Technology in the Spotlight…

Managing Report Content

The Limits of Excel

Excel provides great tools to analyze data. Embedded functions and charts make easy work of summarizing report data. However, when the amount of data i.e., the number of rows or columns, is unknown ahead of time, the standard Excel tools do not produce the desired results because they depend heavily on being configured to a fixed number of rows/columns.

An example of when the number of rows/columns is unknown would be a report that is created when the user selects a time period of interest.

XLReporter overcomes the limitation of the standard Excel functions by providing management tools. These tools are designed specifically to deal with data ranges of varying size.

Management Connections

The worksheet management routines are a suite of functions that re-calibrate Excel objects. They are usually invoked after all the data has been brought into the report.

Management is configured by using **XLReporter's** Data Management menu option in Excel.

Since the number of rows/columns is not known, during template design the standard Excel functions are configured to the top row or leftmost column. Management connections are then added to the template to make **XLReporter** aware that certain Excel functions need re-calibrating.

Invoking Management

Management connections are executed using the same commands that execute Data connections in the report, e.g., UpdateBook, UpdateSheet, etc.

As a general rule, Management connections are processed after the data connections brought data into the report.

To control the order in which data and management is executed on the report, connections can be assigned specific group numbers. The UpdateGroupBook and UpdateGroupSheet commands are then used to execute a specific group of connections in a report.

Statistical Analysis

As part of the Management suite, a set of routines have been provided to derive statistical information from report data. These statistical calculations have been developed to adjust to the actual the amount of data in the report.

Calculations such as covariance, correlation, moving average, frequency distribution and much more are all available.

Data Presentation

Management routines can also be used to take data and present it in a completely different way to the user.

There are routines available to do such things as insert sub-totals and charts at specific intervals in a data table or weave two distinct data tables together based on a common element.

Custom Routines

Any requirement that cannot be satisfied by standard management routines can be custom written in Visual Basic and integrated into **XLReporter**.

Data Export

In addition to managing content within the report, management can also export data from the report to other places.

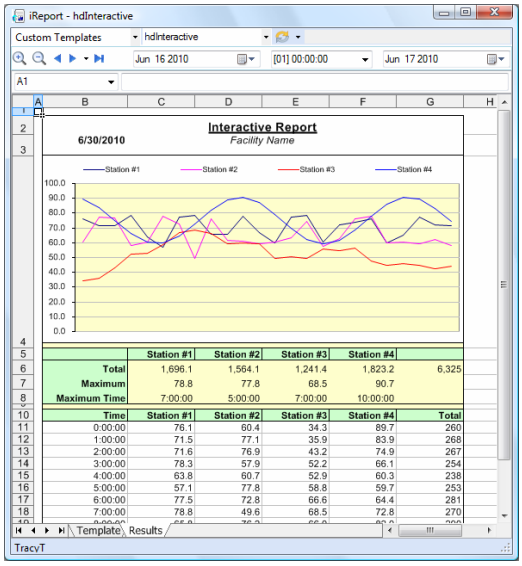
There are routines available to export data back to the process, to a relational database or to an XML or text file. This can help in making data available to more applications.

Report Example - Interactive Report

As an example, suppose we have an interactive report that requires the user to enter the start and end date. As part of the report we include some summary calculations, totals for each row and a chart to graphically display the data.

In the Template, we use standard Excel to setup the summary formulas, pointing them to where the top row of data will appear in the report. The chart is set up the same way; with each series set to the top row of data. The row totals are set up for the top row as well.

Finally, set up **Formula Range**, **Fill Range** and **Chart Range** management connections.

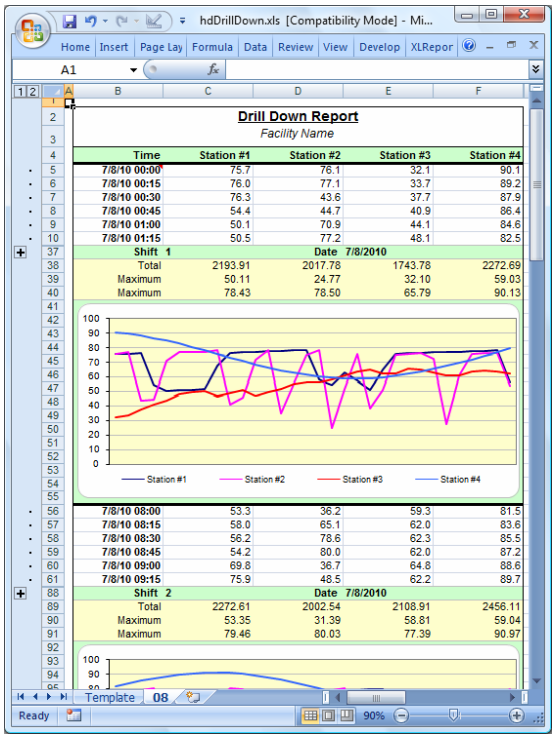


Report Example - Daily Report with Subtotals

As an example, suppose we have a daily report containing 15 minute samples over the day and would like to insert some subtotals and a chart for each 8 hour shift of the day.

In the Template we need to set up an area that contains the calculations we wish to perform and the chart we wish to display using standard Excel. All chart series and formula references point to the top row where the data will appear.

To get this area inserted into the report for every shift, we set up **an Insert Into Range** management connection.



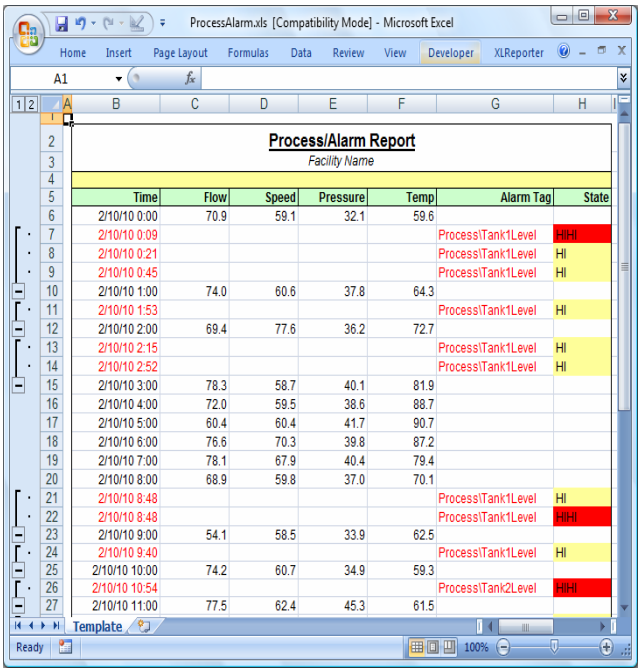
Report Example – Process Data and Alarm Report

As an example, suppose we have a report displaying process data as well as any alarms that may have occurred while the process was running.

These could be displayed as separate data tables, but if we could combine them into 1 table, it would be much easier to correlate what was happening in the process when each alarm occurred.

In the Template, we set up 2 data connections, 1 to retrieve the process data and the other to retrieve the alarm data while the process was running.

Then, to weave this data together, we set up a **Weave Into Range** management function. Now we can see when each alarm occurred and what the process values were at those times as a single picture.



Time	Flow	Speed	Pressure	Temp	Alarm Tag	State
2/10/10 0:00	70.9	59.1	32.1	59.6		
2/10/10 0:09					Process\Tank1Level	HIHI
2/10/10 0:21					Process\Tank1Level	HI
2/10/10 0:45					Process\Tank1Level	HI
2/10/10 1:00	74.0	60.6	37.8	64.3		
2/10/10 1:53					Process\Tank1Level	HI
2/10/10 2:00	69.4	77.6	36.2	72.7		
2/10/10 2:15					Process\Tank1Level	HI
2/10/10 2:52					Process\Tank1Level	HI
2/10/10 3:00	78.3	58.7	40.1	81.9		
2/10/10 4:00	72.0	59.5	38.6	88.7		
2/10/10 5:00	60.4	60.4	41.7	90.7		
2/10/10 6:00	76.6	70.3	39.8	87.2		
2/10/10 7:00	78.1	67.9	40.4	79.4		
2/10/10 8:00	68.9	59.8	37.0	70.1		
2/10/10 8:48					Process\Tank1Level	HI
2/10/10 8:48					Process\Tank1Level	HIHI
2/10/10 9:00	54.1	58.5	33.9	62.5		
2/10/10 9:40					Process\Tank1Level	HI
2/10/10 10:00	74.2	60.7	34.9	59.3		
2/10/10 10:54					Process\Tank2Level	HIHI
2/10/10 11:00	77.5	62.4	45.3	61.5		

SyTech, "The Report Company", develops software for reporting and database management systems.

Get your evaluation copy at www.TheReportCompany.com and solve your reporting problems *today!*