

QAngioOCT Research Edition 1.0

Quick Manual for QAngioOCT RE

Document Version: v1

December 20, 2013

QAngioOCT RE v1.0 was developed to work with the 3D QCA generated by QAngio XA 3D RE and the OCT pullback in DICOM format exported **without** the longitudinal view.

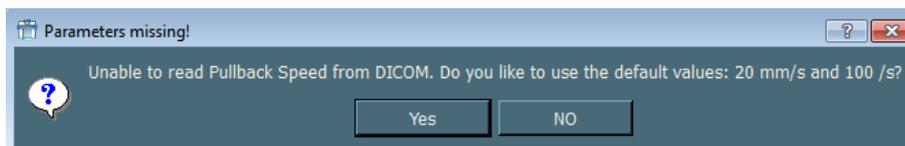
QAngioOCT RE can be launched by clicking the button “Fuse OCT” in QAngio XA 3D RE after the 3D angiographic reconstruction, as indicated by the figure below. The 3D QCA result will be automatically transferred to QAngioOCT RE. It can also be launched directly by clicking the Windows Start menu (All programs → QAngioOCT). In the later case, the 3D QCA result can be loaded in QAngioOCT by an extra step: go to “Setting” page in QAngioOCT RE and click “Set angio path”, select the folder where the 3D QCA result was saved. After that, the 3D angiographic reconstruction will be loaded and you can see the 3D angiography in the “Fusion” page.



After the 3D QCA result is loaded in QAngioOCT RE, you can perform the following analyses:

1) Co-registration of OCT and 3D QCA

Click the “Browse” button in the “Fusion” page and select the OCT DICOM file. If the OCT pullback speed or frame rate is not stored in the OCT DICOM file, a pop-up window will appear as below:



If the OCT pullback was performed using 20 mm/sec and the frame rate was 100 frames/sec, you click “Yes” and QAngioOCT will reconstruct the longitudinal view automatically. Otherwise, you click “No” and manually type in the correct pullback speed and frame rate in the top left panel, following by manually clicking the “L-View” button to reconstruct the longitudinal view.

You can change the longitudinal view by clicking on the OCT transversal view next to the angiographic images with your left mouse. To perform co-registration, you need to move the red angiographic marker and the red OCT marker to the same anatomical position, e.g., sidebranch. The figure below shows an example.



Click the “Register” button and all markers in the angiographic views and in the OCT longitudinal view will be synchronized. If the co-registration is not correct since you did not put the two red markers at the same anatomical position, you can click the “Reset” button and register again after setting the correct position. There are three markers being superimposed on the angiographic views and their initial positions will be set to the same positions corresponding to the lesion assessed by QAngio XA 3D RE: the two green markers are set to the lesion borders while the red marker is set to the MLD position. The figure below shows an example.



Note: You can drag the red marker on either the 2D angiographic views or on the OCT longitudinal view. However, you cannot drag the green markers. This can be done by changing the slider below the OCT longitudinal view, or by scrolling the mouse wheel on the OCT view, e.g. the proximal green marker position will be changed if you move your mouse to the proximal OCT transversal view and scroll the middle wheel.

After the green markers are positioned to the landing zones, click the “OCT Quantify” button will delineate the three OCT transversal images. If the contour is not following the lumen edge, you can modify the contour by pressing the “Shift” key while clicking on the lumen edge with the left

mouse. This will create a blue point on the position you click. After you release the “Shift” key, the contour will be updated. When the lumen contours are properly delineated, you can compare the OCT lumen size to the 3D QCA lumen size by clicking the “StentView1” or “StentView2” at the bottom.

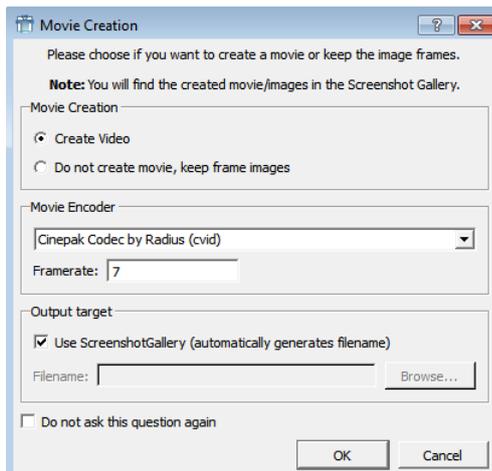
2) 3D OCT and fly-through

Click the “Render” button on the “3D OCT” page will reconstruct the 3D OCT image. There are 7 color mapping styles and you can use them to create different visualizations effects. At the bottom you can change the slides in the “SubVolume” group to clip the 3D OCT image. It also supports automatic and manual fly-through, as showed in the figure below. You can also change the fly-through direction by click the “Flip direction” below the 3D OCT view.



Note: Move the mouse up-and-down on the 3D OCT view while pressing the “Ctrl” key and the mouse wheel, you can zoom in/out the 3D OCT image. Move the mouse on the 3D OCT view while pressing the “Shift” key and the mouse wheel, you can pan/shift the 3D OCT image.

Note: You can create a movie recording the 3D OCT fly-through. Move the mouse on the 3D OCT view and press “F9” key, you will see that the mouse icon changes into a movie icon. Perform the fly-through and press “F10” key, you can see a pop-up window as the figure below. Click “OK” and go to the “Movies” page at bottom. You can see the thumbnail of the movie created. It might **take a while** before the movie appears in the “Movies” page. The movie is also stored to the same folder as your OCT DICOM file.



3) Cut plane sidebranch analysis

QAngioOCT can analyze the sidebranch ostium using the main vessel OCT pullback. To do this, select the checkbox “Cut plane” below the OCT longitudinal view. The right angiographic view will be replaced by the OCT cut plane view. The position of the cut plane can be manipulated by changing the white point at the OCT views, while the angulation can be manipulated by changing the L_Angle and T_Angle, as demonstrated by the figure below. The cut plane is also visualized in 3D to verify the correct angulation. To measure the vessel size of the sidebranch ostium on the cut plane view, you can use caliper measurement (press “Ctrl” key and draw line with left mouse). You can also draw the contour on the cut plane view using the left mouse (the area will be shown as “Plane Area” below the “OCT quantify” button) and click the “OCT quantify” button to obtain the short and long diameters. Click the “Clear” button will remove the diameters and contour on the cut plane view.

