Technology in the Spotlight…

Database Groups

Retrieving Database Data

In many applications, data is logged to a relational database, such as Microsoft Access or SQL Server. Once that data has been stored in a relational database, the question becomes, how do you get it out for reporting purposes?

One approach is to use SQL (structured query language) but that can get complicated and involve scripting. Another approach is to use **XLReporter's** Database Group Builder where you can specify all the settings necessary to retrieve the data you require from the database.

The Database Group Builder is accessible from both the Project Explorer and from the **XLReporter** menu option in Excel.

Selecting the Type

In configuring a database group, you need to indicate how you want the data to be retrieved. The choices are:

- **Standard Query**
  A query that returns data exactly in the same layout as it is logged in the database.
- **Cross Tab Query**
  A query that returns data that is cross-tabulated on selected columns.

As an illustration of these two types, suppose that the following data has been stored in a database:

TagTimestamp	TagName	TagValue
10/6/2007	PumpFlow1	36835
10/6/2007	PumpFlow2	32825
10/6/2007	PumpFlow3	64197
10/7/2007	PumpFlow1	2642
10/7/2007	PumpFlow2	30300
10/7/2007	PumpFlow3	33099

A standard query would return this data exactly how it appears in the table above.

However, in a report, it would be much better to see single row of data for every day, with the value of each tag as a separate column.

A cross tab query on the same data results in the following:

TagTimestamp	PumpFlow1	PumpFlow2	PumpFlow3
10/6/2007	36835	32825	64197
10/7/2007	2642	30300	33099

Connecting to the Database

When creating a new database group, you must first establish a connection to the database. This is done under the Setup tab of the Database Group Builder.

Once you have connected to the database, you can then select the tables/views from which to retrieve data.

When selecting multiple tables/views, the Joins area becomes active. Here, you can define how the selected tables/views are related.

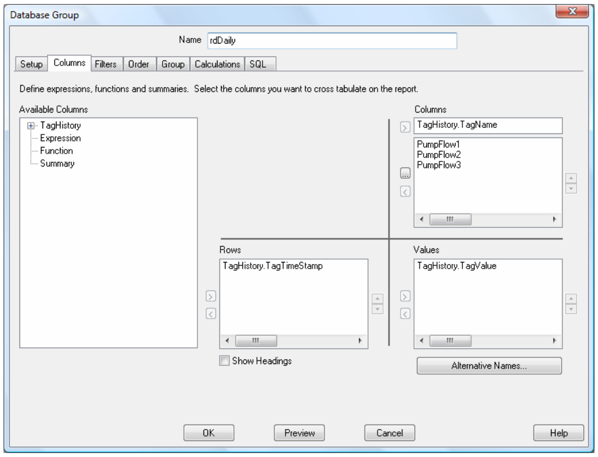
Selecting the Columns

Under the Columns tab, you select the columns from the tables/views selected on the Setup tab. This determines the data that will be provided by the database group.

For a Standard Query, select each column you want to display in the report.

For a Cross Tab Query, you must configure the report columns, rows and content.

- **Columns**
  Select the values that will represent each column. In the above example this would be the values of PumpFlow1, PumpFlow2 and PumpFlow3 from the TagName database field.
- **Rows**
  Select the database field that will represent each row. In the previous example, this is the TagTimestamp database field. A new row of data will be returned for every unique TagTimestamp value.
- **Content**
  Select the database field that will represent the content. This returns a value for each selected Column. In the previous example, this is the TagValue database field.

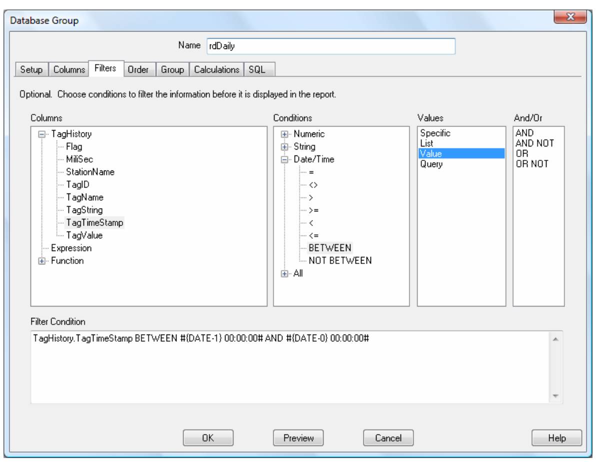


Cross Tab Columns Tab

Filtering the Results

Under the Filters tab you can define filters that will restrict the amount of data returned by the database group.

A filter is set up by selecting a column from one of the selected tables/views, a condition and then values on which to filter.



Filters Tab

The value of a filter may be hard coded text, an **XLReporter** variable or, in the case of filtering a column of timestamps, a relative expression such as “the last 24 hours” or “the previous day”.

Filter can also be used to remove unnecessary information e.g., all values where speed < 0.5.

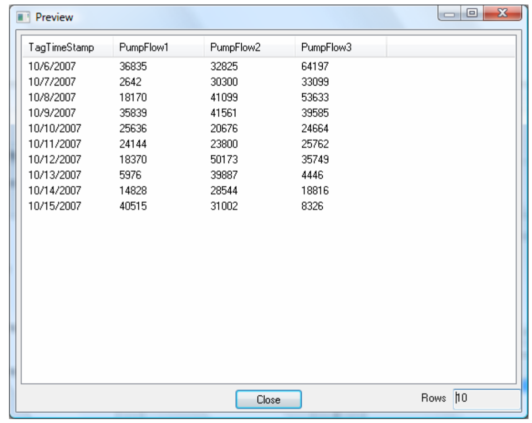
When **XLReporter** variables are used in filters, the database group becomes more flexible in how it can be used. On-demand reporting uses variables in filters to allow the user to pick settings without having to re-configure the group.

Multiple filters may be combined using the “and” and “or” statements.

Testing the Settings

To verify the settings made in a database group, a preview option is provided.

Clicking on the Preview pushbutton causes a window pop up showing the results of the database group.



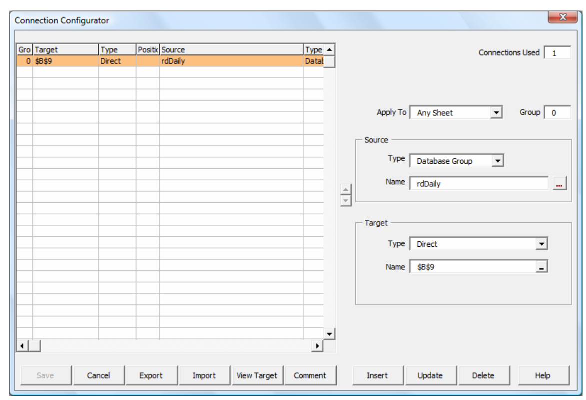
TagTimeStamp	PumpFlow1	PumpFlow2	PumpFlow3
10/6/2007	36835	32825	64197
10/7/2007	2642	30300	33099
10/8/2007	18170	41099	53633
10/9/2007	35839	41561	39585
10/10/2007	25636	20676	24664
10/11/2007	24144	23800	25762
10/12/2007	18370	50173	35749
10/13/2007	5976	39887	4446
10/14/2007	14828	28544	18816
10/15/2007	40515	31002	8326

Preview

Connecting to your Report

When the database group is completed, it has to be connected to a report template.

This step is done within Excel using the Data Connection menu option which opens the Connection Configurator.



Connection Configurator

Set the Source Name to a database group name. Set the Target Name to the cell location where the data from the database group will appear. The cell reference specifies the top, left corner of the data table that is returned from the database group.

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