



PHOTOEDITHELP

IMAGE ANALYST v3.16

USER GUIDE

Complete operating reference for diagnostics, Tonal Test, comparison and output.

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1. Purpose, safety and terminology

Image Analyst v3.16 is a read-only diagnostic and “what-if” utility. It evaluates JPEG, PNG and WebP images, displays screening overlays, and can temporarily test six tonal adjustments. It never writes changes back into the loaded source. The tested view is evidence for an editing decision, not a finished export.

- SOURCE: untouched preview pixels derived from the loaded image.
- TONAL TEST: a fresh redraw of the preview source through the six tonal parameters.
- DIAGNOSTICS: the visual overlay workspace.
- Assessment: numerical/plain-language findings computed from the current analysed buffer.
- Exit: a near-white or near-black luminance condition at the configured threshold.
- APPROXIMATION: a heuristic screen requiring visual confirmation.

2. Workspace anatomy

Area	Contents
Header	Background swatches, LOAD, ZEBRA, SOURCE, START OVER, SAVE, state indicator.
Left sidebar	Load metadata, COLOUR/B&W choice, DIAGNOSTICS/TONAL TEST tabs and controls.
Centre	Image viewport and curtain controller.
Right sidebar	Assessment, Histogram/Tone Bands/Markers/Technical dock, output controls.



Header controls

Control	Behavior
Black / middle grey / white	Changes only the judging surround.
LOAD [L]	Opens the validated image picker; L is the keyboard shortcut.
ZEBRA	Toggles the Zebra diagnostic; Z is the shortcut.
SOURCE	Momentary full untouched preview while held.
START OVER	Restores the embedded TEST CARD and session defaults.
SAVE [E]	Saves the PDF report; E is the shortcut.

3. Loading and analysis type

Normal picker routing is extension-led: .jpg/.jpeg, .png and .webp. Drag-and-drop can use image/jpeg, image/png or image/webp as a fallback when a usable extension is absent. Decode failure produces INVALID IMAGE and preserves the current source.

The native image is retained for SAVE SOURCE and native-resolution tone-map creation. Interactive display and analysis use an independent preview whose longest side is no greater than 1200 pixels.

COLOUR

Uses RGB channel information and Rec.601 luminance. It reports channel-boundary detail loss, highlight/shadow exits, possible banding, and bright edge distraction. The histogram shows red, green and blue distributions.

BLACK & WHITE

Emphasises luminance range and monochrome integrity. It checks tonal span, high/low-key population, residual channel spread, textureless mid-to-bright areas and highlight exits. The histogram shows luminance only.

4. DIAGNOSTICS controls

Control	Visible result	Important qualification
Marker Intensity	Blends non-exit marker colours over greyscale.	Exit markers remain full strength.
Sensitivity	Changes Fringe/Band thresholds.	Does not change pixels or core exit rules.
Colour Limit	Orange at any RGB channel equal to 0 or 255.	Channel-boundary screen, not ICC gamut proof.
Zebra	Magenta above L 252; lime below L 3.	Shows exits, not aesthetic error.
Fringe	Magenta/green around qualified contrast edges.	Heuristic chromatic-aberration screen.
Band	Yellow in smooth regions with small steps.	Compression and real structure may create false positives.
Rule of Thirds	Turquoise grid and four power points.	No Assessment finding is created.
Tone Map	Seven opaque luminance bands.	Useful for distribution, not photographic appearance.
Overall View	Combined main markers.	Overlapping rules use priority order.

5. Assessment and information dock

Assessment always follows the current analysed buffer: source at neutral, tested buffer after a tonal change. On TONAL TEST, the same computations continue while overlays are hidden, allowing clean visual judgment and live numerical evidence at the same time.

Dock tab	Meaning
Histogram	RGB in COLOUR; luminance in B&W; logarithmic vertical scaling.
Tone Bands	Seven fixed Rec.601 luminance intervals.
Markers	Colour key for overlay interpretation.
Technical	Native/preview pixel counts and analysis version.

Band	Luminance
No detail — black	0–12
Deep shadow	13–50
Shadow	51–101
Midtone	102–152
Highlight	153–203
Bright	204–241
No detail — white	242–255

6. TONAL TEST architecture

Each manual change and AUTO TEST result is rendered from canvasPristine into a separate tested preview buffer. No control processes the result of the previous redraw. This “fresh redraw” behavior prevents cumulative rounding and makes RESET TONAL exact at preview level.

CLEAN COMPARISON — While TONAL TEST is selected, diagnostic overlays, marker colours, Tone Map and Rule-of-Thirds graphics are not painted over the viewport. Their underlying diagnostic calculations and Assessment updates continue. Returning to DIAGNOSTICS immediately restores the selected overlay.

7. Manual tonal controls

Control	Displayed range	Processing role	Use cautiously when
Exposure	-1.00 to +1.00 display from internal -100...100	Power/gamma-style global brightness stage.	A small correction fixes one exit but creates the opposite exit.
Highlights	-100...+100	High-luminance weighted offset.	Sky/skin becomes dull or compressed.
Shadows	-100...+100	Low-luminance weighted offset.	Noise or flat shadows become conspicuous.
Whites	-100...+100	Upper-end weighted endpoint adjustment.	Specular highlights should remain brilliant.
Blacks	-100...+100	Lower-end weighted endpoint adjustment.	Black depth is part of the intended look.
Contrast	-1.00 to +1.00 display from internal -100...100	Contrast about a 0.5 pivot before tonal offsets/exposure.	Added separation produces new exits or reduced contrast looks grey.

The Tonal Test summary compares source and tested highlight/shadow exits. Values remain visible after AUTO TEST, so the proposal can be evaluated and refined rather than accepted blindly.

8. AUTO TEST and RESET TONAL

AUTO TEST searches a deliberately restricted grid of tonal candidates. It favours fewer highlight/shadow exits and useful tonal spread while penalising large parameter movement. It is a recoverability experiment, not an auto-enhance command.

Good outcome	Interpretation
Exits fall substantially; appearance remains natural	Detail is probably recoverable with moderate tonal work.
Numbers improve but picture looks worse	Reject or reduce the proposal; aesthetics override the score.
Little change at permitted settings	The preview may contain genuinely unrecoverable or deliberately clipped regions.
Already balanced source stays near neutral	Expected conservative behavior.

RESET TONAL sets all six parameters to zero in one action, rebuilds the preview, recalculates Assessment, and deliberately leaves the curtain position unchanged.

9. Curtain and SOURCE

The curtain value is the divider position, not the percentage of TEST. Moving the thumb right moves the divider right. SOURCE is always left and TONAL TEST right.

Value	Source share	Test share
0%	0%	100%
25%	25%	75%
50%	50%	50%
75%	75%	25%
100%	100%	0%

The readout uses CURTAIN n% wording. The position persists across manual adjustment, AUTO TEST and RESET TONAL, and resets to 50% only when a new image is loaded. Holding SOURCE temporarily replaces the entire viewport with the untouched preview and then restores the comparison on release.

10. Saving

Output	Content	Tonal Test relationship
Tone map JPEG	Seven-band map generated at native dimensions from native pristine pixels.	Remains a source diagnostic output, not a rendered tonal edit.
Source	Original validated uploaded Blob, or default card PNG recreation.	Always untouched.
PDF report	Latest findings, histogram and tone-map representations.	Assessment reflects the current analysed state at save time.

11. Recommended workflows

Highlight recovery

1. Inspect Zebra on DIAGNOSTICS.
2. Open TONAL TEST and lower Highlights or Whites.
3. Compare exits and photographic texture with the curtain.
4. Return to DIAGNOSTICS to confirm the marker change.

Shadow recovery

5. Check lime Zebra regions.
6. Raise Shadows first; use Blacks only for endpoint behavior.
7. Watch for noise/flatness visually.
8. Treat a numerical reduction as useful only if the picture still works.

Already balanced image

Run AUTO TEST as a sanity check only. A strong proposal on a technically sound source should be viewed skeptically; RESET TONAL is the correct outcome when the source already serves the intended look.



12. Limitations and troubleshooting

Symptom	Likely explanation / response
Orange or marker colours visible	You are on DIAGNOSTICS. Select TONAL TEST for a clean comparison.
Two halves look identical	All tonal controls are neutral, or the adjustment has little visible effect in that region.
Curtain seems reversed	In v3.16 the value is divider position: 0% full TEST, 100% full SOURCE.
Assessment changes but overlay is absent	Expected on TONAL TEST; diagnostics continue numerically.
AUTO TEST appears too strong	Refine manually or RESET TONAL; it optimises diagnostic criteria, not taste.
Large file feels slow	Native pixels are retained in memory; interactive analysis remains preview-bounded.
Saved report punctuation	The local PDF writer normalises text and uses WinAnsi Helvetica.

- No ICC profile conversion or true output-gamut simulation.
- No local masks, layers, curves, LUTs, presets or finished-image export.
- Preview-level analysis can differ from native-pixel inspection of fine detail.
- Heuristic screens can create false positives and false negatives.
- Browser decoding determines support within the allowed JPEG/PNG/WebP routes.