

**Hach WIMS Indirect Server-Side Interface to Citect SCADA
Reports**

Q12616 Documentation



Be Right™

Table of Contents

1 - Documentation : Introduction.....	1
1.1 Interface Introduction.....	1
1.2 Overview of Indirect Interface Concepts.....	1
1.3 Software Requirements.....	3
1.4 Source versions tested.....	3
2 - Documentation : How To.....	6
2.1 _ Step-by-Step Instructions on How to Configure Interface.....	6
2.2 Change Configuration Protection Password.....	7
2.3 Configuration is Password Protected.....	8
2.4 Configure the Hach WIMS Client for a Server-Side Interface (SCADA2OPSSQL).....	8
2.5 Hach WIMS Super User Credentials.....	10
2.6 Pick Hach WIMS Variables to Import Into.....	10
2.7 Using Common Buttons.....	11
2.8 Using Main Interface Screen.....	12
2.9 Using Select Date Range to Import.....	13
3 - Documentation : Main Menu.....	16
3.1 Automated Import - Activity Log View.....	16
3.2 Automated Import - Modify Last Ran Dates.....	17
3.3 Automated Import - Status and Control.....	17
3.4 Configuration - Advanced Configuration.....	18
3.5 Configuration - Advanced Configuration : Source Input Cache.....	21
3.6 Configuration - Advanced Configuration: Unit Conversion.....	22
3.7 Configuration - Automated Import Configuration.....	23
3.8 Configuration - Collector Configuration.....	24
3.9 Configuration - Connection To Hach WIMS.....	25
3.10 File - Exit.....	27
3.11 File - Import All.....	27
3.12 File - Import For Selected Variables.....	27
3.13 Test - Source Read Test SCADA to Hach WIMS.....	28
3.14 Test - Test Connection to Hach WIMS.....	29
3.15 Test - Test Import All.....	29
3.16 Utilities - Upload Definition File to Hach WIMS.....	29
4 - Documentation : Release notes.....	30
4.1 Release Notes for Hach WIMS Server-Side Interface Platform.....	30
4.2 Release Notes for SCADA2OPSSQL Type of Hach WIMS Direct Server-Side Interface.....	32
5 - Documentation : Collector.....	35
5.1 Collector Interactive Main Screen.....	35
5.2 Collector Proxy Settings.....	37
5.3 Common Collector Configuration.....	38
5.4 Custom Collector Configuration for Collector Q12617.....	39

Table of Contents

5 - Documentation : Collector

5.5 Generate Example OPSDATAXML File for Hach WIMS Client.....	42
5.6 Historical Data Import.....	43
5.7 Install Collector as a NT Service.....	43
5.8 NT Service Collector Interactive Screen.....	44
5.9 NT Service Log View.....	46
5.10 NT Service Status and Control.....	46
5.11 Release notes for collector Q12617.....	47
5.12 Run-time error: Execution in .NET Framework is disabled.....	48
5.13 Using the Citect SCADA Reports Collector (Q12617).....	48

6 - Documentation : Topics specific to the operation of this interface.....53

6.1 Configuration - Source Configuration Q12616.....	53
6.2 Release notes for interface Q12616.....	53
6.3 Supported variable configurations for interface Q12616.....	55
6.4 Using Inteface Browser Q12618.....	57

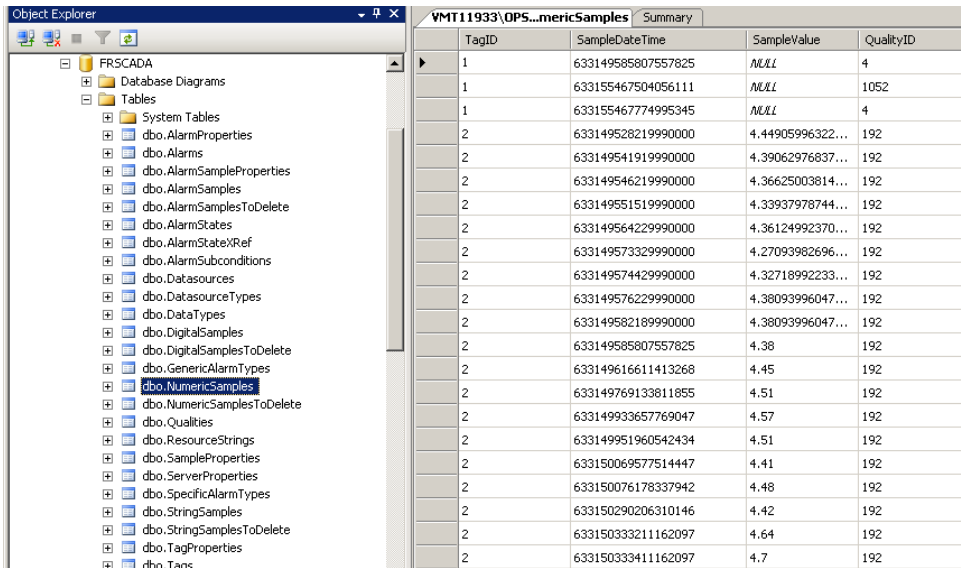
1 - Documentation : Introduction

1.1 Interface Introduction

The **Hach WIMS Indirect Server-Side Interface to Citect SCADA Reports** imports data from a **Citect SCADA Reports** historian into Hach WIMS. CITECT SR, a software package by Citect Pty Led, trends data to an ODBC compliant and complex database system. This interface only supports source data stored on Microsoft SQL Server.

The Interface uses a Collector (Q12617) that exports data from **Citect SCADA Reports** into OPSDATAXML files. The Collector generates one of these files every hour and contains 60 data point for each tag that is being exported. The interface reads the OPSDATAXML files and summarizes data points based on a selected statistic (First, Last, Average, etc.).

The Citect database (FRSCADA) viewed from Microsoft SQL Server Management Studio:



The screenshot shows the Object Explorer on the left with the FRSCADA database expanded to show the 'dbo.NumericSamples' table. The main window displays the data for this table with the following columns: TagID, SampleDateTime, SampleValue, and QualityID.

TagID	SampleDateTime	SampleValue	QualityID
1	633149585807557825	NULL	4
1	633155467504056111	NULL	1052
1	633155467774995345	NULL	4
2	633149528219990000	4.44905996322...	192
2	633149541919990000	4.39062976837...	192
2	633149546219990000	4.36625003814...	192
2	633149551519990000	4.33937978744...	192
2	633149564229990000	4.36124992370...	192
2	633149573329990000	4.27093982696...	192
2	633149574429990000	4.32718992233...	192
2	633149576229990000	4.38093996047...	192
2	633149582189990000	4.38093996047...	192
2	633149585807557825	4.38	192
2	633149616611413268	4.45	192
2	633149769133811855	4.51	192
2	633149933657769047	4.57	192
2	633149951960542434	4.51	192
2	633150069577514447	4.41	192
2	633150076178337942	4.48	192
2	633150290206310146	4.42	192
2	633150333211162097	4.64	192
2	633150333411162097	4.7	192

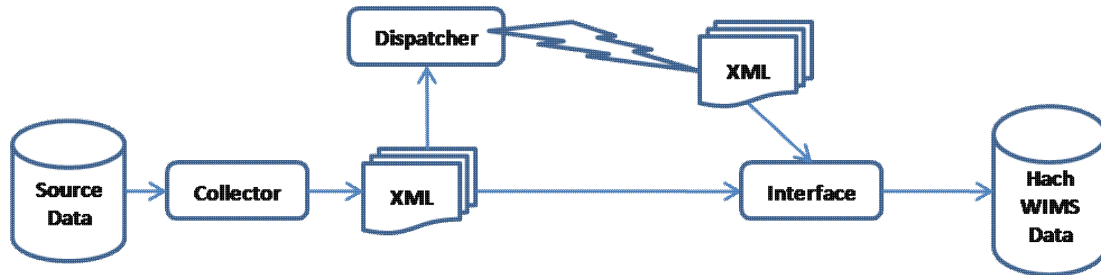
For more information on Citect and their products, visit their website at: www.citect.com

[Reference ID: 12622]

1.2 Overview of Indirect Interface Concepts

The main components that collaborate on getting **source data** from SCADA or LIMS systems into the **Hach WIMS database** are the: **Collector**, **Dispatcher**, and **Interface**.

The reason there are these components is to provide flexibility, to be more robust, and to overcome disconnected system conditions.



1. Source Data

The source data is typically a database of SCADA or LIMS type data stored by some automated or manual system

2. Collector

The Collector is responsible for polling source data periodically and creating XML files in a specific format (i.e., OPSDATAXML file format)

3. Dispatcher(See Section)

The Dispatcher is optional and is used for dispatching XML data files from source computer systems to the Hach WIMS computer when these two are not the same network. The Dispatcher transfers XML data files to the Hach WIMS computer system via File Transfer Protocol (FTP). If the source data is on the same computer as the Hach WIMS database, then this component is not needed.

4. Interface(See Section)

The Interface reads in XML files created by the Collector, summarizes the data based on variable setup in **Hach WIMS Client**, and imports the data to the **Hach WIMS database**. The Interface must be able to connect to the **Hach WIMS database**.

5. Hach WIMS Database

End point for data storage. The Database needs to know how the interface is defined, allows you to uniquely name the interface, and provides place holders, called "variables", that hold the data imported from the interface.

6. Hach WIMS Client

The Hach WIMS Client is the part of the system that allows you to read data and generate reports. Hach WIMS Client reads data from Hach WIMS Database.

[Reference ID: 12559]

1.3 Software Requirements

The Interface and its components are supported and can be installed **only** on one of the following Microsoft Windows versions :

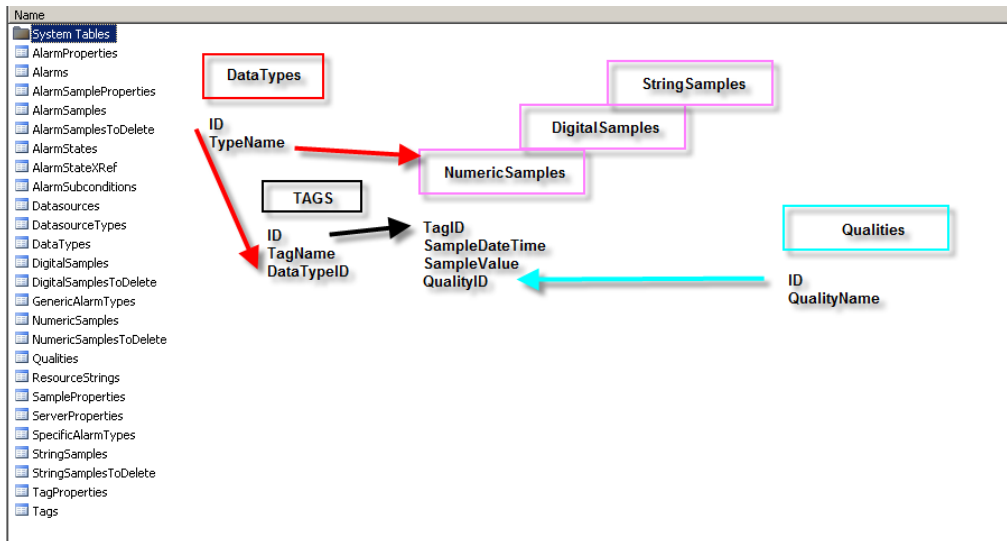
- Microsoft Windows 2000 Service Pack 4
- Microsoft Windows XP 32-bit Service Pack 2
- Microsoft Windows XP 32-bit Service Pack 3
- Microsoft Windows Vista 32-bit
- Microsoft Windows Vista 64-bit
- Microsoft Windows Vista 32-bit Service Pack 1
- Microsoft Windows Vista 64-bit Service Pack 1
- Microsoft Windows Vista 32-bit Service Pack 2
- Microsoft Windows Vista 64-bit Service Pack 2
- Microsoft Windows 7 32-bit
- Microsoft Windows 7 64-bit
- Microsoft Windows 7 64-bit Service Pack 1
- Microsoft Windows 2003 Server 32-bit Service Pack 1
- Microsoft Windows 2003 R2 Server 32-bit Service Pack 2
- Microsoft Windows 2003 Server 64-bit Service Pack 1
- Microsoft Windows 2003 R2 Server 64-bit Service Pack 2
- Microsoft Windows 2008 32-bit
- Microsoft Windows 2008 64-bit
- Microsoft Windows 2008 32-bit Service Pack 1
- Microsoft Windows 2008 64-bit Service Pack 1
- Microsoft Windows 2008 32-bit Service Pack 2
- Microsoft Windows 2008 64-bit Service Pack 2
- Microsoft Windows 2008 R2 64-bit
- Microsoft Windows 8 64-bit
- Microsoft Windows 2012 64-bit

[Reference ID: 12142]

1.4 Source versions tested

The Citect SCADA Reports system version is unknown for the data we used in testing, the Citect database version tested is 1.0.0.159.

The database structure is as follows:



TAGS table returns the tag name, TagID, and DataType ID. The TagID is used to get time stamps, values, and quality ID from the samples tables. The DataTypeID matches up the TypeName from the DataTypes table and tells us which table to retrieve data from. The quality ID is used to determine whether the value is considered "Good" or not and defined when configuring the collector.

To query data use:

```
USE [FRSCADARports]
GO
DECLARE @return_value int
EXEC @return_value = [dbo].[GetInterpolatedTagSamplesByID]
    @tagID = 2,
    @startDateTime = '05-17-2007 00:00:00',
    @endDateTime = '05-18-2007 00:00:00',
    @samplePeriod = 1000000,
    @interpolationMode = 1
SELECT 'Return Value' = @return_value
GO
```

SamplePeriod:

- One Second = 10,000
- One Minute = 600,000
- One Hour = 36,000,000
- One Day = 864,000,000

InterpolationMode:

1 means time weighted average

Data Types:

1 = Numeric = dbo.NumericSamples

2 = Digital = dbo.DigitalSamples

3 = String = dbo.StringSamples

Dates are stored as BigInt's and can be extracted using:

```
USE [FRSCADARports]
```

```
GO
```

```
SELECT dbo.ToDate(633149568000000000)
```

Tags table:

ID	TagName	Address	DataTypeID	DatasourceID	Location
1	FR_CL2_EFF	NULL	1	2	Fawn Ridge Hist...
2	FR_CL2_EFF_TEST	NULL	1	2	Fawn Ridge Hist...
3	FR_CL2_INF	NULL	1	2	Fawn Ridge Hist...
4	FR_FLUR_EFF	NULL	1	2	Fawn Ridge Hist...
5	FR_FLUR_INF	NULL	1	2	Fawn Ridge Hist...
6	FR_FLUR_TNK_LVL	NULL	2	2	Fawn Ridge Hist...
7	FR_P_EFF_FLW	NULL	2	2	Fawn Ridge Hist...
8	FR_P_EFF_PSR	NULL	2	2	Fawn Ridge Hist...
9	FR_P_INF_FLW	NULL	2	2	Fawn Ridge Hist...
10	FR_P_INF_PSR	NULL	2	2	Fawn Ridge Hist...
11	FR_P3_LOAD	NULL	2	2	Fawn Ridge Hist...
12	FR_P3_SPD	NULL	2	2	Fawn Ridge Hist...
13	FR_P4_LOAD	NULL	1	2	Fawn Ridge Hist...
14	FR_P4_SPD	NULL	1	2	Fawn Ridge Hist...
15	FR_P5_LOAD	NULL	1	2	Fawn Ridge Hist...
16	FR_P5_SPD	NULL	1	2	Fawn Ridge Hist...
17	FR_PH_IND	NULL	1	2	Fawn Ridge Hist...
18	FR_TNK_1_LVL	NULL	2	2	Fawn Ridge Hist...
19	FR_TNK_2_LVL	NULL	2	2	Fawn Ridge Hist...
20	RO_RCLM_FIT...	NULL	2	2	Fawn Ridge Hist...
21	FR_TNK_3_LVL	NULL	2	2	Fawn Ridge Hist...

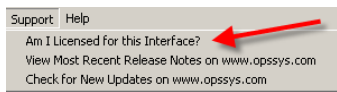
[Reference ID: 12623]

2 - Documentation : How To

2.1 _ Step-by-Step Instructions on How to Configure Interface

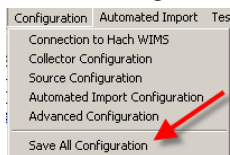
You will need to follow these steps in order to configure your interface :

1. You must have **Hach WIMS Database Management System** installed and running. This can be running from anywhere on your network, but can also be running on the same computer as your interface.
2. You must have **Hach WIMS Client** installed. Make sure you can log into Hach WIMS Database Server using Hach WIMS Client.
3. Run your interface in Interactive mode by clicking on its entry in your windows Start Menu.
4. Configure a connection to your Hach WIMS Server. Use **Configuration - Connection to Hach WIMS**(See Section 3.9) to do this.
5. Make sure you are properly licensed to run this interface. In Main Menu, select **Support -> Am I licensed for this Interface.**



If you pass this test, continue to step 6. If not, contact Hach Company Sales at 800-677-0067.

6. Upload interface definition file to Hach WIMS Server. Use **Utilities - Upload definition file to Hach WIMS**(See Section 3.16) to do this.
7. You will need to assign a collector record to your interface. First the record must be created. You will need to configure **Hach WIMS Client for a server side interface**(See Section 2.4) .
8. Now you are ready to assign the collector record created in *the previous step* to your interface. Use **Configuration - Collector Configuration**(See Section 3.8) to do this.
9. The Configuration - Collector Configuration will provide an opportunity to configure the Collector component. Click on **Collector Configuration Settings** button and follow the instructions in Collector - Common Collector Configuration(See Section 5.3) .
10. You need to link at least one Hach WIMS variable to the chosen collector record.
11. Configure the source so that interface can read from the source system.
Locate the '**Configuration -> Source Configuration**' article in the '**Topics specific for operation of Interface**' chapter to gain instructions on how to do it.
12. Save all configuration Settings by clicking on **Configuration -> Save All Configuration.**



13. You are now ready to test the interface. Use **Test - Test Import All**(See Section 3.15) to do this

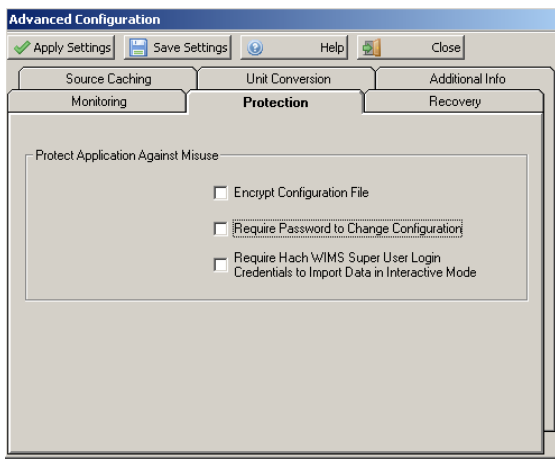
Furthermore, You may want to configure **Automated Import.** Use **Configuration - Automated Import Configuration**(See Section 3.7) to do this.

[Reference ID: 12563]

2.2 Change Configuration Protection Password

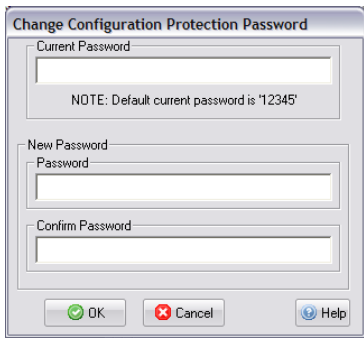
Requiring a password for configuration changes will prevent unauthorized or accidental tampering with your configuration from within the interactive mode.

From the interface, select **Configuration** and **Advanced Configuration**. Click on the **Protection** tab.



Click on the box next to **Require Password to Change Configuration** and **Save Settings** button.

Use this screen to set a new configuration protection password.



NOTE: The default password is '12345'. If you configure the interface to use a password and later remove the password check, it will reset to '12345' again.

[Reference ID: 12055]

2.3 Configuration is Password Protected

The configuration is password protected if you changed it in **Change Configuration Protection Password**(See Section 2.2) . You must enter the correct password in order to save any changes to the configuration of this interface.



See Advanced Configuration(See Section 3.4) if you want to disable the password protection.

NOTE:

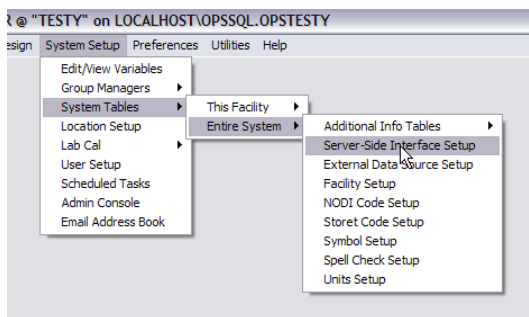
If your configuration is protected with a password, you must know the password before you can disable the password check.

[Reference ID: 12056]

2.4 Configure the Hach WIMS Client for a Server-Side Interface (SCADA2OPSSQL)

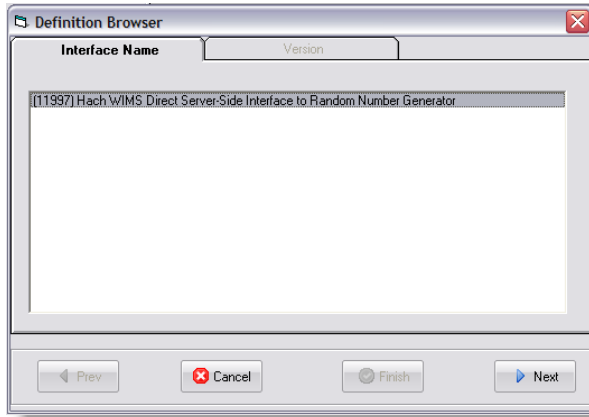
In order to use a **Hach WIMS Server-Side Interface**, you must do the following:

1. Start your **Hach WIMS Client** and navigate to the **System Setup -> System Tables -> Entire System -> Server-Side Interface Setup** menu selection:



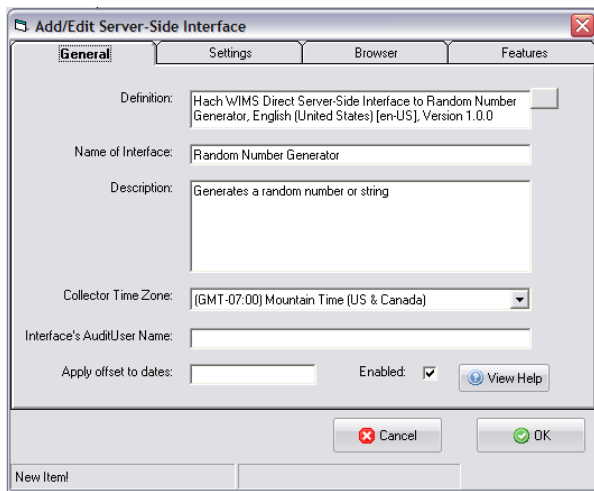
2. If the "Server-Side Interface Setup" screen shows no interfaces, or the one you want to configure is not shown, you have to:
 - ◆ Is the interface definition file uploaded? Click the **New** button to determine if the definition file is uploaded, and see if it appears in the list of interfaces. If it is there, continue to step 3.

- ◆ If the definition file is not uploaded, click the **New Definition** button and navigate to the g2_server_lu file located where the interface is installed. (Alternatively, you can select **Utilities - Upload Definition File to Hach WIMS**(See Section 3.16))
3. With the definition uploaded (or present), click the **New** button and create an instance of the server side interface. You can have multiple interface sources for the same definition.



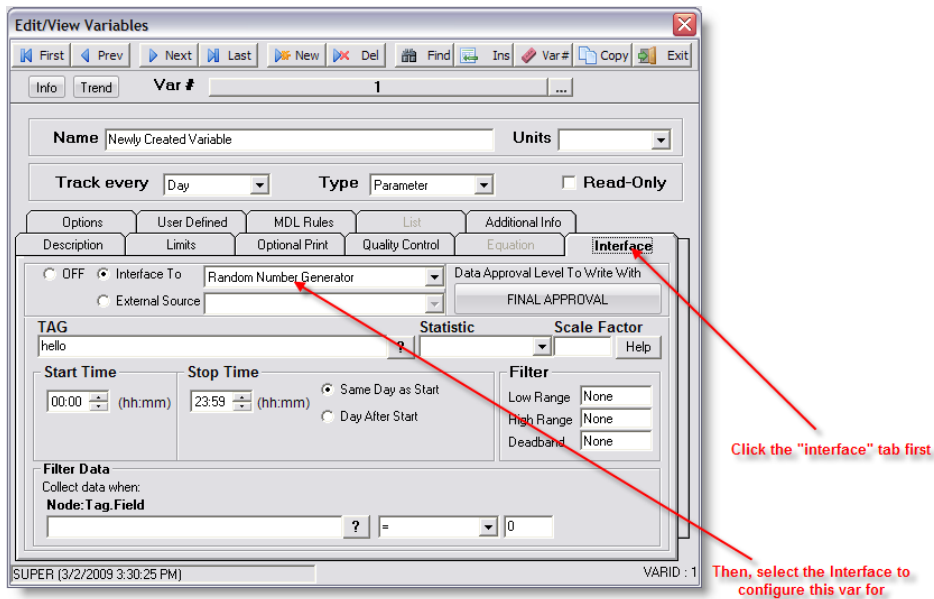
In this example, we are using the Random Number Generator interface. Select the name of your interface, click **Next**, and select the version.

4. Configure the interface:



Make note of the "Name of Interface" field - this is how your interface will be identified. In this case - it is "Random Number Generator". Fill in a "Description" and select the "Collector Time Zone", in this case, it is set to Mountain Time (US & Canada). Click **OK** to create the interface record.

5. Configure Browser - Click on the **Browser** tab and enter the requested information to allow the **Hach WIMS Client** the ability to browse tags from the source system. In some cases, you will need to install an OLE DB driver, on the Hach WIMS Client computer, that will allow communications to the source system. If it is impossible to configure this option, or you wish to do this later - uncheck the **Enable** button on the **Browser** tab.
6. Go to **System Setup -> Edit/View Variables**.
7. Go to the variable you wish to configure for storing interface data:



Click the **Interface** tab on the variable you are configuring, then click the **Interface To** radio button and select the interface needed for this variable. The area below will fill up with the settings needed to finish configuring this variable.

8. For detailed instructions on configuration of variables, look for the '**Supported Variable Configurations For Interface ...**' article in the '**Topics specific to the operation of this Interface**' chapter.

[Reference ID: 12041]

2.5 Hach WIMS Super User Credentials

To enable this feature, select **Configuration -> Advanced Configuration**(See Section 3.4) . Then check the "**Require Hach WIMS Super User Login Credentials to Import Data In Interactive Mode**" setting.

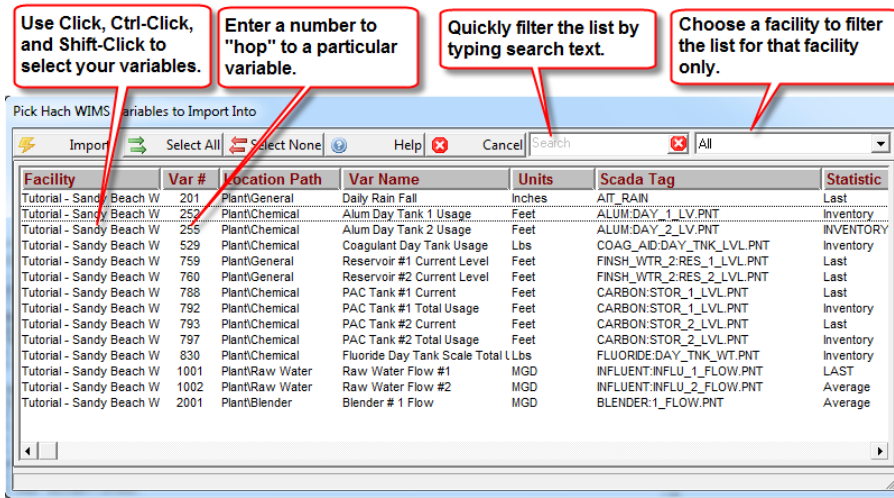
You must provide the correct user name and password in order to import data in interactive mode.

Contact your Hach WIMS Administrator for help if you do not know the username and/or password.

[Reference ID: 12057]




2.6 Pick Hach WIMS Variables to Import Into

Only variables assigned to this interface will be listed. Select the variables to import data into from the source.



HINT: You can hold the CTRL or CTRL/SHIFT buttons down when clicking in order to select multiple entries

Buttons:


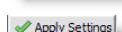

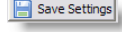

-  Import Import data for the selected variables.
-  Select All Select all variables in the list.
-  Select None Select no variables - deselects all variables from the list.

All other buttons are explained in Using Common Buttons(See Section 2.7) .

[Reference ID: 12059]

2.7 Using Common Buttons

Common Hach WIMS Interface Buttons:

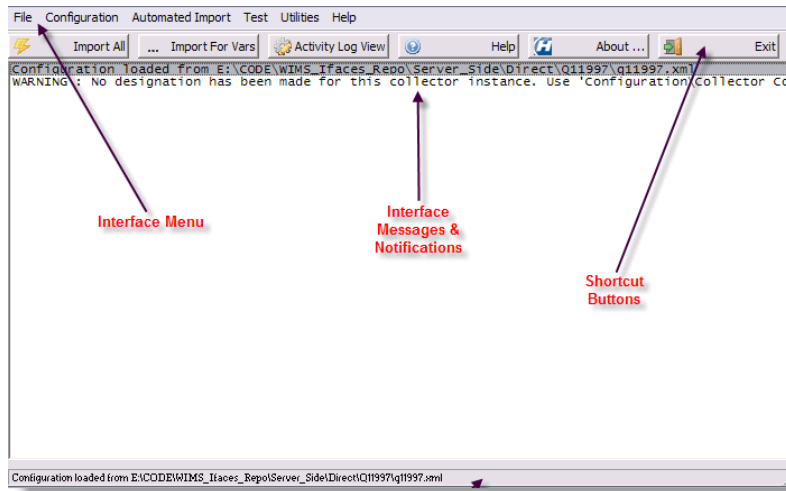
-  Help Displays help for the current interface screen.
-  Apply Settings Applies the current settings.
-  Save Settings Attempts to apply the current changes and save them permanently. The save will fail if the settings cannot be applied first.
-  Close Closes the current window - no changes are saved.
-  Cancel Cancel the current activity/operation.

[Reference ID: 12039]

2.8 Using Main Interface Screen







This is the main interface interactive screen.

When running in interactive mode, you can set the various interface configuration settings, monitor & control the interface service, as well as interactively collect data.



The main parts of the of the screen of interest are:

- **Main Menu**
- **The Shortcut Buttons:**

	Import All	Import all data(See Section 3.11) .
	... Import For Vars	Import data for selected variables(See Section 3.12) .
	Activity Log View	Monitor service activity(See Section 3.1) .
	Help	Display help for the current window.
	About ...	Display general interface information.
	Exit	Exit the interactive interface session.

- The **Interface Messages & Notification** area - the white background area displays scrolling text regarding the interface's activity. All manner of data is logged here, including data collection status, errors, warnings and other general information regarding the interface's current activity.

Depending on the **Verbosity**(See Section 3.4) level set, you may or may not see all information.

If there is a directory called "Log" in the interface directory, the interface will also log to a text file of the form:

<mm_dd_yyyy__hh_mm_ss_interactive.log>

E.g., if the current date is 2/26/2009 and the current time is 3:02:13 PM, the file will be called:

02_26_2009__15_02_13_interactive.log.

- The status bar, at the bottom of the screen, displays miscellaneous information regarding the interface.

[Reference ID: 12036]

2.9 Using Select Date Range to Import

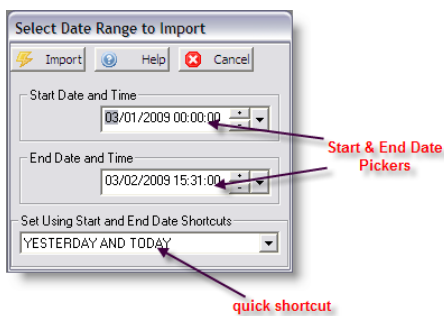
When importing data for one or more specified variables, you have to specify the date range of the source data you want to get.

You can do this in 2 ways:

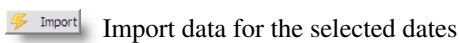
1. Use both the **Start & End Date Pickers**

- OR -

2. Use a start/end date **quick shortcut**:



Buttons:

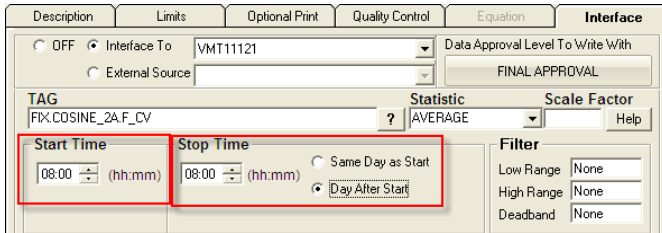


Other buttons are described in **Using Common Buttons**(See Section 2.7) .

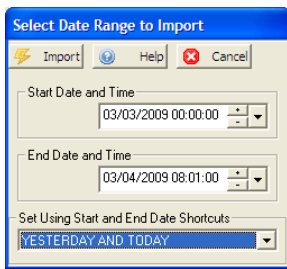
Principle 1: Data will be imported based on the **Start and End Date and Time** and how the variable's **Stop Time** is set up. The **Stop Time** must fall within the date range requested.

Principle 2: Data is stored on the date and time of the variable's **Start Time**.

For example: We set a variable with **Start Time** of 08:00 and a **Stop Time** of 08:00, and select **Day After Start** as shown below.



Then I run the interface to pull data for March 3, 2009 00:00:00 to March 4, 2009 08:01:00.



The interface will return a value for March 2 and March 3. Why? The stop time is our requested date range starting on March 3, 2009 with a stop time of 8 AM. The stop time is computed to March 3, 2009 08:00:00. Since we selected the stop as day after start, the start time is March 2, 2009 at 08:00:00. According to principle #2, the data point is stored on the start time.

So for our example:

Requested Date	Start Date and Time	Stop Date and Time
March 3, 2009	March 2, 2009 08:00:00	March 3, 2009 08:00:00
March 4, 2009	March 3, 2009 08:00:00	March 4, 2009 08:00:00

If we had set our date range from March 3, 2009 00:00:00 to March 4, 2009 07:59:59, then the interface would return only the first record, because stop time of March 4, 2009 08:00:00 in the second record, is past the end date and time of our range.

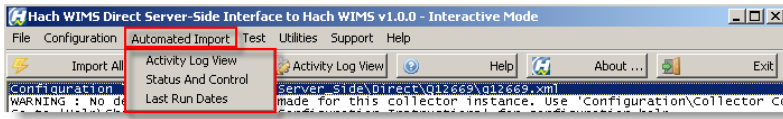
If we had set our date range from March 3, 2009 08:01:00 to March 4, 2009 08:01:00, then the interface would return only the second record, because the Stop Date and Time of the first record (March 3, 2009 08:00:00) does not fall within our start and end date range.

[Reference ID: 12058]

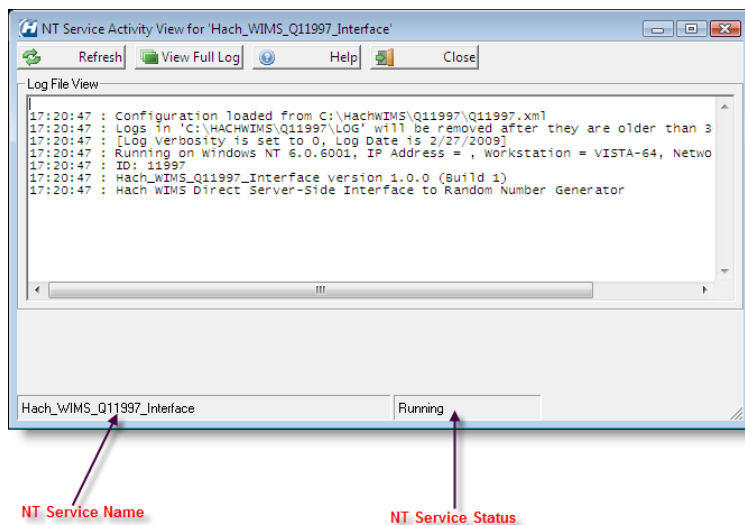
3 - Documentation : Main Menu

3.1 Automated Import - Activity Log View

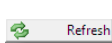
For Automated Import options, click the **Automated Import** button on the top menu bar of the interface.

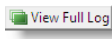


The **Activity Log View** lets you view the interface NT Service log.



Buttons:

 Refresh Force refresh of the service log view. To shorten the refresh interval, see **Configuration - Advanced Configuration**(See Section 3.4) .

 View Full Log View the full service log.

The rest of the buttons are explained in **Using Common Buttons**(See Section 2.7) .

NOTE:

If the log cannot be read, make sure the service name is correct and that it's running. See Automated Import - Status and Control(See Section 3.3) **on how to start the service if it's not running (assuming the service name is correct) and see Configuration - Advanced Configuration**(See Section 3.4) **on how to view/change the service name.**

[Reference ID: 12049]

3.2 Automated Import - Modify Last Ran Dates

This screen lets you modify the per-facility Last-Ran Date of the interface.

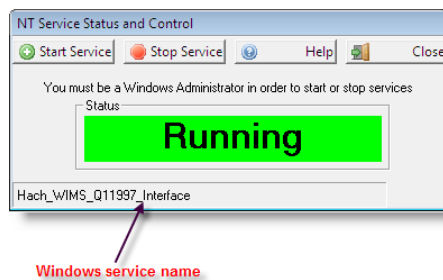
NOTE:

This is different than the default Last-Ran Date described in Configuration - Automated Import Configuration(See Section 3.7) , which is the default Last-Ran Date for ALL facilities that have not had any data imported.

[Reference ID: 12051]

3.3 Automated Import - Status and Control

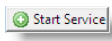
The **NT Service Status and Control** screen lets you monitor the state of interface service, and start or stop the service (Note: you must be logged in as a Windows Administrator):

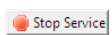


The name of the service is displayed in the bottom left (see screenshot) corner of the screen. This is the name of the service that the interactive program is configured to monitor.

If this is NOT the name of the service, you can change it from the **Configuration - Advanced Configuration**(See Section 3.4) screen.

Buttons:

 Start the service, if it is not running.

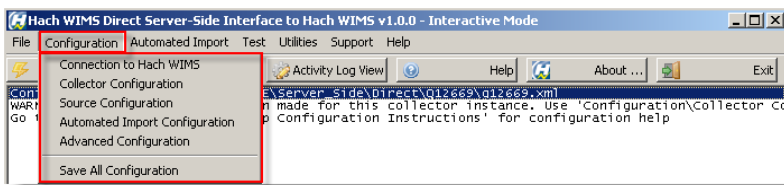
 Stop the service, if it is running.

All other buttons are explained in **Using Common Buttons**(See Section 2.7) .

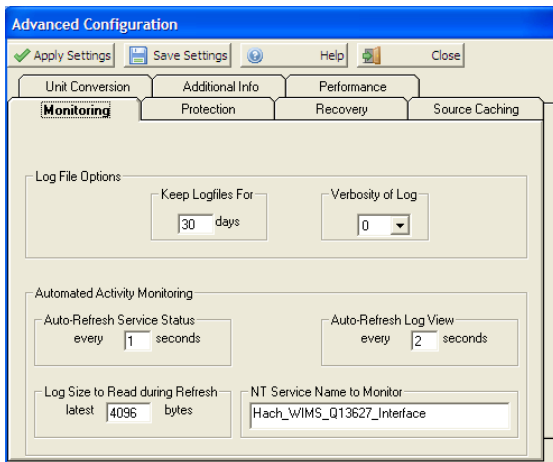
[Reference ID: 12047]

3.4 Configuration - Advanced Configuration

For Configuration options, click on the **Configuration** menu option at the top menu bar of the interface.



The **Advanced Configuration** screen can be used to configure various advanced interface settings:

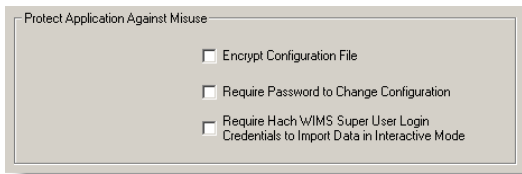


- **Log File Options:**

- ◆ Keep Logfiles - the number of days to keep log files in the Log folder, delete log files older than the number of days specified.
- ◆ Verbosity - the higher this number, the more messages will be logged in the log file and the log window. This is usually meant for trouble-shooting purpose.

- **Automated Activity Monitoring** - use this option to configure the Automated Activity (service mode of the interface) options:

- ◆ Auto-Refresh Service Status - when displaying the **Automated Import - Status and Control**(See Section 3.3) screen - how long to wait between status refreshes.
- ◆ Auto-Refresh Log View - when displaying the **Automated Import - Activity Log View**(See Section 3.1) - the interval of time to wait before refreshing the log view.
- ◆ Log Size to Read during Refresh - the maximum number of characters to actually read in when refreshing the log view.
- ◆ NT Service Name to Monitor - the name of the NT service under which the interface runs. The default is usually fine. **Do NOT change this unless instructed by a Hach Support Engineer, or unless you installed the service under a different name and know what you are doing.**

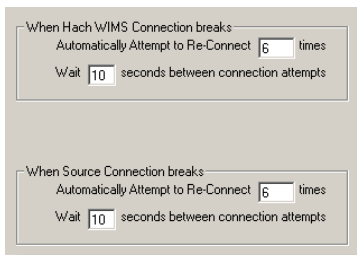


• **Protect Application Against Misuse** - On the **Protection** tab, if you want more security in your interface configuration, you can configure:

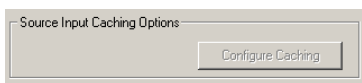
- ◆ **Encrypt Configuration File** - encrypt the contents of the interface configuration file to prevent unauthorized tampering.
- ◆ **Required Password to Change Configuration** - require a password every time the user requests a configuration change. If no password is yet set, you are prompted to supply one.



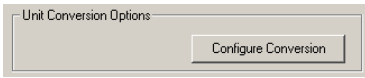
- ◆ **Require Hach Wims Super User Login ...** - to prevent someone from accidentally overwriting data when running in interactive mode, you can set this option to require people to enter in a super-user ID and password before importing.



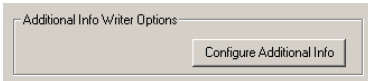
• **When Hach WIMS/Source Connection Break** - on the **Recovery** tab, establishes the number of times to attempt to restore the connection to Hach WIMS/Source and the amount of seconds to wait between attempts.



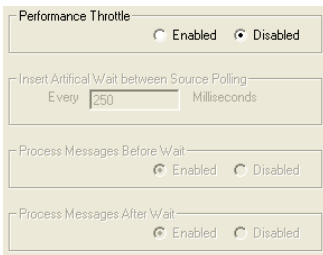
• **Source Input Caching** - button on the **Source Caching** tab, is enabled when interface supports source input caching. Lets one specify caching conditions. Go to Source Cache Input Configuration(See Section 3.5) for more information.



- **Unit Conversion Options** - On the **Unit Conversion** tab, is enabled when interface supports unit conversion. Lets one specify various units and conversion factor. Go to **Configuration - Advanced Configuration: Unit Conversion**(See Section 3.6) for more information.



- **Additional Info Writer Options** - On the **Additional Info** tab, is enabled when interface supports additional info. The additional info fields must be created in Hach WIMS Client first, then the fields can be mapped by pressing the **Configure Additional Info** button. Go to **Configuration - Advanced Configuration: Additional Info**(See Section) for more information.

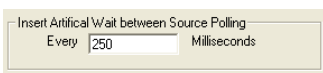


- **Performance Throttle** - on the **Performance** tab, there are several options related to throttling, or slowing down, the connection speed to the database. There are situations where an interface can run too many read/write operations against a database which causes the database to become overwhelmed and incapable of processing other tasks - effectively shutting down other database operations. Throttling the connection speed causes our system to pause between queries and allow the database to process other requests before and/or after we pause the interface.

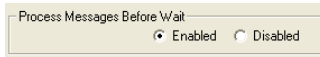
WARNING! Using the Throttle will slow down interface performance significantly. Only use this option if you are running against database performance issues due to too many read/write operations from the WIMS interface.

The following are important things to note about the Throttle option:

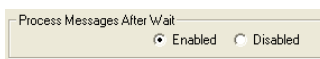
- This option is not intended to be used with normal interface setup. It should only be used if the source database is showing I/O processes being delayed explicitly because of the WIMS interface connection.
- This option is not intended for LIMS interfaces. If a LIMS interface does appear to be causing an I/O problem, the root cause is probably something else and throttling will not resolve.
- When in doubt, leave the throttle disabled.



- **Insert Artificial Wait between Source Polling** - Allows the user to specify the pause time between queries. This field only accepts whole numbers (no decimals) from 1 to 9999 and is measured in milliseconds. Example 250 milliseconds = 0.25 seconds. Use as little a pause as possible to achieve desired database performance.



- **Process Messages Before Wait** - Allows the user to specify if the database should process other events before the interface pauses.
Note: A user may opt to process other events before and after a pause; or neither if desired. The default is to enable both before and after.
- Example when enabled: The interface just completed a connection to the Source database - it will allow the database to process other events, then pause.



- **Process Messages After Wait** - Allows the user to specify if the database should process other events after the interface pauses.
Note: A user may opt to process other events before and after a pause; or neither if desired. The default is to enable both before and after.
- Example when enabled: The interface just completed a connection to the Source database - it will pause, then allow the database to process other events.

Buttons:

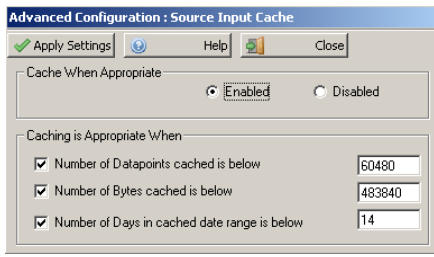
The buttons are explained in Using Common Buttons(See Section 2.7) .

[Reference ID: 12045]

3.5 Configuration - Advanced Configuration : Source Input Cache

Source Input Cache Configuration, is used to configure criteria for caching, if the interfaces supports caching and the option is **Enabled**. Caching is used to load more data into memory at one time, and retain it for processing variables instead of continuously rereading source data from disk. This will speed up processing, but uses more computer resources - such as memory. Set the parameters to set thresholds for processing chunks of data and so that the interface does not surpass the limitations of your computer.

(Note: Not all interfaces have this feature available)



Click **Apply Settings** to apply changes and return to parent form. Click **Close** to return without applying changes.

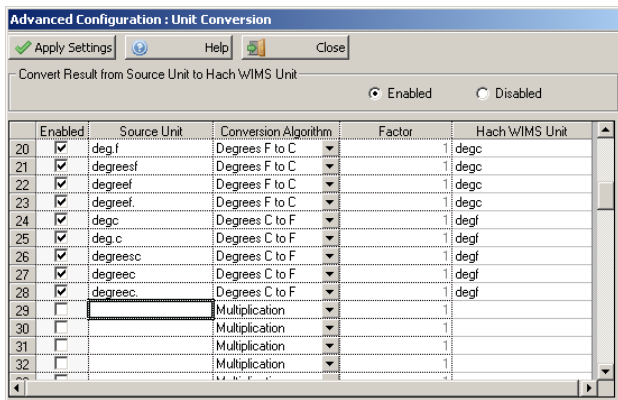
[Reference ID: 12132]

3.6 Configuration - Advanced Configuration: Unit Conversion

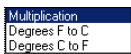
Unit Conversion, if enabled, is used to configure unit conversion when the "units" from the source are different than the "units" in Hach WIMS.

This feature can be turned off, simply click the **Disable** radio button under Convert Result from Source Unit to Hach WIMS Unit.

(Note: Not all interfaces have this feature available)



1. Under **Source Unit** enter the text value as it is in the source
2. Select the **Conversion Algorithm**

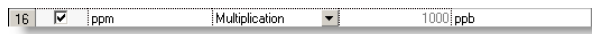


- ◆ **Multiplication** - Multiply the source result by the **Factor** before writing to Hach WIMS
- ◆ **Degrees F to C** - Convert degrees Fahrenheit to degrees Celsius
- ◆ **Degrees C to F** - Convert degrees Celsius to degrees Fahrenheit

1. Enter the **Factor** amount, how much to multiply the source result by before writing to Hach WIMS. When using the Degrees conversion, enter a 1 (one)

2. Enter the **Hach WIMS Unit** that the Hach WIMS variable will be using

For example, the source result is stored in parts per million ("ppm") and it needs to be converted in Hach WIMS as parts per billion ("ppb"). You could add the following conversion:



(Note: this is one of the default conversions included)

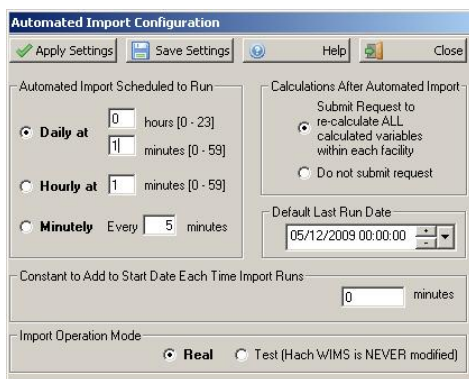
Click **Apply Settings** to apply changes and return to parent form. Click **Close** to return without applying changes.

[Reference ID: 12328]

3.7 Configuration - Automated Import Configuration

Each interface can be configured to run as a service. This is when you want to schedule an automatic retrieval of data, without user intervention.

The **Automated Import Configuration** screen allows you to configure the schedule, whether to submit calculation requests, the Last-Ran Date, and the import operation mode:



- **Automated Import Schedule** - configure when the interface service is scheduled to run:
 - ◆ **Daily** -the interface will run ONCE per day, at the specified schedule. E.g., to run it at 2:30 am, you would enter "2" into the hours box and "30" into the minutes box. Note that time is entered in "military" format. To enter 4:45 pm, you would enter "16" into the hours box, NOT 4.
 - ◆ **Hourly** - the interface will run **every hour** at the specified minute after the hour

- ◆ **Minutely**- the interface will run **every X minutes** where X is a number between 1 and 1440. E.g., to run it every 5 minutes, you would enter "5".
- **Calculations After Automated Import** - select this option if you would like the Hach WIMS AdoCalc service to recalculate all variables within **every** facility after an import operation completes.
- **Default Last Run Date** - this is the point in time from which the interface service will try to retrieve data, up until the current point in time. After a successful run, the current time will become the last run time. By default, this is set to one day prior to the current day.

E.g., assume today is February 25, 2009, if you have just installed the interface and have 3 months of historical data you want imported into Hach WIMS. You should enter November 25, 2008 as the Last-Run Date (3 months prior to February 25th). Once the interface completes its run, the Last-Run Date will be set to February 25, 2009 automatically. The next time it runs (assuming it runs Daily), February 26, 2009, it will only fetch **one** day's worth of data.

- **Constant to Add to Start Date Each Time Import Runs** - Enter the number of minutes to add to the Start Date when the interface runs in automatic mode. This allows the interface to capture data from previous runs that might not have been available at that time.
 - ◆ During automated import, interface queries source data for the following date range :
from (Last Run Date/time(See Section) + *Constant to Add to Start Date Each Time Import Runs*) *to*
(current date / time)

If your source system does not yet contain the needed data at the time of automated import, use this setting to push back the **from** parameter. For instance, if you need the import to start 2 hours before Last Run Date/time(See Section) , you need to enter value of **-120** (negative 120) to *Constant to Add to Start Date Each Time Import Runs*

NOTE: Situations when you would need to input a positive value in this field are very rare.
 Value of 0 (default) has no negative or positive effect on start date.

- **Import Operation Mode** -Real mode imports data into Hach WIMS where as Test does not actually import data, but tests the query capability and timing of the interface.

Buttons:

The buttons are explained in Using Common Buttons(See Section 2.7) .

[Reference ID: 12044]

3.8 Configuration - Collector Configuration

The **Collector Configuration** is the place where you configure the source of your data - the SCADA/LIMS system that holds the data you want to import.



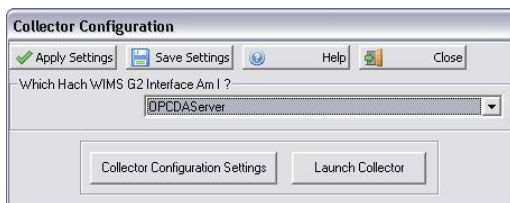
NOTE: Before you can configure the collector, you MUST configure the Connection to Hach WIMS(See Section 3.9) and you must setup the Hach WIMS client(See Section 2.4) .

Select **Which Hach WIMS G2 Interface Am I** for this interface. The names that appear in the drop-down box are the ones that were configured in the Hach WIMS Client. This name is then tied to this interface and is unique.

Buttons:

The buttons are explained in Using Common Buttons(See Section 2.7) .

If the Interface you are using has a separate Collector Utility that generates OPSDATAXML files that it reads from, you can configure and launch it from here.



Collector Configuration Settings Opens a screen that allows you to configure the Collector's settings

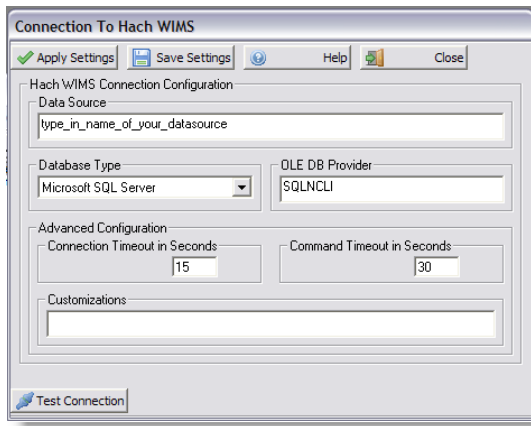
Launch Collector Starts the Collector utility

[Reference ID: 12042]

3.9 Configuration - Connection To Hach WIMS

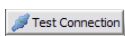
The **Connection to Hach WIMS** screen lets you configure how the interface will connect to **Hach WIMS Database Server**.

This is one of the first items you configure when setting up a new interface.



- **Data Source** - this field specifies, in loose terms, the "Database/Datasource server name" where your Hach WIMS system is configured to store data. "Database/Datasource server name" means different things depending on whether you are running against Oracle or MS SQL:
 - ◆ Oracle - you can type in either the Oracle TNS name or a string in the form of *host:port/SID*, if using the Oracle HOSTNAME adapter.
 - ◆ MS SQL - this is in the form of *host\sql_instance_name*
 - **Database Type** -select the appropriate type of your Hach WIMS database
 - **OLE DB Provider** - this specifies which "database driver" the interface will use when connecting to Hach WIMS and again depends on the database type:
 - ◆ Oracle - the default string should be fine
 - ◆ MS SQL - if connecting to MS SQL 2005 or later, use the native client to connect. Specify SQLNCLI as the provider. **NOTE: You will need to have the Microsoft SQL Native Client installed for this to work.** If connecting to MS SQL 2000, specify SQLOLEDB as the provider.
 - **Connection Timeout in Seconds** - how many seconds the program should wait when establishing a connection to the Hach WIMS database before aborting.
 - **Command Timeout in Seconds** - specifies how many seconds the program should wait for a query to complete before aborting the operation.
- WARNING: Large values for these two settings can cause the program to not respond for a long period of time! Do NOT use 0 unless you know what you are doing - it will cause the program to wait indefinitely, and if your database server is down, the only way to cancel the operation is to forcefully quit the program.**
- **Customizations** - this should be left empty unless you were told otherwise by a Hach Support Engineer or you know what you are doing.

Buttons:

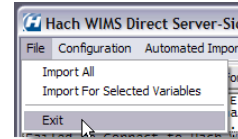


Test to see if the connection settings are valid and the interface is able to connect to Hach WIMS client. This will NOT **Apply** or **Save** the settings.

The other buttons are explained in Using Common Buttons(See Section 2.7) .

[Reference ID: 12037]

3.10 File - Exit



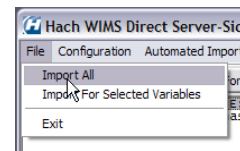
Terminates the interactive interface program.

NOTE:

Clicking "Exit" only closes the interactive interface session. Since the interface can be configured to run as a Windows Service, clicking "Exit" does NOT affect this service, it will continue collecting data. The service can be scheduled to collect data anytime, whether a user is logged on to the machine or not. The service for the interface will continue collecting data whether the interactive program is running or not.

[Reference ID: 12035]

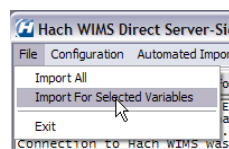
3.11 File - Import All



Imports all data for all variables.

[Reference ID: 12034]

3.12 File - Import For Selected Variables

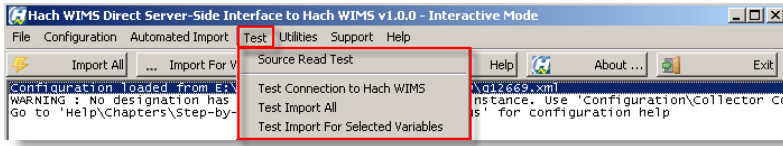


Imports data for the selected variables.

[Reference ID: 12038]

3.13 Test - Source Read Test SCADA to Hach WIMS

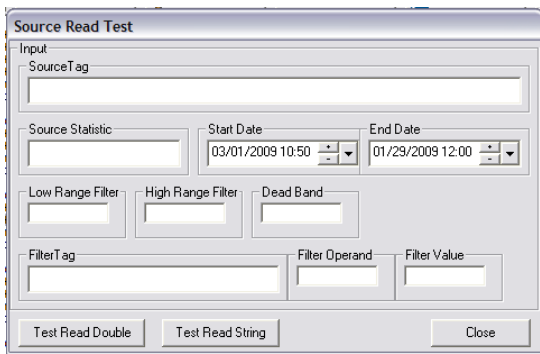
For testing options, click on the **Testing** menu option at the top menu bar of the interface.



The **Source Read Test** functionality is useful for source testing purposes.

Use this screen to look at source data for specific dates, using different statistics (MINIMUM, MAXIMUM, AVERAGE, etc).

This is useful when you want to look at source data on specific dates, WITHOUT doing an actual import. (No data will be overwritten on the Hach WIMS database.)



To do a test, you will need to specify a tag in the Source Tag field.

Then, for each tag, you can specify:

- The Source Statistic to apply (MINIMUM, MAXIMUM, AVERAGE, etc).
- The start and end dates you want data fetched.
- The high & low ranges, as well as the dead-band (optional).
- The filter tag - a second source tag that acts as a filter to the main selected tag (optional).

Buttons:

- Test Read Double** Interpret the tag as a double (floating-point) tag and return a floating-point number.
- Test Read String** Interpret the tag as a string tag and return the result as a string.
- Close** Closes the window.

[Reference ID: 12054]

3.14 Test - Test Connection to Hach WIMS

Perform a test against the Hach WIMS connection to see if the connection is valid

[Reference ID: 12052]

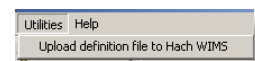
3.15 Test - Test Import All

This performs a **test** import for all interface-configured variables. Note that no actual data will be written to the Hach WIMS database.

[Reference ID: 12053]

3.16 Utilities - Upload Definition File to Hach WIMS

This feature allows you to upload the interface definition (g2_server_lu) file to the Hach WIMS database. This is needed in order to setup a collector record in Hach WIMS.



Once the definition file has been uploaded, proceed with creating a collector record in Hach WIMS Client.

The process to setup a collector record is outlined in How to configure the Hach WIMS Client for a server-side interface(See Section 2.4) .

[Reference ID: 12040]

4 - Documentation : Release notes

4.1 Release Notes for Hach WIMS Server-Side Interface Platform

Build 149 (9/16/2015)

- Menu item Support>Am I licensed for this interface now works with new licensing system.

Build 147 (8/21/2015)

- Added GetLocationPath to CommonGlobals (4660)

Build 146 (6/2/2015)

- Fixed error condition when LockDate is not set in the database (4605)

Build 145 (7/3/2014)

- Minor update of UI for Windows 7 (4431)
- Minor update of Automated Import Configuration for Windows 7 (4466)

Build 142 (10/1/2013)

- Improved Time/Date syncing issues experienced by some clients (4207)
- Added a database connection throttle (performance throttle) advanced configuration (See Section 3.4) option that pauses between source queries allowing other database process events to execute (4267)

Build 137

- Modified to handle the new licensing for SQL Server 2012.(4202)
- Handled out of memory error when the interfaces are ran with many variables and date ranges.(4158)
- A change was added to keep the database connection open during the import process.(4106)

Build 135

- Changed logging to user interface (LogToUI) to prevent an "Out of Memory" error when extensive amount of text lines are written to the interfaces list box. (4158)

Build 116

- Updated framework to handle time zone differences and how they affect direct and indirect interfaces

Build 100

- Compatible with Hach WIMS 1.3.8 Database version

Build 85

- Minor change to Advance Configuration to disable Additional Info button if the interface does not support additional info

Build 84

- Fixed a bug that caused interfaces to omit reading of Hach WIMS variables in rare cases when the natural order of records in the VARDESC table did not equal to 'order by varid' on Oracle platforms(3006)

Build 83

- Added support for importing of Additional Entry Fields. For interfaces that support this framework feature, go to Advanced Configuration / Additional Info in order to configure you conversion map (3075)
- Added support for User Interface to display Connection String when clicking on Source Configuration / View Applied Connection String (2821)
- Added support for User Interface to omit asking for Input Dates for interfaces where selecting dates does not make sense (2806)
- Fixed a bug that caused Floating Point rounding to overflow on very large numbers resulting in no rounding being performed on numbers (3016)
- Fixed a bug that caused help.chm to be improperly located by the user interface when interface executable was launched using Windows Shell command (2932)
- Fixed a bug that caused interfaces of common type SCADA2OPSSQL to halt importing in cases when users went around the program business rules and manually (in the backend) entered OPSROOT.FACILITY.FILENAME field in lowercase (2890)

Build 54

- Added support for Configuring and Launching a Collector Utility

Build 53

- Added support for LIMS2OPSSQL type of framework
- Added support for Unit Conversion

Build 48

- Fixed an interface crash if the selected OLEDB driver could not be found (2406)
- Added a MINUTELY mode of scheduling of automated service (2447)
- Displays a warning message when attempting to import into collector which is linked to incorrect version of g2_lu (2505)
- Added ability to view and edit Last Run Date for Facility UI (2626)

Build 36

- Fixed a loophole that may have allowed interface crash when UI log listbox was about to display more than 32000 lines of log (2495)

Build 34

- Fixed a bug that pulled up incorrect article or category when clicked on submenu Help / Chapters. Platform now requires setting of link constants for every interface custom configuration module (2488)
- Fixed a bug that took users to incorrect link upon clicking on menu item Support / Check for new Updates (2492)

Build 27

- Initial release to public

[Reference ID: 12033]

4.2 Release Notes for SCADA2OPSSQL Type of Hach WIMS Direct Server-Side Interface

Build 66(8/21/2015)

- Variable Browser relocated location path field next to variable name (4660)

Build 65(3/30/2015)

- Variable Browser Select All button no longer selects filtered variables (4582)
- Variable Browser now displays location path (4582)

Build 64 (7/3/2014)

- Additional logging added (4159)
- Added a database connection throttle allowing other processes (programs) to process events to run. (4267)
- Variable Browser improvements - added quick filter, filter by facility. (4385)
- Variable Browser UI improvement for Windows 7 (4466)

Build 60

- Added support for MAXTIME and MINTIME to the import process.(4185)
- Fixed problem importing text values.(4125)
- Added user option setting to keep the database connection open during the entire import process.(4106)

Build 57

- **Added a global variable to CommonGlobals to allow custom notes to the stats summary at the end of a run. I added the global variable to CommonGlobals and it is used in CommonImport (4132)**

Build 56

- Added a global variable to CommonGlobals and CommonImport to keep the CustomImport object alive so its connection would stay open. We were having a problem with a special database driver hanging when it was closed. (4106)

Build 55

- Fixed framework to properly handle Text Parameter type variables (4125)

Build 53

- Updated framework to handle time zone differences and how they affect direct and indirect interfaces

Build 47

- Added logging in CommTAGFilter routine CarryLastValue when verbosity is set to 9

Build 46

- Changed CommonImport to make sure start date is correct when using the Cache feature in Advanced Settings (only affects certain interfaces) (3261)
- Changed CommonTAGFilter to scrutinize data returned from CustomTAGFilter (only affects certain interfaces) (3313)
- Changed CommonTAGFilter to propagate execution error check down to lowest level, so that we can distinguish between an execution error and bad data (only affects certain interfaces) (3426)

Build 41

- Added to CommonTypeDateManager in Common_SCADA2OPSSQL; added code to compensate for daily var that have less than 1440 min/slot (i.e., 60 min from total day) so that it would get current day if the start and stop times have passed current time (Fortress 2673)

Build 40

- Added ability to view connection string in CustomConfig form

Build 37

- Added ability for SCADA2OPSSQL type of interfaces to define a global configuration tree

Build 36

- Fixed problem with statistics TIMELT, TIMEGT, and TIMEEQ not counting the very first record.

Build 34

- Added to caching function to support the following statistics for parameters using flat file databases: TOTAL, AVERAGE, MINIMUM, MAXIMUM, FIRST, LAST, DIFF, RANGE, COUNT, INVENTORY, TIMEGT, TIMELT, and TIMEEQ
- Added to caching function to support the following statistics for text parameters using flat file databases: MINTIME, MAXTIME, FIRST, LAST, COUNT
- Added to caching function to support the following filter operators on filter tags when using flat file databases: =, <, >, <=, >=, <>, and CYCLESTO

(Note: consult the "Topic specific to the operation of this interface" article "Supported Variable Configuration" to see whether your interface supports these available options or not)

Build 28

- Added ability to specify adjustment of start date in minutes when running in automated mode. This can be configured under Configuration / Automated Import Configuration (2445)
- Added support for caching of input to accelerate interface performance of interface that rely heavily on IO (2481)
- Added support for filtering for OLEDB types of SCADA2OPSSQL interfaces (2457)

Build 10

- Initial Release to Public

[Reference ID: 12068]

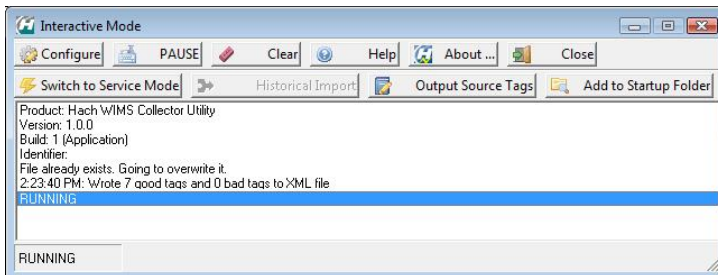
5 - Documentation : Collector

5.1 Collector Interactive Main Screen


This is the main collector interactive screen when running as a Windows Tray Application.


When the Collector is installed as a Windows Tray Application (the default mode) this is the screen that you will interact with. When the Collector is installed as an NT Service you will be presented with a different screen(See Section 5.8) . When you start the Collector it will not be visible by default unless errors occur. To view the main screen, you need to double click on it's icon in the system tray.


When running in this mode, you can set the various collector configuration settings as well as import live and historical data (if supported by your collector).





- **The Shortcut Buttons:**


 **Configure** Allows you to configure the collector's settings.


 **START** Starts the scheduler to import live data. When the collector is scheduled to import live data it is in RUNNING mode. If the collector is in this mode then the START button is replaced with the PAUSE button.

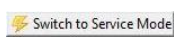
 **PAUSE** Stops the import scheduler for live data. When the collector is not scheduled to import data it is in PAUSE mode. If the collector is already in this mode then the button is replaced with the START button.

 **Clear** Clears the activity log window.

 **Help** Displays help for the current window.

 **About ...** Brings up general information about the Collector.

 **Close** Hides the Collector. The collector continues to run.

 **Switch to Service Mode** If you installed the Collector as a NT Service, this restarts the Collector in NT Service View and Control mode.



If your Collector supports this feature you can enter a date range to import data from.



Outputs the tags that you are importing into an OPSDATAXML file. This file is needed by the Hach WIMS Client Interface Source Tag Browser.



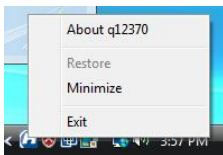
If you want the Collector to startup automatically each time Windows restarts, then click this button. This will copy a shortcut to the Collector into the Windows Startup folder. Note: This is not the same as running as an NT Service.

- **The System Tray:**



When the Collector is running as a Windows Tray Application it will appear in the Windows System Tray as an icon with a big H. To make the Collector visible, double click on the Icon. The icon will appear as 1 of 3 colors:

1. Blue - RUNNING mode. The Collector is scheduled to import live data.
2. Red - PAUSED mode. The Collector is not scheduled to import data.
3. Yellow - MANUAL mode. The Collector is importing Historical data.



If you right click on the Icon in the System Tray a small menu will popup. From this menu you can shutdown the collector by choosing exit. You may also pull up the about box, restore the Collector or minimize it.

- **The Collector Messages & Notification** area - the white background area displays scrolling text regarding the collector's activity. All manner of data is logged here, including data collection status, errors, warnings and other general information regarding the collector's current activity.

Depending on the **Verbosity**(See Section 3.4) level set, you may or may not see all information.

If there is a directory called "Log" in the Collector directory, the Collector will also log to a text file of the form:

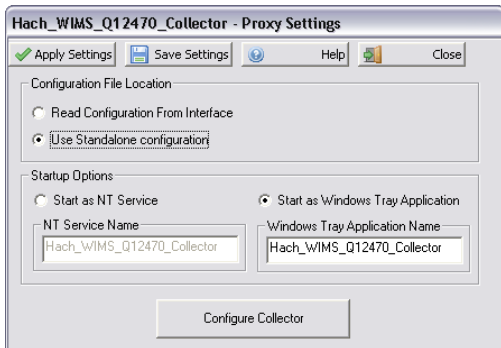
`<mm_dd_yyyy__hh_mm_ss_collector_name_Collector.log>`

E.g., if the current date is 2/26/2009 and the current time is 3:02:13 PM, the file will be called:
`02_26_2009__15_02_13_collector_name_Collector.log`.

- The status bar, at the bottom of the screen, displays what mode the Collector is currently in (RUNNING, PAUSED, MANUAL).

5.2 Collector Proxy Settings

The Collector's Proxy Setting screen tells the Collector how to behave when it starts up.



- **Configuration File Location**

- ◆ **Read Configuration From Interface** - When the Collector is installed on the same machine as the Interface, the Collector by default will read in the configuration information from the same file that the Interface uses to store configuration settings. If you choose this option, the Configure Collector button will be disabled:



To change the configuration settings you need to go to the Interface, click on the menu Configuration/Collector Configuration and press the Collector Configuration Settings button:



- ◆ **Use Standalone configuration** - When the Collector is installed on a different machine (or you don't want it to use the same configuration file as the Interface) choose this option. This will allow the Collector to have it's own configuration file that isn't shared with the Interface and the Configure Collector button will be enabled.

- **Startup Options**

- ◆ **Start as NT Service** - Choose this option if you plan to run the Collector as a NT Service. Choosing this option does not install the Collector as a Service; it tells the Collector that it expects to be run as a service.

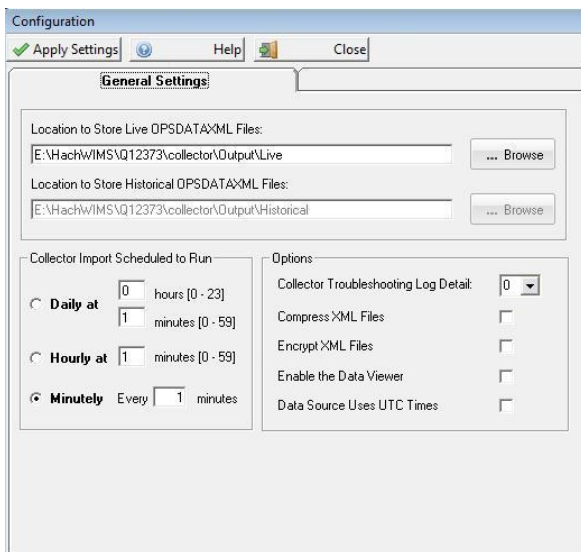
See the documentation(See Section 5.7) on how to install the Collector to run as a Service.

- ◆ **NT Service Name** - The name that the Collector uses when it is run as an NT Service. You may want to change this name if you have more than one collector running as an NT Service.
- ◆ **Start as Windows Tray Application** - This is the default option. In this mode the Collector runs as a standard Windows Application.
- ◆ **Windows Tray Application Name** - The name that you want to give this Collector. This name will appear in the Caption of all the forms/windows that you open.
- **Configure Collector Button** - Allows you to configure the collector's settings.

[Reference ID: 12421]

5.3 Common Collector Configuration

The Configuration Screen allows you to configure the Collector's settings.



- **Live OPSDATAXML Files** - The location where you want the live data OPSDATAXML files stored. The Collector automatically monitors the source tags that you defined and writes it's data to a series of xml files that will be read by the Interface.
- **Historical OPSDATAXML Files** - The location where you want the historical data OPSDATAXML files stored. These are the files that get generated when you manually import historical data.
- **Collector Import Schedule** - configure when the collector is scheduled to import data:

- ◆ **Daily** -the collector will run ONCE per day, at the specified schedule. E.g., to run it at 2:30 am, you would enter "2" into the hours box and "30" into the minutes box. Note that time is entered in "military" format. To enter 4:45 pm, you would enter "16" into the hours box, NOT 4.
 - ◆ **Hourly** - the collector will run **every hour** at the specified minute after the hour
 - ◆ **Minutely**- the interface will run **every X minutes** where X is a number between 1 and 1440. E.g., to run it every 1 minute, you would enter "1".
-
- **Collector Troubleshooting Log Detail** - Used to specify how much application runtime information to log. The higher the log level the more detail that will be logged. This information will let you know how the program is performing and alert to issues that may need to be addressed.
 - **Compress XML Files** - Check this option if you want to compress the OPSDATAXML files that the collector is generating. If you are collecting many tags the OPSDATAXML files that get generated can get rather large. By compressing them it can take a typical 2MB file and compress it to about 200KB.
 - **Encrypt XML Files** - Check this option if you want to encrypt the data that is stored in the OPSDATAXML files. The Interface will decrypt the files when it uploads the data into WIMS. It should also be noted that when you encrypt the files it also compresses them at the same time.
 - **Enable Data Viewer** - When the Collector is being run as a Windows Tray Application you have the option of whether or not to view the live data of the source tags you are importing. If this is checked, the data viewer will appear below the activity log.
 - **Collector Uses UTC Times** - The Collector will convert the data to UTC Times unless the data already uses UTC Times. Only check this if you are sure that your Collector is using UTC Times. UTC stands for Universal Time Coordinated. It is a coordinated time scale, maintained by the Bureau International des Poids et Mesures (BIPM). It is also known a "Z time" or "Zulu Time".

[Reference ID: 12422]

5.4 Custom Collector Configuration for Collector Q12617

Control Buttons at the top:

Apply Settings: Applies the settings selected for all tabs.

Close: Closes the Window without applying settings.

Note: The previous screen will allow you to save the settings, once you have configured the settings and applied them.

Source Database Connection - Use this screen to configure the Collector's connection to the Citect SCADA Reports Server.

The screenshot shows the 'Source Connection' configuration window. It has a title bar 'Hach_WIMS_Q12617_Collector - Configuration' and buttons for 'Apply Settings', 'Help', and 'Close'. The window is divided into four tabs: 'General Settings', 'Source Connection' (selected), 'SCADA Data Settings', and 'Tag Picker'. The 'Source Connection' tab contains the following fields:

- Data Source:** Text box containing '192.168.10.130'
- Database Name:** Text box containing 'FRSCADA'
- Database Type:** Dropdown menu set to 'Microsoft SQL Server'
- OLE DB Provider:** Text box containing 'SQLNCLI'
- Database Login:** Username text box containing 'sa' and Password text box containing '*****'
- Advanced Configuration:**
 - Connection Timeout in Seconds:** Spin box set to '15'
 - Command Timeout in Seconds:** Spin box set to '30'
- Customizations:** Empty text area

At the bottom, there are two buttons: 'Test Connection' and 'Refresh Settings & Tags'.

Data Source: This field specifies, in loose terms, the "Database/Datasource server name" where your Citect SCADA Reports system is configured to store data. For MS SQL this is in the form of host\sql_instance_name.

Database Name: This is the name of the database that contains the Citect SCADA Reports data.

Database Type: Currently only MS SQL Server is supported

OLE DB Provider: This specifies which "database driver" the interface will use when connecting to the Citect SCADA Reports database. If connecting to MS SQL 2005 or later, use the native client to connect. Specify SQLNCLI as the provider. **NOTE: You will need to have the Microsoft SQL Native Client installed for this to work.** If connecting to MS SQL 2000, specify SQLOLEDB as the provider.

Username: The username you want to use to connect to the Citect SCADA Reports database. This user must have the rights to view the database tables that contain the data.

Password: The password you use to login into the database.

Connection Timeout in Seconds: How many seconds the program should wait when establishing a connection to the Citect SCADA Reports database before aborting.

Command Timeout in Seconds: Specifies how many seconds the program should wait for a query to complete before aborting the operation.

WARNING: Large values for these two settings can cause the program to not respond for a long period of time! Do NOT use 0 unless you know what you are doing - it will cause the program to wait indefinitely, and if your database server is down, the only way to cancel the operation is to forcefully quit

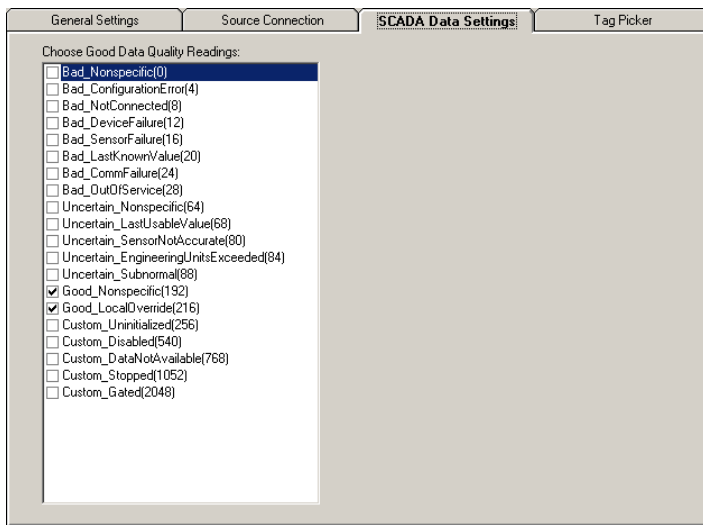
the program.

Customizations: This should be left empty unless you were told otherwise by a Hach Support Engineer or you know what you are doing.

Test Connection: Test to see if the connection settings are valid and the collector is able to connect to Citect SCADA Reports database. This will NOT **Apply** or **Save** the settings.

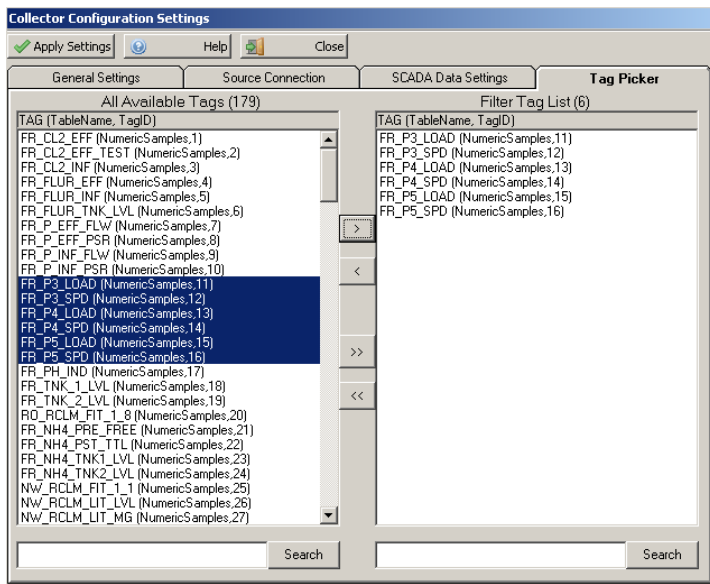
Refresh Settings & Tags: This will load values for the next two (2) tabs to be configured.

SCADA Data Settings - This is where you tell the collector which values will be collected based on the Citect SCADA Reports Quality Reporting. At least one quality needs to be selected or no data will be collected.



Choose Good Data Quality Readings: Citect SCADA Reports historian associates quality readings with every data point. Select the quality of the data you wish to collect.

Tag Picker - Use this tab to select the tags that you want to collect data for. The previous tab was telling the collector which tables and columns contain data. Basically, all the data that is available to the collector. This tab is telling the collector which of those columns/tags you want to collect data from. You must configure the Data Table Mappings before using this tab.



All Available Tags: This is a list of all the tags that are available in the system that we can collect data for. Also included is the table the tag comes from and the tag's ID.

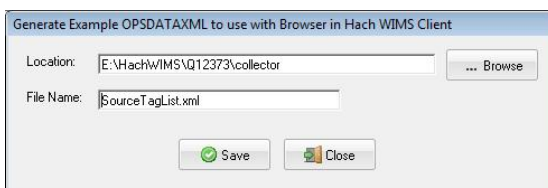
Filtered Tag List: Tags listed here will have their data collected.

Search Boxes: The search boxes allow you to search the list of tags for a particular string. The search will start from the currently selected tag (or the top if nothing is selected) so you can continue to press the search button to find the next match.

[Reference ID: 12624]

5.5 Generate Example OPSDATAXML File for Hach WIMS Client

The Hach WIMS Client needs to know what tags are available to link to WIMS variables. The Hach WIMS Client uses a browser control that contains a list of all the available tags that you defined. In order for the browser control to know what these tag are, it reads them in from an OPSDATAXML file. Once you have configured all the tags that you are interested in you need to open up the following screen:



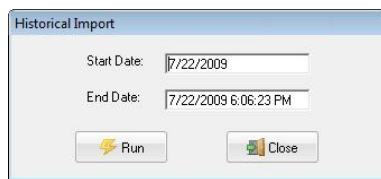
You can launch this screen by click on  Output Source Tags from the main Window.

Click the Save button to generate a file that contains all the tags. Remember where this file is stored because when you configure the Interface in Hach WIMS Client, it will ask where this file is stored.

[Reference ID: 12425]

5.6 Historical Data Import

This screen allows you to import historical data. If your data source maintains historical data then you can import data for the date range that you enter. The collector will read the historical data for the date range specified and copy the data into OPSDATAXML files. Once the OPSDATAXML files have been generated you will have to import them into Hach WIMS client using your Interface(See Section 2.9) .



Start Date - The beginning of the date range to import

End Date - The end of the date range to import

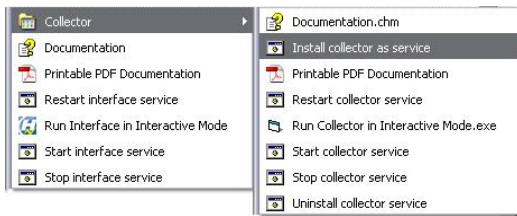
Run - Starts the import process

Close - Closes the Window and does not import data

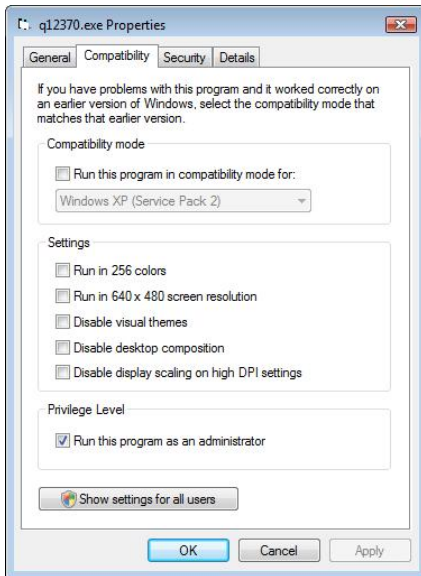
[Reference ID: 12424]

5.7 Install Collector as a NT Service

The Collector can be installed as a NT Service. By default it runs as a traditional Windows Tray Application. Installed with the Collector is a batch file that will configure the Collector to run as a Service. If you click on the Start menu, choose HACH Company/Hach WIMS/Your Interface/Your Collector you will see the file called 'Install collector as service'. If you select this file it will go ahead and configure the Collector to run as a service. The next time Windows starts the Collector Service will start automatically.



For Windows Vista users you will need to perform the following step: You need to configure the Collector to run as an administrator. To run as an administrator, right click on the collector's executable file (i.e. Q12370.exe) and select Properties. Choose the Compatibility tab and check 'Run this program as an administrator'.



You can now start the Collector and run it as a Service. When you double click on the Collector's executable file it will open up the **NT Service Collector Interactive Screen**(See Section 5.8) . From that screen you can open the **NT Service Status and Control Screen**(See Section 5.10) so you can start the Service (after installing the Service it won't be started yet).

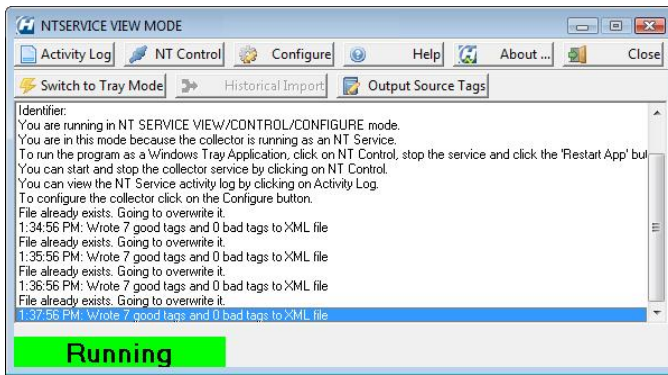
[Reference ID: 12428]

5.8 NT Service Collector Interactive Screen

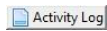
This is the Collector's interactive screen when running as a NT Service.

When the Collector is installed as a NT Service this is the screen that you will interact with. When the Collector is installed as a Windows Tray Application you will be presented with a different screen(See Section 5.1) .

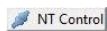
When running in NT Service interactive mode, you can set the various collector configuration settings, view and control the Service status as well as import historical data (if supported by your collector).



- **The Shortcut Buttons:**



Allows you monitor the Service activity



Allows you start and stop the Collector Service as well as view the Service's current status.



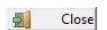
Allows you to configure the collector's settings.



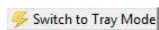
Displays help for the current window.



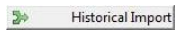
Brings up general information about the Collector.



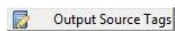
Closes the application. If the Collector Service was running it will continue to run.



Stops the Collector from running as an NT Service and restarts the Collector as a Windows Tray Application.



If your Collector supports this feature you can enter a date range to import data from.



Outputs the tags that you are importing into an OPSDATAXML file. This file is needed by the Hach WIMS Client Interface Source Tag Browser.

- **The Collector Messages & Notification area** - the white background area displays scrolling text regarding the collector's activity. All manner of data is logged here, including data collection status, errors, warnings and other general information regarding the collector's current activity.

Depending on the **Verbosity**(See Section 3.4) level set, you may or may not see all information.

If there is a directory called "Log" in the Collector directory, the Collector will also log to a text file of the form:

```
<mm_dd_yyyy__hh_mm_ss_collector_name_Collector.log>
```

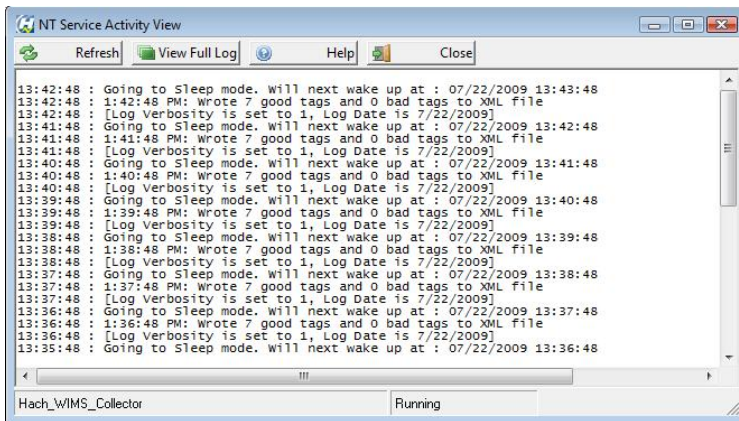
E.g., if the current date is 2/26/2009 and the current time is 3:02:13 PM, the file will be called:
02_26_2009__15_02_13_collector_name_Collector.log.

- The status bar, at the bottom of the screen, displays the status of the NT Service.

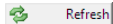
[Reference ID: 12420]

5.9 NT Service Log View

The **Activity Log View** lets you view the Collector's NT Service log.



Buttons:



Refresh

Force refresh of the service log view.



View Full Log

View the full service log.

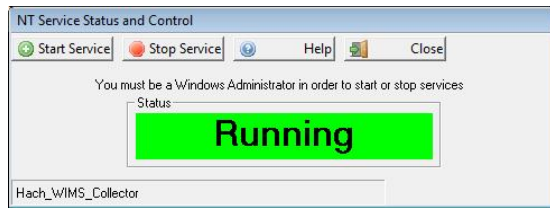
NOTE:

If the log cannot be read, make sure the service name is correct and that it's running. See **NT Service Status and Control** (See Section 5.10) on how to start the service if it's not running (assuming the service name is correct) and see **Proxy**(See Section 5.2) **Settings**(See Section 5.2) on how to view/change the service name.

[Reference ID: 12426]

5.10 NT Service Status and Control

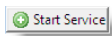
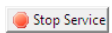
The **Status and Control** screen lets you configure and monitor the state of collector service:



The name of the service is displayed in the bottom left (see screenshot) corner of the screen. This is the name of the service that the interactive program is configured to monitor.

If this is NOT the name of the service, you can change it from the **Proxy Settings**(See Section 5.2) screen.

Buttons:

-  Start the service, if it is not running.
-  Stop the service, if it is running.

[Reference ID: 12427]

5.11 Release notes for collector Q12617

Version 1.0.3 (Build 19, Released on 9/9/2010)

- Upgraded Collector to write OPSDATAXML format revision 3
- Upgraded to Common Framework build 116, SCADA Framework build 53, Updated framework to handle time zone differences and how they affect direct and indirect interfaces

Version 1.0.2 (Build 17, Released on 8/25/2010)

- Fixed bug where the value populated into the OPSDATAXML file was actually the TagID.

Version 1.0.1 (Build 13, Released on 5/26/2010)

- Removed Time Zone offset, and shared common and custom objects as needed. Time zone is calculated automatically.

Version 1.0.0 (Build 6, Released on 10/29/2009)

- Initial release for distribution.

[Reference ID: 12626]

5.12 Run-time error: Execution in .NET Framework is disabled

The interface runs several stored procedures. Most users have the database for Citect set up for them. If the collector gets the following error:

Run-time error '-2147217900 (80040e14)':

Execution of user code in the .NET Framework is disabled. Enable "clr enabled" configuration option.

Or some error similar that mentions "clr enabled" then the "clr" needs to be enabled. Run Microsoft SQL Manager and execute the following query:

```
sp_configure 'clr enabled', 1
```

```
GO
```

```
RECONFIGURE
```

```
GO
```

[Reference ID: 12632]

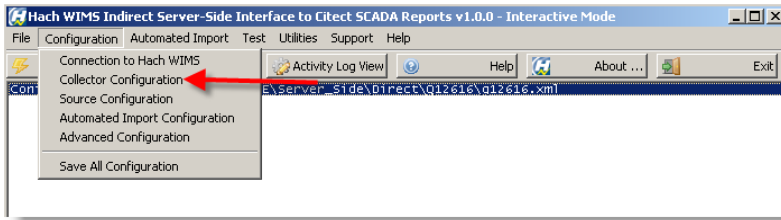
5.13 Using the Citect SCADA Reports Collector (Q12617)

Using the **Hach WIMS Citect SCADA Reports Collector** (q12617(See Section 5.13)) to convert Citect SCADA Reports Historical data into OPSDATAXML files.

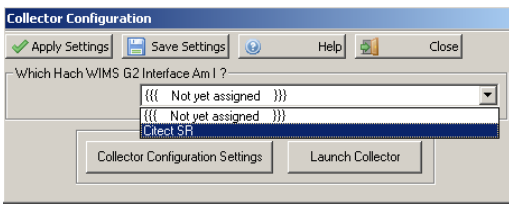
The **Hach WIMS Indirect Server-Side Interface to Citect SCADA Reports** (q12616(See Section)) does not communicate directly with the Citect SCADA Reports Server. Instead, a collector will connect to the database and convert the SCADA source data into OPSDATAXML files. The **Hach WIMS Indirect Server-Side Interface to Citect SCADA Reports** will then import data in these files into the Hach WIMS Client.

In the default installation, the Interface, Collector and Citect SCADA Reports Server reside on the same machine. You may also configure the Collector and Citect SCADA Reports Server to be on the same machine but have the Interface on another machine. If you do this, you'll want to make sure that the Collector is saving the OPSDATAXML files to a location that the machine the Interface is installed on has access to (i.e. a shared network drive).

To start the Collector from the Interface click on Configuration/Collector Configuration.

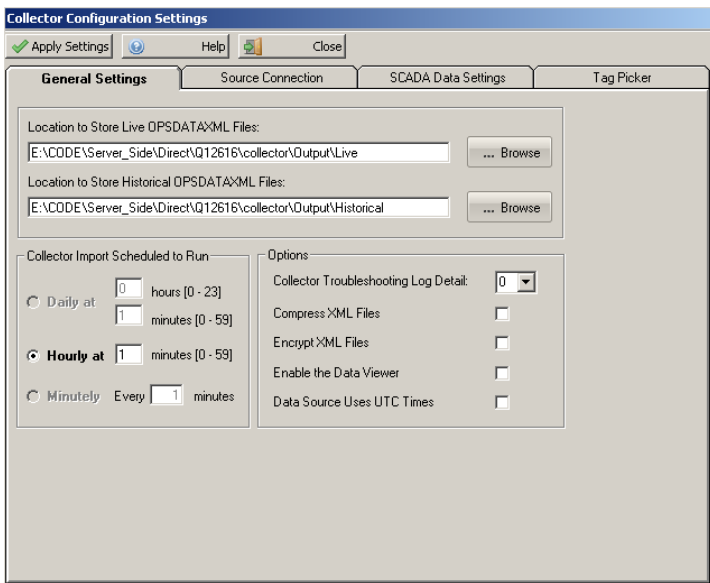


From here you can either configure the Collector or start it. Click on **Collector Configuration Settings** to configure the collector.

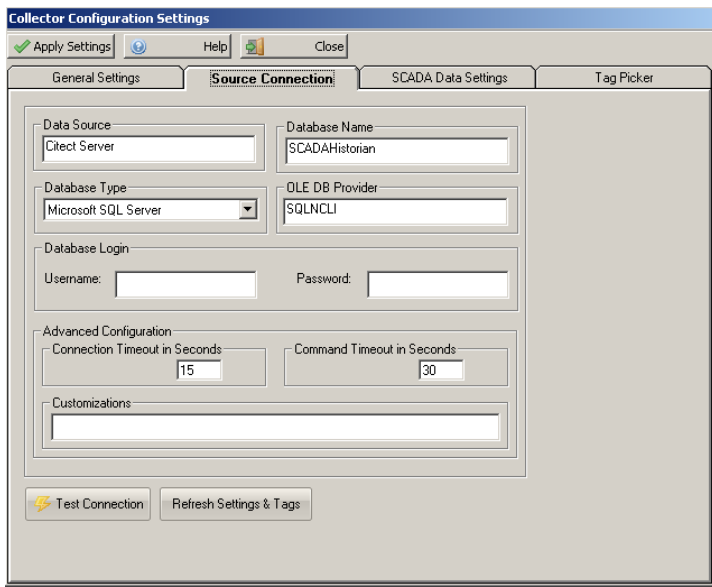


If you choose to start the Collector before it has been configured, you will be presented with a warning message indicating that it has not been configured yet. You can dismiss the message and proceed to configure the Collector.

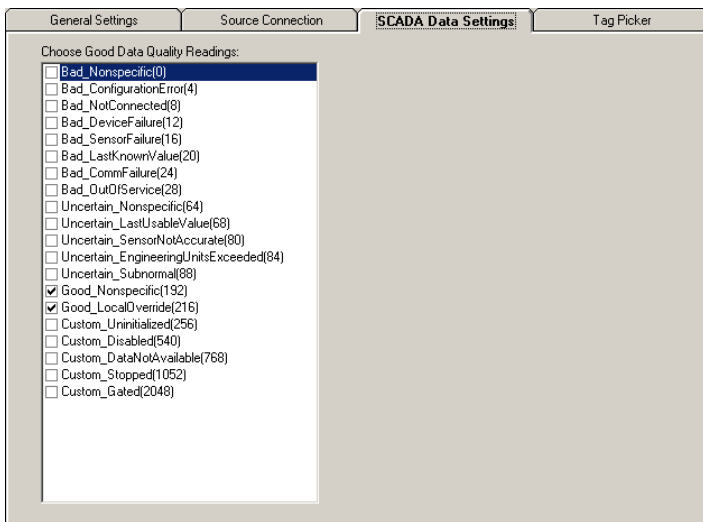
The Collector will not start collecting data until it has been configured. In the configuration screen you have two tabs of configuration settings. The **"General Settings"** tab contains information on how you want the Collector to run.



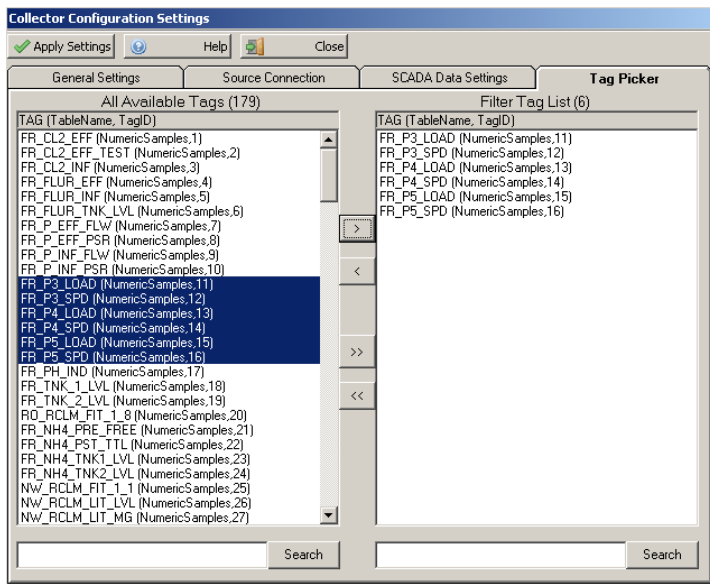
The **"Source Connection"** tab allows you to configure the connection to your Citect SCADA Reports Server. Click **Test Connection** to ensure a good connection. When there is a good connection, click on **Refresh Settings and Tags** button to load values for the next two tabs.



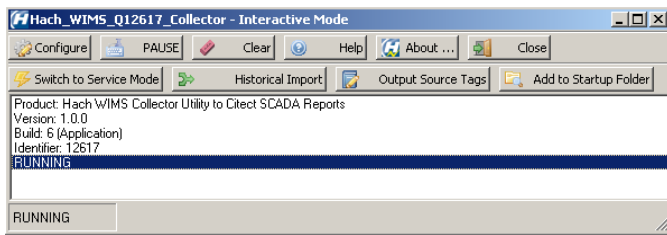
The "SCADA Data Settings" tab allows you to select which Quality Readings to use.



The "Tag Picker" tab allows you select the tags you want to import into Hach WIMS.



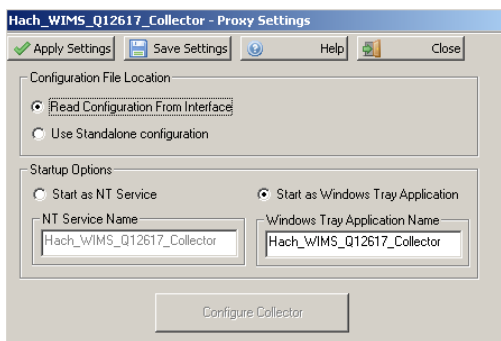
When you launch the Collector it will either start as a Windows Tray Application (default) or in NT Service View and Control mode. The standard screen is below.



If the status bar shows "RUNNING" then the Collector is scheduled to run and collect data from the Citect SCADA Reports Server. If the status is "PAUSED" you need to configure the connection to Citect SCADA Reports and click the Start button. If no Tags have been defined yet, then the Collector will not run. If you start the Collector and it does not appear on the screen then you can find it in the Windows System Tray (by default the Collector is hidden when it is started unless errors occur during startup). You can double click on it's icon in the System Tray to make it visible.

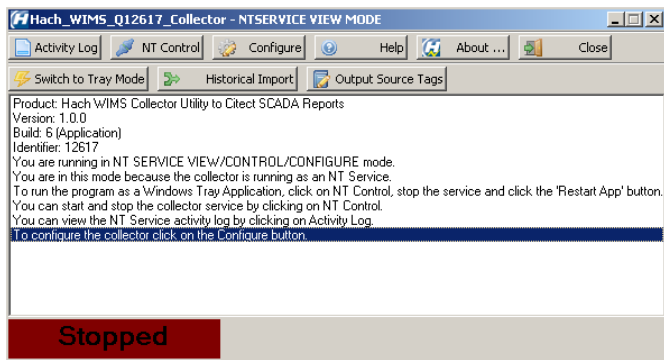


If you click on the Configure button when the Collector is running as a Windows Tray Application you are presented with a Proxy Setting screen before being able to configure the Collector's settings.



The proxy screen contains needed information on how you plan to run the Collector. For a standard installation just leave the settings the way that they are

When the Collector is installed to run as a service you are presented with the following screen when starting the application.



From here you can see if the Service is running, configure it, stop it, start it, and view the activity log files.

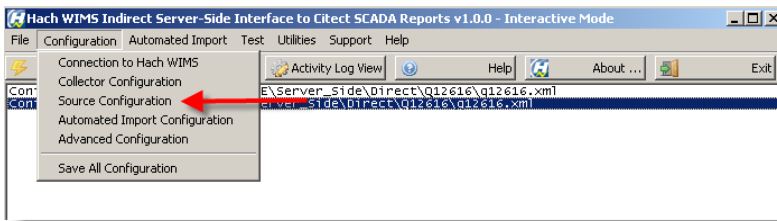
[Reference ID: 12625]

6 - Documentation : Topics specific to the operation of this interface

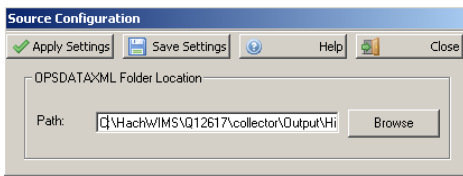
6.1 Configuration - Source Configuration Q12616

To configure your source connection to the OPSDATAXML files generated by the Hach WIMS Citect SCADA Reports Collector (Q12617):

1. Open Source Configuration.



2. Set the folder location of the OPSDATAXML files to import.



[Reference ID: 12630]

6.2 Release notes for interface Q12616

Version 1.1.1 (Released on 12/7/2015)

- Fixed DIFF function (4623)
- Upgraded interface to Common Framework(See Section 4.1) Build 149

Version 1.1.0 (Build 116, Released on 12/8/2014)

- Fixed a bug affecting the deployability for the tag browser.

Version 1.0.9 (Build 108, Released on 1/28/2013)

- Updated to the latest common framework

- Fixed problem uploading the G2_Server_LU file

Version 1.0.8 (Build 104, Released on 5/10/2012)

- Added support for the SQL Server 2012 licensing.(4202)
- Added support for MINTIME and MAXTIME in the import stats functions.(4185)
- See other release notes for this project.

Version 1.0.7 (Build 75, Released on 11/3/2010)

- Fixed problem with the timezone of the computer system running the Interface is affecting the results when it should not

Version 1.0.6 (Build 71, Released on 9/9/2010)

- Fixed problem with reading encrypted/compressed XML files

Version 1.0.5 (Build 69, Released on 9/9/2010)

- Upgraded to Common Framework build 116, SCADA Framework build 53, Updated framework to handle time zone differences and how they affect direct and indirect interfaces

Version 1.0.4 (Build 56, Released on 8/25/2010)

- Bug fixed in Collector, repackaging and updating version

Version 1.0.3 (Build 48, Released on 7/30/2010)

- Upgraded interface to Common Framework Build 100

Version 1.0.2 (Build 39, Released on 5/26/2010)

- Shared common and custom objects as needed.

Version 1.0.1 (Build 19, Released on 2/9/2010)

- Upgraded interface to SCADA2OPSSQL Framework Build 47

Version 1.0.0 (Build 9, Released on 10/29/2009)

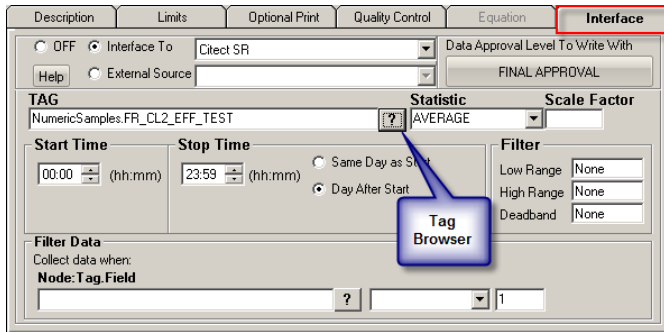
- Initial release for distribution.

6.3 Supported variable configurations for interface Q12616

Supported variable configurations for the **Hach WIMS Indirect Server-Side Interface to Citect SCADA Reports**.

To configure a variable to hold values from Citect SCADA Reports, select **Edit/View Variables** in the Hach WIMS client and select the **Interface** tab.

Then click **Interface To** radio button. The drop down box next to the option is now enabled, click the drop down arrow and choose the Cimplicity SQL interface name (name given when configuring the interface).



Now you are ready to configure a signal tag to the Citect SCADA Reports Historian. The **Tag** name and a **Statistic** are all that are mandatory.

- **TAG**
NumericSamples.FR_CL2_EFF_TEST

This is the SQL table followed by the tag found in your Citect SCADA Reports Historian. The table name is needed because it is possible to have the same tag name in multiple tables.

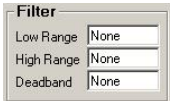
- **Statistic**
AVERAGE
AVERAGE
COUNT
DIFF
FIRST
INVENTORY
LAST
MAXIMUM
MAXTIME

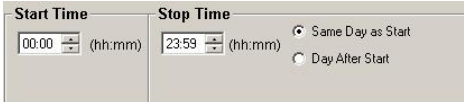
This is a listing of all the statistics supported by this interface. This includes the following statistics for a specified time period.

AVERAGE	Take the average of the data points
TOTAL	Take the sum total of all values
MINIMUM	Get the minimum value
MAXIMUM	Get the maximum value
FIRST	Get the first value
LAST	Get the last value
DIFF	

	Calculate the difference between the first and last values. If the first value is larger than the second then it will perform the following calculation: $(10 ^ {(\text{Ceil}(\text{LOG}(\text{first_value}) / \text{LOG}(10)))) - \text{first_value} + \text{last_value}$ Ceil will cause the value to round up
RANGE	Calculate the absolute value of the difference between the minimum and maximum values
COUNT	Counts the number of data points.
MINTIME	The date and time when the minimum value occurred.
MAXTME	The date and time when the maximum value occurred.
TIMEGT(x)	Counts the number of data points greater then 'x'.
TIMELT(x)	Counts the number of data points less than 'x'.
TIMEEQ(x)	Counts the number of data points equal to 'x'.
INVENTORY	Running total of used volume. Only decreases in value are counted. Use the DEADBAND option in Hach WIMS variable setup to eliminate erroneous readings due to noise or vibrations.

- ◆ **Scale Factor**
 This is the value to multiply the result by when using parameter variable types. Commonly used to convert from one unit base to another. For example to convert gallons per minute (GPM) to gallons per day (GPD), set the scale factor to 1440 (1440 minutes per day).

- ◆ **Filter**
 All three fields must have numeric values or the word None (as shown). The Low Range and High Range will crop data from the source. For example to eliminate negative numbers from a particular tag, set the Low Range to 0 (zero) - this will get any values equal to or greater than 0 (zero). The Deadband is used for the statistic Inventory and will eliminate noise levels up to the value specified. For example, if you enter .5 next to Deadband, any value change of .5 or less, will be ignored.

- ◆ **Start Time** **Stop Time**

 - ◇ Start Time will set the beginning of the time slot for this variable.
 - ◇ Stop Time will set the ending time for the time slot.
 - ◇ Same Day as Start is only used by daily variables and it means the stop time is on the same day as the start time.
 - ◇ Day After Start is also only used by daily variables and it means the stop time is a day after the start time.

- ◆ **Filter Data**
 Allows you to filter data based on another tag. For example, flow rate while not in backwash, but during backwash we don't want flow rates uploaded to Hach

WIMS.

- ◇ Node:Tag.Field is the Cimplicity SQL Tag you want to filter by, in our example it would be the backwash state.
- ◇ Middle field is the filter operator. This can be <, >, =, <=, >=, <>, or CYCLESTO.
- ◇ Last field is the filter value. So when the 'backwash state' is greater than 0 (not backwashing) then our system will get values. When the value drops to zero or negative, do not get values.

[Reference ID: 12629]

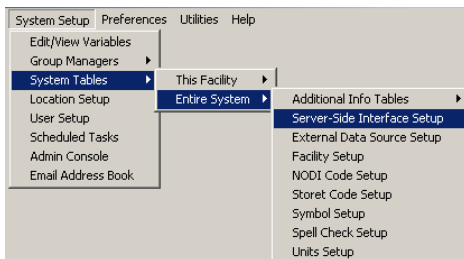
6.4 Using Interface Browser Q12618

Using the interface browser for **Hach WIMS Indirect Server-Side Interface to Citect SCADA Reports**.

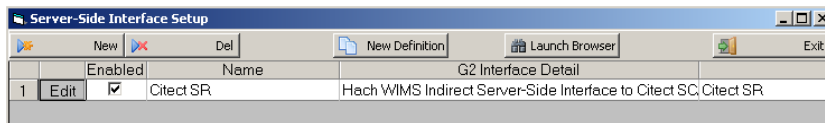
Step 1: In the Hach WIMS client, select **Edit/View Variables** and click the **Interface** tab.

Step 2: The browser connection must be properly configured. In the Hach WIMS client:

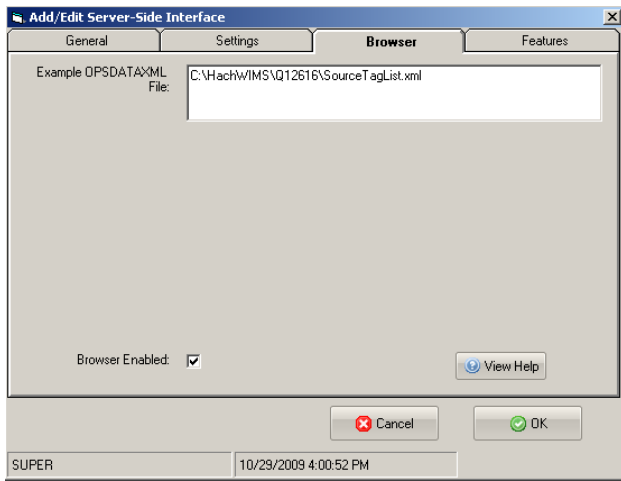
- Select **System Tables -> Entire System -> Server-Side Interface Setup**.



- Select the **Edit** button for the Cimplicity SQL entry that you want to enable the browser for.

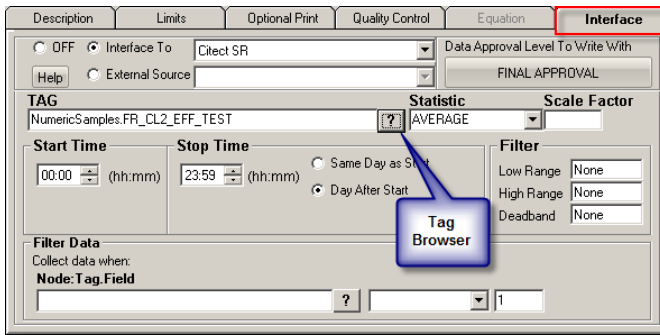


- Click on the **Browser** tab and enter the location of an OPSDATAXML file generated by the Collector. The browser will search this file for the available Tag Names. Make sure **Browser Enabled** is checked and click **OK** button.

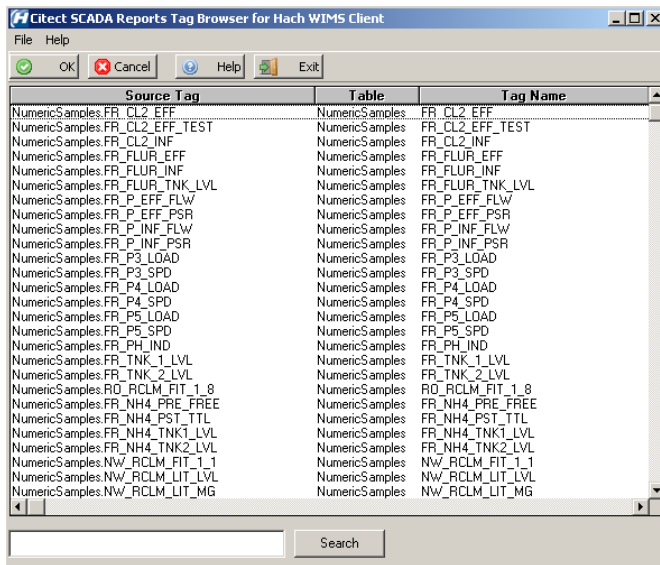


You are ready to view tags from the HMI. Click on **System Setup** -> **View/Edit Variables** and click on the **Interface** tab.

Click the button with a ? (question mark) on it as shown below:



The browser will load:



Select the appropriate Source Tag and click OK.

[Reference ID: 12628]