

ZETASIZER XPLOERER SOFTWARE: v1.20 (PSS0048-03) SOFTWARE UPDATE NOTIFICATION

Introduction

This document details the release of **Zetasizer XPLOERER software version 1.2 (PSS0048-03)** for the Zetasizer Ultra and Pro. Here forward it is referred to as ZS XPLOERER. This release supports the Zetasizer Pro and Zetasizer Ultra instruments only and is not compatible with the Classic Zetasizer Nano series of instruments (Nano S90, Nano ZS90, Nano S, Nano ZS, Nano ZSE, Nano ZSP, Zetasizer μ V and Zetasizer APS) nor can it read the *.dts file format from the Classic Zetasizer series software 7.13 or earlier. However, it is possible to have both the ZS XPLOERER software and the Zetasizer software 7.xx 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 XPLOERER 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:

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 the Zetasizer XPLOERER 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 XPLOERER software is not compatible with 32-bit Operating Systems

Supported Languages

- English

Installation Instructions

Installation process

The software suite is available both as a web download and on an auto-loading CD-ROM. Inserting the CD into a system configured to auto-run a CD will run the installation program automatically. If your system does not support this feature run the setup program from the root directory of your CD drive.

During the installation process, you will be prompted with the following message (*Figure 1*) if the Zetasizer is still connected to the PC.

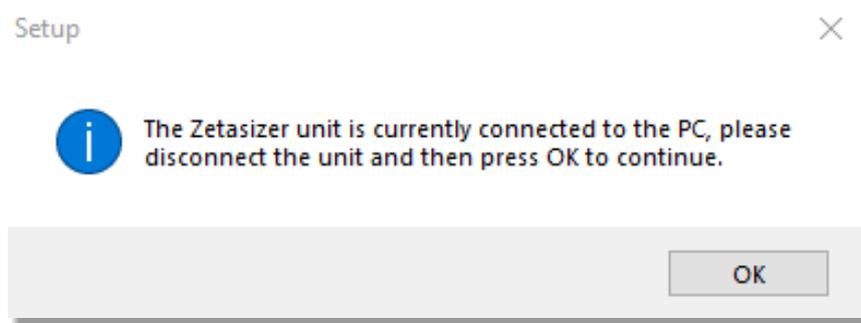


Figure 1: "Disconnect Zetasizer Unit" message



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 4.6.1 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:

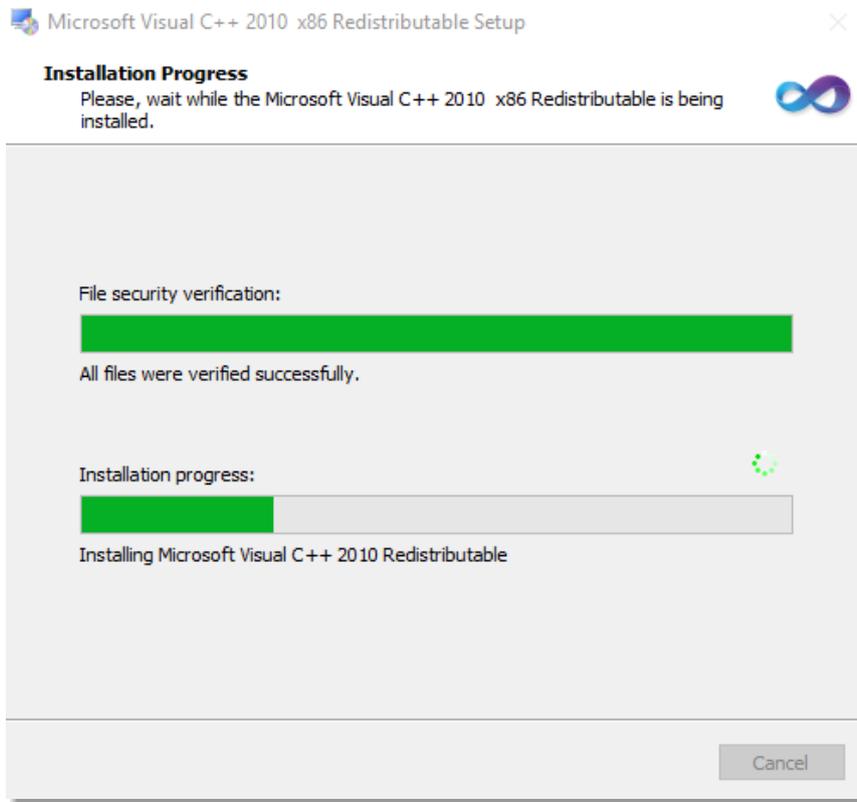


Figure 2: Microsoft Visual C++ Redistributable Installation Window

USB Driver Installation

During the installation of the USB drivers you may be prompted several times with a message as shown in *Figure 3*.

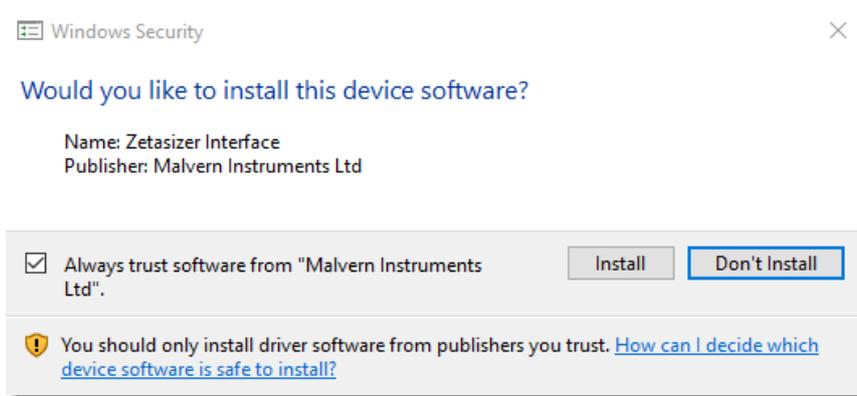


Figure 3: Install USB window

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 Ultra/Pro to the computer

When the software has been installed and the instrument has been connected via the USB port, and switched on, the ZS XPLOER 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 4*). Please do not power off the PC or Zetasizer during firmware upgrade.

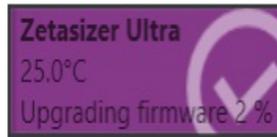


Figure 4 instrument firmware updating status icon

With the correct firmware version installed the Zetasizer should connect to the instrument. A successful connection is indicated with an icon in the corner of the software (see *Figure 5*) showing green and with a tick.



Figure 5: Instrument connected icon

Uninstall Procedure

The software can be uninstalled using the standard Add/Remove feature in from Windows.

Running the installer with the ZS XPLOER software running

If the installer is run whilst the software is running, the window in *Figure 6* will display.

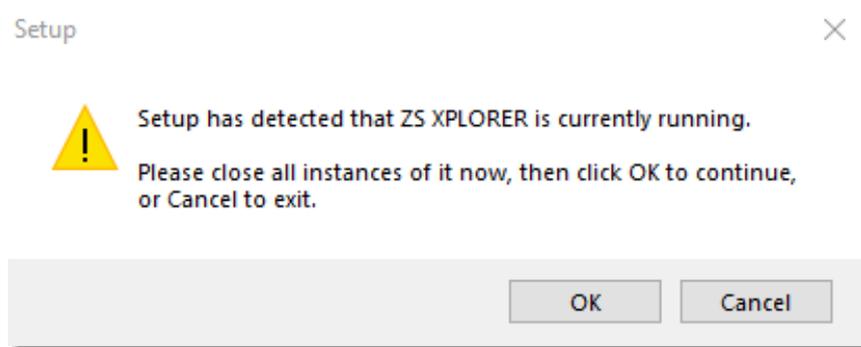


Figure 6: Running installer with software open

Connecting the MPT-3 Titrator to the PC

Ensure the computer is turned on and connected to a Zetasizer Ultra or Pro.

Connect the MPT-3 Multi-purpose Titrator 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 XPLOER software. See *Figure 7*.

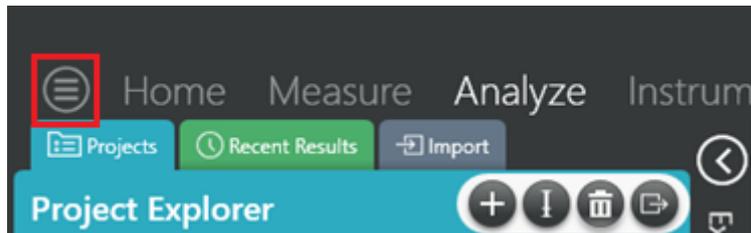
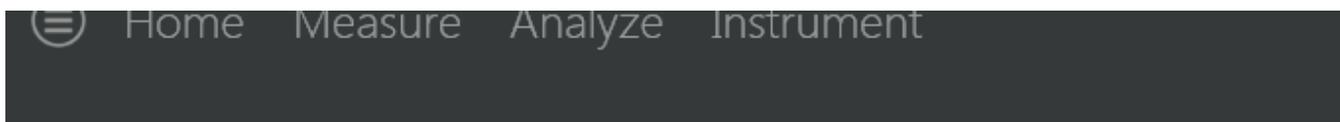


Figure 7: Software options

Click Options and navigate to the Titrator tab as seen in *Figure 8*.



Options

Folders **Titrator***

Connection settings

The titrator connection settings allow configuration of how the titrator connection is detected by the software.

Figure 8: 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 9*.

Folders **Titrator***

Connection settings

The titrator connection settings allow configuration of how the titrator connection is detected by the software.

COM Port: USB Serial Port (COM7)  **Titrator detected.**

Figure 9: 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 10*.

Connection settings

The titrator connection settings allow configuration of how the titrator connection is detected by the software.

COM Port: 

Figure 10: 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 11*.

Folders Titrator

Connection settings

The titrator connection settings allow configuration of how the titrator connection is detected by the software.

COM Port: 

Figure 11: 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 12*.



Figure 12: Titrator successfully connected

New Features

MPT-3 Auto-titrator support

This is the third release of the ZS XPLOER software. Please refer to the software help system and user manuals for detailed information regarding the software's operation and the available functionality.

The new features and key user improvements in this software release are:

Support for MPT-3 auto-titrator to enable automated pH vs zeta and/or size measurements. A new method step called pH titration is available from the Titration Icon on the left of the method builder in the Measure tab (see Figure 13).



Figure 13: pH titration step in the method builder

Adding a pH titration group to the method builder allows you to add sub-steps, such as size or zeta measurements, to the pH step and thereby determine what measurements and how many are performed at each pH step configured in the pH titration group step. See Figure 14.

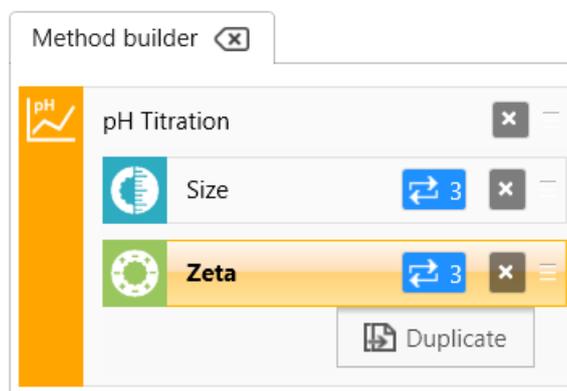


Figure 14: pH Titration group step with size and zeta measurements in triplicate at each pH point

Multiple pH titration steps can be added to allow non-linear pH step sizes to be used or to implement reverse titrations. For more details on how to set-up pH Titrations please refer to the Zetasizer Accessories Manual or Help files.

To support the introduction of the MPT-3 auto-titrator the Instrument Tab now has a Titrator sub-tab that contains the pH calibration controls and manual controls for the MPT-3, allowing you to set-up, clean and prime the titrator. See *Figure 15*.

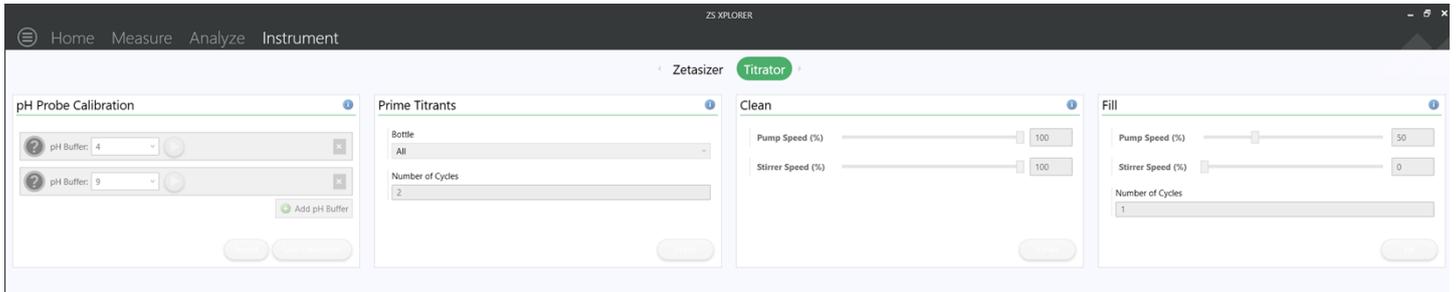


Figure 15: view of the MPT-3 controls on the Instrument Tab - Titrator sub-tab.

Again, please refer to the Zetasizer Accessory guide for details on how these controls operate.

An additional status icon has been added to the lower right of the software screen to indicate the connection status of the MPT-3 auto-titrator, *Figure 16*, this shows as green and ticked when the titrator is connected and grey with a cross when not connected.



Figure 16: MPT-3 status connection icon

A titrator options screen has been added to enable com port selection, this is found under the Application Menu (upper left of software screen, as shown in *Figure 17*) and then select the options command.

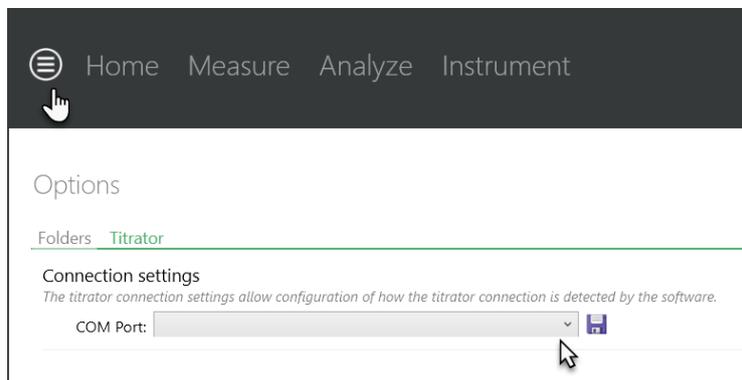


Figure 17: Titrator Options Menu for selection of COM port settings

A new workspace called “titration” has been added to the workspace tabs. Two new charts, Titration Zeta Potential Trend and Titration Z-Average Trend have also been added to allow the viewing of pH titration results, see *Figure 18*.

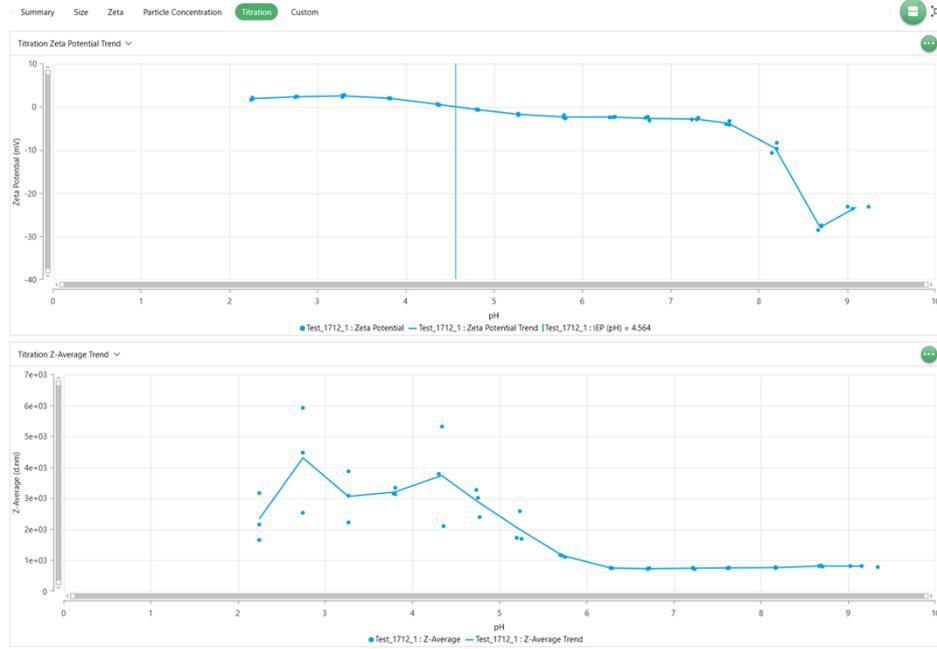
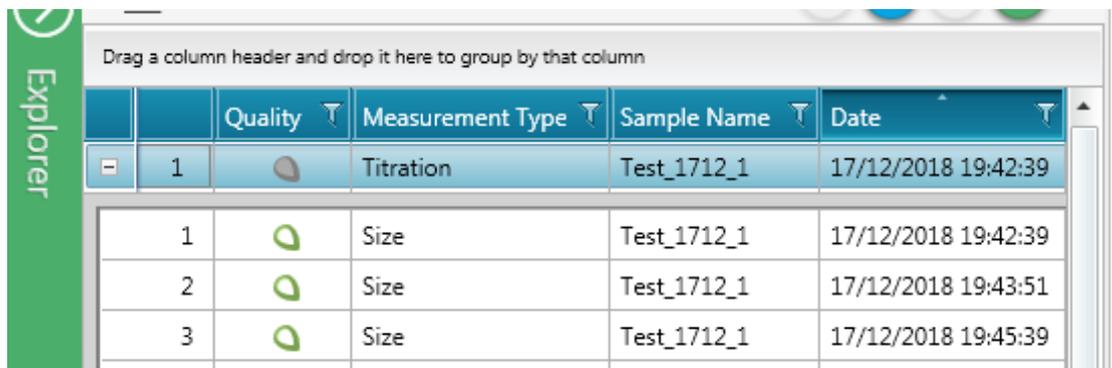


Figure 18: New Titration Workspace to support pH titrations

Running a titration will now produce a parent titration record with a series of child size/zeta measurement records. These measurements contain a list of Z-Average/pH points, a list of Zeta Potential/pH points and a list of isoelectric points if any were calculated during the measurement. Additional parameters such as pH sequence, tolerance and titrant details are also included. See *Figure 19*.



The screenshot shows a data grid with a green 'Explorer' sidebar on the left. The grid has a header row with columns: Quality, Measurement Type, Sample Name, and Date. Below the header, there is a parent record (row 1) with Quality '1', Measurement Type 'Titration', Sample Name 'Test_1712_1', and Date '17/12/2018 19:42:39'. This parent record is expanded to show three child records (rows 2, 3, and 4) with Quality '1', Measurement Type 'Size', Sample Name 'Test_1712_1', and Dates '17/12/2018 19:42:39', '17/12/2018 19:43:51', and '17/12/2018 19:45:39' respectively.

	Quality	Measurement Type	Sample Name	Date
1	1	Titration	Test_1712_1	17/12/2018 19:42:39
1	1	Size	Test_1712_1	17/12/2018 19:42:39
2	1	Size	Test_1712_1	17/12/2018 19:43:51
3	1	Size	Test_1712_1	17/12/2018 19:45:39

Figure 19: Titration records with child measurements

Additional changes

In order to support compound measurements, such as pH titrations, MADLS® and MADLS-Particle Concentration measurement types, a new data grid has been introduced. This data grid now shows the compound measurement as a “parent” record and any measurements that are made as part of the compound measurement are now shown as “child” records in an expandable sub-grid, see *Figure 20*.

+	106		Titration		13/12/2018 09:24:52	
+	107		Titration		13/12/2018 11:19:20	
+	108		Titration		13/12/2018 13:08:56	
-	109		Titration	Test_1712_1	17/12/2018 19:42:39	
	1		Size	Test_1712_1	17/12/2018 19:42:39	174.7
	2		Size	Test_1712_1	17/12/2018 19:43:51	174.7
	3		Size	Test_1712_1	17/12/2018 19:45:39	174.7
	4		Zeta	Test_1712_1	17/12/2018 19:49:11	12.78
	5		Zeta	Test_1712_1	17/12/2018 19:49:58	12.78
	6		Zeta	Test_1712_1	17/12/2018 19:50:46	12.78
	7		Size	Test_1712_1	17/12/2018 19:55:38	174.7

Figure 20: Parent and Child nested data grid for compound measurements, showing collapsed (upper) and expanded views (lower)

The extract method command, available by right clicking on a menu and the extract method icon  has now been changed to “view method”, see *Figure 21*. This command now extracts and opens the method in builder where it is available to run, modify or save.

	6		Size	Sample 2
	7		Size	Sample 2
	8		Size	Sample 3
	9		Size	Sample 3
	10		Size	Sample 3
	11		Size	Sample 4
	12		Size	Sample 4

Edit Result

View Method

Figure 21: view method command now opens the method directly in the method builder for further actions

Multiple record edits are now possible for records of the same type. Please note that only the first *selected* record in the records selected is shown, see *Figure 22*, in the results editor though any changes will be applied to all selected records. This allows users to select the “primary” record of interest whilst preventing possible confusion if all selected records were shown in the editor.



Figure 22: Multiple records being selected for editing (left) and reminder that only the first "selected" record is shown for editing purposes, but changes will be applied to all selected records

A new Instrument Status panel has been added to the Instrument Tab, *Figure 23*. This status panel includes some specific information on your Zetasizer. It also includes a Lid Status Indication (open or closed). For safe operation we recommend that users periodically check that the safety interlocks on their Zetasizer are working correctly by depressing and holding, for a few seconds, the lid release button whilst observing the lid status indicator. The lid status indicator should immediately show "Open" when the lid opens – this indicates that the interlocks are working correctly, and the laser is being blocked from entering the sample chamber.

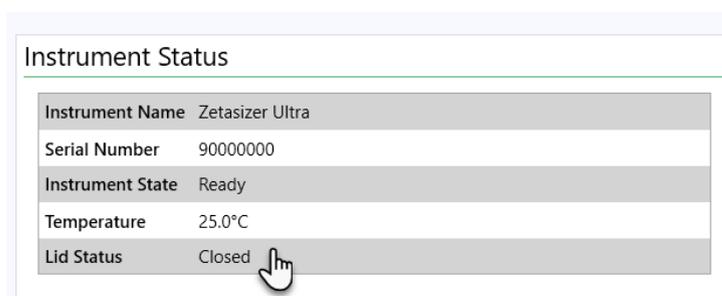


Figure 23: Instrument Status Panel with Lid Interlock status and other useful information

Fixed issues

This is the third release of the ZS XPLOER software, and in this release the following issues were fixed, see *Table 2*.

Table 2: Fixed issues in Zetasizer XPLOER software.

Reference	Issue
81433	Reference Count Rate in log sheet does not include units
89319	Application allows users to run zeta measurements with Dispersant dielectric constant and viscosity set to '0'
90055	Validation warning for Viscosity in Edit Result is wrong
90409	Some dispersants incompatible with plastic cells are set to compatible

92333	Attenuator setting is not shown in log when running a Zeta measurement and setting the Attenuator manually
92400	Change 'polydispersity' to 'Polydispersity Index (PI)'
92758	Refractive index/R.I. naming inconsistency
93713	Change 'buffer scattering' to 'dispersant scattering'
93765	Start menu tool tip has incorrect error message for custom parameter errors
95400	Switching between Measure and Analyze tab updates project field value in method details of a measurement in progress.
96463	It's possible to run a measurement with an invalid temperature value
96645	Issues closing software when long running instrument actions need to be stopped
96954	Display range for x-axis on frequency shift plot chart should be shortened to 500 to 1500 Hz
97372	Able to set temperature of dispersants above boiling points
97389	Titration settings tooltips titles and descriptions reversed
97866	Software crashes when running a method with no destination project
101009	Sample chamber does not return to default temp. when Method fails
101555	Copying non-consecutive records into excel leaves gaps for the not selected records
101877	Out of memory will occur when running lots of zeta measurements
101909	Date and time stamp on MADLS and Particle concentration record to be the start of measurement.
101979	Derived count rate is changed to 0 after a result is edited
102145	Z-Ave Trend Graph not displaying in record/time order

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 one is available.

Table 3: Known issues in Zetasizer XPLOER software.

Reference	Issue	Workaround
104184	Dialogue boxes such as from "Show instruction" in method can be easily hidden	If the ZS Xplorer Application appears to be "frozen" ensure that dialog boxes are not hidden behind the application or other applications
91574	Changing connected device causes temperature to stop updating and the wrong serial number to appear	Re-start the ZS Xplorer software if swapping connection between different Zetasizer systems
91508	After instrument disconnection the log states that the instrument is returning to temperature when it isn't	Restart the ZS Xplorer application and ensure it connects to the system to return the system to its default status
91455	Saving to a location where you lack permissions can cause crash	Data may be saved to a directory the user has delete permissions on and then copied to the intended directory.
91266	Method save dialog doesn't allow saving to a directory where user doesn't have delete permission	A method may be saved to a directory the user has delete permissions on and then copied to the intended directory.
91100	When running consecutive size measurements and using return to default temp it doesn't happen between measurements	No known workaround at present
89432	Exporting a large number of records can cause an Out of Memory Exception	Try and limit exports to less than 150 records and ensure that other memory intensive processes are not running whilst performing an export operation
76692	Cannot export to a directory with delete permissions restricted	Export to a directory that you have delete permissions on and then move or copy to your intended directory

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.

1. Click the Windows **Start** Button.
2. Type **Event Viewer** and press enter.
3. Navigate to **Applications** and **Service Logs/Zetasizer All Events**.
4. The window will display the most recent errors that have occurred with the ZS XPLOER 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 XPLOER\logs*

Software version

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

1. Click on **Application Menu** button (*Figure 24*)

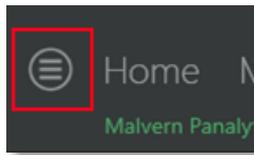


Figure 24: Application Menu button

2. Click on the **About** button
3. Read version number (*Figure 25*)

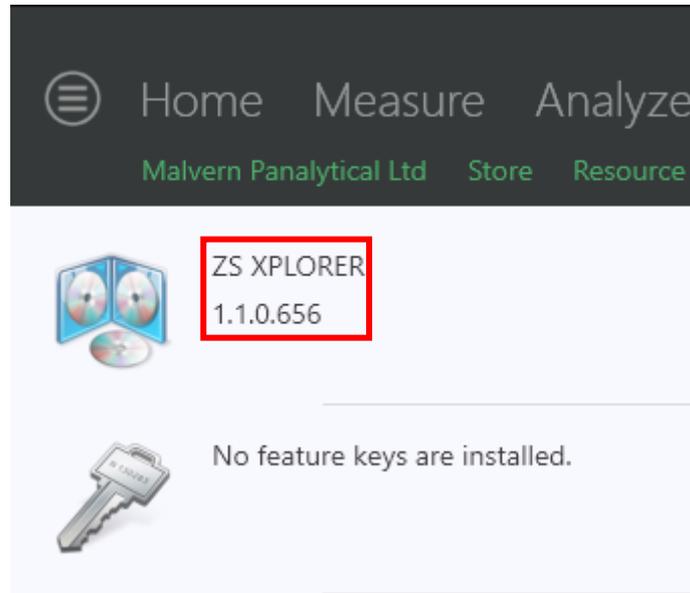


Figure 25: Software Version Number

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.

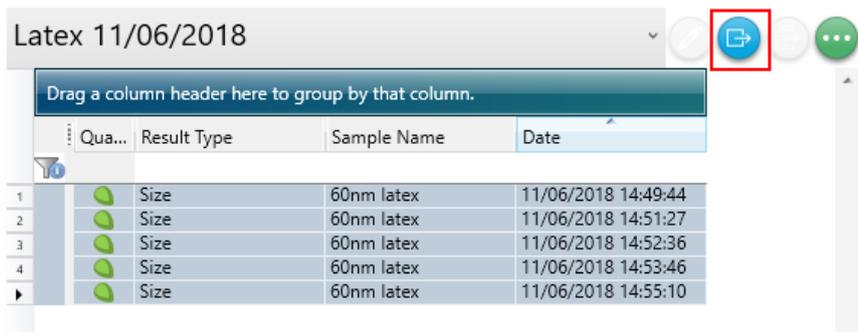


Figure 26: Exporting selected records

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