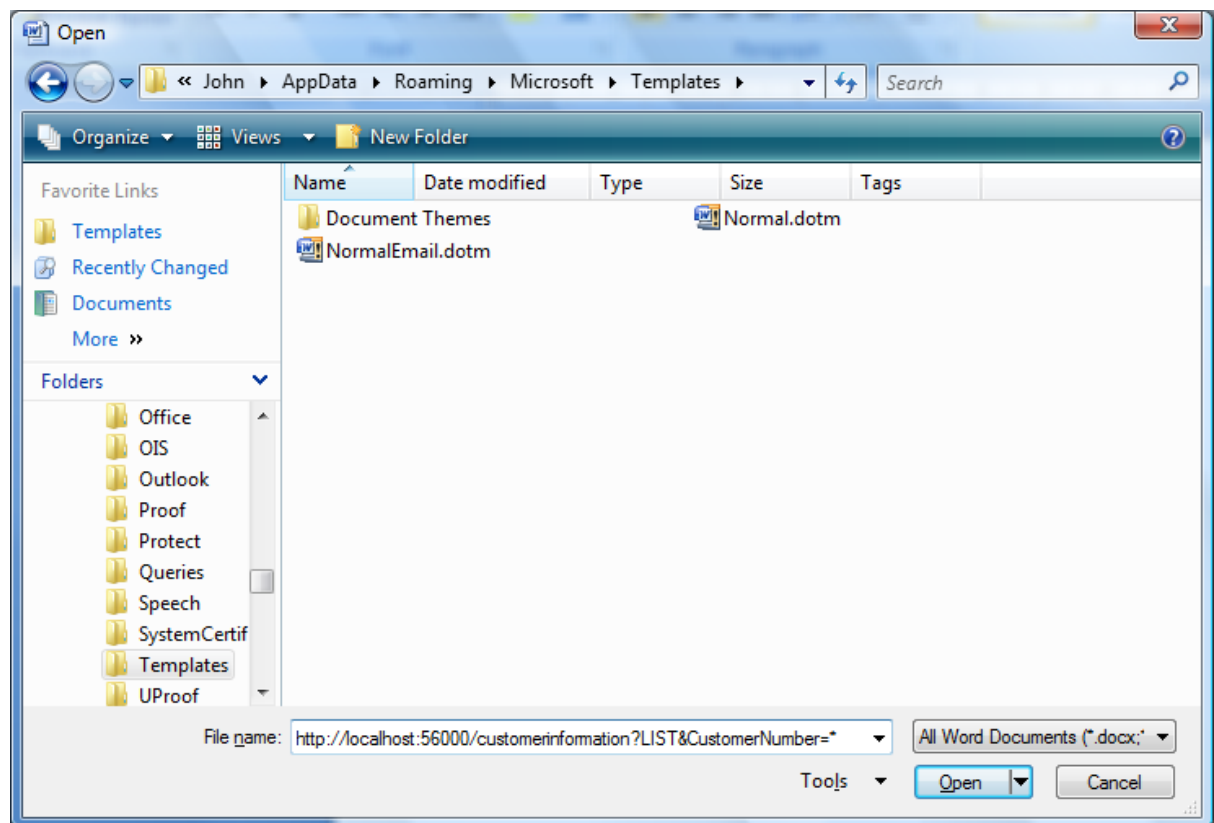
You can view the WSDL for the other web services by clicking the link from their properties view.

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 Word

We will use the Word application to access our new Risar Bank Web Services.

Open *Microsoft Word*. Open a new document and enter the required URL in the File Name box e.g. http://localhost:56000/customerinformation?LIST&CustomerNumber=* will call the customerinformation web service with a list query requesting all customer information. Depending on your SOA Gateway configuration you may have to change localhost and/or the port number of 56000.



Select Open.

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 RisarisBank.* to 'jom'@'localhost';  
flush privileges;
```

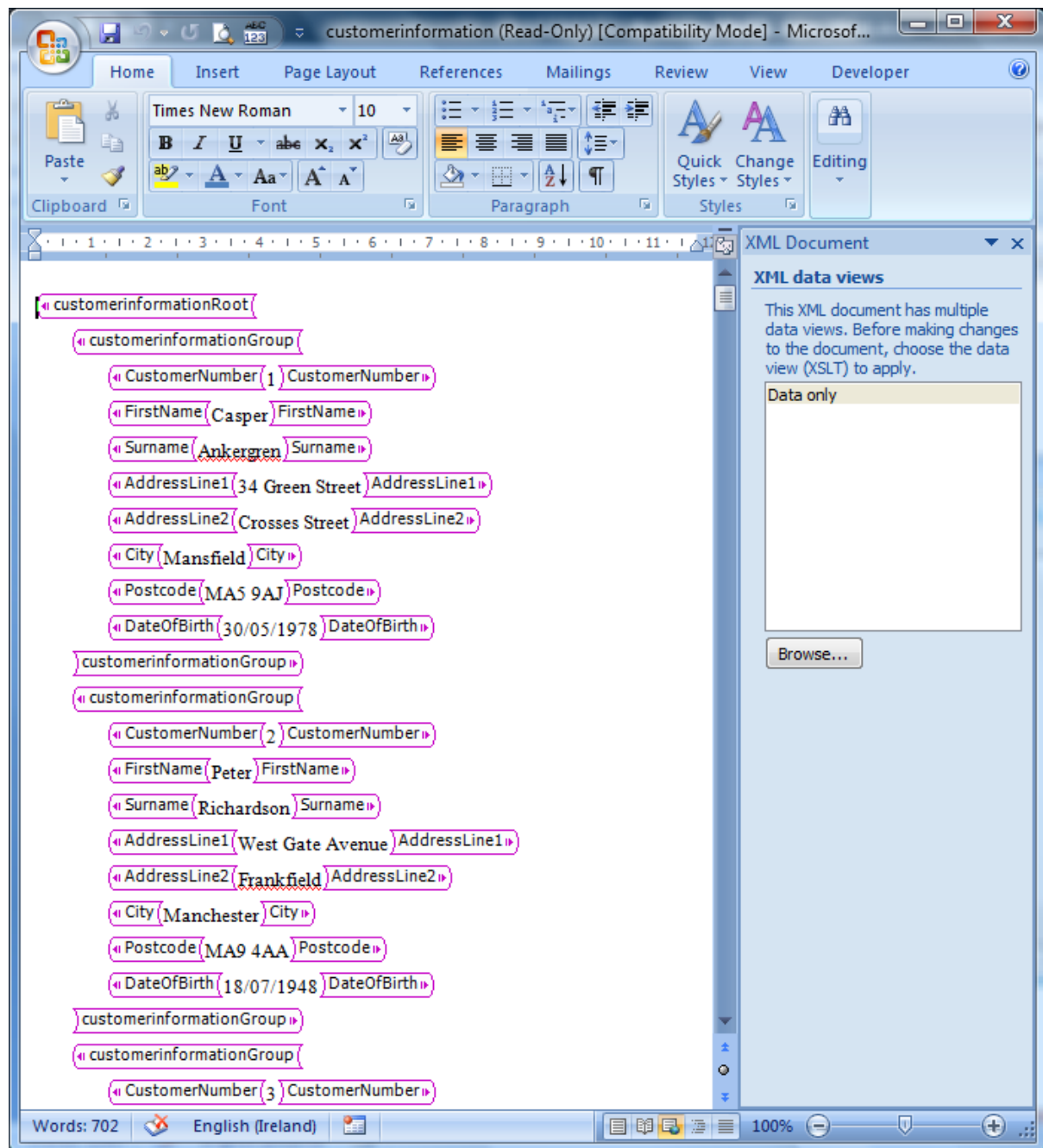
Close Word as it will have cached the previous error. Enter the URL as before and select Open. Again, depending on your MySQL setup, you may receive a similar error message as MySQL selects a user login on a hierarchical basis and you may have to repeat the above for the next user.

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

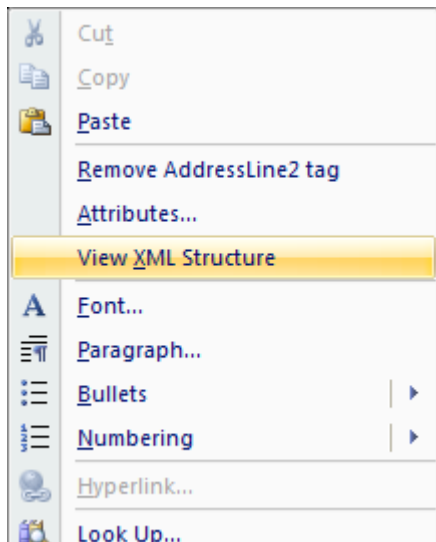
- Log in to MySQL as user root.
- Issue the following 2 statements substituting 'jom'@'localhost' with the user and host in your error message:

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

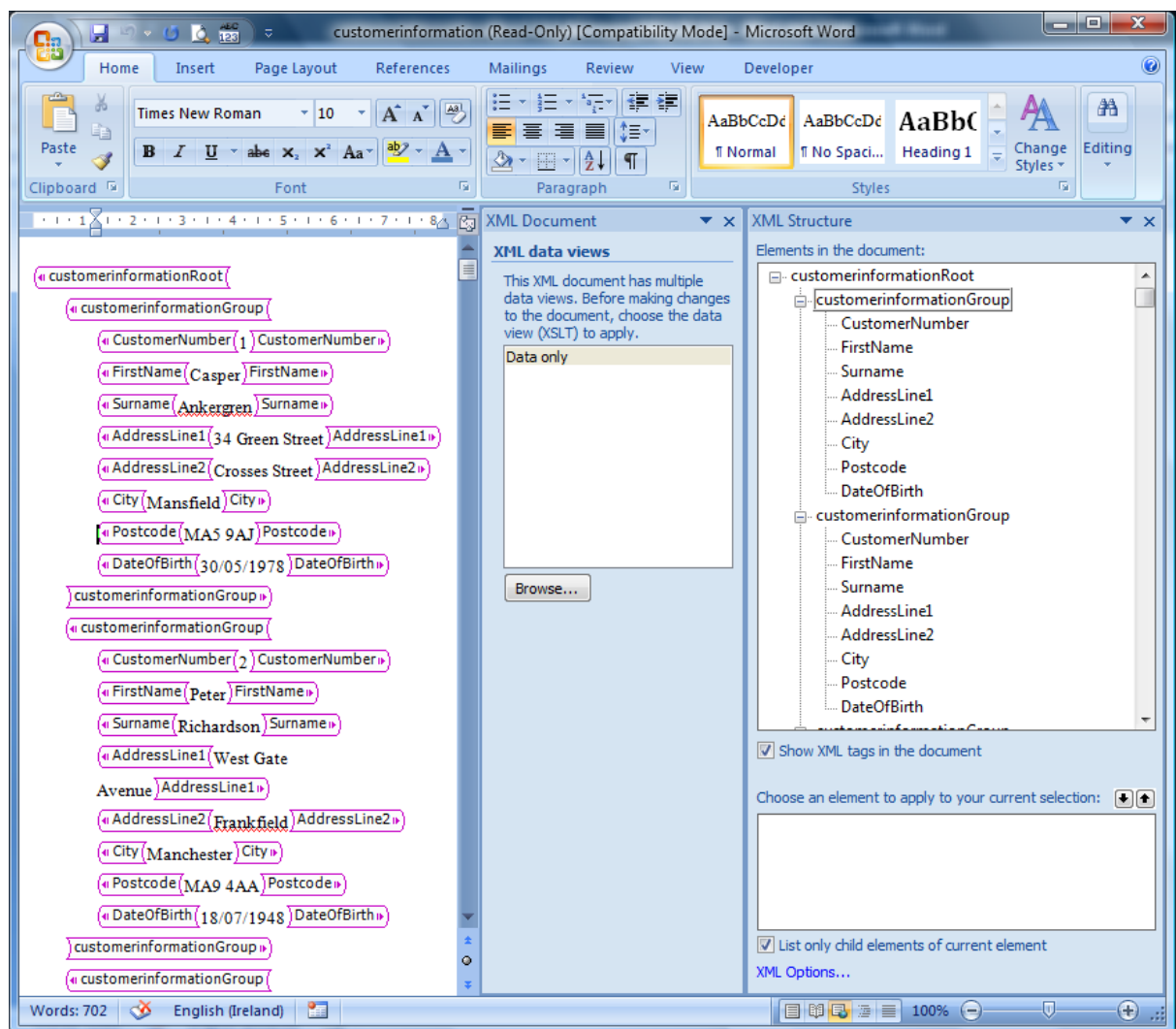
Finally a list of customers will be returned as shown below.



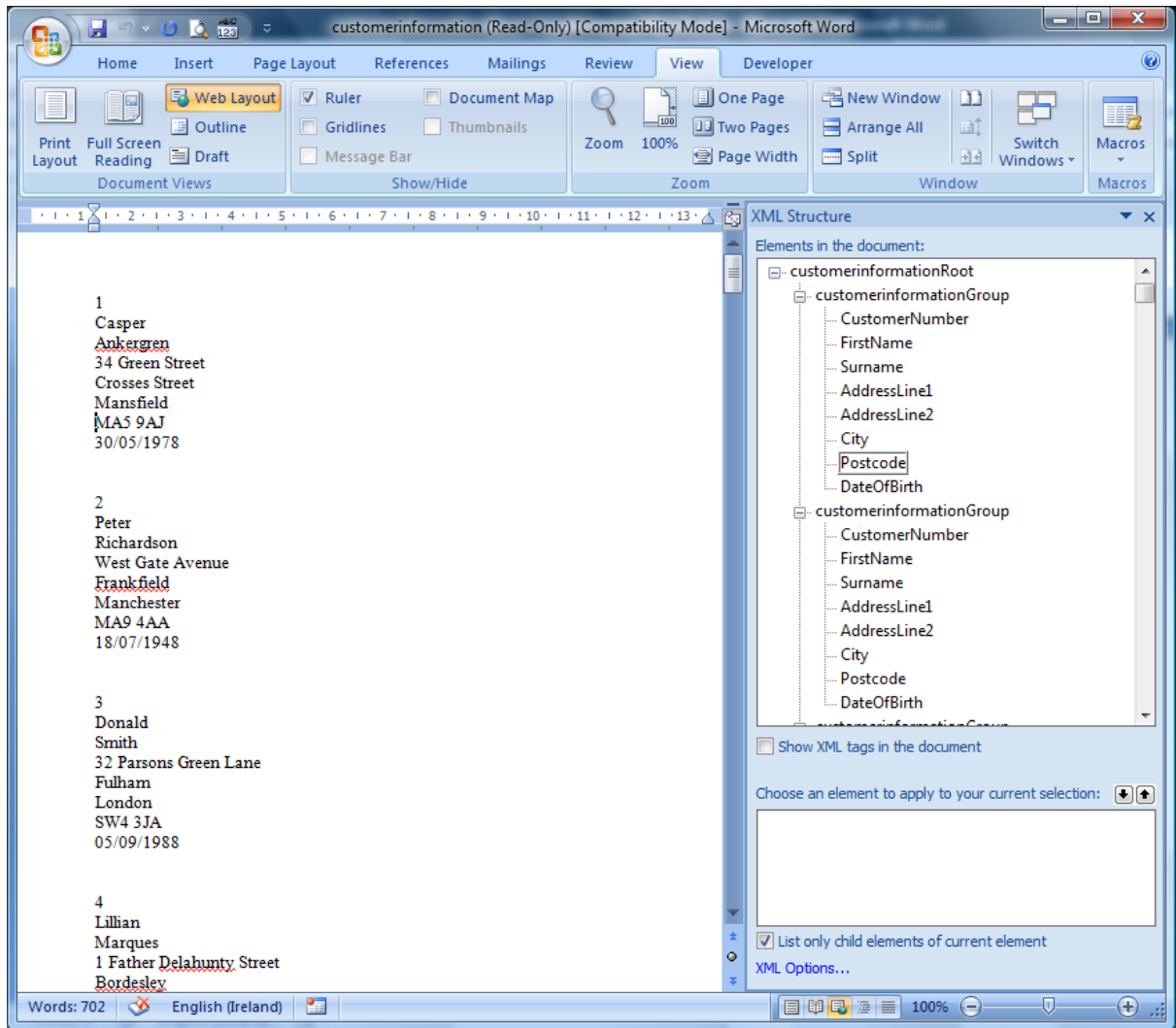
Right-click on the returned structure. Select View XML Structure from the pop-up menu.



The following window is displayed.



Close the XML Document window. Deselect **Show XML tags in the document** and you have a more elegant list displayed.



6. Conclusion

This tutorial shows how to access MySQL from Word using the SOA Gateway.