## ReadMe FluentControl 3.6

### Introduction

This document contains important information about FluentControl 3.6. Please read it carefully before installing or upgrading the software. Our <u>Knowledge Portal</u> has additional information on FluentControl and other Fluent related topics.

- 1. Installation and Upgrades
- 2. Changes in FluentControl 3.6
- 3. Additional Information
- 4. Compliance Features
- 5. Known issues in FluentControl 3.6
- 6. FluentSetup 3.6

## Important info for systems upgrading from a previous FluentControl version to FluentControl 3.6

#### 1. Install latest Touch Screen driver

FluentControl 3.6 requires the latest Touch Screen Driver DisplayLink USB Graphics Software for Windows. Please upgrade it according to the upgrade procedure described in this ReadMe.

#### 2. Device placements stored on instrument

Different to previous FluentControl versions, FluentControl 3.6 stores the placement (teaching) of nongrid-based devices (i.e., Readers, Washers, Centrifuges, ...) and carrier site adjustments on the instrument instead of the database on the PC hard drive.

After an upgrade, when the instrument is first connected to the FluentControl 3.6 PC, the software automatically uploads existing teaching values from the database onto the Fluent. Please check if the device placements on your worktable(s) are correct. In rare instances, re-teaching is necessary.

# Important info for systems with RGA upgrading from FluentControl 2.8 or older to FluentControl 3.6

After upgrading from FluentControl 2.8 or older to FluentControl 3.6, the Gripper Alignment QC Setup Action needs to be re-executed in FluentSetup. A Tecan Field Service Engineer must be on site to perform this test. When upgrading from FluentControl 3.0 or higher to FluentControl 3.6, execution of the Gripper Alignment QC Setup Action is not required.

## CONNECT SINTROSPECT

### Important info for Connect & Introspect users upgrading from FluentControl 2.6

If the IoT Client was used to send live status updates to the Tecan Connect app or to send meta-data to Introspect, special steps are necessary before the installation of FluentControl 3.6 to ensure that data is still sent from the Fluent PC. Please follow the step-by-step instructions on page 5.

## 1. Installation and Upgrades

### Considerations before installation or upgrade

#### **Operating system**

FluentControl 3.6 is compatible with Windows 10 Enterprise LTSC 2019 (1809) and Windows 10 Enterprise LTSC 2021. The IOT versions of these LTSC releases can also be used. Tecan cannot support issues arising from running FluentControl on an incompatible operating system.

FluentControl uses Windows components, especially the .NET library. Please install the current .NET security and quality updates to prevent a negative impact on FluentControl.

#### **Computer requirements**

The minimum requirements to run FluentControl can be found in Chapter 4.1 Computer Requirements of the FluentControl 3.6 Manual. To guarantee a good performance, Tecan recommends using an Intel processor (CPU) of the 10<sup>th</sup> generation or higher. Using a CPU of a lower generation is also possible, but performance should be verified. Scheduler applications require more computing power, and it is recommended to use an Intel i9 of the 10<sup>th</sup> generation of higher.

#### <u>DeckCheck</u>

Since early 2022, all new Fluent instruments have DeckCheck camera(s) integrated in the chassis. DeckCheck commands may be integrated in methods to check prior to a run that the worktable has been set up correctly. DeckCheck can be disabled Configure System. DeckCheck does not work when using a separate graphics card, a graphics chip integrated into the processor must be used instead. The speed of the DeckCheck command execution depends on the PC hardware configuration.

#### Anti-virus software and FluentControl

Tecan recommends refraining from actively scanning hard drives or memory while a run is in progress in FluentControl. If a virus scan must be executed during a run, exclude (whitelist) the following directories and their subdirectories from the scan:

```
C:\Program Files (x86)\Tecan
C:\Program Files (x86)\Common Files\Tecan
C:\Program Files\Tecan
C:\ProgramData\Tecan
```

#### **User Administration Settings**

In rare cases, the Login Settings and Password Settings in Settings > User Administration (Lock Time, Minimum password length, etc.) are reset to defaults during the upgrade. If the User Administration is used and settings have been customized, please note down or take a screenshot of those settings before upgrading.

#### DriverFramework & 3<sup>rd</sup> party drivers

The current version of the DriverFramework only allows the use of drivers for which a license has been purchased. For questions about DriverFramework driver licenses, please contact your local helpdesk.

FluentControl 3.6 is only compatible with DriverFramework 3.1.12 or higher. If DriverFramework 3.1.11 or lower is used, the License Manager will not find a valid license and FluentControl and its sub-drivers are only available in simulation mode (see DriverManager, show hidden drivers).

For certain 3<sup>rd</sup> party device models or firmware, a newer version of the DriverFramework may be needed. For SiLA2 drivers, and any other questions about drivers in FluentControl, please contact your local Tecan helpdesk.

Upgrade the DriverFramework before upgrading FluentControl. Upgrade the DriverFramework as follows:

- 1. Upgrade within the same DriverFramework series (e.g., 3.1.2 to 3.1.12): run the latest DriverFramework installer
- 2. Upgrade between series (e.g., 2.4 to 3.1.12):
  - a. Do not run the installer
  - b. Backup the file "C:\ProgramData\Tecan\DriverFramework\SystemConfig.ini" which contains all driver settings of the current installation
  - c. Un-Install the previous DriverFramework and remove the above file from the folder (keep your backup)
  - d. Install the new DriverFramework
  - e. Add each driver with the same name as before the upgrade
  - f. Consult the backup SystemConfig.ini for names and parameters
- 3. DriverFramework 3.1.12 or higher no longer allow the use of the dot (.) character in the driver module name. If drivers with such naming are present, uninstall the driver from FluentControl before upgrading. After upgrading, add the driver back without the dot (.) in the name and update any scripts accordingly.

FluentControl must always be started before launching the DriverFramework, otherwise the driver license check will fail.

Before upgrading FluentControl, make sure that the latest versions of any 3<sup>rd</sup> party device drivers are installed.

#### **Restore Points**

Reverting to a restore point is not possible, if the restore point was created before an upgrade to FC 3.6.

#### Upgrading procedure

When upgrading from FluentControl 2.2 or lower, uninstall FluentControl and run the FluentControl 3.6 installer. When upgrading from FluentControl 2.3 or higher, please upgrade as described below. It is not necessary to uninstall and reinstall FluentControl.

For an upgrade from FluentControl 2.6 with Introspect and / or the Tecan Connect app, consult the instructions below.

Logfiles of the upgrade process may be created by running the autorun.exe through MSIEXEC from the command line:

msiexec /i "D:\FluentControlMasterCD\AutoPlay\Install\Tecan
FluentControl.msi" /L\*VX "C:\Fluent install.log"

Change the paths in italics as needed.

To upgrade FluentControl, follow these steps and reboot the computer whenever prompted to do so:

- a) Close FluentControl
- b) Execute the autorun.exe
- c) Execute installation steps in the following order:

Step 1: Pre-Installation Step 2: Install FluentControl

*FluentControl 3.6 executes a database cleanup step as part of the upgrade process, which may take some time.* 

Step 3: Post-Installation

(optional) Step 4: Install Sample Tracking

d) Install the DisplayLink driver for the touch monitor from the 'Touch Screen Driver' folder. Please consult the ReadMe for the DisplayLink driver first.

#### Upgrade from FluentControl 2.6 with Introspect

Does not apply to upgrades from FluentControl 2.6 not using Introspect or the Tecan Connect app.

## CONNECT INTROSPECT

## Important info for Connect & Introspect users upgrading from FluentControl 2.6

If the IoT Client was used to send live status to the Tecan Connect app or to send meta-data to Introspect, special steps are necessary before installation of FluentControl 3.6 to ensure that data is still sent from the Fluent PC.

If the IoT client was not registered (red icon <sup>143</sup>), please follow the instructions in the section 'Regular Upgrades' on the previous page

The information described here only applies for upgrades from FluentControl 2.6 and only when the IoT Client was registered (green icon <sup>1</sup>C) 'Tecan IoT client' in the Windows control bar).

- 1. Run FluentControl 3.6 autorun.exe
- 2. Select Step 1: Pre-Installation
- 3. Reboot the computer
- 4. Open 'Add or remove programs' from Windows Settings
- 5. Uninstall the IoT Client Bundle and Tecan FluentControl Preinstaller
- 6. Run FluentControl 3.6 autorun.exe
- 7. Select Step 1: Pre-Installation
- 8. Continue with regular FluentControl upgrade as described in this ReadMe and make sure to reregister the IoT client again after upgrading.

Note:

After registering the instrument, the IoT Client parses all existing log files (again). To avoid the risk of duplicate data and to benefit from the latest parsers it is recommended to delete the data of the instrument in the Introspect Cloud Platform for the time span covering the available log files.

## After the Upgrade

A Tecan Field Service Engineer must open FluentSetup to perform any necessary firmware updates and service actions.

Open FluentControl and accept importing the updated labware definitions. This process may take some time to complete.

If activated, open User Administration and verify that the login and password settings are correct. If necessary, revert to the previous custom values.

Please check any scripts, processes and methods for validity and execute test runs.

#### **3D Simulator instrument configuration**

It is strongly recommended after installing FluentControl that the instrument's configuration is selected in *Settings > Configure System > Instrument configuration*. The instrument's configuration name is based on the serial number of the connected instrument:

A Notes	ument configuration
Configuration	1080_FCA_MCA_RGA 🔹
	1080 FCA MCA RGA
	480_FCA_RGA 720_FCA_MCA_RGA 780_FCA

If working with the 3D Simulator to develop methods for a specific instrument that is not connected to that PC, the instrument's configuration can be used. Copy the .config file

*C*:\*ProgramData*\*Tecan*\*VisionX*\*InstrumentConfigurations* from the Fluent PC to the same folder on the PC not connected to the Fluent. Launch FluentControl and select the configuration in *Settings* > *Configure System* > *Instrument configuration*.

#### **Registering the IoT client**

Information on how to register the IoT Client can be found in the Application Software Manual Introspect, which can be found on the <u>Introspect webpage</u> after log in.

The Tecan Connect app can be downloaded from the App Store and Google Play Store for Apple and Android devices respectively.

#### After upgrade from FluentControl 2.5 or lower, Tecan Connect commands are not available

The Common Notification Service (CNS) was replaced by Tecan Connect in FluentControl 2.6. When upgrading from FluentControl 2.5 or lower to FluentControl 2.6 or higher, the CNS command remain available in the Controlbar and the Tecan Connect commands are not present. To resolve this issue, contact the local helpdesk.

## 2. Changes in FluentControl 3.6

#### The following changes have been made in FluentControl 3.6

- New Transfer Phase command for the Phase Separator
- New integrated driver for the Brooks PreciseFlex 400 robotic arm
- New pooling feature in the Sample Transfer smart command
- New FluentAPI support for DeckCheck
- New Email notifications feature
- New Capture Worktable command for DeckCheck
- New Script for Loading Guide feature
- New Device placements and carrier site adjustments are stored on the instrument
- System liquid can now be dispensed via Worklists (Liquid FCA only)
- Te-Chrom smart command supports gradient collection workflow
- Scheduler support of 0 Process iterations
- Software support for 2 RGA on one Fluent (dual RGA)
- Enhanced software support for Resolvex i300
- New Optimized Log Extractor G (OLEG) log file viewer tool
- Bug fixes and improvements

See Revision History FluentControl 3.6 for a complete list of bug fixes and changes. See FluentControl Manual for more information on software functions.

#### Transfer Phase command for the Phase Separator

The new Transfer Phase command simplifies programming a Phase Separator workflow. The minimum and / or desired replicate volume and number of replicates that should be pipetted from the upper phase can be defined. The liquid is transferred into the destination labware according to the settings in the command and the liquid class, such that the liquid-liquid separation layer remains undisturbed. Automated error handling is supported and can be configured in the liquid class.

Title Upper phase extraction			
	Source	Destination	Liquid Class
Replicate Volume [µI]			Water Free Multi For Transfer phase
200			Number of Replicates
Minimun Replicate Volume [µl]	0 0 5 0		3
			Replicates Direction
			Advanced
	0		EmptyTipContent Liquid Class
			Empty Tip v
	: *0		Wash Station Waste_1
▲ Advanced	Source	Destination	
Safety distance to separation layer [mm]	S_Labware	T_Labware	
	Advanced	Advanced	
Ends when separation layer detected	0 1	0 1	
Tip Selection	X-Offset Y-Offset	X-Offset Y-Offset	
Optional	0 0	0 0	
	Expected Constration Lawer Panes [9/1		

#### Pooling feature in Sample Transfer command

The Sample Transfer smart command has been enhanced with a pooling feature. The number of Samples per Pool may be defined, and these are then pipetted into a single target well or tube.

Liquid Class		
Water Free Multi		~
Number of Samples		Samples per Pool
8	Pooling	
Sample Direction		
Number of Replicates	5	
12		
<b>Replicates Direction</b>		

#### **Email notifications**

The new Email notifications feature can be configured to send an email when an error is raised by FluentControl and an error dialog is shown to the user. An email is sent regardless of whether the error is automatically handled by the software and whether the error prompt is shown to the user or not (e.g., via On Error Goto command, Liquid Class settings, when using the API and hiding the FluentControl GUI, automatic retry of DiTi pick up, ...).

		DeckCheck							
		Log level							
	4	Email notifications							
		Notify on Error	$\checkmark$						
		Mail to:	y @tecan.com @tecan.onmicrosoft.com						
		Mail server:	tecan-com.mail.protection.outlook.com						
		Port:	25						
		Sender:	Error Notifications <no-reply@tecan.com></no-reply@tecan.com>						
		Enable SSL							
		Authentication							
		Username:	@tecan.com						
		Password:	••••••						
		Test Mail							
		Te-Ch	rom						
-	Sch	eduler							

The email contains the instrument name, time, error ID and error description. The script name is included in a separate row in the table in the email body, except for errors triggering a run to abort. In that case, the script name is in the Description row.

080_liqFCA_N	ICA_RGA] FCA_MCCMD_008_001: There was an error during liquid level detection of arm F –					
🗊 Delete	$\begin{tabular}{c c c c c c c c c c c c c c c c c c c $					
1080_liqFCA_	MCA_RGA] FCA_MCCMD_008_001: There was an error during liquid level detection of arm FCA 1					
EN Error M To: (	Notifications <no-reply@tecan.com> ② ← ← → … Fri 4/5/2024 15:35</no-reply@tecan.com>					
Name	Value					
Instrument	1080_liqFCA_MCA_RGA					
Time	24-04-05 15:35:50					
ErrorId	FCA_MCCMD_008_001					
Script Name	Smart Subroutine 2024-04-05 15-35-42 #1					
Description	There was an error during liquid level detection of arm FCA 1       Channel Result     Available volume     Needed volume     Detected volume       Tip 7     Not Enough Liquid     79.20     100.00     80.00					
Seply Seply all						
080_liqFCA_N	ICA_RGA] RGA1_TransferLabware: Labware 'FCA_ 50ul S8S[001]' is not allowed on location ' – 🛛					
🗊 Delete	$\begin{tabular}{cccccccccccccccccccccccccccccccccccc$					
1080_liqFCA Please edit la Cooled_Nest. EN Error I To: (	_MCA_RGA] RGA1_TransferLabware: Labware 'FCA_ 50ul SBS[001]' is not allowed on location 'NestCooled_Pos'. .bware or carrier to allow labware 'FCA, 50ul SBS' on location 'NestCooled_Pos' of carrier '4 Landscape Nests  Notifications <no-reply@tecan.com> Fri 4/5/2024 15:40</no-reply@tecan.com>					
Name	Value					
Instrument	1080_liqFCA_MCA_RGA					
Time	24-04-05 15:40:52					
ErrorId	RGA1_TransferLabware					
ErrorId	RGA1_TransferLabware Labware 'FCA_ 50ul SBS[001]' is not allowed on location 'NestCooled_Pos'. Please edit labware or carrier to allow labware 'FCA, 50ul SBS' on location 'NestCooled_Pos' of carrier '4 Landscape Nests Cooled_NestCooled_Pos'. Script Name: SampleScript					

#### **Capture Worktable command**

The new Capture Worktable command takes a picture of the worktable using the DeckCheck cameras. Each camera takes one picture, and these are saved on the local hard drive.



#### **Script for Loading Guidance**

The new Script for Loading Guidance feature allows the user to define a script which is executed before the method is run. This script shall be programmed to guide the operator through the necessary preparation steps before the method can be started. The instrument does not have to be initialized to

execute the Loading Guidance script and the doors can remain open. Any commands which do not move the arms can be added to the Loading Guidance script, including DeckCheck commands. A context check error is shown if a script is incompatible with the method.

The Loading Guide feature is currently not described in the FluentControl Software Manual.

Method properties Name NewMethod-1						
Script for Loading Guidance "Loading Guidance"		Browse				
Worktable handling with each run:	Maintenance met	hod				
$\bigcirc$ Reset all labware positions on Worktable	Scheduled	Enforce Execution				
<ul> <li>Preserve Disposable Tips Information from last run</li> <li>Preserve all labware positions from last run</li> </ul>	Start:	08:00 ~				
✓ Show Disposable Tips Information	Recurrence Pattern					

#### Te-Chrom command gradient collection workflow

The smart command now supports gradient collection for the Discard Fraction and Collect Batch workflows. The software automatically loops over the columns in the Source labware and, for the Collect Batch workflow, the shuttle moves the Collection plate below the RoboColumns accordingly. In the Number of Samples field, the total number of samples to be processed is defined. All Source plate samples are applied to the same column of RoboColumns. After execution of the command, the Collection plate mirrors the Source plate.

Dispense synchronized at Start v Resin Volume [µl] 200 Wait time [min] 0	Dispense synchronized at Start ~ Resin Volume [µ] 200 Wait time [min] 0 Number of Samples	Standard PohoColumn	U	
Dispense synchronized at Start ~ Resin Volume [µl] 200 Wait time [min] 0	Dispense synchronized at Start ~ Resin Volume [µ] 200 Wait time [min] 0 Number of Samples	Standard RoboColumn		
Start v Resin Volume [µl] 200 Wait time [min]	Start Resin Volume [µ] 200 Wait time [min] 0 Number of Samples	Dispense synchronized a	t	
Resin Volume [µl] 200 Wait time [min] 0	Resin Volume [µl] 200 Wait time [min] 0 Number of Samples	Start ~		
200 Wait time [min]	200 Wait time [min] 0 Number of Samples	Resin Volume [µl]		
Wait time [min]	Wait time [min] 0 Number of Samples	200		
0	0 Number of Samples	Wait time [min]		
	Number of Samples	0		
Number of Samples	runnber of builtpres	Number of Samples		

Example 1 for Collect Batch Gradient Workflow

If Number of Samples = 50 and the following wells are selected in the source labware, the pipetting is executed as follows:



#### Example 2 for Collect Batch Gradient Workflow

If Number of Samples = 6 and the following wells are selected in the source labware, the pipetting is executed as follows:



#### OLEG log viewer tool

FluentControl 3.6 installs the OLEG log viewer tool as well as the Log Viewer tool installed by previous versions of FluentControl. These tools are designed to analyze instrument log files for troubleshooting purposes. The OLEG log viewer has a built-in Help function, through which its software manual can be accessed.

#### Device placements and carrier site adjustments are stored on the instrument

FluentControl 3.6 stores the placement (teaching) values of non-grid-based devices, such as a centrifuge or a HydroFlex washer, on the instrument's Te-Control board in the LocationCorrection.config file. Adjustments to carrier sites are stored on the instrument as well. When a computer running FluentControl is connected to an instrument, these values are automatically downloaded from the instrument and used in the worktables in FluentControl.

When using FluentControl 3.6 or FluentSetup 3.6 (whichever is launched first) with an instrument for the first time, the values are migrated from the local database onto the instrument and the .config file is created.

What happens when I upgrade from a previous FluentControl version to FluentControl 3.6? After the upgrade, the device placement and carrier site adjustment values from the FluentControl database are uploaded to the instrument. This happens when FluentControl or FluentSetup, whichever is used first, are connected to an instrument which has no values stored on it. Before the upload, a restore point is created.

## What happens when I connect a computer running FluentControl 3.6 to an instrument that already has device placement and carrier site adjustment values stored?

The values from the instrument will be downloaded to the computer and updated in the FluentControl database.

What happens when I import a .ZEIA file into FluentControl 3.6 and I am connected / then connect to an instrument that already has device placement and carrier site adjustment values stored? The values from the instrument will be downloaded to the computer and updated in the FluentControl database.

At which point during teaching are teaching values uploaded to the instrument?

1. When adding a device to the worktable and saving the Adjustment values in the Placement tab of the carrier definition. See also Fig. 1. Below.

2. When adjusting a carrier site on a worktable, either via the carrier definition or the labware definition editors. See also Fig. 2 and Fig. 3 below.



*Fig. 1. Non-grid-based devices are taught using the Placement section of the device carrier definition. These values are stored on the instrument.* 

Robot Vectors								
Carrier currently RGA 1 is current	y selected f tly selected	for teaching: 9 Ne I in the Move Tool	st Hotel[001]					
L	Location H	otelMP_Pos	<ul> <li>Position Sit</li> </ul>	e1 ~				
	Robot R	GA 1	<ul> <li>Vector Na</li> </ul>	rrow	×			
Adju	ustment	X Y 0	Z 0 [mm] Show	delta Save C	) Site definition in carrie ) Individual position of	er template location in this wor	kspace	
	Th	e adjustment only	affects the site curren	tly selected for	teaching.			
	Sit	e adjustments in th	ne carrier template wi	I only be effecti	ve in this workspace af	ter saving.		
Define Coordinates	5							
:	X [mm]	Abs	Y [mm]	Abs	Z [mm]	Abs	Rotation Z [°]	Abs
	872.0		492.9		249.5		90.0	
	872.0		670.5		249.5		90.0	
	872.0		670.5		244.5		90.0	

*Fig. 2. Site-specific adjustments to carriers are stored on the instrument when the radio button 'Individual position of location in this workspace' is chosen.* 



*Fig. 3. Site-specific adjustments to carriers can also be made via the labware editor. These values are stored on the instrument.* 

## 3. Additional Information

#### Deprecated commands removed

In FluentControl 3.6, the deprecated commands Dilution, Normalization, Store Standard Curve and Load Standard Curve have been removed. The (In Situ) Normalization Calculation and Transfer Individual Volumes commands must be used instead.

When scripts using the deprecated commands are imported, they are replaced with placeholder commands and an error prompt is shown. Such scripts can be opened and edited.

#### Disposable Tip labware definitions in the Controlbar

Since the introduction of the MCA96 arm, some DiTi labware definitions have moved to different subsections of the Labware menu in the Controlbar. The *MCA96 DiTi* section contains tip definitions for the MCA96 arm. The *MCA96 Adapter DiTi* section contains tip definitions for the MCA384 with an 96 tip adapter mounted.



#### FCA and MCA96 use the same disposable tips

The MCA96 and the FCA use identical disposable tips. However, for correct tip pickup, the arms require unique settings in the tip labware definitions. In FluentControl, distinct disposable tip labware must be placed on the virtual worktable for each of the arm types. It is therefore not possible for both arms to use the same tip box. The MCA96 disposable tip labware can be found in the *Labware > MCA96 DiTi* section of the Controlbar, and the FCA disposable tip labware can be found in the *Labware > FCA DiTi section*.

#### Online Help

When FluentControl is in edit mode, pressing the <F1> key will open the Online Help. The section relevant to the selected or displayed GUI elements will be shown. Online Help content is identical to the FluentControl Manual.

#### Search function

FluentControl has a search function in the Infopad. Search results have the same drag and drop behavior as Controlbar elements. The search is active in all currently open Scripts, Modules and the Controlbar.



#### Touch monitor configuration

For more information on touch monitor configuration, refer to the ReadMe for DisplayLink driver in the Touch Screen Driver folder on the FluentControl installation medium.

## MCA384 Get Tips and MCA384 Drop Tips commands renamed, new MCA384 Get Tips and MCA384 Drop Tips commands

The MCA384 "*Get Tips*" and MCA384 "*Drop Tips*" commands have been renamed to MCA384 "*Pick Up Tips*" and MCA384 "*Set Tips Back*" to align with the behavior of the equivalent FCA commands. The "*Pick Up Tips*" / "*Set Tips Back*" commands can be used to define from which labware specific tips are to be mounted or where they are to be dropped again. When the "*Get Tips*" command is used, FluentControl automatically determines where the next available tips are.

Scripts, processes or methods from older FluentControl versions are automatically updated with the new command names during the upgrade or import process. No manual changes to scripts, processes or methods are needed.

#### Liquid classes created in FluentControl 3.6 cannot be used in FluentControl 3.2 or lower

To enable the Pressure Monitored Pipetting AI (PMP AI) and the Phase Separator features, a new hardware module on the FCA called MultiSense is supported since FluentControl 3.3. In the liquid class section Detection & Positioning, a new cLLD Sensitivity Group setting called 'MultiSense' has been added. MultiSense arms do not require the cLLD Sensitivity Group to be set to 'Low', 'Medium', or 'High' – the setting 'MultiSense' is used for all liquids. This change means that Liquid classes created in FluentControl 3.6 cannot be used in FluentControl 3.2 or lower.

#### Driver version mismatch between Windows and FluentControl

In Windows 'Add or remove programs', the version of the driver's DLL file is displayed. This is the actual version of the driver. In FluentControl Configure System > Drivers > Available Drivers the version of the driver's EXE file is displayed in the Version column, which does not (always) correspond to the actual version of the driver.

#### Teaching Nests next to MCA Thru Deck Waste Chute

Accessing the nests next to the MCA Thru Deck Waste Chute with the RGA in narrow orientation is not possible with the default vectors. If access is required, please duplicate the nests, and teach a custom vector. Z-travel should be taught higher than the Waste Chute to avoid Pathfinder errors.

## When duplicating a manufactured labware item the custom attribute "ToolIDName" needs to be manually re-added

The custom attribute "*ToolIDName*" must be unique. When duplicating a manufactured labware item, for example disposable tips, this attribute is automatically removed. If a "*ToolIDName*" is not manually readded, the context check error "*Invalid DiTi labware selected. ToolType and ToolIDName Custom Attributes must be set.*" is shown if the item is used in a script.

#### FluentControl Scheduler: exporting reference files for Processes and for Carousel command

Processes created in FluentControl 3.3 or lower and using the "Assign labware by barcode file" feature must be opened in FluentControl 3.6 and saved again. Otherwise, the barcode file(s) referenced will not be included when exporting the Process with dependencies. The same applies for scripts or processes which use the "LoadBCFromFile" command for the Fluent Carousel or Cytomat.

#### Trough dimensions and cLLD volume detection

Depending on the manufacturer of the labware, the dimensions of trough labware in FluentControl (for example the "300ml SBS" trough) may need finetuning so that the detected volume reflects the actual volume within the labware. Please refer to the manufacturer dimension specification of the inside of the trough to modify the labware definition in FluentControl.

#### Repair installation no longer available

In previous FluentControl versions, it was possible to execute a repair of the installation. This feature has been removed. To repair issues with an installation, simply uninstall and reinstall the software instead. For help with FluentControl issues, please contact the local helpdesk.

#### Touch monitor content shown on main monitor if instrument is disconnected or turned off

If the PC loses connection to the Fluent, for example if it is powered off or the USB cable is disconnected, the touch monitor content is displayed on the main monitor.

The easiest solution is to turn on the instrument, verify the USB connection, and restart FluentControl. The fastest solution is to turn on the instrument and change a setting in Settings > Configure System > Drivers > TouchTools (e.g., de-select and re-select Use Full Screen checkbox).

#### Microsoft Remote Desktop Protocol (RDP)

Tecan sporadically receives reports of issues when using RDP with FluentControl. FluentControl was not tested with Microsoft Remote Desktop Protocol (RDP) and compatibility is not guaranteed. Issues such as FluentControl crashes caused by using RDP will not be analyzed and resolved by Tecan product support.

#### Detection & Positioning during dispense: 'Z Offset' behavior and user interface update

In previous FluentControl versions, when liquid level detection was selected, any Z Offset value defined in the 'Detection & Positioning' section of the liquid class was added to the submerge depth, even though that input field was greyed out. In current FluentControl versions, Z Offset values are not taken into consideration when liquid level detection is used. The user interface was updated to clarify this behavior:

A Detection & Positioning	based on Tip T	ype		
Liquid Level Detection				
Liquid Level Detection	cLLD	~		_
cLLD Sensitivity Group	Medium conductivity liquid	۲ D	etect	T
Submerge		1 [r	mm]	1
Z Position	Z Max	Υ.		·
Z Offset		5 [r	mm]	ightarrow

#### Pre-FluentControl 3.5 user interface



Detection & Positionin	ng based on	і Тір Туре	
Liquid Level Detection			
Liquid Level Detection	None	~	_
cLLD Sensitivity Group	Medium conductivity liquid	<ul> <li>Detect</li> </ul>	T
LLD Submerge		<sup>0</sup> [mm]	1
No LLD Z Position	Z Dispense	~	H
No LLD Z Offset		<sup>0</sup> [mm]	-

#### Pressure Monitored Pipetting AI cannot be used together with the Phase Separator commands

The PMP AI algorithms have not been trained to evaluate the pressure profiles resulting from executing the Phase Separator workflows. To avoid run time errors, do not switch on PMP AI when running a Phase Separator method.

#### Automatic retry and retry after an error prompt when using pLLD uses new DiTi

When using pLLD to detect liquid, the disposable tip touches the liquid in the labware and will get wet. Using a wet tip for liquid level detection can lead to incorrect results. FluentControl therefore automatically discards the used DiTi and mounts a new DiTi when pLLD must be retried in an error handling context.

## 4. Compliance Features

This section contains a brief overview of some of the features that FluentControl offers to support compliant usage.

#### Audit Trail

Changes to all data objects, user logins and logouts, runs status, errors, changes to variables, and more are logged in the Audit Trail. By default, Audit Trail .csv files are saved in: C:\ProgramData\Tecan\VisionX\AuditTrail

#### Electronic Signatures (requires Fluent Gx Assurance Software license)

Electronic signatures must be used in combination with User Administration. Enable this feature in Settings > User Administration.

Care and an and a second	
Electronic Signature	Enable
Require Electronic Signature after not successful run	Disable

Reason and user credentials must be given upon saving any changes in FluentControl. The input will be saved in the Audit Trail.

#### Data Audit Tool (requires Fluent Gx Assurance Software license)

This tool can be opened via the Start menu. It verifies the electronic records for a given date range, including validity of all database files, validity of all Audit Trail logs, no presence of unexpected files and no missing files.

It also enables the export of the human readable files (.xml formatted checksum protected text files) to a single directory. This export can be used for an audit or for backup and archival purposes. Please note that this is an intensive check and may take a few minutes to execute.

#### Scheduled and Enforced System Care Methods

In the Method Editor, methods may be scheduled based on calendar events, like a recurring meeting in Outlook. If a scheduled, enforced method is due, no other methods can be executed until it has been run.

Method properties	Name	Daily Maintenance
Maintenance m	nethod	
Scheduled	1	Enforce Execution
Start: 08:00		•
<ul> <li>Daily</li> <li>Weekly</li> <li>Monthly</li> </ul>	0	Every 1 day(s) Every weekday

## 5. Known issues in FluentControl 3.6

This section contains information about known issues and guidance on avoiding or handling them. If issues not described here are encountered, please contact the local helpdesk.

#### Wrong device placement or carrier site adjustment value stored on Fluent (ID 125528)

When upgrading from an older version of FluentControl to FluentControl 3.6, the placement values of non-grid-based-device and carrier site adjustment values are uploaded to the Fluent. If there are worktables present on the system with conflicting teaching values (i.e., two or more worktables contain the same device carrier but with different teaching values), only one of the conflicting device placements is uploaded and will be applied to all worktables. It can thus happen that the wrong values are stored on the Fluent. Re-teaching the placement of the device on the correct worktable will solve the issue.

#### 3D Simulator cannot simulate Transfer Phase command using a cLLD liquid class (ID 125267)

To simulate a method using the Transfer Phase command with the 3D Simulator, switch off cLLD for Dispense in the liquid class used by the command. The liquid class 'Phase Separator Contact Wet' is used by default.

#### 3D Simulator cannot simulate pLLD with default instrument configuration files (ID 124327)

Currently, no instrument configuration files containing a MultiSense AirFCA are provided within FluentControl. The MultiSense hardware is required for pLLD. Please contact your local helpdesk if you need to simulate pLLD and cannot use the instrument configuration file of your own MultiSense FCA instrument.

#### MultiSense AirFCA: Pressure Out Of Range Error unexpected behavior (ID 124636)

When one of the channels throws a Pressure Out Of Range error, for example when a clot is detected, all channels stop aspiration. This results in a reduction of the aspirated and dispensed volume for all channels. Please contact your local helpdesk if you experience this issue and need a solution.

#### Pressure Out Of Range errors on MultiSense AirFCA prevent mixing vigorously (ID 125275)

Pressure Out Of Range errors can prevent successful vigorous mixing using high deceleration and acceleration speeds in the liquid class. Please contact your local helpdesk if you experience this issue and need a solution.

#### FluentAPI expression resolver cannot handle some FluentControl functions (ID 120544)

Some functions that work as expected in FluentControl return an empty string when called via the FluentAPI. Functions ScriptName(), ProcessName(), WorktableName() and potentially others are affected. A workaround is to save the output of the desired function via the FluentControl script as a variable with scope 'run' and query this variable using the FluentAPI.

#### Runtime Error for 7mm Nest when 10ul or short 50ul tips mounted on MCA96 (ID 118380)

During script edit time there will be no context check error when these tips are used for pipetting with an MCA96 on a microplate located on a 7mm nest. The user will only get an error during runtime that pipetting with these tips is not possible.

#### Default liquid class "Whole Blood Pierce Single" is only verified for use with 200 µl (ID 115350)

The default liquid class "Whole Blood Pierce Single" is verified for use with a volume of 200 μl. When using it with lower or higher volumes, the trailing air gap (TAG) is aspirated but not dispensed. The liquid class'

MicroScript must be adapted when using it with volumes higher or lower than 200  $\mu$ l. Default Liquid class *"Whole Blood Pierce Multi"* can be used with all volumes defined in that liquid class.

#### Additional known issues

Below are additional issues that may be encountered. Fixed issues will be listed in the Revision History of future versions of FluentControl.

ID	Title
113950	[Scheduler] Trace View message is shown to switch into task mode although the switch is
	done automatically
114596	[Scheduler] Freeze after fatal error by transfer labware
115232	[MultiSense] Switch between real-mode and simulation does not work
118374	[Scheduler] Missing FluentControl Scheduler logs when Automated DiTi Handling cannot be
	executed
121251	Get Weight command gives an error when Balance is connected via TeControl:COM
121310	MCA384 cannot evade when freshly picked up tips from highest tray of stack8 box
	Last dispense of multi-dispense runs out of liquid and target volume is reduced to available
121351	volume but Sample Tracking reports a higher volume than was dispensed
121537	Tip contents not removed on SW side when tip is dropped by Air FCA or Liquid FCA
	Dynamic DiTi handling within "Transfer Individual Volumes" command does not execute
122376	according to the conditions set
122507	Automated error handling with "On System Prompt" not working for DeckCheck errors
122528	FluentControl crashes during Method Recovery when files required by Method are missing
123103	MCA96 cannot initialize in simulation "Error in device/connection ID changed"
123402	Convert CSV to GWL command does not recognize variable at parameter 'Stop with line'
123432	FluentControl non-responsive during context check
123445	After last Nested FCA Tip is fetched there is an empty error message Replace Used DiTi Rack
124043	After adding a new carrier, numbering of existing nests on the worktable is changed
124235	"Find and Replace Arm" does not work for FCA Transfer Labware command
124303	Arm positions for DeckCheck image capture: RGA rotation is not taken into account
	Pressing stop button after manually pausing the run does not stop the run when journalling
124343	is disabled
124539	FluentControl cannot start due to NullReferenceException error
	[MultiSense] Pressure out of range error on one channel causes all other channels to have
124636	dispense target volume reduced
124812	Run aborted after front safety shield is not closed correctly after a TouchTools wizard group
124909	Labware definition can be imported but cannot be found in Controlbar
125003	FluentControl freeze when editing a script with a DeckCheck command in it
	Blank Group command description leads to runtime error 'Unhandled exception: Object
125324	reference not set to an instance of an object'
	Phase Separator command does not work correctly when used within a Variable Pipetting
125330	Loop command
125377	Liquid Class with OuL/s aspirate and dispense speed causes FluentControl to crash
	Dispense Command well selection not working properly when non-grid based device rotated
125400	by degree values with decimals
125587	[Scheduler] Schedule not always updated on early finish of Step

### 6. FluentSetup 3.6

## After upgrade from FluentControl 2.8 or older to FluentControl 3.6, QC action "Gripper Alignment" needs to be re-executed

Due to a change in the RGA initialization procedure in FluentControl 3.0, the RGA rotational axis may have a small deviation of around 3-4° in its position. Therefore, the QC action "Gripper Alignment" needs to be re-executed to set this offset back to 0. A Tecan Field Service Engineer must perform this intervention.

#### Execution of DeckCheck Setup cannot be executed twice in a row (ID 110011)

This issue occurs sporadically and can be resolved by restarting FluentSetup and executing DeckCheck Setup again.

#### Fluent Setup does not start on MCA96 instrument when upgraded from V3.1 (ID 118663)

The issue only concerns Fluents equipped with an MCA96. After upgrading from FluentControl V3.1, the following error message might appear: *"Mca96.Adapter/TOOLNAME:McaDiTi96"* when opening FluentSetup.

To resolve the issue, uninstall FluentControl and manually delete the following files from C:\ProgramData\Tecan\VisionX\DataBase\SystemSpecific\Worktable\Components:

- 984cc8fd-533c-489e-9eea-30e18b1ed6a8.xcmp
- a581e854-6dd9-4afd-afd4-e80860509de1.xcmp
- bb7a1b30-46d7-429a-8cf7-443b7cd8344c.xcmp

Afterwards, install FluentControl again.

#### Z-break test cannot be executed for second RGA (ID 121747)

When the Z-break test for the second RGA is started on a dual RGA instrument, the test is not executed and an 'Value cannot be null' error message is displayed. Two workarounds have been identified:

- Use a clean installation where the folder "DataBase\SystemSpecific\Worktable\Components" is empty before running the installer
- Import the Full Export Database.zeia file which is found on the MasterMedia to overwrite older labware items

#### RGA might collide with Resolvex i300 during Random Move Test (ID 124622)

To avoid a collision of the RGA with the Resolvex i300, remove the i300 from the worktable before executing the Random Move Test.