

## 2.4 IR Beamline\_Agilent IR imaging instrument user manual

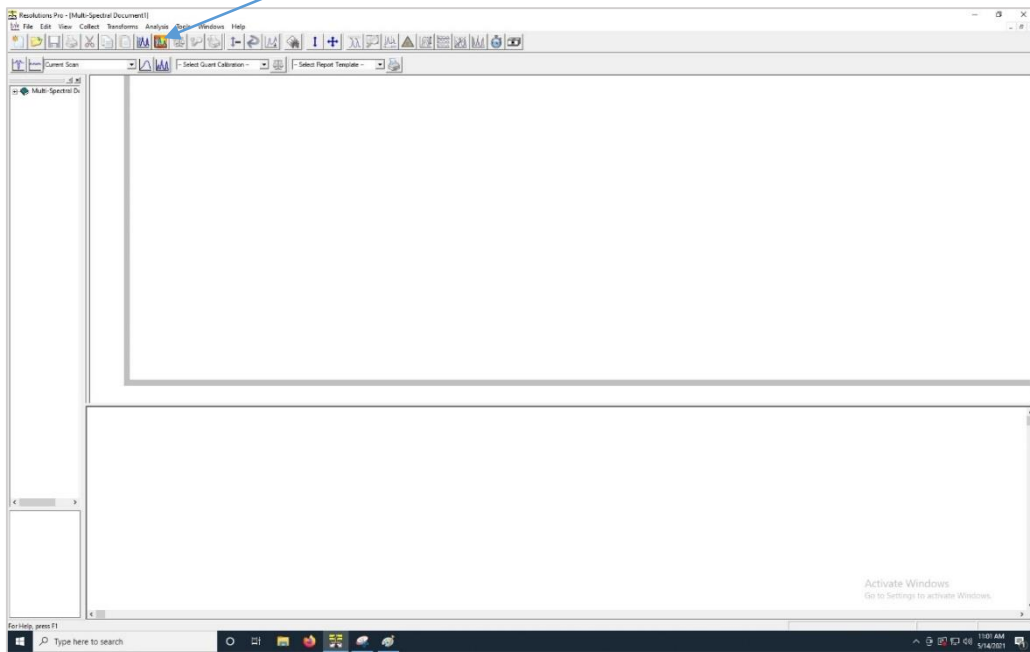


- Start by filling the MCT detector with liquid nitrogen (only if trained and authorized to do so) and turn on the detector.
- Place sample on the stage, use the 4x objective to adjust focus in reflection mode (side controller) and then, chose the objective (15x or 25x and corresponding condenser) for the acquisitions. Go to a clean (no sample) substrate area to record a background (switch to transmission if using this mode with the side controller).

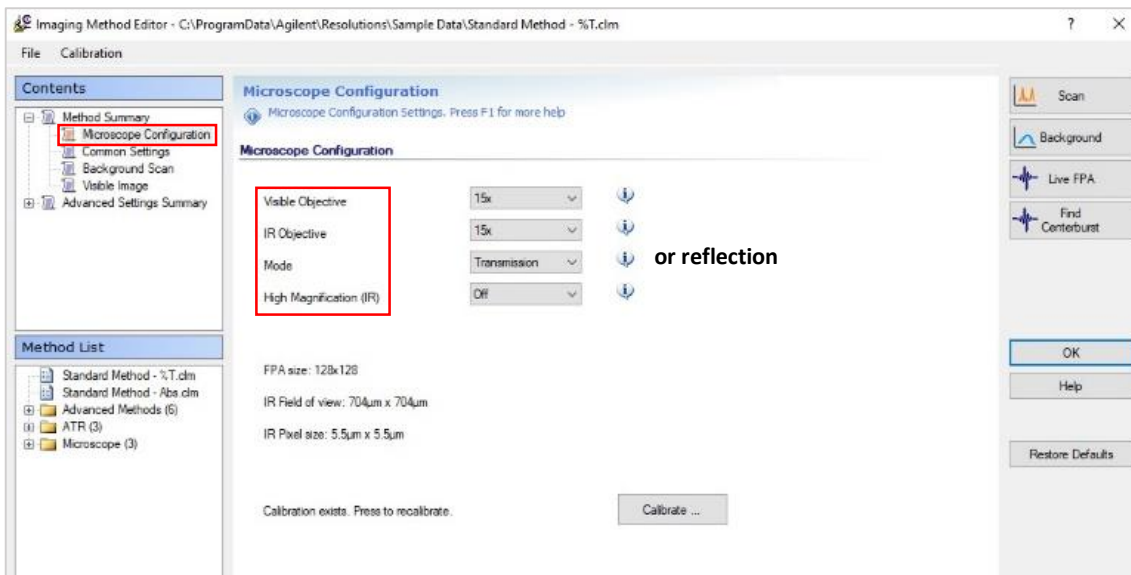
- Open the Resolutions Pro software by clicking on this icon:



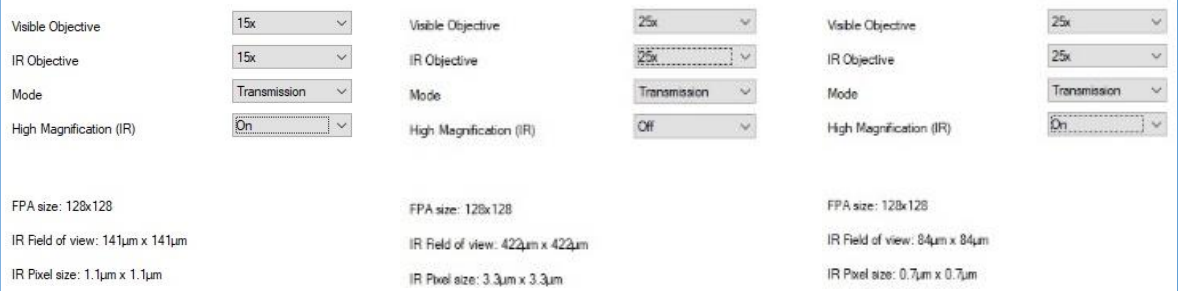
- Click on the “Imaging Setup” icon.

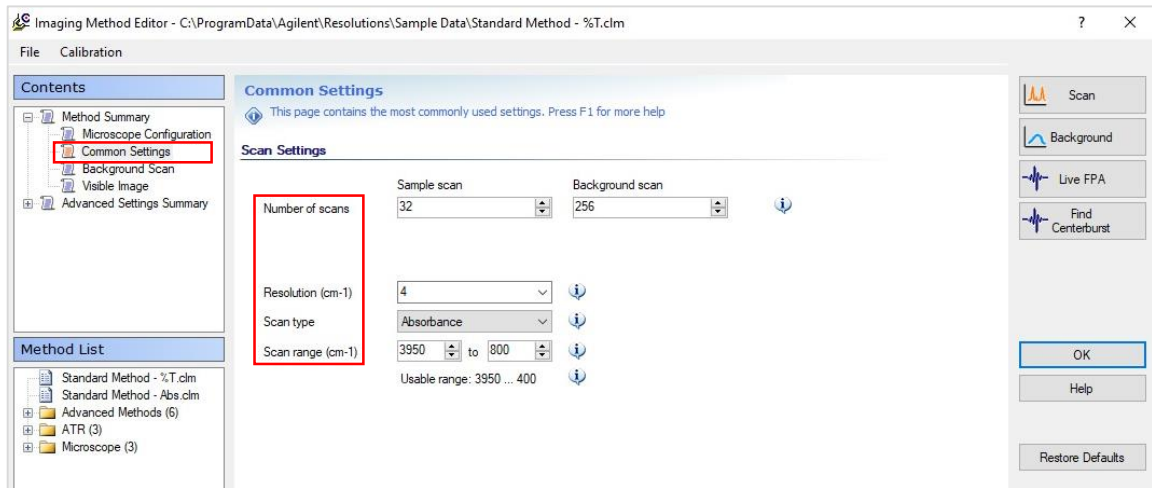


- The following window “Imaging Method Editor” will appear, chose parameters of acquisitions:

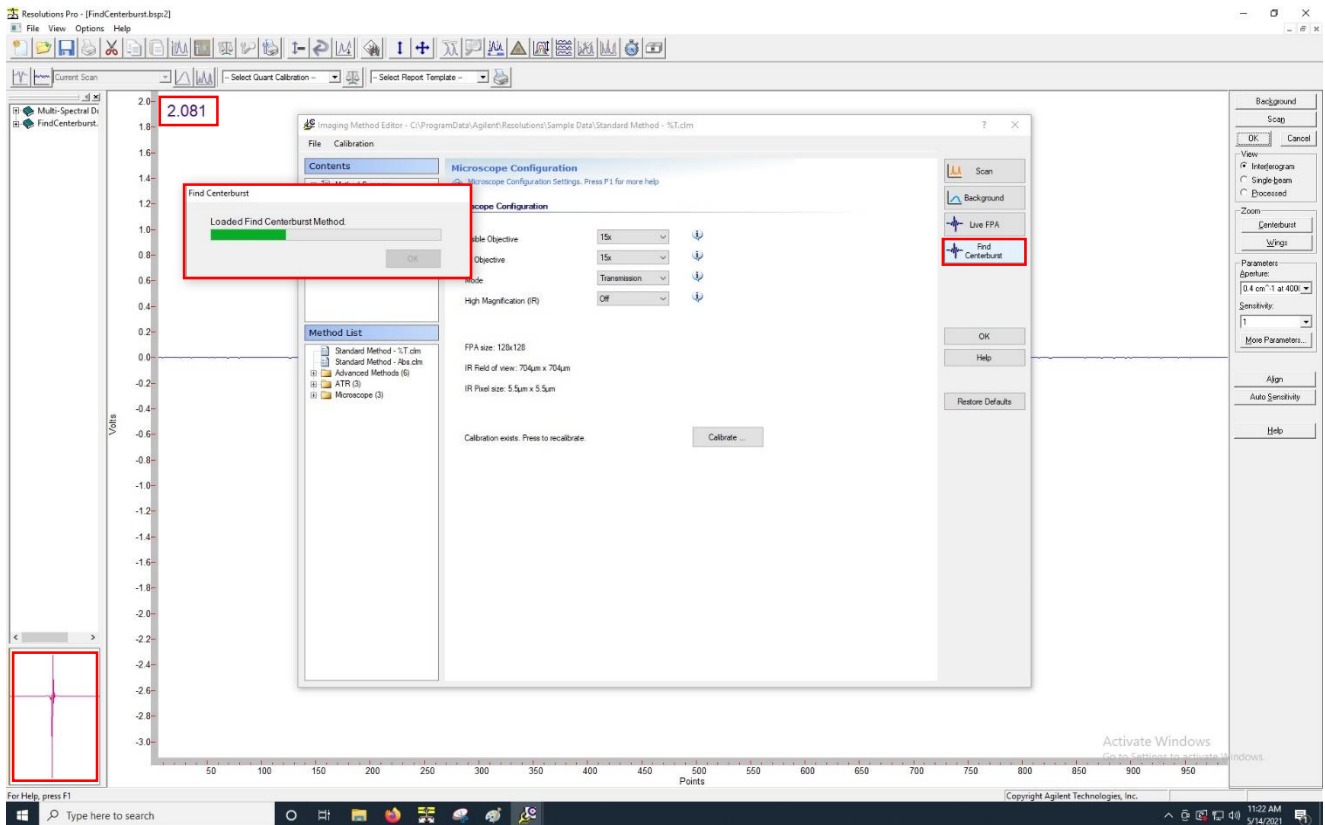


**Other options:**





- Click on “Find Centerburst”, an interferogram should appear → press “OK”

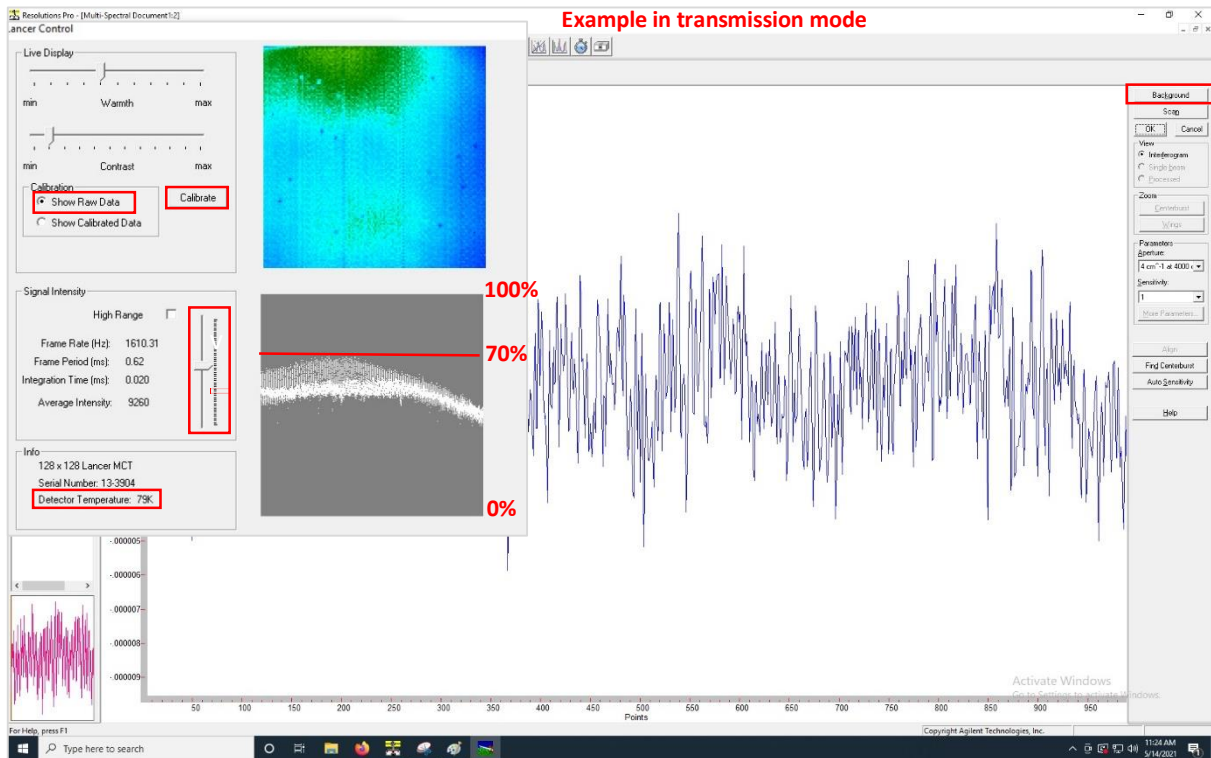


*Note: do not modify the calibration unless authorized.*

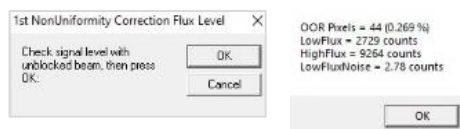
- Click on “Live FPA”, the “Lancer Control” window will appear.

*Note: check that temperature has reached -79°C (a red signal will appear if the detector is not cold enough).*

- Tick “Show Raw Data” and optimize signal energy with the level adjuster slider (the top of signal should be at no more than 70% of the dark grey window y axis to avoid signal saturation) and in transmission mode, with the condenser adjuster knob (on the microscope side) to obtain a signal as flat as possible.
- Click on “calibrate”.

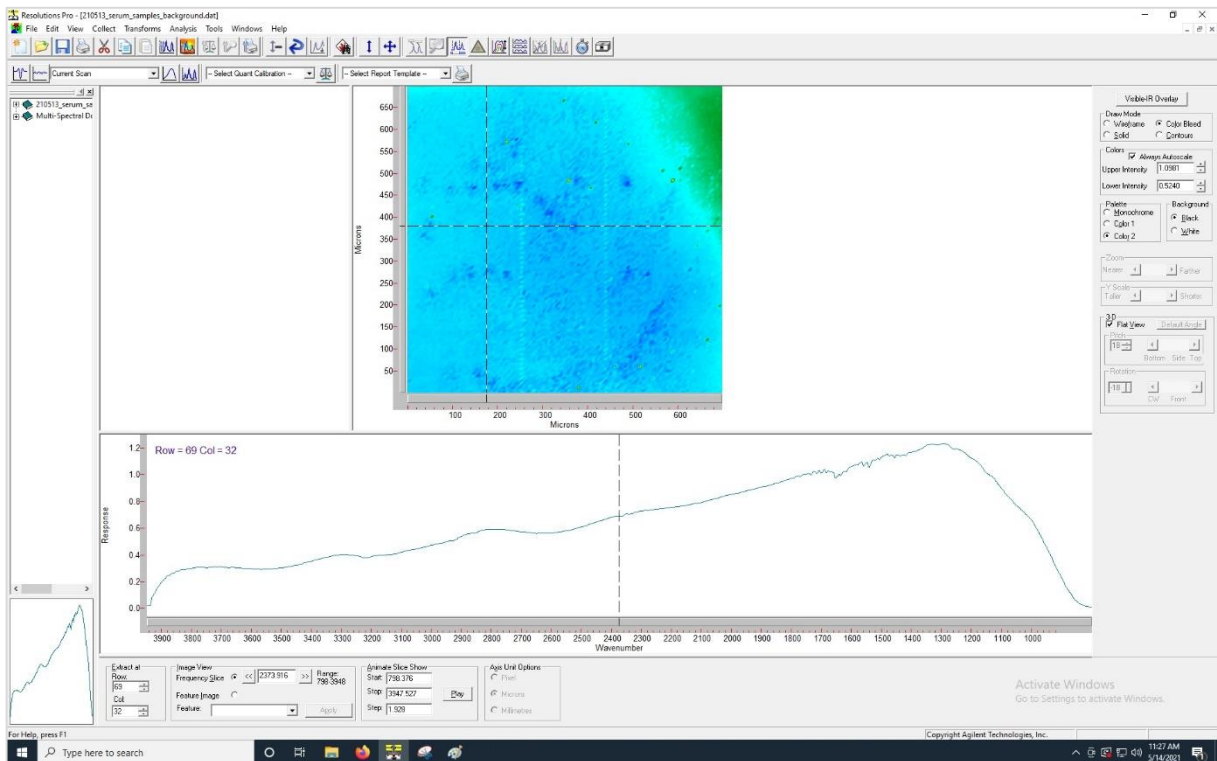


- These 2 windows will appear, press “OK”



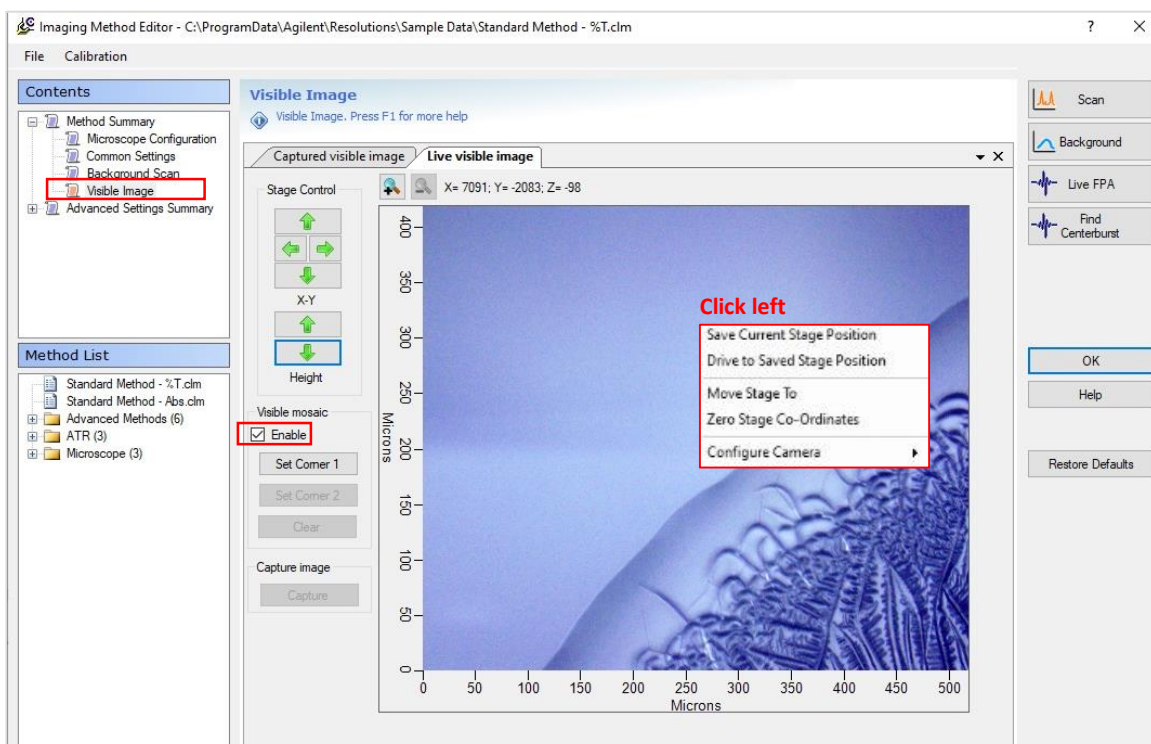
- Click on “Background”, create a folder, name and save the background file in “Document”.

## Example of a background (transmission mode)




Note: click on “file>close all> no” to avoid accumulating opened images or the software will crash.

- Once the background is recorded, click again on “Imaging Setup”.
- Switch to reflection mode and click on “Visible Image” in the “Imaging Method Editor” window.
- Go to a region of interest with the stage controller or directional (X-Y) green arrows if using in remote control. Focus can also be adjusted with the “Height” green arrows.
- Tick “Enable” and click on “Set Corner 1”, then “Set Corner 2” and “Capture” to scan a region of interest.

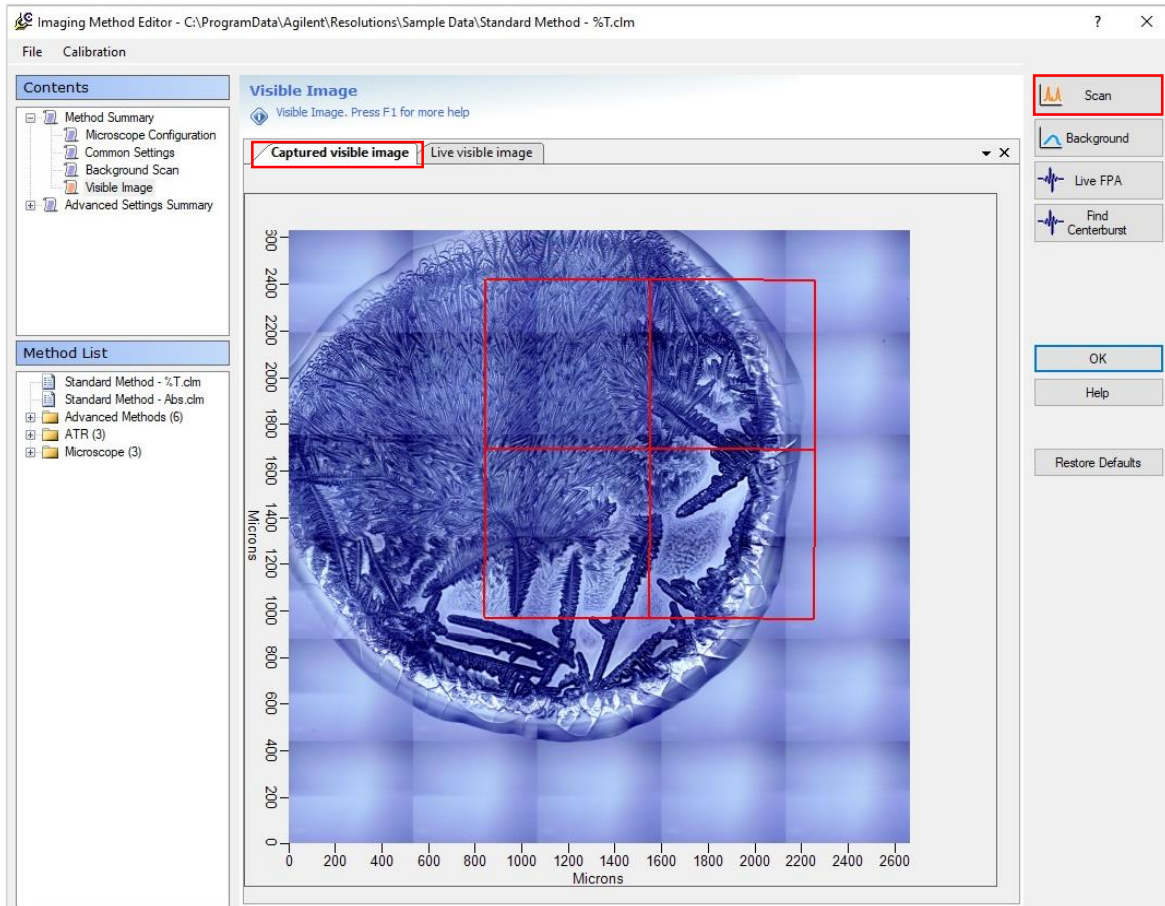


Note: Click left on the visible image to access different options to save stage position.

 Stage position is no longer saved after an IR multiple tile image.

- Click on “Captured Visible Image” and maintain right click to position tiles on a region of interest. **Switch to transmission** if it is the chosen mode of acquisition.

- Click “Scan”. A multiple tile image has to be saved in its own folder, each single files generated will be named after the folder. Single tile images can be named and saved individually in the same folder.

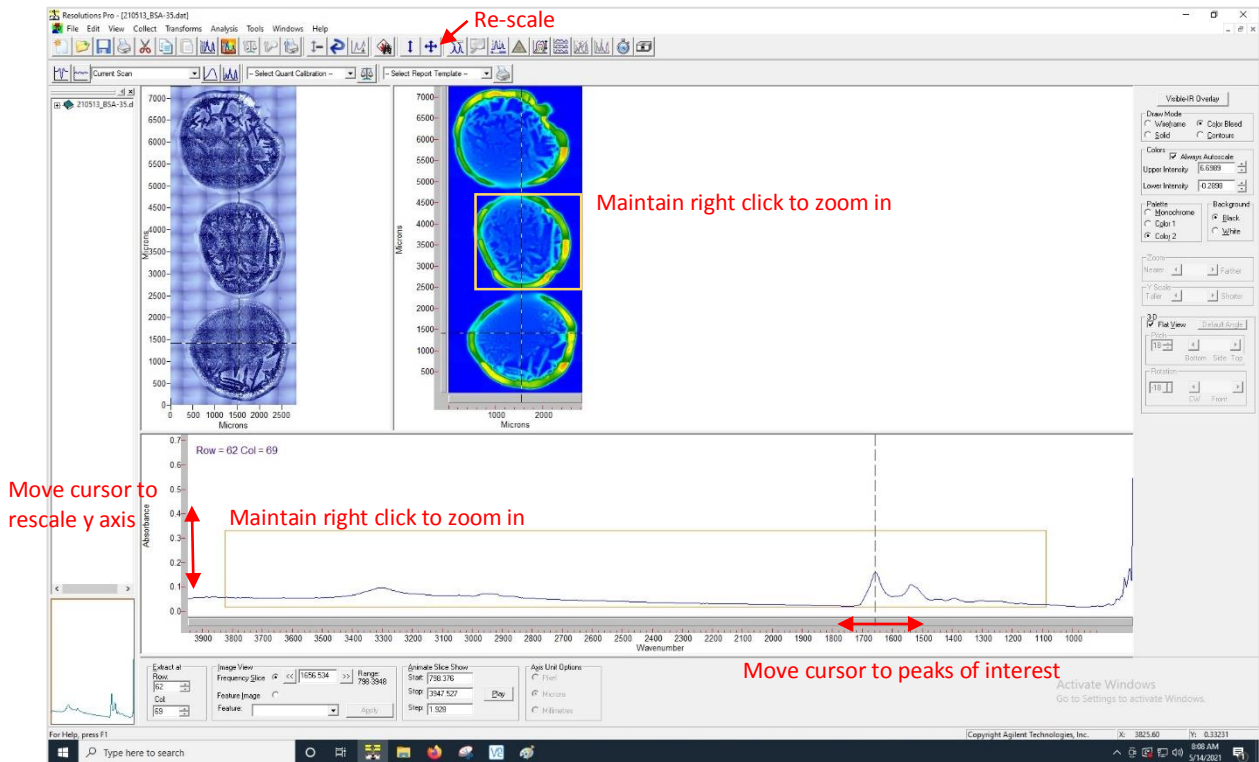


Note: Visible image and visible image of the region of interest acquired are automatically saved.

- IrCutout.bmp
- IrMosaicInfo.cfg
- VisMosaicCollectImages\_Thumbnail.bmp
- VisMosaicInfo.cfg

However the red tile grid and image scale are not saved, use a snipping tool if needed.

- Once the acquisition is done, a visible and IR image will appear. Click on the IR image to display a spectrum.



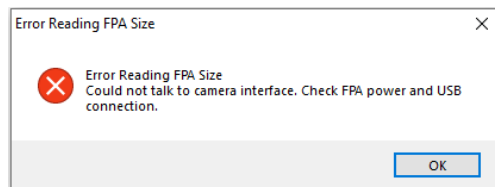
Note: A multiple tile image will be saved as a .bsp, .dms, .dmt, .seq, .dat (final image) file and each tile as .drd and .dmd file. Only .bsp, .sep, .dat files are generated for single tile images.

⚠ It can take several minutes before a large multiple tile IR image appears on screen (the software has not crashed) as .dmd files are saved once the acquisition is finished, do not close the software or data will be lost.

To obtain parameters of acquisition of an image, open and click on the IR image, then click on View>history>rapid stingray.

⚠ Regularly transfer data to the IR server and/or make a copy and delete from Local Disk (C:) which has currently a capacity of only 150GB.

## Troubleshooting



- Detector has not been turned on. Close software, turn on detector and re-open software.

- "previous software session did not close properly..." while opening software → Restart computer.

- "... MIR source might need to be replaced." while checking centerburst → Close software and re-open software.


- *"Background not found"* → Close and re-open software. If error persists, restart computer. If error persists, turn-off computer, turn-off and on the spectrometer, wait until green light appears in front of the spectrometer and restart computer.

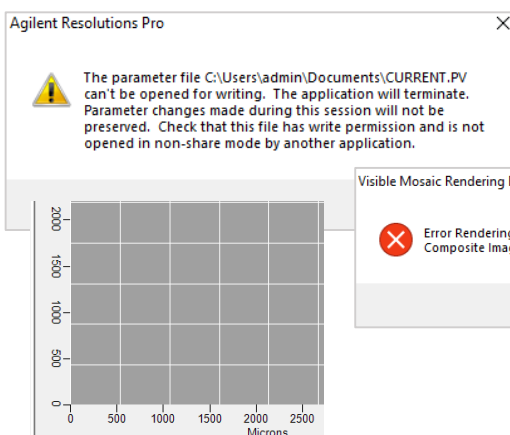
- *"...failed to open spectrometer"* during or in between acquisitions.

- *"...Encountered problems while setting up the spectrometer for data collection..."* before to start an IR acquisition.

→ Turn-off computer, turn-off and on the spectrometer, wait until green light appears in front of the spectrometer and restart computer.

- *"Resolutions Pro encountered a problem...software stopped working..."* → Close and re-open software. If error persists, restart computer.

 Check all parameters of acquisition, they are usually reset. Check in "Imaging Method Editor" window > "Background Scan" that the correct background is displayed or re-upload background .dat file. Make sure files of a failed acquisition are deleted from folder or new acquisition will fail to start.



-While acquiring a visible image. Local Disk (C:) is full. Transfer data to the IR server and/or make a copy and delete from Local Disk (C:).

