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Release Notes

Note

From version 8.2.9654, the Release Notes will no longer be updated.

Version	Date
8.2.9654	June 7th 2021
8.2.9621	May 5th 2021
8.2.9564	March 9th 2021
8.2.9537	February 10th 2021
8.2.9526	January 30th 2021
8.2.9468	December 3rd 2020
8.1.9413	October 9th 2020
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8.1.9276	May 25th 2020
8.0.9241	April 20th 2020
8.0.9216	March 26th 2020
8.0.9173	February 12th 2020
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8.0.9087	November 18th 2019
8.0.9052	October 14th 2019
8.0.9038	September 30th 2019
8.0.9031	September 23rd 2019
8.0.8985	August 8th 2019
8.0.8951	July 5th 2019
8.0.8930	June 14th 2019

June 7th 2021

Version 8.2.9654

Bug corrections (A and B type)

#	Type	Bug Description
MNT-2379	A	A crash can occur when applying the High-pass /Low-pass filter operator on a very large image if the Robust Gaussian filter is selected.
MNT-2470	A	Mountains may crash when loading a very large series of spectra.
MNT-2564	A	A crash can occur when applying the Robust gaussian filter on a very large studiable.
MNT-2726	A	The software may crash when saving a large studiable in 3MF format.
MNT-2953	A	Mountains may crash when saving a spectrum studiable in .txt format if one spectrum per column is selected.
MNT-2972	A	It is not possible to apply the Level operator using the By rotation option on a Surface+image studiable if there are non-measured points present.
MNT-2441	B	The result of the Generate as dynamic studiable is not created in the workflow if a residue or a deviation is selected for this feature in the Advanced contour study.
MNT-2619	B	Multiple built points of the Contour analysis study sometimes disappear after a studiable substitution.
MNT-2982	B	The Cancel button in the Image Enhancement dialog box for Image studiables doesn't work.
MNT-3005	B	The "Bring the profile next to the DXF" option when importing a DXF file in the Contour analysis study doesn't work.
MNT-3019	B	The Length of the profile extracted by applying the Extract profile operator on a Multilayer surface studiable is incorrect.
MNT-3040	B	Memory usage is abnormally large in the 3D View of the Distance measurement study in the SPM - Basic analysis tutorial document.
MNT-3044	B	The Parameters table study on a surface studiable cannot be calculated if this surface was generated by the Mathematical Function operator using previously calculated parameters.

May 5th 2021

Version 8.2.9621

New feature

	License update form information
License update form: serial number and email address	The license serial number, and the address of the email recipient, have been added to the license update request forms.

Bug corrections (A and B type)

#	Type	Bug Description
MNT-2467	A	The 3-day free trial of Mountains can be shorter than 72 hours depending on the time zone.
MNT-2629	A	The Y values of a surface exported in TXT format are inversed if the surface is shown in relative values on these axes, the origin of the studiable is set to the bottom left and this preference is kept during the reloading of the saved studiable.
MNT-2635	A	I-V curves in some TIFF files may not load correctly.
MNT-2716	A	No results displayed in the "Statistical summary" study on Series of profiles, Series of surfaces, Series of force curves studiables.
MNT-2739	A	It is not possible to select results from a series on the horizontal axis in a Box plot study.
MNT-2741	A	The studiable generated in the workflow by the Extract layers operator on a multi-layer studiable is empty when a saved setting is applied.
MNT-2443	B	The Japanese translation for "Primary surface" and "Band-pass surface" is wrong.
MNT-2473	B	The Russian translation for the "Remove forme" operator is wrong.
MNT-2482	B	No results are given in the Statistical summary study calculated on parameters on a series of force curves.
MNT-2494	B	The rendering of the Gloss button options in the "3D View of the multilayer surface" study changes (and the option initially chosen remains checked) if the user clicks on the cursors of the palette.
MNT-2517	B	The text 'Activation code' is not translated in the license activation dialog.
MNT-2519	B	Non-measured points on the edges can be introduced by the Shift surfaces operator on Series of surfaces studiables if the Intersection option is selected.
MNT-2600	B	The display of the Frequency spectrum study on profiles is very slow if the profile contains more than 100 000 points. This study can also shows an offset of the display compared to the graduations.
MNT-2648	B	Printing documents containing Advanced contour analysis studies on large profiles (>100 000 points) sometimes fails.
MNT-2675	B	The name of the studiable generated by the operator "Extract profile" on Multilayer surface studiables is not correct.
MNT-2693	B	It is not possible to modify or move the selection area of a stepheight study on a Surface studiable when reopening the document.
MNT-2710	B	The prelevel of the Remove form operator is incorrect at the first application of the operator for Surfaces and Surface+Image studiables.
MNT-2727	B	Incorrect movement of the palette cursors if the "Optimize color scale option" is activated.

MNT-2779	B	The studies names are not displayed in the Horizontal axis tab in the Observed results dialog box of a Box plot study created in a statistical document when selecting "Select a study in the document".
MNT-2785	B	It is not possible to modify one digit (of several) in the Edit T axis section of the Build series operator on Profile or Surface studiables.
MNT-2788	B	The exported values of the X axis are incorrect in the "Average power spectral density (PSD)" study on Surface studiables if the logarithmic scale is shown.
MNT-2790	B	Points that should be non-measured are incorrectly filled in the export of "Average power spectral density (PSD)" study values on Surface or Profile studiables if the logarithmic scale is shown.
MNT-2818	B	The merging of zones is not taken into account when inverting the selection in the dialog of the Partition and level operator.

March 9th 2021

Version 8.2.9564

New features

	Abbott curve enhancements
Easier visualization of vertical bins in Abbott curve study	When displaying vertical bins, the higher height values are now displayed on the right (formerly left), thus giving increasing height values on the X axis from left to right.
Abbott curve: new predefined settings with vertical bins	A "Vertical bins" setting has been added in the "Abbott Curve" dropdown arrow of the button. It displays the histogram using vertical bins and using z axis settings in heights. Available on Surface, Series of surfaces, Multilayer surface, Surface+image, Profile and Series of profiles studiables.
	Colocalization study
Colocalization: multiple selection enhancement	The management of multiple selections in the colocalization study has been improved when the background is also selected. For example, it is now possible to change the Palette or the layer in this configuration.
Colocalization study: 3D view generation	A new button for generating a dynamic Surface+image studiable and displaying it in a 3D view is now available in the Colocalization study. It creates a 3D view study, using the whole background as a topography layer, and the visualisation of the colocalisation study as a texture.
Colocalization study: Generate buttons remain checked	In the colocalization study, the buttons for the different studiable generation or extraction now remain checked if the studiables are already generated in the workflow.
	Other features
Rendering: use an image as a texture in the 3D view on image	In the "3D view" study applied to an Image studiable, it's now possible to use any Image studiable of the workflow as a texture rendering.
Contour study analysis: new measurement tool.	A new tool for measuring the distance between a point and a segment/arc, and giving a signed result, has been added to the contour study.
Palette: pre-filled name when saving	A different name for the new palette is now suggested when a palette is edited by the user when saving the palette from a study.

Updated Reference Guide in French, German and Japanese	The translations of the French, German and Japenese versions of the Reference Guide, as promised in V8.2.9468, have now been completed.

Bug corrections (A and B type)

#	Type	Bug Description
MNT-2302	A	A crash can occur in a Colocalization study by clicking on the background of a document loaded and created in a previous version.
MNT-2348	A	A crash can occur when changing product if the desktop is the current folder in the studiables explorer (NB: Valid for free trial and partners sales demo licences only).
MNT-2186	B	The Japanese translation for the Spline filter is wrong.
MNT-2190	B	The Japanese translation for "Note" is wrong.
MNT-2248	B	The constant calibration information (sensitivity and spring constant) on a Force Volume studiable is lost when the Extract slice operator is applied.
MNT-2256	B	The profiles can be badly joined in the Join profiles operator when the heights are aligned in the overlap zone.
MNT-2307	B	Layer display is not synchronized between the views in the "points positioning" dialog of the colocalisation study, if the overlay is a Multilayer surface or a Series of surfaces studiable.
MNT-2341	B	The area-scale graph occasionally shows an incorrect increase at the smallest scales in the Scale-sensitive fractal analysis study on surfaces.
MNT-2350	B	Young's modulus calculation is incorrect on Force curve and Series of force curves studiables when the conical or pyramidal indentation model is chosen in the indentation analysis.
MNT-2402	B	The manual removal of a particle in the Particle analysis study is not taken into account in the table if the Watershed detection or Edge detection segmentation method is selected.
MNT-2418	B	The "Extract selection" button does not work in the "Colocalization" study when the selected overlay is a Series of surfaces studiable.
MNT-2427	B	The Japanese translation for Colocalization is wrong.

February 10th 2021

Version 8.2.9537

New features

	Colocalization: Improved layers management of Multilayer studiables
Thumbnails display of Multilayer in Colocalization	The user can now choose to display the thumbnails of the "Multilayer surface" studiables overlaid in the Colocalization study. The name of the selected studiable and layer is displayed in an Information box in the Colocalization study.
Palettes edition of Multilayer surface studiable in Colocalization	The user can now edit a palette for each layer of the background and overlay "Multilayer surface" studiable in the Colocalization study. An option in the Palette button allows the user to choose the same palette for all layers.
Color scale display of Multilayer surface studiables in Colocalization:	The color scale of each layer of the "Multilayer surface" studiable (background or overlaid) can now be displayed in the Colocalization study.
	Remove form and Level
Remove form directly in the Parameters table study	The user can now remove the form of a Profile or a Series of profiles studiable using a polynom in the Parameters table study. An option for "Least squares (LS) polynomial", accepting degrees from 2 to 41, has been added to the drop down list of F-operators.
Levelled visualization in the Profile curve study	It is now possible to level a Profile studiable directly in the Profile curve study using the least squares line (LS) method via a new dedicated button.

Bug corrections (A and B type)

#	Type	Bug Description
MNT-2200	A	The "MountainsLab" Free trial license or OEM demo licence, does not autorize the user to choose a product from another product range than the one initially chosen.
MNT-2235	A	Mountains may crash if an addon operator, study or parameter is applied and the associated Active X is not registered.
MNT-1881	B	It is not possible to search a network for a licence if the client computer has had a free trial license installed on it.

january 30th 2021

Version 8.2.9526

New features

Contour study: fitting process with the DXF improved	It's now possible to select multiple profiles in the Advanced contour analysis study during the fitting process with the DXF.
Manual profile potitionning in the Summary of Subtract Profiles	The user can now interactively manipulate (translation/rotation) the Profile studiable resulting from the subtraction of profiles in the Summary of current operator
Multilayer: export in text format	It is now possible to export a Multilayer studiable in text format.

Bug corrections (A and B type)

#	Type	Bug Description
MNT-1629	A	A crash can occur when recalling a python addon operator after loading a document containing that addon operator.
MNT-1946	A	The XY dimensions of the extracted surface on a Shell studiable when applying the operator "Extract projected surface" are incorrect.
MNT-1970	A	It is not possible to choose the source population in the Statistical summary study in a statistical document containing more than one population. Population 1 is used by default.
MNT-1971	A	Statistics on results studies show nothing in statistical documents and an error message is displayed.
MNT-1992	A	Applying the "Remove Form" operator to a surface+image studiable displays an error message if the "Automatic structure exclusion" option is selected.
MNT-2009	A	The dialog box of the "Convert image into surface" operator on a Surface+image studiable does not open.
MNT-2027	A	Mountains may crash in some cases when saving a document containing 2 "Build series of profiles" operators if a studiable inserted into one series comes from an operator having its parent in the other series of the document.
MNT-2046	A	The order of the images of the "3D reconstruction using four quadrant images" operator is not correct when loading a document containing a reconstruction operator when the positioning is based on the name of the images.
MNT-2057	A	Some Mountains products can not use Mountains ActiveX interface.
MNT-1494	B	The threshold displayed in the Particle analysis study is not correctly updated after changing the detection layer studiable.
MNT-1978	B	The value displayed in the Young's modulus result for the Jkr indentation analysis on a Volume Force studiable does not match the displayed unit.
MNT-2012	B	The tip generated by the application of the operator "Tip deconvolution" on a surface studiable is erroneous because, in some cases, the corners of the tip (the maximums) are set to zero.
MNT-2030	B	The unit of the parameters "Horizontal distance between centers" and "Period between zero crossings" of the Step height calculation study on Profile studiables is erroneous if the unit in X and in Z is different.
MNT-2045	B	Warnings are sometimes abusively displayed in the "Retouch profile points" operator on a Profile studiable when using absolute coordinates.
MNT-2059	B	The substitution of a studiable doesn't work, even if the studiable and its dependencies are available in the current product if there is any feature in the document that is not available in the current document.

MNT-2072	B	The "Z-difference" parameter calculated in the "Step height calculations" study with the "Two-peaks VDI-2556" method can be slightly erroneous when reopening the Settings dialog box of the Histogram Method.
MNT-2079	B	The application of the button "Export frame as image" in the Slope distribution study on surface studiables is not possible.
MNT-2090	B	It is not possible to define an imposed scale in the "Axis settings" button dialog box on a Multilayer Surface studiable if it contains only topographic layers or only non-topographic layers.
MNT-2119	B	The Sensitivity and Spring constant information defined in the dialog box of the "Calibrate force curve constants" operator on a Force volume studiable are lost when applying the "Extract Force curve" operator when the "Average curve" option is selected in the operator dialog.

December 3rd 2020

Version 8.2.9468

New features

	Enhancement of palette edition
Direct palette edition using cursors	The user can now directly move the palette cursors: they are accessible as soon as the mouse hovers over the palette. The change is applied in real time on the surface. (It is still possible to display the cursors permanently, from the Color scale button menu).
Z-offset of all palette cursors	A new cursor has been added to the center of the palette and allows the user to move all of the palette's cursors at the same time in the Z range. It is useful to rapidly highlight a number of points at the same height, for example on samples with steps or particles on a flat background. (The Z-offset cursor is a rhombus displayed to the right of the palette).
	Export images or curves using Template
Image export during template	When applying a template on a folder, the user can now choose to automatically export the images of any study in the document (check “Export when using template” in the study’s image export menu). The images are exported to the same folder as the generated documents.
Curve export during template	When applying a template on a folder, the user can now choose to automatically export the curves from some studies: for example: the Histogram distribution, or the Abbott curve.
Information about exports using template	A reference guide link (in the export options of images and curves) has been added to the “Apply a template" dialog box.
Improved file naming for export	For all images or curves exported from studies, the same explicit default naming rule is now applied (name of the studiable - name of the study).
Improved interface for image export	For all image exports, the Save dialog box now displays the resolution below the preview in a drop-down list.
	New warning zone

Warning zone	A new Warning zone can be defined by the user to monitor results. This allows the user to detect if a value is close to a tolerance limit. It is editable using the Tolerance limits function in the Results menu, and in the dialog box of the Tolerance limits study.
Orange warning display	In the Tolerance limits study, the user can choose how to display a result in a Warning zone (color, text or graphic symbol). The Green zone value (values in the tolerance but outside of the warning zone) is displayed in the study. Besides, an orange check mark is displayed in the Result manager panel, and can be displayed in the Table of results study.
	Particle analysis: enhanced sorting and masking, better display
Sorting based on Hidden class particles in particles study	The particles of hidden classes in a Particles study are now considered as deleted. This enables the automatic generation of the surface masked by the particles. Particles in hidden classes (eye button in the Manage classifications dialog) are not displayed, and are no longer taken into account in the results or in generated studiables. They do not appear in the Result manager and are not presented in the statistical studies.
Sorting based on unclassified particles in Particles study	The user can keep only the classified particles in the Particles study. Unclassified particles are thus considered deleted and behave like particles in hidden classes. This new option appears in the [Particle classification] button.
Renumbering after removal of particles in Particles study	Deleting a particle, hiding a class of particles or keeping only classified particles refreshes their numbering. The user can therefore know, at any time, the number of particles used in the study's calculations.
Renumbering after sorting particles by a parameter	The user can now choose how the particles are numbered in Particles study. Indeed, the sorting of particles (by ascending or descending parameter value) refreshes their numbering. This order is also applied in the Control chart statistical study.
Improved interface for Particle classification	Bars of the same color as the class are visible at the top of the class diagram in the "Manage classifications" dialog box of the Particle analysis study. The user can thus better visualize the distribution of particles in classes.
Legend outside the image	The legend can now be moved outside of the image with the mouse in the Particle analysis study. This makes it possible to have a better visualization of the study by not hiding part of it with the legend.
	Revision of the ISO 25178-2 standard
New "Open/Closed" parameter in Particles study	According to the current revision ISO/DIS 25178-2:2020, a new Open/Closed parameter has been added to the Particles study in Watershed detection method. It detects significant motifs according to the height of the saddle point of the contour. This Open/Closed parameter depends on a "threshold c" height, the configuration of which can be found in the Watershed detection dialog. This parameter is available in the Height parameter family for Surface, Series of surfaces, Surface+Image and Multilayer surface studiables.
Feature calculations only on Open or Closed motifs in Parameters table study	Some ISO 25178-2 feature parameters can now be calculated on only open or only closed motifs in the Parameter table. The user can choose one of the three options added in the dialog box of the Parameters table study: "Only on open interior motifs", "Only on closed interior motifs" or "On all interior motifs" as well as define the value of "Threshold c". This function is available for Surface, Series of surfaces, Surface+image, and Multilayer surface studiables.
New Ssw parameter	A new parameter Ssw (dominant spatial wavelength, spatial category) has been added in the ISO 25178 family of the Parameters table study on Surface, Series of surfaces, Surface+image, and Multilayer surface studiables.
Profile motif study: new name	[Profile motifs] is now the new name for the Motifs R&W (ISO 12085) study on Profile studiables.
Profile motifs study: new calculation of upper envelope	A new upper envelope calculation option "Segments between contact points" has been added in the Profile motifs study when the Motifs segmentation method is selected. The calculation is based on the points of contact between a morphological envelope and the profile.

Sk parameters study: new parameter names	According to the current revision ISO/DIS 25178-2:2020, “Sk parameter” study parameters have been changed by adding the letter k to signify membership of the Sk family (Smrk1, Smrk2, Sak1, and Sak2).
ISO 25178 family: new “Named feature parameters”	"Named feature parameters" have been added in the ISO 25178 family of the Parameters table study on Surface, Series of surfaces, Surface+image, and Multilayer surface studiables. Those parameters are: mean, max, StdDev, Count on Local Height/Local Depth, Area, and Volume.
ISO 25178 family: new “Named shape parameters”	"Named shape parameters" have been added in the ISO 25178 family of the Parameters table study on Surface, Series of surfaces, Surface+image, and Multilayer surface studiables. Those parameters are: mean, max, StdDev on Roundness, FormFactor, Equivalent Diameter, and Aspect Ratio.
	Statistical studies: Aggregation of results and enhancement
Aggregation of series of results from different studies in statistics studies	The user can now aggregate series of results from different studies in statistical studies. This allows the creation of collections of particles from different samples, the combination of Step heights from different Step height measurement studies or the study of Young’s modulus from several Force curve series. All the statistical studies can be created on an aggregation of series of results, if the studies export the same parameters.
Easy study addition for result aggregation in statistics studies	When creating or modifying a statistical study, the user can directly add the selected studies to the statistical study by multiple selection.
Enhanced Colorization statistical studies	The user can now choose a colorization method to highlight specific information in statistical studies: classification over all studies, color by study, automatic colorization or a uniform color (default). Automatic colorization uses the best colorization depending on the number of "parent" studies and the type of values studied. Classification color is recommended for Particle study objects and Color by study is recommended for a comparative study between several samples.
Histogram colorization	It is now possible to choose the colorization of bars by class, by study or uniform color.
Histogram: normal curves colorization	The normal curve of each class used in the colorization is displayed in addition to the global curve. The curve is of the same color as the class.
Control chart colorization	New user-defined choice of colorization for points by class or by study (or uniform color).
Scatter plot colorization	The user can choose to colorize the points of a cloud of points by class or by study (or uniform color).
Box plot colorization	The boxes are automatically colored with the color of the classes in the Box plot statistical studies
Sorting information in statistical studies	Sorting filters and number of values are now displayed in an information table inside the statistical studies.
Bar information display in Histogram statistical study	The user can now visualize the information of each bar of a histogram statistical study. Number of values, bar interval and classification or study information is now displayed as a tooltip as soon as the mouse hovers over the bar.
Number of elements in results series	The user can see in the Result manager the number of elements in result series (on which the parameters have been calculated). Particle details are also displayed. This is visible for example in the Parameters table study and the Force curve analysis study on series.
Legend outside of the image in statistical studies	The legend can now be moved outside of the image with the mouse in statistical studies.
Batch creation of studies	The user can use multiple selection to generate multiple statistical studies of the same type. A new [Batch studies available] button is available when selecting several studies of the same type and exporting a series of results.
Improved statistical studies icons	The [Statistical summary] and [Numerical variable] icons have been improved for a better representation of the function.
	Colocalization: positioning setting for automation

Systematic Auto-localize in Colocalization	It is now possible to re-apply the Auto-localize function systematically in the Colocalization study to position the overlay. The Auto-localize is automatically re-applied on the studiable changed by automation (template, minidoc, substitution), or modified by a change in a previous operator. (It was formerly only a “one shot” action button).
Systematic absolute position in Colocalization	It is now possible to use the absolute X and Y coordinates in the Colocalization study to position the overlay. This position is automatically refreshed on the studiable changed by automation (template, minidoc, substitution), or modified by a change in a previous operator. (It was formerly only applied at the creation of the study).
Different layer for auto-localize and visualization in Colocalization	The user can choose which layer to use for Auto-localize positioning (if the overlay is a Multi-layer or a Series of surfaces studiable), in the Colocalization study. This layer can be different from the layer used for visualization.
New overlay positioning button in Colocalization	A new [Overlay positioning] button has been added in the Colocalization study, to select the overlay positioning method (manual, absolute values or Auto-localize).
	Multilayers: direct access to studies and operators
Direct access to operators and studies on Multilayers	7 operators and 9 studies have been extended to Multilayer-type studiables, amongst which are FFT tools. (They were previously only available after creation of a surface studiable type by the Extract layer operator.)
Tools applicable without topography layers or multiple topography layers	Parameters table and Step height study are now applicable on any layer of a Multilayer, even if the Multilayer contains several topography layers or no topography layer. All Multilayer operators can now be applied even if the Multilayer doesn’t contain any topography layer. This includes Threshold and Metrological filter.
Enhanced selection of layers in Multilayer operators	When applying an operator on Multilayer surface studiables, the user can now easily select layers using selectors (in the operator dialog box). A selector in the upper right corner of each thumbnail has been added. An icon in the lower right corner of thumbnail has been added to identify topographic layers. Two other checkboxes have also been added on the left thumbnail in order to check/uncheck all the layers at once or only check the topographic layers.
	Multilayer profiles: color legend and further analysis
Curves in color for Multilayer profiles	The user can now choose a color and a curve style for each profile in the Profile curve study on Multilayer Profile studiables (Profiles color option in the [Multilayer view] button).
Legend for Multilayer profile	A legend has been added in the Profile curve study for Multilayer studiables. All curves or only curves with a custom style can be displayed. The renaming of the curve is now possible. The legend can be moved outside of the image with the mouse. ([Legend] button in the Profile curve ribbon)
Multilayer profile: New Extract layers operator	A new Extract layers operator has been added on the Multilayers profile studiables to generate one (or several) Profile studiables. This gives access to further analysis using the tools available on Profile studiables.
	Other (Non-metric units, New image conversion operator, Shells in color, Import of Force curves in text format, Resampling and Hyperspectral imaging index)
Non metric Z-axis: Management of absolute axis display	In the Axis settings dialog of studies, the user now accesses two types of axis adjustment: By layer (topography or with non-metric unit) or By type of layer. This allows the user to keep non-metric units with Absolute axis display even if the Multilayer studiable changes, for example if the layers containing non-metric units are not in the same order as in the original studiable after studiable substitution. The topographic layers are identified by an icon in the lower right corner of the thumbnail. This is available for Profile, Multilayer profiles, Surface and Multilayer studiables.

Non metric Z-axis: Independent preference	The Axis settings preferences separate axes in metric units (micrometer, millimeter…) and axes in non-metric units (Newton, Volts…). This allows thepf user to decide independently how to manage topography layers, and layers with non-metric units.
New operator [Convert image into surface using palette]	A new operator “Convert image into surface using palette” has been added on Image studiables. It converts an Image (or a selection of an image) into a Surface, taking into account the palette included in the image to represent the Z values. Alternatively, the user can create the palette from some points picked in the image, or use an existing palette. The XY and Z length can be set, as well as the Z unit.
View of a color shell	The user can now display a color shell. The [Rendering]) button allows the user to visualize the Shell studiable in color, using the colors contained in the file itself.
Import of force curves in text format	It is now possible to load force curve data in text format. Curves can contain 2 segments (approach and retract) if they contain the same number of points.
Resample operator on profile: change number of points	When using the Resample operator on a Profile studiable, the user can now change the number of points rather than the spacing.
New Hyperspectral imaging examples and index	A new Hyperspectral imaging index page and template documents have been added to present some examples from the hyperspectral imaging domain. The index is available from the Home dialog or Template or Tutorials button in the Help menu.
Result manager: access to studiable substitution and operator recall	It is now possible to substitute a studiable or to recall an operator by using a double click in the Result manager.
Built-in help for new functions	The first level of help directly available in the user interface (information, expanded graphical tooltips...) is fully available in all of the 11 supported languages, including all new functions.
Updated English Reference Guide:	The English version of the Reference Guide has been updated. Some information about new or updated features may still be missing. It will be completed in an upcoming Service Pack.
Updated Reference Guide in French, German and Japanese	The French, German and Japenese versions of the Reference Guide contain new or updated help topics in English. The translations will be completed in an upcoming Service Pack.

Bug corrections (A and B type)

#	Type	Bug Description
MNT-451	A	Mountains can freeze when applying the Extract Surface or Extract Parametric Profile operator on a shell studiable when using Intel® HD Graphics 630 if OpenGL is not disabled
MNT-1618	A	A crash can occur in a Force curve analysis study when moving the indentation point I0
MNT-1663	A	The result of the ISO 21920 Rda parameter calculation is erroneous.
MNT-1709	A	A crash can occur in a Histogram study when applying the «Weighted by area" Graph settings.
MNT-1738	A	A crash can occur in the DemoNode sample document for developers when the settings are applied. The problem can also cause the display to be squeezed to one side of the screen.
MNT-1869	A	Calculation of ISO 21920 volume parameters incorrect in the Parameters table study on Profile studiables.
MNT-1870	A	ISO 21920 volume parameters Rvm, Rvv, Rvmp, Rvmc, Rvvc, and Rvvv are not correctly converted in the Parameters table study on Profile studiables when the units are changed in the Global Preferences dialog box or when the studiable is substituted.

MNT-1873	A	The parameters Xhvm, Xhvx, Xhvq, Xdvm, Xdvx and Xdvq of the ISO 21920 standard are not expressed in the correct unit (mm² / mm) and are incorrectly named (with "a").
MNT-1904	A	A crash can occur when loading a document containing a colocalization study with an Image studable in the background and built from studiables that no longer all exist in the document.
MNT-385	B	The Result manager is not updated when modifying the statistical parameters to show on Force curve studiables if the "Statistical result" button is not checked.
MNT-422	B	The "Remove form" operator can not be applied on Multilayer profile and Multilayer surface studiables that do not contain a topographic layer.
MNT-616	B	WLC, Snap-in and Indentation cursors do not return correctly to their manual position when deactivation of the "Detect unfolding events", "Analyze indentation" and "Show adhesion and snap-in" buttons is canceled (Undo/Redo button).
MNT-897	B	Default minidocs ares not available on Parametric Force curve, Series of Parametric Force curves or Force volume studiables.
MNT-744	B	The X axis scale is incorrect in the Summary of current operator study on a parametric profile.
MNT-840	B	Information on the use of «Windows function" in the Frequency spectrum study on surface studiables is not displayed.
MNT-900	B	It is not possible to select the Lorentz, Gaussian and Pseudo-Voigt function filters in the "Observed results" dialog box of statistical studies on Spectrum studiables.
MNT-1026	B	The buttons in the Help/License tab have been updated to better reflect their function.
MNT-1049	B	The description dedicated to the tooltip of the addon operators or studies may be erroneously displayed on the operator buttons in the the workflow and in the external functions dialog box.
MNT-1098	B	PDF export of an image could be incorrectly rendered if it does not contain DPI information.
MNT-1140	B	It is not possible to substitute a multilayer studiable with a studiable having less layers in a template environment if the template document contains the Extract layers operator and the Extract all layers option is selected.
MNT-1166	B	The results of the Extract layers operator can be entirely non-measured if a multi layer surface having more layers is substituted for the original and the language settings are changed.
MNT-1515	B	A black rendering is observed in the Summary of current operator study if the "Set the Z-axis origin as the mean of the included zones" option is checked in the dialog box of the Partition and level operator on Surface studiables extracted from Multilayer surface studiables.
MNT-1540	B	Trailing zeros that should not be shown are displayed in the Parameters table study for λs and λc filters.
MNT-1553	B	The Result manager is not emptied in a statistical document when the statistical population is deleted.
MNT-1585	B	The Software maintenance plan (SMP) date is erroneous when switching from a Free trial to a commercial version.
MNT-1593	B	The "Object list (Contour)" panel is not displayable if the "Non-contextual display" is set in the General préferences.
MNT-1608	B	The warning message in the Parameters table study for studiables containing non-measured points is not explicit enough.
MNT-1626	B	The Undo / Redo is not managed in the movements of the keyboard overlays in the Colocalization study.
MNT-1644	B	The Parameters table study for ISO 21920 parameters contains some unnecessary information for parameters not needing averaging of values and imprecise information about averaging for the Rp, Rv, Rz, Rpt, Rvt and Rzmax parameters.
MNT-	B	Trailing zeros that should not be shown are displayed in the Parameters table study for ISO 21920 parameters Ral, Rmr, Rmc et Rdc.

1646		
MNT-1648	B	ISO 21920 Xmpc parameter has no unit in the Paramters table study.
MNT-1673	B	The image is not displayed in the "Scale the image" dialog box of the "Reconstruction using four quadrant images" operator and the generated image layer may be incorrectly displayed if the source images do not have the same step in Z.
MNT-1675	B	The Export studiable as image option on Multilayer surface studiables crushes the existing file without warning if a layer has already been exported.
MNT-1689	B	The sinusoidal distance signal on Force curve and Force volume studiables of Peak force type in the NanoScope (.pfc) format is not read well in Mountains.
MNT-1715	B	Minidocs containing Contour analysis studies are not always listed as available Minidocs.
MNT-1734	B	Documents containing "Advanced contour analysis" studies and created using Minidocs do not work correctly as Minidocs when "Advanced contour analysis" studies generate profiles from deviations or residues.
MNT-1735	B	The "Advanced contour analysis" study cannot be deleted if the study generated studiables and the profiles / residues that generated them no longer exist.
MNT-1762	B	Unselected studiables can also be deleted when deleting a selection of multiple studiables in the Workflow.
MNT-1765	B	It is not possible to insert operators in the Workflow if the Workflow panel is not docked.
MNT-1852	B	Incorrect management of non-measured points on surface studiables in BCR format.
MNT-1897	B	The statistical Mean parameter remains selected in "Step height" studies on Profile or Series of profiles studiables if all statistical parameters are deselected

October 9th 2020

Version 8.1.9413

New features

Workflow: substitution of a studiable by drag&drop	It's now possible to substitute a studiable using a simple drag & drop on a studiable into the workflow panel, independent of the file format. This can be done from the Workflow panel, the Windows explorer, or from the Mountains File explorer panel.
New Aev, Amp and Adev parameters to replace Sdar and Spar	Three new parameters are now available and capable of handling areas of non-measured points: Aev (evaluation area, old Spar), Amp (measured points area) and Adev (developed area, old Sdar).
Advanced contour analysis study: availability of the ISO 21920 parameters	ISO 21920 parameters are now avalable using deviations or residues in the Advanced contour analysis study.

Force curve analysis study: single offset to distance axis	A new "X-alignment (distance)" option in the dialog box of the "Correct the base-line" operator on Force curve, Series of force curves and Force volume studiables has been added. It allows the user to choose the approach curve or the retract curve to determine a single distance alignment offset to apply on all phases of a force curve.
Force curves analysis: templates replacement	All the templates "SPM - Force curve analysis" have been replaced and enriched with the improvements and new features of the force curves. Additional templates are available for Series of force curve and Force volume studiables.
Force volume studiable: availability of the "Filter noise" operator	It is now possible to remove noise on Force volume studiables.

Bug corrections (A and B type)

#	Type	Bug Description
MNT-1467	A	Information can be missing from the email received by Digital Surf when Partners request an extension of an OEM sales demo license via the License button in the Help tab.
MNT-1516	A	It should not be possible to add or remove generated studiables in the dialog box of the "Partition and level" operator when applying a template or substituting a document with the option "Show the operators dialog".
MNT-1559	A	Pc, PSm, PPc parameters are sometimes erroneous if the profile contains non-measured points.
MNT-505	B	The result of the the "Stitch" operator on Images studiables is sometimes incorrect if the Images are not all the same size.
MNT-851	B	The horizontal scroll bar of the workflow is not always displayed when required on HDPI screen.
MNT-1047	B	The Radius value unit in deviations in the Advanced contour analysis study is incorrectly affected by the Z unit setting.
MNT-1077	B	PSm may not be calculated on some complex profiles when the robust algorithm is used.
MNT-1078	B	The processing of the Primary profile PSm/PPc parameters on Profile studiables takes an abnormally long time when the profile becomes complex.
MNT-1143	B	All elements of a series are not extracted from the "Extract surface" operator during substitution of the studiable on Series of surfaces and Multilayer surface studiables if the "All the surfaces of the series" option is selected and the studiable to be substituted contains more layers than the original.
MNT-1167	B	An extra studiable is generated in the workflow when an operator is applied to a studiable generated by the Extract layers operator on Multi layer surfaces if the multi layer studiable is substituted by another containing more layers and the operator is recalled.
MNT-1257	B	The names of the statistical parameters are incomplete in the "Table of results" study on a statistical document as it does not indicate on which parameter the statistical element is calculated.
MNT-1272	B	Pre-processing filtering is erroneously applied on the Surface studiable generated by the application of the "Generate 'particles' surface" or "Generate 'background' surface" button in the Export tab of the "Particles analysis" study on Surface, studiables if the detection mode is "Watershed" or "Edge".
MNT-1316	B	An inadequate error message is displayed when loading a document containing the "Filter spectrum" operator on Multilayer surface studiable created in a more recent version.
MNT-1333	B	Only the name of the study is displayed in the result of the "Summary of current operator" when the study is called on either the "Filtered by spectrum thresholding" or "Residue of filtering" generated by the "Threshold the spectrum" operator on Surface, Series of surfaces or Multi layer surface studiables.

MNT-1365	B	The "Number of 'Out of limits' curves" displayed in the diolog box of the "Correct the baseline" operator is sometimes incorrect on Force curve, Series of force curves and Force volume studiables.
MNT-1381	B	The selection/deselection button in the "Apply palette to all layers" option of the "Palette" button in the "Pseudo-color view" tab is not taken into account.
MNT-1397	B	An operator insertion is not taken into account before a Build series operator. Applies to the creation of Series of profiles, Series of surfaces, Series of images and Series of force curves.
MNT-1410	B	Points are incorrectly placed on the surface when the Level operator is recalled on Multi layer surfaces if the 3 points method is selected on the top layer and the point positioned should fall outside of the surface on a different layer.
MNT-1423	B	The Free trial cannot be relaunched on the first day of use if the local time is earlier than the time that the free trial was first launched in GMT.
MNT-1442	B	The "Configuration of the X/Y-origin" option of Axis settings in the General Preferences of the software is not taken into account in the Profile studiable generated by applying the "Extract profile" operator in the North/South direction on Surface studiables.
MNT-1456	B	The "Check for update" button in the "Help" tab does not propose an update to a new authorized Service pack version if the SMP is expired.
MNT-1461	B	The point of zero indentation (I0) is not correctly placed in the Force curve analysis study on Force curves, Series of force curves and Force volume studiables when applying the"Analyse indentation" button (all indentation configurations) in the "Force curve analysis tab"; the indentation calculated curve does not follow the reference curve.
MNT-1484	B	A crash can occur when recalling the "Extract spectrum" operator after applying a template on Spectrum studiables if a new studiable contains more elements than the original.
MNT-1493	B	The black area of the segmented surface increases with each calculation in the "Partition and level" operator on Surface and Multilayer surface studiables if the erosion calculation is restarted without restarting the segmentation.
MNT-1512	B	The threshold cursor position is incorrect in the Particle analysis study by Threshold detection method when "Imposed scale" option is selected in the dialog box of the Axis Setting button in the Particle analysis tab.
MNT-1513	B	The value of the threshold displayed in the Particle analysis study (Threshold detection method) may be slightly different from the value entered in the Threshold detection dialog.
MNT-1537	B	The" Metrological Filter" operator dialogue box is not displayed when applying a template, if the cut off size is not adapted to the studiable on which the template is applied, and if the "Show operator dialogs" is checked.
MNT-1554	B	The correction settings defined in the "Correct the base-line" operator are not taken into account at the substitution of a Force volume studiable if the substituted studiable contains more elements and if the "Apply to all elements of the series" option is checked for the additional elements of the studiable of substitution.

August 26th 2020

Version 8.1.9369

Bug corrections (A and B type)

#	Type	Bug Description
MNT-1193	A	A crash can occur when opening a document containing a "Summary of current operator" study of the "Detect structures" operator on a Multilayer surface studiable.
MNT-1199	A	It is sometimes impossible to open Mountains after an installation because Mountains set-up is sometimes unable to install the HASP drivers on PC's running Windows 10 with build 2004. Manual driver installation is necessary to open Mountains.
MNT-1249	A	Mountains can crash when the user stops the loading of a document in some exceptional cases.
MNT-356	B	The display of the cut-off size in points is incorrect in the dialog box of the"Metrological filter" operator on Surface, Multilayer surface or Surface+image studiables in some cases.
MNT-1128	B	Random values may appear in the calculated results of the "Lateral Calibration" study on a Surface studiable if the surface has less than 10 pixels on the X or Y axes.
MNT-1139	B	The color of a class is not always updated when it is changed in the dialog box of the "Particle classification" button on a Particle analysis study.
MNT-1168	B	Feature parameters (watershed) are incorrectly named in the Parameters table study for Feature parameters of ISO 21920.
MNT-1182	B	The application of a template document does not export the parameters selected in the filter, if a study is applied on root studiables (ie: results not from studiables generated by operators or studies).
MNT-1190	B	A surface containing non-measured points cannot be loaded if the general preference for these points is set to "Show the 'Fill in non-measured points' operator dialog" and the user wishes to keep the non-measured points.
MNT-1192	B	The dialog box of the operator "Detect structures" cannot be validated (OK button grayed out) when loading a document with the option "Show the operator dialogs", if the "Detect structures" operator is set to "Génerate individual studiables". The problem is also observed during the application of a template.
MNT-1254	B	Mountains can crash when the user tries to apply a template while a document is open, and cancels the saving of the opened document. This occurs only in entry level product that enable the opening of only one document at the same time.
MNT-1258	B	The titles of the parameters in the dialog box of the observed results of a statistical study do not indicate the study they originated from.
MNT-1260	B	The min and max of the axis in the Force curve analysis study are sometimes incorrect and the curves are truncated.

August 5th 2020

Version 8.1.9348

Bug corrections (A and B type)

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	Type	Bug Description
MNT-368	A	An error message is displayed when loading a large MNT document.
MNT-538	A	A crash can occur when applying the "Four images reconstruction" operator on image studiables when the "Manage calibration contexts" button is selected in the operator's dialog box.
MNT-591	A	The Spatial parameters of the ISO 21920 standard are incorrect if the profile contains non-measured points.
MNT-642	A	A crash is observed when the iSO 21920 Feature (element) parameters are calculated in the Parameters table study, if the Profile contains non-measured points.
MNT-780	A	The software may crash after deleting a studiable in the desk folder of the File Explorer panel and selecting the refresh button.
MNT-891	A	A crash can occur when opening the axis settings dialog with a multi selection of studies containing both an Advanced contour analysis study and another kind of study.
MNT-923	A	The software can crash when the normalization operator is applied on Force curve, Series of force curves or Force volume studiables if at least one curve does not contain an approach or retract phase.
MNT-1008	A	The software can crash when calculating the ISO 21920 Waviness profile parameters in the Parameters table study on Series of profile studiables.
MNT-1126	A	In the dialog box of the "Convert into surface" operator on an Image studiable the choice "Converted to luminance" studiable is always applied even if one or some other options are chosen.
MNT-1131	A	A crash can be observed if the calculation of the Lateral calibration study on Surface (or Multilayer) is stopped using the Stop button of the bargraph.
MNT-318	B	The selection of the "Automatic structure exclusion" option in the Level operator on a Surface studiable does not generate any modification on the surface if it is no topographic.
MNT-331	B	The origin of the profile in the Contour study has changed compared to previous versions if the Contour study is applied on a Profile studiable coming from a "Profile extraction" operator.
MNT-408	B	The Level operator on Series of profiles (or Series of surfaces) studiables takes a lot of time if the series contains many elements.
MNT-518	B	It is not possible to use the Threshold layers operator anymore, because the dialog box doesn't allow the selection of a thresholding layer different from the layer to threshold.
MNT-560	B	The studies toolbox is not always placed correctly after resizing or moving an add-on study.
MNT-644	B	The same scale range is wrongly applied on all surfaces if the user selects several surfaces and changes the Scale orientation in the Axis settings dialog.
MNT-655	B	The imposed range axis setting is incorrectly reapplied when switching from weighted selection to unweighted mode on a histogram study on particles study results.
MNT-659	B	The calculation of the Rk / Sk parameters of the ISO 13565-2 standard fails if the studiable has a very large vertical range.
MNT-663	B	An Addon study can be moved and resized even if the pin is up.
MNT-666	B	The current element cannot be modified with the buttons in the "Summary of the current operator" study for Series of profiles, Series of images, Series of surfaces and Series of curves studiables. This is also true in the "Summary of the current operator" study on Extract spectra, Extract components or Flatten operator for Hyperspectral cube studiables in Slice view mode.
MNT-703	B	It is impossible to undo previous actions if the user just applied either the Map local properties operator or the Convert [image] into surface operator.
MNT-763	B	The motif display is incorrect after an Export as Image from the Particle Analysis study.

MNT-767	B	The surfaces in the 3D study with a metallic rendering (gold, silver bronze, copper…) are not properly lit (they appear completely black).
MNT-779	B	Extracted area marker lines are not displayed in export to PDF, for "Summary of last operator"' studies in documents created in V7.
MNT-810	B	There is no hourglass, progressbar or stop button to stop the calculation on skeletonize method in Particle analysis study.
MNT-813	B	The parameters defined as not visible in the Select parameters dialog of the Force curve study can no longer be made visible.
MNT-852	B	Difficulty to fix the Addon Active X study in the document when moving it.
MNT-877	B	The application of a Minidoc created from a part of the workflow, recreates the entire workflow, including the parts that precede the selected part of the workflow.
MNT-883	B	It is not possible to define an Absolute depth discrimination in the WLC configuration dialog of force curves.
MNT-952	B	The origin of the abscissa of a force-curve is not correctly positionned after the applicaiton of a "Correct the base-line" operator in manual mode.
MNT-1044	B	It is not possible to load a profile containing more than 4 million points. It should be possible up to 10 million points.
MNT-1091	B	There is no second right Z axis displayed in a Profile study on a Multilayer profile studiable when the "Multilayer view " button is applied and when all displayed profiles except the current profile have exactly the same Z axis.
MNT-1122	B	The Snap-in point in the Force curve analysis study can be incorrectly detected if the baseline is tilted to the right.
MNT-1129	B	The coordinate values of the Unit cell is not recovered after changing the Unit cell point position in a Lateral calibration study on a Surface, and if the user calls the undo function.
MNT-1132	B	The parameters of the Parameter table are slightly incorrect if the profile (or the surface) contains a significant zone of non-measured points, especially if there is a big slope on the studiable and if no levelling or form removal has been applied previously.

June 4th 2020

Version 8.1.9286

Bug corrections (A and B type)

#	Type	Bug Description
BUGS-751	**A**	**An incompatibility is observed when using versions of Mountains prior to V8.1.9286 (which install HASP drivers 7.80 or earlier) with the Windows 10 update of May 27, 2020 (Windows Release 2004):**

		- Upgrading the operating system to Windows 10 update 2004 may fail causing the installation to roll back if HASP drivers 7.80 or earlier are already installed on the computer. **- Mountains is not installed correctly and Windows crashes (and finally restarts) if Mountains is installed on a computer with Windows 10 update 2004.** Official information available here
BUGS-11967	B	The current element cannot be changed with buttons in the “Summary of curent operator” study for Series of profiles, Series of images, Series of surfaces and Series of force curves studiables. This is also true in the “Summary of current operator” on Extract spectra, Extract components or Flatten operator for Hyperspectral cube studiables in Slice view mode.
BUGS-11977	B	The outline of the extracted area may be badly drawn or invisible in the “Summary of curent operator” study on Hyperspectral, CITS cube, Force volume studiables.
BUGS-12131	B	The display of the material side bands in the Advanced contour analysis study may be slow on Profile studiables.
BUGS-12134	B	Incorrect display of the Pseudo color view study on the Surface studiablei if the number of point on the X axis is much bigger than the number of points on the Y axis.
BUGS-12147	B	The operator is not removed in the workflow when the user deletes from the workflow a multiselection of the generated studiable and its study.
BUGS-12149	B	"Redo" function doesn't work on the “Remove asperities” operator on Profile studiables after a deletion or an "undo" operation.
BUGS-12171	B	The number of the slice displayed can be incorrect in the Summary of current operator on the Extract slice operator for CIT cube, Hyperspectral cubes and Force volume studiables.
BUGS-12172	B	Changing the normalization in the axis setting dialog causes a crash for images studiable.
BUGS-12188	B	Invalid result ot the “Calibrate force curve constants operator” after deactivating/reactivating the operator on a Force volume studiable.

May 25th 2020

Version 8.1.9276

New features

	Multichannel data: choice of a palette per channel and composite rendering
Multilayer surface: one palette per layer	The user can now apply a different palette to each layer of a Multilayer surface studiable on the Pseudo-color view, Grid view, 3D view, Colocalization (background studiable) and Manual measurements studies.
Multilayer surface: contextual menu on thumbnails	A specific contextual menu is now available on the thumbnails of the Pseudo-color view, Grid view and 3D view studies allowing users to change for each layer the Palette, the Enhancement and the Axis settings.

Multilayer surface: contextual menu for the Grid view study	A specific contextual menu has been added for each layer of the Grid view study allowing users to change the Palette, the Enhancement settings, the Axis settings and the Grid configuration.
Multilayer surface: composite rendering	A new "Composite rendering" option via the Rendering button has been added to create a composition of layers, where the colors are merged over the layers. This composite view is available in the Pseudo-color view, Manual measurements studies and 3D view studies on Multilayer surface studiables. The color merge of the rendering can be optimized (Optimize option of the Enhancement button) for better rendering on each layer.
Multilayer surface: one palette for all layers	A new option "Apply palette to all layers" of the Palette button allows the user to choose the same palette for all the layers of a Multilayer surface studiable on Pseudo-color view, 3D view, Colocalization and Manual measurements studies.
Multilayer surface: direct access to a layer	A new button "Go to element" gives the user direct access to a layer by its number. In this way, you can easily apply, for example, a palette preference, to a specific layer of a multilayer studiable. This option is also available with a multiple selection of compatible studiables.
Multilayer studies: layer selector for Z axis adjustment	The user can now set the Z axis of the multilayer surface or multilayer profiles studies without leaving the dialog box of the "Axis settings" button ("Settings for vertical axis (Z)" tab).
Multilayer studies: layer name on thumbnails	Tooltips are now displayed when hovering over the layer thumbnails, displaying the name of the layer.
Multilayer surface: two new types of rendering	Two new rendering types have been added: “Composite continuous rendering” and “Composite photo rendering”, with or without lighting. These are now available in the 3D view study of the Multilayer surface studiables.
Multilayer surface: composition layer information displayed	When “Composite rendering” is activated on a Multilayer surface studiable, the information about the layers shown in the composition is displayed in the table below the visualization. This concerns the Pseudo-color view, 3D view, Manual measurements and Profile curves studies.
Multilayer profile studies: layer information for displayed profiles	When the “Multilayer view” is activated on a Multilayer profile studiable, layer information containing the list of shown layers is displayed for Profile curves and Distance measurement studies. A specific contextual menu added to each profile thumbnail allows the user to change Axis settings.
	Colocalization: use of multichannel studiables
Colocalization study: compatibility with multilayer studiables	The user can now create a colocalization study with a Multilayer studiable in the background or one or more Multilayer studiables in overlay. The thumbnails of the layers can be displayed if the multilayer is the background studiable, that is to say the first selected studiable used to create the study. The user can display the layer of his choice and locate (point positioning or auto-localize) on another layer.
Colocalization study on multilayers: change the palette of the layers	The user can now modify the palette of each layer in a Colocalization study on Multilayer surfaces (background studiable only).
Colocalization study on multilayers: combine all elements in Multilayer	A new “Extract all” button in the Colocalization study allows the generation of a Multilayer surface containing all the elements included in the colocalization and in the same resolution as the background studiable. The order of the layers in the generated Multilayer reflects the order of the stack of elements and can be modified with the Organize button. Images are included in the generated studiable as gray level layers.
Colocalization study: generation of dynamic image	A "Generate as dynamic image" option has been added to the "Export as image" button, allowing you to generate an Image studiable, displayed as a True color view study, synchronized with the changes made to the Colocalization study.
	ISO 21920 standard

Parameters of forthcoming 21920 standard	The user now has access to the majority of the new ISO parameters on Profiles and Series of profiles. This standard incorporates parameters previously in ISO 4287, ISO 13565-2, ISO 13565-3 and ISO 12085, introduces new parameters and adapts surface parameters to profiles. The parameters families are: Height parameters, Spatial parameters, Hybrid parameters, Material ratio parameters, Functional (Rk) parameters, Functional (volume) parameters, Feature parameters on profile elements, Feature parameters on feature characterization. Sampling lengths have been renamed section lengths.
	Parameters table study
Parameters table study: new button to visualize studiable in the study	A new button “Show studiable” allows the user to visualize calculations studiable in the Parameters table study (in addition to the possibility to generate the studiable in the workflow). The ribbon of the Parameters table has been redesigned and the information in the Parameters table study is more visible (Contex and Description).
	Force curve functions
Force curve: JKR Indentation model added	The JKR Indentation model can now be used.
Loading Force curves with only a force signal	The user can now load and analyze force curves with force signal but no deflection signal (the deflection is calculated from the force if the constants are defined in the study or by using the calibration operator).
Force curve study: improved display of signals	New options (new button “Style of curves”) for choosing which phase to display and applying styles and colors to each type of phase have been added in the Force curve analysis study.
	Particle analysis
Statistical studies: addition of the color of unclassified particles in the key	In the statistical studies which use a classification to color the points and/or bars, the key now includes the color attributed to unclassified results. This color is now always gray, instead of being the default color for each statistical study.
	Step height from histogram
VDI 2656 histogram method for Step height study for surface	A new “Two planes (VDI 2556) “button is available in the Step height study for surface. It allows the calculation of the step height using the histogram method described in VDI2656 standard. It also includes the method that was available in the SPIP software.
Step height study for surface	The Step height study ribbon for surfaces has been redesigned (new buttons “Automatic method”, “Manual method”, “Automatic histogram method”)
	Implementation of the Software Maintenance Plan (SMP)
	A SMP is now proposed to all Mountains®product customers. The SMP ensures you have access to expanded technical support, as well as free product updates.
	Automatic update of the software
Easy software update	Some users can now automatically update the software (a button is available in some products, depending on partner versions): several versions can be downloaded depending on the level of SMP associated to the user’s license.
	Other features
Enhanced product selection screen	The product selection screen has been redesigned for users of OEM versions and for customers who launch a partner’s version of a Free Trial.
Spatial parameter (Sal and Str) improvement	The accuracy of Spatial parameters, Sal and Str, has been improved.
Scale sensitive fractal analysis study: vertical scale button	A vertical axis settings button has been added in the SSFA study to allow the comparison between two graphs.

New segmentation method for Profile in R&W study	It is now possible to detect motifs using a segmentation method based on watersheds in the Motifs R&W (ISO 12085) study on Profile studiables.
R&W Motifs for Profile: new option to use the optimal limit A	The user can now choose to use the optimal limit A in the Motifs limits dialog box (R&W method button) of the Motifs R&W (ISO 12085) study on Profile studiables.

Bug corrections (A and B type)

#	Type	Bug Description
BUGS-11650	A	A crash can be observed when applying the stitching operator on a multilayer studaible without a metric layer.
BUGS-11933	A	The software can crash when applying templates or when creating several successive documents from a command file. This can happen if there are many documents.
BUGS-11979	A	The software can crash when the Stereoscopic reconstruction operator is applied on Series of images studiables
BUGS-12033	A	Some anti-virus softwares detect a problem during download.
BUGS-12063	A	A crash can be observed when selecting a text result of a spectrum analysis study as an input in a histogram study on a series of results.
BUGS-12105	A	A crash can be observed in the Structure detection operator (for Surfaces) if more than one surface is selected to apply the operator on both surfaces (batch operator).
BUGS-12121	A	A component of the software (.net framework) may not be installed correctly during setup on a Windows 7 OS, preventing Mountains from working immediately after installation.
BUGS-12132	A	The software can crash when stitching studiables with different resolutions in Z.
BUGS-11194	B	The keyboard shortcuts don't work when starting the software if the General preference "Show the 'Home screen' at start up" is deselected.
BUGS-11367	B	The substitution of a document can give erroneous results if the template document contains an assembly type operator (Stitching or Patching) and the number of studiables to be substituted is not the same.
BUGS-11489	B	Anomalies at small scales (jumps or spikes) can be observed in the Scale sensitive fractal analysis study on a surface studiable.
BUGS-11548	B	The Undo / Redo button does not work correctly in the Force curve analysis study when data in several places is modified.
BUGS-11576	B	The force curve sliders are not positioned correctly but brought back to y on the curve in the Force curve study. For Hertz / DMT indentation the cursors are at the start of the indentation curve.
BUGS-11704	B	Studiables generated by a Colocalization study can be of a type not authorized in some configurations of the software.
BUGS-11749	B	The force is not equal to the position of the cursor in the results table of the force curve analysis study.
BUGS-11756	B	The Normalize operator does not modify the values of phases other than approach / retract on Force curve studiables.
BUGS-11772	B	The selection in the Extract planar contour operator on a surface studiable is lost when the operator is recalled or the document reloaded.

BUGS-11849	B	The Z axis of the box plot study is multiplied by a factor of 1000 when a string parameter is used on the X axis.
BUGS-11878	B	The Z axis spacing in the Identity card study is incorrect on series' of profiles studiables.
BUGS-11904	B	An inappropriate Z axis size is displayed in the Identity card study on Series of profiles.
BUGS-11910	B	The image is modified in the Grid view study on of surface+image studiable when changing settings of the other layers in the Enhancement dialog box. After validation, the Palette button is grayed out and it is no longer possible to open the Axis parameters dialog.
BUGS-12019	B	The result of the autocorrelation and intercorrelation operators can have a Z-max superior to 1 when applied on a studiable having non-measured points in certain conditions.
BUGS-12023	B	It is not possible to apply a Tolerance limit of an export to the individual values in the the Step height study on profile.
BUGS-12028	B	The Automatic reference line method is lost and is changed to "Use the Z axis origin as the refernce height" in the Step height study on profiles when loading a document created with previous version.
BUGS-12035	B	The strength of the median (denoising) filter is not handled in the Spatial filter operator for Series of surfaces.
BUGS-12093	B	In the histogram study, the number of classes in "area-weighted" mode by default is far too high.
BUGS-12110	B	The selected result cannot be changed anymore when recalling the "Spatial filter operator" on Series of surface studiables.

Note:

All previous Notes are now irrelevant.

April 20th 2020

Version 8.0.9241

Bug corrections (A and B type)

#	Type	Bug Description
BUGS-11657	A	Mountains 8.0 may not work immediately after installation under Windows 7 OS if the .Net framework is missing.
BUGS-11742	A	It is not possible to manually correct the baseline of several force curves in the Normalize operator for Series of force curves or Force volume.

BUGS-11751	A	A crash can be observed when opening the Force curve analysis study on a Force volume studiable with only force signal.
BUGS-11655	B	Some curves may not be drawn in the Spectrum analysis study when viewing all curves is selected if there are entirely unmeasured spectra in the series.
BUGS-11747	B	The Z axis of the P-distribution is incorrect (a shift is observed in values) in the View of a force volume study when the Flattened view mode is activated (the Slice view mode is not affected).
BUGS-11777	B	The calculation of the RzJIS parameter is very long.
BUGS-11778	B	Parameters from ISO4287 are slow to calculate on long profiles.

March 26th 2020

Version 8.0.9216

New feature

	New study: Shell
Shell: Parameters table study	The Parameters table study is now available for Shell studiables.

Bug corrections (A and B type)

#	Type	Bug Description
BUGS-11544	A	A crash can be observed when exporting as a PDFdocument a document containing a particle analysis study with many particles if the OS is windows 7.
BUGS-11583	A	A crash can be observed when applying operators on a Force-curve file that doesn't contain deflexion signal (only force).
BUGS-11614	A	A crash can be observed when loading Force curves, Series of force curves or Force volume studiables that does not contain a deflection signal.
BUGS-11629	A	The Lateral correction operator could not be applied in some rare cases.
BUGS-11652	A	A crash can be observed during the duplication of the Identity Card study.
BUGS-8927	B	The pixels of the low resolution studiables are displayed with wrong colors when saving the document as PDF or when using Microsoft print to PDF.
BUGS-11329	B	The choice of axis display with Calibri fonts causes strange characters in 3D view studies on Surface, Series of surfaces, Multilayer surfaces, Surface+image and Shell studiables.

BUGS-11487	B	The use o the “Axes / More style options” button on a Histogram study reduces the display which ends up disappearing when you successively select several font settings without validating.
BUGS-11542	B	Exporting as PDF document is very slow if the document contains a contour study with a large zoom on the material side.
BUGS-11543	B	The Snap in and Adhesion points are incorrectly placed if the Force curve contains dwell-in phases.
BUGS-11575	B	The Scale-Sensitive Fractal Analysis study on a surface+image studiable does not display the buttons for changing the calculation method, nor the draft button.
BUGS-11587	B	Generated residual profile on an Advanced Contour study is not computed after applying a minidoc, saving and opening the document.
BUGS-11605	B	The Box Plot from study Particles analysis is not updated correctly when, in the Observed results dialog box, one switch between several studies of the same type with different parameters on the horizontal axis.
BUGS-11620	B	The name of the Adhesion cursor is incorrect if the Approach curve is not displayed in a Force curve analysis study.
BUGS-11672	B	The size of the extraction of a surface from a Shell studiable is sometimes a thousand times smaller than the original.
BUGS-11698	B	The initial name of the studiable after substitution of another studiable remains in the workflow if the name change was activated before the substitution without modifying the name.
BUGS-11707	B	Minimise ribbon in the Advanced contour study provokes unusable buttons in the ribbon and toolbars when it reopens.

February 12th 2020

Version 8.0.9173

Bug corrections (A and B type)

#	Type	Bug Description
BUGS-9236	A	A crash can be observed when the Force curve study, the Parameter map study and one or more Force curve studies generated from the Parameter map are deleted simultaneously.
BUGS-11490	A	A crash can be observed when loading a .txt file, if in the Preferences dialog box, it has been chosen to display an inverted Y axis and not to display the dialog box when opening a text file.
BUGS-11496	A	An obsolete Force curve analysis study with obsolete interface is displayed by the application of a Calibration operator on Force curves, Series of force curves, or Force-Volume studiables.
BUGS-11502	A	The Indentation force curve and the position of the Indentation point in the Force curve analysis study are incorrect for the DMT modulus.

BUGS-11519	A	The choice to display the retract and approach curves is not possible in a Force curve analysis study on Force curves, Series of force curves or Force Volume studiables.
BUGS-11503	B	The Particle analysis study cannot be created on a Multilayer studiable if it does not contain a topographic layer.
BUGS-11517	B	The force and Young's modulus calculations are a thousand times too large in a Force curve analysis study.
BUGS-11518	B	A selection by clicking an element (outline, label, handle) in a Manual measurements study leaves the selected element linked to mouse movements.
BUGS-11528	B	The Generate 'particles' surface and Generate 'background' surface buttons give the opposite results to those requested in the Particles analysis study.

January 21th 2020

Version 8.0.9151

New features

	New study: Slope distribution
New Slope distribution study	A new Slope distribution study for surfaces has been added. It shows slope (polar angle) and orientation (azimut angle) distribution of each triangular tile composing the surface.
Settings of Slope distribution study	The user can define the number of bins to show and their width. Five parameters are calculated including Mode and Mean. Two choices of vizualization of the distribution using a histogram are possible: Vertical bins et Polar graph.
Deactivate autosave features even when closing a document	A new user-defined preference allows users to also choose not to auto-save a document when closing it. This option, in addition to the duration between autosaves which can be reduced to zero, is available in the general preferences.

Bug corrections (A and B type)

#	Type	Bug Description
BUGS-11338	A	Cursor detection can take a very long time in a Force curve analysis study.
BUGS-11286	B	The names of the filters on surfaces are incorrect for ISO 25178 parameters (the calculations themselves are correct).
BUGS-11439	B	The end value may be missing from a Histogram study on Series of surfaces.

BUGS-11449	B	Particles can be shown in an incorrect classification color in the Particles analysis study if unclassified particles are also shown in the study.
BUGS-11451	B	The handles showing from where the extraction is taken cannot be moved in the dialog box of the Extract profile operator on a surface+image studiable.
BUGS-11471	B	A crash can be observed in a synchronized study on a CITS cube if localization cursors are added to the study, the undo button is pressed several times and then the redo action is requested.
BUGS-11482	B	The extracted profile can show incorrect results in the Extract profile operator on a surface if the circular extraction method is chosen and the line showing the extraction overlaps the edges of the frame.

Note:

All previous Notes are now irrelevant except for the following (concerns Note for version 8.0.9038):
- The identification of one specific PC hosting the network dongle has not yet been implemented
- The update of the version via the Help tab remains currently unvailable.

These are planned for release in a future version.

January 9th 2020

Version 8.0.9139

New features

	Improvement of statistical studies on results and direct access to functions on results
New Results tab	A new Results tab has been added. It contains features (Export, Monitoring, Statistics) which can be applied to the numerical results generated by studies (and by certain operators) and which can also be found in the Result manager.
New location for Tolerance limits and Table of results	Tolerance limits and Table of results studies can now be found in the new Results tab (they were previously in the Studies tab).
Box Plot on series of results	It is now possible to create a Box Plot study on a series of results (example: visually compare the distribution of the areas of particles from two different surfaces using two different Box plot studies).
Statistical summary on series of results	It is now possible to create a Statistical summary study on series' of results (example: display the standard deviation or Min and Max of the heights of the different steps of a profile calculated by the Step height study).
Export numerical results also available in Results tab	The button [Export numerical results] has been placed in the new Results tab (access from the File menu or from the Result manager panel is still possible). It now offers the possibility to filter the numerical results to export.
Define tolerance limits in Results tab	The button [Define tolerance limits] has been added to the new Results tab (access from the Result manager panel remains possible).
Add a numerical variable in Results tab	The button [Add numerical variable] has been added to the new Results tab (access from the Result manager panel is still possible).

	Use particles classification in statistical studies
Use particles classification in statistical studies on results	It is now possible to use particle classification in all statistical studies on results. This allows the user to filter the results (include or exclude classes) and to color the graphs according to the class colors.
Classification in Statistical summary study	It is now possible to filter particle classes to calculate the statistics parameters in order to include or exclude classes (example: calculate the average or the standard deviation of the area of the particles excluding the largest ones).
Classification in Control chart and Scatter plot studies	It is now possible to color the dots according to their particle class in Control Chart and Scatter plot studies.
Classification in Histogram study	It is now possible to visualize the number of particles by particle class in the Histogram study, with the colors corresponding to the class.
Classification in Box Plot study	It is now possible to visualize box plots of the different particle classes (one box per class with the color corresponding to its class).
Particle analysis: weighted histogram	It is now possible to visualize the number of particles, weighted by area, of the different particle classes on the histogram.
Particle analysis: Edge/Interior histogram	It is now possible to visualize the number of particles of the groups Edge/Interior on the histogram.
Particle analysis: Edge/Interior filter	The Edge/Interior parameters of the Particles analysis study can be used in statistical studies to filter the results similarly to classification.
Statistical studies on series of results: dialog box	The dialog box now opens directly when a statistical study is created and doesn't mask the study. The user can observe parameter changes in real time.
Statistical studies on series of results: class legend	Class legend is displayed with the color of the corresponding class in Statistical studies on particles analysis results. The legend can be moved.
Statistical studies: observed parameter on axes	The name of the observed parameter is displayed on graph axes for statistical studies.
Statistical summary: filter	It is now possible to display the class and type of filter information in the Statistical summary study.
Statistical studies on series of results: custom settings	The user can save settings and directly create a statistical study using the new settings.
	Force curves
Force curve analysis study: visualization on the axes with respect to time	It is possible now to visualize the deflexion (or the distance) with respect to time in the Force curve analysis study for Force curve-type studiables, Series of force curves and Force volume-type studiables.
Force curve analysis study: better interface	The three types of analysis (Show adhesion and snap in, Analyse indentation, Detect unfolding events) are directly available in the ribbon. The user can now independently choose the physical quantity to show on each axis. Prefered pairs of physical quantities can also be selected directly (calibration must have been performed beforehand).
	Localization and synchronization of force curves and spectrum positions
Localization display of Force curve or spectrum	It is now possible to visualize the X/Y positions of Force curves (or Spectra) with cursors displayed on the study. Available for Pseudo color view, Photo simulation, Contour lines, Furrows on Surface-type studiables, for the Pseudo color view on these types of studiables: Surface+image, Series of surfaces, Multilayer surface, as well as the True color view study on Image-type studiables and the View study on Hyperspectral cubes and CITS cubes.
Synchronization of Force curve (or spectrum)	It is possible to synchronize Force curve position cursors with the corresponding displayed Force curve in the series. The Force curve is displayed when the user clicks on the cursor, and the cursor is highlighted when the user changes the displayed Force curve (same possibility for spectra). The synchronization can be performed with one or several studies of Force curves or Spectra studies (Force curve analysis, Spectrum analysis, CITS spectrum analysis, Normalized view, Stacked view, Strips view).
	Offline license activation or update

Licence activation or modification without Internet connection	It is now possible to activate or modify a license on a computer without a direct Internet connection by exchanging files.
	Additional languages in the Reference Guide
Additional languages in the Reference Guide	The Reference Guide is now available, in addition to English, in three different languages: French, German and Japanese.
	Other features
Faster application of user-defined settings in Particles analysis study	The particles analysis study has been streamlined thereby accelerating the creation of the study.
Easier interface to copy and paste studiables between documents	It is now easier to copy and paste a studiable between 2 documents, or to use the copied studiable for substitution. The user can now simply copy a studiable by selecting one of its studies (in the workflow or the frame of the document), and use Edit/Copy or Ctrl+C. You can still paste the studiable in another document by Edit/Paste as a studiable, or Ctrl+V. It is still possible to use the copied studiable for substitution, by a right click on a source studiable in the workflow (Paste as a studiable and substitute). (In previous versions, the only way to copy a studiable was by selecting the studiable in the workflow.)
Hybrid parameters on surfaces with non-measured points	It is now possible to calculate hybrid parameters (Sfd, Ssc, Sds, Sdr, Sdar, and Sdq parameters) on surfaces with non-measured points in the Parameters table study. For studiables of the following types: Surface, Series of surfaces, Multilayer surface, Surface+Image.
Inside Surface extraction from shell	The user can now extract a surface as seen from the inside of a shell with the Extract surface operator. The user can define the cutting plane depth.
Median denoising spatial filter setting	The user can now manually adjust the range of points to be modified in the median denoising spatial filter operator.
New distance parameters in Step height study for Profiles	Two new parameters are available on Step height studies in automatic method: Horizontal distance between centers and Period between zero-crossings. This is available in Step height studies for studiables of the following types: Profile, Series of profiles.
New position and height parameters in Step height study for Profiles	Four new parameters are available in Step height studies in manual method: Position and Height of left and/or right measurement bars.
Step height from the origin of the Z axis in Step height studies for Profiles	The user can now calculate the step height from the origin of the Z axis which becomes the reference height, in both automatic method and ISO method. This is available in Step height studies for studiables of the following types: Profile, Series of profiles.
Statistical studies on step heights	It's now possible to apply statistical studies on results generated by the Step height study on a single profile containing several steps, allowing the user to display the histogram of the step heights for example.
New surface parameters on Particles study: Svd and Svc	It is now possible to calculate the density (Svd) and the curvature (Svc) of surface pits (for dale motifs) in a similar fashion to the calculation of surface peaks (for hill motifs) in the Particles study. Two new parameters have been added: Svd (Density of pits) and Svc (Arithmetic mean pit curvature) and complete the family containing the Spd and Spc parameters.
New Info button	A new [Info] button has been added to the File explorer ribbon. The user can now show or hide information about the selected studiable. The [Vertical separation] option, which was previously in the menu of the [Choose size] button, can now be found near to the [Information] button.

Bug corrections (A and B type)

#	Type	Bug Description

BUGS-11222	A	The angle of the Principal direction can be slightly imprecise in the Texture direction study. This also affects the calculation of the Std parameter.
BUGS-11237	A	A crash can occur if several instances of Mountains are closed at the same time and if each of the instances contains documents with identical names.
BUGS-11333	A	The software can crash when applying a template on a folder if the template document contains a Python add-on.
BUGS-11428	A	The colors of the markers can be erroneous in a Scatter plot study if the study is created from a particles analysis study in which some parameters, selected in the Scatter plot study, cannot be calculated. The legends giving particle numbers may also be erroneous in this case. The calculations shown, however, are correct.
BUGS-9814	B	The Mountains workspace can be shown completely black if the workspace is shown on a secondary screen at 150% and the size of the workspace window is adjusted.
BUGS-10276	B	The lines showing where a profile or area has been extracted from are duplicated in successive studies if the profile or area has been extracted several times using the Quick operators in a Minidoc environment if the Minidoc is used several times on the same study.
BUGS-10451	B	The limits of classes can be obscure and produce unexpected results in the Particles analysis study if a specific class is used as a subset of another class, and this class is split into several classes each containing the subset.
BUGS-10489	B	The height/area ratio cannot be calculated anymore in the Particles analysis study. This is also true of the Volume, Max height and Mean height parameters.
BUGS-10817	B	The result of the Patching operator can show a staircase effect if the commons zones of the surfaces to be patched contain outliers or artefacts.
BUGS-10820	B	The redo action of a custom study is not possible when the study is a customized ActiveX study and the creation action is cancelled.
BUGS-10863	B	The results of an operator that has been deactivated might be used erroneously as an active operator when the results are used for further calculations.
BUGS-11074	B	The position of the 2Ïf lines can be shown incorrectly in a Control chart study of a Particles analysis study (the calculations are correct).
BUGS-11076	B	The dimensions of the ellipse change on the first click to select in the Retouch operator on surfaces when the surface is rectangular-shaped.
BUGS-11165	B	The ends of a profile are not modified by the Retouch operator in a Contour study.
BUGS-11167	B	The creation of an ellipse element is not always successful in the Advanced contour study. The resulting ellipse may be shown incorrectly.
BUGS-11182	B	Fitting a DXF to a profile may not be possible in an Advanced contour study if the profile contains only a few points. This also applies when fitting the profile to a DXF.
BUGS-11197	B	The Lead (Twist) module may not work correctly if Mountains is integrated by ActiveX.
BUGS-11211	B	Some complex units can be incorrectly converted in a Box plot study if there are different units present in the population.
BUGS-11233	B	The Axes system position is not remembered in a 3D View study when loading a document in V8 that was created in a previous version.
BUGS-11236	B	The calibration values are not correctly saved in the Lateral calibration study when saving, closing and reopening a document.
BUGS-11245	B	The unit value for fiber width is incorrect in the Particles analysis study.
BUGS-11251	B	The value of the Threshold in the Particles analysis study doesn't follow the Z Axis preference for the study.
BUGS-11258	B	An error message can be seen in an Advanced contour study if a built point is created using results from previous operations and the results are not calculated in the current document.

BUGS-11264	B	The results of calculations are shown as asterisks (not calculable) in a step height study if the calculations are made on a series of profiles.
BUGS-11322	B	The unit values of parameters may not be displayed when using user-defined default settings.
BUGS-11349	B	The general preference for Microroughness removal on profiles might be included in products that do not contain this operator.
BUGS-11373	B	The list of parameters on the Vertical axis is not updated in the observed result dialog of the Scatter plot study when the document contains several Particles analysis studies.
BUGS-11374	B	Statistical studies can show results from another study if the study was created on one particles analysis study, the study to be observed is modified in the observed result dialog and then this study is selected in a document containing at least 2 Particles analysis studies.
BUGS-11391	B	The width of the reference bars cannot be modified in a Step height study on a series of profiles when the Manual method is selected.
BUGS-11394	B	The outline of an extracted area on the source studiable is absent when the document is printed as PDF.
BUGS-11399	B	Modification of the cell background color or text color is impossible in result tables contained in studies if the change is made via the mini toolbar.
BUGS-11404	B	The organization of the images is not remembered when reloading a document containing a 4 image reconstruction operator.

November 18th 2019

Version 8.0.9087

New features

Units homogenized when exporting results to text file	When exporting results to text file (manually, automatically or during the application of a template on a folder), the units are now adapted so that, for a parameter, all the values are the same on all lines of the text file.
Define height range in single image reconstruction	The Single image reconstruction operator now needs for the Z range to be given by the user to ensure a more metrologically accurate result.
Selection of methods for fill-in non-measured points	The operator Fill in non-measured points has been complemented by a method which is optimized for sparse measured points.
New slide overlap for the “Detect structure” operator	A slide overlap has been added in the dialog box of the “Detect structure” operator for Surface and Image studiables allowing the user to discard structures straddling or containing the edges.

Bug corrections (A and B type)

#	Type	Bug Description

BUGS-6546	A	The application can freeze or take a very long time to open if a very large force volume type studiable is one of those that appear in the list of recently used studiables.
BUGS-10497	A	The masked area of the Filter the spectrum operator is incorrect when the operator is recalled in a document in version 8 and the original document was created in version 7.
BUGS-10982	A	A document can be created empty when using a template on a folder if the Show operator dialogs option is checked and one of the operator values is changed and then canceled.
BUGS-11075	A	A crash can be observed in the Homogenize lighting operator if the image is quite large and several successive changes are made in the operator dialog box.
BUGS-11080	A	The structure detection operator on images may be unusable due to the considerable amount of memory this operator needs.
BUGS-11128	A	The software can crash when a document is closed if that document contained a 4-image reconstruction and the 4 images used for the recontruction were deleted.
BUGS-11161	A	The software fails in a statistical document when using several dynamic populations if one of the populations is updated and the document contains a Tolerance limits study.
BUGS-11214	A	The software crashes in the Extract force curves operator on Force volume studiables when the operator is recalled in a document created in a previous major version of Mountains.
BUGS-11219	A	The software crashes in the Skeletonize function of the Particles analyses study.
BUGS-9202	B	The profile cannot be retouched in a Contour study if the profile has previously been rotated or aligned or if the offset has been modified.
BUGS-10930	B	Showing deviation between 2 points and DXF in an Advanced contour study may not give desired results if 2 profiles are in the study and the extremities of the profile not to be compared are closer to the DXF.
BUGS-10977	B	The outline of an extracted area on the source studiable is absent when the document is printed as PDF.
BUGS-11033	B	The outline showing where an area has been quick-extracted from a surface can move outside the boundary of the study in a 3D view when the type of extraction is changed between circular and rectangular.
BUGS-11062	B	A freeze can be observed in the Advanced Contour study if a DXF is fitted to the profile and copied, and the DXF contains a polyline.
BUGS-11065	B	A deviation on an arc of ellipse can be miscalculated in the Advanced contour study if the ellipse is imported using a DXF created by an outside application and the deviation is applied on all of the imported elements.
BUGS-11078	B	The cursors are not correctly handled in the Quick extraction of a profile from a 3D view study if a horizontal extraction is selected first and then changed for an oblique one.
BUGS-11079	B	The cursors might be moved to outside the frame in the quick extraction of a profile from a 3D view study if the type of extraction is changed from circular to oblique.
BUGS-11190	B	The resulting direction of the Texture isotropy study on surfaces is incorrect in some specific cases where the autocorrelation of the surface touches the edges of the study.
BUGS-11201	B	Undo/Redo functions are not taken into account when selecting parameters in the Step height study on series of profiles.
BUGS-11231	B	The result of average values on the Current profile is not calculated in the Step height study on a series of profiles when in automatic mode.

October 14th 2019

Version 8.0.9052

Bug corrections (A and B type)

#	Type	Bug Description
BUGS-10190	A	It is possible to load and substitute studiable from the studiable explorer when an operator is opened, leading to unstable behaviors.
BUGS-10963	A	A crash is observed in the Scatter plot study on statistical documents if a static population is used and a different study is created immediately before.
BUGS-10990	A	A crash is observed in the Scatter plot study on statistical documents if a static population is used and a different study is created immediately before.
BUGS-10991	A	The software may fail in the Particles analysis study when creating a table of results if the particles analysis contains a classification.
BUGS-10438	B	Fitting a DXF and a profile is not optimised in the Advanced contour analysis study if the edges of the profile and the DXF are not sufficiently similar.

September 30th 2019

Version 8.0.9038

New features

Particle classification enhancements	Some enhancements have been made to Classification of particles in the Particles analysis study. These include a separator for easier visualization, an empty class for particles that are not classified and easier selection of overlapping classes
Legend in Particles analysis study with classification	Users can now add a legend to a Particles analysis study when using classification of the particles.
Quick extraction of spectra	It is now possible to extract spectra via the Quick extraction feature on hypercubes and CITS cubes.

Bug corrections (A and B type)

#	Type	Bug Description
		Not listed individually: 4 A type and 6 B type bugs have been corrected in this version.

Notes:

1) Version 8 now covers almost all the licence and dongle functions that were available in version 7. However, the identification of one specific PC hosting the network dongle is not yet implemented. The offline licence modification is not yet available: An active internet connection is still necessary at the moment when the user updates the licence (ie: Free trial extension to 30 days, product upgrade, module loan, etc). The offline capability to update the licence (by using simple file copy and without an internet connection) will be included in a future version.
2) The included Reference guide is available only in English in the first version 8.0. Other languages will be available soon in a future version.
3) The update of the version via the Help tab is not available anymore, will be included in a future version.
4) The Notes for version 8.0.8930 are no longer relevant.

September 23rd 2019

Version 8.0.9031

New features

	Network dongle compatibility
Network dongle compatibility	This version is now compatible with Network dongles licences.
Rental and loan licence compatibility	This version is now compatible with rental dongle or software licences, and with loan dongle or software licences
	Other general new developments
Access to Particle parameters	The parameters of the Particles study have been reorganized by type.
New segmentation options in R&W Motifs study on profiles	Horizontal and vertical pruning methods are now available and some standard deviation parameters can now be calculated in the R&W Motifs study on profiles.
Non-numeric variable	You can now add non-numeric variable in the Result manager.

Licence information available	In the Help tab, there is now a button to allow you to show information about your licence, whether it be a local licence (software or dongle) or a network licence. Serial number, licence validity and software maintenance plan validity are shown. In the case of a network licence, time-out details are shown as well as the number of seats available.

Bug corrections (A and B type)

#	Type	Bug Description
		Not listed individually: 12 A type and 27 B type bugs have been corrected in this version.

August 8th 2019

Version 8.0.8985

New features

	Update and OEM demo compatibility
Local licence update	Version 8 is now able to update the licence from previous versions of Mountains®, provided that the PC has an internet connexion. (Not possible for Network dongles).
OEM compatibilty	Partners with a valid local OEM dongle may update and demonstrate the new possibilities offered by Mountains® version 8. (Update not possible for Network OEM dongles)

Bug corrections (A and B type)

#	Type	Bug Description
		Not listed individually: 20 A type and 32 B type bugs have been corrected in this version.

July 5th 2019

Version 8.0.8951

New features

	Free trial
Free trial	The version 8 can now be used with a Free trial licence using installation code 300033. This licence is valid during 72 hours after the first launch, and can be extended to 30 days at any time (conditions apply). At first, it gives access to Digital Surf's Mountains® Products, but can be converted to partner products during the extension process. With an email address and a single click, the user can directly ask Digital Surf to extend the trial period to 30 days. When Digital Surf extends the period, the licence can be set to a Partner's product licence. Once Digital Surf has extended the licence, this extension is seamless for the user: He/she receives an email, and there is no need to enter a code anymore. The user then has access to a demonstration product that enables any of the partner's product levels and modules. The PC needs an active internet connection at the first launch of the Free trial, when asking for the extension, and to activate the extension.

Note:

Apart from the Free trial function, the notes of version 8930 are still relevant.

June 14th 2019

Version 8.0.8930

New features

	Main general features: Undo-redo
Undo – Redo	The Undo – Redo feature is new in Version 8.0 and availaible in all areas of the software, with the exception of automation features (Minidoc, Template, command and ActiveX).
	Main general features: Tabbed document interface

Tabbed-document interface	Several documents can be opened at any one time, navigation between documents can be seen in tabs. A new document is created when a studiable is added or a document loaded. This enables the user to compare documents or, for example, to apply a template or create a Minidoc document in one tab, whilst working on the analysis document in another. Also enables the user to open the documents of his statistical populations.
Opening of multiple documents	It is now possible to select mutiple Mountains documents and load them into new tabbed documents in the software.
Side by side document display	It is possible to display up to three documents side by side.
Documents display by group	You can show side by side up to three groups of documents, by drag and drop of document name tab.
Document zoom synchronization	The zoom on all opened documents can be synchronized from the view tab.
Minidoc creation in tabbed document interface	The creation and modification of Minidocs is now done in a separate tab.
Copy studiables between documents	The user can copy a studiable and paste it as a source studiable in the workflow (or substitute a source studiable), in the same document or between open documents.
Drag and drop studiable or document into workspace	When no document is open, users can drag and drop either a studiable into the workspace to open a new document or an existing document to open it.
Quick document path display	The document path is displayed when the user puts the mouse over the document tab and name.
	Main general features: Customized operators and studies
Customized Studies	Several sets of study's settings (calculation method, displayed parameters, style) can be memorized with a user-defined name and tooltip. The customized settings can be applied to any compatible studiable from the Studies tab.
Apply customized study on frames	Customized setting (and factory setting) can also be applied on already existing studies in the document.
Customize operators	The settings of several operators can be memorized in a similar fashion to the studies. The settings can be applied by default or called on request.
Customize Quick operators	The customized operators can be added to the list of Quick operators directly available from the main studies ribbon.
Manage custom settings	A dialog allows the user to change the name and tooltip description. Customized settings can be deleted.
	Main general features: Quick operators
Custom quick pre-processing	It is now possible to apply common or user-defined operators, without opening the operator's dialog, and directly from the main studies. This allows you to work faster, and to re-use settings. The operator is inserted into the analysis workflow before the selected studiable. You can add your favorite user-selected operators to the dropdown list of quick pre-propressing operations.
Quick extraction operators	New sub-group in the main studies ribbon allows extraction of an area or a profile from a surface, without showing the dialog box. Available quick extraction operators: The areas or profiles extracted can be shown on the studies of parent studiables, and are interactive. Fast extraction of area and of profiles for a surface studiable, a series of surfaces, a surface+image, a multilayer studiable; and fast extraction of area for a profile, a series of profiles, an image, a binary image, a hyperspectral cube and a force volume.
	Main general features: Grouped actions
Batch operators on several studiables	New feature allowing the user to select several studiables of a similar type and apply the same operator to all studiables selected.
Batch studies on several studiables	New feature allowing the user to select several studiables of a similar type and apply the same study to all studiables selected.
Operators with several root studiables	When the user selects several studables, the operators that require several root studiables are now available (eg. Stitch, subtract, etc.)

Group frames together	It is now possible to link frames together as a group so that actions performed on one study are applied to all studies in the group. Possible actions are the same as for frame multi-selection but the link is permanent until frames are ungrouped.
Simultaneous zoom on several studies	You can now select several studies and zoom in on them in a similar manner using the middle mouse button if the study allows the contents to be zoomed.
	Main general features: Enhanced file explorer
New file explorer	The File Explorer has been completely rewritten and offers fast and efficient browsing of complex data files. It can still be used undocked in a separate window which gives a better overview of the files and new functions.
Faster file explorer	The display of miniatures in the File explorer panel is now faster when the folder is not opened for the first time.
Direct opening of sub-data	The expanded mode of the File explorer offers individual selections of specific layers or sub-data from the files. For example, use the Expand mode to extract one layer from a Multilayer or Surface+image, or one Force-volume from a file containing several Force-volumes. When complex data files are viewed in collapsed mode, all data can still be opened as studiables by a single click.
Basic information zone	The file explorer now displays a Basic information zone with metadata information about acquisition where available
Default auto-hide mode	By default, the File explorer panel is in Auto-hide mode and has a lager width: the user has to put the mouse over the panel name (feft part of the software) to display it.
	Main general features: Easier start-up with examples
New Welcome screen	A new Welcome screen is displayed when the software opens. It allows the new users to start more easily (with index and video tutorials), and gives access to recent documents and studiables. The user can choose not to display it in the Preferences.
New Index documents	Index documents are available from the new Welcome screen and Help tab. They are available for basic general concepts and by instrument family, and give access to Template and Tutorial documents, as well as Video tutorials.
Enhanced Template and Tutorial documents	The template and tutorial documents, available from the Index and from the Help menu, have been enriched.
Enhanced Example studiables	The Example studiables, available from the Example data folder, have been enriched to add missing studiable types and enrich the SPM and SEM examples.
Product-adapted example data	The Index, Templates, Tutorials and Example data are now specific to the product family of the current license (Topography, Profilometry, SPM, SEM), even if using demonstration licenses (Free trial and OEM).
Adapted Minidoc	The system minidocs available in the product installation are now updated for version 8.
	Main general features: Modernized style
Modernized ribbon	The new ribbon is offered in 4 Colors that can be selected from the Preferences dialog.
New icons	Most icons have been modernized
Dialogs and Studies	The style of the Welcome dialog and of the Parameters table study has been fully redesigned.
	Main general features: Other
Significantly quicker calculation times for large datasets	Calculation time has been greatly improved for Gaussian filter and Robust gaussian filter, for functions using the Fast Fourier Transform, and for functions using the filling-in of non-measured points. Those new methods may produce slightly different results.

Visualization of extraction zones and profile	The areas or profiles extracted can be shown repeated on the main studies (default study and 3d view) of the source studiable. You can interactively change the position from the default study or 3d view study (similarly to the Summary of last operator study in V7). You can choose whether or not to show the profile or extracted area on the study of the source studiable.
Display of study parameter results to the right of the study	The results or parameters in studies can now be shown to the right of the study instead of beneath the study.
Easier creation of Minidocs	It is now easier than ever to create a Minidoc. For example, you can select one or more studiables or studies in the workflow (using CTRL+click) and save them as a Minidoc via a right click.
Apply a document as a Minidoc	From the Minidoc tab, you can now apply the content of a document as a Minidoc. The workflow and frames of the document are applied to the selected studiable and inserted into the document.
New Digital Surf product names for different instrument families	New, instrument-family oriented products are grouped by Topography (Map), Scanning Probe microscopy (SPIP) and SEM (SEM) themes, each containing basic, intermediate and Premium packages in Digital Surf products.
	New Parameters table study
User-guided Parameters table study	A Completely new Parameters table study has been developed, in order to help the user with defining and understanding the analysis workflow, avoid filtering errors, and to give more information about the calculations. When loading documents created with former versions, the user has the choice to keep the current display, or to convert the study in order to modify it.
Parameters table study: filtering options	You can now choose which leveling and filtering operations you wish to carry out directly in the parameters table study. F operations and S-L filters are shown for profiles, series of profiles, surfaces, series of surfaces, surface+image, and multilayers.
Parameters table study: display of filtering conditions	The Parameters table study now displays information about association (form removal or levelling) and filtering conditions (cut-off etc.), whether these pre-treatments are performed before the studiable in workflow or included in the settings of the study.
Parameters table study: one standard per study	Parameters are grouped by standard, with one frame for each norm. (It is no longer possible to group parameters from two different norms in one frame.)
Parameters table study: microroughness as a ratio	You can now define the Microroughness filter value (lambda s) as a ratio of the L filter value (lambda c) in the Parameters table on profiles, surfaces and series.
Parameters table study: improved management of cut-off values	The user can now define a set of customized cut-offs, and reuse them in all filtering dialogs of the application.
Parameters table study: improved ergonomy of end-effect settings	You can now more explicitly define the end-effect you want to apply.
Parameters table study: warnings	The Parameters table study can now also explain why uncalculable parameters are not shown.
Parameters table study: Filtered data studiable can be added to workflow	You can now generate, from the Parameters table study, a filtered studiable directly from the dialog. This represents the data on which the parameters are calculated. The filter settings are common to the generated studiable and the corresponding Parameters table study.
Parameters table study: Added ISO 13365 family parameters	Some added parameters for the ISO 13565 family (Rk parameters) can now be calculated: CV, APH, AVH, and Rvk/Rk are available in the Parameters study on profiles and on Series of profiles.
Parameters table study: Added ISO 4287 family parameter	Rz(n) parameter of the ISO 4287 standard has been added in the Parameters table for profiles and series of profiles.
Parameters table study: New VDA 2006 parameters	Parameters of the VDA 2006 standard have been added in the Parameters table for profiles and series of profiles.
Parameters table study: New SEP 1941 Wsa parameter	The Wsa parameter of the MBN 31007-12 standard has been added in the Parameters table for profiles and series of profiles.
Parameters table study: New MBN 31007-12 parameters	Rst and Rst Pos parameters of the SEP 1941 standard have been added in the Parameters table for profiles and series of profiles.
	New Particle analysis study

New study for Particle analysis	The new Particle analysis study replaces and enhances the Motifs and Islands studies, the Binary images features and the Apply mask operator. The study detects particles using different methods formerly available in Motifs (watershed) and Islands (threshold), but also new methods. It allows you to refine the detected particles, then apply operations that were available in the former operators on Binary images. The particles are then displayed and parameters calculated. The study can also generate surfaces masked by the particles similarly to the former Apply mask operator. This study can be applied to surfaces, images, surface+Image, Multilayer surfaces.
Particle analysis study: New classification feature	It is now possible to sort the particles by different criteria or a combination of criteria. The classes thus defined are used to colorize the particles, to sort them in the table, or to colorize their representation in a Scatter plot. You can display a legend of the classification in the study.
Particle analysis study: Improved interactivity	You can highlight the parameters calculated on a motif by clicking on the motif on the image. Inversely, you can highlight a motif by clicking on its line in the table.
Particle analysis study: Enriched threshold detection	In the Threshold method (formerly in the Volume of Islands study), you can now define a threshold using the Bearing height (plane containing the biggest number of points) or a distance from this Bearing height, or using a Material ratio value, or a distance from this Material ratio value. Particles can also be defined between, or outside of, two threshold values.
Particle analysis study: New circle detection method	A new method detects the particles having a circular shape, similar to the method available in the SPIP software of ImageMet
Particle analysis study: Detection on another layer or studiable	It is now possible to detect the particles on one layer of a Multilayer studiable (or one studiable), and to apply the display and parameter calculations to another layer or studiable.
Particle analysis study: New “Skeleton” feature and parameters	The user can display the skeleton of branch-
Particle analysis study: Smooth contour	You can refine the particle to get a smoother contour. This smoothed shape is taken into account in area calculations.
Particle analysis study: Particles without holes	You can fill holes in particles from the Refine dialog
Particle analysis study: Selection of motif by number	In Single particle mode, a motif can be selected by its motif number.
Particle analysis study: Show parameters on particles	It is possible to show the parameter values or names on top of the particles.
Particle analysis study: New parameters	16 new parameters can be calculated compared to what was possible in the Motifs or Volume of Islands studies in version 7. It concerns some parameters that were available in the SPIP™ software ImageMet. Some parameters have been renamed. A complete list and description is given in the reference guide.
Particle analysis study: Compatibility	Documents created with former versions can be opened and modified. The Motifs and the Islands studies are automatically converted to Particle analysis studies. The studies and operators on binary images are displayed with a lock and can’t be modified. Their frames are attenuated as obsolete studies. You can apply the equivalent of operators on binary images directly in the Particle analysis study.
	New Shell studiable
New type of studiable: Shell	You can now load 3D freeform surfaces (for example .stl, .obj and .ply data format) into the software as “Shell”-type studiable.
New 3D View study on Shells	Shell studiables are loaded directly in the 3D view study
Extract surface from shell studiables	The user can extract a part of a shell studiable as a surface by projection onto a plane for further analysis.
Extract parametric profile from shell	Extract a parametric profile from the shell studiable for analysis in the Contour Analysis study.
	New Detect structures operator
New Detect structures operator	The new Detect structures operator allows you to detect and extract the different occurrences of a user-defined sample stucture in a surface. It is also able to automatically detect a periodic structrure and use it as the sample structure to detect and extract. This operator is also available on images.

	New Asperity removal operator
New Asperity removal operator on Profiles and Parametric profiles	The new Asperity removal operator allows you to remove outliers on profiles and on Parametric profiles. The oultiers can be defined as peaks or valleys exeeding a certain height from the mean line, and having a certan width. Settings similar to the Remove outliers operator on surfaces are also available.
	New Multilayer profile studiable
New type of studiable: Multilayer profiles	Similar to multilayer surface studiable, a new type of studiable for multilayer profiles is now available.
New Multilayer profile study	The New Mulilayer profile study can show one or more profiles in the study frame, selecting the ones to show by clicking on the thumbnail.
New multilayer profiles extraction in Extract profile operator	When working with multilayer surface type studiables, it is now possible to extract profiles as a multilayer profile type studiable, thanks to a setting in the existing Extract profile operator.
New Distance measurement study on Multilayer profiles	A Distance measurement study is available for Multilayer profiles, allowing you to measure features on one layer and showing their position on another. Includes distances, slopes and Extrema.
	New Lateral calibration operator and study
New Lateral calibration study	New lateral calibration study (on surfaces) to calibrate X and Y axes with a known grid, This allows you to show unit size and coordinates, position errors and correction parameters.
New Lateral calibration operator	The Lateral calibration operator (on surfaces) allows you to apply lateral calibration corrections. The functions are comparable to the ones available in the SPIP™ software from ImageMet.
	New Correlation averaging operator
New Correlation averaging operator for repetitive structures	A new operator has been added to display the average of a repeating structure. The functions are comparable to the ones available in the SPIP™ software from ImageMet.
	New Parametric force curves studiables
New force curve studiables	Three new studiable file formats have been developped to enable the analysis of Force-curves having non-constant spacing values in the Height axis. The available studiables are: Force-curves, Series of Parametric force curves, Parametric Force-Volume.
Adapted tools on Parametric force curves	The Force-curve analysis study, Identity card study, and the Calibrate constants and Normalize force curves operators, have been adapted to Parametric force curves studiable types.
	New Illustration features
New actions for illustrations (links, …)	You can now add actions in your illustrations. A click on an illustration can: Open a web page, Send an email, Open a file, Open a specified .mnt document, Navigate in the document to a specific frame or page, Close the document, Show/Hide screen only frames, Display the Preferences dialog or the Home dialog. The following actions can be added to the illustrations: Button, Hyperlink, and also to an Image illustration.
New "Button" illustration	You can now add a button in your current document via the Edit tab in order to perform actions described above. The button can show an icon.
New “Hyperlink” illustration	You can now add a Hyperlink illustration in your current document via the Edit tab in order to perform actions described above.
Hyperlink in Text box	You can now type a URL address in a Text box illustration to enable the opening of a web page.
New "Bubble" illustration	A new “Bubble” illustration is available to add comments to items on the computer screen.
New look Screen notes	Screen notes now have an updated flat design. (The "Realistic" design has been kept for compatibility and remains available at the user's discretion.)
Animated GIFS can be used as Image illustrations	Animated GIFS can now be loaded as image illustrations

	Other Specific features
First and second order Robust Gaussian filtering	Profiles, surfaces, multilayers and Surface+Image type studiables can now be filtered using a Robust Gaussian filter in the first and second orders as well as the original zero order. The feature can be found in the Standard filter operator, in the Parameters table study, in the Filtered profiles study, and in the Rk parameters and Sk parameters studies.
Updated filtering dialog	The Filter settings dialog has been updated for a better ergonomy. A dialog similar to the Parameters study dialog is now used in the Filtered profiles study, Rk parameters study and Rk profiles studies on profiles, and in the Sk parameters study on surfaces.
Default filter for Rk parameters	The default filter for the Rk parameters study and for 13565-3 et 13565-3 family in the Parameters study (on profiles and on series of profiles) is now set to second order robust Gaussian.
Microroughness as a ratio	You can now define the Microroughness filter value (lambda s) as a ratio of the L filter value (lambda c) in all filtering dialogs of the application.
Improved management of cut-off values	The user can now define a set of customized cut-offs, and reuse them in all filtering dialogs of the application.
Improved ergonomy of end-effect settings	You can now more explicitly define the end-effect you want to apply in all filtering dialogs of the application. It is not a preference anymore.
Numerous manual measurements	The Distance measurement study has been renamed “Manual measurements”. It now includes more measurement shapes: Rectangle, Ellipse and Custom shape. It calculates many more parameters, similarly to the Particle analysis study, including Area and Volume parameters.
Remove form with respect to the Normal on profiles	Removing form on profiles can be now also be calculated perpendicularly, with respect to the normal.
Improved Profiles subtraction	In the Subtract profile operator, it is now possible to include exclusion zones (used to calculated automatic position) on the second profile (it was already possible to add them on the first profile).
Easier retouch on profiles	Areas modified using the Retouch operator on profiles can be adjusted.
Material side of profiles	A new feature, the Material side, shows on which side of the profile (or parametric profile) the material is, when this information is contained in the data loaded. It can be found in the Profile curves study and Contour study for standard profiles and the Contour study for parametric profiles. This information can be saved in the .pro file format, and is mananged by the operators.
Result pickers in Contour	Result pickers can now be used in functions of the Contour study. These enable the user to define settings using a result already included in the Result manager (eg: result calculated by a study or an operator, or transferred from an external application). The functions containing result pickers are: Rotate by a defined angle, Define coordinates of the origin, Move profile to position, Create circle from center and radius, Create tangent point, Create offset points, Create positioned points, Create profile point from index, Create built points, Create multiple built points, Create arc with absolute radius.
Result picker in Form removal	A Result picker can now be used to define the Custom radius of the Remove form operator for Profiles and surfaces.
Result picker in Slices	Result pickers can now be used to define the thresholds in the Slices study.
More information in Identity card	More information can be dispayed in the Identity card study: Studiable type, Information about layers of Multilayer files, Shell points and face numbers, Information on all layers of a series.
New "Edit T-axes" operator for Series of images	The "Edit T-axes" operator, already available for Series of profiles and Series of surfaces, is now also available also for Series of images.
Videos available for series of images	As well as with series of surfaces and series of profiles, you can now export a video of a series of images.
SPIP™-color palette	Users of SPIP™ will be able to continue using the SPIP color palette in MountainsSPIP®.
New palettes for the color vision deficient	Version 8 contains Viridis and Cividis color palettes for those with color vision deficiencies.
Local contextual menu options in 3D View	When right-clicking in the 3D View study, the contextual menu shown reflects options for the part clicked. (i.e.: by clicking on the 3D surface, the user can change options relating to the surface eg. The rendering or the palette. By clicking in the background, the user can change options relating to the background eg. Color).

Enhanced material rendering in 3D view studies	The visual quality of the Materlal rendering in 3D view and 4D view studies has been improved. The user can now choose the color of the Plastic rendering.
Results displayed and generated by Remove form operator	Radius of circle, sphere or cylinder, and equation coefficients, which where previously only displayed and generated via the Summary of last operator study, can now be displayed directly by the Remove form operator dialog, and generated in the Result manager. The values can be displayed in the Table of results or in Tolerance limits studies, and exported.
Leveling angle generated by Level operator	The leveling angle of a Level operator (on all studiable types) is now generated and shown in the Result manager. The values can be displayed in the Table of results or in Tolerance limits studies, and exported.
Substitution of studiables from History of operators	The substitution of a studiable can also be made via the History of operators study
Use keyboard to go to first or last element of a series	The Home and End keyboard keys allow you to navigate directly to the beginning or end of a series of studiables.
Direct modification of an element of the Series	The operators that extract an element of a Series (for all studiable types) now directly generate a Summary of the last operator that enables the extracted element to be modified direcly from the document.
Scale bar available in Summary of last operator	Already present in other areas of the software, the Scale bar is now also available in the Summary of last operator study for operators on surfaces, series of surfaces, surface+images and multilayers.
Grid view study available for Surface+Image type studiables	The Grid view study available elsewhere in the software has now been made available for Surface+Image type studiables.
Elements of a series highlighted when being renamed	In the Renaming elements of a series dialog (profiles, surfaces, images, force curves), when the user changes the current element in the preview the corresponding line is now highlighted in the list of elements.
Force curve analysis ergonomy	In the Force curve analysis study (on all force-curve studiable types), in the single adhesion detection mode, the name of the detected events has been changed to be more explicit (ie: R2 becomes “Adhesion”).
Force curve normalization: no offset along the abscissa.	In the Force curve normalization operator (on all force-curve studiable types), a new check box allows you to not change the position of the curves along the abscissa axis (correct only z).
	Other general features
Enhanced Free trial behaviour	The extension of the free trial period is now easier and more direct for the user: At the end of the free trial period, clear dialogs guide the user to send the extension request. When the extension is accepted the procedure is seamless for the user (provided that the PC has an internet connexion). The choice of the Digital Surf product to test benefits from a clear and modernized dialog.
New document format for enhanced intercompatibility	Mountains documents are saved in a new format which will allow for greater intercompatibility between versions (ie: open a document created in version 8 with version 7.4).
Saving several studiables	It is now possible to select several studiables and save them in the same destination folder.
Minidocs containing multiple root studiables	Minidocs can now contain more than one root studiable at the beginning of the workflow (ie to subtract 2 surfaces).
Duplication as a root studiable in analysis workflow	The user can now drag a studiable included in the Analysis workflow and drop it later in the workflow of the same document as a new root studiable.
Display study size when resizing	When the user changes the size of a frame in the document, the size of the frame is shown in the top left-hand corner while the mouse button is still pressed.
Automatic scale enhanced	The automatic calculation of the scale for Profiles, Series of profiles and for Force curves have been enhanced to allow a bigger display in the Z axis.
Frame number modification	Frame numbers can now be modified in the Properties of the frame
Modification of root studiable order	The order of the root studiables in the workflow can be modified (by changing their ID number).
Hidden study access	A hidden study can now be shown, faded, and modified when selected in the Analysis workflow
Faster preference application	Faster calculation when changing preference settings having an effect on the document eg. number of significant digits.

New option for title	The title of the study can now display the name of the root studiable.
Enhanced legibility of long studiable names	When the long name of the study and the studiable is requested in the study's title, and it is too long to be shown in the study, the middle is truncated rather than the end.
Quicker Title display	Titles can be selected directly in studies: You can now show the type of title directly by selecting it in the list rather than this being a 2-part procedure.
Add a custom variable to the Result Manager	The user can add a user-defined number in the Result manager. This number and its name can then be displayed in the Table of results, and used in Results pickers of some studies and operators. This variable can also be handled from another application via ActiveX.
Customized studiables, example documents and settings	Partners can add their own custom settings for operators and studies, and can also add extra studiables or example documents to their custom products (refer to SDK).
Show or hide context in Result manager	The context of the obtained results (ie: filter settings) can be either shown or hidden in the Result manager panel.
Default studiable filter in File explorer	In the file explorer, the default filter is now "all formats" instead of "Mountains studiables", in order to display all possible miniatures by default.
Default compressed file format	The compressed file format available in version 7.4 is now the default file format proposed when saving a studiable.
	ActiveX and command file features
New active X interfaces for better customization and interactions.	Many new Active X interfaces have been added to enable better interaction and customization from other applications, and to take into account the new behaviors of version 8. For example, from Active X, you can now manage multi-tabbed documents and the new "Shell" studiable, apply a Minidoc containing several root studiables and, last but not least, apply customized settings.
External command "Save as" now accepts .stl	The STL file format has been added to the list of formats available when using the "Save as" external command if the studiable type allows this format.

Notes:

5) Version 8 can only be used with Perpetual licenses secured via a USB security key (dongle).
   This version cannot, temporarily, be used with Free trial licenses activated (using a web connexion) via a Software-based security key, Network dongles, OEM demonstration dongles, or Loan dongles.
   At the time of writing, Remote upgrading from version 7 to version 8 is not yet possible.
   All these functions will be published soon in an upcoming service pack. Please contact us if this causes any inconvenience.

6) The included Reference guide is available only in English in the first version 8.0. Other languages will be available soon in an upcoming service pack.

Bug corrections (A and B type)

#	Type	Bug Description

BUGS-9027	B	The S5v parameter is not calculated correctly when 2 neighboring pits have the same value.
BUGS-8957	B	The S5p parameter calculation is based on biggest local heights instead of biggest peak heights. Same problem with S5v (ambiguity in the standard definition).
BUGS-8920	B	The Abbott curve first point should be at the value 0, and its precision could be improved.
BUGS-8598	B	The results of the PzJIS/RzJIS/WzJIS/P3z/R3z/W3z parameters are incorrect if the studiable contains non-measured points.
BUGS-8289	B	RLa, WLa,Rda and Wda parameters on profiles and Series of profiles are slightly incorrect.
BUGS-8081	B	The FFT algorithm option preference is not correctly taken into account in some functions: Filter the spectrum operator (on surfaces and profiles), Threshold the spectrum (surface), Frequency spectrum (profile).
BUGS-7758	B	The RPc/WPc/Ppc parameters on profiles calculated using a discrimination band should not be included in the ISO 4287 standard family.