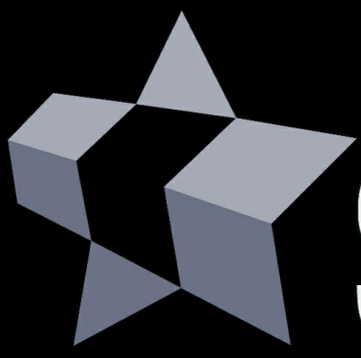


StarTools

Download

One ZIP archive contains Windows, macOS and Linux versions of StarTools. **Do not download StarTools from anywhere else but startools.org.** We do not allow distribution of StarTools by any other party, on-line or off-line.

Please consult the FAQ section about configuring your system properly.

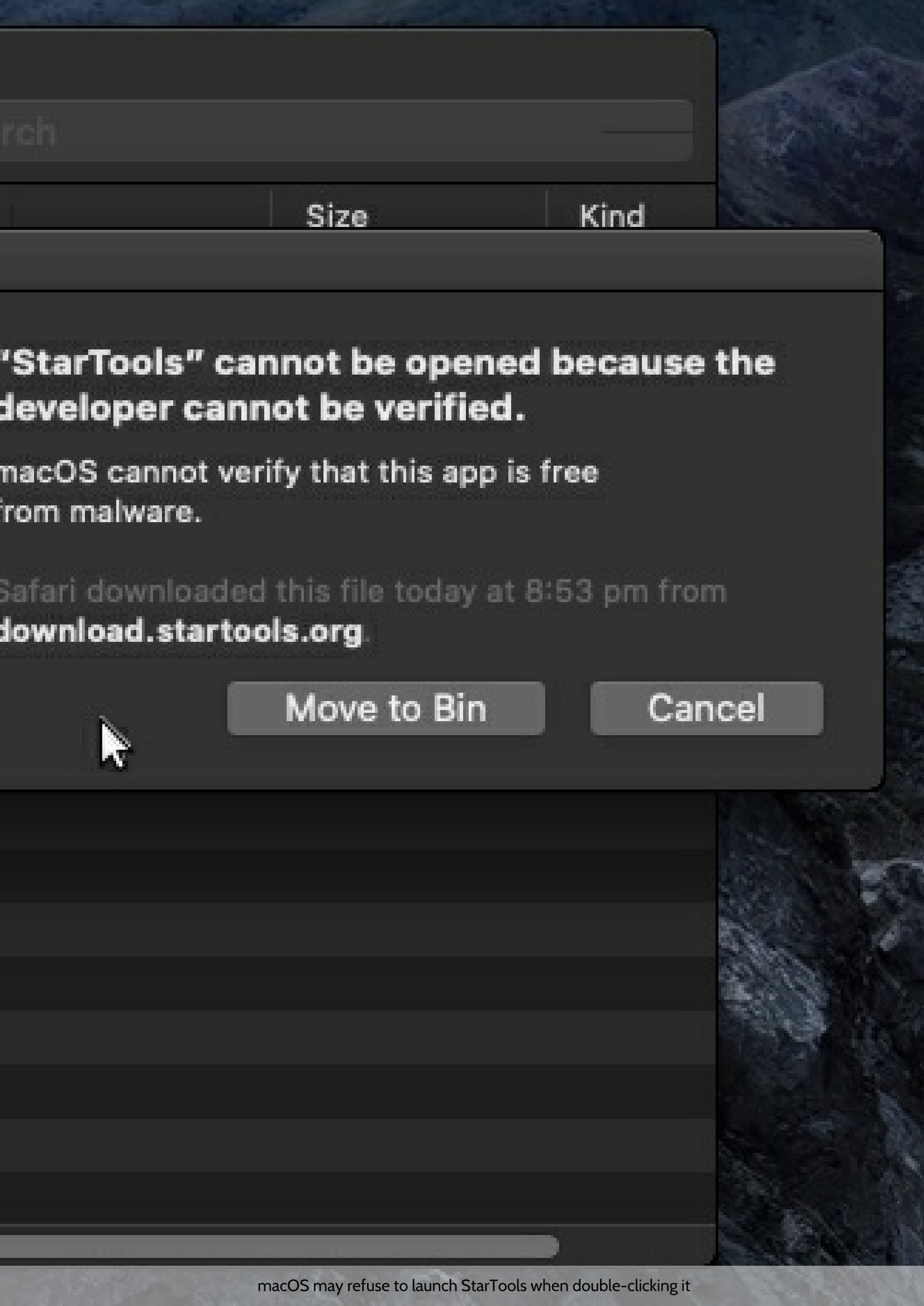
macOS notes

Users may have to "unquarantine" StarTools, before the OS allows it to run. Alternatively StarTools can be launched via control + clicking (right clicking) on the application, Show Package Contents, navigating to Contents/MacOS and clicking on the application.

The following two commands unquarantines StarTools on macOS 13 Ventura and later;

```
sudo xattr -d -rs com.apple.quarantine StarTools.app
```

and then;

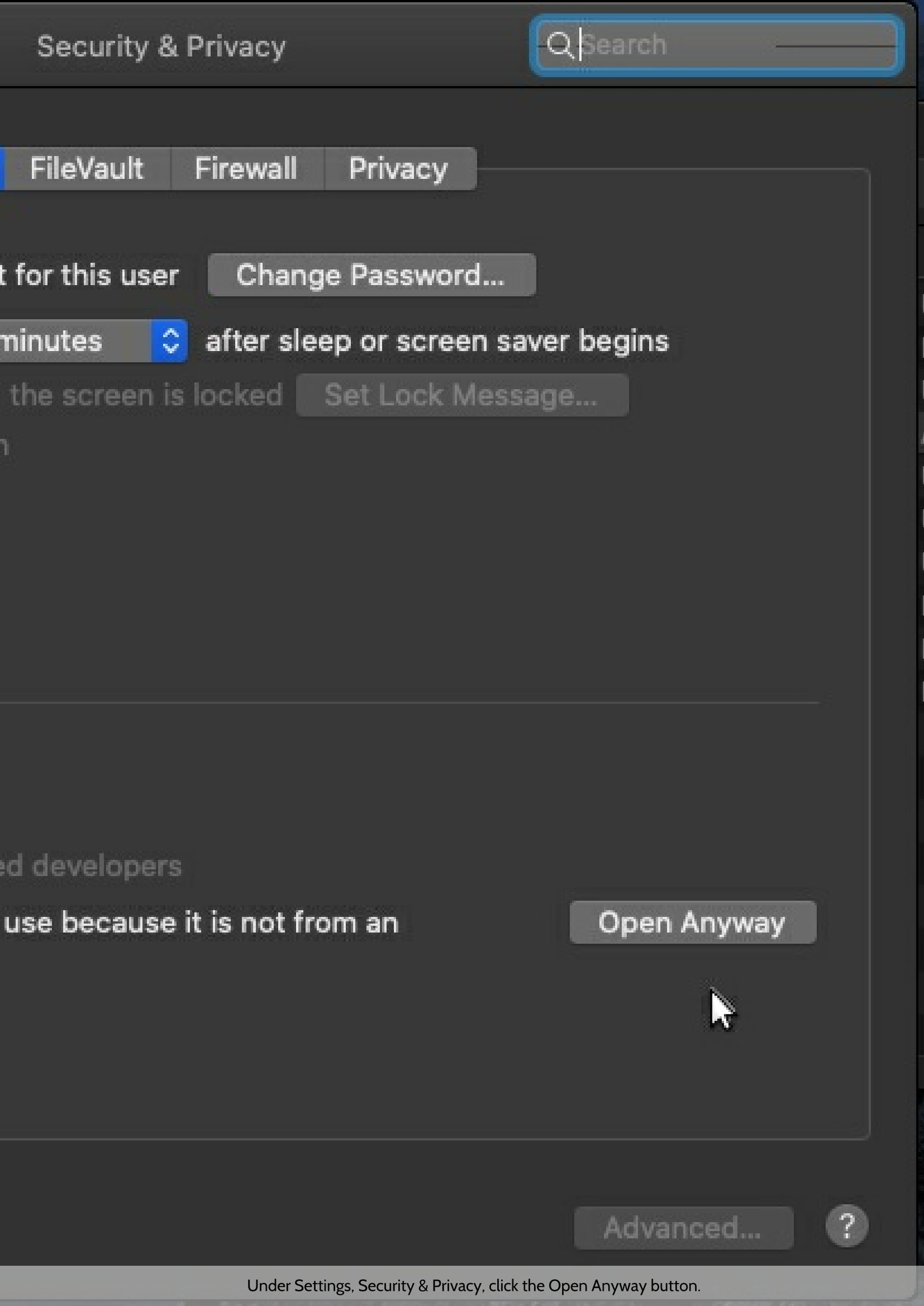


macOS may refuse to launch StarTools when double-clicking it

```
sudo xattr -d -rs com.apple.provenance StarTools.app
```

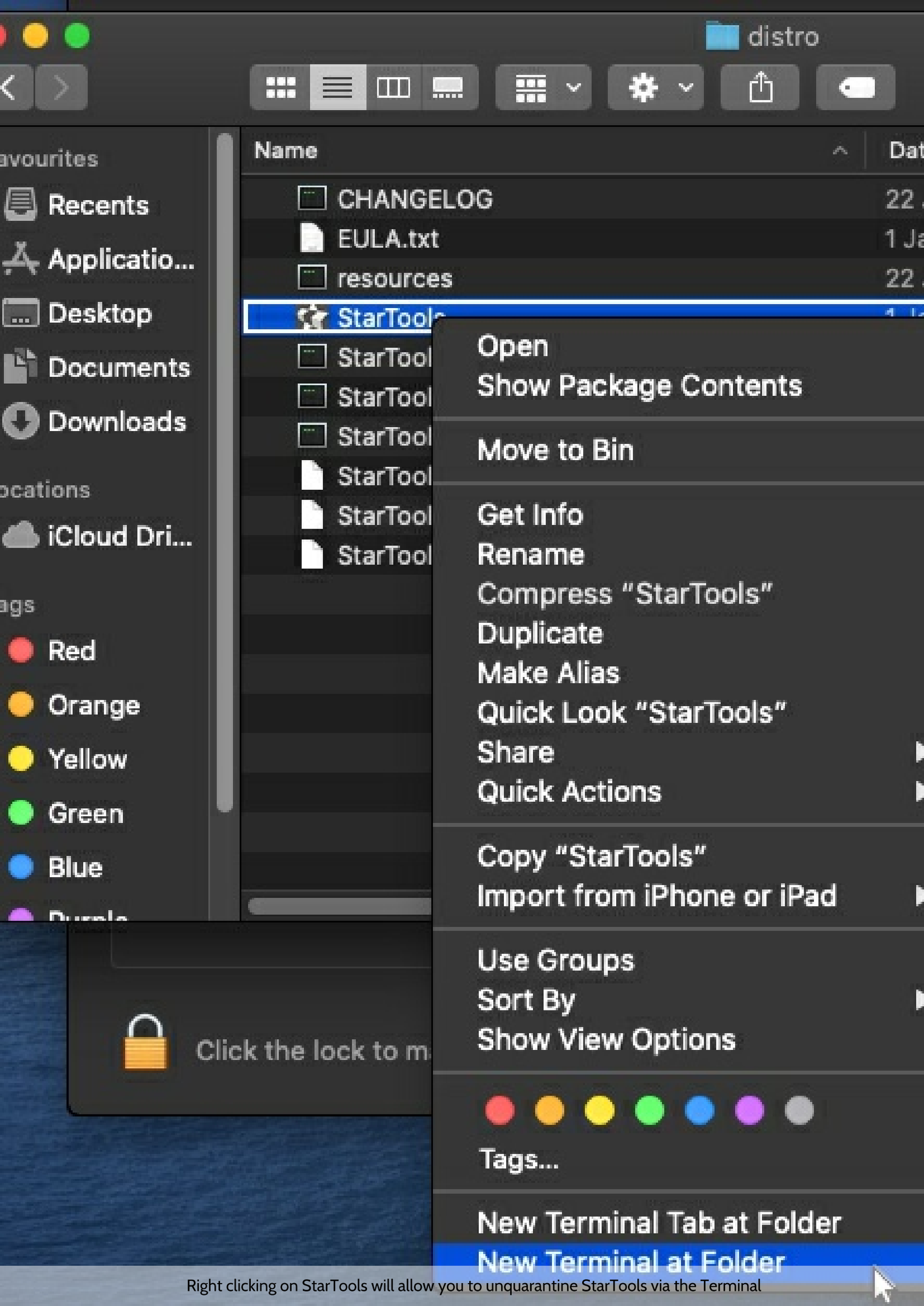
The following single command unquarantines StarTools on macOS 12 and earlier;

```
xattr -dr com.apple.quarantine StarTools.app
```

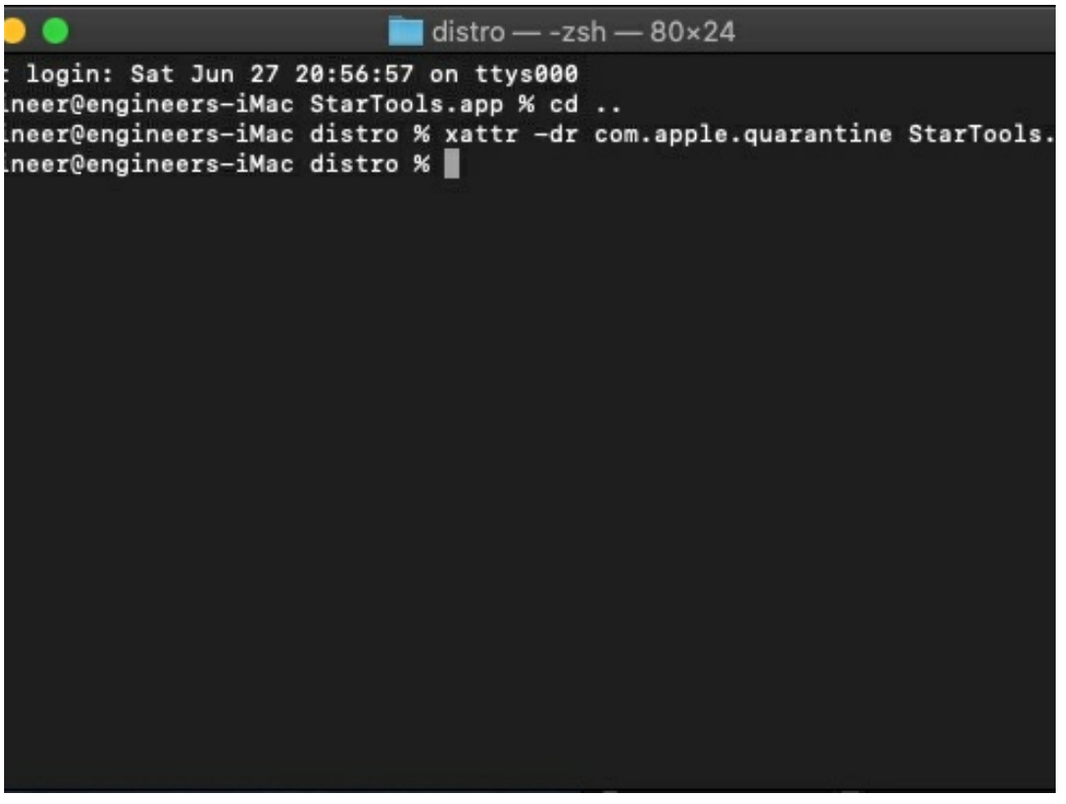


Under Settings, Security & Privacy, click the Open Anyway button.

Please see the screenshots for more information, or download this detailed guide.



Right clicking on StarTools will allow you to unquarantine StarTools via the Terminal



These two commands should succesfully unquarantine StarTools

Download stable

StarTools 1.8.527 Maintenance Release 3 for Windows, macOS (Universal Binary with native M1 support), and Linux

Latest version released 2023-11-15 (YYYY/MM/DD), size 6.8MB

Download ZIP

https://download.startools.org/StarTools_1_8_527_MR3.z

Download bleeding edge

StarTools 1.9.565 Beta 7 for Windows, macOS (Universal Binary with native M1/M2 support), and Linux

Multi-language support EN, DE, ES is available via *config* file

Latest version released 2024-03-24 (YYYY/MM/DD), size 7.1MB

Please note beta versions may still exhibit some flaws or instabilities. Documentation may be incomplete. Please use at your own risk.

Download ZIP

https://download.startools.org/StarTools_1_9_565_beta.z

Unofficial English manual

Unofficial English StarTools 1.8 Manual (164MB), last updated 2022-09-30, improved with extra tips, tricks and information from various sources.

Many thanks to J. Scharmann for putting together this excellent work, as well as its German translation.

Download PDF

https://download.startools.org/StarTools%20Manual%20V1_

Unofficial German manual / Inoffizielle Deutsche Anleitung

Inoffizielle StarTools 1.8 Anleitung in Deutsch (164MB), letztes Update 2022-09-30.

Vielen Dank an J. Scharmann für die ausgezeichnete Übersetzung.

PDF herunterladen

https://download.startools.org/StarTools%20Anleitung%20V

Unoffical Spanish manual / Manual en Espanol

Manual de StarToolsBasado en la versión 1.8 al español (19MB). Ultima actualizacion 2022-03-09.

Muchas gracias a C. R. Guixé por la excelente traducción.

Descargar

https://download.startools.org/StarTools_Manual_V1_8_Spa

English manual

StarTools uses AIFE.AI for content management and digital footprint. This means that the website content doubles as a printable manual and vice-versa. This content is also available as a smartphone/tablet app, virtual flipbook, virtual reality (VR) experience and more. This content will always be up-to-date with the latest information.

Download PDF

https://aife.me/startools-prod-pdf/modules

Technical FAQ

These are some questions that get asked frequently.

What are the CPU, GPU, RAM and storage requirements?

The minimum specifications to run StarTools, increases with the resolution of the dataset you intend to process.

For best results, 16GB and a modern many-core CPU are recommended, in addition to running from a RAM disk (or alternatively a Solid State Drive). **You should ensure your operating system is configured to provide an additional 2x-3x as much virtual memory as physical memory**.

As of version 1.7 StarTools is fully GPU accelerated. Heavy arithmetic is offloaded to any OpenCL 1.1 compliant GPU present in your system. Significant processing speed can be seen on even modest, older GPUs.

Regardless of your machine's specification, consider binning your data if your data is oversampled.

What Operating systems does StarTools work on?

StarTools works on all modern versions of Windows, Linux and macOS.

Windows

StarTools works on all 64-bit versions of Windows. This means that StarTools runs on Windows 7, Windows 8, Windows 10 and Windows 11.

macOS

StarTools works on macOS versions from 10.7 onwards and includes native support for M1 Apple Silicon.

Linux

StarTools works on 64-bit Linux distributions with X11, GLIBC 2.29 and Zenity.

Can StarTools's UI be adapted to my 4K or high-DPI display?

StarTools is display-device agnostic, but can be configured to display its GUI at a 4x higher resolution to accommodate high-DPI devices and 4K displays.

To enable this mode, create an empty file called '**highdpi**' (NOTE: without extension or file type) in the StarTools folder where the executable is launched from.

Alternatively it is also possible to have StarTools to max out the available screen real-estate by performing the same procedure, except with a file called '**largeui**'.

You may have to configure your operating system to *not* scale up StarTools. Wayland users may be interested in this link, while Windows 10 users may be interested in this link.

Why does the StarTools crash under heavy load on my older macOS device?

If StarTools appears to be unstable on your older (up to 2014) macOS device, particularly when using bigger datasets, then this may be due to an underpowered iGPU solution. Particularly the second and third generation Intel-based macOS devices are equipped with minimal GPU acceleration.

In such cases, the intergrated GPU may get overwhelmed and time out causing a watchdog to reset the graphics driver. If this is the case, then the best course of action is to force StarTools to use the CPU, rather than the GPU. To do so, create an empty file named 'openclforcecpu.cfg' (case sensitive - e.g. all lower case) in the StarTools folder.

Why does the GPU version appear unstable on my Windows machine?

If your older or lower-powered GPU or iGPU appears to be unstable on your Windows operating system in StarTools, and you think it may be struggling with any larger datasets you give it, then the issue may be caused an unsuitable Timeout Detection and Recovery (TDR) allowance.

TDR is a feature that is meant to prevent GPU "hangs". If a task "hangs" the GPU for longer than 2 seconds, the TDR kicks in and will reset the GPU driver.

This Windows default behaviour is not suited for compute-heavy tasks as found in StarTools. Fortunately, it can be corrected by making modifications to the default 2 second timeout value.

Modifying TDR behaviour in Windows

https://www.pugetsystems.com/labs/hpc/Working-around-TDR-in-Windows-for-a-better-GPU-computing-experience-777/

Why does StarTools crash in some demanding modules like SVDecon?

If you find StarTools sometimes crashes under heavy load in demanding modules like SVDecon, this may be due to your Operating System being incorrectly configured to provide enough virtual memory.

Ideally, you should configure your system to provide "unlimited" virtual memory. However, if this is not possible or desirable, a good rule of thumb is to make sure your operating system can provide at least 2x-3x the amount of physical memory as additional virtual memory (see tutorial for Windows, or install a package like SwapSpace on your Linux distro).

My virus scanner says StarTools contains a virus or a trojan - what gives?

Some less reputable virus scanners such as BitDefender, Norton and SpyBot may falsely report StarTools as a Trojan or Potentially Unwanted Program (due to malware that carries a similar name). Despite multiple users going through the lengths of getting StarTools white listed, the same problem pops up every 6 months or so.

Please see this post in the forums for more information.

Never download StarTools from anywhere else but startools.org. We do not allow distribution of StarTools by any other party, on-line or off-line. If you find a copy of StarTools not hosted on startools.org, please let us know.

If despite the above information you feel your StarTools download does indeed contain malware, please contact us as soon as possible.

Does StarTools load up all my CPU cores?

StarTools uses all your CPU's cores to speed up processing in situations where it makes sense. As of 1.7, however, StarTools will offload suitable, heavy arithmetic to your GPU as well.

Please note that using multiple cores for tasks that are memory bus constrained, can actually have an adverse effect on performance, so you may find that not all algorithms and modules use all cores all of the time.

My system only reports partial GPU usage, what gives?

As of version 1.7, StarTools offloads suitable, heavy arithmetic to your system's GPU.

Depending on your GPU monitoring application, it may appear your GPU is only used partially. This is not the case; rest assured your GPU solution is used and loaded up 100% where possible.

As opposed to video rendering or gaming, GPU usage in image processing tends to happens in *short*, intense bursts; during most routines the CPU is still being used for a lot of things that GPUs are really bad at.

Only tasks that;

- can be parallelised
- are rather "dumb" in terms of logic (with few if-then-else branches)
- perform a lot of complex calculations
- AND process large amounts of data
- complete in milliseconds (up to a couple of seconds or so)

...are suitable for momentary GPU acceleration. As a result, during processing, you should see processing switch back and forth between CPU and GPU.

Depending on how your monitoring application measures GPU usage, these bursts may be too short to register. Spikes are usually averaged out over time (usually 1000ms) by your monitoring application (with CPU intermittently doing its thing, leaving GPU momentarily unused). With the GPU loaded only for short times (e.g. less than 1000ms), the monitoring application makes it appear only partial usage is happening. That is, as you now hopefully understand, not the case! During any GPU usage the GPU is *fully* loaded up.

If your monitoring application can show maximum values (on Windows you can try GPU-Z or Afterburner, on Linux the Psensor application), you will almost immediately see the GPU being maxed out. For examples of heavy sustained GPU activity, try the Deconvolution module with a high number of iterations.

Is my GPU or iGPU compatible?

StarTools supports virtually all modern GPUs and iGPUs on all modern Operating Systems.

StarTools is compatible with any GPU drivers that support OpenCL 1.1 or later. Almost all GPU released after ~2012 have such drivers are available.

StarTools GPU acceleration has been successfully tested on Windows, macOS and Linux with;

- Nvida GT/GTS/GTX 400, 500, 600, 700, 900 and 1000 series
- Nvidia RTX 2000 series
- AMD HD 6700 series, HD 7800 series, HD 7900 series, R9 series, RX 400/500 series, RX Vega series, RX 5000 series
- Intel HD 4000, HD 5000, UHD 620, UHD 630

Please note that if you card's chipset is not listed, StarTools may still work. If it does not (or does not do so reliably), please contact us.

Why is the ZIP file so incredibly small? Do I have to install Java or .NET?

StarTools is a completely native, self-contained application that does not require any further installation of helper libraries or run-time frameworks.

Everything in StarTools was written from the ground-up and has been hand-optimised, from the image processing algorithms to the UI library, from the file importing to the font renderers, for the multi-platform framework to the decompression routines. Why? Because we feel it is important to be master of our own destiny (and make you master of your own destiny by extension) and fundamentally understand each and every ingredient that goes into the mix.

Fundamentally understanding the different algorithms, optimisation techniques and data structures gives us the ability to push the boundaries and create truly novel techniques and algorithm implementations.

Please note that Linux users, will still need X11, GLIB 2.29, zenity and wmctrl installed on their system.

Why does StarTools keep throwing "Could not create Tracking data files" popups?

StarTools is a unique piece of software that keeps track of signal evolution and noise propagation. The data it needs to store and access may grow to many gigabytes. As such StarTools uses your storage memory (hard drive or SSD drive) to store this data. If StarTools is unable to write this data, a message may appear alerting you to this.

If this suddenly happens, for no apparent reason, then this may be due to insufficient disk space, or may be caused by some sort of OS-level software component that has started blocking writes. Software that may interdict data access may be anti-virus software or automated backup solutions.

Please not that some operating systems can also put drives into read-only mode if they detect severe drive issues or imminent hardware failure.

I wish someone would write a keygen or crack for StarTools

If you had bothered to read the 'buy' page, you would have learned that you could spare yourself the effort of writing a keygen or crack - if you can't afford the license fee and you are a genuine enthusiast, we're happy to work something out!

We're not some big evil company and we're not in it for the money. Heck, we make a loss on this all for the love of the hobby and are not even covering our costs as it is.

Besides, ST's release cycle is one of continuous updates - you'd be continuously waiting for the next crack or keygen in order to avail of the latest features and bug fixes (of which there can be several a month).

Advanced image processing software for astrophotography

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