



# PlanAstro

## Deep Sky Astrophotography Planner

How to use the app — complete illustrated guide · Version 2.8

Everything below matches the app as it works today: unlimited whole-sky panning, one shared object-type key, telescope and mount databases with Barlow/reducer support, automatic meridian and pointing windows, and J2000/ICRS catalogue positions checked against SIMBAD.

# 1. Getting started

Set your location first — everything else depends on it. Open Conditions and either use your device location or type a place. PlanAstro then works out sunset, twilight, true darkness, moonrise and moonset for your night. Your signed-in location returns before planning starts, and a recent forecast for those coordinates appears while fresh weather loads.

- Use my location and Reset location are stacked for easier tapping on a phone, with your local time shown clearly above them.
- Time control opens as a small panel attached to the clock in the bottom-right corner and steps forwards and backwards through the night; every chart, altitude graph and pointing window follows it.
- Display controls survey imagery, labels, constellation art, lines and boundaries, degree-labelled grids and the horizon.
- Create an account or sign in at the start, or later from Menu → My Profile, to keep Favorites and Imaged targets private to your account and synchronized across browsers and devices.
- The Menu holds My Profile, Location settings, My Archive, ISS Tracker and About Us, and stays open when you close a panel you opened from it.
- On phones, panels and action rows fit the live screen and its safe margins, including narrow portrait and landscape displays.

## 2. The sky chart

Drag to pan, pinch or scroll to zoom. Panning is unlimited across the whole celestial sphere, so you can study objects that are below your horizon or have not risen yet.

- Below-horizon sky is only lightly softened. Objects there still draw, label, search and select normally.
- Choose NASA 2MASS J (default), 2MASS K, WISE W1, or Pan-STARRS1 + SkyMapper true colour. Sky Survey turns all imagery on or off.
- The centre control resets to a 101° field of view; manual zoom still reaches 180°. Equatorial and Alt-az grids include degree labels.
- Constellation art sets artwork, official IAU boundaries and figure-line brightness together (10% by default). Star size starts at 1.40×
- Tap the compass to steer smoothly through the full north, east, south and west range; tap it again to switch motion off.
- The meridian line marks where objects reach their highest point; transit times appear on every object card.
- With a rig saved, the chart footer shows your field of view and arcsec/pixel.

## 3. Finding targets

Open Search and type a name, catalogue number or common name — M31, NGC 7000, Sh2-155, "Veil". The index covers more than 22,000 deep sky objects and narrows as you type.

- Browse groups objects by catalogue and type so you can explore instead of searching. Search Filters gathers object type, catalogue, Tonight's best for my rig and Sort into one dropdown above

the results.

- The object-type key appears under the chart and above the target list. It is one key in two places: tap emission nebula, reflection nebula, planetary nebula, supernova remnant, galaxy, open cluster or globular cluster and both stay in sync.
- Tonight's Best for my rig suggests what is well placed right now for your location, gear and sky.
- Favorites and Imaged are full card lists. Mark either state from an object card; signed-in lists are private and account-synchronized.

## 4. Object cards

Tap any object to open its card. Expanded, a card shows coordinates, type, size, magnitude, tonight's window, an altitude timeline with your usable pointing window shaded and the moon overlaid, plus the framing assistant.

- Locate on sky chart centres the chart; Set as target sits right beside it.
- Add to Favorites and Imaged update the private lists attached to your signed-in account.
- FOV Frame, Sky Atlas and SIMBAD-VizieR sit together above the picture, and both open inside that same picture area, so they never cover Search.
- A "Position approximate" note appears when a catalogue position could not be confirmed.

## 5. Planets and the Moon

Mercury, Venus, Mars, Jupiter, Saturn, Uranus and Neptune are drawn on the chart along with the Moon, each with its own symbol and label. Tap one to open a card just like a deep sky object: position, altitude through the night, transit time and a picture of the body. The Moon also drives the moon-interference advice in Conditions. The Sun is used for twilight and darkness but is not a chart target.

## 6. Tonight's plan

The planning view sequences your chosen targets across the night: when each clears your minimum altitude, when it transits, and when it drops or the sky brightens. Use it to decide the shooting order and how much real time each target has.

- Blocked directions, the meridian flip and your lowest usable altitude are all taken into account, so the plan matches what your mount can really do.
- Move the clock and the whole plan re-reads for that moment.

## 7. My Gear

Save your real equipment once and PlanAstro tailors framing and pointing windows to it. You can keep up to three rigs and switch between them.

- Telescope — tap the field and a searchable list drops down inside it; typing narrows the list. Selecting a model fills aperture, focal length and f-ratio, all still editable. Not listed? Enter your own and submit it for the community list.
- Camera — sensor format and pixel size drive field of view and arcsec/pixel.

- Barlow / reducer — enter one multiplier (0.8 for a reducer, 2 for a Barlow). Effective focal length, f-ratio, field of view and image scale update, while the telescope's native specs are kept.
- Mount / tracking — the same searchable list. Mount type and tracking style feed the pointing window and meridian handling; strain-wave mounts skip the flip.
- Lowest usable altitude and blocked directions tell PlanAstro about trees, roofs and hills so the shaded window is honest.
- Connect to mount (live GoTo) is shown as disabled — live control comes in a later release.

## 8. Framing and image scale

Once a rig is saved, the chart draws your camera's field of view as a frame you can rotate over any target and shows arcsec/pixel so you can judge sampling. The framing sliders have large finger-friendly touch areas. Use it to check whether a large nebula fits or whether you need a mosaic.

- Framing Assistance adapts to the view. Sky Atlas provides Survey Zoom, camera Rotate, Frame Zoom, Shift X and Shift Y, with the footprint updating live inside Aladin Lite. The regular FOV Frame uses the same framing controls without a separate Rotate sky slider. The controls sit below the live atlas so it stays wide, tall and easy to close.

## 9. Conditions, darkness and filters

The Conditions pill opens the night at a glance, and each tile opens a fuller card.

- Weather — cloud cover, transparency, seeing, temperature and humidity hour by hour. It loads by itself once your location is set and retries quietly if the network hiccups. A recent forecast is saved for those coordinates and returns immediately after sign-in while fresh data loads.
- Sky darkness (Bortle) — how dark your site is; it feeds target recommendations and realistic expectations for faint broadband objects.
- Sky state — daylight, civil, nautical or astronomical twilight, or true dark, for the time you are looking at.
- Tonight's darkness — how many hours the sun stays below  $-18^\circ$ , so you know when to do calibration, focusing and framing.
- Moon — phase, rise and set, and how much of the darkness it actually spoils, ending in a plain verdict: a broadband night, or a narrowband night.
- Filter kit — tick the filters you own, add your own names, and PlanAstro recommends which to use for the night and target in front of you.

## 10. Sky Atlas and SIMBAD-VizieR

On an object card, tap Sky Atlas beside FOV Frame to open a larger interactive Aladin Lite view. It starts on DSS2 colour and aims at the object in the current card every time, even after you have opened another target. Pan and zoom it freely; tap Close atlas to return.

- Your camera footprint is drawn once, as a true sky-coordinate rectangle inside Aladin. It scales with Survey Zoom and follows the sky as you pan instead of leaving a fixed duplicate frame behind.
- Framing Assistance sits below the atlas. Survey Zoom changes the atlas field; Rotate, Frame Zoom

and Shift X/Y update the live camera footprint. The regular FOV Frame uses the same framing controls without Rotate sky.

- The image credit is bottom-centred, clear of the ICRS coordinates; Aladin's own logo and links remain visible and unchanged.
- SIMBAD-VizieR sits beside the atlas and opens the object's professional reference in the same card area. The Open button remains available if the external page is restricted by the browser.

Credits: PlanAstro uses an iFrame in the framing assistance panel via Aladin Lite, developed and maintained by the Centre de Données astronomiques de Strasbourg (CDS), Strasbourg Astronomical Observatory, France. Image Credit: CDS Aladin Sky Atlas / the survey selected in the view.

## 11. My Archive

Menu → My Archive turns the frames you have already captured into a picture of what you have really imaged. PlanAstro reads only the header of each light frame (FITS or XISF) to learn the target, date, exposure, filter and equipment — your image data never leaves your device, and your original files are never changed.

- Connect a source — local files or a folder, or Google Drive, Dropbox or OneDrive. Refresh sources re-scans every connected folder.
- Auto-refresh daily — switch it on and pick a time (03:00 by default); new frames are indexed without you doing anything.
- Cancel an upload mid-way; anything already indexed stays, and nothing is removed from your originals.
- Target cards show total integration time, sessions, filters, imaging dates and a preview thumbnail.
- Search and sort by most integration, newest or oldest imaging date, recently or first uploaded, name, or most sessions; filter by object type and progress.
- Progress — mark a target In progress, Review or Complete and see the badge on its card.
- Rename any target with your own label; it is used in cards, search and Locate, and resets to the catalogue name whenever you want.
- Duplicate designations are merged — Sh2-155 and C9 land in one target folder, keeping both names.
- An archived target with coordinates but no catalogue match is still marked on the sky chart.

## 12. ISS Tracker

Menu → ISS Tracker follows the International Space Station live and finds the moments worth photographing.

- A 3D globe shows the current position, the ground track from 30 minutes back to 90 minutes ahead, day/night shading, altitude and speed. Drag to rotate, scroll or pinch to zoom, double-tap to recentre, and use Auto-follow to keep the station in view.
- Find ISS passes · next 5 nights lists every visible pass for your location with times, direction, maximum altitude and brightness. Tap a pass to draw it on the globe.
- Solar and lunar transits are flagged. They last under a second: shoot high-speed video (60fps or more) starting 30 seconds early at 1/1000s or faster, and confirm the centre-line a day ahead.
- For a normal pass, a wide lens on a fixed tripod with 10–30 second exposures gives a clean streak.

Solar transits require a certified solar filter over the front of the optic at all times. Never point an unfiltered camera or telescope at the Sun.

## 13. Favorites, Imaged and exporting

- Favorites — star objects to revisit; the Favorites tab is a clean saved list with Tonight's best and Sort, and signed-in favorites follow your account across browsers and devices.
- Imaged — mark an object from its card and find it again under Search → Imaged; this list is private and account-synchronized.
- My Archive — the detailed record of light frames, integration totals and progress.
- High-resolution export — save the chart, exactly as you set it up, as a large image for sharing or printing.
- The guide itself can be shared, printed or downloaded as this PDF from the buttons at the top of the guide window.

## 14. Comfort, gestures and installing

- Night vision — a red screen mode in Display that protects your dark adaptation at the telescope.
- High contrast and text size sit beside it, so the app stays readable in the dark or in daylight.
- Gestures — pull a panel down from its top edge, or swipe it sideways, to close it. The X button, Escape and tapping the sky all work too.
- Install it — add PlanAstro to your home screen for a full-screen app that keeps working when the signal at your site does not.

## 15. Help and support

Menu → About Us holds the story behind PlanAstro, this guide, the full image credits list, and Contact support. Sign in and you can message the team from inside the app: pick a topic — question, concern, suggestion, bug report or other — and the whole conversation, including every reply, stays in the app tied to your account.

## 16. How accurate is it?

NGC and IC objects come from OpenNGC; other catalogues use their published tables. Chart positions use validated J2000/ICRS degrees. Every identifier that resolves is reconciled against SIMBAD, the professional astronomical database, and its coordinates are used. Objects that could not be confirmed keep their source position and are flagged "Position approximate" on the card. Large nebulae keep a framing centre where SIMBAD's position is coarse. Rise, transit, set, twilight and moon calculations use standard astronomical algorithms for your exact coordinates and time.

- The owner-only catalogue editor searches NGC, IC, Abell, Arp and Sh2 records and can correct coordinates, both brightness values, type, constellation and verification. It and the changelog stay hidden from ordinary accounts.
- The owner support inbox marks a ticket read when it is opened or answered, and provides confirmed deletion for individual messages or whole tickets.

## 17. Tips

- Set your lowest usable altitude honestly —  $30^\circ$  gives far better data than  $15^\circ$ .
- Plan around the meridian: the hour either side of transit is the cleanest part of the night.
- Use moon times, not just phase — a bright moon that sets at 01:00 still leaves a good night.
- Point My Archive at your imaging folder once and let the daily refresh keep your integration totals honest.
- Add the app to your home screen for a full-screen, offline-capable experience.

Clear skies. — PlanAstro