

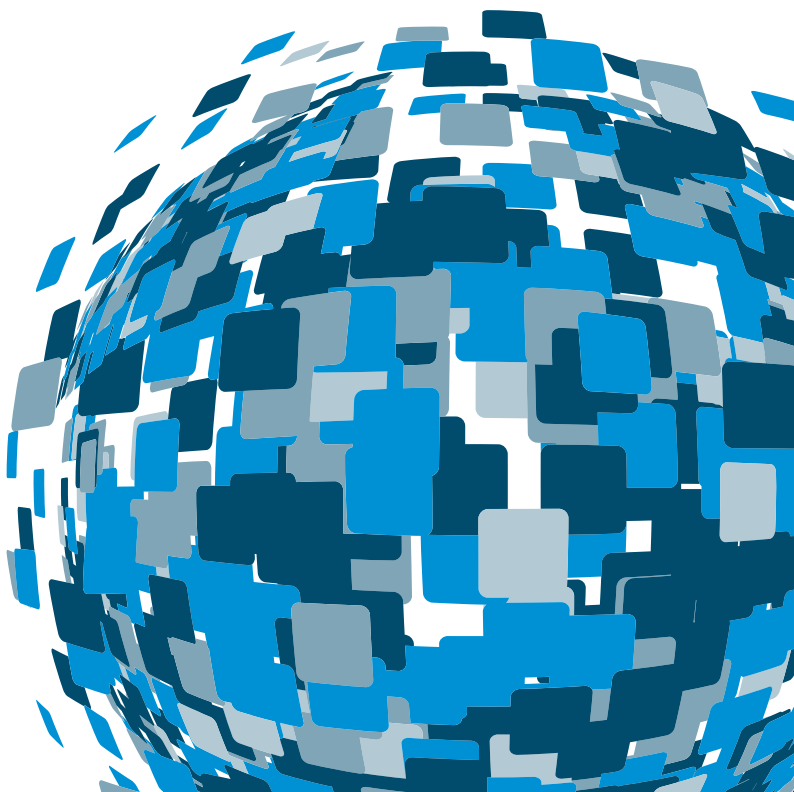
Definiens

Tissue Studio™ 2.1

Release Notes

DEEPER INSIGHTS
FASTER RESULTS
BETTER DECISIONS

www.definiens.com



Definiens Documentation:

Definiens Tissue Studio™ 2.1

Release Notes

Imprint

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Thank you.

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1 Overview

Definiens Tissue Studio™ is an image analysis workstation that provides functionality to support the pathologist in analyzing standard assays in histopathology. It enables non-technical users to configure, calibrate and execute versatile image analysis workflows. The software supports all major acquisition devices and users can analyze all kinds of tissue slides, tissue micro arrays and microscope images.

With the built-in Definiens Composer Technology™, regions of interest can be extracted from images by selecting samples and train the software how to find the regions of interest. Once the training is finished, Definiens Tissue Studio™ can extract the regions from an unlimited number of images.

A library of pre-defined image analysis solutions for typical every-day problems is provided that can be calibrated for the particular image data set, using Definiens Composer Technology™ and/or simple graphic sliders. These calibrated applications can be saved and submitted for batch execution.

Definiens Tissue Studio™ allows the user to quantify IHC, fluorescence and other histological assays on a cell-by-cell basis.

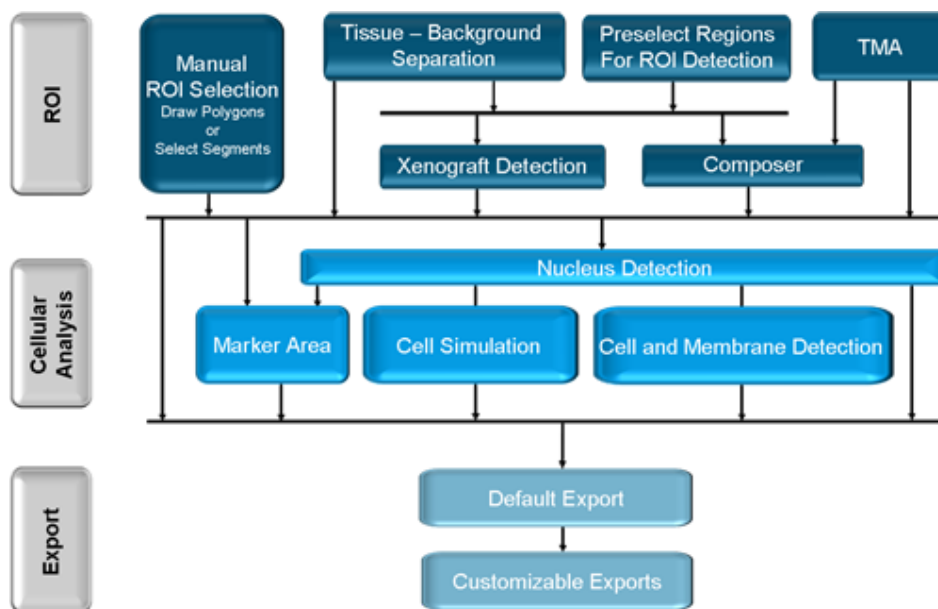


Figure 1.1. Definiens Tissue Studio image analysis capabilities

1.1 About Definiens Tissue Studio™ 2.1

Definiens Tissue Studio™ 2.1 is a minor feature release. It includes about 25 bugfixes to Definiens Tissue Studio™ 2.0 and is a recommended update for customers using any previous version of Tissue Studio.

1.2 Key Features

- Fluorescence extensions
 - Support for 10–16 bit data
 - Visualization of colocalization per cell / per nucleus
 - Export of Pearsons/Manders correlation coefficient (Marker Area, Cells, Nuclei)
- Bright field extensions
 - Intensity-based classifications
 - * Option to use optical density instead of IHC marker density
 - * Membrane Classification into three intensity classes
 - * Marker Area Classification into four intensity classes
 - Breast panel
 - * Her-2 scoring (DAKO and ASCO) on a cell-by-cell basis
 - * Allred score
- Additional context features
 - Distance of objects to region border, e.g. 'Distance of 3+ cells to tumor border'.

2 New Features, Bug Fixes and Errata

2.1 New Features

See [table 2.1](#) on this page, *Features New to Tissue Studio™ 2.1*.

Table 2.1. Features New to Tissue Studio™ 2.1

Category	Reference	Description
User Interface	15651	Keep view settings when opening a new project
Data I/O	15690	Introduce support for 10, 12, 14 and 16 bit IF data
Solutions	15956	Predefined solutions for Breast Panel (Her-2, ER, PR, Ki67)
ROI Detection	15966	Add shape features to list in Composer: Initial Training
Cellular Analysis	15691	Improve membrane detection
Cellular Analysis	15697	Nucleus and cell classification based on marker colocalization (IF)
Cellular Analysis	15699	Marker Area Classification (BF)
Cellular Analysis	15704	Membrane Classification Action
Cellular Analysis	15705	Cell classification: Her2-based classification
Cellular Analysis	15707	Classification by Optical Density (BF)
Cellular Analysis	15708	Context features for cellular analysis exports (distance to ROI)
Export	15703	Export of correlation coefficients for up to three markers (IF)
Export	15746	Export breast scores: DAKO/ASCO Her-2 and Allred score
Export	15799	Additional features in Customizable Export

Continues...

Category	Reference	Description
Other	15862	Quick color calibration based on fixed stain settings

2.2 Bug Fixes

See [table 2.2](#) on the current page, *Bugs Fixed in Tissue Studio™ 2.1*.

Table 2.2. Bugs Fixed in Tissue Studio™ 2.1

Category	Reference	Description
Data I/O	16066	Olympus dotSlide: black background for brightfield images
Data I/O	15568	Mirax: single file import of .mrxs file opens overview image
Data I/O	14871	Mirax driver can't import files with more or less than three channel
Data I/O	15979	Problem with display of Zeiss ZVI images
ROI Detection	15832	Crash when clicking Learn button in Composer
ROI Detection	15863	Increase maximum number of features for training to 5 (6) for Composer training actions
ROI Detection	15938	Xenograft host threshold is not working correctly
Cellular Analysis	15665	Cell Classification: Thresholds are changed after user has set them
Cellular Analysis	15679	Marker Area BF: Stain intensities are not available after processing
Export	15964	Customizable Export based on first two tiles only
Export	15640	Export layer mean of cell classification layer only if cell classification is present (IF)
Export	15805	Calculate HistoScore based on percentage of all objects, not based on positive only
TMA	16077	Tissue level is missing on analyzed cores
TMA	16131	One pixel tile border between tiles on processed core subsets
TMA	16014	Cryptic error message if Initialize Cellular Analysis is used and no cores are detected
TMA	15650	Core selection is not functional any more if Composer has been executed

Continues...

Category	Reference	Description
TMA	16103	TMA Grid View: Extend maximum size of Show dropdown list
TMA	15914	Crash on detecting tissue in empty cores
TMA	15848	Core detection fails to detect complete cores for homogeneous HE stain
TMA	15963	TMA slide is processed multiple times if cores are selected for processing
TMA	15765	TMA annotations are shown in black color on black background
User Interface	15702	Customized feature input '.' (comma) is always be prepended by a 0 (zero).
Solutions	15677	Old solutions can be loaded in current version. User does not get warning message.
Processing	16065	Error message: no subscene has specified statistics exported

2.3 Known Issues and Limitations

See [table 2.3](#) on this page, *Known Issues and Limitations in Tissue Studio™ 2.1*.

Table 2.3. Known Issues and Limitations in Tissue Studio™ 2.1

Category	Reference	Description
Processing	N/A	Limitation: The ROI Detection algorithms work on the first six fluorescence channels only. Additional channels are ignored. Data export and visualization is possible for up to 12 channels.
Export	16179	Known issue: Average Membrane/Cytoplasm ratio may have insignificant value due to outliers with very high and or negative values. As a workaround, please export values per object by customizable export end exclude outliers before calculating the average value.
Processing	16187	Known issue: Only first selected ROI class is processed for Marker Area Detection in IF image without Nucleus Detection. Please insert Nucleus Detection as a workaround if you would like to process multiple ROI classes on IF images.

2.4 Document Errata

None

3 Additional Information

3.1 Solution Files from Previous Versions

It is not possible to reuse solution files (file type .dax) of previous versions of Definiens Tissue Studio in this version. Because the underlying algorithms have been improved, solutions are not compatible between versions.

3.2 Using Manual Selections from TissueMap 3.1 in Tissue Studio

Definiens TissueMap and Definiens Tissue Studio are two different products. The workspace layout has been changed. Due to this, users of TissueMap 3.1 can not use the manually created regions in Tissue Studio automatically. However, the workspaces with manually created region selections can be converted. Please contact Definiens product support at support@definiens.com to get the tool to convert workspaces.

3.3 Contact

If you have any additional questions, please contact your account manager or write a mail to support@definiens.com.

Acknowledgments

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