Nodule\_me.exe

uSER guide

version 1.2 - eNG

2020

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**1. Install**

**1.1 download nodule me and unzip file.**

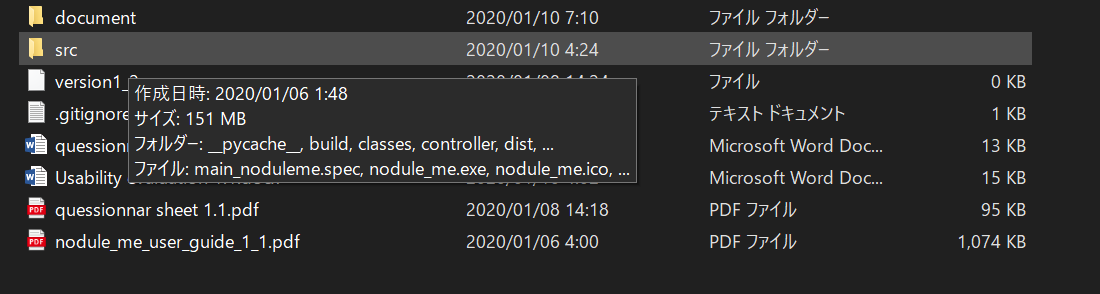
Please download nodule\_me.zip at website.

Then you must unzip nodule\_me.zip by unzip tools. (7-ZIP etc.)

**1.2 open unzipped folder and find nodule\_me.exe.**

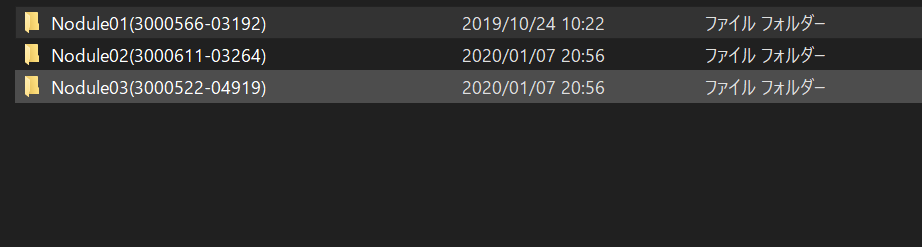
Find nodule\_me.exe in unzipped nodule\_me.zip file.

Location is **nodule\_me/src/nodule\_me.exe**



Double click to start Nodule me.

Please wait in a second to open the interface.

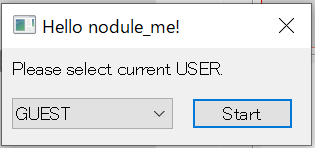


**2. Start up**

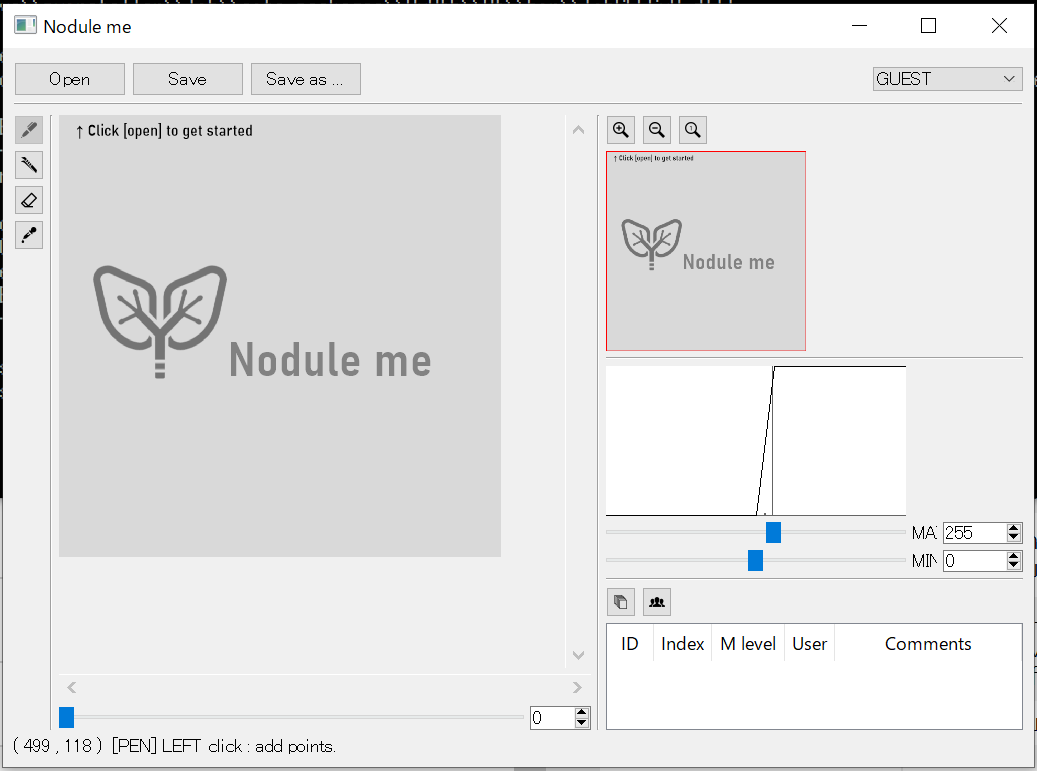
**2.1 select current user.**

Nodule me can use multi user. Please select your name in combo box.

(You can also change user later.)



**2.2 open main interface**

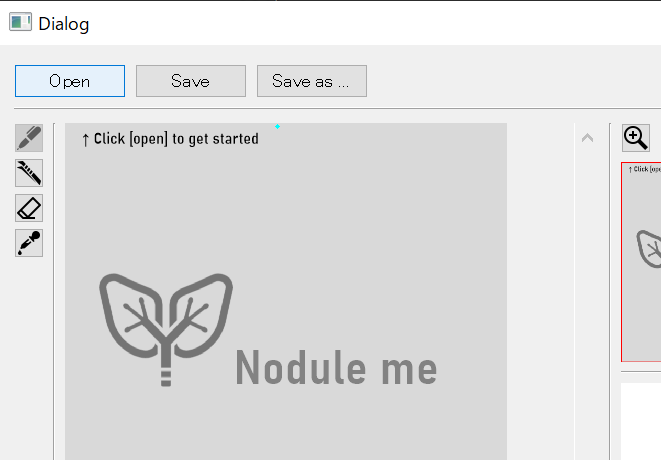


**3. Open DICOM data**

**3.1 click [Open] button**

There is [Open] button at top left diagonal.

Please wait just a moment until new dialog will open.



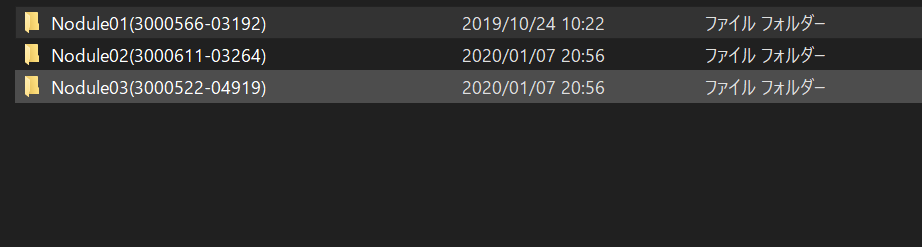
**3.2 choose one of DICOM file.**

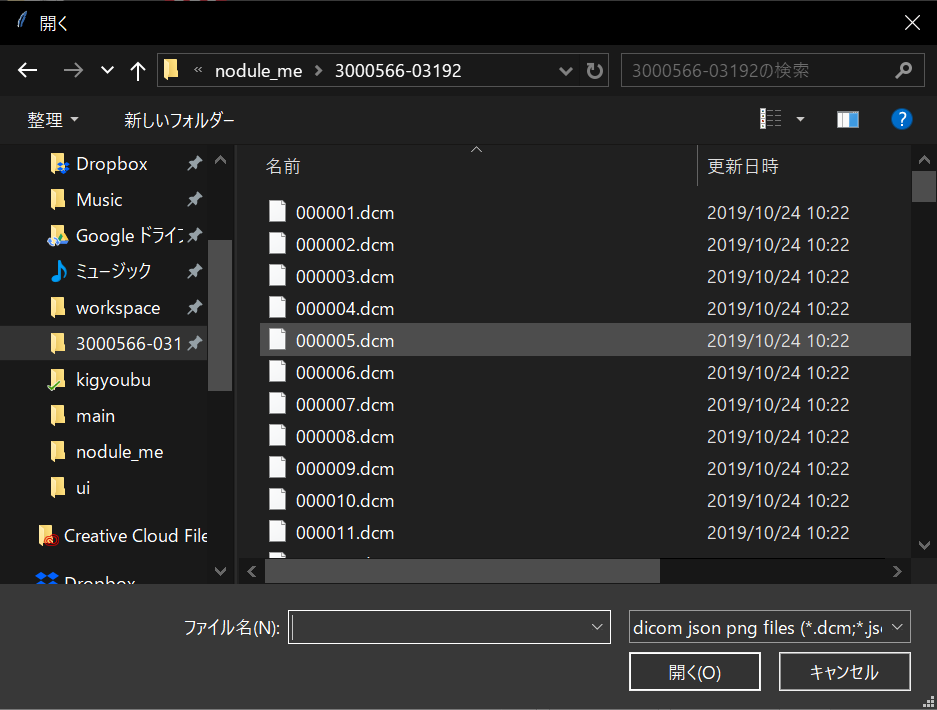
You select .dcm (DICOM) file.

→ Demo file is in **nodule\_me\_sample.zip**

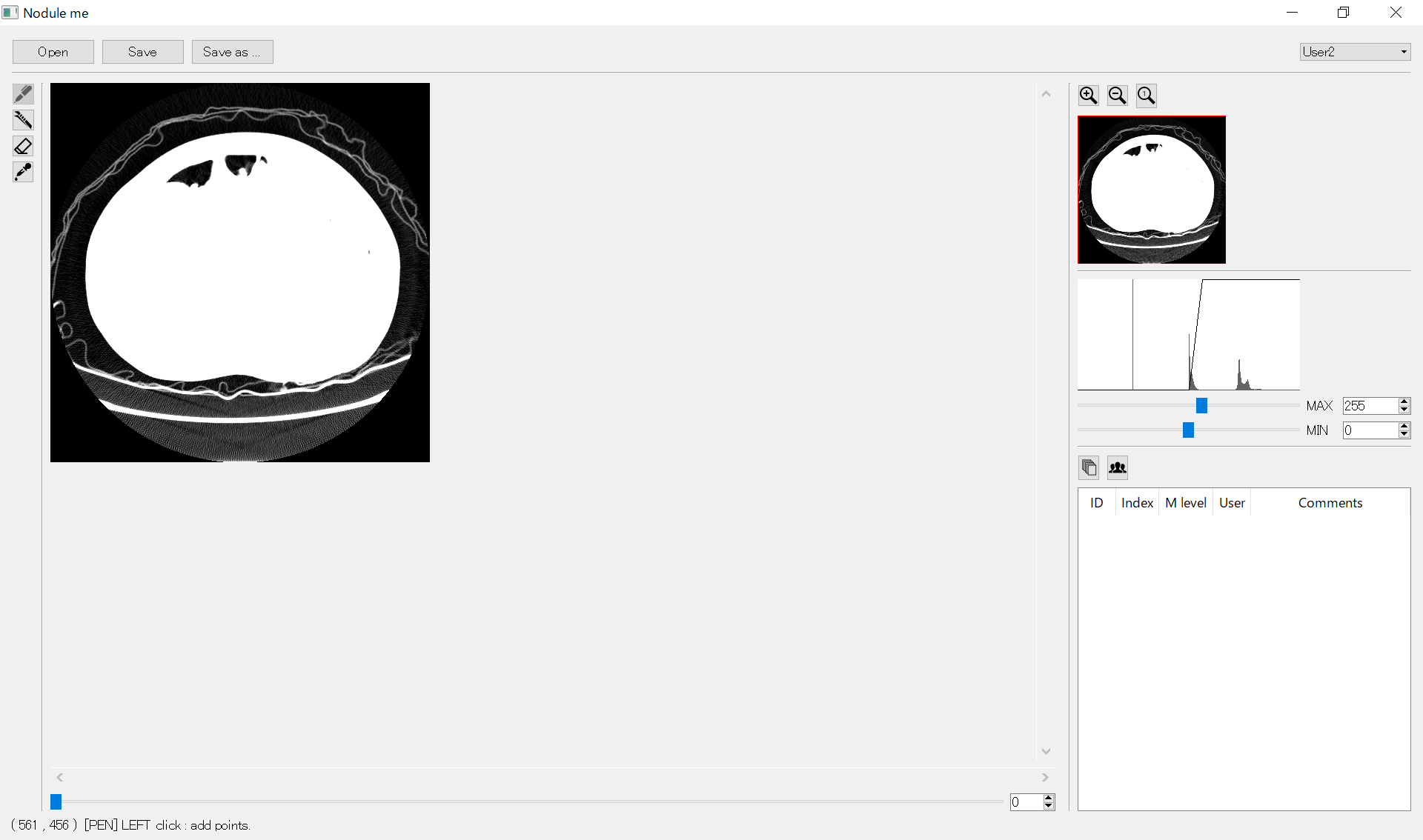
Please try if you don’t have any .dcm data.

(You can also choose .png and .json file.)

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**3.3 open DICOM data.**

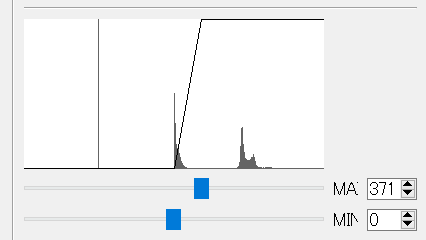


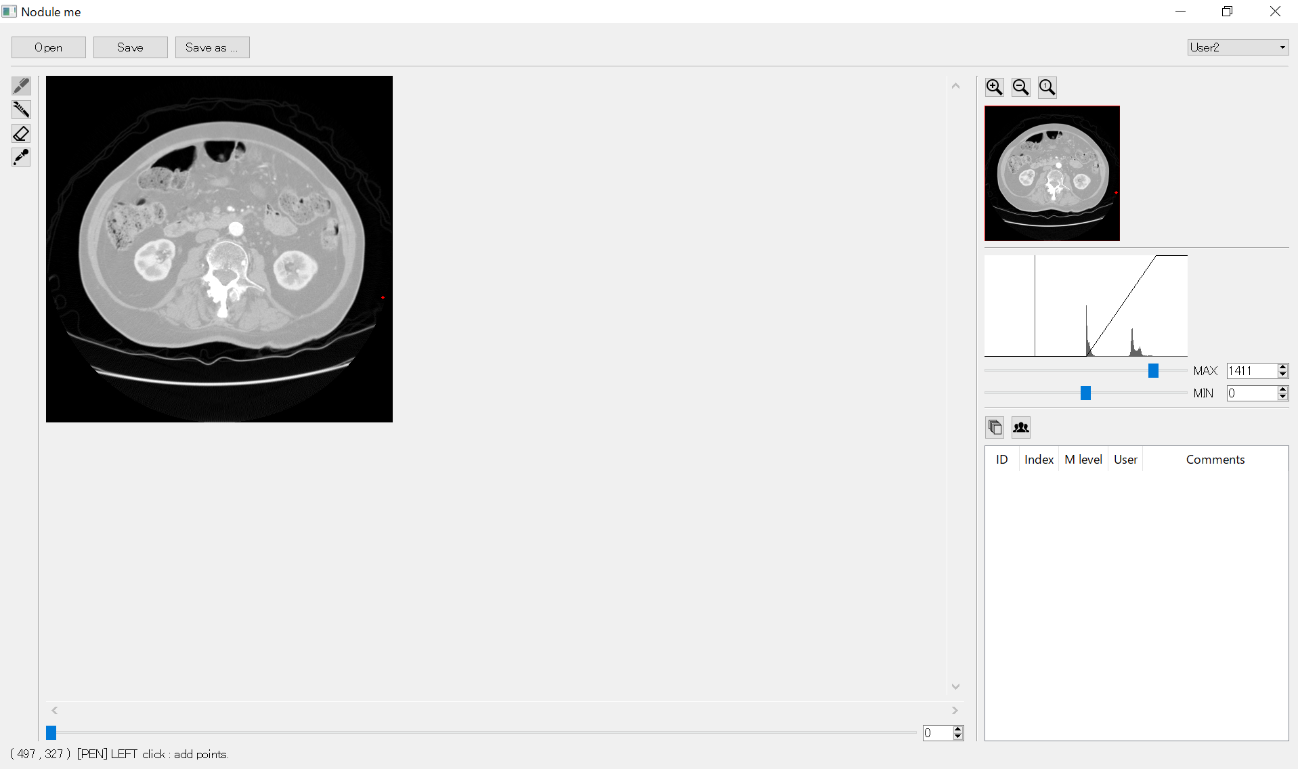
**4. Find lung nodule by yourself.**

**4.1 change contrast**

You change contrast to make CT image more easy to look up for you.

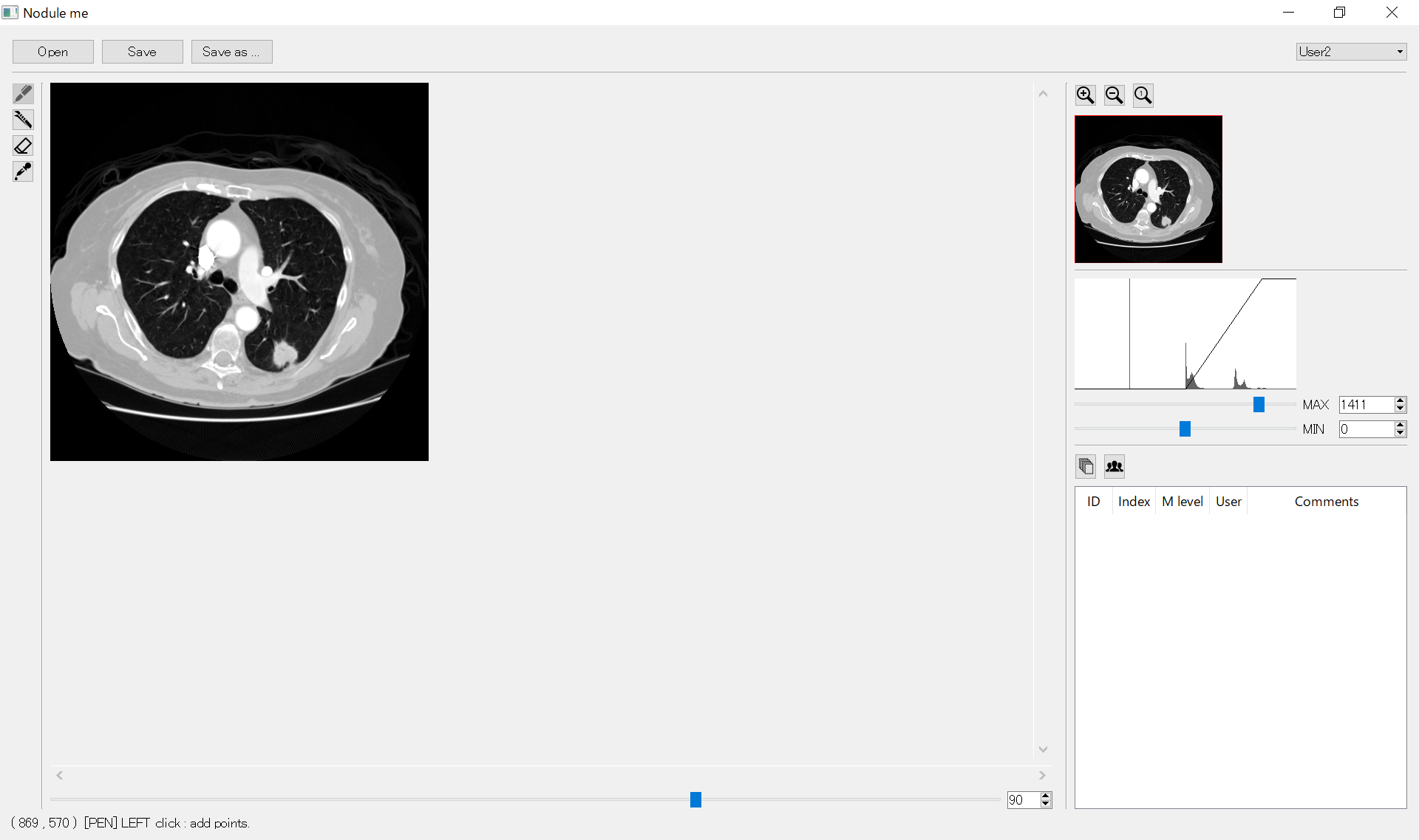
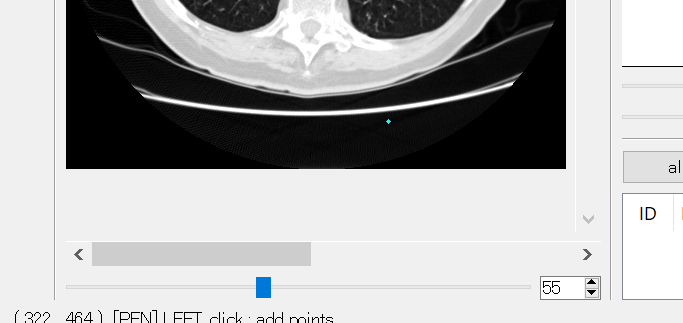
Detail about contrast is 8 section.



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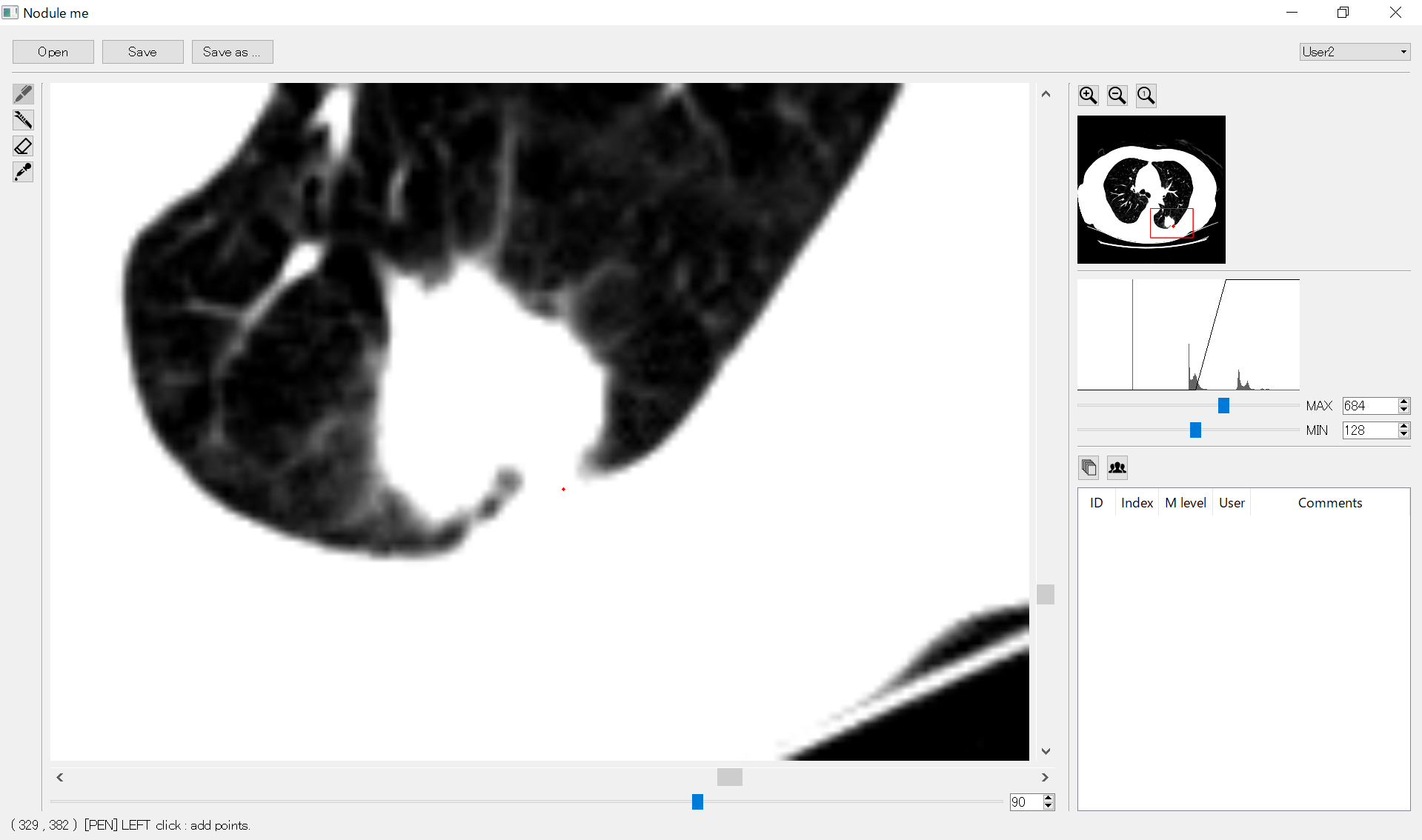
**4.2 change z-index and find lung nodule.**

You can change z-index by scroll below bar.



**4.3 zoom in the nodule.**

You can zoom in by mouse wheel or push button.



**5. Labeling**

**5.1 set [PEN] tool**

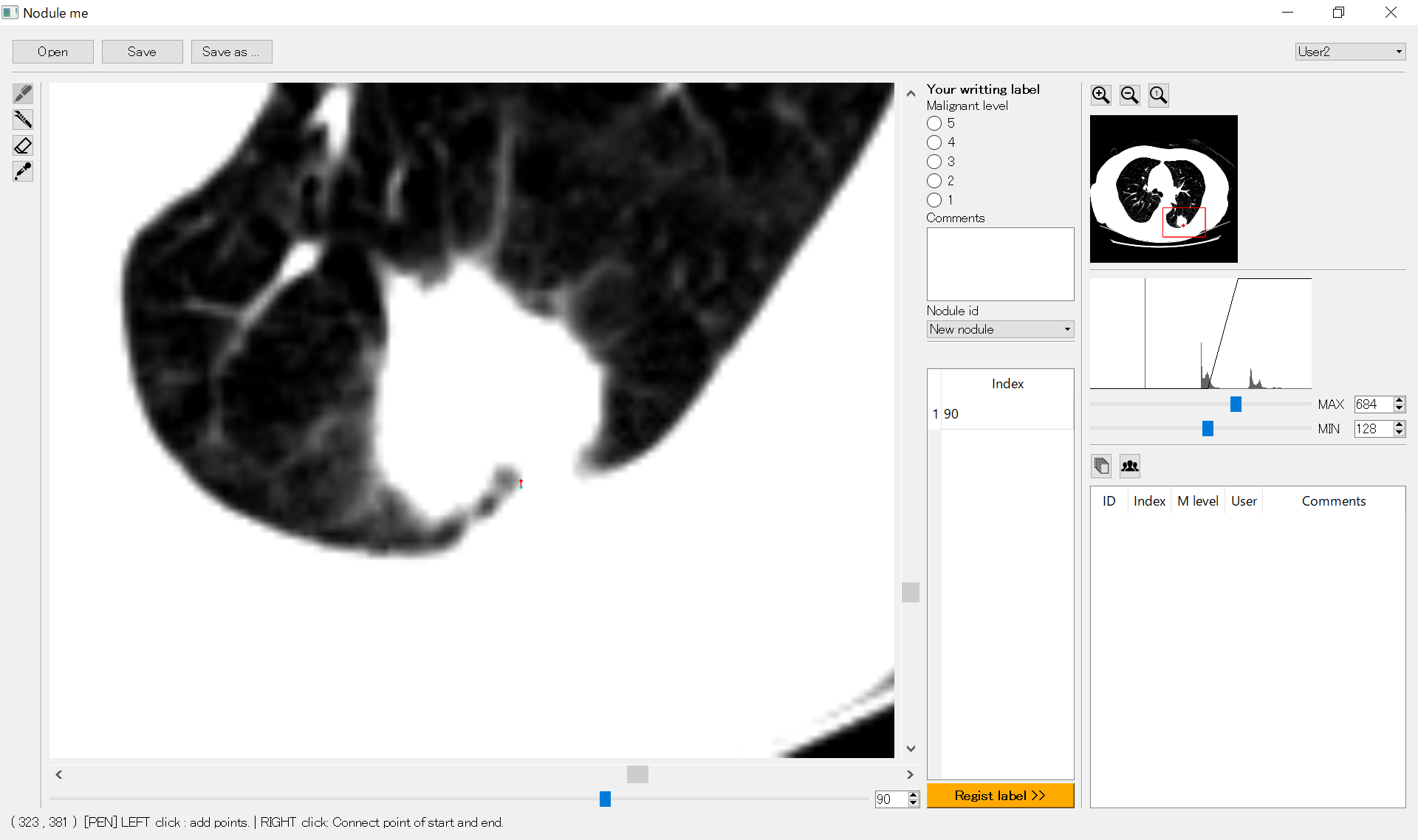
If you don’t close PEN, please select PEN tool.



**5.2 click canvas and add points of label.**

When you find nodule, please start to label by click in canvas.

(New area will be appeared at center, it is for annotation nodules. Please ignore now.)



Please label nodule in one like this.



**5.2 connect points of label in the slices.**

When you finish labeling in one slide, please **RIGHT CLICK**.

The start and end of your points will be connected automatically

Temporarily, the label is saved but labeling has NOT completed yet.

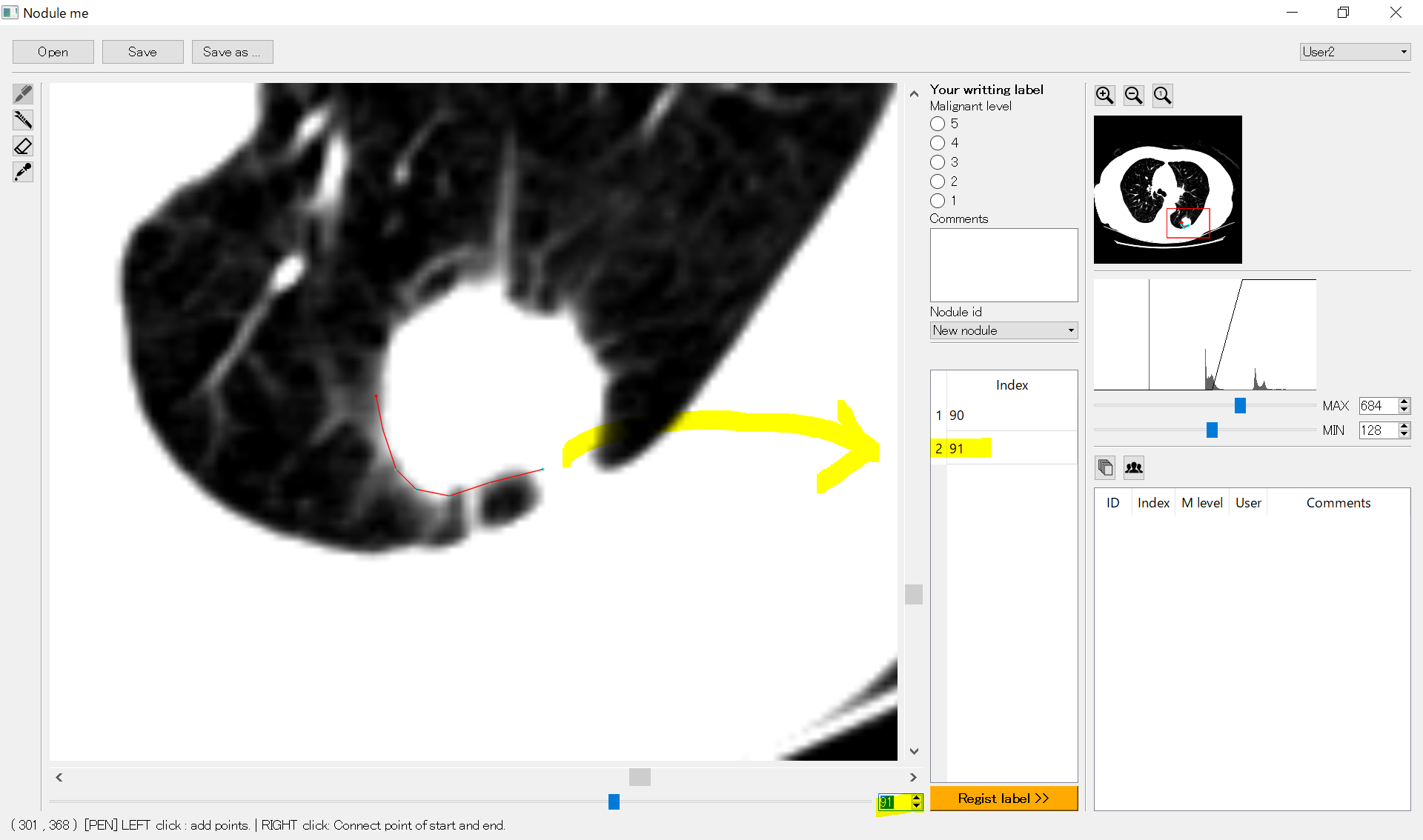


**5.3 move other slices (z-index) to annotate one nodule.**

Usually, one nodule spans many slices so you should label all slices which the nodule has.

After label one in slice, please move next or prev slice.

Your writing labels are stacked at center table.



**5.4 annotate label**

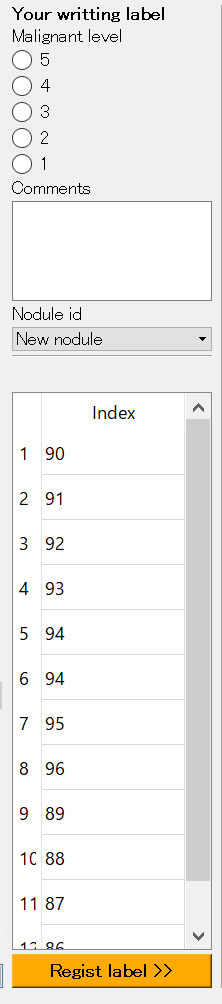
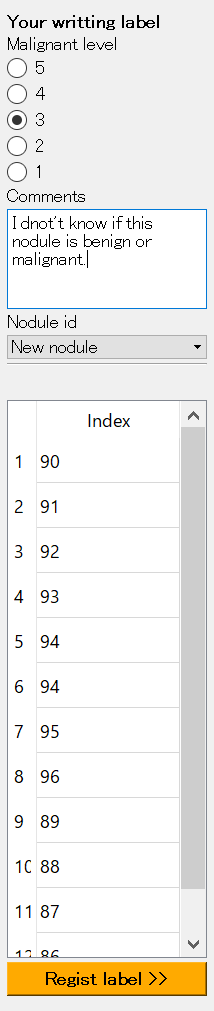
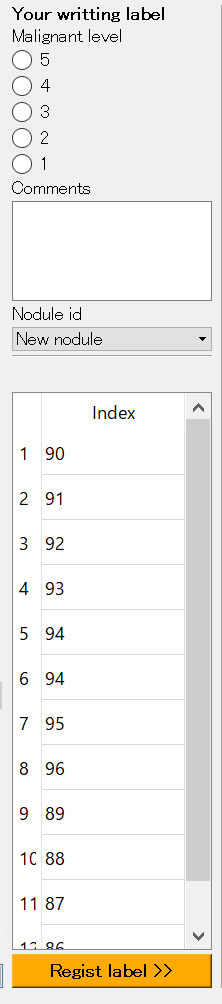
After you finish labeling one nodule, please annotate malignant\_level.

5 means you think the nodule is high malignant level.

1 means you think the nodule is low malignant level (benign).

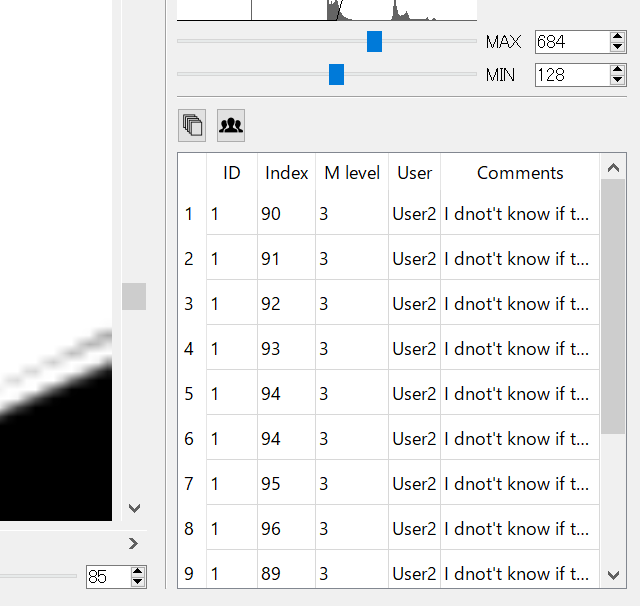
You can also write comments if you want.

After you complete annotate, please push button.



**5.5 complete labeling**

Your labels will be added in right label table.

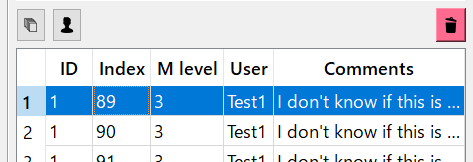


**6. Label Table**

**6.1 Jump to selected label**

You can jump the label you select.

After click label in list, area and index will be move to the label.

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**6.2 Switch filter [my]/[everyone]**

my**:** Label table show only labels which labeled by you.



everyone: Label table show labels which labeled by everyone including you.



**6.3 Switch filter [my]/[everyone]**

**C:\Users\pochi\AppData\Local\Microsoft\Windows\INetCache\Content.Word\one.png** one: Label table show only labels in current z-index.

all: Label table show labels in whole z-index.



**6.4 Delete selected label**

delete button: Delete selected label in list.



**7. Tools**

PEN:add points of labels by click.



PINSET: move points of labels by drag.



**C:\Users\pochi\AppData\Local\Microsoft\Windows\INetCache\Content.Word\eraser.png** ERASER: delete points by click.

INSERT TUBE: insert points between point and point of labels.



**8. Contrast, Zoom and z-index.**

* **Contrast Adjustment function**

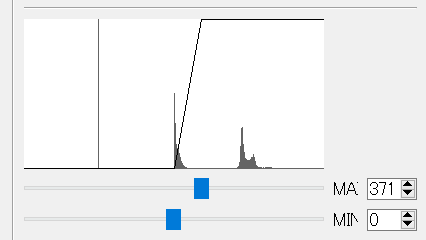
Usually, DICOM data is 16bit but most display can only show 8bit.

Horizontal length is [-2024 2024] (max and min of DICOM pixel array).

Vertical length is [0 255] (max and min of display luminance).

Histogram show value of DICOM pixel array.

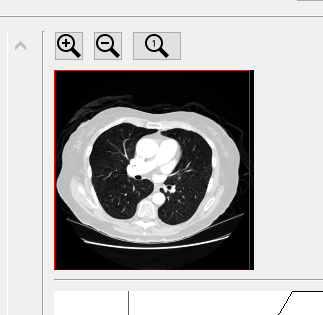
Please adjust contrast to your liking by moving below MAX/MIN slide bar.



* **Zoom and Map function**

You can zoom up/down by pushing button or mouse rotate mouse wheel.

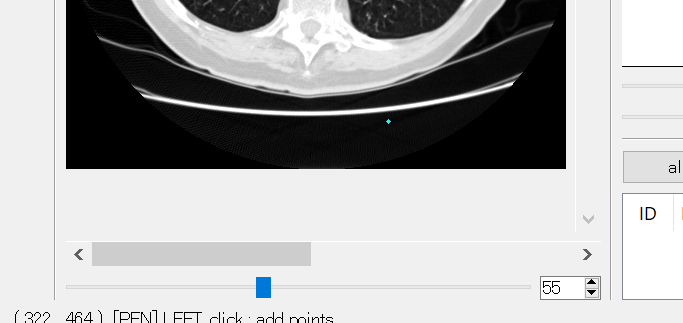
Also you can change area by dragging red square or scroll bar around canvas.



* **Z-index function**

Usually, CT-images is 3D volume data.

You can change z-index by index slide bar or spin box.

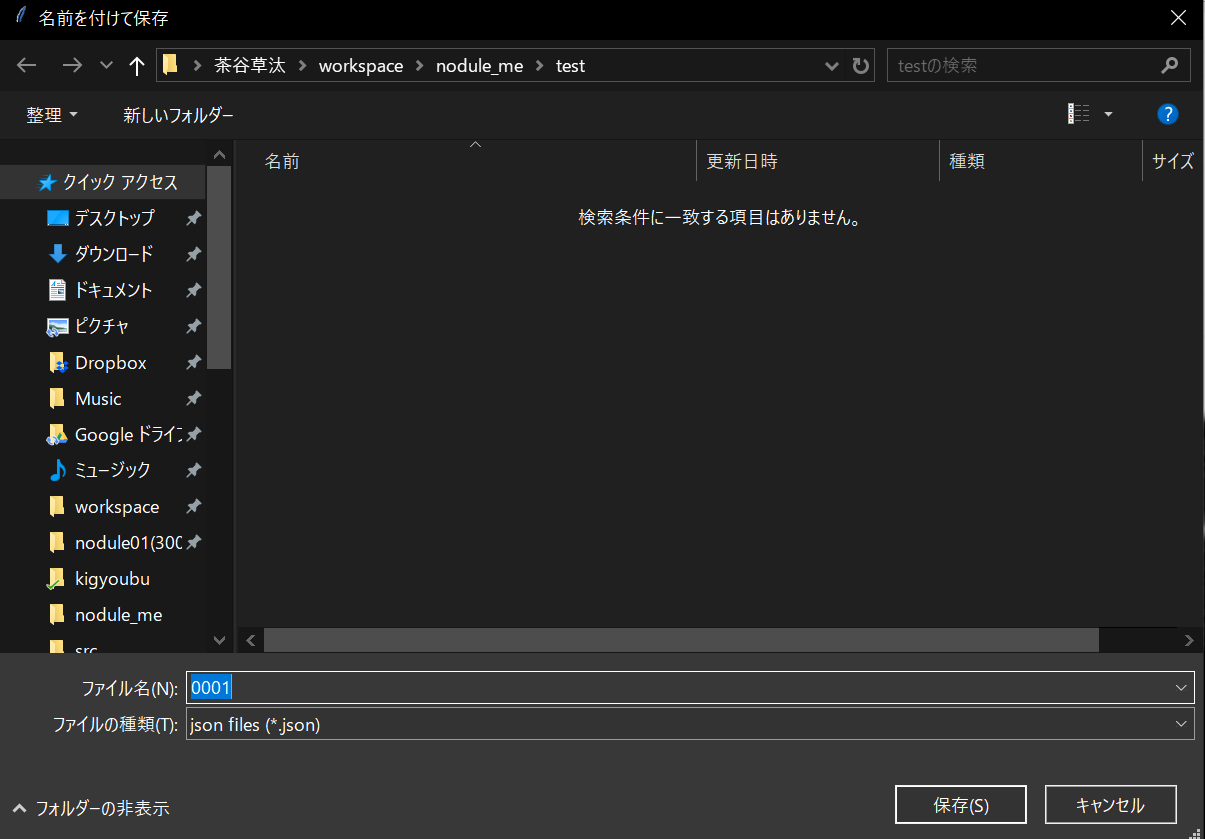


**9. Save data**

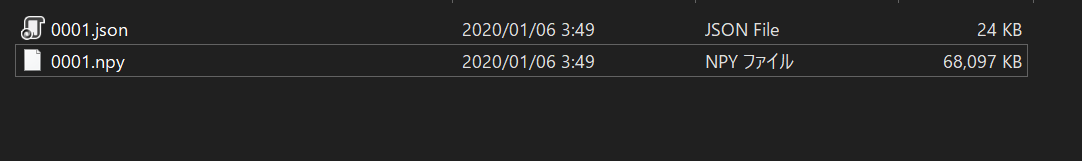
**8.1 Name and save your label data**

You can save your label data as .json file.

Please select place you save and name of your label file.



**8.1 Complete to save your label data**



.npy file is meta data for nodule\_me.

.npy file includes pixel arrays of DICOM data.