

COPY SQL VALUES TO INFOPATH REPEATING SECTION FIELDS USING QUERYDB

PRODUCT: qRules v2.3
LAST UPDATED: July 28, 2011

SCENARIO

Want to copy values from your SQL table to your InfoPath form's repeating section without code? qRules already comes with a CopyTable command. This command works well but has one big drawback: it requires that your InfoPath form's repeating table has the same number of fields as your SQL table, and may also require the same data types. This can cause problems when the database table has columns without values or when your form has a different structure. What to do?

You can use the QueryDB web service to query your database and the qRules Insert command to add the fields. The Insert command and other rules to set values are set up in a rules loop. To stop the loop, you'll have to add a Count field to your form that you decrement as you walk through your secondary data source setting values into your main data source, but it's relatively easy to do.

VALUE PROPOSITION

This technique can be used for a variety of scenarios where you would like to copy repeating data from a secondary data source to your main data source and the structures don't match.

This tutorial shows you how to set it up. Included is a sample that you can download, design and review if you don't have time to build your own.

REQUIREMENTS

This tutorial assumes that you have qRules v2.2 (or higher) already installed on your machine. For details on this, please see the User Guide included with the installer.

- 1) Create a new InfoPath form: In InfoPath, design a new, blank form. Select **File > Save As** and save the XSN to your local drive. Close the form.
- 2) Launch the qRules Injector, browse to select the XSN you created and click **Inject**. Close the qRules Injector and open the form in Design mode.

For more information on the steps above, refer to the User Guide. This tutorial also assumes that user has the following:

- InfoPath 2007 or 2010
- DBXL v2.3 or higher



- SQL Server 2005 or 2008



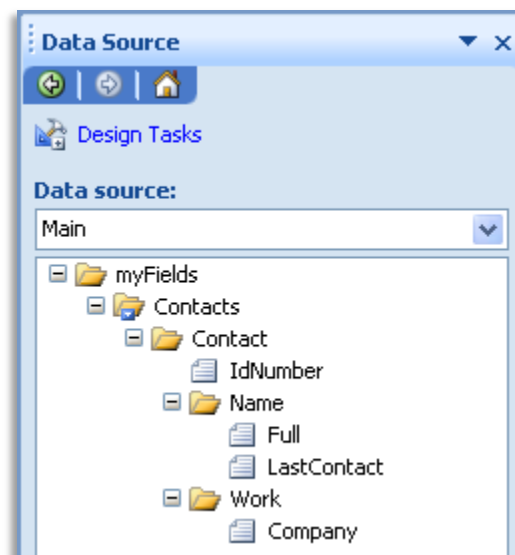
DESIGN YOUR FORM

In this tutorial, we will create a sample form with a few sections and fields to display values from a SQL database.

To start, follow the steps below:

Create the Main Data Source

- 1) Open the saved form (injected with qRules) in design mode.
- 2) Create the fields as described in the table below:

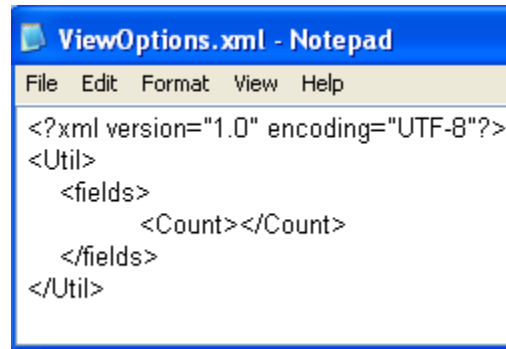


	Field	Type	Data Type	Default Value
1	Contacts	Repeating Group		
2	Contact	Group		
3	IdNumber	Field (element)	Text (string)	
4	Name	Group		
5	Full	Field (element)	Text (string)	
6	LastContact	Field (element)	Date	
7	Work	Group		
8	Company	Field (element)	Text (string)	

Add XML file as a secondary data source

- 1) Create an XML file with a Count field as shown below:





- 2) Save the XML file as ViewOptions.xml.
- 3) Back in InfoPath design mode, click **Tools > Data Connections**.
- 4) Click **Add**, and then select **Receive data**. Click **Next**.
- 5) Select **XML document**. Click **Next**.
- 6) Browse to the location where you saved ViewOptions.xml, select on it and click **Next**.
- 7) Select to "Include the data as resource file in the form template or template part", click **Next**.
- 8) Check "**Automatically retrieve data when form is opened**" box.
- 9) Click **Finish** and then **Close**.

Design your view

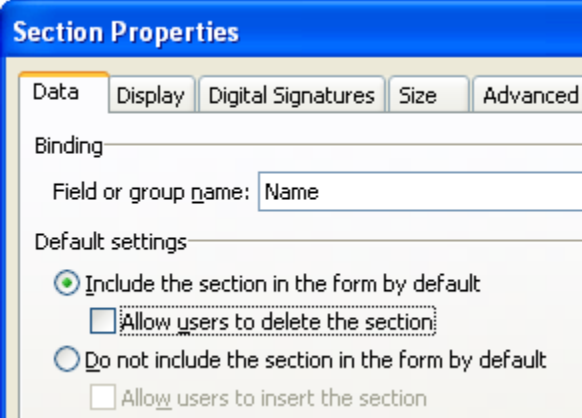
- 1) Add the repeating group **Contacts** to your view's canvas.
- 2) Then drag the **Contact** group inside the **Contacts** repeating group, choosing *Section with Controls*.





The screenshot shows a form with several sections. At the top is a text field labeled "Id Number:". Below it is a text field labeled "Full:". To the right of "Full:" is a small calendar icon. Below "Full:" is a text field labeled "Last Contact:". Below "Last Contact:" is a section labeled "Optional Section" with a plus icon. Below that is a text field labeled "Company:". Below "Company:" is another "Optional Section" with a plus icon. At the bottom are two sections: "Section" and "Repeating Section", both with plus icons.

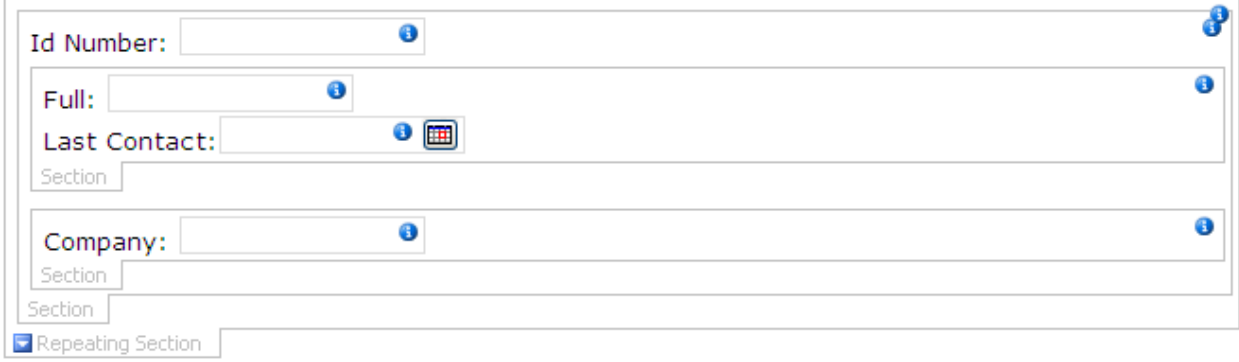
- 3) Double-click on the **Name** section to open its properties and change it to be included as default (not optional). Also, uncheck the "Allow users to delete the section" check box. Repeat this for the **Work** section as well.



The "Section Properties" dialog box has tabs for Data, Display, Digital Signatures, Size, and Advanced. The "Display" tab is selected. Under "Binding", the "Field or group name" is "Name". Under "Default settings", the "Include the section in the form by default" radio button is selected. The "Allow users to delete the section" checkbox is unchecked. The "Do not include the section in the form by default" radio button is unselected. The "Allow users to insert the section" checkbox is unchecked.

- 4) Your sections should now change from *Optional Section* to *Section*:





Id Number: i

Full: i

Last Contact: i 

Section

Company: i

Section

Section

☒ Repeating Section

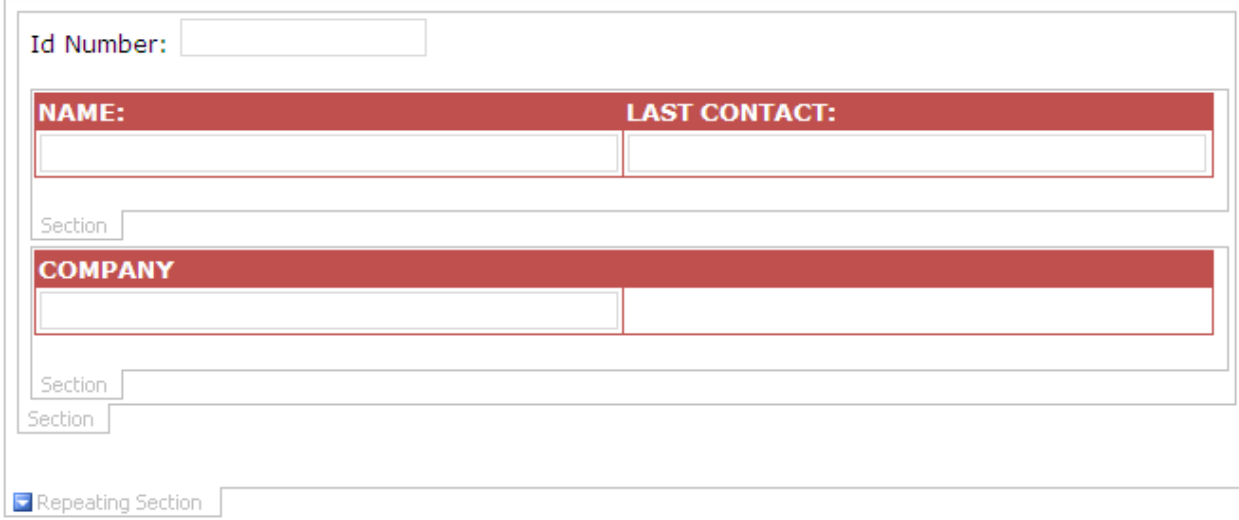
- 5) Create a table inside the **Name** section (2 column/2 rows) and put **Full** and **LastContact** fields in the second row. Change table format as desired.



NAME:	LAST CONTACT:
i	i

Section

- 6) Do the same for the **Work** section, putting the **Company** field in the second row. You should now have something like:



Id Number:

NAME:	LAST CONTACT:

Section

COMPANY

Section

Section

☒ Repeating Section



ADD A QUERYDB DATA CONNECTION

Now we will create a QueryDB data connection to the sample Contract Customers table below.

	Column Name	Data Type	Allow Nulls
▶	ID	int	☐
	CustomerName	nvarchar(50)	☒
	ContactName	nvarchar(50)	☒
	LastContact	datetime	☒
			☐

	ID	CustomerName	ContactName	LastContact
▶	1	Qdabra Software	Patrick Halstead	1/20/2003 9:00:00 AM
	2	Acme Wineworks	Jennifer Walts	2/25/2004 10:30:00 AM
	3	Autonomy Systems	Hilary Stoupa	7/20/2008 8:30:00 AM
	4	Qdabra Software	Jo-Anne Alfafara	5/5/2008 2:00:00 PM
*	NULL	NULL	NULL	NULL

The following steps require that you already have a queryxml for use in the data connection. In this case, we used the sample queries below:

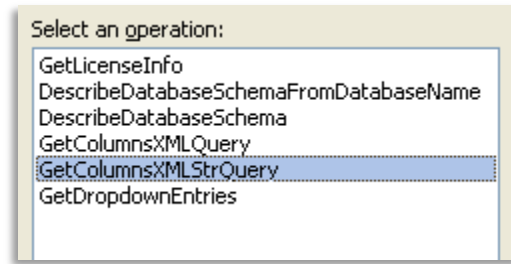
```
<query database='SampleDB' table='CustomerContact' maxrows='100'
getSample='true'><columns><column name='ID'></column name='CustomerName'></column
name='ContactName'></column name='LastContact'></columns></query>
```

```
<query database='SampleDB' table='CustomerContact'><columns><column name='ID'></column
name='CustomerName'></column name='ContactName'></column
name='LastContact'></columns></query>
```

You need to use Qdabra's Query Builder to generate the queries similar to the ones shown above. Please read this [document](#) for the steps on how to use Query Builder.

- 1) Click on **Tools > Data Connections**, and in the dialog box, click on **Add**.
- 2) Select **Create a New Connection to** and **Receive data**. Click **Next**.
- 3) From the following screen, select **Web Service** and click **Next**.
- 4) Type in the URL for the QueryDB service, <http://<server-name>/QdabraWebService/QueryDB.aspx> (where <servername> is the machine where DBXL is installed) and click **Next**.
- 5) In the following screen, select **GetColumnsXMLStrQuery** and click **Next**.





- 6) Double-click on *tns:queryxml* and paste the first query that was generated by Query Builder. This is the sample value, used by InfoPath to derive a schema. Click **OK**, then click **Next**.
- 7) In the following screen, double-click on *tns:queryxml* and paste the second query that was generated by Query Builder. Click **OK**, then click **Next** twice.
- 8) Ensure the checkbox for **Automatically retrieve data when this form is opened** is *unchecked*. Name your data connection as CustomerContact. Click **Finish**. Click **Close**.

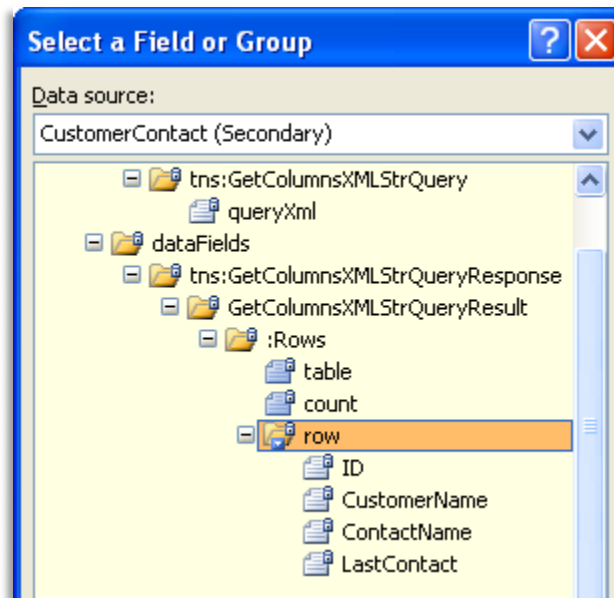


ADD RULES TO FORM OPTIONS

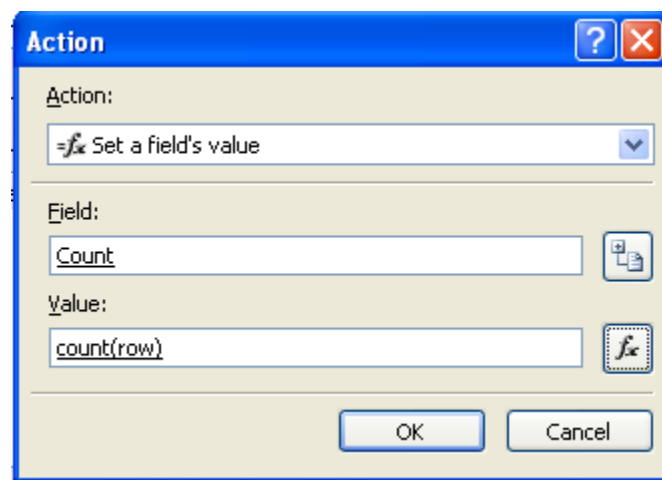
In the following steps, we will set the Count field from our secondary data source to count the rows in our SQL table. The count rule is important so qRules will know how many rows to insert.

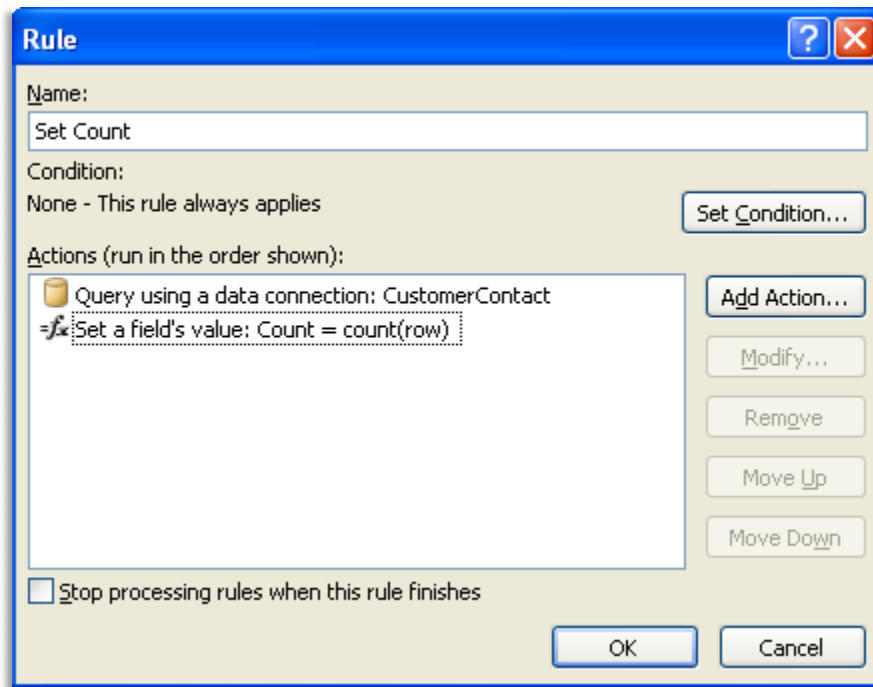
- 1) In InfoPath design view, click **Tools > Form Options**.
- 2) Select the category **Open and Save**, and then click **Rules**.
- 3) Click **Add**.
- 4) Name the rule Set Count.
- 5) Click **Add Action**, and then:
 - In the **Action** dropdown, select **Query using a data connection**.
 - Select the QueryDB data connection in the second dropdown, and then click **OK**.
 - Click **Add Action**.
 - In the **Action** dropdown, select **Set a field's value**.
 - Click on the schema icon next to **Field** and select the **Count** field from the XML secondary data source.
 - Select *fx* button for **Value** and enter **count(row)**, where row is the repeating group from your QueryDB secondary data connection.





- Your function should look something like:





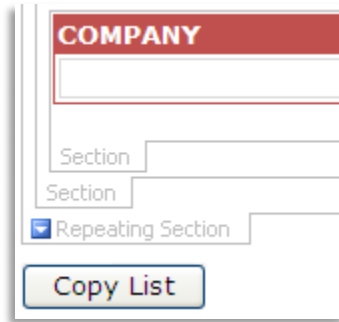
- 6) Click **OK** to close all the dialog boxes.



ADD RULES TO COPY LIST BUTTON

Next, we will create a button that will copy the SQL table values to our repeating section. To do this, we need to call qRules **Insert** command to insert rows in our Contacts repeating section.

- ❖ Add a button to your view's canvas called **Copy List**.

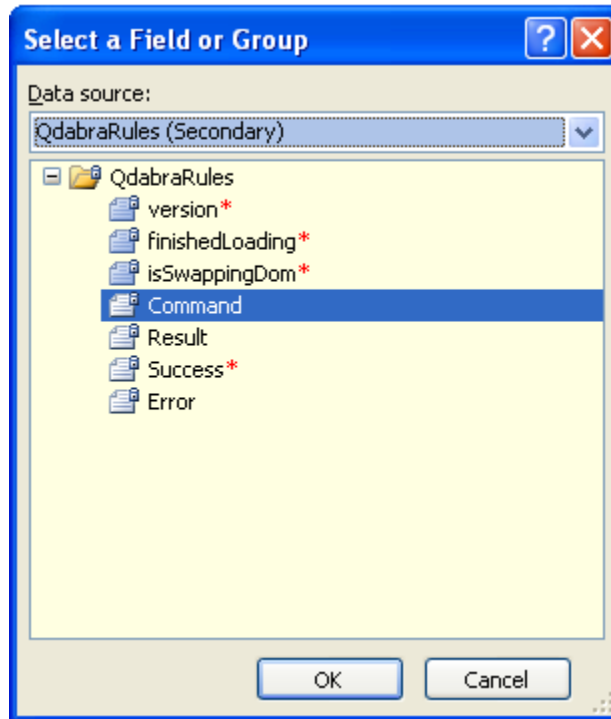


Add a rule delete existing rows

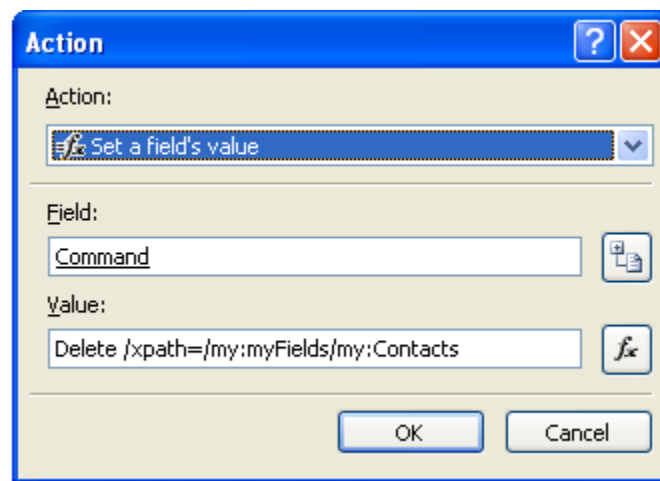
Before you add the insert command rule, you would want to first delete any existing rows that are in your repeating section.

- 1) Click **Add** to add a rule.
- 2) Click **Add Action** and leave the first dropdown with the action "Set a field's value".
- 3) Click on the schema icon next to **Field** and select the **Command** node from the **QdabraRules** (Secondary) data source.





- 4) In the Value text box, enter: **Delete /xpath=/my:myFields/my:Contacts:**

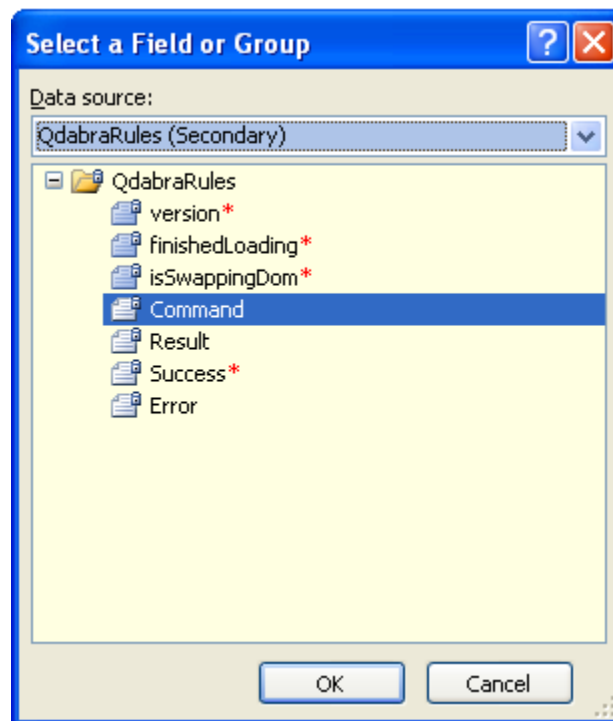


- 5) Click **OK**.



Add a rule to call qRules Insert command

- 1) Click **Add Action** and leave the first dropdown with the action "Set a field's value".
- 2) Click on the schema icon next to **Field** and select the **Command** node from the **QdabraRules** (Secondary) data source.



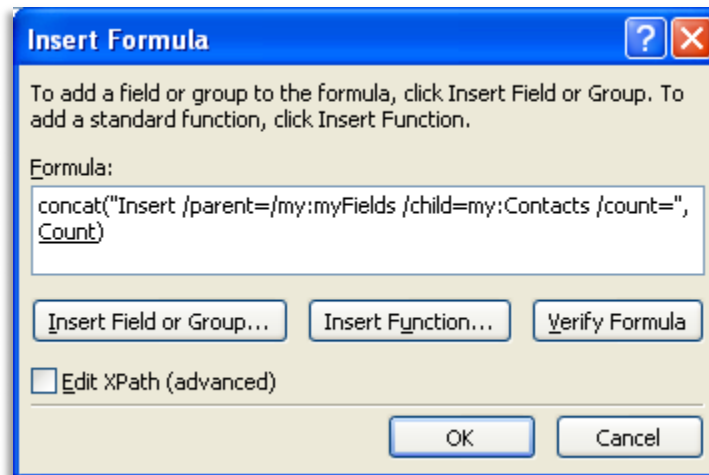
- 3) Click **OK**.
- 4) Click the *fx* button for **Value**.
- 5) In the formula box, enter the command string:

concat("Insert /parent=/my:myFields /child=my:Contacts /count=", Count)

Where **Count** = Count in the XML secondary data source

- 6) Your formula should be similar to this:



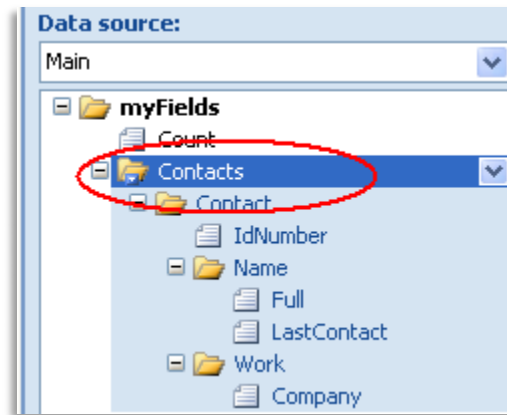


- 7) Click **OK** twice.
- 8) Name your rule *Insert Row* and click **OK** to close all the dialog boxes.



ADD RULES TO REPEATING SECTION

Now we will add five rules to our Contacts repeating section:



First Rule: Set ID

In this rule we're setting the IdNumber field of our main data source to equal to the current ID of our (secondary data source) table row as counted in our loop.

- 1) Double click the repeating section my:Contacts.
- 2) Click **Rules**, and then **Add**.
- 3) Name the rule Set ID.
- 4) Click **Add Action**, then:
 - Leave **Action** to *Set a field's value*.
 - Click on the schema icon next to **Field** and select the **IdNumber** field from the main data source. Click **OK**.
 - In the **Value** box, click the *fx* button.
 - In the formula box, enter the formula below:

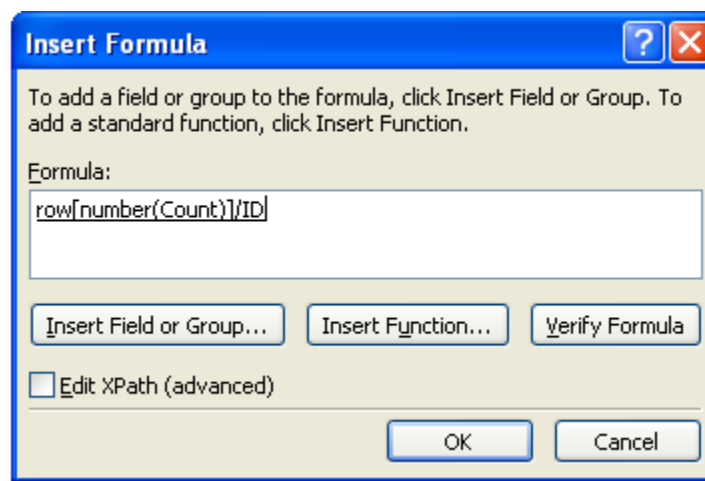
```
xdXDocument:GetDOM("CustomerContact")/dfs:myFields/dfs:dataFields/tns:GetColumn
sXMLStrQueryResponse/tns:GetColumnsXMLStrQueryResult/Rows/row
[number(xdXDocument:GetDOM("ViewOptions")/Util/fields/Count)]/ID
```



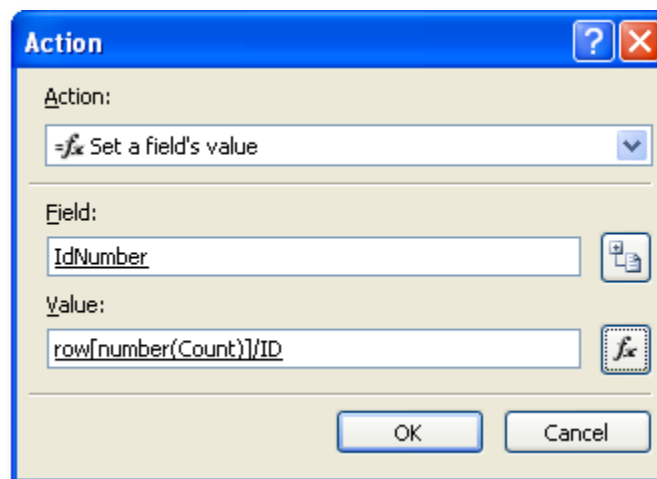
Where:

- a.) `xdXDocument:GetDOM("CustomerContact")/dfs:myFields/dfs:dataFields/tns:GetColumnsXMLStrQueryResponse/tns:GetColumnsXMLStrQueryResult/Rows/row` = XPath of the repeating section in your QueryDB secondary data source.
- b.) `xdXDocument:GetDOM("ViewOptions")/Util/fields/Count` = XPath of the Count field in your XML secondary data source.
- c.) `ID` = ID field in the QueryDB secondary data source

- Click **Verify Formula** button. You will get something like this:



- Click **OK**. Your action rule should now look like:

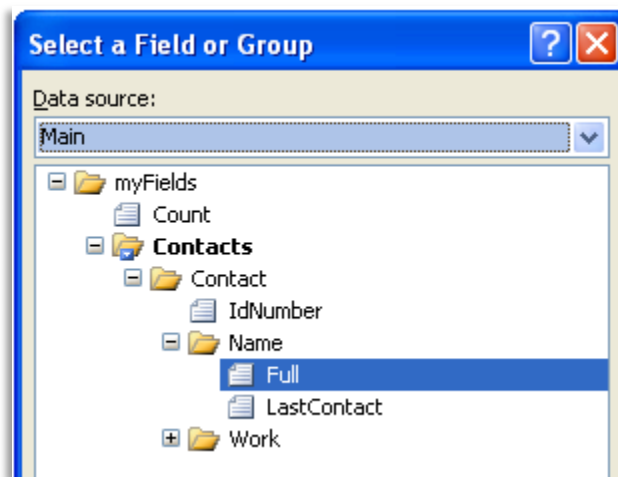


- 5) Click **OK** to close all the dialog boxes for your first rule.

Second Rule: Set Full Name

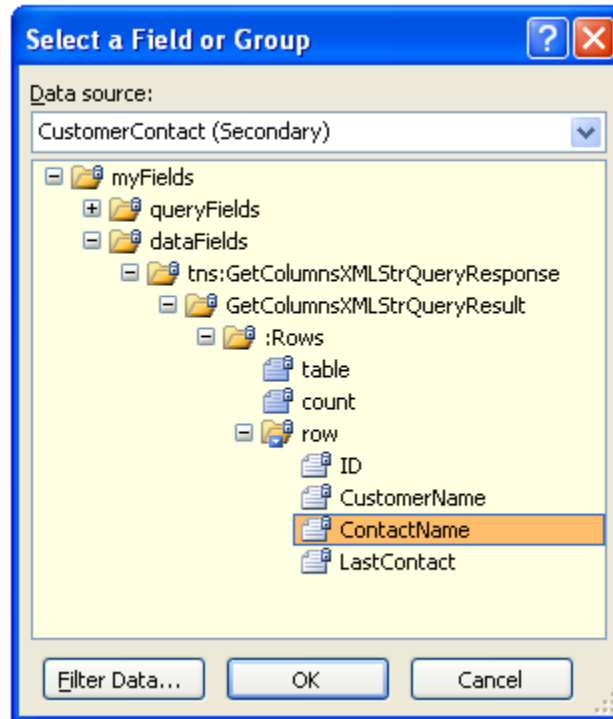
In this rule we will set the **Full** field (that's the full name) to equal to the **Contact Name** in our database. We will then add a filter such that the IdNumber returned for our repeating section is equal to the ID value in our SQL table, so we get matching values.

- 1) Click **Add** to add the second rule.
- 2) Name the rule Set Full Name.
- 3) Click **Add Action**, then:
 - Leave **Action** to *Set a field's value*.
 - Click on the schema icon next to **Field** and select the **Full** field from the main data source. Click **OK**.



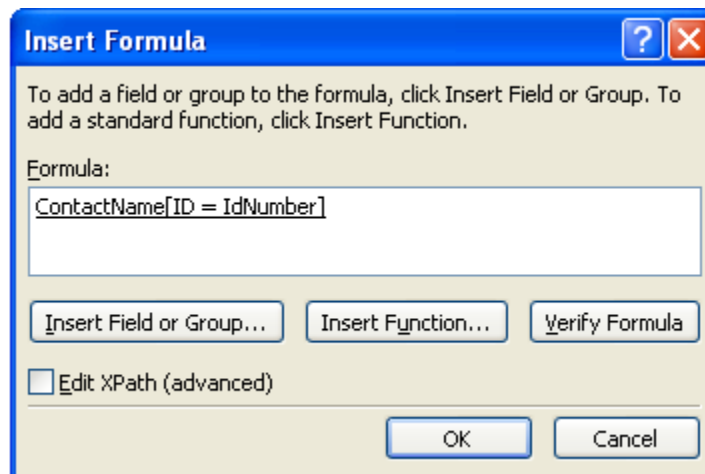
- In the **Value** box, click the *fx* button.
- Click **Insert Field or Group** and select the **Contact Name** field from the QueryDB secondary data connection.



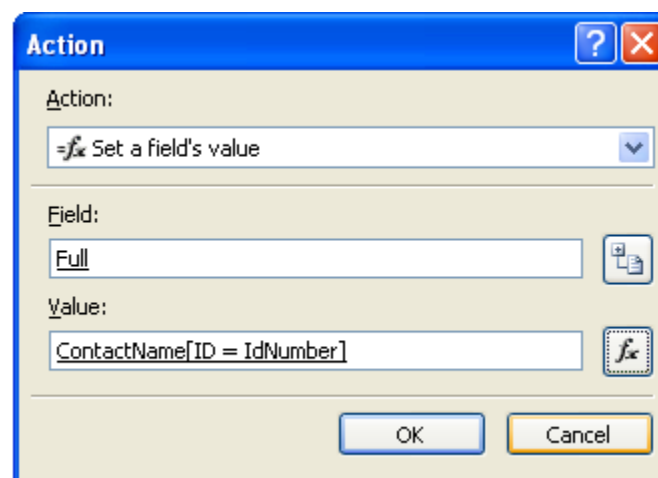


- Click **Filter Data**.
- Click **Add** to add a filter.
- In the first dropdown, select **ID** from the QueryDB secondary data source.
- In the second dropdown, select *is equal to*.
- In the third dropdown, select **IdNumber** field from the main data source. Click **OK** three times to go back to your formula box:





- You action should look like:



- 4) Click **OK** to close all the dialog boxes for your second rule.

Third Rule: Set Company Name

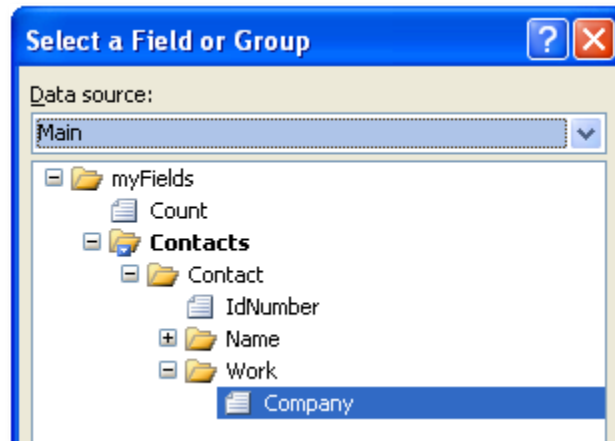
Next, we will set the **Company** field to equal to the **Customer Name** in the database. We will then add the same filter as we previously did to set full name.

- 1) Click **Add** to add the third rule.
- 2) Name the rule Set Company Name.



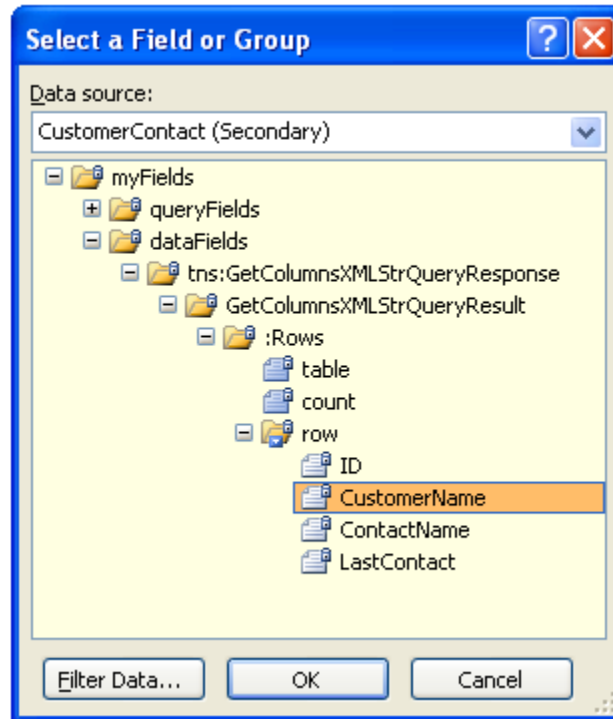
3) Click **Add Action**, then:

- Leave **Action** to *Set a field's value*.
- Click on the schema icon next to **Field** and select the **Company** field from the main data source. Click **OK**.



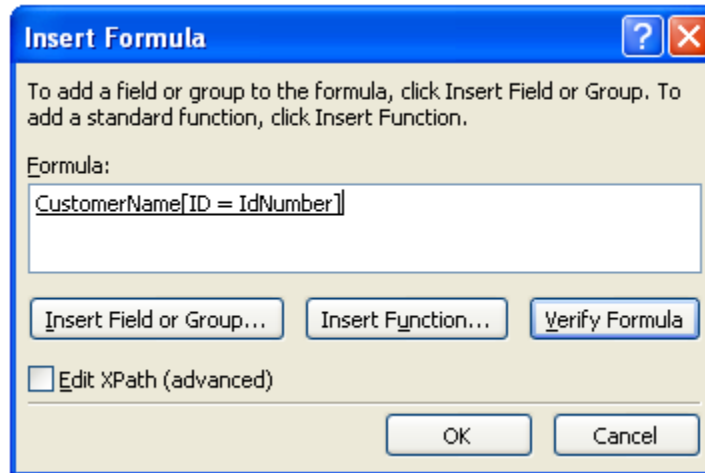
- In the **Value** box, click the *fx* button.
- Click **Insert Field or Group** and select the **Customer Name** field from the QueryDB secondary data connection.



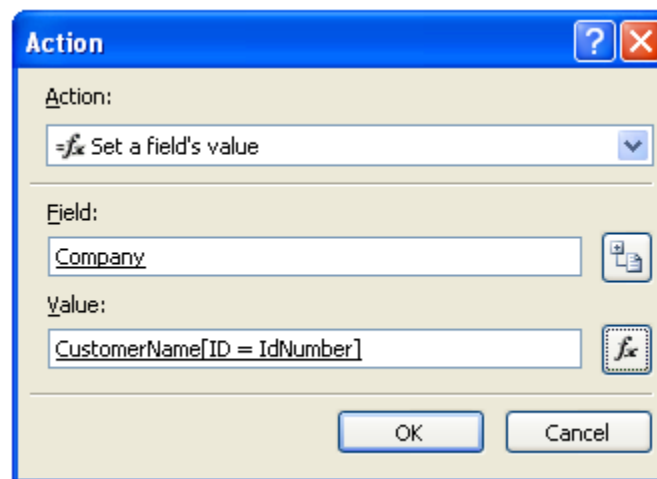


- Click **Filter Data**.
- Click **Add** to add a filter.
- In the first dropdown, select **ID** from the QueryDB secondary data source.
- In the second dropdown, select *is equal to*.
- In the third dropdown, select **IdNumber** field from the main data source. Click **OK** three times to go back to your formula box:





- You action should look like:



- 4) Click **OK** to close all the dialog boxes for your third rule.

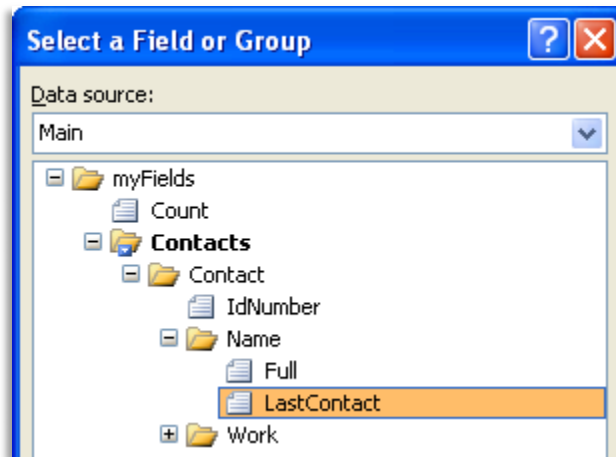
Fourth Rule: Set Last Contact Date

Next, we will set the **LastContact** field to equal to the **Last Contact** in the database. We will then add the same filter as we previously did to set full name.

- 1) Click **Add** to add the fourth rule.
- 2) Name the rule Set Last Contact Date.
- 3) Click **Add Action**, then:

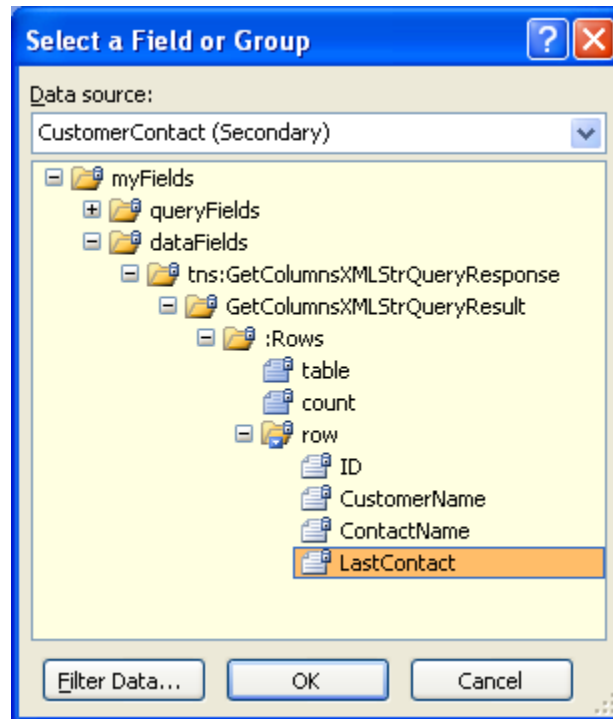


- Leave **Action** to *Set a field's value*.
- Click on the schema icon next to **Field** and select the **LastContact** field from the main data source. Click **OK**.



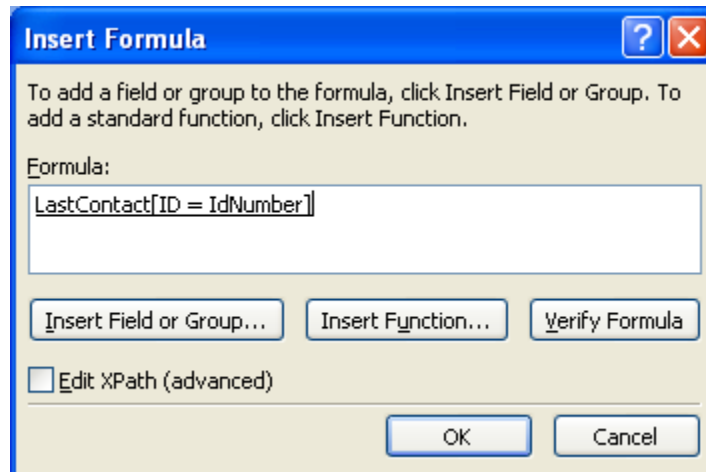
- In the **Value** box, click the *fx* button.
- Click **Insert Field or Group** and select the **Last Contact** field from the QueryDB secondary data connection.



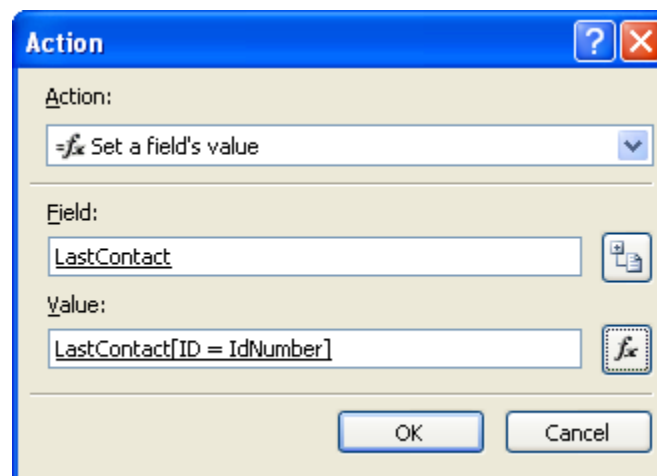


- Click **Filter Data**.
- Click **Add** to add a filter.
- In the first dropdown, select **ID** from the QueryDB secondary data source.
- In the second dropdown, select *is equal to*.
- In the third dropdown, select **IdNumber** field from the main data source. Click **OK** three times to go back to your formula box:





- 4) Your action should look like:



- 5) Click **OK** to close all the dialog boxes for your fourth rule.

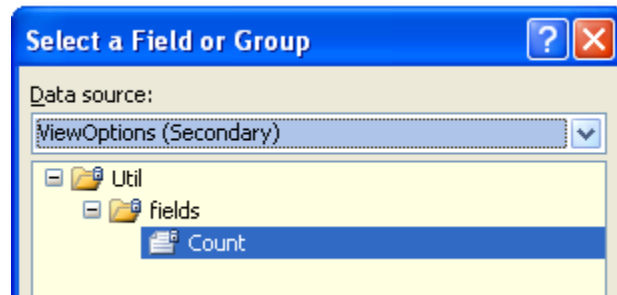
Fifth Rule: Decrement Count

To stop the loop, we'll have to decrement the Count field that we have set earlier to count our database table row.

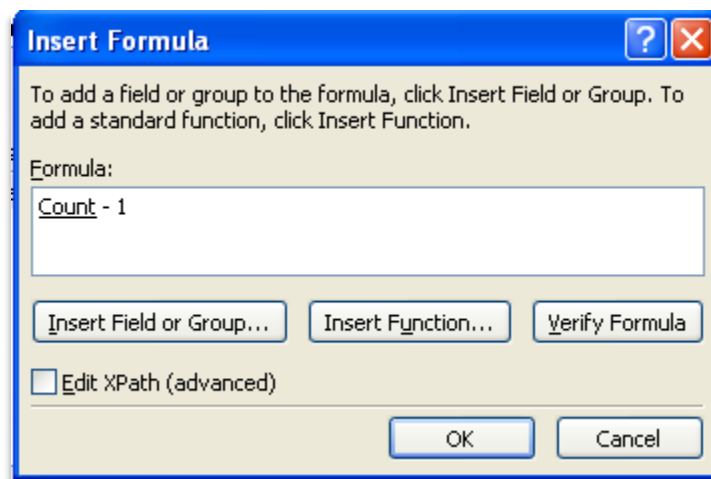
- 1) Click **Add** to add the fifth rule.
- 2) Name the rule Decrement Count.
- 3) Click **Add Action**, then:



- Leave **Action** to *Set a field's value*.
- Click on the schema icon next to **Field** and select the **Count** field from the XML secondary data source. Click **OK**.

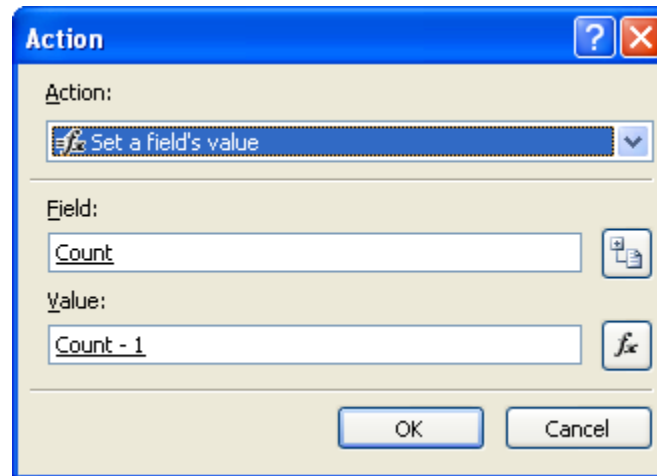


- In the **Value** box, click the *fx* button.
- Click **Insert Field or Group** and select the **Count** field from the XML secondary data source.
- Enter **- 1** so the rule shows: **Count - 1** as shown below:

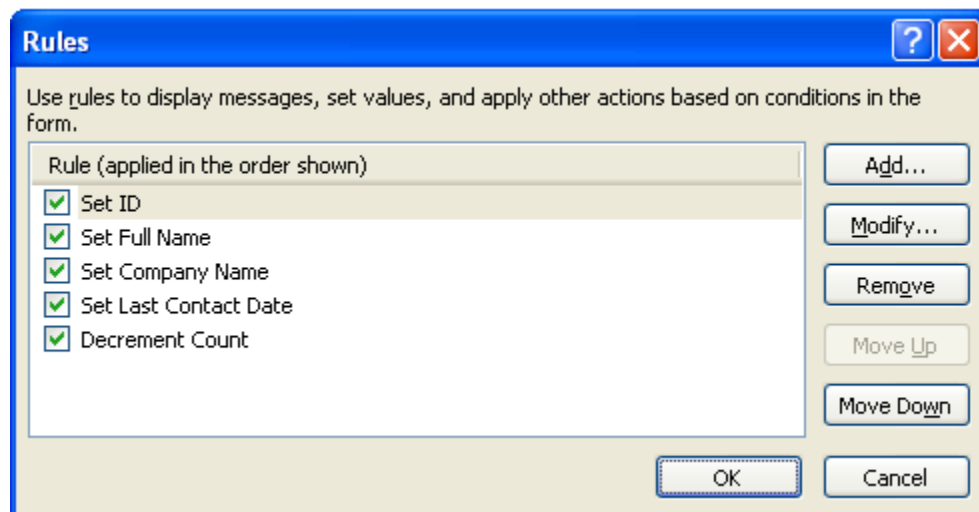


- Click **OK**.
- Your action should look like:





- 4) Click **OK** twice to close all the dialog boxes for your fifth rule.
- 5) We now have our five rules for our repeating section:



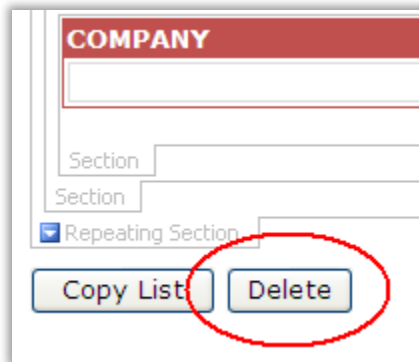
- 6) Click **OK** to close all the dialog boxes.
- 7) Select **File > Save As** and save the XSN to your local drive.



ADD A DELETE BUTTON

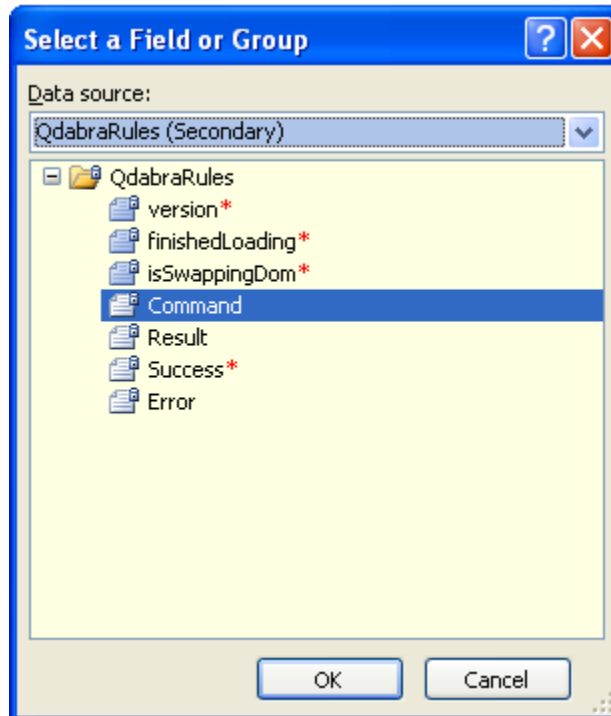
You may want to clear all rows from your repeating section, so let's create a delete button and add a rule to call the qRules Delete command.

- 1) Add a Delete button:

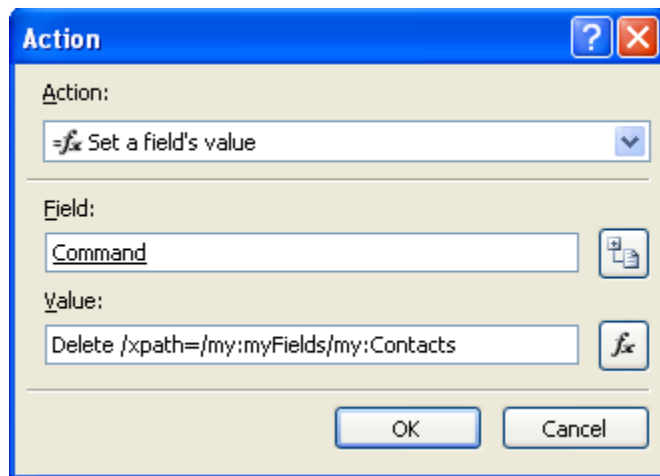


- 2) Double click on the button, click **Rules**.
- 3) Click **Add** to add a new rule.
- 4) Click **Add Action**, and then:
 - Leave the Action dropdown value to "Set a field's value".
 - Click on the schema icon next to **Field** and select the **Command** node from the **QdabraRules** (Secondary) data source.





- Click **OK**.
- In the Value text box, enter: **Delete /xpath=/my:myFields/my:Contacts**
- Your action rule should look something like:

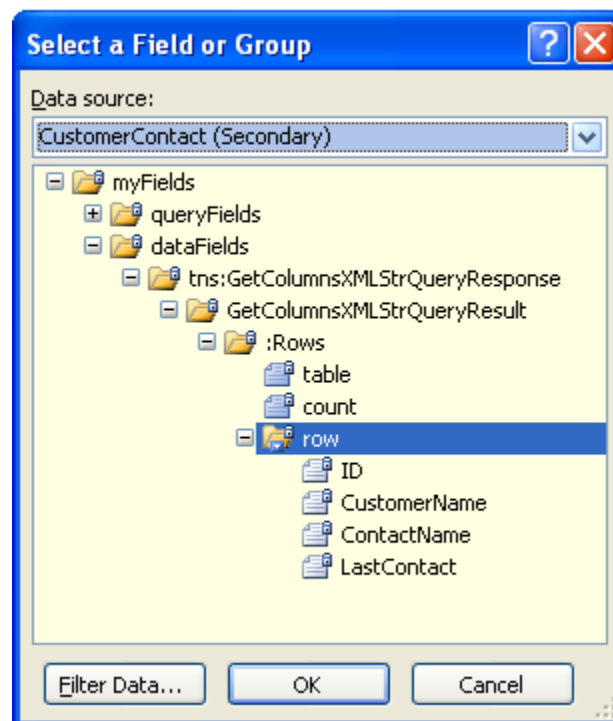


- Click **OK**.



5) Now we want to reset the Count field so that copy will still work after deleting the rows. Click **Add** to add a new rule, then:

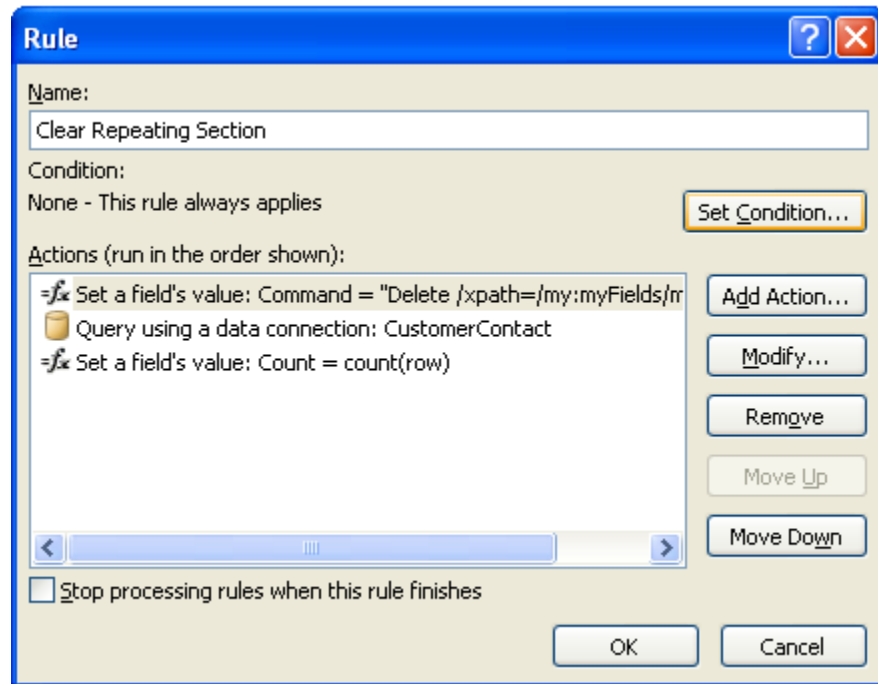
- In the Action dropdown, select “Query using a data connection”.
- In the data connection list, select the QueryDB secondary data connection.
- Click **OK**.
- Click **Add Action**.
- Leave the Action dropdown to “Set a field’s value”.
- Click on the schema icon next to **Field** and select the **Count** field from the XML secondary data source.
- Select *fx* button for **Value** and enter **count(row)**, where row is the repeating group from the QueryDB secondary data source.



- Click **OK** three times.



- Your action rules for your delete button should look like:



- Name your rule as “Clear Repeating Section” and click **OK** to close all the dialog boxes.



TEST THE FORM

1. Click on Preview.
2. Click **Copy List** button.
3. Database values are now copied to your repeating section:

Customer Contact Desk

Id Number:

NAME:	LAST CONTACT:
Jo-Anne Alfara	5/5/2008 2:00:00 PM
COMPANY	
Qdabra Software	

Id Number:

NAME:	LAST CONTACT:
Hilary Stoupa	7/20/2008 8:30:00 AM
COMPANY	
Autonomy Systems	

Id Number:

NAME:	LAST CONTACT:
Jennifer Walts	2/25/2004 10:30:00 AM
COMPANY	
Acme Wineworks	

Id Number:

NAME:	LAST CONTACT:
Patrick Halstead	1/20/2003 9:00:00 AM
COMPANY	
Qdabra Software	

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4. Click Delete.
5. Your repeating section should be cleared.



SUPPORT

If you have questions about the information in this document, please contact Qdabra Software for assistance.

Licensed customers can contact us via Support@Qdabra.com.

You can also use the [InfoPathDev.com](http://www.infopathdev.com) [Qdabra Product support forums](http://www.infopathdev.com) to request help from the community.

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