DeltaV Setup

Reporting from DeltaV

XLReporter generates Excel based reports from Emerson Process Management's DeltaV from real time data, historical archives as well as alarm and batch history.

The purpose of this document is to describe how to interface **XLReporter** to DeltaV. This document covers any initialization steps to DeltaV and troubleshooting using tools provided by DeltaV.

Before you Begin

In order for **XLReporter** to communicate with DeltaV, the machine where **XLReporter** is installed must also have the OPC core components installed. The OPC core components are provided in the tools folder of the **XLReporter** install CD or from www.OPCFoundation.org.

If **XLReporter** is installed on a PC that is remote to DeltaV then a number of settings need to be configured on both the server and client machines. This includes having matching Windows user accounts (with matching passwords) on both machines and enabling DCOM on the machine where DeltaV is installed.

For a detailed explanation of the requirements for remote access, please read the OPC Training Institute document *OPC_and_DCOM_5_things_you_need_to_know* that is provided in the Tools folder of the **XLReporter** install CD or from www.SyTech.com.

Process Values

XLReporter can take snapshots of the process values and add them to an existing report worksheet, periodically or on event. To prevent excessive build-up of information in a single worksheet, new workbooks and worksheets can be created automatically.

Process values can be retrieved from DeltaV by **XLReporter** via the DeltaV OPC Server.

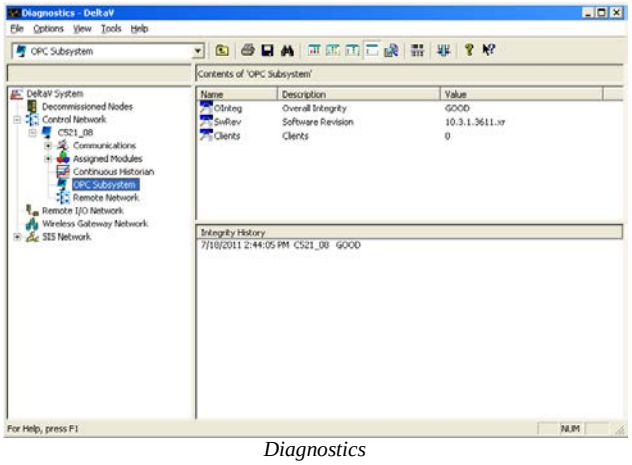
If **XLReporter** is installed on a non-DeltaV node, the DeltaV OPC Remote application needs to be installed on the machine. This can be found on the DeltaV installation CD in the **DV_Extras** folder.

Once installed, the DeltaV OPC server appears as a local OPC server.

Configuring DeltaV

While there is no additional configuration for **XLReporter** to connect to DeltaV, there are a few settings that can be verified from within DeltaV. These settings can be viewed and modified in the **DeltaV Explorer,** which is accessible from the **DeltaV** program group, under the Engineering folder.

Check the OPC installation by selecting **Applications, Diagnostics** from the menu which will open the **Diagnostics** window. Expand the tree below the server name in the left pane, and select **OPC Subsystem.**

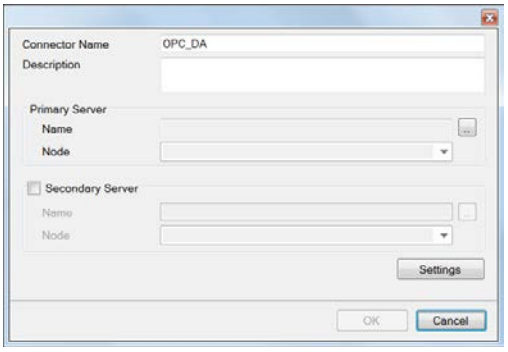


Diagnostics

Several variables appear in the upper right pane, one being **OInteg,** which is the overall integrity of the OPC server. This should have a value of *GOOD*.

Creating a Real Time Data Connector

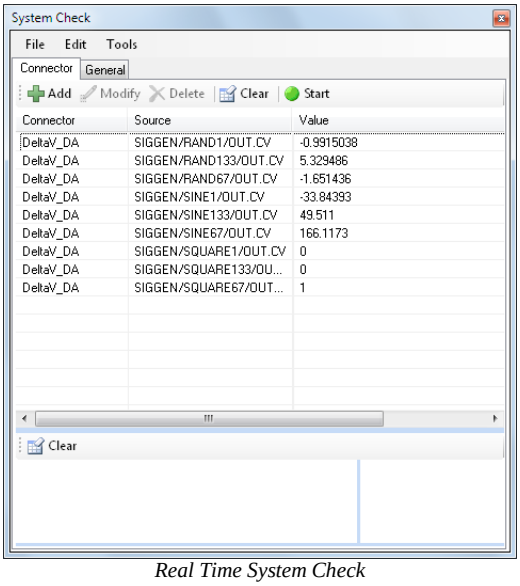
To connect **XLReporter** to DeltaV via OPC, you will first need to create a **Connector**. To do this, open **XLReporter's Project Explorer,** and open **Connectors** from the **Data** tab. In **Connectors**, select **Add**, and select **Emerson Process Management, DeltaV Real-time values.**



Under **Primary Server**, leave **Node** set to local.

Verifying the Real Time Data Connector

To verify the DeltaV real time interface, open **XLReporter's Project Explorer**. From the **Tools** tab start the **System Check** application and select the **Connector** tab. Select **Add,** choose your DeltaV real time Connector from the dropdown list, and click the pushbutton […] next to **Items** to open the **Tag Browser** window.



Real Time System Check

Select one or more tags and verify that they update with the current value using **Start** in the **System Check** window.

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 sample 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.

XLReporter performs time-weighted calculations on the historical data retrieved.

XLReporter can connect and retrieve data from both the DeltaV Continuous Historian and the DeltaV Advanced Continuous Historian via an OPCHDA connection.

Configuring DeltaV

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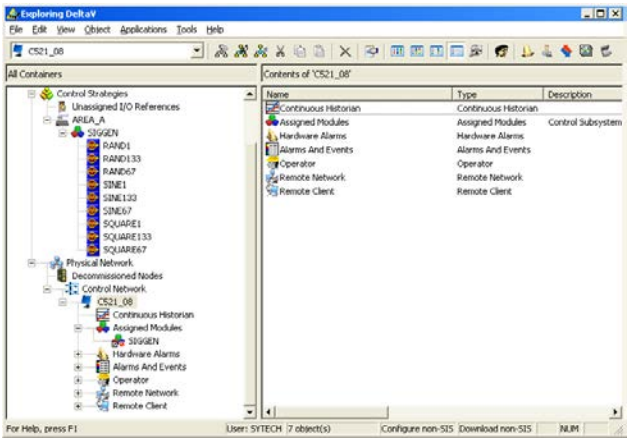


DeltaV Explorer

If using the Continuous Historian, check that the Continuous Historian is enabled. This can be done by right clicking the **Continuous Historian** icon in the left pane, listed below the server name. Select **Properties** and make sure that **Enabled** is checked**.**

Creating a Historical Data Connector

To connect **XLReporter** to DeltaV historical 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 **Emerson Process Management, DeltaV Continuous Historian** or **DeltaV Advanced Continuous Historian**.

Under **Primary Server**, if the server is on a remote machine, set **Node** to the name of that machine, otherwise leave it set to *local*.

Verifying the Historical Data Connector

XLReporter accesses process values stored in the historian using a connector group.

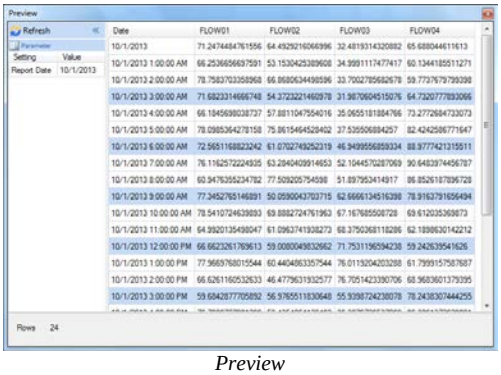
From **XLReporter's Project Explorer**, under the **Tools** tab, select **Diagnostics, Connector Groups**. Select the DeltaV history connector and click **Add**.

Select the **Type** of group and click **OK**.

On the **Columns** tab, select the tag **Name** and **Calculation** for each tag in the group.

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.

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



Preview

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

Batch Historian Data

The DeltaV Batch Historian can be configured to log data to a SQL Server database. **XLReporter** can retrieve data from the database to use within reports.

Creating a Batch Historian Connector

To connect **XLReporter** to the DeltaV Batch Historian 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 **Emerson Process Management, DeltaV Batch Historian**.

Under **Primary Server**, click the browse pushbutton […] to connect to the database.

Select **Microsoft SQL Server**.

Set **Server name** to the SQL Server instance where the DeltaV Batch Historian is configured.

Specify the **Logon** information and the **Database** within the SQL Server instance where the Batch Historian data is logged.

Click **Test** to verify the settings.

Verifying the Batch Historian Connector

XLReporter accesses Batch Historian data using a connector group.

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

On the **Setup** tab, under **Database**, set **Table/View** to a table or view in the batch historian from which to retrieve alarm data.

Once the table or view is selected, set **Date Column** to a column with timestamps within the table or view.

On the **Columns** tab, select the **Columns** for the Batch Historian 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 the table or view selected.

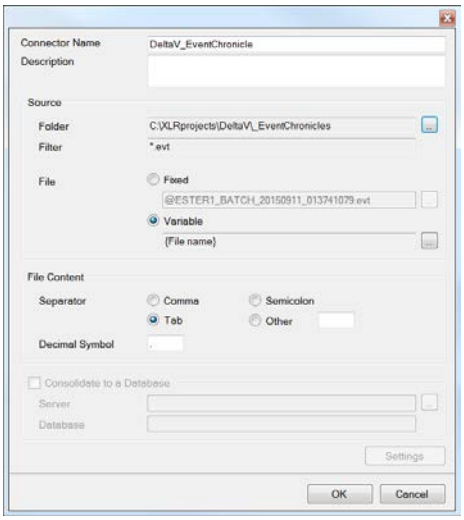
The **Preview** menu can be selected to preview the result of the current configuration.

Event Chronicle Data

The DeltaV Event Chronicle can be configured to log data to text files (*.evt) on a per batch basis. **XLReporter** can retrieve data from a specific file to use within reports.

Creating an Event Chronicle Connector

To connect **XLReporter** to the DeltaV Event Chronicles 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 **Emerson Process Management, DeltaV Event Chronicle**.



Under **Source**, for **Folder**, click the browse pushbutton […] and select the folder where the Event Chronicle files are stored.

Verifying the Event Chronicle Connector

XLReporter accesses Event Chronicle data using a connector group.

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

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

On the **Filters** tab, specify filtering to limit the type or amount of alarms returned. You can filter based on any available column.

The **Event** setting allows you to select one or more specific events to return from the group. Click the browse pushbutton […] and check any that apply. To see every event, set every one unchecked.

The **Preview** menu can be selected to preview the result of the current configuration. In the **Preview** window you are prompted for a **file name**. Specify one of the .evt files in the **Source Folder** specified in the connector.

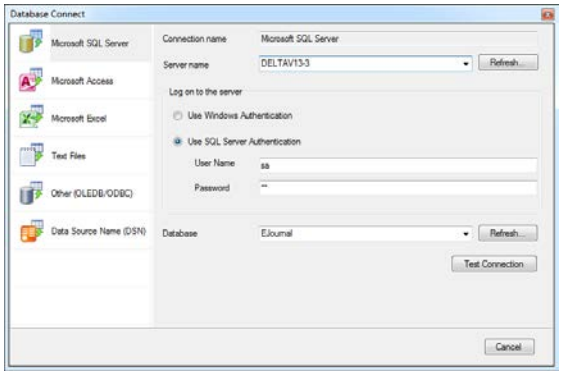
Event Journal Data

The DeltaV Event Journal can be configured to log data to a SQL Server database. **XLReporter** can retrieve data from the database to use within reports.

Creating an Event Journal Connector

To connect **XLReporter** to the DeltaV Event Journal 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 **Emerson Process Management, DeltaV Event Journal**.

Under **Primary Server**, click the browse pushbutton […] to connect to the database.



Select **Microsoft SQL Server**.

Set **Server name** to the SQL Server instance where the DeltaV Event Journal is configured.

Specify the **Logon** information and the **Database** within the SQL Server instance where the Event Journal data is logged.

Click **Test** to verify the settings.

Under **Table/Column**, set the **Table** to *Journal* and the **Date Column** to *Date_Time*.

Verifying the Event Journal Connector

XLReporter accesses Event Journal data using a connector group.

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

On the **Columns** tab, select the **Columns** for the Event Journal 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 the table or view selected.

The **Event Type** setting allows you to select a specific event types to retrieve data for. To retrieval all event types, select *Any* otherwise select a specific type.

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

Analyze Data

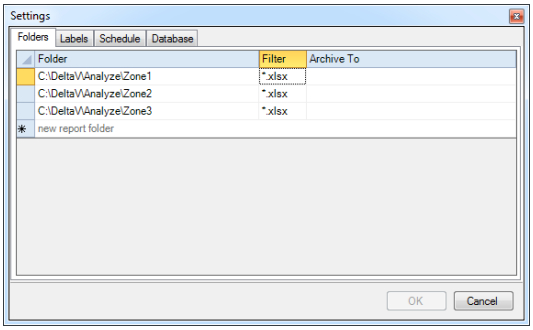
DeltaV Analyze can be used to generate Excel based reports in a fixed format. **XLReporter** can extract the data from these reports and export it to a database where more sophisticated analysis can be performed producing even more powerful reports.

Creating an Analyze Data Connector

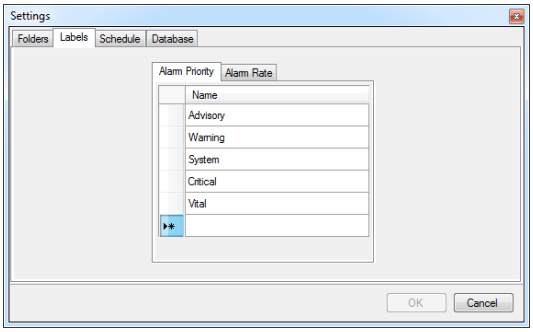
To connect **XLReporter** to the DeltaV Analyze data you will first need to create a **Connector**. To do this, open **XLReporter's Project Explorer,** and open **Connectors** from the **Data** tab. In **Connectors**, select **Add**, and select **Emerson Process Management, DeltaV Analyze**.

Under **Consolidate to a Database**, for **Server**, click the browse pushbutton […] and connect to the database where you would like the Analyze data to be stored.

Click **Settings**.



Under the **Folders** tab, define each folder containing DeltaV Analyze report files you wish to extract data from.



Under **Labels** define the **Alarm Priority** and **Alarm Rate** labels if you have customized them in the DeltaV Analyze application.

Under **Schedule**, determine the frequency at which data is extracted from the DeltaV Analyze reports and stored in the database.

On **OK**, the tables for the Analyze data are created in the database specified.

Populating the Database

The database will be populated at the frequency you specified in the connector. To manually perform this, from the **Project Explorer**, under the **Project** tab, select **Schedule, Designer**.

In the **Schedule Designer** select **Tools, Script Editor**. The *DV_export* script will be listed. Select it and click **Test**. The script will extract data from the files in the folders configured.

Verifying the Analyze Connector

XLReporter accesses DeltaV Analyze data using a database connector group.

From **XLReporter's Project Explorer**, under the **Tools** tab, select **Diagnostics, Connector Groups**. Select the DeltaV Analyze connector and click **Add**. Set the **Type** to **Standard** and click **OK**.

On the **Setup** tab, select the **Table(s)** or **View(s)** from which to retrieve data.

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

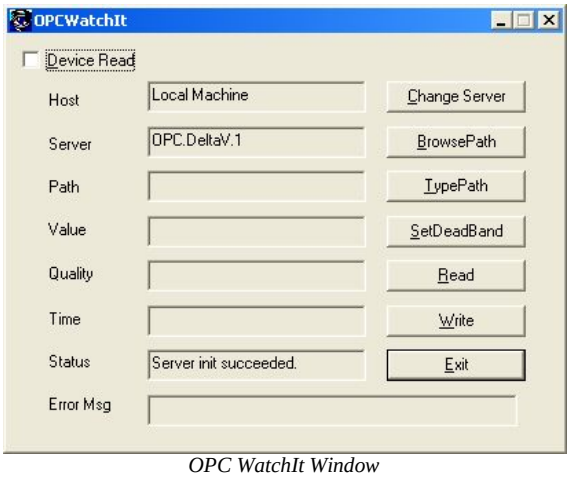
On the **Filters** tab, specify filtering to limit the type or amount of alarms returned. You can filter based on any available column in the table or view selected.

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

Troubleshooting – Real Time Data

If you are experiencing issues connecting to the DeltaV OPC Server or accessing real time values, DeltaV has provided OPCWatchIt**,** as a diagnostic tool.

To run, from a command line, enter *opcwatchit.exe*



OPC WatchIt Window

In the **OPCWatchIt** window, verify **Server** is set to *OPC.DeltaV.1*. If it is not, click **Change Server** to select it.

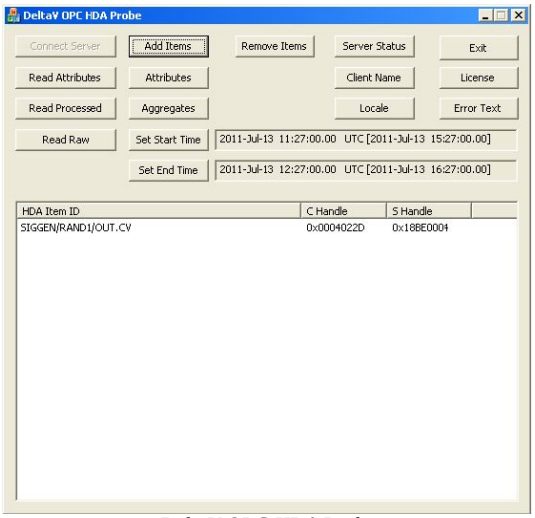
To choose tags, click **BrowsePath**. This opens the **Browse Attributes** window showing a tree view of all tags configured. Select a tag and click **OK**.

Click **Read** to display real time value of the selected tag.

Troubleshooting – Historical Data

If you are experiencing issues connecting to the DeltaV OPC-HDA Server or retrieving Historical data, DeltaV has provided **HDAprobe** as a diagnostic tool.

To run, browse to *C:\ DeltaV\bin* or *C:\DeltaV\DVUtilities* and double-click **HDAprobe.exe**.



DeltaV OPC HDA Probe

In the **DeltaV OPC HDA Probe** window, click **Connect Server** and select *DeltaV.OPCHDAsvr.1*.

Click **Add Items.** This opens the **Add HDA Items** window. Click **Browse** to open the **OPC HDA Browse** window.

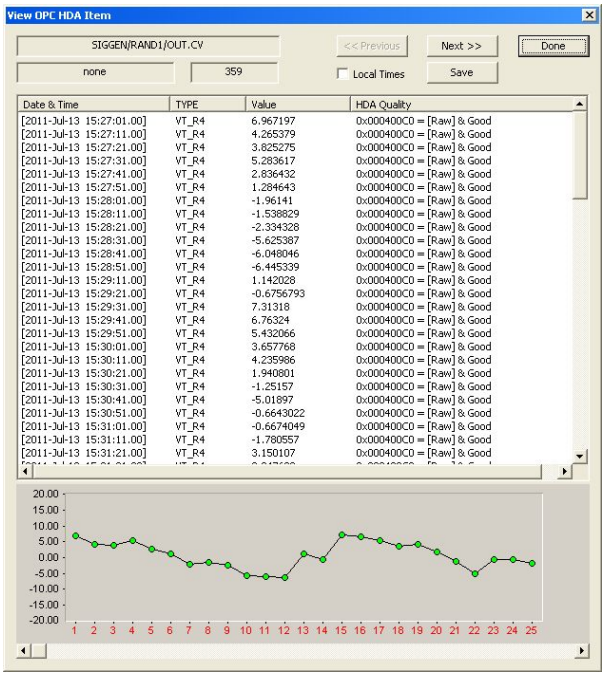
Click **New Browser** to view a list of tags. Select a tag and click **OK**. That tag is now listed in the Add HDA Items window. Click **Add** to add the tag and **Done** to return to the main DeltaV OPC **HDA Probe** window.

Select the tag and click **Read Raw** to read the raw values recorded for the selected tag. This opens the **HDA Read Raw** window.

Click **Set Start Time** and **Set End Time** to specify the time frame. By default time is in UTC (universal time). Check **local** to convert to local time.

Click **Read Raw**. If this is successful, **HR** displays *Success.*

To view the raw values, click **View Values**.



View OPC HDA Items

This opens the View OPC HDA Item window that displays the historical data for the tag selected as well as a graph. Click **Done** to close.

To retrieve processed values (e.g., averages, maximums, minimums, etc.) follow the steps above but click **Read Processed** rather than **Read Raw**.