

Hach WIMS Direct Server-Side Interface to doForms Web Service

Q14162 Documentation



Be Right™

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1 - Documentation : Introduction

1.1 Interface Introduction

The **Hach WIMS Direct Server-Side Interface to doForms™ Web Service** allows you to import data collected in doForms into your Hach WIMS Database. The doForms product is a mobile/web application that allows data collection on iOS (iPhone, iPad) and Android devices with data storage in the cloud.

Resources needed are:

- Hach WIMS and this interface
- A doForms professional account. Contact sales@doforms to setup an account.
- A doForms Form setup and published as a Web Service.
- An Apple iOS (version 4.0 or greater) device or an Android OS (version 2.2. or greater) device
- Data uploaded to doForms

Requirements for the doForm forms are:

- **MUST!!!** One Date:Time field with the Data name of 'Date' - data will be imported into WIMS for this datetime.
- The interface **only** imports data from doForms question widget types of:
 - ◆ Text
 - ◆ Numeric
 - ◆ Trends
 - ◆ Date:Time *
 - ◆ Choose One
 - ◆ Select Multiple *
 - ◆ Location **
 - ◆ Barcode
 - ◆ Counter
 - ◆ Calculation
 - ◆ Lookup *
 - ◆ Email *
 - ◆ Score

* Can only be imported into WIMS Text Variables

** Location can be imported to a Text Variable or its parts can be imported to Parameter Variables. See Importing data from a Location Widget.

Note: Other widgets such as Grid, Page, Label, Sketch, NFC, etc... can be used on the form but data will not be imported from these Widgets.

doFORMS™

Dispatch Web App Beta View Data **Build Forms** Manage

Operator Morning Rounds v7 Draft | File Options

Date
Date

Aug 20 2013

123 Rainfall {Inch}
OPSWWTUTOR_901

123 Final Clarifier Blanket Height {feet}
OPSWWTUTOR_1151

123 Effluent pH {SU}
OPSWWTUTOR_4081

123 Effluent TSS {mg/L}
Effluent_TSS

123 Effluent TSS mg/L
Effluent_TSS

+ Page Label Text Numeric Date:Time Choose One Select Multiple Location Sketch Signature
Action Image Audio Video Barcode NFC Counter Calculation Lookup Email Approval Score Questionnaire Table Grid Repeatable

Note: The date and time of data is based on the Hach WIMS server time zone, when imported into Hach WIMS.

[Reference ID: 14163]

1.2 Software Requirements

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

- 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 10
- Microsoft Windows 2012 64-bit

NOTE: Interfaces can run on the following Windows versions, however use of interfaces on these Operating Systems are no long supported:

- 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

[Reference ID: 12142]

1.3 Source versions tested

This interface was tested using the latest doForms Web Service Description Language as of December, 2013.

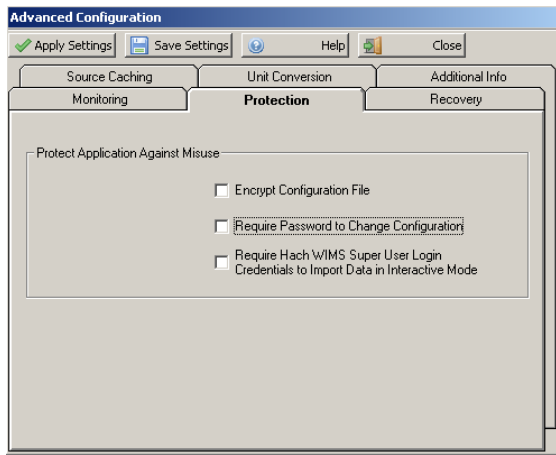
[Reference ID: 14164]

2 - Documentation : How To

2.1 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.

2.2 Configuration is Password Protected

The configuration is password protected if you changed it in **Change Configuration Protection Password**(See Section 2.1). 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:

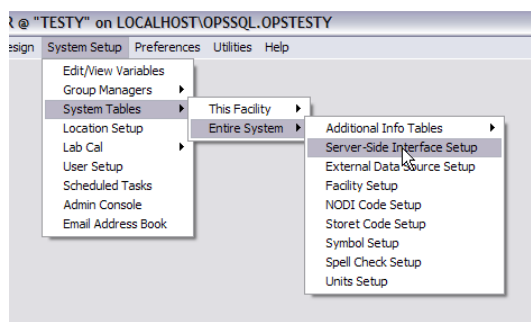
If your configuration is protected with a password, you must know the password before you can disable the password check.

[Reference ID: 12056]

2.3 Configure the Hach WIMS Client for a Server-Side Interface (LIMS2OPSSQL)

In order to use a direct server-side interface, you must do the following:

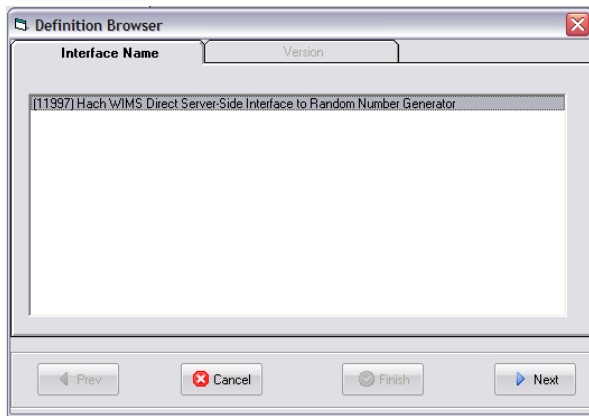
1. Start your Hach WIMS Client and navigate to the **System Setup -> System Tables -> Entire System -> Server-Side Interface Setup** menu selection:



2. If the "Server-Side Interface Setup" screen shows no interfaces, or the one you want to configure is not shown, you have to:
 1. If you have the G2 definition uploaded, click the **New** button. To determine if you have the definition uploaded, click **New** and see if it appears in the list of interfaces.
 2. If you do not have the definition uploaded, upload the definition first. Click the **New Definition** button and navigate to the g2_server_lu file. (Alternatively, you can select **Utilities - Upload Definition File to**

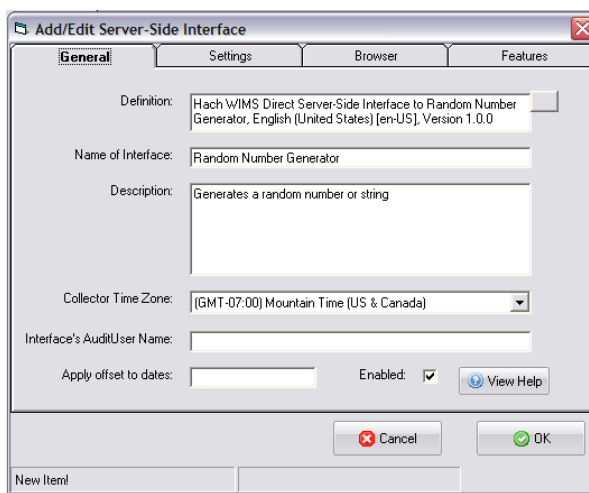
Hach WIMS(See Section 3.16))

- 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.



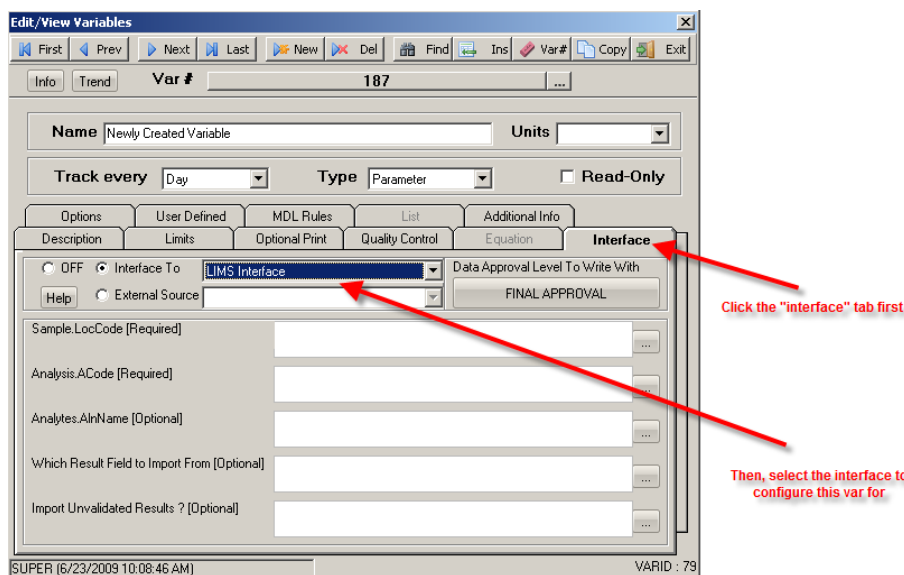
In this example, we want a new instance of the Random Number Generator interface. Select the name, click **Next**, and select the version.

- 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.

- 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, simply uncheck the Enable button on the **Browser** tab.
- Go to **System Setup -> Edit/View Variables**.
- Go to the variable you wish to configure for storing interface data:



(Note: The number of fields and their nomenclature are dependent on the specific interface)

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 operation of Interface**' chapter.

[Reference ID: 12323]

2.4 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.

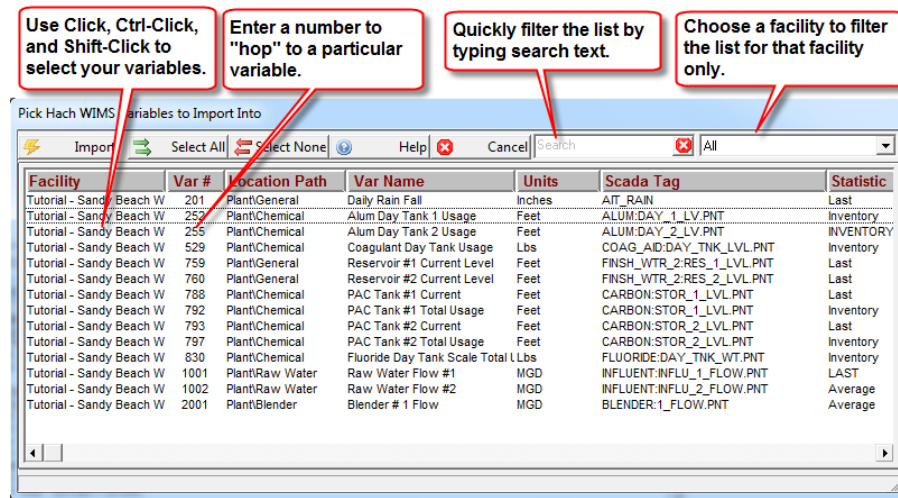
You must provide the correct user name and password in order to import data in interactive mode.

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

[Reference ID: 12057]

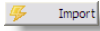
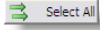
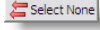
2.5 Pick Hach WIMS Variables to Import Into

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]

2.6 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. Upload interface definition file to Hach WIMS Server. Use **Utilities - Upload definition file to Hach WIMS**(See Section 3.16) to do this.
6. 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) .
7. Now you are ready to assign the collector record created in *the previous step* to your interface. Use **Configuration -**

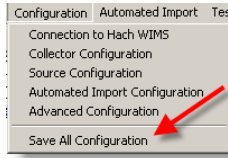
Collector Configuration(See Section 3.8) to do this.

8. You need to link at least one Hach WIMS variable to the chosen collector record.

9. 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.

10. Save all configuration Settings by clicking on **Configuration -> Save All Configuration**.



11. You are now ready to use the interface.

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

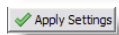
[Reference ID: 12069]

2.7 Using Common Buttons

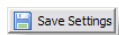
Common Hach WIMS Interface Buttons:



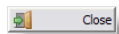
Displays help for the current interface screen.



Applies the current settings.



Attempts to apply the current changes and save them permanently. The save will fail if the settings cannot be applied first.



Closes the current window - no changes are saved.



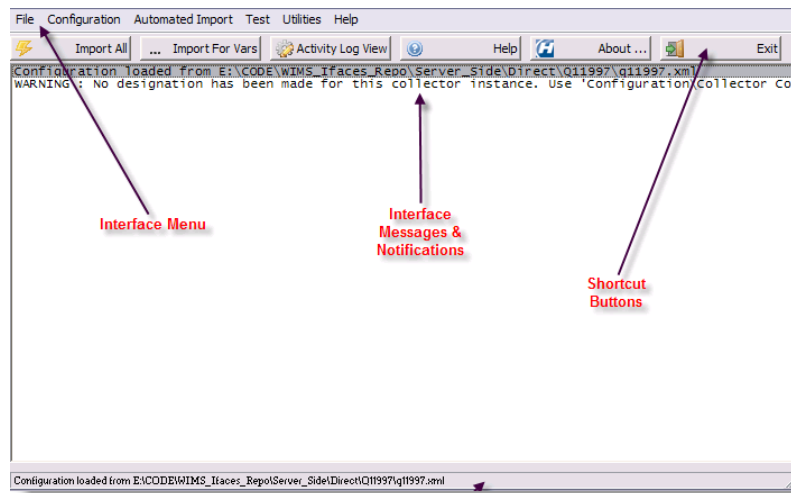
Cancel the current activity/operation.

[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 data(See Section 3.11) .
	Import data for selected variables(See Section 3.12) .
	Monitor service activity(See Section 3.1) .
	Display help for the current window.
	Display general interface information.
	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

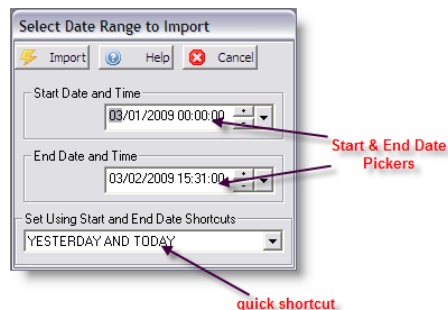
When importing data for one or more specified variables, you have to specify the date range of the source data you want to get.

You can do this in 2 ways:

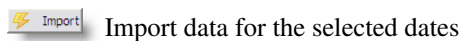
1. Use both the **Start & End Date Pickers**

- OR -

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



Buttons:



Import data for the selected dates

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.

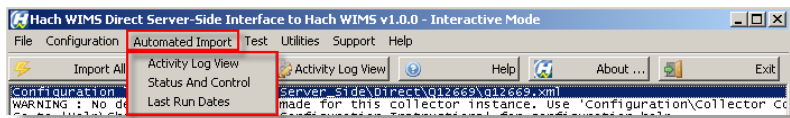
If we had set our date range from March 3, 2009 08:01:00 to March 4, 2009 08:01:00, then the interface would return only the second record, because the Stop Date and Time of the first record (March 3, 2009 08:00:00) does not fall within our start and end date range.

[Reference ID: 12058]

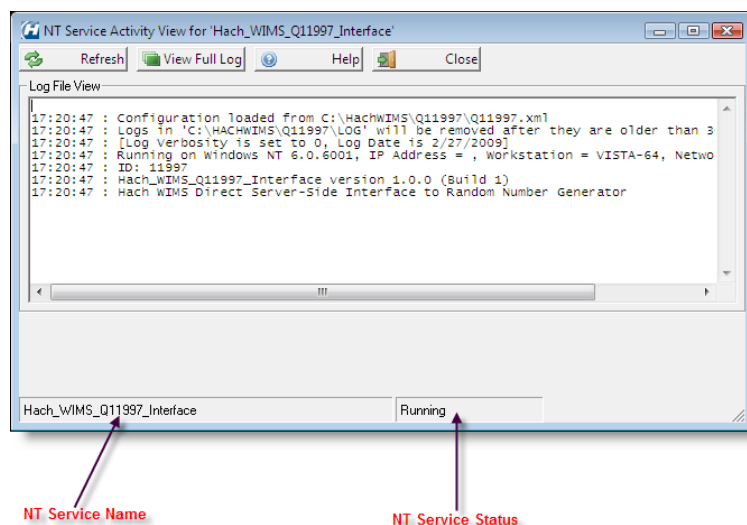
3 - Documentation : Main Menu

3.1 Automated Import - Activity Log View

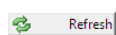
For Automated Import options, click the **Automated Import** button on the top menu bar of the interface.



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

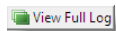


Buttons:



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.

3.2 Automated Import - Modify Last Ran Dates

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

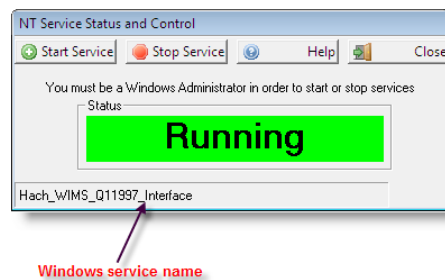
NOTE:

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

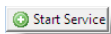
The **NT Service Status and Control** screen lets you monitor the state of interface service, and start or stop the service (Note: you must be logged in as a Windows Administrator):



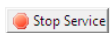
The name of the service is displayed in the bottom left (see screenshot) corner of the screen. This is the name of the service that the interactive program is configured to monitor.

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.



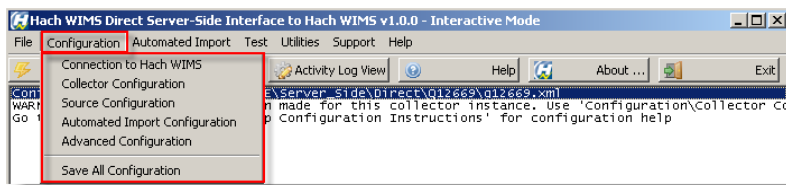
Stop the service, if it is running.

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

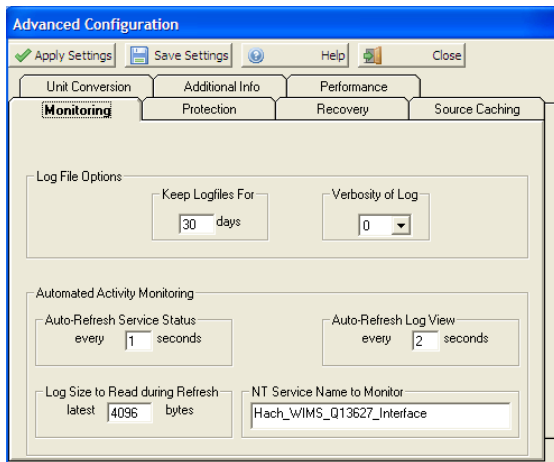
[Reference ID: 12047]

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:

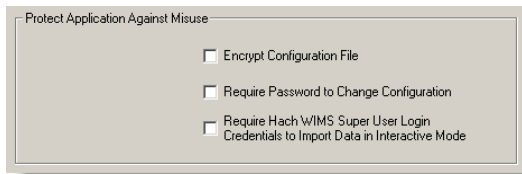


- **Log File Options:**

- ◆ 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.**

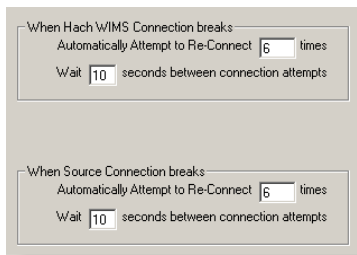


- **Protect Application Against Misuse** - On the **Protection** tab, if you want more security in your interface configuration, you can configure:

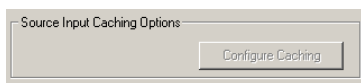
- ◆ **Encrypt Configuration File** - encrypt the contents of the interface configuration file to prevent unauthorized tampering.
- ◆ **Required Password to Change Configuration** - require a password every time the user requests a configuration change. If no password is yet set, you are prompted to supply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



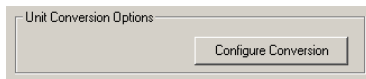
- ◆ **Require Hach Wims Super User Login ...** - to prevent someone from accidentally overwriting data when running in interactive mode, you can set this option to require people to enter in a super-user ID and password before importing.



- **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.



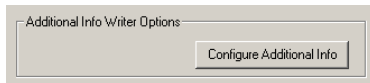
- **Source Input Caching** - button on the **Source Caching** tab, is enabled when interface supports source input caching. Lets one specify caching conditions. Go to Source Cache Input Configuration(See Section 3.5) for more information.



Unit Conversion Options

Configure Conversion

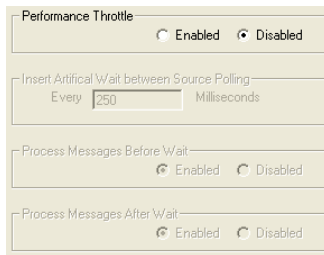
- **Unit Conversion Options** - On the **Unit Conversion** tab, is enabled when interface supports unit conversion. Lets one specify various units and conversion factor. Go to **Configuration - Advanced Configuration: Unit Conversion**(See Section 3.6) for more information.



Additional Info Writer Options

Configure Additional Info

- **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

☐ Enabled ☒ Disabled

Insert Artificial Wait between Source Polling

Every Milliseconds

Process Messages Before Wait

☒ Enabled ☐ Disabled

Process Messages After Wait

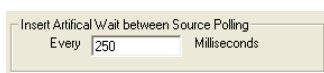
☒ Enabled ☐ Disabled

- **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:

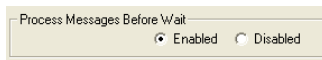
- This option is not intended to be used with normal interface setup. It should only be used if the source database is showing I/O processes being delayed explicitly because of the WIMS interface connection.
- This option is not intended for LIMS interfaces. If a LIMS interface does appear to be causing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



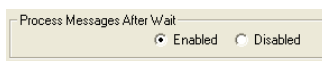
Insert Artificial Wait between Source Polling

Every Milliseconds

- **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.


 A rectangular control box with a light beige background. The title bar reads "Process Messages Before Wait". Below the title bar, there are two radio buttons: "Enabled" (which is selected) and "Disabled".

- **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.


 A rectangular control box with a light beige background. The title bar reads "Process Messages After Wait". Below the title bar, there are two radio buttons: "Enabled" (which is selected) and "Disabled".

- **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)

Advanced Configuration : Source Input Cache

Apply Settings Help Close

Cache When Appropriate ☒ Enabled ☐ Disabled

Caching is Appropriate When

☒ Number of Datapoints cached is below 60480

☒ Number of Bytes cached is below 483840

☒ Number of Days in cached date range is below 14

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)

Advanced Configuration : Unit Conversion

Apply Settings Help Close

Convert Result from Source Unit to Hach WIMS Unit ☒ Enabled ☐ Disabled

	Enabled	Source Unit	Conversion Algorithm	Factor	Hach WIMS Unit
20	<input checked="" type="checkbox"/>	deg.f	Degrees F to C	1	degc
21	<input checked="" type="checkbox"/>	degreesf	Degrees F to C	1	degc
22	<input checked="" type="checkbox"/>	degreef	Degrees F to C	1	degc
23	<input checked="" type="checkbox"/>	degreef	Degrees F to C	1	degc
24	<input checked="" type="checkbox"/>	degc	Degrees C to F	1	degf
25	<input checked="" type="checkbox"/>	deg.c	Degrees C to F	1	degf
26	<input checked="" type="checkbox"/>	degreesc	Degrees C to F	1	degf
27	<input checked="" type="checkbox"/>	degreec	Degrees C to F	1	degf
28	<input checked="" type="checkbox"/>	degreec	Degrees C to F	1	degf
29	<input type="checkbox"/>		Multiplication	1	
30	<input type="checkbox"/>		Multiplication	1	
31	<input type="checkbox"/>		Multiplication	1	
32	<input type="checkbox"/>		Multiplication	1	

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

Multiplication
Degrees F to C
Degrees C to F

- ◆ **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:

A screenshot of a configuration window for unit conversion. It shows a text box with '1000', a dropdown menu set to 'Multiplication', and another text box with 'ppb'. To the left, there is a small box with '16' and a checked checkbox.

(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:

A screenshot of the 'Automated Import Configuration' dialog box. It has a title bar with 'Automated Import Configuration' and buttons for 'Apply Settings', 'Save Settings', 'Help', and 'Close'. The dialog is divided into several sections:

- Automated Import Scheduled to Run:** Contains three radio buttons: 'Daily at' (selected), 'Hourly at', and 'Minutely'. The 'Daily at' section has input boxes for '0' hours and '1' minutes. The 'Hourly at' section has an input box for '1' minutes. The 'Minutely' section has an input box for '5' minutes.
- Calculations After Automated Import:** Contains two radio buttons: 'Submit Request to re-calculate ALL calculated variables within each facility' (selected) and 'Do not submit request'.
- Default Last Run Date:** A date/time picker showing '05/12/2009 00:00:00'.
- Constant to Add to Start Date Each Time Import Runs:** An input box with '0' minutes.
- Import Operation Mode:** Two radio buttons: 'Real' (selected) and 'Test (Hach WIMS is NEVER modified)'.

- **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.



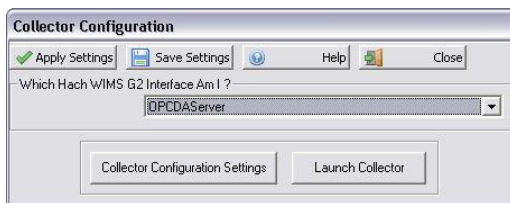
NOTE: Before you can configure the collector, you **MUST** configure the **Connection to Hach WIMS**(See Section 3.9) and you must setup the **Hach WIMS client**(See Section).

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

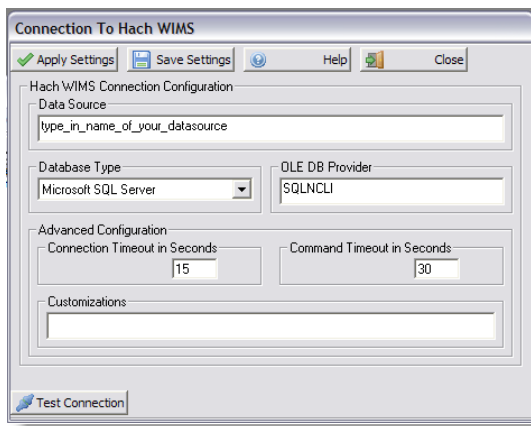
Launch Collector Starts the Collector utility

[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.

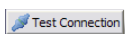


- **Data Source** - this field specifies, in loose terms, the "Database/Datasource server name" where your Hach WIMS system is configured to store data. "Database/Datasource server name" means different things depending on whether you are running against Oracle or MS SQL:
 - ◆ Oracle - you can type in 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:

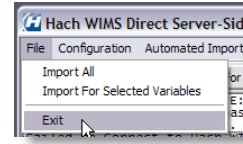


Test to see if the connection settings are valid and the interface is able to connect to Hach WIMS client. This will NOT **Apply** or **Save** the settings.

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

[Reference ID: 12037]

3.10 File - Exit



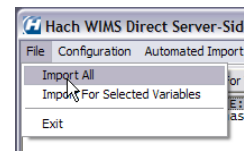
Terminates the interactive interface program.

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]

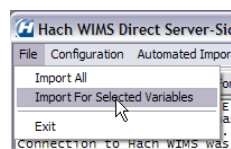
3.11 File - Import All



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 LIMS to Hach WIMS

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

Use this screen to look at source data for specific dates, **WITHOUT** doing an actual import. (No data will be written to Hach WIMS database.)

Once a start and end date have been selected, press **Query Source** button to retrieve data for that date range.

The screenshot shows a window titled "Source Read Test" with an "Input" section. It contains two date pickers: "Start Date" set to 01/01/2007 00:00:00 and "End Date" set to 01/31/2007 00:00:00. A "Query Source" button is located to the right of the date pickers.

The Source Read Test will retrieve all data points within the date range selected and return the values of selected fields.

Example screenshot of how values look when interface is not reading additional info fields from the source :

The screenshot shows a window titled "Showing Record 1 out of 1211". It displays a grid of fields with their values:

LimsCollectedDate	12/4/2006 9:39:00 PM	LimsResultSECONDARY		LimsUD3	
LimsLocation	FE-COMP	LimsSampleIdentifier	AA61409	LimsUnits	
LimsResult	Disposal	LimsTest	@TEFLON	LimsValidatedBY	AW
LimsResultFLAG		LimsUD1	Teflon Bottle	LimsValidation	
LimsResultRAW	NULL	LimsUD2			

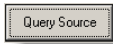

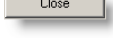
 A "Next Record" button is located at the bottom right.

Example screenshot of how values look when interface is reading additional info fields from the source :

The screenshot shows the same window as the previous one, but with an additional section at the bottom titled "AINFO Field" and "Value". This section contains the following data:

AINFO Field	Value
SAMPLE.COLDATE	12/4/2006 9:39:00 PM
RESULT.AC CODE	@BEAKER
SAMPLE.SAMPNO	AA61409

Buttons:

	Query the source for the date range entered
	Get the next record from the source data
	Close this window

[Reference ID: 12321]

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]

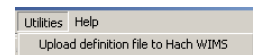
3.15 Test - Test Import All

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) .

[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 LIMS2OPSSQL Type of Hach WIMS Direct Server-Side Interface

Build 65 (10/29/2015)

- Fixed bug in Source Read Test (4706)

Build 64 (8/21/2015)

- Add Location Path to the Variable Browser (4660)

Build 58 (1/20/2015)

- Interface properly formats results with no decimal places when importing to a variable with Decimal Places set to Not Fixed (9999). (4553)
- Common Framework now handles writing the proper Data Approval Level even when LimsResultStatus is not set by custom source (4552)

Build 55 (10/2/2013)

- Symbols with no numeric part (i.e. ND, TNTC) and an MDL setting of constant now works correctly (4379)
- Symbols with no numeric part (i.e. ND, TNTC) no longer get 0 added to the display value (ND would become ND0 or ND0.0 depending on Decimal place setting) (4379)
- Now creates a result comment for entries with symbols that require a numeric portion but are missing it (An entry of "<" or ">" with no number after are now imported as result comments (4379)

Build 49

- Added the ability to recognize SQL Server 2012 licensing.(4202)
- Added the ability to import data based on AVALDATE.(4148)
- Modified to maintain the significant digits when no value is set for the number of significant digits.(4111)
- Added more logging.(4104)

Build 48

- Fixed problem with trying to perform exact matching in CommonTypeVar class, which causes problem with LIMS interfaces that use LIMS_UD fields for information other than matching (4148)

Build 45

- Corrected how results from source are calculated following the same rules in Monthly Data Entry form:
 1. Determine significant digits
 2. Perform Unit Conversion if need
 3. Apply significant digits, using scientific rounding
 4. Apply MDL rule to calculate numeric value
- The rules are applied similarly if Decimal Places is fix or set to Not Fixed in Hach WIMS client, the only difference is how the significant digits are determined. (4111)
- Ensure trailing zeroes are included in the text value imported as applicable according to MDE significant digit rule. (4111)

Build 44

- Fixed problem of sporaticly not matching when LIMS interfaces use UD1 or UD2 for cross referencing. (4142)

Build 38

- Updated matching variable setup for LIMS to be more distinct.

Build 37

- Updated framework to set the WIMS TextValue field to the raw value (not changed to a numeric type) when importing, thus preserving the data entered. For instance, if the source data is 0.400 the last two zeros are not removed when it is inserted into the TextValue field.

Build 34

- Updated framework to handle time zone differences and how they affect direct and indirect interfaces. Note: LIMS do not have Indirect type interfaces, but are affected by the Common Framework changes.

Build 30

- Added ability for Hach WIMS LIMS interfaces to match variables to source data up to five fields (LIMS_LOC, LIMS_TEST, LIMS_UD1, LIMS_UD2, and LIMS_UD3). Number of fields depends on Hach WIMS LIMS interface specifications.

Build 28

- Changed Common Import to allow Custom Source routine to populate the Result Comment in Hach WIMS with notes or comments from the LIM lab source data.

Build 27

- Changed Common Import to call Custom Source routine to allow for custom code to execute procedures after all facilities are completed (item 3557)

Build 26

- Added to framework ability to configure LIMS Interface for a LIMS_LOC and several LIMS_TEST with LIMS_UD1 blank (3478)
- Corrected issue with Limit-To-List, when checked, so that if the text value is not in the list, the value is written to comments (3482)

Build 20

- Added internal structures needed to ignore case when evaluating the cross reference map from the source system to Hach WIMS (2990)
- Added internal structures needed to show results of "View Applied Connection String" from interface's Source Configuration form (2821)
- Text Parameter Variables with *Limit To List* are now properly written based on the current list configuration of each variable (2805)
- Hach WIMS Comment writer implemented (2983)
- Fixed a bug that caused interface import session to break when a result with an unexpected number of spaces was returned by the source system (3083)
- Fixed a bug that caused interfaces to write data according to MDL rules when if *Allow Symbol* was false (3086)
- Fixed a bug that caused overflow during reporting of statistics for import sessions that lasted less than 1 second (3024)

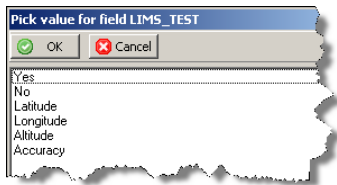
Build 7

- Initial Release to Public

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

5.1 Advanced variable configurations for interface Q14162 - Location Widget

In the Hach WIMS Client for the doForms interface cross reference, the second field can be any one of the following values



- ◆ **Yes** - Enable this variable to import from doForms
- ◆ **No** - Disable this variable from importing
- ◆ **Latitude** - First value in a doForms Location type widget, returns a numeric type value
- ◆ **Longitude** - Second value in a doForms Location type widget, returns a numeric type value
- ◆ **Altitude** - Third value in a doForms Location type widget, returns a numeric type value
- ◆ **Accuracy** - Fourth value in a doForms Location type widget, returns a numeric type value

The last four values apply only to the doForms Location widget. It allows you to split out the four components of Location into separate variables.

To import the entire value from Location into one variable - Select **Yes** for **Import Specification**, and make the variable **Type** a **Text Parameter** as shown here:

Edit/View Variables

Var # 9561

Name: Location - 8 Units: [dropdown]

Track every: Day Type: Text Parameter [Data Read-Only] [Definition Read-Only]

Options: User Defined MDL Rules List Additional Info Global Ids

Description Limits Optional Print Quality Control Equation **Interface**

☐ OFF ☒ Interface To: doForms [dropdown] Data Approval Level To Write With: FINAL APPROVAL

Help ☐ External Source: [dropdown]

Data Name: Loc_8

Import Specifications: Yes

SUPER (12/2/2014 9:09:51 AM) VARID : 1278

Given the following data in doForms on the left, the data in Hach WIMS will look like that on the right:

Loc_8 Latitude	Loc_8 Longitude	Loc_8 Altitude	Loc_8 Accuracy
132.54	-35.2	4500.0	-0.2

Hach WIMS : 9561 Location - 8 () - Most Recent 1000 values

Refresh (F5) Copy Results Print Results

Execution successful. Returned 1 rows. Took 0.016 s.

	AUDITUSER	AUDITTIMESTAMP	DATESTAMP	CURVALUE	TEXTVALUE	VARID
1	VIA_Q14162	12/3/2014 2:14:45 PM	12/3/2014	132.54 -35.2 4500.0 -0.2		1278

If I just want the Latitude for Loc_8, the variable in Hach WIMS might look something like this:

Edit/View Variables

First Prev Next Last New Del Find Ins Var# Copy Exit

Info Var # 9551

Name Location - Latitude Units

Track every Day Type Parameter Data Read-Only Definition Read-Only

Options User Defined MDL Rules List Additional Info Global Ids

Description Limits Optional Print Quality Control Equation Interface

OFF Interface To doForms Data Approval Level To Write With
Help External Source FINAL APPROVAL

Data Name Loc_8

Import Specifications Latitude

Now given the same data on the left, the value in this variable will be as shown on the right side:

Loc_8 Latitude	Loc_8 Longitude	Loc_8 Altitude	Loc_8 Accuracy
132.54	-35.2	4500.0	-0.2

Hach WIMS : 9551 Location - Latitude () - Most Recent 1000 values

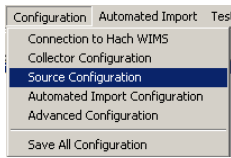
Refresh (F5) Copy Results Print Results

Execution successful. Returned 2 rows. Took 0.046 s.

	AUDITUSER	AUDITTIMESTAMP	DATESTAMP	CURVALUE	TEXTVALUE	VARID	STATUS
1	VIA_Q14162	12/3/2014 2:09:15 PM	12/3/2014	132.54	132.54	1272	0
2	VIA_Q14162	12/3/2014 2:09:15 PM	11/17/2014	132.54	132.54	1272	0

5.2 Configuration - Source Configuration Q14162

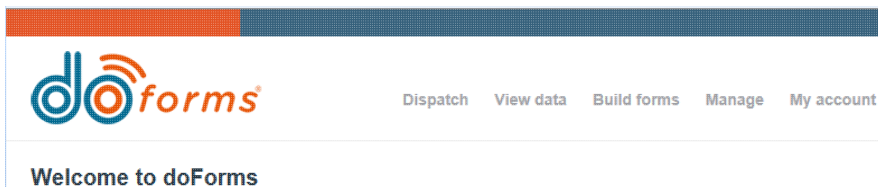
In order to configure source connection from the interface, click **Configuration>Source Configuration**.



The next screen will allow you to enter your doForms Account name and Password.

 A screenshot of a dialog box titled 'DoForms Sign In Credentials'. It has a toolbar at the top with 'Apply Settings', 'Save Settings', 'Help', and 'Close' buttons. The main area contains two text input fields: 'Account' with the value 'WIMS' and 'Password' with the value 'My Password'. Below these are two sections with radio buttons. The first section is 'Import Invalid Results as Hach WIMS Comments' with 'Enabled' selected. The second section is 'Ignore Case when matching between Source Identifiers and WIMS Variable Cross References' with 'Disabled' selected.

- **Account** - This is the Account name in the upper right hand corner, after logging in.

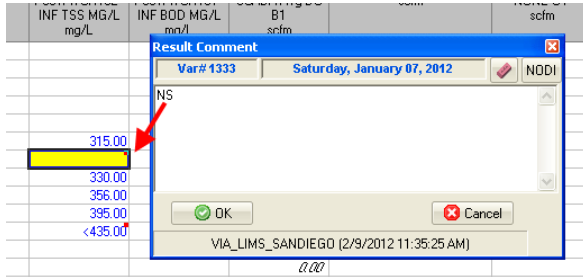


- **Password** - This is the form password entered when the form was added as a service in doForms. Note: If you are using more than one form, they **MUST** have the same password.

 A screenshot of a dialog box titled 'Add service'. It contains several fields: 'Status' with radio buttons for 'on' (selected) and 'off'; 'Project' with a dropdown menu showing 'Main Project'; 'Form name' with a dropdown menu showing 'my New doForm'; 'WS ID' with the value 'wims\$\$12092013165528\$\$D'; and 'Password' with the value 'abc123'. A red callout box with a pointer to the password field contains the text: 'This is the password to use when configuring the interfaces Source Configuration'. At the bottom are 'Add' and 'Cancel' buttons.

- **Import Invalid Results as Hach WIMS Result Comments** - When importing a result if the result is not a valid value for WIMS, import the result as a result comment. For example, the value entered in doForms is NS which is not a value that can be entered into WIMS (i.e. NS is not a WIMS symbol(See Section)). The NS is imported as a Result Comment and

the value in WIMS is left blank. NOTE: Will overwrite any existing result comment.



- **Ignore Case when matching between Source Identifiers and WIMS Variable Cross References** - enable this setting when you need to ignore case during matching of doForms Source records to WIMS variable cross reference fields. For example, if the doForms Data name is "Inf_PH", in WIMS variable setup in the Interface, Data name field you could enter "inf_ph", "INF_PH", or "Inf_PH" and they would all match (if enabled).

[Reference ID: 14168]

5.3 doForms Configuration

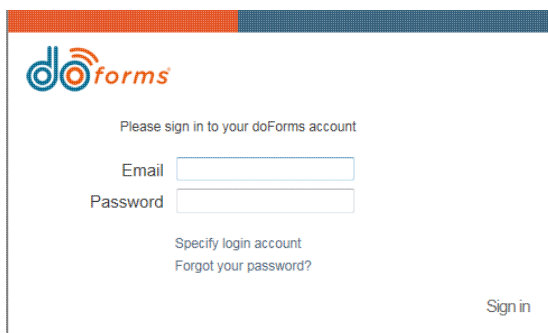
This article will step you through creating a doForm form that will enable data transfer from a mobile device to Hach WIMS.

Requirements for these steps:

1. doForms Professional account
2. Mobile device registered in doForms (alternately, you can enter data from the doForms website)
3. The Hach WIMS Direct Server-Side Interface to doForms Web Service installed and configured
4. Hach WIMS Client installed and configured

The following are basic steps to enable data transfer from doForms to Hach WIMS.

1. Log into doForms website (<http://www.mydoforms.com/login>) with email, and password to create a form:



2. Click **Build Forms** link at the top of the webpage.



Dispatch Web App Beta View Data **Build Forms** Manage

3. You will see a blank form with options (widgets) at the bottom, valid options for Hach WIMS are:

Add fields (Widgets) to enter data, the WIMS variable will cross reference to what is entered in the **Data Name** field on the right.

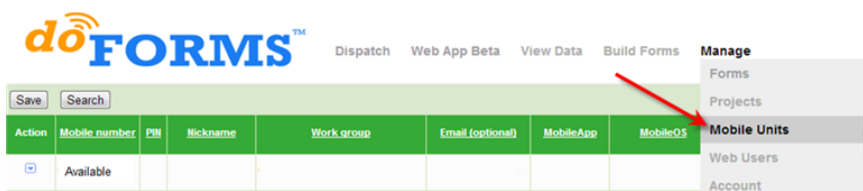
NOTE: THERE MUST BE ONE DATE:TIME FIELD ON EVERY FORM, AND IT MUST BE NAMED - "Date". Data will be imported into WIMS for this datetime. This field is required therefore it is strongly recommended that the Date field "Required in mobile app" be checked. A properly setup Date field:

- ◆ The interface only imports data from doForms question widget types of:
 - ◇ Text - If importing data do a variable that allows data qualifiers, the text widget should be used.
 - ◇ Numeric
 - ◇ Trends
 - ◇ Date:Time *
 - ◇ Choose One
 - ◇ Select Multiple *
 - ◇ Location **
 - ◇ Barcode
 - ◇ Counter
 - ◇ Calculation
 - ◇ Lookup *
 - ◇ Email *
 - ◇ Score
- * Can only be imported into WIMS Text Variables
- ** Location can be imported to a Text Variable or it's parts can be imported to Parameter Variables. See Importing data from a Location Widget(See Section 5.1) .

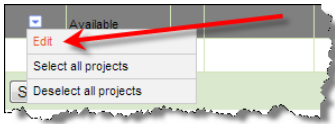
Note: Other widgets such as Grid, Page, Label, Sketch, NFC, etc... can be used on the form but data will not be imported from these Widgets.

Contact doForms tech support (<http://www.doforms.com/customer-support-center>) for assistance on designing and managing forms.

4. Once the form is complete, select **File** and click **Publish** under **Save Form As...** (once published, you cannot make changes but can create as a new form)
5. Setup your mobile devices that will be used to collect data. Select **Manage>Mobile Units**



6. Select Edit from the Action pulldown on one of the Available Rows.



7. Enter in the Account information and click Change.

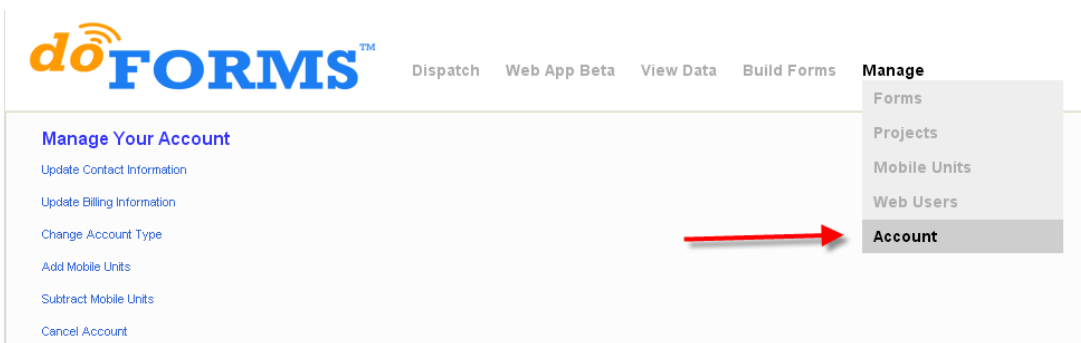
A screenshot of a form titled 'Change mobile number'. Below the title is the instruction 'Please enter new mobile number.' The form contains several input fields: 'Mobile Number' (5054537798), 'PIN' (4321), 'Nickname' (sdomer iPad), 'Notification Email' (sdomer@hach.com), and 'Work Group' (Operator). There is also a checkbox labeled 'send notification email to user' which is checked. At the bottom left, there are two buttons: 'Change' and 'Cancel'. A red arrow points to the 'Change' button.

8. Repeat steps 7 and 8 for each of the mobile devices that will use doForms. Note: doForms pricing is based on the number of devices on your account (see www.doForms.com/purchase for more information)

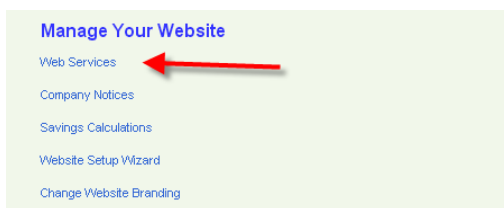
9. Install the doForms App on your mobile devices.

- For Android devices: Go to Market icon on your device, search for doForms and install the free app.
- For iOS devices: Go to App Store on your device, search for doForms, and install the free app.

10. Setup the doForms Web Services. This allows the WIMS Interface to read data from these forms. Select **Manage** and **Account** from the options at the top:



11. Under **Manage Your Website** select **Web Services** to enable your form



12. Select **Add Service** to add the form

Account > Manage Website > Web Services			
Action	Status	Project	Form Name
<input type="checkbox"/>	on	Main Project	Daily Rounds
<div>Add service</div>			lab2
<div>Delete service</div>			
<div>Turn off</div>			
<input type="checkbox"/>	on	Main Project	Operator Morning Rounds v4
<input type="checkbox"/>	on	OPSWWTUTOR	Operator Morning Rounds v4

13. Fill in the boxes to select your new form. NOTE: The password entered is the one used to configure the interface's Source Configuration(See Section 5.2) . **YOU MUST USE THE SAME PASSWORD FOR ALL YOUR FORMS** in order for the interface to retrieve data from the form.

Add service

Status

☒ on ☐ off

Project

Main Project

Form name

my New doForm

WS ID

wims\$\$12092013165528\$\$D

Password

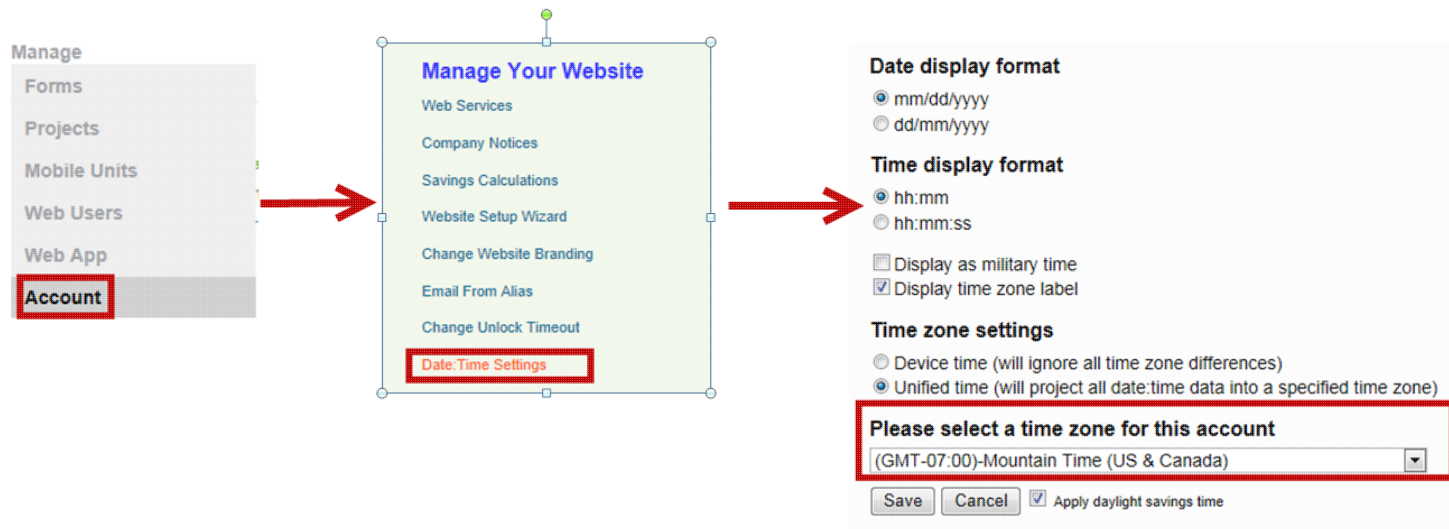
abc123

Add

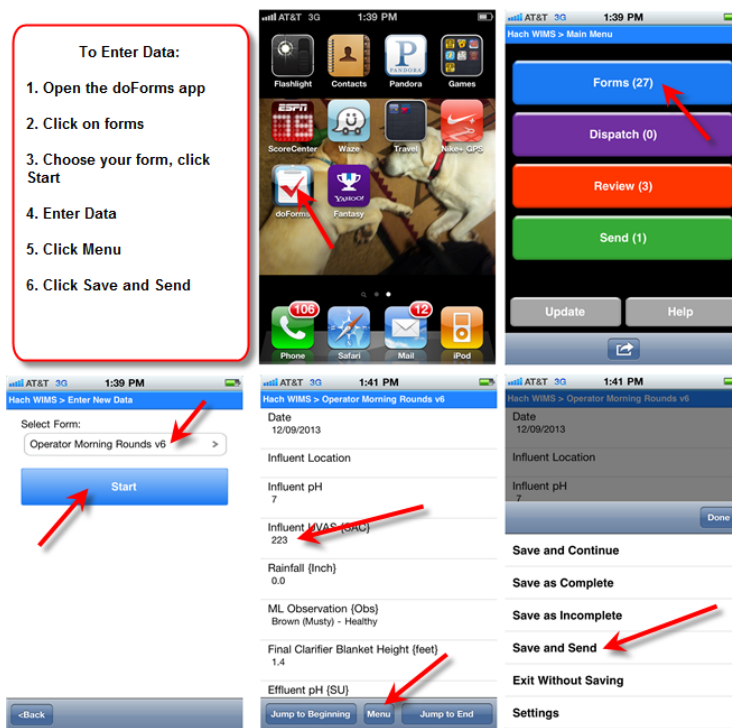
Cancel

This is the password to use when configuring the interfaces Source Configuration

14. Set your Time Zone. (NOTE: If you do not do this the DoForms Interface will not import data).



15. From your mobile device or the website, open doForms and enter data. iPhone steps:



15. Once data is Saved and Sent it will be available to be imported.

The basic steps to import data into Hach WIMS is:

1. Configure the Hach WIMS interface
 1. Connection to Hach WIMS
 2. Upload the definition file to HachWIMS (you will need to Configure Hach WIMS client after this step, and then return to next step)

3. Collector Configuration
4. Source Configuration(See Section 5.2)
5. Automated Import Configuration
2. Configure Hach WIMS client
 1. Setup the Server-Side Interface
 2. Configure a variable to receive data(See Section 5.8)

[Reference ID: 14169]

5.4 doForms Data Names

There are a few rules to follow for naming fields in doForms for this interface:

- Can be alpha-numeric and the under bar character (actually imposed by doForms)
- One field must be a date time field named 'Date'
- Cannot use the following names:
 - ◆ StatusCode
 - ◆ ErrorMessage

To get the **Data Name**:

1. Log onto your account at doForms website
2. Select **Build Forms**
3. Select **File** and **Open**
4. Open the form you wish to retrieve data from
5. The **Data Name** is just below the Caption

The default name is the caption with underbar characters ('_') instead of spaces. You can also change the name in the Data Name as shown above.

doFORMS™ Dispatch Web App Beta View Data Build Forms Manage

Operator Morning Rounds v7 Draft | File Options

Callouts:

- Date:** MUST have a date field with the **Data name** of 'Date'. This field will be the date and time used when uploading data to Hach WIMS client.
- Rainfall {Inch}:** Data Name is the cross reference to Hach WIMS.
- Effluent TSS {mg/L}:** Number type can be Integer or Decimal.

Form Fields:

- Date
- Rainfall {Inch} (Data Name: OPSWWTUTOR_901)
- Final Clarifier Blanket Height {feet} (Data Name: OPSWWTUTOR_1151)
- Effluent pH {SU} (Data Name: OPSWWTUTOR_4081)
- Effluent TSS {mg/L} (Data Name: Effluent_TSS)
- Effluent TSS mg/L (Data Name: Effluent_TSS)

Bottom Menu: Page, Label, Text, Numeric, Date:Time, Choose One, Select Multiple, Location, Sketch, Signature, Action, Image, Audio, Video, Barcode, NFC, Counter, Calculation, Lookup, Email, Approval, Score, Questionnaire, Table, Grid, Repeatable

- Numeric fields will match to Parameters in Hach WIMS
- Any widget type will match to a Text Parameter in Hach WIMS
- Currency and Calculation fields will match to Parameters in Hach WIMS
- Location with a cross reference to Latitude, Longitude, Altitude, or Accuracy will match to Parameters in Hach WIMS (see Advanced variable configurations for interface Q14162 - Location Widget(See Section 5.1))

NOTE: For Parameter variables in Hach WIMS, that allow symbols (MDL Rules such as '<2', 'ND', etc.) you **MUST** make the doForms field type Text. Also, invalid entries will import the value into the variable's Result Comment and no value will be recorded.

NOTE: For forms which contain detailed daily variables, you **must** configure the **Date** field so that it is set to Date\Time. If you don't, data will import for the previous date at a random time.

The screenshot displays the doForms web interface. At the top, there's a navigation bar with links: Dispatch, Web App Beta, View Data, Build Forms, and Manage. Below this, a header area shows 'Untitled Form Draft' and other options like File, Options, Resources, and Help. The main form area is titled 'untitled1' and contains a date and time field set to 'Mar 07 2014 03:52 PM'. A right sidebar provides configuration options for the 'Data name' field, including 'Read only', 'Required', 'Hide field in website', 'Hide field in mobile app', 'Auto-Stamp', and 'Military-time - Android ONLY' (checked). A 'Range' section is also visible with 'Enable' and 'Minimum/Maximum' fields.

[Reference ID: 14288]

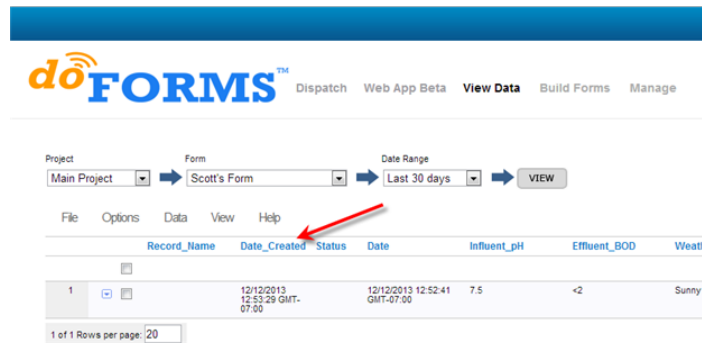
5.5 doForms Interface Tech Notes

Importing Data Minutely:

The interface pulls data based on the doForms Date_Created field. This is the time the form was saved **ON THE DEVICE**. If the interface is set to run minutely (see Automated Import Configuration(See Section 3.7)) data can be missed if the user Saves the Form and then at a later time Sends the data.

Example:

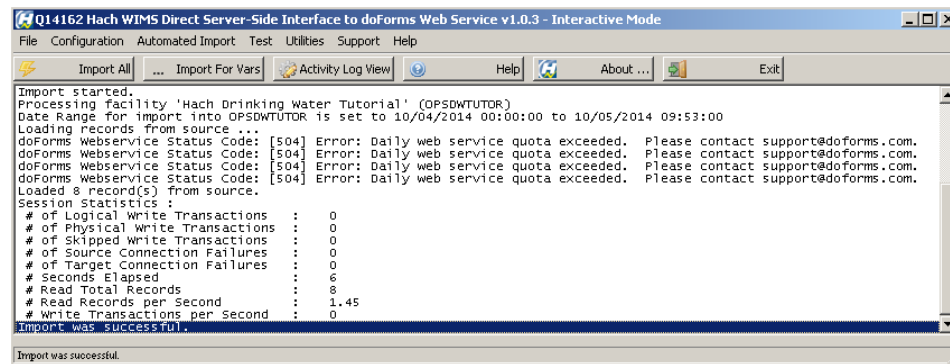
1. User enters data at 12:53:39 and saves the data (but does not send it). The interface runs at 12:54 and retrieves data since the last time it ran (12:53), since this data is not on the doForms server yet, the data is not imported.
2. User at 1:05, sends the form to the server. The Date_Created is set to 12:53:39. The interface runs at 1:06 and retrieves data since the last time it ran (1:05). The data is not imported because the Date_Created is less than 1:05.



You therefore MUST set the "Constant to Add to Start Date Each Time Import Runs" (see Automated Import Configuration(See Section 3.7) for how to set) to a negative number such as -120. This setting subtracts the number of minutes specified from the last time the interface is run and data is imported for that data range. So, at 1:06 the interface would run for 11:05 to 1:06 and the data would be imported.

Errors Returned from Hach's Web Service Library

Any error conditions from doForms Web Service should now propagate back to the interface as shown below:



Above we see a message from doForms:

Status code 504 - exceeded doForms daily quota limit. According to the doForms documentation: *"Limits on Data Record Reads: The limit is currently set to 50 times the number of mobile units in you account per day. So as an example, if you have 30 mobile units in your account, you can read 50X30=1500 records per day."* The limit is per form. A record is defined as all the data for a submitted form:

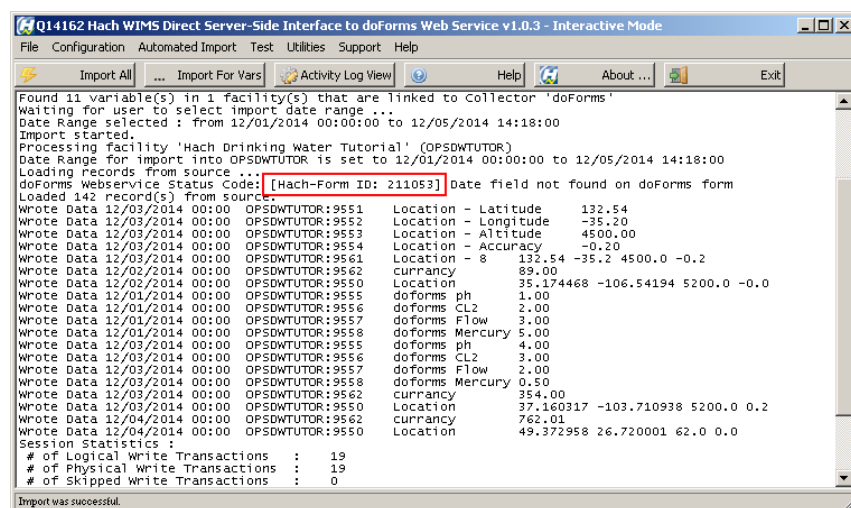
The screenshot shows the doFORMS web interface. At the top, there are navigation links: Dispatch, Web App, View Data, Build Forms, and Manage. Below these are filters for Project (Main Project), Form (Jim Operator Morning Rounds), and Date Range (Last 6 months). A 'VIEW' button is present. On the right, there are icons for Filter, PDF, Excel, Map, and Help, along with an 'Auto-refresh display' checkbox. The main area displays a table with columns: Record_Name, Date_Created, Status, Date, and several numerical columns. A red box highlights the first record in the table, with a callout pointing to it that says 'Box in red is one record.'

Record_Name	Date_Created	Status	Date	OPSWWTUTOR_22	OPSWWTUTOR_13	OPSWWTUTOR_901	OPSWWTUTOR_213	OPSWWTUTOR_301	OPSWWTUTOR_634	Form_Record
1	07/14/2014 02:46:33 PM GMT-07:00 DST	Gray - Insufficient Air	07/14/2014 02:45:55 PM GMT-07:00 DST	9.0	179.0	1.0	1.0	9.0	9.0	wims5506252014150
2	07/14/2014 02:14:40 PM GMT-07:00 DST	Brown (Musty) - Healthy		7.0	180.0	99.0	55.0	9.0		wims5506252014150

The daily limit resets at midnight Greenwich Mean Time (GMT/UTC). There are a couple options for customers having this problem:

1. Contact doForms support to increase their quota limit.
2. Increase the number of mobile devices.
3. Have multiple forms for the day (i.e., one form for midnight to 4 AM, one for 4 AM to 8 AM, etc.)

Any error conditions from Hach Web Service Library propagate back to the interface with the Status Code = 'Hach-Form ID' and the Form ID number, as shown below:



Above we see the Hach message Date field not found on doForms form or there was no value in the Date field. See doForms Viewer(See Section 5.6) for information on finding the Form name for a Form ID.

HINT: The doForms form must have a datetime field called **Date** and make this field 'Required in mobile app' so that it will always have a value.

Hach WIMS Web Service Tool

This tool allows you to view what is coming from the doForms Web Service

Date and Time	Field Name	Value
12/03/2014 15:06:16	Date	12/03/2014 15:07:22 GMT-07:00 DST
12/03/2014 15:06:16	Text_8	DateTimeTest8
12/03/2014 15:06:16	Numeric_8	123.0

See doForms Viewer(See Section 5.6) for more information.

[Reference ID: 14173]

5.6 doForms Viewer

5.6.1 WARNING: Using the Hach doForms Viewer will count against your daily quota for downloading data (see doForms Interface Tech Notes (See Section 5.5) for more information about doForms daily quota)

The Hach doForms Viewer is installed with this interface and can be found under the interface folder, under the folder 'DistFiles'. Run DoFormsWebServiceTool.exe. This is a basic troubleshooting tool to ensure connectivity to various customers doForm forms and data.

To pull data, the tool needs 4 things: starting date, ending date, the account name and the form password. Let's first define what these mean:

- Starting date is a date in the past that the tool will search for data based on the doForms Date_Created which is the date and time the record was uploaded to the website.
- Ending date is similar to starting date, except it is somewhere between the starting date and today.
- Account name is the name you enter when logging into doForms

- Form password is the password used for a series of forms, you can have 1 to many forms using the same password

Account > Manage Website > Web Services					
Action	Status	Project	Form Name	URL	
	on	Main Project	Daily Rounds	http://www.mydoforms.com/webservice/dataservice?url=wims\$\$02082013152316 \$\$Published\$\$07082013163031&pwd=WIMS-DO	wims\$\$ \$\$Publis
	on	Main Project	lab2	http://www.mydoforms.com/webservice/dataservice?url=wims\$\$08192013215234 \$\$Published\$\$08192013155422&pwd=lab2-DF	wims\$\$ \$\$Publis
	on	Main Project	Operator Morning Rounds v4	http://www.mydoforms.com/webservice/dataservice?url=wims\$\$08212013184339 \$\$Published\$\$10212013123239&pwd=doforms35	wims\$\$ \$\$Publis
	on	OPSWWTUTOR	Operator Morning Rounds v4	http://www.mydoforms.com/webservice/dataservice?url=wims\$\$08212013184339 \$\$Published\$\$10212013140010&pwd=doforms35	wims\$\$ \$\$Publis
	on	Main Project	HachDevTestv2	http://www.mydoforms.com/webservice/dataservice?url=wims\$\$12042013192330 \$\$Published\$\$12092013092032&pwd=doforms35	wims\$\$ \$\$Publis
	on	Main Project	ES Entry Form	http://www.mydoforms.com/webservice/dataservice?url=wims\$\$12092013232545 \$\$Published\$\$12092013162935&pwd=doforms35	wims\$\$ \$\$Publis
	on	Main Project	Minimal	http://www.mydoforms.com/webservice/dataservice?url=wims\$\$10222013143244 \$\$Published\$\$12092013162744&pwd=doforms35	wims\$\$ \$\$Publis
	on	Main Project	DateTimeTest	http://www.mydoforms.com/webservice/dataservice?url=wims\$\$12092013192909 \$\$Published\$\$12092013122931&pwd=doforms35	wims\$\$ \$\$Publis
	on	Main Project	my New doForm	http://www.mydoforms.com/webservice/dataservice?url=wims\$\$12092013165528 \$\$Published\$\$12092013102643&pwd=doforms35	wims\$\$ \$\$Publis
	on	Main Project	DateTimeTestv2	http://www.mydoforms.com/webservice/dataservice?url=wims\$\$12092013203519 \$\$Published\$\$12092013133540&pwd=doforms35	wims\$\$ \$\$Publis
	on	Main Project	Test Route (FSSD)2	http://www.mydoforms.com/webservice/dataservice?url=wims\$\$06112014200101 \$\$Published\$\$06112014130338&pwd=doforms35	wims\$\$ \$\$Publis

These are the
Form Passwords

Run the program, enter values in the fields, and click Retrieve Data to get data and the display will look something like this:

doForms Web Service Tool
http://www.opssys.com/InstantKB/article.aspx?id=14243

Start Date: 12/02/2014 12:00:00 AM
End Date: 12/04/2014 12:00:00 AM

Account: WIMS
Password: XXXXXXXXXX

Retrieve Data
Save

First Next Previous

Gathering raw data from Website...
Raw data gathered from the website. Formatting data...

12/03/2014 15:54:12	start	12/03/2014 15:53:56 GMT-07:00 DST
12/03/2014 15:54:12	end	12/03/2014 16:01:48 GMT-07:00 DST
12/03/2014 15:54:12	today	12/03/2014

Form ID: 215314

Date and Time	Field Name	Value
12/03/2014 15:54:12	Date	12/03/2014 15:54:12 GMT-07:00 DST
12/03/2014 15:54:12	Decimal_Numeric	54.25
12/03/2014 15:54:12	Integer_Numeric	6947
12/03/2014 15:54:12	Currency	\$354.0
12/03/2014 15:54:12	Text	one or two
12/03/2014 15:54:12	Counter	6
12/03/2014 15:54:12	Calculation	7,001.25
12/03/2014 15:54:12	Choose_One	1
12/03/2014 15:54:12	Select_Multiple	Sunny Cloudy Cold Rain
12/03/2014 15:54:12	Label	Label
12/03/2014 15:54:12	Location	37.160317 -103.710938 5200.0 0.2
12/03/2014 15:54:12		Unknown Type = PICTURE
12/03/2014 15:54:12		Unknown Type = PICTURE
12/03/2014 15:54:12		Unknown Type = PICTURE
12/03/2014 15:54:12	Barcode	07811801
12/03/2014 15:54:12		Unknown Type = NFC
12/03/2014 15:54:12	Lookup	8/19/2013 Mon 7.3
12/03/2014 15:54:12	Email	lpoyner@hach.com\$\$Hello World! Bye Bye
12/03/2014 15:54:12	Score	1
12/03/2014 15:54:12	repeat_count	1
12/03/2014 15:54:12	Basin_Foam	Yes
12/03/2014 15:54:12	repeat_count	1
12/03/2014 15:54:12	Some_More_Text	grid1
12/03/2014 15:54:12	What_Score_possible	2
12/03/2014 15:54:12	What_Score_score	1
12/03/2014 15:54:12	What_Score_percent	50.00%
12/03/2014 15:54:12	Total_possible	2
12/03/2014 15:54:12	Total_score	1
12/03/2014 15:54:12	Total_percent	50.00%
12/03/2014 15:54:12	edit_datestring	12/03/2014 16:07:53 GMT-07:00 DST

Notice that each form will have a section break (see red boxes above) followed by all the data between the entered date range.

Also notice that the start and end date ranges shown above examine the **Date_Created** column shown in the figure below. The **Date and Time** column in the figure above are from the **Date** user created field on your form:

Project: Main Project Form: SustainmentTestForm_v3 Date Range: Last 7 days VIEW

File Options Data View

	Record_Name	Date_Created	Status	Date	Decimal_Numeric	Integer_Numeric	Currency	Text	Counter	Calculation	Cho
1		12/04/2014 10:38:12 AM GMT-07:00 DST		12/04/2014 10:34:49 AM GMT-07:00 DST	789.123	549	762.01	Paid in full	3	1,338.123	False
2		12/03/2014 04:01:48 PM GMT-07:00 DST		12/03/2014 03:54:12 PM GMT-07:00 DST	54.25	6947	354.0	one or two	6	7,001.25	True

2 of 2 Rows per page: 20

This is the 'end' date:time

This is the date:time Hach WIMS will use

The **Form ID** is associated with the form name, however, the doForms web service does not make these easily accessible, so you will have to look up the name. Not a daunting task! While logged onto the customers doForms webpage, go to **Manage > Account**, and click on **Web Services**.

doFORMS™ Dispatch Web App View Data Build Forms **Manage**

Manage Your Account

- Update Contact Information
- Update Billing Information
- Change Account Type
- Add Mobile Units
- Subtract Mobile Units
- Web App Credits
- Cancel Account

Manage Your Website

- Web Services**
- Company Notices
- Savings Calculations
- Website Setup Wizard
- Change Website Branding
- Email From Alias
- Change Unlock Timeout
- Date/Time Settings

Manage

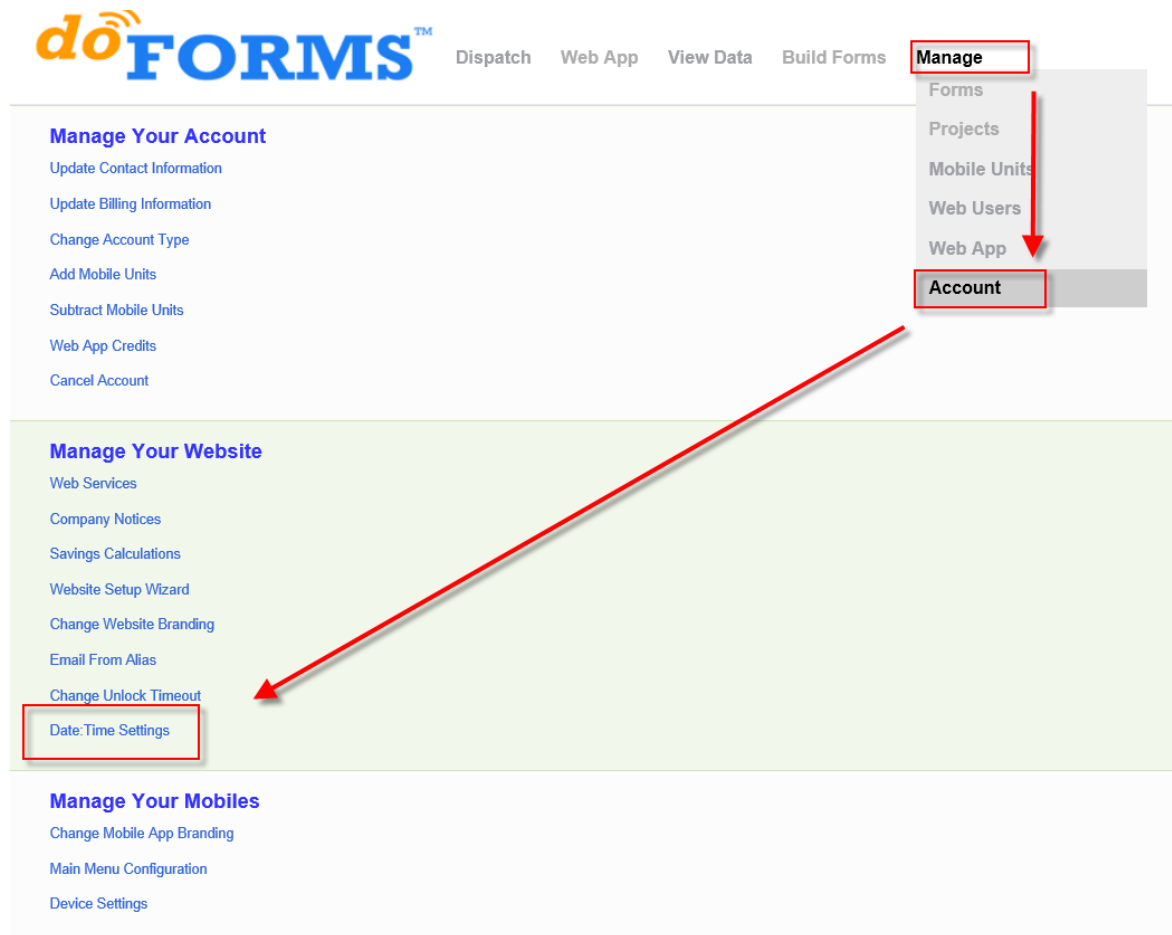
- Forms
- Projects
- Mobile Units
- Web Users
- Web App
- Account**

1. From the doForms Viewer, highlight the Form ID number.
2. On the web browser use Find (usually CTRL-F but also can select File > Find on this page)
3. Paste the number in the Find text box to find the form name - notice below our form belongs to two projects, but it is still one form.

The screenshot shows the doForms web interface. At the top, a search bar contains the text '184339'. A blue callout box with the text 'Paste number here CTRL-V' points to the search bar. Below the search bar, a table lists various web services. The table has columns for Action, Status, Project, Form Name, URL, and WS_ID. The 'Form ID' '184339' is highlighted in a red box. A blue callout box with the text 'CTRL-C' points to the 'Form ID' field. A modal window titled 'doForms Web Service Tool' is open, showing the 'Form ID' field with '184339' and a 'Retrieve Data' button.

Action	Status	Project	Form Name	URL	WS_ID
on	on	Main Project	Daily Rounds	http://www.mydoforms.com/web/service/dataservice?url=wims\$502082013152316	wims\$502082013152316
on	on	Main Project	lab2	http://www.mydoforms.com/web/service/dataservice?url=wims\$508192013215234	wims\$508192013215234
on	on	Main Project	Operator Morning Rounds v4	http://www.mydoforms.com/web/service/dataservice?url=wims\$508212013155422&pwd=lab2-DF	wims\$508212013155422
on	on	OPSWWTUTOR	Operator Morning Rounds v4	http://www.mydoforms.com/web/service/dataservice?url=wims\$508212013155422&pwd=doforms35	wims\$508212013155422
on	on	Main Project	HachDayText2	http://www.mydoforms.com/web/service/dataservice?url=wims\$508212013155422&pwd=doforms35	wims\$508212013155422
on	on	Main Project	ES Entr	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330
on	on	Main Project	Minimal	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330
on	on	Main Project	DateTim	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330
on	on	Main Project	my New	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330
on	on	Main Project	DateTim	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330
on	on	Main Project	Test Ro	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330
on	on	Main Project	Water P	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330
on	on	Main Project	SJRA T	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330
on	on	Main Project	A-B Aer	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330
on	on	Main Project	Training	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330
on	on	Main Project	Alum - F	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330
on	on	Main Project	Blower	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330
on	on	Main Project	A2	http://www.mydoforms.com/web/service/dataservice?url=wims\$512042013192330	wims\$512042013192330

The **Date and Time** is from the 'Date' field we require users to add to their forms. If this is significantly off, check the customers settings. Have them log onto doForms and go to **Manage > Account**, and click on **Date/Time Settings**.



The following are acceptable settings. Note that the Time Zone must be set correctly, and whether they are using daylight savings time.

Date display format

☒ mm/dd/yyyy
☐ dd/mm/yyyy

Time display format

☐ hh:mm
☒ hh:mm:ss

☐ Display as military time
☒ Display time zone label

Time zone settings

☐ Device time (will ignore all time zone differences)
☒ Unified time (will project all date:time data into a specified time zone)

Please select a time zone for this account

(GMT-07:00)-Mountain Time (US & Canada) ▼

☒ Apply daylight savings time

The **Field Name** is what ever the user named the field up to 70 characters.

The **Value** field is the returned value and is either numeric or text.

Save button will save account name and password.

[Reference ID: 14243]

5.7 Release notes for interface Q14162

Version 1.0.5 (Released Jan 4th, 2018)

- Update for Common Framework changes (license issues)
- Removed Hexagora Controls

Version 1.0.4 (Released on 11/4/2015)

- Upgraded interface to Common Framework (See Section 4.1) Build 149

Version 1.0.3 (Build 128, Released on 12/6/2014)

- Added capability to import all or parts of a doForms Location widget (4513)
- Released Version 1.0.1.0 of DoFormsWebServiceInterface.dll (aka - Hach Web Service Library)
 - ◆ Fixed importing data with unknown widget types on a doForms form (4513)
 - ◆ Added error message propagation from Hach Web Server Library (DLL) to Interface (4513)

Version 1.0.2 (Build 102, Released on 9/26/2014)

- Fixed problem with date and time offset (4513)

Version 1.0.1 (Build 99, Released on 9/23/2014)

- Added logging and improved data viewer (4513)

Version 1.0.0 (Released on 12/10/2013)

- Initial release

[Reference ID: 14165]

5.8 Supported variable configurations for interface Q14162

Supported variable configurations for **Hach WIMS Direct Server-Side Interface to doForms Web Service**.

This section explains how to set up a variable in Hach WIMS Client to receive data from doForms Web Service. A definition file will need to be upload from the interface, and a new instance of the interface will need to be added to the Server-Side Interface Setup (See Section) in Hach WIMS Client.

1. From the Hach WIMS Client select the **System Setup** menu option and click on **Edit/View Variables**.
2. Navigate to (or create) the variable you want to change.
3. Click on the **Interface** tab.
4. Select the **Interface To** radio button
5. Click the drop down box just to the right and select the doForms interface.
6. Enter the doForms **Data Name** in the **Data Name** box in Hach WIMS Client (To find the **Data Name** in doForms see doForms Data Names(See Section 5.4)).

7. Enter One of the following in the **Import Specifications** (you can select from ellipse button to far right of the box).

- ◆ **Yes** - Enable this variable to import from doForms
- ◆ **No** - Disable this variable from importing

The following only apply to the doForms **Location** widget:

- ◆ **Latitude** - First value in a doForms Location type widget, returns a numeric type value
- ◆ **Longitude** - Second value in a doForms Location type widget, returns a numeric type value

- ◆ **Altitude** - Third value in a doForms Location type widget, returns a numeric type value
- ◆ **Accuracy** - Fourth value in a doForms Location type widget, returns a numeric type value

For more information on Location widget configuration see Advanced variable configurations for interface Q14162 - Location Widget(See Section 5.1)

[Reference ID: 14167]

5.9 Using Interface Browser

Not available for this interface.

[Reference ID: 14166]