Hyper Historian
Performance Calculation Array Functions

APPLICATION NOTE

August 2014

Description: The Hyper Historian Performance Calculation Array Functions make it possible to run statistical or aggregation functions across values from multiple tags, and is commonly used if it is not known in advance how many tags do exist.

Introduction

Hyper Historian provides a number of aggregation functions that allow the system to calculate the aggregate over single value for multiple variables, rather than calculating the aggregate over multiple values for a single variable. This is especially useful when trying to identify the best performing machine or the sum of widgets produced across multiple production lines.

Example

In this application note, we will show how to calculate the total number of widgets produced across multiple production lines, without needing to know in the performance calculation how many production lines there are.

This example depends on the configuration and data imported as part of the "MergeWorX – Importing Data into Hyper Historian" application note.

Calculation Trigger

The first item to configure is the trigger that will be used to run the calculation. We will configure this trigger to run on a 5 minute cycle to match the incoming data.

1. Open the Workbench
2. Select the Hyper Historian provider
3. Expand and select **localhost** → **HyperHistorian** → **Calculation Triggers**
4. Select **Add** → **Trigger Folder** from the Home Ribbon
5. Enter **Periodic** as the name of the folder and click on Apply
6. Select the **Periodic** folder
7. Select **Add** → **Time Trigger** from the Home Ribbon
8. Set the name of the Trigger to **5m**
9. Set the display name of the Trigger to **Period 5 minutes**
10. Check the **Enabled** checkbox
11. Set the "Starting at" field to **01 July 2014 00:00:00**
12. Set the Recurrence Type to **Time Interval**
13. Set the "Recur every" field to **5 minutes** and click on Apply

Performance Calculation Tags

With the raw data tags and the calculation triggers in place, the performance calculation tag can now be defined.

1. Open the Workbench
2. Select the Hyper Historian provider
3. Expand and select **localhost** → **HyperHistorian** → **Data Collections** → **System Performance**
4. Select **Add** → **Folder** from the Home Ribbon
5. Enter **Factory** as the name of the folder and click on Apply
6. Select the **Factory** folder
7. Right click and add **Calculated Tag** from the Home Ribbon
8. Set the name of the Tag to **Produced**
9. Add the **Periodic\5m** time trigger with the name **5m** in the "Triggers" section.
10. Switch to the Expression tab
11. Set the expression to:
    asum(atagnowf("*System Performance*", "Produced", "R"))
12. Click on Apply to save the tag

Workings

The **asum(*array*)** function simply takes an array of data values as an input and adds them together.

The **atagnowf(*pathFilter*, *nameFilter*, *typeFilter*)** function will go and find the most recent value for all tags that match the specified filter parameters. In this example it is looking for all tags that are in any folder containing **System Performance** in its path and have the name **Produced**, and are **Raw** values.

The best part of the **atagnowf()** function is that more machines could be added in this configuration and the aggregation function would not have to be updated.

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