ReportWorX Express
Quick Start

APPLICATION NOTE

October 2015

Description: An introduction to ReportWorX Express.
General Requirement: Microsoft Excel (32-bit or 64-bit) 2010 or later.

Introduction

ReportWorX Express is an add-in feature for Microsoft Excel that allows you easy access to your real-time and historical data repositories available in the GENESIS64 product suite. ReportWorX Express is installed with several different suites from ICONICS, including: GENESIS64, Hyper Historian, and AnalytiX. With ReportWorX Express, you can configure and view reports related to your industrial processes quickly and easily. The reports can then be passed along to colleagues as a simple but powerful tool.

ReportWorX Express allows you to retrieve data from the following sources and display this data within Microsoft Excel:

- HDA data from an application server in GENESIS64
- HDA data from an HDA source in GENESIS32
- Historical alarms from an alarm log in GENESIS64
- Historical alarms from an alarm log in GENESIS32
- Data from an active Energy AnalytiX database

With ReportWorX Express, you can:

- Configure historical data access options
- Configure time ranges
- Configure aggregation modes
- Arrange received historical data on the Excel worksheet
- Access a list of recently browsed data points and connections, stored in a machine-wide profile

Additional Features:

- Integrates with the Excel Task pane
- Exposes several Excel Array Functions for accessing historical data, parameters being either direct values or references to cells containing values
- Provides a quick reporting capability with a wizard–like user interface

Configuring Real-Time Data Reports

ReportWorX Express allows you to display OPC UA data in real time within Microsoft Excel. Using the product, you can also update the report to show the most current information about your process.

To configure a real-time data report:

1. In the Real Time group on the ReportWorX Express ribbon, select the Current Value button.
2. For the Data Source Tag textbox, select the Data Browser Button and choose a real-time data tag. For this example, we chose the simulation tag: *@sim64:Double.Sine(Period[sec],Min,Max,Phase[deg]).Value*
3. For the Output Cell Range textbox, press the Select Range button to select a range of cells in the report spreadsheet.

   NOTE: You must select at least 3 rows.

   NOTE: If the selected tag collects more new values than the number of rows you have selected for the Output Cell Range, these new values appear beneath your selection. For this reason, it is not recommended to place output cell ranges above or below one another within a single spreadsheet.

4. In the Select Display Columns area, enable the check boxes next to the elements of data you wish to display in your report. For this example, we choose Name, Server Timestamp, and Value. The selection should look like similar to the figure below. Click Apply.

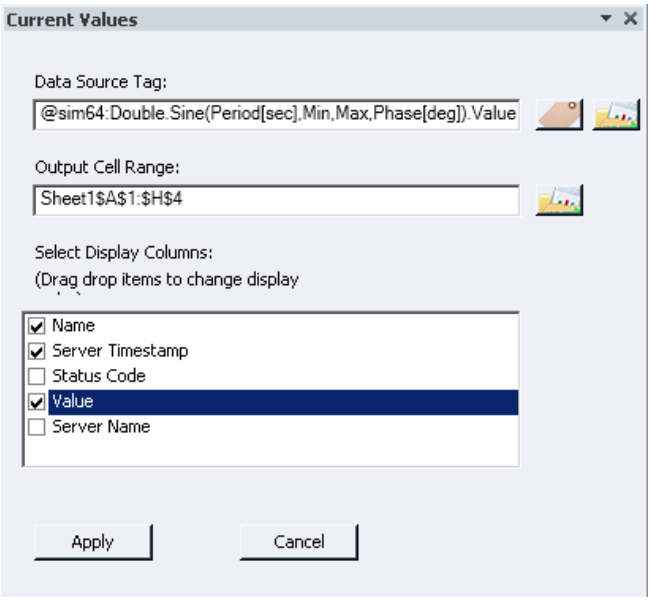

Figure 1 - Current Value Configuration

5. To view report data in the selected output range of the Microsoft Excel spreadsheet, update the report: . Your results should look similar to Figure 2.

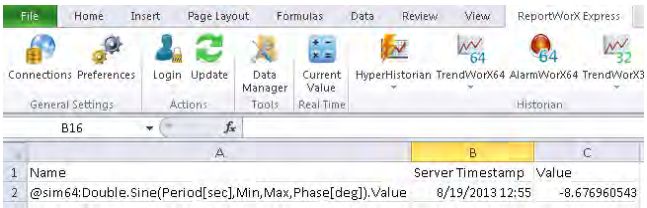

Figure 2 - Current Value

Historical Data

Using ReportWorX Express, you can display historical data from an HDA data tag within Microsoft Excel. You can also retrieve the most current information about your process by updating the data displayed in the report.

ReportWorX Express supports the following types of data sources for producing historical reports:

- Historian
- Trends
- Alarms

In this app note, we will go over each type. ReportWorX Express also allows you to configure reports for three different types of historian values:

- Individual values from the historian server (Raw Values)
- Values from a specific point in time from the historian server (Timed Values)
- Summary data from the historian server (Aggregate Values)

Historian Timed Values

Using the historian configuration task pane, you can display information collected in data tags that you have configured in historian software, such as Hyper Historian from ICONICS.

Configuring a Report with Raw Values from a Historian Server

1. In the Historian group on the Ribbon, select the Hyper Historian button.
2. Select the Raw Values drop-down button to create a report that displays individual trend values.
3. In the Historical Raw Values task pane on the right-hand side, select the Data Browser button to the right of the Data Source.
4. Choose your historical tag. For this example, we chose: *@ICONICS.HyperHistorian.1\LogGrp/OPCUA/Sine.History*
5. For the Output Cell Range textbox, press the Select Range button to select a range of cells in the report spreadsheet.
6. In the Select Display Columns area, check Name, Server Timestamp, and Value.
7. The selection should look like similar to the figure below. Hit Apply.

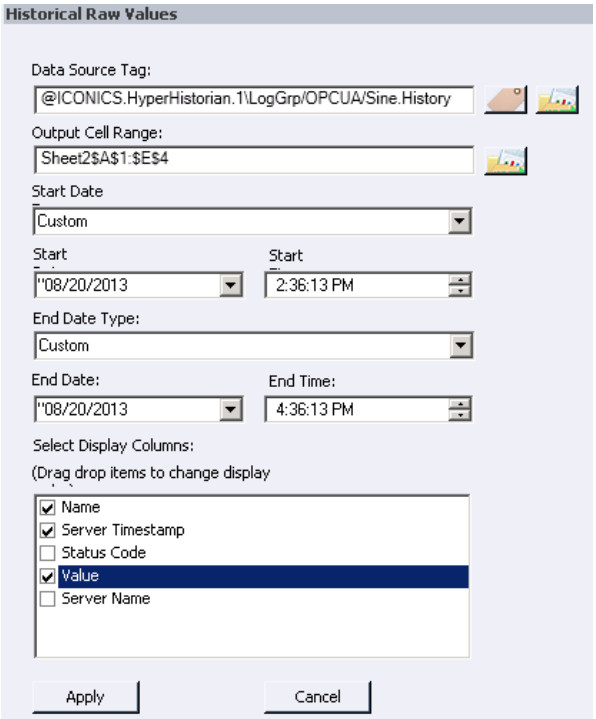

Figure 3 - Historical Raw Value Configuration

8. To view report data in the selected output range of the Microsoft Excel spreadsheet, update the report: . Your results should look similar to Figure 4.

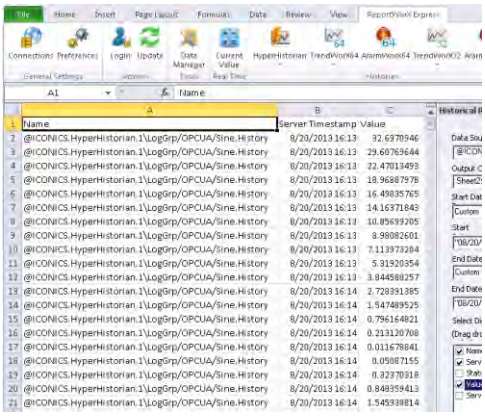

Figure 4 - Historian Raw Values

Trend Raw Values

Using a trend task pane, you can display information collected in data tags that you have configured in trend configuration software, such as TrendWorX64. In this section, we will go over displaying individual values from the trending server (raw values). We will also implement a new Preset feature that will allow you choose a date more easily.

To configure trending reports based on raw historical data values:

1. Select the TrendWorX64 button.
2. Select the Raw Values drop-down button to create a report that displays individual trend values.
3. In the Historical Raw Values task pane on the right-hand side, select the Data Browser button to the right of the Data Source.
4. Choose your historical trend tag. For this example, we chose: *@ICONICS.TWXSQLSvr64.1\Database Group.Logging Group.Ramp.History*
5. For the Output Cell Range textbox, press the Select Range button to select a range of cells in the report spreadsheet.
6. For Start Date, Select Preset. Choose the Last Day Last Week under the Start drop-down menu.
7. Keep the End Date Type as Custom.
8. Leave the default values for End Date and End Time.
9. In the Select Display Columns area, check all values.
10. Your selection should look like similar to the figure below. Click Apply.

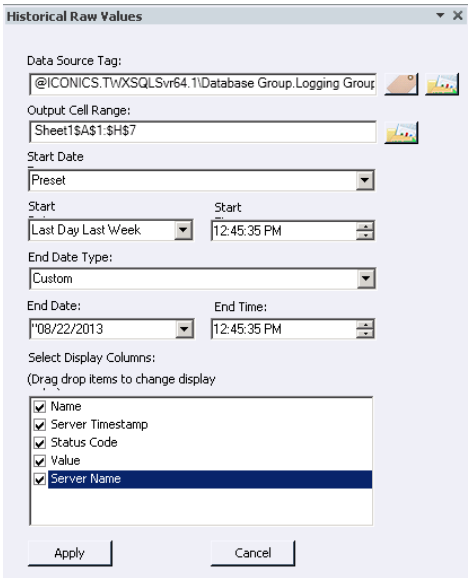

Figure 5 - Trend Raw Values Configuration

11. To view report data in the selected output range of the Microsoft Excel spreadsheet, update the report . Your results should look similar to Figure 6.

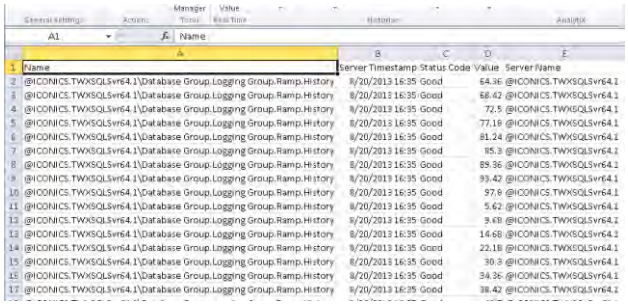

Figure 6 - Trend Raw Values

Alarms

Using an alarm task pane, you can display information collected by AlarmWorX64 Logger or AlarmWorX32 Logger. In this section, we will configure historical reports based on historical alarm values using filtering expressions and event fields.

To configure historical reports based on historical alarm values:

1. Select the AlarmWorX64 button in the ReportWorX Express Ribbon
2. In the Historical Alarms task pane on the right-hand side, select the Data Browser button to the right of the Data Source.
3. Choose your tag. In the Data Browser, browse to Historical Data → AlarmWorX64 Logger → Alarms → @ICONICS.AlarmSvr.1.Server. For this example, we chose: *awx:Alarms/@ICONICS.AlarmSvr.1.Server*
4. For the Output Cell Range textbox, press the Select Range button to select a range of cells in the report spreadsheet.
5. For Start Date, Select Preset. Choose First Day Last Month under the Start drop-down menu.
6. Keep the End Date Type as Custom. Leave the default values for End Date and End Time.
7. For the Filtering Expression, click on the button to Configure the expression for the filter.
8. For Standard Fields, click on AckRequired. This filter will appear on the right hand side. To the right of it, type " && " (without quotes) to use an AND expression.
9. Choose Severity (Priority) to complete the expression. Press OK.
10. Your resulting filtering expression should be: *x={{BaseConditionType.AckRequired}} && {{BaseEventType.Severity}}*

11. Leave 100 for the Page Size (Number of Alarms).
12. Select your Event Fields by clicking the button: .
13. This will open the "Add/Remove fields from the subscription" dialog box. For BaseEventType, make sure Event Class, EventId, and SourceName are checked, as in the following figure:

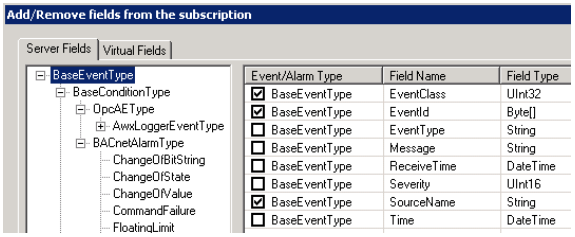

Figure 7 - Event Fields Configuration, BaseEventType

14. Next, click on BaseConditionType. Make sure ActiveTime, ConditionName, and Status Code are checked, as in the following figure:

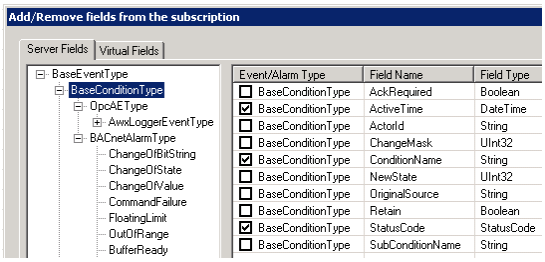

Figure 8 - Event Fields Configuration, BaseConditionType

15. Back on the pane, click and drag EventIdBaseEventType and EventClassBaseEventType towards the bottom of the Event Fields section. Your selection should look like similar to the figure below. Hit Apply.

Figure 9 - Historical Alarm Configuration

16. To view report data in the selected output range of the Microsoft Excel spreadsheet, update the report . Your results should look similar to Figure 9.

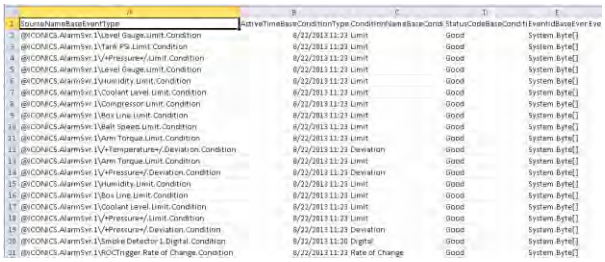

Figure 10 - Historical Alarm Values

Conclusions

In addition to gathering data, you can filter data that falls within a specific time interval or satisfies the conditions of built-in array functions in Excel. Also, you can combine data into summary statistics using a variety of aggregation methods with ReportWorX Express. You can even adjust access privileges to allow colleagues to access the data relevant to them.
Using the intuitive point-and-click wizard interface in an Excel task pane, you can easily select the data you wish to access, select a location within the spreadsheet to view the data, and include any filters you wish to apply to the data.

Once you have used ReportWorX Express several times, the product saves your recent data-browsing history and common network connections, storing this information in a machine-wide profile for your convenience.