



## Reporting from CitectSCADA

**XLReporter** generates Excel based reports from Schneider Electric's CitectSCADA from current process data, historical data and alarm archives.

The purpose of this document is to describe how to interface **XLReporter** to the CitectSCADA.

## Process Data

In cases when a historian is not used, **XLReporter** can take snapshots of the process data and add it to a new or 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** retrieves process data from CitectSCADA using the OPC Server provided.

## Before you Begin

In order for **XLReporter** to communicate with CitectSCADA, 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](http://www.OPCFoundation.org).

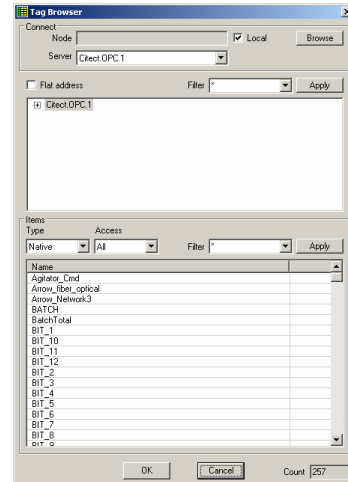
If **XLReporter** is installed on a PC that is remote to CitectSCADA then a number of settings need to be configured on both the server and client machines. This includes having matching Windows user accounts (with matching passwords) on both machines and enabling DCOM on the machine where CitectSCADA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

## 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 Bowser** window.

If **XLReporter** is installed on the same node as CitectSCADA, browse for local servers otherwise browse for remote servers on the node where CitectSCADA is installed.



Real Time System Check

To connect to CitectSCADA on the local machine, the **Server** should be set to *CitectOPC.1*. To connect remotely the **Server** should be set to *Citect.OPCRemote.1*. Select one or more tags and verify that they update with the current value.

## Historical Data

Creating reports from CitectSCADA Reports is performed by simply selecting the tags, a time frame and interval of interest. e.g., hourly averages of the previous day. In this manner, reports containing raw values, informative metrics such as run times and statistics can be easily produced, automatically.

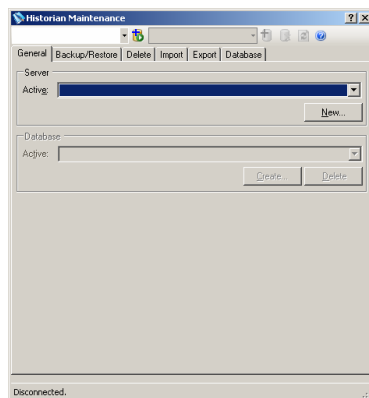
**XLReporter** can also perform raw and time weighted calculations. The time weighted calculations would be used when data is not logged periodically e.g., .logged on change.

CitectSCADA Reports stores its collection to a Microsoft SQL Server Database. Consequently,. **XLReporter** can create reports from this data both locally and remotely

## Setting up the Historian Database

In order to get CitectSCADA Reports to log historical data, the Historian database must be set up in SQL Server.

From the CitectSCADA Reports program group, open the **Historian Maintenance** program.

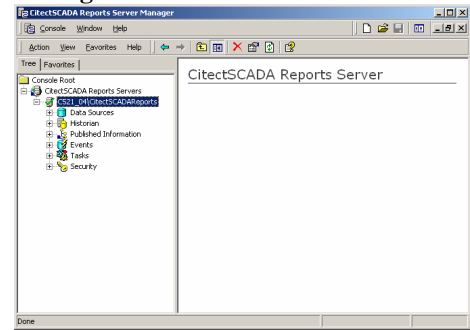


*Historian Maintenance*

Specify the SQL Server you wish to utilize and the database you wish to use for logging historical.

## Setting up Data Logging

Data logging is configured in the **CitectSCADA Reports Server Manager**.

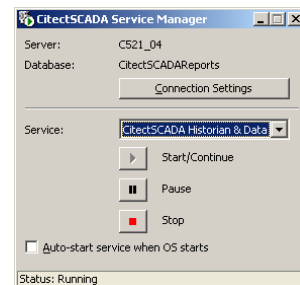


*Server Manager*

With the Reports Server configured, you can add CitectSCADA under the **Data Sources** of the Reports Server. Once set as a **Data Source**, any point from CitectSCADA can be added into the **Historian** for logging.

## Starting the Data Logger

CitectSCADA Reports provides a **Historian Service** to manage the logging and retrieval of Historian data. This appears as an icon in the system tray which, when clicked, opens the **CitectSCADA Service Manager**. Using this dialog, the service can be started and stopped.



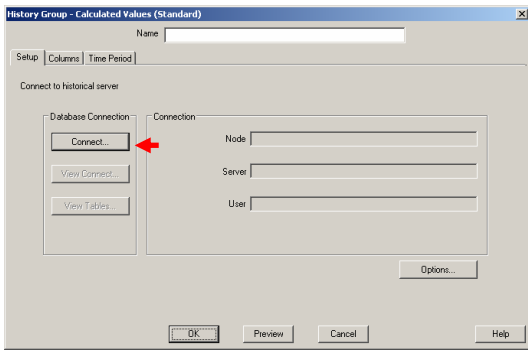
*Service Manager*

The service must be running for data to be logged to the SQL Server database. The Service can be configured to automatically start when the PC is powered up.

## Retrieving Historical Data

**XLReporter** accesses process values stored in the database by using a history group. These values can be accessed from either the local machine or across the network.

To create a history group, open **XLReporter's Project Explorer**, double click on **History Group** to list the groups that are already configured in the active project. Select **New...** and then the type of group. The standard calculations are raw calculations whereas the advanced calculations are time weighted.

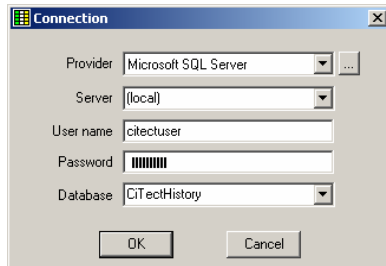


History Group Builder

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 **Microsoft SQL Server**.

For **Server**, select the location where the SQL Server database resides.



History Group Builder - Connection

If the server requires a log on, enter a valid **User name** and **Password**. Specify the **Database** to the name database you set up previously in **Historian Maintenance**.

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	AVG - FLOW01	AVG - FLOW02	AVG - FLOW03	AVG - FLOW04
6/1/2009	91.5	45.75	58.525	76
6/1/2009 1:00:00 AM	88.5	135.75	82.125	88.06666666666666
6/1/2009 2:00:00 AM	88.55	44.25	98.6625	102.13333333333333
6/1/2009 3:00:00 AM	88.6	134.25	109.125	81.46666666666666
6/1/2009 4:00:00 AM	88.65	45.775	67.95	85.33333333333333
6/1/2009 5:00:00 AM	88.7	132.75	84.4875	98.4
6/1/2009 6:00:00 AM	88.75	47.3	101.025	90
6/1/2009 7:00:00 AM	88.8	131.25	102.375	81.6
6/1/2009 8:00:00 AM	88.85	48.825	70.3125	94.66666666666666
6/1/2009 9:00:00 AM	88.9	129.75	86.85	98.53333333333333
6/1/2009 10:00:00 AM	88.95	50.35	103.3875	77.86666666666666
6/1/2009 11:00:00 AM	89	128.25	95.625	90.33333333333333
6/1/2009 12:00:00 PM	89.05	51.875	72.575	104
6/1/2009 1:00:00 PM	89.1	126.75	89.2125	77.2
6/1/2009 2:00:00 PM	89.15	53.4	105.75	87.2
6/1/2009 3:00:00 PM	89.2	125.25	88.875	100.26666666666666
6/1/2009 4:00:00 PM	89.25	54.925	75.0375	85.73333333333333
6/1/2009 5:00:00 PM	89.3	123.75	91.575	83.46666666666666
6/1/2009 6:00:00 PM	89.35	56.45	108.1125	96.53333333333333
6/1/2009 7:00:00 PM	89.4	122.25	82.125	94.26666666666666
6/1/2009 8:00:00 PM	89.45	57.025	73.1	90.26666666666666

Preview

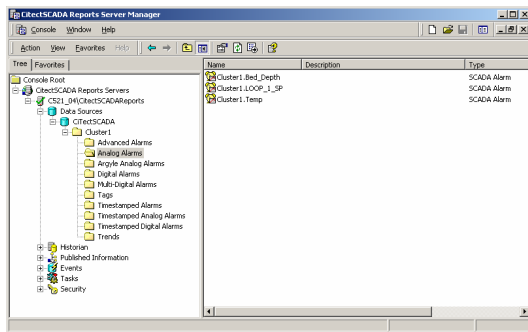
Preview displays the data exactly the same way it will be written into the report. Notice that the data is displayed in a wide format even though it is in a narrow format in the database.

## Alarm Data

CitectSCADA Reports historian can be configured to record alarm and event data. **XLReporter** can use this alarm data for reporting purposes.

## Setting up Alarm Logging

Alarm logging, like historical logging, is set up in the Report Server Manager. Expand the CitectSCADA **Data Source** and drag the alarms of interest to the **Historian** branch of the Server.



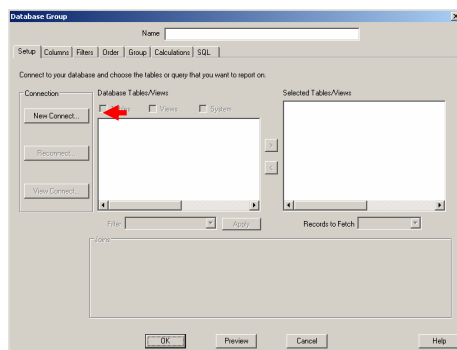
Server Manager – Alarm Logging

To get the selected alarms to log to the database, stop and restart the **Historian Service**.

## Retrieving Alarm Data

CitectSCADA Reports alarm data can be accessed by **XLReporter** by a database group.

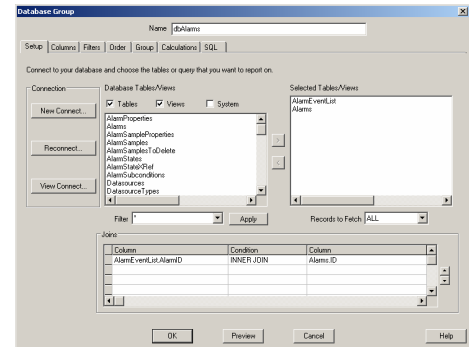
From **XLReporter's Project Explorer**, double click on **Database Group** to list the groups already configured in the project. Select **New...** and select the type of group. The **Standard Query** returns data directly from the database whereas the **Cross Tab Query** cross-tabulates the data from the database.



Database Group Builder

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

You can connect the database group to the CitectSCADA Reports historian in the same manner that you connected the history group mentioned previously.



Database Group Builder – Setup Tab

In the **Setup** tab you have access to all the tables and views provided by CitectSCADA Reports in the database.

Depending on the alarm information you would like to retrieve, you can select the appropriate tables/views. For example, if you wish to retrieve alarm records over a certain period of time, you would select the view *AlarmEventList* and the table *Alarms* and join them together on the *AlarmID*.

Under the **Columns** tab, select the columns in the table you wish to display on the report.

Note that if you wish to display the timestamp of an alarm, use the *SampleDateTimeFormat* column from the *AlarmEventList* view. This column has been configured as date/time.

Under the **Filters** tab, specify filtering to limit the type or amount of alarms returned. You can filter based on any available column in the selected table/view. This includes filtering on time period, tag name, etc.

Note that if you wish to filter based on time period, use the aforementioned *SampleDateTimeFormat* column from the *AlarmEventList* view.

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

Under the **Calculations** tab, specify any client side summary calculations to bring into the report as part of retrieving the alarm data.

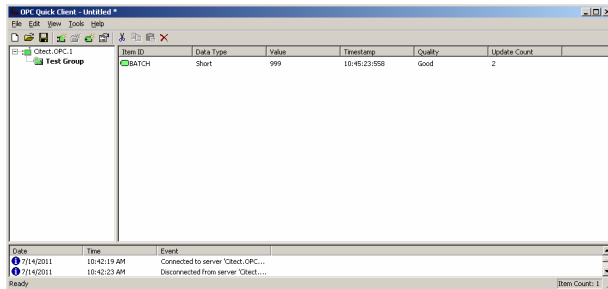
The **Preview** pushbutton at the bottom of the database group display can be pressed to preview the result of the current configuration.

## Troubleshooting

If you are experiencing issues connecting to or retrieving data from Citect with **XLReporter**, a generic OPC test client is provided to test the Citect OPC Server.

This client is available from the Tools folder of the XLReporter installation disk and can be downloaded from [www.TheReportCompany.com](http://www.TheReportCompany.com).

To open, double-click **SampleClientDA.exe**. This opens the **OPC Quick Client** window.



*OPC Quick Client*

To connect to an OPC server, select **Edit, New Server Connection** to open the **Server Properties** window. Select *Citect.OPC* and click **OK**.

Once the connection is made, select **Edit, New Group**. Specify **Name** and click **OK**.

Click on the group name created, and select **Edit, New Item**. This opens the **Add Items** window. Browse for tags and double click any to select. Once selection is complete click **OK** to return to the **OPC Quick 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 Citect OPC server, since now two OPC clients have demonstrated issues.

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