

# ZS XPLOER SOFTWARE: v3.31 (PSS0048-21) SOFTWARE UPDATE NOTIFICATION

## Introduction

This document details the release of **ZS XPLOER software version 3.31 (PSS0048-21)** for the Zetasizer Advance range of instruments. Here forward referred to as ZS XPLOER.

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

ZS XPLOER is not compatible with the Zetasizer Nano series of instruments (Nano S90, Nano ZS90, Nano S, Nano ZS, Nano ZSE, Nano ZSP, Zetasizer  $\mu$ V and Zetasizer APS) nor can it read the \*.dts file format from the Classic Zetasizer series software 8.02 or earlier.

For the latest version of this document please check our website at -

<https://www.malvernpanalytical.com/en/support/product-support/zetasizer-range/zetasizer-advance-range>

## 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 XPLOER 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 & Windows 11 64-bit Operating Systems are supported

Microsoft user accounts are not supported.

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

Regulated Environment customers upgrading to ZS Xplorer V2.3.1 or later, will need to also upgrade to OmniTrail and OmniAccess V1.4 or later.

In some cases, the installer will require the user to restart the PC, in this case it is required that the Administrator logs in to the PC for the first time, following the restart. Failure to do so may cause the software to crash. In this case reinstalling the software on the Administrator account will fix the issue.



## 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	8th Gen+ Intel Core i7 Processor (or better)
Memory	16 GB RAM
Solid State Drive	512GB or greater
Display Resolution	1920 x 1080 full HD screen resolution minimum
Connectivity	2 free USB2.0 or higher ports
Operating System *	Windows 10 or 11, 64 bit. * The ZS XPLOER software is not compatible with 32-bit Operating Systems

## Supported operating systems

ZS XPLOER is compatible with Windows 10 & 11 (tested on Windows 10 Pro 22H2 and Windows 11 Pro 22H2). Only 64-bit versions are supported.

ZS Xplorer has also been tested on Windows 11 Pro (22H2) with both core isolation mode enabled and disabled.

## Supported Languages

- English (US)
- Chinese (simplified)
- Japanese

## Installation Instructions

### Installation process

The software suite is available as a web download. The downloaded extractor contains the ZS XPLOER Setup, License Manager Setup and .NET Framework 4.8 Setup files. License Manager and .NET Framework 4.8 are prerequisites of ZS XPLOER. 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. The folder and a readme, with important information, will be opened (see figure 2).

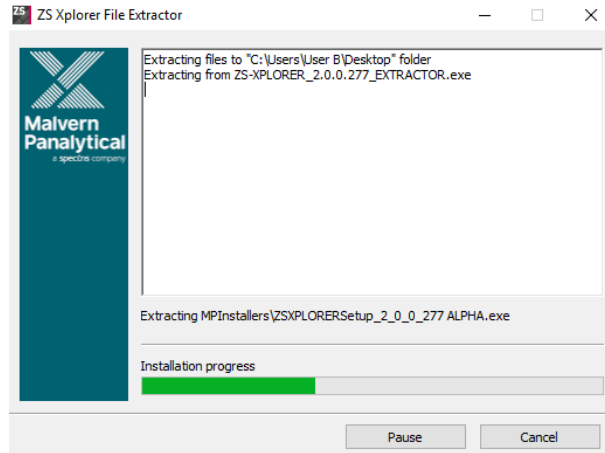


figure 1 ZS Xplorer Self-Extracting Installation files

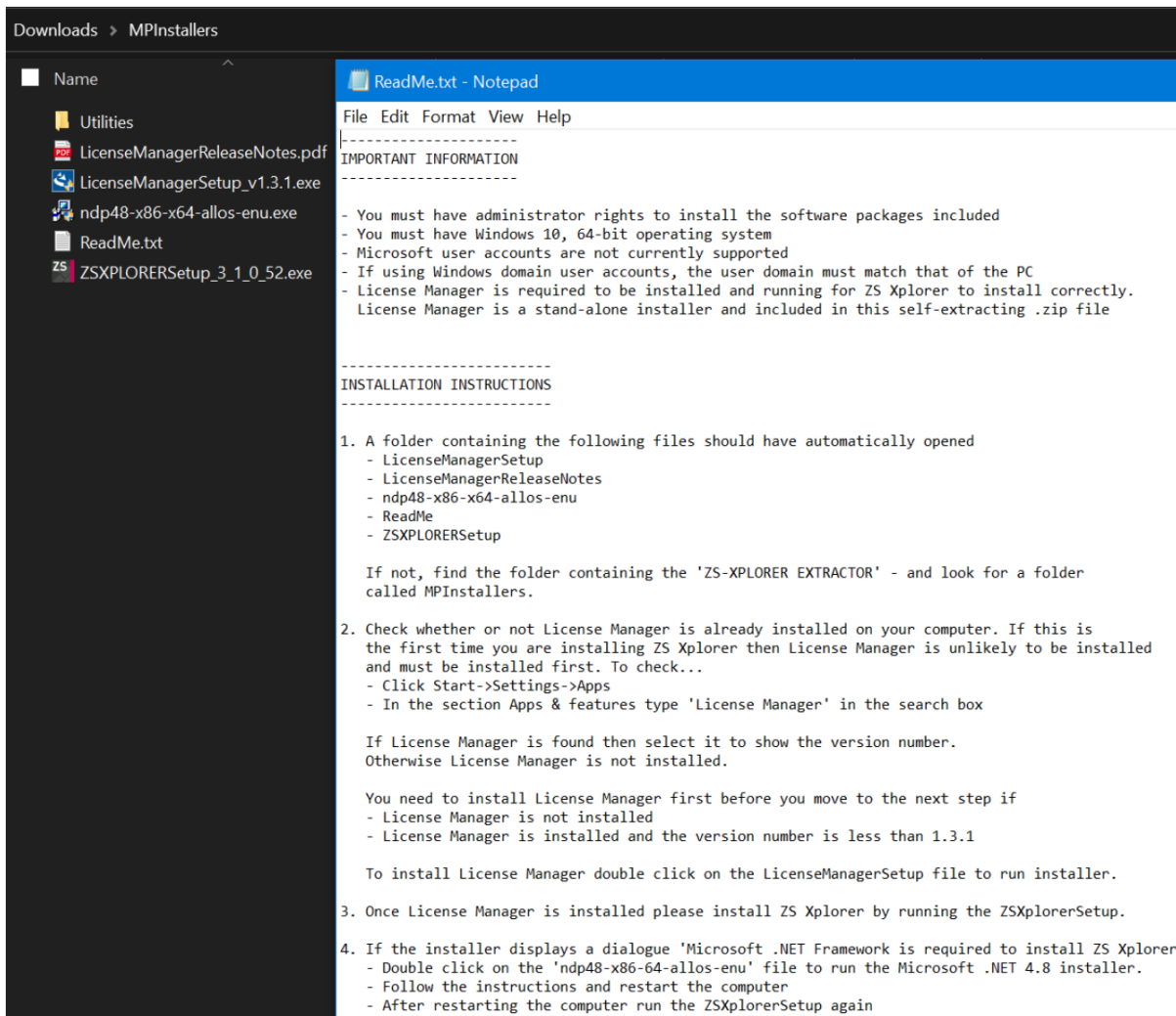


figure 2 Extracted installation files and ReadMe file.

## .NET Framework 4.8 Installation

Microsoft .NET Framework 4.8 component is a requirement for ZS Xplorer software to run correctly and must be installed prior to the installation of ZS Xplorer. If you do not have the correct version installed the ZS Xplorer installer will warn you and won't proceed until the correct version of .NET Framework is installed. Windows 10 versions from 1903 include .NET 4.8 or higher and will not require updating.

## License manager Installation

The Malvern Panalytical license manager component is a requirement for the ZS XPLOER software to run correctly and must be installed prior to the installation of ZS XPLOER. Please note that users upgrading from 2.00 or later are not required 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 (see fig.3).

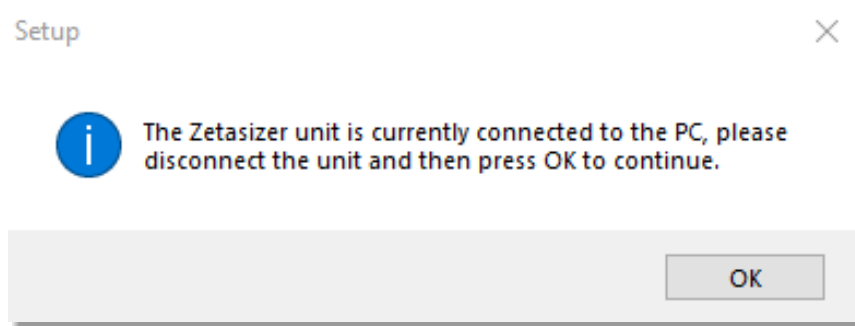



Figure 3 "Disconnect Zetasizer Unit" message.

 **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 C++ Redistributable

The Microsoft Visual C++ Redistributable must be installed for the ZS XPLOER software to run. This is installed during the ZS XPLOER 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 may take over 10 minutes. Whilst these components are being installed a window such as below will be displayed, figure 4.

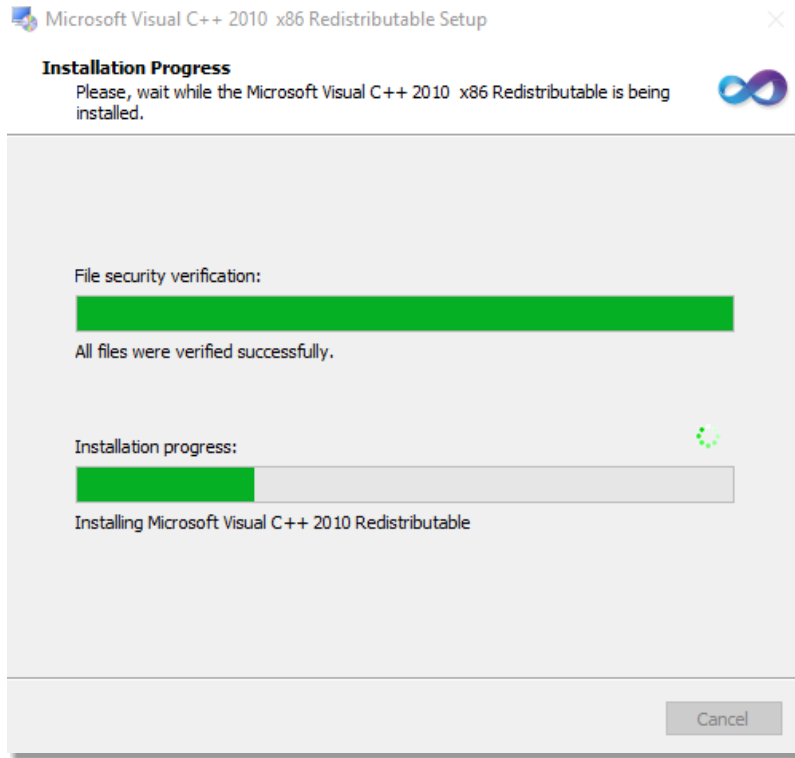


figure 4 Microsoft Visual C++ Redistributable Installation Window

## ZS Xplorer Services

As part of the ZS Xplorer installation there are several Windows services and components that are installed. These are listed below:

### Services Installed:

Display Name	Version	Description
Trends Analysis Service	1.3.14.7	Interface and analysis for trends services
Instrument Service	2.0.10	Instrument control layer
License Manager	1.3.1	Manages licensing for extended features, such as OmniTrust
Malvern Panalytical Cloud Service	1.3.0	Service that allows access to MP Smart Manager services
Malvern Panalytical Regulated Environment Service	4.2.1977	Authentication service via Windows Account Services
Trend Analysis Repository	4.4.3.0	MongoDB interface



## Components Installed:

Name	Version	Description
ZS Xplorer	3.3.1	Main Application
.NET & ASP.NET	6.0.5	Software components used by Zetasizer and installed to remove OS dependencies
MongoDB	4.4.3.0	Database component
SQLite	3.8.10.2	Database component

## Smart Manager

During installation of version 3.3.1 of ZS Xplorer you will be asked if you wish to enable Smart Instrument. This is the first stage in bringing additional Smart Manager Services to your Zetasizer Advance system.

If you have an internet connection and have chosen to make your instrument a Smart Instrument during the ZS Xplorer software installation, your instrument will automatically start uploading key parameters to Malvern Panalytical Cloud Services. We only collect low-level telemetry data from your instrument. We don't collect any of your actual test data, and we can't control your instrument remotely. Our helpdesk uses the telemetry data to help you faster in case of issues.

The data that we do collect is safe with Smart Manager – it's stored and processed securely on the Microsoft cloud. With more certifications than any other cloud provider, Microsoft is committed to security, transparency, and regulatory compliance. And our own information security management system also complies with the strictest international security standards (ISO/IEC 27001:2013).

You can check the status of your connection by locating the Malvern Panalytical Cloud Service application on the Windows Task Bar Tray then right click and choose status.

If you did not allow the service to send data to Malvern Panalytical during the ZS Xplorer software installation, you can simply right click the same application, then click register to do so later.

To find out more about Smart Manager Services go to <https://www.malvernpanalytical.com/en/connected-world/smart-manager>

## USB Driver Installation

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

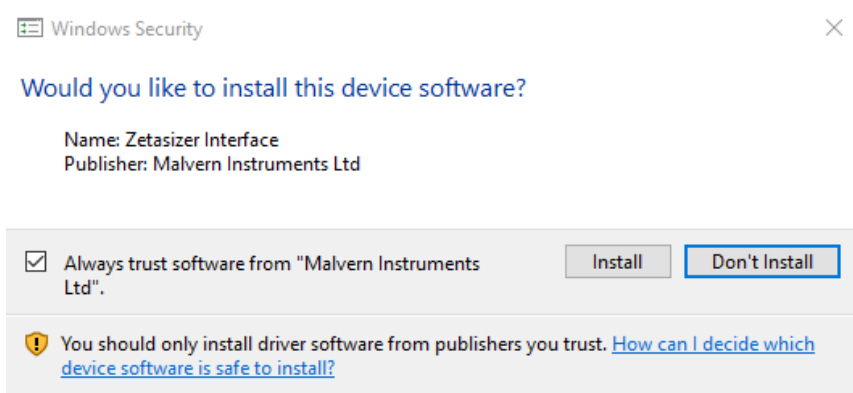


figure 5 Install USB window

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 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 6).

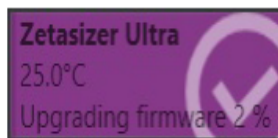


figure 6 instrument firmware updating status icon

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.

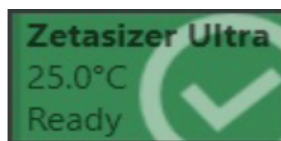


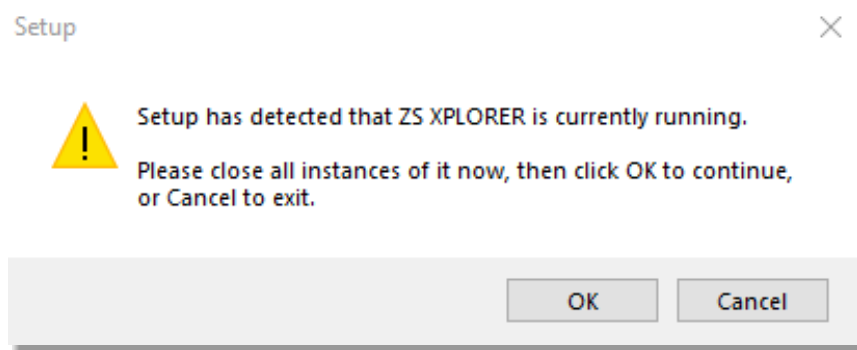
figure 7 Instrument connected icon

## Uninstall Procedure

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

### Running the installer with the ZS XPLOER software running

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

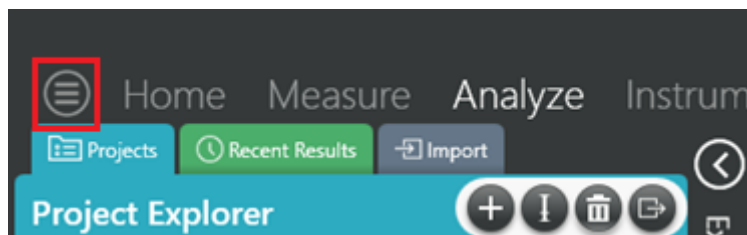


*figure 8 Running installer with software open*

## 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 XPLOER software (see figure 9).



*figure 9 Software options*



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

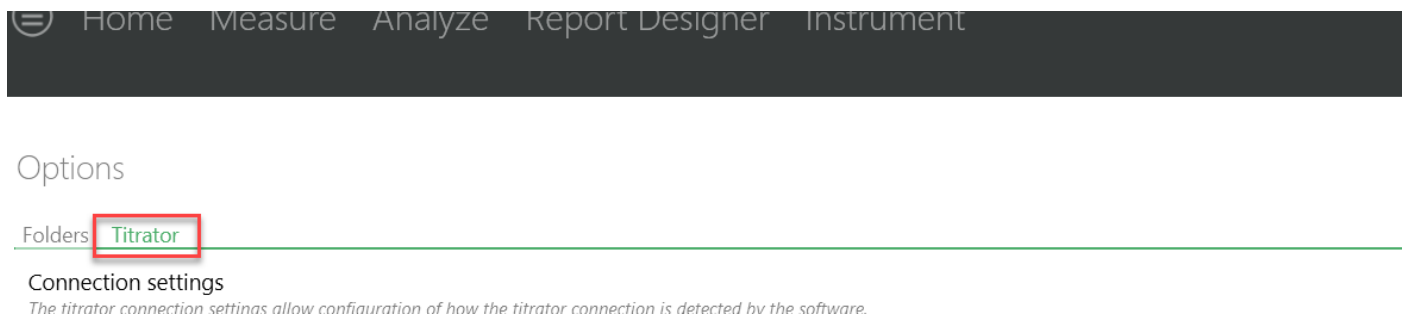


figure 10 Titrator options page

On the COM Port drop down menu, select USB Serial Port (COMXX), as shown in figure 11. (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).

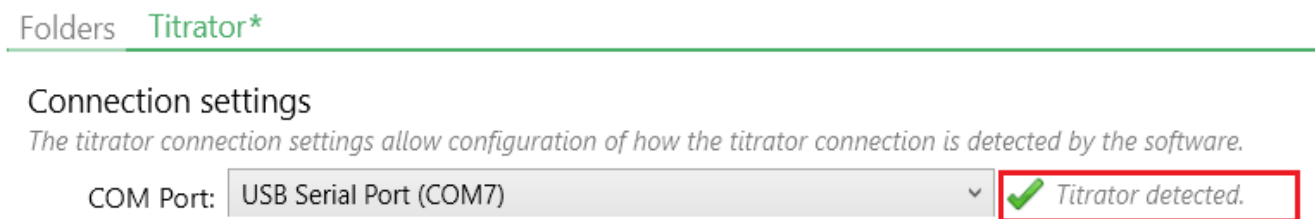


figure 11 Titrator successfully detected

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).

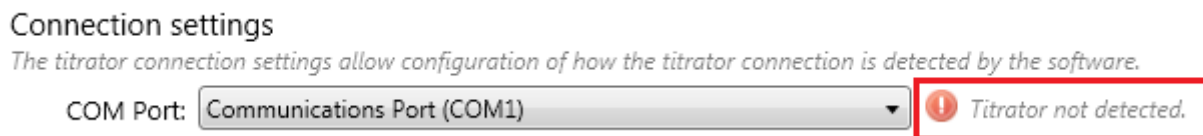


figure 12 Unable to detect titrator

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.

Folders **Titration**


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**Connection settings**

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


COM Port:   **Saved.**

figure 13 COM port saved

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

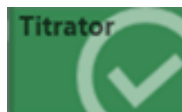


figure 14 Titration successfully connected

## ZS Explorer – Backup & Restore

### What to backup

By installation default, this version of ZS Explorer application uses C:\ProgramData\Malvern Instruments\ZS EXPLORER and its subfolders for configuration and user created output files. For ease, we would suggest this is the simplest folder to backup and restore.

To create a backup, we recommend that you consult your IT department to select the best method to achieve this. For pharmaceutical regulated environments, you should also consult your validation department - as they may have specific compliance requirements, and/or recommendations. Backup frequency and type e.g., full, incremental, or differential, along with consistency checking, should be considered when choosing the most appropriate backup methodology.

Table 2 provides information on the location and details of the important files and folders used by ZS Explorer as well as our recommendations on backing up of data.

It is at the discretion of individual organization to define a backup process that is appropriate to their needs and the criticality of their data.

All file types used by ZS Explorer can be copied to a secure location, we recommend that this be done at times when the system is not in use. Backups should be full backups (not differential) and a history of backups is retained to avoid overwriting a good backup with a corrupt version.

### How to restore

In this section we cover the two most likely reasons why you want to restore backup files. The first being accidental deletion of files, or to replacing corrupted files for a working installation of the ZS Explorer application.

The second reason might be because the primary drive, on which the ZS Explorer application was install upon, has been replaced or a fresh operating system has been installed, both of which requires the reinstallation of the ZS Explorer application software.

It is important to note that when reinstalling the ZS Xplorer application, the version being installed must be same or later, as some files may not be backwards compatible with earlier versions of the application software.

Scenario 1 - restoring files to an existing installation:

1. Make sure the ZS Xplorer application is NOT running.
2. Restore/copy the required files from your backup to the destination folder, replacing the deleted or corrupted file/s.
3. Start ZS Xplorer and verify the recovered file/s are working as expected.

Scenario 2 – restoring files for a fresh reinstallation of ZS Xplorer.

1. If your backup contains the complete ZS Xplorer folder, subfolder, and files, simply restore/copy this folder to C:\ProgramData\Malvern Instruments\. This folder will need to be manually created.
2. Install your existing version of ZS Xplorer or later.
3. Start the application as normal and verify everything works as expected and that the software connects to the Zetasizer instrument.

Table 2 - ZS Xplorer file structure

File Name	File Extension	Location	Backup?
<b>Cells</b>	.data	%ProgramData%\Malvern Instruments\ZS XPLORER\Cells	Not required – auto-regenerated if deleted
<b>Materials &amp; Dispersants</b>	.data	Shared: %ProgramData%\Malvern Instruments\ZS XPLORER\Materials  Individual: %userprofile%\Documents\Malvern	Defaults are auto-regenerated, however can be user configured – backup recommended
<b>Measurement data (export location)</b>	.zmes	Location set via option in ZS Xplorer	This is a temporary export location only – so user discretion on importance of any files here
<b>Methods</b>	.zskd	Shared: %ProgramData%\Malvern Instruments\ZS XPLORER\Methods  Individual: %userprofile%\Malvern Instruments\ZS XPLORER\Methods	Recommended if custom methods used
<b>Reports</b>	.zrep	Shared: %ProgramData%\Malvern Instruments\ZSXPLORER\CustomReports  Individual: %userprofile%\Malvern Instruments\ZS XPLORER\Reports  For reports with custom headers or logos, there is an additional folder: %ProgramData%\Malvern	Default reports auto-regenerated on deletion – recommended if custom reports used

<b>pH probe calibration</b>	.cal	%ProgramData%\Malvern Instruments\ZS XPLOER\Titrator	Not necessary as can be re-calibrated
<b>Scattering standard</b>	.data	%Program Data%\Malvern Instruments\ZS XPLOER\ScatteringStandards	Recommended
<b>Working file</b>	.db	<p>Shared: %ProgramData%\Malvern Instruments\ZS XPLOER\Working File</p> <p>Individual: %userprofile%\Malvern Instruments\ZS XPLOER\Working File</p>	This is the main working database file that holds measurement records – highly recommended
<b>Program data folder</b>	various	%ProgramData%\Malvern Instruments\ZS XPLOER	This is the main programme data and can be restored by re-installation of the software
<b>Titrator configuration</b>	.xml	%ProgramData%\Malvern Instruments\ZS XPLOER\Titrator	Not required as can be readily set-up in ZS Xplorer
<b>Storage configuration</b>	.xml	%ProgramData%\Malvern Instruments\ZS XPLOER\WorkingFileSettings	Not absolutely required as can be set-up in ZS Xplorer
<b>Studies</b>	n/a	C:\Program Files (x86)\Malvern Instruments\TrendAnalysisData\data	Backup if performing Studies type measurements – see <a href="https://www.mongodb.com/docs/manual/core/backups">https://www.mongodb.com/docs/manual/core/backups</a> for advice on backing up and restoring Mongo DB data

## New Features & Changes

### Changes

#### Fixed crash when exception is raised during Regulated Environment initialisation.

When a user launches ZS Xplorer, if the user account or domain is not supported by Regulated Environment it can throw an exception which was previously not caught and resulted in a ZS Xplorer crash. The exception is now caught in ZS Xplorer and the user is made aware via a message box and told to contact their Malvern Panalytical representative.

#### Fixed crash on startup when configuration file was invalid.

The RecordSelector.columns configuration file, which stores the user's configuration for the measurement table on the analysis page is reset to its default value if it has become corrupt, with the corrupt version backed up for diagnostics.

#### Updated Regulated Environment to v4.2.1977

The Malvern Panalytical Regulated Environment version has been updated from v4.1.1875 to v4.2.1977, the new version will be automatically installed when running the ZS-Xplorer installer.

#### Instrument Service Updated to v2.0.10

The Zetasizer Advanced Instrument Service version has been updated from v1.1.54 to v2.0.10, the new version will be automatically installed when running the ZS-Xplorer installer.

### Features

#### Titration Summary Report

When a titration measurement is run the volume of the titrants added during the measurement is logged to an Excel spreadsheet. The spreadsheet created contains the following data:

**Date/Time** : When the measurement took place.

**Titrant Details** : The name, type and concentration of each of the titrants.

**pH sequence targets** : The set of targets between the start point and the end point that will be aimed for during the titration.

**Actual pH** : The actual pH values measured at each step of the titration.

**Titrants Added** : The volumes of titrant added when attempting to reach the pH sequence target.

The file is created once the measurement completes and is stored in "C:\Users\user\Documents\Malvern Instruments\ZS XPLOER\Measurement Data" with the following filename Titration-Log-YY-MM-DD-hh-mm.xlsx


If a titration test fails before it has collected any data, for example does not have the pH calibration file, the Excel spreadsheet will not be created. This is because no test data has been retrieved. However, if a test fails part way through after values have been collected, such as a disconnect, then an Excel spreadsheet will be generated at the start of the next titration measurement.

## GAMP 5 Software categorization

In its standard mode of operation, the Zetasizer Xplorer software provides users with a series of standard interfaces and functions that enable the software to be configured to meet specific user business requirements. These interfaces include the ability to define Standard Operating Procedures (SOPs) for sample measurement and create report definitions using pre-defined functions. If users apply these functions, then the software can be considered to be a Category 4 product.

## Security Advisories

The following section and table 3 detail 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 your Malvern Panalytical products, and register on our website to receive updates.

Table 3 Security updates

Reference	Description	Recommendation
HEN-1042	Version 2.00 and earlier of the ZS XPLOERER 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 or later 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 XPLOERER 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 or greater of the software. Never open files from an untrusted source, even if they appear to be non-executable.

## 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 3.31

Reference	Severity	Issue	Workaround
NA	Normal	Regulated Environment customers upgrading to	Check or Install Omnitrail V1.4 or

		ZS Xplorer v3.31 may need to also upgrade to OmniTrail and OmniAccess V1.4 or later if previous ZS Xplorer version earlier than v2.3.0	later and OmniAccess V1.4 or later when using ZS Xplorer v3.31 in a regulated environment if upgrading from ZS Xplorer versions 2.3.0 or earlier
TFS-182966	Normal	Reports: Parameters path does not fit in list box boundary	Edit report template to allow more room for the parameter to display correctly, if possible
TFS-180690	Normal	Concentration Trends - After selecting multiple measurements, starting the measurement, accepting the solvent scatter dialog, and leaving the confirmation dialog alone while the scattering count measurement completes, the concentration dialog is modal and blocks the confirmation dialog but if you try to abort the concentration dialog, nothing happens.	Accepting the concentration point and then clicking the OK will abort the trend
TFS-180691	Normal	Edit study button may not reactivate at the end of a measurement	Navigate to an intermediate page to refresh the status
TFS-180699	Normal	Concentration trends - Can't see count rate trace during solvent scattering measurement	If you are in doubt about the cleanliness of solvent or buffer, then run the count rate tool and record the attenuation and count rate and use these as manual inputs.
TFS-180693	Normal	Studies not in order	No workaround
TFS-159682	Normal	ZS Xplorer hamburger menu can become obscured when in trends tab – issue with underlying component	No workaround
HEN-1866	Normal	Count rate live display is not showing during Concentration Trend measurements	No workaround
TFS-180695	Normal	Studies wont load – opening ZS Xplorer and going straight to Studies tab may prevent loading of any saved studies	Click retry and if this fails re-start ZS Xplorer
TFS-180692	Normal	Whilst a measurement is running UI can become slow if user navigates to study selector	Avoid using study selector whilst measurements are proceeding
TFS-172158	Normal	If a user includes a custom dispersant in a study and then updates the dispersant the change is not pulled into the open study until a new study is created or ZS Xplorer is restarted	Avoid editing custom dispersants during creation or measurement of a study without restarting software first
TFS-180693	Normal	Aborting a concentration trend measurement	All measurement points are



		and then selecting all measurement points and re-running will cause the trend to start at the previously aborted measurement point and not the first	measured but may be confusing to users so be aware of issue.
TFS-180697	Normal	Crash after publishing studies measurements after renaming a study if the study name is changed between measurements	Clearing the method list in Measure tab after renaming a Study will prevent the crash/do not rename incomplete Studies
TFS-180672	Normal	Printing a custom report from Report Designer will only show graphs with single color	Print reports from Analyze-Reports tab to ensure correct behavior
TFS-180671	Normal	Trend Builder return to defaults button may not always reset to defaults	Click return to defaults a second time resets them to defaults

## 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 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.

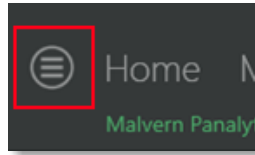
The contents of the measurement log window are logged to file at *Documents\Malvern Instruments\ZS XPLOER\logs*



## Software version

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

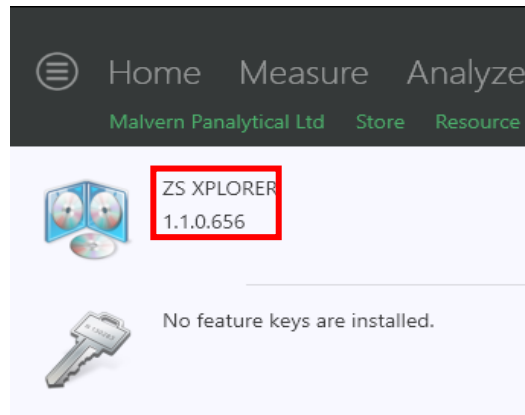
Click on **Application Menu** button (*figure 19*)



*figure 19 Application Menu button*

Click on the **About** button.

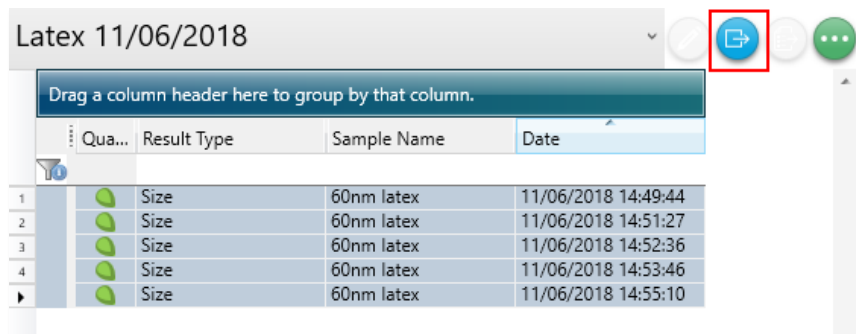
Read version number (*figure 20*)



*Figure 20 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 21*, and send the \*.zmes file to the Malvern Panalytical team for investigation.



*figure 21 Exporting selected record*



## MALVERN PANALYTICAL

Malvern Panalytical Ltd.  
Groewood Road, Malvern,  
Worcestershire, WR14 1XZ,  
United Kingdom

Tel: +44 1684 892456  
Fax: +44 1684 892789

Malvern Panalytical B.V.  
Lelyweg 1, 7602 EA Almelo,  
The Netherlands

Tel: +31 546 534 444  
Fax: +31 546 534 598

[info@malvernpanalytical.com](mailto:info@malvernpanalytical.com)  
[www.malvernpanalytical.com](http://www.malvernpanalytical.com)

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