

**ReadMe IoT Client V2.8 SP1****Build Nr. of IoT Client: 2.8.4.276****Table of Contents**

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## 1. Introduction

The IoT Client is a software package that collects and sends relevant data from the instrument PC to the cloud. It works together with different cloud applications such as Introspect.

This document describes the main functionality of the **IoT-Client 2.8 SP1**.

For more information on Introspect, please find the documentation on the Knowledge-Portal: <https://www.tecan.com/knowledge-portal/digital-solutions>

## 2. Compatibility

- ✓ Freedom EVOware 2.8 SP3 and higher
- ✓ FluentControl 2.4 and higher
  - a. SparkControl 3.1 SP1 (only live data)
- ✓ D300eControl 3.4.1
- ✓ Introspect (this version is only compatible for the Next-Gen Introspect, the classic Introspect 2.6 and the Tecan Connect App will no longer be supported)

**Note:** The IoT Client 2.8 will replace the IoT Client 2.7 to ensure the continuous connection to Next-Gen Introspect which will be the version which replaces the classic Introspect 2.6 and the Tecan Connect App.

**Note:** Log files generated using prior versions of FluentControl and EVOware are also supported. Nonetheless consider reading the restrictions described in Chapter 3.4.

The IoT Client V2.8 was tested and is supporting Windows 10 LTSC 2019 (64 Bit) and Windows 10 LTSC 2021 (64 Bit).

## 3. IoT Client

### 3.1. Supported features

#### 3.1.1. Parsing of EVOware, FluentControl and D300e log files

The following fields are extracted from the log files:

- b. Runtime, Start and End of Run, Non Value Added runtime
- c. Disposable Tips Count
- d. Error Count
- e. Labware Count
- f. Method/Script Name
- g. User Name
- h. Serial Number
- i. Control Application Name and Version
- j. Instrument configuration (Fluent only)
- k. Variables:

- Integer variables with a name starting with the prefix: "INTROSPECT\_" will be parsed.
- The variable "INTROSPECT\_SampleCount" will be parsed as sample count variable

l. Number of moves of the main modules (FCA, RGA, MCA, LiHa, RoMa)

m. FRIDA measurement counts

n. Environmental Data

**Note** for D300e only following data will be parsed: run name, start and end of run, run state, Application software version, number of dispense heads used.

### 3.1.2. Sending live data events of EVOware, FluentControl and SparkControl

The following live events will be sent:



- Instrument state
- Name of current run
- Expected end time of run
- Messages
- Logged in user

### 3.1.3. Obfuscation of data such as:

- User Name
- Method Name
- Run Name

**Important!** Obfuscation is disabled by default after installation.

### 3.1.4. Tray Icon Context Menu

- The Tray Icon Context Menu of the IoT Client can be found in the Windows tray bar (next to the current time in the task bar). It indicates the IoT Client's status with a green icon if it is running without errors () or a red icon if the IoT Client is not running or is in an error state (

### 3.1.5. IoT Client Configuration Tool

Note: Editing the settings requires local Windows Administrator rights.

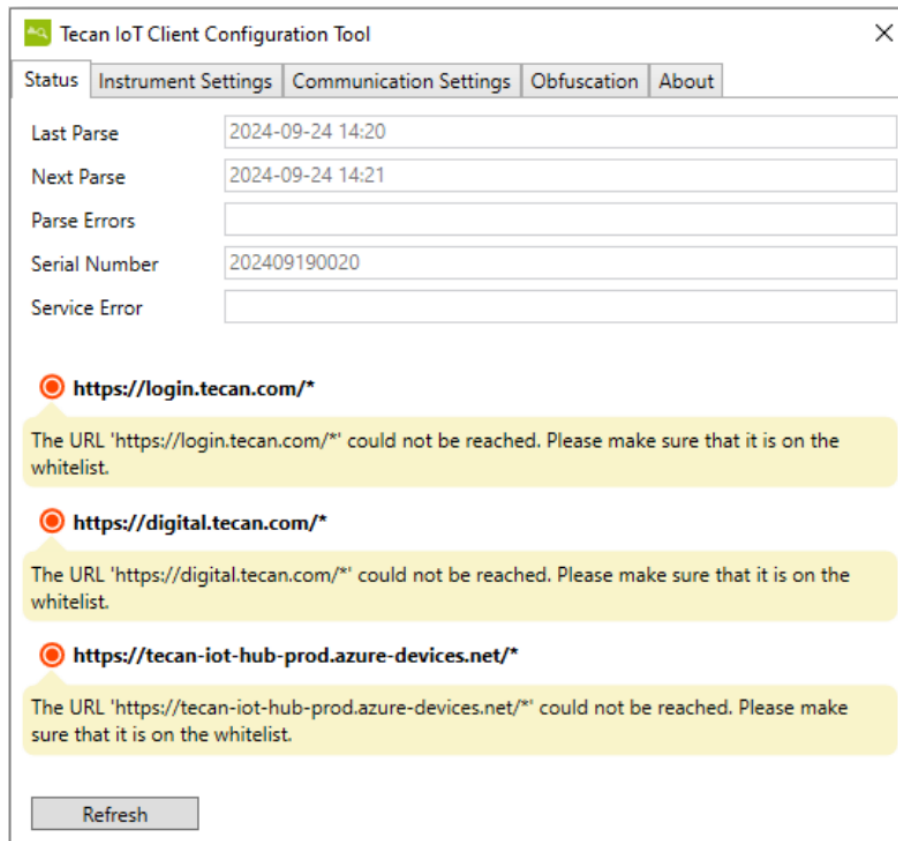
- The user can edit the following instrument settings configured during installation:
  - Setup path of the log files
  - Instrument size
  - Alias
- Reset parsing gives the user the ability to restart parsing from the oldest log file in the setup path folder (see chapter 3.4.4).

**Note:** Reset Parsing may lead to double data entries of logfiles, if the same logfiles are parsed twice.

- b. The user can edit the following communication settings configured during installation:
  - Parse interval
  - Usage of proxy server incl. Proxy Address and Port
  - Usage of proxy authentication incl. Username and Password
  - Select a custom certificate
- c. The user can visualize the System Status with the following information:
  - Last Parse
  - Next Parse
  - Parsing Errors
  - Serial number
  - Service Error
  - Connection status
- d. About box displays the currently installed software versions.

### 3.2. Changes

- Removed connection to “classic” Introspect server (Introspect 2.6)
- Removed remote update, pairing and webcam URL setting in IoT Client
- Cloud registration over “Organization Management”
- Added the Connection status information, to provide more detailed information on end points that could not be reached.



The screenshot shows the 'Tecan IoT Client Configuration Tool' window with the 'Status' tab selected. The window displays the following information:

- Last Parse:** 2024-09-24 14:20
- Next Parse:** 2024-09-24 14:21
- Parse Errors:** (Empty field)
- Serial Number:** 202409190020
- Service Error:** (Empty field)

Below the status fields, there are three connection status entries, each with a red circle icon and a yellow error message:

- https://login.tecan.com/\***  
The URL 'https://login.tecan.com/\*' could not be reached. Please make sure that it is on the whitelist.
- https://digital.tecan.com/\***  
The URL 'https://digital.tecan.com/\*' could not be reached. Please make sure that it is on the whitelist.
- https://tecan-iot-hub-prod.azure-devices.net/\***  
The URL 'https://tecan-iot-hub-prod.azure-devices.net/\*' could not be reached. Please make sure that it is on the whitelist.

A 'Refresh' button is located at the bottom of the window.

### 3.3. Restrictions

#### 3.3.1. General

This software version shall only be used together with Freedom EVOware, FluentControl, SparkControl or D300e Control Application. SparkControl only supports sending live data, D300e Control supports only parsing of usage data.

- It is not possible to scan a serial number from log files that have the “read-only” flag set. The registration will skip a log file that has a read-only flag and continue with the next one. Parsing data will skip log files that:
  - Cannot be accessed
  - Are corrupted
- The IoT Client cannot run on the Windows BUILT-IN Administrator account if UAC (User Account Control) is enabled in Windows. (**Note:** Built-in admin account is deactivated by default since Windows Vista and is different from normal User admin accounts.)

#### 3.3.2. EVOware

- Using versions prior to EVOware version 2.8 results in logging (and counting) of full MCA tip boxes, when partial tip pickup is used.  
Example: for each MCA96 partial tip pickup of 8 tips per column, the full box count of 96 is logged, and therefore counted as 96 by the Introspect parser.
- The EVOware logging behavior was enhanced in V2.8 and higher, resulting in the correct partial tip count.

#### 3.3.3. FluentControl

- When using simulated Fluent instruments, the Scan button for Serial Number will return values depending on the simulated source configuration.

The simulated serial number can be altered by changing the simulation configuration files, found in C:\Program Data\Tecan\VisionX\InstrumentConfigurations.

Example: the simulated serial number is found in xxx.config file  
<ConfigurationDictionary IdPrefix="USB:TECAN,MYRIUS,1310005667">

- Using versions prior to FluentControl Application 2.2.9.46892 will lead to multiple counts of liquid level detection errors.  
If an automatic LLD Error Handling is configured in the script, the error message “not enough liquid” is logged in addition to the regular message “no liquid”. Therefore, an additional error will be counted for each failed try.
- Using versions prior to Fluent Control Application 2.5 and “Import Variable” command, doesn't log the new value of the variable.  
Workaround: In the Fluent script add a “Set Variable” command directly after the “Import Variable” command and set the imported variables to themselves again to have a log entry.
- Fluent “Query at Startup” does not log the new value of the variable.

Workaround: In the Fluent script add a “Set Variable” command at the beginning of the script and set variable to itself again to have a log entry.

- When upgrading FluentControl in some scenarios, there might be shown an error that the “WCF server” cannot be started and live data connection will not be established. This can be seen for example in scenarios when upgrading from FluentControl 2.5 to 2.8 and 2.2 to 2.5, when this was done after the installation of the IoT Client.  
If this happens, please contact our helpdesk or Expertline, they can provide assistance in fixing it.

#### 3.3.4. SparkControl

- The IoT Client is only capable of sending live data. Parsing of historical log file data is not supported yet.

#### 3.3.5. D300e Control

- The IoT Client is only capable of sending usage data to Introspect. Sending live data is not supported yet.
- XML Protocols must be enabled in D300eControl and need to be saved under a local directory.

### 3.4. Installation

The installation instructions described below are valid for IoT Client V2.8.

#### Important!

- For installation of the IoT Client, a local Windows administrator must log on during installation.
- Former versions of the IoT Client's predecessor “Introspect Client” (version 1.0 to 1.2) need to be uninstalled before new installation of the IoT Client is started. IoT Client installations (version 2.7) can be upgraded and don't need to be uninstalled first (see chapter 3.4.4).
- As the data of the previous installation is kept, the IoT Client will not start parsing again from the oldest log file automatically. If you want to re-parse all log files with the latest client version, you'll need to reset the parsing (see chapter 3.4.4).

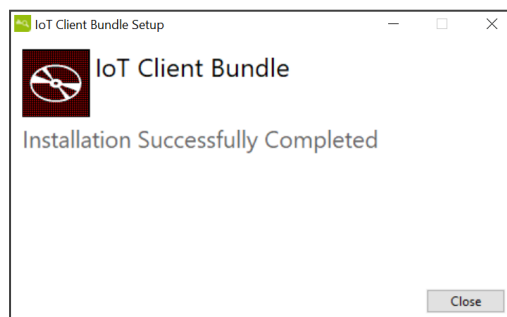
### 3.4.1. Installation instruction

The installation process consists of the following steps:

- IoT Client installation
- Instrument registration

### 3.4.2. Installation

1. Run the installation file "IoTClientSetup.exe" as a local Windows administrator.
2. Agree to the license terms and click Install.
3. Wait for the installation to finish.
4. Click Close to finish the installation process.



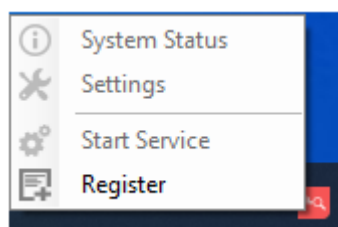
### 3.4.3. Instrument Registration

**Note:** When registering an instrument, use the "SCAN" button to automatically detect the serial number of the connected instrument. Make sure that log files corresponding to an instrument within your organization are available.

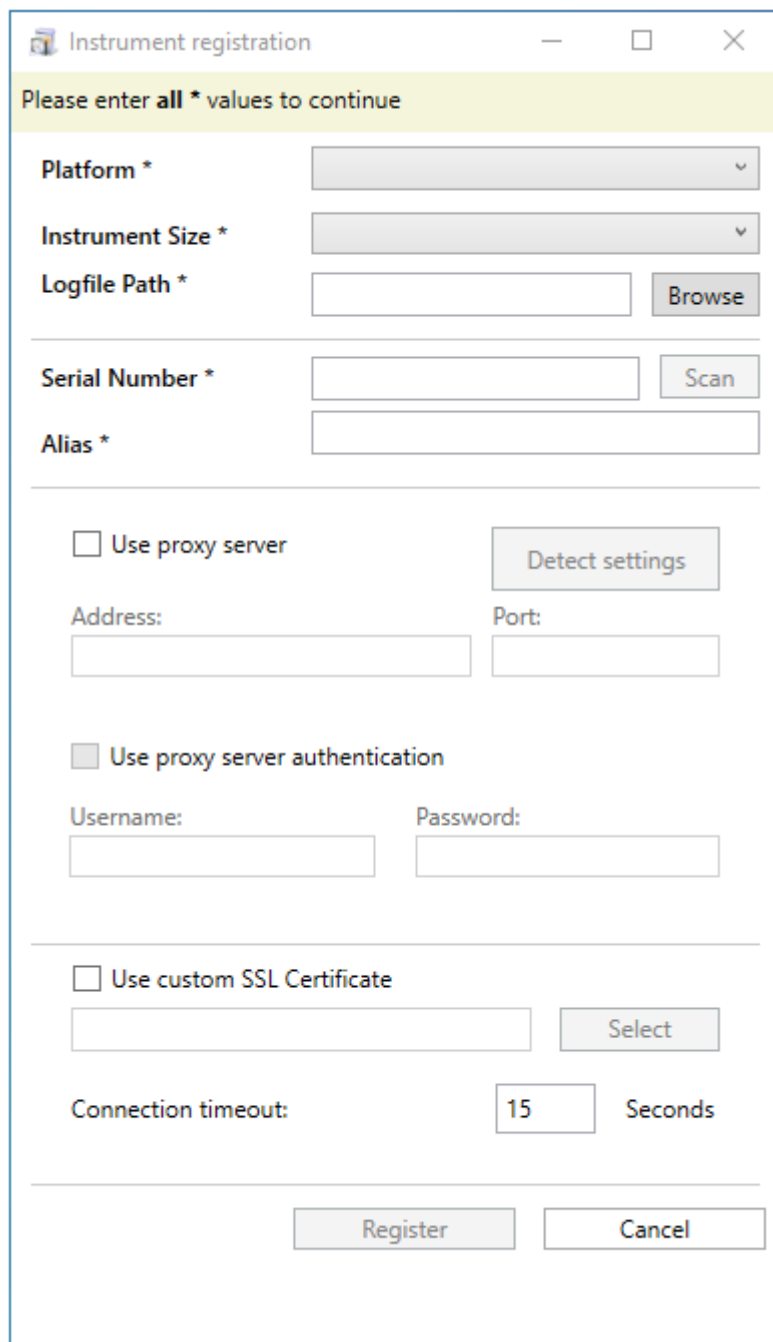
**Note:** Network drives are not supported.

**Note:** The IoT Client supports connections to the internet via proxy server. Ask your system administrator to assist you with the proxy set-up and authentication.

1. To start the registration right click the red IoT Client icon in the taskbar.
2. Chose "Register".



3. Enter the registration information in the following form:



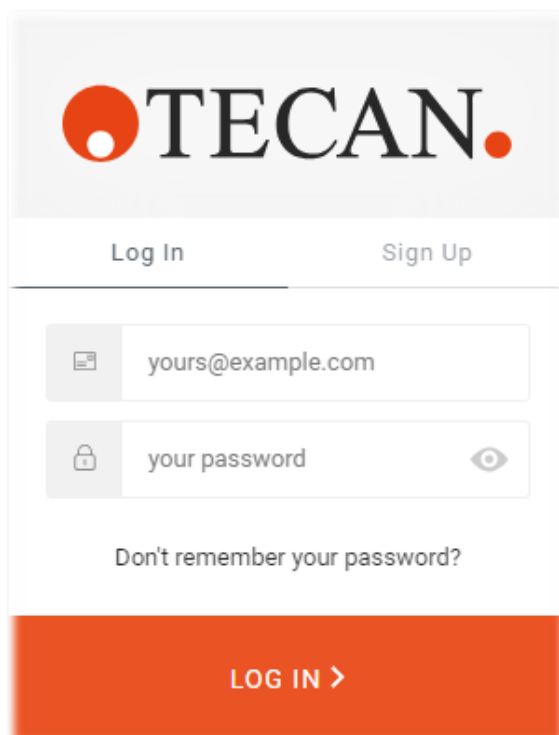
The image shows a Windows-style dialog box titled "Instrument registration". It has a yellow header bar with the text "Please enter all \* values to continue". The dialog contains several input fields and buttons:

- Platform \***: A dropdown menu.
- Instrument Size \***: A dropdown menu.
- Logfile Path \***: A text input field with a "Browse" button to its right.
- Serial Number \***: A text input field with a "Scan" button to its right.
- Alias \***: A text input field.
- Use proxy server**: A checkbox. To its right is a "Detect settings" button.
- Address:** A text input field.
- Port:** A text input field.
- Use proxy server authentication**: A checkbox.
- Username:** A text input field.
- Password:** A text input field.
- Use custom SSL Certificate**: A checkbox.
- A text input field for the custom SSL certificate, with a "Select" button to its right.
- Connection timeout:** A text input field containing the value "15", followed by the word "Seconds".
- Register** and **Cancel** buttons at the bottom.

- a. Enter the Platform type.
  - b. Enter the Instrument Size.
  - c. If required, change the path to the log files, that shall be parsed.
  - d. Scan the unique instrument serial number.
  - e. Enter the instrument alias name.
  - f. If required, change the Connection timeout value.
4. If the instrument PC connects to the internet via proxy server, select **Use proxy server** and click **Detect settings**.  
The IoT Client detects the proxy settings automatically and connects to the internet.



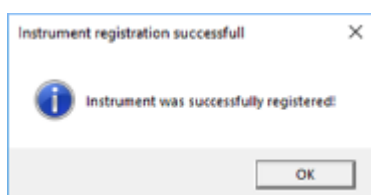
5. Click **Register** to continue with the registration process.
6. You will be asked to login with your Tecan Account credentials (email-address and password).



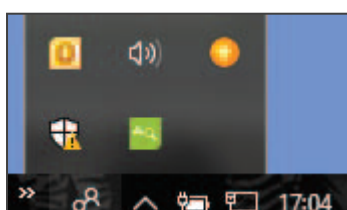
The screenshot shows the Tecan login interface. At the top is the Tecan logo. Below it are two tabs: 'Log In' (selected) and 'Sign Up'. The 'Log In' form contains an email input field with the placeholder 'yours@example.com', a password input field with the placeholder 'your password' and an eye icon for toggling visibility, and a checkbox labeled 'Don't remember your password?'. At the bottom is a large orange button labeled 'LOG IN >'.

If you don't have a Tecan Account, click **SIGN UP** and fill out the sign-up form. You will get an email to activate your account and after the activation was successful your account is ready for the registration.

7. When the registration has finished successfully, the following window is displayed:



8. Click **OK** to finish the instrument registration process.  
*The IoT Client icon in the system tray changes its color to green, once it's successfully started and connected.*



**Note:** The processing of the log files will start after a waiting period of approximately 3 minutes and can take several hours depending on the amount of data found in the log file path.

- Before working with the Introspect cloud platform, make sure a waiting period of at least 10 minutes has passed.
- For an immediate start of the parsing after initial installation, there is an option to change settings in following file.

Change the field `InitialParseDelay` in the parser settings in the datastore (C:\ProgramData\Tecan\Datastore\IoT-

Client\IoT.Client.Parser.Contracts\IParserSettings).

This defaults to 3 minutes. If you set it to 0 and restart the IoT Client parsing will start immediately.

#### 3.4.4. Upgrade Installation

Upgrading the IoT Client is done by running the installation of the newest version of the IoT Client. From that time on all data will be uploaded using the upgraded parsers.

In some scenarios it might be useful to re-parse the historical data, which will be possible if you still have the historical application logfiles of that instrument available.

Following steps are required:

- a. Stop Service (in the IoT Client Configuration tool)
- b. Start Service (in the IoT Client Configuration tool)
- c. Parsing will start again, if not click reset parsing

If the instrument was deleted in Introspect and needs to be registered again, the IoT Client Registration dialog needs to be started manually. Start the Setup.exe in that directory:

C:\Program Files (x86)\TECAN\IoT Client\Setup\Tecan.IoT.Client.Setup.exe

### 3.5. Troubleshooting

#### 3.5.1. IoT Client Log Files

Log files useful for troubleshooting IoT Client issues can be found at:

C:\ProgramData\Tecan\DataStore\IoT-Client\MAP.Services.Logging.Service\LogFile  
(for IoT Client versions 2.6 and greater) or

C:\ProgramData\Tecan\IoT Client\Logging (for IoT Client versions below 2.6).

#### 3.5.2. Microsoft Edge WebView2 Not Installed

IoT Client V2.8 SP1 requires WebView2 to be installed on the system. To ensure successful installation of IoT Client V2.8 SP1, you shall need Microsoft WebView2 pre-installed on your system. Here's a step-by-step guide:

- Visit the official Microsoft Edge WebView2 runtime download page <https://developer.microsoft.com/en-us/microsoft-edge/webview2>.
- We recommend downloading **Evergreen Bootstrapper** installer package.
- Make sure you have an internet access before running the installer.
- To start the installation, right-click the downloaded installer and choose '**Run as administrator**'.
- Follow the on-screen instructions to complete the installation.
- Restart your system once the installation is finished.
- With WebView2 installed, you are now ready to install IoT Client 2.8 SP1.

### 3.6. Known issues: IoT Client

ID	Title	Severity
18564	[Anomaly] Configuration Tool - Next parse date is not correct after parsing reset	4 - Low
19465	[Anomaly] Setup - Application log path is not set after trying to register an instrument of another organization	4 - Low
19913	[Anomaly] Setup - Max Length Limit Of Alias And Location Is Not Applied	4 - Low
19936	[Anomaly] Parsing Logs With Missing Run Ends Passes Run Fragments Into The Future	4 - Low
20066	[Anomaly] Instrument Registration - Serial Number Of Simulated Fluent Not Shown As Simulated	4 - Low
20575	[Anomaly] Obfuscation - Obfuscation Rules Stack For User if Fluent Is not Restarted	4 - Low
21556	[Anomaly] Configuration Can Be Changed By Non-Admin Via Datastore	4 - Low
21747	[Anomaly] Parser - Same Labware Counted Multiple Times If Used In Same Method By Different Scripts (Fluent)	4 - Low
22263	[Anomaly] - Fragments Remain After Uninstallation If Configuration Tool Was Still Open After Parsing	4 - Low
22418	Evoware Plus runs are not captured by IoT Client	4 - Low
22747	IoT Client is not reconnecting automatically after setting up correct Proxy Settings	4 - Low
23049	Windows Built-in Administrator cannot start IoT Client if UAC is enabled	4 - Low
25045	[Anomaly] Robustness - Reconnecting IoT Client Parses Introspect-Key-Value Pairs Incorrectly	4 - Low
25300	[Anomaly] Parser - DiTis With Numeric Naming Not Parsed	4 - Low
27342	[Anomaly] Robustness - IoT Client Does Not Reconnect If Introspect Connection Lost Between Parse Intervals	4 - Low
27410	IParserSettings file contains only null's	4 - Low
31569	[Anomaly] Parsing is not reset after new instrument registration using Configuration Tool	4 - Low
32721	Environmental data missing in Introspect	4 - Low
33242	Sporadic entries for environmental data visible, even if no entries are available in log file	4 - Low

34116	[Anomaly] IoT Client Registration form crashes during serial number scan	4 - Low
35024	EntryPoint.exe Crashes at startup	4 - Low
36103	NVA value not showing for EVOware	4 - Low
37025	Cytomat2 data not parsed completely in introspect	4 - Low
37165	IoT Client to accept and parse 0 Introspect key values	4 - Low
37194	Universal platform - Config file not uploaded by IoT Client to IoT hub	4 - Low

## 4 Revision History

Version	Description	Date
1.0	Initial version	2024-12-03