



Quality AnalytiX Viewing SPC Data



APPLICATION NOTE

August 2014

Description: Guide to presenting SPC data in GENESIS64.
General Requirement: Familiarity with SPC and basic knowledge of GENESIS64.

Introduction

Quality AnalytiX is a Statistical Process Control solution which is flexible enough to apply to any quality monitoring application, yet simple to configure and deploy. It offers an extensive set of SPC calculations, control charts, portal dashboards, and standard quality reports that can be applied in a variety of combinations to help pinpoint quality or production issues. When combined with GENESIS64 it can also generate an alarm in case of rules violation.

This application note will show you how to view data which was processed by the Quality AnalytiX engine. You can view the data in form of:

- GridWorX64 Viewer charts
- Process points
- ReportWorX Express reports
- GenEvent Server messages in an AlarmWorX64 Viewer

Please read our product documentation in order to find more information on how to configure the Quality AnalytiX input data collection and calculation.

SPC data in GridWorX64 Viewer

GridWorX64 Viewer allows you to analyze the SPC data in the form of histograms or control charts that highlight samples which violate rules and provide tooltips to explain the violations. Tooltips of the samples show the alarm message for the violations.

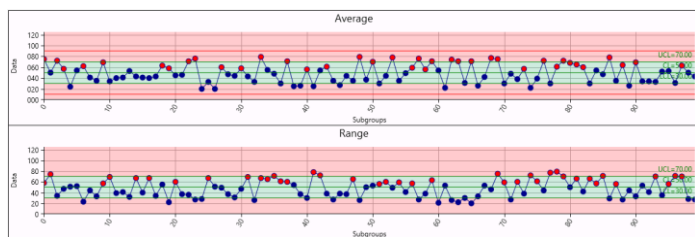


Figure 1 - SPC Control Chart and Histogram in GridWorX64 Viewer

Setting up SPC Control Chart

1. Insert a GridWorX64 Viewer into GraphWorX64 and double-click on it to enter the configuration dialog.

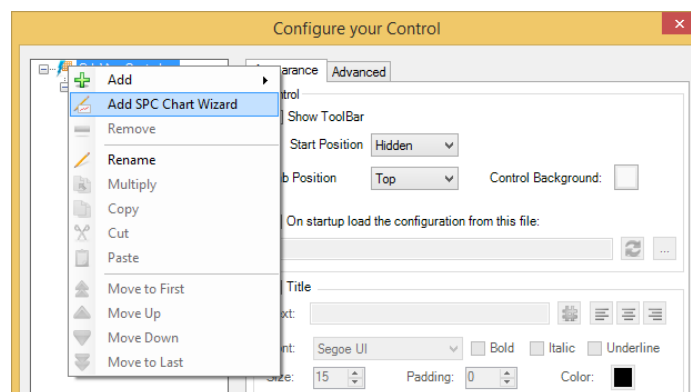


Figure 2 - Select SPC Control Chart

2. Right Click on the the tab and select Add SPC Chart Wizard, as shown in Figure 2.

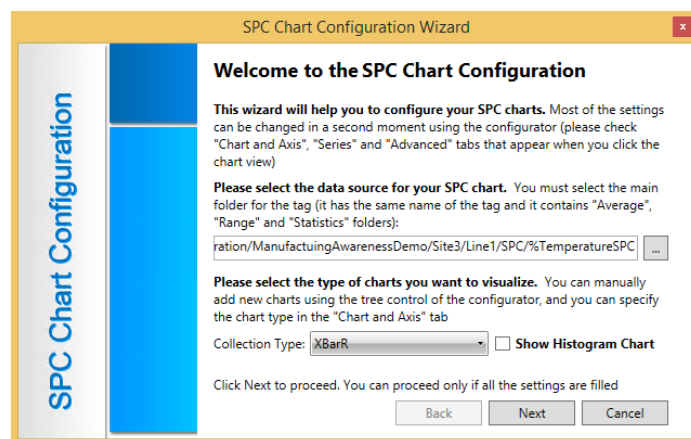


Figure 3 - Wizard

3. The Add SPC Wizard will open up as shown in Figure 3.
4. Click on ellipse and browse for your data source.
5. The Data Browser will open. Select the Hyper Historian SPC folder.

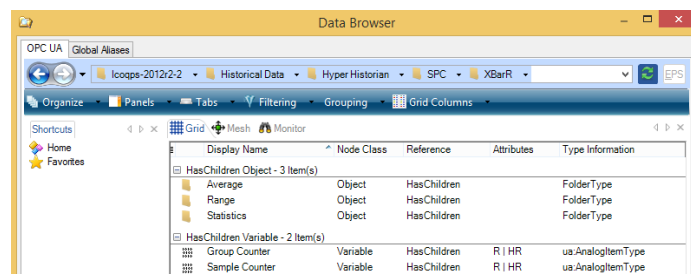


Figure 4 - Select SPC Data Source

NOTE: When selecting your data you need only select the folder of your configured SPC tag. You do not need to select any of the specific items in this folder.



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- Set the Collection Type to the same collection type as per the Hyper historian Configuration and click 'Next'
- On next wizard screen adjust a title for the data and set the limits for the chart and click 'Next'.
- Specify styles of your charts to see the rules violating samples and click 'Create', this will create the SPC Charts in GridWorX64 Viewer configuration.

NOTE: Two charts will be created – primary showing Average and secondary showing Range (Data source path of each chart is automatically adjusted to point to proper data).

Setting up SPC Histogram

To add a SPC histogram just follows steps for setting up SPC Charts and in first wizard screen check the 'Show Histogram Chart' checkbox.

NOTE: Three charts will be created – SpcPrimary showing Average, SpcSecondary showing Range and Statistics with Histogram Chart (Data source path of each chart is automatically adjusted to point to proper data).

NOTE: You can delete any created chart if you don't need it.

Viewing the GridWorX64 Viewer in PortalWorX-SL

If you want to show the Viewer in PortalWorX-SL you need to first save the viewer configuration into a GridWorX64 Viewer configuration file can be loaded in PortalWorX-SL. We will save the viewer we created in the previous section.

- In either runtime or configuration, select the GridWorX64 Viewer and click the Save button in the ribbon.
- Change the Save as type of the file to *GridWorX64 Viewer Silverlight files (*.gdxs)*.
- Select a destination and name for your .gdxs configuration file. It should be a location available in your Web server such as:
`C:\Program Files\ICONICS\GENESIS64\WebSites\PubDisplay.`
- Open PortalWorX-SL.
- Select the GridWorX Viewer for the control on the "Please select a Control" tab.



Figure 5 - Specify Configuration File

- In the popup window, specify the URL to your saved configuration file and click OK to show the SPC data.

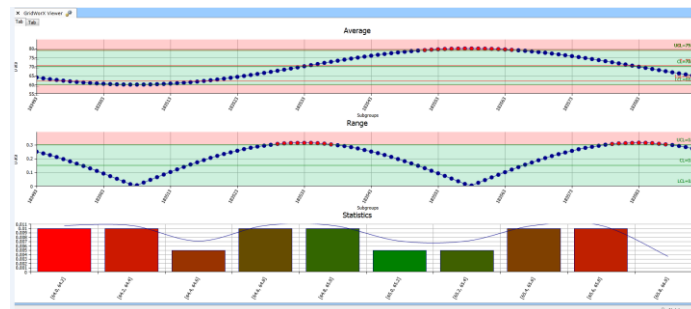


Figure 6 - SPC Chart in PortalWorX-SL

Viewing the SPC Data as Data Points

You can browse for any of the SPC data as for process points. Use the Data Browser in the same way as shown in the previous section about browsing SPC data in GridWorX64 Viewer. You can use this data in your graphics or smart tiles.

NOTE: To see desired process capability ratios in the Data Browser, you need to properly configure your SPC tag in Hyper Historian.

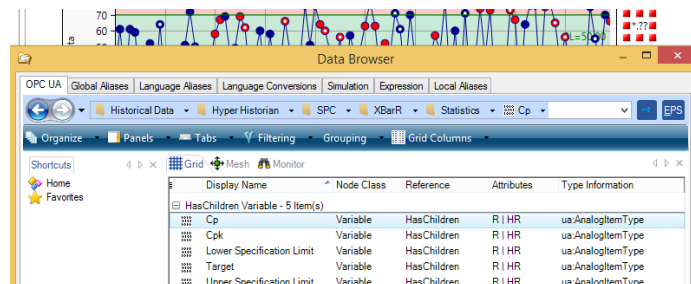


Figure 7 - Browsing for Process Point Data Source to Present SPC Data



Figure 8 - Using SPC data in Smart Tiles

NOTE: You can read more about Smart Tiles in the related help files or application notes.



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Viewing the SPC Data in ReportWorX Express

You can also create reports based on your SPC data using ReportWorX Express. When using ReportWorX Express you can take advantage of the option to report SPC data.

NOTE: If you are not familiar with ReportWorX Express, please read product documentation for more information.

1. Open Microsoft Excel.
2. Navigate to ReportWorX Express add-in tab.
3. Click on Quality AnalytiX button and choose desired kind of report.

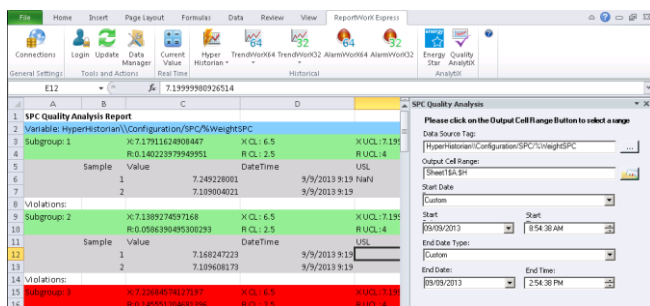


Figure 9 - Configuring Quality AnalytiX Report in ReportWorX Express

4. Browse for your data source. Keep in mind that you should select a folder item of the SPC calculation.
5. Specify the Output Cell Range. Select at least 8 columns.
6. Specify Start Date/Time and End Date/Time of the reported period.
7. Click Apply and then use the Update button in the ReportWorX Express ribbon to populate the report with Quality AnalytiX Data similar to the one in Figure 9.

Viewing Rule Violations in AlarmWorX64

The rule violations are posted as event messages in ICONICS GenEvent Server. You can view them in AlarmWorX64 Viewer.

NOTE: For further information about AlarmWorX64 Viewer please read the appropriate product documentation.

1. Open GraphWorX64 and insert an AlarmWorX64 Viewer. Double click the control to open configuration dialog.
2. Subscribe the control to the Event Logger

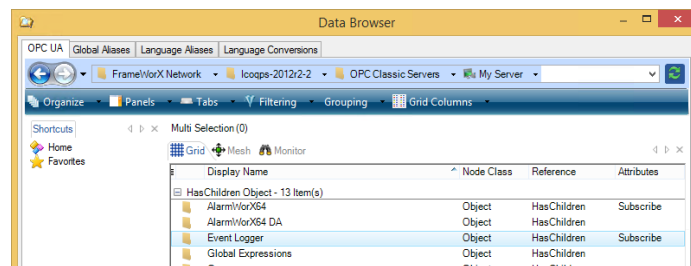


Figure 10 - Subscribe to ICONICS GenEvent Server

3. Click *Edit Fields of the subscription* button in the *Add/Remove Event Points* Section of Source tab and make sure that you display the **COMMENT** field for GenEvent Server Simple events.

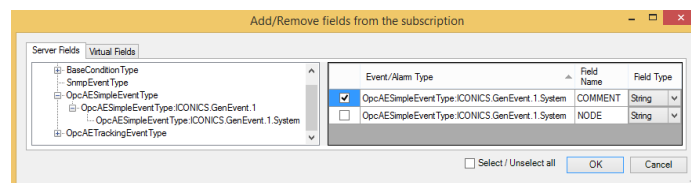


Figure 11 - Show Comments for Events

4. In the Columns tab you should make sure that Comment column property *Is visible* is checked. At a minimum, you should be showing the Time/Date, Description and Comment columns.
5. Go to runtime in order to view the rules violation. You can apply any filter or grouping as usual in AlarmWorX64 Viewer.

Time / Date	Description	COMMENT
9/9/2013 4:50 PM	1 point(s) in a row falls...	PSPC/WeightSPC
9/9/2013 4:50 PM	1 point(s) in a row falls...	Test/XBarR

Figure 12 - SPC Limit Violations in AlarmWorX64 Viewer

NOTE: Comments always start with P or S character depending on whether Primary or Secondary Control limit was violated.