

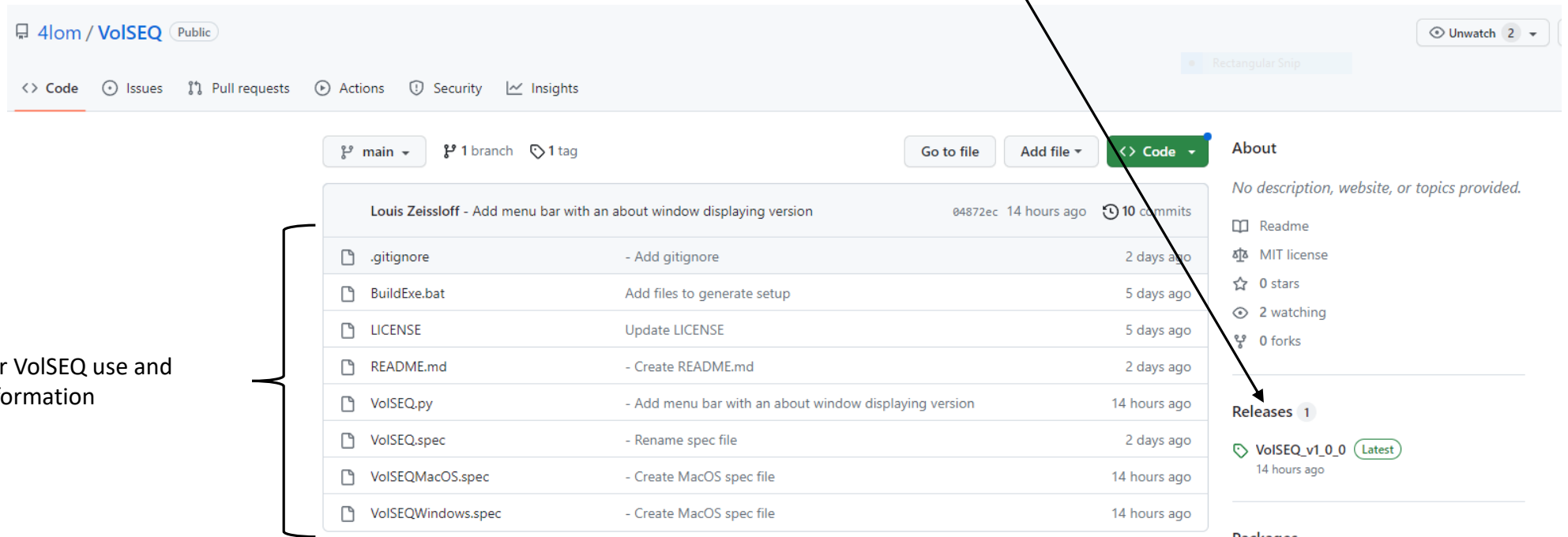
# VolSEQ user manual

Version 1.0.0 (2023)

Copyright (c) 2023, Zeissloff Louis

# Installation

1. Download link: → [https://github.com/4lom/VolSEQ/releases/tag/v1\\_0\\_0](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



# Interface: how to use it?

The screenshot shows the VolSEQ software interface with the following fields and annotations:

- Choose a DICOMDIR file:** A text input field with a "Browse" button. Annotation: "Choose DICOMDIR file. **Note:** The file MUST be grouped with corresponding DICOM files (same folder)".
- Choose a ROI file:** A text input field with a "Browse" button. Annotation: "Upload ROI file as a csv file".
- Starting column for pxX in ROI file :** A text input field with the value "19".
- Starting column for pyY in ROI file :** A text input field with the value "20".
- Number of columns between pxX/pxY values in ROI file :** A text input field with the value "5".
- Enter HU minimum:** A text input field with the value "0".
- Enter HU maximum:** A text input field with the value "0".
- Decrement DICOM image number:** A checked checkbox.
- Process:** A button circled in red. Annotation: "May take a few minutes".
- Segmented tissue value:** A text input field with the value "0.0 mm^3".
- ROI total volume:** A text input field with the value "0.0 mm^3".
- Series:** A dropdown menu showing "1".
- Choose a Slice with ROI area:** A text input field with the value "1".
- Save As...** A button.

Additional annotations on the right side of the interface:

- Input column number for 1<sup>st</sup> 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 1<sup>st</sup> 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 1<sup>st</sup> pxX and pxY columns. These have the values of the 'points' of the ROI.
3. Insert the column number for the 1<sup>st</sup> 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	335.1705	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

5 columns between each pxX

# 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.

VoISEQ

Help

Choose a DICOMDIR file:  Browse

Choose a ROI file:  Browse

Starting column for pxX in ROI file :

Starting column for pyY in ROI file :

Number of columns between pxX/pyY values in ROI file :

Enter HU minimum

Enter HU maximum

☒ Decrement DICOM image number

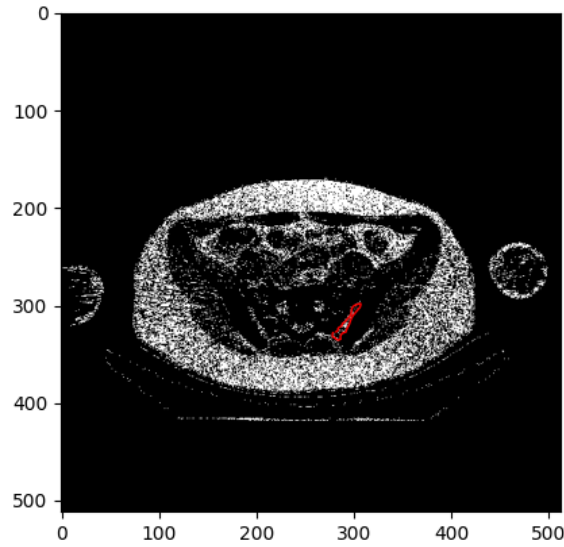
Process

Segmented tissue value: 1578.3293774418205 mm^3

ROI total volume: 10707.367423098505 mm^3

Series:

Choose a Slice with ROI area:



Save As...

Volume of segmented tissue of choice within ROI

Total ROI volume

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

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

The chosen image can be saved here

5