ZS XPLORER SOFTWARE: v2.1 (PSS0048-11)
SOFTWARE UPDATE NOTIFICATION

Introduction

This document details the release of Zetasizer XPLORER software version 2.1 (PSS0048-11) for the Zetasizer Advance range of instruments. Here forward referred to as ZS XPLORER.

This release supports the Zetasizer Advance range of systems instruments only (including Pro (ZSU5800) and Ultra (ZSU5700) models).

ZS XPLORER is not compatible with the Zetasizer Nano series of instruments (Nano S90, Nano ZS90, Nano S, Nano ZS, Nano ZSE, Nano ZSP, Zetasizer μV and Zetasizer APS) nor can it read the *.dts file format from the Classic Zetasizer series software 8.01 or earlier. However, it is possible to have both the ZS XPLORER software and the Zetasizer software 7.02 or above installed on the same computer.

Installation

It is assumed that you have authority to install or update software within your company's SOPs. If you do not have this authority, please consult with your I.T. support department before proceeding.

It is assumed that you have Administrator rights for the computer. This is required by the installation process. For ZS XPLORER software, Windows 10 and later will not allow an installation if the user does not have administrator access. This is in line with Microsoft's Logo policy and is standard practice.

IMPORTANT:
Only Windows 10 64-bit Operating System is supported

Microsoft user accounts are not supported

If using Windows domain user accounts the user domain must match that of the PC where ZS Xplorer, and its components, are being installed

Before installation of the software, the instrument should be switched off and disconnected.

Recommended System Requirements

The recommended computer system requirements for running this software are highlighted in table 1 below.

Table 1 Recommended system requirements for ZS Xplorer software.

Feature	Specification
Processor Type	4th Gen+ Intel Core i7 Processor (or equivalent)
Memory	16 GB RAM
Hard Disk Storage	1 TB free hard disk space,
Display Resolution	1920 x 1080 full HD screen resolution
Connectivity	2 free USB2.0 or higher ports
Operating System *	Windows 10 64 bit. * The ZS XPLORER software is not compatible with 32-bit Operating Systems

Supported operating systems

ZS XPLORER is compatible with Windows 10 (tested on Windows 10 1903 version and later). Only 64-bit Professional versions are supported.

Supported Languages

- English

Installation Instructions

Installation process

The software suite is available as a web download. The downloaded extractor contains the ZS XPLORER Setup and License Manager Setup files. License Manager is a prerequisite of ZS XPLORER, even if you are not using OMNITRUST regulated environment software suite.

When the extractor is run (see Figure 1) it will extract the required installers to a folder named 'MPInstallers' in the location the extractor is run, and the folder and a readme with important information will be opened (see Figure 2).

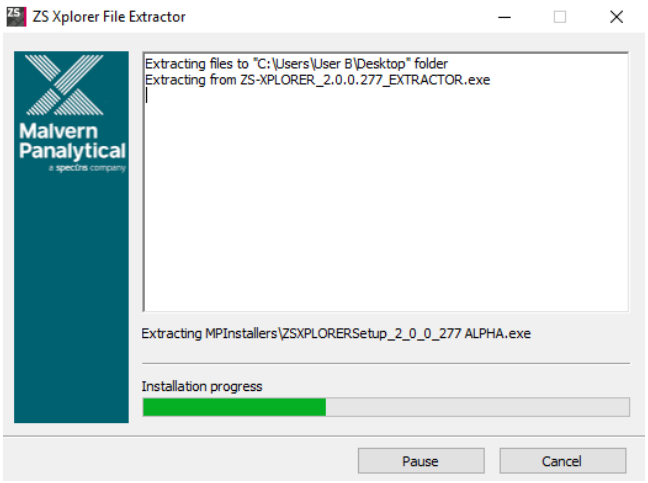

Figure 1 ZS Xplorer Self-Extracting Installation files

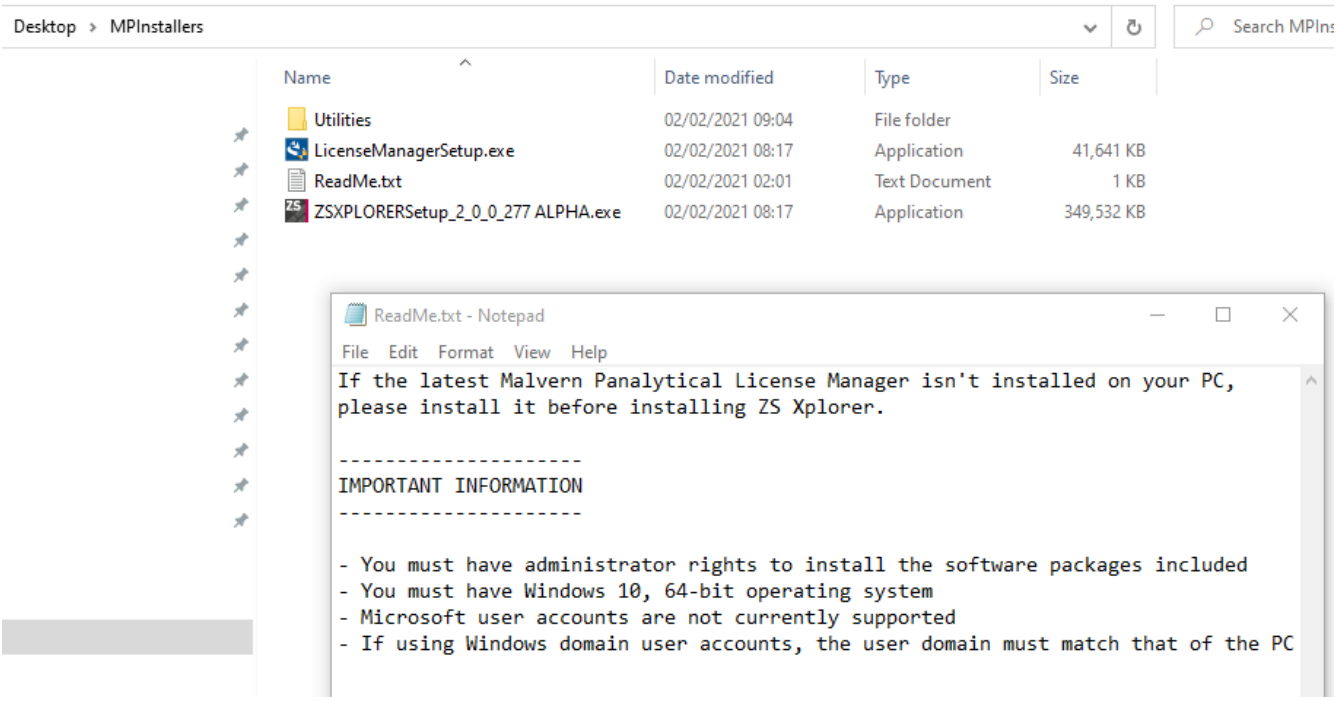

Figure 2 Extracted installation files and ReadMe file.

License manager Installation

The Malvern Panalytical license manager component is a requirement for the ZS XPLORER software to run correctly and must be installed prior to the installation of ZS XPLORER. Please note that users upgrading from 2.00 or later do not require to re-install License Manager. Those upgrading from ZS Xplorer vers.1.50 or earlier must install License manager.

ZS XPLORER Installation

During the installation process, you will be prompted with the following message (Figure 3).

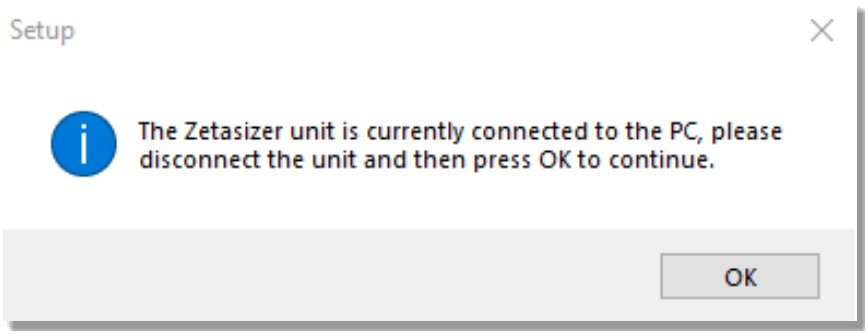

Figure 3: "Disconnect Zetasizer Unit" message

Note:
You must unplug the USB cable from the computer or Zetasizer and then press OK. If you press the OK button without performing these previous steps, then the installation will not continue.

Microsoft .Net Framework and Microsoft C++ Redistributable

The Microsoft .Net Framework 4 (version 4.6.2 or greater) and the Microsoft Visual C++ Redistributable must be installed for the ZS XPLORER software to run. This is installed during the ZS XPLORER software installation progress and under certain circumstances can involve the computer needing to restart. Completion of this stage of the installation can take a few minutes and can take over 10 minutes. Whilst these components are being installed a window such as below will be displayed, figure 4.

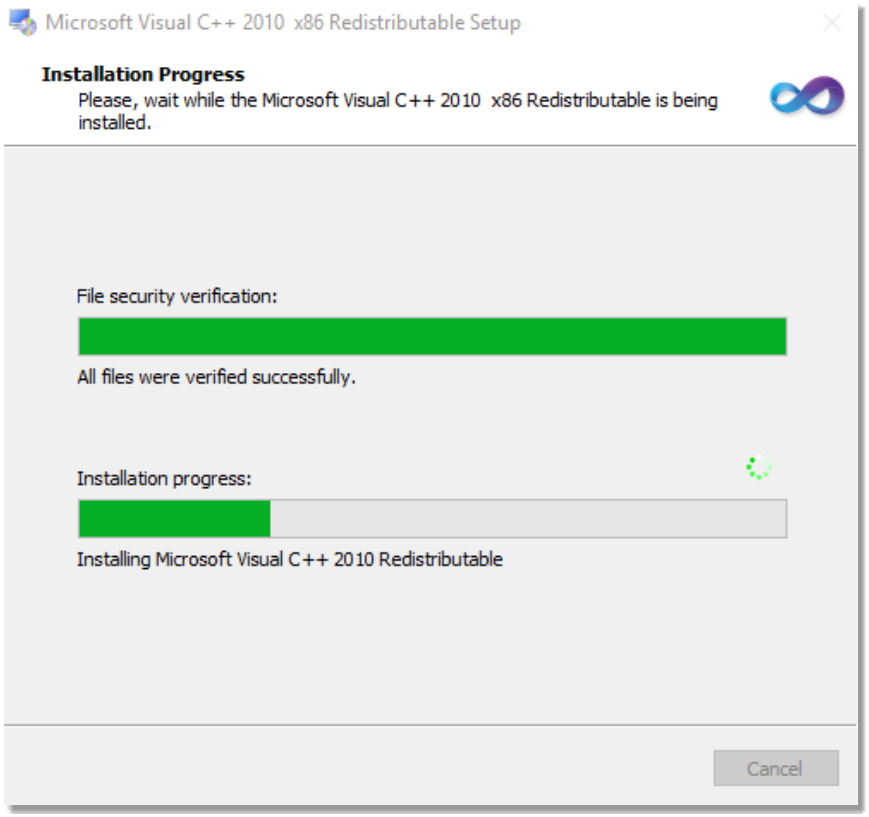

Figure 4: Microsoft Visual C++ Redistributable Installation Window

USB Driver Installation

During the installation of the USB drivers you may be prompted several times with a message as shown in *Figure 5*.

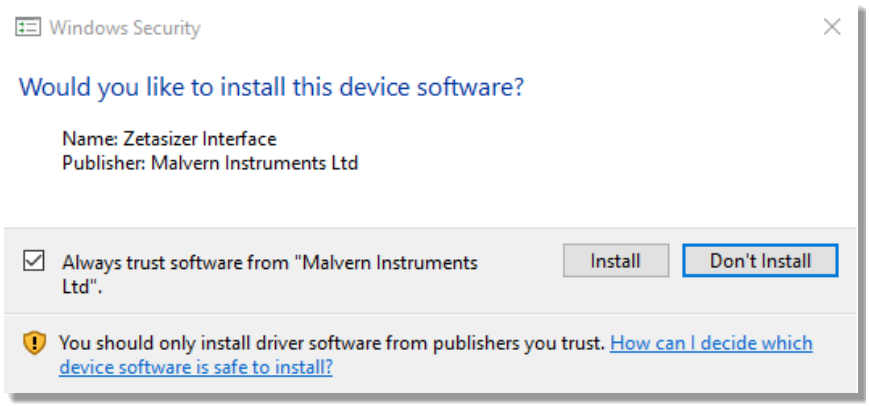

Figure 5: Install USB window

This warning can safely be ignored as the software installation has been fully tested on Windows 10. Press Install to continue installation of the USB drivers.

Connecting the Zetasizer to the computer

When the software has been installed and the instrument has been connected via the USB port, and switched on, the ZS XPLORER software may need to upgrade the firmware on the Zetasizer, in which case the status icon on the lower right of the software screen will indicate such (see *Figure 6*).

Figure 6 instrument firmware updating status icon

Users should not disconnect or power off their PC or instrument during normal firmware updating. In some rare occasions the firmware may fail to update correctly, in such circumstances a notification will be displayed indicating the issue – please restart the instrument and software to reset and repeat the firmware upgrade process.

With the correct firmware version installed the Zetasizer will connect to the instrument. A successful connection is indicated with an icon in the corner of the software (see *Figure 7*) showing green and with a tick.

Figure 7: Instrument connected icon

Uninstall Procedure

The software can be uninstalled using the standard Apps & Features panel in Windows Settings.

Running the installer with the ZS XPLORER software running

If the installer is run whilst the software is running, the window in *Figure 8* will display.

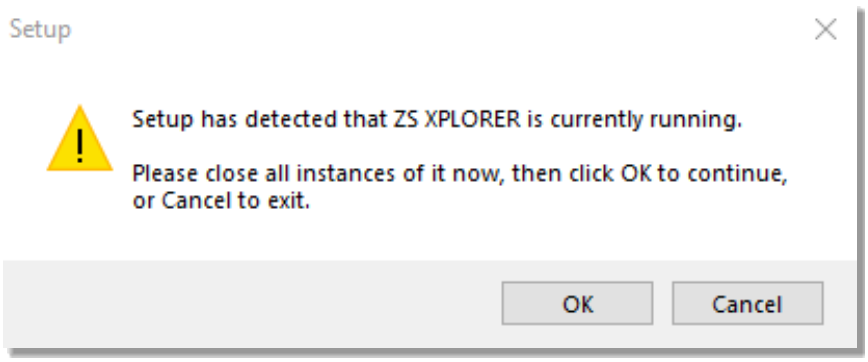

Figure 8: Running installer with software open

Connecting the MPT-3 Titrator to the PC

Ensure the computer is turned on and connected to a Zetasizer Advance system.

Connect the MPT-3 Autotitrator to the computer using the USB cable provided, ensuring that it is turned on. Click on the settings button in the top left corner of the ZS XPLORER software. See *Figure 9*.

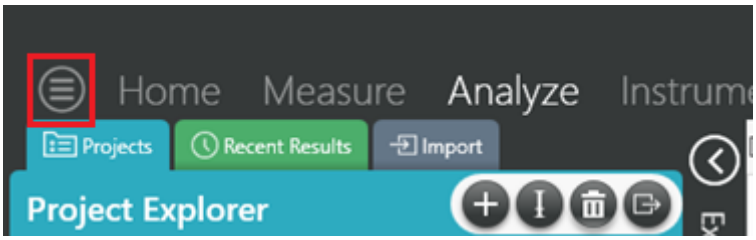

Figure 9 Software options

Click Options and navigate to the Titrator tab as seen in *Figure 10*.

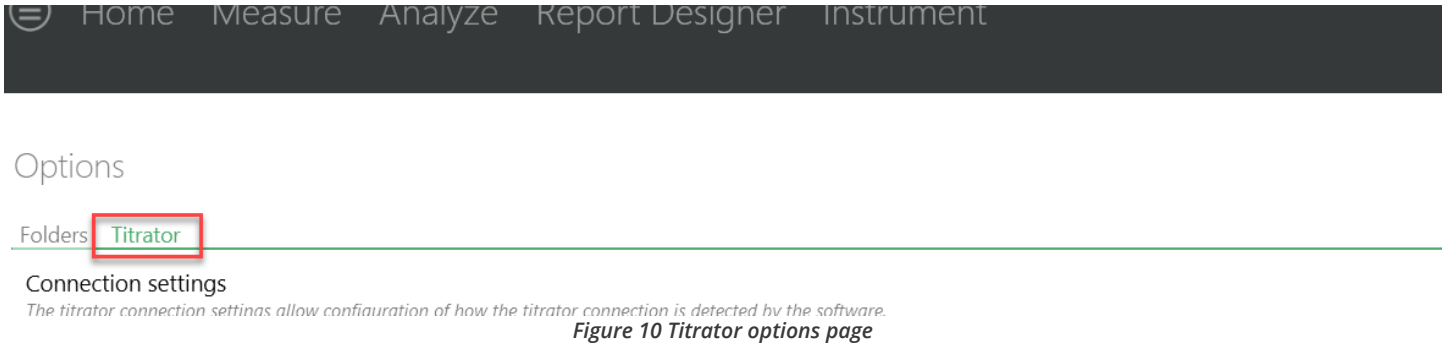

Figure 10 Titrator options page

On the COM Port drop down menu, select USB Serial Port (COMXX) as shown in figure 8. (Note that the COM port number and description may vary). If the titrator has been detected on this port, then a green tick will be visible See *Figure 11*.

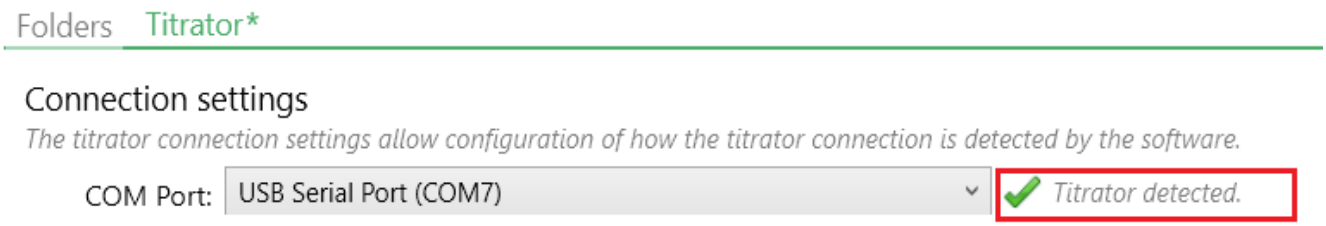

Figure 11 Titrator successfully detected

If the titrator is not detected on the selected COM port, then a red exclamation icon will be displayed with a message. See *Figure 12*.

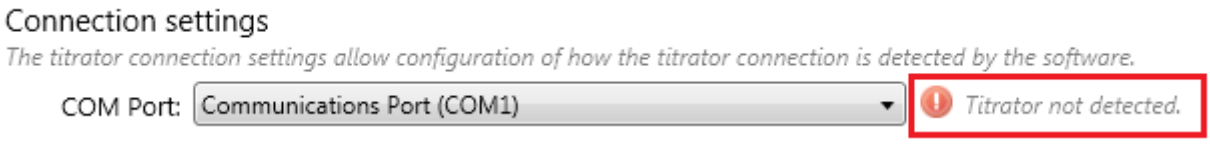

Figure 12 Unable to detect titrator

Once the titrator has been detected, click to save the settings.

Once the settings are saved an icon and a saved message will appear next to the saved COM port as shown in *Figure 13*.

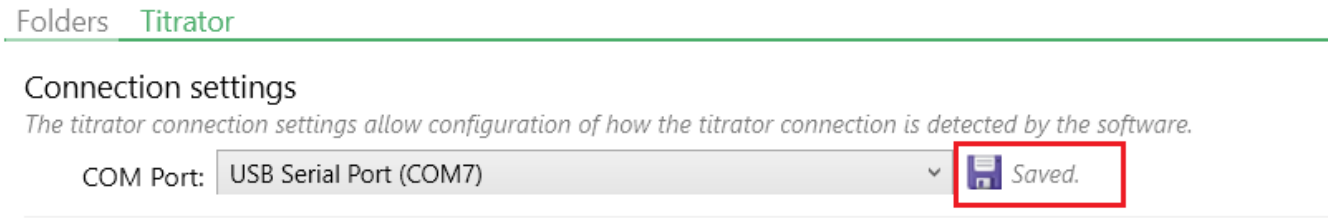

Figure 13 COM port saved

The titrator icon at the bottom right of the screen should turn green indicating that the titrator is successfully connected as shown in *Figure 14.*

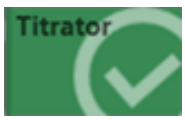

Figure 14 Titrator successfully connected

New Features

ZS Xplorer 2.1 offers improvements to OmniTrust regulated environment users by providing improved control of methods and provision of a method audit trail. This version also provides improvements by provision of major size distribution percentiles and automatic size averaging function. A critical bug that could affect zeta potential data for very low scattering samples has also been fixed. Details below.

Default Roles

ZS Xplorer is now installed with default roles available, these can be imported and setup in OmniAccess and from their deployed to ZS Xplorer. These have been provided as example roles and to help with validation of OmniTrust.

The default roles location is: "C:\ProgramData\Malvern Panalytical\Regulated Environment\Default Authorizations\ZS Xplorer\Restricted"

Method version number and method name

Methods created and used within an OmniTrust regulated environment are now versioned and the method version increments upon saving a change to the method.

The method version can be seen on the method tile and is available to be selected in the record selector grid and parameter tables for measurement results, see figure 15.

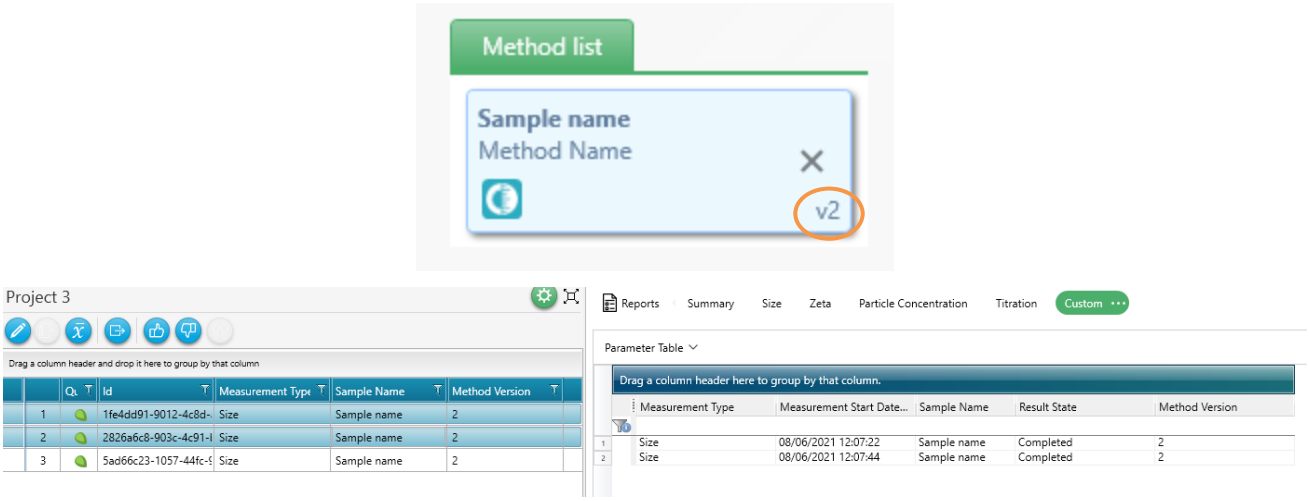

Figure 15 version number shown in Method Tile, Record Grid and Parameter Table

The method name is also now shown on the method tile regardless if regulated or non-regulated environment. The method name shows a “manual” for methods that have not been saved prior to running.

Method restrictions for invalid method audit trail

If a method audit trail has become invalidated, for instance by unauthorized editing, the method will be blocked from running in a regulated environment, see figure 16.

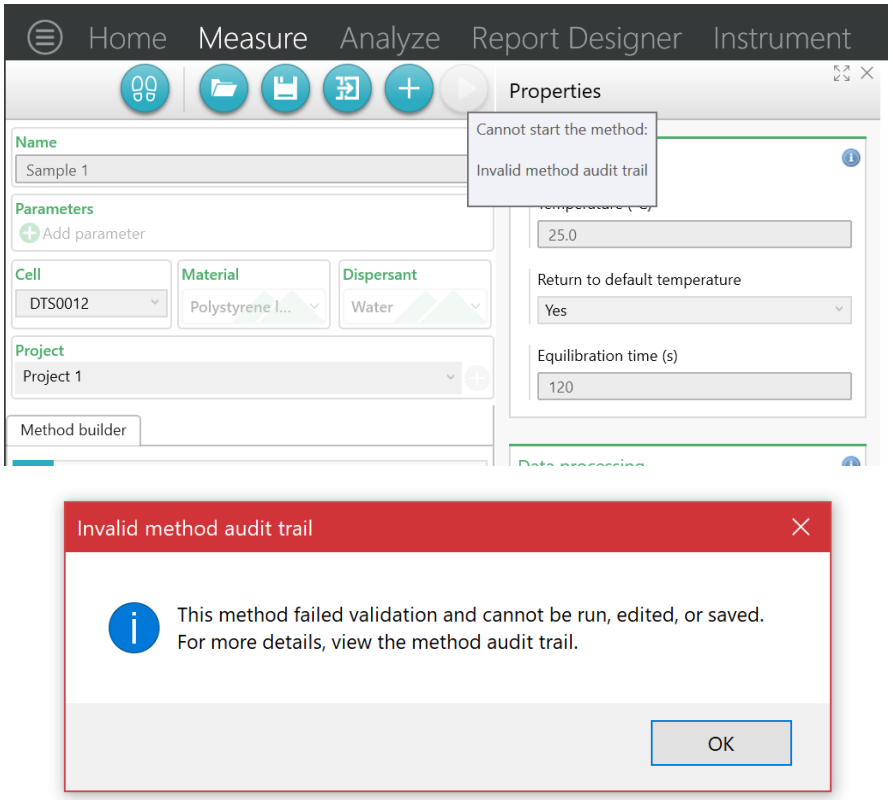

Figure 16 method with corrupt method audit trail being prevented from running.

Persist methods

Methods now persist upon being run; this means that a method will remain open in the method list allowing for change of details, i.e. sample name, and ready to be run again.

Method save button

The existing "save as" button has been supplemented with a "Save" button, figure 17. The save button saves to the current open method file, assuming you have permissions to do so in a regulated environment.

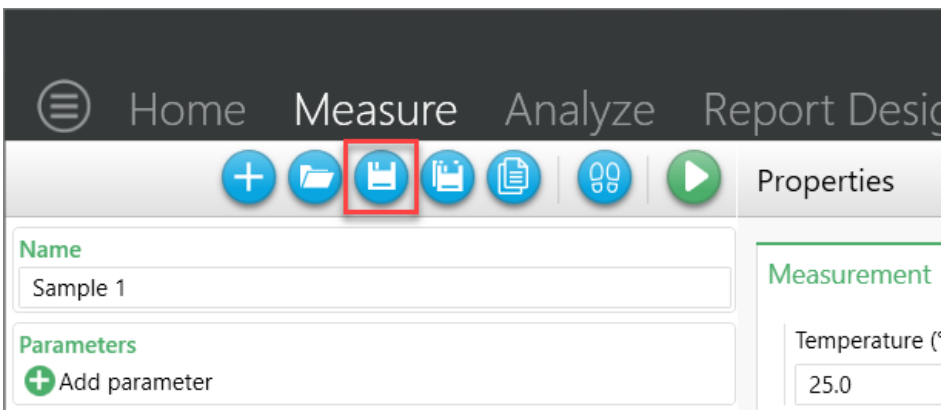

Figure 17 save button added to method builder

The save button is only enabled when the method has unsaved modifications, figure 18.

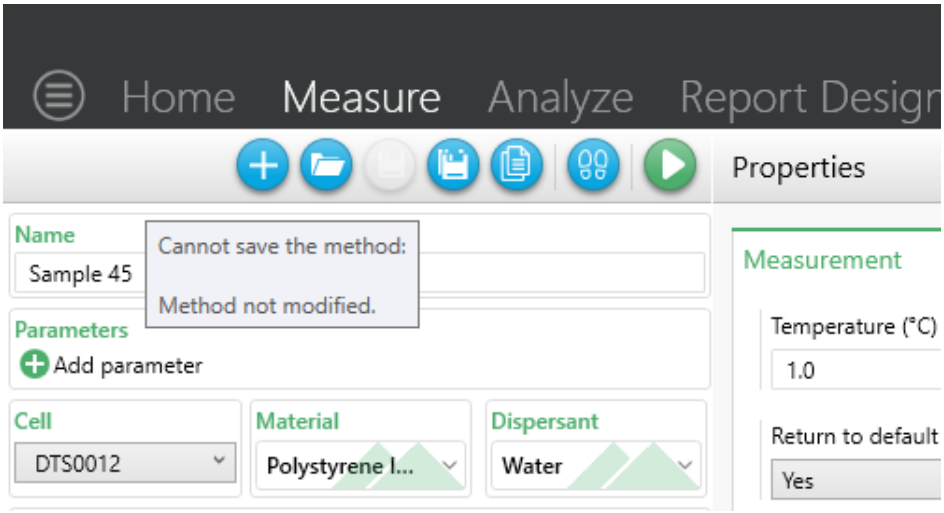

Figure 18 save button in disabled state

Regulated method editing restrictions

Methods created in a regulated environment cannot be edited in ZS Xplorer if not in regulated environment mode, but they may be run, see figure 19. Use "Save as" to rename the method file if you require to edit the method.

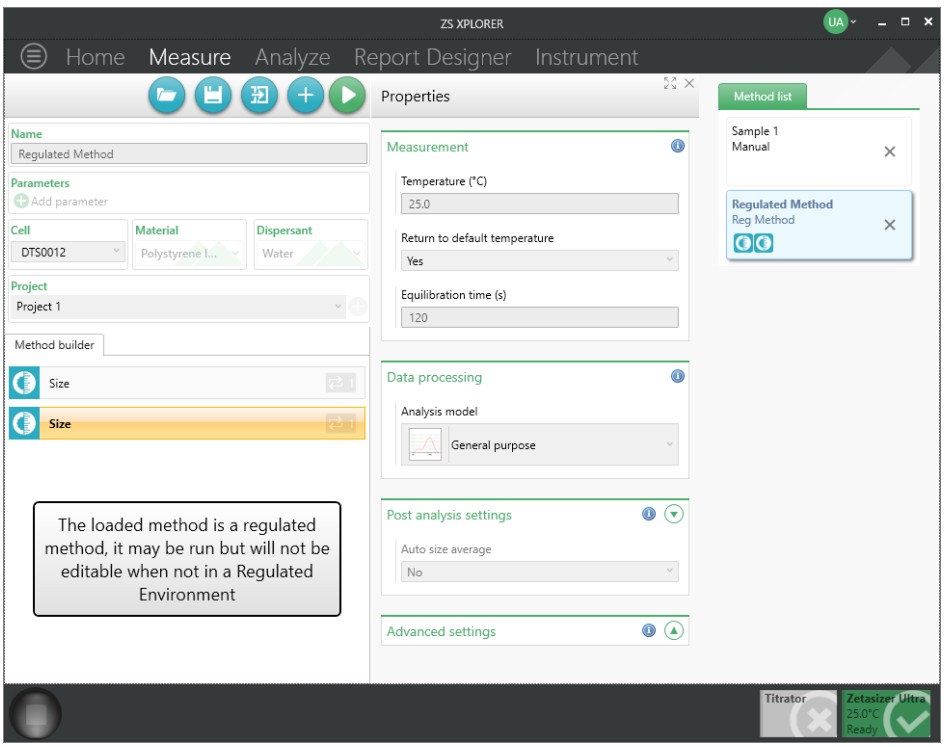

Figure 19 regulated method in non-regulated ZS Xplorer, can be ran but not edited.

A non-regulated method in a regulated environment are prevented from running, see figure 20.

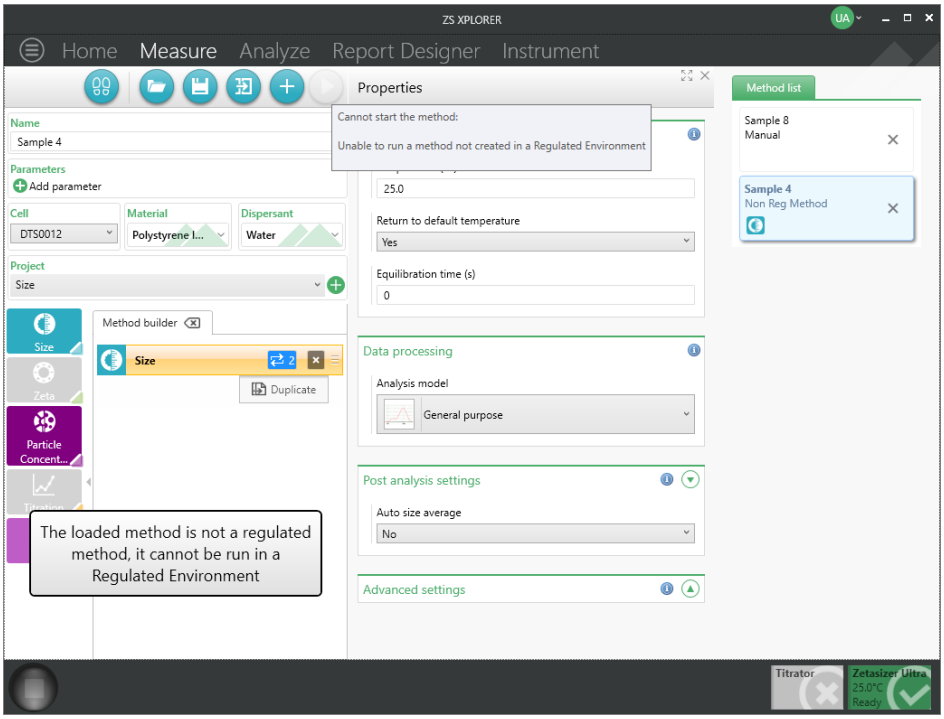

Figure 20 non-regulated methods in a regulated environment are prevented from running.

Regulated method save restrictions

Regulated methods cannot be overwritten, unless by themselves. This prevents a method being renamed to an existing method and accidentally overwritten, figure 21.

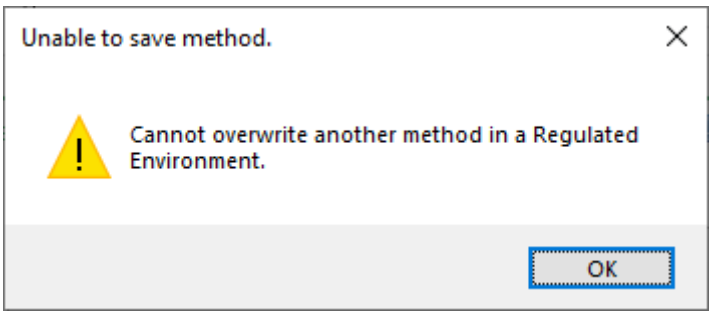

Figure 21 dialog warning when a regulated method is attempted to be overwritten by other than itself

Save and copy methods

It is no longer possible to save or copy methods whilst they are running or from the completed method list, see figure 22.

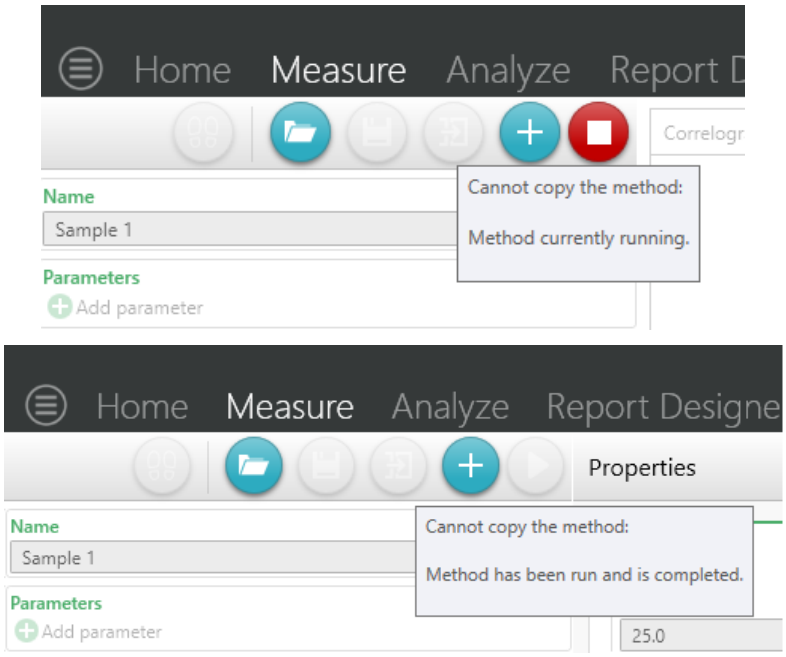

Figure 22 illustration of disabled copy button on running and completed methods

Saving methods with blank metadata

It is now possible to save methods with blank metadata, such as sample name, project name or custom parameters. This allows methods to be produced that when opened have blank fields that must be filled in before the method can be run, see figure 23.

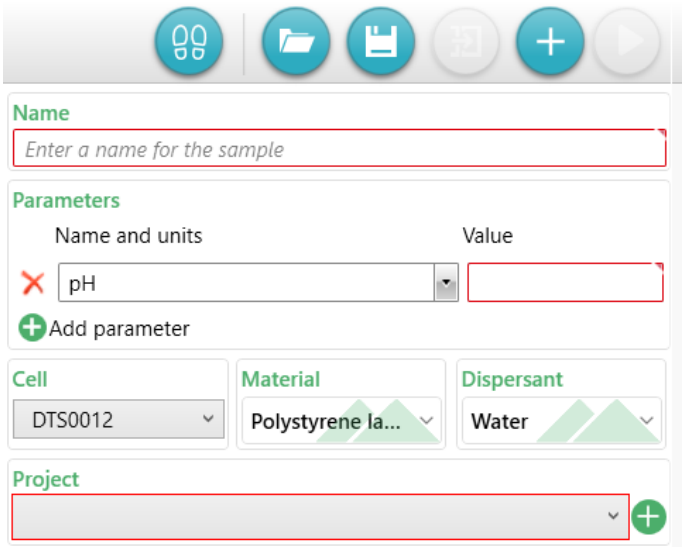

Figure 23 example of method with blank metadata fields

Method audit trail viewer

When ZS Xplorer is in regulated environment mode and Record Audit Trails are enabled a method audit trail viewer is now available to allow inspection of the open methods audit trail, see figure 24.

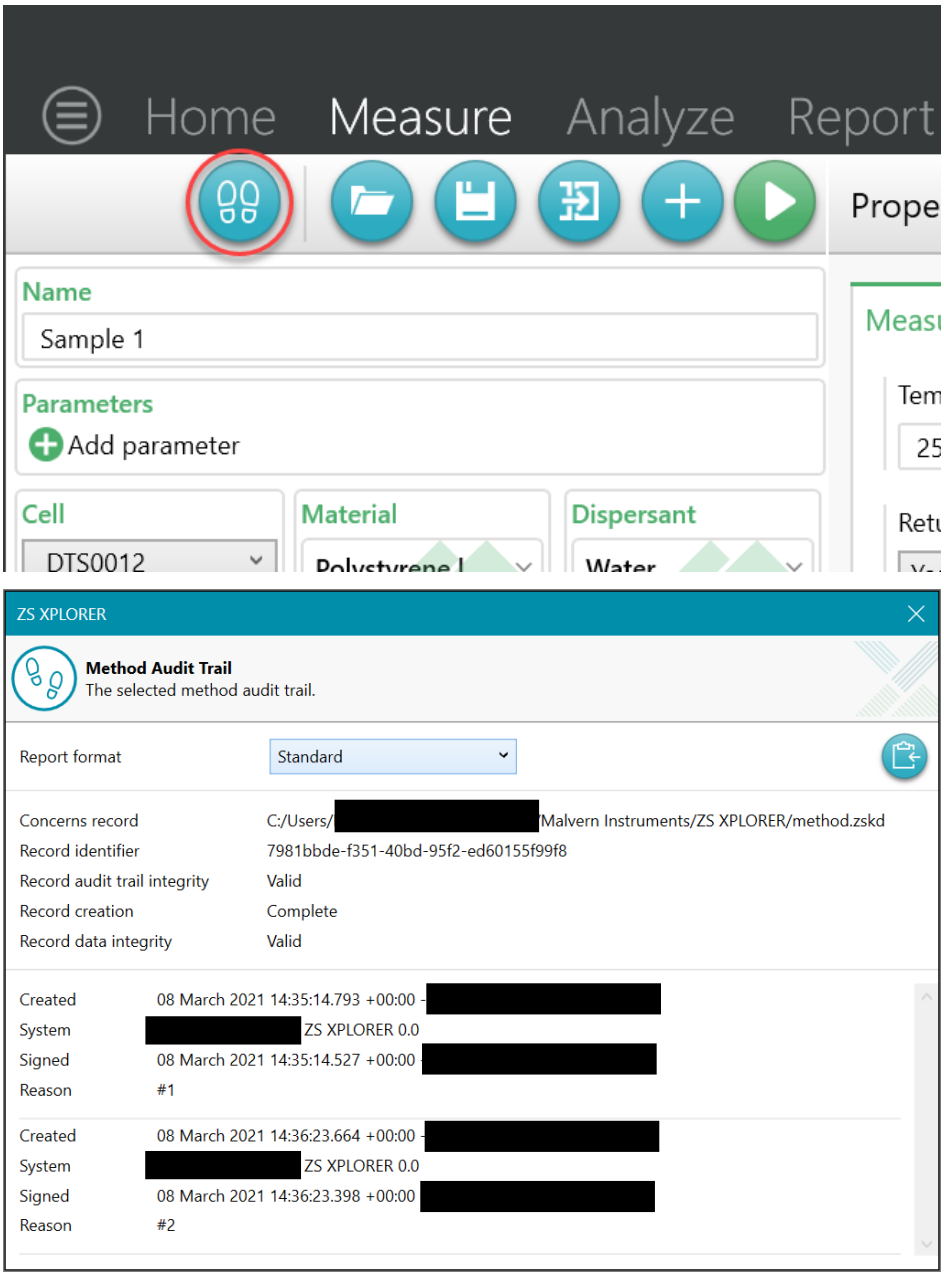

Figure 24 Method audit trail button (highlighted) and example method audit trail.

Reporting signature widget

Added a signature widget to Analyze screen and printed reports to enable the status, approved or rejected etc. on screen and printed reports.

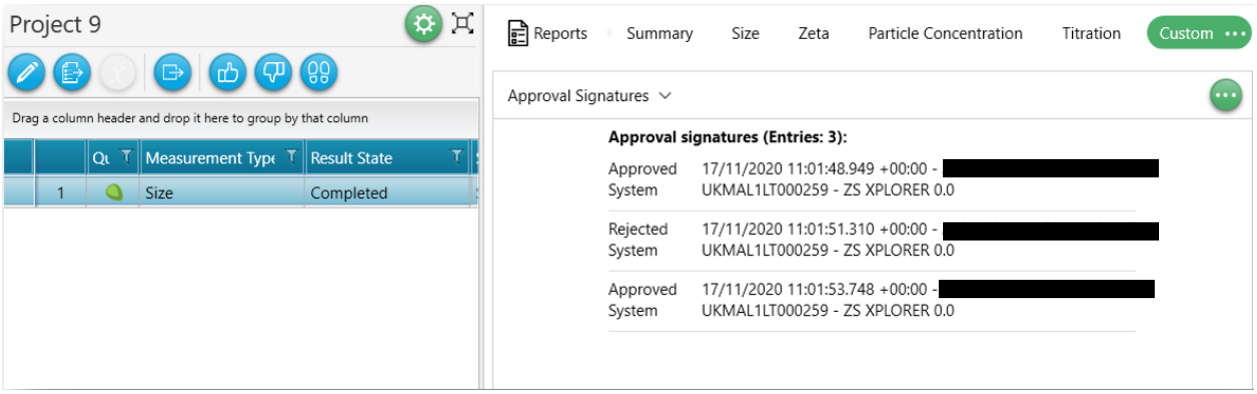

Figure 25 signature widget in Analyze view

Duplicate record importing

When ZS Xplorer is in regulated environment mode and record audit trail is enabled importing of duplicate record IDs is now prevented, figure 26.

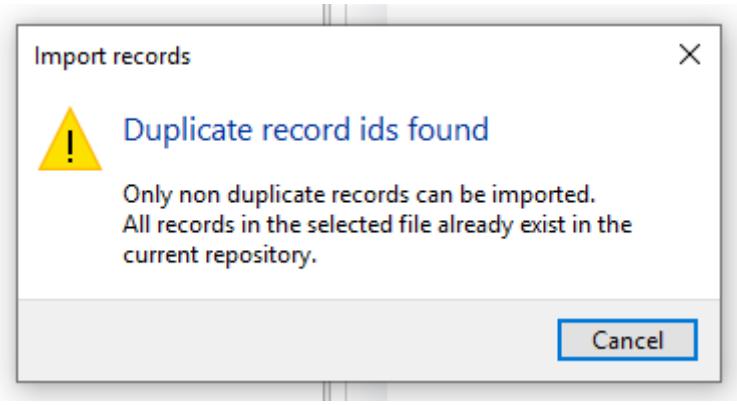

Figure 26 warning dialog showing imported file contains duplicate IDs that will not be imported

Auto size averaging

For size measurement methods that have multiple repeats it is now possible to create an automatic size average of the results from that size method step or per-cycle for a grouped size method step. The option is available from the post analysis options of a size method step, see figure 27.

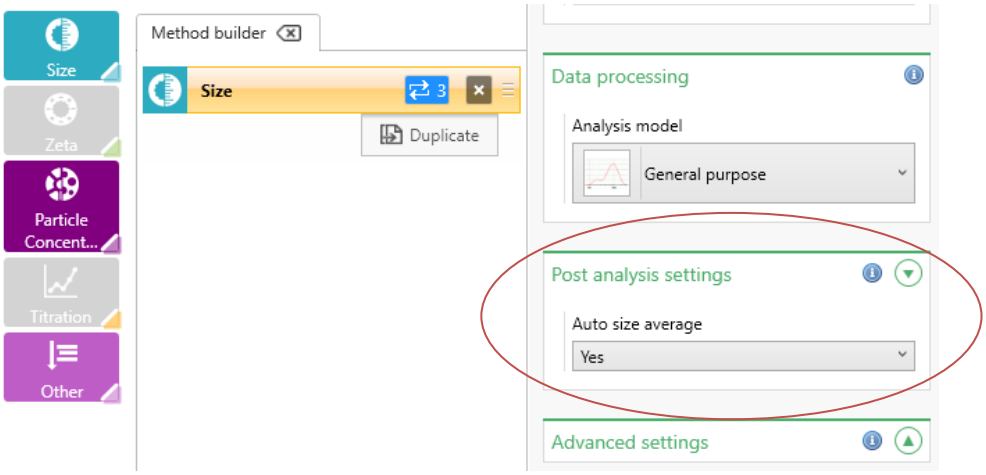

Figure 27 post-analysis auto size average option

Edit sample name when manually creating an average result

A dialog now shows when creating a manual size average result that allows the average result name to be changed, see figure 28.

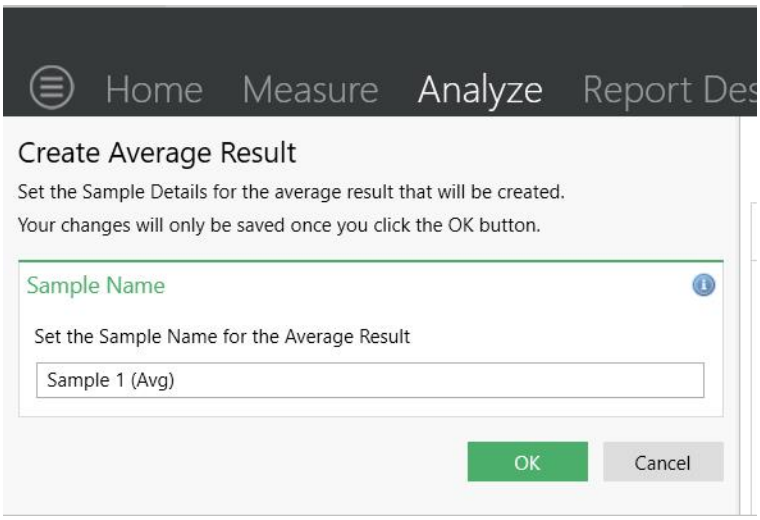

Figure 28 edit sample name dialog for manual average creation

Percentile parameters

Added percentile parameters for the 10th, 50th and 90th percentiles for size results in intensity, volume and number weightings. These are available for both single angle and MADLS size measurement data. Span has also been added for volume size data. These new parameters are available from the peak summary data and can be configured to show in parameter tables and statistic tables, see figure 29.

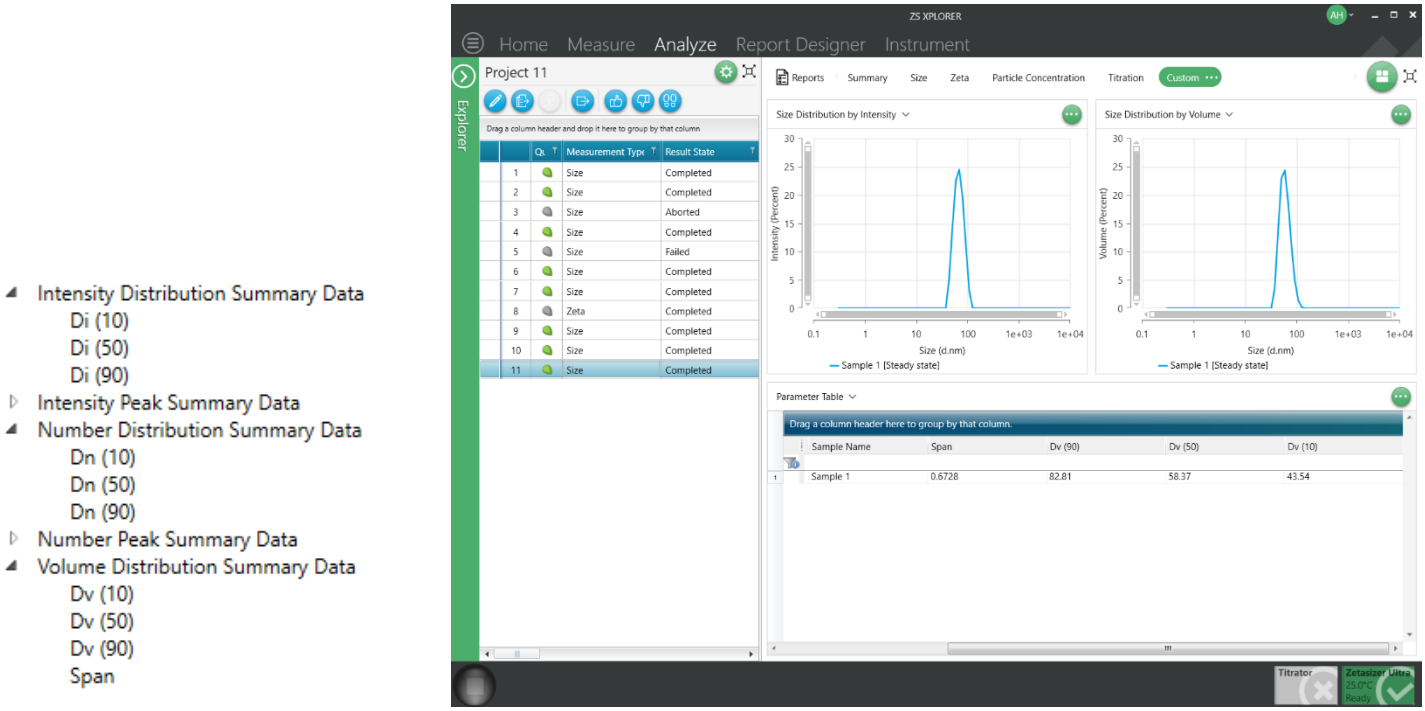

Figure 29 10th, 50th and 90th percentiles for size data added - parameter selection on the left and example on right.

Shared storage import & export settings

When in shared storage mode the import folder location is fixed to a shared ProgramData folder and the export location is now defaulted to a shared ProgramData folder. On export the user may still chose a different export location. See figure 30.

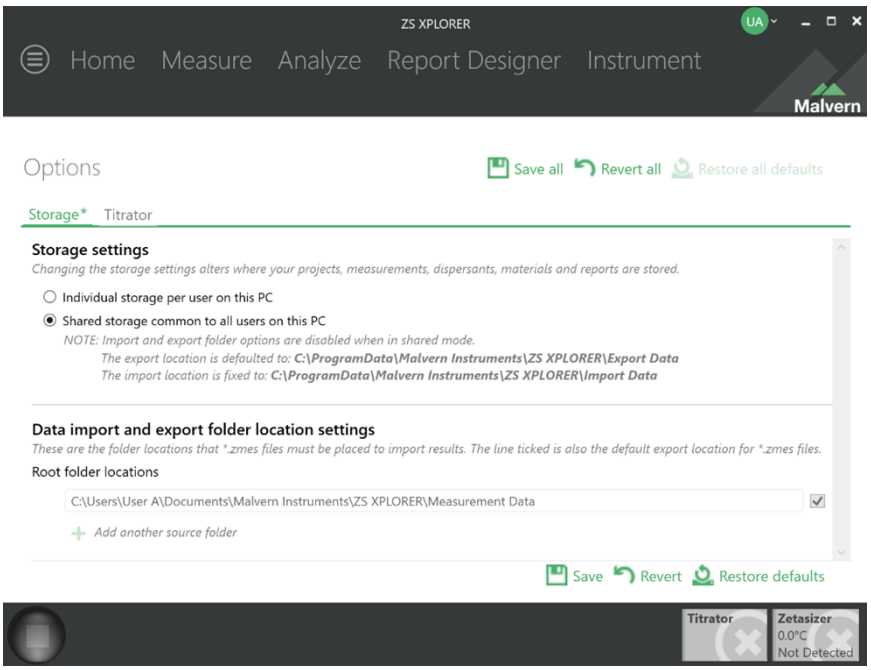

Figure 30 options page with shared storage enabled

Security Advisories

The following section and table 2 details any security updates that have been addressed in this release, including fixes for identified vulnerabilities.

Note:
We always recommend updating to the latest software version which will provide you with new features, bugfixes and most importantly, security updates.

Note:
Other products may also be affected by any issue described here. We recommend you regularly check the Software Updates Notifications (SUNs) for all of your Malvern Panalytical products, and register on our website to receive updates.

Table 2 Security updates

Reference	Description	Recommendation
HEN-1042	Version 2.00 and earlier of the ZS XPLORER software contains a vulnerability which could allow an attacker to craft malicious measurement (.zmes) and schedule (.zskd) files. Loading one of these malicious files could result in arbitrary code execution. Version 2.10 introduces a fix to completely mitigate this vulnerability.	Upgrade to version 2.10 of the software. Never open files from an untrusted source, even if they appear to be non-executable.
HEN-572	Version 1.50 and earlier of the ZS XPLORER software contains a vulnerability in the reports feature which could allow an attacker to craft a malicious report file. Loading a malicious report file could result in arbitrary code execution. Version 2.00 introduces a fix to completely mitigate this vulnerability.	Upgrade to version 2.00 of the software. Never open files from an untrusted source, even if they appear to be non-executable.

Changes and fixed issues

The main changes and issues fixed in this release of the software are listed in table 3.

Table 3 changes and fixed issues in version 2.1 ZS Xplorer software

Reference	Issue	Type
HEN-339	Analyze - Record selector - Changing projects shows Peak Two data as 0	Bug
HEN-539	When editing results restrictions on analysis are driven by the cell type rules	Story
HEN-560	Record selector quick buttons cover project name	Story

HEN-574	Measure - MADLS/Particle Con - Pause between repeats (s) defaults back to '0' when view from method (Analyze tab) is used	Bug
HEN-575	Measure - Missing method parameters when loading a method and changing between methods	Bug
HEN-578	Measure - MADLS/Particle Con - Number of repeats defaults back to 1 when view method (Analyze tab) is used	Bug
HEN-579	Size measurement fails with "Calculated ZAverageMean 0 is not a valid value"	Bug
HEN-654	Make stop button a consistent style with the other software stop button	Story
HEN-680	Peak Two Area field is empty when a measurement is edited (until ZS-Xplorer is restarted)	Bug
HEN-686	Make method rules shareable across application	Story
HEN-739	Change text in Options Menu on Measurement FIles	Story
HEN-744	Auto size analysis averaging as part of a method	Story
HEN-749	Create size analysis averaging algorithm in software	Story
HEN-750	Reflect Shared/Private file setting in Method Open Dialog	Story
HEN-753	Percentile parameters (D10 D90)	Story
HEN-755	Create a UI that allows a user to set the sample name of an averaged result	Story
HEN-756	method name not available in parameter grid and measure screen	Story
HEN-801	Analyze - Method Path present on edited records	Bug
HEN-803	Child measurement does not inherit method path	Bug
HEN-910	Analyze - Method name and path appear blank for auto average size result	Bug
HEN-948	Analyze - Missing method name value in record selector	Bug
HEN-968	Measure - Method name for running and completed methods changes when saving methods	Bug
HEN-972	Delete schedule item appears momentarily when saving completed method	Bug
HEN-973	Spike: Zeta frequency plot plotting offset	Bug
HEN-993	Method Name/ID - Open and edit method reports same method name	Bug

HEN-1012	Allow saving of methods with blank custom meta data fields	Story
HEN-1016	Measure - Prevent actions whilst saving method	Bug
HEN-1036	Analyze - Custom workspace appears blank or crashes the software when viewing print preview on reports and using trend chart	Bug
HEN-1065	Only enable schedule save button when changes detected	Story
HEN-1071	Update help files	Story
HEN-1103	Measure - Use of 'Schedule' should be replaced with 'Method'	Story
HEN-1110	Update Zeta Analysis to pass in the correct amount of data to the FFT Analysis	Bug
HEN-1121	Methods are updated to match instrument capabilities rather than honoring original method	Bug
HEN-1158	Analyze - Method ID shown when 'View method step' method is run	Bug

Known Issues

The following software bugs have been discovered within the software and will be investigated as part of a future release. Please follow the suggested work-around where they are provided.

Table 4 Known issues in ZS Xplorer version 2.1.

Reference	Severity	Issue	Workaround
HEN-945	Normal	Edited records display the original record created date – this is a display issue and underlying data is correct	Changing projects or re-starting the software will cause the display to be refreshed and display correctly
HEN-386	Normal	Run button disabled when connecting an instrument during measurement creation	Disconnect and reconnect the instrument or add another measurement step
HEN-377	Normal	Software locks-up if you cancel a measurement during the enable for size step	None- force close the application

Error Reporting

Should persistent problems occur contact the local Malvern Panalytical Helpdesk. To speed up response time include all the following.

A full-screen screen shot of any error message and everything behind it.

Full description of what was happening at time of issue and ideally leading up to it.

Instrument serial number (e.g. MAL1060289), instrument serial number can be found inside the sample cell basin and on the instrument back panel.

The software version, which can be found as described in a section below.

The log information described below.

And, if relevant and possible, export the relevant measurement data as described in the last section below.

Extracting log information

If an error occurs, further information about the error can be found from the Windows Event Viewer.

Click the Windows Start Button.

Type Event Viewer and press enter.

Navigate to Applications and Service Logs/Zetasizer All Events.

The window will display the most recent errors that have occurred with the ZS XPLORER software.

Error information can be selected and then exported with the Save selected Events button allowing this information to be passed to the Malvern Panalytical team for troubleshooting.

The contents of the measurement log window are logged to file at *Documents\Malvern Instruments\ZS XPLORER\logs*

Software version

The Software Version is vital to determining the cause of problems. To retrieve the version number:

Click on Application Menu button (*Figure 24*)

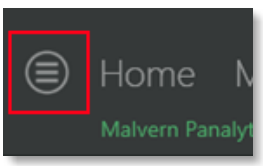

Figure 31 Application Menu button

Click on the About button

Read version number (Figure 25)

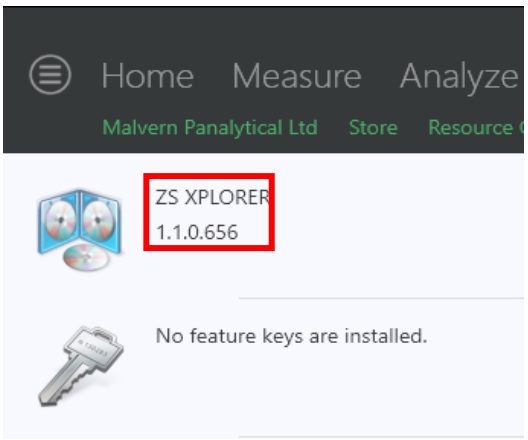

Figure 32 : Software Version Number

Extracting measurement data to send

In situations where the errors appear to be related to a specific record or records, the affected records can be exported from the software by selecting them and pressing the export icon, *see Figure 26*, and send the *.zmes file to the Malvern Panalytical team for investigation.

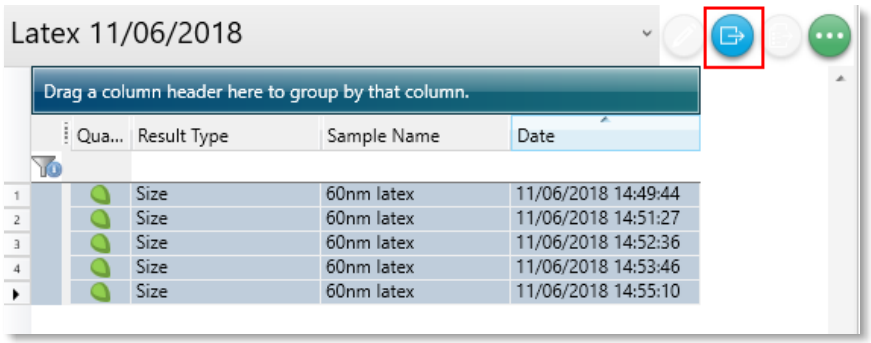

Figure 33 Exporting selected record

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