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# IBM DB2 XML support

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## About this Tutorial

This tutorial shows you, step by step, how to configure the IBM DB2 support in oXygen XML editor, browse and edit the database tables (and particularly the XML content of the cells belonging to an XML type column), register, view or drop the XSD schema used to validate the XML cell content as well as running SQL/SQL/XML or XQuery interrogations.

The tutorial assumes that you have a basic knowledge of databases, SQL, XML technologies and of oXygen XML editor tool. The explanations and screenshots are given for the standalone version of the oXygen XML editor. However the same set of features are available in Eclipse plugin version of the product with minor interface differences.

## How to Configure the IBM DB2 Support in oXygen

There are two notions you need to understand in order to configure the DB2 support in oXygen: the data-source and the connection.

A datasource defines all that is needed in order to have a connection to the database. oXygen uses JDBC as a way to connect, so a datasource defines the DB2 JDBC driver details. If you want to connect to servers running different versions of DB2 you need to configure a datasource for each DB2 version so that it will properly match the JDBC driver version.

oXygen currently supports version 9 of IBM DB2 database also known as pureXML. The recommended way to connect is using the JDBC type 4 drivers.

Go to oXygen's Preferences->Data Sources and press the New button in order to add a new data source. Insert a datasource name (make sure that each data source has an unique name) and select the DB2 type from driver type combo box.

### Data Source Drivers Configuration Dialog.



You also need to add the following IBM DB2 specific driver files:

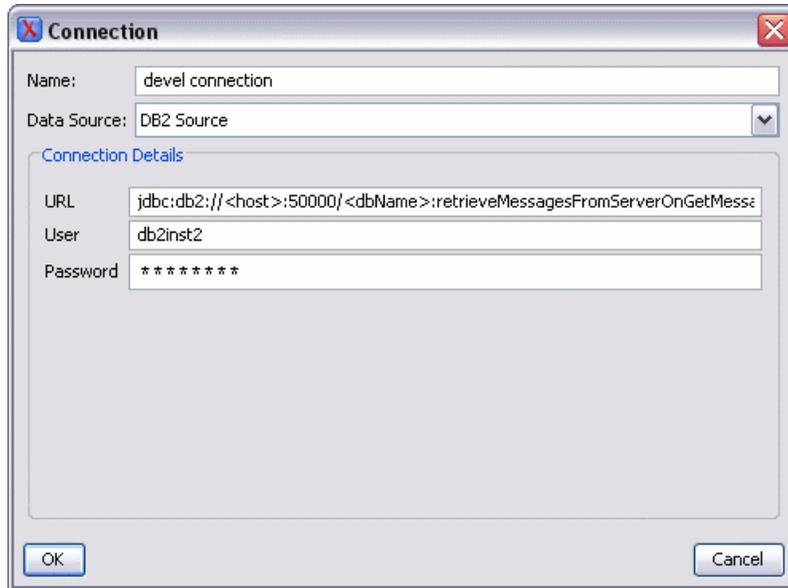
- db2jcc.jar
- db2jcc\_license\_cisuz.jar
- db2jcc\_license\_cu.jar

In order to get these driver files go to the IBM website: <http://www.ibm.com/software/data/db2/udb/>, select the Trials and betas link, enter jdbc in the Search for field, press the link of the match DB2 Personal Developer's Edition: Redistributable JDBC Type 4 Driver and download the zip file that contains the needed jars. After adding the driver files oXygen will automatically detect the available driver classes so you can choose the most suited one.

See manual : <http://www.oxygenxml.com/doc/ug-standalone/working-with-databases.html#configure-db2-datasource>

Once you have created the datasource you may proceed further by defining one or more connection based on it. The connections can be configured on the same Preferences->DataSource page.

### **Connection Configuration Dialog.**



Start by choosing a unique connection name and set the Data Source combo box to the already configured DB2 datasource. For the URL field use the specific JDBC driver syntax (for example `jdbc:db2://10.0.0.16:50000/SAMPLE:retrieveMessagesFromServerOnGetMessage=true`; means a connection to a DB2 server database SAMPLE located at IP 10.0.0.16)

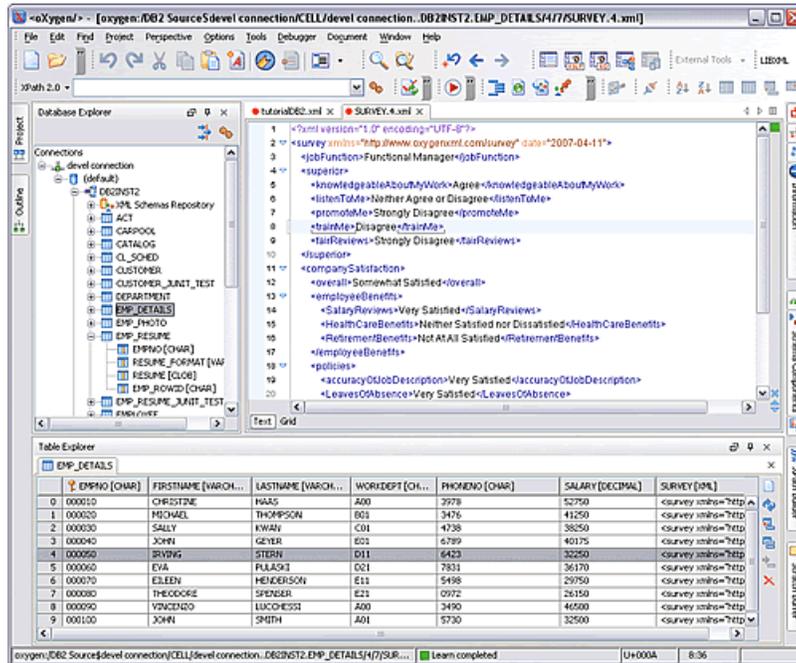
See manual: <http://www.oxygenxml.com/doc/ug-standalone/working-with-databases.html#configure-db2-connection>

Sometimes you need to work with two database servers (for example a development sever and a production server) so it makes sense to define a connection on each database server to be further used when executing SQL/XQuery or browsing/editing the database content. If the two database servers have the same version you only need to configure a datasource and add two connections for it.

## Database Explorer View

Once we finished the configuration of the connection we are able to browse the database content using the Database Explorer view from the Database perspective. Besides this view, the Database perspective is also featuring a Table Explorer view that will be explained later.

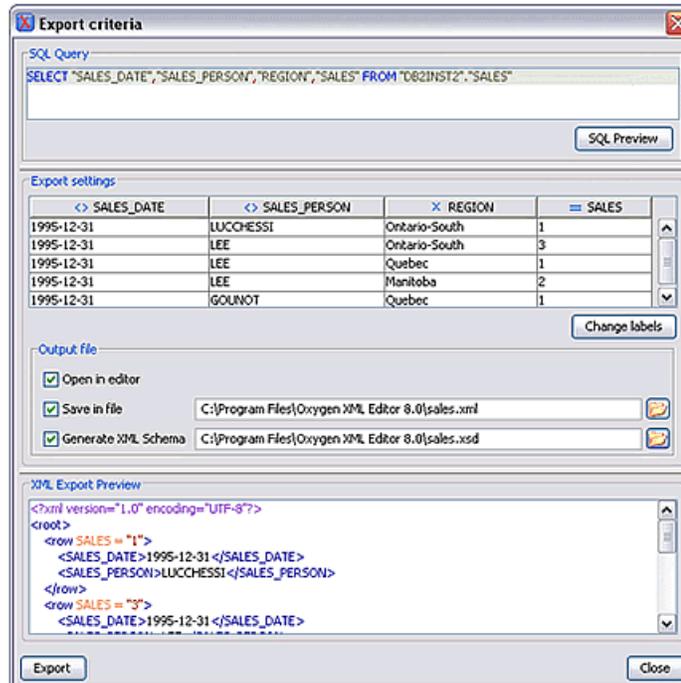
### Database Perspective.



Drag and drop support between tree nodes and an opened SQL editor is also available: <http://www.oxygenxml.com/doc/ug-standalone/working-with-databases.html#sql-dnd-support>

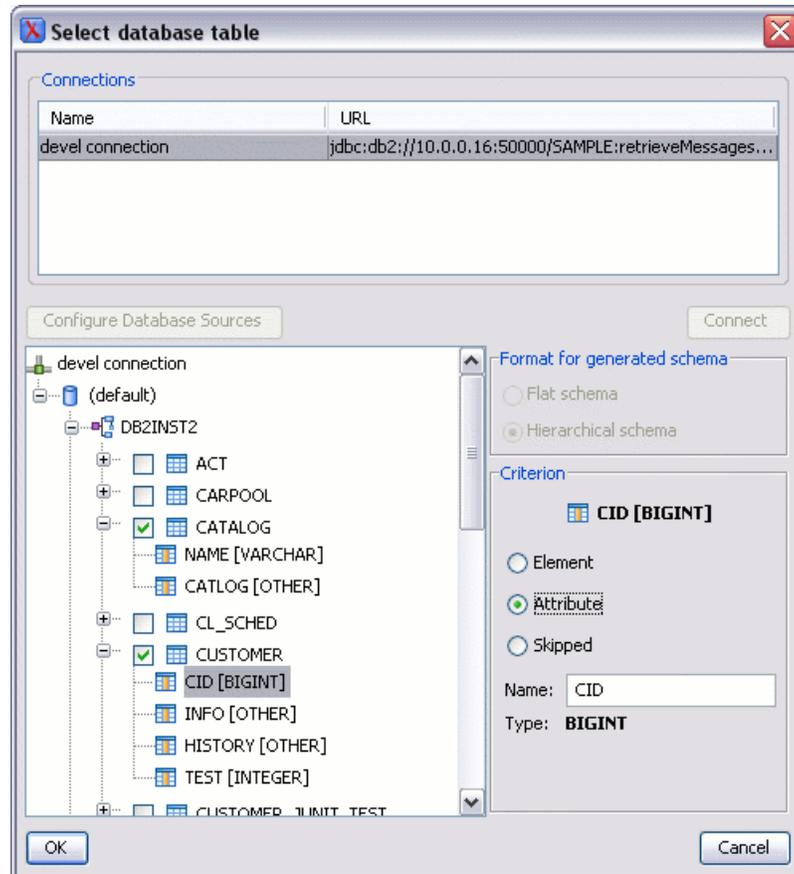
One of interesting operation available on table nodes is the "Export to XML" action. That allows the export of database table content under an XML structure. Please note that on demand, oXygen is able create a basic XSD schema for the table you need to export.

### Export Table Dialog.



oXygen also features a tool that is able to generate an XSD schema based on a set of database tables. The tool is available under the "Tools" menu "Create Schema from DB Structure" action. Basically if you select a set of tables oXygen can generate an XSD schema that describes table data definitions and take into account the key relationships.

### Generate Schema Tool.

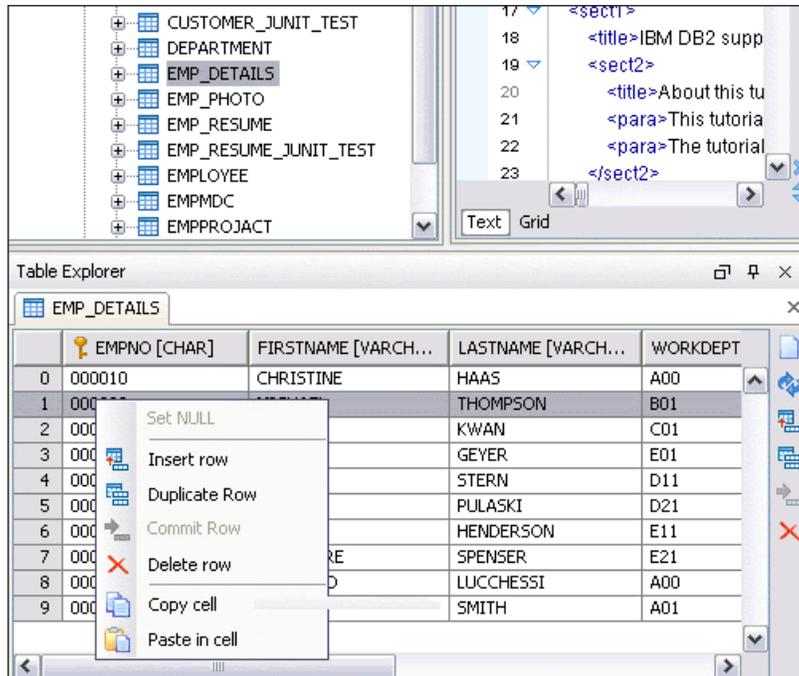


## Table Explorer View

The Table Explorer view from the Database Perspective is able to represent a database table content or the result of an SQL interrogation. If you like to edit a database table content you can use the Edit operation from contextual menu of the Database Explorer view.

The view allows you to add a new table row or duplicate or delete a previous one. If the database constraints are violated due to your changes, you will get a proper error message that will help you to correct the problem.

### Table Explorer View.

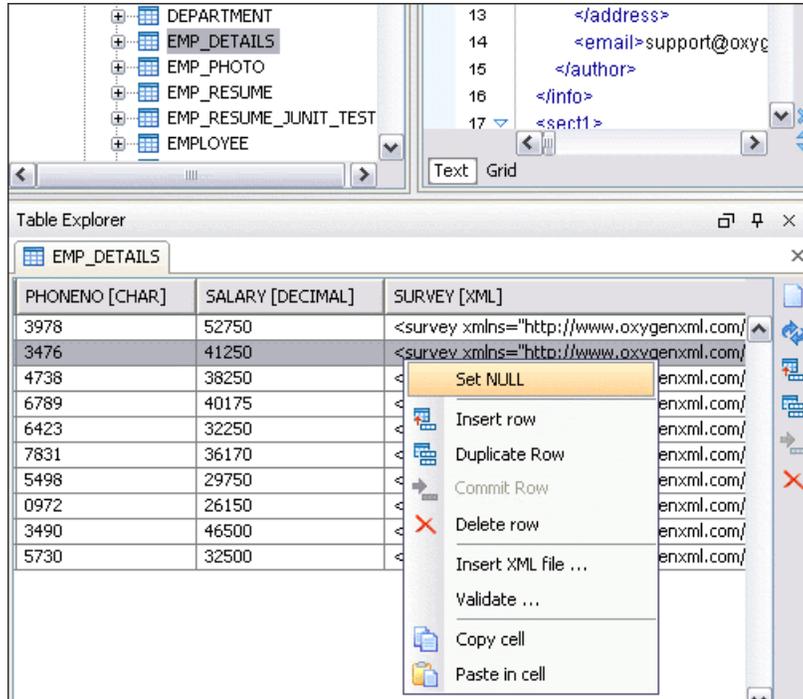


The table columns can be sorted by clicking on the table header.

## Editing XML Content of the XMLType Columns

The true power of oXygen comes when you need to edit content from the XML type columns. These column data can be opened directly into the oXygen XML editor so you can benefit of all oXygen editing features. Saving the edited data in the database is simple like in the case of a normal file (you can use the Save action). If the database rejects your changes during this operation you get an error message and the file status will remains as modified.

### Editing XML Cells.



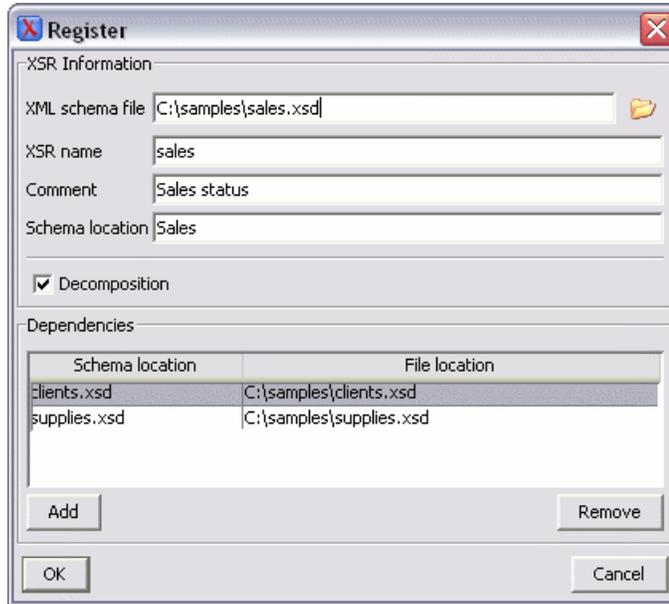
There are other interesting operations available for an XML cell:

- Insert XML file - inserts the content of an XML file on the respective cell.
- Validate - validates the current XML cell content against an already registered XSD schema.

## XML Schema Repository

Every DB2 database schema has associated an “XML Schema repository” where all the XSD schemas available to validate XML content of the XML type columns are stored. The “XML Schema repository” is available as a child node in the Database View for any database schema node. You can expand the “XML Schema repository” node and perform operations like registering a new schema or dropping an already existing one.

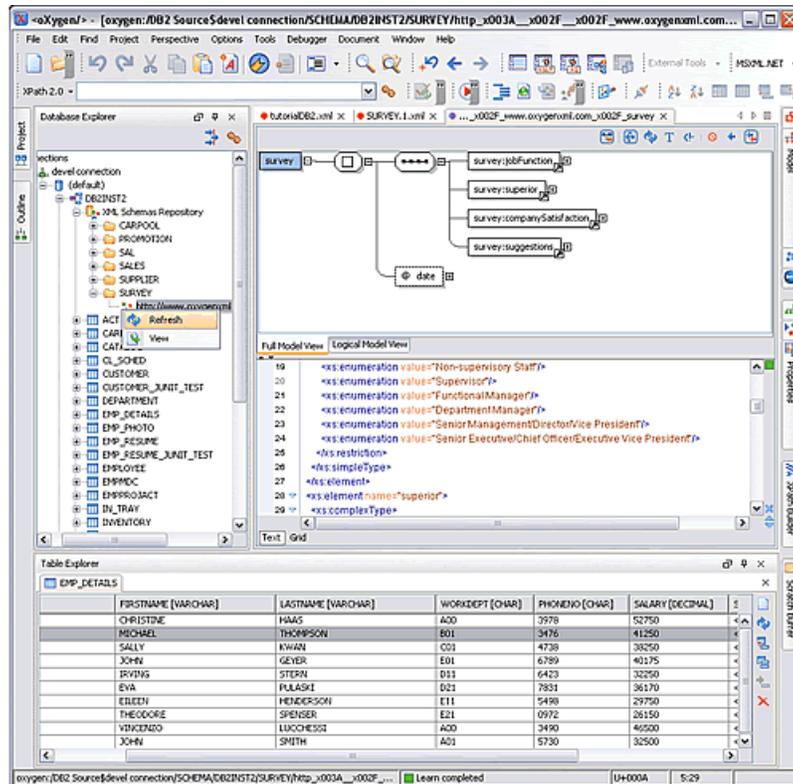
### Register Schema Dialog.



See manual: <http://www.oxygenxml.com/doc/ug-standalone/working-with-databases.html#db2-xml-schema-repository-level>

The XSD schema stored in “XML Schema repository” can be viewed into the oXygen XSD editor. However you cannot modify them (as you only get a read-only access).

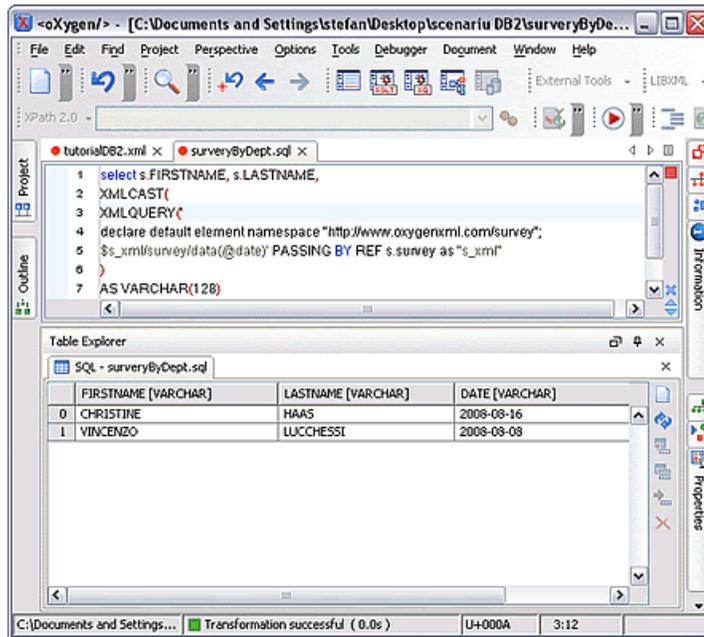
### Viewing XML Repository Schema.



# SQL , SQL/XML Support

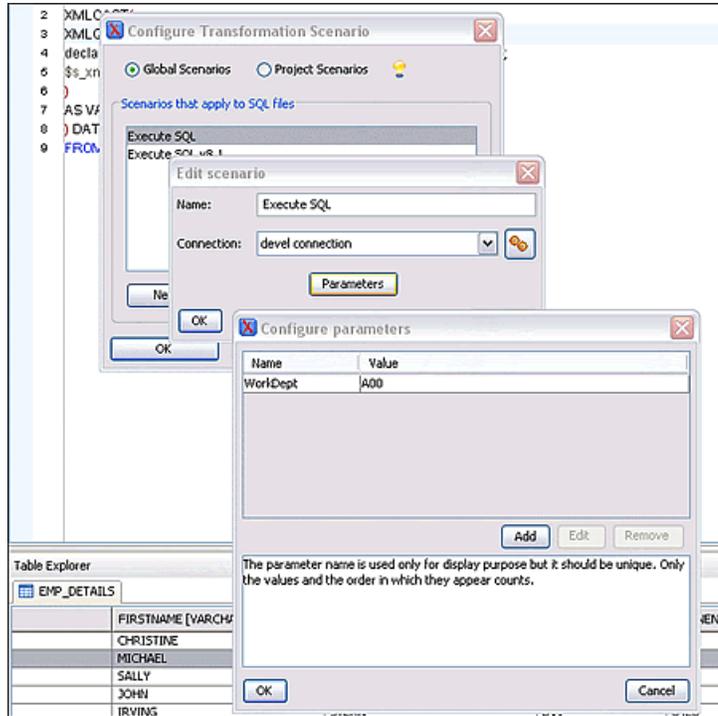
You can use oXygen to run SQL (including DDL) or SQL/XML interrogations. For that you need to open an SQL Editor (available from menu New->"SQL Editor") and write your query content. The SQL editor has an associated scenario where you need to specify as transformer the previously created DB2 connection.

## SQL Editor.



If you want to reuse the SQL queries, you can specify parameter markers (?) into the SQL content and add their corresponding mapping into the parameters dialog from associated scenario. For example we need to write a SQL interrogation to get a report with all employees from one department and their last evaluation dates. For this SQL query we should use a parameter marker (the ID of the department) configurable from Transformation Scenario so we can easily reuse the query for another department.

## Parameters Dialog.



## XQuery Support

DB2 pureXML supports XQuery interrogations when working with the XML content of the XML column types. For example if you like to generate a XQuery to measure the employee satisfaction levels regarding the company rules, you can open an XQuery editor (New->XQuery), configure the transformation scenario to match the DB2 connection for the transformer field, write the XQuery and then execute it.

### XQuery Editor.

