Imaris 9.3 -10.0

Considerations in a multiuser environment

Contents

Setup for multiple users

Imaris uses the management of the operating system and does not add one on top of it. That means to separate data and settings between users please assign them individual operating system user accounts.

1. Preferences

All Settings at ‚File – Preferences' are user specific.
The machine wide settings can be set at ‚Help – License – Configurator'

1.1. ‚File – Preferences'

Here the user currently logged into the operating system make his own settings.
All Settings editable at ‚File – Preferences' are user specific. Gray input fields mean the setting was locked be the administrator of the machine. Please see chapter 1.2 Configurator

1.1.1. Display

Cache Limit: Set it to the physical RAM of your graphic card. The automatic detection of the physical RAM does not always work, so you may double check it. If you have very little graphics RAM (4 GB) It may help assign more than the physical RAM e.g., for faster browsing through time series but not more than 16 GB.

1.1.2. Calculation

1.1.2.1. Calculation – Number of Threads

Please stick to the default. Altering the default number of Threads will always give same or worth performance.

1.1.2.2. History

This is the number on undo steps possible. The default of 4 is a compromise between usability and amount of data to be cached. For the undo of image processing the complete voxel data must be copied. So, if you work with large datasets reducing it to 1 will use much less resources.

1.1.2.3. Data Cache Memory Limit

Set it to approximately 50% to 75% of your physical main processor RAM. The default of 50% is usually fine. Higher values are only safe if you do not create any objects. If Imaris needs more RAM, it will write to the 'Cache File Paths'.
You will see memory usage by Imaris higher than the set limit since not all data can be saved to disc by Imaris.

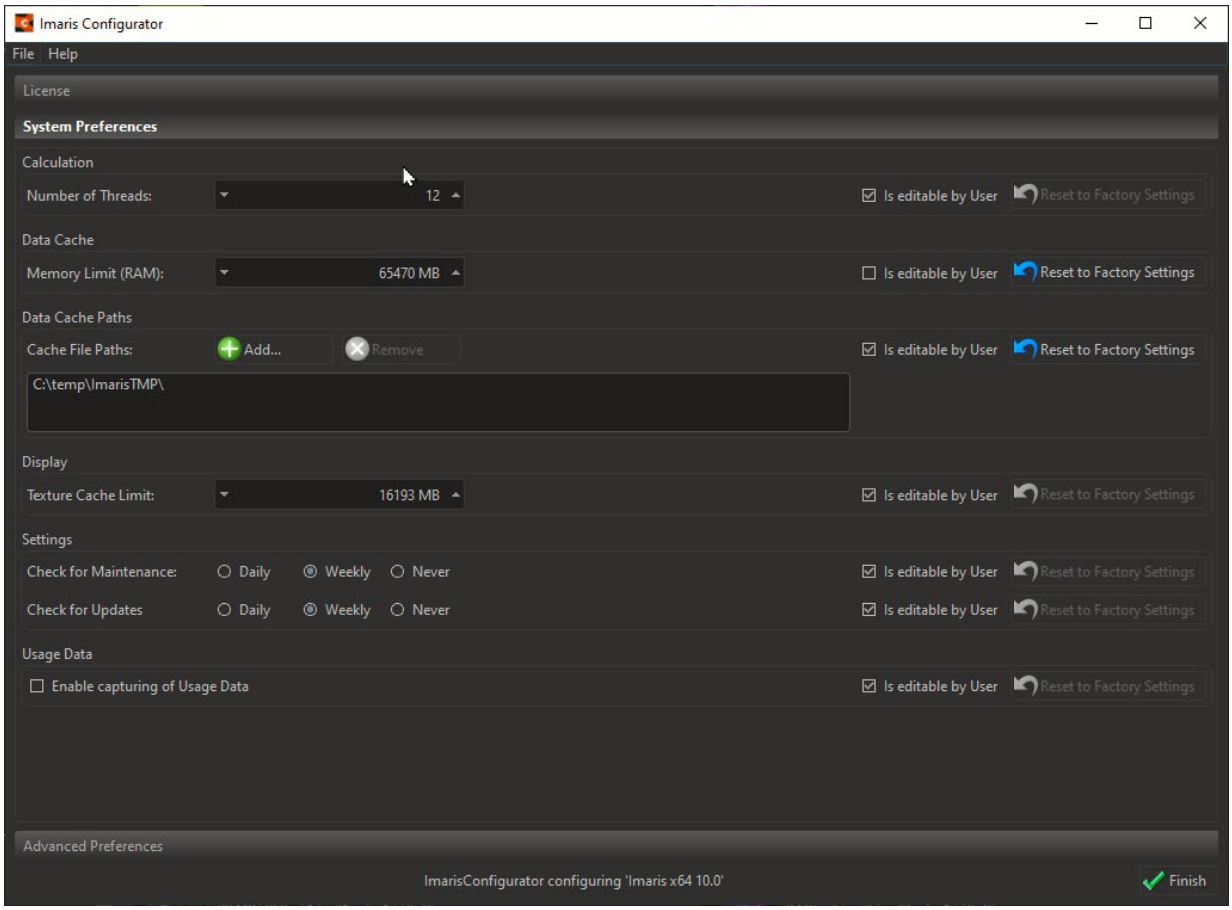
1.1.3. Cache File Paths:

This is the place Imaris will write temporary files to remove the data from RAM. Most important is to have sufficient storage space. Imaris will crash if it runs out of space there.
It defaults to the Windows TMP directory of the respective user which is for most installation on drive C: which is maybe small, so you most likely like to change it. However please note that in case users work on confidential data you maybe do not want to redirect it to a directory other have access to.

The new target directory should exclusively be used for Imaris TMP files. After a crash the files will be automatically wiped at the next start of Imaris.
If you have SSD(s) with sufficient free space for 10 times the uncompressed size of your dataset, use it as a target. SSDs will increase speed noticeable when there is too little RAM in the machine.
The uncompressed size of the dataset you can see at: 'Surpass - Edit - Image Properties - Geometry - Image size'
Instead of SSD(s) you can use multiple hard drives in parallel. It will improve the performance of Imaris to specify more than one cache path. Please be aware that if multiple drives are entered the one with the least free space will limit the usable space on the others as well. It is also good to avoid temp file path on the system drive because the Windows caching could clash with the Imaris caching.

1.2. Configurator

Administrator rights are needed to open it at ‚Help – License – Configurator'
Settings which may make sense to set machine wide for all users you can find on the 'System Preferences' tab.



If ‚Is editable by User' is active the setting will be the default for user which start Imaris the first time after the setting is done but they are allowed to overwrite it. However, users which used Imaris before the change already will not see the settings made in Configurator if 'Is editable by User' is active.
If ‚Is editable by User' is **removed** the setting is forced to all users, no matter when the setting was done in Configurator. Further they will be not able to change the setting.

1.2.1. System Preferences

1.2.1.1. Calculation – Number of Threads

Recommended to be locked by the administrator. Please stick to the default. Altering the default number of Threads will always give same or worth performance.

1.2.1.2. Memory Limit

Recommended to be locked in most cases. Change of the settings might be use full for very advanced users.
Set it to approximately 50% to 75% of your physical main processor RAM. The default is usually fine. Higher values are only safe if you do not create any objects. If Imaris needs more RAM it will write to the 'Cache File Paths'.
You will see memory usage by Imaris higher than the set limit since not all data can be saved to disc by Imaris.

1.2.1.3. Cache File Paths:

Recommended to be locked in most cases. Change of the settings thoughtfully made by the Administrator might be useful for very advanced users only.
This is the place Imaris will write temporary files to remove the data from RAM. Most important is to have sufficient storage space. Imaris will crash if it runs out of space there.
It defaults to the Windows TMP directory of the respective user which is for most installation on drive C: which is maybe small, so you most likely like to change it. However please note that in case users work on confidential data the TMP files will be written to a place all users will need to have access if you set it here.
The new target directory should exclusively be used for Imaris TMP files. After a crash the files will be automatically wiped at the next start of Imaris.
If you have SSD(s) with sufficient free space for 10 times the uncompressed size of your dataset, use it as a target. SSDs will increase speed noticeable when there is too little RAM in the machine.
The uncompressed size of the dataset you can see at: 'Surpass - Edit - Image Properties - Geometry - Image size'.
Instead of SSD(s) you can use multiple hard drives in parallel. It will improve the performance of Imaris to specify more than one cache path. Please be aware that if multiple drives are entered the one with the least free space will limit the usable space on the others as well. It is also good to avoid temp file path on the system drive because the Windows caching could clash with the Imaris caching.

1.2.1.4. Display

Recommended to be locked in most cases. Change of the settings might be use full for very advanced users.
Texture Cache Limit: Set it to the physical RAM of your graphic card. The automatic detection of the physical RAM does not always work, so you may double check it. If you have very little graphics RAM (4

GB) It may help assign more than the physical RAM e.g., for faster browsing through time series but not more than 16 GB.

1.2.2. Advanced Preferences

Please be careful when changing settings in Advances Preferences. This is the complete number of settings including many not meant to be changed by customers. The wrong changes can lead to unexpected behaviour where crashes might be only among the smaller problems.

1.2.2.1. Fiji Path

The connection to Fiji and the version which is used got a higher importance in the last releases. You might like to force users to use a Fiji specifically with plugins especially for Imaris.
Specify the path to the ImageJ-win64.exe at 'CustomTools – FijiPath'

1.2.2.2. Internet Time Out

If Imaris takes long to start since it has problems reaching the Internet, you may try to set 'Settings-InternetTimeout' to 0.0.

2. Data Management Arena

The import of microscope data as well opening images in IMS format is done with Arena. Thumbnails Batch procedures and more is saved to the directory of the image data.

2.3. Access Rights

Imaris does use the read and write access rights of the operating system in Arena.
That means:

- Write access by the user to the folders monitored by Arena is needed.
- The user will have the same rights in Arena like he has in the file browser of the operating system e.g., on Windows Explorer.

Each user can setup individually which folders are visible in his Arena ‚Arena – Observer Folders' but cannot make the folders or files private there.

2.4. Storage Location

The initial folder of Arena (Imaris Demo Images) defaults to the home directory of the user account. This might not be the ideal place so please consider to advice users to us 'Observer Folder' button to create a link to the desired storage location(s).
It is recommended to choose a local path on the machine at least for datasets currently in use. Imaris accesses the opened .IMS file regularly to load parts of the dataset on demand when browsing the dataset or computing. If you have the data on a slow HDD or much worth on a remote data storage this will slow down Imaris very notable when working with larger datasets or having lots of objects.

3. Application Server

Imaris License Type

Nodelocked licenses will not work. Instead, a floating license server must be purchased and set up. The license server software can be placed on a Imaris machine itself or another machine. If the license server software is installed on a Imaris machine, please be aware that very high load of Imaris can lead to an unresponsive server. A dedicated server running 24/7 is recommended.

Graphic Boards

No problems are reported for the professional lines of NVIDIA graphic cards. Do not use the small ones which are for multi monitor setups but not 3D rendering.
NVIDIA Gaming boards will normally not work.

3.5. One Windows server instance for multiple users.

A popular example for this are the Aquiver HIVE systems.

3.5.1. ImarisXT

A bottle neck is the ImarisXT interface. It allows only one user at a time to push data through so if multiple users like to use XTensions at the same time it gets extremely slow. One XTension which breaks can block it for all users.

3.6. Each user gets its own virtual machine.

Imaris on virtual machine is not supported. We cannot really help with setup and if there are problems. However, several customers use e.g., NVIDIA GRID setups.