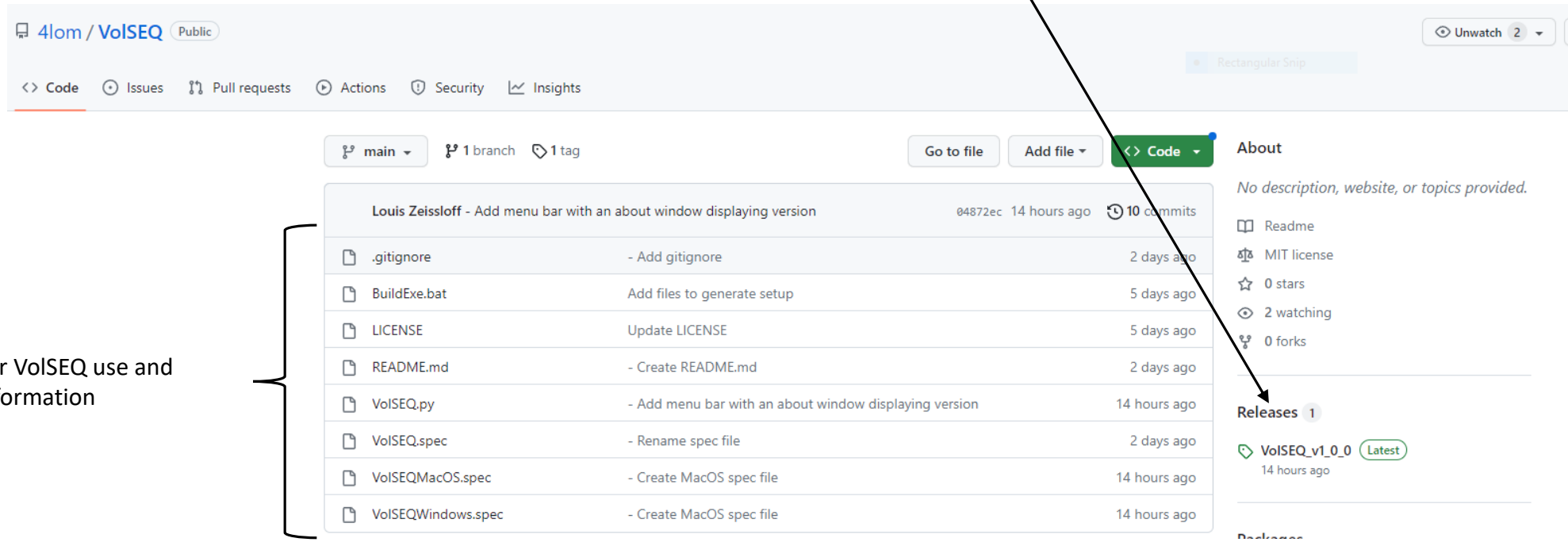
VolSEQ user manual

Version 1.0.0 (2023)

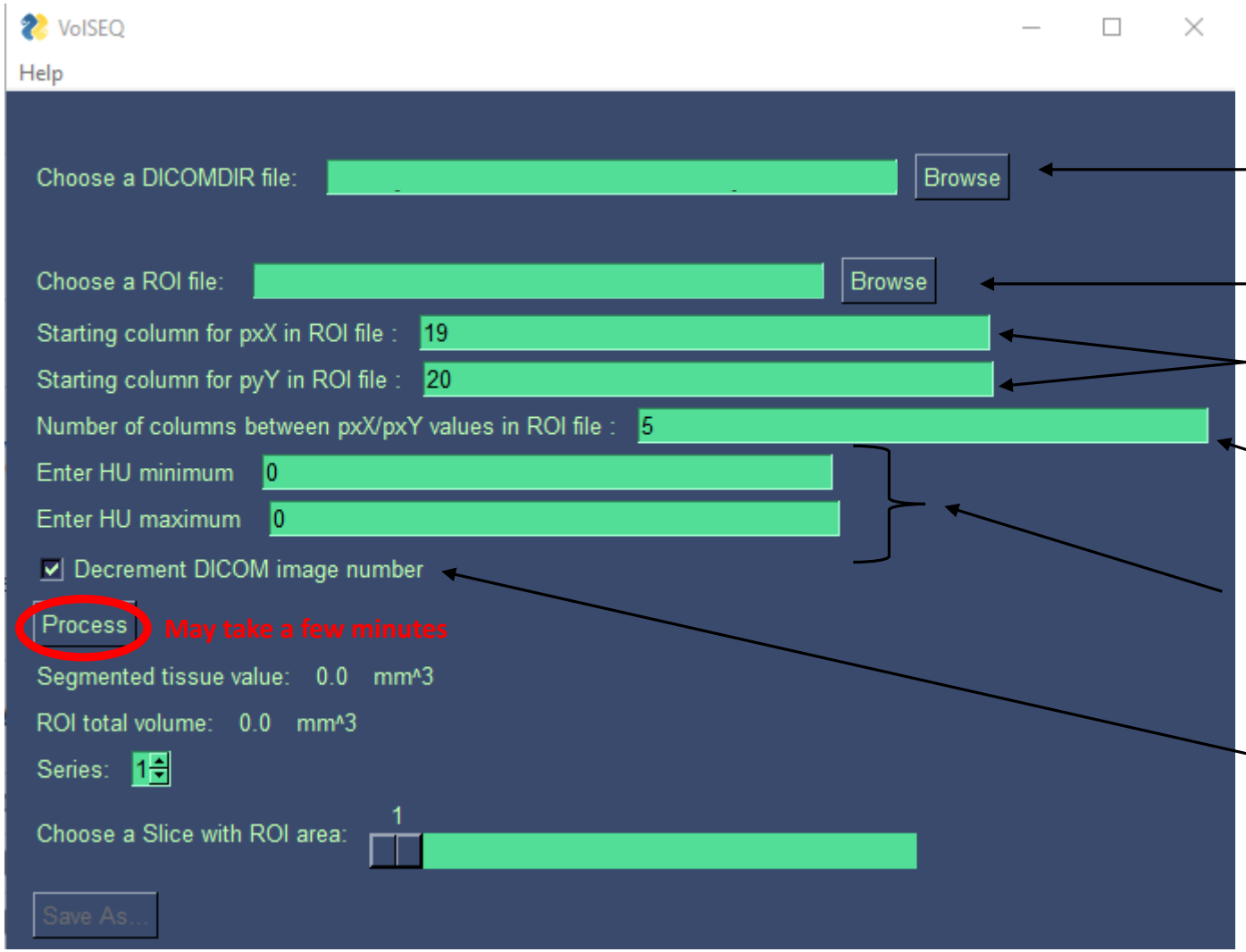
Installation

1. Download link:→ https://github.com/4lom/VolSEQ/releases/tag/v1_0_0
2. Or via https://github.com/4lom/VolSEQ → releases → VolSEQv1_0_0.zip
3. Install using VolSEQ.exe (win32) or VolSEQ.spec (macOS) file

Accessible files for VolSEQ use and further information



Interface: how to use it?



Choose DICOMDIR file. **Note:** The file MUST be grouped with corresponding DICOM files (same folder)

Upload ROI file as a csv file

Input column number for 1st pxX and pxY value. **See further information on page 4.**

Number of columns between each pxX value in csv file. **See further information on page 4.**

For tissue type that is to be segmented enter HU values manually

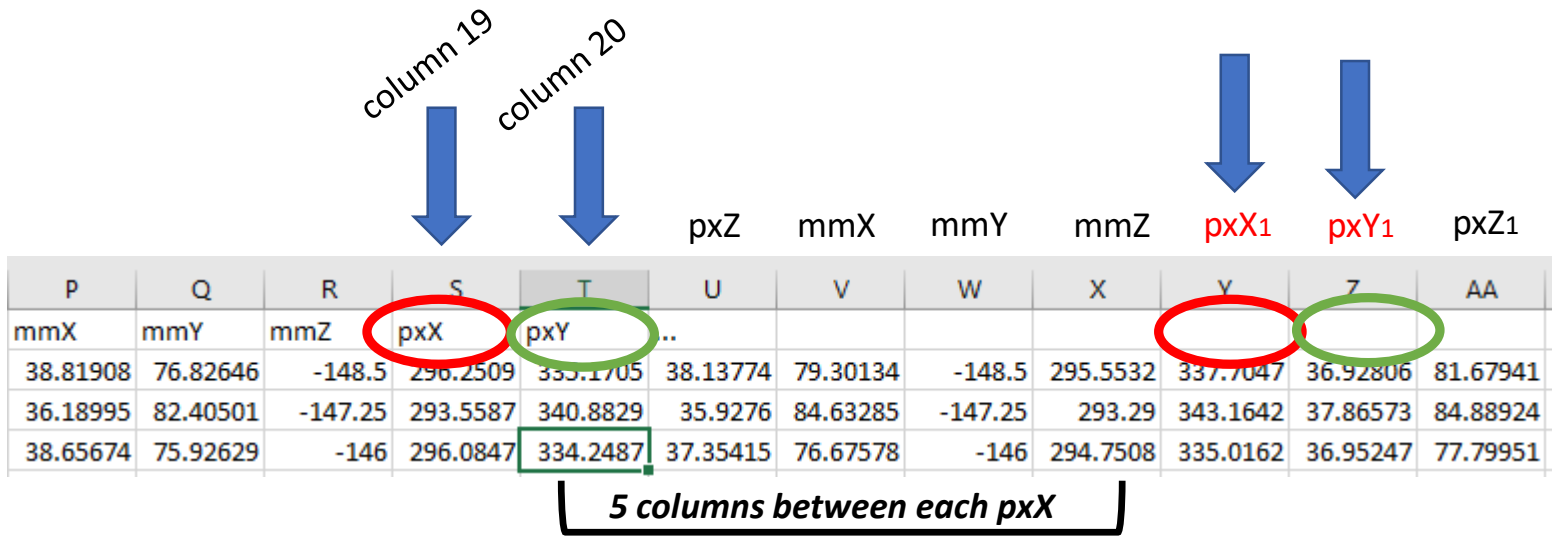
VolSeq applies the ROI on the DICOM from the 1st to the last slice, numbered 1 to n. In some cases the .csv changes the ROI numbers from n to 1 so it may be necessary to decrement the DICOM slices numbers for the ROI to be placed on the correct slice. This can be seen in the final image: if it looks like the ROI is not in the right place, try again with this box checked.

.CSV file in excel: configuration of pxX and pxY values

The configuration of columns depends on the software where the ROIs are created and how this software converts the ROI values into a .csv file. If all ROIs have been done with the same software (and same version) this step can be applied to all the subsequent scans.

1. Open an ROI file converted into a .csv file
2. Find the 1st pxX and pxY columns. These have the values of the 'points' of the ROI.
3. Insert the column number for the 1st value of each into VolSEQ in 'Starting column for X' and 'Starting column for Y'. **E.g.** *here it is columns S and T so 19 and 20.*
4. Count the number of columns separating each pxX/pxY column and enter that number in VolSEQ. **E.g.:** *pxX/pxY is repeated every 6 columns i.e:* ***5 columns*** *separate each pxX/pxY point.*

Example of csv file



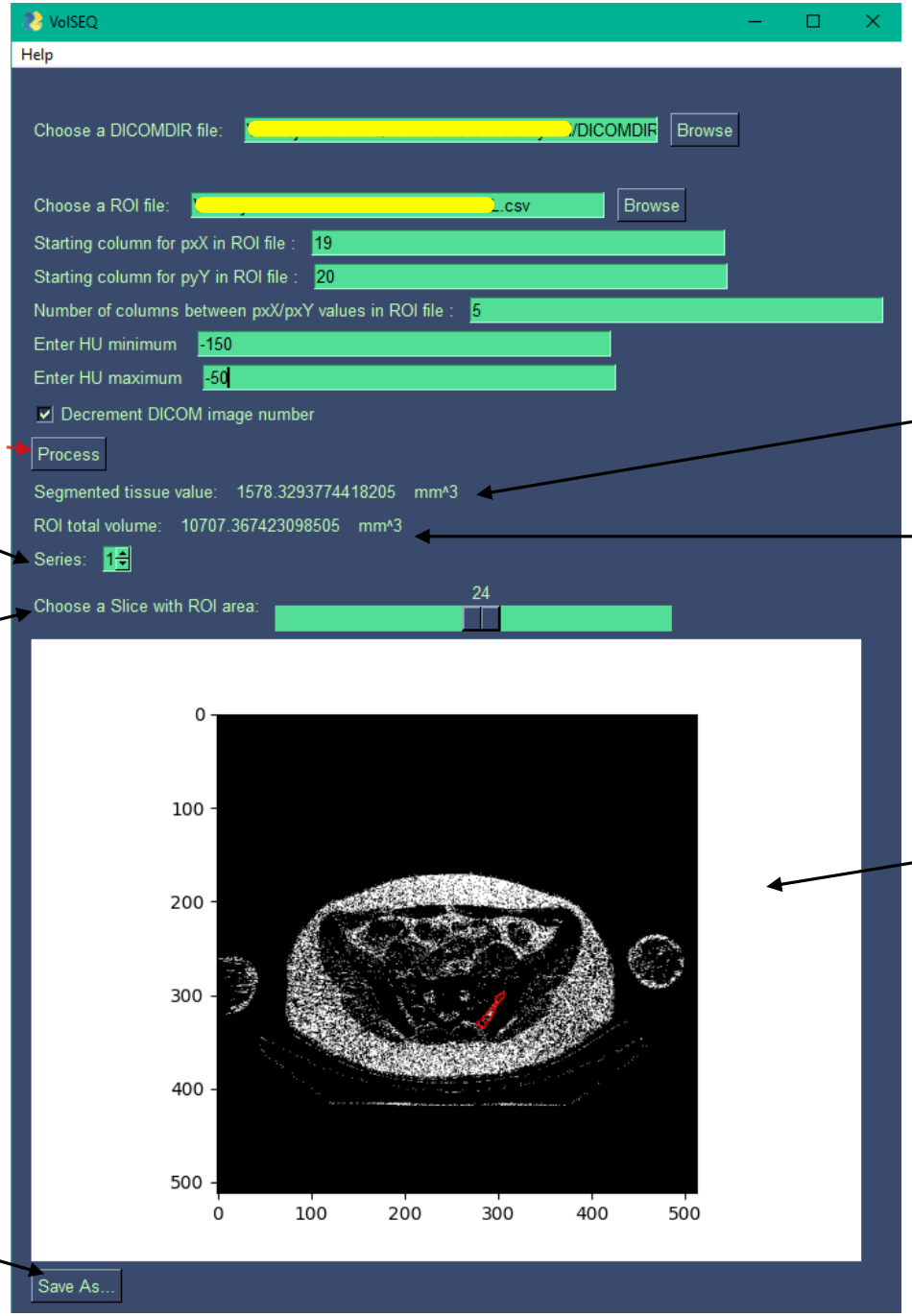
P	Q	R	S	T	U	V	W	X	Y	Z	AA
mmX	mmY	mmZ	pxX	pxY	..						
38.81908	76.82646	-148.5	296.2509	333.1705	38.13774	79.30134	-148.5	295.5532	337.7047	36.92806	81.67941
36.18995	82.40501	-147.25	293.5587	340.8829	35.9276	84.63285	-147.25	293.29	343.1642	37.86573	84.88924
38.65674	75.92629	-146	296.0847	334.2487	37.35415	76.67578	-146	294.7508	335.0162	36.95247	77.79951

Example of output

If there are multiple CT scans associated to that DICOM file, these can be chosen.
Note: *if the series number is changed, the analysis has to be reprocessed*.

Slide the bar to visualise the slices with applied ROI in the series

The chosen image can be saved here



Volume of segmented tissue of choice within ROI

Total ROI volume

Image of CT scan with ROI overlap (in red) and pixels of only segmented tissue (in white) all other tissue is black