# User Manual Lesion Master

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At: Indian Institute of Science

Current Version: 1.9.0

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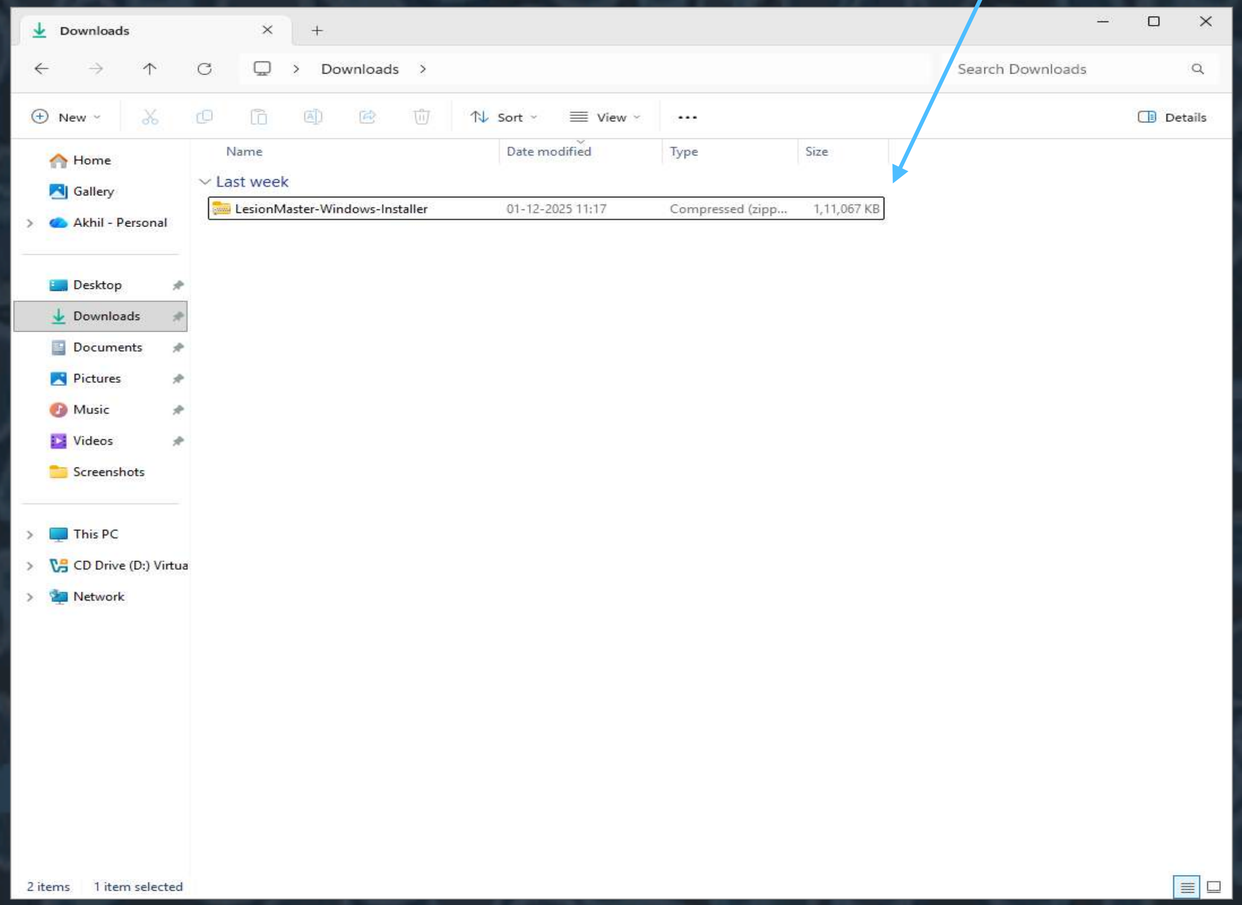
| 4. | How to request for Feature addition/Bug | |

# 1. Installation

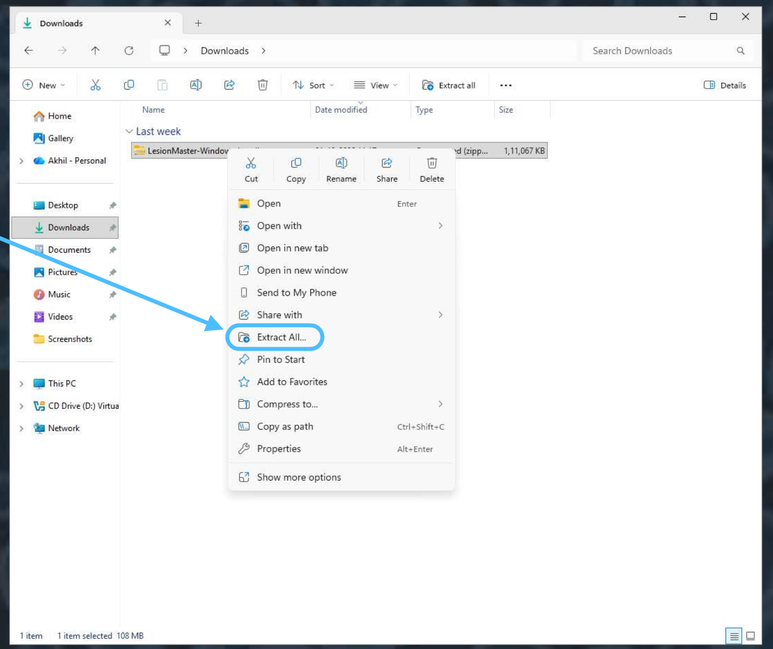
1.1 Download the zip file from the link

1.2 You will see the zip file downloaded in the Downloads folder

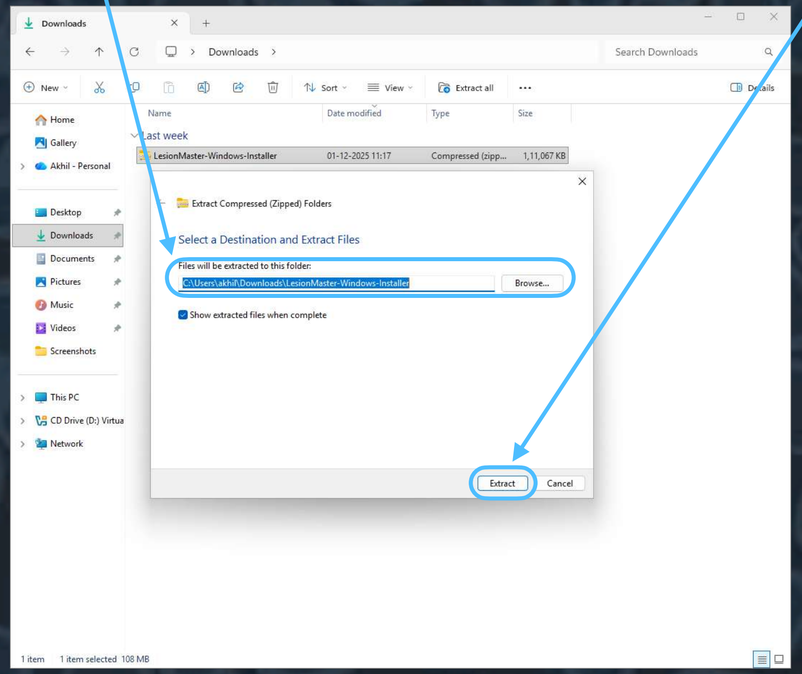


# 1. Installation

1.3 Right click and select the option Extract All...




1.4 And Choose the Destination and click the Extract.

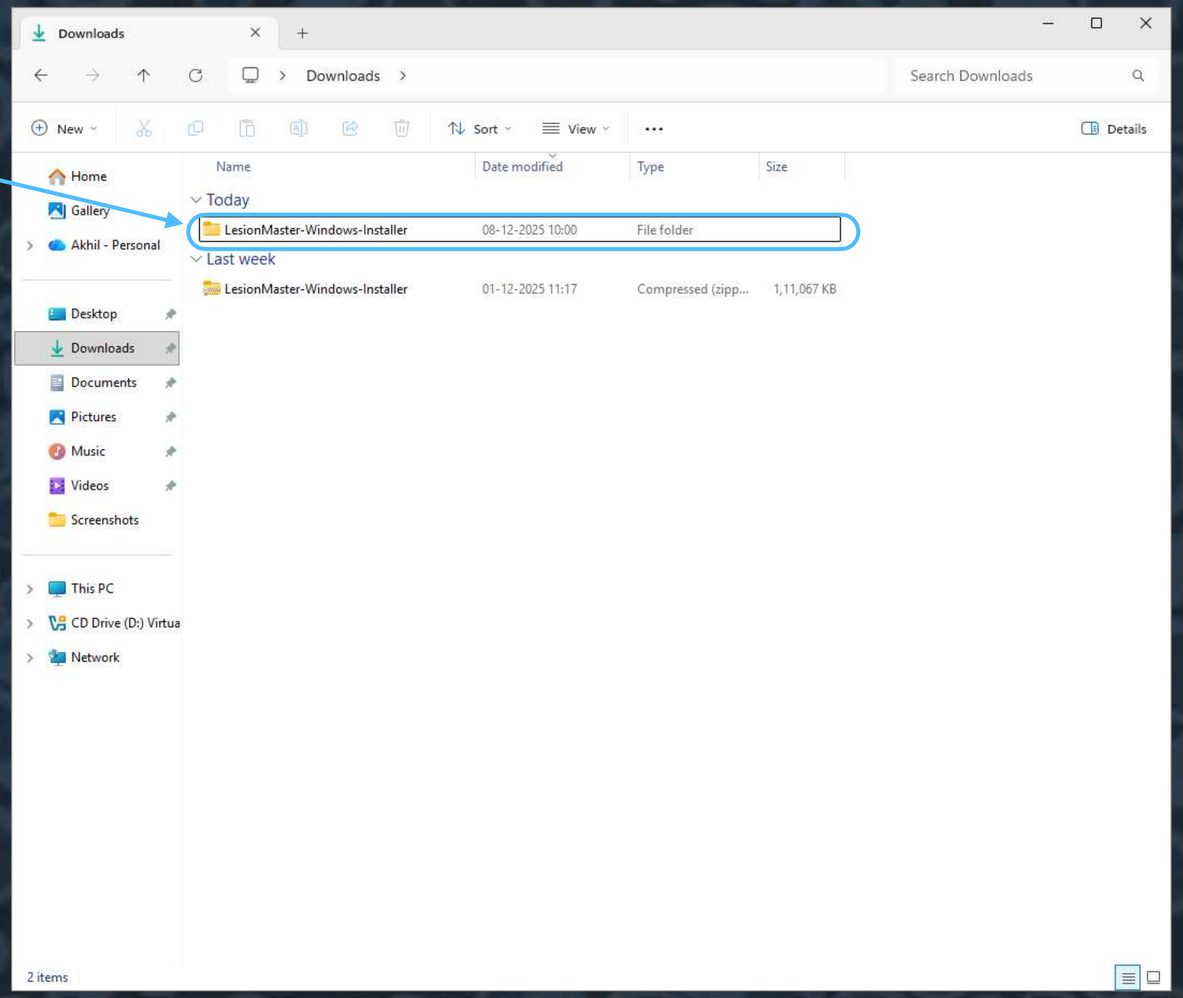


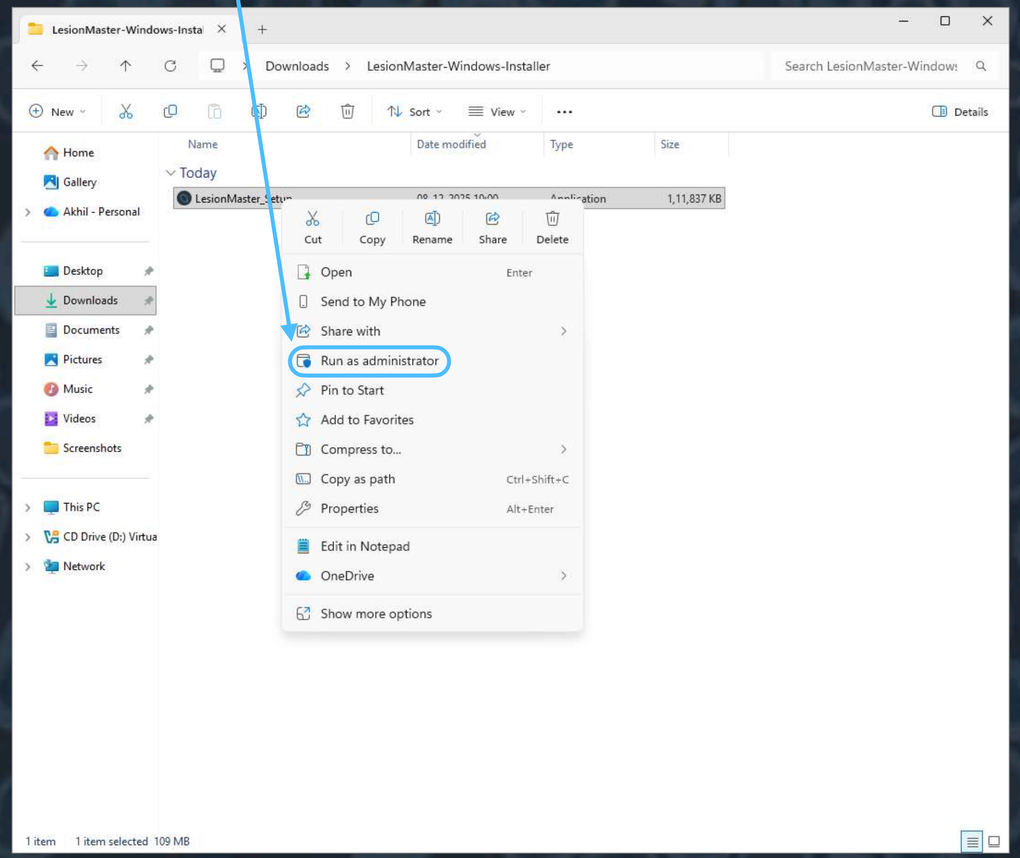

1.4 And the extraction will be there in the destination you choose!!!

1.4 Go inside the extracted folder.

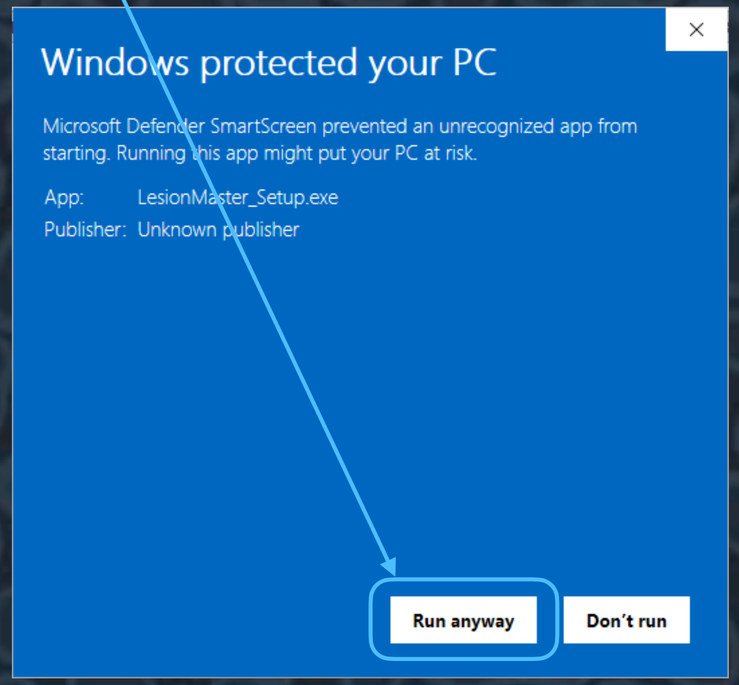
1.5 Right click on the setup file and then

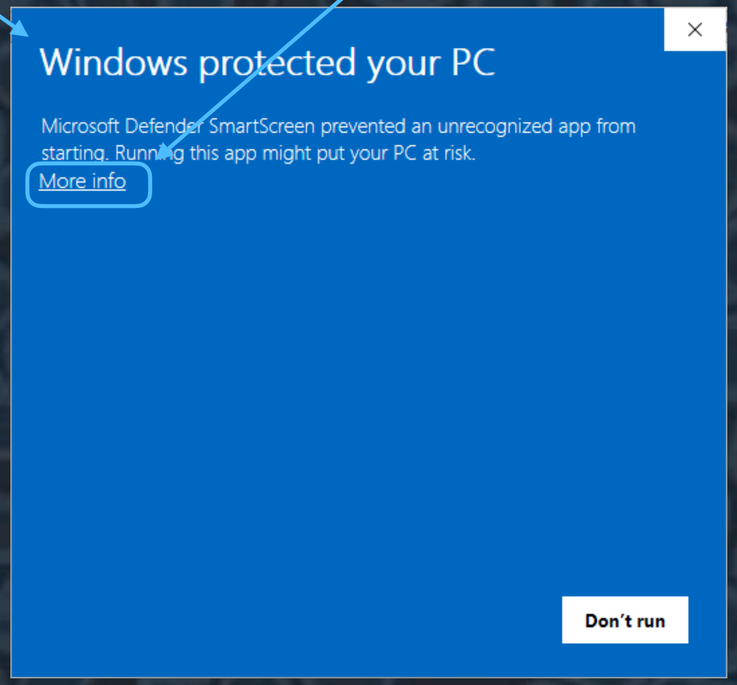
Click "Run as administrator"



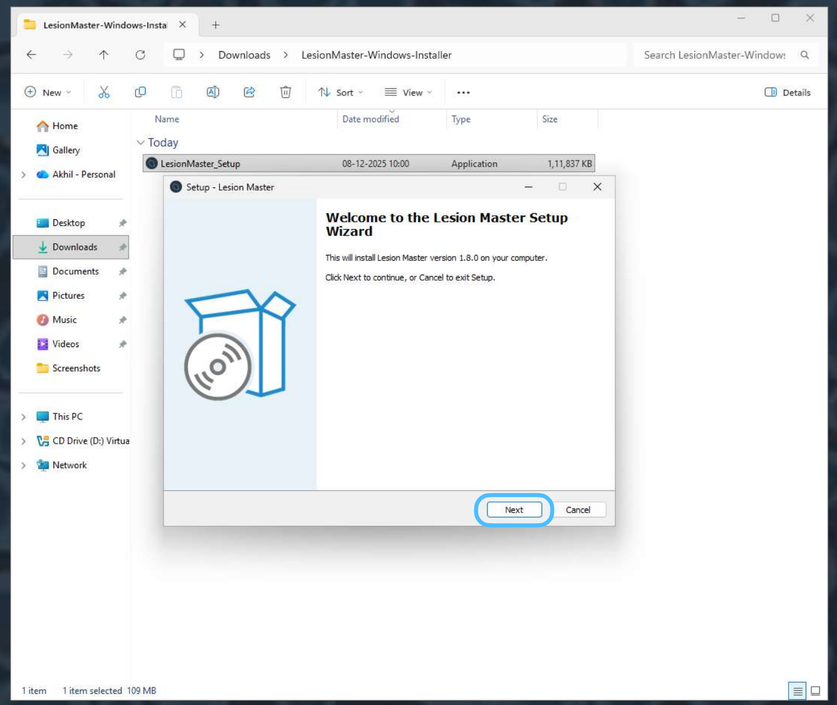



1.6 It will Pop-up Windows protected your PC. You need to click on More Info and Click "Run Anyway" option

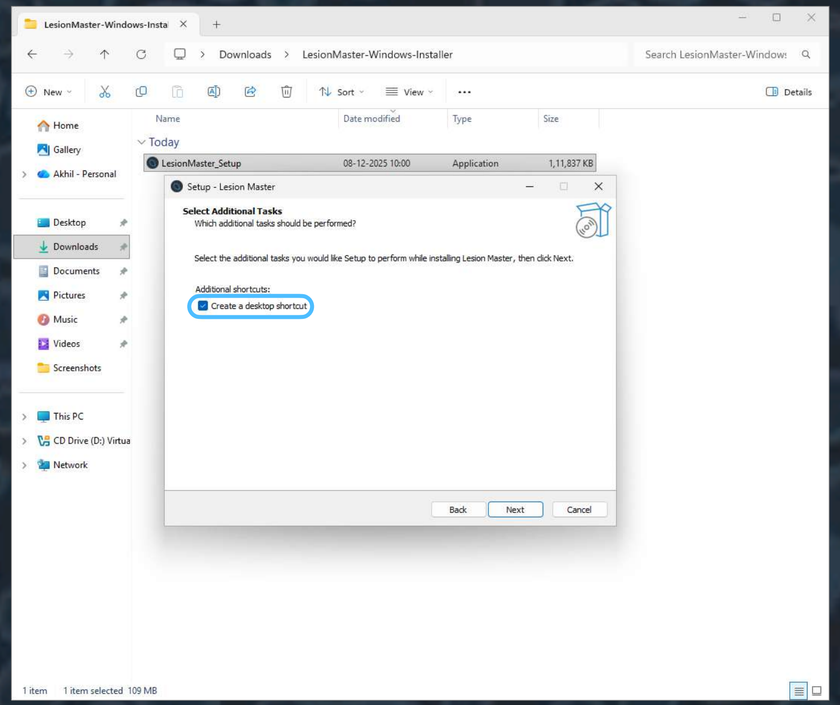


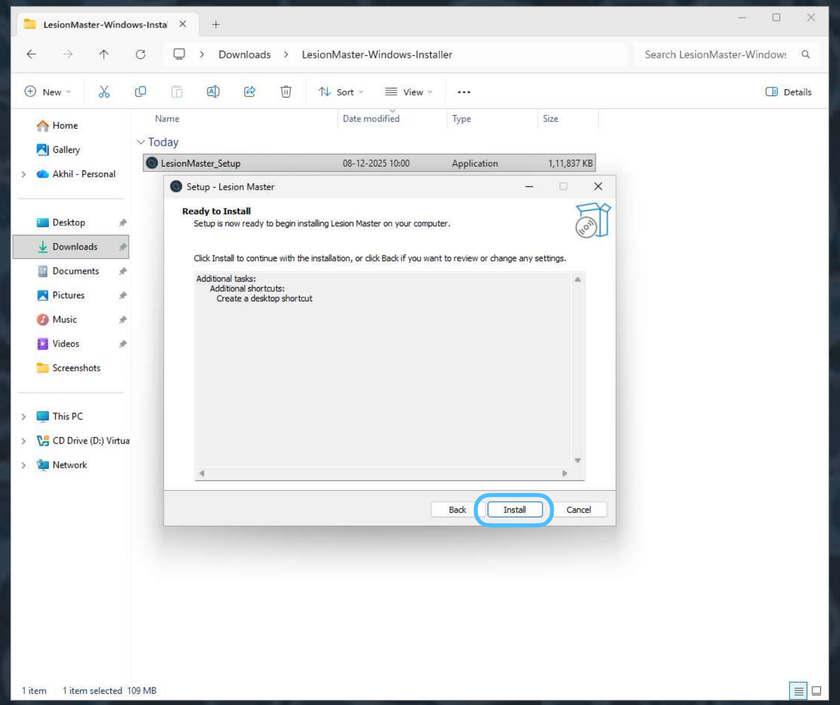
# 1.8 Setup Dialogue Box will pop up and you need to follow the exact below instruction in order to install the software.




1

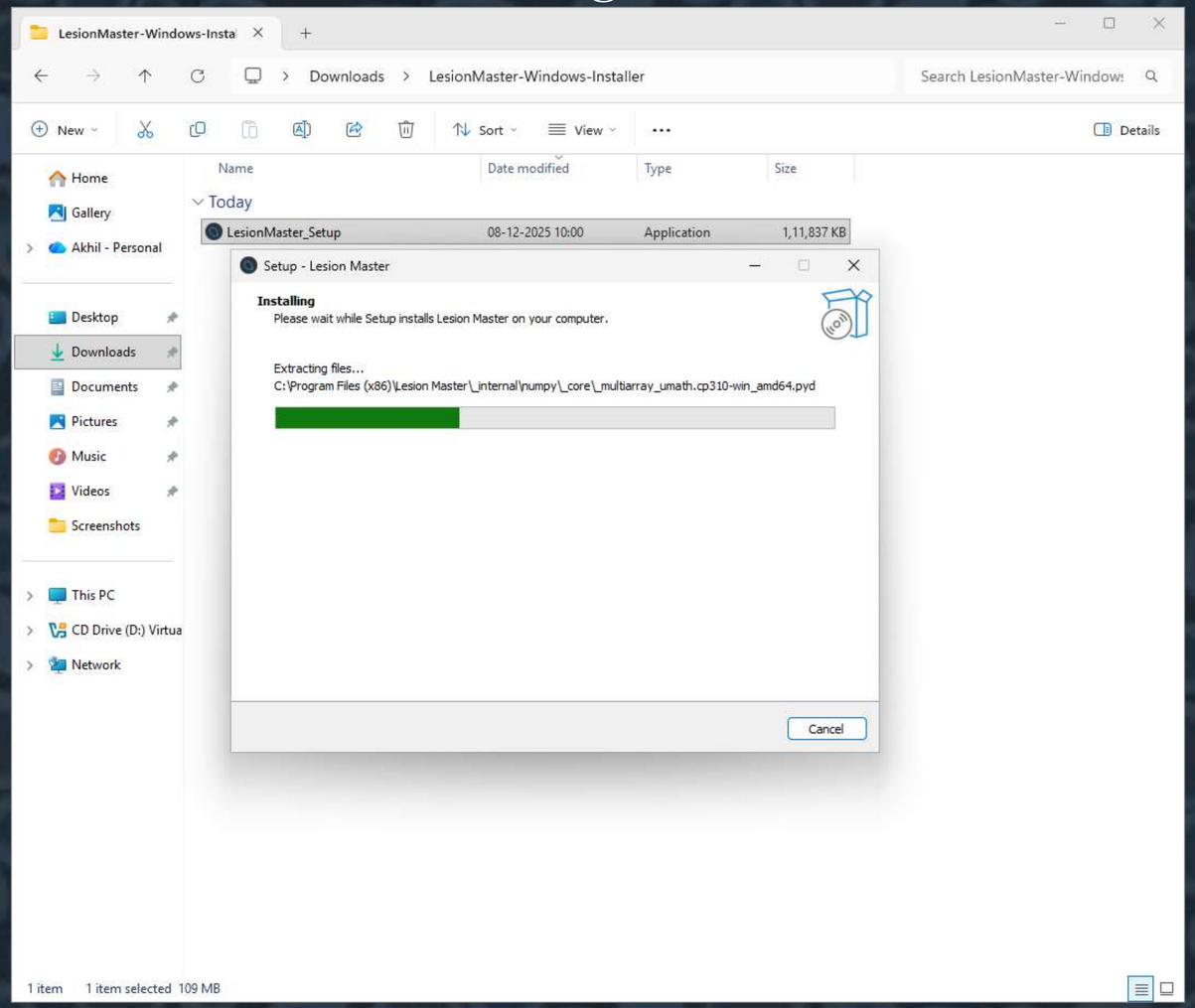



2

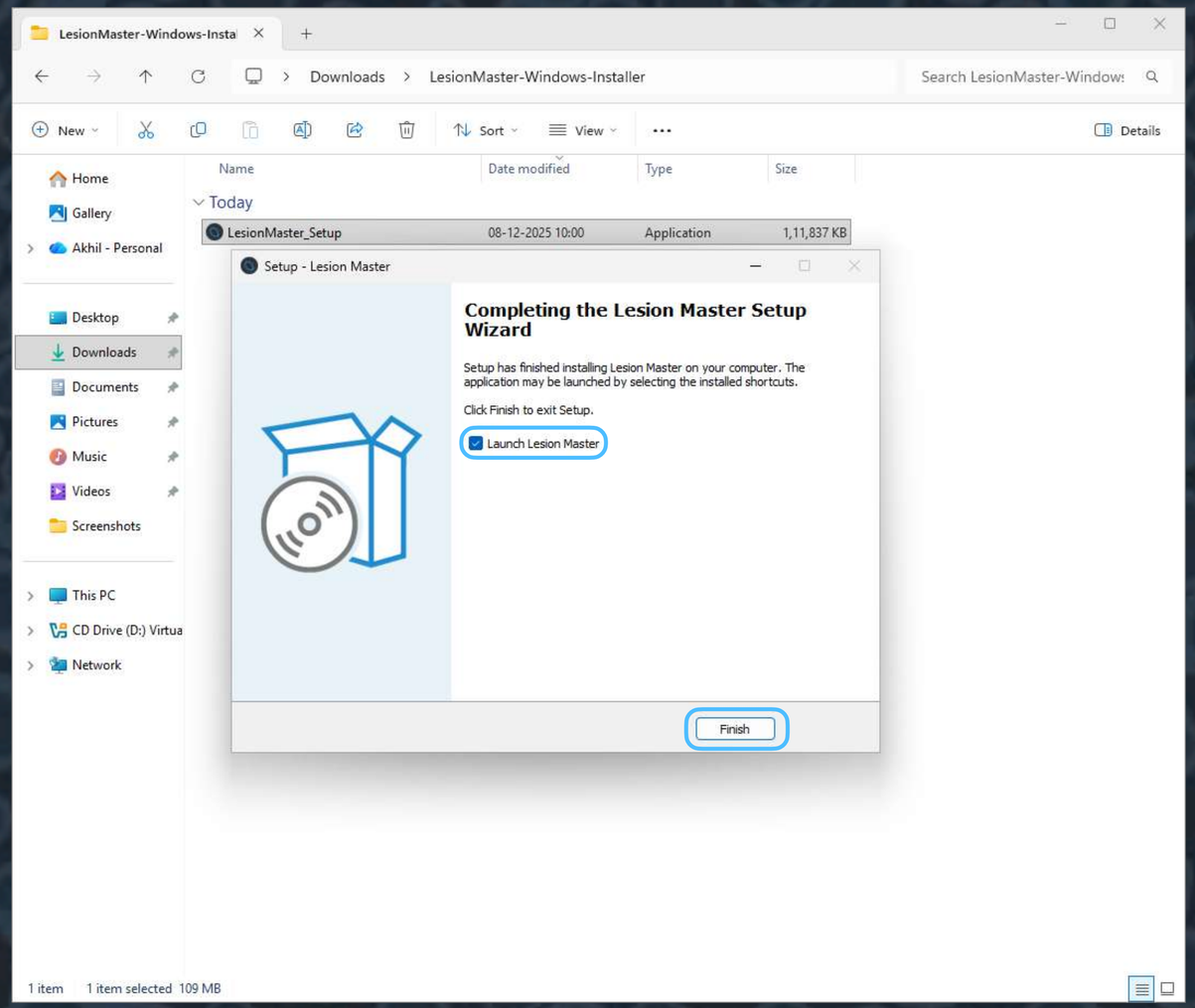



3

Installation will now start.
Wait until it get installed




Now select the Launch Lesion Master and then Finish




Note: If the software does not launch automatically, please try opening it manually.

# 2. Tools & Features

# 2.1 Tools

1. Draw Tool
2. Brush Tool
3. Eraser Tool
4. Pan Tool
5. Zoom in & Zoom out
6. Fit
7. Export

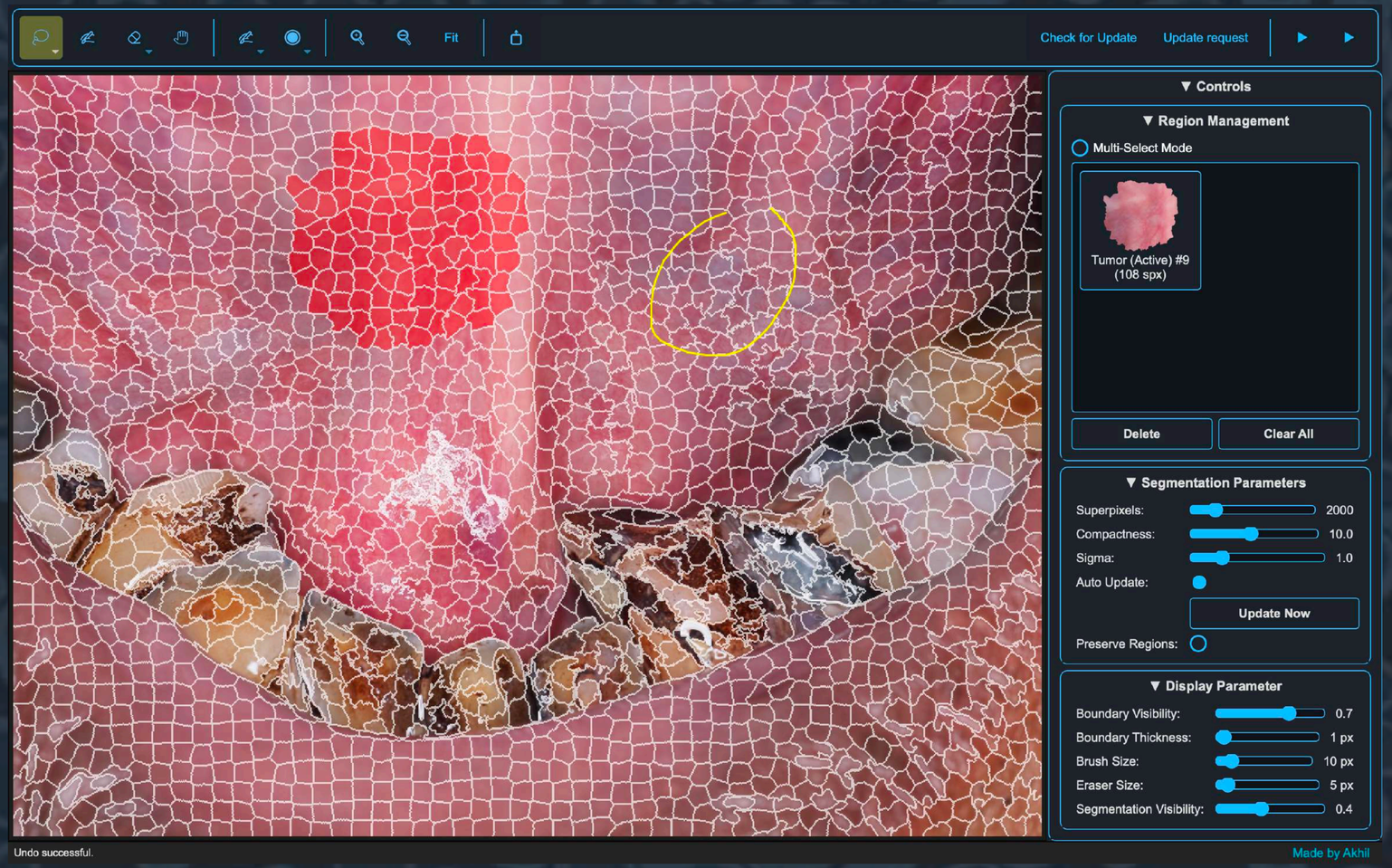
# 2.1.1 Draw Tool

1. Lasso Tool

2. Rectangle tool

3. Ellipse Tool

Free hand Drawing

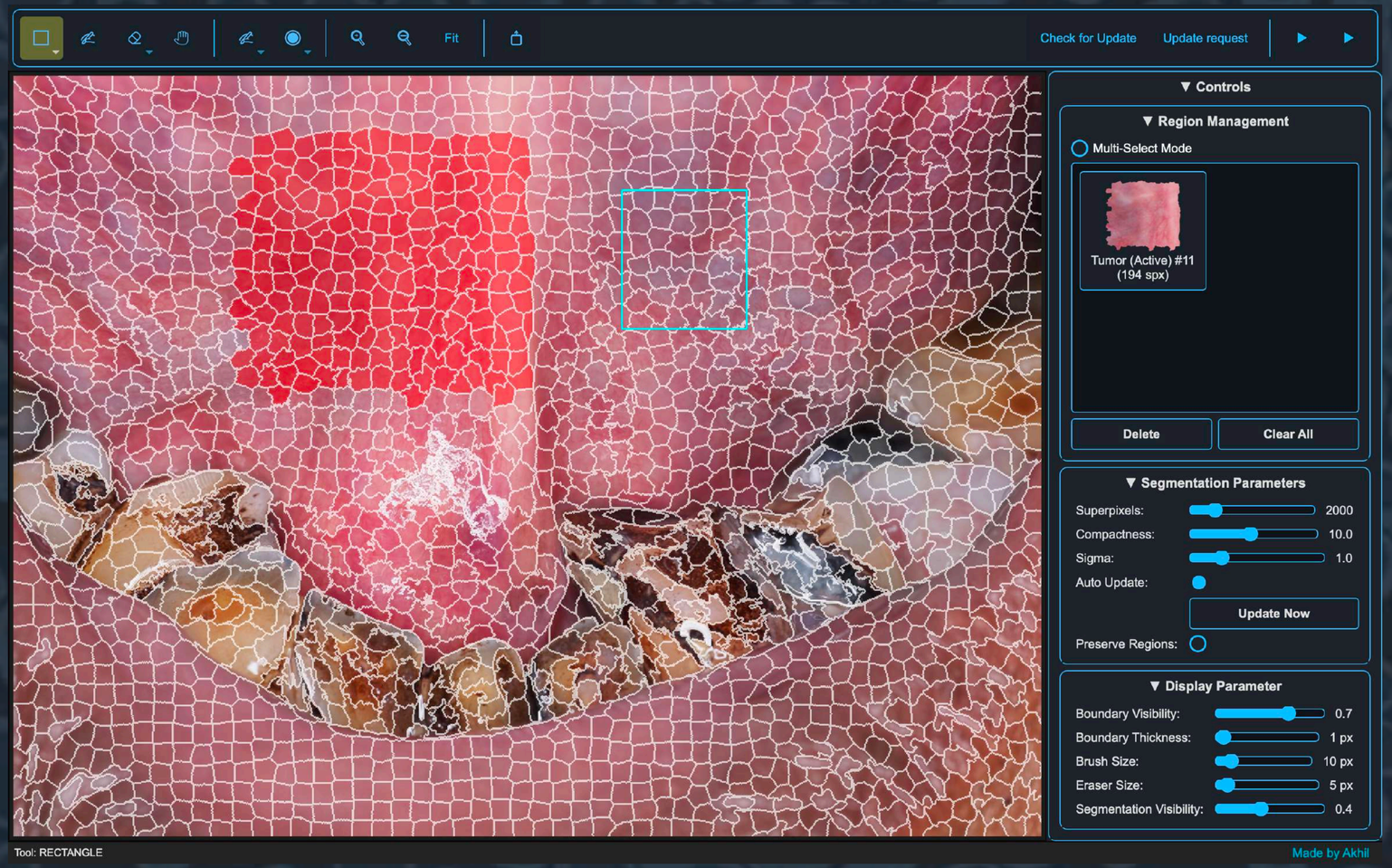


# 2.1.1 Draw Tool

1. Lasso Tool

2. Rectangle tool

3. Ellipse Tool

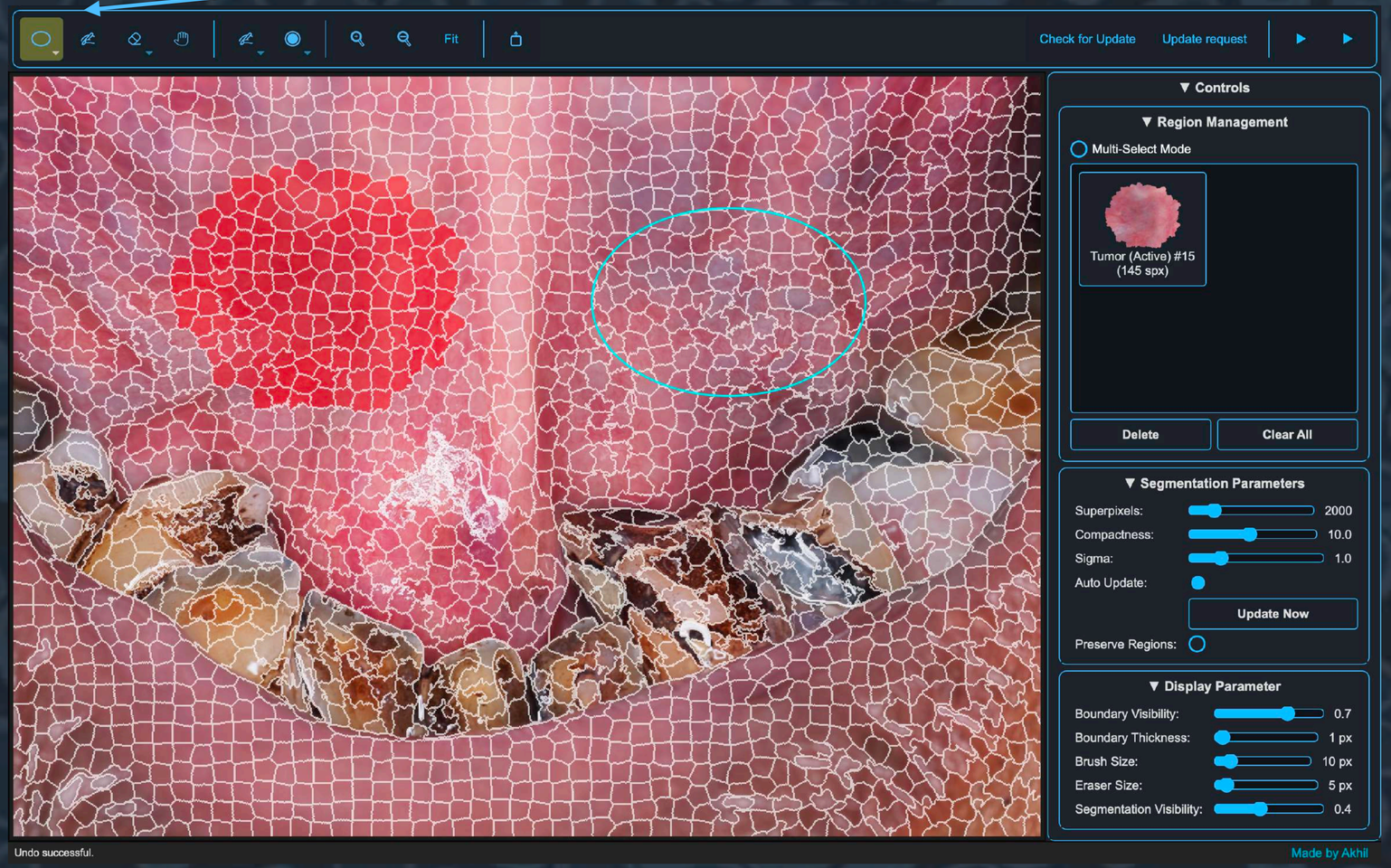


# 2.1.1 Draw Tool

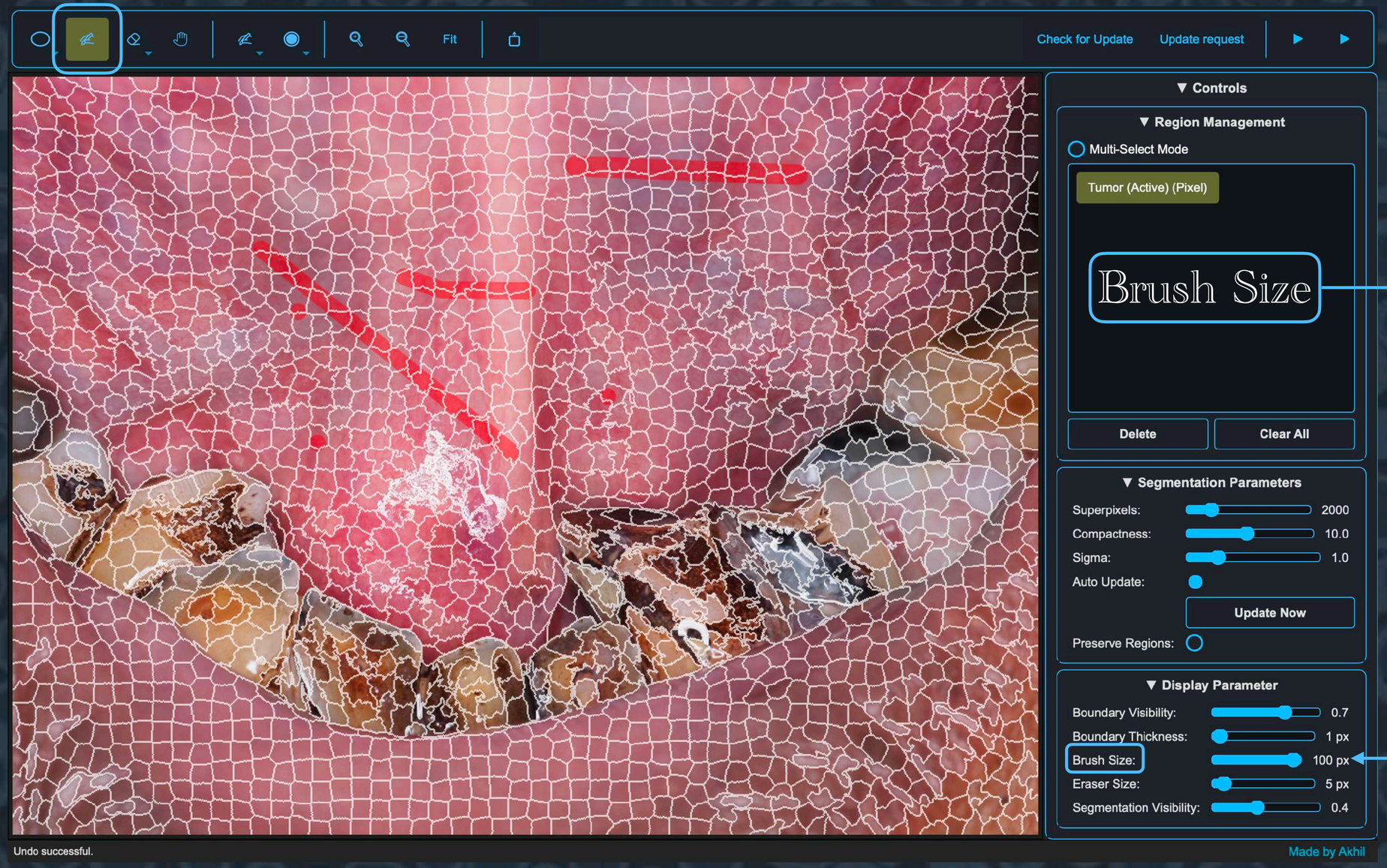
1. Lasso Tool

2. Rectangle tool

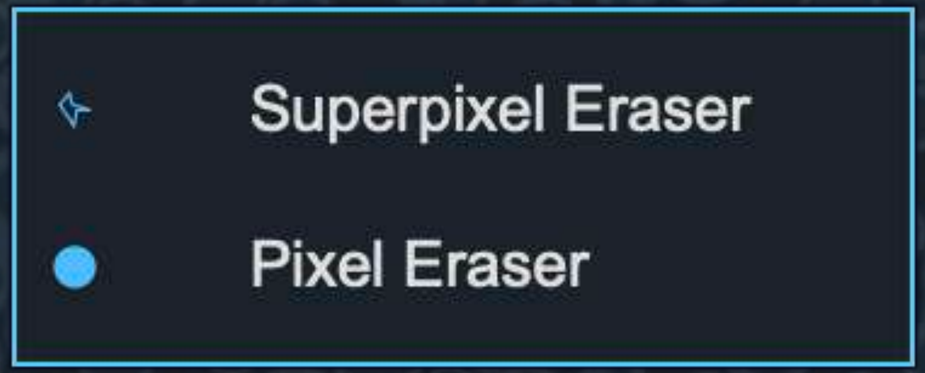
3. Ellipse Tool



# 2.1.2 Brush Tool



# 2.1.3 Eraser Tool




SuperPixel Eraser: It will erase the SuperPixel (annotation done by the Draw Tool only)

Pixel Eraser:- It will erase the pixel (annotation done by Paint Brush)

# 2.1.4 Pan Tool

Pan Tool:- It is use to drag the zoomed image. Will work only when the image is zoomed

# 2.1.5 Zoom Tool

Zoom Tool:- It is use Zoom in , Zoom out Image. For detailed Annotation

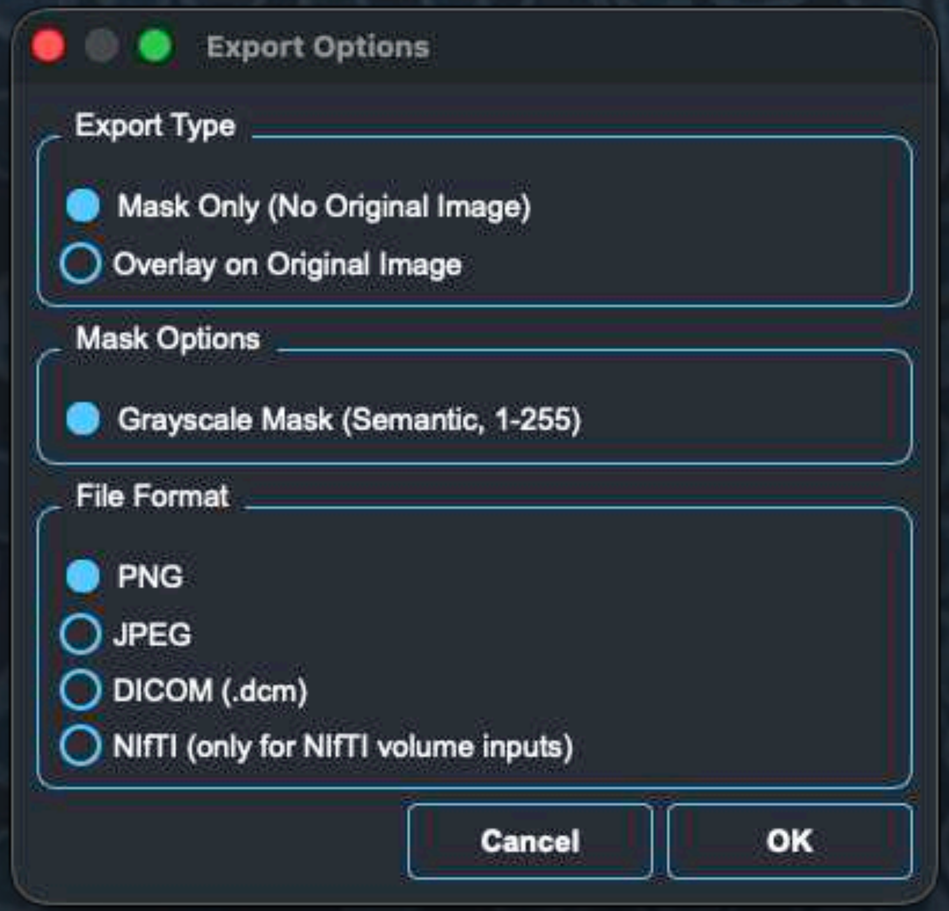
Fit Button:- It is use to Fit the image to screen (when the image is zoomed in or out).
To get back to original view

# 2.1.6 Fit Tool

Fit Button:- It is use to Fit the image to screen (when the image is zoomed in or out).
To get back to original view

# 2.1.7 Export Tool

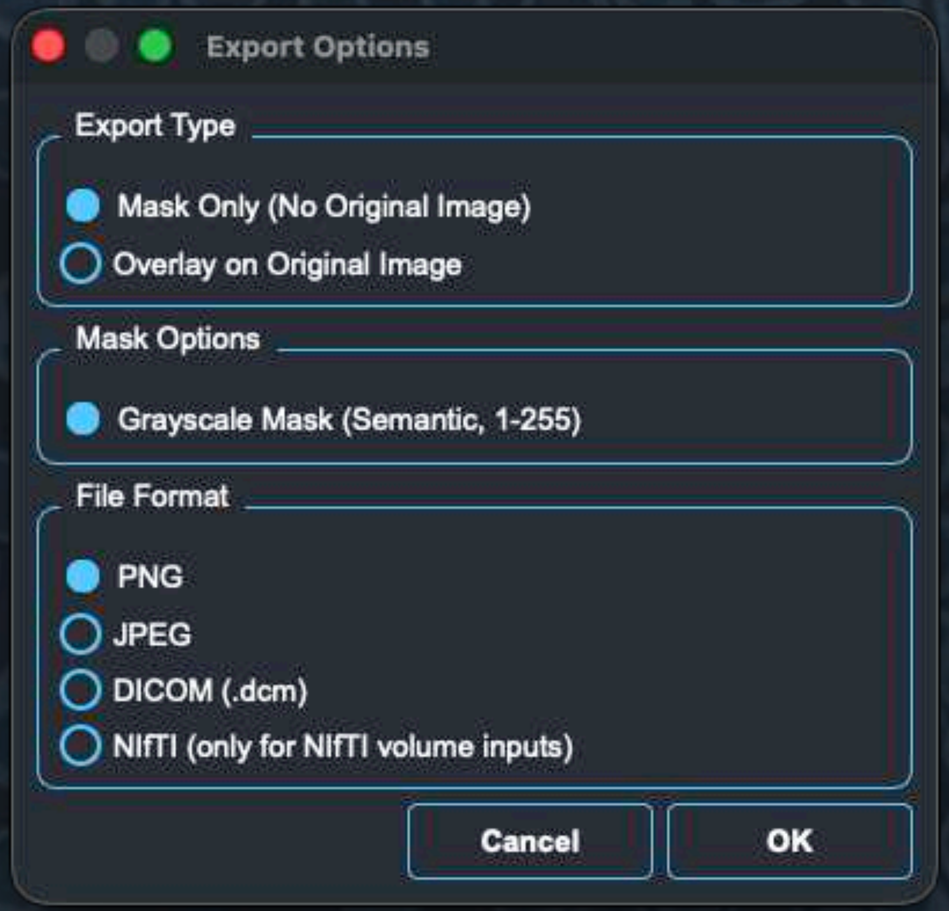
Export Type




Mask only: To save only mask.

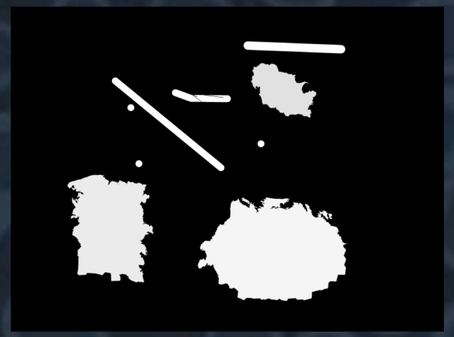
Overlay on original Image:- To overlay the annotation on the original image

# 2.1.7 Export Tool

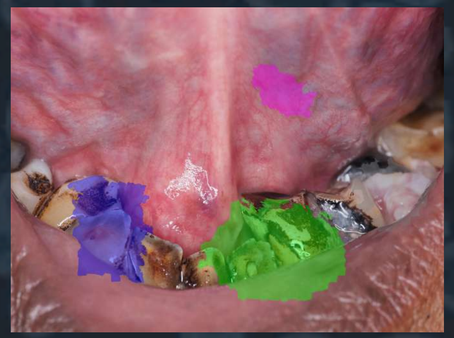



Export Type

Mask Only

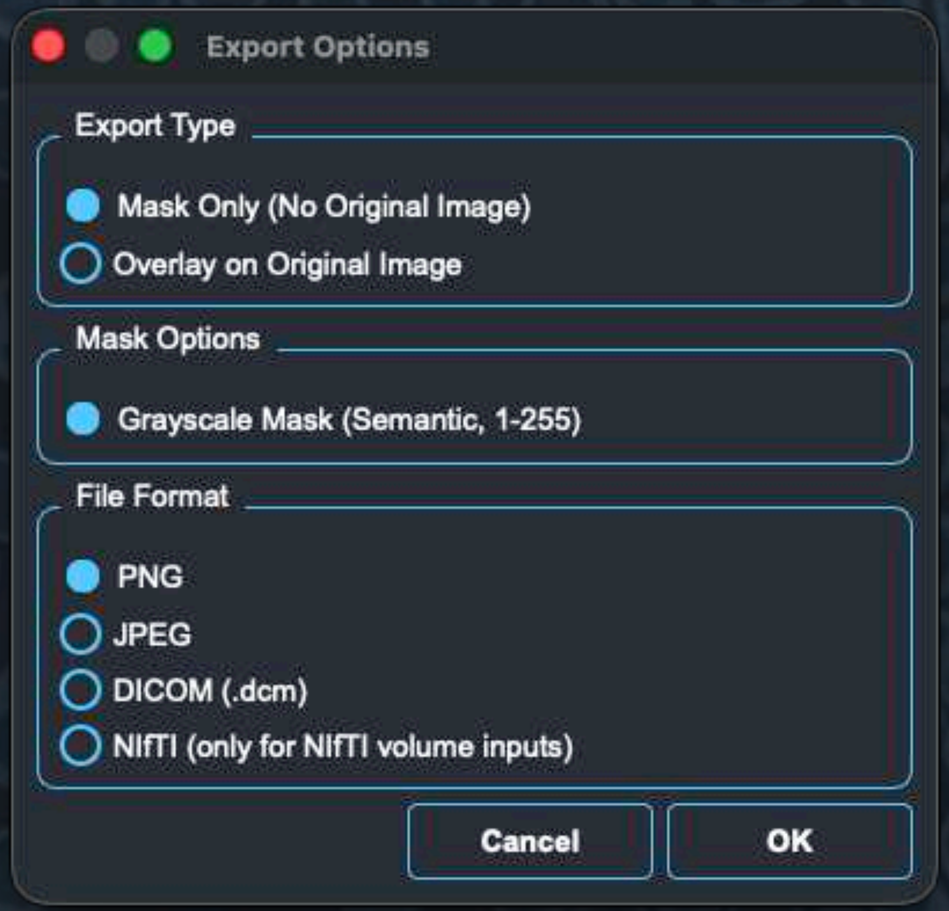


Overlay on Original Image Only



# 2.1.7 Export Tool

File Format




Note:

- Please, select the output format same as the input format.

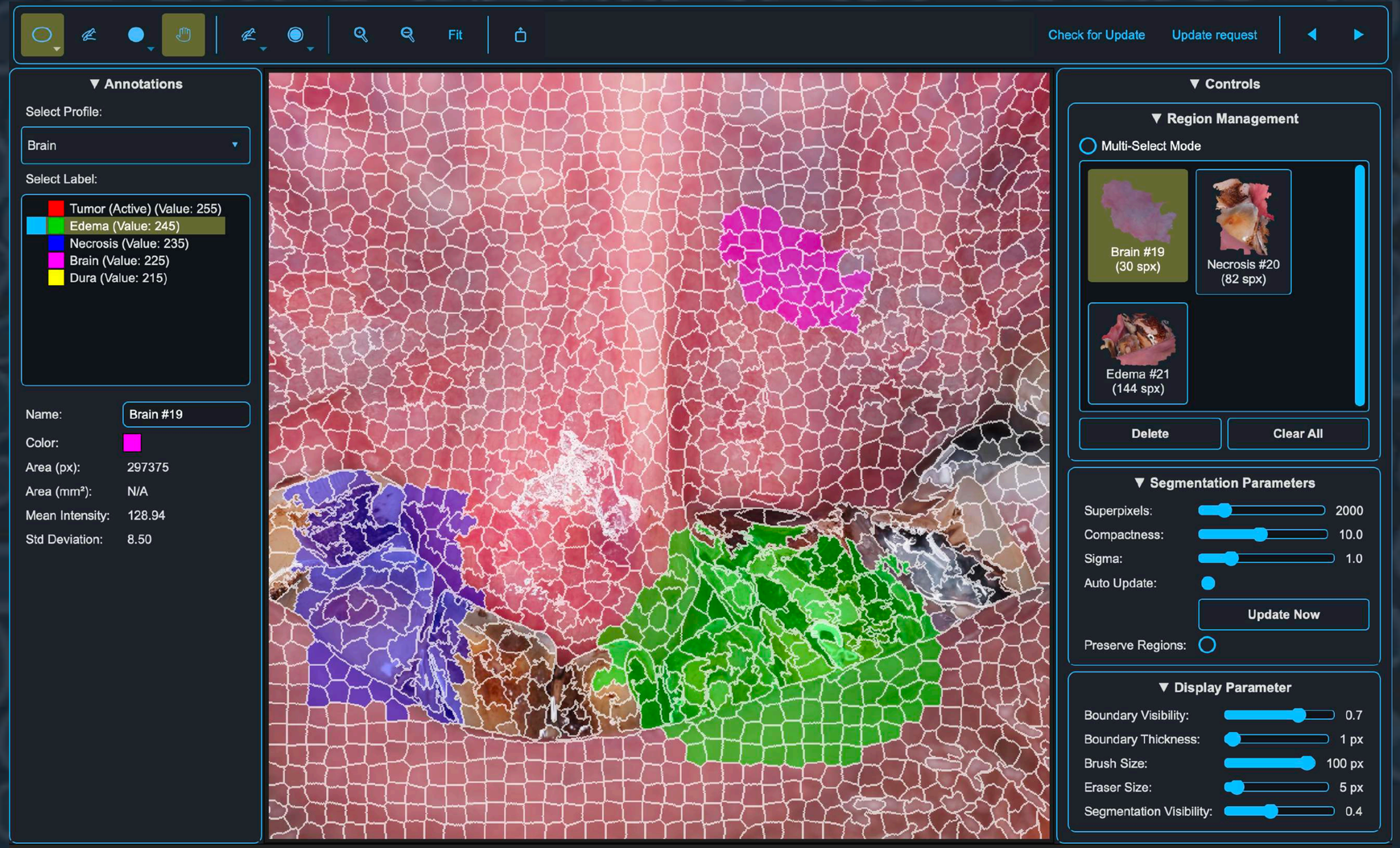
# 2.2 Features

1. Region Management
    1. Multi Select Mode
2. Segmentation Parameter
    1. SuperPixels
    2. Compactness
    3. Sigma
    4. Auto Update
3. Display Parameter
    1. Boundary Visibility
    2. Boundary Thickness
    3. Segmentation visibility
4. Annotations
    1. Profiles
    2. Labels

# 2.2.1 Region Management

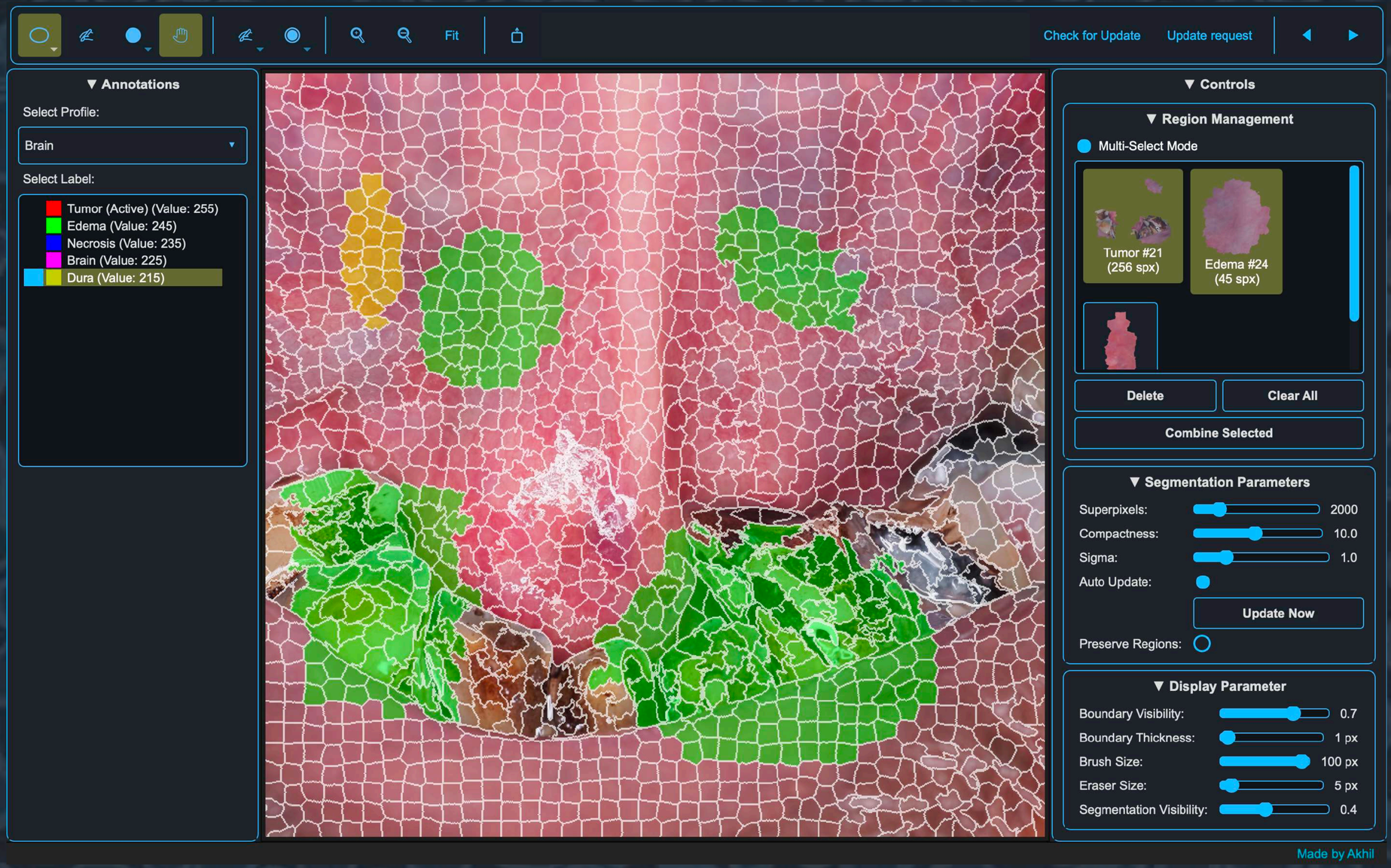
Any annotation you did, that region will be shown in the region management. And when selecting that region then on the left side it show that region information ( Area (in px), Mean Intensity, Std Dev. )

In the Region Management you can "Delete" the region individually or "Delete" all of the region using "Clear All".



# 2.2.1 Region Management

**Multi-Select Mode:** By clicking this you can select the region from the region management and club together for same label using "Combine Selected"

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# 2.2.2 Segmentation Parameter

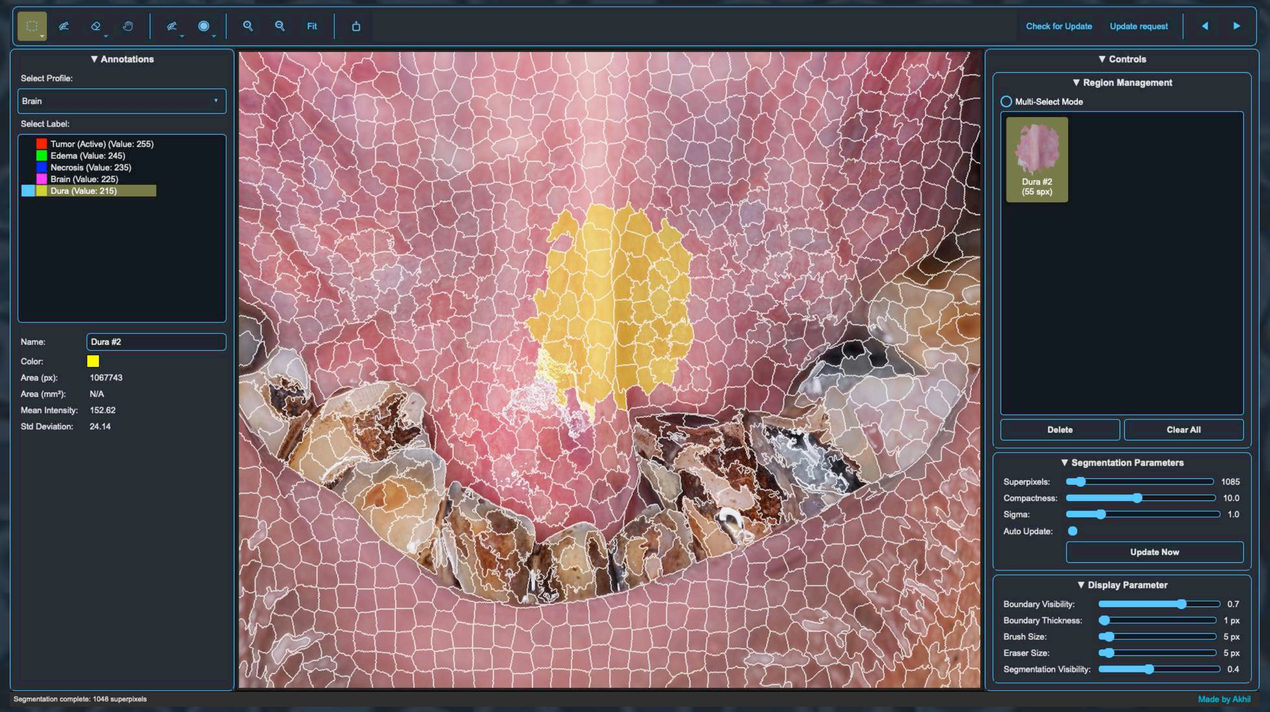
1. SuperPixels
2. Compactness
3. Sigma
4. Auto Update

Note: After completing the annotation, if you change the segmentation parameter, you will be presented with two options:

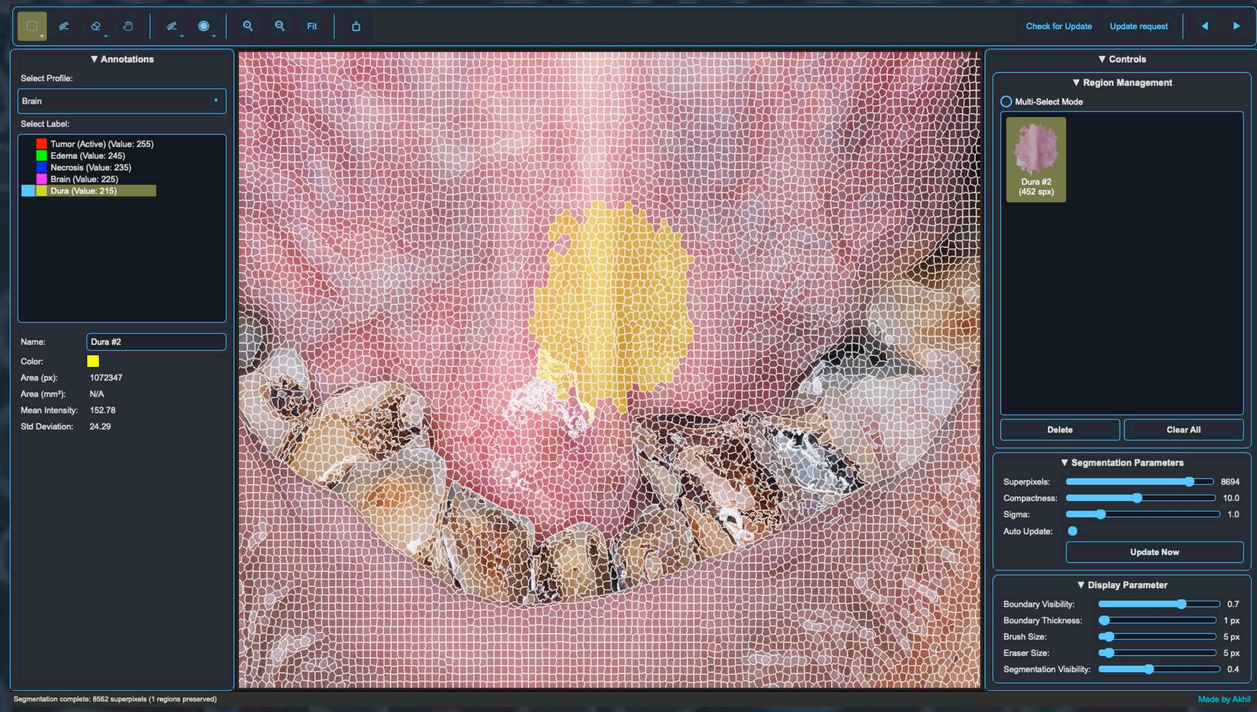
- Preserve existing annotations you have already done.
- Clear all current annotations and re-annotate after applying the new parameter.

# 2.2.2 Segmentation Parameter

1. SuperPixels: It is parameter which let you control the number of SuperPixel (boxes) to create in the given input.




SuperPixels = 1085




SuperPixels = 8694

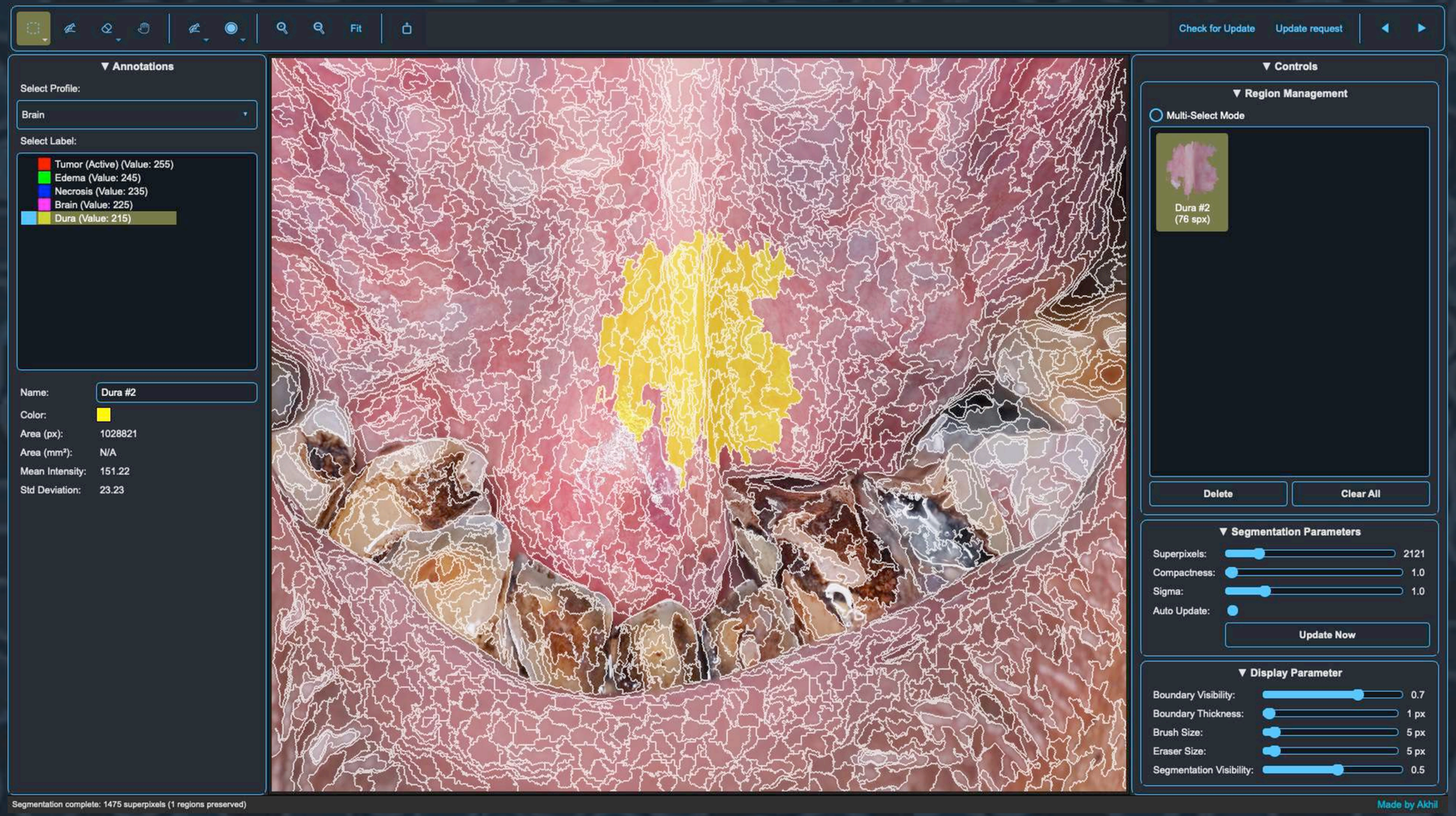
# 2.2.2 Segmentation Parameter

2. Compactness: This controls how square or irregular the segmentation blocks (superpixels) are.

- Low Compactness (e.g., 1.0): The blocks are flexible. They wiggle and stretch to hug the natural boundaries of the tissue, following color changes very closely. Use this for complex, irregular shapes.
- High Compactness (e.g., 20.0): The blocks try to stay square and uniform, ignoring small color details. Use this when you want a neat, grid-like appearance.
- Simple Rule: Lower compactness fits the tissue better; higher compactness looks tidier.

# 2.2.2 Segmentation Parameter

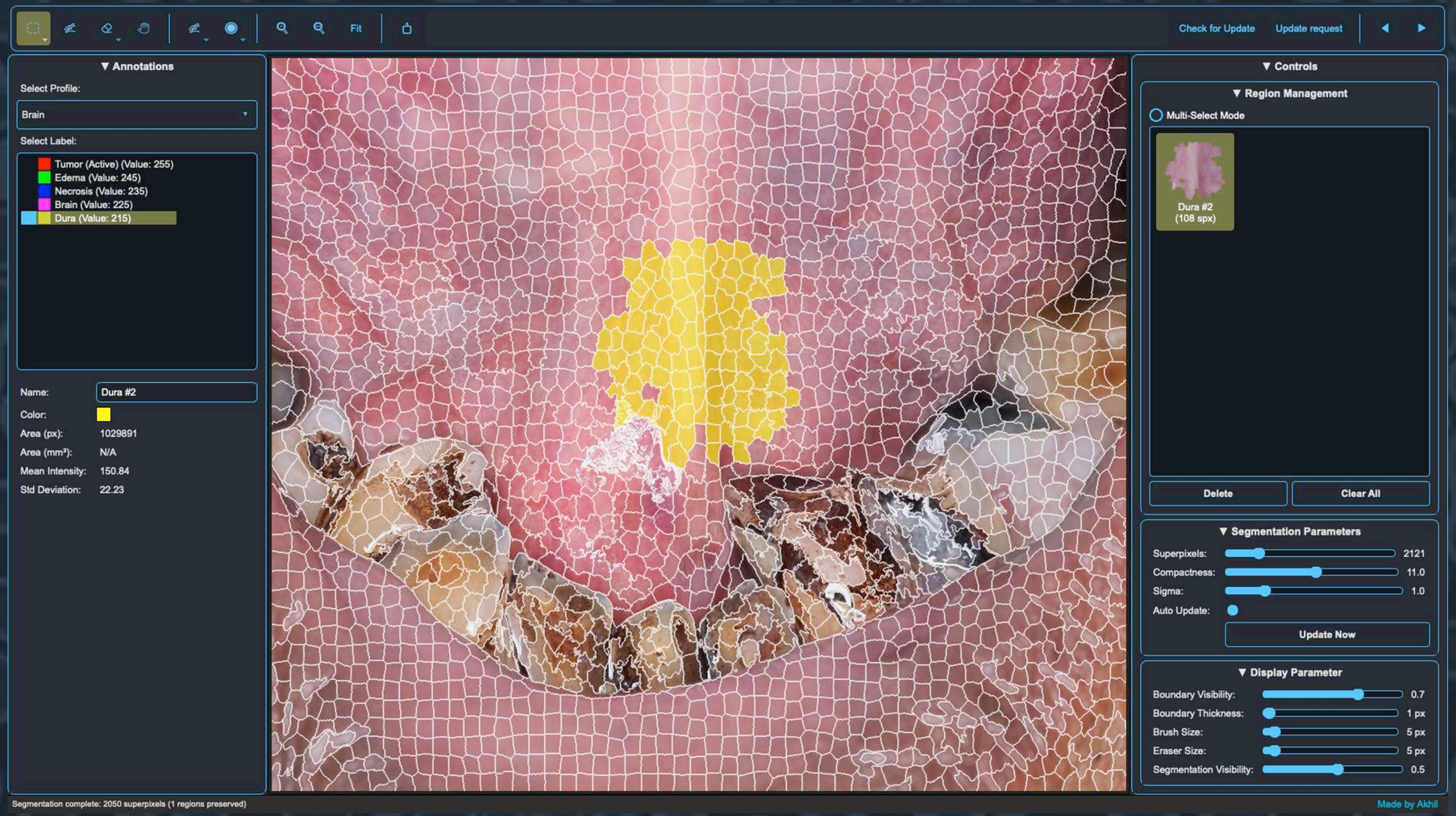
2. Compactness (value 1.0)




Compactness 1.0: Blocks follow tissue curves.

# 2.2.2 Segmentation Parameter

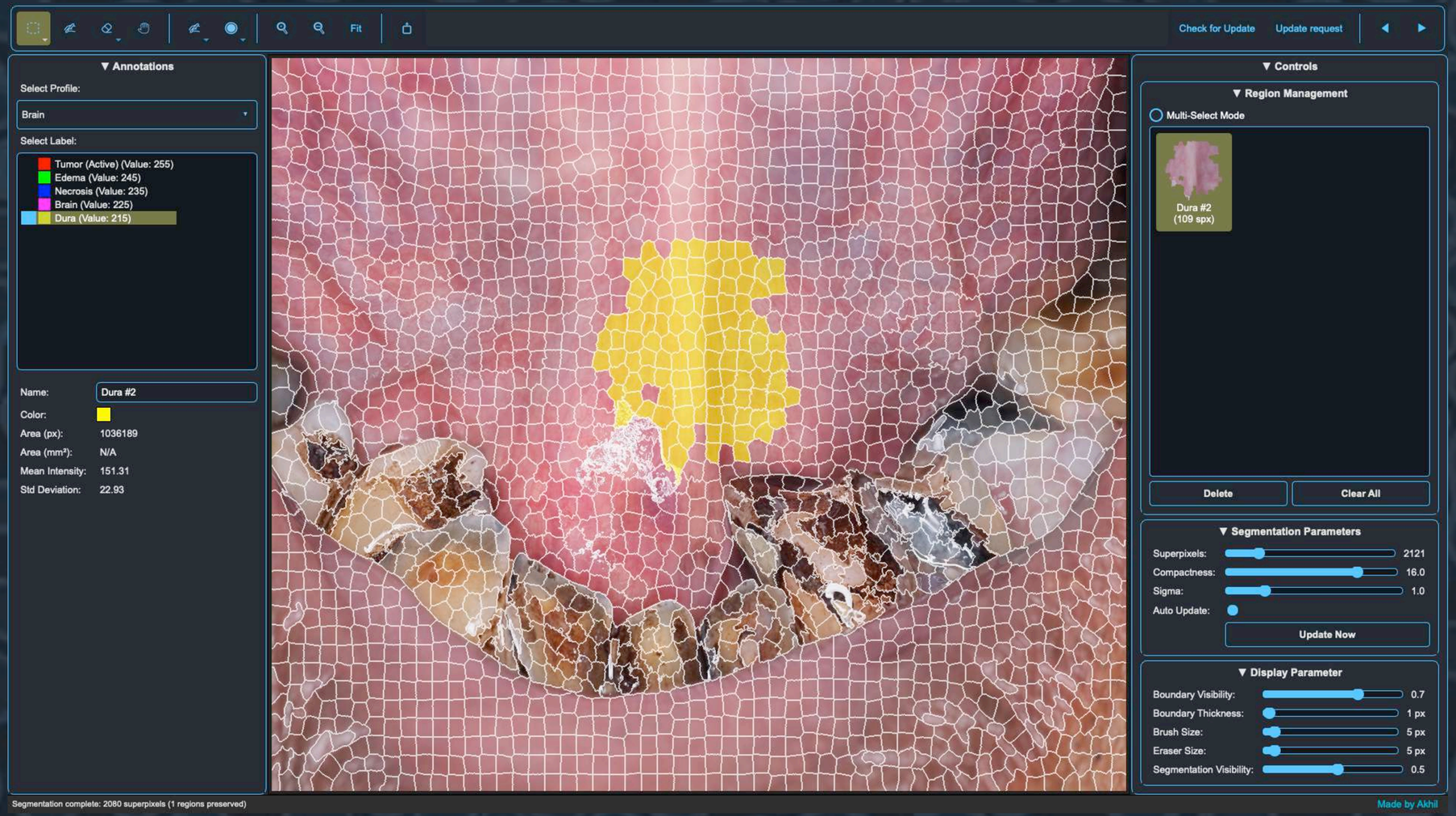
2. Compactness (value 11.0)




Compactness 11.0: Blocks become more square.

# 2.2.2 Segmentation Parameter

2. Compactness (value 16.0)




Compactness 16.0: Blocks are very rigid and square.

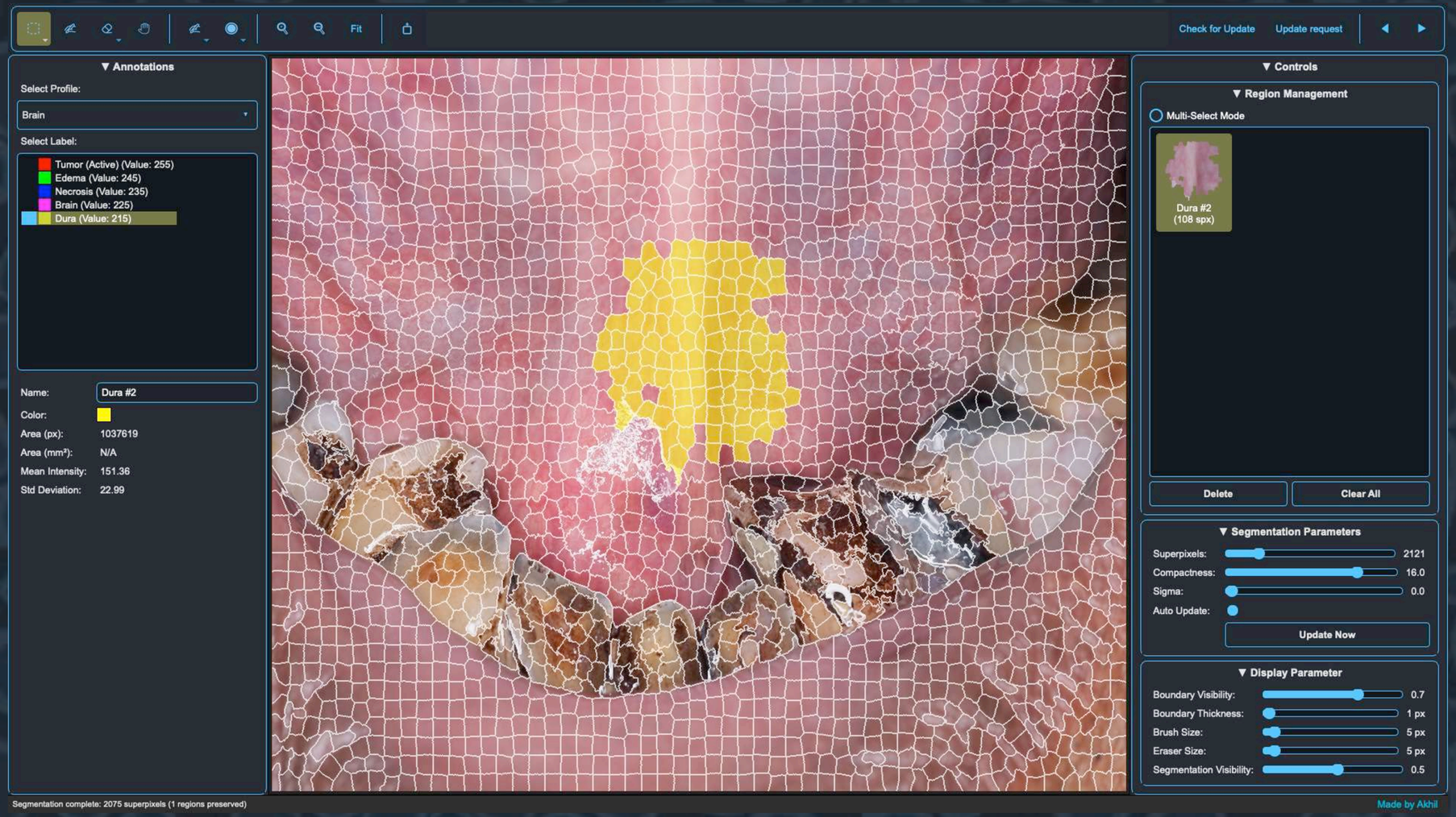
# 2.2.2 Segmentation Parameter

3. Sigma: This controls how much "blur" is applied before analysing the image. It helps the software ignore noise (graininess) in the scan.

- Low Sigma (e.g., 0): The software sees every tiny detail, including grain and noise. This can create jagged, messy boundaries.
- High Sigma (e.g., 2.0+): The software smooths out the image first. This results in smoother, cleaner boundaries but might miss very small or faint lesions.
- Simple Rule: Increase Sigma if the segmentation looks too "jittery" or noisy.

# 2.2.2 Segmentation Parameter

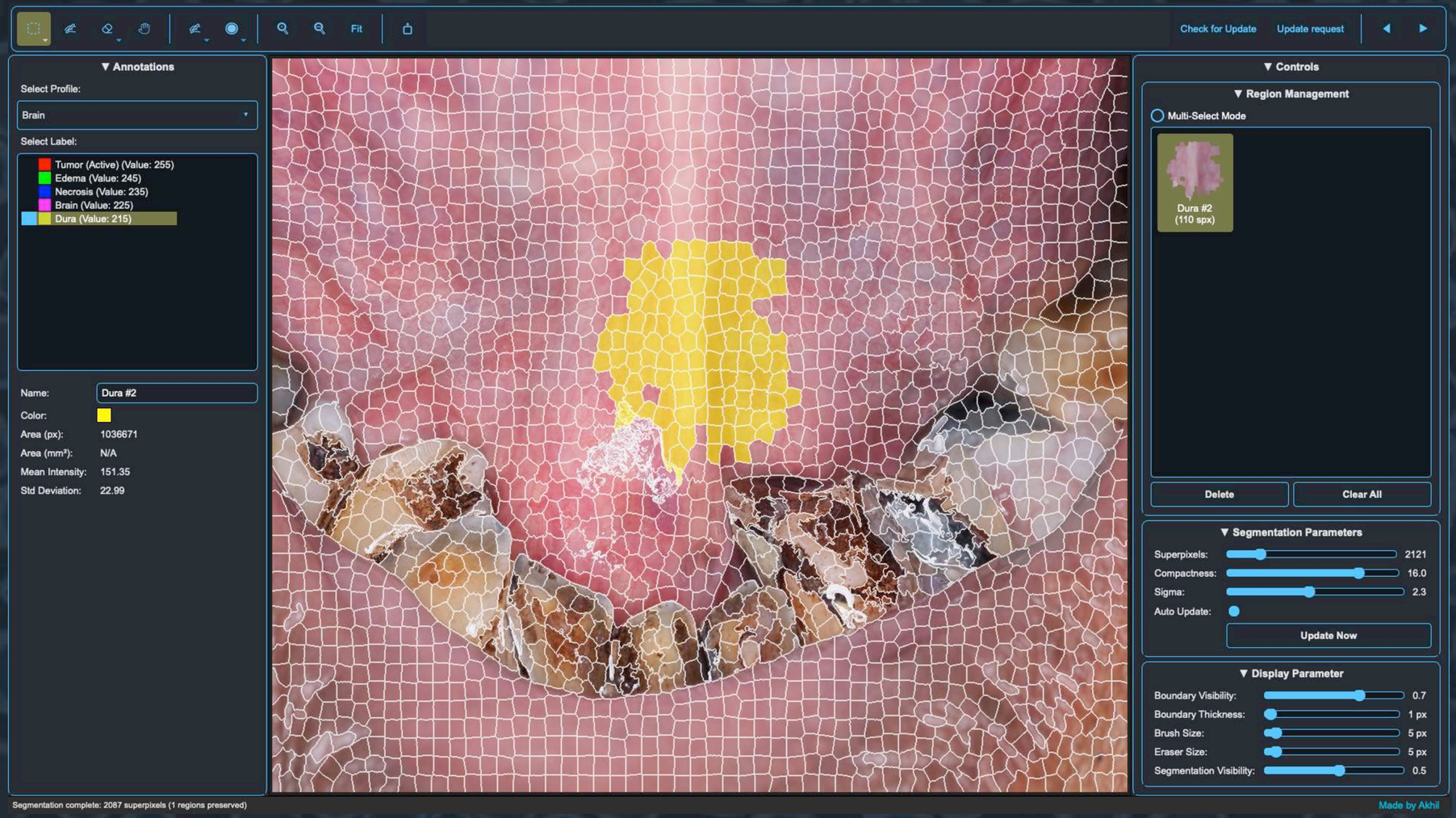
3. Sigma (value 0):




Sigma 0.0 – High detail sensitivity; boundaries may look jagged if image is grainy.

# 2.2.2 Segmentation Parameter

3. Sigma (value 2.3):




Sigma 2.3 – Smoother processing; boundaries are cleaner and ignore image noise.

# 2.2.2 Segmentation Parameter

4. AutoUpdate: This option ensures that changes take effect immediately when you modify a parameter. However, if any conflict occurs, a pop-up will appear asking for your response.

# 2.2.3 Display Parameter

⚠️ NOTE: Labels for segmentation visibility are randomly chosen for demonstrative purposes only. This image serves solely for illustration; disregard the specific labels as correct.

Fit

Check for Update

Update request

▼ Annotations

Select Profile:

Brain

Select Label:

- Tumor (Active) (Value: 255)
- Edema (Value: 245)
- Necrosis (Value: 235)
- Brain (Value: 225)
- Dura (Value: 215)

Slider Value

This slider is for the segmentation boundary mesh visibility

At 0 At 0.5 At 1.0

Slider Value

This slider is for the segmentation boundary mesh thickness

At 1px At 3px At 6px

Slider Value

This slider is for the segmented region visibility

At 1.0 At 0.4

▼ Controls

▼ Region Management

Multi-Select Mode

Delete

Clear All

▼ Segmentation Parameters

Superpixels: 2000

Compactness: 10.0

Sigma: 1.0

Auto Update:

Update Now

Preserve Regions:

▼ Display Parameter

Boundary Visibility: 0.7

Boundary Thickness: 1 px

Brush Size: 5 px

Eraser Size: 5 px

Segmentation Visibility: 0.4

Lasso Tool - Draw to select superpixels

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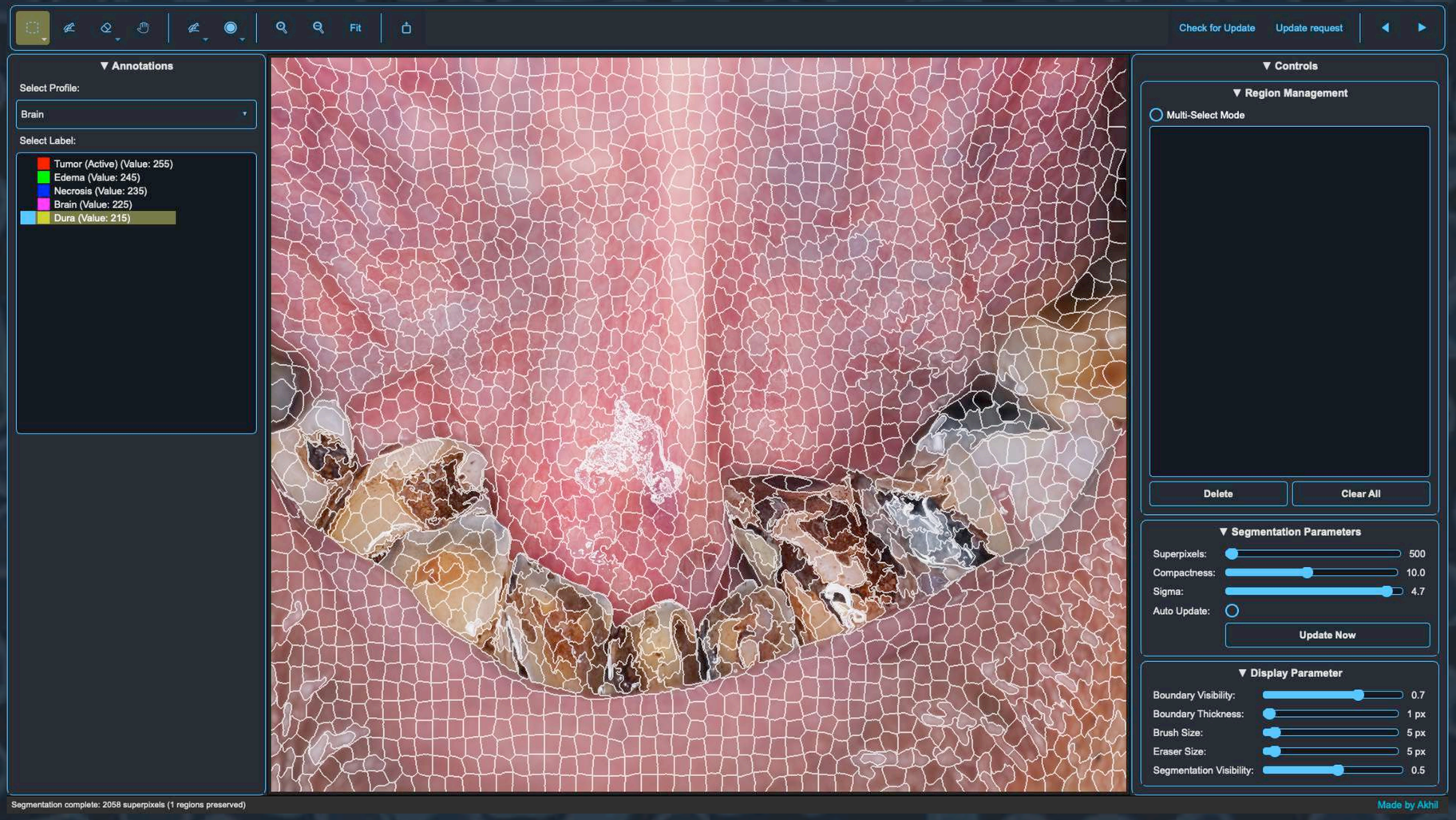
# 2.4 Annotations

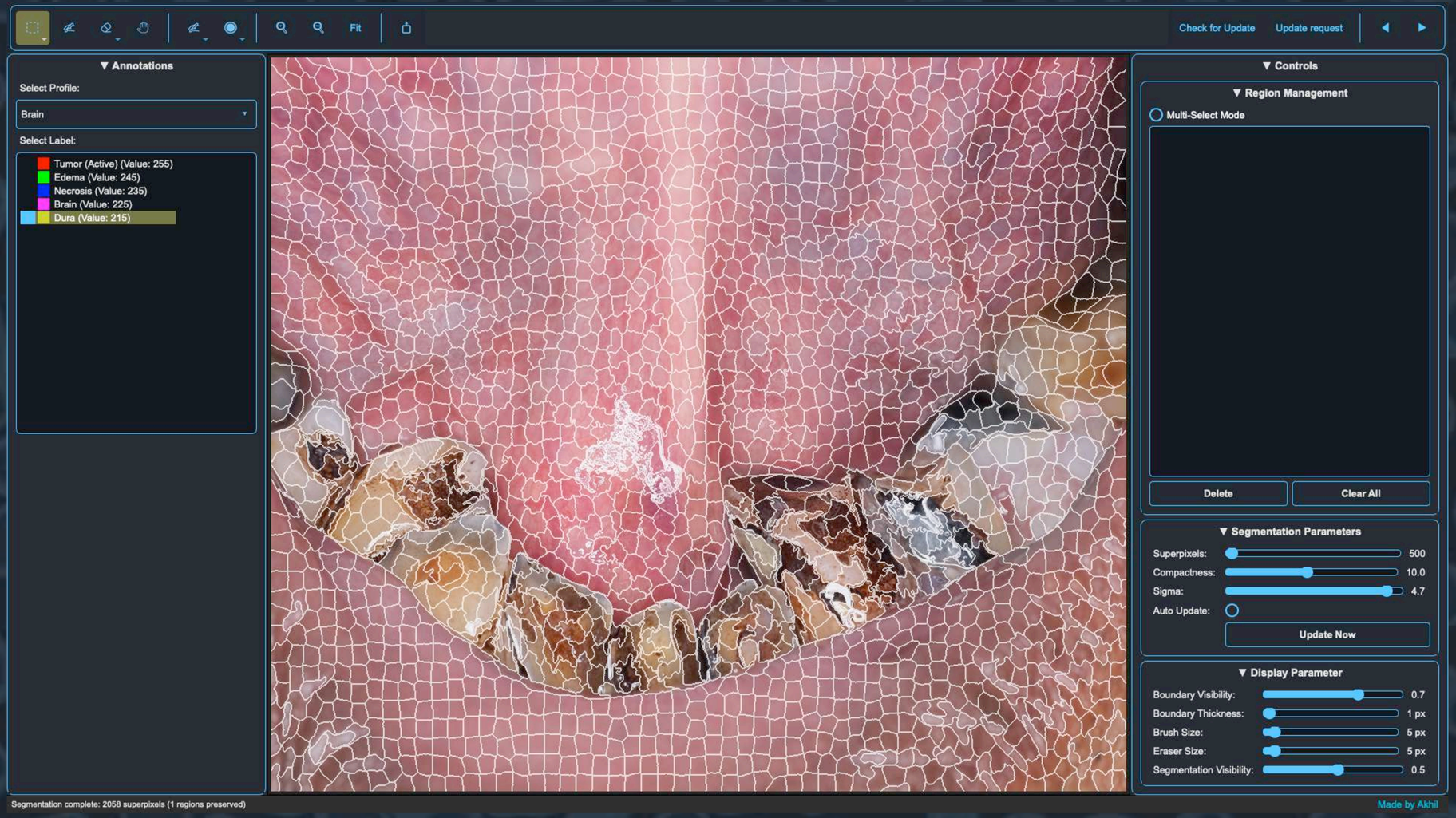
1. Profile: In this you can select the lesion type you want to annotate.



# 2.4 Annotations

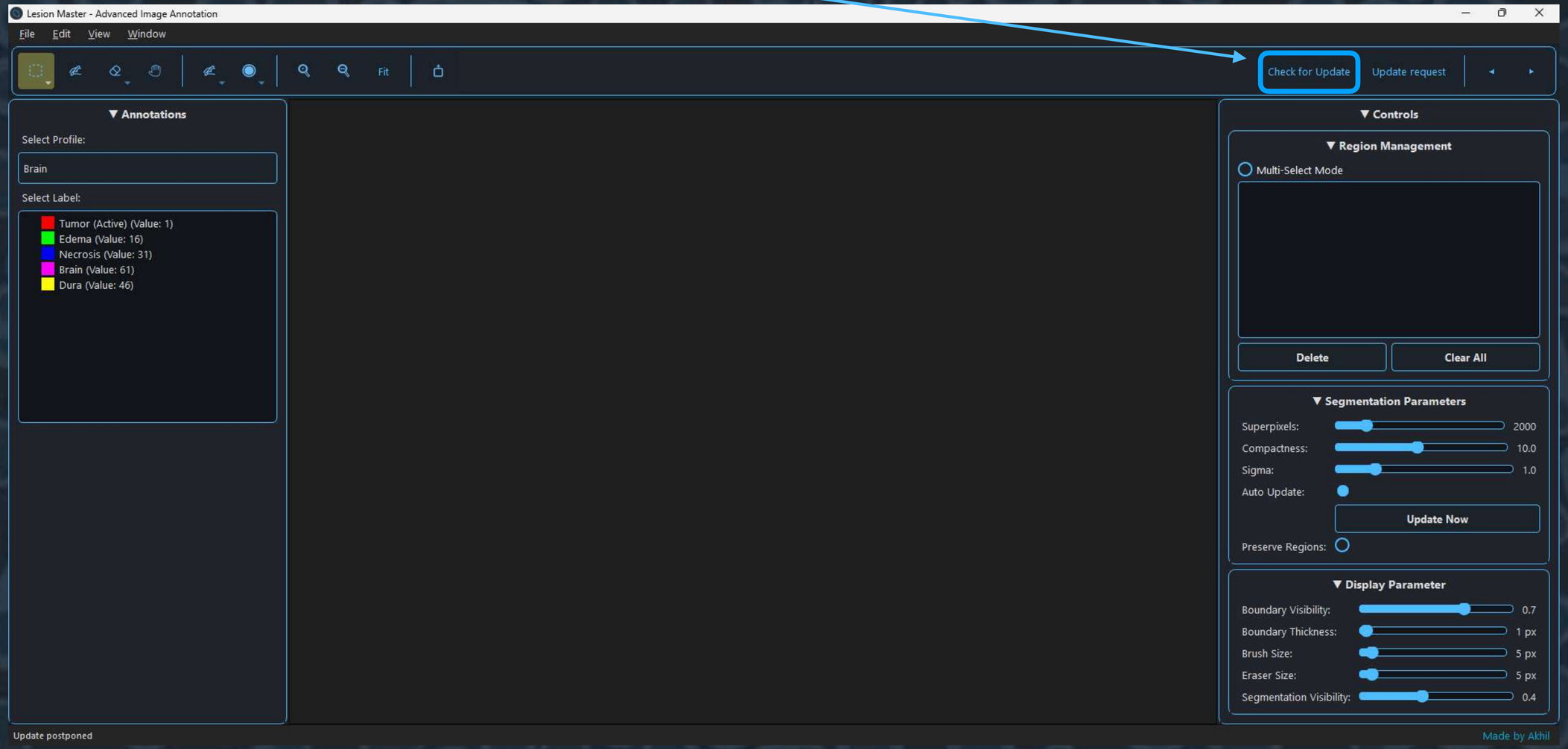
1. Labels: In this you will get the corresponding label of the selected Profile

Note: the numbers written for each label is the greyscale value which shows the greyscale value of the mask that will be generated.



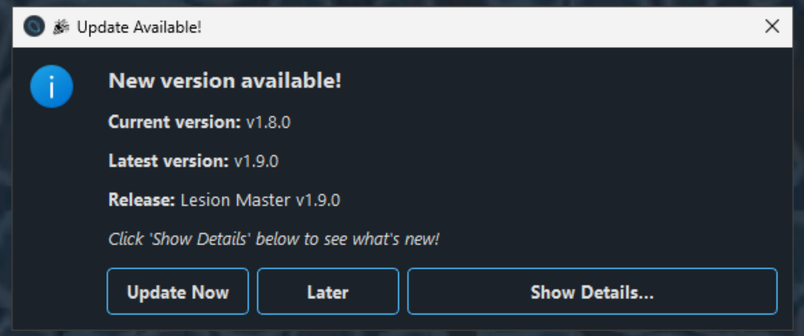
# 3. How to update software

Click on the "Check for Update" button. A dialogue box will appear.

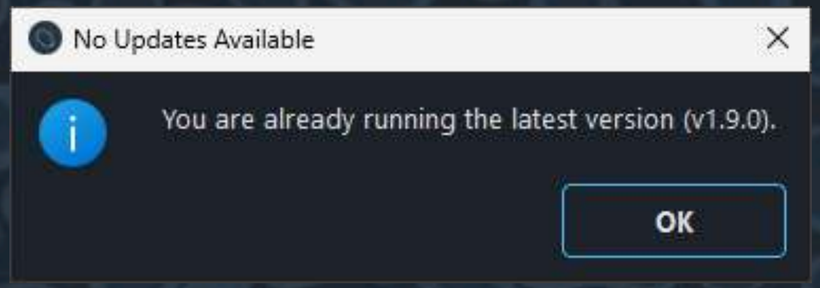


# 3. How to update software

If update is available it will show

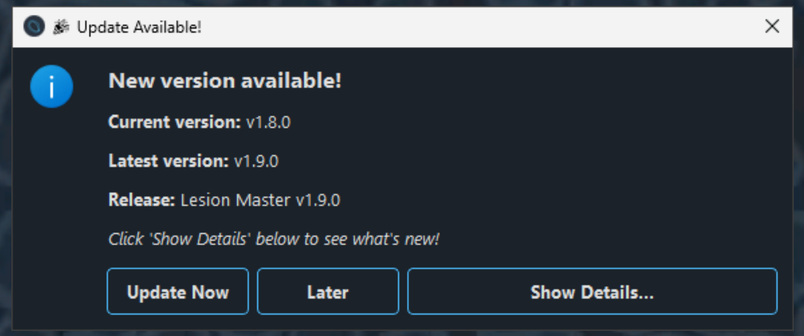



If not then it will show

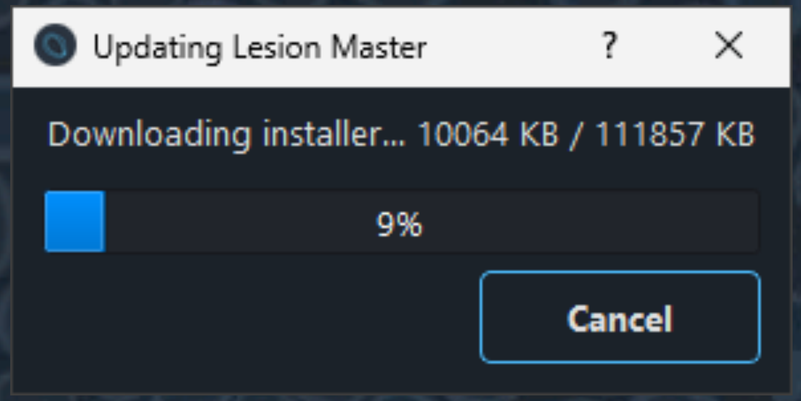


# 3. How to update software

To update click on "Update Now"

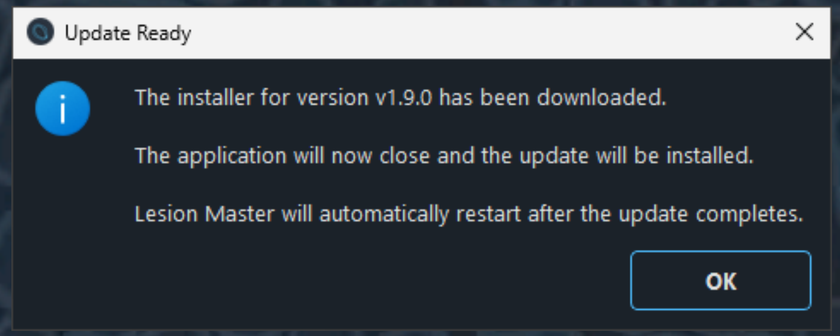



Update will start downloading and will show



# 3. How to update software

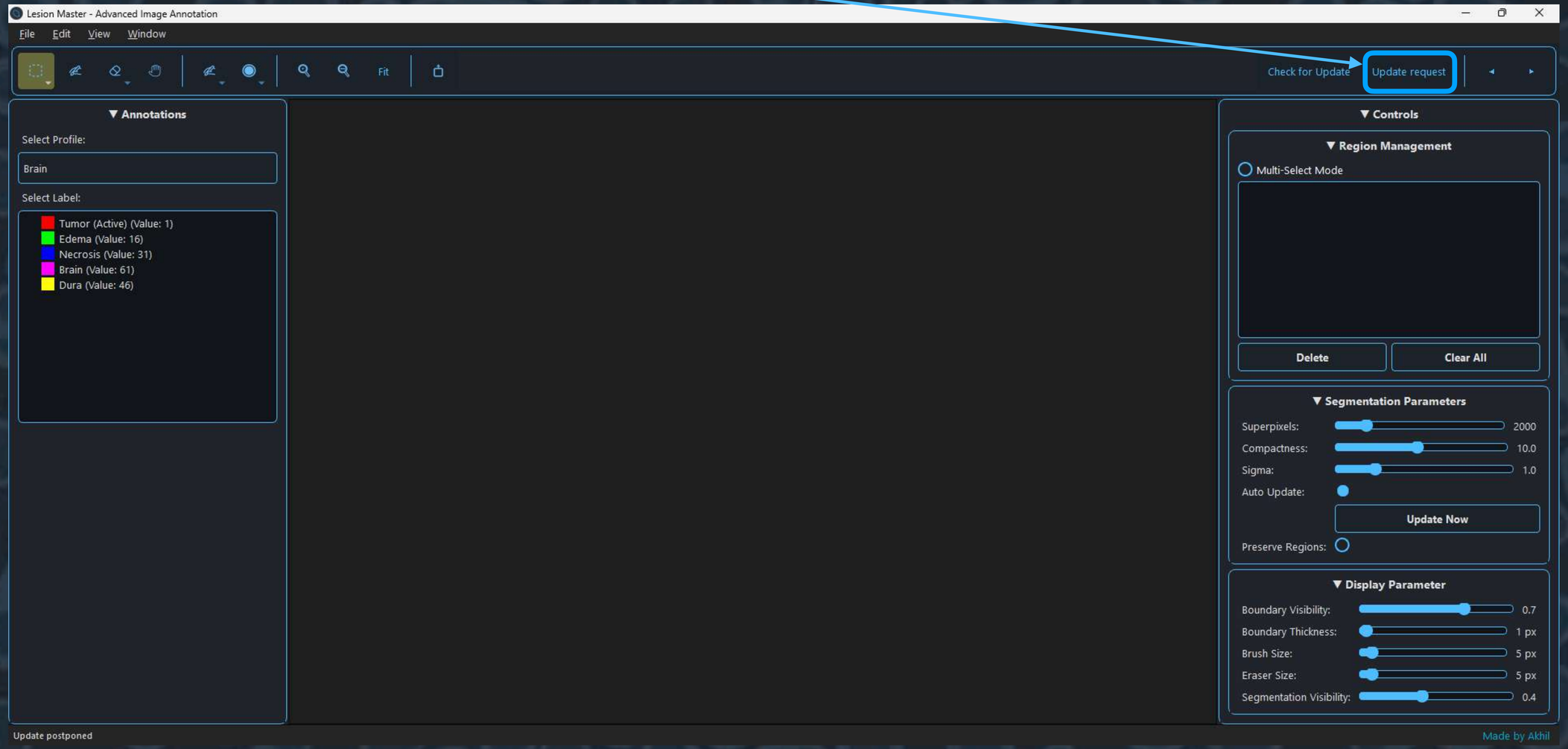
After the update is downloaded it will show




Note: If the software does not launch automatically, please try opening it manually.

# 4. How to request for Feature addition/Bug

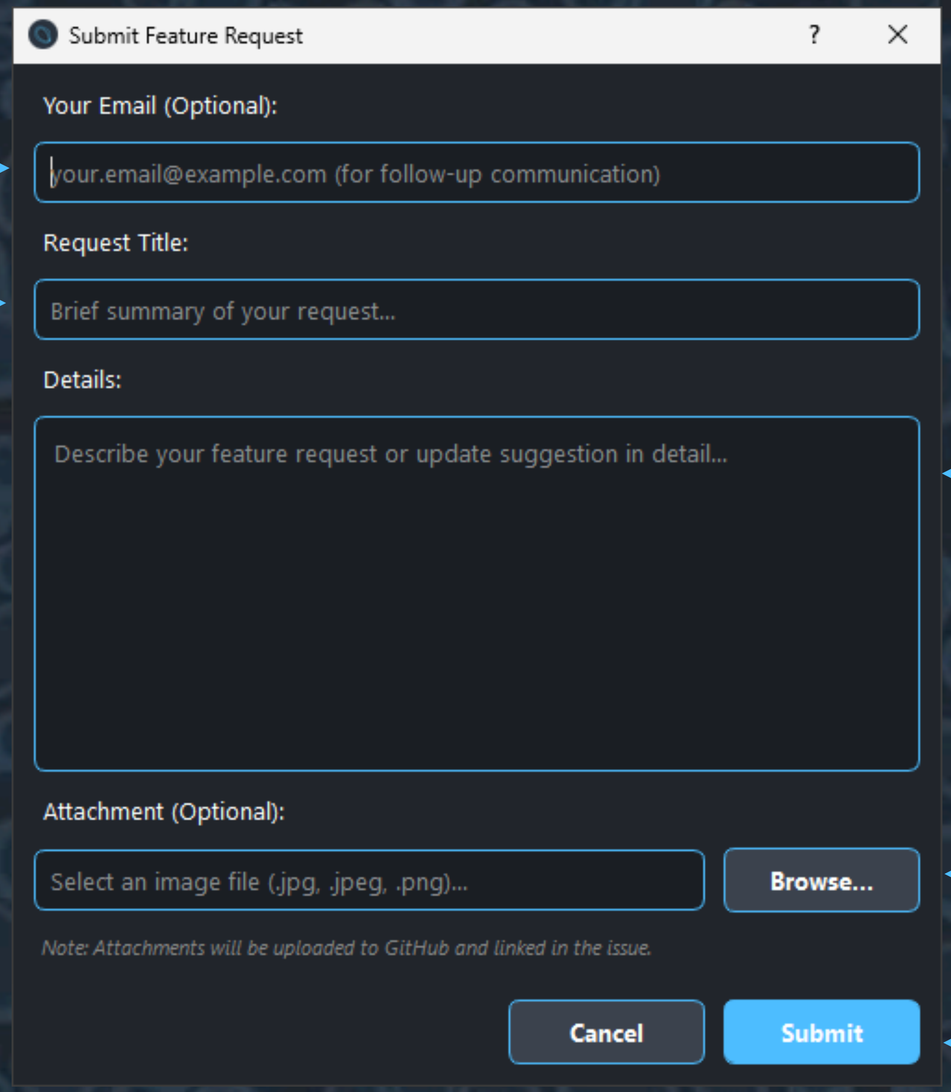
Click on the "Update request" button. A dialogue box will appear.



# 4. How to request for Feature addition/Bug

Enter your Email ID

Request Briefing if you are requesting feature type feature request in the title or reporting bug type bug report in the title




Describe the feature you want or the bug you found

Attach Image if you want

Click on submit

# The End...