AstroMax Quantum

Installation guide — the program, and the outside tools it can call if you have them

Install AstroMax Quantum and you are ready to work. Plate solving and colour calibration are built in, with their own star catalogue inside the installation — no second program, no database download, no internet. Everything below is optional.

What you need, at a glance

Software	What it gives you	Required?
AstroMax Quantum	everything: calibration, stacking, plate solving, colour calibration, stretching, palettes, masks, mosaics, and its own deconvolution, denoising and star removal	**yes — and nothing else**
ASTAP + D50 database	a second opinion on the rare frame the built-in solver cannot place	optional
RC-Astro CLI (BlurXTerminator, NoiseXTerminator, StarXTerminator)	a second engine for the same three jobs, if you already own them	optional
GraXpert	background extraction	optional

None of the optional tools ships inside AstroMax Quantum; each is downloaded and licensed from its own author. Without them the program works normally — those buttons simply say the tool was not found.

1 · Installing AstroMax Quantum

macOS

- Open the `.dmg` and drag **AstroMax Quantum** into your Applications folder. Take the **arm64** build on Apple silicon and the **Intel** build on an Intel Mac.
- The first launch is refused: “cannot be opened because the developer cannot be verified.” That is macOS being careful about an application it has not seen before.
- **Right-click** (or Control-click) the app and choose **Open**, then **Open** again in the dialog. macOS remembers the answer — from then on it opens normally.

Windows

- Run **AstroMax Quantum Setup.exe**.
- SmartScreen may warn about an unknown publisher: **More info** → **Run anyway**.
- **Then do section 2 before you stack anything.** On Windows that step is not optional.

First run

There is a 30-day trial. After that the program asks for a licence key, which is tied to one computer — it shows a **Computer ID** to send when buying. The key for AstroMax Quantum is separate from the keys for the AstroMax PixInsight scripts.

2 · Windows: tell your antivirus about AstroMax

> **If AstroMax disappears in the middle of stacking** — no error, no message, the window simply gone — this is why. It is not a crash the program can report, because Windows shuts it down on the spot.

Stacking writes tens of thousands of large temporary files. Antivirus software inserts itself into a running program to inspect every one of them, and under that load the two can end up damaging each other's memory. Windows notices and ends the program instantly, which is why nothing is ever written down. Excluding AstroMax costs you nothing in safety — it is one program you installed yourself.

Windows Defender, click by click

- Press the Windows key, type **Windows Security**, open it.
- **Virus & threat protection** → under *Virus & threat protection settings* click **Manage settings**.
- Scroll to the bottom: **Exclusions** → **Add or remove exclusions** → **Add an exclusion**.
- Add these four:

Type	What to add
Folder	`%LOCALAPPDATA%\Programs\astromax-pp` — where the program is installed
Folder	`%APPDATA%\AstroMax Quantum` — settings and logs
Folder	your working folder — where your lights are and where you stack. Pick the **top** folder, so everything under it is covered
Process	`AstroMax Quantum.exe` — typed by name, no path

Or, in a PowerShell opened with **Run as administrator**, two lines — replace `D:\Astro` with your own working folder:

```
Add-MpPreference -ExclusionPath "$env:LOCALAPPDATA\Programs\astromax-pp","$env:APPDATA\AstroMax Quantum","D:\Astro"
Add-MpPreference -ExclusionProcess "AstroMax Quantum.exe"
```

Restart the computer afterwards. Restarting AstroMax alone is not enough — an antivirus only lets go of a program that starts fresh.

Using something other than Defender — Avast, Norton, McAfee, Kaspersky, Bitdefender? The same three folders and the same process need excluding there; only the menus differ. Look for *Exclusions*, *Exceptions* or *Allow list* in its settings.

None of this applies to macOS.

3 · What is already inside

These used to need ASTAP and a downloaded star database. They no longer do — both catalogues travel inside the installation, about 278 MB in all:

Job	What it uses
Plate solving — Solve, Star Alignment, mosaics, comet stacking	the built-in solver and its own astrometric catalogue. It matches star patterns directly, which is why stacking does not have to solve every frame one by one.
Colour calibration (SPCC)	its own photometric catalogue, carrying each star's measured colour, so a star in your image can be compared against a real one.

Nothing is fetched over the network and nothing has to be kept up to date. Both catalogues are built from **Gaia DR3** (ESA/Gaia/DPAC), redistributed under CC BY 4.0.

4 · ASTAP — optional, as a second opinion

AstroMax Quantum solves with its own solver first. ASTAP is only asked when that one cannot place a frame, or when its answer does not pass the program's own check — on ordinary data that is rare. Install it if you want that safety net; skip it and everything still works.

- Download ASTAP from **www.hnsky.org/astap.htm** and install it normally. On macOS it lands in `/Applications/ASTAP.app`, on Windows in `C:\Program Files\astap`. AstroMax Quantum finds both by itself.
- Add **one** star database, **D50** — that is all ASTAP needs to solve. The **V50** database is no longer needed for anything: colour calibration reads the catalogue inside AstroMax Quantum. If you already have V50, it does no harm.
- The database is a folder of files named like `d50_1448.1476`, one per patch of sky. Put it where ASTAP itself keeps it — on Windows that is the ASTAP program folder, on macOS one of `/usr/local/opt/astap`, `/opt/astap` or `~/astap`.

5 · RC-Astro CLI — optional

You do not have to buy these. Deconvolution, Denoise and Star removal are built into AstroMax Quantum and are its own work — they cost nothing extra and need no download. This section is only for people who already own the RC-Astro tools and want them as a second opinion: each of those three buttons opens a small window where you choose which engine runs, so the two can be compared on your own picture.

Take the CLI version, not the PixInsight plug-in. They are separate downloads. The plug-in only runs inside PixInsight; AstroMax Quantum calls the command-line build.

- Buy and download from **www.rc-astro.com**, choosing the **CLI / command line** build for your system.
- Each product — BlurXTerminator, NoiseXTerminator, StarXTerminator — is licensed separately, and one licence covers the plug-in and the CLI.
- The CLI is **not** an application bundle: it is a plain executable in a folder, so it never appears in Launchpad or the Start menu. Do not go looking for an icon.
- Run each tool once from its own installer or terminal so it can download its AI model. Until that is done the first call from any program fails.
- It usually lands in `/Applications/RC-Astro/CLI/rc-astro` or `/usr/local/bin/rc-astro` on macOS, and `C:\Program Files\RC-Astro\CLI\rc-astro.exe` on Windows.

6 · GraXpert — optional

- Free, from **www.graxpert.com** (or its GitHub releases page).
- Install it normally; on macOS that is `/Applications/GraXpert.app`.
- Used by the **Background extraction** and **GraXpert** buttons. Run it before separating stars: a gradient left in the background ends up in the star layer as a coloured pedestal.

7 · Telling AstroMax Quantum where the optional tools are

The program looks in the usual places by itself. When something is installed somewhere else, say so once:

- Open ■ **Tools…** in the bar at the top of the window.
- Point each entry at the program file — for RC-Astro that is the `rc-astro` executable, not a folder.
- It is asked once and remembered between sessions.

At startup the Console line at the bottom names anything still missing. Missing optional tools are not a problem — it is telling you which buttons will not do anything.

If something does not work

What you see	What it means
AstroMax disappears while stacking, with no message at all	**Windows:** the antivirus — see section 2. Windows ends the program itself, so it never gets to report anything.
Stacking refuses to start and names the disk space it needs	It is counted before anything is written, on purpose. Free that much, or stack fewer frames at a time.
"… was not found. Install it, then say where it is"	An optional tool is not installed, or not where the program looked. Install it, then ■ **Tools…**
"StarXTerminator failed. Open it manually once to set the AI model."	The CLI is there but has not downloaded its model yet. Run it once on its own.
"No solution found"	Check that the image header carries focal length and pixel size — without them there is no scale to start from. Leave **Downsample** on **0 (auto)**. Installing ASTAP (section 4) gives such a frame a second chance.
A process did nothing and you want to know why	The Console line at the bottom says so, and the full log is kept with the program's settings. **Copy console & report bug** collects all of it in one go.

AstroMax Studio · astromax.studio — this guide covers installation only; the program itself explains each control in its tooltips.