ZEN Imaging Software

Faster. Easier to Use. More Universal.
The Software for All Systems.

ZEISS

We make it visible.

ZEN Shortens the Path to Your Goal

ZEN - ZEISS Efficient Navigation – is the single user interface you will see on all imaging systems from Carl Zeiss. ZEN software leads you simply and quickly to the result. At all times you see which options the system is making available to you and which step is appropriate to take next. ZEN makes it easy to operate every imaging system from Carl Zeiss correctly and intuitively.

As a result you save time, reduce training and support costs, and get faster answers to your questions.
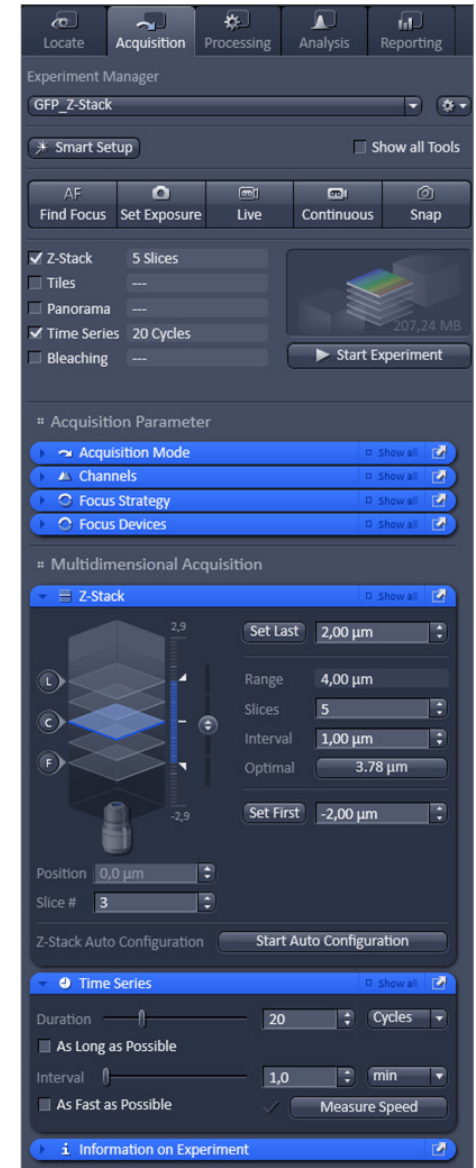
ZEN: Simpler, More Intelligent, More Integrated.

ZEN: The Essentials Count – Focus on What You Need

ZEN controls all imaging systems from Carl Zeiss, letting you operate all of your devices with the same convenient interface.

ZEN arranges operating elements in a way that follows your work flow. Functions you use only rarely are hidden away, out of sight - but always there with a single click.

Smart Setup: Select fluorophore. Acquire. Done.

Smart Setup is the core of ZEN – your intelligent control centre. Select the dye for your sample from the database with more than 500 dyes and ZEN automatically applies all necessary settings for your imaging system.

A Secure Format for Important Data

The security of your data gets top priority as ZEN stores each of your experiments with all its metadata. Using the new data format .czi from Carl Zeiss you can even process the huge amount of data you acquire with our fast 3D imaging systems. Alternatively, store your images as OME-TIFF, the image format specification of the Open Microscopy Environment including metadata, to facilitate cross-plattform image data exchange.
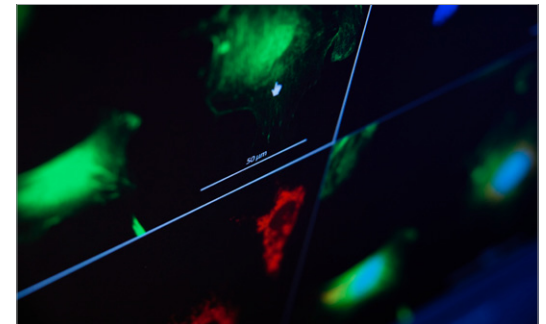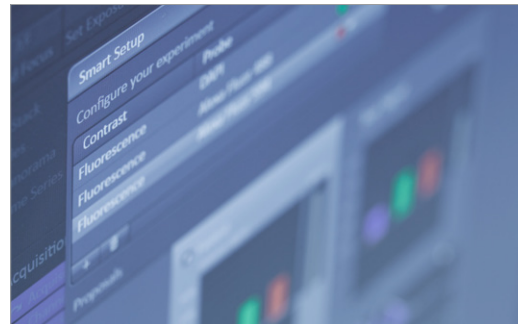
# ZEN At Work

- Image subcellular trafficking in 3D over time with maximum acquisition speed
- Visualize cytoskeletal dynamics with highest sensitivity
- Carry out photobleaching experiments
- Perform functional imaging of cellular signal transduction with high temporal resolution
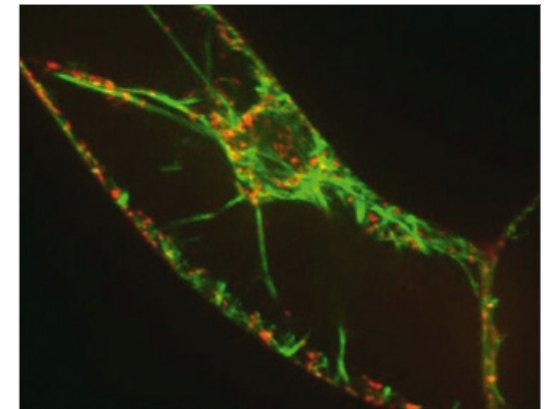- Perform confocal live cell imaging with highest sensitivity
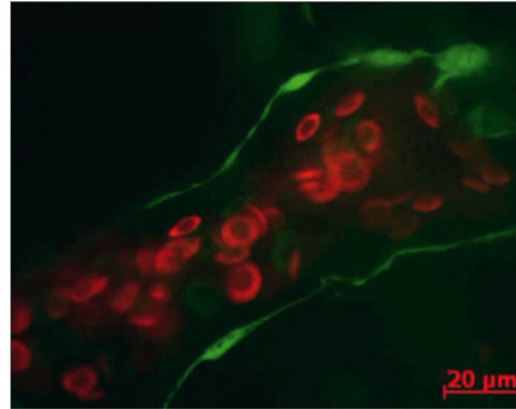
Zebrafish blood
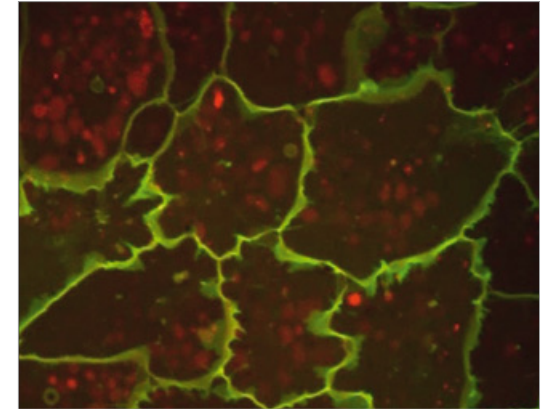
Xenopus explant
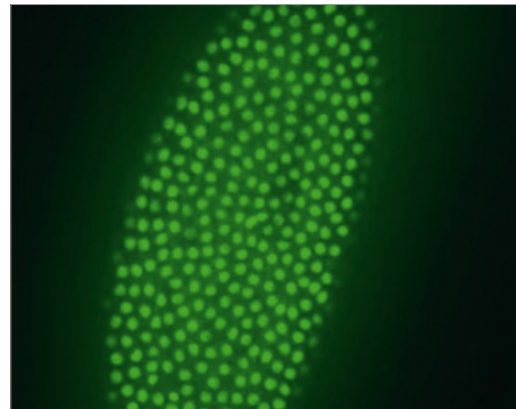
Drosophila embryo

Tobacco cells

ZEN 2011: Your Flexible Choice of Components

ZEN features the following module packages:

ZEN lite 2011	Is the free basic version of the high-performance microscopy software, ZEN. You do not need a license for ZEN lite, unless you want to extend this version with specific modules for your applications.
ZEN desk 2011	Supports you in your offline analyses. Extend this version with modules for image processing and analysis.
ZEN pro 2011	Controls all imaging systems except laser-based 3D systems.
ZEN system 2011	Is the software package for all imaging systems, including laser-based 3D imaging systems (LSM 780, LSM 710, Cell Observer SD, Laser TIRF 3).

Task	Module	ZEN provides:
Basic	ZEN 2011	Detector Control, AxioCams and PMTs from Carl Zeiss included, third party devices optionally available
		Laser-/Lasermodule-Control
		Microscope Control
	Visual Macro Editor, VME	Use symbols to generate macros for complex acquisition strategies
	Visual Basic Macro, VBA	Use a macro recorder or freely program VBA code
Aquisition	Multi Channel	Record different fluorescence and transmitted light images in independent channels
	Time Lapse	Record images over time
	Z Stack	Record Z-stacks with the help of a motorized focus drive
	Manual Extended Focus	Acquire images manually and calculate a 2D image out of a Z-stack
	Autofocus	Determine the focus position of your specimen
	Tiles & Positions	Record exact, highly resolved images by automatically scanning pre-defined specimen areas Produce images with the help of position lists. Configure tile regions and individual positions
	Panorama	Manually acquire highly resolved overview images from individual 2D images
	Experiment Designer	Configure non-homogeneous imaging experiments
	ROI-HDR	Acquire and display HDR image data with extended dynamic range, incl. illumination blanking

ZEN 2011: Your Flexible Choice of Components

Select Your Modules According to Your Requirements

Task	Module	ZEN 2011 provides:
Processing	Extended Focus	Calculate a 2D image out of a 3D Z-stack
	Deconvolution	Improve Z-stacks with 3D deconvolution algorithms
	3D VisArt	Visualize and render 3D image stacks
	Spectral Unmixing	Perform spectral unmixing of lambda stacks or multichannel images, via reference spectra or component analysis
	Colocalisation	Analyze colocalisation between two fluorescence channels quantitatively
Analysis	Measurement	Use extended interactive measurement tools
	Image Analysis	Use an assistant to create an automatic measurement program
	FRAP Efficiency Analysis	Analyze acquired FRAP/FLAP or similar time series with bleach events, including mean ROI measurements
	FRET plus Macro	Analyze FRET data with either sensitized emission or acceptor photobleaching method, including mean ROI measurement
	3D Analysis	Evaluate and display 3D image data stacks with various measuring tools
	ASSAYBuilder®	Carry out "high content" analyses (HCA) of .zvi images
	Physiology	Analyze physiological time series data, with Ca2+ calibration, including mean ROI measurement
	FCS for GaAsP and APD	Analyze single molecules with GaAsP and APD detectors, FCS, spectral FCS and FCCS with LSM 780, LSM BiG and ConfoCor 3
	Enhanced FCS	Perform interactive and global fitting using extended and self defined fit models
	Photon Count. Histogram	Histogram of the photon counting populations for all FCS systems
	Image Correl. Spectro. RICS	Analyze single molecules with Raster Image Correlation Spectroscopy for LSM 710 with PMT or GaAsP detectors
	Topo	Analyze surface data and visualize measurement results

ZEN 2011: Your Flexible Choice of Components

ZEN fits all your needs: depending on your microscope hardware the following ZEN packages are available.

Product	Modules	● Included in ZEN 2011 (blue edition)	⬤ Included in ZEN 2011 (black edition)
		◉ Optional in ZEN 2011 (blue edition)	◉ Optional in ZEN 2011 (black edition)

ZEN system 2011

Laser based **3D Imaging Systems**

Laser Control → Microscope Control → Detector Control* → **ZEN system**

Measurement	Image Analysis	3D Analysis	ASSAY Builder®				
● ⬤	● ⬤	◉	◉				
Deconvolution	Colocalisation	3D VisArt	Topo	Spectral Unmixing	Physiology	FRAP Efficiency Analysis	FRET plus Macro
◉	● ⬤	◉ ◉	◉	⬤	◉	◉	◉
Experiment Designer	Visual Macro Editor, VME	Visual Basic Macro, VBA	ROI-HDR	Enhanced FCS	FCS for GaAsP and APD	Photon Count. Histogram	Image Correl. Spectro. RICS
◉ ◉	◉	◉	◉	◉	◉	◉	◉
Multi Channel	Z Stack	Time Lapse	Tiles & Positions	Panorama	Autofocus	Extended Focus	Man. Ext. Focus
● ⬤	● ⬤	● ⬤	◉ ◉	◉	● ⬤	● ⬤	◉

*Detectors from Carl Zeiss (AxioCams, PMTs, etc.) included,
 3rd party device control optionally available

ZEN desk 2011

Offline tasks only

ZEN desk

Measurement	Image Analysis	3D Analysis	ASSAY Builder®	Experiment Designer*	Topo	
● ⬤	● ⬤	◉	◉	◉	◉	
Deconvolution	Colocalisation	3D VisArt	Spectral Unmixing	Physiology	FRAP Efficiency Analysis	FRET plus Macro
◉	◉ ⬤	◉ ◉	⬤	◉	◉	◉
Visual Macro Editor, VME	Visual Basic Macro, VBA	ROI-HDR	Enhanced FCS	FCS for GaAsP and APD	Photon Count. Histogram	Image Correl. Spectro. RICS
◉	◉	◉	◉	◉	◉	◉
Tiles & Positions*	Extended Focus					
◉	● ⬤					

*Only stitching and processing of existing data

ZEN 2011: Your Flexible Choice of Components

ZEN fits all your needs: depending on your microscope hardware the following ZEN packages are available.

Product	Modules	● Included in ZEN 2011 (blue edition)
		◉ Optional in ZEN 2011 (blue edition)

ZEN pro 2011

Imaging Systems and **Microscopes with Camera**

Microscope Control — Camera Control* — **ZEN pro**

Measurement ●	Image Analysis ◉	ASSAY Builder® ◉	Deconvolution ◉	Colocalisation ◉	3D VisArt ◉	Experiment Designer ◉
Multi Channel ●	Z Stack ◉	Time Lapse ◉	Tiles & Positions ◉	Panorama ◉	Autofocus ◉	Extended Focus ◉	Man. Ext. Focus ◉

*AxioCams included, other cameras optionally available.

ZEN lite 2011

AxioCam Control — **ZEN lite**

Measurement ◉	Image Analysis ◉
Multi Channel ◉	Time Lapse ◉	Panorama ◉	Man. Ext. Focus ◉

Technical Specifications

● Included in ZEN 2011 (blue edition)
◉ Optional in ZEN 2011 (blue edition)

● Included in ZEN 2011 (black edition)
◉ optional in ZEN 2011 (black edition)

Product/Option		ZEN lite	ZEN desk	ZEN pro	ZEN system	ZEN desk	ZEN system
Basis	ZEN	●	●	●	●	●	●
Tools	Control of AxioCams	●		●	●	●	●
	PMT Control						●
	Other Cameras			◉	◉		
	Laser- / Lasermodule-Control				●		●
	Microscope Control			●	●		●
	Visual Macro Editor, VME					◉	
	Visual Basic Macro, VBA					◉	
Acquisition	Multi Channel	◉		●	●		●
	Time Lapse	◉		◉	●		●
	Z Stack			◉	●		●
	Manual Extended Focus	◉		◉	◉		
	Autofocus			◉	●		●
	Tiles & Positions			◉	◉	◉*	
	Panorama	◉		◉	◉		
	Experiment Designer			◉	◉	◉	
	ROI-HDR					◉	
Processing	Extended Focus		●	◉	●	●	●
	Deconvolution		◉	◉	◉		
	3D VisArt		◉	◉	◉	◉	
	Spectral Unmixing					●	●
	Colocalisation		◉	◉	●	●	●

*Only stitching and processing of existing data

9

Technical Specifications

● Included in ZEN 2011 (blue edition)
◉ Optional in ZEN 2011 (blue edition)

● Included in ZEN 2011 (black edition)
◉ Optional in ZEN 2011 (black edition)

Product/Option		ZEN lite	ZEN desk	ZEN pro	ZEN system	ZEN desk	ZEN system
Analysis	Measurement	◉	●	●	●	●	●
	Image Analysis	◉	●	◉	●	●	●
	FRAP Efficiency Analysis					◉	
	FRET plus Macro					◉	
	3D Analysis					◉	
	ASSAYBuilder® (delivery after February 2012)		◉	◉	◉		
	Physiology					◉	
	Enhanced FCS					◉	
	FCS for GaAsP and APD					◉	
	Photon Counting Histogram					◉	
	Image Correl. Spectro. RICS					◉	
	Topo					◉	

Technical Specifications

System requirements for

ZEN lite 2011	ZEN pro 2011 / ZEN desk 2011	ZEN system 2011
Intel® Core 2 Duo E8400 3.0 GHz	Intel® Core 2 Duo E8400 3.0 GHz	Intel® Xeon X5650 6-Core 2.66 GHz
Intel® iQ45 chipset	Intel® iQ45 chipset	Intel® 5520 (Dual) chipset
4 GB DDR3-RAM	4 GB DDR3-RAM	6 GB DDR3-RAM
	Graphics interface PCIe x16	Graphics interface PCIe x16
	Graphics adapter 1920 x 1200 resolution, 32-bit true color, 128 MB RAM, DirectX 8.0 or higher	Graphics adapter ATI FirePro 2560 x 1600 resolution, 32-bit true color, 512 MB RAM, DirectX 8.0 or higher
	Monitor 20" TFT 1600 x 1200	Monitor 20" TFT 1600 x 1200
	Hard disk 160 GB SATA2, DVD-ROM drive	Hard disk 1x 250 GB SATA2 (configured as 250 GB hard drive) and 4x 1 TB SATA2 (configured as 2 TB RAID 10 hard drive), DVD-ROM drive
	1x free PCI slot 5 V, 32-bit (PCI specification 2.1) non shared interrupt, to insert camera interfaces	1x free PCI slot 5 V, 32-bit (PCI specification 2.1) non shared interrupt, to insert camera interfaces
		1x free PCI Express Generation 2.0 x16 full height slot
		Trigger board and Signal Distribution Box
1x FireWire IEEE 1394a interface	2x FireWire IEEE 1394a interface	2x Firewire IEEE 1394a interface
	2x serial interfaces (COM1 and COM2)	4x serial interfaces (COM1 – COM4)
2x USB interfaces	2x USB interfaces	4x USB interfaces
Microsoft® Windows® 7 64-bit Ultimate (Multilanguage), no special customer adapted versions	Microsoft® Windows® 7 64-bit Ultimate (Multilanguage), no special customer adapted versions	Microsoft® Windows® 7 64-bit Ultimate (Multilanguage), no special customer adapted versions

Count on Service in the True Sense of the Word

Your results really matter to us: we want you to get the best you expect from your microscope. Depend on Carl Zeiss for everything you need: technology, software, advice and service. We stay with you long after installation of your microscope on site. Carl Zeiss specialists will continue to maintain your systems, repair them, supply spare parts and much more. Just call us: we are always here for you.

Total Protection with Your Carl Zeiss Service Contract
It's the safe and practical way to preserve the efficiency of your microscope system. Our service contract protects you against expensive downtime.

**Preventive Maintenance Plus Optimizes Performance**
Our specialists will maintain and tune your system at regular intervals. You get valuable advice and comprehensive answers to any and all questions. We will also keep you right up to date on developments in your field of application.

The Standard Contract Also Includes Repairs and Support
In addition to all the services of Preventive Maintenance Plus, the standard contract covers all repair and support services. The only costs you will ever pay are for replacement components. Another important aspect of the standard contract is installation of software updates – your system will always be running the latest software version.

The Premium Contract Covers Spare Parts Too
Opt for the premium contract and you will have all services of the standard contract, plus free spare parts. This means you can predict your running costs precisely – and budget for them.
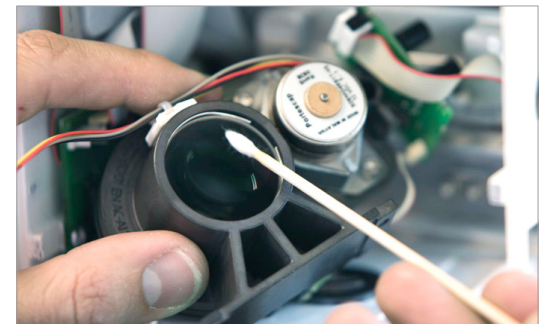
We are here for you:

www.zeiss.com/microservice

12

The moment technology provides
you with a result the first time.
This is the moment we work for.

// CONFIDENCE
MADE BY CARL ZEISS

ZEN – Imaging Software

Faster. Easier to use. More Universal. The Software for all Systems.

facebook.com/zeissmicroscopy

twitter.com/zeiss_micro

youtube.com/zeissmicroscopy

ZEISS

We make it visible.