



Hyper Historian Memory Persistent Logger



APPLICATION NOTE

August 2014

Description: Guide to understand when to use persistent logging as well as how to set it up.

OS Requirement: Windows 7 x64/ Windows 8 x64/ Windows 8.1 x64/ Windows Server 2008 x64/ Windows Server 2008 R2 x64/ Windows Server 2012/ Windows Server 2012 R2

General Requirement: Installation of Hyper Historian and general understanding of Hyper Historian file base logger.

Introduction

Hyper Historian is a high performance data logger that captures information for your plant floor. However, you may need to collect or log data only when a certain event occurs, or you just need data to “stick-around” for long enough of a period so that when you go in and out of runtime in the Trend Viewer, you can still see data for the past minutes that have been logged in the computer RAM.

The Memory Persistent Logger offers just this functionality. You can provide your operators the information they need as they go in and out of runtime as well as log information when a certain event occurs. This document walks you through the necessary steps to set up the logger for each scenario described above.

Retain Real-time Data

As you may have noticed, when you are viewing a real-time pen in the Trend Viewer, each time you exit runtime and re-enter it, the pen starts drawing from the right-hand side as if no data was there before. To change this behavior so some of your data persists as you enter and exit runtime (or change displays), you can use the Memory Persistent Logger to save data in RAM.

Memory Persistent Logger

1. Open the Hyper Historian configurator by going to Start → All Programs → ICONICS → Workbench-SL and select the Hyper Historian provider.
 - a. Alternatively, you can also open the Hyper Historian configurator by going to Start → Programs → ICONICS → Hyper Historian. This launches the Workbench with just Hyper Historian in it

This section describes how to setup a Memory Persistent logger that keeps data for thirty minutes. You can use the same process for setting up any other length of time, but keep in mind that this technique uses RAM to store the data; you should consider how much RAM you have on the machine, as well as how many samples you are keeping for each pen and how many pens you will have. Also, keep in mind that

restarting the machine or the Hyper Historian Logger service will erase all collected data from the RAM.

1. Expand your active configuration database and right-click on *Loggers & Groups* to select *Add Logger*.
2. Give the logger a name such as “Memory Persistent for 30 min” and in the *Logger Type* drop-down list, select *Memory Persistent Logger*.
3. Once you select the type of logger, the bottom half of the configurator shows the logger’s options.
4. In the *Memory Persistency* section, the default *Total Memory Storage Time* is already set to 30 minutes, so you don’t need to change anything in this case. But if you would like it to keep data for a different length of time, here is where you would change it. To keep data for 30 minutes, your finished configuration should look like Figure 1.

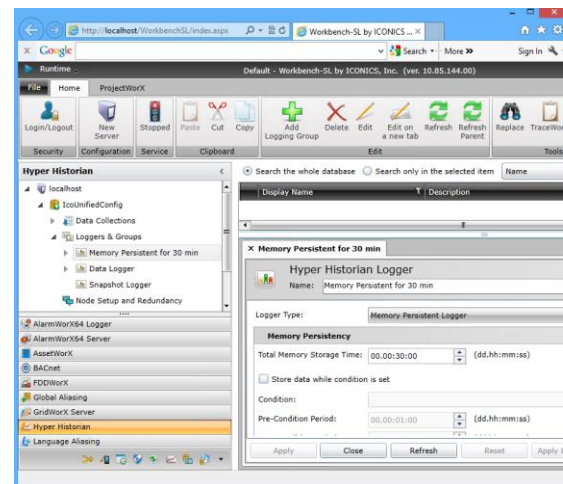


Figure 1 - Configuration to Keep Data for 30 Minutes in RAM

5. Click the Apply button at the bottom to save the changes.
6. Next right-click your new *Memory Persistent for 30 min* and select *Add Logging Group*; the new configuration form opens in a new tab.
7. Give the Logging Group a name like *Memory Persistent Group for 30 min*.
8. In the Logger section, choose the *Memory Persistent for 30 min* logger that you previously created. Make sure the *Enabled* box is checked.
9. Your configuration should look similar to Figure 2. Click Apply to save your settings.



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Hyper Historian Logging Group
Name: Memory Persistent Group for 30 min

Properties
Display Name: ☒ Enabled

Logger
Snapshot Logger: Memory Persistent for 30 min

Info
Description:

Figure 2 - Logging Group Configuration

10. You should now see your Logging Group in the Project Explorer. Right-click the Logging Group you just created and select *Add Collector Group*.
11. Again, the collector group configuration opens in a new tab. Here is where you configure the frequency with which samples are collected.
12. Give the collector group a name such as *Group 1* and, in the Collector section, select the Local Collector.
13. In the Collection Parameters section, change both the Data collection rate and the Calculation period to 1 second. Click the Apply button.

Hyper Historian Collector Group
Name: Group1

Properties
Display Name:

Collector
Select Collector: Local Collector
☒ Collector overwrites SourceTimestamp of data with its actual UTC time

Collection Parameters
Data collection rate: 00:00:01.000 (hh:mm:ss.sss)
☐ Force refresh rate: 00:00:00.000 (hh:mm:ss.sss)
Calculation period: 00:00:01.000 (hh:mm:ss.sss)

Collection Condition ☒ Collect On Condition
Condition:

Info
Description:

Figure 3 - Collector Group Configuration

2. In the configuration tree right-click the *Data Collection* and select *Add Folder*. Name that folder for example *Memory Persistent Collection for 30 min*. Click apply.
3. Then, right-click the folder that you just created, and select *Add Tag*, or *Add Multiple Tags...*
4. Again, the tag configurator opens in a new tab. Give the tag a name, e.g. *Memory Tag 1* and click the ellipsis (...) button to the right of the *Signal Name* field to open the data browser and then select the tag for which you want to collect data, e.g. select *@sim64:Double.Sine(1,-50.0,50.0,7).Value*
5. Select the collector group you just created, e.g. *Memory Persistent Group for 30 min / Group1* in the *In Group* field.
 - a. If you chose to add multiple tags, then you have to select the collector group first.

6. Once you click OK in the data browser, your tag appears in the *Signal Name* field. (The type of tag determines the syntax you see displayed for it).
7. You can leave the rest of the configuration as-is for the tag. Remember to click Apply to save the changes.

Hyper Historian Tag
Name: Memory Tag 1

Description:

☒ Is Collected

Signal Name: @sim64:Double.Sine(1,-50.0,50.0,7).Value

Source Type: Datapoint Dataset:

In Group: Memory Persistent Group for 30 min / Group1

Data Type: Int32 ☒ Stepped Interpretation ☒ Support Operator Comments

Engineering Units:

Figure 4 - Tag configuration

8. If you wish to add more tags, repeat steps 2-7. Or try the *Add Multiple Tags...* option to add many tags at once.
9. At this point, you are done configuring. Make sure you start the Hyper Historian logger by clicking the traffic light in the Service Section if it isn't green. If the Service is already started, refresh your configuration in the Project Explorer by right-clicking the configuration and selecting Refresh.

Viewing Persistent Tags

Viewing a Hyper Historian Persistent tag is basically the same as viewing other Hyper Historian tags.

1. In your Trend Viewer control, bring up the *Configure Your Control* dialog by double clicking on the viewer.
2. Add a new plot to the chart and a new pen to the plot.
3. On the left side, select the *New Pen*, and on the right side click the ellipsis (...) button next to the *Data Source* field, which opens the Data Browser.
4. In the Shortcuts pane, click *Home* then, *Historical Data* then, on the right side, select *Hyper Historian → Memory Persistent Collection for 30 min → Memory Tag 1*

NOTE: The path might be slightly different depending on how you named your Logging Group, Collector Group, and tag. The General form is to browse for Hyper Historian → Logging Group → Tag.

5. Once you find your tag, select it. Then click OK until you are all the way out of any popup dialogs.

NOTE: If you want to add more tags, then stop clicking OK when you get to the Configure Your Control's dialog and right-click New Plot and select Add → Pen to add other pens.

6. Now go into runtime. You should see data (beginning at the time you started data logging) being populated. The



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tag's pen should no longer start from the right-hand side with no previous data.

Logging Data Based on an Event

As mentioned before, although you are not logging data to disk, there are instances when you might want to record some of this data from RAM for later diagnostic purposes. The Memory Persistent Logger offers this flexibility.

If you open the Memory Persistent Logger that you created in the previous section, you will notice (in the Memory Persistency section) a checkbox called *Store data while condition is set*.

Figure 5 - Memory Persistent Logger: Store Data while Condition is Set

If you check this option and then give it a condition, it will write the data to a file when the condition is true. This can be helpful when, for example, a temperature stays high for too long; you can save all data to disk so that later you can look for a reason why the temperature was high.

Two other options you see here are *Pre-Condition Period* and *Post-Condition Period*. These two options allow you to configure how long before and after the event occurs to log data. With these settings, you can log data captured before and after a critical event happens to the disk for later analyses about what could have triggered the event and what may stop it from happening again.

Other Memory Persistent Logger Settings

In the Memory Persistent Logger configurator, there are two more sections: File Storage and Archiving. Let's start with File Storage.

If you are logging data as described in the previous section, you can configure events to tell Hyper Historian when to create new files. You can use the same event that you are monitoring as the condition to log the data. The condition can also be based on a time trigger. If you do not give it a condition, the default (as shown in Figure 6) creates a file every hour or when the file size reaches 100 MB, whichever comes first. The three conditions to create a new file in this section are OR together.

Figure 6 - Memory Persistent Logger: File Storage

The last section in the Memory Persistent Logger configuration is Archiving. When you create a new file, you can archive the old files. Once the files are archived, you can no longer access them. However, you can restore them if you need to use the data in the archive files for reports or analysis purposes.

Figure 7 - Memory Persistent Logger: Archiving

In this section, you have options similar to the File Storage section. You have to use an event to trigger the archive, you can use an UDM Trigger. The Max Files Total Size and Min Storage Time determine the time at which Hyper Historian closes a file and how long data is available for showing. For example, if your Max file Time Extent in the File Storage is one hour, in order to keep seeing that one hour's worth of data you must set the Min Storage Time in the Archiving setting to two hours so that, after the first hour, your file is not immediately archived making that hour's data inaccessible.

If you are going to set up archiving, make sure you first enable archiving in the System Settings and choose the location where you want to save archived files.