



QDABRA DATABASE ACCELERATOR

How to create a SQL report using DBXL

With DBXL, you can easily convert your xml documents data into a complex SQL schema of your design which facilitates all kinds of reporting. This document will show you how reporting can be managed in SharePoint using standard export to excel functionality and how reporting can be enhanced by using Qdabra's DBXL Web Service.

This tutorial will use the Expense Report form that ships with InfoPath 2007. Note that all of the examples will derive data from the ExpenseReport library as seen in Figure 1. The Expense Report template and the data that is published in this library is pre-loaded in DBXL as a Document Type.



Type	Name	Modified By	Checked Out To	EmployeeName	Item Date	Item Description	Item Category	Item Amount	Total
3911	NEW	Jo-Anne Alfafara		Jo-Anne Alfafara	2008-09-03 2008-10-10	Airfare Lunch and Dinner Hotel	Transportation Meals Lodging	599 50 399	1,048
3912	NEW	Jo-Anne Alfafara		Sarah Melton	2008-08-01 2008-08-06 2008-08-07	Airfare Lunch and Dinner Hotel	Transportation Meals Lodging	499 200 788	1,487
3913	NEW	Jo-Anne Alfafara		John Valdez	2008-08-15 2008-08-15 2008-08-16	Airfare Lunch and Dinner Hotel	Transportation Meals Lodging	356 123 678	1,157
3914	NEW	Jo-Anne Alfafara		Michael Lawrence	2008-08-22 2008-08-22 2008-08-22	Airfare Lunch and Dinner Hotel	Transportation Meals Lodging	799 345 1203	2,347
3915	NEW	Jo-Anne Alfafara		Christine Hopkinson	2008-09-18 2008-09-18 2008-09-18	Airfare Lunch and Dinner Hotel	Transportation Meals Lodging	599 235 899	1,733
3916	NEW	Jo-Anne Alfafara		Johann Scott	2008-09-02 2008-09-02 2008-09-02	Airfare Lunch and Dinner Hotel	Transportation Meals Lodging	455 154 755	1,364
3917	NEW	Jo-Anne Alfafara		Dave Matthews	2008-09-24 2008-10-22 2008-10-22	Airfare Lunch and Dinner Hotel	Transportation Meals Lodging	657 321 878	1,856
3918	NEW	Jo-Anne Alfafara		Von Walter	2008-10-15 2008-10-15 2008-10-15	Airfare Lunch and Dinner Hotel	Transportation Meals Lodging	899 421 987	2,307

Figure 1

EXPORT TO EXCEL REPORT FROM SHAREPOINT

While SharePoint makes it easy to create a report using the Export to Excel tool, it is not very easy to get a detailed report if you are reporting on documents with repeating data from InfoPath, as seen in Figure 1. Export to Excel will preserve these repeating items in one row, making it difficult to analyze your report (Figure 2).



A	B	C	D	E	F	G
Name	Modified By	Check	EmployeeName	Item Date	Item Description	Item Category
3911.xml	Jo-Anne Alfafara		Jo-Anne Alfafara	2008-09-032008-10-102008-10-10	AirfareLunch and DinnerHotel	TransportationMeals
3912.xml	Jo-Anne Alfafara		Sarah Melton	2008-08-012008-08-062008-08-07	AirfareLunch and DinnerHotel	TransportationMeals
3913.xml	Jo-Anne Alfafara		John Valdez	2008-08-152008-08-152008-08-16	AirfareLunch and DinnerHotel	TransportationMeals
3914.xml	Jo-Anne Alfafara		Michael Lawrence	2008-08-222008-08-222008-08-22	AirfareLunch and DinnerHotel	TransportationMeals
3915.xml	Jo-Anne Alfafara		Christine Hopkinson	2008-09-182008-09-182008-09-18	AirfareLunch and DinnerHotel	TransportationMeals
3916.xml	Jo-Anne Alfafara		Johann Scott	2008-09-022008-09-022008-09-02	AirfareLunch and DinnerHotel	TransportationMeals
3917.xml	Jo-Anne Alfafara		Dave Matthews	2008-09-242008-10-222008-10-22	AirfareLunch and DinnerHotel	TransportationMeals
3918.xml	Jo-Anne Alfafara		Von Walter	2008-10-152008-10-152008-10-15	AirfareLunch and DinnerHotel	TransportationMeals

Figure 2

DBXL provides a solution by shredding these xml documents into SQL data so you can extract report directly from your SQL database. For the purposes of this document, we will create two tables to shred the data stored in DBXL's Expense Report Document Type. We will create a foreign key relationship in these tables to get a meaningful SQL report later in this exercise.

CREATE A SQL REPORT USING DBXL

1. Design the Database
 - a. Open **SQL Server Management Studio** and connect to the database you wish to shred into, or create a new one for the purposes of this tutorial.
 - b. Create a new table in this database with a table named ExpenseReport, and three columns, id, EmployeeName and Total. Assign the following data types to each column:

id: int

EmployeeName: nvarchar(50)

Total: decimal(18, 0)

- c. In the **Column Properties** pane for the id column, scroll down until you find the **Identity Specification** section. Expand this section, and make sure **(Is Identity)** is marked as **Yes**.

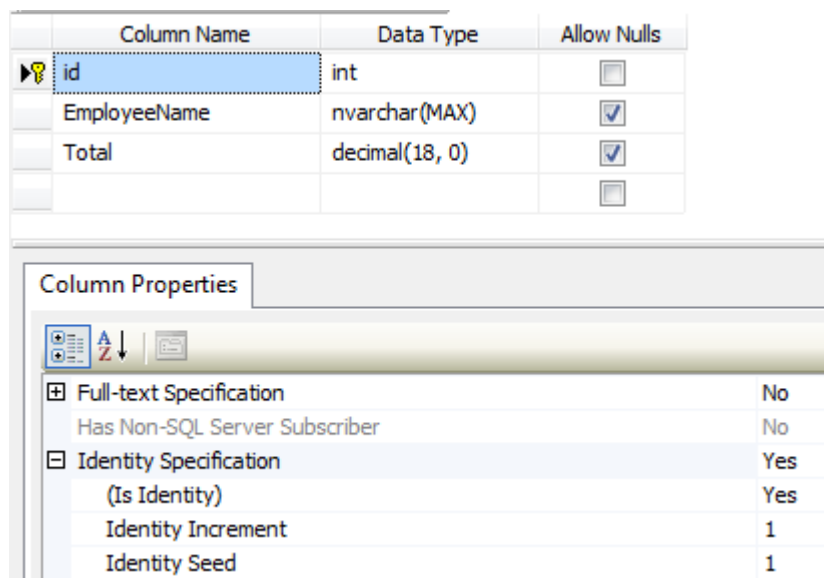




Figure 3

- d. Make sure the **Allow Nulls** option is checked for each of the columns, except id, and then save the table.

	Column Name	Data Type	Allow Nulls
	id	int	☐
	EmployeeName	nvarchar(MAX)	☒
	Total	decimal(18, 0)	☒
			☐

Figure 4

- e. Create a second table in this database. Name this table ExpenseReportItem.
f. Add six columns: id, ExpenseReport_Id, Date, Description, Amount and Category. Assign the following data types to each column:

id: int

ExpenseReport_Id: int

Date: datetime

Description: nvarchar(50)

Amount: decimal(18, 0)

Category: nvarchar(50)

- g. In the **Column Properties** pane for the id column, scroll down until you find the **Identity Specification** section. Expand this section, and make sure **(Is Identity)** is marked as **Yes**.
h. Make sure the **Allow Nulls** option is checked for each of the columns, except id and ExpenseReport_Id, then save the table.

	Column Name	Data Type	Allow Nulls
	id	int	☐
	ExpenseReport_Id	int	☐
	Date	datetime	☒
	Description	nvarchar(50)	☒
	Amount	decimal(18, 0)	☒
	Category	nvarchar(50)	☒
			☐

Figure 5

- i. Right-click anywhere on the ExpenseReportItem table design view and click on **Relationships**.
j. Click the **Add** button.



- k. On the right-hand pane of the **Foreign Key Relationships** window, select **Table and Columns Specification**, and click on the button right next to it.
- l. In the **Tables and Columns** window, select ExpenseReport under **Primary Key table**, and then select the id column.
- m. ExpenseReportItem is auto-selected for **Foreign Key table**. Select the ExpenseReport_Id column. The end result is seen in Figure 6.

Relationship name:	
FK_ExpenseReportItem_ExpenseReport	
Primary key table:	Foreign key table:
ExpenseReport	ExpenseReportItem
id	ExpenseReport_Id

Figure 6

- n. Click **OK** and then **Close**.
- 2. Create a View for the SQL Tables
 - a. In **SQL Server Management Studio**, right-click on **Views** under your database and select **New View**.
 - b. Add ExpenseReport and ExpenseReportItem in the View. Click **Close** on the **Add Table** dialog.
 - c. Check the following columns to include in this View:

ExpenseReport: id, EmployeeName and Total

ExpenseReportItem: id, Date, Description, Amount and Category
 - d. Save the View and name it ExpenseReportView. The result is seen in Figure 7.

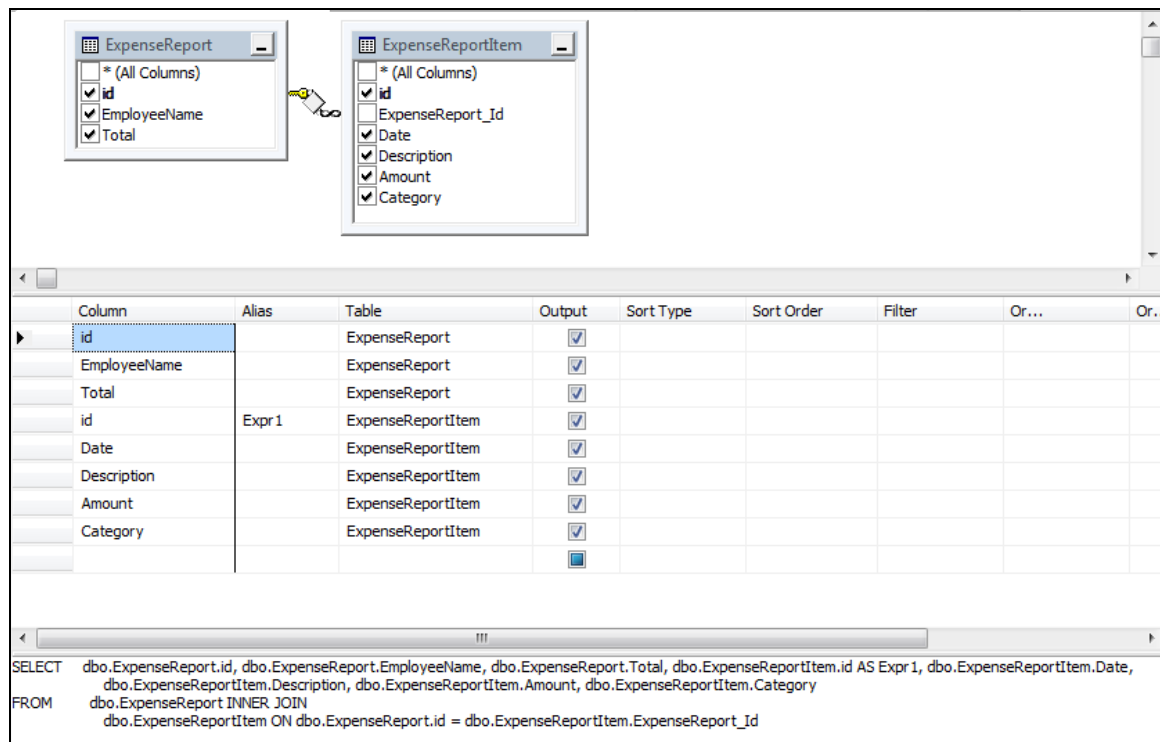


Figure 7

3. Create a Database Mapping in DAT
 - a. In DAT, click on **Edit Configuration** for Expense Report Document Type
 - b. Click on the **Database** tab.
 - c. Complete the **Connection String** field with the appropriate string. Note that this string is what the web service uses to connect to the target database, so make sure that it works from this perspective. In our example, the string will use the following format: *Integrated Security=SSPI;Data Source=<servername>;Initial Catalog=<database>*.
 - d. Click the **Test Connection** button to verify that database connection is successful. Once the connection is verified, click **OK** on confirmation message.
 - e. Click the **Insert Table or Column** link in the **Database Map** section. This will be the row we use to map a Table, so **Table** is automatically selected from the dropdown.
 - f. Click the **Select Database Table** icon for Table Name and select the ExpenseReport table in the Database Mapping task pane.
 - g. Click the **Select Schema Node** icon for Node Path and select /my:expenseReport.
 - h. Click the **Insert Table or Column** link under this row and select **Column** from the Type dropdown.
 - i. Click the **Select Database Column** icon for **Column Name** and select the EmployeeName column in the Database Mapping task pane.
 - j. Click the **Select Schema Node** icon for Node Path and select my:employee/my:name.
 - k. Repeat steps h through j and select Total for column and my:items/my:total as Node.
 - l. Click the **Insert Table or Column** link under this row and select **Table** from the Type dropdown. This will serve as the child table.



- m. Click the **Select Database Table** icon for Table Name and select the ExpenseReportItem table in the Database Mapping task pane.
- n. Click the **Select Schema Node** icon for Node Path and select my:items/my:item.
- o. Click the **Insert Foreign Key** link under ExpenseReportItem table to display the row for foreign key mapping selection.
- p. Click the **Select Database Column** icon for **Column Name** and select ExpenseReport_Id from the ExpenseReportItem table in the Database Mapping task pane.
- q. Click the **Select Database Column** icon for **Parent Column Name** and select the id column from the ExpenseReport table in the Database Mapping task pane.
- r. Repeat steps h through j for the ExpenseReportItem table and its columns with the following specifications:
 - i. Amount - my:amount
 - ii. Category - my:category
 - iii. Date - my:date
 - iv. Description - my:description
- s. Click on the Save button. The result of this mapping is seen in Figure 8.

Database Map

Reshed All Documents

Refresh Database

Table Name (2 Columns) ▼		Node Path	
ExpenseReport		/my:expenseReport 	
Column Name	DB Type	Key	Node Path
EmployeeName	 String ▼	☐	my:employee/my:name 
Table Name (4 Columns) ▼		Node Path	
ExpenseReportItem		my:items/my:item 	
Column Name	Key Type	Parent Column Name	
ExpenseReport_Id	 Identity	id 	
Insert Foreign Key			
Column Name	DB Type	Key	Node Path
Amount	 Decimal ▼	☐	my:amount 
Category	 String ▼	☐	my:category 
Date	 DateTime ▼	☐	my:date 
Description	 String ▼	☐	my:description 
Insert Table or Column			
Column Name	DB Type	Key	Node Path
Total	 Decimal ▼	☐	my:items/my:total 

Insert Table or Column

Insert Table or Column

Figure 8

4. Reshred Documents to SQL Database
 - a. In the **Database** tab, click on **Reshred All Documents**.
 - b. Click **Yes** if asked to continue shredding.
 - c. Click **OK** on confirmation message.
 - d. Verify that documents are shredded in the SQL tables.



\...ExpenseReport				Summary
	id	EmployeeName	Total	
▶	2845	Jo-Anne Alfafara	1048	
	2846	Sarah Melton	1487	
	2847	John Valdez	1157	
	2848	Michael Lawrence	2347	
	2849	Christine Hopkin...	1733	
	2850	Johann Scott	1364	
	2851	Dave Matthews	1856	
	2852	Von Walter	2307	
*	NULL	NULL	NULL	

Figure 9

\...ExpenseReportItem							Summary
	id	ExpenseReport...	Date	Description	Amount	Category	
▶	2821	2845	9/3/2008 12:00:...	Airfare	599	Transportation	
	2822	2845	10/10/2008 12:...	Lunch and Dinner	50	Meals	
	2823	2845	10/10/2008 12:...	Hotel	399	Lodging	
	2824	2846	8/1/2008 12:00:...	Airfare	499	Transportation	
	2825	2846	8/6/2008 12:00:...	Lunch and Dinner	200	Meals	
	2826	2846	8/7/2008 12:00:...	Hotel	788	Lodging	
	2827	2847	8/15/2008 12:0...	Airfare	356	Transportation	
	2828	2847	8/15/2008 12:0...	Lunch and Dinner	123	Meals	
	2829	2847	8/16/2008 12:0...	Hotel	678	Lodging	
	2830	2848	8/22/2008 12:0...	Airfare	799	Transportation	
	2831	2848	8/22/2008 12:0...	Lunch and Dinner	345	Meals	
	2832	2848	8/22/2008 12:0...	Hotel	1203	Lodging	
	2833	2849	9/18/2008 12:0...	Airfare	599	Transportation	
	2834	2849	9/18/2008 12:0...	Lunch and Dinner	235	Meals	
	2835	2849	9/18/2008 12:0...	Hotel	899	Lodging	
	2836	2850	9/2/2008 12:00:...	Airfare	455	Transportation	
	2837	2850	9/2/2008 12:00:...	Lunch and Dinner	154	Meals	
	2838	2850	9/2/2008 12:00:...	Hotel	755	Lodging	
	2839	2851	9/24/2008 12:0...	Airfare	657	Transportation	
	2840	2851	10/22/2008 12:...	Lunch and Dinner	321	Meals	
	2841	2851	10/22/2008 12:...	Hotel	878	Lodging	
	2842	2852	10/15/2008 12:...	Airfare	899	Transportation	
	2843	2852	10/15/2008 12:...	Lunch and Dinner	421	Meals	
	2844	2852	10/15/2008 12:...	Hotel	987	Lodging	
*	NULL	NULL	NULL	NULL	NULL	NULL	

Figure 10



5. Create the SQL report using Excel.
 - a. Create a blank **Excel Workbook**.
 - b. Click on the **Data** tab.
 - c. Click on **Get External Data**, select **From Other Sources > From SQL Server**.
 - d. Enter the server name and select your Log on credentials. Click **Next**.
 - e. Select your database and click ExpenseReportView from the list. Click **Next** and **Finish**.
 - f. In the **Import Data** table, select **Table** and click **OK**. Now your data is extracted from your SQL database and the repeating fields in the xml documents are properly shown as individual rows in the report.

	A	B	C	D	E	F	G	H
1	ExpenseReport Id	EmployeeName	Total	ExpenseReportItem Id	Date	Description	Amount	Category
2	2845	Jo-Anne Alfafara	1048	2821	9/3/2008 0:00	Airfare	599	Transportation
3	2845	Jo-Anne Alfafara	1048	2822	10/10/2008 0:00	Lunch and Dinner	50	Meals
4	2845	Jo-Anne Alfafara	1048	2823	10/10/2008 0:00	Hotel	399	Lodging
5	2846	Sarah Melton	1487	2824	8/1/2008 0:00	Airfare	499	Transportation
6	2846	Sarah Melton	1487	2825	8/6/2008 0:00	Lunch and Dinner	200	Meals
7	2846	Sarah Melton	1487	2826	8/7/2008 0:00	Hotel	788	Lodging
8	2847	John Valdez	1157	2827	8/15/2008 0:00	Airfare	356	Transportation
9	2847	John Valdez	1157	2828	8/15/2008 0:00	Lunch and Dinner	123	Meals
10	2847	John Valdez	1157	2829	8/16/2008 0:00	Hotel	678	Lodging
11	2848	Michael Lawrence	2347	2830	8/22/2008 0:00	Airfare	799	Transportation
12	2848	Michael Lawrence	2347	2831	8/22/2008 0:00	Lunch and Dinner	345	Meals
13	2848	Michael Lawrence	2347	2832	8/22/2008 0:00	Hotel	1203	Lodging
14	2849	Christine Hopkinson	1733	2833	9/18/2008 0:00	Airfare	599	Transportation
15	2849	Christine Hopkinson	1733	2834	9/18/2008 0:00	Lunch and Dinner	235	Meals
16	2849	Christine Hopkinson	1733	2835	9/18/2008 0:00	Hotel	899	Lodging
17	2850	Johann Scott	1364	2836	9/2/2008 0:00	Airfare	455	Transportation
18	2850	Johann Scott	1364	2837	9/2/2008 0:00	Lunch and Dinner	154	Meals
19	2850	Johann Scott	1364	2838	9/2/2008 0:00	Hotel	755	Lodging
20	2851	Dave Matthews	1856	2839	9/24/2008 0:00	Airfare	657	Transportation
21	2851	Dave Matthews	1856	2840	10/22/2008 0:00	Lunch and Dinner	321	Meals
22	2851	Dave Matthews	1856	2841	10/22/2008 0:00	Hotel	878	Lodging
23	2852	Von Walter	2307	2842	10/15/2008 0:00	Airfare	899	Transportation
24	2852	Von Walter	2307	2843	10/15/2008 0:00	Lunch and Dinner	421	Meals
25	2852	Von Walter	2307	2844	10/15/2008 0:00	Hotel	987	Lodging

Figure 11

- g. Enhance your reporting by using the Pivot table tool and the grouping feature in Excel. Below are some examples:
 - Create a SQL report by Date:



	A	B	C
1			
2			
3	Row Labels		
4	8/1/2008 0:00		
5	8/6/2008 0:00		
6	8/7/2008 0:00		
7	8/15/2008 0:00		
8	8/16/2008 0:00		
9	8/22/2008 0:00		
10	9/2/2008 0:00		
11	9/3/2008 0:00		
12	9/18/2008 0:00		
13	9/24/2008 0:00		
14	10/10/2008 0:00		
15	10/15/2008 0:00		
16	10/22/2008 0:00		
17	Grand Total		
18			
19			

PivotTable Field List
Choose fields to add to report:
☐ ExpenseReport_Id
☐ EmployeeName
☐ Total
☐ ExpenseReportItem_Id
☒ **Date**
☐ Description
☐ Amount
☐ Category

Drag fields between areas below
Report Filter

Figure 12

- Use the grouping option to display by Month, add Amount and Category fields.



	A	B	C
1			
2			
3	Row Labels	Sum of Amount	
4	Aug	4991	
5	Lodging	2669	
6	Meals	668	
7	Transportation	1654	
8	Sep	4353	
9	Lodging	1654	
10	Meals	389	
11	Transportation	2310	
12	Oct	3955	
13	Lodging	2264	
14	Meals	792	
15	Transportation	899	
16	Grand Total	13299	
17			
18			

PivotTable Field List
Choose fields to add to report:
☐ ExpenseReport_Id
☐ EmployeeName
☐ Total
☐ ExpenseReportItem_Id
☒ Date
☐ Description
☒ Amount
☒ Category

Drag fields between areas below:
Report Filter

Figure 13

Since the data is stored in a SQL database with meaningful table relationships, you are not restricted to using Excel for reporting. You can use any reporting package that can use a SQL database which gives a lot of flexibility for creating reporting solutions.