

FieldNotes: Astro Color Mixer, Targeted Colour Control

Band shaping, Range Mask targeting, probe feedback and the pass system in PixInsight. My working reference for the second half of the tool, where the sliders stop being global and start being surgical.

The workflow at a glance



Where this sits

The first half of the tool is a set of sliders: pick a colour family, push hue, saturation or luminance, judge by eye. That is enough for broad work and it is where most sessions start.

This guide is about the second half. The power is not in the sliders, it is in controlling **which pixels the sliders are allowed to touch**. Three mechanisms do that, and they stack:

1. **Band shaping** decides which hues count as “red” for the purposes of the red slider.
2. **Range Mask targeting** decides which brightness levels within those hues are eligible.
3. **Passes** let me bisect the image, treat each region on its own terms, and keep earlier work intact.

Used together, I end up building fairly sophisticated masks almost as a side effect of the colour work, and those masks can be saved back into PixInsight for other processes.

Stage 2: Band shaping

Selecting a band does not select a single hue. It selects an arc.

Open the **Select Band** context panel and the geometry is visible: the wheel shows the chosen hue at the centre with an arc of support either side. Two controls define that arc.

Control	What it does	Default seen in the video
Hue radius	Half width of the arc, in degrees either side of the selected hue	45 degrees
Feather	How the effect rolls off into neighbouring hues	0.75
Soften	Blurs the resulting mask by 1 to 5 pixels	Starless mode only

Radius controls **how much** of the wheel is in play. Feather controls **how hard the edge is**. Pull the feather down and a larger part of the arc gets full strength with a sharper transition at the edges. Push it up and the change bleeds smoothly into adjacent hues.

Left alone, that same shape is applied to every band. Change it and the change is local to the band I am on, so each band can carry its own definition.

Do not tune this blind

The important habit: switch **Preview** from the adjusted image to **Current Mask** before touching anything. The mask redraws live as radius and feather move, so I can see exactly which structures are being claimed and which are not.

In starless mode, **Soften** appears. One to five pixels of blur gives the mask the softened edge quality that any hand built PixInsight mask would normally get. It is withheld when stars are present because blurring across stellar structure does real damage.

Working order that has stuck: set the mask up first with Preview on Current Mask, confirm the coverage is what I actually meant, then switch back to the adjusted image and only then start moving sliders. Tuning the mask and the colour at the same time is how sessions go sideways.

Stage 3: Range Mask targeting

Band shaping still leaves the sliders global within that hue family. Bright cores and faint outer dust of the same colour move together. The Range Mask is what breaks that.

It constrains the change to a band of the **histogram**, so I can work on the faint version of a colour and leave the bright version untouched.

The pass prompt

Enabling the Range Mask when the current pass already has adjustments raises a prompt, and it matters:

- **Limit the current pass:** the constraint is applied retrospectively to the adjustments already made in this pass.
- **Start a new pass:** existing adjustments are left exactly as they are, and a fresh pass opens for the constrained work.

The second is usually what I want. The whole point of reaching for the Range Mask is that I liked the broad correction and now want to do something narrower on top of it.

Presets, then the probe

Presets for shadows, midtones and highlights give a quick anchor, and the histogram shows the active region in gold with a feather

zone either side. They are a starting point, not an answer, because the useful range depends entirely on how the image was stretched.

The probe is the real tool. Click a pixel that represents the faint end I care about and a cyan line appears on the histogram at that value. Drag the **low** slider onto it. Click a pixel at the bright end of what I want included, and bring the **high** slider down to that second line. **Feather** then softens both edges.

That is the whole method: sample the image, do not guess the numbers.

Verify it

Preview offers **Range Mask** as its own view. Switching to it shows what the low, high and feather settings actually produced. In practice the first attempt is usually a touch too tight at the low end, and opening it up slightly picks up the faint material that was the reason for the exercise in the first place.

Stage 4: Adjusting under constraint

With both masks in place, the sliders only reach pixels that pass both tests. Hue, saturation and luminance all behave normally, they are just confined.

Two habits worth keeping:

- **Click and hold** to flip back to the unadjusted state. Colour drift is invisible while it happens and obvious in comparison.
- **Advanced sensitivity is demonstration friendly and dangerous.** The extra slider amplitude makes it trivially easy to go too far. Cosgrove pushes changes to absurd extremes in the video precisely so the mask behaviour is visible on camera, not as a recommendation.

Pushing a luminance slider hard is, however, a legitimate diagnostic. If I am unsure whether a mask is landing where I think, temporarily driving the change to an extreme makes the affected region unmistakable, then I back it off to something sensible.

Stage 5: Passes

Passes exist because targeting invites segmentation. Once the image is being split by brightness, one set of controls is not enough. The pattern:

1. Build a Range Mask over the shadows, do the shadow work.
2. Start a new pass, build a different mask over the highlights, do that work.
3. Repeat as the image demands.

Each pass carries its own band definitions, its own Range Mask and its own slider positions. Passes can be created at any time with **New**, and deleted if a line of work turns out to be wrong.

The cost: each additional pass slows the tool a little during interactive work, and slows the final save considerably, because committing back into PixInsight means running the full resolution data through every pass in turn.

Getting masks out

Any mask being viewed in Preview can be saved back into the PixInsight environment. This is more useful than it first sounds. Building a mask through band shaping and Range Mask targeting with live visual feedback is often faster and more precise than assembling the equivalent by hand, and once it exists there is no reason to confine it to this tool. It can drive any other process or script.

Installation and version notes

Item	Position
PixInsight version	1.9.4 or newer, non negotiable. The script targets the new V8 JavaScript runtime
Platform	The vendor requires the 1.9.4 build matching the processor. The video calls out Apple Silicon / ARM64 specifically; Windows 1.9.4 is also tested
Repository	<code>https://cosgrovescosmos.github.io/astro-color-mixer-pixinsight/updates/</code>
Install sequence	Resources > Updates > Manage Repositories, Add, paste, accept, Check for Updates, then exit PixInsight so installation completes, then reopen
Menu location	Script > CosgrovesCosmos > Astro Color Mixer

Unsigned warning	Expected. No developer ID has been applied for yet during beta. Accept it
Cost	Free

Two failure modes worth knowing:

- **The repository URL returns 404 in a browser.** It is an update endpoint, not a web page. It only means anything pasted into Manage Repositories.
- **Files install but nothing appears in the Script menu.** The feature script index has not refreshed. Script > Feature Scripts > Add, select [PixInsight]/src/scripts/CosgrovesCosmos , then Script > Feature Scripts > Regenerate, then OK or Done.

Verification notes

Checked against the vendor documentation at cosgrovescosmos.com before filing.

Point	Status
Pass prompt wording	The video describes it as a yes or no question. The shipped interface labels the choices Limit Current Pass and Start New Pass . This guide uses the interface wording
Advanced mode requirement	Vendor documentation states that refinement passes and Range Mask targeting are Advanced mode features. The video does not make that dependency explicit
Install sequence	The vendor adds a step the video omits: exit PixInsight to complete installation
Platform requirement	The video says ARM64 specifically. The vendor position is 1.9.4 in the build matching your processor, Windows included. This guide follows the vendor
Script not appearing	Feature Scripts Add and Regenerate fix is vendor documented and not covered on video
Compact mode	v0.9.7.11-beta, released 21 June 2026, introduced a Compact layout for smaller screens. It postdates this video, so the panel may not match what is shown
Radius 45, feather 0.75	Video sourced defaults. Not stated in the vendor documentation, so treat as observed rather than specified
Open item	A later update video renames the Soften control. The starless only restriction is documented for the original Soften and is not addressed for the renamed control in the vendor material. Confirm in app before relying on it