zygo®

Release Notes

Including Software Versions: 8.0.0.0

For Existing Mx Customers…

Please refer to the *Upgrade Considerations* section of this document if you want to use your current application made with an Mx version older than 8.0.0.0.

These release notes cover new features, changes, updates, etc. for the following versions of Mx software.

Version	Quick Overview - New features, updates, resolved Issues
8.0.0.0	**General** - Consistency improvements - Python has been updated to v3.7.5 **Laser Interferometers** - New, streamlined Measurement Setup in Form and MST applications - Picture-in-picture option in the Live Display shows outputs from the Align and View cameras simultaneously on hardware-enabled interferometers - Improved MST functionality: thinner parts can be measured; vibration robust QFTPSI is now available - Surface Processing tool has been overhauled and Data Manipulate has been removed **Optical Profilers** - Improved Live Display (Intensity Snapshot) capture

2020-06-24

Mx Version 8.0.0.0

General Mx

User Experience Changes

The overarching focus of this release is on usability. To that end, there are many changes in the UI and in the operation of the software – some obvious and some subtle. Many tool tips have been updated, and the Help has been updated and expanded. All applications have had their various views and tools updated for a cleaner look and easier use. There is greater consistency between controls and attributes and across different applications.

VisionPro Lateral Unit Categories

New Lateral Unit Categories have been added when creating results from a VisionPro Processing Sequence. These unit categories affect the conversion from Pixels to Lateral units, when the 'Output in Optical Positions' control is enabled. When 'Output in Optical Positions' is disabled, all lateral values can use the Lateral Unit category. The new unit categories are:

- Lateral Distance Unit: This unit category should be used for a measurement between two points in the field of view, or a dimension such as the radius of a circle. Pixel values are converted into lateral units by multiplying by the Lateral Resolution of the data set.
- Lateral X Unit and Lateral Y Unit: These unit categories should be used for values which represent "points in the plane", such as the center of a circle or the intersection point between two lines. Pixels values are converted into lateral units by multiplying by the lateral resolution, and then offsetting by the origin of the data set (the "optical position" of the measurement).

Auto Sequence and Auto Save Data

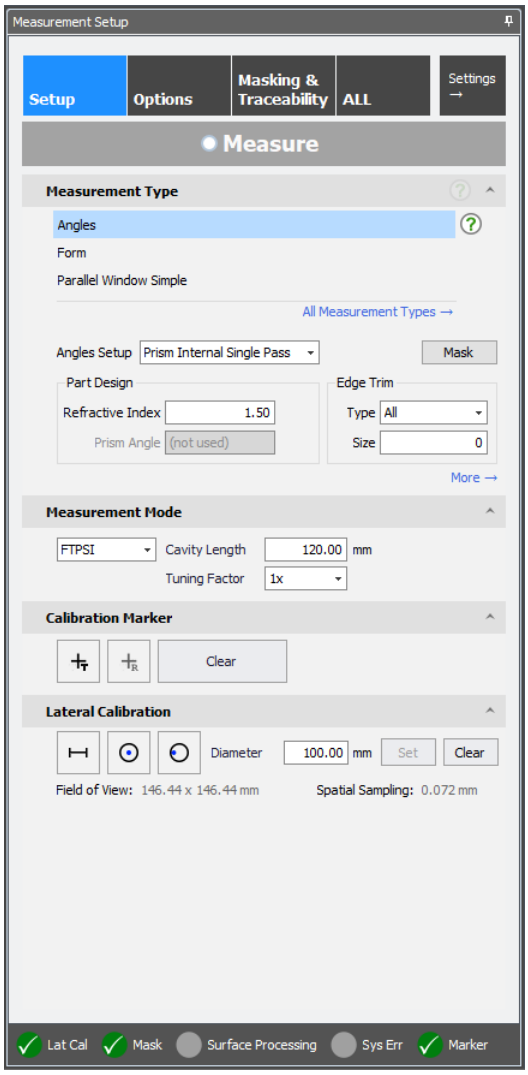
The Auto Sequence tool has been split into two components, containing Auto Sequence and Auto Save Data controls. This change is intended to make it easier for new users to find the Auto Save Data tool, which we have found is used far more often than the Auto Sequence controls. The new versions of the standard applications replace the Auto Sequence toolbar button (when available) with two buttons, Auto Sequence and Auto Save Data.

Laser Interferometers

Streamlined Measurement Setup for Laser Interferometers

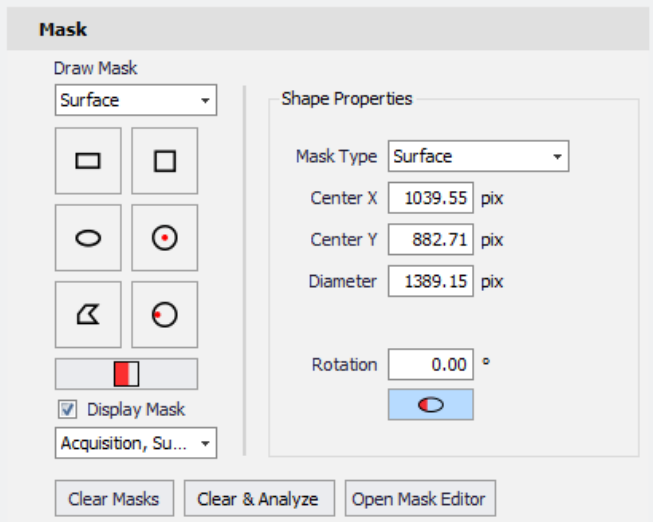
To view a brief preview of these features (recorded prior to final release) please visit the ZYGO webpage: https://www.zygo.com/?/blog/WEBINAR-Mx-8.0-Feature-Preview/

- Everything needed to set up a measurement is now provided in a single flow, with controls for specialized measurement types appearing as needed.

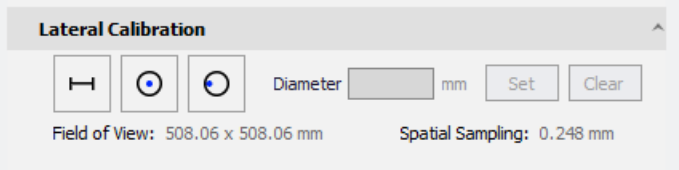


- With new in-line controls, lateral calibration, masking, and calibration marker placement can be done directly in the Live Display.

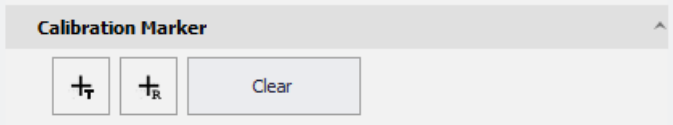
- To draw a mask, select the desired mask type and shape and draw directly on the Live Display.



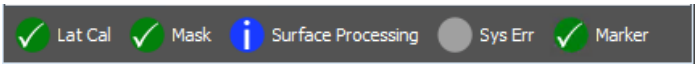
- For lateral calibration, select the desired tool (ruler or circle) and draw directly on the main Live Display. Enter the appropriate value (length or diameter) for the indicated shape and click 'Set'.



- To place calibration markers for FTPSI operation, simply click on the desired marker type (Test or Reference) and then at the desired location in the Live Display.



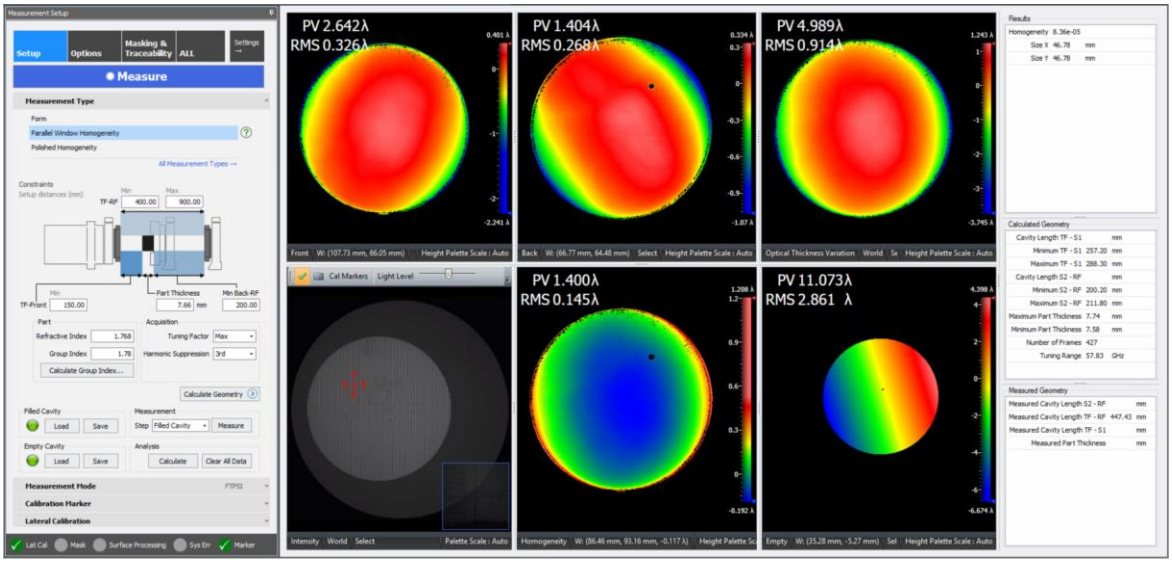
- At-a-glance status indicators guide the user to complete pre-measurement tasks, along with shortcuts to resolve identified issues



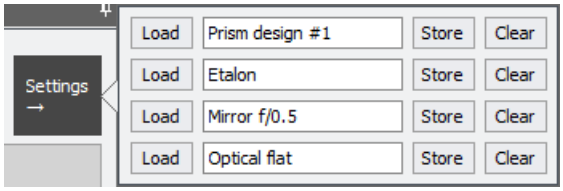
  - The *Lateral Calibration* indicator helps avoid accidentally forgetting this step.
  - The *Mask* indicator provides a reminder when masks are required – and helps avoid surprises from unexpected masking.
  - The *Surface Processing* indicator gives a heads-up when changes have been made relative to the last saved state.
  - The *System Error* indicator helps avoid accidentally forgetting to subtract a reference file (where desired) and flags potential issues *before* a measurement is attempted.

  - The *Calibration Marker* indicator helps to ensure a successful FTPSI measurement (MST only)

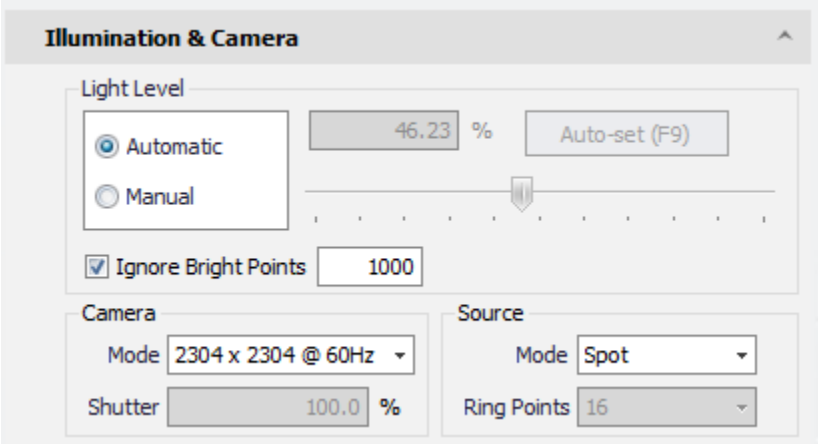
- In the MST application, multi-surface controls now have a streamlined graphical interface depicting how inputs relate to the setup, along with more space for measurement results.



- Frequently used settings can be stored and loaded with convenient shortcut buttons:

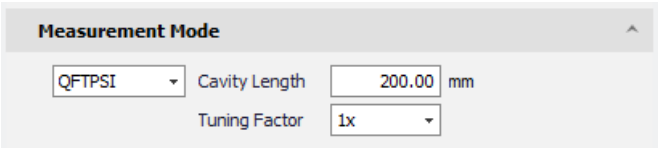


- The Light Level controller has been updated and improved.
  - Viewing Light Level and Measure Light Level have been replaced with a simpler “Automatic” or “Manual” toggle. Automatic applies during both viewing and measuring.
  - The Automatic routine used during measurement now performs much faster, particularly for MST systems.
  - The F9 hotkey maps to the auto-light level command (similar to optical profilers). This applies only when Manual is selected.
  - The Ignore Bright Points control has been improved, and allows a user to easily ignore bright pixels due to artifacts, reflective mounting, or other undesirable sources of bright pixels.
  - Automatic light level (via the Automatic toggle or the Auto-Set command) will now adjusts the shutter when QPSI, Q-WSPSI, or Q-FTPSI are selected.



Vibration robust FTPSI (QFTPSI, analog to QPSI)

- A new Measurement Mode is now available for MST systems, QFTPSI. This brings the easy-to-use vibration robustness of QPSI to the FTPSI measurement mode.
- To use this feature, expand the 'Measurement Mode' section of Measurement Setup and select 'QFTPSI'. The remaining controls perform similar functions as for standard FTPSI.



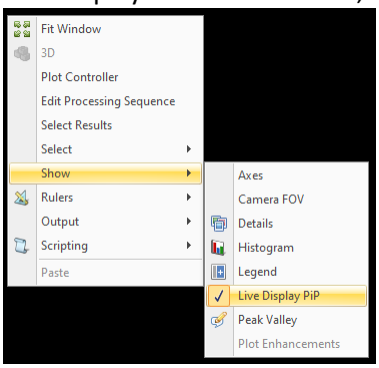
- QFTPSI will affect throughput to a modest extent, compared to FTPSI.
- QFTPSI requires a license to operate. It is the same license used for QPSI and is included as standard with new MST systems. Upgraded MST systems that operate Mx 8.0 or later, along with compatible hardware, will include a QPSI license.

Thinner FTPSI minimum optical thickness limit

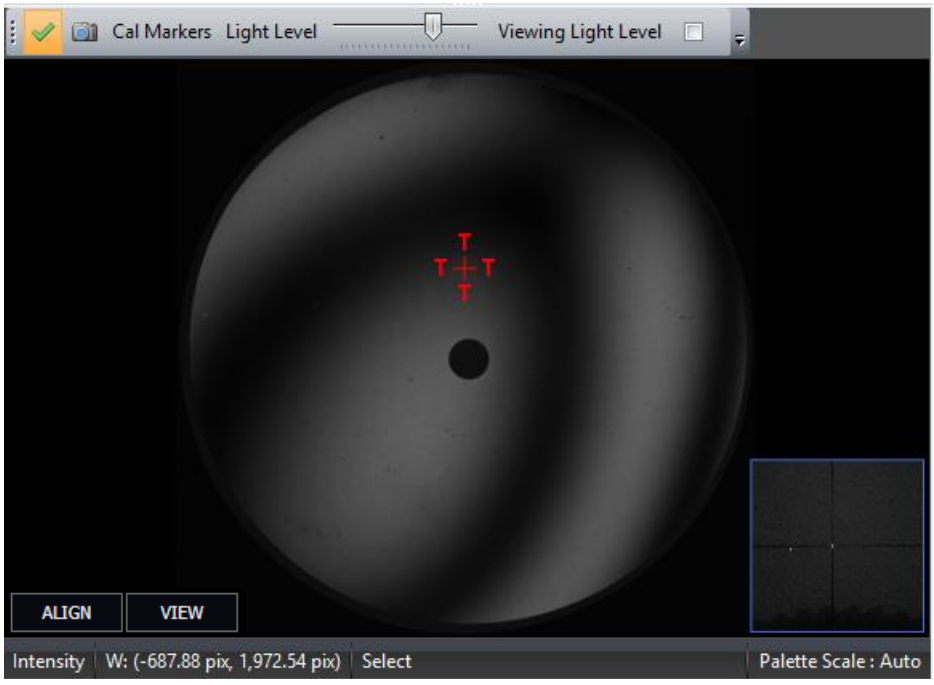
- The minimum optical thickness has improved with Mx 8.0. The new minimum thickness supported by Mx is 0.6 mm optical thickness (previous limit 1.0 mm).
    - Optical thickness = physical thickness * index of refraction
    - The user now needs to enter a more accurate part thickness and index combination, within ~10 % for optimal performance.
- The new minimum thickness will be implemented without requiring a license and will be included with all new 633 nm MST systems (Verifire MST+, Verifire HD-MST and Verifire HDX-MST).
- Optical thickness below 3.0 mm operates in "thin glass mode," an acquisition mode that enables simultaneous surface acquisition of thin windows using FTPSI. In thin glass mode, Custom Cavity Investigation is not available (carry-over functionality from Mx versions prior to 8.0)

Picture-in-picture live display

- For dual-camera systems, outputs from the Align and View cameras can be shown simultaneously in the Live Display. To enable picture-in-picture display, right-click in the Live Display and select 'Show', then 'Live Display PiP'.



- Output from the secondary camera will display in an inset image in a corner of the Live Display.



- The primary camera can be selected by clicking on the corresponding button (Align or View) in the lower left corner of the Live Display.
- The PiP function is only available on Laser Interferometer systems enabled with two cameras, one for fringe display and one for align display. Interferometer systems with only a single camera for align and view modes (e.g., 3.39 µm Verifire, 1.55 µm Verifire) are not enabled with PiP.
- If upgrading to Mx 8.0 from earlier versions, additional steps are required to enable Picture in Picture. See *Upgrade Considerations* at the end of this document for complete instructions.

Surface Processing & Data Manipulate

- The Surface Processing tool has been updated to allow customization of the processing sequence. Processing steps can now be added and deleted, as well as re-ordered.
    - This improves consistency between Form and Micro apps, to help users who interact with both.
    - This also removes the confusion of having two processing sequences in Form/MST applications which both apply to the same data.
- For more details on the (occasionally subtle) impacts of this change, please refer to the companion document 'Technical Information for the Mx 8.0 Form app'.
- With these changes to the Surface Processing tool, the Data Manipulate tool has been removed from the Form and MST applications.

Other changes

- In the PVr analysis tool, changes to the processing flow can cause the 'Zernike Fit PV' and 'Zernike Fit PVr' results to calculate differently in Mx 8.0 than in previous versions of Mx. Prior to Mx 8.0, the underlying Zernike fit used the camera array as the minimum enclosing area. For the PVr analysis tool within the new processing sequence in Mx 8.0, the Zernike fit uses the minimum enclosing rectangle of the *data*. This can produce a slightly different Zernike fit for non-circular data, and consequently slightly different results for 'Zernike Fit PV' and 'Zernike Fit PVr'.
- DMI controls have been relocated to a tab in the Motion Utilities tool. This tab displays only when DMI hardware is available.
- There is now a Calibrate Wavemeter toolbar button (for MSTs).
- Homogeneity and Homogeneity RMS (in Polished Homogeneity Measure Mode) now use Scientific Notation by default.
- Viewing AGC on during Align Mode in DynaPhase.
- Tool panel user experience improvements for consistency and clarity.
- Language support for Japanese, Simplified Chinese, and Traditional Chinese for all Laser Interferometer measurement setup controls, including for specialized measurement types.

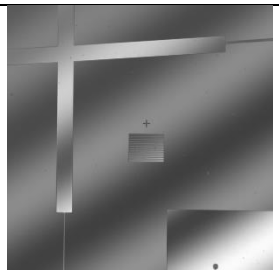
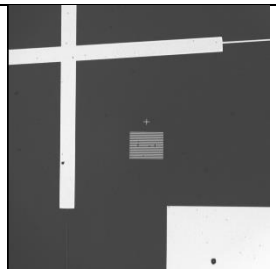
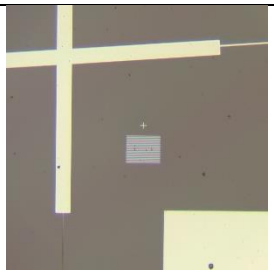
Optical Profilers

Instrument Behavior Changes

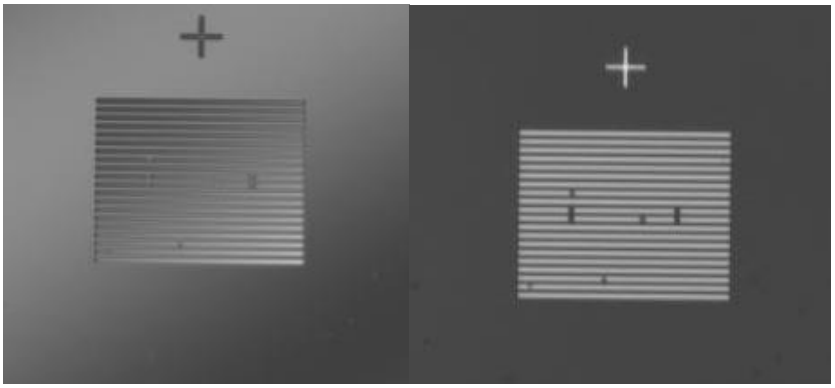
- Mono fringe free mode will be disabled before the turret is moved.
- Safe Z controls have been added to the Advanced pattern tab by default.
- If the pattern origin is not set, pressing 'Set Safe Z Position' will display an error and not set the UI to show any value.

Live Display Capture Enhancements

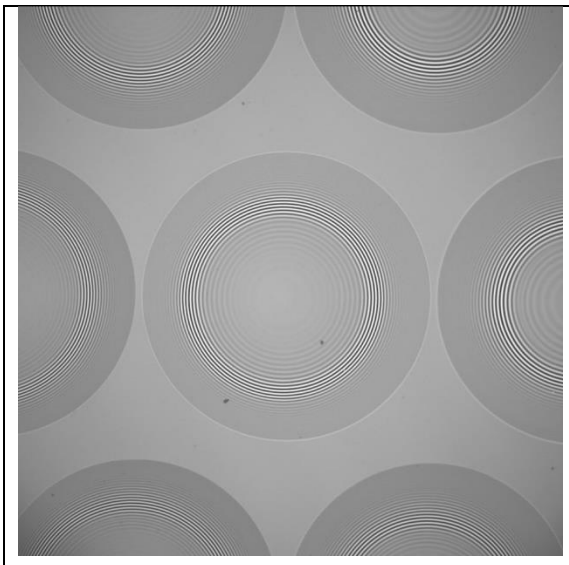
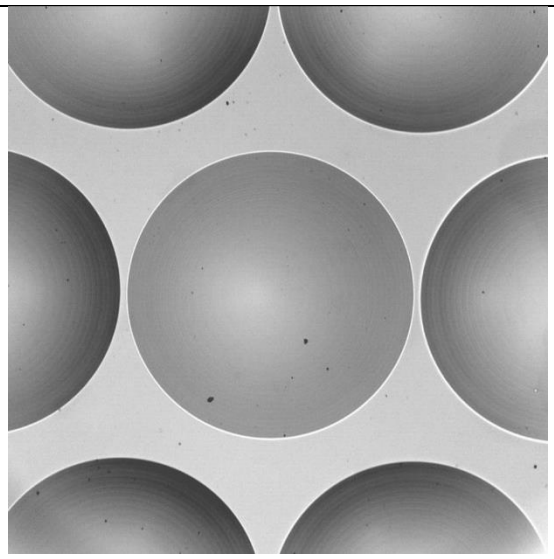
- When the measurement mode is set to “Intensity Snapshot” Mx now captures an intensity image reflecting the current Live Display setup. This means that options such as the Fringe Free, True Color, and intensity field flattening are respected when collecting the intensity image. This can be used for improved documentation of a measurement or sample, or to highlight features on a sample that may be less visible in the typical intensity capture mode.
    - To view some of these captures in the Mx Intensity window, it may be necessary to add certain toolbar buttons.
    - For color imaging, a “True Color” button must be used in the desired intensity plot window to toggle between raw intensity and color intensity.
- Note that when True Color is active, both a Black and White AND a Color intensity image will be stored in the .datx file.
- Examples of data captured using the new Live Capture feature are included here:

		
Standard Intensity Snapshot	Enhanced Fringe Free Snapshot	Enhanced True Color Snapshot

- The central feature in this sample is most strongly influenced by the new capture mode, highlighting the tightly spaced line/space pairs in the enhanced fringe free (and color) modes.



- The following images highlight the difference between standard vs. Fringe Free intensity snapshots:

	
Standard Intensity Snapshot – low contrast and limited edge quality	Fringe Free Intensity Snapshot – much more well-defined edges

Scripting

- The Mx Python installation has been updated to Python 3.7.5. For Python changes, please consult python.org.
- The `save_data()` command now supports .STL and .SUR file formats
- Added support for many (but not all) surface processing steps to be read by `mx.get_bulk_control_values()`
- Several new commands have been added to interact with the Auto Save Data and Auto Sequence dialogs.

  `zygo.mx.get_auto_save_data_status()`
  Gets the state of the Enable Save Data control in the Auto Save Data tool.
  Returns: The state of the Save Data On control in the Auto Save Data tool.
  Return type: *bool*

  `zygo.mx.set_auto_save_data_status`(*status*)
  Sets the state of the Save Data On control in the Auto Save Data tool.
  Parameters: status (*bool*) **-** True to enable. False to disable.

  `zygo.mx.auto_sequence`(*sequence_operation, start_delay=0, interval=0, script_name=''*)
  Sets the auto sequence parameters.
  Parameters: sequence_operation (*zygo.enums.SequenceOperation*) – Operation to perform (measure, pattern, recipe, script).
  start_delay (*int*) – Start Delay in milliseconds, default is 0.
  interval (*int*) – Interval between operations in milliseconds, default is 0.
  script_name (*string*) – Full path and name of script to execute. Required if sequence_operation is script.

`zygo.mx.start_sequence(`***count***`)`
Starts the auto sequence operation
Parameters: count **(*int*) – How** many times to perform operation, 0 if continuous (until aborted).

- Many scripting paths have been updated. This includes paths to controls and attributes, and to UI containers. The UI container name update imposes consistency across all standard applications:

Pre-Mx v8.0.0.0 Name	New Name in all Applications
Zernikes (Form.appx) Zernike Analysis (Micro.appx)	Zernike
Slopes (Form.appx) Slopes Analysis (Micro.appx)	Slopes
PSD (Form.appx) PSD Analysis (Micro.appx)	PSD
Legendres (Form.appx)	Legendre
Material Ratio Analysis (Micro.appx)	Material Ratio

The list of control name changes is extensive – please refer to the appendix at the end of this document.

Issues Resolved

General

- Fixed several issues which caused filtering the Slice Statistics to behave improperly. (This refers to filtering to select which items are visible – not filtering of the slice itself.)
- Fixed several issues with the Histogram plot axes.
- Fixed several Regions layout issues, specifically related to expanding accordion sections of the UI.
- Annular Zernikes can now be imported and exported properly.
- Fixed several issues with PatchDataX not setting certain attributes properly. Additionally, PatchDataX now properly handles setting stitch coordinate values on data from systems with only Z-Axis motion.
- Fixed a bug which caused a Null Reference Exception when opening a plot context menu (occurred when a system expected an instrument but was missing configuration files).
- Fixed a bug where Watershed Analysis in Regions using Intensity Data could crash Mx.
- Custom controls now properly allow the user to change their precision.
- Custom controls now properly save and load with settings.
- Fixed an issue with the slice plot not showing properly in Full Screen Mode.
- Fixed a bug with the Slice Statistics toolbar button getting out of sync.
- Fixed a bug where zooming with the mouse wheel on plots containing generated data did not work.

- Fixed a bug where part of the plot legend could be cut off.
- When opening files across a network, sometimes an error (Storage Library generated error Data Filer Lock Failed) would be generated, especially when the Preview Pane of the file dialog is opened; this should no longer occur.

Optical Profilers

- Zip Scan no longer begins if the stages are not homed (previous behavior: would begin but then fail when a move was attempted).
- The Scan Length control now properly shows the fixed-length piezo-scanner ramps when Scan Origin is set to Top or Bottom. The Scan Origin will change to Center if a piezo-scanner ramp is selected.
- Fixed a bug where Objective Calibration did not always return the stage to its starting point. This could cause “walking” issues during subsequent calibrations.
- Fixed a bug where saving processed data (or exporting) from a Slopes plot threw an error for all files other than DATX.

Optical Test

- The ISO 10110-5 RSI:C result now correctly matches the PV of spherical aberration.
- Fixed a bug where a Legendre Analysis control window could become disabled.
- Fixed a bug where the ND Wheel (gain control hardware) failed to home if the wand was used during initialization.
- Fixed a bug where ITF analysis could incorrectly identify the center of the target artifact.
- Fixed a bug where taking a LivePhase measurement could cause a DynaPhase Single measurement to fail.
- DynaPhase Movie mode maximum framerate is now properly set by the maximum framerate of the available camera.
- The Intensity Snapshot measurement mode now respects the Ignore Bright Points control.
- Fixed a bug where the Radius Scale lateral resolution attribute was not set properly.
- Fixed a bug where results would disappear from the Sub-Aperture plots when clicking on the plot.
- Results in the Sub-Aperture tool result grid can now be filtered properly.

Scripting

- The `ui.Control.save_data()` and `mx.save_data()` methods now support saving to STL and SUR files.
- Fixed a bug with `instrument.set_wand_enabled()` – this command now properly enables or disables encoded focus.
- The paths to grids in a Custom Workspace are now shown properly when Identified.
- Fixed a bug where `instrument.is_wand_enabled()` always returned True.
- Custom controls can now be properly set through scripting.

- Script toolbar buttons with custom icons will no longer occasionally cause an error on application load.
- Resolved a plot name conflict in the MultiSurf application.
- The `set_wand_enabled()` command now properly interacts with systems with non-encoded focus.
- Fixed a bug where `is_wand_enabled()` did not return the proper value.
- The "System Error Filename" attribute no longer causes an error when requested via `get_bulk_attribute_values()`
- Fixed a bug that generated a scripting error when loading data into Radius Scale for the first time.

System Requirements

- Windows 10 LTSB 2016 Build 1607 ***or*** Windows 7 Professional x64 English. The LTSB version of Windows 10 is required to properly run an instrument. Without this version, Windows may start downloading software updates during critical measurement activities. LTSB is an abbreviation for "Long Term Servicing Branch".
- Intel Multi-Core or Multi-Processor (4 Core/Processor Minimum)
- Minimum 16 GB RAM or more; 32 GB recommended
- Dedicated graphics card supporting OpenGL with 256 MB RAM (recommended)
- OpenGL 1.5 or later

Installation Requirements

This version is supported on desktops, laptops, and supported instruments.

Do not install from a network drive. This is not supported, and while the installation may appear to complete successfully, it will leave Mx in an unstable and unusable state.

Do place the installation program on the computer where you are installing Mx, then click on the icon to run it there.

> *Contact your ZYGO representative for Nexview instruments running Mx 6.0 or earlier. A firmware update is necessary.*

Upgrade Considerations

Upgrading from Mx version 3.0.0.0 or later is supported.

If your previous version predates Mx 7.0.0.0
Prior to Mx 7.0.0.0 with VisionPro 7.0 installed requires that VisionPro be completely

uninstalled. Contact your ZYGO representative for instructions on installation of VisionPro 9.0.

If your previous version predates Mx 8.0.0.0, and you are updating a Verifire system
For systems upgrading from an Mx version prior to Mx v8.0.0.0, the Picture in Picture feature will **not** automatically be enabled. To enable PiP, please do the following:

- Upgrade Mx to v8.0.0.0
- After the upgrade is complete and you exit the installer, go to Control Panel > Programs and Features
- Select Mx in the list of programs presented
- Click on Change
- At the Welcome screen, select **MODIFY** and then select **NEXT** for ALL screens; at the last screen, select FINISH. If you are prompted to reboot the computer, please do so.

Resaved Applications will not be Backwards Compatible

As a general note, any application or settings file that is RESAVED using Mx v8.0.0.0 or later will NOT be compatible with earlier versions of Mx. If you must load the same settings or applications into multiple versions of Mx, one of the following is suggested:

- Keep the file as-is (do NOT resave)

  - or -
- 'Save As' a new file so that both old and new versions of the file exist

Also note that applications and settings files created with Mx v8.0.0.0 or later will not be compatible with older versions of Mx.

Potential Upgrade Issues

The following note may apply to you if …

1. You are already an existing Mx customer
2. You want to use your current application
3. You use Custom Results that use the Area result in your application

The base units for Area custom results has been changed from SquareMicroMeters to SquarePixels to allow for proper conversions of area results, and to enable the display of area custom results in square pixels (pix^2). Any area custom result values will now be treated in units of pix^2. This means that all conversions, either manual or by using the `ConvertMxUnits` function, will need to be reworked. In most cases, no conversion is necessary since the Area input units match the Area Custom Result output units.

In addition, the following Unit Categories have been removed from Mx Custom Results:

- Angular Frequency
- Lateral Frequency

- Lateral Dimension
- Slope
- Power Density

Any existing Mx applications and settings which contain custom results created with these categories will still load and save properly. However, no new custom results can be created using these categories.

Questions?

Please contact your ZYGO representative.

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R/N: 8.0.0.0
(June 2020)

Appendix – updated names and paths

The following is a list of all control names and paths which have changed with Mx 8.0 applications. Note that paths do not change in applications created/saved prior to Mx 8.0. Scripts which access these controls or their corresponding attributes will need to be updated.

MICRO.appx (including MicroLite, MicroPPr, MultiSurf)			
Before Mx v8.0.0.0		**Mx v8.0.0.0**	
Name	**Path**	**Name**	**Path**
Slope Toolbox On	"Analysis", "Surface", "Slopes", "Slopes On"	**Enable Slopes**	"Analysis", "Surface", "Slopes", "Enable Slopes"
Zernike On	"Analysis", "Zernikes", "Zernike View On"	**Enable Zernike**	"Analysis", "Zernikes", "Enable Zernike"
Part Ser Num	"System", "Info", "Part Ser Number"	**Part Serial Number**	"System", "Info", "Part Serial Number"
Filename	"System", "Load", "Filename"	**Data Filename**	"System", "Load", "Data Filename"
HDR Scan Saved Light Level 1	"Instrument", "Measurement Setup", "Acquisition", "HDR Scan", "HDR Scan Saved Light Level 1"	**HDR Scan Light Level 1**	"Instrument", "Measurement Setup", "Acquisition", "HDR Scan", "HDR Scan Light Level 1"
HDR Scan Saved Light Level 2	"Instrument", "Measurement Setup", "Acquisition", "HDR Scan", "HDR Scan Saved Light Level 2"	**HDR Scan Light Level 2**	"Instrument", "Measurement Setup", "Acquisition", "HDR Scan", "HDR Scan Light Level 2"
HDR Scan Saved Light Level 3	"Instrument", "Measurement Setup", "Acquisition", "HDR Scan", "HDR Scan Saved Light Level 3"	**HDR Scan Light Level 3**	"Instrument", "Measurement Setup", "Acquisition", "HDR Scan", "HDR Scan Light Level 3"
Objective Name *(Attribute changed)*	"Instrument", "Image Magnification", "Objective Name"	**Objective**	"Instrument", "Image Magnification", "Objective"

FORM.appx			
Before Mx v8.0.0.0		Mx v8.0.0.0	
Name	**Path**	**Name**	**Path**
Slope Toolbox On	"Analysis", "Slopes", "Slopes On"	**Enable Slopes**	"Analysis", "Slopes", "Enable Slopes"
Zernike On	"Analysis", "Zernikes", "Zernike View On"	**Enable Zernike**	"Analysis", "Zernikes", "Enable Zernike"
ISO 10110-5 Analysis On	"Analysis", "ISO 10110-5", "ISO10110-5 On"	**Enable ISO 10110-5**	"Analysis", "ISO 10110-5", "Enable ISO 10110-5"
PVr On	"Analysis", "PVr", "PVr On"	**Enable PVr**	"Analysis", "PVr", "Enable PVr"
Diffraction Analysis On	"Analysis", "Diffraction", "Diffraction Analysis On"	**Enable Diffraction**	"Analysis", "Diffraction", "Enable Diffraction"
Legendre On	"Analysis", "Legendres", "Legendre View On"	**Enable Legendre**	"Analysis", "Legendres", "Enable Legendre"
Processing On	N/A	**Enable Sub-Aperture**	N/A
Data Trim	"Instrument", "Angles", "Data Trim"	**Edge Trim On**	"Instrument", "Angles", "Edge Trim On"
Data Trim Mode	"Instrument", "Angles", "Data Trim Mode"	**Edge Trim Type**	"Instrument", "Angles", "Edge Trim Type"
Focus	"Auto Focus\Tilt", "Focus", "Focus"	**Auto Focus**	"Instrument", "Measurement Setup", "Auto Focus Tilt", "Auto Focus"
Bailout Percent	"Auto Focus\Tilt", "Bailout Percent"	**Focus Tilt Bailout**	"Instrument", "Measurement Setup", "Auto Focus Tilt", "Focus Tilt Bailout"
Tilt Max Adjust	"Auto Focus\Tilt", "Tilt", "Tilt Max Adjust"	**Tilt Max Adjust**	"Instrument", "Measurement Setup", "Auto Focus Tilt", "Tilt Max Adjust"
Tilt Min Adjust	"Auto Focus\Tilt", "Tilt", "Tilt Min Adjust"	**Tilt Min Adjust**	"Instrument", "Measurement Setup", "Auto Focus Tilt", "Tilt Min Adjust"
Pitch Offset	"Auto Focus\Tilt", "Tilt", "Pitch Offset"	**Tilt Pitch Offset**	"Instrument", "Measurement Setup", "Auto Focus Tilt", "Tilt Pitch Offset"
Roll Offset	"Auto Focus\Tilt", "Tilt", "Roll Offset"	**Tilt Roll Offset**	"Instrument", "Measurement Setup", "Auto Focus Tilt", "Tilt Roll Offset"
Alignment *(Attribute changed)*	"Instrument", "Measurement Setup", "DynaPhase", "Alignment"	**Alignment Mode**	"Instrument", "Measurement Setup", "DynaPhase", "Alignment Mode"
Target PPF *(Attribute changed)*	"Instrument", "Measurement Setup", "DynaPhase", "Target PPF"	**Target Pixels Per Fringe**	"Instrument", "Measurement Setup", "DynaPhase", "Target Pixels Per Fringe"

Actual PPF ***(Attribute changed)***	"Instrument", "Measurement Setup", "DynaPhase", "Actual PPF"	**Actual Pixels per Fringe**	"Instrument", "Measurement Setup", "DynaPhase", "Actual Pixels Per Fringe"
Number of Buckets	"Instrument", "Measurement Setup", "Ftpsi", "Number of Buckets"	**Number of Frames**	"Instrument", "Measurement Setup", "FTPSI", "Number of Frames"
Part Ser Number	"Instrument", "Measurement Setup", "Info", "Part Ser Number"	**Part Serial Number**	"System", "Info", "Part Serial Number"
Smart Averaging Local Remove Type	"Instrument", "Measurement Setup", "Smart Averaging", "Smart Averaging Local Remove Type"	**SmartAveraging Local Remove**	"Instrument", "Measurement Setup", "Smart Averaging", "SmartAveraging Local Remove"
The controls below were in the pre-v8.0.0.0 Form.appx static Surface Processing and are only applicable if a customized Form application was saved and will continue to be used.			
Auto Aperture *(Control changed)*	"Tools", "Auto Aperture", "Auto Aperture"	**Enable Auto Aperture**	"Tools", "Auto Aperture", "Enable Auto Aperture"
Auto Aperture On *(Attribute changed)*	"Tools", "Auto Aperture", "Auto Aperture On"	**Enable Auto Aperture**	"Tools", "Auto Aperture", "Enable Auto Aperture"
FilterOn *(Control changed)*	"Tools", "Filter", "FilterOn"	**Enable Filter**	"Tools", "Filter", "Enable Filter"
Filter On *(Attribute changed)*	"Tools", "Filter", "Filter On"	**Enable Filter**	"Tools", "Filter", "Enable Filter"
High Frequency Cutoffs *(Attribute changed)*	"Tools", "Filter", "High Frequency Cutoffs"	**High Frequency**	"Tools", "Filter", "High Frequency"
Low Frequency Cutoffs *(Attribute changed)*	"Tools", "Filter", "Low Frequency Cutoff"	**Low Frequency**	"Tools", "Filter", "Low Frequency"
Long Period Cutoffs *(Attribute changed)*	"Tools", "Filter", "Long Period Cutoffs"	**Long Period**	"Tools", "Filter", "Long Period"
Short Period Cutoffs *(Attribute changed)*	"Tools", "Filter", "Short Period Cutoffs"	**Short Period**	"Tools", "Filter", "Short Period"
SubSample Size	"Tools", "Fit and Remove", "Cartesian", "Fit and Remove", "SubSample Size"	**Subsample Size**	"Tools", "Fit and Remove", "Cartesian", "Fit and Remove", "Subsample Size"
SubSample Size	"Tools", "Fit and Remove", "Cartesian", "User Remove", "SubSample Size"	**Subsample Size**	"Tools", "Fit and Remove", "Cartesian", "User Remove", "Subsample Size"
SubSample Size	"Tools", "Fit and Remove", "Zernike", "Fit and Remove", "SubSample Size"	**Subsample Size**	"Tools", "Fit and Remove", "Zernike", "Fit and Remove", "Subsample Size"
SubSample Size	"Tools", "Fit and Remove", "Zernike", "User Remove", "SubSample Size"	**Subsample Size**	"Tools", "Fit and Remove", "Zernike", "User Remove", "Subsample Size"
Area On	"Tools", "Area", "Area On"	**Enable Area**	"Tools", "Area", "Enable Area"

Data Fill On	"Tools", "Data Fill", "Data Fill On"	**Enable Data Fill**	"Tools", "Data Fill", "Enable Data Fill"
Edge Trim On	"Tools", "Edge Trim", "Edge Trim On"	**Enable Edge Trim**	"Tools", "Edge Trim", "Enable Edge Trim"
Fit and Remove On	"Tools", "Fit and Remove", "Fit and Remove On"	**Enable Fit and Remove**	"Tools", "Fit and Remove", "Enable Fit and Remove"
Spike Clip On	"Tools", "Spike Clip", "Spike Clip On"	**Enable Spike Clip**	"Tools", "Spike Clip", "Enable Spike Clip"
System Reference Subtract On	"Tools", "System Reference Subtract", "System Reference Subtract On"	**Enable System Reference Subtra**	"Tools", "System Reference Subtract", "Enable System Reference Subtract"

MST.appx			
Before Mx v8.0.0.0		Mx v8.0.0.0	
Name	**Path**	**Name**	**Path**
Slope Toolbox On	"Analysis", "Surface", "Slopes", "Slopes On"	Enable Slopes	"Analysis", "Surface", "Slopes", "Enable Slopes"
Zernike On	"Analysis", "Surface", "Zernikes", "Zernike View On"	Enable Zernike	"Analysis", "Surface", "Zernikes", "Enable Zernike"
ISO 10110-5 Analysis On	"Analysis", "Surface", "ISO 10110-5", "ISO10110-5 On"	Enable ISO 10110-5	"Analysis", "ISO 10110-5", "Enable ISO 10110-5"
PVr On	"Analysis", "Surface", "PVr", "PVr On"	Enable PVr	"Analysis", "Surface", "PVr", "Enable PVr"
Diffraction Analysis On	"Analysis", "Surface", "Diffraction", "Diffraction Analysis On"	Enable Diffraction	"Analysis", "Surface", "Diffraction", "Enable Diffraction"
Legendre On	"Analysis", "Surface", "Legendres", "Legendre View On"	Enable Legendre	"Analysis", "Legendres", "Enable Legendre"
Part Ser Number	"Instrument", "Measurement Setup", "Info", "Part Ser Number"	Part Serial Number	"System", "Info", "Part Serial Number"
Focus	"Instrument", "Measurement Setup", "Auto Focus Tilt", "Focus"	Auto Focus	"Instrument", "Measurement Setup", "Auto Focus Tilt", "Auto Focus"
Data Trim	"Instrument", "Angles", "Data Trim"	Edge Trim On	"Instrument", "Angles", "Edge Trim On"
Data Trim Mode	"Instrument", "Angles", "Data Trim Mode"	Edge Trim Type	"Instrument", "Angles", "Edge Trim Type"
Tilt Pitch Offset *(Attribute changed)*	"Instrument", "Measurement Setup", "Auto Focus Tilt", "Tilt Pitch Offset"	Pitch Offset	"Instrument", "Measurement Setup", "Auto Focus Tilt", "Pitch Offset"
Tilt Roll Offset *(Attribute changed)*	"Instrument", "Measurement Setup", "Auto Focus Tilt", "Tilt Roll Offset"	Roll Offset	"Instrument", "Measurement Setup", "Auto Focus Tilt", "Roll Offset"
Actual PPF *(Attribute changed)*	"Instrument", "Measurement Setup", "DynaPhase", "Actual PPF"	Actual Pixels Per Fringe	"Instrument", "Measurement Setup", "DynaPhase", "Actual Pixels Per Fringe"
Target PPF *(Attribute changed)*	"Instrument", "Measurement Setup", "DynaPhase", "Target PPF"	Target Pixels Per Fringe	"Instrument", "Measurement Setup", "DynaPhase", "Target Pixels Per Fringe"
Alignment *(Attribute changed)*	"Instrument", "Measurement Setup", "DynaPhase", "Alignment"	Alignment Mode	"Instrument", "Measurement Setup", "DynaPhase", "Alignment Mode"

The controls below were in the pre-v8.0.0.0 MST.appx static Surface Processing and are only applicable if a customized MST application was saved and will continue to be used. *Also note that the script paths for these controls were incorrect prior to v8.0.0.0.*			
High Frequency Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "High Frequency Cutoffs"	**High Frequency**	"Analysis", "Front", "Tools", "Data Processing", "Filter", "High Frequency"
Long Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Long Period Cutoffs"	**Long Period**	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Long Period"
Low Frequency Cutoff *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Low Frequency Cutoff"	**Low Frequency**	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Low Frequency"
Short Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Short Period Cutoffs"	**Short Period**	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Short Period"
High Frequency Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "High Frequency Cutoffs"	**High Frequency**	"Analysis", "Back", "Tools", "Data Processing", "Filter", "High Frequency"
Long Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Long Period Cutoffs"	**Long Period**	"Analysis", "Back", "Tools", "Data Processing", "Filter", "Long Period"
Low Frequency Cutoff *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Low Frequency Cutoff"	**Low Frequency**	"Analysis", "Back", "Tools", "Data Processing", "Filter", "Low Frequency"
Short Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Short Period Cutoffs"	**Short Period**	"Analysis", "Back", "Tools", "Data Processing", "Filter", "Short Period"
High Frequency Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "High Frequency Cutoffs"	**High Frequency**	"Analysis", "Homogeneity", "Tools", "Data Processing", "Filter", "High Frequency"
Long Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Long Period Cutoffs"	**Long Period**	"Analysis", "Homogeneity", "Tools", "Data Processing", "Filter", "Long Period"
Low Frequency Cutoff *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Low Frequency Cutoff"	**Low Frequency**	"Analysis", "Homogeneity", "Tools", "Data Processing", "Filter", "Low Frequency"
Short Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Short Period Cutoffs"	**Short Period**	"Analysis", "Homogeneity", "Tools", "Data Processing", "Filter", "Short Period"
High Frequency Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "High Frequency Cutoffs"	**High Frequency**	"Analysis", "Optical Thickness Variation", "Tools", "Data Processing", "Filter", "High Frequency"
Long Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Long Period Cutoffs"	**Long Period**	"Analysis", "Optical Thickness Variation", "Tools", "Data Processing", "Filter", "Long Period"

Low Frequency Cutoff *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Low Frequency Cutoff"	**Low Frequency**	"Analysis", "Optical Thickness Variation", "Tools", "Data Processing", "Filter", "Low Frequency"
Short Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Short Period Cutoffs"	**Short Period**	"Analysis", "Optical Thickness Variation", "Tools", "Data Processing", "Filter", "Short Period"
High Frequency Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "High Frequency Cutoffs"	**High Frequency**	"Analysis", "Physical Thickness Variation", "Tools", "Data Processing", "Filter", "High Frequency"
Long Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Long Period Cutoffs"	**Long Period**	"Analysis", "Physical Thickness Variation", "Tools", "Data Processing", "Filter", "Long Period"
Low Frequency Cutoff *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Low Frequency Cutoff"	**Low Frequency**	"Analysis", "Physical Thickness Variation", "Tools", "Data Processing", "Filter", "Low Frequency"
Short Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Short Period Cutoffs"	**Short Period**	"Analysis", "Physical Thickness Variation", "Tools", "Data Processing", "Filter", "Short Period"
High Frequency Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "High Frequency Cutoffs"	**High Frequency**	"Analysis", "Surface", "Tools", "Data Processing", "Filter", "High Frequency"
Long Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Long Period Cutoffs"	**Long Period**	"Analysis", "Surface", "Tools", "Data Processing", "Filter", "Long Period"
Low Frequency Cutoff *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Low Frequency Cutoff"	**Low Frequency**	"Analysis", "Surface", "Tools", "Data Processing", "Filter", "Low Frequency"
Short Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Short Period Cutoffs"	**Short Period**	"Analysis", "Surface", "Tools", "Data Processing", "Filter", "Short Period"
High Frequency Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "High Frequency Cutoffs"	**High Frequency**	"Analysis", "Transmission", "Tools", "Data Processing", "Filter", "High Frequency"
Long Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Long Period Cutoffs"	**Long Period**	"Analysis", "Transmission", "Tools", "Data Processing", "Filter", "Long Period"
Low Frequency Cutoff *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Low Frequency Cutoff"	**Low Frequency**	"Analysis", "Transmission", "Tools", "Data Processing", "Filter", "Low Frequency"
Short Period Cutoffs *(Attribute changed)*	"Analysis", "Front", "Tools", "Data Processing", "Filter", "Short Period Cutoffs"	**Short Period**	"Analysis", "Transmission", "Tools", "Data Processing", "Filter", "Short Period"