Preparing a Windows 11 Computer for Occultation Recording

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The recommendations are provided to reduce the potential for interruptions during an observing session, but also is used for other tasks.

This version is for Win11 computers which need to connect to the internet to support occultation activities. The suggestions are based on my use of Windows 11, Version 23H2. To find your version of Win11, click on the Start menu (4-pane small box in the Taskbar and type about in the search bar.)

The intent is to support recording when not connected to the internet. This reduces interruptions during the observation recording and assures that data needed during the recording is on the laptop, not stored somewhere in a cloud service. These instructions are for computers used for digitized analog video and for digital video cameras. They are not necessary for support of Astrid which itself captures the video. While Astrid support is not addressed in this document any computer used for observation recording can also be used for Astrid support.

Preparing a new computer.

1. Have available a Microsoft account for use with this computer. If you expect that the computer will be left unattended in remote locations while recording, I suggest you create a separate Microsoft account for this purpose to protect your personal data.
2. Set up your account on the laptop to be the administrator.
3. A fresh Windows installation first wants to connect to a Microsoft account, verify the legitimacy of the Windows OS, and apply whatever updates are in the queue. Let the setup proceed but try to avoid as much as possible all the extras. Every computer setup so far has been different. The goal is to get to the point where Updates displays a green checkmark and the message “your system is up to date”. The updates do need to be completed before continuing.
4. Install the software you want to use for occultation observing. The locations to find the software described in the following is given at the end of this document. Explore the options they offer.
5. Prepare the computer to operate as you prefer for observing and for other work by adjusting the settings you can find in the Start menu, especially those under settings. Many options are set in multiple locations and are obvious.

There is a separate table in the file Windows11_settings.pdf listing how I have set ours. The options can be confusing, their presentation under Settings is inconsistent, and many can be set in multiple locations, with associated probability of inconsistent setting from one location to the next.

Here are some options which are very important for observing operations which may or may not be obvious.

6. Home: This will have Microsoft’s suggestions on what services you should have and access to information on which ones are active
7. Make sure your USB devices cannot draw power when your computer is off. Under Device manager look for USB Controllers and then USB Root Hum (USB 3.0). Click on that and navigate to Power Management where you will find “Allow the computer to turn off to save power”. Click

that option. This is also known as “charge in battery mode”, which allows use of the laptop battery when it is off.

8. OneDrive and other cloud storage options. My recommendation is to minimize the use of cloud storage, to avoid having information needed for observing stored on One Drive and then not be available at an observing site with no WiFi.
9. Core isolation: A switch controlling memory integrity under a feature named core isolation can prevent some drivers from loading. To look for that, bring up Search and type Windows Security in the search bar. Scroll down to Device security. If you drivers install without issue, you can leave core isolation on. This is one place to look if you experience a security-related problem with a driver, often accompanied by a message saying why the driver is not operating.
10. Open lid to turn on computer, also known as “Flip to Boot”. If your computer has this feature, and you want the computer to never turn off when the lid is closed, I recommend you disable turning on when the lid is opened because there is a risk that your computer can be inadvertently turned on, say, on a bouncy trip to an observing site, and, since it doesn’t turn off, drain the battery before you notice the computer is on. Control of this feature varies by computer manufacturer, even models within a computer line. If it is not available under power options, it may be controlled via the computer Bios. Check with the manufacturer for the specific details.
11. If you want your computers to start without requiring login when turned on, here is how to do that. This increases the risks should the laptop be stolen.
    a. You need to be able to log in with a password. Under Settings>Sign-in Options “Require *Windows Hello sign-in for Microsoft account”* needs to be Off.
    b. Bring up the Command prompt by typing Command Prompt in the search lbar and activate it. It will show C:\Users\<user name> >. Type netplwiz. *<dir> is the logged in user’s name. Also, if you have never seen the command display before, it is the user interface that predates Windows.*
    c. In the netplwiz menu, check that the user is highlighted, then turn uncheck the “Users must enter a user name and password” at the top of the menu and click apply
    d. A request to enter the user password twice will appear. Enter and click OK. For Windows 11, you need to allow the user password as an option, as mentioned in step 7.d. NOTE THAT YOU MUST UNDO THIS IF YOU CHANGE THE NAME OF THE PC.
    e. Type “exit” to leave the command prompt.
    f. Test to make sure this works by restarting the machine.
12. Set the background in Settings>Personalization, or type Background into Cortana. Using a very dark photo or image will make the computer easier to use when observing.
13. CoPilot – A new app in Windows which I have not found helpful. I make sure it is not on the taskbar where it might be activated unintentionally.
14. Snipping tool – it may or may not show explicitly under options, but it will likely be there. To find it, press the Fn and PrtSc keys simultaneously, select a clipping option and the screen clip will be in the clipboard.
15. Before observing, turn on airplane mode to disconnect from the internet and stall updates.

See Windows11_settings.pdf for more information on options.

Installing software.

The software used for occultation recording is described in the following sections. See the end of the document for the locations of the software.

1. IOTA Video Capture is software written by Russ McCormick for the recording of video occultations. The analog video with or without the GPS data encoding is fed through a digitizer (the SVID2USB232) and captured on the computer by IOTA video capture. Download the software package, which includes both IOTA Video Capture and IOTA Video Playback and install them.
2. SVID2USB232 Driver - The SVID2USB23 has been replaced with the SVID2USB232 but driver package is still labeled as SVID2USB23. Under the Windows folder, you will find the correct driver, setup.5.2021.080.3.exe. Run that and ignore all the others in the package, which will drivers for all versions of the SVID's. Do this before attaching the SVID as the Windows system has a competing driver that will install if the SVID is detected before a driver is available. The default Windows driver does not work with the SVID's.
3. Lagarith compression - Compression reduces the space needed for file storage and also the time needed to store the data. When the user finds frequent dropped frames, the problem might be corrected by using compression. Laragith compression is lossless, reducing the potential for losing information in the compression process. Ony compression techniques describes as lossless should be used with data containing critical timing information, which occultation data have. Install Lagarith by running the automated install, lagarithSetup_1327.exe. After installation, run the capture software and confirm that it recognizes the lagarith compression and can turn it on or off.
4. VirtualDub – Download the software and install. Virtual Dub is an alternative program for recording incoming video. It also has other features for copying and some editing. Also, it is far easier to use than Adobe PhotoShop Premiere Elements.
5. limovie – Download the software and install. limovie is an alternative program for recording incoming video. It also is used for processing observations.
6. SharpCap – This is a more sophisticated data recording program with multiple features for digital camera support. Installation is a matter of downloading and running its install program. SharpCap Pro is recommended if you are controlling your scope via SharpCap and if you want to use the plate solving options to locate targets.

Software Location

IOTA Video Capture - https://occultations.org/observing/software/

Lagarith - https://lags.leetcode.net/codec.html

SVID2USB232 driver - https: //www.startech.com/en-us/audio-video-products/svid2usb232. The driver ZIP folder holds multiple drivers; the one for windows is Setup_5.2021.080.3.exe, located in the Zip file under Windows.

Virtual Dub - http://www.virtualdub2.com/

Limovie - https://occultations.org/observing/software/, there are other locations and versions

SharpCap - https: //www.sharpcap.co.uk/. The free version does not support plate solving but does record digital and analog video.

Pyote/Pymovie – Available at https:// occultations.org/observing/software/pymovie/

Occult - Available via occultations.org at https://occultations.org/sw/occult/occult4.htm

Software links for these and other tools are given on https://occultations.org under the observing>software tab.

The planetarium software with prepoint assistance capabilities can be found here:

Guide9 – No longer supported but still quite useful. It is freely available from other observers. The website is https://www.projectpluto.com/.

Computer Aided Astronomu (C2A) – http:// C2A

Another site with a list of free software is https://www.asteroidoccultation.com/observations/.