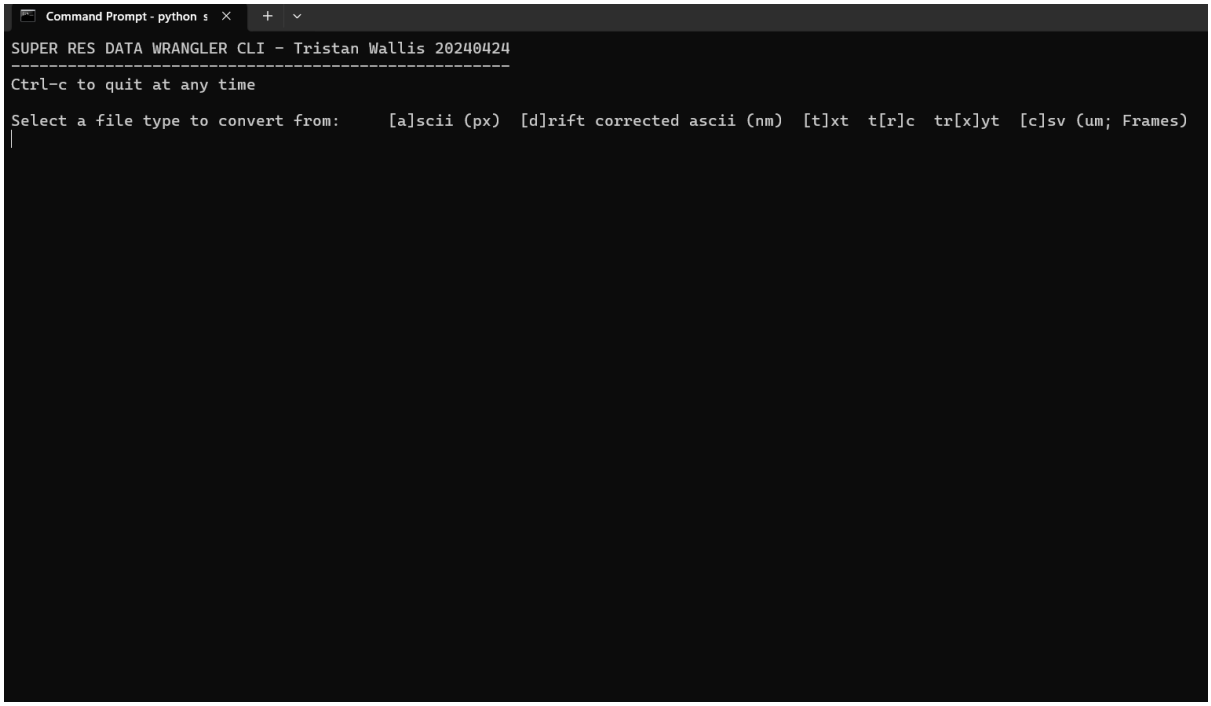
SUPER RES DATA WRANGLER (CLI) USER MANUAL

This user manual is for the command line (CLI) version.

For information on how to use the graphical user interface (GUI) version, please refer to the Super Res Data Wrangler (GUI) User Manual.



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Introduction

Meunier lab super resolution data analysis pipeline:

Super resolution data analysis often requires the sequential use of different analysis software, with each performing a different role.

Our lab uses either PalmTracer or TrackMate to first locate single particle centroids in each frame (localisation) and subsequently connect these centroids together to form trajectories (tracking), prior to drift correction in SharpViSu and cluster analysis in NASTIC, segNASTIC or BOOSH, followed by meta-analysis of the clustering results in NASTIC Wrangler.

Each of these steps in the super resolution analysis pipeline requires different input filetypes and produce different output filetypes.

Table 1: Analysis software that make up the super-resolution analysis pipeline used in the Meunier lab, with input and output filetypes shown for each.

Analysis software	Input filetype	Output filetype
Step 1: Localisation and Tracking		
PalmTracer (Metamorph plugin)	Mutliframe time-lapse acquisition (e.g., .czi, .tif)	.txt .trc
TrackMate (FIJI plugin)	Mutliframe time-lapse acquisition (e.g., .czi, .tif)	.csv
Step 2: Drift correction		
SharpViSu	.ascii .id (uncorrected)	.ascii .id (drift corrected)
Step 3: Cluster analysis		
NASTIC, segNASTIC and BOOSH	.trxyt	metrics.tsv
Step 4: Meta analysis of clustering data		
NASTIC Wrangler	metrics.tsv	processed_metrics.tsv

Super Res Data Wrangler:

The purpose of the Super Res Data Wrangler is to bridge the gaps between the software used in this super-resolution analysis pipeline by enabling the conversion between the different trajectory filetypes.

Input filetypes that can be converted:

The command line version can convert 6 different input filetypes (using preset input filetype parameters):

File format	Software	Assumed X,Y units	Assumed Time units
.txt	PalmTracer	Pixels (px)	Frames
.trc	PalmTracer	Pixels (px)	Frames
.trxyt	NASTIC, segNASTIC, BOOSH	Microns (um)	Seconds (s)
.ascii (uncorrected)	SharpViSu	Pixels (px)	Frames
.ascii (drift corrected)	SharpViSu	Nanometers (nm)	Frames
.csv	TrackMate	Microns (um)	Frames

See Appendix 1 for detailed information on each trajectory filetype.

NOTE: To convert trajectory filetypes other than the ones shown above, please use the GUI version of the Super Res Data Wrangler (see the Super Res Data Wrangler GUI User Manual for more details).

Output filetypes that can be generated:

The command line version can generate the 5 below output filetypes from the input filetypes mentioned above:

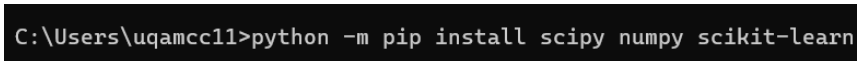
File format	Software	Assumed X,Y units	Assumed Time units
.txt	PalmTracer	Pixels (px)	Frames
.trc	PalmTracer	Pixels (px)	Frames
.trxyt	NASTIC, segNASTIC, BOOSH	Microns (um)	Seconds (s)
.ascii (uncorrected)	SharpViSu	Pixels (px)	Frames
.ascii (drift corrected)	SharpViSu	Nanometres (nm)	Frames

See Appendix 1 for detailed information on each trajectory filetype.

Computer requirements

The NASTIC suite (which includes the Super Res Data Wrangler CLI) consists of Python scripts that require Python 3.8 or later, and a number of Python modules to run. Python is available for most computer platforms so you can run it on Windows, Linux and Mac. It will not run on the older version of Python 2.7 which is still lingering on a lot of computer systems. You are strongly encouraged to either visit https://www.python.org and download and install the latest version. You will also need to install a number of Python modules, which is simple to do from a command line:

```
python -m pip install scipy numpy scikit-learn
```



At the time of writing, we used the below Python module versions:

scipy	v1.13.1
numpy	v1.23.2
scikit-learn	v1.1.2

If you are having problems, you can try installing the specific versions that we used. To do this, open a new instance of the command line and copy-paste in the following:

```
python -m pip install scipy==1.13.1 numpy==1.23.2 scikit-learn==1.1.2
```

Updates

The Super Res Data Wrangler CLI along with other NASTIC family members is periodically updated with new functionalities.

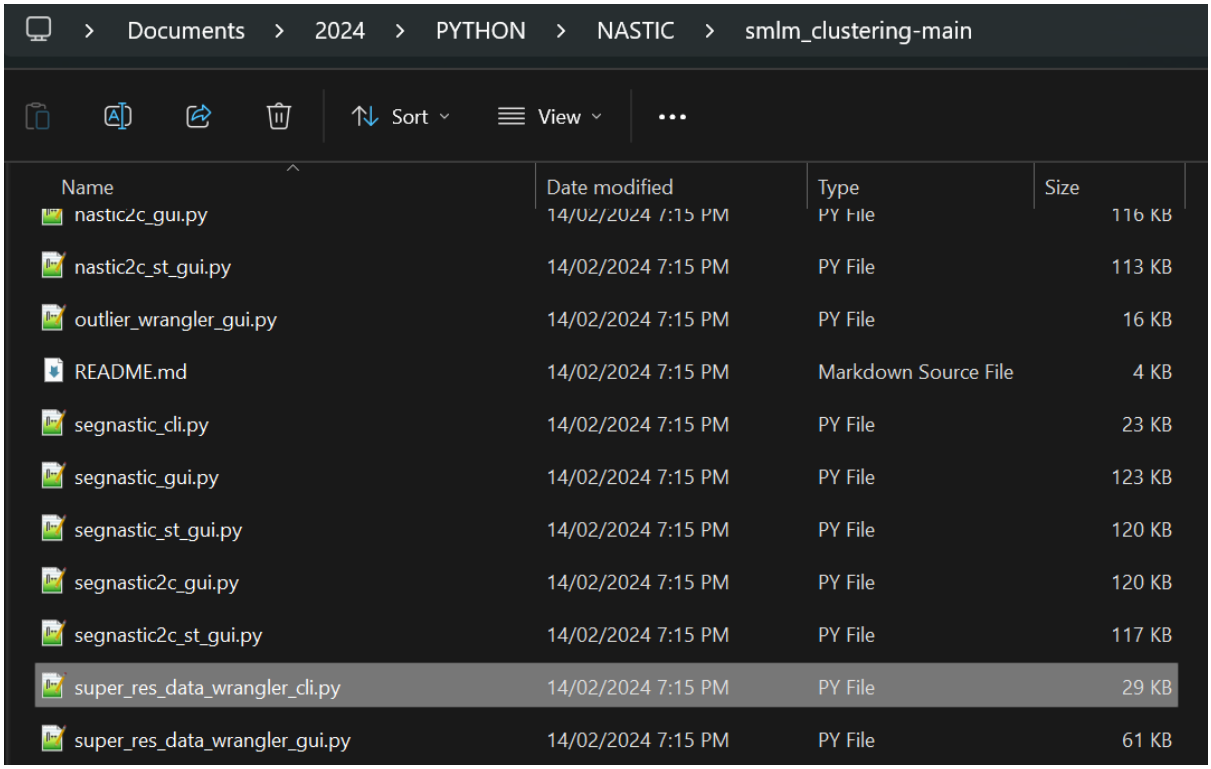
Check the GitHub for updates using this link:
https://github.com/tristanwallis/smlm_clustering/releases

Running the Super Res Data Wrangler CLI

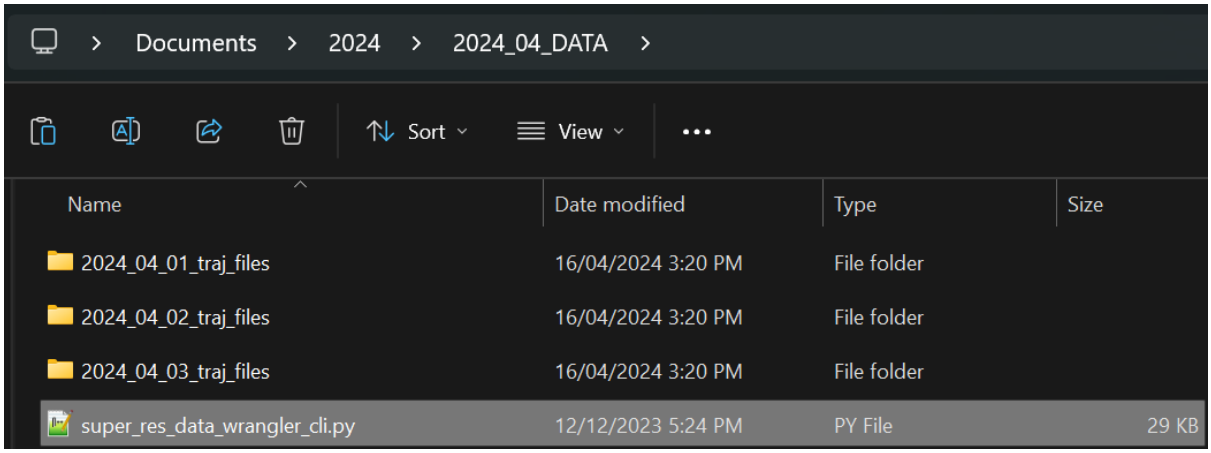
Step 1 – Copy the script to the top-level directory:

Copy the **super_res_data_wrangler_cli.py** script from the NASTIC folder to the top-level directory containing the trajectory files that you wish to convert.

Screenshot of NASTIC folder containing the super_res_data_wrangler_cli.py script:



Screenshot showing example directory containing trajectory files to be converted, and a copy of the super_res_data_wrangler_cli.py script:



Step 2 – Run the script:

Option 1 – double click on the script:

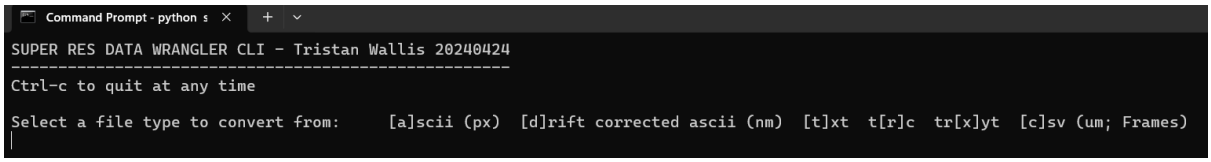
Double click on **super_res_data_wrangler_cli.py** script, and a simple text mode interface will launch in a terminal:

Option 2 – run the script using the terminal:

Alternatively, this can be done by opening a terminal, navigating to the location of the **super_res_data_wranlger_cli.py** script, and typing the following before pressing the return key:

```
C:\Users\uqamcc11\Documents\2024\2024_04_DATA>python super_res_data_wrangler_cli.py
```

This will launch the simple text mode interface in the terminal:

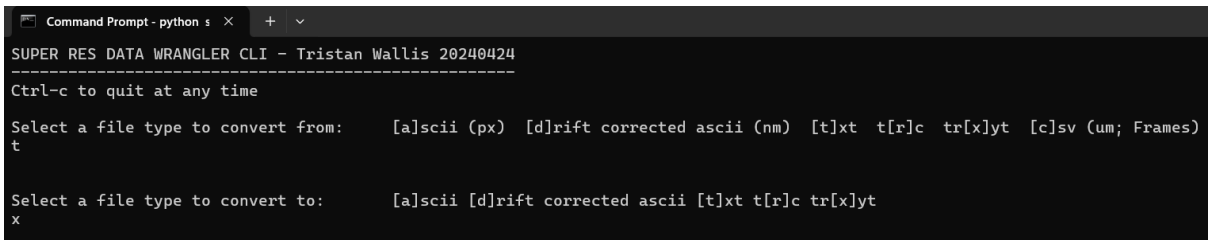


Step 3 – Select the input filetype:

Type the letter corresponding to the filetype you wish to convert FROM followed by the return key. E.g., if converting FROM PalmTracer .txt, type the letter t followed by the return key:

Step 4 – Select the output filetype:

When prompted, type the letter corresponding to the filetype you wish to convert TO followed by the return key. E.g., if converting TO .trxyt for cluster analysis in NASTIC, type the letter x followed by the return key:



Step 5 – (Optional) Define the pixel size:

Internally the Super Res Data Wrangler works in microns (um). Filetypes that are in pixels (px) therefore need to be converted using the ‘pixel size (um/px)’ parameter, which works as a conversion factor (default value = 0.106 um/px).

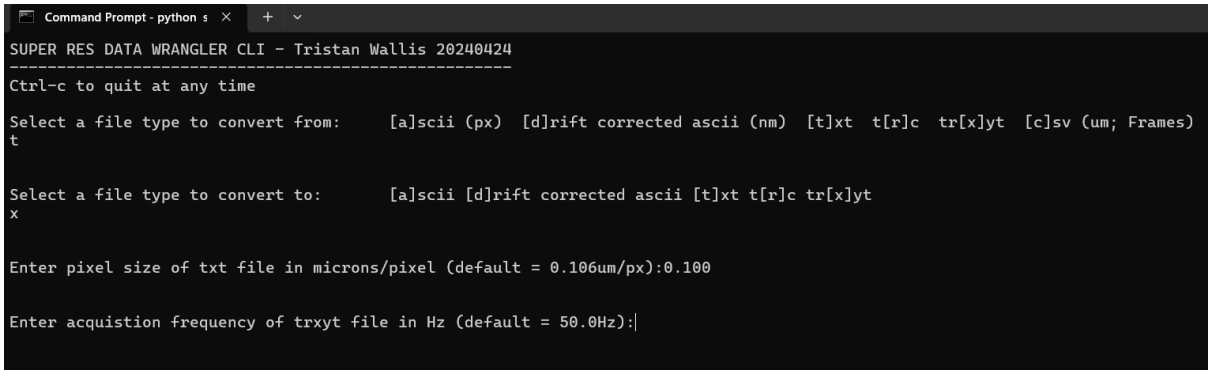
If the spatial units in the input filetype are different to that of the output filetype, the ‘pixel size (um/px)’ parameter will appear:

To set the pixel size, type the pixel size followed by the return key. E.g., for a pixel size of 0.100 µm/px, type 0.100 followed by the return key:

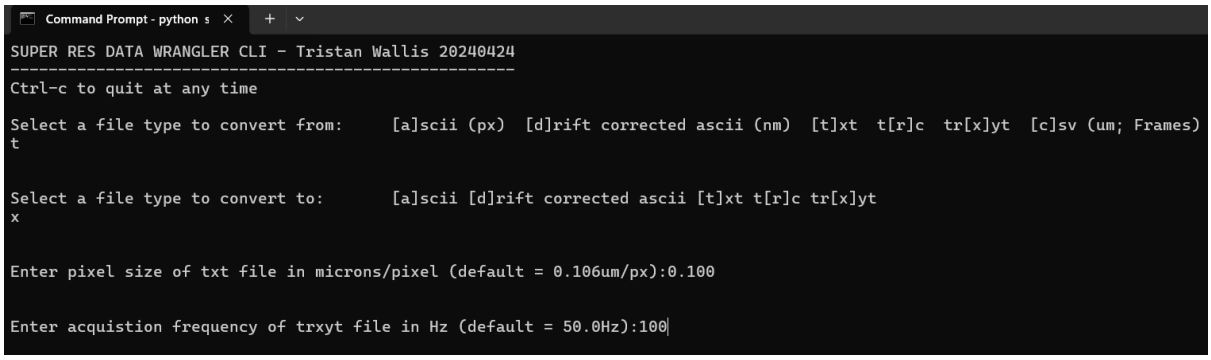
Step 6 – (Optional) Define the acquisition frequency:

Internally the Super Res Data Wrangler works in seconds (s). Filetypes that have Time units in Frames therefore need to be converted using the ‘acquisition frequency (Hz)’ parameter, which works as a conversion factor (default value = 50.0 Hz). To find the Acquisition frequency of a file, divide 1 by the time taken to acquire each individual frame (e.g., if a single frame is acquired every 0.02 seconds: 1/0.02 = 50 Hz).

If the temporal units in the input filetype are different to that of the output filetype, the ‘acquisition frequency (Hz)’ parameter will appear:



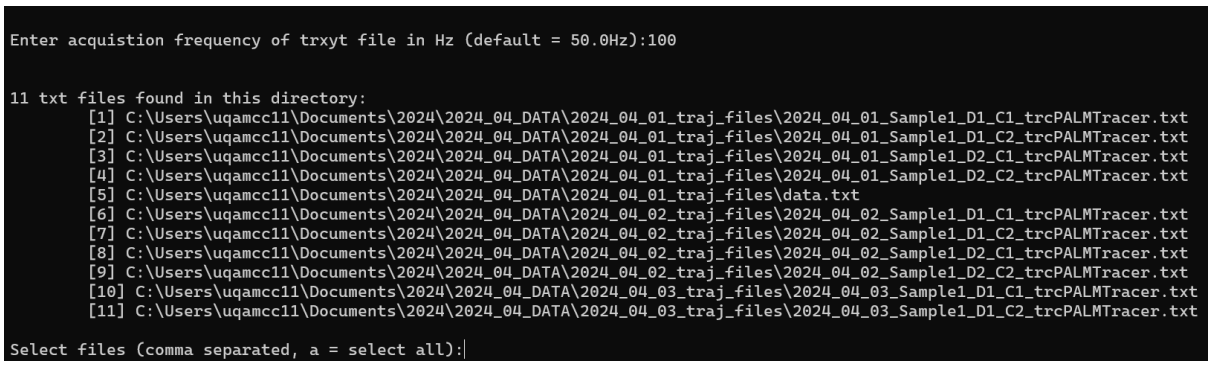
To set the acquisition frequency, type the acquisition frequency followed by the return key. E.g., for an acquisition frequency of 100 (1 frame acquired every 10 ms), type 100 followed by the return key:



Step 7 – Select files to convert.

After selecting the input and output filetypes (and if applicable the pixel size and acquisition frequency parameters) the terminal will display a numbered list of every trajectory file that has the file extension of the selected input filetype that was found in the top directory.

Note: every file with the selected input filetype extension will be shown (including non-trajectory files). If a file is selected for conversion and cannot be read, the Super Res Data Wrangler will just skip over it and continue onto the next file.



Option 1 – Convert all files:

To convert every file found in the directory, type the letter a followed by the enter key:

```
Enter acquistion frequency of trxyt file in Hz (default = 50.0Hz):100


11 txt files found in this directory:
        [1] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D1_C1_trcPALMTracer.txt
        [2] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D1_C2_trcPALMTracer.txt
        [3] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D2_C1_trcPALMTracer.txt
        [4] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D2_C2_trcPALMTracer.txt
        [5] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\data.txt
        [6] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_02_traj_files\2024_04_02_Sample1_D1_C1_trcPALMTracer.txt
        [7] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_02_traj_files\2024_04_02_Sample1_D1_C2_trcPALMTracer.txt
        [8] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_02_traj_files\2024_04_02_Sample1_D2_C1_trcPALMTracer.txt
        [9] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_02_traj_files\2024_04_02_Sample1_D2_C2_trcPALMTracer.txt
        [10] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_03_traj_files\2024_04_03_Sample1_D1_C1_trcPALMTracer.txt
        [11] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_03_traj_files\2024_04_03_Sample1_D1_C2_trcPALMTracer.txt

Select files (comma separated, a = select all):a
```

The Super Res Data Wrangler will start reading each input file and converting them into the selected output file format:

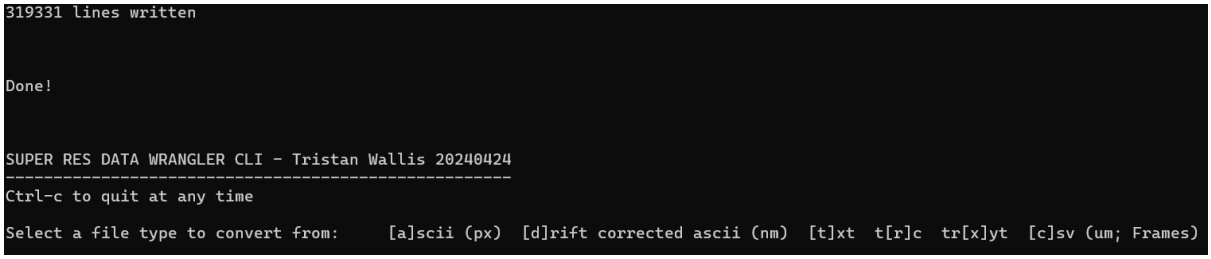
```
11 txt files found in this directory:
        [1] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D1_C1_trcPALMTracer.txt
        [2] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D1_C2_trcPALMTracer.txt
        [3] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D2_C1_trcPALMTracer.txt
        [4] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D2_C2_trcPALMTracer.txt
        [5] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\data.txt
        [6] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_02_traj_files\2024_04_02_Sample1_D1_C1_trcPALMTracer.txt
        [7] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_02_traj_files\2024_04_02_Sample1_D1_C2_trcPALMTracer.txt
        [8] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_02_traj_files\2024_04_02_Sample1_D2_C1_trcPALMTracer.txt
        [9] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_02_traj_files\2024_04_02_Sample1_D2_C2_trcPALMTracer.txt
        [10] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_03_traj_files\2024_04_03_Sample1_D1_C1_trcPALMTracer.txt
        [11] C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_03_traj_files\2024_04_03_Sample1_D1_C2_trcPALMTracer.txt

Select files (comma separated, a = select all):a


Reading C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D1_C1_trcPALMTracer.txt...
319331 lines read

Writing C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D1_C1_trcPALMTracer-20240416-161106.trxyt...
319331 lines written



Reading C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D1_C2_trcPALMTracer.txt...
319331 lines read

Writing C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D1_C2_trcPALMTracer-20240416-161108.trxyt...
319331 lines written
```

The converted output file will be saved in the same location as the original input file, with a datestamp following the original filename. (E.g., originalfilename.txt -> originalfilename_YYYYMMDD-hhmmss.trxyt).

Note: If a file is selected for conversion and cannot be read, the Super Res Data Wrangler will just skip over it and continue onto the next file:

```
Reading C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D2_C2_trcPALMTracer.txt...
319331 lines read

Writing C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\2024_04_01_Sample1_D2_C2_trcPALMTracer-20240416-161112.trxyt...
319331 lines written



Reading C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_01_traj_files\data.txt...
ALERT: 0 lines read.
Please make sure the file is not empty.



Reading C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_02_traj_files\2024_04_02_Sample1_D1_C1_trcPALMTracer.txt...
319331 lines read

Writing C:\Users\uqamcc11\Documents\2024\2024_04_DATA\2024_04_02_traj_files\2024_04_02_Sample1_D1_C1_trcPALMTracer-20240416-161114.trxyt...
319331 lines written
```

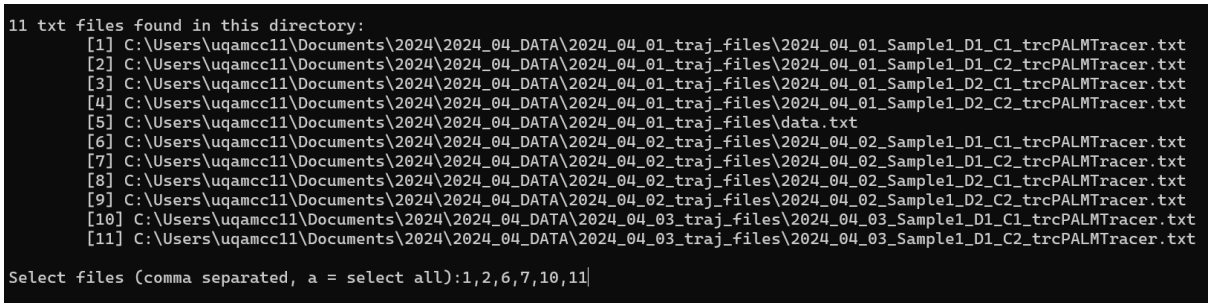
Once every file has been converted, the console will print ‘Done!’ and will start from the beginning to allow for another round of file conversion:



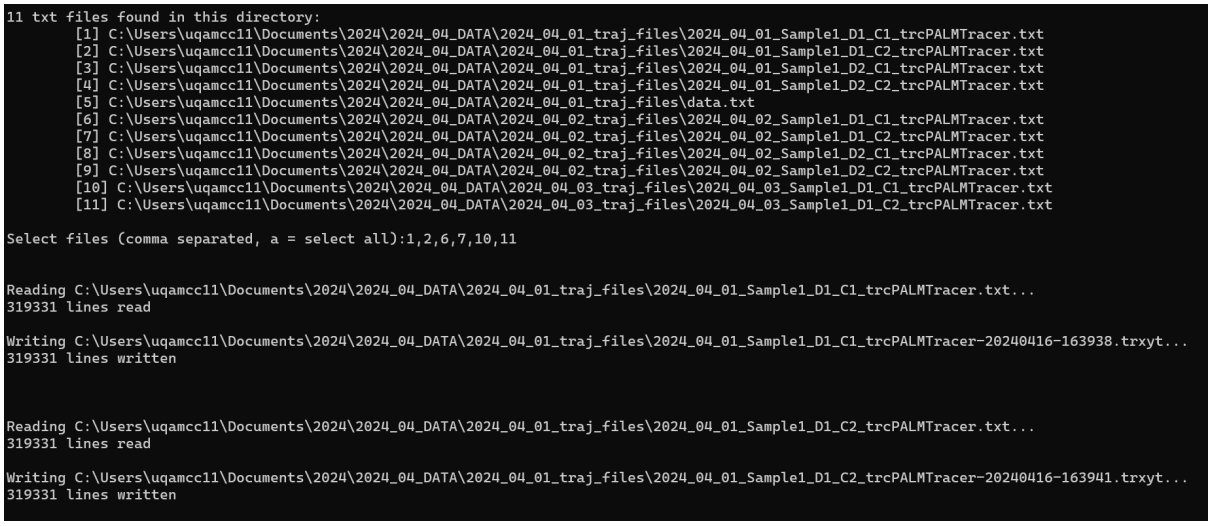
Option 2 – Convert a subset of files:

To convert a subset of the files found in the directory, type the number corresponding to each file to be converted, separated by a comma followed by the return key.

E.g., to convert files [1] [2] [6] [7] [10] and [11], type 1,2,6,7,10,11 followed by the return key:

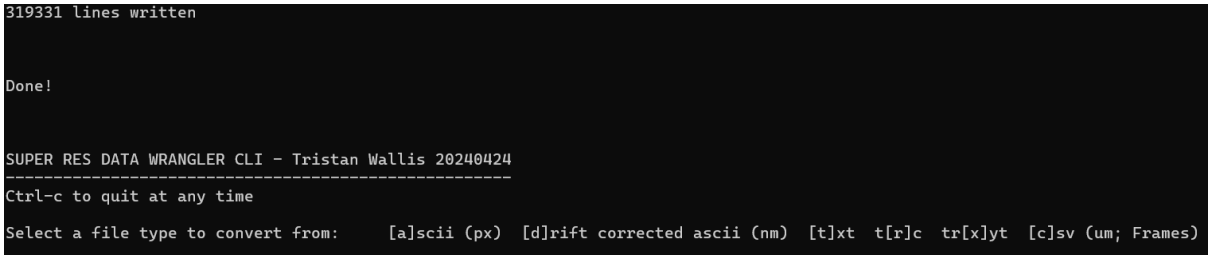


The Super Res Data Wrangler will start reading each selected input file and converting them into the selected output file format:



The converted output file will be saved in the same location as the original input file, with a datestamp following the original filename. (E.g., originalfilename.txt -> originalfilename_YYYYMMDD-hhmmss.trxyt).

Once every file has been converted, the console will print ‘Done!’ and will start from the beginning to allow for another round of file conversion:



Appendix 1: Trajectory filetypes

PalmTracer .txt file format:

Contain 3 headers (number of rows before data rows starts).

Each data line (row) contains 8 tab separated values (columns):

[1] Track; (Trajectory #, counting up from 1)

[2] Plane; (Temporal information, Frame #, counting up from 1)

[3] CentroidX(px); (Spatial information, X-position, pixels)

[4] CentroidY(px); (Spatial information, Y-position, pixels)

*[5] CentroidZ(um);

*[6] Integrated_Intensity;

*[7] id;

*[8] Pair-Distance(px);

* = Columns not needed for conversion, can be any number. If converting from another filetype, columns 5, 7 and 8 will be replaced with a 0, and column 6 will be replaced with -1 if the input filetype does not contain integrated intensity information.

Example:

Width	Height	nb_Planes	nb_Tracks	Pixel_Size(um)	Frame_Duration(s)	Gaussian_Fit	Spectral
329	158	8000	8081	0.106	0.02	None	False
Track	Plane	CentroidX(px)	CentroidY(px)	CentroidZ(um)	Integrated_Intensity	id	Pair_Distance(px)
1	1	276.269572830706	47.0805395577243	0	13089.1528320313	43	0
1	2	274.303133516352	48.2782523520935	0	7672.34887695313	76	0
1	3	274.891970316922	47.5279810094224	0	9931.11743164063	146	0
1	4	273.669614996879	47.8070693296009	0	5767.41088867188	236	0
1	5	275.414575953906	47.397724656005	0	7558.37377929688	291	0
1	6	275.93406753494	46.6645400960479	0	6259.39013671875	308	0
1	7	275.840465835188	46.1239353282329	0	3471.96459960938	416	0
1	8	275.438006269573	46.2149241717978	0	2029.81518554688	440	0
1	9	274.791478789354	45.8095767231888	0	9122.86352539063	524	0

PalmTracer .trc file format:

Contain 0 headers.

Each data line (row) consists of 6 tab separated values (columns):

[1] Trajectory#;

[2] Frame#;

[3] X-position(px);

[4] Y-position(px);

*[5] -1;

*[6] Integrated_Intensity;

* = Columns not needed for conversion, can be any number. Column 6 will be replaced with -1 if the input filetype does not contain integrated intensity information.

Example:

```
1	1	276.269572723821	47.080539615183 -1	13089.1525878906
1	2	274.303133599286	48.2782523061602	-1	7672.34838867188
1	3	274.891970360777	47.5279809124645	-1	9931.11694335938
1	4	273.669614968534	47.8070693377678	-1	5767.4111328125
1	5	275.414575972816	47.3977246431582	-1	7558.3740234375
1	6	275.93406753494 46.664540057044 -1	6259.39013671875
1	7	275.840465753652	46.12393526663	-1	3471.96435546875
1	8	275.43800630337 46.2149242190112	-1	2029.81530761719
1	9	274.791478757012	45.809576798377 -1	9122.86328125
1	1	275.824958927795	46.5723829447615	-1	8954.314453125
2	2	58.6367908782501	101.742870799136	-1	12686.4106445313
2	3	58.361849347087 102.198444512936	-1	10684.8942871094
2	4	58.3014790906691	102.042988140333	-1	16990.9973144531
2	5	58.3724221575284	101.936737912003	-1	15367.7707519531
```

NASTIC/segNASTIC/BOOSH .trxyt file format:

Contain 0 headers.

Each data line (row) consists of 4 space separated values (columns):

[1] Trajectory #; (trajectory number)

[2] X-position(um); (spatial information, microns)

[3] Y-position(um); (spatial information, microns)

[4] Time(s); (temporal information, seconds)

Example:

```
1 29.284574708725025 4.990537199209398 0.02
1 29.076132161524317 5.117494744452981 0.04
1 29.138548858242363 5.037965976721237 0.06
1 29.008979186664604 5.067549349803387 0.08
1 29.193945053118497 5.024158812174769 0.1
1 29.24901115870364 4.946441246046664 0.12
1 29.23908936988711 4.88913713826278 0.14
1 29.19642866815722 4.8987819672151875 0.16
1 29.12789674824327 4.855815140627962 0.18
1 29.23744564634627 4.936672592144719 0.2
2 6.215499833094511 10.784744304708415 0.02
2 6.186356030791222 10.833035118371216 0.04
2 6.179956783610924 10.816556742875298 0.06
2 6.18747674869801 10.805294218672318 0.08
```

SharpViSu .ascii file format:

.ascii files contain 0 headers

Each ascii data line (row) consists of 9 comma separated values (columns):

*[1] 1;

[2] Frame #;

[3] n;

[4] X-position; (pixels (px))

[5] Y-position; (pixels (px))

*[6] Integrated_intensity;

*[7] 0;

*[8] 0;

*[9] 0;

* = Columns not needed for conversion, can be any number

Example:

```
1,0,1,12.144466281714381,16.719987550850586,7627.04278564453,0,0,0
1,0,2,21.380060175448545,7.56700319416653,3152.89190673828,0,0,0
1,0,3,13.336731143401561,15.698784374751062,2915.20043945313,0,0,0
1,0,4,17.45391412842103,11.668108966769635,2463.55096435547,0,0,0
1,0,5,16.36251646438727,13.082774724648425,2459.45245361328,0,0,0
1,0,6,14.997891859239918,14.165645956501866,2051.84259033203,0,0,0
1,0,7,8.574230579986414,20.73708293209756,1937.65270996094,0,0,0
1,0,8,15.630849608989978,13.848777888406932,1683.87921142578,0,0,0
1,0,9,14.904775879085415,14.559877912338266,1505.90997314453,0,0,0
1,0,10,8.150807399969825,21.237625625700968,1455.61853027344,0,0,0
```

NOTE: SharpViSu assumes pixel size is 0.100um/px (hardcoded value = 100). For acqusition files with other pixel sizes (e.g., 0.106um/px), navigate to the SharpViSu folder downloaded onto your computer, open the adjustformat.m script, adjust the '100' value in line 15 and 16 to the appropriate pixel size, and save. For example, if using a pixel size of 0.106: change line 15 from 'A(:,4:5) = A(:,4:5) * 100 % x, y in nm' to 'A(:,4:5) = A(:,4:5) * 106 % x, y in nm' and change line 16 from 'A(:,8:9) = A(:,8:9) * 100; % sigmas in nm' to 'A(:,8:9) = A(:,8:9) * 106; % sigmas in nm'.

NOTE: when generating .ascii files, a trajectory .id file containing the Trajectory ID (Trajectory#) of each .ascii data line (row) is generated (with the same name and in the same folder as the .ascii), which is then used to convert back from the .ascii file format to other formats.

Each id data line (row) contains 1 value (column):

[1] Trajectory#;

Example:

```
1
2
3
4
5
6
7
8
9
10
```

SharpViSu .ascii (drift corrected) file format:

.ascii (drift corrected) files contain 0 headers

Each ascii data line (row) consists of 9 comma separated values (columns):

*[1] 1;

[2] Frame #;

[3] n;

[4] X-position; (nanometers (nm))

[5] Y-position; (nanometers (nm))

*[6] Integrated_intensity;

*[7] 0;

*[8] 0;

*[9] 0;

* = Columns not needed for conversion, can be any number

Example:

```
1,0,1, 209045.592443744, 142834.293217347, 50870.0478515625,0,0,0
1,0,2, 208435.743897142, 63666.8300319305, 10899.9936523438,0,0,0
1,0,3, 240230.942584511, 64285.0805918474, 8377.55151367188,0,0,0
1,0,4, 282032.840365532, 57774.6372087263, 6812.4140625,0,0,0
1,0,5, 127394.518568774, 86333.3469009349, 4333.64733886719,0,0,0
1,0,6, 286850.200721154, 38867.410435638, 2464.98876953125,0,0,0
1,1,1, 209045.196432015, 142698.726294003, 43768.1682128906,0,0,0
1,1,2, 208493.705895093, 63104.1156726907, 4010.64306640625,0,0,0
1,1,3, 240629.923029567, 64106.8561613844, 9554.67211914063,0,0,0
1,1,4, 281878.790360555, 57749.7140474961, 6441.98608398438,0,0,0
1,1,5, 125282.625184993, 89023.4809920917, 2805.40869140625,0,0,0
1,1,6, 283664.077863468, 38413.2870736027, 3613.64709472656,0,0,0
1,1,7, 58150.0695109681, 53421.1913628692, 9916.34057617188,0,0,0
```

NOTE: when generating .ascii files, a trajectory .id file containing the Trajectory ID (Trajectory#) of each .ascii data line (row) is generated (with the same name and in the same folder as the .ascii), which is then used to convert back from the .ascii file format to other formats.

Each id data line (row) contains 1 value (column):

[1] Trajectory#;

Example:

```
1
2
3
4
5
6
7
8
9
10
```

TrackMate .csv file format:

The number of headers can vary (requires manual selection in the 'Set parameters' tab).

Each line (row) contains several comma separated columns, 4 of which must contain the following information:

[ ] Trajectory #; (e.g., TRACK_ID)

[ ] X-position; (e.g., POSITION_X)

[ ] Y-position; (e.g., POSITION_Y)

[ ] Time (Frames); (e.g., FRAME)

Note: The X,Y units for TrackMate files depends on how FIJI interpreted the microscope metadata. If FIJI was unable to read the metadata, the units will be set to pixels (px). It is highly recommended that the user changes the units back to microns (um) in FIJI prior to file conversion.

Note: The command line version of the Super Res Data Wrangler assumes that the X,Y units of TrackMate .csv files are in microns, and the Time units of TrackMate .csv files are in frames. For the conversion of TrackMate .csv files with X,Y units in pixels (px) or nanometers (nm), or with Time units in Seconds (s), please use the Super Res Data Wrangler GUI (see Super Res Data Wrangler GUI User Manual for more information).

Example:

	A	B	C	D	E	F	G	H	I
1	LABEL	ID	TRACK_ID	QUALITY	POSITION_X	POSITION_Y	POSITION_Z	POSITION_T	FRAME
2	Label	Spot ID	Track ID	Quality	X	Y	Z	T	Frame
3	Label	Spot ID	Track ID	Quality	X	Y	Z	T	Frame
4				(quality)	(micron)	(micron)	(micron)	(sec)	
5	ID282628	282628	2	298.08950	21.768646719	36.30233107	0	55.17871248	1723
6	ID200706	200706	2	609.30944	21.773257041	36.38438244	0	7.621899925	238
7	ID192512	192512	2	640.43560	21.761712355	36.40632485	0	4.419420965	138
8	ID229377	229377	2	579.67681	21.762051124	36.42347658	0	20.91218760	653
9	ID270343	270343	2	181.92572	21.733771126	36.28705446	0	45.41115165	1418
10	ID286722	286722	2	156.44577	21.760403180	36.3576551	0	58.63738976	1831
11	ID245770	245770	2	187.68449	21.725414183	36.37344346	0	29.91115348	934
12	ID204808	204808	2	791.29510	21.809109041	36.37986998	0	9.319213774	291
13	ID184334	184334	2	665.27423	21.767030449	36.50159964	0	1.313016373	41
14	ID237583	237583	2	200.45962	21.799884501	36.30813471	0	25.26755899	789
15	ID266260	266260	2	256.41061	21.717192211	36.36169707	0	42.68904453	1333