

Quick Guide to Capturing Images with the Celestron NexImage Solar System Imager

Version 1.1 - 2 May 2009
By Mike Swanson

The NexImage camera from Celestron is an excellent choice for planetary imaging. Basically it is a very sensitive CCD-based webcam that is mated to a 1.25" barrel that works with any telescope utilizing a standard eyepiece clamp. The camera comes with a program called AMCap from Microsoft which creates standard AVI video files that can be processed with stacking software such as the included RegiStax. NexImage also does an okay job with snapshots of the Moon and the Sun.

Video - best for planets

1. If you have an infrared blocking filter, thread it into the NexImage camera to improve color balance. I use the Fringe-Killer filter for its IR and Ultraviolet blocking characteristics. For any of the planets you will want to use a 2x or higher Barlow lens or you will not be able to capture as much detail as possible with your scope and the NexImage camera.
2. Start AMCap.
3. On the Options menu, be sure Preview is selected (it will have a check mark next to it when it is selected).
4. On Capture menu, set Frame Rate to 5fps - NOTE: you will likely want to use a faster frame rate during focusing, but return to 5fps as this is fastest rate that will result in no compression of the video stream
5. In Options, Video Capture Pin, the Output Size should be set to 320 x 240. I've only experimented a bit with 640 x 480 and didn't get good results. It may be that the seeing condition simply didn't support it, or it might be that at this image size (4 times the data) the camera simply can't perform well due to compression or other issues.
6. In Options, Video Capture Filter, be sure Full Auto Mode is **not** checked. Leave white balance set to auto. Set gain to minimum, gamma to minimum and brightness and saturation to the middle. Adjust the shutter speed to give an image that looks a *little* darker than you would like the final product - stacking frames later will make it significantly brighter. Note that on a larger scope (8" or larger), you should see good color and some significant detail. You may want to Save this as the User Defaults though tweaking is still necessary for various objects. Leave this option dialog up on the screen, though move it to the side - you can tweak the settings here while you focus.
7. Here is the hardest part - focusing. As mentioned in step 3, you will find it easier to focus with a faster frame rate - 10 fps or higher. (Don't forget to return the frame rate to 5fps before capturing the video.) It is simply difficult to see when the image is perfectly focused. There are some tricks using a Hartmann mask and also a pair of crossed bungee cords - otherwise you might want to get it as close as possible and then capture separate video clips at this setting and at focus settings a bit inside and outside of this initial setting.. A potential trick for focusing on more subtle subjects like Mars is to GoTo a nearby bright star for focusing (Sync on that star as well to get your object closer to the center of the NexImage FOV). But for high contrast objects like Jupiter and Saturn, focus on the planet itself.
8. Go to File, Set Capture File and create a new file for this video clip. Set 1MB for the file - AMCap will expand the file as it captures video.
9. Be sure your object is framed correctly then go to Capture, Start Capture. When you think you have enough video frames, go to Capture, Stop Capture. You can also Set Time Limit on the Capture menu to have AMCap automatically stop after a set time. At 5fps, 1000 frames is of course 200 seconds.
10. If you want to take another video clip, go to step 8 and create a new file for the next clip. Adjust any settings and capture the new video.
11. Process in RegiStax to create a final image.

Snapshots - good for the Sun (with proper filter!) and the Moon

1. Create a folder to hold the snapshots - I generally place it on the Desktop in Windows.
2. On the Capture menu, select Still and check the Enable option. Then on the Capture menu, select Still and then Folder to specify the folder you created in step 1.
3. Focus and frame your subject and then press Ctrl+S on the keyboard to snap the picture. You can repeat this as often as you would like, for example, slew around the surface of the Moon and press Ctrl+S to capture different features.
4. Each time you press Ctrl+S, a new image of 640 x 480 pixels is created as a separate BMP file in the folder you designated.