

Rockwell Automation Connectors

RSLinx Classic

This connector is used to get real time values from RSLinx classic via the RSLinx OPC DA Server.

The versions of RSLinx supported include:

- **RSLinx Classic Single Node**
- **RSLinx Classic OEM**
- **RSLinx Classic Professional**
- **RSLinx Classic Gateway**

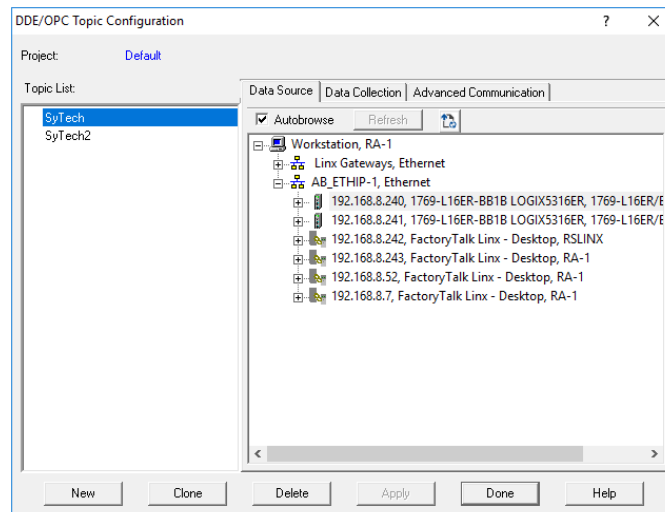
Note RSLinx Classic Lite and RSLinx Enterprise Editions do not provide the OPC DA Server and therefore are not supported.

To access the RSLinx Classic OPC server remotely, RSLinx Classic Gateway must be installed and licensed.

Set up RSLinx

Define a DDE/OPC Topic

Open the **RSLinx Classic** control panel from the **Rockwell Software** program group and select **DDE/OPC, Topic Configuration**.

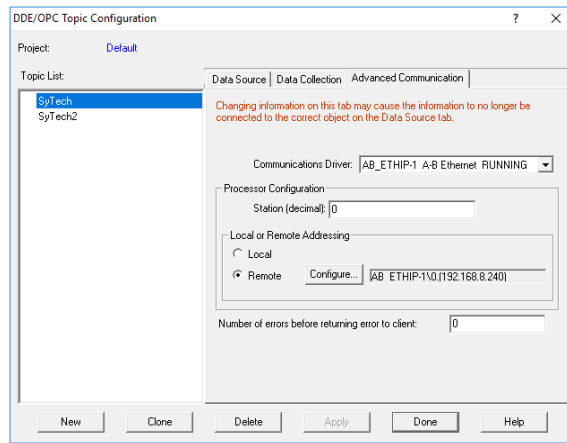


- Select **New**
- Enter a *name* for the topic
- *Browse* to the target device for the topic
- Click **Apply**

On the **Data Collection** tab

- Specify the *Processor Type*

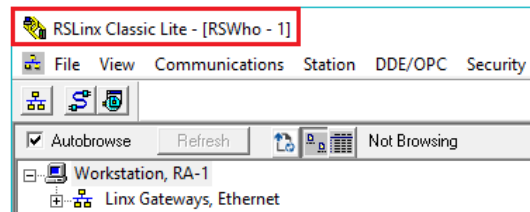
On the **Advanced Communication** tab select the settings.



Prerequisites

Verify RSLinx License

Open the **RSLinx Classic** control panel from the **Rockwell Software** program group. In the title bar verify that the installed version is **NOT** Lite or Enterprise.



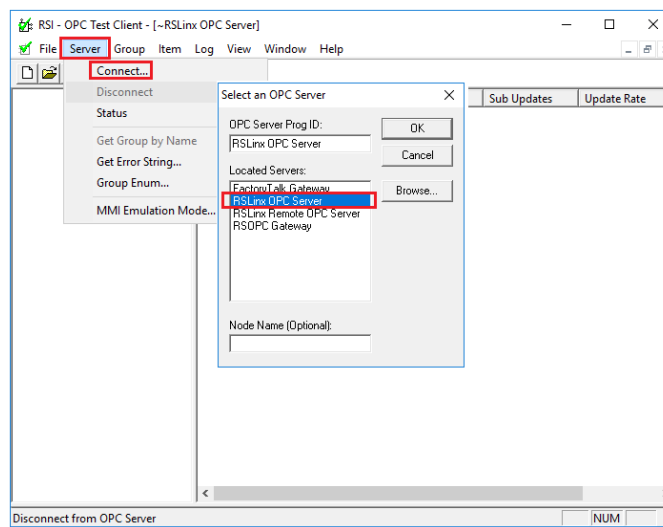
Verify Communication

Communication between RSLinx and the PLC can be verified using the OPC Test Client provided by Rockwell Software.

From the **Rockwell Software** program group, **RSLinx, Tools** and select the **OPC Test Client**. This client will validate the communication and verify that RSLinx is capable of exchanging data with XLReporter.

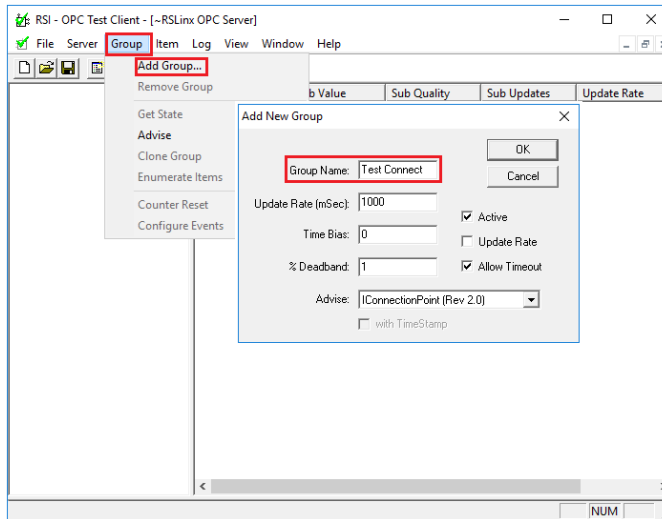
Select **Server**, **Connect** to open the **Select an OPC Server** window.

- Choose **RSLinx OPC Server** and click **OK**.



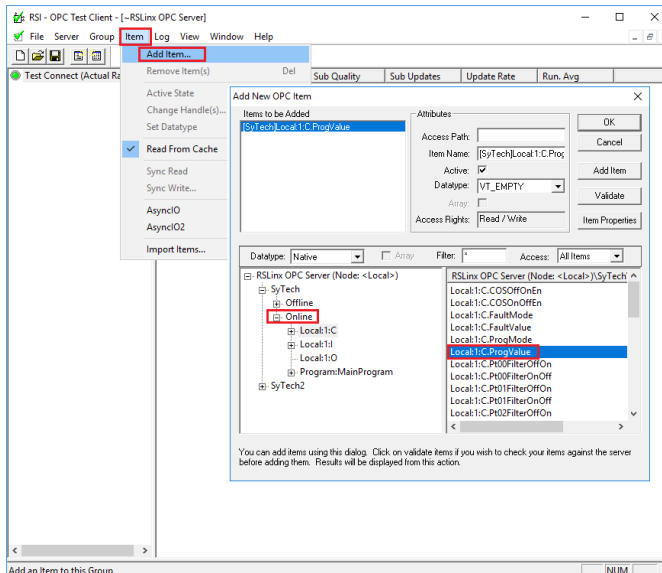
Select **Group**, **Add Group**.

- Enter a **Group Name** and click **OK**.



Select **Item**, **Add Item** to open the **Add New OPC Item** window.

- Select a tag by navigating in the lower left list, selecting a tag on the lower right list, and clicking **Add**.



- Click **OK** to return to the **OPC Test Client** window.

All the selected tags appear along with their real-time values, type, quality, and timestamp.

If the client does not respond as described contact Rockwell Automation technical support to troubleshoot and correct these issues.

Remote Communication

If XLReporter is not installed on the same machine as RSLinx, 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 RSLinx 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 the OPC DA server, certain DCOM settings must be enabled. For details on what DCOM settings to enable, see [OPC and DCOM: 5 Things You Need to Know](#).

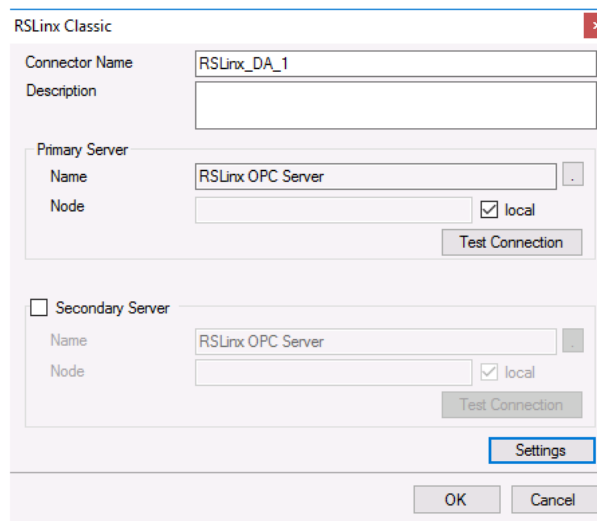
Windows Firewall

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

Connector

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

- Click **Add**
- Select **Rockwell Automation, RSLinx Classic**
- Click **OK**



Primary Server

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

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

Secondary Server

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

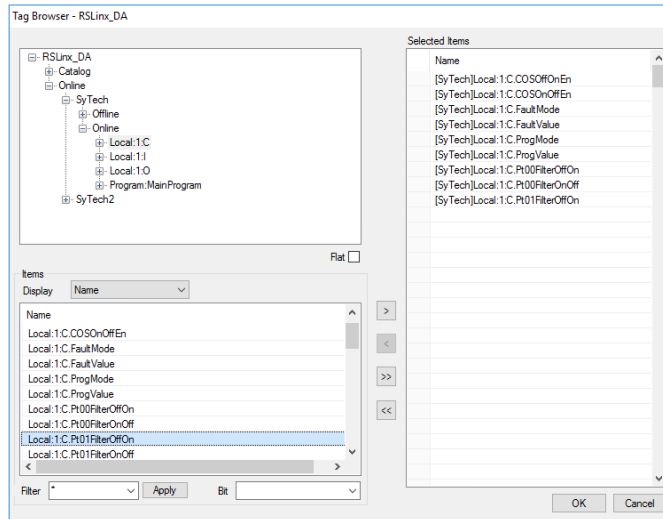
Settings

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

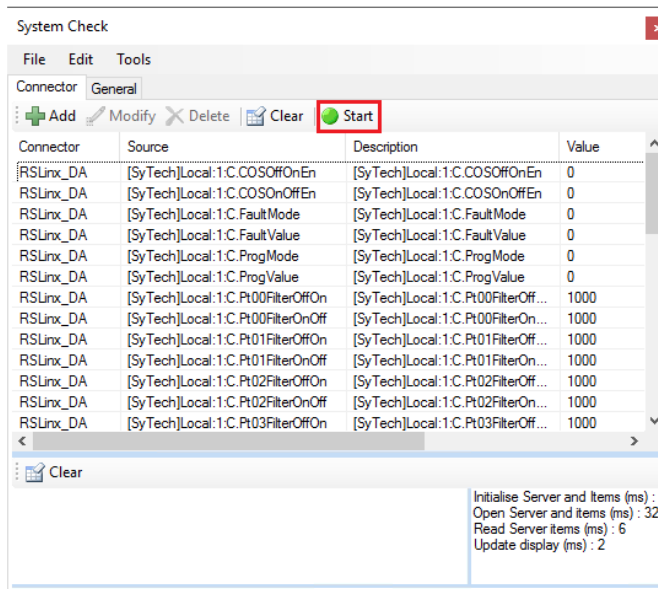
Verify Data Communication

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

- Click **Add**
- Choose the *RSLinx Connector* from the dropdown list
- Click the pushbutton ([...]) next to Items to open the **Tag Browser** window.
- Select one or more tags and click **OK**



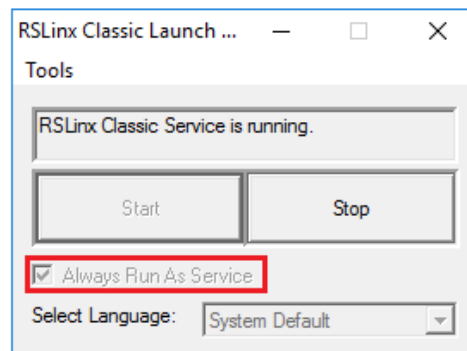
- Click **Start** to verify the communication



Scheduling

Windows Service

If XLReporter's Scheduler is set to *Run as a Service*, RSLinx must also be configured to start as a service.



From the **RSLinx** program group, open the **RSLinx Launch Control Panel**. Verify **Always Run As Service** option is checked. If it is not, click **Stop**, enable the option, and click **Start**.

FactoryTalk Linx Gateway Real-time values

This connector is used to get real time values via the FactoryTalk Linx Gateway OPC DA Server. The versions of FactoryTalk Linx Gateway that support OPC DA include:

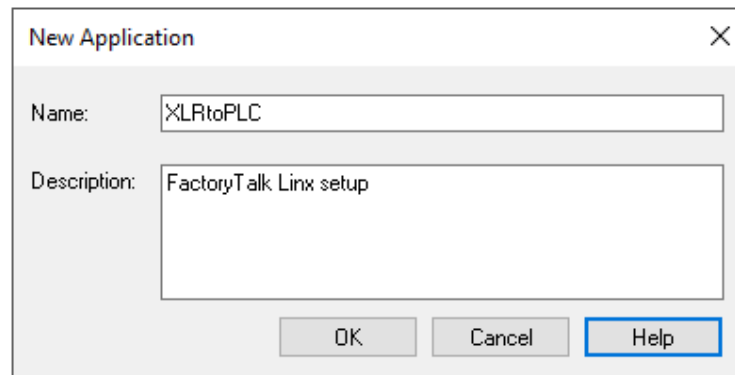
- **FactoryTalk Linx Gateway Basic** – Local FactoryTalk Directory up to 1000 tags
- **FactoryTalk Linx Gateway Standard** – Local FactoryTalk Directory up to 5000 tags
- **FactoryTalk Linx Gateway Distributed** – Local or Network FactoryTalk Directory up to 32,000 tags
- **FactoryTalk Linx Gateway Professional** – Local or Network FactoryTalk Directory No limit on tags

Set up FactoryTalk Linx

Open the **FactoryTalk Administration Console** from the **Rockwell Software** program group and select the directory type (*Local* or *Network*).

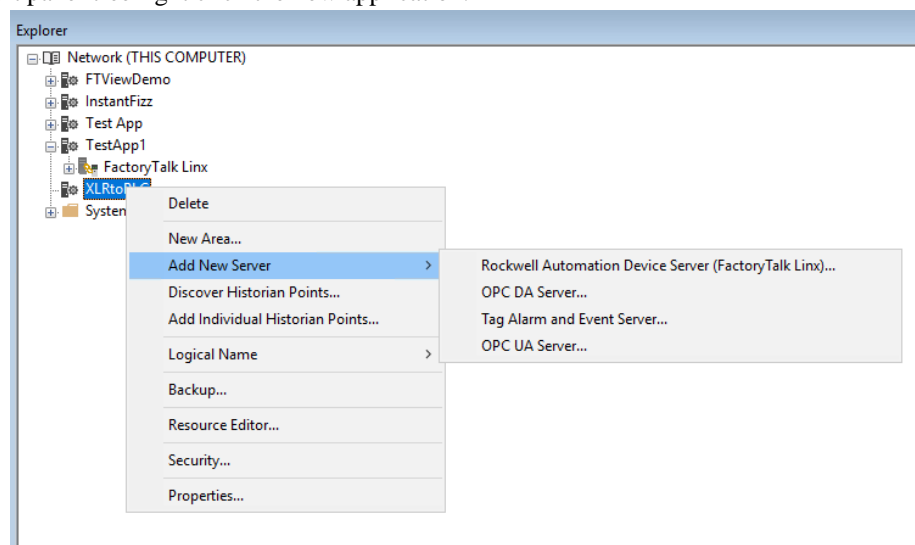
Create a New Application

If no application is currently set up, right click the top level of the left panel tree and select **New Application...**

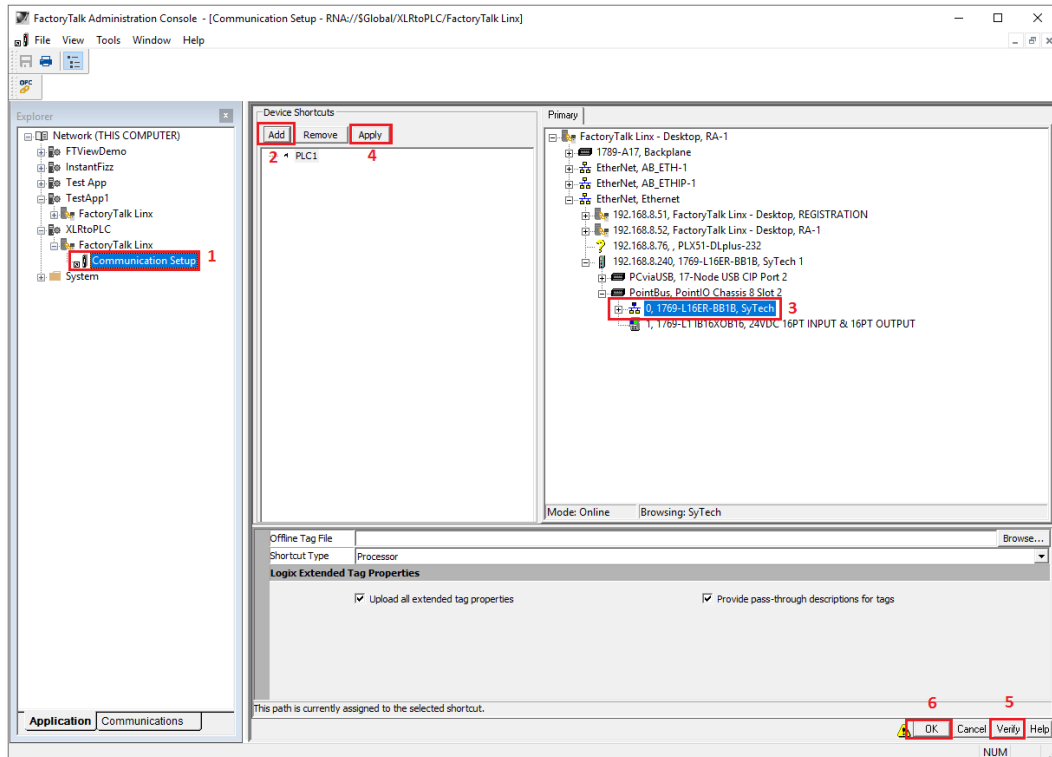


- Enter a **Name** and **Description**
- Click **OK**

In the left panel tree right click the new application.



- Select **Add New Server, Rockwell Automaton Device Server (FactoryTalk Linx)...**
- Click **OK**.
- **Expand FactoryTalk Linx**.
- Double click onto **Communication Setup**.

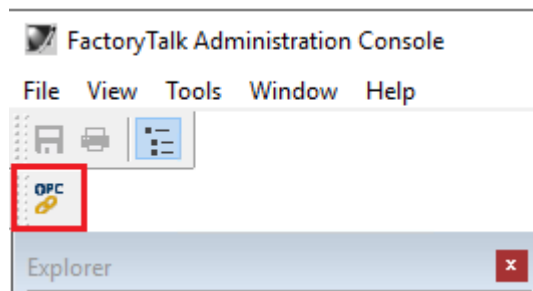


In the **Device Shortcuts** panel click **Add**.

- Enter a *name* for the shortcut.
- *Browse* to the device.
- Click **Apply**.
- Select **Verify**.
- Click **OK**.

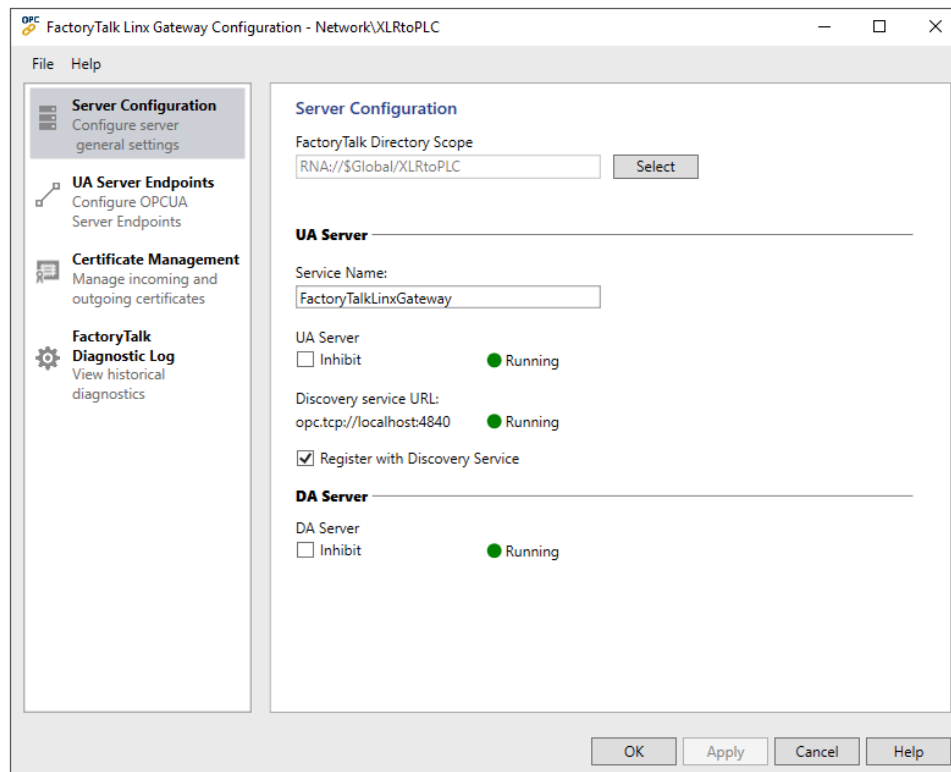
Set up FactoryTalk Linx Gateway Configuration

In the **FactoryTalk Administration Console** select **OPC**.



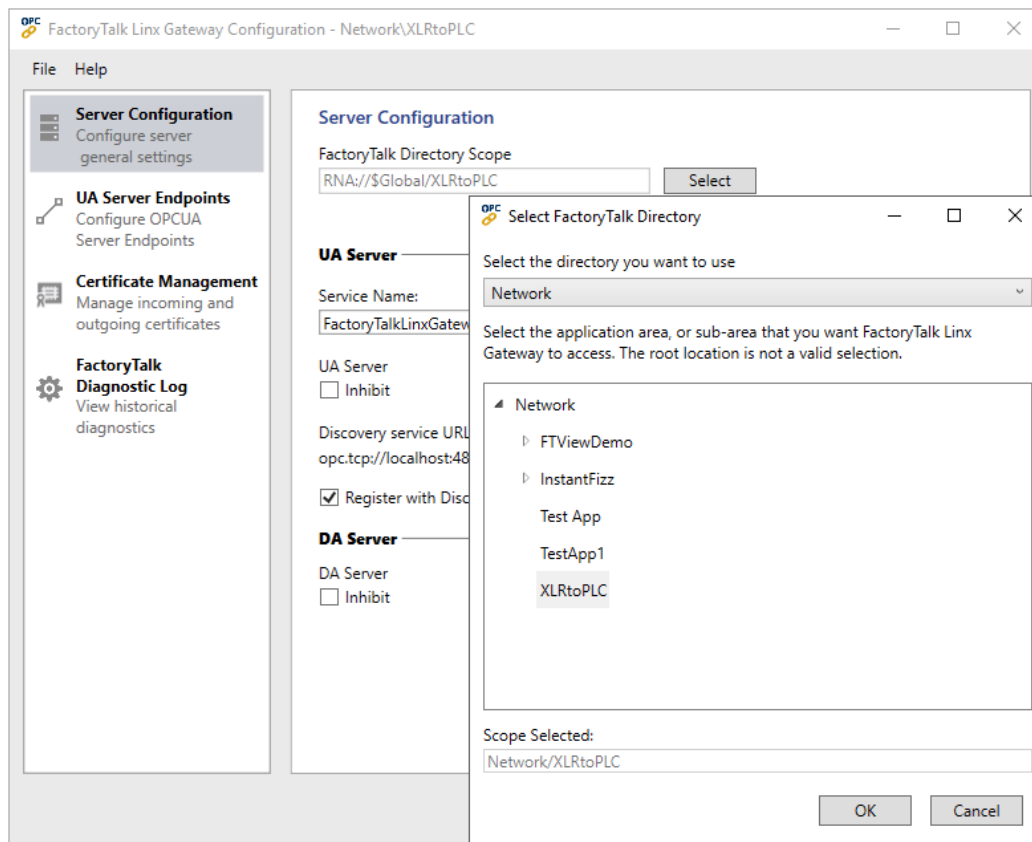
Server Configuration

In the **FactoryTalk Linx Gateway Configuration** select **Server Configuration**.



Under **Server Configuration**, for **FactoryTalk Directory Scope**,

- Click **Select**.



- Select the **Directory** from the drop-down list at the top.
- Expand the **Directory** and select the application or sub-area to access
- Click **OK**.
- Back in the **FactoryTalk Linx Gateway Configuration** click **Apply**.

Prerequisites

Verify License

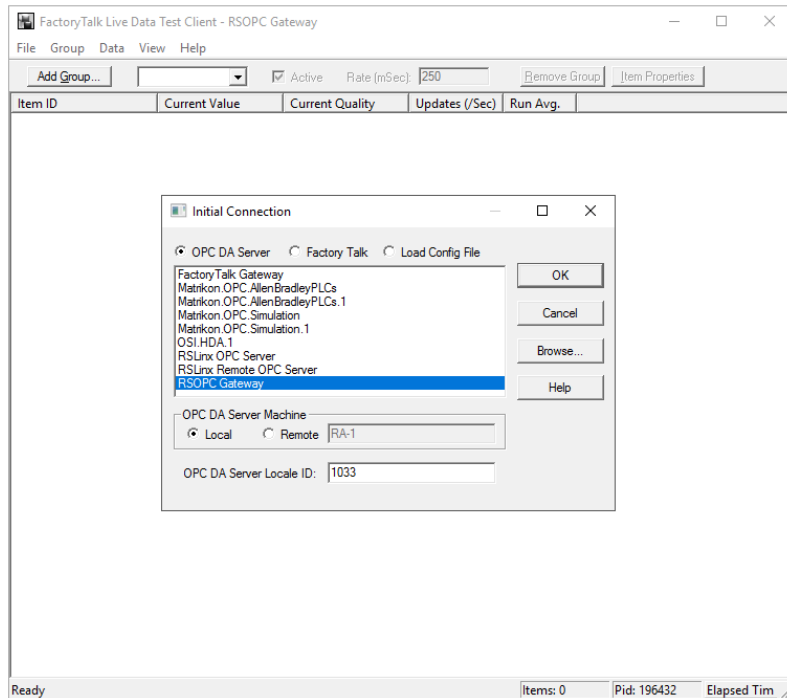
To verify a license for the FactoryTalk Linx Gateway server, open the **FactoryTalk Activation Manager**.

Under **Manage Activations**, ensure one of the FactoryTalk Linx Gateway versions mentioned above is listed and a license is available.

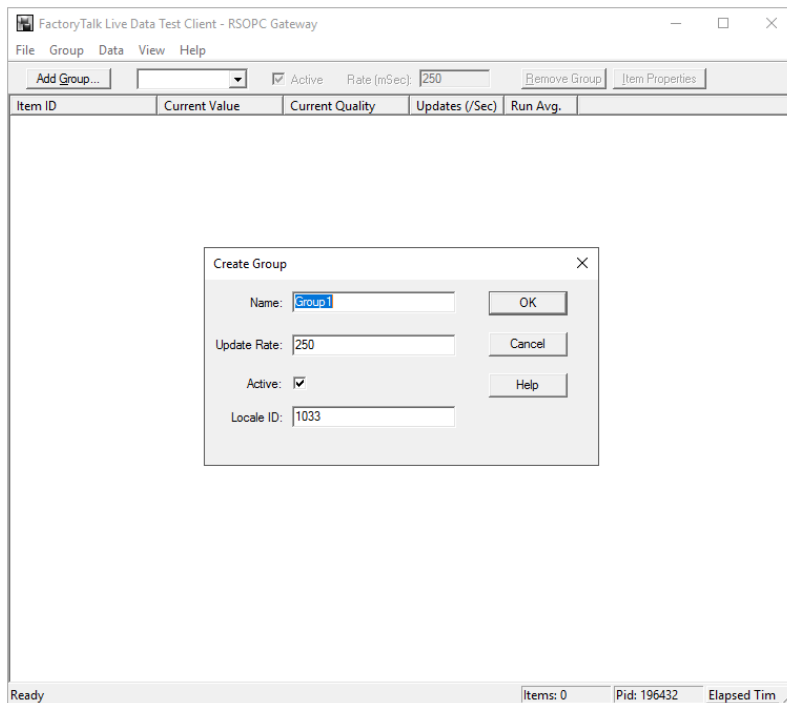
Verify Communication

Communication between FactoryTalk Linx Gateway and the PLC can be verified using the OPC test client provided by Rockwell Software.

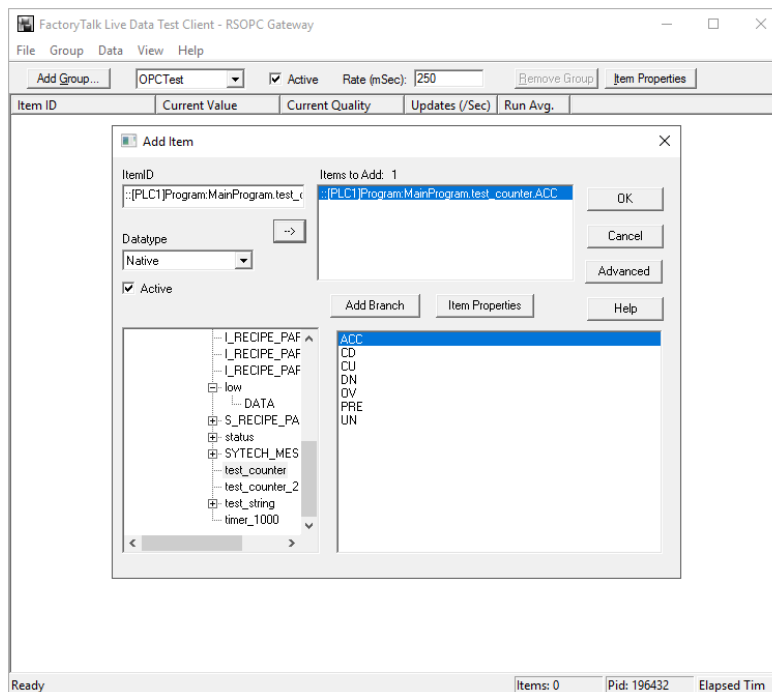
From the **Rockwell Software** program group and select the **FactoryTalk Live Data Test Client**. This client validates the communication and verifies that FactoryTalk Linx is capable of exchanging data with **XLReporter**.



- Choose *RSOPC Gateway* or *FactoryTalk Gateway* and click **OK**.



- Enter a **Group Name** and click **OK**.



- Select a tag by navigating in the lower left list, selecting a tag on the lower right list
- Click **OK** to return to the window.

All the selected tags appear along with their real-time values, type, quality, and timestamp.

If the client does not respond as described contact Rockwell Automation technical support to troubleshoot and correct these issues.

Remote Communication

If XLReporter is not installed on the same machine as FactoryTalk Linx Gateway, 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 the FactoryTalk Linx OPC DA server 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.

Windows Firewall

If the Windows Firewall is enabled on the machine where the FactoryTalk Linx OPC DA server is running **TCP Port 135** must be opened for remote clients to connect.

Connector

OPC DA

To configure the connector to the FactoryTalk Linx OPC DA server, from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **Rockwell Automation, FactoryTalk Linx Gateway Real-time values (OPC DA)**
- Click **OK**

The screenshot shows a dialog box titled "FactoryTalk Linx Gateway Real-time values". It contains the following fields and controls:

- Connector Name:** FactoryTalk_DA_1
- Description:** (empty text box)
- Primary Server:**
 - Name:** FactoryTalk Gateway
 - Node:** (empty text box) with a checked **local** checkbox.
 - Test Connection:** button
- Secondary Server:** (disabled section, indicated by a greyed-out checkbox)
 - Name:** FactoryTalk Gateway
 - Node:** (empty text box) with a checked **local** checkbox.
 - Test Connection:** button
- Settings:** button
- OK** and **Cancel** buttons at the bottom.

Primary Server

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

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

Secondary Server

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

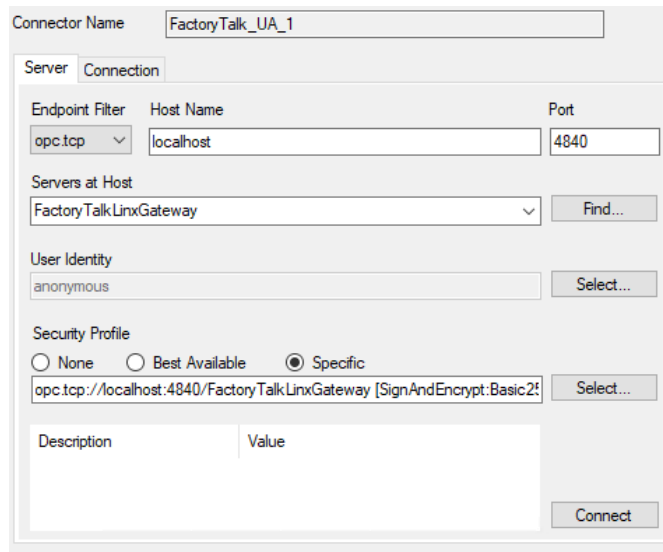
Settings

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

OPC UA

To configure the connector to the FactoryTalk Linx OPC UA server, from the **Project Explorer** select **Data, Connectors**.

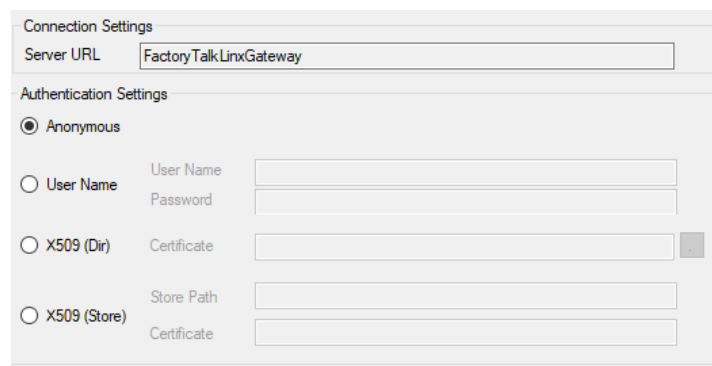
- Click **Add**
- Select **Rockwell Automation, FactoryTalk Linx Gateway Real-time values (OPC UA)**
- Click **OK**



Under the **Server** tab, for **Host Name**, select or enter the name or IP address of the machine where the server is running. For **Port** specify the **Port** as configured in the **FactoryTalk Administration Console, OPC, UA Server Endpoints** settings.

For **Servers at Host** click **Find** and then choose *FactoryTalkLinxGateway*.

For **User Identity** click **Select** to specify



If in the **FactoryTalk Administration Console**, the **UA Server Endpoints** configuration has **Anonymous** checked under the **Authentication Settings**, **Anonymous** can be selected here. If **FactoryTalk Security User** is checked (and **Anonymous** is not), **User Name** must be selected here and specified as a valid FactoryTalk user.

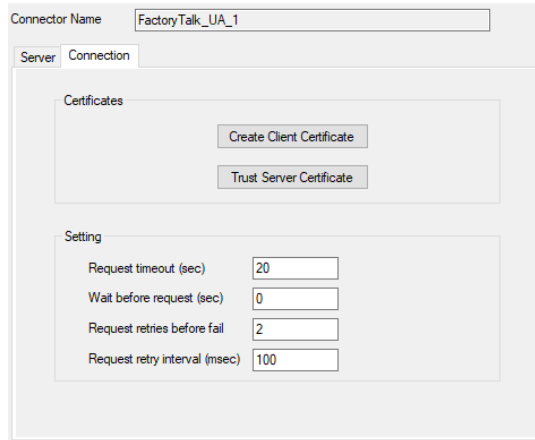
Security Profile defines the endpoint to connect to for the FactoryTalk Linx OPC UA Server. Select the profile that matches the **Security** set in the UA Server Endpoints in the **FactoryTalk Administration Console**. To use a specific endpoint, select **Specific** and click the **Select** button.

Click **Get Endpoints** to get the list of available endpoints, select the one that best fits with the server settings and click **OK**.

Click **Connect** to ensure connectivity. This may require an exchange of certificates between the client and the server. If prompted to exchange, click **Yes**. This action requires Windows administrator rights.

If the **Connect** fails, be sure that the client certificate is trusted by the server and then attempt to **Connect** again. For more information, see the Trusted Clients section below.

Under the **Connection** tab are **Certificate** options and general **Settings**.



The screenshot shows a software interface window titled "Connector Name" with the value "FactoryTalk_UA_1". Below the title bar, there are two tabs: "Server" and "Connection", with "Connection" being the active tab. The "Connection" tab is divided into two sections: "Certificates" and "Setting".

The "Certificates" section contains two buttons: "Create Client Certificate" and "Trust Server Certificate".

The "Setting" section contains four input fields with labels and values:

Setting	Value
Request timeout (sec)	20
Wait before request (sec)	0
Request retries before fail	2
Request retry interval (msec)	100

The Client Certificate is automatically created on installation. If required, to recreate the certificate select **Create Client Certificate**. For most OPC UA servers, the default settings will be sufficient, but if the server requires more advanced certificate settings you can specify them with the **Advanced** button. Click **Create** to creating the client certificate.

Trusted Clients

In some cases, the client must be accepted by the server to make requests. From within the **FactoryTalk Administration Console, OPC** select Certificate Management.

Under the **Incoming Certificate** tab, if the client certificate is listed under **Rejected Certificates**, select it, and click **Trust**.

FactoryTalk Optix Real-time Values

This connector is used to get real time values via the FactoryTalk Optix OPC UA Server.

Prerequisites

Follow the FactoryTalk Optix documentation for creating and configuring the OPCUA Server. The documentation can be found in the **Help** menu in the studio or online here:

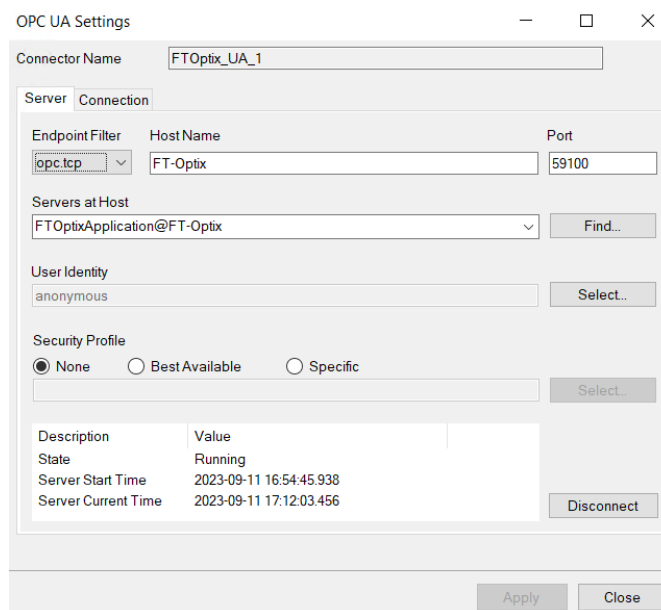
[FactoryTalk Optix Help Center \(rockwellautomation.com\)](http://rockwellautomation.com)

Connector

OPC UA

To configure the connector to the FactoryTalk Optix OPC UA server, from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **Rockwell Automation, FactoryTalk Optix Real-time values**
- Click **OK**

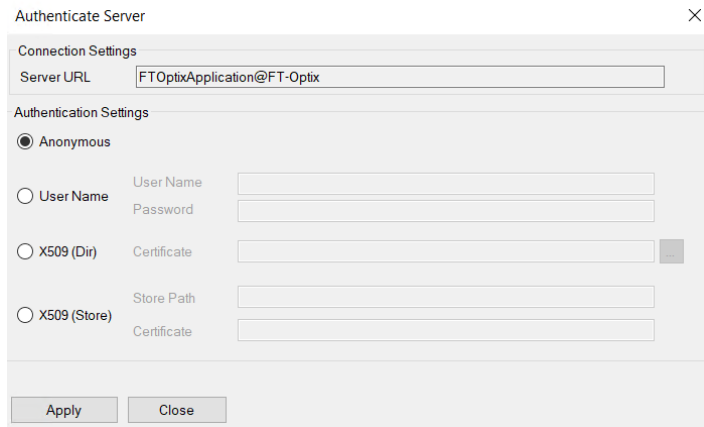


Under the **Server** tab, for **Host Name**, select or enter the name or IP address of the machine where the server is running. For **Port** specify the **Port** as configured in the **FactoryTalk Optix Studio, OPC, UA Server Endpoint URL** setting of the **OPCUA Server Properties**.

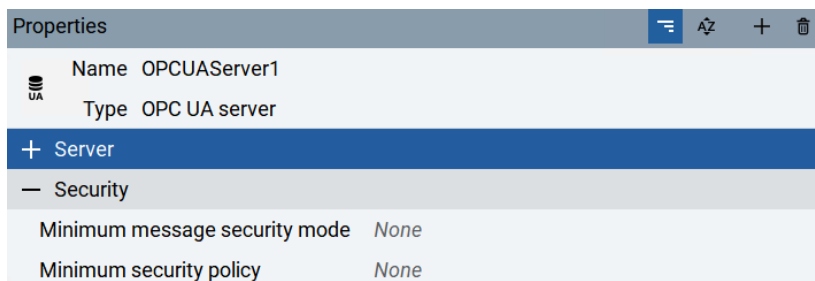


For **Servers at Host** click **Find** and then choose *FTOptixApplication@MACHINE NAME* where *MACHINE NAME* is the name of the host machine where FT Optix is running.

For **User Identity** click **Select** to specify



If in the **FactoryTalk Optix Studio**, the **OPCUA Server Properties** configuration has **None** specified under the **Minimum message security mode** and **Minimum security policy** settings, **Anonymous** can be selected here.



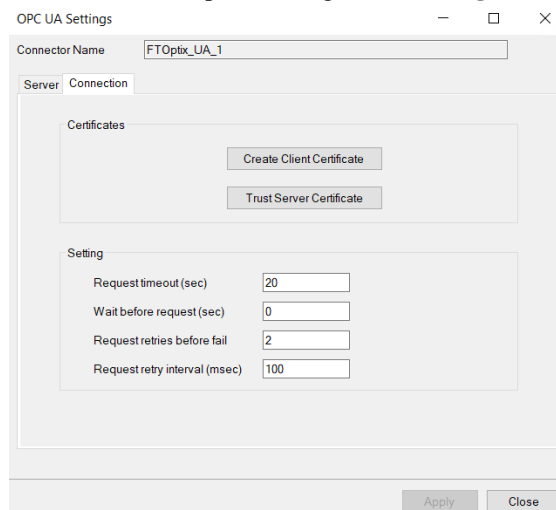
Security Profile defines the endpoint to connect to for the FactoryTalk Optix OPC UA Server. Select the profile that matches the **Security** settings in the **FactoryTalk Optix Studio** under the **OPCUA Server Properties**. To use a specific endpoint, select **Specific** and click the **Select** button.

Click **Get Endpoints** to get the list of available endpoints, select the one that best fits with the server settings and click **OK**.

Click **Connect** to ensure connectivity. This may require an exchange of certificates between the client and the server. If prompted to exchange, click **Yes**. This action requires Windows administrator rights.

If the **Connect** fails, be sure that the client certificate is trusted by the server and then attempt to **Connect** again. For more information, see the **Trusted Clients** section below.


Under the **Connection** tab are **Certificate** options and general **Settings**.

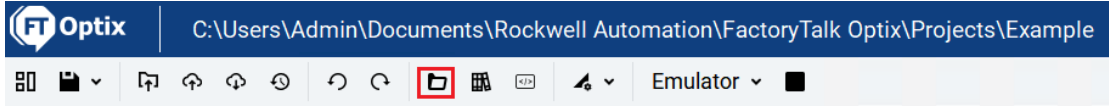


The Client Certificate is automatically created on installation. If required, to recreate the certificate select **Create Client Certificate**. For most OPC UA servers, the default settings will be sufficient, but if the server requires more advanced certificate settings you can specify them with the **Advanced** button. Click **Create** to creating the client certificate.

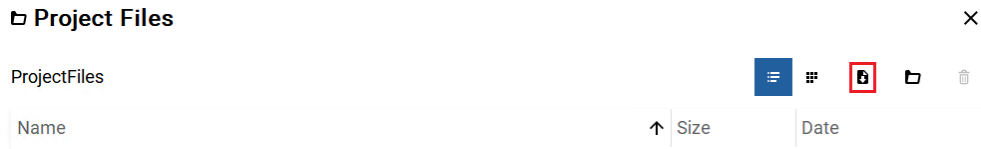
Trusted Clients

Client certificate files can be imported at design time from within the FTOptix Studio.

- Open the required project in the FTOptix Studio
- Select the  button at the top



- Select a certificate and select  button to add it to the project



- Click Close at the bottom to save this change.

FactoryTalk View ME Historical values

This connector is used to get historical values from a set of text files recorded by a DataStore Plus control.

For information on the setup of the DataStore Plus control as well as details on the set up of the connector, see the **PanelView Plus Historical values** section further down in this document.

FactoryTalk View ME Alarms

Connector

This connector is used to get historical alarm values from a set of alarm files exported from a FactoryTalk View ME application.

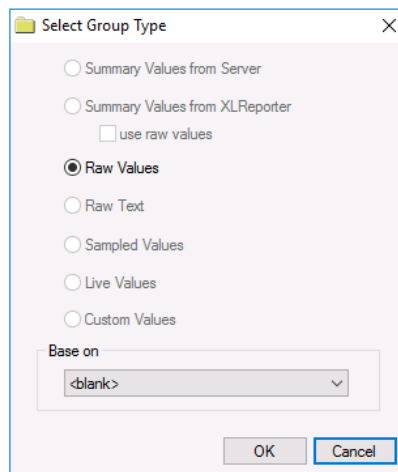
For information on the setup of this connector, see the **Text File Historian** connector section of the **Text File** document in the **CONNECTIVITY** section of the **Document Library**.

Note that by default the **File Settings** are configured with custom headings that match what the exported alarm files contain. Also note that the connector settings are defaulted to indicate the date and time elements of the file name of the alarm files is the *End* of the period and that the **Date Column** in the files is stored in *UTC Date and Time*.

Data Group

The following describes the historical data group settings specific to this connector.

Group Types



For **FactoryTalk View Alarms** the following group types are available:

Raw Values

This group retrieves every alarm logged to the database between the start and end time specified.

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 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.

FactoryTalk View ME Audit Logs

Connector

This connector is used to get historical records from a set of audit log text files exported from a FactoryTalk View ME application.

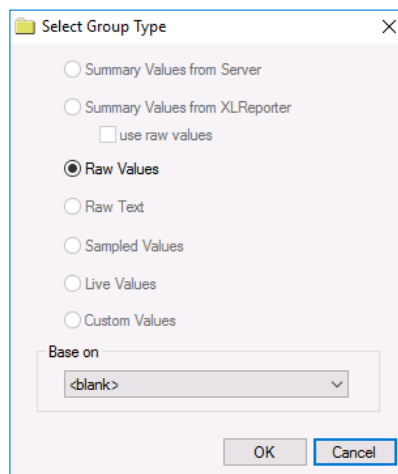
For information on the setup of this connector, see the **Text File Historian** connector section of the **Text File** document in the **CONNECTIVITY** section of the **Document Library**.

Note that by default the **File Settings** are configured with custom headings that match what the exported alarm files contain. Also note that the connector settings are defaulted to indicate the date and time elements of the file name of the alarm files is the *End* of the period and that the **Date Column** in the files is stored in *UTC Date and Time*.

Data Group

The following describes the historical data group settings specific to this connector.

Group Types



For **FactoryTalk View Alarms** the following group types are available:

Raw Values

This group retrieves every alarm logged to the database between the start and end time specified.

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 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.

FactoryTalk View SE Historical values

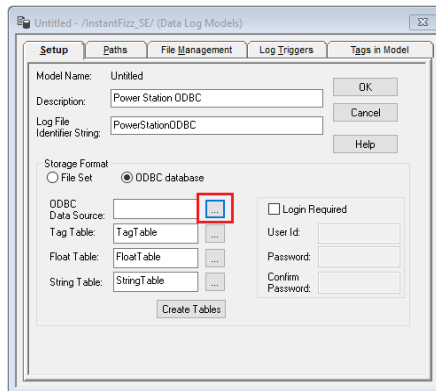
This connector is used to get historical values from FactoryTalk View SE via the **Data Log Model** feature. Note that with this connector only **Data Log Models** with the **Storage Format** set to **ODBC** are supported. To get values from the **File Set**, see the **FactoryTalk View SE Data Agent Data File(s)** section.

Set up Data Log Models

Open the **FactoryTalk View SE Studio** from the **Rockwell Software** or **FactoryTalk View** program group then open the current application.

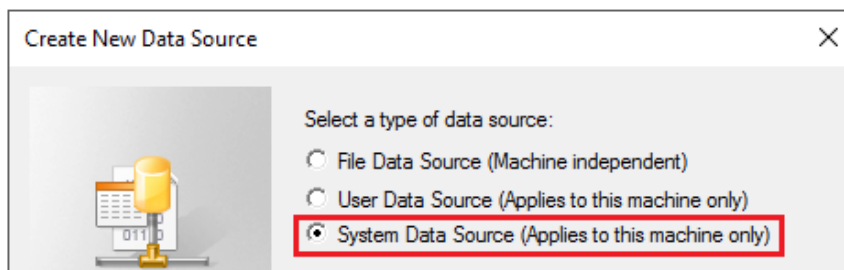
Under the **Data Log** folder in the **Explorer**, select the **Data Log Models** icon.

Under the **Setup** tab,

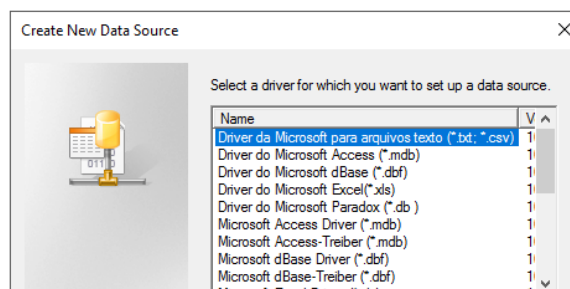


- Add a **Description** and *Log File Identifier String*.
- Set the **Storage Format** to *ODBC database*.
- For **ODBC Data Source** click the browse pushbutton [...]

Select the **System Data Source** tab. Use an existing DSN or select **New** to create a new one. For a new DSN,



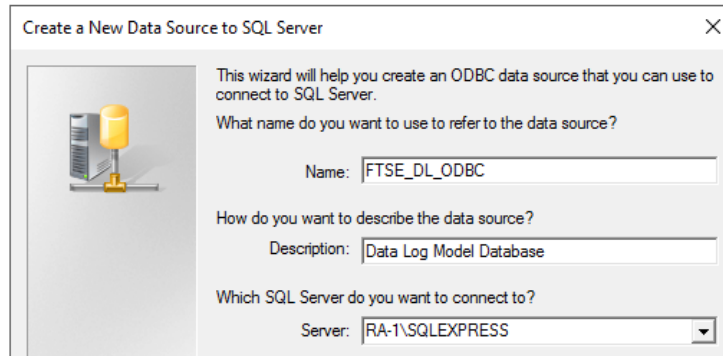
- Select **System Data Source**.
- Click **Next**.



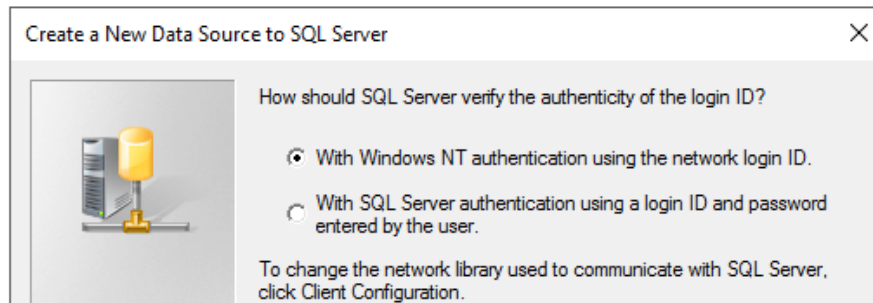
- Select the driver to make the connection the data source.

SQL Server/SQL Express Configuration

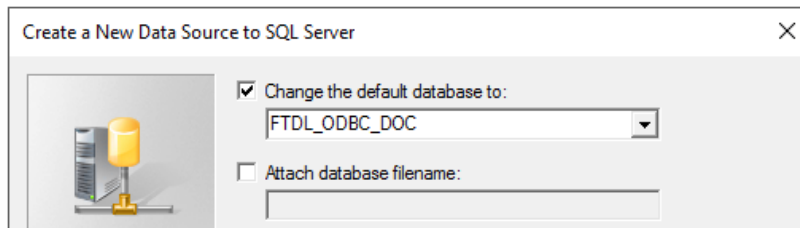
It is highly recommended to use SQL Server or SQL Server Express as the data source for the Data Log Model. SQL Server Express is a free and downloadable from Microsoft's website. For SQL Server or SQL Server Express,



- Enter a **Name**, **Description** and select **Server**. If the *Server* is not listed, enter it manually.
- Click **Next**.

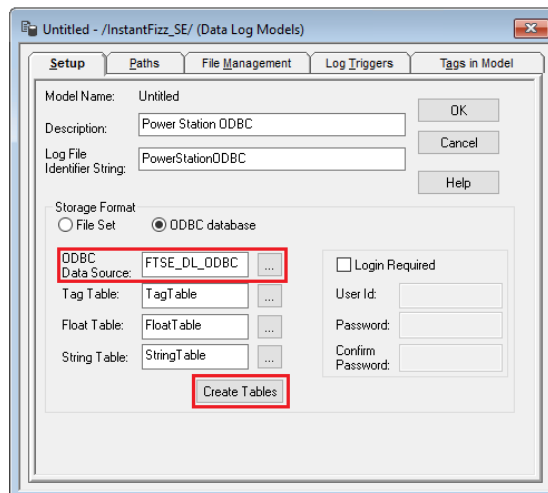


- Select the authentication type
- Click **Next**



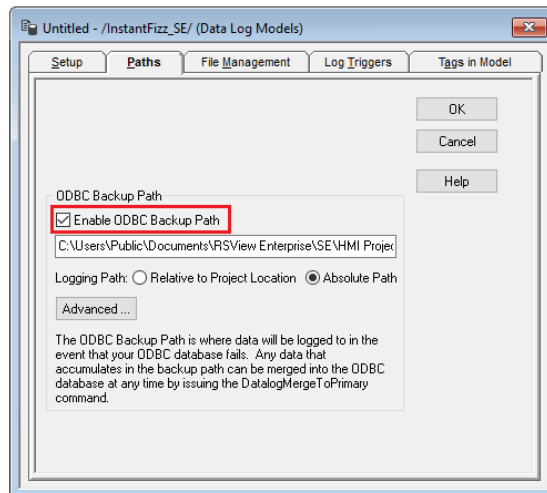
- Select the default database.
- Click **Finish**.

The DSN configured should now be set as the **ODBC Data Source**.



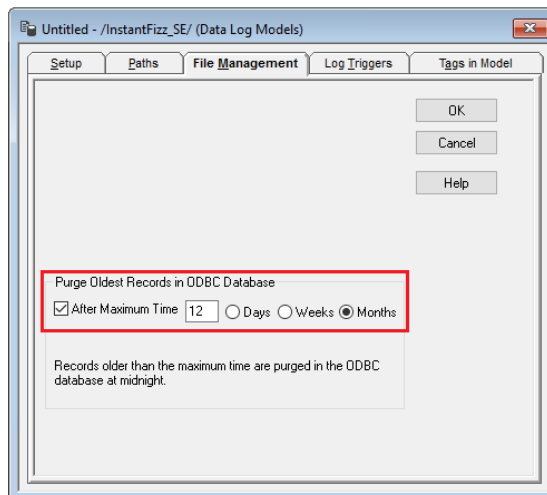
- Click **Create Tables**.

Under the **Paths** tab the **ODBC Backup Path** can be enabled so that if the database is unavailable, data is not lost.

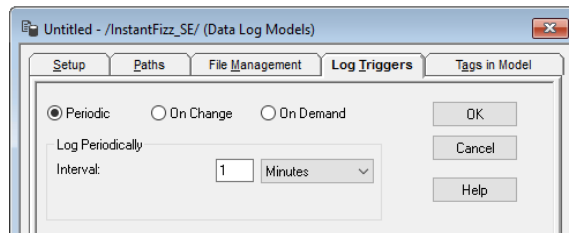


The total number of characters and spaces allowed for the path and name is 255.

Under the **File Management** tab, the **Purge Oldest Records in ODBC Database** option is available to periodically remove old historical data from the database.



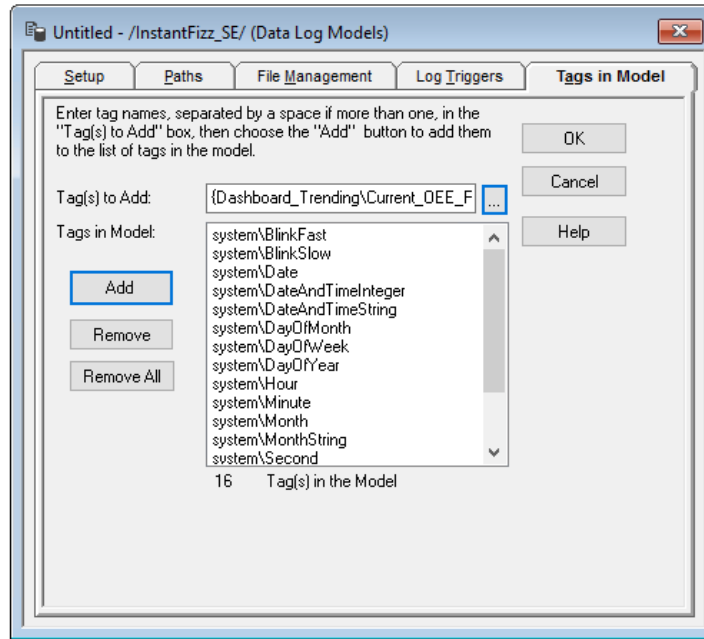
Under the **Log Triggers** tab,



- Specify how the logging of tag values will be triggered i.e., periodically, on change or on demand.

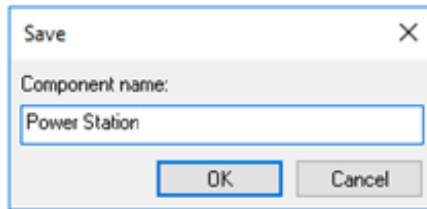
The **On Demand** option will log data when the **DataLogSnapshot** command is issued. This command can be issued from anywhere that commands and macros are supported. For example, it could be typed in the command line or specified as the action for an event. If **Periodic** or **On Change** is selected, on demand logging can still be used whenever it is appropriate.

Under the **Tags in Model** tab,



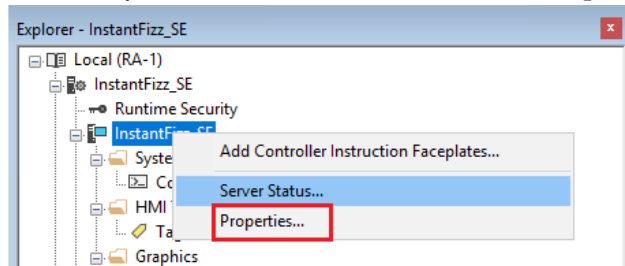
- Specify the tags to be logged.
The maximum number of tags that can be logged by one data log model is 10,000.
- Close the dialog.

On close the **Save** dialog is opened.



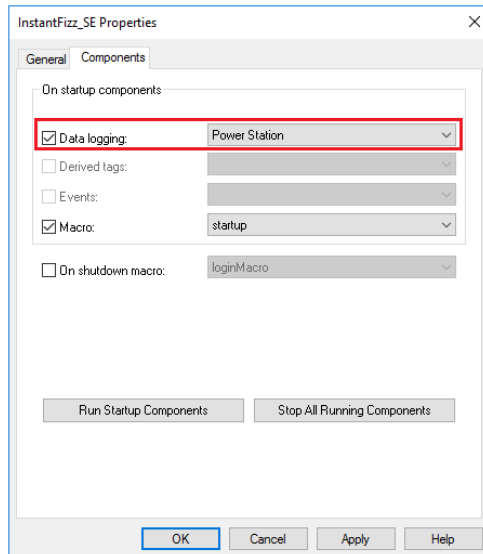
Start Data Log

To start the data log when FactoryTalk View SE starts, access the **HMI Properties** dialog.



- Right click on the application and select *Properties*.

Under the **Components** tab,



- Check **Data Logging** and select the data log model.

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

DataLogOn "Component name"

Where "Component name" is the data log model name. If the model's name has a space in it, enclose the name in quotes. The command can be issued from the command line or from a startup or login macro. For example:

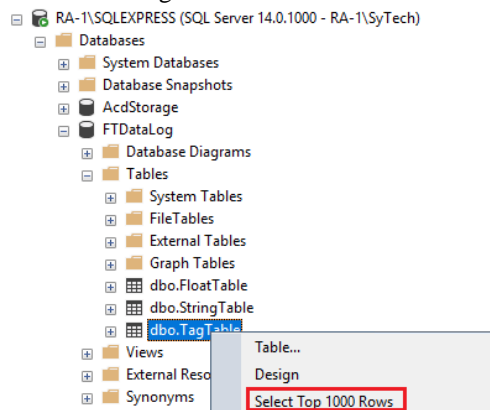
DataLogOn"Power Station"

Note that in FactoryTalk View SE, an HMI server can have up to 20 data log models running at one time.

Prerequisites

Verify Database

Open **Microsoft SQL Server Management Studio** and connect to the SQL Server or SQL Server Express instance set up for the Data Log Model.



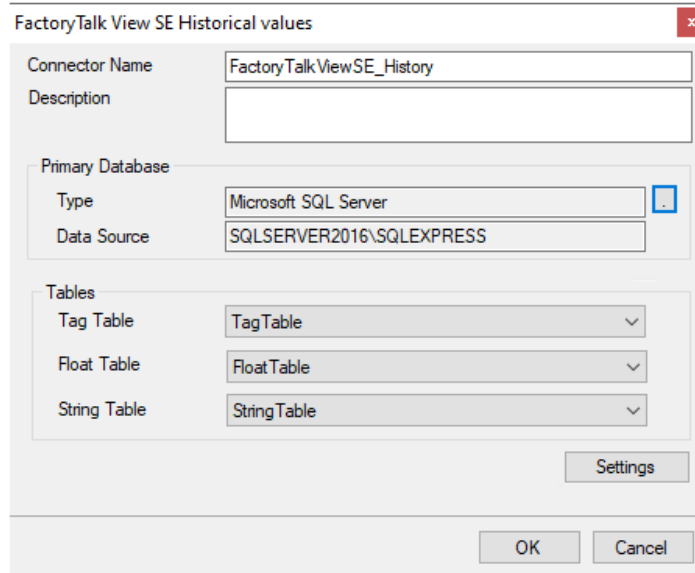
Expand **Database** and then the database configured for the Data Log Model and expand **Tables**. Right-click the *tag* and *float* tables and choose **Select Top 1000 Rows**.

If no data is returned contact Rockwell Automation technical support and correct these issues.

Connector

To configure the connector to the FactoryTalk View SE Historical values, from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **Rockwell Automation, FactoryTalk View SE Historical Values**
- Click **OK**



Primary Database

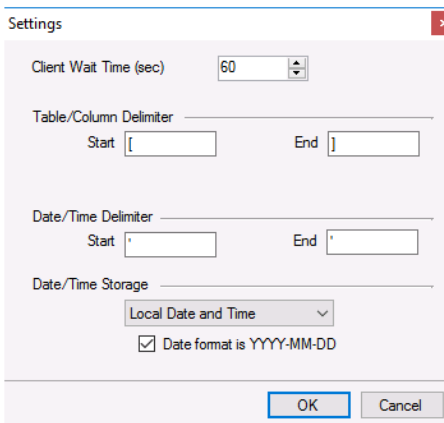
This defines a connection to the database where the **Data Log Model** is logging data. A browse button [...] is provided to define. If there are issues connecting to the database, please refer to the section in the Database Connectors document on the specific database.

Tables

Once the connection is established, the **Tag Table**, **Float Table** and **String Table** can be specified. This should be done exactly as they are in the **Data Log Model Setup** of FactoryTalk View SE.

Settings

The **Settings** button opens the **Settings** dialog that defines characteristics of the database that are used to retrieve data.



Typically, these settings are defaulted correctly based on the **Primary Server**.

If queries timeout, increase the **Client Wait Time**.

The delimiter and timestamp settings are typically filled in automatically for the database and can be modified for other databases.

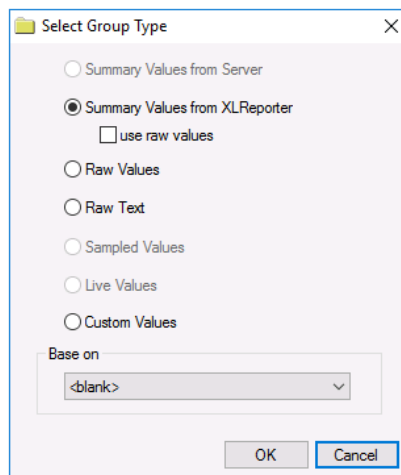
The **Date/Time Storage** settings define how timestamps are stored in the database. Using this setting the timestamps are manipulated when data is retrieved so that local timestamps are submitted in and returned.

Many databases require the Date format to be **YYYY-MM-DD** so that no interpretation needs to occur based on the Region settings of the Windows Operating System. It is recommended to always have this option checked.

Data Group

The following describes the historical data group settings specific to the **FactoryTalk View SE Historical Values** connector.

Group Types



For **FactoryTalk View SE Historical Values** the following group types are available:

Summary Values from XLReporter

This group type retrieves sampled values from the database 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**.

Raw Values

This group retrieves every numeric value logged to the database between the start and end time specified.

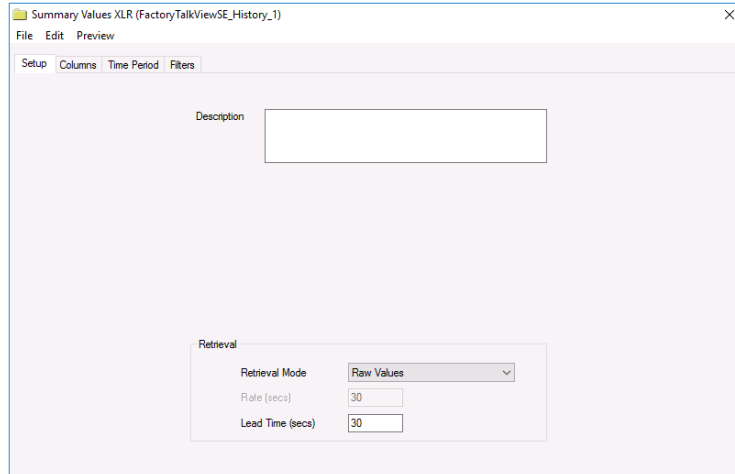
Raw Text

This group retrieves every textual value logged to the database 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 in the database.

Group Settings Setup Tab

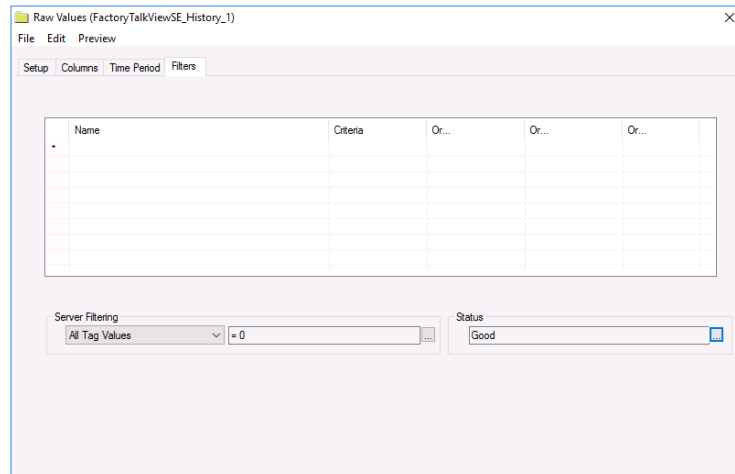


Retrieval (Summary Values for XLReporter Group)

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 FactoryTalk View SE only *Raw Values* are available.
- **Lead Time**
The amount of time (in seconds) to retrieve data before the start time.

Filters Tab



Server Filtering

To exclude values that do not match the criteria, set **Server Filtering** to *All Tag Values* and the condition accordingly.

The **Marker** column in the Float Table and String Table is used to mark different events that may affect data logging. For example, when the data log model starts, the first set of records has Marker set to B. Normally these records are included in data retrieval. To filter out these records, select **Marker** and set the condition to $\langle \rangle$ 'B'. For more information about the **Marker** column, see the FactoryTalk View documentation.

Status Filtering (Raw Values and Raw Text Group)

For **Raw Values** and **Raw Text** group types, the **Status** can be filtered so only values that meet the criteria selected are retrieved. For more information on the Status types available, see the FactoryTalk View documentation.

Calculations

When calculations are performed, any value where the **Status** column is set to *E*, *D* or *U* are considered bad quality and are not included in the calculation.

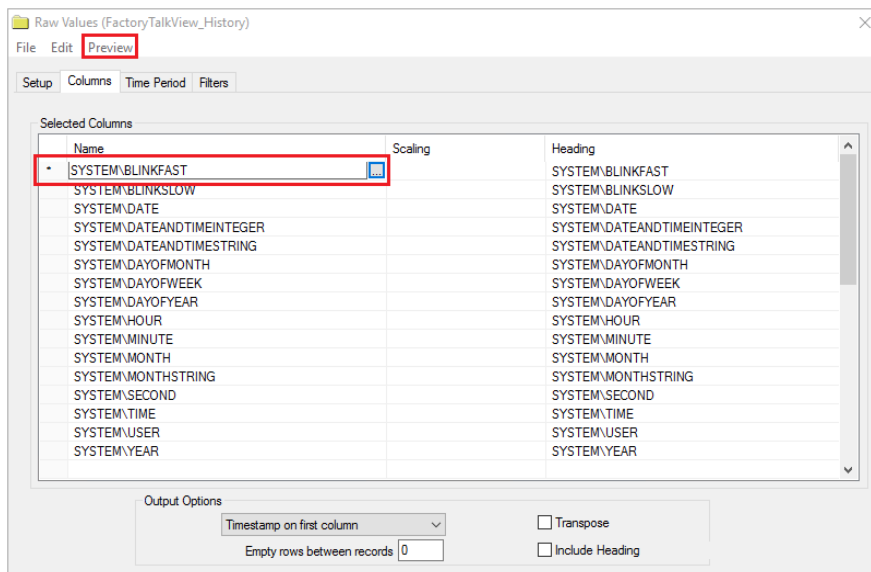
Verify the Data Connector

From the **XLReporter Project Explorer** select, **Tools, Connector Groups**.

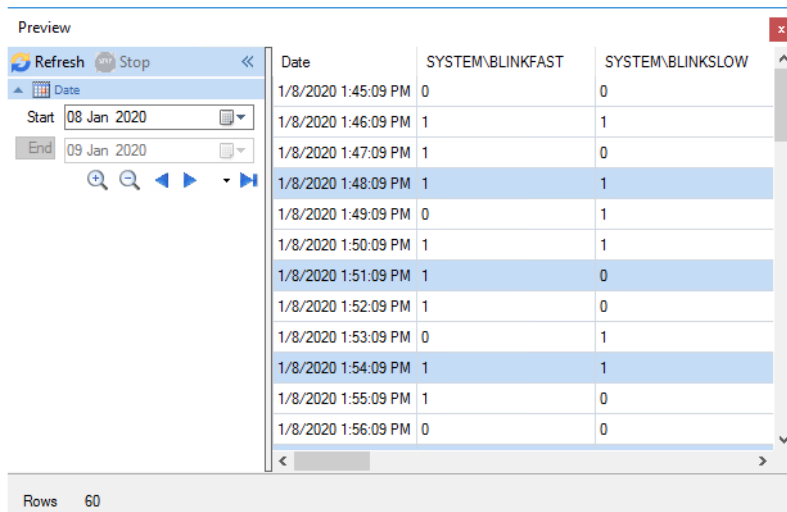
Select the *FactoryTalk historical connector* and then select **Add**.

- Set the **Type 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**.



FactoryTalk View SE Data Agent Real-time values

This connector is used to get real-time data from FactoryTalk View SE using the FactoryTalk View Data Agent.

Set up FactoryTalk View SE Data Agent

The FactoryTalk View Data Agent can be installed for FactoryTalk View SE version 10 and above on a FactoryTalk View SE stand-alone system, the FactoryTalk View SE server or any FactoryTalkView SE client. To obtain the FactoryTalkView SE Data Agent installation media, please contact SyTech, Inc. You must provide your FactoryTalk View SE product serial number to be eligible.

After installation, the configuration for Data Agent must be updated so that any machine on the network can request data. To do so, open *RA.DataAgent.SDK.Service.Host.exe.config* using a text editor like Notepad. This file is typically found in *C:\Program Files (x86)\Rockwell Software\RSView Enterprise\Data Agent SDK*.

In the text file, replace every instance of **localhost** with the IP address of the machine, save the file and close it. After closing it is recommended to restart the **Rockwell Data Agent** Windows Service.

FactoryTalk View SE

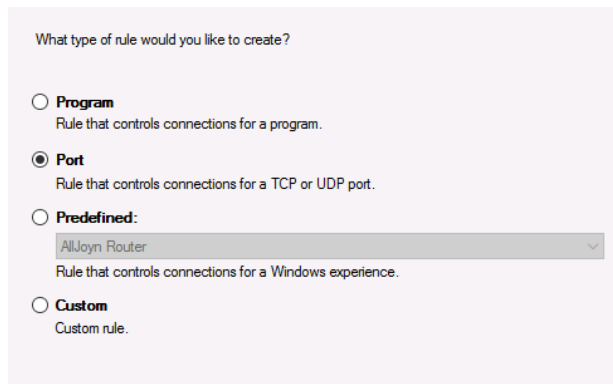
For **XLReporter** to collect real-time data through the FactoryTalk View SE Data Agent, the application must be running.

Windows Firewall

If the Windows Firewall is enabled in the machine where the FactoryTalk View SE Data Agent is running, the Port Number specified in the *RA.DataAgent.SDK.Service.Host.exe.config* must be opened to connect.

To do so:

- Open the **Windows Firewall**. Typically, the easiest way to do this is by typing *Firewall* into the search bar at the bottom left of Windows.
- Click **Advanced Settings**
- Right-click **Inbound Rules** and select **New Rule**.



- For the rule type select *Port* and click **Next**

Does this rule apply to TCP or UDP?

TCP

UDP

Does this rule apply to all local ports or specific local ports?

All local ports

Specific local ports:

Example: 80, 443, 5000-5010

- For **Protocol and Ports** select *TCP* protocol.
- Select **Specific local ports** and specify the port number as found in the *RA.DataAgent.SDK.Service.Host.exe.config* (this is specified after the IP address and by default is *12344*, e.g., *192.168.1.1:12344*). Click **Next**.
- Leave **Allow the connection** selected and click **Next**.
- Apply the rule for every network type required and click **Next**.
- Give the rule a **Name** and click **Finish**.

Connector

To configure the connector to the FactoryTalk View SE Data Agent Real-time values, from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **Rockwell Automation, FactoryTalk View SE Data Agent Real-time values**
- Click **OK**

Connection Tab

FactoryTalk View Data Agent Settings

Connector Name: FTViewDataAgent_DA_1

Connection | Application | Settings

Protocol: http

IP Address: 192.168.9.49

Port: 12344

User Name: sytech

Password: *****

Application Location: Network

Connect

Apply Close

The settings on this tab define where the FactoryTalk View SE Data Agent is located and how to connect to it.

Protocol

This can be either *http* or *https*. If a secure connection is required, use *https*, otherwise use *http*.

Please note, if using *https*, bind the certificate to the SSL port, and then *https* protocol will work properly.

IP Address

The IP address of the machine where the FactoryTalk Data Agent service is running.

Port

The port number configured for the FactoryTalk Data Agent service. By default, this is *12344*.

User Name

A valid user name configured within the FactoryTalk View SE application.

Password

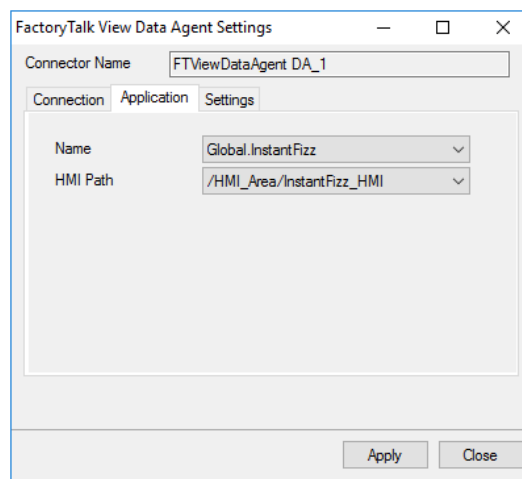
The corresponding password for the specified **User Name**.

Application Location

The location of the FactoryTalk View SE application to connect to. This can either be *Local* or *Network*.

Once these settings are configured, click **Connect** to verify a connection to the FactoryTalk Data Agent.

Application Tab



The settings on this tab define the FactoryTalk View SE application where data can be retrieved from.

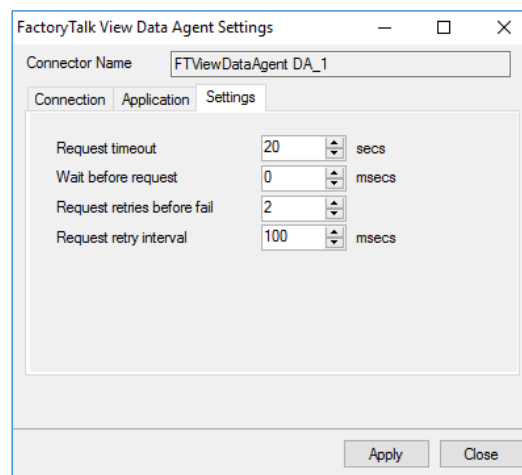
Name

The application name. A list of applications is provided based on the settings in the **Connection** tab.

HMI Path

The HMI path for the **Name**. A list of paths is provided based on the selected **Name**.

Settings Tab



The settings on this tab define tuning parameters that should only be altered if there are issues connecting to or retrieving data from the FactoryTalk View SE Data Agent.

Request timeout

The number of seconds to wait for a request to complete before a timeout error occurs. The default is 20 seconds.

Wait before request

The number of milliseconds to wait between connecting to the FactoryTalk Data Agent and requesting data. The default is 0 milliseconds.

Request retries before fail

If a request fails, this is the number of times the request is retried before it is considered an error. The default is 2.

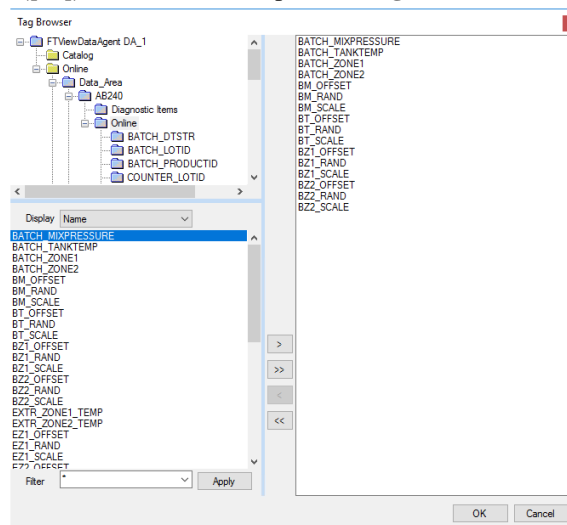
Request retry interval

The number of milliseconds to wait between each retry if a request fails. The default is 100.

Verify Data Communication

To verify communication to FactoryTalk View SE Data Agent, open the **Project Explorer** and select the **Tools** tab. Launch the **System Check** application.

- Click **Add**
- Choose the *FactoryTalk View SE Data Agent Connector* from the dropdown list
- Click the pushbutton ([...]) next to Items to open the **Tag Browser** window.



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

System Check

File Edit Tools

Connector General

+ Add Modify X Delete Clear Stop

Connector	Item	Description	Value
FTViewDataAgent DA_1	Data_Area.AB240.Online.BATCH_MI...	BATCH_MIXPRESSURE	87.943695068359375
FTViewDataAgent DA_1	Data_Area.AB240.Online.BATCH_TA...	BATCH_TANKTEMP	87.943695068359375
FTViewDataAgent DA_1	Data_Area.AB240.Online.BATCH_ZO...	BATCH_ZONE1	87.943695068359375
FTViewDataAgent DA_1	Data_Area.AB240.Online.BATCH_ZO...	BATCH_ZONE2	90.162956237792969
FTViewDataAgent DA_1	Data_Area.AB240.Online.BM_OFFSET	BM_OFFSET	0.778073251247406
FTViewDataAgent DA_1	Data_Area.AB240.Online.BM_RAND	BM_RAND	0.16295915842056274
FTViewDataAgent DA_1	Data_Area.AB240.Online.BM_SCALE	BM_SCALE	7.9436917304992676
FTViewDataAgent DA_1	Data_Area.AB240.Online.BT_OFFSET	BT_OFFSET	0.778073251247406
FTViewDataAgent DA_1	Data_Area.AB240.Online.BT_RAND	BT_RAND	0.16295915842056274
FTViewDataAgent DA_1	Data_Area.AB240.Online.BT_SCALE	BT_SCALE	7.9436917304992676
FTViewDataAgent DA_1	Data_Area.AB240.Online.BZ1_OFFS...	BZ1_OFFSET	0.778073251247406
FTViewDataAgent DA_1	Data_Area.AB240.Online.BZ1_RAND	BZ1_RAND	0.16295915842056274
FTViewDataAgent DA_1	Data_Area.AB240.Online.BZ1_SCALE	BZ1_SCALE	7.9436917304992676
FTViewDataAgent DA_1	Data_Area.AB240.Online.BZ2_OFFS...	BZ2_OFFSET	1
FTViewDataAgent DA_1	Data_Area.AB240.Online.BZ2_RAND	BZ2_RAND	0.16295915842056274

Clear

Initialise Server and Items (ms) : 2
 Open Server and Items (ms) : 144
 Read Server Items (ms) : 92
 Update display (ms) : 1

- Click **Start** to verify the communication

FactoryTalk View SE Data Agent Data File(s)

This connector is used to get historical data from any Data Log Model configured in a FactoryTalk View SE application using the FactoryTalk View SE Data Agent.

Set up FactoryTalk View SE Data Agent

The FactoryTalk View Data Agent can be installed for FactoryTalk View SE version 10 and above on a FactoryTalk View SE stand-alone system, the FactoryTalk View SE server or any FactoryTalkView SE client. To obtain the FactoryTalkView SE Data Agent installation media, please contact SyTech, Inc. You must provide your FactoryTalk View SE product serial number to be eligible.

After installation, the configuration for Data Agent must be updated so that any machine on the network can request data. To do so, open *RA.DataAgent.SDK.Service.Host.exe.config* using a text editor like Notepad. This file is typically found in *C:\Program Files (x86)\Rockwell Software\RSView Enterprise\Data Agent SDK*.

In the text file, replace every instance of **localhost** with the IP address of the machine, save the file and close it. After closing it is recommended to restart the **Rockwell Data Agent** Windows Service.

FactoryTalk View SE

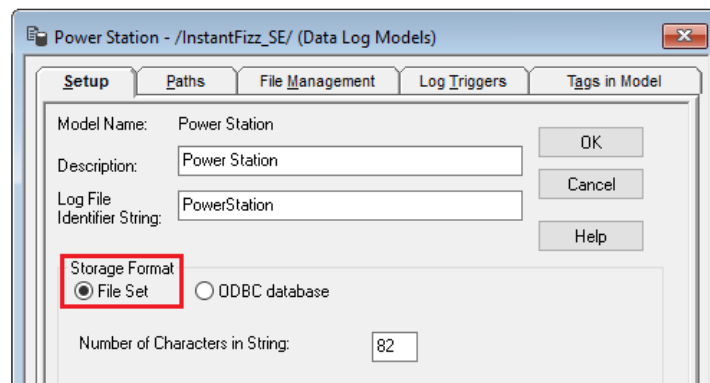
For **XLReporter** to collect data through the FactoryTalk View SE Data Agent, the application must be running.

Define Data Log Models

Open the **FactoryTalk View SE Studio** from the **Rockwell Software** or **FactoryTalk View** program group then open the current application.

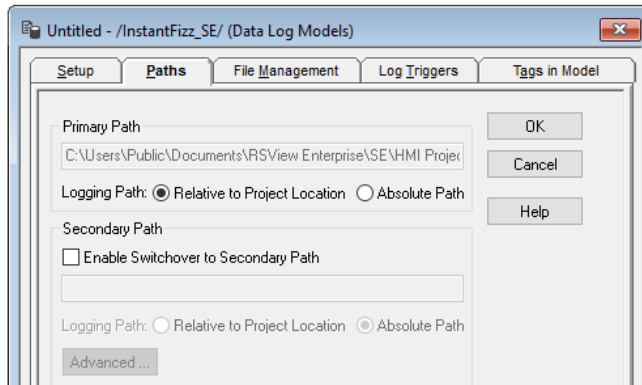
Under the **Data Log** folder in the **Explorer**, select the **Data Log Models** icon.

Under the **Setup** tab,



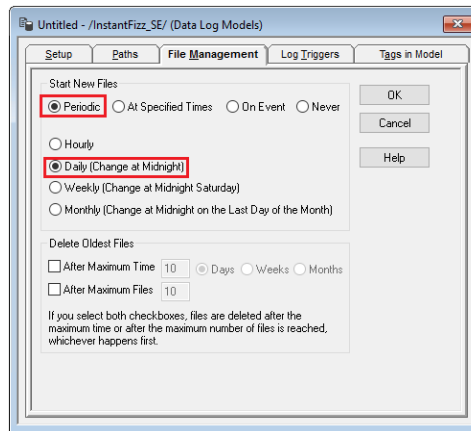
- Add a **Description** and **Log File Identifier String**.
- Set the **Storage Format** to *File Set*.

Under the **Paths** tab,



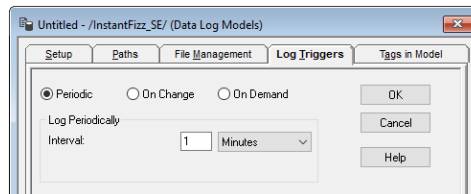
- Set the **Primary Path** to where the files are stored.

Under the **File Management** tab,



- Specify how often you want new files created. It is suggested to create *Periodic* files that start *Daily (Change at Midnight)*.
- Indicate if old files should be deleted under the **Delete Oldest Files** section.

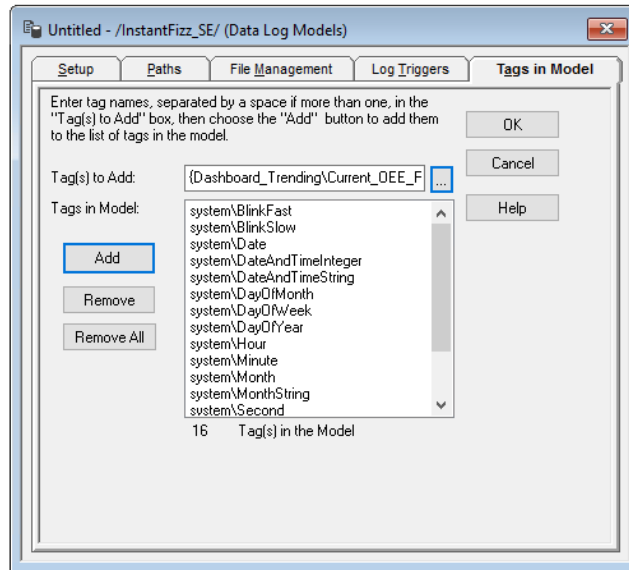
Under the **Log Triggers** tab,



- Specify how the logging of tag values will be triggered i.e., periodically, on change or on demand.

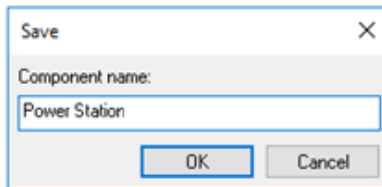
The **On Demand** option will log data when the **DataLogSnapshot** command is issued. This command can be issued from anywhere that commands and macros are supported. For example, it could be typed in the command line or specified as the action for an event. If **Periodic** or **On Change** is selected, on demand logging can still be used whenever it is appropriate.

Under the **Tags in Model** tab,



- Specify the tags to be logged.
The maximum number of tags that can be logged by one data log model is 10,000.
- Close the dialog.

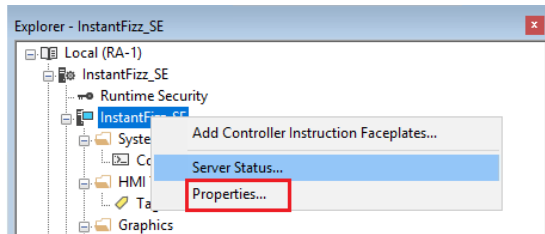
On close the **Save** dialog is opened.



Add a *Component* name. This is the name of the Data Log Model.

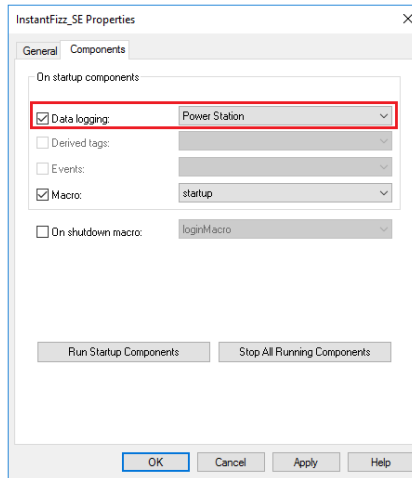
Start Data Log

To start the data log when FactoryTalk View SE starts, access the **HMI Properties** dialog.



- Right click on the application and select *Properties*.

Under the **Components** tab,



- Check **Data Logging** and select the data log model.

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

DataLogOn “*Component name*”

Where “*Component name*” is the data log model name. If the model’s name has a space in it, enclose the name in quotes. The command can be issued from the command line or from a startup or login macro. For example:

DataLogOn “*Power Station*”

Note that in FactoryTalk View SE, an HMI server can have up to 20 data log models running at one time.

Windows Firewall

For details on what to configure in the Windows Firewall, see the Windows Firewall section of the FactoryTalk View SE Data Agent Real-time values chapter of this document.

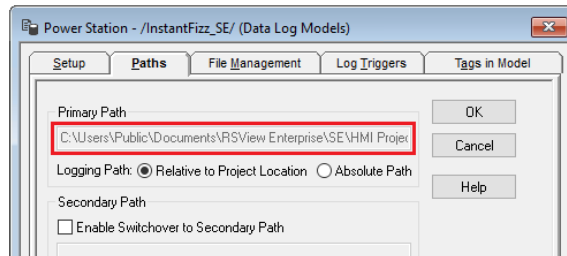
Prerequisites

Verify Data Files

Open the **FactoryTalk View SE Studio** from the **Rockwell Software** or **FactoryTalk View** program group. Then open the application to configure.

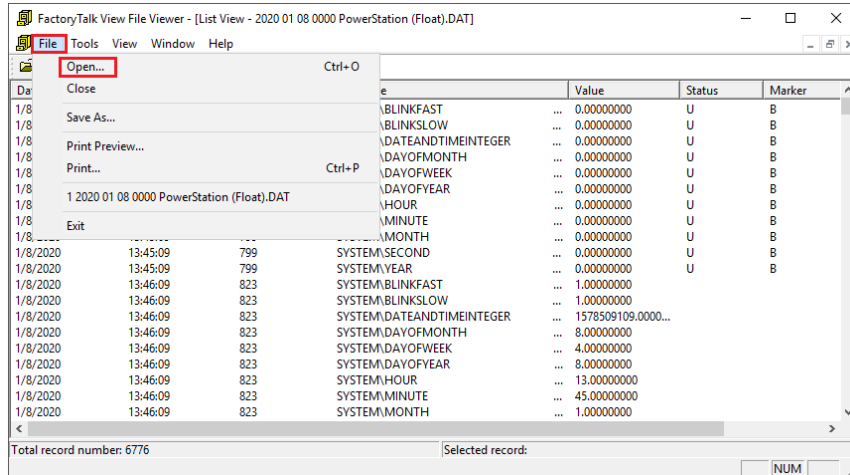
Select the **Data Log Models** icon under the **Data Log** folder, open the data log model.

- Open the **Paths** tab and note the **Primary Path**



Verify Tags and Data

Open the **FactoryTalk View File Viewer** from the **Rockwell Software** program group.



Select **File, Open** and navigate to the path. Open the most recent (*Tagname*), (*Float*) and (*String*) files in the path.

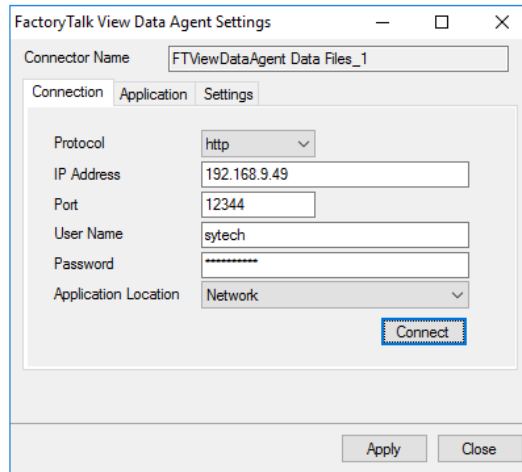
- Verify the tag file is correct and that the float and string files contain data

Connector

To configure the connector to the FactoryTalk View SE Data Agent Data file(s), from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **Rockwell Automation, FactoryTalk View SE Data Agent Data file(s)**
- Click **OK**

Connection Tab



The settings on this tab define where the FactoryTalk View SE Data Agent is located and how to connect to it.

Protocol

This can be either *http* or *https*. If a secure connection is required, use *https*, otherwise use *http*.

Please note, if using *https*, bind the certificate to the SSL port, and then *https* protocol will work properly.

IP Address

The IP address of the machine where the FactoryTalk Data Agent service is running.

Port

The port number configured for the FactoryTalk Data Agent service. By default, this is *12344*.

User Name

A valid user name configured within the FactoryTalk View SE application.

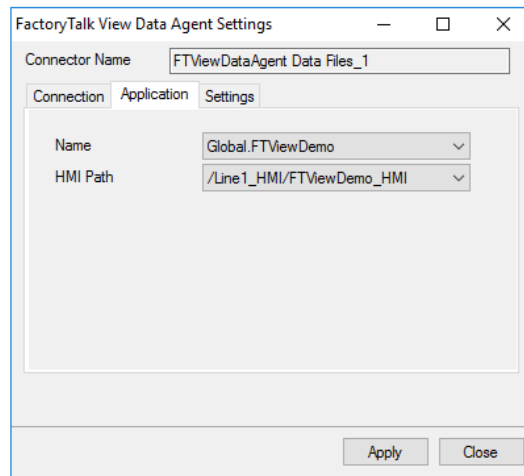
Password

The corresponding password for the specified **User Name**.

Application Location

The location of the FactoryTalk View SE application to connect to. This can either be *Local* or *Network*.

Once these settings are configured, click **Connect** to verify a connection to the FactoryTalk Data Agent.

Application Tab

The settings on this tab define the FactoryTalk View SE application where data can be retrieved from.

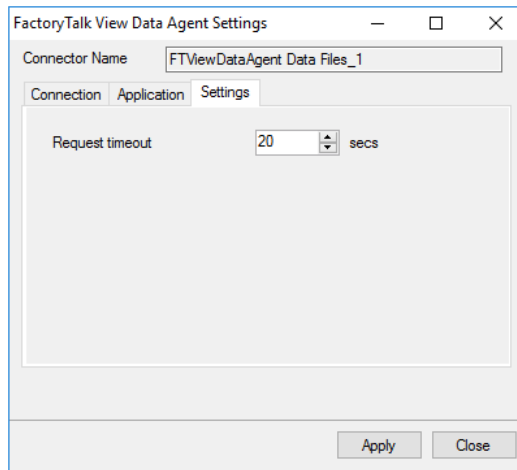
Name

The application name. A list of applications is provided based on the settings in the **Connection** tab.

HMI Path

The HMI path for the **Name**. A list of paths is provided based on the selected **Name**.

Settings Tab



The settings on this tab define tuning parameters that should only be altered if there are issues connecting to or retrieving data from the FactoryTalk View SE Data Agent.

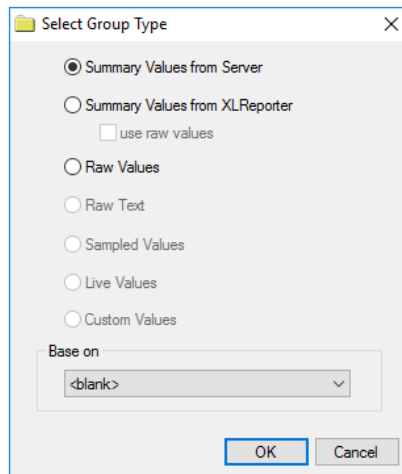
Request timeout

The number of seconds to wait for a request to complete before a timeout error occurs. The default is 20 seconds.

Data Group

The following describes the historical data group settings specific to the **FactoryTalk View Data Agent Historian SE** connector.

Group Types



For **FactoryTalk View SE Data Agent Data File(s)** 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:

- Average
- Cumulative Total
- Delta Value
- End Value
- Interpolated
- Linear
- Maximum
- Time of Maximum

- Maximum and Hold
- Minimum
- Time of Minimum
- Minimum and Hold
- Range
- Sample and Hold
- Standard Deviation
- Start Value
- Raw Total
- Raw Average
- Average and Hold
- Total
- Total and Hold
- Variance

Summary Values from XLReporter

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

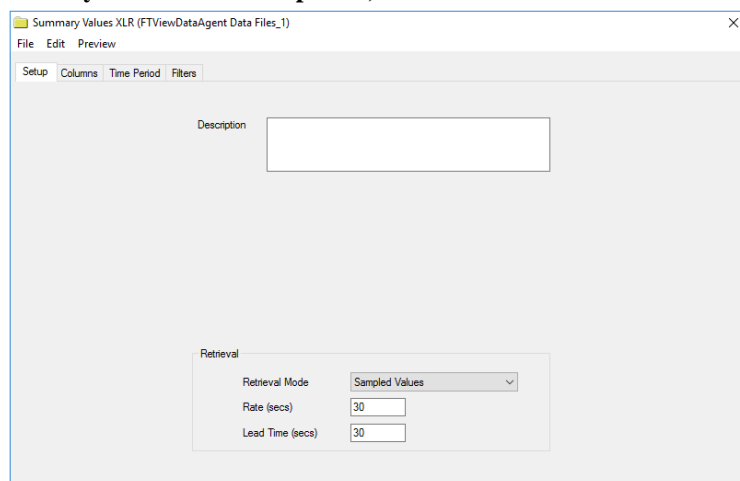
By default, summary values are calculated time weighted, and values are propagated based on the last known value. However, to change this so that summary values are calculated strictly on the data returned check **use raw values**.

Raw Values

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

Group Settings

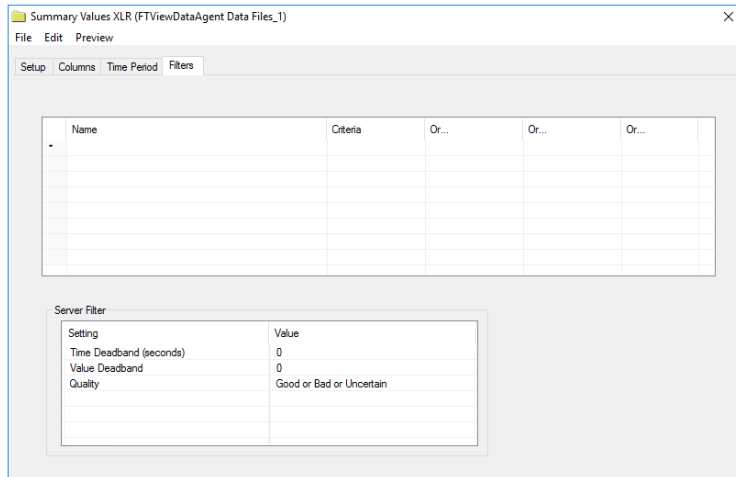
Setup Tab (Summary Values for XLReporter)



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 FactoryTalk View Data Agent *Sampled Values* and *Raw Values* are available.
Sampled Values use interpolated values returned from the historian.
- **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)



The **Server Filter** settings can be used to restrict the amount of raw data returned from the historian.

Time Deadband (seconds)

The minimum amount of time (in seconds) between raw samples. The default is 0 which basically disables this setting.

Value Deadband

When set, if the difference between the previous and current samples is less than this value, the current sample is not returned. The default is 0 which basically disables this setting.

Quality

This defines allowable quality of the values returned. For example, if the report should only show good quality values, set this to *Good*.

Please note that in a **Summary Values from XLReporter** group these settings only take affect when the **Retrieval Mode** is *Raw Values*.

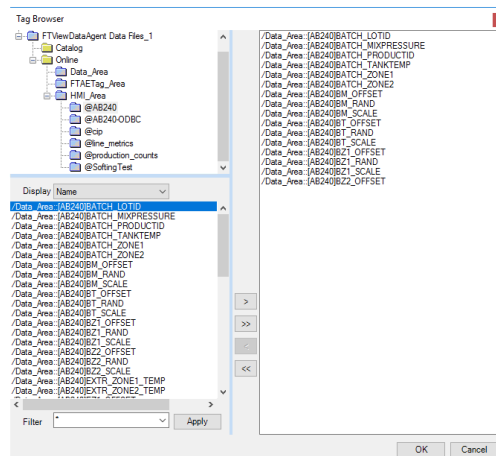
Verify the Data Connector

From the **XLReporter Project Explorer** select, **Tools, Connector Groups**

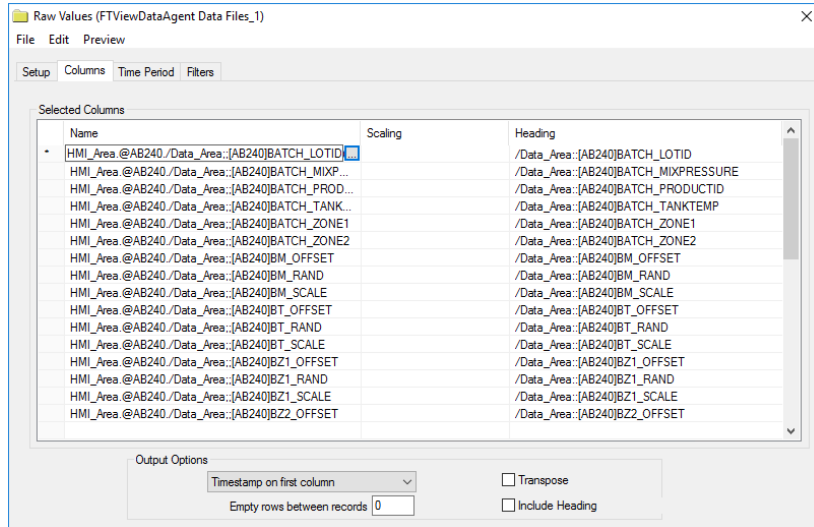
Select the *FactoryTalk View SE Data Agent Data Files* connector and then select **Add**.

- Set the **Type Raw Values** and click **OK**.

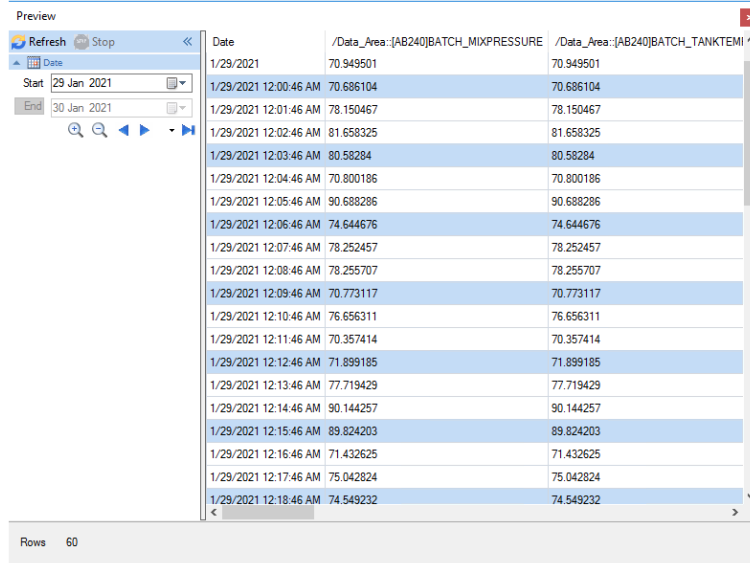
On the **Columns** tab of the group, select the tag **Name(s)**.



The tags for the data log models are typically found under the **HMI_Area** branch. Notice that every data log model configured for the application is available.



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



FactoryTalk View Data Agent Historian SE

This connector is used to get historical data from any FactoryTalk Historian SE configured as a Connection in a FactoryTalk View SE application using the FactoryTalk View SE Data Agent.

Set up FactoryTalk View SE Data Agent

The FactoryTalk View Data Agent can be installed for FactoryTalk View SE version 10 and above on a FactoryTalk View SE stand-alone system, the FactoryTalk View SE server or any FactoryTalkView SE client. To obtain the FactoryTalkView SE Data Agent installation media, please contact SyTech, Inc. You must provide your FactoryTalk View SE product serial number to be eligible.

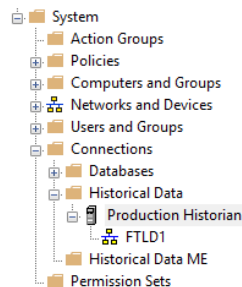
After installation, the configuration for Data Agent must be updated so that any machine on the network can request data. To do so, open *RA.DataAgent.SDK.Service.Host.exe.config* using a text editor like Notepad. This file is typically found in *C:\Program Files (x86)\Rockwell Software\RSView Enterprise\Data Agent SDK*.

In the text file, replace every instance of **localhost** with the IP address of the machine, save the file and close it. After closing it is recommended to restart the **Rockwell Data Agent** Windows Service.

FactoryTalk View SE

For **XLReporter** to collect data through the FactoryTalk View SE Data Agent, the application must be running.

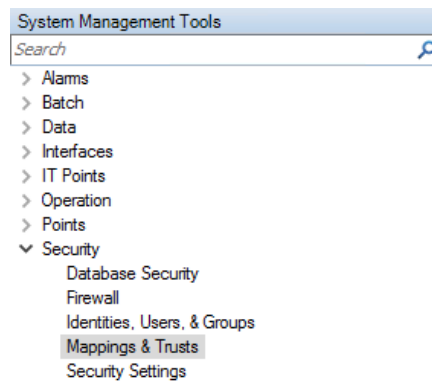
The FactoryTalk View SE Data Agent provides access to any Historian configured as a **Historical Data** connection within the FactoryTalk View Studio.



System Management Tools

For the Data Agent to access the FactoryTalk Historian SE a trust must be set up for the IP address where the Data Agent is running. This may already be set up but if the IP address of the machine where the Data Agent is running changes, the trust may need to be updated or a new one configured.

To configure or modify a trust open **the Factory Talk System Management Tools** as an administrator.



On the left expand **Security** and select **Mappings & Trusts**.

On the right side, select the **Trust** tab to view the list of existing trusts. If there is a trust configured that has the wrong IP address, double click it to modify the IP address to the machine where Data Agent is installed. Otherwise, create a new trust by clicking the icon in the upper left corner above the **Mappings** tab.

The screenshot shows the 'Add Trust Wizard' dialog box with the title 'Specify Trust Name and Server'. Below the title is a subtitle: 'Type in a unique name for the trust on a specific server, and specify the server the trust will be created on.' The dialog contains three input fields: 'Server:' with a dropdown menu showing 'RA-1', 'Trust Name:' with a text box containing 'XLReporter', and 'Trust Description:' with an empty text box. At the bottom are three buttons: 'Back', 'Next', and 'Cancel'.

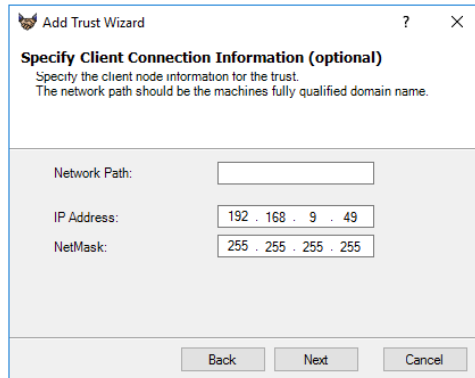
Set the **Trust Name** and click **Next**.

The screenshot shows the 'Add Trust Wizard' dialog box with the title 'Select Type of Trust to Add'. Below the title is a subtitle: 'Select the type of trust to add. Most PI Interfaces are PI-API based. Most PI Clients are PI-SDK based.' There are two radio button options: 'PI-API application' (which is selected) and 'PI-SDK application on a Windows NT based OS'. At the bottom are three buttons: 'Back', 'Next', and 'Cancel'.

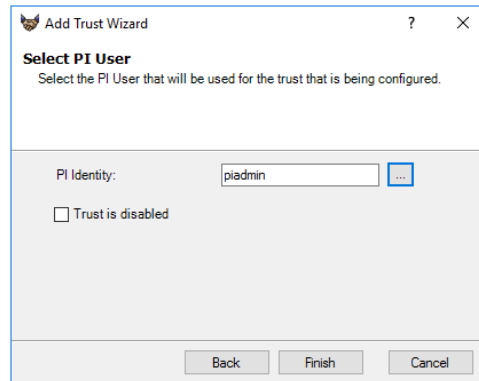
Select **PI-API application** and click **Next**.

The screenshot shows the 'Add Trust Wizard' dialog box with the title 'Specify Application Name (optional)'. Below the title is a subtitle: 'The application name should be the four character string provided by the calling application with an 'E' appended to it.' There is one input field labeled 'Application Name:' which is currently empty. At the bottom are three buttons: 'Back', 'Next', and 'Cancel'.

Leave the **Application Name** blank and click **Next**.



Set **IP Address** and **NetMask** to the settings of the machine where the Data Agent is running. Click **Next**.



Set **PI Identity** to a user in the system. Click **Finish**.

If configuring the trust does not allow the browsing of Historian tags, check the *Operation, Message Logs* in the **System Management Tools** application on the historian machine.

Click the magnifying glass in the upper left corner to refresh the logs for the last 5 minutes.

If the error states:

```
"Trust request from: NT  
AUTHORITY\SYSTEM|ABC|fe11::11aa:bb11:c2d3:1111%10|RA.DataAgent.SDK.Service.Host.exe  
failed: [-10413] No trust relation for this request (0)"
```

This indicates that IPv6 is enabled on the system and a trust has not been established to the IPv6 address. To resolve, you can either disable IPv6 or set up a new historian trust to the IPv6 address, if possible.

Windows Firewall

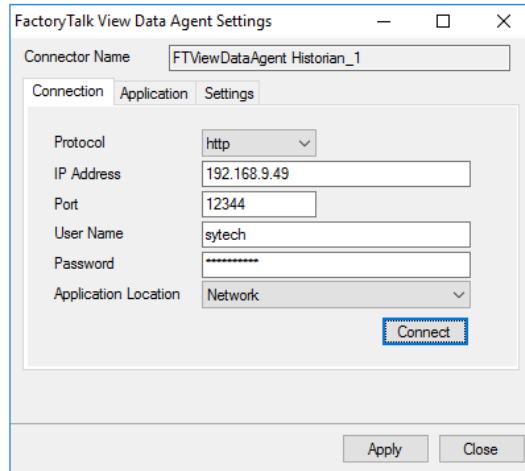
For details on what to configure in the Windows Firewall, see the Windows Firewall section of the FactoryTalk View SE Data Agent Real-time values chapter of this document.

Connector

To configure the connector to the FactoryTalk View Data Agent Historian SE, from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **Rockwell Automation, FactoryTalk View Data Agent Historian SE**
- Click **OK**

Connection Tab



The screenshot shows the 'FactoryTalk View Data Agent Settings' dialog box with the 'Connection' tab selected. The 'Connector Name' is 'FTViewDataAgent Historian_1'. The 'Connection' tab contains the following fields: Protocol (http), IP Address (192.168.9.49), Port (12344), User Name (sytech), Password (masked with asterisks), and Application Location (Network). A 'Connect' button is highlighted with a blue dashed border. At the bottom of the dialog are 'Apply' and 'Close' buttons.

The settings on this tab define where the FactoryTalk View SE Data Agent is located and how to connect to it.

Protocol

This can be either *http* or *https*. If a secure connection is required, use *https*, otherwise use *http*.

Please note, if using *https*, bind the certificate to the SSL port, and then *https* protocol will work properly.

IP Address

The IP address of the machine where the FactoryTalk Data Agent service is running.

Port

The port number configured for the FactoryTalk Data Agent service. By default, this is *12344*.

User Name

A valid user name configured within the FactoryTalk View SE application.

Password

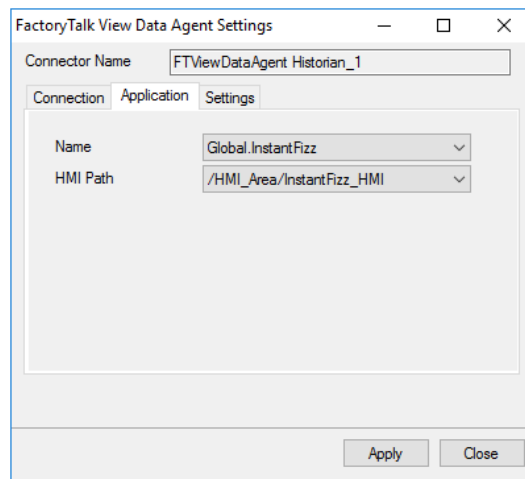
The corresponding password for the specified **User Name**.

Application Location

The location of the FactoryTalk View SE application to connect to. This can either be *Local* or *Network*.

Once these settings are configured, click **Connect** to verify a connection to the FactoryTalk Data Agent.

Application Tab



The settings on this tab define the FactoryTalk View SE application where data can be retrieved from.

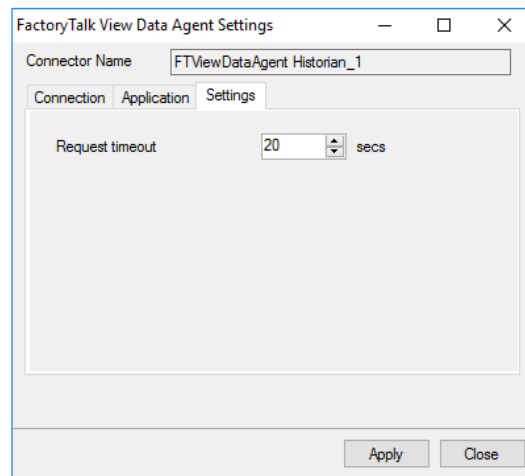
Name

The application name. A list of applications is provided based on the settings in the **Connection** tab.

HMI Path

The HMI path for the **Name**. A list of paths is provided based on the selected **Name**.

Settings Tab



The settings on this tab define tuning parameters that should only be altered if there are issues connecting to or retrieving data from the FactoryTalk View SE Data Agent.

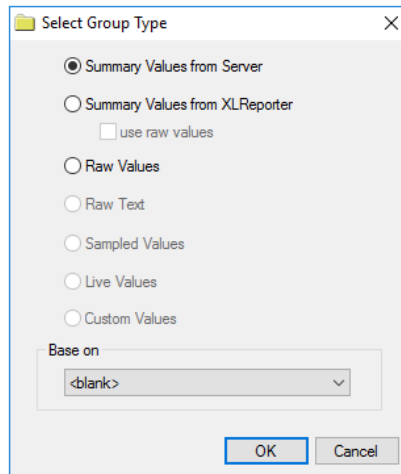
Request timeout

The number of seconds to wait for a request to complete before a timeout error occurs. The default is 20 seconds.

Data Group

The following describes the historical data group settings specific to the **FactoryTalk View Data Agent Historian SE** connector.

Group Types



For **FactoryTalk View Data Agent Historian SE** 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:

- Average
- Cumulative Total
- Delta Value
- End Value
- Interpolated
- Linear
- Maximum
- Time of Maximum
- Maximum and Hold
- Minimum
- Time of Minimum
- Minimum and Hold
- Range
- Sample and Hold
- Standard Deviation
- Start Value
- Raw Total
- Raw Average
- Average and Hold
- Total
- Total and Hold
- Variance

Summary Values from XLReporter

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

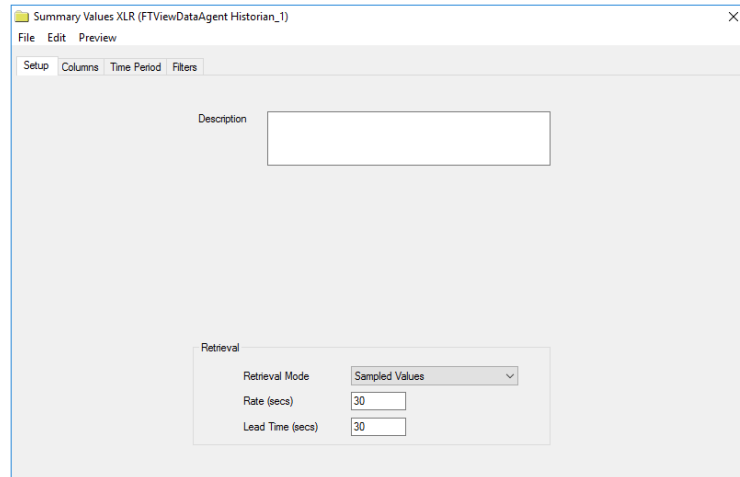
By default, summary values are calculated time weighted, and values are propagated based on the last known value. However, to change this so that summary values are calculated strictly on the data returned check **use raw values**.

Raw Values

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

Group Settings

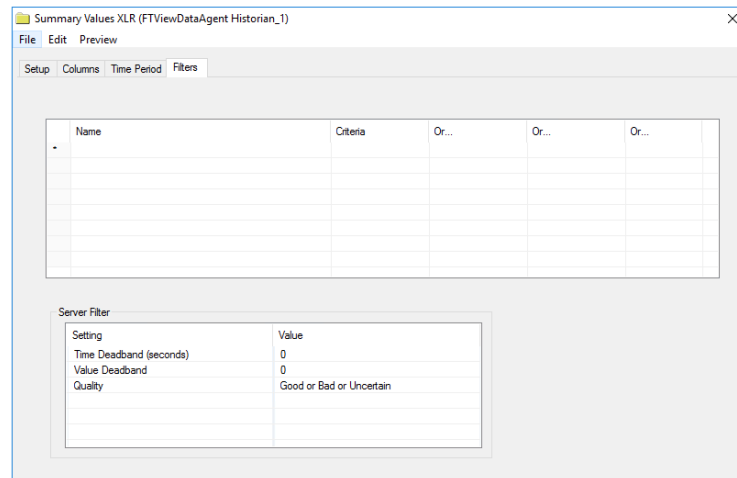
Setup Tab (Summary Values for XLReporter)



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 FactoryTalk View Data Agent Historian *Sampled Values* and *Raw Values* are available.
Sampled Values use interpolated values returned from the historian.
- **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)



The **Server Filter** settings can be used to restrict the amount of raw data returned from the historian.

Time Deadband (seconds)

The minimum amount of time (in seconds) between raw samples. The default is 0 which basically disables this setting.

Value Deadband

When set, if the difference between the previous and current samples is less than this value, the current sample is not returned. The default is 0 which basically disables this setting.

Quality

This defines allowable quality of the values returned. For example, if the report should only show good quality values, set this to *Good*.

Please note that in a **Summary Values from XLReporter** group these settings only take affect when the **Retrieval Mode** is *Raw Values*.

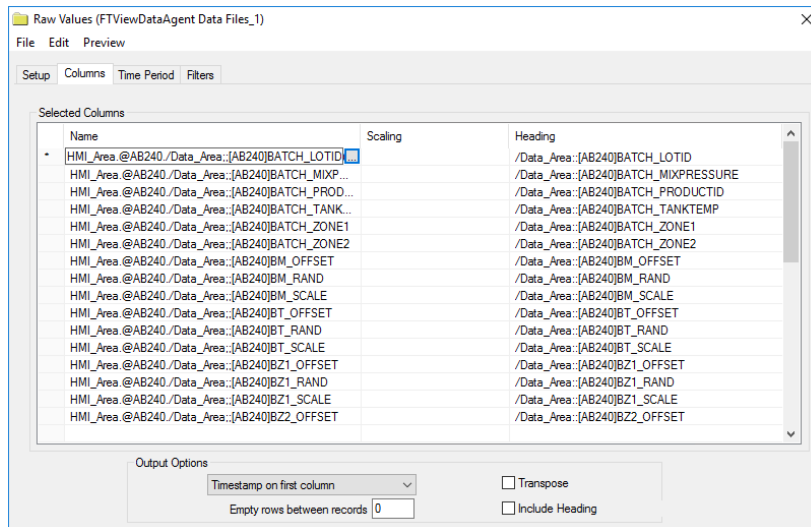
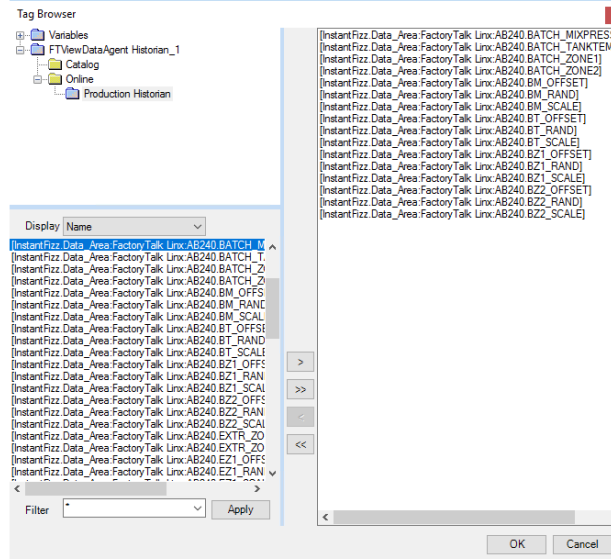
Verify the Data Connector

From the **XLReporter Project Explorer** select, **Tools, Connector Groups**

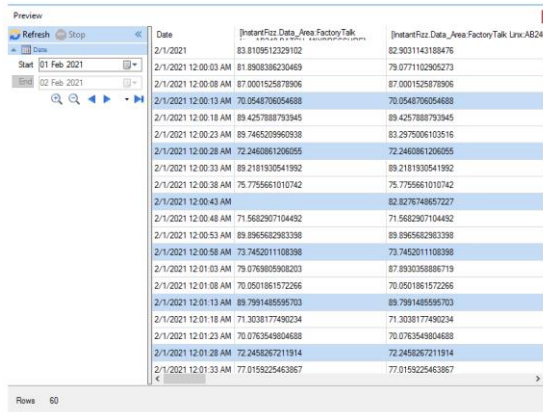
Select the *FactoryTalk View Data Agent Historian SE* connector and then select **Add**.

- Set the **Type 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**.



FactoryTalk View Historian SE (OPC HDA)

This connector is used to get historical data from the FactoryTalk View Historian SE via the PI OPC HDA server. This approach requires the Historian SE, OPC Data Access Perpetual license. For more information, please contact your Rockwell Automation representative.

Set up OPC HDA Server

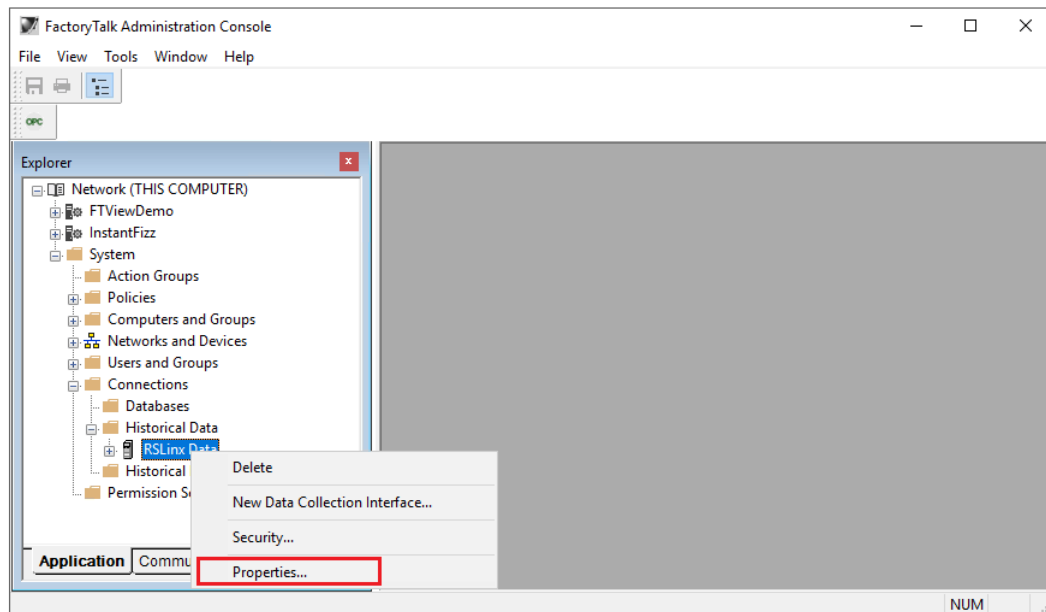
Installation

The OPC-HDA server is not installed by default, it is a separate installation found on the installation media under *Advanced Server Options\PIDASSetup\OPC DA_HDA\OPC DA_HA Server*.

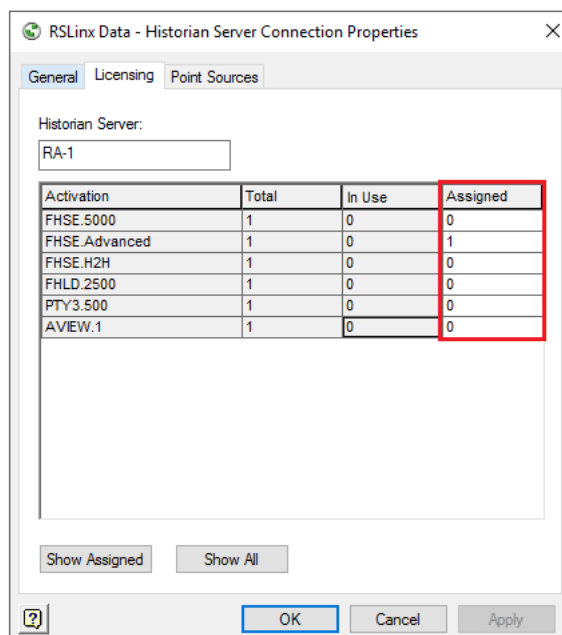
Licensing

A license must be assigned to the Historian to allow access via OPC HDA.

Open **FactoryTalk Administration Console** from the Rockwell Software program group and select the appropriate FactoryTalk Directory.



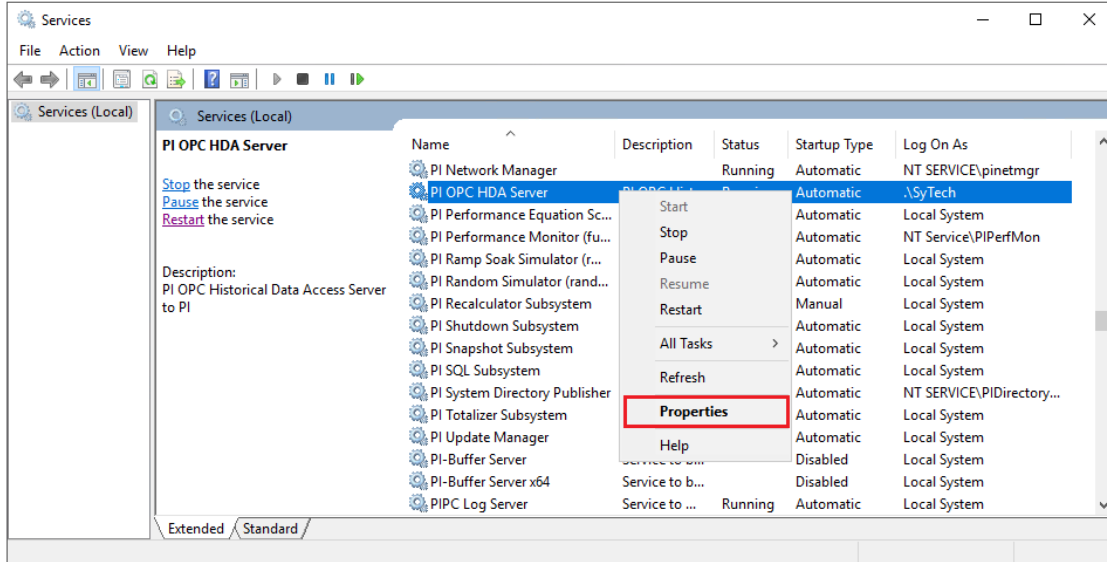
- In the **Explorer**, expand **Network, System, Connections**.
- Expand **Historical Data**, select the Data Collection Interface configured, right-click and select **Properties**.



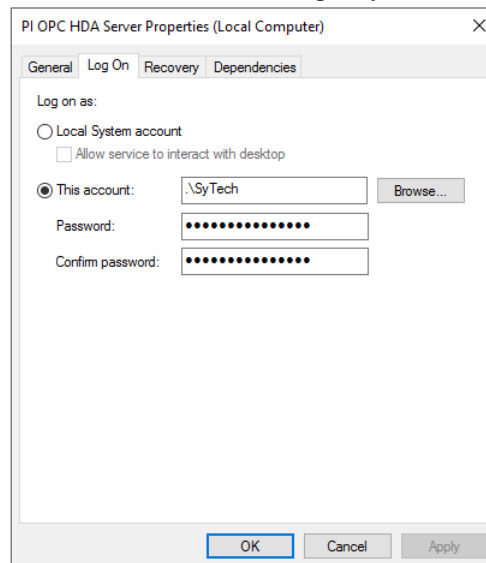
Under the **Licensing** tab assign the OPC or Advanced Historian license under the **Assigned** column by setting the value to *I*.

OPC HDA Tuning for Automation

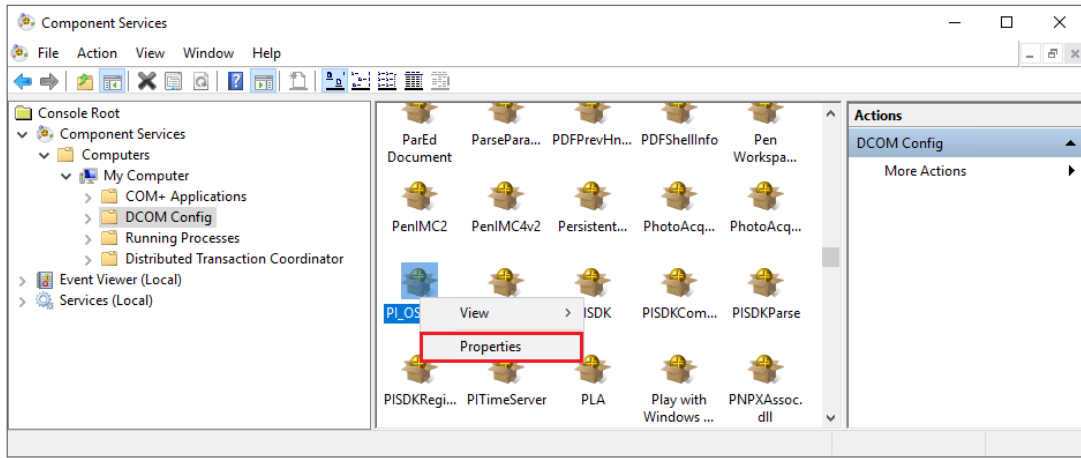
The first time **XLReporter** accesses data from the FactoryTalk Historian, a popup window will appear. This behavior will prevent any report scheduling and so it must be suppressed by launching the server with a specific Windows Account.



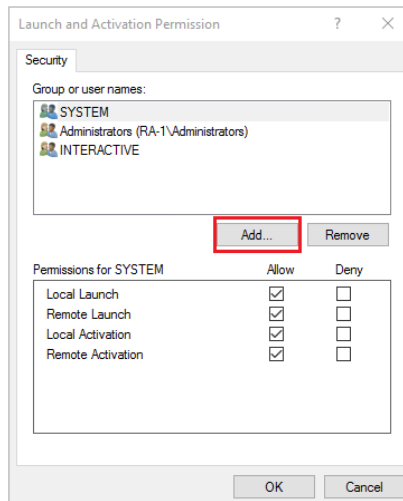
- Locate the **PI OPC HDA Server** service, right-click and select **Stop**.
- Right click again and select **Properties**.
- Go to the **Log on** tab, select **This Account** and specify an account.



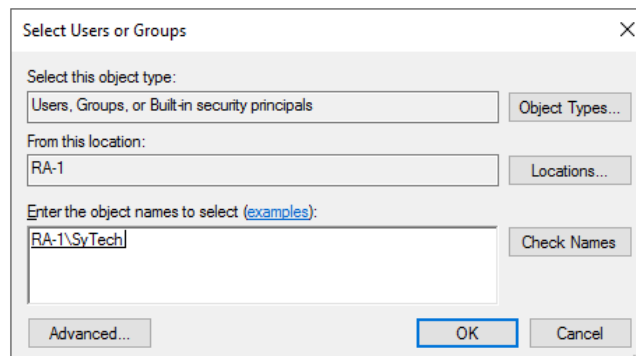
Configure the server itself to launch with the same account by updating DCOM settings. To access DCOM settings, for a 32-bit operating system, select **Start, Run,** and enter *dcomcnfg*. For a 64-bit operating system enter *comexp.msc /32*.



- Expand **Component Services, Computers, My Computer, DCOM Config.**
- Select **PI OSI HDA Server** right-click and select **Properties**
- Select the **Security** tab
- Set **Launch and Activation Permissions to Customize**
- Click the **Edit** button.

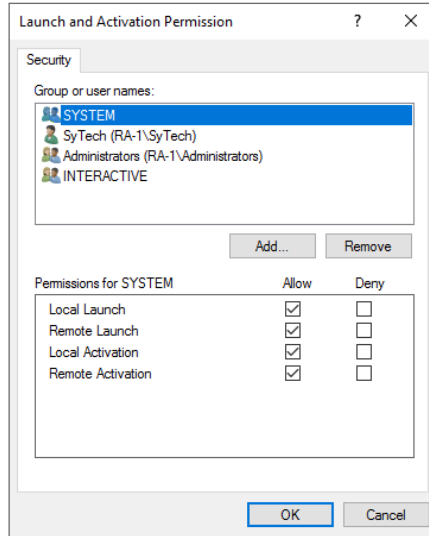


- In **Launch and Activation Permission**, click **Add**.

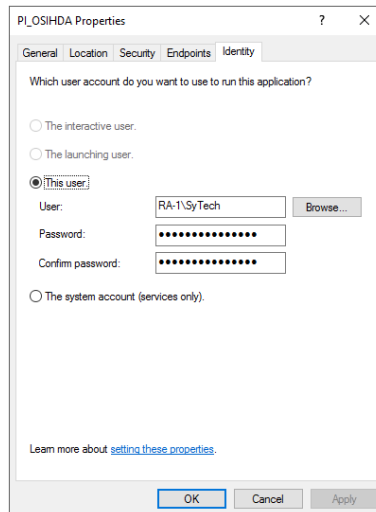


- Add the current user, and/or any users associated with **XLReporter** design and runtime components.
If **XLReporter's** Scheduler is set to run as a Windows Service, you must also add the Windows user the Scheduler Service is running. All other Groups or Users should be removed.
- To access data remotely with **XLReporter** Ultimate Edition, the ASPNET user should also be listed. If you experience issues retrieving the data from a team client, also add the user group **EVERYONE** to the list.

- If **XLReporter** is installed locally, enable **Local Launch** and **Local Activation**. For installations where **XLReporter** and FactoryTalk Historian are installed on separate machines, enable the **Remote** settings.



Under the **Identity** tab,



- Set the account to **This user** and specify the same user account configured for the Windows Service to run under.

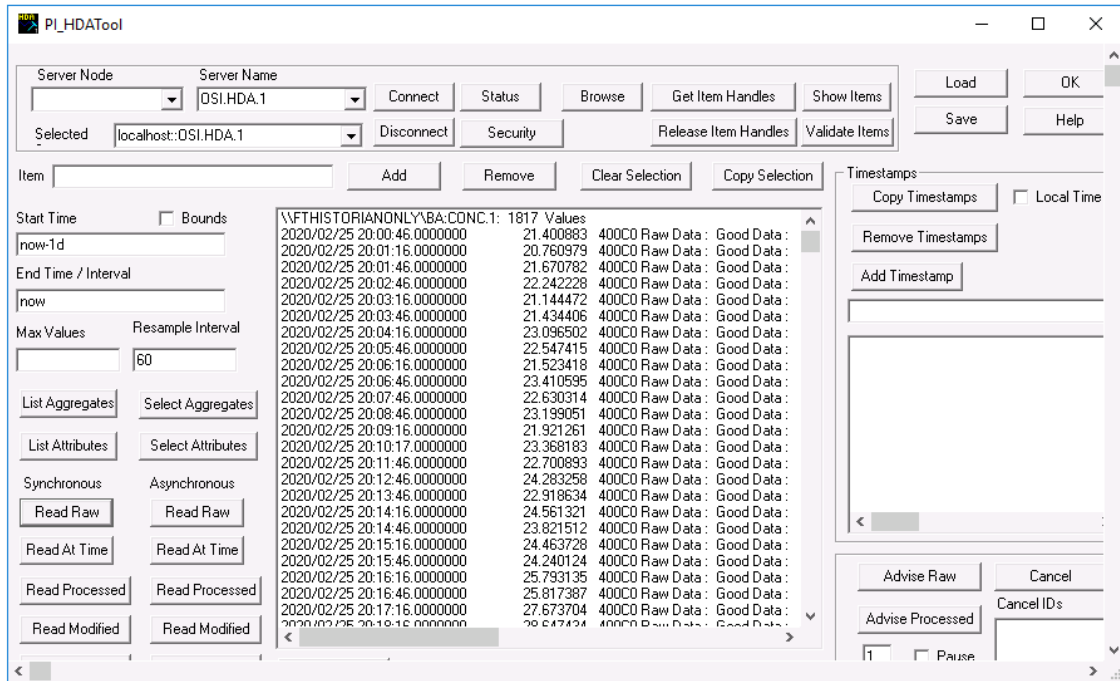
Restart the **PI OPC HDA Server** Windows service.

For more information, see the **Running the OPC Server as a Service** section of the PI_OSIOPC document provided with the FactoryTalk Historian installation.

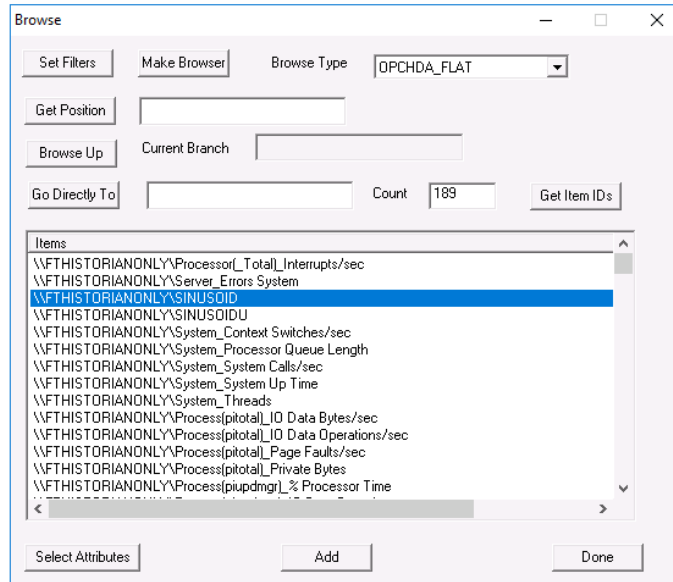
Validate OPC HDA Configuration

To validate that the OPC HDA server is functional, on the machine where the server is installed, run **PI_HDATool.exe**. This can be found in:

C:\Program Files (x86)\Rockwell Software\FactoryTalk Historian\PIPC\PI OPC Tools\PI_HDATool



- Set **Server Name** to *OSI.HDA.1*.
- Click **Connect**.
- Click **Browse**.



- Click **Make Browser**.
- Change **Browse Type** to *OPCHDA_FLAT* and a list of tags should appear.
- Select a tag that is currently being logged and click **Add**.
- If a prompt appears about the tag not being a full ItemID, click **Yes** to continue.
- Click **Done** to close the browser.
- Click **Show Items** and then **Get Item Handles**. The tag should appear with *Connected* appended to it.
- On the right side, under **Timestamps**, check **Local Time**.
- On the left side, set **Start Time** to *now-1d* and **End Time / Interval** to *now*.
- Under **Synchronous** click **Read Raw**.

The raw values collected for the past day for the selected tag should appear.

If there are any errors or no data is returned, contact Rockwell Automation technical support to correct the issue.

Remote Communication

If XLReporter is not installed on the same machine as the OPC HDA server, 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 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 the OPC HDA server, 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 the OPC HDA server is running **TCP Port 135** must be opened for remote clients to connect.

Connector

To configure the connector to the FactoryTalk View Historian SE, from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **Rockwell Automation, FactoryTalk Historian SE (OPC HDA)**
- Click **OK**

The screenshot shows a dialog box titled "FactoryTalk Historian SE (OPC HDA)". It contains the following fields and controls:

- Connector Name:** FactoryTalk_HistorianSE_1
- Description:** (empty text box)
- Primary Server:**
 - Server Name:** OSI.HDA.1
 - Node:** local (checked)
 - Test Connection:** button
- Secondary Server:** (unchecked)
 - Server Name:** OSI.HDA.1
 - Node:** local (checked)
 - Test Connection:** button
- Settings:** button
- OK** and **Cancel** buttons at the bottom.

Primary Server

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

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

Secondary Server

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

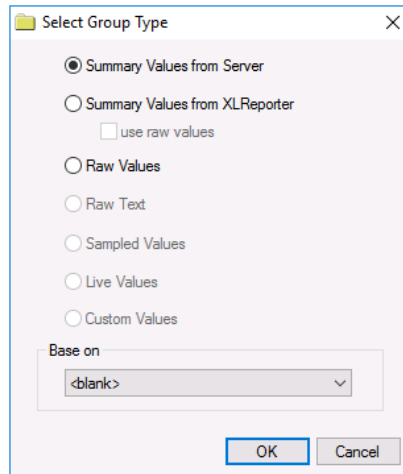
Settings

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

Data Group

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

Group Types



For **FactoryTalk Historian SE** 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
- Range
- Standard Deviation
- Total
- Count
- Raw Average
- Start Value
- End Value
- Delta Value
- Percent Good
- Percent Bad

Summary Values from XLReporter

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

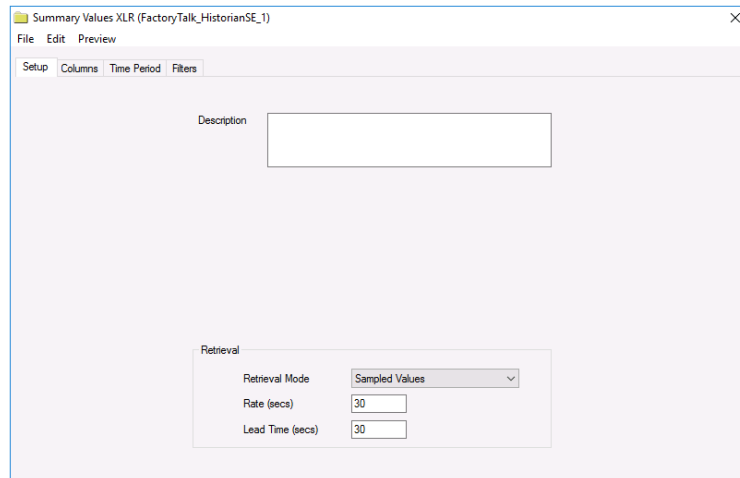
By default, summary values are calculated time weighted, and values are propagated based on the last known value. However, to change this so that summary values are calculated strictly on the data returned check **use raw values**.

Raw Values

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

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. Both *Sampled Values* and *Raw Values* are available where *Sampled Values* uses 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.

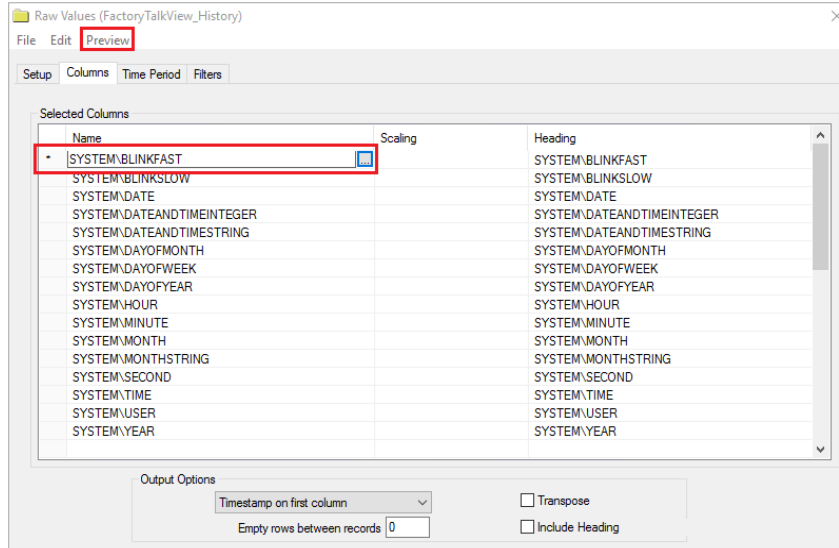
Verify the Data Connector

From the **XLReporter Project Explorer** select, **Tools, Connector Groups**

Select the *FactoryTalk View Historian SE* connector and then select **Add**.

- Set the **Type 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	SYSTEM\BLINKFAST	SYSTEM\BLINKSLOW
1/8/2020 1:45:09 PM	0	0
1/8/2020 1:46:09 PM	1	1
1/8/2020 1:47:09 PM	1	0
1/8/2020 1:48:09 PM	1	1
1/8/2020 1:49:09 PM	0	1
1/8/2020 1:50:09 PM	1	1
1/8/2020 1:51:09 PM	1	0
1/8/2020 1:52:09 PM	1	0
1/8/2020 1:53:09 PM	0	1
1/8/2020 1:54:09 PM	1	1
1/8/2020 1:55:09 PM	1	0
1/8/2020 1:56:09 PM	0	0

Preview

Refresh Stop

Date

Start: 08 Jan 2020
End: 09 Jan 2020

Rows: 60

FactoryTalk Alarms and Events

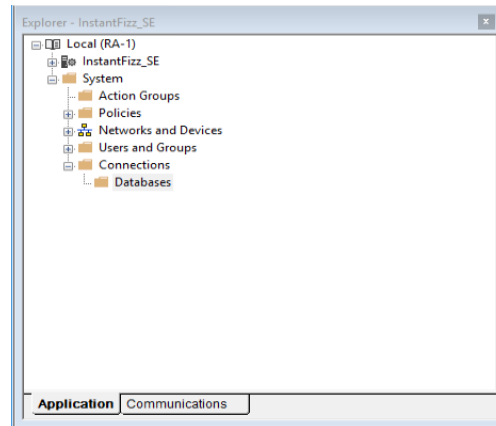
This connector is used to get alarms from the FactoryTalk View SE Alarms and Events Historian Database.

Set up FactoryTalk Alarms and Events

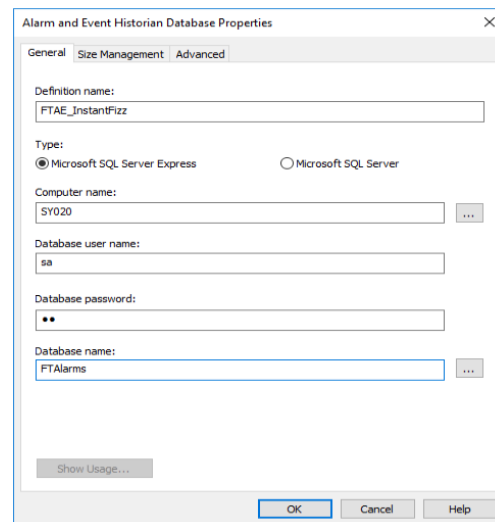
Define a Database

FactoryTalk Alarms and Events are logged to either Microsoft SQL Server or SQL Server Express. This database can be located on the local machine or across the network

To specify the database, open the **FactoryTalk View Studio**, expand **System, Connections, Database**.



Right-click **Database** and select **New Database**.



Under the **General** tab specify the settings for your available *Microsoft SQL Server Express* or *Microsoft SQL Server* installation. For **Database name** browse to select an existing database or enter a new database name.

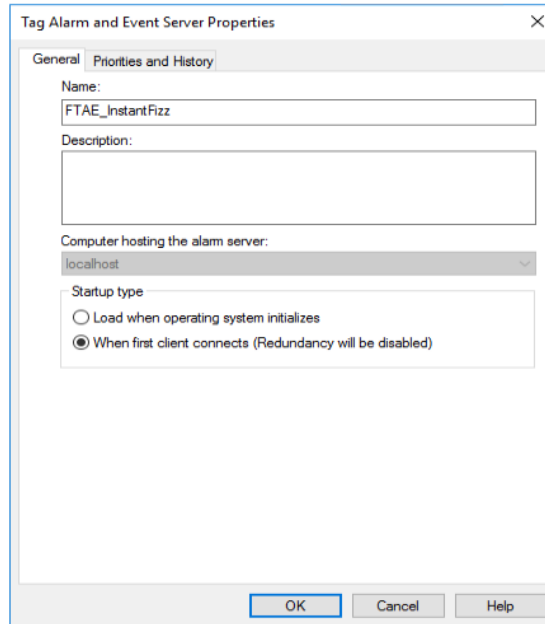
Configure Alarm Monitoring

FactoryTalk Alarms and Events support device-based monitoring and tag-based monitoring.

Device-based monitoring is configured and downloaded to the controller with built-in alarm instructions.

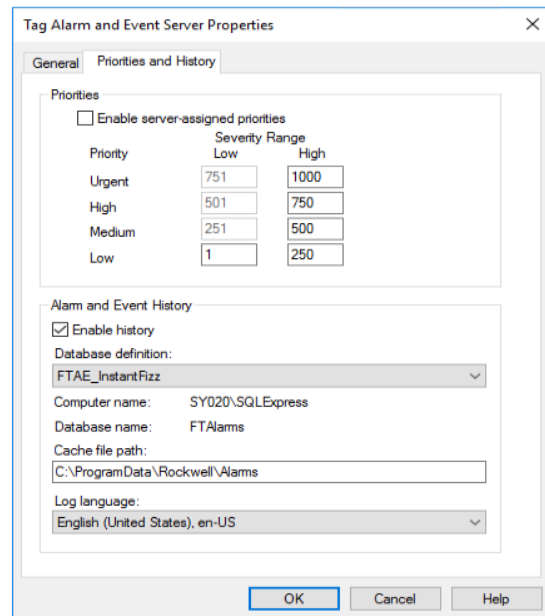
Tag-based monitoring is configured in FactoryTalk View Studio by first adding a Tag Alarm and Event Server. On the left side of the Studio, right-click an application and select **Add New Server, Tag Alarm and Event Server**.

Under the **General** tab specify the **Name** for the server.



Under the **Priorities and History** tab

- Check **Enable History**
- Set **Database definition** to the name defined in the previous step

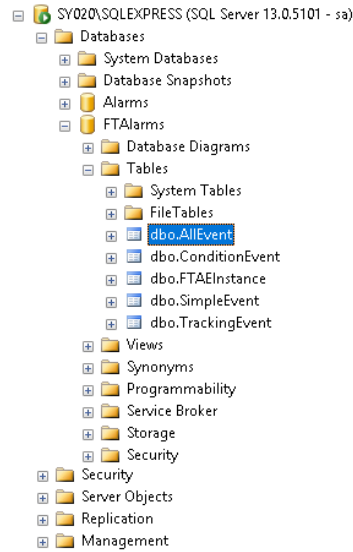


Tag-based alarms can now be configured in the Studio. Expand the Tag Alarm and Event Server defined in the previous step and double-click **Alarm and Event Setup**.

Prerequisites

Verify Database

Open Microsoft SQL Server Management Studio and connect to the SQL Server or SQL Server Express installation set up for the Alarms and Events Server.



Expand the Database configured for the Alarms and Events Server and expand **Tables**. Right-click *AllEvent* and choose **Select Top 1000 Rows**.

If no data is returned or there is anything described is missing contact Rockwell Automation technical support and correct these issues.

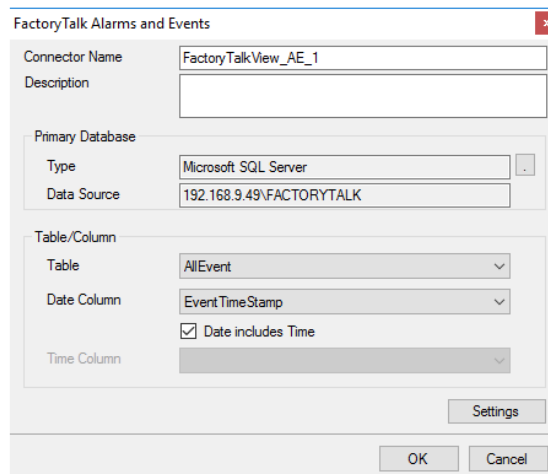
SQL Server Considerations

When using SQL Server there are some things to take into consideration including remote connectivity, instance browsing and user authentication. For information on what to consider, see the technical note: How to Configure Microsoft SQL Server.

Connector

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

- Click **Add**
- Select **Rockwell Automation, FactoryTalk Alarms and Events**
- Click **OK**



Primary Database

This defines a connection to the database where the FactoryTalk Alarm and Events server is logging data. A browse button [...] is provided to define. This is always a SQL Server database.

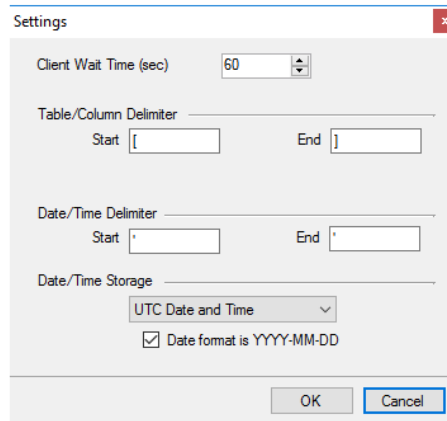
If there are issues connecting to the database, please refer to the section in the Database Connectors document on Microsoft SQL Server.

Table/Column

Once the connection is established, specify the **Table** where the alarms are stored and the **Date** and **Time Column(s)**. **Table** should be set to *AllEvent* and **Date Column** set to *EventTimeStamp* with **Date includes Time** checked.

Settings

The **Settings** button opens the **Settings** dialog that defines characteristics of the database that are used to retrieve data.



Typically, these settings are defaulted correctly based on SQL Server.

If queries timeout, increase the **Client Wait Time**.

The delimiter and timestamp settings are typically filled in automatically for the database and can be modified for other databases.

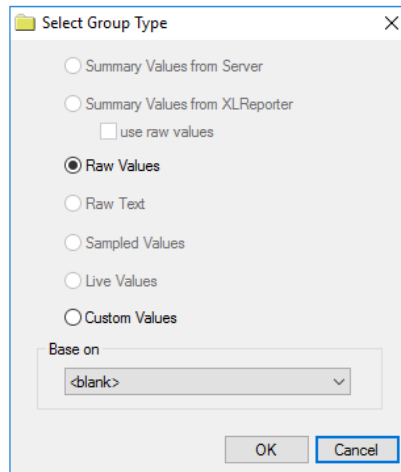
The **Date/Time Storage** settings define how timestamps are stored in the database. Using this setting the timestamps are manipulated when data is retrieved so that local timestamps are submitted in and returned.

Many databases require the Date format to be **YYYY-MM-DD** so that no interpretation needs to occur based on the Region settings of the Windows Operating System. It is recommended to always have this option checked.

Data Group

The following describes the historical data group settings specific to the **FactoryTalk Alarms and Events** connector.

Group Types



For **FactoryTalk View Alarms** the following group types are available:

Raw Values

This group retrieves every alarm logged to the database 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 in the database.

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 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 Data Connector

From the **XLReporter Project Explorer** select, **Tools, Connector Groups**

Select the *FactoryTalk View Alarms and Events* connector and then select **Add**.

- Set the **Type Raw Values** and click **OK**.

On the **Columns** tab of the group

- Select the first row under the **Name** column
- Click the browse pushbutton (...)
- In the **Tag Browser** expand **Online, All Event** and add **Items** from the lower left.
- Click **OK** to add these to the group

PanelView Plus Historical values

This connector is used to get historical values from a set of text files logged by a DataStore Plus control configured in the PanelView Plus.

The DataStore Plus ActiveX control is used for logging data to log files. The log files on the terminal can be accessed using a flash drive, directly across the local network or by FTP. Using FTP, a layer of security may be added to prevent unauthorized access.

XLReporter uses these methods to copy the log files to a secondary location on the local system. By using network access, this can be done automatically, on time or event. The advantage of copying the files automatically to the connector is that they are archived before the data is overwritten by the device.

This connector makes the log files appear as a single data entity like a database, so reports are not limited to the content of a single file. In addition, the connector maintains a list of tag names so that any tag selection can be done using a tag browser. Database features such as filtering and sorting are supported together with analytic calculations such as the average for each hour of a day.

Set up DataStore Plus

The DataStore Plus ActiveX control is used to collect data in comma separated values files (CSV files).

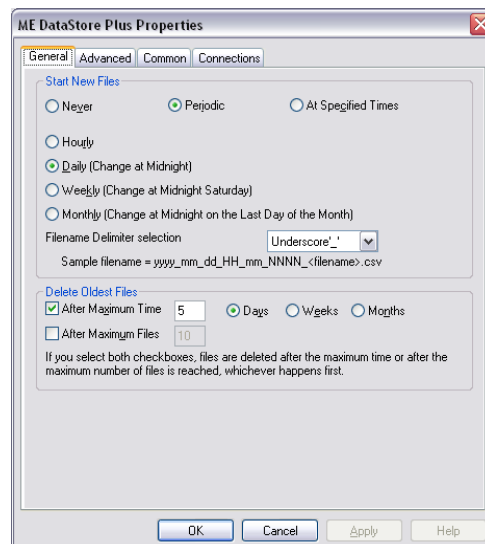
In FactoryTalk View Studio – Machine Edition, place the **ME DataStore Plus** ActiveX control on a display that cannot be closed by a user.

**If this control is not available, it may need to be registered.*

Double-click the control to view its properties.

General Tab

The **General** tab settings determine when csv files are created.

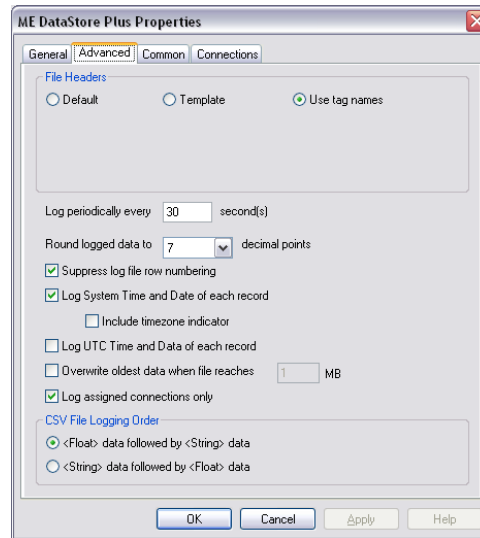


To optimize reporting runtime, enable the following:

- **Start New Files** either *Periodic* (Hourly or Daily) or *At Specific Times*.
- **Delete Oldest Files** value longer than the transfer rate scheduled for the Connector.

Advanced Tab

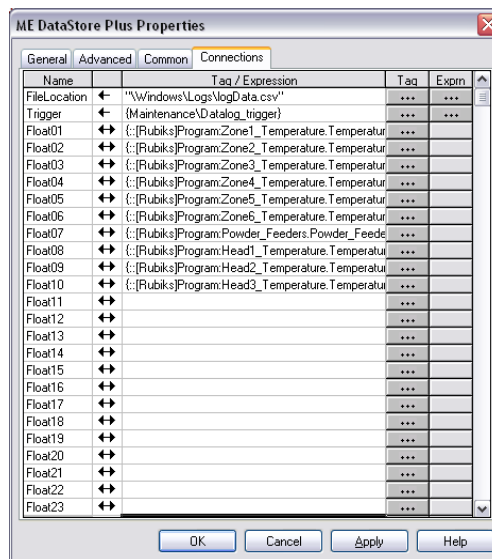
The **Advanced** tab settings determine when the data is logged.



- For **File Headers** select *Use tag names*.
- Enable **Suppress log file row numbering**.
- Enable **Log System Time and Date for each record**.
- Enable **Log assigned connections only**.

Connections Tab

The **Connections** tab settings determine what data is logged and where the csv files are saved.



The **FileLocation** setting determines both where the csv files are located as well as the fixed text portion of the naming convention. It is important that this location is configured to a folder that is accessible either from the local network or via FTP for **XLReporter** to have access to these files.

The **Trigger** setting is typically set to a tag that determines if data should be logged. Only when the value of the tag is non-zero will data be logged to the CSV file. Use this setting if logging needs to be performed for cycles such as the production of a batch or a machine cycle.

Configure FTP Server

For FTP access, enable a Windows FTP Server.

- Open the **Windows Control Panel**
- Open **Services**
- Click the **FTP Server** button so it is green. If the button is green, the FTP Server is running.

To configure the FTP Server settings:

- Open the **Windows Control Panel**
- Open **Server Config**
- Select the **FTP Server** tab

The **Default Directory** and **Base Directory** determine the root folder of the FTP server. To set this to the root folder of the system, configure both settings to \.

To allow anonymous access, check all the **Allow Anonymous** options for the FTP Server.

Prerequisites

Files

On the PanelView Plus, verify that csv files have been created by the DataStore Plus control. A connector cannot be defined in XLReporter until at least one csv file is generated.

If csv files are not being generated, contact Rockwell Automation technical support to troubleshoot and correct this issue.

Connectivity

FTP

If files are transferred via FTP Server to XLReporter, ensure a connection to the FTP Server can be established.

Open **Windows File Explorer** and navigate to:

ftp://<Panel View IP Address>

If successful, a list of files and folders on the PanelView Plus is displayed.

If this cannot be done, please contact the local network administrator for further assistance.

Local Network

Open Windows File Explorer and browse the network to the PanelView Plus machine and drill into the folder where the csv files are located.

If this cannot be done, please contact the local network administrator for further assistance.

Connector

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

- Click **Add**
- Select **Rockwell Automation, PanelView Plus Historical Values**
- Click **OK**

The screenshot shows the 'PanelView Plus Historical values' dialog box. It is divided into three main sections: 'Connector Name and Description', 'File Location and Name', and 'File Content'.
1. **Connector Name and Description:** The 'Connector Name' field contains 'PanelViewPlus_1' and the 'Description' field contains 'C:\XLRprojects\XLR_Demo\Data\Packing'.
2. **File Location and Name:** The 'Folder' field contains 'C:\XLRprojects\XLR_Demo\Data\Packing'. The 'File Name Format' field contains 'YYYY_MM_DD_hh_??_????_Packing.csv'. The 'Base File' field contains '2020_10_21_00_00_0000_Packing.csv'. There are 'Refresh' and 'View' buttons next to the format and base file fields, and a 'Settings' button at the bottom right of this section.
3. **File Content:** The 'Date Column' dropdown is set to 'LocalDate'. There is an unchecked checkbox for 'Date includes Time'. The 'Time Column' dropdown is set to 'LocalTime'. The 'Separator' section has three radio buttons: 'Comma' (selected), 'Semicolon', and 'Other'. The 'Decimal Symbol' field contains a period '.'.
At the bottom of the dialog are 'OK' and 'Cancel' buttons.

Please note a separate **Data Connector** is required for each PanelView Plus terminal used.

For details on all the settings of this connector, see the **Text File Historian** section of the **Text File** document.

Since the text files for this connector are generated on the PanelView Plus station, the **Enable File Transfer** option should be checked and configured to download the text files periodically from the PanelView Plus station either through the configured *FTP Server* or *Local Network*.

If the format of the **Date Column** does not match the date format of the Windows Operating System, the format needs to be specified explicitly. This is done by clicking the **Settings** button under **File Location and Name** and under the **[consolidated.csv]** settings, adding:

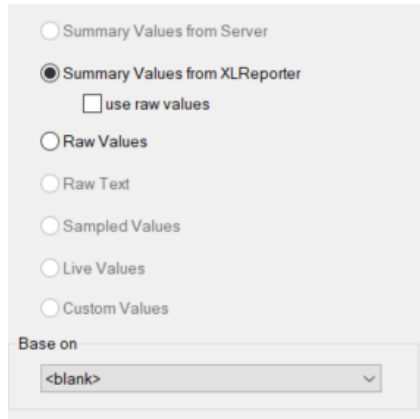
DateTimeFormat=MM/dd/yyyy hh:nn:ss

The setting above indicates that the date format for the **Date Column** is US format.

Data Group

The following describes the historical data group settings specific to the **PanelView Plus Historical Values** connector.

Group Types



The following group types are available:

Summary Values from XLReporter

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

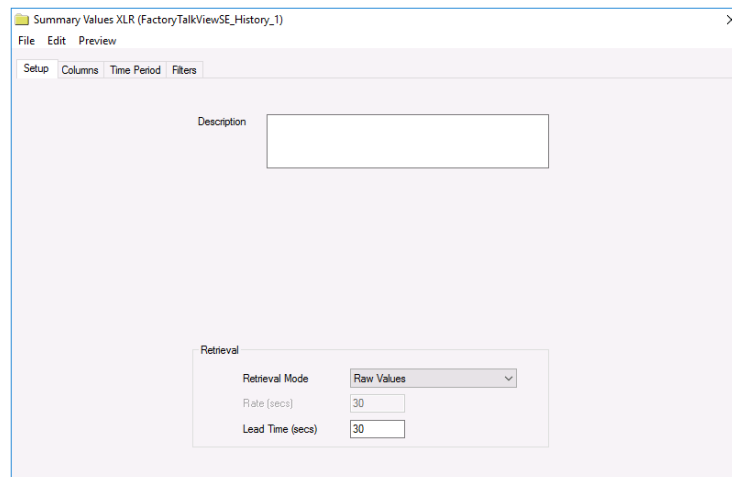
By default, summary values are calculated time weighted, and values are propagated based on the last known value. However, to change this so that summary values are calculated strictly on the data returned check **use raw values**.

Raw Values

This group retrieves every numeric value logged to the database between the start and end time specified.

Group Settings

Setup Tab



Retrieval (Summary Values for XLReporter Group)

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 this connector, only *Raw Values* are available.
- **Lead Time**
The amount of time (in seconds) to retrieve data before the start time.

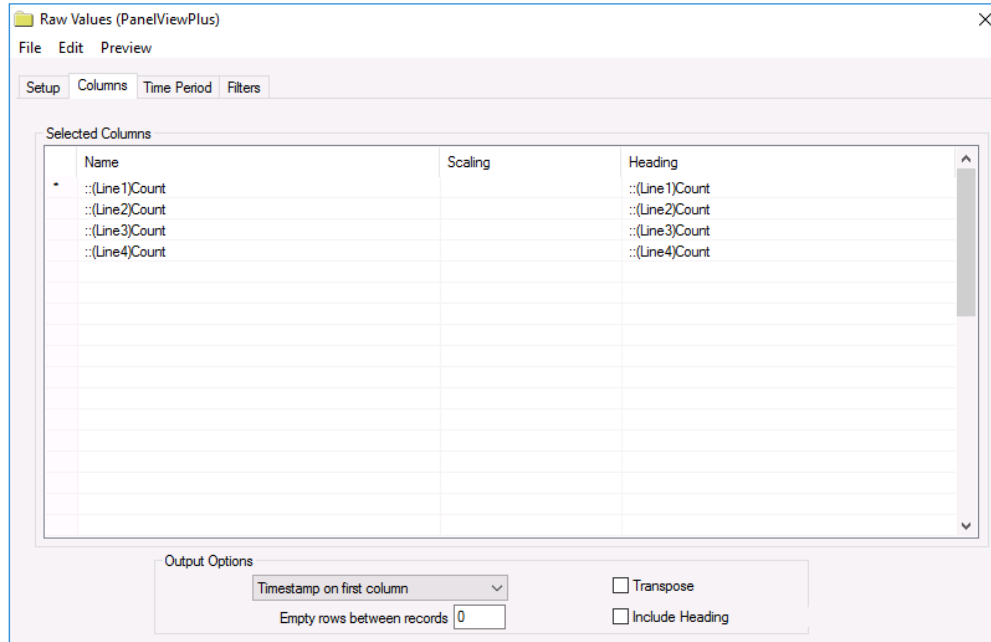
Verify the Data Connector

From the **XLReporter Project Explorer** select, **Tools, Connector Groups**.

Select the *PanelView Plus historical connector* and then select **Add**.

- Set the **Type 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**.

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