



Reporting from FactoryTalk® View SE

XLReporter generates Excel based reports from Rockwell Software® FactoryTalk® View SE from real time process values, historical logs and alarm archives.

The purpose of this document is to describe how to setup FactoryTalk View SE for **XLReporter**.

Process Data

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.

XLReporter gets real time data from FactoryTalk applications such as RSLinx® Enterprise and FactoryTalk View SE through the FactoryTalk Gateway application. This application also allows access to elements of the FactoryTalk Services Platform including FactoryTalk Directory.

The scope of access of **XLReporter** can be set using the **FactoryTalk Gateway Configuration**.

Before you Begin

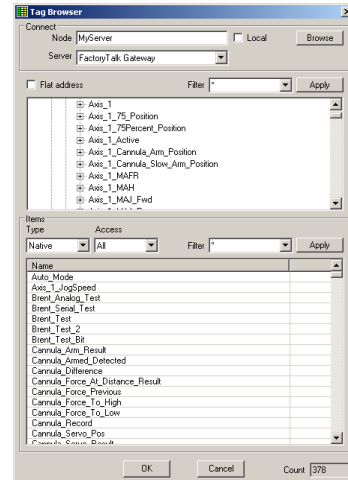
If you are on a remote computer that has no installed Rockwell Automation products, you must install the **Remote OPC Client** provided with the FactoryTalk Gateway installation.

This sets up all remote connectivity so that **XLReporter** can access FactoryTalk Gateway remotely.

Verifying the OPC Server

To verify that the OPC Server is functional, open **XLReporter's Project Explorer**, from the **Tools** menu start the **System Check** application and select the **Real Time** tab. Select the top row under the Tag Name column and click the pushbutton named (...) to open the **Tag Browser** window.

If **XLReporter** is installed on the same node as FactoryTalk View SE, browse for local servers otherwise browse for remote servers on the node specified.



Real Time System Check

To connect to FactoryTalk Gateway the **Server** should be set to *FactoryTalk Gateway*. Select one or more tags and verify that they update with the current value.

Historical Data

With process data stored in a database, 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.

XLReporter performs raw calculations and time weighted calculations. The time weighted calculations would be used when the data is not logged periodically e.g. logging on change.

Selecting a Database

In order to produce historical reports, process data in FactoryTalk View SE has to be stored in a third party database. The choice of database is usually governed by the number of the process values, the frequency at which they are being stored and the period the values have to remain in the archive before they are purged.

Examples of databases are Oracle Database 11g, Microsoft Access, SQL Server, SQL Server Express and Sun Microsystems MySQL. The SQL Server Express and MySQL are designed to handle larger databases than Access and are available on the Internet at no cost. Oracle Database and SQL Server would be used for large databases.

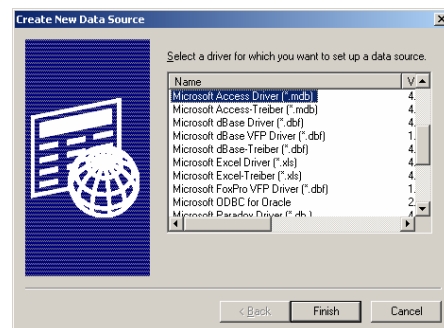
Note for Microsoft Access users. When selecting Access as the database, an empty Access database can be created off-line and moved to the target system avoiding the need for an Access license on the target system.

Creating a Data Source Name (DSN)

FactoryTalk View SE uses a data source name (DSN) to reference the database it is using to store its information. The DSN should be defined before any history configuration is performed in the FactoryTalk View SE.

To create a DSN, open the Windows **Control Panel**, select **Administrative Tools** and then select **Data Sources (ODBC)** to open the **Data Source Administrator**.

Click the **System DSN** tab to display all the currently configured DSN's on the system. Click **New** to create a new System DSN.



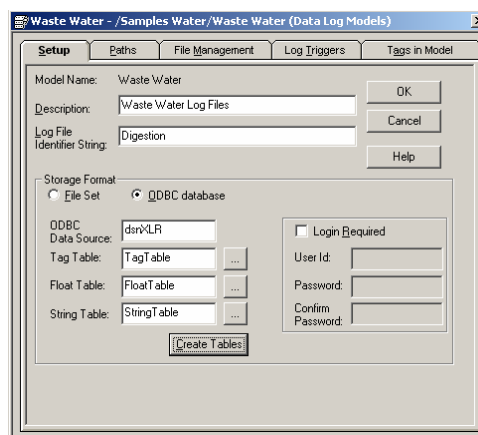
Create new Data Source

Select the driver for the database to which FactoryTalk View SE will log data. Based on the driver selected, complete the DSN setup.

Defining Data Log Models

Data log models contain all the settings required for FactoryTalk View SE to log historical data. To create a data log model, select the **Data Log Models** icon under the **Data Log** folder in the Explorer or drag the icon into the workspace.

On the **Setup Tab** type a **Description** and **Log File Identifier String**. The log file identifier string is used to name the backup file if, for some reason, logging to the database is not possible.



Data Log Model Setup

In the event values are logged to the backup file (*.OBF), the command **DataLogMergeToPrimary** can be used to merge the values in the file back to the database as follows:

DataLogMergeToPrimary *file specification*

where *file specification* specifies is a relative or absolute reference to the data log model name. If the model name has a space in it, enclose the name in quotes. For example, "Waste Water".

Set the **Storage Format** to **ODBC database** and set **ODBC Data Source** with the DSN name created previously. If the database requires the user log in, check **Login Required** and specify the **User Id** and **Password** to log into the specific database. Click **Create Tables** to create the *TagTable*, *FloatTable* and *StringTable* tables in the database.

On the **Paths Tab**, specify the ODBC backup path, if required. The total number of characters and spaces allowed for the path and name is 255.

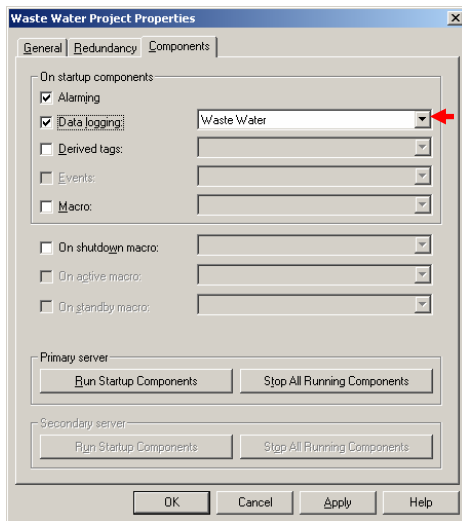
On the **File Management Tab**, specify a time period after which records in the database will be purged.

On the **Log Triggers** tab, specify how the logging of tag values will be triggered i.e. periodically, on change or on demand. The on demand option will log data when the **DataLogSnapshot** command is issued. This command can be given anywhere that other commands and macros can be. For example, it could be typed in the command line, or specified as the action for an event. If you specify **Periodic** or **On Change**, you can still use on demand logging whenever it is appropriate.

On the **Tags in Model** tab, specify which tags will be logged. The maximum number of tags that can be logged by one data log model is 10,000.

Setting up Data Logging

To configure a data log model to start in FactoryTalk View SE, access the **HMI Properties** dialog.



HMI Properties – Enable Data Logging

Under the **Components** tab, check **Data Logging** and select the specific data log model to start from the list.

If more than one data log model needs to be started, they can be started by issuing the command:

DataLogOn file specification

where *file specification* specifies a relative or absolute reference to the data log model name. If the model name has a space in it, enclose the name in quotes. For example, "Waste Water".

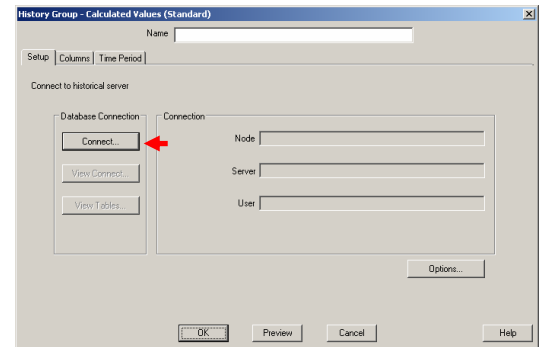
This command can be issued from the command line or from a startup or login macro.

Note that in FactoryTalk View SE, a HMI server can have up to 20 data log models running at one time.

Retrieving Historical Data

XLReporter accesses process values stored in the database by using a history group.

From **XLReporter's Project Explorer**, double click on **History Group** to list the groups already configured in the project. Select **New...** and select the type of group. The standard calculations are raw calculations whereas the advanced calculations are time weighted.

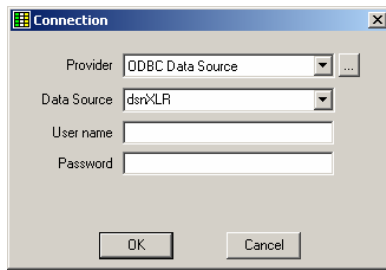


History Group Builder

After selecting the group type, the history group must be connected to the database. From the **Setup** tab, click **Connect...** to open the **Connection** window.

For **Provider**, select the provider of your database.

If you choose **ODBC Data Source** you can select the data source name (DSN) configured in the Data Log Model setup. This will be listed in **Data Source**.



History Group Builder - Connection

If the database requires a log on, enter a valid **User name** and **Password**. Click **OK** to return to the history group **Setup** tab.

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

Date	MIXER_ZONE1_TEMP	MIXER_ZONE2_TEMP	MIXER_SPEED	MIXER_RAMPPRESSURE
3/20/2012	71.3938171396719	77.1789534250895	33.1370187441958	64.6267203648885
3/20/2012 1:00:00 AM	78.162520907389	49.0242124239604	36.6801085444946	73.138773114421
3/20/2012 2:00:00 AM	63.6886056264242	53.4560168584188	38.0911759634417	82.3010019318151
3/20/2012 3:00:00 AM	74.5681202748817	76.0964963363444	90.695378841985	88.9127839036331
3/20/2012 4:00:00 AM	78.5654924672227	65.952971377055	54.078983517495	90.5644268554467
3/20/2012 5:00:00 AM	72.0215874888020	63.4706168482635	53.4221788925985	98.5440397886356
3/20/2012 6:00:00 AM	65.3898295524902	53.5306532274882	59.6284782751696	79.0518283867981
3/20/2012 7:00:00 AM	71.5103759585076	74.3889140625	59.4726510559500	69.7432478088033
3/20/2012 8:00:00 AM	78.2320204083671	60.090830508423	60.3053614171346	62.2715770085583
3/20/2012 9:00:00 AM	61.3358624084473	61.3104316383534	71.132894772958	59.246310043335
3/20/2012 10:00:00 AM	70.8315608978271	56.189864372253	77.1162380391032	61.7242000123088
3/20/2012 11:00:00 AM	77.7188284566071	56.4864746187328	77.6274737042023	63.8380738321194
3/20/2012 12:00:00 PM	72.8588931142171	62.9046375708634	72.2186347861426	78.1072878787643
3/20/2012 1:00:00 PM	60.1481829564356	60.267654800415	69.446827665511	86.2893030804029
3/20/2012 2:00:00 PM	71.1794172932277	76.4200683943278	70.5296145121256	90.5276397705078
3/20/2012 3:00:00 PM	77.8320638020833	76.4182764689128	68.1328951786296	89.3417254130046
3/20/2012 4:00:00 PM	67.2665041605631	68.3305636723836	65.6417427688771	63.148344777425

Preview

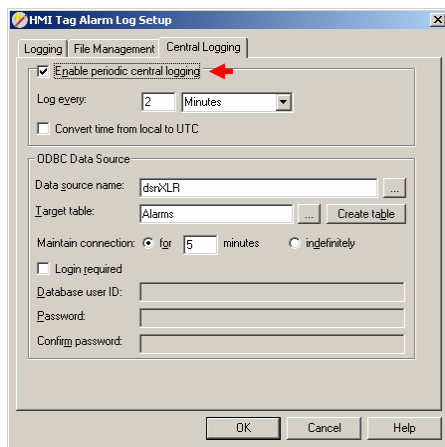
Preview displays the data exactly the same way it will be written into the report. Notice that the data is displayed in a wide format despite it being logged in a narrow format in the database.

Alarm Data

Any tag in FactoryTalk View SE can be configured in the **HMI Tags** to generate an alarm whenever it exceeds specified limits. The resulting alarms are stored in log files (dBase format, *.dbf) and can be viewed using the **SE HMI Tag Alarm Log Viewer**. However, for **XLReporter** to use alarm data in a report, the alarms need to be logged to a database.

Setting up Alarm Logging

Use the **SE HMI Tag Alarm Log Setup** display to set up how often log files will be created and deleted. You can also use the **SE HMI Tag Alarm Log Setup** tool to set up automatic logging to a central ODBC compliant database.



HMI Tag Alarm Log Setup

Check **Enable periodic central logging**. The **Data source name** should be set to a configured DSN that defines the database where the alarm data will be logged. To configure, refer to the *Configuring a Data Source Name (DSN)* section of this document.

If you wish to log the alarms in the native format (dBase format, *.dbf), you will need to manually export the alarm log file to a database at runtime to make it available for **XLReporter**. To do so, issue the command:

```
AlarmLogSendToODBC datasource targettable [/Wn]
[/U username] [/P password]
```

Where:

datasource is a valid ODBC data source name (DSN).
targettable is the name of the table in the database where the alarms will be exported.

/W is an optional parameter that specifies how long the connection to the database will be maintained.

/U *username* is an optional parameter that specifies the user ID to connect to the database (if required).

/P *password* is an optional parameter that specifies the password for that user ID to connect to the database (if required).

Starting Alarm Logging

To configure a data log model to start in FactoryTalk View SE, access the **HMI Properties** dialog.

Under the **Startup** tab, check **Alarming**.

Alternatively, alarm logging can be enabled by specifying the command:

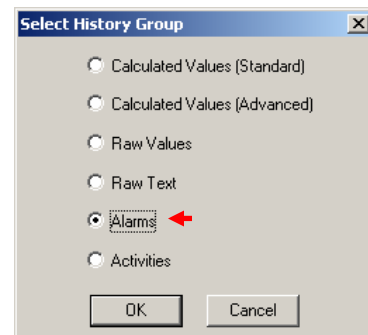
AlarmOn

This command can be issued from the command line or from a startup or login macro.

Retrieving Alarm Data

FactoryTalk View SE alarm data can be accessed by **XLReporter** by either a history group or a database group.

If a history group is used, be sure and select the group type to **Alarms**.



History Group Builder for Alarms

Under the **Setup** tab, connect to the database. The procedure is the same as that described in the historical data section.

Under the **Columns** tab, select the Columns in the alarm database.

Under the **Time Period** tab, select the Start Time and End Time for the group as well as restricting the total number of alarms returned. By default this is set to the first 60 alarms over the current day.

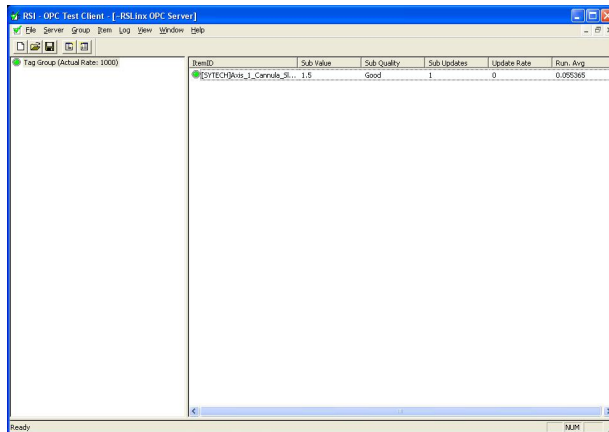
Under the **Filters** tab, specify additional filtering to limit the type or amount of alarms returned.

Under the **Order** tab, specify the ordering of the returned alarm data.

Troubleshooting

If you are experiencing issues connecting to or retrieving data from FactoryTalk Gateway with **XLReporter**, you can use the OPC Test Client provided by Rockwell Software to test the OPC server.

The **OPC Test Client** is opened from the **Rockwell Software** program group under **RSLinx, Tools, OPC Test Client**.



OPC Test Client

To connect ,select **Server, Connect**. This opens the **Select an OPC Server** window. Choose *FactoryTalk Gateway* and click **OK**.

Select **Group, Add Group**. Enter a **Group Name** and click **OK**.

Select **Item, Add Item** to open the **Add OPC Item window**. Select a tag by navigating in the lower left list, selecting a tag on the lower right list and clicking **Add**. When finished, click **Done** to return to the **OPC Test Client** window.

All of the selected tags appear along with their real time values, type, quality, and timestamp.

If at any point you experience an issue with this client, it is an indication that there is something wrong with the FactoryTalk Gateway server, since now two OPC clients have demonstrated issues.

At this point, contact Rockwell Software technical support to troubleshoot and correct these issues.

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