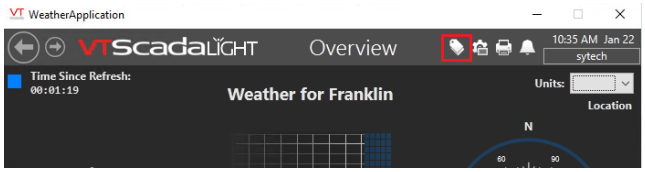
Trihedral Connectors

VTScada Real-time values

This connector is used to get real time values from VTScada via the VTScada OPC server.

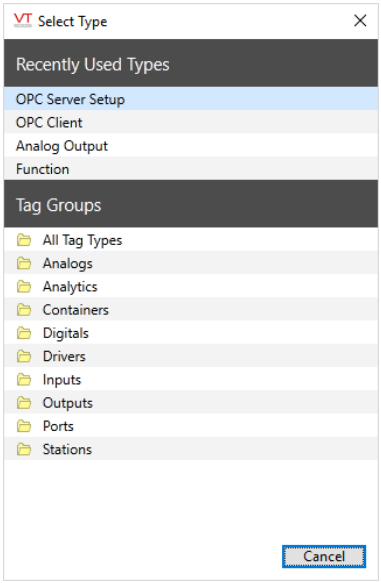
Set up VTScada

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



In the VTScada Application, open the **Tag Browser** 

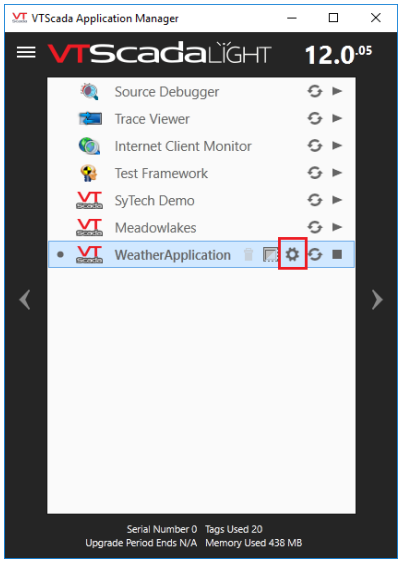
- Click **New** at the bottom of the Tag Browser.



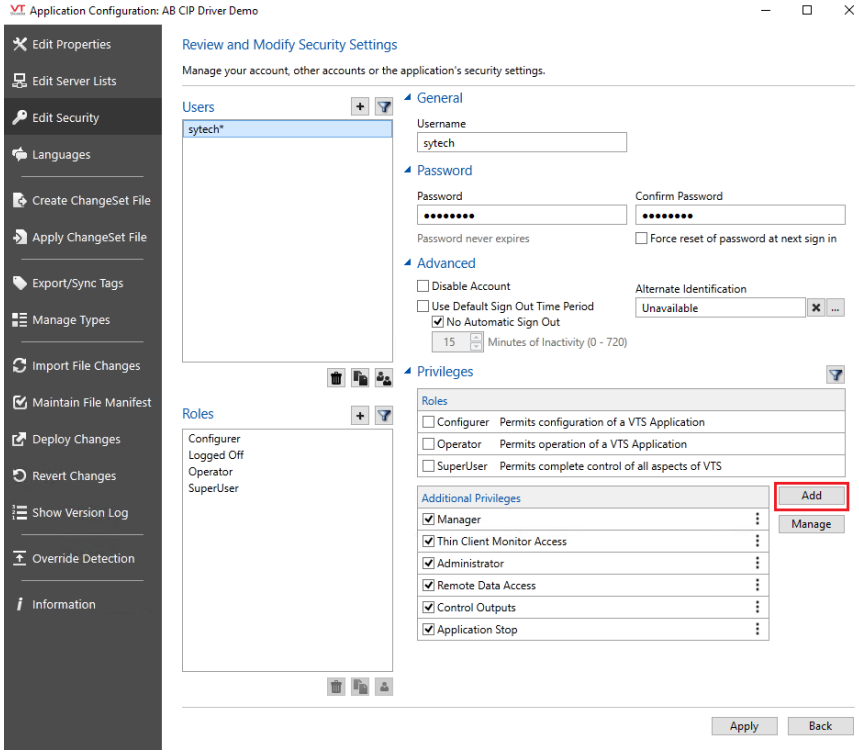
- Set the **Type** to *OPC Server Setup*
- Click **OK**.
- Under the **ID** tab, enter *XLR* for the **Name**
- Under the **Settings** tab enter *XLR* for the **Server Namespace**.
- Click **OK.**
- Restart the application to complete the setup.

Configure a User Account

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



To access these settings, select the **Application Configuration** button from the **VTScada Application Manager**



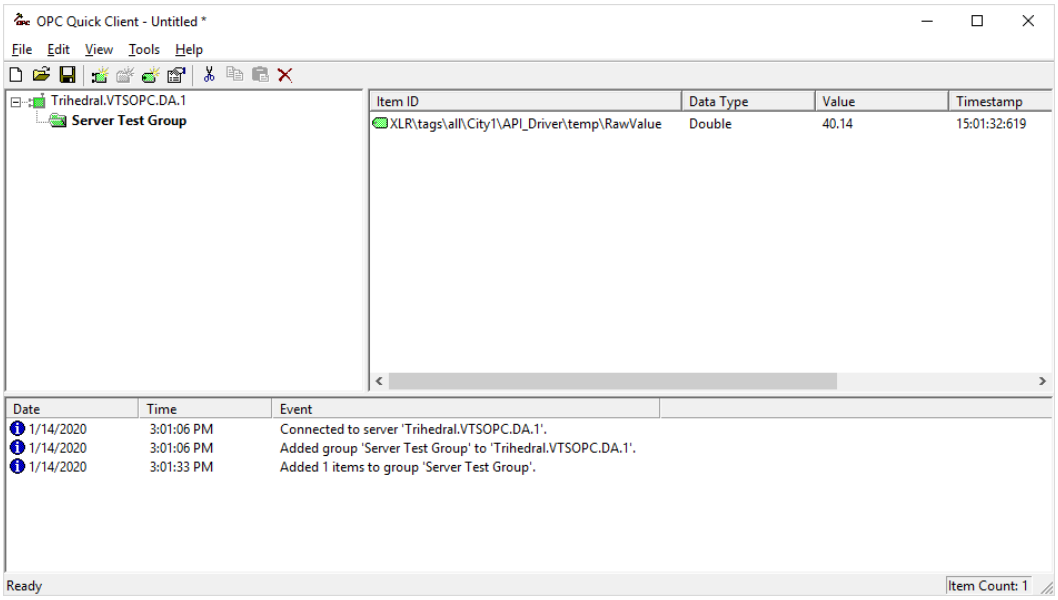
- In the **Application Configuration**, select **Edit Security** on the left.
- Select the user to edit
- Select **Add** on the right.
- Under **Page Access**, choose *Thin Client Access* or *Thin Client Monitor Access* depending on your version.
- Click **OK**.
- Click **Apply** to save the changes.

Prerequisites

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.SyTech.com.

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



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**.
- Select on the group name created.
- 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 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, contact VTScada technical support to troubleshoot and correct these issues.

Remote Communication

If XLReporter is not installed on the same machine as VTScada, the workstation must also have the OPC core components installed. To determine if the core components are installed verify the following file exists:

- C:\Windows\SysWow64\OPCEnum.exe (64-bit OS)
- C:\Windows\system32\OPCEnum.exe (32-bit OS)

If the components are not installed, then they are provided in the XLReporter installation folder under *_repairtools\OPC*. Alternatively, these can be downloaded from www.opcfoundation.org.

Server Settings

To connect to VTScada remotely both the machine where the server is running and the machine where the client is running must have matching Windows user accounts and the client must be logged in with a matching account.

In addition, on the machine with VTScada, certain DCOM settings must be enabled. For details on what DCOM settings to enable, see OPC and DCOM: 5 Things You Need to Know.

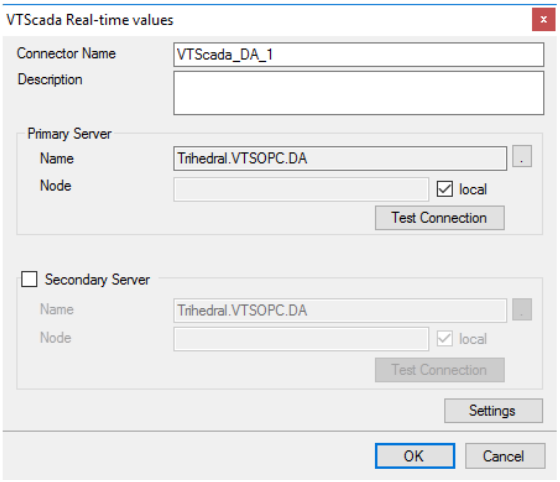
Windows Firewall

If the Windows Firewall is enabled on the machine where VTScada is running TCP Port *135* must be opened for remote clients to connect.

Connector

To configure the connector to **VTScada,** from the **Project Explorer** select **Data**, **Connectors**.

- Click **Add**
- Select **Trihedral, VTScada Real-time values.**
- Click **OK**



Primary Server

These settings define the **Name** and **Node** of the OPC DA server. Typically, the **Name** is defaulted correctly. If the VTScada server is on the local machine, leave **local** checked, otherwise uncheck, and specify either the name or IP address of the machine where VTScada is running.

Use the **Test Connection** button to verify a connection to the server.

Secondary Server

These settings define the (optional) secondary VTScada to connect to if a connection to the **Primary Server** fails.

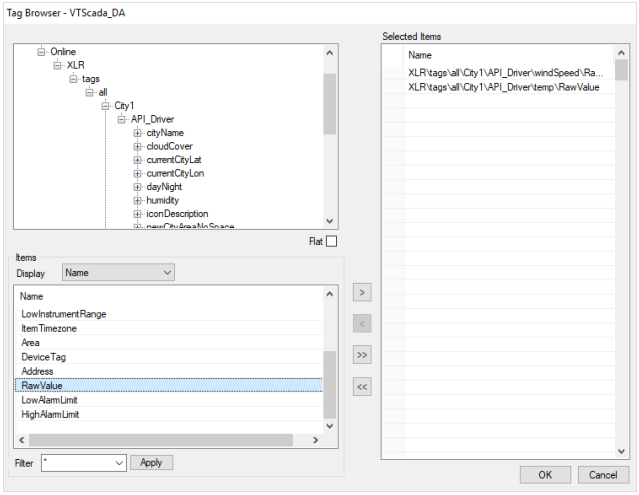
Settings

For information on the specific settings, see the **DATA CONNECTIVITY, OPC** document.

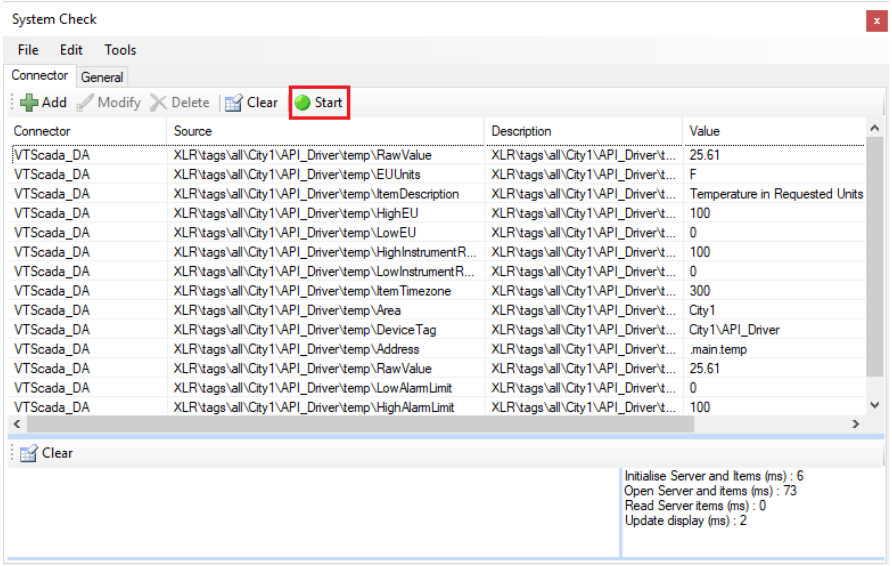
Verify Data Communication

To verify communication to **VTScada**, open the **Project Explorer** and select the Tools tab. Launch the **System Check** application.

- Click Add
- Choose the VTScada Connector from the dropdown list.
- Click the pushbutton ([…]) next to Items to open the Tag Browser window.



- Select one or more tags, click **OK**



- Click **Start** to verify the communication

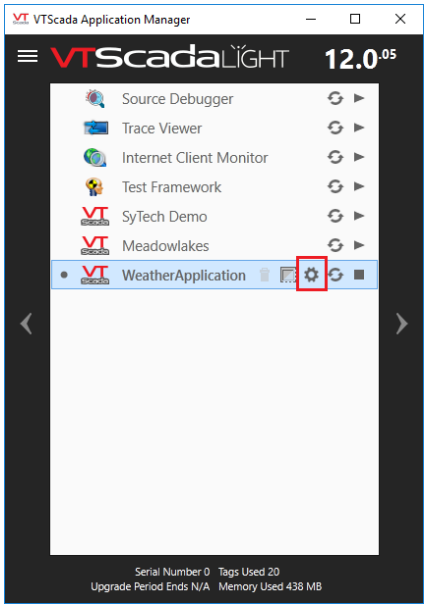
VTScada Historical values

This connector is used to get historical values from VTScada via the VTScada ODBC server.

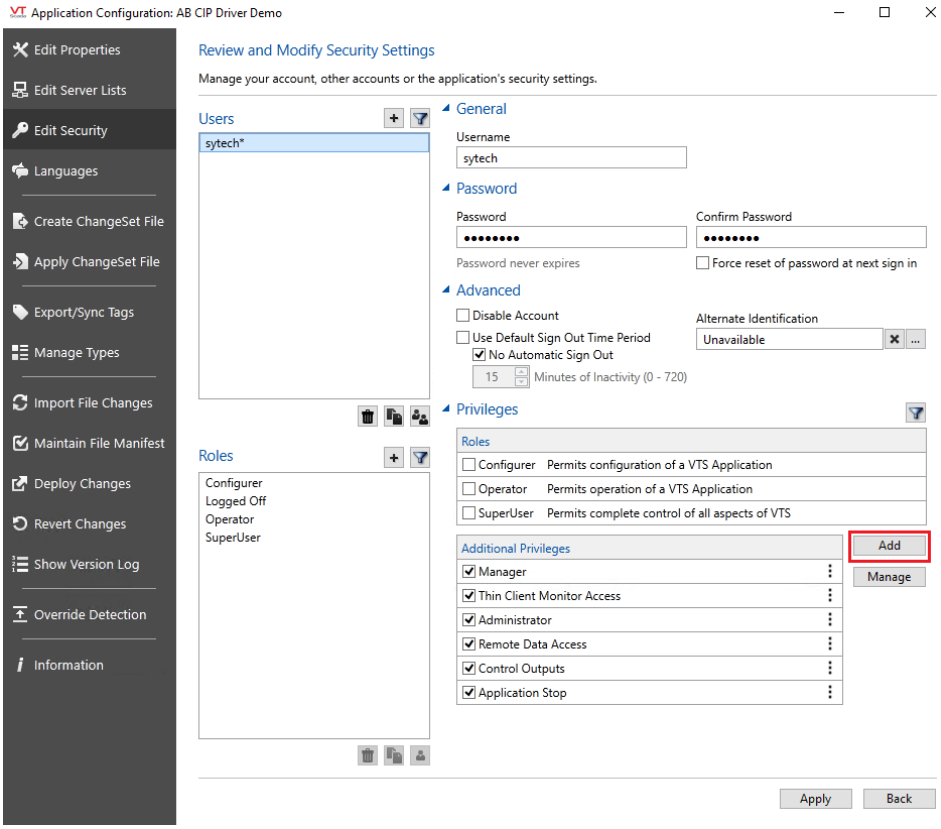
Set up VTScada

Configure a User Account

The VTScada application must be secured with a user that has internet client access privileges. To access these settings, click the **Application Configuration** button from the **VTScada Application Manager.**



In the **Application Configuration**, select **Edit Security** on the left.

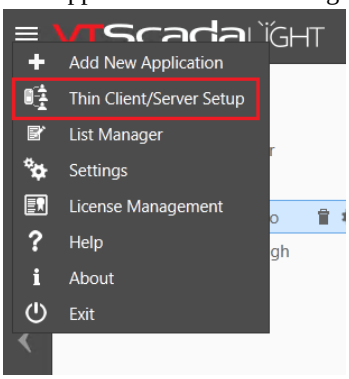


- Select **Accounts**
- Select the user to edit.

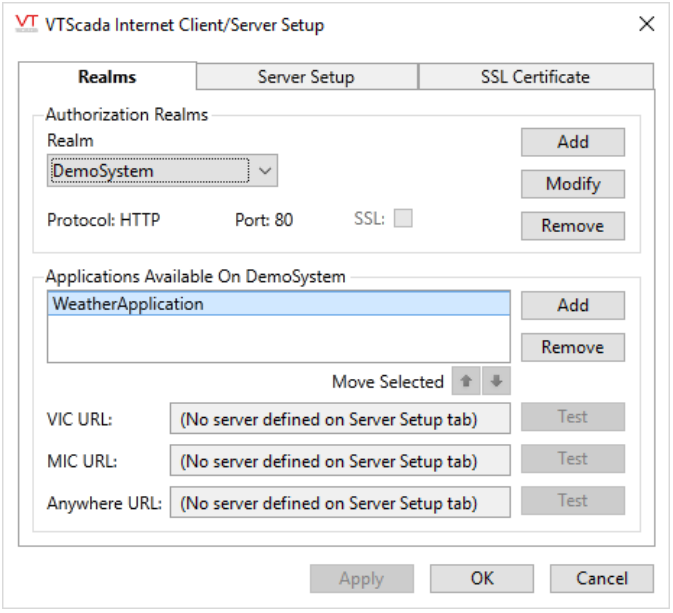
- Select **Add** on the right.
- Under **Page Access**, choose *Thin Client Access* or *Thin Client Monitor Access* depending on the version.
- Under **Account Control**, choose *Remote Data Access*.
- Under **Application Configuration**, choose *Remote Tag Value/History Retrieve* or *Tag Modify* depending on the version.
- Click **OK**.
- Click **Apply** to save the changes.

Configure the ODBC Server

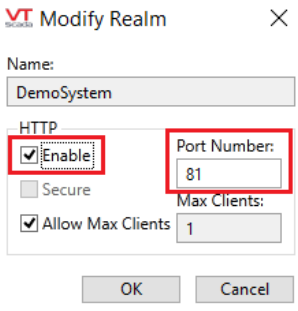
To retrieve historical data, the VTScada application must be configured as an ODBC server.



In the **VTS Application Manager** (VAM), select the Hamburger list in the upper left and choose Thin **Client/Server Setup** or **VTScada Internet Client/Server Setup** depending on the version.



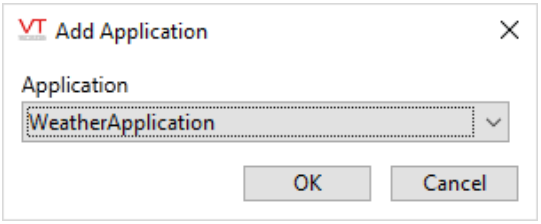
- Under the **Realms** tab, in the **Authorization Realms** section, click **Add** to open the **Add Realm** dialog.



- Specify a **Name**
- Under **HTTP** check **Enable**
- Set **Port Number** to *81*.
- Click **OK**.

Under the **Applications Available On ODBCRealm** section,

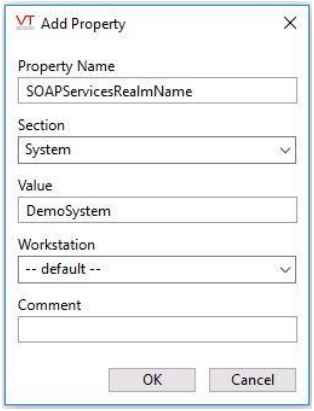
- Click **Add** to add the application to the **ODBC Realm**.



- Select the **Application** to add.
- Click **OK**.

Select the **Application Configuration** button from the **VTScada Application Manager**

- Click **Edit Properties.**
- Click **Advanced Mode.**
- To add a property, click **Insert**.



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

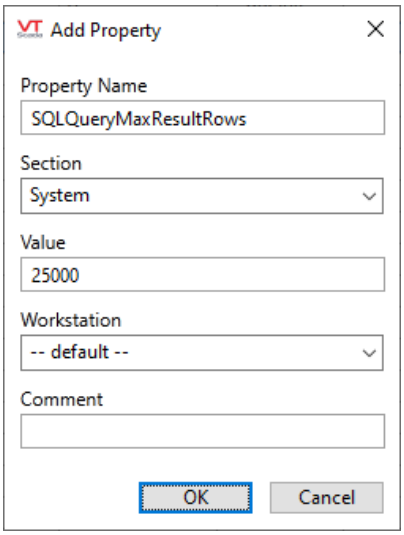
Restart the application after adding this property for the changes to take effect.

Historical Data Limitations

The number of rows returned from VTScada is limited to *10000* 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.



If the property does exist and is greyed out, select it, click **Copy** and then change **Value** as needed.

ODBC Set up

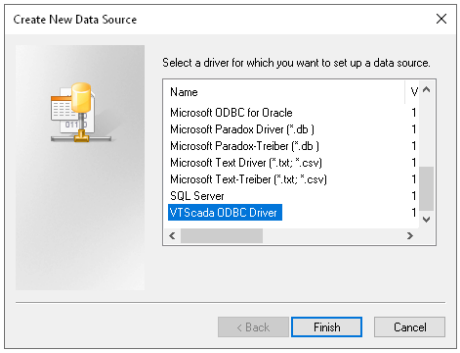
To access VTScada history data, the VTScada ODBC driver must be installed.

On the machine where access is required, run **VTSODBCDriverInstall.exe** to install the ODBC driver. This is distributed with VTScada.

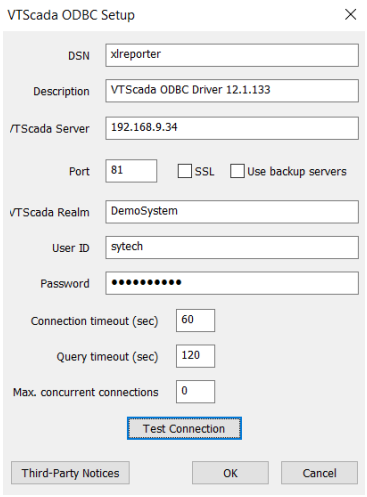
DSN

After installing the driver, an ODBC data source (DSN) can be created.

- From the **Project Explorer**, select the **Tools** tab
- Select **DSN Settings** to open the **Microsoft ODBC Data Sources Administrator** utility
- Select the **System DSN** tab
- Select **Add**



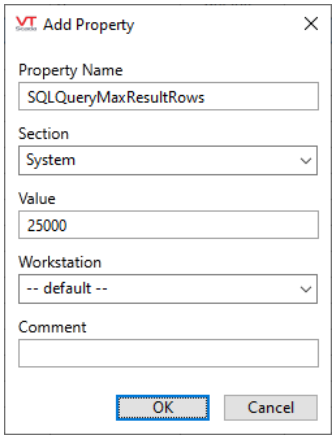
- Under **Name**, select **VTScada ODBC Driver** and click **Finish.** This opens the **VTScada ODBC Setup** dialog.



- For **DSN** enter a name that does NOT match the name of the VTScada 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 that 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 to connect.

Historical Data Limitations

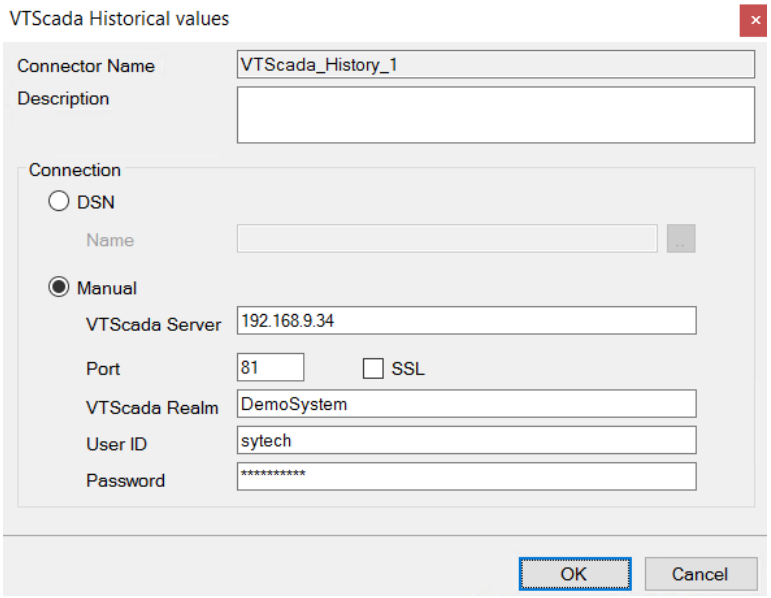
The number of rows returned from VTScada is limited to *10000* by default. If necessary, the *SQLQueryMaxResultRows* property can be changed to return more rows. In the Application Configuration, click Edit Properties. If the property does not exist, it can be added by clicking Insert. Set the Property Name to *SQLQueryMaxResultRows* and set **Value** to the desired maximum.



Connector

To configure the connector to **VTScada,** from the **Project Explorer** select **Data**, **Connectors**.

- Click **Add**
- Select **Trihedral, VTScada Historical values.**
- Click **OK**



Connection

These settings define how to connect to the VTScada Historian.

DSN

With this option specify the **Name** of a DSN (Data Source Name) defined within the Windows Operating System that is configured to connect to the VTScada Historian.

It is recommended to specify a System DSN for **Name** because it will be accessible by any user logged into the machine.

Note, on 64-bit operating systems, the **DSN** must be defined as a 32-bit **DSN**. This can be done by following the DSN section above.

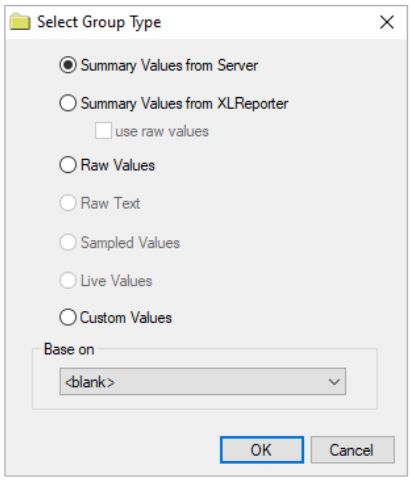
Manual

With this option specify all the settings needed to connect to the VTScada Historian.

Data Group

The following describes the historical data group settings specific to the **VTScada Historian** connector.

Group Types



For **VTScada Historian** the following group types are available:

Summary Values from Server

This group type retrieves summary calculations directly from the historian. The following calculations are available:

- Interpolated
- Average
- Maximum
- Time of Maximum
- Minimum
- Time of Minimum
- Delta Value
- Start Value
- Total
- Zero to Non-Zero Count
- Non-Zero Time

For string values, select *Start Value*.

Summary Values from XLReporter

This group type retrieves sampled values from the historian and performs calculations on those samples for reporting.

By default, summary values are calculated time weighted, and values are propagated based on the last known value. However, to change this so that summary values are calculated strictly on the data returned check **use raw values**.

Note, string values cannot be returned from VTScada using a Summary Values XLR group type.

Raw Values

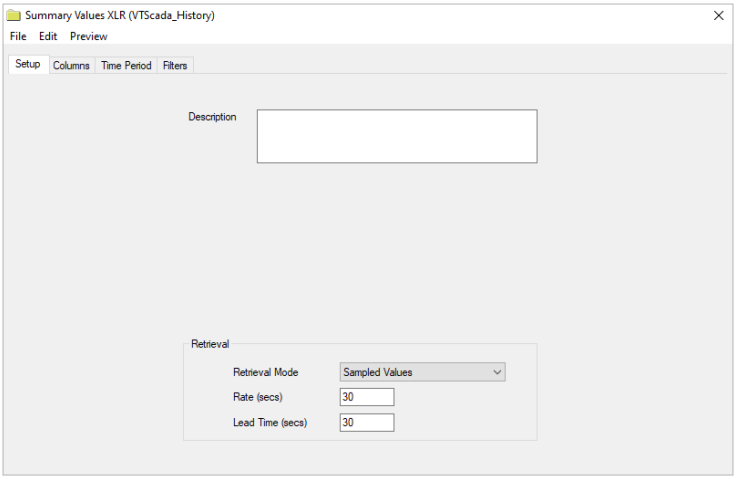
This group retrieves values logged to the historian between the start and end time specified.

Custom Values

This option opens the Database Group builder where a query can be configured to retrieve data from any table available in the database connected to by the connector.

Group Settings

Setup Tab (Summary Values for XLReporter)



The **Retrieval** settings define how data is retrieved for the calculations selected for the group. The following settings are available:

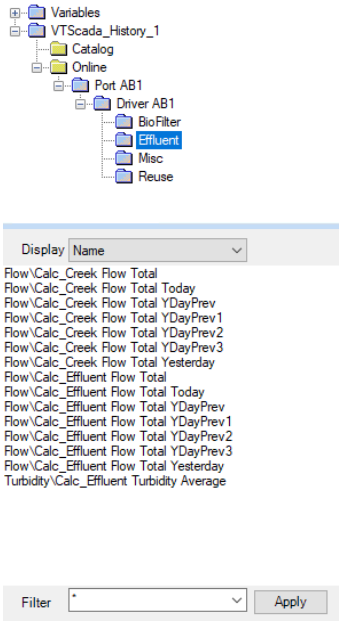
- **Retrieval Mode**
  This setting defines how data is retrieved from the historian. For VTScada Historian *Sampled Values* and *Raw Values* are available.

  Sampled Values use the *Interpolated* calculation.
- **Rate**
  The interval (in seconds) that sampled values are retrieved from the historian.
- **Lead Time**
  The amount of time (in seconds) to retrieve data before the start time.

Filters Tab (Raw Values and Summary Values from XLReporter)

If the **Perform by Server** option is checked, any filter configured in this tab is put into the *WHERE* clause of the query sent to the database to retrieve data for the group. Otherwise, the configured filtering is performed by the reporting engine after the values are returned. It is recommended to leave this setting checked as the performance is much better.

Tag Browsing



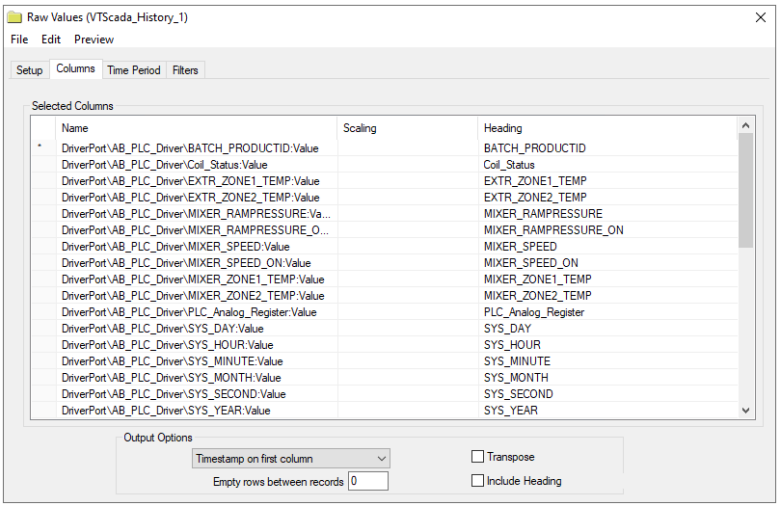
The tag browser follows the naming convention configured in VTScada. When **Online** is selected, branches are shown representing various elements of VTScada such as Drivers.

Verify the Data Connector

XLReporter retrieves data for a report using a **History Group**. A quick way to create a **History Group** is from the **XLReporter Project Explorer**.

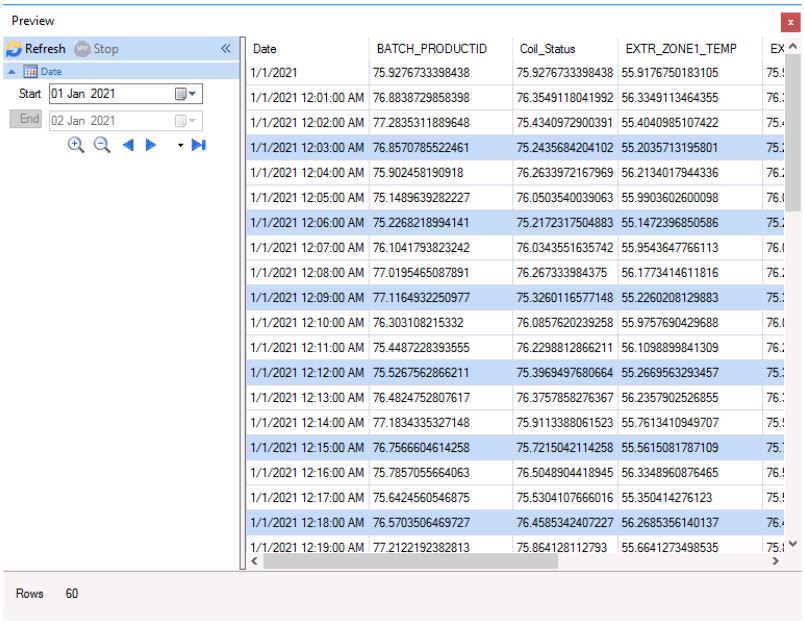
- Select, **Tools**, **Connector Groups**
- Select the **VTScada Historical** values connector
- Select **Add**.
- Set the **Group Type** to **Raw Values** and click **OK**.

On the **Columns** tab of the group, select the tag **Name**(s).



From the menu bar:

- Click **Preview**
- Enter a Start date
- Click Refresh.



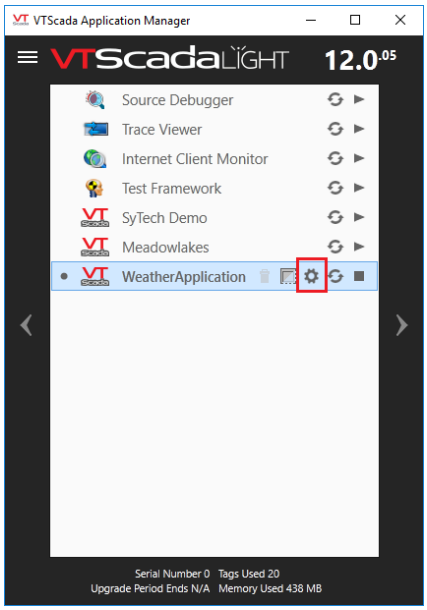
VTScada Alarms

This connector is used to get alarms from VTScada via the VTScada ODBC server.

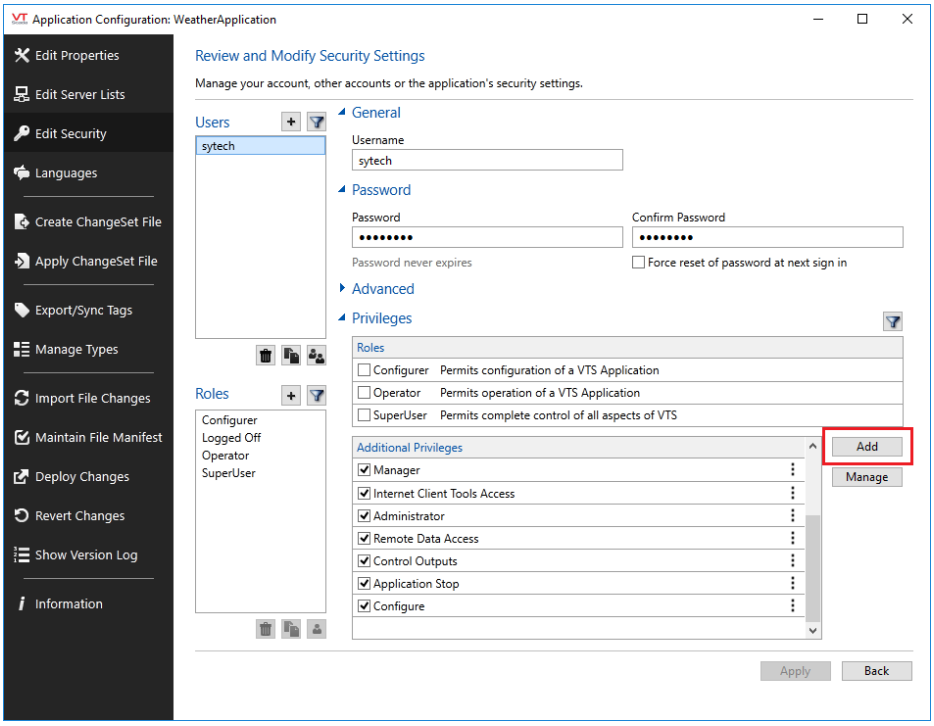
Set up VTScada

Configure a User Account

The VTScada application must be secured with a user that has internet client access privileges. To access these settings, click the **Application Configuration** button from the **VTScada Application Manager.**



For older versions, a privilege must be added to access alarms. In the **Application Configuration**, select **Edit Security** on the left.



- Select **Accounts**
- Select the user to edit.
- Select **Add** on the right.
- Under **Page Access**, choose *Internet Client Monitor Access*.
- Click **OK**.

- Click **Apply** to save the changes.

Configure the ODBC Server

This process is the same as VTScada Historical Values. See the Configure the ODBC Server section in the VTScada Historical values section above for details.

ODBC Set up

To access VTScada history data, the VTScada ODBC driver must be installed.

On the machine where access is required, run **VTSODBCDriverInstall.exe** to install the ODBC driver. This is distributed with VTScada.

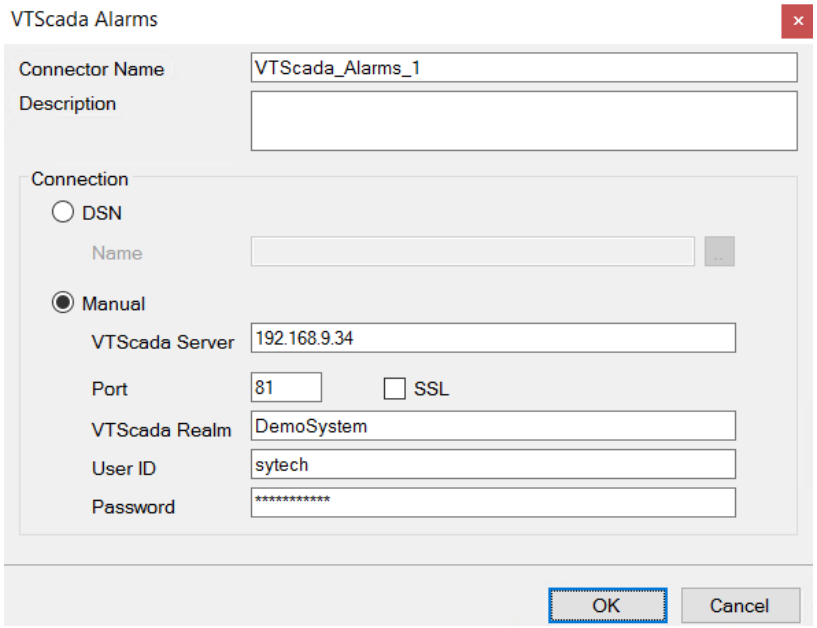
Configure the ODBC Server

This process is the same as VTScada Historical Values. See the Configure the **Configure the ODBC Server** section in the VTScada Historical values section above for details.

Alarm Data Limitations

This limitation is the same as VTScada Historical Values. See the Historical Data Limitations section in the VTScada Historical values section above for details.

Connector



Connection

These settings define how to connect to the VTScada Alarms.

DSN

With this option specify the **Name** of a DSN (Data Source Name) defined within the Windows Operating System that is configured to connect to the VTScada Alarms.

It is recommended to specify a System DSN for **Name** because it will be accessible by any user logged into the machine.

Note, on 64-bit operating systems, the **DSN** must be defined as a 32-bit **DSN**. This can be done by following the DSN section in VTScada Historical values.

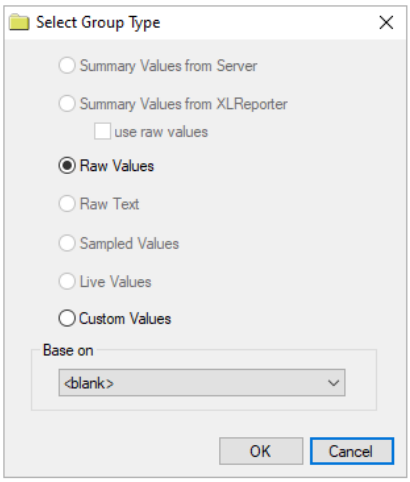
Manual

With this option specify all the settings needed to connect to the VTScada Alarms.

Data Group

The following describes the historical data group settings specific to the **VTScada Alarms** connector.

Group Types



For **VTScada Alarms** the following group types are available:

Raw Values

This group retrieves alarms logged between the start and end time specified.

Custom Values

This option opens the Database Group builder where a query can be configured to retrieve data from any table available in the database connected to by the connector.

Group Settings

Filters Tab

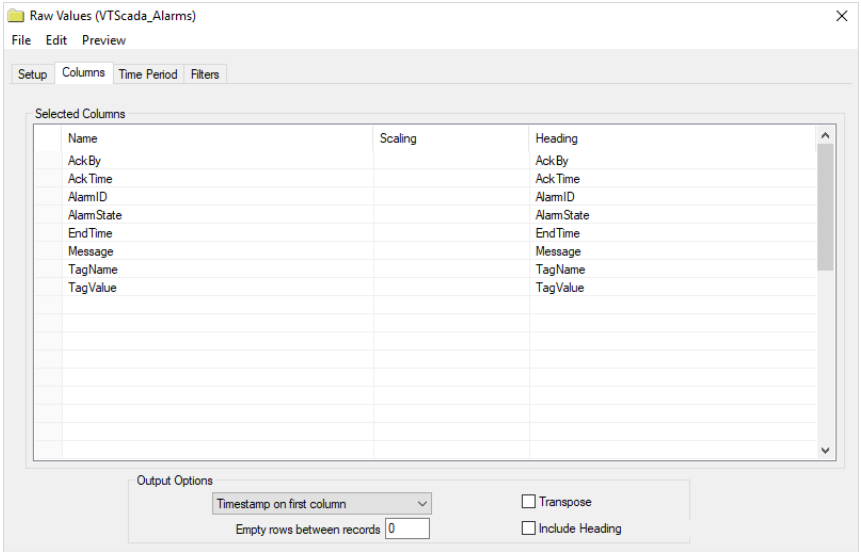
If the **Perform by Server** option is checked, any filter configured in this tab is put into the *WHERE* clause of the query sent to the database to retrieve data for the group. Otherwise, the configured filtering is performed by the reporting engine after the values are returned. It is recommended to leave this setting checked as the performance is much better.

Verify the Alarm Data Connector

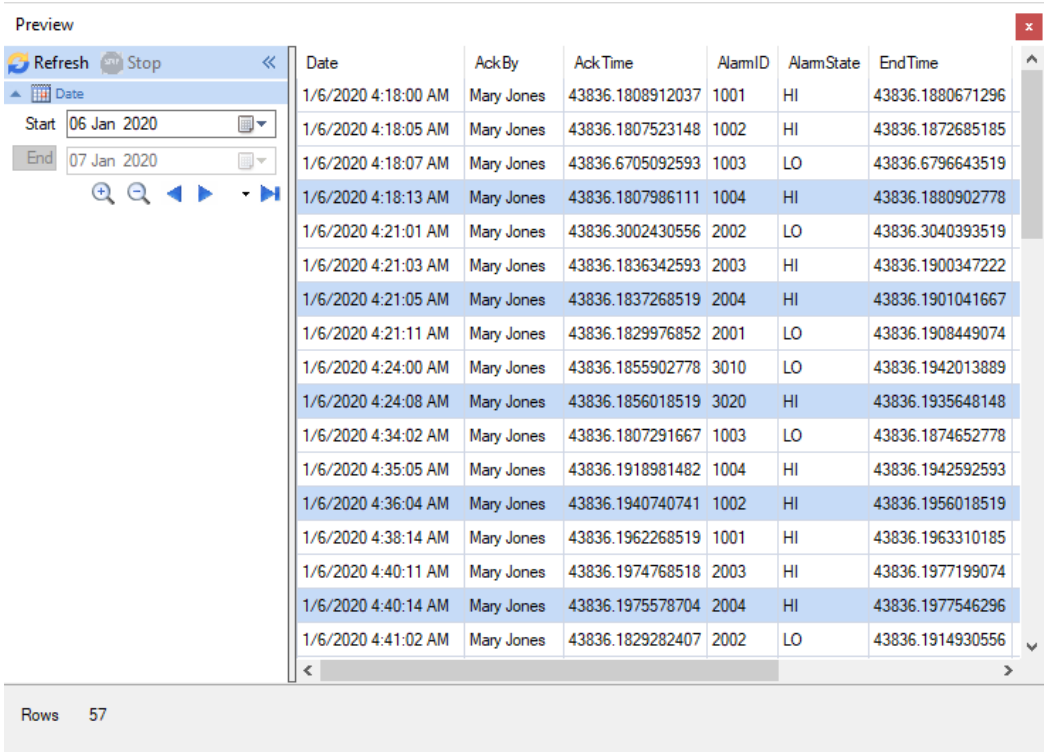
XLReporter retrieves data from the **Data Connector** using an **Alarms Group**. From the **XLReporter Project Explorer** select, **Tools**, **Connector Groups.**

- Select the **VTScada Alarms** connector and then select **Add**.
- Set the **Group Type** to **Raw Values** and click **OK**.

On the **Columns** tab of the group, select the tag Name(s).



Select **Preview**, pick a *Start Date* and click **Refresh**.



Date	AckBy	AckTime	AlarmID	AlarmState	EndTime
1/6/2020 4:18:00 AM	Mary Jones	43836.1808912037	1001	HI	43836.1880671296
1/6/2020 4:18:05 AM	Mary Jones	43836.1807523148	1002	HI	43836.1872685185
1/6/2020 4:18:07 AM	Mary Jones	43836.6705092593	1003	LO	43836.6796643519
1/6/2020 4:18:13 AM	Mary Jones	43836.1807986111	1004	HI	43836.1880902778
1/6/2020 4:21:01 AM	Mary Jones	43836.3002430556	2002	LO	43836.3040393519
1/6/2020 4:21:03 AM	Mary Jones	43836.1836342593	2003	HI	43836.1900347222
1/6/2020 4:21:05 AM	Mary Jones	43836.1837268519	2004	HI	43836.1901041667
1/6/2020 4:21:11 AM	Mary Jones	43836.1829976852	2001	LO	43836.1908449074
1/6/2020 4:24:00 AM	Mary Jones	43836.1855902778	3010	LO	43836.1942013889
1/6/2020 4:24:08 AM	Mary Jones	43836.1856018519	3020	HI	43836.1935648148
1/6/2020 4:34:02 AM	Mary Jones	43836.1807291667	1003	LO	43836.1874652778
1/6/2020 4:35:05 AM	Mary Jones	43836.1918981482	1004	HI	43836.1942592593
1/6/2020 4:36:04 AM	Mary Jones	43836.1940740741	1002	HI	43836.1956018519
1/6/2020 4:38:14 AM	Mary Jones	43836.1962268519	1001	HI	43836.1963310185
1/6/2020 4:40:11 AM	Mary Jones	43836.1974768518	2003	HI	43836.1977199074
1/6/2020 4:40:14 AM	Mary Jones	43836.1975578704	2004	HI	43836.1977546296
1/6/2020 4:41:02 AM	Mary Jones	43836.1829282407	2002	LO	43836.1914930556