



Image Analysis Software

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**OLYMPUS Stream**

Version 2.4

# Release notes

June, 2019

Topic	Detail
Combine Objects for Count & Measure	It is possible to merge together several objects after they have been detected in Count & Measure: <ul style="list-style-type: none"> <li>- Once the objects are detected, select the ones to be merged with shift</li> <li>- More than two objects can be merged together</li> <li>- The original objects are deleted</li> </ul>
Support of Hamamatsu C12741-03 camera	The camera Hamamatsu C12741-03 is now supported in OLYMPUS Stream 2.4 This camera is an InGaAs camera with high sensitivity in the near infrared region from 950 nm to 1700 nm. The driver is activated by a solution that needs to be purchased (ST-CAM-SWIR).
Update of DPSDK for DP74 Live HDR	The new mode is now compatible with new NVIDIA GPU Volta. The new mode requires to have compatible CUDA 9.1 GPU or later. The new mode requires to have NVIDIA graphic card with "compute capability" 3.0 or higher. The new mode can not be used simultaneously with conventional HDR.
Support of Manual Transmitted LED Illuminator (LG-LSLED)	The new illuminator Manual Transmitted LED (LG-LSLED) is now available in the device selection list
Batch file format conversion	It is now possible to convert multiple files from one format to another, in a batch mode. The menu Batch Convert is available from the file menu <ul style="list-style-type: none"> <li>- Input selection: Images from file system, database, selected documents ...</li> <li>- Destination: File system or database</li> <li>- Output format: Most common file formats (.JPG, .TIF, .PNG ...) and .VSI</li> </ul>
Save Display As ...	It is possible to export the current displayed image area (including overlays) into a file which format can be selected interactively.
OLYMPUS Stream Package Structure Update	<ul style="list-style-type: none"> <li>- The solution PowerPoint (ST-S-PPT) is discontinued and included in all OLYMPUS Stream packages higher than OLYMPUS Stream Start</li> <li>- OLYMPUS Stream 2.4 cannot be installed on Windows 32-bit</li> <li>- OLYMPUS Stream 2.4 user interface is localized in Spanish</li> </ul>

	<p>(ES-ES)</p> <p>- The Operating Systems Windows Server 2008, Windows Server 2008 R2 and Windows 8.0 cannot be used with OLYMPUS Stream 2.4</p>
Windows 10 [1809] support	<p>OLYMPUS Stream 2.4 can be installed on Windows 10 version 1809.</p> <p>OLYMPUS Stream 2.4 was also tested on Windows for Workstation.</p>
Improve handlings of drawings/measurements on large images	<p>This feature address issues when burning in drawings, measurements, scale bar, info stamp on large images or when using large images with these overlay elements in report.</p> <p>It is now possible to select a target resolution for the drawings/measurements in pixel per inch (ppi)</p> <p>The maximum resolution is set to 1200 ppi and selectable in the "Set Print Resolution" dialog.</p> <p>The bigger the image, the highest the resolution should be selected.</p>
Multiple line profiles	<p>Major improvements have been implemented for the line profile tool window:</p> <ol style="list-style-type: none"><li>1) It is possible to draw multiple profile lines into one image. Up to 8 profile lines can be drawn into an image document. Up to 2 profile lines can be drawn into a live image document. The charts of all profile lines of one image are displayed in the line profile tool window and can be rearranged in different ways. It is possible to use either the image channel color as line color or user selected colors (alternating or fixed color).</li><li>2) In addition to the arbitrary profile line it is now possible to define polylines and freehand lines for measuring curved structures.</li><li>3) It is possible to copy profile lines from one image to another. One or more profile lines can be copied to another image to the same pixel position.</li></ol>

	<p>Limitations:</p> <p>The number of profile lines per image is limited (two for live mode and eight for offline, see above).</p> <p>Averaging is not available for freehand and polylines (live mode and offline).</p> <p>The number of possible handles/ nodes is limited to 256 nodes per line for freehand and polylines (live mode and offline).</p> <p>In addition, the overall performance in live mode may be reduced depending on the length of profile lines, resolution of live document, number of visible charts in the tool window, and the hardware environment.</p> <p>In this case, the line profile measurements should be performed on a snapshot image instead of live mode.</p>
<p>Materials Solution "Cast Iron": New standard version NF-A04-197: 2017 supported</p>	<p>The standard NF A04-197: 2017 supersedes the NF A04-197: 2004 which is removed from the software.</p> <p>The calculation of the different parameters doesn't change between the versions.</p>
<p>Materials Solution "Inclusion Worst Field": New version of EN 10247:2017 supported</p>	<p>The standard EN10247 from 2007 has been updated to new version from 2017</p> <p>The changes are severe and the results are very different:</p> <ul style="list-style-type: none"> <li>- Relation of length/width for globular inclusions changes to <math>L/w \leq 3</math> (former <math>L/w \leq 1.3</math>)</li> <li>- Stringer: <math>n \geq 2</math> more than two particles can form a stringer (former <math>n \geq 3</math>)</li> <li>- Classification Parameters: Numerical changes</li> </ul> <p>The EN10247:2017 is the new default standard however, it is still possible to activate the former version in the Materials Solutions options.</p>
<p>Materials Solution "Coating Thickness": New standard EN ISO 26423:2016 supported</p>	<p>The standard DIN EN ISO 26423:2016 is added to the list of available standards in the Coating Thickness Materials Solution options.</p> <p>The calculation is identical to EN 1071:2002</p>

<p>Refactoring of the Materials Solution Porosity</p>	<p>The Materials Solution "Porosity" fully supports the standards VW50093 (PV6093), VDG P201, P202 and P211. This includes:</p> <ul style="list-style-type: none"> <li>- selection of standard in the workflow interface</li> <li>- square regions of interest (ROI)</li> <li>- rotatable rectangular/square ROI</li> <li>- display of porosity results in a special format the porosity key, e.g. VW 50097-D5/1</li> <li>- the following porosity parameters can be calculated for the supported standards:             <ul style="list-style-type: none"> <li>- Porosity</li> <li>- Pore size</li> <li>- Number of pores</li> <li>- Disregarded pores</li> <li>- Distance of adjacent pores</li> <li>- Pore accumulations</li> <li>- Pore nests</li> <li>- Pore density</li> <li>- Biggest pore per image</li> </ul> </li> <li>- besides the supported standards the solution offers the possibility to work without a standard, the option "None" supports the previous features of the solution</li> <li>- output of results as workbook, Word and Excel report</li> </ul>
<p>New Materials Solution: "Dendrite Arm Spacing"</p>	<p>OLYMPUS Stream 2.4 offers a new solution: Dendrite Arm Spacing</p> <p>It measures the secondary dendrite arm spacing (sDAS) visible in solidified aluminum and copper alloys and steel. The following results are provided:</p> <ul style="list-style-type: none"> <li>- Measure the Dendrite Arm Spacing by Manual or Automatic method (using thresholds).</li> <li>- Calculate the solidification time in light weight castings</li> <li>- Measure the total length, the number of dendrite arms, the average DAS and its variance and the median DAS</li> <li>- Displays the DAS results (measured length, DAS length) on the measured lines in the image</li> <li>- Creates report in Excel or Word format using the Materials Solution workflow</li> </ul>
<p>Materials Solution "Inclusions Worst Field": New version of ASTM E45-2018 supported</p>	<p>The standard ASTM E45-2018 supersedes ASTM E45-2013 which is removed from the software.</p> <p>The calculation of the different parameters doesn't change between the versions.</p>

<p>Materials Solution "Inclusions Worst Field": New standard "SEP 1571: 2017" supported</p>	<p>The standard SEP 1571 version 2017 is now supported in the Materials Solution "Inclusions Worst Field".</p> <p>The method M (worst inclusion method) is implemented:</p> <ul style="list-style-type: none"> <li>- Max. inclusion value per image based on inclusion surface area. The result is the sum of these values divided by the number of images</li> <li>- Inclusion types, A,B,C and D, separated by their grey level (black) or (gray) , similar to ASTM E45 and ISO 4967</li> <li>- Classification: Size class 1-9 (- and above)</li> <li>- Grouping: <ul style="list-style-type: none"> <li>- More than 2 particles form a stringer/inclusion (<math>n \geq 3</math>)</li> <li>- Area of inclusion = Sum of all particle areas of the inclusion</li> <li>- Width mean of inclusion = Sum of particle areas/ Length of the inclusion</li> <li>- Length of an inclusion: Length of all particles in deformation direction including any existing gaps in the inclusion</li> <li>- Distance relation: <math>e \leq 40 \mu\text{m}</math> and <math>t \leq 10 \mu\text{m}</math></li> </ul> </li> </ul>
<p>Materials Solution "Coating Thickness": Extension of the number of measurements</p>	<p>The maximum number of measurements per image is increased to 20 in the Materials Solution "Coating Thickness".</p>
<p>Materials Solution "Cast Iron": New version of ISO 945-1:2018 supported</p>	<p>The EN ISO 945 standard for CastIron is under revision by the international committee</p> <ul style="list-style-type: none"> <li>- The Graphite classification is determined in the Part 1, currently used in OLYMPUS Stream</li> </ul> <p>The EN ISO945:2018 Part 1 is identical to EN ISO945:2010 and therefore replace it.</p>
<p>Materials Solution "Grains Intercept": New standard ASTM E1382-1997 supported</p>	<p>The Materials Solutions Grains Intercept support the new standard ASTM E1382-1997 (reapproved 2015)</p> <p>The standard is equivalent to ASTM E112. It is used to determine grain size number G from measurements of grain intercept lengths, intercept counts, intersection counts, grain boundary length, and in addition to ASTM E112 grain areas</p> <p>The values are calculated based upon the grain size definitions in testmethod ASTM E112 (same tables, same formulas).</p>

<p>Improved ROIs creation in Materials Solutions Phase Analysis, Particle Distribution and Porosity</p>	<p>It is now possible to define</p> <ul style="list-style-type: none"> <li>- Rectangular</li> <li>- Square</li> <li>- Rotatable rectangular</li> <li>- Rotatable square</li> </ul> <p>Regions Of Interest directly with a button selection in the ROI page of the Materials Solutions:</p> <ul style="list-style-type: none"> <li>- Particle Size Distribution (ST-S-PSD)</li> <li>- Phase analysis (ST-S-APHSE)</li> <li>- Porosity (ST-S-PORO)</li> </ul>
<p>Improved reports in Materials Solution "Cast Iron"</p>	<p>The report in Materials Solutions Cast Iron is improved</p> <ul style="list-style-type: none"> <li>- The charts for Size, Form and Nodularity are now using the results of each image (compared to the whole sample in the previous version)</li> <li>- The percentage of each class is displayed in the chart</li> </ul> <p>The Summary report includes additional information about the sample</p> <ul style="list-style-type: none"> <li>- Sample Group, Sample Reference</li> <li>- Results of size, form and nodularity</li> </ul>
<p>Selectable background color for Automatic MIA</p>	<p>In OLYMPUS Stream 2.4 it is possible to select the background color for the Automatic MIA image, like it is possible in Instant MIA.</p>
<p>Use Polygon as Automatic MIA area definition</p>	<p>In OLYMPUS Stream 2.4 it is possible to define a polygon as a scan area for automatic MIA</p>
<p>Create movie from an image series</p>	<p>It is now possible to create a movie from an image stack</p>
<p>New set of immersion objectives available</p>	<p>The new objective lens grade for immersion media is available in the device settings</p>
<p>Microsoft Office 2019 perpetual license is supported</p>	<p>The new version of Microsoft Office (perpetual license) is now supported</p> <ul style="list-style-type: none"> <li>- Microsoft Word 2019</li> <li>- Microsoft Excel 2019</li> <li>- Microsoft Powerpoint 2019</li> </ul>
<p>All report templates are updated to docx, dotx, pptx, xlsx</p>	<p>In OLYMPUS Stream 2.4 all reports templates have been updated to the latest xml format for Microsoft</p> <ul style="list-style-type: none"> <li>- Word templates doc and dot are now in docx and dotx</li> <li>- Excel templates xls are now xlsx</li> <li>- Powerpoint templates ppt and pot are now pptx and potx</li> </ul>

<p>Microsoft Office 2007 is not supported anymore</p>	<p>All references to Microsoft Office 2007 are removed from OLYMPUS Stream 2.4</p>																					
<p>New technology for report creation</p>	<p>The report creation in OLYMPUS Stream 2.4 is now conducted using WCF (Windows Communication Foundation) and replaces the old technology .NET which created troubles with new Office versions. The report functionality is not affected by this technology change.</p>																					
<p>Selection of tiles number in tile view</p>	<p>It is possible to select the number of images that will be displayed in the tile view. This is particularly useful when numerous images are present in the image stack.</p>																					
<p>"Ignore Z coordinates" is renamed into "Use current Z-position"</p>	<p>The "Ignore Z coordinates" function in the Process Manager is renamed to "Use current Z-position" for better understanding of its purpose.</p>																					
<p>Microsoft SQL Server 2017 is now supported</p>	<p>The version 2017 of Microsoft SQL Server is now supported for all Workgroup and Enterprise databases.</p> <p>The default Microsoft SQL Server version to be installed depends on the Operating System:</p> <table border="1" data-bbox="596 1173 1343 1435"> <thead> <tr> <th>Operating System</th> <th>Microsoft SQL Server Version</th> <th>Microsoft Native Client Version for SQL Server (SNAC)</th> </tr> </thead> <tbody> <tr> <td>Windows 7 (64bit)</td> <td>Microsoft SQL Server 2012 SP2 Express (64bit)</td> <td>Microsoft SQL Server Native Client 2012 (64bit)</td> </tr> <tr> <td>Windows 8 (64bit)</td> <td>Microsoft SQL Server 2017 Express (64bit)</td> <td>Microsoft SQL Server Native Client 2012 (64bit)</td> </tr> <tr> <td>Windows 10 (64bit)</td> <td>Microsoft SQL Server 2017 Express (64bit)</td> <td>Microsoft SQL Server Native Client 2012 (64bit)</td> </tr> <tr> <td>Windows Server 2008 R2 (64bit)</td> <td>Microsoft SQL Server 2012 SP2 Express (64bit)</td> <td>Microsoft SQL Server Native Client 2012 (64bit)</td> </tr> <tr> <td>Windows Server 2012 (R2, 64bit)</td> <td>Microsoft SQL Server 2017 Express (64bit)</td> <td>Microsoft SQL Server Native Client 2012 (64bit)</td> </tr> <tr> <td>Windows Server 2016 (64bit)</td> <td>Microsoft SQL Server 2017 Express (64bit)</td> <td>Microsoft SQL Server Native Client 2012 (64bit)</td> </tr> </tbody> </table>	Operating System	Microsoft SQL Server Version	Microsoft Native Client Version for SQL Server (SNAC)	Windows 7 (64bit)	Microsoft SQL Server 2012 SP2 Express (64bit)	Microsoft SQL Server Native Client 2012 (64bit)	Windows 8 (64bit)	Microsoft SQL Server 2017 Express (64bit)	Microsoft SQL Server Native Client 2012 (64bit)	Windows 10 (64bit)	Microsoft SQL Server 2017 Express (64bit)	Microsoft SQL Server Native Client 2012 (64bit)	Windows Server 2008 R2 (64bit)	Microsoft SQL Server 2012 SP2 Express (64bit)	Microsoft SQL Server Native Client 2012 (64bit)	Windows Server 2012 (R2, 64bit)	Microsoft SQL Server 2017 Express (64bit)	Microsoft SQL Server Native Client 2012 (64bit)	Windows Server 2016 (64bit)	Microsoft SQL Server 2017 Express (64bit)	Microsoft SQL Server Native Client 2012 (64bit)
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<p>"Count &amp; Measure": Individual selection of result table in "Export to Excel"</p>	<p>Configuration option for the export to Excel in Count &amp; Measure: When exporting measurement results to Excel the user can individually select which result tables should be exported: * Object Measurements * Class Measurements * ROI Measurements When clicking on the icon "Export to Excel" (Count&amp;Measure Results tool window) the respective options can be selected in the export dialog.</p>
<p>"Count &amp; Measure": "Export to Excel" functionality is now possible with more than 65536 objects.</p>	<p>Using "Count &amp; Measure", it is now possible to save Excel files (.xlsx) using the "Export to Excel" function which contain more than 65536 particles.</p>
<p>Define subarray interactively in Camera Control tool window</p>	<p>It is now possible to define acquisition sub-array, interactively at a pixel precision, directly in the camera control tool window.</p>
<p>New Materials Solution: "Non-Metallic Inclusions"</p>	<p>A new license ST-S-NMI is available - This license includes the Material Solution "Inclusions Worst Field" - The article ST-S-IWF is discontinued and replaced by the article ST-S-NMI</p>
<p>Multiple perpendicular lines set as standard function for OLYMPUS Stream Essentials and higher</p>	<p>- Multiple Perpendicular Lines is extracted from the solution Weld Measurement (ST-S-WELD) and included by default in ST-ES, ST-MO, ST-DT, ST-ENDT and ST-EN - Multiple Perpendicular Lines is also added to ST-S-APHSE for OLYMPUS Stream Basic - ST-S-WELD solution remains unchanged</p>
<p>Materials Solution "Grains Planimetric": New standard ASTM E1382-1997 supported</p>	<p>The Materials Solutions Grains Planimetric support the new standard ASTM E1382-1997 (reapproved 2015)  The standard is equivalent to ASTM E112. It is used to determine grain size number G from measurements of grain intercept lengths, intercept counts, intersection counts, grain boundary length, and in addition to ASTM E112 grain areas  The values are calculated based upon the grain size definitions in testmethod ASTM E112 (same tables, same formulas).</p>

Zooming functionality of threshold histogram available in Materials Solutions "Phase Analysis", "Particle Distribution" and "Porosity"

The zooming functionality (Zoom in, Zoom out, Zoom to fit) is available for the threshold histogram in the Materials Solutions:

- Particle Size Distribution (ST-S-PSD)
- Phase analysis (ST-S-APHSE)
- Porosity (ST-S-PORO)