

Fraxinus release notes

v22.04

New Features

Key	Summary	Release Note
FX-72	Create simple DICOM import	New improved and simpler DICOM import
FX-77	Add route to target info to virtual bronchoscopy widget	Added info about total route-to-target length and remaining length.
FX-78	More realistic VB airways	More realistic virtual bronchoscopy airways.
FX-79	Automatic rotation in VB	Made automatic rotation of camera in virtual bronchoscopy. Still possible to use manual rotation.
FX-83	Implement ML segmentation in Fraxinus	Implemented automatic segmentation of lungs, lymph nodes, lesions, blood vessels, esophagus and spine in Fraxinus using AI methods. User can specify which segments to extract and visualize.
FX-84	New VB setup in Fraxinus	New setup of windows for virtual bronchoscopy in Fraxinus. Now three different view setups can be selected in top menu.
FX-86	Navigation in Fraxinus	Implemented workflows in Fraxinus for control of NDI tracking system, registration and navigation.
FX-88	Airways color variation	Instead of a fixed single color, the airways have a variation of colors based on a normal distribution around a color. Filtering is applied for smoothing.
FX-89	Virtual camera calibration	Simple calibration of virtual camera to match orientation of the real bronchoscopy camera. Used after tracking sensor is attached to bronchoscopy tip.
FX-90	pyFAST for airway segmentation	Airway segmentation now uses pyFAST instead of FAST

[10 issues](#)

v18.10

New Features

Key	Summary	Release Note
FX-53	Include AirwaysFromCenterline visualization	<p>The new method AirwaysFromCenterline in Fraxinus creates an artificial airway mesh for virtual bronchoscopy. The method replaces the previous method that created straight tubes of fixed diameter.</p> <p>The artificial airways are created around a smoothed version of the airways centreline from the original CT dataset. Branch diameter is based on branch generation and Weibel's model. The peripheral branches is visualized with an unrealistic large diameter (4 mm) to allow virtual bronchoscopy.</p> <p>On request from the clinicians, we will keep the original tubes from airway segmentation as an option to view, as they may contain details regarding anatomical abnormalities that the artificial tubes neglect.</p>
FX-56	Print target and route information to file	<p>This is a update for the Fraxinus study, where it is necessary to collect information about target and route-to-target (RTT). When a target is selected in Fraxinus a file file is generated containing:</p> <p>Target position, number of generations of branches in RTT, Trachea length, RTT length along centerline from Carina, RTT length along centerline from Carina including path from nearest centerline to target position (RTT_EXT).</p> <p>The filename contains time and date.</p>

[2 issues](#)

Bugfixes

Key	Summary	Release Note
FX-41	Derived application's Windows installer is named CustusX	Any derived applications of CustusX will now have their name and installation path displayed correctly in the Windows installer.

1 issue

Known issues

Key	Summary	Environment
FX-51	Freeze on Windows laptops when changing layouts	<p>There is a problem on Windows laptops when running with a graphics card. When changing layouts (or indirectly, by changing workflow steps) many times, the program might eventually freeze or crash. A workaround to this is to use the settings on the computer to force the program to run with the integrated graphics card.</p> <p>E.g. for a laptop with a NVIDIA graphics card: open the NVIDIA control panel from the NVIDIA settings icon in the lower right on the task bar. Go to the Manage 3D settings -> Program settings. Add the Fraxinus.exe from your installation and select Integrated graphics.</p> <p>Still, when running with the integrated card, the memory usage of the program might become very high. One can use the Windows task manager to monitor this. The recommended practice is to close Fraxinus after each session to release the memory.</p>
FX-32	Handle Lung sack segmentation on Mac and Windows laptops	Lung sack segmentation might crash on Mac. Also, to use it on Windows laptops, one must set the program to use the integrated graphics card as explained in FX-51 .

2 issues

v17.12

New Features

Key	Summary	Release Note
CX-172	Route-to-Target plugin: Extend route	Current route-to-target (RTT) terminates at the airway centerline position closest to the target. It is necessary to extend the route to the exact target position. The old RTT line should be kept as it is, and another extended line should be created. This line will be used as input to the Accusurf plugin.
CX-271	Update camera focus in virtual bronchoscopy	Update camera focus distance from 0.1% of route-to-target length to 0.05%. This is to avoid the camera to make too sharp turns and point into the wall of the airways.
FX-20	Easier DICOM import	Added icons, improved button and help text and hid several actions to make the DICOM importer easier to use.
FX-21	Edit views	Have slightly updated which objects which are visible in different steps. We also reset the window width and level which we get from the Dicom before setting transfer functions, to get better transfer functions in 3D.
FX-22	Set manual seed point in airways segmentation	It is now possible to manually select the seed point for the airways segmentation algorithm. This can help if the automatically selected seed point doesn't succeed.
FX-23	Lung sack segmentation	It is now possible to segment the lung sacks in the airways segmentation filter. However, this might not work very well on Mac.
FX-38	Option to hide the File menu bar	Added an option in the settings file to hide the File menu bar.
FX-39	Fraxinus User Manual	A user manual for Fraxinus has been added. It can be accessed in the first workflow step and from the question mark on the top of the window. The content specific for Fraxinus is at the root of the documentation.

FX-42	Transparent straight tubes	To give the user another way to view the airways, the possibility to switch between the volume and transparent, straight tubes has been added to the Fly through view. The tubes are built around what would be the center line if it had straight lines between airways' branching points.
FX-45	Display the distance to the target	A distance metric showing the direct distance from the endoscope to the target has been added to the 3D cut planes view.
FX-46	Increase side vision angle and add reset camera button.	Increased the side view angle to 60 degrees and added a reset endoscope button.
FX-48	New icon	Fraxinus got a new icon.

12 issues

Bugfixes

Key	Summary	Release Note
CX-268	Route-to-Target: Improve smoothing	The route to target line has been improved.
CX-270	Fraxinus: Change route to target VB path	Change default route to target path from *_Target_ext to *_Target. Should not navigate VB camera all the way to the target, outside the airways. Visualize both *_Target_ext and *_Target in VB 3D view. *_Target should be on top.
CX-305	Objects don't show with high zoom	Solved a situation in certain cases, where zooming in very much would make objects such as metrics disappear in the 3D scene.
FX-1	Creating new patient when having an existing goes to wrong workflow step	Fixed
FX-2	Fraxinus pinpoint workflow only shows 3D scene	Fixed
FX-9	Fraxinus crashes on Linux	Fraxinus now compiles and runs on Ubuntu 14 and 16.
FX-12	2D CT Abdominal transfer function was wrong	Have edited the values of the 2D CT Abdominal transfer function.
FX-14	Icon is missing on Windows	Added the Fraxinus icon to the .exe file on Windows.
FX-15	Camera in Fraxinus VB is sometimes incorrectly placed	Fixed a problem with the camera positioning upon entering the Fly Through workflow step.
FX-18	Arrow controls in VB widget loose focus	The arrows now control the camera in the fly through view all the time.
FX-19	Airway segmentation does not work on windows	Fraxinus has now been verified to work on Windows 10.
FX-24	Renaming the target triggers route to target	Fixed a problem with the target name field, which would trigger the set target action if edited.
FX-25	Not possible to set new target on a loaded patient	It is now possible to load a patient and set a new target point.
FX-28	Several bugs in Airway segmentation on Mac	Airway segmentation now works on Mac. Tested on OSX 10.11.
FX-29	Crash when running airways seg. without a patient	If you imported a volume in Fraxinus outside of the normal workflow, you would get a crash due to not everything being ready for the automatics in Fraxinus. The crash has been fixed, but one should still use the normal workflow to make sure that everything is initialized as it should be.
FX-31	Inncorrect Zoom after running RTT	Running route to target the second time could give wrong zoom. Now it is zoomed in as it should be.
FX-35	RTT not working for #target > 9	Setting the target more than 9 times in a patient didn't work. This has been fixed.

FX-37	The installer fails on new Windows machines	Fixed a problem with the installer for Windows.
FX-47	Crash when setting target without moving the target	Fixed a crash when going back to the pinpoint step from the fly through step without moving the slider, and pressing set target without moving the target.

19 issues

Known issues

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FX-32	Handle Lung sack segmentation on Mac and Windows laptops	Lung sack segmentation might crash on Mac. Also, to use it on Windows laptops, one must set the program to use the integrated graphics card as explained in FX-64 .

2 issues