

Definiens

Definiens XD 2.0.4

Release Notes

DEEPER INSIGHTS
FASTER RESULTS
BETTER DECISIONS

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Definiens Documentation:

Definiens XD 2.0.4

Release Notes

Imprint

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Dear User,

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Thank you.

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Regulatory affairs

Under certain circumstances the solutions and applications developed using Definiens Developer XD may fall under specific regulations (e.g. medical device or IVD regulations) in your country. Please ensure that you check and follow local regulations before using or taking your solution or application into commerce. If you require specific data about Definiens Developer XD, please contact your dealer or our sales staff.

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1 Overview

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.

1.1 About Definiens XD 2.0.4

Definiens XD 2.0.4 is a recommended maintenance update for the Definiens platform. It contains fixes and enhancements that improve the performance, reliability and processing efficiency of the XD platform. It further improves the efficient usage of (disk space and memory) whilst processing which further improves production stability.

Definiens XD 2.0.4 also contains Definiens Tissue Studio® 3.5.1 which has a similar focus on reliability and efficient usage of resources. Please see Definiens Tissue Studio® 3.5.1 release notes for additional details of changes in this product.

Customers are advised to review these release notes before upgrading to Definiens XD 2.0.4. Please note that system requirements for XD 2.0.4 and Definiens Tissue Studio have been updated to reflect the requirements of customers to analyse images at increasing levels of detail.

Please contact support@definiens.com if you have any specific questions regarding this version, the upgrade process or modified system requirements.

1.2 Key Features

Definiens XD clients for application developers and end users

- Definiens Developer XD – the powerful development environment for biomedical image analysis
- Definiens Architect XD – the easy-to-use end-user application for running solutions
- Definiens Viewer XD – the free viewer for reviewing and sharing results

Definiens Server® XD

A scalable, server-based batch processing environment for multidimensional analysis of biomedical images.

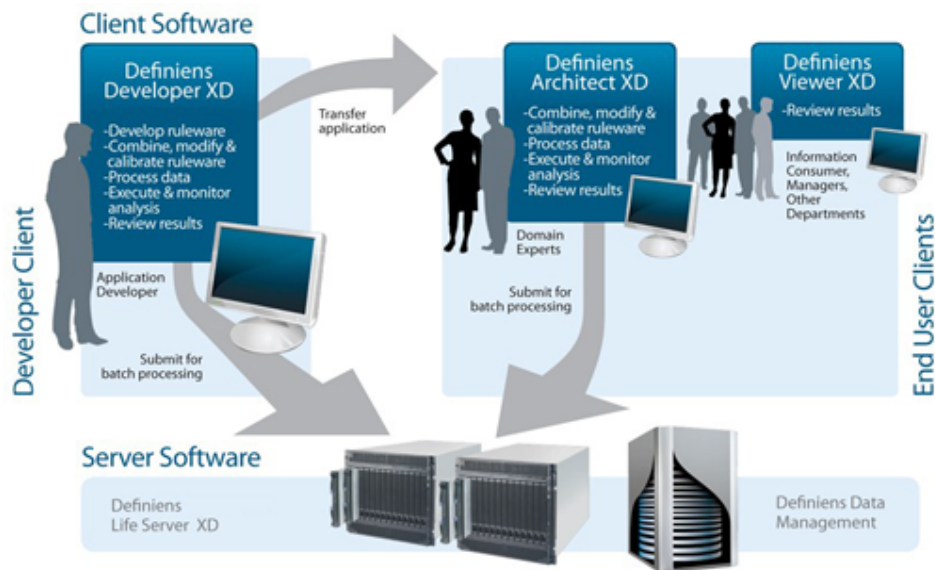


Figure 1.1. Definiens XD multi-dimensional image analysis software

Comprehensive multidimensional data import

- Generic import builder tool
- Multi-dimensional Data Model
- Support for comprehensive range of multi-dimensional image formats

High-Performance Analysis of Complex Multidimensional Data

- Definiens Cognition Network Technology® for XD
- Object-based pixel processing
- Multimap support and regions to support flexible analysis workflows including multi-magnification, registration and comparison workflows

Full Multidimensional Object Model

- 3D features and algorithms
- Object linking for time series support

Multidimensional Image Viewing

- Multi-planar projections (XY, YZ, ZX)
- Animations of time series data
- Comparison views of multiple images side by side
- Linked object selection and picking
- Independent or synchronized views

Sophisticated 3D Visualization

- Surface rendering of classified objects
- Rotation, zoom, class selection, transparency settings and export
- OpenGL hardware acceleration

Integrated Image Registration

- Rigid and elastic transformations
- Landmark and non-landmark based schemes
- Automated, semi-automated or manual landmark identification

Comprehensive SDK for Integration of XD Image Analysis into Existing Workflows or Applications

- Automation API
- Data IO API
- Engine API

1.3 Highlights

Improved Production Stability for Processing

- Definiens XD 2.0.4 includes many bug fixes and features that further improve processing reliability for higher resolution data.

Increased Efficiency of Memory and Disk Usage

- Definiens XD 2.0.4 includes bug fixes and features that improve the efficiency of the usage of Disk and Memory resources.

Usability Improvements

- Definiens XD 2.0.4 includes several usability improvements to improve user experience whilst using Definiens XD products. Including, a new submit analysis dialog with improved defaults and simple and advanced modes.

Please note: When using Windows 7 and Windows 2008 the default settings of the Windows firewall may prevent successful installation and usage. Please see the knowledge base article¹ for detailed information and an example script to update firewall configuration.

1. <https://definiens.zendesk.com/entries/225149-windows-2008-and-windows-7-firewall-configuration>

2 Features, Bug Fixes and Limitations

See [table 2.1](#) on this page, *New features in Definiens XD 2.0.4*.

2.1 New Features

Table 2.1. New features in Definiens XD 2.0.4

Category	Reference	Description
Algorithm	18374	Modified 'delete file' algorithm to also delete folder. Allowing the deletion of multiple files or folder via wildcards (e.g. workspacedir/result/*.csv).
Algorithm	19508	Algorithms: Delete scenes: Extend algorithm to add an option for the user to eliminate internal project files to save space if these are not required.
Algorithm	19725	Algorithm save/restore view setting: allow to store view settings in a variable.
Export	19570	Export object statistics: Keep report only option. The report files generated from 'export object statistics' are much easier to read and handle compared to the source files, that the report files are generated from. To reduce redundancy and disk consumption, an option to delete these files, once the report is generated is added.
Export	19762	Tiff exports can take a lot of space on the disk, added compression to object shapes tiff export to reduce space requirements.
Feature	19519	Create feature to calculate the mean stain intensities of objects if the stain layers are not present (e.g. because map is too large).
Import	19642	UNIC slide scanner added to supported connectors and drivers.

Continues...

Category	Reference	Description
Job Scheduler	19536	Export peak memory to Job Scheduler log-file to determine peak memory usage of a particular job.
Job Scheduler	19562	Job Scheduler: Remove virtual memory restriction for 64bit version (previous limit was 1.7 GB).
Usability	19702	The option Add on run is set by default and the last used settings are stored for the user.
Usability	19641	The Submit Analysis Dialog was simplified in 2.0.3. However, some of the advanced options of previous versions were only available on a separate dialog which was sometimes confusing. A new harmonized dialog is available that provides access to all features, but by default hides the advanced options.
Usability	19681	Open dialog remembers the sorting configuration
Import	19075	Added import template and connector for UNIC files

2.2 Bug Fixes

See [table 2.2](#) on the current page, *Bugs Fixed in Definiens XD 2.0.4*.

Table 2.2. Bugs Fixed in Definiens XD 2.0.4

Category	Reference	Description
Algorithm	19573	Delete scenes: recursive deletion of .dprs. Subsets and tiles are correctly deleted from the workspace but the .dpr files of the tiles are not deleted as expected.
Aperio Spectrum	19752	Not possible to select Definiens processing form the list of macros in Spectrum when using Internet explorer due to TSReg.dll cannot be registered.
Clients	19560	Solutions stored on “”Desktop” are not displayed.
Clients	19658	Performance: Report Failed: Could not open attribute file (.csv) when file is >4GB.
Customized Algorithms	19514	No customized algorithms should be saved with the projects if processing with “”Analyst” setting as this adds to the size of the dpr files significantly.
Developer	19717	Local engines may hang on shutdown of the client preventing restart of engines.

Continues...

Category	Reference	Description
Export	19724	Processing fails at screenshot export for 32bit when screenshots exceed 1M pixels.
features	19606	Cached feature values do not work in all cases.
GRID	19412	Engine may fail to start because of missing Microsoft.VC80.MFCLOC on some hosts.
Image Proxy Server	19624	Mirax and Aperio drivers should not use Image Proxy Server.
Image Proxy Server	19714	Image Proxy Server should be disabled for UNIC slides as the can cause processing failures.
Import	19098	Processed UNIC image with 64 Bit creates rectangles using Multi-Resolution segmentation.
Import	19104	The Pan Window shows incorrect view on processed UNIC slides for both 32 & 64 Bit
Import	19535	Olympus images create cache filese instead of using the internal pyramids.
Import	19672	Store subset in own file function is not working for UNIC and APERIO images
Import	19705	UNIC images can't be opened if external Image Proxy Server is active
Installation	19446	GRID 64 Bit: naming of the installation path on Worker node and Head nodes are not the same.
Installation	19757	Definiens GRID: Not possible to install Worker Nodes: dia_install.exe is missing in the installation of head node
Job Scheduler	19458	Job Scheduler can get very slow and consumes up to 100% CPU due to larger than necessary job nodes of 50 MB each.
Job Scheduler	19665	Linux: In Jobscheduler the Show Log option and Logs for Engines are not visible
Job Scheduler	19713	Job Scheduler may crash when clicking on engines log in the administration console.
SDK	19568	Cmd Clients for Linux 32 64 Bit not available.
SDK	19663	Linux: CmdClient throw error about missing RDIDriver
SDK	19745	Linux: CmdClient 64 Bit isn't able to send a job to Linux GRID

Continues...

Category	Reference	Description
Submit Analysis	19737	Submit Analysis: First run of a new workspace with DPR-Developer no rule set is displayed in the processed project.
Tissue Studio	19498	OVR files are created and read by import folders
Tissue Studio	19649	TMA detect cores not detecting cores in Tissue Studio for some IF slides in a workspace.
Tissue Studio	19759	Link to Job Scheduler page wrong in Tissue Studio installations

2.3 Known Issues and Limitations

Local Engines Switching OS User Accounts Without Stopping Engines

If a user switches users with engines already started, these engines may not be available to other users. When switching users it is necessary to stop the engines first to avoid this problem.

Maximum 10,000 Thumbnails Created for a Workspace.

The maximum number of thumbnails that will be created for a workspace is 10,000. Workspaces with greater than 10,000 images are supported, but only 10,000 thumbnails will be created.

Image Proxy Server (IPS) Cache for Large Images (> 2³²–1 bytes) Created with XD 1.5 IPS

A bug has been corrected with the Image Proxy Server (1.5) that affects the image statistics calculation for large images. In XD 1.5 this may have resulted in different results when comparing the analysis of images, with and without the IPS. The new version of the IPS will create the correct image statistics.

Any existing cache created by the IPS for these images (1.5) will have the old incorrect image statistics and therefore may produce different results. If you wish to re-analyze existing cached slides and produce the new (corrected) results, it will be necessary to remove the previous slides from the cache. Please contact support@definien.com for specific advice regarding this topic.

Red Hat Enterprise Linux 5 64-bit – libungif Package Dependency for 32-bit Edition

Users who install the 32-bit server edition (or 32-bit package) on Red Hat 5 x64 should note that libungif is a required package.

Post-processing on TMA workspaces

Users who would like to apply a post-processing rule set to TMA cores should submit the individual cores for post-processing. Post-processing will fail if the whole slide is submitted. In this case the post processing will analyze the cores ignoring the existing results.

2.4 Errata

None

3 Additional Information

For additional information please contact support@definiens.com

3.1 Upgrading to Definiens XD 2.0.x from Previous Versions of XD

Upgrading Definiens Client Products

You may choose to install updated versions of the client software alongside previous versions. This includes both 32-bit and 64-bit editions. During installation, please name the folder and program menu to distinguish clearly between different versions and editions. If you wish to install multiple XD 2.0 clients, please ensure you set the local server service to start manually. This will allow you, if you are using the local server, to control which version of the local server you are using.

Upgrading Definiens Server XD

You are recommended to update your GRID to XD 2.0.x, as there are some optimizations to the Job Scheduler and the Administration Console (log file reporting) designed to make your environment easier to manage and support. You are required to update your GRID if you wish to deploy Definiens Image Miner™ Server on your existing GRID.

Please ensure that you make backups of any required data files prior to upgrading.

- jobscheduler.dat (job history)
- Admin Console Database (GRID setup and configuration – in folder AdminConsoleData)
- Any modified configuration files with custom settings (advanced)

Please note, previous installations should be removed, as installing multiple versions of the GRID on the same computer will cause processing problems. You may also not install 32-bit and 64-bit Definiens Server XD side-by-side, however you may upload both 32-bit and 64-bit packages to your server.

For a full discussion of interoperability between 32-bit and 64-bit editions please see [FAQ – Definiens XD 2.0 64-bit](#).

Image Proxy Server

Image Proxy Server ports have been consolidated to avoid confusing messages for users about previous versions. The default port for a central Image Proxy Server has also been changed and is now 8388.

Please contact support@definiens.com if you have a centralized Image Proxy Server setup; we will be happy to guide you through any necessary configuration changes.

3.2 Further Information

For detailed information regarding the new capabilities of Definiens XD products, please refer to the respective user guides. These also contain difference between XD and the 2D product range to assist with planning upgrades.

As with all updates, please consult the System Requirements documentation. Users wishing to take advantage of 64-bit editions may wish to upgrade the available memory for clients and servers.

Acknowledgments

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