

Software Update Notification

PSS0223-13: Mastersizer 3000 v2.20

**PARTICLE SIZE**

Introduction

This document details the pre-release of software PSS0223-13: version 2.20 of the software for the Mastersizer 3000 laser diffraction system and the new Mastersizer 3000E system. It covers software issues fixed and new features introduced. This information is required to perform a risk analysis to determine if the software should be installed. In this risk analysis the benefits of the new features provided and resolved software issues must be weighed against the risk of new issues that may be introduced to vital areas of the software or possible changes to the results of future analysis. Installation instructions are provided.

Installation

It is assumed that you have authority to install or update software within your facility. It is also assumed that you have Administrator rights for the system upon which the software is installed, as this is a requirement of the installation process. If you do not have this authority please consult with your I.T. support department before proceeding.

Minimum System Requirements

The minimum requirements for running this software are highlighted in table 1 below. Although the software can run using Windows XP Professional and Windows 8 Enterprise, it has been fully tested under Windows 7. Windows 7 is therefore the preferred operating system.

Supported Languages

The Mastersizer 3000 software currently supports operation in the following languages:

- English
- French
- German
- Japanese
- Chinese (simplified)
- Russian
- Polish
- Spanish

The language used by the application is automatically configured based on the operating system settings. If you want to force the application to use English instead of the operating

system language, you need to start the application using the **Mastersizer 3000 (English)** start menu shortcut.

Table 1: Minimum system requirements for the Mastersizer 3000 software.

Feature	Specification
Processor Type	Intel Core i5 Processor
Memory	4GB
Hard Disk Storage	250GB
Additional Storage Media	CD-ROM or DVD +/-RW drive
Display Resolution	1024 x 768
Connectivity	1 high speed USB port
Operating System	Windows 7 (32 bit and 64 bit) Windows 8 Enterprise (64bit)

Installation Instructions

The software suite comes on an auto-loading CD-ROM. Inserting the drive 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 **\\Mastersizer 3000\setup.exe** program from your CD drive.

Note: It is important that the software is installed before the Mastersizer 3000 / 3000E instrument is connected to the computer and switched on. This will ensure that the instrument drivers are enabled, and that the firmware updates associated with this release are correctly downloaded to the instrument.

Note: Any firmware updates required for your system will be installed at the same time as the software. It is important to keep the firmware and software 'in sync', since this is the configuration that will have been tested by Malvern Instruments prior to release of the software.

Installing the Malvern Access Configurator (MAC) Application

The software suite includes a copy of the Malvern Access Configurator tool that allows you to manage the security aspects of the Mastersizer 3000 / 3000E. The MAC software may be installed either on the PC used to control the instrument or a separate networked PC. Installing on a separate PC allows you to manage the security centrally.

Note: The MAC software does not auto-install. To install this software, navigate to the **\\Malvern Access Configurator** folder on the software CD-ROM and run the **setup.exe** file.

If you are installing the MAC software on a Windows XP system then you must make sure that the Microsoft .NET framework 3.5 is installed first. To install this, navigate to the **\\Malvern Access Configurator** folder and run the **dotNetFx35setup.exe** file.

As with all Windows applications, the MAC software must be installed by a user who is an administrator on the host computer. In addition, the MAC software uses the existing Microsoft Windows users and groups configured on the host computer to control access to the Mastersizer 3000 application. As such, prior to installing the MAC, it is important to ensure that the computer running the Malvern software is installed on its host network. If the computer is a stand-alone system, the required users and groups must be configured on the computer prior to the use of the MAC.

Given the above requirements, it is advised that the local IT department review the requirements for use of the MAC application, and are present during the software installation process.

Note: Please read **MRK1828-xx - Guide to setting up access permissions in the Malvern Access Configurator Application** and **MRK1747-xx - Mastersizer 3000 - 21 CFR Part 11 Guide** for more information as to how to use the MAC application, particularly when operation is required in a 21CFR Part 11 compliant environment.

Note that operation in 21CFR Part 11 mode is not available for Mastersizer 3000E users.

Uninstall Procedure

The software can be uninstalled using the standard **Add/Remove Programs** feature in the Windows Control Panel.

Software License Files

The Mastersizer 3000 software requires a valid license file to run. When connected to an instrument, the system automatically generates this file and the user will be asked to accept the license.

Note: If you wish to install the Mastersizer 3000 software on additional computers, you will need to follow the procedure below for sharing a software license.

Sharing a License for Mastersizer 3000 users

In order to enable the use of the Mastersizer 3000 on a computer which is not connected to a system, it is necessary for users to create a license. This can then be shared with other users, allowing them to gain access to the software.

To share a license, follow the steps below:

1. At the PC that is connected to the instrument, run the Mastersizer 3000 software and click on the **Application Menu** icon



at the top left of the screen.

2. Select 'About' and click on the **View License...** button.
3. Click on the **Share this License...** button. The system tells you what information the license file contains.
4. To accept that information click Yes and choose a location to copy the file to (e.g. a memory stick).
5. At the separate PC, install the Mastersizer 3000 software from the CD and start the program. At the license screen, click the **Install** button.

Browse to the folder that contains the license file from step 4 above, and select the license file. The licensee details will be shown and you can now accept or decline the license.

Note: The software license is specific to a given Mastersizer 3000 system. When a license is shared, detailed user and computer information is stored in the license file, ensuring it can be traced back to its source Mastersizer 3000 system. Users should only share the license with users within their organizations who need to analyze data off-line. **The software license must not be shared with other organizations without the consent of Malvern Instruments.**

Sharing a License for Mastersizer 3000E users

The Mastersizer 3000E system is provided with a simplified, basic version of the Mastersizer 3000 software. This basic software version is restricted to use on a single computer workstation attached to the Mastersizer 3000E system. As such, the license sharing facility offered for Mastersizer 3000 users is not available.

Users of the Mastersizer 3000E system who want to be able to use the software on multiple workstations will need to purchase a software upgrade. This upgrade will enable the premium features associated with the Mastersizer 3000 software, including the ability to create shared licenses. Please contact your local Malvern representative if you would like to purchase this upgrade.

New Features

Most of the new features developed for version 2.20 of the Mastersizer 3000 software relate to the launch of a new entry-level Mastersizer 3000E product. As this is the first software version designed to support this new system, the features developed for this product are not listed here. Instead, the following table lists the new features and improvements included in version 2.20 which apply to Mastersizer 3000 system users:

Reference(s)	Feature	Comment
24906 23085 26848 29359 29079	Provide support for a new analogue (programmable) level sensor for the Hydro MV (MAZ3210) sample dispersion unit.	New Feature
29256	Reduce delay in degas sequence	Improvement
10341	Provide surface area result transformation.	New Feature
29692	Change "Stirrer speed" in custom sample identifiers to "Manual stirrer speed" for the Hydro SM Sop template.	Improvement
29322	Disable clean sequence options if clean is not selected.	Improvement
29024	Improve usability of the manual alignment controls.	Improvement
28635	When selecting to batch print reports, only select the currently active reports for printing rather than selecting all of the reports available in the reports directory.	Improvement
28639	Enable imported measurement data from older Mastersizer systems to be saved into a Mastersizer 3000 measurement record.	Improvement
27344	Add Skewness as a report parameter.	New Feature
27345	Add Kurtosis as a report parameter.	New Feature
27346	Add Standard Deviation as a report parameter.	New Feature
27393	Software should default to using the shared workspace when installed, so that all users can find the data generated using the Mastersizer 3000 system.	Improvement
28291	Provide a 'Save As...' option for reports, so that users can easily create new reports based on existing reports.	Improvement
26062	Allow selection of manual or automatic fill for Hydro MV / LV clean or fill actions.	Improvement
18929 18930 18931 18932 18933 27866 27867 27869 27873	Provide the ability to import data generated using the Mastersizer X / S / Micro / Micro+ as well as from the Mastersizer 2000 / 2000E.	New Feature

29047	Add ability to generate results which are similar to the new Mastersizer 3000E system to the main Mastersizer 3000 software.	New Feature
28200	Provide a simplified display mode which is similar to the new Mastersizer 3000E software within the Mastersizer 3000 software.	New Feature

More details on the use of these new features and the capabilities of the new Mastersizer 3000E system are provided in the New Features Description section towards the end of this document.

Fixed issues

The main issues fixed in this release of the Mastersizer 3000 software are listed below.

Reference(s)	Issue	Comment
27896	Inconsistent record numbers used for new records when switching between different measurement file tabs.	Fixed
29184	Exception occurs when editing parameters in a report.	Fixed
29309	Measurement records go into file currently focused record file instead of the one opened at start of measurement.	Fixed
29473	Report graphs do not update correctly when selecting different measurement records.	Fixed
29859	A message stating that the ultrasound system is operating out of tolerance is displayed when it is working correctly, causing measurements to be aborted.	Fixed
27421	Dragging the report selector for batch printing during loading freezes the computer.	Fixed
25210	Adding editable parameters to the records view causes the parameter configuration dialogue to stop working.	Fixed
25212	Default data quality report does not test for zero obscuration.	Fixed
25412	Right-hand side of result tables is clipped when printing on Letter format paper.	Fixed
26466	Dispersion unit settings are not displayed correctly in the SOP summary view for Mastersizer 2000 records	Fixed
26739	System crashes during a manual quick clean.	Fixed
27993	Batch print option is disabled if the Reports tab/view is not selected.	Fixed
28037	System connects to the incorrect accessory type (i.e. one that will not work with the current measurement cell) when the software starts.	Fixed
28039	At the end of a clean sequence the dispersant valve closes but software reports it is still cleaning, so SOP does not complete.	Fixed
28042	Result table overlaps the report footer when printed.	Fixed
28045	Report parameter widgets are shown blank in print outs when operating the software on a French language operating system.	Fixed
28145	Copying and pasting large numbers of records causes an exception to occur.	Fixed
28153	Constantly starting and stopping measurements can cause measurement manager to lock up.	Fixed
27183	Error occurs when waiting for the vacuum cleaner to start when operating the Aero S via Malvern Link 2.	Fixed
27277	Measurement manager log repeats entries unnecessarily.	Fixed
27308	Measurements made using the Aero S can be saved with water as the dispersant instead of air.	Fixed

28393	Changing the default printer within the Microsoft Windows operating system settings does not change the default printer used for the Mastersizer 3000 software.	Fixed
28400 28670 29510	If a manual accessory (e.g. Hydro SM) is used for a measurement, the SOP summary page reported the measurement type as being a dry powder measurement.	Fixed
28633	Extracted SOP audit history intermittently reports an incorrect SOP version number.	Fixed
28634	An exception occurs if the Extend Result function is enabled without any size values.	Fixed
28675	The scattering data display within the manual alignment window can appear empty.	Fixed
28333	Software can crash when trying to open corrupted measurement or SOP files.	Fixed
29199	Reports are blank if not previewed before printing.	Fixed
29201	Clicking the data quality tab and then back to the reports tab without any records selected puts the software in a state where it cannot print any reports even with records then selected.	Fixed
29466	An Aero S feed rate error is reported when carrying out short dry measurements, even when the feed rate profile is followed correctly. This causes the SOP to stop.	Fixed
29475	Delay observed between clicking the start/stop stirrer button in accessory control window and the accessory responding.	Fixed
29512 30009	Software hangs when the USB cable is disconnected from the optical bench.	Fixed
29533 29588	Measurement manager displays some text in the local language (e.g. French or Russian) when the software is started using the Mastersizer 3000 (English) shortcut.	Fixed
29553	Mastersizer 2000 measurement files can be over-written if they are selected in the records view when a measurement is started.	Fixed
29558	Mastersizer 2000 measurement file import can fail for files created in countries where comma decimal separators are used.	Fixed
29598	Ultrasound can be reported as being active in a manual measurement even when it is not switched on.	Fixed
29393	Reported laser power value can be reported to 8 decimal point accuracy within the measurement manager window.	Fixed
29687	Alignment date/time can failed to be stored correctly	Fixed
29763	Occasionally users cannot average records when the accessory control window is open.	Fixed
29790	Software may hang while waiting for obscuration during a manual measurement.	Fixed
29920	Software can crash when selecting different measurement steps within the measurement manager during a manual measurement.	Fixed
29962	An exception may be reported when deleting large numbers of records.	Fixed
29967	Aero S accessory can fail to reach air pressure when changing air pressure during the airflow mode initialization sequence.	Fixed
30029	The 'Create Average Record' function does not correctly handle records containing no result data.	Fixed
30103	File -> Exit does not work routinely when the software focus is on the records view.	Fixed
30126	Meaningless error messages reported when the alignment fails.	Fixed

30194	Log sheet tab in the measurement manager window should change color to indicate to the user that it requires attention.	Fixed
30306	Wrong report printed if another report exists which has the same name.	Fixed
30319	Cannot delete reports	Fixed

Known Issues

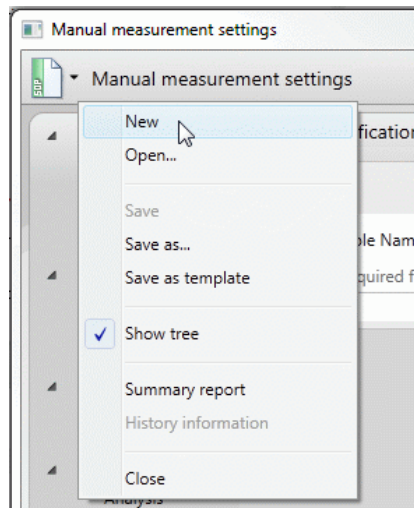
The following software bugs have been discovered within the software, and will be investigated as part of a future release. Please follow the suggested work-around for each issue when operating the software.

Issue	Work Around	Comment
Occasion reports of a firmware update failure on start-up.	If a firmware update is required then the software will download the new firmware to the instrument bench and the attached accessories as required. If the upgrade process fails then simply restart both the software and the instrument bench. The firmware should update successfully the second time through.	Software Bug
Some text still appears in English when running with a different language selected.	The translation of all software text will continue in future releases.	Software Bug
The Contact Malvern feature in the Maintenance window causes the software to crash or displays a message about the wrong parameter format being used.	Manually email the maintenance report text file to helpdesk@malvern.com if support is required.	Software Bug
Software does not open all files selected when they are opened using Windows Explorer.	Use the Open menu option in the Mastersizer 3000 software to open multiple files.	Software Bug
An empty error message box is shown in the measurement window if the Hydro EV accessory is disconnected during a measurement.	Accessories should not be disconnected during measurements.	Software Bug
Reports occasionally appear blank or empty even when the record selection in the Records View changes.	Adjust the report zoom slider in the bottom right-hand corner of the report window to refresh the display.	Intermittent Software Bug
Record number and detector number values are displayed to one decimal place on trend and data graphs.	No work-around available. A fix will be implemented in a future software release.	Software Bug
The System Audit displays duplicated columns for each language under which the system has been run when auditing has been enabled.	No work-around available. A fix will be implemented in a future software release.	Software Bug
When graph symbols are displayed in reports, they do not show on printouts.	No work-around available. A fix will be implemented in a future software release.	Software Bug
Various fields in the Edit result window lose their 'edited' blue background appearance when a different page in the editor is selected.	No work-around available. This is a display issue only, as the software correctly applies the edit values when the OK button is pressed.	Software Bug

The manual measurement settings do not match the connected/active dispersion unit.	See know issue description below.	Intermittent Software Bug
Mastersizer 3000 driver errors appear when using the instrument with a USB 3.0 port.	Always use a USB 2.0 port.	Software Bug
Wet accessories can go into standby mode unexpectedly when switched on for a long period of time.	When this happens, stop all measurements and then open the Manual Measurement, SOP Measurement, or Accessory Control to reactivate the accessory.	Intermittent Software Bug
Downgrading to version 2.01 causes exception.	After installing version 2.10 then downgrading to 2.01, an exception may be seen when the software is first started. To work around this, you need to delete the Features.xml file from C:\ProgramData\Malvern Instruments\Mastersizer 3000\ . This will remove 21CFR settings, which you will then need to reconfigure.	Software Bug

Manual measurement settings do not match the connected / active dispersion unit

Occasionally, users may see the wet accessory related manual measurement settings when a dry unit is attached, or visa-versa. If this occurs, open the manual measurement settings window and click the **New** menu item from the Window Features menu:



This will reset all measurement settings to their defaults for the active accessory type. This issue has been reported after upgrading from early versions of the software, but does not occur on all systems.

Backward Compatibility

This software is only compatible with the Mastersizer 3000 (MAZ3000) and Mastersizer 3000E (MAZ3010) systems, and cannot be used with the Mastersizer 2000 (APA2000) or Mastersizer 2000E systems. It is possible, however, to review and recalculate Mastersizer 2000 / 2000E results within the Mastersizer 3000 / 3000E software. Please refer to the user manuals and software help for guidance as to how this is achieved.

File Types and Locations

The Mastersizer 3000 software uses a series of different file types in order to store data and measurement settings. These are described below, in order to help users who wish to secure the Mastersizer 3000/3000E system using the Microsoft Windows security and access settings.

File Type	Extension	Default Path
21CFR11 mode: Audit trails (Mastersizer 3000 only)	.xml	C:\ProgramData\Malvern Instruments\Mastersizer 3000\Audit Trails
User sizes	.siz	C:\ProgramData\Malvern Instruments\Mastersizer 3000\User Sizes
User defined materials	.mmat	C:\ProgramData\Malvern Instruments\Mastersizer 3000\Materials
User defined dispersants	.mdis	C:\ProgramData\Malvern Instruments\Mastersizer 3000\Dispersants
Data quality addins (Mastersizer 3000 only)	.mdaq	Shared workspace: C:\ProgramData\Malvern Instruments\Mastersizer 3000\ Workspace\Data Quality Addins Private workspace: C:\Users\{user_name}\Documents\Malvern Instruments\Mastersizer 3000\Workspace\Data Quality Addins
Export data	.txt, .csv, .rtf	Shared workspace: C:\ProgramData\Malvern Instruments\Mastersizer 3000\ Workspace\Export Data Private workspace: C:\Users\KBaines\Documents\Malvern Instruments\Mastersizer 3000\Workspace\Export Data
Measurement data	.mmes	Shared workspace: C:\ProgramData\Malvern Instruments\Mastersizer 3000\ Workspace\Measurement Data Private workspace: C:\Users\KBaines\Documents\Malvern Instruments\Mastersizer 3000\Workspace\Measurement Data
Reports	.mrep	Shared workspace: C:\ProgramData\Malvern Instruments\Mastersizer 3000\ Workspace\Reports Private workspace: C:\Users\{user_name}\Documents\Malvern Instruments\Mastersizer 3000\Workspace\Reports
SOP templates	.msot	Shared workspace: C:\ProgramData\Malvern Instruments\Mastersizer 3000\ Workspace\SOP Template Private workspace: C:\Users\{user_name}\Documents\Malvern Instruments\Mastersizer 3000\Workspace\SOP Template
SOP	.msop	Shared workspace:

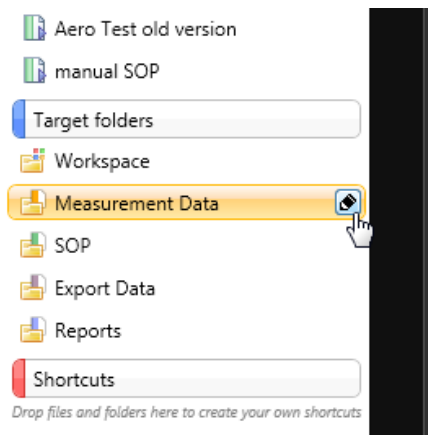
		C:\ProgramData\Malvern Instruments\Mastersizer 3000\ Workspace\SOP Private workspace: C:\Users\{user_name}\Documents\Malvern Instruments\Mastersizer 3000\Workspace\SOP
Data export templates	.mext	Shared workspace: C:\ProgramData\Malvern Instruments\Mastersizer 3000\ Workspace\Data Template Private workspace: C:\Users\{user_name}\Documents\Malvern Instruments\Mastersizer 3000\Workspace\Data Template
Various system wide configuration files	Various	C:\ProgramData\Malvern Instruments\Mastersizer 3000

Changing the destination path for a particular file type

The following folders can be configured from within the Mastersizer 3000/3000E software:

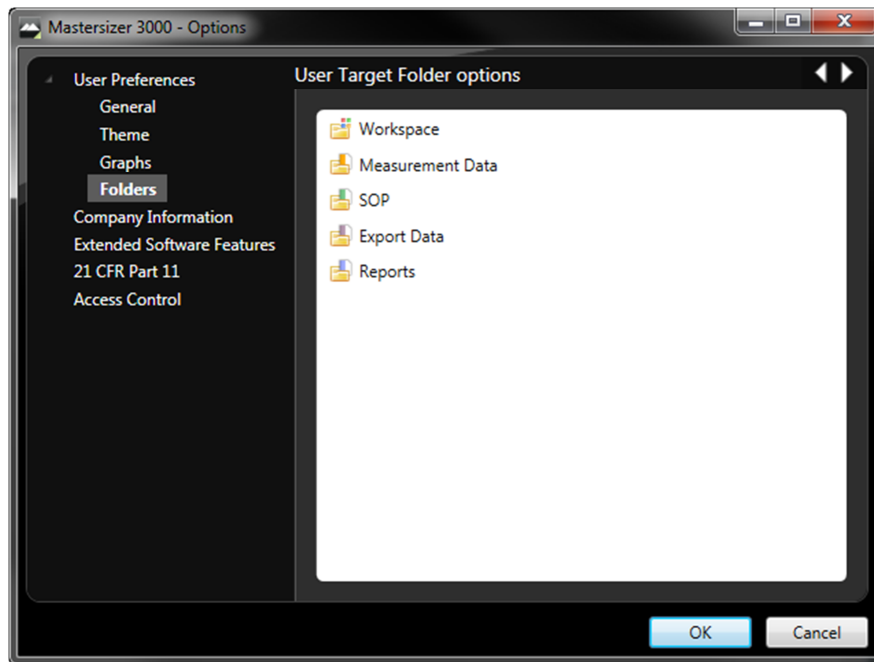
- SOP
- Measurement Data
- Reports
- Export Data

For Mastersizer 3000 users and those who have upgraded the Mastersizer 3000E software, the default file location for these files can be configured via the Target Folders section of the Workspace viewer. To do this, click on the pencil icon which appears when you hover over the directory shortcut:



Changing the directory associated with this shortcut will change the default directory accessed by the Mastersizer 3000 software for the selected file type.

Configuration of the target directories can also be configured from the User Preferences-Folders section of the Options menu:



Again, hover over the shortcut and click on the pencil icon in order to change the target directory. Note that this is the only place in the software where the target directories can be configured when using the Basic software for the Mastersizer 3000E.

Making a backup of the files

The Mastersizer 3000 software does not create backup copies of any of the file listed above. However, there are third-party software tools that will allow you to schedule regular backups, if required, for each of the file locations.

Why do you no longer use the Program Files folder?

With the introduction of Windows Vista and Windows 7, Microsoft changed the default permissions for the Program Files folder to prohibit software maliciously changing files associated with installed software. All software runs with standard user permissions on Windows Vista/7, even when a user is logged in as an Administrator. By adhering to these default permissions, Malvern's software platforms can execute without additional configuration changes by the end user.

Validation Support Documents

The Mastersizer 3000 software CD now contains the following documents, which are provided to help users who work within validated laboratories:

- **21CFR Part 11 and Security System guides:** provide guidance on how to set up the features of the software in order to aid technical compliance to 21 CFR Part 11.
- **Generic Audit Questions and Answers:** provides users with a answers to the common questions included within postal audit questionnaires.
- **IQ and OQ Documents:** preview copies of all of the current versions of the Installation Qualification and Operation Qualification documents for the Mastersizer 3000 optical bench and accessories.
- **Malvern Instrument's ISO Certificates:** copies of the current Malvern Instrument certificates for ISO9001:2008, ISO14001 and OHSAS 18001:2007.
- **QAS Measurement Procedures:** copies of the Malvern Quality Audit Standard data sheets and procedures.

- **Software Certificates of Conformance:** copies of the software certificates of conformance for all Mastersizer 3000 software versions.
- **Software Update Notifications:** copies of the software update notifications for all Mastersizer 3000 software versions, confirming the new features and bug fixes introduced for each version.
- **Software Update Verification Procedure:** a procedure users can follow for verifying the success of a software upgrade.

Note: The documents provided on the software CD are those which were current at the date the software was released. Please contact your local Malvern representative if you need to verify if any updated documents are available.

New Features Description

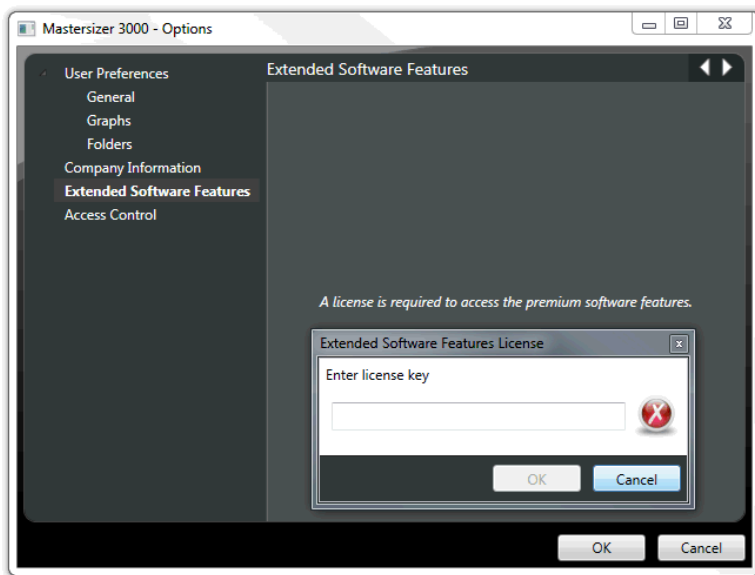
Mastersizer 3000E Support

Version 2.20 of the Mastersizer 3000 software is the first version to provide support for the new Mastersizer 3000E entry level laser diffraction system. This system is designed to provide a way for users who do not have a large budget to purchase a system which can be upgraded to the full Mastersizer 3000 specification in the future.

A full comparison of the capabilities of the Mastersizer 3000E compared to the Mastersizer 3000 is provided in the table below:

Specification	Mastersizer 3000	Mastersizer 3000E Extended Software	Mastersizer 3000E Basic Software
Particle size range	0.01µm to 3500µm	0.1µm to 1000µm	0.1µm to 1000µm
Manual wet dispersion units (Hydro EV and SM)	✓	✓	✓
Automated wet dispersion units (Hydro MV and LV)	✓	✓	
Automated dry dispersion units (Aero S)	✓		
SOP operation	✓	✓	✓
Customizable reporting	✓	✓	✓
Entry level legacy system result compatibility tools	✓	✓	✓
Software bug fixes	✓	✓	✓
Advanced method development and comparison tools	✓	✓	
Advanced data quality assessment and reporting tools	✓	✓	
Advanced measurement manager functions	✓	✓	
Measurement sequencing / SOP player tool	✓	✓	
New feature additions and upgrades	✓	✓	
Ability to use the software on multiple workstations	✓	✓	
User workspace functions	✓	✓	
IQ/OQ Validation	✓		
CFR21 part 11 ER/ES	✓		

The Mastersizer 3000E is, by default, offered with a basic version of the Mastersizer 3000. This can be used with manual wet dispersion units only. It also does not include many of the method development and data quality assessment tools provided for the Mastersizer 3000 software. However, the option to upgrade with Mastersizer 3000E to an Extended software version is available, enabling the users to access the full capabilities of the Mastersizer 3000 software, including operation of automated wet dispersion units and the ability to create licenses for multiple work stations. This is done via the **Extended Software Features** section of the **Options** menu:

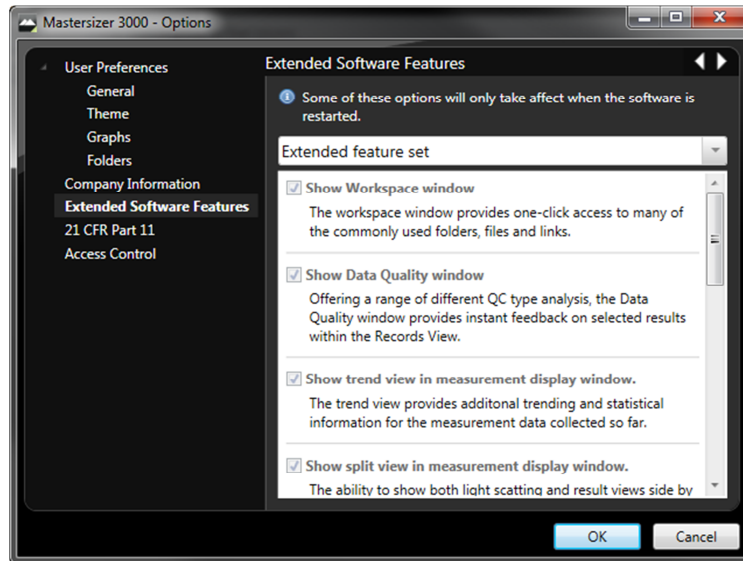


Clicking on this option will cause the software to prompt for an upgrade license key. Once this has been provided, the full feature set of the Mastersizer 3000 software will be enabled. The Extended Software icon on the software status bar will turn green if the upgrade is successful:



Basic Software Mode for Mastersizer 3000 users

Mastersizer 3000 users operating in QC or production control laboratories may want to simplify the Mastersizer 3000 interface. The Basic mode described above for the Mastersizer 3000E can therefore be enabled for the Mastersizer 3000 via the **Extended Software Features** section of the **Options** menu:



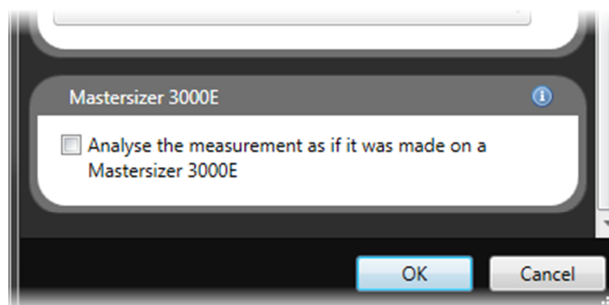
Three options are available from the Extended Software Features menu, via the drop-down list at the top of the menu:

- **Extended feature set:** with this enabled, all of the premium features offered with the standard Mastersizer 3000 software are switched on.
- **Basic feature set:** all of the premium software features are turned off, causing the interface to work like the Basic software provided for Mastersizer 3000E users.
- **Custom feature selection:** enables users to select the elements of the premium Mastersizer 3000 software that they would like to use within the software.

Note that these options are also available following upgrade of the Mastersizer 3000E software to Extended mode.

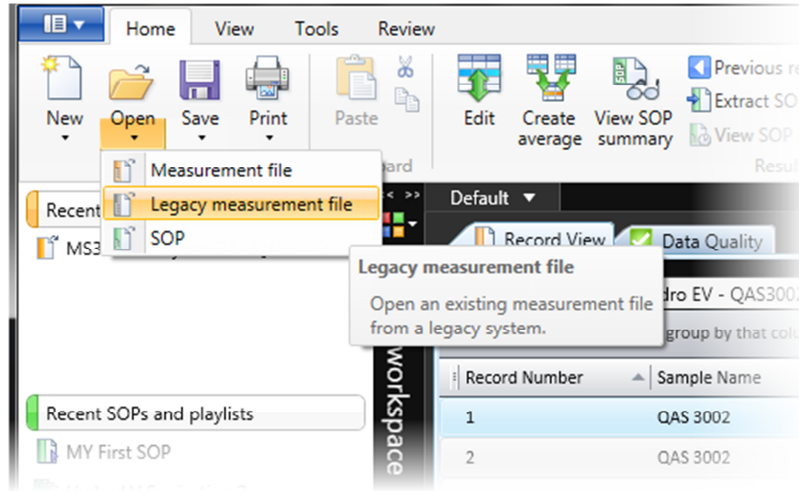
Producing Mastersizer 3000E results using the Mastersizer 3000

With the launch of the Mastersizer 3000E, there may be a requirement for users of the Mastersizer 3000 to generate results which are the same as those generated using the entry-level system. This may, for instance, help with the transfer of methods and specifications between the two systems. In order to allow this to be done, a new advanced analysis option has been provided for Mastersizer 3000 users, which enables measurements to be analyzed as if they were measured on the Mastersizer 3000E:



Opening Mastersizer 2000 / S / X / Micro / Micro+ results

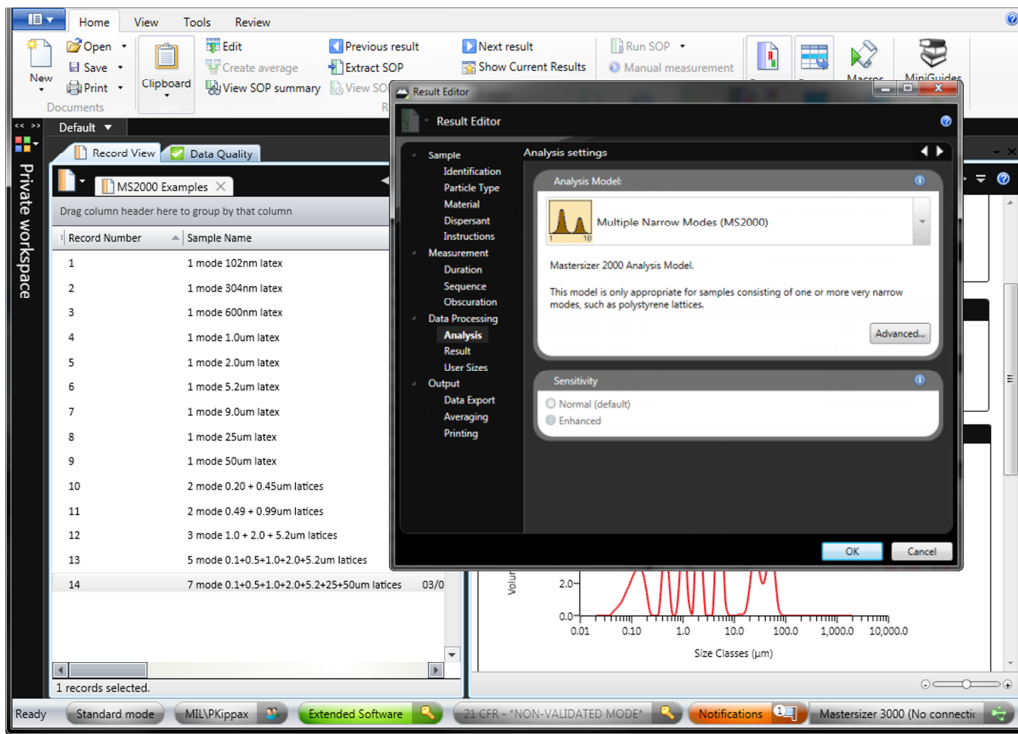
In previous versions of the Mastersizer 3000 software it has been possible to open Mastersizer 2000 measurement files for review. In version 2.20, this functionality has been extended to enable results from the Mastersizer S, Mastersizer X, Mastersizer Micro and Mastersizer Micro+ systems to be opened and reviewed. To do this, access the **Open-Legacy measurement file** ribbon bar menu option:



This will cause a file open dialogue to appear where users can select to open either Mastersizer 2000 measurement files (*.mea) or Mastersizer S/X/Micro/Micro+ files (*.sam). When the selected file opens it will appear as a read-only file within the Mastersizer 3000 software. All of the Mastersizer 3000's reporting capabilities can then be used to review the results contained within the file and compare these with Mastersizer 3000 measurement results.

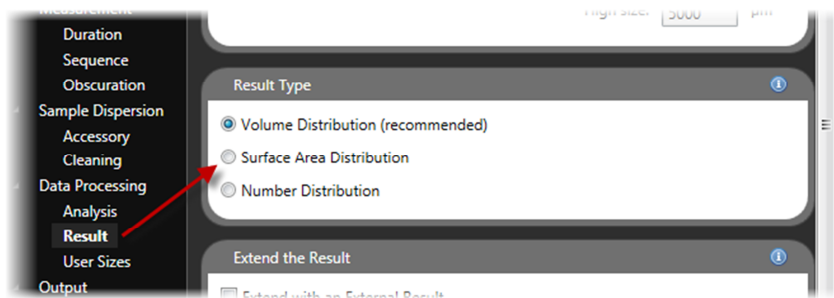
Recalculating Mastersizer 2000 results

As mentioned above, it has always been possible to open Mastersizer 2000 measurement files within the Mastersizer 3000 software. This function was provided to help with method transfer between the two systems. This capability has now been extended to enable the recalculation of Mastersizer 2000 results within the Mastersizer 3000 software. To do this, open a Mastersizer 2000 measurement file and then select the **Save-As...** menu option to save the Mastersizer 2000 results in a Mastersizer 3000 measurement file. If this new file is opened, it is possible to recalculate the results using the standard Mastersizer 2000 analysis options.



Result Transformations

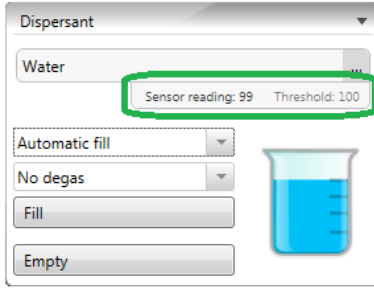
In previous versions of the Mastersizer 3000, the ability to transform the volume-based results generated using the system to be number distributions was provided in the **Data Processing-Result** section of the SOP settings. In v2.20, this function has been extended to enable surface area distributions to be calculated.




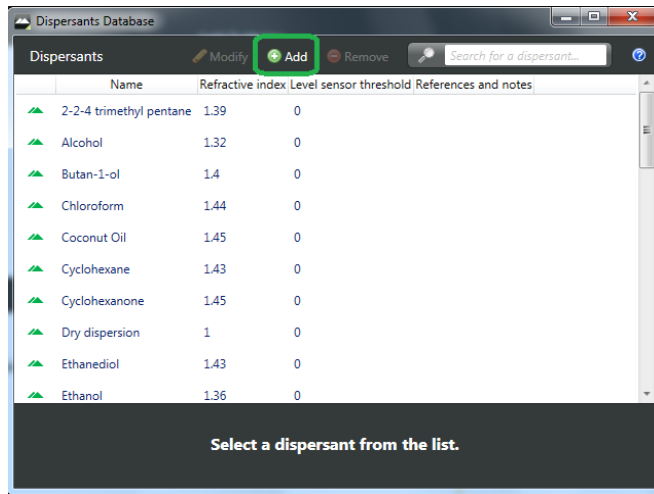
Programmable Level Sensor Operation

Mastersizer 3000 v2.20 software provides support for a revised version of the Hydro MV dispersion unit (part number MAZ3210) which has been designed with a programmable level sensor. This enables the level sensor threshold to be set from within the software, which may help with the detection of some organic dispersants.

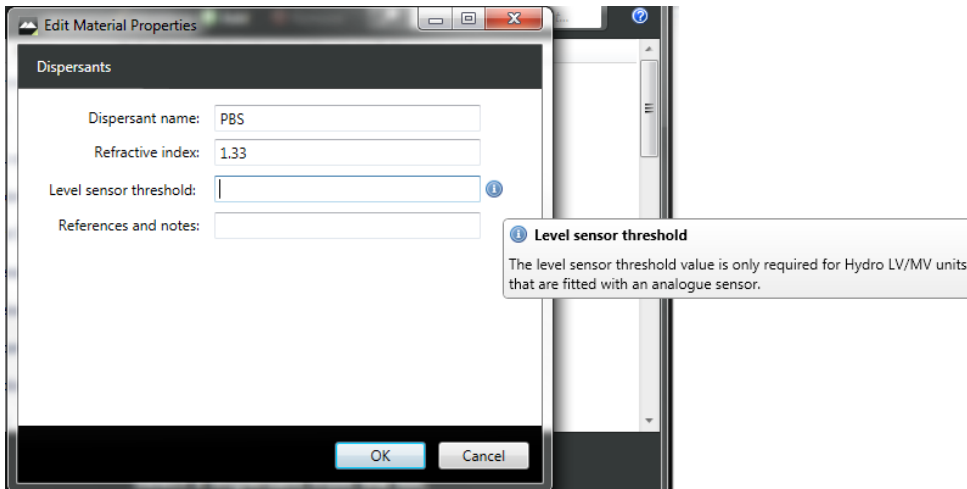
In order to use a new dispersant with the MAZ3210 unit, users are required to set a threshold value for the level sensor. If this is not done, the automated fill and clean functions will not be able to be used with the system. Additional controls have been added to the accessory control window to allow the level sensor threshold to be viewed and set. These appear in both the measurement manager and in the accessory controls available from the tools ribbon bar menu:



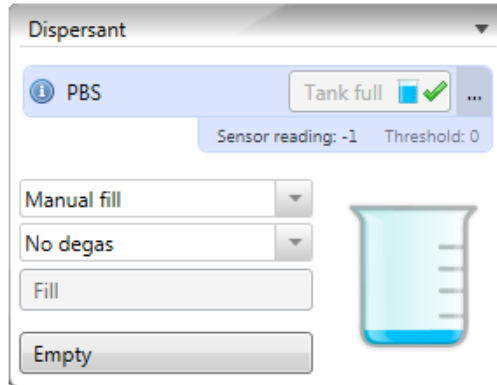
Click on the browse  button to select or add a new dispersant. Then, select from the dispersant you want to use from the dispersants database, or add a new material:



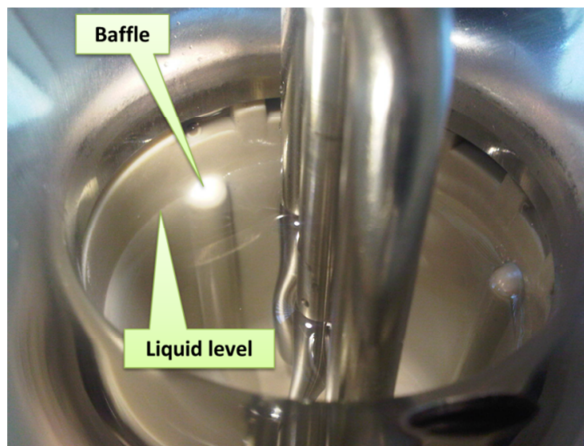
A new level sensor threshold entry is available within the Edit Materials Properties dialogue box:



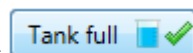
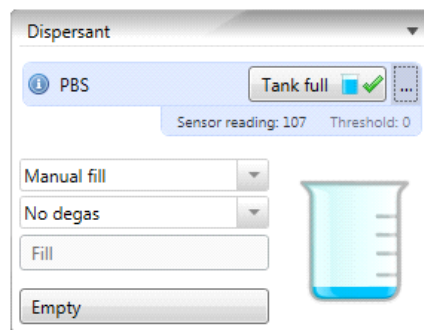
If the threshold value is left blank then the level sensor threshold will be set at zero. The appropriate threshold can be determined by filling the tank with the new dispersant. This screenshot below shows the new dispersant selected within the accessory control and with the tank empty:



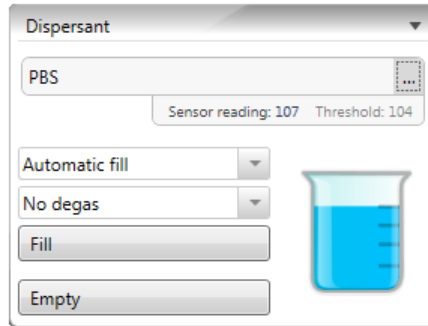
Fill the tank with dispersant up to the top of the baffles, as shown below:



As you fill the tank, the level sensor reading will change, as it starts to detect the liquid. However, the tank will continue to be shown as being empty:



When you have completed filling the tank, click correct threshold setting for your dispersant:



Once a level sensor threshold has been stored the tank will be reported as full and the threshold level will be added to the dispersant database. The automatic fill and clean options will then become available.

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