DSOP Stacker User's Manual

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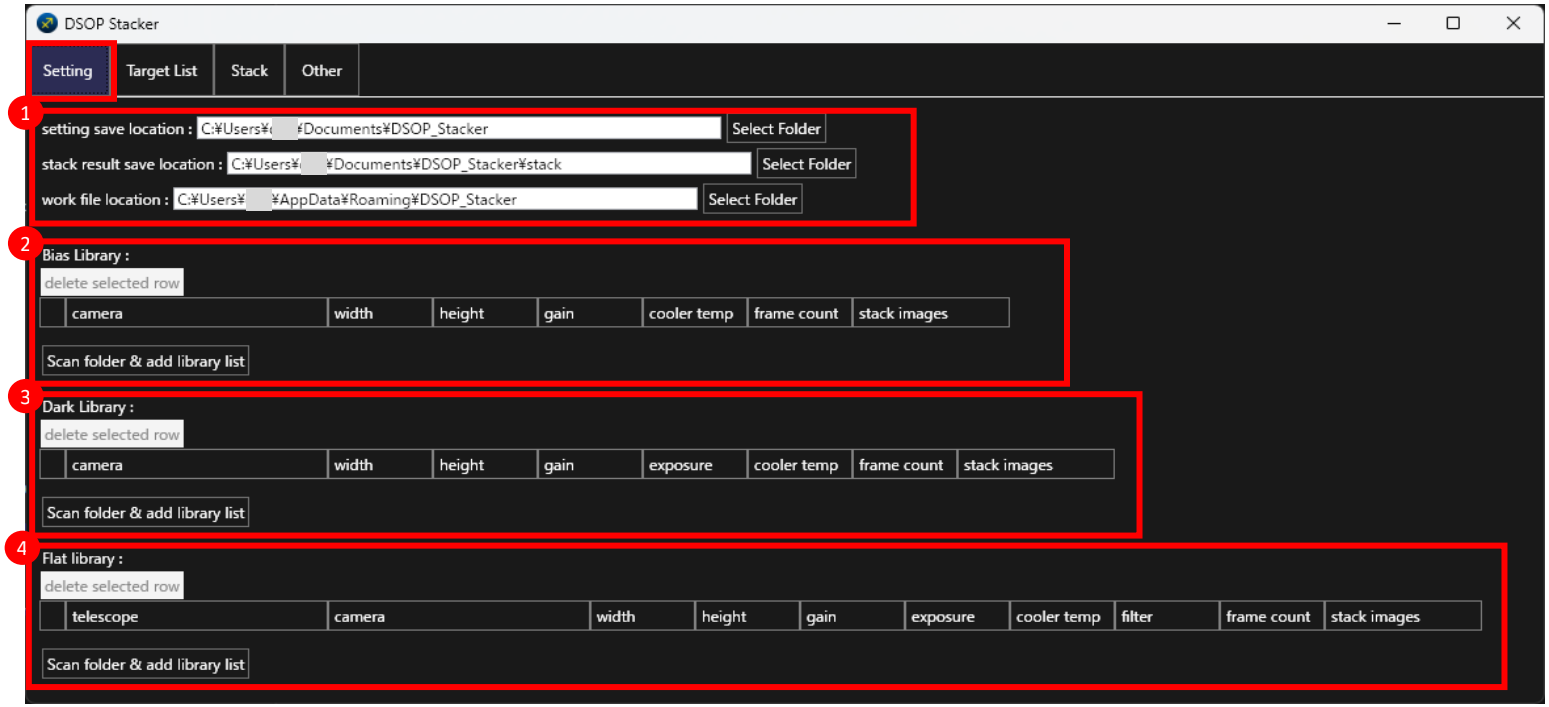
1. initial setup

At first , click "Setting" tab and do configration for stacking.



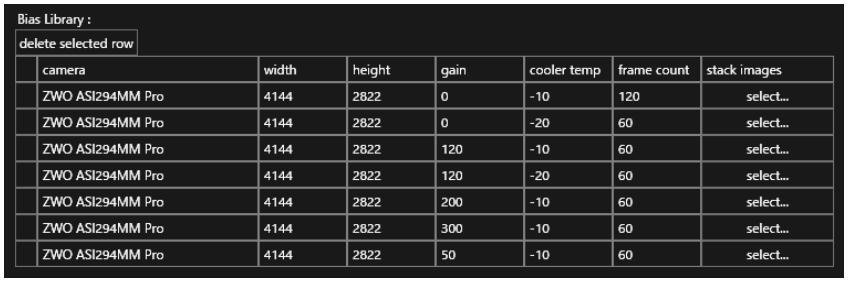
1. Change "setting save location" , "stack result save location" , and "work file location" if you need.
   * In "setting save location" , DSOP Stacker save configration files for stacking , bias/dark/flat library.
   * In "stack result save location" , DSOP Stacker save stack result image and files.
   * In "work file location" , DSOP Stacker save work file made while stacking.
     If you have high speed strage(M.2 SSD , etc.) , stacking speed may be faster than default.

2. Regist bias library.

By clicking "Scan folder & add library list" and selecting folder that contains bias frames , bias library is made.

You can select folder contains only bias frames , and can select upper folder of the folder contains bias frames.

After operating , DSOP Stacker scan all FITS files in selected folder and all sub folders automatically and show all pattern is shown identified by "camera name","width of image","height of image","gain","cooler templature" as below.



If you shot images with "FRAMETYP" FITS header by DSOP Shooter , N.I.N.A. and so on , no bias frames is not included in this list.

If FRAMETYP" FITS header is not exist in images , all images are loaded in this list,

so deletion of non-bias rows by selecting rows to delete and click "delete selected row" button.

You can show images by clicking "select..." in each row.

3. Regist dark library.

By same process as "2. Regist bias library" , you can regist dark library.

Difference from "2. Regist bias library" is below :

- In case of dark library , "exposure time" is added to identification items.
- If FRAMETYP" FITS header is exist in images , DSOP Stacker checks header value is for dark , and non-dark images are not included in list

4. Regist flat library.

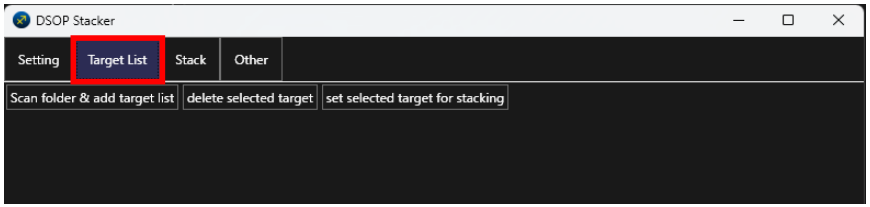
If you have reusable flat images , you can regist it as flat library by same process as "2. Regist bias library".

Difference from "2. Regist bias library" is below :

- In case of flat library , "exposure time" , "telescope name" , "filter name" are added to identification items.
- If FRAMETYP" FITS header is exist in images , DSOP Stacker checks header value is for dark , and non-dark images are not included in list

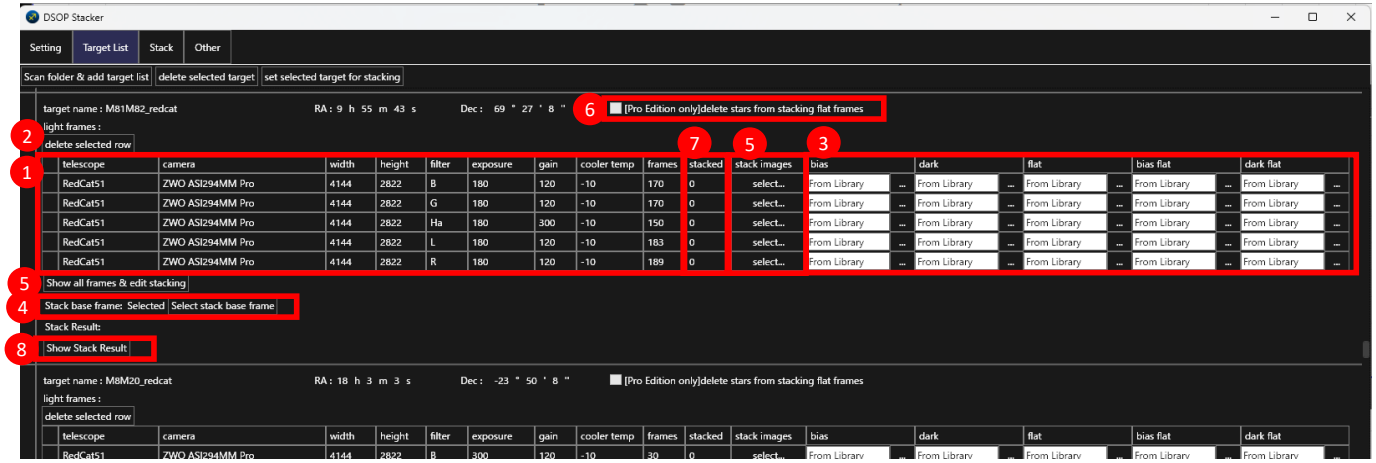
2. regist stack targets

- After initial setup and shotting images , click "Target List" to regist stack targets to DSOP Stacker.



By clicking "Scan folder & add target list" and selecting folder that contains target images , target list for stacking is created.
You can select folder that contains target images to add , and can select upper folder of the folder contains several/all target images.
After operating , DSOP Stacker scan all FITS files in selected folder and all sub folders automatically and show all pattern is shown identified by "target name","telescope name","camera name","width of image","height of image","gain","cooler templature" as below.

If you shot images with "FRAMETYP" FITS header by DSOP Shooter , N.I.N.A. and so on , no light frames is not included in this list.
If FRAMETYP" FITS header is not exist in images , all images are loaded in this list,
so deletion of non-bias rows by selecting rows to delete and click "delete selected target" button.



- Next , check and configure of each target you want to stack.

1. Each stack frames of shot target are displayed. Stack result image & files is made per row.
2. If unnecessary frames are exist in 1 , select rows to delete and click this button for deleting unnecessary frames.
3. Set bias/dark/flat frames.
   If bias/dark/flat frame are found from initial settings , "From Library" is displayed bias/dark/flat frame are already set automatically.
   If "Not Set" is displayed , click "Not Set" and select "Manually" , and select folder required image contains.
   After do it,click "..." button and check imaged , if you need select images for stacking.
4. Show all image and select image used as stacking base images when DSOP Stacker execute position matching of each frames.
   (Brighter image (not R/G/B/NallowBand filter, but L filter , etc) & sharp image(not foggy & cloudy) is recommended)
   You can also select images that is stacked or not.
5. If you need , confirm images by click here and select images that is stacked or not.
6. [Pro Edition Only]
   If you shot flat images by sky flat and remains a little stars , stars can be deleted from flat frames.
   * Deletable stars are only not too bright and not big. Too bright star or bigger star can't be deleted.

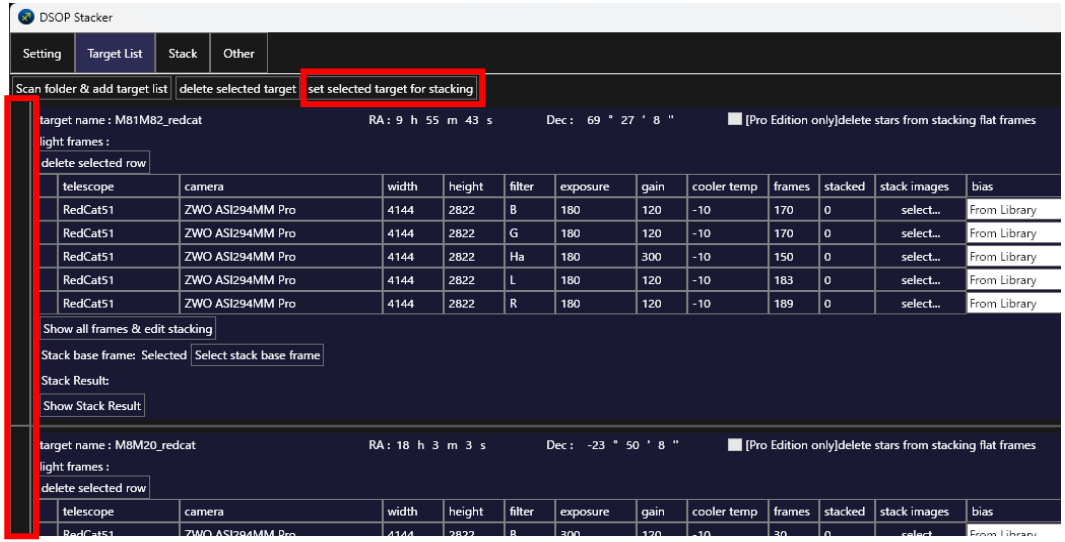
After finishing stack,

7. You can confirm frame counts stacked. If non stackable image exists , this value is lower than "frames" left.
8. You can confirm stack result of each image. If non stackable image exists, non stackable reason is displayed in each image.

3. stack targets

After "2. regist stack targets" ,

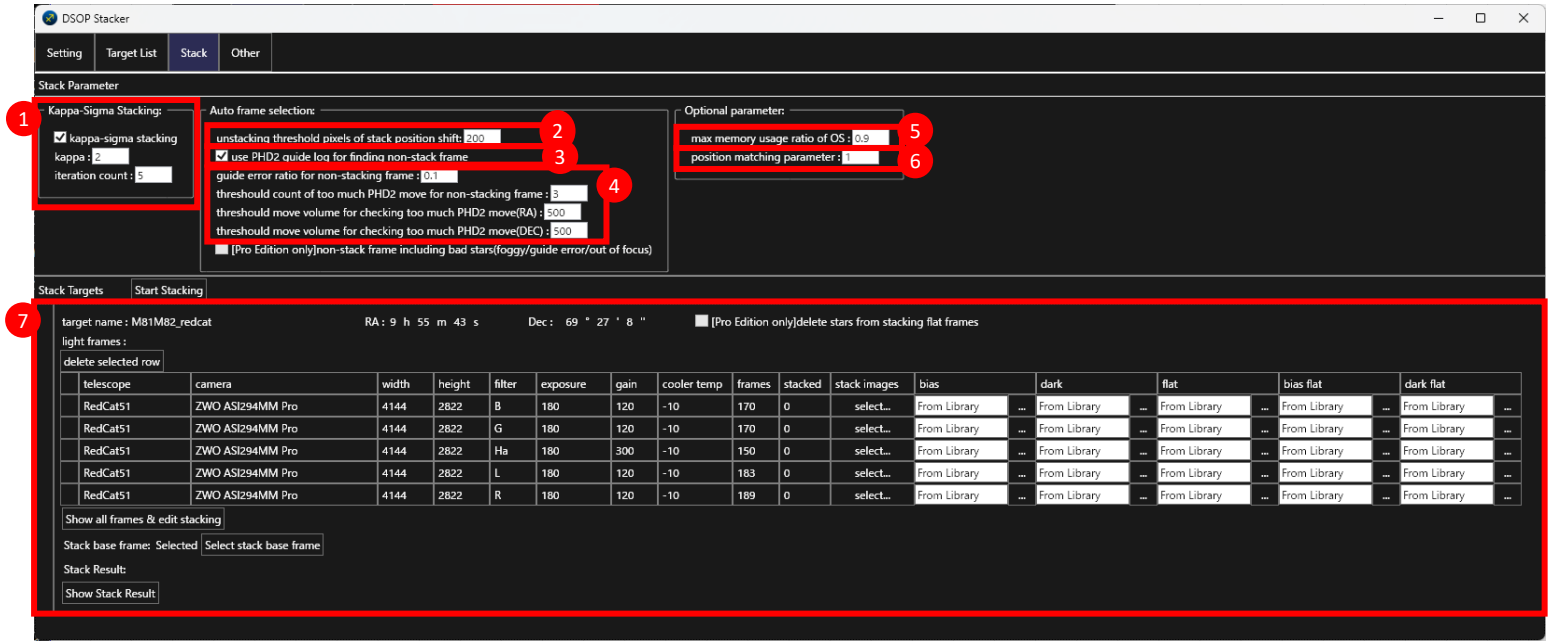
- Select stacking targets by clicking reft side square of target row, and click "set selected target for stacking"



* In Free Edition , only 1 row is selected for stacking.
(Repetition of "select one -> do stacking as below" is required)
In Pro Edition , any rows are selected for stacking , so you can stack automatically by using long time(nightly,in working,etc).

- Stack paramerters and targets is shown as below. If you need , edit parameter and stack target.

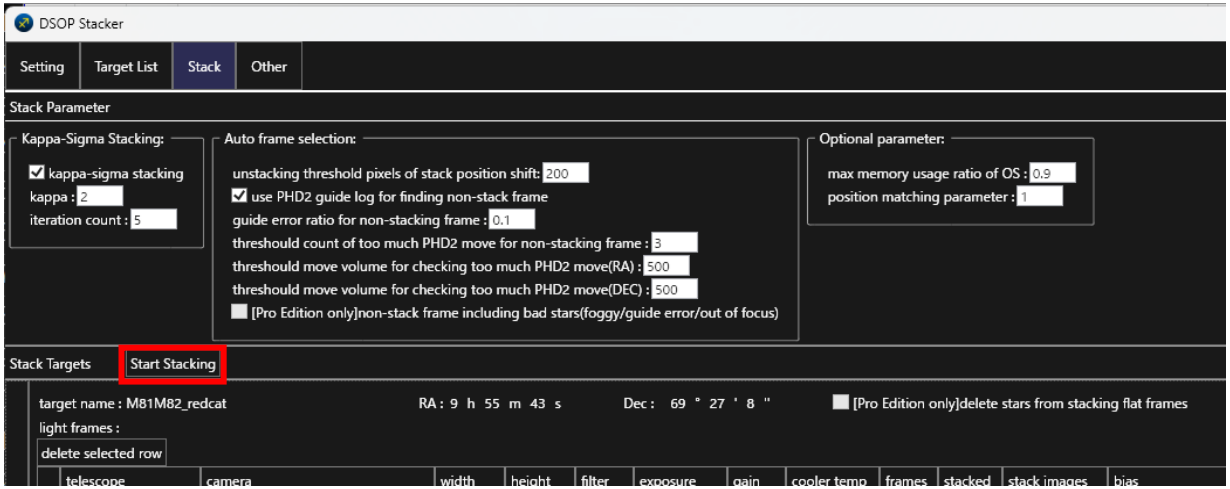
  * You don’t need to stack parameters from default(written in below image) , because default parameter is tested by many targets and succeeded stacking.



1. Execute Kappa-Sigma clipping for deleting satellite lines etc,check here.
   If not deleted after stacking , reduce kappa from default and add iteration count from default.
   * Reducing and adding may cause low image quality. If doint them , stacked image becomes more noisy than default.
2. In position matching by using stars of each image, DSOP Stacker do not stack image that horizontal or vertical position shift is bigger than this value to ensure FOV.
3. If you want to PHD2 guide log for checkgin each image can stack or not,check here.
4. If you need to change thresold for checking PHD2 guide log , change values from default.
5. Change memory usage ratio of OS for DSOP Stacker can use.
6. If position matching failed , matching may be succeeded by changing bigger value as default.
   But too much value cause incorrect position matching, so changing base frame in target is better than chenging here.

7. Confirm and edit target information , as same as "2. regist stack targets".

- After checking and editing stack parameter and target information,click "" button to start stacking.



After finishing stack , stack result images are saved into

[stack result save location]¥[target name folder]

as FITS file.

Please use stacked images as input of making final image by Pixinsight , Photoshop , etc.

4. others

If you have already purchased Pro Edition License,click "Register Pro Edition License" to enable license.
If you want to try trial license,click "Publish Trial License".