



Release Notes

**ZEISS ZEN core v3.3**



## **ZEISS ZEN core v3.3**

Original Manual

Carl Zeiss Microscopy GmbH  
Carl-Zeiss-Promenade 10  
07745 Jena  
Germany  
[microscopy@zeiss.com](mailto:microscopy@zeiss.com)  
[www.zeiss.com/microscopy](http://www.zeiss.com/microscopy)



Carl Zeiss Microscopy GmbH  
ZEISS Group  
Kistlerhofstr. 75  
81379 München

Document Name: ZEISS ZEN core v3.3 Release Notes  
Revision: 2  
Language: en-US  
Effective from: 07/2021

© 2021 This document or any part of it must not be translated, reproduced, or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information or retrieval system. Violations will be prosecuted. The use of general descriptive names, registered names, trademarks, etc. in this document does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use. Software programs will fully remain the property of ZEISS. No program, documentation, or subsequent upgrade thereof may be disclosed to any third party, unless prior written consent of ZEISS has been procured to do so, nor may be copied or otherwise duplicated, even for the customer's internal needs, apart from a single back-up copy for safety purposes.

ZEISS reserves the right to make modifications to this document without notice.

# 1 New Modules

Module	Description
<b>Multi-Channel Acquisition</b>	<p>Module for acquiring various fluorescence and transmitted light images as well as contrast methods in independent channels.</p> <ul style="list-style-type: none"> <li>Acquisition of multiple independent channels for reflected light and transmitted light techniques</li> <li>An independent exposure time and microscope setting can be assigned to each channel</li> <li>Dyes (including wavelength information) can be selected from a database containing more than 500 dyes and fluorescent proteins for all common transmitted light contrast techniques supported by the acquisition system (e.g. brightfield, phase contrast, DIC, darkfield etc.)</li> <li>Fully automatic generation of the required microscope setting for a channel that is added</li> <li>Possibility of adjusting light intensity and camera settings manually for each channel</li> <li>A focus reference channel can be defined</li> <li>Demo ready job template available incl. example Image Analysis and Report (<b>Count Cells</b>)</li> <li>Approved for <b>GxP</b> compliant systems</li> </ul> <p><b>Note:</b> Not available for <b>ZEN Starter</b>.</p>
<b>Intellesis Object Classification</b>	<p>Module to train an object classifier model that allows to sort already segmented objects into subtypes using a dedicated training UI to label segmented objects.</p> <ul style="list-style-type: none"> <li>It also includes an image processing function and task to classify objects incl. python commands.</li> <li>Images must be analyzed first using any image analysis method incl. Machine-learning segmentation to classify the objects the tool is using all available shape and intensity features of an object automatically.</li> </ul> <p>A demo ready job template is available under "<b>Samples</b>" called "<b>Analyze and Classify Objects</b>".</p> <p><b>Note!</b> The <b>Intellesis Object Classification</b> module is independent from the <b>Intellesis Trainable Segmentation</b> module and does not require or benefits from a GPU. To be able to classify objects ZEN Image Analysis is required to create "segmented objects" in the first place.</p>

## 2 New Features & Improvements

Area / Application	Features / Improvements
<b>General Improvements in Base Package</b>	<ul style="list-style-type: none"> <li>Opening multiple results or entire jobs out of the <b>Browse Results</b> section in <b>Free Mode</b> (or <b>Info</b> view) will show the documents sorted chronologically.</li> <li>To pre-define the naming of images in <b>Job Mode</b> there is a new checkbox: <b>Add Counter</b> for the following workbenches under <b>Save Files</b> (<b>Save Image</b>, <b>Save Table</b>, <b>Save Report</b>) for more automated workflows.</li> <li>Interface to <b>GOM Inspect</b>: Under <b>Output documents</b>, <b>Save Files</b> there is a new option for the tool <b>Topo Export</b> for transferring Topography Images into the Software Suit <b>GOM Inspect</b> for extended measurement capabilities.</li> <li>For <b>Topography Measurements</b> there is a new tool for the generation of screenshots called <b>Create Image</b>.</li> <li>In the <b>Topo Viewer</b> the following new functions have been introduced. <ul style="list-style-type: none"> <li>Z-scaling adjustments (incl. quick wins with <b>Optimize</b> and <b>Normalize</b>)</li> <li><b>Reset the Topo View</b></li> <li><b>Create Image</b></li> </ul> </li> </ul>
<b>Module Intellesis Segmentation</b>	<p>The module <b>Intellesis Segmentation</b> has been improved and offers the following new features:</p> <ul style="list-style-type: none"> <li>Extended support for <b>TenroFlow</b> and <b>ONNX</b> models format</li> <li>Improved support for using Deep Learning models from <b>APEER</b></li> </ul> <p>For <b>ZEN Intellesis Trainable Segmentation</b> for <b>ZEN core</b> the internal <b>Python</b> libraries were updated. To use the full potential of the <b>GPU</b> for machine-learning it is required to update the <b>Nvidia</b> graphics card driver to the latest version and to use an <b>GPU</b> unit with at least 8GB of memory. When using a unit with less memory or when the memory is occupied by other external processes, the CPU fallback might be used.</p>
<b>Module ZEN Data Storage</b>	<p>Customers with a <b>ZEN Data Storage</b> have now additional functionality for structuring and sharing of data in <b>Zen core</b></p> <ul style="list-style-type: none"> <li>Results can be added and grouped in Collections</li> <li>Collections can be shared with different user with adjustable level of access rights</li> <li><b>ZEN Data Explorer</b>: Creation, management and sharing of collections also available from ZEN Data Explorer</li> <li><b>ZEN Data Explorer</b>: Now supports also <b>ZEN Connect</b> projects</li> </ul>
<b>Module Grain Size Analysis</b>	<p>Update of standard DIN EN ISO 643:2020. Standard revision with a focus on editorial rework. Neither the calculation nor the feature sets have been changed.</p>
<b>Module Macro Environment</b>	<p>The following new features are now available with <b>ZEN core 3.3</b></p>

Area / Application	Features / Improvements
	<p>Support for <b>Intellesis Trainable Object Classification</b> is now available from <b>OAD</b> (requires the respective license):</p> <ul style="list-style-type: none"> <li>Working with Intellesis Trainable Object classification Models: <ul style="list-style-type: none"> <li>ZenIntellesis.ObjectClassification.<b>ListAvailableModels</b>()</li> <li>ZenIntellesis.ObjectClassification.<b>FindModelByName</b>("name")</li> <li>ZenIntellesis.ObjectClassification.<b>ImportModel</b>("cztocFile", <b>False</b>)</li> </ul> </li> <li>Classify with a pretrained object classifier: <ul style="list-style-type: none"> <li>Zen.Processing.ObjectClassification.<b>Classify</b>(img, "name", True)</li> </ul> </li> </ul>
<b>Module Image Analysis</b>	<p>The module <b>Image Analysis</b> has been improved and offers the following new feature:</p> <ul style="list-style-type: none"> <li>It is now possible to set the count for the Binary functions in the segmentation step (<b>Open, Close, Erode, Dilate</b>) to 200 (previously limited to 20).</li> <li>New demo ready job template available under <b>Samples</b> called <b>Count Cells (Loaded Images)</b></li> </ul>
<b>Module ZEN Connect</b>	<p>The module <b>ZEN Connect</b> has been expanded and improved with the following functionality:</p> <ul style="list-style-type: none"> <li>The new <b>ZEN Connect</b> alignment workbench is available for fast and efficient alignments</li> <li>Basic measurements (line, angle, area) are possible in <b>ZEN Connect</b></li> <li>The <b>ZEN Connect</b> workbenches are available in <b>Job Mode</b></li> <li>Stage rotation at the <b>SEM</b> is taken into account in <b>ZEN Connect</b></li> </ul>
<b>Module Technical Cleanliness Analysis (TCA)</b>	<p>The module <b>ZEN Technical Cleanliness Analysis (TCA)</b> has been extended. The following new functionality enhances the productivity for routine analysis in technical cleanliness and provides a user-friendly and efficient working environment for entry level universal particle analysis applications.</p> <ul style="list-style-type: none"> <li>The <b>TCA</b> workflow has been extended for correlative LM/EM analysis in combination with <b>ZEN Connect add-on</b>. For material classification <b>SmartPI</b> is required in addition.</li> <li>Manual Particle height measurement is now available as part of the <b>TCA</b> workflow. The results of the height measurement are stored in the archive as table.</li> <li>The <b>TCA</b> software module now offers a dedicated job template for the calculation of the Illig value (VDA 19.2) from existing job results. The Illig value documents the particulate contamination in room air and inspects the environmental condition in manufacturing and assembly.</li> <li>Process data from HYDAC contamination test modules are read out and stored automatically in the archive with the <b>TCA</b> job result. The HYDAC data are provided in table format and as part of the report.</li> </ul>

Area / Application	Features / Improvements
	<p><b>Note:</b> With <b>ZEN core 3.3</b> the <b>TCA</b> bundles with 705 pol are no longer available. Both <b>TCA</b> and 705 pol have to be ordered separately.</p>
<b>Module Non-Metallic Inclusion Analysis (NMI)</b>	<p>The module <b>ZEN Non-Metallic Inclusion Analysis (NMI)</b> has been extended. The following functionality enhances the monitoring of routine analysis in steel cleanliness and addresses standard revisions.</p> <ul style="list-style-type: none"> <li>For <b>NMI</b> a new summary table with characteristic core values of all selected standards is now available. The summary results of n-samples within one job run are automatically exported to a pre-defined file path.</li> <li>Update from JIS G0555:2003 to standard revision JIS G0555:2020</li> </ul>
<b>ZEN core Visioner</b>	<p><b>Optional contributing systems</b></p> <ul style="list-style-type: none"> <li>The <b>Visioner Topography Acquisition</b> workbench has been modified: More intuitive GUI for basic users and a new <b>Advanced Acquisition Tool</b> for experienced users.</li> <li>The <b>Visioner 2D Acquisition</b> workbench enables you to acquire 2D images of the central slice of the z-stack for performing exact measurements.</li> <li>Availability of <b>Stage</b> tool for motorized stages and <b>Online Measurement</b> tools for measuring in the Live Image.</li> </ul>
<b>Cameras</b>	<p><b>Optional contributing systems</b></p> <p>Axiocam 705 pol with Pseudo-Color coding of polarization information available. Single Shot Polarization Imaging in <b>ZEN core</b>. This brings a dramatic increase of acquisition speed.</p> <p><b>Note:</b> With <b>ZEN core 3.3</b> the <b>ZEN core</b> Camera Packages with the Axiocam series are discontinued. These bundles consisting of <b>ZEN core</b>, <b>Image Analysis</b> and an <b>Axiocam</b> no longer exist and there is no equivalent available.</p>



**Carl Zeiss Microscopy GmbH**  
Carl-Zeiss-Promenade 10  
07745 Jena  
Germany

phone: +49 3641 64 3161  
fax: +49 3641 64 3439  
[info.microscopy@zeiss.com](mailto:info.microscopy@zeiss.com)  
[www.zeiss.com/microscopy](http://www.zeiss.com/microscopy)