

Volume

1

MALLINCAM

SkyRaider DS10CTEC

Quick Guide

*June 5/2020
Version 1.0*

The MallincamSky DS10TEC Quick Guide

Use this Quick Guide to quickly get the MallincamSky SkyRaider DS10TEC camera up and running. More expansive details are found in the Complete User Manual.

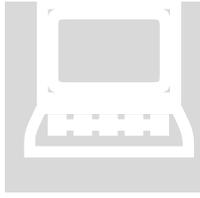
To save time for those of you who are familiar with Mallincam imaging cameras, this Quick Guide will expeditiously take you through the steps in getting the DS10TEC connected, software downloaded and installed, and finally activation and control of the camera.

ICON KEY	
	Take Note
	Hardware connection
	Download
	Running Software
	Commands
	Pictorial Workflows

The ICONS at the left are quick indications of what that section performs.



MALLINCAMSKY DS10TEC QUICK GUIDE



Download and Install MallincamSky

Visit the following website: www.mallincam.net. Select the support Tab, then Software Downloads. Select and download the latest required software and drivers for your system.

SkyRaider Series MALLINCAMSKY ASCOM Setup July 17 2019 Version 4.7.15144 .20190717 [Click Here](#)

SkyRaider Series MALLINCAMSKY DSHOW Setup July 17 2019 Version 4.7.15144 .20190717 [Click Here](#)

SkyRaider Series MALLINCAMSKY ST4 Setup July 17 2019 Version 4.7.15144 .20190717 [Click Here](#)

SkyRaider Series MALLINCAMSKY Software (Windows) July 17 2019 Version 4.7.15144 .20190717 [Click Here](#)

SkyRaider Series MALLINCAMSKY Lite Software (Mac) July 17 2019 Version 4.7.15144 .20190717 [Click Here](#)

SkyRaider Series MALLINCAMSKY Software March 15, 2019 version 4.7.14139.20190311 [Click Here](#)

SkyRaider Series MALLINCAMSKY Software October 16 2018 (for DS10C camera) [Click Here](#)

- How to Speed Up Your Computer with a i7 processor for MALLINCAMSKY Software. [Click Here](#)



The minimum required software is the latest version of the MALLINCAMSKY Software (Windows).



Ensure DS10TEC is not connected.

Once downloaded double click on the software and follow instruction to install. Accept to pass through any Windows warnings that may occur.



MALLINCAMSKY DS10TEC QUICK GUIDE



Connect the DS10TEC to your computer

Attach the 2-inch adapter to the DS10TEC and inset camera into Telescope. Now connect the AC adapter and power up the camera. Attach the USB 3.0 cable to the camera and the other end to the powered-on computer. The above installed drivers will recognize the camera and a beep should be heard acknowledging the connection.



Running MallincamSky

Locate and double-click on the MallincamSky icon located on your desktop to start MallincamSky. When the software loads, you will be able to location under the Camera Tab the DS10TEC camera name. Click on this name to activate the camera and thus display in the Video window what the telescope is pointing at.

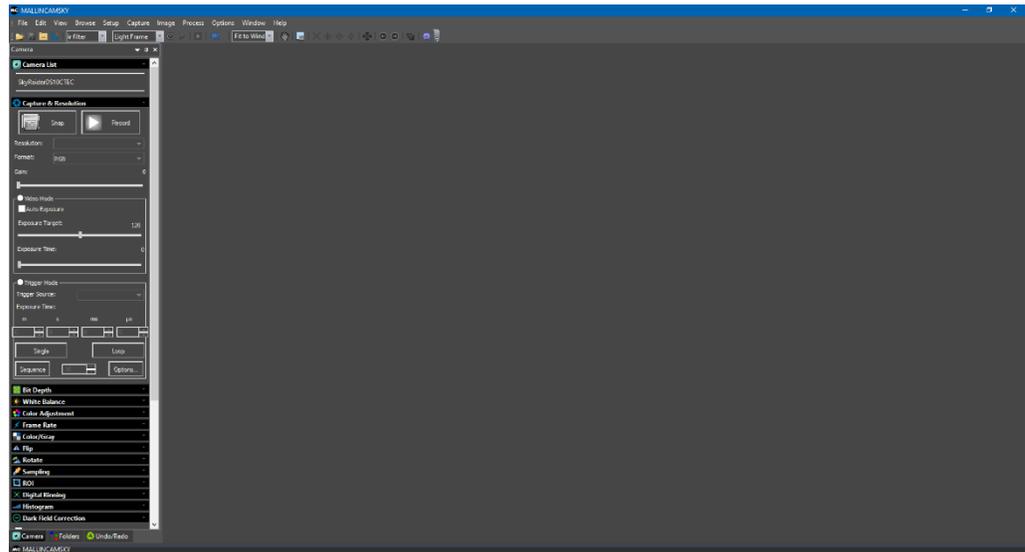
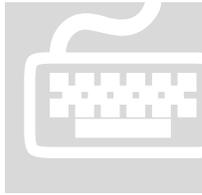


FIGURE 1.0 MallincamSky's opening screen. Note: the SkyRaider camera is not yet activated

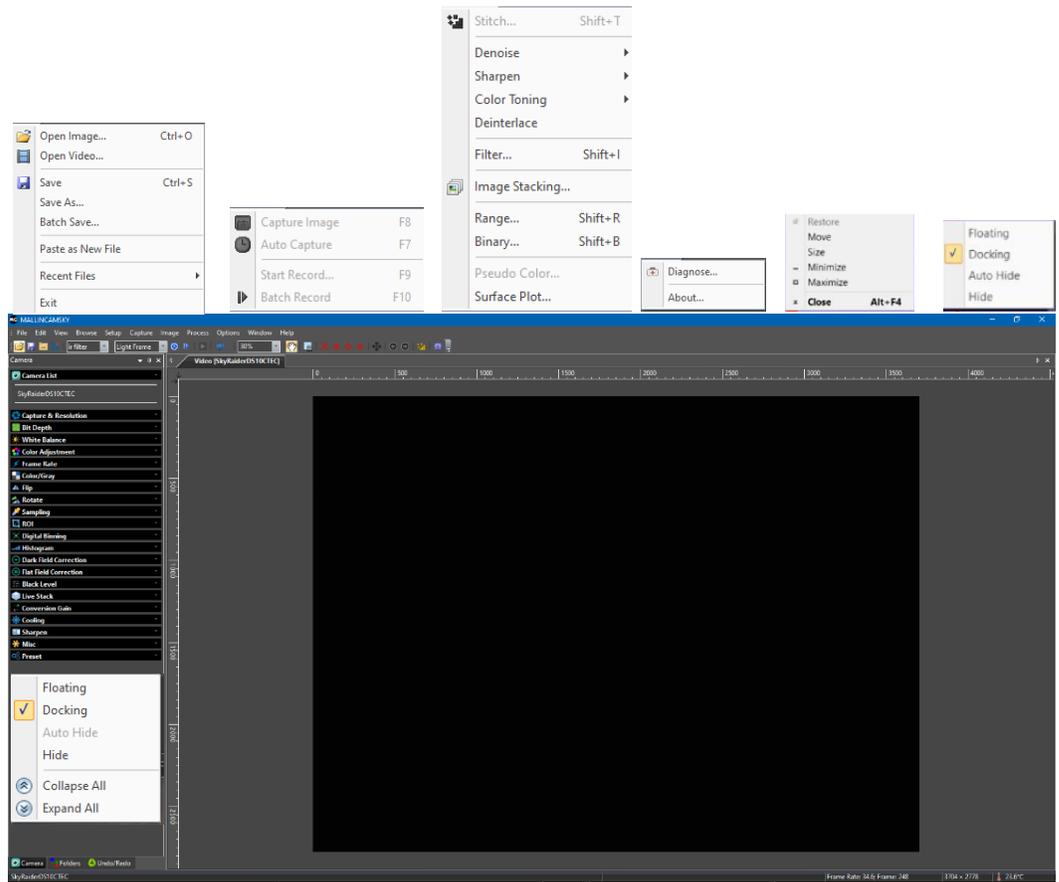


Note

Before getting too busy with imaging, use this time to set up the preferences and default file locations, format, and naming conventions that you will be using. MallincamSky will remember these the next time you start the software.



Quick Overview of the Graphical Interface

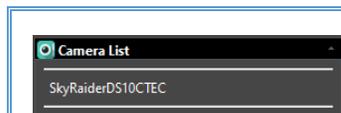




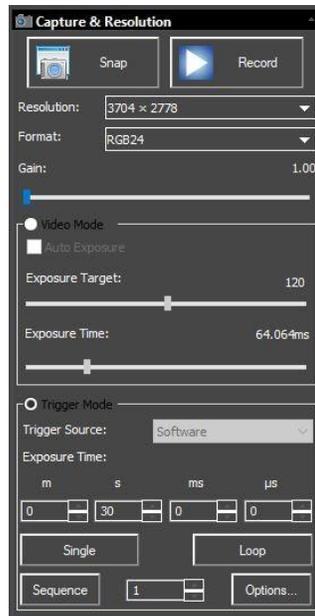
Quick Overview of the Left Side-Bar

Left Side Panel controls and explanations.

To expand the control just click on the down-arrow symbol that is located on the right of the control. The control will expand providing you with its options. You can expand as many controls as necessary, but you may need to use the slider (which automatically appears if the control information is larger than the MallinCamSky Window. To close the control, just click on the little up-arrow symbol located on the right side of the control.



The **Camera List** contains the list of attached MallinCam Cameras. If a USB 3.0 camera is attached to a USB 2.0 port, then (USB 2.0) will be appended to the name. Clicking on the camera name will activate the camera and display its image in the Video Window.



Snap take a picture of what is currently being displayed in the Video Window and places that image in its own tab with default name **0001***.

Record starts recording a video of what is being imaged. The recording will stop when you click on the recording button again.

Resolution contains the current resolution of the camera.

Format of the camera **RGB24**, **RGB48**, or **RAW**.

Gain adjusts the amplification of the signal from the camera.

Video Mode display the image in Video Window in real-time

Auto Exposure has MallinCamSky choose best exposure for you when checked.

Exposure Target give Auto Exposure some value to aim for.

Exposure Time allows you to set an exact exposure from **0 s** to **5 s**.

Trigger Mode displays long exposure images from **0.100 ms** to **1 h** in the Video Window. Activated by the **Loop** control.

Exposure Time allows you to set the **Exposure** time.

Single allows you take a single exposure.

Loop allows MallinCamSky to repeatedly take exposure

Sequence allow you to set up a sequence of looped exposures

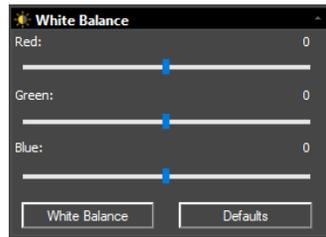
Number determine the number of exposures in sequence

Options... allows you to set the destination and format of the video sequences.



Bit Depth sets the number of bits the camera assigned to the image for Windows display. When set to **8 bits** you have **256** available colors.

When set to **14 bits** you have **16384** available colors. The larger the bit depth the larger its size is and the more load it places on the cpu.



White Balance allows you to select a region of the Video image via a **red box** and do a white balance correction by clicking on the **White Balance** button.

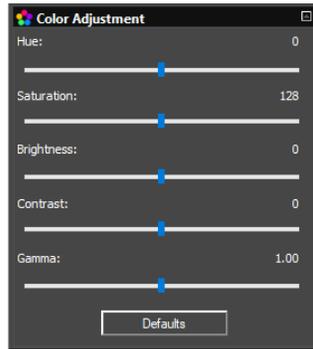
The **Red** slider allows you to manually adjust the **red** level in the video image.

The **Green** slider allows you to manually adjust the **green** level in the video image.

The **Blue** slider allows you to manually adjust the **blue** level in the video image.

The **White Balance** button allows you to activate **red box** as the White Balance template and MallincamSky will adjust the **Red**, **Green**, and **Blue** values.

The **Defaults** button resets the White balance to **red=0**, **green=0**, and **blue=0**.



Color Adjustment allows you to adjust in real-time various components of the video image.

Hue – the slider allows you to modify the indicator of **dominant color**.

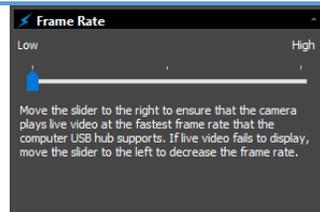
Saturation – the slider allows you to modify the **intensity of color** in the video image.

Brightness – the slider allows you to modify the **brightness** of the video image.

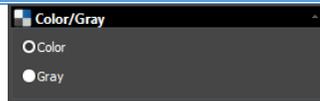
Contrast – the slider allows you to modify the **difference in brightness** of the elements in the image.

Gamma – the slider allows you to modify the **captured** brightness to the **perceived** brightness.

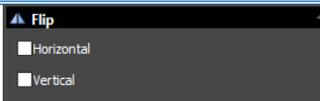
The **Defaults** button returns all the **Color Adjustments** to their default value.



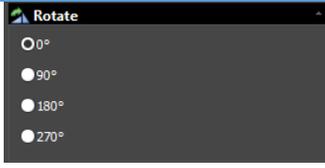
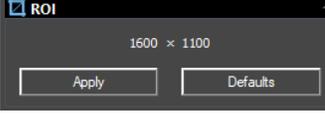
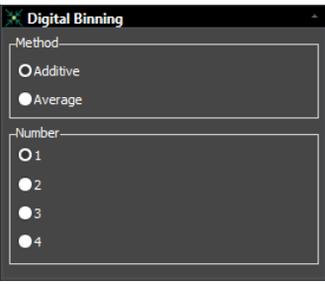
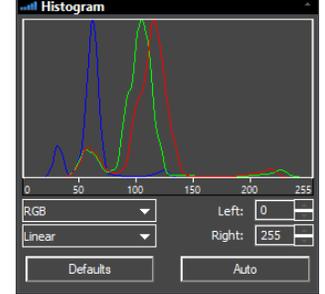
The **Frame Rate** control allows you via the **slider** to adjust the rate at which the **SkyRaider** camera streams its data through the USB port. If your video window does not display an image, then move the slider toward the **Low** end of the Bar, as your computer cannot handle the rate at which the data is being pushed.

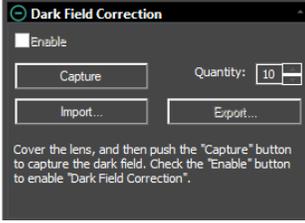
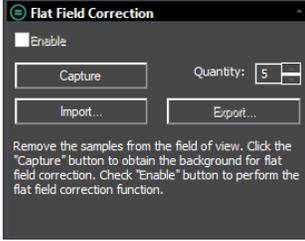
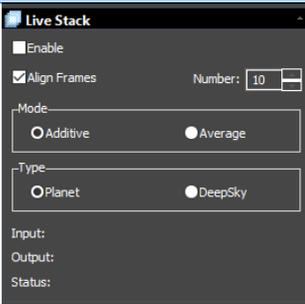
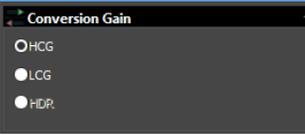
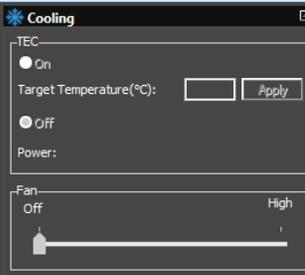


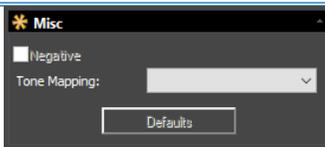
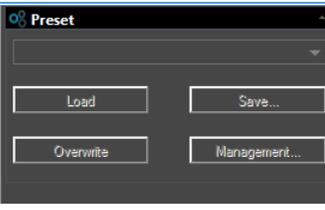
The **Color/Gray** command allows you to determine if you would like to view the video image in **color** or in shades of **grey**. Select by clicking in the appropriate radial button.

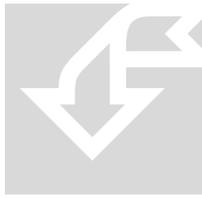


The **Flip** command allows you to flip the video image in the **Horizontal**, **Vertical**, or **Both**. Flip in the required direction by checking the appropriate **checkmark** box. The flip command can be used to match the orientation of the image to your needs.

	<p>The Rotate command allows you to rotate the image clockwise in four set angles: 0°, 90°, 180°, and 270°. Click in the required radial button to rotate the image.</p>
	<p>The Sampling command, which the DS10TEC does not use, allows you to select a sampling style.</p> <ul style="list-style-type: none"> -Bin refers to the method of combining (averaging) pixels of a block of neighboring same color pixels to resize the video to a lower resolution (can increase video frames/second). -Skip (also known as decimation) means that a certain number of pixels is not read out but skipped (horizontally, vertically or in both axes). This reduces resolution of the resulting video but introduces subsampling artifacts.
	<p>The ROI (Region of Interest) command presents a selectable and draggable Blue box which you can adjust with your mouse. Enclosing a region of your image and clicking on the Apply button will make the Video Window only contain what was enclosed within the Blue box. To return to the full Video Window click on the Defaults button.</p>
	<p>The Digital Binning command will allow you to Bin your displayed video image to either increase the sensitivity of the camera or improve the quality of the image.</p> <p>Method selects style of binning</p> <ul style="list-style-type: none"> Additive: add pixels together (based on the number selected) to increase sensitivity. Average: adds pixels together (based on the number selected) to increase quality of image. <p>Number determines the amount of binning selected.</p> <ul style="list-style-type: none"> 1: No binning 2: 2 x 2 binning 3: 3 x 3 binning 4: 4 x 4 binning
	<p>The Histogram command displays the relationship of the distribution comparing the number of pixels at a specific color level. This Realtime graph allows you to adjust the dark and light endpoints to stretch the image to reveal more detail in the shaded areas.</p> <p>RGB: allows you to select a color channel.</p> <p>Linear: displays the distribution using either a linear or logarithmic scale.</p> <ul style="list-style-type: none"> Left: lets you manually enter the starting dark region. Right: lets you manually enter the ending light region. Defaults: returns the Left and Right to their default values (0, and 255). Auto: lets MallincamSky select what it feels is the best values for Left and Right.

	<p>The Dark Field Correction command will allow you to take and apply Dark Fields.</p> <p>Enable: once checked will apply the previously taken Dark Fields to you video image in Realtime.</p> <p>Capture: will take (ensure camera is covered) the Quantity number of Dark Fields.</p> <p>Quantity: the number of Dark Field images to take.</p> <p>Import...: allows you to load previously taken Dark Fields.</p> <p>Export...: will allow you to save currently taken Dark Fields.</p>
	<p>The Flat Field Correction command will allow you to take and apply Flat Fields.</p> <p>Enable: once checked will apply the previously taken Flat Fields to you video image in Realtime.</p> <p>Capture: will take (ensure camera is covered) the Quantity number of Flat Fields.</p> <p>Quantity: the number of Flat Field images to take.</p> <p>Import...: allows you to load previously taken Flat Fields.</p> <p>Export...: will allow you to save currently taken Flat Fields.</p>
	<p>The Dark Level command allows you to adjust the range of the blackness in the video image. The left end (0) is the darkest, while the right end (496) is the highest.</p>
	<p>The Live Stack control allow you to combine numerous images together in Realtime.</p> <p>Enable: activates the stacking process.</p> <p>Align Frames: when checked will align the frames before stacking</p> <p>Number: contains the number of rolling frames that will be stacked</p> <p>Mode: determines the type of stacking that will be performed. You have a choice of Additive (produces brighter image), or Average (produces better quality image).</p> <p>Type: Allows you to choose the type of object you are imaging, so to improve the Alignment algorithms. Choices are Planet or DeepSky.</p> <p>Input: number of images accepted into algorithm</p> <p>Output: number of Stacked images produced</p> <p>Status: if alignment is successful</p>
	<p>The Conversion Gain control will allow you to choose what Gain algorithm that MallincamSky should use.</p> <p>HCG: High Conversion Gain produces a brighter image in the specific time, but more noise.</p> <p>LCG: Low Conversion Gain produces a dimmer image in the specific time, but less noise.</p> <p>HDR: High Dynamic Range is not available for DS10TEC.</p>
	<p>The Cooling control will allow you to set a target temperature and activate the internal cooling mechanism. This control also allows you to activate the camera's internal fan (ac adapter must be powered on).</p> <p>TEC: allows you to activate with the On radial button, or deactivate with the Off radial button. Once activated you can select a Target temperature and apply it.</p> <p>Fan: via the slider, you can allow activate the internal fan in the camera.</p>

	<p>The Sharpen control allow you to tweak the sharpening of the finer details of the Realtime video image. The slider gives a range of 0% (which is off) to 500% (all the way to the right).</p>
	<p>The Misc control allows you to produce an inverse or negative of the Realtime video image by checking in the checkbox.</p> <p>Tone mapping is not available for this camera.</p>
	<p>The Preset control allows you to save and load previous control settings that you have used to image of previous sessions. A drop-down list displays the names of previously saved presets including a Factor Reset for the settings.</p> <p>Load: loads in the settings form the drop-down list Save: saves the current control settings in a name of your choice Overwrite: resaves any current setting changes using the same name Management: allows you to import or export settings from other users</p>



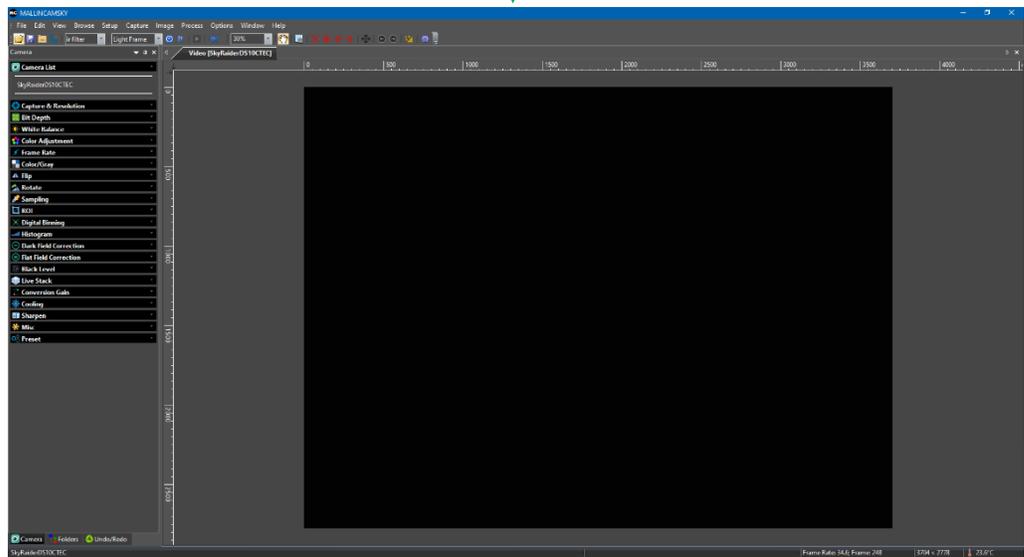
Pictorial Workflows

Connect the
DS10 TEC
to your
computer.

The following pictorial diagrams demonstrate the steps necessary to perform the required procedure. The **Complete User Manual** will go into more detail about each step.

Starting MallincamSky

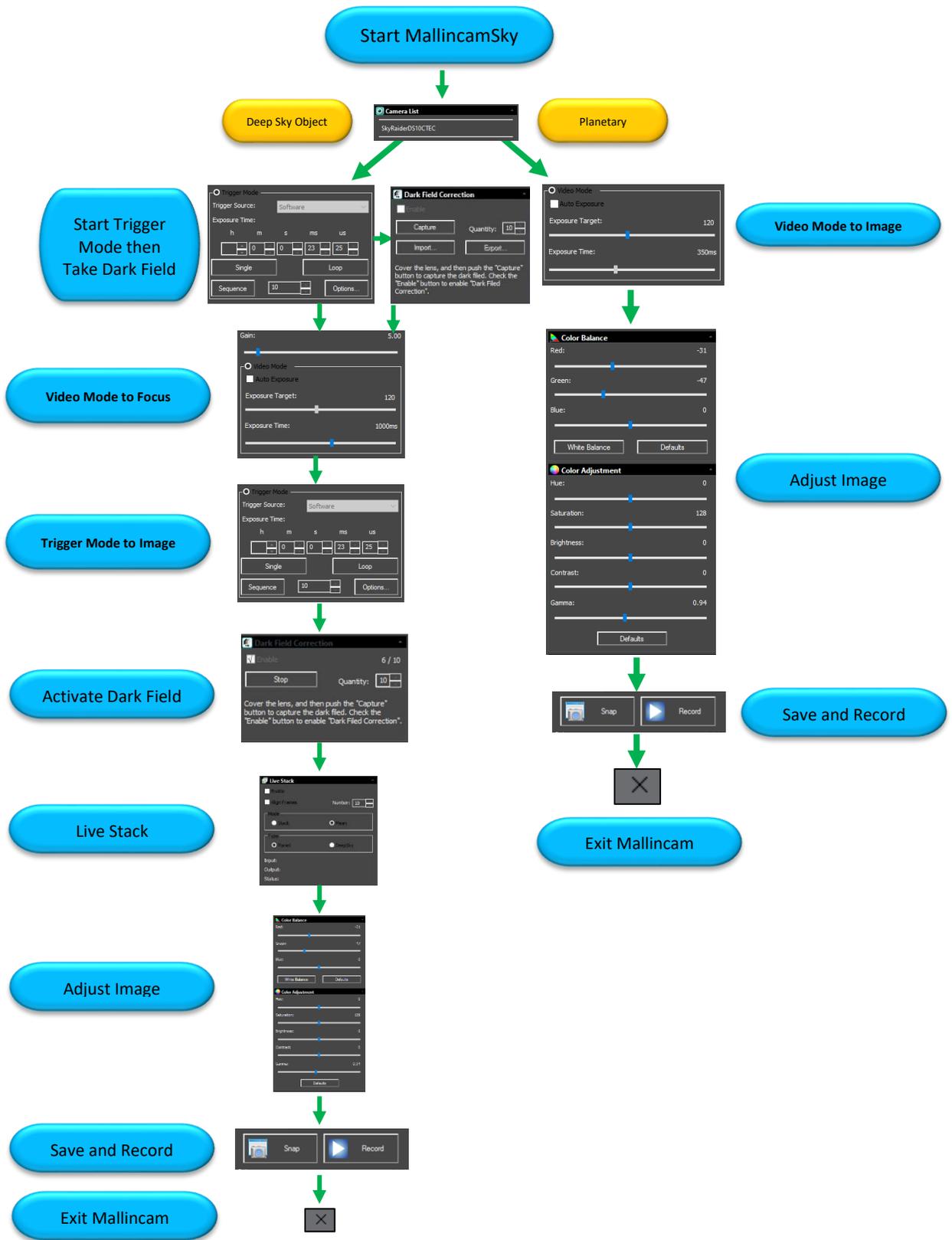
Start MallincamSky



Exit MallincamSky

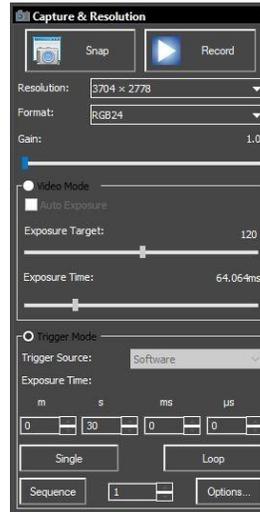


Typical Session in MallincamSky Workflow

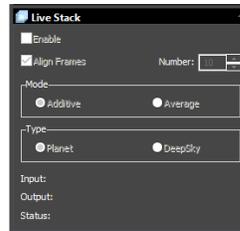


Live Stack Workflow

Expose Object

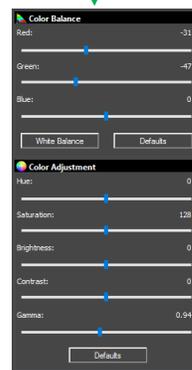


Choose and Activate Video Mode or Trigger Mode



Live Stack

Choose Mode and Type of Stacking, Then Align and Enable.



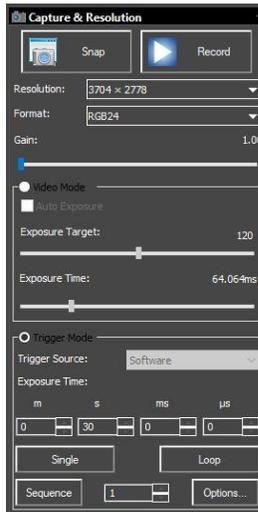
Adjust Image

Save and Record



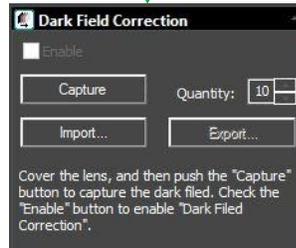
Dark Field Workflow

Determine Maximum Exposure



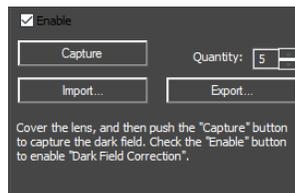
Set Exposure

Choose and Activate Video Mode or Trigger Mode with Maximum Exposure expected



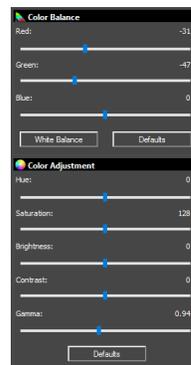
Take Dark Field

Choose Quantity and Click Capture to Take Dark Fields



Enable Dark Field

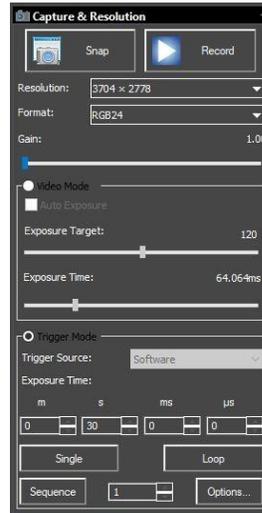
Check Enable Box



Adjust Image

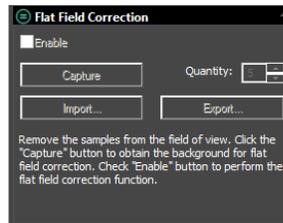
Flat Field Workflow

Determine Flat Field Exposure



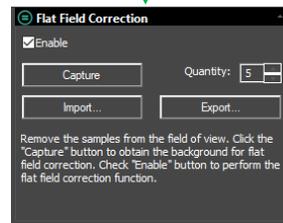
Set Exposure

Choose and Activate Video Mode or Trigger Mode with Maximum Exposure Required. Click on Loop



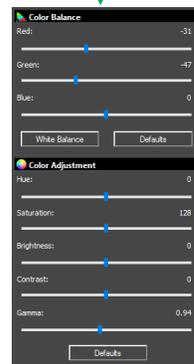
Prepare Telescope for Flat Field

Choose Quantity and Click on Capture to take Flats



Apply Flat Field

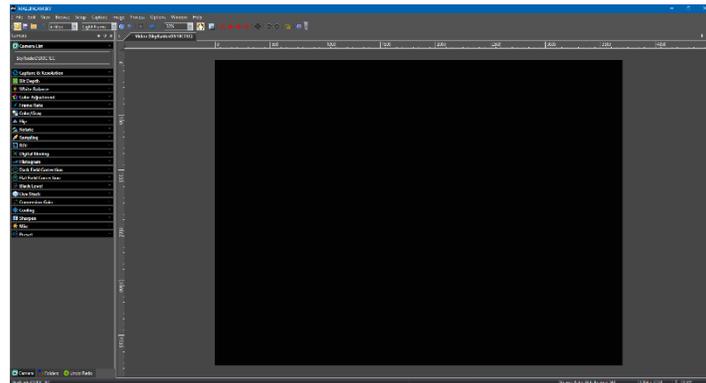
Check Enable Box



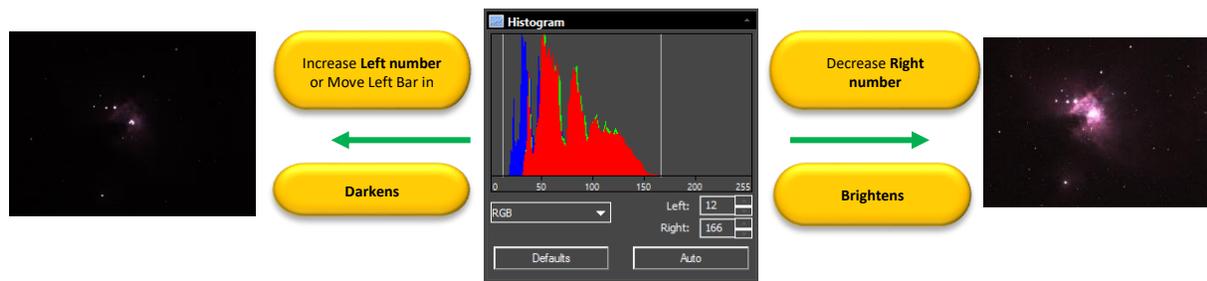
Adjust Image

Histogram Workflow

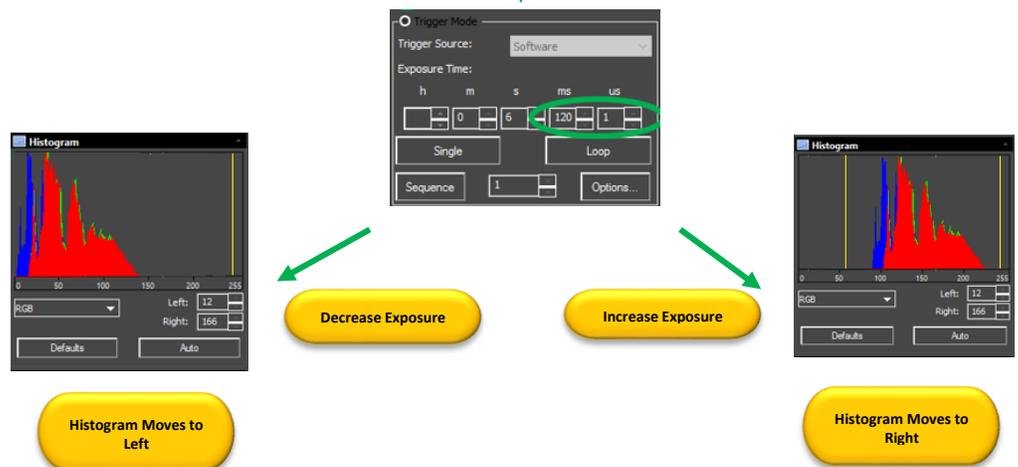
Expose Object



Select Histogram

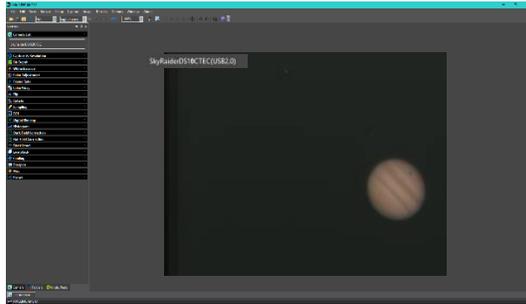


Select Exposure

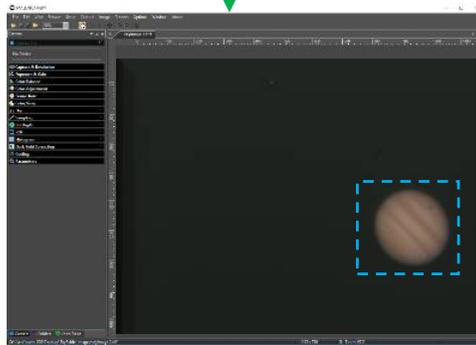


ROI Workflow

Expose Object



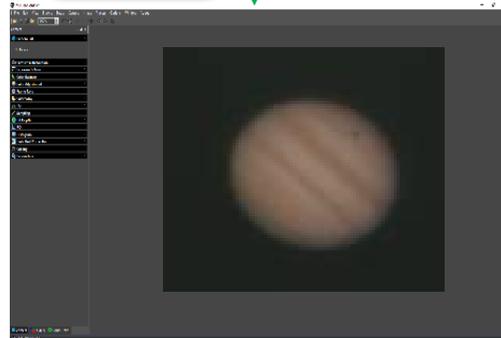
ROI



Video Mode

ROI
Apply Defaults

Video Mode



Trigger Mode

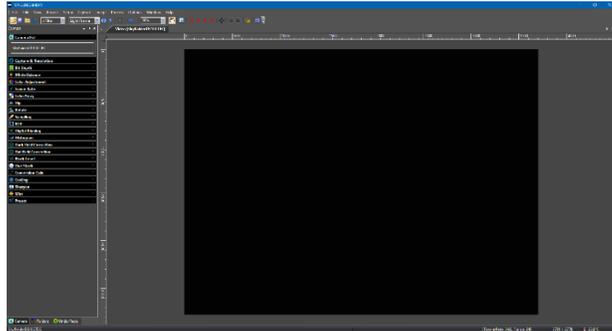
Stop

Trigger Mode

Loop

Save Image Workflow

Expose Object



Take Picture

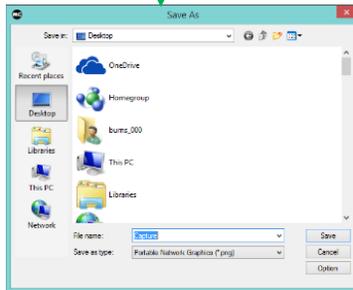
Select Image



Press Save Icon



Select Location and Name



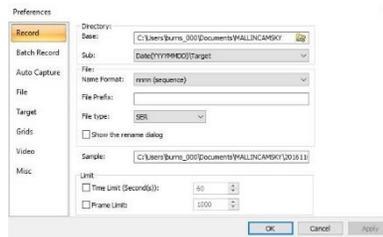
Record Video Workflow

Start MallincamSky



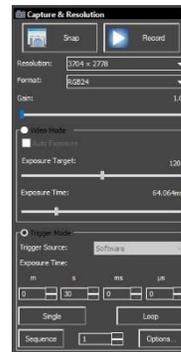
Activate Camera

Options->Preferences... to set saving location



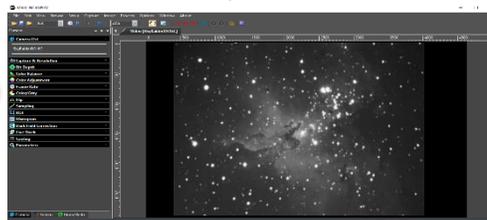
Enter File Location, Format, Prefix, Type, Number of Seconds

Select Mode



Choose either Video Mode or Trigger Mode

Expose and adjust image



Record Video



If No Time Limit Set

Batch Record Videos Workflow

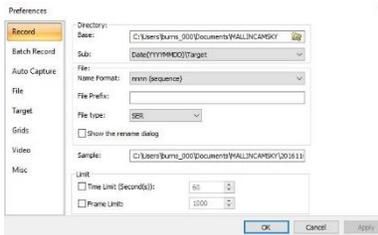
Start MallincamSky

Camera List

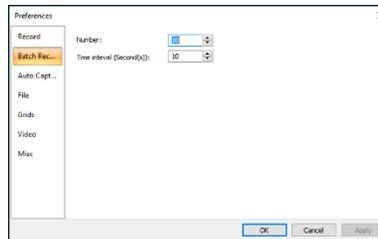
Activate Camera

Options->Preferences... to set saving location

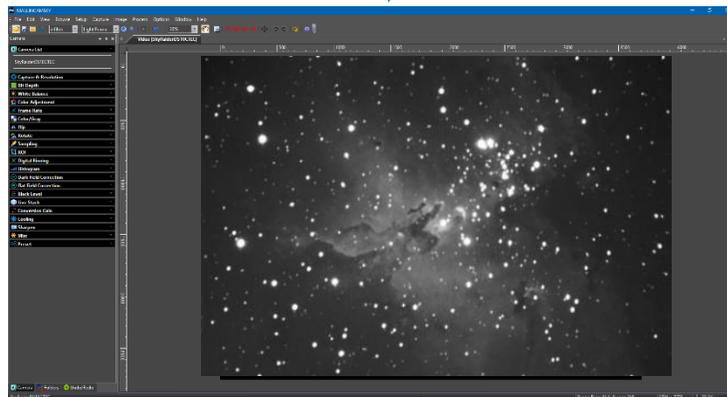
Enter File Location, Format, Prefix, Type, Number of Seconds



Number of Videos, Time between each Video



Expose Object



Activate Batch recording



Done

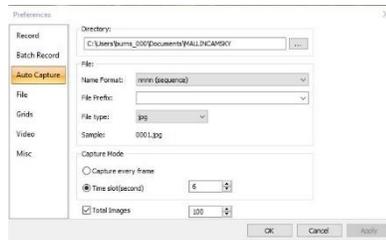
Auto Capture Images Workflow

Start MallincamSky

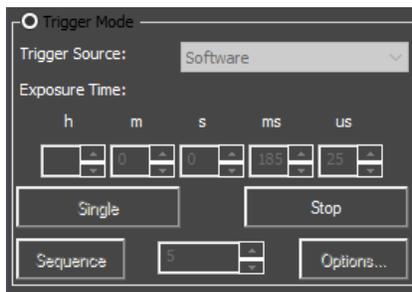


Activate Camera

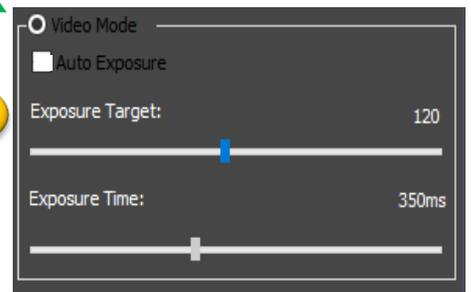
Options->Preferences->Auto Capture ... to set parameters



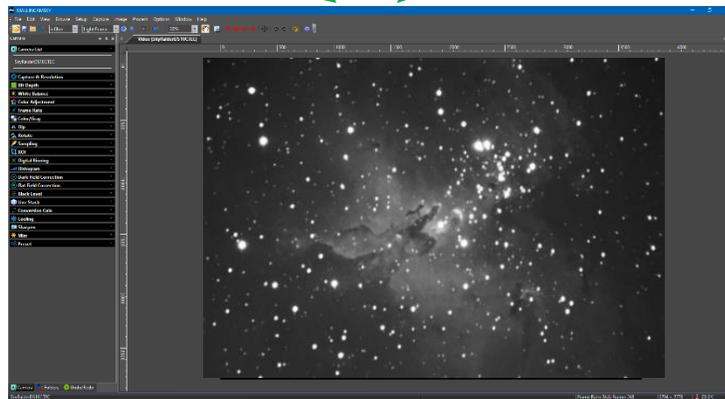
Enter File Location, Format, Prefix, Type, Capture Mode, Total number of Images from: Options/Preferences



Choose Exposure Mode



Expose Object

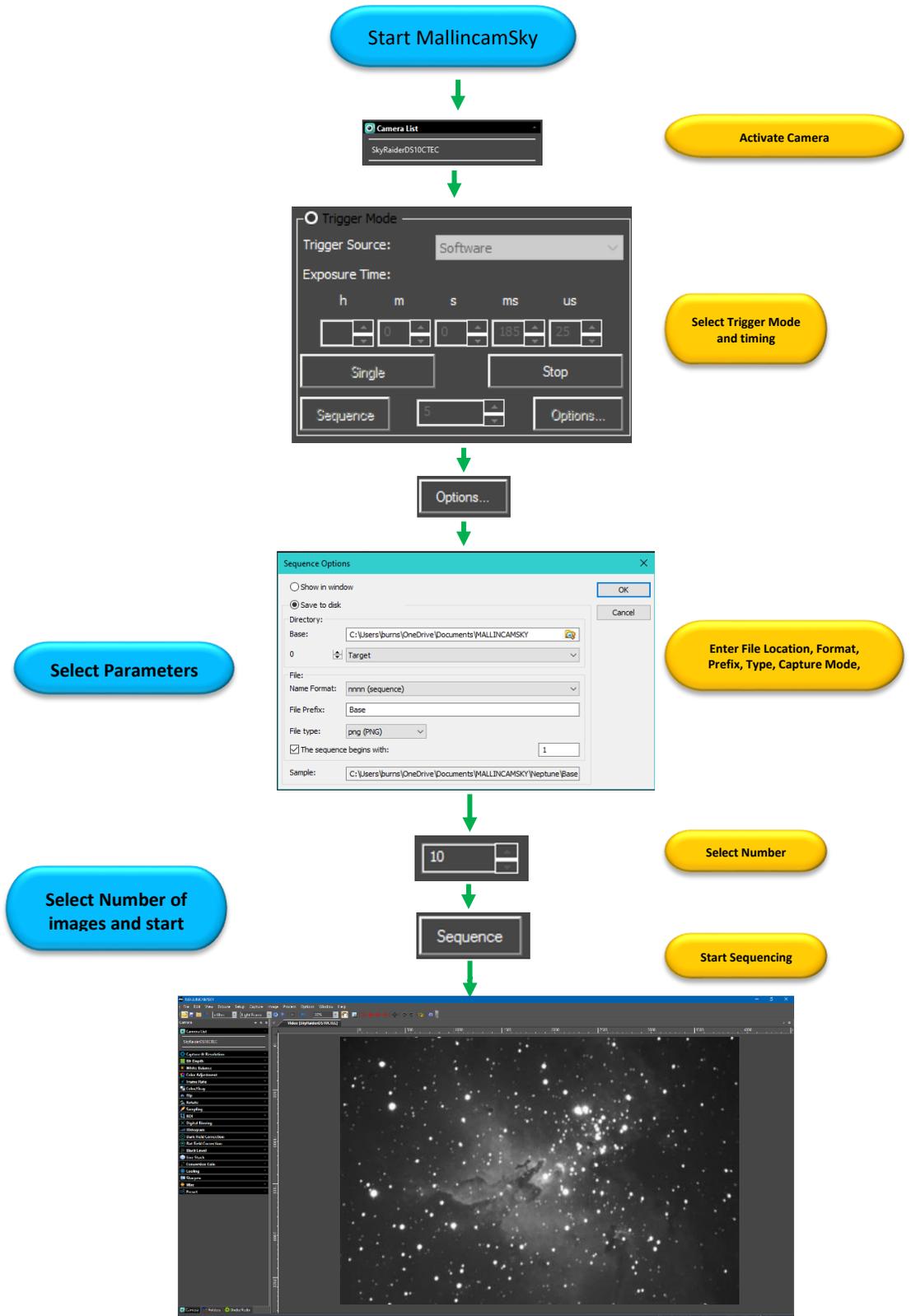


Activate Auto Capture



Done

Save Sequence of Images Workflow (Trigger Mode)



Digital Binning Workflow

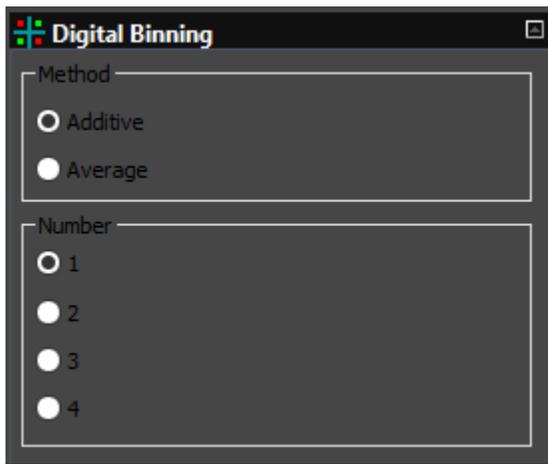
Start MallincamSky



Activate Camera



Choose Binning Method and Number



Choose Exposure Mode and Time

