Step by step NanoFinder instruction

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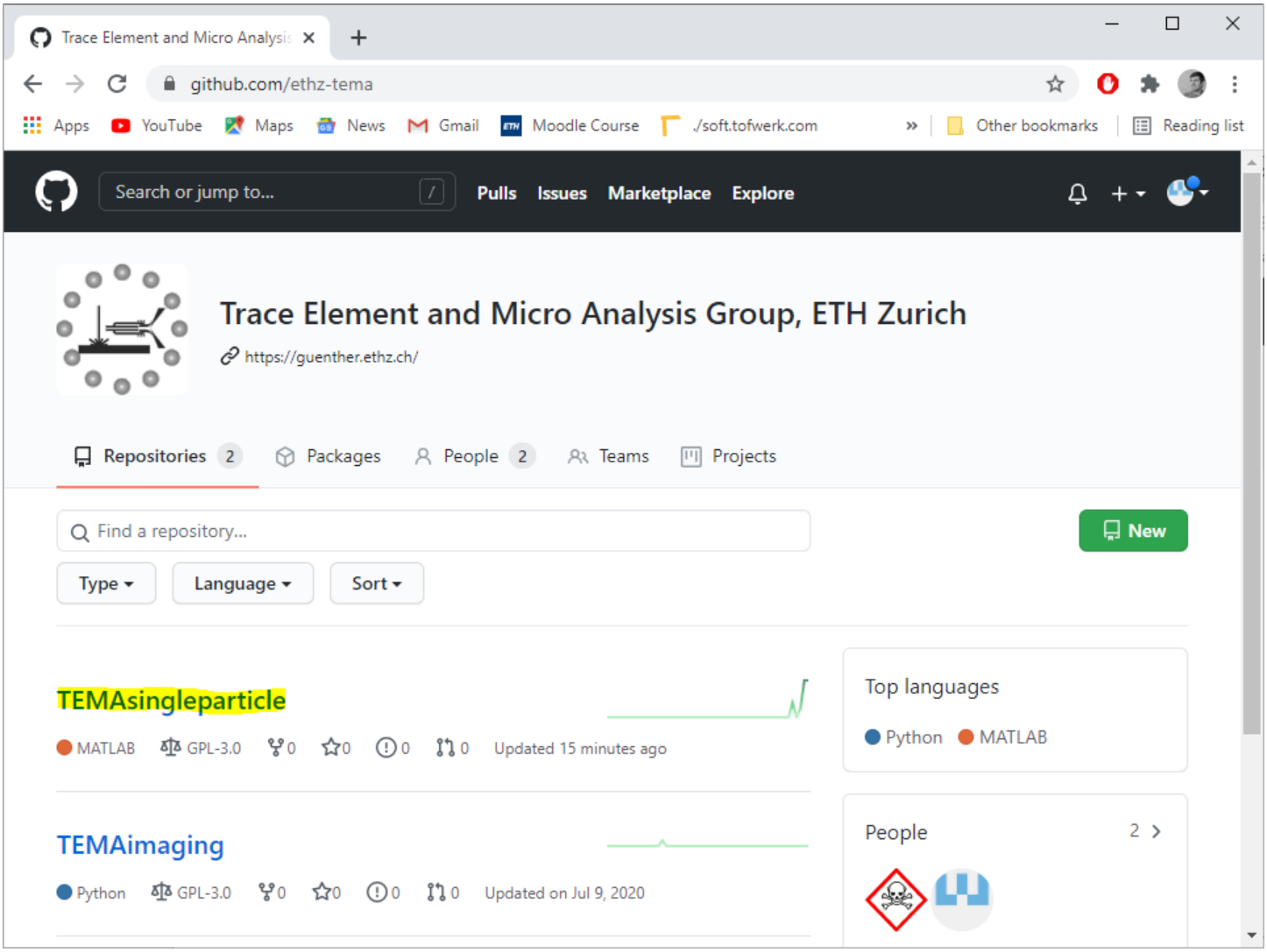
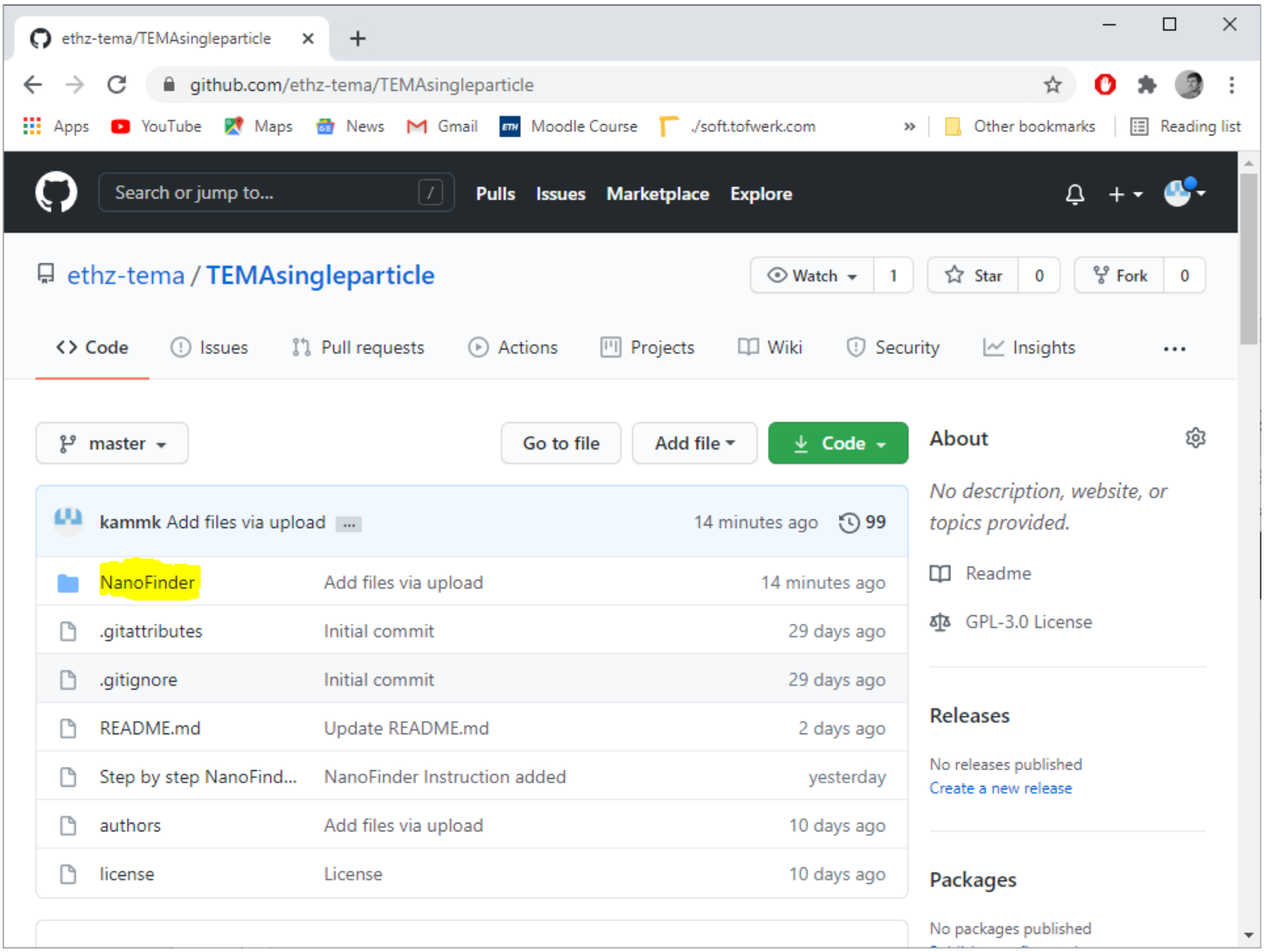
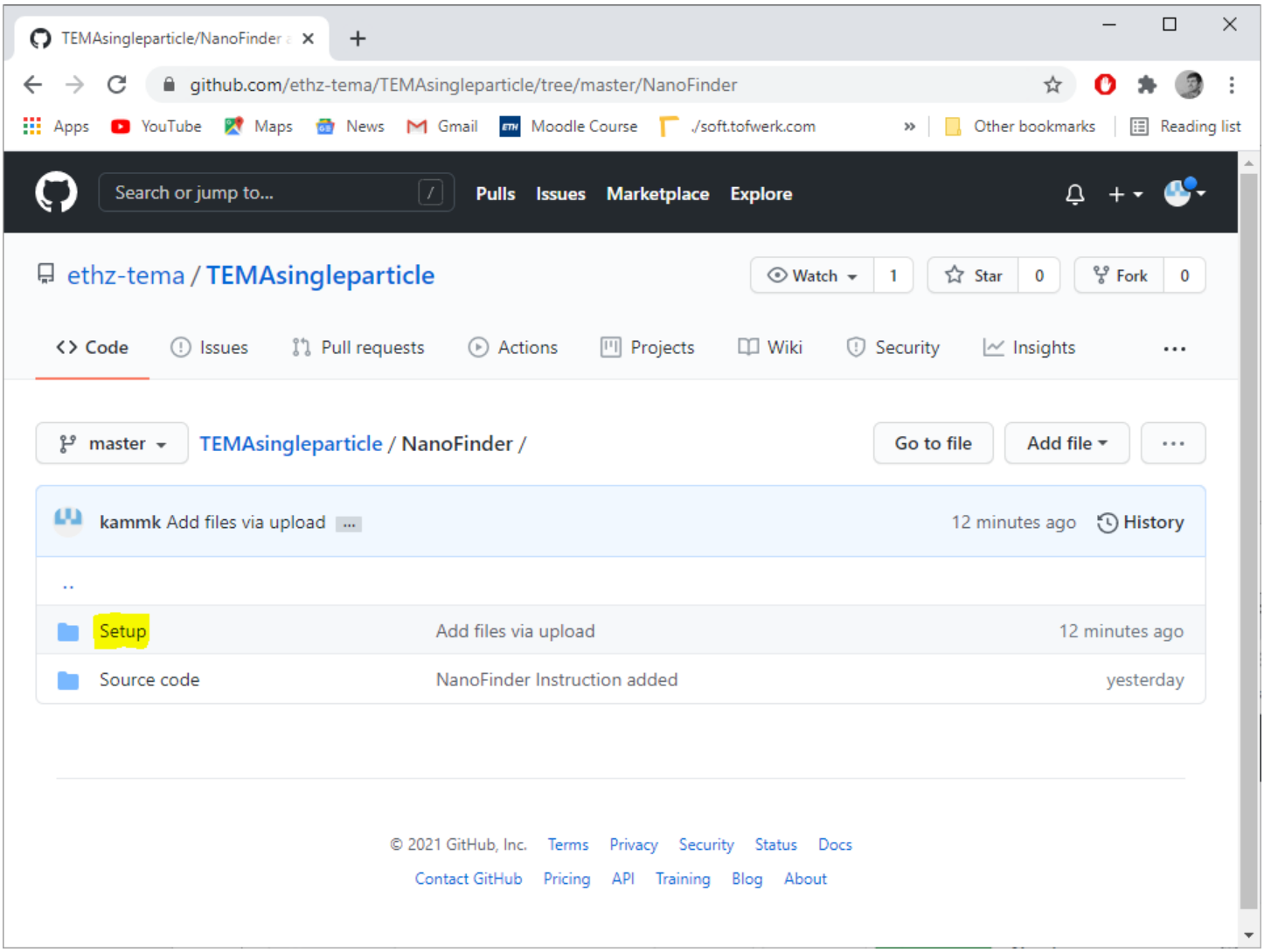
Installation:

1. In order to download, please go to the link below and download the contents of Setup folder

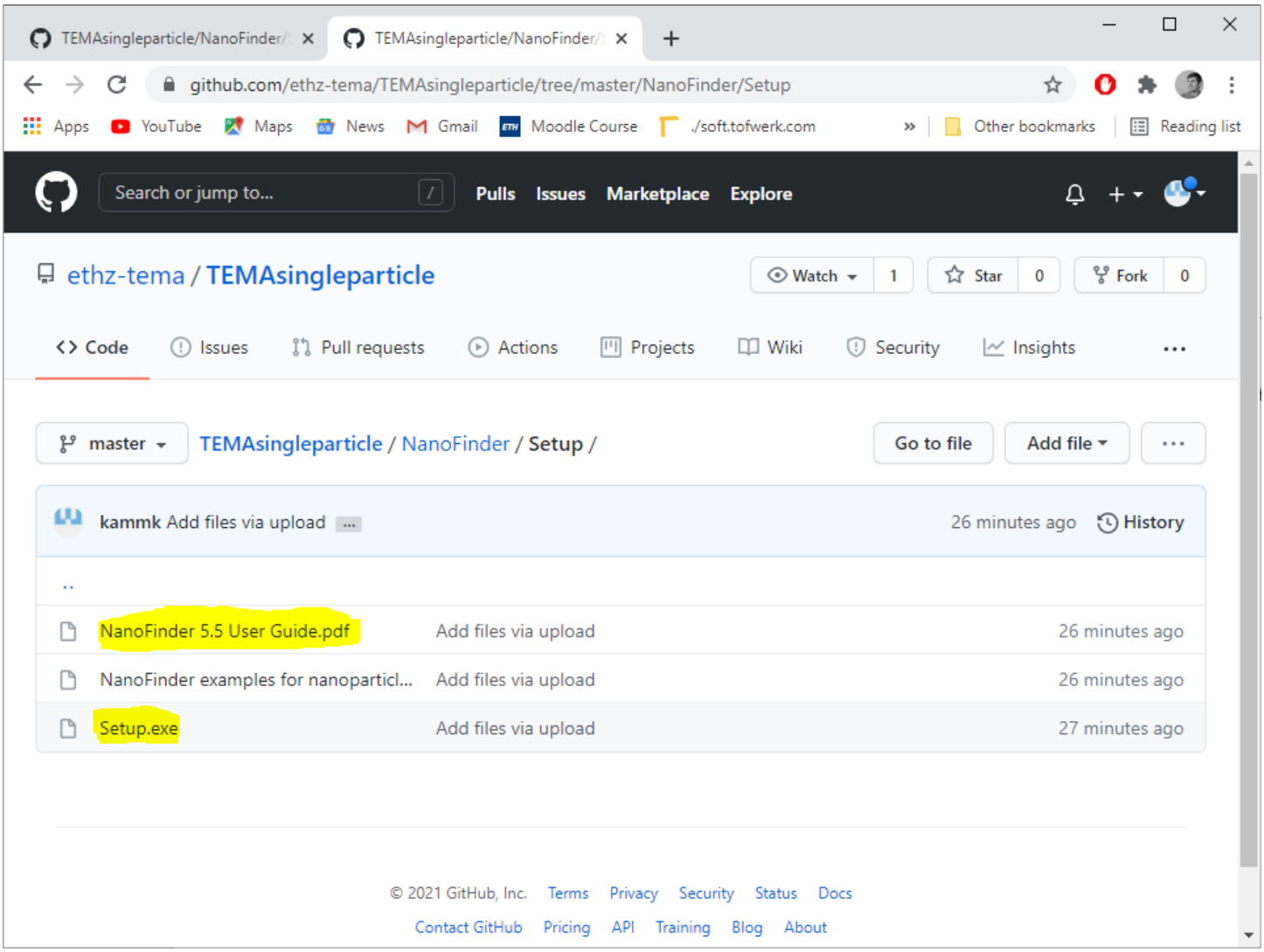
Link: https://github.com/ethz-tema




ethz-tema/TEMAsingleparticle
github.com/ethz-tema/TEMAsingleparticle
Apps YouTube Maps News Gmail Moodle Course ./soft.tofwerk.com Other bookmarks Reading list
Search or jump to... / Pulls Issues Marketplace Explore
ethz-tema / TEMAsingleparticle
Watch 1 Star 0 Fork 0
Code Issues Pull requests Actions Projects Wiki Security Insights
master Go to file Add file Code
kammk Add files via upload ... 14 minutes ago 99
NanoFinder Add files via upload 14 minutes ago
.gitattributes Initial commit 29 days ago
.gitignore Initial commit 29 days ago
README.md Update README.md 2 days ago
Step by step NanoFind... NanoFinder Instruction added yesterday
authors Add files via upload 10 days ago
license License 10 days ago
About
No description, website, or topics provided.
Readme
GPL-3.0 License
Releases
No releases published
Create a new release
Packages
No packages published



2. Download the **Setp.exe** and **NanoFinder User guide.pdf** from Setup directory as shown in the following screenshots.


TEMAsingleparticle/NanoFinder/
TEMAsingleparticle/NanoFinder/
github.com/ethz-tema/TEMAsingleparticle/tree/master/NanoFinder/Setup
Apps
YouTube
Maps
News
Gmail
Moodle Course
./soft.tofwerk.com
Other bookmarks
Reading list
Search or jump to...
Pulls
Issues
Marketplace
Explore
ethz-tema / TEMAsingleparticle
Watch 1
Star 0
Fork 0
Code
Issues
Pull requests
Actions
Projects
Wiki
Security
Insights
master
TEMAsingleparticle / NanoFinder / Setup /
Go to file
Add file
kammk Add files via upload
26 minutes ago
History
..
NanoFinder 5.5 User Guide.pdf
Add files via upload
26 minutes ago
NanoFinder examples for nanoparticl...
Add files via upload
26 minutes ago
Setup.exe
Add files via upload
27 minutes ago
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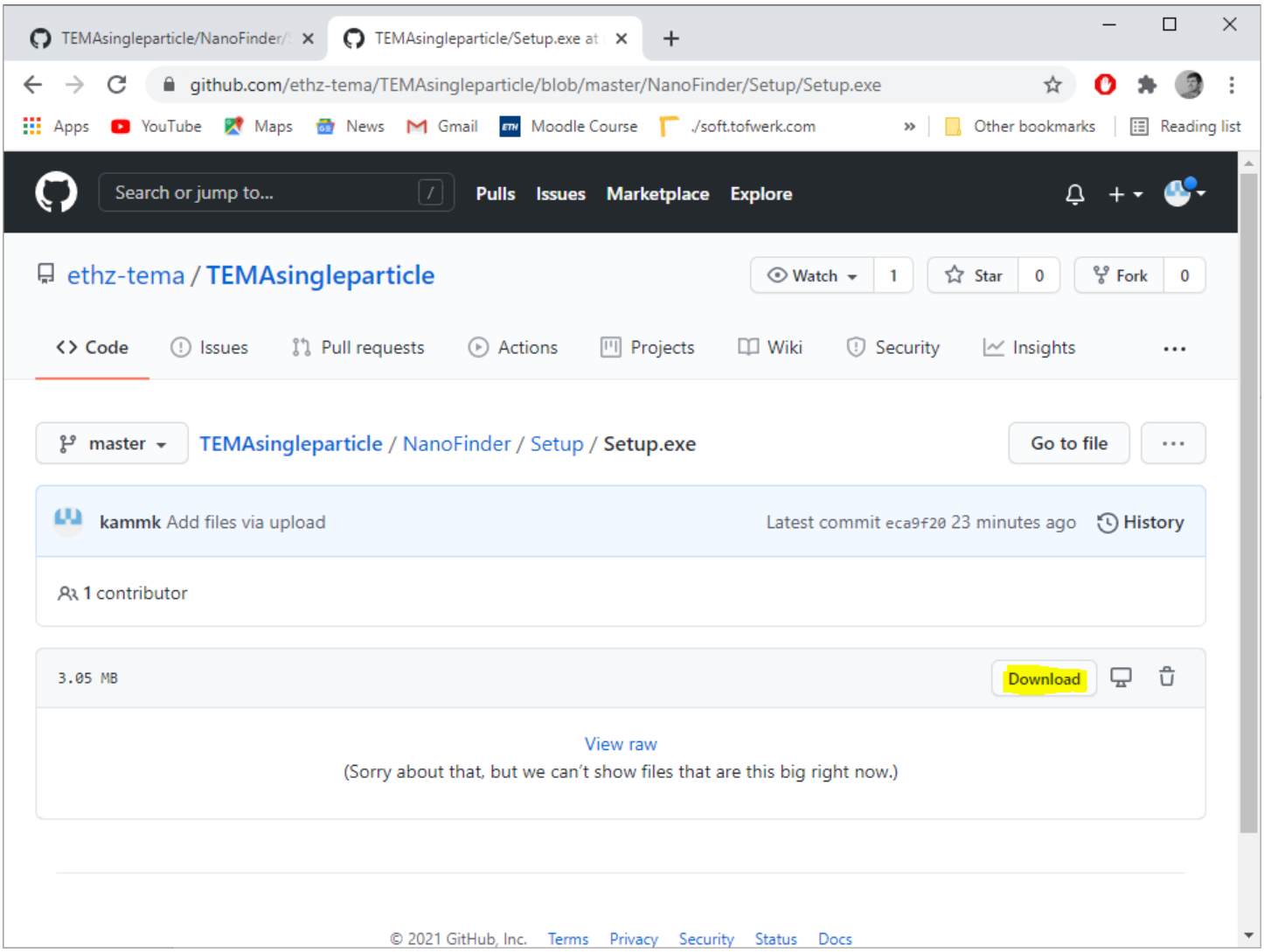
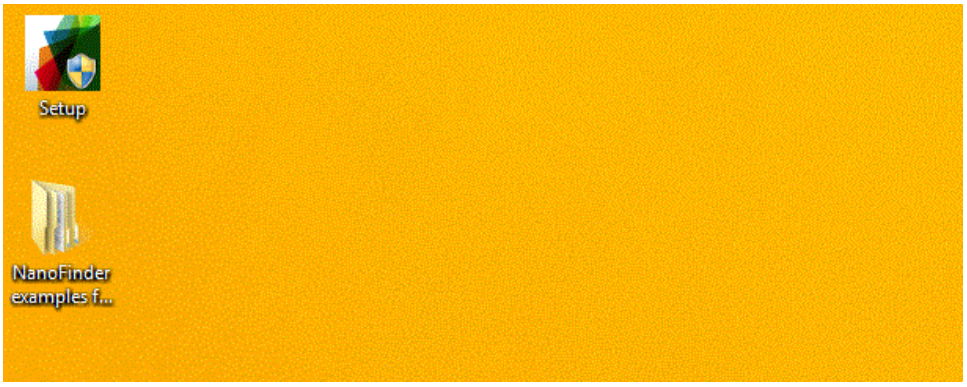
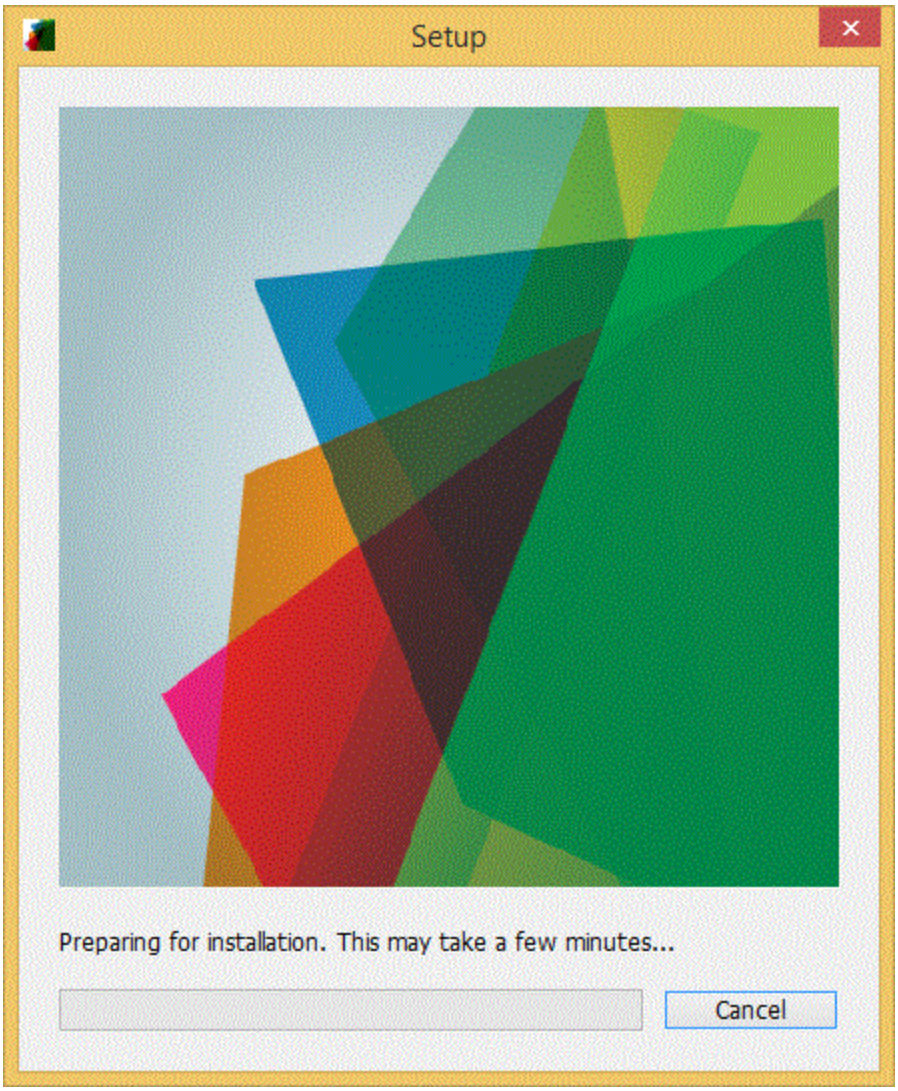
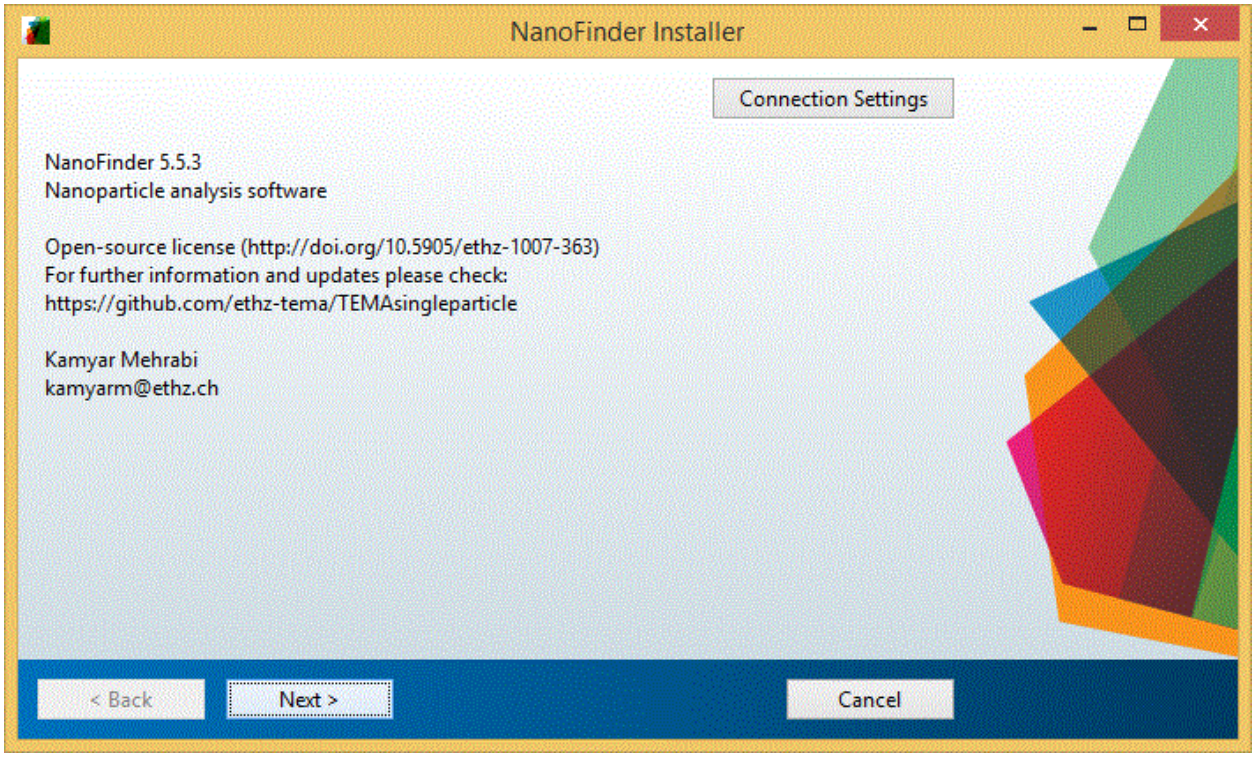
Status
Docs
Contact GitHub
Pricing
API
Training
Blog
About

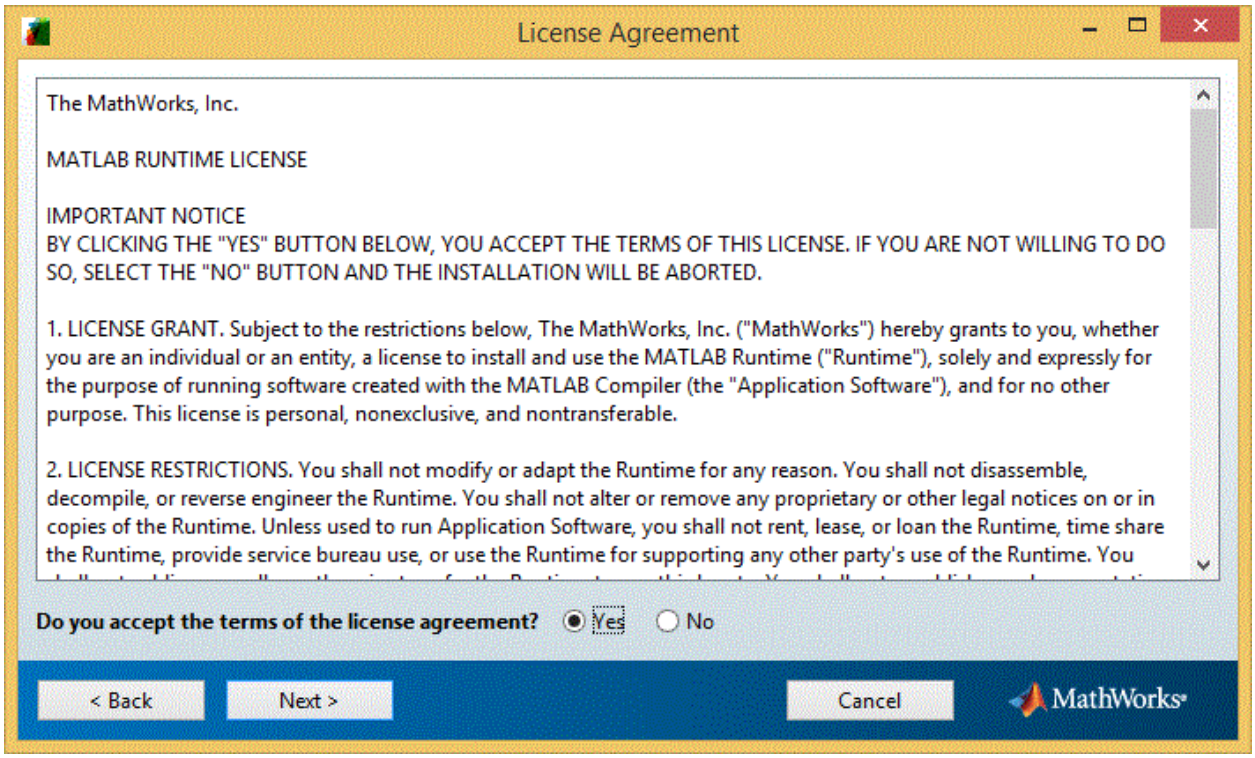


3. Run the **Setup.exe** and follow the steps as being shown in the pictures below.




Setup
Preparing for installation. This may take a few minutes...
Cancel


NanoFinder Installer
Connection Settings
NanoFinder 5.5.3
Nanoparticle analysis software
Open-source license (http://doi.org/10.5905/ethz-1007-363)
For further information and updates please check:
https://github.com/ethz-tema/TEMAsingleparticle
Kamyar Mehrabi
kamyarm@ethz.ch
< Back
Next >
Cancel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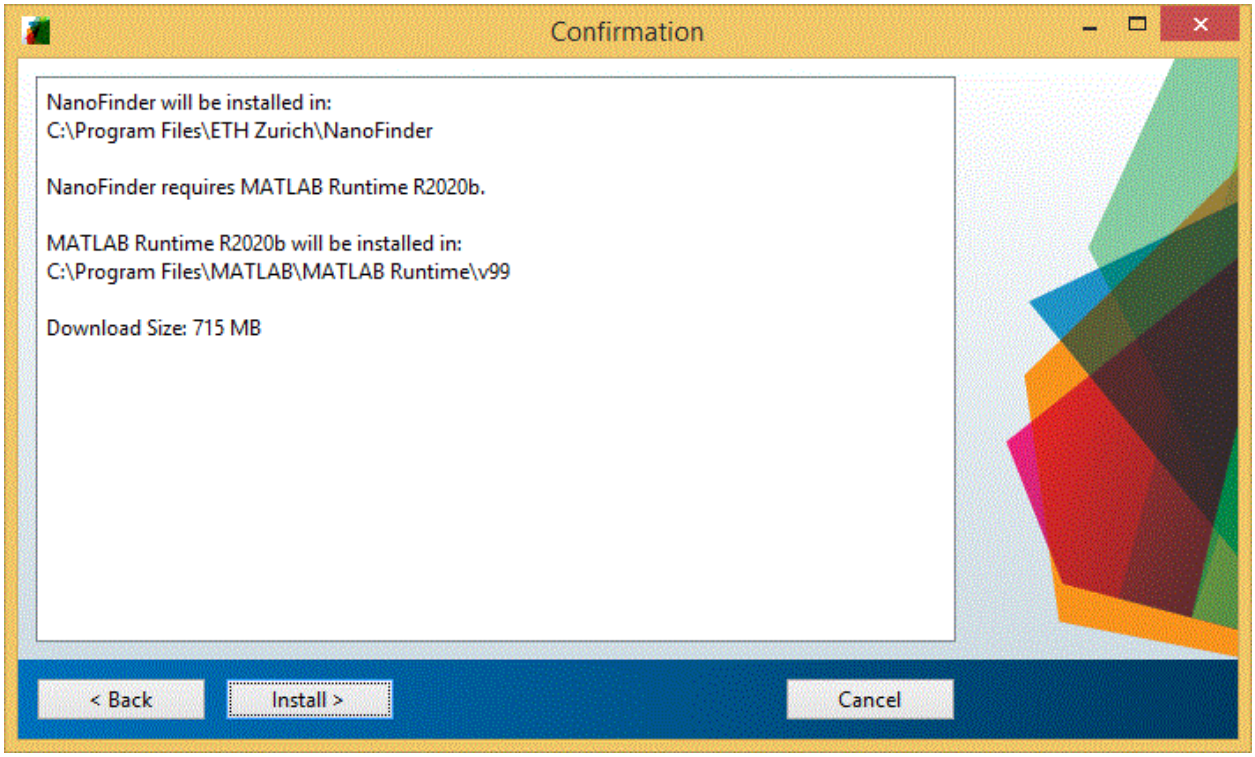
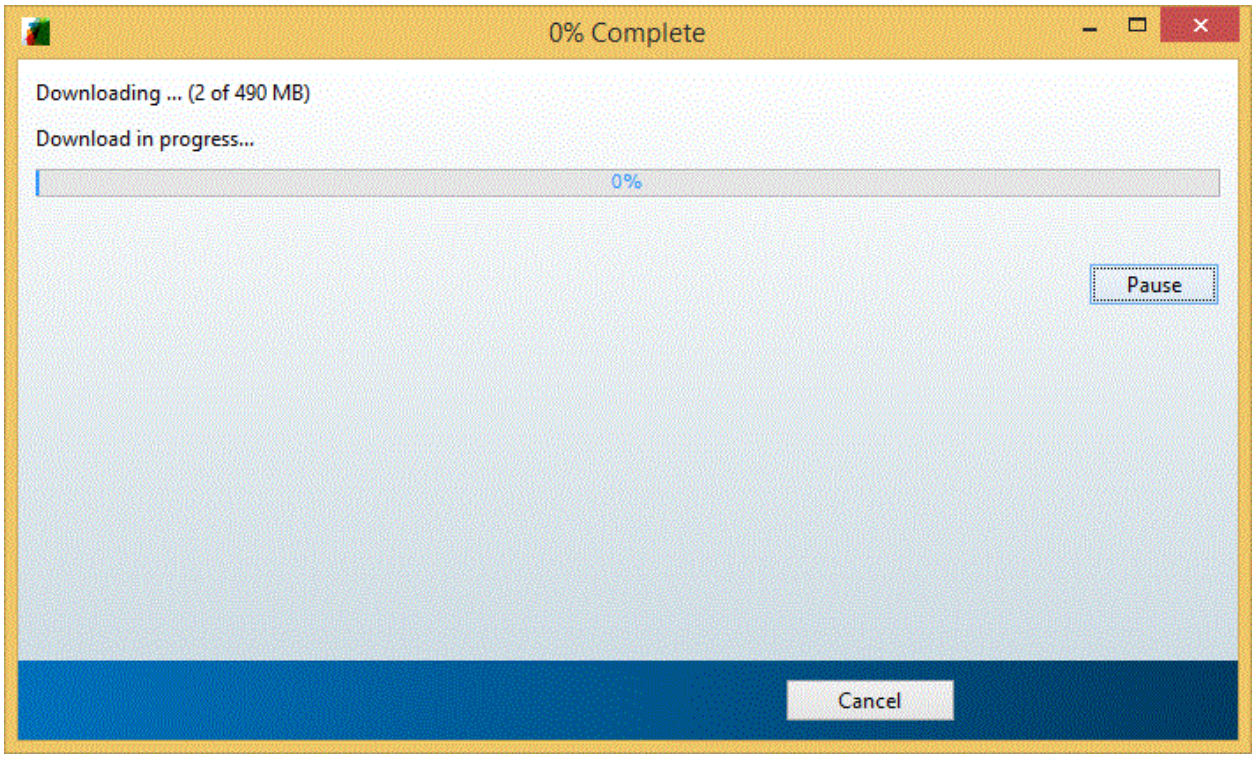
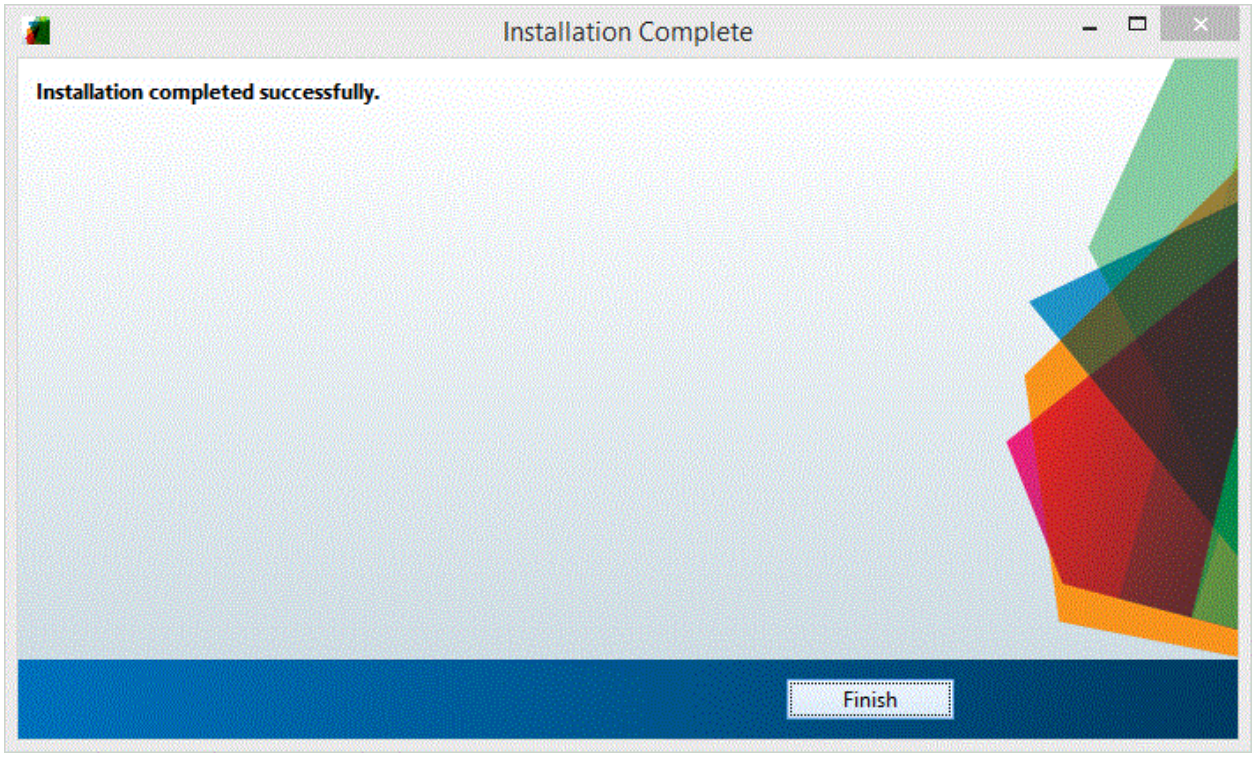

Confirmation
NanoFinder will be installed in:
C:\Program Files\ETH Zurich\NanoFinder
NanoFinder requires MATLAB Runtime R2020b.
MATLAB Runtime R2020b will be installed in:
C:\Program Files\MATLAB\MATLAB Runtime\v99
Download Size: 715 MB
< Back
Install >
Cancel





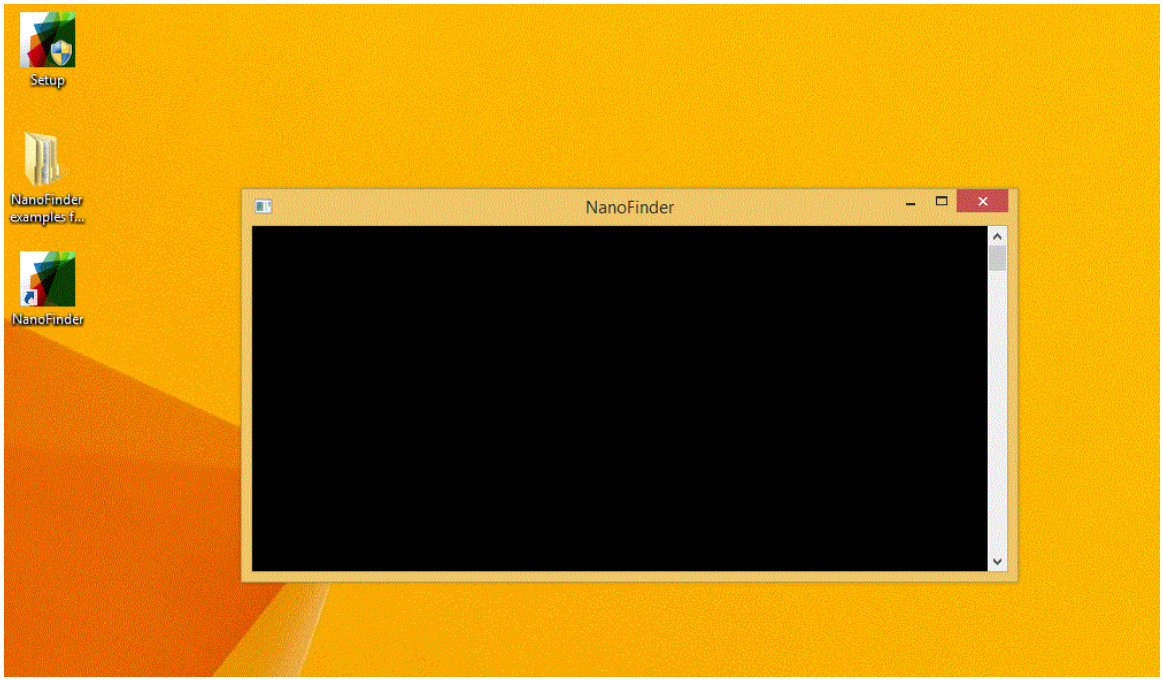
4. After installation is finished, you could find the NaFinder program in your programs directory. Search for NanoFinder in your programs directory and copy a shortcut of it in Desktop or location of your choice.

Processing the test sample:

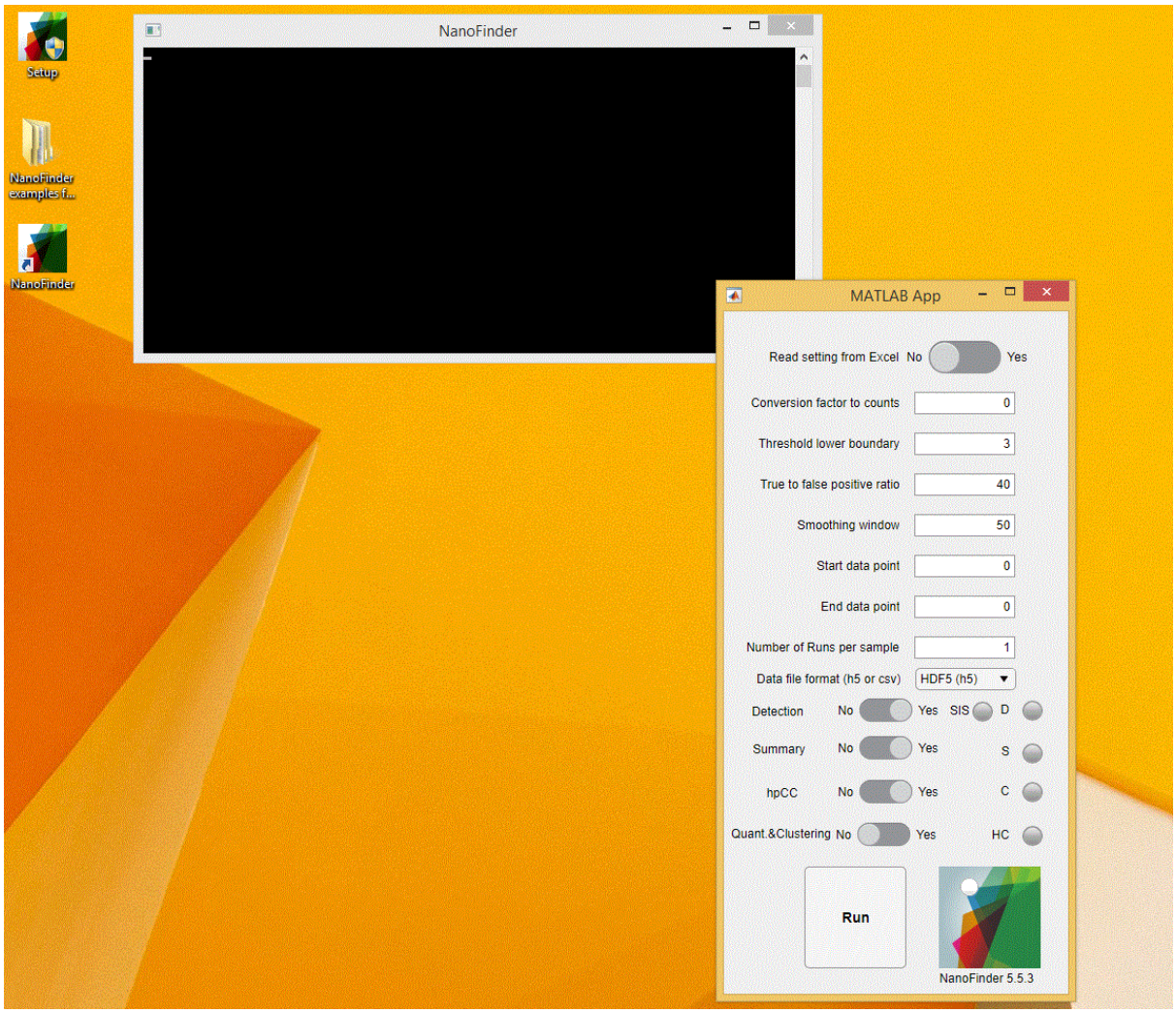
complete Example data file could be obtained from link below. After download please unzip the folder.

https://polybox.ethz.ch/index.php/s/jjsf2ozlUjEiC6t

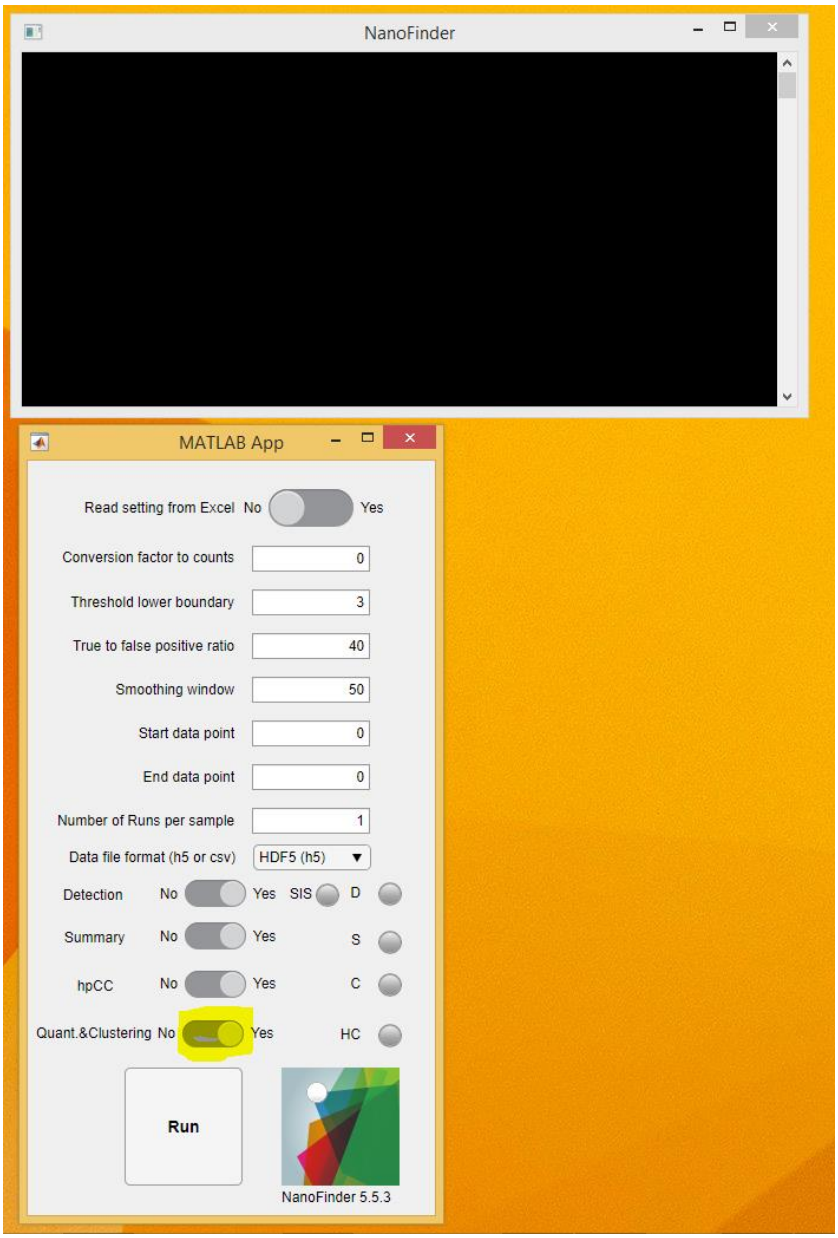
1. Open the NanoFinder program
2. A terminal window will show up shortly after



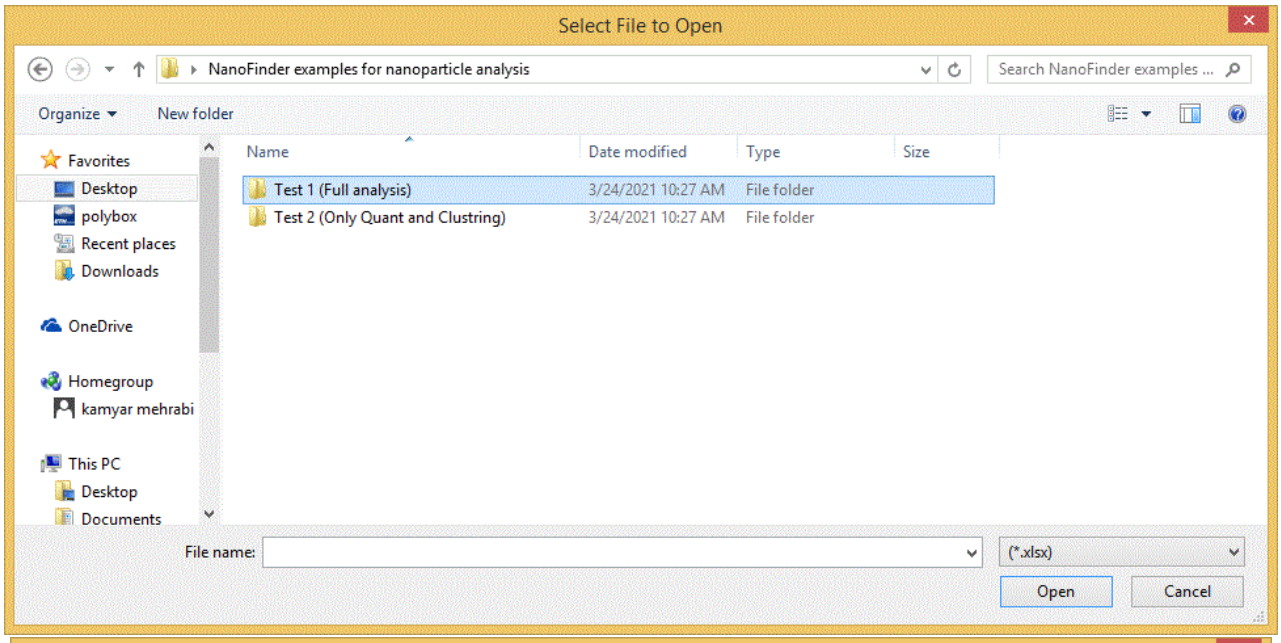
3. Wait until the program graphical user interface (GUI) open. It will take a few seconds to minutes depending on the processing power of your computer.

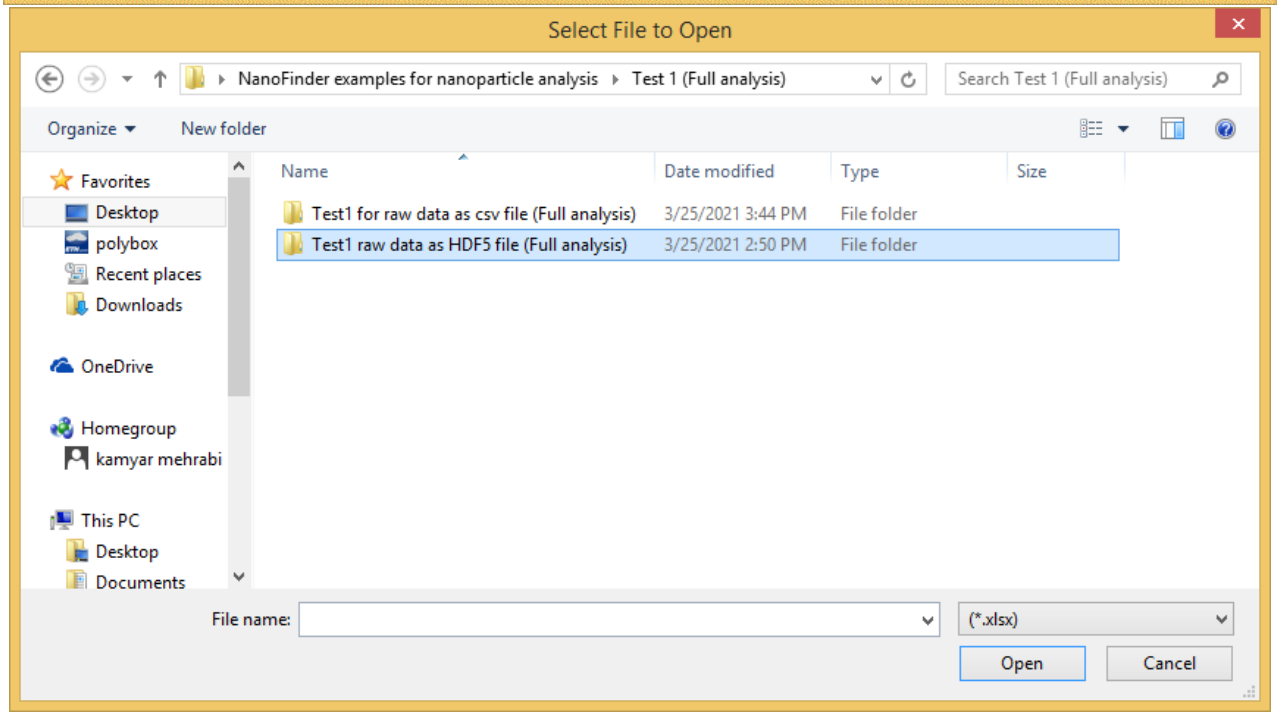


4. Fill in the GUI as being shown below (also in the NanoFinder test folder PowerPoint file). Here we processed the **Test 1 HDF5 file and read setting from GUI**, so the GUI will look like the following after we fill it correctly

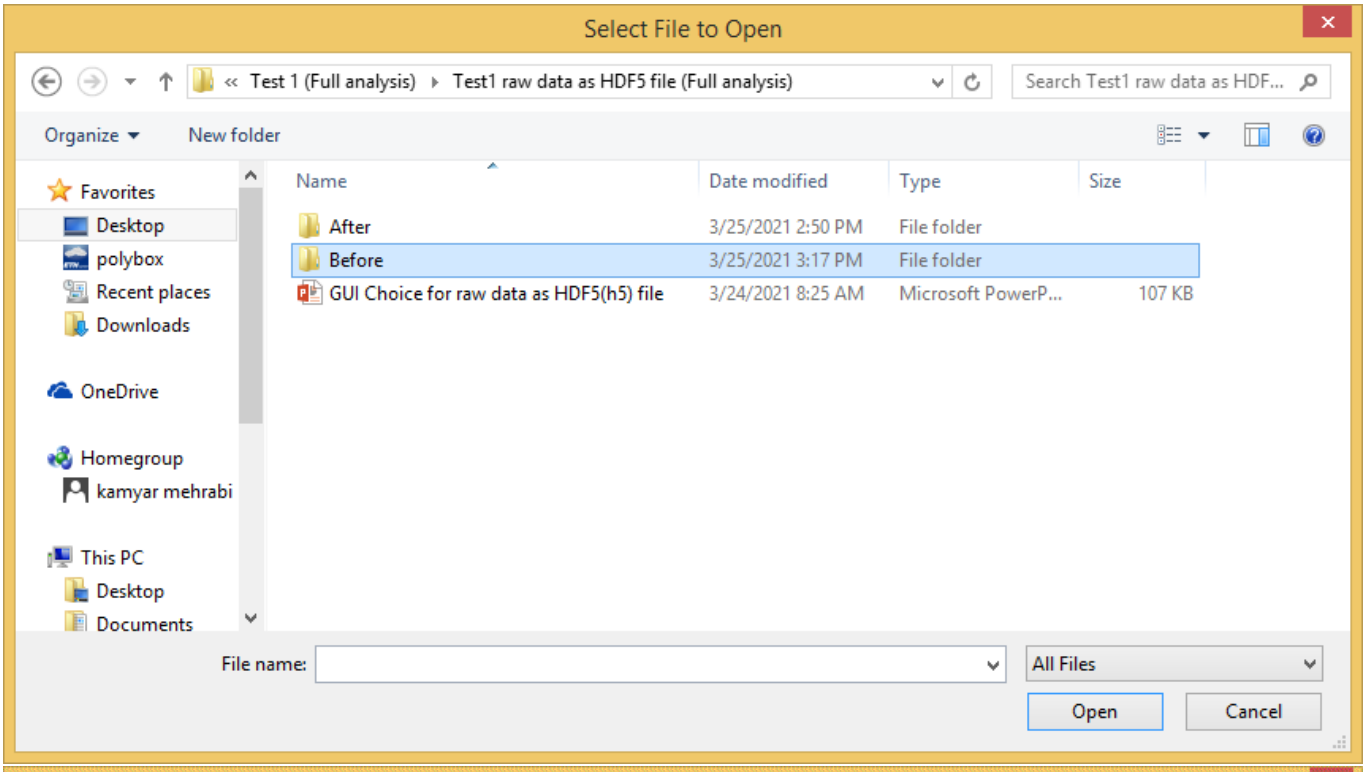


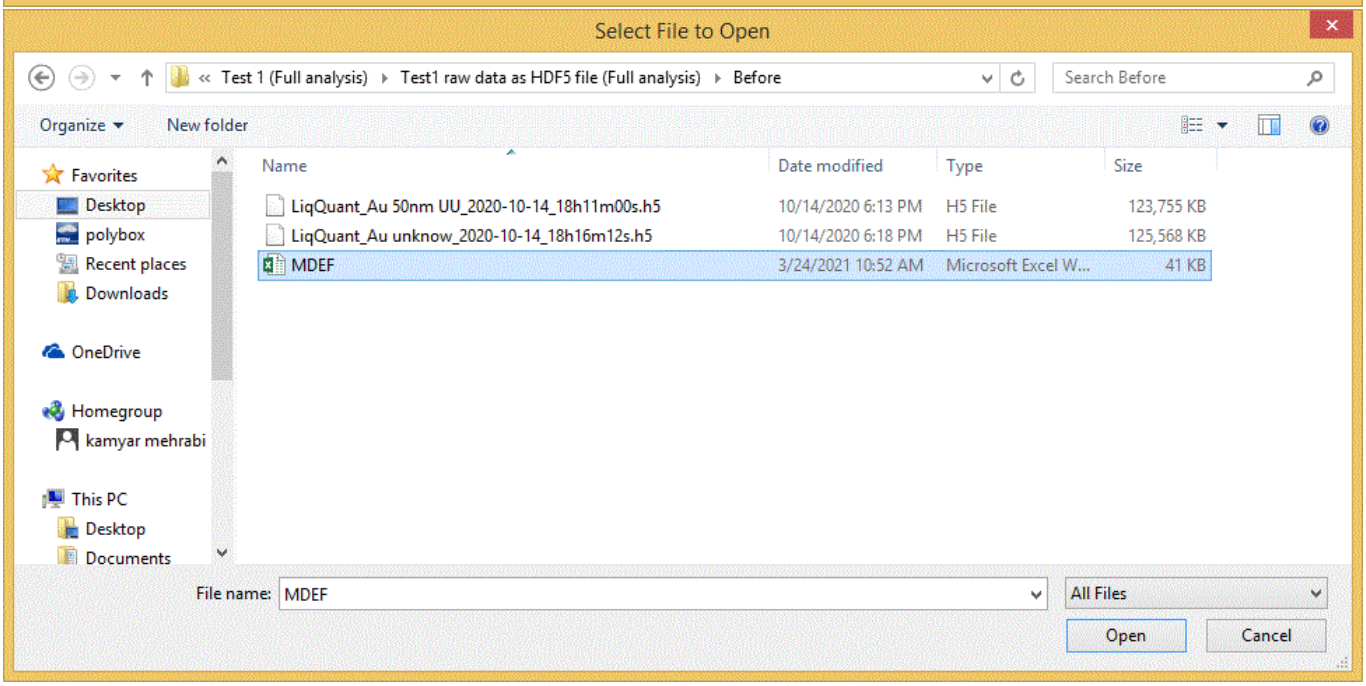
5. After you fill the GUI, press Run. Then a file browser will popup. direct the file browser to the location of your raw data directory, where you also copied the MDEF.xlsx.





6. Here we want to process the **Test1 raw data as HDF5 file**. In that folder go to the **Before** file and **open MDEF.xlsx**



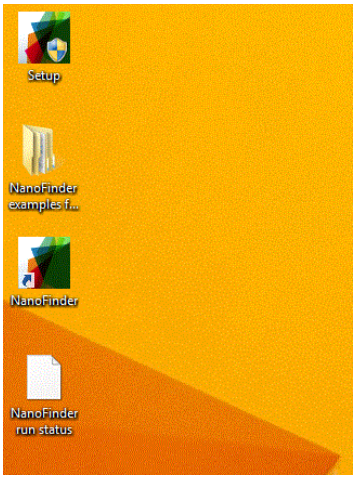


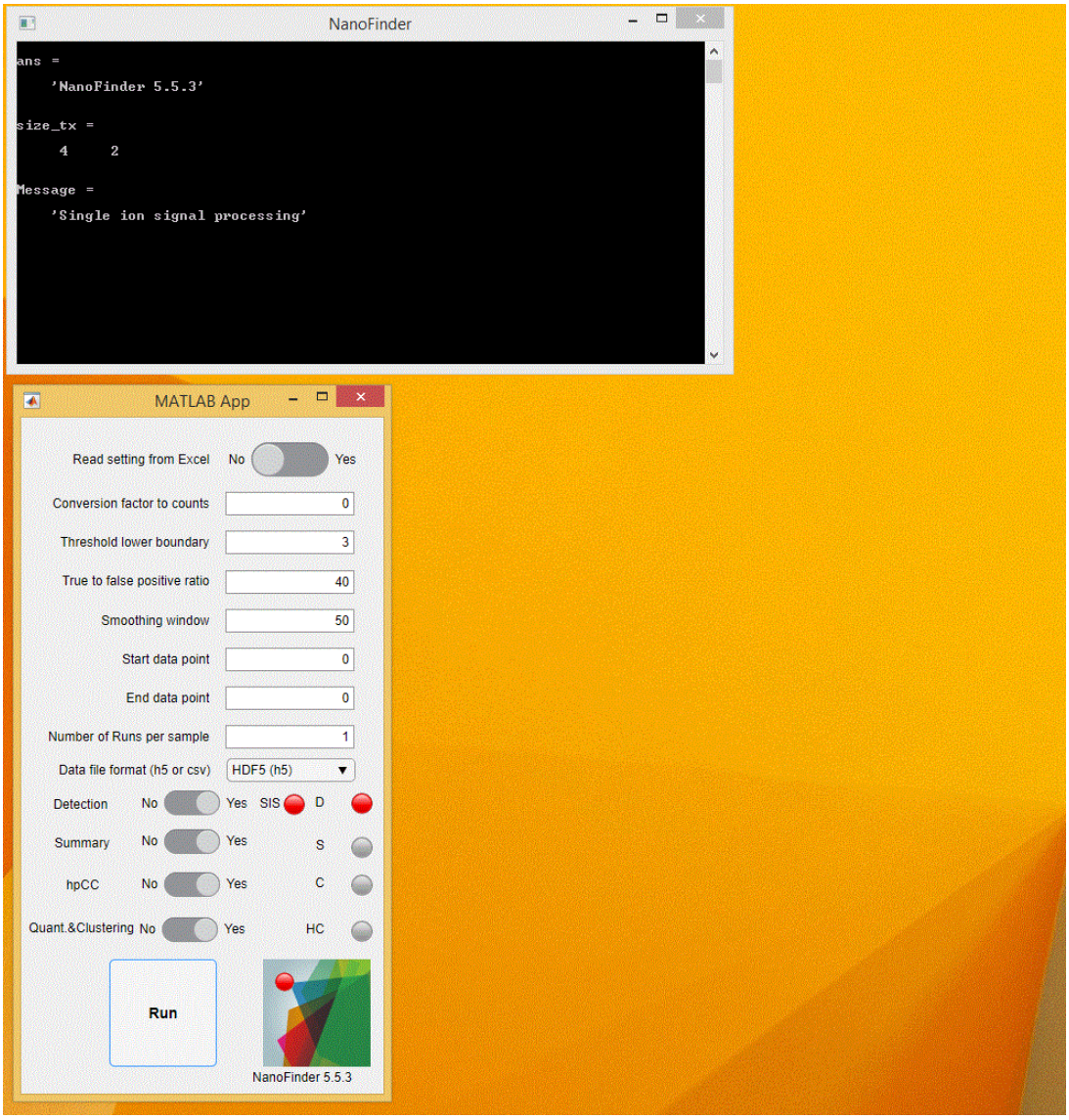
7. Program start processing as following screenshots is showing.

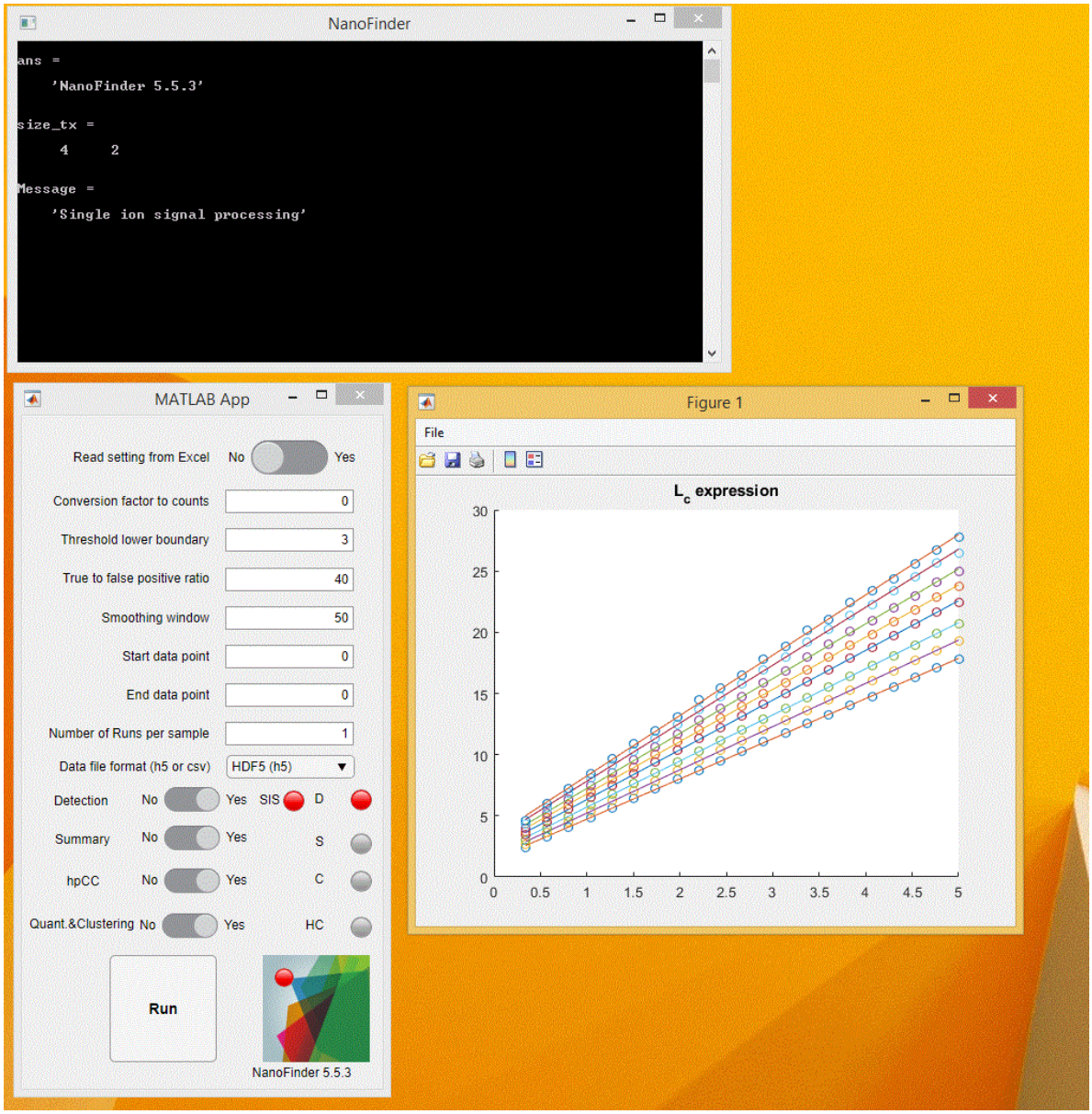
The terminal window, indicator lights in GUI, and popup progress charts will inform you about the latest analysis that is being done.

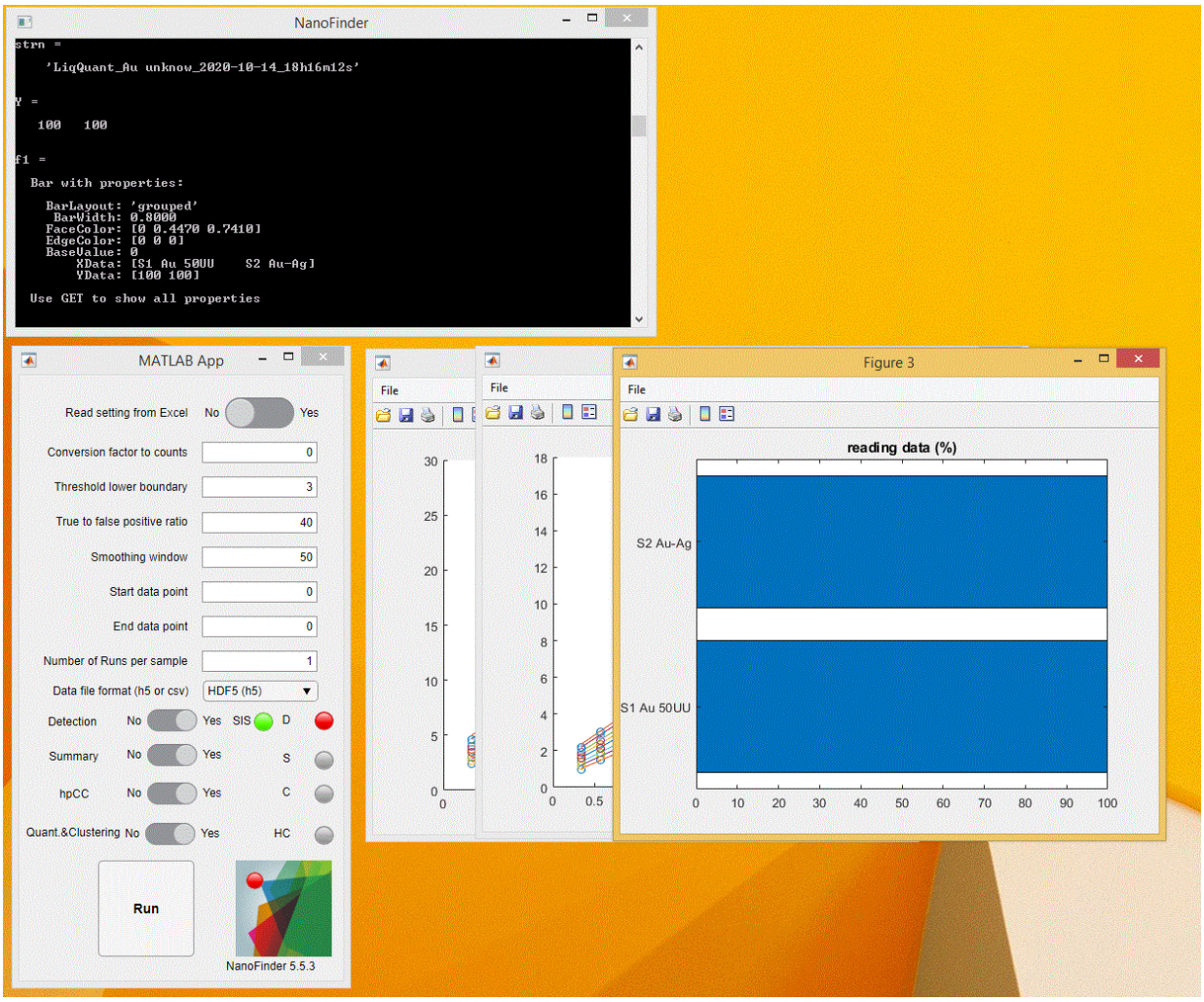
*While the program is running, it is highly recommended to prevent using Excel, since the program is using it.

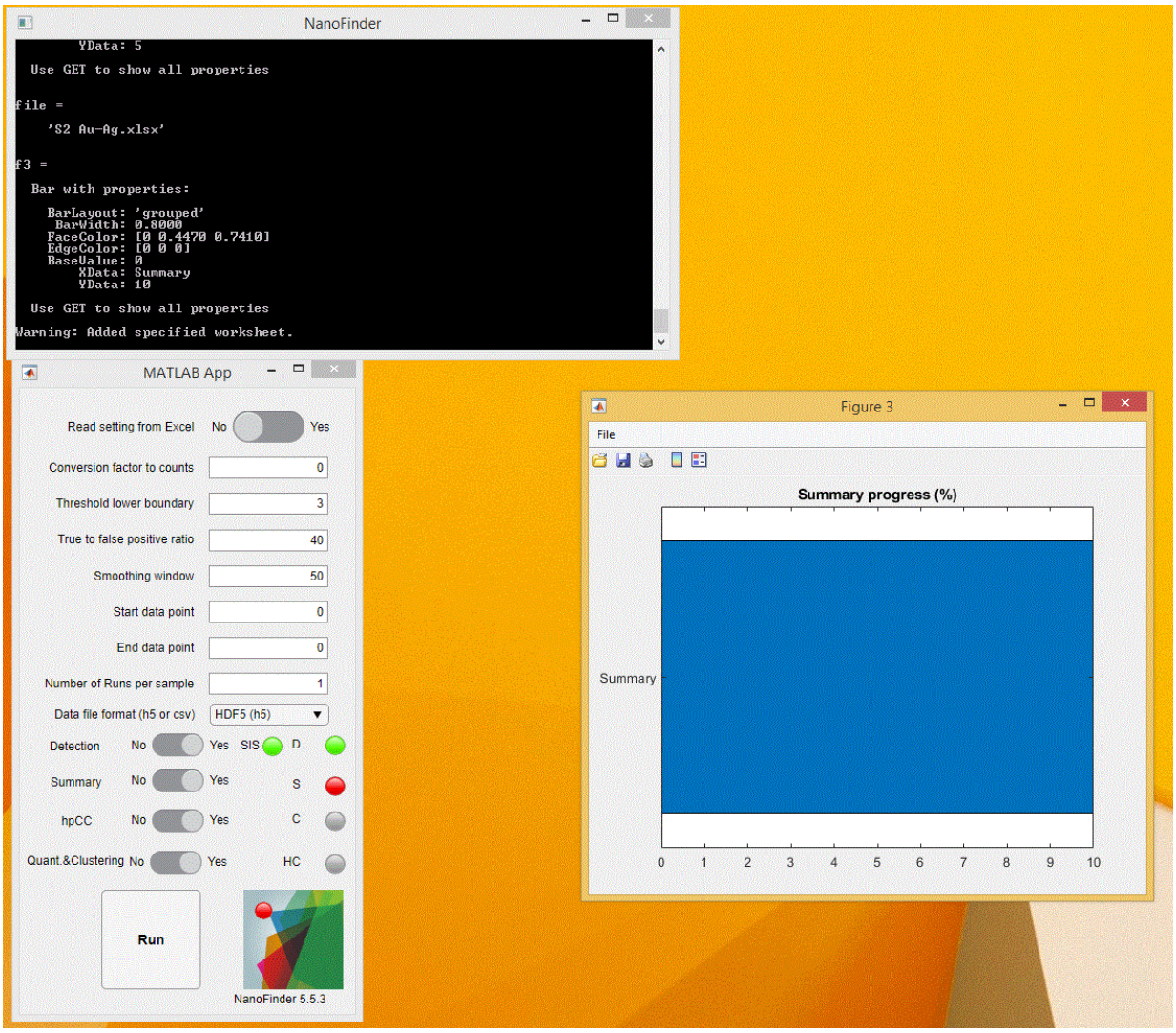
In case any error happens, see the terminal window and read about the error there carefully. In case the error is not solved, an Email may be sent with **Nanofinder run status** file attached to it. The Naofinder run status is generated as soon as you open the Nanofinder program and it is saved at the location of your running Nanofinder program shortcut. It contains the same data as shown in the terminal window.

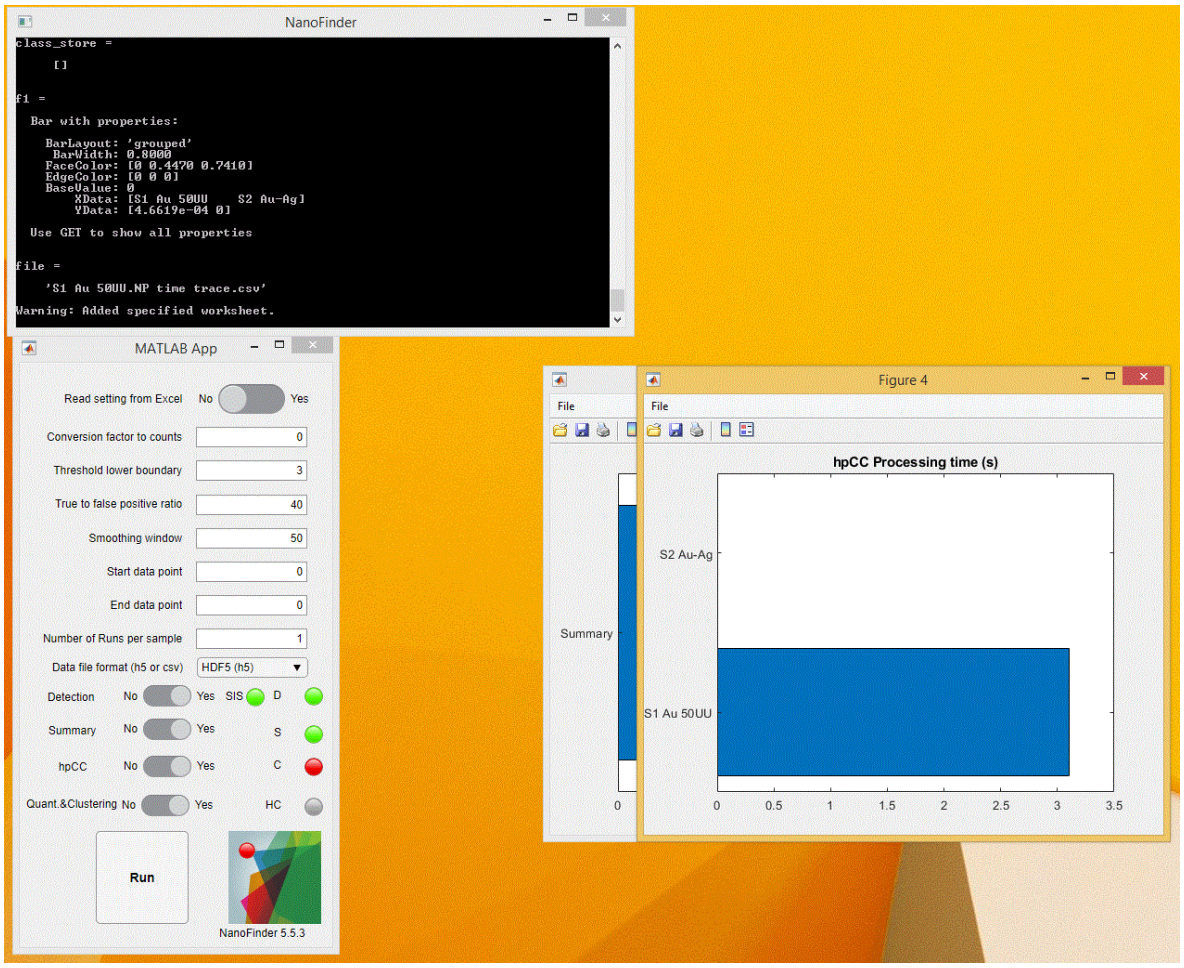

Setup
NanoFinder examples f...
NanoFinder
NanoFinder run status

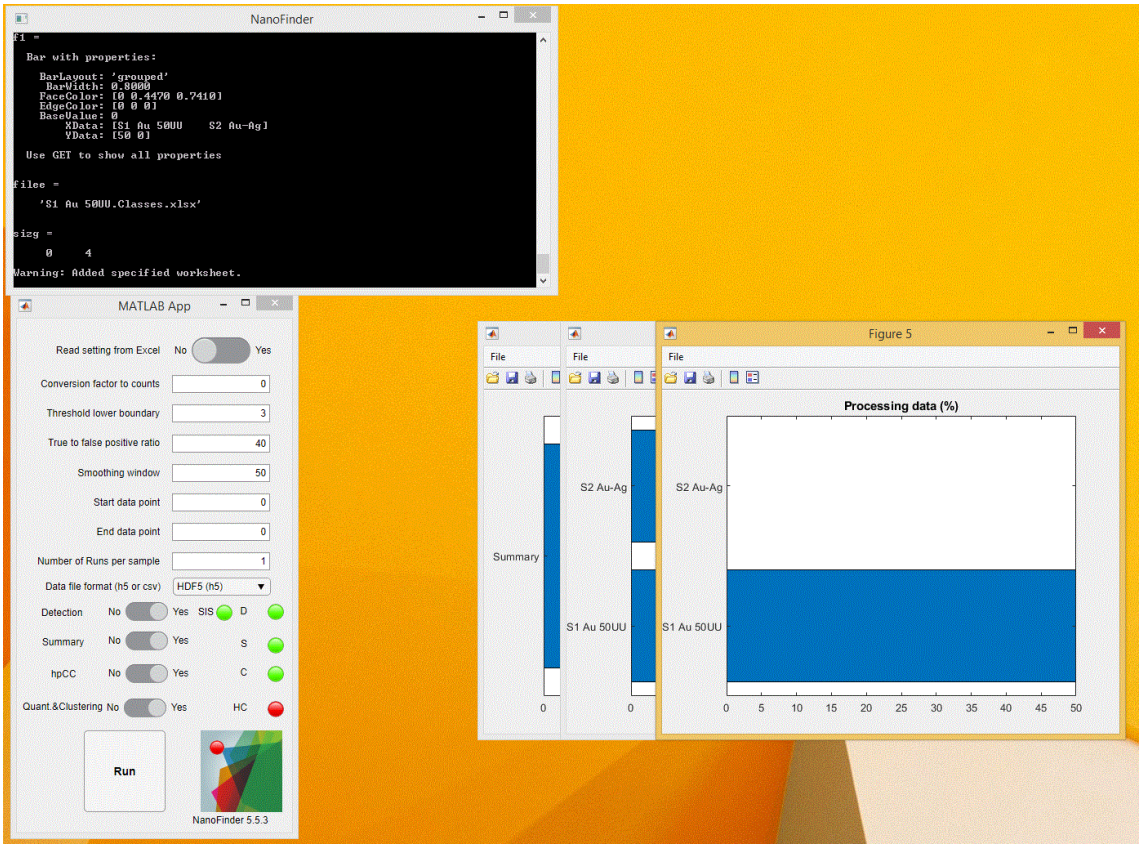

NanoFinder
ans =
'NanoFinder 5.5.3'
size_tx =
4 2
Message =
'Single ion signal processing'
MATLAB App
Read setting from Excel
No
Yes
Conversion factor to counts
0
Threshold lower boundary
3
True to false positive ratio
40
Smoothing window
50
Start data point
0
End data point
0
Number of Runs per sample
1
Data file format (h5 or csv)
HDF5 (h5)
Detection
No
Yes
SIS
D
Summary
No
Yes
S
hpCC
No
Yes
C
Quant.&Clustering
No
Yes
HC
Run
NanoFinder 5.5.3

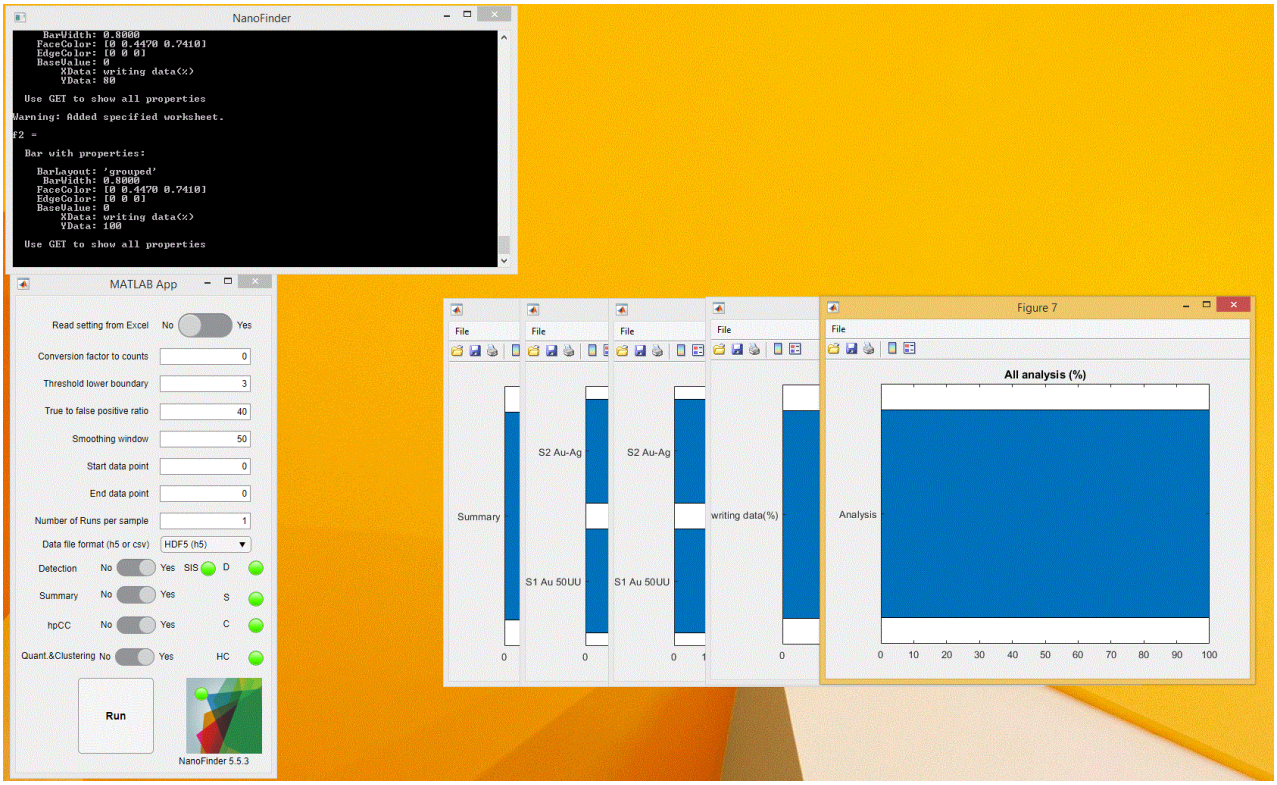

NanoFinder
ans =
'NanoFinder 5.5.3'
size_tx =
4 2
Message =
'Single ion signal processing'
MATLAB App
Read setting from Excel
No
Yes
Conversion factor to counts
0
Threshold lower boundary
3
True to false positive ratio
40
Smoothing window
50
Start data point
0
End data point
0
Number of Runs per sample
1
Data file format (h5 or csv)
HDF5 (h5)
Detection
No
Yes
SIS
D
Summary
No
Yes
S
hpCC
No
Yes
C
Quant.&Clustering
No
Yes
HC
Run
NanoFinder 5.5.3
Figure 1
File
L_c expression
30
25
20
15
10
5
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5


NanoFinder
strn =
'LiqQuant_Au unknow_2020-10-14_18h16m12s'
Y =
100 100
f1 =
Bar with properties:
BarLayout: 'grouped'
BarWidth: 0.8000
FaceColor: [0 0.4470 0.7410]
EdgeColor: [0 0 0]
BaseValue: 0
XData: [S1 Au 50UU S2 Au-Ag]
YData: [100 100]
Use GET to show all properties
MATLAB App
Read setting from Excel
No
Yes
Conversion factor to counts
0
Threshold lower boundary
3
True to false positive ratio
40
Smoothing window
50
Start data point
0
End data point
0
Number of Runs per sample
1
Data file format (h5 or csv)
HDF5 (h5)
Detection
SIS
D
Summary
S
hpCC
C
Quant.&Clustering
HC
Run
NanoFinder 5.5.3
File
Figure 3
reading data (%)
S2 Au-Ag
S1 Au 50UU

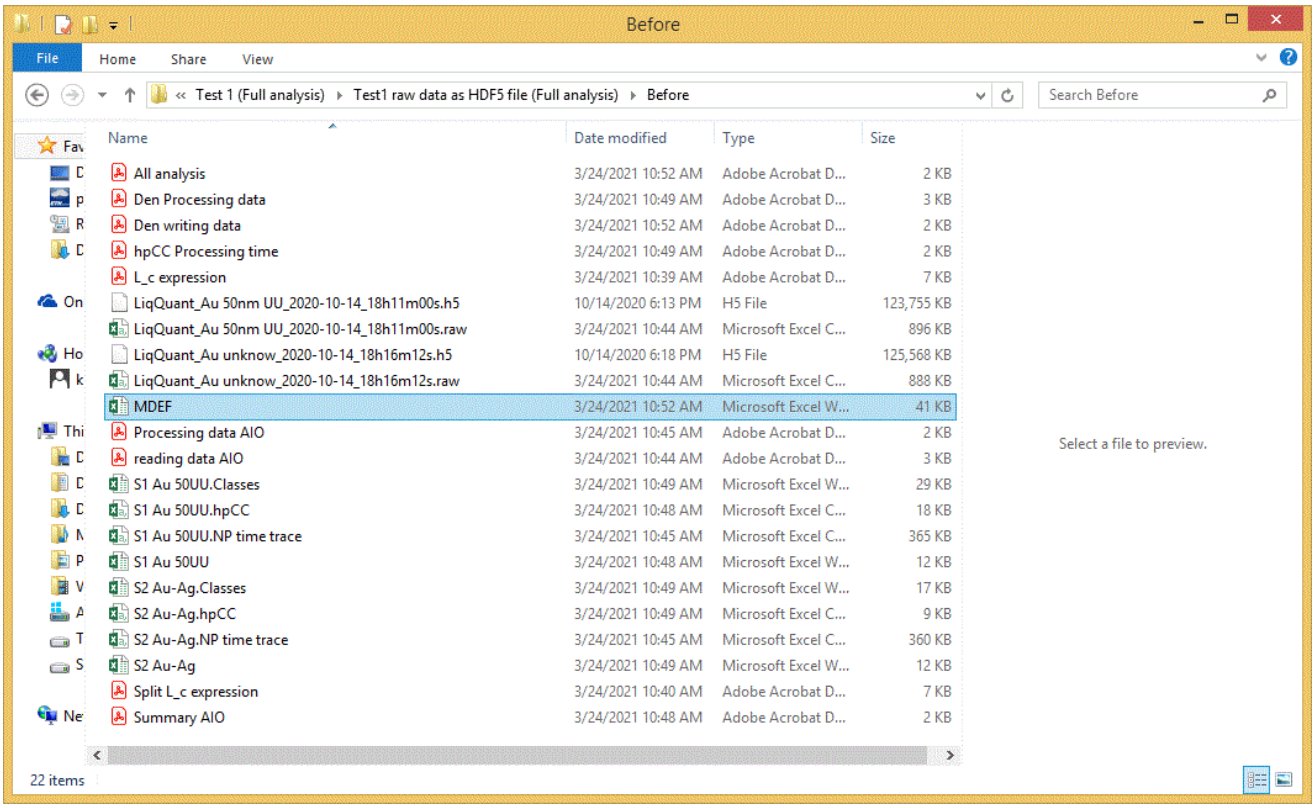

NanoFinder
YData: 5
Use GET to show all properties
file =
'S2 Au-Ag.xlsx'
f3 =
Bar with properties:
BarLayout: 'grouped'
BarWidth: 0.8000
FaceColor: [0 0.4470 0.7410]
EdgeColor: [0 0 0]
BaseValue: 0
XData: Summary
YData: 10
Use GET to show all properties
Warning: Added specified worksheet.
MATLAB App
Read setting from Excel
No
Yes
Conversion factor to counts
0
Threshold lower boundary
3
True to false positive ratio
40
Smoothing window
50
Start data point
0
End data point
0
Number of Runs per sample
1
Data file format (h5 or csv)
HDF5 (h5)
Detection
No
Yes
SIS
D
Summary
No
Yes
S
hpCC
No
Yes
C
Quant.&Clustering
No
Yes
HC
Run
NanoFinder 5.5.3
Figure 3
File
Summary progress (%)
Summary
0
1
2
3
4
5
6
7
8
9
10


NanoFinder
class_store =
[]
f1 =
Bar with properties:
BarLayout: 'grouped'
BarWidth: 0.8000
FaceColor: [0 0.4470 0.7410]
EdgeColor: [0 0 0]
BaseValue: 0
XData: [S1 Au 50UU S2 Au-Ag]
YData: [4.6619e-04 0]
Use GET to show all properties
file =
'S1 Au 50UU.NP time trace.csv'
Warning: Added specified worksheet.
MATLAB App
Read setting from Excel No Yes
Conversion factor to counts 0
Threshold lower boundary 3
True to false positive ratio 40
Smoothing window 50
Start data point 0
End data point 0
Number of Runs per sample 1
Data file format (h5 or csv) HDF5 (h5)
Detection No Yes SIS D
Summary No Yes S
hpCC No Yes C
Quant.&Clustering No Yes HC
Run
NanoFinder 5.5.3
Figure 4
File
hpCC Processing time (s)
S2 Au-Ag
S1 Au 50UU
Summary
0
0.5
1
1.5
2
2.5
3
3.5


NanoFinder
f1 =
Bar with properties:
BarLayout: 'grouped'
BarWidth: 0.8000
FaceColor: [0 0.4470 0.7410]
EdgeColor: [0 0 0]
BaseValue: 0
XData: [S1 Au 50UU S2 Au-Ag]
YData: [50 0]
Use GET to show all properties
filee =
'S1 Au 50UU.Classes.xlsx'
sizg =
0 4
Warning: Added specified worksheet.
MATLAB App
Read setting from Excel No Yes
Conversion factor to counts 0
Threshold lower boundary 3
True to false positive ratio 40
Smoothing window 50
Start data point 0
End data point 0
Number of Runs per sample 1
Data file format (h5 or csv) HDF5 (h5)
Detection No Yes SIS D
Summary No Yes S
hpCC No Yes C
Quant.&Clustering No Yes HC
Run
NanoFinder 5.5.3
Figure 5
File
Processing data (%)
S2 Au-Ag
S1 Au 50UU
Summary
0
5
10
15
20
25
30
35
40
45
50



8. After all processing is done, you could access the processed data in the same directory as your raw data input.



9. For more information and a guide on how to set up your analysis please go to the GitHub folder and find the **Nanofinder user guide.pdf** in the same directory as **Setup.exe**.

References:

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2. A. Gundlach-Graham, L. Hendriks, K. Mehrabi and D. Gunther, Monte Carlo Simulation of Low-Count Signals in Time-of-Flight Mass Spectrometry and Its Application to Single-Particle Detection, *Anal. Chem.*, 2018, **90**, 11847-11855.
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