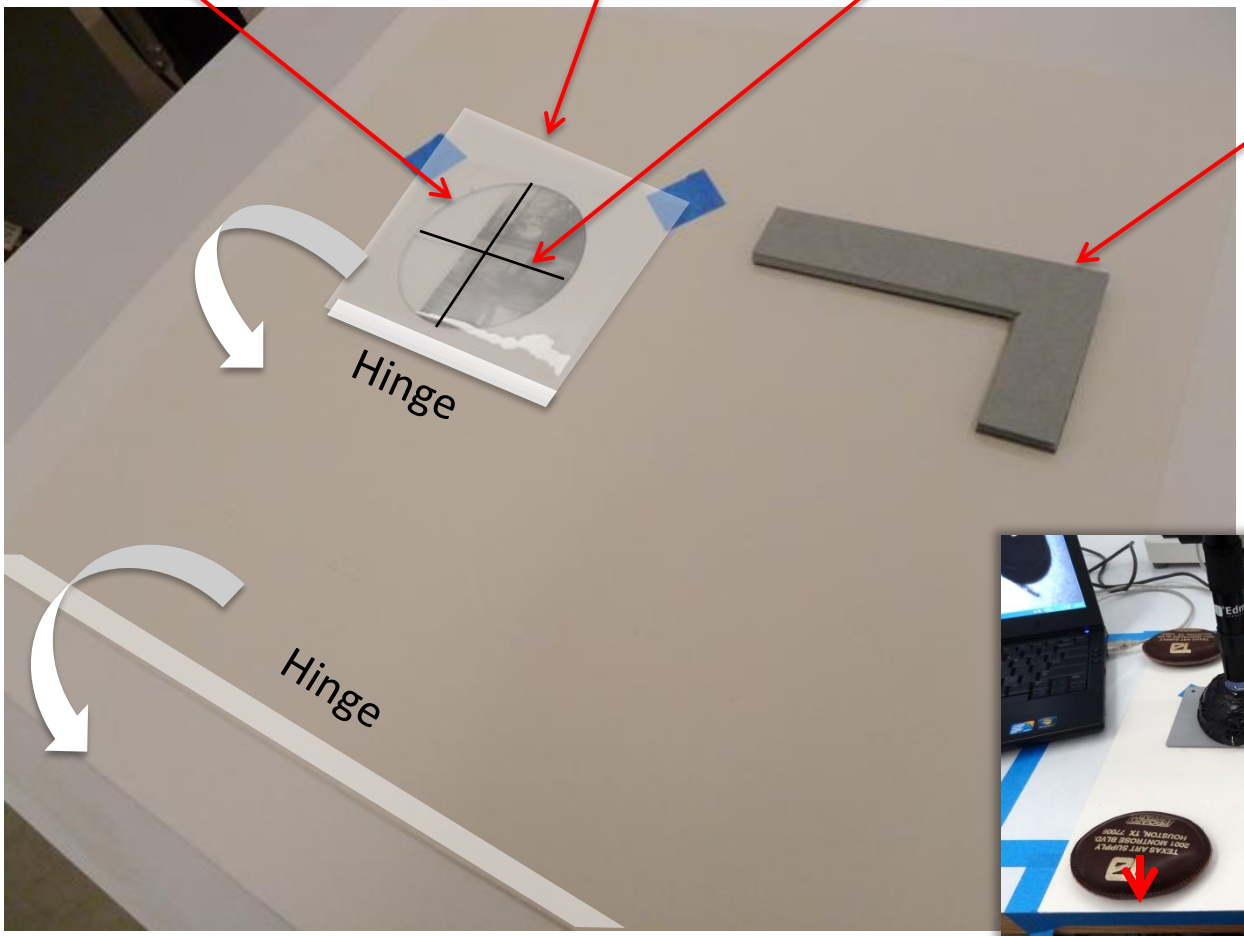
Setting up the monkey brain

Make the opening slightly smaller than the monkey brain dome to protect the artwork.

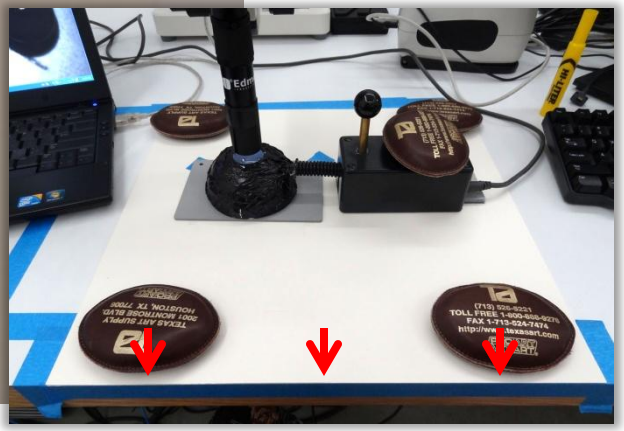
Mylar cover

Mylar cover has crosshair to help line up the sample to the capture area.

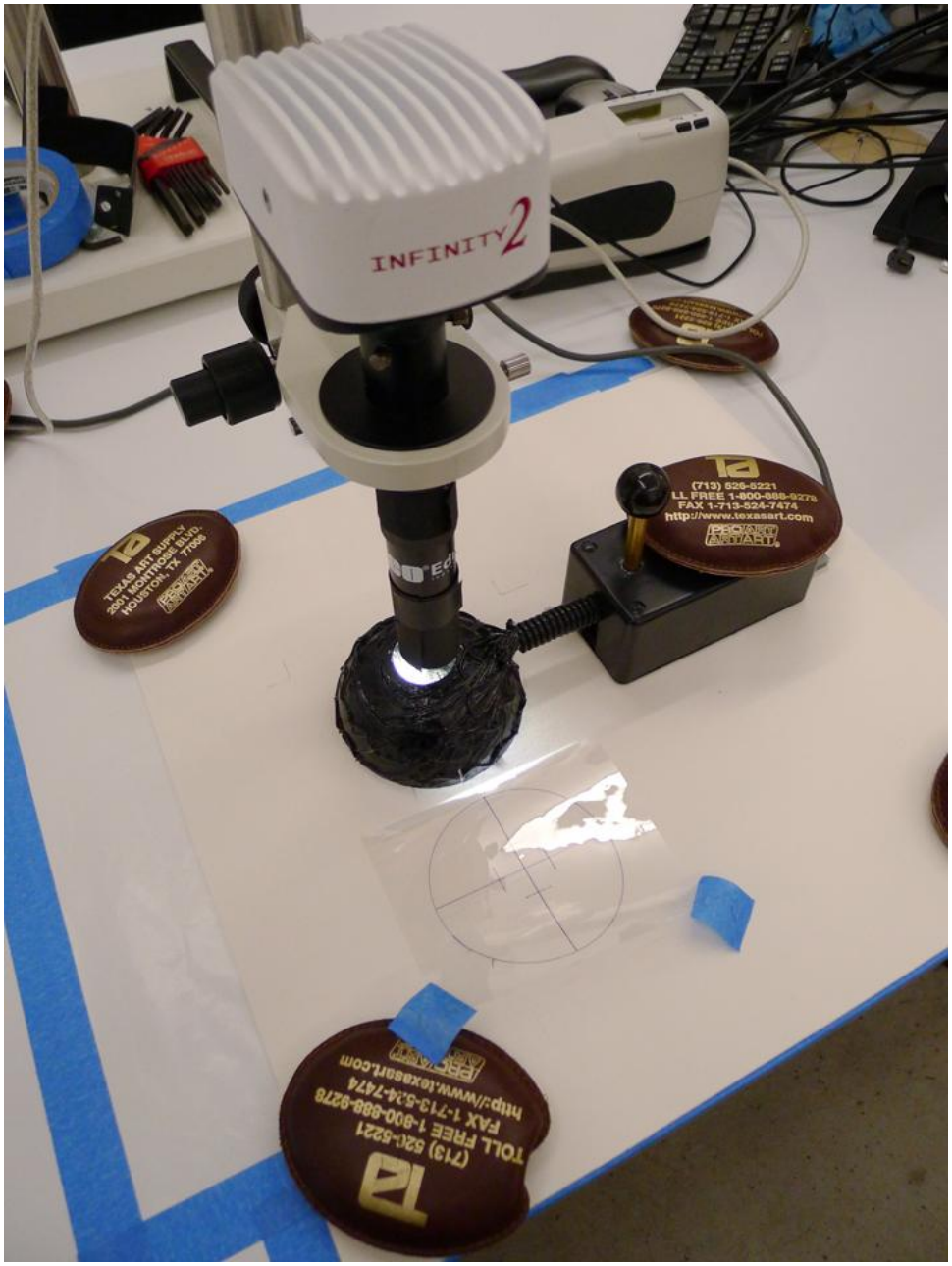


Guide for monkey brain

* Position the guide so that the hinge end is lined up along the edge of the work bench when the dome opening lined up to the scope.



* Design the template (size of the template and the positioning of the opening) so that the hinge lines up along the edge of working bench. This will ensure repeatability.



1. Place a reference sample in the template.
* Orient the reference right-side-up (bottom toward the hinge of the folder, top toward the folder opening).

2. Place the monkey brain on the template and line up the opening to the scope nose.

3. Place weights on the template and the monkey brain body to ensure stability during imaging session.

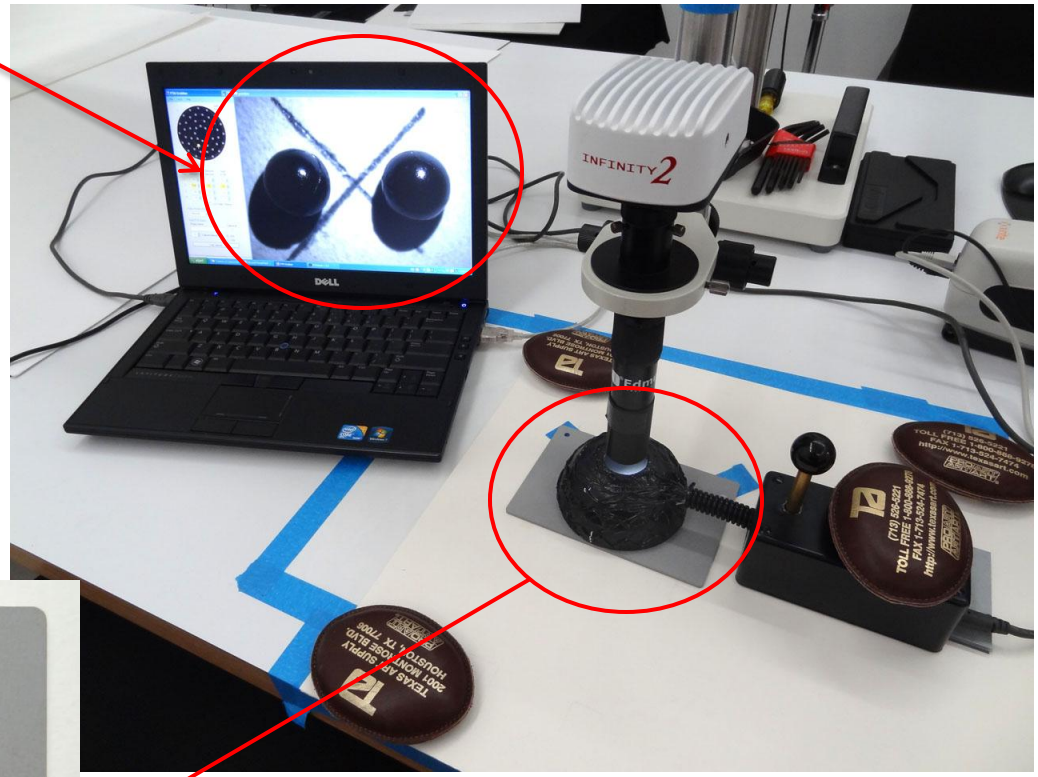
4. Connect monkey brain to the computer via USB. One of the LED lights should lit.

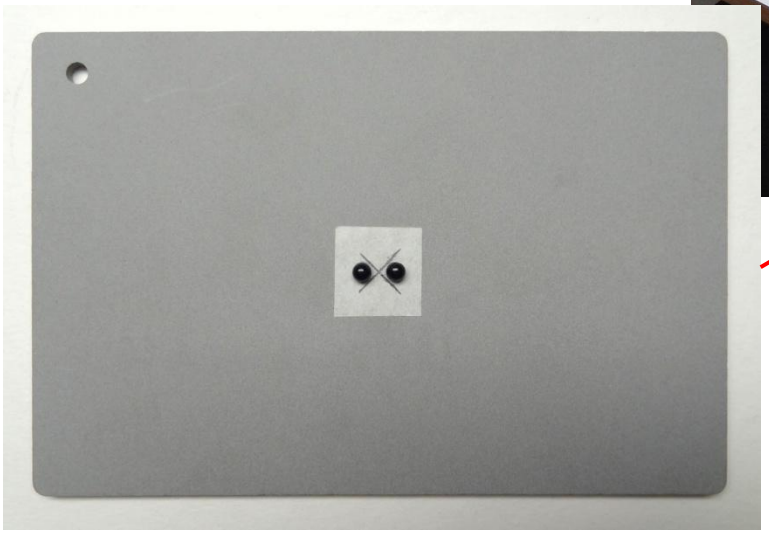
Generate LP (light position) file

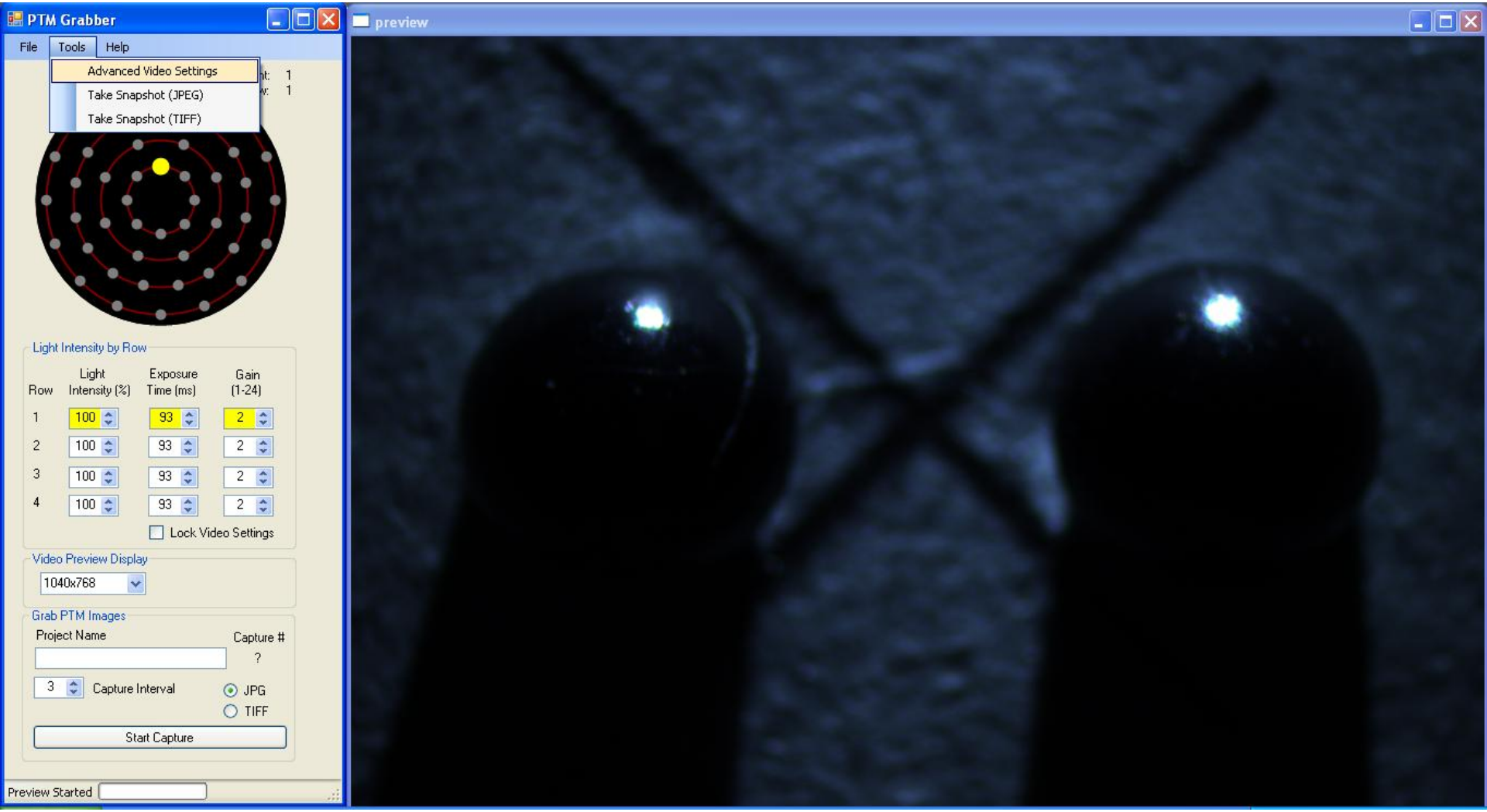
1. Capture with *PTM Grabber*

* Only one LP file needs to be generated for micro-RTI imaging with the same scope-to-monkey brain configuration.

Center the “X” and two spheres to the scope using preview screen.

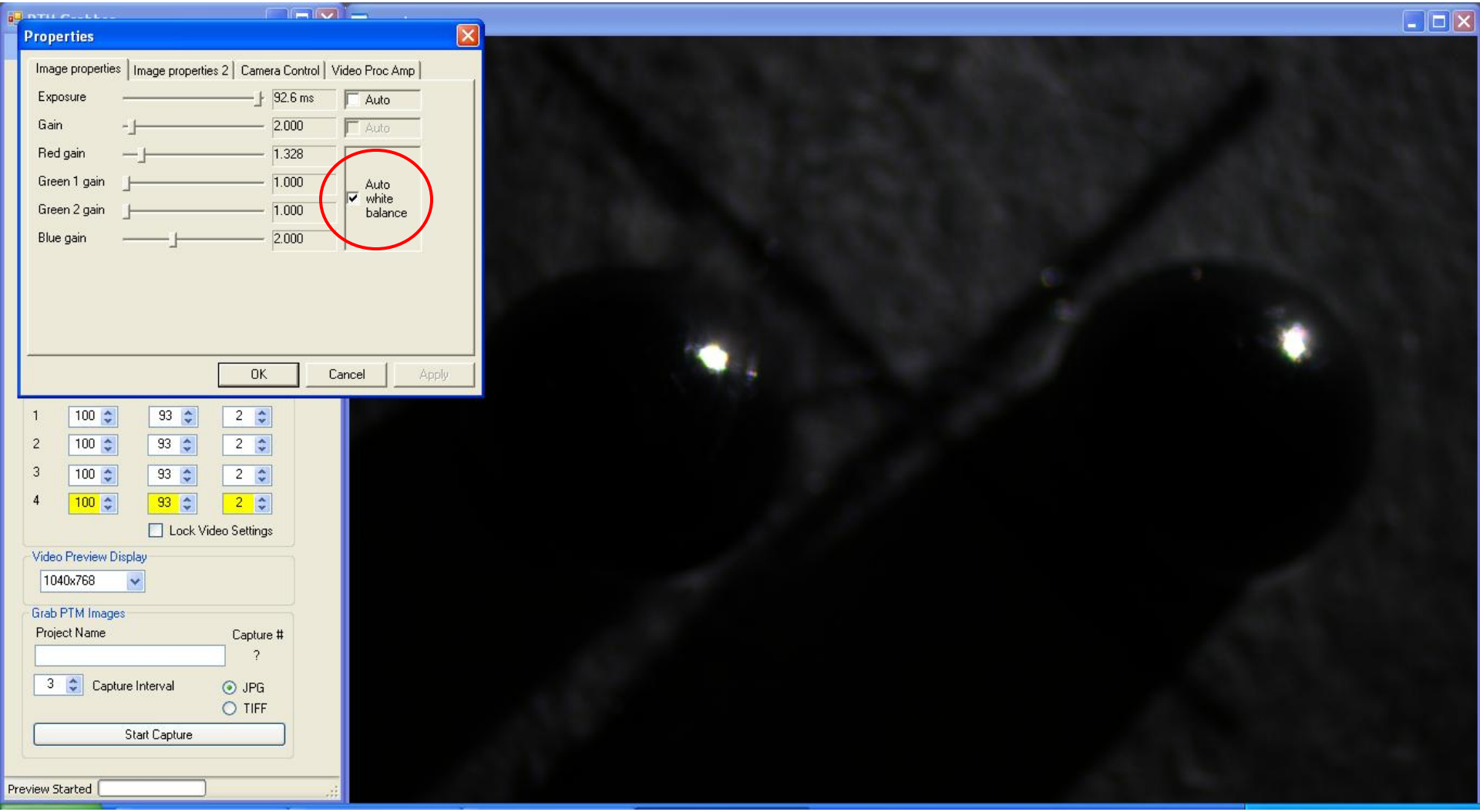




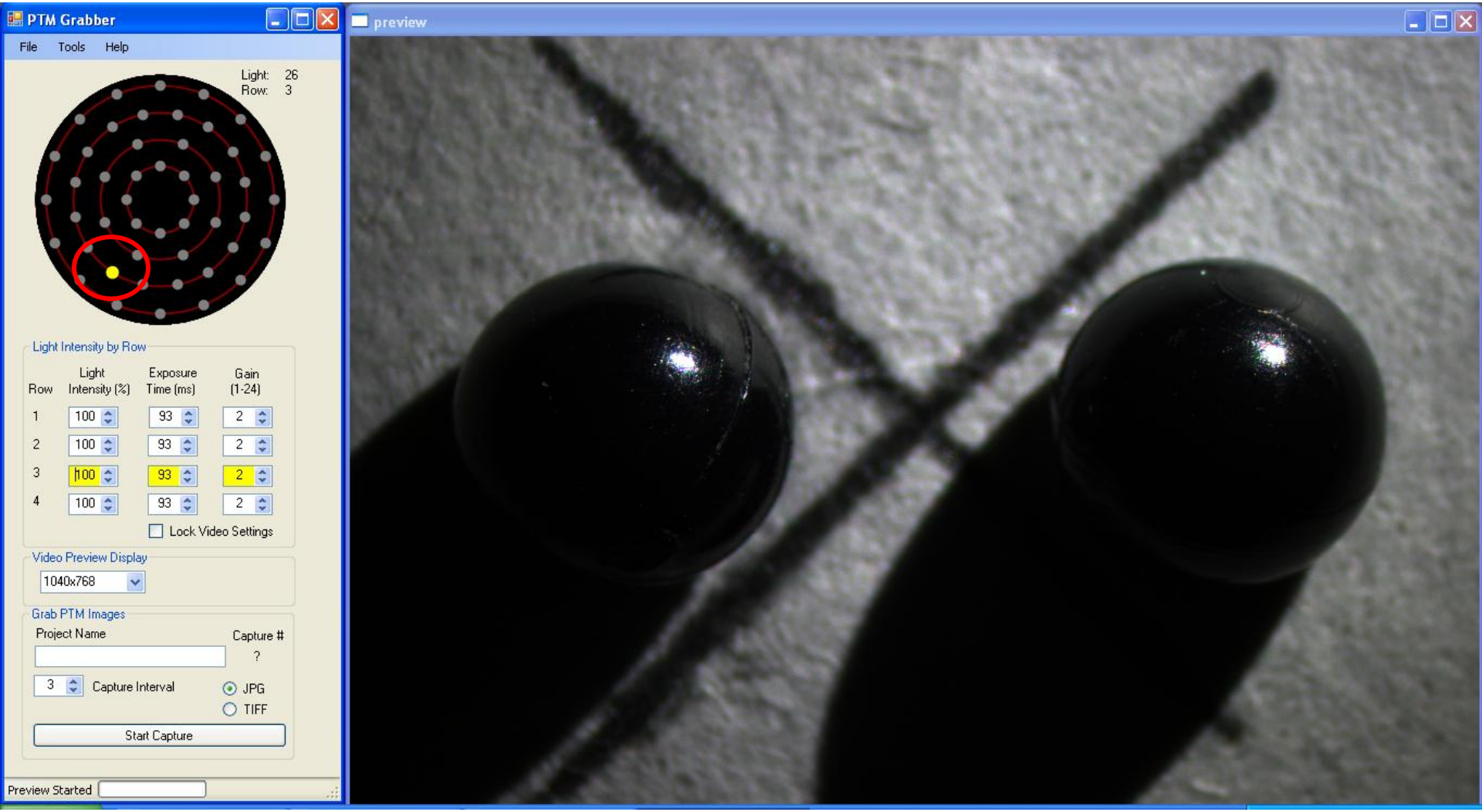


Launch PTM Grabber.

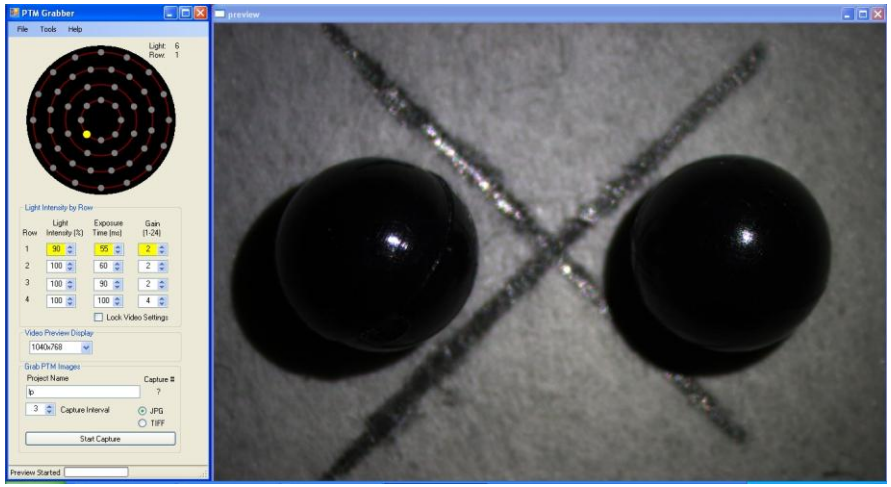
To white balance, go to [Tools] → [Advanced Video Settings].

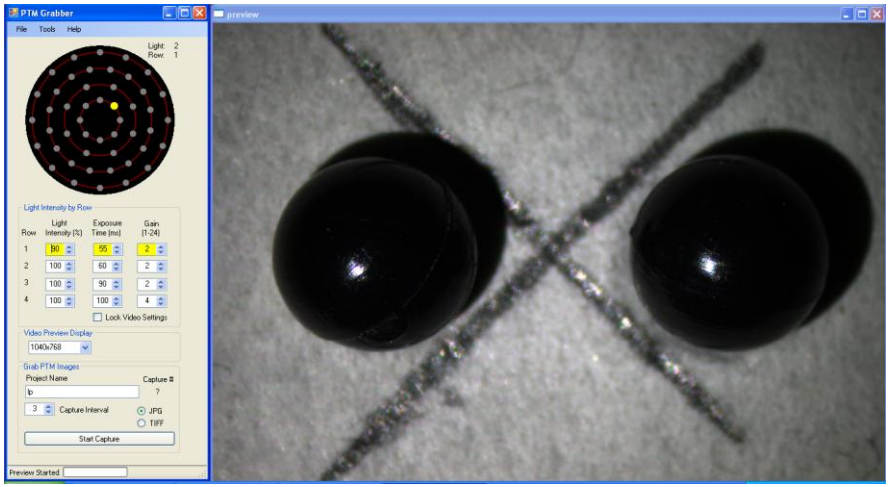


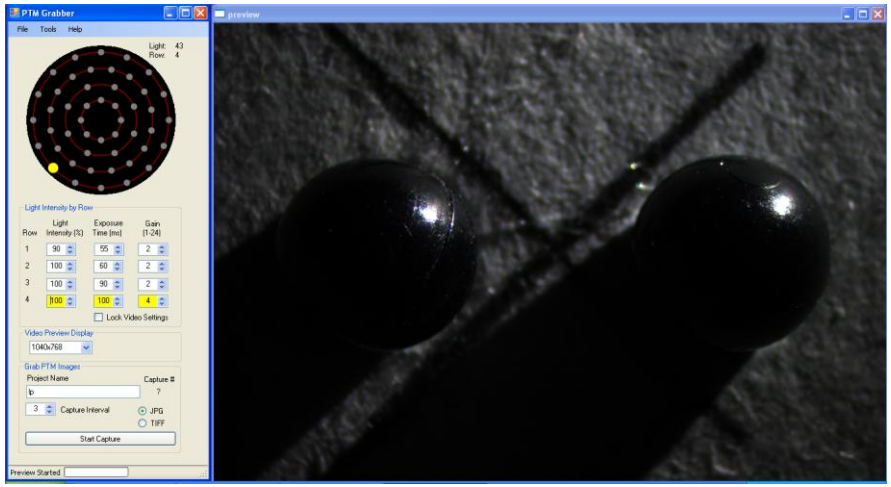
Check “Auto white balance” and click [OK].

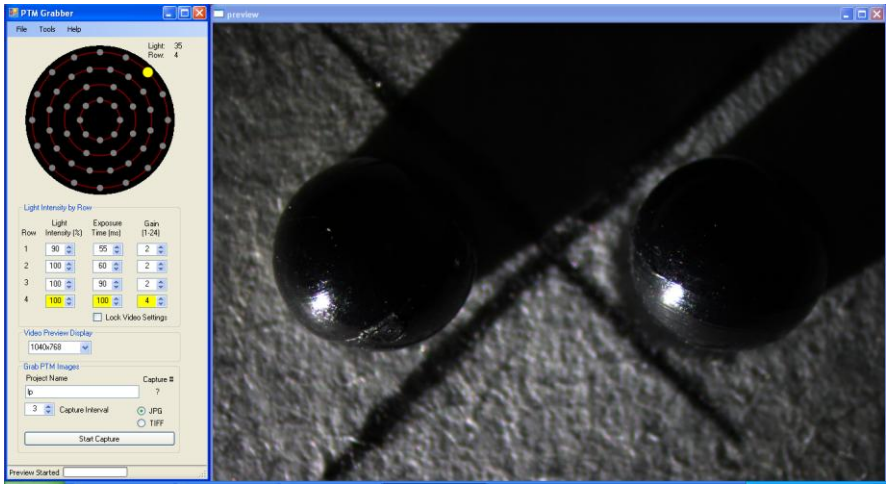


Using lights from row 3, focus on the highlights on the spheres.

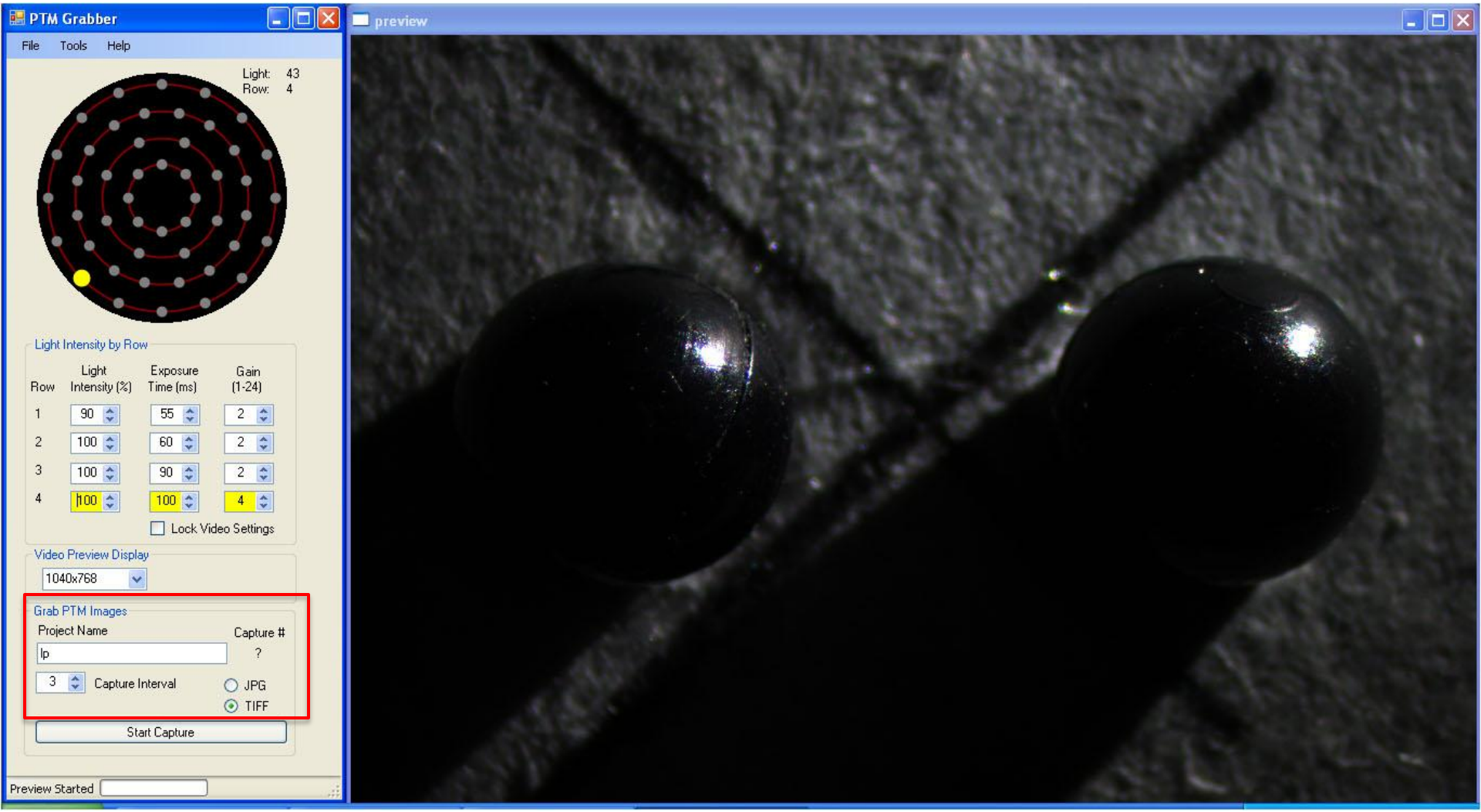






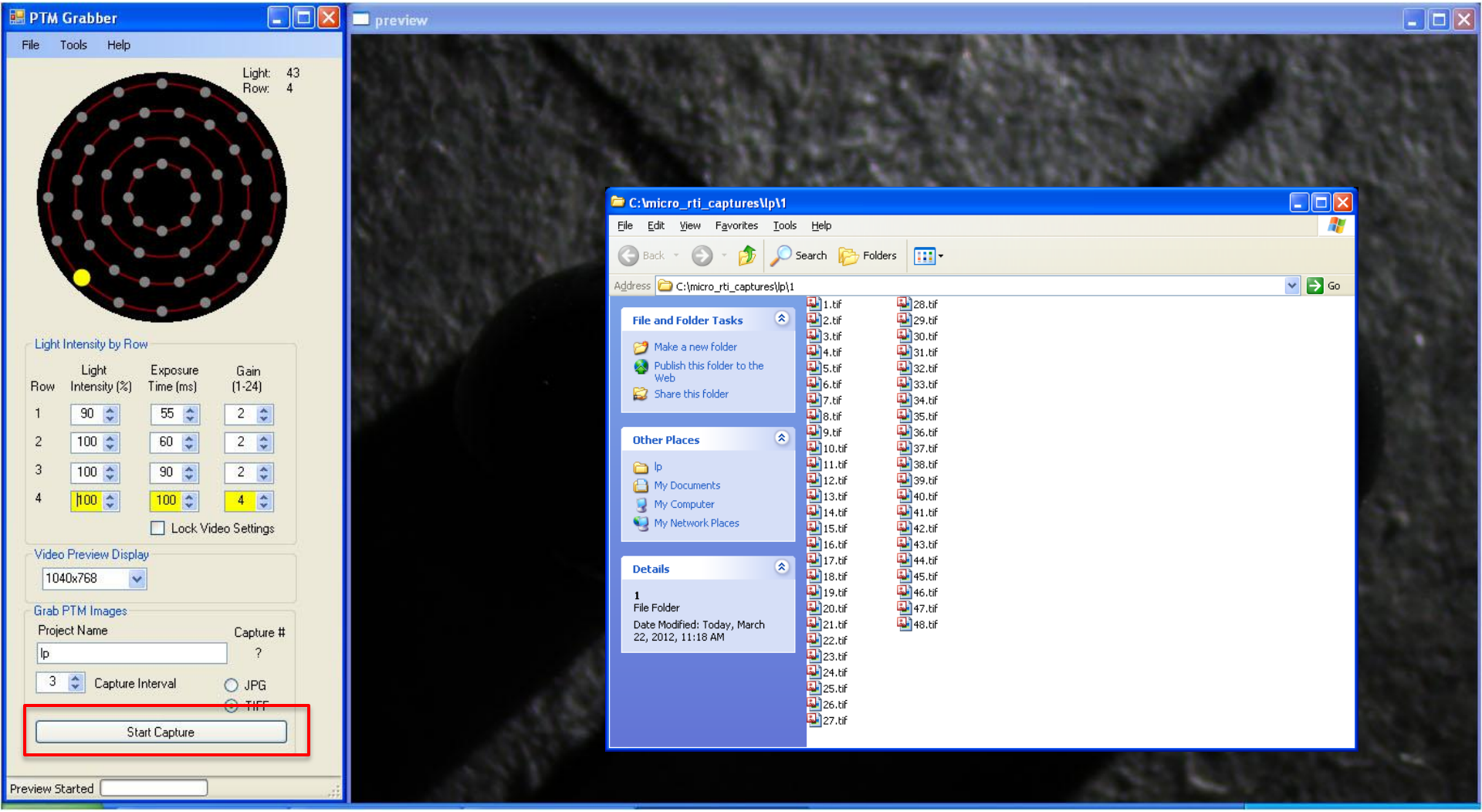


Adjust exposure by changing the “Light Intensity,” “Exposure Time,” and “Gain.”
* Make sure illumination is even from all angles by comparing exposures with opposite light positions.



Enter the project name “lp”.

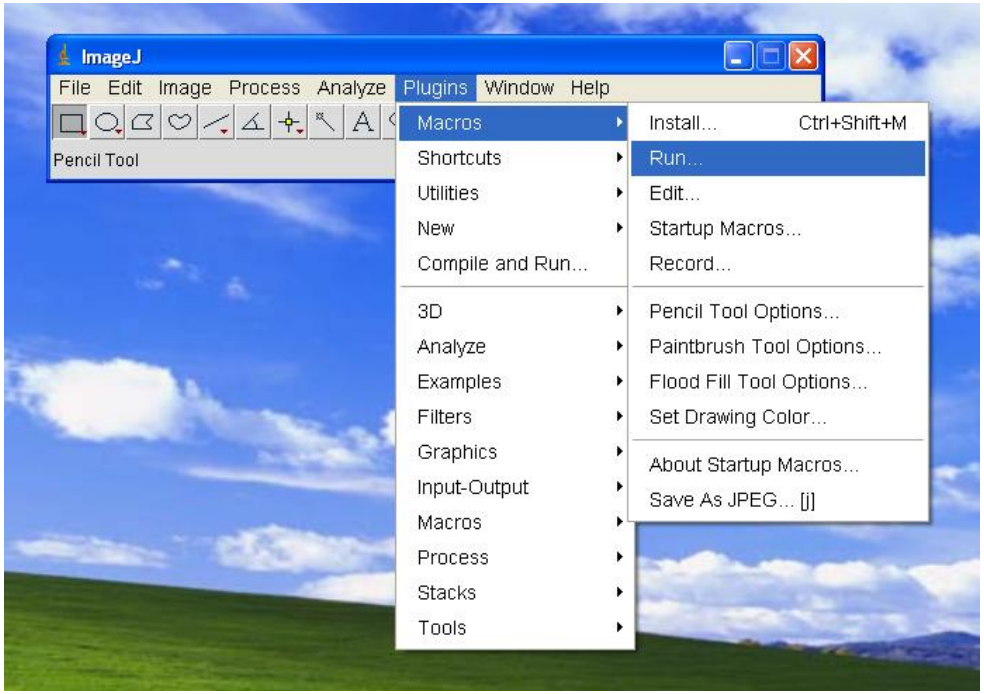
Select “3” for Capture Interval and check “TIFF”.



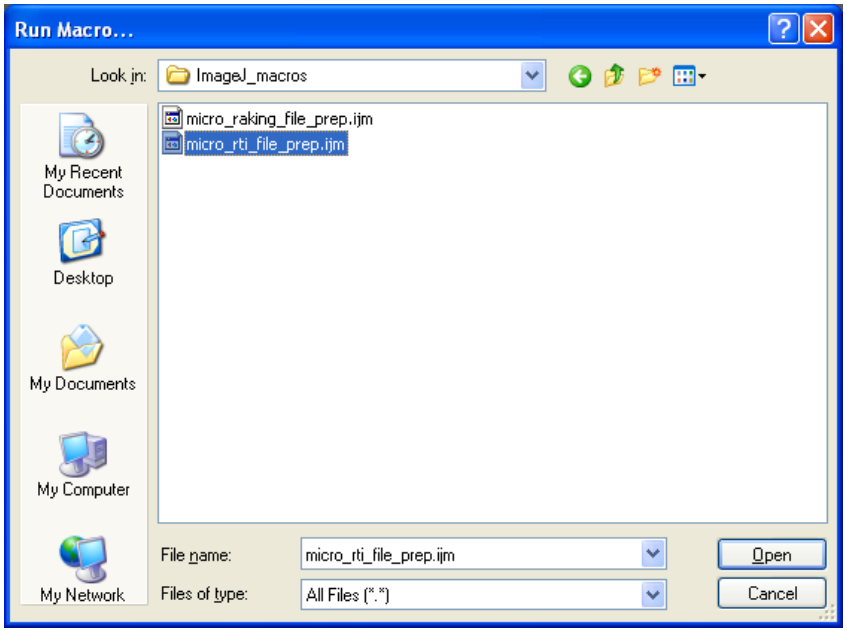
Click on “Start Capture.” Light array and the imager will operate automatically to create 48 image files. These files are saved in a folder “1” that gets automatically generated in the project name folder.

Generate LP (light position) file

2. Process files with *Image J*

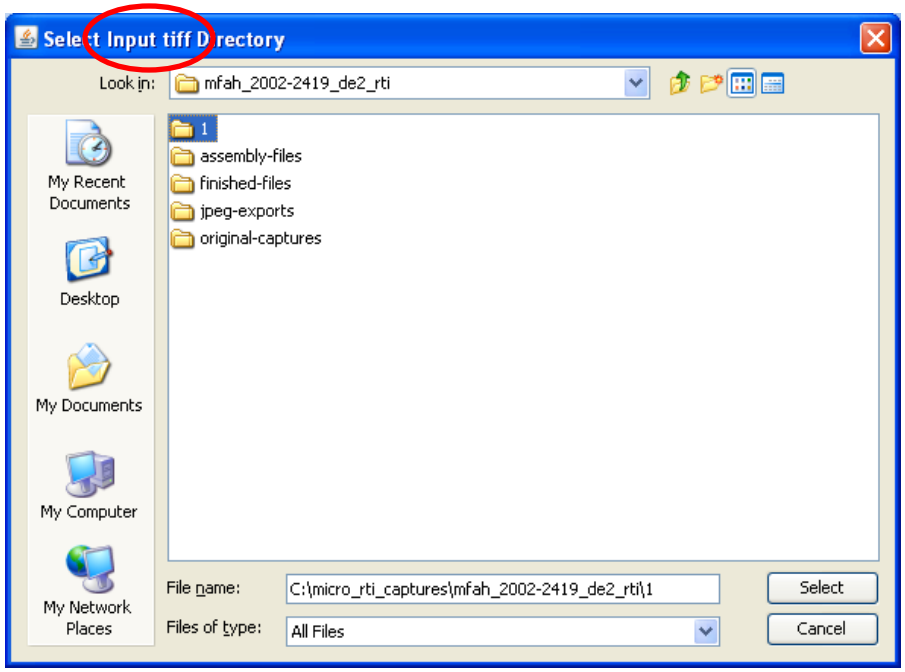


Go to [Plugins] → [Macros] → [Run…].

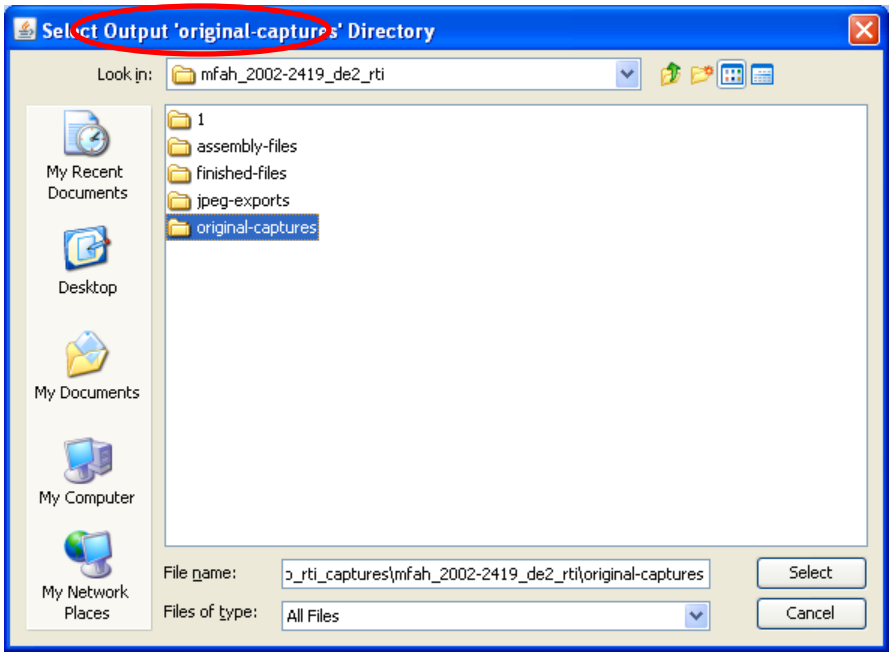


Select “micro_rti_file_prep.ijm”.

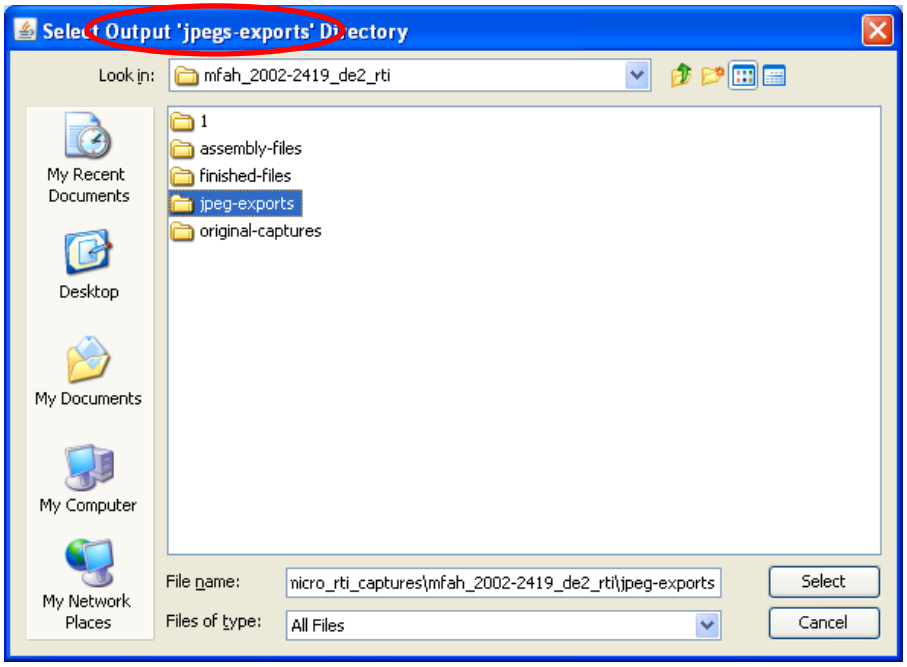
1.



2.



3.



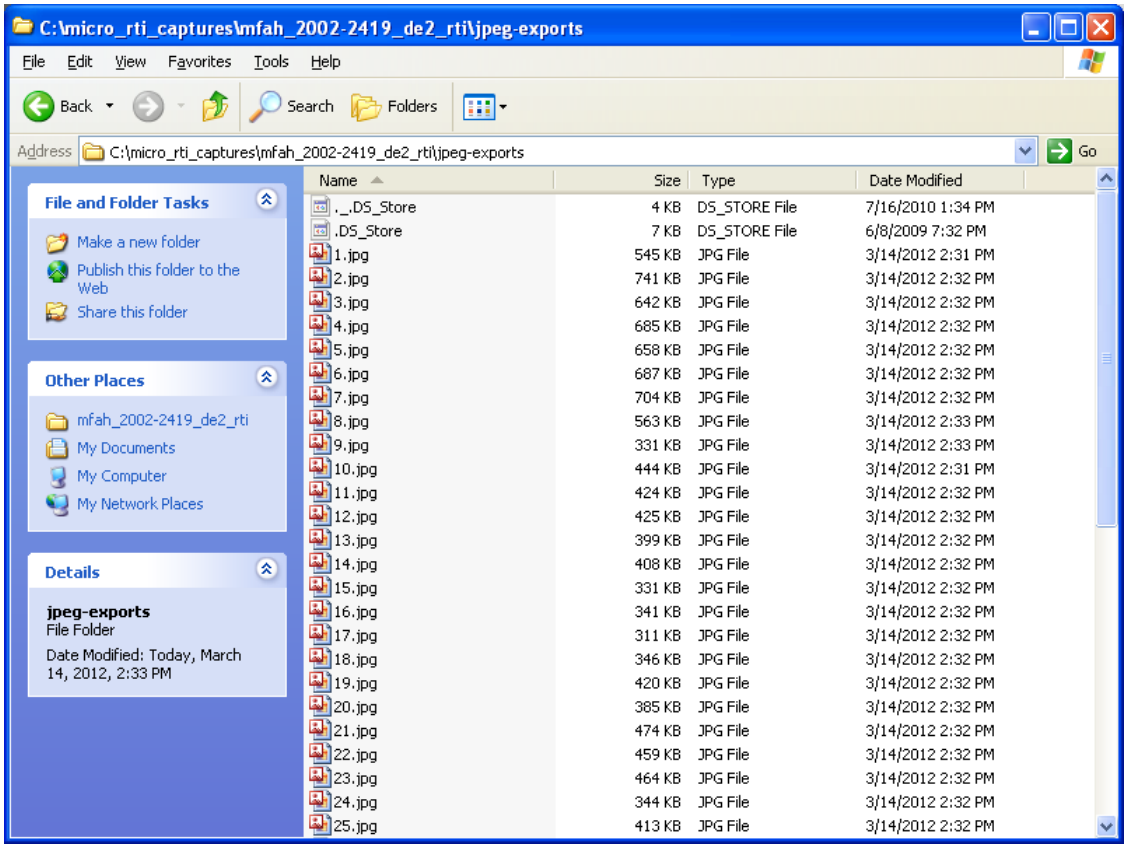
Select

1) **“1” folder** for *Input tiff Directory*,

2) **“original-captures” folder** for *Output ‘original-captures’ Directory*,

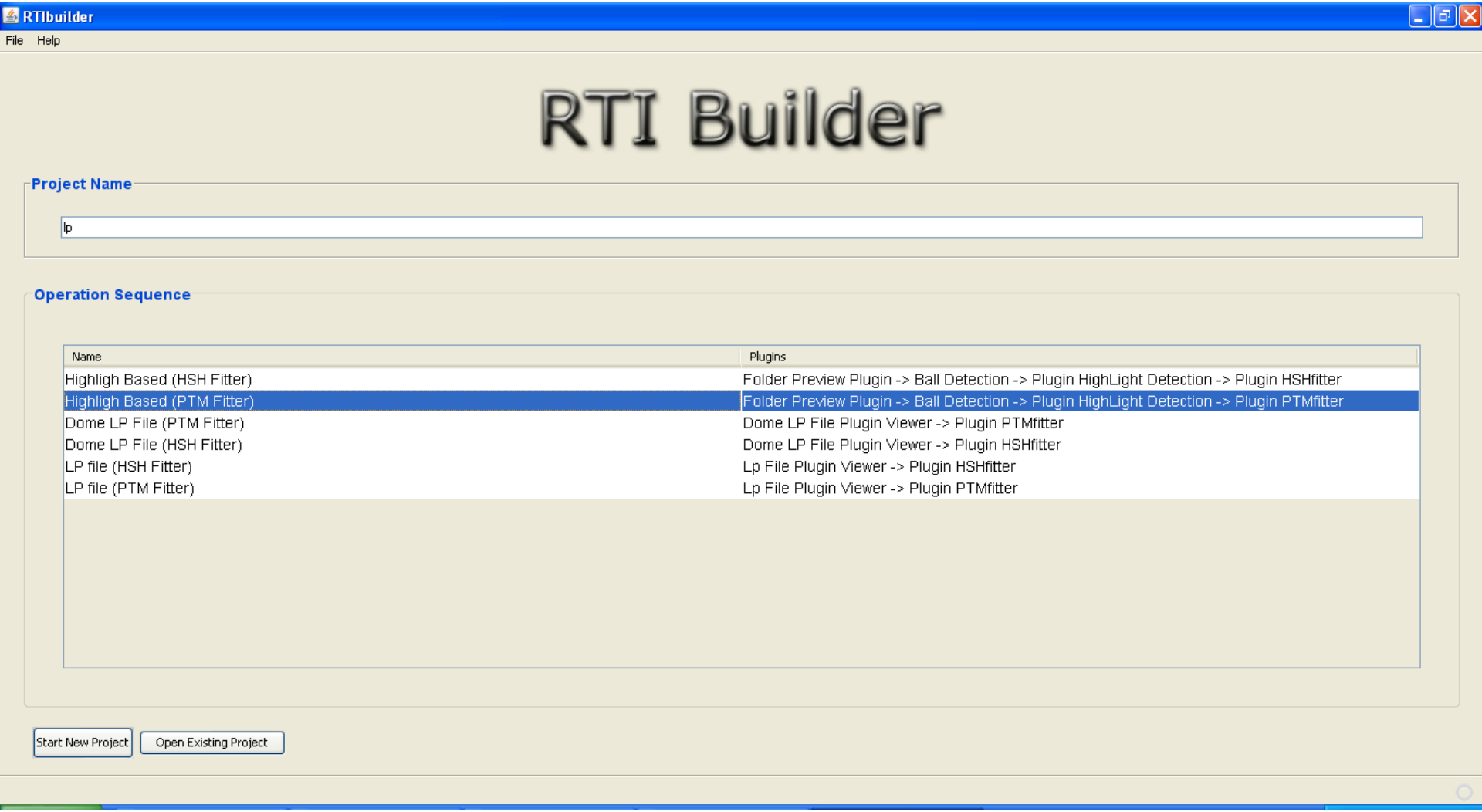
3) **“jpeg-exports” folder** for *Output ‘jpegs-exports’ Directory*.

As soon as clicking on [Select] for the third prompt, image processing starts automatically.

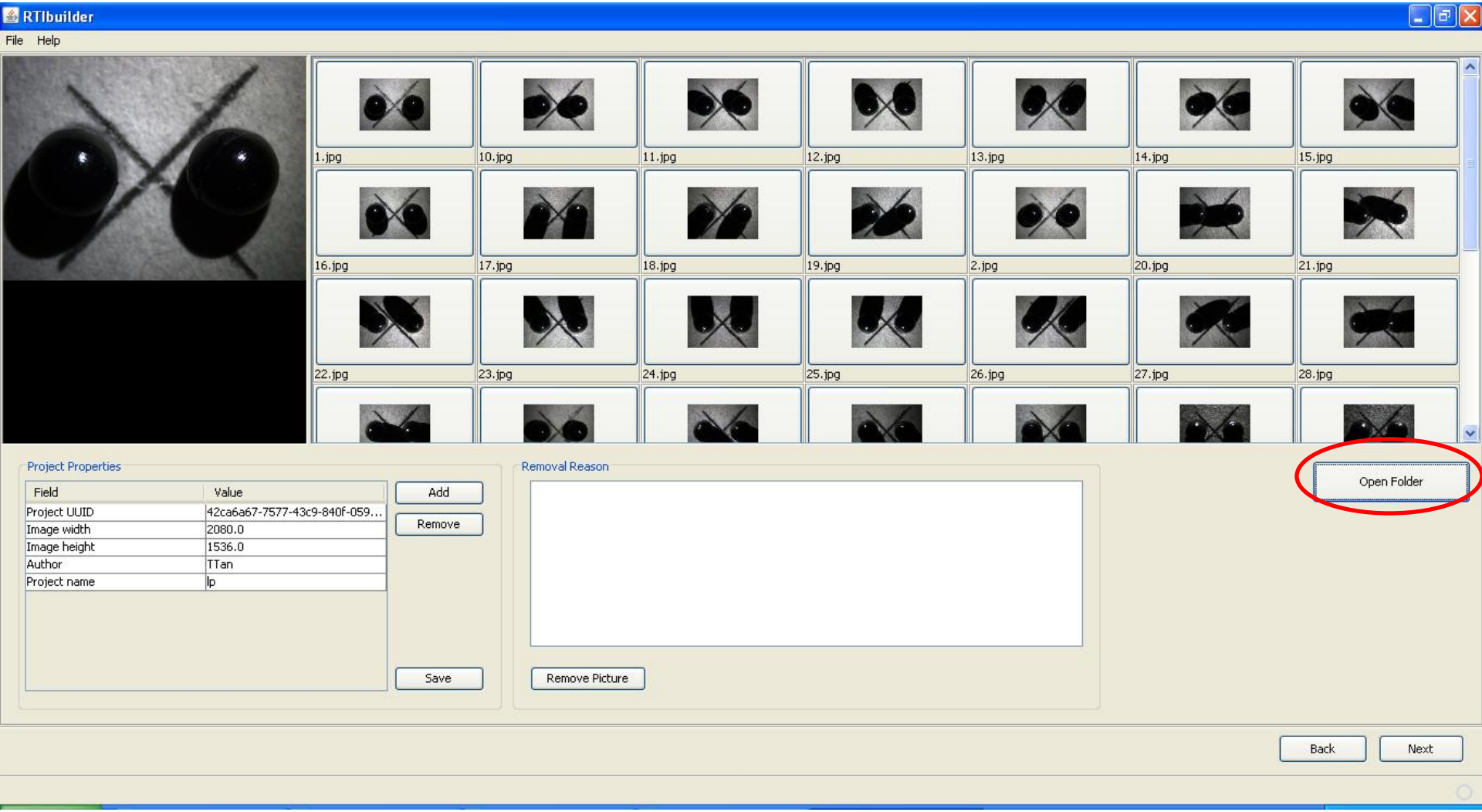

C:\micro_rti_captures\mfah_2002-2419_de2_rti\jpeg-exports
File Edit View Favorites Tools Help
Back Search Folders
Address C:\micro_rti_captures\mfah_2002-2419_de2_rti\jpeg-exports
Go
File and Folder Tasks
Make a new folder
Publish this folder to the Web
Share this folder
Other Places
mfah_2002-2419_de2_rti
My Documents
My Computer
My Network Places
Details
jpeg-exports
File Folder
Date Modified: Today, March 14, 2012, 2:33 PM
Name Size Type Date Modified
._.DS_Store 4 KB DS_STORE File 7/16/2010 1:34 PM
.DS_Store 7 KB DS_STORE File 6/8/2009 7:32 PM
1.jpg 545 KB JPG File 3/14/2012 2:31 PM
2.jpg 741 KB JPG File 3/14/2012 2:32 PM
3.jpg 642 KB JPG File 3/14/2012 2:32 PM
4.jpg 685 KB JPG File 3/14/2012 2:32 PM
5.jpg 658 KB JPG File 3/14/2012 2:32 PM
6.jpg 687 KB JPG File 3/14/2012 2:32 PM
7.jpg 704 KB JPG File 3/14/2012 2:32 PM
8.jpg 563 KB JPG File 3/14/2012 2:33 PM
9.jpg 331 KB JPG File 3/14/2012 2:33 PM
10.jpg 444 KB JPG File 3/14/2012 2:31 PM
11.jpg 424 KB JPG File 3/14/2012 2:32 PM
12.jpg 425 KB JPG File 3/14/2012 2:32 PM
13.jpg 399 KB JPG File 3/14/2012 2:32 PM
14.jpg 408 KB JPG File 3/14/2012 2:32 PM
15.jpg 331 KB JPG File 3/14/2012 2:32 PM
16.jpg 341 KB JPG File 3/14/2012 2:32 PM
17.jpg 311 KB JPG File 3/14/2012 2:32 PM
18.jpg 346 KB JPG File 3/14/2012 2:32 PM
19.jpg 420 KB JPG File 3/14/2012 2:32 PM
20.jpg 385 KB JPG File 3/14/2012 2:32 PM
21.jpg 474 KB JPG File 3/14/2012 2:32 PM
22.jpg 459 KB JPG File 3/14/2012 2:32 PM
23.jpg 464 KB JPG File 3/14/2012 2:32 PM
24.jpg 344 KB JPG File 3/14/2012 2:32 PM
25.jpg 413 KB JPG File 3/14/2012 2:32 PM

Generate LP (light position) file

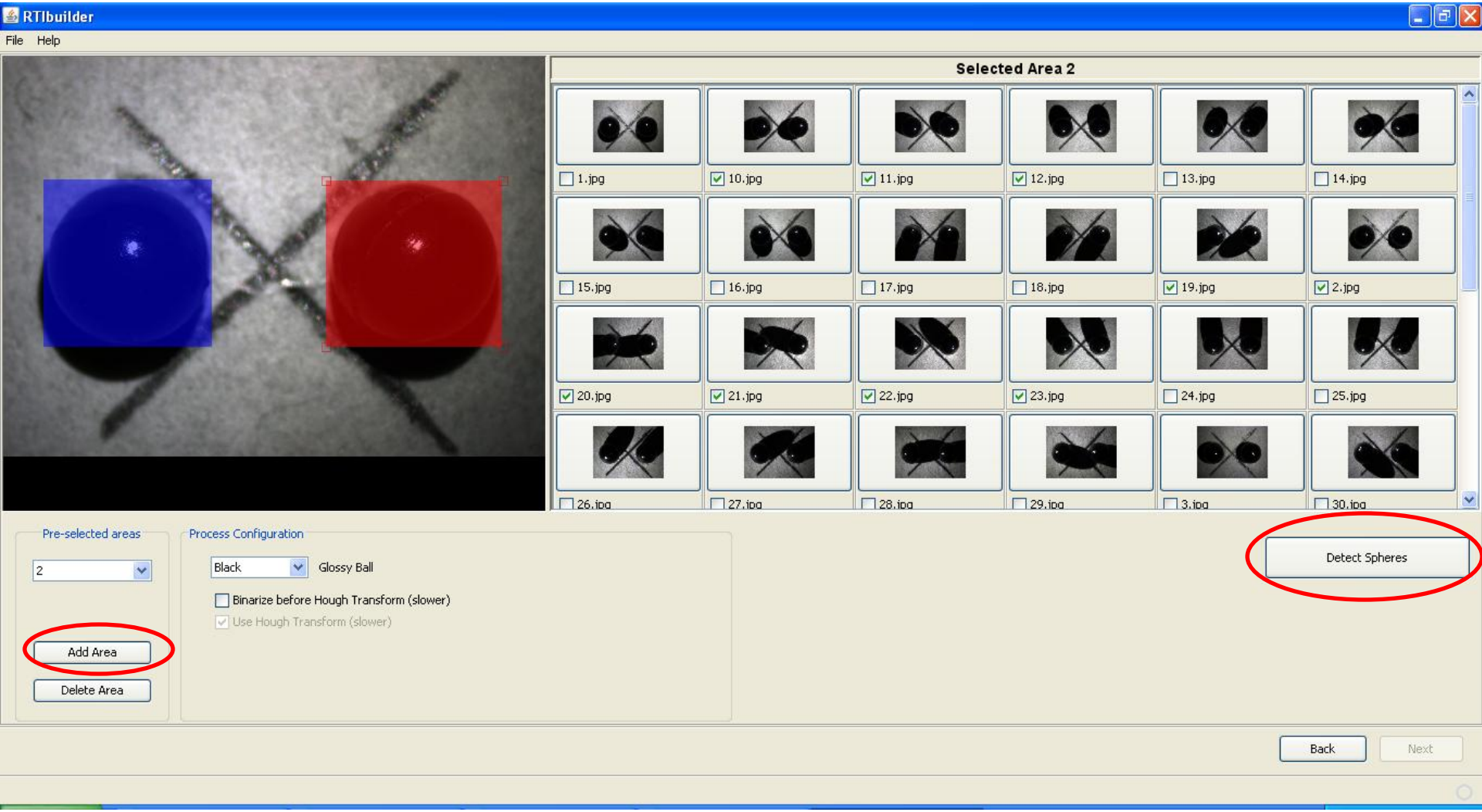
3. Generate LP file with *RTI Builder*



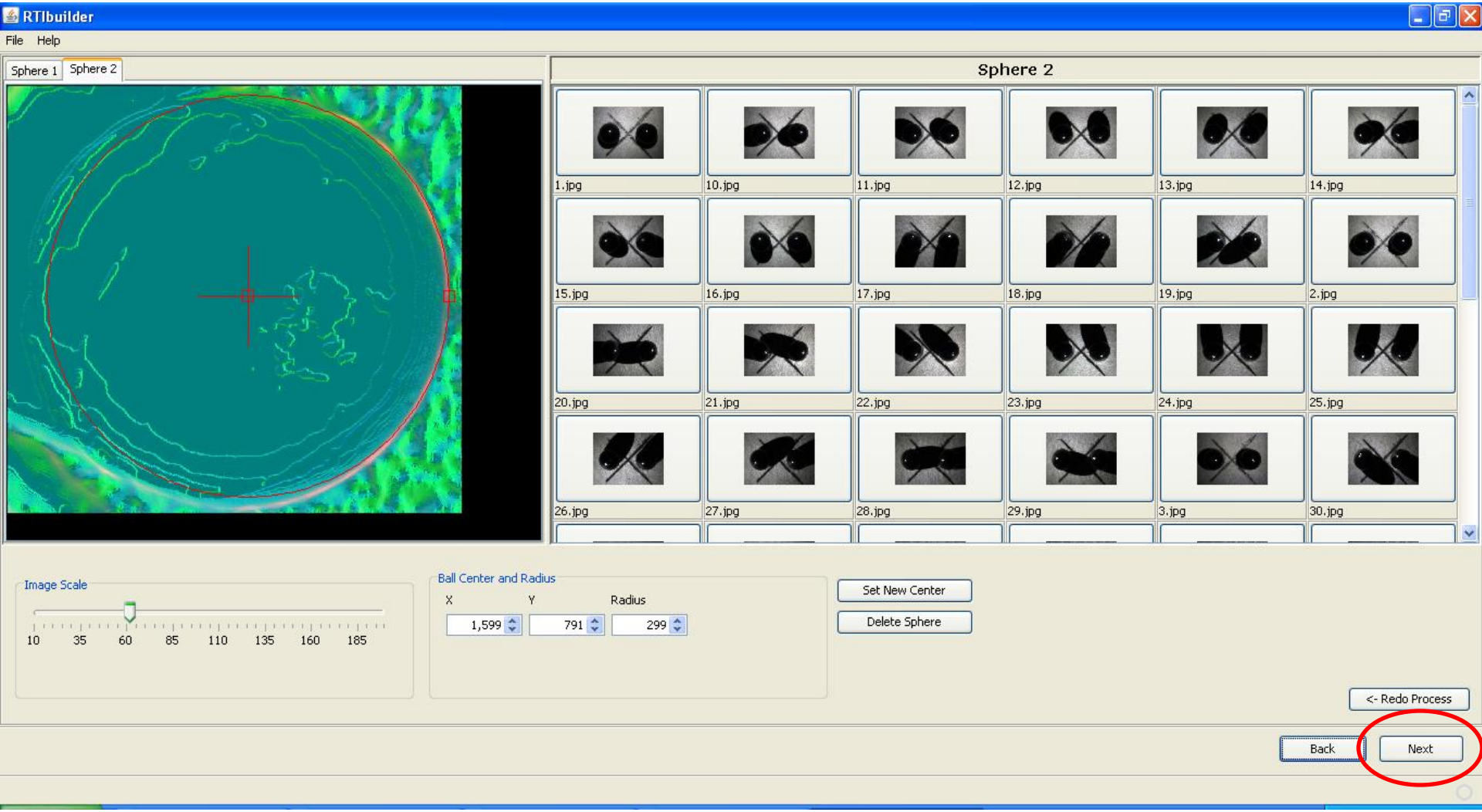
Launch RTI Builder. Enter “lp” for Project Name, select “Highligh Based (PTM Fitter),” then click [Start New Project].

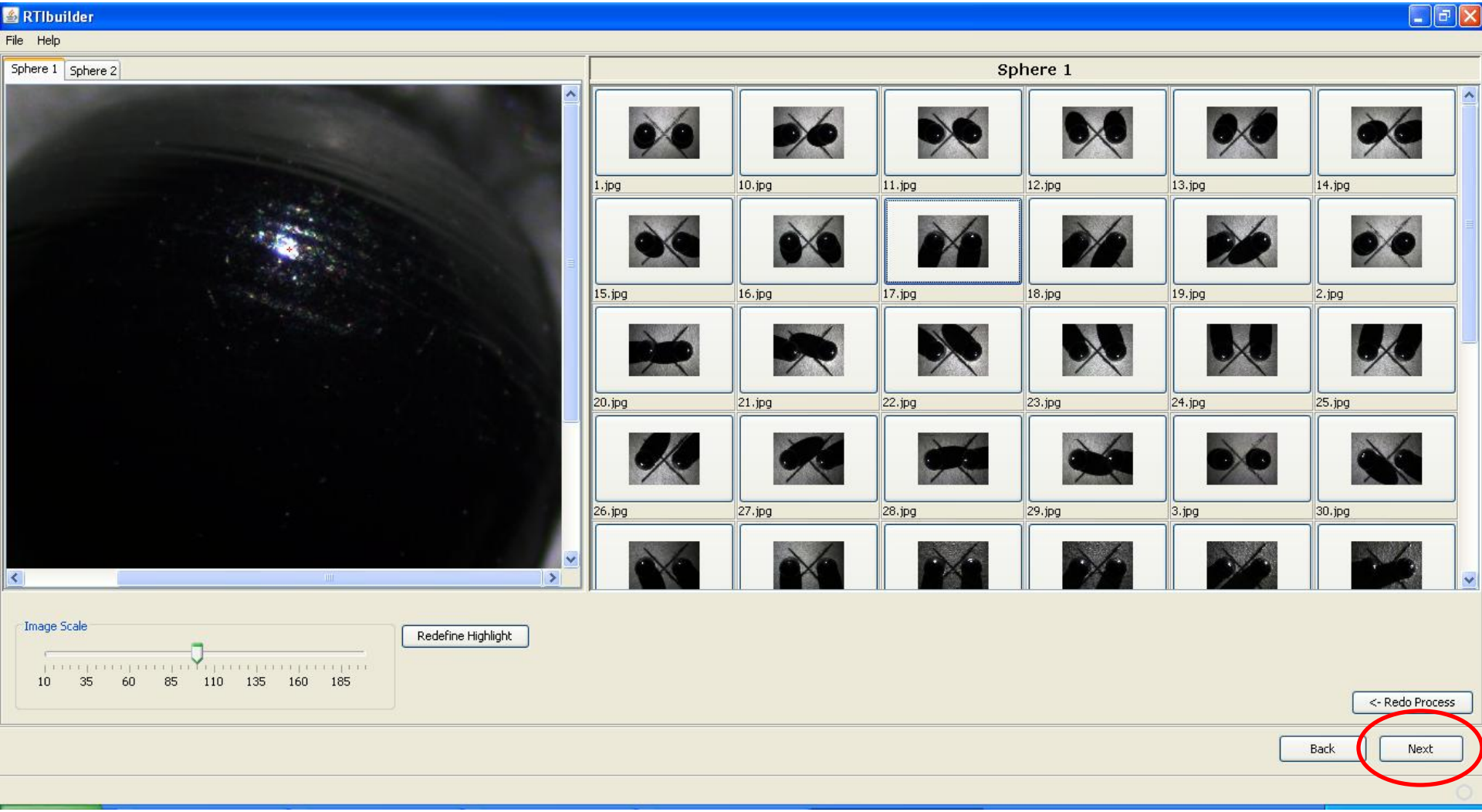


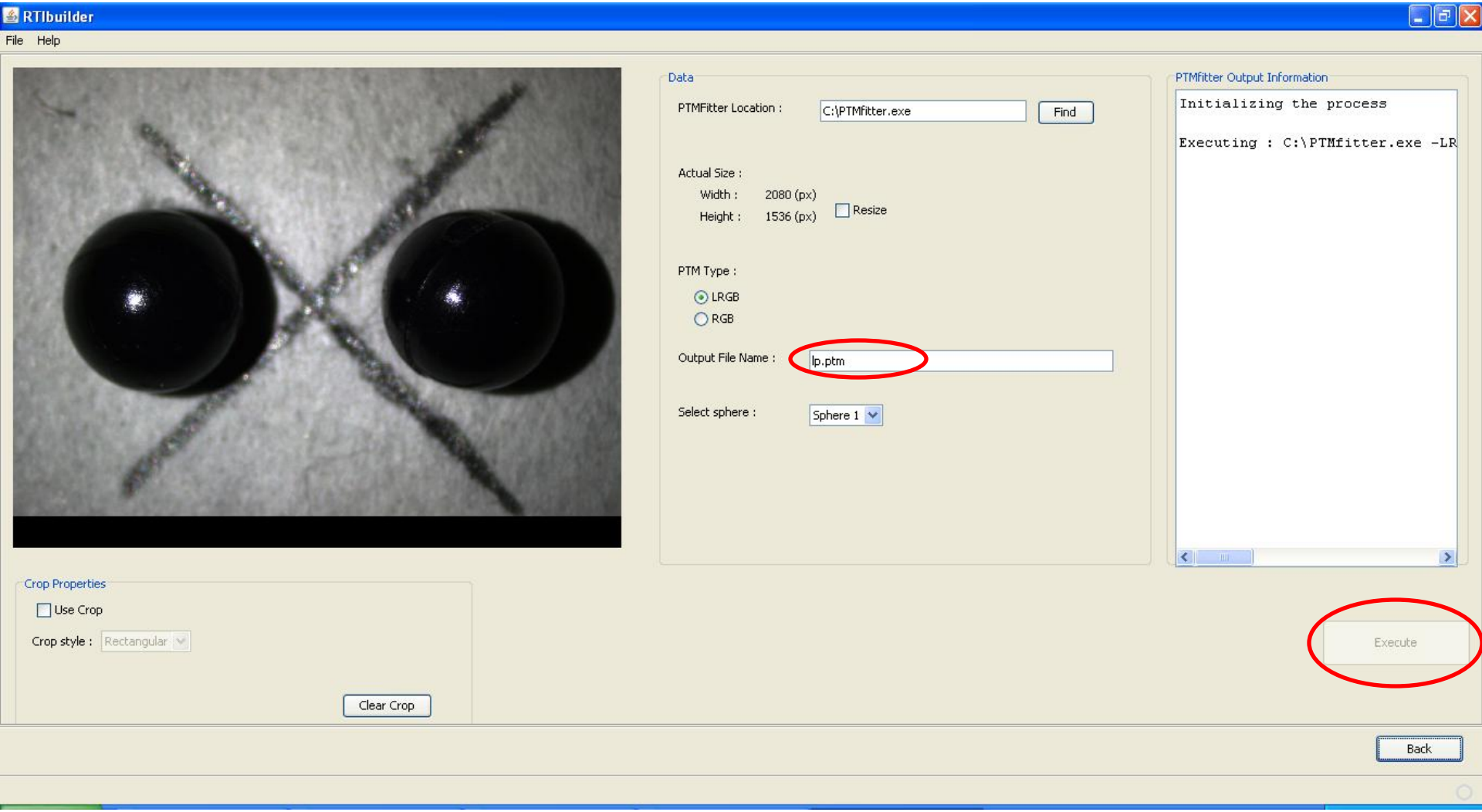
Click [Open Folder]. In the open folder prompt, select the “lp” project folder.



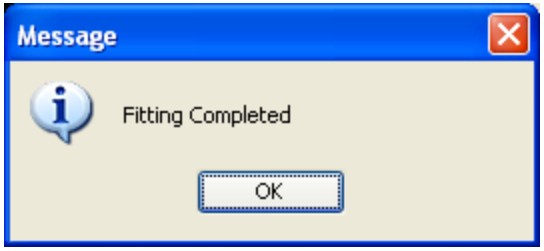
Select two spheres, then click [Detect Spheres].


RTIbuilder
File
Help
Sphere 1
Sphere 2
Sphere 2
1.jpg
10.jpg
11.jpg
12.jpg
13.jpg
14.jpg
15.jpg
16.jpg
17.jpg
18.jpg
19.jpg
2.jpg
20.jpg
21.jpg
22.jpg
23.jpg
24.jpg
25.jpg
26.jpg
27.jpg
28.jpg
29.jpg
3.jpg
30.jpg
Image Scale
10
35
60
85
110
135
160
185
Ball Center and Radius
X
Y
Radius
1,599
791
299
Set New Center
Delete Sphere
<- Redo Process
Back
Next

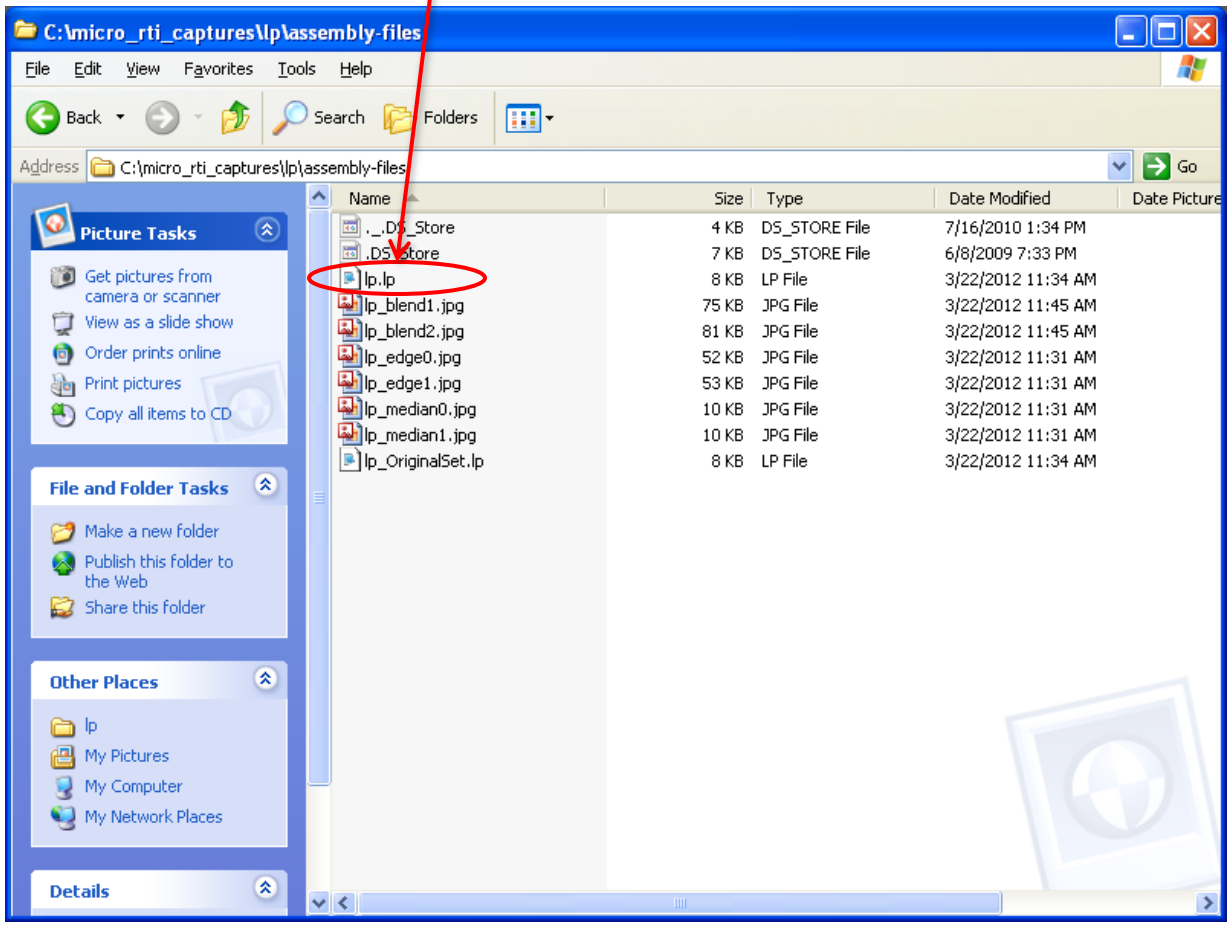

RTIbuilder
File
Help
Sphere 1
Sphere 2
Sphere 1
1.jpg
10.jpg
11.jpg
12.jpg
13.jpg
14.jpg
15.jpg
16.jpg
17.jpg
18.jpg
19.jpg
2.jpg
20.jpg
21.jpg
22.jpg
23.jpg
24.jpg
25.jpg
26.jpg
27.jpg
28.jpg
29.jpg
3.jpg
30.jpg
Image Scale
10
35
60
85
110
135
160
185
Redefine Highlight
<- Redo Process
Back
Next



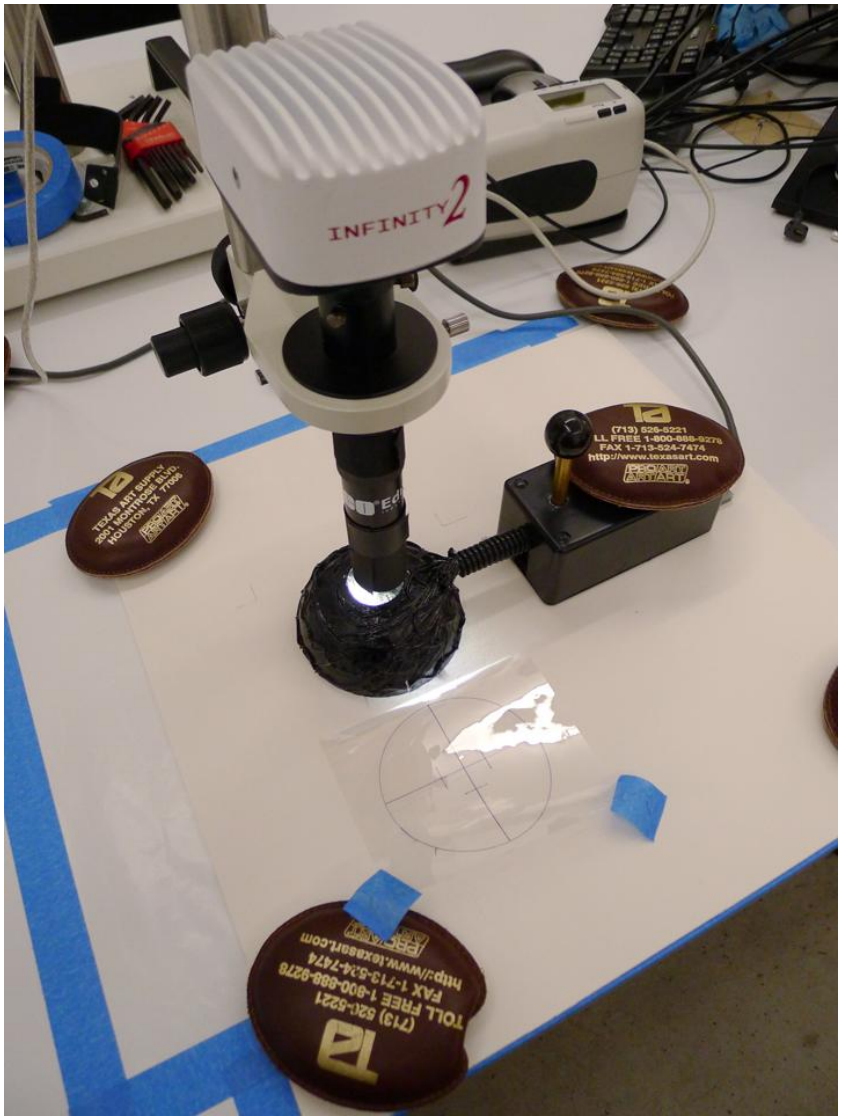
Detault file name appear as lp_2080.ptm. Change the file name to “lp.ptm” or any preferred name, then click [Execute].

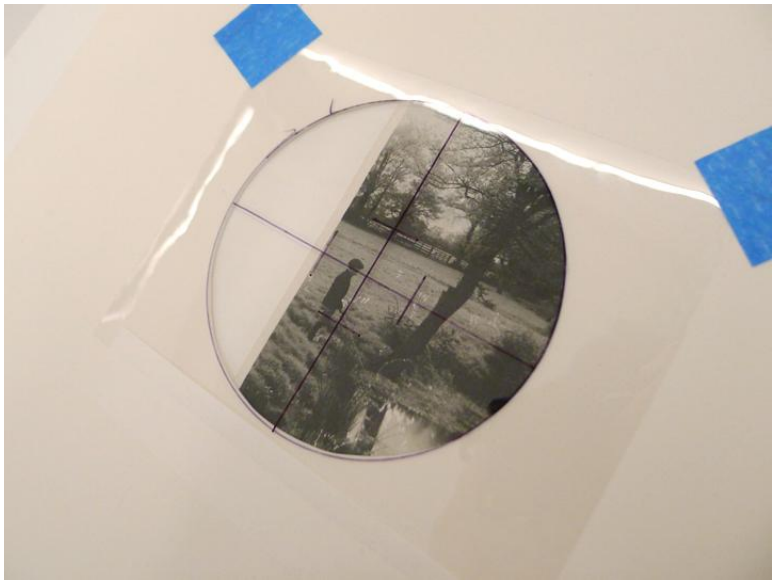


Find the lp.lp file in “assembly-files” folder.

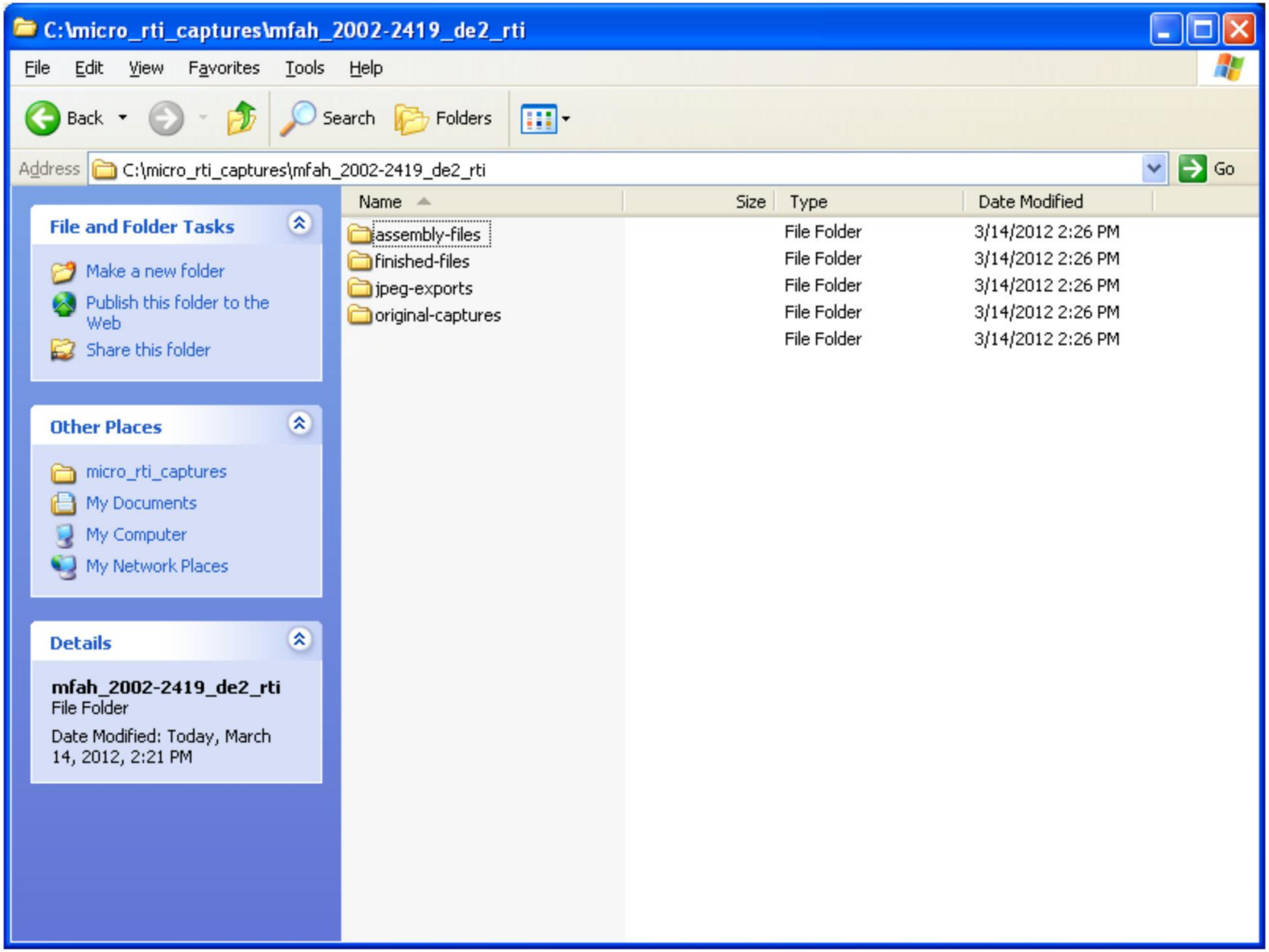


Capture micro-RTI images with *PTM Grabber*

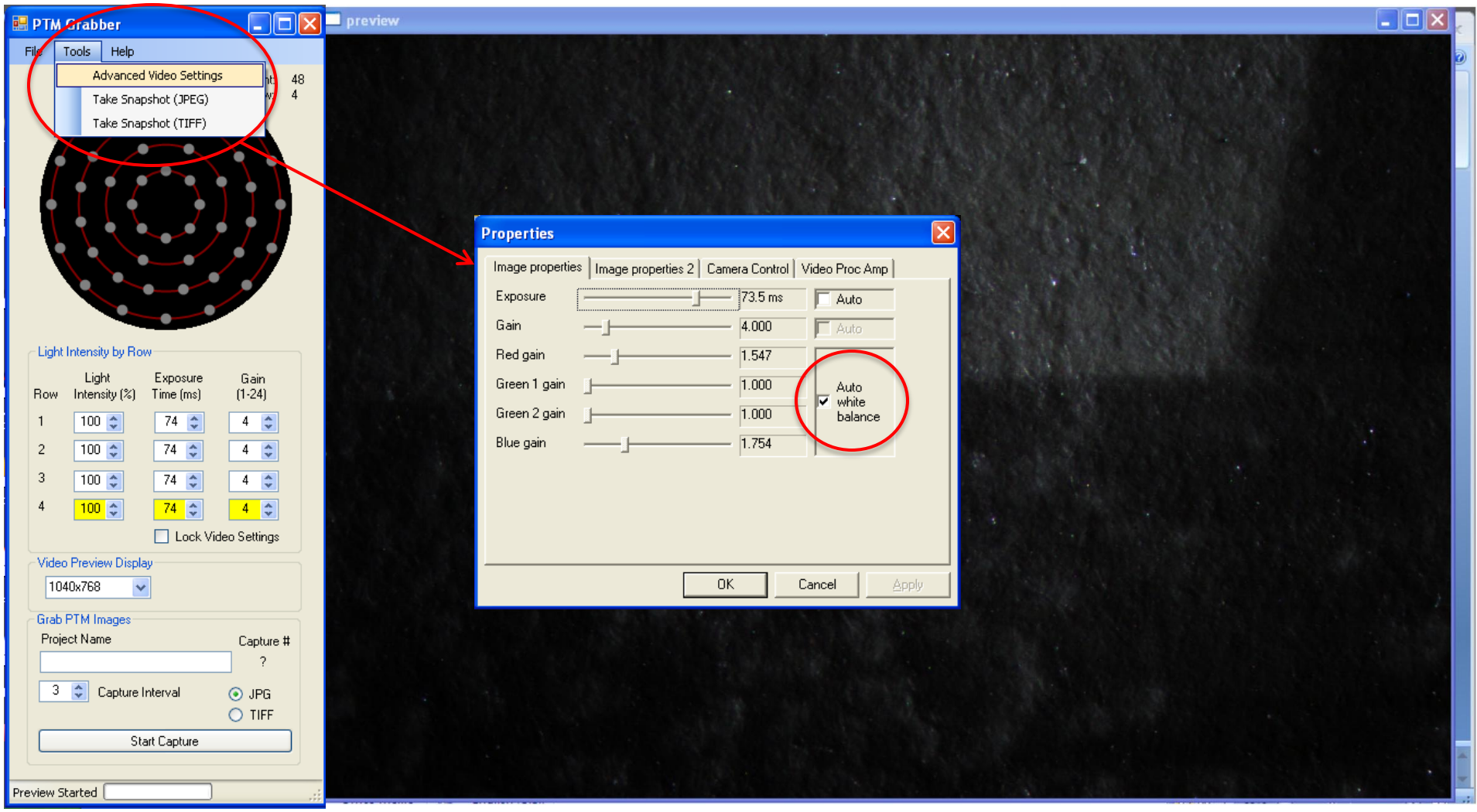




Place the artwork in the folder, place the monkey brain on the folder, then slide the folder to the designated position. Place weights on the folder and monkey brain.



Create a folder with the project name. Inside the project folder, create an empty RTI directory as shown above.



Launch PTM Grabber.

Make sure “Auto white balance” is checked when starting up the application.

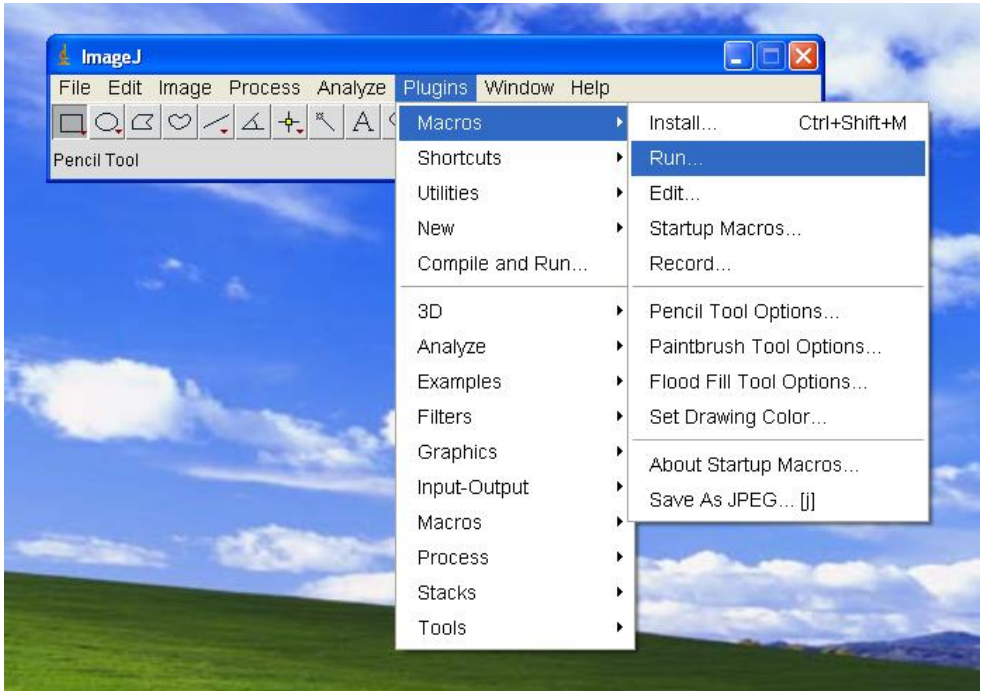
Using the preview, adjust the sample position as needed.
Adjust the focus using lowest angle raking light.
* Use larger pixel dimension setting to magnify the preview screen.

Adjust the “Light Intensity,” “Exposure Time,” and “Gain” values freely for best visual exposure. The lowest raking light position should appear somewhat dim.

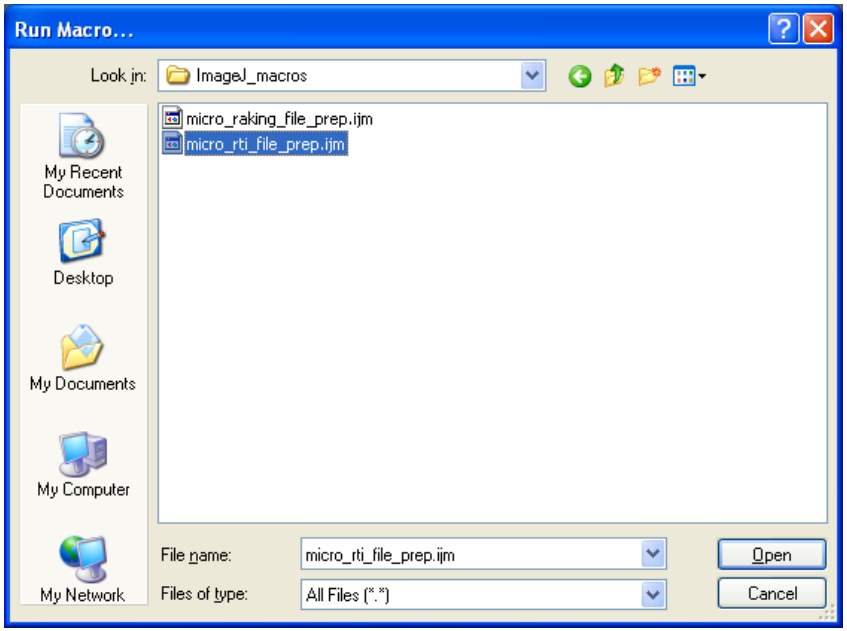
Enter the project folder name.
Select “3” for Capture Interval and check “TIFF”.

Click “Start Capture.” Light array and the imager will operate automatically to create 48 image files. These files are saved in a folder “1” that gets automatically generated in the project name folder.

Process image files with *Image J*

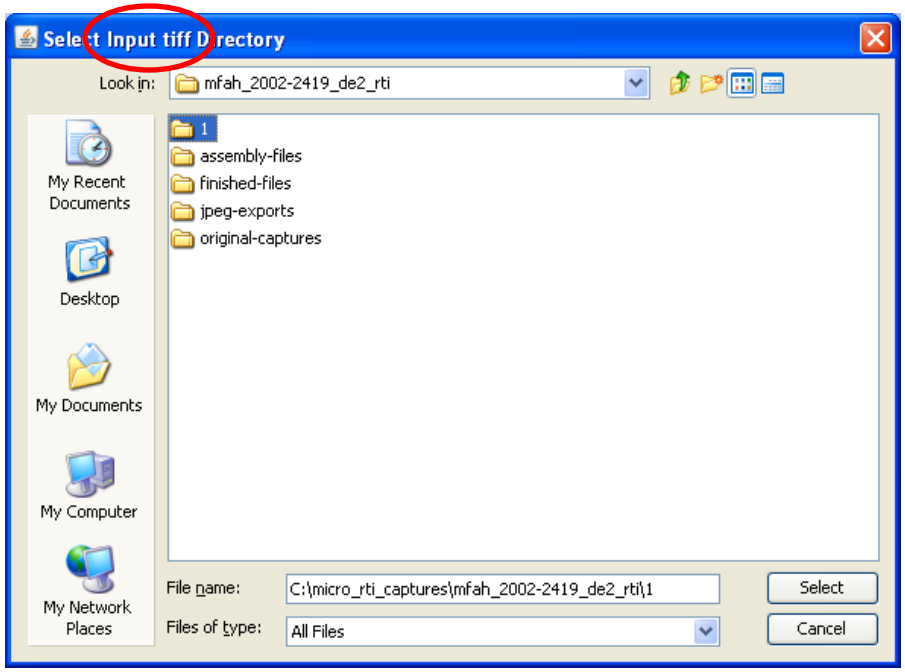


Go to [Plugins] → [Macros] → [Run…].

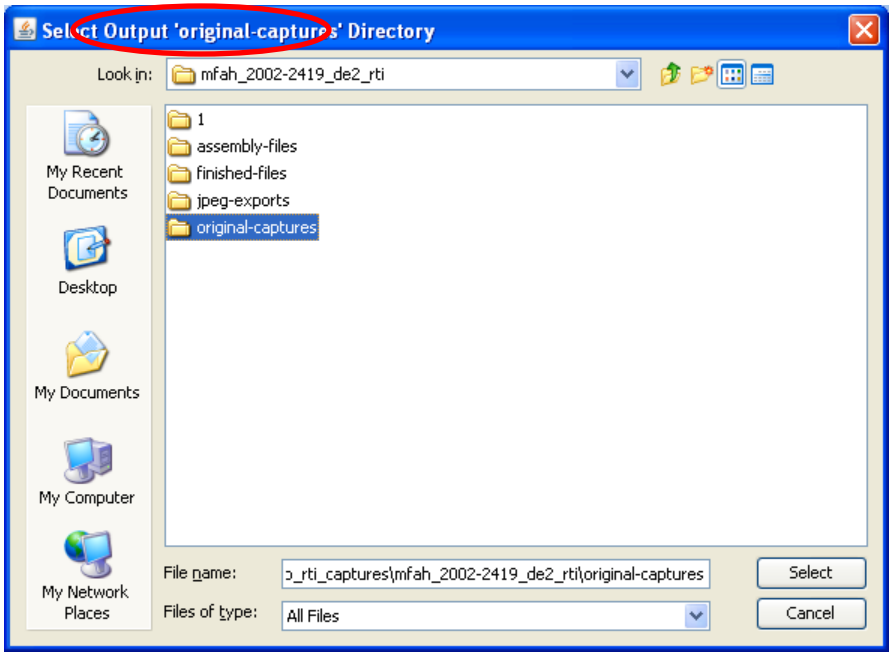


Select “micro_rti_file_prep.ijm”.

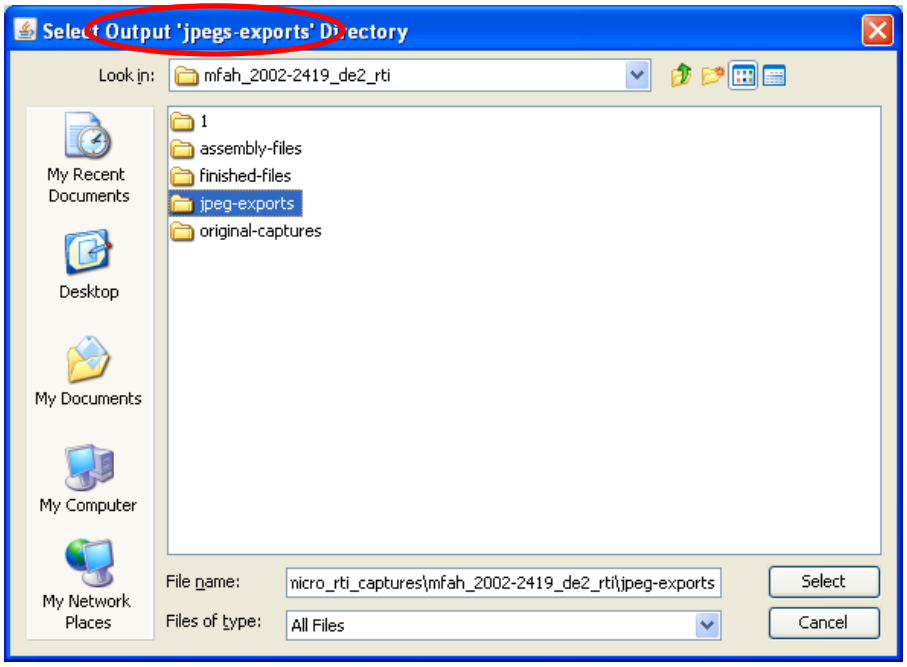
1.



2.

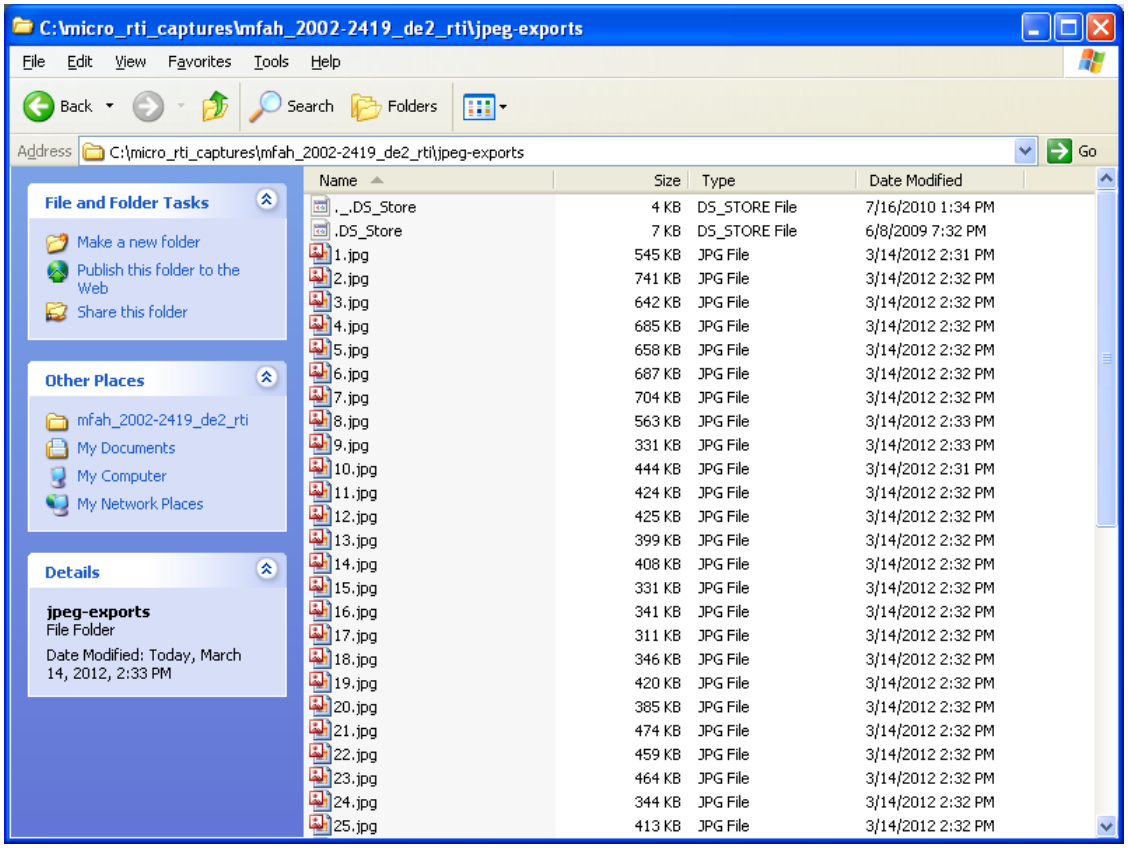


3.



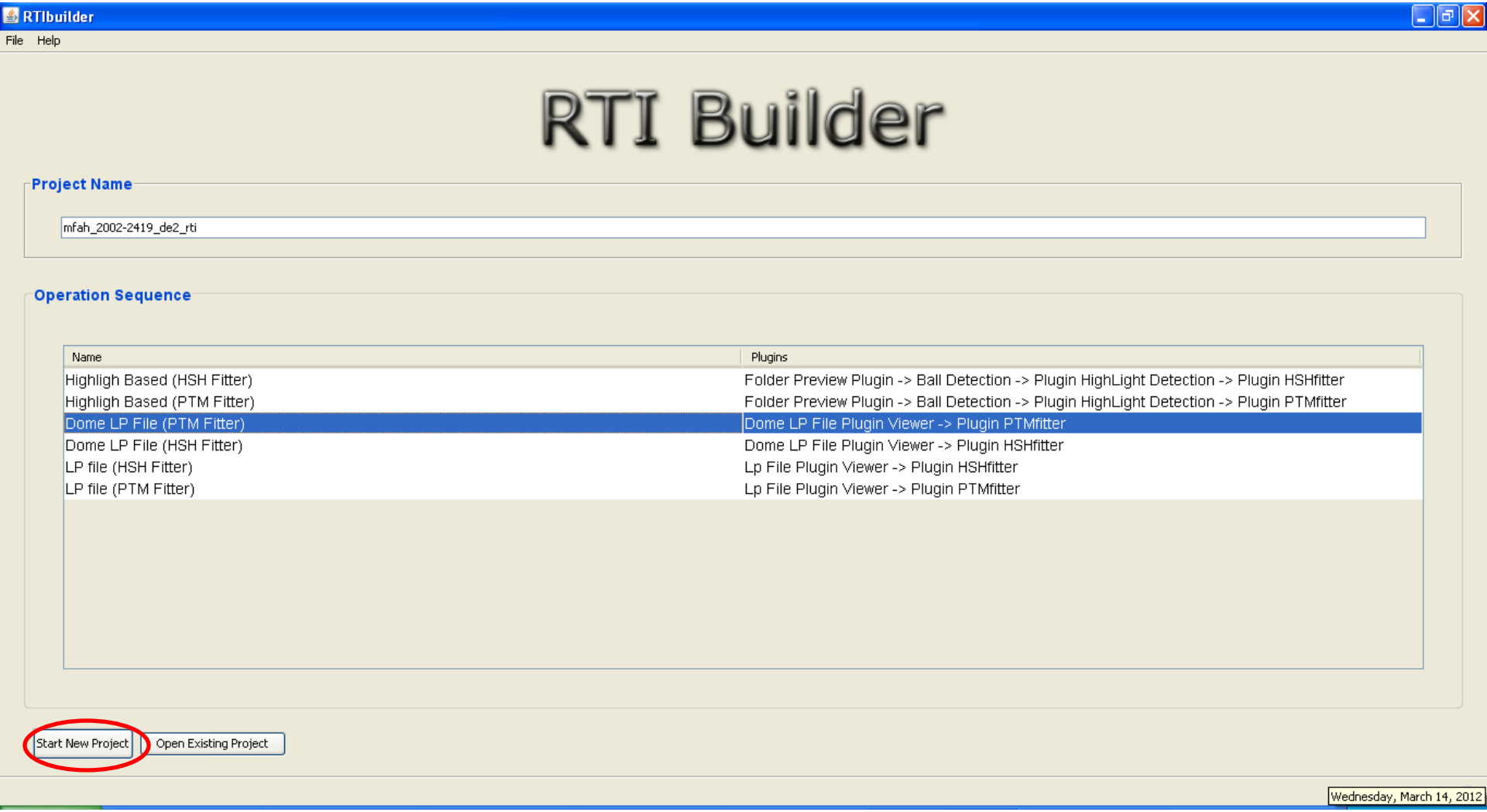
Select
1) **“1” folder** for *Input tiff Directory*,
2) **“original-captures” folder** for *Output ‘original-captures’ Directory*,
3) **“jpeg-exports” folder** for *Output ‘jpegs-exports’ Directory*.

As soon as clicking on [Select] for the third prompt, image processing starts automatically and the files are saved in “jpeg-exports” folder.

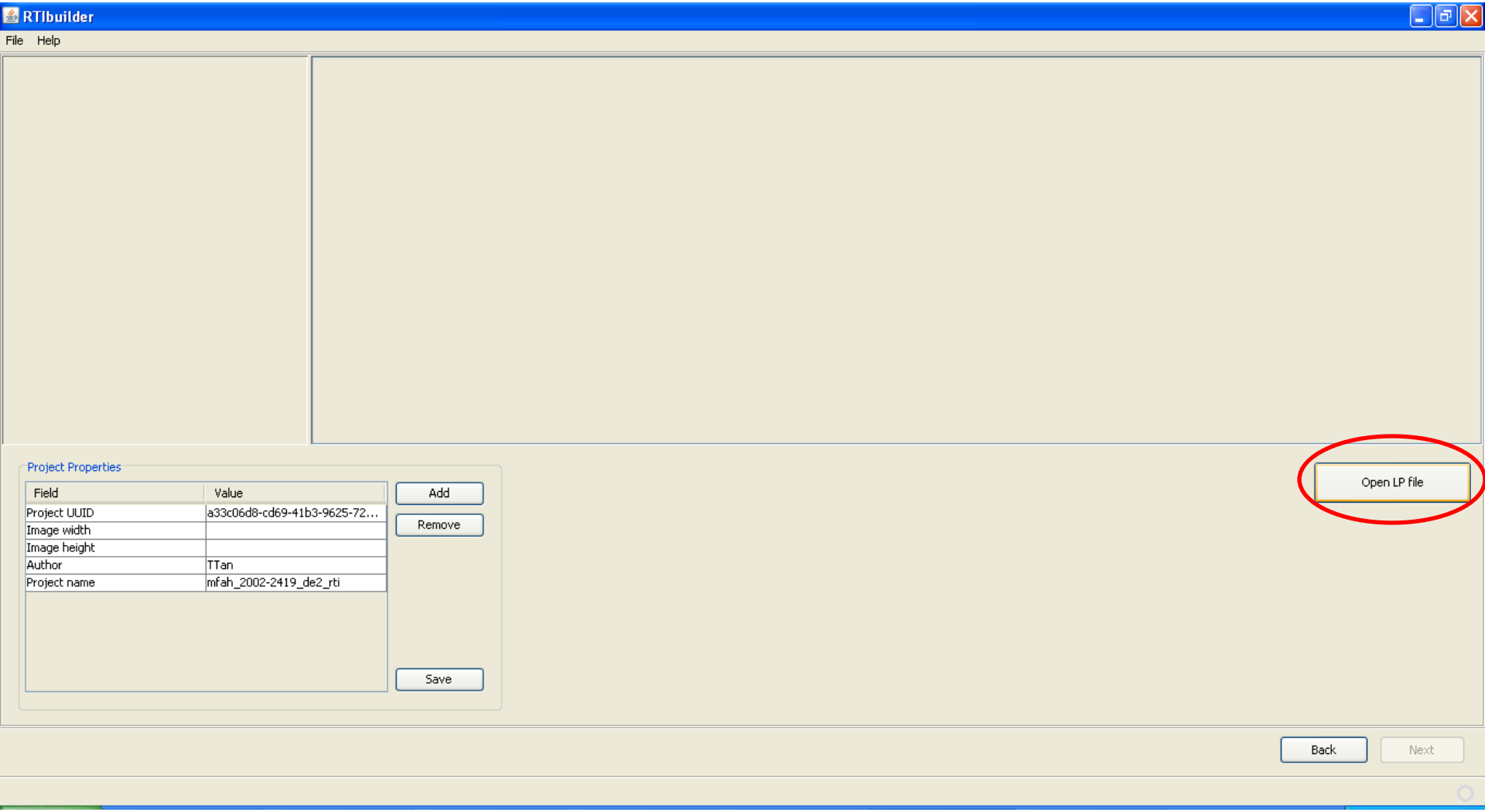


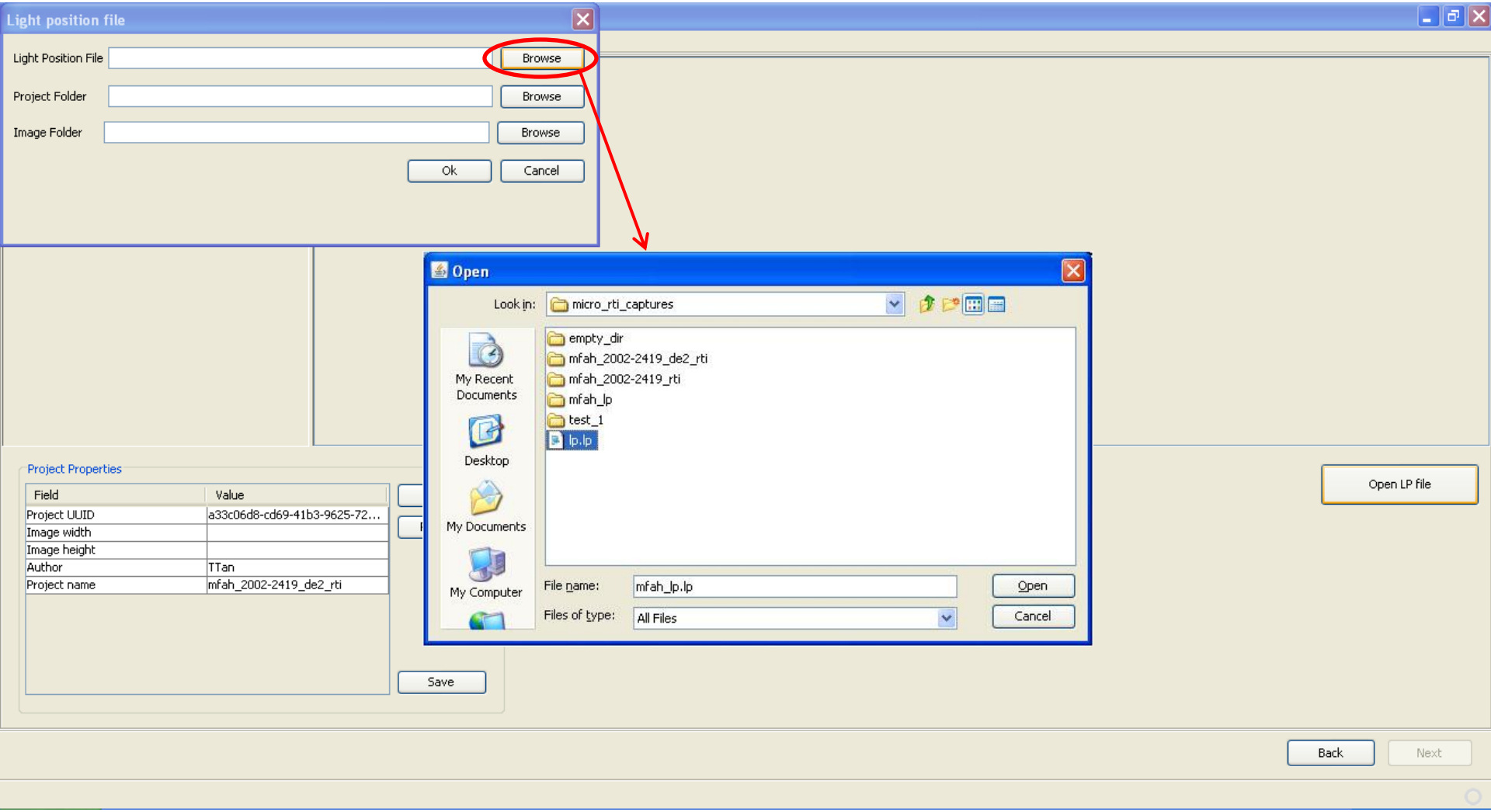
Generated jpeg files in “jpeg-exports” folder.

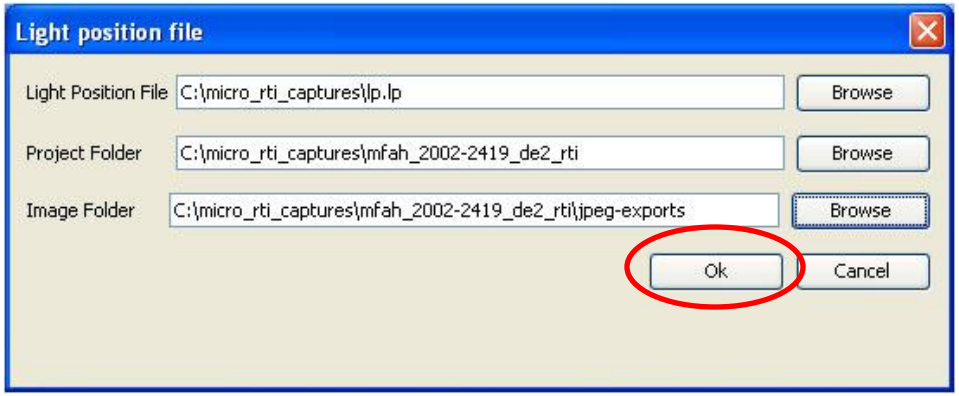
Build RTI file with *RTI Builder*



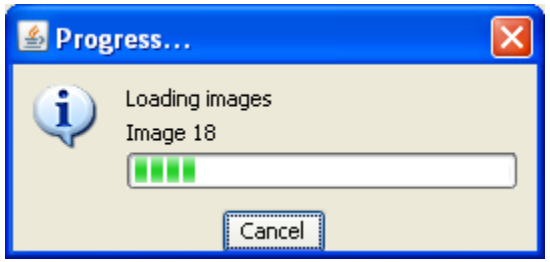
Enter Project Name, select “Dome LP File (PTM Fitter),” then click [Start New Project].

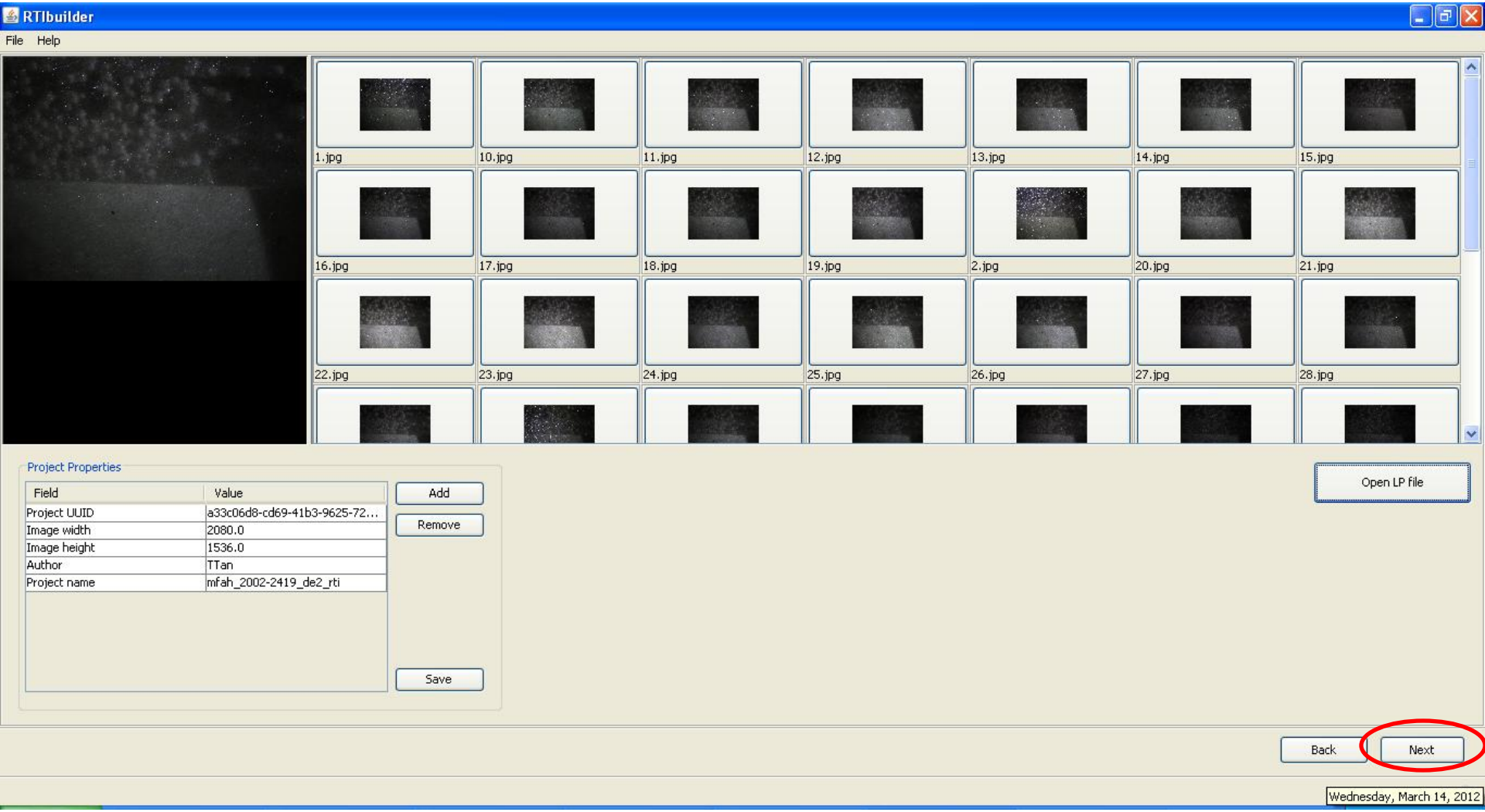

RTIbuilder
File
Help
Project Properties
Field
Value
Project UUID
a33c06d8-cd69-41b3-9625-72...
Image width
Image height
Author
TTan
Project name
mfah_2002-2419_de2_rti
Add
Remove
Save
Open LP file
Back
Next


Light position file
Light Position File
Browse
Project Folder
Browse
Image Folder
Browse
Ok
Cancel
Open
Look in:
micro_rti_captures
empty_dir
mfah_2002-2419_de2_rti
mfah_2002-2419_rti
mfah_lp
test_1
lp.lp
My Recent Documents
Desktop
My Documents
My Computer
File name:
mfah_lp.lp
Open
Files of type:
All Files
Cancel
Project Properties
Field
Value
Project UUID
a33c06d8-cd69-41b3-9625-72...
Image width
Image height
Author
TTan
Project name
mfah_2002-2419_de2_rti
Save
Open LP file
Back
Next



Select the other folders accordingly, then click [Ok].


Progress...
Loading images
Image 18
Cancel


RTIbuilder
File
Help
1.jpg
10.jpg
11.jpg
12.jpg
13.jpg
14.jpg
15.jpg
16.jpg
17.jpg
18.jpg
19.jpg
2.jpg
20.jpg
21.jpg
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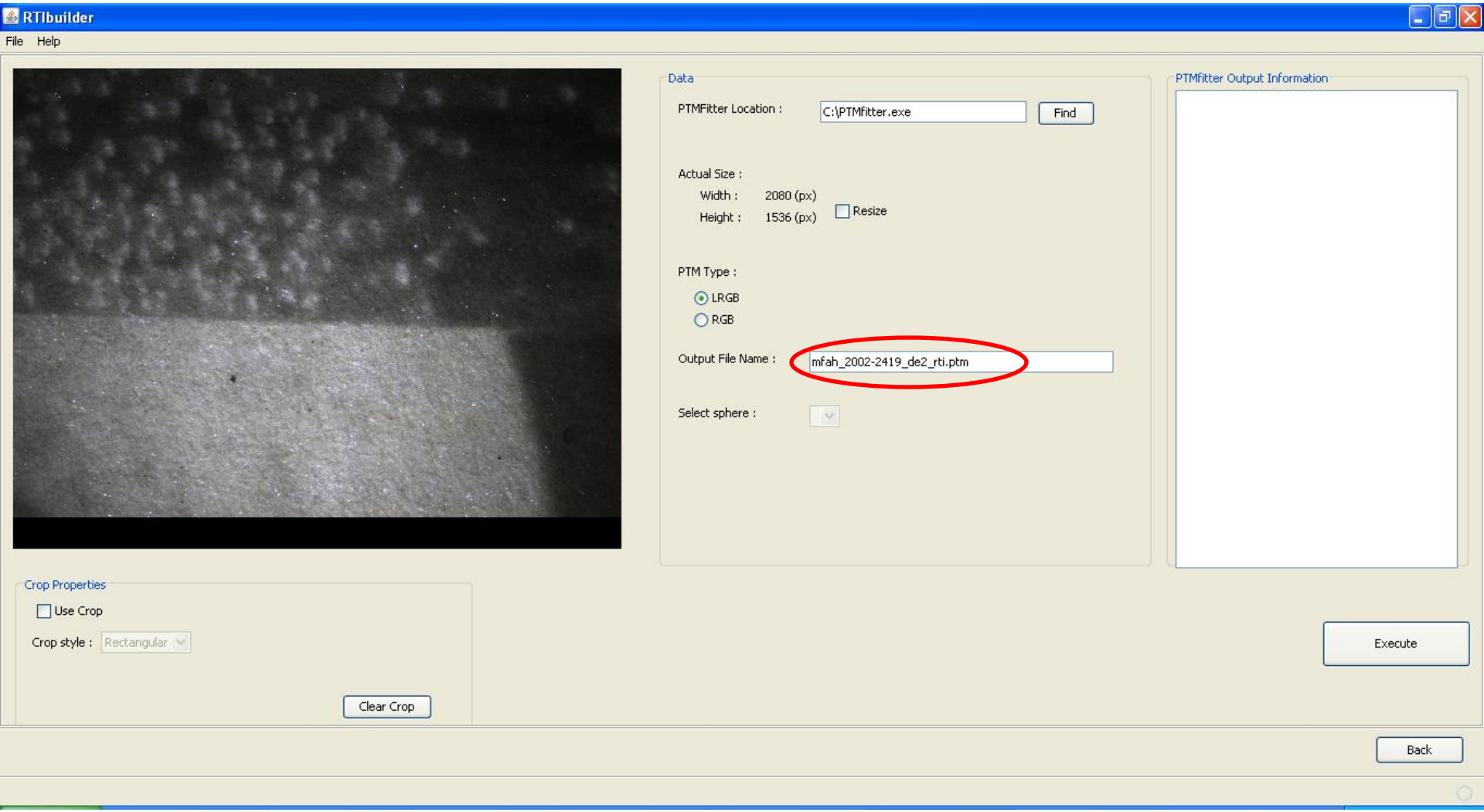
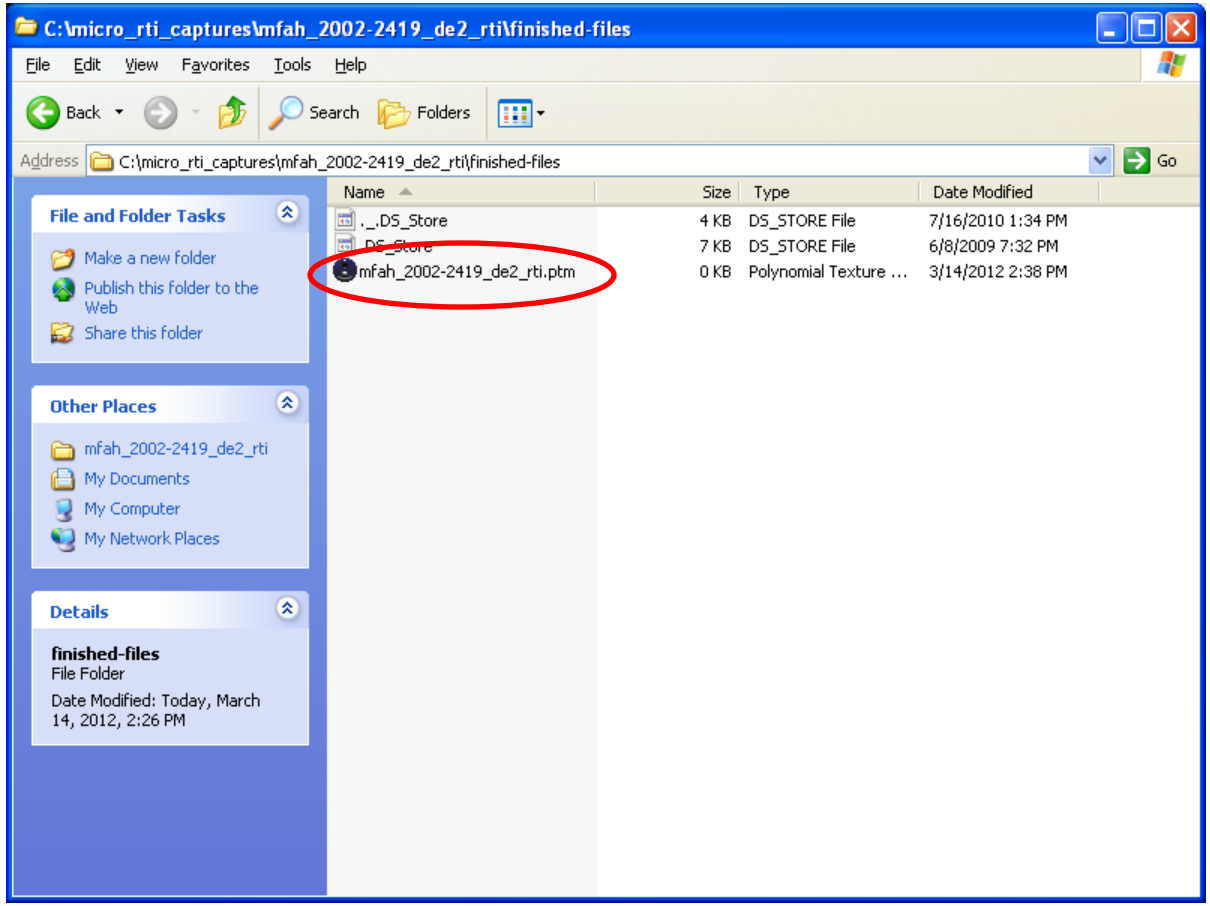
23.jpg
24.jpg
25.jpg
26.jpg
27.jpg
28.jpg
Project Properties
Field
Value
Project UUID
a33c06d8-cd69-41b3-9625-72...
Image width
2080.0
Image height
1536.0
Author
TTan
Project name
mfah_2002-2419_de2_rti
Add
Remove
Save
Open LP file
Back
Next
Wednesday, March 14, 2012



Detault file name appear as (project name)_2080.ptm. Change the file name to any preferred name, then click [Execute].



Find the PTM file in “finished-files” folder.