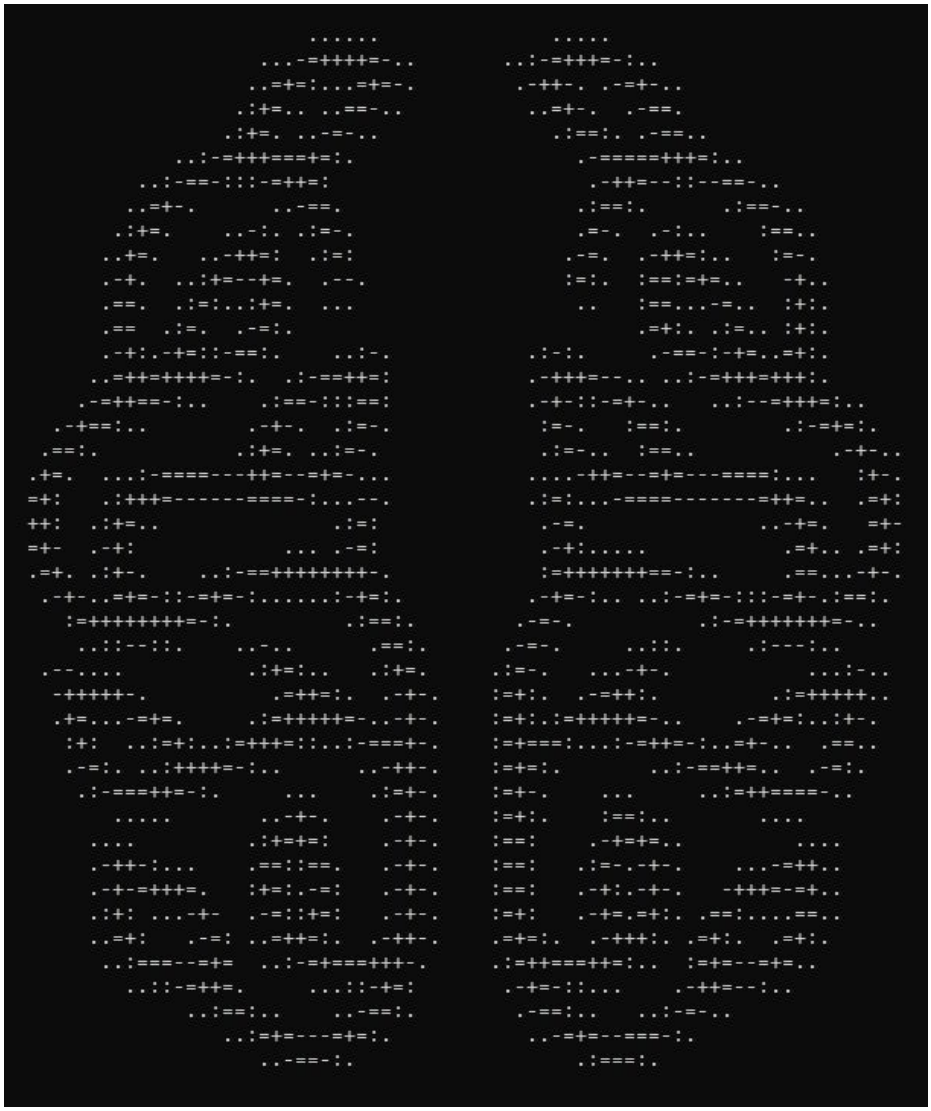
Command Line Destriper User Guide



Installation

To install the command line destriper, go to

https://github.com/LifeCanvas-Technologies/destripegui/tree/command-line-destripe

and follow the install instructions on that page. Once the install is complete, follow the instructions in the 2nd paragraph, “Post-installation setup” to customize the configuration file according to your workstation’s requirements.

Safe Mode

It’s often helpful to run the destriper in “safe mode” the first time it is installed on a system that already has several saved acquisitions. This opens the destriper and previews which saved acquisitions it interprets as ready to destripe, without allowing it to perform any actions on them. To run the destriper in safe mode, open a terminal and enter

```
conda activate command_line_destripe
```

to activate the proper python environment, then enter:

```
command_line_destripe -s
```

If you would like to destripe and transfer the acquisitions found in safe mode, simply close the terminal and run it again from the desktop shortcut. If you would like any of the previewed acquisitions to not be destriped and transferred, refer to the “Troubleshooting” section to find instructions for marking them accordingly.

Normal Operation

To run the command line destriper, double click the “Destripe_CL” desktop shortcut. Any acquisitions that are found and marked as ready to be destriped will be added to the acquisition queue. The order of operations for destriping any single acquisition are as follows:

```
Current Acquisition: C:\SmartSPIM_Data\20240606_13_26_43_destripe_test_2

Tile                              Images Expected    Images on Acquisition Drive    Images on Stitch Drive
-------------------------------  ----------------  -----------------------------  ----------------------
Ex_488_Ch0\633960\633960_513440               253                            253                     253
Ex_488_Ch0\666360\666360_513440               253                            253                       0
Ex_488_Ch0\633960\633960_539360               253                            253                       0
Ex_488_Ch0\666360\666360_539360               253                            253                       0
Ex_488_Ch0\633960\633960_565280               253                            253                       0
Ex_488_Ch0\666360\666360_565280               253                            253                       0

Destriping Ex_488_Ch0\666360\666360_513440...

Using CPU Destriper
Looking for images in C:\SmartSPIM_Data\20240606_13_26_43_destripe_test_2\Ex_488_Ch0\666360\666360_513440...
Found 253 compatible images
Setting up 24 workers...
Pystripe batch processing progress:
100%|##########################################################################################| 253/253 [00:27<00:00,  9.28it/s]
Done!
```

1) The destriper will read the acquisition “metadata.txt” file to generate a list of every image stack, and the expected number of images in each stack.

2) An image stack will be destriped if it meets both of the following conditions:
   a) It contains the expected number of images, and
   b) The corresponding folder on the stitching (destination) drive does not contain the expected number of images (or does not exist)

   For in-progress acquisitions, this means that tiles will be destriped sequentially once they are entirely acquired. For completed acquisitions, tiles will still be destriped sequentially, but each will begin immediately once the previous stack finishes.

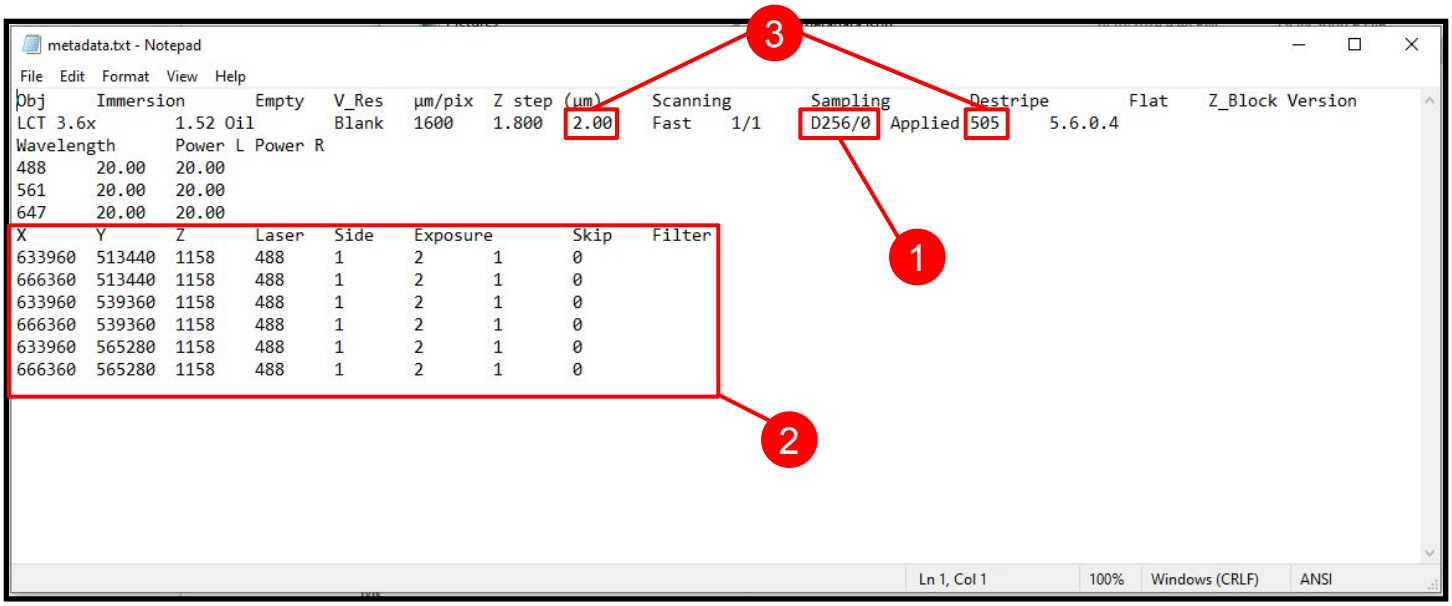
3) Once all tiles have been destriped, it will check for Maximum Intensity Projections, and destripe those folders sequentially as well (one for each channel in the acquisition).

4) Once the MIP’s have been destriped (or none were found), the destriper will mark the acquisition as complete, append “_Raw_Transferred” to the acquisition directory on the input drive, and append “_Destripe_DONE” to the acquisition directory on the destination drive. It will then either move on to the next acquisition in the queue, or wait until another acquisition is available.

Troubleshooting

Metadata Tags

Most unexpected destriper behavior can be addressed by editing the “metadata.txt” file in the acquisition directory. The following is a brief overview of the information the destriper uses from this file.



1 Destripe Tag

This tag is the first thing checked by the destriper. The two numbers are foreground and background parameters for destriping, set during the acquisition setup. The “D” before these letters in the above example tells the destriper that this acquisition has already been destriped and transferred, and does not need to be processed again. There are 3 letters that can be prepended to the destriping parameters. All 3 signal the destriper to ignore the acquisition.

- D - Destriping has been performed on this acquisition
- A - Acquisition has been aborted midway by the user
- N - User chose not to destripe when setting up the acquisition

If the destriper is not finding an acquisition, it is likely that one of these letters has been prepended to the destripe tag. Removing it should allow the acquisition to be found. You will need to restart the destriper for it recategorize an acquisition after the tag has been changed.

2 Tile List

The destriper uses this information to build its “to-do list” of tiles to be destriped. It contains the X, Y, and Z stage positions for each tile (used to name the subdirectories containing the tile’s images), as well as laser wavelength, illumination direction, exposure data, and filter position.

3 Z-step and Z-block

These are the values used to determine the expected number of images in each tile. In this example, there is a 505µm total Z-block, divided into 2µm Z-steps, resulting in 253 total images per tile.

Folder Suffixes

In addition to changing the metadata destripe tag, the destriper will append suffixes to the directory names on the input and destination drive once it has finished destriping and transferring an acquisition. These suffixes can be changed in the destriper “config.ini” file, but the defaults are “_Raw_Transferred” for the input directory and “_Destripe_DONE” for the destination directory. If destriping is repeated on an acquisition after the destriper has already appended these suffixes, it will encounter an error while attempting to rename the new destination folder. To prevent this, either delete the directory created by the previous destriping process, or rename it to avoid confusion.

Note: Although these default suffixes can be changed, the stitching software will not recognize a destriped acquisition unless its directory name contains the “DONE” suffix.

Connectivity Issues

In rare cases the destriper will encounter issues accessing the either the input or destination drives due to network connectivity issues, or because files in those directories are being accessed by another program. In these cases, an error message will appear asking the user to address the issue before the destriper makes another attempt to access the files it needs. Usually the problem can be fixed by closing any other programs that might be preventing access, making sure that there are no issues with the network connection between the two computers, and prompting the destriper to retry. If repeated attempts at this do not work, try closing the destriper and restarting the post-processing computer.