ReadMe FluentControl 3.8 SP1

2026-03-31 Build 3.8.16.1118

Introduction

This document contains important information about FluentControl 3.8 SP1. Please read it carefully before installing or upgrading the software. Our Knowledge Portal has additional information on FluentControl and other Fluent related topics.

1. Important information before upgrading to FluentControl 3.8 SP1

Improved RGA positioning precision
FluentControl 3.8 brings improved RGA positioning precision. Prior to using the software with an instrument, a Tecan engineer must start FluentSetup and execute an RGA encoder calibration action. This may be done remotely, without the need for a site visit. Skipping this action will prevent the Fluent from initializing successfully.

Identity Access Management – Tecan's new user administration
FluentControl 3.8 installs the new Identity Access Management (IAM), replacing the former User Management System (UMS). This upgrade enhances security with cutting-edge cybersecurity features and offers support for LDAP, OpenID, and the Tecan Cloud Identity provider.

A manual for IT administrators can be found on the installation medium.

Device placements stored on instrument
Since FluentControl 3.6 the placement (coordinate) values of non-grid-based devices (i.e., Readers, Washers, Centrifuges) and carrier site adjustments are stored on the instrument instead of in the database on the PC hard drive. For more information, see section 3 of this ReadMe.

Introspect and IoT Client
FluentControl 3.8 installs the new IoT Client version 3.1. Contrary to IoT Client 2.x, IoT Client 3.1 does not read FluentControl log files. To prevent loss of data, ensure that any relevant log files have been parsed prior to upgrading FluentControl. The current IoT Client version 2.x is available for download on the Knowledge-Portal.

Note: The FluentControl 3.8 installer cannot automatically upgrade the IoT Client from v2.x to 3.1. Please manually uninstall the IoT Client Bundle v2.x before upgrading to FluentControl 3.8.

Faster execution of Import and Export Variable command
FluentControl 3.8 no longer requires Microsoft Excel to be installed on the computer to import and export variables from a spreadsheet. The legacy format XLS is no longer supported. Please use the XLSX format instead.

Using HydroControl, Magellan Tracker and/or SPARKControl Magellan with FluentControl 3.8
HydroControl, Magellan Tracking and SPARKControl Magellan are not compatible with IAM and require the legacy User Management System (UMS) to be installed. However, the FluentControl 3.8 installation and upgrade process removes UMS from the PC and installs IAM instead. To use any of the three software products with FluentControl 3.8 on the same PC, UMS as well as IAM must be installed:

A. If neither software was previously installed, install FluentControl 3.8 first and then install HydroControl / Magellan Tracking / SPARKControl Magellan

B. If HydroControl / Magellan Tracking / SPARKControl Magellan are already installed and an installation of, or upgrade to, FluentControl 3.8 is needed:

    1. Stop "Tecan User Management Server 1.1" service if it is running

2. Create a backup of folder 'C:\ProgramData\Tecan\Tecan User Management' including all subfolders
3. Install, or upgrade to, FluentControl 3.8
4. Either
    a. Re-install HydroControl / Magellan Tracking / SPARKControl Magellan
    b. Install UMS using a stand-alone installer
5. Stop "Tecan User Management Server 1.1" service
6. overwrite all files in ‘C:\ProgramData\Tecan\Tecan User Management' including all subfolders with the backup files
7. Start "Tecan User Management Server 1.1" service

Ensure that the user login credentials (name and password) in IAM and UMS are identical.

2. Installation and Upgrade process

Considerations before installation or upgrade

Operating system
FluentControl 3.8 SP1 is compatible with Windows 11 Enterprise (IoT) LTSC 2024 and Windows 10 Enterprise (IoT) LTSC 2021. Tecan cannot support technical 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 3.8 Manual. To guarantee a good performance, Tecan recommends using an Intel® Core™ i7 or equivalent processor. Scheduler applications require more computing power, and it is recommended to use an Intel® Core™ i9 or equivalent.

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-malware software and FluentControl
Tecan recommends refraining from actively scanning hard drives or memory while a run is in progress in FluentControl. If a malware 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
```

i300
Before upgrading FluentControl, update MAPLinxSetup to version 6.2.3.1159 and PowerCycle the instrument. A Tecan engineer must then perform the encoder calibration action in MAPlinxSetup

DriverFramework & 3rd party drivers
Current versions 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 3.8 is compatible with DriverFramework 3.3.14 or higher. The DriverFramework is compatible with Windows 10 and Windows 11. However, some drivers require a software package from a 3rd party manufacturer. For such drivers, consult the documentation of the 3rd party manufacturer to ensure Windows version compatibility.

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

1. Upgrade within the same DriverFramework series (e.g., 3.1.12 to 3.3.14): run the latest DriverFramework installer
2. Upgrade between series (e.g., 2.4 to 3.3.14):
    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 3.3.14 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.

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

For SiLA2 drivers, and any other questions about drivers in FluentControl, please contact your local Tecan helpdesk.

Restore Points

Reverting to a restore point is not possible, if the restore point was created before an upgrade to FluentControl 3.8.

Installation procedure

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

a) Execute the autorun.exe
b) Execute installation steps in the following order:

Step 1: Pre-Installation

Do not cancel the installation of the Identity Access Management (IAM) module, as this will corrupt the FluentControl installation.

During the installation of the IAM user administration module, an Administrator username and password must be entered. The password must be a minimum of 12 characters in length and include at least one non-alphanumeric character, one numeric digit, one uppercase letter, and one lowercase letter.

Step 2: Install FluentControl

During the execution of this installation step, an installation log file is generated in the temp folder of the current Windows user (e.g., Fluent_Install_2025_09_08__15-30-20.log).

Step 3: Post-Installation
(optional) Step 4: Install Sample Tracking

c) Install the DisplayLink driver for the touch monitor from the Drivers > Touch Screen Driver folder. Please consult the ReadMe for the DisplayLink driver first.

Upgrade procedure

To upgrade FluentControl, follow these steps and reboot the computer whenever prompted to do so. It is not necessary to uninstall FluentControl first.

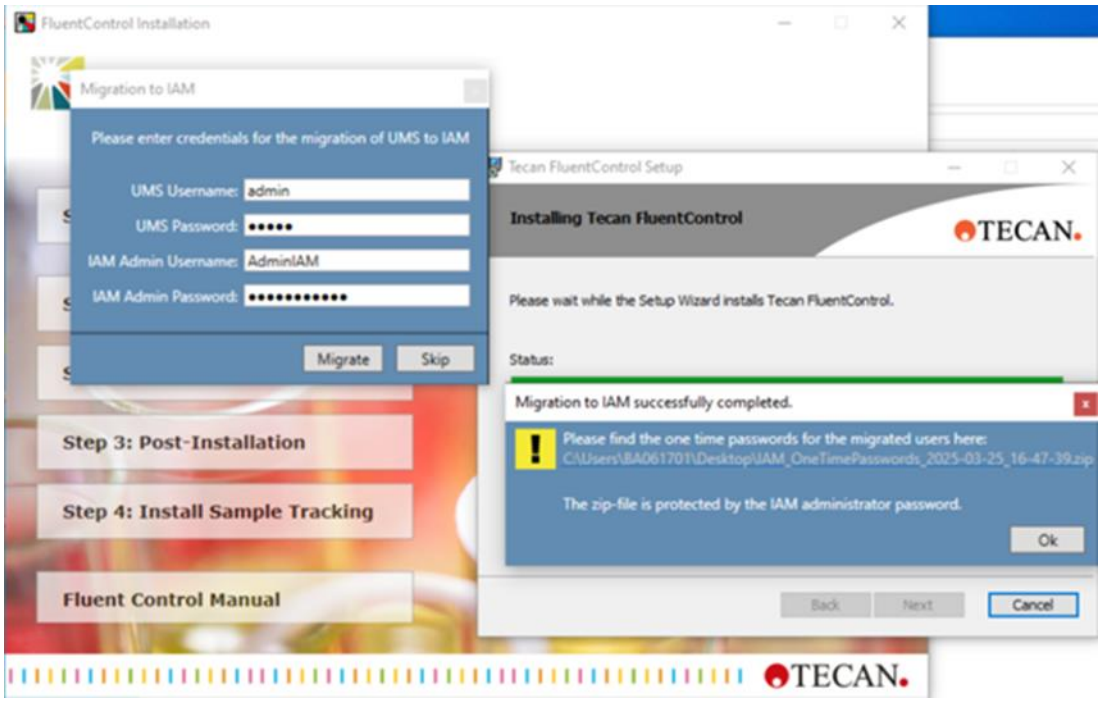
a) If User Management is used, de-activate it before upgrading
b) Close FluentControl
c) Execute the autorun.exe
d) Execute installation steps in the following order:
Step 1: Pre-Installation

Do not cancel the installation of the Identity Access Management (IAM) module, as this will corrupt the FluentControl installation.

FluentControl 3.8 automatically migrates any existing users defined in the user administration settings from the legacy User Management System (UMS) to the new IAM. An Administrator is required to log in with their old UMS password and set a new IAM password.

By default, IAM passwords must be a minimum of 12 characters in length and include at least one non-alphanumeric character, one numeric digit, one uppercase letter, and one lowercase letter.

The Administrator user is directed to a password protected ZIP file containing temporary IAM passwords for all other users. A 3rd party tool must be used to unzip the file. The default Microsoft tool will give an error.



After the initial login to IAM, the temporary password must be reset by each user individually.

Step 2: Install FluentControl

During the execution of this installation step, an installation log file is generated in the temp folder of the current Windows user (e.g., Fluent_Install_2025_09_08__15-30-20.log).

FluentControl 3.8 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

e) Install the DisplayLink driver for the touch monitor from the Drivers > Touch Screen Driver folder. Please consult the ReadMe for the DisplayLink driver first.

When FluentControl is started for the first time after an upgrade from an older version, the software must be started via the Windows Start Menu. Starting the software directly from the application folder results in an error.

After the installation or upgrade

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

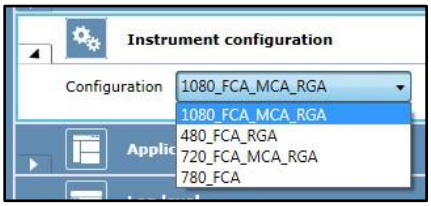
Open FluentControl and accept importing the updated labware definitions. This process may take some time to complete.

If used, re-activate and open User Administration to verify that the login and password settings are correct.

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:



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 on the Knowledge Portal.

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

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.

After upgrade from FluentControl 2.5 or lower, the Introspect (previously Tecan Connect) command is not available

The Common Notification Service (CNS) was replaced by Tecan Connect in FluentControl 2.6 and by Introspect in FluentControl 3.7. When upgrading from FluentControl 2.5 or lower to FluentControl 3.8, the CNS command remains available in the Controlbar and the Introspect command is not present. To resolve this issue, contact the local helpdesk.

3. Changes in FluentControl 3.8 SP1

The following changes have been made in FluentControl 3.8 SP1

- Robustness improvements for pickup of disposable tips helping prevent lifting the box:
    - FCA: Optimized delays between retract movements.
    - MCA96: Tip alignment move introduce in FC 3.8 is now executed during the retract move.
- Removed TouchTools splash screen to reduce risk for graphics driver related instability after Q1/2026 Windows Security updates
- FCA Liquid class selection dropdown is labelled again.
- Solved upgrade issues in FC3.8:
    - Backups from previous upgrade installations is automatically overwritten to prevent installer error
    - Migration assistant from UMS to IAM is now only executed if IAM has not already been installed.

See Revision History FluentControl 3.8 SP1 for a complete list of bug fixes and changes. See FluentControl Manual for more information on software functions.

Important to know:
The robustness improvements for disposable tip pickup depend on parameters stored (as custom attributes) in the disposable tip labware definition. When upgrading from FluentControl 3.7 SP1 or earlier, the new labware definitions are automatically imported on first startup of FluentControl. When upgrading from FluentControl 3.8, please manually import the tip definition from the Import Library folder.
When importing methods from old versions of FluentControl please make sure to exclude (remove conflicts) disposable tip labware, so that the latest version with optimal parameters stays in FluentControl.

Currently the consumables supply chain is being enhanced to strengthen supply security by introducing production sites in USA and CH which allows to reduce risk for cross-border disruptions such as tariffs. These tips have a slightly thicker outer wall which leads to a difference in mount height of 0.3-0.6mm. When transitioning from the legacy tips to new US/CH products, please import the labware definition 'new_us_tips_VC_FC.zeia' from the Import Library folder of FluentControl 3.8 SP1 (importing older/different labware definitions may remove the parameters for robustness improvement).

For additionals questions please contact your local Tecan helpdesk (https://helpdesk.tecan.com)

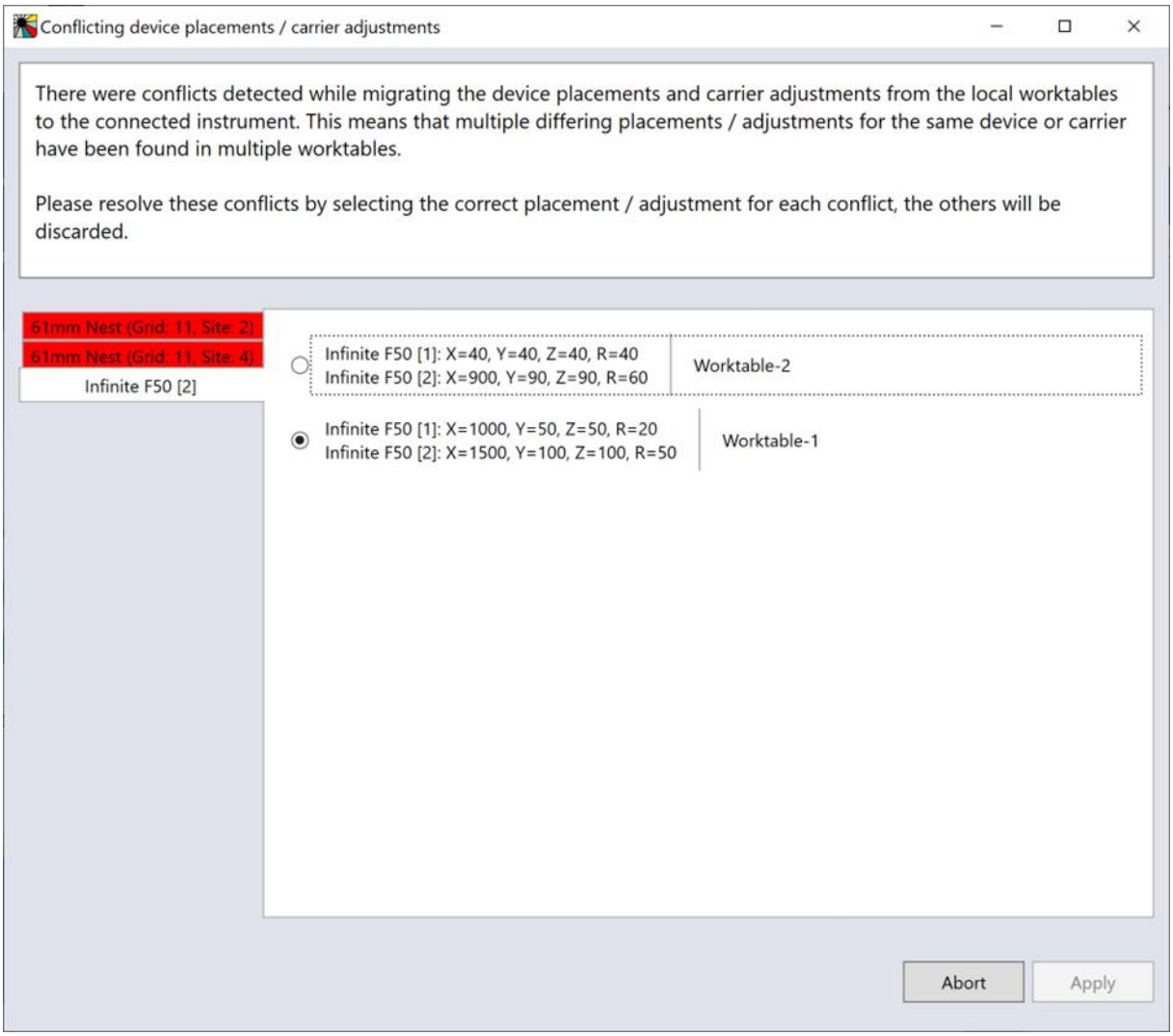
4. Additional Information

Device placements and carrier site adjustments are stored on the instrument

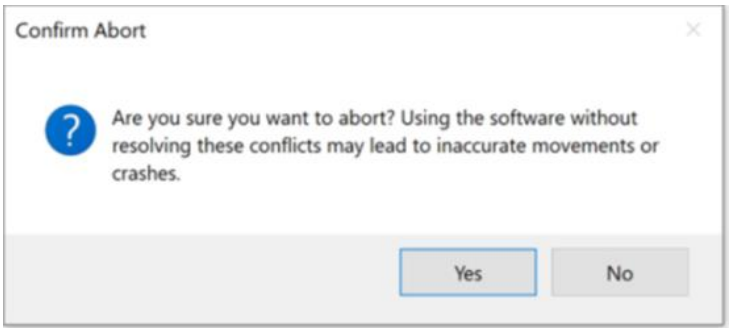
Since FluentControl 3.6, the placement (teaching) values of non-grid-based devices, such as a centrifuge or a HydroFlex washer, are stored on the instrument's Te-Control board in the LocationCorrection.config file. Adjustments to carrier sites are stored on the instrument as well. When a computer running FluentControl 3.6 or higher is connected to an instrument, the values stored on the instrument are automatically compared to the values in the FluentControl database on the PC. If there are any discrepancies, the FluentControl database is updated with the values from the instrument.

What happens when I upgrade from FluentControl 3.5 or lower to FluentControl 3.8?
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 LocationCorrection.config file on its Te-Control board. Before the upload, a restore point is created.

On systems with many (old) worktables in the FluentControl database, it can happen that the same device does not have identical placement values across all worktables. FluentControl 3.8 detects these discrepancies during the upgrade process and allows you to select the worktable with the correct placement values or site adjustment values for each device or carrier:



It is possible to abort this dialog so that the worktables on the system can be reviewed to determine which ones contain the correct device placement values. Note that while the upload process is not fully completed, the software should not be used beyond inspecting the worktables. To continue the upload process, FluentControl must be restarted.



What happens when I upgrade from FluentControl 3.6 to FluentControl 3.8?
FluentControl 3.6 was the first FluentControl version that could store the device placement values on the Te-Control. Upgrading to FluentControl 3.8 will not change the values stored in the LocationCorrection.config file or the FluentControl database.

Some systems with a 3rd party device will have had to use a workaround in FluentControl 3.6 to achieve correct placement. An offset of 80mm had to be subtracted from the y-coordinate. This 80mm offset will have to be manually re-added in FluentControl 3.8, as the workaround is no longer needed.

What happens when I connect a computer running FluentControl 3.8 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 3.8 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? How can I update the placement or adjustment values on the instrument?

1. By 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. By 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.

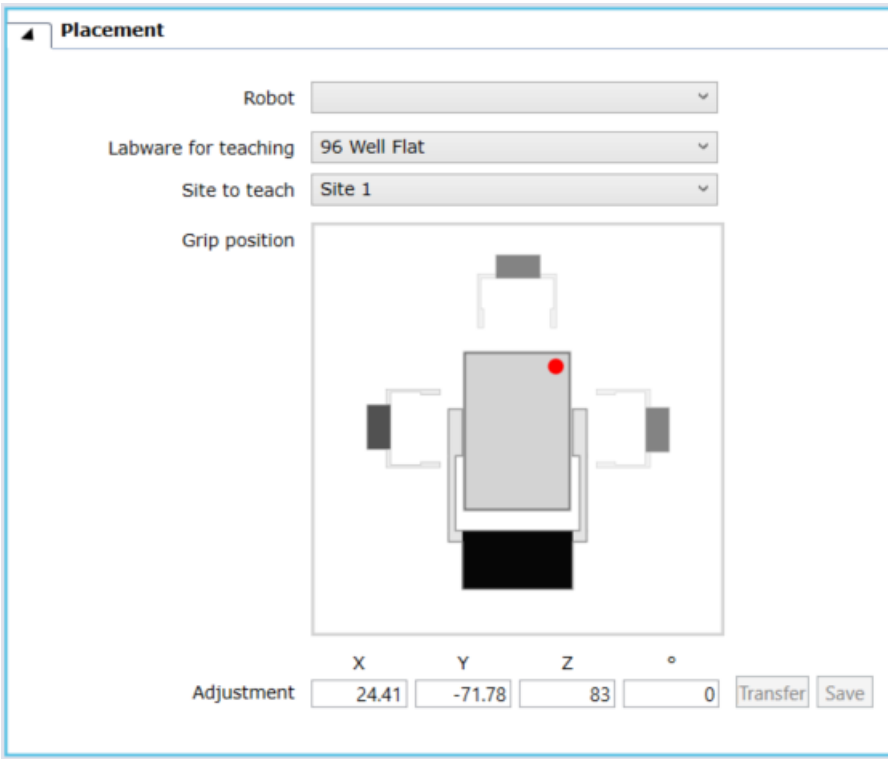


Fig. 1. Non-grid-based devices are taught using the Placement section of the device carrier definiltion. These values are stored on the instrument.

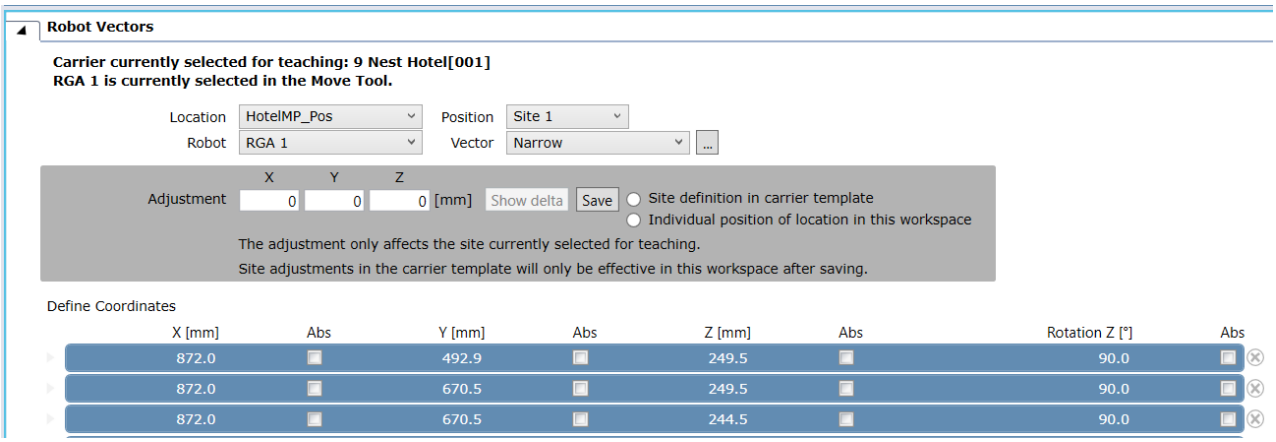


Fig. 2. Site-specific adjustments to carriers are stored on the instrument when the radio button 'Individual position of location in this workspace' is chosen.

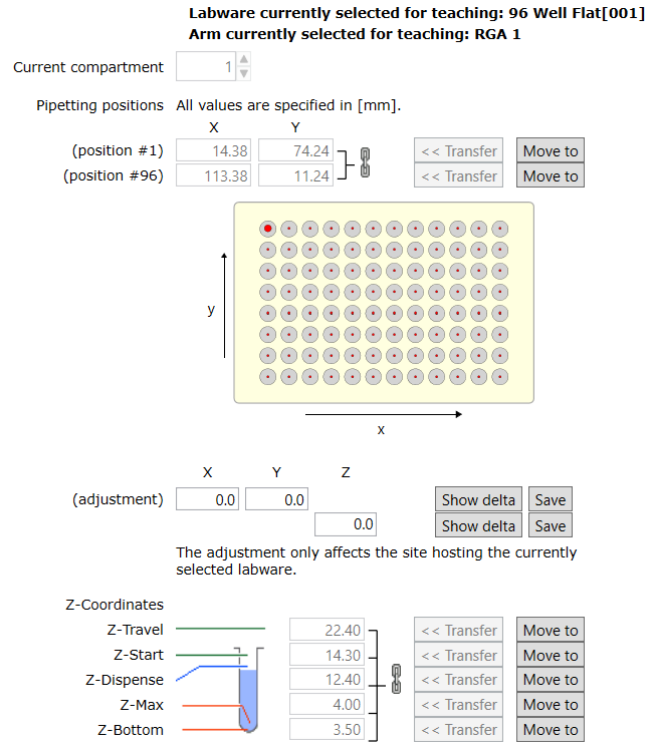


Fig. 3. Site-specific adjustments to carriers can also be made via the labware editor. These values are stored on the instrument.

Updated labware definitions of FCA 350µl DiTi and FCA 1000µl Wide Bore DiTi

To ensure that the definitions reflect the correct physical dimensions of the tips, we updated the following read-only (default) tip labware definitions in FluentControl 3.7:

- FCA 350µl DiTi: Mount offset changed from 13.70mm to 12.93mm (reduced by 0.77mm)
- FCA 1000µl Wide Bore DiTi: Mount offset changed from 13.70mm to 13.14mm (reduced by 0.56mm)

Important for upgrades from FluentControl versions older than 3.7: if a workaround (e.g., adjusting carrier or labware offsets) was used for this labware, it may be necessary to re-teach the carrier or labware to align with the updated definitions.

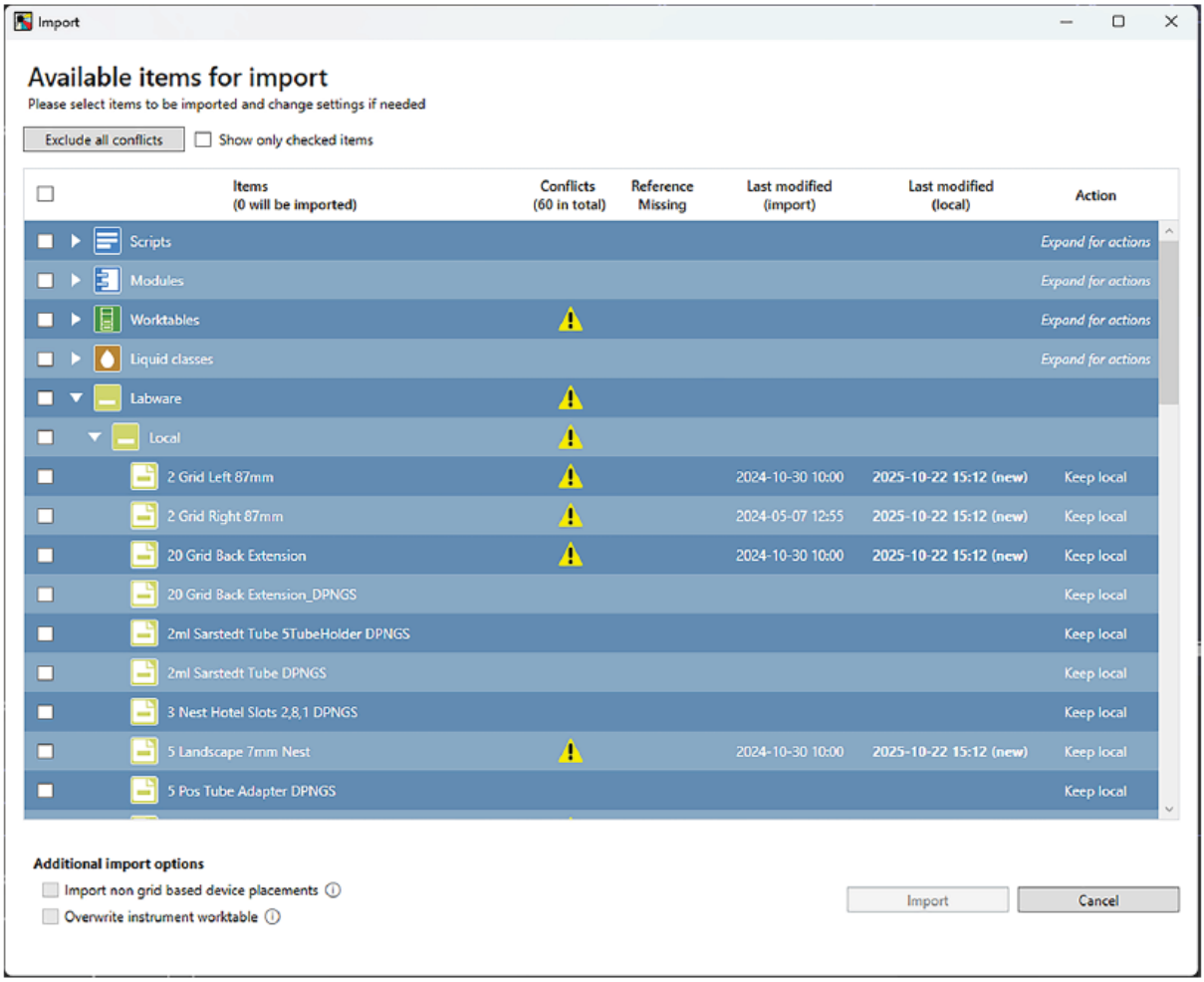
Enhanced software support for Resolvex i300

FluentControl 3.8 includes many improvements to the integration of the Resolvex i300, including compatibility with the Fluent Scheduler.

For those using the Resolvex i300 in FluentControl 3.5, 3.6 or 3.7 and upgrading to FluentControl 3.8, it is important to open each i300 script and re-save it again, before starting any runs. This updates the referenced liquid classes. This step is not necessary when upgrading from FluentControl 3.7 SP1 to FluentControl 3.8.

Better usability when importing ZEIA files

In FluentControl 3.8 the import process is simplified and more user friendly. After choosing the ZEIA file that needs to be imported, detailed information on the file contents is shown and the desired settings can be configured. After pressing the import button, the required actions are executed, and a summary dialog is shown.

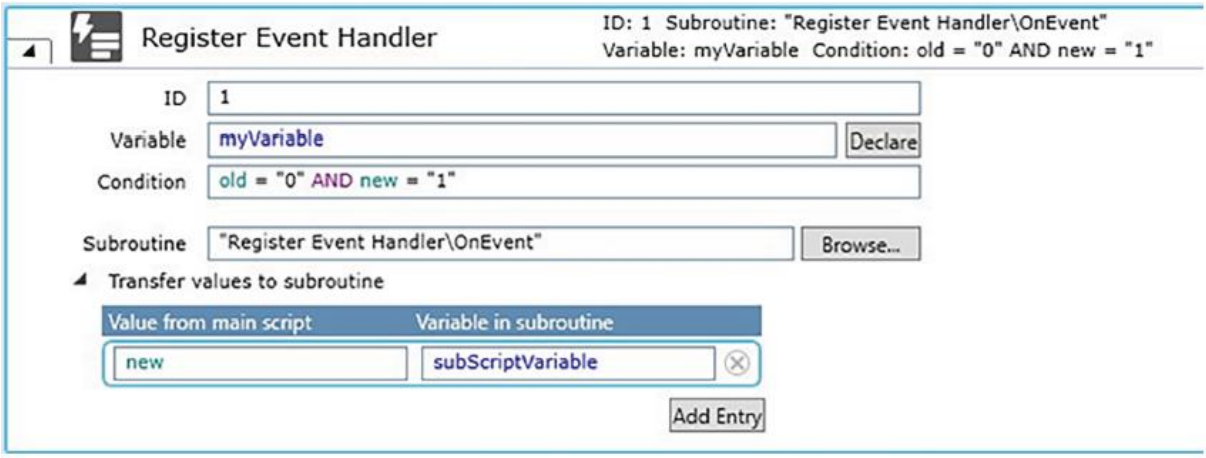


For more details, see the FluentControl Manual.

New Register Event Handler command

The Register Event Handler command can be used to monitor one or more variables and when certain conditions are met, trigger the execution of asynchronous subroutines. Expressions are supported in defining the condition. Variables in liquid class microscripts can also be monitored.

To stop monitoring a variable, the new Unregister Event Handler command must be executed.
For more details, see the FluentControl Manual.



Register Event Handler is not compatible with the Fluent Scheduler.

Dispense remaining excess volume back to source (FCA multi-pipetting)

To save valuable liquid remaining in tips after multi-pipetting sequences, a new checkbox 'Back to source wells' was added to the Sample Transfer, Reagent Distribution and Transfer Individual Volumes smart commands. If checked, a tip's contents are emptied in the last source that the tip aspirated from.

Deprecated commands removed

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.

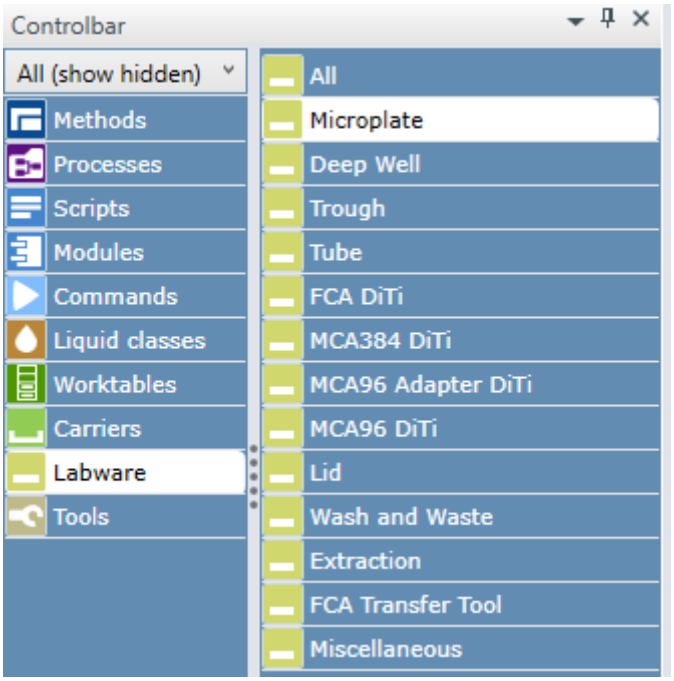
MCA384 Get Tips and MCA384 Drop Tips commands renamed, new MCA384 Get Tips and MCA384 Drop Tips commands

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.

Disposable Tip labware definitions in the Controlbar

Since the introduction of the MCA96 arm on the Fluent, 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 a 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*.

Carrier definitions of 480/780/1080 Base Unit updated and read-only

Since FluentControl 3.7, the carrier site definitions of the Base Units have been updated, and the definitions are now read-only. This resolves an issue in previous FluentControl versions, where adding certain carriers to certain grid segments to the worktable caused site numbering across the worktable to change. Affected carriers were:

- SideSegmentGridRight
  - 2 Grid Right 147mm / 87mm
  - 4 Landscape 7mm Nest Right
  - Landscape Nest Base Segment Right
- SideExtensionSiteRight
  - 1080/780/480 Extension Right
  - 300 Shelf Right

Base Unit definitions will be automatically updated after the software is upgraded. If site numbering in existing methods is affected by the upgrade, and updating the methods (recommended) is not possible, simply import the Base Unit definitions of the old FluentControl version.

Online Help

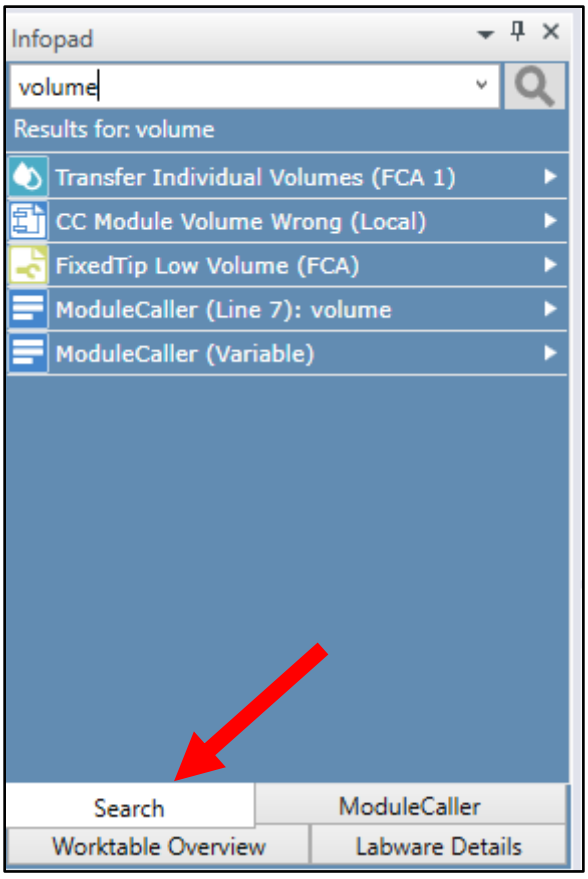
When FluentControl is in edit mode, pressing the <F1> key will open the Online Help. The section relevant to the selected or displayed GUI elements will be shown. Online Help content is identical to the FluentControl Manual.

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.

Lid Handling for plates in the Carousel

Automated Lid Handling for lidded plates stored in a Carousel only works if the orientation of the lidded labware is set to 180°.



OLEG log viewer tool

FluentControl 3.8 installs the OLEG log viewer 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.

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 re-added, 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 3.8 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).

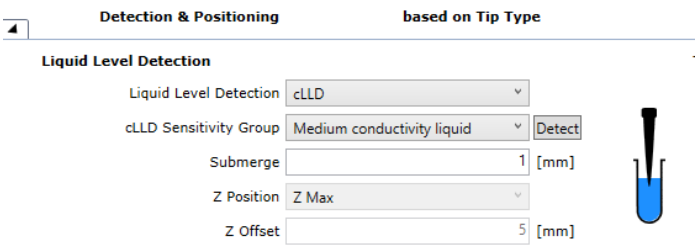
Microsoft Remote Desktop Protocol (RDP)

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.

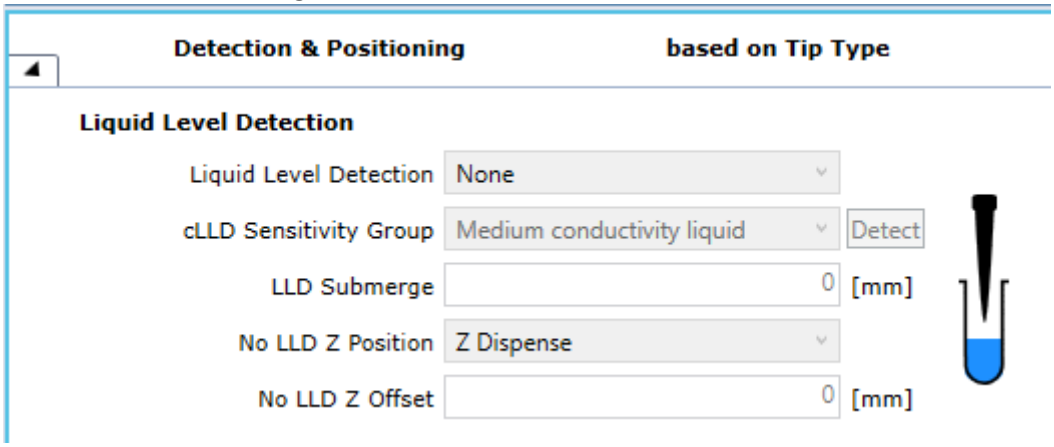
Detection & Positioning during dispense: 'Z Offset' behavior and user interface update

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:

Pre-FluentControl 3.5 user interface



FluentControl 3.5 and higher user interface



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.

After upgrading FluentControl, worktable items using customized mesh (x3d) files can become invisible

The FluentControl upgrade process can currently not handle mesh (x3d) files with the same name but different contents. If custom mesh files were used in FluentControl and they have the same file names as the default mesh files, the items become invisible on the worktable after an upgrade. To prevent or correct the issue, give the mesh file a unique name before or after upgrading FluentControl.

5. Compliance Features

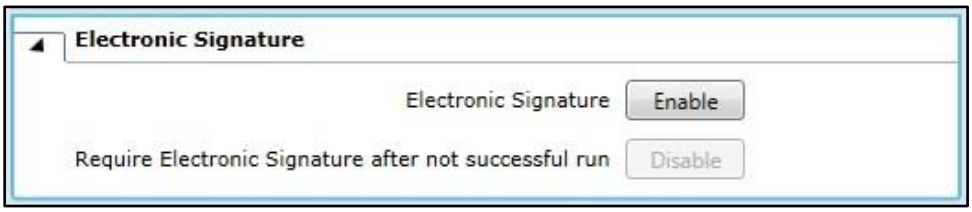
This section contains a brief overview of some of the features that FluentControl offers to support compliant usage.

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.



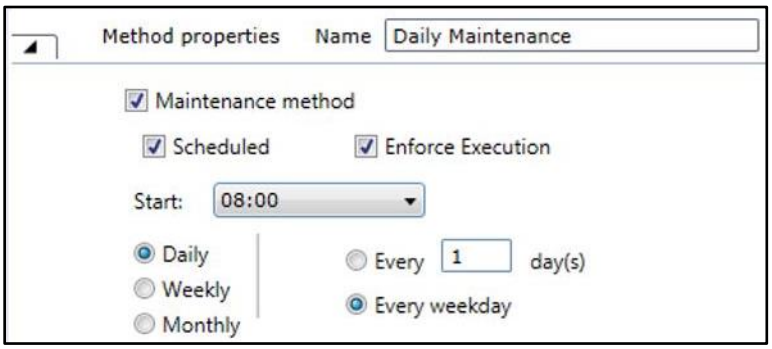
Reason and user credentials must be given upon saving any changes in FluentControl. The input will be saved in the Audit Trail.

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.



6. Known issues in FluentControl 3.8 SP1

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.

After upgrading FluentControl the first start of the software must be done via the Windows Start Menu (PWI 128365)

After upgrading to FluentControl 3.7 SP1 the software must be launched via the Windows Start menu and not directly from the application folder. Otherwise, an error is shown. This only applies to the first start up of FluentControl after the upgrade.

3D Simulator cannot simulate Method using a liquid class with liquid level detection for dispense (PWI 125267)

To simulate a method a liquid class with liquid level detection for dispense ON with the 3D Simulator, switch off cLLD for Dispense in the liquid class used by the command. In the Transfer Phase command for the Phase Separator, the setting is used by default in the liquid class 'Phase Separator Contact Wet'.

FluentAPI expression resolver cannot handle some FluentControl functions (PWI 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. FluentControl 3.9 will bring improvements for API functions.

Te-Chrom script command changes do not trigger 'save' button to become active (PWI 126496)

When a Te-Chrom command is used within an If-Else branch that is not considered by the context check, i.e., an orange dot at the script line, FluentControl does not detect any changes to the command's parameters. The save button does not become active and closing the script without saving will undo any changes made. As a workaround, the Te-Chrom command can be moved to a location where context check reaches it (e.g. line 1) and then, after the desired changes are made, moved back into the If-Else branch.

Method approval does not flag Methods as not-released when liquid class, carrier or labware settings have been changed (PWI 127090)

When settings of liquid classes, carriers or labware used by an approved Method are changed, FluentControl does not indicate that the Method is no longer approved by showing a red square on the Method's name. Operators are still prevented from running such Methods until they are re-released.

Runtime Error for 7mm Nest when 10ul or short 50ul tips mounted on MCA96 (PWI 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 (PWI 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 µl. 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. PWI = Project Work Item.

PWI	Title
118374	[Scheduler] Missing FluentControl Scheduler logs when Automated DiTi Handling cannot be executed
121537	Tip contents not removed on software side when tip is dropped by Air FCA or Liquid FCA
122528	FluentControl crashes during Method Recovery when files required by Method are missing
122979	[Teaching] Vector Teaching in Carriers: "Move arm to" buttons not working
123402	Convert CSV to GWL command does not recognize variable at parameter 'Stop with line'
123430	Manual Restart required after configuring SiLA2 commands
124113	[Performance] Labware not displayed after expanding command
124343	Pressing stop button after manually pausing the run does not stop the run when journalling is disabled
124877	[SnapshotTool] Sometimes the Snapshot tool does not include the latest log
125272	[LiquidHandling] Too much in plunger error message at Wash with 5ml syringes
125627	Wait script command creates wrong recovery point
125761	[i300] Lifetime of i300 instrument not sent out to Introspect/Ignite
126496	[TeChrom] Te-Chrom command changes not detected if the script line is not reached by context-check
126731	[Scheduler] Continuous Loading via Add button in TouchTools leads to invalid expression error for variable of scope iteration
126800	When EVA Adapter tries to pick up incorrect tips (for MCA96) the context-check message hints to a wrong cause
126877	Aspirate step leads to "Specified Cast is not valid" error and run abort
127174	Tracking at Dispense moves up and down when Z-max is close to Z-bottom
127533	[Scheduler] Traceview Process iteration array count incorrect after FluentControl restart
127671	[ErrorText] AirFCA error "Specific argument was out of range of valid values Parameter name: volume" when pipetting more than one channel
127720	[Scheduler] Plate with orientation 180° at process swaps to opposite orientation if it is the second process in a batch or if it is added by continuous loading
128365	After completing the upgrade, the first start of FluentControl requires an Auto Repair installation
128439	[Scheduler] Software crash during edit time
128573	[Compliance] Enforced maintenance not restricting operator from running script before maintenance
128610	ODTC vectors change spontaneously resulting in RGA crash

128628	[Scripting] Changing labware orientation or adding plates in carousel makes the labware disappear if script line is selected
128652	[Scripting] Well Offset direction does not follow the sample direction when plate is in portrait mode
128778	RGA Transfer Labware command used for a lid gives an error
128864	[PhaseSeparator] Transfer Phase command doesn't support labware created by Add Labware command
128902	Controlbar does not display the usual categories Methods, Processes, Scripts, if user name contains an exclamation mark
128905	Run stops after MCA384 Tip Pick Up at nested tip wafer removal
128912	[i300] Move Tool Pressure does not record last value with Stop record
128930	[Scheduler] Timing Constraint Violated - Mismatch of actual duration shown in Report file and message displayed in System Trace View
128970	[PhaseSeparator] Transfer Phase command context check issues with variable values
129065	Entry could not be written to Audit File error pauses the run at midnight
129088	RGA only picks up lid and not plate on a transfer labware
129275	MCA96 errors on aspirate line in Simulation: Object reference not set to an instance of an object
129368	[Robustness] Aspirate / Dispense command can loose plate and well selection when expanding the command
129415	FCA collision on end position for MCA nested tips at FCA pickup tips command
129441	MCA384 GetTips shows error when using the 96 MCA384 Tips adapter
129548	"Invalid Job at index 0: Invaldi CarrierOrLabware: ..." when placing orphaned labware on worktable
129690	Recovery of method with asynchronous subroutines causes an abort in some scenarios
129692	[PhaseSeparator] NullReferenceException when switching to worktables missing exact FCA Thru Deck Waste Chute_1 in "Transfer Phase" command
129859	[SmartCommands] Row-wise in Reagent Distribution command does not work properly
129893	[i300] i300 fails to re-initialize when a Mettler balance is connected to Te-Motion
129933	Timing problem when TRD and other arms running in parallel in separate subroutines
129967	Incorrect context check error displayed when well offset exceeds labware capacity in smart commands
129970	Warning about non-synchronized device placements at FC or FS startup
129985	[ErrorText] Context check error in Sample Transfer smart command with fixed tips
130038	[Database][LiquidHandling] Correct tip capacity MCA96, 1000ul Filtered SBS
130063	Sample Transfer command runs into runtime error during execution of generated script while having unusual tip to well assignment
130076	[PhaseSeparator] Cycle exit criteria for max volume extraction & safety distance calculation
130078	Not able to recover from simulated error
130170	Software cannot restart with error message audit trail syncing problems
130174	UI issue with tube runner in Sample transfer command
130194	LiquidFCA flushes outside of the wash station during initialization
130208	Unable to delete script sporadically
130271	FluentControl crash when saving process copy (using Save as)
130353	[FluentControl] Software freeze during Transfer Phase command execution
130371	[Scheduler] Run aborts due to mixed set of worktables in Process Steps or Transfer Scripts

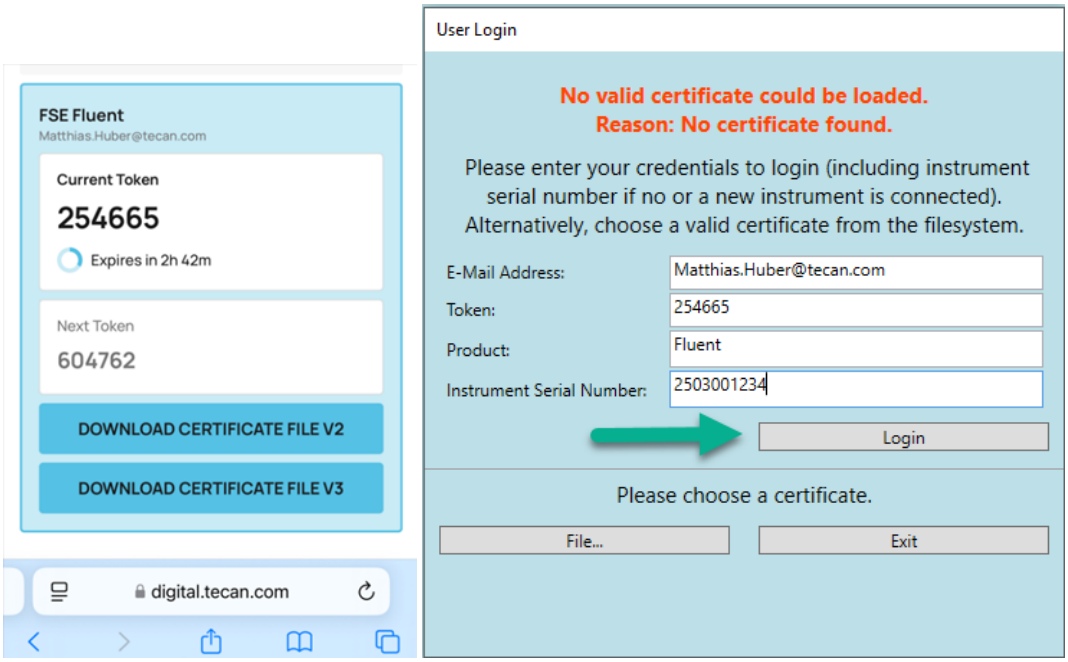
130448	Transfer Individual Volumes command well "Range-Overflow" works for target plate but not for source plate
130529	Reagent Distribution fails to generate Smart Subroutine for activated DiTi channels 5-8 due to Piercing Tips on de-activated channels 1-4
130566	Clot, liquid-detection and system errors during pipetting commands when using PMP monitoring
130589	Transfer Individual Volumes command does not process input string for target labware
130590	PathFinder in endless loop during arm evasion
130666	No tube found error in 3D Sim
130672	Import conflict is still there at importing the same definition twice
130742	Pipetting is not repeated with all channels after arm is manually moved during error handling user prompt
130752	[FluentID] TouchTools highlights some tubes as duplicates until all runners scanned
130757	Run aborts when all tips have been consumed without option for the user to replace tip boxes and continue (ADH with SBS DiTi for FCA)
130849	FluentControl crashes if labware with different internal IDs but identical names is present on the worktable
130864	[Veya]: Tips Crash After Script Stop When Using Direct Commands
130935	Channels move unsynchronized inside trough when using "custom labware attributes" to execute commands in liquid class microscript
130945	[GUI] When no wells are selected for MCA, highlights are not displayed for the user as in FCA
130954	[Performance] DeckCheck undo/redo history causes performance issues
131033	FluentControl frequently crashing after becoming unresponsive in both edit- and runtime
131061	MultiSense error 'Error while setting pressure trigger levels' after instrument restart without software restart
131241	Transfer Individual volumes: FCA does not follow the tip selection in the smart command
131247	Stop button not working after pressing pause, stop and retry during a method execution
131382	vControl is getting unresponsive after long Software runtime
131398	FluentControl throws an "Object reference not set" error when running a worklist
131996	"MCA96 Transfer Liquid command" does not execute correct volumes if entered as floating point
132001	Pathfinder cannot find path to transfer FCA 1000ul DiTi box from Carousel transfer station to 61mm nest
132043	Load Worklist - DiTi Type option 'provided by worklist' does not function anymore since FC 3.6
132112	Transferring string from main script to module doesn't work if the string is also a variable name

7. FluentSetup 3.8

Access tokens must be used

FluentSetup 3.8 no longer accepts certificates. Please use access tokens instead.

Access to Tecan Service Software is restricted to trained and certified engineers to ensure that IQ/OQ actions are executed safely and correctly thereby safeguarding product performance, quality and compliance. FluentSetup 3.7 and higher require a valid Access Token to log in. To request an Access Token, go to https://digital.tecan.com/authenticate.

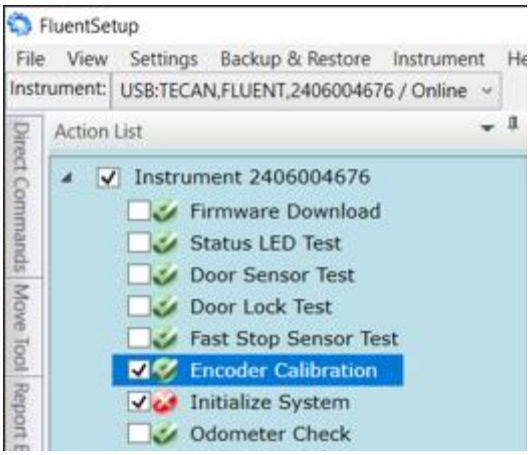


RGA Encoder Calibration action must be executed to initialize an instrument using FluentControl / FluentSetup 3.8

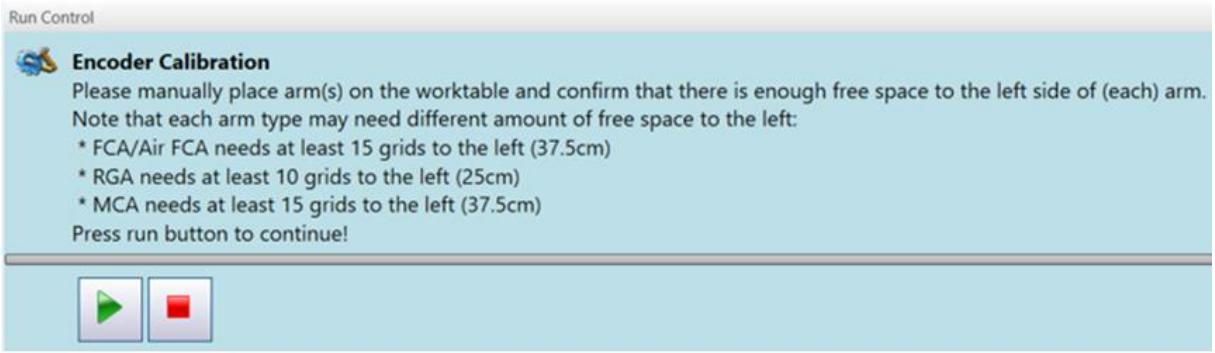
A new value has been added to the RGA encoder, necessitating a re-calibration. Failure to execute this action will lead to an error during instrument initialization:

No tools are needed for the Encoder Calibration and the action is executed with the arm in the air. It is therefore possible to do this via remote access. It is not necessary to execute any other actions.

After installing or upgrading the software, apply the configuration to the instrument as usual and restart FluentSetup. After the restart, select the Encoder Calibration manually:



Run the Encoder Calibration action:



Configuring Resolvex i300

After using MAPlinx Setup Software 6.2.3.1159 to configure a Resolvex i300, the instrument must be re-started before FluentSetup can be used. If having used FluentSetup first, re-start the instrument before using MAPlinx Setup Software.

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

This issue occurs sporadically and can be resolved by restarting FluentSetup and executing DeckCheck Setup again. If the test passes after the restart, the initial failure does not mean that there is an issue with the hardware.

8. Appendix: overview of changes in recent FluentControl releases

The following changes have been made in FluentControl 3.8

- Faster FluentControl software startup
- Improved software stability
- Improved software performance in Edit Time, especially when working with scripts with many hundreds of lines
- Enhanced usability of Import workflow
- Improved MCA384 tip eject into waste with a waste guide
- Import and export of variables from XLSX files is faster and no longer requires Excel to be installed on the computer
- Improved RGA positioning precision
- New Replace Empty Tip Box command for the FCA Gripper
- New Register Event Handler command
- FCA smart Commands: new checkbox to dispense any remaining excess volume back to source (multi-pipetting)
- New MCA96 liquid subclasses for Water Free Single to support 50ul and 200 ul tips
- New SerialNumber() function
- Pressure-based liquid level detection (pLLD)
    - Supported in Detect Liquid command
    - Supported in Phase Separator Transfer Phase command
- Fluent Scheduler
    - Create Task command can resolve expressions
    - Variables can be used for labware group name in Process editor
- Resolvex i300
    - Bug fixes and improvements
    - Fluent Scheduler compatibility
- Most recent Audit Trail file can be opened via the Database menu
- Cybersecurity fixes
- IoT Client v3.1
- Sample Tracking v1.5 with support for Identity Access Management (IAM)

The following changes have been made in FluentControl 3.7 SP1

- Identity Access Management (IAM) replaces User Management System (UMS) as the user administration module in FluentControl
- ‘Phase Separator Plasma Free Multi’ liquid class for the Transfer Phase command for the Phase Separator, with support for 200ul and 1000ul filtered tips
- ‘Phase Separator Plasma Contact Wet’ renamed to ‘Phase Separator Plasma Contact Single’ and support for 200ul and 1000ul filtered tips added
- Transfer Phase command for the Phase Separator supports plate labware (previously only tube labware)
- Dual AirFCA instruments can use pLLD, cLLD and the Phase Separator command in parallel with PMP AI
- External drivers can send environmental data via the IoT Client to Introspect

- Variable names turn blue after pressing 'Declare' button in relevant commands
- Support use of variables to dynamically determine the remaining runtime run time of a Method
- Te-Motion II firmware v4.2.1 for MultiSense AirFCA and MCA96. FluentControl 3.7 SP1 can be used without requiring FluentControl 3.7 Patch 1
- Fix for FluentControl Scheduler: Gantt chart is displayed on touch monitor

The following changes have been made in FluentControl 3.7

- Compatibility with Windows 11 Enterprise (IoT) LTSC 2024
- Default liquid class 'Water Free Dispense' supports pressure based liquid level detection (pLLD)
- FCA and MCA smart commands support dynamic tip handling
- Updates to Transfer Phase command for the Phase Separator
    - New well attribute 'TransferPhaseResult' for source labware
    - Support of retry after initial liquid level detection does not detect any liquid
    - Support for defining tip re-use
    - Empty tip contents can now pipette back to source tubes and wells
    - New well attribute 'TransferredReplicateCountForTransferPhase' to store total number of achieved replicates per source tube
- Support for XY move during dispense ("spiral pipetting")
- Default pipetting path added to tube labware (13x100 and 16x100) for Aspirate/Dispense with XY Tracking ("spiral pipetting")
- 3D simulator supports MultiSense AirFCA and pLLD
- Improved robustness of (Air)FCA tip pickup procedure
- Scheduler:
    - support for defining process iteration by variable
    - improved timing constraint definition for individual labware
    - long running processes: skip automatic FluentControl restart on defined days of the week
    - long running processes: persist variables after automatic restart
- Support for Advanced Worklist feature
- Updated labware definitions of FCA 350µl DiTi and FCA 1000µl Wide Bore DiTi
- Enhanced software support for Resolvex i300
- FluentAPI supports arrays and querying labware type
- Compatibility with SiLA2 Client (driver) v2.3 and SPARKControl Magellan 3.2 SP1
- Integration of IoT Client 3.0 and TeMotion II v4.1.1 firmware
- Bug fixes and improvements

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

The following changes have been made in FluentControl 3.5

- Snapshot Tool enhancements
- Scheduler enhancements
- Support for pressure based liquid level detection (pLLD) for MultiSense AirFCA
- Support for XY move during aspirate
- Support for dual RGA (available via Labwerx)
- Support for i300
- Integration of IoT Client V2.7
- New instrument worktable layer
- Bug fixes and improvements

The following changes have been made in FluentControl 3.4

- Software support for new MCA96 arm
- New MCA96 Transfer Liquid smart commands
- Updated Te-Chrom smart command
- Software support for new MultiSense board for AirFCA
- Software support for new Phase Separator
- FluentSetup: new firmware TeMotion I V1.10.0.11416, TeMotion II V3.3, and TeGIO II V1.1. 0-0-g8e1cb3550
- User Management System (UMS) version 1.1.13 integration
- DisplayLink USB Graphics Software for Windows V11.0 M0
- Sample Tracking 1.4 SP2
- SPARKControl Magellan 3.2 fixes issue with automation interface

The following changes have been made in FluentControl 3.3

- Windows 10 Enterprise LTSC 2019 (1809) and Windows 10 Enterprise LTSC 2021 (version 21H2) compatibility
- Software support for new MCA96 arm
- MCA384 Get Tips and MCA384 Drop Tips commands have been renamed to MCA384 Pick Up Tips and MCA384 Set Tips Back
- New MCA384 Get Tips and MCA384 Drop Tips commands
- New MCA Transfer Liquid smart command for MCA384 with EVA adapter
- New Te-Chrom smart command
- Software support for new MultiSense board for AirFCA
- Software support for new Phase Separator
- Delay command only available for MicroScript
- Removed possibility to run a repair installation
- FluentSetup: new firmware TeMotion I V1.10, TeMotion II V3.1.2 and UniBootloader II V1.3.1
- IoT Client 2.6 integration
- User Management System (UMS) version 1.1.13 integration

The following changes have been made in FluentControl 3.2

- Windows 10 Enterprise LTSC 2021 (version 21H2) compatibility
- FCA Y-spread > 38 mm with all 8 channels used in parallel no longer causes physical collision with labware
- Tube Rotator: support of mixed tip configuration
- Usability improvements related to DreamPrep NGS
- New Module Controlbar icon
- Improved context check for nested Modules and Subroutines
- Customizable tool tips for variables of scope parameter
- New WorktableName() function
- Sample Tracking command Register Labware with Platemap and option Folder now works
- Improved MCA384 DiTi pickup
- MCA384 Get Tips command saves partial tip settings in GUI
- DeckCheck command improvements
- Fluent Scheduler
    - Scheduler GUI elements correctly linked to Online Help
    - Support for dynamic loading
    - Support for long running processes (weeks): Create Task and Start Tasks commands
    - Support for conditions and branches
    - Ability to stop and resume long running processes
- IoT Client 2.5 SP1 integration
- Sample Tracking 1.4 SP1 integration
    - Improved functionality when using the FluentID
    - Minor bug fixes
- User Management System (UMS) version 1.1.12 integration

The following changes have been made in FluentControl 3.1

- Fluent Scheduler: select labware for process iterations via a barcode file
- Fluent Scheduler: incubation at <Base>
- Fluent Scheduler: Gantt Chart visible in Touch Tools
- Support for new 50µL short filtered DiTis in standard tray, including 5 new Liquid Classes
- FCA 5mL DiTis can be used (not supported in FluentControl 2.8 and 3.0)
- Snapshot Tool always collects large dump files
- Variables can be used in Te-Incubator (MIO) and Te-Shake commands (not supported in FluentControl 2.8 and 3.0)
- Improved DeckCheck usability at edit and run time
- Magellan output format configurable when not for use with FluentControl (not supported in FluentControl 2.8 and 3.0)
- MCA waste chute with drop guide supports both MCA384 and MCA96 tips
- IoT client upgraded to version 2.5 integration
- Sample Tracking version 1.4 integration
- User Management System (UMS) version 1.1.11 integration

The following changes have been made in FluentControl 3.0

- Scheduling feature to schedule processes and protocols (FluentControl Scheduler)
- Software Support for Pressure Monitored Pipetting (PMP AI)
- Software Support for DeckCheck

- New FluentID runner available for 15ml Falcon tubes
- Improved normalization calculation command with sample well offset and range possibility
- Fast simulation mode for physical devices
- Extended FC autorun UI with PostInstaller and ReadMe to improve installation process
- Default logging mode changed to 'Info' and improved logging
- Improved ST information when emptying tip contents
- Mix&Pierce: Tip stuck in septum error message can now be manually removed when tip is released
- New warning when available volume is less than what is requested for dispense
- Integrated IoT client upgraded to version 2.3
- Removing QC -Kit Scripts and Liquid classes from Master Media

The following changes have been made in FluentControl 2.8

- ZeroG mode can be toggled from the TouchTools monitor
- New Fast Simulation Mode for 3D Simulator for arms (FCA, MCA, RGA) and timers. Drivers are not included. To enable this Fast Simulation must be enabled in configuration.
- New Confirm Standard Curve command
- New and updated QC-Kit scripts on installation medium
- Loop command is allowed in Wizard group
- New barcode verification option for FluentID
- New variable scope Parameter
- Scripts can be saved as Modules in new command bar section
- Software support added for
    - Drop Spectrometer
    - MCA waste chute with drop guide
    - 12 Well Trough SBS
    - 15mL Falcon Tube FluentID Runner
- SnapShot Tool improvements
- Improved performance when editing long scripts
- Integrated IoT client upgraded to version 2.1 SP1