

AVEVA Connectors

InTouch Real-time values (local)

This connector is used to get real time values from InTouch via the IDEA interface. It is provided for backwards compatibility. For new systems it is recommended to use the **OI Gateway Real-time values** connector to retrieve real time data from In Touch.

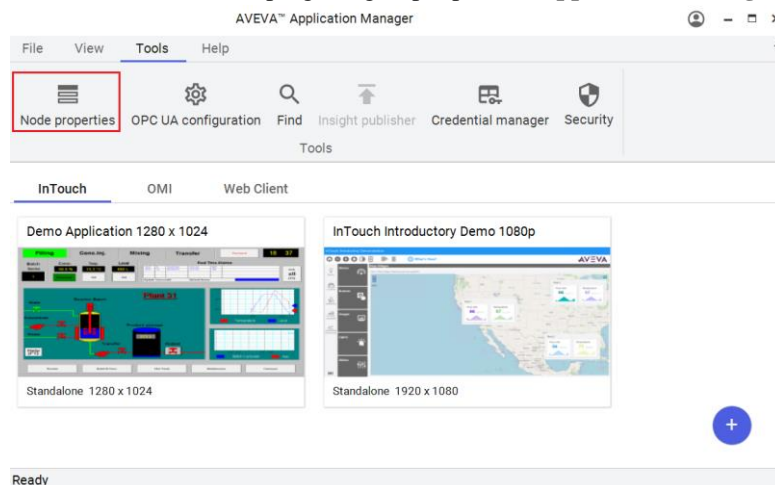
In order for this connector to function, **XLReporter** must be installed on an InTouch node and InTouch must be running.

InTouch Configuration

WWHEAP Memory

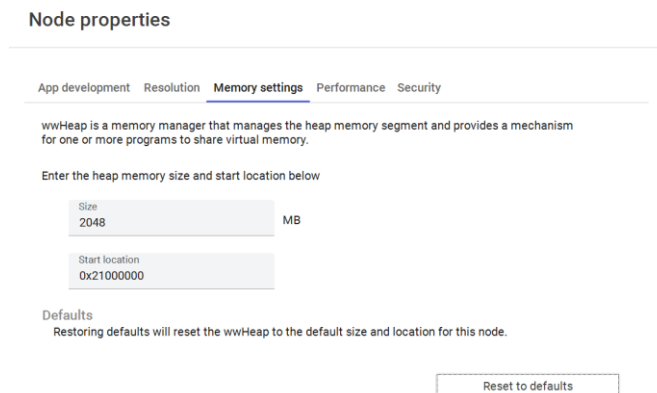
By default, the internal memory settings in InTouch do not support connectivity by client applications. To change these settings:

- From the **AVEVA InTouch HMI** program group, open the **Application Manager**.



- Select **Tools, Node Properties**.

Under the **wwHeap Memory** tab,



- Set **Start Location** to **0x21000000**.
- Reboot the machine for the setting change to take effect.

This setting configuration is not an official AVEVA recommendation. If **XLReporter cannot be connected (even with this configuration), contact AVEVA technical support.*

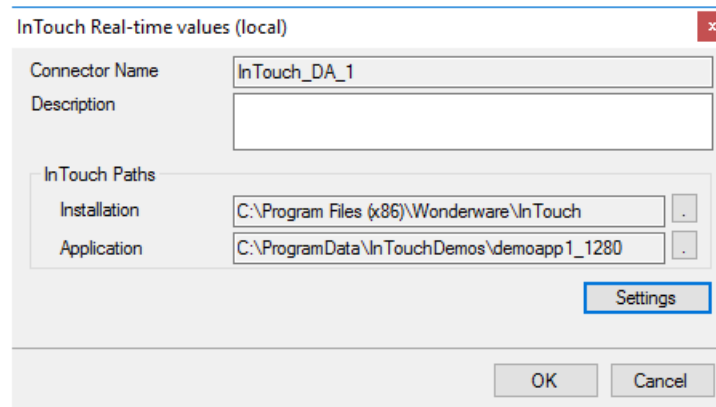
InTouch WindowViewer

In order for historical data to log, **WindowViewer** must be in a running state. If it is not already running, from the **AVEVA InTouch HMI** program group, open **WindowViewer**.

Connector

To configure the connector to **InTouch Real-time values (local)**, from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **AVEVA, InTouch Real-time values (local)**
- Click **OK**



This connector requires the following **InTouch Paths**:

Installation

The path where InTouch is installed on the local system.

Application

The path where the running InTouch project is located on the local system. This can be found at the top of the **WindowViewer** window.

Settings

The **Settings** button is used to update tuning parameters if there are issues retrieving data from this connector.

The **Initial Wait** setting is the amount of time (in milliseconds) the **Connector** waits after making a request and before retrieving data. This can be useful when communications do not respond immediately.

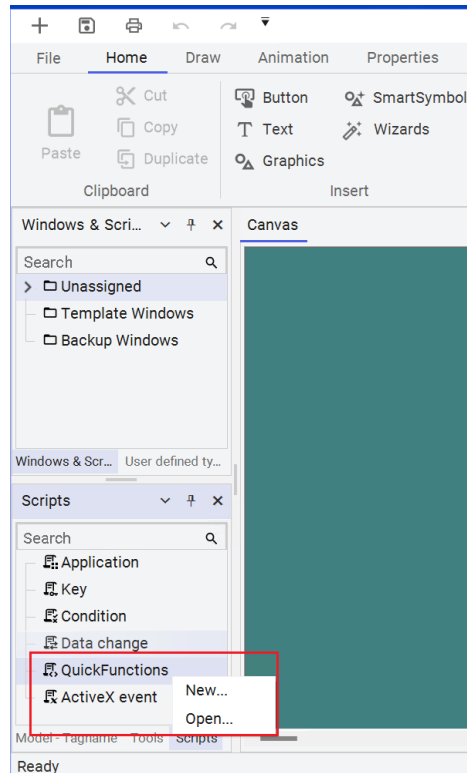
Retry determines how many attempts are made when bad values are returned. The default is 2 and it should typically not be changed. The **Retry Time** determines how the time in between retries.

Scheduler Startup

The **XLReporter Scheduler** is used to process reports automatically in the background. The scheduler can be configured to start from an InTouch Script so it starts when the HMI is started.

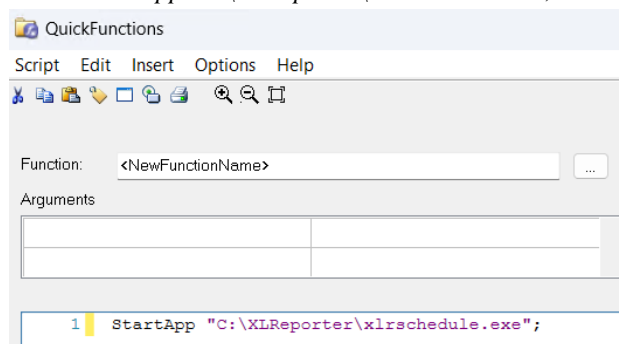
To configure an InTouch script, open **InTouch WindowMaker** from the **AVEVA InTouch HMI** program group in the Start menu. Scripts configured in **WindowMaker** run when the HMI application is started in **WindowViewer**.

- From **WindowMaker**, the most straightforward approach is to use a **QuickFunctions** script with an On Startup condition.



- Right click **QuickFunctions** in the lower left corner of the Window Maker and select **New...**
- The script syntax to start the **Scheduler** is:

StartApp "C:\XLReporter\xlrschedule.exe";

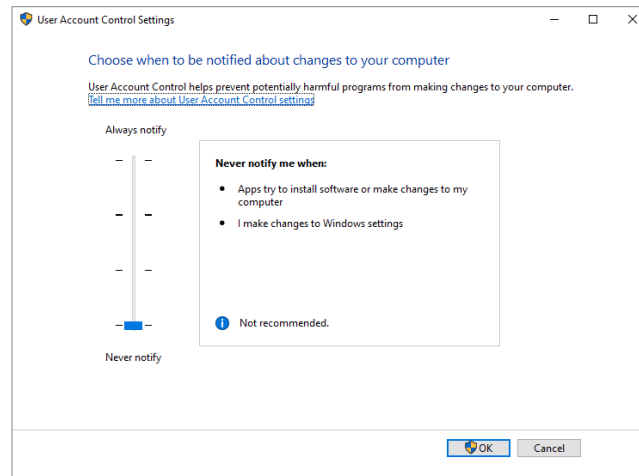


Limitations and Restrictions

Windows User Account Control

It is recommended by AVEVA to run InTouch with Windows UAC set to **Never Notify**.

To configure UAC, in **Windows Search** enter *UAC*.

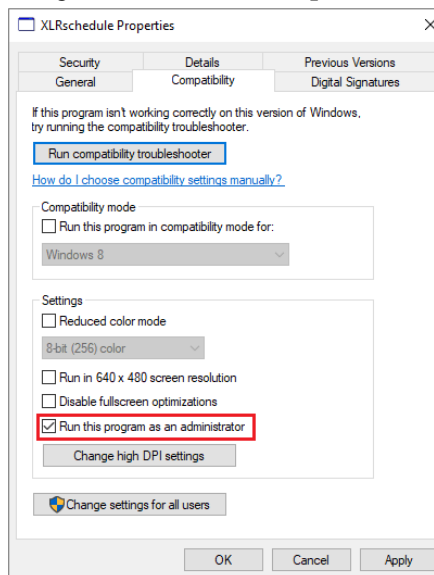


- In **User Account Control Settings** move the slide control to the lowest option for **Never Notify**.

Administrative Privileges

AVEVA recommends that any application that connects to InTouch via the IDEA interface run with explicit administrative privileges. This includes the **Scheduler** and **Project Explorer**. To configure this,

- Use **Windows File Explorer** to navigate to the **XLReporter** installation folder (C:\XLReporter by default).
- Select *XLRSchedule.exe*, right click and select **Properties**.



- Under the **Compatibility** tab, check *Run this program as an administrator*.
- Repeat these steps for the **Project Explorer** (C:\XLReporter\bin\XLRiProject.exe).

Scheduler

If this connector is configured the Scheduler cannot be configured to run as a Windows service.

Troubleshooting

Values appear as 0

If the values always appear as 0 this indicates that XLReporter is requesting the values too quickly after initially connecting to InTouch. To correct this, in the **Connector Settings**, change the **Initial Wait** to anywhere from *500* to *5000* (milliseconds) to retrieve the values correctly.

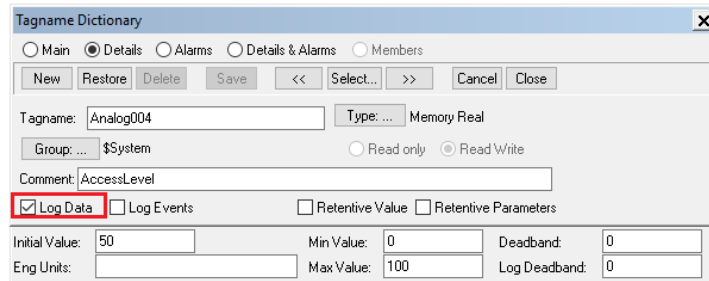
InTouch Historical values (classic)

This connector is used to get historical values from InTouch lgh files via the HistData interface.

In order for this connector to function, **XLReporter** must be installed on an InTouch node and InTouch must be running.

InTouch Configuration

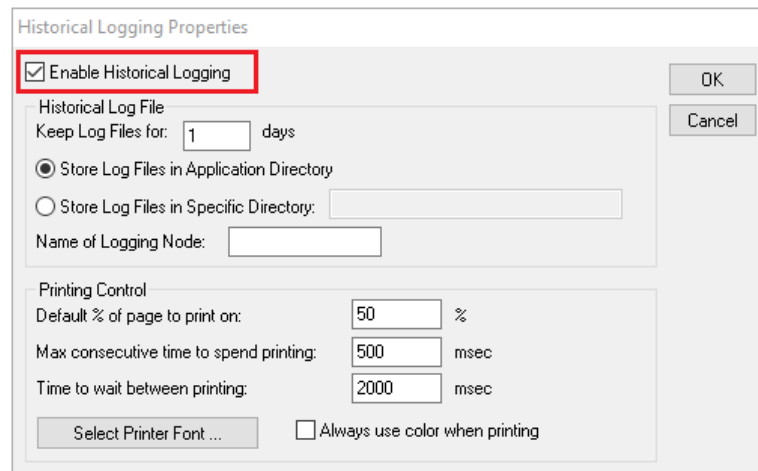
To set up data logging, from the **AVEVA InTouch HMI** program group, open **InTouch Window Maker**. From the top ribbon menu in **WindowViewer** select **Special, Tagname Dictionary**.



The screenshot shows the 'Tagname Dictionary' dialog box with the 'Details' tab selected. The 'Log Data' checkbox is checked and highlighted with a red box. Other fields include Tagname: Analog004, Group: \$System, Comment: AccessLevel, and various value ranges.

For each tag that requires historical logging, check the **Log Data** option.

In the InTouch **Window Maker** menu, select **Special, Configure, Historical Logging** to open the **Historical Logging Properties** window.



The screenshot shows the 'Historical Logging Properties' dialog box. The 'Enable Historical Logging' checkbox is checked and highlighted with a red box. Other options include 'Keep Log Files for: 1 days', 'Store Log Files in Application Directory', and 'Printing Control'.

Check **Enable Historical Logging**. Historical log files have the file extension *.lgh.

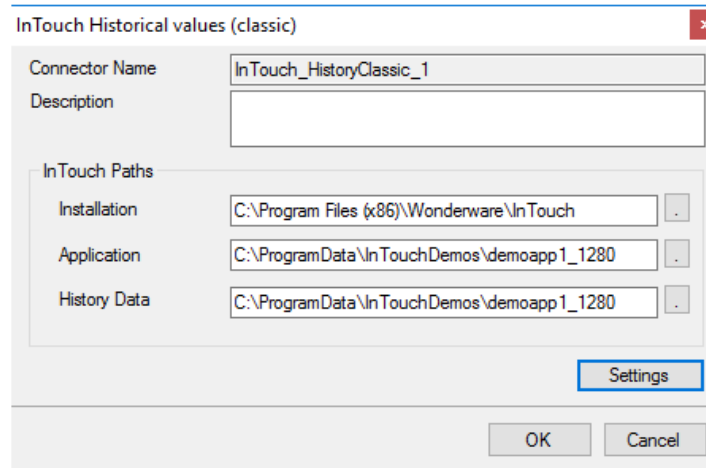
InTouch WindowViewer

In order for historical data to log, **WindowViewer** must be in a running state. If it is not already running, from the **AVEVA InTouch HMI** program group, open **WindowViewer**.

Connector

To configure the connector to **InTouch Historical values (classic)**, from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **AVEVA, InTouch Historical values (classic)**
- Click **OK**



This connector requires the following **InTouch Paths**:

Installation

The path where InTouch is installed on the local system.

Application

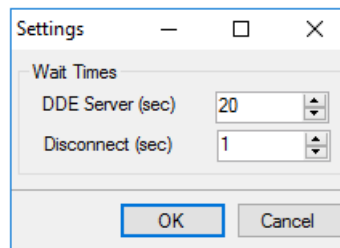
The path where the running InTouch project is located on the local system. This can be found at the top of the **WindowViewer** window.

History Data

The path where the InTouch historical data files (.lgh) are located.

Settings

The **Settings** button is used to update tuning parameters if there are issues retrieving data from this connector.



The following **Wait Times** can be configured:

DDE Server

The number of seconds the reporting engine will wait for the InTouch HisData DDE server to return the historical data requested.

This setting only needs to be changed if time out errors are triggered when a data group is updated.

Disconnect

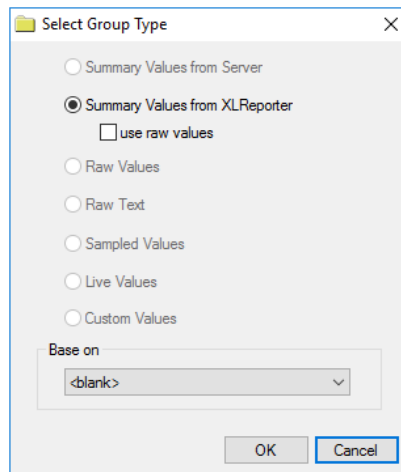
The number of seconds the reporting engine will wait after disconnecting from the InTouch HisData DDE server. This is useful when a report contains multiple data groups retrieving data historical data from InTouch because it ensures the DDE server is closed between each request.

This setting only needs to be changed if reports with multiple data groups are triggering errors that the DDE server failed to start or connect.

Data Group

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

Group Types



For **InTouch Historical Values** the following group types are available:

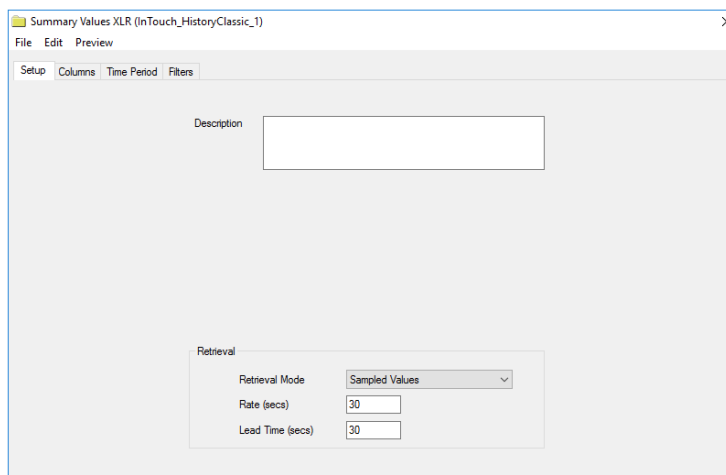
Summary Values from XLReporter

This group type retrieves sampled values from InTouch 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**.

Group Settings

Setup Tab



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 InTouch Historical Values only *Sampled Values* are available.
- **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.

Columns Tab

Tag Browsing

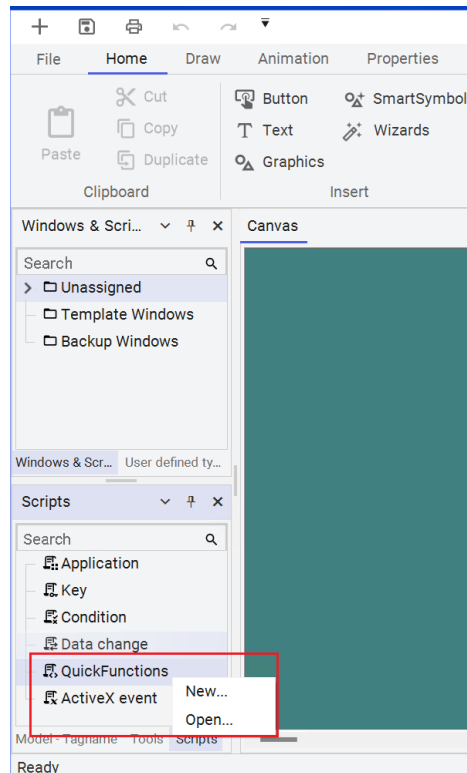
When browsing for tags from **InTouch Historical Values** every tag in the InTouch tag name dictionary is provided to select from regardless of whether or not the tag is being logged historically.

Scheduler Startup

The **XLReporter Scheduler** is used to process reports automatically in the background. The scheduler can be configured to start from an InTouch Script so it starts when the HMI is started.

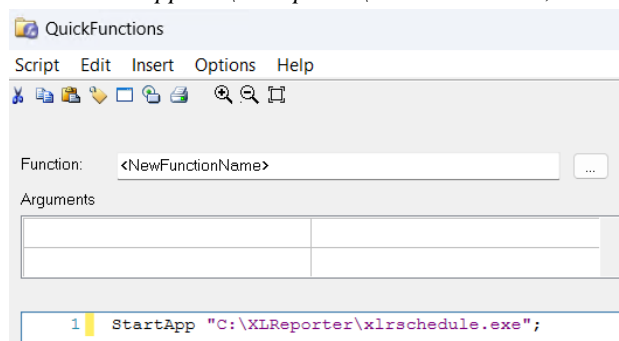
To configure an InTouch script, open **InTouch WindowMaker** from the **AVEVA InTouch HMI** program group in the Start menu. Scripts configured in **WindowMaker** run when the HMI application is started in **WindowViewer**.

- From **WindowMaker**, the most straightforward approach is to use a **QuickFunctions** script with an On Startup condition.



- Right click **QuickFunctions** in the lower left corner of the Window Maker and select **New...**
- The script syntax to start the **Scheduler** is:

StartApp "C:\XLReporter\xlrschedule.exe";



Limitations and Restrictions

Data Retrieval

The InTouch HisData DDE server can only return six weeks of data in any one request.

Scheduler

If this connector is configured the Scheduler cannot be configured to run as a Windows service.

InTouch ME Historical values

This connector is used to get historical values from InTouch ME when it is configured to log data to a relational database rather than to AVEVA (formerly Wonderware) Historian.

Connector

To configure the connector to **InTouch ME Historical values**, from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **AVEVA, InTouch ME Historical values**

Click **OK**

Primary Database

This setting defines the database server when the InTouch ME is configured to log data. Use the browse button [...] to define the database connection.

Table/Column

Once the database is established, the following settings are available:

Table

The **Table** containing the historically logged data.

Date and Time Columns

The column in the selected Table containing the timestamp for the records. For InTouch ME Historical values the Date Column should be set to **Time_Stamp** with **Date includes Time** checked as both the date and time are logged to this column.

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 database connected to.

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 **InTouch ME Historical Values** connector.

Group Types

For **InTouch ME Historical Values** the following group types are available:

Summary Values from XLReporter

This group type retrieves sampled values from InTouch 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 value logged to the historian between the start and end time specified.

Custom Values

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

Group Settings

Setup Tab

Database

These settings display the current database definition. Since this connector is explicitly defined for InTouch ME Historical Values and this information is already defined in the connector, these settings cannot be changed.

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

Filters Tab

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

InTouch Alarms

This connector is used to get alarms from InTouch when they are logged to Microsoft SQL Server.

InTouch Alarm Configuration

To configure alarm conditions for InTouch tags, from the **AVEVA InTouch HMI** program group, open **InTouch WindowMaker**.

Select **Special, Tagname Dictionary** to open the **Tagname Dictionary** and select a tag.

The screenshot shows the 'Tagname Dictionary' dialog box with the 'Details & Alarms' tab selected. The 'Group' is set to '\$System'. 'Log Events' is checked with a priority of 999. The bottom section shows alarm conditions: LoLo (5, 4), High (80, 2), and HiHi (95, 1).

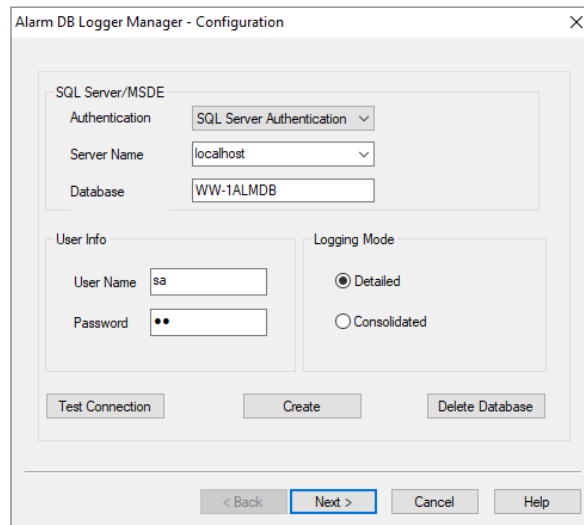
- Click the **Details & Alarms** option at the top.
- Click **Group** to select the group for this tag.
- Check **Log Events** and set the **Priority**.
- Configure the alarm details at the bottom.

Database Configuration

To set up InTouch alarm logging to a database, from the **AVEVA InTouch HMI** program group, open the **Alarm DB Logger Manager**

The screenshot shows the 'Alarm DB Logger Manager' dialog box. It has a 'Settings' button at the top right. Below it, there's a 'Smart Cache Status' section with a progress bar and the text 'Number of alarm records in Smart Cache : 0'. At the bottom, there are 'Start' and 'Stop' buttons.

Click **Settings** to configure alarm logging.

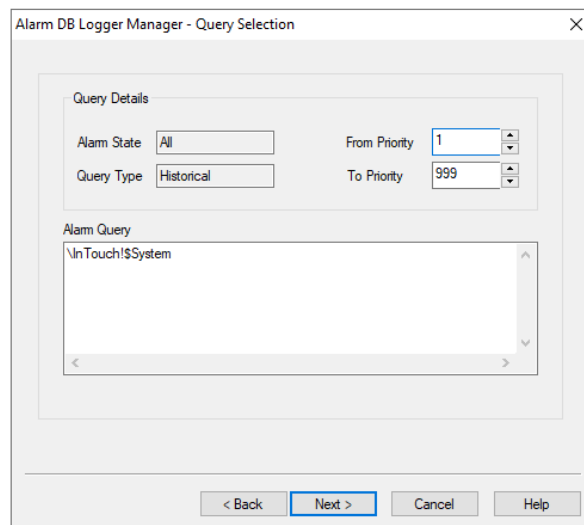


The 'Alarm DB Logger Manager - Configuration' dialog box is shown. It contains the following fields and options:

- SQL Server/MSDE:**
 - Authentication:
 - Server Name:
 - Database:
- User Info:**
 - User Name:
 - Password:
- Logging Mode:**
 - ☒ Detailed
 - ☐ Consolidated

Buttons at the bottom: Test Connection, Create, Delete Database, < Back, Next > (highlighted), Cancel, Help.

In **Configuration**, specify the **SQL Server** database to log alarms to.

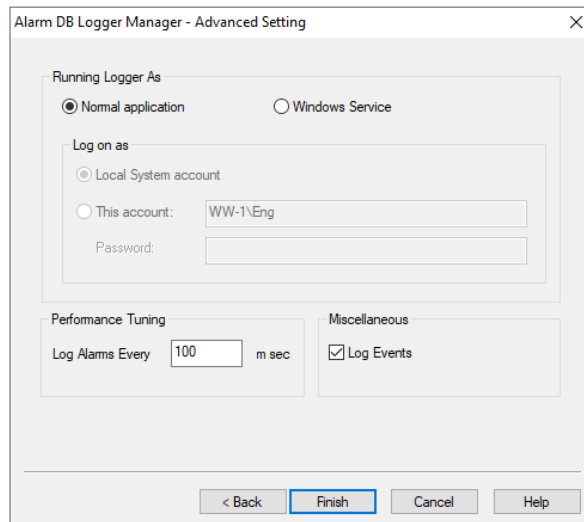


The 'Alarm DB Logger Manager - Query Selection' dialog box is shown. It contains the following fields and options:

- Query Details:**
 - Alarm State:
 - From Priority:
 - Query Type:
 - To Priority:
- Alarm Query:**
 -

Buttons at the bottom: < Back, Next > (highlighted), Cancel, Help.

In **Query Selection**, specify the **Group(s)** and **Priority Range** according to the **Tagname Dictionary** configuration.

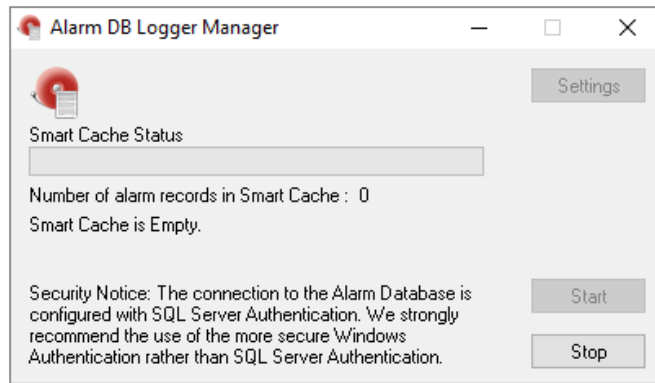


The 'Alarm DB Logger Manager - Advanced Setting' dialog box is shown. It contains the following fields and options:

- Running Logger As:**
 - ☒ Normal application
 - ☐ Windows Service
- Log on as:**
 - ☒ Local System account
 - ☐ This account:
 - Password:
- Performance Tuning:**
 - Log Alarms Every: m sec
- Miscellaneous:**
 - ☒ Log Events

Buttons at the bottom: < Back, Finish (highlighted), Cancel, Help.

In **Advanced Settings**, specify the **Log Alarms** rate.

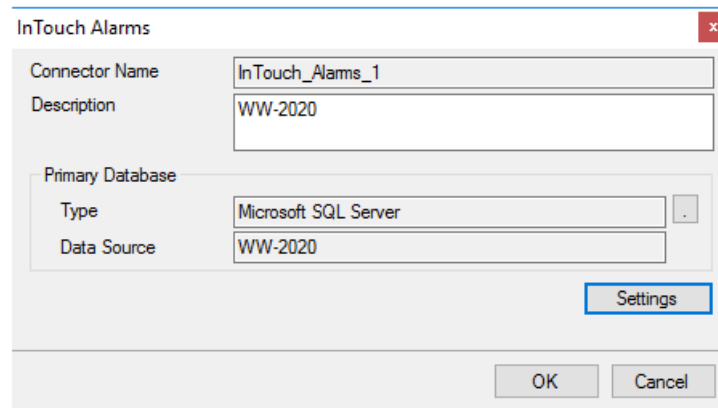


Click **Start** to start the configuration.

Connector

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

- Click **Add**
- Select **AVEVA, InTouch Alarms**
- Click **OK**

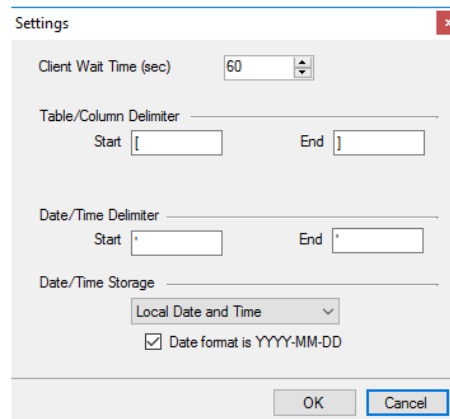


Primary Database

This setting defines the SQL Server connection where the InTouch Alarms are configured to log to. Use the browse button [...] to define the database connection.

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 for 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.

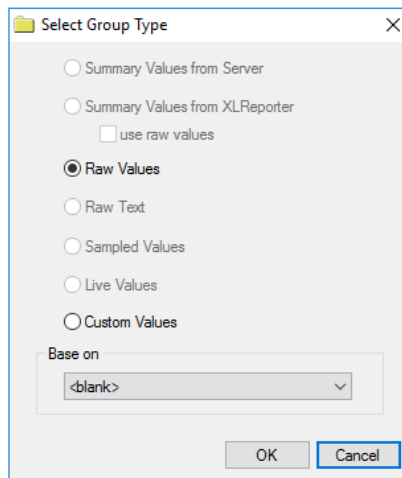
The **Date/Time Storage** settings define how timestamps are stored in the database. Using this setting the timestamps are manipulated when data is retrieved so that local timestamps are submitted in and returned.

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 **InTouch Alarms** connector.

Group Types



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

Raw Values

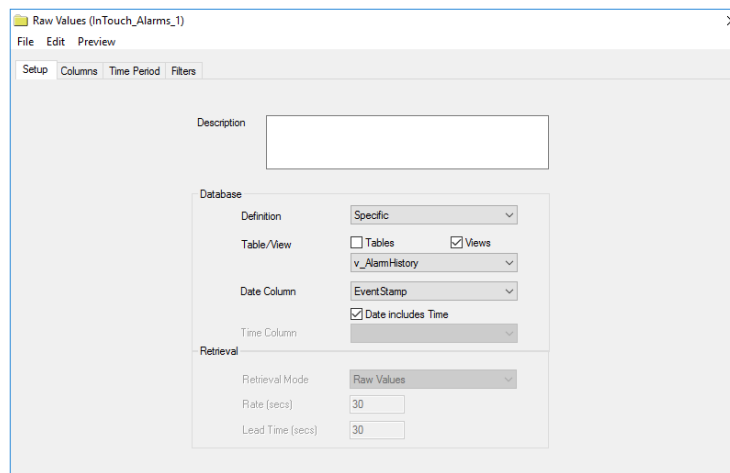
This group retrieves every value logged to the alarms database between the start and end time specified.

Custom Values

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

Group Settings

Setup Tab



Database

These settings define where the alarm data for group is retrieved. Typically, **Table/View** should be set to *v_AlarmHistory* with **Date Column** set to *EventStamp* and **Date includes Time** checked.

Filters Tab

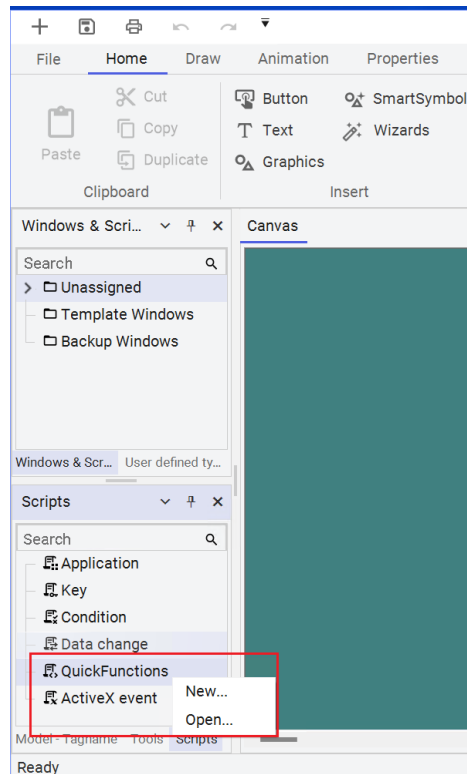
If the **Perform by Server** option is checked, any filter configured in this tab is put into the *WHERE* clause of the query sent to the database to retrieve data for the group. Otherwise, the configured filtering is performed by the reporting engine after the values are returned. It is recommended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

Scheduler Startup

The **XLReporter Scheduler** is used to process reports automatically in the background. The scheduler can be configured to start from an InTouch Script so it starts when the HMI is started.

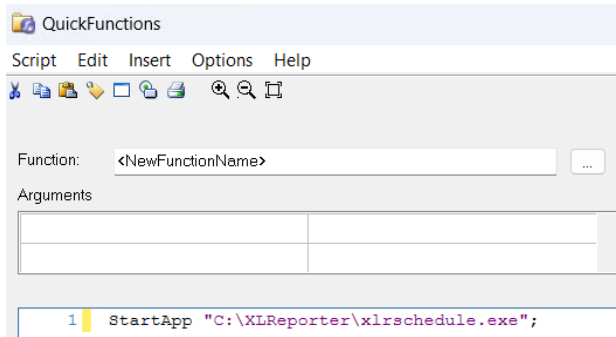
To configure an InTouch script, open **InTouch WindowMaker** from the **AVEVA InTouch HMI** program group in the Start menu. Scripts configured in **WindowMaker** run when the HMI application is started in **WindowViewer**.

- From **WindowMaker**, the most straightforward approach is to use a **QuickFunctions** script with an On Startup condition.



- Right click **QuickFunctions** in the lower left corner of the Window Maker and select **New...**
- The script syntax to start the **Scheduler** is:

StartApp "C:\XLReporter\xlrschedule.exe";



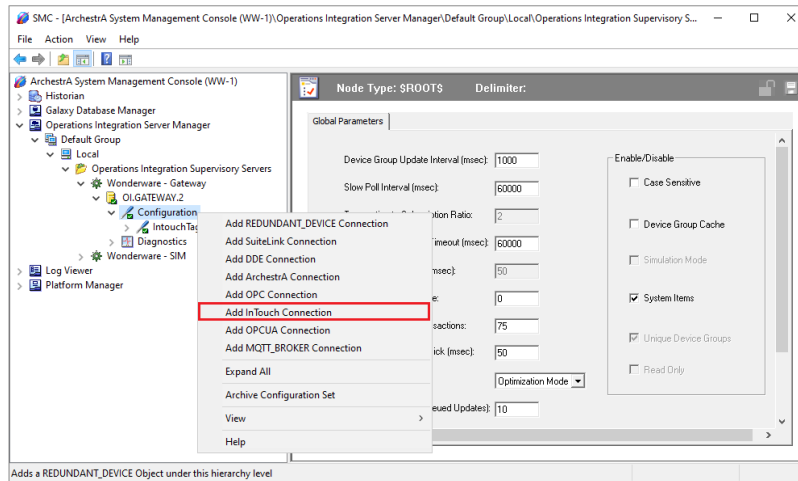
OI Gateway Real-time values

This connector is used to get real time values via the OI (Operations Integration) Gateway OPC server. This can be used to retrieve data from a number of sources including InTouch. The server is accessible both locally and remotely.

InTouch Configuration

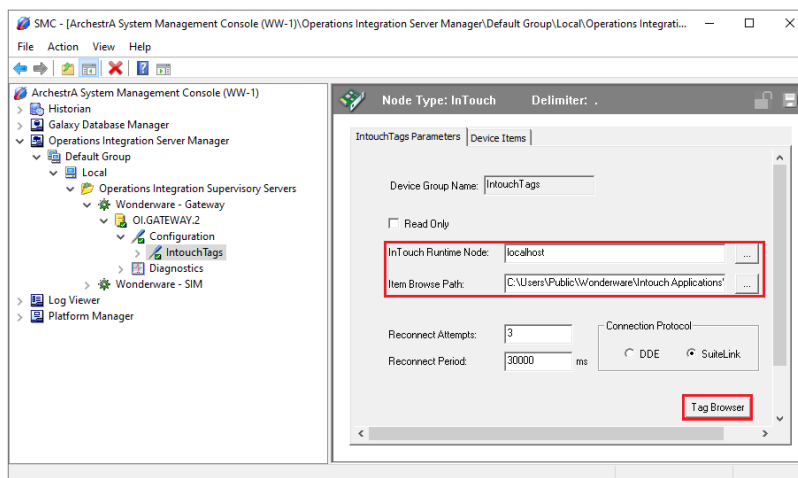
Operations Integration Supervisory OPC Server

The OPC DA server in InTouch is defined in the **System Platform Management Console**. To open, from the **AVEVA** program group, select **System Platform Management Console**.



- Expand **Operations Integration Server Manager, Default Group, Local, Operations Integration Supervisory Servers, Wonderware – Gateway**.
- By default, an *OI.GATEWAY* server is listed and can be used (this may be *OI.GATEWAY.2* or *OI.GATEWAY.3* depending on the version installed). Otherwise, right-click on *Wonderware – Gateway* to create a new server instance.
- Expand the server created, right-click **Configuration**, and select **Add InTouch Connection**.

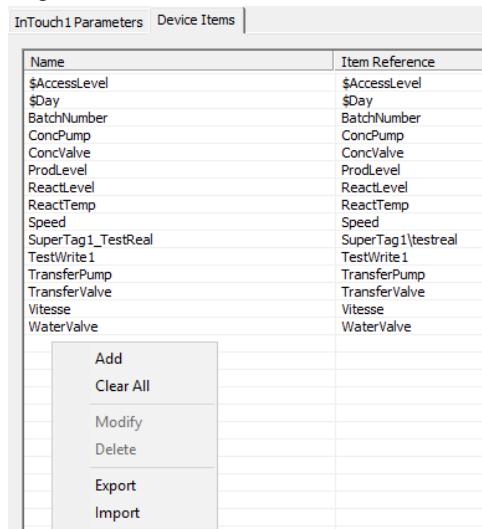
**The OI servers in AVEVA support connectivity to a variety of data sources beyond the InTouch Tagname Dictionary. The OI interface allows any of these sources to be exposed as an OPC DA server.*



- Set the **Item Browse Path** to that of the active InTouch application. This path is displayed at the top of **WindowViewer**.
- Open the **Tag Browser** and add any InTouch tags to be exposed to the OPC server.
- When configuration is complete, click the **Save** icon in the upper right corner.

SuperTags

If the InTouch application contains SuperTags, in order to expose the individual members of the SuperTag through the OPC server each member must be added manually to the list under the **Device Items** tab of the configuration.



To add, right-click the list and select **Add**.

For example, if the application has a SuperTag configured as *MyST1* and there are 4 members: *val1*, *val2*, *val3* and *val4*, the following will need to be added to expose all four values:

| InTouch1 Parameters - Device Items | |
|------------------------------------|--------------------|
| Name | Item Reference |
| \$AccessLevel | \$AccessLevel |
| \$Day | \$Day |
| BatchNumber | BatchNumber |
| ConcPump | ConcPump |
| ConcValve | ConcValve |
| ProdLevel | ProdLevel |
| ReactLevel | ReactLevel |
| ReactTemp | ReactTemp |
| Speed | Speed |
| SuperTag1_TestReal | SuperTag1\testreal |
| TestWrite1 | TestWrite1 |
| TransferPump | TransferPump |
| TransferValve | TransferValve |
| Vitesse | Vitesse |
| WaterValve | WaterValve |
| MyST1_val1 | MyST1\val1 |
| MyST1_val2 | MyST1\val2 |
| MyST1_val3 | MyST1\val3 |
| MyST1_val4 | MyST1\val4 |

Note that the **Item Reference** must be in the format *SuperTag Name\member*. The **Name** can be customized but must adhere to the restrictions of tag names for the server (e.g., no spaces, “\” or “-”).

Be sure to save the configuration before closing the SMC.

InTouch Window Viewer

For **XLReporter** to collect data from InTouch tags through the OI gateway, **WindowViewer** must be in a running state. If it is not already running, from the **AVEVA InTouch HMI** program group, open **InTouch WindowViewer**.

Remote Communication

If XLReporter is not installed on the same machine as the OI Gateway then the workstation must 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 InTouch 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 InTouch, 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 InTouch is running **TCP Port 135** must be opened for remote clients to connect.

Connector

To configure the connector to **OI Gateway Real-time values**, from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **AVEVA, OI Gateway Real-time values**
- Click **OK**

The screenshot shows the 'OI Gateway Real-time values' configuration window. It includes the following elements:

- Connector Name:** OI_DA_1
- Description:** local
- Primary Server:**
 - Name:** OI.GATEWAY.2
 - Node:** local (checked)
 - Test Connection:** button
- Secondary Server:** (unchecked)
 - Name:** OI.GATEWAY.2
 - Node:** local (checked)
 - Test Connection:** button
- Settings:** button
- OK:** button
- Cancel:** button

Primary Server

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

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

Secondary Server

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

Settings

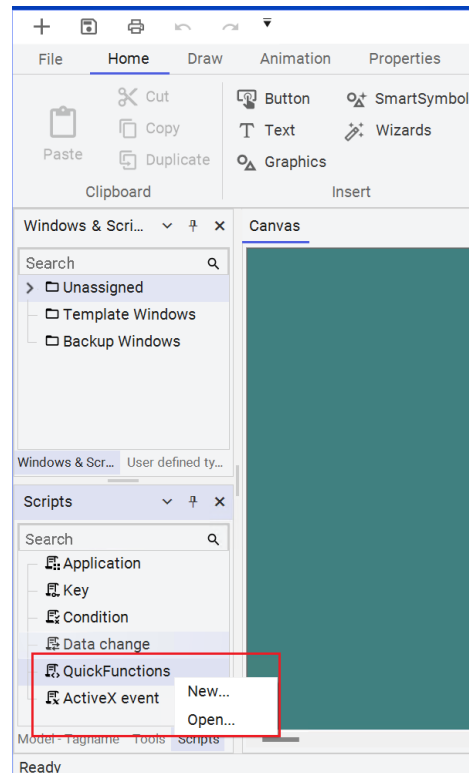
For information on the specific settings, see the **DATA CONNECTIVITY, OPC** document.

Scheduler Startup

The **XLReporter Scheduler** is used to process reports automatically in the background. The scheduler can be configured to start from an InTouch Script so it starts when the HMI is started.

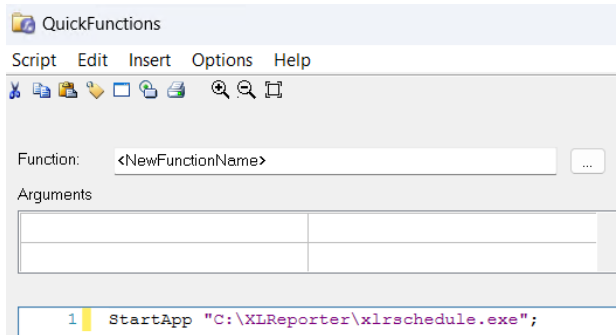
To configure an InTouch script, open **InTouch WindowMaker** from the **AVEVA InTouch HMI** program group in the Start menu. Scripts configured in **WindowMaker** run when the HMI application is started in **WindowViewer**.

- From **WindowMaker**, the most straightforward approach is to use a **QuickFunctions** script with an On Startup condition.



- Right click **QuickFunctions** in the lower left corner of the Window Maker and select **New...**
- The script syntax to start the **Scheduler** is:

StartApp "C:\XLReporter\xlrschedule.exe";



AVEVA Historian

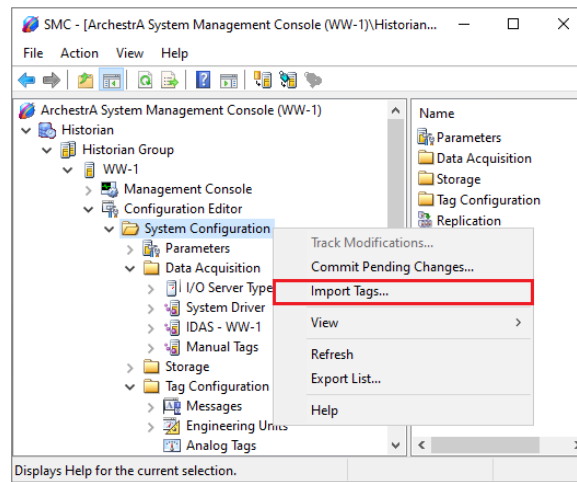
This connector is used to get historical data from the AVEVA (formerly Wonderware) Historian. This can be configured both locally on the historian machine and from a remote machine.

Set up Historian

AVEVA Historian stores data in a Microsoft SQL Server database. Tag data collection into the historian is configured in the AVEVA System Platform Management Console.

This is opened from the **AVEVA** program group by selecting **AVEVA, System Platform Management Console**.

Any tag in the InTouch Tag Dictionary can be logged by the AVEVA Historian by importing the tag. To import:



- Expand **Historian**, **Historian Group**, the Historian machine name, **Configuration Editor**.
- Select **System Configuration** right-click and select **Import Tags**.
- Follow the **Tag Import Wizard**.

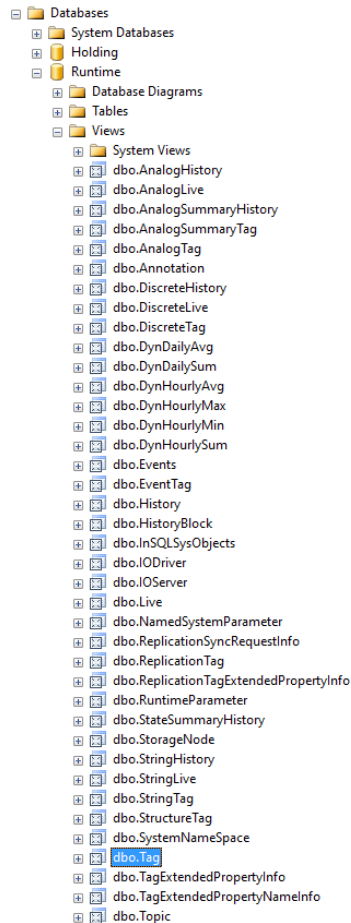
SQL Server Prerequisites

Verify Database

To verify, open **Microsoft SQL Server Management Studio** and connect to the SQL Server instance where the AVEVA Historian database is configured.

Once connected,

- Expand the **Runtime** database.
- Expand **Views**.
- Select the **Tag** view.



Right click the **Tag** view and choose *SELECT TOP 1000 Rows*. This should display data from the view representing the tags configured in the historian.

If the database or table does not exist or no data is displayed, contact AVEVA technical support to troubleshoot and correct these issues.

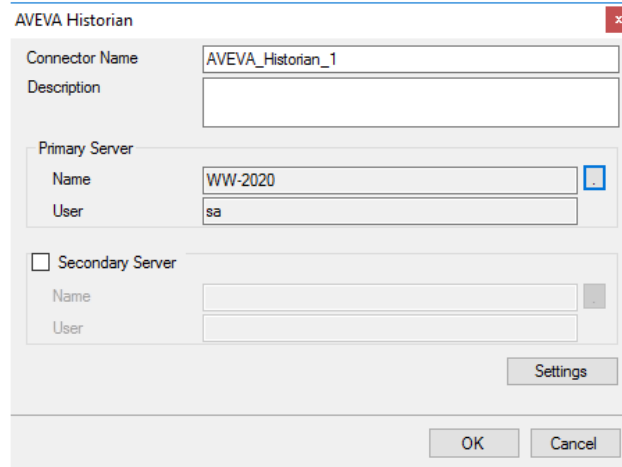
SQL Server Considerations

When using SQL Server there are some things to take into consideration including remote connectivity and user authentication. For information on what to consider, see the setup document for **Microsoft SQL Server**.

Connector

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

- Click **Add**
- Select **AVEVA, AVEVA Historian**
- Click **OK**



The screenshot shows the 'AVEVA Historian' dialog box. It has a title bar with a close button. The main area contains several fields: 'Connector Name' with the value 'AVEVA_Historian_1', an empty 'Description' field, a 'Primary Server' section with 'Name' as 'WW-2020' and 'User' as 'sa', and a 'Secondary Server' section which is currently disabled (greyed out). At the bottom right, there are 'Settings', 'OK', and 'Cancel' buttons.

Primary Server

These settings define the connection to the Microsoft SQL Server database where the AVEVA Historian is configured.

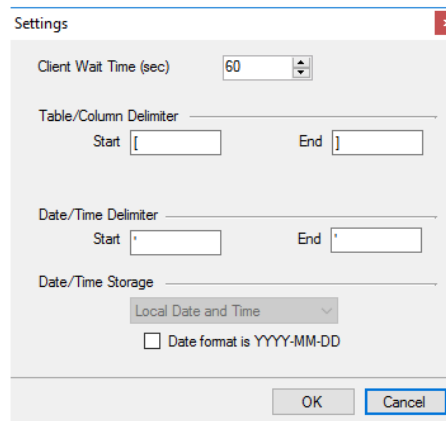
- Select the **Server Name** as the machine name for the Historian.
- For **Log on to the server**, specify the proper authentication.
- Leave **Database** as *Runtime*.
- Click **Test Connection** to verify connectivity and return to the connector setup.

Secondary Server

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

Settings

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



The screenshot shows the 'Settings' dialog box. It has a title bar with a close button. The main area contains several settings: 'Client Wait Time (sec)' set to 60, 'Table/Column Delimiter' with 'Start' as '[' and 'End' as ']', 'Date/Time Delimiter' with 'Start' as '' and 'End' as '', and 'Date/Time Storage' set to 'Local Date and Time'. There is also an unchecked checkbox for 'Date format is YYYY-MM-DD'. At the bottom right, there are 'OK' and 'Cancel' buttons.

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

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

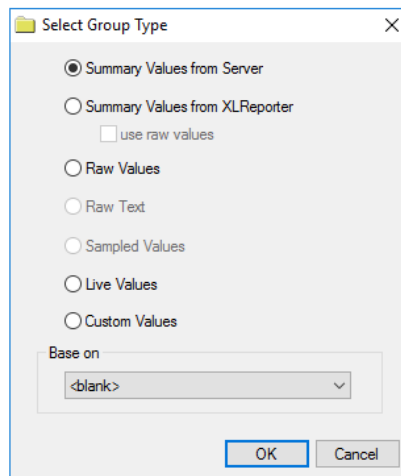
The delimiter and timestamp settings are typically filled in automatically for the database and can be modified for other databases.

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 **AVEVA Historian** connector. **Group Types**



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

Summary Values from Server

This group type retrieves summary calculations directly from the historian. For AVEVA Historian, the following calculations are available:

- Sample
- Average
- Maximum
- Time of Maximum
- Minimum
- Time of Minimum
- Integral
- Counter

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 and the retrieval options configured (see below).

Live Values

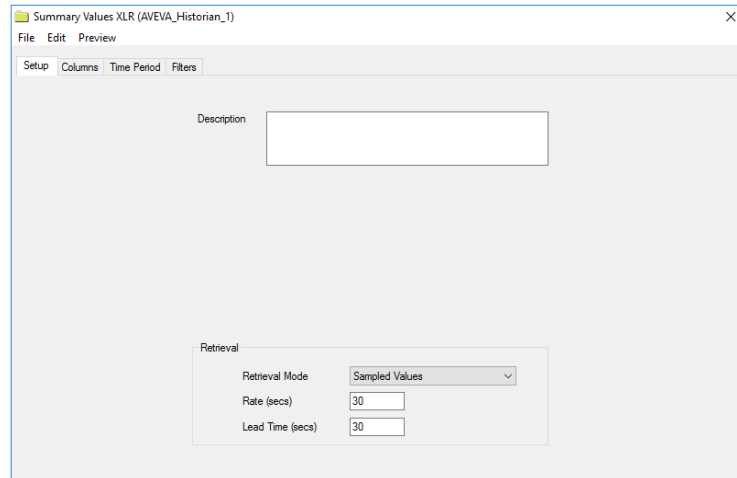
This group retrieves the last recorded values in the historian for every selected tag.

Custom Values

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

Group Settings

Setup Tab (Summary Values for XLReporter)



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

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

Sampled Values use the *Cyclic* retrieval mode.

Raw Values use the *Full* retrieval mode. The *Full* retrieval mode returns an extra value at the start time that is the last recorded value before the start time. If the group is set up with use raw values checked, this extra value is disregarded for the calculations. However, if this is unchecked, this extra value is factored into the calculations.
- **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.

Retrieval Tab (Raw Values)

Raw Values (AVEVA_Historian_1)

File Edit Preview

Setup Columns Time Period Retrieval Filters

wwRetrievalMode='Cyclic'
AND wwResolution=60000

Retrieval mode: Cyclic

Interpolation type: Stairstep

☒ Values spaced every: 1 minute

☐ Number of values: 60

☐ Time deadband (ms): 1000

☐ Value deadband (%): 1

State calculation: [dropdown]

☐ State Value: [input]

The **Retrieval** tab is provided to determine how raw data is returned. The most common **Retrieval modes** are *Cyclic* and *Delta*.

Cyclic retrieval mode returns equally spaced values based on either the **Values spaced every** or **Number of values** setting.

Delta retrieval mode returns values for every selected column every time the value in that column changes. The **Time deadband** and **Value deadband** settings can restrict the total amount of data returned.

For more information on these retrieval modes as well as the other available retrieval modes, see the AVEVA Historian documentation.

Filters Tab (Summary values from Server)

Summary Values Server (AVEVA_Historian_1)

File Edit Preview

Setup Columns Time Period Filters

Quality=0

Value Filter

☐ Condition 1: > 0

☐ Condition 2: < 100

AND

☐ Exclude NULL values

☒ Quality: Good

☐ Quality Rule: GOOD

☐ Data Version: ORIGINAL

☐ Time Zone: US Eastern Standard Time

☐ Return data when conditions are: First True

The configured filtering on this tab applies to the calculated values themselves and not to the underlying values that contribute to the calculation. For more information on the available settings, see the AVEVA Historian documentation.

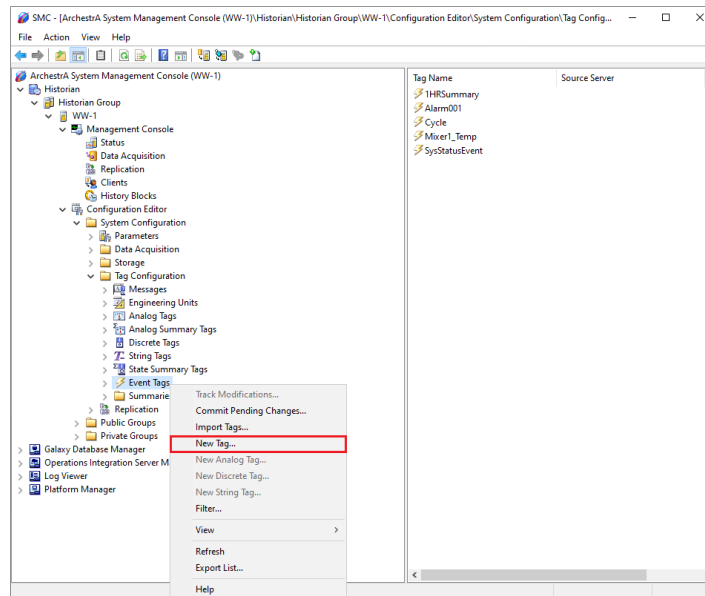
AVEVA Historian – Summary Tables

This connector is used to get historical data from the summary tables of AVEVA (formerly Wonderware) Historian. This can be configured both locally on the historian machine and from a remote machine. The summary tables can be used to perform specific calculations from historian tags over specific time intervals.

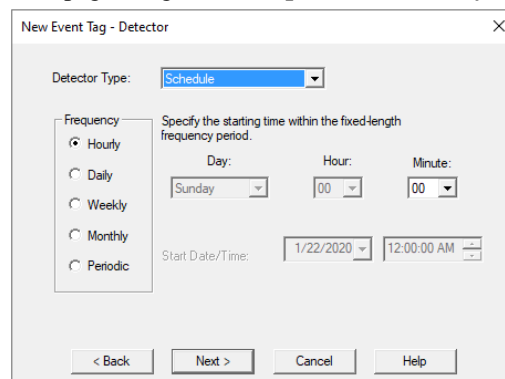
Historian Configuration

AVEVA Historian Event Tags are used to trigger actions in the historian application based on a timed schedule (among other conditions). Event Tag configuration is performed in the **AVEVA System Platform Management Console**.

This is opened from the **AVEVA** program group by selecting **System Platform Management Console**.

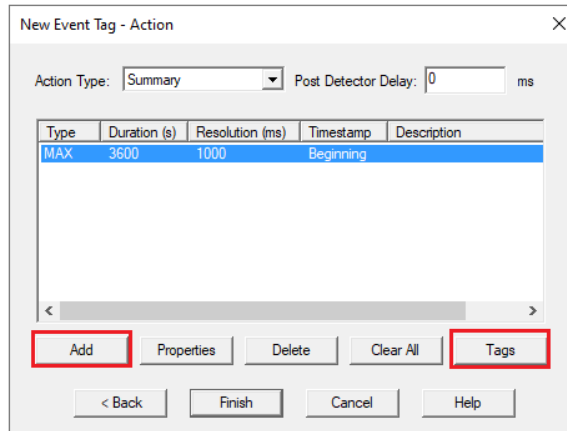


- Expand **Historian, Historian Group**, the Historian machine name, **Configuration Editor, System Configuration, Tag Configuration**.
- Select **Event Tags**, right-click, and select **New**.
- In **New Event Tag** assign a **Unique Tag Name**.
- On the **General** wizard page assign a **Description** and **Priority**.



- On the **Detector** page, set **Detector Type** to *Schedule*.
- On the **Action** page, set **Action Type** to *Summary*.

The **Action** wizard is used to select the tags to summarize.



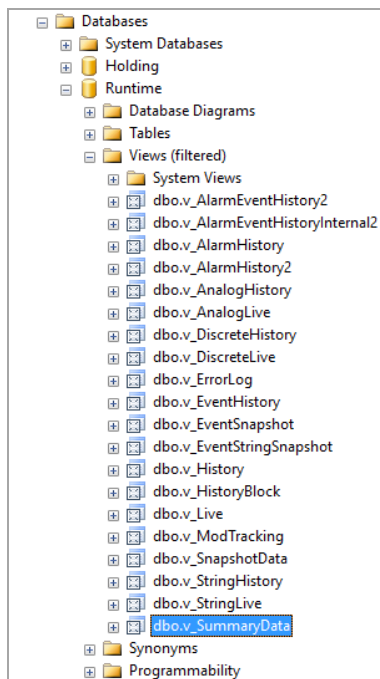
- Click **Add** configure summary calculations.
- Click **Tags** to assign the tags to be summarized.

SQL Server Prerequisites

To verify, open **Microsoft SQL Server Management Studio** and connect to the SQL Server instance where the AVEVA Historian database is configured.

Once connected,

- Expand the **Runtime** database.
- Expand **Views**.
- Select the **v_SummaryData** view.



Right click the **v_SummaryData** view and choose *SELECT TOP 1000 Rows*. This should display data from the table representing the summary calculations generated by the Historian.

If the database or table does not exist or no data is displayed contact AVEVA technical support to troubleshoot and correct these issues.

SQL Server Considerations

When using SQL Server there are some things to take into consideration including remote connectivity and user authentication. For information on what to consider, see the setup document for **Microsoft SQL Server**.

Connector

To configure the connector to **AVEVA Historian – Summary Tables**, from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **AVEVA, AVEVA Historian – Summary Tables**
- Click **OK**

The screenshot shows a dialog box titled "AVEVA Historian - Summary Tables". It contains the following fields and controls:

- Connector Name:** AVEVA_HistorianSummary_1
- Description:** WW-2020
- Primary Server:**
 - Name:** WW-2020
 - User:** sa
- Secondary Server:** (unchecked checkbox)
 - Name:** (empty field)
 - User:** (empty field)
- Settings:** A button located at the bottom right of the main configuration area.
- OK** and **Cancel** buttons at the bottom of the dialog.

Primary Server

These settings define the connection to the Microsoft SQL Server database where the AVEVA Historian is configured.

- Select the **Server Name** as the machine name for the Historian.
- For **Log on to the server**, specify the proper authentication.
- Leave **Database** as *Runtime*.
- Click **Test Connection** to verify connectivity and return to the connector setup.

Secondary Server

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

Settings

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

The screenshot shows a dialog box titled "Settings". It contains the following fields and controls:

- Client Wait Time (sec):** A numeric field set to 60.
- Table/Column Delimiter:**
 - Start:** [
 - End:**]
- Date/Time Delimiter:**
 - Start:** '
 - End:** '
- Date/Time Storage:**
 - A dropdown menu showing "Local Date and Time".
 - ☐ Date format is YYYY-MM-DD
- OK** and **Cancel** buttons at the bottom.

Typically, these settings are defaulted correctly based SQL Server.

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

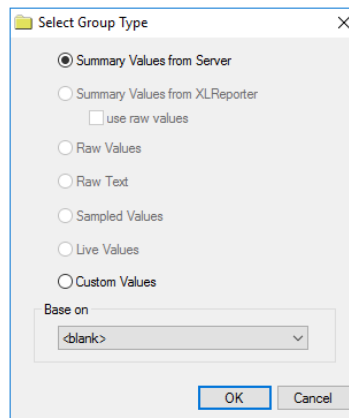
The delimiter and timestamp settings are typically filled in automatically for the database and can be modified for other databases.

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 **AVEVA Historian** connector.
Group Types



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

Summary Values from Server

This group type retrieves summary calculations directly from the historian summary values. For AVEVA Historian Summary Values, the following calculations are available:

- Average
- Maximum
- Minimum
- Total

Please note that while all of these calculations are available to select from if the calculation has not been configured or the tag selected is not configured for the calculation no data is returned.

Custom Values

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

Group Settings

Retrieval Tab

The screenshot shows the 'Retrieval' tab of the 'Summary Table Values (AVEVA_HistorianSummary_1)' dialog. The 'Duration' dropdown is set to '3600'. Below it, a 'Duration' dropdown is set to '1 hour'. The 'Interpolation type' section has two radio buttons: 'Values spaced every' (selected) and 'Number of values'. The 'Time deadband (ms)' and 'Value deadband (%)' checkboxes are both unchecked. The 'State calculation' dropdown is set to 'State Value'.

The **Duration** provides a list of all the configured durations for the summary calculations configured in the historian. The selected duration is applied to all the configured **Columns**.

For example, if in the historian the tags *Flow*, *Pressure* and *Speed* are configured for hourly calculations and daily calculations, in *Duration*, *1 hour* and *1 day* are available. If *1 hour* is selected, the hourly values for each selected **Column** are retrieved.

Filters Tab

The screenshot shows the 'Filters' tab of the 'Summary Table Values (AVEVA_HistorianSummary_1)' dialog. The 'Quality' dropdown is set to '0'. The 'Value Filter' section has two conditions: 'Condition 1' with a greater-than sign and value '0', and 'Condition 2' with a less-than sign and value '100'. The 'Exclude NULL values' checkbox is unchecked. The 'Quality' checkbox is checked, and the 'Quality Rule' dropdown is set to 'Good'. The 'Data Version' dropdown is set to 'ORIGINAL', the 'Time Zone' dropdown is set to 'Russia TZ 6 Standard Time', and the 'Return data when conditions are' dropdown is set to 'First True'.

The configured filtering on this tab applies to the calculated values themselves and not to the underlying values that contribute to the calculation. For more information on the available settings, see the AVEVA Historian documentation.

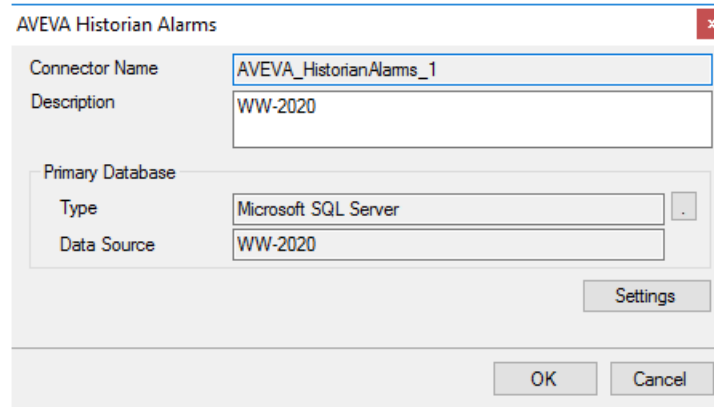
AVEVA Historian Alarms

This connector is used to get alarms from AVEVA (formerly Wonderware) Historian Classic Event subsystem. This can be configured both locally on the historian machine and from a remote machine.

Connector

To configure the connector to **AVEVA Historian Alarms**, from the **Project Explorer** select **Data, Connectors**.

- Click **Add**
- Select **AVEVA, AVEVA Historian Alarms**
- Click **OK**



The screenshot shows the 'AVEVA Historian Alarms' configuration dialog. It has a title bar with a close button. The dialog contains the following fields and controls:

- Connector Name:** A text box containing 'AVEVA_HistorianAlarms_1'.
- Description:** A text box containing 'WW-2020'.
- Primary Database:** A section containing:
 - Type:** A dropdown menu showing 'Microsoft SQL Server'.
 - Data Source:** A text box containing 'WW-2020'.
- Settings:** A button located below the Primary Database section.
- OK** and **Cancel** buttons at the bottom right.

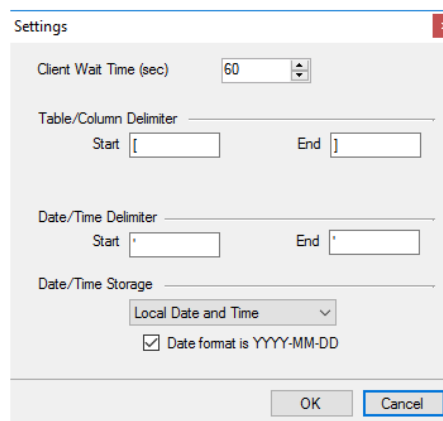
Primary Database

This setting defines the SQL Server connection where the AVEVA Historian Alarms are configured to log to. Use the browse button [...] to define the database connection.

Since AVEVA Historian 2014 R2, the AVEVA Historian has stored its alarms in the *Runtime* database by default so that is the default **Database** available when defining the SQL Server connection. If the version of AVEVA Historian is before 2014 R2 or if the Classic Event subsystem has been configured to use the *A2ALMDB* database, change the **Database** setting accordingly.

Settings

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



The screenshot shows the 'Settings' dialog. It has a title bar with a close button. The dialog contains the following fields and controls:

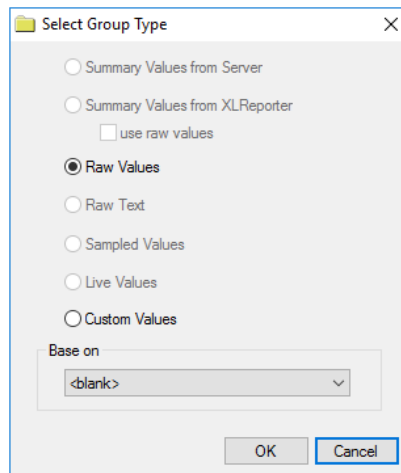
- Client Wait Time (sec):** A spin box set to '60'.
- Table/Column Delimiter:** A section with 'Start' and 'End' text boxes containing '[' and ']' respectively.
- Date/Time Delimiter:** A section with 'Start' and 'End' text boxes containing '.' and '.' respectively.
- Date/Time Storage:** A section with a dropdown menu set to 'Local Date and Time' and a checked checkbox labeled 'Date format is YYYY-MM-DD'.
- OK** and **Cancel** buttons at the bottom right.

Typically, these settings are defaulted correctly for SQL Server.

Data Group

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

Group Types



For **AVEVA Historian Alarms** the following group types are available:

Raw Values

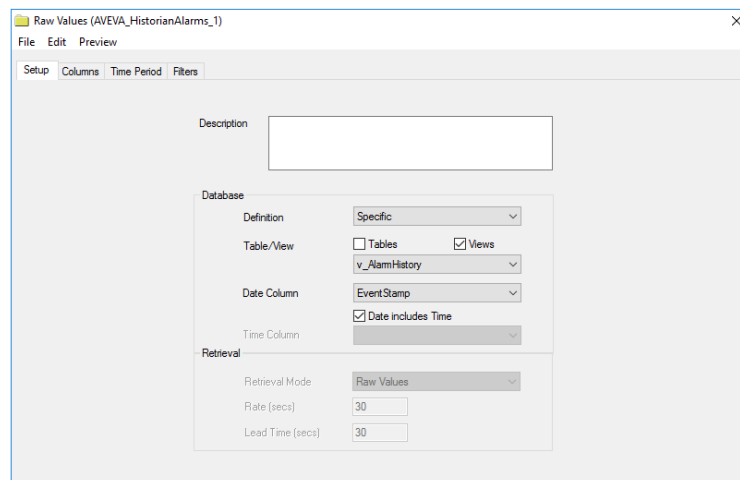
This group retrieves every value logged to the historian between the start and end time specified.

Custom Values

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

Group Settings

Setup Tab



Database

These settings define where the alarm data for group is retrieved. Typically, **Table/View** should be set to *v_AlarmHistory* with **Date Column** set to *EventStamp* and **Date includes Time** checked.

Filters Tab

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

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