

Release Notes
ZEISS ZEN core v2.6



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Original Manual

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

microscopy@zeiss.com
www.zeiss.com/microscopy



Carl Zeiss Microscopy GmbH
ZEISS Group
Kistlerhofstr. 75
81379 München

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1 Release Notes

New Modules

The following new software modules are available:

Module	Description
Non-metallic Inclusion Analysis	<p>The new module Non-metallic Inclusion Analysis provides evaluation and rating of non metallic inclusions in steel (Oxides, Sulfides and Nitrides).</p> <p>Supported standards:</p> <ul style="list-style-type: none"> ▪ ASTM E45 ▪ ISO 4967 ▪ JIS G0555 ▪ GB/T 10561 ▪ EN 10247 ▪ SEP 1571 ▪ DIN 50602 <p>General features:</p> <ul style="list-style-type: none"> ▪ Adjustable image acquisition profiles with microscope and camera settings for the supervisor ▪ Selectable image acquisition profiles for the operator ▪ Standard measuring field based definition of the tiles acquisition area ▪ Automated parallel analysis for all selected standards ▪ Customer database in Excel table format for input forms ▪ Efficient auto segmentation for oxide, sulfide and nitride detection ▪ Artifact filter for automated filtering of scratches ▪ Automated detection of the main deformation axis (horizontal, vertical) ▪ Standard specific characteristic value filter: automated exclusion of inclusions per defined size class ▪ Global result view with: <ul style="list-style-type: none"> – inclusion gallery for inspection and revision of objects (oxides, sulfides, nitrides and artifacts) – several filter/sorting options and overarching result statistics – standard results selectable by one mouse click ▪ Field based inspection view with: <ul style="list-style-type: none"> – acquired specimen image – a grid of standard measuring fields as overlay – specimen and inclusion live navigation for inspection and revision of objects (oxides, sulfides, nitrides and artifacts) – several filter- and sorting options per standard specific inclusion types – true worst field detection – result statistics with field rating – Standard results selectable by one mouse click ▪ Reports in Microsoft Word (from Microsoft Word 2013) and export as PDF ▪ Automated generation of reports/summary report for all standards ▪ Excel export of result tables

Module	Description
Connect Entry	<p>The new module Connect Entry (module for ZEN starter, integrated in ZEN core base package) is used for acquisition and correlation of light and electron microscope images. It offers interactive acquisition and contextual display of images in single- and multi-instrument workflows.</p> <p>General features:</p> <ul style="list-style-type: none"> ▪ Multi-resolution and multi-modal display of images ▪ Project management for acquired images ▪ Positioning of images according to stage coordinates ▪ Manual alignment of images to allow correction of shift, rotation and skew
Connect Advanced	<p>The new module Connect Advanced (module for ZEN starter and ZEN core) allows to extend the functionality of the integrated module Connect Entry. The functionality of the module Third-party Import is included in Connect Advanced.</p> <p>General features:</p> <ul style="list-style-type: none"> ▪ Interactive control of stage movement from the correlative workspace ▪ Import of images into projects ▪ Export of merged project view as image ▪ Automated alignment of images using algorithms for key point detection ▪ Import of 3rd-party microscopy images (powered by Bioformats)
Third-party Import	<p>The new module Third-party Import (module for ZEN starter and ZEN core) allows the import of 3rd-party microscope images to ZEN.</p> <p>General features:</p> <ul style="list-style-type: none"> ▪ Import of 3rd-party images in native format including extraction of relevant metadata ▪ Support of metadata extraction depends on original format (powered by Bioformats)
Intellesis	<p>The new module Intellesis provides a trainable segmentation based on machine learning algorithms using pixel classification.</p> <p>General features:</p> <ul style="list-style-type: none"> ▪ Generation of training models by image labeling ▪ Image segmentation based on training models ▪ Generation of image analysis settings based on training models
Intellesis & Image Analysis	<p>The new module bundle Intellesis & Image Analysis consists of the two individual modules Intellesis and Image Analysis.</p> <p>The assistant for creation of an automatic measurement program is enhanced with the machine learning segmentation functionality of the ZEN module Intellesis.</p>
Data Storage Client	<p>The new module Data Storage Client (module for ZEN starter and ZEN core) provides seamless connection as client to ZEN Data Storage Server for storage of documents and templates.</p> <p>General features:</p> <ul style="list-style-type: none"> ▪ Connection to ZEN Data Storage Server ▪ Storage and handling of documents and templates by ZEN Data Storage Server

Module	Description
	<ul style="list-style-type: none"> Centralized user management via ZEN Data Storage Server
IMS Client	<p>The new module IMS Client (module for ZEN starter and ZEN core; substitutes the module Data Management in ZEN starter and ZEN core) provides seamless connection to Imagec IMS Database server.</p> <p>General features:</p> <ul style="list-style-type: none"> Storage and handling of documents and templates by the IMS Databaser Storage of archived data on IMS server system Hierarchical structure Search / Keyword search Client-Server-System User management via IMS Server

New Features & Improvements

Area / Application	Features / Improvements
General	<p>Image context menu:</p> <ul style="list-style-type: none"> New short cuts are available to adjust display settings (Min/Max/Best fit) directly. <p>Exported images:</p> <ul style="list-style-type: none"> *.jpeg, *.bmp, *.tif, *.png, *.jpegXR have now 300 dpi tag as standard (previously 96 dpi). <p>Acquisition:</p> <p>New task SEM 2D Acquisition available in the group Acquisition for ZEN core SEM.</p> <p>Input documents:</p> <p>New tool Import Bioformats Image available in the Load File task.</p>
APEER Connector	<p>Included built-in connector to APEER - the ZEISS cloud based digital microscopy platform. Allows easy upload and retrieval of ZEN to the APEER workflow. The selected APEER workflow will use the selected ZEN image data as Input.</p>
Devices	<p>Microscopes: Micro Toolbox MTB2011 version 2.13.0.3.</p>
Forms and Reports	<p>WordAddIn is now provided for each user after installation by the administrator. It is no longer needed to install it for every single user separately. In addition it is now available for non-administrators too.</p> <p>New features:</p> <ul style="list-style-type: none"> Extended customer logo adaptation (report template) More flexibility of column numbers for images (report template) Improved form designer: automated customer data import
Browse Job Results	<p>Direkt export of data tables of the selected job to Excel</p>
Image Processing	<p>New processing functions for the Module Intellesis:</p> <ul style="list-style-type: none"> Segmentation <ul style="list-style-type: none"> Intellesis: TrainableSegmentation (with Minimum Confidence) Utilities

Area / Application	Features / Improvements
	<ul style="list-style-type: none"> - Intellesis: Channels to Labels - Intellesis: Labels to channels - Convert Pixel Format, e.g. if a 12-bit image is converted to 8-bit the range 0 to 4095 is mapped to range 0 to 256 (as opposed to 'Change Pixel Type', here the range 4095 to 65535 is filled with zeros and then the range 0 to 65535 is mapped to 0 to 256)
OAD (Open Application Development)	<p>OAD examples (Job templates with OAD macros) and an installation instruction are available on the DVD 77 in the following folder: Other/OAD examples The OAD examples can be run without the license for the module Macro Environment.</p>
Module Tiles & Positions	<p>New features:</p> <ul style="list-style-type: none"> ▪ 'Tiles (measurement area)' workbench available in the category 'Acquisition'. Creates tile images on a motorized stage by adding multiple tile regions with a certain area measurement, e.g. multi sample acquisition. ▪ 'Tiles (measurement area)' and 'Position list' workbenches offer import of position list and tile regions as .CSV file ▪ Improved focus strategy: Combination of focus surface with Autofocus.
Module Image Analysis	<p>New features in Image Analysis Wizard:</p> <ul style="list-style-type: none"> ▪ Image Segmentation Setup <ul style="list-style-type: none"> - Suppress invalid allows to suppress invalid pixels at the image border - Min. Hole Area can be defined to fill holes according to the minimum size ▪ Features Setup <ul style="list-style-type: none"> - Copy To: allows to add/copy the features of one class to another one (minimum 2 classes) (especially suited for more complex class structures)
Module Macro Environment	<p>New functions:</p> <ul style="list-style-type: none"> ▪ Segmentation <ul style="list-style-type: none"> - Intellesis: TrainableSegmentation - Intellesis: TrainableSegmentationWithProbabilityMap - Intellesis: MinimumConfidence ▪ Utilities <ul style="list-style-type: none"> - CreateSubsetAndSplit - CreateSubsetAndSplitTo Array ▪ Application <ul style="list-style-type: none"> - GetOmeTiffFile: Input data from many life sciences file formats (Bio-Formats)
Module Shuttle & Find	<p>The EM acquisition workbenches (tasks) have been moved from the category 'Shuttle & Find' to the category 'Acquisition'.</p>
Module Linkam	<p>The Linkam controller firmware has been updated to the following versions:</p>

Area / Application	Features / Improvements
	<ul style="list-style-type: none"> ▪ T95: firmware version 2.91 ▪ T96: firmware version 1.20
Module Data Management	The module Data Management has been renamed to ZEN Module IMS Client.

ZEN Data Storage Server

The Data Storage Server provides a database for storage and multi-client access of documents on a centralized server. ZEN applications can connect to the server as clients to store and retrieve data.

General features:

- Server database solution based on MS-SQL server
- Scalable database architecture
- Possible integration into existing server landscape
- Multi-client concurrent access to data
- Server based user and access management
- Full archive integration for ZEN core including storage of documents and templates
- Support of the documents formats: Job results, images, reports, data tables, Job templates, Report templates, Form templates, Analysis templates, Intellesis models, OAD macros
- Optional: Compatible with ZEN Module GxP

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
www.zeiss.com/microscopy