

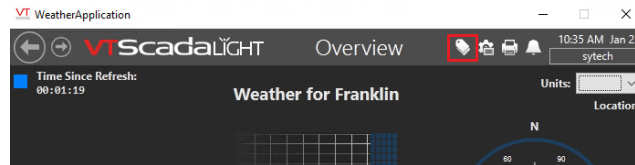
Trihedral Connectors

VTScada Real-time values

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

Set up VTScada

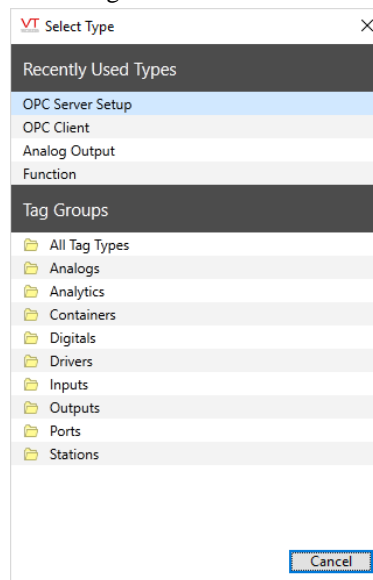
The VTScada OPC server must be configured in the VTScada application to connect and retrieve values from the application.



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



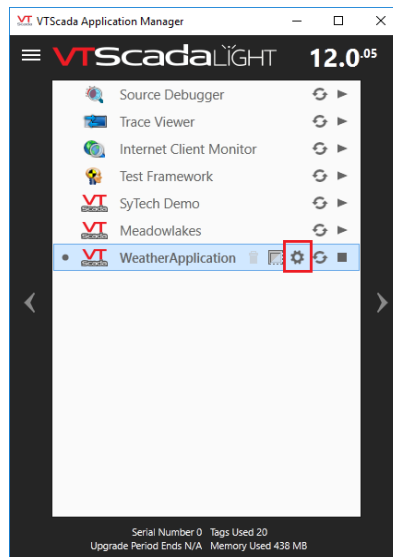
- Click **New** at the bottom of the Tag Browser.



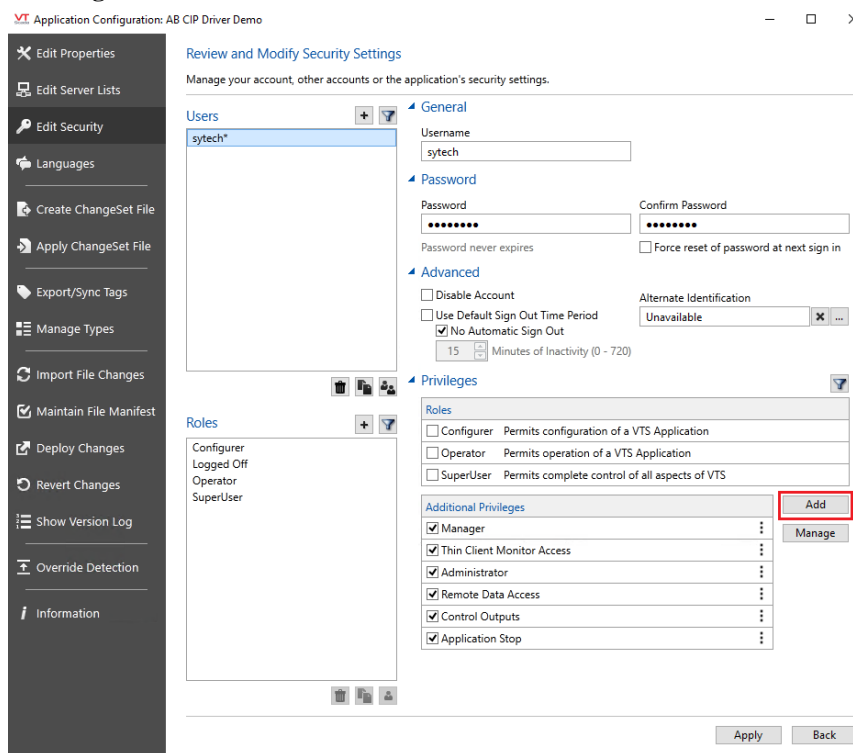
- Set the **Type** to *OPC Server Setup*
- Click **OK**.
- Under the **ID** tab, enter *XLR* for the **Name**
- Under the **Settings** tab enter *XLR* for the **Server Namespace**.
- Click **OK**.
- Restart the application to complete the setup.

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**



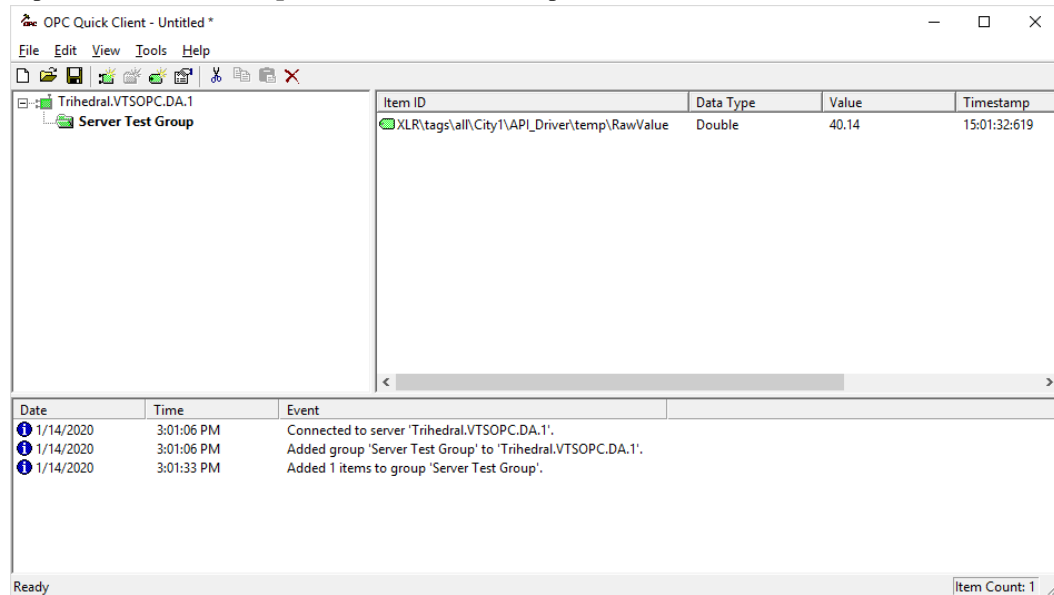
- In the **Application Configuration**, select **Edit Security** on the left.
- Select the user to edit
- Select **Add** on the right.
- Under **Page Access**, choose *Thin Client Access* or *Thin Client Monitor Access* depending on your version.
- Click **OK**.
- Click **Apply** to save the changes.

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**

VTScada Real-time values

Connector Name: VTScada_DA_1

Description:

Primary Server

Name: Trihedral.VTSOPC.DA

Node: ☒ local

Test Connection

☐ Secondary Server

Name: Trihedral.VTSOPC.DA

Node: ☒ local

Test Connection

Settings

OK Cancel

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.

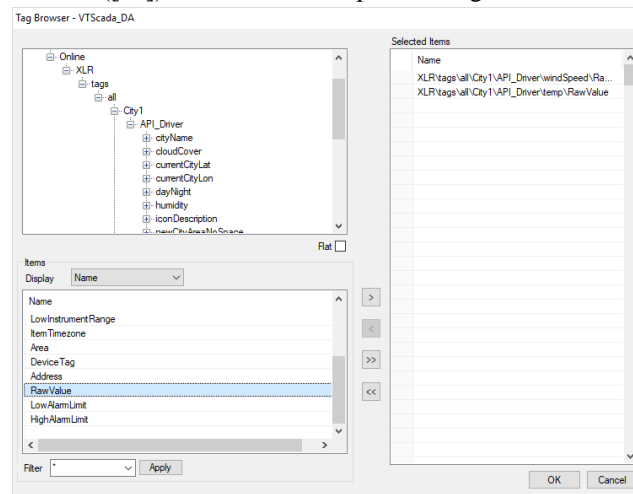
Settings

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

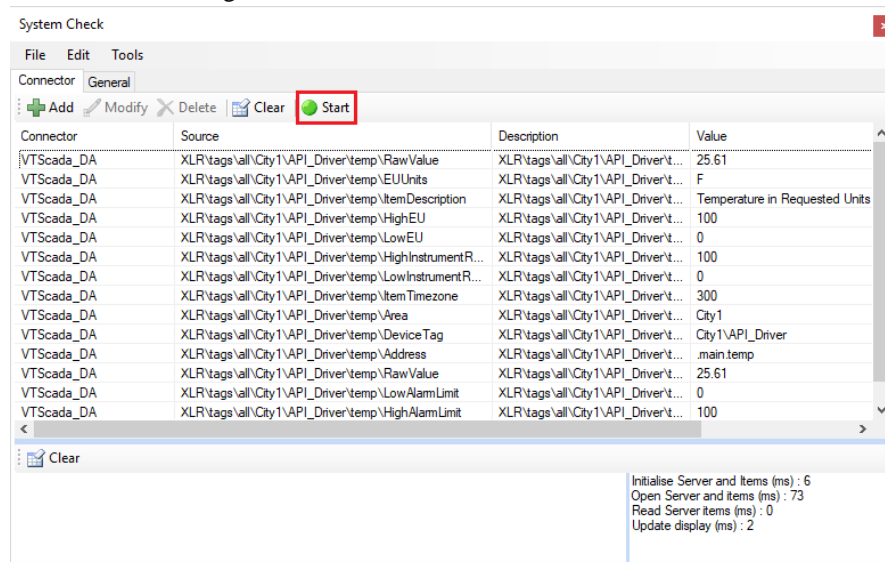
Verify Data Communication

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

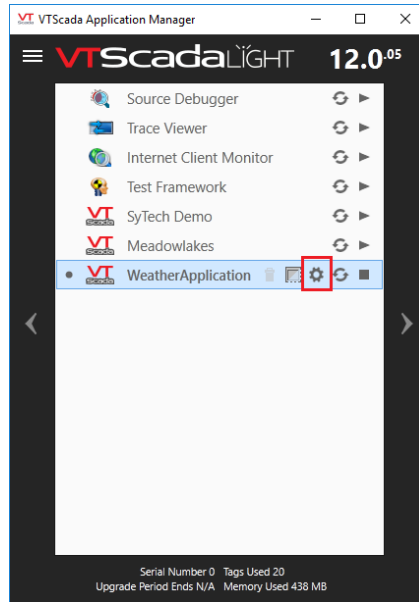
VTScada Historical values

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

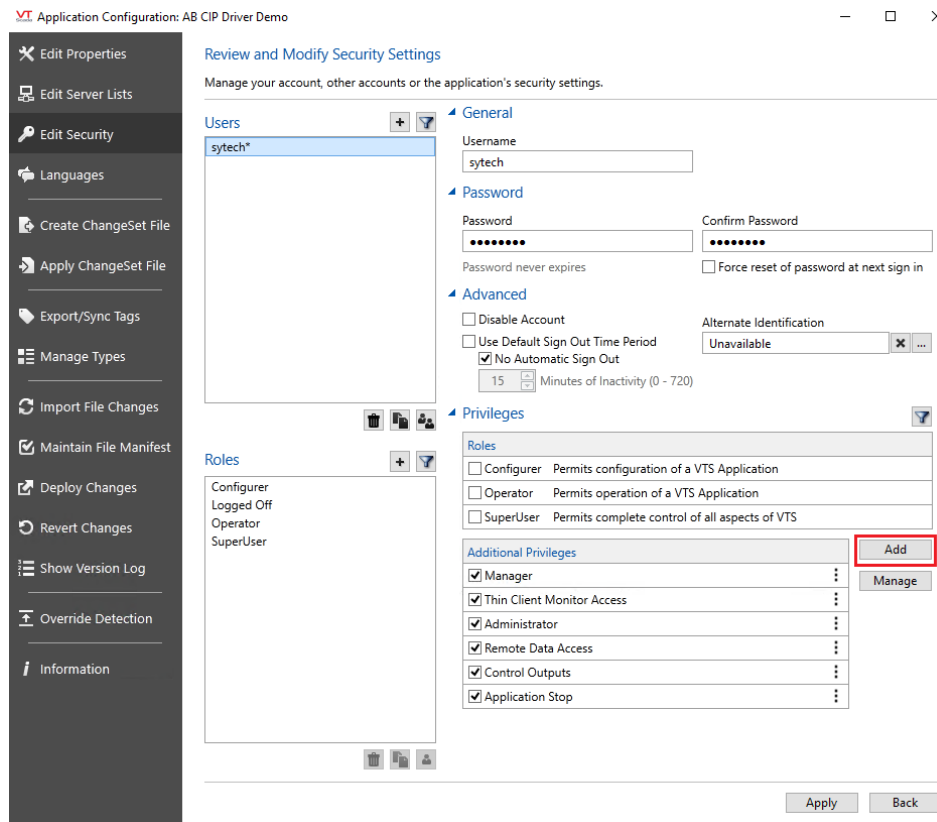
Set up VTScada

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.

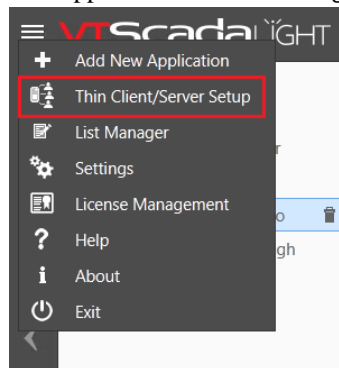


- Select **Accounts**
- Select the user to edit.

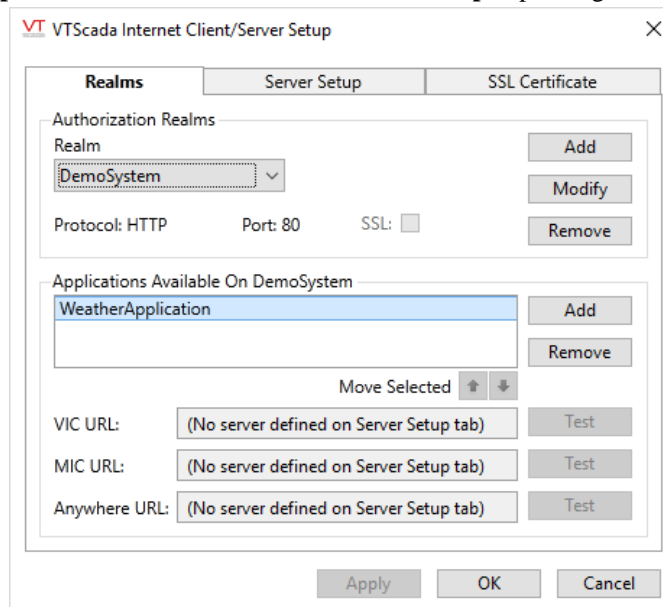
- Select **Add** on the right.
- Under **Page Access**, choose *Thin Client Access* or *Thin Client Monitor Access* depending on the version.
- Under **Account Control**, choose *Remote Data Access*.
- Under **Application Configuration**, choose *Remote Tag Value/History Retrieve* or *Tag Modify* depending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

Configure the ODBC Server

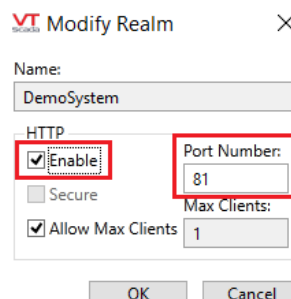
To retrieve historical data, the VTScada application must be configured as an ODBC server.



In the **VTScada 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.



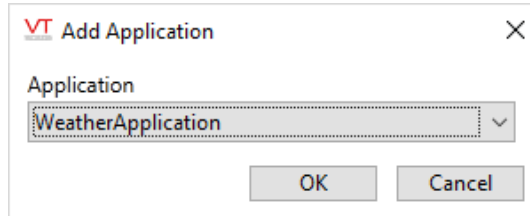
- Under the **Realms** tab, in the **Authorization Realms** section, click **Add** to open the **Add Realm** dialog.



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

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

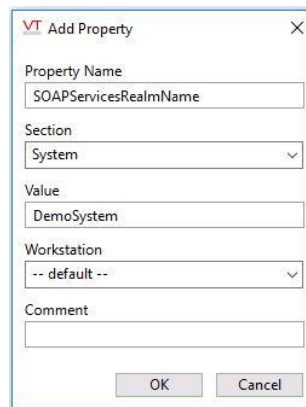
- Click **Add** to add the application to the **ODBC Realm**.



- 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**.

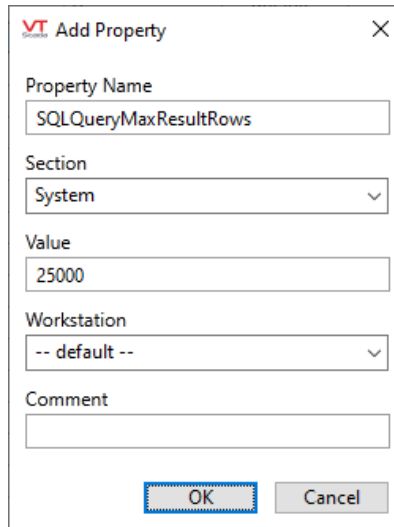
Restart the application after adding this property for the changes to take effect.

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

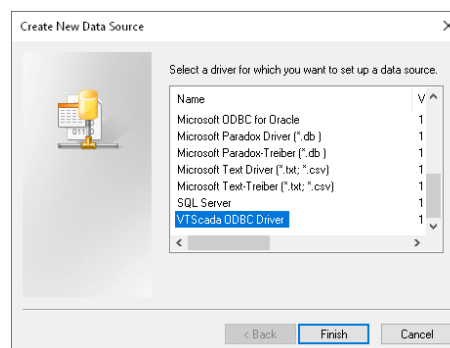
To access VTScada history data, the VTScada ODBC driver must be installed.

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**

VTScada Historical values

Connector Name: VTScada_History_1

Description:

Connection:

☐ DSN

Name:

☒ Manual

VTScada Server: 192.168.9.34

Port: 81 ☐ SSL

VTScada Realm: DemoSystem

User ID: sytech

Password: *****

OK Cancel

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

Select Group Type

☒ Summary Values from Server

☐ Summary Values from XLReporter

☐ use raw values

☐ Raw Values

☐ Raw Text

☐ Sampled Values

☐ Live Values

☐ Custom Values

Base on

<blank>

OK Cancel

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)

Summary Values XLR (VTScada_History)

File Edit Preview

Setup Columns Time Period Filters

Description

Retrieval

Retrieval Mode: Sampled Values

Rate (secs): 30

Lead Time (secs): 30

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

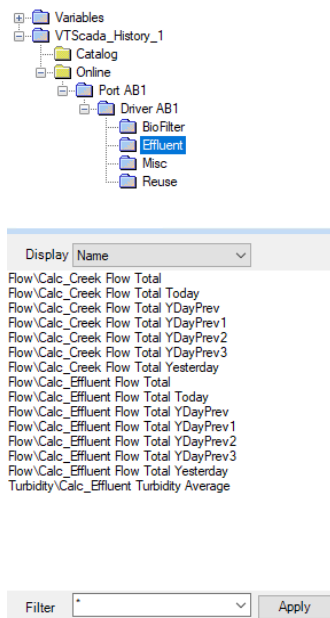
- **Retrieval Mode**
This setting defines how data is retrieved from the historian. For VTScada Historian *Sampled Values* and *Raw Values* are available.

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



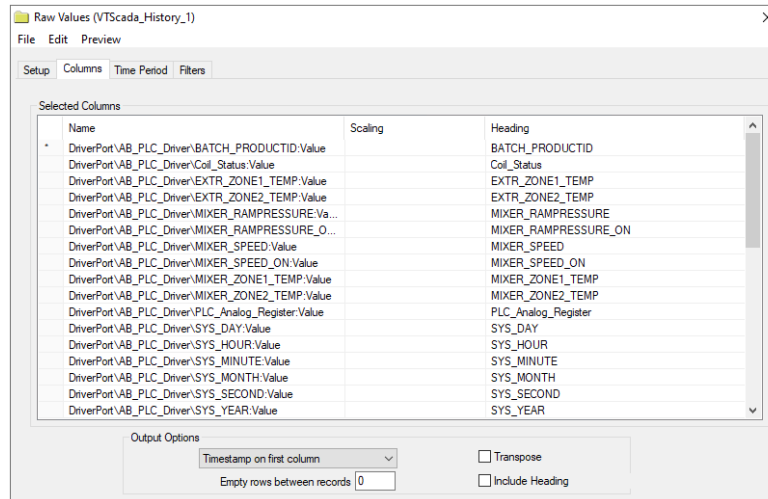
The tag browser follows the naming convention configured in VTScada. When **Online** is selected, branches are shown representing various elements of VTScada such as Drivers.

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.

Preview

Refresh Stop

Start: 01 Jan 2021

End: 02 Jan 2021

Date	BATCH_PRODUCTID	Coil_Status	EXTR_ZONE1_TEMP	EXTR_ZONE2_TEMP
1/1/2021	75.9276733398438	75.9276733398438	55.9176750183105	75.9176750183105
1/1/2021 12:01:00 AM	76.8838729858398	76.3549118041992	56.3349113464355	76.3349113464355
1/1/2021 12:02:00 AM	77.2835311889648	75.4340972900391	55.4040985107422	75.4040985107422
1/1/2021 12:03:00 AM	76.8570785522461	75.2435684204102	55.2035713195801	75.2035713195801
1/1/2021 12:04:00 AM	75.902458190918	76.2633972167969	56.2134017944336	76.2134017944336
1/1/2021 12:05:00 AM	75.1489639282227	76.0503540039063	55.9903602600098	76.0503540039063
1/1/2021 12:06:00 AM	75.2268218994141	75.2172317504883	55.1472396850586	75.2172317504883
1/1/2021 12:07:00 AM	76.1041793823242	76.0343551635742	55.9543647766113	76.0343551635742
1/1/2021 12:08:00 AM	77.0195465087891	76.267333984375	56.1773414611816	76.267333984375
1/1/2021 12:09:00 AM	77.1164932250977	75.3260116577148	55.2260208129883	75.3260116577148
1/1/2021 12:10:00 AM	76.303108215332	76.0857620239258	55.9757690429688	76.0857620239258
1/1/2021 12:11:00 AM	75.4487228393555	76.2298812866211	56.1098899841309	76.2298812866211
1/1/2021 12:12:00 AM	75.5267562866211	75.3969497680664	55.2669563293457	75.3969497680664
1/1/2021 12:13:00 AM	76.4824752807617	76.3757858276367	56.2357902526855	76.3757858276367
1/1/2021 12:14:00 AM	77.1834335327148	75.9113388061523	55.7613410949707	75.9113388061523
1/1/2021 12:15:00 AM	76.7566604614258	75.7215042114258	55.5615081787109	75.7215042114258
1/1/2021 12:16:00 AM	75.7857055664063	76.5048904418945	56.3348960876465	76.5048904418945
1/1/2021 12:17:00 AM	75.6424560546875	75.5304107666016	55.350414276123	75.5304107666016
1/1/2021 12:18:00 AM	76.5703506469727	76.4585342407227	56.2685356140137	76.4585342407227
1/1/2021 12:19:00 AM	77.2122192382813	75.864128112793	55.6641273498535	75.864128112793

Rows 60

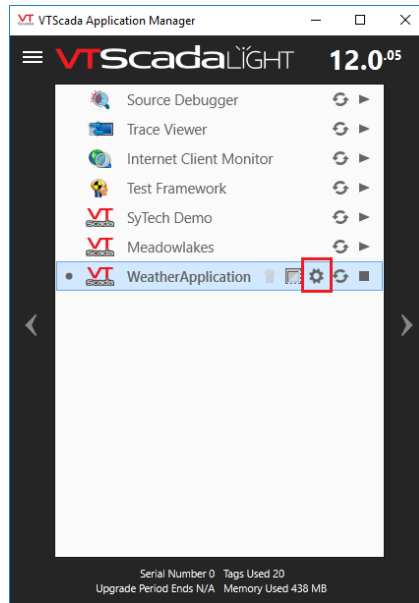
VTScada Alarms

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

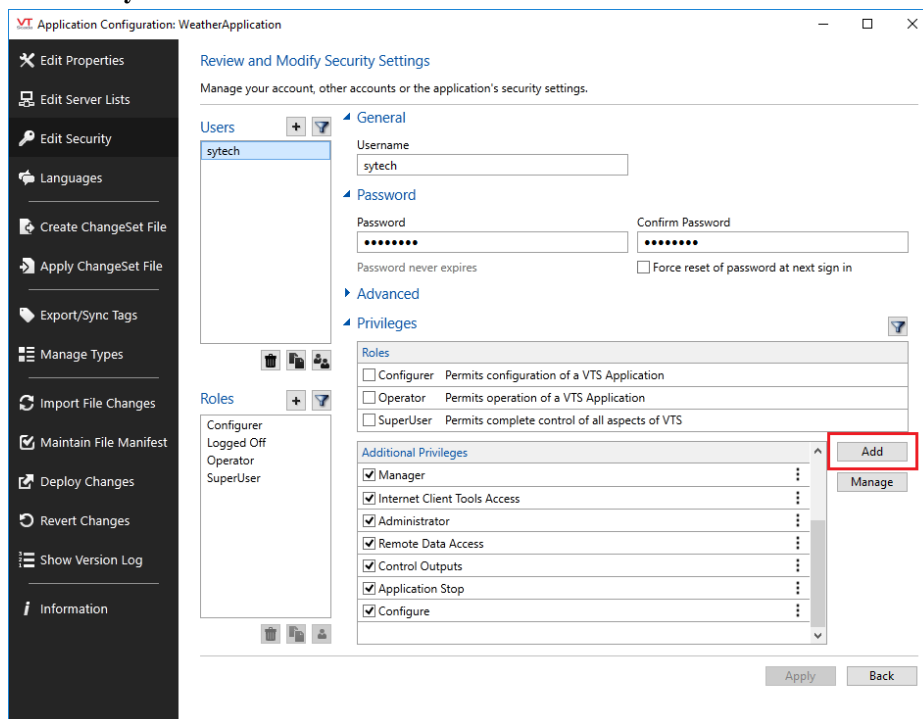
Set up VTScada

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

VTScada Alarms

Connector Name: VTScada_Alarms_1

Description:

Connection:

☐ DSN

Name:

☒ Manual

VTScada Server: 192.168.9.34

Port: 81 ☐ SSL

VTScada Realm: DemoSystem

User ID: sytech

Password: *****

OK Cancel

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.

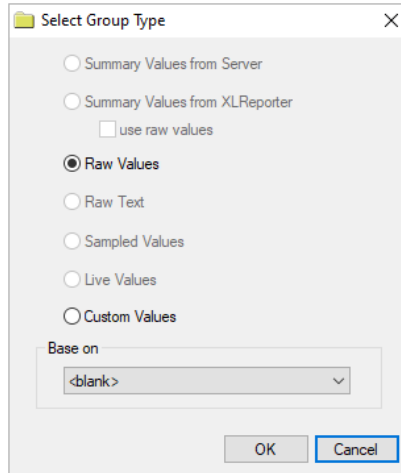
Manual

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

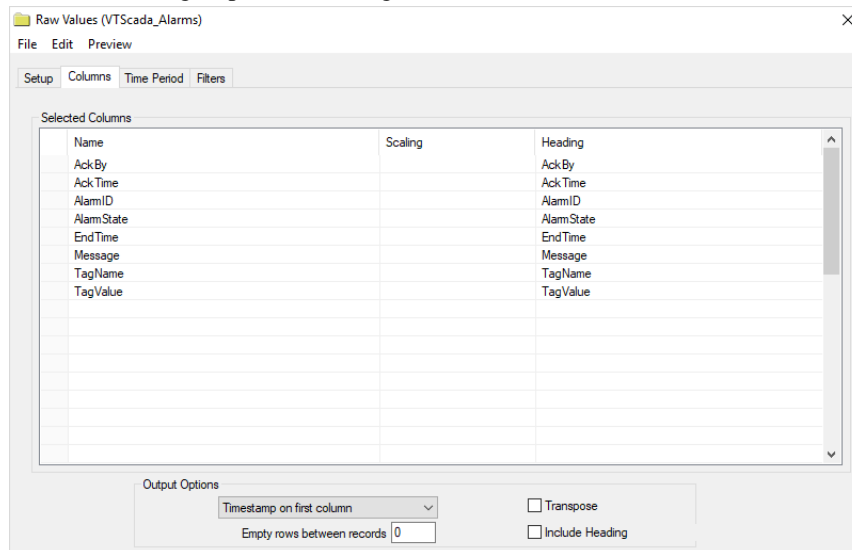
If the **Perform by Server** option is checked, any filter configured in this tab is put into the *WHERE* clause of the query sent to the database to retrieve data for the group. Otherwise, the configured filtering is performed by the reporting engine after the values are returned. It is recommended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

Preview

Date	AckBy	Ack Time	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

Rows 57

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