

Reporting from RSView®32

XLReporter generates Excel based reports from Rockwell Automation® RSView®32 using current process values in the tag database, historical logs and alarm archives.

The purpose of this document is to describe how to setup RSView32 for **XLReporter**.

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.

XLReporter gets live process values from RSView32 by communicating with the RSView32 OPC Server.

Before you Begin

In order for **XLReporter** to communicate with RSView32, 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.

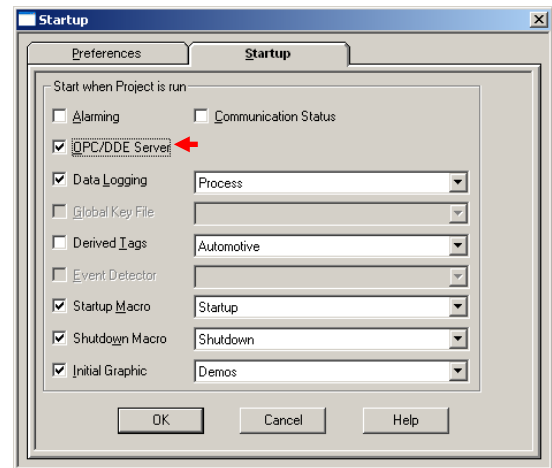
If **XLReporter** is installed on a PC that is remote to RSView32 then a number of settings need to be configured on both the server and client machines. This includes having matching Windows user accounts on both machines and enabling DCOM on the machine where RSView32 is installed.

For a detailed explanation of what is needed, 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.

Enabling the OPC Server

By default, the RSView32 OPC Server is not enabled.

To enable OPC Server, open the **RSView32 Project Manager** and under the **Edit Mode** tab select **System, Startup** to open the **Startup Editor**.

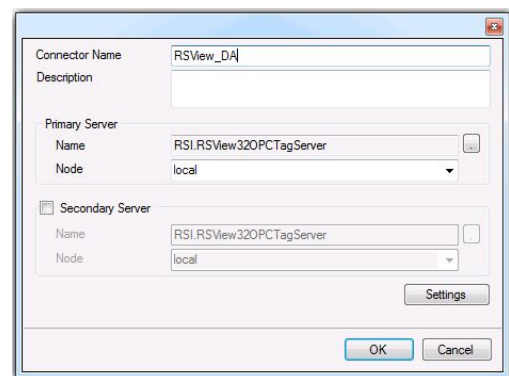


Startup Editor

Under the **Startup** tab, check **OPC/DDE Server**. Restart the RSView32 project so that it runs with this setting.

Creating a Real Time Data Connector

To connect **XLReporter** to RSView32, you will first need to create a **Data Connector**. To do this, open **XLReporter's Project Explorer**, and open **Connectors** from the **Data** tab. In **Connectors**, select **Add**, and select **Rockwell Automation, RSView32 Real-Time values**.



RSView Real Time Connector

Connectors for RSView32 require a **Primary Server**. If the **Primary Server** is on a remote machine, the **Node** must be specified. The **Node** can be selected from the drop down list or manually entered as a machine name or IP address.

To connect to RSView32 the server **Name** should be set to *RSI.RSView32OPCTagServer*.

Verifying the Data Connector

To verify that the **Data Connector** is functional, open **XLReporter's Project Explorer**. From the **Tools** tab start the **System Check** application and select the **Connector** tab.

Select **Add**, choose your **RSView32 Connector** from the **dropdown list**, and click the browser pushbutton (**...**) next to **Items** to open the **Tag Browser** window.

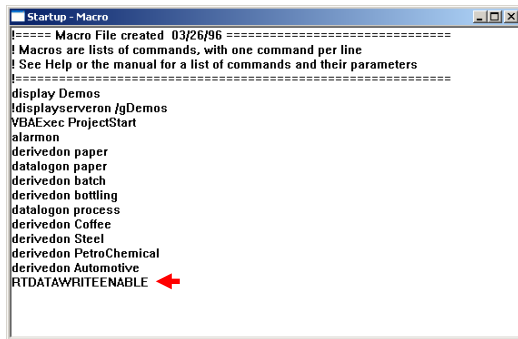
Select one or more tags and verify that they update with the current value using **Start** in the **System Check** window.

Writing Data Back to RSView32

As part of generating reports, **XLReporter** can also write data back to the RSView32 OPC Server. This can be used to indicate a report is done or to write back some calculated values from the report.

By default, RSView32 does not accept values from external programs like **XLReporter**. The command **RTDATAWRITEENABLE** needs to be added to the macro of the RSView32 project designated to run on startup.

Macros are accessed in the **RSView32 Project Manger** under the Edit Mode tab by selecting **Logic and Control, Macro**.



```
Startup - Macro
===== Macro File created 03/26/96 =====
! Macros are lists of commands, with one command per line
! See Help or the manual for a list of commands and their parameters
=====
display Demos
!displayserveron /gDemos
VBAExec ProjectStart
alarmon
derivedon paper
datalogon paper
derivedon batch
derivedon bottling
datalogon process
derivedon Coffee
derivedon Steel
derivedon PetroChemical
derivedon Automotive
RTDATAWRITEENABLE ←
```

Startup Macro

To designate a macro for startup, in the **Project Manager** access the **Startup Editor**, check **Startup Macro** and select the macro to run from the available list.

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, the process data in RSVIEW32 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 length of time 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 Oracle MySQL. The SQL Server Express and MySQL are designed to handle larger data volumes than Access and are available on the Internet at no cost. Oracle Database and SQL Server would be used for large volumes of data.

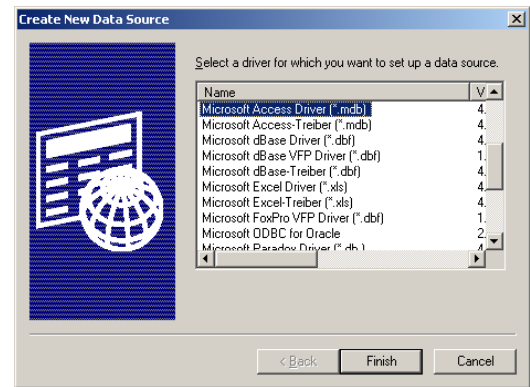
Note for Microsoft Access users. When selecting Access as the database, an empty Access database can be created off-line and moved to the target system avoiding the need for an Access license on the target system.

Creating a Data Source Name (DSN)

RSVIEW32 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 RSVIEW32.

To create a DSN, from **XLReporter's Project Explorer**, under the **Tools** tab, select **Database, DSN Settings**.

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



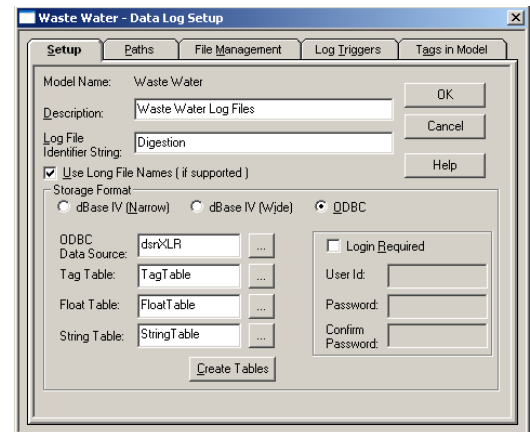
Create New Data Source

Select the driver for the database to which RSVIEW32 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 RSVIEW32 to log historical data. To create a data log model, access the **RSVIEW32 Project Manager** and under the **Edit Mode** tab select **Data Log, Data Log Setup**.

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 has been prevented.



Data Log Model Setup

If, for some reason, 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* 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, e.g., "Waste Water".

Set the **Storage Format** to **ODBC** 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.

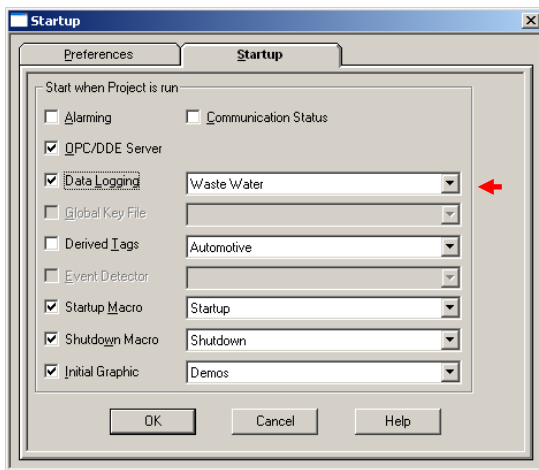
On the **Log Triggers** tab, specify how the logging of tag values will be triggered i.e. periodically, on change or on demand. The on demand option will log data when the **DataLogSnapshot** command is issued. This command can be given anywhere that other commands and macros can be. For example, it 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.

When complete, click **OK** to save the history log model to a name of your choice.

Starting up Data Logging

To configure a data log model to start in RSView32, access the **RSView32 Project Manager** and under the **Edit Mode** tab select **Startup** under the **System** folder to open the **Startup Editor**.



Startup Editor – Enable Data Logging

Under the **Startup** tab, check **Data Logging** and select the data log model from the dropdown list.

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

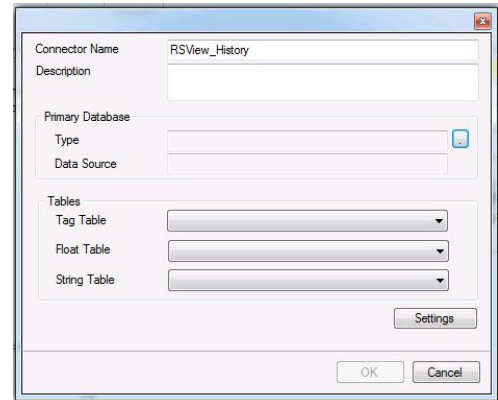
DataLogOn file specification

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, e.g., "Waste Water".

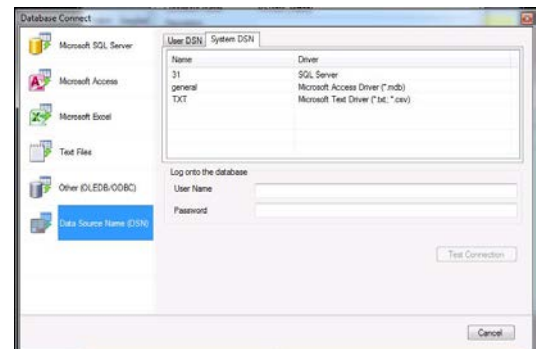
This command can be issued from the command line or from a startup or login macro.

Creating a Historical Data Connector

To connect **XLReporter** to an RSView32 log model database, 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 **Rockwell Automation, RSView32 Historical Values**.



Connectors for RSView32 require a **Primary Database**. The easiest way to connect to that database is to use the same DSN used in the log model configuration in RSView. However, the connector can be linked directly to either an Access or SQL Server database as well through **Database Connect**. If required, specify the necessary logon credentials. If the tables in the database are using non-default names, select the proper tables for tags, float values, and string values in the connector settings.



Verifying the Historical Data Connector

Create a **Connector Group** to verify that data can be retrieved from the connector. **Connector Groups** are designed in **Project Explorer, Tools, Connector Groups**. Select your RSVIEW historical connector and then select **Add**. Select the **Type** and click **OK**.

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

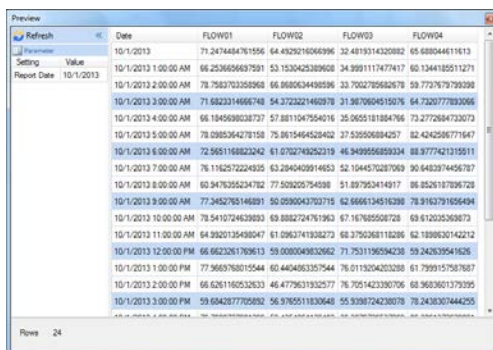
On the **Time Period** tab, select the **Start Time, End Time** and **Interval** for the group. By default this is set to one hour intervals over the current day.

On the **Filters** tab, select tags by which to filter the results returned by the group. The **Criteria** conditions specified are combined with an OR relationship horizontally, and an AND relationship vertically.

With RSVIEW, **Server Filtering** is also available. This can be done as a single filter condition that applies to all tags in the group, or a filter on the **Marker** column in the float and string tables in the log model database. Refer to your RSVIEW documentation for more information on the significance of values in the Marker column.

If the group type is **Raw Values**, then server filtering can also be performed using the **Status** column. This means that values that have been marked with the qualities **Good, Communication Error, Stale Value, Uninitialized Tag, or Disabled** can be discretely included or excluded from the data returned by the connector group.

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



Date	FLOW01	FLOW02	FLOW03	FLOW04
10/1/2013	71.2474484761556	64.4929140566996	32.4819314320882	65.688044611613
10/1/2013 1:00:00 AM	66.2536656637591	53.1530425309608	34.3991117477417	60.1344185511271
10/1/2013 2:00:00 AM	78.7583703358968	66.8680563448936	33.792705662678	59.7737679790388
10/1/2013 3:00:00 AM	71.6823314666748	54.3723221460978	31.9870604515676	64.7320777832066
10/1/2013 4:00:00 AM	68.1849688028737	57.8811047554916	35.0655181884766	73.2726847220273
10/1/2013 5:00:00 AM	78.090564278158	76.9615464526402	37.536568884287	82.4342587771647
10/1/2013 6:00:00 AM	72.9651168823242	61.8702749292319	46.949956689324	88.977421315911
10/1/2013 7:00:00 AM	76.1162972224929	63.2846469914853	52.1044570287069	90.6463974456787
10/1/2013 8:00:00 AM	60.947929524782	77.509205754698	51.897953414917	86.8526187896728
10/1/2013 9:00:00 AM	77.3452765146891	50.099040703715	62.6666134516396	78.9163791856494
10/1/2013 10:00:00 AM	79.5410724632893	69.888274761963	67.1676955081226	69.612003569873
10/1/2013 11:00:00 AM	64.3920135498047	61.0962741938273	68.370268118286	62.1896020142212
10/1/2013 12:00:00 PM	66.6623261789613	59.0000049832662	71.7531196594238	59.242639549626
10/1/2013 1:00:00 PM	77.9669788015544	60.4404863357544	76.0113204203288	61.7999157587887
10/1/2013 2:00:00 PM	66.6261160532633	46.4779631932577	76.7051423390706	68.9683601379395
10/1/2013 3:00:00 PM	59.684287705892	56.9765511830648	55.9398724238078	78.24383074444295

Preview

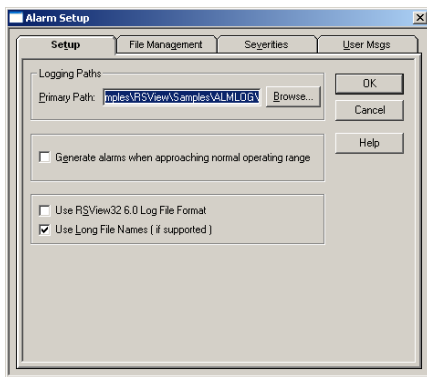
Preview displays the data exactly the same way it will be written into the report. Notice that the data is displayed in a wide format despite it being logged in a narrow format in the database.

Alarm Data

Any tag in RSVIEW32 can be configured in the **Tag Database** 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 **Alarm Log Viewer**. However, for **XLReporter** to use alarm data in a report, the alarms need to be transferred to a database.

Setting up Alarm Logging

Use the **Alarm Log Setup** display to set up how often log files will be created and deleted. To open this display, access the **RSView32 Project Manager** and under the **Edit Mode** tab select **Alarms, Alarm Setup**.



Alarm Setup

To transfer the alarm data from the log files to a database, the following command is used:

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

where,

datasource is a data source name (DSN).

targettable is a table in the database.

/W specifies how long the connection is maintained.

/U specifies the user name (if required).

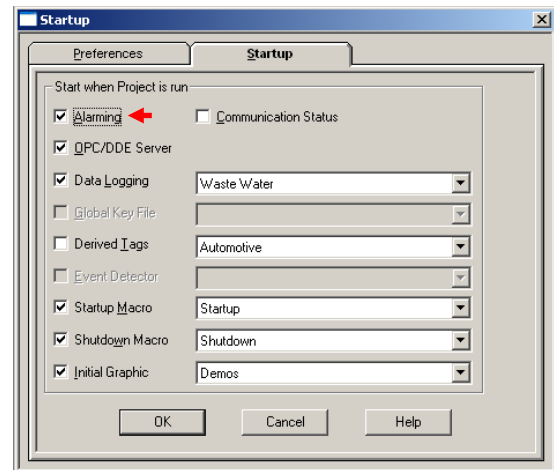
/P specifies the password (if required).

RSView32 keeps track of the data exported so that the next export does not log any duplicate records.

The command can be run periodically by creating an event file. Event files are created in the **RSView32 Project Manager** under the **Edit Mode** tab by selecting **Logic and Control, Events**.

Starting Alarm Logging

To configure alarm logging to start when your RSVIEW32 project starts, access the **RSView32 Project Manager** and under the **Edit Mode** tab select **Startup** to open the **Startup Editor**.



Startup Editor – Enable Alarming

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

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

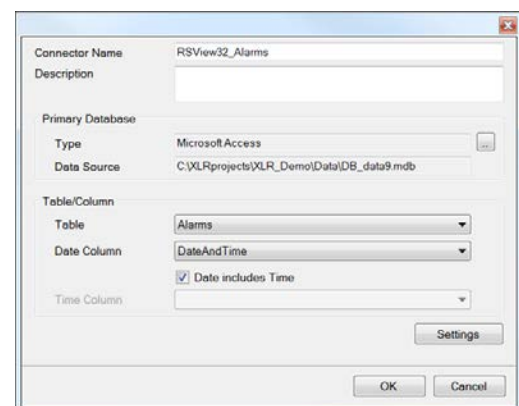
AlarmOn

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

Creating an Alarms Connector

The alarms logged by RSVIEW32 are in the same format as alarms logged by FactoryTalk View SE so that connector can be used to access the data.

In **Project Explorer, Data, Connectors**, create a new connector by selecting **Add, Rockwell Software, FactoryTalk View SE Alarms**. Select the database where your alarms are stored. Then, select the **Table** where alarm data is stored, and select the column used to timestamp the alarms as your **Date Column**.



Verifying the Alarms Connector

In **Project Explorer, Tools, Connector Groups**, select your Alarms connector and then select **Add** to add a new connector group. This group can be used to extract data from the database and verify the functionality of the **Connector**.

On the **Columns** tab of the group dialog, select alarm data from the columns available in the table.

On 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.

To retrieve data using your configured settings, select **Preview**. In the **Preview** window, use the data picker to select a date/time, and use **Refresh** to retrieve data.

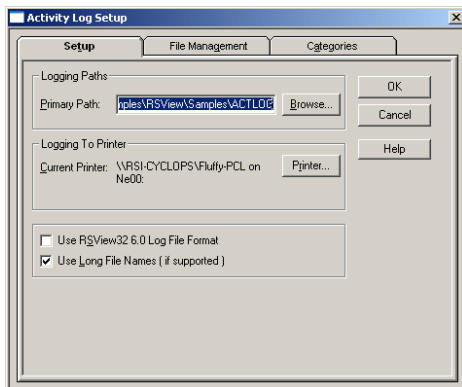
Activity Data

The activity log records information about various types of system activity. The events are stored in log files (dBase format, *.dbf) and can be viewed using the **Activity Log Viewer**. However, for **XLReporter** to use event data in a report, the events will need to be transferred to a database.

Once the activities are being logged to a database, they can be retrieved using an alarms **Connector**, following the same setup process as is covered previously in the “Retrieving Alarm Data” section of this document, using the activities table in the database in place of the alarms table.

Setting up Activity Logging

Use the **Activity Log Setup** display to set up how often log files will be created and deleted. To open this display, access the **RSView32 Project Manager** and under the **Edit Mode** tab select **Startup, Activity Log Setup**.



Activity Log Setup

To transfer the event data from the log files to a database, the following command is used:

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

where,

datasource is a data source name (DSN).

targettable is a table in the database.

/W specifies how long the connection is maintained.

/U specifies the user name (if required).

/P specifies the password (if required).

RSView32 keeps track of the data exported so that the next export does not produce duplicate records.

The command can be run periodically by creating an event file. Event files are created in the **RSView32 Project Manager** under the **Edit Mode** tab by selecting **Logic and Control, Events**.

Starting Activity Logging

By default the activity log is always running. If for some reason it has been stopped, it can be started by issuing the command:

ActivityOn

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

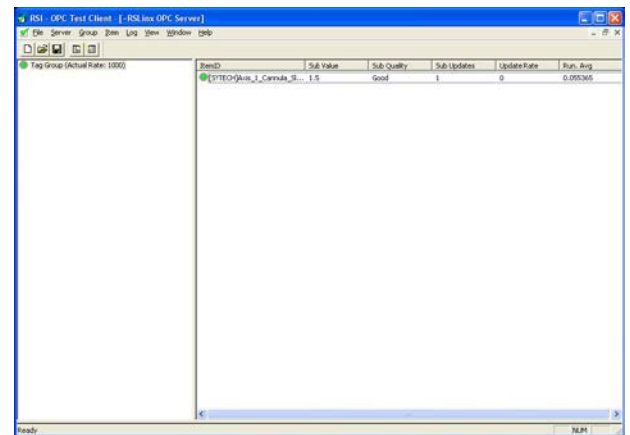
Creating a Data Connector

RSView32 activity log data can be accessed by **XLReporter** using the same connector as RSView32 Alarm data. The connector can be validated the same way.

Troubleshooting

If you are experiencing issues connecting to or retrieving data from the RSView32 OPC Server with **XLReporter**, you can use the OPC Test Client provided by Rockwell Software to test the OPC server as part of an RSLinx installation.

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 **RSI.RSView32OPCTagServer** 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 RSView32 server, since now two OPC clients have demonstrated issues.

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

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