



## Reporting from VTScada

**XLReporter** generates Excel based reports from Trihedral's VTScada from current process data, historical data and alarm archives.

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

## Process Data

When a historian is not used, **XLReporter** can take snapshots of the process data and add it to a new or an existing report, periodically or on event. To prevent excessive build-up of information in a single worksheet, new workbooks and worksheets can be scheduled to be created automatically.

**XLReporter** retrieves process data from VTScada using the OPC Server provided.

## Before you Begin

**XLReporter** requires the OPC core components installed in order to communicate with VTScada. These components are usually installed as part of the VTScada installation. If the OPC components need to be installed manually, they 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 VTScada 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 VTScada 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).

## Configuring the OPC Server

The VTScada OPC server must be configured in the VTScada application in order to connect and retrieve values from the application.

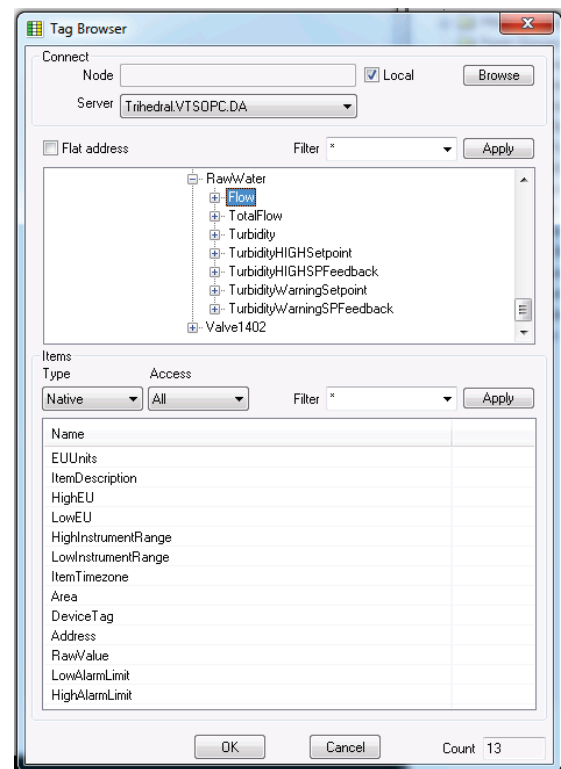
Open the **Tag Browser**. Click **New** and set the **Type** to *OPC Server Setup* and click **OK**. On the ID tab, enter *XLR* for the **Name**, and on the Settings tab enter *XLR* for the **Server Namespace**.

Click **OK**, and then restart the application to complete the setup.

## 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 [...] to open the **Tag Browser** window.

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



To connect to VTScada on the local machine, set the **Server** to *Trihedral.VTSOPC.DA*.

In most cases, the values of interest will be either the **raw value** or the **scaled value**. The difference between these values is that the scaled value is derived from the raw using the *HighEU*, *LowEU*, *HighInstrumentRange* and *LowInstrumentRange*.

To select the **scaled value**, select the tag name in the top section of the tag browser. Do not select any element in the lower list, just click **OK**.

To select the **raw value**, select the tag name and then the *RawValue* element.

## Historical Data

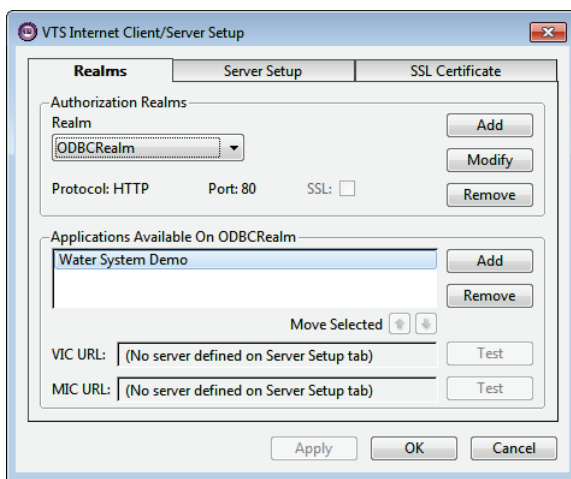
Historical data is accessed through VTScada's ODBC driver. Raw data as well as summary calculations based on a user specified time period are supported. e.g., hourly averages of a day.

**XLReporter** can create reports from the historical data from a local or remote VTScada application.

## Configuring the ODBC Server

In order to retrieve historical data, the VTScada application must be configured as an ODBC server.

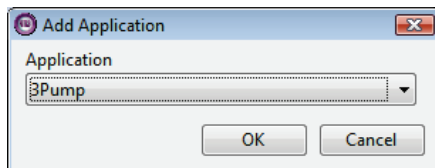
In the **VTS Application Manager (VAM)**, select the **Internet Setup** button (the globe in the footer) to open the **VTS Internet Client/Server Setup** dialog.



*Internet Client/Server Setup*

Click **Add** to open the **Add Realm** dialog and specify a name and connection protocol for your server. For the purposes of the ODBC Interface you *must* enable the HTTP protocol. The **Port Number** is normally **80**, the standard HTTP port, unless your network administrator directs otherwise.

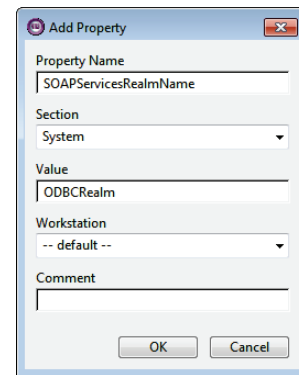
Under the **Applications Available On ODBCRealm** section click **Add** to add the application to the **ODBC Realm**. Click **OK**.



*Add Application*

In the application, open the **Application Configuration**. Click **Edit Properties**. To add a property, click **Insert**.

Set the **Property Name** to *SOAPServicesRealmName* and set **Value** to the name specified for your **ODBC Realm**.



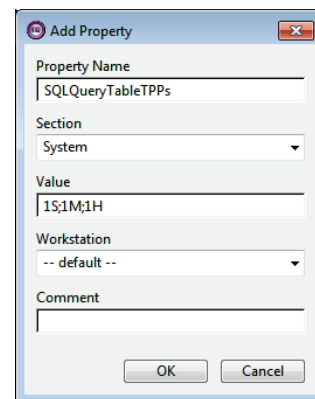
*Add Property*

Note: You will need to re-start the application after adding this property in order for the changes to take effect.

## Summary Calculations

In order to retrieve summary calculations from the ODBC connection, an application property must be configured just as you did in the previous section.

Set the **Property Name** to *SQLQueryTableTPPs*. For **Value** specify the time interval for the summary calculations.



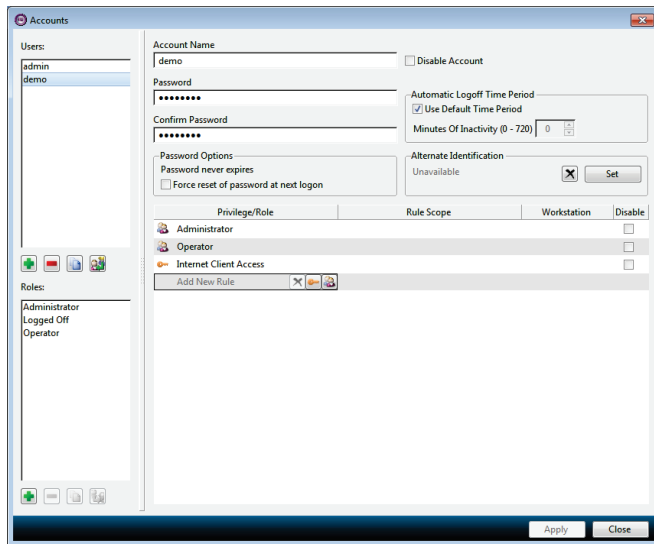
*Add Property*

For **Value**, multiple time intervals can be entered, separated by a semicolon. The format of the time interval is one or more digits and a letter. The digit represents the number of units and the letter indicates the unit measure. The available unit measures are:

- MS - milliseconds
- S - seconds (the default)
- M - minutes
- H - hours
- D - days
- W - weeks
- Y - years

## Configuring a User Account

The VTScada application must be secured with a user name that has internet client access privileges.



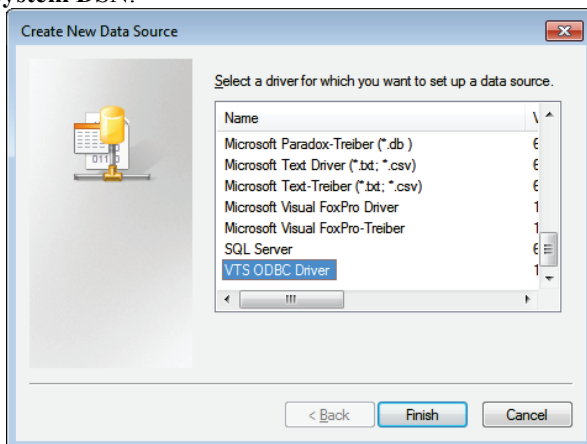
From the application, log in, click the **User Name** button and select **Accounts**. Select the user to edit, highlight **Add New Rule** and click the key to choose the privilege to add. Under **Account Control**, choose *Internet Client Access* and click **OK**. Click **Apply** to save the changes.

## Connecting to your Application

You can create and view reports from **XLReporter** on any workstation on the network, including those that do not have VTS installed.

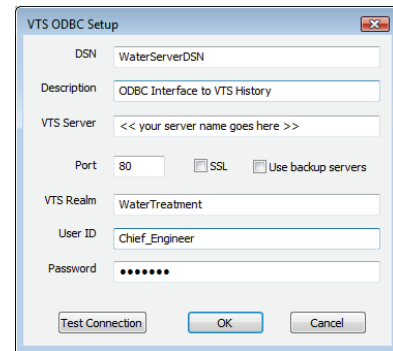
On each computer where access is required, run **VTSODBCDriverInstall.exe** (distributed with VTS). This installs the ODBC driver needed to connect to the VTS database.

After installing the driver, an ODBC data source (DSN) must be created. From **XLReporter's Project Explorer**, select **Tools, Data Sources (ODBC)** to open the **Microsoft ODBC Administrator** utility and add a **System DSN**.



ODBC Data Source Administrator

Under **Name**, select **VTS ODBC Driver** and click **Finish**. This opens the **VTS ODBC Setup** dialog.



VTS ODBC Setup

For **DSN** enter a name that does NOT match the name of the VTS application. For **VTS Server**, enter the fully qualified domain name of the machine running the VTS application or the IP address. The **Port** and **SSL** settings should match what was entered when configuring the ODBC Realm described in a previous section.

Enter that **User ID** and **Password** of a user having internet client access privileges.

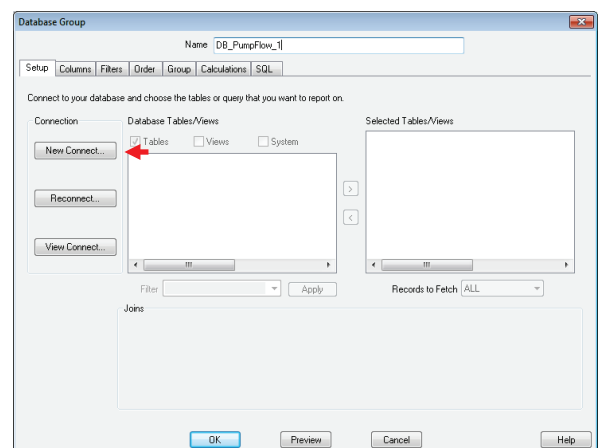
Click **Test Connection** to test the validity of the setup. The application must be running for this to succeed.

If user groups are enabled, the **User ID** specified must be a member of the user group that matches the **VTS Realm** specified in order to connect.

## Retrieving Historical Data

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

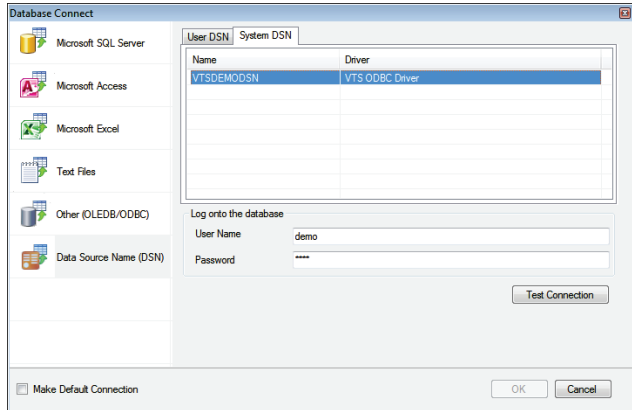
To create a database group, open **XLReporter's Project Explorer**, double click on **Database Groups**. In **Select Type**, select **Standard**.



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 **Database Connect** window.

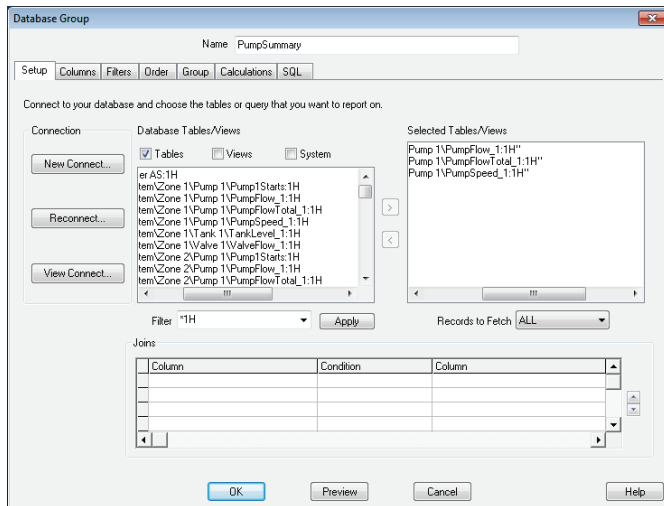
Select **Data Source Name (DSN)** and choose the DSN created in the previous step.



Database Group Builder – Database Connect

Click **Test Connection** to verify the connection and then click **OK** to return to the **Database Group Builder**.

On the **Setup** tab, database tables are listed. There are selections for each tag and the summary calculations configured. Double click each selection to include it in the database group.



Setup Tab

The tables listed contain different types of data,

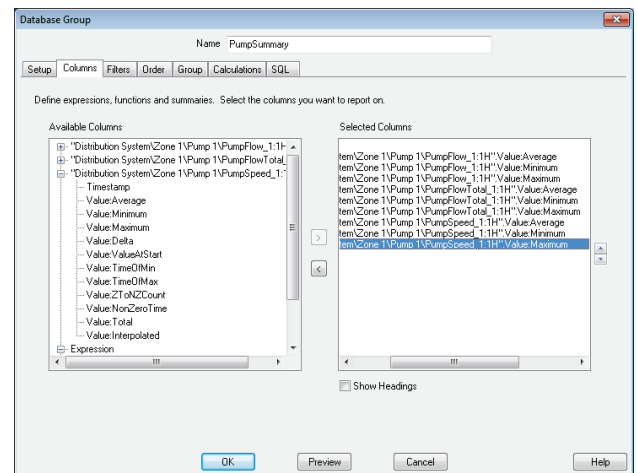
- **Raw**  
These tables identified by **not** ending with :XX where XX is a time period. These tables are used to access raw values.
- **Summary**  
These tables ending with :XX where XX is a time period. These tables are used to access summary values such as average.

Note that when retrieving raw data (names that do not end with :XX), only one tables can be selected.

When retrieving summary data (names that do end with :XX) each selection must have the time interval. A **Filter** is provided so that only summary calculations for the same interval are displayed

On the **Columns** tab, the attributes for each name can be selected.

Note that to include a timestamp column in the group, choose it as part of an available name, or create an expression for *Timestamp* and add it to the selected columns.



Columns Tab

On the **Filters** tab, the output of the group can be filtered by the values of one or more specified columns. To filter by time, use the *Timestamp* column from any of the selected tables.

Note that when filtering by time, the *BETWEEN* conditions are not supported. Use the greater than and less than conditions to create the filter instead.

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

Timestamp	Value	Average
10/9/2013 2:00:00 AM		
10/9/2013 3:00:00 AM		
10/9/2013 4:00:00 AM		
10/9/2013 5:00:00 AM		
10/9/2013 6:00:00 AM		
10/9/2013 7:00:00 AM		
10/9/2013 8:00:00 AM	15.5895011095	584.65096075283
10/9/2013 9:00:00 AM	14.8202089598	555.417966447
10/9/2013 10:00:00 AM	14.8202089598	555.81772651123
10/9/2013 11:00:00 AM	14.891063334633	558.43632209163
10/9/2013 12:00:00 PM	11.991503346263	443.68970345983
10/9/2013 1:00:00 PM	0	0
10/9/2013 2:00:00 PM		
10/9/2013 3:00:00 PM		
10/9/2013 4:00:00 PM		
10/9/2013 5:00:00 PM		
10/9/2013 6:00:00 PM	15.7416612246	590.30956793907
10/9/2013 7:00:00 PM		
10/9/2013 8:00:00 PM		
10/9/2013 9:00:00 PM		
10/9/2013 10:00:00 PM		

Preview

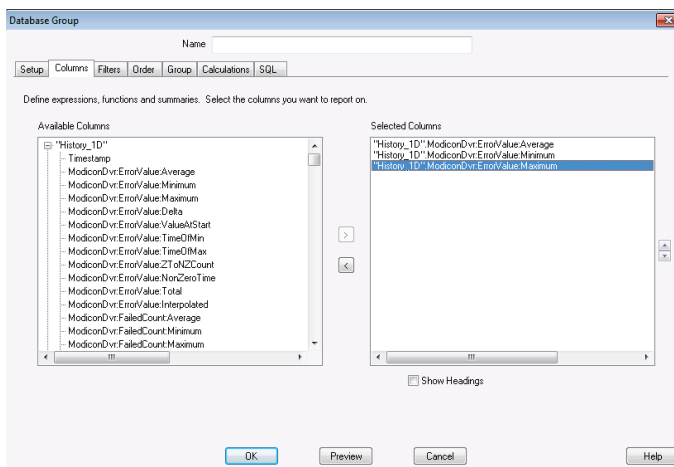
## Retrieving Historical Data (V11)

Starting with V11 of VTScada, new tables were introduced;

- **History**  
This table is used to access the raw values.
- **History\_XX** where XX is a time period.  
These tables are used to access summary values such as average.

Unlike the previous section where a table had to be selected for each tag required in the database group (of similar type), this version requires the selection of a single table.

On the **Columns** tab, the tags and calculations are selected.



Columns Tab

On the **Filters** tab, the output of the group can be filtered by the values of one or more specified columns. To filter by time, use the *Timestamp* column.

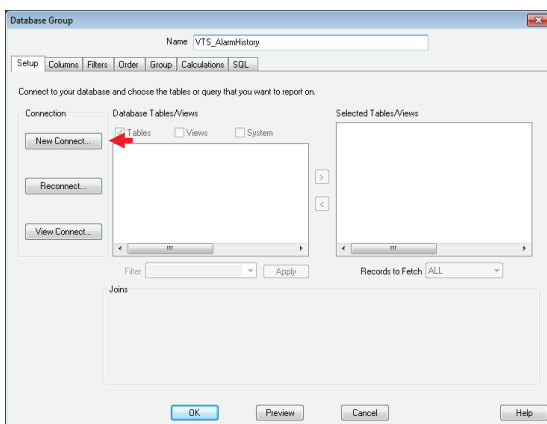
## Alarm Data

VTScada can be configured to record alarm and event data. **XLReporter** can use this alarm data for reporting purposes. VTScada displays current alarms in the **:Alarms** table and logs alarms to the **:AlarmHistory** table. Both tables are accessible through the ODBC driver. See the **Historical Data** section above to configure the ODBC connection.

## Retrieving Alarm Data

VTScada alarm data can be accessed by **XLReporter** using a database group.

From **XLReporter's Project Explorer**, double click on **Database Groups** and select **Standard**, the **Cross Tab** group is not supported for VTScada.

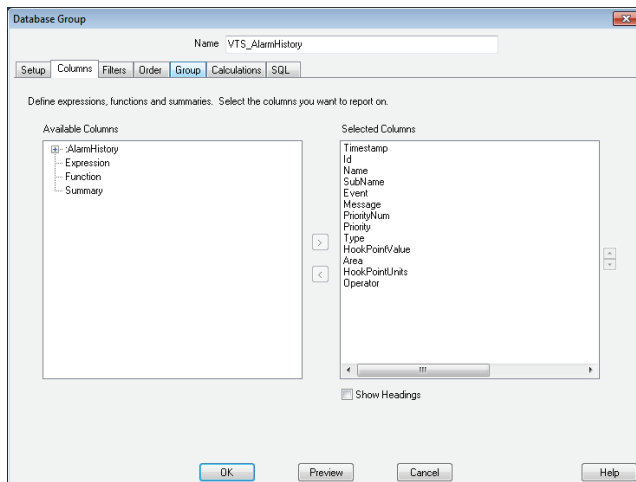


Database Group Builder

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 AlarmHistory in the same manner that you connected in the **Retrieving Historical Data** section above.

On the **Setup** tab, select the desired table.



## Database Group – Columns Tab

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

On the **Filters** tab, the output of the group can be filtered by the values of one or more specified columns.

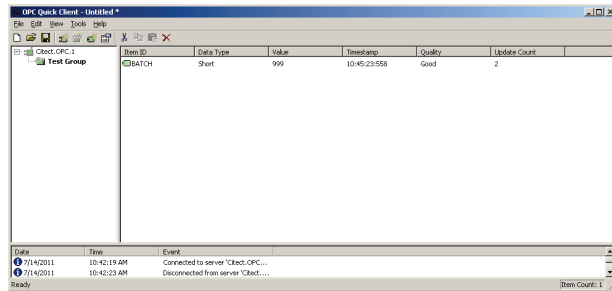
The **Preview** pushbutton at the bottom of the database group display can be pressed to preview the result of the current configuration.

## Troubleshooting

If you are experiencing issues connecting to or retrieving data from VTScada with **XLReporter**, a generic OPC test client is provided to test the VTS 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 *Trihedral.VTSOPC.DA* 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 tag 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.

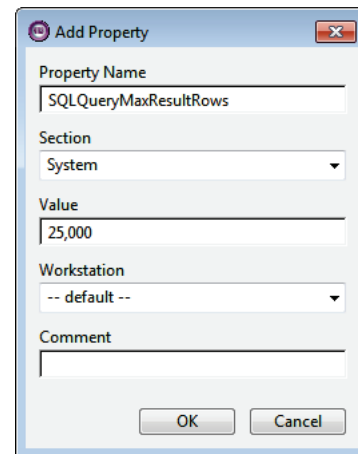
If at any point you experience an issue with this client, it is an indication that there is something wrong with the VTS OPC server, since now two OPC clients have demonstrated issues.

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

## Historical and Alarm Data Limitations

The number of rows returned from VTScada is limited to *10,000* by default. If necessary, the *SQLQueryMaxResultRows* property can be changed to return more rows. In the **Application Configuration**, click **Edit Properties**. If the property does not exist, it can be added by clicking **Insert**.

Set the **Property Name** to *SQLQueryMaxResultRows* and set **Value** to the desired maximum.



*Add Property*