

## Reporting from GE Digital Historian

**XLReporter** generates Excel based reports from GE Digital's Historian using historical logged data as well as alarm data.

The purpose of this document is to describe how to setup Historian for **XLReporter**.

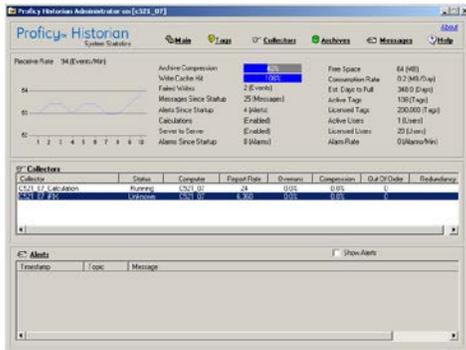
## Historical Data

With process data stored in a Historian, the variety of reports that can be produced by **XLReporter** increases many fold.

In addition to raw values, informative metrics such as run times and statistics are obtained by simply selecting the tags and time frame of interest. e.g. hourly average, maximum and minimum for each hour of the day.

## Setting up Data Logging

Data logging in Historian is configured in the **Historian Administrator**. This is accessible from the Windows **Start** menu under the **Historian** program group.



*Historian Administrator*

Here, you can set up the data collectors and the tags to collect from your data sources.

## Interfaces

**XLReporter** can retrieve historical data from Historian using 2 interfaces:

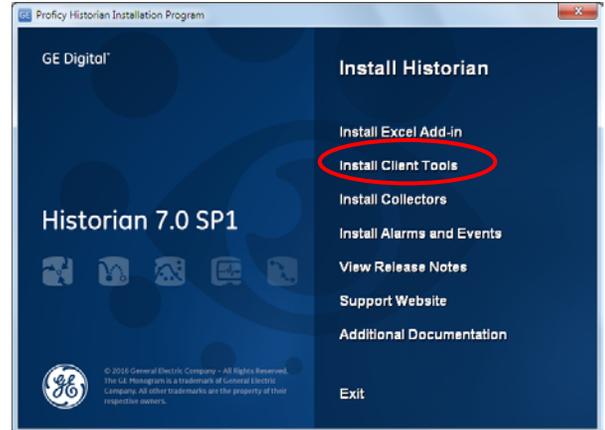
The **Historian Plus** interface can be used if **XLReporter** is installed on the same machine as Historian. It is a high speed interface capable of retrieving a large amount of data.

The Historian interface can be used if **XLReporter** is not installed on the same machine as Historian. It uses the Historian OLEDB provider to retrieve data.

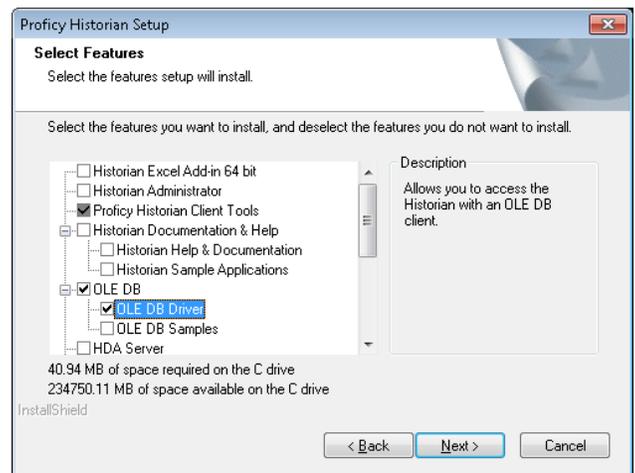
## Client Configuration

On the machine where **XLReporter** is installed, the Historian Client Tools must also be installed. These are available on the Historian installation CD.

From the **Historian Installation Program**, select **Install Client Tools**.



At minimum, the **OLE DB Driver** must be selected to install. Selecting the driver forces the **Historian Client Tools** to be selected as well.

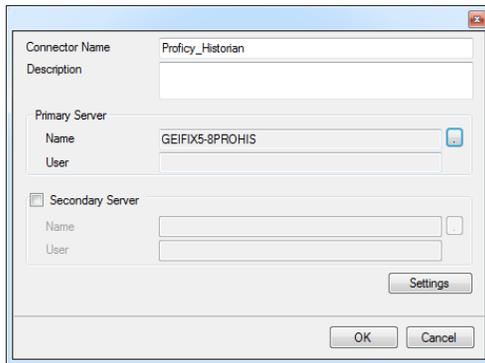


This driver gives **XLReporter** access to historical data.

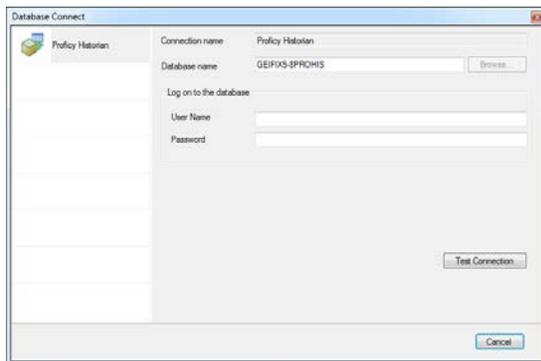
## Creating a Historical Data Connector

To connect **XLReporter** to Historian data you will first need to create a **Connector**. To do this, open **XLReporter's Project Explorer**, and open **Connectors** from the **Data** tab. In **Connectors**, select **Add**.

Under **GE Digital** select either **Historian** or **Historian Plus**.



Under **Primary Server**, click the browse pushbutton [...].



Set **Database name** to the name of the machine where the Historian is running. Alternatively, leave this setting blank to use the default SQL server as configured in the Historian **Interactive SQL** application.

Specify the logon credentials if required. Click **Test Connection** to verify the settings.

**Verify the Historical Data Connector**  
**XLReporter** accesses process values stored in the Historian using a connector group.

From **XLReporter's Project Explorer**, under the **Tools** tab, select **Diagnostics, Connector Groups**. Select the Historian connector and click **Add**.

Select the **Type** of group you wish to create and click **OK**.

On the **Columns** tab, select the tag **Name** and **Calculation** for each tag in the group, if a summary values group is configured.

On the **Time Period** tab, select the **Start Time**, **End Time** and **Interval** for the group. By default this is set to one hour intervals over the current day.

For **Raw Data** groups, the **Time Period provides Raw Data Retrieval** settings. *By time* retrieves data between the start and end times. *By record forward* retrieves data starting at the start time going forward for the **Count**

specified. *By record backward* retrieves data starting at the start time, going backwards for the **Count** specified.

On the **Filters** tab specify any filtering to reduce the amount of data returned, or in the case of calculations, the amount of data factored into the calculations.

Once a filter is configured, the **Filter Mode** is enabled which defines how the filter is applied if the selected tags are logged at different frequencies.

The **Advanced Criteria** setting allows additional filtering to be applied to every selected tag.

The **Preview** pushbutton at the top of the history group display can be pressed to preview the result of the current configuration.

Date	FLOW01	FLOW02	FLOW03	FLOW04
10/1/2013 1:00:00 AM	71.2474484781556	64.4829219369396	52.4215314322882	65.685544611613
10/1/2013 2:00:00 AM	66.253656027591	53.153525250958	54.999117477417	60.1344185511271
10/1/2013 3:00:00 AM	71.602314666748	54.3723221460978	51.9870604515076	64.7320777053066
10/1/2013 4:00:00 AM	66.1849698038737	57.8811047554016	55.0055191884766	73.2772684733073
10/1/2013 5:00:00 AM	78.0985364278158	75.8615464528402	57.5355068842817	82.4242586771647
10/1/2013 6:00:00 AM	72.5651168023242	61.0702749252115	46.5495956059334	88.9777421315511
10/1/2013 7:00:00 AM	76.1162072224935	63.2840499146553	52.1544570287069	90.6483974456787
10/1/2013 8:00:00 AM	60.9476355234762	77.505205754598	51.897953414917	86.8526187896728
10/1/2013 9:00:00 AM	77.3482785148891	50.0950043703715	62.6868134516388	78.9163791696494
10/1/2013 10:00:00 AM	78.5410724638893	69.8882724761963	67.16785508728	69.612035363873
10/1/2013 11:00:00 AM	64.9520135498047	61.0963741938273	68.3750368118286	62.1898630142212
10/1/2013 12:00:00 PM	66.6623261781613	59.0380049832862	71.7531196584238	59.242639541626
10/1/2013 1:00:00 PM	77.966978015544	60.444883357544	76.0119204205288	61.7899157567687
10/1/2013 2:00:00 PM	66.6261160526233	46.4779631932577	76.7051423390705	68.9683601379395
10/1/2013 3:00:00 PM	59.6842877705892	56.978511830648	55.9386724238078	78.2438307444295

Preview

Preview displays the data exactly the same way it will be written into the report.

## Alarm Data

The Historian can be configured to record alarm and event data. **XLReporter** can use alarm data in a report.

## Setting up Alarm Logging

Historian collects alarm and event data from an OPC Alarm & Event compliant server, and stores it alongside Historian process data.

This configuration is done in the **Historian Administrator** that can be accessed from the **Historian** program group.

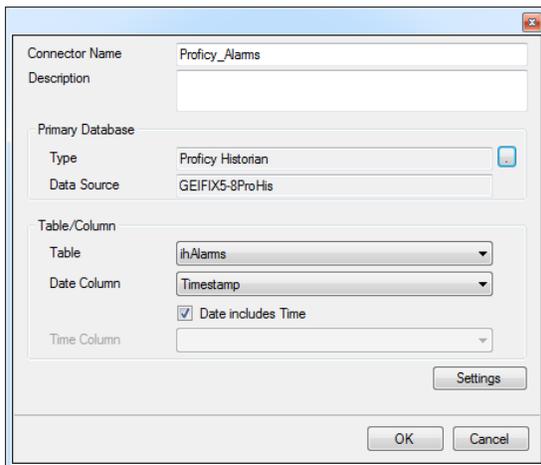
## Creating an Alarms Connector

To connect **XLReporter** to Historian alarm data you will first need to create a **Connector**. To do this, open **XLReporter's Project Explorer**, and open **Connectors** from the **Data** tab. In **Connectors**, select **Add**, and select **GE Digital, Historian Alarms**.

Under **Primary Database**, for **Type**, click the browse pushbutton [...] to define a connection to the alarm database.

Set **Database name** to the name of the machine where the Historian is running. Alternatively, leave this setting blank to use the default server as configured in the Historian **Interactive SQL** application.

Specify the logon credentials if required. Click **Test Connection** to verify the settings.



The screenshot shows a dialog box for configuring a connector. The 'Connector Name' field contains 'Proficy\_Alarms'. The 'Description' field is empty. Under the 'Primary Database' section, the 'Type' is set to 'Proficy Historian' and the 'Data Source' is 'GEFIX5-8ProHis'. In the 'Table/Column' section, the 'Table' dropdown is set to 'ihAlarms', the 'Date Column' dropdown is set to 'Timestamp', and the 'Date includes Time' checkbox is checked. There are 'Settings', 'OK', and 'Cancel' buttons at the bottom.

Under **Table/Column** set **Table** to *ihAlarms*. Set **Date Column** to *Timestamp*. This column will be used for any timestamp filtering in the connector groups.

## Verify the Alarm Data Connector

**XLReporter** accesses alarm data stored in the database using a connector group.

From **XLReporter's Project Explorer**, under the **Tools** tab, select **Diagnostics, Connector Groups**. Select the Historian alarm connector and click **Add**.

On the **Columns** tab, select the **Columns** for the alarm data you wish to retrieve.

On the **Time Period** tab, select the **Start Time, End Time** and **Interval** for the group. By default this is set to the first 60 values over the current day.

On the **Filters** tab, specify filtering to limit the type or amount of alarms returned. You can filter based on any available column in **ihAlarms**. This includes filtering on alarm type, tag name, etc.

The **Alarm Type** setting determines the types of alarms returned by the group. *Alarms* returns an entire alarm lifecycle as a single record. *Alarm History* returns separate records for each alarm transition. *Events* returns simple and tracking events.

The **Preview** menu can be selected to preview the result of the current configuration.

## Troubleshooting

If you are experiencing issues connecting to the Historian or retrieving data with **XLReporter**, you can use **Historian Interactive SQL** to validate the setup. This is provided as part of the Historian Client Tools.

To open, from the **Historian** program group, select **Historian Interactive SQL**. This opens the **Historian Interactive SQL Login** window.

To connect to the Historian, specify the server where the Historian resides and specify the User Name, Password and Domain if required. If connected successfully, the Historian Interactive SQL window appears.

A query can be entered into the window to retrieve data from the Historian.

If you are using the **Historian** connector, you can see the query submitted to the Historian from the history group. Open the connector group and click **Preview**. If an error has occurred, the query is displayed.

To copy the query, click the message to open a second window containing the query. On the keyboard, press **CTRL + C** to copy the query onto the clipboard. Then use **CTRL + V** to paste the query into the **Historian Interactive SQL** window.

Once the query is entered, select **View, Execute** to execute the query. If successful, the results appear beneath the query. Otherwise, an error message appears indicating what went wrong.

If the issue cannot be resolved based on the error message, contact GE Digital technical support because this is demonstrating an issue with the Historian.