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.

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

**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 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.

**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.

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.

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.
**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.