DEFINIENS®
the tissue phenomics company

Definiens

Tissue Studio® 4.4.2

Release Notes

Overview

Thank you for using Definiens software. With this document, you will receive an overview about the product and functionality added with this release. Should you have any comment or suggestions, please do not hesitate to contact us on our support website at http://www.definiens.com/company/support or via e-mail at support@definiens.com.

About Tissue Studio®

Definiens Tissue Studio is the solution of choice for biomarker and morphological profiling in research and drug discovery on tissue samples. Through its unique ability to overcome inherent biological and staining variability, Tissue Studio accurately detects regions of interest and distinguishes cell types and cell subtypes within target regions across any number of tissue slides. It determines morphology and expression profiles per individual cell or cell compartment, solving your most challenging biological questions.

Tissue Studio supports applications for single or multiplexed Immunohistochemistry (IHC), Immunofluorescence (IF), and In-situ hybridization (ISH) in the areas of Oncology, Immunology, Angiogenesis, Metabolic Disorders, Toxicology, and many more.

What's New in 4.4.2

At Definiens, we constantly strive to improve our products. With this new release of Tissue Studio, you will receive a range of fixes and enhancements designed to improve the overall usability and stability. You will find a short description of the most important additions below.

Improved import of Aperio Annotations
With Tissue Studio 4.4, we introduce a new method for working with annotations generated in Aperio *.xml format. To utilize the new method, annotations are read in with a new annotations driver, visible as (xml 2.2) in the file import templates for various file formats. This allows better handling of the negative pen, intersecting annotations and the automatic concatenation of interrupted annotation segments.
Please note: Due to the different import, the Action Library of 4.4.x cannot interpret an annotation imported with XML 2.1 (Tissue Studio version 4.3.1 and previous) and vice versa. Please import the images with the same version of Tissue Studio, with which you want to analyze the annotated images.

Allow Aperio Annotation import for the Registration Portal
Users can now import Aperio Annotations also for the master slide of their blocks in the Registration Portal. This annotation can then be transferred to the registered slides of the same block.

Possibility to switch off the multiple tissue detection
It is now possible to configure the Tissue Detection action to find only one tissue class (Tissue1) instead of multiple in those cases where the block contains several separated pieces of the same tissue. Activate the respective checkbox inside the Tissue Detection action to prevent the system to assign different classes to the sections.

Automatic export of density of cells or nuclei in the ROI statistics
The density of nuclei or cells in a specified area, defined as number/mm², is increasingly requested for statistics. We have added this important readout to the ROI statistics, so that automatically the density of nuclei or cells, including subclasses of cells, will be exported, depending on which action is present. The four actions triggering this export are: Nucleus Detection, Membranes and Cells, Cell Simulation and Cell Classification. The export will be triggered with or without the action "AddMargin".

Added column "ROI name" to the customized Object Statistic
It is now possible to export e.g. all cells in the project and distinguish those from different ROIs. The ROI class name is being exported for every object as an additional default column.

Fixes from previous Release Notes

TS-53 - Button View Layers does not react
The button is functional again in all situations.

32431 – An error may occur when opening a multipage TIFF image
No error anymore.

Updated results

Cell Simulation – dual stain

In former releases, a shape improvement has been performed in the action *Cell Simulation* for the cells simulated by "grow into stains" in dual BF stains, which caused the originally above-threshold stain intensity of the cytoplasm to appear lower and thus not fitting to the classification requirements anymore. We have now changed this behavior, so that no shape alteration is being done, which improves the consistence of the classification results. The shape of the cells might appear not as smooth anymore though, but the mean intensity is more correct now.

Please note, that the number of classified cells did not change, only the shape and area of respective cells.

Known Issues

Below you will find a list of the currently known issues for Tissue Studio 4.4.1 and possible solutions. In case of any questions, please do not hesitate to contact customer support.

TS-70 - Checked option "No eSlide Annotation writing" not upgraded correctly from solution 4.3.1 to 4.4

When upgrading a solution from 4.3.1 to 4.4, the option "No eSlide Annotation writing" might get unchecked if checked before.

Solution: Please review this setting after upgrading and if needed, recheck the option.

TS-162 - IF small images: no result displayed for TissueLevel

When analyzing small images, the review mode might not show the objects of the ROI detection. This is only affecting the display. The exports, including the ROI screenshots, are correctly done, so QC of the ROI detection can also be done via ROI Detection screenshots.

Solution: Please check the ROI screenshots for QC of the ROI Detection.

32462 – Problems with eSlide integration when using IE 10 or IE 11

When using Internet Explorer Version 10 or 11 with the Aperio eSlide integration, you may experience problems such as the absence of toolbars or failed import of data.

Solution: Use the Firefox browser version 47.

32460 – ROI detection only takes the first six fluorescence channels into account

Using the ROI detection for fluorescence images, the detection algorithm will use only the first six channels. Any additional channels in the dataset are ignored.

Solution: Use fluorescence images with a maximum of six layers for ROI detection. More layers can be used for the detailed analysis like cell or marker detection. Note that data export and visualization is possible for up to 12 channels.

36947 – BF ROI Correction: Tissue Map is displayed instead of ROI Map

When using Interrupt on Server with ROI Correction, in some cases the Tissue Map is displayed instead of the ROI Map.

Solution: Reopen the project.

XD-359 – Multipage tif driver ignores ".tiff" extension

The multipage tif driver does not open files with the extension ".tiff".

Solution: Rename the file from ".tiff" to ".tif" to open it with the multipage tif driver.

XD-186 – Shift in Aperio Annotations comparing ImageScope and Definiens products

For some versions of Aperio ImageScope (e.g. 12.3.0.5056, 12.3.1.6002), there is a shift in the annotations when viewed in ImageScope compared to Tissue Studio®. The shift is caused by ImageScope itself, the annotations are shifted at different magnification levels.

Solution: If you observe this issue, please downgrade your Aperio ImageScope version to build 12.1.0.5029.

XD-546 - Suspected Pixel shift

If in the Tissue Detection action, 2 separate Tissue classes are manually placed directly next to each other, the annotation lines will cause a slight area of unclassified tissue between the objects. In these cases, please take care, that when annotating the Tissue pieces, the lines do not touch.

Upgrade of Previous Installations

For the upgrade of your installation, please refer to our customer support.

After successful installation, you will be able to load solution files created with Tissue Studio 4.0 and above with Tissue Studio 4.4.2. If an old solution file is loaded, you may choose to enter a compatibility mode with the respective version. The compatibility mode makes sure that you get identical results when using the same solution. To exit the compatibility mode again and to use the current software version, press the button New Solution or load a solution that has been created with Definiens Tissue Studio 4.4.2.

> Please note that when upgrading your solution to the new version,
> results may change slightly requiring a new round of validation.

The driver for Zeiss *.czi files uses the Microsoft JPEG XR codec. This may require relevant Windows updates (e.g. update KB2670838) to be installed on the systems running Definiens software.

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