



Retrieving Historical Data

In many applications it is desirable to log process data to a historian e.g., OPC-HDA, and then produce reports based on this data. In this way, the data logging and the reporting are not coupled, allowing a greater level of flexibility in the type of reports that can be produced.

Once that data is logged, the question becomes, how do you get it out of the historian and into a report?

XLReporter provides a History Group Builder where you can specify all the settings necessary to retrieve data from a historian.

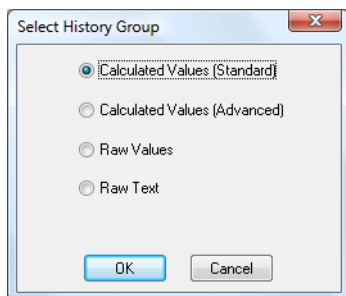
The History Group Builder is accessible from both the Project Explorer and from the **XLReporter** menu option in Excel.

The following highlights the key features of the history group and the steps needed for configuration.

Selecting the History Group Type

The first step in configuring a history group is determining what type of historical data you want to retrieve. While this may vary slightly based on your specific server, the typical choices are:

- **Calculated Values (Standard)**
Standard calculations that are either based on raw data or performed on the server.
- **Calculated Values (Advanced)**
Advanced calculations performed on the client side by **XLReporter**. These calculations are based on interpolated samples.
- **Raw Values**
Raw values collected by the historian.
- **Raw Text**
Raw textual values collected by the historian.



History Group Type

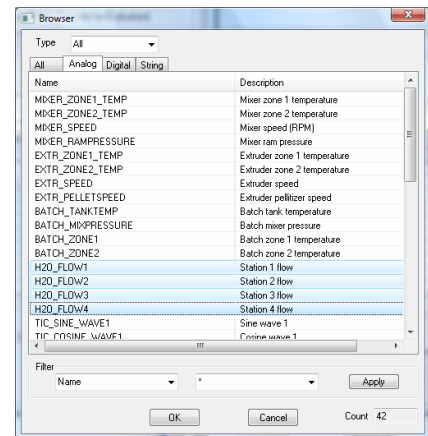
Connecting to the Server

When you first open the History Group Builder, you may need to connect to your historian server or specify settings for your server. This is done under the Setup tab of the builder. If your server requires, enter this information, and then connect.

Specifying the Data

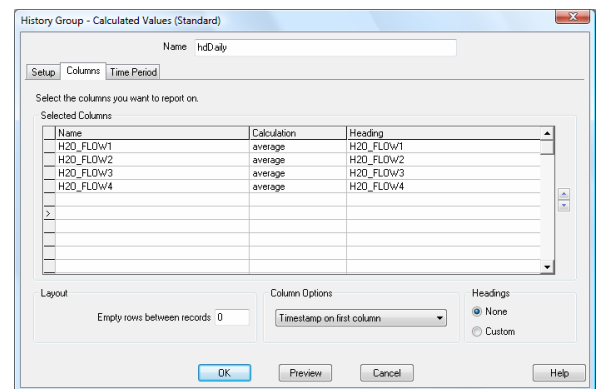
Under the Columns tab, you specify the historical tags you want this history group to represent. Up to 40 tags can be specified in a single history group.

A built-in tag browser is provided to assist you in selecting the tags you want.



Tag Browser

For each tag selected, there may be other settings you need before the data retrieval. For instance, calculated values (both standard and advanced), require the calculation type each tag selected.



Columns Tab

As an alternative to specifying tag names, XLReporter variables can be specified. By specifying variables, the tags can be specified from an interactive form presented to the user.

Setting the Time Period

Under the Time Period tab, you specify the time frame of the data that this history group represents.

The screenshot shows the 'History Group - Calculated Values (Standard)' dialog box with the 'Time Period' tab selected. The 'Name' field contains 'hdDaily'. Under 'Specify the reporting period', the 'Start' section has 'Report Date' set to '10/29/2007 00:00:00' and 'Specific Time' set to '00:00:00'. The 'Interval' section has 'Number of samples' set to '60' and 'Sample values every' set to '1 hour(s)'. The 'Time Ordering' is set to 'Ascending'. Buttons for 'OK', 'Preview', 'Cancel', and 'Help' are at the bottom.

Time Period Tab

The Start Time and End Time settings determine the ends of your data. Both have the following options:

- **Report Date**
The Start or End time will be based on the date +/- the offset specified at either a specific time or the current Report Time.
- **User**
The Start or End time will be based on user entry, based on **XLReporter** variables.
- **Cell**
The Start or End time will be based on cell values in the report.

In addition, the End Time can be defined as the Start Time plus a specific time span such as 12 hours or 1 day.

Once the Start Time and End Time are specified, you need to specify the Interval for the time period. The Interval determines how the time period is divided. There can be up to 3 choices for this setting, they are:

- **Number of samples**
The time period is divided by the specified number of samples.
- **All samples (raw values)**
Every sample over the total time period is returned.
- **Sample values every**
The total time period is divided into intervals based on the minutes, hours or days specified.

Testing a History Group

A preview button has been provided to test the configuration of the group before it is used in a report.

When clicked, a window pops up prompting you for any parameters required for retrieving results, and then you are presented with the historical data.

The screenshot shows the 'Preview' dialog box with a table of data. The table has columns for Date, FLOW01, FLOW02, FLOW03, and FLOW04. The data shows values for various dates from 10/29/2007. Buttons for 'Close' and 'Rows: 24' are at the bottom.

Date	FLOW01	FLOW02	FLOW03	FLOW04
10/29/2007	91.5	45.75	88.625	76
10/29/2007 1:00:00...	88.5	135.75	82.125	89.0566666666667
10/29/2007 2:00:00...	88.55	44.25	98.625	102.133333333333
10/29/2007 3:00:00...	88.6	134.25	109.125	81.4666666666667
10/29/2007 4:00:00...	88.65	45.775	67.35	85.3333333333333
10/29/2007 5:00:00...	88.7	132.75	94.4875	98.4
10/29/2007 6:00:00...	88.75	47.3	101.025	90
10/29/2007 7:00:00...	88.8	131.25	102.375	81.6
10/29/2007 8:00:00...	88.85	48.825	70.3125	94.6666666666667
10/29/2007 9:00:00...	88.9	129.75	98.85	96.5333333333333
10/29/2007 10:00:00...	88.95	50.35	103.3075	77.8666666666667
10/29/2007 11:00:00...	89	128.25	95.625	90.9333333333333
10/29/2007 12:00:00...	89.05	51.875	72.675	104
10/29/2007 1:00:00...	89.1	126.75	89.2125	77.2
10/29/2007 2:00:00...	89.15	53.4	105.75	87.2
10/29/2007 3:00:00...	89.2	125.25	98.975	100.266666666667
10/29/2007 4:00:00...	89.25	54.925	75.0375	85.7333333333333
10/29/2007 5:00:00...	89.3	123.75	91.575	83.4666666666667
10/29/2007 6:00:00...	89.35	56.45	108.1125	96.5333333333333

History Group Preview

Connecting to your Report

With a history group defined, it can now be used inside a report template using the Data Connection menu option in Excel.

The Source Name should contain a history group name.

The screenshot shows the 'Connection Configurator' dialog box. The 'Source' section has 'Type' set to 'History Group' and 'Name' set to 'hdDaily'. The 'Target' section has 'Type' set to 'Direct' and 'Name' set to '\$B\$9'. Buttons for 'Save', 'Cancel', 'Export', 'Import', 'View Target', 'Comment', 'Insert', 'Update', 'Delete', and 'Help' are at the bottom.

The Connection Configurator

The cell reference you specify as the Target Name represents the top, left corner of the data table that is returned from the history group.

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