

Definiens

Definiens XD 2.7

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 Definiens XD

Definiens XD is a comprehensive image analysis platform for multi-dimensional image analysis. It contains all the client and server software needed to extract intelligence from any digital image in a fully automated or semi-automated way.

What's New

At Definiens, we constantly strive to improve our products. With this new release of Definiens XD, 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.

Removal of pixel shifts by driver resampling refactoring

For XD 2.7, all major image drivers have been refactored regarding resampling to remove any remaining pixel shift that was present when down- or upsampling image layers.

Full flexibility concerning annotations when using Aperio eSlide integration

With this new version of the software, you can now select which annotation import to use from the Aperio eSlide Definiens Launch dialog. Please refer to the User Guide (p. 263 ff.) for more information. Different annotation options were introduced in Developer XD 2.5 with the new Aperio Thematic Layer driver (xml 2.2).

New and enhanced algorithms improve development of image analysis solutions

- Use classifier configurations across projects by using the algorithm "Export/Import Binary Data Variable" to save and load the configurations (Reference Book p. 283 f.). Reset or initialize binary data variables using the extended algorithm "Update Variable" (Reference Book p. 84 ff.).
- Flexibly work with immunofluorescence image layers by renaming the imported layers using the algorithm "Assign Image Layer Alias" (Reference Book p. 86 f.).
- Given a set of posterior probabilities (e.g. from classifier trainings), compute the highest or lowest posterior value for each pixel using the algorithm "Create extremum pixel value image layers" (Reference Book p. 206 f.).

Removal of Image Proxy Server

As all major image formats are now provided with image pyramids for improved performance, the Image Proxy Server (IPS) is not required anymore and has been removed from the user interface. Please note that the "traffic light" for engine administration in the lower right corner of the user interface is still present and functional.

Upgrade of Previous Installations

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

We recommend testing all validated solutions on new software versions. Because of continuous improvements of our algorithms, 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.

Fixes from Previous Release Notes

The following issues mentioned in the Release Notes for version XD 2.6 have now been fixed for XD 2.7:

30436 – Filter2d - median may fail for input images of 32 bit float

Due to the underlying libraries used for this filter, the median operation may not work for 32 bit float image layers.

Please note that the filter is restricted to certain kernel sizes when working with non-8 bit images. An error message is shown that provides information on which kernel sizes are accepted.

32431 – An error may occur when opening a multipage TIFF image

When loading a multipage TIFF image into the software and first using the "All Files" connector, an error message will appear and the file cannot be opened.

35590 – Remaining pixel shift for export to/import from drc

In exceptional cases, a one-pixel shift might still be observed despite improvements in the resampling procedures.

37039 – Wrong resampling of thematic layer in copy map

When working with PerkinElmer *.qptiff images and using copy map to copy only the WSI images, the thematic layer is not correctly copied.

XD-121 – Incorrect behavior when renaming of variables in customized algorithm

In certain scenarios when variables in customized algorithms have been renamed, a processed project may not be opening.

Known Issues

Below you will find a list of the currently known issues for Developer XD 2.7 and possible solutions. In case of any questions, please do not hesitate to contact customer support.

XD-59 – Automated resubmission of job may lead to data inconsistency in drc during execution

In case of a resubmission of a job, data may be written twice to the same drc. Usually, these duplicates are cleaned after the job is finished. However, if the algorithm “compute statistical value from result container” is called in the rule set, the result reflects the intermediate, inconsistent content of the drc.

Solution: Make sure that the drc is deleted prior to writing to the drc to prevent this rare event from happening.

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 and Definiens Developer XD or Tissue Studio®. In 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.

36675/XD-194 – Layer normalization: No normalization for certain input layers

When Layer normalization is used, the input layer is only copied and not normalized if input layer is 32 bit signed, 16 bit signed or 32 bit float.

Solution: Use the algorithm “layer arithmetics” instead or convert input image to 8 bit input prior to using “layer normalization”.

XD-250 – Color conversion does not work bi-directional

After converting an RGB image to HSV (32 bit float) and modification of the result channels, the conversion back to RGB fails.

Solution: In case of an error, use the algorithm “layer arithmetics” with relevant formulas for a conversion back to RGB.

XD-258 – Algorithms “compute statistical value” and “classifier” include image objects twice in case of child and parent classes in class filter

If both parent and child classes of the class hierarchy are selected in the image object domain class filter, the algorithms “Compute statistical value” and “Classifier” will process the objects twice. This can lead to wrong statistics.

Solution: Please limit your choice in the image object domain to either child or parent classes, until this bug has been fixed.

XD-359 – Multipage tif driver ignores “.tiff” extension

Please rename the respectice file.

XD-333 – Inconsistency in merging image objects

It has been reported that on certain computers with limited memory, merging of image objects may not work as expected.

Solution: Contact Definiens support for solutions.

32462/XD-356 – 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: Contact Definiens customer support to learn which version of the Firefox browser works for the integration.

35655/XD-357 – Save view settings fails for 3D image

View settings are not stored for 3D images.

Solution: Please contact our customer support.

XD-358 – Create Modify Project: cannot add layer of a Multipage tiff image

The algorithm "create/modify project" currently cannot be used to add a layer of a multipage tiff image to an existing project.

Solution: Save layer of multipage tiff file to be added as single layer tiff and add the single layer tiff with "create/modify project".

36674/XD-361 – Layer normalization: output layer type is wrong

In certain scenarios when the bit depth of the input image is different from 8 bit, Layer normalization outputs an unexpected layer type (bit depth), which then fails in downstream applications.

Solution: Convert your image to 8 bit prior to layer normalization.

36789/XD-362 – Inaccurate feature value "Distance to Superobject Center"

When calculating the distance to superobject center, if the distance is small (in example ~20pxls), the output value is reported as zero which is not correct.

Solution: Please contact our customer support for assistance.

35656/XD-363 – Copy map fails for smooth source maps in integral mode

When copying a map using integral mode, and the map was originally copied with smooth resampling, an error occurs. It does not occur if the original map was generated with fast resampling.

Solution: Please contact our customer support for assistance.

XD-367 – Inconsistent DRC when data of a map with different geocoding information is exported

For QTIFF images, when exporting to the same DRC from maps with different resolutions, it was observed that objects were not written to the expected position but were shifted or scaled.

Solution: Please contact our customer support for assistance.

Updated Results

35590 – Remaining pixel shift for export to/import from drc

Remaining pixel shifts are now removed in XD 2.7. This may however lead to small deviations compared to previous results.

XD-72 – MSER improvements

The MSER algorithm has been re-implemented to not rely on 3rd party libraries with known limitations. This may however lead to small deviations compared to previous results.

XD-85 – Driver resampling

Remaining pixel shifts are now removed in XD 2.7. This may however lead to small deviations compared to previous results.

XD-118 – CZI layer is switched

For certain CZI images, the layer order was reversed (layer 1 shall have been layer 3 and vice versa). In case these images are imported into XD 2.7 and processed with an old rule set, the results may differ due to the now correct swapping of the layers.

XD-211 – Bugs in Import from result container

Several small bugs have been fixed in the algorithm "import from result container". The results are now improved but may lead to small deviations compared to previous results.

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